



ERO INFORMATION DOCUMENT

on

GSM Frequency Utilisation

within Europe

Updated: March 2004

This document summarises the information collected from administrations and operators concerning the frequency sub-bands licensed to GSM operators (900 and 1800 MHz bands) across Europe. The information reflects the status on approximately March 2004. This information can also be found on the ERO Internet Homepage (www.ero.dk).

This document contains GSM networks in Europe using the following frequency ranges:

E-GSM:	880-890 / 925-935 MHz	(2 x 10 MHz)
GSM-900:	890-915 / 935-960 MHz	(2 x 25 MHz)
GSM-1800:	1710-1785 / 1805-1880 MHz	(2 x 75 MHz)

Details are given about the following countries:

1 ALBANIA	20 LIECHTENSTEIN
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Frequency Utilisation of the Frequency Bands
 880-890/ 925-935, 890-915/ 935-960. 1710-1785/ 1805-1880 MHz

Albania, January 2001

GSM Subscriber	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
30.000	0		2 x 12.4 MHz	0	1 %
Operator	Service start	License expires	Frequencies	No. of Subscriber	
Albanian Mobile Communications (AMC)	MAY 96	19 AUG 2014	890.0-902,4/935,0-947,4 MHz (2 X 12,4 MHz)	30.000	
Analogue	-	-	None	-	

A second Albanian GSM operator is planned and will be given the frequency sub-bands 907-915 / 952-960 MHz (2 x 8 MHz). The rest of the GSM shall be reserve. The E-GSM bands are not yet operational.

Andorra, January 2001

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
26 000	0		2 x 25.0 MHz	0	40.0 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
STA (Mobiland)	1993	unlimited	890.0 – 915.0 / 935.0-960.0 MHz (2 x 25.0 MHz)	26 000	
Average			2 x 25.0 MHz		
Analogue:			none		

The Andorran government is planning to grant a 1800 MHz license to STA.

Austria, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
7.126,000	2 x 0 MHz *)	2 x 24.0 MHz	2 x 71.4 MHz	88,4 %
Operator	Service start	License expiry	Frequencies	
T-Mobile Austria GmbH	OCT 96	DEC 2015	893.0-897.8 / 938.0-942.8 MHz (2x 5.0 MHz) 906.2-913.8 / 951.2-958.8. MHz (2x 7.8 MHz) 1710.2-1712.0/1805.2-1807,0 MHz (2 x 2.0 MHz) 1740.0-1741.0/1835.0-1836.0 MHz (2x 1.2 MHz) 1742.8-1743.8/1837.8-1838.8 MHz (2x 1.2 MHz) 1748.0-1750.2/1843.0-1845.2 MHz (2x 2.4 MHz) 1756.8-1757.8/1851.8-1852.8 MHz (2x 1.2 MHz)	2.040,000
Mobilkom Austria Aktiengesellschaft & Co KG	DEC 92	DEC 2015	890.2-892.6 / 935.2-937,6 MHz (2x 2.6 MHz) 898.2-905.8 / 943.2-950.8 MHz (2x 7.8 MHz) 1712.4-1722.4/1807.4-1817.4 MHz (2 x 10.2 MHz) 1731.6-1733.8/1826.6-1828.8 MHz (2x 2.4 MHz) 1741.4-1742.4/1836.4-1837.4 MHz (2x 1.2 MHz) 1755.4-1756.4/1850.4-1851.4 MHz (2x 1.2 MHz)	3.126,000
One GmbH	SEP 98	DEC 2017	1734.2-1739.6/1829.2-1834.6 MHz (2 x 5.6 MHz) 1758.2-1781.4/1853.2-1876.4 MHz (2x 23.4 MHz)	1.385,000
Tele.ring Telekom Service GmbH	JUN 00	DEC 2019	1725.0-1731.2 /1820.0-1826.2 MHz (2x 6.4 MHz) 1744.2-1747.6 /1839.2-1842.6 MHz (2x 3.6 MHz) 1750.6-1755.0/1845.6-1850.0 MHz (2x 4.6 MHz)	575,000
Average			2 x 22,45 MHz per operator	

Notes:

*) EGSM: 2 x 10.0 MHz might be auctioned in 2004

Source of market data: Mobile Communications Jan. 2004

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
914-915/959-960	Cordless telephone (CT 1)	The band will be available for GSM as from 2005.

Belgium, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
7.847.901	2 x 8 MHz	2 x 24.0 MHz	2 x 58.0 MHz	77 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Proximus	JAN 94	Licence given on 2/7/96 for 15 yrs: 2/7/2011	890-896/935-941 MHz and 902-908/947-953 MHz and 1710-1725/1805-1820 MHz (2 x 30 MHz) additional 2 times 3MHz to be identified in DCS1800 band	4.201.313
Mobistar	AUG 96	Licence given on 27/11/95 for 15 yrs: 27/11/2010	896-902/941-947 MHz and 908-914/953-959 MHz 1725-1740/1820-1835MHz (2 x 30 MHz) additional 2 times 3MHz to be identified in DCS1800 band	2.615.368
KPN/ORANGE	APR 99	Licence given on 2/7/98 for 15 yrs: 2/7/2013	1763-1785 / 1858-1880 MHz and 880-885/925-930 MHz * and 887-990/932-935 MHz * (2 x30 MHz)	1.031.220
Average			2 x 30 MHz per operator	
Analogue			none	

* The E-GSM bands are not yet operational

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
885-887 / 930-932 MHz	CT1+	Band will be available in 2008
914-915 / 959-960 MHz	CT1	Decrease band will be available in coming year(s).

Bulgaria, January 2001

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
570 000	0	2 x 9.2 MHz	2 x 2.4 MHz	7.1 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
MobilTel	SEPT 95	AUG 2009	890.2-894.8 / 935.2-939.8 (2 x 4.6 MHz)	570 000
OTE	JAN 2001	JAN 2016	895.4-900.0 / 940.4-945.0 MHz (2 x 4.6 MHz) 1730.6-1733 / 1825.6-1828.0 MHz (2 x 2.4 MHz)	0
Average			2 x 5.8 MHz per operator	
Analogue			None	

Croatia, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
2 463 827	0		2 x 24.0 MHz	0	55.5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
HTmobile	OCT 95	SEP 2009	896.0-908.0 / 941.0-953.0 MHz (2 x 12.0 MHz)	1 263 827	
VIPNET	JUL 99	SEP 2008	890.0-896.0 / 935.0-941.0 MHz and 908.2-914.2 / 953.2-959.2 MHz (2 x 12.0 MHz)	1 200 000	
Average			2 x 12.0 MHz		
Analogue			None		

Cyprus, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
303.775 (<i>post – paid, January 2004</i>)					67% (<i>June 2003</i>)
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
CYTA	1995	27/2/24	902,6-914,8 MHz / 947,6-959,8 MHz / 1710,2-1735 MHz / 1805,2-1830 MHz	303.775 (<i>post –paid, January 2004</i>)	
SCANCOM	1/5/04	1/12/23	890,2-902,4 MHz / 935,2-947,4 MHz / 1735,2-1760 MHz / 1830,2-1855 MHz	-	
			(2 x 12.2 MHz) for each operator (GSM-900) (2 x 24.8 MHz) for each operator (GSM-1800)		

Czech Republic, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
9 672 040	0	2 x 21.8 MHz	2 x 45.6 MHz	93.9%
Operator	Service start	License expiry	Frequencies	No. of Subscribers
EuroTel	JUL 96	20 years	897.2-899.8 / 942.2-944.8 MHz and 902.2-904.0 / 947.2-949.0 MHz and 906.2-909.2 / 951.2-954.2 MHz and 911.8-912.8 / 956.8-957.8 MHz and 1711.4-1717.2/1806.4-1812.2 MHz and 1717.4-1721.8/1812.4-1816.8 MHz and 1724.0-1727.2/1819.0-1822.2 MHz	4 177 874
T-mobile (former Radio Mobil)	SEPT 96	20 years	894.4-897.0 / 939.4-942.0 MHz and 900.0-902.0 / 945.0-947.0 MHz and 904.2-906.0 / 949.2-951.0 MHz and 909.4-911.6 / 954.4-956.6 MHz 1722.0-1723.6/1817.0-1818.6 MHz and 1730.4-1736.4/1825.4-1831.4 MHz and 1752.8-1762.6/1847.8-1857.6 MHz	3 947 415
Cesky mobil	MAR 2000	20 years	890.2-894.0/935.2-939.0 MHz and 1763.0-1776.8/1858.0-1871.8 MHz	1 546 751
Average			2 x 22.4 MHz	
Analogue			none	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
880,0-884,0 / 925,0-929,0 MHz 958,8 – 960 MHz	Request for military tactical rr Military: aeronautical radionavigation	By 2007
885–887 / 930–932 MHz 914–915 / 959–960 MHz	CT1 + CT1	By the end 2005 By the end 2005

Denmark, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
4477752	2 x 8.6 MHz	2 x 24.8 MHz	2 x 74.8 MHz	73.7 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Sonofon	MAR 92	GSM900: MAR2002 GSM1800 JUN2007/ DEC2010	905.0-913.8 / 950.0-958.8 MHz and 1710.2-1729.4 / 1805.2-1824.4 MHz (2x28.4 MHz)	1.102.987
TDC	MAR 92	GSM900: MAR2002 GSM1800 JUN2007/D EC2010	896.0-904.8 / 941.0-949.8 MHz and 1729.6-1746.0/1824.6-1841.0 MHz 1775.0-1784.8/1870.0-1879.8 MHz (2 x 35.6 MHz)	1.661.938
Telia	MAR 98	GSM900 JAN2011 GSM1800 JUN2007	885.6-892.8/930.6-937.8 MHz 1746.2-1760.4 / 1841.2-1855.4 MHz (2x21.8 MHz)	465.845
Orange	MAR 98	GSM900: JAN2011 GSM1800 JUN 2007	880.2-881.6/925.2-926.6 MHz 882.8-885.4/927.8-930.4 MHz 893.0-895.4/938.0-940.8 MHz 1760.6-1774.8 / 1855.6-1869.8 MHz (2x21.8 MHz)	555.524
CBB-mobil			Service provider using the network of Sonofon	191.639
Telmore			Service provider using the network of TDC	453.815
Debitel	Aug97		Service provider using the network of both Sonofon and TDC	327.609
Average			2 x 17 MHz	
Analogue:			None	

Estonia, January 2001

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
545 040	0	2 x 22.8 MHz	2 x 28,8 MHz	38,9 %
Operator	Service start	License expiry	Frequencies	No. Of Subscribers
EMT	JAN 95	2010	898.2-905.8 / 943.2-950.8 MHz (2 x 7.6 MHz) 1775.3-1784.9/1870.3-1879.9 MHz (2 x 9.6 MHz)	327 000
Radiolinja Estonia	JAN 95	2010	906.2-913.8 / 951.2-958.8 MHz (2 x 7.6 MHz) 1760.1-1769.7/1855.1-1864.7 MHz (2 x 9.6 MHz)	118 040
Ritabell	APR 97	2010	890.2-897.8 / 935.2-942.8 MHz (2 x 7.6 MHz) Reserved DCS – 1800 (2* 9,6 MHz)	100 000
Average			2 x 17,2MHz	
Analogue			None	

Finland, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
Ca. 4 500 000	2 x 5.4 MHz	2 x 23.4 MHz	2 x 52,4 MHz	ca. 87 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Radiolinja Origo Oy	for GSM: JAN 92	NOV 2017 ²	Whole country except Åland: 1746.6-1762.2 / 1841.6-1857.2 MHz (2 x 15.8 MHz) Areas listed ¹ : 904.0 - 913.8 / 949.0 - 958.8 MHz (2 x 10 MHz) Rest of the country (except Åland): 905.4 - 913.8 / 950.4 - 958.8 MHz (2 x 8.6 MHz)	ca.1 375 000
Sonera Mobile Networks Oy	for GSM: JUL 92	NOV 2017 ²	1710.2-1728.8 / 1805.2-1823.8 MHz (2 x 18,8 MHz) Areas listed ¹ : 890.2 - 903.6 / 935.2 - 948.6 MHz (2 x 13.6 MHz) Rest of the country: 890.2 - 901.6 / 935.2 - 946.6 MHz (2 x 11.6 MHz)	ca. 2 441 000
Ålands Mobiltelefon Ab	JUN 93	DEC 2017 ²	Åland: 904.0 - 913.8 / 949.0 - 958.8 MHz (2 x 10 MHz)	ca. 9 500
Finnet Verkot Oy	start: JAN 01	DEC 2019 ²	Whole country except Åland: 1731.6-1746.2 / 1826.6-1841.2 MHz (2 x 14.8 MHz) and 1768.4-1771.2 / 1863,4.0-1866.2 MHz (2 x 3 MHz) 880.2 - 885.4 / 925.2 - 930.4 MHz (2 x 5.4 MHz) Whole country except areas listed ¹ and Åland: 902.0 - 905.0 / 947.0 - 950.0 MHz (2 x 3.2 MHz)	ca. 743 000
Average				
Analogue			none (service stopped 31.12.2000)	

¹ Helsinki area, Turku + 16 km, Tampere + 23 km and Oulu + 30 km.

² Operating licence.

France, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
40 388 700 (metropolitan, Dec. 2003)	2*10 MHz	2 x 24.8 MHz	2 x 75 MHz	69,0% (metropolitan, Dec. 2003)
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Bouygues Telecom	May 1996	December 2009	GSM 900: 900.1-904.9 / 945.1-949.9 MHz (2*4,8 MHz) except in very densely populated areas. E-GSM: 880.1-889.9 / 925.1-934.9 MHz (2*9.8 MHz) in very densely populated areas and progressively in the remaining metropolitan territory (within 2005 and except some military areas). GSM 1800: 1758.3-1784.9 / 1853.3-1879.9 MHz (2*26.6 MHz) in very densely populated areas, 1763,3-1784,9 / 1858.3-1879.9 MHz and duplex (2*21.6 MHz) in the remaining metropolitan territory.	6 513 900 (metropolitan, Dec. 2003)
SFR	April 1993	March 2006	GSM 900: 902.5-914.9 / 947.5-959.9 MHz (2*12.4 MHz) in very densely populated areas and 904,9-914,9 / 949.9-959.9 MHz (2*10 MHz) in the remaining metropolitan territory. GSM 1800: 1710.1-1712.9 / 1805.1-1807.9 MHz (2*2.8 MHz) and 1737.1-1758.1 / 1832.1-1853.1 MHz (2*21 MHz).	14 282 300 (metropolitan, Dec. 2003)
Orange France	July 1992	March 2006	GSM 900: 890.1-902.5 / 935.1-947.5 MHz (2*12.4 MHz) in very densely populated areas and 890.1-900.1 / 935.1-945.1 MHz (2*10 MHz) in the remaining metropolitan territory. GSM 1800: 1713.1-1736.9 / 1808.1-1831.9 MHz and duplex (2*23.8 MHz).	19 592 500 (metropolitan, Dec. 2003)
Average			2 x 36.2 MHz per operator in very densely populated areas	
Analogue			None	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
890-915x935-960 MHz	None	15 years licenses, ending 2006 (Orange France & SFR) or 2009 (Bouygues Telecom).
880-890x925-935 MHz	Some tactical radio relays and other military applications	This frequency resource is progressively given to Bouygues Telecom and should be completely available within 2005, except on some military areas.
1710-1785x1805-1880 MHz	None	15 years licenses, ending 2006 (Orange France & SFR) or 2009 (Bouygues Telecom).

GSM authorisations are planned to be renewed for a duration of 15 years, starting from March 2006 (Orange France & SFR) and December 2009 (Bouygues Telecom).

Germany, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
64 800 000	0		2 x 24.8 MHz	2 x 55.2 MHz	80 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
T-Mobile Deutschland GmbH	JUL 92	DEC 09	892.5-899.9 / 937.5-944.9 MHz and 906.1-910.5 / 951.1-955.5 MHz and 914.3-914.9 / 959.3-959.9 MHz and 1725.1-1730.1 / 1820.1-1825.1 MHz (2x17.4 MHz)	26 300 000	
Vodafone D2 GmbH	JUL 92	DEC 09	890.1-892.5 / 935.1-937.5 MHz and 899.9-906.1 / 944.9-951.1 MHz and 910.5-914.3 / 955.5-959.3 MHz and 1752.7-1758.1 / 1847.7-1853.1 MHz (2x17.8 MHz)	24 700 000	
E-Plus Mobilfunk GmbH & Co KG	MAY 94	DEC 12	1758.1-1780.5 / 1853.1-1875.5 MHz (2x22.4 MHz)	8 200 000	
O2 (Germany) GmbH & Co OHG	MAR 98	DEC 16	1730.1-1752.5 / 1825.1-1847.5 MHz (2x22.4 MHz)	5 600 000	
Average			2 x 20 MHz		
Analogue			none		

The EGSM bands and the remaining parts of the 1800 MHz bands, which have not been licensed so far, are currently not available due to other usage (military services).

Greece, January 2001

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
5932000	0		2 x 20 MHz	2 x 25 MHz	57 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Panafon SA	JUL 93	SEP 2012	905-915 / 950-960 MHz (2 x 10 MHz)	2 226 000	
TeleSTET	JUL 93	SEP 2012	890-900 / 935-945 MHz (2 x 10 MHz)	1 645 000	
Cosmote	MAR 98	MAR 2023	1760-1785 / 1855-1880 MHz (2 x 25 MHz)	2 061 000	
Average			2 x 15 MHz		
Analogue			none		

Hungary, January 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
7 944 586	0	2 x 24,6 MHz	2 x 45.0 MHz	78,5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Pannon GSM	MAR 94 NOV 00	NOV 09 JUL 14	897,9-905,9 / 942,9-950,9 MHz and 1758.1-1773.1/1853.1-1868.1 MHz (2 x 23 MHz)	2 846 545
Westel 900	MAR 94 NOV 00	NOV 09 JUL 14	905,9-913,9 / 950,9-958,9 MHz and 1743.1-1758.1 /1838.1-1853.1 MHz (2 x 23 MHz)	3 766 528
Vodafone	DEC 99	JUL 14	890,1-897,9 /935,1-942,9 + 913,9-914,7/958,9- -959,7 MHz 1710.1-1725.1/1805.1-1820.1 MHz (2x 23.6 MHz)	1 331 513
Average			2 x 23.2 MHz	
Analogue	MAY 90	JUL 03	-----	0

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
880 - 882 MHz/ 925 - 935 MHz	Aeronautical radionavigation	Bands will be available for GSM after concluding coordination with the Governmental Frequency Management Agency only.
914 - 915 MHz/ 959 - 960 MHz	CT1 applications	CT1 licenses will be expired by 31 December 2007.

Iceland, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
254.375	0	2 x 23.8 MHz	2 x 74.8 MHz	87.6 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Iceland Telecom	1994	2008	900.9-913.9 / 945.9-958.9 MHz and 1710.1-1720.1 / 1805.1-1815.1 MHz (2x23 MHz)	162.237
Og Vodafone	2001	2011	890.1-900.9 / 935.1-945.9 MHz and 1725.1-1740.1/1820.1-1835.1 MHz 1770.1-1784.9/1865.1-1879.9 (2 x 40.4 MHz)	92.138
IMC a Islandi	2000	2010	1766.3-1769.1 /1861.3-1864.1 MHz (2 x 2.8 MHz)	0
Average			2 x 22 MHz	
Analogue			None	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
914-915/959-969 MHz	CT1	To be decided

Ireland, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
3 200 000	0		2 x 19.2 MHz	2 x 43.2 MHz	83%
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
O2	MAR 97	2011	907.5-915.0 / 952.5-960.0 MHz (2 x 7.5 MHz) 1750.9-1765.3 / 1845.9-1860.3 MHz (2x14.4 MHz)	39%	
Vodafone	JUL 93	2011	900.0-907.5 / 945.0-952.5 MHz (2 x 7.5 MHz) 1736.3-1750.7 / 1831.3-1845.7 MHz (2x14.4 MHz)	56%	
Meteor	FEB 01	2015	892.5-900.5/937.5-945.0 MHz (2 x 7.5 MHz) 1765.5-1779.9/1860.5-1874.9MHz (2 x 14.4 MHz)	5%	
Average			2 x 21.0 MHz		
Analogue			None		

Italy, September 2002

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
36 400 000	0		2 x 21.6 MHz	2 x 50.0 MHz	63.2 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Blu	MAY/00	AUG/2014	National wide excluding 4 areas 1740.1-1749.9/1835.1-1844.9 MHz In 4 areas 1770.1-1779.9/1865.1-1874.9 MHz Temporarily until 31.12.2002 - National wide 1735.1-1739.9/1830.1-1834.9 MHz Weighted average: 2x15 MHz	900 000	
Omnitel Pronto Italia	DEC 95	FEB/2010	National wide 905.5-913.7 / 950.5-958.7 MHz 1780.1-1784.9 / 1875.1-1879.9 MHz In 16 large cities 903.5-905.5 / 948.5-950.5 MHz Temporarily until 31.12.2002 National wide excluding 4 areas 1775.1-1779.9 / 1870.1-1874.9 MHz in 4 areas 1745.1-1749.9/1840.1-1844.9 MHz Weighted average: 2x18.8 MHz	14 500 000	
TIM	OCT 95	FEB/2010	National wide 892.1-900.3 / 937.1-945.3 MHz 1755.1-1759.9 / 1850.1-1854.9 MHz In 16 large cities 900.3-903.3 / 945.3-948.3 MHz Temporarily until 31.12.2002 - National wide 1750.1-1754.9/1845.1-1849.9 MHz Weighted average: 2x19 MHz	17 000 000	

Wind Telecommunicationi	MAR 99	JUN/2013	National wide 1760.1-1769.9 / 1855.1-1864.9 MHz National wide excluding 16 large cities 900.5-905.3 / 945.5-950.3 MHz Temporarily until 31.12.2002 In 12 large cities 1770.1-1774.9/1865.1-1869.9 MHz In 4 large cities 1740.1-1744.9/1835.1-1839.9 MHz Weighted average: 2x15 MHz	4 000 000
Average			2 x 17.0 MHz	
Analogue: TIM (Tacs-900)	APR 90	*)	Nation-wide: 880.0-891.8 / 925.0-936.8 MHz (2 x 11.8 MHz)	2.800 000

*) According to the National Table of Frequency Allocations (NTFA) the TACS system will be phased out at latest in 2005. The band will then be allocated to GSM.

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
914 - 915 958 - 960	CT1	CT1 to expire according CEPT decisions; band to be allocated to GSM
1710 - 1735 1805 - 1840	Reserved to the Ministry of Defence	20 MHz out of this band could be allocated to GSM

Latvia, September 2002

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
775 000	0	2x25MHz	2x50MHz	92% of territory; 95% of population; 32% of population are subscribers;

Operator	Service Start	License expiry	Frequencies	Subscribers
LMT	Jan 1995	2006	890-903/935-950MHz (2x13); 1710-1735/1805-1830MHz (2x25);	440 000
Lele2	Apr 1997	2006	903-913/948-958MHz (2x10); 1735-1760/1830-1855MHz (2x25);	335 000
Average			2x36.5MHz	

Liechtenstein, September 2002

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
~15'500	0		2 x 8.4 MHz	2 x 12.2 MHz	~47 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
mobikom liechtenstein AG	APR 00	DEC 09	1747.7-1750.1 / 1842.7-1845.1 MHz and 1753.5-1755.1 / 1848.5-1850.1 MHz (2x4.0 MHz)	---	
Tele2 AG	APR 00	DEC 09	897.5-899.9 / 942.5-944.9 MHz and 909.9-911.7 / 954.9-956.7 MHz (2x4.2 MHz)	---	
Telekom FL AG	APR 00	DEC 09	892.5-896.7 / 937.5-941.7 MHz and 1739.3-1740.1 / 1834.3-1835.1 MHz and 1750.3-1753.5 / 1845.3-1848.5 MHz (2x8.2 MHz)	---	
VIAG Europlatform AG	APR 00	DEC 09	1717.7-1719.1 / 1812.7-1814.1 MHz and 1731.3-1733.9 / 1826.3-1828.9 MHz (2x4.0 MHz)	---	
Average			2 x 5.1 (2x5.3) MHz		
Analogue			none		

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
885 – 887 MHz	CT1+	Until end 2005 (Then: Additional spectrum for GSM)
930 – 932 MHz	CT1+	Until end 2005 (Then: Additional spectrum for GSM)

Lithuania, September 2002

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
1 292 000	0		2 x 22.8 MHz	2 x 21.6 MHz	37,1 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Bite GSM	DEC 95 ¹⁾ JAN 99 ²⁾	Not limited ³⁾	899.3-904.1 / 944.3-949.1 MHz and 910.7-913.9 / 955.7-958.9 MHz and 1728.9-1736.1 / 1823.9-1831.1 MHz (2x15.2 MHz)		
Omnitel	MAR 95 ¹⁾ JAN 99 ²⁾	Not limited ³⁾	895.7-898.1 / 940.7-943.1 MHz and 905.1-910.7 / 950.1-955.7 MHz and 1744.1-1751.3/1839.1-1846.3 MHz (2x15.2 MHz)		
TELE 2	MAR 01 ¹⁾ JUN 00 ²⁾	Not limited ³⁾	890.1-895.7/935.1-940.7 MHz and 898.1-899.3/943.1-944.3 MHz and 1758.9-1766.1 / 1853.9-1861.1 MHz (2x14 MHz)		
Average			2 x 14.8 MHz		
Analogue:			None		

1) GSM 900

2) GSM 1800

3) Should be reregistered every 10 years

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
914–915 / 959–960 MHz	CT1 Cordless telephones	Should be phased out by the end of 2008

Luxembourg, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
303 274	0		2 x 23.2 MHz	2 x 19.6 MHz	68.0 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Entreprise des P&T (LUXGSM)	JUN 93	JUN 08	890.2-894.6 / 935.2-939.6 MHz and 900.0-907.2 / 945.0-952.2 MHz and 1775-1784.8 / 1870-1879.8 MHz 1770.4-1774.8/1865.4-1869.8 MHz (2 x 25.8 MHz)	338 329	
TANGO S.A.	MAY 98	MAY 08	895.2-899.6 / 940.2-944.6 MHz and 907.6-914.8 / 952.6-959.8 MHz and 1760.2-1770 / 1855.2-1865 MHz (2 x 21.4 MHz)	201 912	
Average			2 x 23.6 MHz		
Analogue			None		

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
880-890/925-935 MHz	Domestic CT1+ in use Planned for E-GSM	No licenses have been issued. Band is available

Macedonia, May 2001

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
150.000	0		2 x 12.5 MHz	0	7,5 %
Operator	Service start	License expires	Frequencies	No. Of Subscriber	
Mobimak	OCT 96	Not limited ¹⁾	890.0-902,5 / 935,0-947,5 MHz (2 X 12,5 MHz)	150.000	
Average			2 x 12.5 MHz		
Analogue	-	-	None	-	

A second Macedonian GSM operator is planned for the second half of 2001 in the GSM bands 900 and 1800 MHz.

The E-GSM bands are not yet operational.

1) Should be registered every 5 years

Malta, September 2002

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
239,416	0		2 x 16.8 MHz	2 x 25 MHz	60.7 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Vodafone Malta Limited	SEP 97	SEP 2010	896.2 – 913 / 941.2 – 958 MHz (2 x 16.8 MHz)	144,859	
Mob/Isle Communications plc.	DEC 2000	SEP 2010	1710 – 1735 / 1805 – 1830 MHz (2 x 25 MHz)	94,557	
Average			2 x 20.9 MHz		
Analogue:			none		

Norway, May 2001

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
2 637 500	0		2 x 19.2 MHz	2 x 20 MHz	61.1 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
NetCom	DEC 92 MAR 98	NOV 05 MAR 10	904.3-913.9 / 949.3-958.9 MHz (2 x 9.6 MHz) 1754.5-1764.5/1849.5-1859.5 (2 x 10 MHz)	800 000	
Telenor Mobil	DEC 92 MAR 98	NOV 05 MAR 10	894.5-904.1 / 939.5-949.1 MHz (2 x 9.6 MHz) 1771.3-1781.3/1866.3-1876.3 (2 x 10 MHz)	2 070 000	
Average			2 x 19.6 MHz		
Analogue: Telenor Mobil	DEC 86 JAN 81	JUL 2001 NOV 2003	890-894.5 / 935-939.5 MHz (2 x 4.5 MHz) 453-457.5/463-467.5 MHz (2 x 4.5 MHz)	216 000	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
930.5 MHz ± 4.0MHz	EISCAT radar	Current licence expires 31.12.2002, but will be extended. Limited GSM use around EISCAT sites.
914-915 MHz	CT1	

Poland, January 2001

GSM Subscr.	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
6 795 300	0		2 x 21.0 MHz	2 x 27.8	17.5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Polkomtel (Plus)	23.02.96 GSM 900 13.09.99 GSM 1800	23.02.2011 13.09.2014	890.0-892.8 / 935.0-937.8 MHz and 897.2-903.4 / 942.2-948.4 MHz and 1757.6-1759.8/1852.6-1854.8 MHz and 1777.8-1784.8/1872.8-1879.8 MHz (2x 18.2 MHz)	2 460 000	
Polska Telefonia Cyfrowa (ERA)	23.02.96 GSM 900 11.08.99 GSM 900	23.02.2011 11.08.2014	892.8-897.2 / 937.8-942.2 MHz and 903.4-908.0 / 948.4-953.0 MHz and 1755.0-1757.2/1850.0-1852.2 MHz and 1770.2-1777.2/1865.2-1872.2 MHz (2x 18.2 MHz)	2 950 000	
CENTERTEL (IDEA)	5.07.99 GSM 900 21.08.97 GSM1800	5.07.2014 21.08.2014	908.0-911.0 / 953.0-956.0 MHz and 1760.4-1769.8 / 1855.4-1864.8 MHz (2x12.4 MHz)	1 385 300	
Average			2 x 16.3 MHz		

The bands 911-915/ 956-960 MHz (2 x 4 MHz) have been reserved for CENTERTEL. The band 956-958 MHz will be made available by 1 July 2001 and the rest of the upper band by 1 January 2004.

Portugal, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
9341384	0		2 x 23.8 MHz	2 x 18.0 MHz	93.4%
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
TMN	OCT 92	MAR 2007	905.9-913.9 / 950.9-958.9 MHz (2 x 8 MHz) 1763.5-1766.7/1858.5-1861.7 MHz and 1770.1-1772.9/1865.1-1867.9 MHz (2 x 6 MHz)	4886651	
Telecel	OCT 92	OCT 2006	890.1-898.1 / 935.1-943.1 MHz (2 x 8 MHz) 1759.9-1763.1 / 1854.9-1858.1 MHz 1772.9-1775.7 / 1867.9-1870.7 (2 x 6 MHz)	2819358	
Optimus	AUG 98	NOV 2012	898.1-905.9 / 943.1-950.9 MHz (2 x 7.8 MHz) 1775.7-1781.7 / 1870.7-1876.7 MHz (2 x 6 MHz)	1635375	
Average			2 x 13.9		
Analogue			None		

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
880 – 915 MHz	CT1-Cordless telephones from 914-915 MHz	To be phased out by 2008.12.31
925 – 960 MHz	CT1-Cordless telephones from 959-960MHz	To be phased out by 2008.12.31
1710 – 1785 MHz	-----	
1805 – 1880 MHz	-----	

Romania, January 2001

GSM900/1800 Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
2 430 000	0		2 x 25 MHz	2 x 7 MHz	10.7 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
MobiFon	MAR 97	2006	890.0-902.4/935.0-947.4 MHz (2 x 12.4 MHz)	1 172 000	
Mobil Rom	JUN 97	2006	902.6-915.0/947.6-960.0 MHz (2 x 12.4 MHz)	1 222 000	
Cosmorom	APR 00	2009	2 x 6.8 MHz in the GSM 1800 band	36 000	
Average			2 x 10.4 MHz		
Analogue			none		

Russian Federation, September 2002

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
12500000	2 x 1.6 MHz	2 x 25 MHz	2 x 75 MHz	8.5 %
Operator	Service start	License expiry	Frequencies	No. of subscribes
Mobile TeleSystems	1994	2007	GSM 900: From 2 x 4.8 up to 2 x 11,4 MHz per operator (non-consecutive channels shared with ARNS) depending on EMC conditions and market demand within licensing area GSM 1800: From 2 x 8 up to 2 x 20.0 MHz per operator (non-consecutive channels shared with FS) depending on local EMC conditions and market demand within licensing area	4 685 000
VympelCom	1997	2007	GSM 900: From 2 x 4.8 up to 2 x 10,0 MHz per operator (non-consecutive channels shared with ARNS) depending on EMC conditions and market demand within licensing area GSM 1800: From 2 x 8 up to 2 x 20.0 MHz per operator (non-consecutive channels shared with FS) depending on local EMC conditions and market demand within licensing area	3 630 000
MegaFon	1997	2011	GSM 900: From 2 x 3.0 up to 2 x 12,0 MHz per operator (non-consecutive channels shared with ARNS) depending on EMC conditions and market demand within licensing area GSM 1800: From 2 x 8 up to 2 x 20.0 MHz per operator (non-consecutive channels shared with FS) depending on local EMC conditions and market demand within licensing area	1 880 000
Regional operators	duration 10 years from licence issue		GSM 900: From 2 x 4.0 up to 2 x 10,0 MHz per operator (non-consecutive channels shared with ARNS) depending on EMC conditions and market demand within licensing area GSM 1800: From 2 x 8 up to 2 x 18 MHz per operator (non-consecutive channels shared with FS) depending on local EMC conditions and market demand within licensing area	2 305 000
Average			GSM900 - 2 x 7.6 MHz GSM1800 – 2 x 9 MHz	
Analogue:			none	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
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880-890/925-935	Aeronautical Radio Navigation Service	till the end of lifetime, regional reassignment in order to release GSM channels
890-915/935-960	Aeronautical Radio Navigation Service	till the end of lifetime, regional reassignment in order to release GSM channels
1710-1785/1805-1880	Fixed Service	till the end of lifetime, no new assignments

Slovak Republic, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
3700000					70%
Operator	Service start	License expiry	Frequencies		No. of Subscribers
EUROTEL	10.02.1997	30.08.2011	GSM - 900 896,2/941,2 – 902,0/947,0 MHz 905,2/950,2 – 908,0/953,0 MHz 909,4/954,4 MHz 910,4/955,4 – 910,8/955,8 MHz 911,8/956,8; 912,0/957,0 MHz GSM – 1800 1726,6/1821,6 – 1733,8/1828,8 MHz 1747,2/1842,2 – 1747,8/1842,8 MHz GSM – 1800 (after 01.04.2001) 1725,2/1820,2 – 1726,4/1821,4 MHz 1734,0/1829,0 – 1738,4/1833,4 MHz 1746,2/1841,2 – 1747,0/1842,0 MHz		1 635 000
ORANGE	15.01.1997	30.08.2011	GSM – 900 890,2/935,2 – 896,0/941,0 MHz 902,2/947,2 – 905,0/950,0 MHz 909,0/954,0; 909,2/954,2 MHz 912,2/957,2 MHz 913,2/958,2 – 913,6/958,6 MHz GSM 1800 1717,4/1812,4 – 1723,4/1818,4 MHz 1748,0/1843,0 – 1749,8/1844,8 MHz GSM 1800 (after 01.04.2001) 1716,4/1811,4 – 1717,2/1812,2 MHz 1723,6/1818,6 – 1724,0/1819,0 MHz 1738,6/1833,6 – 1743,8/1838,8 MHz		2 065 000
Average			2 x 20.8 MHz		

Slovenia, January 2001

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
1 155 236	0		2 x 24.4 MHz	3 x 30 MHz	57.8 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Mobitel	OCT 96	APR13	902.6-914.8 / 947.6-959.8 MHz (2 x 12.2 MHz)	1 003 236	
Simobil	APR 99	OCT13	890.0-902.4 / 935.0-947.4 MHz (2 x 12.2 MHz)	152 000	
Average			2 x 12.2 MHz		
Western Wireless		JAN16	1710.1-1725.1/1805.1-1820.1 MHz (2 x 15 MHz)		
Mobitel		JAN16	1740.1-1755.1/1835.1-1850.1 MHz (2 x 15 MHz)		
Simobil		JAN16	1725.1-1740.1/1820.1-1835.1 MHz (2 x 15 MHz)		
Average			2 x 15 MHz		
Analogue	Mobitel	JUL91	411.675-415.850/421.675-425.850 MHz (2x4.175 MHz)	41.212	

Spain, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
37 480 000	0		2 x 24 MHz	2 x 75 MHz	89.5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Vodafone	OCT 95	FEB.25	902.9-914.9 / 947.9-959.9 MHz (2x12 MHz)	9 680 000	
Movil	JUL 98	JUL 28	1735.1-1759.9 / 1830.1-1854.9 MHz (2x24.8 MHz)		
Telefonica Moviles	JUL 95	FEB 15	890.1-897.9 / 935.1-942.9 MHz and	19 600 000	
	JUL 98	JUL 28	898.7-902.7 / 943.7-947.7 MHz (2x12 MHz) 1710.1-1734.9 / 1805.1-1829.9 MHz (2x24.8 MHz)		
Amena	APR 99	JUL-28	1760.1-1784.9 / 1855.1-1879.9 MHz (2x24.8 MHz)	8 200 000	
Average			2 x 8.2MHz		
Analogue: Telefonica Moviles	APR 90	DEC-06	874.1-875.9 / 919.1-920.9 MHz (2x1.8 MHz) 880.1-885.9 / 925.1-930.9 (2x5.8 MHz) 898.1-898.7 / 943.1-943.7 MHz (2 x 0.6 MHz) From 01/01/2004 no mobile service, only rural fixed telephony		

Sweden, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration 31/12-03
8 3 75 000	2 x 5 MHz	2 x 24 MHz	2 x 72.6 MHz	93.5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers 31/12-02
TeliaSonera	NOV 92	07-12-31 11-12-31	936.9-944.1 / 891.9-899.1 MHz and 1816.5-1819.5 / 1721.5-1724.5 MHz (2x3.0 MHz indoor use) 1819.5-1834.9 / 1724.5-1739.9 and 1853.3- 1857.9 / 1758.3-1762.3 MHz (2x 30.2 MHz)	3 452 000
Tele2	SEP 92	07-12-31 11-12-31	944.3-951.5 / 899.3-906.5 MHz and 1810.1-1813.1 / 1718.3-1721.3 MHz (2x3,0 MHz indoor use) 1835.1-1853.1 / 1740.1-1758.1 MHz (2x28.2 MHz)	2 950 000
Vodafone	SEP 92 (Europolitan)	07-12-31 11-12-31	951.7-958.9 / 906.7-913.9 MHz and 1813.3-1816.3 / 1718.3-1721.3 MHz (2x3,0 MHz indoor use) 1862.5-1877.9 / 1767.5-1782.9 MHz (2x25.6 MHz)	1 189 000
SweFour	Springmobil	17-06-31	929.9-936.7 / 884.9-891.7 MHz (2x6.8 MHz) 1806.9-1809.9 / 1711.9-1714.9 MHz (2x3.0 MHz indoor use) (2x9.8 MHz)	0
Average			2 x 23.5 MHz	
Analogue NMT450 TeliaSonera	DEC 82	07-12-31	453-457,5 / 463-467,5 MHz until 2005-01-01 464.8-467.5 / 454.8-457.5 MHz from 2005-01- 01 -- 2007-12-31	137 0000

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
925-935 / 880-890 MHz	Research	Geographical restrictions to protect EISCAT receiver.
1718.8-1722.2 MHz 1805-1819.5 MHz	Radio astronomy Military use	No changes foreseen. Shared band, indoor use for GSM-operators
1877.2-1880 / 1783.2 -1785.0 MHz	Test system, manufacturers and R&D.	

Switzerland, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
5'476'000	2 x 6.6 MHz		2 x 24.2 MHz	2 x 63.2 MHz	81 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Swisscom Mobile	MAR 93	31 MAY 2008	890.1-902.3 / 935.1-947.3 MHz 907.5-908.9 / 952.5-953.9 MHz 1739.3-1746.5 / 1834.3-1841.5 MHz 1748.9-1753.9 / 1843.9-1848.9 MHz (2x25.8 MHz)	3'740'000	
TDC Switzerland	DEC 98	31 MAY 2008	882.5-884.5 / 927.5-929.5 MHz 887.5-889.9 / 932.5-934.9 MHz 902.5-907.3 / 947.5-952.3 MHz 909.1-914.9 / 954.1-959.9 MHz 1735.1-1739.1 / 1830.1-1834.1 MHz 1746.7-1748.7 / 1841.7-1843.7 MHz 1754.1-1759.9 / 1849.1-1854.9 MHz (2x26.8 MHz)	1'210'000	
ORANGE Communications	JUN 99	31 MAY 2008	880.1-882.3 / 925.1-927.3 MHz and 1710.1-1734.9 / 1805.1-1829.9 MHz (2x27.0 MHz)	1'003'000	
Tele2	FEB 04	31 DEC 2013	1775.9-1781.7 / 1870.9-1876.7 (2x5.8 MHz)		
In&Phone	FEB 04	31 DEC 2013	1767.1-1775.7 / 1862.1-1870.7 (2x8.6 MHz)		
Ohters	?	31 MAY 2008	-	>45'000	
Average			2 x 18.8 MHz		

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
885 – 887 MHz	CT1+	Until end 2005 (Then: Additional spectrum for GSM)
930 – 932 MHz	CT1+	Until end 2005 (Then: Additional spectrum for GSM)

The Netherlands, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
13 212 000	2 x 10.0 MHz		2 x 23.8 MHz	2 x 72.0 MHz	81.2 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
Vodafone (Libertel)	SEPT 95	MAR 2010 FEB 2013	894.1-903.1 / 939.1-948.1 MHz and 911.5-913.9 / 956.5-958.9 MHz and 1710.1-1712.7 / 1805.1-1807.7 MHz and 1775.1-1777.7 / 1870.1-1872.7 MHz (2x16.6 MHz)	3.230.000	
KPNTelecom	JUL 94	MAR 2010 FEB 2013	890.1-894.1/935.1-939.1 MHz and 903.1-911.5/948.1-956.5 MHz and 1712.7-1715.1/1807.7-1810.1 MHz and 1720.1-1722.7/1815.1-1817.7 MHz and 1725.1-1730.1/1820.1-1825.1 MHz and 1735.1-1737.7/1830.1-1832.7 MHz and 1770.1-1775.1/1865.1-1870.1 MHz (2 x 30 MHz)	5.150.000	
Orange (Dutchtone)	JAN 99	FEB 2013	880.1-880.9/925.1-925.9 MHz and 882.3-886.5/927.3-931.5 MHz and 1740.1-1755.1/1835.1-1850.1 MHz (2x20 MHz)	1.233.000	
Telfort (O2)	OCT 98	FEB 2013	880.9-882.3/925.9-927.3 MHz and 886.5-890.1/931.5-935.1 MHz and 1755.1-1770.1/1850.1-1865.1 MHz and 1717.7-1720.1/1812.7-1815.1 MHz (2x 22.4 MHz)	1.601.000	
T-Mobile (Ben)	FEB 99	FEB 2013	1715.1-1717.7/1810.1-1812.7 MHz and 1730.1-1732.7/1825.1-1827.7 MHz and 1722.7-1725.1/1817.7-1820.1 MHz and 1732.7-1735.1/1827.7-1830.1 MHz and 1737.7-1740.1/1832.7-1835.1 MHz and 1777.7-1782.1/1872.7-1877.1 MHz (2x16.8 MHz)	1.998.000	
Average			2 x 21MHz		
Analogue:			None		

The bands 914-915 MHz and 959-960 MHz are not used for cellular mobile due to the CT1 application.

Turkey, March 2004

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
TELSIM	1998	2023	894.200-896.000/939.200-941.000 MHz 898.000-905.800/943.000-950.800 MHz	7 255 452	
TURKCELL	1998	2023	892.000-893.800/937.000-938.800 MHz 906.200-914.000/951.200-959.000 MHz	17 058 282	
ARIA	2000	2025	1710.200-1725.000/1805.200-1820.000 MHz 896.400-897.700/941.400-942.700 MHz	2 007 062	
AYCELL	2001	2026	1725.400-1740.200/1820.400-1835.200 MHz 890.100-891.400/935.100-936.400 MHz	1 566 739	
Average			2 x 52.6 MHz	27 887 535	

Ukraine, January 2001

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
210 000	0	2 x 16.4 MHz	2 x 6.4 MHz	0.5%
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Golden Telecom	MAR 97		(2 x 6.4 MHz)	26 000
Ukranian Mobile Communication	SEPT 97		(2 x 5.6 MHz)	116 000
Kyivstar	DEC 97		(2 x 5.4 MHz)	54 000
Ukranian Radio Systems (WellComm)	OCT 98		(2 x 5.4 MHz)	14 000
Average			2 x 5.7 MHz	
Digital AMPS: Dig Cellular Com	OCT 96		(2 x 3.75 MHz)	36 000

United Kingdom, March 2004

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
52,993,770	2*10 MHz	2*24.8	2 x 71.6 MHz	89%
Operator	Service start	License expiry	Frequencies	No. of Subscribers
02(UK) Limited	JAN 94	No expiry date	885.1-890.1 / 930.1-935.1 MHz 894.7-902.1 / 939.7 - 947.1 MHz 909.9-914.9 / 954.9 -959.9 MHz 1710.1-1715.9/1805.1-1810.9 MHz (2x23.2 MHz)	13,053,000
T-Mobile (UK) Limited	SEP 93	No expiry date	1721.7-1751.7/1816.7-1846.7 MHz (2 x 30 MHz)	13,600,000
Orange Personal Communication Services Ltd	APR 94	No expiry date	1751.7-1781.7/1846.7-1876.7 MHz (2 x 30 MHz)	13,649,000
Vodafone Limited	JUL 92	No expiry date	880.1-885.1 / 925.1-930.1 MHz 890.1-894.7 / 935.1-939.7 MHz 902.1-909.9 / 947.1-954.9 MHz 1715.9-1721.7/1810.9-1816.7 MHz (2x23.2 MHz)	12,691,770
Average			2 x 26.6MHz	
Analogue:			Sevices ceased	

Frequency Band	Other existing use in the GSM bands	License duration, Trends, When will band be available?
888 – 889 MHz	Low Power Devices	31 December 2003

