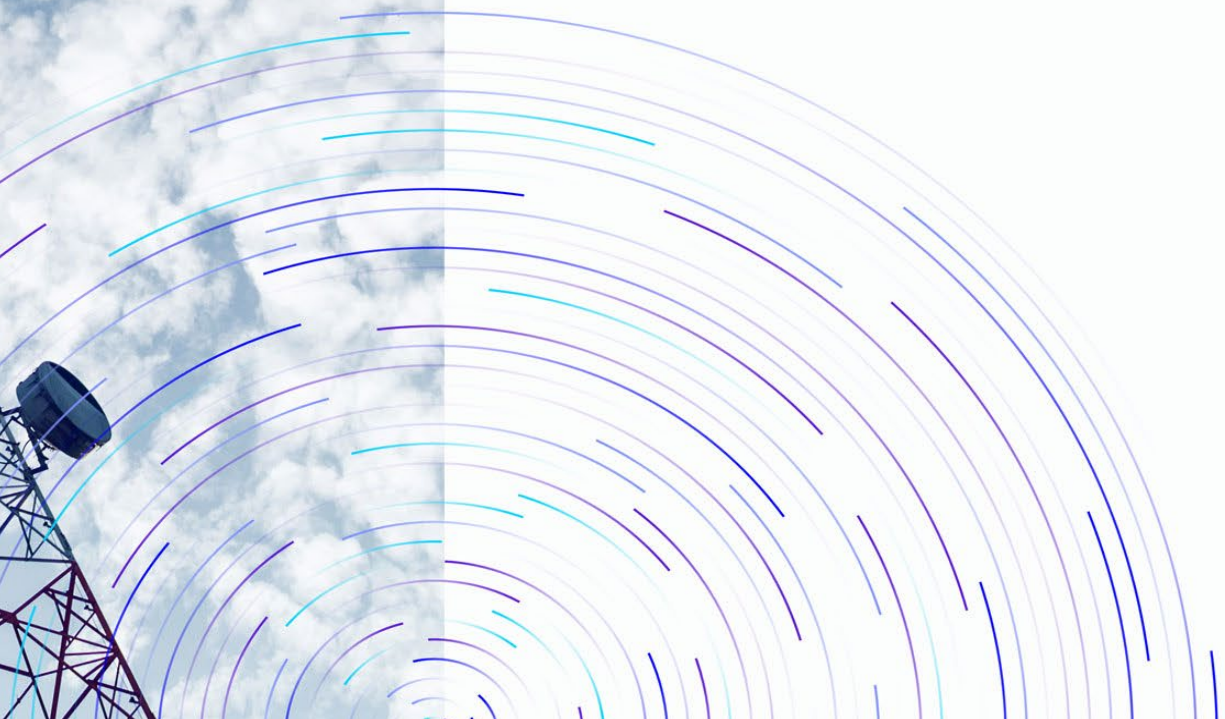




هيئة الاتصالات وتقنية المعلومات
Communications & Information
Technology Commission

طلب مرئيات العموم حول الترخيص المخفف لاستخدام الطيف الترددي

تاريخ النشر: ٢٢ أغسطس ٢٠٢١م
آخر موعد لاستقبال المرئيات: ٣٠ سبتمبر ٢٠٢١م



المقدمة

استمراراً لمتابعة هيئة الاتصالات وتقنية المعلومات (CITC) مهامها المتمثلة في ضمان توفير خدمات اتصالات ذات موثوقية عالية ونشر أحدث التقنيات الرقمية الناشئة والمبتكرة، فقد نشرت الهيئة خطة تمكين الاستخدام التجاري والمبتكر للطيف الترددي ٢٠٢١-٢٠٢٣م في المملكة بتاريخ ٢٠٢١/٣/٣٠م. وحيث تضمنت الخطة توجه الهيئة بتمكين آليات السوق في إدارة استخدام الطيف الترددي في المملكة بما يتضمن تمكين آليات التراخيص المخففة للطيف الترددي. وبناء على ذلك، فقد قامت الهيئة بإعداد وثيقة طلب مرئيات العموم حول التراخيص المخففة.

الغرض من الوثيقة

تهدف الوثيقة لاستطلاع مرئيات العموم وجميع المهتمين من المشغلين والمصنعين والمستثمرين والمؤسسات والجمعيات ومختلف الجهات محلياً ودولياً في مجال الاتصالات الراديوية والتقنيات اللاسلكية، حول وثيقة " التراخيص المخفف لاستخدام الطيف الترددي"، وتتضمن الوثيقة التوجهات التنظيمية المبدئية المقترحة للتراخيص المخففة في الطيف الترددي في المملكة وطلب المرئيات حيالها.

وتسعى الهيئة إلى طرح التراخيص المخففة للطيف الترددي في المملكة بهدف انتهاج أساليب مبتكرة في إدارة الطيف الترددي وتلبية احتياجات السوق وتحفيز التقنيات الناشئة. وستقوم الهيئة بعد دراسة المرئيات الواردة بإعداد تنظيمات التراخيص المخففة للطيف الترددي وذلك لتوفير البيئة التنظيمية المناسبة للتراخيص المخففة للطيف الترددي في المملكة.

إرسال المرئيات

تدعو الهيئة جميع الجهات ذات العلاقة والمهتمين داخل وخارج المملكة من كافة القطاعات بتقديم المرئيات والملاحظات على ما ورد في هذه الوثيقة، وذلك في موعد أقصاه الأحد ١٤٤٣/٢/٢٣ هـ الموافق ٢٠٢١/٩/٣٠م. وتحث الهيئة على تقديم المرئيات مدعومة بالتفاصيل المطلوبة والمبررات إن وجدت وفقاً للصيغة الموضحة ادناه:

المرئيات	رقم السؤال

ويمكن تقديم المرئيات على هذه الوثيقة على عنوان أو أكثر من العناوين التالية:

- عبر البريد الإلكتروني إلى (Spectrum.Strategy@citc.gov.sa)
 - تسليمها باليد (ورقياً وإلكترونياً) في مقر الهيئة.
 - عبر البريد (نسخة ورقية وإلكترونية) على العنوان البريدي التالي: هيئة الاتصالات وتقنية المعلومات، حي النخيل - تقاطع شارع الأمير تركي بن عبد العزيز الأول مع طريق الإمام سعود بن عبد العزيز، ص.ب ٧٥٦٦، الرياض ١١٥٨٨، السعودية شبه الجزيرة العربية.
- ويرجى من المشاركين عند إرسال مرئياتهم تحديد تفاصيل الاتصال (اسم المشارك-العنوان-رقم الهاتف). علماً بأن ما يتم تقديمه في هذا الشأن لا يعتبر ملزماً للهيئة كما أن جميع الإجابات الواردة على طلب المرئيات لن يتم نشرها.



هيئة الاتصالات وتقنية المعلومات
Communications & Information
Technology Commission

Public Consultation on Spectrum Light Licensing

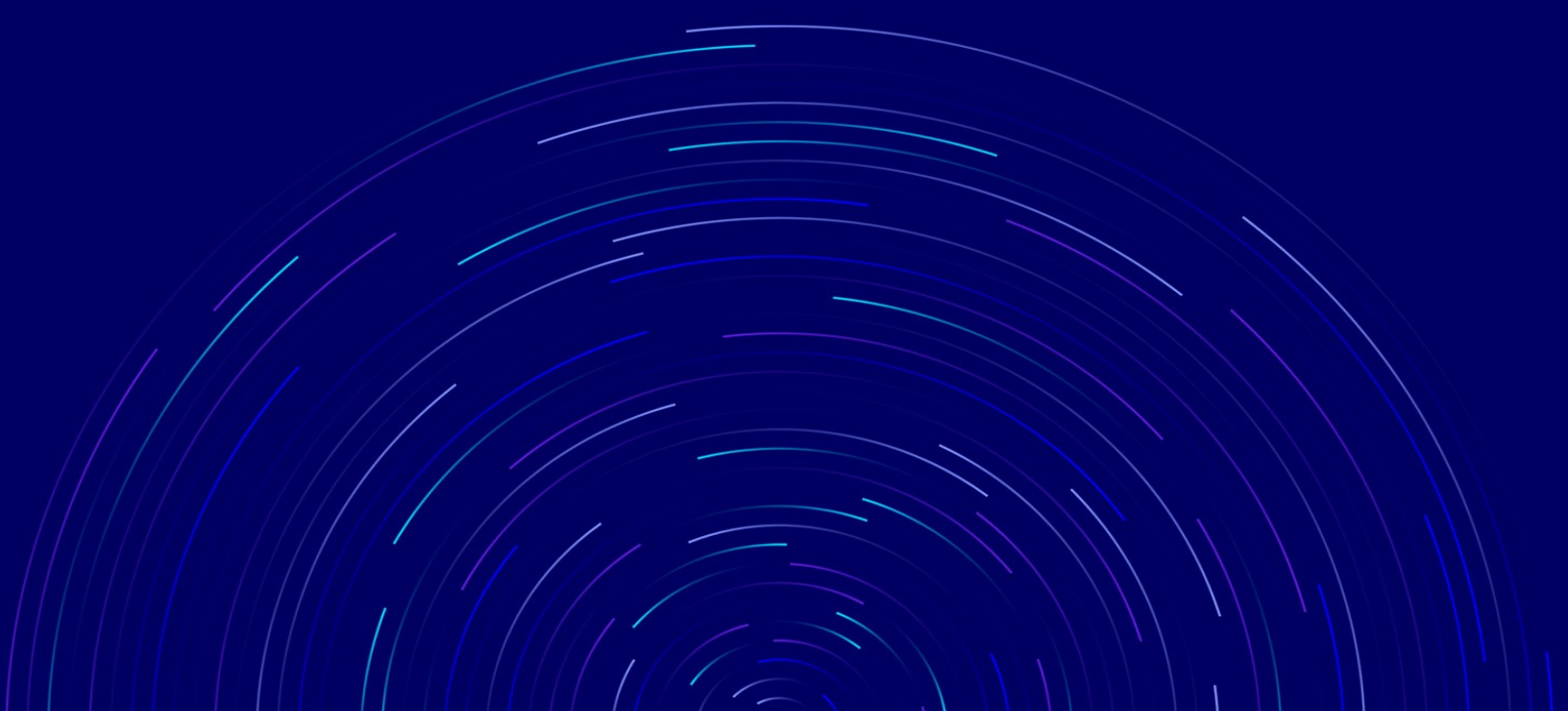
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Preamble - How to Respond & Next Steps

Introduction

CITC continues to pursue its mission to protect consumers, promote investment and safeguard competition in order to ensure reliable communications services and innovative digital technologies. We are pleased to publish our latest Public Consultation document, which makes proposals for the introduction of light licensing.

Scope and Objective

The purpose of this public consultation is to provide interested parties with an opportunity to submit their views on light licensing. With reference to international best practice it outlines the principles which will underlie CITC's approach to light licensing, considers the range of possible options and makes proposals for policy implementation in order to optimize efficient use of spectrum in the Kingdom

How to Respond to this Consultation

Participants who wish to submit their views/comments on this Public Consultation Document must submit them to CITC no later than the 30th of September 2021. Views/comments can be submitted to one or more of the following addresses:

- By email to: Spectrum.Strategy@citc.gov.sa
- Hand-delivered (paper and electronic) at the CITC premises or By mail to:

Communications and Information Technology Commission

Al-Nakheel District

Prince Turki Bin Abdul Aziz I Street intersection with Imam Saud Bin Abdul Aziz Road

PO Box 75606, Riyadh 11588

Saudi Arabia

CITC invites all members of the public, including individuals, public organizations and commercial entities to engage in this process by submitting comments. Participants are invited to provide their views in detail. CITC also encourages Participants to support their comments with relevant data, analysis, benchmarking studies and other information. CITC will take all comments into consideration during its deliberation process, but CITC is under no obligation to adopt the comments or proposals of any participant. The consultation document and any responses to it are not binding on CITC. The Commission may publish the comments on its website if it deems appropriate and in conformance to its Statutes.

1. Introduction

1.1. Purpose

The purpose of this document is to gather stakeholder feedback on CITC’s proposals to introduce light licensing across a number of frequency bands. Light licensing is an increasingly popular mechanism for stimulating innovation and economic growth, in addition to improving spectrum utilization, by enabling spectrum access to wider segments of potential spectrum users across various verticals and industries. When compared to exclusive licensing, light licensing typically reduces the administrative burden when applying for a license to use a specific frequency. Nevertheless, unlike license-exempt use, it does not obviate the need for users to apply for a license.

This consultation has a total of 13 questions for stakeholders to respond to.

1.2. Background

In its Spectrum Outlook, CITC made the following statements concerning the introduction of light licensing in KSA:

- *In bands where many potential users could be accommodated but some coordination is necessary to prevent harmful interference, we propose to use a lightly licensed regime based on databases.*
- *We plan to adopt a light licensing regime using a database solution in the following bands over the next years, alongside the approach already adopted for incumbents where relevant:*
 - *All or parts of the 4000 – 4200 MHz band, in a manner that does not impact existing or new satellite users;*
 - *10 – 10.5 GHz;*
 - *28 GHz, in a manner that does not affect existing satellite use and allows new approaches such as NGSO and ESIM;*
 - *71 – 76 / 81 – 86 GHz and*
 - *5.925 – 7.125 GHz.*
- *In light licensing, the term “databases” covers a wide range of implementations including:*
 - *A simple database that registers specific deployments, such as individual fixed links, initially accessible only by CITC but increasingly on-line so users can directly enter uses.*
 - *A database that runs a verification process before approving and entering an assignment, for example, validating a new fixed link against existing links, before returning confirmation to a user, perhaps through an on-line portal.*

- *A database that links to equipment, such that the equipment, perhaps a Wi-Fi router, automatically sends a request to a database on initial deployment, and automatically receives approval from the database.*
- *A dynamic database that links to equipment, granting short-term requests from the equipment perhaps on an annual, weekly or even daily basis.*
- *We do not currently see the need for a dynamic database, but anticipate one or more could become useful in the future. We are minded to build a database capability to cover the first three examples listed above, and similar cases, but in a manner that allows evolution to a more dynamic solution if needed.*

We plan to initially introduce the light licensing capability in two distinct phases:

- In **Phase One (which will be instigated in H1 2022)** we will introduce a database which registers deployments in order that CITC can maintain awareness of the use of the frequencies. This will apply only to bands where users will be expected to self-coordinate their usage and where there are no incumbent uses to protect;
- In **Phase Two (which will begin in H2 2022)** we will increase the capability of the light licensing database to conduct validation of applications. This will apply to bands where there are incumbent users whose usage needs to be protected. Not all of the potential bands will be released at the same time, as some may require a longer period to coordinate with existing users.

Consultation question 1: *Are the proposed timetables for the introduction of the light licensing phases reasonable?*

Once these phases have been successfully implemented, we can move to future phases which allow equipment to automatically and autonomously send a request to, and gain approval from, the database. This is similar to the Spectrum Access System (SAS) used by the FCC when it opened up the CBRS spectrum band in the USA. The SAS provides dynamic and secure allocation and management of shared spectrum in real time. It manages spectrum in three dimensions: time, geography and classes of users which are allocated spectrum in a prioritized hierarchy.

Consultation question 2: *Do you agree that a fully autonomous system should be introduced at a later date?*

This Consultation contains proposals to introduce the First and Second Phases of Light Licensing, introducing methods to access spectrum which should be more straightforward for stakeholders than existing licensing methods.

In this Section we explain the context and rationale for this approach, making more detailed proposals in Section 3, which also invites stakeholders to respond to specific questions.

1.3. International best practice in light licensing

Light licensing has been used in various guises in the UK, USA, Australia, Japan and many other countries for many years, including use for services such as high power outdoor Wi-Fi, business radio (PMR) and fixed links.

Spectrum users are keen on light licensing as it typically reduces the administrative burden when applying to use spectrum, and speeds up the process such that transmitters can be put into service more quickly. At the same time, governments and regulatory bodies find a light licensing structure, when used in conjunction with a database to allocate spectrum according to demand, more efficient in utilizing scarce spectrum resources between different usage types and users. The reduction in administrative burden does not, however, mean that there is a lack of regulatory certainty as a number of factors including the frequency and location of use have to be recorded.

All light licensing regimes use a database to store and share data on frequency usage. The purpose of the database can vary significantly, for example:

- The database may only store the details of light licensees and be accessed by the regulator. This would be the case where users are provided with access to a range of frequencies and must self-select a frequency from within this range. Any coordination between users would be by agreement between users, however no protection is guaranteed by CITC. Such an approach has been used for, for example, business radio in the UK where a number of set frequencies can be accessed via a one-off license and it is then up to users to select the frequency they wish to use which provides them with the lowest interference levels.
- The database may store details of light licensees and provide these both to the regulator and to new prospective licensees. This would enable those wishing to access the spectrum to identify which frequencies are already in use in the area they wanted to be licensed in, helping with the selection of a clearer frequency and therefore minimizing interference. There is still no formal coordination process by the regulator, however it is easier for users to self-coordinate their usage as they are aware of where

frequencies are in use. Such an approach is used in Australia, South Africa, the UK and the USA to license fixed links in the E-band (70/80 GHz).

- The database may store details of incumbent users, as well as those of light licensees, and be used by the regulator to analyze applications and determine whether or not new applications would cause undue interference to incumbents and thus provide a decision mechanism for approving (or denying) applications. This scenario would be used in a situation where the data concerning incumbent use was confidential and the regulator did not wish to make it available to applicants.
- The database may store details of incumbent users, as well as those of light licensees, and provide all of this information to the regulator and to prospective new licensees. This type of approach is used in cases where there are incumbent services in a band which need to be protected from interference by new licensees. By restricting access to frequencies where incumbent use takes place, these services can continue to operate without suffering from harmful interference. In use cases such as this, it is common that the new licensees need to check the database from time-to-time to assess whether the incumbent usage has changed. This is a common approach when licensing services to operate in television white-spaces (such as in the USA, UK, South Africa).

Access to a database would generally on-line, however in some cases it is also provided through an open API which provides the ability for devices themselves to access the database and select (and possibly pay for) a frequency themselves without user intervention.

There are a number of aspects which are common to all light licensing approaches:

- The requirement for users to stay within pre-determined technical parameters;
- The requirement for users to submit detailed information concerning their use of the spectrum;
- An application process which is approved on-line without the need for manual intervention from the regulator;
- Reductions to the administrative burden of applying for access to the spectrum;
- Reduced fees for the use of the spectrum compared to traditional licenses;
- Reduced protection from interference from other services.

Some examples identified during the benchmarking study are shown in table (1).

Table 1: Managed light licensing examples in the benchmark countries

Country	Application	Features
Australia	E-band fixed links (60, 70/80 GHz) ¹	Licensees must contract an accredited company to provide frequency coordination. Link locations are assigned on a first-come first served basis, then licensees are registered on the ACMA database
Canada	Higher-power / outdoor RLANS (5 GHz) ²	Licensees must self-coordinate and resolve any interference issues themselves, as well as establish exclusion zones to protect licensed earth stations as required
South Africa	E-band fixed links (70/80 GHz) ³	Users record their links in a Radio Frequency database on a first-come-first-served basis. The light licensees are responsible for self-coordinating and ensuring their compatibility with previously registered stations
UK	FWA at 5.8 GHz ⁴	Light licensing on a secondary sharing basis with primary users. Licensees must register their terminals with the regulator. Nominal, per-terminal fees
UK	E-band fixed links (60, 70/80 GHz) ⁵	Users obtain a non-exclusive nationwide licence with indefinite duration, which entitles them to self-coordinate with other users and then register their links. Links must be registered before operating. Ofcom plans to introduce a web-based tool to replace current manual processes
USA	E-band fixed links (70/80, 90 GHz) ⁶	Nationwide licence required as a prerequisite for registering individual links in a regulatory database. Mandatory self-coordination

Light licensing approaches are best suited for applications with fixed (rather than mobile) radio stations or those with very limited coverage areas (such as local area point-to-multipoint use) as the nature of these services reduces the complexity of managing the frequency use between the multiple users. Light licensees must first obtain a license. This requires them to record the locations of their radio stations in a centralized database provided by the regulator, which provides the regulator with the necessary oversight of the use of the radio spectrum. Registering any links is mandatory before they can be operated. The E-band fixed links light licensing schemes in USA, UK and South Africa all work in this way. The Australian E-band links scheme is slightly different, in that the light licensee must use an accredited radio engineer for the self-coordination. This is in line with other licensing types in Australia, for which all applications must be supported by a suitably qualified engineer.

¹ <https://www.acma.gov.au/options-fixed-licences#point-to-point-self-coordinated-stations>

² <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11293.html>

³ <https://www.icasa.org.za/uploads/files/Standard-Operating-Procedures-for-the-E-Band-28-April-2017.pdf>

⁴ <https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/fixed-wireless-access>

⁵ https://www.ofcom.org.uk/data/assets/pdf_file/0021/84018/ofw_369_guidance_notes_65_70-80ghz_final.pdf

⁶ <https://docs.fcc.gov/public/attachments/DOC-364458A1.pdf>

Another example of light licensing relates to wireless microphones. In many countries, such devices are license-exempt and therefore not entitled to interference protection - however light licensing can be a useful complementary approach for those users who require an increased level of interference protection, such as those running live entertainment events in theatres and other venues. Databases can be used to book frequencies for particular times and places, which not only support licensees' quality of service goals, but also promotes an efficient use of spectrum by identifying the frequencies that are available for use. The UK has a light-licensing regime and frequency booking system for PMSE users, while Canada offers a similar frequency reservation system under what it calls a 'voluntary licensing' process for wireless microphones. Light-licensed approaches can use databases not just to record spectrum usage but also to provide a reference for licensees to identify vacant frequencies (and sometimes reserve them for future use), if the licensing information is made available to other licensees. In the future, dynamic spectrum sharing databases could automate the coordination between spectrum users for certain services according to a hierarchy which could be informed by usage type, user, or time of application. One example identified is the planned evolution of Ofcom's Shared Access licensing from manual frequency coordination to DSA.

1.4. The foundations of the proposed approach

The detailed proposals we make in this document are based on the foundations outlined below:

- Light licenses will be on a no-interference no-protection basis (i.e. no interference must be caused to incumbent/existing/priority users, and no protection from interference is guaranteed from existing or future users); with interference between light licensing users mitigated through self-coordination;
- CITC will be responsible for issuing light licenses and users will be subject to the same administrative and eligibility requirements as for all other license types. For example, operators with licenses to provide public connectivity services on a commercial bases can use lightly licensed spectrum to build indoor or outdoor small cells as part of their networks under the same licensing requirements for providing commercial public connectivity services using licensed or license-exempt spectrum. Similarly, private entities can build private networks using lightly licensed spectrum under the same licensing requirements to build private networks using other types of spectrum;
- Licensees must follow the stipulated application processes;
- CITC aims to make the application and approval process as speedy as possible;
- CITC aims to make the application and approval process available online;
- CITC will aim to set light license fees at a relatively low cost which reflects the cost of the administration of the regime, and reflects the fact that spectrum access is not guaranteed to be free from interference.

Consultation question 3: *Do you have any comments on the proposed foundations and aims for the light licensing regime?*

2. Light licensing policy proposals

2.1. Light Licensing: an overview of the proposals

CITC has identified a number of frequency bands to which it envisages that light licensing will apply. Some of these bands have existing users and will therefore be part of the second phase of light licensing, whereas others are currently free of incumbent use and thus can be opened up to light licensing earlier. This determines which phase of light licensing is applicable as is indicated in the table below.

Table 2: Frequency bands proposed to be subject to light licensing

Band	Incumbent Use to be Protected	Phase of Light Licensing	Notes
4000 - 4200 MHz	Fixed Links Satellite downlinks	Phase Two	Protection of Aeronautical Radio Altimeters in the frequency range 4200 - 4400 MHz will be required which may restrict the use of the band.
5925 - 7125 MHz	Fixed Links Satellite uplinks	Phase Two	Protection of existing fixed links will be required until they have been re-farmed from the band which may restrict access to specific frequencies or locations
10.0 - 10.68 GHz	Fixed Links	Phase Two	Protection of existing fixed links will be required
27.5 - 29.5 GHz	Fixed Wireless Access Satellite uplinks	Phase One: 27.5 - 27.9 // 28.5 - 28.9 GHz Phase Two: Remainder of the band	Protection of existing fixed links will be required for Phase Two.
57 - 71 GHz	Fixed Links	Phase One	
71 - 76 // 81 - 86 GHz	Fixed Links	Phase One: 74 - 76 // 84 - 86 GHz Phase Two: Remainder of the band	Protection of existing fixed links in the frequency range 71 - 74 and 81 - 84 GHz will be required in Phase Two.
92 - 94 GHz	None	Phase One	

Consultation question 4: *Do you agree with the frequency bands proposed to be lightly licensed by CITC?*

Although the bands above largely comprise those where it has been found that a number of countries (including the USA, Australia, New Zealand, South Africa and the UK) have instigated light licensing, in certain other countries, various other bands are also made available through light licensing. These include examples such as:

- The use of radio microphones in the UHF television band (UK);
- A fixed and limited number of VHF and UHF PMR channels (UK, USA and Germany);
- Limited parts of some mobile bands, such as 1800 MHz and 2100 MHz (UK and Netherlands);
- Low power FM broadcasting (New Zealand);
- Maritime on-board UHF communications at 457/467 MHz (UK and New Zealand).

Consultation question 5: *Are there any other bands which you would like to see light licensing applied to? If so, please specify them and provide a detailed approach to introducing light licensing in them.*

2.1.1. Phase One (H1 2022)

In Phase One, users will be permitted access to spectrum which is not currently used by incumbent/existing users. As such, coordination will not be required between light licensees and incumbent users, however users will be required to register their use of the spectrum. This is in order to maintain CITC's awareness of the use of the spectrum, in particular in the case that there are any cases of interference to incumbent services in neighboring spectrum which need to be remedied.

In Phase One, users will be expected to self-coordinate their usage. This means that users:

- Will not be protected from interference from other light licensed users;
- Must minimize interference to other light licensed users;
- Must not cause interference to incumbent users in adjacent frequency bands;
- Will be responsible for agreeing local frequency usage with other light licensed users to minimize interference should any occur.

Consultation question 6: *Do you accept that these requirements are reasonable for the first phase of light licensing?*

In addition to details of the applicant, the registration will require the following information:

- Geographic co-ordinates of the transmitter;
- Geographic co-ordinates of the receiver(s);
- Height of the transmitting site above mean sea level;
- Height of the transmitting antenna above ground level;
- Make and model of the transmitting and receiving equipment (including antennas);
- Antenna gain;
- Antenna azimuth;
- Antenna polarization;
- Transmitter power (e.i.r.p.);
- Transmission bandwidth (MHz);
- Emission type (i.e. QPSK, 5G)
- Transmission frequency and mode (FDD/TDD/etc).

Subject to all the information being correctly provided, CITC will proceed with the authorization of spectrum use. No checks will be made by CITC as to whether the proposed service will be subject to interference. The authorization to use spectrum will not constitute a guarantee of an absence of any interference, and lightly licensed users will still need to coordinate between themselves should any interference occur.

The frequencies being proposed for release in Phase One are not shared with other users, however this does not guarantee that new services will not cause interference to incumbent users in neighboring bands. In the case that any such interference is identified, CITC will contact any potential interferers and may use the powers at its disposal (such as the cancellation of licenses) to resolve the interference problems.

Consultation question 7: *Do you have any additional comments on the approach proposed for access to spectrum in phase one?*

2.1.2. Phase Two (H2 2022)

In Phase Two, access will be provided to spectrum in which there is incumbent use to be protected. This means that light licensed users:

- Will not be protected from interference from other light licensed users;
- Will not be protected from interference from incumbent users;
- Must minimize interference to other light licensed users;
- Must not cause interference to incumbent users;
- Will be responsible for agreeing local frequency usage with other light licensed users to minimize interference should any occur;
- May be subject to termination or modification of licenses should interference to incumbent users be identified and not resolved by the light licensee.

Consultation question 8: *Do you accept that these requirements are appropriate for the second phase of light licensing?*

In order to ensure protection of incumbent users, applications will be validated (i.e. by a database) before an authorization to use the spectrum is issued. This may mean that, in addition to some applications being refused, light licenses may be subject to:

- Geographic restrictions,
- Indoor / outdoor restrictions,
- Power restrictions, and
- Azimuth restrictions

Consultation question 9: *Do you have any additional comments on the approach proposed for access to spectrum in phase two?*

2.2. Usage of the spectrum

It is proposed that some bands be made available for specific uses only. This technology specific approach is intended to ensure that similar services are found within a band, which simplifies the coordination and compatibility between users. If, for example, fixed and mobile services were permitted in the same band, users would find that coordination would be far more difficult.

Table (3) sets out the proposed uses for each of the bands which will fall within the light licensing regime together with the applicable technical specification.

Table 3: Technical parameters for the light licensed bands

Band	Proposed Usage	Proposed Technical Requirements	Notes
4000 - 4200 MHz	Low Power IMT (5G) services (mobile)	3GPP TR38.104 'Local Area' base stations Maximum channel bandwidth: 50 MHz	3GPP Band n77
5925 - 7125 MHz	High Power WLAN (can be used for fixed links) Low Power 5G services (NR-U) (mobile)	ETSI EN 303 687 Maximum e.i.r.p.: 30 dBm or 5 dBm/MHz Maximum channel bandwidth: 320 MHz 3GPP TR38.104 'Local Area' base stations Maximum channel bandwidth: 100 MHz	This band will also be available for low power indoor WLAN and very low power outdoor WLAN on a licence-exempt basis 3GPP Band n96
10 - 10.68 GHz	Fixed Point-to-Point and Point-to-Multipoint Links Low Power 5G services	ETSI EN 302 217 (equipment) ETSI EN 302 215 (antennas) Channel arrangement: ITU-R F.1568 (Annex 1) Channel bandwidth: 14 MHz Duplex separation: 350 MHz Maximum base station e.i.r.p.: 55 dBW Maximum user station e.i.r.p.: 40 dBW	
27.5 - 29.5 GHz	Fixed Point-to-Point and Point-to-Multipoint Links (access or backhaul, including IAB) based on 5G technology	3GPP TR38.104 'Local Area' and 'Medium Range' base stations Maximum channel bandwidth: 200 MHz	3GPP Band n257 Mobile usage not permitted.
57 - 71 GHz	Fixed Point-to-Point and Point-to-Multipoint Links	ETSI EN 302 217 Maximum transmitter power: 30 dBm Minimum antenna gain: 38dBi Maximum e.i.r.p.: 55 dBm Channel bandwidth: 250 MHz	Paired (FDD) and Unpaired (TDD) operation permitted
71 - 76 // 81 - 86 GHz	Fixed Point-to-Point Links	ETSI EN 302 217 Maximum transmitter power: 30 dBm Minimum antenna gain: 38dBi Maximum e.i.r.p.: 55 dBW Channel bandwidth: 250 MHz Duplex separation (where used): 10 GHz	Paired (FDD) and Unpaired (TDD) operation permitted
92 - 94 GHz	Fixed Point-to-Point Links	ETSI EN 302 217 Maximum transmitter power: 30 dBm Minimum antenna gain: 38dBi	Paired (FDD) and Unpaired (TDD) operation permitted

		Maximum e.i.r.p.: 55 dBW Channel bandwidth: 100 MHz	
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In addition to the above, all licensees will be subject to a restriction on the maximum height of an antenna of 10 meters above ground level.

Consultation question 10: *Do you agree with the technical parameters proposed for each of the bands? If not, please provide your rationale in detail. Also, if you believe that other uses should be introduced, please specify them in detail*

2.3. Eligibility

CITC's standard eligibility requirements will apply to both private and public users. This means that the use of any lightly licensed frequency bands will be subject to use-licensing requirements. For example, operators with licenses to provide public connectivity services on a commercial basis can use lightly licensed spectrum to build indoor or outdoor small cells as part of their networks under the same licensing requirements for providing commercial public connectivity services using licensed or license-exempt spectrum. Similarly, private entities are eligible to access lightly licensed spectrum under the same licensing requirements as other types of spectrum.

CITC will evaluate the submitted applications for using the lightly licensed frequency bands in order to confirm the eligibility in using this spectrum to provide a service. For example, the current practice regarding the microwave fixed links spectrum is to not assign the spectrum to private users since their needs be fulfilled by the service providers.

Consultation question 11: *Do you have any comments concerning the eligibility criteria? Would you like to have less restrictive eligibility rules? Please explain how you would see this functioning.*

2.4. Application process

Various countries use different application processes for light licensing. These include:

- On-line applications (Canada);
- Paper-based applications (UK); and

- Application via a third-party accredited expert (Australia).

Where databases of licensee data are published by regulators, these are all online.

In order to expedite access to lightly licensed spectrum in Saudi Arabia, it is therefore proposed that the following approaches will be taken:

- Phase One - a paper-based application form will be used for applications (this may be able to be e-mailed to CITC or simple web interface);
- Phase Two - applications will be moved onto a fully online portal, which will also validate application requests.

Once authorized, licenses will be valid until the end of the calendar year (i.e. until December 31st of the year) at which point they can be renewed for a further 12 months. License durations may be reconsidered at a future date and CITC, at its sole discretion, reserves the right to not renew any license.

Consultation question 12: *Do you have any comments concerning the application process?*

2.5. Fees

The table below sets out the proposed fee range for the light licensed approach.

The proposed light licensing fees are lower than the current annual fees. This is to reflect:

- The lower assured protection from interference for users of lightly licensed spectrum;
- The technical restrictions placed on the use of the bands (compared to those which would be permitted if the bands were licensed under the normal regime);
- International benchmarking of light license fees in other countries; and
- The reduced administrative burden on CITC in issuing these licenses.

The proposed fees have been based on international benchmarking for similar services, examples of which are provided. Note that there are no examples of light licensing fees for the 5925 to 7125 MHz band, however fees for High Power WLAN in the adjacent band, as well as for use of frequencies for Low Power 5G services in other bands have been used as a reference. In addition, fees for some of the higher frequency fixed link bands are not available and fees for neighboring bands have been used for comparison.

Table 4: Comparison of existing annual fees to proposed light licensed annual fees

Band	Proposed Use	Bandwidth Unit	International Benchmarking ⁷ (Annual Fees)	Suggested Range of Annual Light Licensed Fee
4000 - 4200 MHz	Low Power 5G services (mobile)	20 MHz	UK: SAR 850 Germany: SAR 7150 (per sq km)	SAR 2500-10000
5925 - 7125 MHz ⁸	High Power WLAN Low Power 5G services (NR-U)	20 MHz	Australia: SAR 425 (application fee) + SAR 115 New Zealand: SAR 0 UK: SAR 260	SAR 1000-3000
10 - 10.68 GHz	Fixed P2P or P2MP Links Low Power 5G services	14 MHz	USA: SAR 2420	SAR 1000-2500
27.5 - 29.5 GHz	Fixed P2P or P2MP Links based on 5G technology	100 MHz	Australia: SAR425 (application fee) + SAR 0.002 per person covered	SAR 1000-2500
57 - 671 GHz	Fixed Point-to-Point and Point-to-Multipoint Links	250 MHz	New Zealand: SAR 0	SAR 1000-2500
71 - 76 // 81 - 86 GHz	Fixed Point-to-Point Links	250 MHz	Australia: SAR 425 (application fee) + SAR 660 UK: SAR 260 Canada: SAR 230	SAR 1000-2500
92 - 94 GHz	Fixed Point-to-Point Links	100 MHz		SAR 1000-2500

Fees will be payable upon the approval of the application by CITC, and the license shall not be issued until the fee has been paid.

Consultation question 13: *Do you have any comments concerning the proposed fees for the light licenses?*

⁷ Note that prices have been converted to SAR at the prevailing rate at the time of publication of this consultation document.

⁸ CITC has studied and applied the fees of the 5925 – 7125 MHz band based on the benchmark prices of the 5.8 GHz.

3. Next steps

The table below sets out the proposed timeline of the light licensed approach:

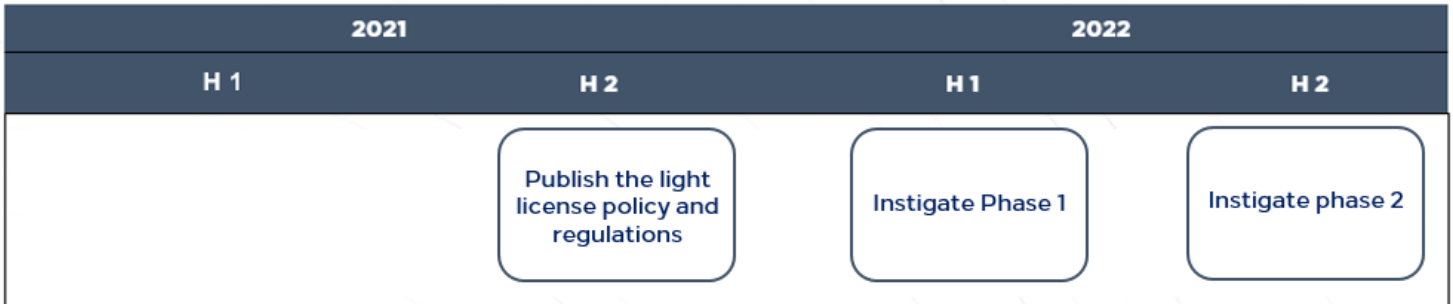


Figure 1: Next Steps Timeline

- Following receipt of responses to this consultation, CITC will finalize and publish the light license policy and regulations. This will be completed by the end of 2021.
- In the first half of 2022, CITC will instigate Phase One which will provide access to spectrum where there are no incumbent users. This will be an electronic application process.
- CITC will begin discussions with incumbent users to develop a database which can be used for Phase Two and to determine the technical conditions for sharing spectrum between incumbent and lightly licensed users.
- In the second half of 2022, CITC begin Phase Two. This will develop a database which will allow light licensed access to additional spectrum, while protecting incumbent users. Not all of the potential phase two frequency bands will be available at the same time.



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