

GSMA

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The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

We invite you to find out more at [gsma.com](https://www.gsma.com)

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Introduction

The World Radiocommunication Conference 2027 (WRC-27) will provide the spectrum framework to shape the future of mobile connectivity. Decisions taken at the conference can increase the availability of low-band spectrum for wider mobile coverage, deliver a pathway for mid-band spectrum that meets growing demand through the 2030s, and establish a harmonised international framework for D2D to extend connectivity to sparsely populated areas. Together, these decisions can provide the spectrum resources needed to support future economic growth, innovation and digital inclusion.

Convened by the International Telecommunication Union (ITU) every four years, WRCs bring together national administrations, regional organisations, industry stakeholders, and international bodies to update the Radio Regulations, the international treaty governing spectrum use. For mobile, they represent a chance to plan a clear roadmap for spectrum use in the decades ahead.

The GSMA unites over 1000 operators and businesses across the mobile ecosystem to advance mobile innovation and reduce inequalities around the world. WRC-27 can support this ambition by:

- Increasing access to low-band spectrum in 470-694/8 MHz by expanding footnotes and establishing an Agenda Item at WRC-31 for Region 1
- Providing a roadmap for future mid-band spectrum in the 4.5 GHz and 7 GHz ranges, and expanding harmonisation of the 6 GHz band
- Adopting robust technical and regulatory provisions for D2D services.

By agreeing globally harmonised spectrum decisions at WRC-27, governments can create the conditions for continued mobile innovation and expand access to affordable connectivity for people and communities everywhere in the world.



1. IMT spectrum

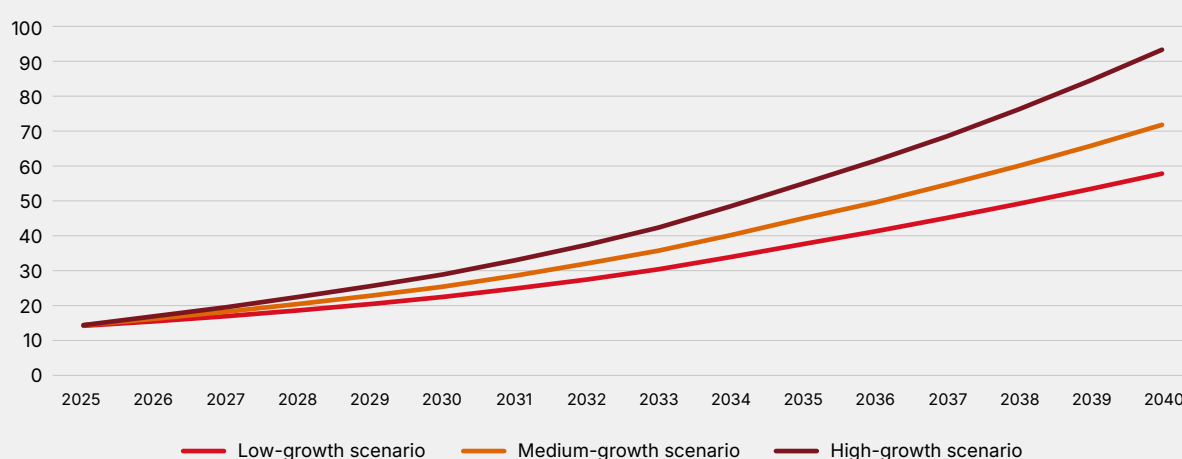
Mid-band capacity

There are over 8.8 billion IMT connections worldwide today, spread across 5.8 billion unique subscribers. WRC-27 can help ensure that sufficient IMT spectrum is available to support these connections as demand continues to grow through the 2030s. Data traffic

per connection is increasing rapidly. Average global use today is around 14 GB per connection, but this could double within five years and exceed four times today's level by the late 2030s¹.

Figure 1

Global traffic growth by scenario 2025-2040 (GB/connection/month)



Source: GSMA Intelligence

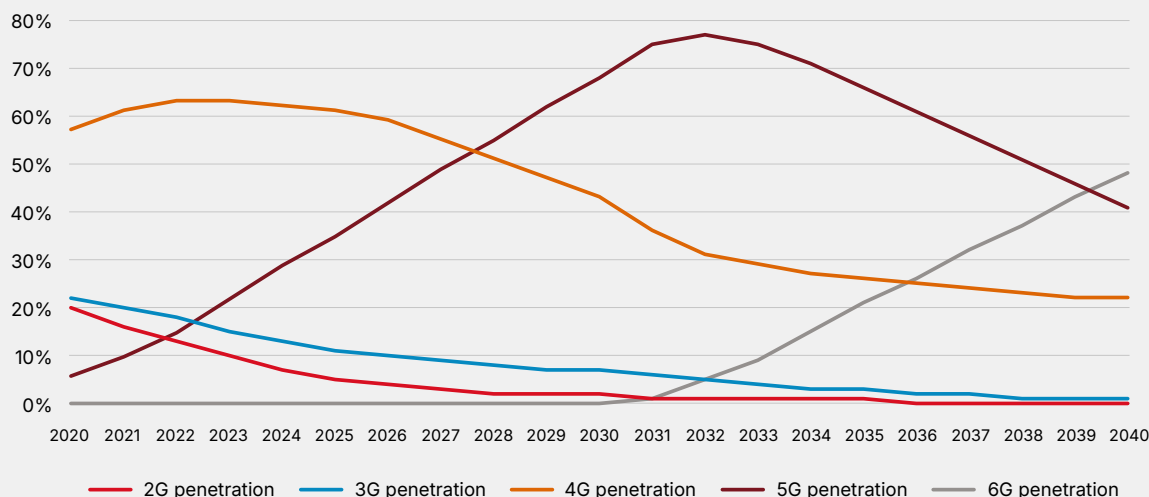
Note: Only includes mobile traffic (excludes FWA and IoT). Shows traffic per connection rather than by device. It is therefore closer to the data usage expected by a mobile user across all their devices (e.g. a smartphone, wearables, smart glasses).

¹ [Vision 2040: Future Spectrum Needs](#), GSMA, 2026.

To support this growth, A global average requirement of 2-2.5 GHz of full-power mid-band spectrum will be required between 2035-2040². Higher demand countries – the top 50% in the world – will need

2.4-3.3 GHz. This spectrum, if given to national networks, can help secure digital infrastructure that reduces carbon emissions while delivering jobs and economic prosperity.

Figure 2
Market penetration by technology, 2020-2040

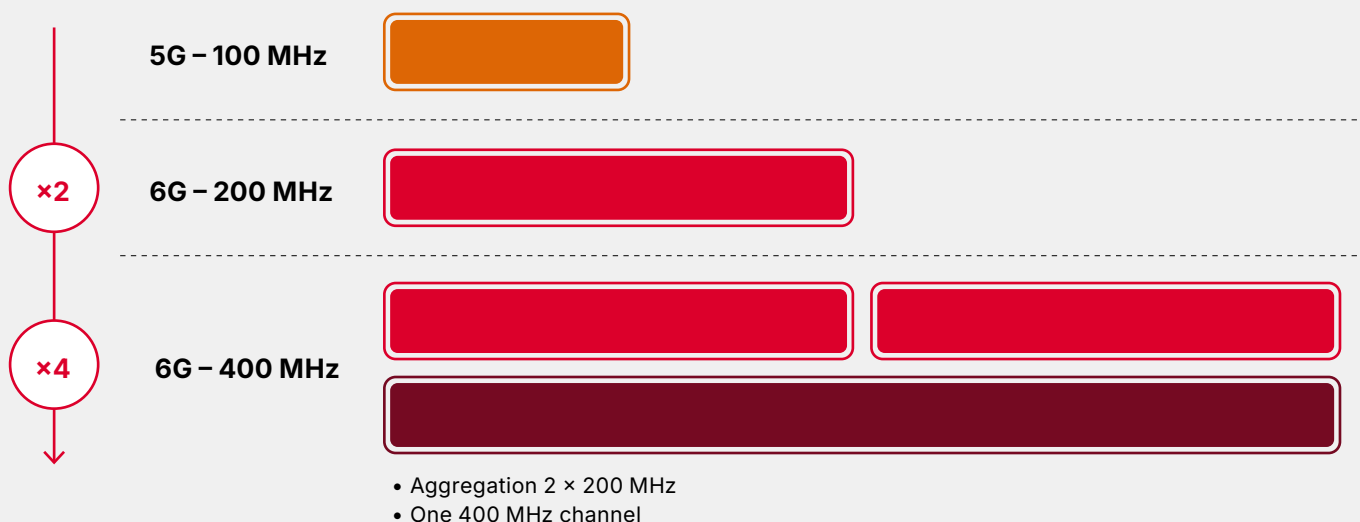


Source: GSMA Intelligence

Mobile networks are expected to begin running out of capacity in a significant proportion of the world's urban areas around the end of this decade³. Existing bands will be re-used to support networks in the 2030s, but do not have sufficient bandwidth to deliver capacity requirements and 6G technology will

initially operate simultaneously with 4G & 5G. 200-400 MHz channels will be used to deliver capacity needs in the 2030s and new bands which support this channel capacity will provide the necessary launchpad for new IMT-2030/6G use cases. WRC-27 can help provide the spectrum required.

Figure 3
Development of channel size



Source: GSMA Intelligence

² Vision 2040: Future Spectrum Needs, GSMA, 2026.

³ Vision 2040: Future Spectrum Needs, GSMA, 2026.

Low-band development

In low- and middle-income countries (LMICs)⁴, adults living in rural areas are around 28% less likely to use mobile internet than those in urban locations. In high-income countries, the rural–urban divide is smaller but remains material, with rural users up to 20% less likely to make regular use of services such as online maps, video calling and other digital tools.

Greater access to low-band IMT spectrum supports broader digital inclusion and helps lower the urban/rural divide, especially in countries with large rural populations. The dense mid-band networks that cater for city-wide capacity cannot be replicated across rural areas and, as the amount of mid-band spectrum increases, operators will require additional low-band

spectrum to offer more comparable service across wide rural areas. While D2D can help in areas of no or very low population, it will be terrestrial low-band networks that have the ability to offer the greatest service parity to urban mid-bands in populated rural areas.

WRC-27 can help harmonise low-band spectrum everywhere in the world. In Asia-Pacific (APAC) and the Americas, joining existing footnotes in the Radio Regulations will increase the global low-band footprint while in Europe, Middle East and Africa (EMEA) – ITU Region 1 – an inclusive new Agenda Item for WRC-31 can ensure wider harmonisation of the 470-694/8 MHz band.

Positions on IMT

470-694/8 MHz

Agenda Items 8 & 10

Position

The GSMA supports further development of the band 470-694/8 MHz for mobile use, including the expansion of existing IMT footnote signatories in all Regions and the establishment of a new Agenda Item at WRC-31 for Region 1 countries that covers the band 470-694 MHz.

Reason

As 6G deployment accelerates in mid-bands, complementary low-band capacity will be essential to extend coverage into rural areas, enhance indoor performance, and promote digital equality. The 470-694/8 MHz range provides the propagation characteristics needed to deliver affordable, wide-area connectivity for all communities.

4.4-4.99 GHz

Agenda Items 1.7 and 8

Position

The GSMA supports identification of the 4.4-4.8 GHz band for IMT at WRC-27 under Agenda Item 1.7, considering the need to protect existing services from harmful interference. We support the further development of 4.8-4.99 GHz under Agenda Item 8.

Reason

Parts of 4.4-4.8 GHz are already used for mobile today, and harmonisation of the band at WRC-27 can allow ecosystem growth provided that onerous technical limits and restrictions are not introduced.

The 4.8-4.99 GHz band is also already used by mobile in a small number of countries. The existing ecosystem for this band can be expanded globally, providing that onerous technical limits and restrictions are avoided.

⁴ <https://www.gsma.com/somic/>

6-8 GHz

Agenda Items 1.7 and 8

Position

The GSMA supports the identification of IMT spectrum from within 7.125-8.4 GHz under Agenda Item 1.7. Countries should make spectrum available from within this range at different stages according to their national needs and incumbent usage. While countries may support different portions of the band, development of a harmonised range from within 7.125-8.4 GHz would benefit economies of scale and extend the upper 6 GHz range.

The GSMA encourages administrations who have not yet joined the 6.425-7.125 GHz IMT footnotes to do so at WRC-27 under Agenda Item 8.

Reason

The 6-8 GHz range will be the primary global launch band for 6G, enabling harmonised device ecosystems and efficient use of existing infrastructure. It reuses today's 3.5 GHz grid, supports high-power 200-400 MHz channels per operator, and provides the consistent mid-band capacity required for next-generation applications such as XR and AI-integrated services. The GSMA believes that in high density traffic areas sharing with existing services is feasible.

15 GHz

Agenda Item 1.7

This band is being studied under agenda item 1.7 but does not align with existing infrastructure grids. With the 26 GHz, 28 GHz and 40 GHz bands already identified for IMT and expected to support 6G deployments, there is not yet a clear commercial and technical need for 15 GHz at this stage.





2. Mobile and satellite convergence

D2D in IMT spectrum

Satellite D2D has the potential to extend mobile coverage for anyone that has a mobile device and service plan. By adding a satellite coverage layer, D2D can extend connectivity into remote, sparsely populated and hard-to-reach locations. It can also improve network resilience when terrestrial infrastructure is unavailable, such as following natural disasters or other major outages.

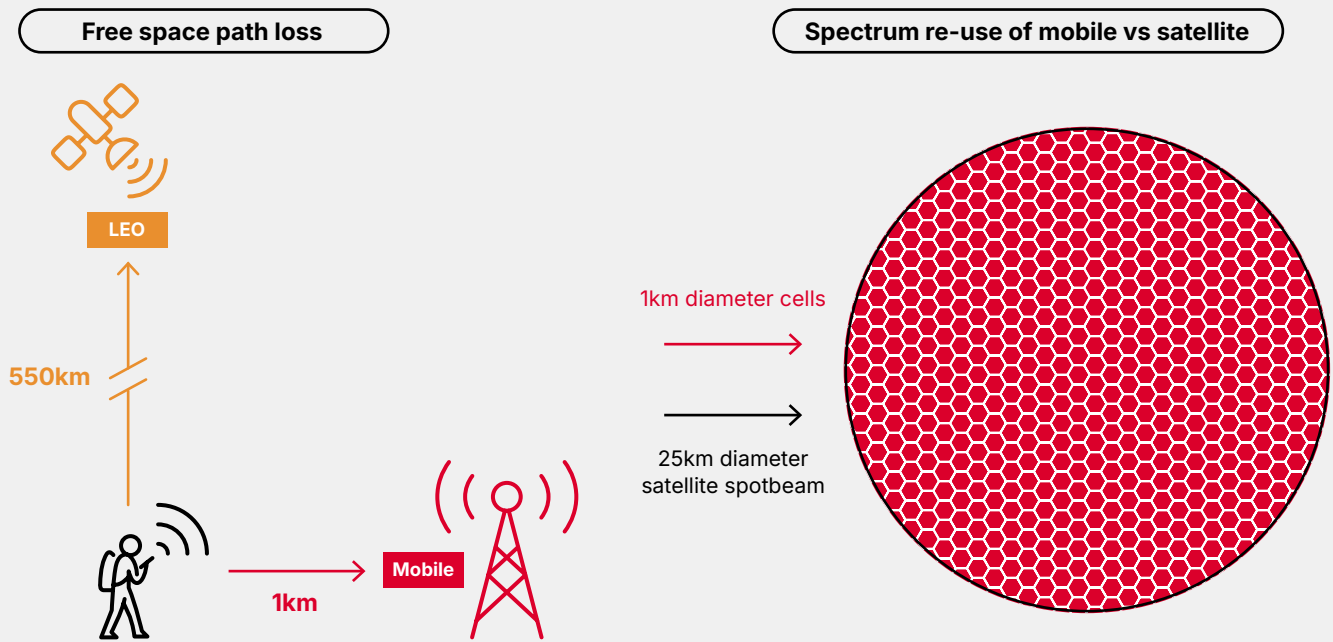
D2D should be viewed as an important supplement to terrestrial mobile networks rather than a substitute. The fundamental physics of satellite communications place limits on spectral efficiency⁵. The much

greater distance between a satellite and a user device results in substantially higher free-space path loss (FSPL) than in terrestrial mobile networks, reducing achievable capacity. For example, FSPL is approximately 110,000 times greater for a Very Low Earth Orbit (VLEO) satellite than for a terrestrial cell with a 1 km radius, rising to around 300,000 times greater for a Low Earth Orbit (LEO) satellite.

Spectrum re-use is also impacted by the size of LEO satellite spotbeams (typically 25-50km, which compare to mobile cells ranging from 200m to 1-2km).

⁵ [The Limits of D2D](#), GSMA.

Figure 4
Satellite and mobile characteristics



Source: GSMA Intelligence

D2D is well suited to extending coverage and improving network resilience, while terrestrial mobile networks remain essential for delivering the high-capacity, spectrally efficient connectivity required in populated areas.

While D2D services can already be provided using MSS spectrum, WRC-27 Agenda Item 1.13 is considering the use of IMT spectrum for this purpose. Within the ITU, this specific application of MSS – D2D using IMT spectrum – is referred to as DC-MSS-IMT. The potential of D2D in IMT spectrum can only be

realised where effective safeguards are in place to prevent harmful interference to mobile networks. Clear and cautious conditions to introduce DC-MSS-IMT can help ensure that IMT networks, supporting billions of users globally, continue to operate reliably. These include:

- Hard PFD limits to ensure coexistence
- Requirement that any satellite network operator using IMT spectrum shall have a prior agreement with the terrestrial licence holder

Generic MSS in IMT bands

The potential introduction of D2D into IMT spectrum that can be considered under Agenda Item 1.13 – a specific application of MSS with clear technical and regulatory measures for coexistence with mobile – contrasts with the proposal for generic MSS in IMT bands under Agenda Item 1.12 and 1.14.

Generic MSS does not carry the same technical and regulatory limits as those proposed for DC-MSS-IMT and would enable a much broader range of satellite applications that are not subject to the

same operational or technical rules. Such allocations could fundamentally impact the long-term use of internationally harmonised IMT spectrum by introducing competing services with different interference characteristics and deployment models. The situation is further complicated by the potential introduction of DC-MSS-IMT into these bands and the overlap between the Agenda Items.

The continued operation of IMT systems cannot be guaranteed where generic MSS is introduced.



Positions on mobile satellite convergence

Low data rate MSS

Agenda Item 1.12

Position

The GSMA supports no change under this Agenda Item.

Reason

With the exception of 1645.5-1646.5 MHz, the bands considered for MSS allocations are identified for IMT and as such cross over with Agenda Item 1.13. Low data rate (LDR) systems are not defined and introducing a new generic MSS allocation cannot guarantee the protection of existing IMT operations.

Adopting a NOC for this AI would provide regulatory stability and ensure continued protection of terrestrial IMT networks, avoiding the risks associated with introducing new satellite allocations in heavily used mobile bands.

D2D in IMT bands

Agenda Item 1.13

Position

The GSMA supports enabling DC-MSS-IMT through adding a new secondary MSS allocation limited to DC-MSS-IMT. This can be done either by modifying the Table of Frequency Allocations, or by adding a new footnote, in the Radio Regulations.

These approaches must be linked to a Resolution containing technical and operational conditions. This should describe suitable hard PFD limits to ensure coexistence, contain a definition of the DC-MSS-IMT system and include requirements regarding its use that:

1. The satellite network operator shall have prior agreement with the mobile network operator authorised to use a specific IMT band
2. DC-MSS-IMT systems shall operate within territories of administrations that have explicitly authorised it.

Reason

The GSMA believes that D2D using IMT may become a useful technology to supplement coverage provided it is properly integrated with terrestrial networks. While mid-band IMT spectrum will be used for urban areas, and populated rural areas will use low-band IMT spectrum, D2D can be used as a coverage layer in sparsely populated or unpopulated areas. As such, the mobile industry wishes to enable DC-MSS-IMT services.

However robust protection of terrestrial IMT networks is required from potential harmful interference of any possible DC-MSS-IMT operations in IMT bands. Suitable PFD limits coupled with regulatory conditions on its integration with terrestrial services could facilitate the introduction of D2D without harming existing IMT services.

MSS in 2 GHz

Agenda Item 1.14

Position

The GSMA supports no change under this Agenda Item.

Reason

Agenda Item 1.14 considers possible additional allocations to the mobile satellite service in the frequency bands 2010-2025 MHz (Earth-to-space) and 2120-2170 MHz (space-to-Earth). These are bands identified for IMT and overlap with those being considered under WRC-27 Agenda Items 1.12 and 1.13.

Similar to AI 1.12, NOC for this AI will ensure IMT protection. It would also prevent potential harmful interference and complex crossborder coordination challenges from more generic MSS use in IMT spectrum.



3. Planning future IMT spectrum

WRC-27 provides further opportunities to shape the future use of spectrum. Agenda Items 8 and 10 both help ensure that the Radio Regulations continue to evolve in line with technological developments and changing spectrum requirements.

Agenda Item 8 allows countries to amend country footnotes, and has been used to widen harmonisation decisions at previous WRCs. Agenda Item 10 defines the agenda for the next WRC.

Together, these agenda items help ensure that the international regulatory framework remains responsive to future connectivity needs. By supporting appropriate regulatory flexibility today and establishing a forward-looking programme of work for WRC-31, governments can create greater international harmonisation and develop the conditions for continued innovation in future generations of mobile technology.

Agenda Item 8

Agenda Item 8 enables administrations to update the application of existing Radio Regulations and has been used to add countries to existing footnotes where appropriate. This provides a mechanism for countries to align with internationally recognised spectrum arrangements and enables harmonised spectrum use. Greater harmonisation improves economies of scale, reducing equipment costs and supporting a more accessible mobile ecosystem.

6 GHz (6.425-7.125 GHz)

Agenda Item 8

Position

The GSMA encourages administrations who have not yet joined the 6.425-7.125 GHz IMT footnotes to do so at WRC-27 under Agenda Item 8. These are:

- 5.457C, which identifies 6.425-7.125 GHz in countries in Region 2
- 5.457D which identifies 6.425-7.025 GHz in countries in Region 3 (7.025-7.125 GHz is already identified)

Reason

The 6 GHz band was widely identified for IMT at WRC-23 including the whole of EMEA (ITU Region 1) and some countries in the Americas (ITU Region 2) and APAC (ITU Region 3). The band 7.025-7.125 GHz has a harmonised identification throughout APAC.

Since WRC, countries have moved on to identifying the band nationally, alongside the earliest assignments to operators. Its use for mobile is now supported by countries representing over 80% of the global population. Upper 6 GHz capacity will support increasing customer demand and traffic growth. It can be used for the future evolution of mobile through 5G-Advanced and the launch of 6G, enabling the 200-400 MHz channel bandwidths that will be required in the 6G era.

Low bands (470-694/8 MHz)

Agenda Item 8

Position

The GSMA supports further development of the band 470-694/8 MHz for mobile use, including the expansion of existing IMT footnote signatories in all Regions, including:

- 5.295A, which allocates 470-694 MHz to mobile on a secondary basis for countries in Region 2
- 5.307A, which allocates 614-694 MHz to mobile on a primary basis and identifies for IMT for countries in Region 1
- 5.295, which identifies 470-608 MHz for IMT for countries in Region 2
- 5.308A, which identifies 614-698 MHz for IMT for countries in Region 2
- 5.296A, which identifies either 470-698 MHz or 608-698 MHz for IMT for countries in Region 3

Reason

As 6G deployment accelerates in mid-bands, complementary low-band capacity will be essential to extend coverage into rural areas, enhance indoor performance, and promote digital equality. The 470-694/8 MHz range provides the propagation characteristics needed to deliver affordable, wide-area connectivity for all communities.

Agenda Item 10

Agenda Item 10 establishes the agenda for the next World Radiocommunication Conference, determining the studies and policy issues that will be considered over the following four-year cycle. Decisions taken under this agenda item therefore influence the future spectrum roadmap for mobile services and other radiocommunication applications.

Low bands in EMEA (ITU Region 1)

Agenda Item 10

Position

The GSMA supports further development of the band 470-694/8 MHz for mobile use through the establishment of a new Agenda Item at WRC-31 for Region 1 countries that covers the band 470-694 MHz.

Reason

An inclusive new Agenda Item for WRC-31 can ensure wider harmonisation of the 470-694 MHz band in EMEA. Existing footnotes have started development of this band for IMT and their footprint can be built upon through Agenda Item 8. However, a new inclusive Agenda Item for WRC-31, which has begun to be structured in the preliminary agenda, will help widen harmonisation of the 470-694 MHz band and build bridges to digital inclusion in the region.

