

790 - 2500 MHz Base Station Antennas for Mobile Communications

catalogue 2006



KATHREIN

Antennen · Electronic

Photo on title page: New products for UMTS networks.

Catalogue Issue 01/2006

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.

**GSM 900
GSM-R
GSM 850
CDMA 800**

XPol

VPol

**GSM 1800
GSM 1900
PCS**

XPol

XXPol Dual-band

VPol

UMTS

**XPol Multi-band /
Tri-Sector Pipe Antennas**

XXPol 2-Multi-band

XXPol Dual-band

XXXPol Triple-band

VPol Single-/Multi-band

Omni

VPol

Indoor

VPol

RET

Remote Electrical Tilt-System

Electrical Accessories

**Splitters / Tappers
Filter Products**

Mechanical Accessories

Clamps, Downtilt Kits, ...

An actual list of Kathrein's International Representatives
you will find on the homepage

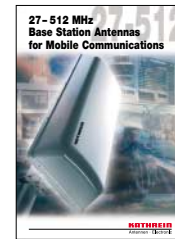
www.kathrein.de

List of available Catalogues for Mobile Communication Antennas and Accessories

790 – 2500 MHz Base Station Antennas for Mobile Communications



27 – 512 MHz Base Station Antennas for Mobile Communications



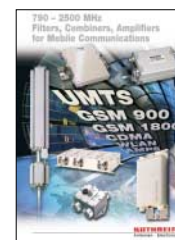
Ground-to-Air Communication Antennas



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

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The articles are listed by type number in numerical order.

Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
730 ...		734 361	220	737 975	215 ...	739 649	40
730 368	51	734 362	220	737 976	216	739 650	42
730 376	54	734 363	220	737 978	215 ...	739 655	39
730 378	56	734 364	220			739 658	37
730 380	57	734 365	220	738 ...		739 660	40
730 382	58			738 187	150	739 662	44
730 677	51	735 ...		738 192	142	739 664	38
730 691	52	735 147	80	738 440	227	739 665	41
		735 727	48	738 445	130	739 666	45
731 ...				738 446	130 ...	739 684	24
731 651	212	736 ...		738 449	145 ...	739 685	32
		736 347	143	738 450	138 ...	739 686	36
732 ...		736 349	144	738 454	152 ...	739 695	64
732 317	223	736 350	141	738 546	212 ...	739 707	65
732 318	223	736 854	55	738 908	224	739 710	65
732 319	223	736 855	55			739 785	149
732 321	223	736 801	196 ...	739 ...		739 854	53
732 322	223	736 802	196 ...	739 489	89	739 927	60
732 327	223	736 803	196 ...	739 490	61		
732 689	54	736 804	196 ...	739 491	61	741 ...	
732 691	52	736 805	196 ...	739 494	62	741 316	68
732 967	56			739 495	62	741 320	69
		737 ...		739 496	63	741 322	72
733 ...		737 190	151	739 498	63	741 324	74
733 677	212	737 303	197	739 619	17	741 326	70
733 678	212	737 304	197	739 620	17	741 327	73
733 679	212	737 305	197	739 622	19	741 328	75
733 680	212	737 306	197	739 623	27	741 336	76
733 695	49	737 307	197	739 624	33	741 344	77
733 736	49 ...	737 308	197	739 630	33	741 572	159
		737 398	225	739 632	19	741 573	158
734 ...		737 547	53	739 633	23	741 622	31
734 304	80	737 971	216	739 634	29	741 623	60
734 318	81	737 972	215 ...	739 636	35	741 717	14
734 330	81	737 973	215 ...	739 637	35	741 785	15
734 360	220	737 974	215 ...	739 648	37	741 790	153

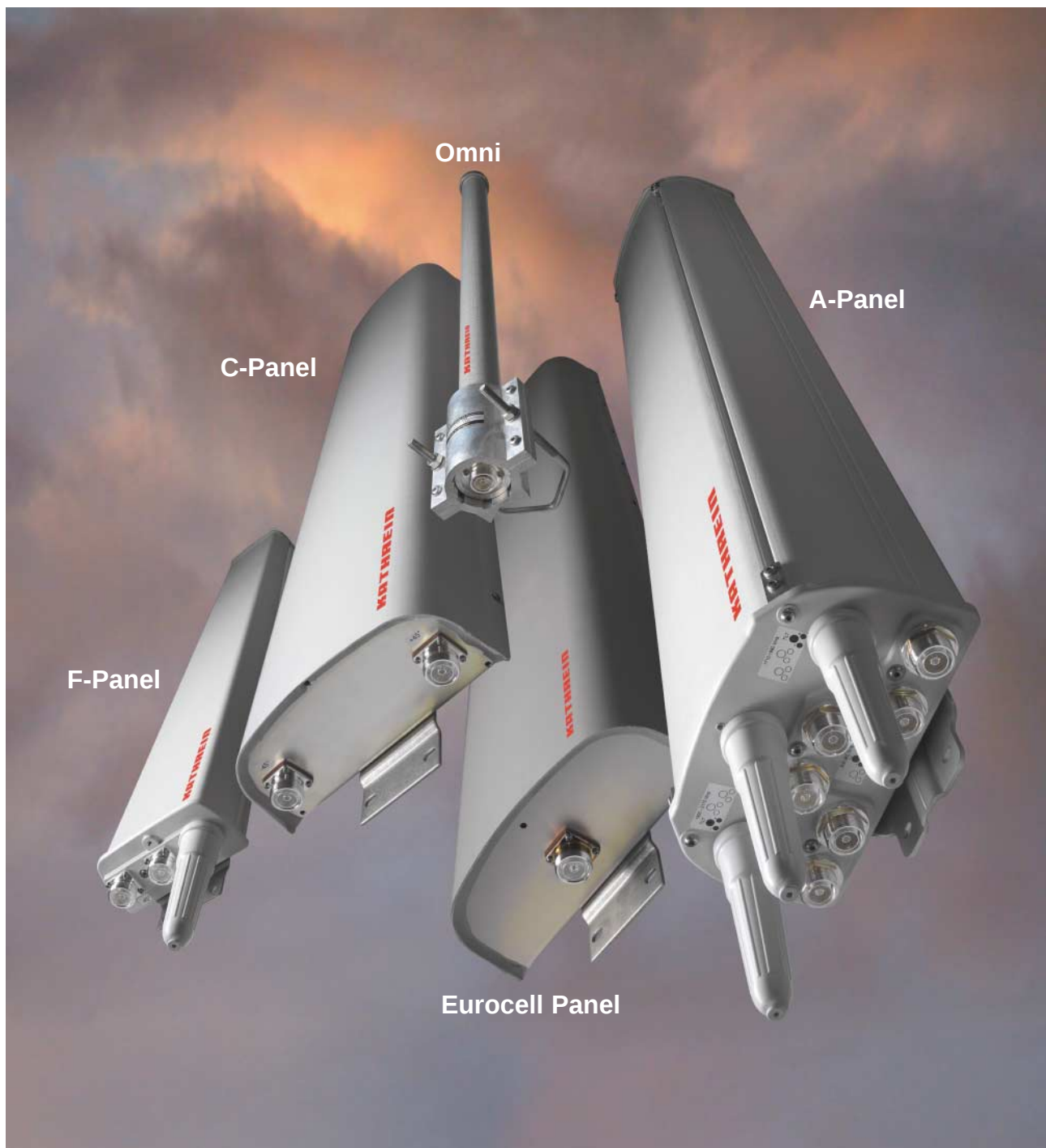
Summary of Types

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
741 794	94	742 271	125	800 10271	102	860 10046	181
741 984	96	742 272	126	800 10274	147	860 10068	178
741 987	97	742 290	134	800 10292	128	860 10078	183
741 988	98	742 351	85	800 10293	28	860 10079	183
741 989	99	742 352	112	800 10294	30	860 10084	183
741 990	100	742 445	132	800 10302	16	860 10090	183
				800 10303	25		
742 ...		782 ...		800 10304	22	K 61 ...	
742 033	213	782 10147	187	800 10305	21	K 61 14 02	48
742 034	213	782 10148	188	800 10360	103	K 61 14 03	48 ...
742 035	213	782 10253	189	800 10368	133	K 61 14 04	48 ...
742 036	213	782 10254	189	800 10375	104	K 61 14 05	48 ...
742 047	78	782 10255	189			K 61 33 5	226
742 113	222	782 10256	189	850 ...		K 61 33 6	226
742 151	71	782 10429	190	850 10002	212 ...		
742 192	131			850 10003	212 ...	K 63 ...	
742 196	92	800 ...		850 10005	176 ...	K 63 20 62 1	196
742 210	88	800 10046	135	850 10006	214	K 63 20 62 7	196
742 211	90	800 10111	148	850 10007	217	K 63 23 60 01	201
742 213	95	800 10121	120	850 10010	105	K 63 23 60 67	200
742 215	93	800 10122	121			K 63 23 61 07	200
742 218	86	800 10123	122	860 ...		K 63 23 61 57	200
742 219	87	800 10137	159	860 10002	184		
742 222	115	800 10141	14	860 10006	180	K 73 ...	
742 223	117	800 10147	146	860 10007	182	K 73 22 67	50
742 226	114	800 10173	160	860 10017	198	K 73 45 64 7	49
742 233	108	800 10202	18	860 10018	198		
742 234	109	800 10203	26	860 10019	198	K 75 ...	
742 235	111	800 10204	34	860 10020	199	K 75 11 61	139
742 236	110	800 10207	20	860 10021	199	K 75 15 64 1	140
742 241	127	800 10213	43	860 10022	199		
742 263	221	800 10247	91	860 10023	201		
742 264	116	800 10248	157	860 10025	177		
742 265	118	800 10249	161	860 10026	180		
742 266	119	800 10251	84	860 10030	185		
742 270	124	800 10270	101	860 10031	186		



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 standard, are compliant with the standard.

Downtilting of Antennas:

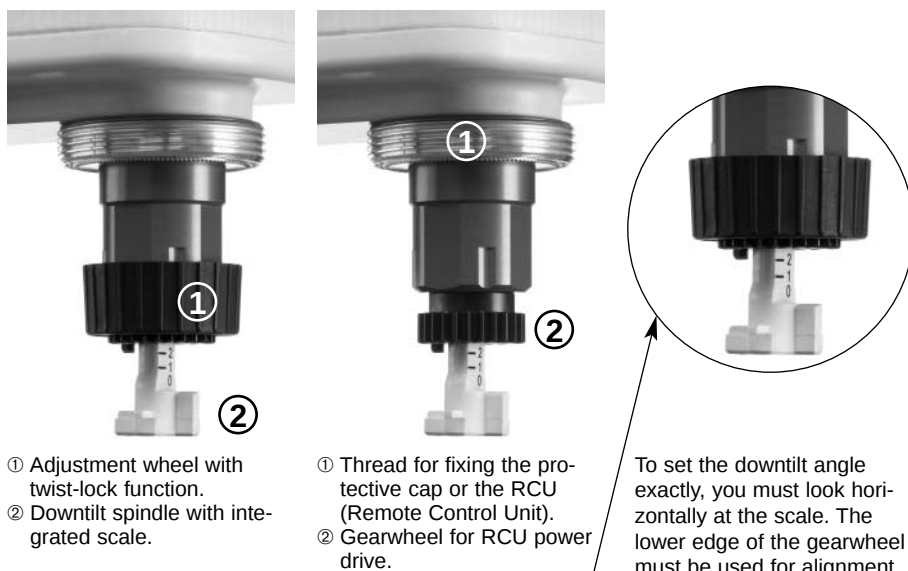
Downtilt Possibilities

Mechanical downtilt

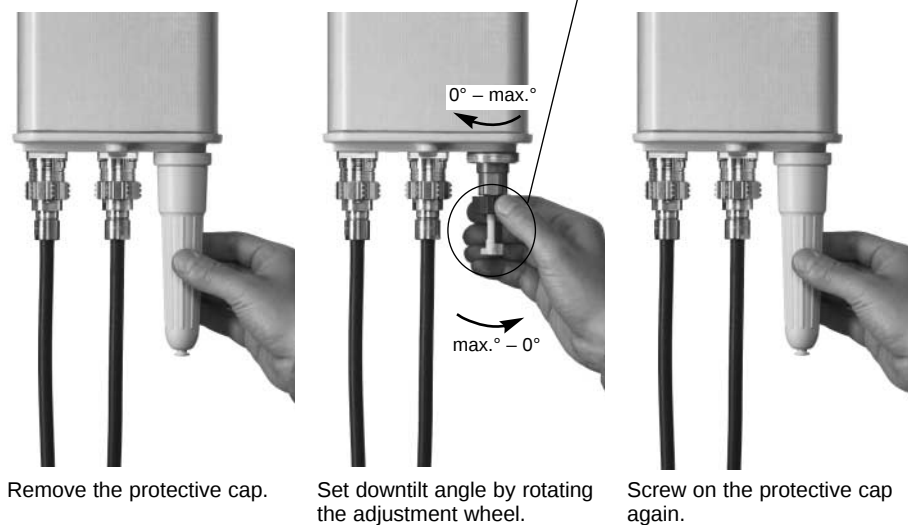
For further technical information please see “Mechanical Accessories”, pages 215 and 223.

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 168...

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

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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	739 632	1296	bottom	19
XPol C-Panel	806–960	65°	15dBi	800 10207	1294	bottom	20
XPol C-Panel	806–960	65°	17.5dBi	800 10305	2254	rearside	21
XPol C-Panel	806–960	65°	16.3dBi	800 10304	1694	rearside	22
XPol A-Panel	806–960	65°	15dBi	739 633	1296	bottom	23
XPol A-Panel	806–960	65°	15dBi	739 684	1296	bottom	24
XPol C-Panel	806–960	65°	15dBi	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	800 10293	1934	rearside	28
XPol A-Panel	806–960	65°	17dBi	739 634	1936	bottom	29
XPol C-Panel	806–960	65°	17dBi	800 10294	1934	rearside	30
XPol A-Panel	824–960	65°	17dBi	741 622	1936	bottom	31
XPol A-Panel	824–960	65°	16.5dBi	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	739 636	2580	bottom	35
XPol A-Panel	806–960	65°	18dBi	739 637	2580	bottom	35
XPol A-Panel	806–960	65°	17.5dBi	739 686	2580	bottom	36
XPol A-Panel	806–960	90°	13.5dBi	739 648	1296	bottom or top	37
XPol A-Panel	806–960	90°	13.5dBi	739 658	1296	bottom	37
XPol A-Panel	824–960	88°	13.5dBi	739 664	1296	bottom	38
XPol A-Panel	870–960	90°	15.5dBi	739 655	1936	bottom or top	39
XPol A-Panel	806–960	88°	15.5dBi	739 649	1936	bottom or top	40
XPol A-Panel	806–960	88°	15.5dBi	739 660	1936	bottom	40
XPol A-Panel	806–960	88°	15dBi	739 665	1996	bottom	41
XPol A-Panel	806–960	88°	17dBi	739 650	2580	bottom or top	42
XPol C-Panel	806–960	88°	17dBi	800 10213	2254	rearside	43
XPol A-Panel	806–960	88°	17dBi	739 662	2580	bottom	44
XPol A-Panel	806–960	88°	16dBi	739 666	2580	bottom	45

New Products

A-Panel

Dual Polarization

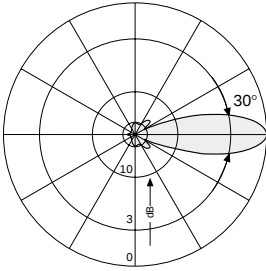
Half-power Beam Width

800/900
X
30°

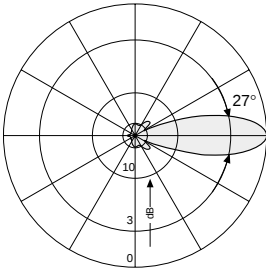
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XPol A-Panel 870–960 30° 15.5dBi

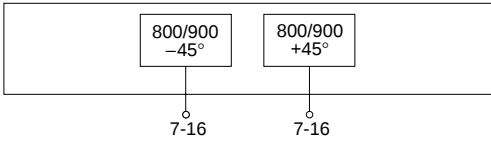
Type No.	741 717
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power 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

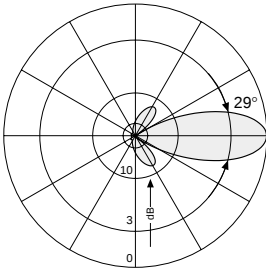


Vertical Pattern

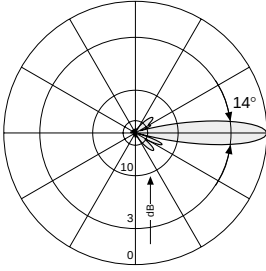


XPol A-Panel 806–960 30° 18.5dBi

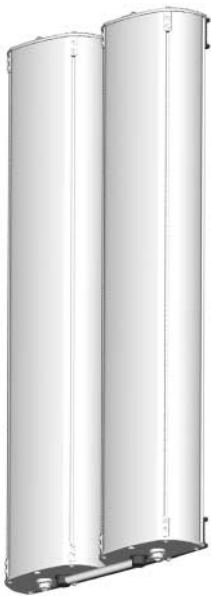
Type No.	800 10141	
Frequency range	806 – 894 MHz	880 – 960 MHz
	806–960	
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 31° Vertical: 15°	Horizontal: 29° Vertical: 14°
Front-to-back ratio, copolar	> 25 dB	> 29 dB
Isolation	> 30 dB	> 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

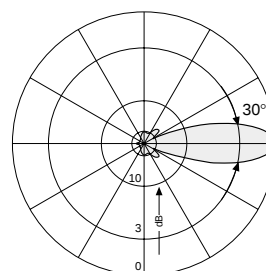
30°

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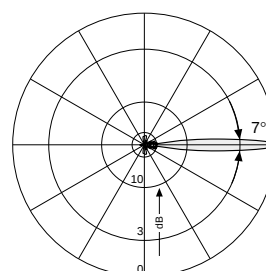
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XPol A-Panel 870–960 30° 21dBi

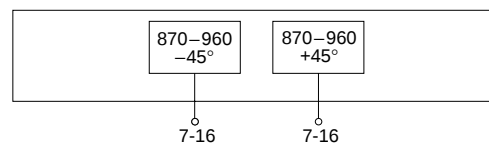
Type No.	741 785
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 21 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 7°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per 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°

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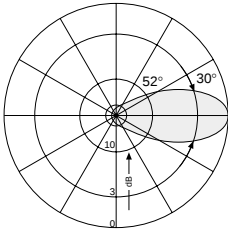
Antennen · Electronic

XPol C-Panel 806–960 33° 21dBi 0°T

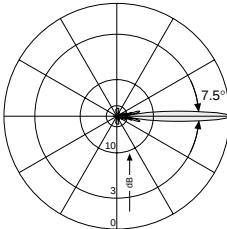
Type No.	800 10302		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.4 dBi	2 x 20.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 34° Vertical: 8.5°	Horizontal: 33° Vertical: 8.2°	Horizontal: 30° Vertical: 7.5°
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

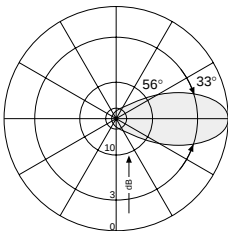


Horizontal Pattern

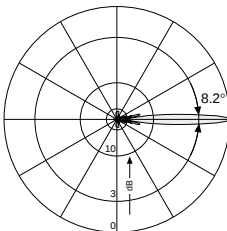


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

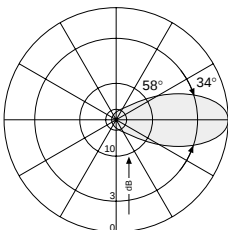


Horizontal Pattern

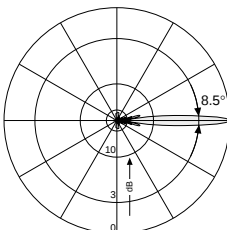


Vertical Pattern

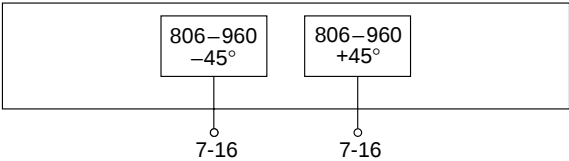
806 – 866 MHz: +45°/–45° Polarization



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

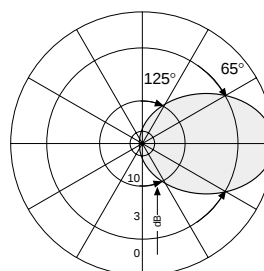
65°

KATHREIN

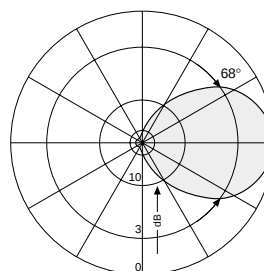
Antennen · Electronic

XPol A-Panel 806–960 65° 9dBi

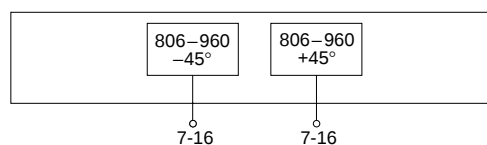
Type No.	739 619	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 70°	Horizontal: 65° Vertical: 68°
Front-to-back ratio, copolar	> 27 dB	> 27 dB
Cross polar ratio Maindirection Sector	0° ±60° Typically: 25 dB > 10 dB	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

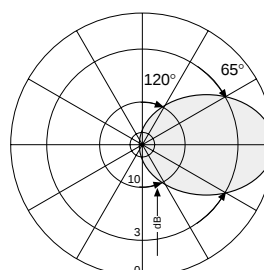


Vertical Pattern

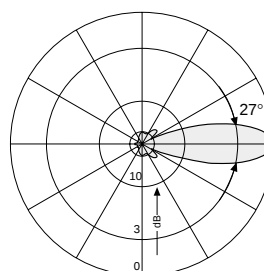


XPol A-Panel 806–960 65° 12.5dBi

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

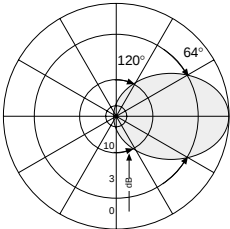
Antennen · Electronic

XPol C-Panel 806–960 65° 15.5dBi 0°T

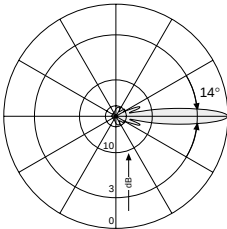
Type No.	800 10202		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 15.5°	Horizontal: 66° Vertical: 14.8°	Horizontal: 64° Vertical: 14°
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

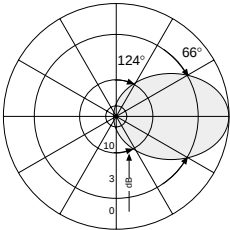


Horizontal Pattern

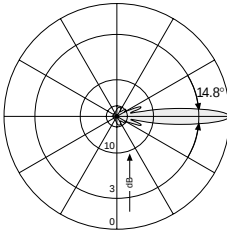


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

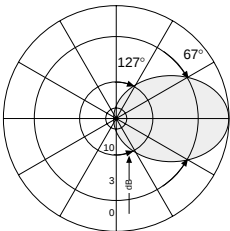


Horizontal Pattern

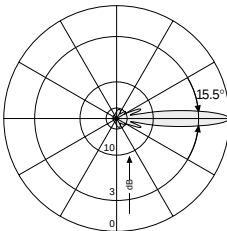


Vertical Pattern

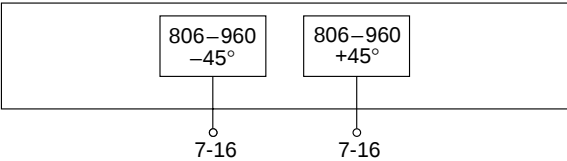
806 – 866 MHz: +45°/–45° Polarization



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

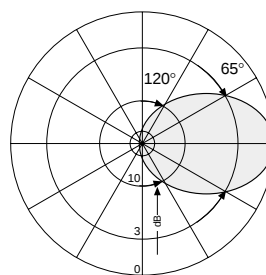
65°

KATHREIN

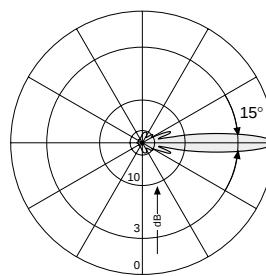
Antennen · Electronic

XPol A-Panel 806–960 65° 15.5dBi

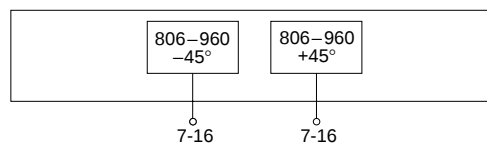
Type No.	739 622	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 15°
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	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

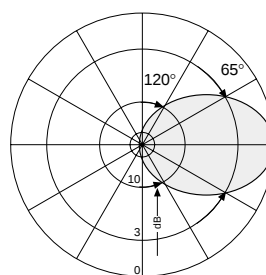


Vertical Pattern

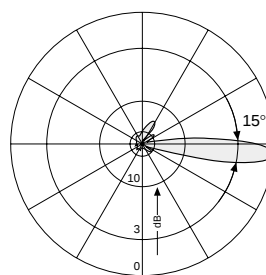


XPol A-Panel 806–960 65° 15dBi 6°T

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

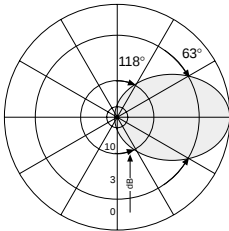
Antennen · Electronic

XPol C-Panel 806–960 65° 15dBi 6°T

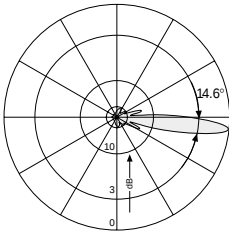
Type No.	800 10207		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 14.7 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 16°	Horizontal: 65° Vertical: 15.7°	Horizontal: 63° Vertical: 14.6°
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 Sector	0° 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

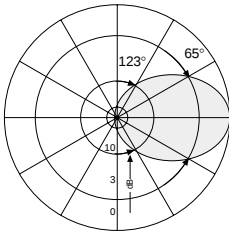


Horizontal Pattern

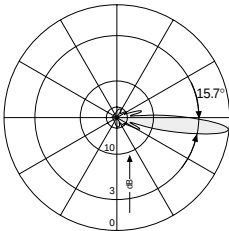


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

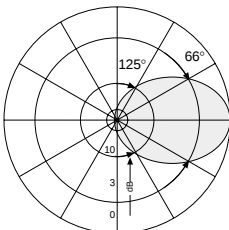


Horizontal Pattern

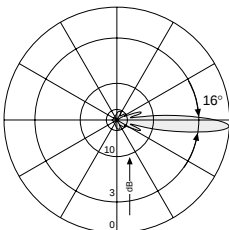


Vertical Pattern
6° electrical downtilt

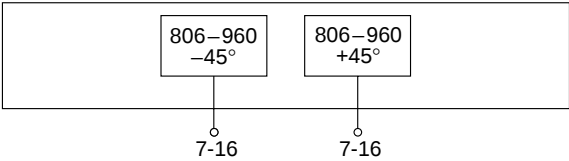
806 – 866 MHz: +45°/–45° Polarization



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

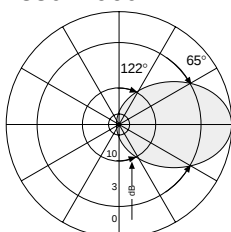
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set by hand or by optional RCU (Remote Control Unit)

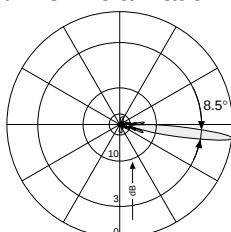
XPol C-Panel 806–960 65° 17.5dBi 0°–8°T

Type No.	800 10305		
Frequency range	806–960		
	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	Horizontal: 69°	Horizontal: 67°	Horizontal: 65°
Copolar +45°/–45°	Vertical: 9.1°	Vertical: 8.8°	Vertical: 8.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	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	0°	Typically: 25 dB	Typically: 25 dB
Sector	±60°	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

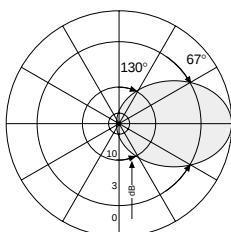


Horizontal Pattern

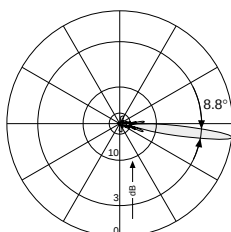


Vertical Pattern
0°–8° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

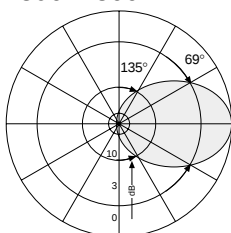


Horizontal Pattern

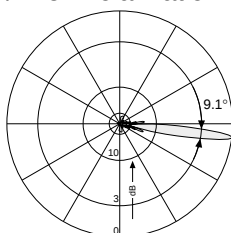


Vertical Pattern
0°–8° electrical downtilt

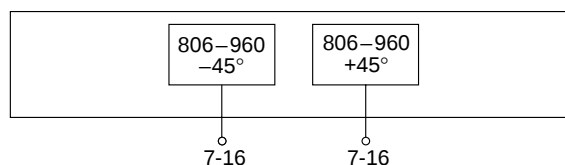
806 – 866 MHz: +45°/–45° Polarization



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

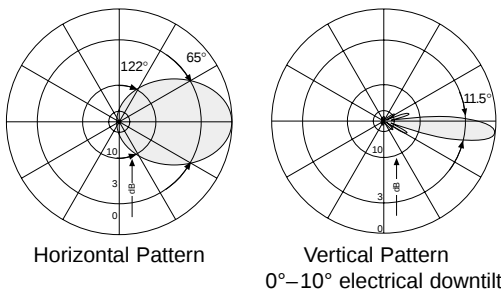
806-960
X
65°
0°-10°

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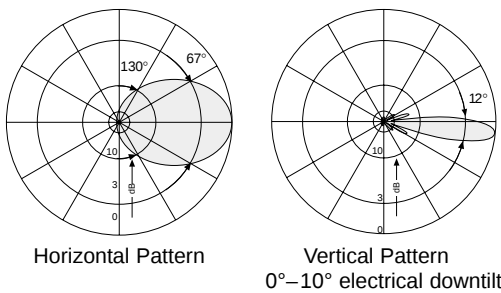
Type No.	800 10304		
Frequency range	806 - 866 MHz	824 - 894 MHz	880 - 960 MHz
Polarization	+45°, -45°	+45°, -45°	+45°, -45°
Average gain (dBi)	15.6 ... 15.8 ... 15.5	15.7 ... 16.1 ... 15.7	16 ... 16.3 ... 15.9
Tilt	0° ... 5° ... 10°	0° ... 5° ... 10°	0° ... 5° ... 10°
Half-power beam width Copolar +45°/-45°	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 ... 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)		



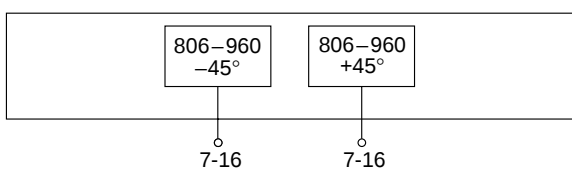
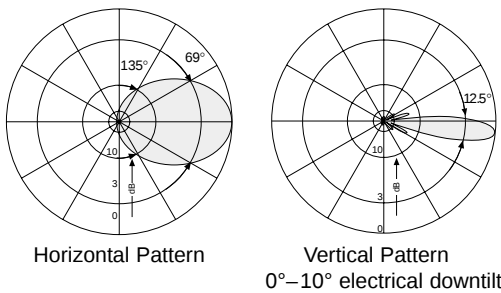
880 - 960 MHz: +45°/-45° Polarization



824 - 894 MHz: +45°/-45° Polarization



806 - 866 MHz: +45°/-45° Polarization



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

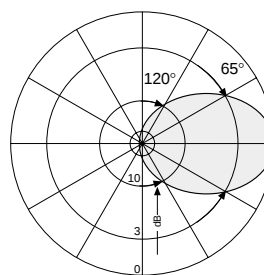
65°

KATHREIN

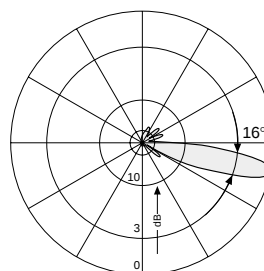
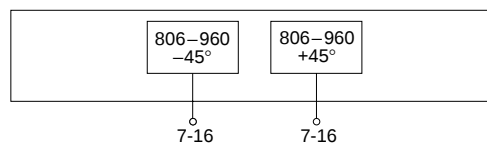
Antennen · Electronic

XPoI 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°

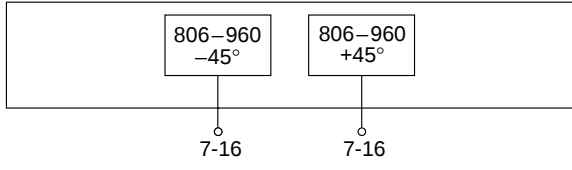
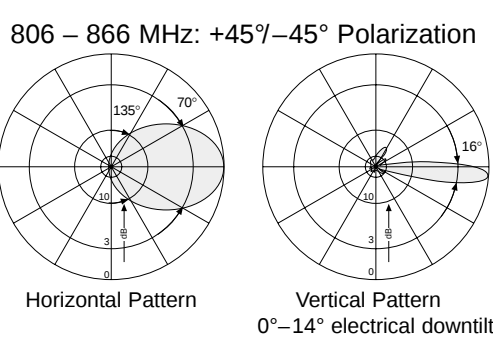
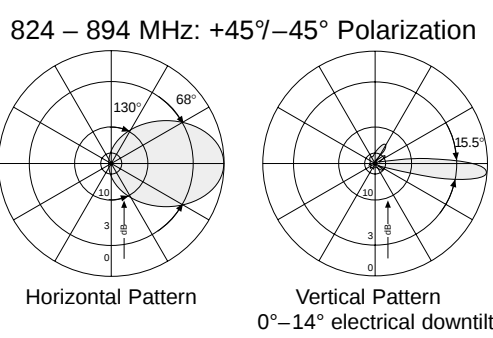
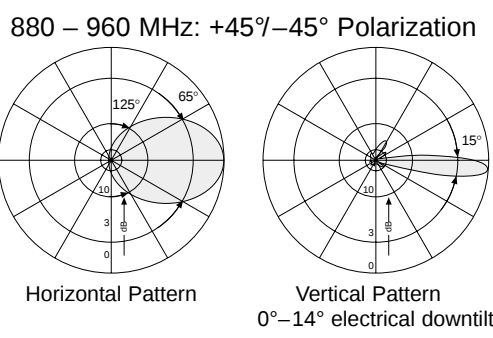
0° – 14°

KATHREIN

Antennen · Electronic

XPol 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°
Sidelobe suppression for sector 0°–30° above horizon	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)		



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

806–960

X

65°

0°–14°

KATHREIN

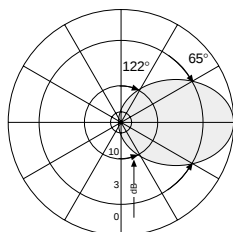
Antennen · Electronic

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

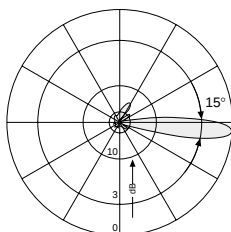
XPol C-Panel 806–960 65° 15dBi 0°–14°T

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° ±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

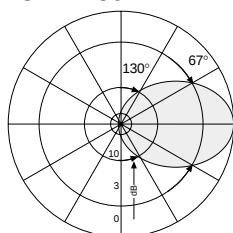


Horizontal Pattern

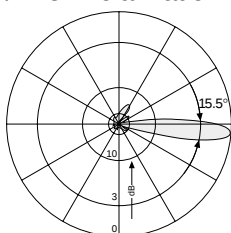


Vertical Pattern
0°–14° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

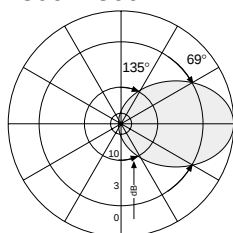


Horizontal Pattern

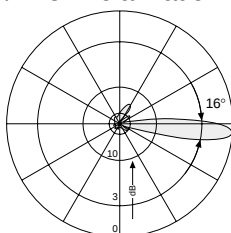


Vertical Pattern
0°–14° electrical downtilt

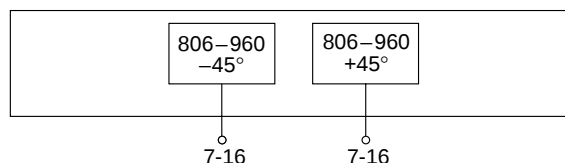
806 – 866 MHz: +45°/–45° Polarization



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

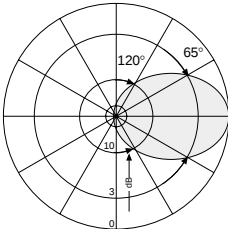
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XPol C-Panel 806–960 65° 17dBi 0°T

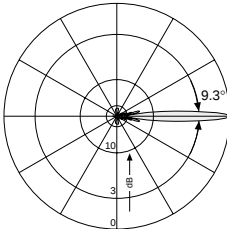
Type No.	800 10203		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 65° Vertical: 9.3°
Sidelobe 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

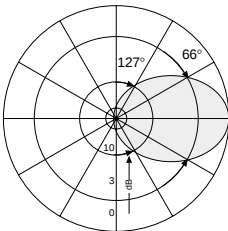


Horizontal Pattern

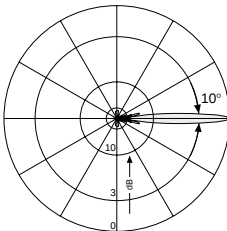


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

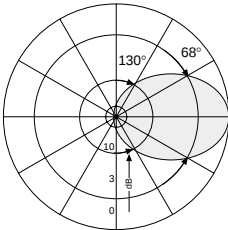


Horizontal Pattern

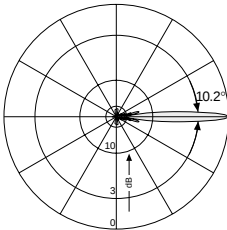


Vertical Pattern

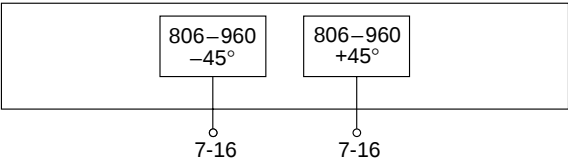
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
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

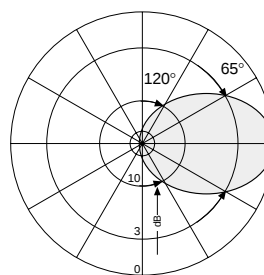
65°

KATHREIN

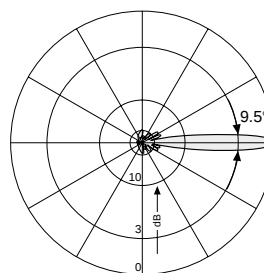
Antennen · Electronic

XPol A-Panel 806–960 65° 17dBi

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	

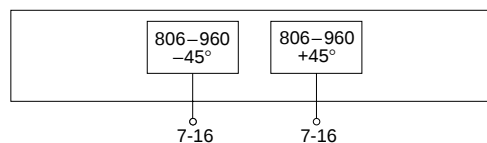


Horizontal Pattern



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

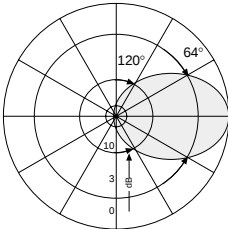
Antennen · Electronic

XPol C-Panel 806–960 65° 17dBi 3°T

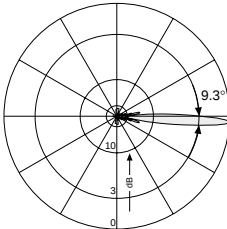
Type No.	800 10293		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 64° Vertical: 9.3°
Electrical 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

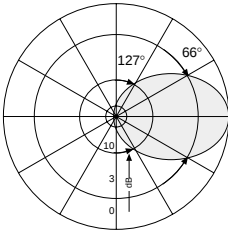


Horizontal Pattern

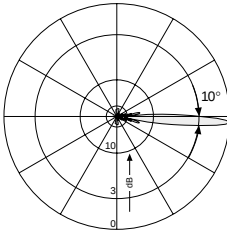


Vertical Pattern
3° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

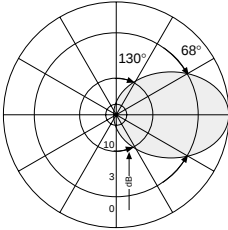


Horizontal Pattern

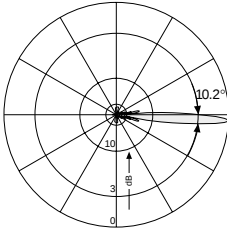


Vertical Pattern
3° electrical downtilt

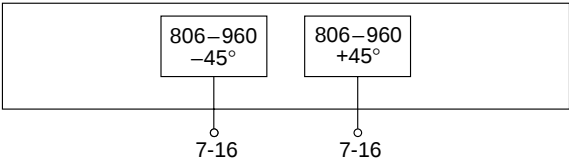
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
3° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
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

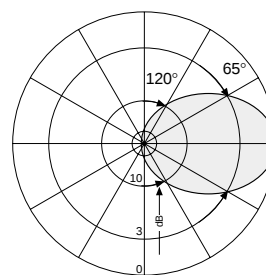
65°

KATHREIN

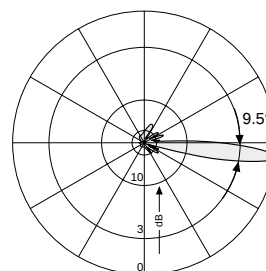
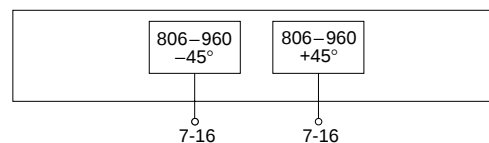
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XPol A-Panel 806–960 65° 17dBi 6°T

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

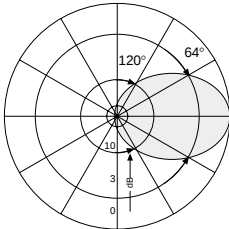
Antennen · Electronic

XPoI C-Panel 806–960 65° 17dBi 6°T

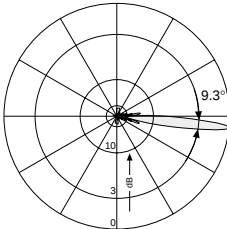
Type No.	800 10294		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 64° Vertical: 9.3°
Electrical 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

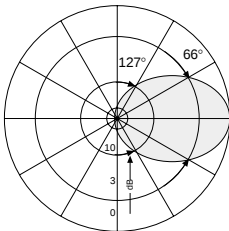


Horizontal Pattern

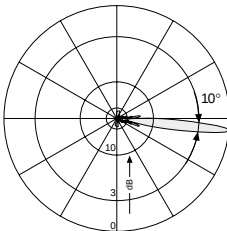


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

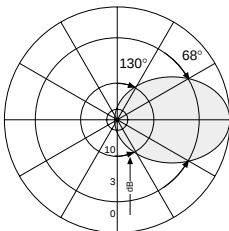


Horizontal Pattern

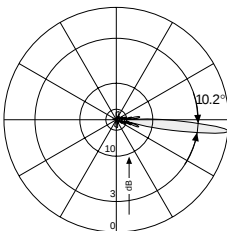


Vertical Pattern
6° electrical downtilt

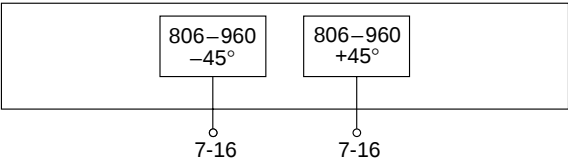
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
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

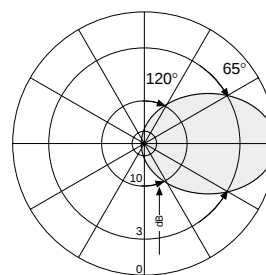
65°

KATHREIN

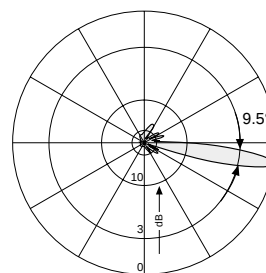
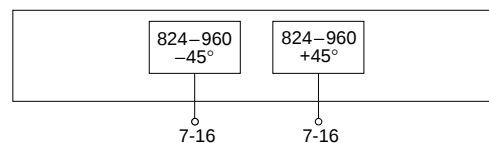
Antennen · Electronic

XPoI 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

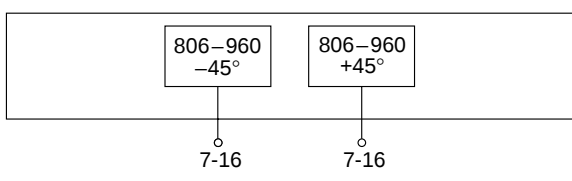
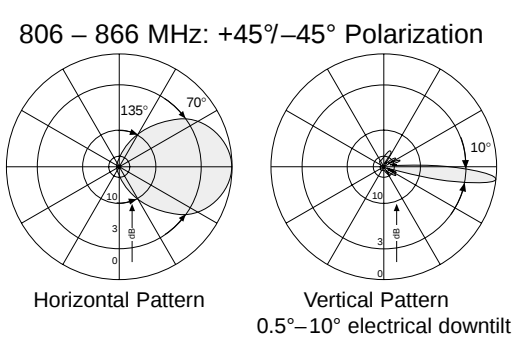
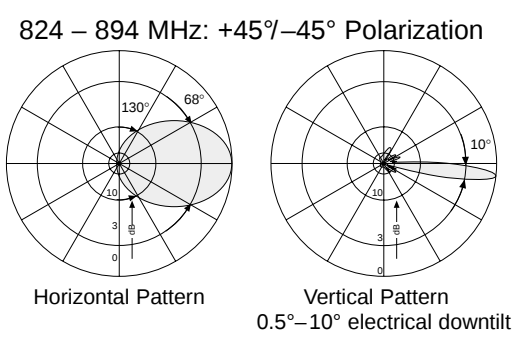
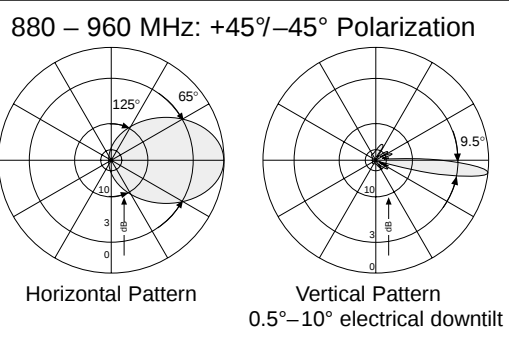
65°

0°-10°

KATHREIN

Antennen · Electronic

Type No.	739 685		
Frequency range	806 – 866 MHz	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°
Sidelobe suppression for first sidelobe above horizon sector 0°-30° above horizon	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	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)		



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

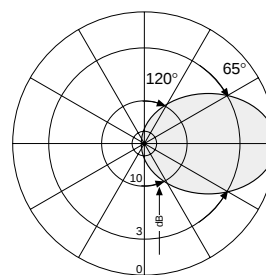
65°

KATHREIN

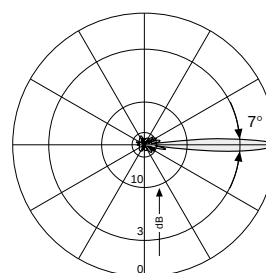
Antennen · Electronic

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

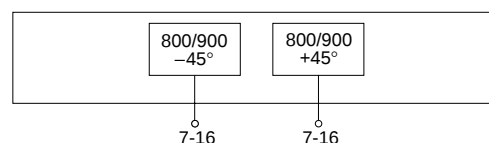


Horizontal Pattern



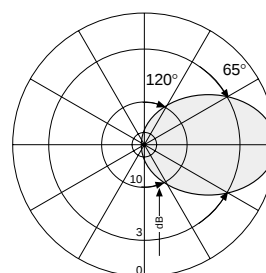
Vertical Pattern

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

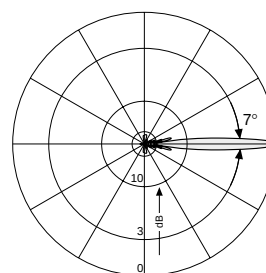


XPoI A-Panel 806–960 65° 18dBi

Type No.	739 624
Frequency range	806 – 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

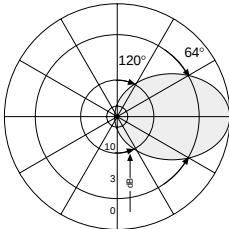
Antennen · Electronic

XPol C-Panel 806–960 65° 18dBi 0°T

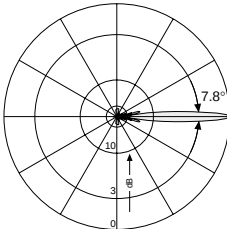
Type No.	800 10204		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.4 dBi	2 x 17.6 dBi	2 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.5°	Horizontal: 66° Vertical: 8.3°	Horizontal: 64° Vertical: 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

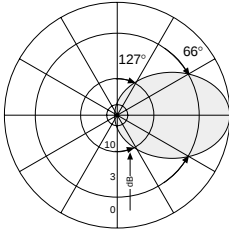


Horizontal Pattern

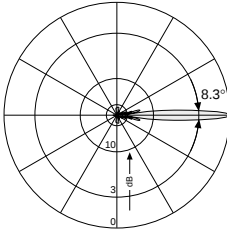


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

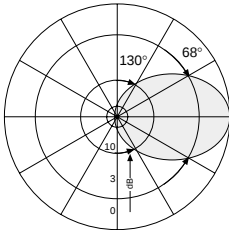


Horizontal Pattern

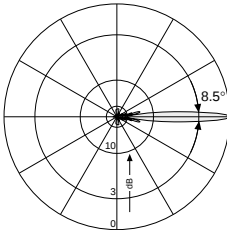


Vertical Pattern

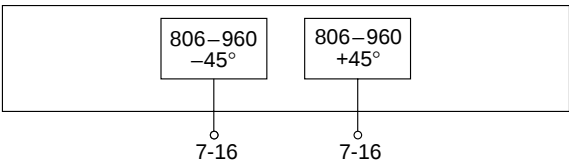
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
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

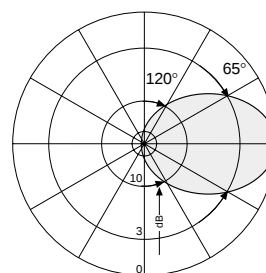
65°

KATHREIN

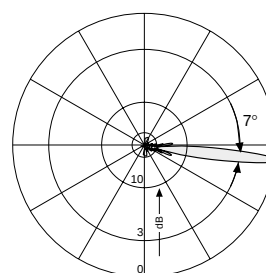
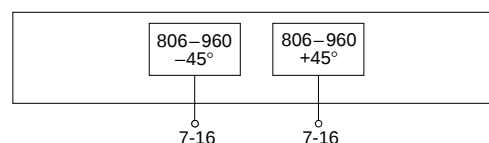
Antennen · Electronic

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	

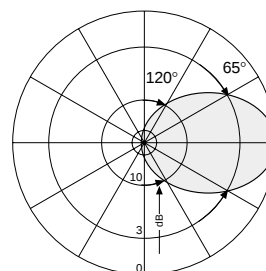


Horizontal Pattern

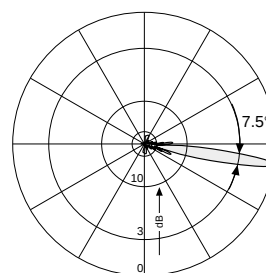

Vertical Pattern
6° electrical downtilt


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°

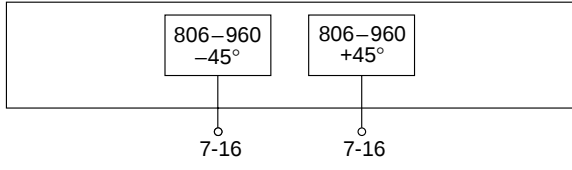
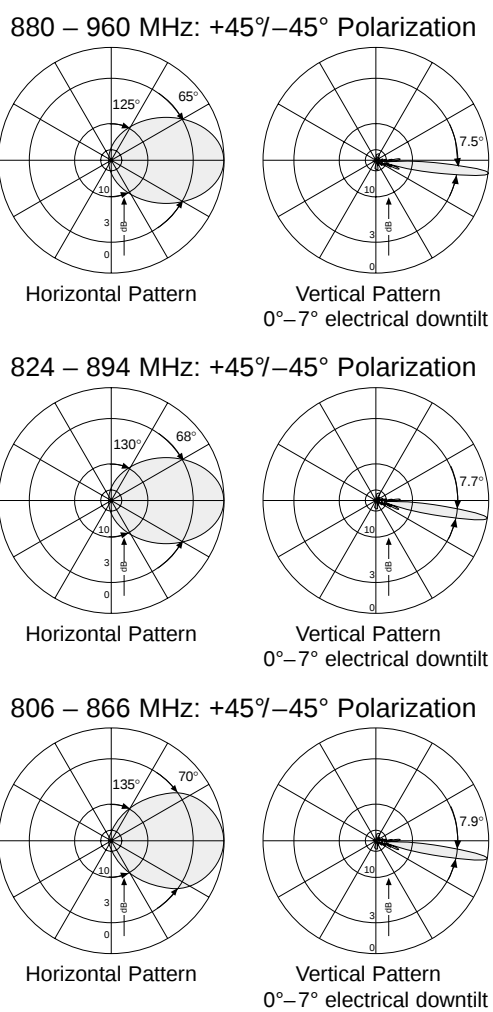
0° – 7°

KATHREIN

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XPol 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°
Sidelobe suppression for first sidelobe above horizon sector 0°–30° above horizon	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
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)		



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

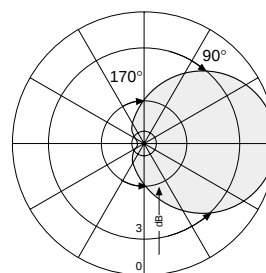
90°

KATHREIN

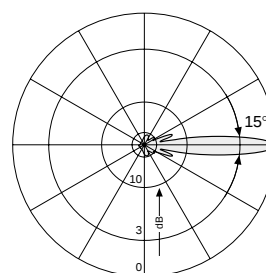
Antennen · Electronic

XPol A-Panel 806–960 90° 13.5dBi

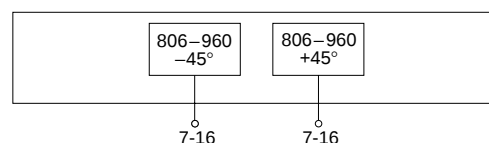
Type No.	739 648	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 13 dBi	2 x 13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 16°	Horizontal: 90° Vertical: 15°
Sidelobe suppression for first sidelobe above horizon	≥ 16 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 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	10 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

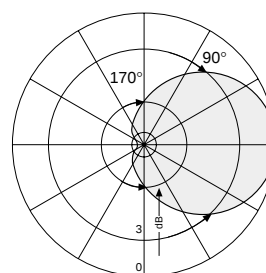


Vertical Pattern

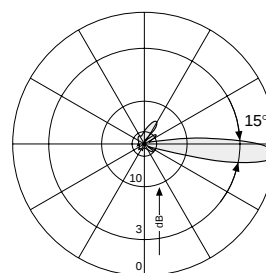


XPol A-Panel 806–960 90° 13.5dBi 6°T

Type No.	739 658	
Frequency range	806–960	
	806 – 880 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: 90° Vertical: 16°	Horizontal: 90° Vertical: 15°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 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	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
6° electrical downtilt


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°

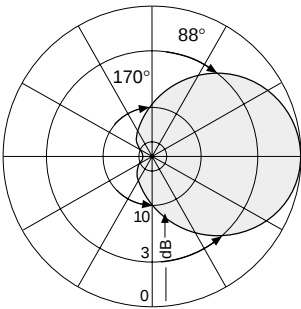
KATHREIN
Antennen · Electronic

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

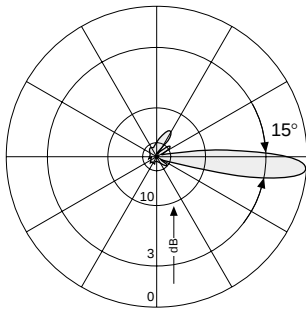
Type No.	739 664	
Frequency range	824–960	
	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	13.5 dBi	13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 15.5°	Horizontal: 88° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°
Sidelobe suppression for first sidelobe above horizon	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)	



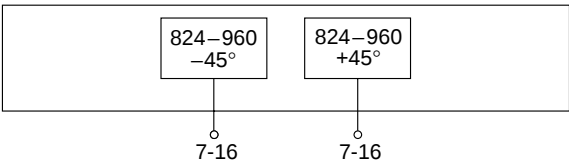
880 – 960 MHz: +45°/–45° Polarization



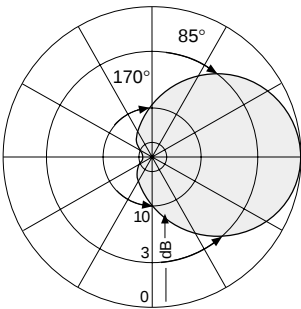
Horizontal Pattern



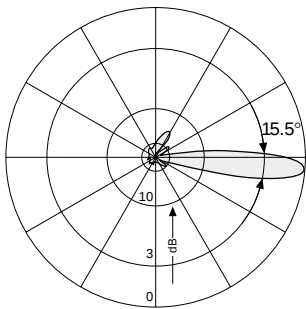
Vertical Pattern
0°–14° electrical downtilt
continuously adjustable



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

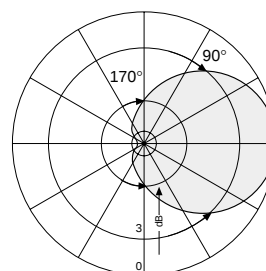
90°

KATHREIN

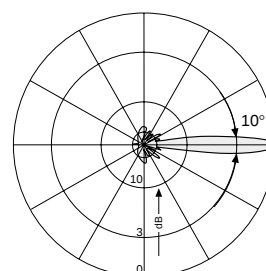
Antennen · Electronic

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

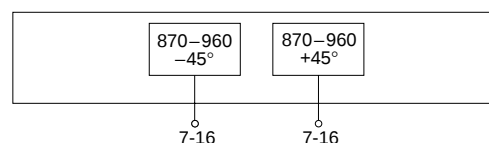


Horizontal Pattern



Vertical Pattern

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



A-Panel

Dual Polarization

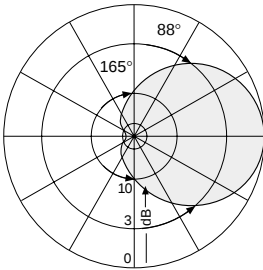
Half-power Beam Width

806–960
X
88°

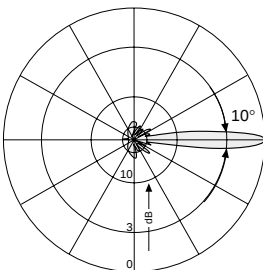
KATHREIN
Antennen · Electronic

XPoL 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	

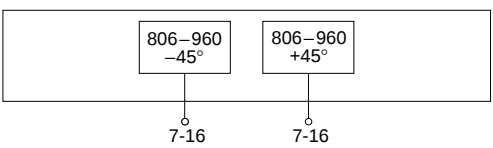


Horizontal Pattern



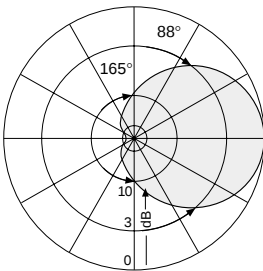
Vertical Pattern

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

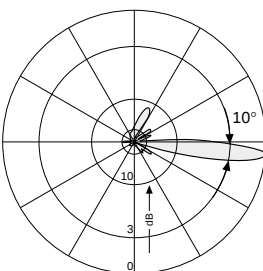


XPoL A-Panel 806–960 88° 15.5dBi 6°T

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)

806–960

X

88°

0°–10°

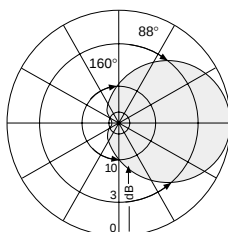
KATHREIN

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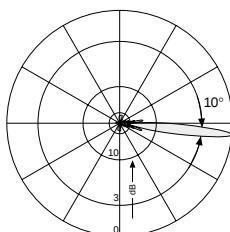
XPol A-Panel 806–960 88° 15dBi 0°–10°T

Type No.	739 665		
Frequency range	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°
Sidelobe suppression for first sidelobe above horizon	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

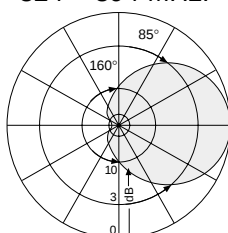


Horizontal Pattern

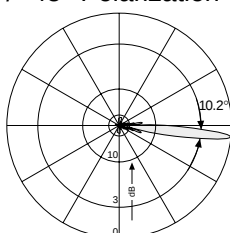


Vertical Pattern
0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

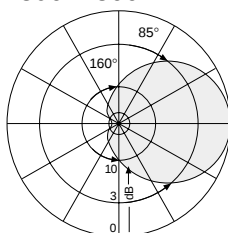


Horizontal Pattern

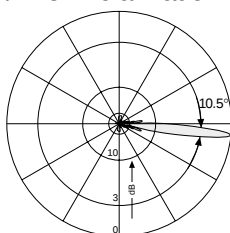


Vertical Pattern
0.5°–10° electrical downtilt

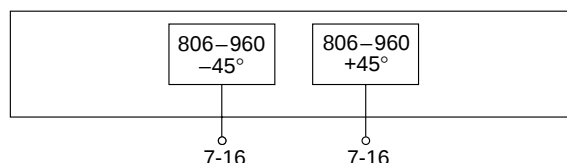
806 – 866 MHz: +45°/–45° Polarization



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

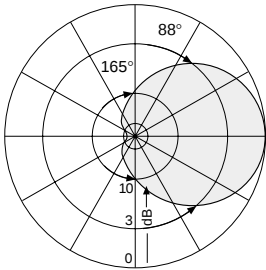
Half-power Beam Width

806 – 960
X
88°

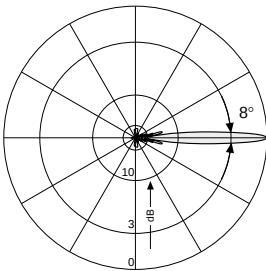
KATHREIN
Antennen · Electronic

XPol 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	

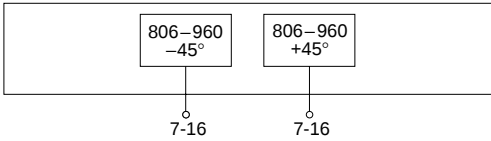


Horizontal Pattern



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

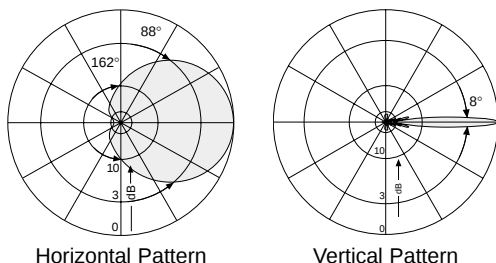
Antennen · Electronic

XPol 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	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)		



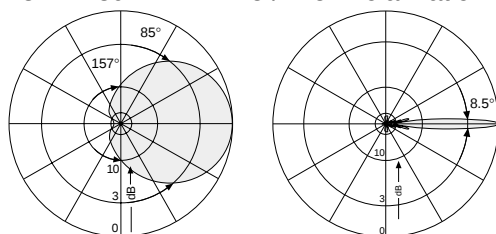
880 – 960 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern

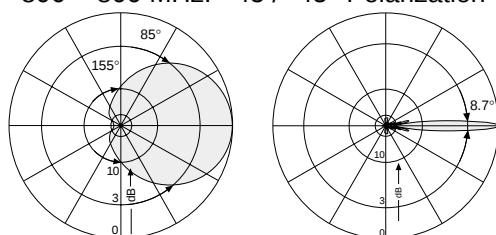
824 – 894 MHz: +45°/–45° Polarization



Horizontal Pattern

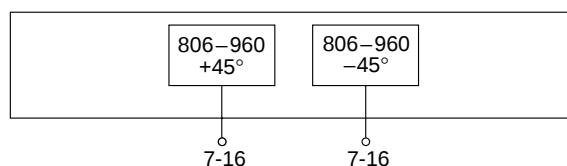
Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern

Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside, pointing downwards
Weight	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°

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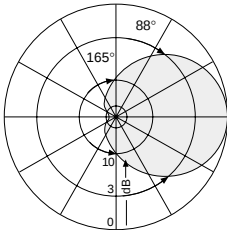
Antennen · Electronic

XPol A-Panel 806–960 88° 17dBi 6°T

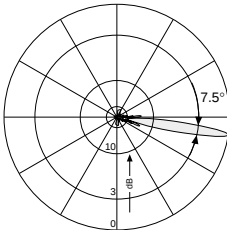
Type No.	739 662		
Frequency range	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16.3 dBi	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.3°	Horizontal: 85° Vertical: 7.9°	Horizontal: 88° Vertical: 7.5°
Electrical 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° Sector ±60°	> 23 dB > 14 dB	> 23 dB > 14 dB	> 23 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

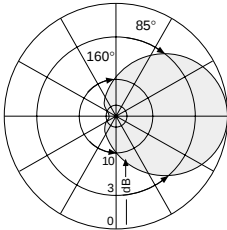


Horizontal Pattern

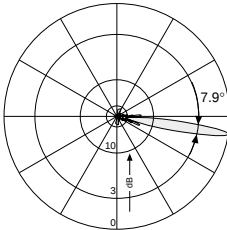


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

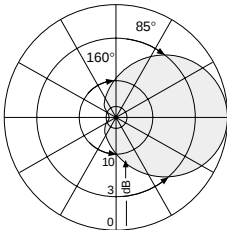


Horizontal Pattern

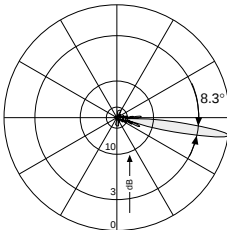


Vertical Pattern
6° electrical downtilt

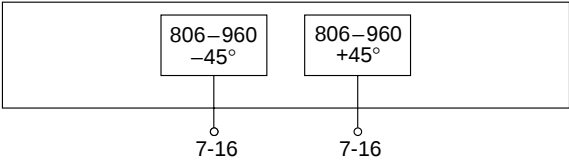
806 – 866 MHz: +45°/–45° Polarization



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°

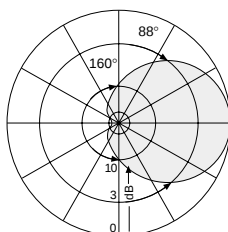
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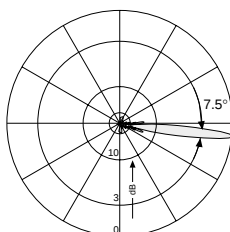
XPoI A-Panel 806–960 88° 16dBi 0°–7°T

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°
Sidelobe suppression for first sidelobe above horizon	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	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)		

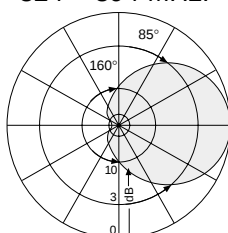
880 – 960 MHz: +45°/–45° Polarization



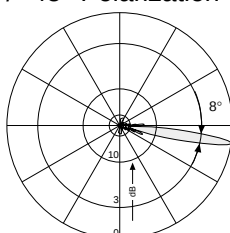
Horizontal Pattern


Vertical Pattern
0°–7° electrical downtilt

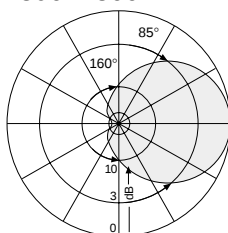
824 – 894 MHz: +45°/–45° Polarization



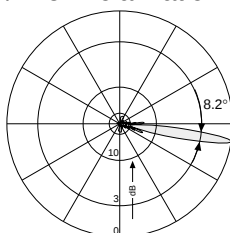
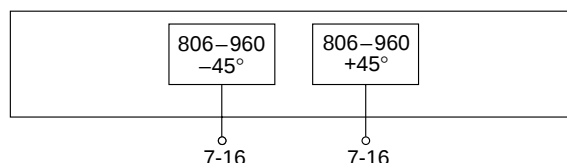
Horizontal Pattern


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

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 F-Panel	872–960	90°	10dBi	736 855	502	bottom or top	55
VPol Panel	870–960	90°	15.5dBi	732 967	1934	rearside	56
VPol Panel	870–960	90°	17dBi	730 378	2574	rearside	56
VPol Panel	870–960	105°	16.5dBi	730 380	2574	rearside	57
VPol Panel	870–960	120°	16dBi	730 382	2574	rearside	58

Additional versions on request

Panel Vertical Polarization Half-power Beam Width

870–960

V

20°

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VPol Panel 870–960 20° 16.5dBi

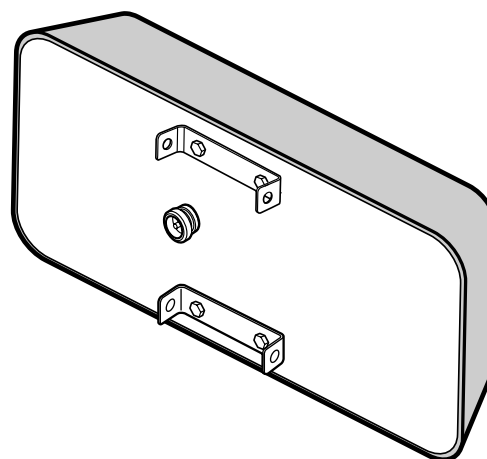
Type No.	735 727
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	16.5 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back-ratio	> 24 dB
Half-power Beam Width	H-plane: 20°/ E-plane: 33°
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	500 W (at 50 °C ambient temperature)
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.

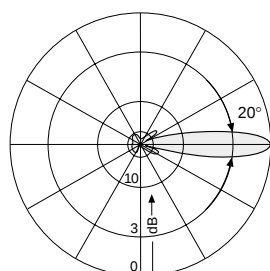
Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

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

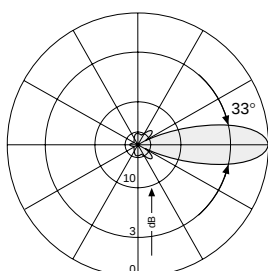


Accessories (order separately)

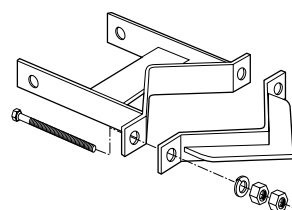
Type No.	Description	Remarks
K 61 14 02	2 clamps	Mast: 60 – 115 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter



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

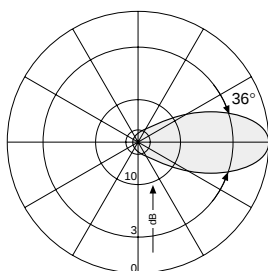
VPol ParPanel 870–960 36° 20dBi

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

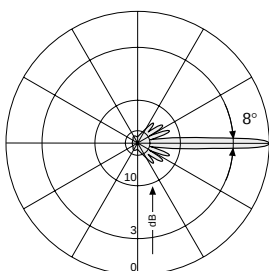
Material:	Radiator: Weather-proof aluminum. Reflector screen: Weather-proof aluminum. Radome: Fiberglass, colour: Grey. All screws and nuts: Stainless steel.
Ice protection:	Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational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

Accessories (order separately)

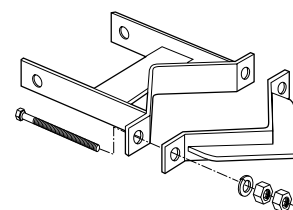
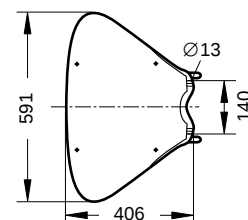
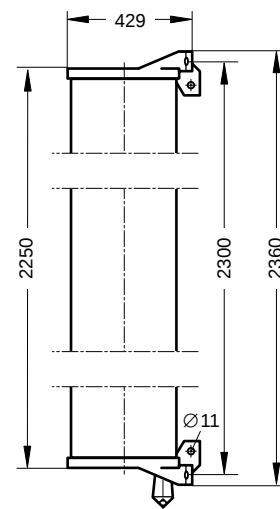
Type No.	Description	Remarks
733 736	2 clamps	Mast: 50 – 125 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter
733 695	1 downtilt kit	Downtilt angle: 0° – 10° Use the downtilt kit together with 2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

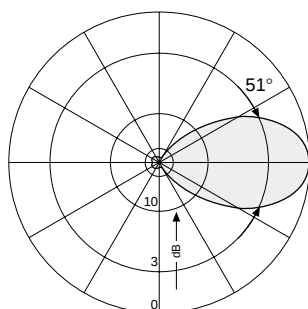
Antennen · Electronic

VPol LogPer 790–960 51° 12dBi

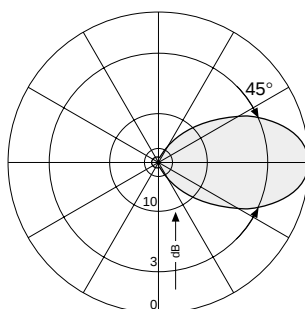
Type No.	K 73 22 67
Input	7-16 female
Frequency range	790 – 960 MHz
VSWR	< 1.4
Gain	12 dBi
Impedance	50 Ω
Polarization	Vertical
Side-lobe suppression	> 25 dB
Front-to-back ratio	> 30 dB
Half-power Beam Width	Horizontal: 51° / Vertical: 45°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	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°

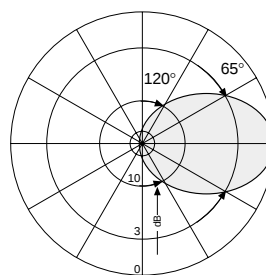
KATHREIN

Antennen · Electronic

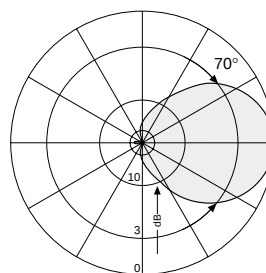
GSM 900
VPol

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

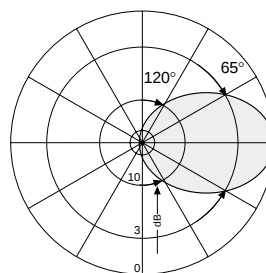


Vertical Pattern

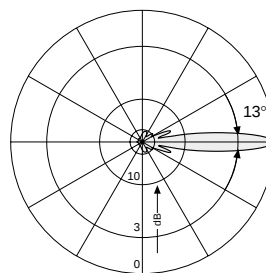


VPol Panel 870–960 65° 15.5dBi

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

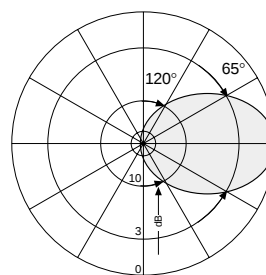
65°

KATHREIN

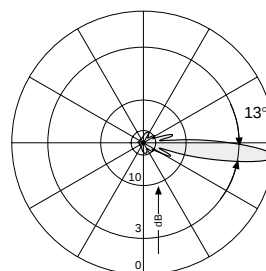
Antennen · Electronic

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

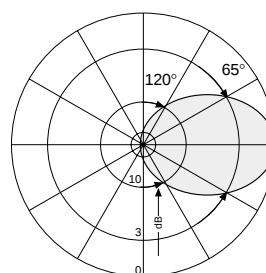


Vertical Pattern
6° electrical downtilt

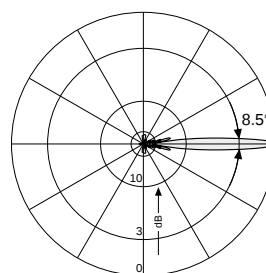


VPol Panel 870–960 65° 17dBi

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°

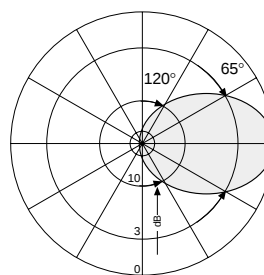
KATHREIN

Antennen · Electronic

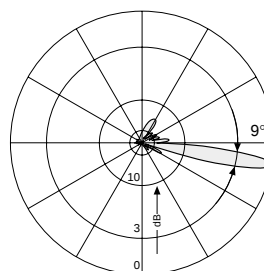
GSM 900
VPol

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

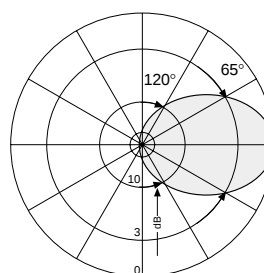


Vertical Pattern
9° electrical downtilt

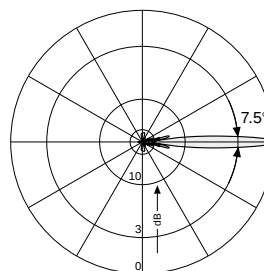


VPol Panel 870–960 65° 18dBi

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

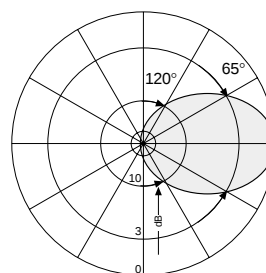
65°

KATHREIN

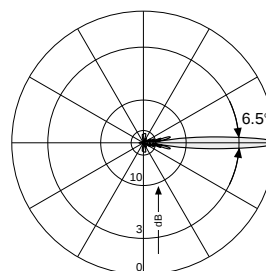
Antennen · Electronic

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

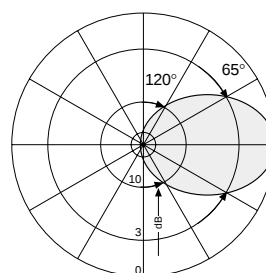


Vertical Pattern

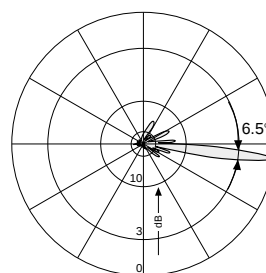


VPol Panel 870–960 65° 18.5dBi 6°T

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°

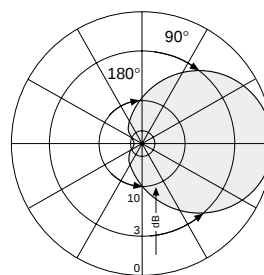
KATHREIN

Antennen · Electronic

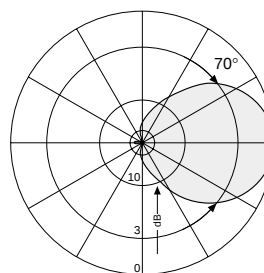
GSM 900
VPol

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

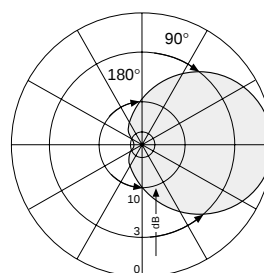


Vertical Pattern

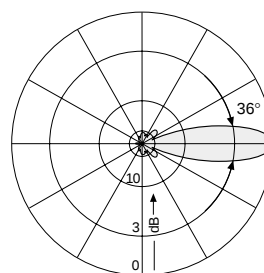


VPol F-Panel 872–960 90° 10dBi

Type No.	736 855
Frequency range	872 – 960 MHz
Polarization	Vertical
Gain	10 dBi
Half-power beam width	H-plane: 90° E-plane: 36°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Max. power	400 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	2.3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 90 N / 40 N / 110 N
Max. wind velocity	200 km/h
Height/width/depth	502 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern



Eurocell Panel

Vertical Polarization

Half-power Beam Width

870–960

V

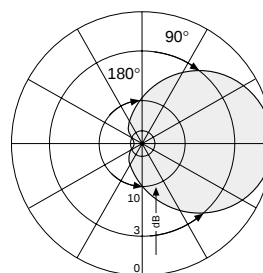
90°

KATHREIN

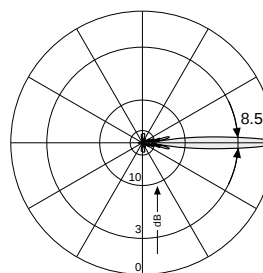
Antennen · Electronic

VPol Panel 870–960 90° 15.5dBi

Type No.	732 967
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 90° E-plane: 8.5°
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	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



Horizontal Pattern

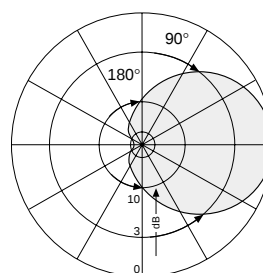


Vertical Pattern

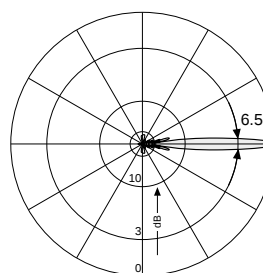


VPol Panel 870–960 90° 17dBi

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

105°

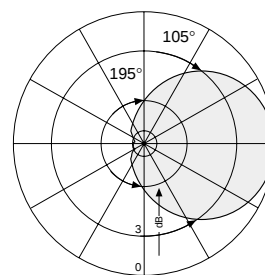
KATHREIN

Antennen · Electronic

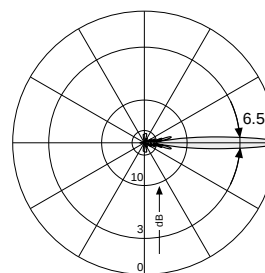
GSM 900
VPol

VPol Panel 870–960 105° 16.5dBi

Type No.	730 380
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	16.5 dBi
Half-power beam width	H-plane: 105° E-plane: 6.5°
Front-to-back ratio	> 22 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

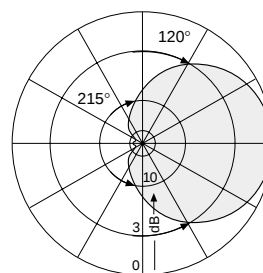
120°

KATHREIN

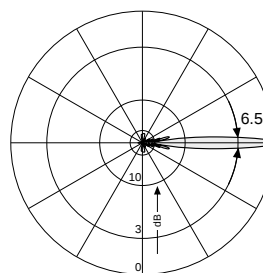
Antennen · Electronic

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°

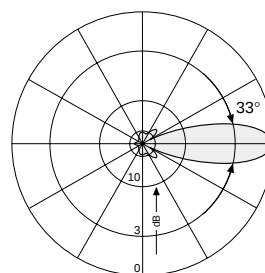
2°

KATHREIN

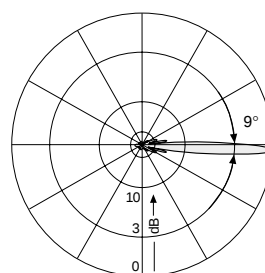
Antennen · Electronic

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	

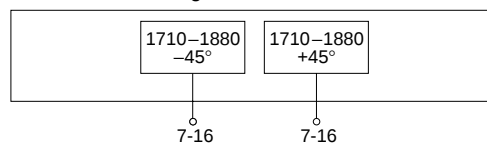


Horizontal Pattern



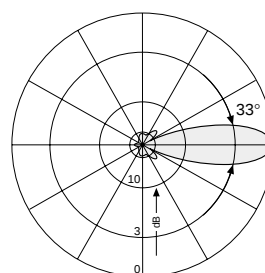
Vertical Pattern

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

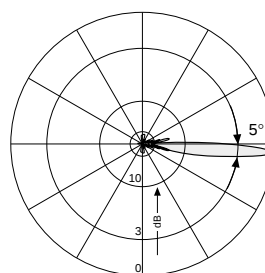


XPol F-Panel 1710–1880 33° 22dBi 2°T

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

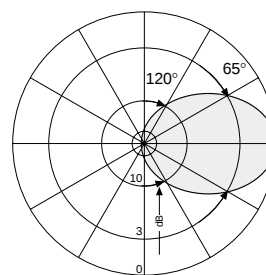
65°

KATHREIN

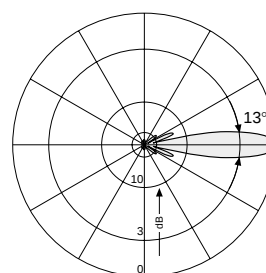
Antennen · Electronic

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



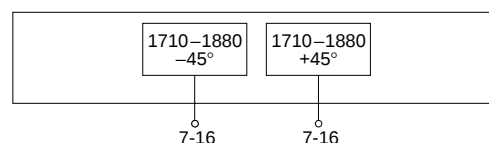
Horizontal Pattern



Vertical Pattern

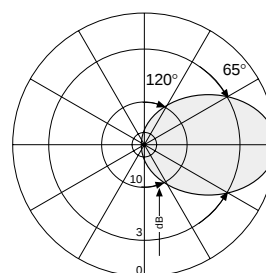


GSM 1800
XPol

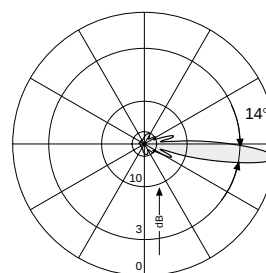


XPol F-Panel 1710–1880 65° 15.5dBi 6°T

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

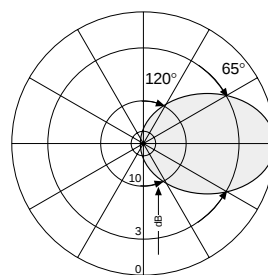
65°

KATHREIN

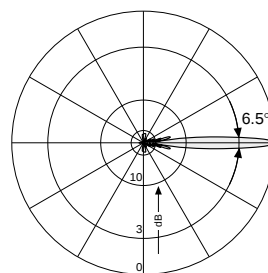
Antennen · Electronic

XPol F-Panel 1710–1880 65° 18dBi

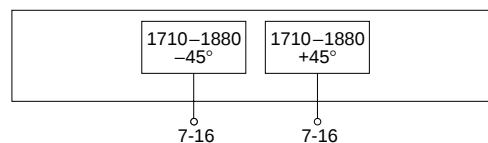
Type No.	739 494
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 6.5°
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 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

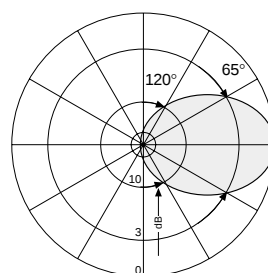


Vertical Pattern

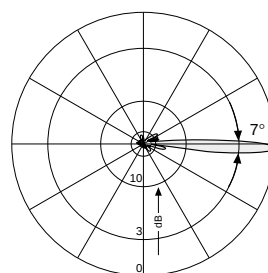


XPol F-Panel 1710–1990 65° 18dBi 2°T

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

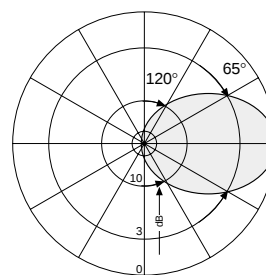
65°

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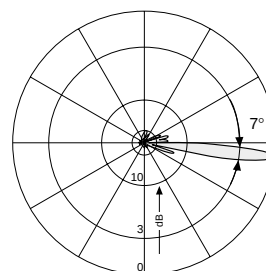
Antennen · Electronic

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

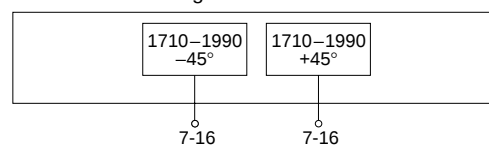


Horizontal Pattern



Vertical Pattern

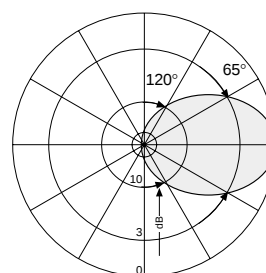
- 6° electrical downtilt
- first null-fill below horizon better or equal –25 dB below maximum gain



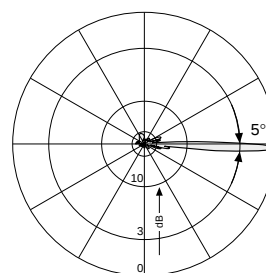
GSM 1800
XPol

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

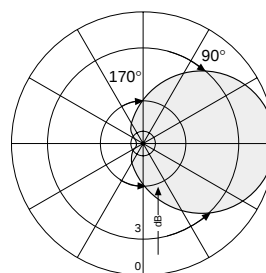
90°

KATHREIN

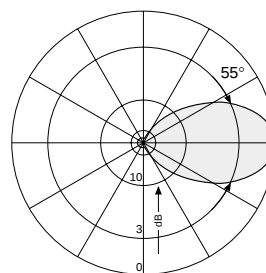
Antennen · Electronic

XPol F-Panel 1710–1990 90° 8dBi

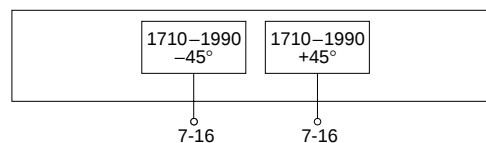
Type No.	739 695
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 55°
Front-to-back ratio, copolar	> 20 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 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

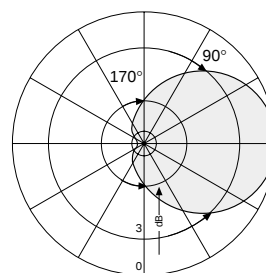
90°

KATHREIN

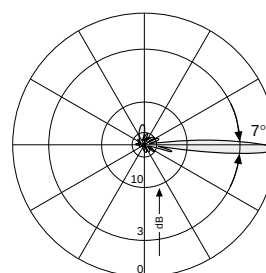
Antennen · Electronic

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

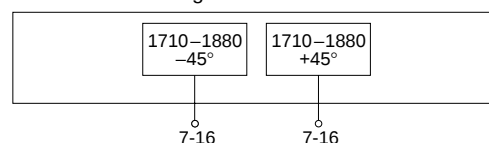


Horizontal Pattern



Vertical Pattern

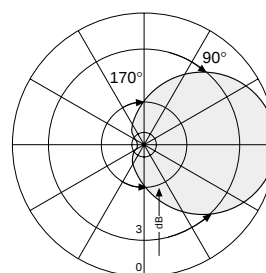
- 2° electrical downtilt
- first null-fill below horizon
better or equal –25 dB
below maximum gain



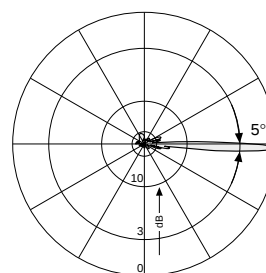
GSM 1800
XPol

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

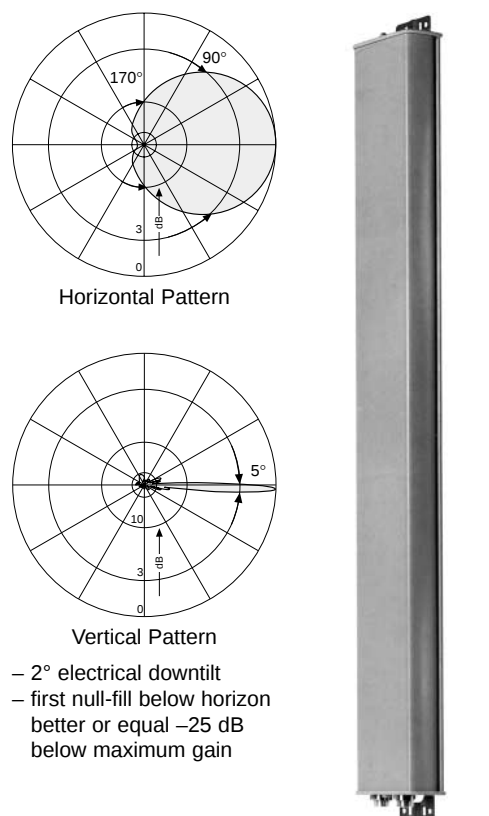


Horizontal Pattern



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

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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

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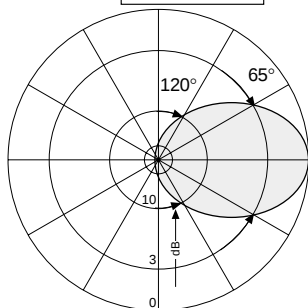
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XXPol A-Panel 870–960/1710–1880 C 65°/65° 12.5/13dBi

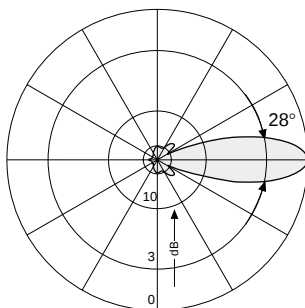
Type No.	741 316	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 12.5 dBi	2 x 13 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 28°	Horizontal: 60° Vertical: 19°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, 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.	



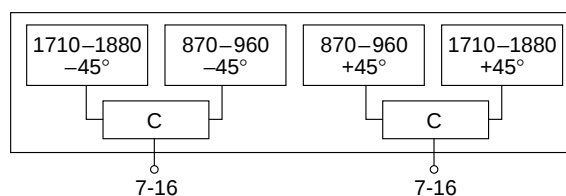
870–960 +45°/–45° Polarization



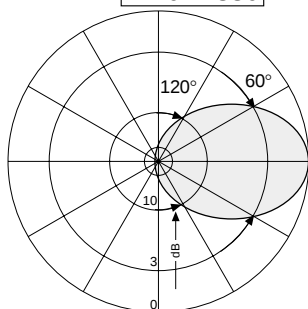
Horizontal Pattern



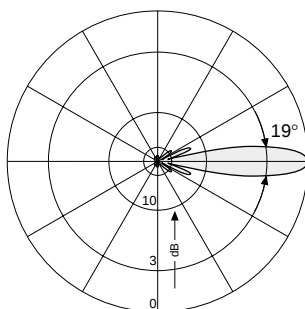
Vertical Pattern



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

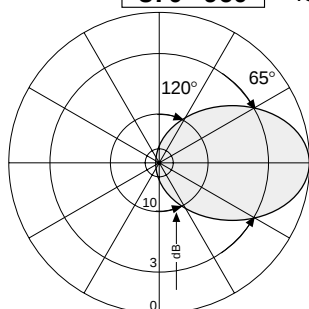
XXPol A-Panel 870–960/1710–1880 C 65°/60° 15/16.5dBi

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.	

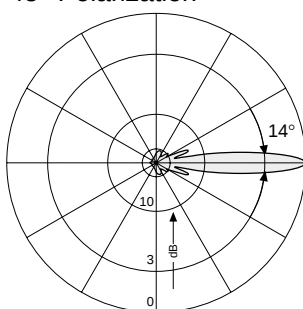
GSM 1800
XXPol



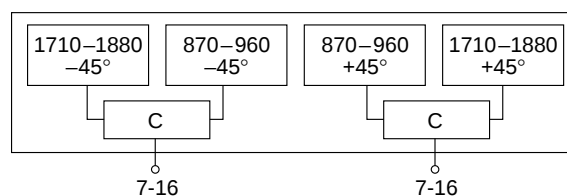
870–960 +45°/–45° Polarization



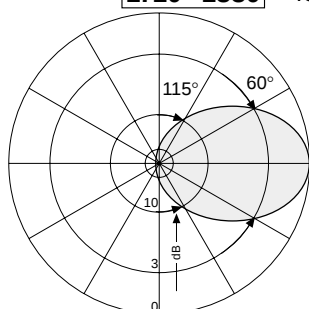
Horizontal Pattern



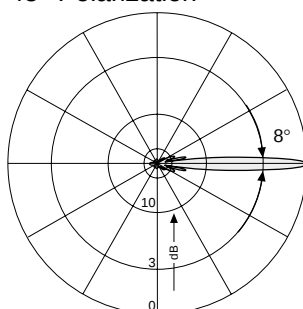
Vertical Pattern



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

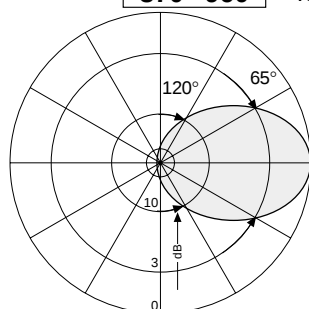
Antennen · Electronic

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

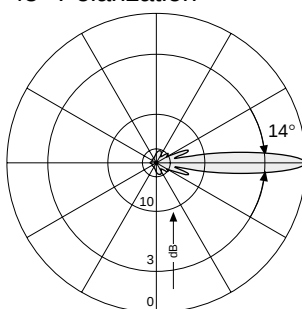
Type No.	741 326	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°	Horizontal: 60° Vertical: 8°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between 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)	



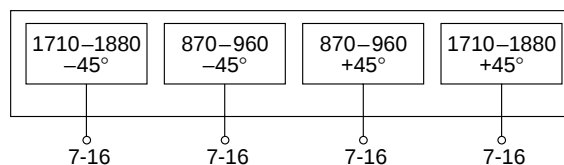
870–960 +45°/–45° Polarization



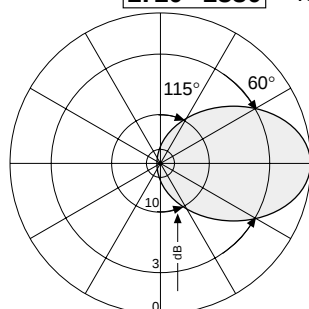
Horizontal Pattern



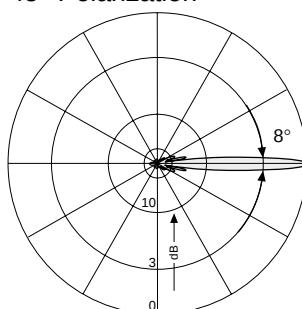
Vertical Pattern



1710–1880 +45°/–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

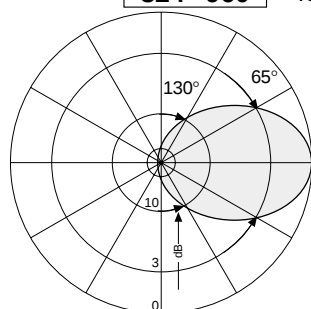
XXPol A-Panel 824–960/1710–1880 C 65°/63° 14.5/16.5dBi 0°–10°T/2°T

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.		

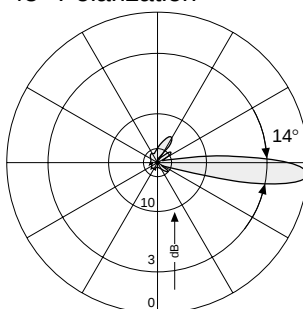


GSM 1800
XXPol

824–960 +45°/–45° Polarization

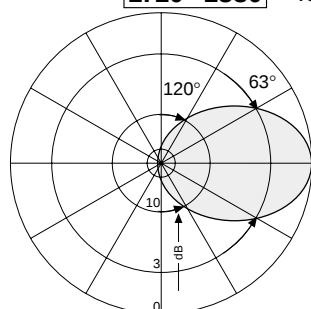


Horizontal Pattern

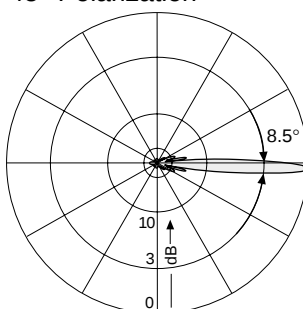


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

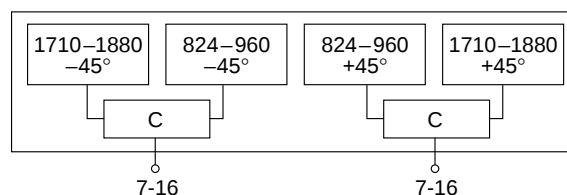
1710–1880 +45°/–45° Polarization



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

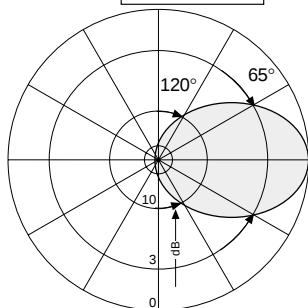
Antennen · Electronic

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

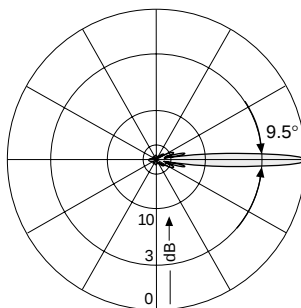
Type No.	741 322	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 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.	



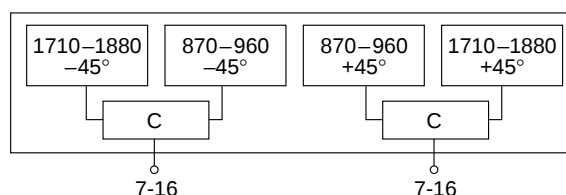
870–960 +45°/–45° Polarization



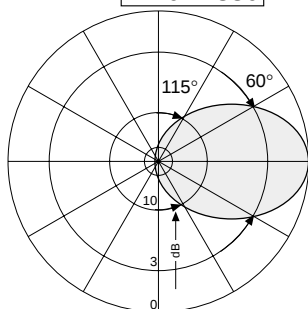
Horizontal Pattern



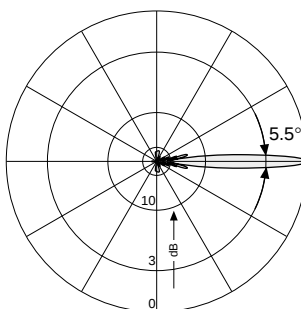
Vertical Pattern



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°

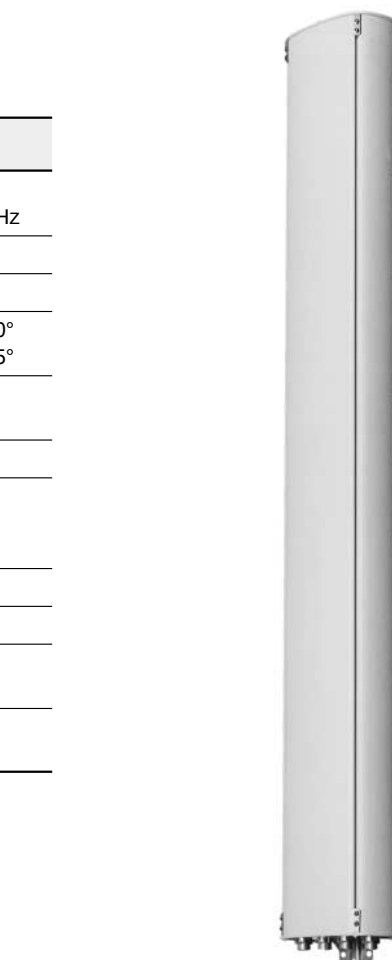
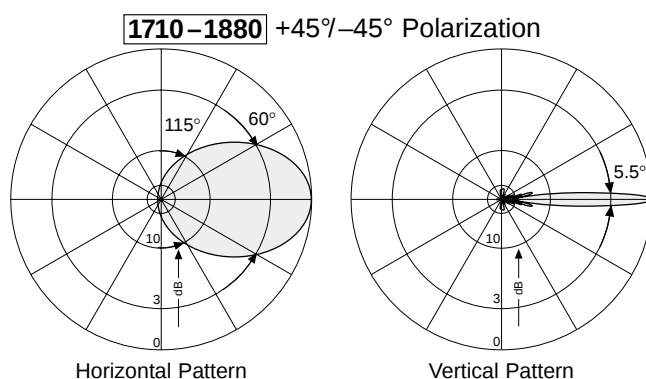
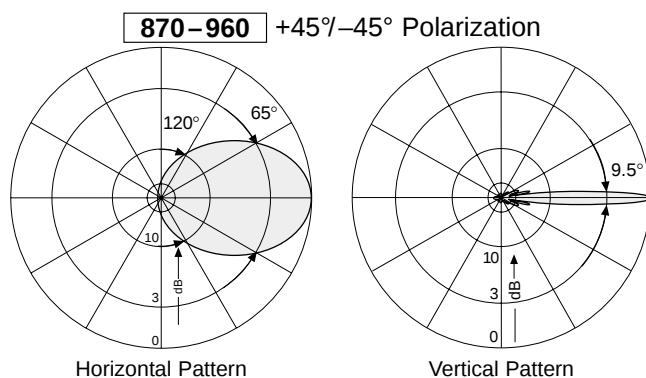
60°

KATHREIN

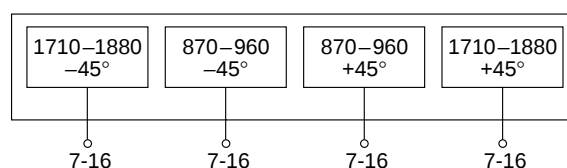
Antennen · Electronic

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

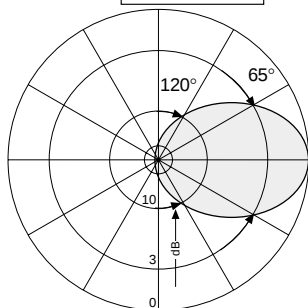
Antennen · Electronic

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

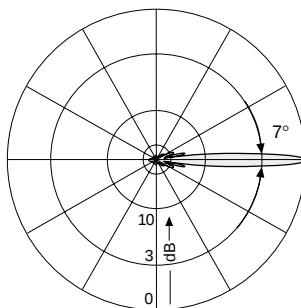
Type No.	741 324	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 19 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 4°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between 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

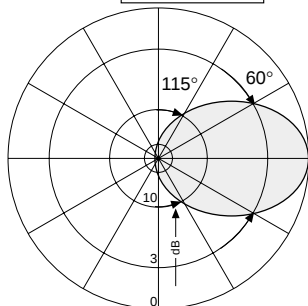


Horizontal Pattern

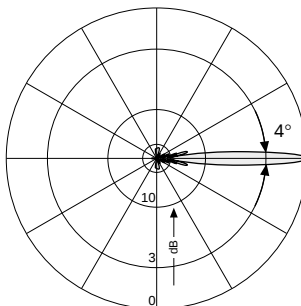


Vertical Pattern

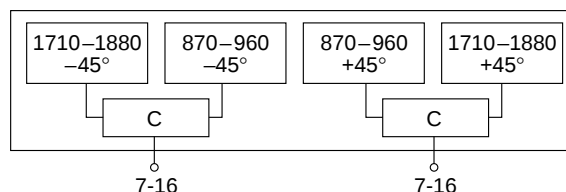
1710–1880 +45°/–45° Polarization



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**

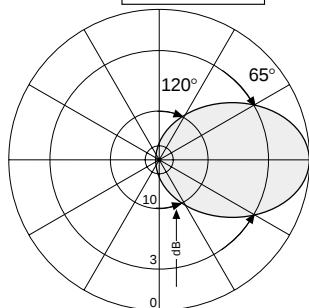
Antennen · Electronic

GSM 1800
XXPol

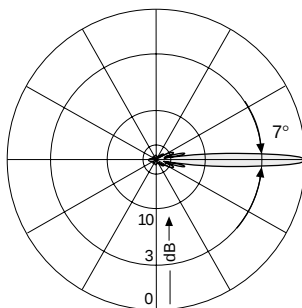
XXPol A-Panel 870–960/1710–1880 65°/60° 18/19.5dBi

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)

870–960 +45°/–45° Polarization

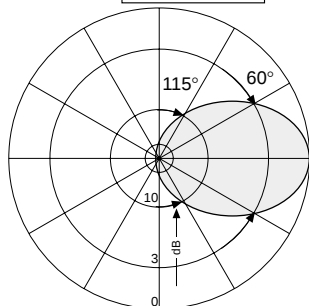


Horizontal Pattern

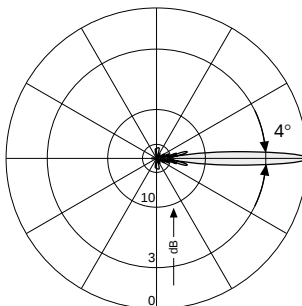


Vertical Pattern

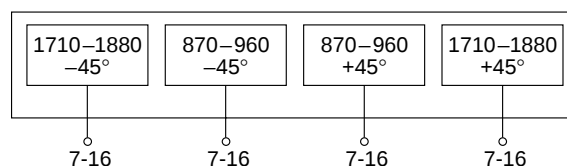
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



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

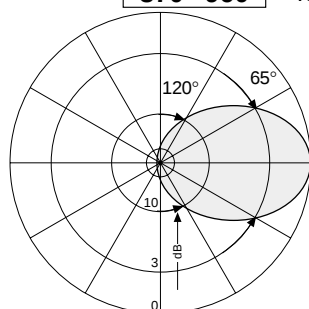
Antennen · Electronic

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

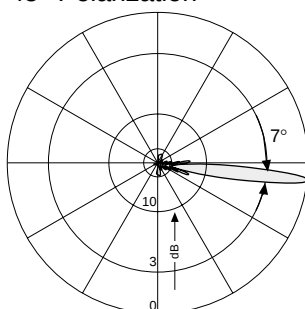
Type No.	741 336	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, 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.	



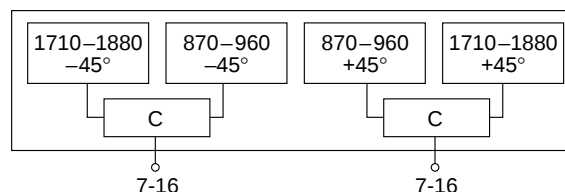
870–960 +45°/–45° Polarization



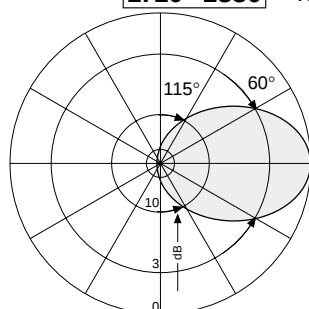
Horizontal Pattern



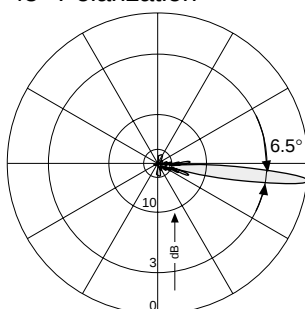
Vertical Pattern
6° electrical downtilt



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

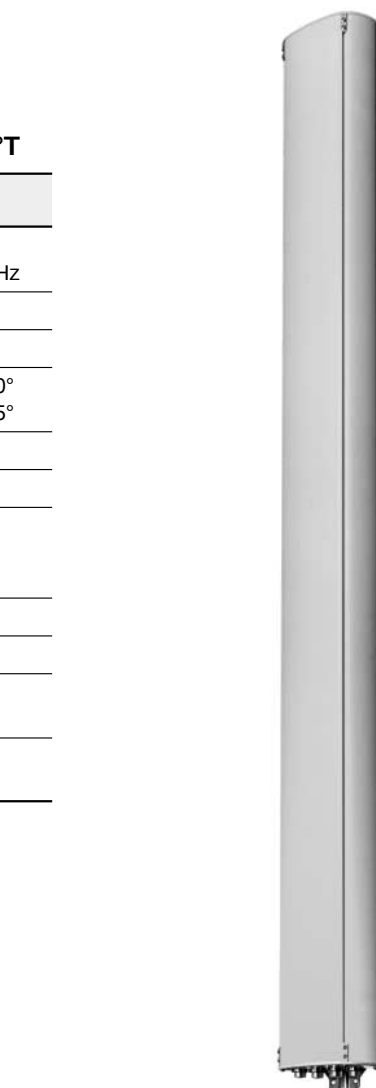
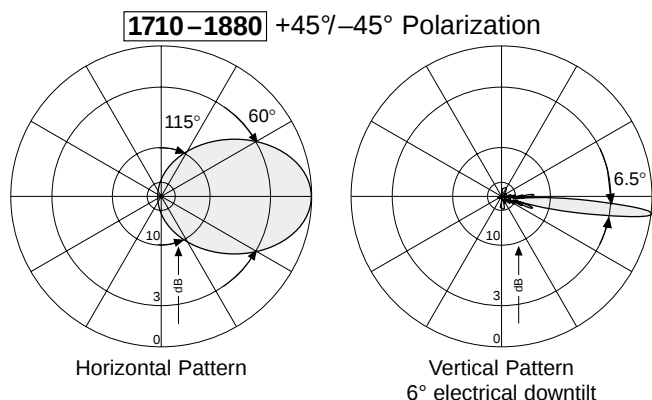
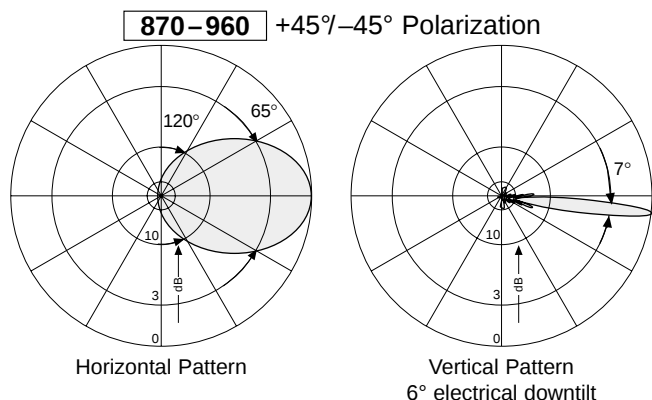
Fixed Electrical Downtilt

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

Antennen · Electronic

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 (at 50 °C ambient temperature)	200 W (at 50 °C ambient temperature)

GSM 1800
XXPol

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

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

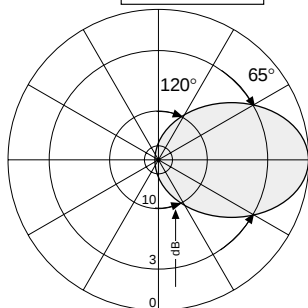
Antennen · Electronic

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

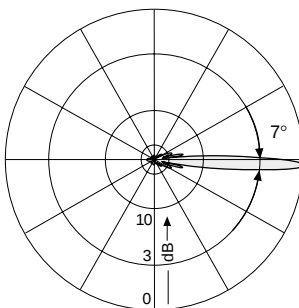
Type No.	742 047	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi (–0.5 dB)	2 x 18 dBi (–0.5 dB)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6°
Electrical tilt	2°–8°, adjustable	2°, fixed
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

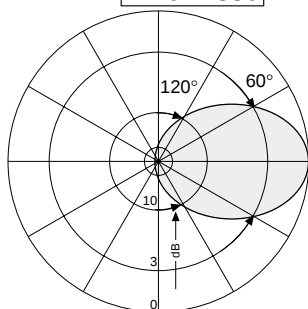


Horizontal Pattern

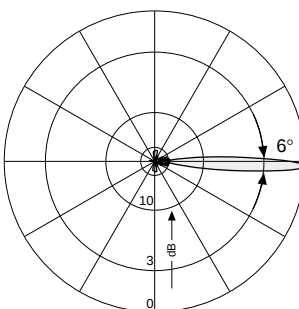


Vertical Pattern
2°–8° electrical downtilt
continuously adjustable

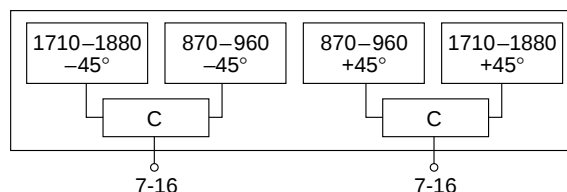
1710–1880 +45°/–45° Polarization



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

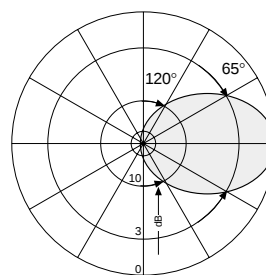
65°

KATHREIN

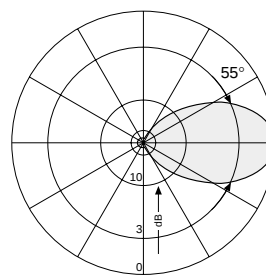
Antennen · Electronic

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

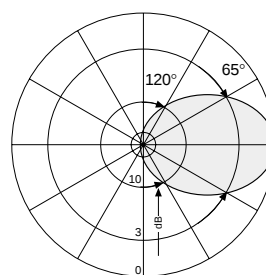


Vertical Pattern

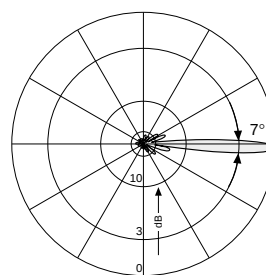


VPol F-Panel 1710–1900 65° 18dBi 2°T

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

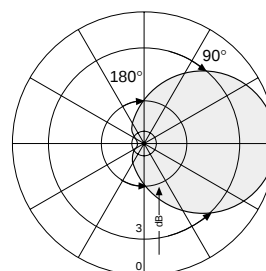
90°

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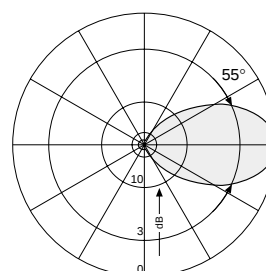
Antennen · Electronic

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



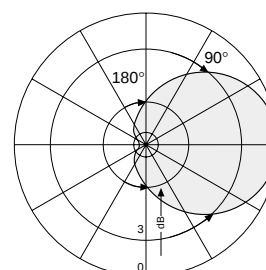
Vertical Pattern



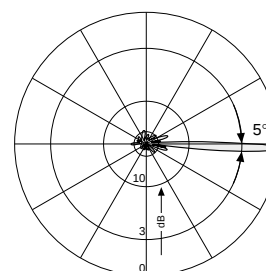
GSM 1800
VPol

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

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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	1710–2170	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	1710–2170	65°	15.5dBi	0°–10°T	742 211	662	90
XPol F-Panel	1710–2170	65°	15.5dBi	0°–12°T	800 10247	735	91
XPol F-Panel	1710–2170	65°	16dBi	0°T	742 196	735	92
XPol F-Panel	1710–2170	65°	18dBi	0°–10°T	742 215	1302	93
XPol F-Panel	1710–2170	65°	18.5dBi	2°T	741 794	1302	94
XPol F-Panel	1710–2170	65°	19.5dBi	0°–6°T	742 213	1942	95
XPol F-Panel	1710–2170	88°	11.5dBi	0°T	741 984	342	96
XPol F-Panel	1710–2170	88°	17dBi	2°T	741 987	1302	97
XPol F-Panel	1710–2170	88°	14dBi	0°–10°T	741 988	662	98
XPol F-Panel	1710–2170	88°	17dBi	0°–8°T	741 989	1302	99
XPol F-Panel	1710–2170	88°	18dBi	0°–6°T	741 990	1942	100

Tri-Sector Pipe Antennas

XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10270	2296	101
XPol Tri-Sector Pipe	1710–2170	65°	19.5dBi	0°–6°T	800 10271	2945	102
XPol Tri-Sector Pipe	1710–2170	65°	18dBi	0°–10°T	800 10360	1823	103
XPol Tri-Sector Pipe	1710–2170	65°	19.5dBi	0°–6°T	800 10375	1241	104

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°

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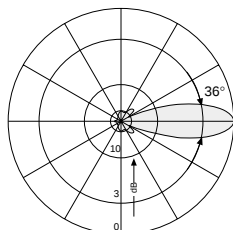
Antennen · Electronic

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

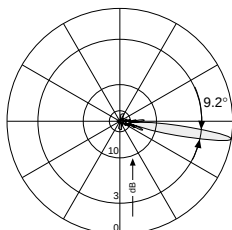
Type No.	800 10251		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19.2 dBi	2 x 19.5 dBi	2 x 19.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 9.2°	Horizontal: 35° Vertical: 9°	Horizontal: 33° Vertical: 8.5°
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°
Sidelobe suppression: Vertical Pattern – first side- lobe above horizon 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

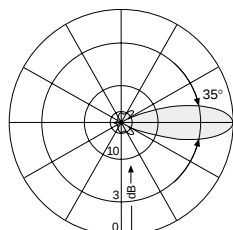


Horizontal Pattern

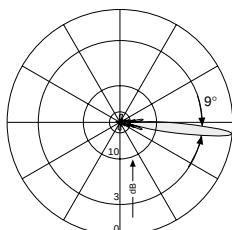


Vertical Pattern
0°–12° electrical downtilt

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

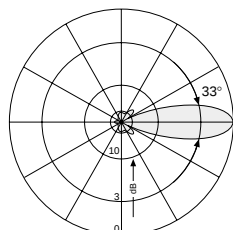


Horizontal Pattern

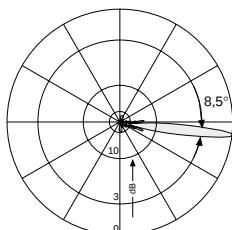


Vertical Pattern
0°–12° electrical downtilt

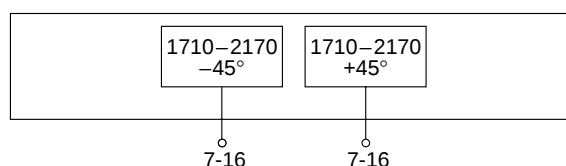
1920 – 2170 MHz: +45°/–45° Polarization



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

1710–2170

X

33°

0°–8°

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

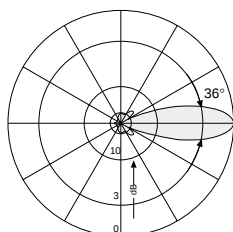
XPol F-Panel 1710–2170 33° 21dBi 0°–8°T

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 horizon 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)		

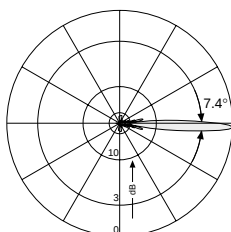


UMTS
XPol

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

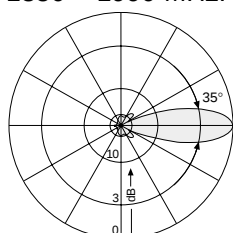


Horizontal Pattern

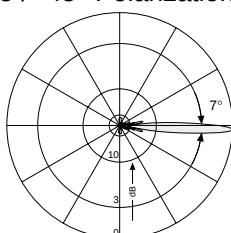


Vertical Pattern
0°–8° electrical downtilt

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

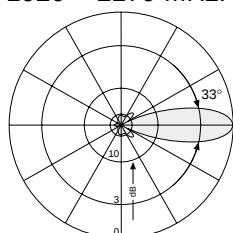


Horizontal Pattern

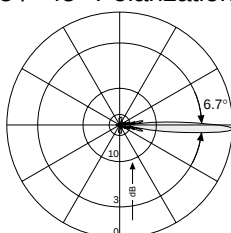


Vertical Pattern
0°–8° electrical downtilt

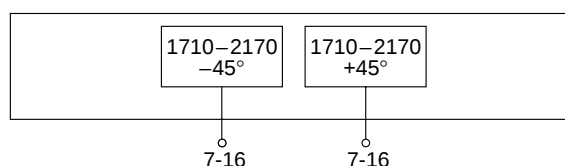
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



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°

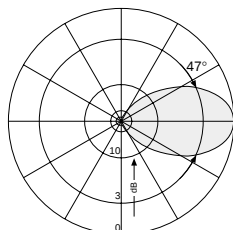
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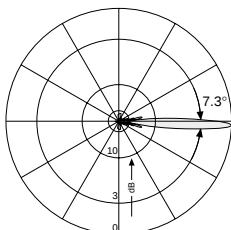
XPol F-Panel 1710–2170 45° 19.5dBi 0°–8°T

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 horizon 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	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

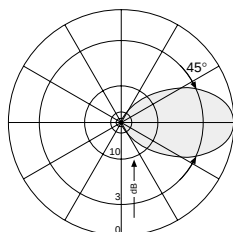


Horizontal Pattern

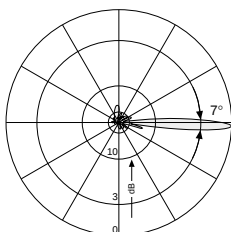


Vertical Pattern
0°–8° electrical downtilt

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

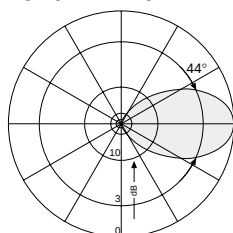


Horizontal Pattern

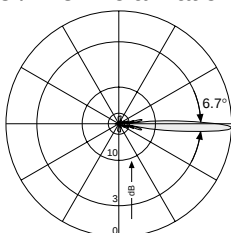


Vertical Pattern
0°–8° electrical downtilt

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: 165 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°

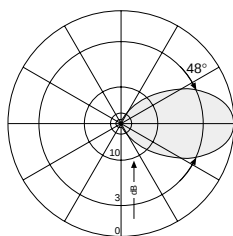
KATHREIN

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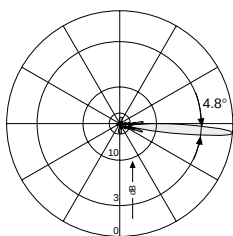
XPol F-Panel 1710–2180 45° 21.5dBi 0°–6°T

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 horizon 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

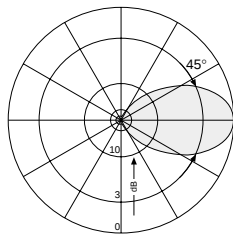


Horizontal Pattern

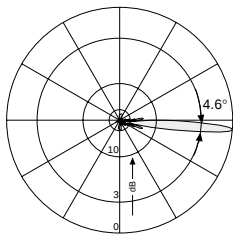


Vertical Pattern
0°–6° electrical downtilt

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

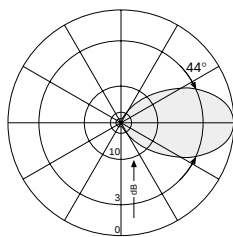


Horizontal Pattern

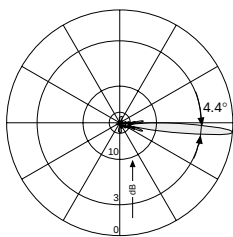


Vertical Pattern
0°–6° electrical downtilt

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



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



UMTS
XPol

1710–2180
–45°

1710–2180
+45°

7-16

7-16

Mechanical specifications

Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 250 N (at 150 km/h) Lateral: 165 N (at 150 km/h) Rearside: 580 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

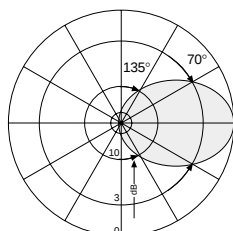
Antennen · Electronic

XPol F-Panel 1710–2170 65° 9dBi 0°T

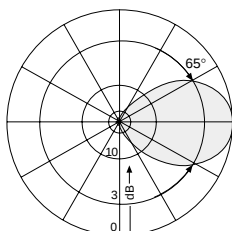
Type No.	742 210		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 8.6 dBi	2 x 8.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 65°	Horizontal: 68° Vertical: 65°	Horizontal: 65° Vertical: 63°
Electrical 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

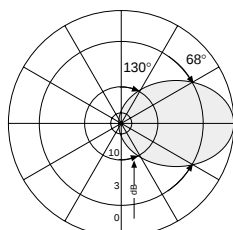


Horizontal Pattern

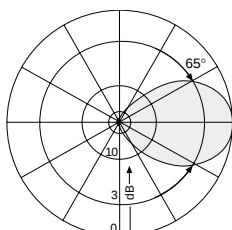


Vertical Pattern

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

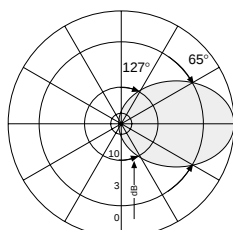


Horizontal Pattern

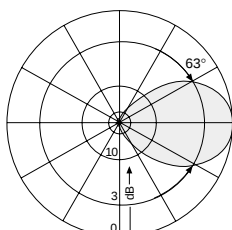


Vertical Pattern

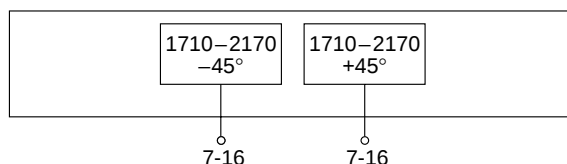
1920 – 2170 MHz: +45°/–45° Polarization



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

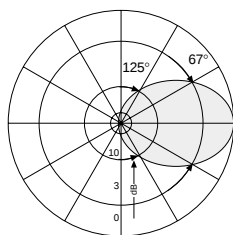
XPol F-Panel 1710–2170 65° 12dBi 2°T

Type No.	739 489		
Frequency range	1710 – 1880 MHz	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)		

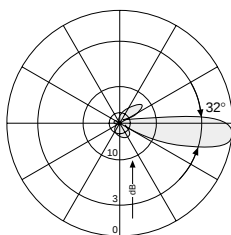


UMTS
XPol

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

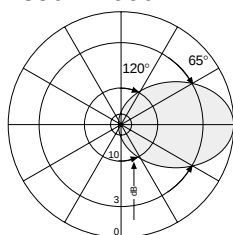


Horizontal Pattern

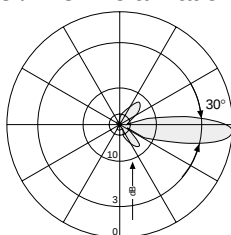


Vertical Pattern
3° electrical downtilt

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

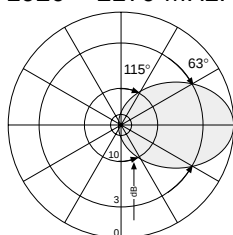


Horizontal Pattern

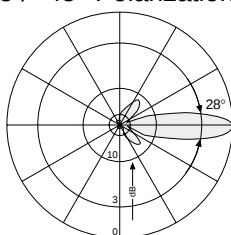


Vertical Pattern
2° electrical downtilt

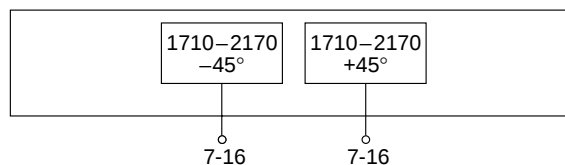
1920 – 2170 MHz: +45°/–45° Polarization



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

Adjust. Electrical Downtilt

1710–2170

X

65°

0°–10°

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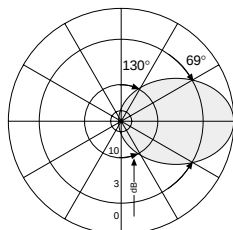
set by hand or by optional RCU (Remote Control Unit)

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

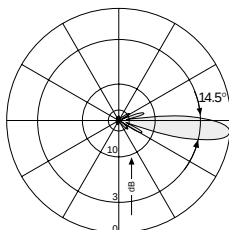
Type No.	742 211		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 67° Vertical: 14°	Horizontal: 64° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	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)		



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

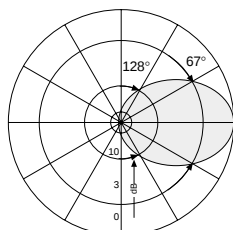


Horizontal Pattern

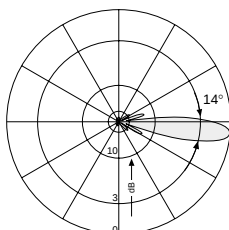


Vertical Pattern
0°–10° electrical downtilt

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

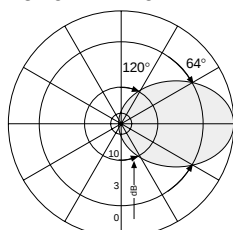


Horizontal Pattern

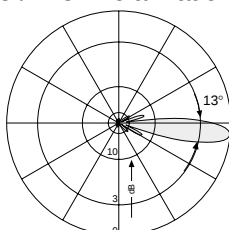


Vertical Pattern
0°–10° electrical downtilt

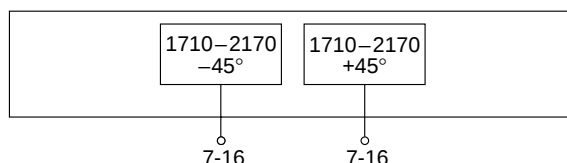
1920 – 2170 MHz: +45°/–45° Polarization



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

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

1710–2170

X

65°

0°–12°

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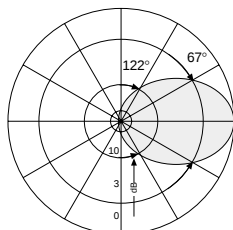
XPol F-Panel 1710–2170 65° 15.5dBi 0°–12°T

Type No.	800 10247		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain per input	0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.9 ... 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 adjustable	0°–12°	0°–12°	0°–12°
Sidelobe suppression for first sidelobe above horizon	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 Sector	0° ±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)		

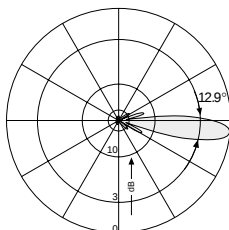


UMTS
XPol

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

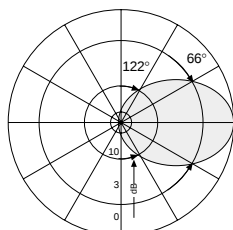


Horizontal Pattern

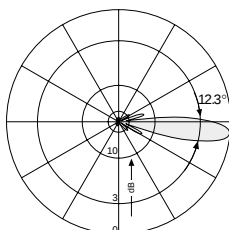


Vertical Pattern
0°–12° electrical downtilt

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

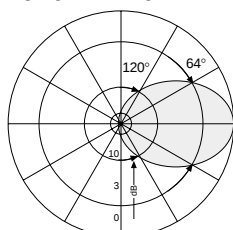


Horizontal Pattern

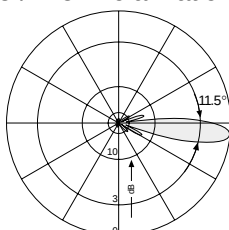


Vertical Pattern
0°–12° electrical downtilt

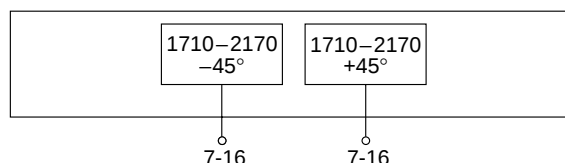
1920 – 2170 MHz: +45°/–45° Polarization



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	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	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

1710–2170

X

65°

0°

KATHREIN

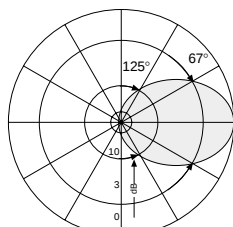
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XPol F-Panel 1710–2170 65° 16dBi 0°T

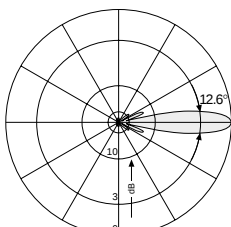
Type No.	742 196		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.3 dBi	2 x 15.6 dBi	2 x 15.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.6°	Horizontal: 66° Vertical: 11.8°	Horizontal: 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	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB
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)		



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

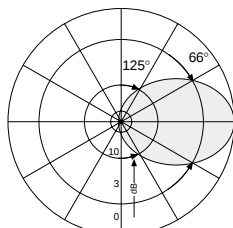


Horizontal Pattern

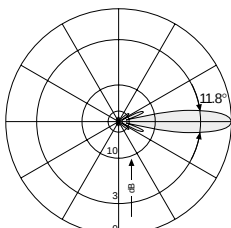


Vertical Pattern

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

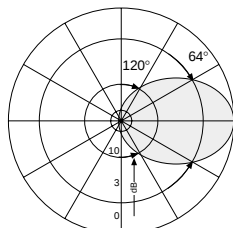


Horizontal Pattern

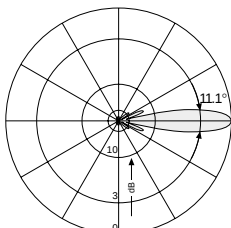


Vertical Pattern

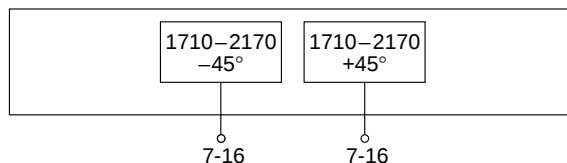
1920 – 2170 MHz: +45°/–45° Polarization



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

Adjust. Electrical Downtilt

1710–2200

X

65°

0°–10°

KATHREIN

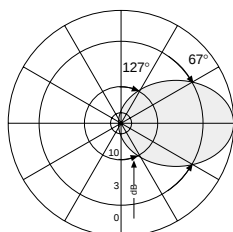
Antennen · Electronic

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

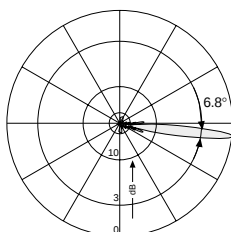
XPol F-Panel 1710–2200 65° 18dBi 0°–10°T

Type No.	742 215		
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
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°
Sidelobe suppression for first sidelobe above horizon	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	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

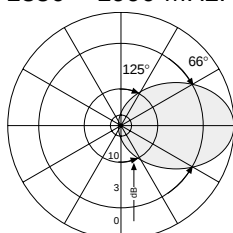


Horizontal Pattern

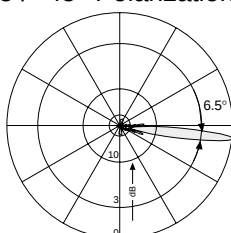


Vertical Pattern
0°–10° electrical downtilt

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

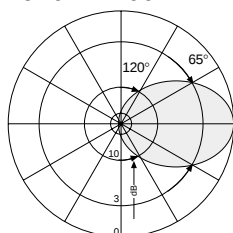


Horizontal Pattern

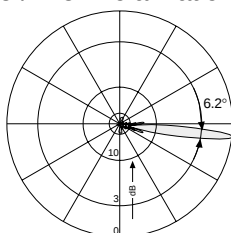


Vertical Pattern
0°–10° electrical downtilt

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



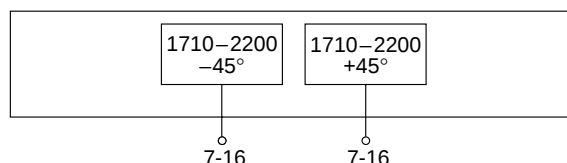
Horizontal Pattern



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

Fixed Electrical Downtilt

1710–2170

X

65°

2°

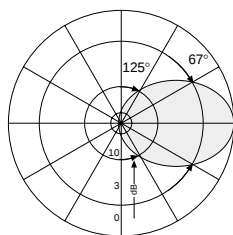
KATHREIN

Antennen · Electronic

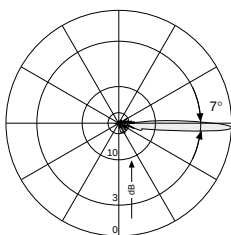
XPol F-Panel 1710–2170 65° 18.5dBi 2°T

Type No.	741 794		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above horizon	> 14 dB	> 14 dB	> 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 30 dB > 10 dB	Typically: 30 dB > 10 dB	Typically: 30 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

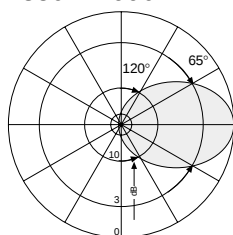


Horizontal Pattern

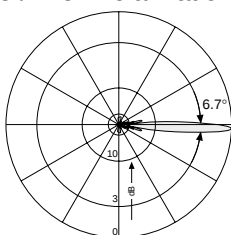


Vertical Pattern
2° electrical downtilt

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

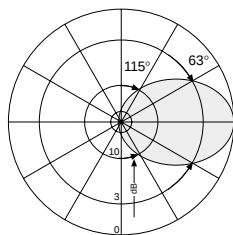


Horizontal Pattern

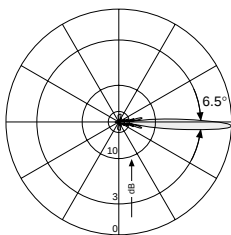


Vertical Pattern
2° electrical downtilt

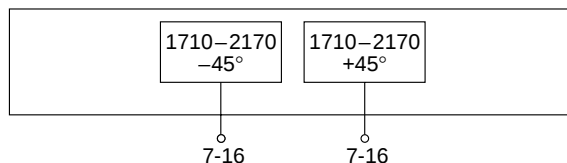
1920 – 2170 MHz: +45°/–45° Polarization



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

1710–2170

X

65°

0°–6°

KATHREIN

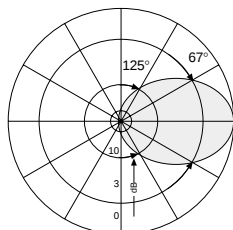
Antennen · Electronic

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

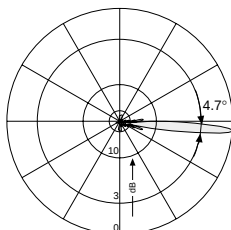
XPol F-Panel 1710–2170 65° 19.5dBi 0°–6°T

Type No.	742 213		
Frequency range	1710–2170		
	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°
Sidelobe suppression for first sidelobe above horizon	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° ±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	300 W (at 50 °C ambient temperature)		

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

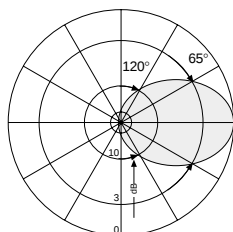


Horizontal Pattern

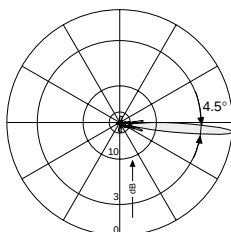


Vertical Pattern
0°–6° electrical downtilt

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

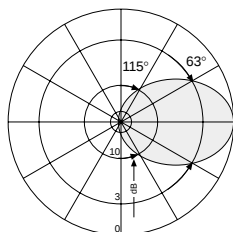


Horizontal Pattern

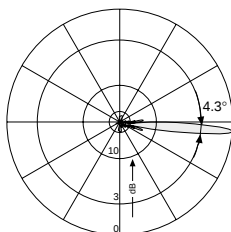


Vertical Pattern
0°–6° electrical downtilt

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



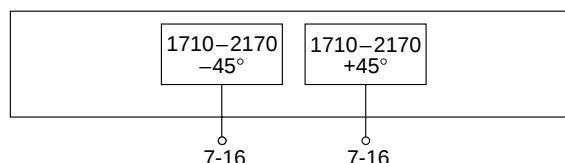
Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



UMTS
XPol



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	2384 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Multi-band F-Panel

Dual Polarization

Half-power Beam Width

Excellent Sidelobe Suppression

1710–2170

X

88°

20 dB

KATHREIN

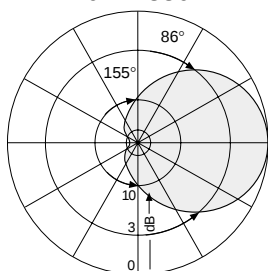
Antennen · Electronic

XPol F-Panel 1710–2170 88° 11.5dBi

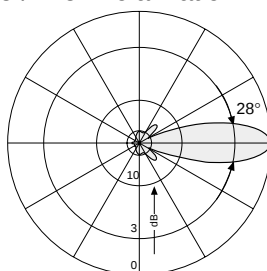
Type No.	741 984		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.3 dBi	2 x 11.5 dBi	2 x 11.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 86° Vertical: 28°	Horizontal: 87° Vertical: 26°	Horizontal: 88° 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	0° Typically: 20 dB ±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

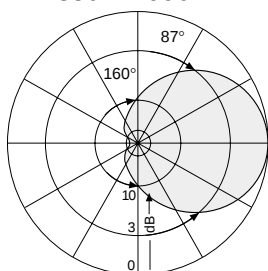


Horizontal Pattern

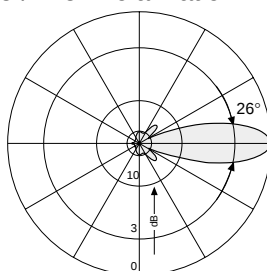


Vertical Pattern

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

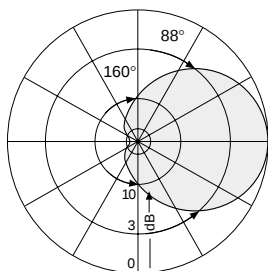


Horizontal Pattern

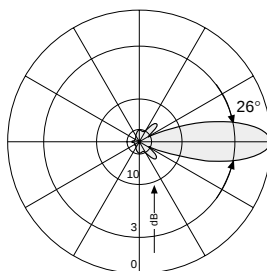


Vertical Pattern

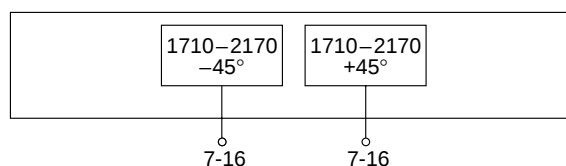
1920 – 2170 MHz: +45°/–45° Polarization



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

Fixed Electrical Downtilt

1710–2170

X

88°

2°

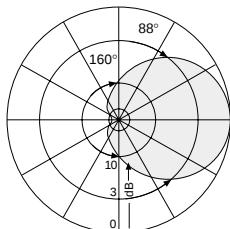
KATHREIN

Antennen · Electronic

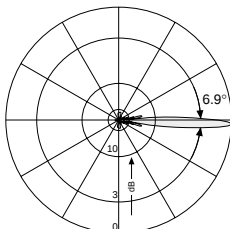
XPol F-Panel 1710–2170 88° 17dBi 2°T

Type No.	741 987		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 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° ±60°	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

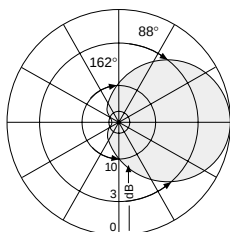


Horizontal Pattern

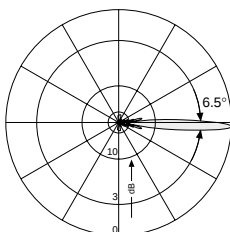


Vertical Pattern
2° electrical downtilt

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

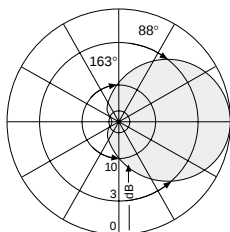


Horizontal Pattern

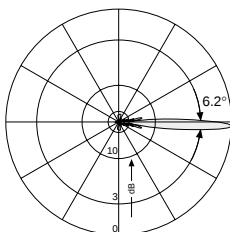


Vertical Pattern
2° electrical downtilt

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



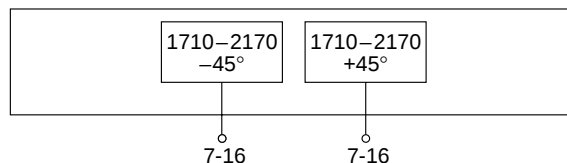
Horizontal Pattern



Vertical Pattern
2° electrical downtilt



UMTS
XPol



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

1710–2170

X

88°

0°–10°

KATHREIN

Antennen · Electronic

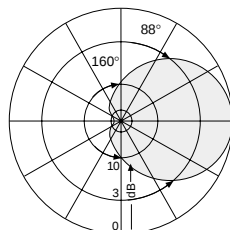
set by hand or by optional RCU (Remote Control Unit)

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

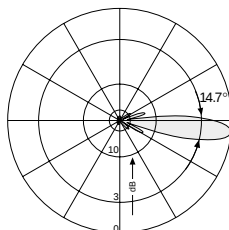
Type No.	741 988		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 13.7 dBi	2 x 14 dBi	2 x 14.1 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 14.7°	Horizontal: 88° Vertical: 14°	Horizontal: 88° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	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)		



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

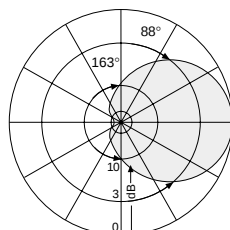


Horizontal Pattern

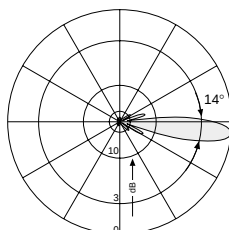


Vertical Pattern
0°–10° electrical downtilt

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

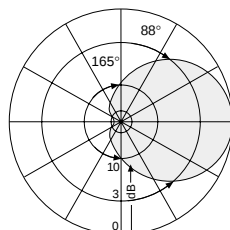


Horizontal Pattern

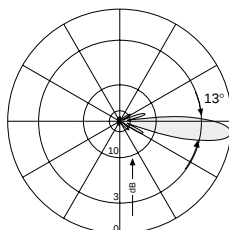


Vertical Pattern
0°–10° electrical downtilt

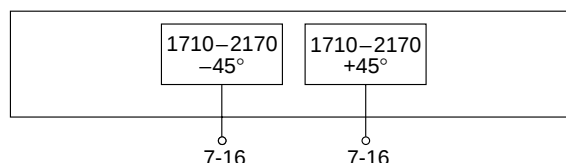
1920 – 2170 MHz: +45°/–45° Polarization



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	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

1710–2170

X

88°

0°–8°

KATHREIN

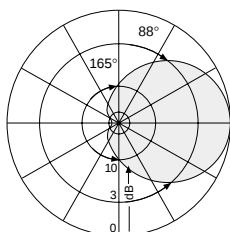
Antennen · Electronic

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

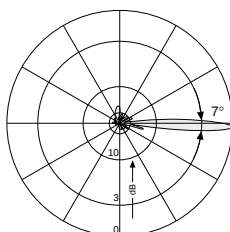
XPol F-Panel 1710–2170 88° 17dBi 0°–8°T

Type No.	741 989		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 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°
Sidelobe suppression for first sidelobe above horizon	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	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

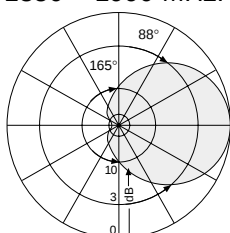


Horizontal Pattern

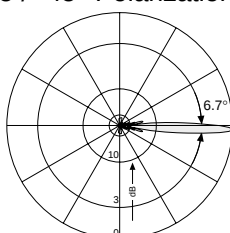


Vertical Pattern
0°–8° electrical downtilt

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

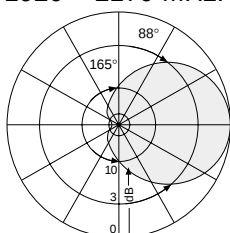


Horizontal Pattern

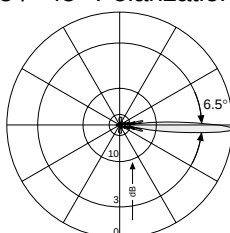


Vertical Pattern
0°–8° electrical downtilt

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



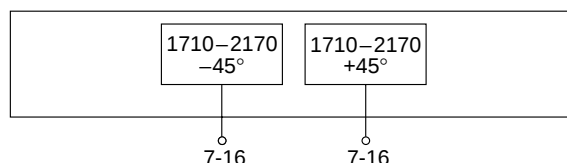
Horizontal Pattern



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	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°

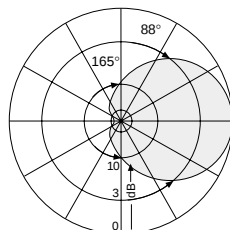
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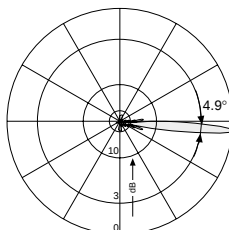
XPol F-Panel 1710–2170 88° 18dBi 0°–6°T

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°
Sidelobe suppression for first sidelobe above horizon	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 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

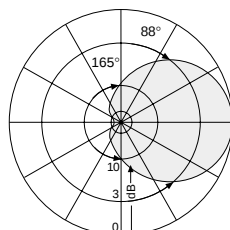


Horizontal Pattern

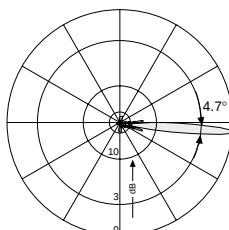


Vertical Pattern
0°–6° electrical downtilt

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

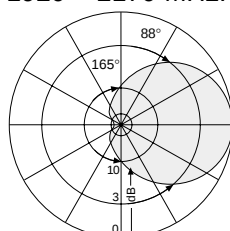


Horizontal Pattern

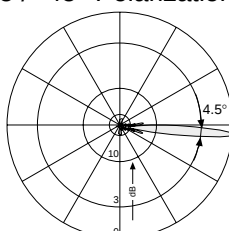


Vertical Pattern
0°–6° electrical downtilt

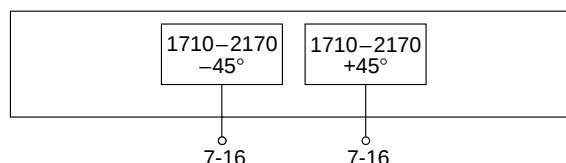
1920 – 2170 MHz: +45°/–45° Polarization



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° 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 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	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)			

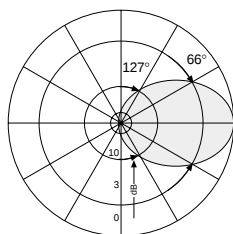
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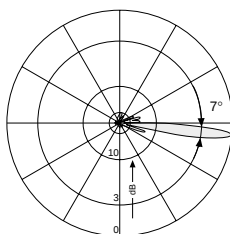


Tri-Sector
Pipe Antenna

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

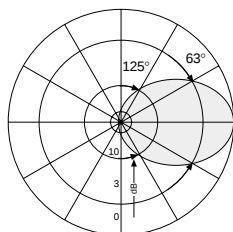


Horizontal Pattern

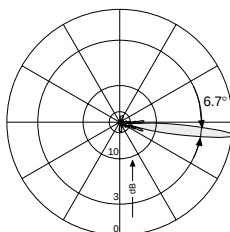


Vertical Pattern
0°–10° electrical downtilt

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

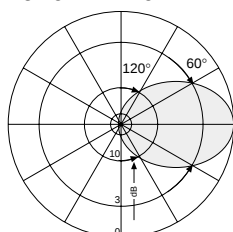


Horizontal Pattern

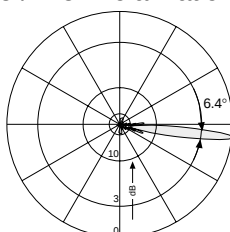


Vertical Pattern
0°–10° electrical downtilt

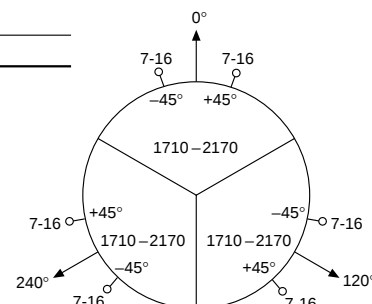
1920 – 2170 MHz: +45°/–45° Polarization



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 400 x 400 mm
Height/ diameter	2296 / 230 and 280 mm

Tri-Sector Pipe Antenna

Frequency Range

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

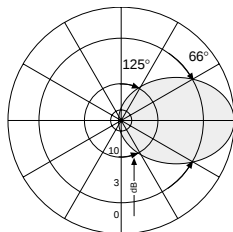
set by hand or by optional RCUs (Remote Control Units)

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

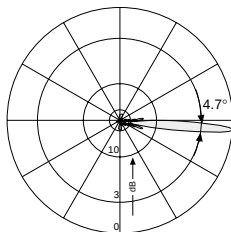
Type No.	800 10271			Electrical datas per sector
Frequency range	1710–2170			
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Average gain (dBi)	18.7 ... 19.0 ... 18.7	19.1 ... 19.3 ... 19.1	19.3 ... 19.5 ... 19.3	
Tilt	0° ... 3° ... 6°	0° ... 3° ... 6°	0° ... 3° ... 6°	
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 4.7°	Horizontal: 63° Vertical: 4.5°	Horizontal: 60° 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				
Maindirection	Typically: 25 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	> 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



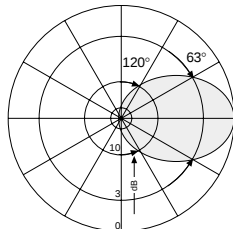
Horizontal Pattern



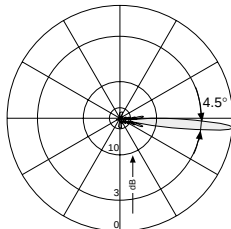
Vertical Pattern

0°–6° electrical downtilt

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



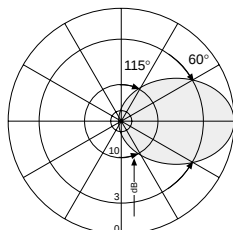
Horizontal Pattern



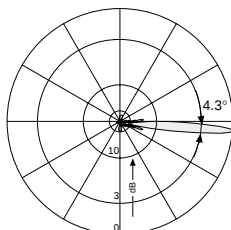
Vertical Pattern

0°–6° electrical downtilt

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

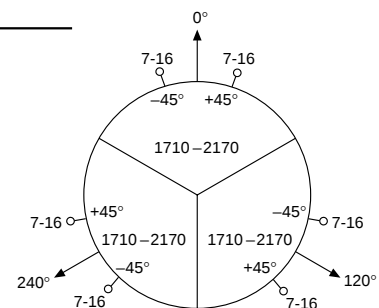


Horizontal Pattern



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	82 kg
Wind load	566 N (at 150 km/h)
Max. wind velocity	200 km/h
Natural frequency	10 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	3100 x 400 x 400 mm
Height/ diameter	2945 / 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 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	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				
Maindirection	Typically: 25 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	> 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)			

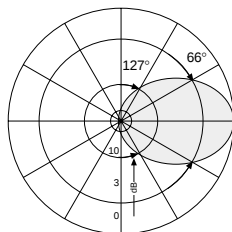
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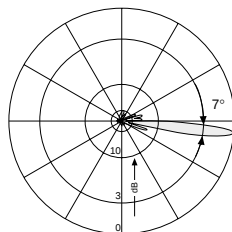


Tri-Sector
Pipe Antenna

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

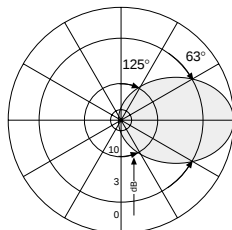


Horizontal Pattern

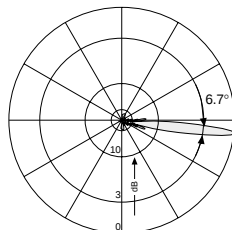


Vertical Pattern
0°–10° electrical downtilt

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

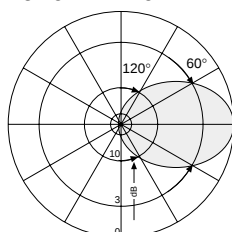


Horizontal Pattern

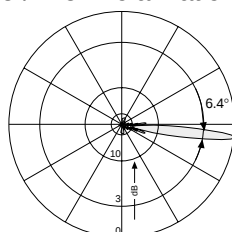


Vertical Pattern
0°–10° electrical downtilt

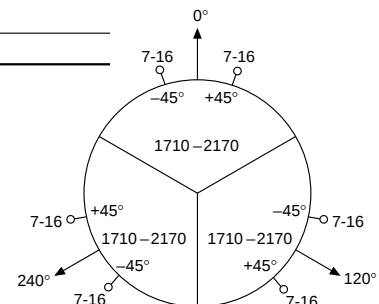
1920 – 2170 MHz: +45°/–45° Polarization



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	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

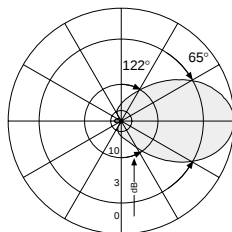
set by hand or by optional RCUs (Remote Control Units)

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

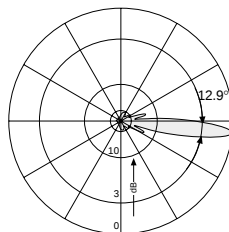
Type No.	800 10375			Electrical datas per sector
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz	
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	
Gain per Input (dBi)	0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.2 ... 14.8	0° ... 4° ... 8° ... 12° T 15.6 ... 15.5 ... 15.4 ... 14.8	0° ... 4° ... 8° ... 12° T 15.8 ... 15.7 ... 15.5 ... 14.9	
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 12.9°	Horizontal: 65° Vertical: 12°	Horizontal: 61° Vertical: 11.5°	
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°	
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 15 ... 15 ... 15 ... 14 dB	0° ... 5° ... 10° T 15 ... 15 ... 15 ... 14 dB	0° ... 5° ... 10° T 15 ... 15 ... 15 ... 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	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	300 W (at 50 °C ambient temperature)			



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

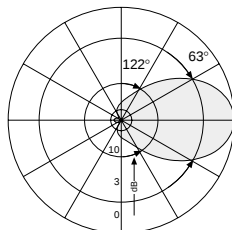


Horizontal Pattern

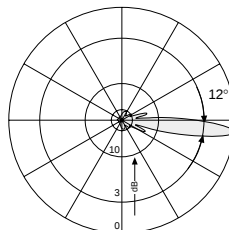


Vertical Pattern
0°–12° electrical downtilt

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

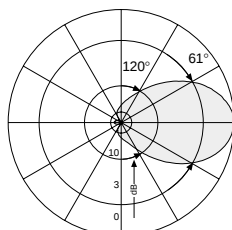


Horizontal Pattern

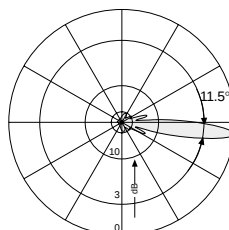


Vertical Pattern
0°–12° electrical downtilt

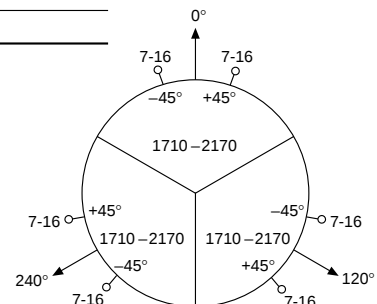
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications

Input	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

Accessories delivered with the Tri-Sector-Pipe Antenna:

1. Mounting bracket to hold Kathrein's azimuth tool
2. Mounting flange to press service zone onto customer flange (please refer to application notes)
3. Lightning rod

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 Antenna



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	108
	1710–2170	65°	15dBi	0°–10°T			
XXPol F-Panel	1710–2170	65°	18dBi	0°–8°T	742 234	1304	109
	1710–2170	65°	18dBi	0°–8°T			
XXPol F-Panel	1710–2180	65°	18dBi	0°–10°T	742 236	1319	110
	1710–2180	65°	18dBi	0°–10°T			
XXPol F-Panel	1710–2170	65°	19.5dBi	0°–6°T	742 235	1959	111
	1710–2170	65°	19.5dBi	0°–6°T			
XXPol F-Panel	1710–2170	88°	16.5dBi	0°–10°T	742 352	1319	112
	1710–2170	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

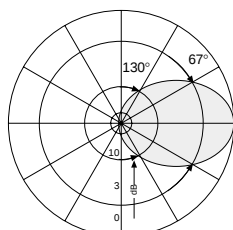
Antennen · Electronic

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

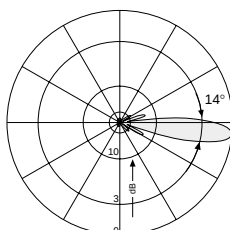
Type No.	742 233		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 15 dBi	4 x 15.2 dBi	4 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 14°	Horizontal: 65° Vertical: 13.7°	Horizontal: 62° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	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° ±60° 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

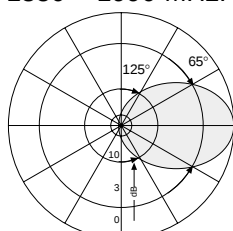


Horizontal Pattern

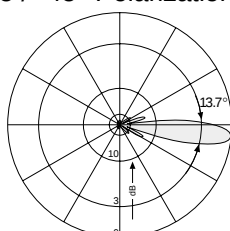


Vertical Pattern
0°–10° electrical downtilt

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

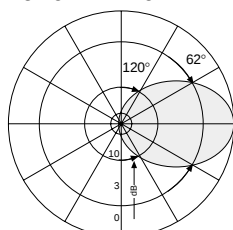


Horizontal Pattern

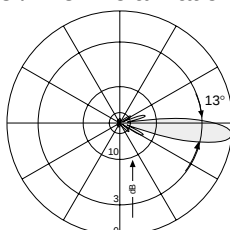


Vertical Pattern
0°–10° electrical downtilt

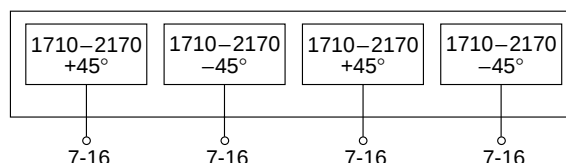
1920 – 2170 MHz: +45°/–45° Polarization



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°

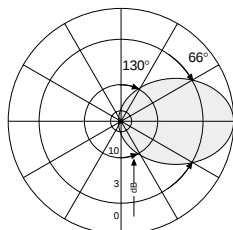
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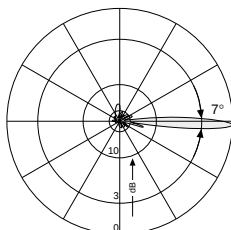
XXPol F-Panel 1710–2170/1710–2170 65°/65° 18/18dBi 0°–8°/0°–8°T

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°
Sidelobe suppression for first sidelobe above horizon	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

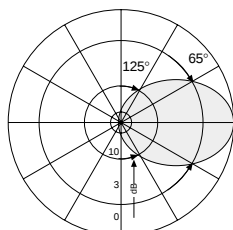


Horizontal Pattern

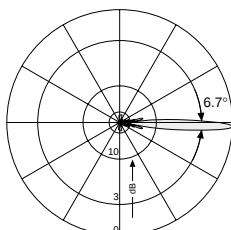


Vertical Pattern
0°–8° electrical downtilt

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

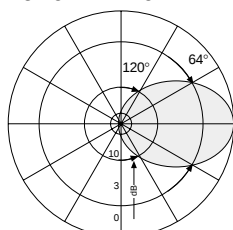


Horizontal Pattern

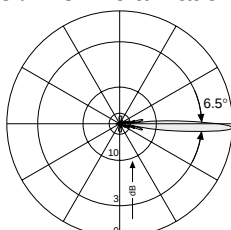


Vertical Pattern
0°–8° electrical downtilt

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°

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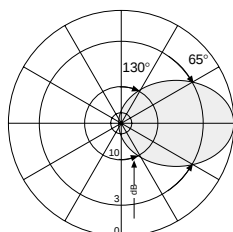
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XXPol F-Panel 1710–2180/1710–2180 65°/65° 18/18dBi 0°–10°/0°–10°T

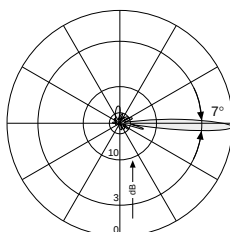
Type No.	742 236		
Frequency range	1710–2180		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 17.5 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 64° Vertical: 6.8°	Horizontal: 62° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	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

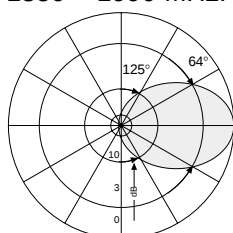


Horizontal Pattern

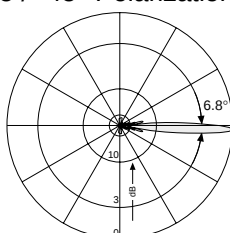


Vertical Pattern
0°–10° electrical downtilt

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

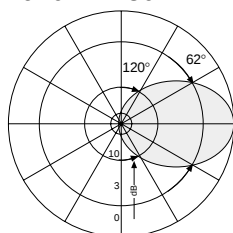


Horizontal Pattern

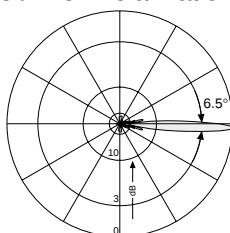


Vertical Pattern
0°–10° electrical downtilt

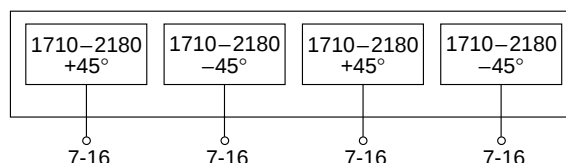
1920 – 2180 MHz: +45°/–45° Polarization



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°

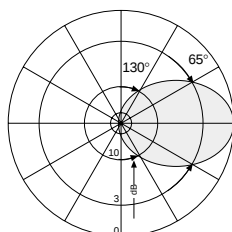
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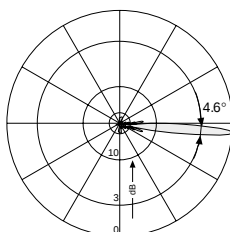
XXPol F-Panel 1710–2170/1710–2170 65°/65° 19.5/19.5dBi 0°–6°/0°–6°T

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°
Sidelobe suppression for first sidelobe above horizon	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

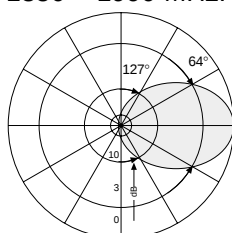


Horizontal Pattern

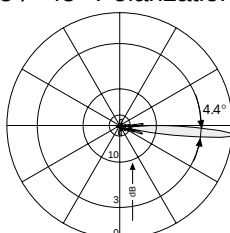


Vertical Pattern
0°–6° electrical downtilt

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

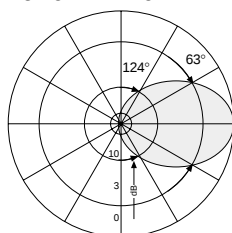


Horizontal Pattern

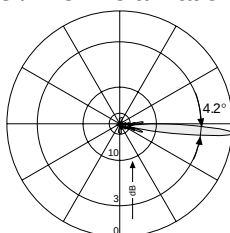


Vertical Pattern
0°–6° electrical downtilt

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

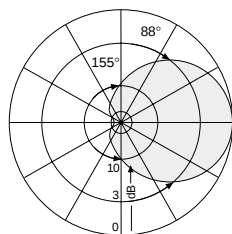
Adjust. Electr. Downtilt

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

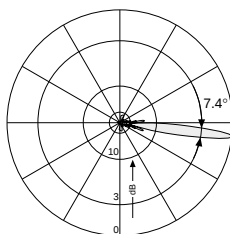
XXPol F-Panel 1710–2180/1710–2180 88°/88° 16.5/16.5dBi 0°–10°/0°–10°T

Type No.	742 352		
Frequency range	1710 – 1880 MHz		
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°
Sidelobe suppression for first sidelobe above horizon	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	Typically: 15 dB	Typically: 15 dB	Typically: 15 dB
Maindirection	Typically: > 8 dB	Typically: > 7.5 dB	Typically: > 7 dB
Sector	Typically: > 8 dB	Typically: > 7.5 dB	Typically: > 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



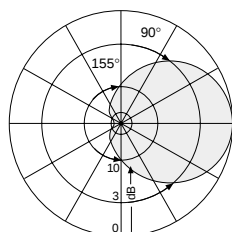
Horizontal Pattern



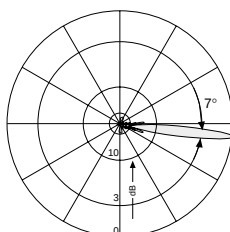
Vertical Pattern

0° – 10° electrical downtilt

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



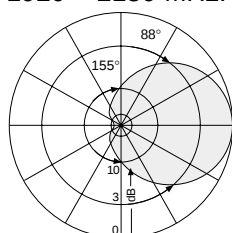
Horizontal Pattern



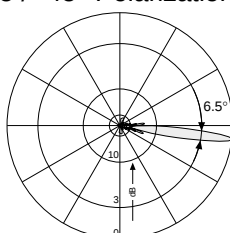
Vertical Pattern

0° – 10° electrical downtilt

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



Horizontal Pattern



Vertical Pattern

0° – 10° electrical downtilt

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1710–2180 +45°	1710–2180 –45°	1710–2180 +45°	1710–2180 –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	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	65°	12dBi		742 226	579	114
	1710–2170	60°	14dBi				
XXPol A-Panel	806– 960	C 65°	12dBi		742 222	579	115
	1710–2170	60°	14dBi				
XXPol A-Panel	824– 960	65°	14dBi	0°–14°T	742 264	1316	116
	1710–2170	65°	17dBi	0°–8°T			
XXPol A-Panel	824–960	C 65°	14dBi	0°–14°T	742 223	1316	117
	1710–2170	65°	17dBi	0°–8°T			
XXPol A-Panel	824– 960	65°	16dBi	0°–10°T	742 265	1916	118
	1710–2170	65°	18.5dBi	0°–6°T			
XXPol A-Panel	824– 960	65°	17dBi	0°–7°T	742 266	2516	119
	1710–2170	65°	18.5dBi	0°–6°T			
XXPol A-Panel	806–960	88°	13.5dBi	0°–12°T	800 10121	1384	120
	1710–2180	88°	16.5dBi	0°–10°T			
XXPol A-Panel	806–960	88°	15.5dBi	0°–10°T	800 10122	1916	121
	1710–2180	88°	18dBi	0°–6°T			
XXPol A-Panel	806–960	88°	16.5dBi	0°–7°T	800 10123	2516	122
	1710–2180	88°	18dBi	0°–6°T			

Connector position: Bottom

New Product

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Fixed Electr. Downtilt

806–960

1710–2170

X

X

65°

60°

0°

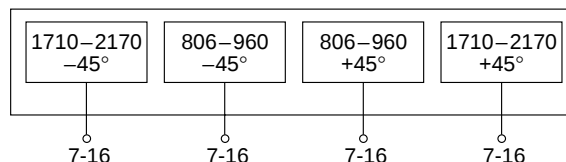
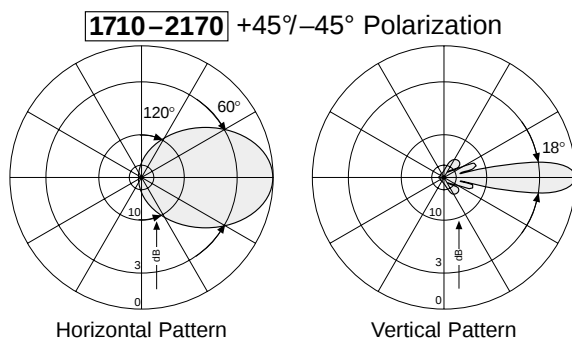
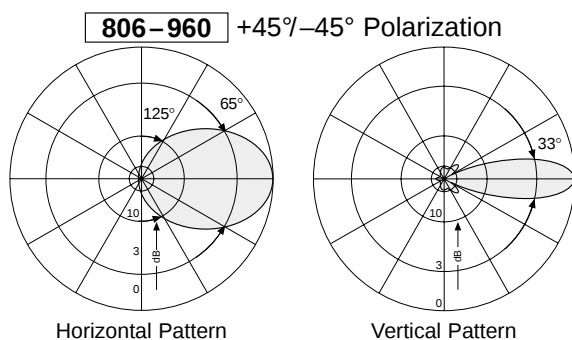
0°

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 (180° ± 30°)	[dB] Copolar: > 23 Total power:> 20	[dB] Copolar: > 23 Total power:> 20	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22
Cross polar ratio Maindirection Sector	0° ±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)		



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

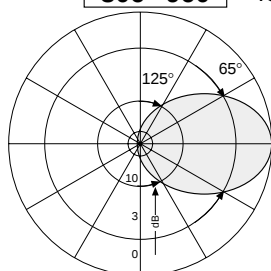
Antennen · Electronic

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

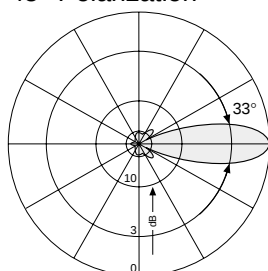
Type No.	742 222					
Frequency range	806–960 806 – 866 MHz 824 – 894 MHz 880 – 960 MHz			1710–2170 1710 – 1880 MHz 1850 – 1990 MHz 1920 – 2170 MHz		
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.1 dBi	2 x 11.4 dBi	2 x 11.8 dBi	2 x 12.5 dBi	2 x 13.3 dBi	2 x 13.6 dBi
Half-power beam width 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 (180° ± 30°)	[dB] Copolar: > 23 Total power:> 20	[dB] Copolar: > 23 Total power:> 20	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22	[dB] Copolar: > 25 Total power:> 22
Cross polar ratio Maindirection Sector	0° ±60° Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 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
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)		
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.

806–960 +45°/–45° Polarization

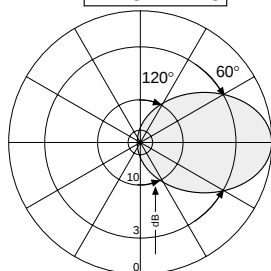


Horizontal Pattern

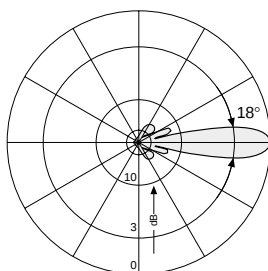


Vertical Pattern

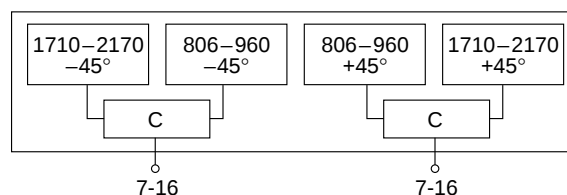
1710–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



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

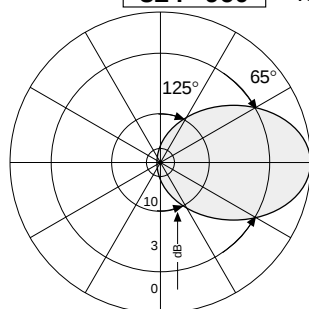
Antennen · Electronic

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

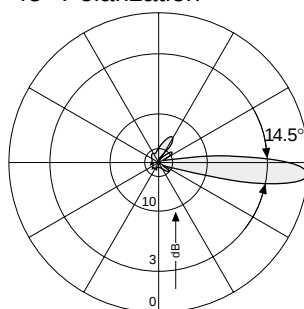
Type No.	742 264				
Frequency range	824–960		1710–2180		
	824–894 MHz	870–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14 dBi	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 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 adjustable	0°–14°	0°–14°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	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: 20 dB 0° ±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	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 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		
Max. power per input Total power	400 W 800 W		250 W 500 W		
	(at 50 °C ambient temperature)				



824–960 +45°/–45° Polarization



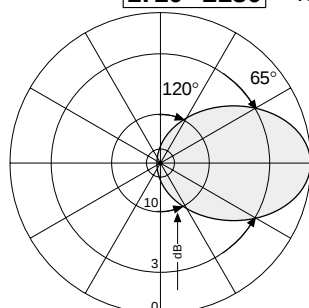
Horizontal Pattern



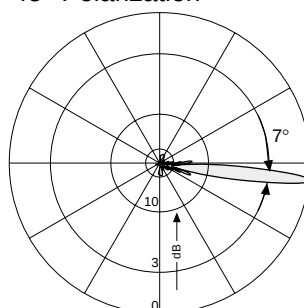
Vertical Pattern
0°–14° electrical downtilt

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°–8° 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: 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

Integrated Combiner

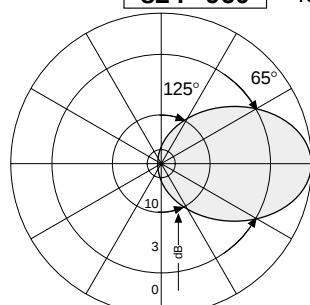
set by hand or by optional RCU (Remote Control Unit)

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

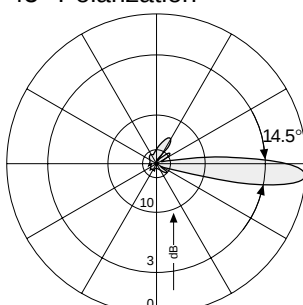
Antennen · Electronic

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 adjustable	0°–14°	0°–14°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	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 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	> 30 dB
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		
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.				

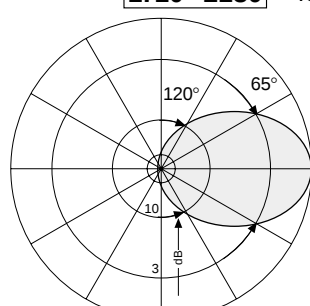
**UMTS
XXPol Dual-b.****824–960** +45°/–45° Polarization

Horizontal Pattern

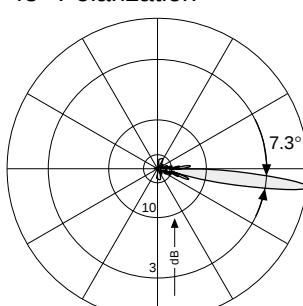


Vertical Pattern

0°–14° electrical downtilt

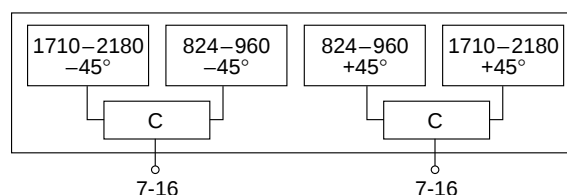
1710–2180 +45°/–45° Polarization

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

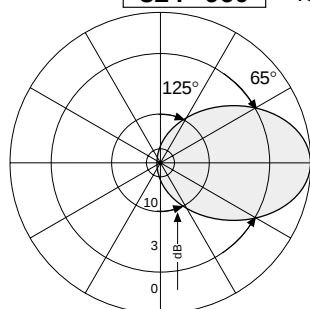
Antennen · Electronic

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

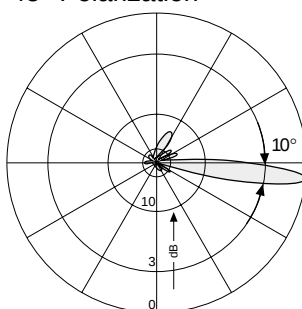
Type No.	742 265				
Frequency range	824–960		1710–2180		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2180 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.5 dBi	2 x 16 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.5°	Horizontal: 65° Vertical: 10°	Horizontal: 66° Vertical: 5.2°	Horizontal: 65° Vertical: 5.0°	Horizontal: 63° Vertical: 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 horizon	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
Front-to-back ratio, copolar	> 27 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 20 dB 0° > 10 dB ±60°	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 18 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 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		
Max. power per input Total power	400 W 800 W		250 W 500 W		
	(at 50 °C ambient temperature)				



824–960 +45°/–45° Polarization



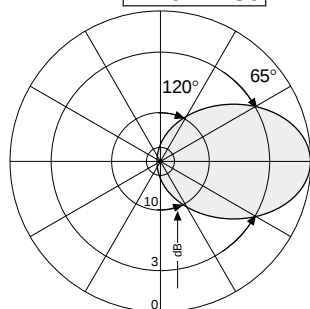
Horizontal Pattern



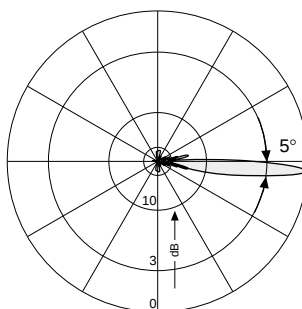
Vertical Pattern
0.5°–9.5° electrical downtilt

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
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°

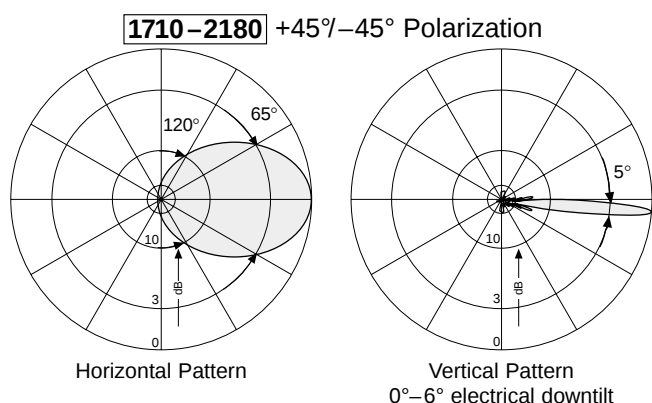
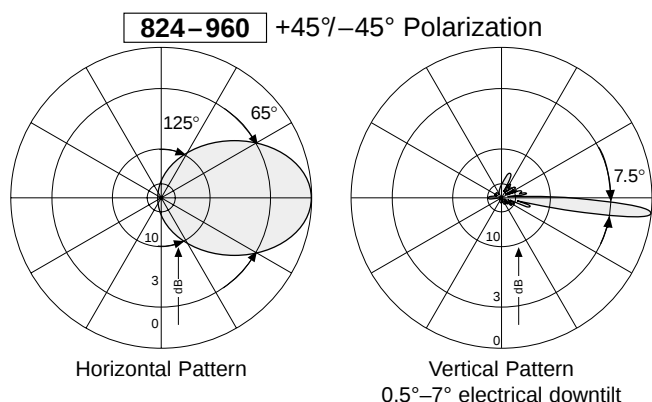
0°–6°

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
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.1°	Horizontal: 65° Vertical: 7.5°	Horizontal: 66° Vertical: 5.2°	Horizontal: 65° Vertical: 5.0°	Horizontal: 63° Vertical: 4.7°
Electrical tilt continuously adjustable	0.5°–7°	0.5°–7°	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	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
Front-to-back ratio, copolar	> 28 dB	> 28 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	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2180 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		
Max. power per input Total power	400 W 800 W		250 W 500 W		
(at 50 °C ambient temperature)					



1710–2180 –45°	824–960 –45°	824–960 +45°	1710–2180 +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	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

Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

806–960

1710–2180

X

X

88°

88°

0°–12°

0°–10°

KATHREIN

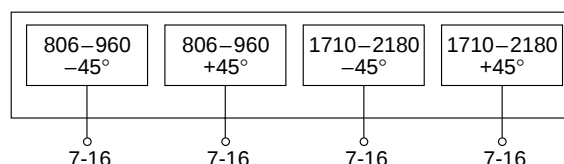
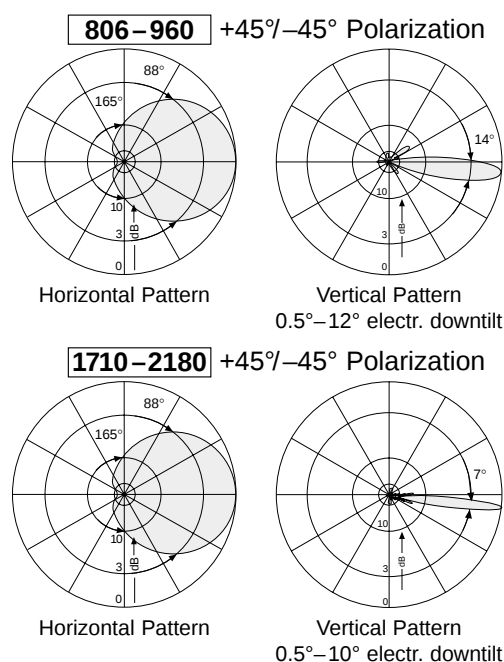
Antennen · Electronic

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

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

Type No.	800 10121					
Frequency range	806–960 806 – 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)	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°
Half-power beam width	Horizontal: 88°	Horizontal: 86°	Horizontal: 88°	Horizontal: 82°	Horizontal: 85°	Horizontal: 90°
Copolar +45°/–45°	Vertical: 15.0°	Vertical: 14.5°	Vertical: 13.5°	Vertical: 7.1°	Vertical: 6.8°	Vertical: 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 horizon: 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
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	0°	0°	0°	0°	0°	0°
Sector	±60°	±60°	±60°	±60°	±60°	±60°
	18 dB	18 dB	20 dB	17 dB	16 dB	15 dB
	> 10 dB	> 10 dB	> 13 dB	> 10 dB	> 12 dB	> 10 dB
	avg. 16 dB	avg. 16 dB	avg. 19 dB	avg. 17 dB	avg. 19 dB	avg. 19 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 45 dB (806–960 // 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	400 W			250 W		
Total power	800 W			500 W		
(at 50 °C ambient temperature)						

Mechanical specifications	
Input	4 x 7-16 female
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)

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

806–960 1710–2180

X

X

88°

88°

0°–10°

0°–6°

KATHREIN

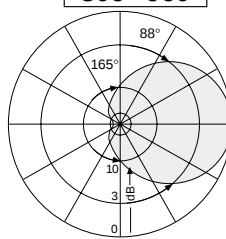
Antennen · Electronic

Type No.	800 10122					
Frequency range	806 – 866 MHz 824 – 896 MHz 880 – 960 MHz			1710 – 1880 MHz1850 – 1990 MHz1920 – 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°
Half-power beam width	Horizontal: 88°	Horizontal: 86°	Horizontal: 88°	Horizontal: 82°	Horizontal: 85°	Horizontal: 90°
Copolar +45°/–45°	Vertical: 10.5°	Vertical: 10°	Vertical: 9°	Vertical: 5.5°	Vertical: 5.2°	Vertical: 5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–6°	0°–6°	0°–6°
Min. sidelobe suppression for first sidelobe above horizon:	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
Front-to-back ratio, copolar	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB	> 23 dB
Cross polar ratio	Typically: 18 dB	Typically: 18 dB	Typically: 20 dB	Typically: 17 dB	Typically: 16 dB	Typically: 15 dB
Maindirection	0°					
Sector	±60°	> 10 dB	> 13 dB	> 10 dB	> 12 dB	> 10 dB
	±60°	avg. 16 dB	avg. 19 dB	avg. 17 dB	avg. 19 dB	avg. 19 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 45 dB (806–960 // 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	400 W			250 W		
Total power	800 W			500 W		
(at 50 °C ambient temperature)						

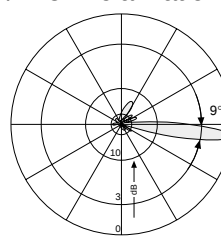
UMTS
XXPol Dual-b.

Mechanical specifications	
Input	4 x 7-16 female
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

806–960 +45°/–45° Polarization

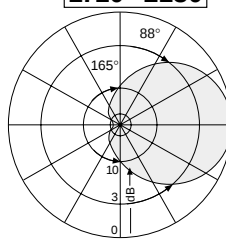


Horizontal Pattern

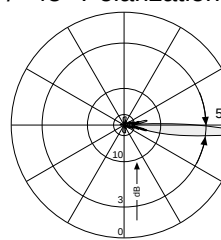


Vertical Pattern
0°–10° electr. downtilt

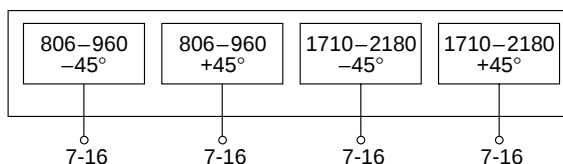
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electr. downtilt



Dual-band A-Panel

Dual Polarization

Half-power Beam Width

Adjust. Electr. Downtilt

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

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

806–960 1710–2180

X

X

88°

88°

0°–7°

0°–6°

KATHREIN

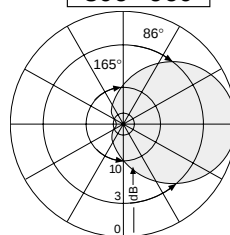
Antennen · Electronic

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°
Half-power beam width	Horizontal: 86°	Horizontal: 86°	Horizontal: 86°	Horizontal: 84°	Horizontal: 85°	Horizontal: 88°
Copolar +45°/–45°	Vertical: 7.3°	Vertical: 7.2°	Vertical: 6.9°	Vertical: 4.8°	Vertical: 4.5°	Vertical: 4.2°
Electrical tilt continuously adjustable	0.5°–7°	0.5°–7°	0.5°–7°	0°–6°	0°–6°	0°–6°
Min. sidelobe suppression for first sidelobe above horizon:	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
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 23 dB	> 23 dB	> 23 dB
Cross polar ratio	Typically: 18 dB	Typically: 18 dB	Typically: 20 dB	Typically: 16 dB	Typically: 16 dB	Typically: 15 dB
Main direction	0°	0°	0°	0°	0°	0°
Sector	±60°	±60°	±60°	±60°	±60°	±60°
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 45 dB (806–960 // 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	500 W			250 W		
Total power	1000 W			500 W		

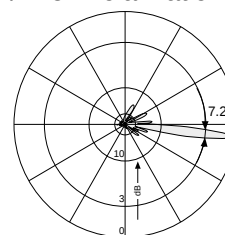
(at 50 °C ambient temperature)

Mechanical specifications	
Input	4 x 7-16 female
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

806–960 +45°/–45° Polarization

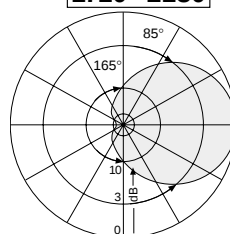


Horizontal Pattern

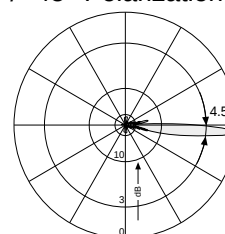


Vertical Pattern
0.5°–7° electr. downtilt

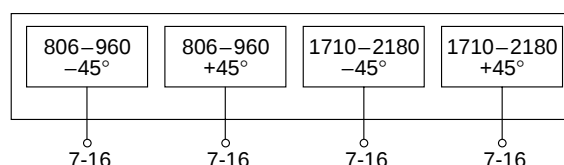
1710–2180 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electr. downtilt



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 66° 15dBi 0°–12°T 1710–1880 66° 16.5dBi 0°–8°T 1920–2170 65° 17dBi 0°–8°T	742 270	1498	124
XXXPol A-Panel 806– 960 67° 16.5dBi 0°–10°T 1710–1880 65° 17.5dBi 0°–6°T 1920–2170 65° 18dBi 0°–6°T	742 271	2058	125
XXXPol A-Panel 806– 960 66° 17.5dBi 0°–7°T 1710–1880 67° 17.5dBi 0°–6°T 1920–2170 65° 18dBi 0°–6°T	742 272	2628	126
XXXPol A-Panel 824– 960 65° 17dBi 0°–7°T 1710–2170 65° 17dBi 0°–8°T 1710–2170 65° 16.5dBi 0°–8°T	742 241	2628	127
XXXPol A-Panel 806–960 65° 17.5dBi 2°–10°T 1710–2170 65° 17.5dBi 0°–10°T 1710–2170 65° 17dBi 0°–10°T	800 10292	2694	128

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)

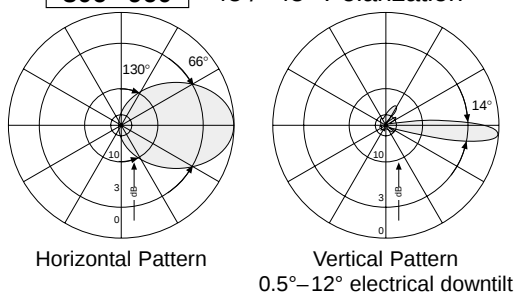
806–960	1710–1880	1920–2170	KATHREIN
X	X	X	Antennen · Electronic
66°	66°	65°	
0°–12°	0°–8°	0°–8°	

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

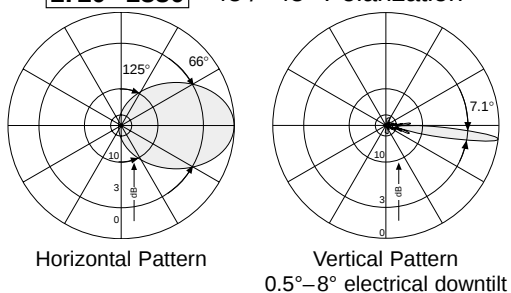
Type No.	742 270				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.8 dBi	2 x 15 dBi	2 x 15.2 dBi	2 x 16.5 dBi	2 x 17.2 dBi
Half-power beam width Copolar +45°/–45°	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°
Sidelobe suppression for first sidelobe above horizon	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° ±60° > 10 dB	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



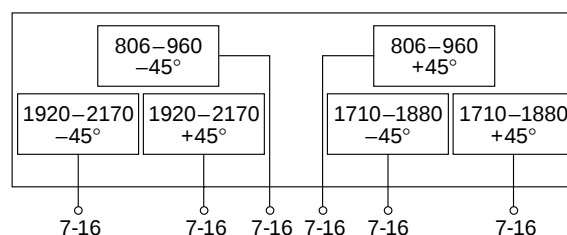
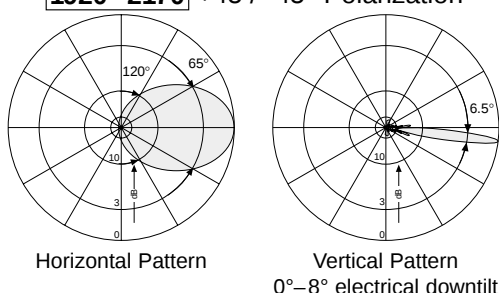
806–960 +45°/–45° Polarization



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

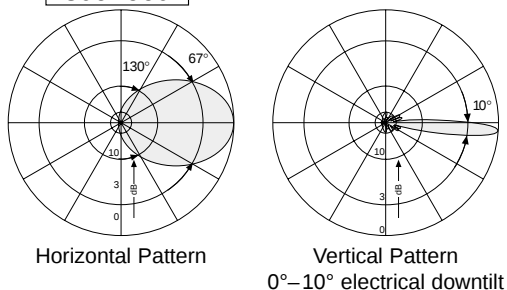
set by hand or by optional RCU (Remote Control Unit)

806–960	1710–1880	1920–2170	KATHREIN
X	X	X	Antennen · Electronic
67°	65°	65°	
0°–10°	0°–6°	0°–6°	

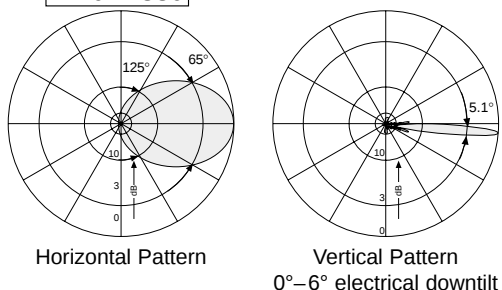
XXXPol A-Panel 806–960/1710–1880/1920–2170 67°/65°/65° 16.5/17.5/18dBi 0°–10°/0°–6°/0°–6°T

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 dB	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°
Sidelobe suppression for first sidelobe above horizon	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

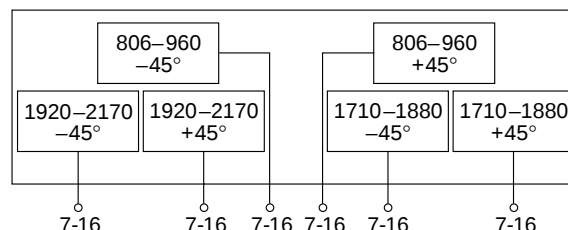
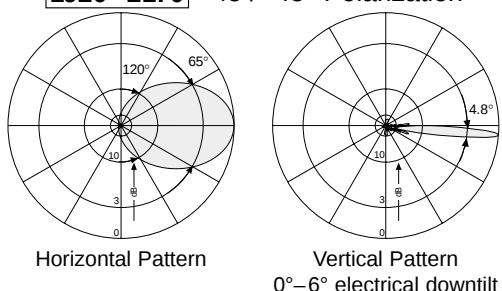
806–960 +45°/–45° Polarization



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	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

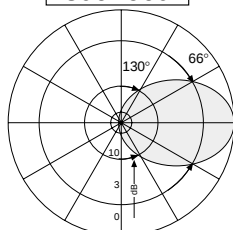
set by hand or by optional RCU (Remote Control Unit)

806–960	1710–1880	1920–2170	KATHREIN
X	X	X	Antennen · Electronic
66°	67°	65°	
0°–7°	0°–6°	0°–6°	

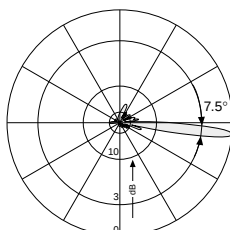
XXXPol A-Panel 806–960/1710–1880/1920–2170 66°/67°/65° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

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°
Sidelobe suppression for first sidelobe above horizon	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



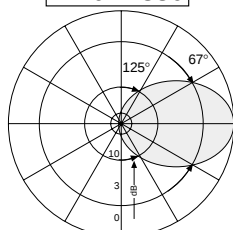
Horizontal Pattern



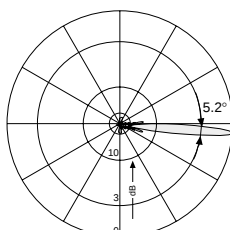
Vertical Pattern

0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization



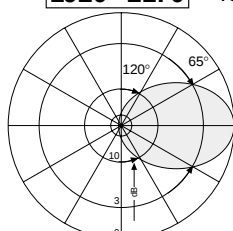
Horizontal Pattern



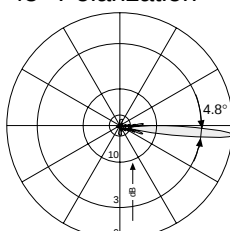
Vertical Pattern

0°–6° electrical downtilt

1920–2170 +45°/–45° Polarization

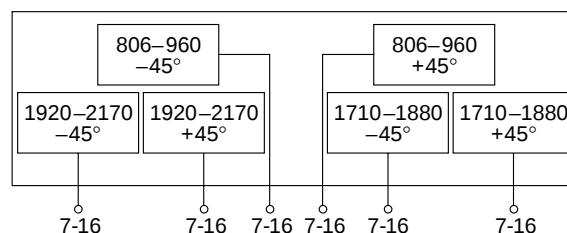


Horizontal Pattern



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°**

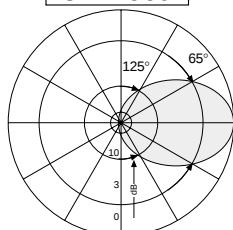
Adjust. Electr. Downtilt **0°–7°** **0°–8°** **0°–8°**

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

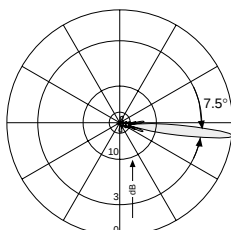
XXXPol A-Panel 824–960/1710–2170/1710–2170 65°/65°/65° 17/17/16.5dBi 0°–7°/0°–8°/0°–8°T

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°	+45°, –45°
Gain: 824–960 MHz 1710–2170 MHz (bottom) 1710–2170 MHz (top)	2 x 16.5 dBi	2 x 17 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°	0.5°–7°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	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	> 26 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 20 dB 0° ±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	> 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	50 Ω
VSWR	< 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		200 W		
	(at 50 °C ambient temperature)				

824–960 +45°/–45° Polarization



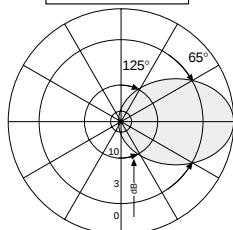
Horizontal Pattern



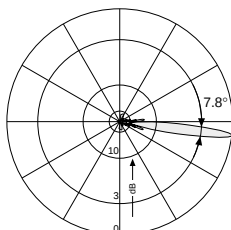
Vertical Pattern

0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization



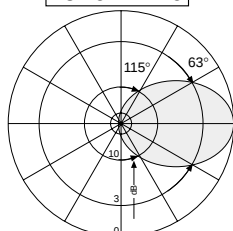
Horizontal Pattern



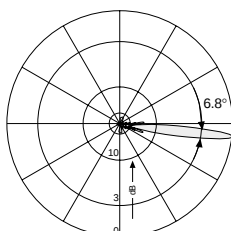
Vertical Pattern

0°–8° electrical downtilt

1920–2170 +45°/–45° Polarization

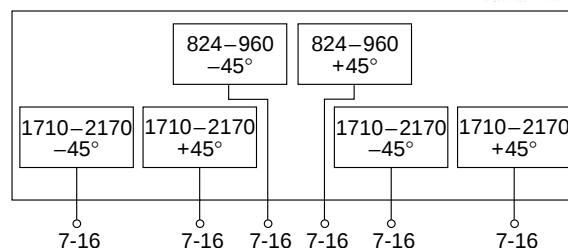


Horizontal Pattern



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

UMTS
XXXPol

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°

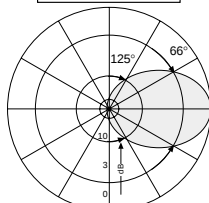
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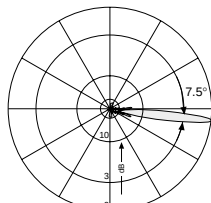
XXXPol A-Panel 806–960/1710–2180/1710–2180 65°/65°/65° 17.5/17.5/17dBi 2°–10°/0°–10°/0°–10°T

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°
Sidelobe suppression for first sidelobe above horizon	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	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio	Typically: 25 dB	Typically: 25 dB	Typically: 25 dB	Typically: 18 dB	Typically: 18 dB	Typically: 18 dB
Maindirection 0°	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 10 dB
Sector ±60°	avg. 20 dB	avg. 17 dB	avg. 14 dB	avg. 16 dB	avg. 16 dB	
±60° avg. 20 dB						
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 38 dB (806–960 // 1710–2180 MHz) > 38 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

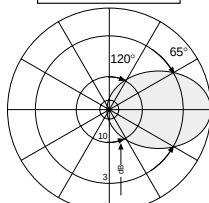


Horizontal Pattern

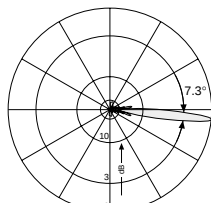


Vertical Pattern
2°–10° electrical downtilt

1710–1990 +45°/–45° Polarization

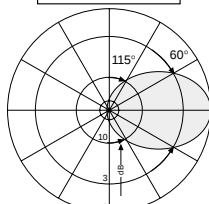


Horizontal Pattern

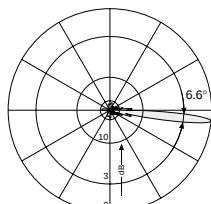


Vertical Pattern
0°–10° electrical downtilt

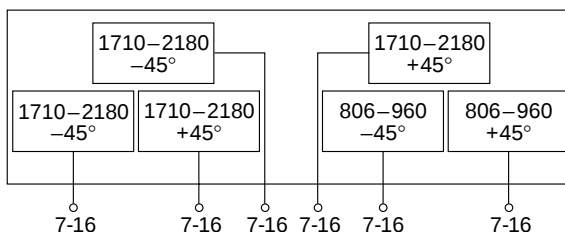
1920–2180 +45°/–45° Polarization



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 BiDir	806–960/1710–2170	65°	5dBi		738 445	310	130
VPol BiDir	806–960/1710–2170	65°	5dBi		738 446	310	130
VPol LogPer	806–2170	65°	11dBi		742 192	300	131
VPol F-Panel	1710–2170	65°	18dBi	0°–10°T	742 445	1302	132
VPol F-Panel	1710–2180	12°	18.5dBi		800 10368	299	133
VVPol F-Panel	824–960 1710–2170	C 90° 82°	7dBi 7dBi		742 290	328	134
VVPol F-Panel	824–960 1710–2170	C 90° 82°	10dBi 11dBi		800 10046	662	135

New Product

Multi-band Bidirectional Antenna

Vertical Polarization

Half-power Beam Width

806 – 960/1710 – 2170

V

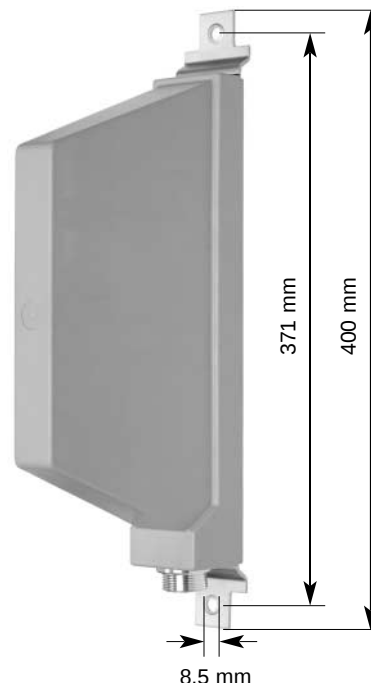
65°

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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	

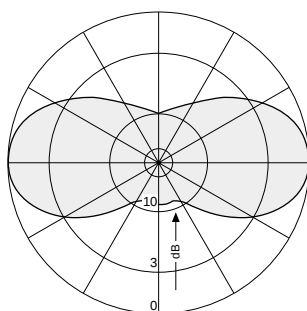


Material:
 Radiator: Tin plated copper.
 Reflector: Weather-proof aluminum.
 Radome: High impact plastic, colour: Grey.
 All screws and nuts: Stainless steel.

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°

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VPol LogPer 806–2170 65° 11dBi

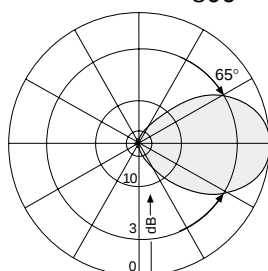
Type No.	742 192		
Input	1 x 7-16 female		
Connector position	Bottom		
Frequency range	806 – 1000 MHz	1000 – 1700 MHz	1700 – 2170 MHz
VSWR	< 1.5	< 1.5	< 1.5
Gain	11 dBi	11.3 dBi	11.5 dBi
Impedance	50 Ω	50 Ω	50 Ω
Polarization	Vertical	Vertical	Vertical
Front-to-back ratio	> 25 dB	> 25 dB	> 23 dB
Half-power 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		



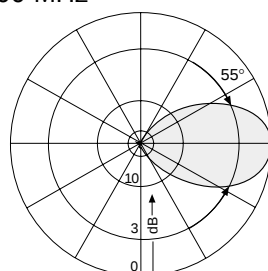
UMTS
VPol

- 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

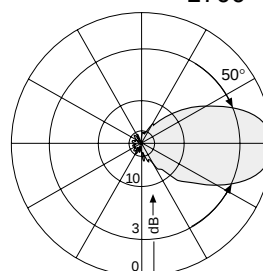


Horizontal Pattern

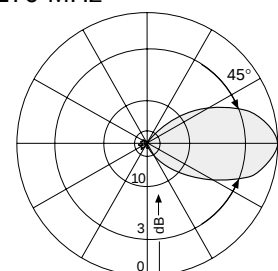


Vertical Pattern

1700 – 2170 MHz



Horizontal Pattern



Vertical Pattern

Multi-band F-Panel

Vertical Polarization

Half-power Beam Width

Adjust. Electrical Downtilt

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

1710–2170

V

65°

0°–10°

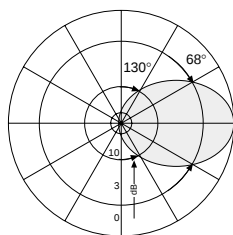
KATHREIN

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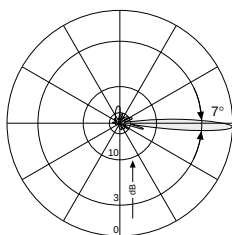
VPol F-Panel 1710–2170 65° 18dBi 0°–10°T

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
Sidelobe suppression for first sidelobe above horizon	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

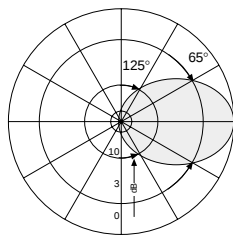


Horizontal Pattern

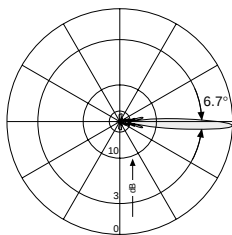


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1850 – 1990 MHz

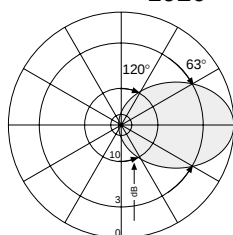


Horizontal Pattern

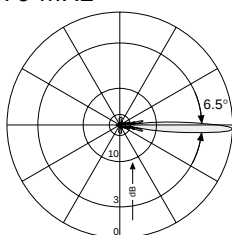


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1920 – 2170 MHz



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt
continuously adjustable



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

Multi-band F-Panel

Vertical Polarization

Half-power Beam Width

Fixed Electrical Downtilt

1710–2180

V

12°

0°

KATHREIN

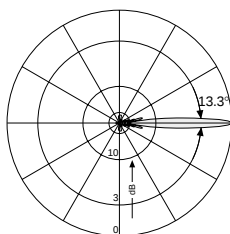
Antennen · Electronic

Preliminary Issue

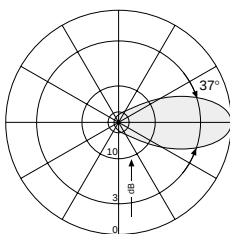
VPol F-Panel 1710–2180 12° 18.5dBi 0°T

Type No.	800 10368		
Frequency range	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2180 MHz
Polarization	Vertical	Vertical	Vertical
Gain	18.1 dBi	18.4 dBi	18.7 dBi
Half-power beam width	Horizontal: 13.3° Vertical: 37°	Horizontal: 12.8° Vertical: 36°	Horizontal: 12° Vertical: 36°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Sidelobe suppression: Vertical Pattern Horizontal Pattern	> 18 dB > 17 dB	> 18 dB > 18 dB	> 18 dB > 18 dB
Front-to-back ratio, copolar (180° ± 30°)	> 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

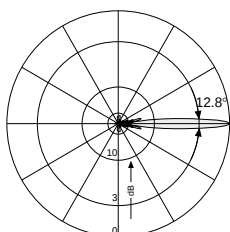


Horizontal Pattern

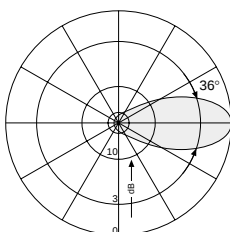


Vertical Pattern

1850 – 1990 MHz

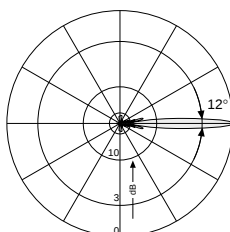


Horizontal Pattern

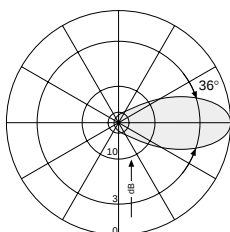


Vertical Pattern

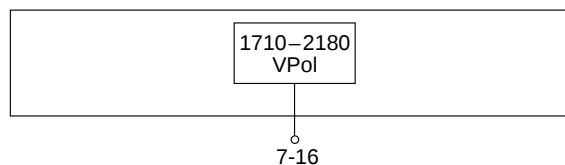
1920 – 2180 MHz



Horizontal Pattern



Vertical Pattern



Mechanical specifications

Input	1 x 7-16 female
Connector position	Side (see picture)
Weight	8 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	460 x 830 x 92 mm
Height/width/depth	299 / 747 / 69 mm

UMTS
VPol

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

824–960 1710–2170

V

V

90°

82°

C

KATHREIN

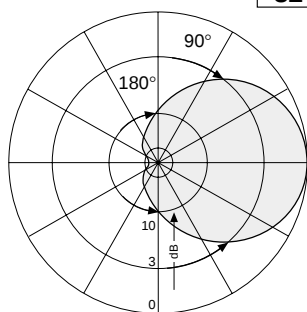
Antennen · Electronic

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

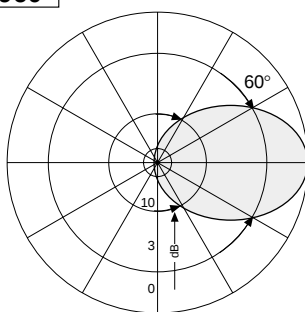
Type No.	742 290	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	7 dBi	7 dBi
Half-power beam width	Horizontal: 90° Vertical: 60°	Horizontal: 82° Vertical: 70°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 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)	



824–960

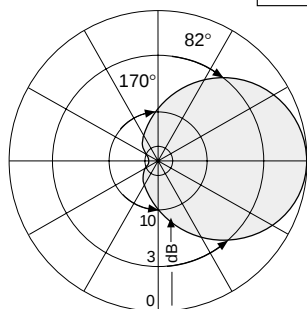


Horizontal Pattern

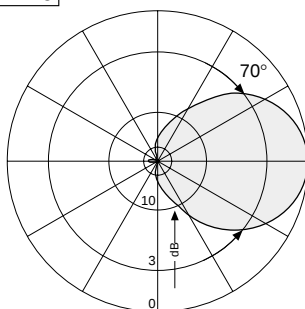


Vertical Pattern

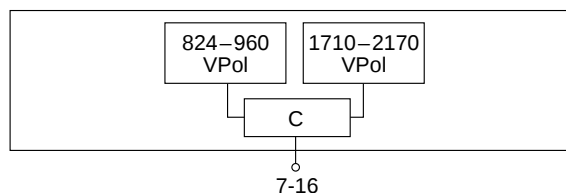
1710–2170



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

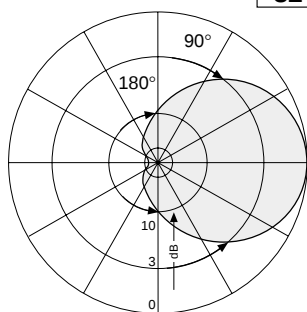
Antennen · Electronic

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

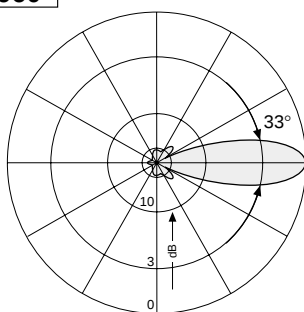
Type No.	800 10046	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	10 dBi	11 dBi
Half-power beam width	Horizontal: 90° Vertical: 33°	Horizontal: 82° Vertical: 19°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)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



824–960

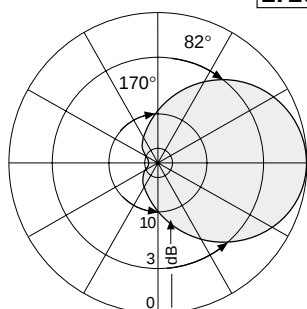


Horizontal Pattern

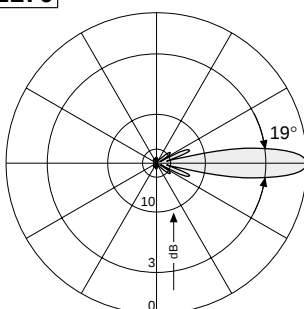


Vertical Pattern

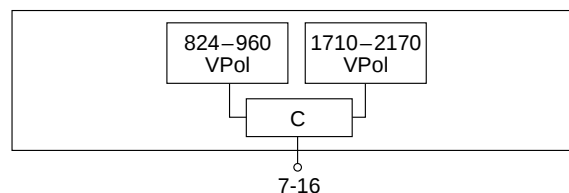
1710–2170



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 – Omnidirectional Antennas 800/900/1800/2000

KATHREIN
Antennen · Electronic

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	138
VPol Omni 806–960 360° 2dBi	K 75 11 61	N	273		139
VPol Omni 890–960 360° 5dBi	K 75 15 64 1	N	635		140
VPol Omni 870–960 360° 8dBi	736 350	7-16	1543		141
VPol Omni 806–894 360° 11dBi	738 192	7-16	3237		142
VPol Omni 870–960 360° 11dBi	736 347	7-16	3033		143
VPol Omni 870–960 360° 10.5dBi 5°T	736 349	7-16	2954		144

Vertical Polarization – Dual-band

VPol Omni 870–960/1710–1880 360° 2dBi	738 449	N	216	indoor/outdoor	145
VPol Omni 824–960/1805–2170 360° 2dBi	800 10147	N	216	indoor/outdoor	146
VVPol Omni 870–960/ 360°/ 9dBi 1920–2170 360° 10dBi	80010274	7-16	3033	separate inputs	147
VVPol Omni 870–960/1710–1880 360° 2dBi 1920–2170 360° 2dBi	800 10111	N	493	separate inputs	148

Vertical Polarization – 1800

VPol Omni 1710–1880 360° 8dBi	739 785	7-16	800		149
VPol Omni 1710–1880 360° 11dBi	738 187	7-16	1570		150
VPol Omni 1710–1880 360° 11dBi 6°T	737 190	7-16	1560		151

Vertical Polarization – 1800/2000

VPol Omni 1710–2170 360° 2 dBi	738 454	N	115	indoor/outdoor	152
VPol Omni 1920–2170 360° 11 dBi	741 790	7-16	1387		153

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 Watt (at 50 °C ambient temperature)
Weight	200 g
Radome diameter	20 mm
Height	180 mm

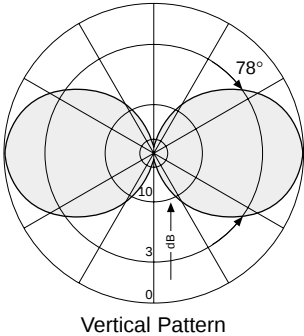
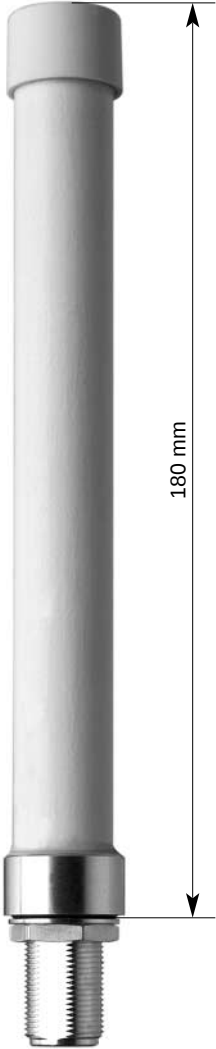
- Material:

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:

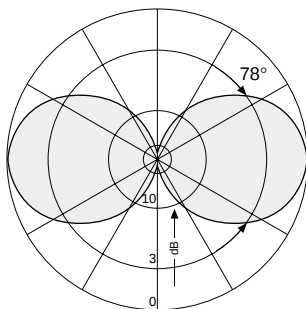
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

Material:

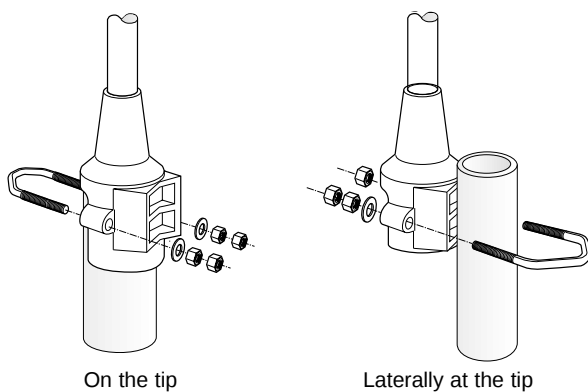
Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Grounding:

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



Vertical Pattern



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)

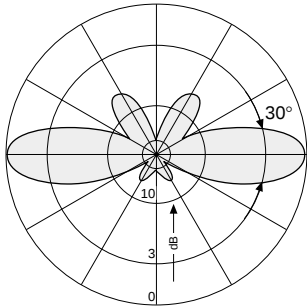
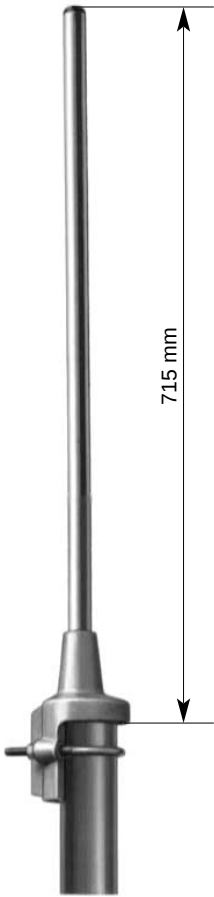
- Mounting:

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

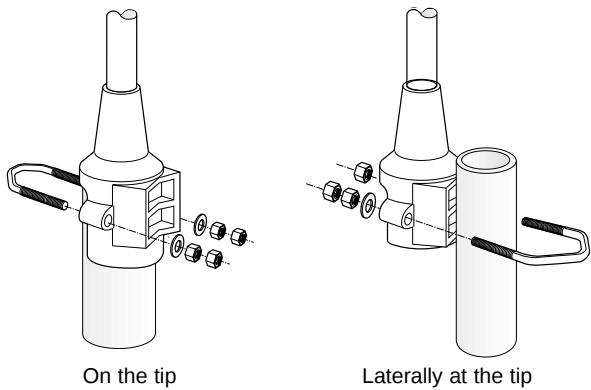
 - On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
 - Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).
- Material:

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

Omnidirectional Antennas Vertical Polarization

870–960
V

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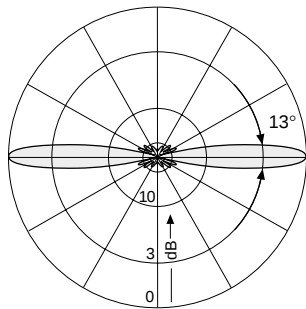
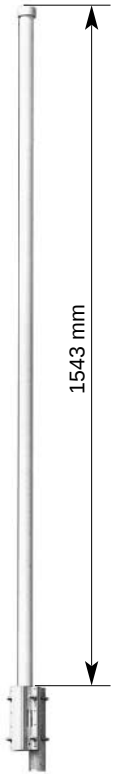
VPol Omni 870–960 360° 8dBi

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)

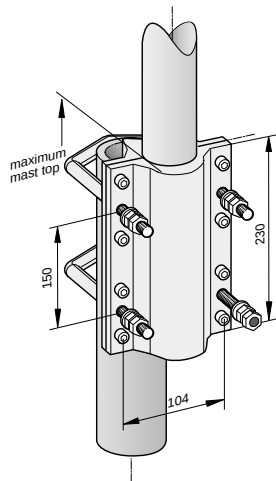
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

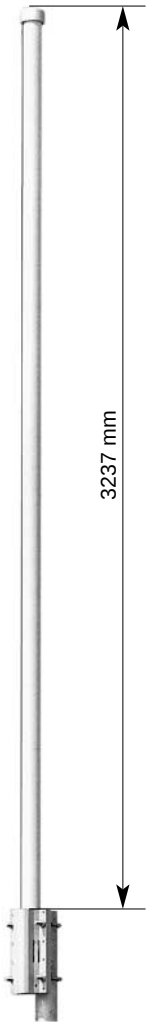
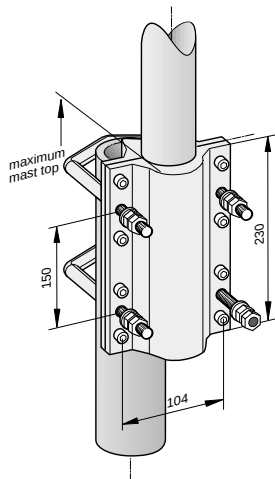
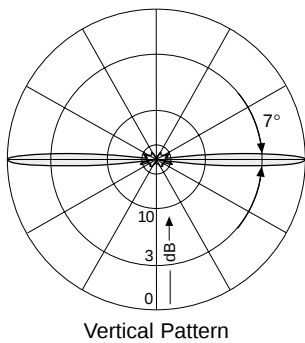
Type No.	738 192
Frequency range	806 – 894 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

- 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.



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

Omnidirectional Antennas **Vertical Polarization**

870 – 960

V

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:

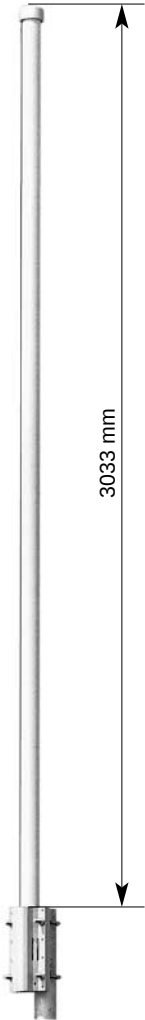
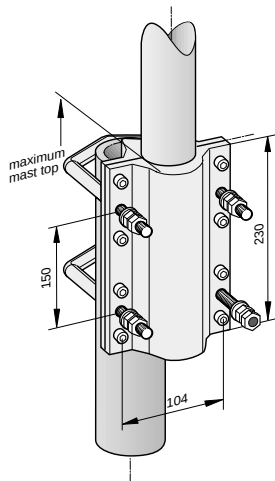
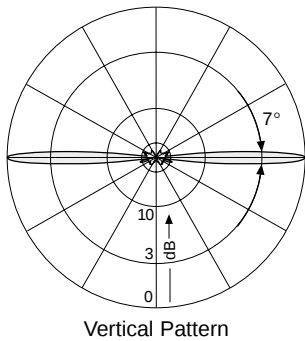
The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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.



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°

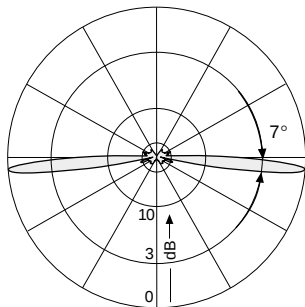
VPol Omni 870–960 360° 10.5dBi 5°T

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)

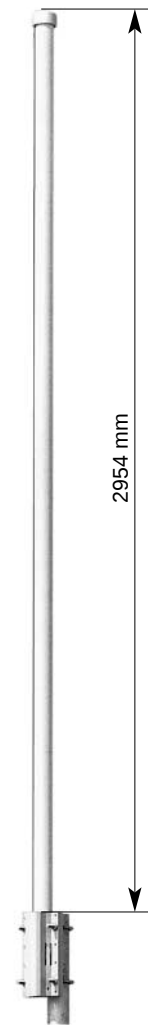
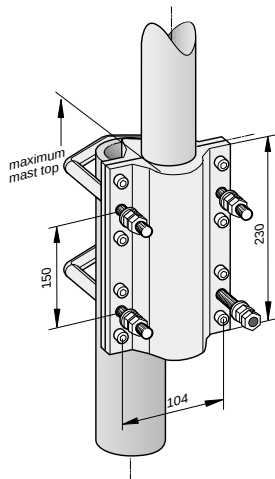
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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	736 349
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

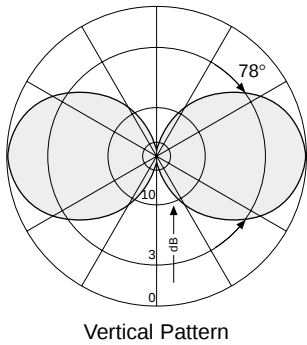
870–960/1710–1880

V

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:
Radiators: Brass.
Radome: Fiberglass, colour: White.
- Mounting:
One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.



Omni

VPol

Dual-band Omni Antenna
824–960/1805–2170

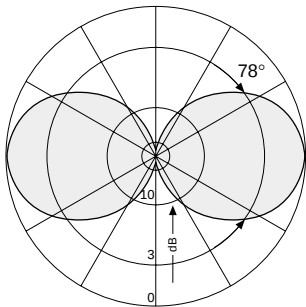
Vertical Polarization
V

Indoor and outdoor use

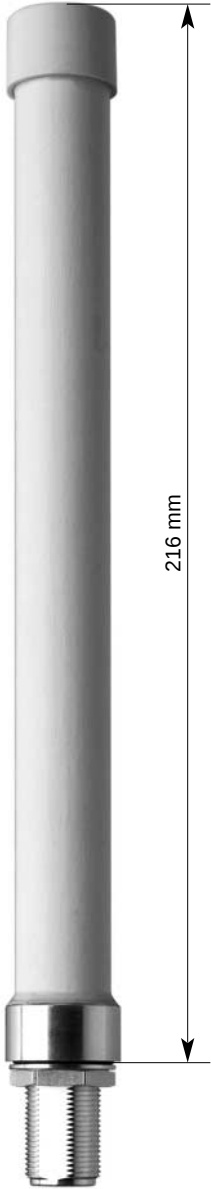
VPol Omni 824–960/1805–2170 360° 2dBi

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



Dual-band Omni Antenna

Vertical Polarization

870–960

1920–2170

V

V

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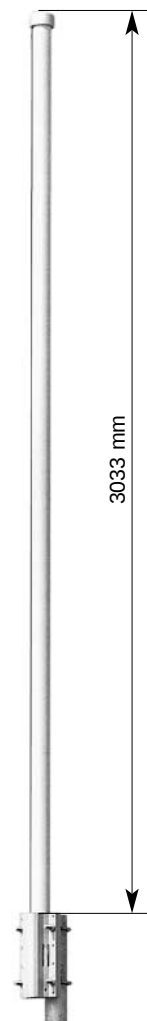
VVPol Omni 870–960/1920–2170 360°/360° 9/10dBi

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)

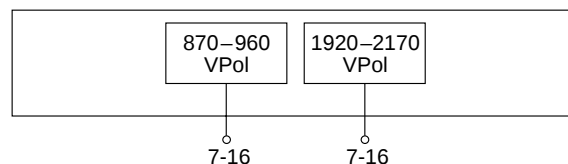
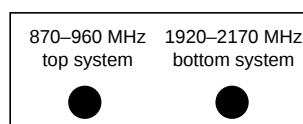
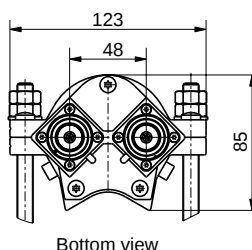
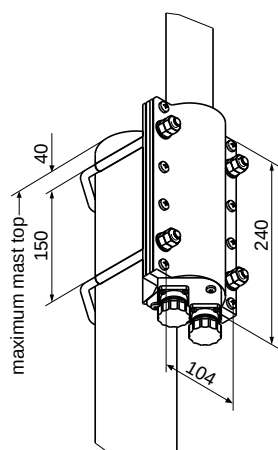
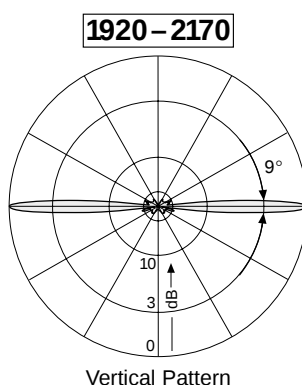
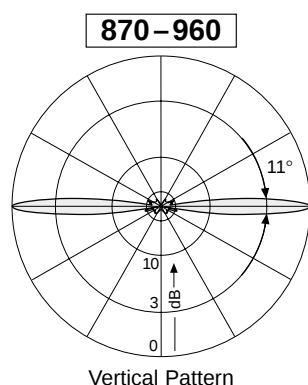
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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.



3033 mm



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

Omni
VPol

Multi-band Omni Antenna

870 – 960
1710 – 1880

1920 – 2170

KATHREIN
Antennen · Electronic

Vertical Polarization

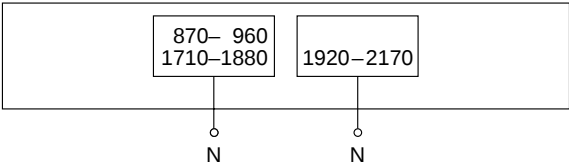
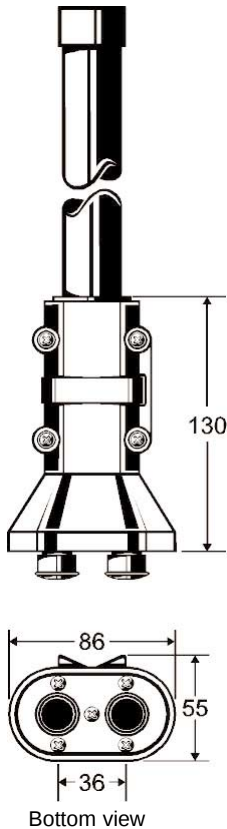
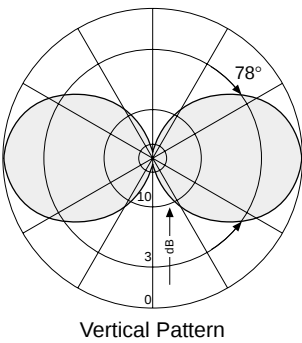
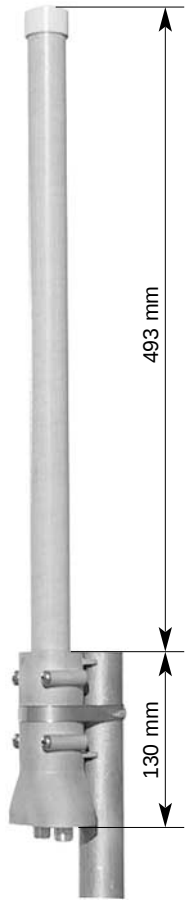
V

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

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Antennen · Electronic

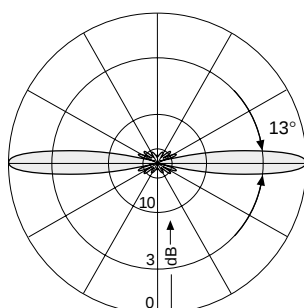
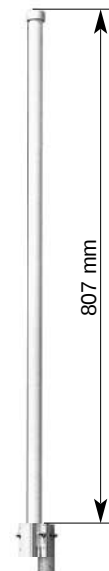
VPol Omni 1710–1880 360° 8dBi

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)

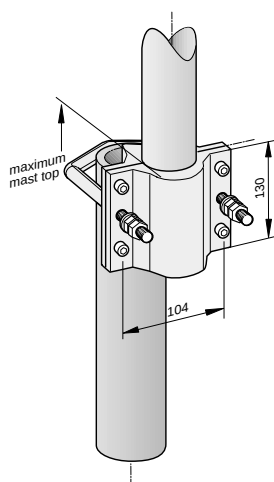
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

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

Omni
VPol

Omnidirectional Antennas

Vertical Polarization

1710–1880

V

KATHREIN
Antennen · Electronic

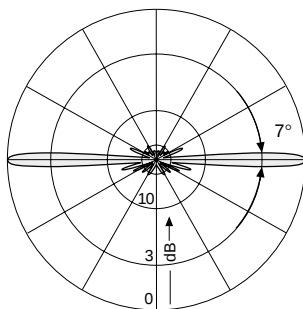
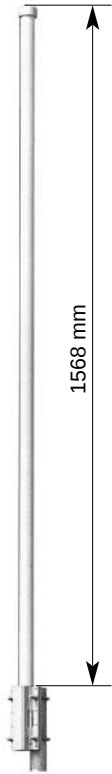
VPol Omni 1710–1880 360° 11dBi

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)

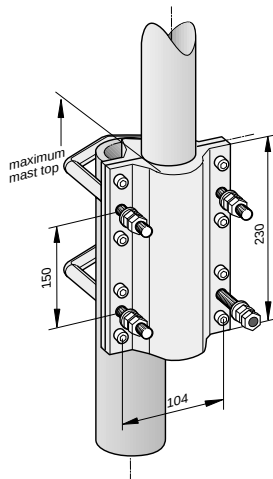
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

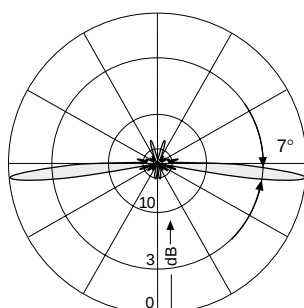
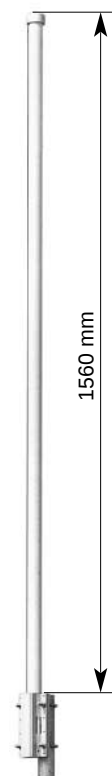
VPol Omni 1710–1880 360° 11dBi 6°T

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)

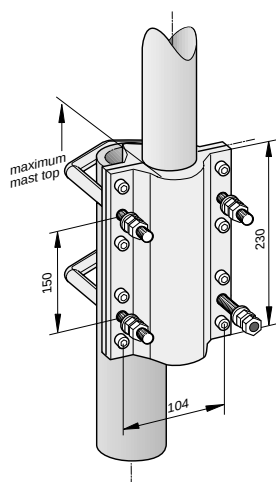
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

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

Omni
VPol

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

1710–2170

V

VPol Omni 1710–2170 360° 2dBi

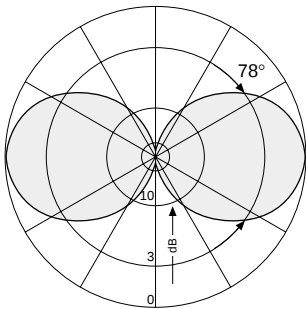
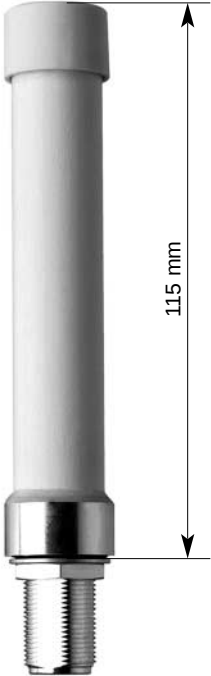
Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2170 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< -150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115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

Omnidirectional Antenna **Vertical Polarization**

1920–2170

V

VPol Omni 1920–2170 360° 11dBi

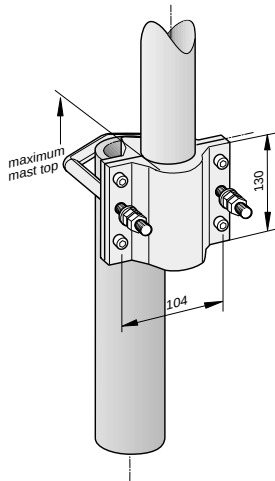
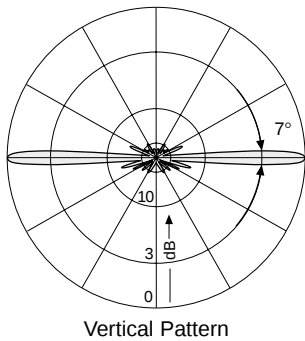
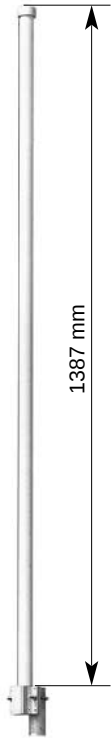
Type No.	741 790
Frequency range	1920 – 2170 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	150 W (at 50 °C ambient temperature)

- 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.



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	156
VVPol Indoor 806–960/1710–2500 90° 7dBi	800 10248	806 – 960 MHz and 1710 – 2500 MHz	N	157
VPol Indoor 1710–2170 360° 2dBi	741 573	1710 – 2500 MHz	N	158
VPol Indoor 824–960/1425–2170 360° 2dBi	741 572	824 – 960 MHz and 1425 – 2170 MHz	N	159
VPol Indoor 876–960/1710–2500 360° 2dBi	800 10137	876 – 960 MHz and 1710 – 2500 MHz	N	159
VPol Indoor 876–960/1710–2500 360° 2dBi	800 10173	876 – 960 MHz and 1710 – 2500 MHz	N	160
VPol Indoor 806– 960 1425–3600 5150–6000 360° 2dBi	800 10249	806 – 960 MHz and 1425 – 3600 MHz and 5150 – 6000 MHz	N	161

Indoor / Outdoor – Single-band

VPol Omni 870–960 360° 2dBi	738 450	870 – 960 MHz	N	162
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Indoor / Outdoor – Dual-band / Multi-band

VPol Omni 870–960/1710–1880 360° 2dBi	738 449	870 – 960 MHz and 1710 – 1880 MHz	N	163
VPol Omni 1710–2170 360° 2dBi	738 454	1710 – 2170 MHz	N	164
VPol Omni 824–960/1805–2170 360° 2dBi	800 10147	824 – 960 MHz and 1805 – 2170 MHz	N	165

New Product

Multi-band Bidirectional Antenna
Vertical Polarization
Half-power Beam Width

824 – 960/1710 – 2170

V

65°

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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

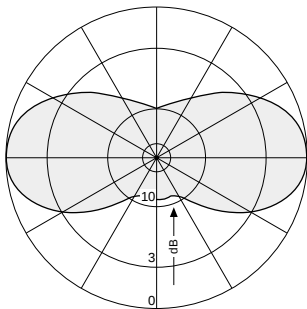
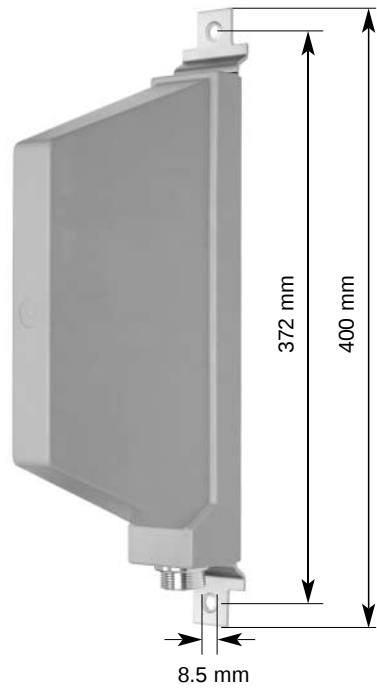
- Material:

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**1710–2500****V****V****90°****90°****C****KATHREIN**

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

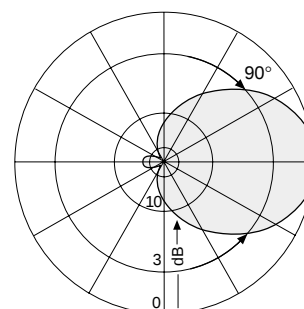
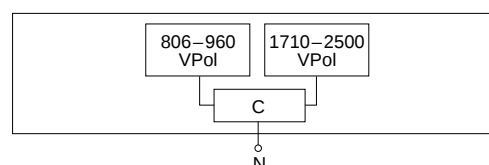
Type No.	800 10248
Frequency range	806 – 960 MHz / 1710 – 2500 MHz
Polarization	Vertical
Gain	≈ 7 dBi
Half-power beam width	Horizontal: ≈ 90°
Impedance	50 Ω
VSWR	806 – 960 MHz: < 2.0 1710 – 2200 MHz: < 2.0 2200 – 2400 MHz: < 2.5 2400 – 2500 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	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.

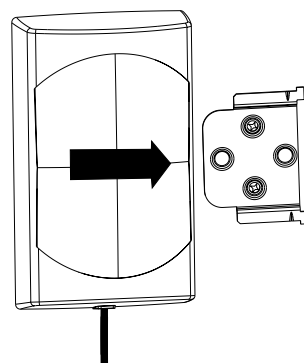
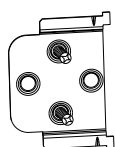
Grounding: All metal parts inclusive the inner conductor are DC grounded.

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

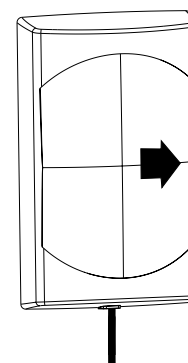


Horizontal Pattern

Mounting:



Align the antenna over the attachment plate.



Pull the antenna to the stop.

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

Indoor Omnidirectional Antenna

Vertical Polarization

Multi-band

1710–2500

V

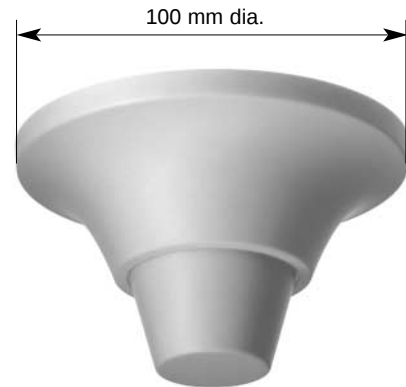
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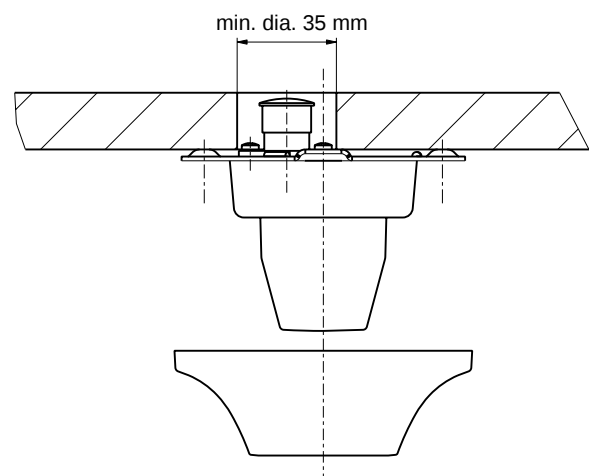
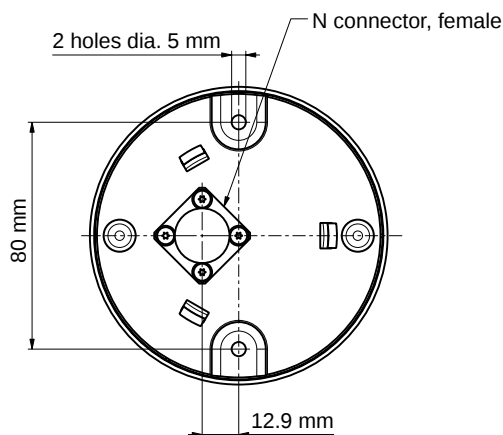
- The antenna can be operated in the total frequency range simultaneously.
- The antenna needs no additional groundplane.

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 Omnidirectional Antennas

Vertical Polarization

Multi-band

800/2000/2500

KATHREIN

V

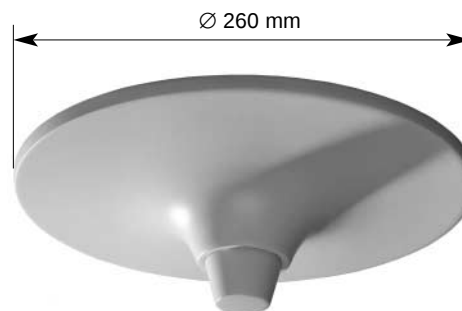
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- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

741 572: VPol Indoor 824–960/1425–2170 360° 2dBi

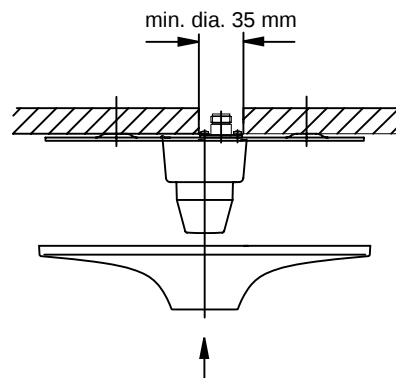
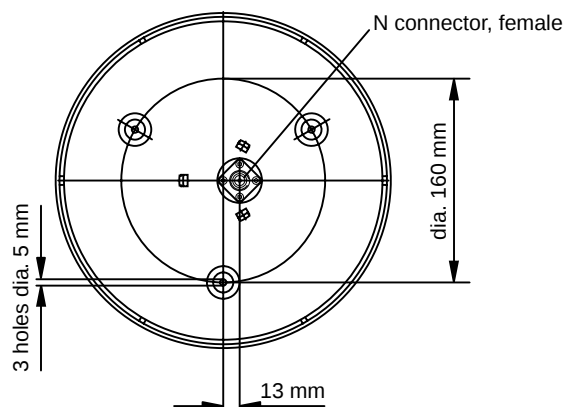
800 10137: VPol Indoor 876–960/1710–2500 360° 2dBi

Type No.	741 572	800 10137
Frequency range	824 – 960 MHz 1425 – 2170 MHz	876 – 960 MHz 1710 – 2500 MHz
VSWR	< 2.0: 824 – 960 MHz < 2.0: 1425 – 1710 MHz < 1.6: 1710 – 1990 MHz < 2.0: 1990 – 2170 MHz	< 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	400 g	300 g
Diameter	260 mm	210 mm
Height	78 mm (without connector)	



741 572

- 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

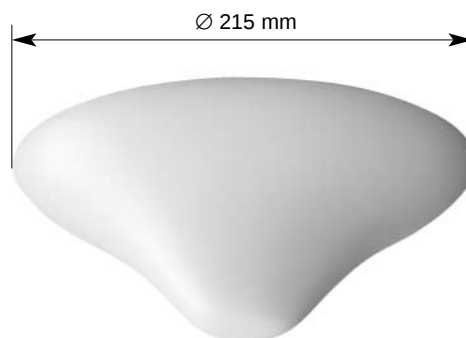
KATHREIN

Antennen · Electronic

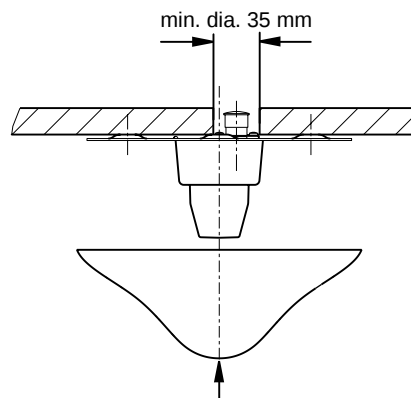
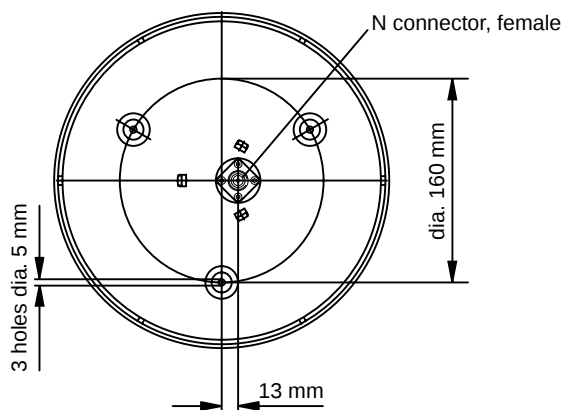
- The antenna needs no additional groundplane.

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

1425–3600

5150–6000

KATHREIN

Antennen · Electronic

V

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

VPol Indoor 806–960/1425–3600/5150–6000 360° 2dBi

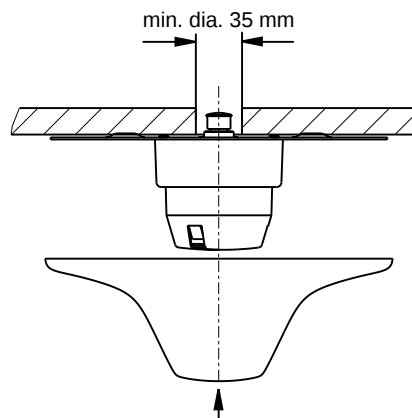
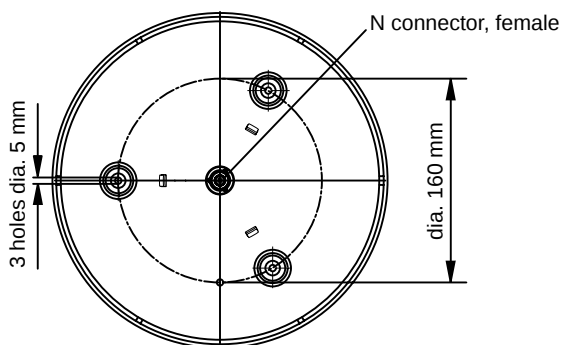
Type No.	800 10249
Frequency range	806 – 960 MHz 1425 – 3600 MHz 5150 – 6000 MHz
Polarization	Vertical
Gain	≈ 2 dBi
Impedance	50 Ω
VSWR	806 – 960 MHz: < 1.5 1425 – 1710 MHz: < 1.8 1710 – 2200 MHz: < 1.4 2200 – 3600 MHz: < 1.5 5150 – 6000 MHz: < 1.8
Max. power	50 W (at 50 °C ambient temperature)
Input	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

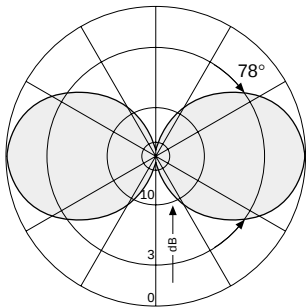
870 – 960
V

KATHREIN
Antennen · Electronic

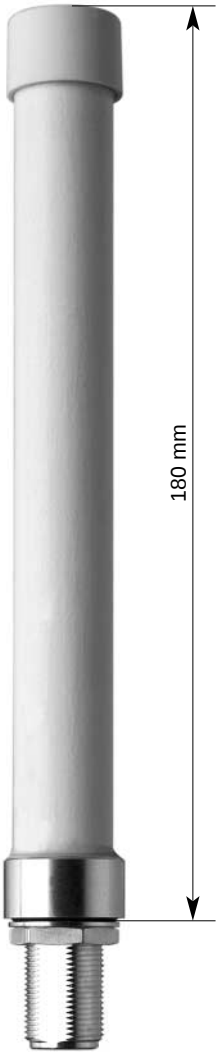
VPol Omni 870–960 360° 2dBi

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:
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



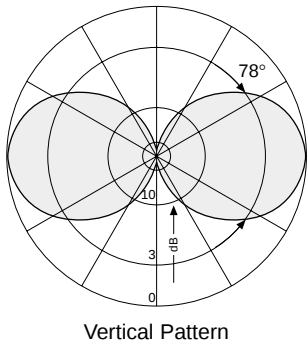
Dual-band Omni Antenna
Vertical Polarization
Indoor and outdoor use

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.



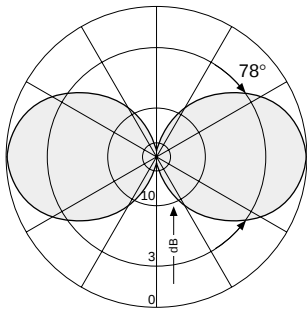
Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

1710–2170
V

VPol Omni 1710–2170 360° 2dBi

Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2170 MHz
VSWR	< 1.5
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:
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 and the mounting kit are DC grounded. The inner conductor is not DC grounded.



Vertical Pattern

Dual-band Omni Antenna
824–960/1805–2170

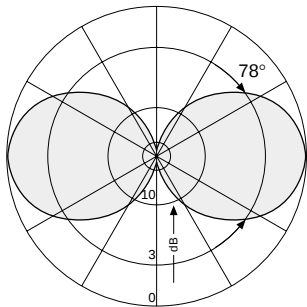
Vertical Polarization
V

Indoor and outdoor use

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		168
Instructions for RCU Installation		174
Instructions of Feederline Installation on A-Panels and F-Panel with four connectors arranged on two levels Triple-band antennas with Kathrein installation tool		175 176
Data sheets of RET-components Slimline Remote Control Unit (RCU) Central Control Unit with Layer-one Converter (CCU-LOC) Central Control Unit (CCU) 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 10068 860 10006 / 860 10026 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 10429	177 178 180 181 182 183 184 185 186 187 188 189 190
Antenna System Manager (ASM) General information Standard Edition Professional Edition Data sheets		191 192 192 193

New Products

The answer to all current and future network demands

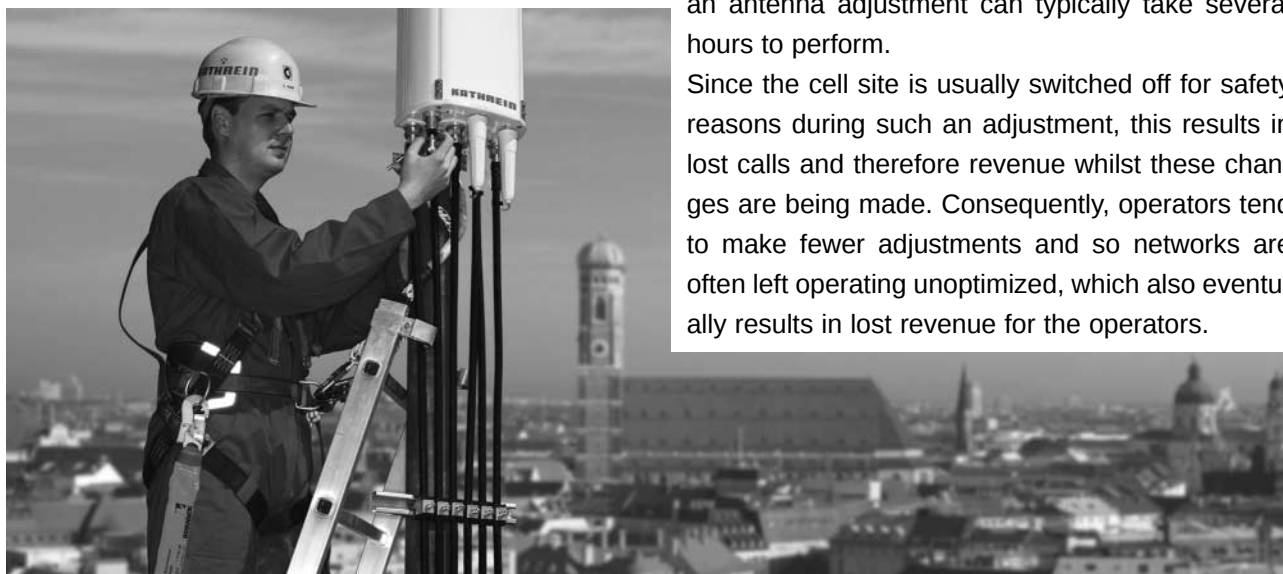
Network planning is becoming ever more complicated, especially with the advent of 3G.

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, including the new unobtrusive and robust Remote Control Unit (RCU)

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



New Slimline RCU
(Remote Control Unit)



Optional:
Smart Bias Tee



DTMA (Double Tower Mounted Amplifier)



AISG (Antenna Interface Standards Group)
Kathrein's overall RET system works in accordance with the AISG standard.

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.

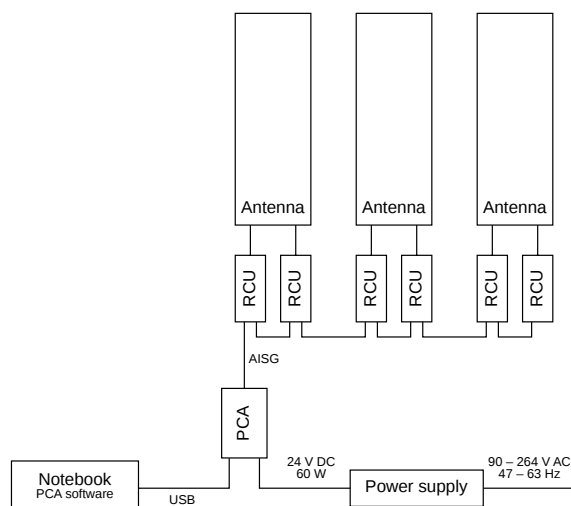


The PCA consists of a small control box and Windows- based software to be installed on a laptop. The control box with dimensions of 160 x 95 x 40 (W x L x H) transforms the USB interface into an **AISG-conform** interface (RS 485 + DC voltage). Together with the supplied software, all functions of the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

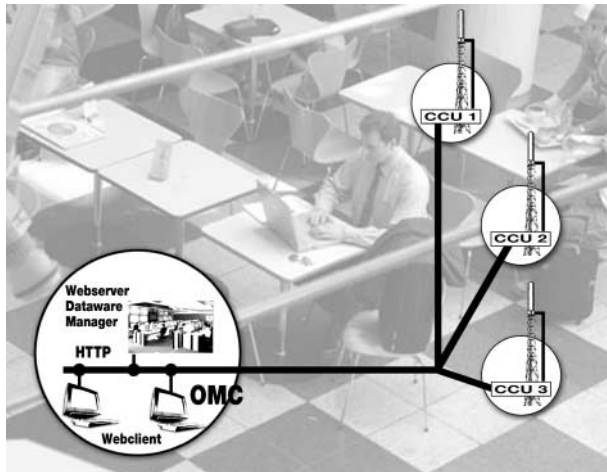
Up to nine RCUs can be controlled using a single PCA.

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 connected by means of a PPP link to the RS 232 interface on the CCU. Alternatively, the Ethernet 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).

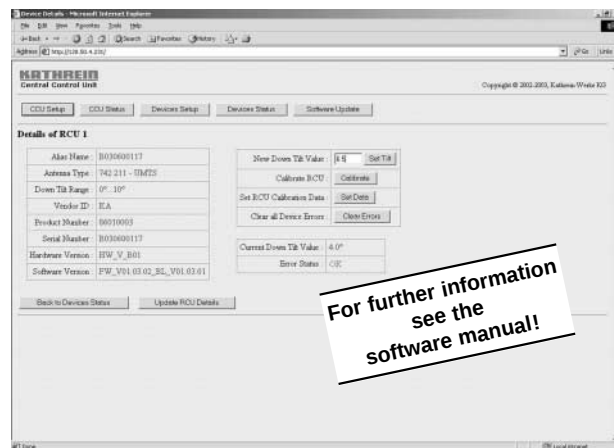
The following transport and application protocols are served by the CCU: TCP/IP, UDP, PPP, DHCP, HTML and ICMP/Ping, FTP, and SNMP.

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 191

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).

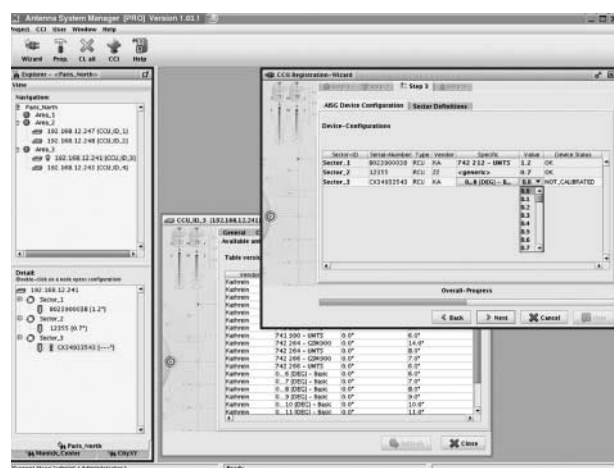
Optimised solution: Antenna System Manager

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 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 Vodafone in Germany with Kathrein's RET system.



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.

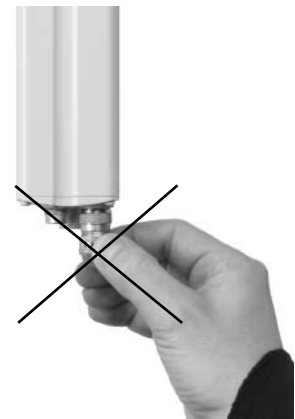


For the daisy chain solution, remove the daisy chain termination and attach control cable to interconnect with the daisy chain input of the subsequent RCU.

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.

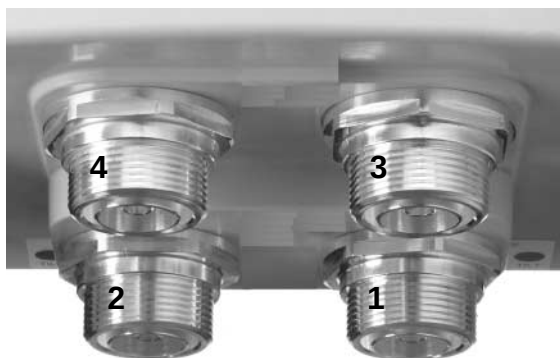
General Instructions for Feederline Installation on A-Panels and F-Panels with four Connectors arranged on two Levels

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.

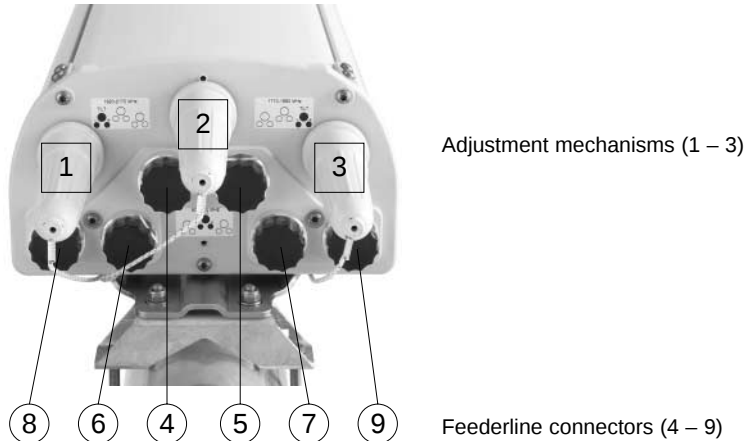
Please note: Additional weather sealing of correctly installed feederline connector interfaces is not required, nor is it recommended by the connector manufacturers.

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.

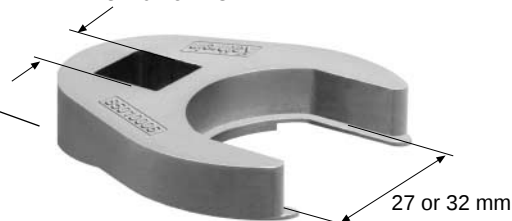
Use a torque-wrench to finish installation (see installation tool).

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.



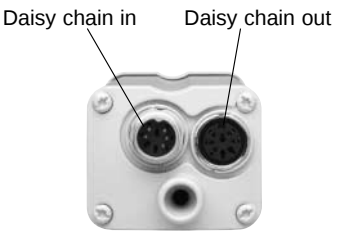
Type No.	860 10025
Input voltage range	Pin 6: 10 ... 30 V Pin 1: 10 ... 15 V
Power consumption	< 1 W (stand by); < 8.5 W (motor activated)
Connectors ¹⁾	2 x 8 pin connector according to IEC 60130-9; according to AISG Daisy chain in: male; Daisy chain out: female
Hardware interfaces	RS 485A/B (pin 5, pin 3); power supply (pin 1, pin 6); DC return (pin 7); according to AISG
Logical interface	HEX coded commands based on HDLC protocol, according to AISG
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)



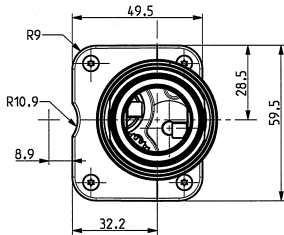
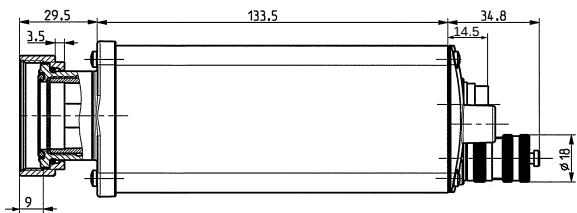
¹⁾ The Tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened').
The connector should be tightened by hand only!

- 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.



Bottom side of RCU



Daisy chain termination

Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN
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.

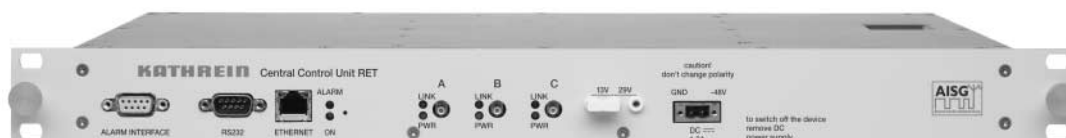
- AISG 1.1 compliant
- 13 VDC or 29 VDC output voltage - switchable with external jumper
- LED signalling for output power and alarming

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)

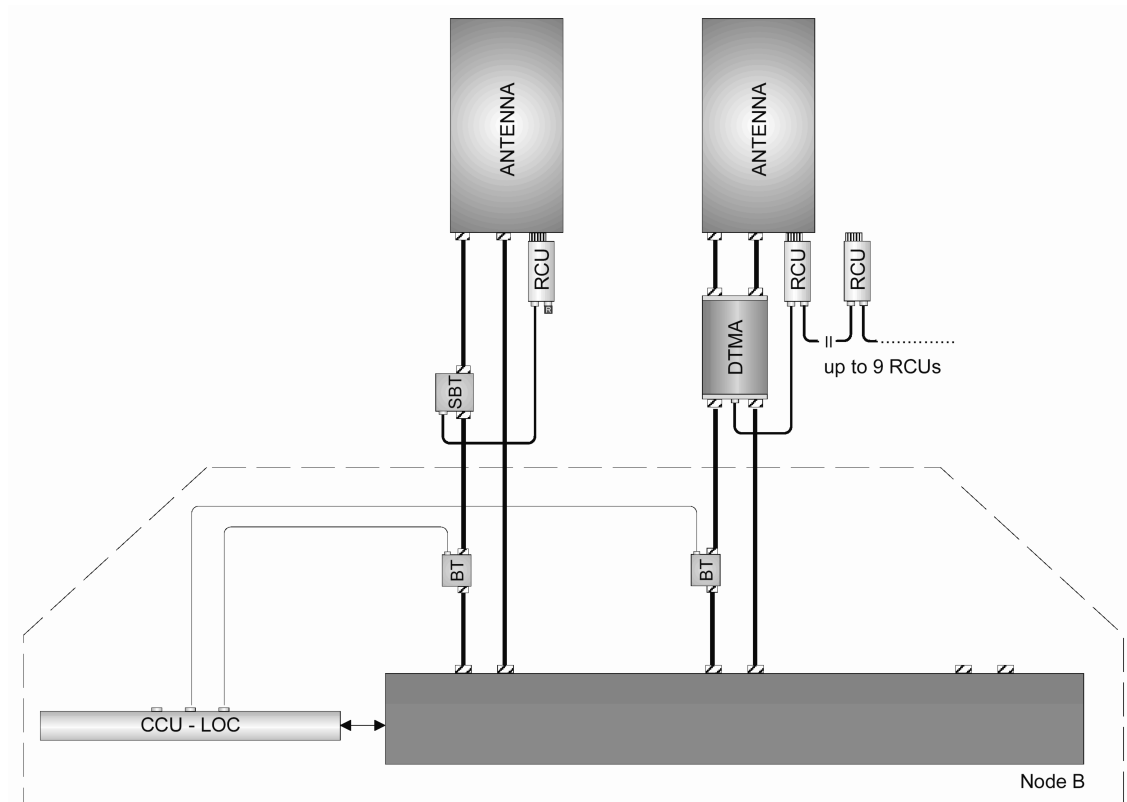
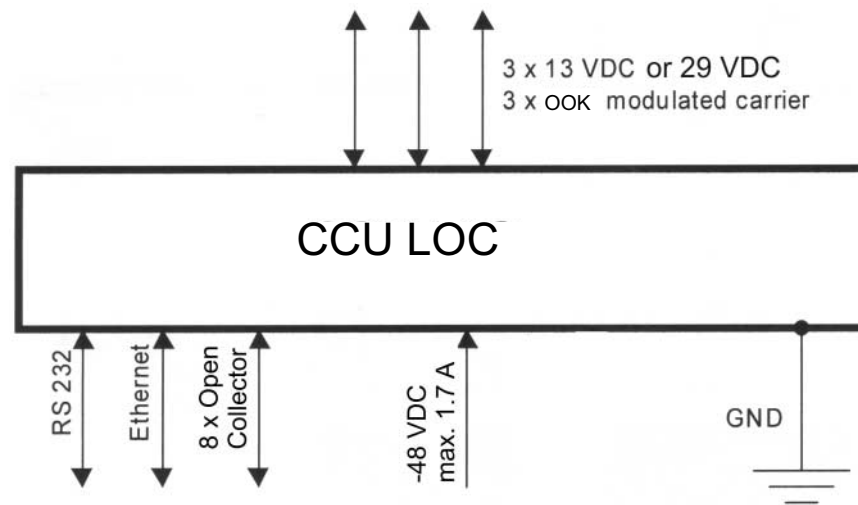
Certification: CE
Scope of supply: CCU-LOC
Manual
DC-cable



Central Control Unit with Layer-one Converter For Remote Electrical Tilt (RET) and Tower Mounted Amplifier (TMA) Control

KATHREIN

Antennen · Electronic



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

The connector should be tightened by hand only.

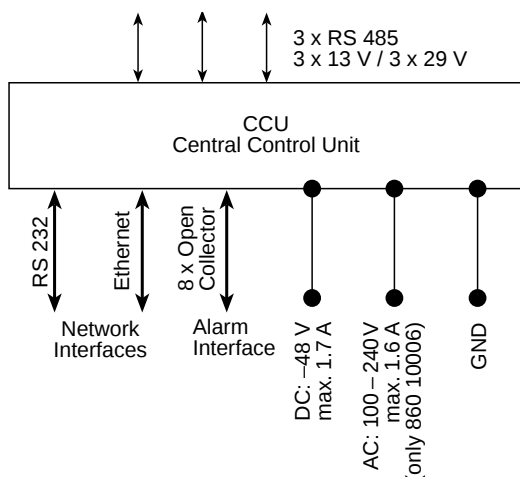
Standards: EN 60950-1
EN 55022
EN 55024
UL 60950-1, 1st edition

Certifications: CE, FCC part 15 class B; UL

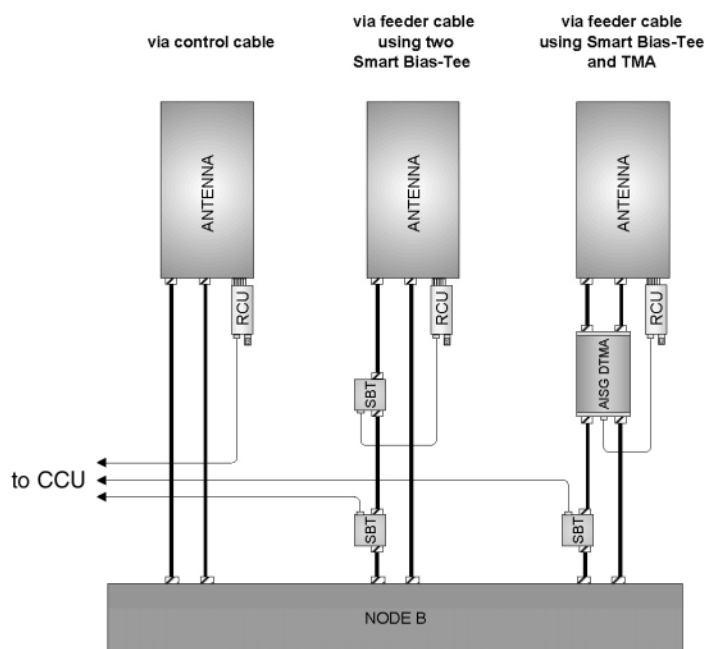
Scope of supply: CCU
RET Manual
DC Cable
AC Power Cords of USA, UK and Germany
Ethernet cable, crossed



CCU Interfaces



Examples of CCU – RCU connections



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	15 V DC or 24 V DC
Power supply to RCU	13.5 V DC / max. 4.5 A (optional: 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 1.1 **
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 Output: 15 V DC / 4.6 A (optional: 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!

** The PCA was tested with Kathrein RET devices.

*** If powered via AISG-interface, no external power supply is required.

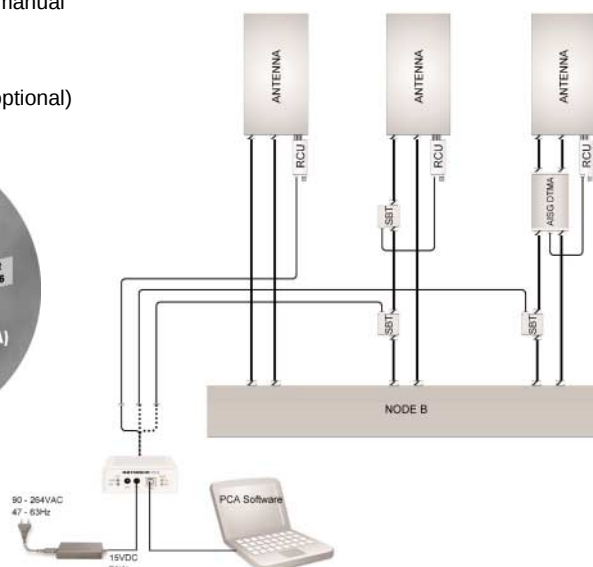
Certificate: CE
FCC part 15 class B
UL (for external power adapter)

Standards: EN 60950-1
EN 55022
EN 55024

System requirements for PCA Software: Windows 2000; Windows XP

Scope of supply: PCA
External power supply (15 V DC / 70 W)
USB cable
AC power cable
CD-ROM with PCA software, drivers and manual
Installation guide
Transport case

Accessories: External power supply 24 V DC / 70 W (optional)



RET

Connecting Cable For Remote Electrical Tilt (RET) System

For indoor and outdoor use

RET Cable for power supply and control



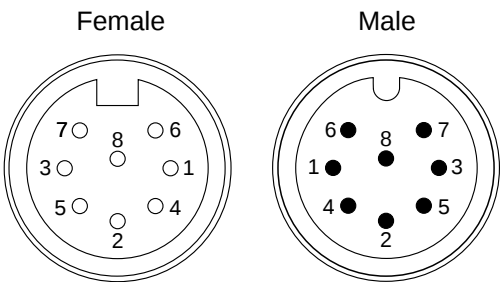
Type No.	860 10007 ...
Connectors	2 x 8 pin connector according IEC 60130-9, female/male
Tightening torque for fixing the connectors	0.5 – 1 Nm (The connector should be tightened by hand only)
Construction	Screen 1x twisted pair 100 Ω/1 MHz 2x power supply, 1x ground AWM style 20317 I/II A/B + 20549 + 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



- 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 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.

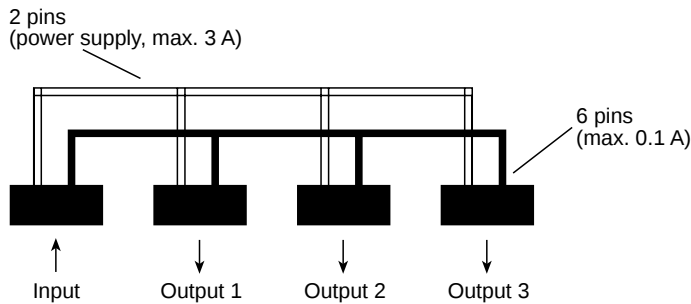
Wall mounting by screws (not supplied).
- Note:

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

KATHREIN
Antennen · Electronic



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 mm ² 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

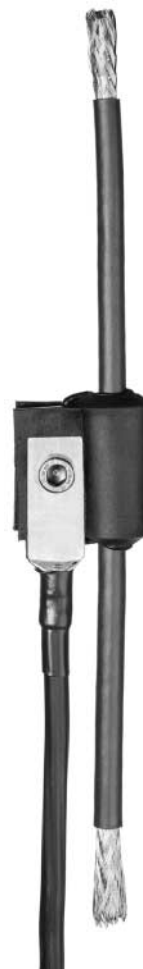
Earthing clamp for RCU power supply and signal cable

Type No.	860 10031
Max. lightning current	20 kA (pulse 10/350 µsec)
Contact resistance	< 3 mΩ
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

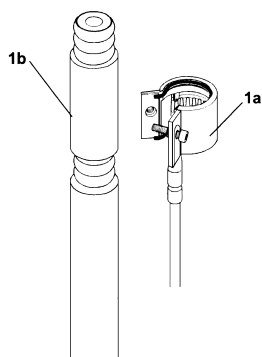
Please note:
The earthing clamp is suitable only for the Kathrein Power Supply and Signal Cables, Type No. 860 10007 to 860 10015, 860 10029, 860 10032, 860 10033, 860 10054 to 860 10060 or shielded cables with
– shield diameter 6.1 mm
– jacket diameter 7.8 mm ±0.3 mm

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:

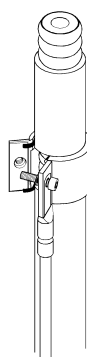
This instruction is written for qualified and experienced personnel. Please read it carefully before starting work. Any liability or responsibility for the result of improper or unsafe installation is disclaimed!



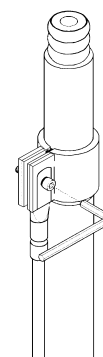
Attention!
Install grounding kit only where the cable runs straight.

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

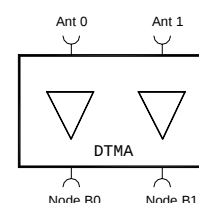
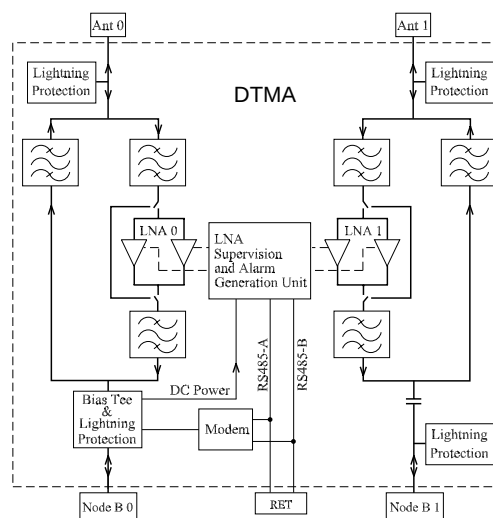
- Double unit for easy use with XPol antennas
- Kathrein redundancy amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard
- **DTMA DC 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 +22 ... +28 °C
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**

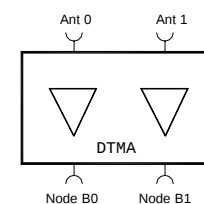
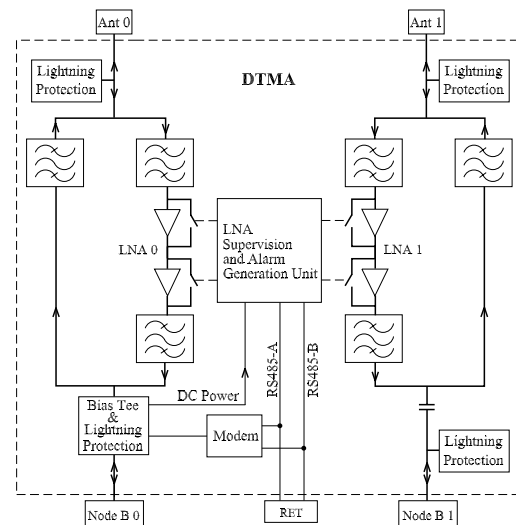
RET = Remote Electrical Tilt

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)





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:** 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:** 12 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)
- **782 10255:** 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:** 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 (782 10253, 782 10255) or for Antenna (782 10254, 782 10256)

Port 2 = Port for Feeder Cable

Port DC/RCU = Port for DC voltage and remote control unit signals

782 10253
782 10255



Technical Data

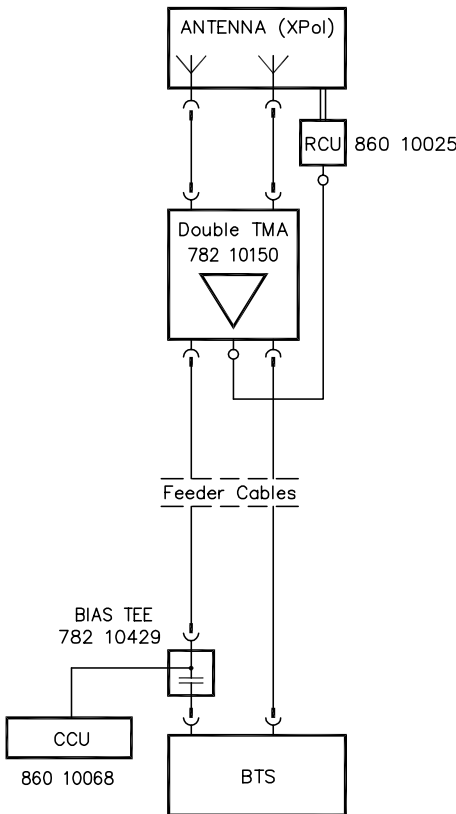
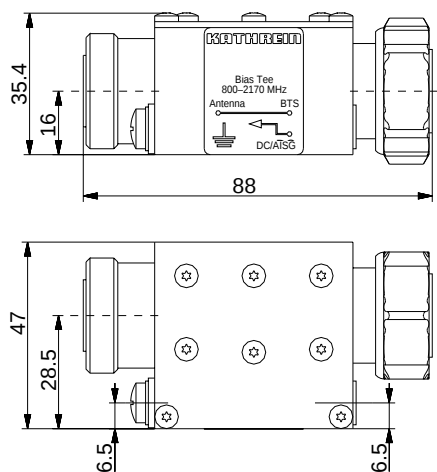
Type No.	782 10253 12 V / BTS	782 10254 12 V / Antenna	782 10255 24 V / BTS	782 10256 24 V / Antenna
Frequency range	800 – 2170 MHz			
Insertion loss Port 1 ↔ Port 2	< 0.1 dB (800 – 2170 MHz)			
Isolation for DC and RCU signals Port 1 ↔ Port 2 Port 1 ↔ Port DC/RCU Port 2 ↔ Port DC/RCU	> 70 dB > 70 dB 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 / +14 ... +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			
Connectors Port 1 Port 2 Port DC/RCU	7-16 male 7-16 female 8-pin male connector (IEC 60130-9) Pin 1: 12 VDC in 8-pin female connector (IEC 60130-9) Pin 1: 12 VDC out 8-pin male connector (IEC 60130-9) Pin 6: 24 VDC in 8-pin female connector (IEC 60130-9) Pin 6: 24 VDC out (Pin 3: RS485-B, pin 5: RS485-A, pin 7: DC return (grounded), other pins: not connected)			
Modem carrier frequency	2.176 MHz			
Application	Indoor or outdoor (IP66)			
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 46 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.

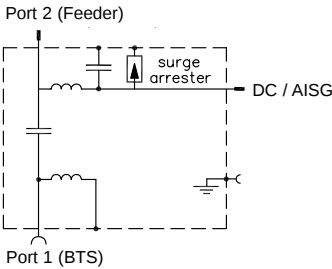
- The Bias Tee provides low RF signal insertion loss from the BTS to the antenna port and vice versa.
- The DC voltage and AISG control signal (2.176 MHz) is fed from the DC port to the antenna port while providing a high level of DC isolation from the DC to the BTS port and from the antenna to the BTS 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)

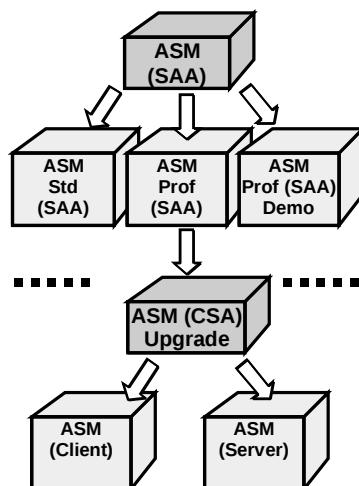


General Information

KATHREIN provides the Antenna System Manager (ASM) for a convenient way of RET network management and a fast fault detection.

Additional to the automatic SNMP traps sent by the Kathrein CCU the ASM will collect alarms, events and network changes by customizable continuously polling the network.

The ASM is designed in a Client-Server-Architecture (CSA) which allows a central data-base for storing all network parameters with simultaneously access for up to 10 clients. Furthermore the ASM can also be used as Stand-Alone-Architecture (SAA).



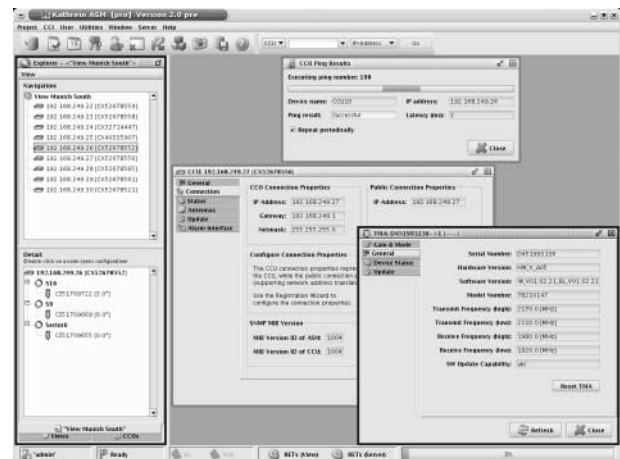
The SAA family of the ASM is available with a basic feature set as standard “Std” edition and like the CSA as professional “Prof” edition supporting the whole feature set.

Nevertheless the CCU offers an HTML interface for easy browser based access.

The ASM is an optimized solution for controlling thousands of RET systems based on platform-independent Java technology and the popular SNMP protocol.

General features and capabilities:

- Management of up to 20.000 CCUs and connected AISG devices
- Platform independence (Win 2K/XP and Linux)
- Automatic task scheduling to export database, export device information or just reports
- Security management with customizable roles of access authorization with user level and password
- Customizable Views on controlled systems
- XML based “Customized Control Interface” CCI for automatic configuration of the system
- Open interfaces for OMC and/or Optimizer Software integration
- Report generation XML and PDF based
- Convenient configuration management



ASM – Editions and Packages

Edition	Type No.	License	Remarks
ASM PRO	860 10061	Single Installation with dongle	Professional Stand-Alone Edition Management up to 2.000 package support CSA and up to 20.000 CCUs full CCI Capability 30 day trial version without dongle available limitation of max. 5 CCUs
ASM STD	860 10062	Free	Standard Stand-Alone Edition Limited to max. 10 CCUs, no CCI Capability

Packages	Type No.		Remarks
ASM Client Server Upgrade	860 10087	Server	Professional Client-Server upgrade 10 clients plus 1 administrator Client with GUI / Server without GUI
ASM 5.000 CCUs Upgrade	860 10088	Server or Single Installation	Upgrade from 2.000 to 5.000 CCUs and then in 5.000 steps up to 20.000 CCUs
ASM 1 Year Support	860 10089	Server or Single Installation	1 year free software updates including bug-fixes and new basic features Gratis telephone support Feature (normal office time)
ASM 1 Year Extended Support	860 10097	Server or Single Installation	Definition of a corrective action place, within bug-fixing in a specified time frame

ASM – General Requirements

System Requirements	ASM STD	ASM PROF SAA and Server	ASM PROF Client
CPU clock	≥ 1 GHz	≥ 2GHz	
RAM	≥ 512 MB	2 GB	1 GB
HDD Space	≥ 200MB	≥ 1 GB	≥ 500MB
TCP/IP Connection / Interfaces	Ethernet and RS232 (for PPP)	Ethernet	
Recommended Screen resolution	1280 x 1024	no GUI	1280 x 1024
Supported Operating Systems	Windows XP, Windows 2000, SuSE Linux 9.0 or higher		

ASM – Network Connectivity

Requirements	ASM 2.x
Communication Protocols	TCP for Client-Server communication UDP for SNMP based communication between ASM and RET system
Application Protocols	SNMP, FTP
Network	Ipv4 compliant
IP Addresses	Support of logical and physical CCU IP address for NAT (Network Address Translation)
Firewall Transparency	ASM Client to Server communication: Port 50.001 / TCP Port 50.002/ TCP FTP ASM Client/Server to RET system communication: Port 50.000 / TCP for FTP Port 161 / UDP for SNMP Port 162 / UDP for SNMP Traps

ASM – General Features

Feature	ASM STD	ASM PROF SAA and CSA
Max. Number of CCUs	10	SAA: 2.000 CSA:20.000
CCI	–	Mass software upgrade, Cell scenario export/import
Automated task scheduling	–	Export database, export alarm messages
Launch in context (ASM command line call)	–	Automatic user authentication, start of CCI wizard, CCU configuration
Language support	English, German	
Help System	Integrated Help System Separate User Manual (PDF format)	
RCU Configuration	Antenna selection, calibrate, set/get tilt, status and error messages, software upgrade	
TMA Configuration	Set/get gain, status and error messages, software upgrade	
View Management of RET System	Configure view structure, unlimited number of views	
Device Data Export	XML based in ZIP format	
Database Export/Import	Export for backup purposes	
RET Alarm Management	Shows Alarm log dialog, Export as PDF and XML based	
Database Features	Embedded SQL Database	
User management	role based (administrator, manager, general, read only user), authentication by user name and password	
Implemented key shortcuts for Menu Interactions	X (see manual)	
Intuitive context-menus	X (see manual)	

ASM – RET System Management

Configuration Features	CCU	RCU	TMA	Remarks
Software Update Capability				
Antenna specific data file	x			
Bootloader		x	x	
Firmware	x	x	x	
Kernel	x			
TCP/IP connection properties	x			CCU Registration Wizard
Status and Error Display	x	x	x	Secondary device alarms, HW & SW version
General Properties	x	x	x	
Manage CCU specific Properties	x			
Manage RCU specific Properties		x		Set/Get tilt value, ANT type
Manage TMA specific Properties			x	Set/Get gain, bypass mode
Full-Text DB-Search Engine	x	x	x	E.g.: Search for TMA with Serial# 'xyz'

ASM PROF – Customized Control Interface (CCI)

CCI Features	Remarks
Automatic RET System “Mass” Configuration	
Multi-RET (parallel) processing	
XML configuration file format	
Scenario Snapshot Feature (XML)	
(Re-)Import saved Scenario Snapshots	Rush hour, sport events,.....
Command line call for OMC integration	See Launch-In-Context Feature
CCI Tasks – Autom. CCU Firmware Update – Autom. Tilt setting, SW update and calibration for RCUs – Autom. Gain/Mode Setting and SW update for TMAs	

ASM – RET System Commissioning

Registration Wizard	Remarks
RET System Commissioning	
RET System Registration	
Intuitive User interface via ASM Registration Wizard	
Automatic and implicit check for CCU Firmware compatibility	

ASM – User Management

User management features	Remarks
Account management	
Role-based accounting	User roles: Read Only, General, Manager, Administrator
Security ASM access	Password protection & encryption
ASM Lock mechanism / User Log-Out	for session protection

ASM – View Management

Views	CCU	RCU	TMA	Remarks
Organisation of RET system in views	x	x	x	
Link and unlink CCU to / from user defined Views	x			
Drag and drop	x			
View Handling				Dynamic loading
Customisable view structure				e.g. Views by regions
Create, edit and delete views				
View and Device Browser				
Detailed views for CCU and AISG secondaries	x	x	x	
CCU Response Monitor via SNMP Ping	x			

ASM – PPE (Periodic Polling Engine)

PPE	CCU	RCU	TMA	Remarks
Automatic DB updater via SNMP for				
Complete RET Systems	x	x	x	
Alarms and Stati only	x	x	x	
Adjustable polling duration				
Number of parallel polled RET systems is adjustable				
Error-Log History for RET Systems				
Automatic Error Detection & Registration				

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	196
2-way-Splitter 800/900	K 63 20 62 7	790 – 960 MHz	Indoor/Outdoor	1000 W	7-16	196
2-way-Splitter 800–2200	737 303	800 – 2200 MHz	Indoor/Outdoor	200 W	N	197
2-way-Splitter 800–2200	737 304	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	197
3-way-Splitter 800–2200	737 305	800 – 2200 MHz	Indoor/Outdoor	200 W	N	197
3-way-Splitter 800–2200	737 306	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	197
4-way-Splitter 800–2200	737 307	800 – 2200 MHz	Indoor/Outdoor	200 W	N	197
4-way-Splitter 800–2200	737 308	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	197
2-way-Splitter 800–2500	860 10017	800 – 2500 MHz	Indoor	100 W	N	198
3-way-Splitter 800–2500	860 10018	800 – 2500 MHz	Indoor	100 W	N	198
4-way-Splitter 800–2500	860 10019	800 – 2500 MHz	Indoor	100 W	N	198

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	199
2-way-Tapper 800–2500 10.4/0.4 dB	860 10021	800 – 2500 MHz	Indoor	100 W	N	199
2-way-Tapper 800–2500 15.1/0.1 dB	860 10022	800 – 2500 MHz	Indoor	100 W	N	199
2-way-Tapper 800–2200 7.0/1.0 dB	K 63 23 60 67	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	200
2-way-Tapper 800–2200 10.4/0.4 dB	K 63 23 61 07	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	200
2-way-Tapper 800–2200 15.1/0.1 dB	K 63 23 61 57	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	200

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	201
2-way-Tapper 870–960/1710–2500 5.0–15.0dB	860 10023	870 – 960 MHz 1710 – 2500 MHz	Indoor	100 W	N	201

Filter products summary

– Combiners	202
– Duplexers	203
– DTMA's, Bias Tees	204
– 3-dB Couplers, DC Stop, Filters	205

For detailed information
see the catalogue
"790–2500 MHz Filters,
Combiners, Amplifiers
for Mobile Communications"

Antenna Measurement Tool

– Fast-Antenna-Tester FAT 2700 (from Schomandl)	206
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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 use.

2-way-Tapper 800–2500 7.0 /1.0dB

2-way-Tapper 800–2500 10.4/0.4dB

2-way-Tapper 800–2500 15.1/0.1dB

Type No.	860 10020	860 10021	860 10022
Frequency range	800 – 2500 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	100 W (at 50 °C ambient temperature)		
Connector	N female		
Weight	approx. 0.5 kg		
Profile cross-section	25 x 25 mm		
Packing size	267 x 95 x 111 mm		
Max. size	244 / 64 / 25 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission only between input and port P₁.
P₂ is coupled capacitively.



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

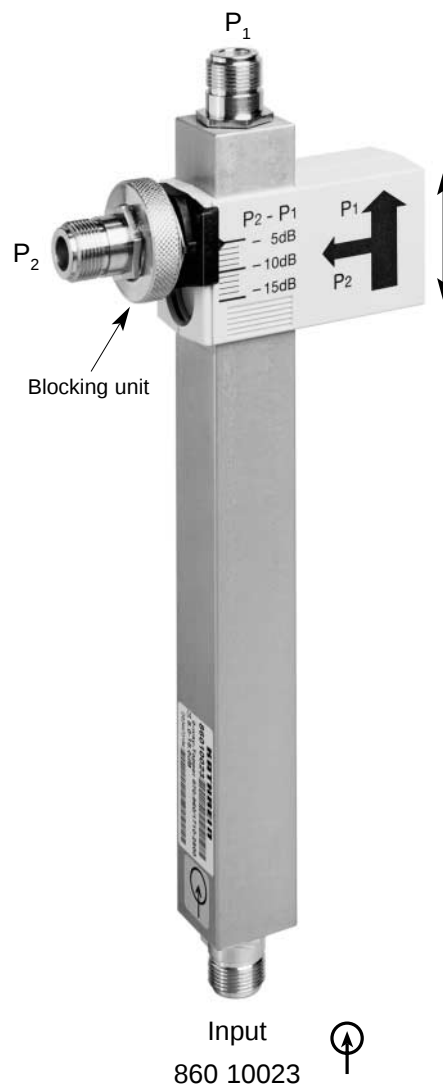
For indoor use.

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.



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
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782 10264	Single Unit	50 – 470 / 806 – 960 / 1710 – 2500 MHz
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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, built-in DC stop	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10246	Double Unit, built-in DC stop	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz

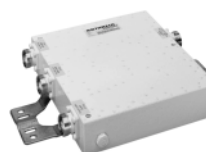


793 425, 782 10245
Single Unit



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



793 528
Single Unit



793 529
Double Unit

Duplexers

824 – 2170 MHz

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
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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



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



Bias Tee

793 304	800 – 2170 MHz
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3-dB Couplers, DC Stop, Filters

800 – 2500 MHz

KATHREIN
Antennen · Electronic

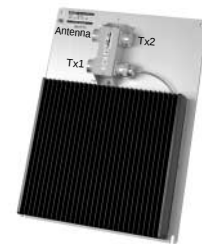
3-dB Coupler

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
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DC Stop

793 301	800 – 2170 MHz
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Band-pass Filter

793 540	1710 – 1880 MHz
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Band-pass Filter

(AMPS/CDMA suppression filter)
782 10390

890 – 960 MHz



Low-pass Filter

793 539	876 – 960 MHz
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- Ideal for 50 W 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 W 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 W
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

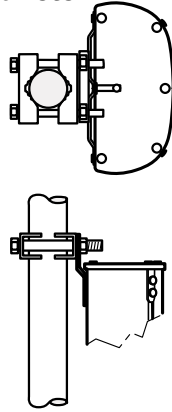
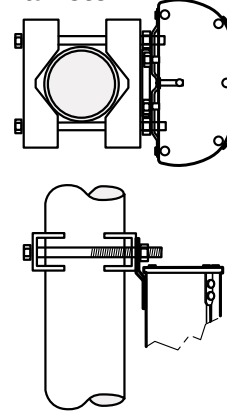
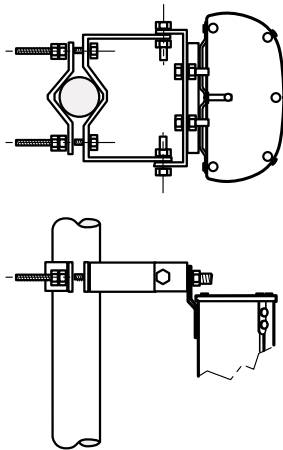
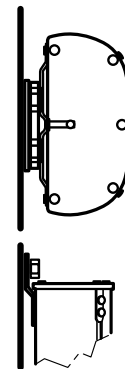
Please contact for technical information and orders:

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Telephone: 08641-403-140 · Telefax: 08641-403-264
e-mail: info@schomandl.de · Internet: http://www.schomandl.de

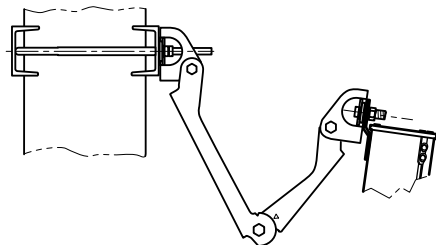
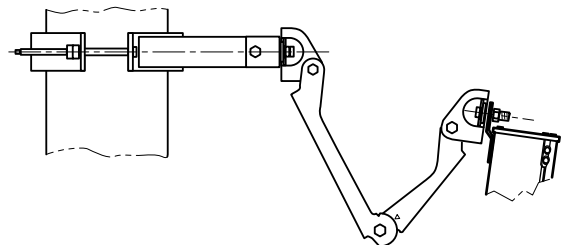
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For additional information on the mounting of antennas, please check also our brochure:



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

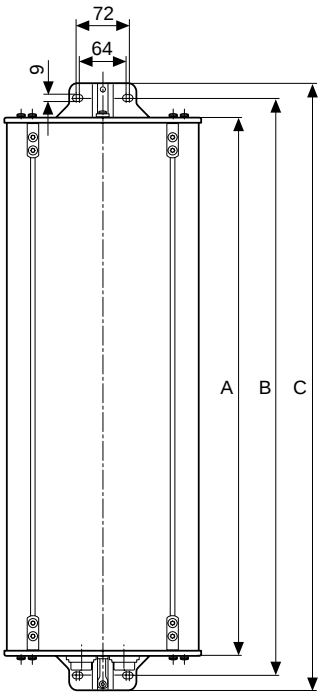
Antenna Dimensions

A-Panels

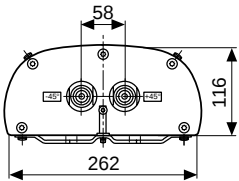
with 65° and 90° Half-power Beam Width

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

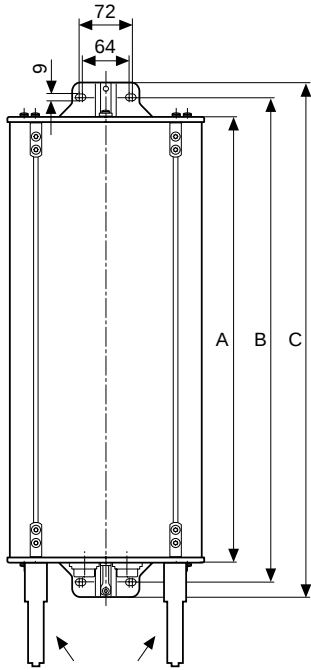


Dual-band A-Panels

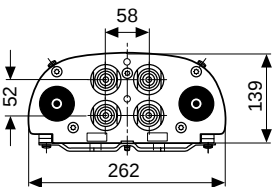
with 65° Half-power Beam Width

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

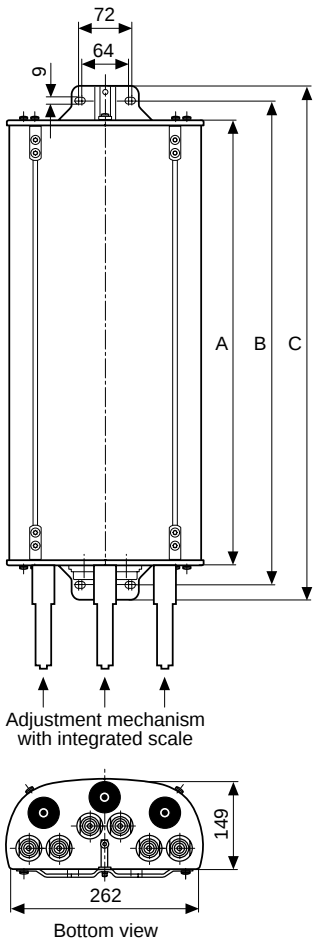


Bottom view

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

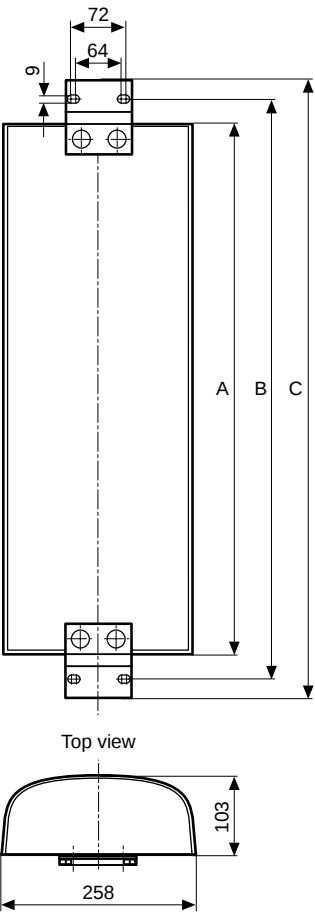
A	1294 mm	1694 mm	1934 mm	2254 mm
B	1340 mm	1724 mm	1980 mm	2300 mm
C	1382 mm	1764 mm	2022 mm	2342 mm

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

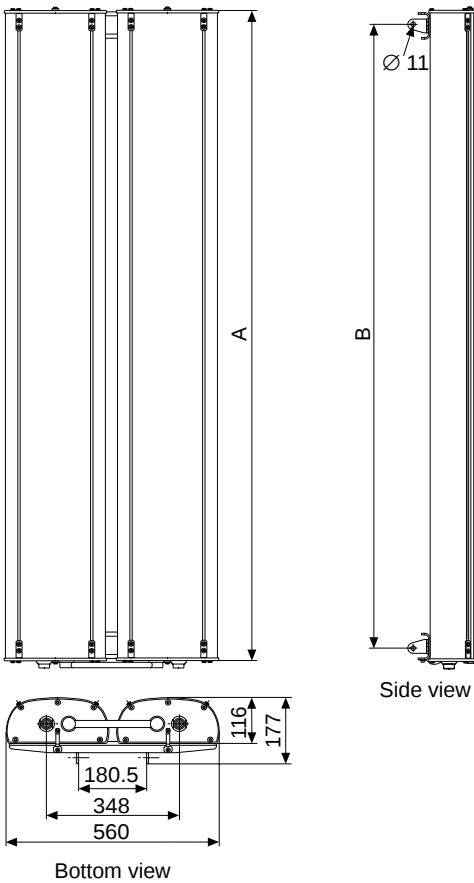
Mounting Hardware

A-Panels

with 30° Half-power Beam Width

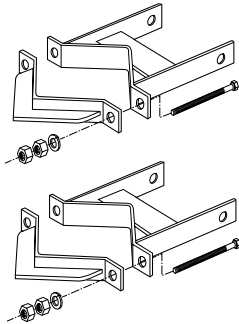
A	656 mm	1296 mm	2580 mm
B	584 mm	1224 mm	2504 mm

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

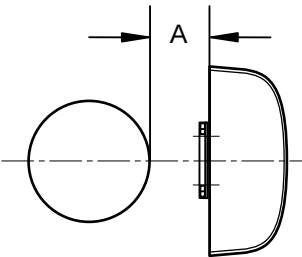
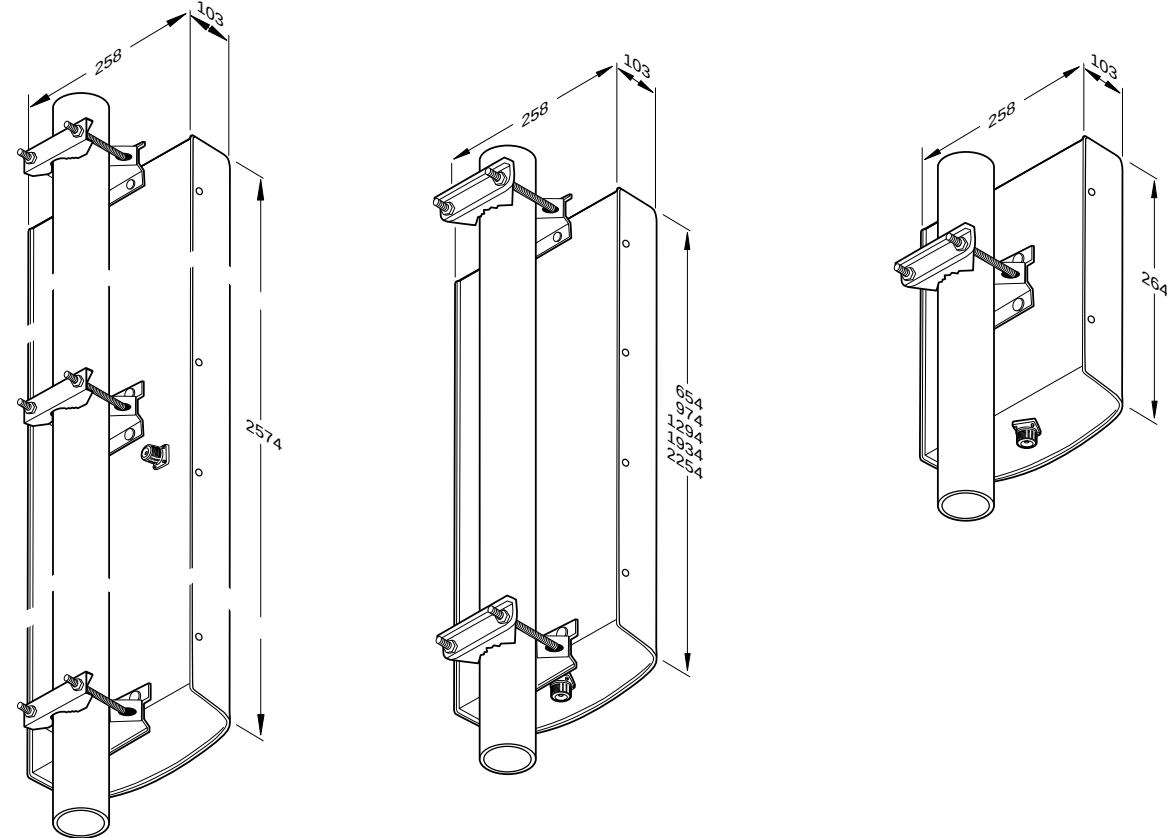
KATHREIN

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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

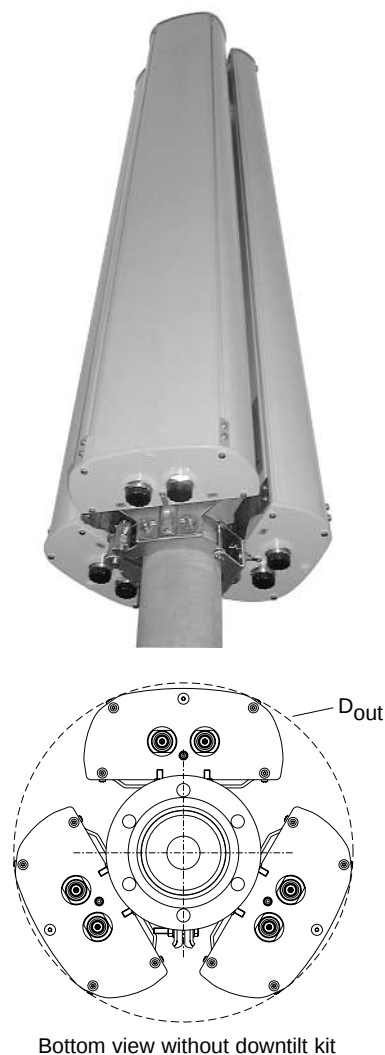
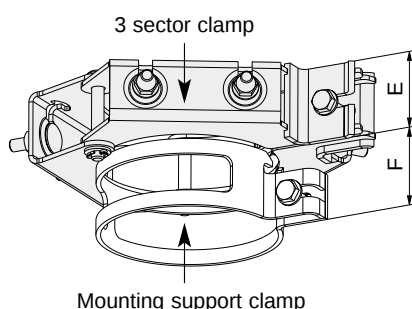
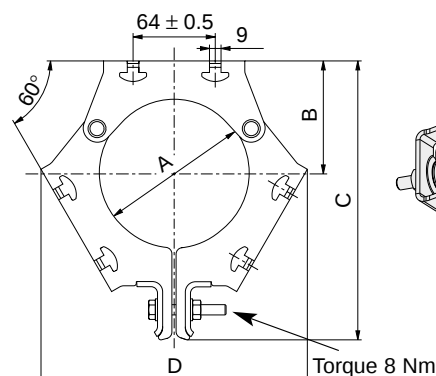
731 651	738 546	733 678
26 mm	40 mm	50 mm

3 Sector Clamp Kit / Pipe Mast with Flange Base

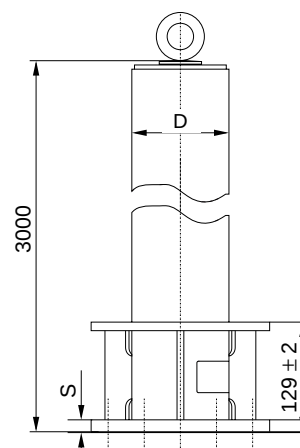
- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all Eurocell Panels
- Suitable for all A-Panels 65° and 90° (Single-band, Dual-band) with weight less than 30 kg including downtilt kit and/or offset clamp
- Mounting of F-Panels possible but 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

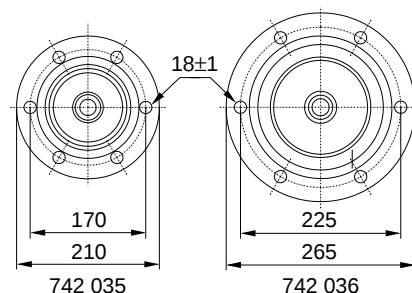


Type No.	A	B	C	D	E	F
742 033	114.3	88	217	207	49	45
742 034	139.7	100	236	228	49	45

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

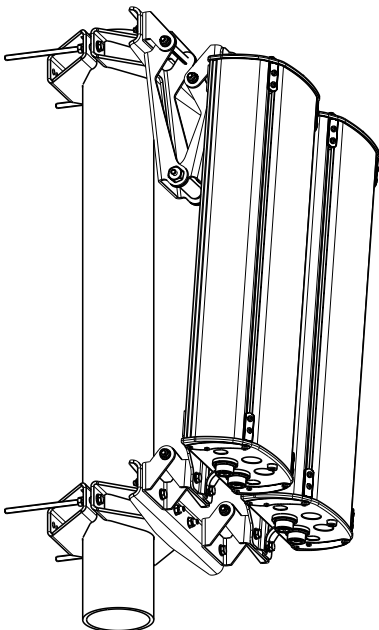
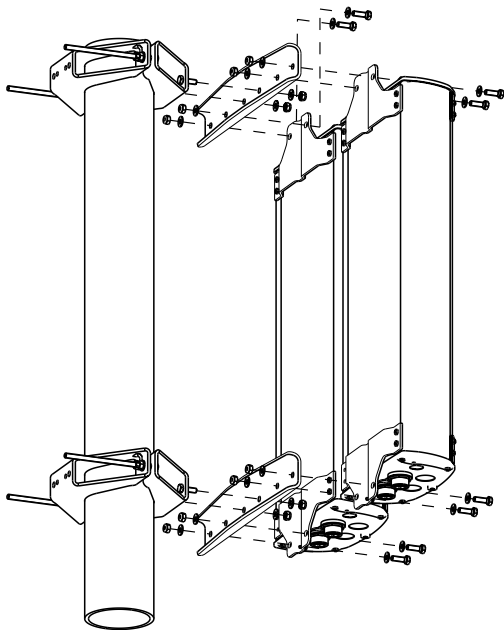
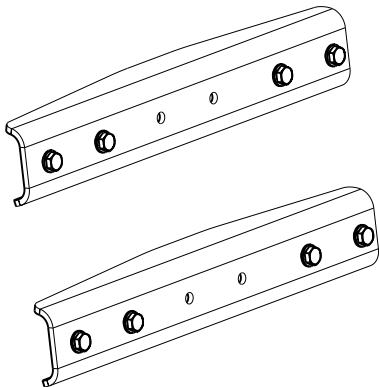
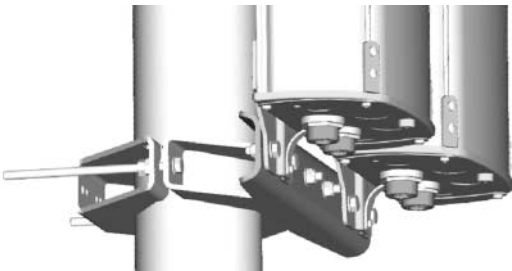
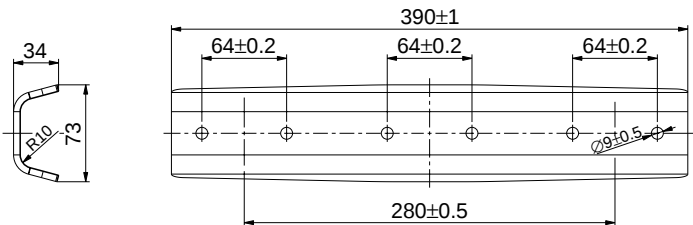
Mounting Hardware

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

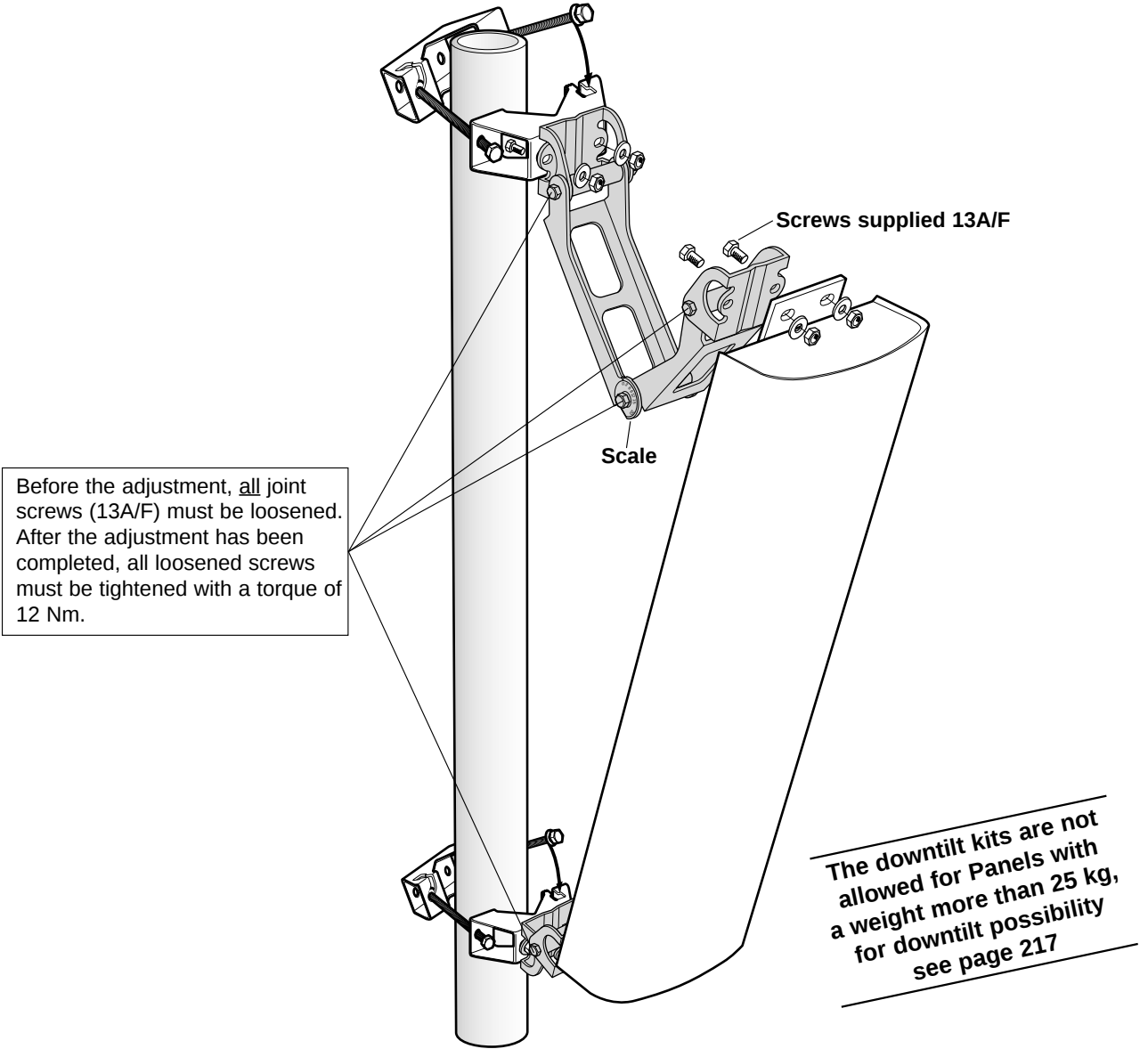
Mounting Hardware

Downtilt kit

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 211 and 212)



Downtilt angle		Downtilt kit with scale	Downtilt kit without scale*	Weight
Antenna height	Downtilt angle	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

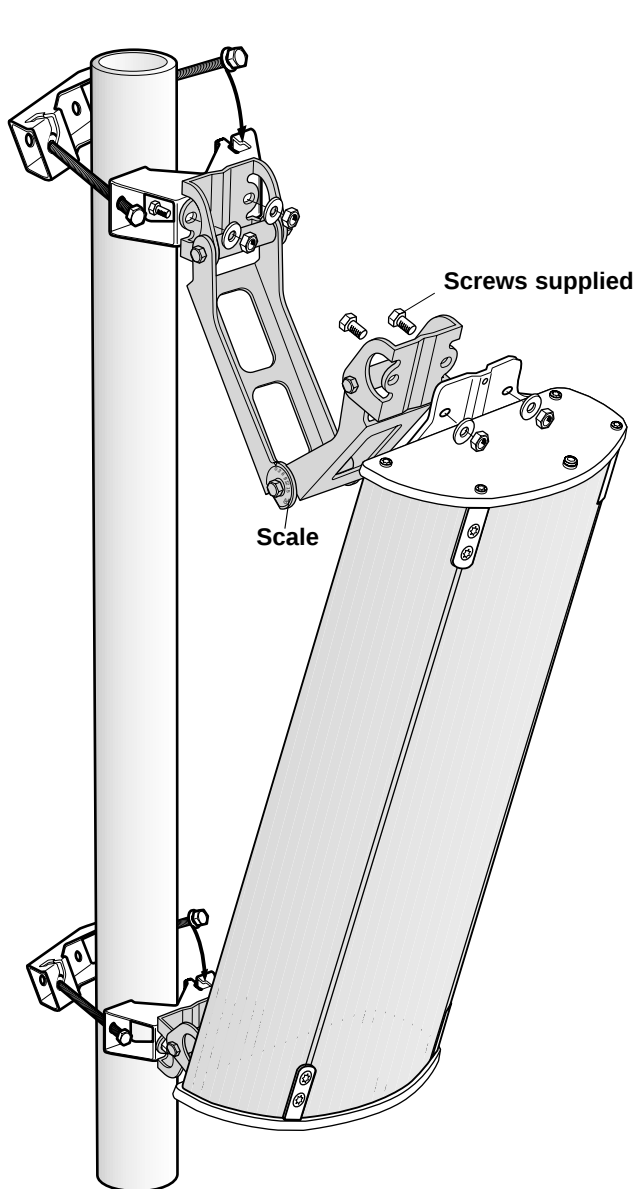
Downtilt kits

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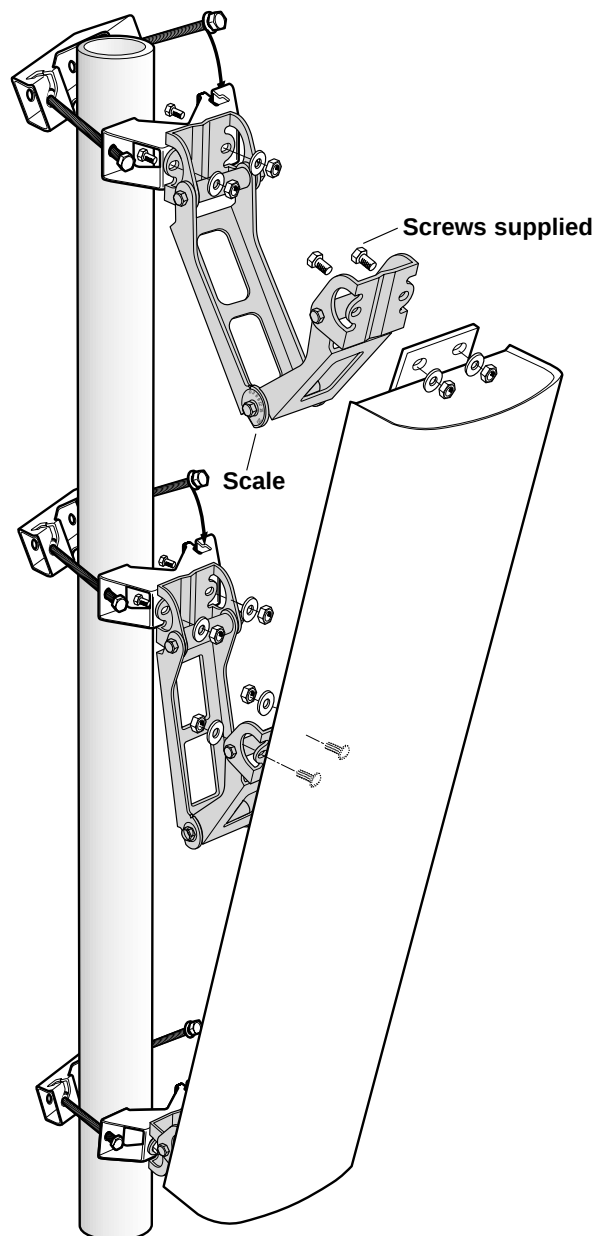
Suitable for:

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 217*

**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

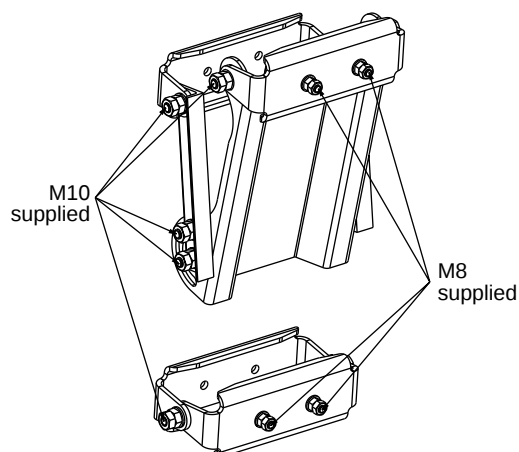
Mounting Hardware

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:

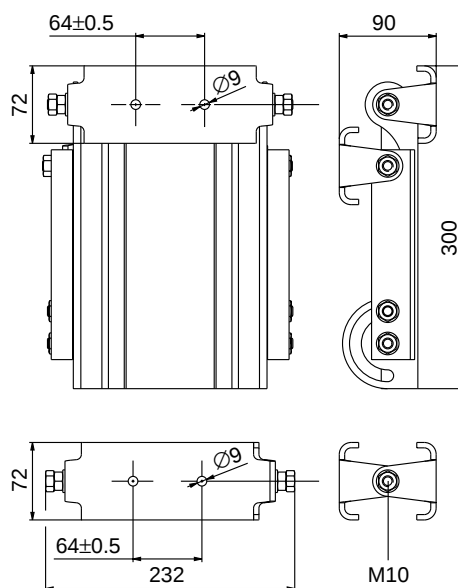
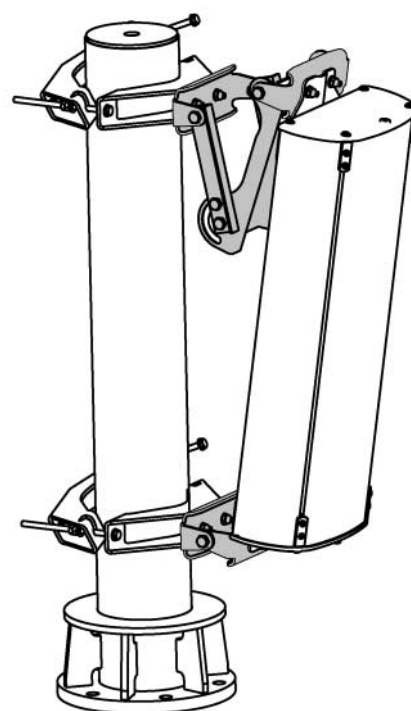
Screw size	Torque
M8	12 Nm
M10	26 Nm

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°



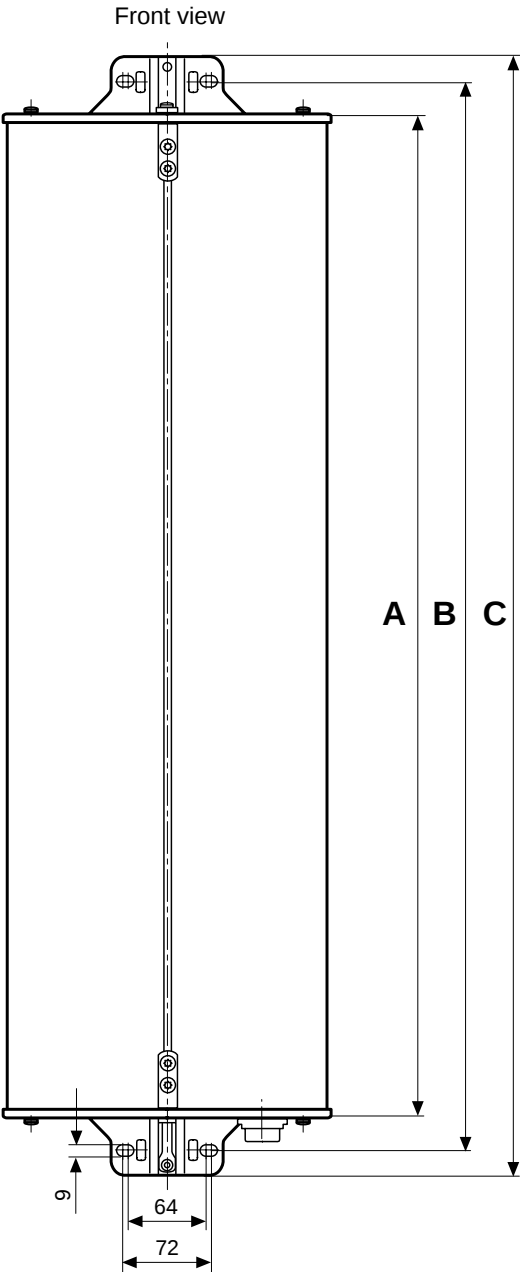
F-Panel Accessories

Dimensions of F-Panels with 33° – 105° Half-power Beam Width

Dimensions [mm]
('A' corresponds to the antenna height given on the data sheet)

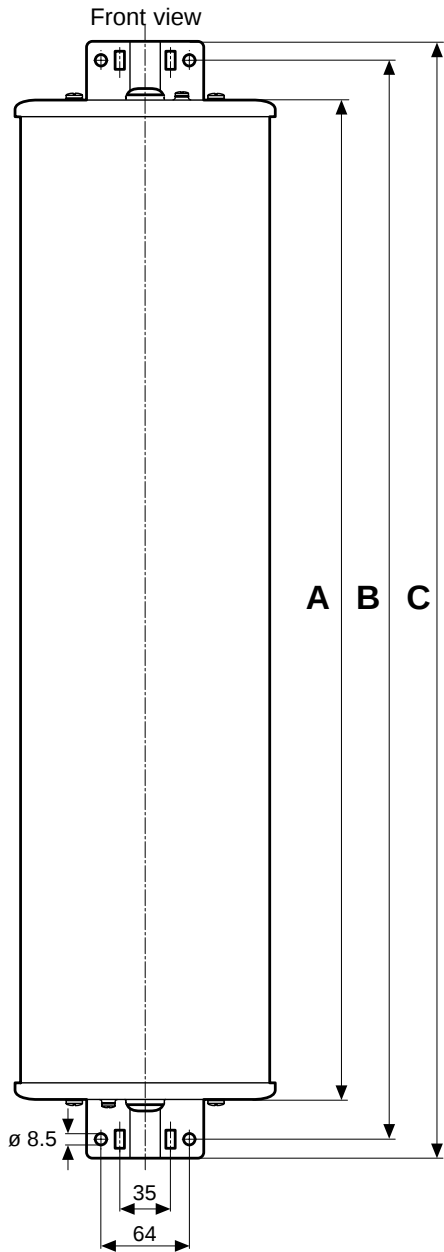
33° Half-power Beam Width

A	B	C
209	263	303
342	396	436
662	716	756
982	1036	1076
1302	1356	1396
1942	1996	2036



60° – 105 °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
1622	1676	1706
1942	1996	2026
2582	2636	2666

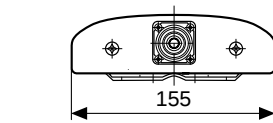


F-Panel Accessories

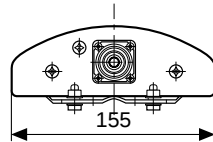
Dimensions of F-Panels

Detailed Connector Position

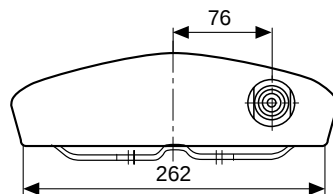
Vertical Polarization



60° – 65° Half-power Beam Width

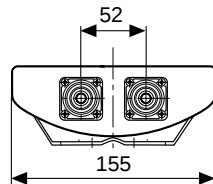


90° Half-power Beam Width

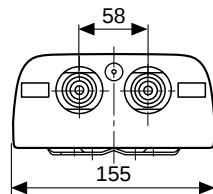


33° Half-power Beam Width

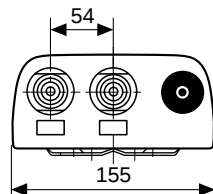
+45°/-45° Polarization



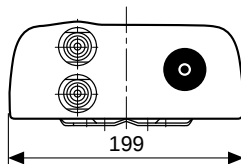
65° Half-power Beam Width



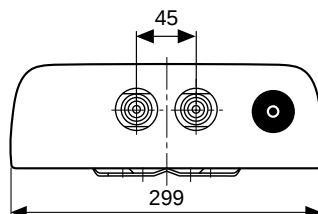
90° Half-power Beam Width



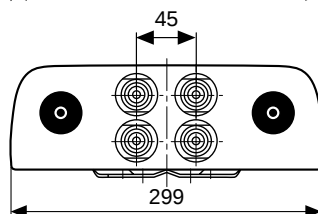
65° and 90° Half-power Beam Width
adjustable electrical downtilt



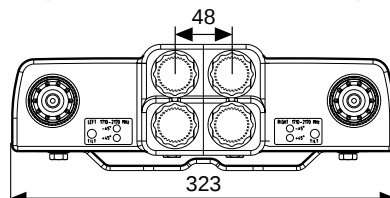
45° Half-power Beam Width
Multi-band
adjustable electrical downtilt



30° Half-power Beam Width
Multi-band
adjustable electrical downtilt

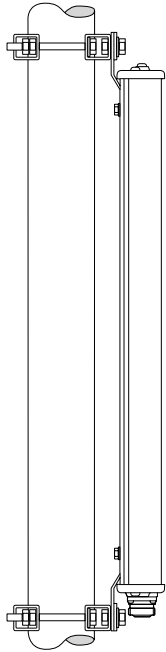


65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt



65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

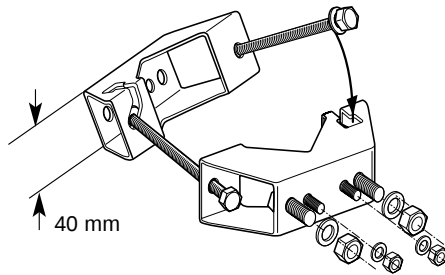
Clamps suitable for all F-Panels



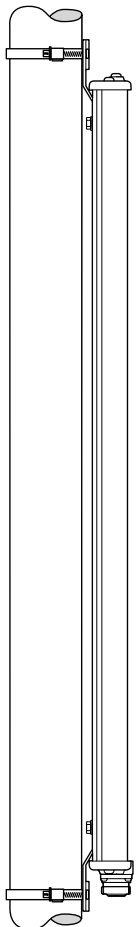
Type No.	Mast diameter	Weight approx.	Units per antenna
738 546	50 – 115 mm	1 kg	2
850 10002	110 – 220 mm	2.7 kg	2
850 10003	210 – 380 mm	4.8 kg	2

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



Type No.	Mast diameter	Antenna height	Weight approx.	Units per antenna
734 360	34 – 60 mm	182 ... 1942 mm	60 g	1
734 361	60 – 80 mm	182 ... 1942 mm	70 g	1
734 362	80 – 100 mm	182 ... 1942 mm	80 g	1
734 363	100 – 120 mm	182 ... 1942 mm	90 g	1
734 364	120 – 140 mm	182 ... 1942 mm	110 g	1
734 365	45 – 125 mm	182 ... 1942 mm	80 g	1
738 546	50 – 115 mm	182 ... 2582 mm	1 kg	2
850 10002	110 – 220 mm	182 ... 2582 mm	2.7 kg	2
850 10003	210 – 380 mm	182 ... 2582 mm	4.8 kg	2
733 677	60 – 115 mm	182 ... 2582 mm	2.0 kg	2
733 678	115 – 210 mm	182 ... 2582 mm	2.6 kg	2
733 679	210 – 380 mm	182 ... 2582 mm	4.0 kg	2
733 680	380 – 521 mm	182 ... 2582 mm	5.3 kg	2

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

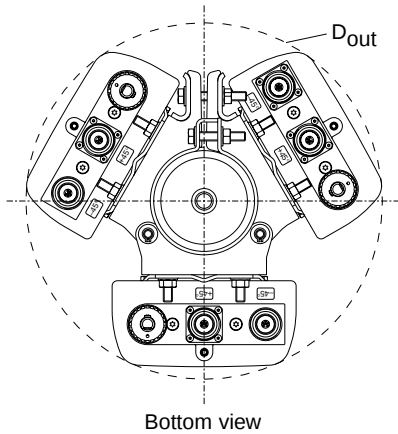
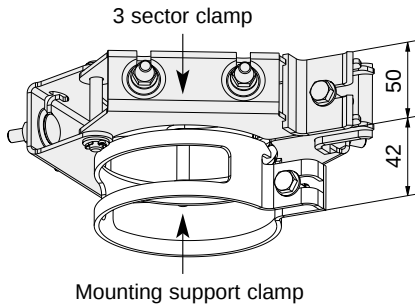
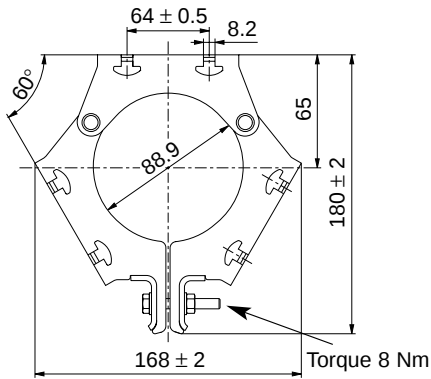
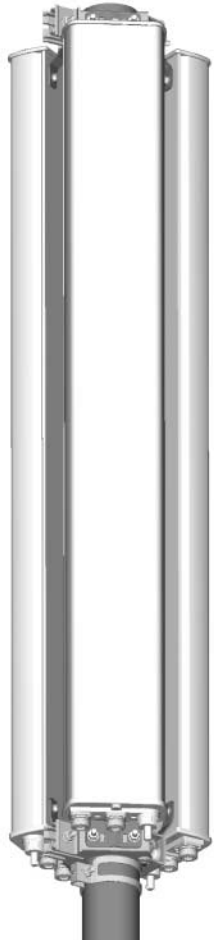
Mounting Hardware

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

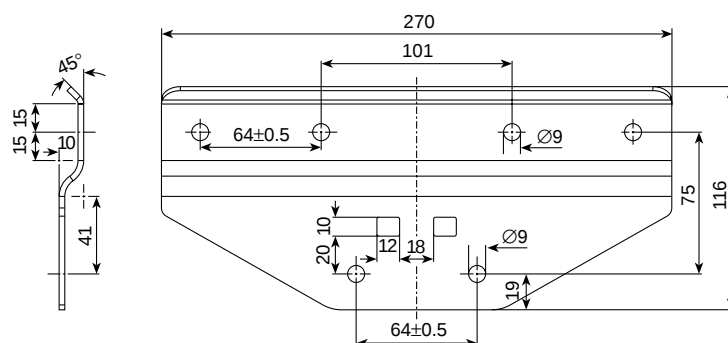
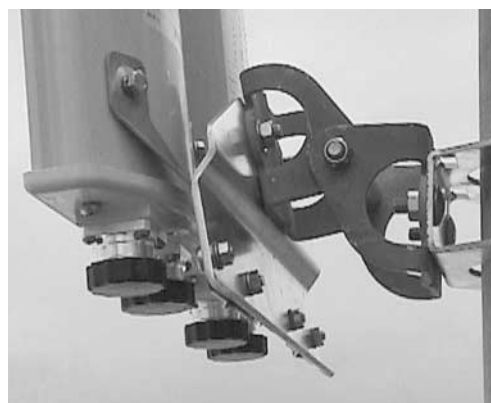
Mounting Hardware

2 x F-Panel Mounting Kit

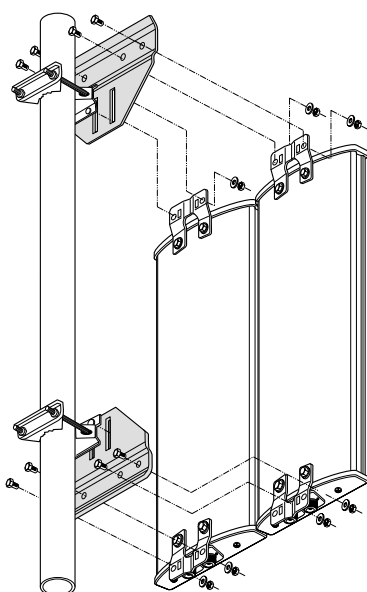
- For arranging two F-Panels 65°, 90° side by side (on air combining).
- The mounting kit consists of two mounting plates.

2 x F-Panel Mounting Kit

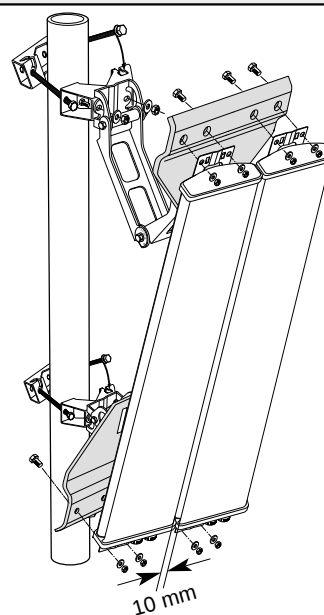
Type No.	742 113
No of units	2
Suitable for F-Panels 65°, 90° with max. height of	2 m
Material	Hot-dip galvanized steel
Weight	approx. 1.6 kg
Mounting	Screws are supplied



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 213). Three sector clamp 742 263 is not allowed.

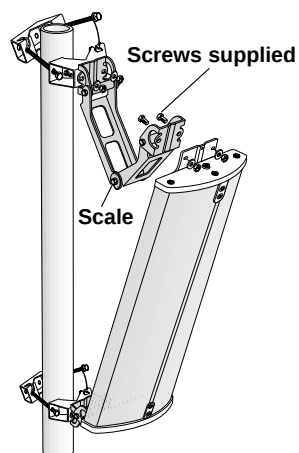
F-Panel Accessories

Downtilt Kits and Slant Compensation Kit for F-Panels

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Downtilt Kits with Type No. 737 ... are suitable for all F-Panels



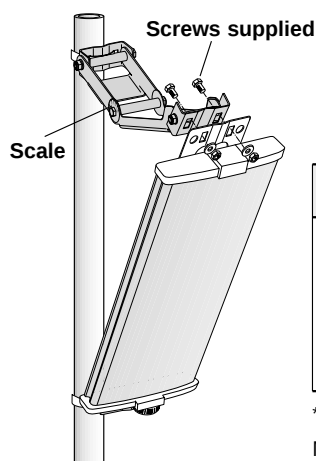
Use the downtilt kit together with the clamps (see page 220).

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



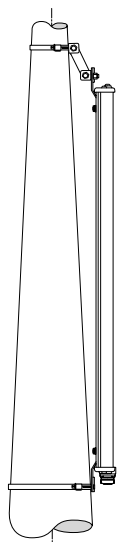
Use the downtilt kit together with the clamps (see page 220).

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		

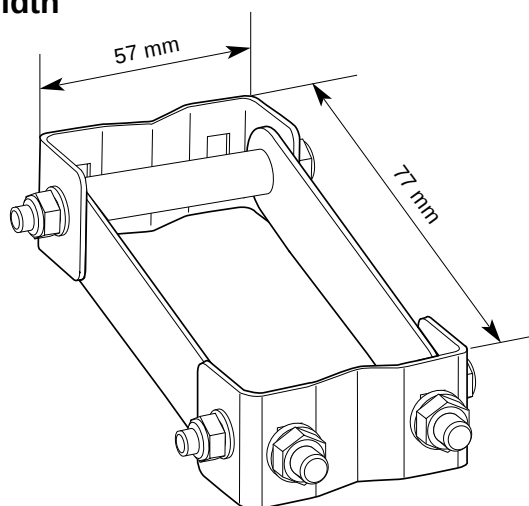
* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

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 220).



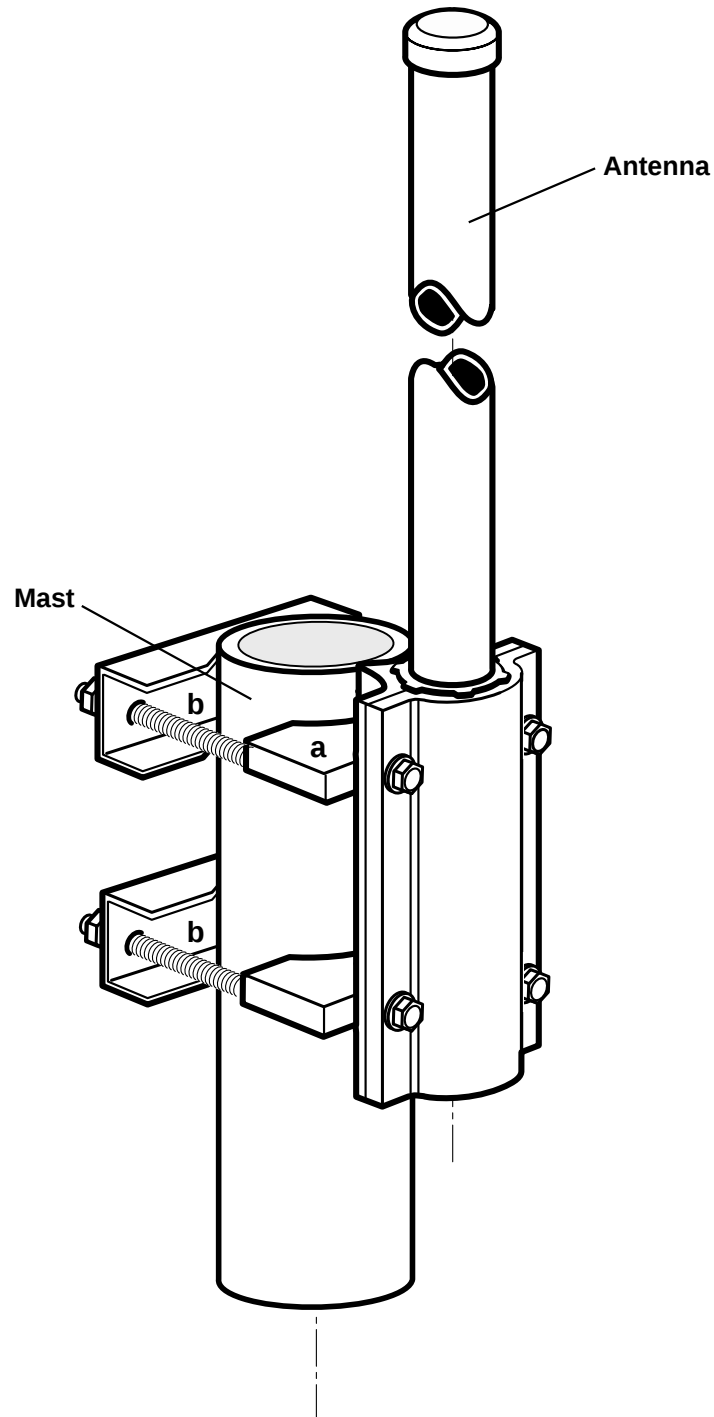
Weight: appr. 200 g

Side-mounting Clamp Omnidirectional Antennas Large Pipe

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Type No. 738 908

For mast diameters of 94 – 125 mm

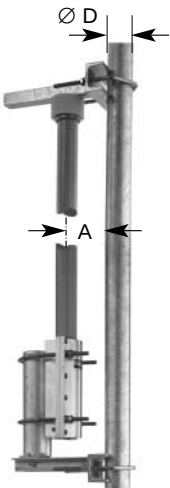


Side-mounting Bracket Omnidirectional Antennas

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)		
$A = 100\text{ mm} = 0.3\lambda$ Hole 3			$A = 160\text{ mm} = 0.5\lambda$ Hole 1		
$A = 240\text{ mm} = 0.75\lambda$ Hole 3			$A = 80\text{ mm} = 0.5\lambda$ Mast Bracket Antenna Antenna base Bracket Hole 2		
Pipe D	Horizontal Radiation Pattern	Spacing A Curve	Pipe D	Horizontal Radiation Pattern	Spacing A Curve
40 mm		100 mm	100 mm		100 mm
		160 mm			160 mm
		240 mm			240 mm
direction from mast to antenna →			direction from mast to antenna →		
Pipe D	Horizontal Radiation Pattern	Spacing A	Pipe D	Horizontal Radiation Pattern	Spacing A
40 mm			100 mm		
100 mm					
direction from mast to antenna →			direction from mast to antenna →		

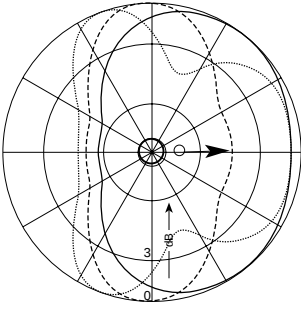
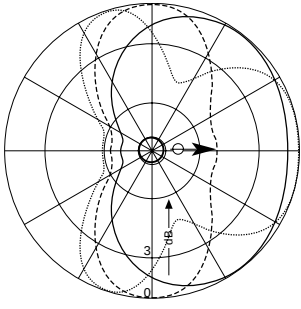
Side-mounting Brackets Omnidirectional Antennas 900

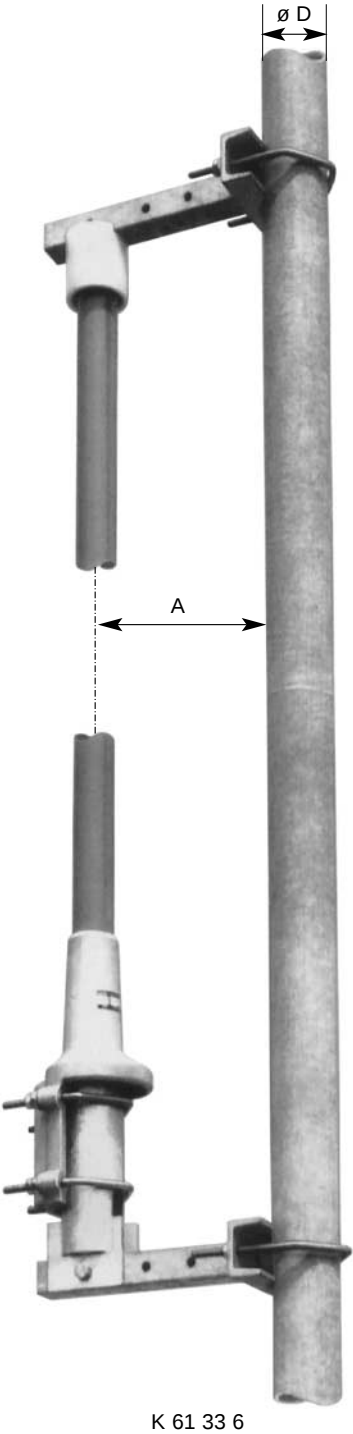
For mast diameters of 40 – 105 mm

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		100 mm	2 dB
		160 mm	3 dB
		240 mm	2 dB
100 mm		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

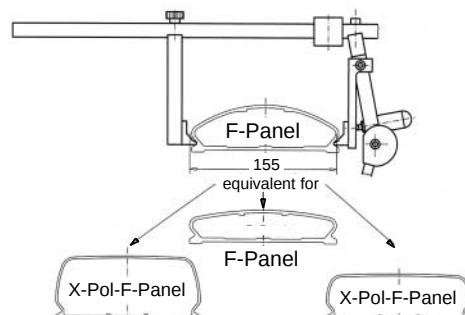
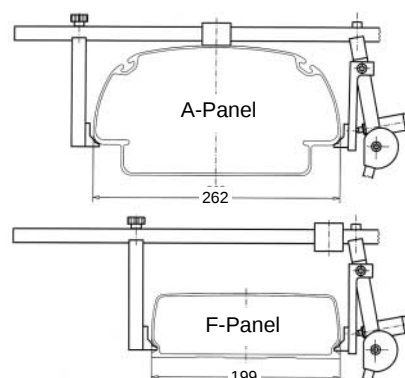
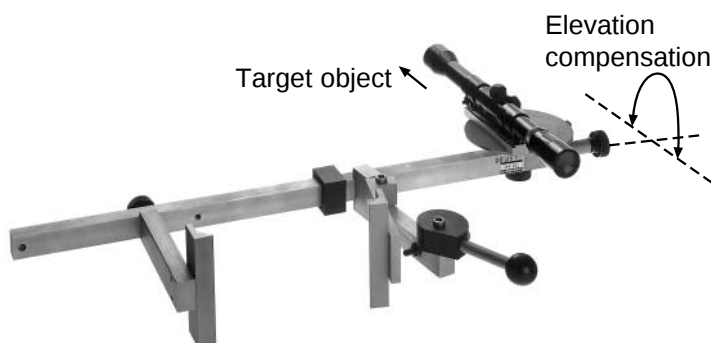
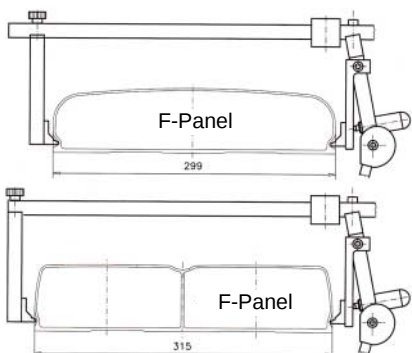
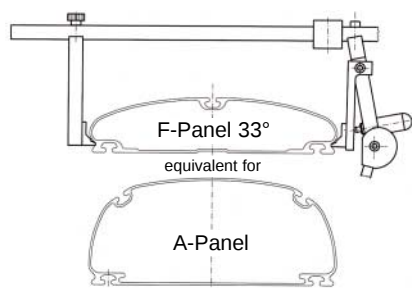
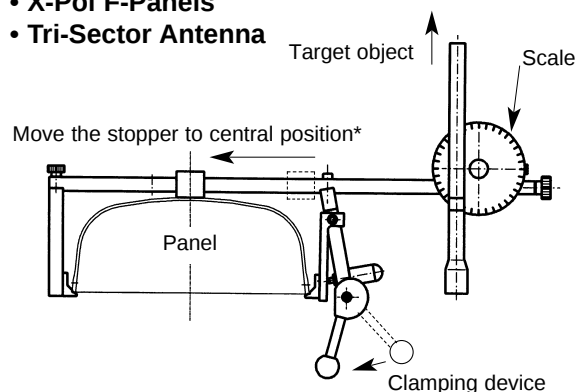
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Type No. 738 440

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

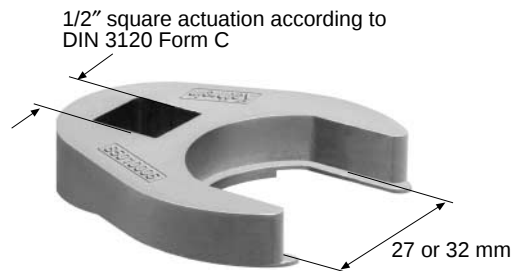
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Please note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the feederline connector interfaces, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Kathrein installation set: Type No. 850 10005

Set has to be ordered separately!

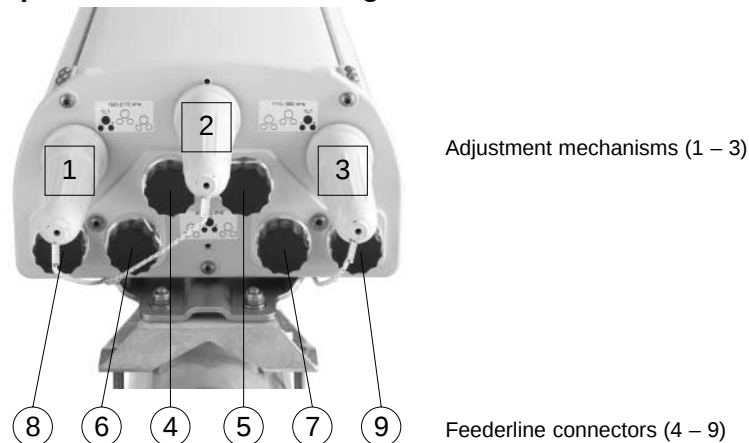
Set consists of two spanners of 27 and 32 mm width.



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 176.

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