



هيئة الاتصالات والفضاء والتقنية
Communications, Space &
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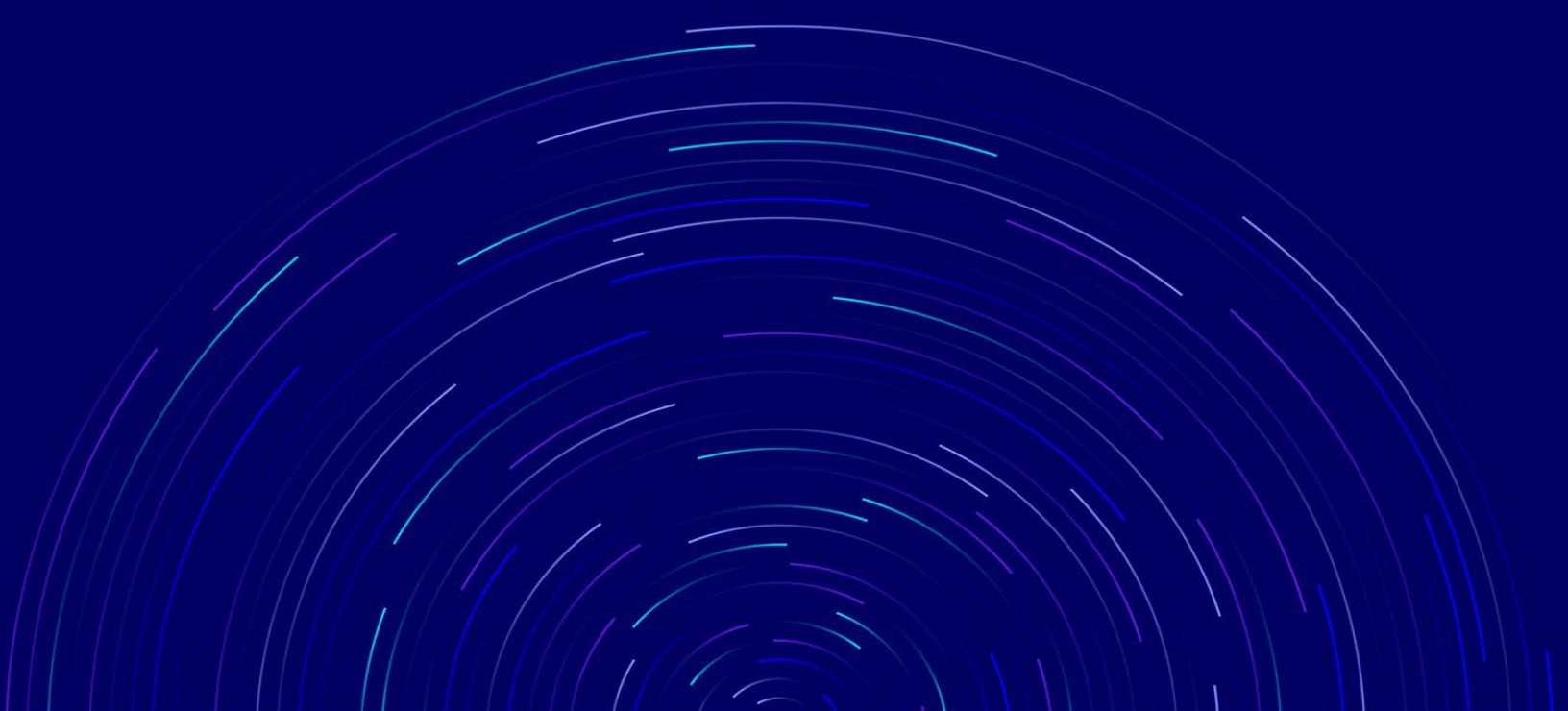
Allocation and Use Regulation for Spectrum Bands Identified for IMT

2021

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1. Introduction

A key challenge for spectrum management is to respond to the growth in demand from mobile broadband. Operators require access to regionally or globally harmonized spectrum to provide the full range of International Mobile Telecommunications (IMT) services and deliver the increasing data capacity needs of mobile devices, used by their customers.

The approach adopted for licensing the IMT spectrum differs from other services as:

- The demand for spectrum may exceed the available spectrum in particular with the requirement for ever increasing bandwidths.
- The spectrum bands are usually assigned on a national basis with the service provider managing the network roll-out and deployment of frequencies.

This document represents the frequency allocation and use regulations for radio spectrum bands identified for IMT services, in accordance with Article (12) of the Telecommunication Act and Article (78) of the Telecommunication Act Bylaw, in line with CITC's "Spectrum Outlook for Commercial and Innovative Use 2021-2023"¹. CITC will update this document when needed.

1.1. Objectives

An essential objective of spectrum management is to promote optimal spectrum use as per Article (11) of the Telecommunication Act. Under the Telecommunication Act the following objectives apply particularly to management of the spectrum identified for IMT:

- Achieving optimum utilization of this national resource.
- Ensuring creation of a favorable environment to promote and encourage fair competition.
- Ensuring effective and interference-free usage of frequencies.
- Ensuring clarity and transparency in the assignment procedures used for spectrum identified for IMT.
- Ensuring principles of equality and non-discrimination between users.

¹ [Spectrum Outlook for Commercial and Innovative Use 2021-2023](#).

- Creating a regulatory environment for developing and motivating wireless communication technology development.

1.2. Principles

In order to meet the objectives outlined in section (1.1.), CITC will adhere to the following principles of:

- Monitoring the recent developments in wireless technologies to maximize the efficient use of spectrum and to provide the most reliable IMT services in the Kingdom.
- Harmonizing the spectrum use in frequency bands identified for IMT, particularly neighboring countries, so as to take advantage of low cost prices for equipment and establishing telecommunication networks, and to minimize interference with neighboring countries.
- Consistent with the principles of “technology neutrality” followed by CITC, by permitting the flexible use of technology in IMT spectrum wherever this is technically feasible.
- Provide additional spectrum for the IMT services in a timely manner whenever possible, so that all users are provided with incentives and opportunities to make the most productive use of spectrum.
- Promoting effective competition in the provision of telecommunications services, through the timely and efficient supply of spectrum and prevention of spectrum hoarding.
- Reviewing, and where justified establishing conditions for the revocation, return and re-assignment of frequencies to ensure the optimal use of spectrum, and to provide a fair competitive environment among all licensees. In addition, effected service provider(s) will be consulted before any revocation or re-assignment procedures are undertaken, and a sufficient period will be provided in order to implement CITC’s decisions.
- Applying flexible mechanisms in managing the frequency spectrum that facilitate the access to additional spectrum for the IMT services through sharing of frequency bands with other services.
- Applying innovative and efficient regulatory mechanisms to manage the identified IMT spectrum bands in order to promote the efficient use of these bands.

2. Spectrum Bands and Channel Arrangements Identified for IMT

CITC prioritizes the frequency bands and channel plan arrangements shown in the table below for the use of IMT systems, noting that the license to use these frequencies will be based on the principles of “technology neutrality” that are followed by CITC.

Frequency Band (MHz)	ITU-R Frequency Arrangement ²	3GPP Band Designation	Bandwidth (MHz)	Duplexing Scheme	Up Link (MHz)	Down Link (MHz)
600	A12	b71 / n71	70	FDD	663-698	617-652
700	A7	b28 / n28	60	FDD	703-733	758-788
	A10	b67 / n67	20	SDL	N/A	738-758
800	A3	b20 / n20	60	FDD	832-862	791-821
900	A2	b8 / n8	70	FDD	880-915	925-960
1500	G1/G3	b50/n50 & b51/n51 or b75/n75 & b76/n76	90	TDD/SDL	1427-1517	
1800	B2	b3 / n3	150	FDD	1710-1785	1805-1880
2100	B1	b1 / n1	120	FDD	1920-1980	2110-2170
	B6	b65 / n65	60	FDD	1980-2010	2170-2200
2300	E1	b40 / n40	100	TDD	2300-2400	
2600	C3	b41 / n41	190	TDD	2500-2690	
3500	F3	b42 / b43 / n78	400	TDD	3400-3800	
3800	-	n77	200	TDD	3800-4000	
24000	-	n258	3250	TDD	24250-27500	

CITC will review technical and industrial developments for each band and may release some of these bands, or portions of them, to alternative services. In addition, CITC will keep evaluating the demand and update the spectrum bands shown in the table above, taking into account the new identified and harmonized bands for IMT (see section (4)).

² ITU-R Recommendation M.1036-6, Frequency arrangements for implementation of the terrestrial component of International Mobile Telecommunications in the bands identified for IMT in the Radio Regulations

3. Regulations

3.1. License Renewal and Spectrum Access Rights

In general, CITC does not favor the revocation of a license frequency assigned to a service provider if it is proven to be used effectively. However in some cases CITC may amend or revoke any assigned frequency or any associated obligations at any time during or at the end of the license term if there is sufficient justifications to do so. Such justification may include illegal behavior by the licensee or circumstances where non-renewal/amendment promotes efficient spectrum use), in accordance with CITC's relevant regulations and conditions set out to use the assigned frequency. Furthermore, CITC will coordinate with the licensee in the event of amending or revoking the assigned frequency, provide reasonable justifications for these actions, and CITC will also determine the appropriate period for notifying the licensee taking into account the general licensing status.

3.2. Spectrum Assignment Methods

CITC has adopted auctions as the primary mechanism for assigning IMT spectrum. The auction formats and rules will be designed to support competition, enhance the efficient use of spectrum, and to support and foster the latest digital services in the Kingdom. However, CITC may, at its discretion, adopt other methods of assigning the spectrum such as direct assignment or beauty contest.

Furthermore, CITC will determine the terms and conditions of the auction, which include quality of service obligations. These conditions will be linked to the frequencies licensed through the auctions during the license term.

3.3. Light Licensing

In order to achieve the optimal use of the spectrum, CITC will permit light licensing for IMT users in some frequency bands on a shared basis with other services and users according to the regulations and technical conditions set out for each band. The use regulations of the light licensing regime will be more flexible than those applied to the license-exempt regime, yet they will still have to meet the compatibility and coexistence requirements between users. The frequency bands that can be

accessed through this regime and the licensing conditions that apply will be determined in accordance with the light licensing regulations issued by CITC.

3.4. Verticals and Private Specialized Mobile Networks Needs

CITC will facilitate and enable different use cases for verticals. Furthermore, CITC will, at its discretion, take the appropriate regulatory measures to provide spectrum to establish private wireless networks for IMT services if needed. In addition, CITC may release spectrum to deploy specialized network(s) to deliver digital solutions and services for different verticals in the kingdom, after conducting the necessary studies and determining the optimal model for these networks.

3.5. Spectrum Fees

The frequency licensees will pay spectrum fees to CITC according to the mechanism of licensing their spectrum. For the spectrum awarded through auctions, the outcomes of the auction will determine the fees that should be paid during the license duration. Whereas, the fees of the directly licensed spectrum will be based on CITC's frequency spectrum usage fee policy. In addition, the usage fee policy will be regularly reviewed on the basis of an international benchmark of frequency usage fees in different countries and economic principles for a better use for the spectrum.

3.6. Spectrum Trading

Spectrum trading enables users of the frequency spectrum to transfer or share licenses, rights, and obligations associated with the license. CITC will enable trading in a number of frequency bands and use cases that might include IMT services. The permitted frequency bands, regulations, and conditions of spectrum trading, will all be subject to the spectrum trading regulation issued by CITC.

Until the trading regulation is issued; any service provider who intends to merge or acquire another licensee or wish to trade frequency licenses must apply to CITC for approval on a case by case basis. CITC will make a decision whether to approve the trade or revoke spectrum license and reacquire the spectrum, completely or partially.

3.7. Spectrum Caps

In order to ensure fair competition and access to spectrum for service providers, CITC will set appropriate spectrum caps to be applied during award processes. Such caps will be defined to

achieve competition objectives and may be defined for specific bands or groups of bands. In addition, CITC may apply spectrum caps when studying the approval of spectrum trades.

3.8. Enforcement

CITC has the right to revoke any spectrum license in the event of not using the assigned frequencies according to the terms and conditions in the license. If CITC detects a use of frequency assignments that fall outside the terms of the relevant license, CITC will take action by serving an enforcement notice. CITC will require an immediate cessation of the transmission if it leads to harmful interference, or the commission will mandate a corrective action within a defined timescale for less serious harmful cases.

3.9. Consultation

CITC will undertake public or limited consultation, through a range of different approaches (e.g. official letter, interviews, etc.), as an important part of promoting transparent, fair and effective spectrum management to gather information and views so as to prepare any spectrum regulatory decisions.

3.10. Publication of Spectrum Holdings and Spectrum Use Efficiency

CITC will publish the IMT spectrum holdings of the service providers. Such a list will provide a clear view of spectrum assignments and availability for IMT bands in the future.

In addition, CITC will measure the utilization of the spectrum for IMT services and publish the related data periodically. CITC will use different approaches to measure the utilization such as the field monitoring and the crowd sourcing mechanism.

3.11. Use of Assigned Frequency Spectrum

The Licensee shall use the assigned frequency spectrum for the purposes specified in the license. The use of the assigned frequency spectrum shall be subject to any applicable provisions and regulation of CITC Statutes including in particular:

- The National Frequency Spectrum Plan.
- The frequency spectrum use regulations.
- Frequency spectrum usage fee policy.

3.12. License Term

CITC will issue spectrum licenses that remain valid for a specified duration (10 years or more) unless there is sufficient reasons to issue it for shorter periods (e.g. when the allocation of a specific band is expected to change in the near future at the World Radiocommunication Conference “WRC”).

4. Future Demand of Spectrum

In general, CITC expects that there will be a substantial growth in IMT demand over the coming years. Therefore, efforts will be made to make all spectrum identified for IMT available for licensing. In addition, service providers are encouraged to increase the level of investments in network infrastructure and apply techniques to increase the efficiency of using the spectrum.

CITC will assess the future demand for IMT spectrum every 3-4 years and update this document as needed. CITC will take account of technology developments, actual mobile usage across the Kingdom and taking inputs from all stakeholders. In addition, CITC will consider the developments of other services such as space communication services.

5. Promote the Optimal Use of Assigned Spectrum

To promote optimal use of spectrum, align existing assignments with the latest adopted frequency band arrangement and to allow fair and equitable access to spectrum, CITC may request licensees to do one or more of the following in their spectrum holdings:

- Re-farm spectrum assignments in specific band or multiple bands to obtain wider channels.
- Shift assignments within a band to have contiguous assignments.
- Evacuate non-usable and/or non-harmonized assignments that are incompatible with band arrangement to increase the efficient use of spectrum.

A notice period will be given to incumbents to migrate out of the band or change their use with minimum disruption to existing services.

6. Spectrum Release Plan

CITC has published its plan to release additional spectrum for IMT, in the “Spectrum Outlook for Commercial and Innovative Use 2021-2023”³. The Table below summarizes CITC’s future release plan for IMT bands based on expected availability of the frequency bands during the period 2021-2023. CITC will review and update this release plan as appropriate to respond to developments.

Frequency Band (MHz)	ITU-R Frequency Arrangement	3GPP Band Designation	Duplexing Scheme	UL (MHz)	DL (MHz)	Duplex Separation (MHz)	Release Method / date	Center Gap (MHz)
600	A12	b71 / n71	FDD	663-698	617-652	46	Auction / 2021	11
700	A10	b67 / n67	SDL	N/A	738-758	N/A	Auction / 2021	N/A
	A7	b28 / n28	FDD	723-733	778-788	55	Auction / 2021	45
1500	G1/G3	b50/n50 & b51/n51 or b75/n75 & b76/n76	TBD	1427-1517		N/A	Auction / 2022	N/A
2100	B6	b65 / n65	FDD	1980-2010	2170-2200	190	Auction / 2021	160
3800	N/A	n77	TDD	3800-4000		N/A	Auction / 2021	N/A
24000	N/A	n258	TDD	24250-27500		N/A	Auction / 2022	N/A

³ [Spectrum Outlook for Commercial and Innovative Use 2021-2023](#).

⁴ ITU-R Recommendation M.1036-6, Frequency arrangements for implementation of the terrestrial component of International Mobile Telecommunications in the bands identified for IMT in the Radio Regulations