

Telecommunications Regulatory Affairs Advisory Committee

Facilitating Measures for the Development of 5G

PURPOSE

This paper updates Members on the various measures adopted by the Government and the Communications Authority (“CA”) to facilitate the development of 5G in Hong Kong.

BACKGROUND

2. In November 2019, the Office of the Communications Authority (“OFCA”) briefed Members on the progress of work to prepare for the launch of 5G in Hong Kong vide TRAAC Paper No. 5/2019. One year on, Hong Kong has entered the 5G era, with mobile network operators (“MNOs”) launching commercial 5G services since April 2020. In the meantime, in continuing with our facilitating role, we set out in the paragraphs below an update of the measures adopted to promote the development of 5G in Hong Kong.

FACILITATING MEASURES FOR 5G DEVELOPMENT

Spectrum Supply

3. To enable the early launch of 5G services, a total of about 2 000 MHz of 5G spectrum in high and mid frequency bands were assigned to operators in 2019/2020. The CA, supported by OFCA, plans to further supply a total of 2 720 MHz of 5G spectrum in low, mid and high frequency bands (namely 140 MHz of spectrum in the 600 MHz and 700 MHz bands, additional 80 MHz of spectrum in the 4.9 GHz band, and 2 500 MHz of unassigned spectrum in the 26 and 28 GHz bands) in 2021 to satisfy the future demand of the telecommunications market. Consultations on the proposed arrangements for the assignment of spectrum in the 600 and 700 MHz bands and 4.9 GHz band were completed recently. The CA and the Secretary for Commerce and Economic Development expect to make respective decisions on the assignment arrangements and the related spectrum utilisation fees for these bands in the first quarter of 2021, with auction to be held and assignment made in the fourth quarter of 2021.

Use of Government Premises for Network Rollout

4. The Government announced its policy initiative in the 2018 Policy Address to open up suitable Government premises and roof-tops for the installation of radio base stations (“RBSs”) by MNOs. To implement this measure, OFCA launched a pilot scheme in March 2019 to make available more than 1 000 Government premises for MNOs to install RBSs with streamlined application processes and nominal rental (HK\$1 per year).

5. The pilot scheme is welcomed by the MNOs and has been implemented smoothly. As at end November 2020, the Government has received applications from MNOs for installation of RBSs at 130 Government venues and approved 56 applications, with 43 tenancy agreements issued by the Government Property Agency to enable the MNOs to proceed with RBS installations. Under the pilot scheme, the average time for vetting and approval of applications has been reduced from 464 working days under the conventional scheme to less than 150 working days, amounting to a reduction of about 70% of time.

6. As a further measure to facilitate MNOs’ extension of 5G network coverage, the 2019 Policy Address indicated that the Government would, among others, assist MNOs under a “demand-led” model to make use of more Government premises. We have collected inputs from MNOs on the additional premises at which they are interested in installing RBSs, and will work with the relevant departments on the opening up of these venues.

Use of Street Furniture for RBS Installations

Sheltered Bus Stops

7. The Government announced the policy initiative in the 2019 Policy Address to open up suitable sheltered bus stops (“SBSs”) for installation of RBSs to extend 5G network coverage. With a view to implementing this measure, OFCA has been working with relevant Government departments including Lands Department (“LandsD”), Planning Department (“PlanD”) and Transport Department to facilitate MNOs to conduct technical trials and to develop relevant principles and procedures for use of SBSs for installation of RBSs. In November 2020, the CA issued a set of guidelines setting out such principles and procedures to facilitate application by the MNOs for installation of RBSs at SBSs.¹

¹ “Guidelines on the Use of Sheltered Bus Stops for the Installation of Radio Base Stations for Provision of Public Mobile Services” is available at:
<https://www.coms-auth.hk/filemanager/statement/en/upload/552/gn112020.pdf>

Public Payphone Kiosks

8. It was also announced in the 2019 Policy Address that the Government would open up suitable public payphone kiosks (“Kiosks”) to MNOs for installing RBSs to extend 5G network coverage. OFCA has been actively coordinating with the relevant Government departments to assist MNOs to carry out trials at Kiosks in particular locations. Meanwhile, the CA has issued guidelines to facilitate MNOs’ application for use of Kiosks for installation of RBS.² OFCA will continue to coordinate with LandsD for the modification of block licence of the fixed network operators (“FNOs”) concerned to allow installation of RBSs at Kiosks.

Smart Lampposts

9. The Multi-functional Smart Lampposts Pilot Scheme (“SL Pilot Scheme”) was launched by the Government as announced in the 2017 Policy Address for installation of smart lampposts at selected urban locations to support the building of a smart city with city-wide coverage of data and network. According to the Office of the Government Chief Information Officer (“OGCIO”), the SL Pilot Scheme will cover about 400 new smart lampposts which are to be installed at four selected districts in three years by phases. The smart lampposts are designed for, among others, installations of RBSs for the provision of 5G services. In the first phase, some 50 smart lampposts have been installed in Kwun Tong / Kai Tak Development Area. MNOs were invited by OGCIO to conduct technical trials at some of these smart lampposts. OFCA supported the trials with issue of permits and temporary frequency assignments to the MNOs concerned.

Use of External Walls of Buildings for RBS Installations

10. The Minor Works Control System (“MWCS”) was implemented by the Government as a simple and convenient mechanism for carrying out minor building works. In response to increasing demand to extend the coverage of the MWCS to more small-scale building works to bring greater convenience to the public and facilitation to the building industry, the Buildings Department worked with other relevant Government departments including OFCA to amend the Building (Minor Works) Regulation (“B(MW)R”) to cover a number of new works items under the MWCS, including erection of supporting structure for antenna / transceiver on external walls of buildings.

² “Guidelines on the Use of Public Payphone Kiosks for the Installation of Radio Base Stations for Provision of Public Mobile Services” is available at:
<https://www.coms-auth.hk/filemanager/statement/en/upload/532/gn032020.pdf>

Inclusion of such telecommunications installations under the MWCS would help facilitate the roll out of 5G networks and smart city developments. The amendments to the B(MW)R took effect from 1 September 2020.

11. As a follow-up action, OFCA is in the process of consulting relevant Government departments on amendment to the One-stop Application Procedure to cover applications for installation of antenna / transceiver on external walls of buildings.

Online Platform for obtaining Approval of Low Power Indoor RBS for Provision of Public Mobile Services

12. Before RBSs are put into use, MNOs shall apply for and obtain the prior approval of the CA. In vetting the concerned applications, OFCA will ensure that the RBSs comply with the relevant requirements for control of radio interference and non-ionising radiation safety. In the past 5 years (i.e. 2014 to 2019), about 13% (or some 5 700) of the approved RBSs were Low Power Indoor Radio Base Stations (“LPIRBS”) which are RBSs with an effective isotropic radiated power no more than 2 Watts and installed indoors or within buildings. These LPIRBS are used to provide public mobile services in buildings, such as offices, shops, shopping malls, sports halls, restaurants, etc. It is anticipated that the number of LPIRBS in 5G networks will increase significantly.

13. Having regard to the nature of the LPIRBS which has low risk of causing radio interference to other radiocommunications apparatus or systems and low level of non-ionising radiation, OFCA considers that there is room to simplify the vetting of applications for LPIRBS. In this regard, OFCA is preparing to set up a user-friendly web-based platform in 2021 to facilitate MNOs’ self-service registration, for which immediate approval will be given. It is estimated that about 2 000 LPIRBS will be processed and approved by the new platform each year, benefiting both OFCA and MNOs in terms of time and efficiency. The new measure will facilitate MNOs’ installation of LPIRBS so as to expedite extension of network coverage and enhancement in network capacity in particular for 5G services.

Subsidy Scheme to Support Upgrading of Satellite Master Antenna Television (“SMATV”) Systems

14. Radio spectrum in the 3.4 – 3.7 GHz band was re-allocated from fixed satellite service to mobile service with effect from 1 April 2020 for the provision of 5G services in Hong Kong. As a result of the frequency re-allocation and as per findings of a consultancy study commissioned by OFCA,

SMATV systems operating in the 3.7 – 4.2 GHz band need to be upgraded in order to co-exist with the 5G RBSs operating in the 3.4 – 3.6 GHz band (“3.5 GHz band”).

15. To support the upgrading work of SMATV systems, OFCA launched a subsidy scheme for one year from 27 November 2019 to 26 November 2020, with funding contributed by the four MNOs who would make use of spectrum in the 3.5 GHz band to provide 5G services. Owners of each eligible SMATV system may apply for a subsidy of HK\$20,000 to subsidise the upgrading work. Over 1 000 applications were received and handled under the subsidy scheme.

Resolving the Problem of the 5G Restriction Zone in Tai Po

16. As mentioned above, with re-allocation of radio spectrum in the 3.4 – 3.7 GHz band to mobile service with effect from 1 April 2020, the pre-existent satellite earth stations operating at 3.4 – 3.7 GHz band in Tai Po for telemetry, tracking and control (“TT&C stations”) has to be protected in order to coexist with the new 5G services provided in the territory. In this regard, the CA has imposed restrictions on MNOs prohibiting their deployment of 5G RBSs operating in the 3.5 GHz band in the Tai Po area.

17. With a view to removing the “5G restriction zone” in Tai Po so as to facilitate comprehensive 5G development in Hong Kong using the 3.5 GHz band, we have been proactively discussing with two satellite operators on the relocation of their affected TT&C stations set up in Tai Po. At present, one of the operators has been allocated with a land lot by LandsD for relocation of the relevant TT&C facilities to Chung Hom Kok Teleport. The other operator is discussing details of land allocation with the relevant departments with good progress made. Taking into account the time required for detailed planning and relocation works, we expect that the issues related to “5G restriction zone” in Tai Po could be completely resolved in four years. Meanwhile, MNOs may make use of other 5G bands (e.g. 4.9 GHz band) or re-farm existing spectrum (e.g. 2.1 GHz band) to provide 5G services in the “5G restriction zone” in Tai Po.

Subsidy Scheme to Extend Fibre-based Networks to Remote Areas

18. In support of the Government’s policy initiative announced in the 2017 Policy Address to promote the extension of fibre-based networks to remote villages, OFCA has implemented a subsidy scheme to provide financial incentives for telecommunications operators to extend their fibre-based networks to 235 villages across nine districts in the New Territories and

outlying islands in Hong Kong, where villagers can only choose broadband services delivered over copper-based networks at a speed of 10 Mbps or below.

19. The 235 villages were grouped under six projects which were awarded to selected FNOs between November 2019 and May 2020 through tendering exercises. The selected FNOs have commenced works with respect to, inter alia, the roll out of lead-in connections to the vicinity of the entrances of the villages concerned, as well as the roll-out of three submarine cables connecting Lamma Island from Hong Kong Island, Cheung Chau from Lantau Island and Peng Chau from Lantau Island respectively. It is expected that the newly-built fibre-based networks will be extended to the villages concerned in phases from 2021 onwards. After the roll-out of fibre-based networks, the broadband speed at the villages concerned can be increased to at least 25 Mbps. The underlying infrastructure will also facilitate the deployment of other telecommunications services (including 5G services), thereby expediting the extension of 5G mobile networks to remote areas.

Subsidising Early Deployment of 5G Technologies

20. To encourage early deployment of 5G technologies across trades and industries for improving efficiency, productivity and quality of service, the Government has earmarked a total of HK\$60 million under the Anti-Epidemic Fund to provide funding support to public and private sectors for early deployment of 5G technologies during the economic uncertainty and the epidemic. The scheme subsidises 50% of costs for projects deploying 5G technologies, subject to a cap of HK\$500,000 for each project.

21. OFCA is tasked to administer the above scheme. As at end November 2020, we have received 198 subsidy applications, of which 21 applications have been approved, covering innovative applications from various industries (e.g. remote mechanical maintenance, 3D building information modelling (“BIM”) in construction sites, e-sports car racing and 4K/8K live video broadcast). We have recently extended the application period for six months to 31 May 2021 to encourage more public and private organisations in different sectors to submit applications for projects which are able to deploy 5G technology to foster innovation.

WAY FORWARD

22. Like previous generations of mobile telecommunications services, it is expected that 5G services require time to achieve maturity and wide adoption. We will continue to closely monitor the market situation and

proactively implement appropriate facilitating measures to further support 5G development in Hong Kong.

VIEWS SOUGHT

23. Members are invited to take note of the content of this paper. Any views or comments from Members are welcome.

**Office of the Communications Authority
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