



CPG PTD-3

Web-meeting, 22 – 24 June 2021

Date issued: 14 June 2021

Source: Germany, CRAF

Subject: Proposals to the Draft CEPT Brief on WRC-23 agenda item 1.5

Summary:

An analysis of the existing frequency usage in Germany was developed. It is in our understanding necessary that the spectrum use and needs analysis needs to be complete and comprehensive. As such Germany provides its results to PTD in order to update the background section of the draft Brief accordingly. It is assumed that other CEPT members have similar usages and are invited to agree with the suggested text at PTD. Two specifics have to be highlighted: The protection of radio astronomy and wind profiler radars.

1. An initial national study confirms the results of Report ITU ITU-R RA.2332-0 on the compatibility and sharing studies between the radio astronomy service and IMT systems in the frequency band 608-614 MHz. Thus coexistence between RAS and IMT in this band will require stringent protection measures.

Currently, GE-06 provides a high level of protection for RAS operations with respect to the allocated radiocommunication services. In several CEPT countries with RAS operations in the UHF band, TV channel #38 is kept free and multilateral coordination is employed. To retain an equivalent level of status in order to ensure RAS operations in the future, an upgrade of the RAS allocation to primary seems to be appropriate in case of regulatory actions.

2. Regarding Wind Profiler Radars, it needs to be noted that such usage is limited to some countries only. However, the results of WPR are supportive to the general weather forecast in Europe. As such, Germany believes that the specific allocation should be maintained.

Furthermore, Germany proposes a preliminary CEPT position for the two issues under agenda item 1.5.

Proposal:

PTD is invited to consider the proposed revision to the draft CEPT Brief and approve it as appropriate.

DRAFT CEPT BRIEF ON AGENDA ITEM 1.5

1.5 to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution **235 (WRC-15)**;

1 ISSUE

WRC-15, through Resolution **235 (WRC-15)**, resolved to invite ITU-R, after the 2019 World Radiocommunication Conference and in time for the 2023 World Radiocommunication Conference to:

1. review the spectrum use and study the spectrum needs of existing services within the frequency band 470-960 MHz in Region 1, in particular the spectrum requirements of the broadcasting and mobile, except aeronautical mobile, services, taking into account the relevant ITU Radiocommunication Sector (ITU-R) studies, Recommendations and Reports;
2. carry out sharing and compatibility studies, as appropriate, in the frequency band 470-694 MHz in Region 1 between the broadcasting and mobile, except aeronautical mobile, services, taking into account relevant ITU-R studies, Recommendations and Reports;
3. conduct sharing and compatibility studies, as appropriate, in order to provide relevant protection of systems of other existing services; and

Based on the results of the studies outlined above (and provided that these studies are completed and approved by ITU-R), WRC-23 is invited to consider possible regulatory actions in the frequency band 470-694 MHz in Region 1, as appropriate.

2 PRELIMINARY CEPT POSITION

Issue A: review of spectrum usage and spectrum needs in the frequency band 470-960 MHz

- CEPT supports a complete and comprehensive overview of the existing usage and evaluation of spectrum needs in the UHF band.
- CEPT opposes any regulatory action in the band 694-960 MHz.
- CEPT is of the view that any consideration of possible regulatory action(s) in the band 470-694 MHz requires a full account of the results and impact of studies including a thorough analysis.

Issue B: possible regulatory actions in the RR for the frequency band 470-694 MHz

- CEPT sets focus on provisions for an international regulatory framework which facilitates enhanced opportunities on a national basis taking account of the principle of equitable access for all countries in Region 1. In that regard, CEPT supports a general approach for cooperation and sharing between different applications and radiocommunication services.
- CEPT opposes a deletion of the broadcasting allocation to ensure the continuation and development of incumbent usage of the broadcasting service.
- CEPT supports the continuation and development of the incumbent usage by PMSE and to retain at least the regulatory provisions as defined in RR 5.296.
- CEPT supports the protection of the radioastronomy service in the frequency band 606-614 MHz to ensure its continued operation. In case of regulatory actions, the necessary protection can be achieved by upgrading the RAS secondary allocation to primary status.
- CEPT is of the view that no changes are necessary concerning No. 5.291A addressing the operation of wind profiler radars.

3 BACKGROUND

Resolution **235 (WRC-15)**, on the review of spectrum use of the frequency band 470-960 MHz in Region 1, notes that:

- The favourable propagation characteristics of spectrum below 1 GHz can provide economic benefits in terms of providing cost effective coverage solutions;
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- technological advances should be taken advantage of in order to promote efficiency of spectrum use and enhance spectrum access opportunities that may have, in the past, been unfeasible;
- the GE06 Agreement applies to all Region 1 countries (with the exception of Mongolia), and Iran (Islamic Republic of) for the frequency band 470-862 MHz, and makes provision for the terrestrial broadcasting service and other primary terrestrial services, a Plan for digital television and a list of stations of other primary terrestrial services.

It is also noted, that the ECC has adopted a new Strategic Plan for the period 2020-2025. This plan provides a high-level overview of the anticipated themes and key issues for the ECC over the next five years. One of the topics, which are particularly important, is “Reviewing future use of the UHF band (470-960 MHz)”. In this respect, the Strategic Plan notes that ‘the ECC should consider future spectrum needs to support audio-visual media distribution over the longer term, taking into account expected developments in broadcast distribution technologies’.

3.1 SPECTRUM USE OF THE BAND 470-960 MHZ

There are a number of services to which the band has already been allocated in the Radio Regulations. In this regard the following is noted:

- The frequency band 470-862 MHz is allocated to the broadcasting service on a primary basis and has been harmonised internationally for the provision of terrestrial television broadcast services at a global level. Given the relatively long lifespan of terrestrial broadcasting networks, Resolution **235 (WRC-15)** notes that a stable regulatory environment is required to ensure sufficient protection of investment and future development of such networks. Resolution **235 (WRC-15)** further observes that technology trends in digital terrestrial television (DTT) infer a migration towards higher bitrate applications for the provision of high-definition television;
- Within Region 1, the frequency range 694-960 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. This range is mainly identified for International Mobile Telecommunications (IMT) systems. Such systems are intended to provide telecommunications services on a worldwide basis, regardless of location, network, or terminal used;
- No. **5.296 (WRC-19)**, which is applicable in 40 CEPT Member States¹, makes provision for the allocation of the frequency band 470-694 MHz to the land mobile service on a secondary basis, intended for applications ancillary to broadcasting and programme-making;

¹ In Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Vatican, Croatia, Denmark, Spain, Estonia, Finland, France, Georgia, Hungary, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Republic of North Macedonia, Malta, Moldova, Monaco, Norway, the Netherlands, Poland, Portugal, Slovakia, the Czech Republic, Romania, the United Kingdom, San Marino, Serbia, Sweden, Switzerland, Turkey and Ukraine.

- In some CEPT Member States, the frequency band 645-960 MHz or parts thereof is allocated to the aeronautical radionavigation service (ARNS) on a primary basis by Nos. **5.312**³ and **5.323**⁴;
- In some CEPT Member States⁵, the frequency band 470-494 MHz is allocated to the radiolocation service on a secondary basis, limited to the operation of wind profile radars by No **5.291A**;
- In Region 1 (except for the African Broadcasting Area), the band 608-614 MHz is allocated to the radioastronomy service on a secondary basis. Furthermore, No. **5.149** advises administrations “to take all practicable steps to protect the radioastronomy service from harmful interference when making assignments to stations of other services” within this band. It is noted that , No. **5.304** applies in the African Broadcasting area.

[Additional Text suggestion: Mention SRD Usage within the band]

- The frequency bands between 862-921 MHz are used in some CEPT Member States by a number of other applications some of which are operating under the existing primary mobile allocation. One example is the operation of Short-Range-Devices for various purposes.

3.2 ALLOCATIONS AND USAGE AS PER ECA TABLE

A snapshot of the ECA Table (as of November 2020) presenting the current common Allocations and usage within CEPT Member countries is provided in ANNEX 1: to supplement this review. The ECA Table provides multiple strands of information relating to both allocations and application availability within CEPT Member states

3.3 IN-DEPTH ANALYSIS OF ALLOCATIONS/APPLICATIONS WITHIN EUROPE IN THE 470-694 MHZ

3.4 SPECTRUM NEEDS IN THE BAND 470-960 MHZ

3.4.1 Spectrum below 694 MHz

3.4.1.1 *Broadcasting service*

3.4.1.2 *Mobile Service*

3.4.1.3 *Radioastronomy Service*

The frequency range 606-614 MHz is of considerable importance to RAS observations. In addition to bridging the gap between the RAS allocated bands at 406 MHz and 1 400 MHz bands, the band is essential for several unique scientific observations:

- The band is one of the preferred bands for high-precision timing observations of pulsars. Precision pulsar timing programmes are being conducted at radio observatories in France, Germany, the Netherlands, the Russian Federation, and the United Kingdom. Ensembles of millisecond pulsars (or Pulsar Timing Array –

³ Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine

⁴ Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine

⁵ In Germany, Austria, Denmark, Estonia, Liechtenstein, the Czech Rep., Serbia and Switzerland.

PTA) are observed regularly for forming of pulsar time-scale in these programmes. More information can be found in the Report ITU-R RA.2099-1.

- Radio observations of linearly polarized extra-terrestrial radio emissions to study the physical circumstances under which the radiation is generated. For an unambiguous determination of these extra-terrestrial radio sources, observations need to be done using a minimum of three not too widely spaced but unequally separated frequencies. Together with the bands 322-328.6 MHz and 1 400-1 427 MHz, the band is of vital importance for such polarization studies.
- Solar radio astronomy: The total radio solar flux at this frequency is currently monitored by many stations around the world including several stations in Region 1. Most of these stations provide real time measurements and alerts in support to the solar activity forecast centres of the International Space Environment Service, ISES. Besides, the band also provides the longest quantitative record of solar activity. This is essential for the understanding of the long-term contribution of changing solar activity to global climate change on the Earth.
- Continuum VLBI observations by the European VLBI Network (EVN) at 611 MHz provide an angular resolution very similar to the Hubble Space Telescope (0.05 arcsec). Through this band European astronomers have an optimal instrument for producing radio images to match optical data from the Hubble Space Telescope.

Regarding the protection of the RAS, a potential mobile (incl. IMT) usage in or adjacent to the band 608-614 MHz must be considered with care. According to Report ITU ITU-R RA.2332-0 on the compatibility and sharing studies between the RAS and IMT systems in the frequency band 608-614 MHz, coexistence between RAS and IMT in this band will require stringent protection measures. In particular, for in-band operation separation distances of up to 1000 km or more were determined, which raises the question whether sharing between RAS and IMT would be possible at all in the densely populated environment that we find in CEPT countries. Furthermore, even for adjacent bands or the spurious domain IMT emissions, relatively large coordination zones with radii in excess of 100 km are needed.

Currently, GE-06 (see also Section **Virhe. Viitteen lähde ei löytnyt.**) provides a high level of protection for RAS operations, even though the RAS has only a secondary allocation in Region 1 (except in the African Broadcasting Area and a part of the Middle East, where it is primary already). In several CEPT countries with RAS operations in the UHF band, TV channel #38 is kept free and multilateral coordination is employed (compare Appendix 4.2 in GE-06).

For the case of a new mobile allocation as a primary service, RAS would have a significantly lower status (unless an agreement similar to the RAS part in GE-06 would be established, which is deemed unlikely and impractical). Therefore, to ensure that RAS operations will continue to be possible in the future, an upgrade of the RAS allocation from secondary to primary seems appropriate.

Table 1 contains a list of RAS observatories in CEPT, which are currently operating in the 608-614 MHz band. It should be noted, however, that many more European radio telescopes would mechanically be able to have UHF receivers mounted. Furthermore, almost all international RAS stations follow the "Open-Skies" principle, where scientists from all over the world can ask for telescope time. Thus, the stations listed in the Table, are also of high interest for scientists from other (CEPT) countries, which do not operate a RAS station (in this band).

Table 1: List of RAS stations in CEPT operating in the 610 MHz band.

<u>RAS station</u>	<u>Country</u>	<u>Geographic longitude</u>	<u>Geographic latitude</u>
Humain	Belgium	+05° 15' 12"	50° 11' 31"
Ondrejov	Czech Republic	+14° 46' 52"	49° 54' 55"
Metsähovi	Finland	+24° 23' 37"	60° 13' 04"
Nançay	France	+02° 11' 50"	47° 22' 24"
Effelsberg	Germany	+06° 53' 01"	50° 31' 29"
Thermopyles	Greece	+22° 41' 10"	38° 49' 19"

<u>RAS station</u>	<u>Country</u>	<u>Geographic longitude</u>	<u>Geographic latitude</u>
Westerbork	Netherlands	+06° 36' 15"	52° 55' 01"
Pushchino	Russia	+37° 37' 53"	54° 49' 20"
Bleien	Switzerland	+08° 06' 43"	47° 20' 24"
Jodrell Bank	UK	-02° 18' 26"	53° 14' 10"
Cambridge		+00° 02' 14"	52° 10' 01"

In addition, it needs to be noted that CEPT countries are highly involved in the development and usage of the RAS station(s) in South Africa ("MeerKAT" and "SKA-MID"). The core coordinates are +21° 26' 38" geographical longitude and -30° 42' 47" geographical latitude, however there will be numerous additional telescopes distributed over a large area in and around South-Africa ("Square-Kilometre-Array"). The headquarter of the SKA organisation is in UK.

3.4.1.4 Radiolocation service - Wind profiler radars

Wind profiler radars (WPR) are currently used in Germany or planned to be used by some CEPT countries (Austria, Denmark, Estonia, Liechtenstein, the Czech Rep., Serbia, Switzerland and others) in the band 470-494 MHz (see No. **5.291A**).

WPR are designed for and operated in different bands and therefore allocations to the Radiolocation service were set forth in No. **5.162A** and **5.291A**. WPR are operating in three ranges, range 1 (VHF, 46-68 MHz), range 2 (UHF, 440-450 MHz, 470-494 MHz), and range 3 (UHF/L-band, 904-928 MHz, 1270-1295 MHz, 1300-1375 MHz) in application of **Resolution 217 (WRC-97)**.

The high sensitivity of WPR makes them vulnerable to any sufficiently strong external radio signal that is in-band. However, one particular advantage of WPR with regard to sharing is the near-vertical direction of the profiler emissions with high-gain, low-sidelobe antennas, as this helps to protect the WPR from the typically horizontal emissions of other services and vice versa. For mainly physical reasons, the frequency range 2 (UHF) offers by far the best option for vertical coverage of the WPR measurements. Thus WPR will need to be taken into account in studies for the band 470-694 MHz.

3.4.2 Spectrum above 694 MHz

Editor's Note 1: [Useful to add references to ITU docs and other "spectrum needs" material?]

3.4.2.1 Mobile Service

The current usage of IMT in the bands above 694 MHz will continue. No planned change has been indicated by CEPT Members to ITU-R WP5D.

Similar to IMT is the development of non-IMT applications. CEPT Members provided in answers to WP5A and 5C that the respective usage will continue. In particular the use of specific frequencies by PMSE equipment will continue.

Some CEPT members indicated on future spectrum plans that the current spectrum use for PPDR purposes above 694 MHz (2x3 MHz and 2x5 MHz) may not be sufficient in the future to satisfy the demand.

3.4.2.2 Broadcasting Service

tbd

3.4.2.3 Aeronautical Radionavigation Service

tbd

3.5 ITU-R STUDY GROUP ACTIVITY

As agreed during CPM23-1, ITU-R Study Group 6 (SG 6) established a dedicated Task Group 6/1 (TG 6/1) to deal with matters concerning WRC-23 agenda item 1.5.

Of particular note in relation to the expected inputs from relevant Working parties to Task Group 6/1, and as outlined in the Decision set out in Annex 9 of Administrative Circular CA/251, CPM23-1 has also directed:

- Working Party 6A, in carrying out studies to review spectrum use and study spectrum needs of the broadcasting service in the 470 -960 MHz band, to take into account the use and needs of co-signatories of the GE06 Agreement;
- Working Parties of Study Group 5 (SG 5) to conduct studies to review the spectrum use and study the spectrum needs of the mobile (except aeronautical mobile) service.

In carrying out all such studies, CPM23-1 has stipulated that these studies be supplemented via the provision of, by the relevant Working Parties, the assumptions (which would include system parameters and propagation models) and technical characteristics (including protection criteria) of the broadcasting, mobile (except aeronautical mobile) and other allocations upon which the studies are based. The results of the studies are due to be reported to TG 6/1, by the relevant Working Parties, by 15 May 2021 at the latest.

3.6 ECC RELATED WORK AND ACTIVITY

In November 2014, ECC Task Group 6 developed ECC Report 224 on the long-term vision for the UHF broadcasting band. This Report addressed trends in the evolution of services and consumer behaviour, as well as the networks and technologies that offer the potential to deliver these services in the band 470-694 MHz. The report did not make any recommendations for the future use of the UHF band. However, it recognized that this frequency band was essential for the delivery of audio-visual services, and concluded that more flexibility might be needed in the regulatory environment to allow for varied use in different countries if required. Furthermore, it was concluded that, with the state-of-the-art of the radiocommunication technologies at the time of development of ECC Report 224, coexistence was feasible between broadcast and mobile downlink networks, whereas the coexistence between mobile uplink and broadcasting, or mobile downlink, was difficult and challenging.

The ECC Strategic Plan for 2020 – 2025 has since identified the need to review the UHF band over the coming period, and sets out the following requirement:

- “To review, in line with Agenda Item 1.5 of WRC-23, the UHF band (470-960 MHz), taking into account the current use by PMSE in this band. In undertaking this review, the ECC should consider future spectrum needs to support audio-visual media distribution over the longer term, taking into account expected developments in broadcast distribution technologies”.

3.7 THE GENEVA-06 AGREEMENT

The Geneva Agreement of 2006 (in association with the Radio Regulations) lays out the principles by which administrations agreed to manage the frequency band 470-862 MHz. It contains a frequency plan for digital TV (DTT) as well as agreed processes for modifying that plan or introducing other services.

Following the decisions at WRC-12 and WRC-07 regarding identification of the band 700 MHz (694-790 MHz) and 800 MHz (790-862 MHz) for IMT, all pre-existing services within the band, including DTT and PMSE services may have had to vacate the bands or parts thereof. The 470-694 MHz band is now the only remaining spectrum available in many CEPT countries for these DTT and PMSE uses in the UHF band.

The GE06 frequency plan gives administrations rights to use certain frequencies over certain geographical areas for broadcasting services, without specifying exactly which technologies should be used. This flexibility has been used to facilitate the transition from DVB-T to DVB-T2 in some countries and may also be used for the implementation of 5G Broadcast technologies by some countries while neighbouring countries retain DVB systems (see the section on “technical implementation of 5G Broadcast”).

GE06, in conjunction with Article 4.4 of the Radio Regulations, also allows low-power use of “interleaved” spectrum for services such as PMSE – services which are low enough in power to not cause interference to primary services such as DTT or to neighbouring countries. In some countries some of this spectrum is licensed to so-called “white space” devices – again, these are very low-power and therefore very localised services.

3.8 TECHNICAL IMPLEMENTATION OF 5G BROADCAST

Editor's Note 2: EBU to provide text to next PTD meeting

Flexibility of the GE06 Agreement is reflected in the spectrum mask concept which allows any technology to be implemented on the basis of an assignment or an allotment, provided that it does not cause more interference nor require better protection than the corresponding entry in the Plan.

4 LIST OF RELEVANT DOCUMENTS

ITU-Documentation (Recommendations, Reports, other)

- [Resolution 235 \(WRC-15\), “Review of the spectrum use of the frequency band 470-960 MHz in Region 1”](#)
- [Administrative Circular CA/251, “Results of the first session of the Conference Preparatory Meeting for WRC-23 \(CPM23-1\)”](#) – see Annex 1 for Resolution 811, and Annex 9 for CPM23-1 Decision on the establishment and Terms of Reference of Task Group 6/1 (TG 6/1) on WRC-23 agenda item 1.5.
- [GE06 Agreement, “Final Acts of the Regional Radiocommunication Conference for planning of the digital terrestrial broadcasting service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz”](#)
- [Report ITU-R BT.2337-1 \(11/2017\), “Sharing and compatibility studies between digital terrestrial television broadcasting and terrestrial mobile broadband applications, including IMT, in the frequency band 470-694/698 MHz”](#)
- [Recommendation ITU-R M.2090-0 \(10/2015\), “Specific unwanted emission limit of IMT mobile stations operating in the frequency band 694-790 MHz to facilitate protection of existing services in Region 1 in the frequency band 470-694 MHz”](#)
- [Report ITU-R BT.2470, “Use of Monte Carlo simulation to model interference to DTTB”](#)
- [Recommendation ITU-R BT.2136-0 “Assessing interference into digital terrestrial television broadcasting from other services by means of Monte Carlo simulation”](#)
- [Report ITU-R BT.2383-2 “Characteristics of digital terrestrial television broadcasting systems in the frequency band 470-862 MHz”](#)
- [Report ITU-R BT.2387-1 “Spectrum/frequency requirements for bands allocated to broadcasting on a primary basis”](#).
- [Report ITU-R SM 2405-0, Spectrum management principles, challenges and issues related to dynamic access to frequency bands by means of radio systems employing cognitive capabilities](#)
- [Report ITU-R BT 2302-0: Spectrum requirements for terrestrial television broadcasting in the UHF frequency band in Region 1 and the Islamic Republic of Iran](#)
- Report ITU-R RA.2332: Compatibility and sharing studies between the radio astronomy service and IMT systems in the frequency bands 608-614 MHz, 1 330-1 400 MHz, 1 400-1 427 MHz, 1 610.6-1 613.8 MHz, 1 660-1 670 MHz, 2 690-2 700 MHz, 4 800-4 990 MHz and 4 990-5 000 MHz

CEPT and/or ECC Documentation (Decisions, Recommendations, Reports)

- [ECC Strategic Plan for the period 2020-2025](#)
- [ECC Report 224 \(2014\), “Long term vision for the UHF broadcasting band”](#)

- [ERC Recommendation 70-03, “Relating to the use of Short Range Devices \(SRD\)”](#)
- [ERC/REC 25-10, “ERC Recommendation of 1995 on frequency Ranges for the Use of Terrestrial Audio and Video Programme Making and Special Events \(PMSE\) applications, latest amended on 18 October 2016” CC Report 224 \(2014\), “Long term vision for the UHF broadcasting band”](#)
- ERC Report 85 (2005) : COMPATIBILITY ANALYSIS OF RADIO ASTRONOMY IN THE FREQUENCY RANGE 608 - 614 MHZ WITH DVB-T

EU Documentation (Directives, Decisions, Recommendations, other), if applicable

- [Decision \(EU\) 2017/899 of the European Parliament and of the Council of 17 May 2017 on the use of the 470-790 MHz frequency band in the Union](#)
- [Commission Implementing Decision \(EU\) 2016/687 of 28 April 2016 on the harmonisation of the 694-790 MHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services and for flexible national use in the Union](#)
- [Commission Decision 2010/267/EU of 6 May 2010 on harmonised technical conditions of use in the 790-862 MHz frequency band for terrestrial systems capable of providing electronic communications services in the European Union](#)
- [Decision 243/2012/EU of the European Parliament and of the Council of 14 March 2012, establishing a multiannual radio spectrum policy programme](#)

5 ACTIONS TO BE TAKEN

- Contribute to ITU-R Task Group 6/1 on the ITU-R studies called for by Resolution **235 (WRC-15)**, including information on characteristics of land mobile service (non-IMT) and PMSE.
- After finalising relevant studies, develop a common view on how to handle the provision "that these studies are completed and approved by ITU-R" of Resolution **235 (WRC-15)**.
- Contribute to the sections in the draft Brief currently reserved by placeholders in the Background section (e.g. section 3.8 on the spectrum mask concept).

6 RELEVANT INFORMATION FROM OUTSIDE CEPT

6.1 EUROPEAN UNION (DATE OF PROPOSAL)

6.2 REGIONAL TELECOMMUNICATION ORGANISATIONS

APT (April 2021)

- APT Members are of the view that conclusions to be reached on the agenda item 1.5 is a Region 1 issue and WRC-23 decisions shall in no way adversely affect Region 3 frequency allocations and existing and future use of the relevant frequency band.

Arab Group (July 2020)

- Studying the possibility of allocating part of the band for IMT applications by interested administrations, while providing appropriate protection for existing services.
- Inviting ASMG administrations to study their actual uses in this band and define their priorities and views on the possibility of allocating the band or part of the band to the mobile service, the possibility of identifying the band or part of the band for IMT systems, and the timing of the start of the application.

CITEL (April 2021)

Preliminary views on WRC-23 Agenda Item 1.5:

- In the interest of global harmonization and economies of scale, some administrations support studies for additional allocations to the mobile service in Region 1, including potential identifications to IMT, with the understanding that any changes to the Radio Regulations would not impact Region 2.
- An Administration considers that any eventual changes to the Radio Regulations under WRC-23 agenda item 1.5 must not impact Region 2 services (and applications thereof) nor subject Region 2 to any changed procedural or regulatory provisions.

RCC (April 2021)

The RCC Administrations oppose changes in the regulatory conditions for the use of the 470-694 MHz frequency band in Region 1 under this WRC-23 agenda item due to the current and future intensive use of this frequency band by the existing services.

6.3 INTERNATIONAL ORGANISATIONS

ICAO (date of proposal)

IMO (date of proposal)

NATO (April 2021)

Preliminary NATO military interest:

NATO military is in the view, if the evolution of the regulation in the frequency range 470 - 694 MHz facilitates a mobile allocation (technology neutral), it will provide the opportunity to assign spectrum to military/governmental use by the national authorities. NATO military is highly interested to utilise a possible regulatory change as an enabler for a NATO harmonised approach (e.g., NJFA) to establish BB communication capabilities in a medium time horizon.

SFCG (date of proposal)

WMO and EUMETNET (April 2021)

WMO would appreciate the development of a solution to ensure the effective operation of the wind profiler radars in the 470-494 MHz frequency band.

6.4 OTHER ORGANISATIONS

CRAF (June 2021)

Preliminary position for WRC-23 Agenda Item 1.5:

- A potential IMT identification in or around the band 606-614 MHz must be considered with care regarding the RAS operations. According to Report ITU ITU-R RA.2332-0 on the compatibility and sharing studies

between the radio astronomy service and IMT systems in the frequency band 608-614 MHz, coexistence between RAS and IMT in this band will require stringent protection measures. In particular, for in-band operation separation distances of up to 1000 km or more were determined, which raises the question whether sharing between RAS and IMT would be possible at all in the densely populated environment that we find in CEPT countries. Furthermore, even for adjacent bands or the spurious domain IMT emissions, relatively large coordination zones with radii in excess of 100 km are needed. In order to achieve harmonized protection at CEPT and to guarantee that RAS operations will continue to be possible in the future, an upgrade of the RAS allocation from secondary to primary seems appropriate

- Previous sharing and compatibility studies for RAS protection from IMT and broadcasting services in the ITU-R report RA 2332 and ERC report 85 respectively, could be updated to reflect any changes in the characteristics or parameters.

EBU (date of proposal)

ESA (date of proposal)

Eurocontrol (date of proposal)

GSMA (date of proposal)

IARU (date of proposal)

IATA (date of proposal)

ANNEX 1:

An excerpt from the ECA Table for the frequency range 470-960 MHz is provided in Table 2, below, together with the list of relevant applicable ECC Decisions and Recommendations in the range.

The European Table of Frequency Allocations and Applications for the frequency range 8.3 kHz to 3000 GHz (the ECA Table) is provided in EFIS. With EFIS, users can search for and compare spectrum use across Europe as well as related information such as CEPT activities, radio interface specifications and other national or international regulations. Additional information on EFIS is available on the ECC webpage, at <https://efis.cept.org/sitecontent.jsp?sitecontent=ecatable>.

Explanatory Note:

One of the key objectives of the ECC, as defined in its Terms of Reference, is to develop European common positions and proposals for use in the framework of international and regional bodies, so as to harmonise within Europe the efficient use of the radio spectrum in order to satisfy the requirements of users and industry. In order to help achieve this objective, CEPT endorsed in 2002 the principle of adopting a harmonised European Table of Frequency Allocations and Applications (“the Table”) to establish a strategic framework for the utilisation of the radio spectrum in Europe. One key aspect of the Table is to deliver information on the current situation regarding spectrum use in CEPT Member States, and this information can be used as a resource for the development of European Common Proposals (ECPs) for future Radiocommunication Conferences of the ITU. In addition to reflecting the RR (2020) Region 1 Allocations, the Table also provides European Common Allocations which are of major use or major interest in CEPT Member countries. Allocations made available in at least 15 CEPT administrations are classified within the CEPT framework as being of major use or interest within the collective CEPT community.

In addition to providing information relating to European Common Allocations, the Table further provides further information pertaining to radio applications commonly used within CEPT administrations. Such application listings are added to the ECA Table when:

- a) At least 10 CEPT administrations have made available the relevant frequency band for a radio application according to EFIS; or
- b) WG FM has decided to do so (based on other aspects).

Table 2: ECA Table for the frequency range 470-960 MHz (source: [EFIS](#))

Frequency band (MHz)	European Common Allocations	Applications
470-694 5.149 5.291A 5.296 5.306	BROADCASTING	Broadcasting (terrestrial)/Wind profilers/Radio astronomy/Radio microphones and ALD/PMSE
694-790 5.300 5.312	BROADCASTING/MOBILE EXCEPT AERONAUTICAL MOBILE(5.312A)(5.317A)	PMSE/PPDR/MFCN/Radio microphones and ALD/Broadcasting (terrestrial)
790-862 5.312 5.316B 5.317A	MOBILE EXCEPT AERONAUTICAL MOBILE	Radio microphones and ALD/PPDR/MFCN

Frequency band (MHz)	European Common Allocations	Applications
862-870 5.323	MOBILE(5.317A)	Wideband data transmission systems/Radio microphones and ALD/RFID/Tracking, tracing and data acquisition/Alarms/Non-specific SRDs/Land military systems/Maritime military systems
870-876 5.323	MOBILE(5.317A)	Maritime military systems/Land military systems/Tracking, tracing and data acquisition/Non-specific SRDs/FRMCS
876-880 5.323	MOBILE(5.317A)	FRMCS/GSM-R/Maritime military systems/Land military systems
880-890 5.323	MOBILE(5.317A)	GSM/IMT/MCV
890-915 5.323	MOBILE(5.317A)/Radiolocation	MCV/IMT/Maritime military systems/GSM/Land military systems
915-921 5.323	Radiolocation/MOBILE(5.317A)	Maritime military systems/Land military systems/Non-specific SRDs/RFID/FRMCS
921-925 5.323	MOBILE(5.317A)/Radiolocation	FRMCS/GSM-R/Land military systems/Maritime military systems
925-942 5.323	Radiolocation/MOBILE(5.317A)	Maritime military systems/Land military systems/GSM/IMT/MCV
942-960 5.323	MOBILE(5.317A)	MCV/IMT/GSM

RR Footnotes

- 5.149** In making assignments to stations of other services to which the bands:13360-13410 kHz,25550-25670 kHz,37.5-38.25 MHz,73-74.6 MHz in Regions 1 and 3,150.05-153 MHz in Region 1,322-328.6 MHz,406.1-410 MHz,608-614 MHz in Regions 1 and 3,1330-1400 MHz,1610.6-1613.8 MHz,1660-1670 MHz,1718.8-1722.2 MHz,2655-2690 MHz,3260-3267 MHz,3332-3339 MHz,3345.8-3352.5 MHz,4825-4835 MHz,4950-4990 MHz,4990-5000 MHz,6650-6675.2 MHz,10.6-10.68 GHz,14.47-14.5 GHz,22.01-22.21 GHz,22.21-22.5 GHz,22.81-22.86 GHz,23.07-23.12 GHz,31.2-31.3 GHz,31.5-31.8 GHz in Regions 1 and 3,36.43-36.5 GHz,42.5-43.5 GHz,48.94-49.04 GHz,76-86 GHz,92-94 GHz,94.1-100 GHz,102-109.5 GHz,111.8-114.25 GHz,128.33-128.59 GHz,129.23-129.49 GHz,130-134 GHz,136-148.5 GHz,151.5-158.5 GHz,168.59-168.93 GHz,171.11-171.45 GHz,172.31-172.65 GHz,173.52-173.85 GHz,195.75-196.15 GHz,209-226 GHz,241-250 GHz,252-275 GHz are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29). (WRC-07)
- 5.291A** Additional allocation: in Germany, Austria, Denmark, Estonia, Liechtenstein, the Czech Republic, Serbia and Switzerland, the band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217 (WRC-97). (WRC-15)
- 5.296** Additional allocation: in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Eswatini, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, Romania, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Tanzania, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme-making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-19)
- 5.300** Additional allocation: in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic and Sudan, the frequency band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-15)
- 5.306** Additional allocation: in Region 1, except in the African Broadcasting Area (see Nos. 5.10 to 5.13), and in Region 3, the band 608-614 MHz is also allocated to the radio astronomy service on a secondary basis.
- 5.312** Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, and in Bulgaria the frequency bands 646-686 MHz, 726-

Frequency band (MHz)	European Common Allocations	Applications
		<p>753 MHz, 778-811 MHz and 822-852 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-19)</p> <p>5.312A In Region 1, the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution 760 (Rev.WRC-19). See also Resolution 224 (Rev.WRC-19) (WRC-19)</p> <p>5.316B In Region 1, the allocation to the mobile, except aeronautical mobile, service in the frequency band 790-862 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 (Rev.WRC-19) and 749 (Rev.WRC-19) shall apply, as appropriate. (WRC-19)</p> <p>5.317A The parts of the frequency band 698-960 MHz in Region 2 and the frequency bands 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions 224 (Rev.WRC-19), 760 (Rev.WRC-19) and 749 (Rev.WRC-19), where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-19)</p> <p>5.323 Additional allocation: in Armenia, Azerbaijan, Belarus, the Russian Federation, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 862-960 MHz, in Bulgaria the frequency bands 862-880 MHz and 915-925 MHz, and in Romania the frequency bands 862-880 MHz and 915-925 MHz, are also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime. (WRC-19)</p>