

Guidelines for Application for Unified Carrier Licence

31 January 2019 (Issue 12)

Section I – Introduction

- 1.1 These Guidelines are issued under section 6D(2)(a) of the Telecommunications Ordinance (Cap. 106) (“TO”). They indicate the manner in which the Communications Authority (“CA”)¹ proposes to perform its function of determining applications for the unified carrier licence (“UCL”) for the operation of all types of fixed, mobile and/or converged telecommunications services (or any combination thereof). These Guidelines are designed to assist interested parties in formulating their proposals, and should be read in conjunction with the relevant CA Statements as well as and other policy and regulatory documents hereafter referred to.
- 1.2 All proposals received for applying for the UCL will be evaluated on their merits having regard to the information provided as required in Section VIII and to the broad licensing criteria outlined in Section IX of these Guidelines.
- 1.3 Applicants should ensure that all information contained in their proposals and any other subsequent submissions and representations are correct and accurate in all respects, in reliance upon which the CA will consider the proposals. The CA may cancel, withdraw or suspend the UCL granted if any information (including, without limitation, in a proposal) submitted by the applicant is false or misleading.
- 1.4 Proposals 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.

Office of the Communications Authority
29th Floor, Wu Chung House
213 Queen’s Road East
Wan Chai
Hong Kong
(Attention: Head, Regulatory 2)

¹ Pursuant to the Communications Authority Ordinance (Cap.616), with effect from 1 April 2012, all duties and powers of the Telecommunications Authority are conferred on the CA, and all duties and powers of the Office of the Telecommunications Authority (“OFTA”) are conferred on the Office of the Communications Authority (“OFCA”), the executive arm of the CA.

Email: ucl@ofca.gov.hk

- 1.5 Applicants will receive acknowledgement of receipt of proposals. The CA may request the applicants to provide additional information to clarify or supplement the proposals submitted.
- 1.6 The CA reserves the right to disclose the names of the parties who have submitted proposals. All other information received will be treated in confidence. Where the CA proposes to disclose any information in the proposals which may be considered as commercially sensitive information, the CA will give the applicant an opportunity to make representations on the proposed disclosure before the CA makes a final decision on whether or not to disclose the information.
- 1.7 These Guidelines do not apply to the granting of UCL by the CA for provision of services using radio spectrum acquired through auction, tender or a combination of auction and tender as conducted by the CA. For such cases, the information required to be submitted, the licensing criteria and other relevant matters that the CA will consider for the granting of UCL will be specified in the documents that the CA will publish in association with the auction, tender or a combination of auction and tender (as the case may be) for the relevant radio spectrum.
- 1.8 Nothing in these Guidelines should be taken to bind the CA on the granting of any licence, the terms of any licence to be granted, or any particular course of action in relation to the handling of proposals received. The CA reserves the right not to accept any proposal submitted.

Section II – Regulatory Framework under the Unified Carrier Licensing Regime

Unified Carrier Licensing Regime

- 2.1 The unified carrier licensing regime has been implemented starting from 1 August 2008 as the single licensing vehicle for regulating the establishment and maintenance of means of telecommunications, including telecommunications networks in Hong Kong for provision of public telecommunications services. The statement entitled “*Licensing Framework for Unified Carrier Licence*” (“UCL Statement”) issued in May 2008 sets out the detailed UCL licensing framework². At present, the UCL is the only type of carrier licence to be issued for the provision of fixed, mobile and/or converged services.
- 2.2 For the avoidance of doubt, UCLs will only be granted to parties for the provision of public telecommunications services, i.e. to make the services provided under the UCL available to the public at the wholesale level and/or retail level. UCLs will not be granted for offering services only to the licensee itself or to its affiliated companies or entities, which are not qualified as offering services to the public.
- 2.3 Applicants may also apply to the CA to include the provision of mobile virtual network operator (“MVNO”) service under its UCL. MVNO service refers to telecommunications services utilising the radio stations operated by another licensee providing mobile services at frequencies specified in the latter’s licence, to enable two-way communications between moving locations or between a moving location and a fixed point.
- 2.4 Unified carrier licensees (“Licensees”) are authorised to establish and maintain telecommunications networks and facilities, which may cross unleased Government land and public streets, for the provision of public telecommunications services. If the provision of public telecommunications services does not involve the establishment or maintenance of any telecommunications means which cross unleased Government land or public streets, no UCL is required. Applicants may consider whether Services-based Operator (“SBO”) Licence is

² The UCL Statement is available at: http://tel_archives.ofca.gov.hk/en/tas/others/ta20080509.pdf.

applicable to their proposed services. For details about SBO Licence, please refer to the “*Guidelines for the Application for SBO Licence*” on the CA website³.

Interconnection Regime

- 2.4 Interconnections between telecommunications networks and services are governed by sections 36A and 36B of the TO and the licence conditions of the carrier licences. The former Telecommunications Authority (“TA”) issued a series of statements (No. 1 to No. 10) during the period from March 1995 to June 1995 on “*Interconnection and Related Competition Issues*”, setting out the principles for seeking and effecting interconnection⁴.
- 2.5 A carrier licensee is required under its licence condition to ensure “any-to-any connectivity” by interconnecting its network and service with networks and services of other carriers, subject to the requirements of the TO and the relevant licence conditions. Irrespective of the types of networks and services which they provide and operate and irrespective of the underlying technologies used, carriers are obliged to interconnect with one another so that any customer in any one network can enjoy seamless and transparent access to any other customer in any interconnecting network and, where directed by the CA, to any telecommunications service offered in any interconnecting network.
- 2.6 Regarding carrier-to-carrier interconnection, the CA has not intervened to regulate the mobile-mobile interconnection charge (“MMIC”)⁵ and broadband interconnection charge between fixed carriers. While in the past the former TA had given regulatory guidance to the industry on the payment of fixed-mobile interconnection charge (“FMIC”)⁶ based on the Mobile Party’s Network Pays arrangement, that regulatory guidance was withdrawn on 27 April 2009 in accordance with the former TA’s decision in its statement entitled “*Deregulation for Fixed-Mobile Convergence*” published in April 2007⁷.

³ The Guidelines are available at: <http://www.coms-auth.hk/en/licensing/telecommunications/apply/index.html>.

⁴ The TA’s Statements No. 1 to 10 are available at: http://tel_archives.ofca.gov.hk/en/tas/tas-bs-interconnection.html.

⁵ MMIC refers to the interconnection charge for telephony traffic exchanged between two mobile carriers.

⁶ FMIC is an interconnection charge for telephony traffic exchanged between fixed carrier and mobile carrier.

⁷ The TA’s Statement is available at: http://tel_archives.ofca.gov.hk/en/tas/others/ta20070427.pdf.

- 2.7 Whilst the narrowband interconnection charge between fixed carriers was subject to regulatory guidance⁸, the CA decided on 16 April 2013 by its statement “*Review of Regulatory Guidance on the Charging Principles of Interconnection between Fixed Carriers*” to withdraw the regulatory guidance on the charging principles of narrowband interconnection between fixed carriers and Statement No. 7 on “*Interconnection and Related Competition Issues*” after a transitional period which ended on 16 October 2014⁹. In other words, there is at present no regulatory guidance in force concerning either the charging principles of MMIC, FMIC, or narrowband and broadband interconnection charges between fixed carriers. All such charges are solely determined through commercial negotiations among the carriers.
- 2.8 Regarding carrier to service provider interconnection, the former TA has reviewed and updated the regulatory arrangements for international call forwarding service (“ICFS”) charge¹⁰ and local access charges (“LAC”)¹¹. For the ICFS charge, the former TA updated the terms and conditions of interconnection in its “*Determination under Section 36A of the Telecommunications Ordinance in respect of a Variation of the Terms and Conditions of Interconnection for International Call Forwarding Services*” issued in May 2009¹². For the LAC, the former TA decided to adopt an updated LAC regime as stated in its statement “*New Regulatory Regime for Local Access Charge*” in December 2011¹³ which came into effect from 1 July 2013.
- 2.9 Carrier licensees are obliged to ensure that a copy of their interconnection agreements is filed with the CA within 14 days after the agreements have been made, unless the filing requirement is waived by the CA. OFCA would publish on its website three types of interconnection agreements, namely Type I interconnection agreements; Type II interconnection agreements and blockwiring interconnection

⁸ The updated TA’s Statement No. 7 is available at:
http://tel_archives.ofca.gov.hk/en/tas/interconnect/ta20090403stat.pdf.

⁹ The CA’s Statement is available at:
http://www.coms-auth.hk/filemanager/statement/en/upload/170/ca_statements20130416.pdf.

¹⁰ ICFS charge refers to the access charge or originating charge for interconnection necessary for the provision of international call forwarding service.

¹¹ LAC refers to an interconnection charge payable by external telecommunications service (“ETS”) operators to the local network operators, including local fixed and mobile carriers, for the conveyance of ETS traffic to and from end users of the local network operators.

¹² The TA’s Determination is available at:
http://tel_archives.ofca.gov.hk/en/ta-determine/de20090519.pdf.

¹³ The TA’s Statement is available at:
http://tel_archives.ofca.gov.hk/en/tas/interconnect/ta20111223.pdf.

agreements between carrier licensees (with commercially sensitive information redacted) for public information¹⁴. Applicants may refer to the Statement entitled “*Update of the Existing Arrangements for the Filing and Publication of Interconnection Agreements*” issued in March 2012 for details¹⁵.

Use of Numbers

2.10 Pursuant to section 32F of the TO, the CA has issued a “*Numbering Plan for Telecommunications Services in Hong Kong*” (“Hong Kong Numbering Plan”)¹⁶. A unified carrier licensee is entitled to apply for allocation of telecommunications numbers and codes in the Hong Kong Numbering Plan for provision of telecommunications service in accordance with the relevant guidelines and codes of practices issued by the CA¹⁷.

Number Portability

2.11 Number portability for fixed and mobile telecommunications services (i.e. operator number portability (“ONP”) and mobile number portability (“MNP”)) has been implemented in Hong Kong since 1995 and 1999 respectively. Fixed numbers are portable among all carrier licensees and SBO licensees providing fixed voice telephony services¹⁸, and mobile numbers are portable among all carrier licensees and SBO licensees providing mobile voice telephony services and mobile virtual network operator (“MVNO”) services¹⁹.

2.12 ONP and MNP are implemented in Hong Kong using the distributed database approach, which requires the originating network to perform

¹⁴ The interconnection agreements are published at:
http://www.ofca.gov.hk/en/industry_focus/telecommunications/interconnection_agreement/index.html.

¹⁵ The TA’s Statement is available at:
https://tel_archives.ofca.gov.hk/en/tas/interconnect/ta20120302.pdf.

¹⁶ The Hong Kong Numbering Plan is available at:
http://www.ofca.gov.hk/filemanager/ofca/tc/content_311/no_plan.pdf.

¹⁷ The Code of Practice relating to the use of numbers and codes in the Hong Kong Numbering Plan is available at: http://www.coms-auth.hk/filemanager/statement/en/upload/385/cop-numbering_e.pdf.

¹⁸ SBO licensees are required to support number portability for fixed numbers if they provide “Class 1” type fixed services (i.e. fixed services that have all the attributes of the conventional fixed telephone services) under their licences.

¹⁹ SBO licensees are required to support number portability for mobile numbers if they provide “Class 1” type mobile services (i.e. mobile services that have all the attributes of the conventional mobile telephone services) and MVNO services under their licences.

number translation. Each originating network has the responsibility of routing the calls correctly to the final recipient's network. With the implementation of the unified carrier licensing regime in August 2008, all unified carrier licensees (providing fixed and/or mobile services), MVNOs and SBOs providing class 1 services should facilitate ONP and MNP at their own expense, as stated in the former TA's statement on "*Facilitating Number Portability under the Unified Carrier Licensing Regime*"²⁰. In line with that requirement, the former TA issued the "*Determination under Section 36A of the Telecommunications Ordinance in respect of a Variation of the Terms and Conditions concerning Interconnection relating to Operator Number Portability and Mobile Number Portability*" in October 2010 to sunset all previous determinations relating to ONP and MNP²¹. The obligation on number portability will be accompanied by the right to have access to the number portability databases. To fulfil the licence obligations concerning the provision of ONP and MNP, the Licensees may choose to set up their own systems or negotiate with other licensees to make arrangements at commercially agreed terms. If the Licensees opt to set up their own number portability databases, they shall, where and as directed by the CA, provide administration database hosting service²² to other licensees at commercially agreed terms to facilitate the portability of numbers as required under their licences.

- 2.13 The former TA issued a statement "*Fixed Mobile Number Portability*" in July 2009²³ announcing that operators may make applications to implement fixed-mobile number portability ("FMNP") on a voluntary basis at their own cost. Interested applicants should observe the relevant guiding principles governing the provision of FMNP and submit proposals to the CA for its prior approval before commencing.

Use of Radio Spectrum

- 2.14 Pursuant to section 32G of the TO, the CA has the statutory duty to promote the efficient allocation and use of spectrum as a public resource of Hong Kong. According to section 32H of the TO, the CA is

²⁰ The TA's Statement is available at:
http://tel_archives.ofca.gov.hk/en/tas/others/tas20101022.pdf

²¹ The TA's Determination is available at:
http://tel_archives.ofca.gov.hk/en/ta-determine/de20101022.pdf

²² Administration database hosting service means a service offered by the Licensee which makes available its administration database for access by another licensee, so that the latter will be able to fulfil the licence obligation under its own licence to facilitate the portability of numbers without the need of setting up its own administration database.

²³ The TA's Statement is available at:
http://tel_archives.ofca.gov.hk/en/tas/numbering/tas20090710.pdf

empowered to allocate and manage frequencies and bands of frequencies in all parts of the radio spectrum used in Hong Kong. In April 2007, the Government having taken into account views and comments from public consultation promulgated the Radio Spectrum Policy Framework (“Spectrum Policy Framework”)²⁴ for the management of radio spectrum in Hong Kong. As set out in the 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. The minimum notice periods for variation or withdrawal of spectrum assignments are set out in the statement of the former TA issued in January 2008²⁵.

- 2.15 The rights of the Licensees in relation to the use of radio spectrum for provision of telecommunications service are set out in the UCL Statement²⁶. The use of radio spectrum may be subject to the payment of spectrum utilisation fee (“SUF”) and spectrum management fee (which is one of the components of the annual licence fee as mentioned in Section 7.8 and **Annex A**).

Future Spectrum Supply

- 2.16 In accordance with the Spectrum Policy Framework, the CA publishes the “Spectrum Release Plan” (“SRP”)²⁷ to inform the industry and interested parties of the potential supply of radio spectrum which may be made available through open bidding, tendering process or other appropriate means in the following three years. The SRP is updated every year on a rolling basis or as required taking into account the latest developments. Parties who are interested in providing mobile service should make reference to the SRP from time to time and the announcements made by the CA to invite applications to bid or apply for the radio spectrum.

Trading of Spectrum

- 2.17 Trading of spectrum is a mechanism whereby a spectrum assignee may,

²⁴ The Spectrum Policy Framework is available at:
<http://www.cedb.gov.hk/ccib/eng/legco/pdf/spectrum.pdf>.

²⁵ The TA’s Statement is available at http://tel_archives.ofca.gov.hk/en/tas/spectrum/ta20080131.pdf.

²⁶ See sub-paragraph 7(a) of the UCL Statement.

²⁷ The latest version of the SRP is available at:
http://ofca.gov.hk/filemanager/ofca/common/Industry/broadcasting/spectrum_plan2018_en.pdf.

through bilateral negotiations, transfer all or part of the spectrum it holds to another party for the remaining duration of spectrum assignment. A consultancy study on the matter was commissioned by the Government in 2017 and was completed in 2018. Taking into account the findings of the consultancy study, the Government advised the Legislative Council Panel on Information Technology and Broadcasting in June 2018 that it did not see a justifiable case for introducing spectrum trading in Hong Kong both in the short term (i.e. within the next five years) and in the medium term (i.e. the next six to ten years)²⁸.

Spectrum Utilisation Fees for Spectrum Assigned Administratively (for Fixed and Other Links)

- 2.18 To encourage more efficient use of the scarce radio spectrum resources, SCED and the former TA jointly issued a statement “*Spectrum Utilization Fee for Spectrum Assigned Administratively*” in September 2011 setting out their decisions to impose SUF²⁹ on spectrum that is assigned to non-Government users administratively, the spectrum and the services that will attract SUF, the levels of SUF payable, and the implementation details³⁰.
- 2.19 The Government has completed the legislative process for implementation of the SUF charging scheme. The following legislation effecting the SUF charging scheme came into operation on 1 January 2018 –
- (a) Telecommunications (Designation of Frequency Bands subject to Payment of Spectrum Utilization Fee) (Amendment) Order 2017; and
 - (b) Telecommunications (Level of Spectrum Utilization Fee) (Fixed and Other Links) Regulation.
- 2.20 Under the SUF charging scheme, the full fee payable is set out in Table 1 below, subject to a transitional period of five years before the charging scheme is fully in force. The SUF would be levied two years

²⁸ The paper to the Legislative Council Panel on Information Technology and Broadcasting is available at: <http://www.legco.gov.hk/yr17-18/english/panels/itb/papers/itb20180611cb4-1200-5-e.pdf>.

²⁹ SUF for spectrum assigned administratively is the price set by the regulator, charged to spectrum licensees and is intended to reflect the opportunity cost of spectrum use (and thereby provide effective incentives for efficient use of spectrum).

³⁰ The TA’s Statement is available at: http://tel_archives.ofca.gov.hk/en/tas/spectrum/ta20110923.pdf.

after the implementation of the SUF charging scheme. After the two-year grace period (for the 24 months beginning on 1 January 2018), SUF would be imposed using a three-year phase-in approach, with 30% of the SUF payable for the 12 months beginning on 1 January 2020, 70% payable for the 12 months beginning on 1 January 2021, and the full amount payable for the subsequent (fifth) year and beyond.

Table 1: List of frequency bands subject to payment of SUF and the levels of SUF for spectrum assigned administratively

Designated frequency bands (MHz)	Use	SUF payable (per link, in HK\$/MHz/annum)	
		Exclusive use	Non-exclusive use
2055 – 2095	ENG/ OB links	21,600	10,800
5875 – 6425	Fixed links/ Satellite uplink	No exclusive use	432
6425 – 7100	Fixed links/ Satellite uplink	21,600 (for frequencies assigned under carrier and Self-Provided External Telecommunicat ions System licences) or 36,000 (for frequencies assigned under Wide Band Link and Relay Station licences)	3,600 (for frequencies assigned under carrier and Self-Provided External Telecommunicati ons System licences) or 6,000 (for frequencies assigned under Wide Band Link and Relay Station licences)
7421 – 7900	Fixed links		
8275 – 8500	Fixed links		
10700 – 11700	Fixed links		

ENG/OB stands for Electronic News Gathering/Outside Broadcast.

Road Opening

2.21 A unified carrier licensee may, on a case-by-case basis, be granted with right of road opening³¹ under section 14(1) of the TO if it is authorised

³¹ In the case of unleased Government land, consent in writing of the Director of Lands is required.

to provide fixed services under its licence and if it demonstrates that it is rolling out a wireline-based infrastructure. For more details on the application for road opening authorisation and procedure for road opening works, please refer to the “*Guidelines for Application of Road Opening Authorisation and Procedure for Road Opening Works*” issued by the CA in November 2012³².

- 2.22 A unified carrier licensee authorised to provide mobile service only does not have the right to lay cables along or across public streets or unleased Government land. The Licensee will be required to lease circuits from licensed local fixed network operators for the connections between base stations and mobile switching equipment. Applications for the operation of radio links in place of circuits leased from fixed network operators will be considered by the CA on a case-by-case basis due to the limitations in the availability of suitable radio spectrum for such links.

Building Access

- 2.23 A unified carrier licensee may be granted with an authorisation for building access if it is authorised to provide fixed services and it demonstrates a plan to roll out self-built customer access network to buildings based on deployment of technology which requires the laying of facilities in common parts of a building for serving only the residents and occupants of that building. For the principles and criteria which the CA would adopt in granting authorisation of building access to carriers, applicants may refer to the “*Guidelines for Application of Building Access Authorisation for Provision of Fixed Telecommunications Service*”³³.

Sharing of Use of Facilities

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

³² The guidelines about road opening are available at:
<http://www.coms-auth.hk/filemanager/statement/en/upload/151/gn442012e.pdf>.

³³ The guidelines about building access are available at:
http://tel_archives.ofca.gov.hk/en/report-paper-guide/guidance-notes/gn_200820.pdf.

Access to Hilltop Radio Sites

2.25 Some remote areas are under-served by fixed broadband services as the provision of wireline solution thereto is either uneconomical or technically infeasible at this juncture. Public telecommunications services based on wireless broadband solutions would be able to provide a viable and cost-effective alternative for broadband access to these areas. To facilitate the deployment of such wireless broadband services to remote areas, sharing of existing hilltop radio sites for provision of such services to these areas may be allowed, subject to the availability of facilities at the sites. OFCA has issued the “*Guidelines for Use of Hilltop Radio Site Resources*”³⁴ in July 2018 to ensure that such sites and facilities thereon are used efficiently and effectively to meet the needs for telecommunications, utilities and other public services. Application for shared use of hilltop radio sites by a unified carrier licensee providing public telecommunications services will be considered on a case-by-case basis.

Construction of Radio Base Stations

2.26 Sites for the installation of radio base stations are usually acquired by Licensees on a commercial basis through negotiations with landowners. The CA will not intervene in this process except in circumstances set out in sections 14(1B) and 36AA of the TO. It should be noted that section 14(1B) is seldom applicable to sites on roof-tops because alternative sites to serve a particular area using radio transmission are usually available.

2.27 In addition to compliance with the requirements of the CA in respect of frequency emission and non-ionizing radiation safety, the Licensee must ensure that their installations of radio base stations comply with the requirements of the relevant Government departments including Buildings Department, Lands Department and the relevant statutory town plans of Planning Department / Town Planning Board. The CA has adopted a one-stop application procedure under which the Licensee is required to declare the compliance status of its proposed radio base stations with the requirements of the Government departments / authorities concerned.

2.28 To shorten the overall processing time of base station application, the CA and Lands Department have adopted parallel processing of applications in cases where a temporary waiver is required. The

³⁴ The guidelines about hilltop radio sites are available at:
<http://www.coms-auth.hk/filemanager/statement/en/upload/457/gn082018e.pdf>.

Licensee must submit applications to the CA and Lands Department (if a temporary waiver is required) in parallel. The CA will start processing the application upon receiving the Licensee's declaration that the related waiver application has been submitted to Lands Department. The CA may, after having been satisfied that all requirements concerning electromagnetic compatibility and radiation safety are met, grant an approval for the installation and operation of the radio base station prior to Lands Department's decision on the related waiver application. In order to ensure the radiation safety requirements are met, OFCA will conduct random checking of radiation level of base stations which have been put into operation following the prior approval of the CA.

- 2.29 The Licensee should refer to the "*Guidance Note for Submission of Applications by Public Telecommunications Operators for the Installation of Radio Base Stations for Public Telecommunications Services in Buildings and on Rooftops*" published on the CA's website in December 2010³⁵ for details of the requirements and procedures for obtaining approval from the departments / authorities concerned. The decision as to whether or not to grant such approval and the actual time taken to grant such approval remains at the discretion of the individual departments / authorities concerned.
- 2.30 To facilitate the rollout of 5G network by mobile network operators ("MNOs"), the Chief Executive announced in the 2018 Policy Address³⁶ that the Government will proactively open up suitable Government premises and roof-tops for the installation of radio base stations. MNOs may apply to use such Government sites for installation of their radio base stations.

Deployment of Femtocell

- 2.31 The CA adopts a light-handed regulatory framework in respect of the installation of relevant femtocell equipment. Under the said regulatory framework, the Licensees are allowed to deploy femtocell for the provision of mobile services without having to seek the prior approval of the CA for individual femtocell installation and provision of detailed information of femtocells under their UCLs. For holders of existing mobile carrier licence or UCL for provision of mobile services, they may apply to the CA for the necessary amendments to their licences. A femtocell is not considered as a base station for the purpose of licence

³⁵ The Guidance Note is available at:
http://www.coms-auth.hk/filemanager/statement/en/upload/138/gn_201024.pdf.

³⁶ Please see paragraph 137 of the 2018 Policy Address, which is available at:
<http://www.policyaddress.gov.hk/2018/eng/pdf/PA2018.pdf>.

fee calculation³⁷.

Phasing out of a Generation of Public Mobile Telecommunications Services

- 2.32 Pursuant to the relevant licence condition, the Licensees are required to seek the prior consent of the CA and to make satisfactory arrangements for the affected customers before the phasing out of a generation of mobile services.

Standards and Type Approval of Radiocommunications Apparatus

- 2.33 All radiocommunications apparatus, including both infrastructure equipment and customer equipment used in Hong Kong, must comply with the relevant standards and specifications as may be prescribed by the CA and meet the necessary type approval requirements under the Hong Kong Telecommunications Equipment Evaluation and Certification (“HKTEC”) Scheme³⁸.
- 2.34 The Licensee must provide services to customers, who use equipment meeting the relevant technical specifications as prescribed by the CA, on a non-discriminatory basis irrespective of whether the equipment is acquired from the Licensee.

Universal Service Arrangement

- 2.35 Under section 35B of the TO, the CA may require one or more fixed carrier licensees³⁹ to have a universal service obligation (“USO”) for provision of basic telephone services, including mainly fixed telephone lines and public payphones. At present, PCCW-HKT Telephone Limited and Hong Kong Telecommunications (HKT) Limited (as joint holders of UCL No. 025) are designated as the universal service provider. A system of universal service contribution (“USC”) is implemented which requires USC contributing parties to share the costs of meeting the USO.
- 2.36 The providers of local fixed and mobile telecommunications services

³⁷ The details of the regulatory framework of femtocell deployment are available at: http://tel_archives.ofca.gov.hk/en/consultations/circulardoc/femtocell_deployment.html.

³⁸ Information about HKTEC Scheme is available at: <http://www.ofca.gov.hk/filemanager/ofca/common/Industry/telecom/standard/i421e.pdf>.

³⁹ Including unified carrier licensees authorised to provide fixed telecommunications services.

including both facility-based and service-based operators using local telephone numbers⁴⁰ are required to share the USC on the basis of the quantity of telephone numbers held by them for the provision of fixed and mobile telephone services.

Publication of Tariff

- 2.37 Pursuant to section 7F of the TO and the respective licence condition of the UCL, a holder of UCL 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. To provide guidance to licensees on publication and filing of tariffs, the CA has issued the “*Guidelines on Publication and Filing of Tariff*”⁴¹.

Competition Ordinance

- 2.38 On 14 June 2012, the Competition Ordinance (Cap. 619) (“CO”) was enacted by the Legislative Council⁴². 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.
- 2.39 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 Commission Tribunal in relation to the conduct of telecommunications and broadcasting operators. The CA and the Competition Commission

⁴⁰ Specifically, the USC contributing parties include fixed carrier licensees, mobile carrier licensees, unified carrier licensees authorised to provide local fixed or mobile telephone services, and SBO licensees authorised to provide class 1 service, class 2 service or class 3 service (MVNO services only).

⁴¹ The guidelines about publication of tariff are available at: <http://www.coms-auth.hk/filemanager/statement/en/upload/187/gn201307e.pdf>.

⁴² The full text of the CO is available at: <http://www.elegislation.gov.hk>.

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.

- 2.40 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 exemptions⁴³.
- 2.41 Apart from the CO, section 7Q of the TO prohibits exploitative conduct of a dominant licensee. The CA has investigative as well as adjudicative power in enforcing section 7Q. Decisions made by the CA under section 7Q will be subject to appeal to the Appeal Board.

Prohibition on Unfair Trade Practices

- 2.42 Pursuant to the Trade Descriptions (Unfair Trade Practices) (Amendment) Ordinance 2012 (“TDO(A)”) enacted by the Legislative Council on 17 July 2012, the Trade Descriptions Ordinance (Cap. 362) (“TDO”) was amended from 19 July 2013 to extend its coverage to prohibit traders of goods and services in all sectors, including the telecommunications sector, from engaging in specified unfair trade practices, namely –
- (a) false trade descriptions of services (section 7A);
 - (b) misleading omissions (section 13E);
 - (c) aggressive commercial practices (section 13F);
 - (d) bait advertising (section 13G);
 - (e) bait and switch (section 13H); and
 - (f) wrongly accepting payment (section 13I).
- 2.43 The Customs and Excise Department (“C&ED”) is the principal agency for enforcing the TDO, with concurrent jurisdiction conferred on the CA to enforce the relevant provisions of the TDO(A) in relation to the commercial practices of licensees under the TO and the Broadcasting Ordinance (Cap. 562) (“BO”) that are directly connected with the provision of a telecommunications or broadcasting service under the

⁴³ The full sets of Competition Guidelines are available at: http://www.coms-auth.hk/en/policies_regulations/competition/co/legislation_and_guidelines_issued_under_the_co/index.html.

respective ordinances. C&ED and the CA have jointly issued 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 TDO(A)⁴⁴.

Consumer Protection

Fair Usage Policy (“FUP”)

- 2.44 To provide guidance to broadband service providers on how they may implement FUP and to enhance the transparency of service information to facilitate better informed consumer choices, the former TA promulgated the *“Guidelines for the Implementation of Fair Usage Policy for the Provision of Mobile and Fixed Broadband Services”* in November 2011⁴⁵ setting out the relevant guiding principles for compliance by the service providers. The Licensees are required to comply with the guidelines on a mandatory basis for all new or renewed service contracts signed on or after 13 February 2012.

Measures to Prevent Mobile Bill Shock

- 2.45 The CA has urged all MNOs to adopt various measures to address the problem of mobile bill shock⁴⁶. To increase the transparency of the relevant service information, OFCA publishes the measures implemented by individual MNOs on its website⁴⁷ and provides regular updates. The Licensees are expected to implement measures to prevent mobile bill shock.

Code of Practice in Relation to Billing Information and Payment Collection for Telecommunications Services

- 2.46 With a view to enhancing the transparency of pricing of chargeable items in the provision of telecommunications services by local fixed and mobile operators, the former TA issued a *“Code of Practice in Relation to Billing Information and Payment Collection for Telecommunications*

⁴⁴ The Enforcement Guidelines are available at:
http://www.coms-auth.hk/filemanager/en/content_800/Enforcement_Guidelines_en.pdf.

⁴⁵ The guidelines about FUP are available at:
http://coms-auth.hk/filemanager/statement/en/upload/38/gn_201124e.pdf.

⁴⁶ Mobile bill shock refers to the shock consumers experience upon receiving unexpectedly high mobile bill charges.

⁴⁷ Measures in preventing mobile bill shock are available at:
<http://www.ofca.gov.hk/filemanager/ofca/common/webform/mobilebillshock.aspx>.

Services” in October 2011⁴⁸. This code requires telecommunications service providers to provide customers with itemised billing information for verification of charges, take reasonable steps to ensure accuracy of billing and collection of payment, and report to OFCA in a timely manner in the event of any incident involving systematic errors in these aspects. The Licensees are expected to comply with this code and follow the practices prescribed therein.

Customer Complaint Settlement Scheme (“CCSS”)

2.47 The CCSS is a mediation scheme set up by the telecommunications industry to help resolve billing disputes in deadlock between telecommunications service providers and their customers. The mediation service is managed and operated by an independent CCSS service centre set up under the Communications Associations of Hong Kong (“CAHK”)⁴⁹. OFCA supports the CCSS by contributing the necessary funding, screening the CCSS applications against the acceptance criteria, and monitoring the performance and the governance of the scheme. The Licensees are expected to join the CCSS.

Industry Code of Practice for Telecommunications Service Contracts

2.48 In order to protect consumer interests and enhance transparency in the process of contract conclusion for telecommunications services, the CAHK promulgated a self-regulatory “*Industry Code of Practice for Telecommunications Service Contracts*” in December 2010 and updated it in October 2014⁵⁰. All major fixed and mobile network operators have implemented the industry code from July 2011. The Licensees are expected to comply with this code and follow the practices prescribed therein.

Code of Practice on the Provision of Telecommunications Services for the Elderly and People with a Disability

2.49 To facilitate convenient use of telecommunications services by the elderly and people with a disability, the former TA issued a “*Code of Practice on the Provision of Telecommunications Services for the*

⁴⁸ The Code is available at:
<http://www.coms-auth.hk/filemanager/statement/en/upload/33/cop20111011e.pdf>.

⁴⁹ CAHK is the association for Hong Kong’s communications industries with responsibilities across broadcasting, wireline and wireless communications, and other relevant business sectors in the domain of information communications technology.

⁵⁰ The latest version of the Industry Code is available at:
http://www.cahk.hk/images/Industry_CoP_for_Telecom_Service_Contract_Clean_20150430_Eng_Revisions_incorporated_v2.pdf.

Elderly and People with a Disability” in October 2010 and the CA updated it in June 2013⁵¹. The Licensees are expected to comply with this code and follow the practices prescribed therein.

Code of Practice on Protection of Customer Information for Fixed and Mobile Service Operators

2.50 A “*Code of Practice on Protection of Customer Information for Fixed and Mobile Service Operators*” was jointly issued by the Consumer Council, Independent Commission Against Corruption, Office of the Privacy Commissioner for Personal Data and former Office of the Telecommunications Authority in June 2002⁵² which sets out the good practices that should be adopted by fixed and mobile service operators to prevent unauthorised disclosure of customer information. The Licensees are expected to comply with this code and follow the practices prescribed therein as well as to adopt other standards and measures which can provide reasonably sufficient protection of customer information. The Licensees must observe the requirements of the relevant legislation relating to protection of personal data and prevention of bribery.

Code of Practice on the Handling of Customers’ Deposits and Prepayments of Charges

2.51 In order to protect consumer interest and to enhance consumer confidence in deposit and prepayment schemes offered by telecommunications operators, the former TA issued a “*Code of Practice on the Handling of Customers’ Deposits and Prepayments of Charges*” in April 2001⁵³. The Licensees are expected to adopt this code and observe the guiding principles governing the handling of deposits and prepayments of charges for telecommunications services.

Code of Practice on Verification of the Addresses of Potential Customers for Mobile Telecommunications Services

⁵¹ The latest version of the Code is available at:
<http://www.coms-auth.hk/filemanager/statement/en/upload/186/cop201302e.pdf>.

⁵² The Code is available at: http://tel_archives.ofca.gov.hk/en/code/practice/cap14062002.pdf.

⁵³ The Code is available at: http://tel_archives.ofca.gov.hk/en/code/cop20010426.pdf.

2.52 A “*Code of Practice on Verification of the Addresses of Potential Customers for Mobile Telecommunications Services*” was issued by the former TA in January 2000. This code sets out the basic guiding principles for the verification of the addresses of potential customers when the customers apply for mobile telecommunications services as well as the documents that are considered to be acceptable proof of address from customers. A revised version of the code has been issued by the CA in November 2018⁵⁴ in the light of developments in the telecommunications market. The Licensees are expected to comply with the latest version of this code and follow the practices prescribed therein.

Industry Code of Practice for Chargeable Mobile Content Services

2.53 To safeguard consumer interests and increase the transparency of pricing information related to chargeable mobile content services (“MCS”) provided by third-party content service providers (“CSPs”), CAHK issued a “*Code for the Provision of Chargeable Mobile Content Services*” in January 2010 and updated it in March 2017⁵⁵. This code requires all third-party CSPs, before initiating delivery of MCS to customers, to provide them with clear information on all charges, obtain clear consent from them for the provision of MCS, and set out clearly the unsubscribing mechanisms. MNOs have undertaken to comply with this code and will enter into contracts to provide a delivering and billing service with only those CSPs which comply with this code. The Licensees are expected to comply with this code and follow the practices prescribed therein.

Benchmark Code of Practice on Person-to-Person (“P2P”) Marketing Calls

2.54 To tackle the inconvenience caused by P2P marketing calls to the public, the Government has worked with specific sectors to establish sector-specific regulatory regimes for P2P marketing calls. In relation to the telecommunications industry, CAHK issued a “*Benchmark Code*

⁵⁴ The latest version of the Code is available at:
<http://www.coms-auth.hk/filemanager/statement/en/upload/479/cop201805e.pdf>.

⁵⁵ The latest version of the Code is available at:
http://www.cahk.hk/images/Code_for_MCS/Code_for_the_Provision_of_Chargeable_MCS_2017.0_8.14_Final.pdf.

of Practice on Person-to-Person Marketing Calls” in March 2011⁵⁶. All major fixed and mobile network operators have adopted the benchmark code published by the CAHK and published their codes of practices on P2P marketing calls for self regulation. The Licensees are expected to adopt the benchmark code and follow the practices prescribed therein.

Code of Practice for the Provision of Mobile Television Services

2.55 CAHK issued a “*Code of Practice for the Provision of Mobile Television Services*” in August 2011⁵⁷ for the purpose of setting out the principles of good practice for the provision of mobile television services (which refers to television services delivered over wireless platform and intended for reception on the move by mobile or portable devices). The Licensees are expected to comply with this code and follow the practices prescribed therein for the provision of mobile television services.

Code of Practice on the Cessation Arrangements for MVNO Services

2.56 A “*Code of Practice on the Cessation Arrangements for Mobile Virtual Network Operator Services*” was issued by the CA in September 2017⁵⁸. This code provides practical guidance to relevant licensees in the event of cessation of MVNO services in order to better protect and promote the interests of consumer of telecommunications goods and services. The Licensees providing wholesale network capacity services to any MVNO are required to observe and comply with this code as part of their licence obligations.

Performance Pledges of Fixed and Mobile Broadband Services

2.57 To help consumers make informed choices for fixed and mobile broadband services, major fixed and mobile broadband service operators have published on a quarterly basis the performance pledges for their

⁵⁶ The Benchmark Code is available at:
http://www.cahk.hk/News/352/Benchmark_Industry_CoP_P2P_final.pdf.

⁵⁷ The Code is available at: <http://www.cahk.hk/News/396/Mobile%20TV%20CoP.pdf>.

⁵⁸ The Code is available at:
http://www.coms-auth.hk/filemanager/statement/en/upload/421/cop-mvno_e.pdf.

fixed and mobile broadband services, covering aspects related to network reliability, service restoration time, customer hotline performance, customer complaint handling and technical performance since January 2008 and July 2010 respectively. The performance pledges and performance statistics of individual fixed and mobile network operators are available on their respective websites and via hyperlinks at the CA's website⁵⁹. The Licensees are expected to follow similar practices.

⁵⁹ The performance pledges are available at:
http://www.ofca.gov.hk/en/consumer_focus/mobile_telecom/performance_pledges/index.html &
https://www.ofca.gov.hk/en/consumer_focus/fixed_telecom/performance_pledges/index.html.

Section III – General Information Relating to Local Fixed Service

- 3.1 The local fixed service market in Hong Kong has been fully liberalised and there is no pre-set limit on the number of licences to be issued for the provision of local fixed services.
- 3.2 Fixed service refers to the establishment and maintenance of telecommunications facilities for communications between fixed points. A fixed point means a fixed network termination point and shall include such area within the immediate vicinity of such a point as the CA may direct in writing, either generally or specifically, to allow limited mobility for access to that point in a certain manner. Local fixed service is for communications between fixed points within Hong Kong.
- 3.3 A UCL holder may be authorised to provide local fixed service which may cover all local telecommunications services between fixed points within Hong Kong capable of being provided utilising the fixed network, wireline-based or wireless-based or a combination of both where applicable, established and maintained by the licensee.
- 3.4 There may be physical constraints in certain areas within the territory, such as business and densely populated districts, for network rollout using the prevailing technical methods such as laying underground ducts and gaining access to limited space within buildings. However, the CA is mindful that there are technical alternatives, available now or upcoming, or administrative arrangements to overcome the constraints. Market players should identify and deploy their own business solutions to overcome the constraints. The licensing of local fixed service is technology-neutral, subject to the requirement for authorisation by the CA for use of radio spectrum, road opening and building access (see paragraphs 2.14, 2.15, 2.21, 2.22 and 2.23).
- 3.5 With the commencement of the BO on 7 July 2000, the transmission and provision of television programme services are separately licensed and regulated respectively under the TO and the BO. An applicant who wishes to establish and operate telecommunications transmission systems and ancillary facilities to transmit the television programme channels licensed under the BO may apply to the CA for a UCL authorised for local fixed service for carriage of television programme service.

Section IV – General Information Relating to External Fixed Service

- 4.1 The external fixed service market in Hong Kong has been fully liberalised and there is no pre-set limit on the number of licences to be issued for the provision of external fixed services.
- 4.2 External fixed service covers all external telecommunications services -
- (a) between one or more points in Hong Kong and one or more points outside Hong Kong; and
 - (b) between two or more points outside Hong Kong but routed in transit via Hong Kong; and
- capable of being provided utilising the external network established and maintained by the licensee.
- 4.3 Under a UCL for external fixed service, the licensee may be authorised to provide external facilities as well as external services operated over external facilities. Access to the external facilities or external services provided under a UCL for external fixed service will be through the public switched networks of local fixed/mobile carriers, or through local leased circuits provided by local fixed carriers. Generally, the point of interface between the external facilities under a UCL for external fixed service and local fixed/mobile networks is the external gateway or Point of Presence (“POP”) of the UCL for external fixed service.
- 4.4 A holder of UCL for external fixed service may apply for road opening as mentioned in paragraph 2.21 for their backhaul circuits for the purpose of connecting the landing points of external facilities (either cable landing stations or satellite earth stations) with their external gateways or the POP. Such applications will be considered on their individual merits.
- 4.5 For the avoidance of doubt, the operation of any fixed telecommunications facilities or services connecting the customers in Hong Kong to the POP as well as the supply of backhauled to other licensees require a UCL for local fixed service.
- 4.6 For clarification purpose, a UCL for external fixed service does not authorise the holder to operate -
- (a) coast stations and coast earth stations within Hong Kong for maritime mobile services and maritime mobile satellite services; and

- (b) aeronautical stations and aeronautical earth stations within Hong Kong for aeronautical mobile services and aeronautical mobile satellite services.
- 4.7 An applicant may in the same application propose to operate any form of external fixed services based on cable and/or non-cable facilities.

Cable-based External Fixed Service

- 4.8 The applicants may choose to lease capacity on existing cables, which may be overland or submarine cables, or land their own cables in Hong Kong for the provision of external fixed services. They may also choose to land their cables by using existing cable landing stations or building a new cable landing station.
- 4.9 At present, there are a number of submarine cable landing stations⁶⁰ operated by external fixed carriers. The CA may consider proposals for sharing the use of these sites provided that the applicants are able to demonstrate to the CA that the facility on those sites would constitute a bottleneck facility and that it is technically feasible to share the facility. Full details for the sharing of the bottleneck facility should be given in the application. Interested parties are also invited to refer to the Statement issued on 19 September 2000 entitled “*Access to and Co-location at Cable Landing Stations*”⁶¹.
- 4.10 Applicants should note that, the Government has no obligation to grant a site for the establishment of a new submarine cable landing station. Application for a cable landing site will be subject to a separate exercise and the applicant will need to apply to the Hong Kong Science and Technology Parks Corporation for land inside Tseung Kwan O Industrial Estate, Director of Lands for other government land, or other relevant authorities as appropriate in accordance with the usual land planning and disposal application procedures.
- 4.11 For the landing of submarine cables in Hong Kong, OFCA has established an information webpage and provides a single-point-of-contact service assisting interested parties in obtaining statutory approval from relevant government departments. Interested parties may refer to the respective webpage for further details⁶².

⁶⁰ Two of which are located at Tong Fuk, three at Tseung Kwan O, and the other three at Deep Water Bay, Chung Hom Kok and Cape D'Aguilar.

⁶¹ The TA's Statement is available at:
http://tel_archives.ofca.gov.hk/en/tas/interconnect/ta20000919.pdf.

⁶² For details, please refer to:
http://www.ofca.gov.hk/en/industry_focus/telecommunications/facility_based/infrastructures/submarine_cables/index.html.

Non-cable Based External Fixed Service

- 4.12 The applicants may choose to establish their satellite earth stations or use existing satellite earth stations established by other external fixed carriers for the purpose of providing non-cable based external fixed service.

Section V – General Information Relating to Mobile Service

- 5.1 Mobile service refers to the establishment and maintenance of telecommunications facilities which enable two-way communications between moving locations or between a moving location and a fixed point in Hong Kong, operating at the frequencies assigned to the licensee.
- 5.2 The issue of UCL for the provision of mobile service will be subject to the availability of radio spectrum. As part of the implementation of the Radio Spectrum Policy Framework, the CA publishes the “Spectrum Release Plan” (“SRP”)⁶³ to inform the industry and interested parties of the potential supply of radio spectrum through an open bidding or tendering process for the coming three years. The SRP is updated every year on a rolling basis or as required taking into account the latest developments. Parties who are interested in providing mobile service should make reference to the SRP from time to time and the announcements made by the CA to invite applications to bid for the radio spectrum.
- 5.3 Applicants who wish to deploy femtocell to facilitate the provision of mobile service should indicate this in their application. For details, please refer to the “*Regulatory Framework of Femtocell Deployment*”⁶⁴.
- 5.4 Applicants, as well as existing licensees authorised to provide mobile service, may also apply to the CA to include the provision of MVNO service under its UCL. MVNO service refers to telecommunications service utilising the radio stations operated by another UCL holder providing mobile service at frequencies specified in that UCL holder’s licence, to enable two-way communications between moving locations or between a moving location and a fixed point.
- 5.5 Applicants for the provision of mobile service, as well as existing licensees authorised to provide mobile service, may apply to the CA to make use of the frequency spectrum in the 5 GHz band (i.e. 5150 – 5350 MHz, 5470 – 5725 MHz and 5725 – 5850 MHz) for the provision of mobile service on a shared basis. For details, please refer to the CA Statement on the “*Use of the 5 GHz Shared Band for the Provision of Public Mobile Services*”⁶⁵.

⁶³ The latest version of the SRP is available at:
http://ofca.gov.hk/en/industry_focus/radio_spectrum/management/index.html.

⁶⁴ Regulatory Framework of Femtocell Deployment is available at:
http://tel_archives.ofca.gov.hk/en/consultations/circulardoc/circular_20111202_annex.pdf.

⁶⁵ The CA Statement is available at:
https://www.coms-auth.hk/filemanager/statement/en/upload/451/ca_statements20180604_en.pdf.

Mobile Service Other than Land Mobile Service

- 5.6 Under the UCL, the licensee may be authorised to provide radiocommunications services where moving stations are primarily for use in locations other than on land. Such services may include maritime mobile service, maritime mobile satellite service, aeronautical mobile service, aeronautical mobile satellite service and land mobile satellite service.

Section VI – General Information Relating to Public Wireless Local Area Network Service

- 6.1 Public wireless local area network (“LAN”) service refers to telecommunications services operating at specified frequencies by using wireless technologies (such as Wi-Fi) to provide –
- (a) communications between two or more points within the radio coverage of the radiocommunications installations established, maintained, used or possessed by the licensee for the purpose of providing the public wireless LAN services; or
 - (b) access to or resale of a public telecommunications service provided by the licensee or other person licensed under a public telecommunications network or services licence.
- 6.2 UCL holders are authorised to provide public wireless LAN service (e.g. public Wi-Fi service) on or across unleased Government lands or public streets and within private premises. If the provision of public wireless LAN service is intended to serve area within private premises only, such as shopping malls, coffee shops, university campus, etc. and does not cross unleased Government lands or public streets, a UCL is not required. Applicants may consider whether the Class Licence for the Provision of Public Wireless Local Area Network Services (“Class Licence”) is more appropriate for their proposed services. For details about the Class Licence, please refer to the “*Guidelines to Operate Public Wireless Local Area Network Services under Class Licence*”⁶⁶.

Assignment of Frequency Spectrum

- 6.3 UCL holders authorised to provide public wireless LAN service will be assigned subject to the CA’s discretion frequency spectrum in the 2.4 GHz and 5 GHz bands (i.e. 2400 – 2483.5 MHz, 5150 – 5350 MHz, 5470 – 5725 MHz and 5725 – 5850 MHz). The assignment will be made subject to the condition that the assigned frequencies shall be used for the provision of public wireless LAN services only. Unless otherwise specified in the UCL, the assigned frequencies shall not be used for the provision of public mobile services.
- 6.4 The radiocommunications apparatus used for the provision of the public wireless LAN service shall operate within the assigned frequency bands and shall generate the output and spurious emissions with the specified levels as set out in **Annex B**.

⁶⁶ The guidelines about public wireless LAN services under Class Licence are available at: <https://www.coms-auth.hk/filemanager/statement/en/upload/465/gn92018e.pdf>.

Registration

- 6.5 UCL holders authorised for the provision of public wireless LAN service are required to register with OFCA information about the location in which the radiocommunications apparatus is established and maintained and the frequency band employed before commencement of the provision of such service and they shall notify the CA within one month after ceasing to provide such service. Information required for registration of the public wireless LAN service is detailed in the registration form⁶⁷. Any change to the registered information shall be updated before it is put into effect.
- 6.6 Submission of completed registration form, update of information and notification of cessation of service can be made by email to register-wlan@ofca.gov.hk or in person at the Office of the Communications Authority (Address: 29th Floor, Wu Chung House, 213 Queen's Road East, Wan Chai, Hong Kong). The CA will publish a register of the operators providing the public wireless LAN service on OFCA's website. The register will include the name of the service provider, the location(s) of the radiocommunications apparatus and all frequency band(s) within which the radiocommunications apparatus is operated for providing the service.

⁶⁷ The registration form is available at:
http://www.coms-auth.hk/filemanager/common/licensing/reg_form_e.xls (in English) or
http://www.coms-auth.hk/filemanager/common/licensing/reg_form_c.xls (in Chinese).

Section VII – Licensing Arrangement

General

- 7.1 A holder of UCL shall be a company registered under the Companies Ordinance (Cap. 622) in Hong Kong. There will be no foreign ownership restriction on the unified carrier licensee. In line with the full liberalisation policy in telecommunications services, the CA has not pre-set a limit on the number of UCL to be issued, or any restriction on the types of services which may be authorised under the UCL, when there are no physical or other constraints on the provision of the proposed services.

Period of Validity of the UCL

- 7.2 A new UCL issued to a new applicant will be valid for 15 years from the day on which it is issued.
- 7.3 Where a UCL is issued for conversion from an existing FCL or MCL, the following arrangements will apply:
- (a) For conversion from an existing carrier licence without any change in scope of service, the UCL to be issued would have a validity period same as the unexpired term of the original carrier licence.
 - (b) For all other cases, they would be processed as if a new UCL is applied for to replace the existing carrier licence(s) and the UCL which may be granted will have a full validity period of 15 years.
- 7.4 There is no automatic renewal upon expiry of a UCL. The licensee is required to apply for a new licence before expiry of the existing one.

Licence Conditions

- 7.5 Licence conditions of UCL, as given in the sample UCL published on the CA's website⁶⁸, include the General Conditions ("GCs") as prescribed under the Telecommunications (Carrier Licences) Regulation (Cap. 106V) and a common set of Special Conditions ("SCs"). The CA may also impose additional SCs which are tailored for the different types of services authorised under a UCL or specific to each licensee as may be appropriate⁶⁹.

⁶⁸ The sample UCL is available at:
http://www.coms-auth.hk/filemanager/common/licensing/sample_ucl_licence.pdf.

⁶⁹ See paragraph 83 of the UCL Statement.

Scope of Service

- 7.6 Services authorised under a UCL may be local fixed service, external fixed service, mobile service, mobile service other than land mobile service, public wireless LAN service, or a combination of them. A UCL holder may subsequently apply to the CA if it wishes to expand the scope of service.
- 7.7 A UCL contains a number of schedules dealing with the description of the licensed service, the licensed network, the technical particulars of satellite earth stations and terrestrial radio stations and the frequency spectrum used for the provision of the licensed service.

Licence Fee

- 7.8 The licence fee for UCL is prescribed in the Telecommunications (Carrier Licences) Regulation, which is reproduced in **Annex A**. The annual licence fee will include the following components -
- 7.8.1 A fee of \$1 million for provision of local fixed services and/or mobile services, or; (b) a fee of \$100,000 for provision of external fixed services only and/or mobile services other than land mobile services only.
- 7.8.2 A fee of \$500 for each 100 customer connections⁷⁰ established. If the licensee provides external services or mobile services other than land mobile services only, no such fee is payable.
- 7.8.3 A fee of \$200 for each 100 Wireless Internet of Things (“WIoT”) devices connected by radiocommunications means to the network established and maintained under the licence. If the licensee provides external services or mobile services other than land mobile services only, no such fee is payable.
- 7.8.4 A fee of \$3 for each subscriber number allocated to it (whether upon or after the issue of UCL), regardless of whether the number has been assigned to end customer or not.
- 7.8.5 A fee for base stations installed for mobile services, or for land stations/land earth stations installed for radiocommunications services.
- 7.8.6 A spectrum management fee calculated based on the amount of

⁷⁰ A customer connection is a network termination point provided by the licensee for connection of customer equipment to the network. A network termination point shall include any subscriber identification module used by a customer, and any other device or interface, used for connection to the network.

frequency spectrum used for the provision of licensed services.

Section VIII – Information to be Provided in Proposals

Application Procedures under Different Scenarios

- 8.1 The proposal and information required to be provided by an applicant for UCL in the following cases are set out in paragraph 8.2 to 8.5 respectively:
- (a) Application for a new UCL;
 - (b) Replacing an existing carrier licence upon its expiry by a UCL;
 - (c) Conversion of an existing carrier licence (before expiry) to a UCL without change in scope of service; and
 - (d) Conversion of existing carrier licence(s) (before expiry) to a UCL for other cases.
- 8.2 For an application for a new UCL, the applicant should submit the full information specified in paragraphs 8.7 to 8.18 of this Section. Subject to satisfying the relevant licensing criteria set by the CA (see Section IX) and, where applicable, the availability and assignment of scarce resource such as radio spectrum for the provision of service, the CA will consider to grant a UCL to the applicant.
- 8.3 For an application for a new UCL in view of the expiry of an existing one, the licensee should submit an application to the CA for continuing to operate the service specified under the scope of the original licence, in association with any new services which the licensee would like to operate under the new UCL. The application proposal should include full details as required for an application for a new UCL. Basically, the CA will examine the application according to the similar criteria as for granting a UCL to a new applicant.
- 8.4 For an application for conversion of an existing carrier licence (before its expiry) to UCL, the licensee should submit an application to the CA for a UCL with the same scope of service authorised under the original licence. The application proposal should provide any updates to the information given by the licensee for the initial application of the original licence. As mentioned in paragraph 7.3(a), the validity period of the UCL granted under this scenario will be the same as the unexpired term of the original licence.
- 8.5 For an application for the conversion of one or more existing carrier licence(s) (before expiry) to UCL, other than a simple conversion without change in scope of service, the holder of the existing carrier licence(s) should submit an application proposal including full details as required for a new application. Basically, the CA will examine the application according to the similar criteria as for granting a UCL to a

new applicant.

- 8.6 For granting a UCL for the replacement of an existing carrier licence (upon expiry) or conversion of existing carrier licence(s) (before expiry), rights and obligations under the original licences may or may not be maintained under the UCL. Further details are given in the UCL Statement⁷¹.

Application Proposal

8.7 Scope of Proposed Services

- 8.7.1 The applicant should specify the scope of services proposed to be provided under the UCL.
- 8.7.2 Proposals should include a detailed description of all services to be provided, target customers, intended coverage areas upon the commissioning of the facilities, expected service launch date, implementation schedule if the proposed services are to be introduced in phases and plans for the introduction of new services. Proposals should also include detailed description of the arrangements for offering wholesale and/or retail services to the public, and an explanation on how the applicant is not primarily relying on the interconnection and wholesale services of other operators' infrastructure to roll out their network or to provide their services.
- 8.7.3 Successful applicants should be committed to the provision of the proposed services in Hong Kong as detailed in their proposals, submissions and representations.

8.8 Company Structure

- 8.8.1 Holders of a UCL must be registered in Hong Kong under the Companies Ordinance (Cap. 622). The application proposal should contain details of the company intended to be the holder of the UCL under application, 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;

⁷¹ See paragraphs 99 – 108 of the UCL Statement.

- (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.

8.9 Financial Capability

- 8.9.1 If the applicant is an established company, the proposal should include copies of audited annual financial statements, including the auditor reports for the last three full financial years, together with the most recent interim results (if applicable).
- 8.9.2 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 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).
- 8.9.3 Proposals should include a detailed financial plan (with inflation assumptions) for the proposed services and network for the first ten years of operation including -
 - (a) a breakdown of the planned capital expenditure ("CAPEX") and of working capital requirements for the first ten 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 ten years;
 - (c) method of depreciation of assets;
 - (d) projected volume of business and market share for the first ten 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.

8.10 Economic and Market Study

- 8.1.1 Proposals should include any economic and market study conducted on the potential demand for the forms of service being proposed to operate, the projected market share that the applicant will be able to acquire in the next ten years with as much information as possible.

8.11 Technical Details of the Facilities

- 8.11.1 Proposals 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 ten 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;

- (e) specification(s) to which the equipment would comply with. The specification(s) should be widely recognised standard(s) covering functional specification(s), modulation, transmitting power, out-of-band and spurious emissions, antenna characteristics, etc., where applicable; and
- (f) proposed interface for interconnection with other networks.

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

- 8.11.2 Proposals should give an indication of the preferred frequency bands and the associated radiation and immunity characteristics of the frequency spectrum, if any, that will be used for the provision of the proposed service. The amount of spectrum that will be made available and the exact limits of the frequency bands will be decided by the CA after review of the proposals received and taking into account the demand for frequency spectrum for other services in Hong Kong and other factors as it considers relevant in the circumstances.
- 8.11.3 Applicants should provide technical proposals for interconnection with other fixed telecommunications networks (local and external) and mobile telecommunications networks in Hong Kong.

8.12 Technical Support

- 8.12.1 Proposals 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.

8.13 Contingency Plan

- 8.13.1 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 services 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 services;
- (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, OFCA and the customers.

8.14 Previous Relevant Experience

8.14.1 Details on the previous experience of the applicant, its shareholders and key personnel in establishing and running the proposed telecommunications networks, as well as information on the current status of these networks and services, should be given.

8.14.2 Information should also be provided on the applicant and its shareholders' experience in running other relevant businesses in Hong Kong or overseas.

8.15 Implementation Plan

8.15.1 Proposals should include an implementation plan, giving the key milestones of implementation for the first three years starting from the date of grant of the licence including where applicable (a) the network planning; (b) placing of order for equipment; (c) delivery of equipment; (d) acquisition of sites; (e) securing access to buildings; (f) construction of equipment buildings/rooms; earth stations or cable landing stations; (g) conclusion of cable construction and maintenance of agreements; (h) laying of cables; (i) negotiations on

interconnection arrangements; (j) installation of equipment and (k) testing. The applicant will be required to adhere to this plan if a licence is subsequently granted.

8.16 Other Benefits to the Local Telecommunications Industry and Economy

8.16.1 Proposals which can demonstrate that their implementation will offer significant benefits to Hong Kong, for example, employment, manufacturing and wider trading opportunities, introduction of innovation and improvements to the local telecommunications industry and promotion of Hong Kong as an international telecommunications centre will be given special consideration.

8.17 Other Information

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

8.18 Executive Summary

8.18.1 Proposals should contain an Executive Summary summarising in a concise manner the significant and salient points of the proposals.

Section IX - Broad Licensing Criteria

9.1 The basis for assessment of proposals will be the information supplied by applicants according to the requirements set out in Section VIII of these Guidelines. The CA reserves all rights not to accept proposals which are substantially incomplete in this respect.

9.2 In considering the grant of a UCL, 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 -

9.2.1 Business Plan

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

9.2.2 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.

9.2.3 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. Any radio frequency spectrum requirements must be compatible with spectrum allocation plans in Hong Kong and the proposed system must use spectrum efficiently.

9.2.4 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.

9.2.5 Service Quality and Charges

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

9.2.6 Implementation Schedule

The CA expects the applicant to determine its rollout plan. However the applicant should demonstrate its ability to manage such plan and the necessary facilities - telecommunications sites (e.g. exchanges, satellite earth stations, cable landing stations depending on the type of external facilities they plan to operate). The applicant should also demonstrate capability in negotiating and managing interconnection issues.

9.2.7 Quality of Proposal

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

9.2.8 Benefit to the Local Telecommunications Industry, Customers in Hong Kong and the Economy as a Whole

The CA will consider the benefits that the proposals will bring to the telecommunications industry and the community as a whole. These benefits will include the type of services proposed to be provided, the coverage areas, the level of investment for network infrastructure, creation of new job opportunities, bringing into Hong Kong new technological know-how and contribution to the local economy as a result of the investment.

9.2.9 A Clearly Workable and Defined Corporate Structure with Sensible Dispute Resolution Procedures Minimising “Deadlocks”

Proposals would not be favourably considered if there is a lack

of (i) clear controlling interest in a consortium (e.g. presence of fragmented shareholdings); (ii) clearly workable and sensible dispute resolution procedure; (iii) efficient mechanisms for deadlock resolution at board or shareholder levels; or (iv) doubts on the reliability of the applicant or its shareholders.

- 9.3 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 each individual matter as it considers appropriate in the circumstances, after taking into account the relevant factors, and will decide each case on its own merits.

Office of the Communications Authority
31 January 2019

Fee Schedule of UCL

1. A fee of \$1,000,000 shall be payable on the issue of a unified carrier licence and, in each subsequent year while the licence remains in force, on the anniversary of the issue of the licence. If the licence permits the provision of external services only, or of radiocommunications services (where moving stations are primarily for use in locations other than on land) only, or of these two types of services only, the fee is \$100,000.
2. A fee of \$500 shall be payable on the issue of a unified carrier licence and on each anniversary of the issue of the licence while the licence remains in force, for each 100 customer connections, made by telecommunications line or radiocommunications means, to the network established and maintained under the licence. For the purposes of this section, a customer connection shall be any network termination point provided by the licensee and as identified by the Authority for connection of customer equipment to the network, and a network termination point shall include any subscriber identification module used by a customer, and any other device or interface, used for connection to the network, but does not include a WIoT device within the meaning of paragraph 3. If the licence permits the provision of external services only, or of radiocommunications services (where moving stations are primarily for use in locations other than on land) only, or of these two types of services only, no such fee is payable.
3. A fee of \$200 shall be payable on the issue of a unified carrier licence and on each anniversary of the issue of the licence while the licence remains in force, for each 100 WIoT devices connected by radiocommunications means to the network established and maintained under the licence. For the purposes of this section, a WIoT device means a device, interface, subscriber identification module or any other thing, that -
 - (a) is provided by the licensee;
 - (b) is identified by the Authority for connection to the network established and maintained under the licence;
 - (c) enables automated data-only machine-to-machine type communications;
 - (d) operates by radiocommunications means;
 - (e) does not carry real-time voice communications; and
 - (f) does not use any subscriber number within the meaning of paragraph 4.

However, the fee specified above is not payable if the licence only permits the provision of either or both of the following -

- (a) external services;
- (b) radiocommunications services (where moving stations are

primarily for use in locations other than on land).

4. A fee of \$3 shall be payable on the issue of a unified carrier licence and on each anniversary of the issue of the licence while the licence remains in force, for each subscriber number allocated to the licensee that is not ported out from the licensee's network or assigned, as authorised by the Authority, to another licensee (who has made payment of the licence fee for such number under its licence) and for each subscriber number allocated to another licensee that is ported in to the licensee's network. For the purposes of this section, a subscriber number is a number in the numbering plan within numbering blocks allocated by the Authority to a licensee, which number may be assigned by the licensee to its customer for use of a telecommunications service.

5. A fee for base stations, being -
 - (a) base stations installed for mobile services; or
 - (b) land stations or land earth stations installed for radiocommunications services (where moving stations are primarily for use in locations other than on land), shall be payable on the issue of a unified carrier licence and on each anniversary of the issue of the licence while the licence remains in force, calculated as follows -

(c) for the 1st to the 50th base station installed for the service	\$1000 per base station
(d) for the 51st to the 100th base station installed for the service	\$500 per base station
(e) for the 101st base station installed for the service and any additional base stations	\$100 per base station

For the purpose of determining the fees payable under this section, the number of stations shall be those authorised or in service at the time when the unified carrier licence concerned is issued or on the anniversary of the issue.

6. Subject to paragraph 7, a fee for the management of radio frequency assigned shall be payable on the issue of a unified carrier licence and on each anniversary of the issue of the licence while the licence remains in force, calculated as follows -
 - (a) subject to paragraph (b), where the radio frequency is assigned to the licensee -
 - (i) \$50 for every 1 kHz or part thereof of frequency then assigned below 1 GHz;

- (ii) $\$(50-4F)$ for every 1 kHz or part thereof of frequency then assigned within 1 GHz to 10.999 GHz, where F is the frequency rounded down to the nearest GHz in the band then assigned;
 - (iii) $\$(20-F)$ for every 1 kHz or part thereof of frequency then assigned within 11 GHz to 18.999 GHz, where F is the frequency rounded down to the nearest GHz in the band then assigned;
 - (iv) \$1 for every 1 kHz or part thereof of frequency then assigned at or above 19 GHz;
- (b) where any part of the radio frequency is assigned to the licensee on a shared basis, the fee calculated in accordance with the formula set out in paragraph (a) shall be proportionally reduced by a reduction factor -
- (i) equal to the number of users authorised or reserved by the Authority to use that particular part of the radio frequency;
 - (ii) determined on the date on which the fee is payable.

7. No fee is payable under paragraph 6 for the management of radio frequency within any of the following frequency bands -

- 6.765 -- 6.795 MHz
- 13.553 -- 13.567 MHz
- 26.957 -- 27.283 MHz
- 40.66 -- 40.7 MHz
- 2400 -- 2500 MHz
- 5.725 -- 5.875 GHz
- 24.0 -- 24.25 GHz
- 61 -- 61.5 GHz
- 122 -- 123 GHz
- 244 -- 246 GHz

Technical Criteria for Radiocommunications Apparatus Used for the Provision of Public Wireless LAN Services

Frequency Band	Output Level	Spurious Emission Level
2400 – 2483.5 MHz	(a) peak e.i.r.p. not to exceed 4 W for frequency hopping spread spectrum modulation or digital modulation systems; or (b) aggregate e.r.p. not to exceed 100 mW for any modulation	e.r.p. not to exceed 10 μ W outside the frequency band in which the fundamental frequencies are located
5150 – 5350 MHz ⁷²	e.i.r.p. not to exceed 200 mW using only digital modulation	e.r.p. not to exceed 10 μ W
5470 – 5725 MHz ⁷³	e.i.r.p. not to exceed 1 W	e.r.p. not to exceed 10 μ W
5725 – 5850 MHz	(a) peak e.i.r.p. not to exceed 4 W for frequency hopping spread spectrum modulation or digital modulation systems; or (b) aggregate e.r.p. not to exceed 100 mW for any modulation	e.r.p. not to exceed 10 μ W outside the frequency band in which the fundamental frequencies are located

⁷² Use of the band 5150 – 5350 MHz is restricted to indoor operations until the requirements of the International Telecommunication Union (“ITU”) as applicable to the band are available, by which time the use of the band shall be in compliance with the requirements as laid down by the ITU.

⁷³ Use of the band 5470 – 5725 MHz shall comply with the technical requirements in Recommendation ITU-R M.1652 “Dynamic frequency selection (DFS) in wireless access systems including radio local area networks for the purpose of protecting the radiodetermination service in the 5 GHz band” approved by the ITU as revised from time to time.