



2020 / 21 年度，香港踏入廣泛應用 5G 服務和全面數碼電視廣播的時代。我們其中一項最重要的工作，是致力保持兩者在香港進一步發展的動力。

In 2020/21, we ushered in the era of extensive 5G services and full digital television broadcast. One of our most significant endeavours is to sustain the momentum for their further development in Hong Kong.

梁仲賢先生，JP
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通訊事務總監
Director-General of Communications

我欣然呈上通訊事務管理局辦公室（通訊辦）營運基金 2020 / 21 年年報。

市場概況

電訊市場

儘管疫情對社會及經濟帶來挑戰，香港的電訊市場仍然暢旺，增長動力持續強勁。

香港是全球最先進的電訊市場之一，本地流動寬頻及固網寬頻的滲透率位居世界前列。香港的流動通訊服務滲透率高達291%，流動服務用戶總數為2 300萬。流動網絡連接已成為日常生活中不可或缺的一部分，而流動數據用量一直大幅度增長。在2021年3月，流動數據總用量超過93 900太字節，人均流動數據用量為12.6吉字節，兩者均較五年前增加350%。

第五代（5G）商用流動服務於2020年4月1日推出，標誌着一個電訊新世代的來臨，在創新電訊服務及應用等方面，為商用和個人用戶創造一個充滿各種可能的新世界。

截至2021年3月，5G網絡已覆蓋香港逾九成人口。我們的高速光纖網絡覆蓋範圍廣泛，現時共有290萬個寬頻用戶，住戶寬頻滲透率超逾95%（其中84%使用光纖寬頻）。

廣播市場

香港的廣播業發展蓬勃，提供多元化的服務。市民可收看本地和海外逾750條以多種語言廣播的免費電視節目頻道、收費電視節目頻道、衛星電視節目頻道，以及收聽13條本地電台頻道。香港擁有優良的地理位置、完善的基礎設施和其他優越條件，是上傳衛星電視服務的理想地點。香港目前共有10家非本地電視節目服務持牌機構，為亞太地區觀眾提供超過220條衛星電視頻道。政府採取「開放天空」



2020/21 Trading Fund Report 營運基金報告書

I am delighted to present the 2020/21 annual report of the Office of the Communications Authority (OFCA) Trading Fund.

Market Overview

Telecommunications Market

Despite the social and economic challenges brought by the pandemic, the Hong Kong telecommunications market remained vibrant and maintained a strong momentum for growth.

We are among the most advanced telecommunications markets of the world with one of the highest local mobile and fixed broadband penetration rates. With a mobile penetration rate of 291% and a total of 23 million mobile service subscriptions, mobile connectivity is an indispensable part of daily life and there has been a tremendous growth in mobile data usage. In March 2021, there were more than 93 900 Terabytes of total mobile data consumption or 12.6 Gigabytes on per capita basis, both increased by 350% as compared with five years ago.

The commercial launch of fifth generation (5G) services on 1 April 2020 represents a new era of telecommunications, offering both business and individual users a new world of possibilities for innovative telecommunication services and applications.

As of March 2021, 5G networks have reached over 90% of the Hong Kong population. Our high-speed optical fibre network also has an extensive reach serving 2.9 million broadband subscriptions at a household broadband penetration rate of over 95% (84% of which being served by optical fibre).

Broadcasting Market

Hong Kong has a thriving broadcasting sector offering a broad range of services. Residents can access over 750 local and overseas television programme channels in various languages through free-to-air television

services, pay television services, satellite reception, and 13 local radio channels. Hong Kong is also a prime location for uplinking satellite television services due to our favourable geographical location, excellent infrastructure and other positive factors. There are currently ten non-domestic television programme service licensees providing over 220 satellite television programme channels for audiences across the Asia-Pacific region. The Government's "open sky" policy provides unmatched access to unencrypted satellite television programme channels uplinked from Hong Kong and elsewhere in the world for free. Over 520 such free satellite television programme channels are currently available in Hong Kong.

Highlights of Our Work in 2020/21

OFCA had made remarkable progress in 2020/21. I would like to highlight some of our major accomplishments below.

Telecommunications Services

Facilitating the continued development of 5G services remained to be a major focus of our work in 2020/21. Following the timely release of about 2 000 MHz of spectrum in the mid and high frequency bands to the market in 2019/2020 leading to the successful commercial launch of 5G services in April 2020, we assisted the Communications Authority (CA) in making available an additional supply of 220 MHz of new spectrum in the low and mid frequency bands for the provision of 5G services, which will facilitate enhancement of network coverage, speed and capacity of 5G services.

Spectrum in the high frequency bands is instrumental in the provision of extremely high-speed and high-capacity data transmission in the 5G era. In April 2019, three incumbent mobile network operators (MNOs) were assigned a total of 1 200 MHz of spectrum in the 26 GHz and 28 GHz bands. In addition, application for the assignment of up to 400 MHz of spectrum in the 26 GHz and 28 GHz bands for use on a geographically shared

的政策，讓市民可以免費接收從香港或世界各地上傳的無鎖碼衛星電視頻道。香港目前有超過520條這類免費衛星電視節目頻道。

2020／21年度的主要工作回顧

通訊辦的工作在2020／21年度取得矚目的進展，讓我於下文回顧部分主要成果。

電訊服務

促進5G服務持續發展仍然是我們在2020／21年度的工作重點之一。繼通訊事務管理局（通訊局）於2019／20年度適時向市場發放在中、高頻帶內約2 000兆赫的頻譜，使商用5G服務得以在2020年4月成功推出後，我們進一步協助通訊局在低、中頻帶提供額外220兆赫的新頻譜用作提供5G服務。這將有助提升5G服務網絡覆蓋、速度和容量。

在5G時代，使用高頻帶頻譜對提供極高速和極高容量的數據傳輸非常重要。三家現有流動網絡營辦商於2019年4月獲指配在26吉赫及28吉赫頻帶內合共1 200兆赫的頻譜。此外，通訊辦已於2019年7月起接受申請，以按地區劃分的共用模式指配在26吉赫及28吉赫頻帶內最多400兆赫的頻譜，作為提供地區性無線寬頻服務之用。通訊辦於2021年繼續支援通訊局密切留意26吉赫及28吉赫頻帶頻譜的市場動態。



通訊辦會繼續留意電訊業的全球發展趨勢，以及國際和地區層面的頻譜規劃。通訊辦就頻譜供應成立了內部專

責小組，以確保可適時釋放合適的頻譜，應付創新無線電通訊服務的需要和促進公共流動（包括5G）服務在香港的持續發展。

為長遠解決大埔「3.5吉赫限制區」的問題，通訊辦一直與兩家衛星營辦商商討，將他們位於大埔的衛星地球站設施搬遷至春坎角電訊港。考慮到是次搬遷所需的時間和資源後，通訊辦預計可於2024年年底前撤銷大埔「3.5吉赫限制區」。現時，流動網絡營辦商可利用其他新指配的頻帶（例如4.9吉赫頻帶）或透過重整現有頻譜（例如1.8吉赫頻帶和2.1吉赫頻帶）為全港提供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，政府將資助獲批項目中使用5G技術所需開支的50%，上限為50萬元。有關計劃支持創新的5G應用，廣受各行各業歡迎，能改善業務營運和服務質素，同時亦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，資助固網營辦商把光纖網絡擴展至235條位於偏遠地區的鄉村。隨着計劃的六個投標項目於2019年11月至2020年5月間悉數批出，獲選的固網營辦商由2021年起正分階段把光纖網絡擴展至有關鄉村。通訊辦會繼續監察這些項目的實施進度。

為加強香港作為區域電訊樞紐的角色，通訊辦正進行籌備工作，以在春坎角電訊港提供合適土地，以增建對外電訊基礎設施。

作為第一輪防疫抗疫基金下的其中一項措施，通訊辦已委聘流動網絡營辦商設立和推行以區域廣播技術為基礎的緊急警示系統。該系統於2020年11月推出，讓政府可透過流動網絡營辦商的網絡，在可能危及廣泛人命財產安全的緊急情況下，迅速向流動服務用戶發放緊急的訊息。



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basis to provide localised wireless broadband services has been open since July 2019. OFCA continued to support the CA in 2021 in keeping a close watch of the market development for the 26 GHz and 28 GHz bands.

OFCA will continue to keep abreast of worldwide development trends in telecommunications and monitor spectrum planning at international and regional levels. OFCA has set up an in-house task force on spectrum supply with a view to ensuring timely release of suitable spectrum to meet the needs of emerging radiocommunications services and facilitate the on-going development of public mobile (including 5G) services in Hong Kong.

As a long-term solution to remove the “3.5 GHz restriction zone” in Tai Po, OFCA has been discussing with the two satellite operators the relocation of their satellite earth station facilities from Tai Po to the Chung Hom Kok Teleport. Taking into account the lead time and effort required to complete the relocation works, it is expected that the “3.5 GHz restriction zone” in Tai Po will be lifted by end-2024. In the meantime, MNOs can make use of other newly assigned frequency bands (e.g. 4.9 GHz band) or re-farm their existing spectrum (e.g. 1.8 GHz and 2.1 GHz bands) to provide 5G services across Hong Kong.

In order to encourage various sectors to deploy 5G technology early 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 \$500,000. The scheme received very positive responses from various sectors, supporting novel 5G applications to improve business operations and quality of services while 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 are extending their fibre-based networks to the villages concerned in phases from 2021 onwards. OFCA will continue to monitor the implementation progress of these projects.

In order to reinforce Hong Kong’s role as a regional telecommunications hub, OFCA is working to provide suitable land lots in the Chung Hom Kok Teleport for the establishment of additional external telecommunications infrastructures. An open tender exercise is being prepared.

As one of the initiatives under the first round of the Anti-epidemic Fund, OFCA engaged the MNOs to establish and implement an emergency alert system (EAS) based on cell broadcast technology. Launched in November 2020, the EAS enables prompt dissemination of time-critical messages by the Government to mobile service users via the networks of the MNOs during emergency situations that may extensively endanger lives and properties.

Broadcasting Services

Since 1 December 2020, Hong Kong has entered an era of full digital television broadcast.

Following the switching off of analogue television services on 30 November 2020, six digital television programme channels operating in the 600 MHz and 700 MHz bands will be migrated to the 500 MHz band. The 600/700 MHz bands so vacated will be used for the development of high value-added mobile telecommunications services including 5G, enhancing network capacity and coverage, and relieving the currently congested indoor mobile telecommunications hotspots such as mass transit railway (MTR) stations.

廣播服務

香港於2020年12月1日起進入全面數碼電視廣播的年代。

隨着模擬電視廣播服務於2020年11月30日終止，六個在600兆赫頻帶及700兆赫頻帶操作的數碼電視節目台將會遷移至500兆赫頻帶，藉此騰出600/700兆赫頻帶用作發展高增值流動電訊服務（包括5G服務），以提升網絡容量和覆蓋及紓緩現時擠塞的室內流動電訊熱點（例如港鐵車站）。同時，我們已推出一系列宣傳活動，讓公眾認識所需採取的步驟，以便繼續收看該六個數碼電視節目台。

通訊辦協助通訊局處理奇妙電視有限公司（奇妙電視）提出的申請，讓其可獲指配頻譜用作傳送免費電視服務。鑑於有關頻譜在指配予奇妙電視使用後，將有助奇妙電視擴大其服務覆蓋範圍，並可提供一條新的電視節目頻道，通訊局於2021年4月原則上批准有關申請，從而讓奇妙電視為更多住戶提供更多節目選擇。

為使廣播持牌機構在業務營運方面更具彈性，同時無損觀眾及聽眾的利益，我們協助通訊局就規管物業廣告、在播放體育賽事和直播活動節目時加入廣告材料，以及「成年觀眾」節目播放時段的事宜進行檢討。通訊局經考慮從業界和公眾諮詢收集到的意見後，決定放寬電視和電台的節目和廣告標準業務守則中的相關條文，由2020年9月起生效。

未來的主要挑戰

為鞏固香港5G服務的持續發展，通訊辦將會支援通訊局於2021年第四季舉行拍賣，以指配在600兆赫、700兆赫及4.9吉赫頻帶內220兆赫的新頻譜，以及重新指配在850兆赫及2.5/2.6吉赫頻帶內105兆赫的頻譜。該等頻譜可用作提供額外容量，從而提升服務覆蓋和速度，以及促進利用5G技術的創新應用。我們亦會透過「需求主導」的模式開放更多政府場地，並提供公共街道設施（例如收費電話亭和有蓋巴士站）予流動網絡營辦商安裝基站，以繼續便利5G網絡的鋪設。

因應政府決定制訂《電訊（登記用戶識別卡）規例》（《登記規例》）以落實電話智能卡實名登記制（實名登記制），通訊辦協助通訊局諮詢業界並公布相關實施指引，指引生效日期與《登記規例》的生效日期相同，即2021年9月1日。我們會繼續協助通訊局確保電話智能卡實名登記制會按照《登記規例》和有關指引推行及進行。

至於廣播方面，我們將會協助通訊局就香港電視娛樂有限公司（香港電視娛樂）、電視廣播有限公司（無綫電視）及奇妙電視的免費電視牌照，以及香港商業廣播有限公司（商業電台）及新城廣播有限公司（新城電台）的聲音廣播牌照進行中期檢討。通訊局會評估這些持牌機構在各自的牌照期首六年的表現，並透過公眾諮詢，收集業界和公眾對廣播服務的意見，然後把檢討結果，包括對持牌機構在餘下牌照期提供廣播服務的規管要求作出的修訂建議，提交行政長官會同行政會議審議。

在此，我感謝通訊局主席和各成員的指導，以及所有業界持份者提供的意見和協助，通訊辦在過去一年一直努力不懈地擔當規管及促進通訊業發展的角色。我深信，在各位同事羣策羣力及專業的支持下，通訊辦定能繼續全力以赴迎接未來種種挑戰，協助業界提供更創新和先進的通訊服務以滿足市民的需要！





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Meanwhile, we launched a series of publicity programmes to raise public awareness of the necessary steps for continued reception of the six television programme channels concerned.

OFCA assisted the CA in processing the application by Fantastic Television Limited (Fantastic TV) for the assignment of spectrum to deliver its free television service. Noting that assigning the requested spectrum would enable Fantastic TV to increase its service coverage and launch a new television programme channel, the CA decided in April 2021 to grant an approval-in-principle to Fantastic TV for its provision of more programming choices to more households.

To provide broadcasting licensees greater flexibility in their business operations without compromising the interests of audience, we assisted the CA in reviewing the regulations governing real property advertisements, insertion of advertising materials in programmes covering sports and live events, and broadcast hours of mature programmes. Taking into account the views received from the industry and the public consultation exercise, the CA decided to relax, with effect from September 2020, the relevant provisions in the Television and Radio Codes of Practice on Programme and Advertising Standards.

Major Challenges Ahead

To underpin continued development of 5G services in Hong Kong, we will support the CA in conducting an auction in the last quarter of 2021 to assign 220 MHz of new spectrum in the 600 MHz, 700 MHz and 4.9 GHz bands and re-assign 105 MHz of spectrum in the 850 MHz and 2.5/2.6 GHz bands. The available spectrum will provide additional capacity to enhance service coverage and speed as well as to promote innovative applications riding on 5G. We will also continue to facilitate the rollout of 5G networks by opening up more government venues through the “demand-led” approach and making available public street facilities such as payphone kiosks and sheltered bus stops for base station installations.

Following the Government’s decision to make the Telecommunications (Registration of SIM Cards) Regulation (Registration Regulation) to implement the real-name registration programme for SIM cards, OFCA assisted the CA in consulting the industry and promulgating a set of implementation guidelines with the same effective date as that of the Registration Regulation on 1 September 2021. We will continue to assist the CA in ensuring the implementation and operation of the SIM card real-name registration programme in accordance with the Registration Regulation and the guidelines.

On the broadcasting front, we will assist the CA in conducting a mid-term review of the free television licences of HK Television Entertainment Company Limited (HKTVE), Television Broadcasts Limited (TVB), Fantastic TV and the sound broadcasting licences of Hong Kong Commercial Broadcasting Company Limited (CRHK) and Metro Broadcast Corporation Limited (Metro). The CA will assess the performance of these licensees during the first six years of their respective licences as well as collecting views of the industry and the general public regarding the broadcasting services through a consultation exercise. The outcome of the review, including the recommendations on adjustments to regulatory requirements on the broadcasting services of the licensees in the remaining period of their licences, will be submitted for consideration by the Chief Executive in Council.

Thanks to the guidance of the Chairman and Members of the CA as well as views and assistance of all the industry stakeholders, OFCA diligently fulfilled its regulatory and facilitating role in the communication sector over the past year. I am confident that OFCA, with the dedicated and professional support of my colleagues, will continue to embrace the challenges ahead and facilitate the provision of innovative and state-of-the-art communications services to better serve the needs of the general public!