

790 – 6000 MHz Base Station Antennas for Mobile Communications

catalogue 2007

INTEGRATION



KATHREIN

Antennen · Electronic

Photo on title page: Integration of active components in one antenna radome.

Catalogue Issue 01/2007

All data published in previous catalog issues hereby becomes invalid.

We reserve the right to make alterations in accordance with the requirements of our customers, therefore for binding datas please check valid datasheets!

Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4, which include the static mechanical load imposed on an antenna by wind at maximum velocity.

Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna or even cause it to fall to the ground.

These facts must be considered during the site planning process.

The details given in our data sheets have to be followed carefully when installing the antennas and accessories.

In addition, please use our information brochure about mounting configurations.

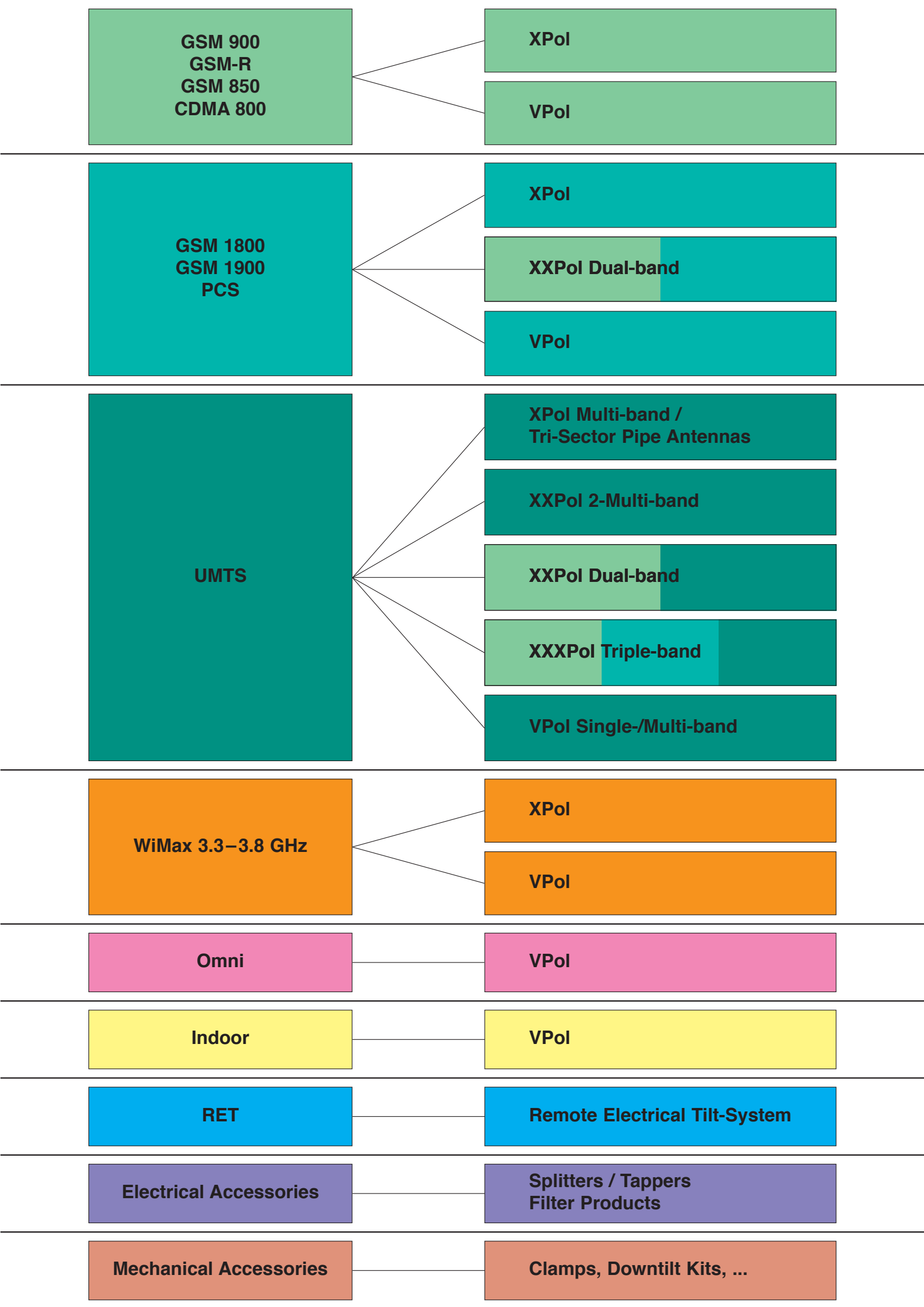
The installation team must be properly qualified and also be familiar with the relevant national safety regulations.



“Quality leads the way”

As the world's oldest and largest antenna manufacturer, we live up to claim “Quality leads the way” on a daily basis. One of the fundamental principles is to always be on the lookout for the best solution for our customers.

Our quality assurance system and our environmental management system apply to the entire company and are certified by TÜV according to EN ISO 9001 and EN ISO 14001.



A current list of Kathrein's International Representatives can be found on our homepage

www.kathrein.de

The same list can also be found on the back of our catalogue.

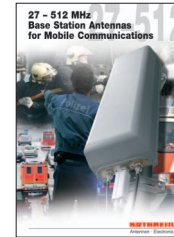
List of available Catalogues for Mobile Communication Antennas and Accessories

KATHREIN
Antennen · Electronic

**790 – 2500 MHz Base Station Antennas
for Mobile Communications**



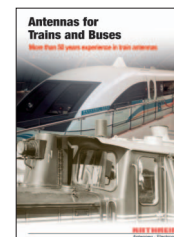
**27 – 512 MHz Base Station Antennas
for Mobile Communications**



Ground-to-Air Communication Antennas



Antennas for Trains and Buses



**790 – 2500 MHz Filters, Combiners,
Amplifiers for Mobile Communications**



**68 – 470 MHz Filters, Combiners,
Amplifiers for Mobile Communications**



**The listed catalogues
are also available on CD-ROM**



Summary of Types

KATHREIN

Antennen · Electronic

The articles are listed by type number in numerical order.

Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
730 ...		735 ...		738 449	159 ...	739 707	65
730 368	51	735 147	80	738 450	152 ...	739 710	65
730 376	54	735 727	48	738 454	179	739 785	163
730 378	56			738 546	228 ...	739 854	53
730 382	57	736 ...		738 908	241	739 927	60
730 677	51	736 347	157				
730 691	52	736 349	158	739 ...		741 ...	
		736 350	155	739 489	89	741 316	68
731 ...		736 854	55	739 490	61	741 320	69
731 651	228	736 801	210 ...	739 491	61	741 322	72
		736 802	210 ...	739 494	62	741 324	74
732 ...		736 803	210 ...	739 495	62	741 326	70
732 317	239	736 804	210 ...	739 496	63	741 327	73
732 318	239	736 805	210 ...	739 498	63	741 328	75
732 319	239			739 619	17	741 336	76
732 321	239	737 ...		739 620	17	741 344	77
732 322	239	737 190	165	739 622	19	741 573	173
732 327	239	737 303	211	739 623	27	741 622	31
732 689	54	737 304	211	739 624	33	741 623	60
732 691	52	737 305	211	739 630	33	741 717	14
		737 306	211	739 632	19	741 785	15
733 ...		737 307	211	739 633	23	741 790	167
733 677	228 ...	737 308	211	739 634	29	741 984	102
733 678	228 ...	737 398	242	739 636	35	741 987	104
733 679	228 ...	737 547	53	739 637	35	741 988	103
733 680	228 ...	737 971	232	739 648	37	741 989	105
733 695	49 ...	737 972	231 ...	739 649	41	741 990	106
733 736	49 ...	737 973	231 ...	739 650	43		
		737 974	231 ...	739 655	40	742 ...	
734 ...		737 975	231 ...	739 658	38	742 033	229
734 304	80	737 976	232	739 660	41	742 034	229
734 318	81	737 978	231 ...	739 662	45	742 035	229
734 330	81			739 664	39	742 036	229
734 360	236	738 ...		739 665	42	742 047	78
734 361	236	738 187	164	739 666	46	742 113	238
734 362	236	738 192	156	739 684	24	742 151	71
734 363	236	738 440	244	739 685	32	742 186	101
734 364	236	738 445	139	739 686	36	742 192	140
734 365	236	738 446	139 ...	739 695	64	742 196	93

Summary of Types

KATHREIN

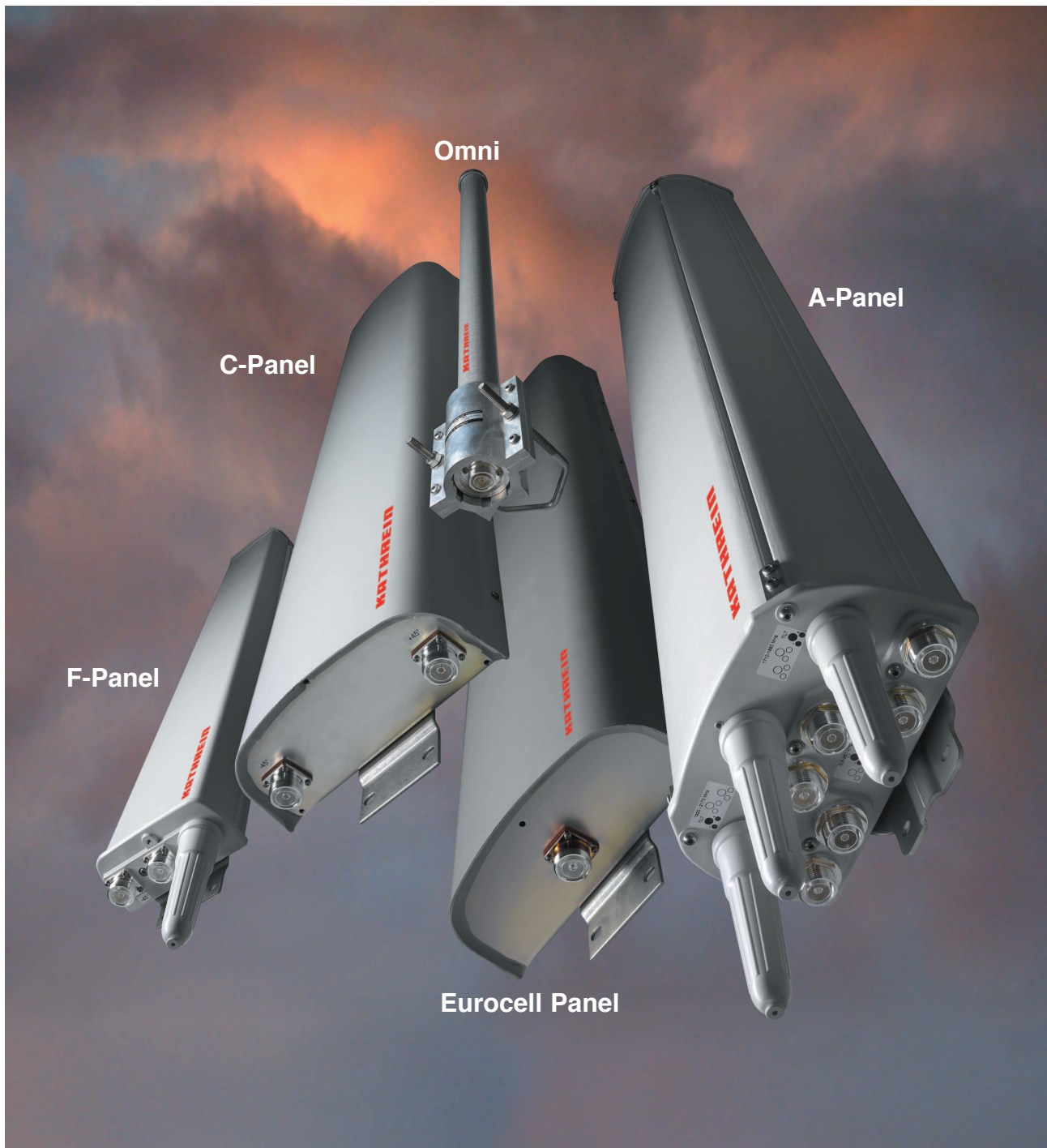
Antennen · Electronic

The articles are listed by type number in numerical order.

Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
742 210	88	782 10456	205	800 10426	99	860 10084	199
742 211	91			800 10428	94	860 10090	199
742 213	100	800 ...		800 10431	166	860 10113	196
742 215	95	800 10046	143	800 10436	147	860 10118	192
742 218	86	800 10111	162	800 10457	150		
742 219	87	800 10121	128	800 10465	171	K 61 ...	
742 222	121	800 10122	129			K 61 14 02	48
742 223	123	800 10123	130	850 ...		K 61 14 03	48 ...
742 224	125	800 10137	174	850 10002	228 ...	K 61 14 04	48 ...
742 225	127	800 10141	14	850 10003	228 ...	K 61 14 05	48 ...
742 226	120	800 10147	160 ...	850 10005	190 ...	K 61 33 5	243
742 233	114	800 10173	175	850 10006	230	K 61 33 6	243
742 234	115	800 10202	18	850 10007	233		
742 235	117	800 10203	26	850 10010	111	K 63 ...	
742 236	116	800 10204	34	850 10012	112	K 63 20 62 1	210
742 241	135	800 10207	20	850 10014	240	K 63 20 62 7	210
742 263	237	800 10213	44	850 10015	240	K 63 23 60 01	215
742 264	122	800 10247	92	850 10016	240	K 63 23 60 67	214
742 265	124	800 10248	172	850 10017	240	K 63 23 61 07	214
742 266	126	800 10249	176			K 63 23 61 57	214
742 270	132	800 10251	84	860 ...			
742 271	133	800 10270	109	860 10002	200	K 73 ...	
742 272	134	800 10271	110	860 10006	193	K 73 22 67	50
742 290	142	800 10274	161	860 10007	198	K 73 45 64 7	49
742 351	85	800 10292	136	860 10017	212		
742 352	118	800 10293	28	860 10018	212	K 75 ...	
742 445	141	800 10294	30	860 10019	212	K 75 11 61	153
		800 10302	16	860 10020	213	K 75 15 64 1	154
782 ...		800 10303	25	860 10021	213		
782 10147	203	800 10304	22	860 10022	213		
782 10148	204	800 10305	21	860 10023	215		
782 10253	205	800 10314	96	860 10025	191		
782 10254	205	800 10360	108	860 10026	193		
782 10255	205	800 10368	138	860 10030	201		
782 10256	205	800 10375	107	860 10031	202		
782 10429	206	800 10390	146	860 10046	197		
782 10453	205	800 10414	97	860 10068	194		
782 10454	205	800 10424	90	860 10078	199		
782 10455	205	800 10425	98	860 10079	199		

Antenna Designs:
Antenna Families
Harmony of Design and Technology

KATHREIN
Antennen · Electronic



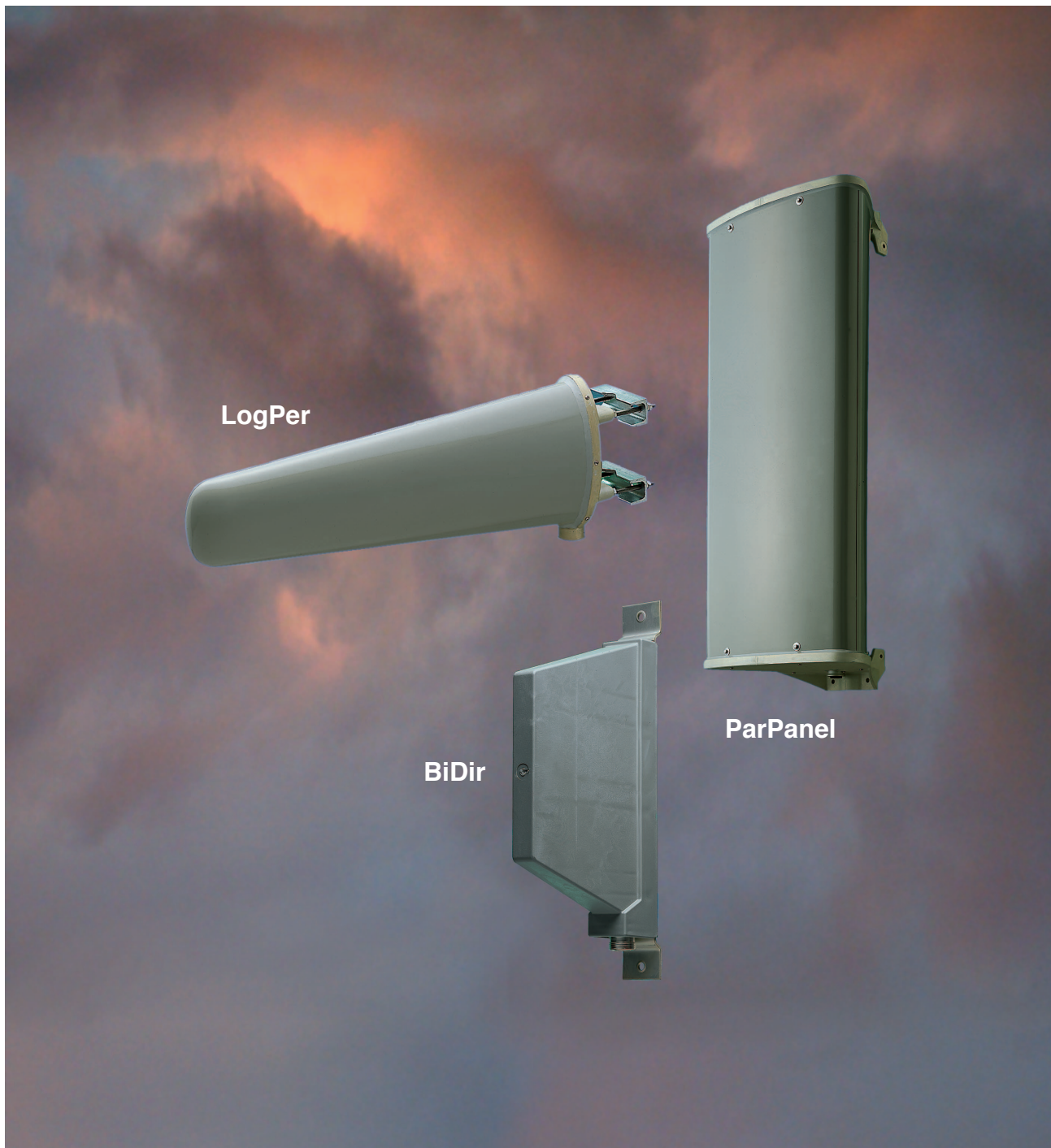
Directional Antenna Designs: Special Directional Antennas For Particular Applications

Antennas for

- tunnel use
- railway use
- micro cells (street use)
- high gain link for repeaters

The distinguishing features of these special versions, e.g. parabolic panels or log. periodic antennas, are:

- very small half-power beam width (high gain)
- high sidelobe suppression
- also Dual-band and Multi-band versions
- bidirectional horizontal pattern.



Antenna Designs:

Antenna Families / RET-system

Distinguishing features

Design	Compact size and elegant design are the distinguishing features of Kathrein's antenna families.
Radome	The radomes cover the internal antenna components. The fiberglass material guarantees optimum performance with regards to stability, strength, UV resistance, painting and weather protection.
Environmental influences	Kathrein antenna designs are based on fundamental engineering knowledge and also on our decades of practical experience, during which the various constructions and materials used have proved their outstanding reliability.
Environmental conditions	Kathrein cellular antennas are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E. The antennas exceed this standard with regards to the following items: – Low temperature: –55 °C – High temperature (dry): +60 °C
Great variety of half-power beam width, gain values, electrical downtilt	According to the antenna type selected, customer can choose from different half-power beam widths. Gain values up to 22.5 dBi and electrical downtilts up to 15° for panel antennas are available. Downtilts are either fixed or adjustable or even controlled by remote electrical tilt system (RET).
Low intermodulation products (typically –150 dBc)	After many years of experience in the construction of antennas and after intensive research into the effects of intermodulation, we have been able to optimize the material and technology used for antennas (the given value refers to 3rd order products measured with 2 carriers of 20 W each).
Multi-band design	Depending on antenna family broad-band, multi-band, dual-band and triple-band versions can be offered. Therefore the variety of antennas used can be kept to a minimum.
Excellent grounding	The antennas are DC grounded according EN 50083-1.
Multi-functional installation hardware	Depending on the type, the antennas are equipped with up to 3 attachment points. Panels can be wall-mounted without any additional hardware. For mast-mounting, stainless steel brackets and mechanical downtilt kits are available. To assist the installation technicians in aligning the panels, an azimuth adjustment tool can be supplied (see Mechanical Accessories).
MTBF Statement	Traditionally passive components like antennas cannot be well calculated due to the lack of a sufficient number of components in the MTBF library. Unfortunately this constraint results in a very inaccurate calculation. Thus such results are technically questionable and unrealistic. In essence, antennas are made out of mechanical parts that do not show any failure rates. Only available failure rates can be calculated into an MTBF value. Consequently such components cannot be listed in any MTBF library.
Remote Electrical Tilt System AISG Compliancy	Kathrein hereby states that RET devices, as far as the functionality and features are described within the AISG / 3 GPP standard, are compliant with the standard.

Downtilting of Antennas:

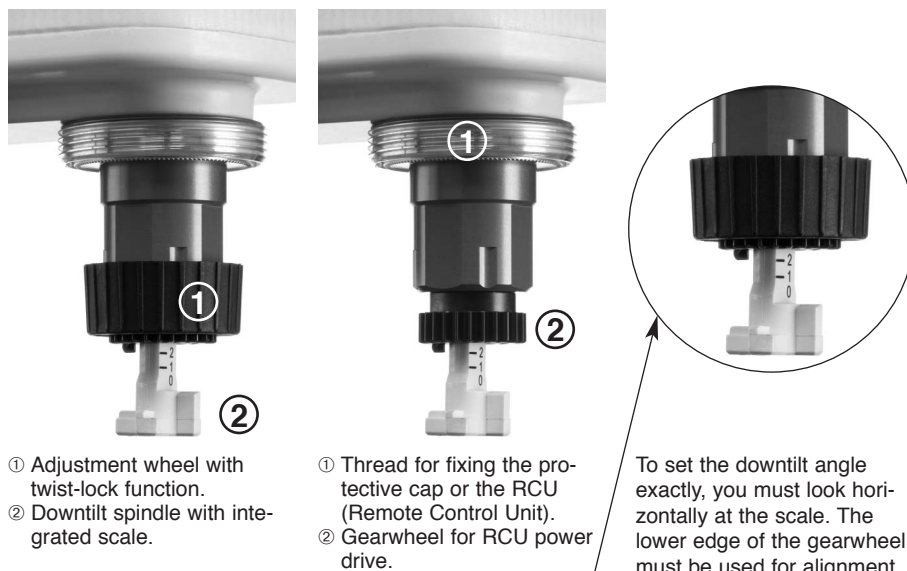
Downtilt Possibilities

Mechanical downtilt

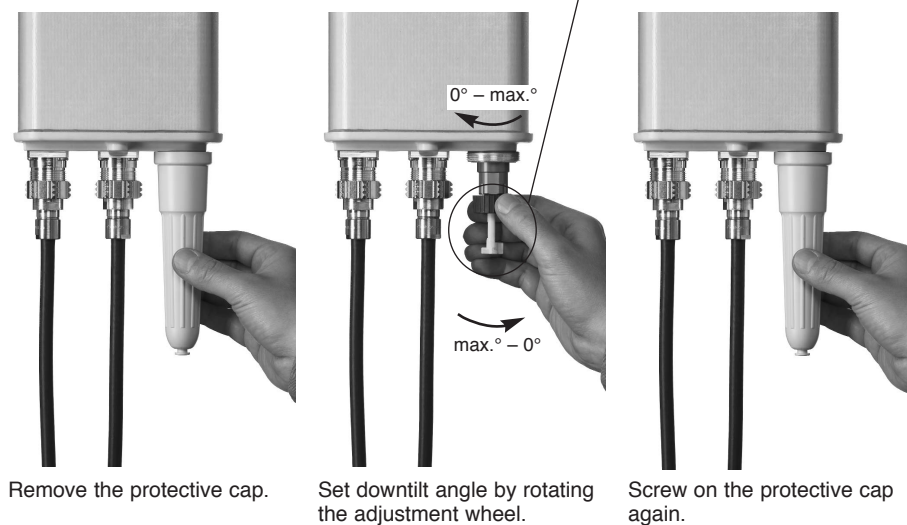
For further technical information please see “Mechanical Accessories”, pages 231 and 239.

Electrical downtilt

Description of the adjustment mechanism (protective cap removed):



Manual adjustment procedure:



For antennas without RET, the interface looks different. In this case you just have to rotate the adjustment wheel in order to set the downtilt.



Remote Electrical Tilt (RET)

For further technical information please see “RET”, page 182...

XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

Polarization(s):	
(X) Dual +45°/–45°	
(V) Vertical	
Antenna Family	
Frequency Range(s)	
Integrated Combiner	
Horizontal	
Half-power Beam Width(s)	
Gain Value(s)	
Variable / Fixed Electrical Tilt(s)	

Summary – Directional Antennas

Dual Polarization +45°/–45°

GSM 900 / GSM-R / GSM 850 / CDMA 800

KATHREIN

Antennen · Electronic

Dual Polarization +45°/–45°

Type				Type No.	Height [mm]	Connector position	Page
XPol A-Panel	870–960	30°	15.5dBi	741 717	656	bottom	14
XPol A-Panel	806–960	30°	18.5dBi	800 10141	1296	bottom	14
XPol A-Panel	870–960	30°	21dBi	741 785	2580	bottom	15
XPol C-Panel	806–960	33°	21dBi	800 10302	2254	rearside	16
XPol A-Panel	806–960	65°	9dBi	739 619	256	bottom or top	17
XPol A-Panel	806–960	65°	12.5dBi	739 620	656	bottom or top	17
XPol C-Panel	806–960	65°	15.5dBi	800 10202	1294	bottom	18
XPol A-Panel	806–960	65°	15.5dBi	739 622	1296	bottom or top	19
XPol A-Panel	806–960	65°	15dBi	6°T 739 632	1296	bottom	19
XPol C-Panel	806–960	65°	15dBi	6°T 800 10207	1294	bottom	20
XPol C-Panel	806–960	65°	17.5dBi	0°–8°T 800 10305	2254	rearside	21
XPol C-Panel	806–960	65°	16.3dBi	0°–10°T 800 10304	1694	rearside	22
XPol A-Panel	806–960	65°	15dBi	12°T 739 633	1296	bottom	23
XPol A-Panel	806–960	65°	15dBi	0°–14°T 739 684	1296	bottom	24
XPol C-Panel	806–960	65°	15dBi	0°–14°T 800 10303	1294	rearside	25
XPol C-Panel	806–960	65°	17dBi	800 10203	1934	rearside	26
XPol A-Panel	806–960	65°	17dBi	739 623	1936	bottom or top	27
XPol C-Panel	806–960	65°	17dBi	3°T 800 10293	1934	rearside	28
XPol A-Panel	806–960	65°	17dBi	6°T 739 634	1936	bottom	29
XPol C-Panel	806–960	65°	17dBi	6°T 800 10294	1934	rearside	30
XPol A-Panel	824–960	65°	17dBi	9°T 741 622	1936	bottom	31
XPol A-Panel	824–960	65°	16.5dBi	0°–10°T 739 685	1996	bottom	32
XPol A-Panel	870–960	65°	18dBi	739 630	2580	bottom or top	33
XPol A-Panel	806–960	65°	18dBi	739 624	2580	bottom or top	33
XPol C-Panel	806–960	65°	18dBi	800 10204	2254	rearside	34
XPol A-Panel	806–960	65°	18dBi	6°T 739 636	2580	bottom	35
XPol A-Panel	806–960	65°	18dBi	9°T 739 637	2580	bottom	35
XPol A-Panel	806–960	65°	17.5dBi	0°–7°T 739 686	2580	bottom	36
XPol A-Panel	806–960	88°	13.5dBi	739 648	1296	bottom or top	37
XPol A-Panel	806–960	88°	14dBi	6°T 739 658	1296	bottom	38
XPol A-Panel	824–960	88°	13.5dBi	0°–14°T 739 664	1296	bottom	39
XPol A-Panel	870–960	90°	15.5dBi	739 655	1936	bottom or top	40
XPol A-Panel	806–960	88°	15.5dBi	739 649	1936	bottom or top	41
XPol A-Panel	806–960	88°	15.5dBi	6°T 739 660	1936	bottom	41
XPol A-Panel	806–960	88°	15dBi	0°–10°T 739 665	1996	bottom	42
XPol A-Panel	806–960	88°	17dBi	739 650	2580	bottom or top	43
XPol C-Panel	806–960	88°	17dBi	800 10213	2254	rearside	44
XPol A-Panel	806–960	88°	17dBi	6°T 739 662	2580	bottom	45
XPol A-Panel	806–960	88°	16dBi	0°–7°T 739 666	2580	bottom	46

A-Panel

Dual Polarization

Half-power Beam Width

800/900

X

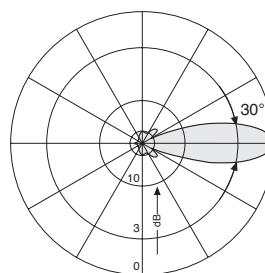
30°

KATHREIN

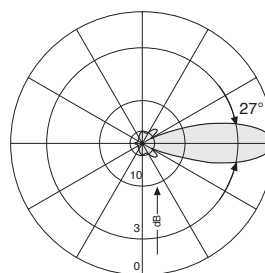
Antennen · Electronic

XPoI A-Panel 870–960 30° 15.5dBi

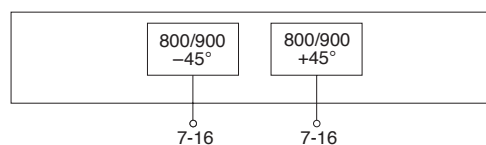
Type No.	741 717
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	500 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	13 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 60 N / 470 N
Max. wind velocity	200 km/h
Height/width/depth	656 / 560 / 116 mm



Horizontal Pattern

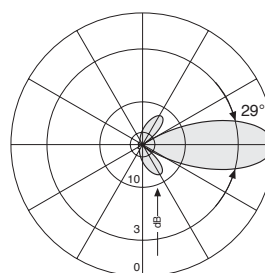


Vertical Pattern

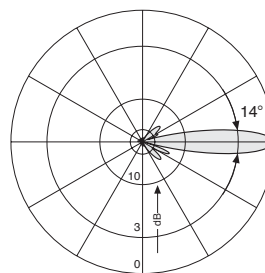


XPoI A-Panel 806–960 30° 18.5dBi

Type No.	800 10141	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 31° Vertical: 15°	Horizontal: 29° Vertical: 14°
Front-to-back ratio, copolar	> 25 dB	> 29 dB
Isolation	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	22 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 680 N / 130 N / 970 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 560 / 116 mm	



Horizontal Pattern



Vertical Pattern



A-Panel

Dual Polarization

Half-power Beam Width

870–960

X

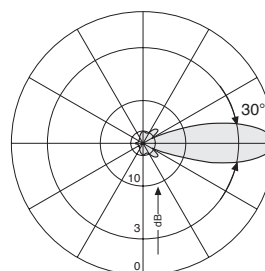
30°

KATHREIN

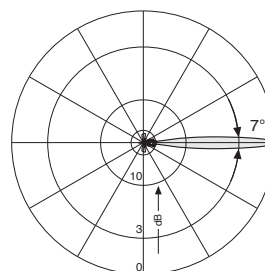
Antennen · Electronic

XPoI A-Panel 870–960 30° 21dBi

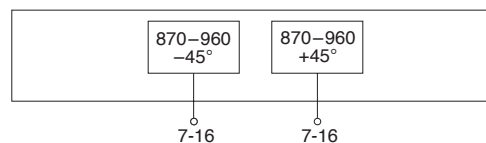
Type No.	741 785
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 21 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 7°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	40 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 1460 N / 280 N / 2090 N
Max. wind velocity	200 km/h
Height/width/depth	2580 / 560 / 116 mm



Horizontal Pattern



Vertical Pattern



Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

33°

0°

KATHREIN

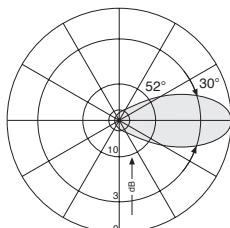
Antennen · Electronic

XPol C-Panel 806–960 33° 21dBi 0°T

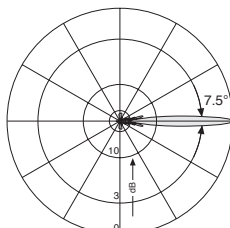
Type No.	800 10302		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.4 dBi	2 x 20.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 34° Vertical: 8.5°	Horizontal: 33° Vertical: 8.2°	Horizontal: 30° Vertical: 7.5°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 15 dB > 15 dB	> 15 dB > 15 dB	> 15 dB > 15 dB
Front-to-back ratio, copolar	> 24 dB	> 24 dB	> 24 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Crosspolar ratio Maindirection 0°	> 25 dB	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		



880 – 960 MHz: +45°/–45° Polarization

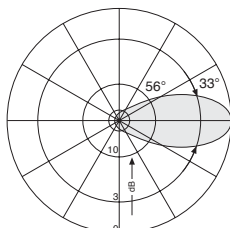


Horizontal Pattern

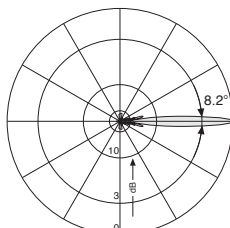


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

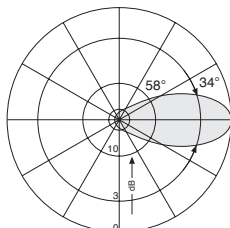


Horizontal Pattern

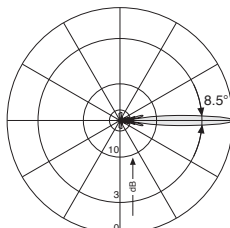


Vertical Pattern

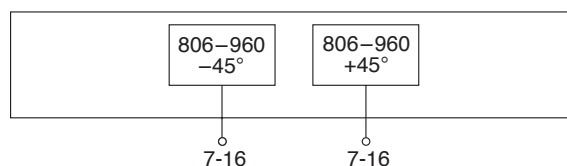
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Weight	30 kg
Wind load	Frontal: 1275 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 1750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2416 x 564 x 204 mm
Height/width/depth	2254 / 527 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

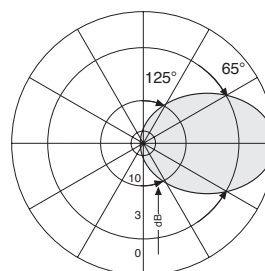
65°

KATHREIN

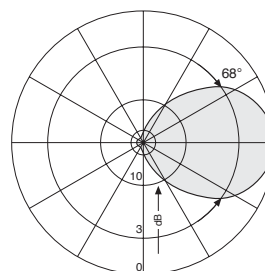
Antennen · Electronic

XPol A-Panel 806–960 65° 9dBi

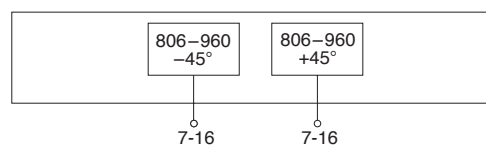
Type No.	739 619	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 70°	Horizontal: 65° Vertical: 68°
Front-to-back ratio, copolar	> 27 dB	> 27 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	350 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	3 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 40 N / 25 N / 90 N	
Max. wind velocity	200 km/h	
Height/width/depth	256 / 262 / 116 mm	



Horizontal Pattern

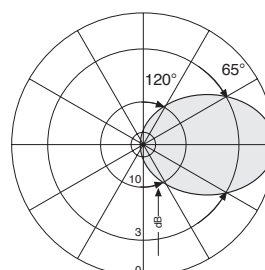


Vertical Pattern

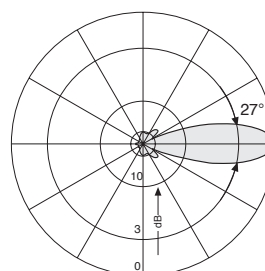


XPol A-Panel 806–960 65° 12.5dBi

Type No.	739 620	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 12 dBi	2 x 12.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 29°	Horizontal: 65° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	6 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 110 N / 60 N / 240 N	
Max. wind velocity	200 km/h	
Height/width/depth	656 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern



Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

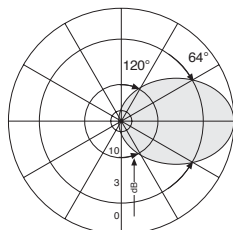
0°

KATHREIN

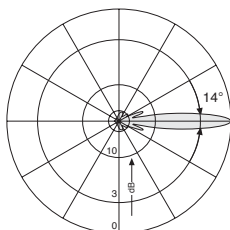
Antennen · Electronic

XPol C-Panel 806–960 65° 15.5dBi 0°T

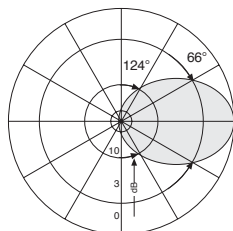
Type No.	800 10202		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 15.5°	Horizontal: 66° Vertical: 14.8°	Horizontal: 64° Vertical: 14°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 15 dB > 15 dB	> 15 dB > 15 dB	> 14 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Crosspolar ratio			
Maindirection 0°	> 20 dB	> 20 dB	> 20 dB
Sector ±30°	> 19 dB	> 19 dB	> 20 dB
Sector ±60°	> 11 dB	> 11 dB	> 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

**880 – 960 MHz: +45°/–45° Polarization**

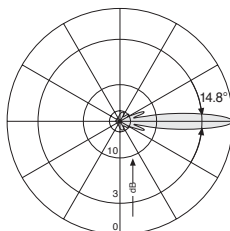
Horizontal Pattern



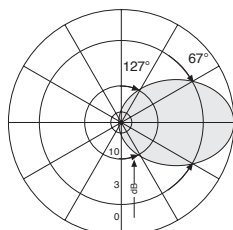
Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

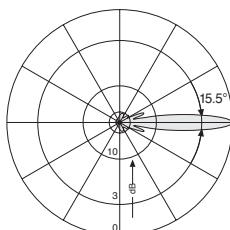
Horizontal Pattern



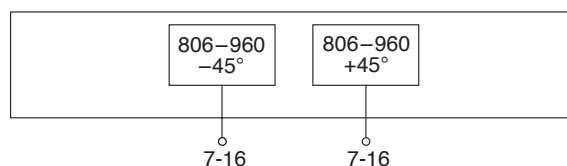
Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization

Horizontal Pattern



Vertical Pattern

**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Bottom
Weight	7.5 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1436 x 292 x 138 mm
Height/width/depth	1294 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

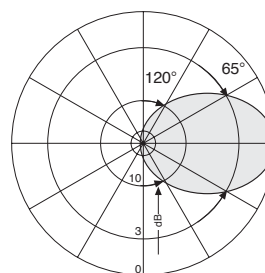
65°

KATHREIN

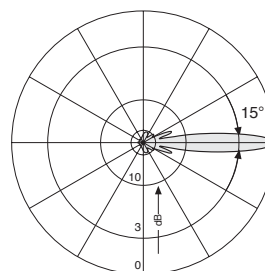
Antennen · Electronic

XPol A-Panel 806–960 65° 15.5dBi

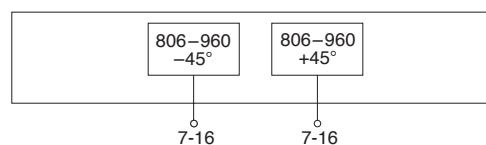
Type No.	739 622	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 15°
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.4	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern

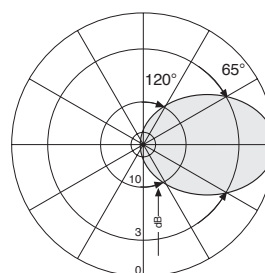


Vertical Pattern

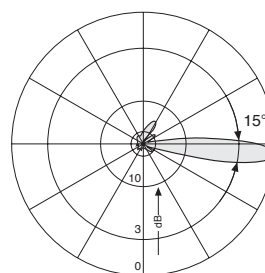


XPol A-Panel 806–960 65° 15dBi 6°T

Type No.	739 632	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 15°
Electrical tilt	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 28 dB	> 30 dB
Isolation	> 30 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
6° electrical downtilt

Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

6°

KATHREIN

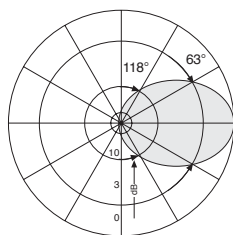
Antennen · Electronic

XPoI C-Panel 806–960 65° 15dBi 6°T

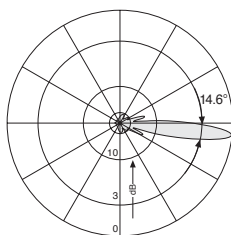
Type No.	800 10207		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 14.7 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 16°	Horizontal: 65° Vertical: 15.7°	Horizontal: 63° Vertical: 14.6°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 13 dB > 13 dB	> 14 dB > 14 dB	> 16 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: > 20 dB Typically: > 10 dB	Typically: > 20 dB Typically: > 10 dB	Typically: > 20 dB Typically: > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.3	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		



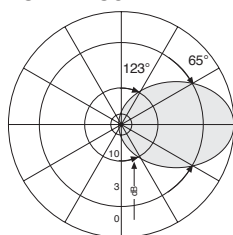
880 – 960 MHz: +45°/–45° Polarization



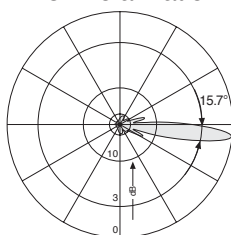
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

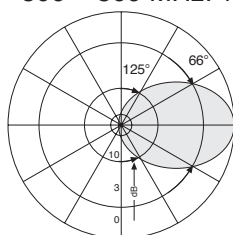
824 – 894 MHz: +45°/–45° Polarization



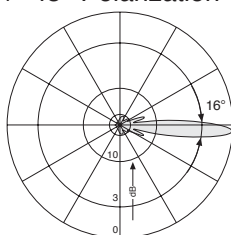
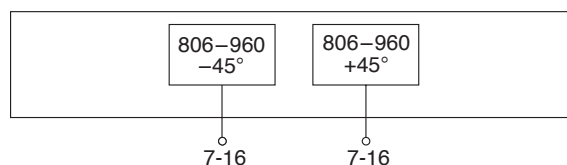
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
6° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Bottom
Weight	7.5 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1436 x 292 x 138 mm
Height/width/depth	1294 / 259 / 99 mm

Compact Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

806–960

X

65°

0°–8°

KATHREIN

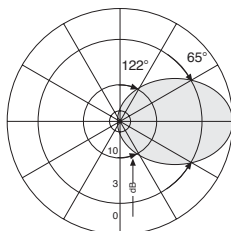
Antennen · Electronic

set by hand or by optional RCU (Remote Control Unit)

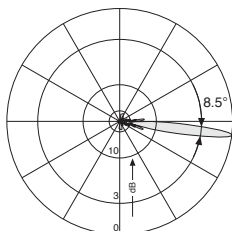
XPol C-Panel 806–960 65° 17.5dBi 0°–8°T

Type No.	800 10305		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	16.8 ... 17 ... 16.7	16.9 ... 17.1 ... 16.9	17.2 ... 17.4 ... 17.1
Tilt	0° ... 4° ... 8°	0° ... 4° ... 8°	0° ... 4° ... 8°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 9.1°	Horizontal: 67° Vertical: 8.8°	Horizontal: 65° Vertical: 8.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 8° T 17 ... 16 ... 15 ... 14 dB	0° ... 2° ... 4° ... 8° T 17 ... 16 ... 15 ... 14 dB	0° ... 2° ... 4° ... 8° T 20 ... 18 ... 17 ... 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio			
Maindirection	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Sector	Typically: > 10 dB	Typically: > 10 dB	Typically: > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

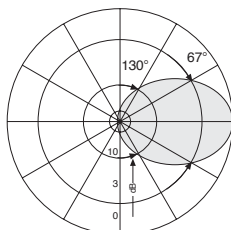
880 – 960 MHz: +45°/–45° Polarization



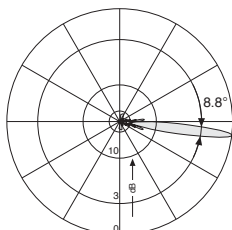
Horizontal Pattern

Vertical Pattern
0°–8° electrical downtilt

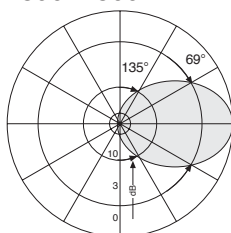
824 – 894 MHz: +45°/–45° Polarization



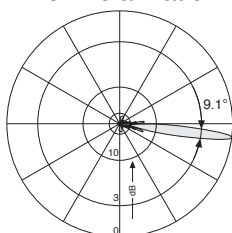
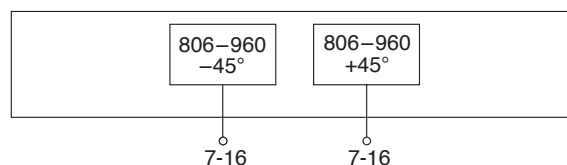
Horizontal Pattern

Vertical Pattern
0°–8° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
0°–8° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	16 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2536 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

Compact Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

XPoI C-Panel 806–960 65° 16.3dBi 0°–10°T

806–960

X

65°

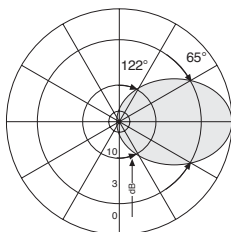
0°–10°

KATHREIN

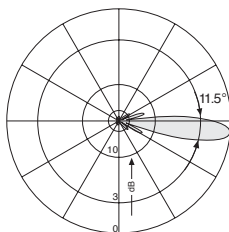
Antennen · Electronic

Type No.	800 10304		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	15.6 ... 15.8 ... 15.5	15.7 ... 16.1 ... 15.7	16 ... 16.3 ... 15.9
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 12.5°	Horizontal: 67° Vertical: 12°	Horizontal: 65° Vertical: 11.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 3° ... 6° ... 10°T 15 ... 14 ... 12 ... 12 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio			
Main direction	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Sector	> 10 dB	> 10 dB	> 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

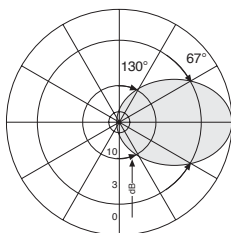


Horizontal Pattern

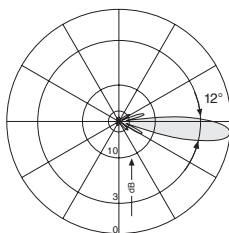


Vertical Pattern
0°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

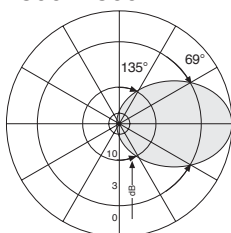


Horizontal Pattern

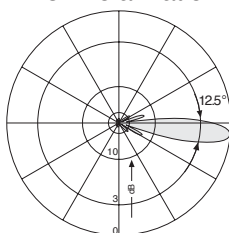


Vertical Pattern
0°–10° electrical downtilt

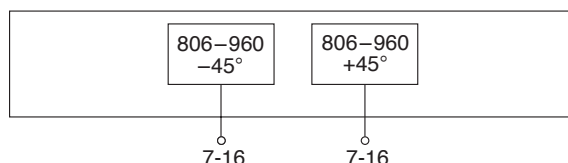
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	13 kg
Wind load	Frontal: 300 N (at 150 km/h) Lateral: 195 N (at 150 km/h) Rearside: 660 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1976 x 292 x 192 mm
Height/width/depth	1694 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

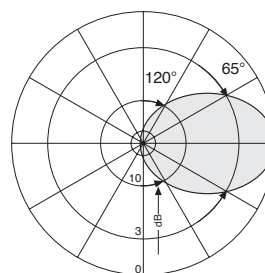
65°

KATHREIN

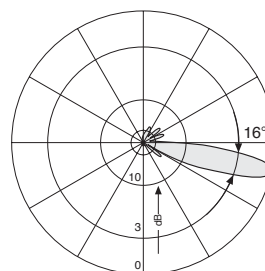
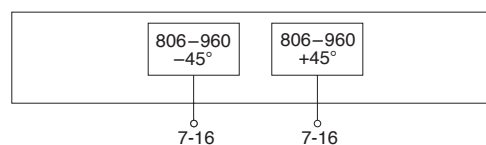
Antennen · Electronic

XPol A-Panel 806–960 65° 15dBi 12°T

Type No.	739 633	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 17°	Horizontal: 65° Vertical: 16°
Electrical tilt	12°, fixed	12°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 28 dB	> 30 dB
Isolation	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	8 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
12° electrical downtilt

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

X

65°

0°–14°

KATHREIN

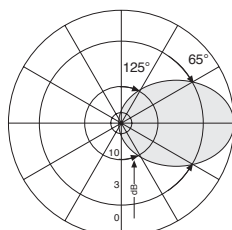
Antennen · Electronic

XPoI A-Panel 806–960 65° 15dBi 0°–14°T

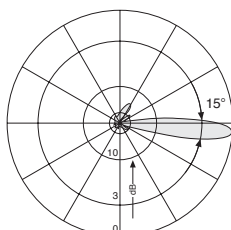
Type No.	739 684		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	14.5 dBi	14.7 dBi	15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 16°	Horizontal: 68° Vertical: 15.5°	Horizontal: 65° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–14°
Vertical Pattern – sidelobe suppression for sector 0°–30° above main beam	14 dB	15 dB	15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		



880 – 960 MHz: +45°/–45° Polarization

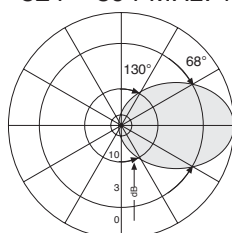


Horizontal Pattern

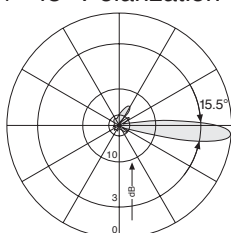


Vertical Pattern
0°–14° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

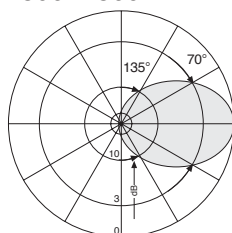


Horizontal Pattern

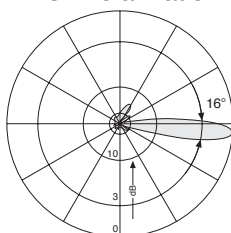


Vertical Pattern
0°–14° electrical downtilt

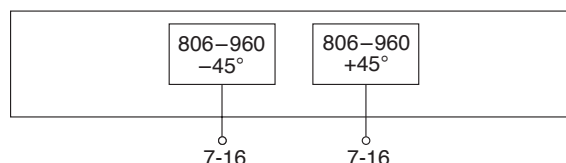
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1562 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Compact Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

X

65°

0°–14°

KATHREIN

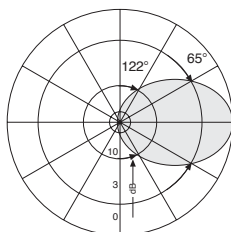
Antennen · Electronic

XPol C-Panel 806–960 65° 15dBi 0°–14°T

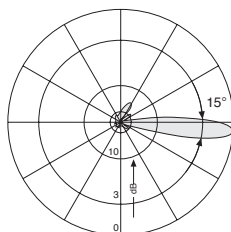
Type No.	800 10303		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	14.5 ... 14.5 ... 14.2	14.7 ... 14.7 ... 14.5	15 ... 15.1 ... 14.8
Tilt	0° ... 7° ... 14°	0° ... 7° ... 14°	0° ... 7° ... 14°
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 16°	Horizontal: 67° Vertical: 15.5°	Horizontal: 65° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–14°
Sidelobe suppression for first sidelobe above horizon	0° ... 7° ... 14° 14 ... 14 ... 13 dB	0° ... 7° ... 14° 15 ... 15 ... 14 dB	0° ... 7° ... 14° 15 ... 15 ... 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	0° Typically: 25 dB ±60° > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		



880 – 960 MHz: +45°/–45° Polarization

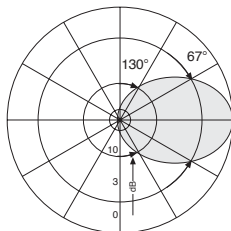


Horizontal Pattern

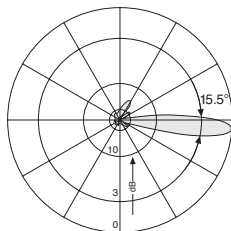


Vertical Pattern
0°–14° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

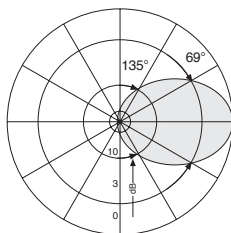


Horizontal Pattern

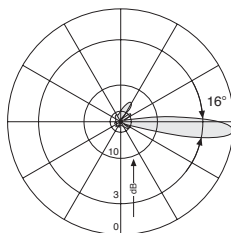


Vertical Pattern
0°–14° electrical downtilt

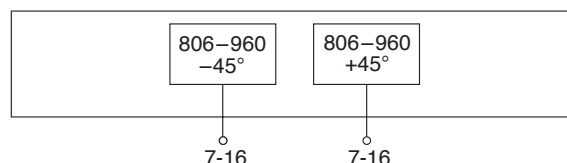
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1586 x 292 x 138 mm
Height/width/depth	1294 / 259 / 99 mm

Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

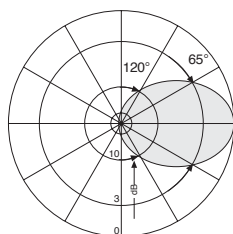
0°

KATHREIN

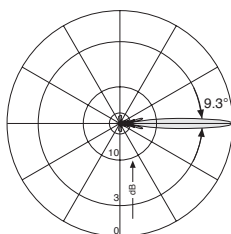
Antennen · Electronic

XPoI C-Panel 806–960 65° 17dBi 0°T

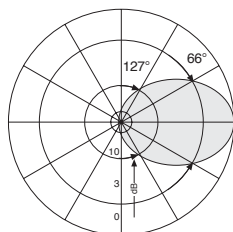
Type No.	800 10203		
Frequency range	806–960 806 – 866 MHz 824 – 894 MHz 880 – 960 MHz		
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 65° Vertical: 9.3°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 17 dB > 15 dB	> 17 dB > 15 dB	> 17 dB > 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio			
Maindirection 0°	> 20 dB	> 20 dB	> 20 dB
Sector ±30°	> 18 dB	> 18 dB	> 18 dB
Sector ±60°	> 12 dB	> 12 dB	> 12 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

**880 – 960 MHz: +45°/–45° Polarization**

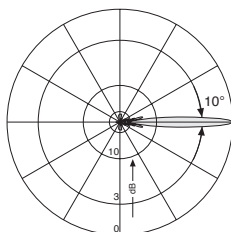
Horizontal Pattern



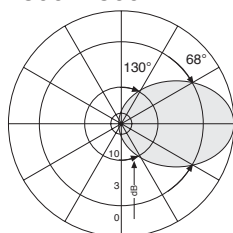
Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

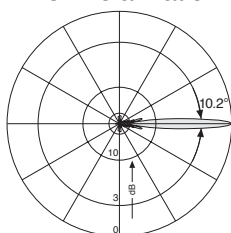
Horizontal Pattern



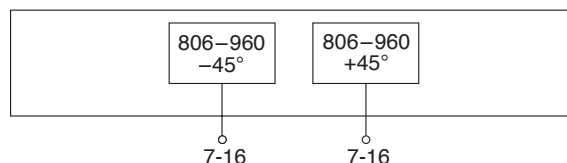
Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization

Horizontal Pattern



Vertical Pattern

**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

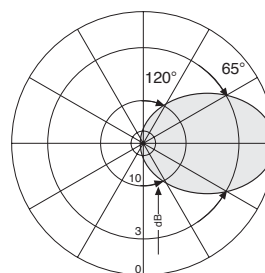
65°

KATHREIN

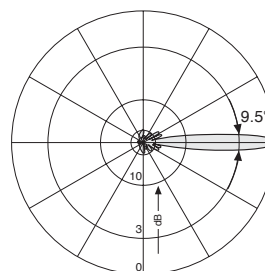
Antennen · Electronic

XPoI A-Panel 806–960 65° 17dBi

Type No.	739 623	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	

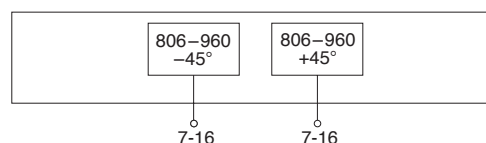


Horizontal Pattern



Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain



Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

3°

KATHREIN

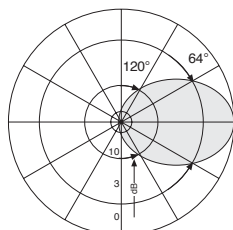
Antennen · Electronic

XPoI C-Panel 806–960 65° 17dBi 3°T

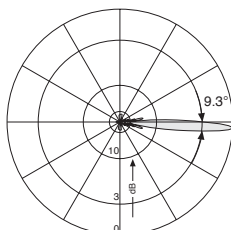
Type No.	800 10293		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 64° Vertical: 9.3°
Electrical tilt	3°, fixed	3°, fixed	3°, fixed
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 15 dB > 15 dB	> 15 dB > 15 dB	> 15 dB > 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio			
Maindirection 0°	> 20 dB	> 20 dB	> 20 dB
Sector ±30°	> 17 dB	> 17 dB	> 17 dB
Sector ±60°	> 10 dB	> 10 dB	> 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		



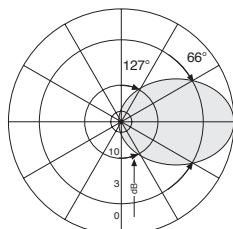
880 – 960 MHz: +45°/–45° Polarization



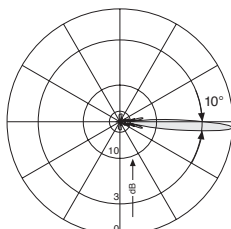
Horizontal Pattern

Vertical Pattern
3° electrical downtilt

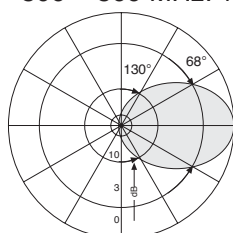
824 – 894 MHz: +45°/–45° Polarization



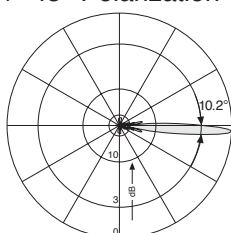
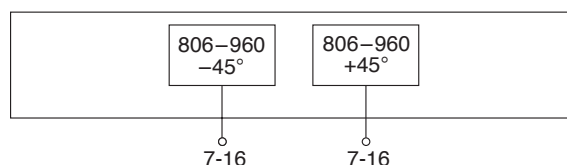
Horizontal Pattern

Vertical Pattern
3° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
3° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

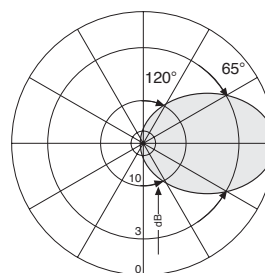
65°

KATHREIN

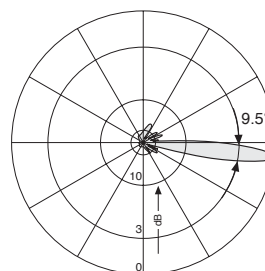
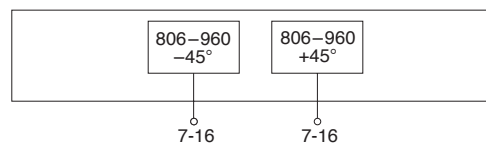
Antennen · Electronic

XPol A-Panel 806–960 65° 17dBi 6°T

Type No.	739 634	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 18 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 32 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	7-16 female	
Connector position	Bottom	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 350 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
6° electrical downtilt

Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

6°

KATHREIN

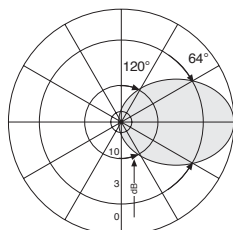
Antennen · Electronic

XPoI C-Panel 806–960 65° 17dBi 6°T

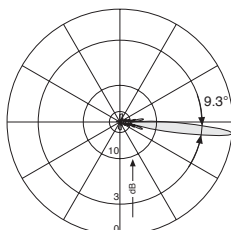
Type No.	800 10294		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 64° Vertical: 9.3°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 14 dB > 14 dB	> 15 dB > 14 dB	> 15 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typ. > 20 dB Typ. > 10 dB	Typ. > 20 dB Typ. > 10 dB	Typ. > 20 dB Typ. > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.4	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		



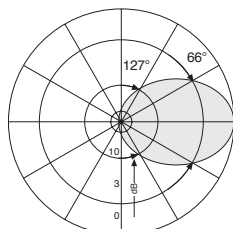
880 – 960 MHz: +45°/–45° Polarization



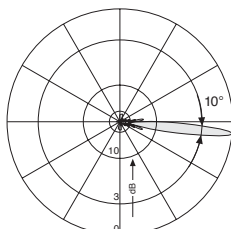
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

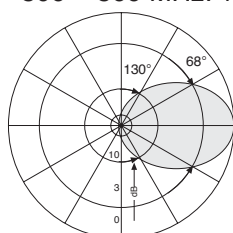
824 – 894 MHz: +45°/–45° Polarization



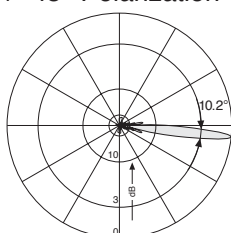
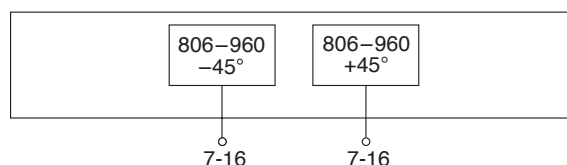
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
6° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2066 x 292 x 192 mm
Height/width/depth	1934 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

824–960

X

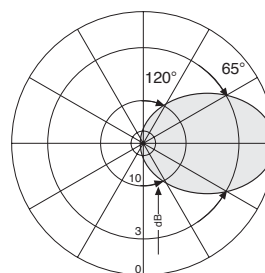
65°

KATHREIN

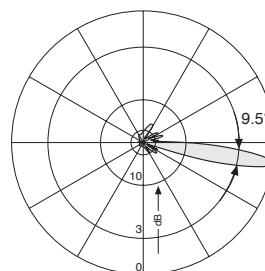
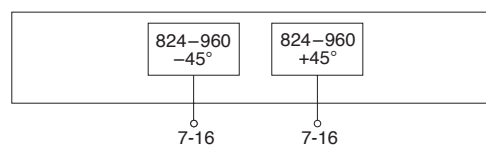
Antennen · Electronic

XPol A-Panel 824–960 65° 17dBi 9°T

Type No.	741 622	
Frequency range	824–960	
	824 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt	9°, fixed	9°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 32 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
9° electrical downtilt

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

XPoI A-Panel 806–960 65° 16.5dBi 0°–10°T

806–960

X

65°

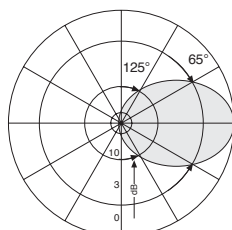
0°–10°

KATHREIN

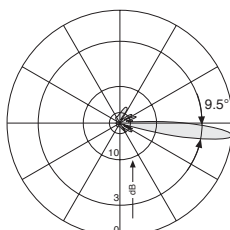
Antennen · Electronic

Type No.	739 685		
Frequency range	806 – 866 MHz	806–960 824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16 dBi	2 x 16 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 10°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt continuously adjustable	0.5°–10°	0.5°–10°	0.5°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam: sector 0°–30° above main beam:	0° ... 3° ... 6° ... 10°T 15 ... 14 ... 12 ... 12 dB 12 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB 13 dB	0° ... 3° ... 6° ... 10°T 17 ... 17 ... 17 ... 17 dB 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

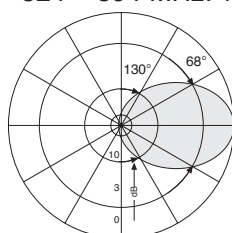


Horizontal Pattern

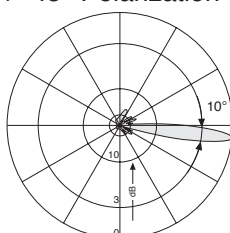


Vertical Pattern
0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

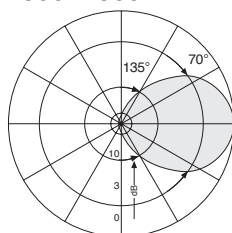


Horizontal Pattern

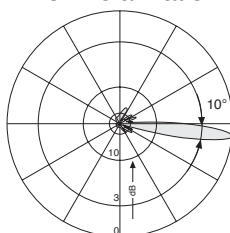


Vertical Pattern
0.5°–10° electrical downtilt

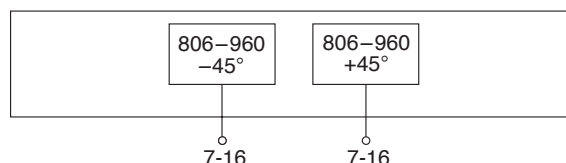
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0.5°–10° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2262 x 287 x 165 mm
Height/width/depth	1996 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

800/900

X

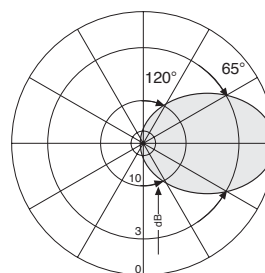
65°

KATHREIN

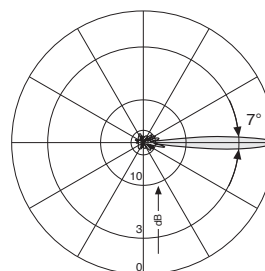
Antennen · Electronic

XPoI A-Panel 870–960 65° 18dBi

Type No.	739 630
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB
Front-to-back ratio, copolar	> 30 dB
Isolation	> 32 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	600 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	19 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N
Max. wind velocity	200 km/h
Height/width/depth	2580 / 262 / 116 mm

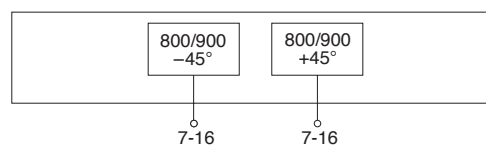


Horizontal Pattern



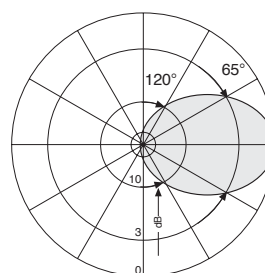
Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain

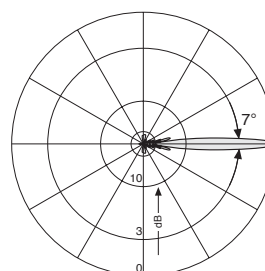


XPoI A-Panel 806–960 65° 18dBi

Type No.	739 624	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 7.5°	Horizontal: 65° Vertical: 7°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 30 dB	> 32 dB
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern



Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

65°

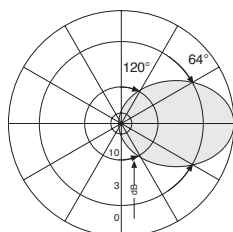
0°

KATHREIN

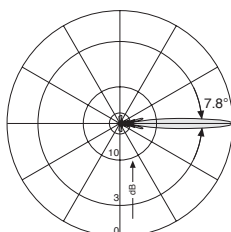
Antennen · Electronic

XPoI C-Panel 806–960 65° 18dBi 0°T

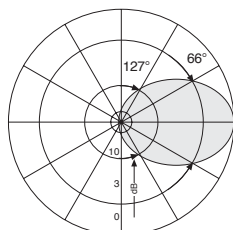
Type No.	800 10204		
Frequency range	806–960 806 – 866 MHz 824 – 894 MHz 880 – 960 MHz		
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.4 dBi	2 x 17.6 dBi	2 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.5°	Horizontal: 66° Vertical: 8.3°	Horizontal: 64° Vertical: 7.8°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 15 dB > 15 dB	> 15 dB > 15 dB	> 15 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio			
Maindirection 0°	> 18 dB	> 19 dB	> 20 dB
Sector ±30°	> 16 dB	> 16 dB	> 17 dB
Sector ±60°	> 10 dB	> 10 dB	> 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

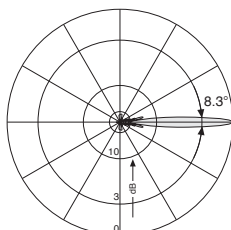
Horizontal Pattern



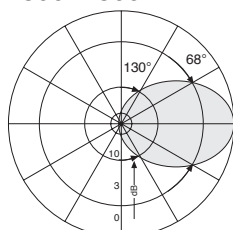
Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

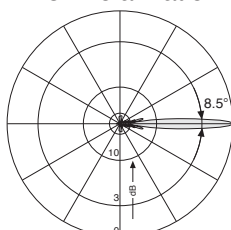
Horizontal Pattern



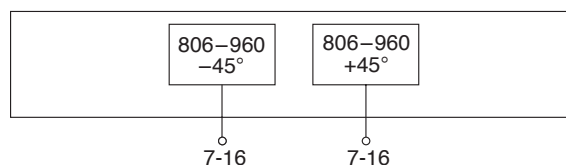
Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization

Horizontal Pattern



Vertical Pattern

**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside
Weight	12.5 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2386 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

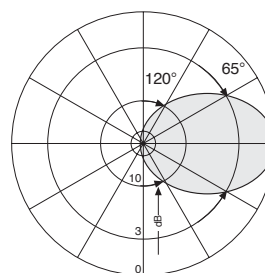
65°

KATHREIN

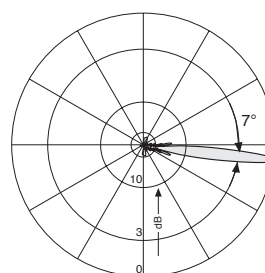
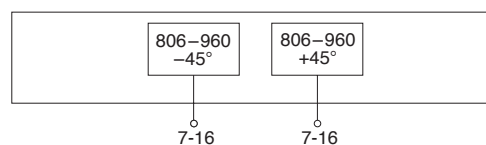
Antennen · Electronic

XPoI A-Panel 806–960 65° 18dBi 6°T

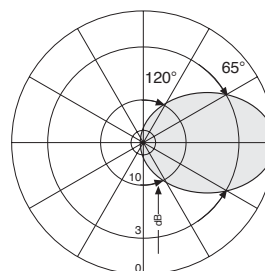
Type No.	739 636	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 7.5°	Horizontal: 65° Vertical: 7°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



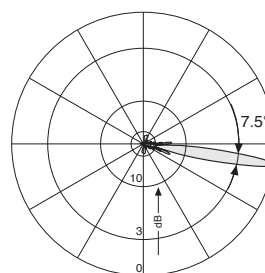
Horizontal Pattern

Vertical Pattern
6° electrical downtilt**XPoI A-Panel 806–960 65° 18dBi 9°T**

Type No.	739 637	
Frequency range	806–960	
	806 – 870 MHz	870 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7.5°	
Electrical tilt	9°, fixed	
Sidelobe suppression for first sidelobe above horizon	better 18 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
9° electrical downtilt

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

X

65°

0°–7°

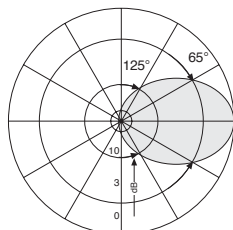
KATHREIN

Antennen · Electronic

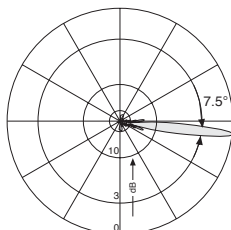
XPoI A-Panel 806–960 65° 17.5dBi 0°–7°T

Type No.	739 686		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 17 dBi	2 x 17.2 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/-45°	Horizontal: 70° Vertical: 7.9°	Horizontal: 68° Vertical: 7.7°	Horizontal: 65° Vertical: 7.5°
Electrical tilt continuously adjustable	0°–7°	0°–7°	0°–7°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam: sector 0°–30° above main beam:	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB 14 ... 14 ... 14 ... 14 dB	0° ... 2° ... 4° ... 7° T 18 ... 18 ... 18 ... 18 dB 15 ... 15 ... 15 ... 15 dB	0° ... 2° ... 4° ... 7° T 18 ... 18 ... 18 ... 18 dB 17 ... 17 ... 17 ... 17 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector 0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

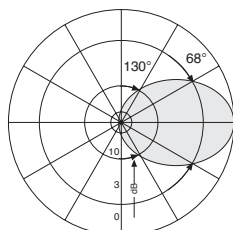


Horizontal Pattern

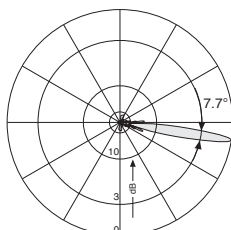


Vertical Pattern
0°–7° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

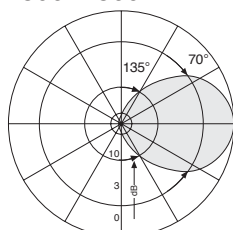


Horizontal Pattern

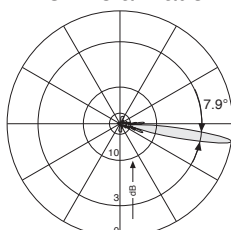


Vertical Pattern
0°–7° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–7° electrical downtilt

806–960
–45°806–960
+45°

7-16

7-16

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2846 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

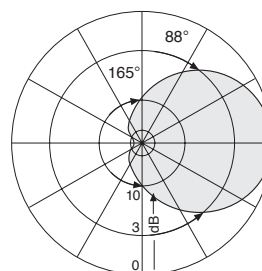
88°

KATHREIN

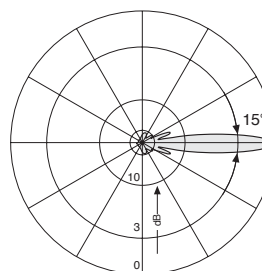
Antennen · Electronic

XPoI A-Panel 806–960 88° 13.5dBi

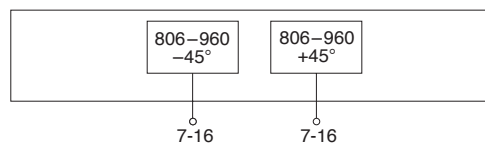
Type No.	739 648	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 13 dBi	2 x 13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 16°	Horizontal: 88° Vertical: 15°
Sidelobe suppression for first sidelobe above horizon	≥ 16 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	8.3 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern



A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

88°

6°

KATHREIN

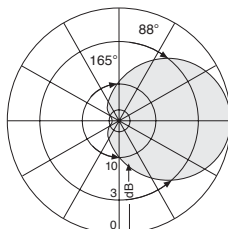
Antennen · Electronic

XPoI A-Panel 806–960 88° 14dBi 6°T

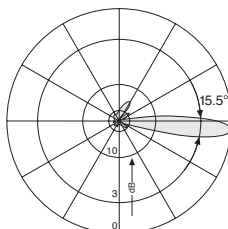
Type No.	739 658		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 13.3 dBi	2 x 13.5 dBi	2 x 13.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 17°	Horizontal: 85° Vertical: 16.5°	Horizontal: 88° Vertical: 15.5°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for sector 0°–30° above horizon	16 dB	16 dB	16 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	> 18 dB > 14 dB	> 20 dB > 14 dB	> 20 dB > 14 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		



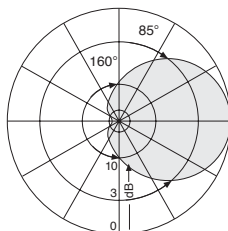
880 – 960 MHz: +45°/–45° Polarization



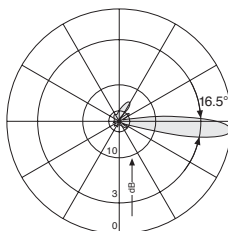
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

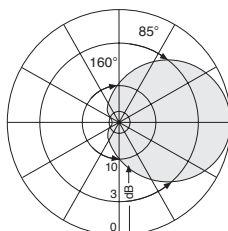
824 – 894 MHz: +45°/–45° Polarization



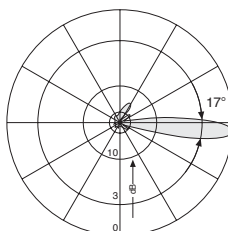
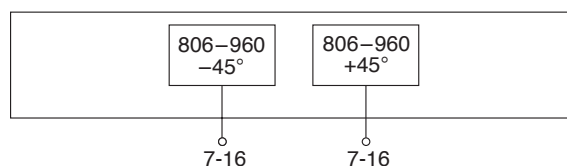
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
6° electrical downtilt

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	8.3 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1425 x 302 x 172 mm
Height/width/depth	1296 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

824–960

X

88°

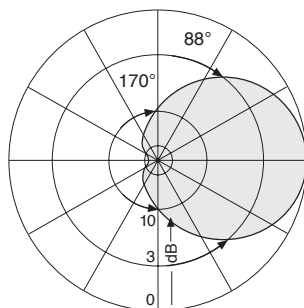
0°–14°

KATHREIN

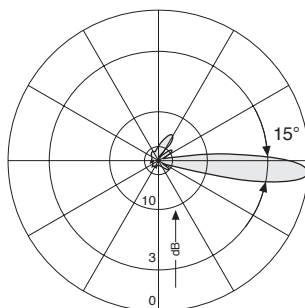
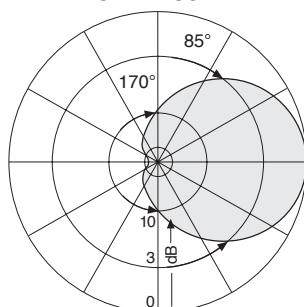
Antennen · Electronic

XPol A-Panel 824–960 88° 13.5dBi 0°–14°T

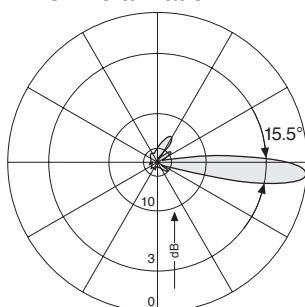
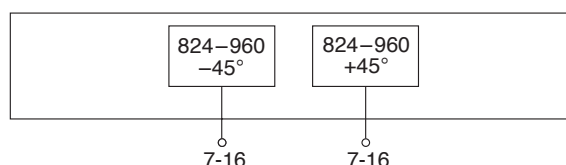
Type No.	739 664	
Frequency range	824–960	
	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	13.5 dBi	13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 15.5°	Horizontal: 88° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 14° T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 14° T 15 ... 16 ... 16 ... 16 dB
Front-to-back ratio, copolar	> 23 dB	> 23 dB
Cross polar ratio Maindirection Sector	0° ±60° Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	400 W (at 50 °C ambient temperature)	

**880 – 960 MHz: +45°/–45° Polarization**

Horizontal Pattern

Vertical Pattern
0°–14° electrical downtilt
continuously adjustable**824 – 894 MHz: +45°/–45° Polarization**

Horizontal Pattern

Vertical Pattern
0°–14° electrical downtilt
continuously adjustable**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1562 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

870–960

X

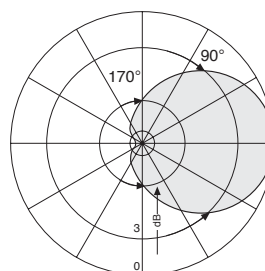
90°

KATHREIN

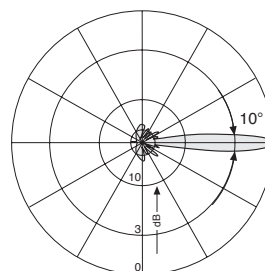
Antennen · Electronic

XPoI A-Panel 870–960 90° 15.5dBi

Type No.	739 655
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 10°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB
Front-to-back ratio, copolar	> 25 dB
Isolation	> 32 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	600 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	14 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N
Max. wind velocity	200 km/h
Height/width/depth	1936 / 262 / 116 mm

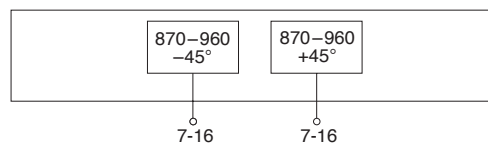


Horizontal Pattern



Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain



A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

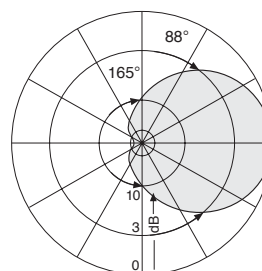
88°

KATHREIN

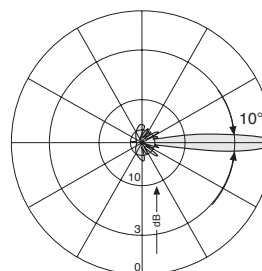
Antennen · Electronic

XPoI A-Panel 806–960 88° 15.5dBi

Type No.	739 649	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	17.1 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	

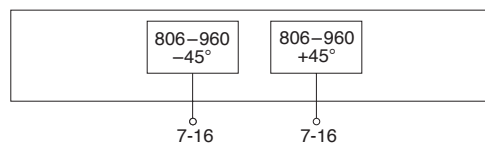


Horizontal Pattern



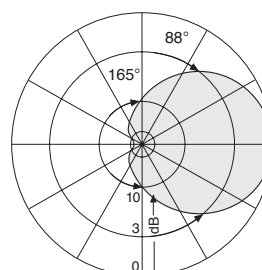
Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain

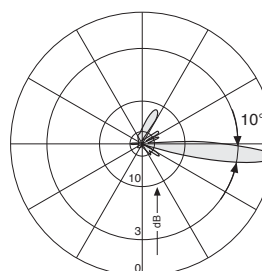


XPoI A-Panel 806–960 88° 15.5dBi 6°T

Type No.	739 660	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	17 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern

Vertical Pattern
6° electrical downtilt

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

XPoI A-Panel 806–960 88° 15dBi 0°–10°T

806–960

X

88°

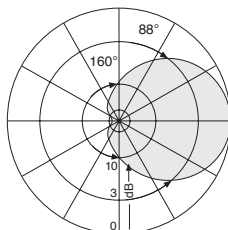
0°–10°

KATHREIN

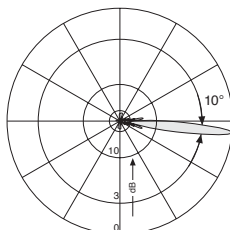
Antennen · Electronic

Type No.	739 665		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 15 dBi	2 x 15 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 85° Vertical: 10.2°	Horizontal: 88° Vertical: 10°
Electrical tilt continuously adjustable	0.5°–10°	0.5°–10°	0.5°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 18 ... 18 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	0° ±60° Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

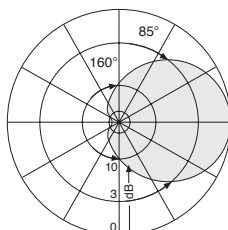


Horizontal Pattern

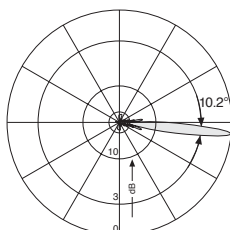


Vertical Pattern
0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

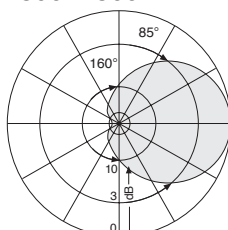


Horizontal Pattern

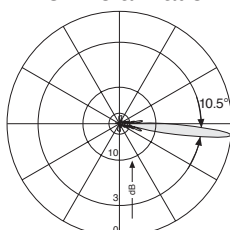


Vertical Pattern
0.5°–10° electrical downtilt

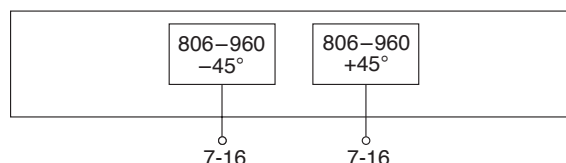
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0.5°–10° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2262 x 287 x 165 mm
Height/width/depth	1996 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

806–960

X

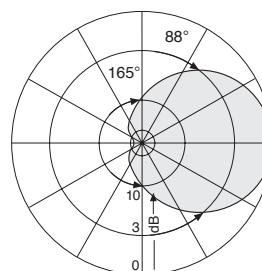
88°

KATHREIN

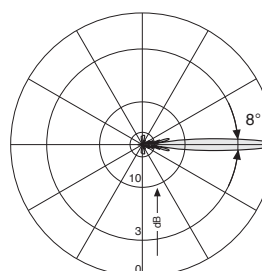
Antennen · Electronic

XPoI A-Panel 806–960 88° 17dBi

Type No.	739 650	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.5°	Horizontal: 88° Vertical: 8°
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	22.6 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	

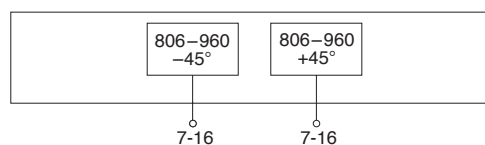


Horizontal Pattern



Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain



Compact Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

88°

0°

KATHREIN

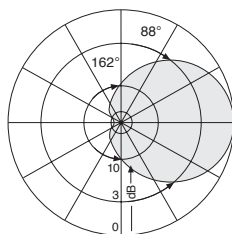
Antennen · Electronic

XPoI C-Panel 806–960 88° 17dBi 0°T

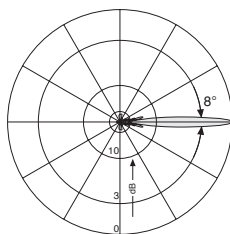
Type No.	800 10213		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.6 dBi	2 x 16.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.7°	Horizontal: 85° Vertical: 8.5°	Horizontal: 88° Vertical: 8°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Sidelobe suppression for first sidelobe above horizon	> 18 dB	> 18 dB	> 18 dB
Front-to-back ratio, copolar	> 28 dB	> 28 dB	> 27 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio			
Maindirection 0°	Typically: 20 dB	Typically: 20 dB	Typically: 20 dB
Sector ±30°	> 20 dB	> 20 dB	> 17 dB
Sector ±60°	> 15 dB	> 15 dB	> 14 dB
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	500 W (at 50 °C ambient temperature)		



880 – 960 MHz: +45°/–45° Polarization

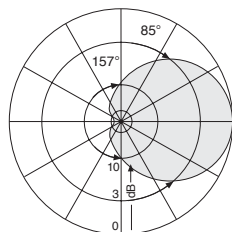


Horizontal Pattern

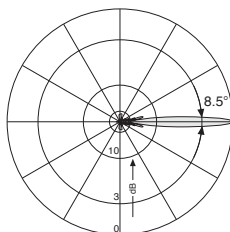


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

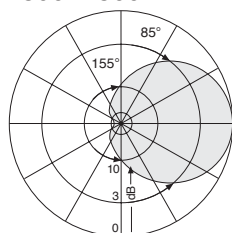


Horizontal Pattern

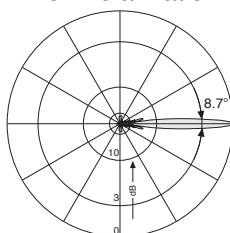


Vertical Pattern

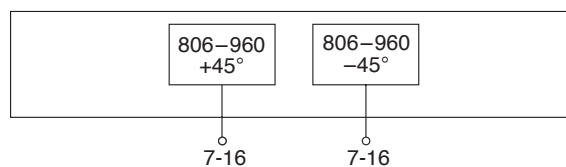
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Rearside
Weight	17 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2400 x 292 x 192 mm
Height/width/depth	2254 / 259 / 99 mm

A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

806–960

X

88°

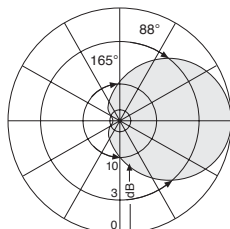
6°

KATHREIN

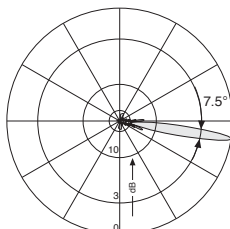
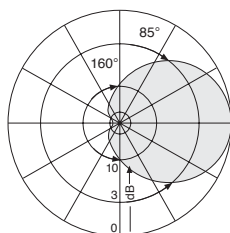
Antennen · Electronic

XPoI A-Panel 806–960 88° 17dBi 6°T

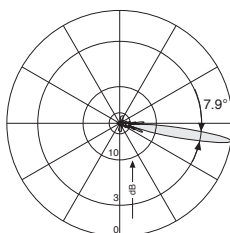
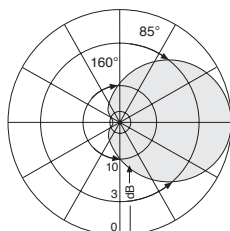
Type No.	739 662		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16.3 dBi	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.3°	Horizontal: 85° Vertical: 7.9°	Horizontal: 88° Vertical: 7.5°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	16 dB	16 dB	17 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation	> 32 dB	> 32 dB	> 32 dB
Cross polar ratio			
Maindirection 0°	> 23 dB	> 23 dB	> 23 dB
Sector ±60°	> 14 dB	> 14 dB	> 14 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

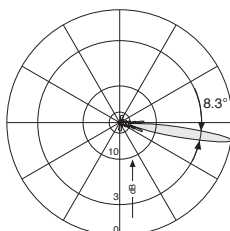
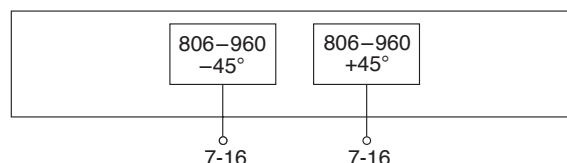
Horizontal Pattern

Vertical Pattern
6° electrical downtilt**824 – 894 MHz: +45°/–45° Polarization**

Horizontal Pattern

Vertical Pattern
6° electrical downtilt**806 – 866 MHz: +45°/–45° Polarization**

Horizontal Pattern

Vertical Pattern
6° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Bottom
Weight	21.4 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2721 x 302 x 172 mm
Height/width/depth	2580 / 262 / 116 mm

A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

X

88°

0°–7°

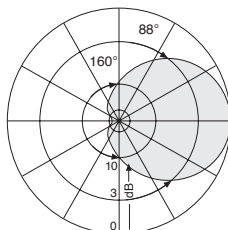
KATHREIN

Antennen · Electronic

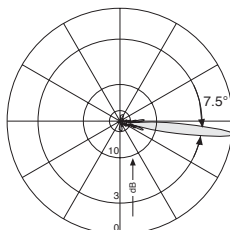
XPol A-Panel 806–960 88° 16dBi 0°–7°T

Type No.	739 666		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.2°	Horizontal: 85° Vertical: 8°	Horizontal: 88° Vertical: 7.5°
Electrical tilt continuously adjustable	0°–7°	0°–7°	0°–7°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB	Copolar: > 25 dB	Copolar: > 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 15 dB	Typically: 25 dB > 15 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

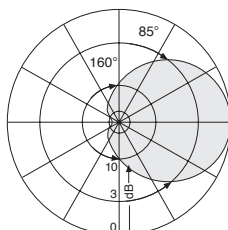


Horizontal Pattern

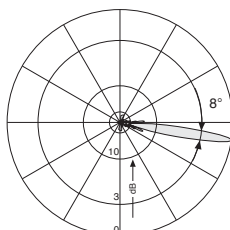


Vertical Pattern
0°–7° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

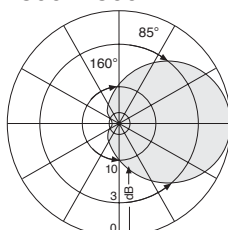


Horizontal Pattern

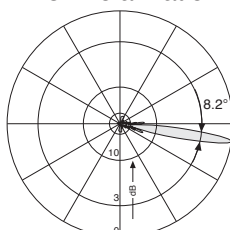


Vertical Pattern
0°–7° electrical downtilt

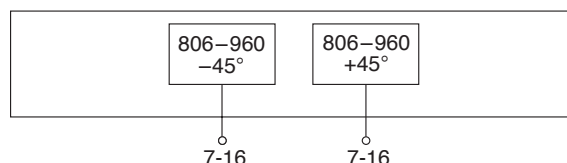
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–7° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2846 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Summary – Directional Antennas

Vertical Polarization

GSM 900 / GSM-R / GSM 850 / CDMA 800

KATHREIN

Antennen · Electronic

GSM 900
VPol

Vertical Polarization – 800/900

Type				Type No.	Height [mm]	Connector position	Page
VPol Panel	870–960	20°	16.5dBi	735 727	492	bottom	48
VPol ParPanel	870–960	36°	20dBi	K 73 45 64 7	2250	bottom	49
VPol LogPer	790–960	51°	12dBi	K 73 22 67	300	bottom	50
VPol Panel	860–960	65°	9dBi	730 677	264	bottom or top	51
VPol Panel	870–960	65°	15.5dBi	730 368	1294	bottom	51
VPol Panel	806–960	65°	15.5dBi	732 691	1294	bottom	52
VPol Panel	870–960	65°	17dBi	730 691	1934	rearside	52
VPol Panel	870–960	65°	17dBi	737 547	1934	rearside	53
VPol Panel	870–960	65°	18dBi	739 854	2254	rearside	53
VPol Panel	870–960	65°	18.5dBi	730 376	2574	rearside	54
VPol Panel	870–960	65°	18.5dBi	732 689	2574	rearside	54
VPol F-Panel	872–960	90°	7.5dBi	736 854	262	bottom or top	55
VPol Panel	870–960	90°	17dBi	730 378	2574	rearside	56
VPol Panel	870–960	120°	16dBi	730 382	2574	rearside	57

Additional versions on request

Panel Vertical Polarization Half-power Beam Width

870–960

V

20°

KATHREIN

Antennen · Electronic

VPol Panel 870–960 20° 16.5dBi

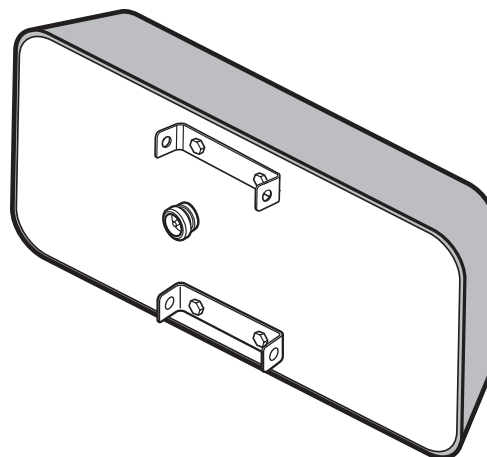
Type No.	735 727
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	16.5 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back ratio	> 24 dB
Half-power Beam Width	H-plane: 20°/ E-plane: 33°
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Weight	10 kg
Wind load	Frontal: 500 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 715 N (at 150 km/h)
Max. wind velocity	230 km/h
Packing size	1062 x 562 x 275 mm
Height/width/depth	492 / 992 / 190 mm



Material: Radiator: Aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: White.
All screws and nuts: Stainless steel.

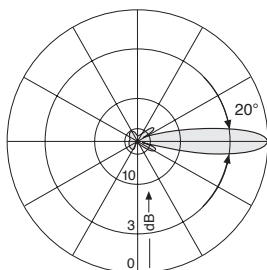
Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.

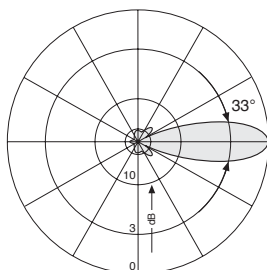


Accessories (order separately)

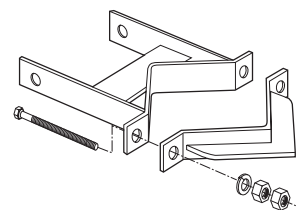
Type No.	Description	Remarks
K 61 14 02	2 clamps	Mast: 60 – 115 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter



Horizontal Pattern



Vertical Pattern



K 61 14 03

Parabolic Panel

Vertical Polarization

Half-power Beam Width

870–960

V

36°

KATHREIN

Antennen · Electronic

GSM 900
VPol

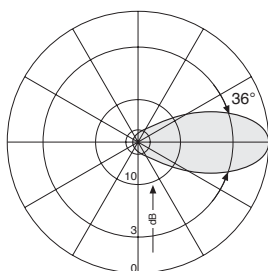
VPol ParPanel 870–960 36° 20dBi

Type No.	K 73 45 64 7
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	20 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back ratio	> 30 dB
Half-power Beam Width	Horizontal: 36°/ Vertical: 8°
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Weight	30 kg
Wind load	Frontal: 950 N (at 150 km/h) Lateral: 600 N (at 150 km/h) Rearside: 950 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2420 x 640 x 465 mm
Height/width/depth	2250 / 591 / 406 mm

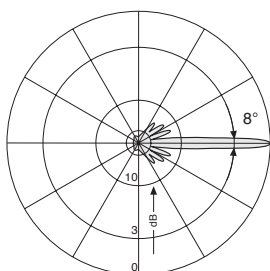
Material:	Radiator: Weather-proof aluminum. Reflector screen: Weather-proof aluminum. Radome: Fiberglass, colour: Grey. All screws and nuts: Stainless steel.
Ice protection:	Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
Grounding:	All metal parts of the antenna are DC grounded. The inner conductor is coupled capacitively.

Accessories (order separately)

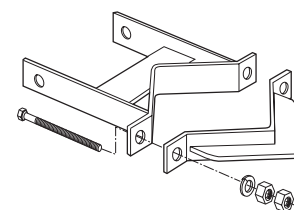
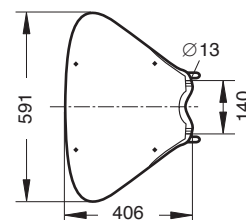
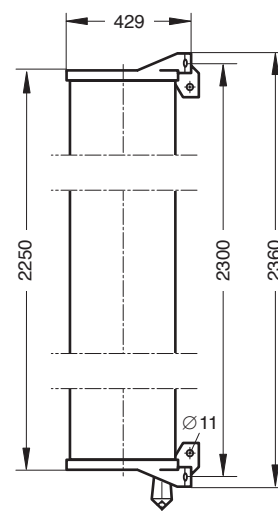
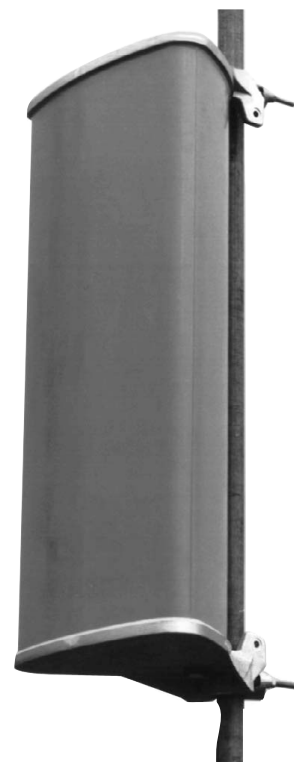
Type No.	Description	Remarks
733 736	2 clamps	Mast: 50 – 125 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter
733 695	1 downtilt kit	Downtilt angle: 0° – 10° Use the downtilt kit together with 2 clamps suitable for the mast diameter.



Horizontal Pattern



Vertical Pattern



K 61 14 03

Logarithmic periodic Vertical Polarization Half-power Beam Width

790–960

V

51°

KATHREIN

Antennen · Electronic

VPol LogPer 790–960 51° 12dBi

Type No.	K 73 22 67
Input	7-16 female
Frequency range	790 – 960 MHz
VSWR	< 1.4
Gain	12 dBi
Impedance	50 Ω
Polarization	Vertical
Side-lobe suppression	> 25 dB
Front-to-back ratio	> 30 dB
Half-power Beam Width	Horizontal: 51° / Vertical: 45°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Weight	6.3 kg
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 360 x 175 mm
Height/width/depth	300 / 155 / 785 mm

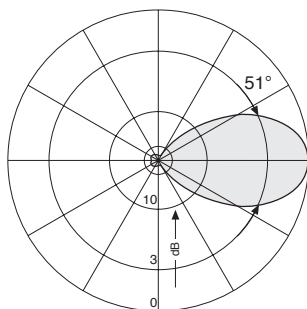


Material:
 Radiator: Weather-proof aluminum.
 Reflector screen: Weather-proof aluminum.
 Radome: Fiberglass, colour: Grey.
 All screws and nuts: Stainless steel.

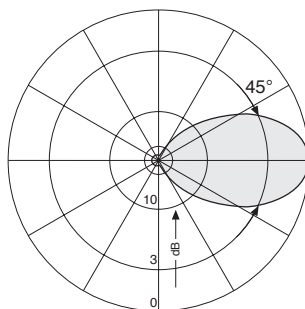
Mounting:
 The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.

Ice protection:
 Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Grounding:
 All metal parts of the antenna as well as the inner conductor are DC grounded.



Horizontal Pattern



Vertical Pattern

Eurocell Panel

Vertical Polarization

Half-power Beam Width

900

V

65°

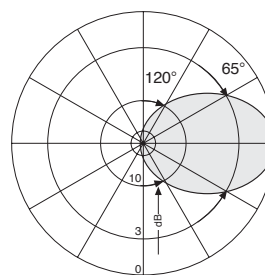
KATHREIN

Antennen · Electronic

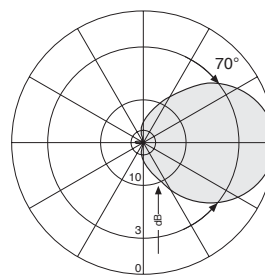
GSM 900
VPol

VPol Panel 860–960 65° 9dBi

Type No.	730 677
Frequency range	860 – 960 MHz
Polarization	Vertical
Gain	9 dBi
Half-power beam width	H-plane: 65° E-plane: 70°
Front-to-back ratio	> 25 dB (890 – 960 MHz) > 20 dB (860 – 890 MHz)
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	350 W (at 50 °C ambient temperature)
Input	N female
Connector position	Bottom or top
Weight	1.2 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 40 N / 25 N / 90 N
Max. wind velocity	230 km/h
Height/width/depth	264 / 258 / 103 mm



Horizontal Pattern

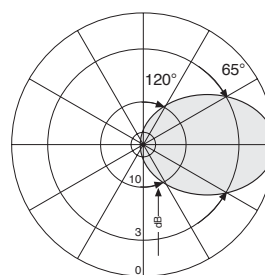


Vertical Pattern

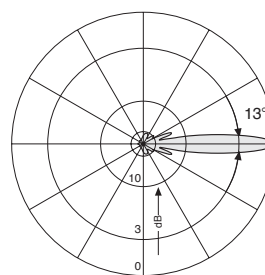


VPol Panel 870–960 65° 15.5dBi

Type No.	730 368
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 65° E-plane: 13°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 220 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

800/900

V

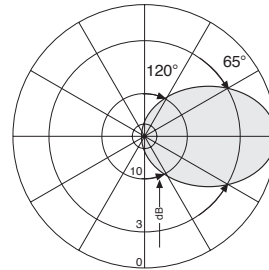
65°

KATHREIN

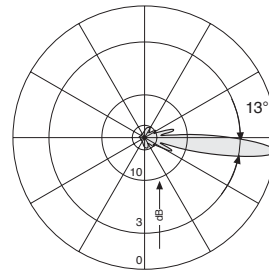
Antennen · Electronic

VPol Panel 806–960 65° 15.5dBi 6°T

Type No.	732 691
Frequency range	806 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 65° E-plane: 13°
Electrical downtilt	6°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 220 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



Horizontal Pattern

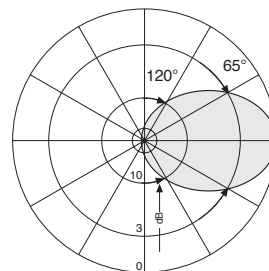


Vertical Pattern
6° electrical downtilt

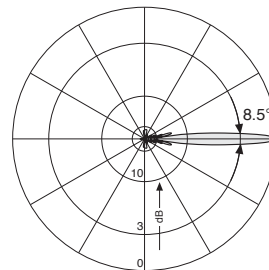


VPol Panel 870–960 65° 17dBi

Type No.	730 691
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 65° E-plane: 8.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

870–960

V

65°

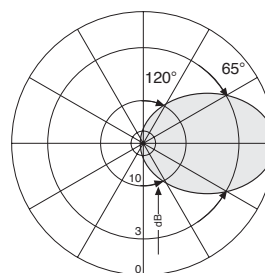
KATHREIN

Antennen · Electronic

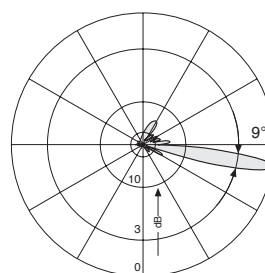
GSM 900
VPol

VPol Panel 870–960 65° 17dBi 9°T

Type No.	737 547
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 65° E-plane: 8.5°
Electrical downtilt	9°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



Horizontal Pattern

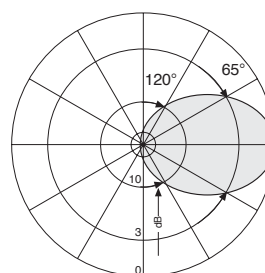


Vertical Pattern
9° electrical downtilt

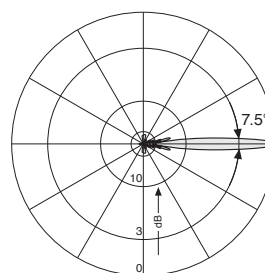


VPol Panel 870–960 65° 18dBi

Type No.	739 854
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18 dBi
Half-power beam width	H-plane: 65° E-plane: 7.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	400 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	10.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 400 N / 260 N / 890 N
Max. wind velocity	180 km/h
Height/width/depth	2254 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

870–960

V

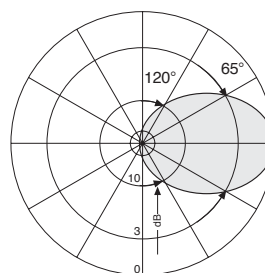
65°

KATHREIN

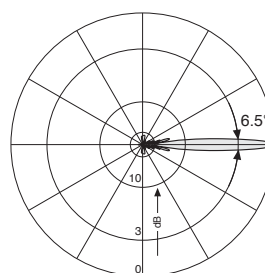
Antennen · Electronic

VPol Panel 870–960 65° 18.5dBi

Type No.	730 376
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18.5 dBi
Half-power beam width	H-plane: 65° E-plane: 6.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern

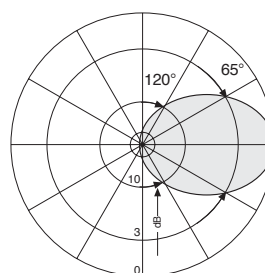


Vertical Pattern

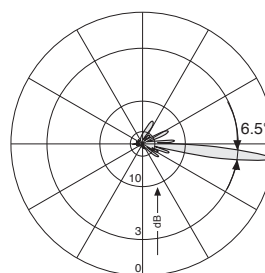


VPol Panel 870–960 65° 18.5dBi 6°T

Type No.	732 689
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18.5 dBi
Half-power beam width	H-plane: 65° E-plane: 6.5°
Electrical downtilt	6°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



F-Panel

Vertical Polarization

Half-power Beam Width

872–960

V

90°

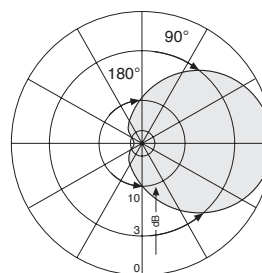
KATHREIN

Antennen · Electronic

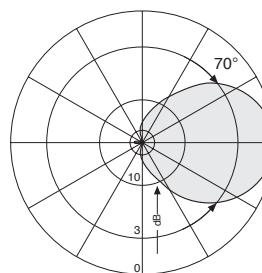
GSM 900
VPol

VPol F-Panel 872–960 90° 7.5dBi

Type No.	736 854
Frequency range	872 – 960 MHz
Polarization	Vertical
Gain	7.5 dBi
Half-power beam width	H-plane: 90° E-plane: 70°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –140 dBc
Max. power	350 W (at 50 °C ambient temperature)
Input	N female
Connector position	Bottom or top
Weight	1.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 45 N / 20 N / 60 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	262 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

870–960

V

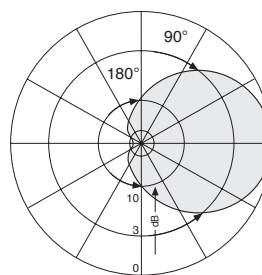
90°

KATHREIN

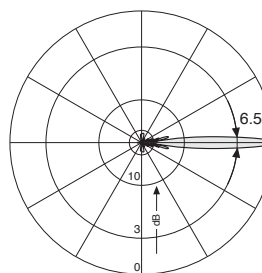
Antennen · Electronic

VPol Panel 870–960 90° 17dBi

Type No.	730 378
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 90° E-plane: 6.5°
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

870–960

V

120°

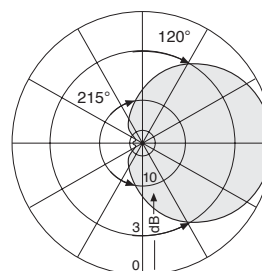
KATHREIN

Antennen · Electronic

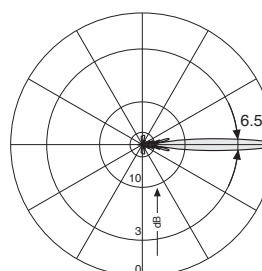
GSM 900
VPol

VPol Panel 870–960 120° 16dBi

Type No.	730 382
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	16 dBi
Half-power beam width	H-plane: 120° E-plane: 6.5°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern



Summary – Directional Antennas

Dual Polarization +45°/–45°

GSM 1800 / GSM 1900 / PCS

KATHREIN
Antennen · Electronic

GSM 1800
XPol

Dual Polarization +45°/–45° – 1800/1900

Type					Type No.	Height [mm]	Connector position	Page
XPol F-Panel	1710–1880	33°	19.5dBi	2°T	739 927	982	bottom	60
XPol F-Panel	1710–1880	33°	22dBi	2°T	741 623	1942	bottom	60
XPol F-Panel	1710–1880	65°	15.5dBi	6°T	739 490	662	bottom or top	61
XPol F-Panel	1710–1880	65°	15.5dBi		739 491	662	bottom	61
XPol F-Panel	1710–1880	65°	18dBi	2°T	739 494	1302	bottom or top	62
XPol F-Panel	1710–1990	65°	18dBi		739 495	1302	bottom	62
XPol F-Panel	1710–1990	65°	18dBi	6°T	739 496	1302	bottom	63
XPol F-Panel	1710–1990	65°	19.5dBi	2°T	739 498	1942	bottom	63
XPol F-Panel	1710–1990	90°	8dBi	2°T	739 695	174	bottom or top	64
XPol F-Panel	1710–1880	90°	16.5dBi		739 707	1302	bottom	65
XPol F-Panel	1710–1880	90°	17.5dBi		739 710	1902	bottom	65

F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–1880

X

33°

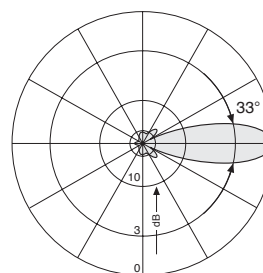
2°

KATHREIN

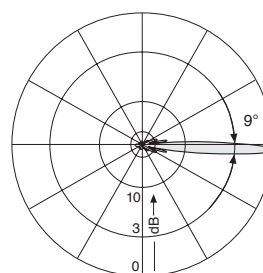
Antennen · Electronic

XPol F-Panel 1710–1880 33° 19.5dBi 2°T

Type No.	739 927	
Frequency range	1710 – 1880 MHz	
Polarization	+45°, –45°	
Gain	2 x 19.5 dBi	
Half-power beam width Copolar	+45° Horizontal: 33° Vertical: 9°	–45° Horizontal: 33° Vertical: 9°
Electrical tilt	2°, fixed	
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	200 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	7 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 260 N / 95 N / 370 N	
Max. wind velocity	200 km/h	
Height/width/depth	982 / 262 / 59 mm	

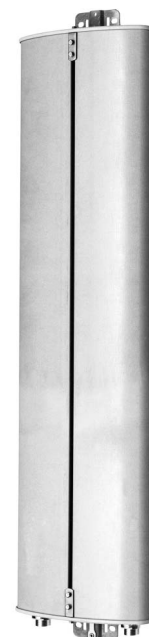
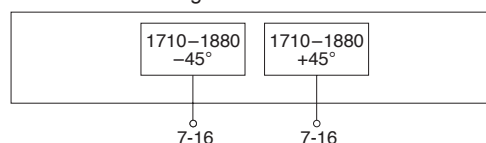


Horizontal Pattern



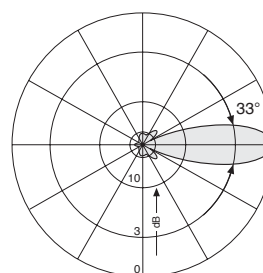
Vertical Pattern

- 2° electrical downtilt
- first null-fill below horizon better or equal –25 dB below maximum gain

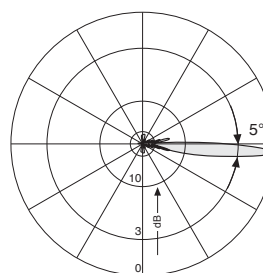


XPol F-Panel 1710–1880 33° 22dBi 2°T

Type No.	741 623	
Frequency range	1710 – 1880 MHz	
Polarization	+45°, –45°	
Gain	2 x 22 dBi	
Half-power beam width Copolar	+45° Horizontal: 33° Vertical: 5°	–45° Horizontal: 33° Vertical: 5°
Electrical tilt	2°, fixed	
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	200 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 540 N / 210 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1942 / 262 / 59 mm	



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



F-Panel

Dual Polarization

Half-power Beam Width

1710–1880

X

65°

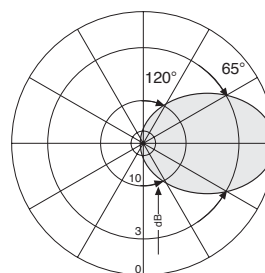
KATHREIN

Antennen · Electronic

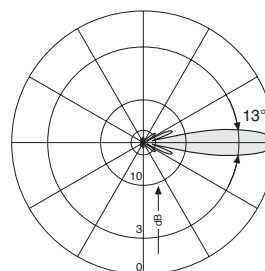
GSM 1800
XPol

XPol F-Panel 1710–1880 65° 15.5dBi

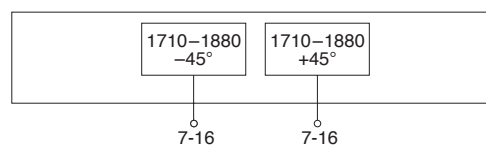
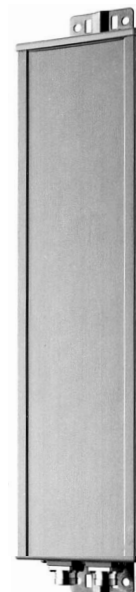
Type No.	739 490
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 13°
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 150 N / 55 N / 120 N
Max. wind velocity	200 km/h
Height/width/depth	662 / 155 / 49 mm



Horizontal Pattern

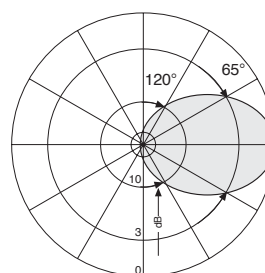


Vertical Pattern

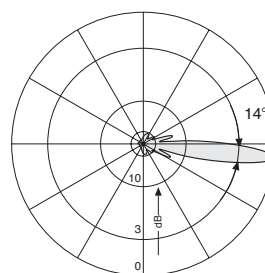


XPol F-Panel 1710–1880 65° 15.5dBi 6°T

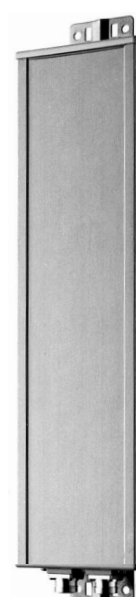
Type No.	739 491
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°
Electrical tilt	6°, fixed
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 150 N / 55 N / 120 N
Max. wind velocity	200 km/h
Height/width/depth	662 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



F-Panel

Dual Polarization

Half-power Beam Width

1710–1880

X

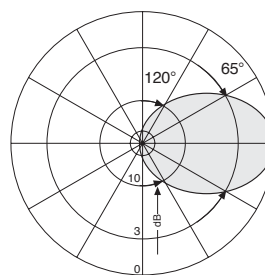
65°

KATHREIN

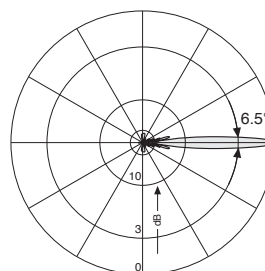
Antennen · Electronic

XPol F-Panel 1710–1880 65° 18dBi

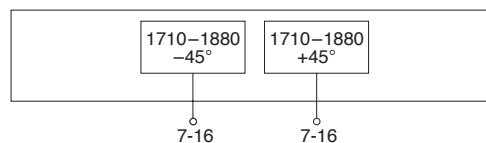
Type No.	739 494
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 6.5°
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 310 N / 110 N / 250 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm



Horizontal Pattern

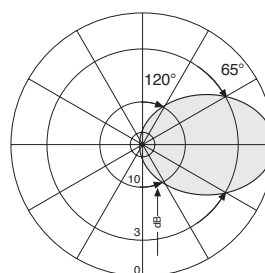


Vertical Pattern

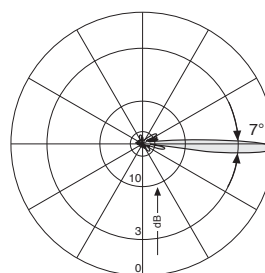


XPol F-Panel 1710–1990 65° 18dBi 2°T

Type No.	739 495
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4 (1710 – 1880 MHz) < 1.5 (1880 – 1990 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 310 N / 110 N / 250 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon
better or equal –25 dB
below maximum gain



F-Panel

Dual Polarization

Half-power Beam Width

1710–1990

X

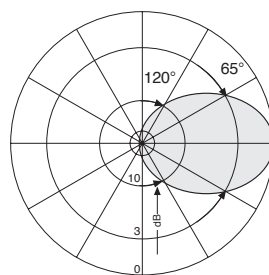
65°

KATHREIN

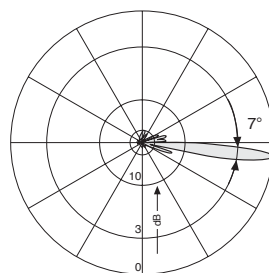
Antennen · Electronic

XPol F-Panel 1710–1990 65° 18dBi 6°T

Type No.	739 496
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Electrical tilt	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4 (1710 – 1880 MHz) < 1.5 (1880 – 1990 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 310 N / 110 N / 250 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm

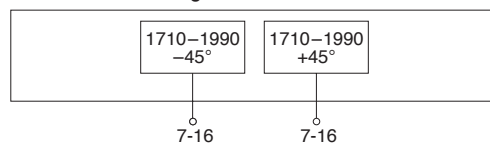


Horizontal Pattern



Vertical Pattern

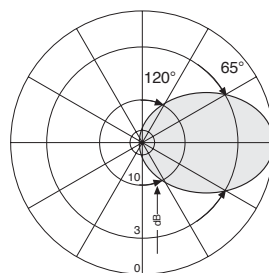
- 6° electrical downtilt
- first null-fill below horizon
better or equal –25 dB
below maximum gain



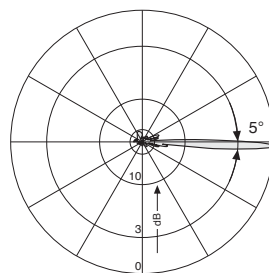
GSM 1800
XPol

XPol F-Panel 1710–1990 65° 19.5dBi 2°T

Type No.	739 498
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 19.5 dBi (1880 – 1990 MHz) 2 x 19 dBi (1710 – 1880 MHz)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 5°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	8.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 480 N / 180 N / 380 N
Max. wind velocity	200 km/h
Height/width/depth	1942 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



F-Panel

Dual Polarization

Half-power Beam Width

1710–1990

X

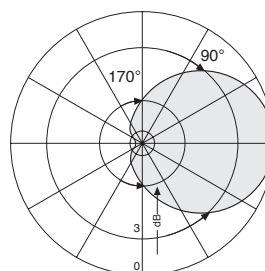
90°

KATHREIN

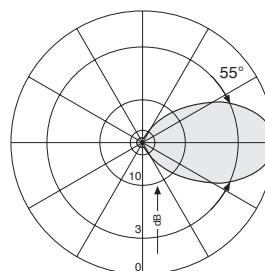
Antennen · Electronic

XPol F-Panel 1710–1990 90° 8dBi

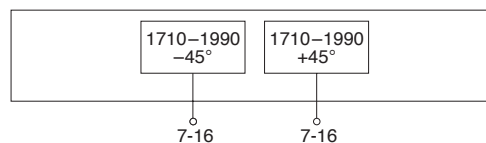
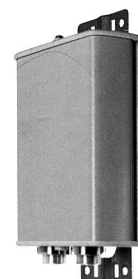
Type No.	739 695
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 55°
Front-to-back ratio, copolar	> 20 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 20 N / 15 N / 30 N
Max. wind velocity	200 km/h
Height/width/depth	174 / 155 / 69 mm



Horizontal Pattern



Vertical Pattern



F-Panel

Dual Polarization

Half-power Beam Width

1710–1880

X

90°

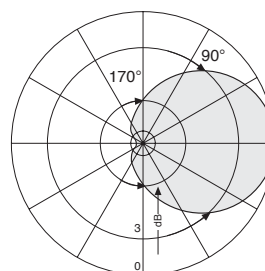
KATHREIN

Antennen · Electronic

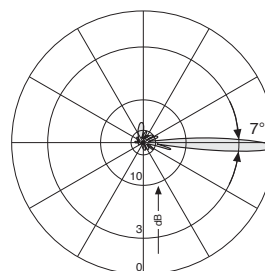
GSM 1800
XPol

XPol F-Panel 1710–1880 90° 16.5dBi 2°T

Type No.	739 707
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 7°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 27 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 130 N / 110 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 69 mm

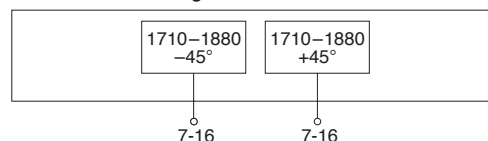


Horizontal Pattern



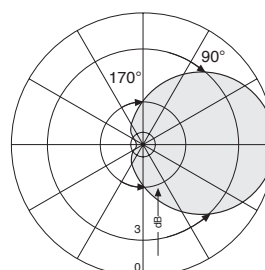
Vertical Pattern

- 2° electrical downtilt
- first null-fill below horizon
better or equal –25 dB
below maximum gain

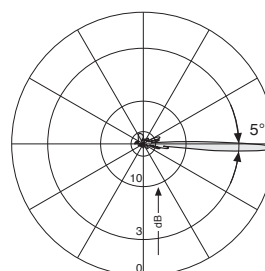


XPol F-Panel 1710–1880 90° 17.5dBi 2°T

Type No.	739 710
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 5°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 25 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 190 N / 160 N / 470 N
Max. wind velocity	200 km/h
Height/width/depth	1902 / 155 / 69 mm



Horizontal Pattern



Vertical Pattern

- 2° electrical downtilt
- first null-fill below horizon
better or equal –25 dB
below maximum gain

Summary – Directional Antennas

Dual-band

GSM 900 / GSM 1800

KATHREIN
Antennen · Electronic

Dual-band 800/900 1800/2000 – Dual Polarization +45°/–45°

Type						Type No.	Height [mm]	Page
XXPol A-Panel	870–960/1710–1880	C	65°/65°	12.5/13dBi		741 316	656	68
XXPol A-Panel	870–960/1710–1880	C	65°/60°	15/16.5dBi		741 320	1296	69
XXPol A-Panel	870–960/1710–1880		65°/60°	15/17dBi		741 326	1296	70
XXPol A-Panel	824–960/1710–1880	C	65°/63°	14.5/16.5dBi	0°–10°T/2°T	742 151	1296	71
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17/18dBi		741 322	1936	72
XXPol A-Panel	870–960/1710–1880		65°/60°	17/18.5dBi		741 327	1936	73
XXPol A-Panel	870–960/1710–1880	C	65°/60°	18/19dBi		741 324	2580	74
XXPol A-Panel	870–960/1710–1880		65°/60°	18/19.5dBi		741 328	2580	75
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17.5/17.5dBi	6°T	741 336	2580	76
XXPol A-Panel	870–960/1710–1880		65°/60°	17.5/18dBi	6°T	741 344	2580	77
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17/18dBi	2°–8°T/2°T	742 047	2580	78

GSM 1800
XXPol

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Integrated Combiner

870–960

1710–1880

X

X

65°

65°

C

KATHREIN

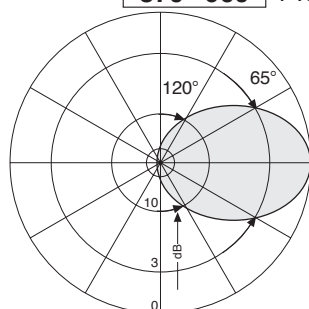
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 C 65°/65° 12.5/13dBi

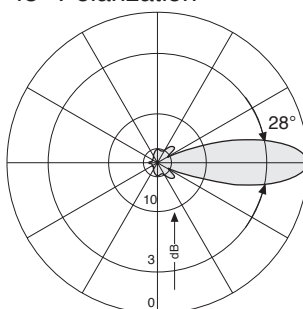
Type No.	741 316	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 12.5 dBi	2 x 13 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 28°	Horizontal: 60° Vertical: 19°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	



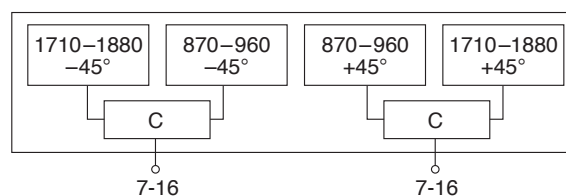
870–960 +45°/–45° Polarization



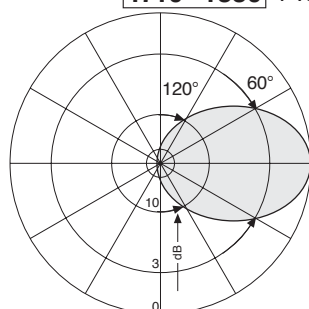
Horizontal Pattern



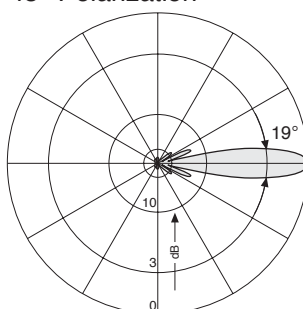
Vertical Pattern



1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	7 kg
Wind load	Frontal: 110 N (at 150 km/h) Lateral: 60 N (at 150 km/h) Rearside: 240 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	782 x 287 x 165 mm
Height/width/depth	656 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Integrated Combiner

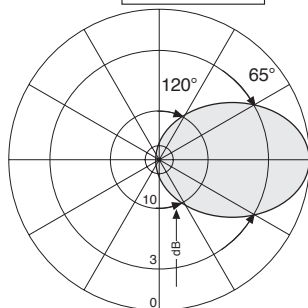
870–960**1710–1880****X****X****65°****60°****C****KATHREIN**

Antennen · Electronic

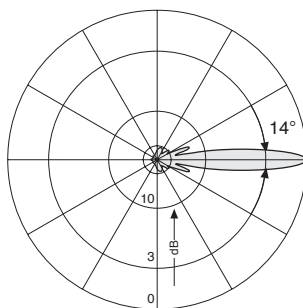
GSM 1800
XXPol

XXPol A-Panel 870–960/1710–1880 C 65°/60° 15/16.5dBi

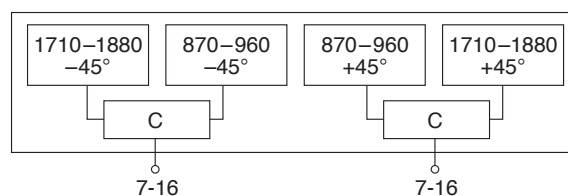
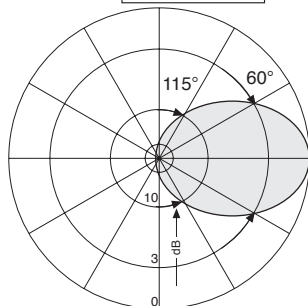
Type No.	741 320	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°	Horizontal: 60° Vertical: 8°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	

**870–960** +45°/–45° Polarization

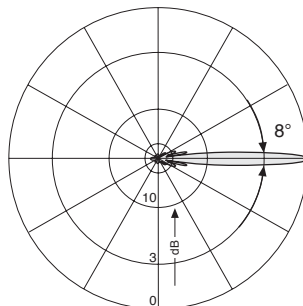
Horizontal Pattern



Vertical Pattern

**1710–1880** +45°/–45° Polarization

Horizontal Pattern



Vertical Pattern

Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	13 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

870–960

1710–1880

X

X

65°

60°

KATHREIN

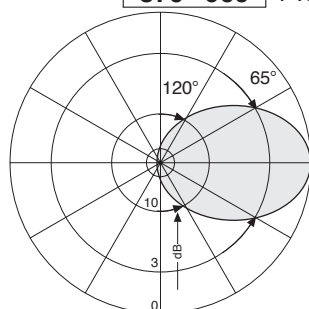
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 65°/60° 15/17dBi

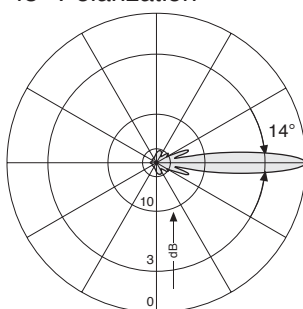
Type No.	741 326	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°	Horizontal: 60° Vertical: 8°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W	200 W
	(at 50 °C ambient temperature)	



870–960 +45°/–45° Polarization



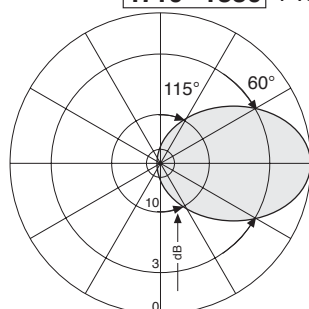
Horizontal Pattern



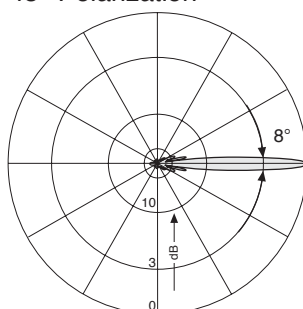
Vertical Pattern

1710–1880 –45°	870–960 –45°	870–960 +45°	1710–1880 +45°
7-16	7-16	7-16	7-16

1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

Mechanical specifications

Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	13 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

Integrated Combiner

824–960

1710–1880

X

X

65°

63°

0°–10°

2°

C

KATHREIN

Antennen · Electronic

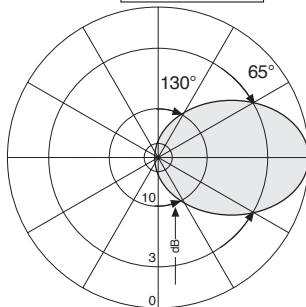
XXPol A-Panel 824–960/1710–1880 C 65°/63° 14.5/16.5dBi 0°–10°T/2°T

Type No.	742 151		
Frequency range	824–960		1710–1880
	824 – 880 MHz	880 – 960 MHz	1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14.5 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 65° Vertical: 14°	Horizontal: 63° Vertical: 8.5°
Electrical tilt	0°–10°	0°–10°	2°
Sidelobe suppression for first sidelobe above horizon	0° ... 6° ... 10°T 16 ... 13 ... 12 dB	0° ... 6° ... 10°T 17 ... 15 ... 13 dB	16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		> 30 dB
Impedance	50 Ω		50 Ω
VSWR	< 1.5		< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)		150 W
Integrated combiner	The insertion loss is included in the given antenna gain values.		

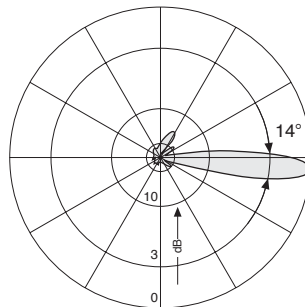


GSM 1800
XXPol

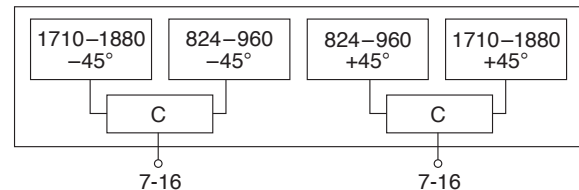
824–960 +45°/–45° Polarization



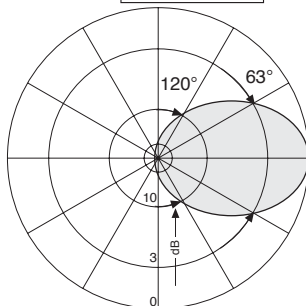
Horizontal Pattern



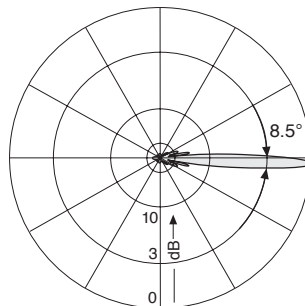
Vertical Pattern
0°–10° electrical downtilt
continuously adjustable



1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Integrated Combiner

870–960 1710–1880

X

X

65°

60°

C

KATHREIN

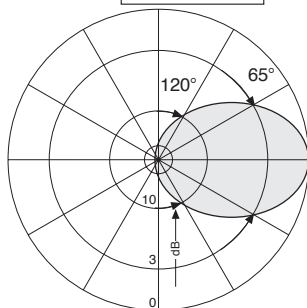
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi

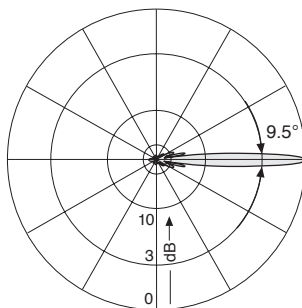
Type No.	741 322	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 15 dB	> 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	



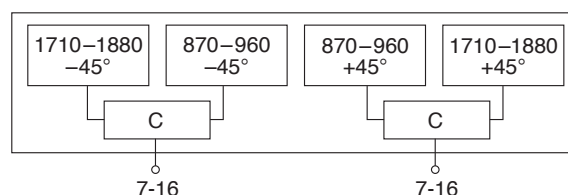
870–960 +45°/–45° Polarization



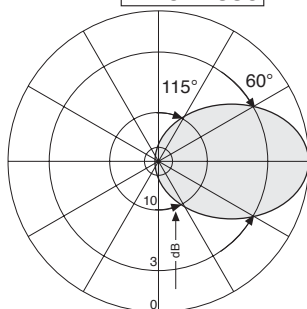
Horizontal Pattern



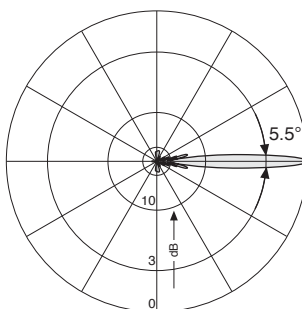
Vertical Pattern



1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

870–960

1710–1880

X

X

65°

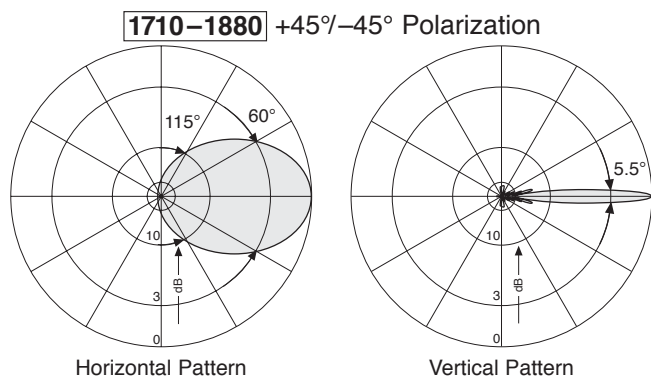
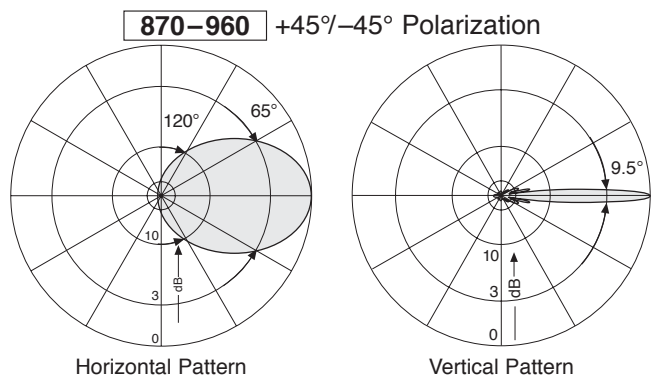
60°

KATHREIN

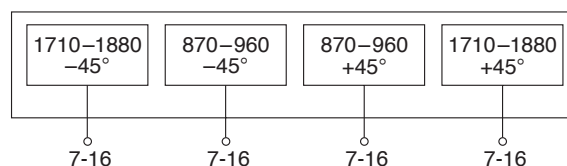
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 65°/60° 17/18.5dBi

Type No.	741 327	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 15 dB	
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W



GSM 1800
XXPol



Mechanical specifications

Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Integrated Combiner

870–960 1710–1880

X

X

65°

60°

C

KATHREIN

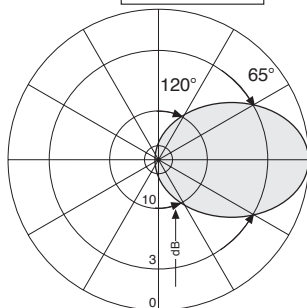
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 C 65°/60° 18/19dBi

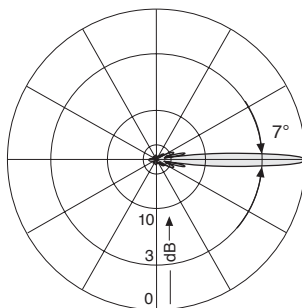
Type No.	741 324	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 19 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 4°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	



870–960 +45°/–45° Polarization

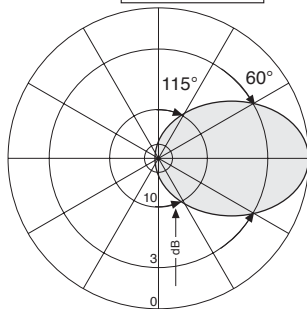


Horizontal Pattern

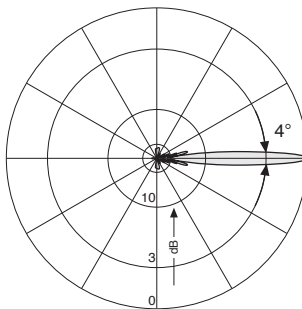


Vertical Pattern

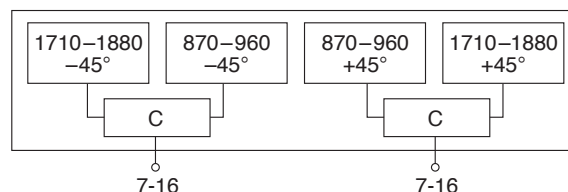
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

* Inverted mounting:

Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

870–960

1710–1880

X

X

65°

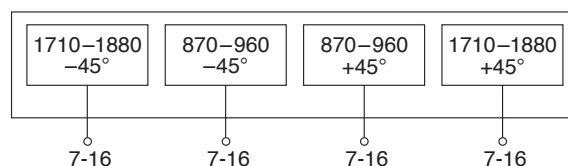
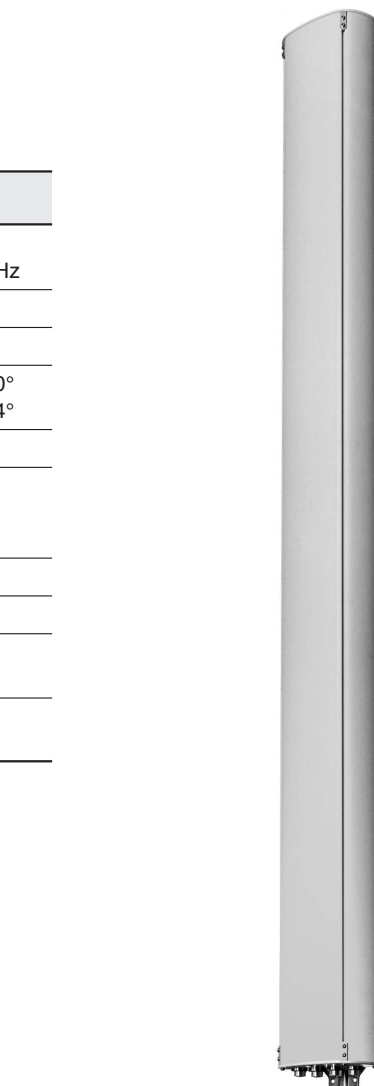
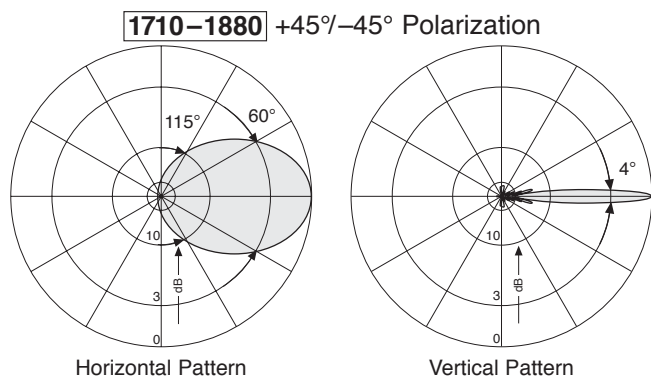
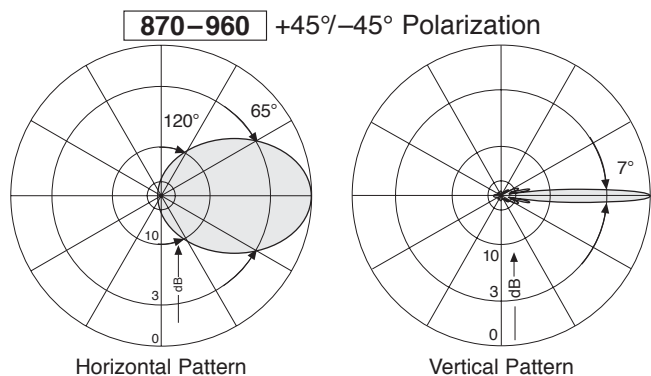
60°

KATHREIN

Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 65°/60° 18/19.5dBi

Type No.	741 328	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 4°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W (at 50 °C ambient temperature)



Mechanical specifications	
Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

Integrated Combiner

870–960 1710–1880

X

X

65°

60°

6°

6°

C

KATHREIN

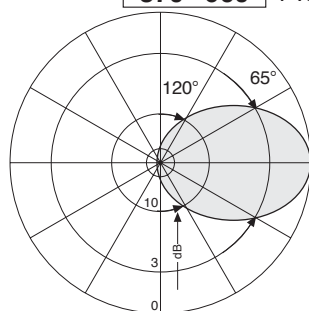
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 C 65°/60° 17.5/17.5dBi 6°T

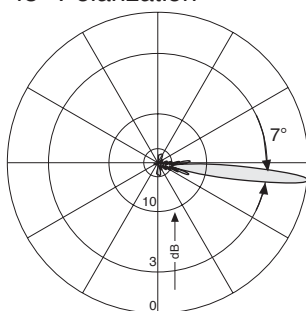
Type No.	741 336	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	



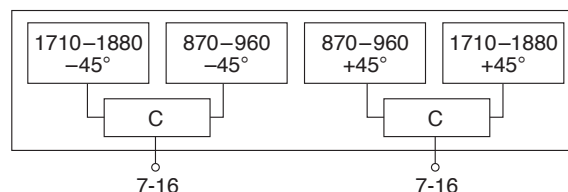
870–960 +45°/–45° Polarization



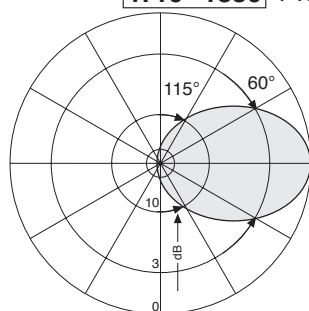
Horizontal Pattern



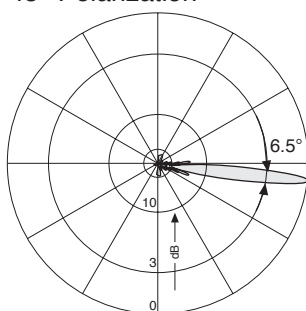
Vertical Pattern
6° electrical downtilt



1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

870–960**1710–1880****X****X****65°****60°****6°****6°****KATHREIN**

Antennen · Electronic

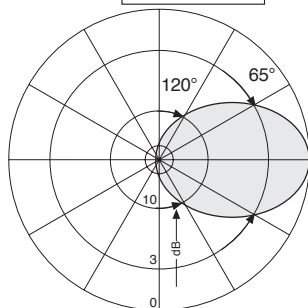
GSM 1800
XXPol

XXPol A-Panel 870–960/1710–1880 65°/60° 17.5/18dBi 6°T

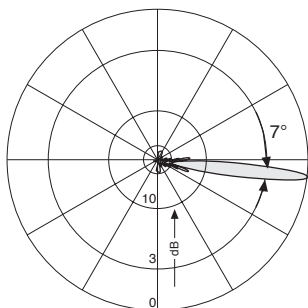
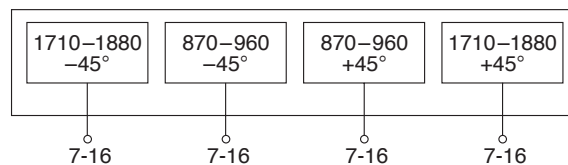
Type No.	741 344	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W	200 W
(at 50 °C ambient temperature)		



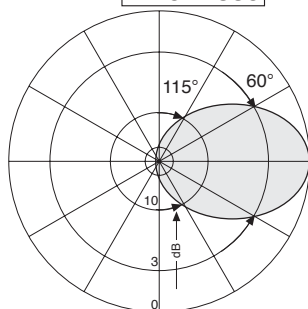
870–960 +45°/–45° Polarization



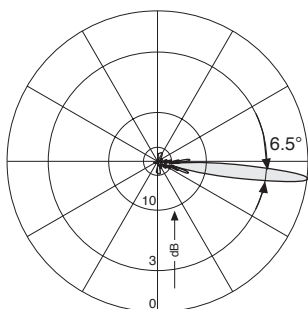
Horizontal Pattern

Vertical Pattern
6° electrical downtilt

1710–1880 +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern
6° electrical downtilt

Mechanical specifications

Input	4 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

Integrated Combiner

870–960 1710–1880

X

X

65°

60°

2°–8°

2°

C

KATHREIN

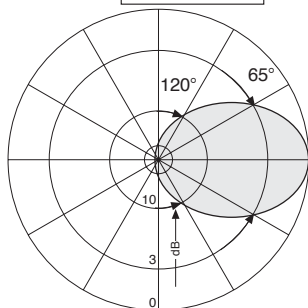
Antennen · Electronic

XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

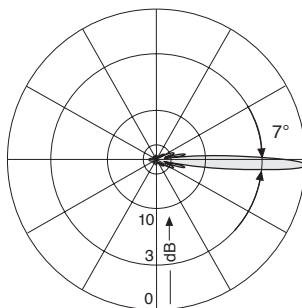
Type No.	742 047	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi (–0.5 dB)	2 x 18 dBi (–0.5 dB)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6°
Electrical tilt	2°–8°, adjustable	2°, fixed
Sidelobe suppression for first sidelobe above horizon	2° ... 4° ... 6° ... 8° T 20 ... 18 ... 17 ... 15 dB	2° T 17 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W (at 50 °C ambient temperature)
Integrated combiner	The insertion loss is included in the given antenna gain values.	



870–960 +45°/–45° Polarization

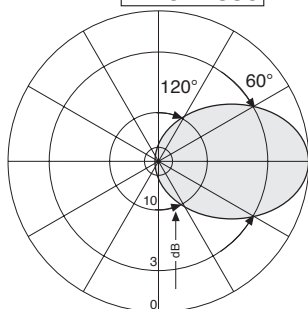


Horizontal Pattern

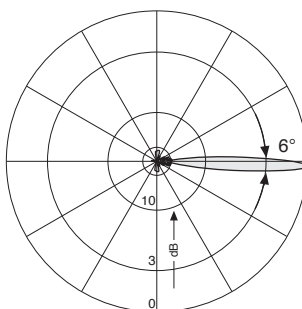


Vertical Pattern
2°–8° electrical downtilt
continuously adjustable

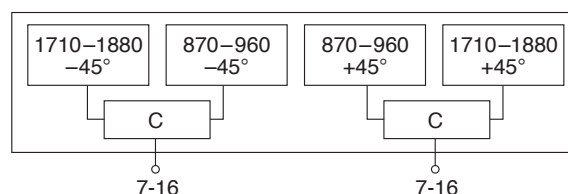
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Summary – Directional Antennas

Vertical Polarization

GSM 1800 / GSM 1900 / PCS

Vertical Polarization

Type					Type No.	Height [mm]	Connector position	Page
VPol F-Panel	1710–1900	65°	10dBi		734 304	182	bottom or top	80
VPol F-Panel	1710–1900	65°	18dBi	2°T	735 147	1302	bottom	80
VPol F-Panel	1710–1900	90°	8dBi		734 318	182	bottom or top	81
VPol F-Panel	1710–1900	90°	17.5dBi	2°T	734 330	1942	bottom	81

Additional versions on request

F-Panel

Vertical Polarization

Half-power Beam Width

1710–1900

V

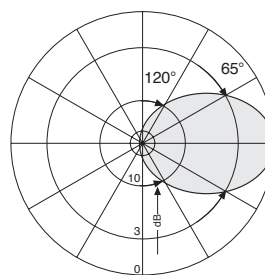
65°

KATHREIN

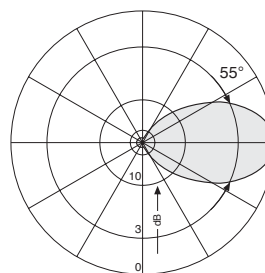
Antennen · Electronic

VPol F-Panel 1710–1900 65° 10dBi

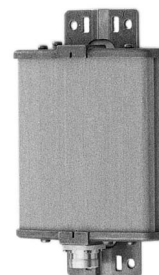
Type No.	734 304
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	10 dBi
Half-power beam width	H-plane: 65° E-plane: 55°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	1.3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 30 N / 5 N / 40 N
Max. wind velocity	200 km/h
Height/width/depth	182 / 155 / 36 mm



Horizontal Pattern

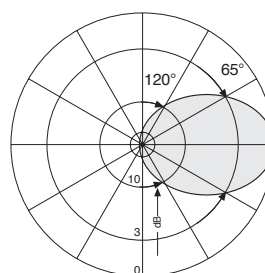


Vertical Pattern

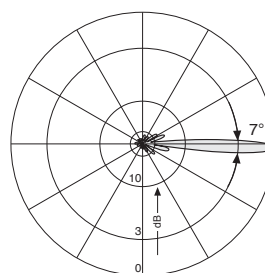


VPol F-Panel 1710–1900 65° 18dBi 2°T

Type No.	735 147
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	18 dBi
Half-power beam width	H-plane: 65° E-plane: 7°
Electrical downtilt	2°, fixed
Side lobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	4.6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 260 N / 55 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 36 mm



Horizontal Pattern



Vertical Pattern

- 2° electrical downtilt
- first null-fill below horizon
better or equal to –25 dB
below maximum gain



F-Panel

Vertical Polarization

Half-power Beam Width

1710–1900

V

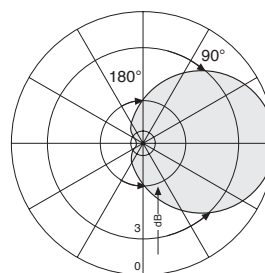
90°

KATHREIN

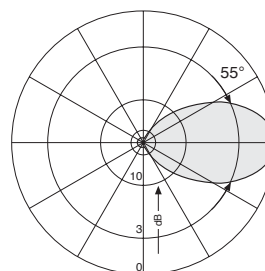
Antennen · Electronic

VPol F-Panel 1710–1900 90° 8dBi

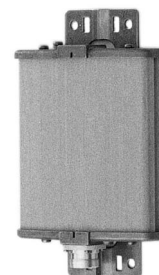
Type No.	734 318
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	8 dBi
Half-power beam width	H-plane: 90° E-plane: 55°
Front-to-back ratio	> 19 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	1.4 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 30 N / 15 N / 40 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	182 / 155 / 49 mm



Horizontal Pattern



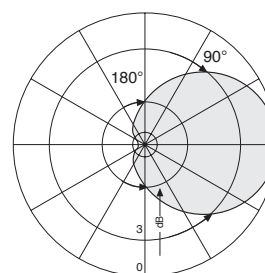
Vertical Pattern



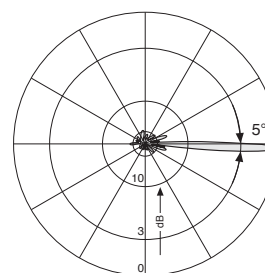
GSM 1800
VPol

VPol F-Panel 1710–1900 90° 17.5dBi 2°T

Type No.	734 330
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	17.5 dBi
Half-power beam width	H-plane: 90° E-plane: 5°
Electrical downtilt	2°, fixed
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6.9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 380 N / 180 N / 480 N
Max. wind velocity	200 km/h
Height/width/depth	1942 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern

- 2° electrical downtilt
- first null-fill below horizon
better or equal to –25 dB
below maximum gain



Summary – Directional Antennas

Dual Polarization +45°/–45°

UMTS / GSM 1800 / GSM 1900/ PCS

KATHREIN

Antennen · Electronic

Dual Polarization +45°/–45° – 1800/1900/2000

Type					Type No.	Height [mm]	Page
XPol F-Panel	1710–2170	33°	20dBi	0°–12°T	800 10251	1032	84
XPol F-Panel	1710–2170	33°	21dBi	0°–8°T	742 351	1304	85
XPol F-Panel	1710–2170	45°	19.5dBi	0°–8°T	742 218	1306	86
XPol F-Panel	1710–2180	45°	21.5dBi	0°–6°T	742 219	1946	87
XPol F-Panel	1710–2170	65°	9dBi	0°T	742 210	155	88
XPol F-Panel	1710–2170	65°	12dBi	2°T	739 489	342	89
XPol F-Panel	1710–2200	65°	15.5dBi	6°T	800 10424	735	90
XPol F-Panel	1710–2170	65°	15.5dBi	0°–10°T	742 211	662	91
XPol F-Panel	1710–2200	65°	15.5dBi	0°–12°T	800 10247	735	92
XPol F-Panel	1710–2170	65°	16dBi	0°T	742 196	735	93
XPol F-Panel	1710–2200	65°	18dBi	6°T	800 10428	1302	94
XPol F-Panel	1710–2200	65°	18dBi	0°–10°T	742 215	1302	95
XPol F-Panel	1710–2200	65°	18dBi	0°–10°T	800 10314	1302	96
XPol F-Panel IRT + ISB	1710–2200	65°	18dBi	0°–10°T	800 10414	1380	97
XPol F-Panel	1710–2200	65°	18.3dBi	0°T	800 10425	1302	98
XPol F-Panel	1710–2200	65°	18.3dBi	2°T	800 10426	1302	99
XPol F-Panel	1710–2170	65°	19.5dBi	0°–6°T	742 213	1942	100
XPol F-Panel	1710–2170	65°	20.5dBi	0°T	742 186	2160	101
XPol F-Panel	1710–2170	88°	11.5dBi	0°T	741 984	342	102
XPol F-Panel	1710–2170	88°	14dBi	0°–10°T	741 988	662	103
XPol F-Panel	1710–2200	88°	17dBi	2°T	741 987	1302	104
XPol F-Panel	1710–2200	88°	17dBi	0°–8°T	741 989	1302	105
XPol F-Panel	1710–2170	88°	18dBi	0°–6°T	741 990	1942	106

Tri-Sector Pipe Antennas

XPol Tri-Sector Pipe	1710–2170	65°	15.5dBi	0°–12°T	800 10375	1241	107
XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10360	1823	108
XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10270	2296	109
XPol Tri-Sector Pipe	1710–2170	65°	19.5dBi	0°–6°T	800 10271	2945	110

Connector position: Please refer to page for details.

New Products

UMTS
XPol

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170

X

33°

0°–12°

KATHREIN

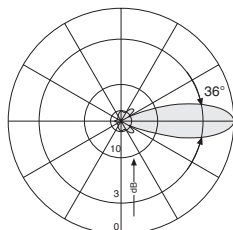
Antennen · Electronic

XPol F-Panel 1710–2170 33° 20dBi 0°–12°T

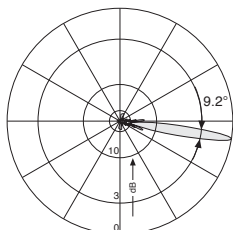
Type No.	800 10251		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19.2 dBi	2 x 19.5 dBi	2 x 19.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 9.2°	Horizontal: 35° Vertical: 9°	Horizontal: 33° Vertical: 8.5°
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°
Sidelobe suppression: Vertical Pattern – first side- lobe above main beam Horizontal Pattern	0° ... 6° ... 12° T 15 ... 17 ... 17 dB > 18 dB	0° ... 6° ... 12° T 15 ... 17 ... 17 dB > 17 dB	0° ... 6° ... 12° T 15 ... 17 ... 17 dB > 15 dB
Front-to-back ratio, copolar (180° ± 30°)	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

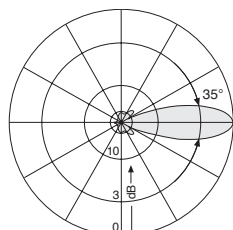


Horizontal Pattern

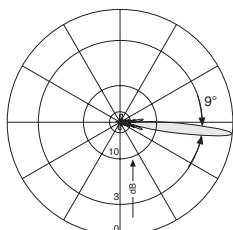


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

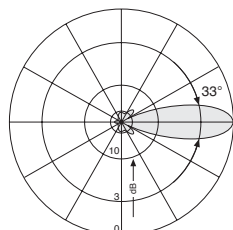


Horizontal Pattern

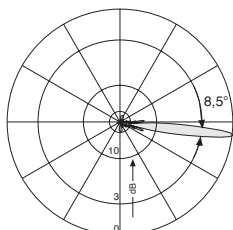


Vertical Pattern
0°–12° electrical downtilt

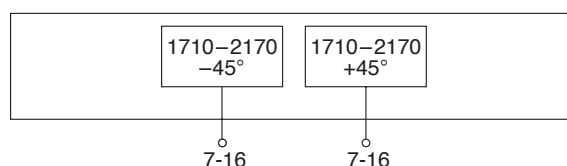
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	11.5 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 90 N (at 150 km/h) Rearside: 460 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1336 x 337 x 112 mm
Height/width/depth	1032 / 299 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170

X

33°

0°–8°

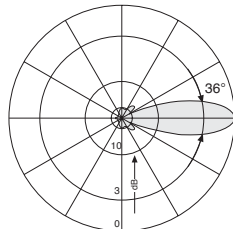
KATHREIN

Antennen · Electronic

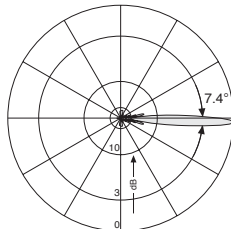
XPol F-Panel 1710–2170 33° 21dBi 0°–8°T

Type No.	742 351		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.5 dBi	2 x 20.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 7.4°	Horizontal: 35° Vertical: 7.0°	Horizontal: 33° Vertical: 6.7°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression: Vertical Pattern – first side- lobe above main beam Horizontal Pattern	0° ... 4° ... 8° T 18 ... 17 ... 16 dB > 14 dB	0° ... 4° ... 8° T 18 ... 18 ... 17 dB > 14 dB	0° ... 4° ... 8° T 18 ... 17 ... 16 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection Sector	0° ±30°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

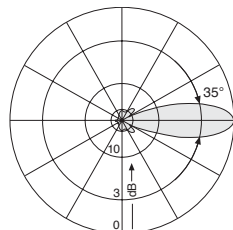


Horizontal Pattern

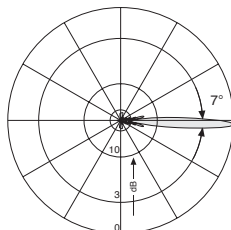


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

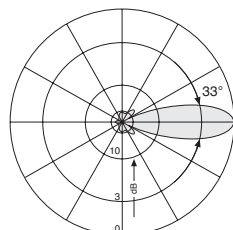


Horizontal Pattern

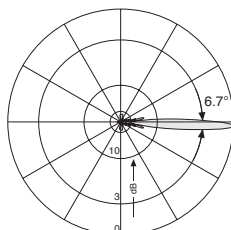


Vertical Pattern
0°–8° electrical downtilt

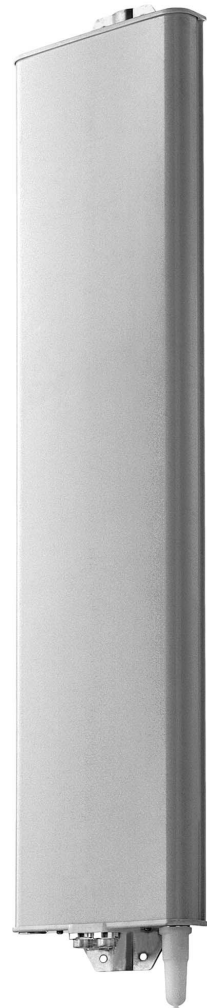
1920 – 2170 MHz: +45°/–45° Polarization



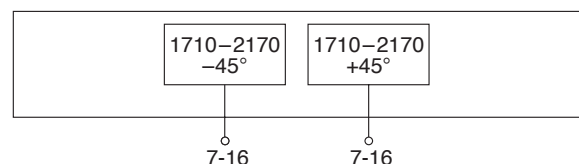
Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



UMTS
XPol



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	13.5 kg
Wind load	Frontal: 570 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 570 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1589 x 322 x 108 mm
Height/width/depth	1304 / 299 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170

X

45°

0°–8°

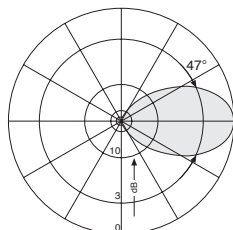
KATHREIN

Antennen · Electronic

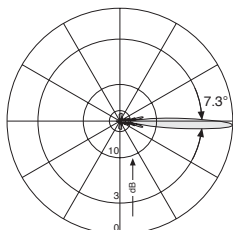
XPol F-Panel 1710–2170 45° 19.5dBi 0°–8°T

Type No.	742 218		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19 dBi	2 x 19.5 dBi	2 x 19.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 47° Vertical: 7.3°	Horizontal: 45° Vertical: 7°	Horizontal: 44° Vertical: 6.7°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression: Vertical Pattern – first side- lobe above main beam Horizontal Pattern	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 ... 15 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 17 ... 17 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 15 ... 15 dB > 18 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 27 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 27 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector 0° ±30°	Typically: 18 dB > 13 dB	Typically: 18 dB > 13 dB	Typically: 18 dB > 13 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

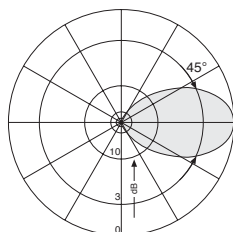


Horizontal Pattern

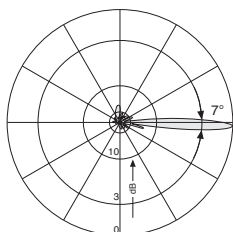


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

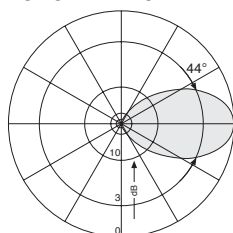


Horizontal Pattern

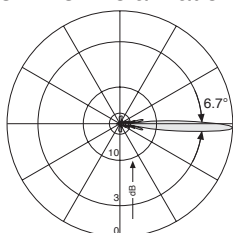


Vertical Pattern
0°–8° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



1710–2170
–45°

1710–2170
+45°

7-16

7-16

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10.2 kg
Wind load	Frontal: 250 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 390 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1604 x 221 x 107 mm
Height/width/depth	1306 / 199 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2180

X

45°

0°–6°

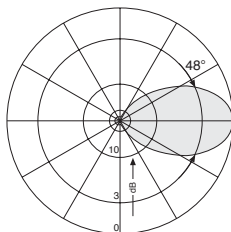
KATHREIN

Antennen · Electronic

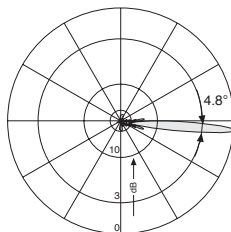
XPol F-Panel 1710–2180 45° 21.5dBi 0°–6°T

Type No.	742 219		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	20.5 ... 20.5 ... 20.1	21 ... 21 ... 20.6	21.2 ... 21.4 ... 21
Tilt	0° ... 3° ... 6°	0° ... 3° ... 6°	0° ... 3° ... 6°
Half-power beam width Copolars +45°/–45°	Horizontal: 48° Vertical: 4.8°	Horizontal: 45° Vertical: 4.6°	Horizontal: 44° Vertical: 4.4°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Sidelobe suppression: Vertical Pattern – first side- lobe above main beam Horizontal Pattern	0° ... 2° ... 4° ... 6°T 18 ... 18 ... 16 ... 16 dB > 18 dB	0° ... 2° ... 4° ... 6°T 18 ... 18 ... 17 ... 16 dB > 18 dB	0° ... 2° ... 4° ... 6°T 18 ... 18 ... 17 ... 16 dB > 18 dB
Front-to-back ratio, copolar total power	> 30 dB > 25 dB	> 27 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection Sector	0° Typically: 19 dB ±30° > 13 dB	Typically: 18 dB > 13 dB	Typically: 17 dB > 13 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

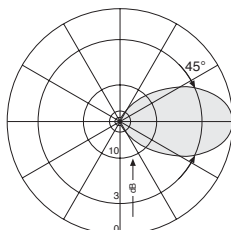


Horizontal Pattern

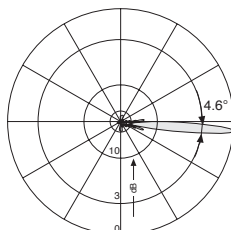


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

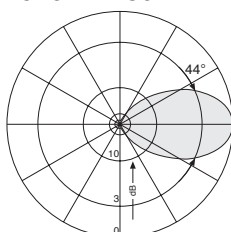


Horizontal Pattern

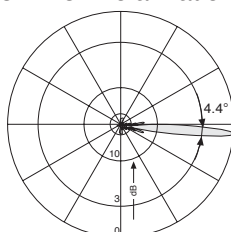


Vertical Pattern
0°–6° electrical downtilt

1920 – 2180 MHz: +45°/–45° Polarization



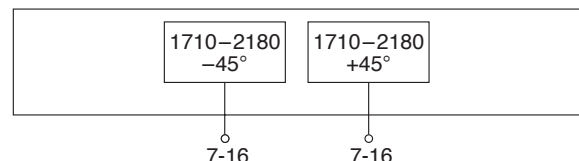
Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



UMTS
XPol



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 390 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 590 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2244 x 221 x 107 mm
Height/width/depth	1946 / 199 / 69 mm

Multi-band F-Panel Dual Polarization Half-power Beam Width Fixed Electrical Downtilt

1710–2170

X

65°

0°

KATHREIN

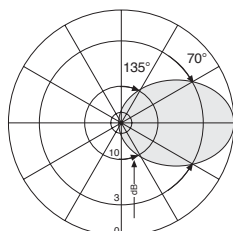
Antennen · Electronic

XPol F-Panel 1710–2170 65° 9dBi 0°T

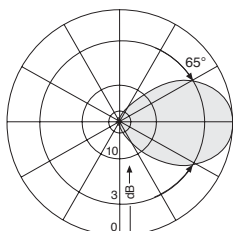
Type No.	742 210		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 8.6 dBi	2 x 8.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 65°	Horizontal: 68° Vertical: 65°	Horizontal: 65° Vertical: 63°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Front-to-back ratio, copolar	> 25 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

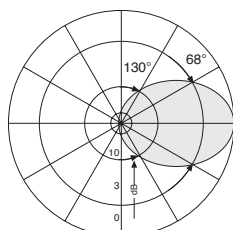


Horizontal Pattern

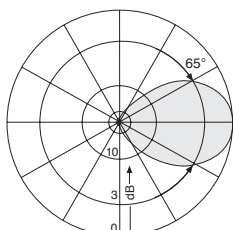


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

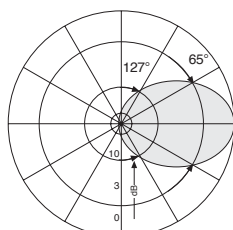


Horizontal Pattern

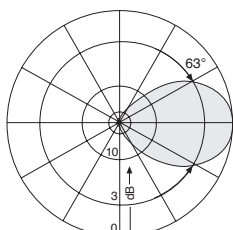


Vertical Pattern

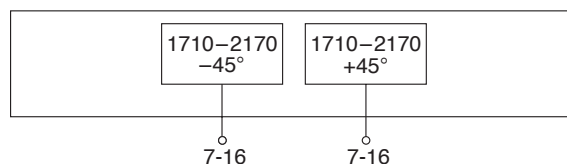
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	1.5 kg
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 15 N (at 150 km/h) Rearside: 40 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	257 x 172 x 92 mm
Height/width/depth	155 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Multi-band F-Panel Dual Polarization Half-power Beam Width Fixed Electrical Downtilt

1710–2170

X

65°

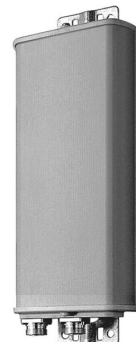
2°

KATHREIN

Antennen · Electronic

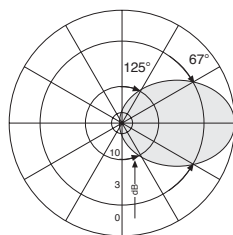
XPol F-Panel 1710–2170 65° 12dBi 2°T

Type No.	739 489		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.5 dBi	2 x 12 dBi	2 x 12 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 32°	Horizontal: 65° Vertical: 30°	Horizontal: 63° Vertical: 28°
Electrical tilt	3°, fixed	2°, fixed	0°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

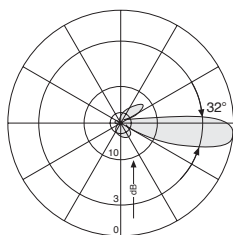


UMTS
XPol

1710 – 1880 MHz: +45°/–45° Polarization

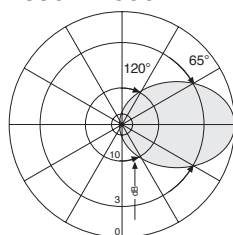


Horizontal Pattern

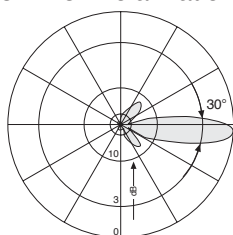


Vertical Pattern
3° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

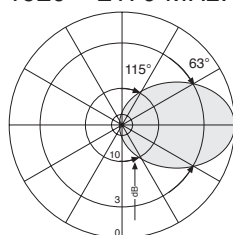


Horizontal Pattern

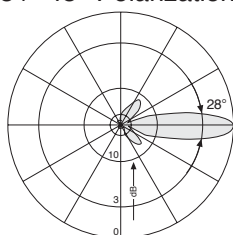


Vertical Pattern
2° electrical downtilt

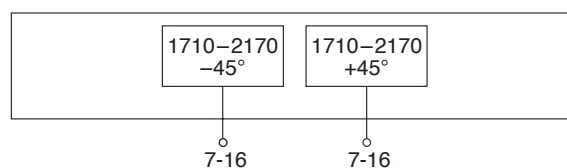
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	2 kg
Wind load	Frontal: 35 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 80 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	444 x 172 x 92 mm
Height/width/depth	342 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2200

X

65°

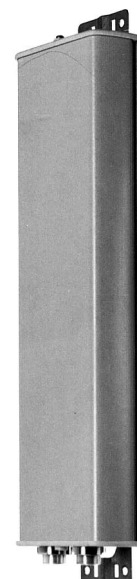
6°

KATHREIN

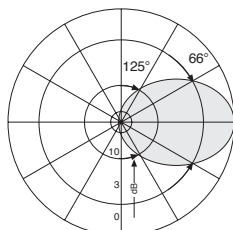
Antennen · Electronic

XPoI F-Panel 1710–2200 65° 15.5dBi 6°T

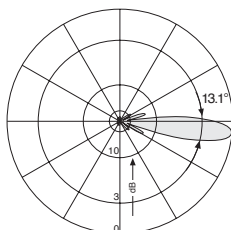
Type No.	800 10424		
Frequency range	1710–2200		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.2 dBi	2 x 15.5 dBi	2 x 15.7 dBi
Horizontal Pattern:			
Half-power beam width	66°	66°	64°
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio	0°	Typically: 18 dB	Typically: 18 dB
Sector	±60°	> 10 dB	> 10 dB
Vertical Pattern:			
Half-power beam width	13.1°	12.2°	11.1°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above main beam	> 15 dB	> 18 dB	> 18 dB
First null-fill below main beam	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Impedance	50 Ω		
VSWR	< 1.3		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	250 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

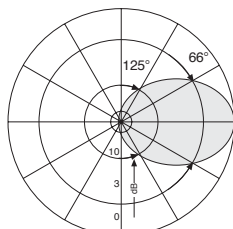


Horizontal Pattern

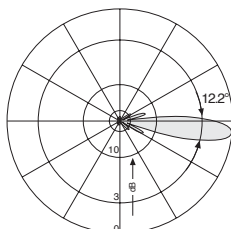


Vertical Pattern
6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

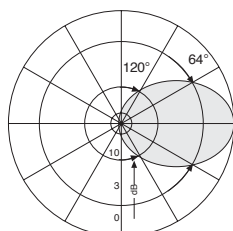


Horizontal Pattern

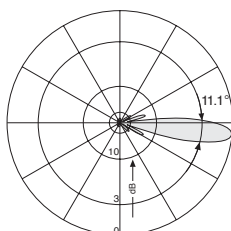


Vertical Pattern
6° electrical downtilt

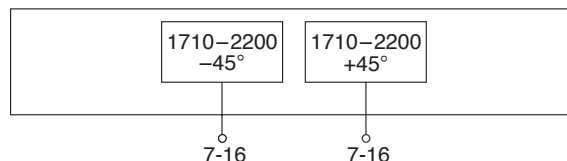
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.7 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

1710–2170

X

65°

0°–10°

KATHREIN

Antennen · Electronic

set by hand or by optional RCU (Remote Control Unit)

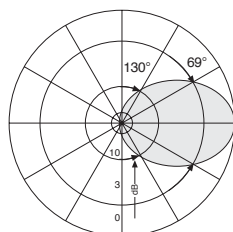
XPol F-Panel 1710–2170 65° 15.5dBi 0°–10°T

Type No.	742 211		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 67° Vertical: 14°	Horizontal: 64° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10°T 18 ... 16 ... 15 ... 15 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 16 dB
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.4	< 1.4	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

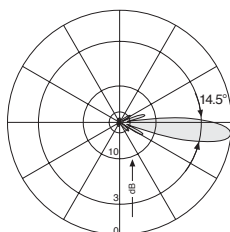


UMTS
XPol

1710 – 1880 MHz: +45°/–45° Polarization

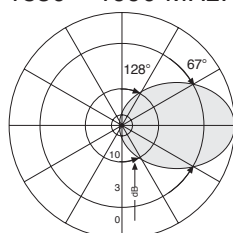


Horizontal Pattern

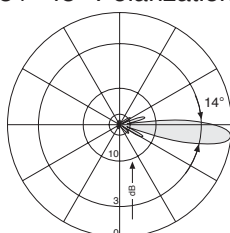


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

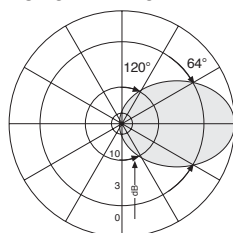


Horizontal Pattern

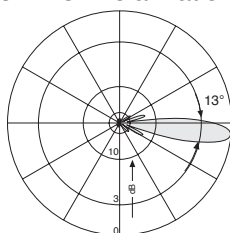


Vertical Pattern
0°–10° electrical downtilt

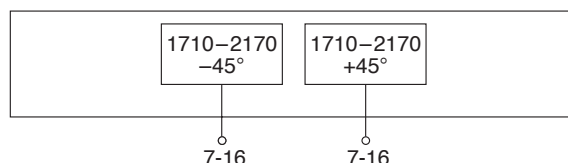
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

1710–2200

X

65°

0°–12°

KATHREIN

Antennen · Electronic

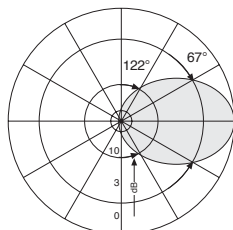
set by hand or by optional RCU (Remote Control Unit)

XPol F-Panel 1710–2200 65° 15.5dBi 0°–12°T

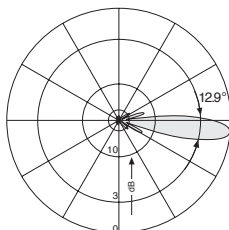
Type No.	800 10247		
Frequency range	1710–2200		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain per input	0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.3 ... 15.1 dBi	0° ... 4° ... 8° ... 12° T 15.6 ... 15.5 ... 15.4 ... 15 dBi	0° ... 4° ... 8° ... 12° T 15.8 ... 15.7 ... 15.5 ... 14.9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.9°	Horizontal: 66° Vertical: 12.3°	Horizontal: 64° Vertical: 11.5°
Electrical tilt continuously adjust.	0°–12°	0°–12°	0°–12°
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB	0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB	0° ... 4° ... 8° ... 12° T > 14 ... 14 ... 14 ... 14 dB
Front-to-back ratio	Copolar: > 27 dB	Copolar: > 27 dB	Copolar: > 27 dB
Cross polar ratio			
Maindirection	Typically: 20 dB	Typically: 20 dB	Typically: 20 dB
Sector	> 10 dB	> 10 dB	> 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

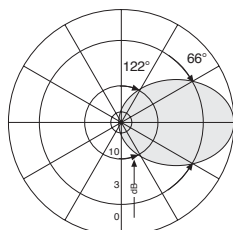


Horizontal Pattern

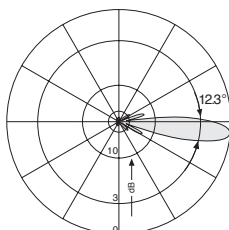


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

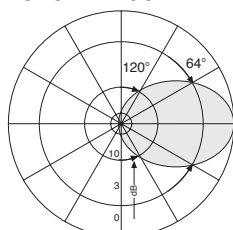


Horizontal Pattern

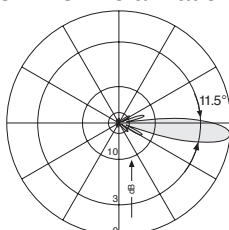


Vertical Pattern
0°–12° electrical downtilt

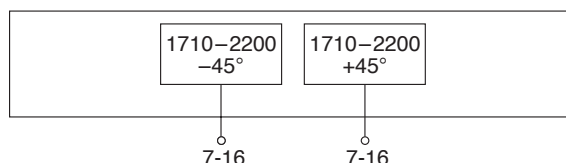
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1015 x 172 x 92 mm
Height/width/depth	735 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2170

X

65°

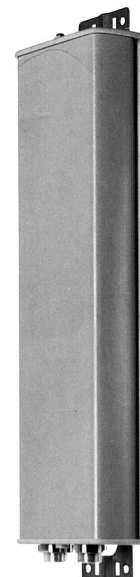
0°

KATHREIN

Antennen · Electronic

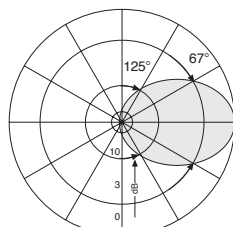
XPol F-Panel 1710–2170 65° 16dBi 0°T

Type No.	742 196		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.3 dBi	2 x 15.6 dBi	2 x 15.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.6°	Horizontal: 66° Vertical: 11.8°	Horizontal: 64° Vertical: 11°
Sidelobe suppression for first sidelobe above horizon	> 14 dB	> 16 dB	> 14 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

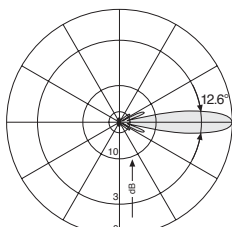


UMTS
XPol

1710 – 1880 MHz: +45°/–45° Polarization

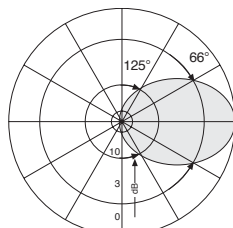


Horizontal Pattern

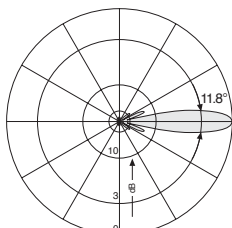


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

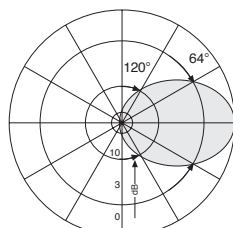


Horizontal Pattern

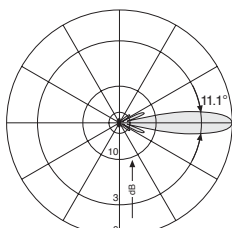


Vertical Pattern

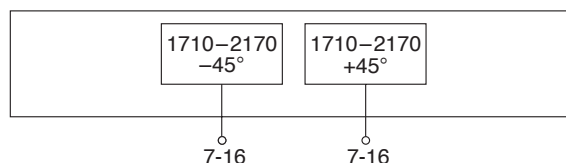
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3.7 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2200

X

65°

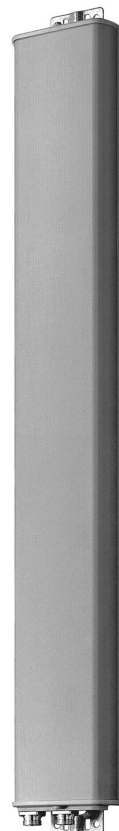
6°

KATHREIN

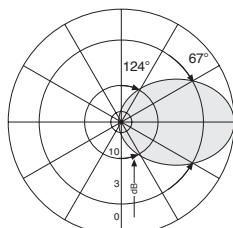
Antennen · Electronic

XPol F-Panel 1710–2200 65° 18dBi 6°T

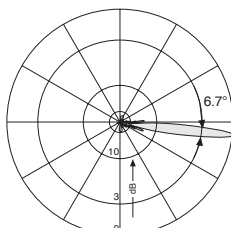
Type No.	800 10428		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 17.9 dBi	2 x 18.1 dBi
Horizontal Pattern:			
Half-power beam width	67°	65°	63°
Front-to-back ratio, copolar	> 27 dB	> 33 dB	> 33 dB
Cross polar ratio	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Sector	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Vertical Pattern:			
Half-power beam width	6.7°	6.3°	5.8°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above main beam	> 14 dB	> 14 dB	> 15 dB
First null-fill below main beam	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Impedance	50 Ω		
VSWR	< 1.3		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

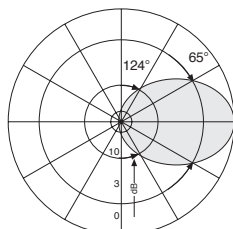


Horizontal Pattern

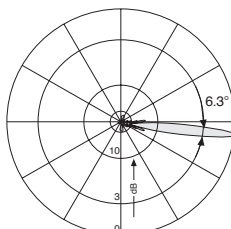


Vertical Pattern
6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

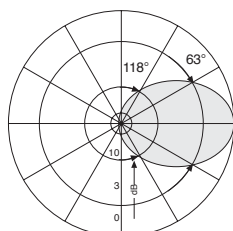


Horizontal Pattern

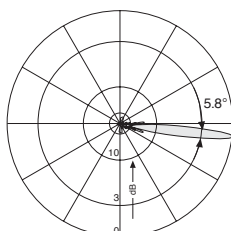


Vertical Pattern
6° electrical downtilt

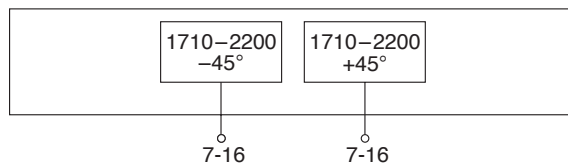
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2200

X

65°

0°–10°

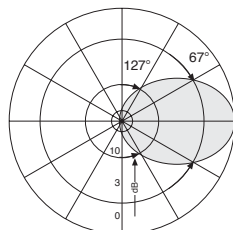
KATHREIN

Antennen · Electronic

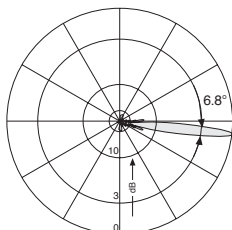
XPol F-Panel 1710–2200 65° 18dBi 0°–10°T

Type No.	742 215		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 17.9 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 6.8°	Horizontal: 66° Vertical: 6.5°	Horizontal: 65° Vertical: 6.2°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 18 ... 17 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 18 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

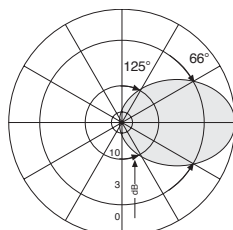


Horizontal Pattern

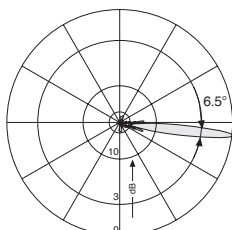


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

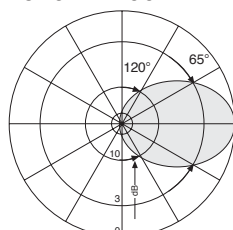


Horizontal Pattern

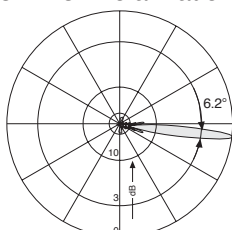


Vertical Pattern
0°–10° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization



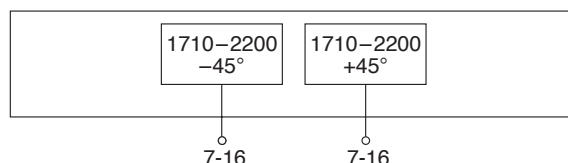
Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



UMTS
XPol



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Integrated Remote Tilt

Adjust. Electrical Downtilt

1710–2200

X

65°

IRT

0°–10°

KATHREIN

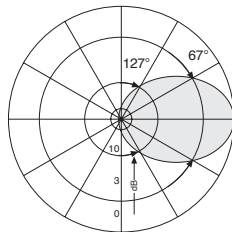
Antennen · Electronic



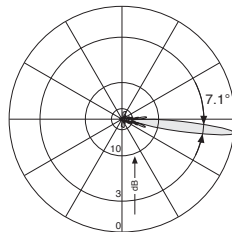
XPol F-Panel IRT 1710–2200 65° 18dBi 0°–10°T

Type No.	800 10314		
A) Antenna specifications			
Frequency range	1710 – 1880 MHz1710–22001850 – 1990 MHz1920 – 2200 MHz		
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 17.9 dBi	2 x 18 dBi
Horizontal Pattern:			
Half-power beam width	67°	66°	65°
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio			
Maindirection0°	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Sector±60°	> 10 dB	> 10 dB	> 10 dB
Vertical Pattern:			
Half-power beam width	7.1°	6.8°	6.6°
Electrical tilt	0°–10°, continuously adjustable		
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 17 ... 17 ... 17 ... 17 dB
Impedance	50 Ω		
VSWR	< 1.5		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	120 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

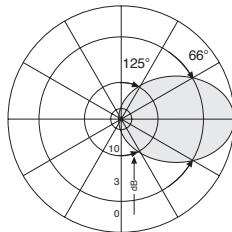


Horizontal Pattern

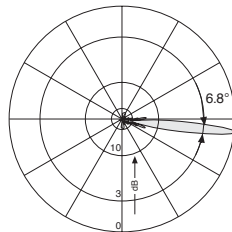


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

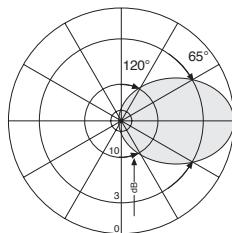


Horizontal Pattern

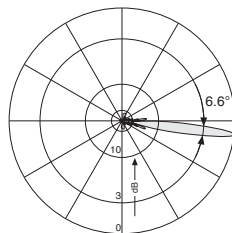


Vertical Pattern
0°–10° electrical downtilt

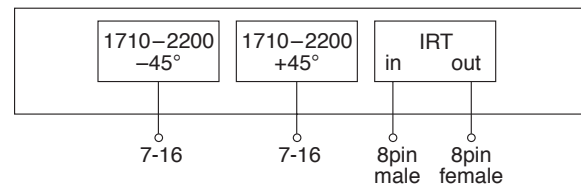
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



B) IRT specifications

Power supply	10 ... 30 V
Power consumption	< 1 W (stand by) < 8.5 W (motor activated)
Hardware interface ¹⁾	2 x 8pin connector acc. IEC 60130-9; according to AISG: – IRT in (male): Control / Daisy chain in – IRT out (female): Daisy chain out
Logical interface ²⁾	HEX coded commands based on HDLC protocol; according to AISG
Adjustment time (full range)	40 sec.
Adjustment cycles	> 50,000

¹⁾ Tightning torque for fixing the connector must lie between 0.5 – 1.0 Nm.

²⁾ **Please note:** The SW of the unit, which is controlling the remote tilt unit, has to be able to handle also an integrated remote tilt unit, like Kathrein CCU with firmware 1.29 or higher and the Kathrein PCA with software 2.2 or higher.

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Integrated Remote Tilt + Smart Bias-T

Adjust. Electrical Downtilt

1710–2200

X

65°

IRT + ISB

0°–10°

KATHREIN

Antennen · Electronic

Preliminary Issue

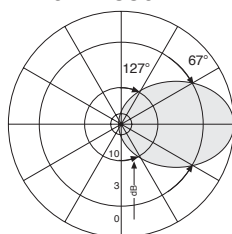


UMTS
XPoI

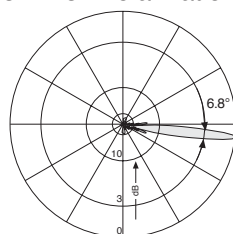
XPoI F-Panel IRT 1710–2200 65° 18dBi 0°–10°T

Type No.	800 10414		
A) Antenna specifications			
Frequency range	1710–2200		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 17.9 dBi	2 x 18 dBi
Horizontal Pattern:			
Half-power beam width	67°	66°	65°
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio			
Maindirection	0°		
Sector	±60°		
	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Vertical Pattern:			
Half-power beam width	6.8°	6.5°	6.2°
Electrical tilt	0°–10°, continuously adjustable		
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 18 ... 17 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 17 ... 18 dB
Impedance	50 Ω		
VSWR	< 1.5		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	75 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

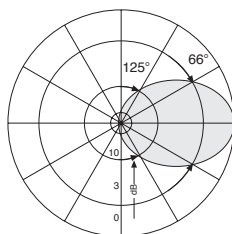


Horizontal Pattern

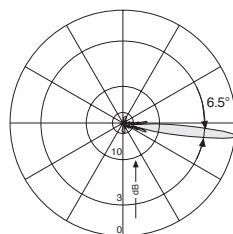


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

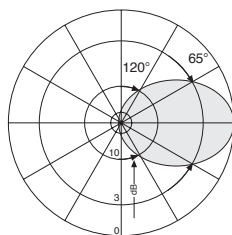


Horizontal Pattern

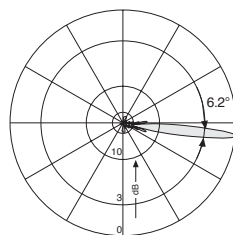


Vertical Pattern
0°–10° electrical downtilt

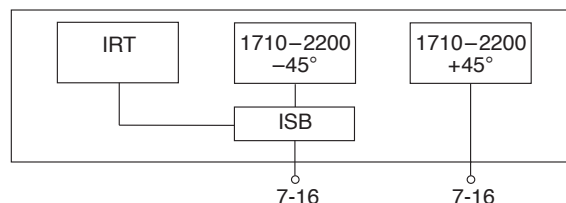
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



B) IRT + ISB specifications

Power supply	10 ... 30 V
Power consumption	< 1 W (stand by) < 8.5 W (motor activated)
Hardware interface	IRT supply and control via integrated smart Bias-T: Input: 7-16 female (–45°)
Modem carrier frequency	2.176 MHz
Modem data rate	9.6 kB
Software interface	HEX coded commands based on HDLC protocol; according to 3GPP
Adjustment time (full range)	40 sec.
Adjustment cycles	> 50,000

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2200

X

65°

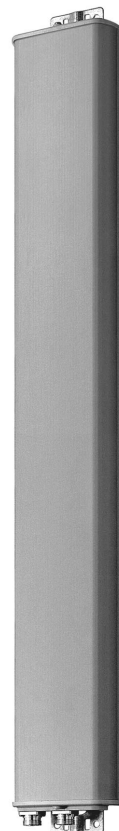
0°

KATHREIN

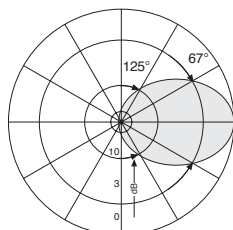
Antennen · Electronic

XPoI F-Panel 1710–2200 65° 18.3dBi 0°T

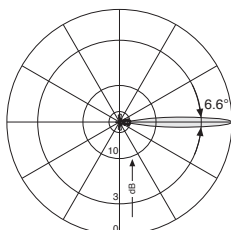
Type No.	800 10425		
Frequency range	1710 – 1880 MHz	1710–2200 1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.9 dBi	2 x 18.1 dBi	2 x 18.3 dBi
Horizontal Pattern:			
Half-power beam width	67°	66°	64°
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Sector 0° ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Vertical Pattern:			
Half-power beam width	6.6°	6.2°	5.8°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Sidelobe suppression for first sidelobe above main beam	> 14 dB	> 15 dB	> 16 dB
First null-fill below main beam	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Impedance	50 Ω		
VSWR	< 1.4		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

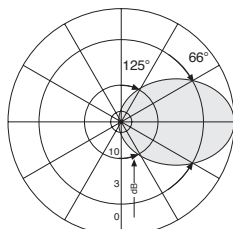


Horizontal Pattern

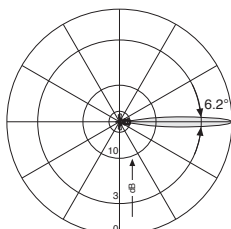


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

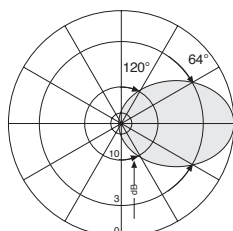


Horizontal Pattern

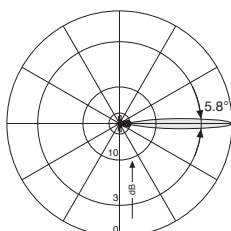


Vertical Pattern

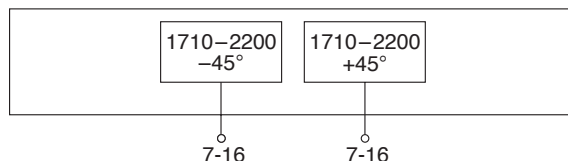
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2200

X

65°

2°

KATHREIN

Antennen · Electronic

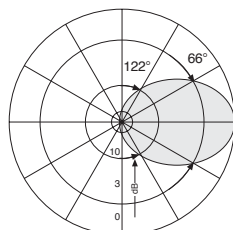
XPol F-Panel 1710–2200 65° 18.3dBi 2°T

Type No.	800 10426		
Frequency range	1710–2200		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.9 dBi	2 x 18.1 dBi	2 x 18.3 dBi
Horizontal Pattern:			
Half-power beam width	66°	65°	63°
Front-to-back ratio, copolar	> 28 dB	> 30 dB	> 33 dB
Cross polar ratio	Typically: 20 dB	Typically: 20 dB	Typically: 20 dB
Sector	±60°	> 10 dB	> 10 dB
Vertical Pattern:			
Half-power beam width	6.6°	6.2°	5.8°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above main beam	> 14 dB	> 15 dB	> 15 dB
First null-fill below main beam	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
Impedance	50 Ω		
VSWR	< 1.4		
Isolation, between ports	> 30 dB		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	300 W (at 50 °C ambient temperature)		

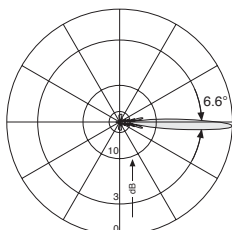


UMTS
XPol

1710 – 1880 MHz: +45°/–45° Polarization

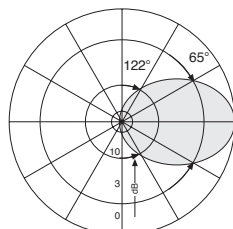


Horizontal Pattern

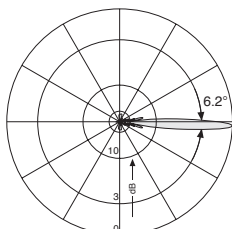


Vertical Pattern
2° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

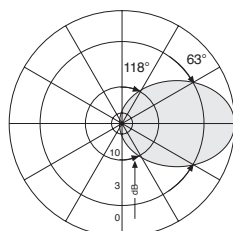


Horizontal Pattern

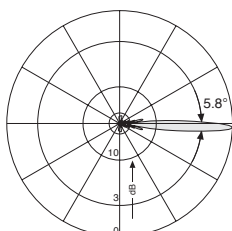


Vertical Pattern
2° electrical downtilt

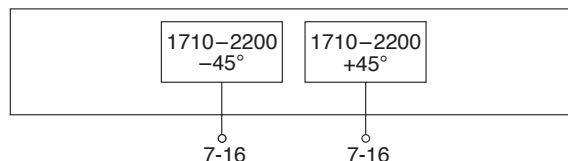
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170

X

65°

0°–6°

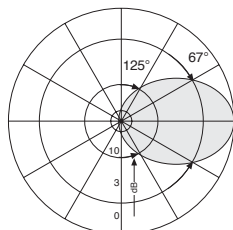
KATHREIN

Antennen · Electronic

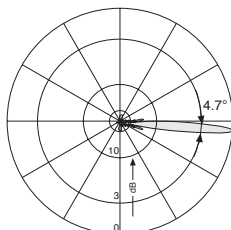
XPol F-Panel 1710–2170 65° 19.5dBi 0°–6°T

Type No.	742 213		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19 dBi	2 x 19.2 dBi	2 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4.7°	Horizontal: 65° Vertical: 4.5°	Horizontal: 63° Vertical: 4.3°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 6° T 18 ... 17 ... 15 ... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 15 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° Typically: 25 dB ±60° > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

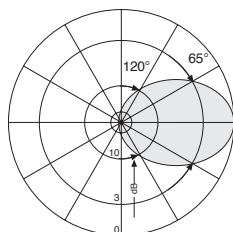


Horizontal Pattern

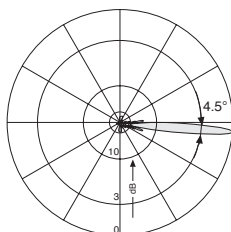


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

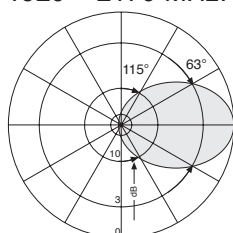


Horizontal Pattern

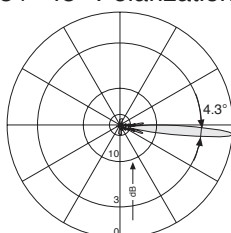


Vertical Pattern
0°–6° electrical downtilt

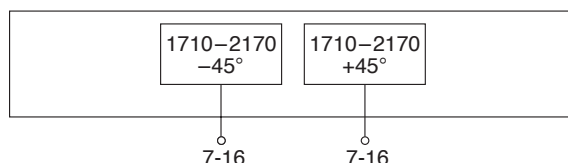
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2214 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2170

X

65°

0°

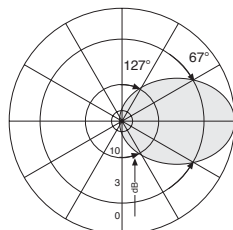
KATHREIN

Antennen · Electronic

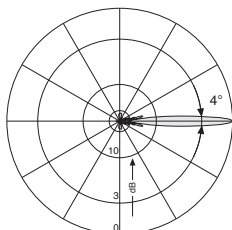
XPol F-Panel 1710–2170 65° 20.5dBi 0°T

Type No.	742 186		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	20 dBi	20.2 dBi	20.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4°	Horizontal: 65° Vertical: 3.8°	Horizontal: 61° Vertical: 3.5°
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 28 dB	Copolar: > 30 dB Total power: > 28 dB	Copolar: > 30 dB Total power: > 27 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 14 dB	Typically: 25 dB > 14 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

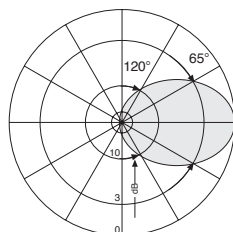


Horizontal Pattern

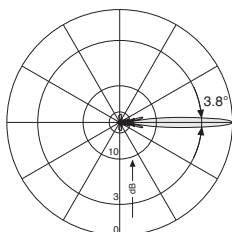


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

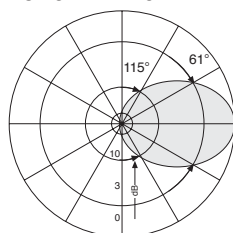


Horizontal Pattern

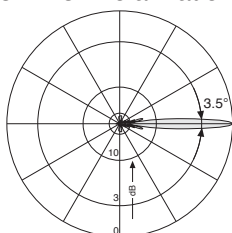


Vertical Pattern

1920 – 2170 MHz: +45°/–45° Polarization



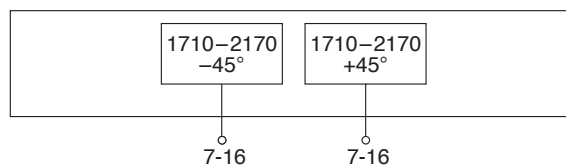
Horizontal Pattern



Vertical Pattern



UMTS
XPol



Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	9.5 kg
Wind load	Frontal: 215 N (at 150 km/h) Lateral: 185 N (at 150 km/h) Rearside: 530 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2271 x 172 x 92 mm
Height/width/depth	2160 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Excellent Sidelobe Suppression

1710–2170

X

88°

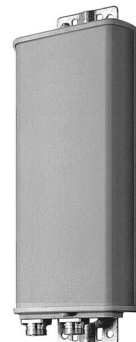
20 dB

KATHREIN

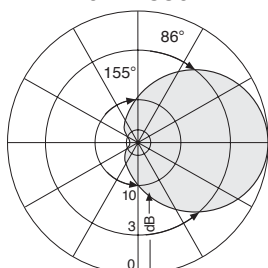
Antennen · Electronic

XPol F-Panel 1710–2170 88° 11.5dBi

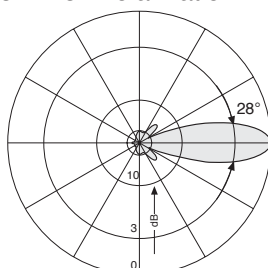
Type No.	741 984		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.3 dBi	2 x 11.5 dBi	2 x 11.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 86° Vertical: 28°	Horizontal: 87° Vertical: 26°	Horizontal: 88° Vertical: 26°
Sidelobe suppression vertical sector ±45°	> 20 dB	> 20 dB	> 20 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 23 dB Total power: > 23 dB	Copolar: > 23 dB Total power: > 23 dB	Copolar: > 23 dB Total power: > 23 dB
Cross polar ratio Maindirection Sector	Typically: 20 dB 0° ±60° > 18 dB	Typically: 25 dB > 18 dB	Typically: 20 dB > 15 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

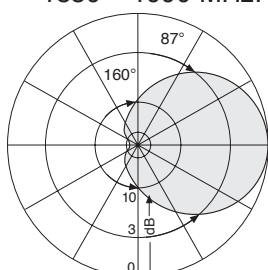


Horizontal Pattern

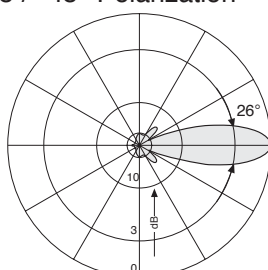


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

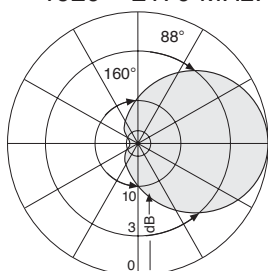


Horizontal Pattern

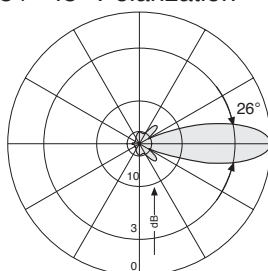


Vertical Pattern

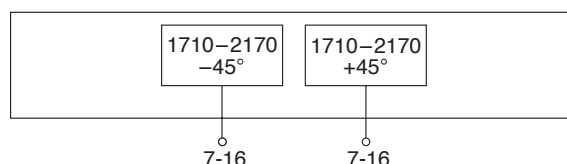
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	2 kg
Wind load	Frontal: 35 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 80 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	444 x 172 x 92 mm
Height/width/depth	342 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

1710–2170

X

88°

0°–10°

KATHREIN

Antennen · Electronic

set by hand or by optional RCU (Remote Control Unit)

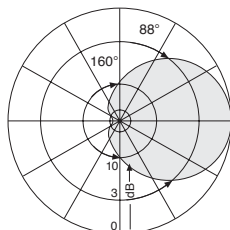
XPol F-Panel 1710–2170 88° 14dBi 0°–10°T

Type No.	741 988		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 13.7 dBi	2 x 14 dBi	2 x 14.1 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 14.7°	Horizontal: 88° Vertical: 14°	Horizontal: 88° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB
Front-to-back ratio, copolar total power	> 25 dB > 25 dB	> 25 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

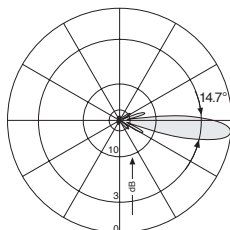


UMTS
XPol

1710 – 1880 MHz: +45°/–45° Polarization

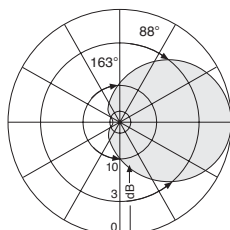


Horizontal Pattern

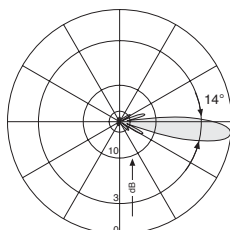


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

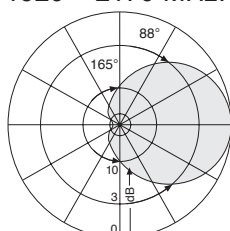


Horizontal Pattern

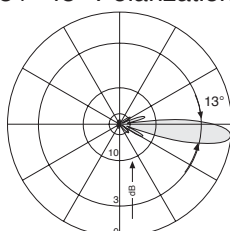


Vertical Pattern
0°–10° electrical downtilt

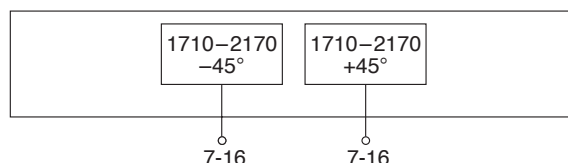
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.2 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	935 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Multi-band F-Panel Dual Polarization Half-power Beam Width Fixed Electrical Downtilt

1710–2200

X

88°

2°

KATHREIN

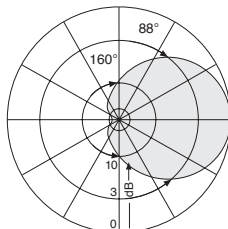
Antennen · Electronic

XPol F-Panel 1710–2200 88° 17dBi 2°T

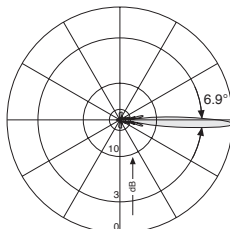
Type No.	741 987		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 6.9°	Horizontal: 88° Vertical: 6.5°	Horizontal: 88° Vertical: 6.2°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above horizon	> 16 dB	> 16 dB	> 16 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° Typically: 20 dB ±60° > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

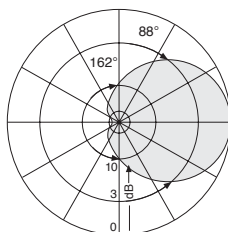


Horizontal Pattern

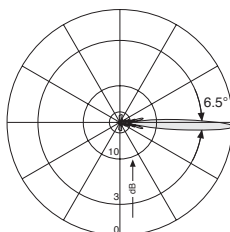


Vertical Pattern
2° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

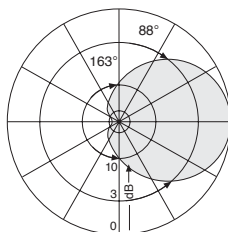


Horizontal Pattern

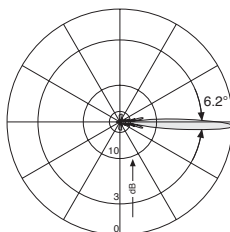


Vertical Pattern
2° electrical downtilt

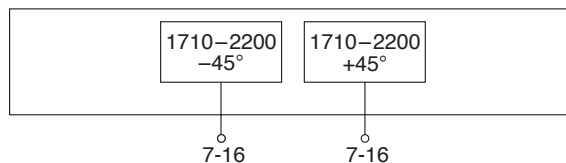
1920 – 2200 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	6.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2200

X

88°

0°–8°

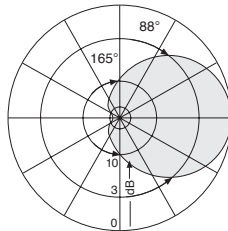
KATHREIN

Antennen · Electronic

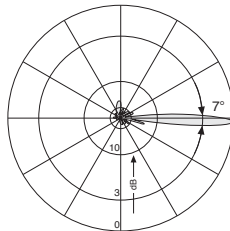
XPol F-Panel 1710–2200 88° 17dBi 0°–8°T

Type No.	741 989		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2200 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.8 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7°	Horizontal: 88° Vertical: 6.7°	Horizontal: 88° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 16 ... 14 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 17 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 18 ... 17 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 24 dB Total power: > 24 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

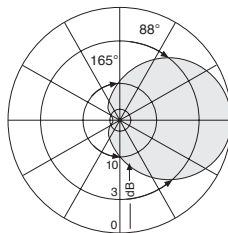


Horizontal Pattern

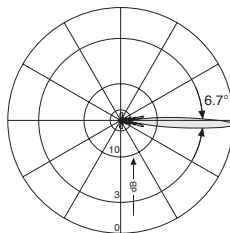


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

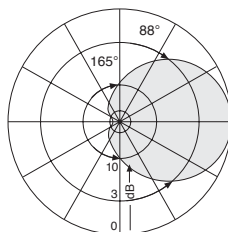


Horizontal Pattern

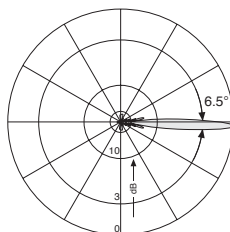


Vertical Pattern
0°–8° electrical downtilt

1920 – 2200 MHz: +45°/–45° Polarization



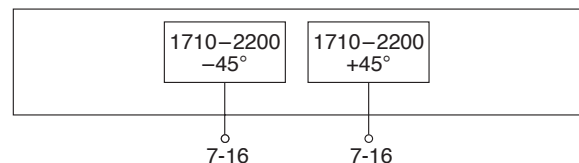
Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



UMTS
XPol



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170

X

88°

0°–6°

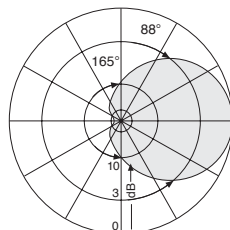
KATHREIN

Antennen · Electronic

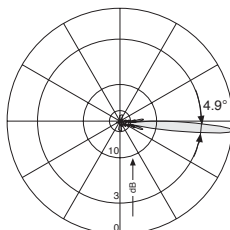
XPol F-Panel 1710–2170 88° 18dBi 0°–6°T

Type No.	741 990		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 18 dBi	2 x 18.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 4.9°	Horizontal: 88° Vertical: 4.7°	Horizontal: 88° Vertical: 4.5°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 6° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ... 18 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ... 18 dB
Front-to-back ratio, copolar total power	> 25 dB > 25 dB	> 25 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

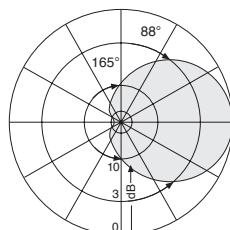


Horizontal Pattern

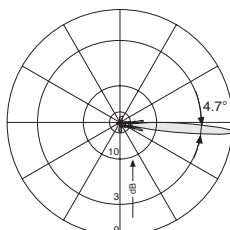


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

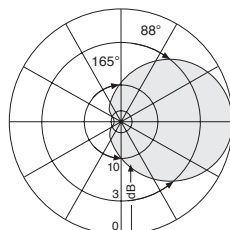


Horizontal Pattern

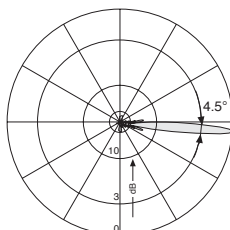


Vertical Pattern
0°–6° electrical downtilt

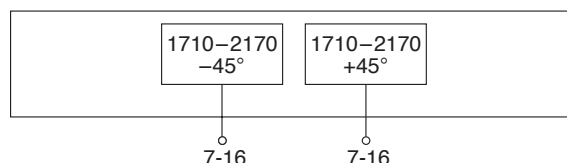
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	9 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2214 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

XPol Tri-Sector Pipe 1710–2170 65° 15.5dBi 0°–12°T

0°

120°

240°

KATHREIN

Antennen · Electronic

1710–2170

1710–2170

1710–2170

X

X

X

65°

65°

65°

0°–12°

0°–12°

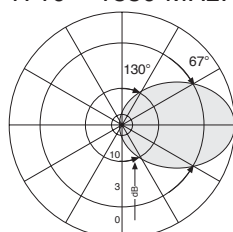
0°–12°

Type No.	800 10375			Electrical datas per sector
Frequency range	1710–2170			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Gain per Input (dBi)	0° ... 4° ... 8° ... 12° T 15.4 ... 15.2 ... 15.0 ... 14.8	0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.3 ... 14.9	0° ... 4° ... 8° ... 12° T 15.7 ... 15.6 ... 15.4 ... 14.9	
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.7°	Horizontal: 65° Vertical: 12°	Horizontal: 62° Vertical: 11.2°	
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°	
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 12° T 16 ... 16 ... 15 ... 15 dB	0° ... 4° ... 8° ... 12° T 18 ... 17 ... 17 ... 16 dB	0° ... 4° ... 8° ... 12° T 18 ... 18 ... 16 ... 16 dB	
Front-to-back ratio	Copolar: > 25 dB	Copolar: > 25 dB	Copolar: > 25 dB	
Cross polar ratio				
Maindirection	Typically: 20 dB	Typically: 20 dB	Typically: 20 dB	
Sector	Typically: > 10 dB	Typically: > 10 dB	Typically: > 10 dB	
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	
Isolation: Intersystem	> 40 dB	> 40 dB	> 40 dB	
Impedance	50 Ω	50 Ω	50 Ω	
VSWR	< 1.5	< 1.5	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)		< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)			

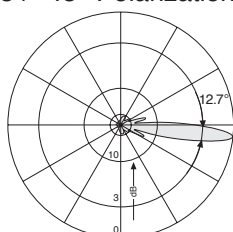


Tri-Sector Pipe Antenna

1710 – 1880 MHz: +45°/–45° Polarization

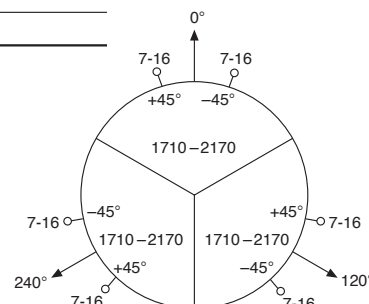


Horizontal Pattern

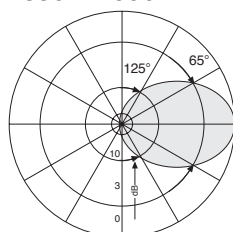


Vertical Pattern

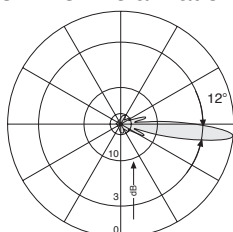
0°–12° electrical downtilt



1850 – 1990 MHz: +45°/–45° Polarization



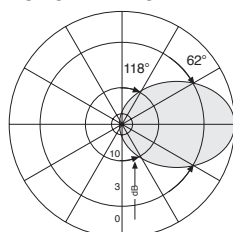
Horizontal Pattern



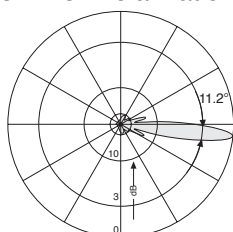
Vertical Pattern

0°–12° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern

0°–12° electrical downtilt

Mechanical specifications

Input	3 x 2 x 7-16 female
Connector position	Bottom – inside service area
Adjustment mechanism	3 x 1, Position bottom continuously adjustable inside service area
Weight	32 kg
Wind load	205 N (at 150 km/h)
Max. wind velocity	200 km/h
Natural frequency	45 – 47 Hz
Damping ratio	0.032
Mechanical interface	Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note)
Packing size	1395 x 315 x 330 mm
Height/ diameter	1241 / 230 and 280 mm

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T

0°	120°	240°
1710–2170	1710–2170	1710–2170
X	X	X
65°	65°	65°
0°–10°	0°–10°	0°–10°

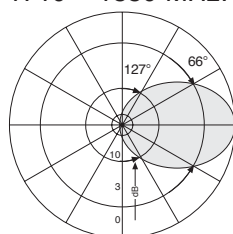
KATHREIN

Antennen · Electronic

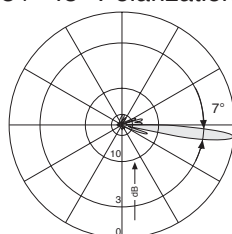
Type No.	800 10360			Electrical datas per sector
Frequency range	1710–2170			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Average gain (dBi)	17.2 ... 17.5 ... 17.2	17.6 ... 17.8 ... 17.6	17.8 ... 17.9 ... 17.4	
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°	
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 7°	Horizontal: 63° Vertical: 6.7°	Horizontal: 60° Vertical: 6.4°	
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 17 ... 15 ... 15 dB	0° ... 5° ... 10° T 17 ... 17 ... 15 dB	0° ... 5° ... 10° T 17 ... 17 ... 15 dB	
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	
Cross polar ratio Maindirection	Typically: 25 dB	Typically: 20 dB	Typically: 20 dB	
Sector ±60°	Typically: > 10 dB	Typically: > 10 dB	Typically: > 10 dB	
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	
Isolation: Intersystem	> 45 dB	> 42 dB	> 42 dB	
Impedance	50 Ω	50 Ω	50 Ω	
VSWR	< 1.5	< 1.5	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			
Max. power per input	300 W (at 50 °C ambient temperature)			



1710 – 1880 MHz: +45°/–45° Polarization

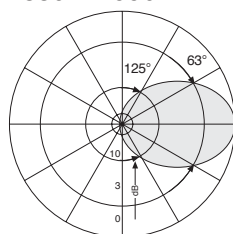


Horizontal Pattern

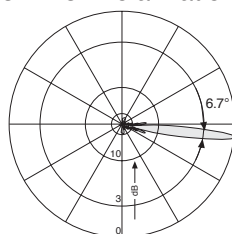


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

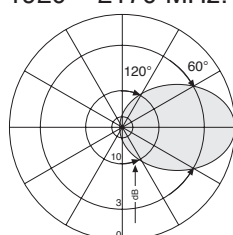


Horizontal Pattern

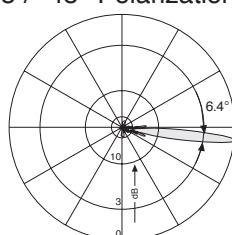


Vertical Pattern
0°–10° electrical downtilt

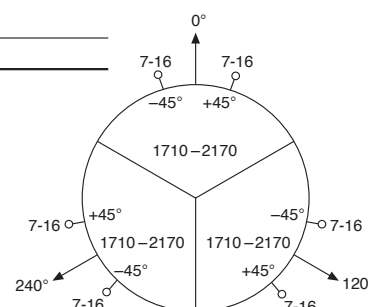
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	3 x 2 x 7-16 female
Connector position	Bottom – inside service area
Adjustment mechanism	3 x 1, Position bottom continuously adjustable inside service area
Weight	56 kg
Wind load	320 N (at 150 km/h)
Max. wind velocity	200 km/h
Natural frequency	19 – 21 Hz
Damping ratio	0.032
Mechanical interface	Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note)
Packing size	2030 x 400 x 400 mm
Height/ diameter	1823 / 230 and 280 mm

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

XPol Tri-Sector Pipe 1710–2170 65° 18dBi 0°–10°T

Type No.	800 10270			Electrical datas per sector
Frequency range	1710–2170			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Average gain (dBi)	17.2 ... 17.5 ... 17.2	17.6 ... 17.8 ... 17.6	17.8 ... 17.9 ... 17.4	
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°	
Half-power beam width	Horizontal: 66°	Horizontal: 63°	Horizontal: 60°	
Copolar +45°/–45°	Vertical: 7°	Vertical: 6.7°	Vertical: 6.4°	
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 17 ... 15 ... 15 dB	0° ... 5° ... 10° T 17 ... 17 ... 15 dB	0° ... 5° ... 10° T 17 ... 17 ... 15 dB	
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	
Cross polar ratio	Typically: 25 dB	Typically: 20 dB	Typically: 20 dB	
Maindirection	Typically: > 10 dB	Typically: > 10 dB	Typically: > 10 dB	
Sector	0°			
	±60°			
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	
Isolation: Intersystem	> 45 dB	> 42 dB	> 42 dB	
Impedance	50 Ω	50 Ω	50 Ω	
VSWR	< 1.5	< 1.5	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			
Max. power per input	300 W (at 50 °C ambient temperature)			

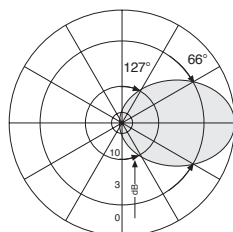
KATHREIN

Antennen · Electronic

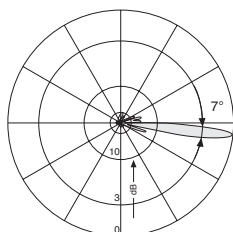


Tri-Sector Pipe Antenna

1710 – 1880 MHz: +45°/–45° Polarization

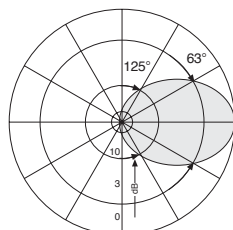


Horizontal Pattern

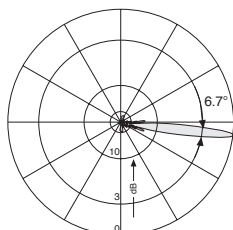


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

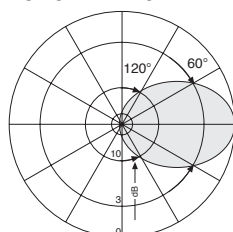


Horizontal Pattern

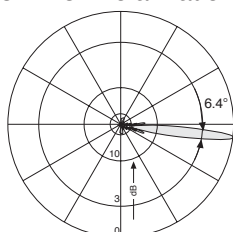


Vertical Pattern
0°–10° electrical downtilt

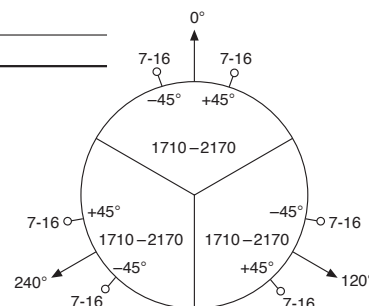
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	3 x 2 x 7-16 female
Connector position	Bottom – inside service area
Adjustment mechanism	3 x 1, Position bottom continuously adjustable inside service area
Weight	70 kg
Wind load	450 N (at 150 km/h)
Max. wind velocity	200 km/h
Natural frequency	17.5 – 19 Hz
Damping ratio	0.032
Mechanical interface	Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note)
Packing size	2500 x 330 x 315 mm
Height/ diameter	2296 / 230 and 280 mm

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCUs (Remote Control Units)

XPol Tri-Sector Pipe 1710–2170 65° 19.5dBi 0°–6°T

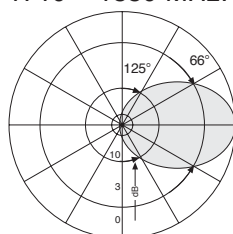
Type No.	800 10271			Electrical datas per sector
Frequency range	1710–2170			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Average gain (dBi)	18.7 ... 19.0 ... 18.7	19.1 ... 19.3 ... 19.1	19.3 ... 19.5 ... 19.3	
Tilt	0° ... 3° ... 6°	0° ... 3° ... 6°	0° ... 3° ... 6°	
Half-power beam width	Horizontal: 66°	Horizontal: 63°	Horizontal: 60°	
Copolar +45°/–45°	Vertical: 4.7°	Vertical: 4.5°	Vertical: 4.3°	
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°	
Sidelobe suppression for first sidelobe above horizon	0° ... 3° ... 6° T 17 ... 15 ... 15 dB	0° ... 3° ... 6° T 17 ... 17 ... 15 dB	0° ... 3° ... 6° T 17 ... 17 ... 15 dB	
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	
Cross polar ratio	Typically: 25 dB	Typically: 20 dB	Typically: 20 dB	
Maindirection	Typically: > 10 dB	Typically: > 10 dB	Typically: > 10 dB	
Sector				
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	
Isolation: Intersystem	> 45 dB	> 42 dB	> 42 dB	
Impedance	50 Ω	50 Ω	50 Ω	
VSWR	< 1.5	< 1.5	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			
Max. power per input	300 W (at 50 °C ambient temperature)			

KATHREIN

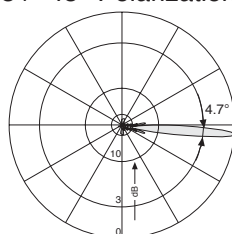
Antennen · Electronic



1710 – 1880 MHz: +45°/–45° Polarization

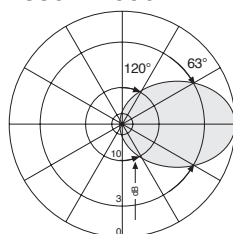


Horizontal Pattern

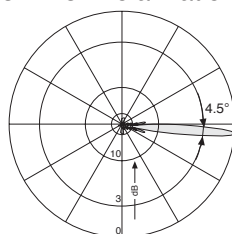


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

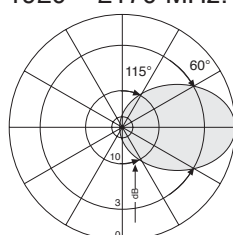


Horizontal Pattern

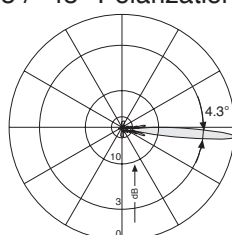


Vertical Pattern
0°–6° electrical downtilt

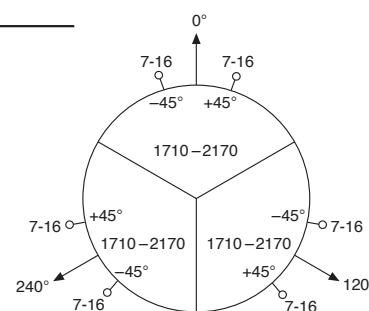
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications

Input	3 x 2 x 7-16 female
Connector position	Bottom – inside service area
Adjustment mechanism	3 x 1, Position bottom continuously adjustable inside service area
Weight	64 kg
Wind load	445 N (at 150 km/h)
Max. wind velocity	200 km/h
Natural frequency	9.5 – 11 Hz
Damping ratio	0.032
Mechanical interface	Flange connection 12 x 12M at a graduated diameter of 208 mm 0°–360° continuously adjustable (for further details see application note)
Packing size	2605 x 330 x 315 mm
Height/ diameter	2472 / 230 and 280 mm

Accessories delivered with the Tri-Sector-Pipe Antenna:

1. Clamping ring for mounting the antenna on the customer-supplied base
2. Lightning conductor rod
3. Ring bolt as attachment possibility for lifting aid
4. Wrench (SW41 + SW27) for attaching the RCU

Optional Accessories:

The following components may be ordered separately

1. 860 10025 Slimline Remote Control Unit (RCU), see page 169
2. 782 10352 Multipack TMA MPTMA-UMTS-12-AISG-6P with 12 dB (equals 3*DTMA) and RET-Support
3. 782 10353 Multipack TMA MPTMA-UMTS-24-AISG-6P with 24 dB (equals 3*DTMA) and RET-Support
4. 782 10354 Multipack TMA MPTMA-UMTS-12-CW-6P with 12 dB (equals 3*DTMA) without RET-Support
5. 782 10355 Multipack TMA MPTMA-UMTS-24-CW-6P with 24 dB (equals 3*DTMA) without RET-Support
6. 850 10010 Flexible Sealing Frame (Roxtec frame to seal connection between the mast and the antenna, see below)
7. 738 440 Azimuth Adjustment Tool, see page 211
8. 737 306 3-way power splitter for optional omni pattern
9. 850 10111 Inlay mounting plate kit for 3-way splitter and DTMA for omni pattern
10. 782 10xxx Double TMA optional for omni pattern (several types, see page 188)

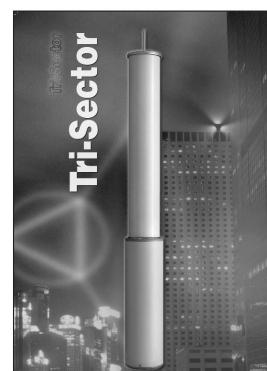
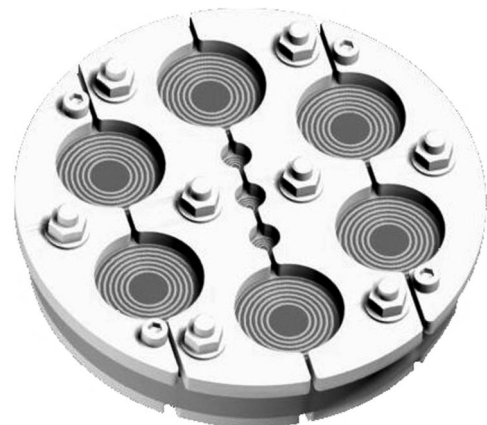
Flexible Sealing Frame

Type No.	850 10010
Outer diameter	180 mm
Cable diameter (6x)	15 – 42 mm
Cable diameter (3x)	3.5 – 10.5 mm
Frame-Material	Hot-dip galvanized steel
Sealing-Material	Halogen free cross linkable compound on ethylene-propylene rubber (EPDM)
Material of screws, washers and nuts	Stainless steel
Accessories	Mounting lubricant
Required assembly tools	Wrench size 13 mm, Socket wrench size 5 mm
Weight	2.7 kg
Packing size (L x W x H)	approx. 208 x 208 x 68 mm

For further information please refer to separate application note under:
www.kathrein.de/en/mca/index-customerportal.htm



View inside service zone with MPTMA and Slimline RCUs



Tri-Sector Pipe Antennas

Mounting Hardware

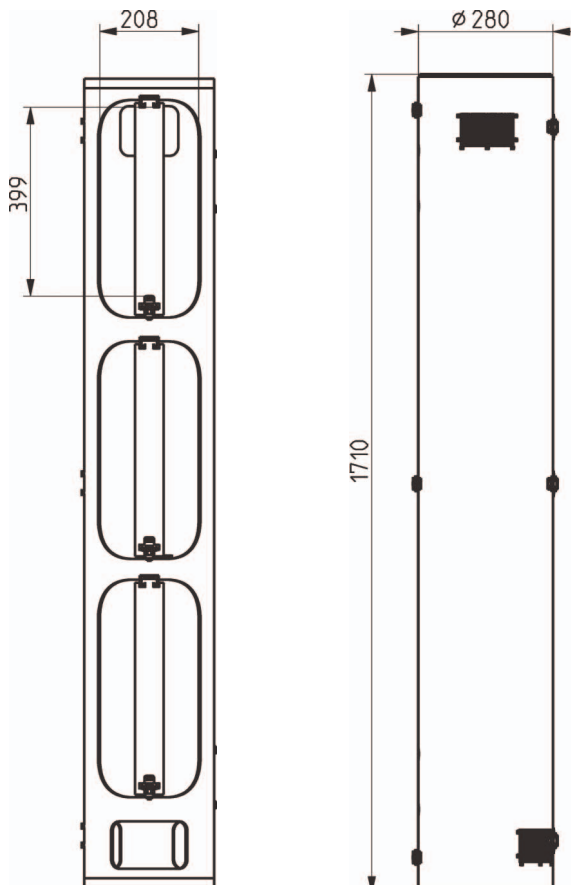
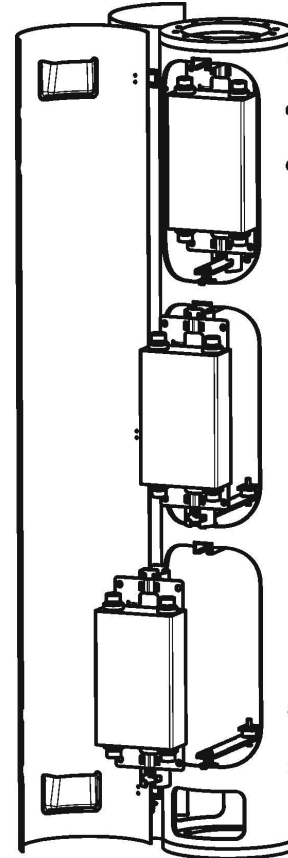
TMA Service Area

KATHREIN
Antennen · Electronic

Cylindrical shaped service area for installation of 3 DTMA's
Purpose: for use with a Kathrein tri-sector pipe antenna mounted on top of TMA service area

TMA Service Area

Type No.	850 10012
Height/Diameter	1710 / 280 mm
Wind load	325 N (at 150 km/h)
Max. wind velocity	200 km/h
Dynamic stiffness	$E \cdot I = 3.6 \cdot 10^{12} \text{ Nmm}^2$
Logarithmic decrement of structural damping	$\delta = 0.03$
Mechanical interface bottom and top	Flange connection 12 x M12 at a graduated diameter of 208 mm
Required assembly tools	wrench size 19 mm
Natural air ventilation	
Material	Hot-dip galvanized steel
Cover	Aluminum, powdercoated color RAL 7035
Material of screws	Stainless steel
Packing size (L x W x H)	1850 x 314 x 327 mm
Weight netto/brutto	77.3 / 84.0 kg



For further information please refer to separate application note under:
www.kathrein.de/en/mca/index-customerportal.htm

Summary – Directional Antennas

2-Multi-band

UMTS

Dual Polarization +45°/–45° – 1800/1900/2000

Type					Type No.	Height [mm]	Page
XXPol F-Panel	1710–2170	65°	15dBi	0°–10°T	742 233	679	114
	1710–2170	65°	15dBi	0°–10°T			
XXPol F-Panel	1710–2170	65°	18dBi	0°–8°T	742 234	1304	115
	1710–2170	65°	18dBi	0°–8°T			
XXPol F-Panel	1710–2180	65°	18dBi	0°–10°T	742 236	1319	116
	1710–2180	65°	18dBi	0°–10°T			
XXPol F-Panel	1710–2170	65°	19.5dBi	0°–6°T	742 235	1959	117
	1710–2170	65°	19.5dBi	0°–6°T			
XXPol F-Panel	1710–2180	88°	16.5dBi	0°–10°T	742 352	1319	118
	1710–2180	88°	16.5dBi	0°–10°T			

Connector position: Bottom

2-Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170 1710–2170

X

X

65°

65°

0°–10°

0°–10°

KATHREIN

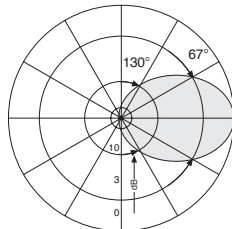
Antennen · Electronic

XXPol F-Panel 1710–2170/1710–2170 65°/65° 15/15dBi 0°–10°/0°–10°T

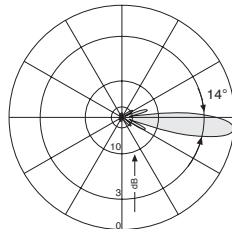
Type No.	742 233		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 15 dBi	4 x 15.2 dBi	4 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 14°	Horizontal: 65° Vertical: 13.7°	Horizontal: 62° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 15 ... 15 dB	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB
Front-to-back ratio	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° Typically: 20 dB Typically: 10 dB	Typically: 20 dB Typically: 10 dB	Typically: 20 dB Typically: 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization

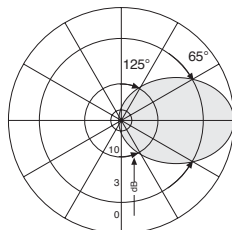


Horizontal Pattern

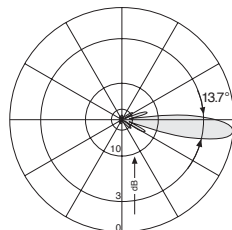


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

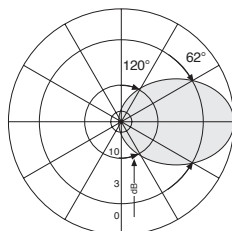


Horizontal Pattern

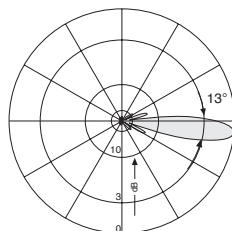


Vertical Pattern
0°–10° electrical downtilt

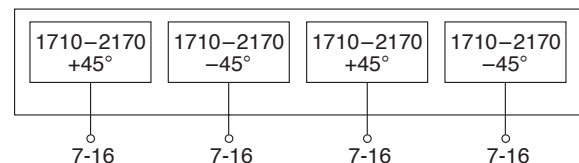
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	10.4 kg
Wind load	Frontal: 300 N (at 150 km/h) Lateral: 60 N (at 150 km/h) Rearside: 300 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 360 x 130 mm
Height/width/depth	679 / 323 / 71 mm

2-Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170 1710–2170

X

X

65°

65°

0°–8°

0°–8°

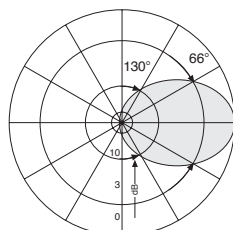
KATHREIN

Antennen · Electronic

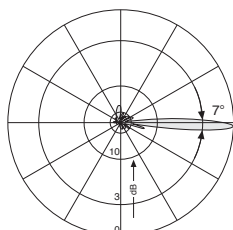
XXPol F-Panel 1710–2170/1710–2170 65°/65° 18/18dBi 0°–8°/0°–8°T

Type No.	742 234		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 17.5 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 64° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 ... 15 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 18 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 16 dB
Front-to-back ratio	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° ±60° Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

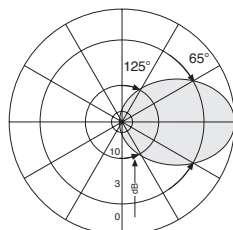


Horizontal Pattern

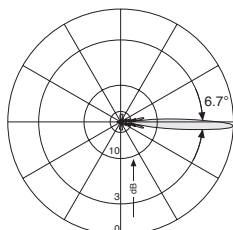


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

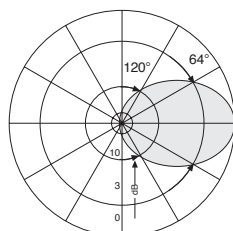


Horizontal Pattern

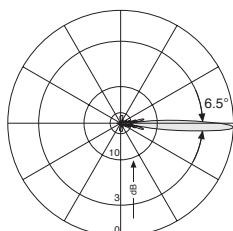


Vertical Pattern
0°–8° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



UMTS
XXPol 2-Multi

1710–2170 +45°	1710–2170 –45°	1710–2170 +45°	1710–2170 –45°
7-16	7-16	7-16	7-16

Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	15.5 kg
Wind load	Frontal: 570 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 570 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1589 x 322 x 108 mm
Height/width/depth	1304 / 299 / 69 mm

2-Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2180 1710–2180

X

X

65°

65°

0°–10°

0°–10°

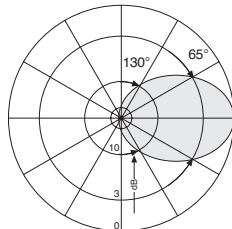
KATHREIN

Antennen · Electronic

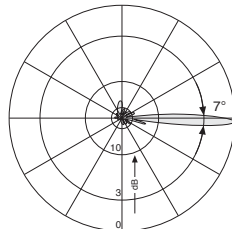
XXPol F-Panel 1710–2180/1710–2180 65°/65° 18/18dBi 0°–10°/0°–10°T

Type No.	742 236		
Frequency range	1710–2180		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 17.5 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 64° Vertical: 6.8°	Horizontal: 62° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 17 ... 15 ... 15 dB	0° ... 5° ... 10° T 20 ... 18 ... 18 dB	0° ... 5° ... 10° T 20 ... 18 ... 16 dB
Front-to-back ratio	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



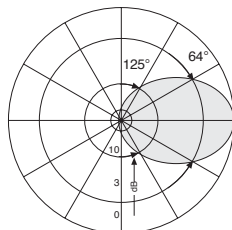
Horizontal Pattern



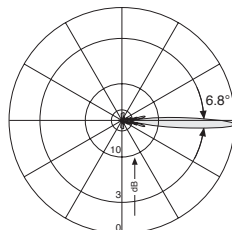
Vertical Pattern

0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization



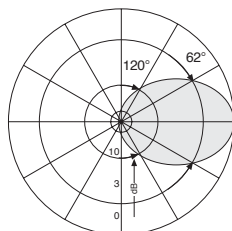
Horizontal Pattern



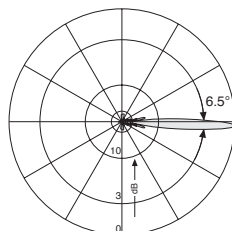
Vertical Pattern

0°–10° electrical downtilt

1920 – 2180 MHz: +45°/–45° Polarization

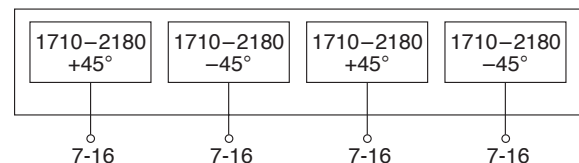
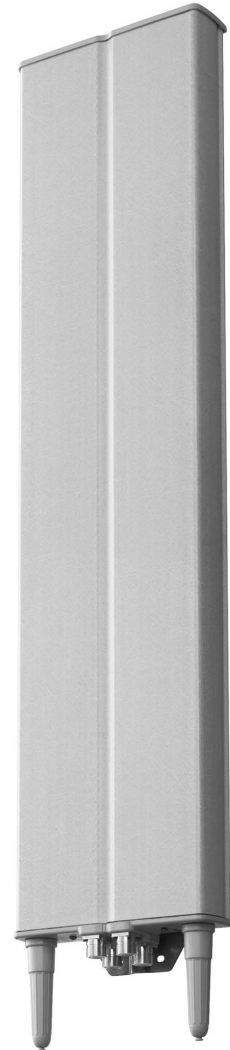


Horizontal Pattern



Vertical Pattern

0°–10° electrical downtilt



Mechanical specifications

Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 600 N (at 150 km/h) Lateral: 120 N (at 150 km/h) Rearside: 600 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 360 x 130 mm
Height/width/depth	1319 / 323 / 71 mm

2-Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

1710–2170 1710–2170

X

X

65°

65°

0°–6°

0°–6°

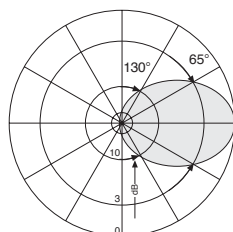
KATHREIN

Antennen · Electronic

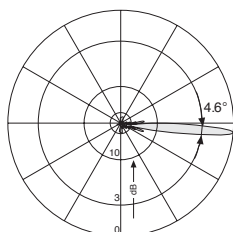
XXPol F-Panel 1710–2170/1710–2170 65°/65° 19.5/19.5dBi 0°–6°/0°–6°T

Type No.	742 235		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 19 dBi	4 x 19.2 dBi	4 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 4.6°	Horizontal: 64° Vertical: 4.4°	Horizontal: 63° Vertical: 4.2°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 2° ... 4° ... 6° T 17 ... 17 ... 14 ... 14 dB	0° ... 2° ... 4° ... 6° T 17 ... 17 ... 15 ... 15 dB	0° ... 2° ... 4° ... 6° T 17 ... 17 ... 15 ... 15 dB
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 24 dB
Cross polar ratio Maindirection Sector	0° ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

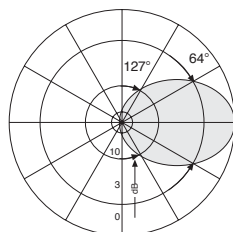


Horizontal Pattern

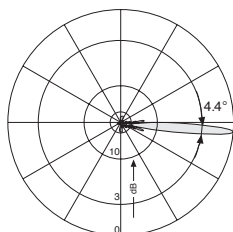


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

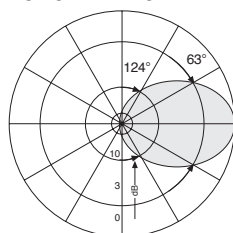


Horizontal Pattern

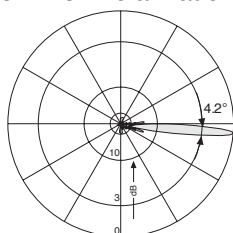


Vertical Pattern
0°–6° electrical downtilt

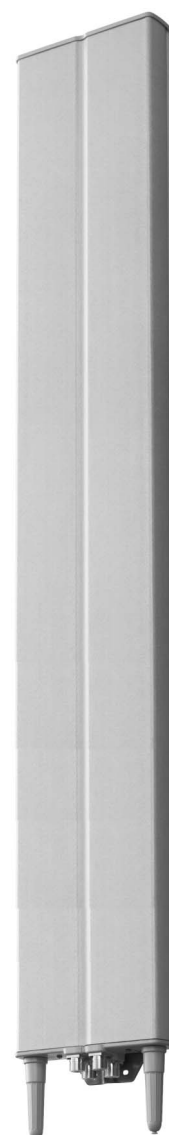
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



UMTS
XXPol 2-Multi

1710–2170 +45°	1710–2170 –45°	1710–2170 +45°	1710–2170 –45°
7-16	7-16	7-16	7-16

Mechanical specifications

Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 920 N (at 150 km/h) Lateral: 190 N (at 150 km/h) Rearside: 920 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2384 x 360 x 130 mm
Height/width/depth	1959 / 323 / 71 mm

2-Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

1710–2180 1710–2180

X

X

88°

88°

0°–10°

0°–10°

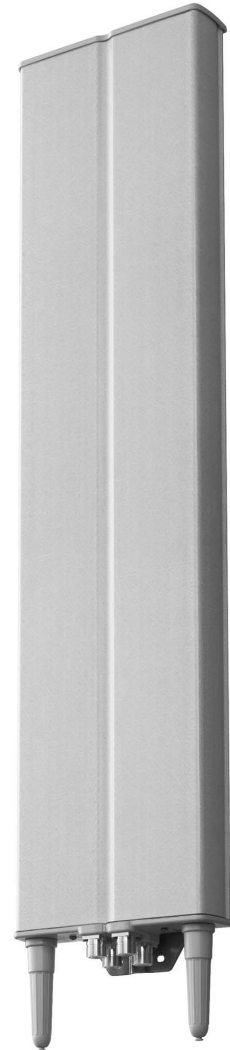
KATHREIN

Antennen · Electronic

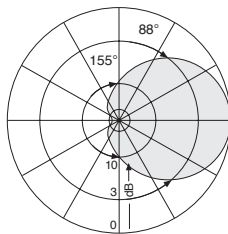
set by hand or by optional RCU (Remote Control Unit)

XXPol F-Panel 1710–2180/1710–2180 88°/88° 16.5/16.5dBi 0°–10°/0°–10°T

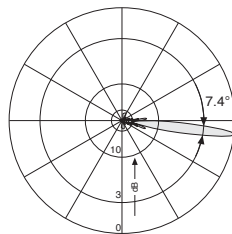
Type No.	742 352		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°, +45°, –45°	+45°, –45°, +45°, –45°	+45°, –45°, +45°, –45°
Gain (average)	16.1 ... 16.3 ... 16.0 dBi	16.2 ... 16.4 ... 16.1 dBi	16.5 ... 16.7 ... 16.2 dBi
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°
Half-power beam width	Horizontal: 88°	Horizontal: 90°	Horizontal: 88°
Copolar +45°/–45°	Vertical: 7.4°	Vertical: 7°	Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 8° ... 10° T 18 ... 17 ... 16 ... 15 dB	0° ... 4° ... 8° ... 10° T 18 ... 17 ... 16 ... 15 dB	0° ... 4° ... 8° ... 10° T 17 ... 17 ... 16 ... 15 dB
Front-to-back ratio	Copolar: > 24 dB Total power: > 24 dB	Copolar: > 24 dB Total power: > 24 dB	Copolar: > 24 dB Total power: > 24 dB
Cross polar ratio			
Maindirection	Typically: 15 dB	Typically: 15 dB	Typically: 15 dB
Sector	> 8 dB	> 7.5 dB	> 7 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		



1710 – 1880 MHz: +45°/–45° Polarization



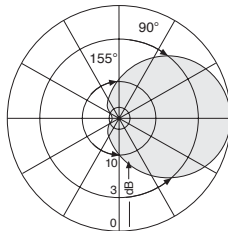
Horizontal Pattern



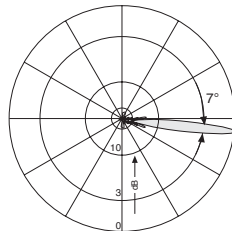
Vertical Pattern

0° – 10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization



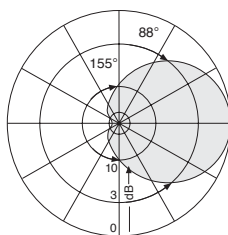
Horizontal Pattern



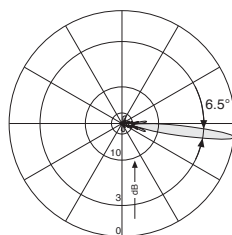
Vertical Pattern

0° – 10° electrical downtilt

1920 – 2180 MHz: +45°/–45° Polarization

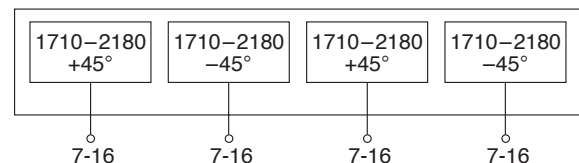


Horizontal Pattern



Vertical Pattern

0° – 10° electrical downtilt



Mechanical specifications

Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 600 N (at 150 km/h) Lateral: 120 N (at 150 km/h) Rearside: 600 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 360 x 130 mm
Height/width/depth	1319 / 323 / 71 mm

Summary – Directional Antennas

Dual-band

UMTS

Dual Polarization +45°/–45° – 800/900 1800/1900/2000

Type					Type No.	Height [mm]	Page
XXPol A-Panel	806– 960 1710–2170	65° 60°	12dBi 14dBi		742 226	579	120
XXPol A-Panel	806– 960 1710–2170	C 65° 60°	12dBi 14dBi		742 222	579	121
XXPol A-Panel	824– 960 1710–2180	65° 65°	14dBi 17dBi	0°–14°T 0°–8°T	742 264	1316	122
XXPol A-Panel	824–960 1710–2180	C 65° 65°	14dBi 17dBi	0°–14°T 0°–8°T	742 223	1316	123
XXPol A-Panel	824– 960 1710–2180	65° 65°	16dBi 18.5dBi	0°–10°T 0°–6°T	742 265	1916	124
XXPol A-Panel	824– 960 1710–2180	C 65° 65°	16dBi 18.5dBi	0°–10°T 0°–6°T	742 224	1916	125
XXPol A-Panel	824– 960 1710–2180	65° 65°	17dBi 18.5dBi	0°–7°T 0°–6°T	742 266	2516	126
XXPol A-Panel	824– 960 1710–2180	C 65° 65°	17dBi 18.5dBi	0°–7°T 0°–6°T	742 225	2516	127
XXPol A-Panel	806–960 1710–2180	88° 88°	13.5dBi 16.5dBi	0°–12°T 0°–10°T	800 10121	1384	128
XXPol A-Panel	806–960 1710–2180	88° 88°	15.2dBi 18dBi	0°–10°T 0°–6°T	800 10122	1917	129
XXPol A-Panel	806–960 1710–2180	88° 88°	16.5dBi 18dBi	0°–7°T 0°–6°T	800 10123	2635	130

Connector position: Bottom

New Products

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electr. Downtilt

806–960 1710–2170

X

X

65°

60°

0°

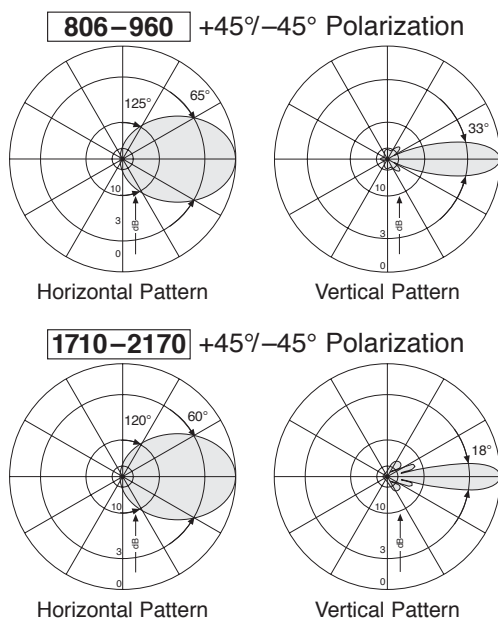
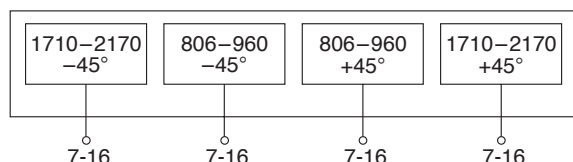
0°

KATHREIN

Antennen · Electronic

XXPol A-Panel 806–960/1710–2170 65°/60° 12/14dBi 0°/0°T

Type No.	742 226					
Frequency range	806–960			1710–2170		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.1 dBi	2 x 11.4 dBi	2 x 11.8 dBi	2 x 12.8 dBi	2 x 13.3 dBi	2 x 13.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 34°	Horizontal: 66° Vertical: 33°	Horizontal: 64° Vertical: 30°	Horizontal: 66° Vertical: 20°	Horizontal: 60° Vertical: 18°	Horizontal: 60° Vertical: 17.5°
Front-to-back ratio [dB] (180° ±30°)	Copolar: > 23 Total power: > 20	Copolar: > 23 Total power: > 20	Copolar: > 25 Total power: > 22	Copolar: > 25 Total power: > 22	Copolar: > 25 Total power: > 22	Copolar: > 25 Total power: > 22
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 45 dB (806–960 // 1710–2170 MHz)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)			200 W (at 50 °C ambient temperature)		



Mechanical specifications

Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	7.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 100 N / 80 N / 180 N
Max. wind velocity	200 km/h
Packing size	736 x 302 x 192 mm
Height/width/depth	579 / 262 / 139 mm

* Inverted mounting:
Connector position top: Change 3 drain hole screws.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electr. Downtilt

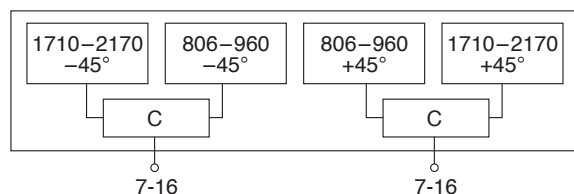
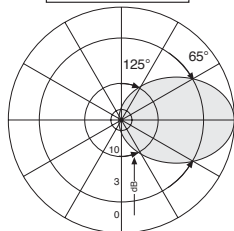
Integrated Combiner

806–960**1710–2170****X****X****65°****60°****0°****0°****C****KATHREIN**

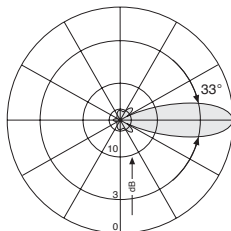
Antennen · Electronic

XXPol A-Panel 806–960/1710–2170 C 65°/60° 12/14dBi 0°/0°T

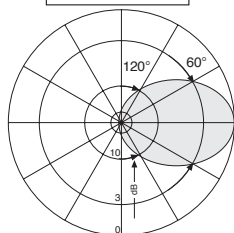
Type No.	742 222					
Frequency range	806–960			1710–2170		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.1 dBi	2 x 11.4 dBi	2 x 11.8 dBi	2 x 12.5 dBi	2 x 13.3 dBi	2 x 13.6 dBi
Half-power beam width	Horizontal: 67°	Horizontal: 66°	Horizontal: 64°	Horizontal: 66°	Horizontal: 60°	Horizontal: 60°
Copolar +45°/–45°	Vertical: 34°	Vertical: 33°	Vertical: 30°	Vertical: 20°	Vertical: 18°	Vertical: 17.5°
Front-to-back ratio [dB]	Copolar: > 23	Copolar: > 23	Copolar: > 25	Copolar: > 25	Copolar: > 25	Copolar: > 25
(180° ± 30°) [dB]	Total power: > 20	Total power: > 20	Total power: > 22	Total power: > 22	Total power: > 22	Total power: > 22
Cross polar ratio						
Maindirection 0°	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB	Typically: 18 dB	Typically: 18 dB	Typically: 20 dB
Sector ±60°	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)			< –150 dBc (2 x 43 dBm carrier)		
Max. power	250 W (at 50 °C ambient temperature)			200 W (at 50 °C ambient temperature)		
Max. power per combined input	450 W (at 50 °C ambient temperature)					
Integrated combiner	The insertion loss is included in the given antenna gain values.					

**806–960** +45°/–45° Polarization

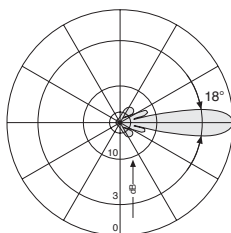
Horizontal Pattern



Vertical Pattern

1710–2170 +45°/–45° Polarization

Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	7.2 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 100 N / 80 N / 180 N
Max. wind velocity	200 km/h
Packing size	736 x 302 x 192 mm
Height/width/depth	579 / 262 / 139 mm

* Inverted mounting:
Connector position top: Change 3 drain hole screws.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

824–960

1710–2180

X

X

65°

65°

0°–14°

0°–8°

KATHREIN

Antennen · Electronic

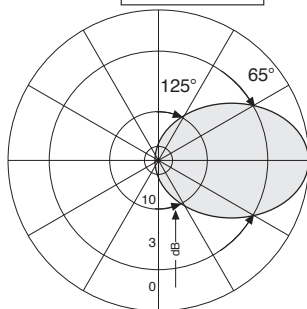
XXPol A-Panel 824–960/1710–2180 65°/65° 14/17dBi 0°–14°/0°–8°T

Type No.	742 264				
Frequency range	824–960		1710–2180		
	824–894 MHz	870–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14 dBi	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	65°	65°	63°
Front-to-back ratio, copolar	> 26 dB	> 26 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:
Main direction	0°	0°	0°	0°	0°
Sector	±60°	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Vertical Pattern:					
Half-power beam width	16°	14.5°	7.8°	7.3°	6.8°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above main beam	0° ... 7° ... 14° T 14 ... 14 ... 13 dB	0° ... 7° ... 14° T 14 ... 14 ... 13 dB	0° ... 4° ... 8° T 14 ... 14 ... 14 dB	0° ... 4° ... 8° T 16 ... 16 ... 15 dB	0° ... 4° ... 8° T 15 ... 16 ... 15 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 MHz)				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	500 W		250 W		
Total power	1000 W		500 W		
(at 50 °C ambient temperature)					

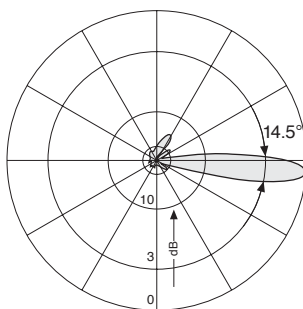


UMTS
XXPol Dual-b.

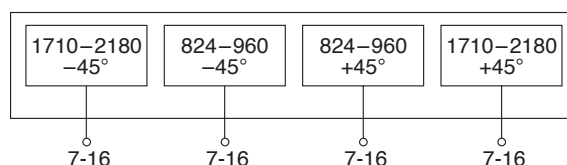
824–960 +45°/–45° Polarization



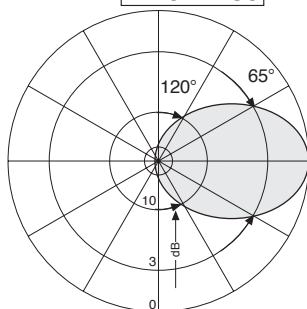
Horizontal Pattern



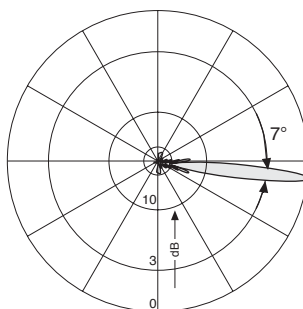
Vertical Pattern
0°–14° electrical downtilt



1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt

Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 430 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1615 x 302 x 192 mm
Height/width/depth	1316 / 262 / 139 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

Integrated Combiner

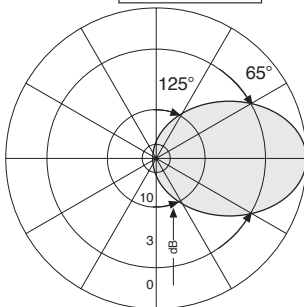
824–960**1710–2180****X****X****65°****65°****0°–14°****0°–8°****C****KATHREIN**

Antennen · Electronic

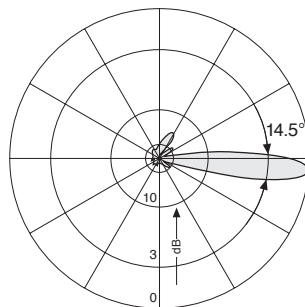
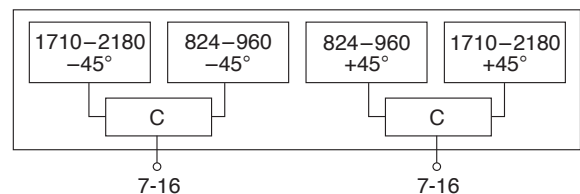
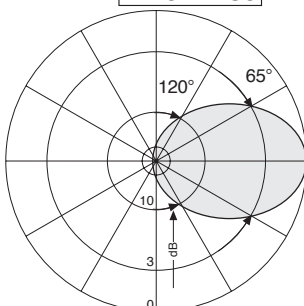
Downtilt set by hand or by optional RCU (Remote Control Unit)

XXPol A-Panel 824–960/1710–2180 C 65°/65° 14/17dBi 0°–14°/0°–8°T

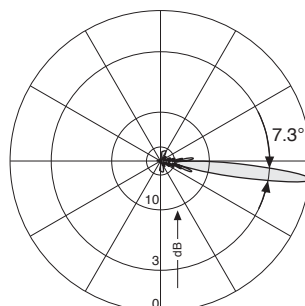
Type No.	742 223				
Frequency range	824–960		1710–2180		
	824–894 MHz	870–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14 dBi	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 14.5°	Horizontal: 65° Vertical: 7.8°	Horizontal: 65° Vertical: 7.3°	Horizontal: 63° Vertical: 6.8°
Electrical tilt continuously adjust.	0°–14°	0°–14°	0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 7° ... 14°T 14 ... 14 ... 13 dB	0° ... 7° ... 14°T 14 ... 14 ... 13 dB	0° ... 4° ... 8°T 14 ... 14 ... 14 dB	0° ... 4° ... 8°T 16 ... 16 ... 15 dB	0° ... 4° ... 8°T 15 ... 16 ... 15 dB
Front-to-back ratio, copolar	> 26 dB	> 26 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 0° 20 dB ±60° > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB				
Impedance	50 Ω				
VSWR	< 1.5				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)				
Max. power	250 W		200 W		
	(at 50 °C ambient temperature)				
Max. power per combined input	450 W (at 50 °C ambient temperature)				
Integrated combiner	The insertion loss is included in the given antenna gain values.				

UMTS
XXPol Dual-b.**824–960** +45°/–45° Polarization

Horizontal Pattern

Vertical Pattern
0°–14° electrical downtilt**1710–2180** +45°/–45° Polarization

Horizontal Pattern

Vertical Pattern
0°–8° electrical downtilt**Mechanical specifications**

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	16.5 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 180 N (at 150 km/h) Rearside: 430 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1626 x 302 x 192 mm
Height/width/depth	1316 / 262 / 139 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

824–960

1710–2180

X

X

65°

65°

0°–10°

0°–6°

KATHREIN

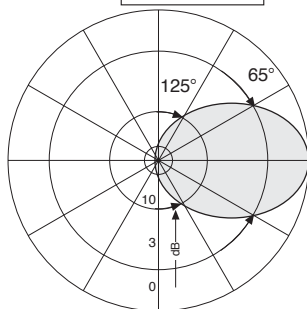
Antennen · Electronic

XXPol A-Panel 824–960/1710–2180 65°/65° 16/18.5dBi 0°–10°/0°–6°T

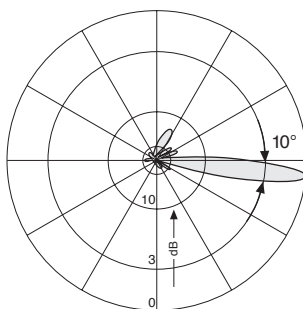
Type No.	742 265				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.5 dBi	2 x 16 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.3 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	66°	65°	63°
Front-to-back ratio, copolar	> 27 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:
Main direction	0°	0°	0°	0°	0°
Sector	±60°	±60°	±60°	±60°	±60°
Vertical Pattern:					
Half-power beam width	10.5°	10°	5.2°	5.0°	4.7°
Electrical tilt continuously adjustable	0.5°–9.5°	0.5°–9.5°	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 16 ... 16 ... 17 dB	0° ... 5° ... 10° T 18 ... 18 ... 18 dB	0° ... 3° ... 6° T 14 ... 13 ... 13 dB	0° ... 3° ... 6° T 18 ... 17 ... 14 dB	0° ... 3° ... 6° T 18 ... 17 ... 14 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 MHz)				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		< –150 dBc (2 x 43 dBm carrier)		
Max. power per input	500 W		250 W		
Total power	1000 W		500 W		
(at 50 °C ambient temperature)					



824–960 +45°/–45° Polarization



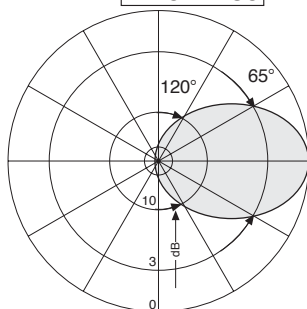
Horizontal Pattern



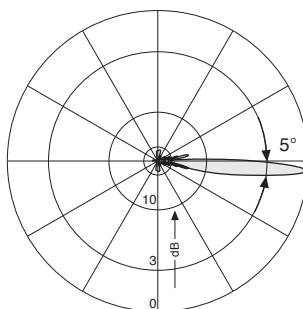
Vertical Pattern
0.5°–9.5° electrical downtilt

1710–2180 –45°	824–960 –45°	824–960 +45°	1710–2180 +45°
7-16	7-16	7-16	7-16

1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt

Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	23 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2215 x 302 x 192 mm
Height/width/depth	1916 / 262 / 139 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

Integrated Combiner

824–960**1710–2180****X****X****65°****65°****0°–10°****0°–6°****C****KATHREIN**

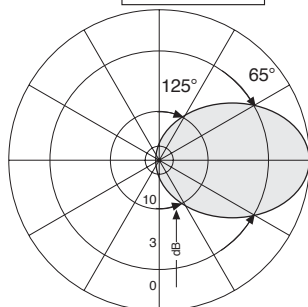
Antennen · Electronic

Downtilt set by hand or by optional RCU (Remote Control Unit)

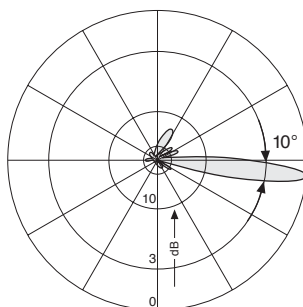
XXPol A-Panel 824–960/1710–2180 C 65°/65° 16/18.5dBi 0°–10°/0°–6°T

Type No.	742 224				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1900–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.5 dBi	2 x 16 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.3 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	66°	65°	63°
Front-to-back ratio, copolar	> 27 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:
Maindirection	0°	20 dB	20 dB	16 dB	18 dB
Sector	±60°	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Vertical Pattern:					
Half-power beam width	10.5°	10°	5.2°	5.0°	4.7°
Electrical tilt continuously adjust.	0.5°–9.5°		0°–6°		
Sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 16 ... 16 ... 17 dB	0° ... 5° ... 10° T 18 ... 18 ... 18 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB
Impedance	50 Ω				
VSWR	< 1.5				
Isolation: Intrasystem	> 30 dB				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)				
Max. power	250 W		200 W		
	(at 50 °C ambient temperature)				
Max. power per combined input	450 W (at 50 °C ambient temperature)				
Integrated combiner	The insertion loss is included in the given antenna gain values.				

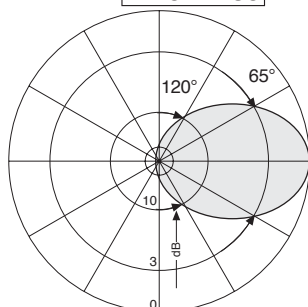
824–960 +45°–45° Polarization



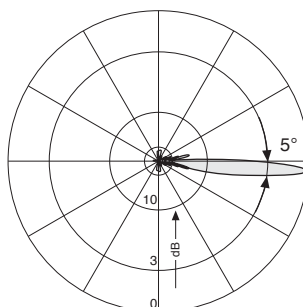
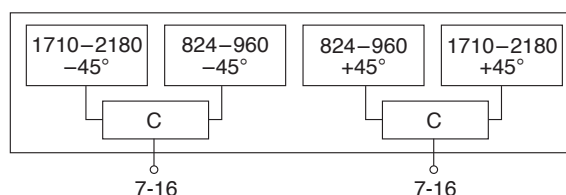
Horizontal Pattern

Vertical Pattern
0.5°–9.5° electrical downtilt

1710–2180 +45°–45° Polarization



Horizontal Pattern

Vertical Pattern
0°–6° electrical downtilt

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	23 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2227 x 302 x 192 mm
Height/width/depth	1916 / 262 / 139 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

824–960

1710–2180

X

X

65°

65°

0°–7°

0°–6°

KATHREIN

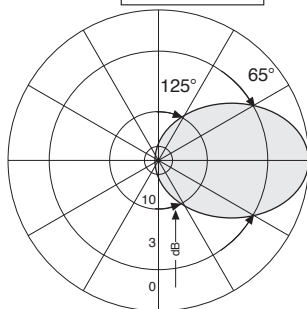
Antennen · Electronic

XXPol A-Panel 824–960/1710–2180 65°/65° 17/18.5dBi 0°–7°/0°–6°T

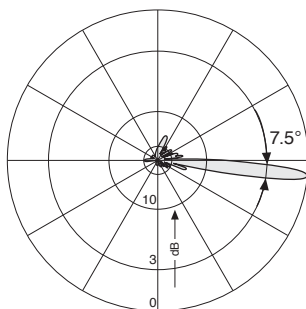
Type No.	742 266				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1900–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.5 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	66°	65°	63°
Front-to-back ratio, copolar	> 28 dB	> 28 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:
Main direction	0°	0°	0°	0°	0°
Sector	±60°	±60°	±60°	±60°	±60°
Vertical Pattern:					
Half-power beam width	8.1°	7.5°	5.2°	5.0°	4.7°
Electrical tilt	0.5°–7°	0.5°–7°	0°–6°	0°–6°	0°–6°
continuously adjustable					
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 13 ... 13 ... 13 dB	0° ... 3° ... 6° T 16 ... 15 ... 14 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 MHz)				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		< –150 dBc(2 x 43 dBm carrier)		
Max. power per input	500 W		250 W		
Total power	1000 W		500 W		
(at 50 °C ambient temperature)					



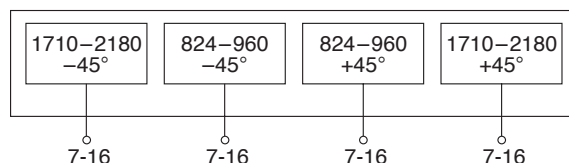
824–960 +45°/–45° Polarization



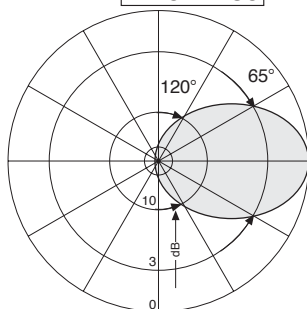
Horizontal Pattern



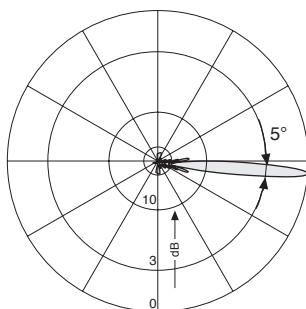
Vertical Pattern
0.5°–7° electrical downtilt



1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt

Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	26 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2815 x 302 x 192 mm
Height/width/depth	2516 / 262 / 139 mm

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

Integrated Combiner

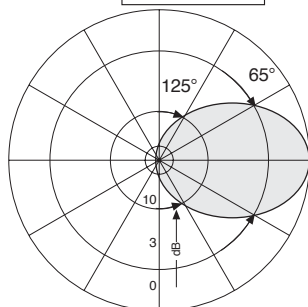
824–960**1710–2180****X****X****65°****65°****0°–7°****0°–6°****C****KATHREIN**

Antennen · Electronic

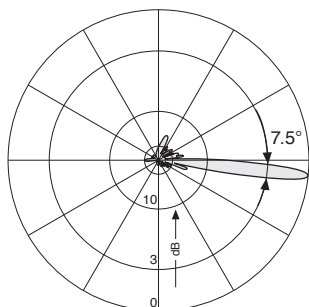
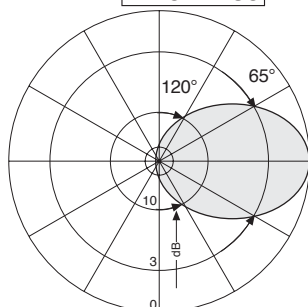
Downtilt set by hand or by optional RCU (Remote Control Unit)

XXPol A-Panel 824–960/1710–2180 C 65°/65° 17/18.5dBi 0°–7°/0°–6°T

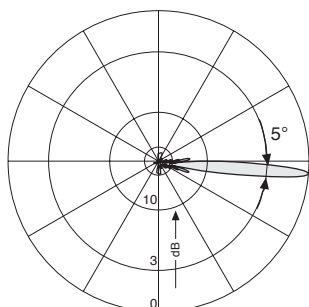
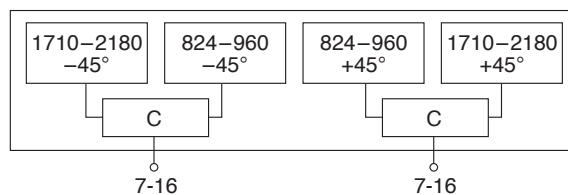
Type No.	742 225				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1900–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.5 dBi
Horizontal Pattern:					
Half-power beam width	68°	65°	66°	65°	63°
Front-to-back ratio, copolar	> 28 dB	> 28 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:
Maindirection	0°	20 dB	20 dB	16 dB	18 dB
Sector	±60°	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Vertical Pattern:					
Half-power beam width	8.1°	7.5°	5.2°	5.0°	4.7°
Electrical tilt continuously adjust.	0.5°–7°		0°–6°		
Sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 15 ... 16 ... 16 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB	0° ... 3° ... 6° T 16 ... 16 ... 15 dB
Impedance	50 Ω				
VSWR	< 1.5				
Isolation: Intrasystem	> 30 dB				
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)				
Max. power	250 W		200 W		
	(at 50 °C ambient temperature)				
Max. power per combined input	450 W (at 50 °C ambient temperature)				
Integrated combiner	The insertion loss is included in the given antenna gain values.				

824–960 +45°–45° Polarization

Horizontal Pattern

Vertical Pattern
0.5°–7° electrical downtilt**1710–2180** +45°–45° Polarization

Horizontal Pattern

Vertical Pattern
0°–6° electrical downtilt

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	26 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2826 x 302 x 192 mm
Height/width/depth	2516 / 262 / 139 mm

UMTS
XXPol Dual-b.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

1710–2180

X

X

88°

88°

0°–12°

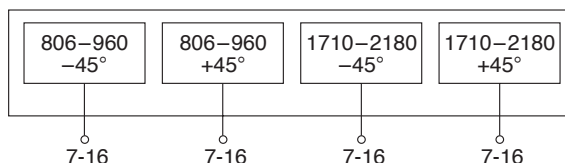
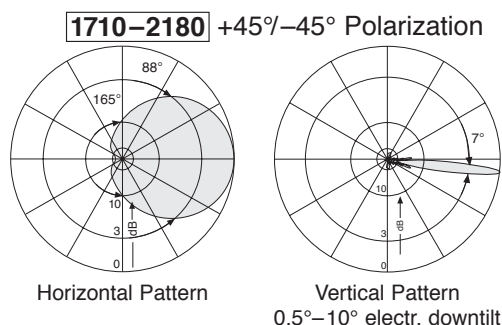
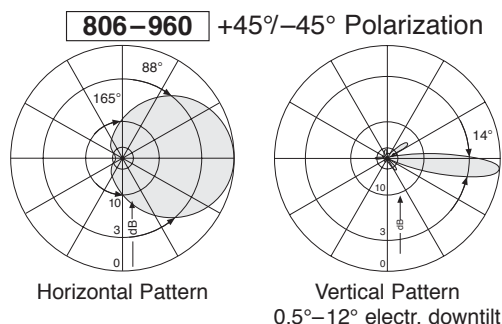
0°–10°

KATHREIN

Antennen · Electronic

XXPol A-Panel 806–960/1710–2180 88°/88° 13.5/16.5dBi 0°–12°/0°–10°T

Type No.	800 10121					
Frequency range	806–960			1710–2180		
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	13.4 ... 13.4 ... 13.1	13.6 ... 13.6 ... 13.4	13.9 ... 13.8 ... 13.5	16.4 ... 16.4 ... 16.2	16.4 ... 16.5 ... 16	16.4 ... 15.9 ... 15.3
Tilt	0° ... 6° ... 12°	0° ... 6° ... 12°	0° ... 6° ... 12°	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°
Horizontal Pattern:						
Half-power beam width	88°	86°	88°	82°	85°	90°
Front-to-back ratio, copolar	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:	Typically:
Maindirection	18 dB	18 dB	20 dB	17 dB	16 dB	15 dB
Sector	> 10 dB	> 10 dB	> 13 dB	> 10 dB	> 12 dB	> 10 dB
	±60°	±60°	±60°	±60°	±60°	±60°
	avg. 16 dB	avg. 16 dB	avg. 19 dB	avg. 17 dB	avg. 19 dB	avg. 19 dB
Vertical Pattern:						
Half-power beam width	15.0°	14.5°	13.5°	7.1°	6.8°	6.5°
Electrical tilt continuously adjustable	0.5°–12.5°	0.5°–12.5°	0.5°–12.5°	0.5°–10°	0.5°–10°	0.5°–10°
Min. sidelobe suppression for first sidelobe above main beam: average:	0° ... 6° ... 12° T 16 ... 16 ... 16 dB 17 ... 17 ... 19 dB	0° ... 6° ... 12° T 16 ... 16 ... 16 dB 17 ... 17 ... 19 dB	0° ... 6° ... 12° T 14 ... 14 ... 13 dB 17 ... 16 ... 16 dB	0° ... 5° ... 10° T 17 ... 17 ... 16 dB 20 ... 20 ... 18 dB	0° ... 5° ... 10° T 17 ... 18 ... 16 dB 21 ... 22 ... 17 dB	0° ... 5° ... 10° T 18 ... 16 ... 16 dB 20 ... 20 ... 16 dB
Impedance	50 Ω					
VSWR	< 1.5					
Isolation: Intrasystem	> 30 dB					
Isolation: Intersystem	> 45 dB (806–960 // 1710–2180 MHz)					
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)					
Max. power per input	500 W (at 50 °C ambient temperature)			250 W (at 50 °C ambient temperature)		
Total power	1000 W (at 50 °C ambient temperature)			500 W (at 50 °C ambient temperature)		



Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	21 kg
Wind load	Frontal: 260 N (at 150 km/h) Lateral: 210 N (at 150 km/h) Rearside: 580 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1716 x 304 x 204 mm
Height/width/depth	1384 / 262 / 149 mm



Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

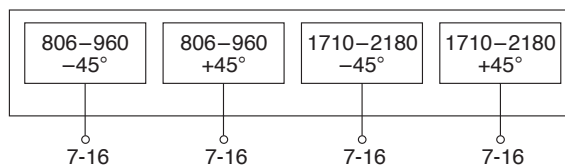
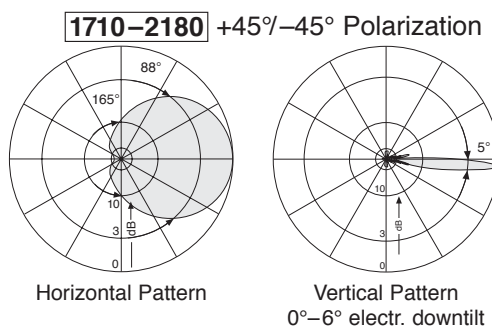
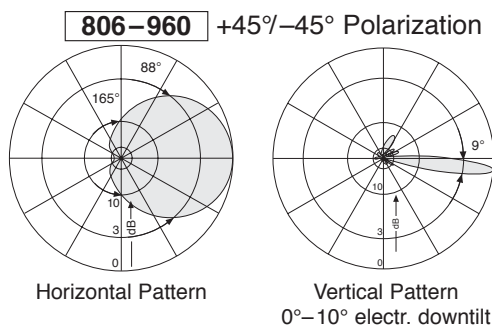
set by hand or by optional RCU (Remote Control Unit)

806–960**1710–2180****X****X****88°****88°****0°–10°****0°–6°****KATHREIN**

Antennen · Electronic

XXPol A-Panel 806–960/1710–2180 88°/88° 15.2/18dBi 0°–10°/0°–6°T

Type No.	800 10122					
Frequency range	806–960 806 – 866 MHz 824 – 896 MHz 880 – 960 MHz			1710–2180 1710 – 1880 MHz 1850 – 1990 MHz 1920 – 2180 MHz		
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	14.7 ... 14.9 ... 14.7	15.0 ... 15.2 ... 15.0	15.0 ... 15.2 ... 15.0	17.7 ... 17.8 ... 17.7	17.7 ... 18.0 ... 17.6	17.6 ... 17.8 ... 17.4
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 3° ... 6°	0° ... 3° ... 6°	0° ... 3° ... 6°
Horizontal Pattern:						
Half-power beam width	88°	86°	88°	82°	85°	90°
Front-to-back ratio, copolar	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:	Typically:
Maindirection	18 dB	18 dB	20 dB	17 dB	16 dB	15 dB
Sector	> 10 dB	> 10 dB	> 13 dB	> 10 dB	> 12 dB	> 10 dB
±60°	avg. 16 dB	avg. 16 dB	avg. 19 dB	avg. 17 dB	avg. 19 dB	avg. 19 dB
±60°						
Vertical Pattern:						
Half-power beam width	10.5°	10°	9°	5.5°	5.2°	5°
Electrical tilt continuously adjustable	0°–10°			0°–6°		
Min. sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 16 ... 16 ... 14 dB	0° ... 5° ... 10° T 16 ... 16 ... 16 dB	0° ... 5° ... 10° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB	0° ... 3° ... 6° T 18 ... 18 ... 16 dB
Impedance	50 Ω					
VSWR	< 1.5					
Isolation: Intrasystem	> 30 dB					
Isolation: Intersystem	> 45 dB (806–960 // 1710–2180 MHz)					
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)					
Max. power per input	500 W (at 50 °C ambient temperature)			250 W (at 50 °C ambient temperature)		
Total power	1000 W (at 50 °C ambient temperature)			500 W (at 50 °C ambient temperature)		



Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	27 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2249 x 304 x 204 mm
Height/width/depth	1917 / 262 / 149 mm

UMTS
XXPol Dual-b.

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960

1710–2180

X

X

88°

88°

0°–7°

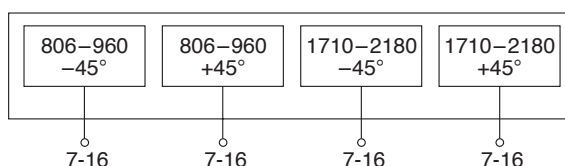
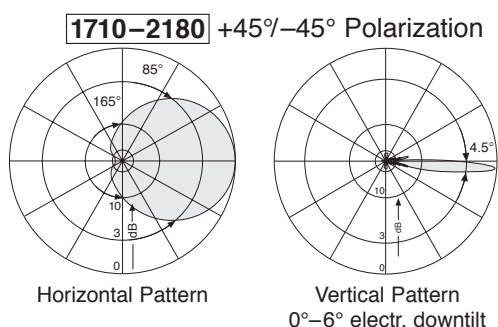
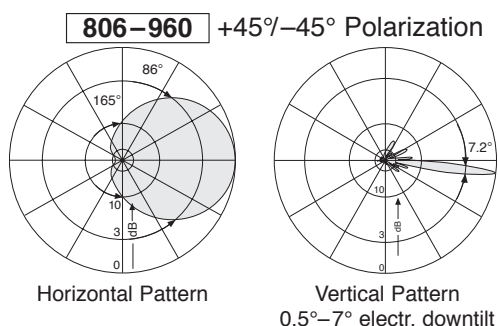
0°–6°

KATHREIN

Antennen · Electronic

XXPol A-Panel 806–960/1710–2180 88°/88° 16.5/18dBi 0°–7°/0°–6°T

Type No.	800 10123					
Frequency range	806–960			1710–2180		
	806 – 866 MHz	824 – 896 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average gain (dBi)	16.1 ... 16.2 ... 16.1	16.3 ... 16.4 ... 16.3	16.5 ... 16.6 ... 16.5	17.8 ... 17.7 ... 17.4	18.0 ... 17.9 ... 17.4	17.9 ... 17.8 ... 17.3
Tilt	0° ... 4° ... 7°	0° ... 4° ... 7°	0° ... 4° ... 7°	0° ... 3° ... 6°	0° ... 3° ... 6°	0° ... 3° ... 6°
Horizontal Pattern:						
Half-power beam width	86°	86°	86°	84°	85°	88°
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 23 dB	> 23 dB	> 23 dB
Cross polar ratio	Typically:	Typically:	Typically:	Typically:	Typically:	Typically:
Maindirection	18 dB	18 dB	20 dB	16 dB	16 dB	15 dB
Sector	> 10 dB	> 10 dB	> 13 dB	> 10 dB	> 12 dB	> 10 dB
	±60°	±60°	±60°	±60°	±60°	±60°
	avg. 16 dB	avg. 16 dB	avg. 19 dB	avg. 16 dB	avg. 17 dB	avg. 18 dB
Vertical Pattern:						
Half-power beam width	7.3°	7.2°	6.9°	4.8°	4.5°	4.2°
Electrical tilt continuously adjustable	0.5°–7°			0°–6°		
Min. sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 15 ... 14 ... 14 dB	0° ... 4° ... 7° T 15 ... 14 ... 14 dB	0° ... 4° ... 7° T 15 ... 14 ... 15 dB	0° ... 3° ... 6° T 18 ... 17 ... 16 dB	0° ... 3° ... 6° T 18 ... 17 ... 17 dB	0° ... 3° ... 6° T 18 ... 16 ... 17 dB
Impedance	50 Ω					
VSWR	< 1.5					
Isolation: Intrasystem	> 30 dB					
Isolation: Intersystem	> 45 dB (806–960 // 1710–2180 MHz)					
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)					
Max. power per input	500 W (at 50 °C ambient temperature)			250 W (at 50 °C ambient temperature)		
Total power	1000 W (at 50 °C ambient temperature)			500 W (at 50 °C ambient temperature)		



Mechanical specifications

Input	4 x 7-16 female (long neck)
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2966 x 304 x 204 mm
Height/width/depth	2635 / 262 / 149 mm



Summary – Directional Antennas

Triple-band

UMTS

Dual Polarization +45°/–45° – 800/900 1800/1900 2000

Type	Type No.	Height [mm]	Page
XXXPol A-Panel	806– 960 1710–1880 1920–2170	66° 66° 65°	15dBi 16.5dBi 17dBi
XXXPol A-Panel	806– 960 1710–1880 1920–2170	67° 65° 65°	16.5dBi 17.5dBi 18dBi
XXXPol A-Panel	806– 960 1710–1880 1920–2170	66° 67° 65°	17.5dBi 17.5dBi 18dBi
XXXPol A-Panel	824– 960 1710–2170 1710–2170	65° 65° 65°	17dBi 17dBi 16.5dBi
XXXPol A-Panel	806–960 1710–2180 1710–2180	65° 65° 65°	17.5dBi 17.5dBi 17dBi

Connector position: Bottom

Triple-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

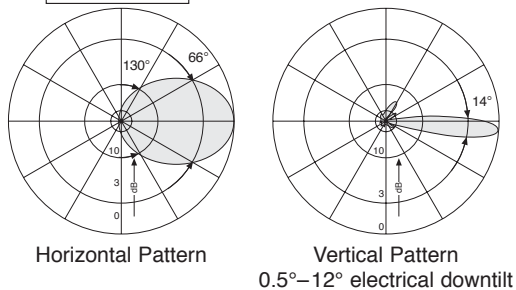
set by hand or by optional RCU (Remote Control Unit)

XXXPol A-Panel 806–960/1710–1880/1920–2170 66°/66°/65° 15/16.5/17dBi 0°–12°/0°–8°/0°–8°T

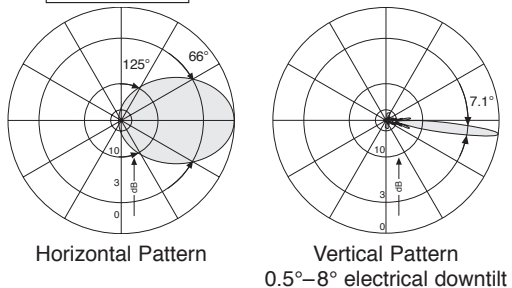
Type No.	742 270				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.8 dBi	2 x 15 dBi	2 x 15.2 dBi	2 x 16.5 dBi	2 x 17.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.3°	Horizontal: 68° Vertical: 14°	Horizontal: 66° Vertical: 13.3°	Horizontal: 66° Vertical: 7.1°	Horizontal: 65° Vertical: 6.5°
Electrical tilt continuously adjustable	0.5°–12°	0.5°–12°	0.5°–12°	0.5°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 6° ... 12° T 13 ... 12 ... 10 dB	0° ... 6° ... 12° T 14 ... 14 ... 14 dB	0° ... 6° ... 12° T 16 ... 16 ... 16 dB	0° ... 4° ... 8° T 17 ... 16 ... 15 dB	0° ... 4° ... 8° T 17 ... 15 ... 13 dB
Front-to-back ratio, copolar	> 27 dB	> 27 dB	> 27 dB	> 23 dB	> 23 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB 0° > 10 dB ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W



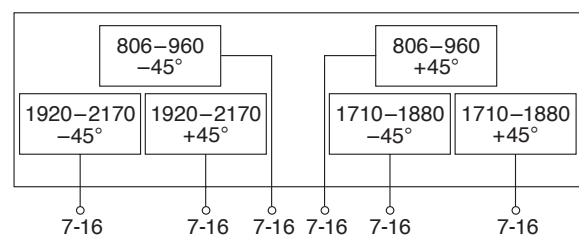
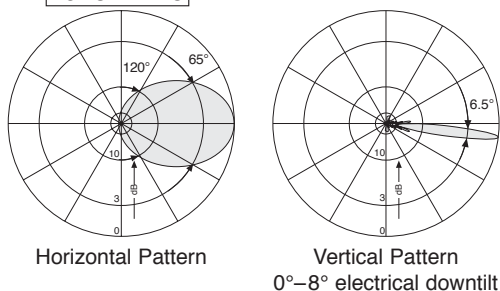
806–960 +45°/–45° Polarization



1710–1880 +45°/–45° Polarization



1920–2170 +45°/–45° Polarization



Mechanical specifications

Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	25 kg
Wind load	Frontal: 260 N (at 150 km/h) Lateral: 210 N (at 150 km/h) Rearside: 580 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1819 x 304 x 204 mm
Height/width/depth	1498 / 262 / 149 mm

Triple-band A-Panel

Dual Polarization

Half-power Beam Width

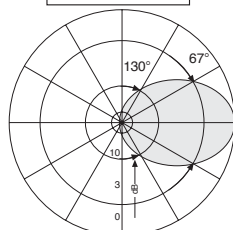
Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

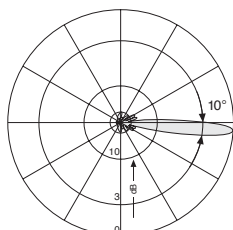
XXXPol A-Panel 806–960/1710–1880/1920–2170 67°/65°/65° 16.5/17.5/18dBi 0°–10°/0°–6°/0°–6°T

Type No.	742 271				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.3 dBi	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 11°	Horizontal: 68° Vertical: 10.7°	Horizontal: 67° Vertical: 9.8°	Horizontal: 65° Vertical: 5.1°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–6°	0°–6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 3° ... 6° T 14 ... 15 ... 16 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 24 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

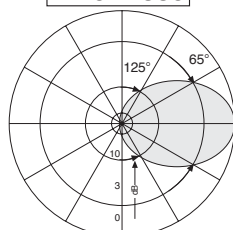


Horizontal Pattern

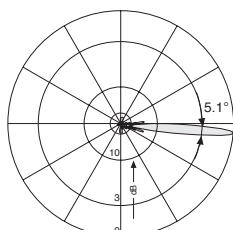


Vertical Pattern
0°–10° electrical downtilt

1710–1880 +45°/–45° Polarization

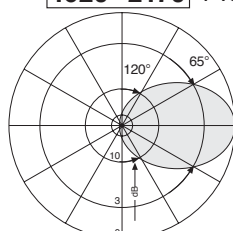


Horizontal Pattern

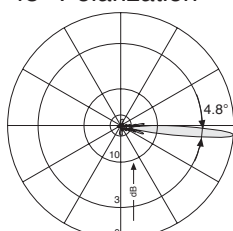


Vertical Pattern
0°–6° electrical downtilt

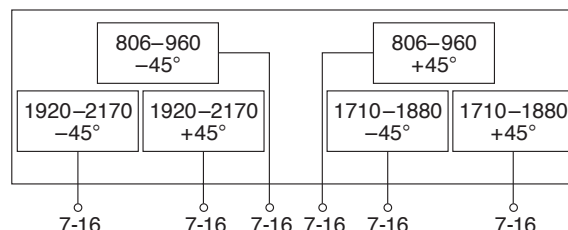
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications

Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 370 N (at 150 km/h) Lateral: 300 N (at 150 km/h) Rearside: 820 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2391 x 304 x 204 mm
Height/width/depth	2058 / 262 / 149 mm

Triple-band A-Panel

Dual Polarization

Half-power Beam Width

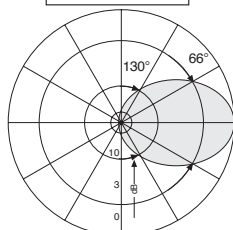
Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

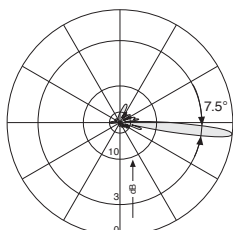
XXXPol A-Panel 806–960/1710–1880/1920–2170 66°/67°/65° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

Type No.	742 272				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 17.2 dBi	2 x 17.5 dBi	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 7.8°	Horizontal: 68° Vertical: 7.4°	Horizontal: 66° Vertical: 7°	Horizontal: 67° Vertical: 5.2°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0.5°– 7°	0.5°– 7°	0.5°– 7°	0°– 6°	0°– 6°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

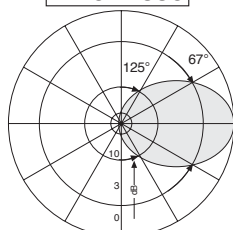


Horizontal Pattern

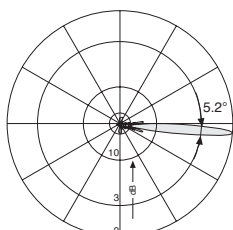


Vertical Pattern
0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization

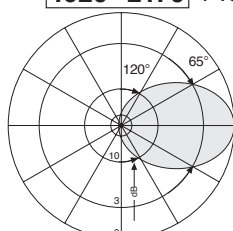


Horizontal Pattern

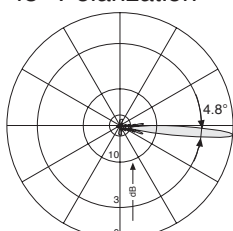


Vertical Pattern
0°–6° electrical downtilt

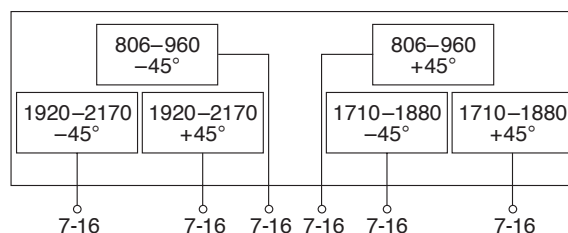
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications

Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	40 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 390 N (at 150 km/h) Rearside: 1060 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2628 / 262 / 149 mm



Triple-multiband A-Panel **824–960** **1710–2170** **1710–2170** **KATHREIN**

Dual Polarization **X** **X** **X** Antennen · Electronic

Half-power Beam Width **65°** **65°** **65°**

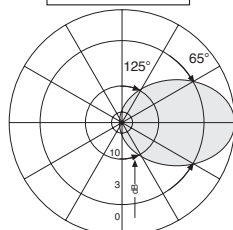
Adjust. Electr. Downtilt **0°–7°** **0°–8°** **0°–8°**

set by hand or by optional RCU (Remote Control Unit)

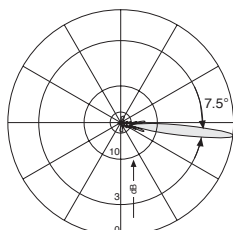
XXXPol A-Panel 824–960/1710–2170/1710–2170 65°/65°/65° 17/17/16.5dBi 0°–7°/0°–8°/0°–8°T

Type No.	742 241				
Frequency range	824–960		1710–2170	1710–2170	
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2170 MHz
Polarization	+45°, –45°		+45°, –45°	+45°, –45°	+45°, –45°
Gain: 824–960 MHz 1710–2170 MHz (bottom) 1710–2170 MHz (top)	2 x 16.5 dBi		2 x 16.5 dBi 2 x 16 dBi	2 x 16.8 dBi 2 x 16.3 dBi	2 x 17 dBi 2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.1°	Horizontal: 65° Vertical: 7.5°	Horizontal: 65° Vertical: 7.8°	Horizontal: 65° Vertical: 7.3°	Horizontal: 63° Vertical: 6.8°
Electrical tilt continuously adjustable	0.5°–7°		0°–8°	0°–8°	0°–8°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 8° T 14 ... 14 ... 14 dB	0° ... 4° ... 8° T 16 ... 16 ... 15 dB	0° ... 4° ... 8° T 15 ... 16 ... 15 dB
Front-to-back ratio, copolar	> 26 dB		> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB		> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2170 MHz) > 38 dB (1710–2170 // 1710–2170 MHz)				
Impedance	50 Ω		50 Ω	50 Ω	50 Ω
VSWR	< 1.5		< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc		
Max. power per input	250 W		200 W (at 50 °C ambient temperature)		

824–960 +45°/–45° Polarization

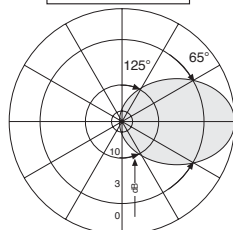


Horizontal Pattern

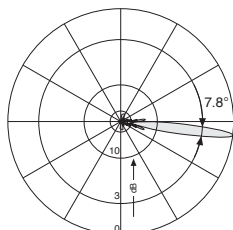


Vertical Pattern
0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization

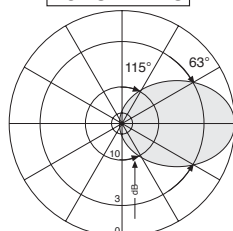


Horizontal Pattern

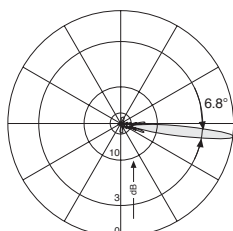


Vertical Pattern
0°–8° electrical downtilt

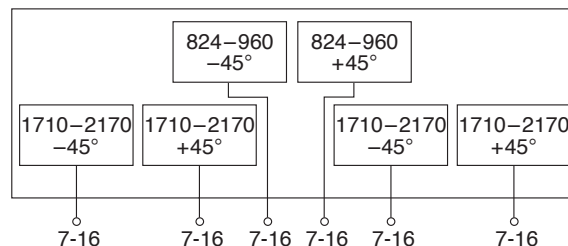
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications

Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	34 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 390 N (at 150 km/h) Rearside: 1060 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2628 / 262 / 149 mm

Triple-multiband A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

set by hand or by optional RCU (Remote Control Unit)

806–960 1710–2180 1710–2180

X X X

65° 65° 65°

2°–10° 0°–10° 0°–10°

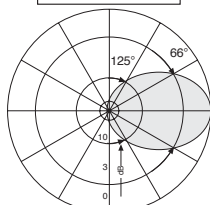
KATHREIN

Antennen · Electronic

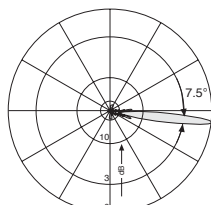
XXXPol A-Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17.5/17dBi 2°–10°/0°–10°/0°–10°T

Type No.	800 10292					
Frequency range	806–960			1710–2180	1710–2180	
	806 – 866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Average Gain: (dBi)	16.8...17.0...16.8	17.0...17.1...17.0	17.4...17.4...17.1	16.5...16.7...16.5	17.0...17.1...16.7	17.3...17.4...16.8
1710–2180 MHz (Syst. bottom)				16.2...16.3...16.1	16.7...16.7...16.4	17.0...17.0...16.5
1710–2180 MHz (Syst. top)				0°...5°...10°	0°...5°...10°	0°...5°...10°
Tilt	2°...6°...10°	2°...6°...10°	2°...6°...10°			
Half-power beam width	Horizontal: 69°	Horizontal: 68°	Horizontal: 66°	Horizontal: 65°	Horizontal: 64°	Horizontal: 60°
Copolar +45°/–45°	Vertical: 7.8°	Vertical: 7.6°	Vertical: 7.1°	Vertical: 7.4°	Vertical: 7.2°	Vertical: 6.8°
Electrical tilt continuously adjustable	2.5°–9.5°	2.5°–9.5°	2.5°–9.5°	0°–10°	0°–10°	0°–10°
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	2° ... 6° ... 10° T 17 ... 16 ... 14 dB	2° ... 6° ... 10° T 17 ... 16 ... 14 dB	2° ... 6° ... 10° T 17 ... 16 ... 14 dB	0° ... 5° ... 10° T 16 ... 16 ... 16 dB	0° ... 5° ... 10° T 16 ... 17 ... 16 dB	0° ... 5° ... 10° T 16 ... 16 ... 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB	> 26 dB	> 26 dB	> 26 dB
Cross polar ratio	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB	Typically: 18 dB	Typically: 18 dB	Typically: 18 dB
Maindirection	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Sector	avg. 20 dB	avg. 20 dB	avg. 17 dB	avg. 14 dB	avg. 16 dB	avg. 16 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 36 dB (806–960 // 1710–2180 MHz) > 36 dB (1710–2180 // 1710–2180 MHz)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)			200 W (at 50 °C ambient temperature)		

806–960 +45°/–45° Polarization

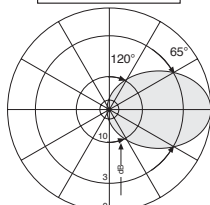


Horizontal Pattern

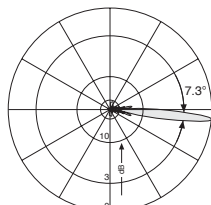


Vertical Pattern
2°–10° electrical downtilt

1710–1990 +45°/–45° Polarization

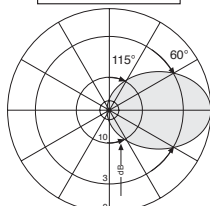


Horizontal Pattern

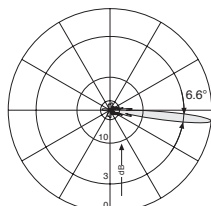


Vertical Pattern
0°–10° electrical downtilt

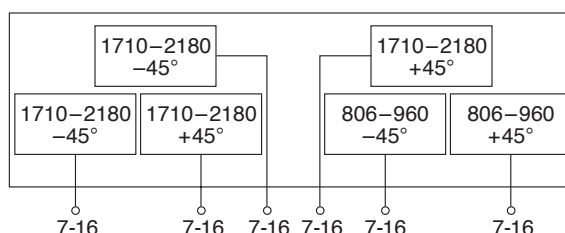
1920–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications

Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	36 kg
Wind load	Frontal: 490 N (at 150 km/h) Lateral: 400 N (at 150 km/h) Rearside: 1090 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3027 x 304 x 204 mm
Height/width/depth	2694 / 262 / 149 mm



Summary – Directional Antennas

Vertical Polarization

Single-band and Multi-band – UMTS

Vertical Polarization

Type					Type No.	Height [mm]	Page
VPol F-Panel	1710–2180		12°	18.5dBi	800 10368	299	138
VPol BiDir	806–960/1710–2170		65°	5dBi	738 445	310	139
VPol BiDir	806–960/1710–2170		65°	5dBi	738 446	310	139
VPol LogPer	806–2170		65°	11dBi	742 192	300	140
VPol F-Panel	1710–2170		65°	18dBi	742 445	1302	141
VVPol F-Panel	824–960	C	90°	7dBi	742 290	328	142
	1710–2170		82°	7dBi			
VVPol F-Panel	824–960	C	90°	10dBi	800 10046	662	143
	1710–2170		82°	11dBi			

Multi-band F-Panel

Vertical Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2180

V

12°

0°

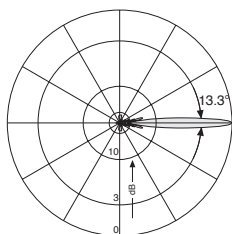
KATHREIN

Antennen · Electronic

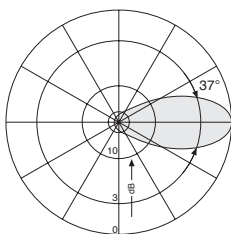
VPol F-Panel 1710–2180 12° 18.5dBi 0°T

Type No.	800 10368		
Frequency range	1710 – 1880 MHz	1710–2180 1850 – 1990 MHz	1920 – 2180 MHz
Polarization	Vertical	Vertical	Vertical
Gain	18.1 dBi	18.4 dBi	18.7 dBi
Horizontal Pattern:			
Half-power beam width	13.3°	12.8°	12°
Front-to-back ratio (180° ± 30°)	> 30 dB	> 30 dB	> 30 dB
Sidelobe suppression	> 18 dB	> 18 dB	> 17 dB
Vertical Pattern:			
Half-power beam width	37°	36°	36°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Sidelobe suppression for first sidelobe above main beam	> 18 dB	> 18 dB	> 18 dB
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3	< –150 dBc (2 x 43 dBm carrier)		
Max. power	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz

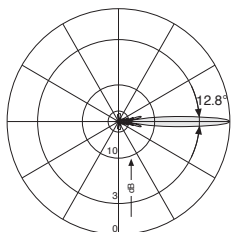


Horizontal Pattern

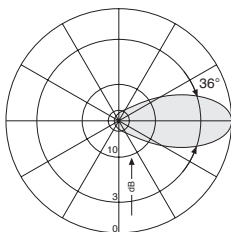


Vertical Pattern

1850 – 1990 MHz

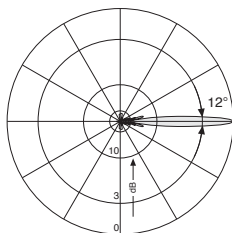


Horizontal Pattern

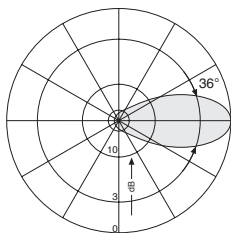


Vertical Pattern

1920 – 2180 MHz



Horizontal Pattern



Vertical Pattern



1710–2180
VPol

7-16

Mechanical specifications

Input	1 x 7-16 female
Connector position	Side (see picture)
Weight	9 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 400 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	442 x 852 x 124 mm
Height/width/depth	299 / 743 / 69 mm

Multi-band Bidirectional Antenna

Vertical Polarization

Half-power Beam Width

806–960/1710–2170

V

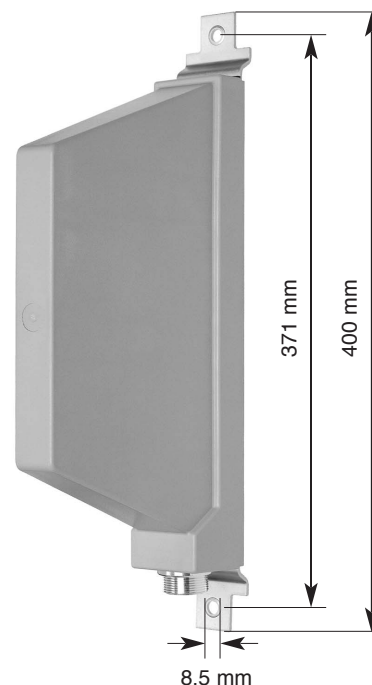
65°

KATHREIN

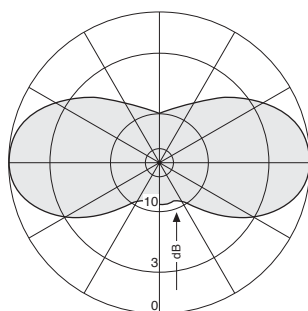
Antennen · Electronic

VPol BiDir 806–960/1710–2170 65° 5dBi

Type No.	738 445	738 446
Input	1 x 7-16 female	1 x N female
Frequency range	806 – 960 MHz, 1710 – 2170 MHz	
VSWR	< 1.7 (806 – 824 MHz) < 1.5 (824 – 960 / 1710 – 2170 MHz)	
Gain	806 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi	
Impedance	50 Ω	
Polarization	Vertical	
Max. power (total)	200 W (at 50 °C ambient temperature)	
Weight	0.8 kg	
Wind load	Frontal: 25 N (at 150 km/h) Lateral: 65 N (at 150 km/h) Rearside: 35 N (at 150 km/h)	
Max. wind velocity	200 km/h	
Packing size	422 x 212 x 95 mm	
Height/width/depth	310 / 55 / 190 mm	



- Material:** Radiator: Tin plated copper.
Reflector: Weather-proof aluminum.
Radome: High impact plastic, colour: Grey.
All screws and nuts: Stainless steel.
- Mounting:** Wall mounting: No additional mounting kit needed.
For pipe mast mounting use clamps 734 360 – 734 365 (see page 220) (order separately).
- Ice protection:** The radiating system is protected by the radome.
Due to its very sturdy construction, the antenna remains operational even under icy conditions.
- Grounding:** All metal parts of the antenna as well as the inner conductor are DC grounded.



Typical Horizontal Pattern

Logarithmic Periodic Vertical Polarization Half-power Beam Width

806–2170

V

65°

KATHREIN

Antennen · Electronic

VPol LogPer 806–2170 65° 11dBi

Type No.	742 192		
Input	1 x 7-16 female		
Connector position	Bottom		
Frequency range	806 – 1000 MHz	1000 – 1700 MHz	1700 – 2170 MHz
VSWR	< 1.5	< 1.5	< 1.5
Gain	11 dBi	11.3 dBi	11.5 dBi
Impedance	50 Ω	50 Ω	50 Ω
Polarization	Vertical	Vertical	Vertical
Front-to-back ratio	> 25 dB	> 25 dB	> 23 dB
Half-power Beam Width horizontal vertical	65° 55°	55° 50°	50° 45°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc	< –150 dBc
Max. power	300 W	250 W	200 W
	(at 50 °C ambient temperature)		
Weight	5.7 kg		
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 30 N (at 150 km/h)		
Max. wind velocity	200 km/h		
Packing size	360 x 175 x 1000 mm		
Height/width/depth	300 / 155 / 785 mm		



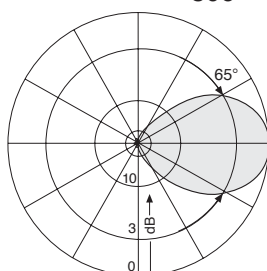
Material:
Radiator: Weather-proof aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.

Mounting:
The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.

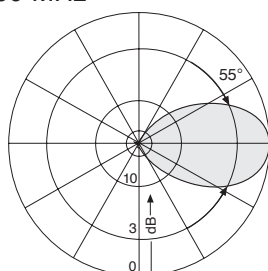
Ice protection:
Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Grounding:
All metal parts of the antenna as well as the inner conductor are DC grounded.

806 – 1000 MHz

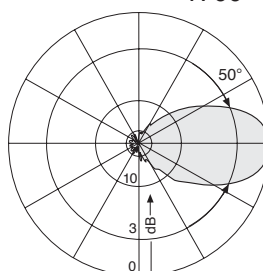


Horizontal Pattern

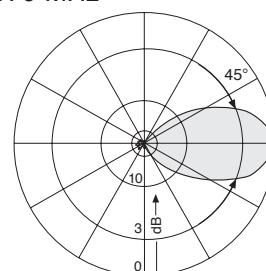


Vertical Pattern

1700 – 2170 MHz



Horizontal Pattern



Vertical Pattern

Multi-band F-Panel

Vertical Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

1710–2170

V

65°

0°–10°

KATHREIN

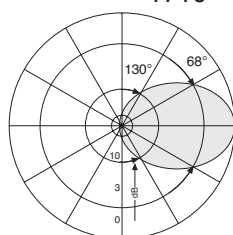
Antennen · Electronic

set by hand or by optional RCU (Remote Control Unit)

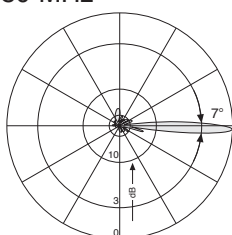
VPol F-Panel 1710–2170 65° 18dBi 0°–10°T

Type No.	742 445		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	Vertical	Vertical	Vertical
Gain	17.5 dBi	17.9 dBi	18.1 dBi
Half-power beam width	Horizontal: 68° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt	0°–10° continuously adjustable	0°–10° continuously adjustable	0°–10° continuously adjustable
Vertical Pattern – sidelobe suppression for first sidelobe above main beam	0° ... 5° ... 10° T 18 ... 16 ... 13 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB
Front-to-back ratio	> 25 dB	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz

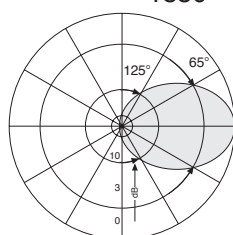


Horizontal Pattern

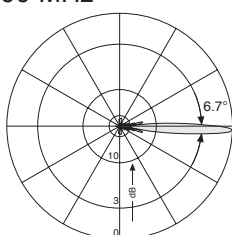


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1850 – 1990 MHz

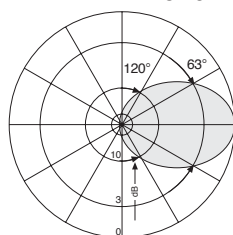


Horizontal Pattern

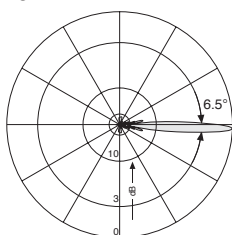


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1920 – 2170 MHz



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt
continuously adjustable



UMTS
VPol

1710–2170
VPol

7-16

Mechanical specifications

Input	1 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	6.8 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Dual-band F-Panel Vertical Polarization Half-power Beam Width Integrated Combiner

824–960 1710–2170

V

V

90°

82°

C

KATHREIN

Antennen · Electronic

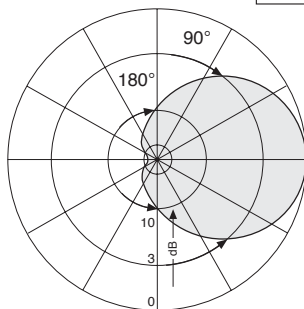
VVPol F-Panel 824–960/1710–2170 C 90°/82° 7/7dBi

Type No.	742 290	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	7 dBi	7 dBi
Half-power beam width	Horizontal: 90° Vertical: 60°	Horizontal: 82° Vertical: 70°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 1.7 (1710–2170 MHz) < 1.5 (1710–1990 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)	

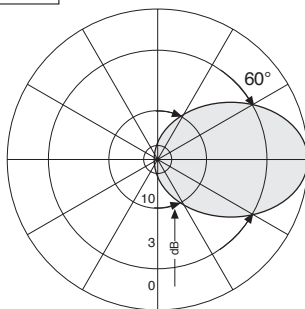


UMTS
VPol

824–960

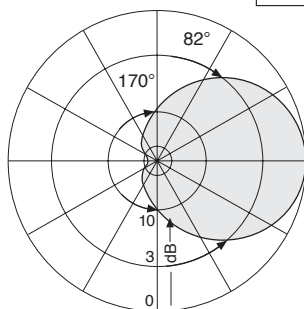


Horizontal Pattern

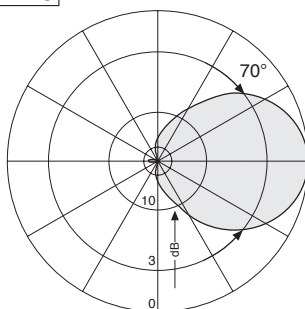


Vertical Pattern

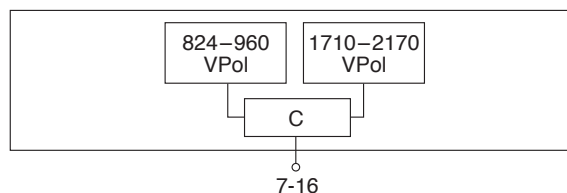
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	2.5 kg
Wind load	Frontal: 30 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 70 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	444 x 172 x 92 mm
Height/width/depth	328 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band F-Panel Vertical Polarization Half-power Beam Width Integrated Combiner

824–960 1710–2170

V

V

90°

82°

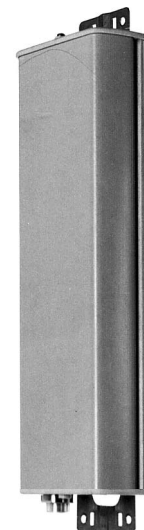
C

KATHREIN

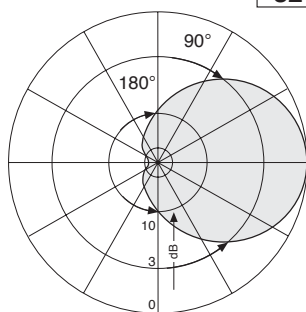
Antennen · Electronic

VVPol F-Panel 824–960/1710–2170 C 90°/82° 10/11dBi

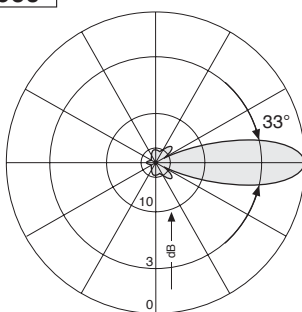
Type No.	800 10046	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	10 dBi	11 dBi
Half-power beam width	Horizontal: 90° Vertical: 33°	Horizontal: 82° Vertical: 19°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)	



824–960

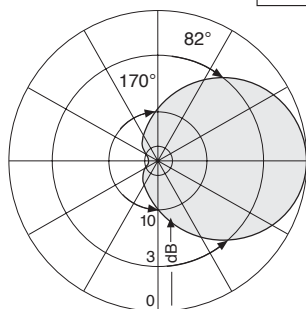


Horizontal Pattern

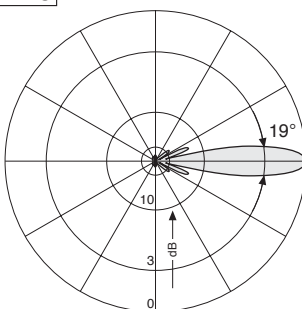


Vertical Pattern

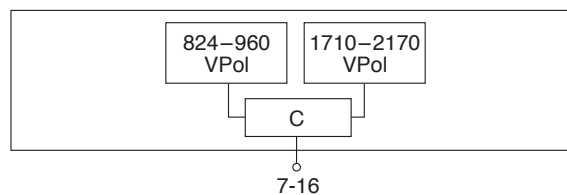
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	1 x 7-16 female
Connector position*	Bottom or top
Weight	4.4 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	804 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

UMTS
VPol

Summary – Directional Antennas

Dual Polarization +45°/–45°

WiMax

Dual Polarization +45°/–45°

Type					Type No.	Height [mm]	Page
XPol S-Panel	3300–3800	65°	17.5dBi		800 10390	650	146
XPol S-Panel	3300–3800	88°	16dBi		800 10436	650	147

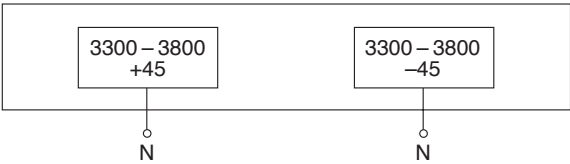
New Products

S-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

3300–3800
X
65°
0°

XPol S-Panel 3300–3800 65° 17.5dBi 0°T

Type No.	800 10390
Frequency range	3300 – 3800 MHz
Polarization	+45°, –45°
Gain	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back ratio (180° ±30°)	> 25 dB
Isolation, between ports	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



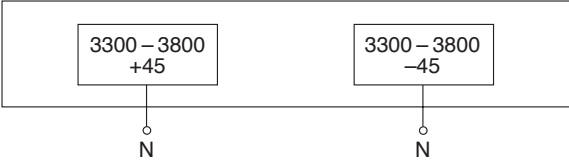
Mechanical specifications	
Input	2 x N-connector female
Connector position	Bottom
Max. wind velocity	200 km/h
Height/width/depth	Approx. 650 / 85 / 40 mm

S-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

3300–3800
X
88°
0°

XPol S-Panel 3300–3800 88° 16.5dBi 0°T

Type No.	800 10436
Frequency range	3300 – 3800 MHz
Polarization	+45°, –45°
Gain	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back-ratio (180° ±30°)	> 25 dB
Isolation, between ports	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



WiMax
 XPol

Mechanical specifications	
Input	2 x N-connector female
Connector position	Bottom
Max. wind velocity	200 km/h
Height/width/depth	Approx. 650 / 85 / 40 mm

Summary – Directional Antennas

Vertical Polarization

WiMax

Vertical Polarization

Type	Type No.	Height [mm]	Page
VPol S-Panel	800 10457	650	150

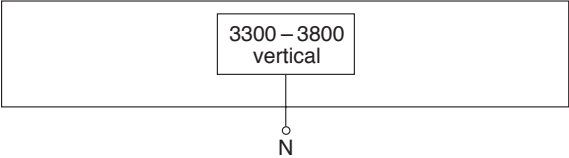
New Product

S-Panel
Vertical Polarization
Half-power Beam Width
Fixed Electrical Downtilt

3300–3800
V
65°
0°

VPol S-Panel 3300–3800 65° 17.5dBi 0°T

Type No.	800 10457
Frequency range	3300 – 3800 MHz
Polarization	Vertical
Gain	17.5 dBi
Half-power beam width	Horizontal: 65° Vertical: 7°
Electrical tilt	0°, fixed
Front-to-back-ratio (180° ±30°)	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	50 W (at 50 °C ambient temperature)



Mechanical specifications	
Input	N-connector female
Connector position	Bottom
Max. wind velocity	200 km/h
Height/width/depth	Approx. 650 / 85 / 40 mm

Vertical Polarization – 800/900

Type	Type No.	Connector female	Height [mm]	Remarks	Page
VPol Omni 870–960 360° 2dBi	738 450	N	180	indoor/outdoor	152
VPol Omni 806–960 360° 2dBi	K 75 11 61	N	348		153
VPol Omni 890–960 360° 5dBi	K 75 15 64 1	N	715		154
VPol Omni 870–960 360° 8dBi	736 350	7-16	1543		155
VPol Omni 806–894 360° 11dBi	738 192	7-16	3237		156
VPol Omni 870–960 360° 11dBi	736 347	7-16	3033		157
VPol Omni 870–960 360° 10.5dBi 5°T	736 349	7-16	2954		158

Vertical Polarization – Dual-band

VPol Omni 870–960/1710–1880 360° 2dBi	738 449	N	216	indoor/outdoor	159
VPol Omni 824–960/1805–2170 360° 2dBi	800 10147	N	216	indoor/outdoor	160
VVPol Omni 870–960/ 360°/ 9dBi 1920–2170 360° 10dBi	80010274	7-16	3033	separate inputs	161
VVPol Omni 870–960/1710–1880 360° 2dBi 1920–2170 360° 2dBi	800 10111	N	493	separate inputs	162

Vertical Polarization – 1800

VPol Omni 1710–1880 360° 8dBi	739 785	7-16	807		163
VPol Omni 1710–1880 360° 11dBi	738 187	7-16	1568		164
VPol Omni 1710–1880 360° 11dBi 6°T	737 190	7-16	1560		165

Vertical Polarization – 1800/2000

VPol Omni 1710–2700 360° 2 dBi	800 10431	N	115	indoor/outdoor	166
VPol Omni 1920–2170 360° 11 dBi	741 790	7-16	1387		167

New Product

Omnidirectional Antenna **Vertical Polarization** **Indoor and outdoor use**

870–960

V

VPol Omni 870–960 360° 2dBi

Type No.	738 450
Input	N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Polarization	Vertical
Max. power	100 W (at 50 °C ambient temperature)
Weight	200 g
Radome diameter	20 mm
Height	180 mm

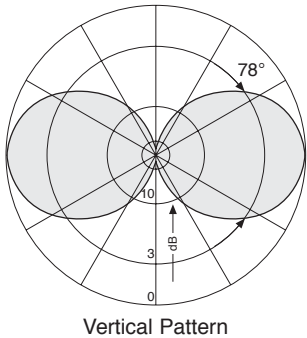
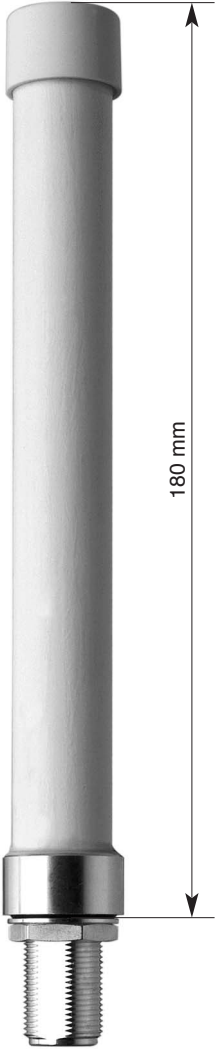
- Material:

Radiator: Brass.

Radome: Fiberglass, colour: White.
- Mounting:

One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:

All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



VPol Omni 806–960 360° 2dBi

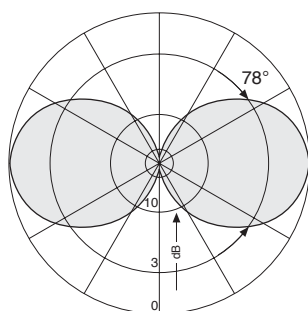
Type No.	K 75 11 61
Frequency range	806 – 960 MHz
Polarization	Vertical
Gain	2 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 37 dBm carrier)	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)

Mounting: The antenna can be attached in two ways with the supplied mounting kit:

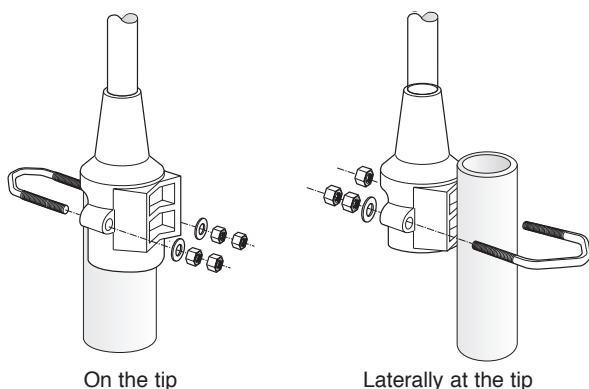
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



On the tip

Laterally at the tip

Mechanical specifications

Input	N female
Connector position	Bottom
Weight	0.74 kg
Radome diameter	21 mm
Wind load	17 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	455 x 112x 97 mm
Height	348 mm

VPol Omni 890–960 360° 5dBi

Type No.	K 75 15 64 1
Frequency range	890 – 960 MHz
Polarization	Vertical
Gain	5 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 37 dBm carrier)	< –150 dBc
Max. power	250 W (at 50 °C ambient temperature)

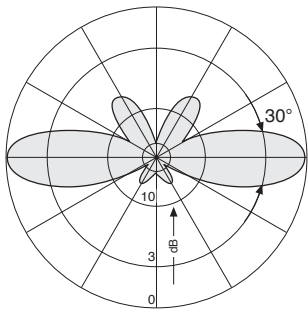
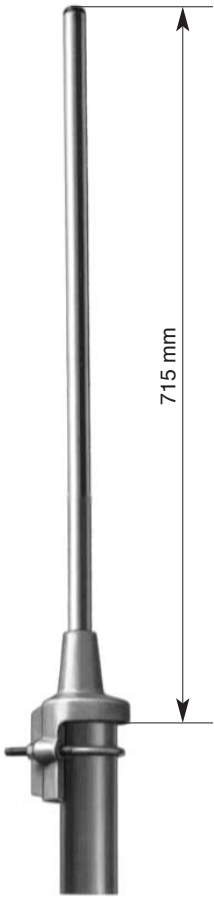
- Mounting:

The antenna can be attached in two ways with the supplied mounting kit:

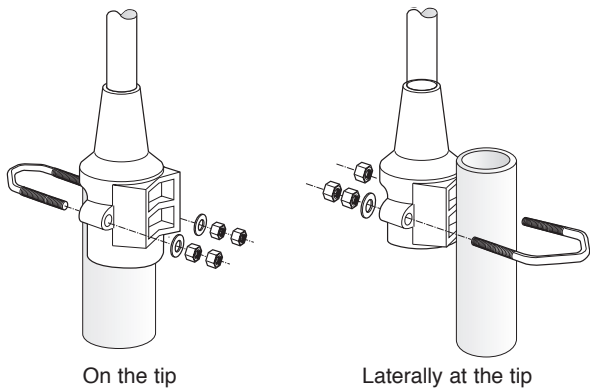
 - On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
 - Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).
- Material:

Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.
- Grounding:

All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



Mechanical specifications	
Input	N female
Connector position	Bottom
Weight	0.90 kg
Radome diameter	21 mm
Wind load	20 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	825 x 112 x 97 mm
Height	715 mm

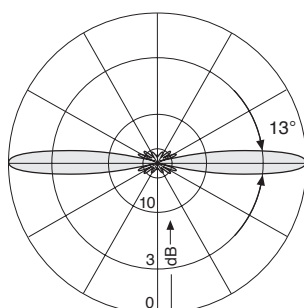
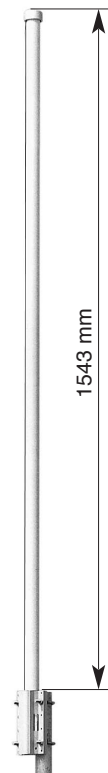
VPol Omni 870–960 360° 8dBi

Type No.	736 350
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	8 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

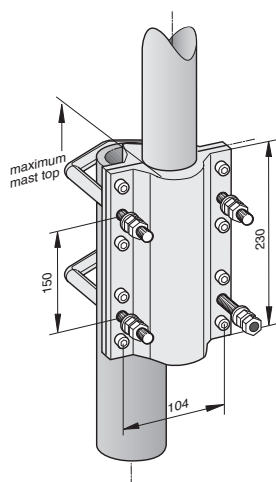
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass. Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1543 mm

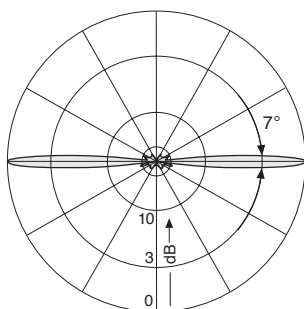
VPol Omni 806–894 360° 11dBi

Type No.	738 192
Frequency range	806 – 894 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

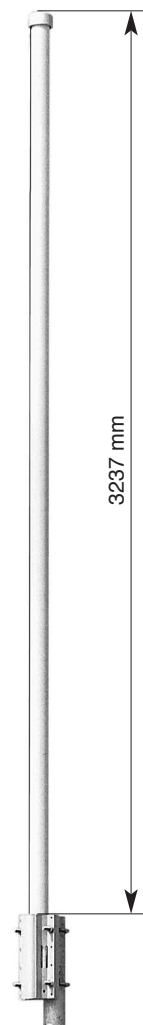
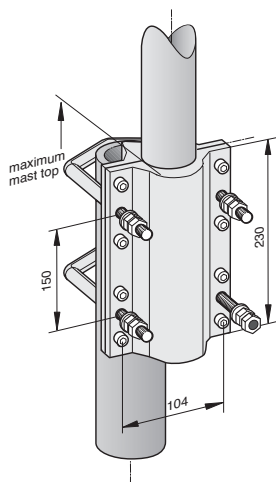
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	8.5 kg
Radome diameter	51 mm
Wind load	230 N (at 150 km/h)
Max. wind velocity	180 km/h
Packing size	3516 x 148 x 112 mm
Height	3237 mm

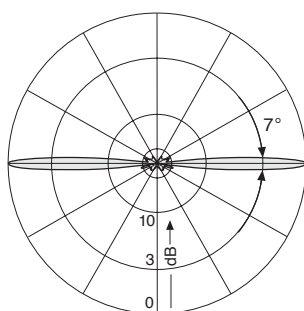
VPol Omni 870–960 360° 11dBi

Type No.	736 347
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)

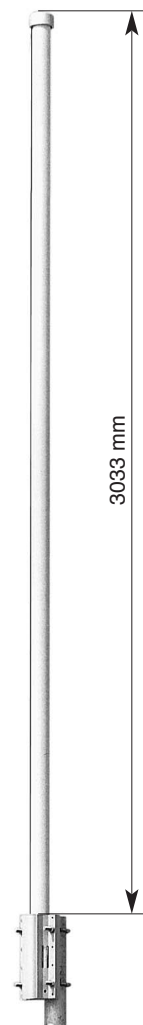
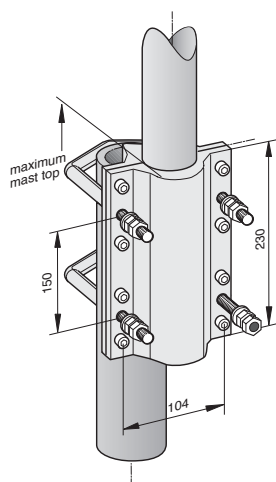
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	8 kg
Radome diameter	51 mm
Wind load	210 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3316 x 148 x 112 mm
Height	3033 mm

Omnidirectional Antennas **Vertical Polarization** **Fixed Electrical Downtilt**

870–960

V

5°

KATHREIN

Antennen · Electronic

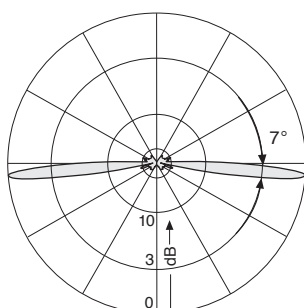
VPol Omni 870–960 360° 10.5dBi 5°T

Type No.	736 349
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	10.5 dBi
Electrical tilt	5°, fixed
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)

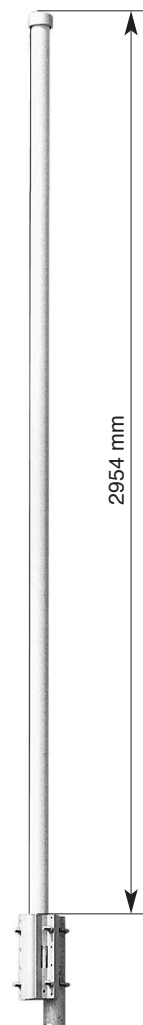
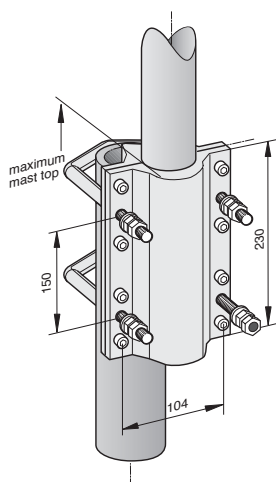
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern
5° electrical downtilt



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	8 kg
Radome diameter	51 mm
Wind load	210 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3316 x 148 x 112 mm
Height	2954 mm

Dual-band Omni Antenna

Vertical Polarization

Indoor and outdoor use

870–960/1710–1880

V

KATHREIN

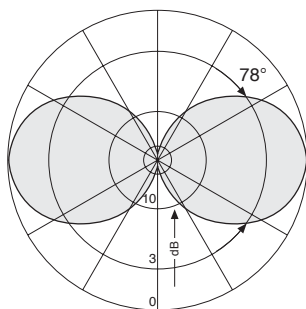
Antennen · Electronic

VPol Omni 870–960/1710–1880 360° 2dBi

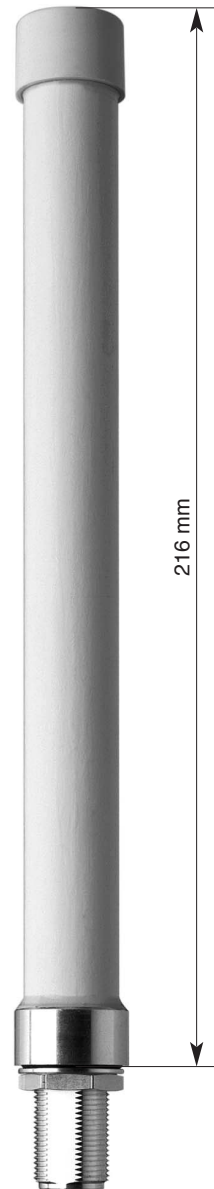
Type No.	738 449
Input	1 x N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz / 1710 – 1880 MHz
VSWR	< 1.7
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 Watt: 870 – 960 MHz 50 Watt: 1710 – 1880 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces
of max. 10 mm thickness.



Vertical Pattern



Omni
VPol

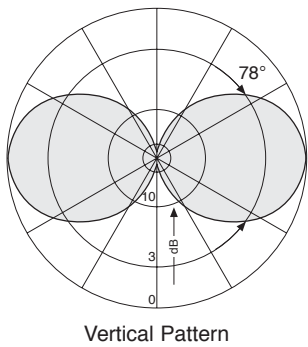
Dual-band Omni Antenna
Vertical Polarization
Indoor and outdoor use

824–960/1805–2170
V

VPol Omni 824–960/1805–2170 360° 2dBi

Type No.	800 10147
Input	1 x N female
Connector position	Bottom or top
Frequency range	824 – 960 MHz / 1805 – 2170 MHz
VSWR	< 2.0
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power	50 Watt: 824 – 960 MHz 50 Watt: 1805 – 2170 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

- Material:
Radiators: Brass.
Radome: Fiberglass, colour: White.
- Mounting:
One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:
All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Dual-band Omni Antenna

Vertical Polarization

870–960 1920–2170

V

V

KATHREIN
Antennen · Electronic

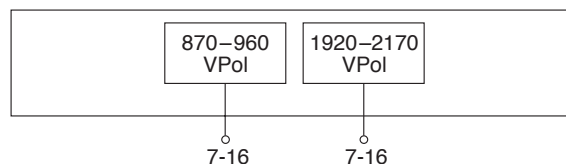
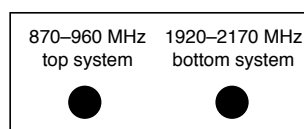
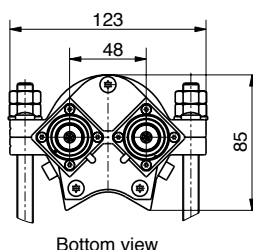
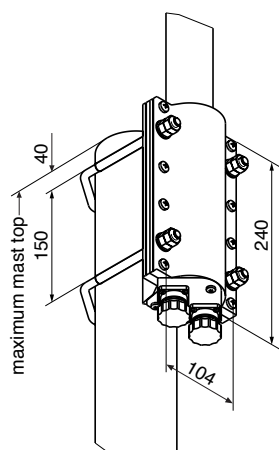
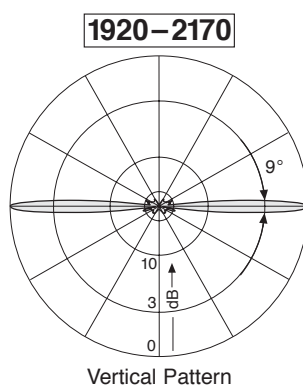
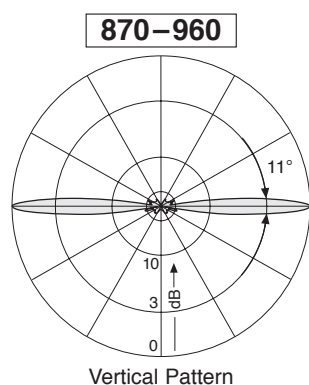
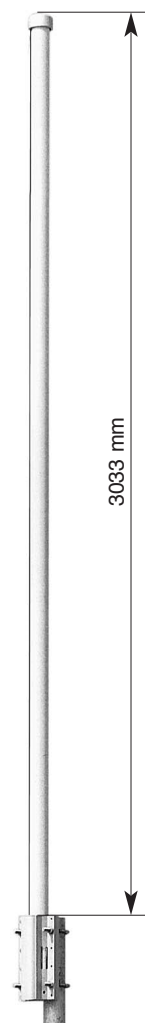
VVPol Omni 870–960/1920-2170 360°/360° 9/10dBi

Type No.	800 10274	
Frequency range	Top system 870 – 960 MHz	Bottom system 1920 – 2170 MHz
Polarization	Vertical	Vertical
Gain	9 dBi	10 dBi
Half-power beam width	Horizontal: Omni Vertical: 11°	Horizontal: Omni Vertical: 9°
Isolation, between ports	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc	
Max. power per input	150 W (at 50 °C ambient temperature)	100 W (at 50 °C ambient temperature)

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductors of both systems are coupled capacitively.



Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Weight	8 kg
Wind load	210 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3380 x 148 x 112 mm
Height	3033 mm
Radome diameter	51 mm

Multi-band Omni Antenna

870–960
1710–1880

1920–2170

KATHREIN
Antennen · Electronic

Vertical Polarization

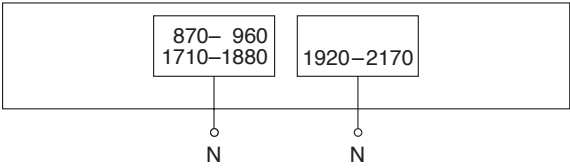
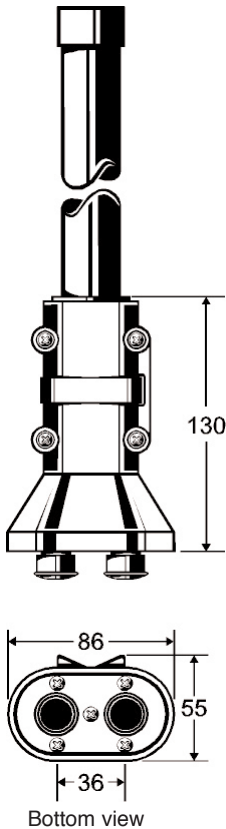
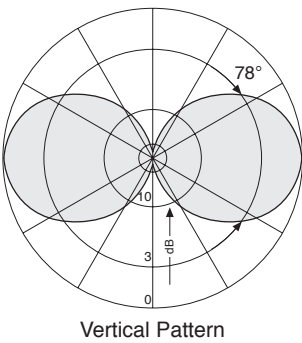
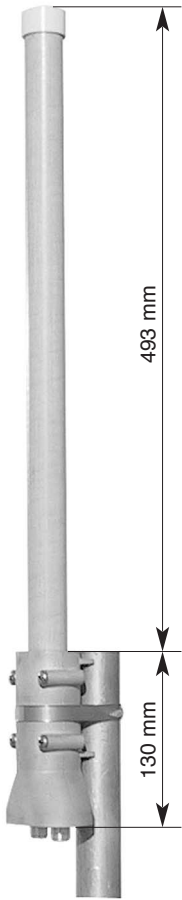
V

V

VVPol Omni 870–960/1710–1880/1920-2170 360°/360° 2/2dBi

Type No.	800 10111	
Frequency range	Upper unit 870 – 960 MHz 1710 – 1880 MHz	Lower unit 1920 – 2170 MHz
Polarization	Vertical	Vertical
Gain	2 dBi	2 dBi
Isolation, between ports	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc	
Max. power per input	50 W (at 50 °C ambient temperature)	

- Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit and screws: Stainless steel.
- Mounting: The antenna can be attached laterally at the tip of a tubular mast of 40 – 70 mm diameter with a mounting clamp supplied with the antenna. The connecting cables (not supplied) run outside the mast.
- Excellent grounding: The metal parts of the antenna and the mounting kit (exclusive the inner conductor of the upper unit) are DC grounded.



Mechanical specifications	
Input	2 x N female
Connector position	Bottom
Weight	0.85 kg
Wind load	30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	665 x 112 x 97 mm
Height	493 mm
Radome diameter	30 mm

Omnidirectional Antenna Vertical Polarization

1710–1880

V

KATHREIN
Antennen · Electronic

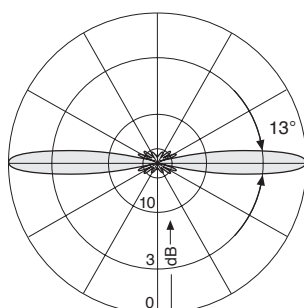
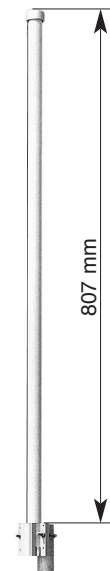
VPol Omni 1710–1880 360° 8dBi

Type No.	739 785
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	8 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	200 W (at 50 °C ambient temperature)

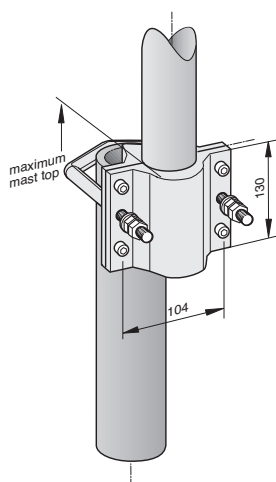
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	4 kg
Radome diameter	51 mm
Wind load	90 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	986 x 148 x 112 mm
Height	807 mm

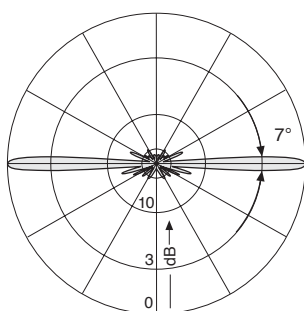
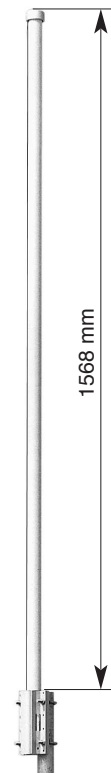
VPol Omni 1710–1880 360° 11dBi

Type No.	738 187
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)

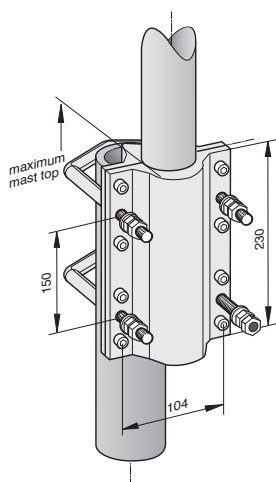
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1568 mm

Omnidirectional Antenna **Vertical Polarization** **Fixed Electrical Downtilt**

1710–1880

V

6°

KATHREIN

Antennen · Electronic

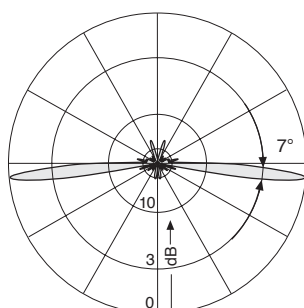
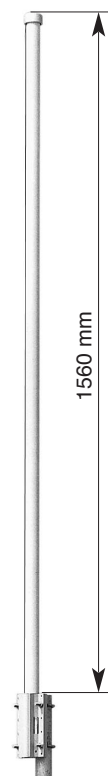
VPol Omni 1710–1880 360° 11dBi 6°T

Type No.	737 190
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	11 dBi
Electrical tilt	6°, fixed
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	200 W (at 50 °C ambient temperature)

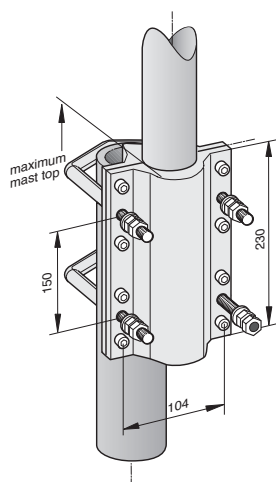
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern
6° electrical downtilt



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1560 mm

Omnidirectional Antenna **Vertical Polarization** **Indoor and outdoor use**

1710–2700

V

VPol Omni 1710–2700 360° 2dBi

Type No.	800 10431
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2700 MHz
VSWR	< 1.8
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115 mm

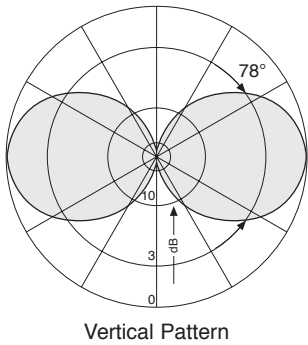
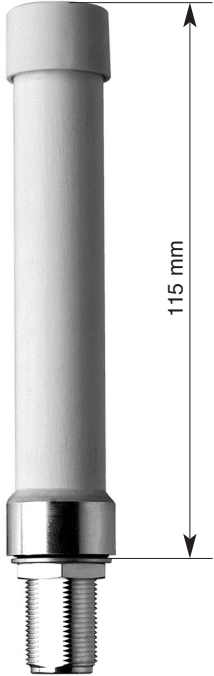
- Material:

Radiator: Brass.

Radome: Fiberglass, colour: White.
- Mounting:

One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:

All metal parts of the antenna and the mounting kit are DC grounded. The inner conductor is not DC grounded.



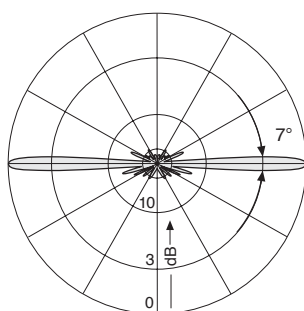
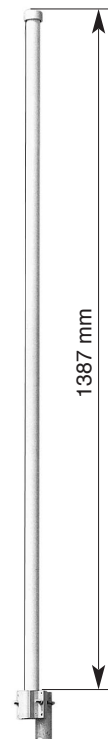
VPol Omni 1920–2170 360° 11dBi

Type No.	741 790
Frequency range	1920 – 2170 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	150 W (at 50 °C ambient temperature)

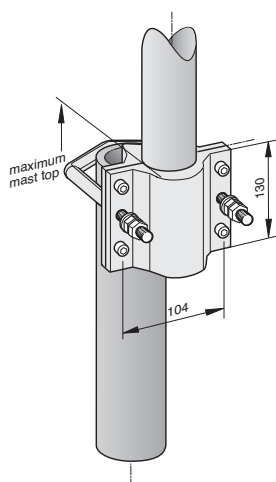
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications

Input	7-16 female
Connector position	Bottom
Weight	5 kg
Radome diameter	51 mm
Wind load	120 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1570 x 148 x 112 mm
Height	1387 mm

Vertical Polarization

Multi-band

Type	Type No.	Frequency range	Connector female	Page
VPol BiDir 824–960/1710–2170 65° 5dBi	738 446	824 – 960 MHz and 1710 – 2170 MHz	N	170
VVPol Indoor 806–960/1710–2700 90° 7dBi	800 10465	806 – 960 MHz and 1710 – 2700 MHz	N	171
VVPol Indoor 806–960/1710–2500 90° 7dBi	800 10248	806 – 960 MHz and 1710 – 2500 MHz	N	172
VPol Indoor 1710–2170 360° 2dBi	741 573	1710 – 2500 MHz	N	173
VPol Indoor 876–960/1710–2500 360° 2dBi	800 10137	876 – 960 MHz and 1710 – 2500 MHz	N	174
VPol Indoor 876–960/1710–2500 360° 2dBi	800 10173	876 – 960 MHz and 1710 – 2500 MHz	N	175
VPol Indoor 806– 960 1425–3800 5150–6000 360° 2dBi	800 10249	806 – 960 MHz and 1425 – 3800 MHz and 5150 – 6000 MHz	N	176

Indoor / Outdoor – Single-band

VPol Omni 870–960 360° 2dBi	738 450	870 – 960 MHz	N	177
-----------------------------	---------	---------------	---	-----

Indoor / Outdoor – Dual-band / Multi-band

VPol Omni 870–960/1710–1880 360° 2dBi	738 449	870 – 960 MHz and 1710 – 1880 MHz	N	178
VPol Omni 1710–2170 360° 2dBi	738 454	1710 – 2200 MHz	N	179
VPol Omni 824–960/1805–2170 360° 2dBi	800 10147	824 – 960 MHz and 1805 – 2170 MHz	N	180

New Product

Multi-band Bidirectional Antenna

Vertical Polarization

Half-power Beam Width

824–960/1710–2170

V

65°

KATHREIN

Antennen · Electronic

VPol BiDir 824–960/1710–2170 65° 5dBi

Type No.	738 446
Input	1 x N female
Frequency range	824 – 960 MHz, 1710 – 2170 MHz
VSWR	< 1.5
Gain	824 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (total)	200 W (at 50 °C ambient temperature)
Weight	0.8 kg
Wind load	Frontal: 25 N (at 150 km/h) Lateral: 65 N (at 150 km/h) Rearside: 35 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	422 x 212 x 95 mm
Height/width/depth	310 / 55 / 190 mm

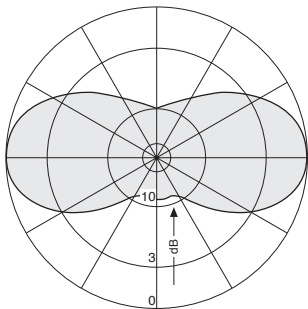
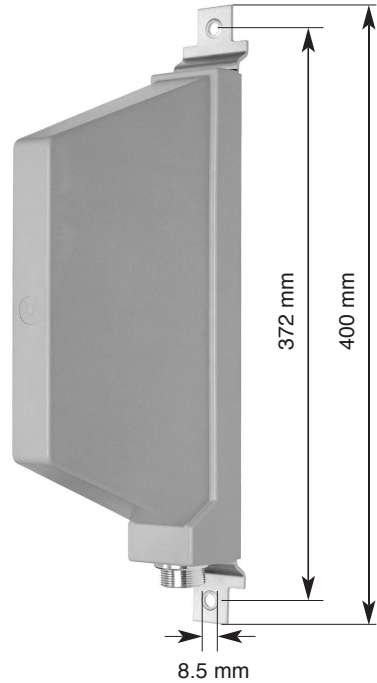
- Material:

Radiator: Tin plated copper.
Reflector: Weather-proof aluminum.
Radome: High impact plastic, colour: Grey.
All screws and nuts: Stainless steel.
- Mounting:

Wall mounting: No additional mounting kit needed.
For pipe mast mounting use clamps listed on the datasheet (order separately).
- Ice protection:

The radiating system is protected by the radome.
Due to its very sturdy construction, the antenna remains operational even under icy conditions.
- Grounding:

All metal parts of the antenna as well as the inner conductor are DC grounded.



Typical Horizontal Pattern

Indoor Multi-band
Direct. Antenna
Vertical Polarization
Half-power Beam Width
Integrated Combiner

806–960

1710–2700

V

V

90°

90°

C

VVPol Indoor 806–960/1710–2700 C 90° 7dBi

Type No.	800 10465
Frequency range	806 – 960 MHz / 1710 – 2700 MHz
Polarization	Vertical
Gain	Approx. 7 dBi
Half-power beam width	Horizontal: Approx. 90°
Impedance	50 Ω
VSWR	806 – 960 MHz: < 2.0 1710 – 2200 MHz: < 2.0 2200 – 2400 MHz: < 2.5 2400 – 2700 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	Cable RG 223/CU of 1m length, white, with N female connector
Protection class	IP 30
Weight	500 g
Packing size	363 x 152 x 62 mm
Height/width/depth	231 / 140 / 50 mm

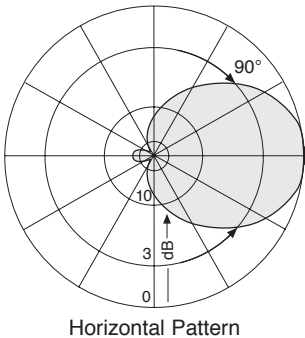
- Material:

Reflector: Aluminum.
 Radome: High impact polystyrol, colour: White.
 Additional painting is possible.
 Mounting plates: Stainless steel.
- Mounting:

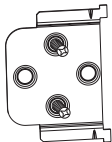
Two holes of 6 mm diameter in the mounting plate.
 Screws are not supplied.
 Avoid to stress the cable.
- Grounding:

All metal parts inclusive the inner conductor are
 DC grounded.
- Available accessories:

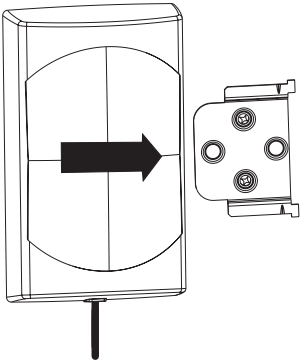
Broadband power splitters and tappers
 (800 – 2700 MHz).



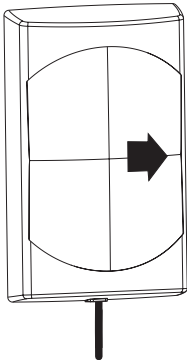
Mounting:



Mount the attachment plate to the wall using two screws of 4 mm diameter in the position as indicated.



Align the antenna over the attachment plate.



Pull the antenna to the stop.

Indoor Multi-band Direct. Antenna Vertical Polarization Half-power Beam Width Integrated Combiner

806–960	1710–2500
V	V
90°	90°
C	

KATHREIN
Antennen · Electronic

VVPol Indoor 806–960/1710–2500 90° 7dBi

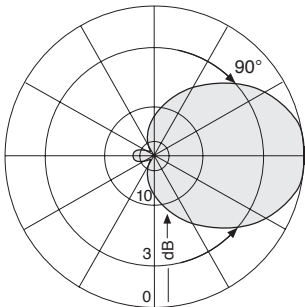
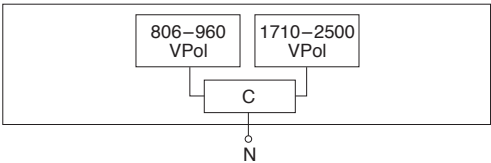
Type No.	800 10248
Frequency range	806 – 960 MHz / 1710 – 2500 MHz
Polarization	Vertical
Gain	≈ 7 dBi
Half-power beam width	Horizontal: ≈ 90°
Impedance	50 Ω
VSWR	806 – 960 MHz: < 2.0 1710 – 2200 MHz: < 2.0 2200 – 2400 MHz: < 2.5 2400 – 2500 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	Cable RG 223/CU of 1m length, white, with N female connector
Protection class	IP 30
Weight	500 g
Packing size	363 x 152 x 62 mm
Height/width/depth	231 / 140 / 50 mm

Material: Reflector: Aluminum.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.
Mounting plates: Stainless steel.

Mounting: Two holes of 6 mm diameter in the mounting plate. Screws are not supplied.
Avoid to stress the cable.

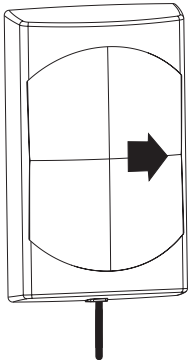
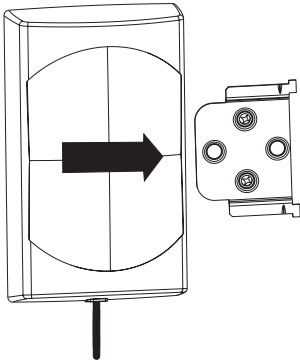
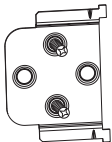
Grounding: All metal parts inclusive the inner conductor are DC grounded.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).



Horizontal Pattern

Mounting:



Mount the attachment plate to the wall using two screws of 4 mm diameter in the position as indicated.

Align the antenna over the attachment plate.

Pull the antenna to the stop.

Indoor Omnidirectional Antenna

Vertical Polarization

Multi-band

1710–2500

V

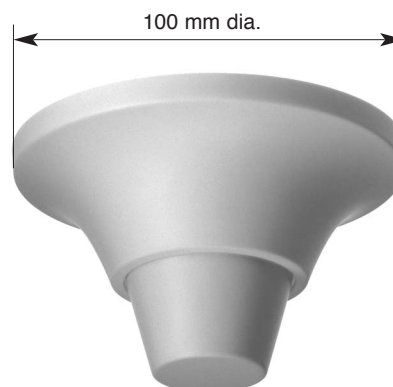
KATHREIN

Antennen · Electronic

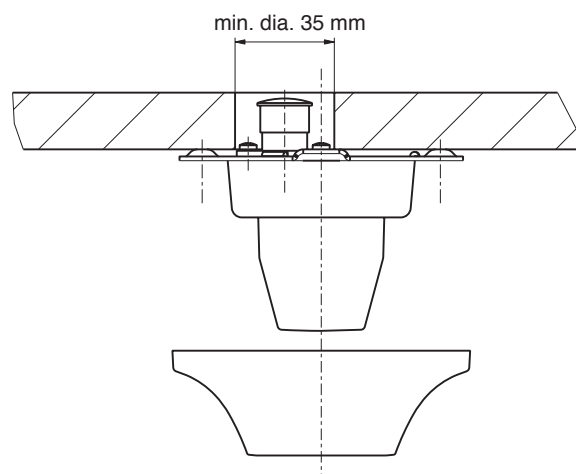
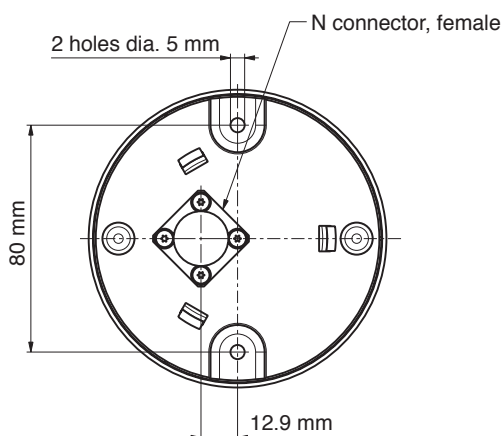
- The antenna can be operated in the total frequency range simultaneously.
- The antenna needs no additional groundplane.

VPol Indoor 1710–2500 360° 2dBi

Type No.	741 573
Frequency range	1710 – 2500 MHz
VSWR	1710 – 1880 MHz: < 1.6 1850 – 1990 MHz: < 1.6 1920 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0
Input	1 x N female
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (per band)	50 W (at 50 °C ambient temperature)
Weight	150 g
Diameter	100 mm
Height	50 mm (without connector)



- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Holes in the base enable a mounting on the ceiling. Screws are supplied.
For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Multi-band Omni Antenna Vertical Polarization

876–960

1710–2500

V

KATHREIN

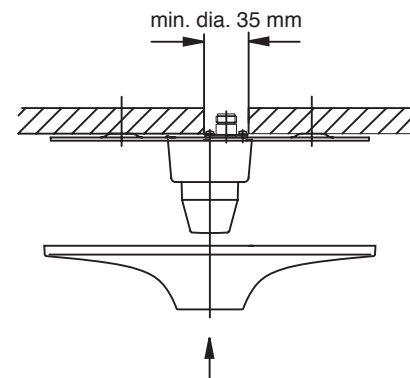
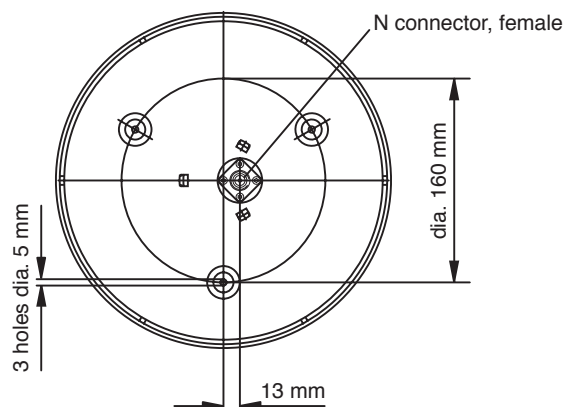
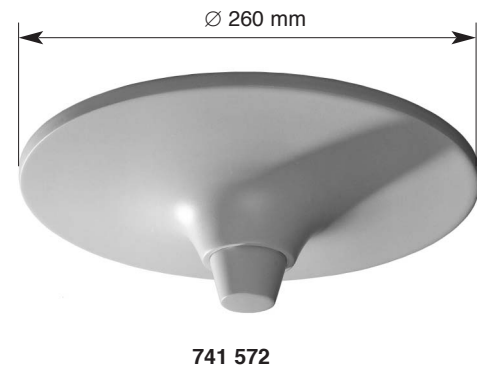
Antennen · Electronic

- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

VPol Indoor 876–960/1710–2500 360° 2dBi

Type No.	800 10137
Frequency range	876 – 960 MHz 1710 – 2500 MHz
VSWR	< 1.9: 876 – 890 MHz < 1.6: 890 – 960 MHz < 1.6: 1710 – 2170 MHz < 2.0: 2170 – 2500 MHz
Input	1 x N female
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (per band)	50 W (at 50 °C ambient temperature)
Weight	300 g
Diameter	210 mm
Height	78 mm (without connector)

- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Multi-band Omni Antenna Vertical Polarization

876–960

1710–2500

V

KATHREIN

Antennen · Electronic

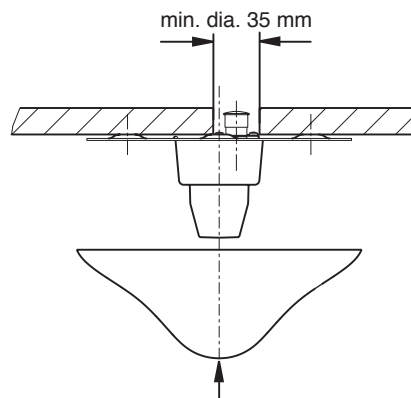
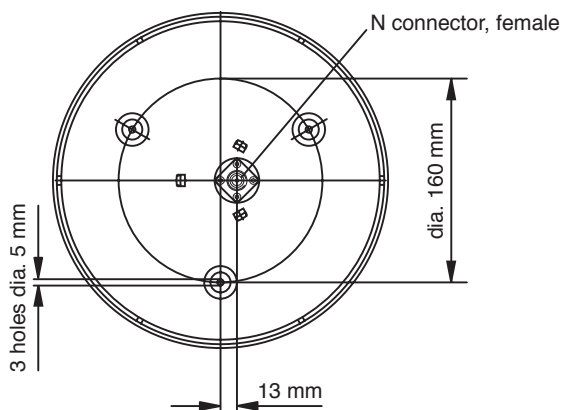
- The antenna needs no additional groundplane.

VPol Indoor 876–960/1710–2500 360° 2dBi

Type No.	800 10173
Frequency range	876 – 960 MHz 1710 – 2500 MHz
Polarization	Vertical
Gain	2 dBi
Impedance	50 Ω
VSWR	876 – 890 MHz: < 1.8 890 – 960 MHz: < 1.6 1710 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0
Max. power (per band)	50 W (at 50 °C ambient temperature)
Input	1 x N female
Weight	340 g
Diameter	215 mm
Height	85 mm (without connector)



- Material:** Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.
- Mounting:** Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.
- Grounding:** All metal parts including the inner conductor are DC grounded.
- Available accessories:** Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Multi-band Omni Antenna Vertical Polarization

806–960

1425–3800

5150–6000

KATHREIN

Antennen · Electronic

V

- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

VPol Indoor 806–960/1425–3800/5150–6000 360° 2dBi

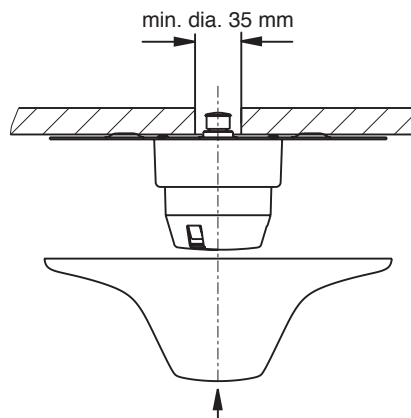
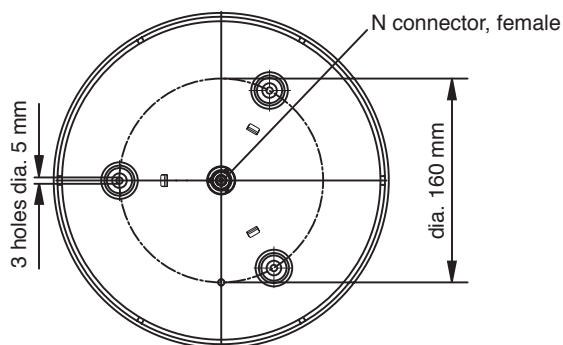
Type No.	800 10249
Frequency range	806 – 960 MHz 1425 – 3800 MHz 5150 – 6000 MHz
Polarization	Vertical
Gain	≈ 2 dBi
Impedance	50 Ω
VSWR	806 – 960 MHz: < 1.5 1425 – 1710 MHz: < 2.0 1710 – 2200 MHz: < 1.4 2200 – 3800 MHz: < 1.6 5150 – 6000 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	1 x N female
Protection class	IP 30
Weight	466 g
Packing size	277 x 277 x 169 mm
Diameter	258 mm
Height	94 mm (without connector)



Material: Reflector: Aluminum.
Radome: High impact polystyrol, colour: White.
Additional painting is possible.

Mounting: Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).



Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Omnidirectional Antenna **Vertical Polarization** **Indoor and outdoor use**

870–960

V

KATHREIN
 Antennen · Electronic

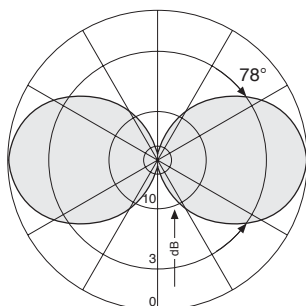
VPol Omni 870–960 360° 2dBi

Type No.	738 450
Input	N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Polarization	Vertical
Max. power	100 W (at 50 °C ambient temperature)
Weight	200 g
Radome diameter	20 mm
Height	180 mm

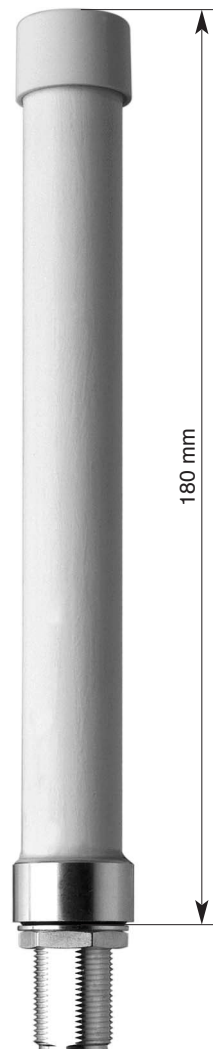
Material: Radiator: Brass.
 Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces
 of max. 10 mm thickness.

Grounding: All metal parts of the antenna as well as
 the inner conductor and the mounting kit
 are DC grounded.



Vertical Pattern



Dual-band Omni Antenna
Vertical Polarization
Indoor and outdoor use

870–960/1710–1880

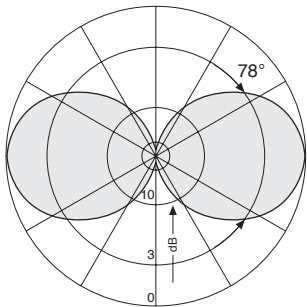
V

VPol Omni 870–960/1710–1880 360° 2dBi

Type No.	738 449
Input	1 x N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz / 1710 – 1880 MHz
VSWR	< 1.7
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W: 870 – 960 MHz 50 W: 1710 – 1880 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

Material:
Radiators: Brass.
Radome: Fiberglass, colour: White.

Mounting:
One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.



Vertical Pattern



Omnidirectional Antenna **Vertical Polarization** **Indoor and outdoor use**

1710–2200

V

KATHREIN
 Antennen · Electronic

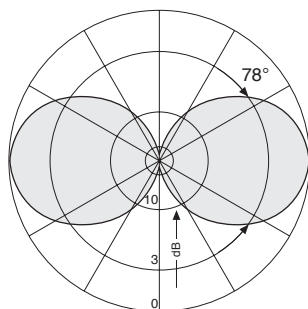
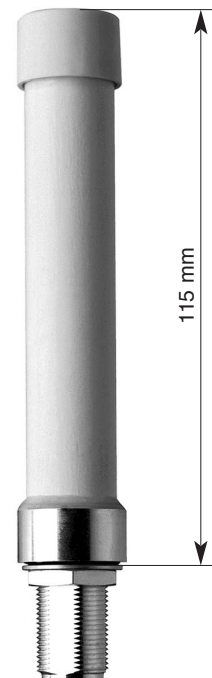
VPol Omni 1710–2200 360° 2dBi

Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2200 MHz
VSWR	1710 – 2170 MHz: < 1.5 2170 – 2200 MHz: < 1.8
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115 mm

Material: Radiator: Brass.
 Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces
 of max. 10 mm thickness.

Grounding: All metal parts of the antenna and the mounting
 kit are DC grounded. The inner conductor is not
 DC grounded.



Vertical Pattern

Dual-band Omni Antenna
Vertical Polarization
Indoor and outdoor use

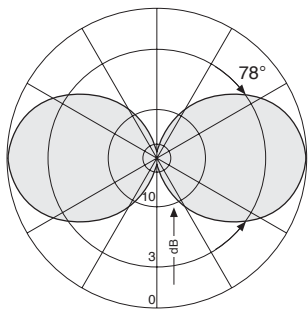
824–960/1805–2170

V

VPol Omni 824–960/1805–2170 360° 2dBi

Type No.	800 10147
Input	1 x N female
Connector position	Bottom or top
Frequency range	824 – 960 MHz / 1805 – 2170 MHz
VSWR	< 2.0
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power	50 Watt: 824 – 960 MHz 50 Watt: 1805 – 2170 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

- Material:
Radiators: Brass.
Radome: Fiberglass, colour: White.
- Mounting:
One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.
- Grounding:
All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



Type	Type No.	Page
Kathrein's Remote Electrical Tilt System General information		182
Instructions for RCU Installation		188
Instructions of Feederline Installation on A-Panels and F-Panel with four connectors arranged on two levels Triple-band antennas with Kathrein installation tool		189 190
Data sheets of RET-components Slimline Remote Control Unit (RCU) Slimline Remote Control Unit (RCU) Central Control Unit (CCU) for indoor use Central Control Unit with Layer-one Converter (CCU-LOC) Central Control Unit (CCU) for outdoor use Portable Control Adapter (PCA) Power Supply and Signal Cable SMB Control Cable DC Power and Signal Splitter Lightning Protection Device Earthing Clamp Double Tower Mounted Amplifier Double Tower Mounted Amplifier Smart Bias Tee Bias Tee	 860 10025 860 10118 860 10006 / 860 10026 860 10068 860 10113 860 10046 860 10007, ... 860 10078 / ..79 / ..84 / ..90 860 10002 860 10030 860 10031 782 10147 782 10148 782 10253 / ..54 / ..55 / ..56 782 10453 / ..54 / ..55 / ..56 782 10429	 191 192 193 194 196 197 198 199 200 201 202 203 204 205 206
Antenna System Manager (ASM) General information Edition and Support		207 208

New Products

The answer to all current and future network demands

Network planning is becoming ever more complicated, especially with the advent of 3G.

The challenge for wireless network operators is to balance coverage, capacity, call quality and costs in order to gain maximum revenue from their network. Each of the above factors affects the others and so network engineers use many different techniques



for establishing the right balance they are trying to achieve.

One of these methods is adjusting the antenna's downtilt. Here, the engineer must take into consideration certain facts, such as the weather, access to the cell site, availability of specialized installation teams and special equipment etc. Moreover, such an antenna adjustment can typically take several hours to perform.

Since the cell site is usually switched off for safety reasons during such an adjustment, this results in lost calls and therefore revenue whilst these changes are being made. Consequently, operators tend to make fewer adjustments and so networks are often left operating unoptimized, which also eventually results in lost revenue for the operators.

However, with Kathrein's Remote Electrical Tilt unit engineers can make the necessary adjustments without shutting down the whole system!

Further advantages of using Kathrein's Remote Electrical Tilt (RET) system:

- No need for specialized teams trained in altitude work or with special safety skills
- Limited site access and/or time restrictions are not so important
- No special platforms or other means of access to the antenna are required
- Adjustments can be made and the relevant measurements performed speedily
- Network alterations can be carried out irrespective of weather conditions
- No reduction in coverage – cells remain fully operational whilst changes are being made
- Operators estimate that approx. 20% of UMTS equipment can be saved by using such a RET system.



RET components

Slimline RCU
(Remote Control Unit)



CCU (Central Control Unit)



CCU with LOC
(Central Control Unit with Layer-one Converter)



DC Power and Signal Splitter



Control Cable



SMB Control Cable



Lightning Protection Device



Earthing Clamp



Optional:
Smart Bias Tee



DTMA (Double Tower Mounted Amplifier)



Bias Tee



Kathrein's overall RET system works in accordance with the AISG (Antenna Interface Standards Group) standard and 3 GPP (3rd Generation Partnership Project).

Ways of controlling the RET System: Central Control Unit (CCU)



The major component for controlling the RCU is the Central Control Unit (CCU), which is located at the BTS. In order to cover all required applications, the CCU can be accessed from the Operational Maintenance Center (OMC) via the Ethernet input and/or directly through a personal computer via the RS 232 input.

The maximum number of RCUs controlled by a single CCU and the amount of cable length usable, depend on losses suffered along the cables (e.g. a

maximum of 9 RCUs with 100 m of cable). Controlling several RCUs can be achieved through the use of splitters or the daisy-chain functionality of the RCUs.

Communication between the CCU and RCU

Three options are offered:

- Separate cables
- Using Smart Bias Tee's in the feeder lines
- Via TMA

Portable Control Adapter (PCA)

The PCA is a portable controller for Kathrein's Remote Electrical Tilt system (RET). It is a simple device for running the remote control unit (RCU) attached to Kathrein base station antennas, and for adjusting the vertical electrical downtilt locally. This product is designed for portable applications and for use by installers or maintenance staff with temporary access to the RCUs. The standard Central Control Unit (CCU) is not required.

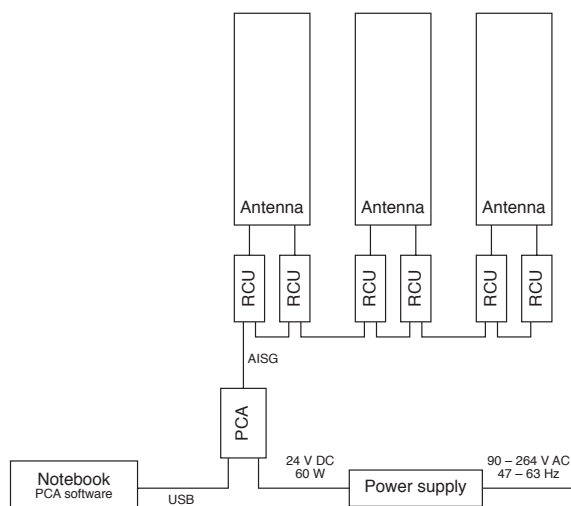


The PCA consists of a small control box and Windows-based software to be installed on a laptop. The control box with dimensions of 160 x 95 x 40 (W x L x H) transforms the USB interface into an **AISG-conform** interface (RS 485 + DC voltage). Together with the supplied software, all functions of the RCU can be controlled via a laptop or PC.

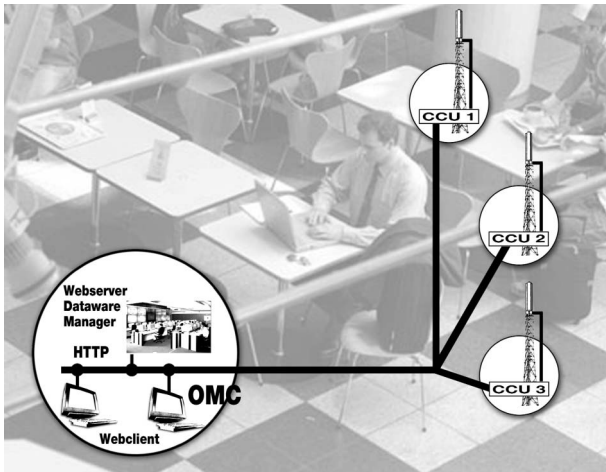
Up to nine RCUs can be controlled using a single PCA.

This can be achieved either through the use of a splitter or via the daisy-chain functionality of the RCUs.

Upgrading the unit to offer remote control via the OMC is very easily possible, by just connecting the standard CCU instead of the PCA.



Ways of controlling the RET System: Communication between the OMC and CCU



The electrical tilt can be controlled either locally or remotely.

Local control:

The configuration of the RET system and simple adaptation to network changes can be effected via local control. In this case, an installation team must

be sent to the site. A laptop is basically connected to the Ethernet interface on the CCU. Alternatively, the RS 232 interface may be used. Instead of a CCU, a PCA can also be used for local control.

Remote control:

Due to the required UMTS network optimizations, the downtilt of an antenna's vertical radiation pattern has to be adjusted much more frequently than as compared with a GSM network. To meet this demand, a remote controlled system via the OMC is inevitable. The Ethernet interface can be selected for implementing remote control in a local area network (LAN) or a wide area network (WAN).

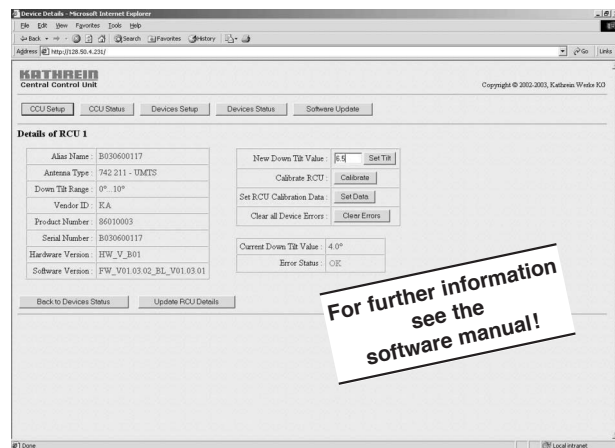
The following transport and application protocols are served by the CCU: TCP/IP, UDP, PPP, DHCP, HTML and ICMP/Ping, FTP, and SNMP.

RET – Software Tools RET – Browser Application

The CCU runs a web-server. RCUs and CCUs, as part of a network, can be configured and controlled through a standard browser, e.g. Netscape, Internet Explorer – no additional software is required. The RET system can be controlled over a long distance directly on site.

The connection to each CCU is easily generated simply by typing in its own individual IP address. The website which appears contains all the required control functions for normal service and installation. In addition to permitting the configuration and control of the connected RCUs and TMAs, the CCU program also displays the device status, command history list and various types of system errors. Via the alarm interface all AISG alarms can be read off.

It is also possible to perform CCU software updates. The browser application is a helpful tool for



the installation team on site, especially during the initial configuration of a RET system.

Each CCU, and with it each of the connected RCUs, can be addressed and controlled individually. Therefore, the browser application also offers a practical solution for responding to new situations by changing the individual downtilt angles quickly and easily.

RET – Antenna System Manager (ASM)

For further information see page 207

An OMC may control hundreds of sites. The IP/Browser solution is not suitable for the easy control of more than one CCU. Access to the various CCUs takes place in a serial form, which consequently takes up rather a lot of time. Further adverse features of such a Browser solution for an OMC are:

- No reference to site names.
- With HTML the whole page has to be transferred, even if only one value changes (very time consuming, especially with a modem).

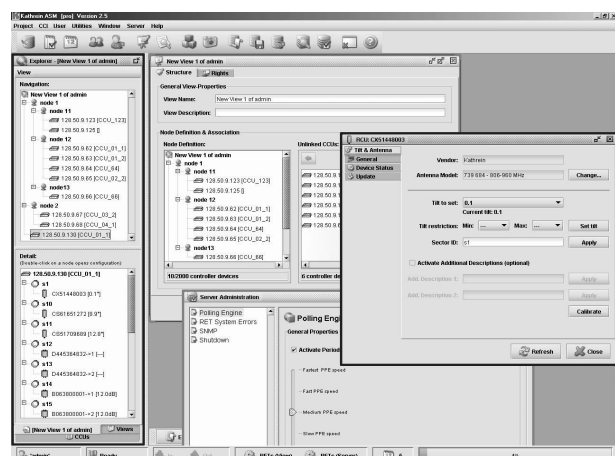
Optimised solution: Antenna System Manager

The Antenna System Manager is a type of SNMP-based software installed on the OMC computer. The ASM offers the following features:

- The number of controllable CCUs and connected AISG devices is unlimited.
- The current data is collected and permanently updated in the OMC computer. The CCU access

is only required for new adjustments.

- The CCU access is organized by the ASM automatically.
- Fast transfer rates due to reduced data quantity (especially with modem mode).
- Explorer enables “family-tree” structure, giving regions and site names.
- The ASM offers the basis for a customized interface connection to the OMC software.



Kathrein's RET system is already used and installed all over the world



UMTS site of the operator THC in Taipei (Taiwan) with Kathrein's RET system.



UMTS site with Kathrein's RET system (new slimline RCUs) and the triple-band antenna type 742 270.



UMTS site of the operator Vodafone in Germany with Kathrein's RET system.



UMTS site of the operator T-Mobile in Germany with Kathrein's new Tri-sector pipe antenna and integrated RET system (new slimline RCUs) and TMAs.

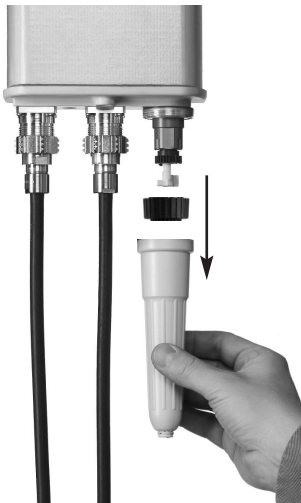


UMTS site of the operator Centertel in Poland with Kathrein's RET system.



UMTS site of the operator T-Mobile at the "Oktoberfest" in Munich (Germany) with Kathrein's RET system.

Attaching the RCU (Remote Control Unit) for remote-controlled downtilt adjustment:



Twist off the protective cap completely from the antenna.

Check the proper function of the phase shifter over the entire adjustment range by twisting the adjustment wheel in such a way, that the spindle moves completely in and out.

Reset the downtilt to 0 degree.

Completely remove the black adjustment wheel by simply pulling it downwards.



Clean the thread surface.

Apply the mounting-paste evenly onto the full circumference of the thread as illustrated in the figure.

Note!

Avoid ingestion and contact with eyes.

In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice. Avoid long-term contact with skin.

In case of contact with skin wash off with soap and water.

For further information please read the 'Safety data-sheet (91/155 EEC), Anti-Seize 'High-Tech' Assembly Paste different packing sizes' by company WEICON GmbH & Co. KG, Königsberger Str. 225, D-48157 Münster, <http://www.weicon.de>



Push the attachment nut of the RCU down towards the housing.

Place the RCU carefully over the adjustment spindle, observing the correct alignment of the RCU with regards to the antenna, i.e. the flat surfaces of the attachment fixture on the antenna side and those inside the RCU housing must lie flat against each other.

Push-up the RCU carefully to the stop at the antenna.

Please note!
Do not twist the RCU during attaching to the antenna, as this may damage the adjustment spindle.



Tighten the RCU attachment nut using a torque-wrench; wrench width = 41 mm, min. torque = 15 Nm, max. torque = 18 Nm.

Connect the RCU control cable immediately after attachment of the RCU. The tightening torque for fixing the control cable connector must be 0.5 – 1.0 Nm ('hand-tightened').

Please note!

In cases where a mechanical downtilt unit is installed, this must not be set for a downtilt of more than 14 degrees.

Connecting the control cables:



Connect a control cable to the daisy chain input of the RCU.

The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened').

The connector should be tightened by hand only!

Please note: If the daisy chain output is not used, do not remove the daisy chain termination.

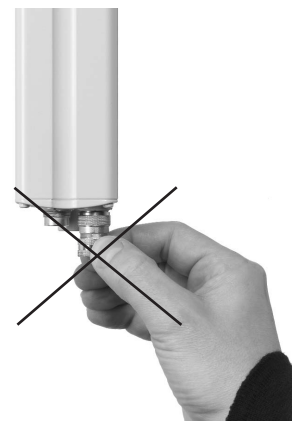


For the daisy chain solution, remove the daisy chain termination and attach control cable to interconnect with the daisy chain input of the subsequent RCU.

Please note: Do not remove the daisy chain termination of last RCU device.



Important:
To remove the daisy chain termination, only twist the upper thumb wheel (near the RCU).



Important:
Do not twist the lower thumb wheel of the daisy chain termination as this may cause damage to the RCU output socket.

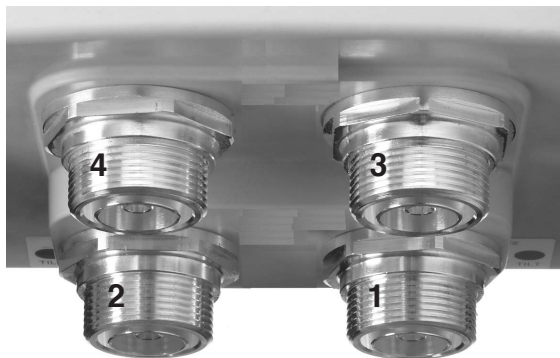
General Instructions for Feederline Installation on A-Panels and F-Panels with four Connectors arranged on two Levels

KATHREIN

Antennen · Electronic

Please note: In order not to damage the interfaces, please make sure that only the right tools are used. Tighten the feederline connector interfaces solely by using a common torque-wrench with a suitable wrench width.

Description of connector arrangement:



There are four interfaces for feeding the antenna located at the bottom.



The connectors are mounted at two levels in order to facilitate feederline installation.

Attachment of the feederline connector and RCU (optional):

In order to protect the adjustment mechanism the protective caps have to be attached during feederline installation!



Start with the rearside located interface no. 1.

Place the connector carefully and fix the nut using a torque-wrench (according to the manufacturers guidelines).

The further sequence for the installation is: feederlines no. 2, 3, 4.



After feederline installation the optional remote control units (RCU) can be mounted if required.



For a full description of RCU installation please refer to the respective data sheet.

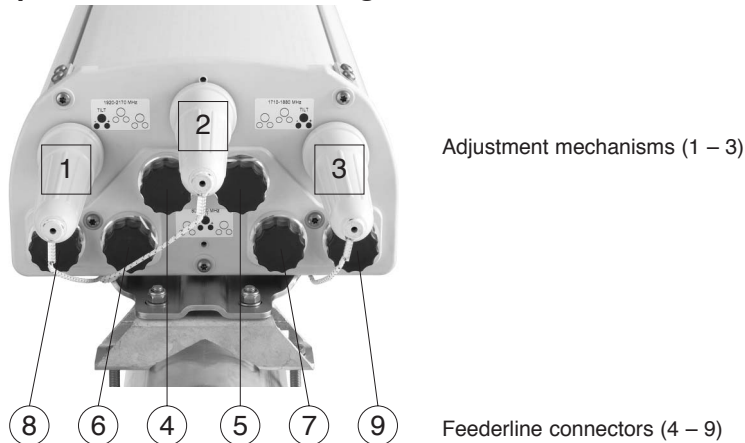
Please note: Additional weather sealing of correctly installed feederline connector interfaces is not required, nor is it recommended by the connector manufacturers.

General Instructions for Feederline Installation for Triple-band Antennas with Kathrein Installation Set, Type No. 850 10005

KATHREIN
Antennen · Electronic

Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

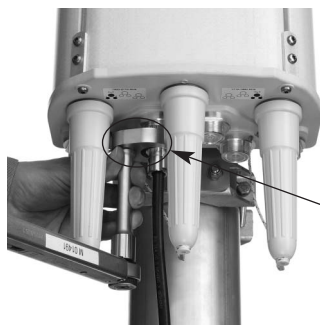
Description of connector arrangement:



There are six feederline connectors and three adjustment mechanisms located at the bottom of the antenna.

Attachment of the feederline connector and RCU (optional):

In order to protect the adjustment mechanism the protective caps have to be attached during feederline installation!



The sequence for installation is:
feederline no. 4, 5, 6, 7, 8, 9.

Put the connector carefully in place and hand-screw the nut.

Use a torque-wrench to finish installation (see installation tool).

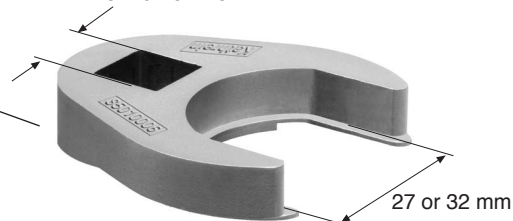
Repeat operations as shown for each feederline!

Kathrein installation set: Type No. 850 10005

Set has to be ordered separately!

Set consists of two spanners of 27 and 32 mm width.

1/2" square actuation according to
DIN 3120 Form C



These tools are suitable for 7-16 connectors with a wrench size of 27 mm or 32 mm.

Tighten nut within a torque range of **25 – 33 Nm** depending on connector manufacturers' specifications.



After feederline installation, the optional remote control units (RCU) can be mounted if required. For a full description of RCU installation please refer to the respective data sheet.

Please note: Additional weather sealing of correctly installed feederline connector interfaces is not required, nor is it recommended by the connector manufacturers.

Remote Control Unit (RCU) for Kathrein base station antennas with adjustable electrical downtilt and appropriate mechanical interface.



Type No.	860 10025
Input voltage range	Pin 6: 10 ... 30 V Pin 1: 10 ... 30 V
Power consumption	< 1 W (stand by); < 8.5 W (motor activated)
Connectors ¹⁾	2 x 8 pin connector according to IEC 60130-9; according to AISG Daisy chain in: male; Daisy chain out: female
Hardware interfaces	RS 485A/B (pin 5, pin 3); power supply (pin 1, pin 6); DC return (pin 7); according to AISG
Logical interface ²⁾	HEX coded commands based on HDLC protocol, according to AISG 1.1
Adjustment time (full range)	40 sec (typically, depending on antenna type)
Adjustment cycles	> 50,000
Temperature range	-40 °C ... +60 °C
Protection class	IP 24
Housing material	Profile: Aluminium coated; cover: Zinc diecast coated; varnished housing (RAL 7035, lightgrey)
Weight	525 g (without daisy chain termination)
Packing size	245 mm x 93 mm x 102 mm
Dimensions (H x W x D)	197.8 mm x 59.5 mm x 49.5 mm (with daisy chain termination)



¹⁾ The Tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

²⁾ FW-upgrade to 3GPP / AISG 2.0 possible

Standards
 EN 60950-1 (Safety)
 EN 55022 (Emission)
 EN 55024 (Immunity)
 ETS 300019-1-4 (Environmental)
 UL 60950-1; 1st edition

Certification: CE, UL

Scope of supply: Remote Control Unit
 Detachable daisy chain termination
 Mounting Paste

Features: Compact size.
 Suitable for daisy chain and splitter solutions.
 Easy attachment without dismantling of antennas.
 Suitable for operation under outdoor conditions.

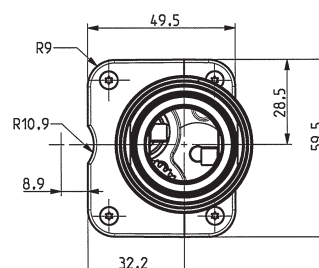
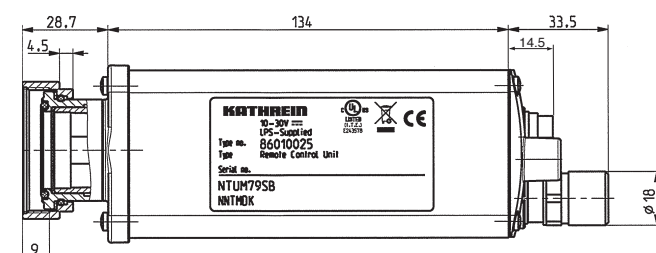
Daisy chain in Daisy chain out



Bottom side of RCU



Daisy chain termination



Remote Control Unit (RCU) for Kathrein base station antennas with adjustable electrical down-tilt and appropriate mechanical interface.

- Compliant to 3GPP/AISG 2.0 and AISG 1.1
- Compact size
- Detachable Daisy Chain termination
- Suitable for operation under outdoor conditions



Type No.	860 10118
Input voltage range	Pin 1, Pin 6: 10 ... 30 V
Power consumption	< 1 W (stand by); < 8.5 W (motor activated)
Connectors ¹⁾	2 x 8 pin connector according to IEC 60130-9; according to AISG Daisy chain in: male; Daisy chain out: female
Hardware interfaces	RS 485A/B (pin 5, pin 3); power supply (pin 1, pin 6); DC return (pin 7); according to AISG
Logical interface ²⁾	Command set acc. to 3GPP/AISG2.0 or AISG1.1
Logical interface ex factory ³⁾	Acc. to 3GPP/AISG2.0
Adjustment time (full range)	40 sec (typically, depending on antenna type)
Adjustment cycles	> 50,000
Temperature range	-40 °C ... +60 °C
Protection class	IP 24
Housing material	Profile: Aluminium coated; cover: Zinc diecast coated; varnished housing (RAL 7035, lightgrey)
Weight	525 g (1.16 lbs) (without daisy chain termination)
Packing size	245 x 93 x 102 mm, (9.6 x 3.6 x 4 inches)
Dimensions (H x W x D)	194 x 59.5 x 49.5 mm, (7.6 x 2.3 x 1.9 inches) (with daisy chain termination)



¹⁾ The Tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

²⁾ The protocol of the logical interface can be switched from 3GPP/AISG2.0 to AISG1.1 and vice versa with a vendor specific command. Please contact Kathrein for further informations.

³⁾ Please note:

Ex factory, the communication protocol of the RCU (type-no. 860 10118) is preset to 3GPP/ AISG 2.0! Therefore, start-up operation is only possible in a RET-system supporting 3GPP/ AISG 2.0. If the RET-system supports AISG 1.1, the RCU must be set to AISG 1.1 before installation (i.e. with Kathrein PCA 860 10046). Please contact Kathrein for further information.

Standards
 EN 60950-1 (Safety)
 EN 55022 (Emission)
 EN 55024 (Immunity)
 ETS 300019-1-4 (Environmental)
 UL 60950-1; 1st edition

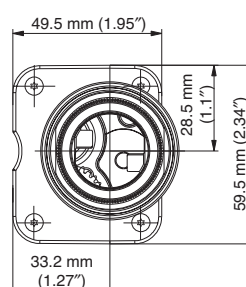
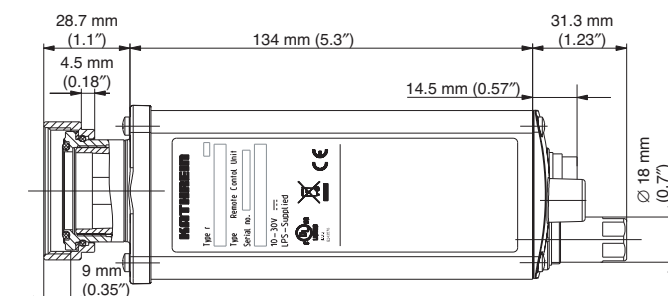
Certification: CE, UL, FCC15.107 class B

Scope of supply: Remote Control Unit
 Detachable daisy chain termination
 Assembly paste

Daisy chain in (male)
 Daisy chain out (female)



Bottom view of RCU



Daisy chain termination

Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

For indoor use

Central Control Unit



Type No.	860 10006	860 10026
Connectors ¹⁾ to RCU	3 x 8 pin connector acc. to IEC 60130-9, female, acc. to AISG	
Power supply from BTS	DC: -48 V / max. 1.7 A AC: 100 ... 240 V / 50 ... 60 Hz / max. 1.6 A	DC: -48 V / max. 1.7 A
Power supply to RCU	3 x +29 V DC / max. 1.7 A (in total) 3 x +13 V DC / max. 3.8 A (in total)	
Total output power	Max. 50 W	
Interface to RCU and TMA	RS 485 / power supply	
Protocol to RCU and TMA	HDLC hex-coded command set, acc. to AISG	
Interface to BTS	Ethernet (10 Base-T) and RS 232	
Protocols to BTS	TCP/IP, PPP, HTTP/HTML, UDP, DHCP, FTP, SNMP, ICMP/PING	
Alarm interface to BTS	8 x open collector output, user programmable	
Max. number of RCU's and/or TMA's	Up to 27 RCU's in daisy chain and up to 6 DTMA's; depending on cable configuration and max. power	
Max. length of control cable	200 m (9 RCU's in daisy chain configuration)	
Temperature range	-25 °C ... +55 °C ambient temperature	
Packing size	597 mm x 367 mm x 148 mm	
Dimensions (h / w / d)	19" 1 HU* (43.6 mm / 483 mm / 250 mm)	

* HU = Height Unit

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand tightened').

The connector should be tightened by hand only.

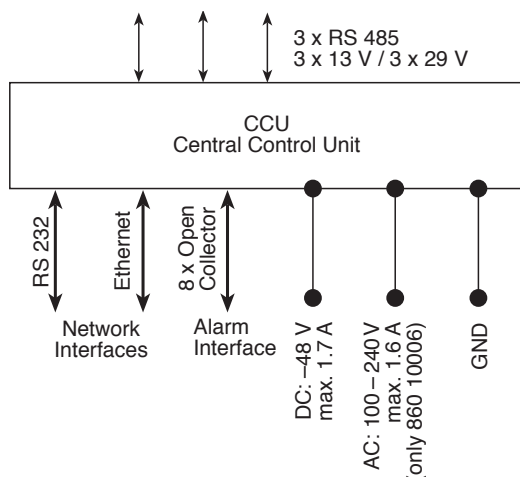
Standards: EN 60950-1
EN 55022
EN 55024
UL 60950-1, 1st edition

Certifications: CE, FCC part 15 class B; UL

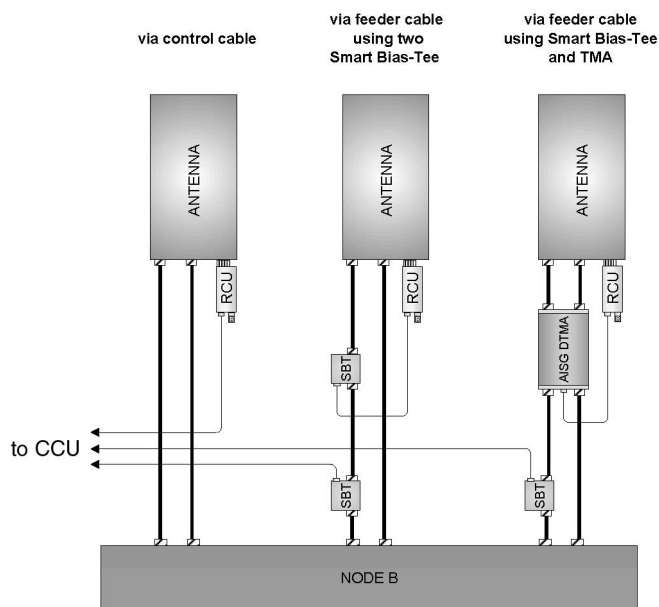
Scope of supply: CCU
RET Manual
DC Cable
AC Power Cords of USA, UK and Germany
Ethernet cable, crossed



CCU Interfaces



Examples of CCU – RCU connections



RET

Central Control Unit with Layer-one Converter **KATHREIN**

For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

Antennen · Electronic

For indoor use

The **Central Control Unit with integrated Layer-one Converter** (CCU-LOC) combines the features of the standard Kathrein CCU (86010026) with the functionality of an additional RF-modem for layer-one conversion according to AISG specification. The CCU provides on its outputs a DC voltage with an OOK-modulated carrier signal at 2.176 MHz for controlling all connected AISG devices via feeder cables. In order to feed-in the output signal (DC voltage / carrier-signal) into the feeder cable, a passive Bias-T with appropriate lightning protection is required (Kathrein 78210429). The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.



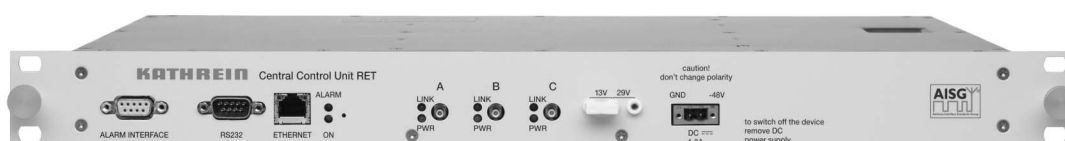
- AISG 1.1 compliant
- 13 VDC or 29 VDC output voltage - switchable with external jumper
- LED signalling for output power and alarming

CCU with Layer-one Converter

Type No.	86010068
RET-Interface	3 x Coaxial Interface 13 VDC or 29 VDC; OOK modulated carrier at 2.176 MHz
Connector of RET-Interface	3 x SMB; female acc. IEC 169-10
Power supply from BTS	DC: -48V / max. 1.7A
Power supply to RET	3 x +13 VDC (3.8 A in total) or 3 x +29 VDC (1.7 A in total) switchable with external jumper Over current protection per SMB output: 1.8 A / 13 VDC 1.0 A / 29 VDC
Total output power	max. 50 W (in total)
Protocol to RET	HDLC command set, conform to AISG
Interface to BTS	PPP; IP; TCP; UDP; ICMP/PING; HTTP/HTML; DHCP; FTP; SNMP
Alarm Interface to BTS	8 x open collector output, user programmable
LED signalling	1 x green POWER ON 1 x red ALARM SMB-connectors: 3 x green POWER ON 3 x red ALARM
Max. number of TMA's and RCU's	max. 1 x DTMA and 9 x RCU per output (Kathrein devices) depending on system configuration
Temperature range	-25 °C ... +55 °C ambient temperature
Weight	3.7 kg
Packing size (h x w x d)	597 mm x 367 mm x 148 mm
Dimensions (h x w x d)	19" 1 HU* (43.6 mm x 483 mm x 250 mm)

Standards
EN 60950-1 (Safety)
EN 55022 (Emmission)
EN 55024 (Immunity)

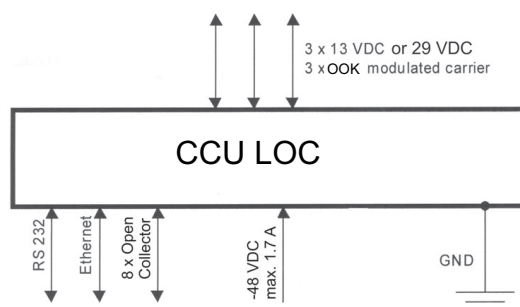
Certification: CE
Scope of supply: CCU-LOC
Manual
DC-cable



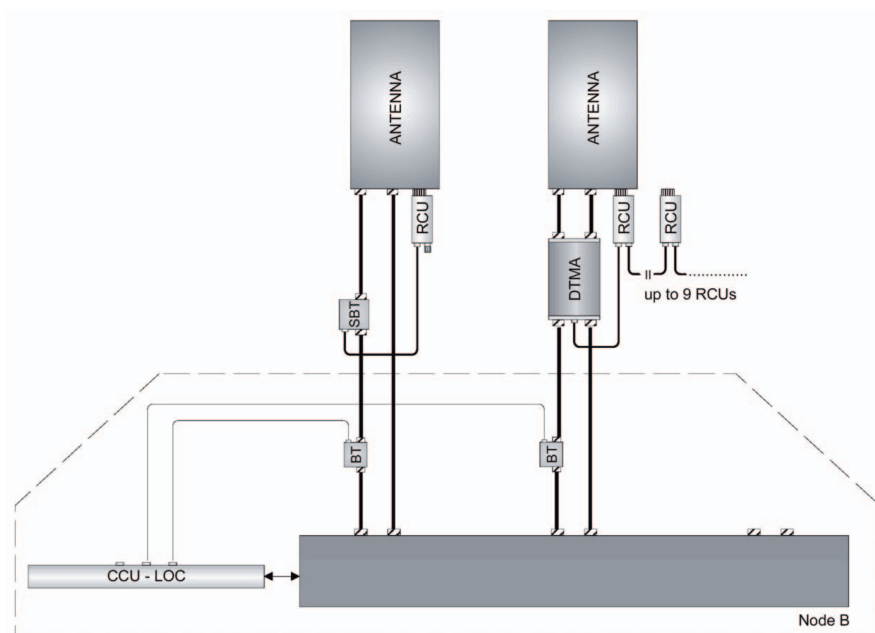
Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

Block diagram:



Applications:



Please note:

In order to achieve spurious emission requirements acc. to the AISG and 3GPP specifications, the CCU must be operated with a suitable Bias-Tee (Kathrein 78210429). The Bias-Tee must provide a minimum attenuation of 55 dB from 400MHz to 2170MHz and 30 dB from 2,17 GHz to 12,75 GHz between the DC-port and both RF-ports.

Central Control Unit (CCU) For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
Antennen · Electronic

for outdoor use

Central Control Unit, outdoor



Type No.	860 10113
Connectors to RCU/Splitter	1 x 8 pin connector according IEC 60130-9, female, conform to AISG
Power supply from BTS	DC: -48 V / max. 1.7 A
Power supply to RCU	+29 V DC / max. 1.7 A +13 V DC / max. 3.8 A
Total output power	Max. 50 W
Interface to RCU and TMA	RS 485 / power supply, conform to AISG
Protocol to RCU and TMA	HDLC hex-coded command set, conform to AISG
Interface to BTS	RJ 45, 10 Base-T, Ethernet 802.3
Protocols to BTS	TCP/IP, UDP, HTTP/HTML, DHCP, FTP, ICMP/PING, SNMP
Alarm Interface	1 x open collector output
Lightning Protection	10/350 μ s, 3.5 kA for AISG interface ¹⁾ 8/20 μ s, 2.5 kA Ethernet-, DC- and Alarm Interface
Max. number of RCU's and/or TMA's	Up to 27 RCU's in daisy chain und up to 6 DTMA's; depending on cable configuration and max. power ²⁾
Max. length of control cable	200 m (9 RCU's in daisy chain configuration) ²⁾
Material of housing	Covers: Aluminium, varnished (lightgrey, RAL 7035) Profile: Glass-fibre reinforced plastic (lightgrey)
Temperature range	-40 °C ... +55 °C ambient temperature
Protection class	IP 65 ³⁾
Mounting ⁴⁾	Wall and mast mounting (with additional clamps)
Weight	4.5 kg
Dimensions (h x w x d)	328 mm x 270 mm x 131 mm



Cable feedthrough with gasket at the bottom side.



Interfaces at the internal connector panel.

¹⁾ Please note: In order to achieve lightning protection acc. to IEC 61643-1/-3 (10/350 μ s), please install the Kathrein Lightning Protection Device (type-no. 860 10030). For additional information about lightning protection of the CCU, we kindly refer to the RET Installation Manual.

²⁾ Please refer to the RET Installation Manual for detailed information.

³⁾ Please note: Appropriate cables must be used (see RET Installation Manual for additional information)

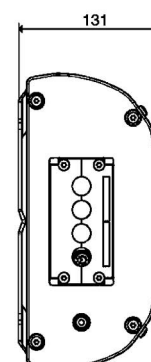
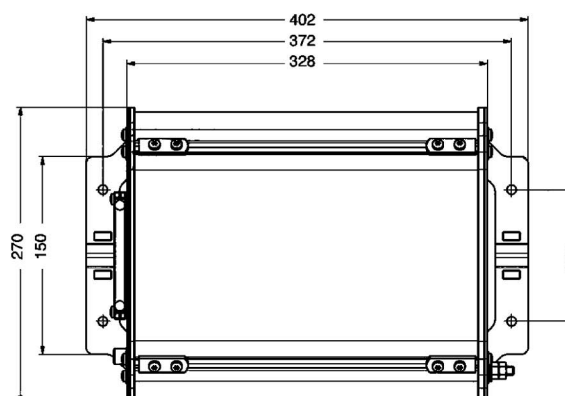
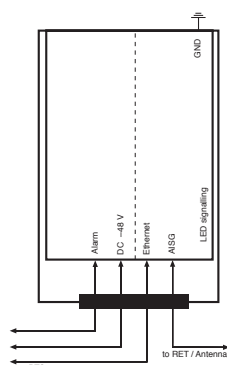
⁴⁾ Please note: Cable feedthrough must point downward!
The cable installation must provide adequate strain relief!
The CCU should not be installed at locations with hazardous risks for the installation team!
Please follow the instructions in the RET Installation Manual.

Standards: EN 60950-1 (Safety)
EN 55022 (Emission)
EN 55024 (Immunity)
ETS 300019-1-4 (Environmental)

Certifications: CE

Scope of supply: Central Control Unit, outdoor
Connectors for Power Supply and
Alarm interface Installation manual

Block diagram: CCU – outdoor



Portable Control Adapter (PCA) For Remote Control Unit (RCU)

KATHREIN
Antennen · Electronic



Portable Control Adapter

Type No.	860 10046
Connector* to RCU	1 x 8-pin connector according to IEC 60130-9, female, conforming to AISG
Input voltage of PCA	24 V DC
Power supply to RCU/TMA	13.5 V DC / max. 2 A 24 V DC / max. 2.5 A
Interface to RCU	RS 485 / power supply
Protocol to RCU	HDLC hex-coded command set, conforming to AISG
Interface to PC	USB 1.1/2.0
Max. number of RCU's	27 pcs., depending on system configuration and length of control cable
Max. length of control cable	200 m / 9 RCU's (in daisy chain configuration) 150 m / 6 RCU's (in splitter configuration)
Weight	535 g (incl. external power adapter)
Temperature range	0 °C ... +55 °C ambient temperature
Height x width x depth	40 mm x 95 mm x 160 mm
External power supply**	Input: 90 – 264 V AC, 47 – 63 Hz 24 V DC / 3.0 A

* Tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened').
The connector should be tightened by hand only!

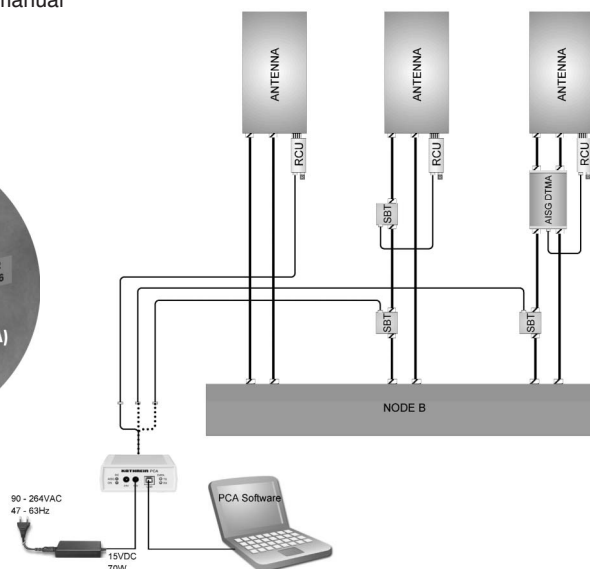
** If powered via AISG-interface, no external power supply is required.

Certificate: CE
FCC part 15 class B
UL (for external power adapter)

Standards: EN 60950-1
EN 55022
EN 55024

System requirements
for PCA Software: Windows 2000; Windows XP

Scope of supply: PCA
External power supply (24 V DC / 70 W)
USB cable
AC power cable
CD-ROM with PCA software, drivers and manual
Installation guide
Transport case



RET

Connecting Cable For Remote Electrical Tilt (RET) System

KATHREIN
Antennen · Electronic

For indoor and outdoor use

RET Cable for power supply and control



Type No.	860 10007 ...
Connectors	2 x 8 pin connector according IEC 60130-9, female/male
Tightening torque for fixing the connectors	0.5 – 1 Nm (The connector should be tightened by hand only)
Construction	Screen 1x twisted pair 100 Ω/1 MHz 2x power supply, 1x ground AWM style 20317 I/II A/B + 20549 + 20233
Rated current	4 A (power supply) (at 50 °C air temperature)
Temperature range	–40 °C to +80 °C, (fixed position)
Protection class	IP 67 (connected)
Cable diameter	8 mm
Flammability	VL 1581 VW-1 CSA FT 1
Colour	Black, similar to RAL 9005, grey, similar to RAL 7004

Minimum bending radius: One time 60 mm,
several times 120 mm.

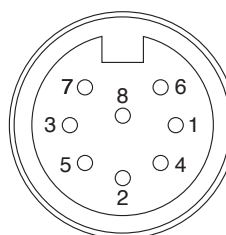
The male and female connectors of all Kathrein RET products are compatible components which are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E.



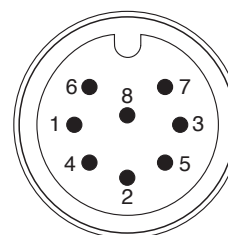
Control Cable

Length	Black colored Type No.	Grey colored Type No.
0.5 m	860 10054	860 10055
1 m	860 10007	860 10056
2 m	860 10008	860 10057
3 m	860 10029	860 10058
5 m	860 10009	860 10059
10 m	860 10010	860 10060
20 m	860 10032	860 10071
25 m	860 10011	860 10072
40 m	860 10012	860 10073
50 m	860 10033	860 10074
60 m	860 10013	860 10075
80 m	860 10014	860 10076
100 m	860 10015	860 10077

Female



Male



PIN assignment according AISG:

- 1 +13 V DC (+12 V DC nominal)
- 2 not connected
- 3 RS485 B
- 4 not connected
- 5 RS485 A
- 6 +29 V DC (+24 V DC nominal)
- 7 DC Return
- 8 not connected

SMB Control Cable For Remote Electrical Tilt (RET) System

For indoor use

Coax cable (RG58) assembled with SMB connectors. The DC Control Cable is used to connect the CCU with Layer One Converter (type no. 860 10068) to the Bias Tee with SMB interface (type no. 782 10429).

Type No.	860 10078/860 10079/860 10084/860 10090
Connectors	2 x SMB-Angle Jack; gold plated
Cable	RG58C/U
Temperature range	−40 °C to +70 °C, (fixed position)
Cable diameter	4.95 mm ±0.1 mm
Colour of cable	Black, similar to RAL 9005

Minimum bending radius: One time 25 mm
several times 50 mm



860 10079

Control Cable

Type No.	Description	Length
860 10078	SMB Control Cable	2 m
860 10084	SMB Control Cable	3 m
860 10079	SMB Control Cable	5 m
860 10090	SMB Control Cable	10 m

DC-Power and Signal Splitter For Remote Electrical Tilt (RET) Indoor and Outdoor Use

AISG compliant device for splitting of DC-power and control signals from one input to three outputs.



3-way-Splitter for RET

Type No.	860 10002
Connectors ¹⁾	4 x 8 pin connector according IEC 60130-9, 1 x male, 3 x female
Rated current (power supply)	3 A (at 50 °C)
Max. voltage	60 V
Protection class	IP 65
Weight	250 g
Packing size	114 mm x 117 mm x 117 mm
Height/width/depth	91 mm / 103 mm / 72 mm

¹⁾ The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

- Material:

Connector plate: Aluminum.

Cap: Plastic.
- Mounting:

Mast mounting (50 – 145 mm diameter) by clamp.

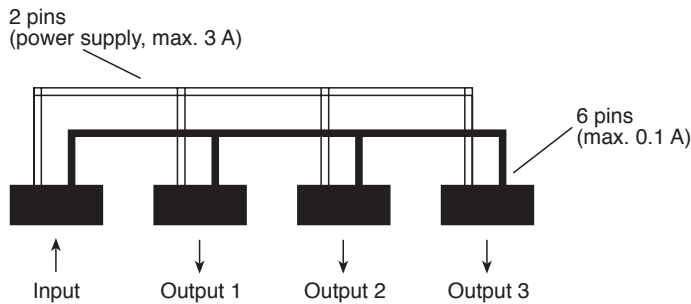
Wall mounting by screws (not supplied).
- Note:

Connectors must be situated at the bottom.

No inverted mounting possible.
- Scope of supply:

3-way Splitter

Clamp (Art.-No. 1311847)



Clamp, Art. No. 1311847

Lightning Protection Device (LPD) For Remote Electrical Tilt (RET) Indoor and Outdoor Use

The device is designed for lightning protection of control cables carrying partial lightning currents up to 25 kA (shield) and 2.5 kA (inner conductor), according IEC 61643-1, IEC 61312-3. Each pin is protected individually.

Lightning Protection Device for RET

Type No.	860 10030
Connectors ¹⁾	2 x 8 pin connector according IEC 60130-9, input: male, output: female
SPD-Type	8 x bipolar gas tube
Max. impuls current	25 kA (housing, shield) (10/350 µs) inner conductors: 2.5 kA/pin (10/350 µs)
Max. dynamic overvoltage at spark gap (1 kV/µs)	< 700 V
Static overvoltage (100 V/s)	< 100 V
Grounding	Via mounting plate / clamps at metallic surfaces or via separate cable, min. cross-section 5 mm² Cu (screw M6)
Max. operation current	4 A at 50 °C
Max. operation voltage	60 V
Weight	250 g
Packing size	114 mm x 117 mm x 117 mm
Height/width/depth	91 mm / 103 mm / 72 mm

¹⁾ The tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be thightened by hand only!

- Material:

Connector plate: Aluminum.
Cap: Plastic.
- Mounting:

Mast mounting (50 – 145 mm diameter) by clamp.
Wall mounting by screws (not supplied).
- Note:

No decoupling elements are integrated. The coordination with additional LPD's (device input) should be checked according to IEC 61312.

Grounding of the device via the mounting plate at metallic surfaces or via additional grounding cable (not included in the delivery extend).

Connectors must be situated at the bottom. No inverted mounting possible.

Important: A control cable with a minimum length of 2 meters is required between Lightning Protection Device and Central Control Unit at the BTS to achieve the required decoupling.
- Scope of supply:

3-way Splitter
Clamp (Art.-No. 1311847)



Clamp, Art. No. 1311847

RET

Earthing Clamp For Power Supply and Control Cable For Remote Control Unit (RCU)

KATHREIN
Antennen · Electronic

The clamp is designed for lightning protection of control cables according to EN 50164-1

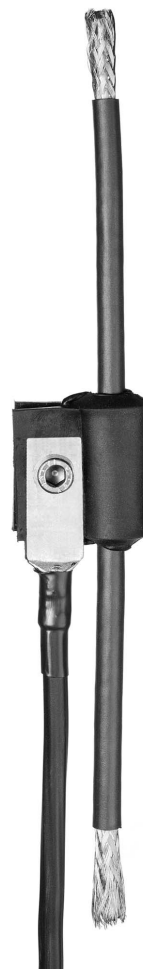
Earthing clamp for RCU power supply and signal cable

Type No.	860 10031
Max. lightning current	20 kA (pulse 10/350 μ sec)
Contact resistance	< 3 m Ω
Protection class	IP 68
Grounding	Via stranded grounding wire, 16 mm ² , length 0.5 m, one end terminated with cable eye (10 mm lug)
Packing size	Plastic bag: 210 mm x 210 mm
Weight	160 g

Material:
Body: Stainless steel with vulcanized Ethylene-Propylene-Caoutchouc
Screw: Stainless steel
Skin: Copper alloy
Grounding wire: Copper

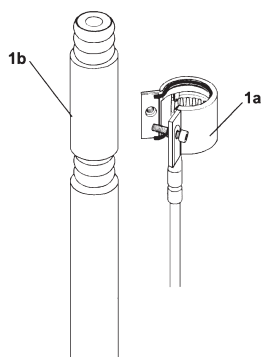
Please note:
The earthing clamp is suitable only for the Kathrein Power Supply and Signal Cables, Type No. 860 10007 to 860 10015, 860 10029, 860 10032, 860 10033, 860 10054 to 860 10060 or shielded cables with
– shield diameter 6.1 mm
– jacket diameter 7.8 mm $\pm$ 0.3 mm

The kit contains:
1 x Grounding kit body incl. Butyl sealing rope covered with paper
1 x Screw M6 DIN 912
1 x Grounding wire



Mounting instructions:

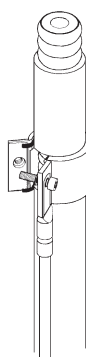
This instruction is written for qualified and experienced personnel. Please read it carefully before starting work. Any liability or responsibility for the result of improper or unsafe installation is disclaimed!



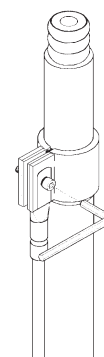
Attention!
Install grounding kit only where the cable runs straight.

Fig. 1a Preassembled grounding kit.

Fig. 1b Clean the plastic jacket at the desired grounding point and cut out a strip of 15 mm with aid of a suitable stripping tool.



Remove covering paper from Butyl sealing. Wrap the grounding kit body around the cable and align it.



Tighten the screw (> 6 Nm)

DTMA-UMTS-12-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

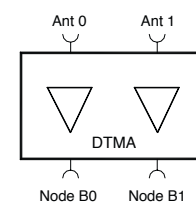
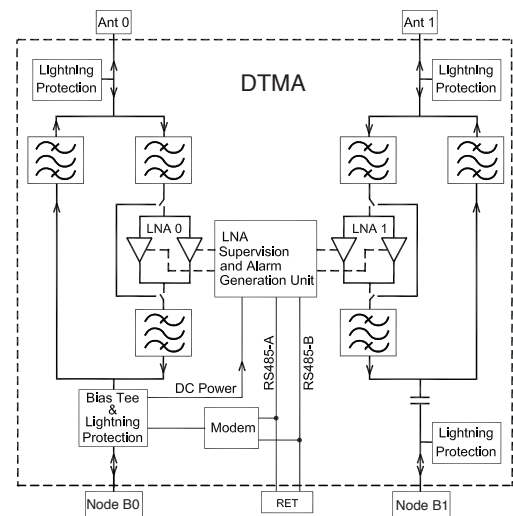
RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group



Technical Data

Type No.	782 10147 DTMA-UMTS-12-AISG (12 dB gain)
Tx Characteristics	
Frequency range	2110 – 2170 MHz
Bandwidth	60 MHz
Insertion loss	Typically 0.3 dB
Ripple	< ±0.2 dB
Input power	< 100 W (+50 dBm) CW < 1.6 kW (+62 dBm) Peak
Intermodulation products in Rx band	< -117 dBm (2 Tx carriers at +43 dBm)
Return loss	> 18 dB
Rx Characteristics	
Frequency range	1920 – 1980 MHz
Bandwidth	60 MHz
Loss in by-pass mode	< 2.6 dB (DC OFF)
Gain ripple	< ±0.3 dB
Return loss	> 18 dB (DC ON) > 12 dB (DC OFF)
Gain	-40 ... +65 °C: 12 ±1.0 dB +22 ... +28 °C: 12 ±0.5 dB
Noise figure	Typically 1.4 dB
Output 1-dB compression point	> 15 dBm
3rd order intercept point (OIP3)	> 25 dBm
Environmental Characteristics	
Operating temperature range	-40 ... +65 °C
IP rating	IP67 *
MTBF	> 1 000 000 hours (per TMA)
EMC	ETS 300 342-3
DC and Alarm Characteristics	
Through Node B0 Port only	
DC supply without RET	+12 V nominal (9 – 15 V, minus grounded) Typically 150 mA per TMA
Alarm management	According to AISG standard 1.1
Modem Characteristics	According to AISG standard 1.1 (Data rate: 9.6 kB)
Mechanical Characteristics	
Material	Aluminium housing
Connectors	7-16 female
RF	8-pin female, IEC 60130-9*
AISG Connector (Compliance AISG 1.1)	(Pin 1: +12 V DC nominal, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected)
Mounting	Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set
Weight	5 kg
Packing size	262 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 262 mm x 77.5 mm (without connectors, without mounting brackets)



RET

DTMA-UMTS-24-AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN

Antennen · Electronic

- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC supply and AISG feed via Node B0 port for both TMAs**

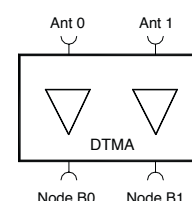
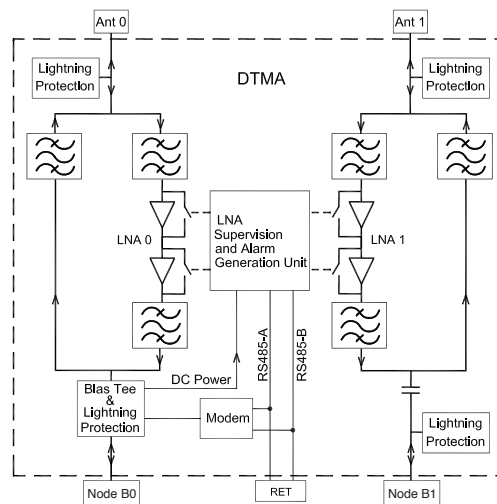
RET = Remote Electrical Tilt

AISG = Antenna Interface Standards Group



Technical Data

Type No.	782 10148 DTMA-UMTS-24-AISG (24 dB gain)
Tx Characteristics	
Frequency range	2110 – 2170 MHz
Bandwidth	60 MHz
Insertion loss	Typically 0.3 dB
Ripple	< ±0.2 dB
Input power	< 100 W (+50 dBm) CW < 1.6 kW (+62 dBm) Peak
Intermodulation products in Rx band	< -117 dBm (2 Tx carriers at +43 dBm)
Return loss	> 18 dB
Rx Characteristics	
Frequency range	1920 – 1980 MHz
Bandwidth	60 MHz
Loss in by-pass mode	Typically 2.4 dB (DC OFF)
Gain ripple	< ±0.3 dB
Return loss	> 18 dB (DC ON) > 12 dB (DC OFF)
Gain	-40 ... +65 °C: 24 ±1.0 dB +22 ... +28 °C: 24 ±0.5 dB
Noise figure	Typically 1.4 dB
Output 1-dB compression point	> 20 dBm
3rd order intercept point (OIP3)	> 29 dBm
Environmental Characteristics	
Operating temperature range	-40 ... +65 °C
IP rating	IP67 *
MTBF	> 1 000 000 hours (per TMA)
EMC	ETS 300 342-3
DC and Alarm Characteristics	
Through Node B0 Port only	
DC supply without RET	+12 V nominal (9 – 15V, minus grounded) Typically 250 mA per TMA
Alarm management	According to AISG standard 1.1
Modem Characteristics	According to AISG standard 1.1 (Data rate: 9.6 kB)
Mechanical Characteristics	
Material	Aluminium housing
Connectors	7-16 female
RF	8-pin female, IEC 60130-9*
AISG Connector (Compliance AISG 1.1)	(Pin 1: +12 V DC nominal, pin 3: RS485B, pin 5: RS485A, pin 7: DC return; other pins: Not connected)
Mounting	Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set
Weight	5 kg
Packing size	262 mm x 502 mm x 214 mm
Dimensions (w x h x d)	166 mm x 262 mm x 77.5 mm (without connectors, without mounting brackets)



Smart Bias Tee

800 – 2170 MHz

The **Smart Bias Tee** combines the performance of a standard Bias Tee (e.g. type 793 304) with the function of an additional modem (AISG standard) in order to provide either DC voltage as well as remote control signals via an RF feeder cable to a TMA or RCU.

The **Smart Bias Tee** provides low RF signal insertion loss from port 1 to port 2 and vice versa. The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.

- **782 10253, 782 10453:** 12 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10254, 782 10454:** 12 V version for use near the antenna, in order to control an RCU (only required if no TMA is in use)
- **782 10255, 782 10455:** 24 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10256, 782 10456:** 24 V version for use near the antenna, in order to control an RCU (only required if no TMA is in use)

Abbreviations:

RCU = Remote Control Unit for remote electrical control of antenna tilt

BTS = Base Transceiver Station

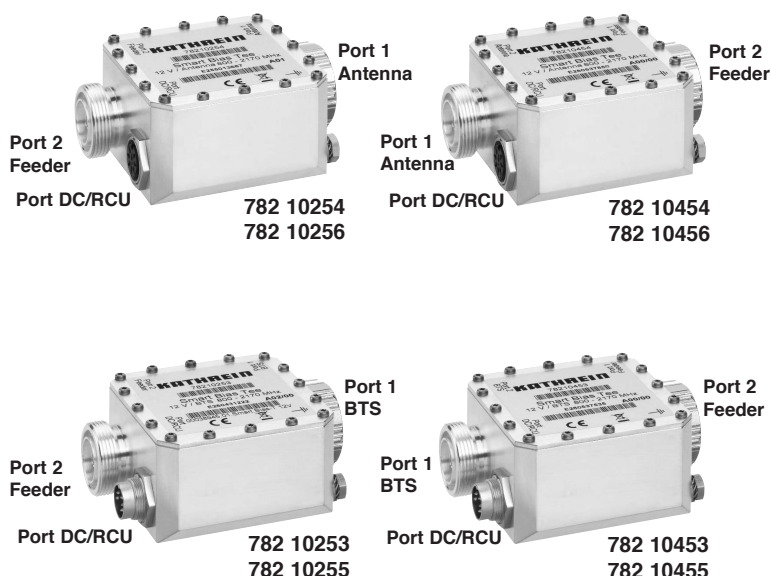
TMA = Tower Mounted Amplifier

AISG = Antenna Interface Standards Group (version 1.1)

Port 1 = Port for BTS or for Antenna

Port 2 = Port for Feeder Cable

Port DC/RCU = Port for DC voltage and remote control unit signals



Technical Data

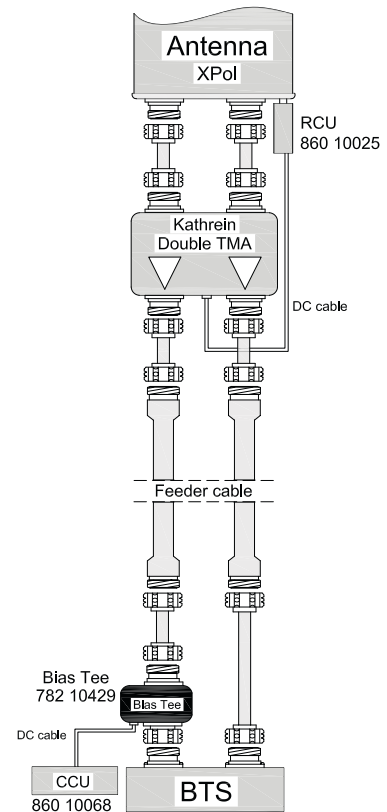
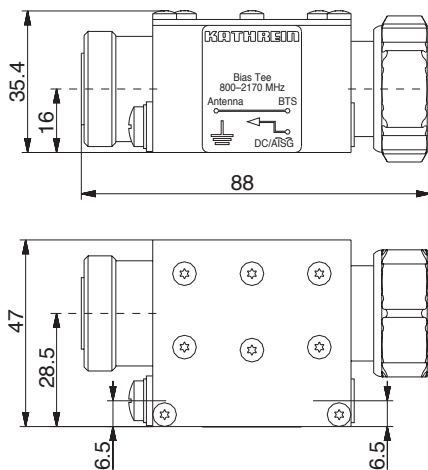
Type No.	782 10253 12 V / BTS	782 10254 12 V / Antenna	782 10255 24 V / BTS	782 10256 24 V / Antenna
Port 1: 7-16 male	BTS	Antenna	BTS	Antenna
Port 2: 7-16 female	Feeder	Feeder	Feeder	Feeder
Type No.	782 10453 12 V / BTS	782 10454 12 V / Antenna	782 10455 24 V / BTS	782 10456 24 V / Antenna
Port 1: 7-16 female	BTS	Antenna	BTS	Antenna
Port 2: 7-16 male	Feeder	Feeder	Feeder	Feeder
Frequency range	800 – 2170 MHz			
Insertion loss Port 1 ↔ Port 2	< 0.1 dB (800 – 2170 MHz)			
Isolation for DC and RCU signals Port 1 ↔ Port 2 Port 1 ↔ Port DC/RCU Port 2 ↔ Port DC/RCU	> 70 dB > 70 dB > 0 dB			
VSWR	< 1.1 (800 – 2170 MHz)			
Impedance	50 Ω			
Input power Port 1 or port 2 Port DC/RCU	< 750 W (800 – 2170 MHz) < 2.5 A / +8 ... +14 VDC		< 750 W (800 – 2170 MHz) < 2.5 A / +8 ... +30 VDC	
Power consumption	Typically 0.6 W			
Lightning protection	3 kA, 10/350 μs pulse			
Intermodulation products	< –160 dBc (3rd order; with 2 x 20 W)			
Temperature range	–40 ... +60 °C			
Modem carrier frequency	2.176 MHz			
Application	Indoor or outdoor (IP67)			
Weight	1.3 kg			
Packing size	167 mm x 102 mm x 86 mm			
Dimensions (w x h x d)	108.7 mm x 76 mm x 42.8 mm (including connectors)			

Bias Tee

800 – 2170 MHz

The Bias Tee is suitable to feed DC voltage and AISG control signals into the feeder cable in order to provide operating voltage and control signals via the RF feeder cable to the TMA or RCU.

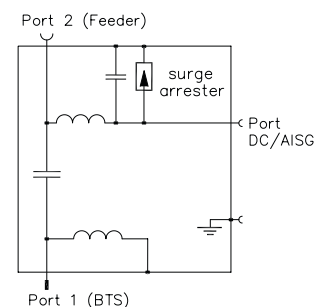
- The Bias Tee provides low RF signal insertion loss from the BTS to the antenna port and vice versa.
- The DC voltage and AISG control signal (2.176 MHz) is fed from the DC port to the antenna port while providing a high level of DC isolation from the DC to the BTS port and from the antenna to the BTS port.
- The measures taken in conjunction with the CCU-LOC to protect against static discharge and lightning ensure a high level of reliability and operational safety.



Application Example

Technical Data

Type No.	782 10429
Frequency range	800 – 2170 MHz
Insertion loss BTS ↔ Antenna	< 0.1 dB (800 – 2170 MHz)
Isolation BTS ↔ Antenna BTS ↔ DC/AISG	> 70 dB (DC) > 70 dB (DC)
VSWR	< 1.1 (800 – 2170 MHz)
Impedance	50 Ω
Input power BTS DC/AISG	< 250 W (800 – 2170 MHz) < 1.8 A / 13 VDC < 0.8 A / 29 VDC
Lightning protection	3 kA, 10/350 μs pulse
Intermodulation products	< -160 dBc (3rd order; with 2 x 20 W)
Temperature range	-40 ... +70 °C
Connectors Port 1 BTS Port 2 Antenna Port DC/AISG	7-16 male 7-16 female SMB male
Application	Indoor
Weight	0.6 kg
Packing size	145 mm x 145 mm x 50 mm
Dimensions (w x h x d)	88 mm x 47 mm x 35.4 mm (including connectors and earthing screw of 6 mm diameter)

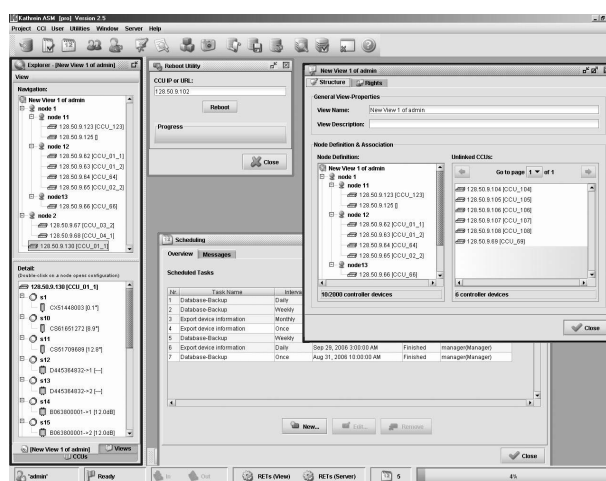
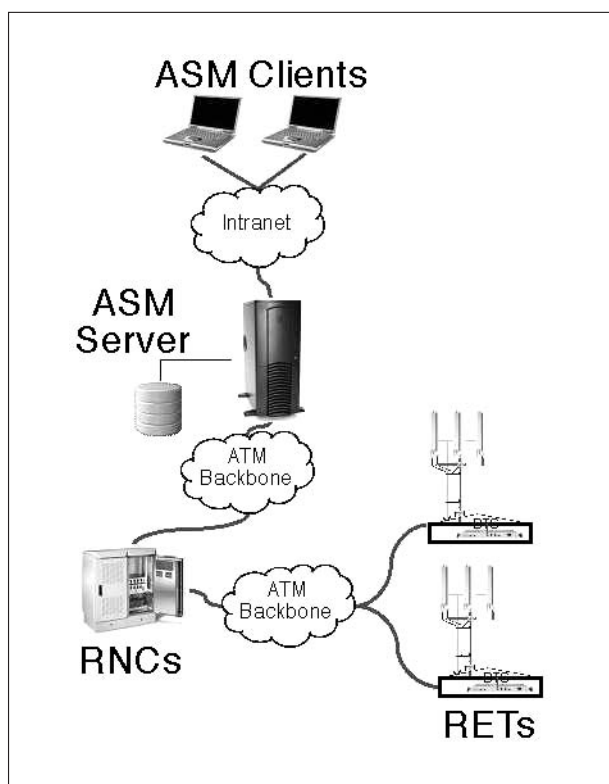


General Information

KATHREIN provides the Antenna System Manager (ASM) for a convenient way of network and alarm management of the Kathrein RET system. It gathers the access to the functionality of all CCUs into one single application.

The ASM presents an invaluable tool for detecting faults, network changes and events in real-time. It is an optimized solution for controlling up to thousands of RET systems. It is based on the platform-independent Java™ technology and the popular SNMP protocol.

The ASM is designed in a Client Server Architecture. The server holds the database that contains all network parameters including the configuration and the current status of the RET systems. The clients connect to the server to watch the status of the system or to make configuration changes.



General features and capabilities:

- Management of up to 10.000 CCUs and connected AISG devices (RCU, TMA)
- Client Server Architecture
- Platform independence (Win 2k/XP and SuSE Linux 9.0 or higher)
- Role-based user management with customizable access rights for each user account
- Freely configurable views on controlled systems
- Scripting functionality (CCI, "Customized Control Interface", based on XML) for performing bulk operations in the system.
The CCI scripting language includes for example operations like setting or validating RCU tilt values, performing software updates or registering RET systems in the ASM for a complete network.
- Alarm management of CCUs, RCUs and TMAs, report / export functionality
- Open interfaces for OMC and/or Optimizer Software integration
- Report generation in XML and PDF format
- Database export / import capability
- Automatic task scheduling to backup the database or export device information
- Snapshot Generation of certain scenarios, like for example rush hours, sport events, ..., and (re-)import of those scenarios, if required
- Event logging and possibility to filter the events in order to browse them or export them to a file.

Editions and Support

ASM – Editions and Support

Edition	Short Description
ASM PRO	Professional Client Server Edition Management of up to 10.000 CCUs
ASM PRO Demo	30 days trial version of the ASM PRO limitation of max. 5 CCUs
ASM One Year Support	– 1 year free software updates – Training – Technical support

For more detailed information on the ASM software please contact

antennas.mobilcom@kathrein.de

Splitters

Type	Type No.	Frequency range	Remark	Max. power	Connector female	Page
2-way-Splitter 800/900	K 63 20 62 1	790 – 960 MHz	Indoor/Outdoor	500 W	N	210
2-way-Splitter 800/900	K 63 20 62 7	790 – 960 MHz	Indoor/Outdoor	1000 W	7-16	210
2-way-Splitter 800–2200	737 303	800 – 2200 MHz	Indoor/Outdoor	200 W	N	211
2-way-Splitter 800–2200	737 304	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	211
3-way-Splitter 800–2200	737 305	800 – 2200 MHz	Indoor/Outdoor	200 W	N	211
3-way-Splitter 800–2200	737 306	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	211
4-way-Splitter 800–2200	737 307	800 – 2200 MHz	Indoor/Outdoor	200 W	N	211
4-way-Splitter 800–2200	737 308	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	211
2-way-Splitter 800–2500	860 10017	800 – 2500 MHz	Indoor	100 W	N	212
3-way-Splitter 800–2500	860 10018	800 – 2500 MHz	Indoor	100 W	N	212
4-way-Splitter 800–2500	860 10019	800 – 2500 MHz	Indoor	100 W	N	212

Tappers

Type	Type No.	Frequency range	Remark	Max. power	Connector female	Page
2-way-Tapper 800–2500 7.0/1.0 dB	860 10020	800 – 2500 MHz	Indoor	100 W	N	213
2-way-Tapper 800–2500 10.4/0.4 dB	860 10021	800 – 2500 MHz	Indoor	100 W	N	213
2-way-Tapper 800–2500 15.1/0.1 dB	860 10022	800 – 2500 MHz	Indoor	100 W	N	213
2-way-Tapper 800–2200 7.0/1.0 dB	K 63 23 60 67	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	214
2-way-Tapper 800–2200 10.4/0.4 dB	K 63 23 61 07	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	214
2-way-Tapper 800–2200 15.1/0.1 dB	K 63 23 61 57	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	214

Continuously adjustable ratio

2-way-Tapper 824–960/1710–2170 5.0–15.0dB	K 63 23 60 01	824 – 960 MHz 1710 – 2170 MHz	Indoor	100 W	N	215
2-way-Tapper 870–960/1710–2500 5.0–15.0dB	860 10023	870 – 960 MHz 1710 – 2500 MHz	Indoor	100 W	N	215

Filter products summary

– Combiners	216
– Duplexers	217
– DTMA's, Bias Tees	218
– 3-dB Couplers, DC Stop, Filters	219

For detailed information
see the catalogue
“790–2500 MHz Filters,
Combiners, Amplifiers
for Mobile Communications”

Antenna Measurement Tools (from Schomandl)

– Fast-Antenna-Tester FAT 2700	220
– WLAN Power Meter (VSWR)	221

Power Meter

– WLAN Power Meter (Power)	221
– Broadcast RF Power Monitor	222

For indoor and outdoor use.

2-way-Splitter 790–960

Type No.	K 63 20 62 1 K 63 20 62 7	
Frequency range	790 – 960 MHz	
For connecting ... antennas	2	
Insertion loss	< 0.05 dB	
Impedance	50 Ω	
VSWR	< 1.1	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power	500 W (at 50 °C ambient temperature)	1000 W
Connector (female)	N	7-16
Weight	approx. 1.3 kg	
Packing size	240 x 93 x 107 mm	
Max. size	210 / 80 / 80 mm	

Material:	Housing: Aluminum. Inner conductor: Brass.
Mounting:	Bracket for wall mounting included in the scope of supply: For pipe mast mounting use clamps listed below (order separately).
DC capability:	DC transmission between all terminations (suitable for remote power supply systems).



Input
K 63 20 62 7

Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter



736 805

For indoor and outdoor use.

2-way-Splitter 800–2200

3-way-Splitter 800–2200

4-way-Splitter 800–2200

Type No.	737 303	737 304	737 305	737 306	737 307	737 308
Frequency range	800 – 2200 MHz					
For connecting ... antennas	2		3		4	
Insertion loss	< 0.05 dB					
Impedance	50 Ω					
VSWR	< 1.15					
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc					
Max. power (at 50 °C ambient temperature)	200 W	700 W	200 W	700 W	200 W	700 W
Connector (female)	N	7-16	N	7-16	N	7-16
Weight	approx. 1.5 kg					
Packing size	310 x 93 x 107 mm					
Max. size	294 / 82 / 82 mm					

Material: Housing: Aluminum.
Inner conductor: Brass.

Mounting: Bracket for wall mounting included in the scope of supply.
For pipe mast mounting use clamps listed below (order separately).

DC capability: DC transmission between all terminations (suitable for remote power supply systems).



Input
737 308

Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter



736 805

For indoor use.

2-way Splitter 800–2500

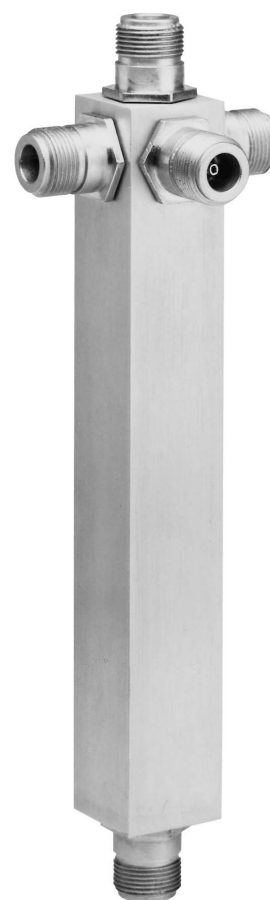
3-way Splitter 800–2500

4-way Splitter 800–2500

Type No.	860 10017	860 10018	860 10019
Frequency range	800 – 2500 MHz		
For connecting ... antennas	2	3	4
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.25	< 1.25	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	100 W (at 50 °C ambient temperature)		
Connector	N female		
Weight	approx. 0.6 kg		
Profile cross-section	25 x 25 mm		
Packing size	242 x 110 x 95 mm		
Max. size	204 / 63 / 41 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission between all terminations
(suitable for remote power supply systems).



Input
860 10019



For indoor and outdoor use.

2-way-Tapper 800–2200 7.0 /1.0dB

2-way-Tapper 800–2200 10.4/0.4dB

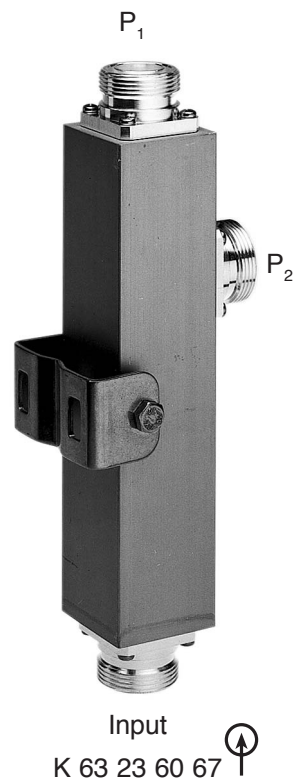
2-way-Tapper 800–2200 15.1/0.1dB

Type No.	K 63 23 60 67	K 63 23 61 07	K 63 23 61 57
Frequency range	800 – 2200 MHz		
Tap Loss			
Input ↔ P ₁	– 1.0 dB	– 0.4 dB	– 0.1 dB
Input ↔ P ₂	– 7.0 dB	– 10.4 dB	– 15.1 dB
For connecting ... antennas	2		
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	500 W (at 50 °C ambient temperature)		
Connector	7-16 female		
Weight	approx. 1.3 kg		
Packing size	310 x 93 x 112 mm		
Max. size	244 / 90 / 55 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission only between input and port P₁.
P₂ is coupled capacitively.

Mounting: Bracked for wall mounting included in the scope of supply.
For pipe mast mounting use clamps listed below (order separately).



Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter



736 805

Multi-band

Low-loss Power Tapper

Continuously Adjustable

824–960

1710–2500

5.0–15.0

5.0–15.0

KATHREIN

Antennen · Electronic

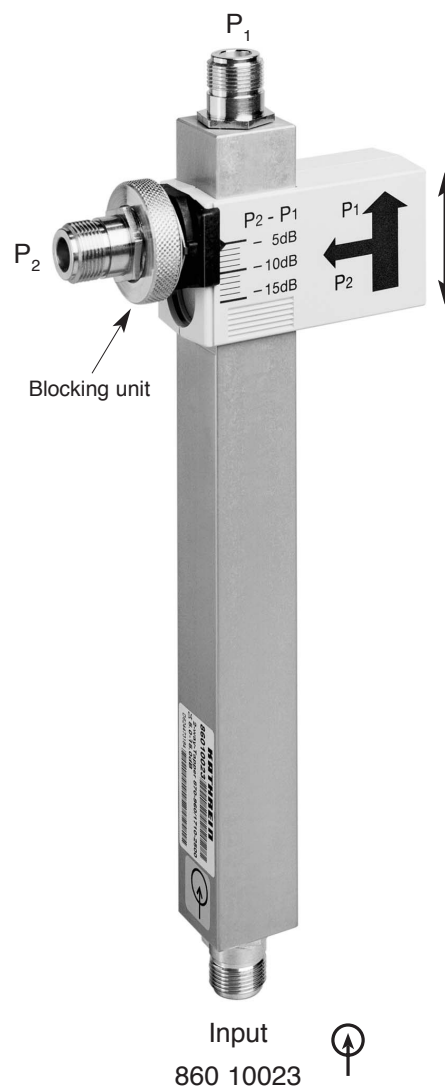
For indoor use.

K 63 23 60 01: 2-way-Tapper 824–960/1710–2170 5.0–15.0dB**860 10023: 2-way-Tapper 870–960/1710–2500 5.0–15.0dB**

Type No.	K 63 23 60 01	860 10023
Frequency range	824 – 960 MHz and 1710 – 2170 MHz	870 – 960 MHz and 1710 – 2500 MHz
Power ratio between outputs ($P_2 - P_1$)	–5.0 dB to –15.0 dB continuously adjustable	
For connecting ... antennas	2	
Insertion loss	< 0.1 dB	
Impedance	50 Ω	
VSWR	< 1.7	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power	100 W (at 50 °C ambient temperature)	
Connector	N female	
Weight	0.5 kg	
Profile cross-section	25 x 25 mm	
Packing size	249 x 111 x 40 mm	277 x 111 x 40 mm
Max. size	235 / 100 / 25 mm	263 / 100 / 25 mm

Material: Housing: Aluminum.
Inner conductor: Brass.
Adjustment mechanism: ASA.

DC capability: DC transmission only between input and port P_1 .
 P_2 is coupled capacitively.



Input
860 10023

Splitting table

P_2 / P_1 [dB]	Splitting ratio P_1 / P_2	Splitting attenuation	
		$P_{\text{Input}} - P_1$ [dB]	$P_{\text{Input}} - P_2$ [dB]
–5	3.2	–1.2	–6.2
–6	4	–1.0	–7.0
–7	5	–0.8	–7.8
–8	6.3	–0.6	–8.6
–9	8	–0.5	–9.5
–10	10	–0.4	–10.4
–11	12.6	–0.3	–11.3
–12	15.8	–0.3	–12.3
–13	20	–0.2	–13.2
–14	25.1	–0.2	–14.2
–15	31.6	–0.1	–15.1

Dual-band Combiner

793 532	Single Unit	806 – 960 / 1710 – 2170 MHz
793 533	Double Unit	806 – 960 / 1710 – 2170 MHz



**793 532
Single Unit**



**793 533
Double Unit**

782 10248	Single Unit, DC By-pass	806 – 960 / 1710 – 2170 MHz
782 10249	Single Unit, DC By-pass	806 – 960 / 1710 – 2170 MHz
782 10250	Single Unit, built-in DC stop	806 – 960 / 1710 – 2170 MHz
782 10251	Double Unit, built-in DC stop	806 – 960 / 1710 – 2170 MHz



**782 10248,
782 10250
Single Unit**



**782 10249,
782 10251
Double Unit**

793 423	Single Unit	1710 – 1880 / 1920 – 2170 MHz
793 424	Double Unit	1710 – 1880 / 1920 – 2170 MHz
782 10243	Single Unit, built-in DC stop	1710 – 1880 / 1920 – 2170 MHz
782 10244	Double Unit, built-in DC stop	1710 – 1880 / 1920 – 2170 MHz



**793 423, 782 10243
Single Unit**



**793 424, 782 10244
Double Unit**

782 10278	Single Unit	806 – 1880 / 1920 – 2170 MHz
782 10279	Double Unit	806 – 1880 / 1920 – 2170 MHz
782 10305	Single Unit, built-in DC stop	806 – 1880 / 1920 – 2170 MHz
782 10306	Double Unit, built-in DC stop	806 – 1880 / 1920 – 2170 MHz



**782 10278,
782 10305
Single Unit**



**782 10279,
782 10306
Double Unit**

782 10264	Single Unit	50 – 2200 / 2400 – 2500 MHz
-----------	-------------	-----------------------------



782 10460	Single Unit	50 – 470 / 806 – 2500 MHz
782 10341		824 – 880 / 890 – 960 MHz
782 10350		824 – 894 / 907 – 960 MHz



782 10460



**782 10341,
782 10350**

Triple-band Combiner

793 425	Single Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 426	Double Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10245	Single Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
	built-in DC stop	
782 10246	Double Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
	built-in DC stop	



**793 425, 782 10245
Single Unit**



**793 426, 782 10246
Double Unit**

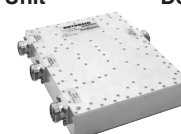
793 528	Single Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 529	Double Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10298	Single Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
	indoor	



**793 528
Single Unit**



**793 529
Double Unit**



782 10298, Single Unit (indoor)

Duplexers

824 – 2170 MHz

KATHREIN
Antennen · Electronic

Duplexer GSM-R / GSM

793 004	7-16	876 – 880 / 921 – 925 MHz
793 005	N	876 – 880 / 921 – 925 MHz

782 10164	7-16	890 – 915 / 935 – 960 MHz
782 10165	1 x N, 3 x 7-16	890 – 915 / 935 – 960 MHz
782 10161	7-16, 19" drawer	890 – 915 / 935 – 960 MHz
782 10162	7-16, outdoor	890 – 915 / 935 – 960 MHz

782 10167	7-16	880 – 915 / 925 – 960 MHz
-----------	------	---------------------------



793 004



793 005



782 10164 (indoor)



782 10162 (outdoor)



782 10161 (19" drawer)



Duplexer AMPS A-Band, B-Band A/B-Band

782 10168	7-16	824 – 835 / 869 – 880 MHz
782 10169	7-16, outdoor	824 – 835 / 869 – 880 MHz
782 10170	7-16, 19" drawer	824 – 835 / 869 – 880 MHz

782 10171	7-16	835 – 851 / 880 – 896 MHz
782 10172	7-16, outdoor	835 – 851 / 880 – 896 MHz

782 10215	7-16	824 – 851 / 869 – 896 MHz
782 10216	N	824 – 851 / 869 – 896 MHz

782 10257	7-16, 400 W	824 – 846.5 / 869 – 891.5 MHz
782 10265	7-16, 800 W	824 – 846.5 / 869 – 891.5 MHz



782 10168, 782 10171 (indoor)



782 10169, 782 10172 (outdoor)



782 10170 (19" drawer)



782 10215, 782 10257



782 10216

Duplexer GSM 1800 / GSM 1900

792 542	7-16	1710 – 1785 / 1805 – 1880 MHz
782 10415	7-16, 19" drawer	1710 – 1785 / 1805 – 1880 MHz
792 544	7-16	1850 – 1910 / 1930 – 1990 MHz



782 10415 (19" drawer)



782 10192



782 10193



782 10418 (19" drawer)

Duplexer UMTS

782 10192	7-16	1920 – 1980 / 2110 – 2170 MHz
782 10193	N	1920 – 1980 / 2110 – 2170 MHz
782 10418	7-16, 19" drawer	1920 – 1980 / 2110 – 2170 MHz

GSM 1800 Double Tower Mounted Amplifier CWA

782 10312	12 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz
782 10313	24 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz

GSM 1800 Double Tower Mounted Amplifier AISG

782 10315	12 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz
782 10316	24 dB gain	UL: 1710 – 1785 / DL: 1805 – 1880 MHz



GSM 1900 Double Tower Mounted Amplifier CWA

782 10400	12 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10401	24 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz

GSM 1900 Double Tower Mounted Amplifier AISG

782 10403	12 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10404	24 dB gain	UL: 1850 – 1910 / DL: 1930 – 1990 MHz
782 10406	12 dB gain with integrated duplexer	UL: 1850 – 1910 / DL: 1930 – 1990 MHz pass band 806–960 MHz



782 10406

UMTS Double Tower Mounted Amplifier CWA

782 10301	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10302	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

UMTS Double Tower Mounted Amplifier AISG

782 10147	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10148	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz



Power Distribution Unit (PDU)

782 10344



Smart Bias Tee

782 10253	12 VDC BTS	800 – 2170 MHz
782 10254	12 VDC Antenna	800 – 2170 MHz
782 10255	24 VDC BTS	800 – 2170 MHz
782 10256	24 VDC Antenna	800 – 2170 MHz
782 10453	12 VDC BTS	800 – 2170 MHz
782 10454	12 VDC Antenna	800 – 2170 MHz
782 10455	24 VDC BTS	800 – 2170 MHz
782 10456	24 VDC Antenna	800 – 2170 MHz



782 10454



782 10453

Bias Tee

793 304	800 – 2170 MHz
782 10429 (AISG)	800 – 2170 MHz



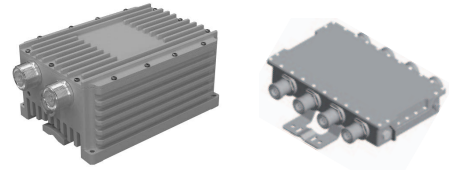
3-dB Couplers, DC Stop, Filters

800 – 2500 MHz

KATHREIN
Antennen · Electronic

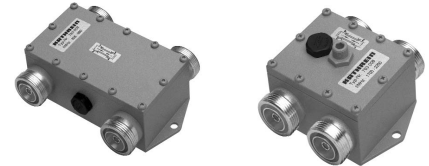
Hybrid Combiner

782 10500	2:1	806 – 960 MHz
782 10502	2:1	1710 – 2170 MHz
782 10532	4:4	1710 – 2170 MHz



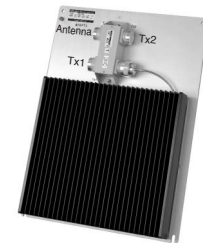
3-dB Coupler

793 506	7-16, outdoor	806 – 960 MHz
793 006	7-16, outdoor	1700 – 2200 MHz
793 554	7-16, outdoor	800 – 2200 MHz



3-dB Coupler with Cable Absorber

792 699		806 – 960 MHz
792 702		1700 – 2200 MHz
793 555		800 – 2200 MHz



Measuring Directional Coupler

792 972	824 – 2500 MHz
---------	----------------



DC Stop

793 301	800 – 2170 MHz
---------	----------------



Band-pass Filter

793 540	1710 – 1880 MHz
---------	-----------------



Band-pass Filter (AMPS/CDMA suppression filter)

782 10390	890 – 960 MHz
-----------	---------------



Low-pass Filter

793 539	876 – 960 MHz
---------	---------------



50 Ω Load Low intermodulation

782 10474	806 – 2500 MHz
-----------	----------------



- Ideal for 50 Ω systems
- Independent of the system-standard
- Easy to use
- Direct VSWR-Measurement
- Accuracy + 5 % (20 MHz ... 800 MHz)
- Frequency range 20 MHz ... 2.700 MHz
- Frequency display RF-Generator: 4 digits
- Battery operated
- Small and handy



The Fast-Antenna-Tester FAT 2700 includes everything that is needed to measure the installation of an antenna or a 50 Ω cable-network: one RF-Generator with continuously settable frequency in the range from 20 MHz to 2,700 MHz and a VSWR-bridge. The result is displayed on an analog meter without any delay.

The Fast-Antenna-Tester FAT 2700 with its low weight of less than 0.5 kg – including the rechargeable accus – may be used at any place.

The FAT 2700 is easy to use: Power on – set the frequency of the RF-Generator – read out the VSWR – finished.

An accessory-set – consisting of a soft carrying bag for the FAT 2700, an automobile cigarette charger cable and four RF-adapters – completes the test equipment.

Specifications FAT 2700

VSWR-Measurement:

Impedance: 50 Ω
 VSWR-Measuring range: 1.0 ... 3.0
 Accuracy: Band I: .20 MHz800 MHz: + 5 %
 Band II: .800 MHz ... 1,600 MHz: + 10 %
 Band III: 1,600 MHz ... 2,700 MHz: + 15 %

RF-Generator:

Frequency range: 20 MHz ... 2700 MHz
 Frequency display:with counter 4 digits
 Resolution: Band I: .20 MHz800 MHz: 0.1 MHz
 Band II: .800 MHz ... 1,600 MHz: 1 MHz
 Band III: 1,600 MHz ... 2,700 MHz: 1 MHz
 Accuracy:< + 3 x 10⁻⁵
 Output level: – 3 dBm (typ.)
 Max. permitted RF-level at the RF-connector: < 100 mW
 RF-connector: N-socket

General data:

Power requirements: 4 ea. NIMH-Accus AA
 Operating temperature: 0 °C ... + 50 °C
 Electrical safety: EN 61010
 EMC: CE-mark
 Dimensions (H x W x D): 184 mm x 92 mm x 34 mm
 Weight (including. accus): 0.5 kg
 Contents of delivery: Fast-Antenna-Tester
 4 ea. Accus (built-in)
 1 ea. Battery charger (220 V, 50 Hz)
 1 manual English/German

Ordering information:

Fast-Antenna-Tester FAT 2700 BN 86817.000

Accessories:

Accessory set BN 86817.101
 Consisting of:
 soft carrying bag
 RF-adapter set (FME-plug, BNC socket, TNC socket, Mini-UHF socket)
 adapter 7-16 to N connector (length approx. 50 cm)
 automobile cigarette charger cable

Please contact for technical information and orders:

SCHOMANDL-Vertriebs-GmbH
 Bahnhofstraße 108 · D-83224 Grassau/Germany
 Telephone: 08641-403-140 · Telefax: 08641-403-264
 e-mail: info@schomandl.de · Internet: http://www.schomandl.de

Display forwarded power, reflected power and VSWR simultaneously

Range from 50 μ W to 1W

VSWR from 1.04 to 9.99:1

2 GHz to 6 GHz

Diagnose 802.11a,b and g WLAN



Specifications

Model No.:	3019
Frequency range:	2 – 6 GHz
Insertion loss:	<0.4dB
Absolute accuracy :	±1dB
Power range indicated:	1 μ W – 999mW
VSWR indicated:	1.01 – 9.99 : 1
Directivity:	>30dB
Peak Detect of:	<1mS pulse
Auto Power off	1 minute
Power Supply:	3Volt (2 X AAA Alkaline)
Max power consumption:	50 mA
Operating time (no backlight)	20 Hours
Optional Accessories:	SMA to RPSMA adaptors
Belt clip	Option
EMI/RFI	EN55022 /B
Dimensions:	– Width: 58 mm – Depth: 23 mm – Height: 105 mm
Weight incl. Batteries:	approx. 130g
Temperature:	– Operating 0 to 40°C – Storage –20 to 80°C
Colour:	– Standard White/Grey

Please contact for technical information and orders:

SCHOMANDL-Vertriebs-GmbH
Bahnhofstraße 108 · D-83224 Grassau/Germany
Telephone: 08641-403-140 · Telefax: 08641-403-264
e-mail: info@schomandl.de · Internet: <http://www.schomandl.de>

Broadcast RF Power Monitor Digital RF Power Meter



KATHREIN
Antennen · Electronic

Also available as 19" Rack mount Version



Specifications for Broadcast Power Monitor with external coupler

Model No.:	3014
Frequency range: (Coupler dependent)	50 – 860 MHz
Coupling Flatness , from 6dB/octave Probes 3015,3016	±0,2dB
Absolute accuracy after offset adjustment:	±0,2dB (±4%)
True RMS Power range:	–34 dBm to +10 dBm
Peak Power range:	+24 dBm
Dynamic range:	> 50 dB
Power readout: Auto range 1KW – 999KW	1024 steps
Coupler attenuation VHF @ 100MHz:	43 dB to 73 dB
Coupler attenuation UHF @ 500MHz:	50 dB to 80 dB
VSWR readout:	1,00:1-9,99:1
Remote Temperature Sensing	0 – 99°C
Remote Voltage Sensing	0–100VDC
Remote Current Sensing	0–3V DC (1024 bits)
Relay Out/Digital Out:	Open Collector 50V/0,5A
Controller out for SNMP or dialup	RS232 1200- 9600 Bps
Power Supply: – AC power:	90-264V @ 50-60Hz
Max power consumption: – AC	10V/A
EMI/RFI	EN55022 /B
Connectors: – RF sensors – Power AC in rear Options: – Analogue/digital – RS232	DB9 Female IEC DB9 Female DB9 Male
Dimensions: – Width: 19" unit – Depth: 1HU	482.5 mm 180 mm 44 mm
Dimensions: – Width: Stand alone unit – Depth: – Height:	216 mm 180 mm 53 mm
Weight:	approx. 1.8 kg
Temperature: – Operating -Storage	5 to 50°C 20 to 80°C
Colour: – standard	Silver Anodised

Please contact for technical information and orders:

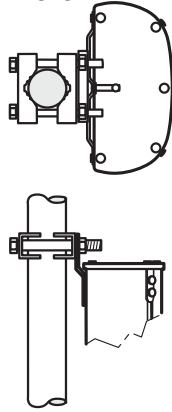
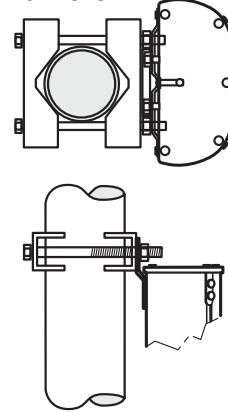
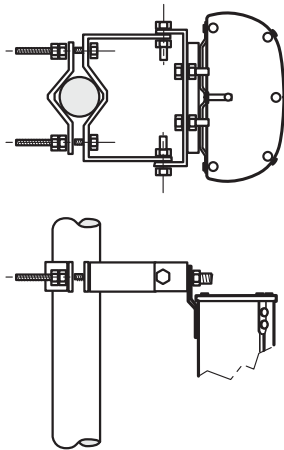
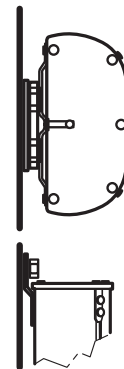
SCHOMANDL-Vertriebs-GmbH
Bahnhofstraße 108 · D-83224 Grassau/Germany
Telephone: 08641-403-140 · Telefax: 08641-403-264
e-mail: info@schomandl.de · Internet: <http://www.schomandl.de>

	Page
Mounting Configurations	224
A-Panels / C-Panels / Eurocell Panels	
Dimensions	225
Clamps	227
Three Sector Clamps and Masts	229
2 x A-Panel Mounting Kit	230
Downtilt kits	231
F-Panels	
Dimensions	234
Detailed Connector Position	235
Clamps	236
Three Sector Clamp	237
2 x F-Panel Mounting Kit	238
Downtilt kits	239
Slant Compensation	239
Azimuth Adjustment Kits	
for A-Panels, C-Panels, Eurocell Panels, F-Panels	240
Omnidirectional Antennas	
Clamp for larger Mast Diameters	241
Side-mounting Brackets	242
Tri-Sector Pipe Antennas	
Flexible Sealing Frame	111
Additional TMA Service Area	112
Tools	
Azimuth Adjustment Tool	244
Kathrein Installation Tool (Triple-band Antenna)	245

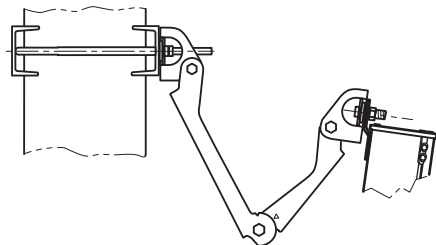
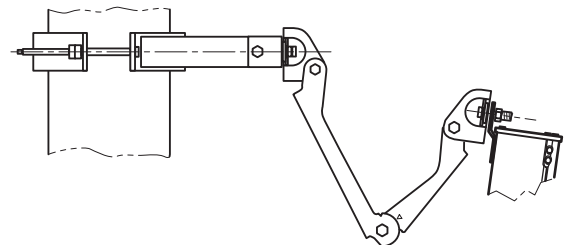
**For additional information
on the mounting of antennas,
please check also our
brochure:**



New Products

Small Pipe Diameter

Large Pipe Diameter

Off-set

Flat Surface


Not applicable for Eurocell Panels with connector position rearside.

Standard Downtilt

Off-set Downtilt


A-Panels

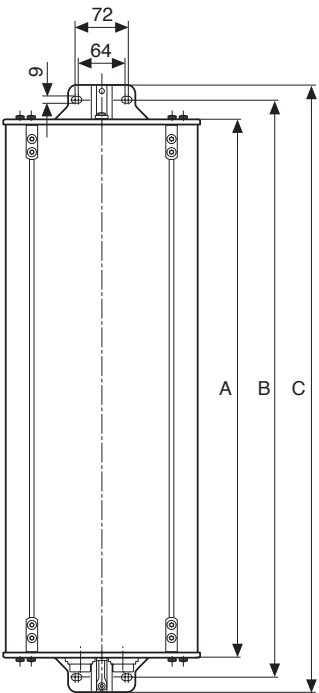
Antenna Dimensions

A-Panels

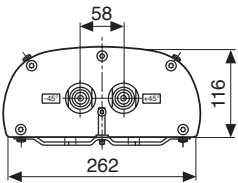
with 65° and 90° Half-power Beam Width

A	256 mm	656 mm	1296 mm	1936 mm	2580 mm
B	310 mm	710 mm	1350 mm	1990 mm	2634 mm
C	350 mm	750 mm	1390 mm	2030 mm	2674 mm

A Corresponds with the antenna height mentioned in the technical data.



Bottom view

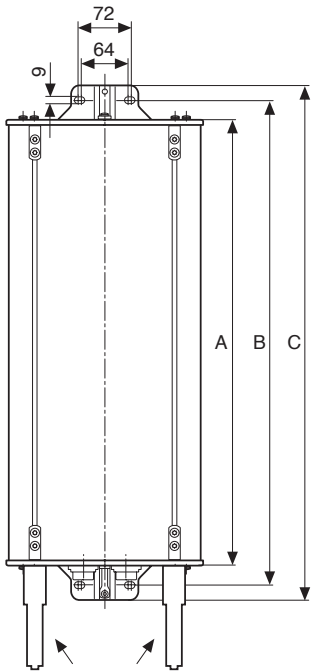


Dual-band A-Panels

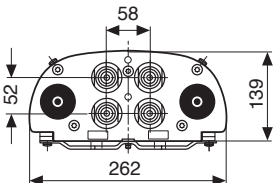
with 65° Half-power Beam Width

A	770 mm	1316 mm	1916 mm	2516 mm	2580 mm
B	824 mm	1367 mm	1967 mm	2567 mm	2634 mm
C	864 mm	1407 mm	2007 mm	2607 mm	2674 mm

A Corresponds with the antenna height mentioned in the technical data.



Adjustment mechanism
with integrated scale

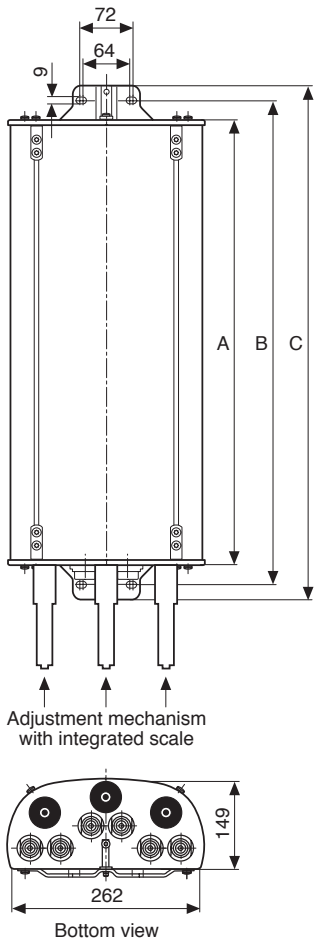


Bottom view

Triple-band A-Panel with 65° Half-power Beam Width

A	1498 mm	2058 mm	2628 mm
B	1541 mm	2101 mm	2671 mm
C	1581 mm	2141 mm	2711 mm

A Corresponds with the antenna height mentioned in the technical data.



C-Panels

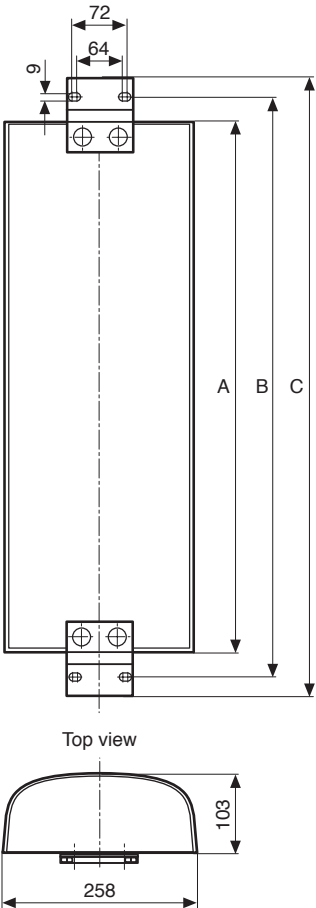
A	1294 mm	1694 mm	1934 mm	2254 mm
B	1340 mm	1724 mm	1980 mm	2300 mm
C	1382 mm	1764 mm	2022 mm	2342 mm

A Corresponds with the antenna height mentioned in the technical data.

Eurocell Panels

A	264 mm	654 mm	974 mm	1294 mm	1934 mm	2254 mm	2574 mm
B	—	710 mm	1030 mm	1350 mm	1990 mm	2310 mm	2630 mm
C	—	750 mm	1070 mm	1390 mm	2030 mm	2350 mm	2670 mm

A Corresponds with the antenna height mentioned in the technical data.



A-Panels

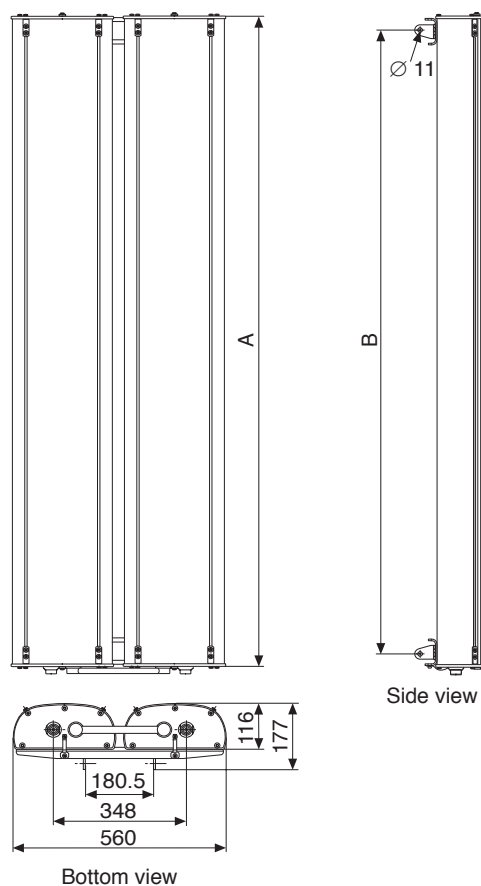
30° Half-power Beam Width

Mounting Hardware

A-Panels with 30° Half-power Beam Width

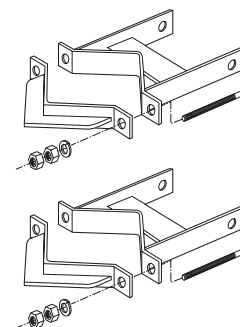
A	656 mm	1296 mm	2580 mm
B	584 mm	1224 mm	2504 mm

A Corresponds with the antenna height mentioned in the technical data.



Clamps

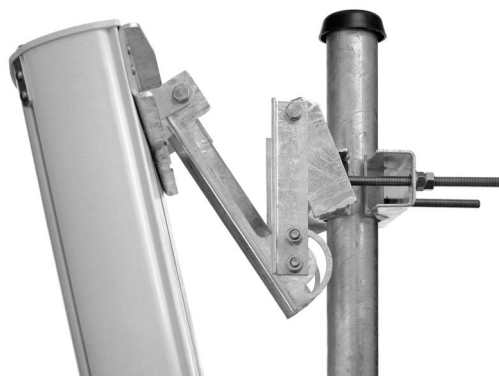
Type No.	Description	Remarks	Weight approx.	Units per antenna
733 736	2 clamps	Mast: 50 – 125 mm diameter	5.9 kg	1
K 61 14 03	2 clamps	Mast: 116 – 210 mm diameter	4.6 kg	1
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter	6.5 kg	1
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter	9.4 kg	1



Pair of clamps K 61 14 03

Downtilt kits

Antenna height	Downtilt angle	Type No.	Weight
656 mm	0 – 33°	733 695	3.4 kg
1296 mm	0 – 16°		
2580 mm	0 – 8°		



Downtilt kit 733 695

A-Panels 65° and 90° / C-Panels / Eurocell Panels

Mounting Hardware

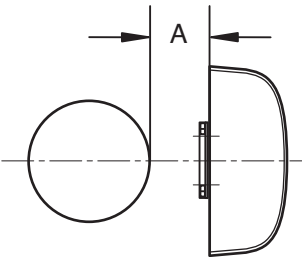
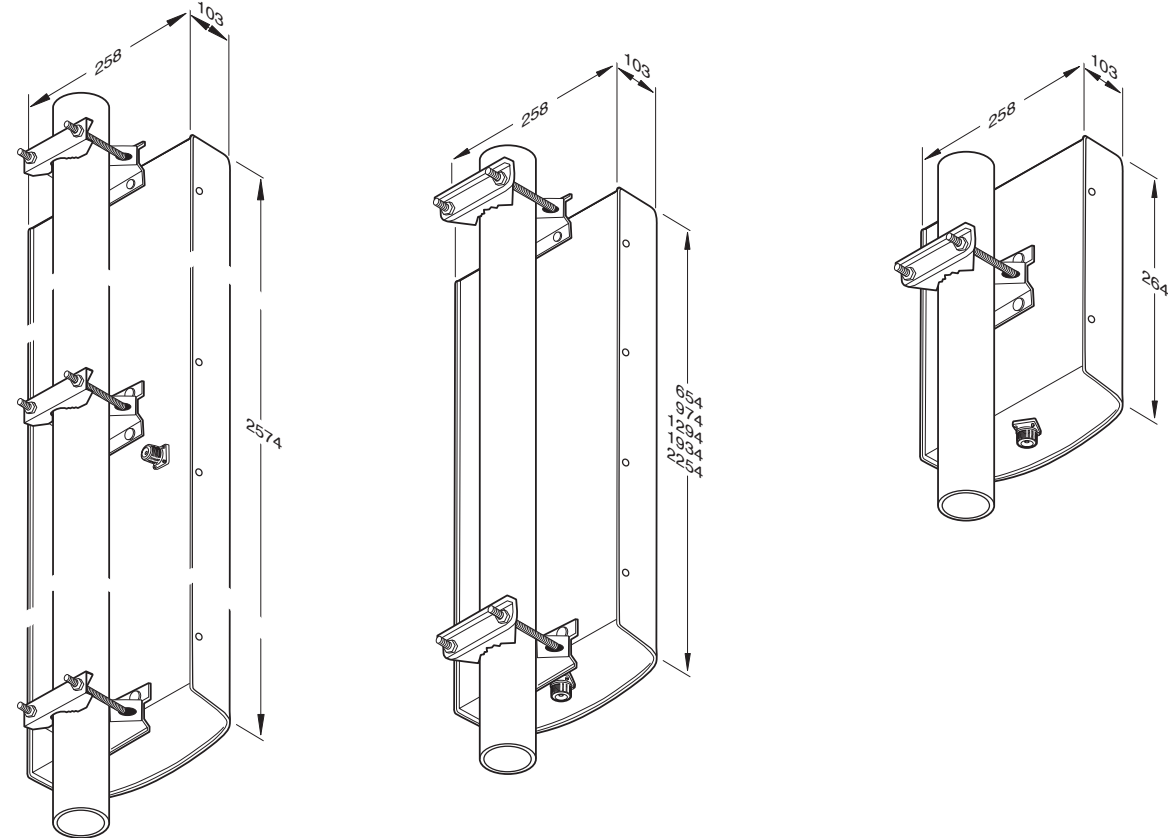
Clamps

KATHREIN
 Antennen · Electronic

C-Panels / Eurocell Panels
 Antenna height: 2574 mm

C-Panels / Eurocell Panels
 Antenna height: 654 mm
 to
 2254 mm
 and all A-Panels 65° and 90°

C-Panels / Eurocell Panels
 Antenna height: 264 mm



Description	Mast diameter	Type No.	Distance A mm	Weight approx.	Units per antenna
Small Pipe	28 – 64 mm	731 651*	22 – 30	330 g	see sketch
Large Pipe	50 – 115 mm	738 546	18 – 26	1.0 kg	see sketch
	110 – 220 mm	850 10002	47 – 56	2.7 kg	see sketch
	210 – 380 mm	850 10003	48 – 69	4.8 kg	see sketch
Off-set	60 – 115 mm	733 677	117 – 124	2.0 kg	see sketch
	115 – 210 mm	733 678	146 – 160	2.6 kg	see sketch
	210 – 380 mm	733 679	148 – 168	4.0 kg	see sketch
	380 – 521 mm	733 680	150 – 175	5.3 kg	see sketch

* Not allowed for panels:
 742 241, 742 264, 742 265, 742 266, 742 270, 742 271, 742 272, 800 10292

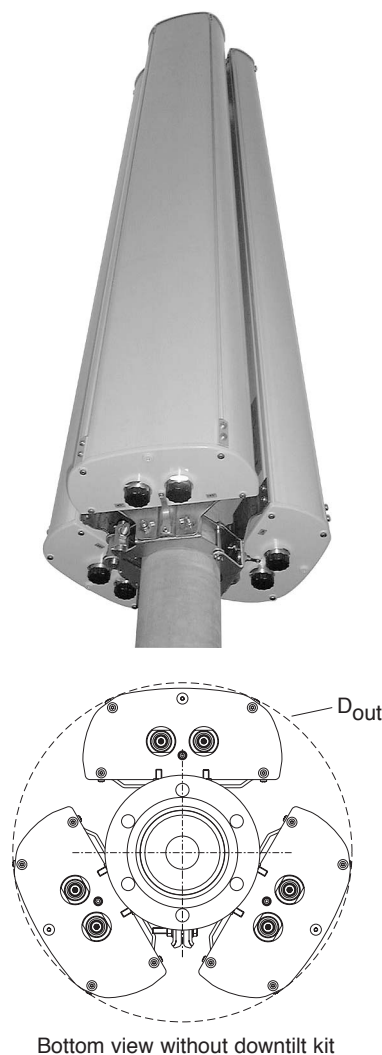
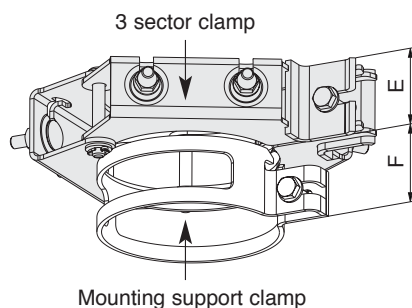
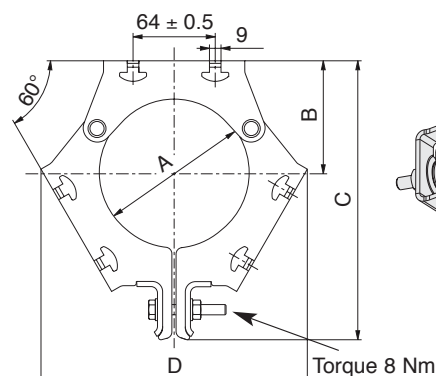
731 651	738 546	733 678
 26 mm	 40 mm	 50 mm

3 Sector Clamp Kit / Pipe Mast with Flange Base

- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Eurocell Panels
- Suitable for all A-Panels 65° and 90° (Single-band, Dual-band) with weight less than 30 kg including downtilt kit and/or offset clamp
- Mounting of F-Panels possible but not optimized
- For antennas with weight more than 30 kg downtilt kit and/or offset clamp are not allowed

3 Sector Clamp Kit

Type No.	742 033	742 034
Angle between antennas	120°	120°
Suitable for mast diameter	114.3 mm	139.7 mm
Type No. of pipe mast (please order separately)	742 035	742 036
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp
Material	Hot-dip galvanized steel Aluminum Stainless steel	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D _{out}) of the 3 A-Panel Arrangement	460 mm	482 mm
3 Dual-band A-Panel Arr.	511 mm	533 mm
3 Triple-band A-Panel Arr.	532 mm	555 mm
Weight	3.0 kg 1.4 kg	3.2 kg 1.5 kg



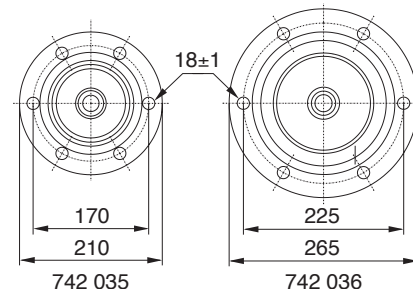
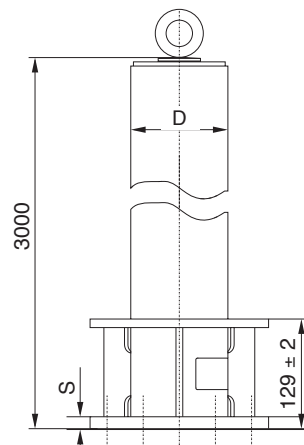
Bottom view without downtilt kit

Type No.	A	B	C	D	E	F
742 033	114.3	88	217	207	49	45
742 034	139.7	100	236	228	49	45

all dimensions in mm

Pipe Mast with Flange Base

Type No.	742 035	742 036
Pipe diameter according DIN 2448	114.3 mm	139.7 mm
Wall thickness pipe	6.3 mm	4 mm
Pipe length	3000 mm	3000 mm
Flange diameter	210 mm	265 mm
Flange thickness	14 ± 1 mm	19 ± 1 mm
Hole circle diameter	170 mm	225 mm
Number of holes	6	6
Hole diameter	18 ± 1 mm	18 ± 1 mm
Enclosed bolts thread x length	M16 x 100 mm	M16 x 100 mm
Hot-dip galvanized steel	Quality min. 8.8	Quality min. 8.8
Weight	60 kg	55 kg
Material pipe mast	S355 J2H (St 52-3N) DIN EN 10210-1	
Material flange base	S235 JR G2 (RSt 37-2) DIN EN 10025	



Maximum permissible load: According DIN 4131 and DIN 4132
Fatigue class K2

A-Panels / C-Panels / Eurocell Panels

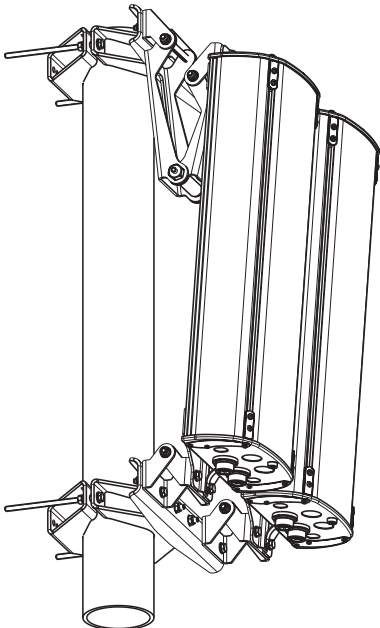
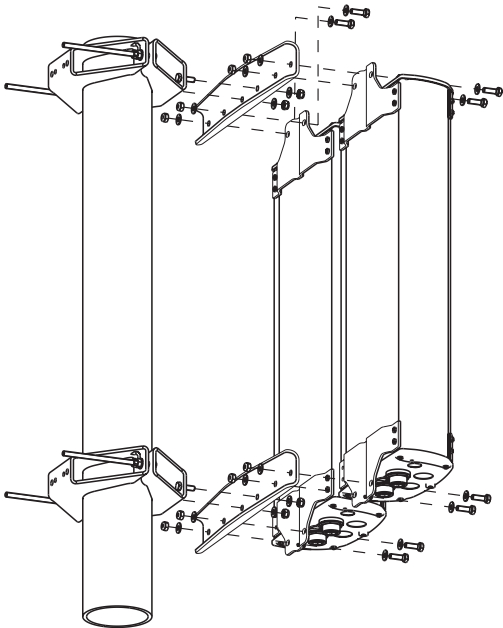
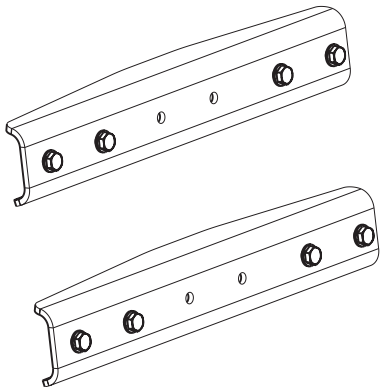
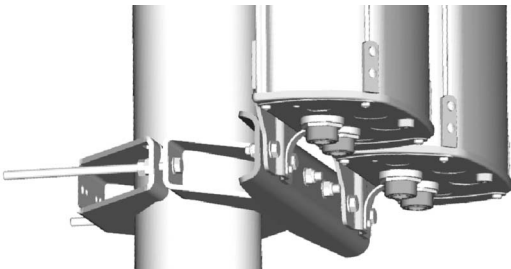
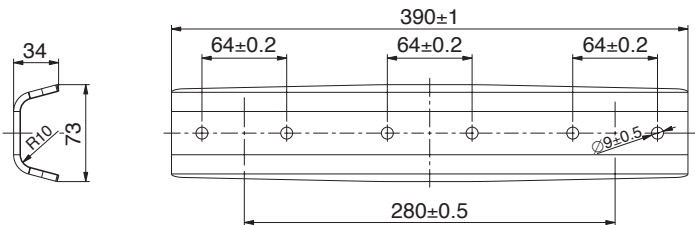
Mounting Hardware

2 x A-/C-Panel Mounting Kit

Use this mounting kit only for antennas less than 25 kg each.

Type No.	850 10006
No. of pieces	2 x brackets
Suitable for A-/C-Panels 65°, 90° with a max. height	2.6 m
Material: – Clamp – Screws	Hot-dip galvanized steel Stainless steel
Weight	Approx. 3.3 kg
Mounting	Screws are supplied

Recommended torque for M8 bolted connections: 12 Nm



Mounting Accessories (order separately)

Clamps (only the listed clamps are allowed!)

Type No.	Description	Remarks	Weight approx.	Units per antenna
850 10002	1 clamp	Mast: 110 – 220 mm diameter	2.7 kg	2
850 10003	1 clamp	Mast: 210 – 380 mm diameter	4.8 kg	2

Please chose the fitting downtilt kit that you need, from the antenna datasheet.

A-Panels / C-Panels / Eurocell Panels

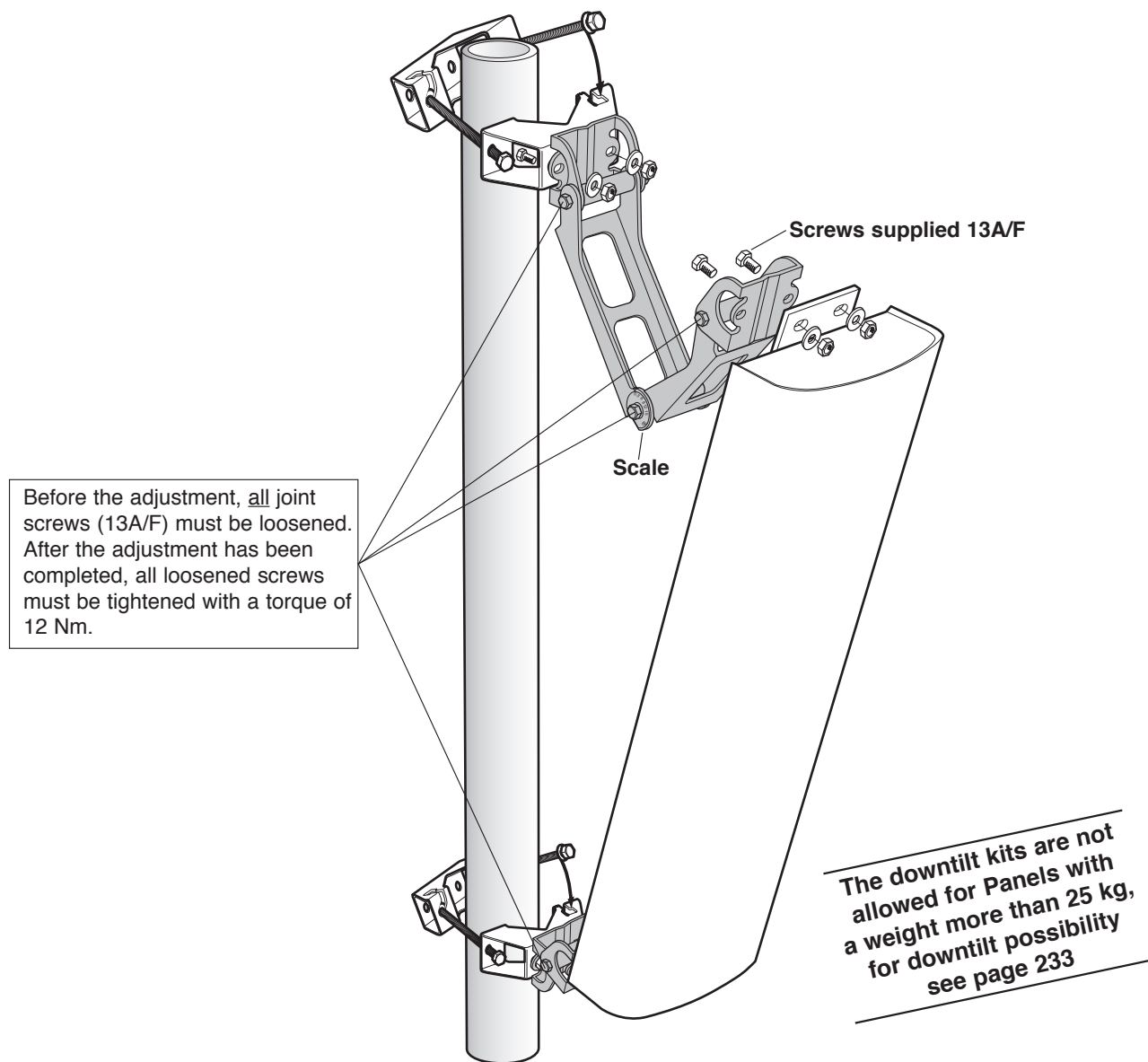
Mounting Hardware

Downtilt kit

KATHREIN
Antennen · Electronic

Antenna height: 654 / 656 mm
974 mm
1294 / 1296 mm
1694 mm
1934 / 1936 mm
2254 / 2256 mm

Use the downtilt kit together with the clamps (see page 227 and 228)



Downtilt angle

Antenna height	Downtilt angle	Downtilt kit with scale	Downtilt kit without scale*	Weight
		Type No.	Type No.	
654 / 656 mm	0° – 30°	737 972	737 978	approx. 2.8 kg
974 mm	0° – 21°	737 973		
1294 / 1296 mm	0° – 16°	737 974		
1694 mm	0° – 12°	–		
1934 / 1936 mm	0° – 11°	737 975		
2254 / 2256 mm	0° – 9°	–		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

A-Panels / C-Panels / Eurocell Panels

Mounting Hardware

Downtilt kits

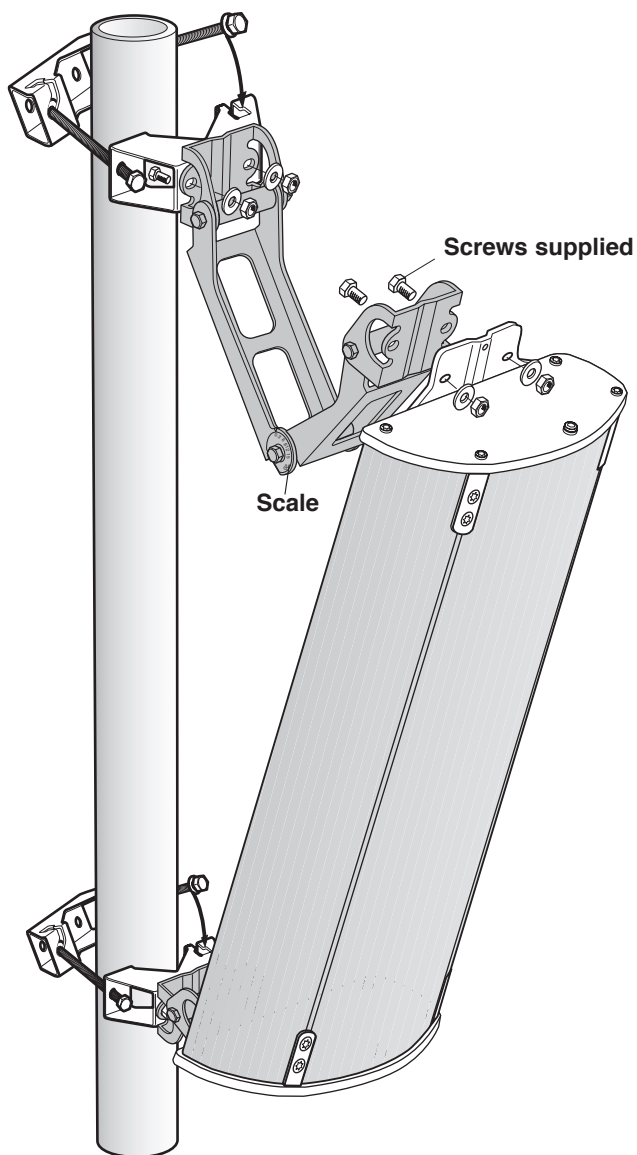
KATHREIN

Antennen · Electronic

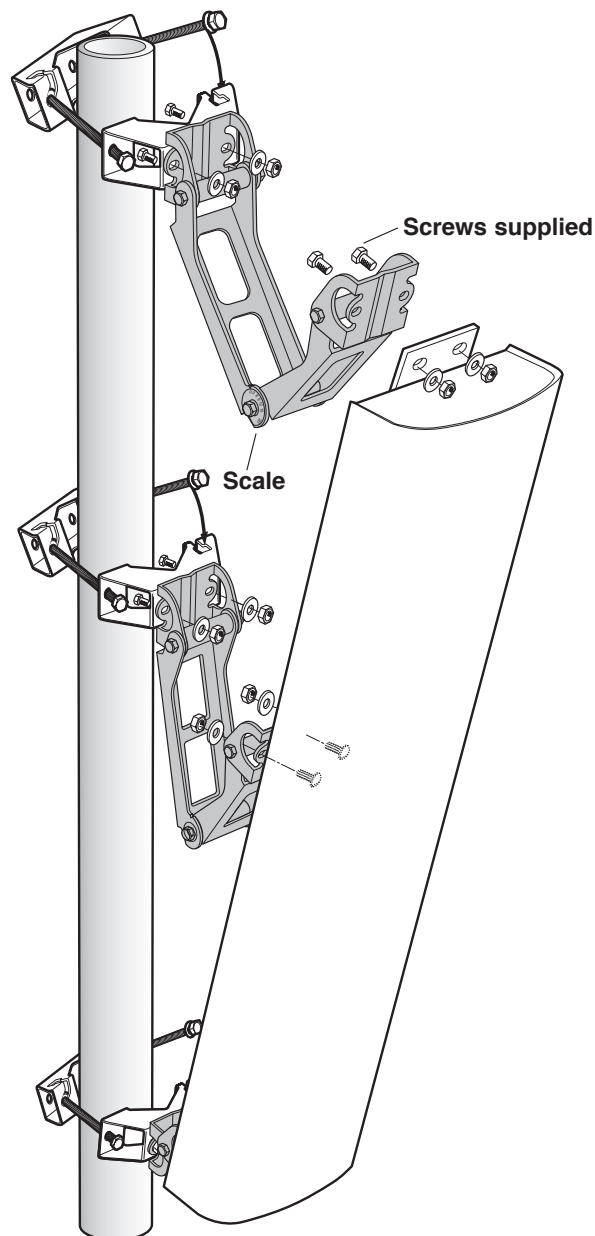
Suitable for:

A-Panels
with an antenna height of 2580 mm

C-Panels / Eurocell Panels
with an antenna height of 2574 mm



Type No. 737 971
Downtilt angle: 0° – 8°



Type No. 737 976
Downtilt angle: 0° – 8°

The downtilt kits are not
allowed for Panels with
a weight more than 25 kg,
for downtilt possibility
see page 233

**The downtilt kits should only be mounted with clamps
738 546, 850 10002, 850 10003**

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

A-Panels / C-Panels / Eurocell Panels

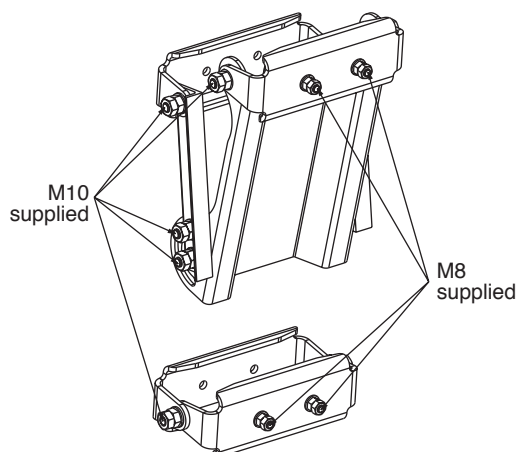
Mounting Hardware

Downtilt Kit

Special downtilt kit for Panel antennas with a weight greater than 25 kg.

Downtilt kit

Type No.	850 10007
Preferred range of use	– Panel antennas with a weight of ≥ 25 kg – Panel antennas with attached mounting plates – Downtilt kit without scale for universal use
Weight	5.9 kg
Material	Hot-dip galvanized steel
All screws and nuts	Stainless steel



Recommended mast clamps:

Type No.	Description	Mast diameter	Weight approx.	Units per antenna
738 546	1 clamp	50 – 115 mm	1.0 kg	2
850 10002	1 clamp	110 – 220 mm	2.7 kg	2
850 10003	1 clamp	210 – 380 mm	4.8 kg	2

Recommended torque for all bolted connections:

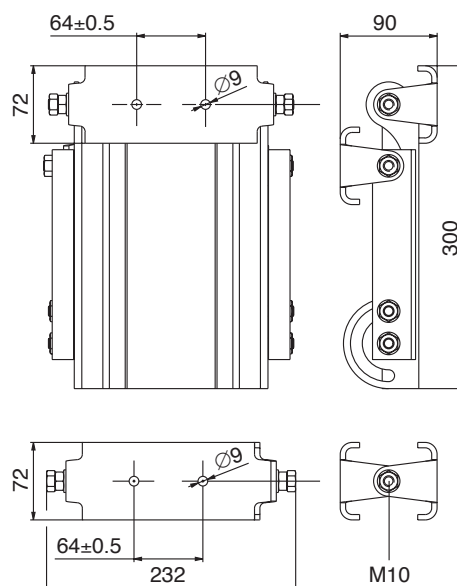
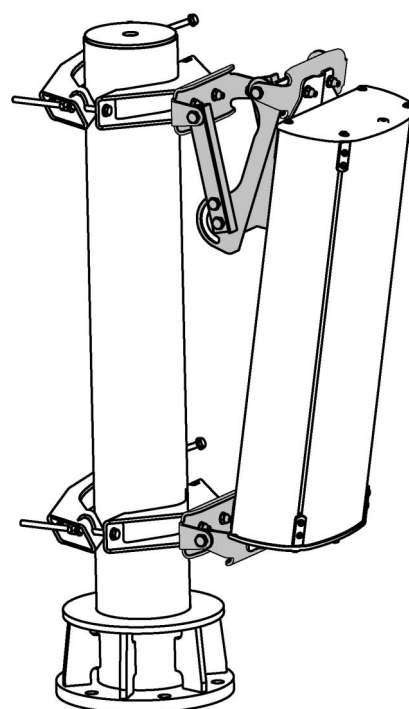
Screw size	Torque
M8	12 Nm
M10	26 Nm

Maximum acceptable load:

Frontal wind load	< 2500 N
Lateral wind load	< 830 N
Antenna weight	≤ 50 kg

Downtilt angle

Antenna height	Downtilt angle
1498 mm	0° – 15°
2058 mm	0° – 11°
2516 mm	0° – 8°
2628 mm	0° – 8°



F-Panel Accessories

Dimensions of F-Panels with 33° / 45° / 65° / 88° Half-power Beam Width

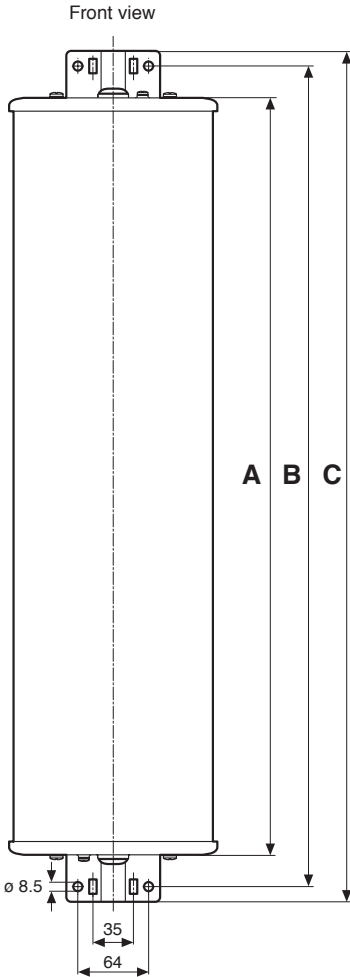
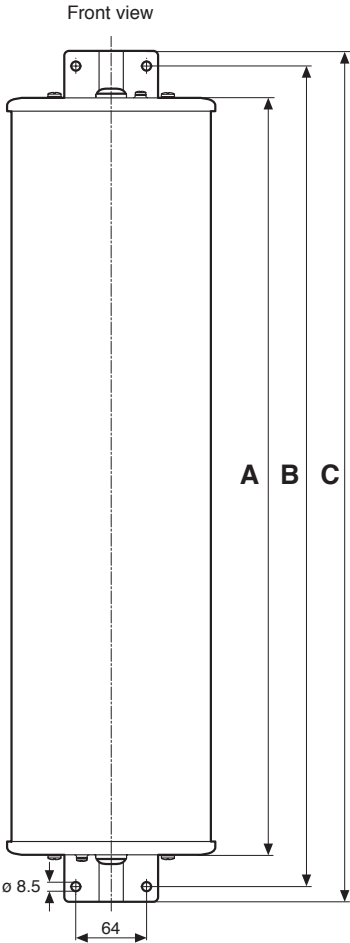
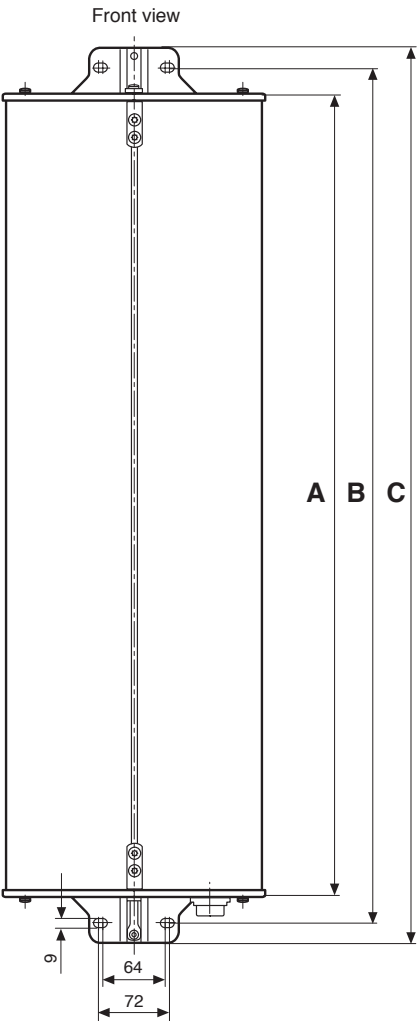
Dimensions [mm]
 ('A' corresponds to the antenna height given on the data sheet)

33° – 45° Half-power Beam Width

A	B	C
982	1036	1076
1302	1356	1396
1942	1996	2036

65° – 88 °Half-power Beam Width

A	B	C
182	236	266
342	396	426
502	556	586
662	716	746
702	756	786
982	1036	1066
1302	1356	1386
1319	1384	1424
1622	1676	1706
1942	1996	2026
2582	2636	2666

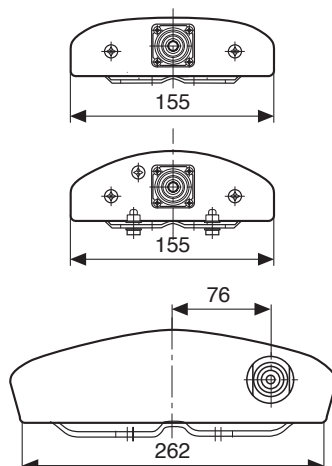


F-Panel Accessories

Dimensions of F-Panels

Detailed Connector Position

Vertical Polarization

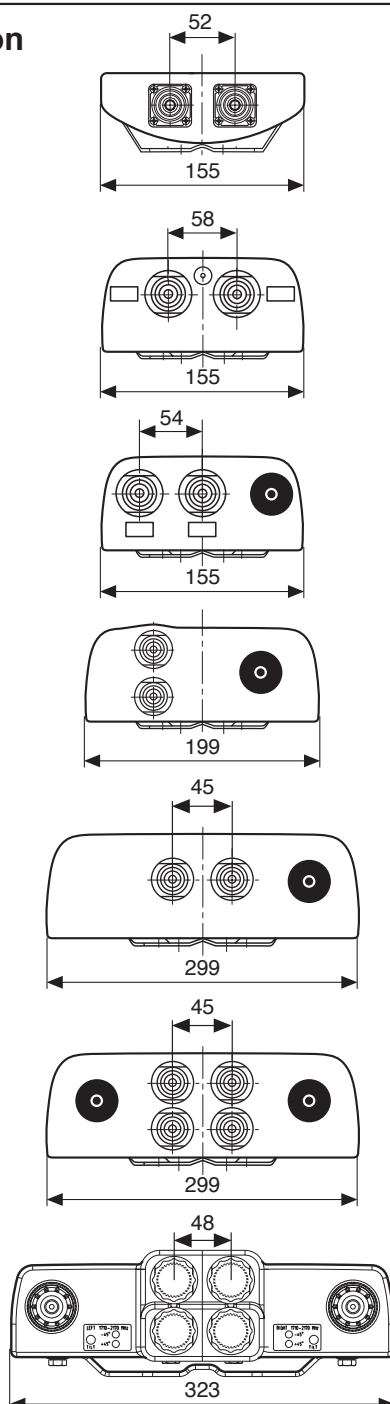


60° – 65° Half-power Beam Width

90° Half-power Beam Width

33° Half-power Beam Width

+45°/-45° Polarization



65° Half-power Beam Width

90° Half-power Beam Width

65° and 90° Half-power Beam Width
adjustable electrical downtilt

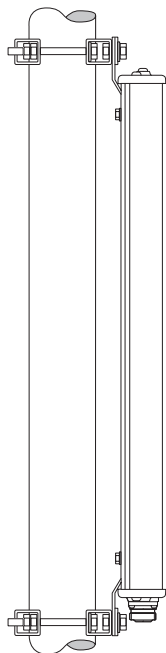
45° Half-power Beam Width
Multi-band
adjustable electrical downtilt

30° Half-power Beam Width
Multi-band
adjustable electrical downtilt

65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

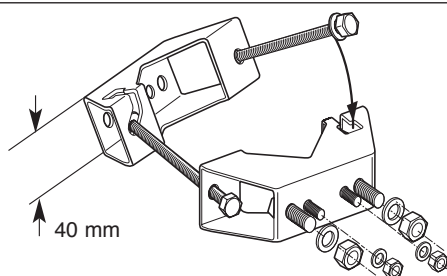
Clamps suitable for all F-Panels



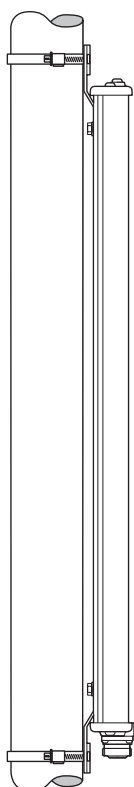
Type No.	Mast diameter	Weight approx.	Units per antenna
738 546	50 – 115 mm	1 kg	2
850 10002	110 – 220 mm	2.7 kg	2
850 10003	210 – 380 mm	4.8 kg	2
733 677	60 – 115 mm	2.0 kg	2
733 678	115 – 210 mm	2.6 kg	2
733 679	210 – 380 mm	4.0 kg	2
733 680	380 – 521 mm	5.3 kg	2

For more information
see data sheets

Type No. 738 546



Clamps suitable for all F-Panels with a width of 155 mm until an antenna height of 1302 mm incl. S-Panels



Type No.	Mast diameter	Antenna height	Weight approx.	Units per antenna
734 360	34 – 60 mm	182 ... 1302 mm	60 g	1
734 361	60 – 80 mm	182 ... 1302 mm	70 g	1
734 362	80 – 100 mm	182 ... 1302 mm	80 g	1
734 363	100 – 120 mm	182 ... 1302 mm	90 g	1
734 364	120 – 140 mm	182 ... 1302 mm	110 g	1
734 365	45 – 125 mm	182 ... 1302 mm	80 g	1

For more information
see data sheets

Clamps are not allowed for
2-Multi-band F-Panels like
742 233, 742 234, 742 235,
742 236, 742 351

Type No. 734 362



F-Panels – 3 Sector Panel Arrangement

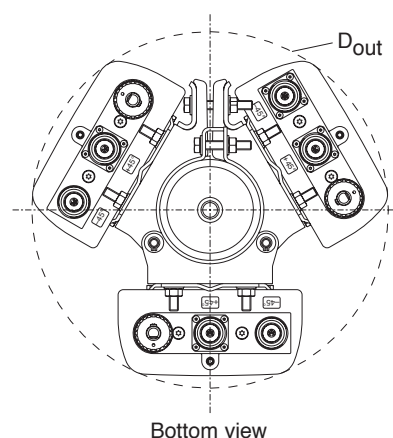
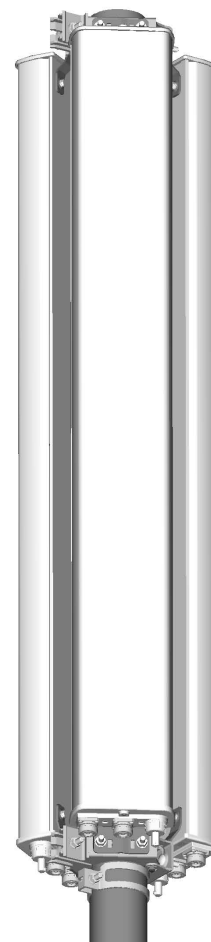
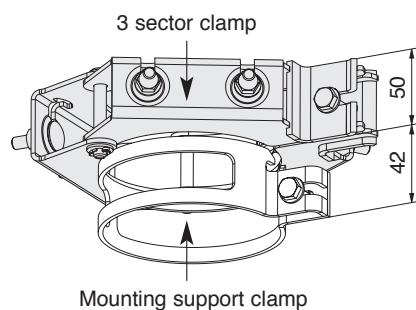
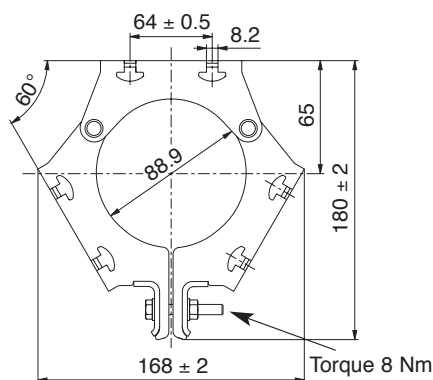
Mounting Hardware

3 Sector Clamp Kit

- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all F-Panels with an antenna housing width of 155 mm

3 Sector Clamp Kit

Type No.	742 263
Angle between antennas	120°
Suitable for mast diameter	88.9 mm
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp
Material	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D _{out}) of the 3 F-Panel Arrangement	315 mm
Weight	3.0 kg 1.4 kg
Remark	This clamp kit is not suitable for use with additional mechanical downtilt kits



F-Panel Accessories

Mounting Hardware

2 x F-Panel Mounting Kit

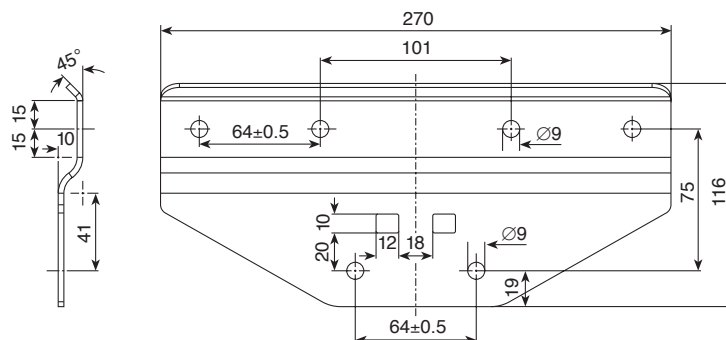
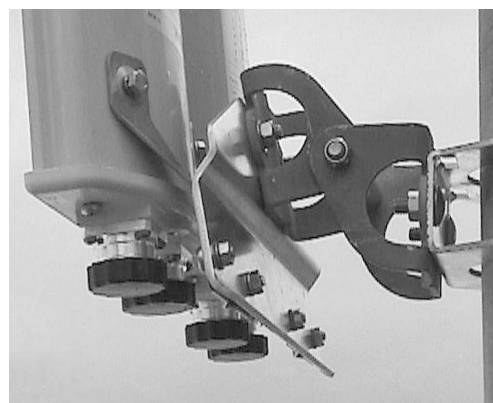
KATHREIN

Antennen · Electronic

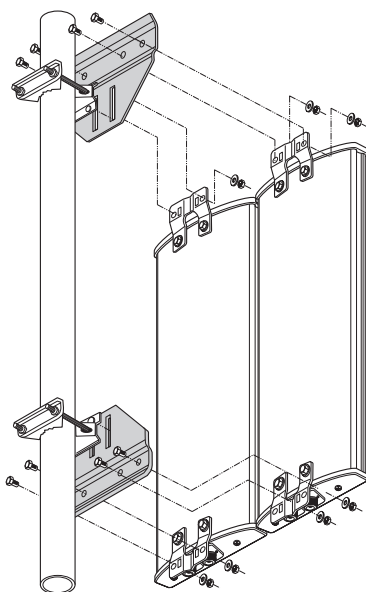
- For arranging two F-Panels 65°, 90° side by side (on air combining).
- The mounting kit consists of two mounting plates.

2 x F-Panel Mounting Kit

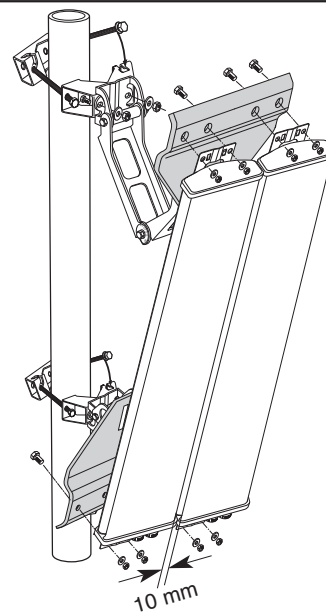
Type No.	742 113
No of units	2
Suitable for F-Panels 65°, 90° with max. height of	2 m
Material	Hot-dip galvanized steel
Weight	approx. 1.6 kg
Mounting	Screws are supplied



Configuration without mechanical downtilt



Configuration with mechanical downtilt



Use the 2 x F-Panel Mounting Kit together with the following mounting accessories

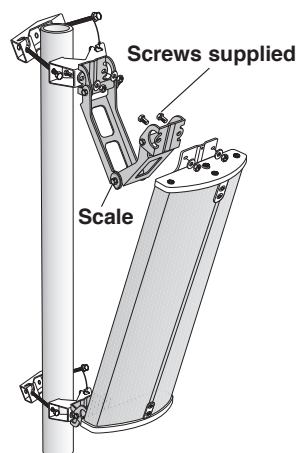
Type No.	Description	Remarks	Weight approx.	Units per antenna
738 546	1 clamp	Mast: 50 – 115 mm diameter	1.0 kg	2
733 677	1 offset clamp	Mast: 60 – 115 mm diameter	2.0 kg	2
733 678	1 offset clamp	Mast: 115 – 210 mm diameter	2.6 kg	2
733 679	1 offset clamp	Mast: 210 – 380 mm diameter	4.0 kg	2
733 680	1 offset clamp	Mast: 380 – 521 mm diameter	5.3 kg	2
737 978	1 downtilt kit	Downtilt angle: depending on antenna height	2.8 kg	1

For a three sector panel arrangement, use the mounting kit type no. 742 113 together with the three sector clamp (see page 229). Three sector clamp 742 263 is not allowed.

F-Panel Accessories

Downtilt Kits and Slant Compensation Kit for F-Panels

Downtilt Kits with Type No. 737 ... are suitable for all F-Panels

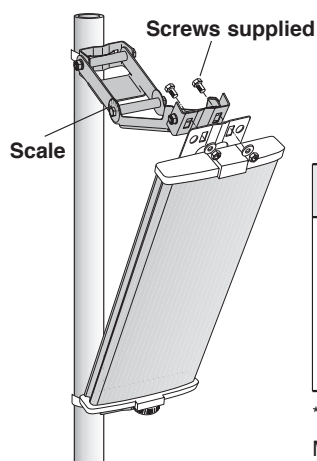


Use the downtilt kit together with the clamps (see page 236).

Antenna height	Downtilt angle	Downtilt kit with scale	Downtilt kit without scale*	Weight
		Type No.	Type No.	
342 mm	0° – 54°	–	737 978	approx. 2.8 kg
662 mm	0° – 30°	737 972		
982 mm	0° – 21°	737 973		
1302 mm	0° – 16°	737 974		
1622 mm	0° – 13°	–		
1942 mm	0° – 11°	737 975		
2582 mm	0° – 8°	737 971		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.
Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

Downtilt Kits with Type No. 732 ... are suitable for F-Panels until 1302 mm

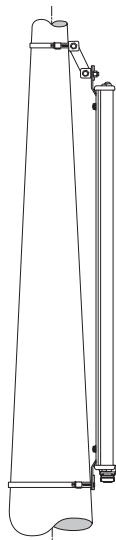


Use the downtilt kit together with the clamps (see page 236).

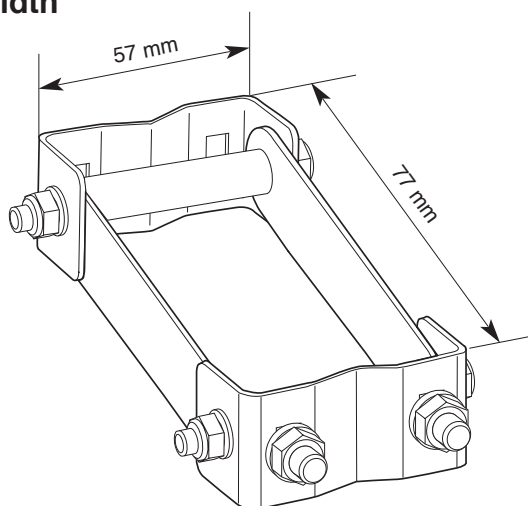
Antenna height	Downtilt angle	Downtilt kit with scale	Downtilt kit without scale*	Weight
		Type No.	Type No.	
342 mm	0° – 40°	–	732 327	approx. 1.0 kg
502 mm	0° – 25°	732 322		
662 mm	0° – 20°	732 321		
982 mm	0° – 14°	732 318		
1302 mm	0° – 10°	732 317		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.
Mounting a downtilt kit enlarges the spacing between mast and antenna by 42 mm.

Slant Compensation Kit Type No. 732 319
for F-Panels with 60° – 160° Half-power Beam Width



Use the slant compensation kit type no. 732 319 together with the clamps (see page 236).

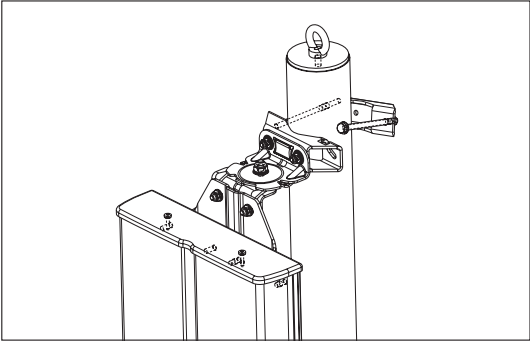


Weight: appr. 200 g

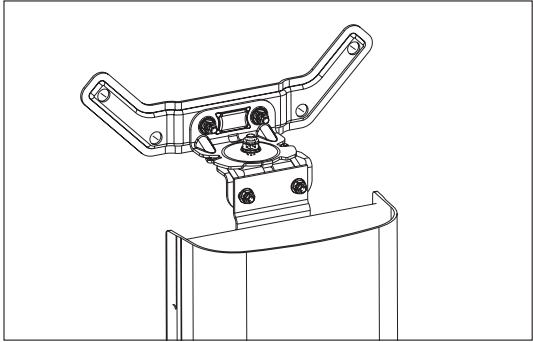
A-Panels / C-Panels / Eurocell Panels / F-Panels
KATHREIN

Antennen · Electronic

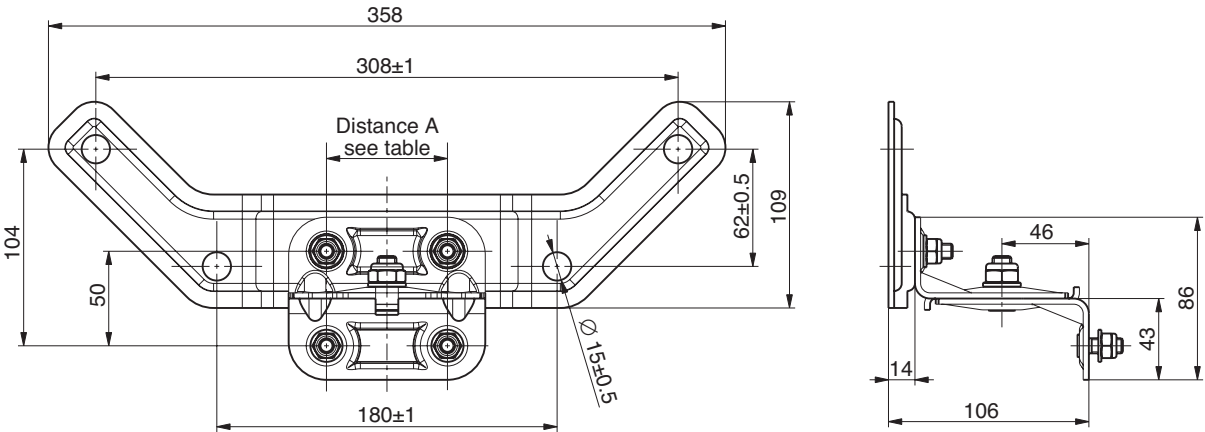
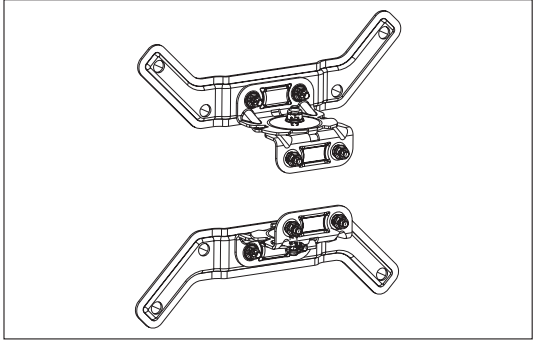
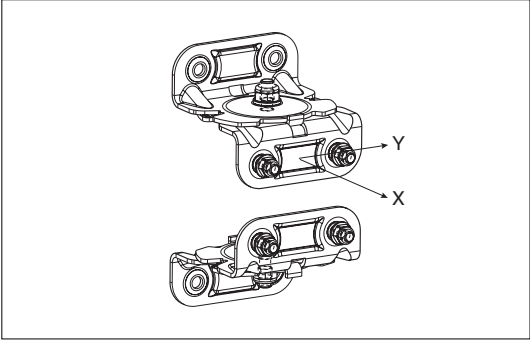
Mounting Hardware
Azimuth Adjustment Kits



Pole mounting



Wall mounting



The azimuth adjustment kit for pole mounting can be mounted with all suitable clamps, 3-Sector clamps and 2x A-/C-/F-Panel mounting kits (with the latter only as an interface between mounting kit and antenna).

Type No.	850 10014	850 10015	850 10016	850 10017
Suitable for	pole mounting		wall mounting	
Number of pieces	2 brackets	2 brackets	2 brackets	2 brackets
Distance between screws [A]	64 mm	72 mm	64 mm	72 mm
Angular range	± 30°		± 30°	
Weight	approx. 550 g	approx. 700 g	approx. 1050 g	approx. 1200 g
Supplied mounting accessories	all screws		Screws and dowels for wall fastening are not supplied, they must be chosen by installer according to on-site requirements.	
Materials	Parts are hot-dip galvanized steel; Captive nuts are stainless steel			
Max. permissible static load / kit				
– X direction	2150 N	5100 N	2150 N	5100 N
– Y direction	760 N	1350 N	760 N	1350 N

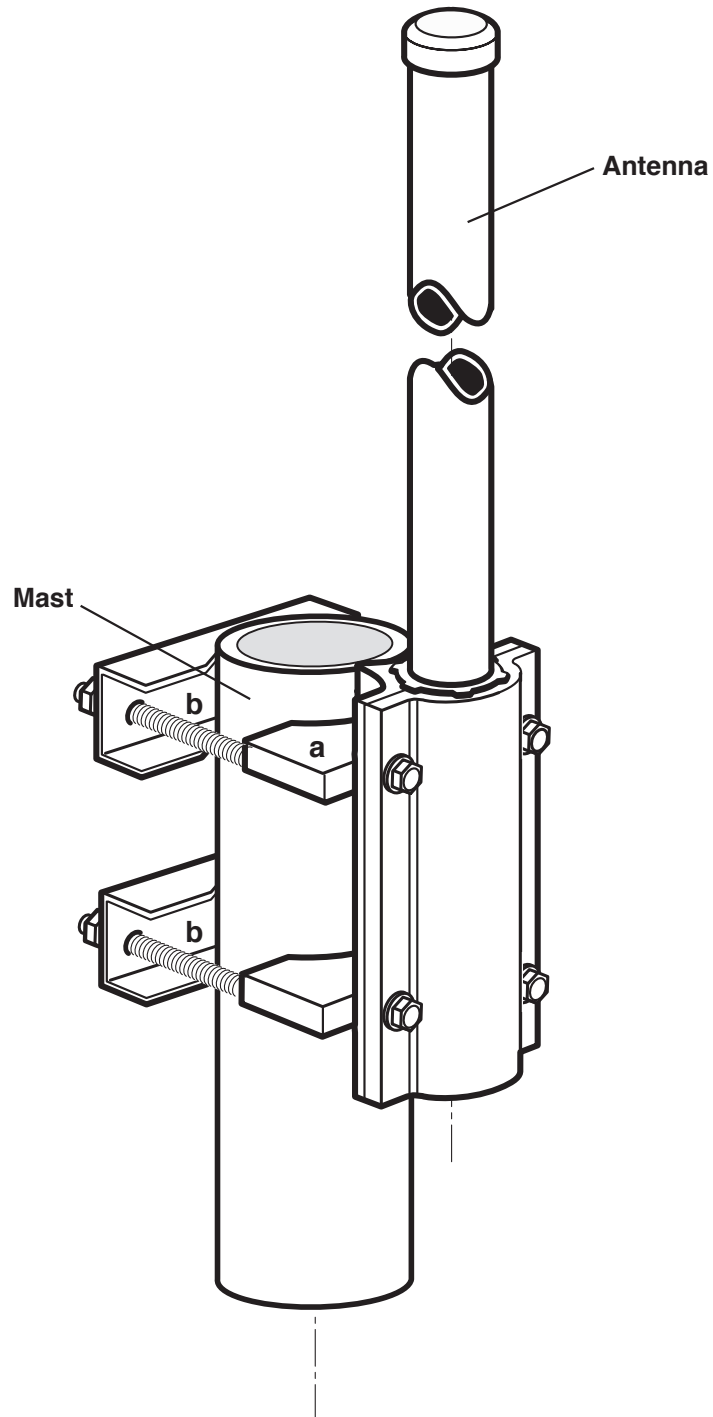
Recommended torque for all supplied screws: 20 Nm, MoS₂ greased

Side-mounting Clamp Omnidirectional Antennas Large Pipe

KATHREIN
Antennen · Electronic

Type No. 738 908

For mast diameters of 94 – 125 mm

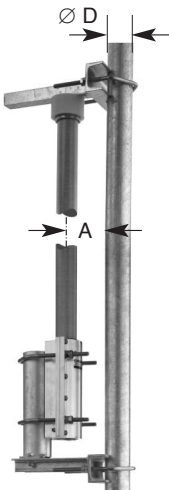


Side-mounting Bracket Omnidirectional Antennas

Type No. 737 398

Side-mounting bracket
(for mast diameters of 40 – 105 mm)

Type No.	737 398			
Bracket	At the top and at the bottom			
Fits for antenna type no:	800/900 MHz 736 347 736 348 736 349 736 350 736 351 738 664 738 192	1800 MHz 739 785 738 187 739 404 737 190	UMTS 741 790	Dual-band 800 10274



Side-mounting is possible for four fixed distances between the tubular mast and the antenna:

800/900 MHz (holes 1 and 3)			1800/2000 MHz (hole 2)																		
A = 100 mm = 0.3 λ A = 160 mm = 0.5 λ A = 240 mm = 0.75 λ Hole 3 Hole 1 Hole 3			A = 80 mm = 0.5 λ Bracket Antenna Antenna base Mast Bracket Hole 2																		
<table><tr><th>Pipe D</th><th>Horizontal Radiation Pattern</th><th>Spacing A Curve</th></tr><tr><td rowspan="3">40 mm</td><td rowspan="3"></td><td>100 mm</td></tr><tr><td>160 mm</td></tr><tr><td>240 mm</td></tr></table>	Pipe D	Horizontal Radiation Pattern	Spacing A Curve	40 mm		100 mm	160 mm	240 mm			<table><tr><th>Pipe D</th><th>Horizontal Radiation Pattern</th><th>Spacing A Curve</th></tr><tr><td rowspan="3">100 mm</td><td rowspan="3"></td><td>100 mm</td></tr><tr><td>160 mm</td></tr><tr><td>240 mm</td></tr></table>	Pipe D	Horizontal Radiation Pattern	Spacing A Curve	100 mm		100 mm	160 mm	240 mm		
Pipe D	Horizontal Radiation Pattern	Spacing A Curve																			
40 mm		100 mm																			
		160 mm																			
		240 mm																			
Pipe D	Horizontal Radiation Pattern	Spacing A Curve																			
100 mm		100 mm																			
		160 mm																			
		240 mm																			
			<table><tr><th>Pipe D Curve</th><th>Horizontal Radiation Pattern</th><th>Spacing A</th></tr><tr><td>40 mm</td><td rowspan="3"></td><td rowspan="3">80 mm</td></tr><tr><td>100 mm</td></tr><tr><td>100 mm</td></tr></table>	Pipe D Curve	Horizontal Radiation Pattern	Spacing A	40 mm		80 mm	100 mm	100 mm										
Pipe D Curve	Horizontal Radiation Pattern	Spacing A																			
40 mm		80 mm																			
100 mm																					
100 mm																					

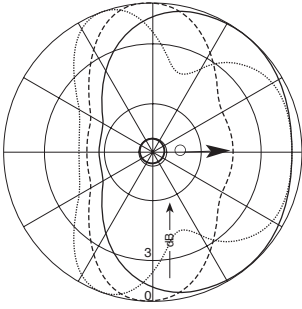
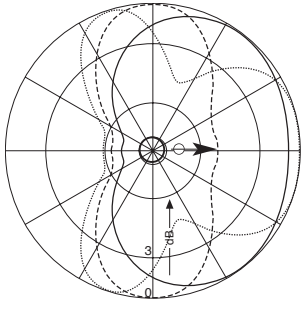
Side-mounting Brackets Omnidirectional Antennas 900

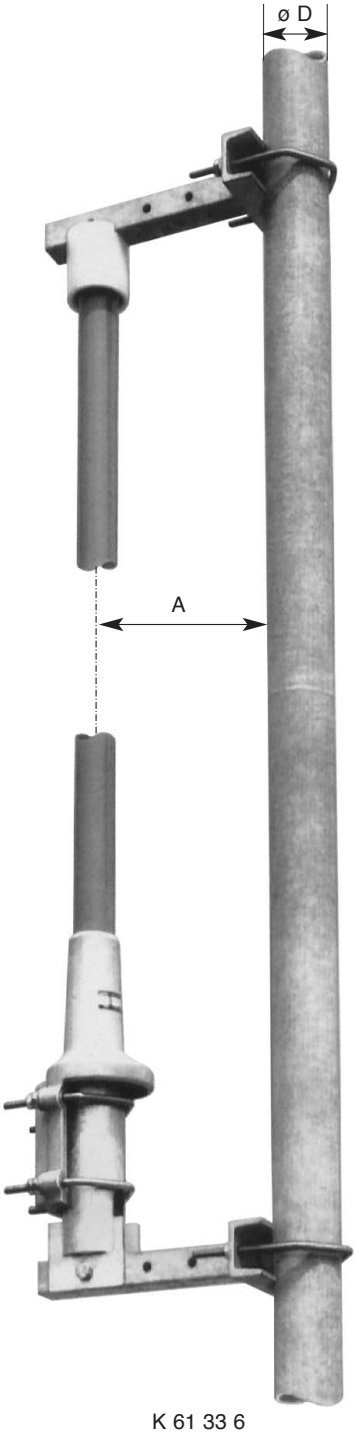
For mast diameters of 40 – 105 mm

Type No.	K 61 33 5	K 61 33 6
Bracket	at the bottom only	at both the top and the bottom
Fits for antenna type no.	K 75 11 6 .. K 75 15 6 ..	738 779 741 558

Side mounting is possible for three fixed distances between the tubular mast and the antenna:

100 mm = 0.3 λ
 160 mm = 0.5 λ
 240 mm = 0.75 λ

Pipe D	Horizontal Radiation Pattern	Spacing A Curve	Additional gain to the nominal value of the antenna gain
40 mm	 direction from mast to antenna →	100 mm	2 dB
		160 mm	3 dB
		240 mm	2 dB
100 mm	 direction from mast to antenna →	100 mm	2.5 dB
		160 mm	3.5 dB
		240 mm	2.5 dB



K 61 33 6

A-Panel / C-Panel / F-Panel / Eurocell Panel

Accessories

Azimuth Adjustment Tool

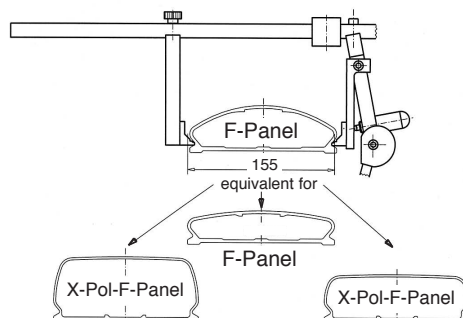
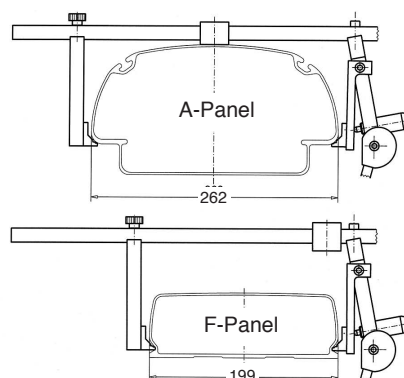
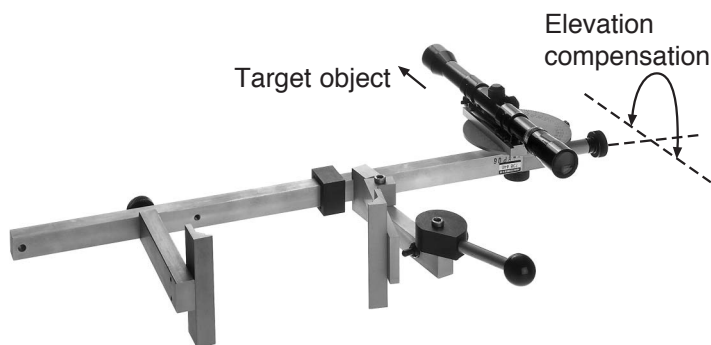
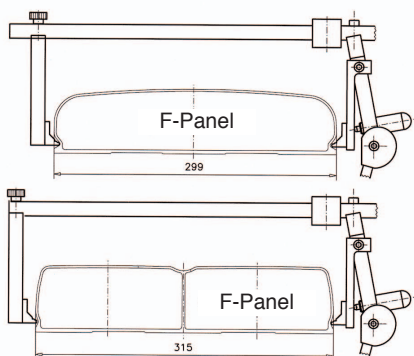
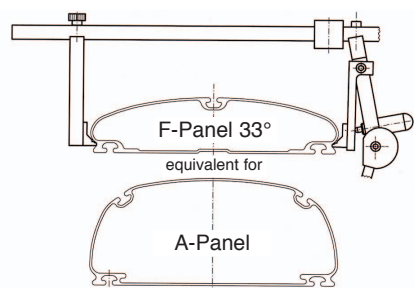
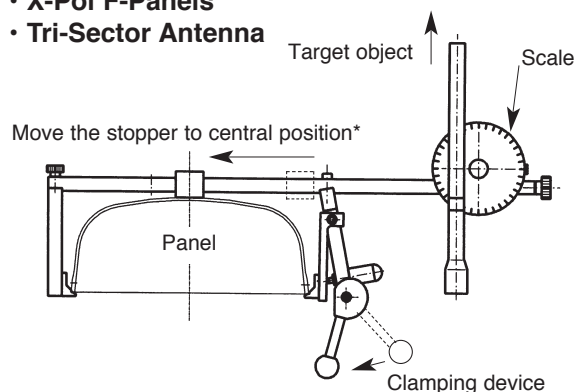
KATHREIN
Antennen · Electronic

Type No. 738 440

Precise azimuth adjustment for mast mounted antennas can easily be achieved by using the azimuth adjustment tool.

This tool is suitable to all types of Eurocell Panels

- Panels
- A-Panels
- C-Panels
- F-Panels
- X-Pol F-Panels
- Tri-Sector Antenna



Instruction:

- Use a map to work out the angle between the designed antenna azimuth and target (church, building, mountain peak).
- Set this angle on the scale of the adjustment tool.
- Place the adjustment tool onto the antenna and tighten the clamping device.
- Use the telescope to aim at the target object, if necessary, use elevation compensation.
- Then rotate the antenna until the target object appears in the telescope.

* Observe the position of the stopper when fitting the azimuth adjustment tool.

Kathrein Installation Tool for Triple-band Antennas Type No. 850 10005

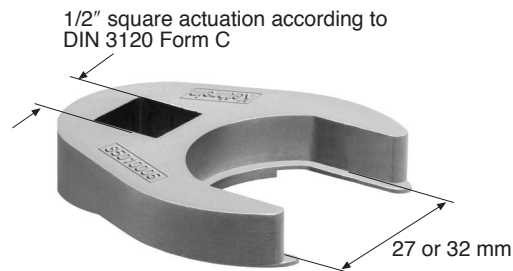
KATHREIN
Antennen · Electronic

Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Kathrein installation set: Type No. 850 10005

Set has to be ordered separately!

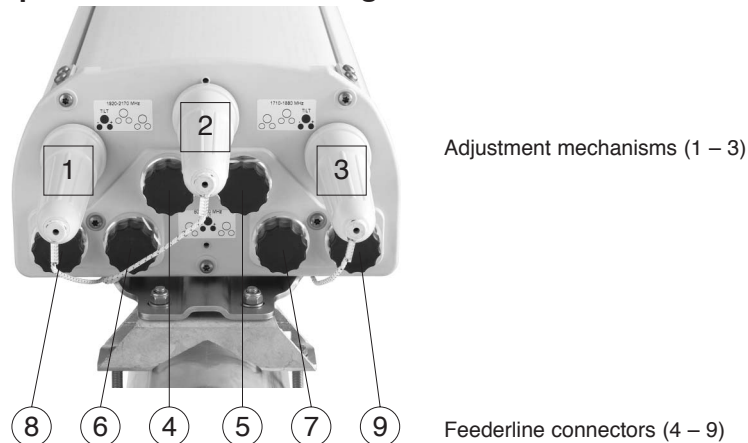
Set consists of two spanners of 27 and 32 mm width.



These tools are suitable for 7-16 connectors with a wrench size of 27 mm or 32 mm.

Tighten nut within a torque range of **25 – 33 Nm** depending on connector manufacturers' specifications.

Description of connector arrangement:



There are six feederline connectors and three adjustment mechanisms located at the bottom of the antenna.

For detailed information about feederline installation for Triple-band Antennas please refer to page 190.

Subsidiaries/Affiliates

• Australia

Maser Communications AUS Ltd.
9/15B Rodborough Rd, P.O. Box 6298
AUS NSW 2086 Frenchs Forest
Tel +61 2 94 52 60 62, Fax +61 2 94 52 63 40
info@maser.com.au

• Austria

KATHREIN-Vertriebs Ges. mbH
Gnigler Str. 56, 5020 Salzburg
Tel +43 662 87 55 31 32, Fax +43 662 87 83 449
salzburg@kathrein-gmbh.at

• Belgium

DELTRONIC N.V.S.A.
Merksemsesteenweg 40 B 2100 Deurne
Tel +32 3 360 3920, Fax +32 3 32 64 818
deltronic@deltronic.be

• Brazil

KATHREIN MOBILCOM BRASIL LTDA.
Rua das Baiadeliras, 280/290, 04675-210 São Paulo - SP
Tel +55 11 5685-4290, Fax +55 11 5685-4292
kathrein@kathrein.com.br

• Bulgaria

Marcotec Sofia Ltd.
17 Elemag, Str., BG 1113 Sofia
Tel +35 928 66 22 10, Fax +35 928 65 96 05
marcotec@cablebg.net

• China

KATHREIN China Ltd.
Suite 10A, 28 Floor, Cable TV Tower
9 Hoi Shing Road, PRC Hong Kong - Tsuen Wan, N.T.
Tel +852 24 92 05 98, Fax +852 24 92 35 18
mail@kathreinchina.com

• Czech Republic

AEC ELEKTROTECHNIKA spol s.r.o.
Na rovinách 6, CZ 14200 Prague/Praha 4
Tel +420 2 41 71 00 48, Fax +420 2 41 71 00 03
info@aec-eltech.cz

• Denmark

Intensa Danmark
Park Allé 287 A, DK 2605 Brøndby
Tel +45 70 22 42 28, Fax +45 70 22 62 28
bo@dk.intensa.se

• Estonia

Baltronic OY
Veerenni 52, EE 11313 Tallinn
Tel +37 26 99 67 90, Fax +37 26 99 67 99
baltronic@baltronic.com

• Finland

Intensa – Finland
PL 146, FI-00201 Helsinki
Tel +358 9 685 53730, Fax +358 9 685 53732
henrik.hanson@clinet.fi

• France

KATHREIN-France
B.P.51,7 Rue des Gardes
F 91371 Verrières le Buisson Cedex
Tel +33 16 95 36 453, Fax +33 16 95 36 454
kathrein@kathrein.fr

• Great Britain

Quadrant Connections Ltd.
Bridgefoot House, Watling Str.,
GB Radlett, Herts. WD7 7HT
Tel +44 19 23 85 14 00, Fax +44 19 23 85 75 67
sales@quadrant-ltd.co.uk

• Greece

Mortek Ltd.
9, Saint Andrews Str., GR 17122 New Smyrna, Athens
Tel +30 10 94 08 601, Fax +30 10 94 08 148
mortek@hol.gr

• Hungary

Rakotrade Kft
Guyon Richard U. 13, H 1026 Budapest
Tel +36 12 00 69 68, Fax +36 12 00 69 71
rakotrade@t-online.hu

• India

KATHREIN India Private Limited
4-B4, 3rd Floor, Industry Manor, Prabhadevi
IND 400 025 Mumbai, Bombay
Tel +91 22 66 52 66 00, Fax +91 22 66 52 66 99
sales@kathrein.co.in

• Iceland

Smith & Norland
P.O. Box 519, IS 121 Reykjavik
Tel +35 45 20 30 00, Fax +35 45 20 30 11
halldordh@sminor.is

• Iran

TELECOM ARYAN
First Floor, No. 45, Parvin St., IR 1966813973 Tehran
Tel +9821 204 7954-5, Fax +9821 201 5273
info@telecomaryan.com

• Israel

ABAMCO Ltd.
P.O. Box 278, IL 27036 Kiryat Bialik
Tel +972 48 70 77 85, Fax +972 48 70 02 83
abam@netvision.net.il

• Italy

SIRA Sistemi Radio
Via Senatore Simonetta, 26, I 20040 Caponago, MI
Tel +39 02 95 96 11, Fax +39 02 95 96 13 11
info@sira.mi.it

• Japan

Sumisho Machinery Trade Corp
Telecommunication Project Division
Triton Square Office Tower Z 21F, 1-8-12,
Harumi, Chuo-ku, JP Tokyo 104-6222
Tel +81 35 14 49 234, Fax +81 35 14 49 296
taketsugu.kimura@sumitomocorp.co.jp

• Jordan

Moseco Jordan
P.O. Box 1914, HKJ 11941 Amman
Tel +962 6 462 16 21, Fax +962 6 462 52 85
moseco@moseco.com.jo

• Korea

KATHREIN ASIA Seoul Co., Ltd.
1120 Ho, Hyundai Ventureville 713 Suseo-dong,
KangNam-Gu ROK
135-539 Seoul
Tel + 82 2 2040 70 –15 8, Fax + 82 2 2040 7018
kathrein@kathrein.co.kr

• Latvia

SIA Baltronic
3 Smerla str., office 270
LV 1006 Riga
Tel +371 752 99 30, Fax +371 781 62 44
gundars@baltronic.com

• Lithuania

UAB Baltronic Vilnius
Zemaites g.21, Lit. 2600 Vilnius
Tel +370 61 29 42 80, Fax +370 2 31 06 23
baltronic@baltronic.com

• Malaysia

KATHREIN SEA (M) SDN BHD
No.16-2, Jalan USJ 21/6,UEP Subang Jaya
47630 Subang Jaya / Selangor Darul Ehsan
Tel +60 3 8024 8089 / 9089, Fax +60 3 8024 7089
kathrein@kathreinmalaysia.com

• Middle East

KATHREIN Middle East FZCO-Reg.: 1069
P.O.: 293607
DAFZA-Dubai Airport, U.A.E.
Tel +971 (0)42045040, Fax +971 (0)42045042
Contact@kathrein.ae

• Netherlands

Hutronic Telecommunicatie BV
Johan van Oldenbarneveltlaan 44, NL-3705 HH Zeist
Tel +31 30 699 91 00, Fax +31 30 221 33 30
info@hutronic.nl

• New Zealand

Maser Communications NZ Ltd.
6A Piemark Drive, P.O. Box 302-225, North Harbour,
Auckland
Tel +64 94 14 03 30, Fax +64 94 14 03 31
info@maser.co.nz

• Norway

TINEX AS
Postboks 55, N-1306 Baerum Postterminal
Durudveien 37–39, N-1346 Gjettem
Tel +47 67 80 84 90, Fax +47 67 80 84 99
mail@tinex.no

• Poland

KATHREIN Poland SP.ZO.O
Ul Bokszerska 64, 02-690 Warszawa
Tel +48 22 420 21 22, Fax +48 22 420 21 11
info@kathrein.pl

• Portugal

REDEL, S.A.
Rua Domingos José Morais, n° 61, 2° Dt.°
2685-046 Sacavém
Tel +351 210 189 140, Fax +351 210 189 141
geral@redtel.pt

• Qatar

MOSECO Qatar
Murghab aljaded, Alnaseer St
P.O. Box: 5406, Doha, Qatar
Tel +974 4363911, Fax: +974 4365142
moseco@qatar.net.qa

• Romania

ROMKATEL S.R.L.
Str. Dristor, no. 5, bloc A 20, scara 2, parter, apt. 16,
RO 31531 Bucharest
Tel +40 2 13 22 74 40, Fax +40 2 13 20 44 08
office@romkatel.ro

• Russia

RC & C Ltd.
Ul. Suscevsckaya, Dom 9, Str. 4, 127055 Moscow
Tel +74 95 744 1070, Fax +74 95 972 4200
info@rkk.ru

• Saudi Arabia

Bazy
Omar Ibn Abdul Aziz Road, KSA 11486 Riyadh
Tel +966 14 76 77 70, Fax +966 14 79 36 47

• Serbia

PANOS engineering d.o.o.
Vojvodjanskih brigada 17
SCG 21000 Novi Sad
Tel + 381 21 472 0644, Fax + 381 21 472 0692
office@panos.co.yu

• Slovenia

SKYLINE d.o.o.
Celovska 150
SI 1000 Ljubljana
Tel ++386 1 500 5001, Fax ++386 1 500 5005
pa@skyline.si

• South Africa

KATHREIN-South Africa (Pty) Ltd.
Annandale Road, off R44
Stellenbosch, 7600
Tel +27 (0)21 881 8200, Fax +27 (0)21 881 8201
kathrein@kathrein.co.za

• Spain

ESB SISTEMAS España S.L.
C/ Plaza Avilés, 13
46988 Pol. Industrial Fte. Del Jarro. Paterna (Valencia)
Tel +34 96 134 07 97, Fax +34 96 134 08 00
esb@esbsistemas.com

• Sweden

ab Intensa
Box 1253, SE-18124 Lidingö
Tel +46 8 76 70 195, Fax +46 8 76 52 256
intensa@intensa.se

• Switzerland

BONANOMI AG
Motorenstraße 23, 8623 Wetzikon
Tel +41 1 931 01 80, Fax +41 1 931 01 82
bonanomi.ag@bluewin.ch

• Thailand

KATHREIN Indochina Co. Ltd.
17/151 Moo 1 Sukonthasawat Road
Latphrao District, Latphrao, Bangkok 10230
Tel +66 2 57 88 30 03, Fax +66 25 70 92 89
chavawin@cscoms.com

• Turkey

Kure Elektronik Ltd. Sti
Çınar Sok. Emlak Bankasy Apt. No:1, Kat:9 D:36
4.Levent, TR Istanbul
Tel +90 21 22 84 19 79, Fax +90 21 22 84 04 50
info@kureworld.com

• Ukraine

Selteq
29-V, Timoshenka ul. 42, UA 04205 Kiev
Tel +380 4 44 68 73 69, Fax +380 4 44 68 73 69
elov@selteq.com

• USA

KATHREIN Inc., Scala Division
P.O. Box 4580, USA Medford, OR 97501
Tel +1 54 17 79 65 00, Fax +1 54 17 79 77 53
communications@kathrein.com

Status: October 2006

For every other region, please contact:

Head Office - KATHREIN-Werke KG
Anton-Kathrein-Straße 1-3
P.O. Box 10 04 44
D-83004 Rosenheim/Germany

Please contact for:

Sales queries, orders, catalogues or CD-ROMs:

Fax: +49 8031 184 820
Email: central.sales@kathrein.de

Technical Information:

Fax +49 8031 184 973
Email: antennen.mobilcom@kathrein.de

Internet: <http://www.kathrein.de>

KATHREIN-Werke KG · Phone +49 80 31 184-0 · Fax +49 80 31 184-494
Anton-Kathrein-Straße 1 – 3 · P.O. Box 10 04 44 · D-83004 Rosenheim · Germany

KATHREIN

Antennen · Electronic