

Preliminary Identification of Candidate bands to meet future spectrum demands for wireless broadband

Frequency band [MHz]	Size [MHz]	Current Use	Pros of WBB in band	Cons of WBB in band	Potential for WBB [timeframe]	Action to make band available for WBB
470 – 694	224	Broadcasting(terrestrial), PMSE, radio astronomy	<p>Ideal band for wireless broadband due to its physical attributes, it provides good coverage both indoors and outdoors.</p> <p>Benefits to consumers of WBB services</p>	<ul style="list-style-type: none"> • Significant impact on terrestrial broadcasting, and further development of broadcasting services (HD, UHD, 3D, etc) <p>Impact on equitable access to broadcast spectrum (GE06)</p> <p>Potential need to transition to new technologies (e.g., DVB-T2/HEVC) in short/medium term. Financial impact on viewers, who have to again buy new equipment.</p> <ul style="list-style-type: none"> • PMSE services may not be able to continue in the band. 	<p>Potential in long term on basis of convergence between mobile and broadcasting. Situation will vary from country to country</p>	<p>Balance between mobile and broadcast spectrum requirements uncertain in the long term. Need to develop a long term strategy for TV distribution.</p> <p>Need to take account of spectrum needs for PMSE services.</p>

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[694]-790	96	Terrestrial television broadcasting and PMSE (currently making use of the white spaces between the TV broadcasts).	<p>Ideal band for wireless broadband due to its physical attributes, it provides good coverage both indoors and outdoors.</p> <p>Prospects for global harmonization may provide economy of scale for manufacturers</p>	<ul style="list-style-type: none"> • Significant impact on terrestrial broadcasting, and further development of broadcasting services (HD, UHD, 3D, etc) <p>Impact on equitable access to broadcast spectrum (GE06)</p> <p>Potential need to transition to new technologies (e.g., DVB-T2/HEVC) in short/medium term. Financial impact on viewers, who have to again buy new equipment.</p> <ul style="list-style-type: none"> • PMSE services may not be able to continue in the band. 	<p>High. Depending on situation in individual countries could take significant time post-2015</p> <p>Cross-border coordination between broadcasting and mobile services during transition period.</p>	<p>Balance between mobile and broadcast spectrum requirements uncertain in the long term. Need to develop a long term strategy for TV distribution.</p> <p>Need to take account of spectrum needs for PMSE services.</p>

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1375 – 1400	25	<ul style="list-style-type: none"> • Military services, primarily radiolocation and tactical radio. 	<ul style="list-style-type: none"> • Already allocated on a co-primary basis to the fixed and mobile services. 	Need to reform civil and military use to other bands,. Existing fixed links and ENG/OB would mitigate against use for WBB in some countries	Medium. [Post-2015]	Re-allocation of bands 1375 – 1400 MHz / 1427 – 1452 MHz to WBB may be best option for sharing with other services. Designation of bands 1375 – 1400 MHz paired with 1427 – 1452 MHz for WBB would require: <ul style="list-style-type: none"> • allocation of alternative frequencies for tactical radio applications, e.g. in the frequency bands 2025-2070 MHz and 2200-2245 MHz (in line with NATO Joint Civil / Military Frequency Agreement). • identification of higher frequency bands adapted for fixed links. • Protection of adjacent band services, in particular of the passive band (1400-1427 MHz) for both radioastronomy and Earth Exploration Satellite Service.
1427 – 1452	25	wireless cameras (ENG/OB) in some countries (e.g. NL) <ul style="list-style-type: none"> • In bands 1375 – 1400 MHz / 1427 – 1452 MHz (CEPT harmonisation for Fixed Service), low numbers of P-MP applications and some new development for low capacity, long range private links, in particular for public utilities. 	<ul style="list-style-type: none"> • The bands around 1500 MHz are covered by the 3GPP standards, which provide an opportunity for LTE and LTE-A equipment to become available in the bands. • in some countries very limited actual use of the band. 			

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1452 - 1492	40	Band designated for DAB (terrestrial and satellite sound broadcasting). Covered by Maastricht 2002 Special Arrangement (Revised Constanța 2007)	<ul style="list-style-type: none"> • Little development until now of currently allocated services. • CEPT decided in September 2012 to develop an ECC Decision designating the band for mobile/fixed communication networks (MFCN) supplemental downlink (SDL). • Individual countries are allowed to adapt to national circumstances in part of the band for terrestrial broadcasting and other terrestrial applications. 	Other terrestrial applications interested in band [CEPT Report]	Medium. [2013-2015]	complementary measures to further promote the harmonized implementation measures defined by CEPT
1880 – 1900	20	DECT	band already harmonised	DECT eco-system already exists – focused on voice applications	Medium. [post-2015]	Would require replacement of DECT Directive

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1980 - 2010/ 2170 - 2200	2 x30	<ul style="list-style-type: none"> Mobile Satellite Services with CGC: pan-European licences assigned on 13 May 2009 to Inmarsat Ventures Limited and Solaris Mobile Limited. 	The obligations under the European Decisions have yet to be fulfilled. The allocation represents 2 x 30 MHz of particularly attractive harmonised spectrum and there have been calls for it to be re-allocated to terrestrial mobile broadband services.	MSS with CGC could yet be delivered in the band	High (for satellite). [Post-2015]	In the case of the 2GHz bands identified for use by MSS with CGC, if the future actions related to Decision 2011/667/EU taken by the Member States result in the withdrawal of licences, the Commission should consider re-allocation of the bands to terrestrial mobile services
2300-2400	100	Aeronautical telemetry and SAB/SAP.	<ul style="list-style-type: none"> After identification for IMT at WRC-07, this band has started to be used in other parts of the world for broadband mobile applications. Equipment is available. 	<p>Strategic governmental usages in this band such as aeronautical telemetry or CCTV for security purposes need to be considered.</p> <p>Use of band by ENG/OB needs to be considered.</p> <p>Band may not be available in all Member States for WBB</p>	Medium. [2014-2015]	For the band 2300-2400 MHz, noting that CEPT has established a project to develop harmonised implementation measures for MFCN in the band, the EC should consider adopting complementary measures to further promote shared and flexible use of the band between wireless broadband applications and other services, based on LSA regulatory provisions facilitating the long term incumbent use of the band in the territory of those Member States that wish to maintain such use

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3800-4200	400	<ul style="list-style-type: none"> • Satellite earth stations and terrestrial fixed links, UWB applications • Galileo (GDDN), public policy emergency applications and applications for embassies and diplomatic missions. <p>Approx 160 GEO satellites, providing essential services to consumers (NGO and non-NGO and IGO), some 60 of which provide coverage of all or part of Europe and interconnecting Europe with other regions of the world.</p> <p>Additional satellites and new earth stations using C-band under construction.</p>	Potential to play a role in the provision of ECS to ensure the future capacity needs especially in urban areas.	<p>Sharing conditions between satellite and terrestrial services are complex, and it has been demonstrated that coexistence between ubiquitous FSS Earth stations and the Mobile service in the same geographical area is not workable.</p> <p>Only limited possibilities for global harmonisation of this band for wireless broadband due to diverse national situations</p> <p>ITU-R Resolution 154 (WRC-12) addresses use of the band for aviation security and reliable distribution of meteorological information</p>	Medium. [post-2015]	<p>Studies should be carried out into the possibility of sharing in Europe between the FSS and terrestrial wireless broadband services including LSA.</p> <p>Potential for access to band by wireless broadband under a LSA regime.</p>

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5350 - 5470	120	Active Sensors, Defence Systems, Position fixing, Radiodetermination applications, Shipborne & VTS radar, Weather radar	<p>Potential band for Wi-Fi applications</p> <p>Allocating the band for Wi-Fi could be useful to mobile networks in providing data offload and indoor wireless connectivity</p>	<p>New routers would be required to utilise this additional spectrum for Wi-Fi</p> <p>Existing harmonised Wi-Fi standards needs to be developed further</p>	Medium. [post – 2015]	Sharing studies underway in JTG 4-5-6-7. Studies should be undertaken to see if band could be utilised for WiFi
5725-5875	150	Amateur, BFWA, Defence systems, ISM, SRDs, Radio determination applications, RTTT, Weather radars, Fixed links, FSS, UWB	Band identified by CEPT for Broadband Fixed Wireless Access (ECC/REC/(06)04)	May not be available in all Member States.	Medium. [post-2015]	Studies should be undertaken to see if this band could be more widely available for wireless broadband including WiFi, taking into account the studies relating to the upper adjacent band
5875-5925	50	RTTT (ITS), Fixed links, FSS, UWB	Potential for WiFi	<p>Sharing with FSS Earth stations may impose geographical constraints on usage</p> <p>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</p>	Medium. [post – 2015]	Sharing studies underway in JTG 4-5-6-7. Studies should be undertaken to see if band could be utilised for WiFi