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總監報告

Message from the Director-General

香港雖然受到2019冠狀病毒病疫情影響，在社會與經濟方面面對種種挑戰，但本港的通訊市場於2021／22年度繼續蓬勃發展。通訊辦會繼續致力協助通訊業再創新高峯，並鞏固香港作為區域通訊樞紐的地位。

In 2021/22, Hong Kong's communications markets continued to be robust in spite of the social and economic challenges brought by the COVID-19 pandemic. OFCA will strive to keep on facilitating the communications sector to scale new heights and uphold Hong Kong's position as a regional communications hub.

梁仲賢先生，JP
Mr Chaucer LEUNG, JP

通訊事務總監
Director-General of Communications



歡迎瀏覽通訊事務管理局辦公室（通訊辦）營運基金年報。在介紹通訊辦於2021／22年度所推行的主要工作前，我希望就通訊業在過去一年的進展作簡單的概述。

市場概況

電訊市場

雖然2019冠狀病毒病疫情帶來不少挑戰，本地的電訊市場繼續增長，流動及固網寬頻的滲透率保持世界前列。香港錄得2 600萬流動服務用戶，滲透率高達342%。流動數據用量水平亦有顯著增長，反映流動電訊服務在市民的日常生活中是不可或缺。在2022年3月，流動數據用量超過124 885太字節，人均流動數據用量為16.8吉字節，兩者均較2021年3月增加超過30%。

商用第五代流動（5G）服務於2020年4月1日推出後，香港正式踏入5G時代。兩年間，香港的5G網絡已覆蓋九成人口，遍布全港人口密集的地區、熱門商場及所有港鐵站，服務超過320萬客戶，佔人口44%。隨着5G服務日益普及，將造就更廣泛的新商機及創新應用，使業界及一般用戶同時受惠。

在5G服務成為焦點的同時，高速家居寬頻服務亦是香港通訊市場重要一環，住戶寬頻滲透率達98%，83%的住戶已接達至光纖網絡。

廣播市場

在網上媒體服務湧現下，香港的廣播市場仍繼續穩健發展。在2021／22年度，公眾可收看本地和海外逾800條以多種語言廣播的免費電視節目頻道、收費和衛星電視節



Welcome to the Office of the Communications Authority (OFCA) Trading Fund annual report. Before I present the major work that OFCA carried out during the 2021/22 year, I would like to provide an overview of the evolving communications landscape during the past year.

Market Overview

Telecommunications Market

Despite the challenges resulting from the COVID-19 pandemic, Hong Kong's telecommunications market continued to grow, and the city's mobile and fixed broadband penetration rates remained among the world's highest. Hong Kong recorded 26 million mobile service subscriptions, achieving a penetration rate of 342%. There was also significant growth in mobile data usage levels, reflecting that mobile telecommunications service has become indispensable in daily life. In March 2022, more than 124 885 Terabytes of mobile data was consumed, or 16.8 Gigabytes per capita, both representing over 30% increase from those in March 2021.

With the commercial launch of the fifth generation mobile (5G) services on 1 April 2020, Hong Kong officially entered the 5G era. Two years on, Hong Kong boasts 90% of the population with 5G coverage, covering densely populated districts, popular shopping centres and all mass transit railway stations, serving over 3.2 million customers, representing 44% of the population. As the adoption of 5G becomes prevalent, it will bring about a wider range of new business opportunities and innovations benefiting both the industry and general users.

While 5G services have hit the headlines, high-speed household broadband is another vital component of the communications market in Hong Kong, achieving a 98% household penetration rate with 83% of households connected with optical fibre.

Broadcasting Market

Hong Kong's broadcasting market continues to be robust in spite of the rapid emergence of Internet-based media services. In 2021/22, the public was able to access over 800 local and overseas television programme channels in various languages through free-to-air, pay and satellite television services as well as 13 local radio programme channels. With our pre-eminent geographic position and reliable infrastructure, Hong Kong is a preferred regional satellite uplink location with nine non-domestic licensees delivering over 200 satellite television programme channels throughout Asia-Pacific. With the adoption of Open Sky Policy by the Government, about 600 free satellite television programme channels are available for reception in Hong Kong.



After the switching off of analogue television services in November 2020, all digital terrestrial television (DTT) frequency channels were migrated to the 500 MHz band on 1 December 2021, freeing up the 600 and 700 MHz bands for high value-added mobile telecommunications services including 5G.

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目頻道，以及收聽13條本地電台節目頻道。香港地理位置得天獨厚，加上基礎設施可靠，是受歡迎的地區衛星上傳地點。現時香港有九家非本地電視節目服務持牌機構在亞太地區提供逾200條衛星電視節目頻道。在政府的「開放天空」政策下，本港可以接收到約600條免費衛星電視節目頻道。

模擬電視服務在2020年11月終止後，所有數碼地面電視頻道於2021年12月1日遷移至500兆赫頻帶，騰空600和700兆赫頻帶作高增值流動電訊服務（包括5G服務）。

2021／22年度的主要工作回顧

儘管面對社會和經濟挑戰，通訊辦在2021／22年度依然邁步向前。我們的主要工作回顧如下。

電訊服務

通訊辦去年協助通訊事務管理局（通訊局）指配150兆赫在低、中頻帶內的新頻譜，用作支援5G服務。有關頻譜是繼2020年4月推出5G服務前在中、高頻帶內發放約2 000兆赫的頻譜以後所新增的。新增的頻譜不但提升網絡覆蓋、速度和容量，更創造了一個更完備的5G環境，促進創新流動應用和用例的發展。通訊辦就頻譜供應成立了內部專責小組，以確保可適時釋放頻譜，配合業界和用戶對新興通訊的需求。此外，我們亦密切留意全球和區域性的電訊業發展趨勢和頻譜規劃措施。

2021／22年度的其中一項主要工作是透過搬遷區內的衛星營辦商，以撤銷大埔的「3.5吉赫限制區」。其中一家衛星營辦商已決定將位於大埔的設施遷往春坎角電訊港，而另一家衛星營辦商則已承諾在其衛星設施安裝衛星帶通濾波器，以防止無線電干擾。「3.5吉赫限制區」預計可於2024年年底撤銷，在此之前，流動網絡營辦商會利用其他5G頻帶或重整現有作3G／4G用途的頻帶，在大埔區提供5G服務。



為了鼓勵各界及早使用5G技術，推動創新和智慧城市的應用，通訊辦自2020年5月開始推行透過第二輪防疫抗疫基金推出的「鼓勵及早使用5G技術資助計劃」。在該計劃下，政府會資助獲批項目中使用5G技術所需開支的50%，上限為港幣50萬元。該計劃廣受各行各業好評，實現多項有助提升業務營運和服務質素的創新5G應用，從而為整體社會帶來裨益。

為配合政府的政策措施，通訊辦亦推行一項涉及港幣7.7億元撥款的資助計劃，為固網營辦商提供經濟誘因把光纖網絡擴展至235條位於偏遠地區的鄉村。隨着計劃的六個投標項目在2019年11月至2020年5月期間悉數批出，截至2022年8月31日，獲選的固網營辦商已把光纖網絡擴展至67條鄉村。通訊辦會繼續確保這些項目妥善實施直至2026年全部完成為止。

通訊辦支援商務及經濟發展局（商經局）完成對《電訊條例》（第106章）下有關電訊規管架構的檢討。《2021年電訊（修訂）條例》旨在修訂相關條文，以更新有關5G及物聯網裝置的電訊功能的規管安排、改善對地下電訊基礎設施的保護、簡化非傳送者牌照的簽發，以及改善《電訊條例》下的上訴機制。《2021年電訊（修訂）條例》已於2021年10月21日獲立法會通過，有關條文亦於2022年6月24日起生效。通訊辦一直積極推展落實修訂《電訊條例》的籌備工作。



Highlights of Our Work in 2021/22

Even under social and economic challenges, OFCA made substantial strides in 2021/22. Below are some of our major highlights.

Telecommunications Services

Last year, OFCA assisted the Communications Authority (CA) in assigning 150 MHz of new spectrum in the low and mid frequency bands to support 5G services. This was in addition to about 2 000 MHz of spectrum in the mid and high frequency bands released prior to the launch of 5G services in April 2020. Not only has the additional supply enhanced network coverage, speed and capacity, it has also created a more comprehensive 5G environment that facilitates the development of innovative mobile applications and use cases. Our in-house task force on spectrum supply has been set up precisely to ensure the timely release of spectrum and to keep pace with emerging communications demands from both industry and consumers. Besides, we are also actively taking heed of development trends in telecommunications and spectrum planning initiatives, both globally and regionally.

One of 2021/22's major activities involved lifting the "3.5 GHz restriction zone" in Tai Po by relocating the satellite operators in the area. One satellite operator has decided to relocate its facilities in Tai Po to the Chung Hom Kok Teleport and the other satellite operator has undertaken to install band-pass filters at its satellite facilities to prevent radio interference. The "3.5 GHz restriction zone" is expected to be lifted before end-2024. Until then, mobile network operators (MNOs) are making use of other 5G bands or re-farming existing bands for 3G/4G to provide 5G services in Tai Po.

In order to encourage various sectors to deploy 5G technology earlier to foster innovation and smart city applications, OFCA has been administering the "Subsidy Scheme for Encouraging Early Deployment of 5G" launched under the second round of the Anti-epidemic Fund since May 2020. Under the scheme, the Government will subsidise 50% of the cost of deployment of 5G technology in an approved project, subject to a cap of HK\$500,000. The scheme has been receiving very positive responses from various sectors, helping to bring about many novel 5G applications to enhance business operations and quality of services and in turn benefiting the society as a whole.

In support of the Government's policy initiative, OFCA also implemented a subsidy scheme with a funding of HK\$770 million to provide financial incentives for fixed network operators (FNOs) to extend their fibre-based networks to 235 villages in remote areas. Following the award of all six tender projects under the scheme between November 2019 and May 2020, the selected FNOs have already extended their fibre-based networks to 67 villages as of 31 August 2022. OFCA will continue to ensure proper implementation of these projects through to full completion by 2026.

With OFCA's support, the Commerce and Economic Development Bureau (CEDB) completed the review of the telecommunications regulatory framework under the Telecommunications Ordinance (Cap. 106) (TO). The Telecommunications (Amendment) Ordinance 2021 that sought to amend relevant provisions to update the regulatory arrangements on telecommunications functions of 5G and Internet of Things (IoT) devices, enhance the protection of underground telecommunications infrastructure, simplify the issue of non-carrier licences and improve the appeal mechanism under the TO was passed in the Legislative Council on 21 October 2021, and the relevant provisions came into operation on 24 June 2022. OFCA has been actively preparing for implementation of the new amendments to the TO.

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此外，通訊辦亦支援商經局落實《電訊（登記用戶識別卡）規例》（《登記規例》），該規例已於2021年9月1日正式生效。根據《登記規例》，電話智能卡用戶須於2022年3月1日起為其電話智能卡進行實名登記。就《登記規例》下實名登記的具體運作細節和要求，通訊辦協助通訊局向持牌電訊商發出指引。自《登記規例》實施以來，通訊辦與持牌電訊商緊密合作，以確保各登記系統及程序均符合《登記規例》的要求。通訊辦同時亦與各持牌電訊商保持聯繫，確保實名登記系統簡單易用。



最後，為鞏固香港作為亞太區通訊樞紐的卓越地位，通訊辦與地政總署合作，就春坎角電訊港適合增設對外電訊基礎設施的土地進行招標。第一幅土地已於2022年4月批予成功競投者，第二幅地段則於2022年6月及7月期間進行招標。

廣播服務

2021年12月1日，六個於600/700兆赫頻帶操作的數碼地面電視節目台遷移至500兆赫頻帶，騰出在600/700兆赫頻帶的頻譜並指配/預留作提供高增值流動電訊服務（包括5G）的用途。在準備遷移期間，通訊辦展開了宣傳活動，讓公眾認識如何繼續收看這些數碼地面電視節目台。

年內，通訊辦協助通訊局就三個免費電視牌照及兩個聲音廣播牌照進行中期檢討。經全面檢視持牌機構過往的表現及考慮公眾意見後，通訊局會向行政長官會同行政會議提交建議。我們亦協助通訊局處理奇妙電視有限公司（奇妙電視）的頻譜指配申請，以擴大其免費電視節目服務覆蓋範圍。作為上述申請的一部分，奇妙電視會於2022年11月或之前提供多一條新的電視節目頻道。

針對2019冠狀病毒病疫情採取的特別措施

2019冠狀病毒病疫情影響香港本地的電視製作。在通訊辦的支援下，通訊局批准暫時豁免持牌機構遵守有關播放本地製作和首播節目的規定，以應付疫情帶來的挑戰。

在第五波疫情期間，我們響應政府採取應對2019冠狀病毒病的措施，與各部門進行溝通協調，並支援流動網絡營辦商在社區隔離設施內設置5G無線電基站，為社區隔離設施內的工作人員和隔離人士提供流動服務。通訊辦亦派遣同事參與在全港各區進行的「圍封強檢」行動，齊心協力抵抗2019冠狀病毒病。



OFCA also supported CEDB to implement the Telecommunications (Registration of SIM Cards) Regulation (the Registration Regulation) which took effect on 1 September 2021. Under the Registration Regulation, subscriber identification module (SIM) card users are required to complete real-name registration for their SIM cards starting from 1 March 2022. OFCA assisted the CA in issuing the guidelines to licensees with regard to the specific operational details and requirements of the real-name registration under the Registration Regulation. Since the commencement of the Registration Regulation, OFCA has been working closely with the licensees to ensure the compliance of their registration systems and procedures with the Registration Regulation. OFCA has also been liaising with the licensees to ensure that their real-name registration systems are easy to use.

Last but not least, to help secure Hong Kong's status as a pre-eminent communications hub in the Asia Pacific region, OFCA collaborated with the Lands Department (LandsD) to invite tenders for suitable land lots at Chung Hom Kok Teleport for establishment of additional external telecommunications infrastructure. The first land lot was awarded to the successful bidder in April 2022 and a second lot was put up for tender between June and July 2022.

Broadcasting Services

On 1 December 2021, six DTT programme channels operating in the 600/700 MHz bands were migrated to the 500 MHz band. The spectrum vacated in the 600/700 MHz bands has been assigned/reserved for the provision of high value-added mobile telecommunications services including 5G. In the course of the preparatory work for the migration, OFCA embarked on a publicity campaign to promote public awareness about how to ensure continued reception of these DTT programme channels.



During the year, OFCA assisted the CA in conducting a mid-term review of three free-to-air television and two sound broadcasting licences. After a thorough review taking into account past performance and public opinion, the CA will make its recommendations to the Chief Executive in Council for consideration. We also assisted the CA in processing the application by Fantastic Television Limited (Fantastic TV) for the assignment of spectrum to extend the coverage of its free television programme service and, as part of the application, launch a new television programme channel by November 2022.

Special Measures in Fighting the COVID-19 Epidemic

The COVID-19 pandemic has caused disruption to television production in Hong Kong. OFCA supported the CA in granting temporary waivers to licensees for complying with requirements on local productions and first-run programmes in order to meet the challenges brought by the pandemic.

During the fifth wave of the epidemic, we supported government measures to combat COVID-19 by coordinating with various departments and assisting MNOs in establishing 5G Radio Base Stations in Community Isolation Facilities (CIFs) to provide mobile services to staff and those in quarantine at the CIFs. OFCA also joined the fight against COVID-19 by mobilising staff in conducting "Restriction-Testing Declaration" operations across the city.

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未來的主要挑戰

隨着5G服務的覆蓋範圍和質素持續改進，企業和消費者可望將5G的潛力發揮得淋漓盡致。展望未來，5G將有更多令人鼓舞的發展。通訊辦會繼續物色和提供更多5G頻譜，以配合市場的需求，亦會繼續實行便利措施，協助流動網絡營辦商進入各政府場地和使用公共設施，以適時和具成本效益的方式鋪設網絡。

因應850／900兆赫頻帶內20兆赫的頻譜和2.3吉赫頻帶內90兆赫的頻譜將相繼於2026年及2027年屆滿，通訊辦會就重新指配有關頻帶內的頻譜安排及釐定相關的頻譜使用費，協助通訊局和商務及經濟發展局局長（商經局局長）進行聯合公眾諮詢。

通訊辦現正與地政總署合作批出位於春坎角電訊港的土地以興建新的對外電訊設施；我們亦會繼續與有興趣申請在香港登陸海底電纜的電訊營辦商聯繫，協助他們取得所需的法定許可。

通訊辦會繼續監察各持牌電訊商按照《登記規例》訂明的規定和時限推行電話智能卡登記的情況。通訊辦會加強宣傳和支援措施，讓公眾知悉有關安排及向他們提供協助。

今年是通訊局成立十周年。過去十年，通訊辦一直全力配合通訊局履行其規管通訊業的職責。在短短十年間，通訊業的發展勢頭經歷了重大的演變和進展。通訊辦在4G技術環境下成立，時至今日，我們已躍進5G時代；我們見證了流動技術的進步和服務的提升改變了香港消費者使用通訊服務的體驗，我們亦對未來的無限創新及改造充滿期盼。如欲了解通訊局在過去十年的工作成果和通訊業界有何重大發展，歡迎瀏覽通訊局十周年紀念專題網站（網址：<https://www.coms-auth.hk/ca10/tc/home/index.html>）。

最後，我感謝通訊局主席和各委員在過去一年給予寶貴指導，以及各持牌機構的持續支持。我深信通訊辦同事會秉持專業精神、集思廣益和羣策羣力，我們定能駕馭未來的種種挑戰，為通訊業界締造可持續發展的環境，並鞏固香港作為區域通訊樞紐的地位。





Major Challenges Ahead

Businesses and consumers will harness the full potential of 5G with its continuous improvement in terms of service coverage and quality. More exciting developments are yet to come. OFCA will continue to identify and make available additional 5G spectrum to meet market demand, and to implement facilitating measures to help MNOs to gain access to government venues and public facilities, for rolling out their networks in a timely and cost-effective manner.

Ahead of the expiry of 20 MHz of spectrum in the 850/900 MHz bands in 2026 and 90 MHz of spectrum in the 2.3 GHz band in 2027, OFCA will support the CA and the Secretary for Commerce and Economic Development (SCED) in a joint public consultation regarding the re-assignment arrangement for the spectrum in these bands and setting of the related spectrum utilisation fees.

While OFCA is joining hands with the LandsD to divest lots at Chung Hom Kok Teleport for construction of new external telecommunications facilities, we will continue to facilitate liaison with telecommunications operators which are interested in landing submarine cables to Hong Kong to seek necessary statutory approvals.

OFCA will continue to oversee the implementation of SIM card registration by licensees in accordance with the requirements and timeline specified by the

Registration Regulation. OFCA will step up publicity and support measures to inform and assist members of the public.

This year marks the 10th anniversary of the CA. Over the past decade, OFCA has been providing sterling support to the CA for discharging its role as the regulator for the communications industry. In these 10 short years, the communications landscape has undergone massive progress and evolutions. While OFCA was established in a 4G environment, we have already progressed into the 5G era. We have witnessed how the advancement of mobile technologies and services have transformed the communication experiences of Hong Kong consumers, and we look forward to more aspiration of boundless innovations and reinventions in the future. For more details of the achievements of the CA and the significant developments of the communications sector in the past decade, you may visit the 10th Anniversary thematic website at <https://www.coms-auth.hk/ca10/en/home/index.html>.

In closing, I would like to thank the Chairman and Members of the CA for their invaluable guidance, and our licensees for their continuous support over the past year. With professionalism, skills, wisdom and dedication of colleagues in OFCA's team, I am confident that we will rise to any challenges ahead, thereby fostering sustainable development of the communications sector and reinforcing Hong Kong's position as a regional communications hub.