

「我們已邁進了令人雀躍的5G時代，而這必然會促進通訊業加快發展和推動創新。」

"We have entered the exciting 5G era, which will undoubtedly accelerate growth and drive innovation in the communications industry."

梁仲賢先生

Mr Chaucer LEUNG

通訊事務總監

Director-General of Communications



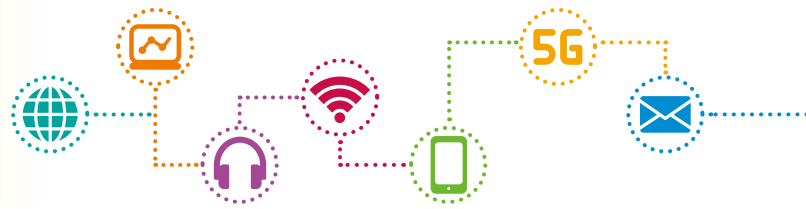
我欣然呈上通訊事務管理局辦公室（通訊辦）營運基金2019／20年年報。

市場概況 電訊市場

儘管香港在年內面對社會及經濟方面的挑戰，但電訊市場仍健康和持續地發展。本地流動寬頻及固網寬頻的滲

透率繼續位居世界前列。

流動服務用戶數目在2019／20年度增至超過2 300萬個，按人口計算的滲透率達275%。客戶的流動數據用量持續錄得顯著增長：總用量上升至每月75 664太字節，相當於人均流動數據用量為每月10吉字節。



I am delighted to present the 2019/20 annual report of the Office of the Communications Authority (OFCA) Trading Fund.

Market Overview

Telecommunications Market

Hong Kong faced social and economic challenges during the year. Yet, the development of the telecommunications market continued to stay strong, resilient and healthy. Local mobile and fixed broadband penetration rates remained one of the highest in the world.

The number of mobile service subscriptions increased to over 23 million in 2019/20, and the subscriber penetration rate reached 275%. Mobile data usage by customers continued to register remarkable growth: the total volume of mobile data usage surged to 75 664 Terabytes per month, representing an average monthly per capita mobile data consumption of 10 Gigabytes.

The commercial launch of the fifth generation (5G) services from 1 April 2020 has taken the Hong Kong telecommunications market to a new era, opening up tremendous new business opportunities to the industry and bringing to the general public new possibilities of innovative telecommunications services and applications.

In addition, Hong Kong is home to some of the most advanced optical-fibre networks in the world, giving local consumers choices of a full range of affordable high-speed broadband services. As of March 2020, there were more than 2.8 million broadband subscriptions with the household broadband penetration rate exceeding 94%, and over 80% of the subscriptions were served by optical fibre to the buildings/premises.

Broadcasting Market

Hong Kong has a vibrant broadcasting sector offering a wide range of services to the community.

We have access to over 800 local and overseas television channels in various languages through free-to-air terrestrial and satellite reception or pay television services and 13 local radio channels. With its geographical location, excellent infrastructure and other favourable factors, Hong Kong is a prime location for uplinking satellite television services. At present, there are 12 non-domestic television programme service licensees providing over 180 satellite television channels for audiences in the Asia-Pacific region. With the "open sky" policy of the Government, residents are able to receive unencrypted satellite television programme channels uplinked from Hong Kong and elsewhere in the world for free. There are now over 400 such free satellite television channels available for reception in Hong Kong.

Highlights of Our Work in 2019/20

2019/20 has been a year of significant progress for OFCA. I would like to highlight some of our major accomplishments during the year below.

Telecommunications Services

Facilitating the launch of 5G services was a major focus of our work in 2019/20. We assisted the Communications Authority (CA) in making available a total of about 4 500 MHz of spectrum in multiple frequency bands for the deployment of 5G, laying the foundation for an exciting new chapter for Hong Kong's communications industry and telecommunications service users.

With an ample supply of high frequency spectrum in the 26 GHz and 28 GHz bands, the CA decided to assign the spectrum administratively. Three incumbent mobile network operators (MNOs) applying for



商用第五代（5G）服務於2020年4月1日推出，帶領香港電訊市場邁進一個新時代，不單為業界開拓巨大的新商機，亦讓市民有機會享用各種創新的電訊服務及應用。

此外，香港擁有多個全球最先進的光纖網絡，為本地消費者提供各式各樣價格相宜的高速寬頻服務選擇。截至2020年3月，寬頻用戶數目超過280萬個，住戶寬頻滲透率超逾94%，當中更有80%以上的用戶享用光纖到樓／到戶服務。

廣播市場

香港的廣播業發展蓬勃，為市民提供多元化的服務。我們可收看本地和海外逾800條以多種語言廣播的免費地面和衛星電視頻道或收費電視頻道，以及收聽13條本地電台頻道。香港地理位置獨特，擁有完善的基建設施和其他卓越條件，是上傳衛星電視服務的理想地點。現時，香港共有12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180條衛星電視頻道。政府採取「開放天空」的政策，市民可免費接收從香港或世界各地上傳的無鎖碼衛星電視頻道。香港現時有超過400條這類免費衛星電視頻道可供市民接收。

2019／20年度的主要工作回顧

2019／20年度是通訊辦取得可觀進展的一年，讓我於下文回顧年內取得的部分主要工作成果。

電訊服務

促進5G服務的推出，乃我們在2019／20年度的其中一個工作重點。我們協助通訊事務管理局（通訊局）在多條頻帶提供合共約4 500兆赫頻譜，用作推展5G，並奠下穩固的基礎，為香港通訊業和電訊服務用戶開啟令人振奮的新章。

鑑於26吉赫及28吉赫頻帶內的高頻率頻譜供應充裕，通訊局決定通過行政方式指配頻譜。於2019年4月，三家提出頻譜指配申請的現有流動網絡營辦商各獲指配該兩條頻帶內400兆赫頻譜，用作提供大規模公共流動服務，包括5G服務。此外，通訊辦在2019年7月接受申請，以按地區劃分的共用模式指配26吉赫及28吉赫頻帶內最多400兆赫的

頻譜，以作為提供地區性無線寬頻服務之用，並在2019年10月率先指配該等共用頻譜。

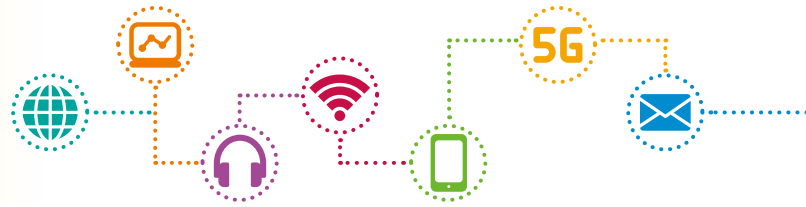
至於中低頻帶內的5G頻譜，我們協助通訊局在2019年10月及11月把合共380兆赫頻譜拍賣予業界，包括3.3吉赫頻帶內100兆赫頻譜、3.5吉赫頻帶內200兆赫頻譜及4.9吉赫頻帶內80兆赫頻譜，全部用作在香港提供5G服務。

根據通訊辦委聘的顧問的研究結果，通訊辦認為現時安裝於大廈用來接收和分發衛星電視訊號給住戶的衛星電視共用天線系統須進行升級，方可於2020年4月1日起與在相鄰的3.5吉赫頻帶內操作的5G系統並存。通訊辦在2019年11月推出資助計劃，以支援現有衛星電視共用天線系統進行升級，所涉經費由四家使用3.5吉赫頻帶的5G流動網絡營辦商承擔。該資助計劃會運作一年，而通訊辦在各流動網絡營辦商共同推選下負責管理計劃。

為實施長遠解決大埔限制區方案的方案，使3.5吉赫頻譜可在該限制區內用作提供5G服務，通訊辦一直與有關衛星營辦商商討，搬遷他們於3.5吉赫頻帶操作的大埔衛星地球站設施至春坎角電訊港。通訊辦正與衛星營辦商及相關政策局和部門緊密合作，解決相關的土地及技術事宜。

要約提供電訊服務類別牌照（類別牌照）的檢討在2019年4月完成後，通訊辦協助通訊局實施該類別牌照的經修訂發牌制度，並於2019年8月發出指引，協助服務訂用數量達10 000或以上的牌照持有人向通訊局登記業務資料。截至2020年9月，已有20個類別牌照持有人登記。





assignment were each assigned 400 MHz of spectrum in the two bands in April 2019 for the provision of large scale public mobile services including 5G services. In addition, application was opened in July 2019 for the assignment of up to 400 MHz of spectrum in the 26 GHz and 28 GHz bands for use on a geographically shared basis to provide localised wireless broadband services (LWBS), and the first assignment of the shared spectrum was made in October 2019.



As for the 5G spectrum in the low to mid frequency bands, we assisted the CA in auctioning off a total of 380 MHz of spectrum to the industry in October and November 2019. It includes 100 MHz of spectrum in the 3.3 GHz band, 200 MHz of spectrum in the 3.5 GHz band and 80 MHz of spectrum in the 4.9 GHz band for the provision of 5G services in Hong Kong.

Following the outcome of a consultancy study commissioned by OFCA, it was determined that the existing Satellite Master Antenna Television (SMATV) systems in buildings for receiving and distributing satellite TV signals to occupants would need to be upgraded in order to co-exist with 5G systems operating in the adjacent 3.5 GHz band starting from 1 April 2020. OFCA launched a subsidy scheme in November 2019 with funding provided by the four 5G MNOs using the 3.5 GHz band to support the upgrading of existing SMATV systems. The scheme would run for one year with OFCA serving as the administrator as jointly elected by the MNOs.

As a long term solution to lift the restriction zone in Tai Po so that the 3.5 GHz spectrum could be used there for provision of 5G services, OFCA has been discussing with the concerned satellite operators the relocation of their satellite earth station facilities operating at the 3.5 GHz band from Tai Po to the Chung Hom Kok Teleport. OFCA is working closely with the satellite operators and the relevant bureaux and departments with a view to resolving the land and technical issues.

After the completion of the review of the Class Licence for Offer of Telecommunications Services (CLOTS) in April 2019, OFCA assisted the CA to implement the revised licensing regime of the CLOTS and issued guidelines in August 2019 to assist licensees with a customer base of 10 000 subscriptions or more to register their business information with the CA. As of September 2020, 20 CLOTS licensees had been registered.

In support of the Government's policy initiative to promote the extension of fibre-based networks to remote villages, OFCA has implemented a subsidy scheme with a funding of HK\$770 million to provide financial incentives for telecommunications operators to extend their fibre-based networks to villages in remote areas. During the year, OFCA completed the tender exercises and awarded all six projects to the selected fixed network operators. OFCA will closely monitor the implementation progress of these projects. The new fibre-based networks are expected to be extended to the villages concerned in phases from 2021 onwards.

In order to reinforce Hong Kong's role as a regional telecommunications hub, the Chief Executive proposed in the 2019 Policy Address Supplement to provide suitable land lots in the Chung Hom Kok Teleport for the establishment of additional external telecommunications infrastructures. OFCA is working closely with the relevant bureaux and departments to make the relevant land lots available in the coming few years.

為支持政府擴展光纖網絡至偏遠鄉村的政策措施，通訊辦推出一項涉及港幣7.7億元撥款的資助計劃，向電訊營辦商提供經濟誘因，促使他們把光纖網絡擴展至位於偏遠地區的鄉村。年內，通訊辦完成招標工作，並向獲選的固網營辦商批出全數六個項目。通訊辦會密切監察這些項目的實施進度。新建的光纖網絡預期由2021年起分階段擴展至有關鄉村。

為加強香港作為區域電訊樞紐的角色，行政長官在《2019年施政報告》附篇內建議在春坎角電訊港提供合適土地，以增建對外電訊基建設施。通訊辦正與相關政策局及部門緊密合作，以期在未來數年內提供相關土地。

通訊辦的工作不止是促進建立有利營商的環境和保障消費者權益，消費者教育也是我們工作的重要一環。為加深消費者對各類電訊服務的認識和協助他們作出明智的選擇，我們在過去一年繼續推行公眾教育節目，包括製作一輯電視宣傳短片及電台宣傳聲帶、舉辦巡迴展覽、公眾講座及專為學校而設的消費者教育節目。

廣播服務

通訊辦協助通訊局因應廣播業日益嚴峻的營商環境，實施放寬措施，以減輕業界為合乎規管要求而承受的負擔。經考慮一家持牌機構的要求及相關政策局的政策意見後，通訊局決定免除免費電視持牌機構須播放香港電台（港台）節目及教育電視節目的要求，有關決定分別於2020年3月4日及2020年6月6日起生效。



香港在2020年11月30日（23時59分）按計劃終止模擬電視服務（終止模擬廣播）後，將由2020年12月1日起進入全面數碼地面電視廣播的年代。終止模擬廣播後，在614 — 806兆赫頻帶內將有合共140兆赫頻譜可用作提供流動電訊服務。我們正與廣播機構和持份者緊密合作，以協調終止模擬廣播和騰出有關頻譜的實施安排。

未來的主要挑戰

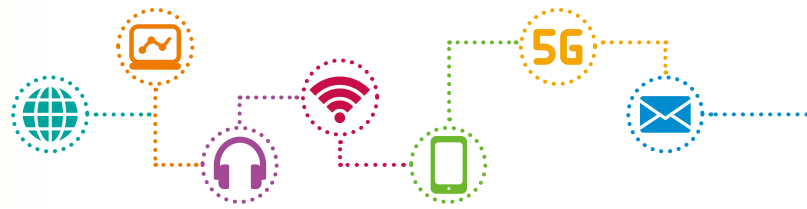
商用5G服務已於2020年4月1日推出，標誌着我們邁進了令人雀躍的5G時代，而這必然會促進通訊業加快發展和推動創新。來年，通訊辦會繼續支援香港推展5G服務，以及協助通訊局在不同頻帶內提供更多頻譜，包括600兆赫及700兆赫頻帶內的新頻譜和在4.9吉赫頻帶內額外供應的頻譜，用作提供5G或其他創新流動服務。

由於850兆赫頻帶及2.5／2.6吉赫頻帶內頻譜的現有指配期分別將於2023年11月及2024年3月屆滿，通訊辦將協助通訊局進行公眾諮詢，以推展重新指配該兩條頻帶內有關頻譜的工作。

通訊辦亦將繼續與相關政府部門合作，便利在香港有效地鋪設5G網絡和推出有關服務，包括開放合適的政府場所、有蓋巴士站和公眾收費電話亭讓營辦商安裝無線電基站，以擴展5G網絡覆蓋。

至於廣播方面，通訊辦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）及奇妙電視有限公司（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，並透過諮詢程序，收集公眾對服務需要和規管要求的意見，以及把檢討結果，包括持牌機構在餘下牌照期如何改善服務的建議，提交行政長官會同行政會議審議。

儘管未來充滿挑戰，但我深信，通訊辦憑藉勤奮盡責的專業團隊，加上通訊局主席和各成員的指導，定能繼續推動廣播和電訊市場未來的興旺發展。



The work of OFCA goes beyond promoting a conducive business environment and protecting consumers' interests. Consumer education is also an important part of our work. In order to increase consumers' awareness and help them to make informed choices on different types of telecommunications services, we continued our public education programmes during the past year, including a series of TV and radio announcements in the public interest, roving exhibitions, public seminars and consumer education programmes tailor-made for schools.

Broadcasting Services

OFCA assisted the CA in implementing relaxation measures in response to the increasingly challenging business environment for the broadcasting industry so as to ease their regulatory burdens. In consideration of a request from a licensee and the policy views of relevant government bureaux, the CA decided to lift the requirements for free TV licensees to broadcast programmes of Radio Television Hong Kong (RTHK) and Educational Television (ETV) programmes for schools with effect from 4 March 2020 and 6 June 2020 respectively.

With the switching off of analogue television services (ASO) planned to proceed on 30 November 2020 (23:59 hours), Hong Kong will enter an era of full digital terrestrial television (DTT) broadcasting from 1 December 2020 onwards. A total of 140 MHz of spectrum in the 614 - 806 MHz band will be made available for the provision of mobile telecommunications services subsequent to the ASO. We are working closely with the broadcasters and stakeholders to coordinate the implementation arrangements for ASO and the vacation of the relevant spectrum.

Major Challenges Ahead

Since the commercial launch of 5G services on 1 April 2020, we have entered the exciting 5G era, which will undoubtedly accelerate growth and drive innovation in the communications industry. In the year ahead, OFCA will continue to support the development of 5G services

in Hong Kong and assist the CA to make available more spectrum in different frequency bands, including new spectrum in the 600 MHz and 700 MHz bands and additional spectrum in the 4.9 GHz band, for the provision of 5G or other innovative mobile services.

In light of the expiry of the existing assignments of spectrum in the 850 MHz band and 2.5/2.6 GHz band in November 2023 and March 2024 respectively, OFCA will assist the CA to conduct the re-assignment exercise for spectrum in these two bands with the launch of public consultations.

OFCA will also continue to work with relevant government departments to facilitate the effective rollout of 5G networks and services across Hong Kong, including opening up suitable government premises, sheltered bus stops and public payphone kiosks for installation of radio base stations to extend 5G network coverage.

On the broadcasting front, OFCA will assist the CA in conducting a mid-term review of the free TV licences of HK Television Entertainment Company Limited (HKTVE), Television Broadcasts Limited (TVB) and Fantastic Television Limited (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, and collect views of the general public on service needs and regulatory requirements through a consultation process. The outcome of the review, including the recommendations to improve the services provided by the licensees in the remaining years of their licences, will be submitted for consideration by the Chief Executive in Council.

Despite all the challenges ahead, I am confident that with the dedication and hard work of the professional team of colleagues in OFCA, as well as the guidance from the Chairman and Members of the CA, we will continue to foster the development of the broadcasting and telecommunications market in the years to come.