Statement of the Communications Authority
Creation of a Class Licence for Regulating the Use of and Trade in 6 GHz Devices for Wireless Local Area Network
and
Variation to the Class Licence for Provision of Public Wireless Local Area Network Services

29 April 2022

INTRODUCTION

On 26 November 2021, the Communications Authority ("CA") published a consultation paper entitled "Creation of a Class Licence for Regulating the Use of and Trade in 6 GHz Devices for Wireless Local Area Network and Variation to the Class Licence for Provision of Public Wireless Local Area Network Services" (the "Consultation Paper")[1]. A Gazette notice was published on the same day announcing the issue of the Consultation Paper and commencement of the public consultation.

2. In the Consultation Paper, the CA proposed to create a class licence to regulate the possession, use and trading of wireless local area network ("WLAN") devices operating in the 5925 – 6425 MHz band ("the designated 6 GHz band") ("WLAN Device Class Licence"), and to vary the existing Class Licence for Provision of Public Wireless Local Area Network Services ("PWLAN Service Class Licence"). The proposal serves to introduce a new class of WLAN devices operating in the designated 6 GHz band (thereinafter referred to as "6 GHz Devices") into Hong Kong. This would provide consumers with a wider selection of high-end WLAN products that support faster data rates, lower latency and higher performance. Service providers could also provide public WLAN services using new 6 GHz Devices to better serve the public of Hong Kong. The CA invited interested parties to give views and comments on its proposal. By the close of the consultation on 24 December 2021, a total of 14 submissions[2] were received from the following respondents (in alphabetical order) -

- A joint submission of Apple Inc., Broadcom Inc., Cisco Systems Inc., Hewlett Packard Enterprise, Intel Corporation, Meta Platform Inc. (formerly Facebook Inc.), Microsoft Corporation and Qualcomm

[1] See https://www.coms-auth.hk/filemanager/en/content_711/cp20211126_e.pdf

[2] The submissions are available at: https://www.coms-auth.hk/en/policies_regulations/consultations/completed/tele_services/index_id_2362.html

Incorporated ("JS")

- Asia Satellite Coalition ("ASC")
- ASUS Hong Kong ("ASUS")
- Cisco Systems, Inc. ("CISCO")
- Company 1[3]
- Dynamic Spectrum Alliance ("DSA")
- Ericsson Limited ("Ericsson")
- GSMA
- Hong Kong Telecommunications (HKT) Limited ("HKT")
- Linksys
- Qualcomm Incorporated ("Qualcomm")
- Wi-Fi Alliance
- Winco (Pacific) Limited ("Winco")
- Windsor Place Consulting ("WPC")

RELEVANT STATUTORY PROVISIONS

3. Pursuant to section 7B(2) of the Telecommunications Ordinance (Cap. 106) ("TO"), the CA may create a class licence for telecommunications networks, systems, installations or services. Pursuant to section 7B(6) of the TO, the CA shall publish a class licence in the Gazette specifying –

(a) the telecommunications networks, systems, installations or services that eligible persons may supply or use;

(b) the conditions of the class licence; and

(c) the qualification that a person is required to possess before he is eligible to be licensed under the class licence.

4. Pursuant to section 7C(1) of the TO, the CA may vary the conditions of a class licence by notice in the Gazette. Pursuant to section 7C(2) of the TO, the CA may in varying a class licence –

(a) specify further telecommunications networks, systems,

[3] The company requested to keep its name in confidence.

installations or services that a person may supply under the licence;

(b) vary or revoke the type of telecommunications network, system, installation or service that a person may supply under the licence;

(c) add conditions to the licence; and

(d) vary or revoke conditions in the licence.

SUBMISSIONS RECEIVED AND CA'S RESPONSES

5. The major comments received and the CA's responses are summarised in following paragraphs. Full details are given in the **Annex**.

Creation of WLAN Device Class Licence

6. CISCO, DSA, JS, Qualcomm, Wi-Fi Alliance and WPC support the creation of WLAN Device Class Licence. Although Company 1 and GSMA propose the CA to consider licence-exemption instead of creating the WLAN Device Class Licence, there was no objection raised by the respondents to the proposal on allowing the use of 6 GHz Devices in Hong Kong.

7. With the successful history on the development of WLAN products and services in Hong Kong, the CA would foresee high demands on 6 GHz Devices from the general public and business / industry sectors. As mentioned in the Consultation Paper, many economies are inclined to adopt a light-handed, licence-exempted approach for regulating the use of 6 GHz Devices that will likely be vast in quantity. As far as users are concerned, class licences and licence-exemption actually achieve similar effects, i.e. users would not need to individually apply for a licence and no licence fee would be incurred for the use of 6 GHz Devices. Indeed, the class licensing approach to regulate various telecommunications devices and services has been successfully implemented in Hong Kong since 2002. Taking into account the lead time on enacting legislation for licence-exemption and the complexity for any future legislation amendment in this regard to cope with technology evolutions, the CA decides to adopt the class licence approach which allows more flexibility of implementation and create the new WLAN Device Class Licence accordingly.

Designation of Frequency Band

Use of the 5925 – 6425 MHz band for WLAN

8. The CA proposes in the Consultation Paper to make available the designated 6 GHz band for WLAN use in Hong Kong. This proposal has the supports of CISCO, DSA, Ericsson, JS, Linksys, Qualcomm, Wi-Fi Alliance, Winco and WPC.

9. CISCO, DSA, JS, Qualcomm, Wi-Fi Alliance and Winco further comment that the 500 MHz spectrum in the designated 6 GHz band would not be sufficient to address the networking needs of Government and enterprises, and further propose the CA to open the full 5925 – 7125 MHz band ("the 6 GHz band" with 1200 MHz spectrum) for WLAN. ASUS comments that the limited spectrum in the designated 6 GHz band will adversely affect the performance of 6 GHz Devices. In response to these comments, the CA would like to reiterate that, as compared with 663.5 MHz spectrum in the 2.4 GHz and 5 GHz bands now provided for WLAN use, the additional 500 MHz of spectrum in the designated 6 GHz band is a significant increase (about 75%) in the total amount of spectrum for supporting the development of WLAN applications. Apart from WLAN, the CA also needs to strike a balance among the spectrum demand for various wireless applications, including the demand of public mobile services. Please see paragraphs 11 and 12 below about the potential use of the 6425 – 7125 MHz band for the fifth generation mobile ("5G") services.

10. Ericsson comments that consumers may not be able to benefit from the additional spectrum allocation for 6 GHz Devices if the majority of fibre-to-the-home ("FTTH") / fibre-to-the-building ("FTTB") broadband service subscriptions are not high speed ones thus forming the bottleneck for end user experience. In this regard, the CA notes that high-speed FTTH/B based broadband services have already exceeded 80% penetration in Hong Kong and over 88% of broadband subscriptions have a speed of 100 Mbps or more. FTTH service at speed exceeding 1000 Mbps (e.g. 2500 Mbps) is already available in Hong Kong and that the speed of connection may continue to increase in the future. Apart from the consideration on speed, the additional spectrum in the designated 6 GHz band will help alleviate congestion in the existing 2.4 GHz and 5 GHz bands for WLAN, and benefit the development of WLAN applications as well.

Potential Future Use of the 6425 – 7125 MHz Band for 5G Services

11. DSA comments that the World Radiocommunication Conference

to be held by the International Telecommunication Union in 2023 ("WRC-23") would only consider the identification of the 6425 – 7025 MHz band for Region 1 (Europe and Africa), and the 7025 – 7125 MHz band globally for International Mobile Telecommunications ("IMT"), and advises that there is no need for the CA to wait for the WRC-23 outcome before deciding on the additional spectrum allocation for WLAN use in Hong Kong. GSMA and WPC suggest the CA to allocate the 6425 – 7125 MHz band for 5G services. ASC however points out that WRC-23 will not consider the identification of the 6425 – 7025 MHz band for 5G services in Region 3 (where Hong Kong resides), thus it objects to use of this band for 5G services in Hong Kong. Ericsson shares information on Europe about the identification of spectrum for IMT to be deliberated in WRC-23, and welcomes the CA's proposal to consider allocating the 6425 – 7125 MHz band for 5G services subject to WRC-23 outcomes.

12. The CA notes diverse comments of the respondents about the identification of the 6425 – 7125 MHz band or parts thereof for 5G services. As mentioned in the Consultation Paper, the CA will consider the use of the 6425 – 7125 MHz band, or parts thereof, for 5G services in Hong Kong subject to the outcomes of WRC-23 and other considerations including co-existence with the incumbent services and frequency coordination with the neighbouring regions. Nevertheless, it would be too early to arrive at a conclusive view on the matter at this stage.

Designation of Power Limits

13. The CA proposes in the Consultation Paper to set out the power limits for WLAN use, namely maximum equivalent isotropically radiated power ("EIRP") of 24 dBm for indoor use; and 14 dBm for outdoor use. Linksys and WPC support this proposal.

14. CISCO, DSA, JS and Qualcomm propose that the CA should increase the power limits for WLAN use to 30 dBm EIRP for indoor use and 17 dBm EIRP for outdoor use and authorise standard power ("SP") devices[4] at 36 dBm maximum EIRP under control of an Automated Frequency Coordination ("AFC") system[5]. Winco proposes relaxing the output power

[4] SP devices are a class of WLAN devices for both indoor and outdoor use as specified in the rules of the Federal Communications Commission ("FCC") of the United States ("US"), where standard power access points (which shall operate under the control of an AFC system) and the associated client devices operate at maximum EIRP of 36 dBm and 30 dBm respectively.

[5] An AFC system provides the function for assignment of permissible operating frequencies and power to avoid causing interference to incumbent services sharing the same spectrum.

with the use of AFC to avoid interference. While Ericsson comments that the effectiveness of AFC to protect fixed services sharing the same band is not proven, it proposes that the CA should follow the technical conditions for low power indoor ("LPI")[6] to adopt 23 dBm rather than 24 dBm as proposed in the Consultation Paper. ASC raises concern on potential interference with fixed satellite services ("FSS") and proposes that the CA should limit WLAN devices for indoor use only with a power limit of 14 dBm EIRP, in accordance with Report ITU-R S.2367[7].

15. In response to the above comments received, the CA would like to remark that having regard to the technical standards and specifications being adopted or developed for WLAN devices operating in the 6 GHz band as based on the IEEE 802.11ax standard (generally known as "Wi-Fi 6E devices") on international or regional levels, the proposed power limits are compatible with that of developed economies like Australia, the European Union ("EU"), New Zealand and the United Kingdom, among others, which also open only the designated 6 GHz band or parts thereof for WLAN use. With such arrangement, users in Hong Kong could benefit from more potential choices of 6 GHz Devices in the market. The CA shares Ericsson's view that the effectiveness of AFC to protect radio services from interference is still uncertain. As for ASC's allegation on potential interference with FSS, the CA would like to highlight that the subject matter had been deliberated in the meeting of the Radio Spectrum and Technical Standards Advisory Committee in 2020. Due to the high transmitting power of FSS uplinks sharing the use of the designated 6 GHz band, the adopted low transmitting power of 6 GHz Devices for indoor and outdoor uses, which have been adopted in other aforementioned developed economies, should not cause interference to FSS. On the other hand, 6 GHz Devices are required under the WLAN Device Class Licence to operate in an uncoordinated and unprotected manner, i.e. they would need to tolerate any interference from FSS instead.

Certification and Labelling Requirements

16. WLAN devices generally fall under two categories – access points ("APs") and client devices. APs and client devices operating in the designated 6 GHz band are hereinafter referred to as "6 GHz APs" and "6 GHz client devices" respectively. In the Consultation Paper, the CA proposes to

---

[6] As specified in ECC Decision (20)01 of the European Conference of Postal and Telecommunications Administrations ("CEPT"), LPI devices operate at maximum EIRP of 23 dBm and outdoor use is not allowed.

[7] Entitled "Sharing and compatibility between International Mobile Telecommunication systems and fixed-satellite service networks in the 5 850-6 425 MHz frequency range".

impose compulsory certification and labelling requirements for 6 GHz APs, while these requirements remain voluntary for 6 GHz client devices. The CA's proposal receives general supports from Ericsson, Linksys, Winco and WPC. Ericsson further proposes to impose compulsory certification requirement on 6 GHz client devices supporting device-to-device communications in addition to 6 GHz APs. WPC submits that measures should also be taken to prohibit those devices operating in the designated 6 GHz band at power levels higher than the CA's proposed limits.

17. The CA notes that client devices, including those supporting device-to-device communications, in general operate at lower power than APs and should pose lower risk of causing interference to other radiocommunications services than APs. Imposing compulsory certification requirement on 6 GHz client devices supporting device-to-device communications would introduce complication in the certification arrangement for 6 GHz client devices and increase the burden of the industry and foreign visitors bringing their client devices (e.g. smartphones) for temporary use in Hong Kong. As such, the CA does not consider Ericsson's proposal justifiable. As for WPC's comment about non-compliant 6 GHz Devices, the CA would like to remark that, as in the past, the Office of the Communications Authority ("OFCA") would undertake enforcement actions against sale and use of unauthorised radio apparatus, including non-compliant devices not meeting the operating frequency, power or any other requirements of the performance specification HKCA 1081.

18. CISCO, Company 1, DSA, JS and Qualcomm oppose to imposing compulsory certification and labelling requirements on 6 GHz APs. In response, the CA would like to reiterate that compulsory certification of 6 GHz APs is necessary in order to deter illegal import and use of non-compliant devices which may cause in-band interference to the future 5G services likely to operate in the 6425 – 7125 MHz band, or parts thereof, in Hong Kong, while compulsory labelling can help the consumers identify compliant 6 GHz APs. In fact, similar compulsory labelling requirements have been implemented in the US and the EU to allow easy identification of compliant products.

Other Views of Respondents

19. GSMA urges the CA to defer making decision on the designated 6 GHz band, and instead consider the development between now and WRC-23 in order to strive for the most optimal use of the 6 GHz band after WRC-23. In particular, GSMA recommends opening the designated 6 GHz band, or

parts thereof, on a licence-exempted and technology neutral basis depending on the extent of practical needs. As explained in the Consultation Paper, the designated 6 GHz band is not a candidate band for 5G services and there is no need to await the WRC-23 outcome before making a decision in this regard. For the benefit of the general public and business/industry entities in Hong Kong, the CA considers that it is the opportune timing to release the designated 6 GHz band for 6 GHz Devices now. Under the class licence regime, the CA may vary the scope of the WLAN Device Class Licence to allow other devices (including 5G devices) to share the frequency band if the situations warrant in the future.

20. Qualcomm recommends that the CA should adopt additional measures to ensure co-existence between WLAN and intelligent transport systems operating in the 5.9 GHz band ("5.9 GHz ITS"). Ericsson recommends the CA to keep in view the development of EN 303 687, especially the definition of receiver blocking, and highlights that conformance to EN 303 687 is expected to be required above the band edge at 5945 MHz instead of 5925 MHz. Company 1 proposes allowing the use of very low power ("VLP")[8] devices supporting narrowband ("NB") frequency-hopping spread spectrum.

21. In response to the above comments, the CA would like to highlight that 6 GHz Devices should comply with HKCA 1081 which draws reference to the European harmonised standard EN 303 687, which has taken into account the results of CEPT study on the compatibility between WLAN operating in the designated 6 GHz band and 5.9 GHz ITS in the adjacent band. The CA will keep in view the development of EN 303 687 including the receiver blocking feature among others, and revise HKCA 1081 when necessary. While the CA notes that the operating frequency band stipulated in EN 303 687 is 5945 – 6425 MHz, according to the channel plan of the IEEE 802.11ax standard, the 5925 – 5945 MHz sub-band is reserved as a guard band and hence there is no need to amend the designated 6 GHz band. The CA would also like to clarify that, as long as 6 GHz Devices supporting NB for VLP use meet the relevant requirements specified in EN 303 687, such devices are authorised for use under the WLAN Device Class Licence.

22. ASUS, CISCO, HKT and Winco raise a number of questions about certification of 6 GHz Devices under the WLAN Device Class Licence, classification of such devices (whether specific type of device is treated as AP or client device), handling of device firmware updates, law enforcement

---

[8] As specified in ECC Decision (20)01 of CEPT, VLP devices operate at maximum power of 14 dBm EIRP and may be used both indoors and outdoors.

against non-compliant devices, and certification and labelling requirements of other economies. Details of the CA's responses are given in the **Annex**. The CA would like to highlight that, as mentioned in the Consultation Paper, user equipment such as smartphones and tablets which can be configured to operate as WLAN hotspots in the designated 6 GHz band are treated as client devices, and certification and labelling of them remain voluntary. Portable APs (commonly known as "pocket Wi-Fi" or "Wi-Fi eggs") capable of operating in the designated 6 GHz band are treated as APs subject to compulsory certification and labelling requirements.

Variation of PWLAN Service Class Licence

23. The CA proposes to vary the existing PWLAN Service Class Licence to authorise the provision of public WLAN services using the designated 6 GHz band. No objections or adverse comments were received on this proposal.

THE CA'S DECISION

24. Having considered the submissions received in response to the Consultation Paper, the CA decides to –

(a) create the WLAN Device Class Licence as set out in Appendix 2 of the Consultation Paper; and

(b) vary the PWLAN Service Class Licence as set out in Appendix 4 of the Consultation Paper,

with effect from the date of this statement.

25. To implement the CA's decision, the WLAN Device Class Licence and the varied PWLAN Service Class Licence in the Gazette in accordance with section 7B(6) and section 7C(1) of the TO are published respectively and the new specification HKCA 1081 is also adopted by the CA today. The WLAN Device Class Licence and the varied PWLAN Service Class Licence are available on the CA website at http://www.coms-auth.hk/en/licensing/telecommunications/class/index.html, and the new specification HKCA 1081 is available on the OFCA website at http://www.ofca.gov.hk/en/industry_focus/standards/tel_standards/hkca/radio_equipment_specifications/index.html.

26. Holders of the Unified Carrier Licences ("UCLs") concerned may

apply to the CA to amend their UCLs to authorise them to use the designated 6 GHz band for the provision of public WLAN services in Hong Kong.

Communications Authority
29 April 2022

Summary of the Submissions and the CA's Responses

(Note: The abbreviations have the same meanings as that used in the main body of the CA Statement)

Item	Industry's Views	CA's Responses
1	**JS** supports the CA's proposal to designate the designated 6 GHz band for the WLAN Device Class Licence but proposes to open the full 1200 MHz spectrum for licence-exempted use by WLAN in the long term.	As mentioned in the Consultation Paper, WRC-23 will deliberate the identification of the 6425 – 7025 MHz band (for Region 1, i.e. Europe and Africa) and the 7025 – 7125 MHz band (for all regions, i.e. global) for IMT, including 5G services. The CA will consider the use of the 6425 – 7125 MHz band, or parts thereof, for 5G services in Hong Kong subject to the outcomes of WRC-23 and other considerations including co-existence with the incumbent services and frequency coordination with the neighbouring regions. Nevertheless, it is too early to arrive at a conclusive view on the matter at this stage. **("Response-A")** In respect of the CA's proposal to make available the designated 6 GHz band for WLAN use in Hong Kong, the additional 500 MHz of spectrum in the designated 6 GHz band is a significant increase (about 75%) in the total amount of spectrum for supporting the development of WLAN applications. Apart from WLAN, the CA also needs to strike a balance among the spectrum demand for various wireless applications, including the demand of public mobile services for the potential use of the 6425 – 7125 MHz band for 5G services. **("Response-B")**
	JS proposes increased power of 30 dBm EIRP for LPI devices and 17 dBm EIRP for VLP devices, and to allow also SP devices at 36 dBm EIRP maximum with AFC, all in the 5925 – 7125 MHz band.	The proposed power limits, i.e. 24 dBm for indoor use and 14 dBm for outdoor uses, are compatible with those of developed economies like Australia, the EU, New Zealand and the United Kingdom ("UK"), among others, which also open only the designated 6 GHz band or parts thereof for WLAN use. With such arrangement, users in Hong Kong could benefit from more potential choices of 6 GHz Devices in the market. **("Response-C")**

Item	Industry's Views	CA's Responses
	While supporting the proposed voluntary certification requirement for 6 GHz client devices, **JS** does not support the proposed compulsory certification and labelling requirements for 6 GHz APs. **JS** is of the view that compulsory labelling requirement adds logistic complexity and does not necessarily address challenges of non-compliant products.	As explained in the Consultation Paper, the proposed compulsory certification requirements for 6 GHz APs would help deter illegal import and use of non-compliant devices in Hong Kong. Such measures are necessary to avoid as far as possible the recurrence of incident similar to illegal DECT 6.0 cordless phones brought from overseas previously causing in-band interference to the public mobile services. In this connection, OFCA will provide all necessary assistance to the manufacturers, suppliers and dealers to facilitate their applications for certification of 6 GHz APs. In addition, compulsory labelling also provides an easy means for consumers to identify compliant 6 GHz APs. In fact, similar compulsory labelling requirements have been implemented in the EU and the US for easy identification of compliant products. **("Response-D")**
2	**ASC** believes that with the right conditions and appropriate limitations to ensure compatibility with FSS, WLAN could successfully operate in the designated 6 GHz band. It proposes that the CA should consider to allow WLAN devices for indoor use only with a power limit of 14 dBm EIRP, in accordance with the recommendation of Report ITU-R S.2367. **ASC** also concerns that aggregation of interference from all WLAN devices within the coverage diagram of a satellite can cause significant interference. On the other hand, transmitting earth stations can cause interference to receiving WLAN devices for both indoor and outdoor uses.	See **Response-C**. As deliberated in the meeting of the Radio Spectrum and Technical Standards Advisory Committee in 2020, due to the high transmitting power of FSS uplinks sharing the use of the designated 6 GHz band, the low transmitting power of 6 GHz Devices for indoor and outdoor uses should not cause interference to FSS. On the other hand, as stated in the proposed WLAN Device Class Licence, 6 GHz Devices would need to tolerate interference from FSS instead.

Item	Industry's Views	CA's Responses
	ASC strongly advises against the use of the 6425 – 7025 MHz band for 5G as WRC-23 will not consider identification of this band for IMT (including 5G) in Region 3.	See **Response-A**.
3	**ASUS** considers that limited spectrum in the designated 6 GHz band will significantly affect Wi-Fi 6E performance. **ASUS** asks the following questions – (a) when applications for type approval of Wi-Fi 6E AP can be submitted; (b) whether licence is required for the sale of Wi-Fi 6E products by distributors or resellers; (c) whether products after firmware upgrade need to be retested or re-certified; and (d) whether USB Wi-Fi dongles and computer peripheral cards for Wi-Fi connection are excluded from the proposed compulsory certification requirement.	See **Response-A** and **Response-B**. The CA's responses are as follows – (a) applicants may consult local certification bodies ("LCBs") any time based on the information provided in the Consultation Paper for type approval of 6 GHz Devices, including APs and client devices; (b) the WLAN Device Class Licence covers various trading activities of compliant 6 GHz Devices, including the related sale and demonstration activities where distributors and resellers need not obtain other licences from the CA for the sale of such devices; (c) after a firmware or software upgrade is made to a certified model of 6 GHz Devices, re-certification of the model (model number remains unchanged) is not required if there are no changes to its electrical and mechanical characteristics; and (d) 6 GHz client devices covered by the WLAN Device Class Licence (e.g. Wi-Fi dongles, Wi-Fi peripheral cards) are not subject to compulsory certification and labelling requirements. Certification and labelling of such devices remain voluntary following the current practice for 2.4 GHz and 5 GHz WLAN devices.

Item	Industry's Views	CA's Responses
4	**CISCO** considers that the CA should quickly open the designated 6 GHz band for WLAN, and then move to make the entire 1200 MHz licence-exempted. 500 MHz spectrum in the designated 6 GHz band is not sufficient to address the networking needs of government entities and enterprises. There are other bands for 5G but the 6 GHz band is the only viable solution for Wi-Fi.	See **Response-A** and **Response-B**.
	CISCO supports the CA's proposal of requiring 6 GHz Devices to comply with the proposed HKCA 1081 specification, but proposes to increase the power limits to 30 dBm EIRP for indoor use and 17 dBm EIRP for outdoor use. CISCO also considers that the CA should allow the use of SP devices up to 36 dBm EIRP subject to AFC, if not now, in a subsequent consultation.	See **Response-C**.
	While supporting the proposed voluntary certification requirement for 6 GHz client devices, **CISCO** comments that the proposed compulsory certification requirement for 6 GHz APs should be avoided to reduce manufacturer cost and complexity. **CISCO** also comments that the proposed compulsory labelling requirement for 6 GHz APs is not necessary as it will add cost and complexity.	See **Response-D**.
	CISCO proposes that Hong Kong should continue to leverage the test reports from accredited international test laboratories supporting 6 GHz band product certification, and should not require separate in-country testing.	HKCA 1081 makes reference to EN 303 687. Following the current practice, test reports against EN 303 687 issued by a testing laboratory accredited to ISO/IEC 17025 will be accepted by the certification bodies for evaluation.
	CISCO supports the variation to the existing PWLAN Service Class Licence.	Noted.

Item	Industry's Views	CA's Responses
5	**Company 1** proposes the CA to consider licence-exemption instead of creating the WLAN Device Class Licence.	As far as users are concerned, class licence and licence-exemption actually achieve similar effects, i.e. users would not need to individually apply for a licence and no licence fee would be incurred for the use of 6 GHz Devices. Indeed, the class licensing approach to regulate various telecommunications devices and services has been successfully implemented in Hong Kong since 2002. **("Response-E")**
	Company 1 proposes that the CA should allow the use of narrowband Frequency-Hopping Spread Spectrum equipment in VLP outdoor applications to align with the current regulations in European Commission ("EC") and the UK, as specified in EC Decision 2021/1067 and EN 303 687.	As long as 6 GHz Devices supporting narrowband VLP use meet the relevant requirements (including the use of frequency hopping mechanism and others) specified in EN 303 687 under reference in HKCA 1081, they are authorised for use under the WLAN Device Class Licence.
	Company 1 proposes that the CA should consider to make the certification and labelling requirements for 6 GHz APs voluntary, same as those for client devices.	See **Response-D**.
6	**DSA** strongly supports the CA's proposal to create a class licence for 6 GHz Devices but proposes that the entire 6 GHz band (i.e. 5925 – 7125 MHz) should be allowed for licence-exempted use on a technology neutral basis (e.g. Wi-Fi and 5G New Radio-Unlicensed). **DSA** points out that WRC-23 only considers IMT designation in the 6425 – 7025 MHz band for Region 1 and the 7025 – 7125 MHz band globally but there is no way of knowing in advance WRC-23's decision about this. There is no need for the CA to wait for the WRC-23 outcome before deciding on the additional spectrum allocation for WLAN use in Hong Kong.	See **Response-A**.

Item	Industry's Views	CA's Responses
	DSA proposes that the CA should increase the power limits for WLAN use to 30 dBm EIRP for indoor use and 17 dBm EIRP for outdoor use, and authorise SP devices at 36 dBm EIRP maximum under control of an AFC system.	See **Response-C**.
	DSA supports the proposed voluntary certification requirement for 6 GHz client devices, but does not support the proposed compulsory certification requirement for 6 GHz APs. **DSA** considers that labelling for 6 GHz APs should be voluntary. It comments that market-specific requirements for labelling add logistic complexity and do not necessarily address challenges of non-compliant products.	See **Response-D**.
	DSA strongly supports the variation of the PWLAN Service Class Licence to include the designated 6 GHz band.	Noted.
7	**Ericsson** comments that Hong Kong residents may not be able to benefit from the licence-exempted usage of the designated 6 GHz band if fibre-to-the-home or fibre-to-the-building ("FTTH/B") speeds are not fast enough. Due to the FTTH/B speed bottleneck, additional WLAN spectrum would not improve end user experience.	The CA notes that high-speed FTTH/B based broadband services have already exceeded 80% penetration in Hong Kong and over 88% of broadband subscriptions have a speed of 100 Mbps or more. FTTH/B service at a speed of 2500 Mbps is already available in Hong Kong and the speed of connection may continue to increase in the future. Apart from the consideration on speed, the additional spectrum in the designated 6 GHz band will alleviate the congestion in the existing 2.4 GHz and 5 GHz bands for WLAN and benefit the development of WLAN applications.

Item	Industry's Views	CA's Responses
	Ericsson points out that in Europe, consideration is being given to the identification of the 6425 – 7125 MHz band, or parts thereof, for IMT subject to the results of compatibility study with incumbent services and those in adjacent bands. **Ericsson** supports the CA's proposal to consider the 6425 – 7125 MHz band for 5G subject to the outcome of WRC-23.	Noted. See **Response-A**.
	Ericsson proposes the CA to follow the technical conditions defined in ECC Decision (20)01 of CEPT, in particular, the EIRP limit for LPI use at 23 dBm, rather than 24 dBm as proposed in the Consultation Paper. Regarding SP devices with AFC, Ericsson comments that the effectiveness of AFC to protect other radio services is not proven.	See **Response-C**. The CA agrees that the effectiveness of AFC to protect the radio services from interference is still uncertain.
	While agreeing that EN 303 687 is the correct set of technical requirements for WLAN operating in the designated 6 GHz band, **Ericsson** highlights that conformance to EN 303 687 is expected to be required above 5945 MHz instead of 5925 MHz.	According to the IEEE 802.11ax channel plan, the 5925 – 5945 MHz sub-band is reserved as a guard band. Hence, there is no need to amend the designated 6 GHz band.
	While supporting the proposed compulsory certification and labelling requirements for APs, **Ericsson** proposes the CA to impose compulsory certification on devices supporting device-to-device communications (i.e. without connection through an AP) as well.	Client devices (including those supporting client-to-client or peer-to-peer communications) in general operate at lower output power than APs and therefore have lower risk of causing interference. Imposing compulsory certification requirement on some 6 GHz client devices would complicate the certification arrangement and increase the burden of the industry and foreign visitors bringing their client devices (e.g. smartphones) for temporary use in Hong Kong, and therefore should not be required.

Item	Industry's Views	CA's Responses
	Ericsson recommends the CA to keep in view the development of draft EN 303 687, in particular, the definition of receiver blocking which is essential to ensure efficient use of spectrum if licensed services are made available in the 6425 – 7125 MHz band.	The CA is well aware of the significance of electromagnetic immunity where radiocommunications equipment should meet the receiver blocking requirements to ensure that it can operate normally notwithstanding the presence of strong radio signals from other equipment/devices, to a reasonable extent, in the adjacent band in its vicinity. The CA will keep in view the development of EN 303 687 including the receiver blocking feature among others and revise HKCA 1081 when necessary.
8	**GSMA** urges the CA to defer the decision on the designated 6 GHz band, and instead consider development between now and WRC-23 to strive for the most optimal use of the 6 GHz band after WRC-23. In particular, it suggests the CA to – (a) make at least the 6425 – 7125 MHz band available for licensed 5G; and (b) depending on the extent of practical needs, open the designated 6 GHz band, or parts thereof, on licence-exempted and technology neutral basis.	As the designated 6 GHz band is not a candidate band for 5G services to be deliberated in WRC-23, there is no need to await the WRC-23 outcome before making a decision in this regard. With the advent of technology, there are emerging new WLAN devices operating in the designated 6 GHz band which support faster data rates, lower latency, and higher performance. For the benefit of the general public and business/industry entities in Hong Kong, it is the opportune time to release the designated 6 GHz band for 6 GHz Devices now. See **Response-A** as well. Regarding licence-exemption, see **Response-E**. As regards technology neutrality, under the class licence regime, the CA may vary the scope of the WLAN Device Class licence to allow other devices (including 5G devices) to share the frequency band if the situations warrant in the future.
9	**HKT** asks the following questions – (a) whether dual-operation mode client devices (i.e. client devices support AP-operation mode) are subject to the proposed compulsory certification requirement for 6 GHz APs? (b) will certificate be granted to dual-operation mode	The CA's responses are as follows – (a) as mentioned in the Consultation Paper, client devices such as smartphones and tablets which can be configured to operate as Wi-Fi hotspots (generally for occasional use) are not regarded as APs and certification of such devices remains voluntary; (b) certification of 6 GHz Devices, whether APs or client devices,

Item	Industry's Views	CA's Responses
	client devices supporting the entire 6 GHz band? (c) whether pocket Wi-Fi with Wi-Fi 6E capabilities is classified as an AP? (d) which countries require compulsory certification or labelling for their permitted Wi-Fi 6E devices? (e) certification requirements of devices used for point-to-point Wi-Fi 6E links; (f) treatment for Wi-Fi 6E APs that are already used by consumers before the proposed WLAN Devices Class Licence takes effect; and (g) what will be the policy on foreign visitors bringing Wi-Fi 6E APs or client devices from overseas which are not certified in Hong Kong?	against HKCA 1081 shall be restricted to those operating within the designated 6 GHz band; (c) pocket Wi-Fi devices with Wi-Fi 6E capabilities are classified as AP; (d) in the US, WLAN devices are required to be properly authorised under the certification procedure, and certified products shall bear a nameplate or label with the FCC identifier[1]. In EU member states, manufacturers are required to go through conformity assessment procedures specified in Directive 2014-53-EU and, among others, draw up Declaration of Conformity and affix the CE marking before placing the products on the market[2]; (e) point-to-point Wi-Fi 6E equipment (e.g. Wi-Fi extender) is classified as AP and subject to compulsory certification requirement; (f) OFCA has been taking enforcement actions to ensure that Wi-Fi 6E products are not available for sale in the market, including online shops, before the WLAN Device Class Licence is created. As for the online advertisements of Wi-Fi 6E routers/APs as mentioned by HKT, OFCA has taken necessary actions to ensure that such products are not available to the market before the creation of the WLAN Device Class Licence; and (g) after creation of the WLAN Device Class Licence, OFCA will conduct education campaigns to inform the public, including foreign visitors, about the control of Wi-Fi 6E equipment in Hong Kong. In case any non-compliant WLAN devices (including such use by foreign visitors) cause radio interference to others, OFCA will take appropriate enforcement actions, which may include confiscation of the concerned devices.

[1] For details, please see https://www.fcc.gov/engineering-technology/laboratory-division/general/equipment-authorization.

[2] For details, please see https://ec.europa.eu/growth/sectors/electrical-and-electronic-engineering-industries-eei/radio-equipment-directive-red_en.

Item	Industry's Views	CA's Responses
10	**Linksys** supports – (a) the operating band of 5925 – 6425 MHz for Wi-Fi 6E with 24 dBm EIRP for indoor use and 14 dBm EIRP for outdoor use; and (b) compulsory certification and labelling for Wi-Fi 6E APs.	Noted.
11	**Qualcomm** strongly supports to make available the designated 6 GHz band for class-licensed devices and technologies, but proposes to extend the frequency band to 7125 MHz. **Qualcomm** proposes the CA to adopt higher output power limits, i.e. EIRP limits at 30 dBm for LPI, 17 dBm for VLP and 36 dBm for SP devices using AFC. **Qualcomm** supports making reference to European harmonised standard EN 303 687 for other technical requirements such as spurious emissions and test methods. **Qualcomm** recommends that the CA should adopt the additional measures proposed by coalition of Qualcomm, Broadcom, Cisco, Facebook and Intel to the US, Canada and Brazil for co-existence between Wi-Fi 6E and 5.9 GHz ITS services, as follows – (a) VLP devices shall comply with an out-of-band emissions level of -37 dBm/MHz measured by root mean square at 5925 MHz; and	See **Response-A**. See **Response-C**. Noted. The CA's responses are as follows – (a) 6 GHz Devices should comply with HKCA 1081 which draws reference to EN 303 687. According to clause 4.3.4.1.2 of EN 303 687, the transmitter unwanted emissions in the out-of-band domain for VLP devices in frequency range below 5935 MHz is -45 dBm/MHz which is more stringent than -37 dBm/MHz as proposed by Qualcomm; and

Item	Industry's Views	CA's Responses
	(b) VLP devices shall prioritise unlicensed operations in channels above 6000 MHz before beginning operation below 6000 MHz and manufacturers should be required to submit with their applications for equipment authorisation a declaration that the equipment complies with this prioritisation rule.	(b) EN 303 687 has been developed taking into account the results of CEPT study on the compatibility between WLAN operating in the designated 6 GHz band and 5.9 GHz ITS in the adjacent band. 5.9 GHz ITS, if available in Hong Kong in the future, should be adequately protected against adjacent band interference from VLP devices in compliance with EN 303 687. As such, prioritised use of channels above 6000 MHz by VLP devices, as recommended by Qualcomm, should not be required. Moreover, imposing additional requirement on top of those specified in EN 303 687 would lead to additional testing needs for 6 GHz Devices, thus complicating the certification arrangement and increasing vendors' burden.
	Qualcomm supports the proposed voluntary certification and labelling requirements for 6 GHz client devices.	Noted.
	Qualcomm does not support the proposed compulsory certification and labelling requirements for 6 GHz APs. It comments that compulsory labelling requirement will present a significant burden for suppliers due to the substantial resources and logistical capacity required to individualise packaging elements for the Hong Kong market.	See **Response-D**.
12	**Wi-Fi Alliance** considers that the designated 6 GHz band does not provide sufficient spectrum to support future Wi-Fi connectivity needs. It proposes that the CA should consider WLAN deployments in the 6425 – 7125 MHz band as well. It points out that CEPT is also studying this issue.	See **Response-A** and **Response-B**.

Item	Industry's Views	CA's Responses
13	**Winco** proposes to open the entire 6 GHz band (i.e. 5925 – 7125 MHz) for WLAN, and to relax the output power with the use of AFC to avoid interference. **Winco** suggests making the application of the proposed WLAN Device Class Licence and certification simple for traders to apply.	See **Response-A** and **Response-C**. There is no need to apply for a class licence and no fee is involved. As for certification of 6 GHz Devices, manufacturers, suppliers and dealers can follow the existing well-established procedures which have been running smoothly for many years.
14	**WPC** supports the release of the designated 6 GHz band for WLAN use and agrees with the CA's proposed power limits for indoor and outdoor use. **WPC** suggests to allocate the 6425 – 7125 MHz band for IMT taking into account co-existence with fixed service and FSS. **WPC** supports the proposed measures to prohibit illegal import and sale of non-compliant Wi-Fi 6E devices (e.g. those capable of operating in the 6425 – 7125 MHz band) in Hong Kong. However, it comments that attention should also be given to WLAN devices operating in the designated 6 GHz band but at power higher than that proposed in the Consultation Paper.	Noted. See **Response-A**. 6 GHz Devices covered by the WLAN Device Class Licence are required to meet the technical requirements stipulated in the performance specification HKCA 1081, including the operating frequency band and output power limits etc. As in the past, OFCA would undertake enforcement actions against sale and use of non-compliant devices not meeting the relevant technical specifications prescribed by the CA.