TCCA Spectrum Position on World Radio Conference 2023 Agenda Item 1.5[1], July 2022

Considering that:

- International regulators such as the International Telecommunications Union (ITU) encourages administrations in its World Radiocommunication Conference (WRC) Resolution 646[2] (WRC-15) to consider the frequency band range 694-894 MHz or parts thereof for globally harmonised Public Protection and Disaster Relief (PPDR) applications in particular broadband mobile communications when undertaking their national planning for their PPDR applications, in particular broadband, in order to achieve harmonisation described in the recommendation ITU-R M.2015[3].
- European regulators such as the Electronic Communications Committee (ECC) and the European Commission (EC) issued harmonised frequency arrangements within the frequency range 698-791 MHz in accordance with the harmonisation measure ECC/DEC/(16)02[4] for broadband PPDR and included those arrangements in Section 1 of Annex 1 of recommendation ITU-R M.2015. In particular, European Conference of Postal and Telecommunications (CEPT) administrations wishing to introduce broadband PPDR within 703-733 MHz (uplink) / 758-788 MHz (downlink) should apply those technical conditions in ECC/DEC/(15)01[5], which harmonises the band for mobile/fixed communications networks (MFCN).
- The CEPT also defined and included the harmonised frequency arrangements within the frequency range 694-894 MHz in some countries as well as 450.5-467.5 MHz in accordance with ECC/DEC/(16)02 for broadband PPDR and included this decision in Section 2 of Annex 1 of recommendation ITU-R M.2015.
- The CEPT also identified 410-430 MHz in ECC/DEC/(16)02 as a band able to provide national flexibility in the context of additional spectrum for broadband PPDR applications.
- The CEPT also defined the frequency arrangements for the band 380-470 MHz in some countries of Region 1 for narrowband and wideband PPDR applications in accordance with CEPT harmonisation measure ECC/DEC/(08)05[6].
- The African Telecom Union (ATU) developed the African Spectrum Allocation And Application Table and identified harmonised broadband PPDR spectrum in the 698-703 MHz, 753-758 MHz, 733-736 MHz and 788-791 MHz bands and included the arrangements in Annex 1-1.4 of recommendation ITU-R M.2015.
- The European Union identified the 700 MHz frequency band as a 5G pioneer band. Thus commercial mobile broadband deployments were prioritised in the implementation of the

[1] Resolution 235 (WRC-25) https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0036PDFE.pdf
[2] Resolution 646 (WRC-15) https://www.itu.int/en/ITU-R/information/Documents/Res.646(WRC-15).pdf
[3] Recommendation ITU-R M.2015 https://www.itu.int/rec/R-REC-M.2015/en
[4] ECC Decision (16)02 https://docdb.cept.org/document/941
[5] ECC/DEC/(15)01 https://docdb.cept.org/document/444
[6] ECC Decision (08)05 https://docdb.cept.org/document/416

European Commission implementing decision (EU) 2016/687[7]. As a result, non-contiguous blocks of spectrum with more restrictive conditions were left to be allocated for broadband PPDR in the 700 MHz band.

- Moreover and due to its flexibility the European Commission implementing decision (EU) 2016/687 resulted in a heterogeneous and insufficient allocation of dedicated broadband spectrum in Europe to meet the long-term needs of PPDR agencies.
- The evolution of PPDR users from nationwide dedicated narrowband communication networks (TETRA and Tetrapol) to broadband is relying on standardised mobile broadband technologies (i.e. 4G LTE or 5G). These broadband technologies were originally developed for commercial use and continue to evolve to support mission-critical broadband requirements.
- The technological PPDR evolution has already started with early adopters now in operation and others are in the process of deploying or have the intention to deploy mission-critical broadband services over the next 5 to 10 years, driven by acute operational needs. In Europe, a number of major PPDR agencies intend to migrate from use of narrowband technologies to mobile broadband technologies during this period.
- For many PPDR agencies, especially in Europe, there is an urgent need to secure additional sources of harmonized PPDR broadband spectrum to ensure the successful migration, independent of market conditions (i.e. avoidance of market failure).
- New broadband PPDR technologies will enable interoperability and seamless connectivity with legacy narrowband. Spectrum needs for broadband are additional and complementary to that already used for narrowband.
- PPDR network operators provide narrowband mission-critical mobile communication services in the NATO frequency band 380-400 MHz. The evolution of both military and PPDR spectrum needs will determine the future use of this spectrum band.
- The Agenda Item 1.5 of the ITU World Radio Conference 2023 will 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.
- The high network availability required by critical communications can be achieved with spectrum below 1 GHz, due to its good propagation characteristics, indoor penetration and economically feasible conditions.
- The harmonised spectrum in 380-400 MHz for narrowband PPDR emergency communications use in the EU has proved to be very beneficial for pan-European collaboration and coordination especially on cross-border PPDR operations and the free circulation of PPDR devices and equipment.
- Environmental, societal and geopolitical changes are profoundly affecting PPDR globally and in Europe in particular. On the one hand, the severity and regularity of natural disasters that PPDR organisations have to fight are increasing due to climate change. This is driving also the requirement for more energy efficient technologies. On the other hand, global crises such as the Covid-19 pandemic or the Ukraine war have shown the need of critical communications users for up-to-date communication systems and the ability to cooperate across borders.
- These global and regional challenges require urgent coordinated action from administrations to consider carefully the important needs of the critical communications sector, and most

[7] European Commission Implementing Decision (EU) 2016/687
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.118.01.0004.01.ENG

importantly PPDR spectrum and modernisation needs. Without these services, society and economies will struggle to function effectively and efficiently.

- Enabling spectrum decisions for PPDR and the mission-critical communications sector in general will be supportive of the objectives underpinning the EU declarations related to green and digital transformation initiatives.
- The uptake of commercial off-the-shelf mobile data and video services and applications by critical communication users is raising user expectations and reliance on these services. This in turn is mandating mission-critical capabilities and network implementations. In addition, the introduction of new use cases where real-time mobile video, rich multimedia collaboration and dispatch applications are used to better respond to complex emergencies and incidents results in an increase in the needs also for dedicated spectrum for broadband PPDR.
- At the national level, spectrum needs range from 20 MHz (10 + 10) up to 60 MHz[8] for mission-critical broadband communications. A number of studies and methodologies for calculating spectrum needs for PPDR have been included in the report ITU-R M.2415[9].
- Member States will decide on the most suitable implementation model for delivering broadband PPDR. Dedicated, commercial or hybrid network solutions are technically and operationally possible.
- Without sufficient dedicated mission-critical broadband spectrum, that has the possibility of widespread commercial adoption in chipsets, PPDR and other critical communication sectors will be entirely dependent on market forces to secure their professional communication services. Whilst in some markets a range of competitive options will exist to procure such services, in other markets or at future points in time, market failure could occur. In the event of market failure, PPDR and other critical communication sectors may be severely limited in their ability to protect society and their economies in response to emergencies and disasters
- Additional spectrum will help save lives by enabling PPDR agencies to respond more effectively and efficiently to the increasing incidence of disasters and emergencies, driven by climate change and other factors. This additional spectrum will enable millions of professional users to greatly increase overall situational awareness (including widespread use of multimedia rich technologies), in times of acute operational need. Previous studies[10] have shown that critical communications networks across industries bring significant socioeconomic benefits.

Therefore, TCCA's position is:

- A co-primary allocation of the frequency band 470-694 MHz to Mobile Service and a subsequent consideration on how this spectrum could be best used by mobile services to help meet the additional spectrum needs of mission-critical users, especially PPDR

[8] Studie zur Bedarfsermittlung des Breitbandspektrums der BOS in Breitbandmobilfunknetzen https://www.bdbos.bund.de/SharedDocs/Downloads/DE/Publikationen/220511_frequenzbedarfsstudie.pdf?__blob=publicationFile&v=4

[9] Report ITU-R M.2415 https://www.itu.int/pub/R-REP-M.2415/en

[10] Socioeconomic Value of Mission Critical Mobile Applications for Public Safety in the EU http://eprints.lse.ac.uk/56319/1/__lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_repository_Content_Grous_Grous_Socioeconomic_Value_Mission_2013_author.pdf

organisations, globally and in particular Region 1. This additional mobile allocation would allow the critical communications sector, especially PPDR organisations, to better meet the growing needs for spectrum in response to developing environmental, socio-economic and geopolitical challenges facing governments and societies.

- A co-primary allocation of the frequency band 470-694 MHz to Mobile Service would also support the digital transformation of the critical communications sector and accelerate the adoption of greener, more energy efficient technologies enabled through the use of mobile broadband.
- A co-primary allocation of the frequency band 470-694 MHz to Mobile Service would benefit the wider European PPDR sector irrespective of national deployment models, enabling cross-border mobility and communications.
- Critical communications continue to need harmonised spectrum including exclusively licensed spectrum below 1 GHz and standardised technologies to incentivise the development of economically viable, competitive and self-sustaining ecosystems that will facilitate cross-border mobility and wider geographical coverage.
- Further ITU-R and/or regional studies and regulatory actions would be needed to facilitate the implementation of the required harmonisation of spectrum for PPDR and critical communications in this frequency range.
- TCCA recognises that in parts of Region 1 there may be limitations of when the spectrum in the 470-694 MHz could be considered for Mobile Service allocation. However, to support the evolution to mission-critical broadband services in those countries where PPDR and critical communications providers require additional mobile spectrum, it should be made available with an effective date before 2030.
- Flexibility at the EU level for Member States to introduce mobile services in the 470-694 MHz band earlier than the 2030 date is welcomed and would help PPDR agencies to plan the evolution of their networks, spectrum needs and their deployment models.