

**Preliminary Identification of Frequency Bands in Range
400 MHz to 6 GHz
for Wireless Broadband (WBB)**

ANNEX 1

Key

In use/available for WBB

Potential for WBB (near term)

Medium term potential (>2015)

Possibly in very long timeframe

Spectrum Band	Amount of Spectrum	Common Allocation	Current Use	Constraints	Potential for Wireless BB	Remarks
400 - 450 MHz	50	METEOROLOGICAL AIDS, METEOROLOGICAL-SATELLITE, SPACE SEARCH, SPACE OPERATION, EARTH EXPLORATION SATELLITE, MOBILE SATELLITE, LAND MOBILE, AMATEUR, RADIO ASTRONOMY, RADIOLOCATION	PPDR, Sondes, S-PCS, Active Medical Implants, Meteorology, Emergency beacons, PMR/PAMR, Amateur, ISM, On-site paging, SRDs, Radio Astronomy, Wind profilers		No	
450 - 470 MHz	20	MOBILE	PPDR, PMR/PAMR, On-site paging, On-board communications, space research, meteorology, land mobile	band used extensively for PMR, PAMR type applications. Very limited potential for WBB, i.e., few CDMA450 licences	limited	
470 - 694 MHz	224,00	BROADCASTING, Mobile, Radio astronomy	Broadcasting(terrestrial), PMSE, wind profilers, radio astronomy	Key band for DTT	Possibly in very long time frame	Potential in long term on basis of convergence between mobile and broadcasting. Situation will vary from country to country
694 - 790 MHz	96,00	BROADCASTING, Mobile	Broadcasting(terrestrial), PMSE, wind profilers, radio astronomy	part of key band for DTT	Yes	Identified by WRC-12 for co-primary allocation to Mobile post WRC-15. Lower band edge to be determined by WRC-15
791 - 821/832-862 MHz	60,00	BROADCASTING, MOBILE except Aeronautical Mobile	Broadcasting(terrestrial), PMSE, Defence systems, TRA-ECS	PMSE audio in 790 - 797 MHz or 821-832 MHz (depends on frequency arrangement for 800 MHz band)	Yes	Assuming FDD approach is adopted; Available across EU for ECS i.a.w. Decision 2010/267/EU
862 - 870 MHz	8	MOBILE	Aids for hearing impaired, Alarms, Defence systems, SRDs, PMSE, RFID	Already in use for range of SRDs, defence systems, PMSE	No	
870 - 876 MHz	6	MOBILE	Defence systems, PMR/PAMR, Digital Landmobile		No	
876 - 880/921 - 925 MHz	8	MOBILE, Radiolocation	Defence systems, GSM-R	Use for railway mobile communications	No	
880 - 915/925 - 960 MHz	70,00	MOBILE, Radiolocation	Defence systems, GSM-900, IMT, MCV		Yes	Available across EU for ECS i.a.w. EC Decision 2011/829/EU amending Decision 2006/771/EC
915 - 921 MHz	6,00	MOBILE, Radiolocation	Defence systems, Digital PMR/PAMR		No	
960 - 1350 MHz	390,00	AERONAUTICAL RADIONAVIGATION, AERONAUTICAL MOBILE, RADIONAVIGATION-SATELLITE, EARTH EXPLORATION-SATELLITE, RADIOLOCATION, SPACE SEARCH, Amateur, Amateur-satellite	Navigation systems, Galileo, GLONASS, GNSS repeater, GPS, Defence systems, Active sensors, Radar, Amateur, Wind profiler radars		No	Sharing not feasible due to critical nature of aeronautical comms
1350-1375	25,00	FIXED, MOBILE, RADIOLOCATION	Defence systems, low capacity fixed links -FS with 1492-1518 MHz, Radio astronomy		No	further consideration dependant on outcome of WRC-15
1375-1400	25,00	FIXED, MOBILE, RADIOLOCATION	Defence systems, low capacity fixed links -FS with 1427-1452 MHz, Radio astronomy		Yes	Refarming of FS/Radar use to other bands required. Wireless cameras in some countries
1400-1427	27,00	EARTH EXPLORATION SATELLITE (passive), RADIO ASTRONOMY, SPACE RESEARCH (passive)	Passive sensors (satellite), radio astronomy		No	
1427 - 1452 MHz	25,00	FIXED, MOBILE except aeronautical mobile, SPACE OPERATION (E/S)	Defence systems, low capacity fixed links - FS with 1375 - 1400 MHz	Need to refarm military use to other bands, e.g. in region of 2 GHz. Existing fixed links and ENG/OB would mitigate against use for WBB	Yes	Refarming of FS use to other bands required. Wireless cameras in some countries

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1452 - 1492 MHz	40,00	BROADCASTING, BROADCASTING-SATELLITE, Fixed, MOBILE except aeronautical mobile	S-DAB, T-DAB		Yes	Identified by CEPT for MFCN supplemental downlink
1492-1518 MHz	26,00	FIXED, MOBILE except aeronautical mobile,	Defence systems, low capacity fixed links - FS with 1350 - 1375 MHz	CEPT investigating as possible PMSE band	No	further consideration dependant on outcome of WRC-15
1518-1525 MHz	7,00	FIXED, MOBILE except aeronautical mobile, MOBILE-SATELLITE(S/E)	Defence systems, IMT Satellite component, Mobile satellite applications, Unidirectional fixed links		Yes (satellite)	Paired with 1670-1675 MHz
1525-1530 MHz	5,00	SPACE OPERATION (S/E), FIXED, MOBILE-SATELLITE (S/E)	IMT Satellite component, Mobile satellite applications, Unidirectional fixed links		Yes (satellite)	
1530-1535 MHz	5,00	MOBILE-SATELLITE (S/E), SPACE OPERATION (S/E), Earth exploration-satellite, Fixed, Mobile except aeronautical mobile	IMT Satellite component, Mobile satellite applications		Yes (satellite)	
1535-1559 MHz	24,00	MOBILE-SATELLITE(S/E)	IMT Satellite component, Mobile satellite applications, Distress and safety communications (Incl GMDSS)		Yes (satellite)	
1559-1610 MHz	51,00	AERONAUTICAL RADIONAVIGATION, RADIONAVIGATION-SATELLITE	GPS, Galileo, GLONASS, GNSS Pseudolites, GNSS Repeater		No	
1610-1626.5 MHz	16,50	AERONAUTICAL RADIONAVIGATION, MOBILE-SATELLITE (E/S), Mobile- Satellite (S/E), RADIO ASTRONOMY	GPS/Galileo (RADIOASTRONOMY 1610.6-1613.8 MHz)		Yes (satellite)	IMT Satellite component: paired with 2483.5-2500 MHz
1626.5-1660 MHz	33,50	MOBILE-SATELLITE (E/S)	IMT Satellite component, Mobile satellite applications		Yes (satellite)	IMT Satellite component
1660-1660.5 MHz	0,50	MOBILE-SATELLITE (E/S) RADIOASTRONOMY	IMT Satellite component, Mobile satellite applications, Radio astronomy		Yes (satellite)	IMT Satellite component
1660.5-1668 MHz	7,50	RADIOASTRONOMY, SPACE RESEARCH (passive), Fixed, Mobile except aeronautical mobile	Defence systems, Radioastronomy		No	
1668-1668.4 MHz	0,40	MOBILE-SATELLITE (E/S), RADIOASTRONOMY, SPACE RESEARCH (passive), Fixed, Mobile except aeronautical mobile	Radioastronomy, IMT -2000 satellite component		No	
1668.4-1670 MHz	1,60	METEOROLOGICAL AIDS, MOBILE-SATELLITE, FIXED. MOBILE except aeronautical mobile, RADIOASTRONOMY	Defence systems, IMT Satellite component, Meteorology, Radio astronomy		No	
1670-1675 MHz	5,00	METEOROLOGICAL AIDS, METEOROLOGICAL-SATELLITE (S/E), MOBILE-SATELLITE (S/E), MOBILE, FIXED	IMT Satellite component, Meteorological Satellites, Mobile satellite applications (E/S)		Yes (satellite)	Paired with 1518-1525 MHz
1675-1690 MHz	15,00	METEOROLOGICAL AIDS, FIXED, METEOROLOGICAL-SATELLITE, MOBILE except aeronautical mobile	Defence systems, Meteorological Satellites, Mobile satellite applications (E/S)		No	
1690-1700 MHz	10,00	METEOROLOGICAL AIDS, METEOROLOGICAL-SATELLITE, Fixed, Mobile except aeronautical mobile	Defence systems, Meteorological Satellites		No	
1700-1710 MHz	10,00	FIXED, METEOROLOGICAL-SATELLITE, MOBILE except aeronautical mobile	Defence systems, Meteorological Satellites	CEPT studies for PMSE audio	No	
1710 - 1785 MHz	75,00	FIXED, MOBILE	GSM-1800, IMT, MCA, MCV		Yes	Available across EU for ECS i.a.w. EC Decision 2011/829/EU amending Decision 2006/771/EC
1785 - 1805 MHz	20,00	FIXED, MOBILE, Fixed	Mobile applications, PMSE		No	CEPT Report 50 identifies band for PMSE
1805 - 1880 MHz	75,00	FIXED, MOBILE	GSM-1800, IMT, MCA, MCV		Yes	Available across EU for ECS i.a.w. EC Decision 2011/829/EU amending Decision 2006/771/EC
1880 - 1900 MHz	20,00	MOBILE, Fixed	DECT	DECT Directive	Yes	assuming replacement of DECT Directive

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1900 - 1920 MHz	20,00	MOBILE, Fixed	IMT	Identified for IMT but no use of band	No	CEPT studies on use of band: BDA2GC and PMSE under consideration.
1920 - 1980 MHz	60,00	MOBILE, Fixed	IMT paired with 2110-2170 MHz		Yes	EC Decision 2012/688/EU
1980 - 2010 MHz	30,00	MOBILE, MOBILE-SATELLITE, Fixed	IMT Satellite component, Mobile satellite applications. Designated for MSS with CGC	Lack of implementation of MSS	Yes (satellite)	MSS 2 GHz band paired with 2170-2200 MHz
2010 - 2025 MHz	15,00	MOBILE, Fixed	IMT	Identified for IMT but no use of band	No	CEPT studies on use of band: BDA2GC and PMSE under consideration.
2025 - 2110 MHz	85,00	EARTH EXPLORATION-SATELLITE, FIXED, MOBILE, SPACE RESEARCH, SPACE OPERATION	Defence systems, Fixed links, SAP/SAB, Space research/EESS	High density mobile systems not allowed (F/N S5.591)	No	
2110 - 2170 MHz	60,00	MOBILE, Fixed, SPACE RESEARCH (2110-2120 MHz)	IMT paired with 1920-1980 MHz		Yes	EC Decision 2012/688/EU
2170 - 2200 MHz	30,00	MOBILE, MOBILE-SATELLITE, Fixed	IMT Satellite component, Mobile satellite applications. Designated for MSS with CGC	Lack of implementation of MSS	Yes (Satellite)	MSS 2 GHz band paired with 1980-2010 MHz
2200 - 2300 MHz	100,00	EARTH EXPLORATION SATELLITE, FIXED, MOBILE, SPACE RESEARCH, SPACE OPERATION	Fixed links, Radio astronomy, SAP/SAB, space research, Mobile applications, Defence systems	High density mobile systems not allowed (F/N S5.591)	No	
2300 - 2400 MHz	100,00	FIXED, MOBILE, Amateur, Radiolocation	Aeronautical telemetry, Amateur, Mobile applications, SAP/SAB	Parts of the band are used for aeronautical telemetry on a national basis. Wireless cameras	Yes on a shared basis	CEPT studies underway. Some countries already assigned to wireless broadband (including outside Europe)
2400 - 2483.5 MHz	83,50	FIXED, MOBILE, Amateur-satellite, Radiolocation	Amateur Satellite, ISM, SRDs, Railway applications, RFID, Wideband Data transmission systems, Radiodetermination applications		Yes	Key band for WiFi, etc
2483.5 - 2500 MHz	16,50	FIXED, MOBILE, MOBILE-SATELLITE	Active medical implants, ISM, mobile satellite applications, SAP/SAB		Yes (satellite)	IMT satellite component: paired with 1610-1626.5 MHz
2500 - 2570//2620 - 2690 MHz	140,00	FIXED, MOBILE, Earth Exploration-Satellite, Radio astronomy, Space Research	IMT, MFCN, Defence systems, SAP/SAB, Radio astronomy		Yes	Available across EU for ECS i.a.w. EC Decision 2008/477/EC
2570 - 2620 MHz	50,00	FIXED, MOBILE except aeronautical mobile	Defence systems, IMT, SAP/SAB		Yes	
2690 - 2700 MHz	10,00	EARTH EXPLORATION SATELLITE (passive), RADIO ASTRONOMY, SPACE RESEARCH (passive)	Passive sensors (satellite)		No	
2700 - 2900 MHz	200,00	AERONAUTICAL RADIONAVIGATION, Radiolocation	Meteorological radars, Radar navigation systems		No	
2900 - 3100 MHz	200,00	RADIOLOCATION, RADIONAVIGATION	Defence systems, Radar and navigation systems		No	
3100 - 3300 MHz	200,00	RADIOLOCATION, Earth Exploration-Satellite (active), Space Research (active)	Active Sensors, Defence systems, Radars, UWB		No	
3300 - 3400 MHz	100,00	RADIOLOCATION	Defence systems, Radars, UWB		No	
3400 - 3600 MHz	200,00	FIXED, FIXED-SATELLITE, MOBILE, Radiolocation, Amateur	Amateur, BWA, FSS, IMT, Mobile applications, Radars, UWB		Yes	Available across EU for ECS i.a.w. EC Decision 2008/411/EC
3600 - 3800 MHz	200,00	FIXED, FIXED-SATELLITE, MOBILE	BWA, FSS, Medium/high capacity fixed links, UWB		Yes	
3800 - 4200 MHz	400,00	FIXED, FIXED-SATELLITE	FSS, Medium/high capacity fixed links, UWB	Difficulty of sharing between FSS and terrestrial mobile	Yes	potential hot-spot/ capacity coverage (limited geographical areas)
4200 - 5000 MHz	800	AERONAUTICAL RADIONAVIGATION, FIXED, MOBILE, FIXED-SATELLITE, Radio astronomy	Altimeters, Passive sensors (satellite), UWB, Defence systems, Mobile applications, FSS, Radiodetermination applications, BBDR		No	
5000 - 5150 MHz	150	AERONAUTICAL RADIONAVIGATION, RADIONAVIGATION-SATELLITE, Radio astronomy, Space research (passive)	Galileo C1, Radio astronomy, Radio determination applications, Satellite navigation systems, MLS		No	

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5150 - 5350 MHz	200,00	FIXED-SATELLITE, MOBILE except aeronautical mobile, EARTH EXPLORATION-SATELLITE(active), RADIOLOCATION, SPACE RESEARCH	Aeronautical telemetry transmission, BBDR, Feeder links for MSS, Radiodetermination applications, WAS/RLANs, Active Sensors, Position fixing, shipborne & VTS radar, Weather radar, Defence systems	RLANs in door use only	Yes	Already in use for RLANs. EC Decision 2005/513/EC as amended by 2007/90/EC
5350 - 5470 MHz	120,00	AERONAUTICAL RADIONAVIGATION, EARTH EXPLORATION-SATELLITE(active), RADIOLOCATION, SPACE RESEARCH	Active Sensors, Defence Systems, Position fixing, Radiodetermination applications, Shipborne & VTS radar, Weather radar		Yes	sharing studies underway in JTG 4-5-6-7 WRC-15 (potential for Wi-Fi)
5470 - 5725 MHz	255,00	EARTH EXPLORATION SATELLITE (active), MARITIME RADIONAVIGATION, MOBILE except aeronautical mobile, RADIOLOCATION, SPACE RESEARCH, Amateur, Amateur-satellite	Active Sensors, Defence systems, Amateur, amateur-satellite, Position fixing, Shipborne & VTS radar, Weather radars, Radiodetermination applications, WAS/RLANs		Yes	Already in use for RLANs. EC Decision 2005/513/EC as amended by 2007/90/EC
5725-5875 MHz	150,00	FIXED, FIXED-SATELLITE, RADIOLOCATION, MOBILE, Amateur, Amateur-satellite	Amateur, BFWA, Defence systems, ISM, SRDs, Radio determination applications, RTTT, Weather radars, Fixed links, FSS, UWB		Yes	Band identified for BFWA: ECC/REC(06)04: (150 MHz)
5875-5925 MHz	50,00	FIXED, FIXED-SATELLITE, RADIOLOCATION, MOBILE, Amateur, Amateur-satellite	Amateur, SRDs, Radio determination applications, RTTT, Fixed links, FSS, UWB	RTTT (Intelligent Transport Systems), FSS Earth stations	Yes	sharing studies underway in JTG 4-5-6-7 (potential for Wi-Fi); 2008/671/EC on the harmonised use of radio spectrum in the 5875 - 5905 MHz frequency band for safety related applications of Intelligent Transport Systems
5925-6000 MHz	75	FIXED, FIXED-SATELLITE, RADIOLOCATION, MOBILE, Amateur, Amateur-satellite	Amateur, BFWA, Defence systems, ISM, SRDs, Radio determination applications, RTTT, Weather radars, Fixed links, FSS, UWB		No	

Total Spectrum from 400 MHz - 6 GHz	5600 MHz
No Potential for WBB	2648,50 MHz
Already in use or Future Potential for WBB	2951,50 MHz

Broadband access	In use/available for WBB (MHz)	Potential for WBB (near term) (MHz)	Medium term potential (>2015) (MHz)	Possibly in very long timeframe	Totals (MHz)
Terrestrial	990,00	140,00	566,00	224,00	1920,00
Satellite	173,00	0	0,00	0	173,00
WiFi	538,50	0	320,00	0	858,50
Total	1701,50 MHz	140,00 MHz	886,00 MHz	224,00 MHz	2951,50