



ERO INFORMATION DOCUMENT

on

GSM Frequency Utilisation

within Europe

Updated: February 2001

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 1 January 2001. 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	19 LATVIA
2 ANDORRA	20 LITHUANIA
3 AUSTRIA	21 LUXEMBOURG
4 BELGIUM	22 MALTA
5 BULGARIA	23 THE NETHERLANDS
6 CROATIA	24 NORWAY
7 CYPRUS	25 POLAND
8 CZECH REPUBLIC	26 PORTUGAL
9 DENMARK	27 ROMANIA
10 ESTONIA	28 RUSSIA
11 FINLAND	29 SLOVAKIA
12 FRANCE	30 SLOVENIA
13 GERMANY	31 SPAIN
14 GREECE	32 SWEDEN
15 HUNGARY	33 SWITZERLAND
16 ICELAND	34 TURKEY
17 IRELAND	35 UKRAINE*
18 ITALY	36 THE UNITED KINGDOM

* Status January 2000

Albania

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

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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
5 795 000	0		2 x 15.2 MHz	2 x 44.4 MHz	74.4 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Max Mobil	OCT 96	DEC 2015	906.2-913.8 / 951.2-958.8. MHz (2x 7.6 MHz) 1742.8-1743.8/1837.8-1838.8 MHz (2x 1.0 MHz) 1748.0-1750.2/1843.0-1845.2 MHz (2x 2.2 MHz) 1756.8-1757.8/1851.8-1852.8 MHz (2x 1.0 MHz)		2 500 000
Mobilkom Austria	DEC 92	DEC 2015	898.2-905.8 / 943.2-950.8 MHz (2 x 7.6 MHz) 1731.6-1733.8/1826.6-1828.8 MHz (2x 2.2 MHz) 1741.4-1742.4/1836.4-1837.4 MHz (2x 1.0 MHz) 1755.4-1756.4/1850.4-1851.4 MHz (2x 1.0 MHz)		2 580 000
Connect Austria	SEP 98	DEC 2017	1734.2-1739.6/1829.2-1834.6 MHz (2 x 5.4 MHz) 1758.2-1774.8/1853.2-1869.8 MHz (2x 16.6 MHz)		1 035 000
Telering Telekom	JUN 00	DEC 2019	1725.0-1731.2 /1820.0-1826.2 MHz (2x 6.2 MHz) 1744.2-1747.6 /1839.2-1842.6 MHz (2x 3.4 MHz) 1750.6-1755.0/1845.6-1850.0 MHz (2x 4.4 MHz)		60 000
Average			2 x 14.9 MHz		
Analogue: Mobilkom Austria	SEP 90	DEC 2004	890-898 / 935-943 MHz (2 x 8 MHz)		120 000

Belgium

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
5 600 000	2 x 5 MHz		2 x 24.0 MHz	2 x 52.0 MHz	55.0 %
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 27 MHz)		3 200 000
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 27 MHz)		1 800 000
KPN/ORANGE	APR 99	Licence given on 2/7/98 for 15 yrs: 2/7/2013	1763-1785 / 1858-1880 MHz and 883-885/928-930 MHz * and 887-990/932-935 MHz * (2 x 27 MHz)		600000
Average			2 x 27 MHz per operator		
Analogue			none		

* The E-GSM bands are not yet operational

Bulgaria

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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
915 000	0		2 x 23.0 MHz	0	19.0 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
CROATIAN TELEKOM CRONET	OCT 95	2008	896.0-908.0 / 941.0-953.0 MHz (2 x 12.0 MHz)		445 000
VIPNET	JUL 99	2008	890.0-896.0 / 935.0-941.0 MHz and 908.2-914.2 / 953.2-959.2 MHz (2x 12.0 MHz)		470 000
Average			2 x 12.0 MHz		
Analogue			None		

Cyprus

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
186520	0	2 x 16.8 MHz	2 x 24.8 MHz	27.44 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
CYTA-PTT	APR 95	No limit	943.0-959.8 / 898.0-914.8 MHz (2 x 16.8 MHz) 1710.2-1735.0/1805.2-1830.0 MHz (2 x 24.8 MHz)	186 520
Analogue: CYTA-PTT	DEC 88	No limit	890.2-897.8 / 935.2-942.8 MHz (2 x 7.6 MHz)	1 242

Czech Republic

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
4 260 000	0	2 x 20.8 MHz	2 x 29.0 MHz	41.6%
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 1717.4-1721.8/1812.4-1816.8 MHz and 1724.0-1727.2/1819.0-1822.2 MHz (2x 16 MHz)	2 110 000
Radio Mobil	SEPT 96	20 years	894.6-897.0 / 939.6-942.0 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 (2x 16 MHz)	1 850 000
Cesky mobil	MAR 2000	20 years	890.0-894.0/935.0-939.0 MHz and 1763.0-1776.8/1858.0-1871.8 MHz (2x 17.8 MHz)	300 000
Average			2 x 16.6 MHz	
Analogue			none	

Denmark

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
3 462 000	2 x 2 MHz	2 x 32.8 MHz	2 x 74.8 MHz	67.0 %
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)	964 600
TDM	MAR 92	GSM900: MAR2002 GSM1800 JUN2007/ DEC2010	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)	1 678 000
Telia	MAR 98	GSM900 JAN2011 GSM1800 JUN2007	880.2-880.8/925.2-925.8 MHz 886.4-889.8/931.4-934.8 MHz 890.0-890.8/935.0-935.8 MHz ¹ 892.8-893.4/937.8-938.4 MHz ² 893.6-894.6/938.6-939.6 MHz 1746.2-1760.4 / 1841.2-1855.4 MHz (2x21.8 MHz)	302 000
Mobilix	MAR 98	GSM900: JAN2011 GSM1800 JUN 2007	881.0-881.6/926.0-926.6 MHz 882.8-886.2/927.8-931.2 MHz 891.0-891.8/936.0-936.8 MHz 892.0-892.6/937.0-937.6 MHz 894.8-895.8/939.8-940.8 MHz 1760.6-1774.8 / 1855.6-1869.8 MHz (2x21.8 MHz)	517 400
Average			2 x 17 MHz	
Analogue: TDM	DEC 86	31 OCT 2002	890.0-893.4 / 935.0-938.4 MHz (2 x 3.4 MHz) 890.0-891.8/935.0-935.8 MHz (2x2.0 MHz) ³	41 000

¹ Frequencies will be available by 31. October 2002

² Frequencies will be available by 1. March 2002

³ From 1. March 2002

Estonia

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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
3 690 650	2 x 5.4 MHz		2 x 23.6 MHz	2 x 41.8 MHz	ca. 73.0 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Oy Radiolinja Ab	for GSM: JAN 92	NOV 2017 ²	1745.4-1753.4 / 1840.4-1848.4 MHz (2 x 8.2 MHz) Areas listed ¹ : 904.0 - 913.8 / 949.0 - 958.8 MHz (2 x 10 MHz) Rest of the country (except Åland): 905.6 - 913.8 / 950.6 - 958.8 MHz (2 x 8.4 MHz)		1 300 000
Sonera Corporation	for GSM: JUL 92	NOV 2017 ²	1710.2-1721.0 / 1805.2-1816.0 MHz (2 x 11 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)		2 200 000
Ålands Mobiltelefon AB	JUN 93	DEC 2017 ²	Åland: 905.8 - 913.8 / 950.8 - 958.8 MHz (2 x 8.2 MHz)		6 500
Telia Mobile Ab branch in Finland	MAR 98	NOV 2017 ²	1772.0-1780.0 / 1867.0-1875.0 MHz (2 x 8.2 MHz)		135 000
Finnish 2 G Ltd	start: JAN 01	DEC 2019 ²	Whole country except Åland: 1737.8-1744.8 / 1832.8-1839.8 MHz (2 x 7.2 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)		55 000
Elisa Communications Oyj	JUL 00	NOV 2017 ²	1724.0-1731.0 / 1819.0-1826.0 MHz (2 x 7.2 MHz)		
Average			2 x 11.8 MHz		
Analogue			none (service stopped 31.12.2000)		

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

² Operating licence.

France

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
29 052 300	0	2 x 24,8 MHz	2 x 49,6 MHz	49,4 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Bouygues Telecom	MAY 96	8 DEC 2009	see table below Average : GSM 900 : 2 x 3,2 MHz GSM 1800 : 2 x 23,2 MHz	5 190 300
SFR	APR 93	25 MAR 2006	see table below Average : GSM 900 : 2 x 10,8 MHz GSM 1800 : 2 x 13,2 MHz	9 921 500
France Telecom Mobiles	JUL 92	25 MAR 2006	see table below Average : GSM 900 : 2 x 10,8 MHz GSM 1800 : 2 x 13,2 MHz	13 940 500
Average			2 x 24.8 MHz	
Analogue			none	

At the end of 2000 the frequency repartition among operators in the GSM bands 900 and 1800 MHz is described in the table below and depends on the areas as indicated in the third column.

Band	Operator	Area	bande 1 (MHz) : frequency center		bande 2 (MHz) : frequency center		bande 3 (MHz) : frequency center	Total duplex spectrum (MHz)
			mobile to BTS		mobile to BTS		mobile to BTS	
GSM 1800	France Télécom	All France except Marseille	1761	1769,6				8,8
GSM 1800	France Télécom	Paris + 30 km	1761	1769,6	1725,4	1731,8		15,4
GSM 1800	France Télécom	Lille + 20 km	1761	1769,6	1725	1731,6		15,6
GSM 1800	France Télécom	Nice-Antibes-Cannes + 20 km	1761	1769,6	1725,4	1731,8		15,4
GSM 1800	France Télécom	Lyon + 20 km	1761	1769,6	1725,4	1731,8		15,4
GSM 1800	France Télécom	Alsace	1761	1769,6	1725	1731,4		15,4
GSM 1800	France Télécom	Lorraine	1761	1769,6				8,8
GSM 1800	France Télécom	Marseille + 20 km	1761	1768				7,2
GSM 1800	France Télécom	Toulouse + 20 km	1761	1769,6	1725,4	1731,8		15,4
GSM 1800	France Télécom	Bayonne	1761	1769,6	1725,4	1731,8		15,4
GSM 900	France Télécom	All France	890,2	900				10
GSM 900	France Télécom	middle density areas	900,2	901				1
GSM 900	France Télécom	Very high and high density areas	900,2	902,4				2,4

Band	Operator	Area	bande 1 (MHz) : frequency center		bande 2 (MHz) : frequency center		bande 3 (MHz) : frequency center		Total duplex spectrum (MHz)
			mobile to BTS	mobile to BTS	mobile to BTS	mobile to BTS			
GSM 1800	SFR	All France except Marseille	1752	1760,6					8,8
GSM 1800	SFR	Paris + 30 km	1752	1760,6	1732,2	1738,6			15,4
GSM 1800	SFR	Lille + 20 km	1752	1760,6	1745,2	1751,8			15,6
GSM 1800	SFR	Nice-Antibes-Cannes + 20 km	1752	1760,6	1732,2	1738,6			15,4
GSM 1800	SFR	Lyon + 20 km	1752	1760,6	1732,2	1738,6			15,4
GSM 1800	SFR	Alsace	1752	1760,6	1732,2	1734,6	1748	1751,8	15,4
GSM 1800	SFR	Lorraine	1752	1760,6	1748	1751,8			12,8
GSM 1800	SFR	Marseille + 20 km	1753,6	1760,6					7,2
GSM 1800	SFR	Toulouse + 20 km	1752	1760,6	1732,2	1738,6			15,4
GSM 1800	SFR	Bayonne	1752	1760,6	1732,2	1738,6			15,4
GSM 900	SFR	All France	905	914,8					10
GSM 900	SFR	middle density areas	904	904,8					1
GSM 900	SFR	Very high and high density areas	902,6	904,8					2,4
GSM 1800	Bouygues Télécom	All France except Marseille	1770	1784,8					15
GSM 1800	Bouygues Télécom	Paris + 30 km	1770	1784,8	1739	1751,6			27,8
GSM 1800	Bouygues Télécom	Lille + 20 km	1770	1784,8	1732	1744,8			28
GSM 1800	Bouygues Télécom	Nice-Antibes-Cannes + 20 km	1770	1784,8	1739	1751,6			27,8
GSM 1800	Bouygues Télécom	Lyon + 20 km	1770	1784,8	1739	1751,6			27,8
GSM 1800	Bouygues Télécom	Alsace	1770	1784,8	1735	1747,6			27,8
GSM 1800	Bouygues Télécom	Lorraine	1770	1784,8	1740,6	1747,6			22,2
GSM 1800	Bouygues Télécom	Marseille + 20 km	1770	1784,8	1750,4	1753,2	1768,4	1769,8	19,6
GSM 1800	Bouygues Télécom	Toulouse + 20 km	1770	1784,8	1739	1751,6			27,8
GSM 1800	Bouygues Télécom	Bayonne	1770	1784,8	1739	1751,6			27,8
GSM 900	Bouygues Télécom	middle density areas	901,2	903,8					2,8
GSM 900	Bouygues Télécom	Low density areas	900,2	904,8					4,8

Duplex between BTS to mobile frequency and mobile to BTS frequency : 95 MHz
Further spectrum access is under study.

Germany

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
48 145 000	0		2 x 24.8 MHz	2 x 55.2 MHz	59.4 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Deutsche Telekom MobilNet 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)		19 100 000
Mannesmann Mobilfunk GmbH, D2 Vodafone	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 (2x17.4 MHz)		19 245 000
E-Plus Mobilfunk GmbH	MAY 94	DEC 12	1758.1-1780.5 / 1853.1-1875.5 MHz (2x22.4 MHz)		6 600 000
VIAG Interkom GmbH & Co.	MAR 98	DEC 16	1730.1-1752.5 / 1825.1-1847.5 MHz (2x22.4 MHz)		3 200 000
Average			2 x 20 MHz		
Analogue			none		

About 50 % of the GSM Subscribers own GSM terminals with prepaid-cards. The EGSM bands are currently not available due to other usage by CT1+ (until December 2002) and military services. The remaining parts of the 1800 MHz bands, which have not been licensed so far, are used for military services.

Greece

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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
3 000 000	0		2 x 23.8 MHz	2 x 44.8 MHz	30.0 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Pannon GSM	MAR 94 NOV 00	NOV 09 JUL 14	898.0-906.0 / 943.0-951.0 MHz and 1758.1-1773.1/1853.1-1868.1 MHz (2 x 23 MHz)		1 200 000
Westel 900	MAR 94 NOV 00	NOV 09 JUL 14	906.0-914.0 / 951.0-959.0 MHz and 1743.1-1758.1 / 1838.1-1853.1 MHz (2 x 23 MHz)		1 600 000
Vodafone	DEC 99	JUL 14	890.1-897.9 / 935.1-942.9 MHz 1710.2-1725.0/1805.2-1820.0 MHz (2x 22.6 MHz)		200 000
Average			2 x 22.9 MHz		
Analogue			455.16-457.38/465.16-467.38 MHz		80 000

Iceland

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
185 603	0		2 x 19.2 MHz	2 x 50.4 MHz	65.6 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Iceland Telecom	AUG 94	2008	901.9-913.9 / 946.9-958.9 MHz and 1710.1-1712.1 / 1805.1-1807.1 MHz and 1716.1-1718.1/1811.1-1813.1 MHz (2 x 16.0 MHz)		130 603
Tal Ltd	MAY 98	2007	890.1-897.3 / 935.1-942.3 MHz and 1724.1-1740.1/1820.1-1835.1 MHz (2 x 23.2 MHz)		55 000
Islandssimi GSM	?	2010	1770.1-1785.1/1865.1-1880.1 MHz (2 x 15.0 MHz)		0
Lina net	?	2010	1740.1-1745.1 / 1835.1-1840.1 MHz (2 x 5.0 MHz)		0
Hallo frjals fjarskipti	?	2010	1747.5-1755.1 / 1840.5-1850.1 MHz (2 x 7.6 MHz)		0
IMC a Islandi	?	2010	1766.3-1769.1 / 1861.3-1864.1 MHz (2 x 2.8 MHz)		0
Average			2 x 11.6 MHz		
Analogue			None		

Ireland

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
2000 000	0		2 x 19.2 MHz	2 x 43.2 MHz	54%
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Esat-Digifone	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)		800 000
Eircell	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)		1 200 000
Meteor	Expected MAR 01	2015	892.7-897.5/937.7-942.5 MHz (2 x 4.8 MHz) 1765.5-1779.9/1860.5-1874.9MHz (2 x 14.4 MHz)		0
Average			2 x 20.8 MHz		
Analogue: Eircell (Tacs- 900)	DEC 85	Within 2 years	890.025-891.125/ 935.025-936.125 MHz and 880-888.9 / 925-933.9 MHz (2 x 10 MHz)		70 000

Italy

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	2014	National wide 1770.1-1779.9/1865.1-1874.9 MHz National wide – temporarily until 31.12.2001 1735.1-1739.9/1830.1-1834.9 MHz 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 National wide-temporarily until 31.12.2001 1745.1-1749.9/1840.1-1844.9 MHz In 16 large cities 903.5-905.5 / 948.5-950.5 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 National wide – temporarily until 31.12.2001 1750.1-1754.9/1845.1-1849.9 MHz In 16 large cities 900.3-903.3 / 945.3-948.3 MHz Weighted average: 2x19 MHz		17 000 000
Wind Telecomunicazioni	MAR 99	FEB/2014	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 In 16 large cities – temporarily until 31.12.2001 1740.1-1744.9/1835.1-1839.9 MHz 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.

Latvia

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
382 500	0		2 x 23.4	2 x 49.2 MHz	10.9 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
BaltCom GSM	APR 97	2001	903.2-913.8 / 948.2-958.8 MHz and 1710.2-1734.8/1805.2-1829 MHz (2x 35.2 MHz)		120 000
LMT	JAN 95	2001	890.2-903.0 / 935.2-948.0 MHz and 1735.2-1759.8/1830.2-1854.8 MHz (2x 37.4 MHz)		262 500
Average			2 x 36.2 MHz		
Analogue			None		

The GSM frequency band is also used by CT (904-905 / 949-950 MHz) on a secondary basis and by CT1 (914-914.8 / 959-959.8 MHz) on a primary basis.

Lithuania

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
470 000	0		2 x 21.8 MHz	2 x 21.6 MHz	12,7 %
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)		150 000
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)		300 000
TELE 2	MAR 01 ¹⁾ JUN 00 ²⁾	Not limited ³⁾	890.5-895.5/935.5-940.5 MHz and 898.3-899.1/943.3-944.1 MHz and 1758.9-1766.1 / 1853.9-1861.1 MHz (2x13 MHz)		20 000
Average			2 x 15.4 MHz		
Analogue:			None		

1) GSM 900

2) GSM 1800

3) Should be reregistered every 10 years

Luxembourg

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
PTT (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 (2 x 21.4 MHz)		180 072
TANGO	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)		123 202
Average			2 x 21.4 MHz		
Analogue			None		

In LUXGSM, GSM900 and GSM1800 together form a fully integrated network, where the whole traffic is carried on. The TANGO network is a dual-band network, where 7% of the total traffic is taken bis 1800 MHz channels.

Malta

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
114 444	0		2 x 12 MHz	2 x 25 MHz	29.9 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
Vodafone Malta	SEP 97	SEP 2010	901 – 913 / 946 – 958 MHz (2 x 12 MHz)		93 439
MobIsle Communications	DEC 2000	SEP 2010	1710 – 1735 / 1805 – 1830 MHz (2 x 25 MHz)		21 005
Average			2 x 18.5 MHz		
Analogue:			none		

Netherlands

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
10 730 000	2 x 10.0 MHz		2 x 23.8 MHz	2 x 72.0 MHz	69.7 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers	
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)	3 180 000	
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)	4 800 000	
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)	1 000 000	
Telfort	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)	900 000	
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)	850 000	
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.

Norway

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	

Poland

GSM Subscribers	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	23.02.2011	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
	13.09.99 GSM 1800	13.09.2014			
Polska Telefonia Cyfrowa (ERA)	23.02.96 GSM 900	23.02.2011	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
	11.08.99 GSM 900	11.08.2014			
CENTERTEL (IDEA)	5.07.99 GSM 900	5.07.2014	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
	21.08.97 GSM1800	21.08.2014			
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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
5 768 353	0		2 x 23.8 MHz	2 x 18.0 MHz	57.7%
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)		2 595 324
Telecel	OCT 92	OCT 2006	890.1-898.1 / 935.1-943.1 MHz (2 x 8 MHz) 1759.9-1763.1/1849.9-1858.1 MHz 1772.9-1775.7/1867.9-1870.7 (2 x 6 MHz)		2 019 977
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)		1 153 052
Average			2 x 13.9		
Analogue			None		

Romania

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 Sub scribers
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		

Russia

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
2 235 000	0		2 x 25 MHz	2 x 75 MHz	1.57%
Operator	Service start	License expiry	Frequencies		No. of Sub scribers
Russian GSM Association	MAY 97	Different for different operators	GSM 900: From 2 x 1.4 up to 2 x 14,6 MHz per operator (non-consecutive channels) depending on local EMC conditions and market demand GSM 1800: From 2 x 0.6 up to 2 x 20.0 MHz per operator (non-consecutive channels) depending on local EMC conditions and market demand		2 235 000
Average					
Analogue			none		

Slovakia

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
1 293 734	0		2 x 18 MHz	2 x 15.6 MHz	24.3 %
Operator	Service start	License expiry	Frequencies		No. of Sub scribers
Eurotel GSM	FEB 97 DEC 99	AUG 2011	899-908 / 944-953 MHz (2 x 9 MHz) 1726.6-1733.8/1821.6-1828.8 MHz and 1747.2-1747.8/1842.2-1842.8 MHz (2 x 7.8 MHz)		493 030
Globtel	JAN 97 DEC 99	AUG 2011	890-899/ 935-944 MHz (2 x 9 MHz) 1717.4-1723.4/1812.4-1818.4 MHz and 1748.0-1749.8/1843.0-1844.8 MHz (2 x 7.8 MHz)		800 704
Average			2 x 16.8 MHz		
Analogue			None		

Slovenia

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

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
24 210 000	0	2 x 24 MHz	2 x 40.2 MHz	60.5 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Airtel	OCT 95	FEB.25	902.9-914.9 / 947.9-959.9 MHz (2x12)	6 900 000
Movil	JUL 98	JUL 28	1754.7-1768.1 / 1849.7-1863.1 MHz (2x13.4 MHz)	
Telefonica Moviles	JUL 95	FEB 15	890.1-897.9 / 935.1-942.91 MHz and 898.5-902.7 / 943.5-947.7 MHz (2x12 MHz)	13 580 000
	JUL 98	JUL 28	1741.1-1754.5/1836.1-1849.5 MHz (2x13.4 MHz)	
Amena	APR 99	JUL-28	1768.3-1781.7/1863.3-1876.7 MHz (2 x 13.4 MHz)	3 730 000
Average			2 x 21.4MHz	
Analogue: Telefonica Moviles	APR 90	DIC-06	874.1-887.9/919.1-932.9 MHz 897.9-898.5/942.9-943.5 MHz (2 x 14.4 MHz)	350 000

Sweden

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
6 121 000	0	2 x 21.6 MHz	2 x 53.4 MHz	69.7 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Telia Mobitel	NOV 92	04-12-31 05-12-31	936.9-944.1 / 891.9-899.1 and 1817.1-1832.1 / 1722.1-1737.1 (2x22.2 MHz)	3 127 000
Tele2 / Comviq	SEP 92	04-12-31 05-12-31	944.3-951.5 / 899.3-906.5 and 1835.1-1843.5 / 1740.1-1748.5 (2x15.6 MHz)	1 985 000
Europolitan	SEP 92	04-12-31 05-12-31	951.7-958.9 / 906.7-913.9 and 1849.5-1857.9 / 1754.5-1762.9 (2x15.6 MHz)	1 009 000
Average			2 x 17.8 MHz	
Analogue Telia Mobitel	DEC 82	04-12-31	453-457,5 / 463-467,5 MHz (2x4,5 MHz) NMT-450	~200 000

Switzerland

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
4 555 000	2 x 6.6 MHz	2 x 24.2 MHz	2 x 48.8 MHz	46.2 %
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Swisscom GSM	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)	3 038 000
DiAx	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)	733 000
ORANGE	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)	784 000
Average			2 x 24.2 MHz	

Turkey

GSM Subscribers	Total E-GSM	Total GSM-900	Total GSM-1800	GSM Penetration
13 925 000	0	2 x 20 MHz	2 x 14.8	22.9%
Operator	Service start	License expiry	Frequencies	No. of Subscribers
Telsim	MAR 94	27 APR 2023	894-896 / 939-941 MHz and 898-906 / 943-951 MHz (2 x 10 MHz)	4 730 000
Turkcell	FEB 94	27 APR 2023	892-894 / 937-939 MHz and 906-914 / 951-959 MHz (2 x 10 MHz)	9 195 000
IS-TIM	Within a few months	20 OCT 2025	1710.2-1725.0/1805.2-1820.0 MHz (2 x 14.8 MHz)	0
AY - CELL	Within a few months	11 JAN 2026	Not allocated yet	0
Average			2 x 8.7 MHz	
Analogue:			none	

Ukraine (Status January 2000)

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
Ukrainian Mobile Communication	SEPT 97		(2 x 5.6 MHz)	116 000
Kyivstar	DEC 97		(2 x 5.4 MHz)	54 000
Ukrainian 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

GSM Subscribers	Total E-GSM		Total GSM-900	Total GSM-1800	GSM Penetration
36,970,144	9 MHz		2 x 24.4 MHz	2 x 71.6 MHz	63.27 %
Operator	Service start	License expiry	Frequencies		No. of Subscribers
BT Cellnet	JAN 94	Renewable annually	884.5-888.1 / 929.5-933.1 MHz 888.9-889.9 / 933.9-934.9 MHz 894.7-902.1 / 939.7-947.1 MHz 910.1-914.9 / 955.1-959.9 MHz 1710.1-1715.9/1805.1-1810.9 MHz (2x22.6 MHz)		9,356,600
One 2 One	SEP 93	Renewable annually	1721.7-1751.7/1816.7-1846.7 MHz (2 x 30 MHz)		8,000,000
Orange	APR 94	Renewable annually	1751.7-1781.7/1846.7-1876.7 MHz (2 x 30 MHz)		9,013,000
Vodafone	JUL 92	Renewable annually	880.1-884.5 / 925.1-929.5 MHz 890.1-894.7 / 935.1-939.7 MHz 902.3-909.9 / 947.3-954.9 MHz 1715.9-1721.7/1810.9-1816.7 MHz (2x22.4 MHz)		10,600,544
Average			2 x 26.25 MHz		
Analogue: Cellnet	JAN 85		Services to cease by Summer 2001.		
Vodafone	JAN 85				