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CNECT-RSPG@ec.europa.eu

Confindustria Radio Televisioni reply to Questionnaire on Long-term vision for the upper 6 GHz band

Confindustria Radio Televisioni thanks RSPG for the opportunity to reply, as requested, as Association representing public and commercial Italian broadcasters, to "Questionnaire on Long-term vision for the upper 6 GHz band" in preparation of RSPG draft Opinion on this subject. The response will be to questionnaire part B.

1) Explain impact of possible future usage of the upper 6GHz for MFCN and/or WAS/RLAN on existing services:

In the following text:

- L6GHz indicates the frequency range 5925-6425 MHz
- U6GHz indicates the frequency range 6425-7125 MHz

1) What are your current and future spectrum needs (before and beyond 2030) in the upper 6GHz band?

According to ITU Radio Regulation and ECA Table (ERC Report 25), in Italy the U6GHz band (6425-7125 MHz) is currently allocated on a primary basis to Fixed Service.

Within this service, the band is used, among others, for fixed video links¹ which are crucial to guarantee a proper delivery in digital terrestrial television platform (DTT) because they are pivotal to achieve reliability of the signal distribution networks.

In fact, the reliability of the signal distribution networks, from production centres to broadcast transmitters, is an essential requirement for the proper operation of terrestrial television networks and is achieved through a mix of systems - such as satellite, optical fiber, fixed radio links - which differ in their operating mode and for geographical location and availability:

- o The satellite can reach all locations, but the reliability of the connection is strongly linked to meteorological conditions affected by increasingly intense phenomena due to ongoing climate changes. Furthermore, there is the need to consider the environment and administrative constraints on the positioning and size of receiving satellite dishes.
- o Optical fiber is hardly available at the top of the mountains, both due to the difficulty and the costs and therefore it cannot reach all the sites of the broadcast network (and in particular the most remote ones). Moreover, the fiber, if not adequately redundant, is subject to risks of interruption linked to human activities.

¹ The channel arrangement is regulated by the CEPT ERC/REC 14-02.

BROADCASTER TV:
Discovery Italia Srl
Gmh Spa
La7 Spa
Mediaset Spa
Qvc Spa
Rai Spa
Rete Blu Spa
Sportcast Srl
Viacom International
Media Network Italia Srl

RADIO NAZIONALI:
Cn Media Srl
Elemedia Spa
Gruppo Sole24 ore
Radio Dimensione Suono
Spa
RadioMediaset Spa
Radio Italia Spa
Rai Spa
RTL 102,500 Hit Radio Srl

EMITTENZA LOCALE:
Associazione Tv Locali
Associazione Radio
FRT
**PIATTAFORME
SATELLITARI:**
Eutelsat SA
Tivu Srl

OPERATORI DI RETE:
Ei Towers Spa
Elettronica
Industriale Spa
Persidera Spa
Prima Tv Spa
Rai Way Spa

PARTECIPAZIONI IN:
Confindustria
Auditel
IAP
AER
Eurovisioni
Osservatorio TuttiMedia
ITU - International
Telecommunication
Union



- Terrestrial radio links are subject, among others, to link length, frequency, power, reliability. The length of the links binds the range of frequencies that can be used and depends on the location of the transmitters to be interconnected. As the frequency increases, critical issues could arise:
 - need to add a greater number of links and, consequently, frequencies to be used;
 - greater sensitivity to climatic conditions;
 - loss of the necessary statistical independence with respect to the performance of the satellite network in adverse weather conditions.

In this regard, **the U6GHz is the highest frequency band that can be used in critical weather conditions.**

Furthermore, it is worth noting that, in Italy, the redundancy of the distribution networks constitutes a rewarding element in the context of the "tenders" for the assignment of the rights to use frequencies both at a national and local level².

There are currently thousands of radio links used by Italian operators in the U6GHz band. In recent years, there was an increase in the use of U6GHz for fixed radio links and further increase is expected in the future, due, among others, to the following causes:

- The refarming of the 700 MHz band which required intensive use of Single Frequency Networks, SFN, with the consequent impossibility of using alternative connection methods to radio and/or satellite links (e.g. local Multiple Frequency Networks, MFN, transmitters);
- The refarming of the 3.6 GHz band for the introduction of the IMT systems;
- Overcrowding uses in the lower frequency bands (e.g. 4GHz, L6GHz).

Moreover, in the period from 2018 to today, the use of DTT by families - according to the research commissioned by the Ministry of Enterprises and Made in Italy³ - has increased from 88.93% in November 2018 to 92.1% in April 2024 and further increase is expected in the future.

In addition, the transition to DVB-T2 implies an increase, for broadcasters, of at least 50% of the transmission capacity for each multiplex, determining, as a result, the need for a proportional greater number of frequencies for each connection.

Therefore, it is estimated that the future spectrum need (2030) for fixed links for the entire Italian television sector will grow.

2) What impact on your service do you expect from the introduction of MFCN and/or WAS/RLAN in the upper 6GHz band?

The expected impacts differ between general impacts and impacts linked to the specific application. As regards spectrum sharing, the impact expected from MFCNs is substantially different from the one given by WAS/RLANs.

In L6GHz⁴ Italian broadcasters are already experiencing the impacts of spectrum sharing between fixed links and low power indoor (LPI) and very low power (VLP) also outdoor WAS/RLANs and while there are no substantial problems with these systems when they operate indoor, there could be some interference when they operate outdoor.

The effects of outdoor VLP systems interferences are destructive and difficult to resolve (in terms of time, resources and costs) as the WAS/RLAN services can be activated under an unlicensed regime, even if on a non-interferential basis.

² Tender rules Law 205/2017 art.1, comma 1031-bis and delibera AGCOM 564/2020/cons (pag. 16 - link: https://www.mimit.gov.it/images/stories/documenti/DISCIPLINARE_DI_GARA_28042021_OR.pdf)

³ SWG-FUB survey: Scenari diffusione TV – Report aprile 2024 <https://atc.mise.gov.it/index.php/tecnologie-delle-comunicazioni/gestione-spettro-radio/liberazione-banda-700#:~:text=Fonte%3A%20indagini%20SWG%2DFUB%3A>

⁴ In Italy, according to Decision 2021/1067/UE, 5.945-6.425 MHz may be used for WAS/RLAN (Ref. Note 198C Piano Nazionale Ripartizione Frequenze PNRF)



Much more problematic interferences are expected from MFCNs, particularly in the case of macro-cellular deployment, and the protection of fixed links could require such large separation distances that sharing might not be feasible.

The sharing and compatibility studies between fixed services and IMT systems have been evaluated in the preparation of the WRC-23 and are available in the CPM-23 Report, the use of which should be considered with all the necessary precautions highlighted in the Report itself.

Further studies would be beneficial to evaluate coexistence and sharing between MFCNs and fixed links as the transmission power of the BS increases and to assess the cumulative impact of MFCNs and RLANs on fixed links in the scenario for the usage of the band by both systems.

In WRC-23, there has been an extensive debate on AI 1.2 relating to the identification for mobile broadband systems (IMT2020 and IMT2030 also known as 5G and 6G systems) in certain frequency bands. The discussion led to Resolution 220 (WRC-23) "*Terrestrial component of International Mobile Telecommunications (IMT) within the frequency band 6 425-7 125 MHz*" which "*invites ITU-R Radiocommunication Sector:*

- 1) *To develop harmonized frequency arrangements to facilitate IMT deployment within the frequency band 6425-7125 MHz;*
(...)
- 4) *To update existing ITU-R Recommendations/Reports or develop new ITU-R Recommendations/Reports, as appropriate, to provide information and assistance to the administrations concerned on possible coordination of stations in the fixed service with IMT stations in the frequency band 6425-7125 MHz.*

According to invites n. 1, the WP5D is revising the Recommendation ITU-R M.1036-7, where the frequency arrangement for the U6GHz has been proposed.

According to invites n. 4, a Working Document Toward Draft New Report on regulatory aspects methodology for sharing and mitigation techniques between IMT and fixed service in the U6GHz band is under development.

Therefore, it is important to take into account also the result of the activities underway within the ITU-R, expected to be completed by the end of 2025.

In general, the most critical risk is the potential necessity to migrate fixed radio links to other frequency ranges.

As previously mentioned, the current structure of the distribution network using U6GHz band, in terms of positioning of the transmission-reception sites, is appropriately calibrated according to the radioelectric propagation peculiarities of the U6GHz band. For this reason, higher frequency bands (e.g. 10 GHz) cannot be used as they are not suitable for covering the same distances. There would be, at least, the need to include intermediate links (depending on the frequency in use) with obvious consequences in terms of environmental, energy and economic impacts.

Furthermore, as mentioned above, the bands above 10 GHz are affected by interference from atmospheric agents (e.g. rain, snow...) and cannot therefore guarantee the same performance in terms of service availability.

Difficulties can also be encountered in the hypothesis of moving to lower bands (e.g. 4GHz or L6GHz) due to the significant intensity of use (already mentioned above).

3) What measures could improve compatibility from your perspective?

In case the EU decides to identify the band for IMT, a TDD frequency arrangement for implementation of IMT could facilitate the sharing with the fixed service because it would be possible to limit the IMT to use only a portion of the band.

In light of the above, Confindustria Radio Televisioni considers appropriate not to modify the current use of the U6GHz band until the outcome of studies, expected to be completed by the end of 2025, required by ITU-R Resolution 220 (WRC-23).

Further consideration.

New IMT2030 (6G) system implies virtualization, cloud and orchestration which requires overcoming



current spectrum fragmentations.

In this regard, it is the RSPG itself that suggests to the EU Commission and Member States to overcome these fragmentations and evaluate the phase-out of legacy technologies in the next ten years rather than requesting additional spectrum. Furthermore, due to the expansion of fiber, also replacing copper, and the latest generation Wi-Fi services, the use of ultra-broadband mobile services should be focused exclusively on outdoor mobile coverage, with a deployment of network such as to keep constant the density of users per km².

The study "*Examining the current assignment and usage of mobile spectrum – July 2023*", presented by Plum to the Conference Preparatory Group (CPG) of the CEPT in preparation for the WRC-23, highlights that in the majority of countries less than 50% of the spectrum identified for the IMT below 7 GHz, which amounts to almost 2 GHz, is assigned.

The suggestion given to European regulatory bodies is to focus on the efficient use of the spectrum already allocated rather than considering the exclusive utilization of further spectrum even if it is already identified for IMT at ITU level.

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ABOUT CONFINDUSTRIA RADIO TELEVISIONI

Confindustria Radio Televisioni (CRTV) is the association of Italian public and commercial radio and television broadcasters.

Established in June 2013, CRTV includes among its members: Discovery Italia, Elemedia (GEDI), GMH, La7, Mediaset, Persidera, Prima Tv, Qvc Italia, Radio Italia, CN Media, RAI Radiotelevisione Italiana, Gruppo 24Ore, RDS – Radio Dimensione Suono, Rete Blu, RTL 102,500 Hit Radio, Sportcast, Tivù, Viacom International Media Network Italia, EI Towers. Satellite operator Eutelsat Italy is an aggregated member. Major local TV and radio broadcasters are represented in CRTV through the Association of Local Televisions and the Association of Local Radios FRT.

The sector has overall revenue of about 9,8 billion euros and a workforce of approximately 90,000 employees, of which about 30,000 direct (CRTV estimates).

CRTV's goal is to represent the broadcasting industry as a whole at the institutional, legislative and contractual levels.

CRTV collaborates with all competent Ministries, Political Institutions, and Regulators, both at national and EU level. The Association's activities are aimed at contributing to the creation and maintenance of fair rules that allow the sector to grow, innovate and continue to play its important role in the modernization process of the country.

www.confindustriaradiotv.it