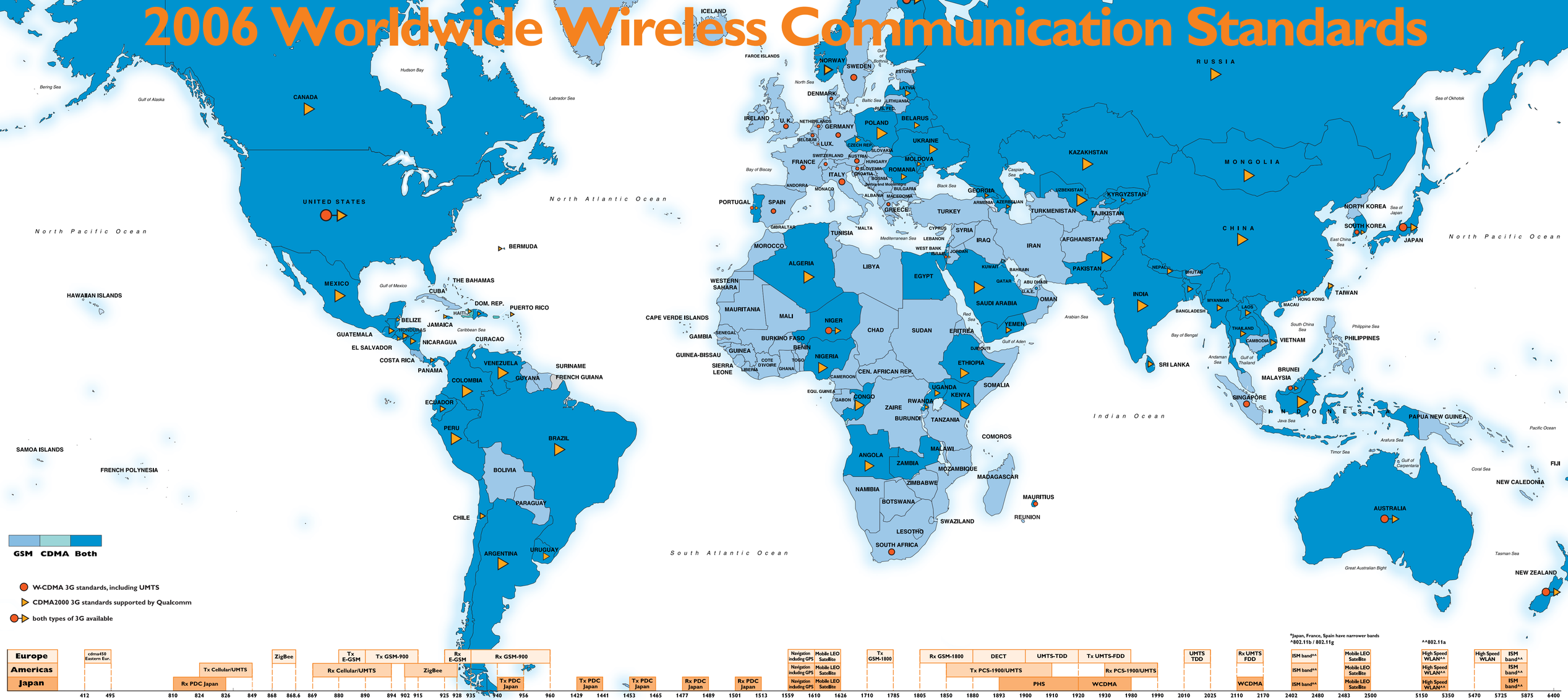
2006 Worldwide Wireless Communication Standards

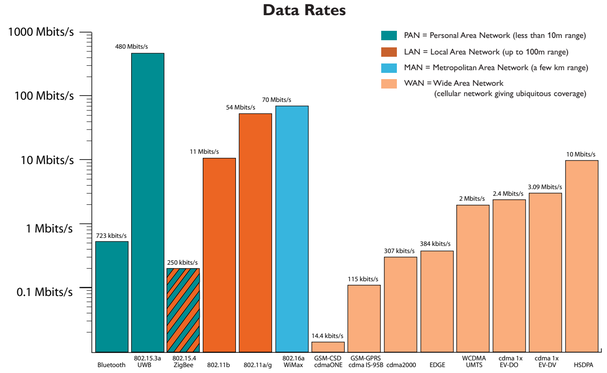


GSM CDMA Both

- W-CDMA 3G standards, including UMTS
- CDMA2000 3G standards supported by Qualcomm
- both types of 3G available

Standard	DIGITAL CORDLESS TELEPHONES			WIRELESS DATA						DIGITAL CELLULAR TELEPHONES										
	WDCT	DECT	PHS	ZigBee	Bluetooth	Wireless LAN 802.11a	Wireless LAN 802.11b	Wireless LAN 802.11g	WiMAX 802.16a	WIBRO	TDMA IS-54/-136	cdmaOne (IS-95)	cdma2000	1x EV-DO	1x EV-DV	W-CDMA / UMTS	TD-SCDMA	HSDPA	GSM / GPRS	EDGE	PDC
MOBILE FREQUENCY RANGE	2.402 - 2.480 GHz	1.880 - 1.900 GHz	1.893 - 1.920 GHz	0.902 - 0.928 GHz 2.402 - 2.480 GHz (N.America, 20 channels 1000 mW/MHz Power Allowance) 0.868 - 0.8686 GHz 2.412 - 2.472 GHz (Europe, 15 channels 100 mW/MHz Power Allowance) 2.483 GHz (Japan, 5 channels 10 mW/MHz Power Allowance)	2.402 - 2.480 GHz (N.America & Europe 79 hopping channels) 2.402 - 2.480 GHz (Spain) 2.402 - 2.480 GHz (France) 2.402 - 2.480 GHz (Japan)	5.150 - 5.350 GHz 5.725 - 5.825 GHz (USA)	2.41 - 2.462 GHz (N.America) 2.412 - 2.472 GHz (Europe) 2.471 - 2.497 GHz (Japan)	2.41 - 2.462 GHz (N.America) 2.412 - 2.472 GHz (Europe) 2.471 - 2.497 GHz (Japan)	2 - 11 GHz	2.3 - 2.4 GHz	Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.849 GHz Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz	Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.849 GHz Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz	As cdmaOne plus various other bands around the world from 0.450 GHz up to 2.1 GHz	As cdmaOne plus various other bands around the world from 0.450 GHz up to 2.1 GHz	As cdmaOne plus various other bands around the world from 0.450 GHz up to 2.1 GHz	Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.849 GHz Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz Rx: 2.110 - 2.170 GHz (cdma2000 Asia only) Tx: 1.920 - 1.980 GHz (cdma2000 Asia only)	2.010 - 2.025 GHz 1.900 - 1.920 GHz 1.930 - 1.990 GHz 1.850 - 1.910 GHz 1.910 - 1.930 GHz	Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.849 GHz Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz Rx: 2.110 - 2.170 GHz (cdma2000 Asia only) Tx: 1.920 - 1.980 GHz (cdma2000 Asia only)	Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.894 GHz Rx: 0.925 - 0.960 GHz Tx: 0.880 - 0.915 GHz Rx: 1.805 - 1.880 GHz Tx: 1.710 - 1.785 GHz	Rx: 1.930 - 1.990 GHz Tx: 1.850 - 1.910 GHz Rx: 0.869 - 0.894 GHz Tx: 0.824 - 0.894 GHz Rx: 0.925 - 0.960 GHz Tx: 0.880 - 0.915 GHz Rx: 1.805 - 1.880 GHz Tx: 1.710 - 1.785 GHz	Rx: 0.810 - 0.826 GHz Tx: 0.940 - 0.956 GHz Tx: 1.429 - 1.441 GHz Tx: 1.453 - 1.465 GHz Rx: 1.477 - 1.489 GHz Rx: 1.501 - 1.513 GHz
MULTIPLE ACCESS METHOD	FDMA/TDMA	TDMA/FDMA	TDMA/FDMA	TDMA	FHSS	CSMA/CA	CSMA/CA	CSMA/CA	TDMA/OFDMA	OFDMA	TDMA/FDMA	CDMA/FDMA	CDMA	TDMA/CDMA	CDMA	CDMA/FDMA	CDMA/TDMA	CDMA/FDMA	TDMA/FDMA	TDMA/FDMA	TDMA/FDMA
DUPLEX METHOD	TDD	TDD	TDD	FDD	TDD	TDD	TDD	TDD	TDD/FDD	TDD	FDD	FDD	FDD	FDD	FDD	FDD	TDD	FDD	FDD	FDD	FDD
USERS PER CHANNEL	variable	12	4	255	7 active, 200 inactive	127	127	127	variable	variable	3	variable	variable	variable	variable	15 to 50	up to 48	15 to 50	8	8	3
CHANNEL SPACING	up to 1.728 MHz	1.728 MHz	300 kHz	5 MHz	1 MHz	OFDM: 20 MHz	FHSS: 1 MHz DSSS: 25 MHz	OFDM: 20 MHz	20/25 MHz (USA) 28 MHz (Eur)	9 MHz	30 kHz	1.25 MHz	1.25 MHz	1.25 MHz	1.25 MHz	5 MHz	1.6 MHz	5 MHz	200 kHz	200 kHz	25 kHz
MODULATION	GFSK	GFSK (0.5 Gaussian Filter)	π/4 DQPSK	GFSK (0.5 Gaussian Filter), O-QPSK	GFSK (BT 1.2), DQPSK/D8PSK (BT EDR)	OFDM, 64QAM, 16QAM, QPSK, BPSK	D8PSK, DQPSK, CCK	OFDM, 64QAM, 16QAM, QPSK, BPSK	BPSK, QPSK, 4QAM, 16QAM, 64QAM, 256QAM	4 / 16 / 64 QAM	π/4 DQPSK	QPSK/OQPSK	QPSK/OQPSK/ HPSK	HPSK	QPSK/OQPSK/HPSK	QPSK/OQPSK	QPSK, 8PSK	QPSK/OQPSK	GMSK (0.3 Gaussian Filter) 8-PSK	GMSK (0.3 Gaussian Filter) 8-PSK (EDGE only)	π/4 DQPSK
PEAK DATA RATE	N/A	1152 kbits/s	384 kbits/s	250 / 28 kbits/s	1Mbit/s (BT 1.2), 2/3 Mbit/s (BT EDR)	54 Mbits/s	11 Mbits/s	54 Mbits/s	70 Mbits/s	18.432 Mbps	48.6 kbits/s	115 kbits/s (IS-95B)	308 kbits/s (1x) 2.4 Mbits/s (3x)	153.6 kbits/s (reverse) 2.4 Mbits/s (forward)	153.6 kbits/s (reverse) 3.09 Mbits/s (forward)	1.2288 Mbits/s	2 Mbits/s	10.8 Mbits/s	14.4 kbits/s GSM 115 kbits/s GPRS	384 kbits/s	42 kbits/s

Data Rates



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