Recommendations for Securing Mid-band Spectrum for the 6G Era

January 2026

Recommendations to secure Mid-band spectrum

- To smoothly and sustainably introduce and deploy the sixth-generation mobile communication system (6G), it is essential to secure new mid-band spectrum that can accommodate multiple blocks with bandwidths of approximately 200 to 400 MHz, and that can balance the capacity and coverage.

- To realize 6G system around 2030, it is necessary for the public and private sectors to work together to secure new spectrum for 6G from the 6,425–7,125 MHz and 7,125–8,400 MHz bands, taking into account the impact on existing systems, and to promptly present a roadmap for securing the spectrum.

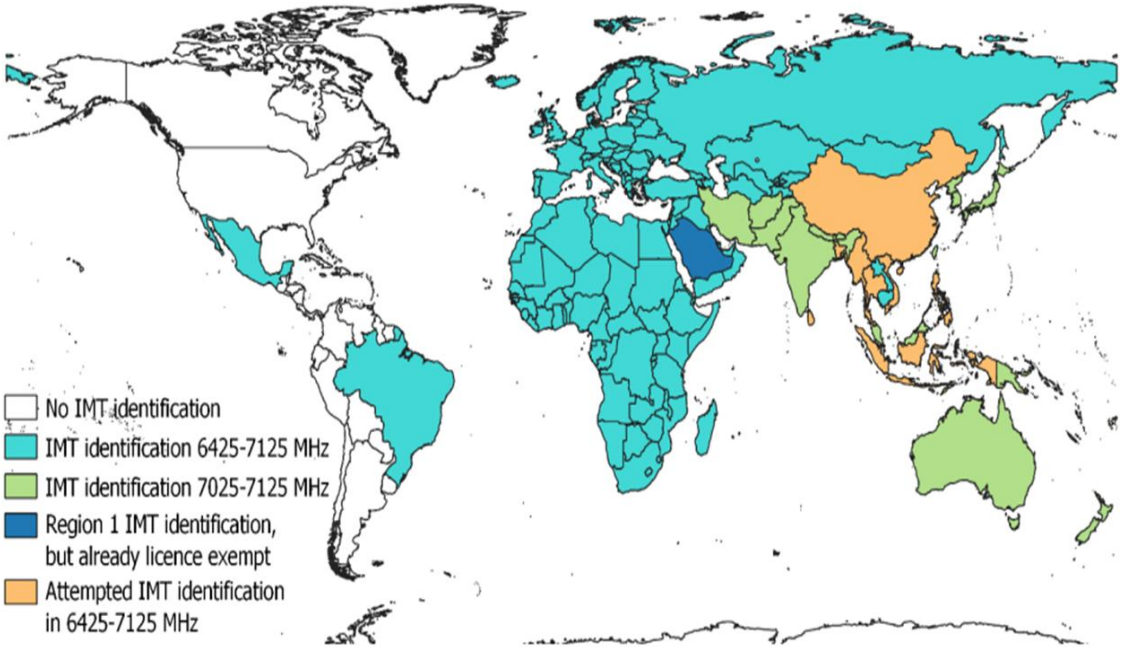
Spectrum Requirements for 6G Systems

- **Addressing continued growth in mobile traffic**
  - Various forecasts indicate that mobile traffic will continue to grow.
- **Using wider bandwidth to meet expanding needs**
  - Wider bandwidths have been achieved with 3G, 4G and 5G.
  - For 6G, a target of 200–400 MHz per block is being considered.
- **Necessity for wide-area coverage and seamless connectivity**
  - Utilizing mid-band spectrum is essential, as it offers a good balance between capacity and coverage.
- **Challenges and risks of deploying 6G using only existing frequency bands**
  - An approach that solely relies on reallocating existing spectrum for 6G risks causing congestion in 4G and 5G systems.
- **Global harmonization, ecosystem development, and international competitiveness**
  - Major countries are already taking early action to secure new frequency bands for 6G.

Overseas Developments of the 6 GHz band (1)

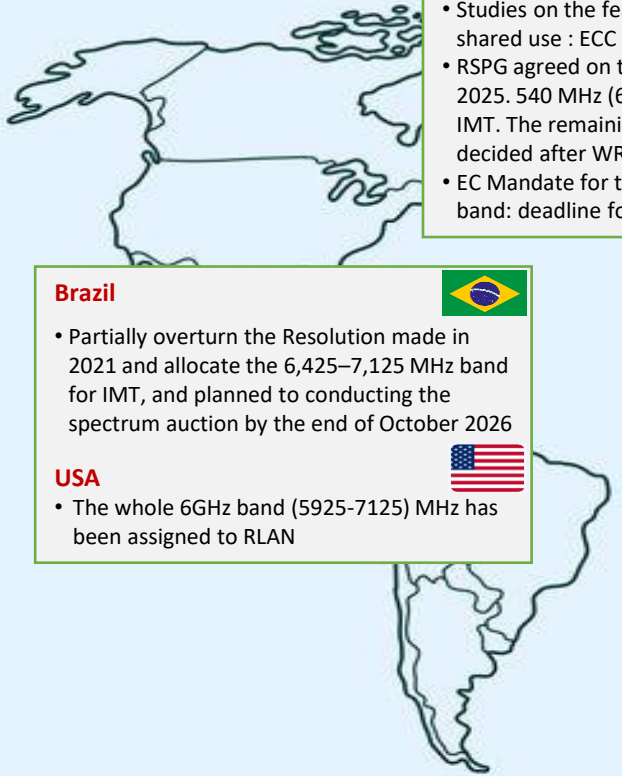
Results of WRC-23

- 6,425–7,125 MHz was identified for IMT use across the entire Region 1 and in two countries of Region 2, 7,025–7,125 MHz was identified for IMT use across the entire Region 3 (Asia-Pacific), and 6,425–7,025 MHz was identified for IMT use in three countries of Region 3.
- These countries collectively account for an estimated 60% of the world's population.
- China, Bangladesh, Sri Lanka, Myanmar, Thailand, Indonesia, Vietnam, and the Philippines remain interested in utilizing the 6 GHz band for IMT in the future.



Overseas Developments of the 6 GHz band (2)

Following the results of WRC-23, there is a growing movement to use the 6 GHz band for IMT



Europe

- Studies on the feasibility of the potential 5G / Wi-Fi shared use : ECC Report 366 approved on 27 June 2025
- RSPG agreed on the 6 GHz band opinion in November 2025. 540 MHz (6 585-7 125 MHz) will be allocated for IMT. The remaining 160 MHz (6425-6585 MHz) will be decided after WRC-27
- EC Mandate for the harmonization of 6425-7125 MHz band: deadline for CEPT report - July 2027

Uzbekistan

- 6425-7125 MHz identified for IMT in the updated NTFA

Russia

- 6525-7125 MHz to be identified for IMT in the updated NTFA before end of 2025

Brazil

- Partially overturn the Resolution made in 2021 and allocate the 6,425–7,125 MHz band for IMT, and planned to conducting the spectrum auction by the end of October 2026

USA

- The whole 6GHz band (5925-7125) MHz has been assigned to RLAN

UAE

- 2x350 MHz were assigned to two MNOs in Nov., 2024 (350 MHz per operator)

Africa

- ATU updated the African allocation plan to include 6425-7125 MHz for IMT

India

- In early 2025, allocated 6,425–7,125 MHz for IMT in the National Frequency Allocation Table (NTFA)
- In July 2025, at APG-27, expressed a preliminary view to join the IMT footnote of 6425-7025 MHz in Region 3

Vietnam

- 6425-7125 MHz identified for IMT in the NTFA

China

- 6425-7125 MHz identified for IMT in the new revision of “Radio Frequency Allocation Regulations” in June, 2023
- Field testing and domestic sharing studies are currently underway

China Hongkong

- auctioned 300 MHz within 6425-7125 MHz to three MNOs in Nov., 2024

Australia

- provisionally decided to allocate 6585-7100 MHz for IMT in Dec., 2024

* this figure shows the progress in the 6 GHz band in some regions and countries as of November 2025

Overseas Developments of the 6 GHz band (3)

3GPP

- NR band n104 (6,425 – 7,125 MHz) has been introduced to 3GPP since June 2022.

Table 1: 6 GHz (licensed) band plan in 3GPP

Band number	Lower limit(MHz)	Higher limit(MHz)
n104	6,425	7,125

- NR band n104 base station EIRP mask and test methods have been published in TR 38.908 since March 2025 to support the sharing study of IMT and FSS space stations.
- 3GPP TSG RAN has launched the study item on 6G radio access technology since June 2025, in which various studies to support new 6G spectrum such as suited numerology, RF characteristics and regulatory requirement are being made to prepare for the 6G standards specifications.

Industry Trends

- In May 2025, 12 major European telecommunications operators sent an open letter to the European Commission urging EU to secure the upper 6 GHz band (6,425–7,125 GHz) for future 6G mobile services.
- Operators have published reports on field trials and proof of concepts for the future use of 6 GHz.

Overseas Developments of the 6 GHz band (4)

Europe

- RSPG Opinion
  - 200MHz is requred per operator
  - 6,585 – 7,125 MHz primarily for Mobile service (full power MFCN)
  - 6,425 – 6,585 MHz on hold till WRC-27. A strong case for Mobile unless 7,125 – 7,250 MHz is IMT identified otherwise WAS/RLAN.

- CEPT
  - ECC Report 366 is published on Mobile and RLAN coexistence.
  - PT1 continues sharing studies of Mobile and RLAN with incumbent services.
  - EC Mandate: Develop harmonized technical conditions by July 2027.

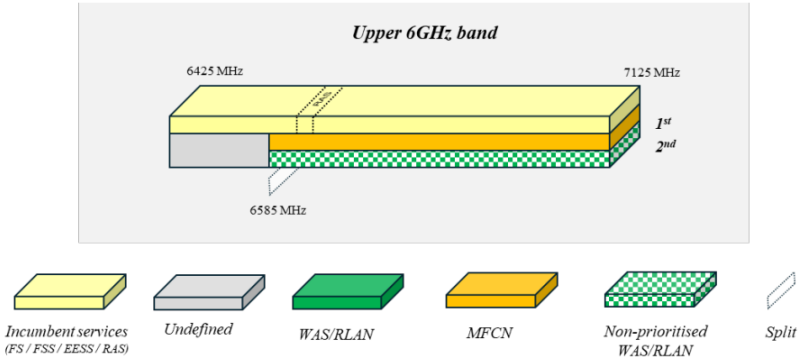


Figure 2: Prioritised band split 6585-7125 MHz for the MFCN

RSPG"Opinion on Long-term vision for the upper 6 GHz band" (November 2025)

Overseas Developments of the 7-8 GHz Band

- The frequency range 7,125–8,400 MHz will be discussed at WRC-27 as a candidate band for IMT identification, and international studies are currently underway.
- This band is extensively used by many existing services, including fixed service, fixed-satellite service, mobile-satellite service, space research service, and meteorological-satellite service. Therefore, the establishment of appropriate sharing conditions is a key challenge.
- Within ITU-R WP 5D, sharing and compatibility studies between IMT and existing services are in progress, and discussions are being conducted on the feasibility of sharing that satisfies protection criteria such as aggregate interference limits.
- Studies within ITU-R are ongoing, and the current view is that many regions support these studies. However, CEPT supports IMT identification in the 7,125–7,250 MHz band on a conditional basis. In addition, CEPT opposes identification above 7,250 MHz, while RCC opposes identification above 7,750 MHz.

(Supplement) Existing Services and Usage of the 7-8 GHz Band

The 7-8 GHz band is heavily used for existing operations, and the sharing and compatibility studies of IMT with existing services are ongoing in ITU-R WP 5D.

Existing Services	Frequency Ranges	Usages
Fixed Service (FS)	7,125-8,400 MHz	Fixed links, Publik safety, Transportation systems
Fixed-Satellite Service (FSS)	7,250-7,750 MHz (space-to-Earth) / 7,900-8,400 MHz (Earth-to-space)	Satellite communications, Backhaul, Security assurance
Mobile-Satellite Service (MSS)	7,250-7,375 MHz (space-to-Earth) / 7,900-8,025 MHz (Earth-to-space)	Mobile-satellite links
Maritime Mobile-Satellite Service (MMSS)	7,375-7,750 MHz (space-to-Earth)	Maritime communications
Space Research Service (SRS)	7,145-7,190 MHz (deep space) (Earth-to-space) / 7,190-7,235 MHz (near-Earth) (Earth-to-space)	Tracking and communication with spacecraft
Meteorological-Satellite Service (MetSat)	7 450-7 550 MHz、7 750-7 900 MHz (space-to-Earth) / 8 175-8 215 MHz (Earth-to-space)	Data transmission of meteorological data
Earth Exploration-Satellite Service (EESS)	7 190-7 250 MHz (Earth-to-space) / 8 025-8 400 MHz (space-to-Earth)	Tracking, telemetry and control of Earth exploration satellites, High-speed transmission of observation data

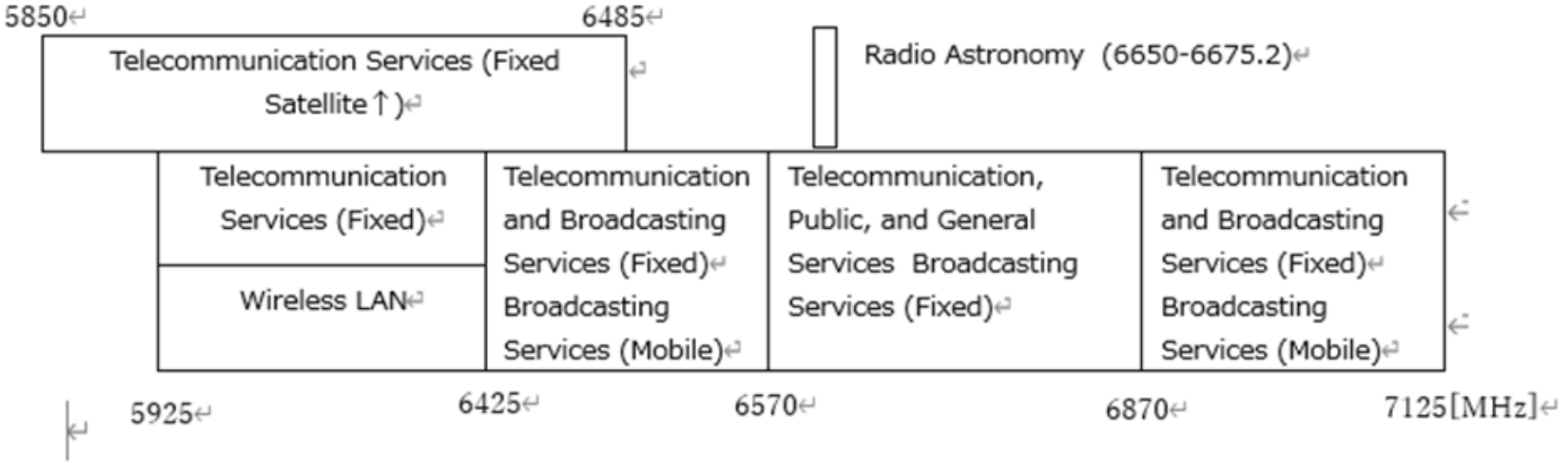
(Supplement) Preliminary Views of Regional Organizations (as of December 2025)

Studies within ITU-R are ongoing, and the current view is that many regions support these studies. However, CEPT support IMT identification in the 7,125–7,250 MHz band on a conditional basis. In addition, CEPT oppose identification above 7,250 MHz, while RCC oppose identification above 7,750 MHz.

Regions		IMT Identification		Key points
Region 1 7,125-7,250 MHz 7,750-8,400 MHz	**Europe (CEPT)**	7,125-7,250 MHz	Under consideration	• **CEPT could consider IMT identification as a continuous band with 6,425-7,125 MHz** • Essential to ensure the protection of incumbent services
		7,250-8,400 MHz	**Oppose**	• **CEPT oppose IMT identification** • Essential to ensure the protection of incumbent services, particularly the fixed-satellite and mobile-satellite services
	Former Soviet Union (RCC)	7,125-7,250 MHz	Under consideration	• RCC support ITU-R studies • Essential to ensure the protection of incumbent services
		7,750-8,400 MHz	**Oppose**	• **RCC object to IMT identification**
	Arab (ASMG)	Under consideration		• **IMT identification will be considered based on ITU-R studies** • This is contingent upon ensuring the protection of incumbent services
	Africa (ATU)	Under consideration		• ATU Support ITU-R studies • Essential to ensure the protection of existing services, particularly the fixed service, fixed-satellite service, and Earth exploration-satellite service
Region 2 7,125-8,400 MHz	**Americas (CITEL)**	Under consideration		• No specific views have been expressed on this frequency band (CITEL support ITU-R studies)
Region 3 7,125-8,400 MHz	**Asia-Pacific (APT)**	Under consideration		• No specific views have been expressed on this frequency band (APT support ITU-R studies)

Usage Status in Japan for the 6 GHz Band (1)

6,425–7,125 MHz band is used for telecommunications, public services, general services, broadcasting services (fixed), broadcasting services (mobile), radio astronomy, and telecommunications services (fixed satellite).

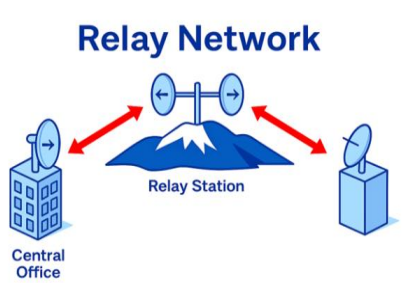


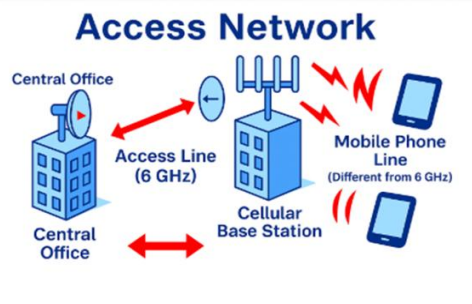
Usage Status in Japan for the 6 GHz Band (2)

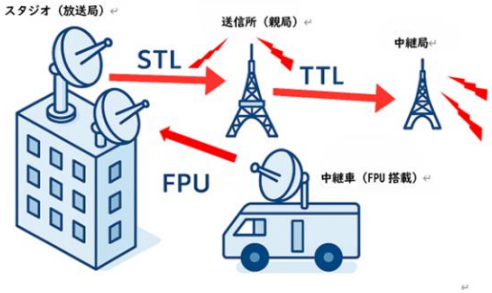
- The fixed communication systems for telecommunications, public services, and general services (fixed) are utilized for public services (such as security, disaster prevention, and power supply) and telecommunications services (fixed communication lines), among others.

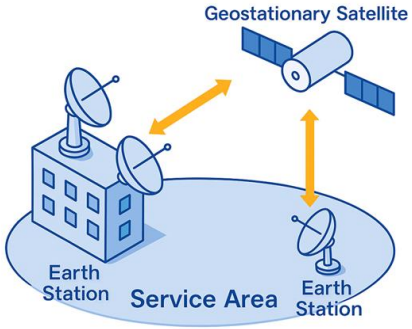
- The frequency bands for broadcasting services (fixed and mobile) are utilized in broadcast program relay systems. They are used for transmitting program contents between fixed locations such as studios (broadcast stations), transmission sites, and relay stations (fixed STL/TTL/TSL), as well as for relaying broadcast program contents from field relay vehicles to receiving base stations, including the transmission of video and audio (mobile FPU).

- The satellite communication systems for telecommunications services (fixed satellite) are utilized for feeder links in mobile satellite communications, maritime applications (ESV), broadcast and communication backhaul, and other fixed satellite communications (uplink) using geostationary satellites.



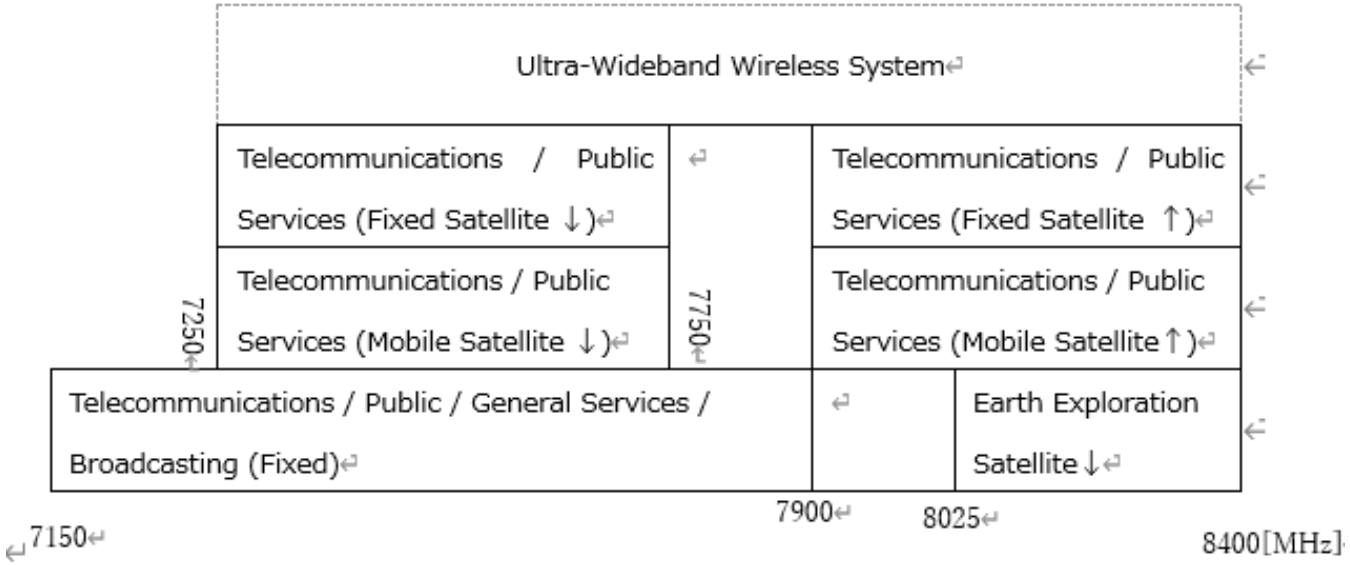






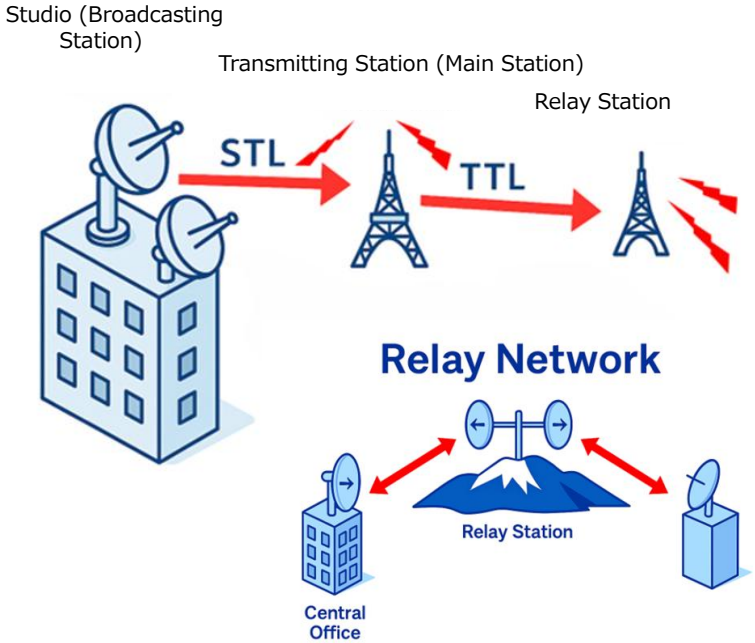
Usage status in Japan for 7-8 GHz band (1)

The 7,125–8,400 MHz band is used for telecommunications services, public services, general services, broadcasting services (fixed), earth exploration satellites, telecommunications and public services (fixed satellite), telecommunications and public services (mobile satellite), and ultra-wideband wireless systems (UWB).



Usage status in Japan for 7-8 GHz band (2)

- For broadcasting services (fixed), there are broadcast program relay circuits (STL/TTL). The 7,425–7,750 MHz range is used for video STL/TTL, and the 7,571–7,595 MHz and 7,731–7,743 MHz ranges are used for audio STL/TTL.
- The telecommunications, public, and general service systems (fixed, relay and entrance) are used by national and local governments to transmit various types of information such as voice, data, and images. The operating frequency band is 7,425 – 7,750 MHz.



- 7,250–7,750 MHz and 7,900–8,400 MHz for the telecommunications/public services (fixed satellite) and telecommunications/public services (mobile satellite) are assumed to be used by X-band communication satellites.
- 8,025–8,400 MHz is used for data transmission from Earth exploration satellites to earth stations.

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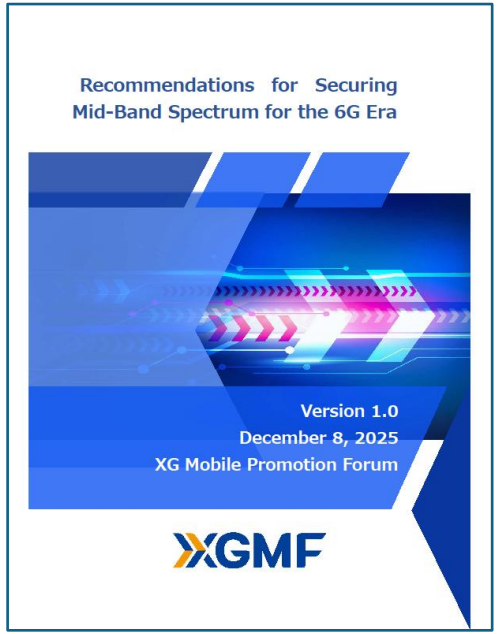
Introduction

1. Spectrum Requirements for the 6G system
2. Overseas Developments of the 6 GHz and 7-8 GHz Bands
3. Frequency Status in Japan for the 6 GHz and 7-8 GHz Bands
4. Conclusion

Glossary of Abbreviations



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