

Re: Consultation “ICT 2024 – 1 – Consultation Short Range Licence Exempt Devices”

Dear Utility Regulation and Competition Office,

IEEE 802 LAN/MAN Standards Committee (LMSC) thanks the Utility Regulation and Competition Office of the Cayman Islands (OfReg) for issuing the consultation “ICT 2024 – 1 – Consultation Short Range Licence Exempt Devices”.

IEEE 802 LAN/MAN Standards Committee (IEEE 802 LMSC) is a leading consensus-based open standards development committee for networking standards that are used by industry globally. It produces standards for networking devices, including wired and wireless local area networks (“LANs” and “WLANs”), wireless specialty networks (“WSNs”), wireless metropolitan area networks (“Wireless MANs”), and wireless regional area networks (“WRANs”). Technologies produced by implementers of our standards are a critical element for all networked applications today.

IEEE 802 LMSC is a committee of the IEEE Standards Association and of Technical Activities, two of the Major Organizational Units of the IEEE. IEEE has about 400,000 members in over 160 countries and its core purpose is to foster technological innovation and excellence for the benefit of humanity. IEEE is also a major accredited standards development organization whose standards are recognized worldwide. In submitting this document, IEEE 802 LMSC acknowledges and respects that other components of IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802 LMSC. Therefore, this submission should not be construed as representing the views of IEEE as a whole¹.

Please find below the responses of IEEE 802 LMSC to this consultation.

It is the right time to authorize short range licence exempt devices to operate in 5925 MHz to 6425 MHz and 57 GHz to 71 GHz bands in Cayman Islands

IEEE 802 LMSC commends OfReg’s effort in creating a framework for expanding the operation of short range licence exempt devices. As recognized in this proceeding, many countries have authorized all or part of the 5925 MHz to 7125 MHz band and the 57 GHz to 71 GHz band for licence exempt operation at the proposed power limits. Adopting similar access will create economies of scale and produce a robust equipment market, benefitting Cayman Islands’ businesses, consumers, as well as increasing the societal benefits.

In the proceedings, OfReg proposes to allow short range licence exempt devices to operate between 5925 MHz and 6425 MHz using no greater than 25mW outdoors (a.k.a. very low power (VLP) mode) or no greater than 250mW indoors (a.k.a. low power indoor (LPI) mode) without causing harmful interference to existing authorized communications and without protection from any interference caused by existing authorized communications. IEEE 802 LMSC supports the authorization of short range licence exempt devices operating at the proposed power limits between 5925 MHz and 6425 MHz both indoors and outdoors.

¹ This document solely represents the views of IEEE 802 LMSC and does not necessarily represent a position of either the IEEE or the IEEE Standards Association.

IEEE 802 LMSC kindly requests OfReg to consider the following changes to the proposed technical requirements for LPI, which are adopted by national regulatory authorities in other countries, such as the United States of America and Canada:

- Authorize max EIRP of 1W for access points under LPI mode and max EIRP of 250mW for clients under LPI mode, which are aligned with the USA FCC's requirements² to enable licence exempt operation at large channel bandwidth of 160 MHz and 320 MHz in the downlink.

In addition, IEEE 802 LMSC recommends OfReg to authorize max EIRP of 50mW for VLP mode with channel bandwidth of 320 MHz, to enable that the performance of a device under VLP mode to scale with the operational bandwidth.

Initiate authorization proceedings for standard power RLAN under supervision of AFC

IEEE 802 LMSC recommends OfReg to consider initiating proceedings to authorize Standard Power (SP) mode under supervision of an Automated Frequency Coordination (AFC) System in the 6 GHz band. SP mode enables Wi-Fi operation at higher power than both the VLP and the LPI modes to optimally utilize the 6 GHz spectrum. As OfReg plans to authorize VLP and LPI modes in the 6 GHz band, IEEE 802 LMSC kindly requests OfReg to consider initiating the process to authorize SP mode and certification of AFC controlled devices (SP access points or fixed clients) and AFC Systems.

AFC technology is widely adopted as a mitigation technique to protect incumbent licenced services for outdoor and indoor operation at the SP level. In this proceedings, OfReg refers to AFC "as the database assesses applications and only permits licensing in areas sufficiently removed from fixed links (and other users of the band) that no interference would be caused. Such a system would be overkill where only a few fixed links are licensed". With proper consideration of protection criteria for the fixed point-to-point links, we believe that AFC Systems already developed for other regions can be readily adapted to provide the frequency coordination and maximum allowable power settings for AFC controlled devices to provide protection for these fixed links. As an example, in the USA, AFC Systems determine frequency and channel availability and maximum permissible power levels for AFC controlled devices considering incumbent Fixed Services (FS) and Radio Astronomy Services as well as neighboring countries incumbent services at the borders. While we understand OfReg's comment on the number of FS links, an AFC System based mechanism for at SP operation will have the advantage of providing automated maintenance when FS links are changed (e.g., added or removed). An additional advantage is that the AFC system calculations can consider variable maximum allowable transmit power based on the location of access points, improving overall spectrum usage efficiency.

Authorizing SP mode at a maximum EIRP of 4W for access points and 1W for client devices for indoor and outdoor operation enables many key applications including metaverse, multigigabit per second outdoor coverage (e.g., parks, stadiums), multi-gigabit point-to-multipoint connectivity, and low-latency applications including industrial IoT and Voice over IP (Wi-Fi calling). SP operation also improves indoor Wi-Fi performance to match coverage performance already available in the 5 GHz band³.

² See FCC: 15.407 General technical requirements.

³ The improvement is based on an assumption on the FCC: 15.407 General technical requirements.

The USA and Canada have authorized SP mode and have certified seven AFC systems. The certification process for AFC systems and devices is based on the industry developed recommended compliance specifications^{4,5}. On 21 August 2023, Innovation, Science and Economic Development Canada (ISED) approved⁶ an AFC System for operation in Canada. On 23 February 2024, FCC announced⁷ approval of seven AFC systems for commercial operation in the USA. A number of AFC devices and Fixed Client devices are already certified. A growing number of countries, including Japan, Saudi Arabia, South Korea, and Brazil, are also studying the enablement of SP mode.

As AFC devices are being certified and introduced in the market, the Wi-Fi industry expects the first significant deployments of SP mode to be indoor through upgrading of LPI access points to indoor SP access points, i.e., SP/LPI converged access points. These converged access points are targeting simultaneous support of LPI-only clients, SP clients, and dual LPI/SP clients in the same indoor network to improve overall system efficiency and spectrum utilization while protecting incumbent services.

Initiate authorization proceedings for expanding the frequency allocation for short range licence exempt devices to operate in the 6425 MHz to 7125 MHz band

In considering further allocation in the 6425 MHz to 7125 MHz frequency band, IEEE 802 LMSC respectfully asks OfReg to consider the following points.

As of today, countries in ITU Region 2 that contribute about 90% of the GDP allocated the entire 1200 MHz bandwidth of the 6 GHz band for licence exempt operation⁸.

A growing number of countries, including the USA, Canada, Brazil, South Korea, and Saudi Arabia, have already allocated the entire 6 GHz band for licence exempt operation. Availability of the entire 6 GHz band for licence exempt use will create economies of scale and produce a robust equipment market in the Cayman Islands.

In January 2024, Wi-Fi Alliance introduced⁹ Wi-Fi CERTIFIED 7™ based on the IEEE P802.11be draft standard¹⁰. IEEE P802.11be introduces advanced features including channel bandwidths of

⁴ See: Wi-Fi Alliance: 6 GHz AFC resources, Specifications, test plans, and training modules to enable implementation of the 6 GHz standard power devices under AFC system control. <https://www.wi-fi.org/discover-wi-fi/6-ghz-afc-resources> [accessed: 21 June 2024].

⁵ See Wireless Innovation Forum: Specifications, <https://6ghz.wirelessinnovation.org/baseline-standards> [accessed: 21 June 2024].

⁶ See Innovation, Science and Economic Development Canada: List of designated Dynamic Spectrum Access System Administrators (DSASAs), Automated Frequency Coordination System Administrators (AFCSAs), issue 1 of DBS-06, <https://ised-isde.canada.ca/site/certification-engineering-bureau/en/node/116> [accessed: 21 June 2024].

⁷ See Federal Communications Commission: OET announces approval of seven 6 GHz band automated frequency coordination systems for commercial operation and seeks comment on C3 Spectra's proposed AFC system, <https://docs.fcc.gov/public/attachments/DA-24-166A1.pdf> [accessed: 21 June 2024].

⁸ These countries include Argentina, Brazil, Canada, Colombia, Costa Rica, Dominican Republic El Salvador, Guatemala, Honduras, Peru, and the United States of America.

⁹ See Wi-Fi Alliance: Wi-Fi Alliance® introduces Wi-Fi CERTIFIED 7™, <https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-introduces-wi-fi-certified-7> [accessed: 21 June 2024].

¹⁰ See "IEEE Draft Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Enhancements for Extremely High Throughput (EHT)," in IEEE P802.11be/D5.0, November 2023, vol., no., pp.1-1045, 3 Jan. 2024. With introduction of 320 MHz channel bandwidth, Wi-Fi 7 doubles throughputs relative to Wi-Fi 6E and significantly improves latency for Extended Reality (XR), bringing determinism through enablement of Multi-Link Operation (MLO) over multiple bands in 2.4 GHz, 5 GHz, and 6 GHz bands. Wi-Fi 7 also provides higher efficiency, relative to Wi-Fi 6E, through offering of 4096 QAM. In addition, spectrum puncturing improves flexibility in utilizing spectrally efficient wide channel bandwidth, e.g., 160 MHz and 320 MHz, while protecting incumbent operation in the band.

up to 320 MHz, multiple resource units to a single station, multi-link operation that utilizes multiple links across frequency bands, enhanced quality of service (QoS), improved Target Wake Time, and improved spectrum management using spectrum puncturing to improve coexistence with incumbents effectively and efficiently. With Wi-Fi 7 products already in the market, Wi-Fi deployments are going through a second-generation upgrade in the entire 6 GHz band globally¹¹. Of particular relevance is the multi-link operation feature which when used in the 6 GHz band, achieves and exceeds the performance expectations of Wi-Fi 7. IEEE P802.11be's global 6 GHz channelization is designed to accommodate multiple 160 MHz and 320 MHz channels throughout the 5925 MHz to 7125 MHz band, where available. OfReg's current designation of 500 MHz of the 6 GHz band from 5925 MHz to 6425 MHz for licence exempt operation provides for only one contiguous 320 MHz channel, while the 5925 MHz to 7125 MHz band would allow three such channels to support Gigabit connectivity in Cayman Islands.

Conclusion

IEEE 802 LMSC thanks OfReg for the opportunity to provide this submission and respectfully requests to consider our responses to consider:

- updating the technical requirements for both the very low power and low power short range licence exempt devices operating in the 5925 MHz to 6425 MHz band;
- initiating authorization proceedings for standard power RLAN under supervision of AFC, and authorize standard power mode at a maximum EIRP of 4W for access points and 1W for client devices;
- initiating authorization proceedings to authorize expanded use of short range licence exempt devices operation in the 6425 MHz to 7125 MHz band.

Respectfully submitted,

By: /ss/.

James Gilb

IEEE 802 LAN/MAN Standards Committee Chairman

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¹¹ See Wi-Fi Alliance: Wi-Fi 7 market momentum: Wi-Fi 7 is here – is your network ready?, <https://www.wi-fi.org/beacon/chris-hinsz/wi-fi-7-market-momentum-wi-fi-7-is-here-is-your-network-ready> [accessed: 21 June 2024].

27 June 2024

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Ref: Consultation on Short Range Licence Exempt Devices

Dear OfReg,

The GSMA thanks for the opportunity to comment on the **Consultation Short Range Licence Exempt Devices** on the Cayman Islands and commends OfReg towards its goals of ensuring the valuable resource that is spectrum is used in the most beneficial way.

While the consultation presents 4 questions regarding SRD, the GSMA would like to address, in the Annex below, the future use of the 6 GHz band by mobile services under discussion in pages 6, 17 and 18 (noting ## 35, 36 and 37).

High-quality mobile services are vital for users and businesses and provide significant socio-economic benefits. They depend on increasing amounts of spectrum, and predictability in terms of the rules of the game to encourage the large investments that must be analysed in time periods measured in decades, which demands a set of public policies that ensure the necessary conditions for services to reach the entire population in reasonable conditions of coverage, quality and prices.

Compared to previous generations, 5G supports significantly higher mobile broadband speeds and more intensive data use, thus maximising the full potential of the Internet of Things. From autonomous vehicles and smart cities to industrial connectivity and Fixed Wireless Access.

5G will be at the core of the future of communications and will be essential to future-proof the currently most popular mobile applications – such as video-on-demand – as they ensure that increasing penetration and usage can be maintained. These services are supported by secure, high-speed and low-latency networks.

According to the latest edition of the 5G in Latin America and the Caribbean report, the GSMA estimates that by 2030, 5G technology will account for almost 60% of total mobile connections in the region. A key component in the evolution of all generations of mobile technologies has been and will continue to be the use of increasingly wider frequency bands to support higher speeds and greater amounts of traffic.

The GSMA remains available to further develop and elucidate our submission.

Warmest regards
Luciana Camargos
Head of Spectrum, GSMA

Annex

Taking into account that, in page 6 (Wireless LAN table), it is proposed to include operating parameters and technical requirements relating to various frequency bands, including 5925-6425 MHz, the GSMA would like to address the future use of the wider 6 GHz range, comprising both 5925-6425 MHz (lower 6 GHz) and 6425-7125 MHz (upper 6 GHz) bands.

Mid-bands such as 6 GHz are a key component in securing the socio-economic benefits of 5G.

According to the GSMA Intelligence study "The Socio-Economic Benefits of Mid-Band 5G Services", the contribution of 5G to the global economy will be 960 billion dollars in 2030. The study also reveals that 65% of the expected impact of 5G on global GDP will come from mid-band spectrum. In Latin America and the Caribbean, the expected impact is USD 41 billion in 2030, equivalent to an additional 0.5% of GDP.

A study by Coleago², estimates that, by 2030, countries will require an average of 2 GHz of mid-band spectrum per market to fulfil the ITU requirements for IMT. This capacity is important to ensure that consumers all receive access to the benefits of 5G. Without the right amount of spectrum in mid-bands, a 40% lower GDP growth is expected.

Almost all economic sectors will benefit from the deployment of 5G. New applications include, for example, solutions in smart agriculture, enabling livestock health monitoring, and remote healthcare, providing reliable and high-quality smart and remote patient monitoring.

5G deployments will also bring benefits beyond an increase in GDP. Mobile broadband plays an important role in reducing poverty, improving education and thereby improving the well-being of societies. These benefits will materialise to the extent that industries and the government execute development plans that allow them to capture the benefits of 5G together.

Therefore, to secure the continued benefits of 5G, the GSMA agrees with the approach proposed on page 6 (Wireless LAN table), as well as pages 17 and 18, where unlicensed Wireless LAN would be allowed in 5925-6426 MHz while safeguarding the upper 6 GHz (6425-7125 MHz) for the evolution of 5G. This represents a balanced approach that allows both technologies to evolve.

The balanced approach between unlicensed and licensed use of the 6 GHz band maximises the benefit for the whole society.

GSMA Intelligence has conducted an in-depth study of the 6 GHz band usage scenarios for unlicensed (Wi-Fi) and licensed (5G) use, considering different starting points for high-speed fixed broadband penetration and different urban environments. The report⁴ offers three main conclusions:

- Licensed use of the entire 6 GHz band will offer the greatest benefits in all countries where fixed broadband technologies do not provide user speeds above 5 Gbps. This is because there is already enough capacity with the existing unlicensed spectrum.
- Licensed use of the 6 GHz band remains the option that provides the greatest benefits in most countries if in those countries fixed broadband provides user speeds of up to 10 Gbps and if up to 30% of Wi-Fi traffic is offloaded in the high bands.

- Allowing unlicensed use in lower 6 GHz and licensed 5G in the upper 6 GHz will provide the greatest benefits in some countries if the adoption of FTTH is widespread, user speeds are above 10 Gbps, and high bands are not available for Wi-Fi.

In none of the analyses considered, unlicensed use across the entire 6 GHz band was found to be the most beneficial allocation. Even in countries with very high Wi-Fi demand, an additional 500 MHz of spectrum for unlicensed use in the lower 6 GHz band is sufficient to meet the expected demand. This means that there are no additional benefits with the full 6 GHz frequency band for unlicensed use.

In Latin America, Chile and Mexico have opted for a balanced approach to the 6 GHz band.

In the case of Chile, the Ministry of Transport and Telecommunications has opened the doors for the use of 6 GHz in 5G, reversing an earlier decision to make the full band (5925-7125 MHz) available for Wi-Fi. License-exempt devices are now allowed only in the lower part of the band (5925-6425 MHz), while the upper part will be considered for 5G and future evolutions. In the official documentation of the resolution, the Chilean Ministry stated that the reason behind the decision is the need to adapt to the reality of the market.

In Mexico, the Federal Telecommunications Institute (IFT) has decided to join a growing number of countries that are keeping their options open for the 6 GHz band. IFT has limited the unlicensed use of the 6 GHz band to 5925-6425 MHz and the use of the upper 6 GHz remains unchanged. The future decision on 6425-7125 MHz will depend on the evolution of technology, as well as the needs, and behaviour of the Mexican market. An important decision for the future of 5G.

The identification of the 6 GHz band for licensed use has received strong support during the recent World Radiocommunication Conference (WRC-23), including Mexico and Brazil

WRC-23 took important steps to address the growth of mobile data by identifying additional mid-band spectrum for IMT. The final harmonisation of the 3.5 GHz (3.3-3.8 GHz) band, the pioneer band of 5G, was achieved in Europe, Middle East and Africa (EMEA), as well as throughout the Americas.

In particular, the 6 GHz band (6.425-7.125 GHz), was identified for IMT in Region 1 as well as in countries in Regions 2 and 3. Countries representing more than 60% of the world's population applied to be included in the identification. The 6 GHz band is now a key component for the expansion of mobile capacity for 5G-Advanced and beyond. Both Mexico and Brazil have identified the band 6425-7125 MHz to IMT.

Noting bullet point 37, in page 18, the GSMA fully supports OfReg's proposal to reserve 6425-7125 MHz for possible future mobile use (5G or 6G) and keep a watching brief on developments, following the WRC-23 results and the global interest in the upper 6 GHz band for IMT.

Conclusion and recommendations

Summarising the above, the GSMA's vision for the 6 GHz band indicates the following for the Cayman Islands:

- Mobile networks will need, on average, 2 GHz of mid-band spectrum per country by 2030. This is challenging to achieve without 6 GHz.
- 6 GHz capacity is required to meet increasing customer demand at speeds outlined in the International Telecommunication Union's vision for 5G, as well as future evolution.
- Mobile networks are becoming denser and 6 GHz can enable the growth of sustainable mobile capacity on existing macro-cell sites.
- Timely availability of 6 GHz, at reasonable conditions and price, will drive cost-efficient network deployment, help lower the broadband usage gap and support digital inclusion.

Looking ahead, the GSMA makes the following recommendations:

- The 6425-7125 MHz band should be made available for licensed 5G technology this decade in the Cayman Islands.
- AFC technology seems unnecessary for the Cayman Islands and the GSMA agrees with the position taken in the consultation.
- No changes to the power levels of SRDs should be permitted in current and future IMT bands, or adjacent to them.

Resources:

- 1 <https://www.gsma.com/spectrum/wp-content/uploads/2021/07/Estimating-Mid-Band-Spectrum-Needs.pdf>
- 2 <https://www.gsma.com/spectrum/new-spectrum-for-5g-adding-up-the-mid-band-maths/>
- 3 <https://www.gsma.com/spectrum/wp-content/uploads/2022/02/mid-band-5G-spectrum-benefits.pdf>
- 4 <https://data.gsmaintelligence.com/research/research-2022/the-socioeconomic-benefits-of-the-6-ghz-band-considering-licensed-and-unlicensed-options>

June 27, 2024

Utility Regulation and Competition Office

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Dear OfReg –

The Dynamic Spectrum Alliance (DSA)¹ is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The DSA's membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike.

The DSA appreciates the opportunity to submit the following comments to the Cayman Islands Utility Regulation and Competition Office (OfReg) ICT 2024-1- Consultation Short Range License Exempt Devices (the Consultation). OfReg seeks comments from affected stakeholders, the general public, and other interested parties, regarding proposed modifications to Annex 2 of the section 23(2) notice. Currently, Annex 2 consists of a list of license-exempt Industrial, Scientific, and Medical (ISM) spectrum bands. Of the bands listed, the 2 400 - 2 500 MHz and 5 725 - 5 875 MHz bands are utilized by WAS/RLANs, with Wi-Fi by far being the most common implementation.

OfReg proposes to expand Annex 2 of the section 23(2) notice to include several spectrum bands used by license-exempt Wi-Fi devices, including the 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz, and 5925-6425 MHz bands. OfReg also proposes to include 57-71 GHz that can be used for Multi-Gigabit Wireless Systems, more commonly known as WiGig. According to the Consultation, equipment that can be demonstrated to meet the parameters of either the relevant Federal Communications Commission (FCC) or European standard will be able to be type approved upon application to OfReg.

Consistent with this statement, the DSA requests that the footnote on page 6 regarding the 5925-6425 MHz band be modified to conform to the relevant FCC Standard (Title 47 Code of Federal Regulations, Part 15, Section 407). This will allow Caymanian residents, businesses, and visitors to the islands to take full advantage of the current generations of Wi-Fi technology – Wi-Fi 6e and Wi-Fi 7 – both of which are designed to operate in the 6 GHz band. Given the anticipated demand for 6 GHz Wi-Fi equipment,² having access to the 6 GHz band will be critical.

¹ A full list of the DSA members is available on the DSA's website at www.dynamicspectrumalliance.org/members/.

² According to the Wi-Fi Alliance website, 807.7 million 6 GHz Wi-Fi device shipments are predicted for 2024, up 66 percent from 2023.

Consultation Questions

Question 1: Are there any other Short-Range Devices or Applications which should be considered?

The DSA suggests that OfReg clarify that license-exempt Very Low Power (VLP) devices may operate both indoors and outdoors. The note on page 6 specifically calls for outdoor use for VLP devices, which could lead to confusion. There is little risk that VLP devices operating indoors at the proposed e.i.r.p limits, which are more stringent than those proposed for Low Power Indoor (LPI) devices, will cause harmful interference to incumbent operations.

In general, the DSA advocates for administrations to authorize all three categories of license-exempt devices, namely LPI, VLP, and Standard Power (SP) devices under control of an Automated Frequency Coordination (AFC) system, across the 6 GHz band. Outdoor SP 6 GHz devices are being used primarily by Wireless Internet Service Providers (WISPs) to provide broadband fixed wireless access. WISPs can supplement commercial efforts underway to provide broadband access through the deployment of fiber-based networks and the fixed satellite service. Many enterprise use cases also rely on outdoor SP devices. Indoors, SP operations are being driven by enterprise use cases.

In the Consultation, OfReg indicates that there are no fixed links operating on Grand Cayman in the 5925-6425 MHz range. For this reason, OfReg does not see the need for use of an AFC to enable SP devices to operate. The DSA agrees with OfReg's assessment that use of an AFC, in this instance, would be unnecessary to protect incumbent licensees. However, we recommend that OfReg reconsider the use of an AFC should it consider opening additional frequencies that may be more encumbered for license-exempt use.

Question 2: Are there any other frequency ranges for the identified Applications which should be considered?

The DSA urges OfReg to open the entire 5925-7125 MHz band to license-exempt devices.

Question 3: Do you have any comments on OfReg's proposed approach to combatting interference to FM broadcasters from ultra-low power FM transmitters (FM modulators)?

N/A

Question 4: Do you have any other comments on the proposals?

The footnote on page 6 regarding the 5725-6425 MHz band states, "In the frequency band 5925 – 6425 MHz, the maximum e.i.r.p. is 250 mW for indoor use (Low Power Indoor, LPI) and 25 mW for outdoor use (Very Low Power, VLP)". The DSA notes that the value for LPI devices is inconsistent with the FCC standard cited (Part 15.407). FCC Rule 15.407(a)(3)(i)(5) says, "For an indoor access point operating in the 5.925-7.125 GHz band, the maximum power spectral density must not exceed 5 dBm e.i.r.p. in any 1-megahertz band. In addition, the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm." FCC Rule 15.407(a)(3)(i)(8) says, "For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed -1 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm." The DSA recommends that OfReg explicitly permit VLP devices to operate indoors as well as outdoors.


Additionally, the DSA suggests that OfReg should include mention of 'subordinate devices' in the footnote. Subordinate devices are defined for purposes of FCC Rule 15.403 as "...a device that operates in the 5.850-5.895 GHz band or in the 5.925-7.125 GHz band under the control of an Indoor Access Point, is supplied power from a wired connection, has an integrated antenna, is not battery powered, does not have a weatherized enclosure, and does not have a direct connection to the internet...". An example of a relevant subordinate device is a Wi-Fi capable television receiver. With respect to the e.i.r.p. limit of subordinate devices, FCC Rule 15.407(a)(3)(i)(6) states, "For a subordinate device operating under the control of an indoor access point in the 5.925-7.125 GHz band, the maximum power spectral density must not exceed 5 dBm e.i.r.p in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm."

The DSA requests that OfReg modify its proposed footnote as follows: *"In the frequency band 5925 – 6425 MHz, the maximum e.i.r.p. for Low Power Indoor (LPI) access points and (indoor only) subordinate devices operating under control of an LPI access point over the frequency band of operation must not exceed 30 dBm, the maximum e.i.r.p for a LPI client device over the frequency band of operation is 24 dBm, and the maximum e.i.r.p. for Very Low Power (VLP) devices that can operate both indoors and outdoors is 14dBm".*

Conclusion

The DSA and its members thank OfReg for the opportunity to share our perspectives and are available to discuss these comments and provide any additional information and insights

Respectfully submitted,



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President
Dynamic Spectrum Alliance



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June 27, 2024

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Re: ICT 2024 – 1 – Consultation, Short Range Licence Exempt Devices

Dear Colleagues,

Wi-Fi Alliance commends the Utility Regulation and Competition Office of the Cayman Islands ("OfReg") on its ongoing work in the area of spectrum management. The OfReg consultation on the draft determination for the proposed Short-Range Device parameters and frequencies ("the Consultation")^{1/} remains a critical tool to update the public of the areas in which OfReg expects to focus and to solicit feedback that will provide OfReg with the information necessary to proceed.

Wi-Fi Alliance is a global, non-profit industry association of over 900 leading companies devoted to connecting everyone and everything everywhere. Since 1999, Wi-Fi Alliance has enabled worldwide adoption of Wi-Fi technology by certifying interoperability for thousands of Wi-Fi products each year. Today, Wi-Fi devices are the primary means by which Caymanians connect to the Internet. Importantly, Wi-Fi is the predominant technology for delivering internet connectivity, including most mobile wireless traffic.^{2/} It is also important to recognize that connectivity provided by Wi-Fi through low-cost, short-range devices (SRDs) deliver billions of dollars in economic value to Cayman Islands.^{3/} But, as with any wireless technology, Wi-Fi depends on access to radiofrequency spectrum and lack of spectrum access undermines its performance and functionality. Accordingly, Wi-Fi Alliance respectfully calls on OfReg to recognize the vital role of Wi-Fi in connectivity infrastructure and consider adjustments to the proposed Wireless LAN parameters so as to ensure that necessary spectrum is available to support Wi-Fi performance and evolution.^{4/}

^{1/} OfReg - ICT 2024 – 1 – Consultation, Short Range Licence Exempt Devices available at <https://www.ofreg.ky/viewPDF/documents/2024-05-25-10-26-22-Consultation-Paper-on-Proposed-Short-Range-Device-Regulation.pdf>

^{2/} In fact, each subsequent generation of cellular networks has increasingly relied on Wi-Fi, and that is expected to continue. Fifth Generation ("5G") wireless technology was developed to account for Wi-Fi use, and so 5G network architecture supports Wi-Fi as one of its elements.

^{3/} *Economic Value of Wi-Fi* available at <http://valueofwifi.com>

^{4/} Consultation at page 6.

Wi-Fi Alliance Responses to the Consultation Questions
(reference *Consultation, Section E, paragraph 91*)

Question 1: Are there any other Short-Range Devices or Applications which should be considered?

Question 2: Are there any other frequency ranges for the identified Applications which should be considered?

Response: The latest Wi-Fi generation (i.e., [Wi-Fi 7](#)) equipment is already on the market, empowering tremendous connectivity benefits which are ready to be provided to the Caymanian businesses, consumers, and the economy. But Wi-Fi 7 optimal performance depend on access to the 6425-7125 MHz frequency band.

Wi-Fi 7 implements powerful new features, summarized below, that boost performance and improve connectivity across consumer and commercial market segments with cutting-edge capabilities that deliver high throughput, deterministic latency, and greater reliability.

- 320 MHz channels: Doubles today's widest channel size to facilitate multi-gigabit device speeds and high throughput.
- Multi-Link Operation (MLO): Allows devices to transmit and receive data over multiple links for increased throughput and improved reliability.
- 4K QAM: Achieves 20% higher transmission rates than 1024 QAM.
- 512 Compressed Block Ack: Improves efficiency and reduces overhead.
- Multiple RUs to a single STA: Improves flexibility for spectrum resource scheduling to enhance spectrum efficiency.
- Triggered Uplink Access: Optimizes Wi-Fi 6 defined triggered uplink access to accommodate latency sensitive streams and satisfy QoS requirements.
- Emergency Preparedness Communication Services (EPCS): Provides a seamless National Security & Emergency Preparedness (NSEP) service experience to users while maintaining the priority and quality of service in Wi-Fi access networks.

With these features, Wi-Fi 7 provides an unprecedented performance which is necessary for enablement of the innovative use cases including multi-user AR/VR/XR, immersive 3-D training, cloud computing, hybrid work, industrial automation, and many others. As the 6 GHz regulatory landscape evolves, Wi-Fi 7 devices are quickly becoming available in several countries, including Canada, Colombia, Costa Rica, Dominican Republic, United States and many others.

In 2024, over 269 million Wi-Fi 7 devices will be introduced into the market. And by 2028, the annual shipments of the 6 GHz enabled Wi-Fi devices are projected to exceed 2.5 billion. In short, regulatory harmonization in the 6 GHz band creates economies of scope and scale and fosters a robust equipment market. But these benefits cannot be fully realized without Wi-Fi (i.e., Wireless LAN) access to adequate spectrum capacity. Access to less than the entire 6 GHz band (i.e., 5925-6425 MHz and 6425-7125 MHz bands) substantively reduces Wi-Fi 7 performance in terms of

latency and data throughput. The 5925-6425 MHz band (i.e., 500 MHz) alone does not offer sufficient spectrum capacity to support the latest Wi-Fi technology.

Wi-Fi access to the 6425-7125 MHz is needed to support the Gigabit connectivity and there are no alternative frequency bands that may address expanding Wi-Fi spectrum requirements now or in the future. A recently completed study analyzed the impact of spectrum availability on Wi-Fi ability to support gigabit connectivity in residential deployments.⁵ The simulation modeled high-density Wi-Fi deployments in a typical residential apartment building with gigabit fibre connectivity to every apartment. The model was set to ensure that Wi-Fi spectrum congestion does not constrain (i.e., bottleneck) the gigabit connectivity. The results of this study confirm that Wi-Fi access only to the 5925-6425 MHz frequency band constrains gigabit connectivity. The results of this study confirm that the five 160 MHz channels (two 160 MHz channels in 5 GHz and three 160 MHz channels in 6 GHz) can only support gigabit coverage to approximately 50-60% of residential building areas. To ensure whole-building coverage, a minimum of ten channels is necessary.

Wi-Fi Alliance welcomes OfReg initial decision to allow wireless LAN access to the 5925-6425 MHz on a license exempt basis in alignment with the US FCC Part 15.407, but respectfully asks OfReg to note that the same US FCC rules allow wireless LAN access to the 6425-7125 MHz band. Wi-Fi Alliance is concerned that without license exempt access to the 6425-7125 MHz band, Wi-Fi capabilities in Cayman Islands will be permanently impaired, undermining the overall connectivity objectives and depriving Cayman Island's consumers and enterprises from realizing full benefits of Wi-Fi 7 and future generations of Wi-Fi technologies.

Conclusion

Policymakers worldwide recognize that wireless connectivity is increasingly dependent on Wi-Fi. And the *Consultation* represents an important step toward making much-needed spectrum available to address growing demand for Wi-Fi connectivity in Cayman Islands. Wi-Fi Alliance appreciates the opportunity to contribute to OfReg's spectrum management efforts.

Respectfully submitted,

/s/ Alex Roytblat

WI-FI ALLIANCE

Alex Roytblat

Vice President of Regulatory Affairs

aroytblat@wi-fi.org

⁵ [Wi-Fi Spectrum Requirements](#), Plum Consulting, March 2024

CABLE & WIRELESS
CAYMAN ISLANDS LIMITED

Response to

**ICT 2024 – 1 – Consultation Short Range Licence
Exempt Devices**

Page 0 of 6

1. INTRODUCTION

1.1 Cable and Wireless (Cayman Islands) Limited, t/a Flow is pleased to provide comments on the Office's **ICT 2024 – 1 – Consultation Short Range Licence Exempt Devices** (the Consultation Document), dated May 27, 2024 with responses required by June 27, 2024.

1.2 Flow expressly states that failure to address any issue raised in the Consultation Document does not necessarily signify its agreement in whole or in part with any position taken on the matter by the Office or respondents. Flow reserves the right to comment on any issue raised in the Consultation Document at a later date.

1.3 Kindly send any communication in relation to this Consultation Document to:

Cristina Spratt

Cristina.spratt@cwc.com

Melesia Sutherland

melesia.sutherland@cwc.com

2. PROCEDURE ON CONSULTATION DOCUMENT AND DRAFT DETERMINATION

2.1 Before addressing the substantive matter of the Consultation, Flow brings to the attention of the Office Section 7 of URCA Act (2021 Revision) **"the Act"**

Duty to consult

7. (1) *Prior to issuing an administrative determination which, in the reasonable opinion of the Office, is of public significance, and subject to specific procedures under sectoral legislation, the Office shall —*

(a) issue the proposed determination in the form of a draft administrative determination;

(b) allow persons with sufficient interest or who are likely to be affected a reasonable opportunity to comment on the draft administrative determination; and (emphasis added)

(c) give due consideration to those comments with a view to determining what administrative determination (if any) should be issued. (emphasis added)

(2) The Office shall, within six months of the date of commencement of this section, publish its procedures for seeking comments, which shall include —

Page 1 of 6

- (a) how the Office will issue draft administrative determinations under subsection (1);*
- (b) how consultations will be published;(emphasis added);*
- (c) the minimum time for responding to consultations;*
- (d) how the Office will publish comments or summaries of comments received;*
- (e) guiding principles as to how the Office will consider comments received and how it will publish its reasons for its decisions after it has considered those comments.....*

4. *Where the Office intends to issue an administrative determination, the Office shall:*

- (a) give written notice of that intention, to any person with sufficient interest or likely to be affected by the proposed determination; and*
- (b) afford that person an opportunity to make written representations to show cause why the Office ought not to make such a determination.*

2.2 OF 2017 – 1 – Determination Consultation Procedures Guidelines (the Guidelines) published July 7, 2017 states at:

J. Decisions Made by the Office Following a Consultation

33. The Office will review and assess each response carefully and with an open mind. All submissions will be considered and analysed. The Office's analysis of the responses will be included with its administrative determination (i.e. its statement). The statement by the Office, which will also serve as a report on the consultation, will provide a general review of the submissions that were given during the consultation process. It will detail the Office's response to the submissions, and give reasons for its final position.

34. The Office will publish its administrative determinations in accordance with the URC Law, by publishing the m on its website and maintaining copies at its principal office for inspection by the public on request during normal business hours without charge.

2.3 Flow refers to Section 93. of the Consultation Document which states:

The Office considers that because the proposed changes are published as part of this consultation, this consultation will be conducted as a single-phase consultation over a period of thirty (30) days.

In light of the above procedures as specified in the Act and Guidelines, Flow seeks clarity as to whether the steps for this determination are in accordance with the Act as the Consultation document does not state that the Office will provide guiding principles as to how it will consider comments received prior to making a determination. Further, Flow ought to be given the opportunity to make written representations should Flow object to the basis for the proposed determination. The Office therefore appears to be acting with procedural impropriety.

3. FLOW's COMMENTS

3.1 Flow recognises the innovative value of Short Range Licence Exempt Devices (SRD) and the convenience that they provide to consumers. As the Internet of Things (IoT) ecosystem develops there will be more SRDs. The existing spectrum framework establishes regulations, standards, rules and guidelines that allows all spectrum users to co-exist.

3.2 In the case of unlicensed spectrum use, the Office states ¹*The frequencies set out below are not assigned exclusively for short-range devices and are provided on a non-interference basis: Short-range devices must accept interference from other users of these frequencies and must not cause harmful interference to other users'*. Unlicensed spectrum users are also not to cause interference to the use of licenced spectrum and it is to also be accepted that spectrum use changes over time and unlicensed spectrum could become licensed as technology and markets evolve, which we recognise that the Office understands.

3.3 Therefore, as the Office '*consult interested stakeholders on the proposed modifications to Annex 2 of the section 23(2) notice*' Flow recommends that the Office evaluates its proposed modifications against the following to inform the framework for unlicensed spectrum use:

¹ Pg.4

Interference Management:

3.3(i) The Office has to evaluate the available data to assess the potential for interference from SRDs to licensed services, whether existing or which could reasonably be expected to be provided in the foreseeable future. Public safety communications and other critical emergency services must also be protected from interference by SRDs. Mitigating strategies must be employed, as necessary, to protect licensed services and there must be guidelines for the use of SRDs in emergency situations, ensuring they do not interfere with critical communications during such events.

Technical Standards:

3.3 (ii) Promote harmonized technical standards to minimize harmful interference from SRDs to licensed services.

Spectrum Allocation and Usage:

3.3(iii) In considering Frequency Bands assigned to SRDs, critical licensed services must be protected. The usage conditions must include the specific usage conditions for SRDs, such as maximum transmit power, duty cycle limitations, and designated frequencies, to balance the needs of different spectrum users.

Economic Impact:

3.3(iv) SRD regulations could affect investment in licensed services and infrastructure. It is necessary that the framework and regulations advocating continue to support ongoing investment in licensed networks services.

Long-term Spectrum Planning:

3.3(v) The Office is familiar with the developments in spectrum assignment as new services evolve, through the World Radio Conference cycle. This cycle reinforces that the Office must remain alert to the the long-term evolution of the telecommunications landscape, ensuring that SRD regulations are flexible enough to accommodate future technological advancements, which may include reallocation of unlicensed spectrum and formerly unlicensed spectrum becoming licensed

Monitoring and Enforcement:

3.3(vi) Ideally the Office should have some mechanisms for monitoring SRD compliance and enforcing regulations, including penalties for non-compliance. Flow recognizes that this may prove challenging due to the fragmented nature of SRD user demographics. This is where public education campaigns would be useful to encourage SRDs users in understanding the regulations and the importance of compliance

4. CONCLUSION

4.1 Short Range Licence Exempt Devices (SRD) provide innovative services and convenience to consumers. The Office's role is to continue to allow the existing services to co-exist while protecting the licensed, critical service provided by telecommunications provider. At the same time, the Office must build flexibility into the unlicensed spectrum framework to accommodate change in spectrum allocation and assignment as technology evolves.

END



ICT 2024 – 1 - Consultation
Short Range Licence Exempt
Devices

Prepared For:

**UTILITY REGULATION AND COMPETITION OFFICE
THE CAYMAN ISLANDS**

Primary Contact:

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WE DESIGN AND BUILD
A BETTER FUTURE

1. Are there any other Short-Range Devices or Applications which should be considered?

Digicel's response: Yes, LoRaWAN which can be used as short range and also long range should be considered.

2. Are there any other frequency ranges for the identified Applications which should be considered?

Digicel's response: LoRawan uses different frequency based on the region, however for Cayman, since it is geographically located in North America, we should adopt US915 (902 – 928 MHz).

3. Do you have any comments on OfReg's proposed approach to combatting interference to FM broadcasters from ultra-low power FM transmitters (FM modulators)?

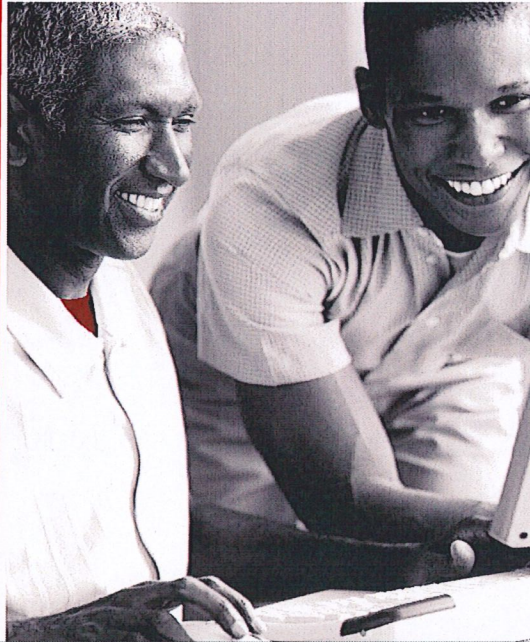
Digicel's response: Digicel agrees with Ofreg's approach to combatting interference to FM broadcasters from FM modulators.

4. Do you have any other comments on the proposals?

Digicel's response :We believe that OfReg should include a list of authorized cordless phones in the list of devices considered and a definition be provided for the frequency where they should operate.

Alternative Point of contact:

Name, Title	Kevin Mullings, Technical Lead, CEO Office and Admin
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THANK YOU
FOR ENGAGING US

Ericsson comments to the Public Consultation ICT 2024 – 1 of the Utility Regulation and Competition Office of the Cayman Islands

Introduction

Ericsson thanks the Utility Regulation and Competition Office (the 'Office' or 'OfReg') for the opportunity to send our comments to its consultation ICT 2024 – 1, about the use of Short-Range License Exempt Devices in The Cayman Islands.

Ericsson comments to the OfReg Consultation ICT 2024-1

The following comments are related to Section D.3

Question 1:

Are there any other Short-Range Devices or Applications which should be considered?

Ericsson comments to Article # 36 of the Consultation

Any potential regulations for unlicensed use in the lower part of the 6 GHz band (i.e., 5,925-6,425 MHz) should be technology neutral and thus allow 5G NR Unlicensed (NR-U), in addition to RLAN (Wi-Fi) systems.

Ericsson comments to Article # 38 of the Consultation

As spectrum is a scarce resource, we believe that technologies must use it efficiently. RLAN is for short range communication and thus we strongly recommend the consideration of high bands to address their capacity needs. On the other hand, mobile communications require larger communication range. A study by the GSMA concluded that in fact mid-bands is the largest economical contributor ¹.

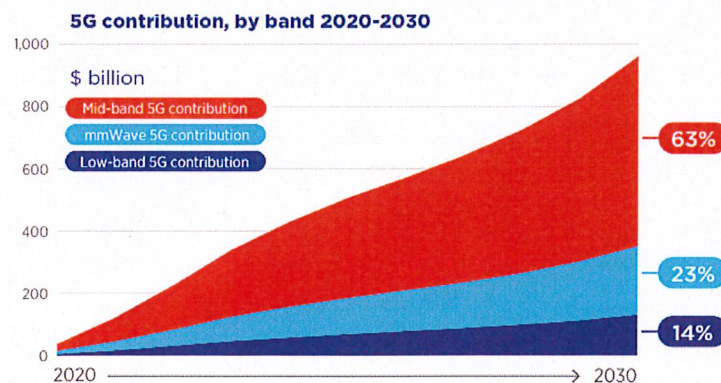


Fig. 1 – 5G contribution by band range

¹ [MidBand IG EUROPE R \(gsma.com\)](https://www.gsma.com/midband/)

Thus, we believe that enabling unlicensed applications in the 57-71 GHz (14 GHz of spectrum) will address any demands for spectrum. This decision could be accompanied by the consideration of mid-band spectrum for IMT.

Question 4:

Do you have any other comments on the proposals?

Ericsson comments to Article # 35 of the Consultation

Fixed microwave links are commonly used in the 6 GHz band (i.e., 5925 - 7125 MHz) in applications which demand high reliability and **complete interference-free operation**, such as mobile network backhaul transport, long-distance communications, and railway radiocommunication systems, therefore, any minimal interference caused by devices operating in license-exempt spectrum would be detrimental, since it would reduce performance and could even cause a complete interruption of fixed services, and in addition, it would be very difficult to locate the interfering source operating in license-exempt spectrum.

The use of AFC (Automatic Frequency Coordination) systems has been proposed in North America to control RLAN (Wi-Fi), but it is yet unknown if it can provide a high accuracy and reliability to avoid interference from RLAN devices to microwave systems in commercial deployments, and also, it involves many complex implementation aspects that must be carefully considered, such as choosing an effective administration model (if run by a State Agency or private company) and operational costs.

In May 2023, the Swedish Regulator PTS conducted field tests to evaluate the impact of RLAN (Wi-Fi 6E) on a real point-to-point microwave radio link (fixed service) operating in the lower band of 6 GHz (5925-6425 MHz), and it concluded that microwave systems can suffer interference from Wi-Fi Access Point located at a 3.8 km distance from the fixed service receiver, which degrade the performance of the fixed service even with low intensity RLAN traffic. The results of these tests were presented to the CEPT project team working on sharing studies between RLAN (Wi-Fi) and fixed service².

These tests showed that even the beacon signals of RLAN (Wi-Fi) systems can interfere the fixed microwave service links. Beacon signals are specific to Wi-Fi systems and are sent every ~100 ms all the time, 24/7, even when no Wi-Fi client is connected. This aspect is seldom considered in studies carried out to evaluate potential Wi-Fi interference. Testing was performed with European Wi-Fi devices, which can transmit up to 23 dBm peak EIRP.

In practice, it is not possible to coordinate the interference generated by RLAN (Wi-Fi) devices operating in license exempt spectrum due to its ubiquitous and random nature of the use. For example, it is quite difficult to guarantee that a separation distance between Wi-Fi devices and the antennas of microwave links will be achieved in every location, and at all times. Even finding the interference source and resolving it, could take days or even weeks. due to the nature of RLAN which moves between channels.

² https://api.cept.org/documents/se-45/78519/se45-23-info006_info-document-on-rlan-vs-fs-field-measurements

Therefore, Ericsson recommends OfReg to adopt a conservative approach to ensure that RLANs will provide adequate protection to fixed services in the full 6 GHz band ³, for which we suggest authorizing RLANs only for indoor environments with low power (LPI).

In the case of RLANs that operate in indoor environments under license-exempt allocation (free use) in the 5925-6425 MHz band, we suggest to follow the approach of the [ECC Decision \(20\)01 – Nov. 2020](#) to reduce the probability of interference to incumbent fixed services, authorizing low indoor power (LPI) with maximum in-band emission of 23 dBm (200 mW) for Access Points and RLAN client devices, with a P.I.R.E. maximum average of 10 dBm/MHz for in-band emissions, and a P.I.R.E. maximum average for out-of-band emissions of -22 dBm/MHz.

Ericsson comments to Article # 37 of the Consultation

Ericsson recommends OfReg to consider identifying the 6,425-7,125 MHz band for IMT (5G) in its territory to benefit consumers and industries with advanced 5G services and large economies of scale that will be achieved in the coming years.

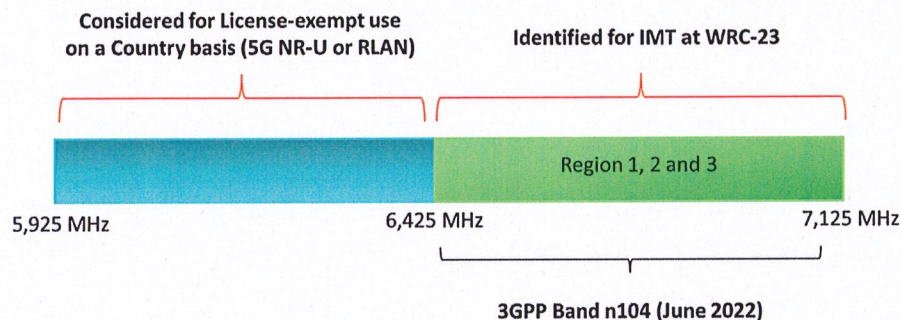


Fig. 2 – Balanced approach in the 6 GHz band

This balanced approach would allow the deployment of 5G in licensed spectrum (5G New Radio or 5G NR) in the upper part of the 6 GHz band (i.e., 6,425 MHz to 7,125 MHz), while 5G NR-U (New Radio Unlicensed) or RLAN (Wi-Fi 6E in the lower part of the band (i.e., 5,925 to 6,425 MHz) under a license-exempt regime, thus stimulating infrastructure investments, service innovation, and a competitive market environment to benefit Consumers, whom would be able to choose the technology that best fits their needs anytime, anywhere, directly from their user terminals (e.g. Smartphones).

Also, the balanced approach of using the 6 GHz band by 5G NR in the upper part of the band and license-exempt 5G NR-U or RLAN (Wi-Fi) in the lower part, would provide a high socioeconomic value according to a GSMAi study ⁴, which evaluated the cost-benefit of the different options for utilizing the 6 GHz band, between 5G NR (5G in licensed spectrum) and unlicensed uses (RLAN Wi-Fi or 5G NR-U).

³ Ericsson [Microwave Outlook, October 2020](#)

⁴ GSMA Intelligence ["The socioeconomic benefits of the 6 GHz band"](#), June 2022

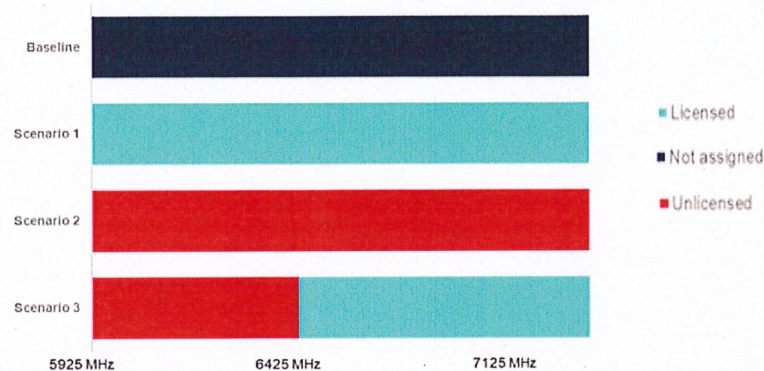


Fig. 3 – Socioeconomic benefit of 5G NR versus unlicensed use in the 6 GHz Band

The GSMA association, mobile operators worldwide, and leading manufacturers of the mobile network ecosystem support the identification of the band from 6,425 to 7,125 MHz for IMT⁵.



Fig. 4 – Global mobile industry support for a balanced use of the 6 GHz Band

The upper part of 6 GHz band (i.e., 6,425-7,125 MHz) offers a unique opportunity to reach the average mid-bands spectrum needs of 2,000 MHz that the mobile industry⁶ estimates will be required for a cost-effective evolution of 5G services in the 2025-2030 timeframe.

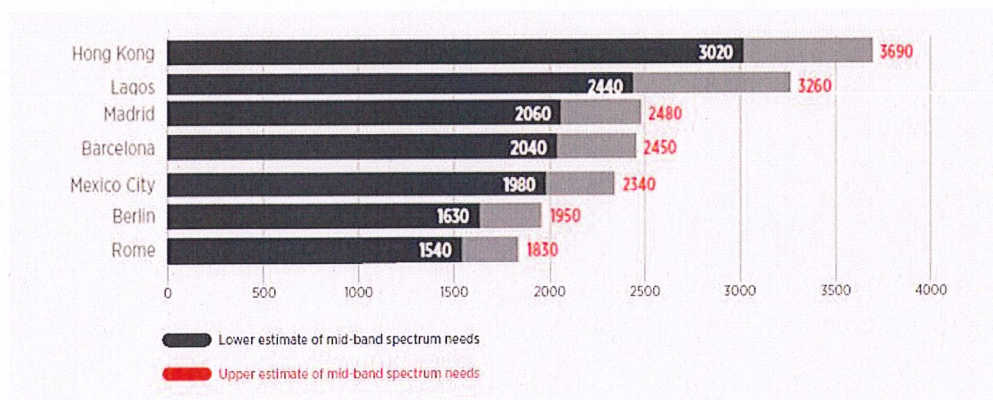


Fig. 5 – Total mid-band spectrum needed for 5G in main cities during 2025-2030

⁶ GSMA [5G Mid-Band Spectrum Needs](#)

Given its optimal balance between coverage and capacity, the 6 GHz band will be essential for mobile Operators to provide high quality 5G services that will increase the economic growth and productivity of industries, especially in urban environments where more than 86% of the Cayman Islands population lives, and in an economically sustainable since the existing tower grid could be reutilized.

In 2023, several 5G NR trials around the world ⁷ showed that the 6425-7125 MHz band could significantly improve the capacity and speeds of 5G services in urban areas, and particularly, in indoor areas where around 75% of mobile network traffic originates. Mobile Operators involved in these tests indicated they see the 6GHz band as critical for the expansion of their 5G services within the next years, and to avoid service degradation if the demand for fast connectivity continues increasing at the current growth pace of 30% every year.

Standardization of the 6 GHz band for IMT at 3GPP

At its RAN#96 plenary meeting, the 3GPP completed standardization work on the upper part of the 6 GHz band (i.e., 6425 to 7125 MHz) named band n104 ⁸ for 5G New Radio (i.e., 5G on licensed spectrum), and was incorporated into Release 17. This standardization body confirmed that the new n104 band will use a TDD configuration with channels between 20 to 100 MHz.

This new standard now allows the mobile industry to develop 5G systems and terminals that operate in the 6.425 to 7.125 MHz band, since the 3GPP approved the RF specifications of this band for both the network and user equipment, to provide a standard basis for the industrial chain to develop products for this spectrum. Additionally, 3GPP is at the moment standardizing the "expected emission mask" requirement that was agreed at WRC-23, ensuring governments protection of satellite uplink, this is expected to finalize end 2024.

The 3GPP standard provides certainty for governments to plan their strategies to authorize the use of 5G (IMT) in the 6 GHz band, in coordination with their national mobile industry.

Ericsson is also leading the development of this ecosystem and is working with partners to develop the full 3GPP n104 ecosystem in time for when Administrations carry on spectrum auctions following the recent WRC-23 decisions.

WRC-23 decisions

The World Radiocommunication Conference 2023 (WRC-23) was held from November 20 to December 15, 2023, in Dubai, United Arab Emirates, and provided relevant support to IMT (5G) services in the 6 GHz band:

- In Region 1 (i.e., Europe, Africa, Arab, and CIS regions) ⁹, the 6,425-7,125 MHz band was identified for IMT.

⁷ [Licensed 6 GHz Opportunity](#)

⁸ 3GPP TS 38.104 V18.2.0 (2023-06)

⁹ [WRC-23 Final Acts](#), footnote 5.457E

- In Region 2, the 6,425-7,125 MHz band was identified for IMT in Brazil and Mexico ¹⁰, leaving the opportunity for other Administrations to join in World Radiocommunication Conference 2027 (WRC-27).
- In Region 3, Cambodia, Lao People's Democratic Republic, and the Maldives ¹¹ identified the 6,425-7,025 MHz band for IMT, while the range of 7,025 to 7,125 MHz was identified for the terrestrial component of IMT in the entire region (Asia).
- Many other Administrations in Region 3 expressed their interest in joining this footnote, which will be possible at the next World Radiocommunication Conference 2027 (WRC-27).
- The IMT identifications across all ITU regions include harmonized technical conditions to protect the existing Fixed Satellite services (Earth-space), and at the same time, allowing the deployment of macro IMT radio bases for greater efficiency in deployments, maximizing economies scale at the top of the 6 GHz band.

All the Administrations that identified the 6,425-7,125 MHz band for the IMT during WRC-23, and those which officially expressed interest in doing so, represent a total combined population of more than 4.75 billion people, equivalent to 60% of the world's population, which will generate an ecosystem of 5G networks and devices with large economies of scale to benefit consumers.

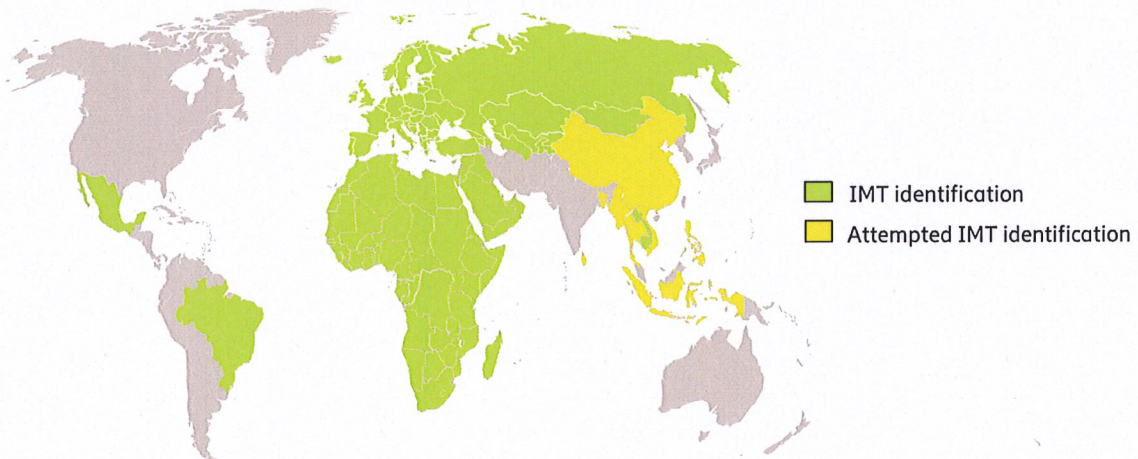


Fig. 6 – IMT identifications and interest in 6425-7125 MHz band during WRC-23

Although, The Cayman Islands did not sign a footnote to identify the 6,425-7,125 MHz band for IMT at WRC-23, it could authorize 5G (IMT) deployments in its territory based on the existing mobile service allocation in all ITU Regions.

In conclusion, the upper frequency range in the 6 GHz band (i.e., 6425-7125 MHz) represents a unique opportunity to support the evolution of 5G in The Cayman Islands, enabling efficient infrastructure deployments and providing high-quality services to consumers and industries.

¹⁰ [WRC-23 Final Acts](#), footnote 5.457F

¹¹ [WRC-23 Final Acts](#), footnote 5.457D

The recent WRC-23 achieved a significant milestone by identifying the upper 6 GHz band for IMT in all regions of the world or parts of, therefore, Ericsson recommends OfReg to consider identifying the 6425-7125 MHz frequency band for IMT in its territory to benefit consumers and industries with advanced 5G services, full mobility, and large economies of scale that will be achieved over the coming years.