

**Guidelines for Submission of Applications  
for Assignment of Shared Spectrum  
in the 26 GHz and 28 GHz Bands**

**15 July 2019 (Issue 1)**

**Section I – Introduction**

- 1.1 In accordance with the Statement of the Communications Authority (“CA”) and the Secretary for Commerce and Economic Development (“SCED”) published on 13 December 2018 (“Statement”)<sup>1</sup>, of the 4 100 MHz of spectrum in the 26 GHz band (24.25 – 27.5 GHz) and the 28 GHz band (27.5 – 28.35 GHz) (collectively referred to as the “26/28 GHz bands”) allocated to mobile service, 400 MHz will be assigned on a non-exclusive and geographically sharing basis (“Shared Spectrum”) for the provision of innovative wireless broadband services in specified locations of the territory. These Guidelines provide guidance for submitting applications by interested parties for assignment of the Shared Spectrum and the relevant licensing arrangements.
- 1.2 These Guidelines are issued under section 6D(2)(a) of the Telecommunications Ordinance (Cap. 106) (“TO”). They indicate the manner in which the CA will perform its function of determining applications for assignment of the Shared Spectrum in the 26/28 GHz bands under the Localised Wireless Broadband Service (“LWBS”) Licence. Parties interested in the assignment of the Shared Spectrum are invited to submit applications to the CA in accordance with these Guidelines, which should be read in conjunction with the relevant policy and regulatory documents hereafter referred to.
- 1.3 All applications received will be evaluated on their merits having regard to the information provided as required in Section IV and to the broad licensing criteria outlined in Section V of these Guidelines.

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<sup>1</sup> The Statement is available at:  
[https://www.coms-auth.hk/filemanager/statement/en/upload/480/joint\\_statement\\_st\\_052018.pdf](https://www.coms-auth.hk/filemanager/statement/en/upload/480/joint_statement_st_052018.pdf).

- 1.4 Applicants should ensure that all information contained in their applications and any other subsequent submissions and representations are correct and accurate in all respects, in reliance upon which the CA will consider the applications. The CA may cancel, withdraw or suspend the LWBS Licence granted and/or the frequency assignment if any information (including, without limitation, in an application) submitted by the applicant is false or misleading.
- 1.5 Applications should be **submitted in English in triplicate** under confidential cover and reach the CA at the following address. An electronic copy should also be provided. Alternatively, applications may be submitted by email to:  
[apply-26-28GHz-shared-LWBS@ofca.gov.hk](mailto:apply-26-28GHz-shared-LWBS@ofca.gov.hk).

Office of the Communications Authority  
29th Floor, Wu Chung House  
213 Queen's Road East  
Wanchai  
Hong Kong  
(Attn.: Head, Regulatory 2)

- 1.6 Applicants will receive the acknowledgement of receipt of applications. The CA may request the applicants to provide additional information to clarify or supplement their applications submitted.
- 1.7 The CA reserves the right to disclose the names of the parties who have submitted applications. All other information received will be treated in confidence. Where the CA proposes to disclose any information in the applications which may be considered as commercially sensitive information, the CA will give the relevant applicants an opportunity to make representations on the proposed disclosure before the CA makes a final decision on whether or not to disclose the information.
- 1.8 Nothing in these Guidelines should be taken to bind the CA on the granting of any spectrum assignment and licence, the terms of any licence to be granted, or any particular course of action in relation to the handling of applications received. The CA reserves the right not to accept any application submitted.

## Section II – The Regulatory Framework under the LWBS Licence

### Introduction

- 2.1 The LWBS Licence has been created for the establishment, maintenance and operation of networks and systems for the provision of innovative wireless broadband services using the Shared Spectrum based on fifth generation (“5G”) or other advanced mobile technologies. The innovative wireless broadband services will in general be wireless data-centric communications provided to specific groups of users in specified locations of the territory. Assignees of the Shared Spectrum should not deploy the spectrum assigned on a wholesale or retail basis to provide conventional public mobile services which are generally available to members of the public with the use of smartphones or other mobile gadgets<sup>2</sup>.

### Shared Use of Radio Spectrum

- 2.2 According to section 32H of the TO, the CA is empowered to allocate and manage frequencies and bands of frequencies in all parts of the radio spectrum used in Hong Kong. On 24 April 2007, the Government after public consultation announced the Radio Spectrum Policy Framework<sup>3</sup> for the management of radio spectrum in Hong Kong. As set out in the Radio Spectrum Policy Framework, there is no legitimate expectation that there will be any right of renewal or right of first refusal of any licence or spectrum assignment upon the expiry of a licence or spectrum assignment.
- 2.3 As the Shared Spectrum will be assigned on a non-exclusive and geographically sharing basis, spectrum in the same frequency range may

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<sup>2</sup> For reference purpose, “conventional public mobile services” refer to mobile voice and data services (including enhanced mobile broadband services) provided by mobile network operators over their mobile networks to the general public. Subscribers use these services on their smartphones or other mobile gadgets for various personal applications such as internet access, social networking, electronic payment, or streaming of videos and songs. Mobile services provided for some specialised applications such as cargo and fleet management, electronic monitoring, etc. to selected groups of users are considered to be outside the scope of “conventional public mobile services”.

<sup>3</sup> See <https://www.cedb.gov.hk/ccib/eng/legco/pdf/spectrum.pdf>.

be assigned for use by the other assignees at different locations.

- 2.4 The use of the Shared Spectrum is subject to a spectrum management fee as one of the components of the annual licence fee and may also be subject to the payment of spectrum utilisation fee (“SUF”) (see Section III for details).

### **Use of Numbers**

- 2.5 According to section 32F of the TO, the numbering plan of Hong Kong is administered by the CA. To ensure the efficient allocation and use of numbers and codes for telecommunications networks/services which meet the requirements of the telecommunications industry, the CA issues a “Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan”<sup>4</sup> for the purpose of providing guidance to the telecommunications network operators and service providers to whom the CA has delegated the administration of part of the numbering plan.

- 2.6 As the LWBS will in general be wireless data-centric communications services, and real time voice communications to and from the public switched telephone network in Hong Kong are not allowed, assignees of the Shared Spectrum normally will not be allocated mobile subscriber numbers from the numbering plan of Hong Kong. Allocation of the other numbers and codes will be considered on a case-by-case basis.

### **Sharing of Use of Facilities**

- 2.7 The sharing of “bottleneck” facilities is governed by section 36AA of the TO. The CA encourages commercial agreements for the sharing of “bottleneck” facilities. If commercial agreements could not be reached within a reasonable period and subject to passing the “public interest” tests specified in that provision, the CA may direct sharing of “bottleneck” facilities and determine the terms for such sharing.

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<sup>4</sup> See [https://www.coms-auth.hk/filemanager/statement/en/upload/385/cop-numbering\\_e.pdf](https://www.coms-auth.hk/filemanager/statement/en/upload/385/cop-numbering_e.pdf).

## **Technical Standards**

2.8 Pursuant to section 32D of the TO, the CA may from time to time prescribe standards and specifications of telecommunications networks, systems, installations, customer equipment and services, etc.<sup>5</sup>. Licensees are obliged to observe these specifications, where applicable, for the establishment and maintenance of their networks and for the provision of innovative wireless broadband services. Applicants should refer to these specifications<sup>6</sup> before submitting their application proposals.

## **Publication of Tariff**

2.9 Pursuant to the licence condition of the LWBS Licence, a holder of the LWBS Licence is obliged to publish tariffs and charge no more than the published tariffs for the services operated under its licence. The tariff of a service shall include not only all relevant service charges but also the terms and conditions on which the service is provided.

## **Prohibition of Unfair Trade Practices**

2.10 Pursuant to the Trade Descriptions (Unfair Trade Practices) (Amendment) Ordinance 2012 passed by the Legislative Council on 17 July 2012 and brought into operation on 19 July 2013, the Trade Descriptions Ordinance (Cap. 362) (“TDO”) has been amended to extend its coverage to prohibit traders of all sectors, including the telecommunications sector, from engaging in false trade descriptions in providing services and in specified unfair trade practices, namely misleading omissions, aggressive commercial practices, bait advertising, bait-and-switch, and wrongly accepting payment.

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<sup>5</sup> A full list of HKCA Specifications is available at:  
[https://www.ofca.gov.hk/en/industry\\_focus/telecommunications/standards/hkca/index.html](https://www.ofca.gov.hk/en/industry_focus/telecommunications/standards/hkca/index.html).

<sup>6</sup> See  
[https://www.ofca.gov.hk/en/industry\\_focus/telecommunications/standards/hkca/radio\\_equipment\\_specifications/index.html](https://www.ofca.gov.hk/en/industry_focus/telecommunications/standards/hkca/radio_equipment_specifications/index.html).

- 2.11 In addition to criminal prosecutions, a civil compliance-based mechanism has been introduced. The enforcement agency may, as an alternative to criminal prosecution, accept an undertaking from a trader, whom the enforcement agency believes has engaged in a prohibited unfair trade practice, to stop that practice, or where necessary, seek an injunction from the court for the purpose.
- 2.12 The Customs and Excise Department (“C&ED”) is the principal agency for enforcing the amended TDO, with concurrent jurisdiction conferred on the CA to enforce the relevant provisions of the amended TDO in relation to the commercial practices of licensees under the TO and the Broadcasting Ordinance (Cap. 562) that are directly connected with the provision of a telecommunications or broadcasting service under the respective ordinances. Applicants should study the relevant enforcement guidelines which state the manner in which the C&ED and the CA would exercise their enforcement powers and provide guidance on the operation of the new legislative provisions<sup>7</sup>.

### **Prohibition of Anti-Competitive Practices**

- 2.13 On 14 June 2012, the Competition Ordinance (Cap. 619) (“CO”) was enacted by the Legislative Council<sup>8</sup>. The CO provides for general prohibitions of three types of anti-competitive conduct (described as the first conduct rule, the second conduct rule and the merger rule, collectively referred to as the ‘competition rules’ in the CO). The first conduct rule prohibits anti-competitive agreements, decisions and concerted practices. The second conduct rule prohibits an undertaking that has a substantial degree of market power from abusing that power. The merger rule prohibits anti-competitive mergers. The first and second conduct rules apply to all sectors, including the telecommunications sector, in Hong Kong. At present, the merger rule applies only to a merger involving one or more undertakings that hold a carrier licence under the TO or, directly or indirectly, control an undertaking that holds such a licence.

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<sup>7</sup> Available at: [https://www.coms-auth.hk/en/policies\\_regulations/unfair\\_trade\\_practices/index.html](https://www.coms-auth.hk/en/policies_regulations/unfair_trade_practices/index.html).

<sup>8</sup> The full text of the CO is available at: <https://www.elegislation.gov.hk/>.

- 2.14 The CO has been fully in force since 14 December 2015. Under the CO, the CA is conferred concurrent jurisdiction with the Competition Commission to investigate and bring enforcement proceedings to the Competition Tribunal in relation to the conduct of telecommunications and broadcasting operators. The CA and the Competition Commission have signed a Memorandum of Understanding (“MoU”) to coordinate the performance of their functions over which they have concurrent jurisdiction. According to the MoU, the CA will ordinarily take the role of lead authority on matters which fall within the concurrent jurisdiction. Where a matter involves issues that are partly within the concurrent jurisdiction and issues that are partly outside the concurrent jurisdiction, the CA and the Competition Commission will discuss and agree how best to progress the matter case by case.
- 2.15 The CA and the Competition Commission have jointly issued under the CO six sets of guidelines describing how they expect to interpret and give effect to the three competition rules, and explaining the procedures for handling complaints, conducting investigations and considering applications for exclusions and exemptions<sup>9</sup>.

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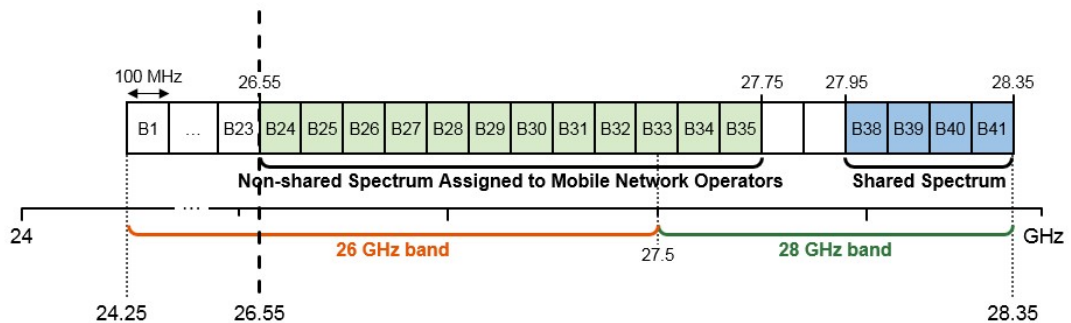
<sup>9</sup> The full sets of Competition Guidelines are available at: [https://www.coms-auth.hk/en/policies\\_regulations/competition/co/legislation\\_and\\_guidelines\\_issued\\_under\\_the\\_co/index.html](https://www.coms-auth.hk/en/policies_regulations/competition/co/legislation_and_guidelines_issued_under_the_co/index.html).

## Section III – Assignment of Shared Spectrum and Licensing Arrangements

### Spectrum Available for Application and Spectrum Cap

- 3.1 The CA has made available 400 MHz of spectrum in the frequency range of 27.95 – 28.35 GHz (i.e. slots B38 – B41 with channel bandwidth of 100 MHz each in the band plan for the 26/28 GHz bands depicted in [Figure 1](#) below) for assignment as Shared Spectrum to successful applicants to provide innovative wireless broadband services.

**Figure 1: Band Plan for the 26/28 GHz Bands**



- 3.2 Assignment of the Shared Spectrum to each of the successful applicants will be subject to a spectrum cap of 400 MHz. The actual amount of spectrum to be assigned by the CA to an applicant will depend on the merits of its application. The cap will be applied on an aggregate basis to the holding of spectrum by all connected companies of each assignee. Please see paragraph 3.6 below for the definition of “connected companies”.

### Localised Network Coverage

- 3.3 An assignee of the Shared Spectrum shall deploy the spectrum assigned to it for the provision of innovative wireless broadband services in specified locations in accordance with the intended service areas of its application and subject to a limit on total network coverage of no greater than 50 square kilometres. An applicant is required to provide information about its proposed network coverage in its application. In the case where users of a network of an applicant are expected to be connected to the network of another applicant or LWBS licensee, the



total coverage area of the applicant shall be the service area of the applicant itself and that of the other applicant or LWBS licensee taken together, irrespective of whether they are connected companies or not.

- 3.4 The locations of network coverage, after approval by the CA, will be specified in the relevant schedule(s) of the LWBS Licence to be granted. The restriction on network coverage will be applied to all connected companies of an assignee on an aggregate basis, and shall be observed at all times during the validity of the respective LWBS Licence. Please see paragraph 3.6 below for the definition of “connected companies”.

### **Eligible Applicants and Connected Companies**

- 3.5 Assignees of the spectrum in the 26/28 GHz bands set aside for the provision of large scale public mobile services in any location of the territory (“Non-shared Spectrum”) will not be eligible to apply also for assignment of the Shared Spectrum. An applicant must declare in the application form (1) whether it is an assignee of the Non-shared Spectrum; and (2) whether it is aware of any actual or potential submission of applications for assignment of the Shared Spectrum by its connected companies, for the purpose of implementation of the spectrum cap and the limit on network coverage. It is also required to provide information on its corporate and shareholding structure (as at the date of application) in the application form, in order to assist the CA to assess whether it is a connected company in relation to another applicant or an existing assignee.

- 3.6 For the purpose of considering connected companies, a company (Company A) is a connected company of another company (Company B) if, amongst other things, Company A holds a material interest in Company B (which includes Company A holding or possessing, directly or indirectly, 25% or more of the issued share capital or voting power in respect of 25% or more of the issued share capital of Company B). More information on connected companies may be found in **Annex A**.

### **Priority of Assignment**

- 3.7 Assignment of the Shared Spectrum will be made on a

first-come-first-served basis. The CA will review the amount of the Shared Spectrum applied for by an applicant, taking into account the proposed scope of service, the number of LWBS devices to be connected to the network, and other relevant information such as the proposed network coverage, to determine the amount and frequency ranges to be assigned to it.

### **Granting of Licence**

- 3.8 Each successful applicant of the Shared Spectrum will be granted with a LWBS Licence to effect the spectrum assignment. A holder of the LWBS Licence shall be a company registered under the Companies Ordinance (Cap. 622) in Hong Kong. There will be no foreign ownership restriction on the LWBS licensees. In line with the full liberalisation policy in telecommunications services, the CA in general has not pre-set a limit on the number of LWBS Licences to be issued.

### **Period of Spectrum Assignment and Validity of Licence**

- 3.9 Assignment of the Shared Spectrum, as well as the associated LWBS Licence, will be valid for a period of five years from its effective date, and may be extended at the discretion of the CA for a further period of up to five years. The assignment of frequency spectrum shall not prejudice the generality of the power exercisable by the CA under the TO including section 32H. For the avoidance of doubt, there is no legitimate expectation of any right of renewal or right of first refusal upon expiry of the spectrum assignments.

### **Licence Conditions**

- 3.10 Licence conditions of the LWBS Licence, as given in the sample LWBS Licence published on the CA's website<sup>10</sup>, include the General Conditions and Special Conditions ("SCs"). The CA may also impose additional SCs where appropriate.

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<sup>10</sup> Available at: [https://www.coms-auth.hk/filemanager/common/licensing/sample\\_lwbs\\_licence.pdf](https://www.coms-auth.hk/filemanager/common/licensing/sample_lwbs_licence.pdf).

## **Scope of Service**

- 3.11 The scope of service under the LWBS Licence includes wireless broadband services provided through radiocommunications installations, apparatus, equipment and device operating at the frequencies and using technical parameters specified in Schedule 3 to enable two-way communications to and/or from such installations, apparatus, equipment and device for specific groups of users, and at locations specified in Schedule 4 of the LWBS Licence. Nothing in the LWBS Licence authorises the licensee to provide any conventional public mobile service including but not limited to service which provides access to a public switched telephone network and carries real-time voice communications to and from parties assigned with mobile numbers from the numbering plan of Hong Kong, any service outside the specified locations, and any other service subject to licensing under a carrier licence, the TO or any other ordinance.
- 3.12 A LWBS Licence contains a number of schedules setting out the details of the licensed service, the licensed network, the technical particulars of radio stations, the frequency spectrum used for the provision of the licensed service, and the service areas of the licensed service.

## **Payment of Spectrum Utilisation Fee**

- 3.13 SCED has decided to adopt the SUF charging scheme for spectrum assigned administratively (“SUF Charging Scheme”) for charging SUF in the 26/28 GHz bands. SUF will be charged on the use of the spectrum in the two frequency bands if they become congested (i.e. 75% or more occupied) and are anticipated to become more congested in future. The level of congestion will be assessed taking into account the assignments of both Shared Spectrum and Non-shared Spectrum. At present, with 1 200 MHz of Non-shared Spectrum already assigned in April 2019 and a maximum of 400 MHz of Shared Spectrum to be assigned, less than 75% of the available spectrum in the 26/28 GHz bands will be occupied. Accordingly, payment of SUF is not required until further notice.

- 3.14 When the 75% occupation threshold is reached and payment of SUF is required, the CA will make an order under section 32I(1) of the TO to designate the 26/28 GHz bands under the Telecommunications (Designation of Frequency Bands subject to Payment of Spectrum Utilization Fee) Order (Cap. 106Y) as frequency bands in which the use of spectrum is subject to the payment of SUF. As stated in the Statement, SCED will propose a regulation under section 32I(2) of the TO to prescribe the level of SUF as specified for the Shared Spectrum, i.e. HK\$1,080 per MHz of spectrum assigned per annum.
- 3.15 With the assignment of the 26/28 GHz bands taking effect from April 2019 onwards, it falls within the five-year transitional period of the SUF Charging Scheme. Therefore, even if the 75% threshold is reached, no SUF will be charged for the 26/28 GHz bands in 2019, 30% will be charged and payable for 2020 and 70% for 2021, with the full amount payable for 2022 and beyond.
- 3.16 The level of SUF payable for the 26/28 GHz bands (irrespective of whether the two frequency bands are regarded as congested at the initial stage) will be reviewed together with the review of the levels of SUF payable for other administratively-assigned spectrum under the SUF Charging Scheme, which is conducted every five years. The next review will be conducted in 2022, with any revision to the levels of SUF payable to be implemented from January 2023.

### **Payment of Licence Fee**

- 3.17 The current annual licence fee payable on the issue and on each anniversary of the issue of a LWBS Licence in each year while the licence remains in force shall be the sum of the items given in Table 1 below, where applicable –

Table 1: Annual Licence Fee Schedule

	<b>Particulars</b>	<b>Annual licence fee</b>
1.	Fixed fee	HK\$100,000
2.	For each 100 LWBS devices connected by radiocommunications means to the network established and maintained under the LWBS Licence	HK\$200
3.	For the 1st to the 50th base station* installed for the service	HK\$1,000 per base station
	For the 51st to the 100th base station installed for the service	HK\$500 per base station
	For the 101st base station installed for the service and any additional base stations	HK\$100 per base station
4.	For every 1 kHz or part thereof of frequency then assigned to the licensee	HK\$1 <sup>#</sup>

Notes: (\*) In assessing the amount of base station fee to be paid, one base station is counted for each registered address, although it may include more than one radio installation.

(#) Since the Shared Spectrum will be assigned on a non-exclusive and geographically sharing basis, the spectrum management fee will be proportionally reduced by a reduction factor taking into account the number of users that may be authorised or reserved by the CA to use that particular part of the radio frequency.

### **Control of Interference**

3.18 The licensee is required to take all reasonable measures to install, maintain and operate the network and the service in such a manner as not to cause any harmful interference to any lawful telecommunications services within or outside Hong Kong. If necessary, the CA may issue relevant directions requiring the licensee to take such measures as may be necessary to prevent interference. The licensee shall also coordinate and agree with other licensees on the technical measures to be taken to minimise any mutual interference between them.

## **Section IV – Information to be Provided in Submitting the Application**

### **Application Procedures**

- 4.1 For an application for assignment of the Shared Spectrum and accordingly the grant of a new LWBS Licence, the applicant should submit full information specified in these Guidelines, in particular in paragraphs 4.3 to 4.19. Subject to satisfying the relevant licensing criteria set out in Section V, the CA will consider granting a LWBS Licence with the Shared Spectrum assigned to the applicant.
- 4.2 For any application for renewal of LWBS Licence in view of the expiry of an existing one, the licensee should submit an application at least one year prior to the expiry of the LWBS Licence, to the CA for continuing to operate the service specified under the scope of the original licence. The application for licence renewal should include full details as required for an application for a new LWBS Licence. It should be noted that subject to the discretion of the CA, the LWBS Licence may be extended for a further period of up to five years. Basically, the CA will examine the application according to the similar criteria as for granting a LWBS Licence to a new applicant.

### **Application Proposal**

#### ***Scope of Proposed Service***

- 4.3 Applicants should specify the scope of service proposed to be provided using the Shared Spectrum and operated under the LWBS Licence.
- 4.4 The application should include a detailed description of the services to be provided, the identity and number of the target users (including all end users of the service and the service providers making use of the service to serve their own customers) and customers, intended coverage areas including the service areas of its own and related service areas as elaborated in paragraph 3.3 above upon the commissioning of the facilities (subject to an aggregate network coverage of not exceeding 50 square kilometres), expected service launch date, implementation schedule if the proposed services are to be introduced in phases and

plans for the introduction of new services. The application should also include detailed description of the arrangements for offering wholesale and/or retail services, and an explanation on how the applicant is not primarily relying on wholesale services of other operators' infrastructure to roll out their network or to provide their service.

- 4.5 Successful applicants should be committed to the provision of the proposed services in Hong Kong as detailed in their applications, submissions and representations.

### ***Application for Spectrum Assignment***

- 4.6 Applicants should specify the amount of Shared Spectrum applied for, with justifications provided. Within the spectrum cap of 400 MHz for assignment of the Shared Spectrum to the applicant and its connected companies, the CA will determine the amount of spectrum to be assigned to an applicant taking into account, amongst the others, the justifications provided.

### ***Company Structure***

- 4.7 Holders of the LWBS Licence must be registered in Hong Kong under the Companies Ordinance. The application proposal should contain details of the company intended to be the assignee of the Shared Spectrum, including –
- (a) photocopies of the Certificate of Incorporation and the Business Registration Certificate of the company;
  - (b) detailed information on corporate and shareholding structure including relationships with holding or related companies;
  - (c) certified copies of Articles of Association of the company;
  - (d) details on the composition of the company's Board of Directors and key officers; and
  - (e) the organisational/management structure and staffing levels of the

company and any principal contractors to be employed in constructing and maintaining the network.

### ***Financial Capability***

- 4.8 If the applicant is an established company, the proposal should include copies of audited annual financial statements, including the auditor reports, for each of the last three full financial years, together with the most recent interim results (if applicable).
- 4.9 If the applicant is a newly-formed company, the proposal should include –
- (a) the directors' certificate of the amount of issued and paid-up share capital;
  - (b) bankers' confirmation of the amount of its deposits and/or available credit facilities; and
  - (c) copies of audited annual financial statements, including the auditor reports, for each of the last three full financial years, together with the most recent interim results, of each of the company's shareholders that is an established company (if applicable).
- 4.10 If the applicant is being financed by its holding company, a supporting letter from its holding company together with documentary evidence to demonstrate the financial capacity of its holding company is required.
- 4.11 The application should include a detailed financial plan (with inflation assumptions) for the proposed services and networks for the first five years of operation including –
- (a) a breakdown of the planned capital expenditure (“CAPEX”) and of working capital requirements for the first five years of operation;
  - (b) projected profit and loss account including details of revenue, fixed and variable costs, balance sheet and budgeted cash flow statements, showing the amount of capital to be invested on an annual basis for five years;



- (c) method of depreciation of assets;
- (d) projected volume of business and market share for the first five years of operation;
- (e) the forecast internal rate of return and payback period of the project;
- (f) details of proposed financing structure, debt equity ratio of the project, credit facilities, repayment terms and schedule for loans and bonds, timing or injection of funding, and the level of shareholders' support to satisfy the CA that the applicant has sound financial backing to carry out the project; and
- (g) sensitivity tests on the business plan showing the worst case scenario (the worst case being one beyond which the company would not wish to invest) and a scenario in which the projected revenue level falls to 80% of the basic assumptions, details of contingency financial arrangements, balance sheet, profit and loss account, cash flow statements, capital investment plan, internal rate of return and payback period of the project.

### ***Technical Details of the Facilities***

4.12 Applicants should give a detailed description of the proposed facilities. This description should cover –

- (a) technical configuration including network infrastructure and components, the technology to be employed, the likely choice of equipment, system design, capacity, how the network and its ancillary equipment and facilities are planned to meet the proposed capacity, connectivity to destinations outside Hong Kong, if applicable, and other technological characteristics;
- (b) the facilities upon launch of service and the facilities expansion plan for the first five years of operation;
- (c) the planned location of equipment to be installed;

- (d) the planned facilities and traffic management, signalling, metering and billing arrangements (where applicable) to be adopted; and
- (e) specifications of the radio transmitting/receiving equipment:
  - (i) functional specifications; (ii) coding format; and (iii) other technical particulars (e.g. modulation and emission type, occupied bandwidth, operating band, transmitter power, harmonics and spurious output level and antenna characteristics).

Applicants should illustrate how the proposed facilities are designed and implemented to ensure delivery of good, efficient and continuous service.

### ***Technical Support***

- 4.13 The application should include details of technical support facilities and maintenance centres which the applicants have or intend to set up in Hong Kong, including a description of the technical personnel responsible for the design, construction, day-to-day operation, maintenance of the facilities and the routine maintenance schedule/procedure.

### ***Contingency Plan***

- 4.14 To ensure sustainability of service delivery, the applicant should provide the contingency plan for its proposed services in response to major breakdown or network/service outage. It should include –
- (a) a brief description of the contingency plan and arrangement;
  - (b) the designed level of resilience in terms of percentage of affected service recovered and the time within which the recovery will be completed;
  - (c) the amount of backup capacity (relative to the capacity level required for normal operation) and the spare resources such as backhaul equipment for contingency connection;

- (d) prior and post arrangements for re-allocating resources, re-routing the affected traffic and acquisition of additional bandwidth to recover the affected service;
- (e) internal procedures for monitoring and reporting critical network outage, composition of the team responsible for handling the major incidents and the responsibility of the respective major team members; and
- (f) brief description of the action and procedures to (i) assess the impact of major incident; and (ii) disseminate the information to the management, the Office of the Communications Authority and the customers.

### ***Previous Relevant Experience***

- 4.15 Details on the technical knowhow and any previous experience of the applicant, its shareholders and key personnel in establishing and running the proposed telecommunications networks and services, as well as information on the current status of these networks and services, should be given.
- 4.16 Information should also be provided on the applicant and its shareholders' experience in running other relevant businesses in Hong Kong or overseas.

### ***Implementation Plan***

- 4.17 The CA would like to see early availability of innovative wireless broadband services supported by the Shared Spectrum in the 26/28 GHz bands. As such, applications should include an implementation plan for deployment of the Shared Spectrum assigned, stating the key milestones of implementation for the first three years starting from the issue date of the LWBS Licence which should include where applicable
  - (a) the network planning and the plan for installation of radio units;
  - (b) placing of order for equipment;
  - (c) delivery of equipment;
  - (d) construction of equipment buildings/rooms;
  - (e) installation of

equipment; and (f) testing. The applicant will be required to adhere to this plan if the Shared Spectrum is assigned.

***Other Information***

4.18 Applicants may submit any other information not specified above which they consider helpful to their applications.

***Executive Summary***

4.19 The application should contain an Executive Summary summarising in a concise manner the significant and salient points of the proposals.

## Section V - Broad Licensing Criteria

- 5.1 The basis for assessment of applications will be the information supplied by the applicants according to the requirements set out in Section IV of these Guidelines. The CA reserves all rights not to accept applications which are substantially incomplete in this respect.
- 5.2 In considering the granting of a LWBS Licence to an applicant for assignment of the Shared Spectrum, the CA will consider the benefit of the proposed network to the community. Specifically, the type of services to be offered and the intended coverage areas, the reasonableness of the business plan and the applicant's financial capability to fulfil the CAPEX requirement. Other licensing criteria include –

(a) Business Plan

The CA will examine the reasonableness of the business plan including in particular whether the proposed CAPEX would be sufficient to support the networks and services proposed.

(b) Financial Capability

The applicant must possess sufficient financial capability to invest to the level proposed and demonstrate that each consortium partner, as appropriate, is financially sound. The applicant must satisfy the CA that it has sufficient financial backing, either by its own capital, the capital of its shareholders or loan capital to carry out the project. The applicant must have sound and detailed business plans with contingency measures to face unexpected down-turn in the business and the worst case scenario.

(c) Technical Soundness and a Satisfactory Quality of Service

The proposed network must be technically sound, compatible with the local environment and be capable of delivering the services proposed to give a satisfactory quality of service. In particular, the quality of service should be satisfactory in the expected climatic conditions in Hong Kong, and the proposed system must use

spectrum efficiently.

(d) Proven Managerial and Technical Expertise

The applicant must possess proven managerial and technical expertise to operate a satisfactory service, market the service in Hong Kong and provide satisfactory customer support. The CA will consider the knowledge of the applicant or the consortium partners, as appropriate, about the local environment and/or their experience in the operation of external telecommunications facilities.

(e) Service Quality and Charges

The CA will consider more favourably those applications which offer a wider range of innovative services at competitive prices and with a better quality of service.

(f) Implementation Schedule

The applicant should provide the CA with its rollout plan for deployment of the Shared Spectrum, including the target commencement date of service provisioning with the use of the assigned spectrum. The applicant should demonstrate its abilities to manage such plan and the necessary facilities.

(g) Quality of Application Proposal

The CA will consider more favourably application proposals that are concise and clearly presented with each aspect substantiated by well researched facts and comprehensive independent market survey(s).

5.3 In the case of applicants having modus operandi different from that of business corporates, the applicants should also provide the required information as specified in paragraph 5.2 above as far as possible. The CA will take into account all relevant factors in its assessment of the applications.

5.4 The licensing criteria set out in these Guidelines are not intended to be a definitive list of criteria. While evaluating whether the criteria have

been satisfied, the CA is entitled to determine the weight it will give to the individual matter as it considers appropriate in the circumstances, after taking into account relevant factors, and will decide each case on its own merits.

**Office of the Communications Authority**  
**15 July 2019**

## Connected Company

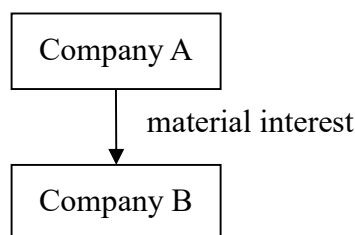
### Connected Companies for Implementation of the Spectrum Cap and the Limit on Network Coverage

1. A connected company refers to an applicant that has a connection to another applicant.

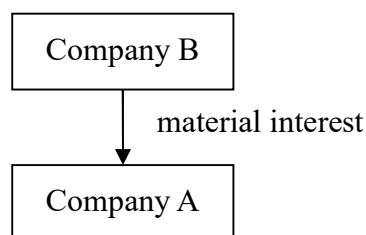
#### Definition of Connection

2. Connection has, for the current spectrum assignment exercise and these Guidelines, the following meaning. A company (Company A) has a connection to another company (Company B) if:

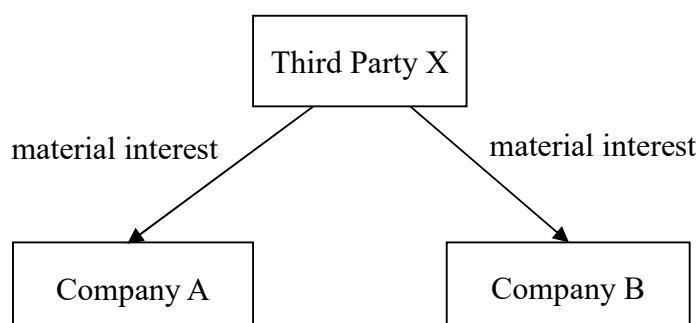
- (a) Company A holds a “material interest” in Company B; or



- (b) Company B holds a “material interest” in Company A; or



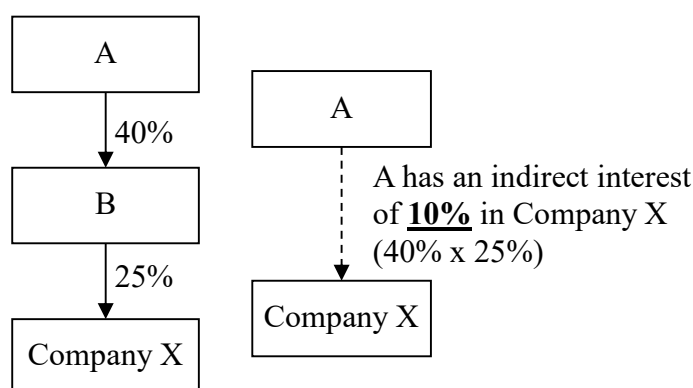
- (c) Company A and Company B are under common ownership of a third party who holds a “material interest” in both Company A and Company B.





3. A “material interest” refers to a direct or indirect interest of one of the following:
  - (a) a holding of or a right to acquire or subscribe for 25% or more of the issued share capital of the body corporate;
  - (b) a holding of or a right to acquire voting power in respect of 25% or more of the issued share capital of the body corporate;
  - (c) control of the body corporate through holding of, a right to acquire or having voting power of 50% or more of the issued share capital of the body corporate, or through other means by which the affairs of the body corporate are conducted according to the wishes of the holding party.
  
4. Applicants should note that, indirect interest (e.g. interest held through nominees or custodians) and conditional entitlement (e.g. interest conditional on terms of a loan agreement) shall be taken into account.
  
5. In determining whether a person has a material interest indirectly in a body corporate, the extent of the interest of the person in the body corporate will be calculated as follows:
  - (a) If there is one interposed person, the percentage is arrived at by multiplying the percentage representing the extent of the interest of the person in the interposed person by the percentage representing the extent of interest of the interposed person in the body corporate.

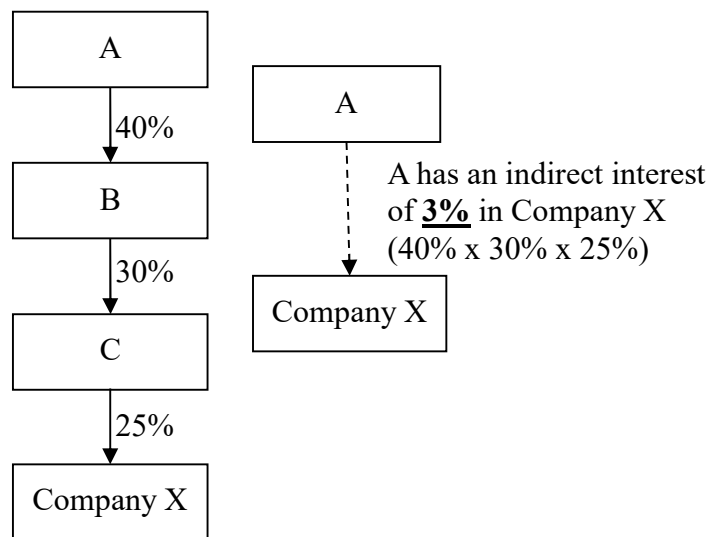
Example:



(b) If there is a series of interposed persons, the percentage is arrived at by multiplying the percentage representing the extent of the interest of the person in the first interposed person in the series by:

- (i) the percentage representing the extent of interest of each interposed person (other than the last interposed person) in the series in the next interposed person in the series; and
- (ii) the percentage representing the extent of the interest of the last interposed person in the series in the body corporate.

Example:



6. For any interposing interest described in paragraph 5(a)-(b) above, where such interest exceeds 50%, it shall be deemed as 100%.

Example:

