



Policy and Regulations for Commercial Spectrum Bands Identified for IMT



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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 worldwide harmonized spectrum to address the increasing use of data by mobile devices, used by their customers.

The approach adopted for the licensing of mobile broadband 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 is generally assigned on a national basis with the operator managing the network roll-out and deployment of frequencies.
- The development of new technologies to maximise spectral efficiency is ongoing with new standards being developed within the 3GPP standards body. These standards also support wider functionality and new frequency bands.

In Saudi Arabia there are a number of frequency bands that have already been harmonized and awarded. However, there are bands, identified as harmonized bands in Region 1 for IMT, where there is spectrum use that is fragmented and / or used for other purposes and the intention is to make such spectrum available for licensing for mobile going forward to increase the available spectrum.

This document represents a proposed CITC policies and regulations on the management of IMT-designated frequency bands over the period 2017-2020. It will be published on CITC website and CITC will update this document from time to time as it is needed.

1.1. Objectives

An essential objective of spectrum management is to promote optimal spectrum use as per Article 11 of the Telecom Act. Under the Telecom Act the following objectives apply particularly to management of the commercial spectrum identified for IMT, viz:

- Achieving optimum utilization of this national resource,
- To ensure creation of favourable atmosphere to promote and encourage fair competition in all fields of telecommunications
- To ensure effective and interference-free usage of frequencies
- To ensure clarity and transparency of procedures
- To ensure principles of equality and non-discrimination
- To ensure transfer and migration of telecommunications technology to keep pace with its development

1.2. Principles

In order to meet these objectives, CITC will adhere to the following principles of:

- Harmonising spectrum use in frequency bands identified for IMT with use in Region 1, particularly neighbouring countries, so as to take advantage of low cost consumer and infrastructure equipment, minimise interference with neighbouring countries and support services to visitors to Saudi Arabia
- Permitting the flexible use of technology in commercial spectrum bands where this is technically feasible and practical, consistent with principles of “technology neutrality”.
- Providing all users with incentives and opportunities to make the most productive use of spectrum. Therefore, CITC may release spectrum in a timely manner when possible and users should have incentives to make efficient 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 acquired in market environments for wireless communications that are competitively and technologically different from prevailing or emerging conditions today, and where these previous assignments frustrate objectives such as the efficient utilisation of frequencies and fair competition between licensees.

2. International Mobile Telecommunication (IMT)

2.1. Definition

IMT-Advanced systems are defined as "broadband mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based".

2.3. Frequency Arrangements in IMT Bands

CITC had adopted the following frequency arrangements for implementation of IMT in different bands, with minimum 5 MHz channel bandwidth.

Frequency Band (MHz)	UL (MHz)	Center Gap (MHz)	DL (MHz)	Duplex Separation (MHz)
700	703-733	25	758-788	55
800	832-862	11	791-821	41
900	880-915	10	925-960	45
1800	1710-1785	20	1805-1880	95
1900	1880-1920	N/A	N/A	N/A
2100	1920-1980	130	2110-2170	190
2300	2300-2400	N/A	N/A	N/A
2600	2500-2570	50	2620-2690	120
2600	2500-2690	N/A	N/A	N/A
3500	3410-3490	20	3510-3590	100

3. Regulations

3.1. License Renewal and Rights of Spectrum Access

CITC is in favor of license renewal to give users certainty over their spectrum access rights unless there are good reasons not to do so. CITC may amend or revoke any associated obligations at any time during the term of the license where CITC believes such action is based on illegal behavior by the licensee or circumstances where non-renewal/amendment promotes efficient spectrum use, international spectrum coordination for the use of frequencies and/or other policy objectives.

CITC may vary or withdraw the assigned spectrum by giving reasonable notice. This will only be exercised in exceptional circumstances before the expiry of a spectrum assignment.

3.2. Spectrum Refarming

When CITC decide to refarm a band, existing licenses in the band may need to be changed or revoked so as to accommodate the new use. Existing licensees may be moved to another frequency range or even to alternative “wired” solutions. CITC will adopt the following policies that can help moderate these transition costs, namely:

- Reasonable notice periods so incumbents can migrate out the band or change their use in a planned way with minimum disruption to existing services and so equipment costs are minimised
- Provision of alternative frequency bands that might be used by the incumbents
- Implementing a sharing policy between the incumbent and the new users, where technically feasible. This might be for a limited period, for example, while the new users roll out their network or longer if it is possible to implement a practical sharing arrangement between the services based on, for example, geographic sharing.

3.3. Method of Spectrum Assignment

The method of spectrum assignment will be determined on a band by band / case by case basis.

For spectrum where demand exceeds supply, distribution of said spectrum to the market will be achieved through a competitive process (e.g. an auction or a beauty contest) unless there are justifiable reasons to use a different award mechanism (e.g. direct award).

There may be circumstances in which direct award of spectrum for IMT may be appropriate, for example, where one of the following situations apply:

- There is relatively little spectrum available in a band and there is a strong policy desire to award the spectrum to either a new entrant or a small player in the market
- There is relatively little spectrum available and it is likely to be only useful to the operator(s) that holds adjacent blocks of spectrum

For spectrum where supply exceeds demand, assignment will be through administrative means.

CITC may decide to withhold parts of spectrum unassigned for possible future use or other policy objectives.

3.4. Spectrum Fees

All frequency licensees will pay spectrum fees to CITC. The competitive process results will decide the spectrum fees to be paid by the licensee over the license period. However, for spectrum awarded through administrative mechanisms, fees charged will be based on CITC frequency spectrum usage fee policy which can be found on CITC website. This policy may be amended from time to time.

3.5. Spectrum Cap

In order to ensure fair competition and access to spectrum for service providers, CITC might set a spectrum cap that decides the maximum amount of spectrum assigned to operators in a specific band(s) or across all bands, when needed. CITC will take into consideration the size of each operator's traffic levels (and so subscriber base), the quality of service offered (dropped calls/sessions, data rates), operator efficiency and network investment.

3.6. Spectrum Screening

Frequency licenses are separated from service providers licenses. Licensees who decide to merge or acquire another licensee or wish to trade frequency licenses may apply to CITC for approval to trade. On a case by case basis, CITC will make a decision whether to approve the trade of the spectrum license or revoke it and reacquire the spectrum, completely or partially.

3.7. Enforcement

To promote utilizing assigned spectrum, in the event that an assignment is not put into use within the terms of the frequency assignment and within a given period, CITC has the right to revoke the license.

If CITC detected use of frequency assignments falls outside the terms of the relevant licence, CITC will serve an enforcement notice requiring either immediate cessation of transmissions in the case of a serious deviation that could lead to harmful interference, or a correction within a given timescale for less serious deviations.

3.8. Consultation

CITC will undertake consultations, through at least one of different approaches, as an important part of promoting transparent, fair and effective spectrum management to gather information and views so as to inform a wide range of spectrum policy decisions.

3.9. Publication of Spectrum Holdings

As per Chapter 2 Article 22 of the Telecom Act Bylaws, CITC will publish the spectrum holdings of the service providers. Such a list will provide a clear view of spectrum assignments and availability for IMT bands.

3.10. Use of Assigned Frequency Spectrum

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

- The National Frequency Spectrum Plan
- The Frequency Spectrum Management Policies and Procedures.
- Frequency usage fee policy.

3.11. Technology Migration and Spectrum Use Efficiency

The Licensee shall inform CITC of the radio communications technology deployed in the assigned frequency spectrum and provide notice to the Commission of any intention to change that technology.

Where the Licensee intends to change the technology used for the assigned radio spectrum, CITC may require the Licensee to undertake actions to mitigate any adverse effects arising out of any such change, and any resulting costs shall be borne by the Licensee.

CITC may require the Licensee to change the technology used for the assigned radio spectrum or the technical conditions of its usage (e.g. channel plan, type of emissions, etc.) for the reason of ensuring most efficient use of assigned frequency spectrum.

3.12. License Term

CITC will issue spectrum license that remains valid for a specified duration (usually 10 years or more) unless there is a good reason to issue it for shorter periods.

3.13. Obligations and Conditions

The Licensee may use the assigned spectrum subject to geographic coverage rights, obligations and use conditions as specified in the license.

4. Future Demand

Efforts will be made to make all spectrum identified for IMT available for licensing for mobile going forward to increase the available spectrum. Nevertheless, spectrum demand will exceed supply significantly by the year 2020 based on responses provided by existing Service Providers to CITC's questionnaire on future spectrum requirements. Service Providers need to consider in their future policies and plans other alternatives than acquiring more spectrum; like network investment and adopting very spectral-efficient technologies.

5. Evolution to IMT-2020

CITC follows developments and proposals for spectrum allocations for IMT-2020 made within regional and international organizations in the period leading to WRC-19. Over this period, CITC will assess candidate bands current use and it could be prudent to stop making further assignments and evacuating incumbent users in those bands likely to be prime contenders for IMT-2020

In order to develop a roadmap towards IMT-2020 and develop a position on future 5G bands in advance of WRC-19, CITC will issue public consultation on spectrum related aspects to 5G.

6. Spectrum Reassignment Plan

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

- Vary bandwidth of the assigned spectrum to be multiple of minimum channel bandwidth.
- Reduce assignment(s) with excess bandwidth to allow fair access to a specific band
- Allow assigned block for fixed service to be used for mobile service, when applicable
- Shift assignments within a band to make the fragmented assignments contiguous and/or remove non-harmonized assignments with the band arrangement
- Evacuate non-usable, non-harmonized or fragmented assignment to facilitate refarming of the band

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

8. Spectrum Release Plan

A spectrum release plan relating to the following three years will be published on CITC website and updated as needed. CITC has developed an initial release plan for mobile broadband (IMT) spectrum that takes into account:

- The current status of use of the mobile bands,
- The prioritisation of bands given by the current mobile operators in their responses to CITC's questionnaire issued in 2016.

The Table below summarizes CITC's future release plan based on expected availability of the frequency bands.

Frequency band	Constraints	Potential date for spectrum award
1800 MHz (40x2 MHz)	To evacuate Incumbent(s)	Q4 2017
700 MHz (30x2 MHz)	To be allocated for IMT in NFP	Q4 2017
2600 MHz	To evacuate Incumbent(s)	2018/2019
800 MHz	To evacuate Incumbent(s) To be allocated for IMT in NFP	2018/2019
2300 MHz	To evacuate Incumbent(s)	2018/2019
1500 MHz – Priority 3	To evacuate Incumbent(s) To be allocated for IMT in NFP	To be determined

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