








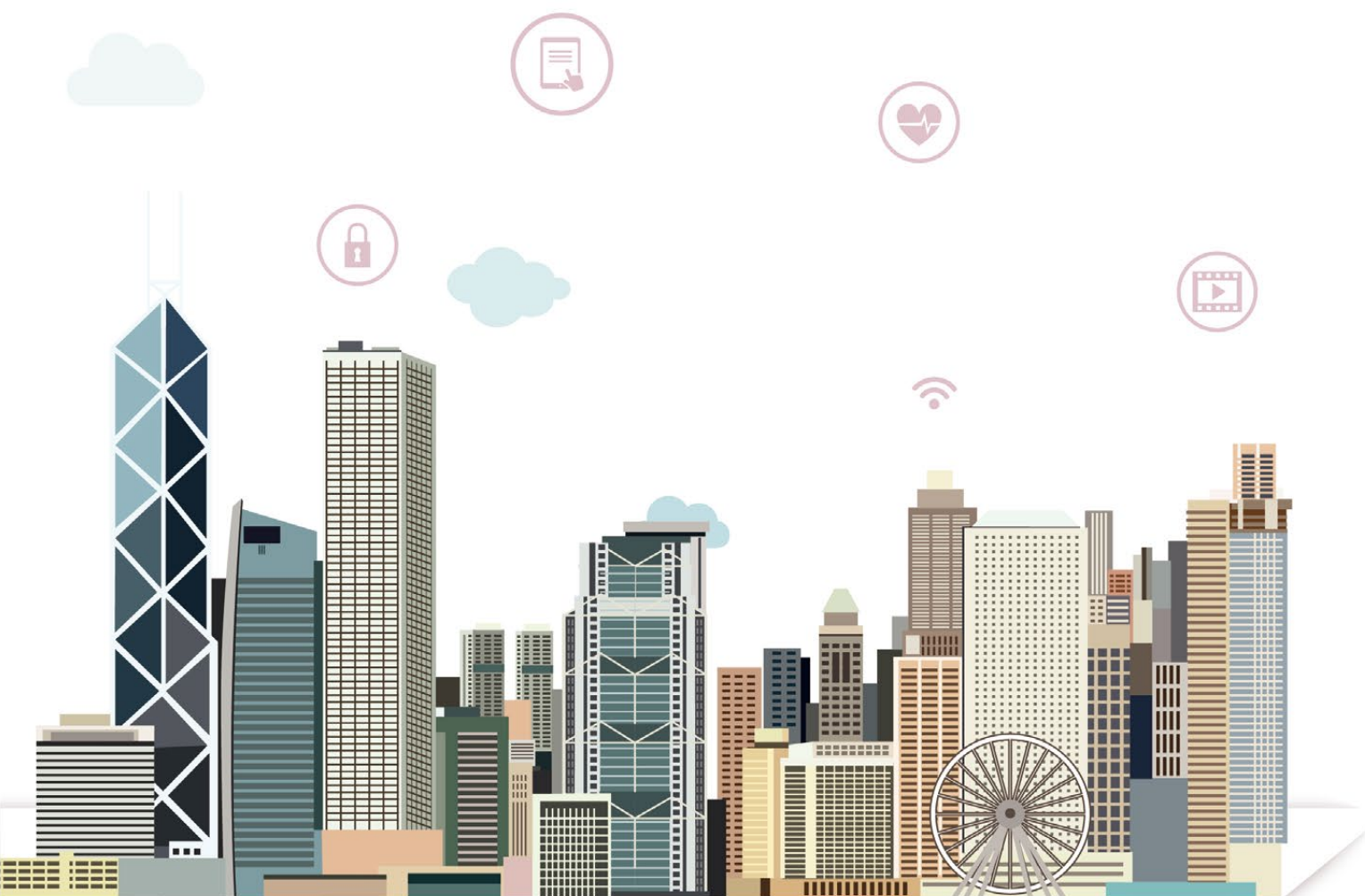
通訊事務管理局
COMMUNICATIONS
AUTHORITY




年 ANNUAL 2020/21
報 REPORT

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CHAPTER 1

Vision and Mission

Vision

Our vision is that Hong Kong has the world-class communications services to meet the challenges of the information age.



Mission

- fostering an environment that supports a vibrant communications sector to enhance Hong Kong's position as a communications hub in the region;
- encouraging innovation and investment in the communications market; and
- promoting competition and adoption of best practices in the communications market for the benefit of the industry and consumers.



CHAPTER 2

Chairman's Message



It is a great pleasure for me to present this report of the Communications Authority (the Authority), which provides a detailed account of the tasks undertaken by the Authority for the year ending 31 March 2021 and the challenges ahead.

A Vibrant Broadcasting Market

The broadcasting sector in Hong Kong continues to be vibrant and versatile, with 12 free-to-air digital television channels and 13 radio channels provided by various commercial broadcasters and the public service broadcaster, Radio Television Hong Kong (RTHK), as well as about 800 local and non-local television channels in various languages available through free-to-air terrestrial and satellite reception or pay television services. Hong Kong is also an ideal place for uplinking satellite television services to the Asia Pacific region, with 10 non-domestic television programme service (non-domestic TV) licensees providing over 210 satellite television channels for audience in the Asia Pacific region.¹

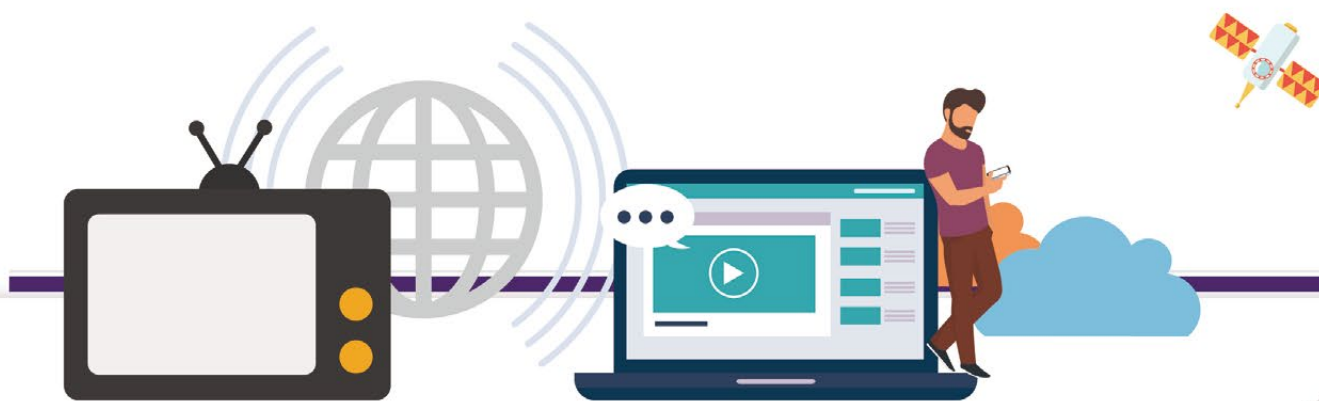
The Authority has commenced in 2021 a mid-term review exercise for the domestic free television programme service (free TV) licences of HK Television Entertainment Company Limited (HKTVE), Television Broadcasts Limited (TVB) and Fantastic Television Limited (Fantastic TV) and the sound broadcasting licences of Hong Kong Commercial Broadcasting Company Limited (CRHK) and Metro Broadcast Corporation Limited (Metro). The Authority is conducting assessments of the performance of the five licensees. A public consultation exercise was conducted in the third and fourth quarters of 2021 to collect public views. Having regard to the views received during the public consultation, the Authority will submit its recommendations to the Chief Executive in Council (CE in C) for consideration with a view to improving

the services provided by the licensees for the remaining period of the licences.

Rapid Growth of the Telecommunications Market

Amidst the COVID-19 pandemic during the year under review, Hong Kong's telecommunications market continued to flourish. The commercial fifth generation (5G) services were successfully launched from 1 April 2020 in Hong Kong. By March 2021, the number of mobile subscriptions reached 22.8 million and over 99% of them were subscriptions of the third generation (3G), fourth generation (4G) and 5G mobile services. Mobile network operators (MNOs) and mobile virtual network operators (MVNOs) were offering 4G and 5G services at affordable prices. Mobile data services were available at downlink speeds of up to 1.1 gigabit per second (Gbps). In March 2021, the monthly mobile data usage further surged to 93 937 Terabytes, representing 1.2 times and 1.7 times of the monthly usage over the same period in 2020 and 2019 respectively. The mobile data usage per capita rose to 12 548 Megabytes in March 2021, compared with 10 055 Megabytes in March 2020 and 7 326 Megabytes in March 2019. We expect that the 5G mobile services, launched in April 2020, will continue to boost mobile data usage with the new range of innovative services and applications empowered by 5G. The Authority will continue to introduce necessary measures to facilitate the robust development of the mobile services market. Where warranted, we will also proactively consider facilitating measures to the industry.

¹ The licence of a non-domestic TV licensee will be terminated with effect from 15 December 2021, with the number of non-domestic TV licensees reducing to nine and the number of satellite television channels reducing to about 190.



Major Tasks and Challenges in the Coming Year

The broadcasting industry faces significant challenges from competition brought about by Internet-based media services. We will continue to keep pace with the advancement of infotainment media and strike a right balance between providing a conducive business environment and protecting the interests of the audience. We will complete the mid-term review of the three free TV licences and the two sound broadcasting licences in accordance with established procedures, with a view to formulating recommendations to the CE in C with regard to licence conditions and service requirements for the remaining period of validity of the licences.

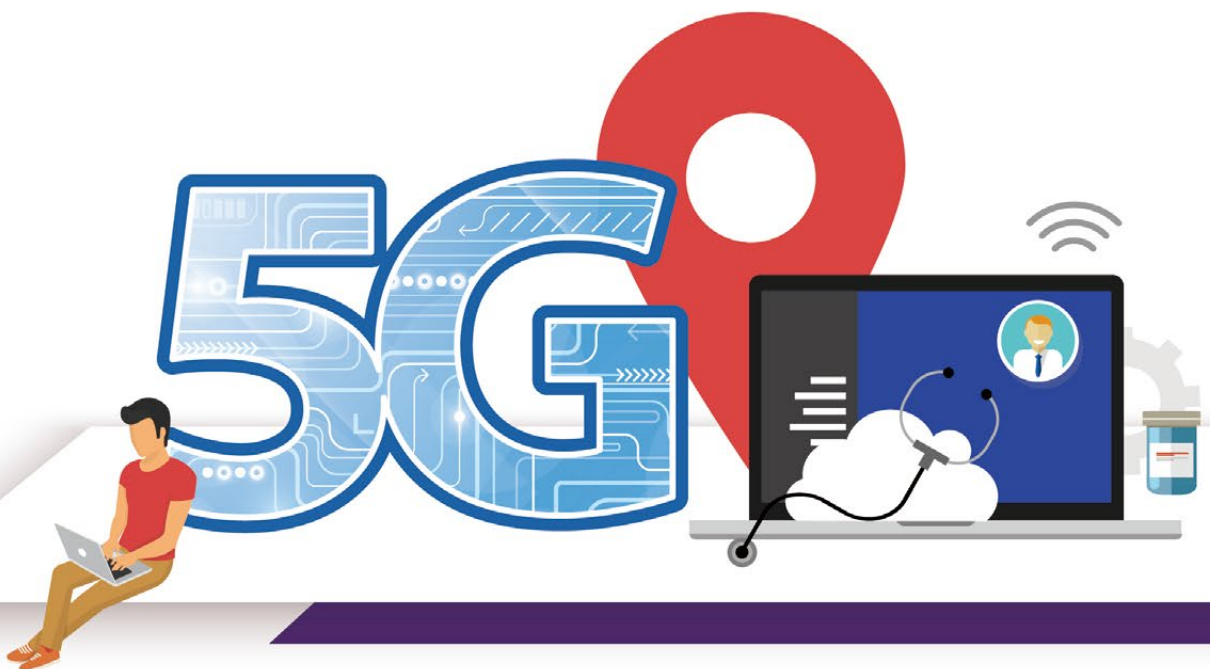
On the telecommunications front, the commercial launch of 5G services from 1 April 2020 has taken the Hong Kong telecommunications market into a new era, opening up tremendous new business opportunities to the industry and bringing to the general public new possibilities of innovative

telecommunications services and applications such as smart surveillance, time-critical remote operation, telemedicine, and intelligent transportation. The Authority is continuing its work to make available spectrum in different frequency bands to facilitate the continued development of 5G and other innovative services. Following the promulgation of the joint statements with the Secretary for Commerce and Economic Development (SCED) on 30 March 2021 on the arrangements for frequency allocation and assignment for a total of 220 MHz of new spectrum in the 600 MHz, 700 MHz and 4.9 GHz bands, the Authority will assign the above spectrum by way of auction in the fourth quarter of 2021. Furthermore, the Authority promulgated another two joint statements with SCED on 30 March 2021 on the arrangements for re-assignment of a total of 105 MHz of spectrum in the 850 MHz and 2.5/2.6 GHz bands upon expiry, and will make available these spectrum in the same auction. Looking ahead, we will continue to identify and supply additional spectrum for supporting new radiocommunications services and applications and review our telecommunications

regulatory framework from time to time to ensure that it dovetails with the advancement of telecommunications technologies and market development.

The work that lies ahead will be as diverse and challenging as that in 2020/21, especially in the continuous facilitation of 5G development in Hong Kong. The Authority will do its utmost to foster an appropriate environment to support

the communications sector. I would like to take this opportunity to extend my gratitude to members of the Authority for their commitment and insightful contribution throughout the year. I would also like to thank colleagues of the Office of the Communications Authority (OFCA) for their dedication and professionalism in supporting the work of the Authority.



CHAPTER 3

Members of the Communications Authority

(April 2020 – March 2021)



Chairman
Ms Winnie TAM Wan-chi, SBS, SC, JP
Communications Authority



Vice-Chairman
Mr Clement LEUNG Cheuk-man, JP
Permanent Secretary for Commerce and Economic Development
(Communications and Creative Industries)

Members



Mr Stephen HUNG Wan-shun



**Mrs Yvonne LAW SHING Mo-han,
BBS, JP**



**Mr Benjamin TANG Kwok-bun,
GBS**



Prof Karen CHAN Ka-yin, JP



Prof Ray YEP Kin-man
(until 19 July 2020)



Prof Vincent LAU Kin-nang



**Mr Simon WONG Kwong-yeung,
MH**



Dr Hubert CHAN Chung-yee, JP



Ms Amy FUNG Dun-mi, MH, JP



**Mr Chaucer LEUNG Chung-yin,
JP**
Director-General of Communications

CHAPTER 4

Role and Functions of the Communications Authority



The Communications Authority

To meet the regulatory challenges brought about by rapid technological advancements and media convergence, the Authority was established on 1 April 2012 under the Communications Authority Ordinance (Cap. 616) (CAO) as an independent statutory body and took over fully the functions and powers of the former Telecommunications Authority and Broadcasting Authority. Its role is to regulate the broadcasting and telecommunications industries in Hong Kong in accordance with the CAO, the Broadcasting Ordinance (Cap. 562) (BO), the Telecommunications Ordinance (Cap. 106) (TO), and the Broadcasting (Miscellaneous Provisions) Ordinance (Cap. 391) (B(MP)O). It shares concurrent jurisdiction respectively with the Customs and Excise Department (C&ED) in enforcing the fair trading sections of the Trade Descriptions Ordinance (Cap. 362) (TDO), and with the Competition Commission (Commission) in enforcing the Competition Ordinance (Cap. 619) (CO) in the telecommunications and broadcasting sectors. It also has a role to regulate the sending of commercial electronic messages (CEMs) in accordance with the Unsolicited Electronic Messages Ordinance (Cap. 593) (UEMO).

The Authority performs the following functions:

(a) Advisory function to SCED and the CE in C

- tendering advice to SCED on any legislation, legislative proposals and regulatory policies relating to telecommunications, broadcasting, anti-spamming or activities

connected with the telecommunications or broadcasting sectors;

- making recommendations to the CE in C on applications for and renewal of free TV licences, domestic pay television programme service (pay TV) licences and sound broadcasting licences;

(b) Unified Regulator of the Communications Sector

- granting and renewing non-domestic TV licences and other licensable television programme service (other licensable TV) licences;
- preparing and revising codes of practice setting programme, advertising and technical standards for television and radio;
- dealing with complaints about broadcasting issues and imposing sanctions on the broadcasting operators for contravening the various provisions and requirements;
- handling the licensing, financial monitoring and regulation of broadcasting licensees in Hong Kong;
- granting and renewing telecommunications licences;
- managing and administering the radio frequency spectrum and the telecommunications numbers;

- developing technical standards and conducting equipment testing in line with international best practices, and ensuring satisfactory performance of the certification bodies in carrying out certification and testing against the prescribed technical standards;
- facilitating fixed network operators to access buildings to install in-building telecommunications facilities for the conveyance of telecommunications and broadcasting services;
- dealing with complaints about telecommunications services and imposing sanctions on telecommunications operators for contravening the various provisions and requirements;
- handling the licensing, financial monitoring and regulation of telecommunications licensees in Hong Kong;

(c) Competition Authority of the Communications Sector

- enforcing the CO in respect of the conduct of undertakings operating in the telecommunications and broadcasting sectors;

(d) Unfair Trade Practices in the Communications Sector

- enforcing the fair trading sections of the TDO in relation to the commercial

practices of licensees for the provision of telecommunications or broadcasting services under the TO or BO; and

(e) UEMO

- enforcing the UEMO on the sending of CEMs.

Organisation

Members of the Authority (except the Director-General of Communications (DG Com) who is an ex-officio member) are appointed by the Chief Executive of the Hong Kong Special Administrative Region. During the period from April 2020 to March 2021, there were a total of 12 members (comprising 10 non-official members, including the Chairman, and two public officers, viz. the Permanent Secretary for Commerce and Economic Development (Communications and Creative Industries) and DG Com).

The Authority has appointed three committees to assist it in discharging part of its major duties:

- the **Broadcast Complaints Committee**;
- the **Broadcast Codes of Practice Committee**; and
- the **Telecommunications Affairs Committee**.

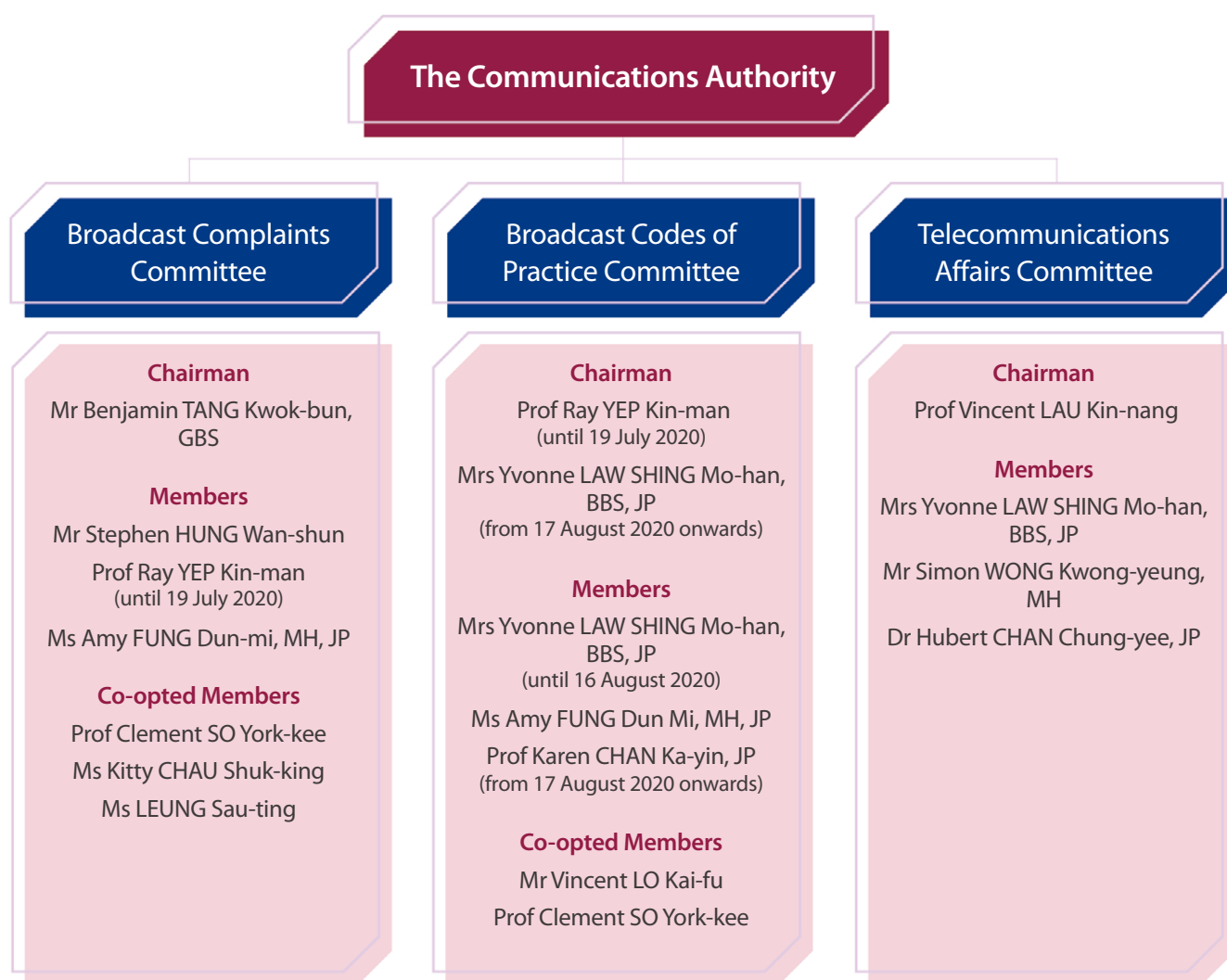
The **Broadcast Complaints Committee** is responsible for considering complaints about broadcasting issues and making recommendations to the Authority regarding such complaints. For the year ending 31 March 2021, it comprised three Authority members and three co-opted non-official members.

The **Broadcast Codes of Practice Committee** is responsible for keeping the television and radio broadcasting standards under regular review and amending the codes of practice when necessary. During the period from April 2020 to March 2021, it comprised three Authority members and two co-opted members.

The **Telecommunications Affairs Committee** is responsible for offering advice and reporting to the Authority on telecommunications matters. During the period from April 2020 to March 2021, it comprised four Authority members.

The **Office of the Communications Authority** serves as the executive arm and secretariat of the Authority.

Organisation Chart



CHAPTER 5

Overview of Major Developments in the Communications Market





Broadcasting

5.1 An Overview of the Developments in the Broadcasting Market

5.1.1 Number of Licensees and Channels

Television Programme Services

As at March 2021, the total number of free TV, pay TV and non-domestic TV licensees was 15. They provided 591 television channels², of which about 80 non-domestic TV channels were receivable in Hong Kong. An overview of the channels provided by the commercial licensees and RTHK, the public service broadcaster, is shown in **Figure 1**.

Hong Kong implemented full digital TV broadcast on 1 December 2020. As at March 2021, there were three **free TV licensees**, viz. Fantastic TV, HKTVE and TVB. They provided a total of nine digital channels in high definition television (HDTV) format, viz. "Hong Kong Open TV" and "Hong Kong International

Business Channel" (by Fantastic TV), "ViuTV" and "ViuTVsix" (by HKTVE), "Jade", "Pearl", "J2", "TVB News Channel" and "TVB Finance & Information Channel" (by TVB). RTHK, as the public service broadcaster in Hong Kong, provided three digital channels.

As at March 2021, there were two **pay TV licensees**, viz. Hong Kong Cable Television Limited (HKCTV) and PCCW Media Limited (PCCW Media), providing a total of 362 pay television channels and offering a diverse range of local and non-local productions. Among those channels, over 120 were HDTV channels.

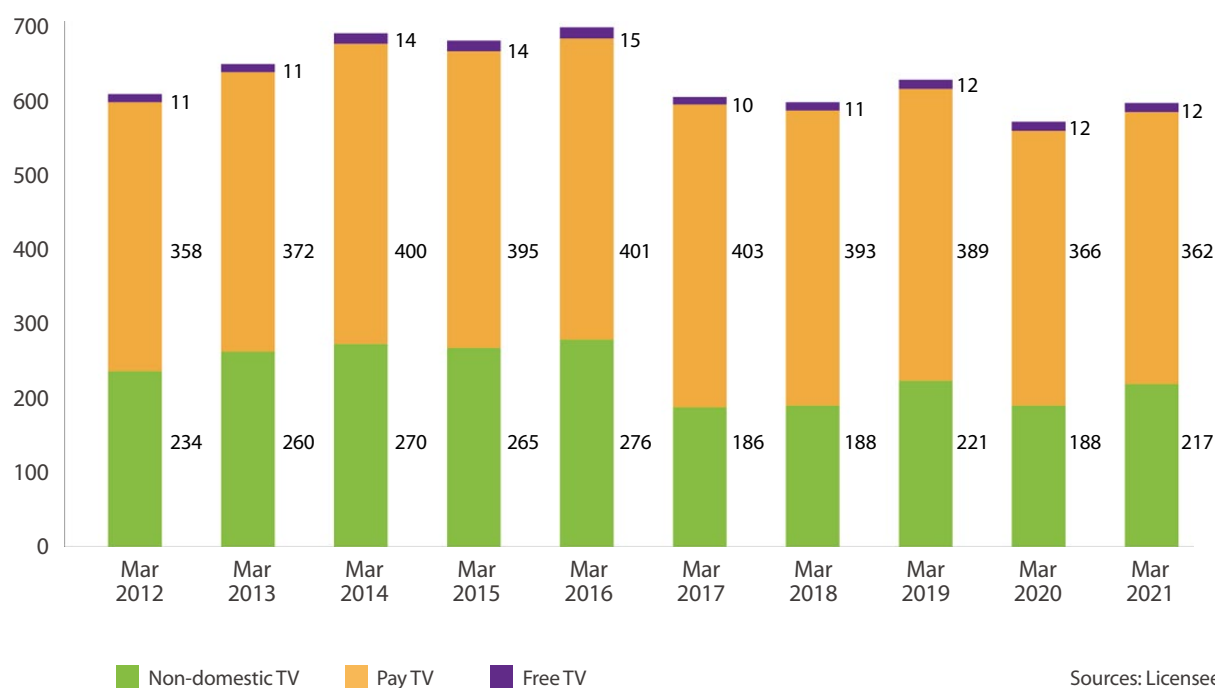
As at March 2021, there were 10 **non-domestic TV licensees** providing over 200 television channels. Hong Kong viewers could receive about 80 of those channels.

During the period under review, there were 20 **other licensable TV licensees** providing television programme services in about 60 hotels in Hong Kong.

² Some channels were provided by more than one licensee at the same time.

Figure 1: Television Channels Provided by Commercial Licensees and RTHK in Hong Kong (as at 31 March 2021)

Number of Channels



* While some free TV channels were simulcast in both analogue and digital formats during the period of 2012 to 2020, the total number of free TV channels is calculated by reference to the channels broadcast in digital format only.





In addition to satellite television channels provided by non-domestic TV licensees, Hong Kong viewers can also receive free unencrypted satellite television programme channels uplinked from outside Hong Kong. As at March 2021, there were around 400 free-to-air satellite television channels available for reception via the Satellite Master Antenna Television Systems (SMATV systems) in Hong Kong. The list of channels currently available can be downloaded at http://www.ofca.gov.hk/filemanager/ofca/en/content_295/st_smatv.pdf.

Sound Broadcasting Services

During the period under review, there were two **sound broadcasting licensees**, namely, CRHK and Metro. RTHK, as the public service broadcaster, also provided sound broadcasting service.

As at March 2021, there were 13 radio channels (three by CRHK, three by Metro and seven by RTHK). All channels provided by the commercial licensees and RTHK were broadcast round-the-clock.

5.1.2 Transmission Modes

Television

The regulatory framework for television programme services in Hong Kong as enshrined in the BO is technology-neutral³. Licensees are free to choose their transmission arrangements for delivery of television services. Broadcasters may build their own transmission networks to deliver their services and apply for a carrier licence from the Authority to cover the transmission network. Alternatively, they may engage any of the existing carrier licensees to provide the transmission service. Licensees may also provide their television programme services via multiple transmission platforms so as to extend their coverage.

The transmission modes employed by television programme service licensees are set out in **Figure 2**.

³ An exception is that a service provided on the Internet is exempted from the regulatory framework under the BO.

Figure 2: Transmission Modes Employed by Television Programme Service Licensees

Licensee	Transmission Mode	Network Coverage (as at March 2021)
Free TV		
TVB	Terrestrial UHF ⁴	99% of population
HKTVE	Terrestrial UHF and Fixed broadband network	99% of population
Fantastic TV	HFC ⁵ and MMDS ⁶	Around 93% of total households
Pay TV		
HKCTV	HFC, MMDS and satellite (Digital)	Around 94% of total households
PCCW Media	PON and DSL ⁷ Broadband network (Digital)	Around 96% of total households
Non-domestic TV		
9 licensees ⁸	Satellite (Digital)	Around 30% of total households ¹¹
1 licensee ⁹	IPLC ¹⁰ and Satellite (Digital)	

Penetration of Different Broadcasting Services

The penetration rate of free TV services stood at about 96% of the total households as at end of March 2021¹².

The penetration of licensed pay TV services was about 78%¹³ of the total households as at end of March 2021. The total number of subscribers to licensed pay TV services stood at about 2.1 million in March 2021¹⁴. The changes in total number of subscribers from 2012 to 2021 are set out in **Figure 3**.

4 Terrestrial Ultra High Frequency

5 Hybrid Fibre Coaxial Cable

6 Microwave Multipoint Distribution System

7 Passive Optical Network and Digital Subscriber Line

8 The licensees concerned are APT Satellite TV Development Limited, Auspicious Colour Limited, Disney Networks Group Asia Pacific Limited (until 14 December 2021), Hong Kong TV International Media Group Limited, One TV Media Global Limited, Phoenix Satellite Television Company Limited, Star China Media Limited, Sun Television Cybernetworks Enterprise Limited and WarnerMedia Asia Pacific (HK) Limited.

9 The licensee concerned is Starbucks (HK) Limited.

10 International Private Lease Circuit

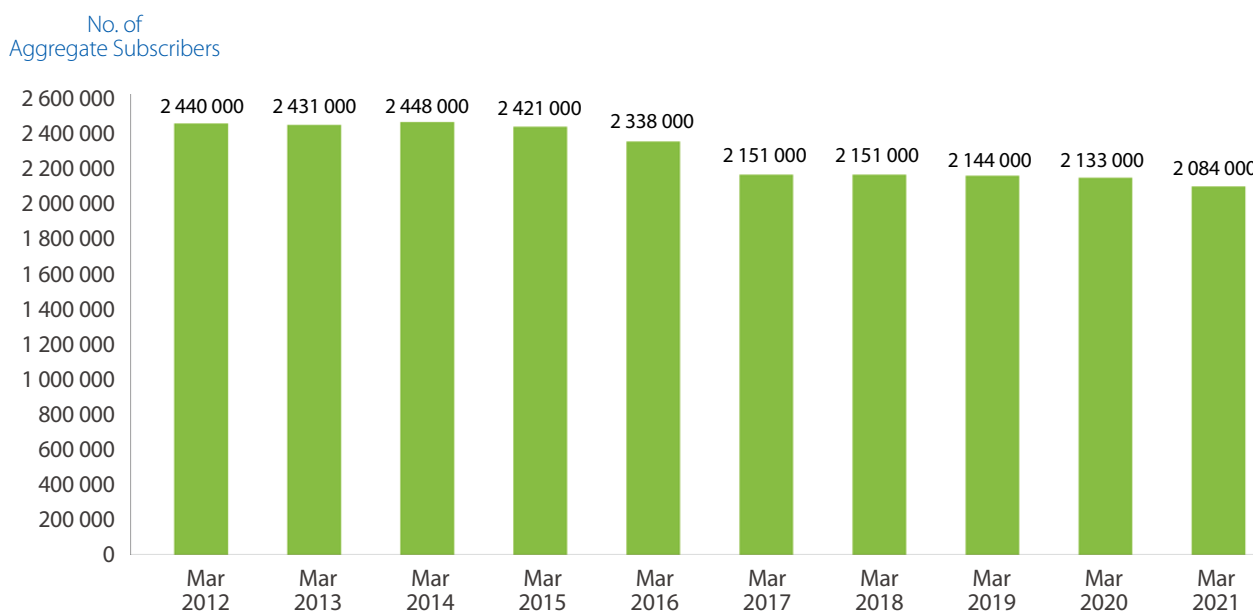
11 The non-domestic TV services mainly serve viewers in the Asia-Pacific region, Europe and Africa and do not target Hong Kong, but some Hong Kong households (around 820,000) can receive the unencrypted channels.

12 Source: HKTAM Establishment Survey, CSM Media Research

13 Penetration of licensed pay TV services is calculated by dividing the total number of subscribers to licensed pay TV services by the total number of households. Some subscribers were counted more than once if they subscribed to more than one pay TV service.

14 Some subscribers were counted more than once if they subscribed to more than one service.

Figure 3: Subscribers to Licensed Pay TV Services in Hong Kong



Sources: Licensees

Sound Broadcasting

During the period under review, the radio broadcasters provided their services in FM and AM modes. Seven FM programme channels were provided through seven principal transmitting stations, supplemented by two low-power FM fill-in stations. In addition, six AM programme channels were broadcast from two principal transmitting stations, supplemented by five low-power AM/FM fill-in stations. The services practically covered the whole area of Hong Kong.

5.1.3 Broadcasting Revenues and Investment

Licensed broadcasting services contributed an estimated \$6.21 billion¹⁵ to the Hong Kong economy, which represented about 0.2% of the gross domestic product in 2020. There are two main sources of revenues for the provision of broadcasting services, viz. advertising and subscription. The incomes of free TV licensees and sound broadcasting licensees mainly come from advertising sales¹⁶. Pay TV licensees, on the other hand, derive their incomes mainly from subscription fees with advertising sales a secondary income source.

¹⁵ Source: Company reports of major broadcasting licensees providing television programme services in Hong Kong

¹⁶ These include sales of advertising spots within programme breaks, programme/event sponsorship, product placement as well as related production fees of advertisements and tailor-made content.

Advertising Revenue

According to the report of admanGo¹⁷, the advertising expenditures on television and radio accounted for 27% (about \$6 billion) and 4% (about \$0.9 billion) respectively of the accumulated \$22.1 billion advertising expenditures in the media in 2020¹⁸.

In 2020, the actual advertising revenues of HKTVE and TVB were around \$271 million and \$881 million respectively. The actual advertising revenues of other licensees were not publicly available.

Subscription Revenue

According to the annual report of PCCW Limited (PCCW), the holding company of PCCW Media, the turnover of its pay TV service and related services provided in Hong Kong under the “Now TV” brand was \$2.51 billion in 2020.

The subscription revenue of HKCTV was not publicly available.



Investment in Broadcasting Industry

Key investment projects in the television industry in recent years include the digital terrestrial broadcasting network, HDTV content and production technology, interactive television services, and regular network maintenance and upgrades that are required to maintain or expand the ever-advancing scope of services.

Fantastic TV, HKTVE and TVB have respectively committed to investing a total of \$1.2 billion for the six-year period from 2016 to 2022, \$1.5 billion for the six-year period from 2015 to 2021 and \$6.3 billion for the six-year period from 2016 to 2021 for the provision of free TV services. Investment commitments of Fantastic TV, HKTVE and TVB comprise capital expenditures and programming expenditures. As at March 2021, Fantastic TV, HKTVE and TVB provided 336, 281 and 813 hours of HDTV programmes per week respectively. Fantastic TV and TVB also provided 64 and 995 hours of independent local productions in their programming respectively in 2020 according to their commitments.

As regards the pay TV market, i-CABLE Communications Limited, the parent company of HKCTV, reported in its 2020 Annual Report that the capital expenditure of the group decreased from \$133 million in 2019 to \$100 million in 2020. Its major items of investment included property, plant and equipment. According to the 2020 Annual Report of PCCW, the parent company of PCCW

17 “admanGo” is an advertising monitoring company that provides media monitoring and advertising tracking services across different platforms, including television, radio, print, digital, mobile and social media.

18 Source: Adspend Report for 2020 of admanGo. All the advertising expenditures presented in the report have taken into consideration the discount factor based on an assumption of 75% off rate card rate.



Media, the capital expenditure on its media business decreased from \$213 million in 2019 to \$103 million in 2020. The decrease in capital expenditure for PCCW Media was mainly due to completion of the upgrade of production studio facilities.

On the sound broadcasting side, CRHK and Metro have committed in accordance with CA's approval made in October 2020 and April 2021 to investing a total of \$703 million and \$617 million¹⁹ respectively for the six-year period from 2016 to 2022 covering programming improvement and upgrading of infrastructure and facilities and other developments brought by technological advancement to further enhance their service quality.

5.1.4 Programme Variety and Positive Programme Requirements

(a) Programme Variety and Diversity

Number of Broadcast Hours and Hours of Station Productions

As at March 2021, the licensees broadcast about 67 565 hours of television programmes a week. The nine digital channels of Fantastic TV, HKTVE and TVB provided a total of 1 462 broadcast hours per week, while the 362 channels of the two pay TV licensees provided a total of 52 495 broadcast hours per week. As a public service broadcaster, RTHK provided 504 hours on its three digital channels

¹⁹ The Authority approved in October 2020 and April 2021 respectively that the investment commitment of CRHK be adjusted from \$909 million to \$703 million and the investment commitment of Metro be adjusted from \$685 million to \$617 million.



per week. About 80 channels of non-domestic TV licensees receivable in Hong Kong provided about 13 600 broadcast hours per week.

The total broadcast hours per week provided by CRHK, Metro and RTHK as at March 2021 were 2 184.

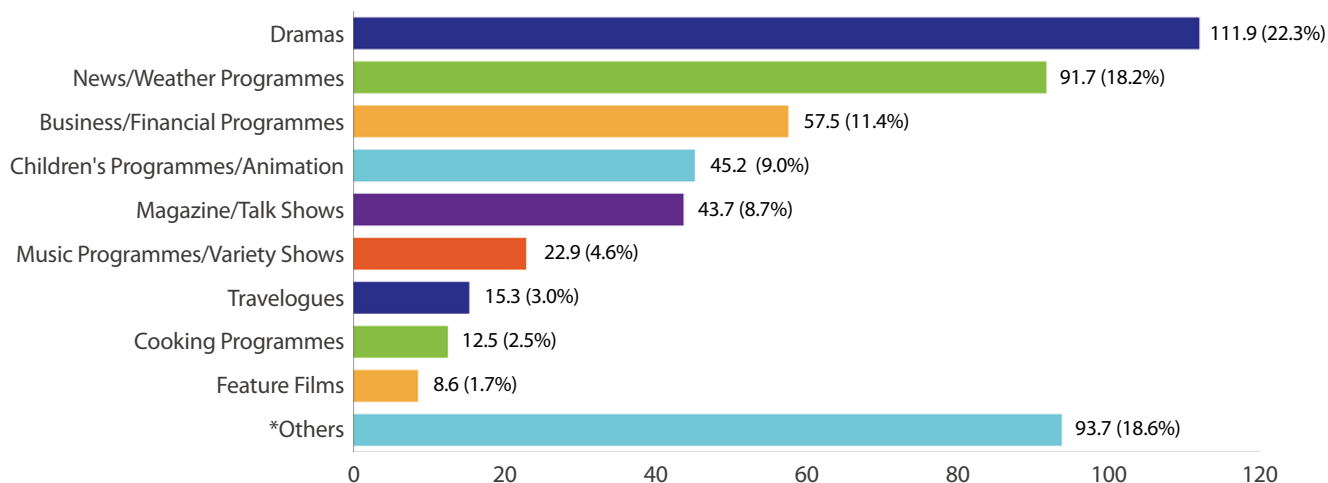
For the period under review, there were a total of 33 341 hours of station productions broadcast on Fantastic TV, HKTVE and TVB. Of the 362 channels provided by pay TV licensees, 78 channels (21.5%) were produced by the licensees themselves.

Free TV Services

Chinese and English Channels

During the period under review, drama series, news/weather programmes and business/financial programmes continue to be the dominating programme genres during prime time on the Chinese channels (viz. "Hong Kong Open TV", "Jade" and "ViuTV"). Drama series on "Jade" were mostly in-house productions; while "Hong Kong Open TV", "Jade" and "ViuTV" broadcast Mainland, Korean and Japanese drama series. In addition, magazine/talk shows, music programmes/variety shows, travelogues and feature films, etc. were

Figure 4: Weekly Hours of Different Types of Programmes Broadcast on Hong Kong Open TV, Jade and ViuTV (as at March 2021)



* Other programmes include current affairs programmes, sports programmes and health/medical programmes etc.

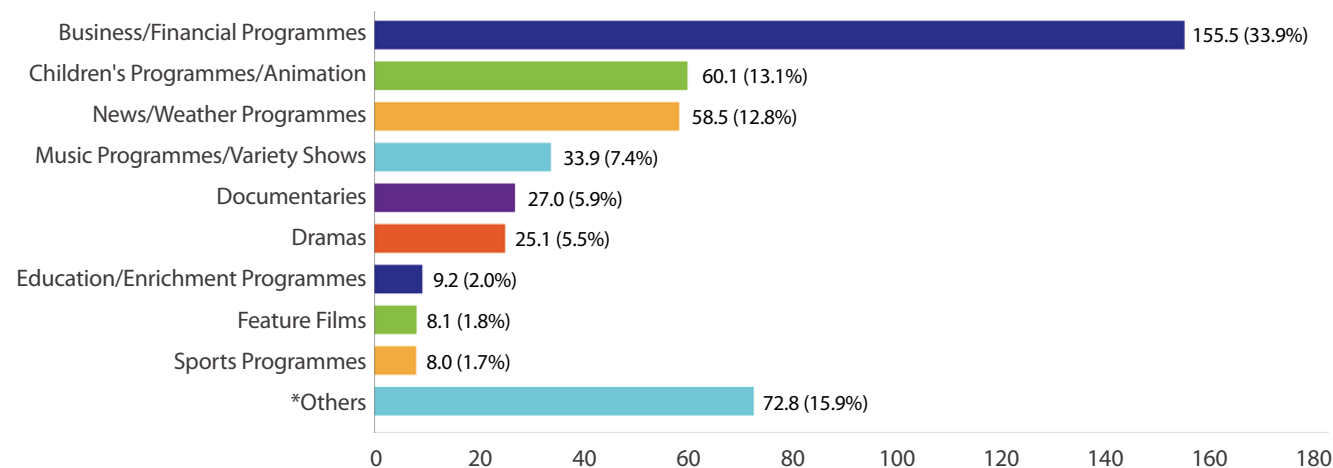
Weekly Total: 503 Hours
Sources: Licensees

also broadcast during prime time on the Chinese channels. The three channels provided by RTHK presented a variety of programmes to serve a broad spectrum of audiences and cater to the needs of minority interest groups.

The English channels (viz. "Hong Kong International Business Channel", "Pearl" and "ViuTVsix") broadcast a wide range of programmes, including business/financial programmes, children's programmes/animation, news/weather programmes, music programmes/variety shows, documentaries, imported popular drama series, education/enrichment programmes, feature films and sports programmes.



Figure 5: Weekly Hours of Different Types of Programmes Broadcast on Hong Kong International Business Channel, Pearl and ViuTVsix (as at March 2021)



* Other programmes include current affairs programmes, cooking programmes and health/medical programmes etc.

Weekly Total: 458.1 Hours
Sources: Licensees



Thematic Channels

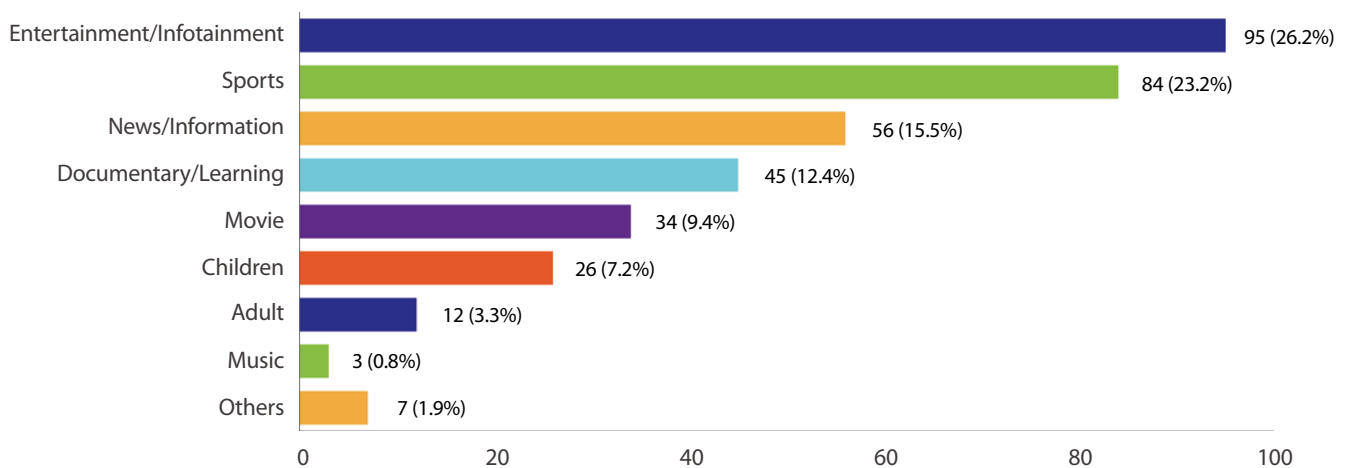
During the period under review, TVB provided acquired dramas, documentaries, variety shows, news, finance information programmes, etc. on "J2", "TVB News Channel" and "TVB Finance & Information Channel".

Pay TV Services

During the period under review, a wide variety of channels were offered on pay TV services, including entertainment/infotainment channels (26.2%), sports channels (23.2%), news/information channels (15.5%), documentary/learning channels (12.4%), and movie channels (9.4%).



Figure 6: Nature of Pay TV Channels (as at March 2021)



Total Number of Channels: 362
Sources: Licensees

As at March 2021, HKCTV offered 135 channels (including 46 HDTV channels). PCCW Media's "Now TV" service offered 162 channels (including 79 HDTV channels) and 65 video-on-demand services.

Sound Broadcasting

As at March 2021, CRHK operated two FM Cantonese channels, viz. "CR1" and "CR2", and one AM English channel, viz. "AM 864". "CR1" mainly provided news, current affairs, financial and personal view programmes. "CR2", targeting younger listeners, featured pop culture and music programmes. "AM864" was primarily a music channel.

Metro operated two FM Cantonese channels, viz. "Metro Finance" and "Metro Info", and one AM English channel, viz. "Metro Plus". "Metro Finance" provided real-time, market-moving news and information on financial markets around the world. "Metro Info" provided music and programmes on lifestyle, health, market news and other information of interest to the public. "Metro Plus" was primarily a music channel which also provided some programmes for ethnic groups including the Filipino, Indian and Thai communities in Hong Kong.

RTHK operated seven radio channels, providing Cantonese, English and Putonghua services. It offered a variety of thematic channels ranging from information to general entertainment and culture.

(b) Positive Programme Requirements

Free TV Services

During the period under review, free TV licensees (viz. Fantastic TV, HKTVE and TVB) were respectively required to broadcast at least 27.5, 41.5 and 45.5 hours of positive programmes²⁰ per week. They all met the requirements²¹.

The reports submitted by the licensees to the Authority on six types of positive programmes, viz. current affairs programmes, documentaries, children's programmes, programmes for young persons, programmes for senior citizens and arts and culture programmes, are available at https://www.coms-auth.hk/en/licensing/broadcasting/compliance_reports/index.html.

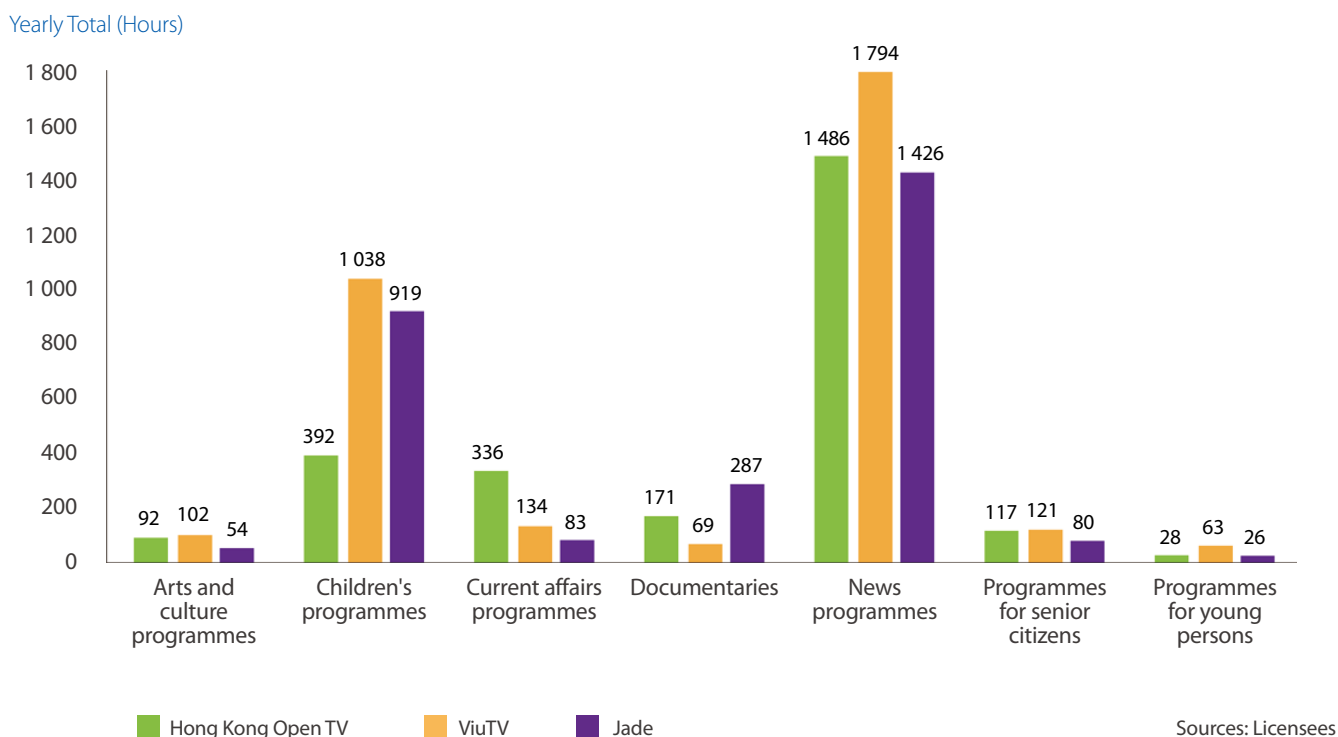


20 The positive programmes that Fantastic TV, HKTVE and TVB were required to broadcast comprised news, current affairs programmes, documentaries, arts and culture programmes, children's programmes and programmes for senior citizens and young persons.

21 TVB was required to broadcast at least 45.5 hours of positive programmes per week, including four hours of positive programmes per week on its thematic channels (viz. "J2", "TVB Finance & Information Channel" and "TVB News Channel"). HKTVE was required to broadcast at least 41.5 hours of positive programmes per week.

As Fantastic TV uses a fixed network as its transmission means to deliver free TV service, the programme requirements of Fantastic TV are less stringent than those applicable to other spectrum-based free TV licensees (viz. HKTVE and TVB). It was required to broadcast at least 27.5 hours of positive programmes per week.

Figure 7: Broadcast of Positive Programmes on the Chinese Channels of Fantastic TV, HKTVE and TVB (as at March 2021)



Free TV licensees were required to provide Chinese subtitles for all news, current affairs programmes, weather programmes and emergency announcements, as well as programmes broadcast during prime time (7:00 p.m. to 11:00 p.m.) on the Chinese channels²². They were also required to provide English subtitles for all news, current affairs programmes, weather programmes, emergency announcements and educational programmes for teenagers (two hours per week) on the English channels. HKTVE and TVB were required to provide

Chinese subtitling for all drama programmes on the Chinese channels and English subtitling for all programmes broadcast on the English channels between 8:00 p.m. and 11:30 p.m. On the whole, Fantastic TV, HKTVE and TVB complied with the requirements on provision of subtitles.

To meet public demand for easier access to information by persons with hearing impairment, the Authority issued a direction requiring TVB²³ to provide sign language interpretation, in addition

²² TVB was also required to provide, on its thematic channels, Chinese subtitles for all news, current affairs programmes, weather programmes and emergency announcements as well as programmes broadcast during prime time.

²³ In the context of the licence renewal exercise of TVB in 2015, the Authority took note of the increasing demand from persons with hearing impairment for sign language interpretation for news programmes and agreed to facilitate the provision of sign language interpretation for news programmes as a new initiative. The CE in C accepted the Authority's recommendation and included an enabling provision in TVB's renewed licence to require it to provide sign language for its free TV service as directed by the Authority.

to subtitles, for a Cantonese news programme broadcast on its “Pearl” channel each day with effect from July 2018. TVB met the requirement.

Pursuant to licence requirements, Fantastic TV, HKTVE and TVB were required to broadcast two minutes of Announcements in the Public Interest (APIs) in every two clock hours on each channel. Also, they were required to broadcast, on a weekly basis, not more than five minutes in aggregate

of publicity material for the Authority on each of the Chinese and English channels²⁴. During the period under review, Fantastic TV, HKTVE and TVB broadcast a total of 1 282 hours of the two types of materials²⁵.

Sound Broadcasting

CRHK and Metro were each required to broadcast at least 28.5 hours of positive programmes²⁶ per

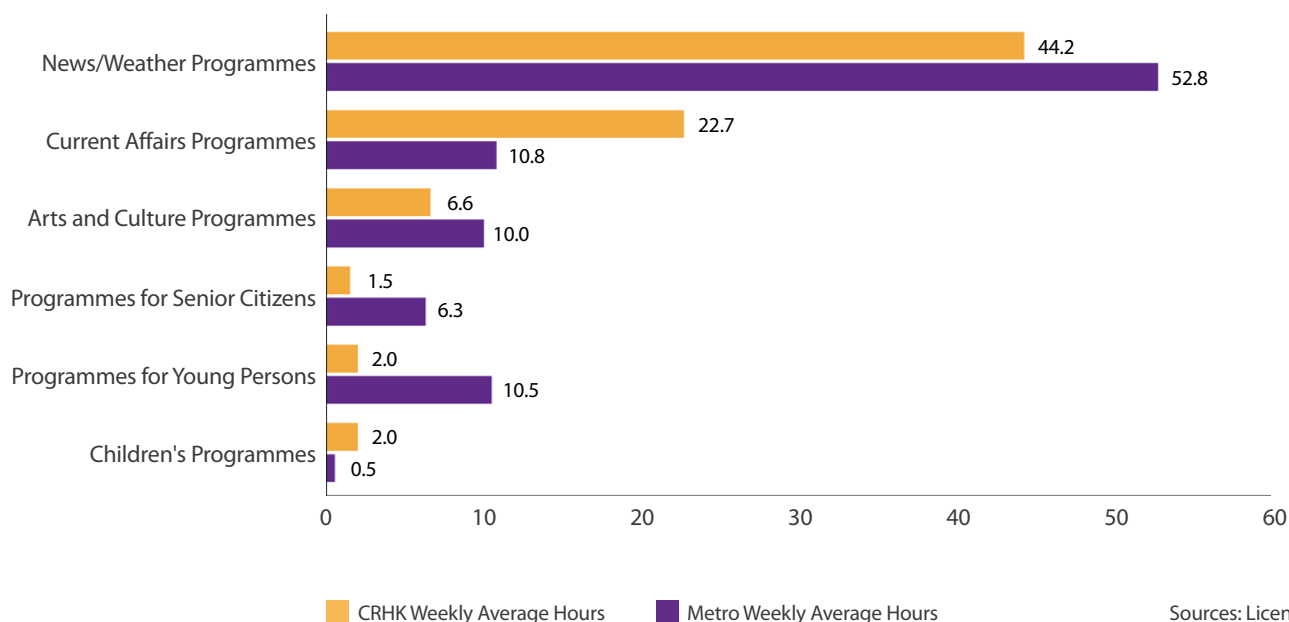


²⁴ TVB was required to broadcast two minutes of publicity material for the Authority per week on its thematic channels.

²⁵ If a free TV channel was simulcast in both analogue and digital formats, the total number of hours of APIs and publicity material for the Authority was calculated only by reference to the materials broadcast in digital format.

²⁶ CRHK and Metro were required to broadcast news and weather programmes, current affairs programmes, arts and culture programmes and advisory programmes, viz. programmes for young persons, senior citizens and children, in their respective sound broadcasting service.

Figure 8: Broadcast of Positive Programmes on Sound Broadcasting Services (as at March 2021)

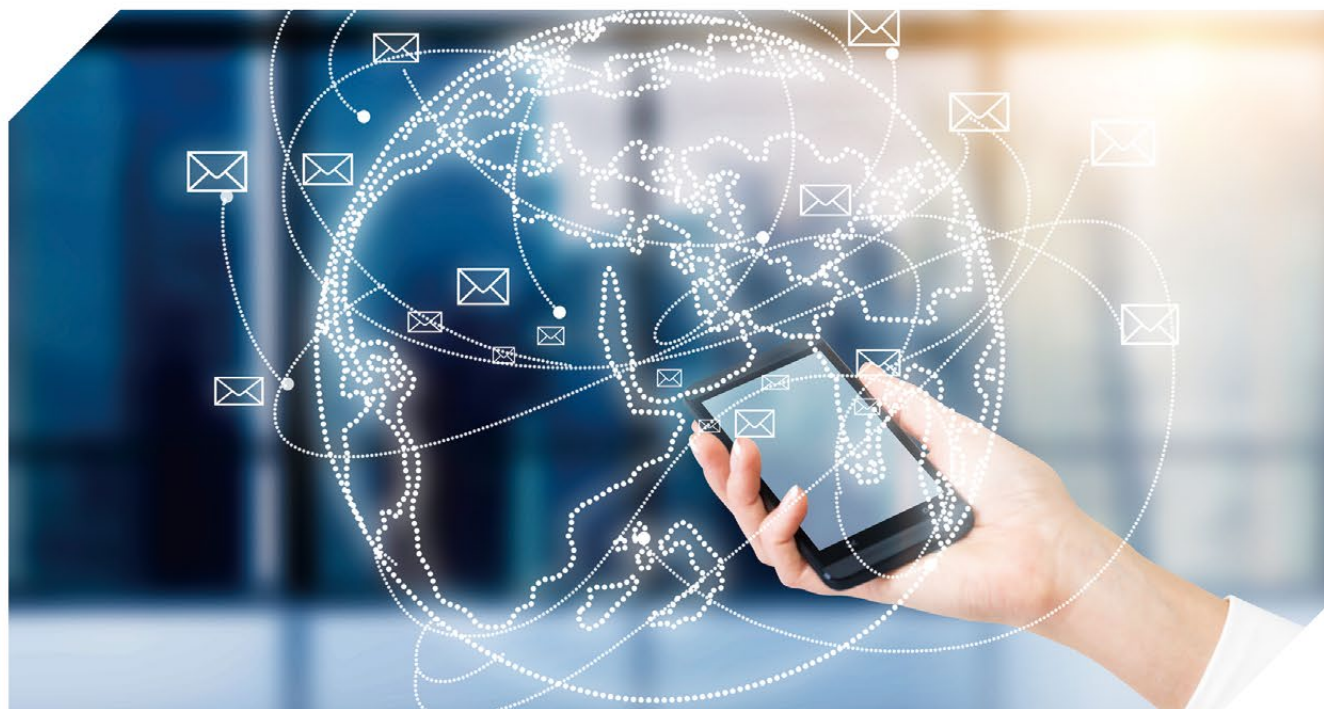


week under their respective licences. During the period under review, CRHK and Metro broadcast the required amount of positive programmes.

CR and Metro also fulfilled the requirements on the broadcast of one minute of APIs in each hour and not more than five minutes of publicity material for the Authority each week on each service channel. The reports submitted by the licensees to the Authority on positive programmes are available at https://www.coms-auth.hk/en/licensing/broadcasting/compliance_reports/index.html.

5.1.5 Hong Kong as a Regional Broadcasting Hub

Hong Kong is a broadcasting hub in the Asia-Pacific region. As at March 2021, there were 10 non-domestic TV licensees operating in and broadcasting from Hong Kong. Altogether, they offered around 200 satellite television channels serving viewers in the Asia-Pacific region, Europe and Africa, with about 80 channels receivable in Hong Kong. A summary of the non-domestic TV services as at March 2021 is at **Annex 1**.



Telecommunications

5.2 An Overview of the Telecommunications Market

Hong Kong has one of the most sophisticated and successful telecommunications markets in the world. This has been an important factor in Hong Kong's development as a leading business and financial centre. The telecommunications sector employed around 20 000 persons in 2020, whilst its gross output amounted to \$102 billion in 2019.

All sectors of Hong Kong's telecommunications market have been liberalised with no foreign ownership restrictions on telecommunications operators. The Authority's objectives are to maintain a level playing field in the open and competitive

telecommunications market and to ensure that consumers get the best services available in terms of efficiency, quality and price.

5.2.1 The Telecommunications Regulatory Framework

Carrier Licences

The Authority issues carrier licences to facility-based operators, authorising them to establish and maintain telecommunications networks and facilities which may cross unleased Government land and public streets, for the provision of public telecommunications services.

The unified carrier licensing framework has been implemented since 1 August 2008 as

the single licensing vehicle for the provision of facility-based fixed, mobile and/or converged telecommunications services in Hong Kong.

A Unified Carrier Licence (UCL) for the provision of local fixed service authorises the licensee to establish and maintain fixed network, wireline-based or wireless-based, or a combination of both where applicable, to provide local telecommunications services between fixed points within Hong Kong. A UCL for the provision of external fixed service authorises the licensee to provide external transmissions and services operated over external facilities such as submarine cable and satellite communications systems. A UCL for the provision of mobile service enables the licensee to provide two-way communications between moving locations or between a moving location and a fixed location in Hong Kong. The issue of new UCL for the provision of mobile service is subject to the availability of radio spectrum for assignment. An operator may apply for a single UCL to provide all the above services.

As at March 2021, there were a total of 61 carrier licensees, providing local fixed services, cable-based external fixed services, non cable-based external fixed services and/or mobile services. Among them, there were 60 UCL holders, while the remaining

one was a holder of Mobile Carrier Licence, whose licence was issued before the introduction of the UCL.

Public Radiocommunications Service Licences

Services which may be authorised under the Public Radiocommunications Service (PRS) Licence include radio paging, community repeater (trunked radio) services, vehicle location information services, one-way data message services, public mobile radio data services and railway signaling services.

As the provision of radiocommunications services requires the assignment of suitable operating frequencies, PRS Licences are granted only when the required radio spectrum is available.

As at March 2021, there were a total of eight PRS licensees.

Services-based Operator Licences

Services-based Operators (SBO) make use of the networks and facilities of other licensed facility-based operators for the provision of public telecommunications services, but they are not authorised to establish or maintain any telecommunications means which cross public streets or unleased Government lands.

SBO licence covers three types of services, namely, Class 1 and Class 2 local voice telephony services, and Class 3 services which may include external telecommunications service, Internet access service, international value-added network service, MVNO service, private payphone service, public radio communications relay service, security and fire alarm signals transmission service, teleconferencing service and mobile communications service on board an aircraft.



As at March 2021, there were a total of 493 SBO licensees.

Class Licences

The class licensing framework does not require any licence applications. Parties meeting the specified eligibility criteria and conditions (including any registration requirement) automatically become the class licensees, and are required to comply with the conditions set out in the relevant Class Licence as well as the TO. Currently, there are nine types of Class Licences:

- Class Licence for 79 GHz Automotive Radar
- Class Licence for 60 GHz Device
- Class Licence for Citizens Band Radio Station
- Class Licence for In-building Telecommunications Systems
- Class Licence for Medical Implant Communication System Device
- Class Licence for Short Range Device
- Class Licence for Taxi Mobile Station
- Class Licence for Offer of Telecommunications Services
- Class Licence for Provision of Public Wireless Local Area Network Services

Other Licences

Apart from the licences mentioned above, there are a number of miscellaneous licences under the purview of the Authority.

A breakdown of the types and numbers of all telecommunications licences is at [**Annex 2**](#).

5.2.2 Developments in the Telecommunications Market and Technology Trends

Mobile Communications Services

Competition in public mobile services has always been keen. As at March 2021, four major MNOs, namely, China Mobile Hong Kong Company Limited, Hong Kong Telecommunications (HKT) Limited, Hutchison Telephone Company Limited and SmarTone Mobile Communications Limited, were providing a wide range of public mobile services.

The four major MNOs provide second generation (2G), 3G, 4G and 5G mobile services in Hong Kong at very affordable prices. As at March 2021, there were about 22.8 million subscriptions to mobile communications services. The mobile subscriber penetration rate²⁷ reached 289.3%, one of the highest in the world. The number of 3G/4G/5G subscriptions totalled 22.7 million in March 2021 and the subscriber penetration rate was 274.1%. Mobile data services were available at downlink speeds of up to 1.1 Gbps. With the continued

²⁷ Calculation of the overall mobile subscriber penetration rate and that for subscribers of 3G/4G/5G services does not include machine type connections.

development of 5G services, even higher speed of mobile communications will be supported.



With an ever growing demand for mobile data services, the monthly mobile data usage surged to 93 937 Terabytes in March 2021, representing 1.2 times and 1.7 times of the monthly usage over the same period in 2020 and 2019 respectively. The mobile data usage per capita reached 12 548 Megabytes in March 2021, compared with 10 055 Megabytes in March 2020 and 7 326 Megabytes in March 2019. The launch of 5G services and development of innovative applications enabled by 5G will continue to boost mobile data usage in the future.

Figure 9: Number of Mobile Subscriptions (2011 to 2020)

Number of Subscriptions in
December (Million)

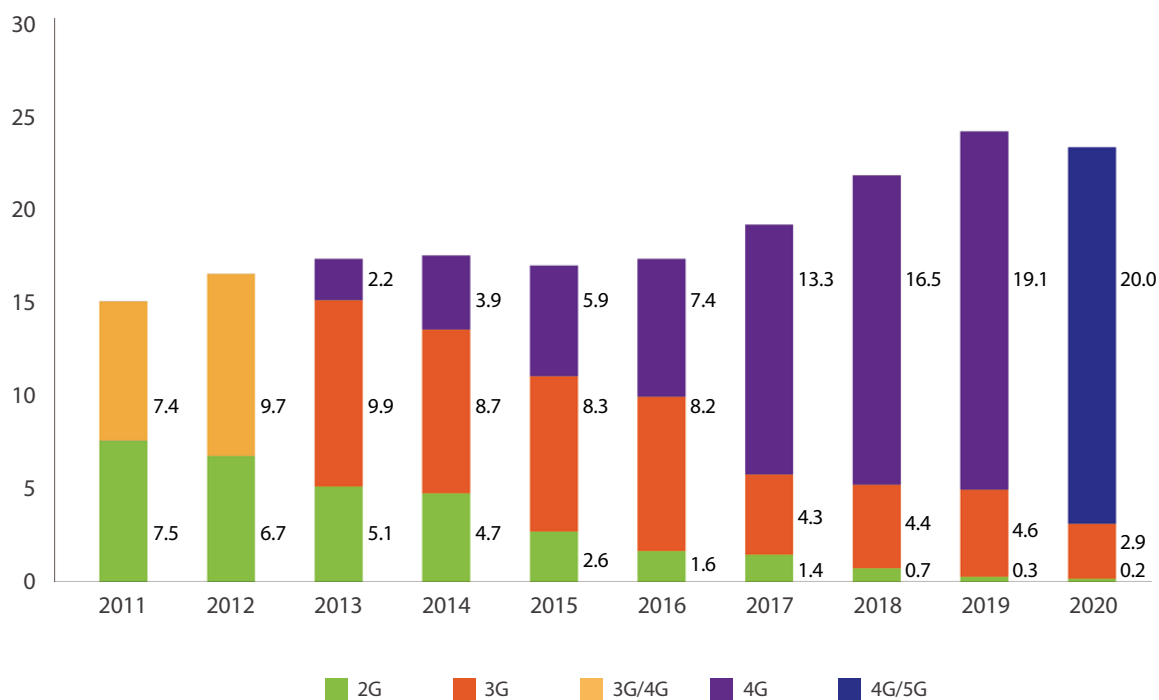


Figure 10: Mobile Subscriptions of Postpaid and Prepaid SIM (2011 to 2020)

Number of Subscriptions in December (Million)

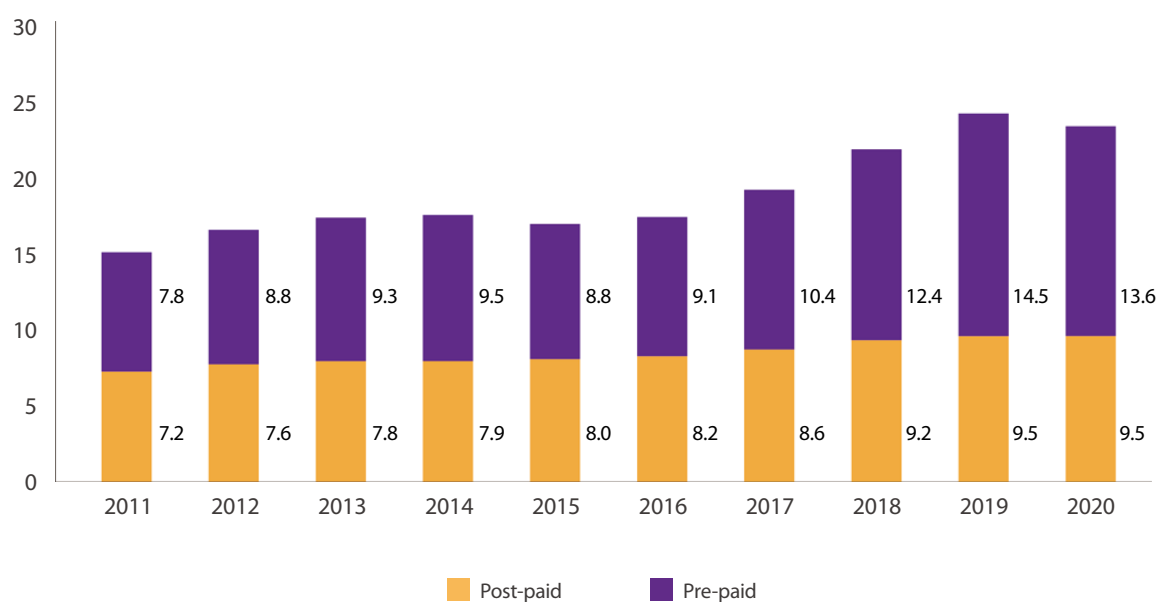
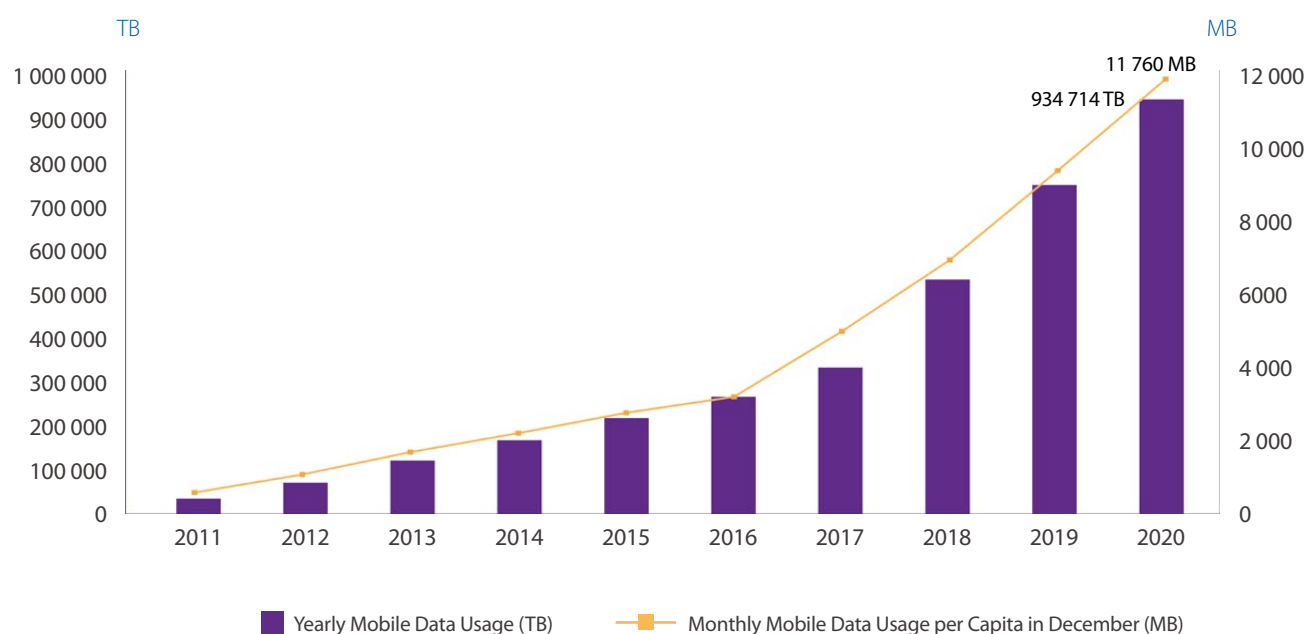


Figure 11: Mobile Data Usage (2011 to 2020)



Fixed Communications Services

The local fixed communications services market has been fully liberalised with no preset limit on the number of licences to be issued for fixed services, or deadline for submission of licence applications. Furthermore, there is no specific requirement on network roll-out and investment and licensees may provide their services according to their proposals.

As at March 2021, there were 27 local fixed carriers, providing around 81 fixed lines per 100 households, one of the highest in the world. They were, in alphabetical order:

- 21 ViaNet Group Limited
- China Mobile Hong Kong Company Limited
- China Mobile International Limited
- China Telecom Global Limited
- China Unicom (Hong Kong) Operations Limited
- ComNet Telecom (HK) Limited
- Easy Tone Network Limited
- Equinix Hong Kong Limited
- HGC Global Communications Limited
- HKBN Enterprise Solutions HK Limited
- HKBN Enterprise Solutions Limited
- HKC Network Limited
- Hong Kong Broadband Network Limited
- Hong Kong Cable Television Limited
- Hong Kong Telecommunications (HKT) Limited
- NTT Com Asia Limited
- PCCW Global (HK) Limited
- PCCW-HKT Telephone Limited and Hong Kong Telecommunications (HKT) Limited
- Reach Networks Hong Kong Limited and Reach Cable Networks Limited
- SmarTone Communications Limited
- Superloop (Hong Kong) Limited
- Telstra International HK Limited and Telstra International Limited
- Towngas Telecommunications Fixed Network Limited
- TraxComm Limited
- Verizon Hong Kong Limited
- Village Telephone Limited
- Vodafone Enterprise Hong Kong Limited

As at March 2021, 91% and 80% of households were able to enjoy a choice of at least two and three self-built customer access networks respectively. It is expected that the figures will keep growing as the carriers continue to roll out their networks.



Fixed Broadband Services

As at March 2021, 27 facility-based operators and 237 SBOs were authorised to provide broadband Internet access services in Hong Kong. With the continuous network roll-out of facility-based operators, the Hong Kong community can enjoy nearly ubiquitous coverage of broadband networks through the deployment of various technologies including asymmetric digital subscriber line, hybrid fibre coaxial cable, fibre-to-the-building, fibre-to-the-home, etc. Broadband access to various applications and content services has become an

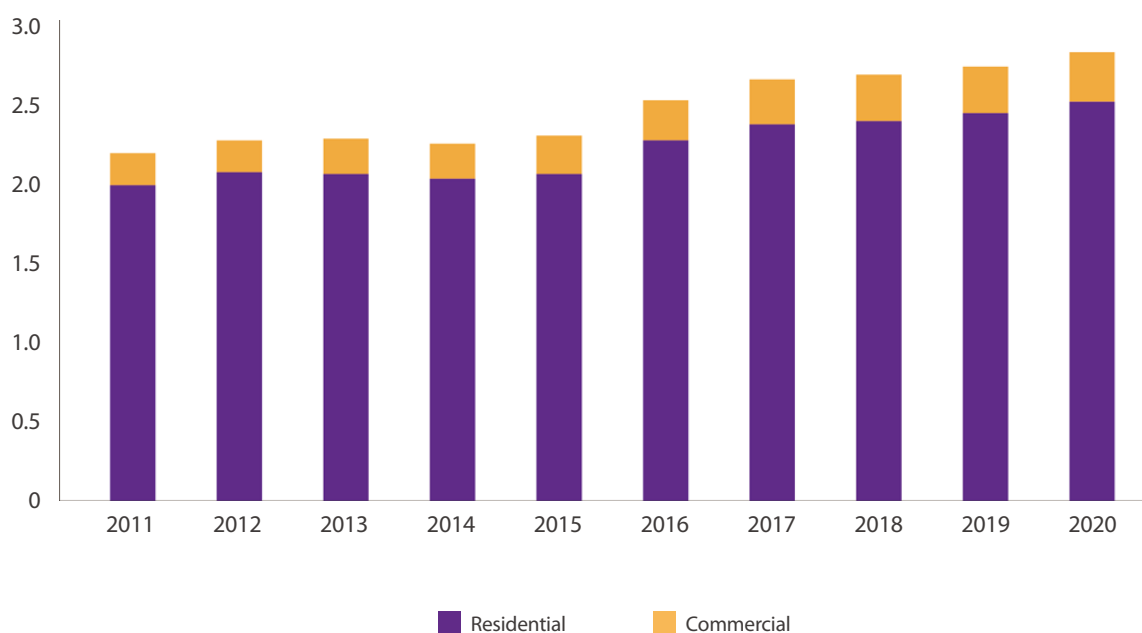
integral part of the life of people in Hong Kong. As at March 2021, there were around 2.9 million residential and commercial fixed broadband subscriptions, with a household penetration rate of 95%. Broadband services are available at speeds up to 10 Gbps. Around 84% of the fixed broadband subscriptions are supported by broadband services with speeds of 100 megabits per second (Mbps) or above. The statistics of fixed broadband subscriptions as at March 2021 and the statistics for the past 10 years are shown in **Figure 12** and **Figure 13** respectively.

Figure 12: Statistics of Fixed Broadband Subscriptions (as at March 2021)

	No. of subscriptions	% share
Total No. of broadband subscriptions	2 885 586	100%
Broadband speed of 100 Mbps or above	2 429 734	84.2%
Broadband speed below 100 Mbps	455 852	15.8%
Residential	2 563 863	88.9%
Commercial	321 723	11.1%

Figure 13: Fixed Broadband Subscriptions (2011 to 2020)

Number of Subscribers
(Million)



Internet of Things Services

Internet of Things (IoT) is a technology which enables the provision of communications platforms and services for interconnected devices to generate, exchange and consume data with minimal human intervention. Currently, Wireless Internet of Things (WIoT) licensees, MNOs and MVNOs are authorised to provide WIoT services. Since the creation of the WIoT licence in December 2017, three WIoT licences have been issued. With the development of new wireless technologies such as the 5G mobile technologies and smart city applications, it is expected that there will be an increasing number of WIoT devices connecting to the public telecommunications networks in future.



Public WiFi Services

Operators have been actively rolling out WiFi networks. Eight network operators and 183 class licensees are providing public WiFi services in various locations of the territory. As at March 2021, there were 71 475 public WiFi hotspots in the city and the number continued to grow. Free WiFi services were available to the public in 1 286 government premises.

External Telecommunications Services

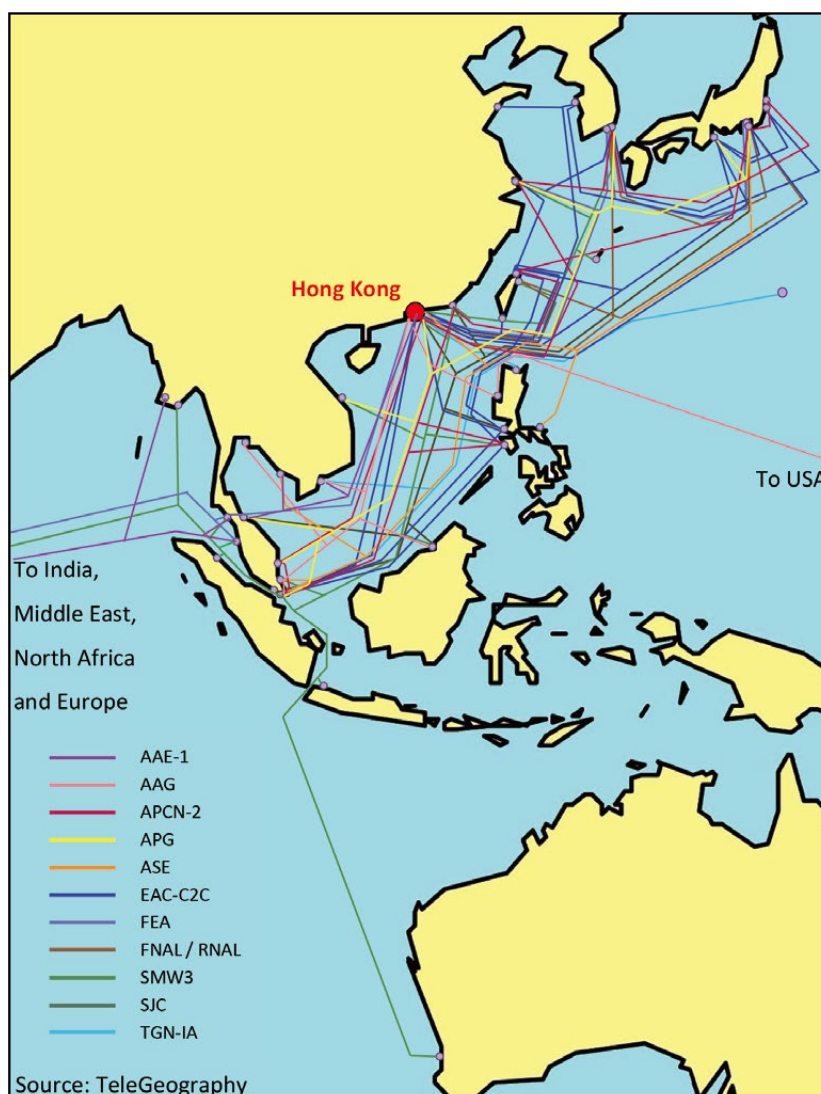
The external telecommunications facilities market has been fully liberalised. As at March 2021, 42 fixed carriers were authorised to provide cable-based and/or non-cable-based external telecommunications facilities.

As at March 2021, there were eight cable landing stations in Hong Kong: two in Tong Fuk, three in Tseung Kwan O and one each in Deep Water Bay, Chung Hom Kok and Cape D'Aguilar, making it a major telecommunications and Internet hub in the region.

In March 2021, Hong Kong was connected to 11 regional and transcontinental submarine cable systems. They are Asia Africa Europe-1 (AAE-1), Asia-America Gateway Cable System (AAG), Asia Pacific Cable Network 2 (APCN-2), Asia Pacific Gateway (APG), Asia Submarine-Cable Express (ASE), EAC - C2C, FLAG Europe Asia (FEA), FLAG North Asia Loop (FNAL)/REACH North Asia Loop (RNAL), Sea-Me-We 3 (SMW3), South-East Asia Japan Cable System (SJC) and TGN-Intra Asia Cable System (TGN-IA). As at March 2021, the total equipped external capacity exceeded 136 281 Gbps. Total external telephone traffic was 2 billion minutes for the period from



Figure 14: Submarine Cables between Hong Kong and Other Economies



January to December 2020. Landing of some new submarine cable systems is in the pipeline and they are expected to be ready for service between 2021 and 2023.

Satellite Services

Hong Kong adopts an open sky policy in regulating the provision of satellite services. Satellite-based telecommunications and television broadcasting services are provided via a multitude of satellites

in the region with more than 180 transmitting/receiving satellite antennae in earth stations operated by a number of fixed carriers.

Licences are required for the operation of satellites and associated facilities. As at March 2021, two Hong Kong companies were licensed to operate satellites for providing communications services, namely Asia Satellite Telecommunications Company Limited and APT Satellite Company Limited, operating a total of 10 in-orbit satellites.

CHAPTER 6

Review of the Communications Authority's Major Tasks



Broadcasting

6.1 Mid-term Review of Free TV and Sound Broadcasting Licences

In 2020/21, the Authority commenced a mid-term review exercise for the free TV licences of HKTVE, TVB and Fantastic TV and the sound broadcasting licences of CRHK and Metro. In accordance with the established practice, the Authority will examine the performance of the licensees in respect of their compliance with the statutory requirements, licence conditions and codes of practice as well as their investment commitments in the past six years and the remaining six years of their licences. To gauge public views on the services provided by the licensees, the Authority conducted a public consultation exercise, including a public opinion survey, online consultation sessions and focus group discussions, in the third and fourth quarters of 2021. The Authority will exercise due diligence in reviewing the past performance and future commitments of the licensees and the views of the industry and the public, before submitting its recommendations to the CE in C for consideration. The Authority will complete the exercise in 2022.

6.2 Grant of the Approval-in-Principle to Fantastic TV for Using Spectrum as an Additional Transmission Means

During the period under review, the Authority processed the application by Fantastic TV for employing spectrum in the 478 – 486 MHz²⁸ band

as an additional means of transmission other than a fixed network for the delivery of its free TV service. The Authority noted that assigning spectrum to Fantastic TV for transmission of its free TV service would enable Fantastic TV to enhance its service coverage and launch a new television programme channel in addition to its existing two integrated channels, hence providing more programme choices to more households. Having satisfied that Fantastic TV has demonstrated its commitments to comply with all the additional conditions the Authority has imposed that are pertinent to spectrum assignment, the Authority decided in April 2021 to grant an approval-in-principle for using spectrum to Fantastic TV. The Authority will monitor Fantastic TV's progress in fulfilling its commitments and compliance with the terms and conditions of the approval-in-principle before granting a formal approval of its application.

6.3 Relaxation of the Television and Radio Codes of Practice

In 2020/21, the Authority relaxed the regulations governing real property advertisements, sponsorship of live and related sports events programmes and the broadcast hours of mature programmes, having taken into account views received from the industry and the public in the consultation exercise. In short, advertisements for real properties already regulated under other regimes were exempted from the substantiation requirements but such advertisements should continue to be subject to the provisions governing factual accuracy and truthful presentation

28 The abovementioned band was used by two free TV licensees (i.e. TVB and HKTVE) for transmission of their relevant television programme channels but was vacated by 1 December 2021 upon the completion of migration of relevant digital terrestrial television frequency channels.

of information as well as compliance with all applicable laws. Advertising materials were allowed to be inserted in sports events and other live events programmes subject to certain conditions/restrictions. The start of broadcast hours for mature programmes on free TV was advanced from 11:30 p.m. to 11:00 p.m. The accordingly revised Codes of Practice were published in the Gazette on 25 September 2020 and took effect on the same day. The Authority considered that the above relaxations would provide licensees with more flexibility in their business operations without compromising the interests of the audience.

6.4 Non-domestic and Other Licensable TV Licences

During the period under review, the Authority approved one application for renewal of non-domestic TV licence by APT Satellite TV

Development Limited, and approved two applications for renewal of other licensable TV licences for the provision of television programme services in hotel rooms in Hong Kong by Showers of Blessing Evangelistic Ministry (Hong Kong) Limited and Swire Properties Hotel Management Limited. The Authority also accepted the termination of the non-domestic TV licences by China Satellite TV Group Company Limited and Health TV Company Limited.

6.5 Processing Complaints Relating to Broadcasting Services

Overview of the Complaints Processed

During the period from April 2020 to March 2021, the Authority processed a total of 1 964 cases (19 980 complaints)²⁹ relating to the materials broadcast by broadcasters, representing a substantial increase of 65% in the number of cases³⁰ but a decrease of 10% in the number of complaints processed³¹, as compared with the figures during the same period in the previous year (1 189 cases, 22 179 complaints). Breakdown of all the complaint cases by broadcasting service and broadcaster processed during the period is shown in **Figure 15** and **Figure 16** respectively.



29 To ensure operational efficiency, complaints with similar allegations relating to the same issue or broadcast material are handled together and counted as a single case.

30 The increase in the number of complaint cases processed in 2020/21 was mainly attributed to over 600 complaint cases concerning social unrest.

31 The decrease in the number of complaints processed in 2020/21 was mainly attributed to three complaint cases concerning social unrest processed in 2019/20 which gave rise to a total of over 17 000 complaints that year.

Figure 15: Distribution of All Complaint Cases by Broadcasting Service Processed in 2020/21

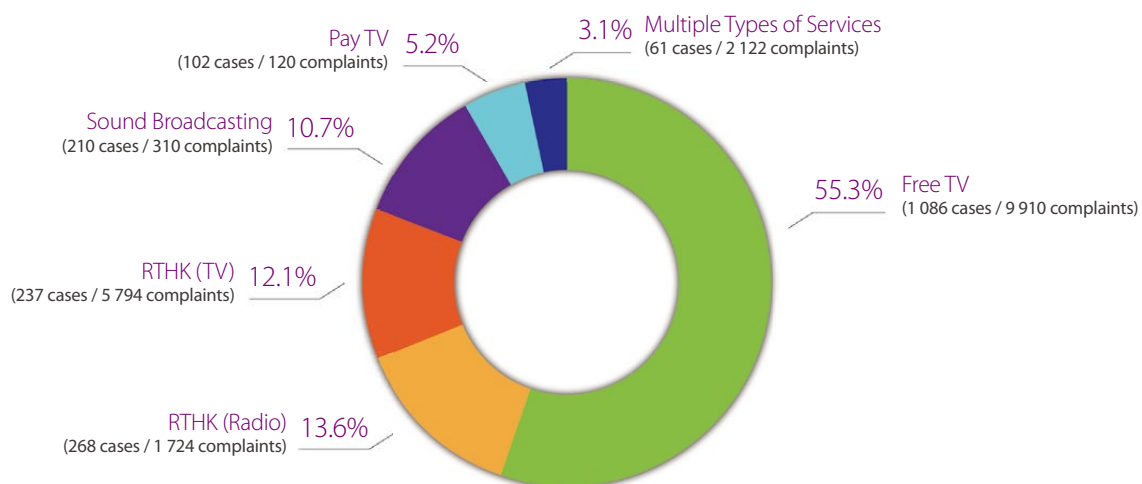


Figure 16: Distribution of All Complaint Cases by Broadcaster Processed in 2020/21

Broadcasters Involved	No. of Complaint Cases	No. of Complaints Involved
TVB	1 002	9 517
HKTVE	40	62
Fantastic TV	37	43
HKCTV	65	70
PCCW Media	37	50
CRHK	192	291
Metro	18	19
RTHK (TV)	237	5 794
RTHK (Radio)	268	1 724
Multiple Broadcasters	68	2 410
Total	1 964	19 980

Among all the complaint cases processed by the Authority, DG Com handled 1 939 cases (10 866 complaints) under the powers delegated by the Authority. These complaints involved breaches of a minor nature, or contained allegations which did not constitute any breach or were outside the remit of section 11(1) of the B(MP)O (i.e. the allegations concerned matters not regulated under the relevant legislation, licence conditions or codes of practice). The Authority dealt with 25 cases (9 114 complaints). Outcomes of all the complaints

processed by the Authority during this period are listed in **Figure 17**.

Complaints Dealt with by the Authority

Among the 25 complaint cases dealt with by the Authority, nine concerned free TV services (involving 2 259 complaints, which accounted for 24.8% of the total number of complaints dealt with by the Authority). A breakdown of these complaint cases by broadcasting service is shown in **Figure 18**.

Figure 17: Outcomes of all the Complaints Dealt With by the Authority and DG Com

	Within Section 11(1) of B(MP)O				Outside Section 11(1) of B(MP)O	Total
	Substantiated		Unsubstantiated			
	The Authority	DG Com	The Authority	DG Com	DG Com	
No. of Cases	18	128	7	1 309	502	1 964
No. of Complaints	3 739	297	5 375	9 789	780	19 980

Figure 18: Breakdown of Complaint Cases Dealt With by the Authority by Broadcasting Service

Types of Broadcasting Service	No. of Complaint Cases	No. of Complaints Involved
Free TV	9	2 259
Pay TV	1	1
Sound Broadcasting	3	3
RTHK (TV)	8	3 983
RTHK (Radio)	3	964
Multiple Types of Services	1	1 904

Regarding the nature of the broadcast materials involved in the 25 complaint cases dealt with by the Authority, 24 of them were related to programmes while one was on advertisement. 18 of them were substantiated, among which six cases were related to denigrating remarks, unfairness in factual programmes and/or the rules on personal view programmes; four cases were related to indirect advertising; three cases concerned accuracy in news programmes or documentaries; three cases

concerned broadcast of promotional materials or advertisements for liquor products during the family viewing hours; and the remaining two cases were related to the use of foul language or indecent remarks. The Authority issued one serious warning, four warnings, four pieces of strong advice and eight pieces of advice to the broadcasters concerned. A breakdown of the decisions of the Authority on the complaints dealt with in 2020/21 is shown in **Figure 19**.

Figure 19: Decision of the Authority on Complaint Cases in 2020/21

Decision of the Authority	TVB	FANTASTIC TV	HKCTV	PCCW MEDIA	CRHK	METRO	RTHK	Total
No Further Action	3	0	1	1	0	0	6	11 ^{Note 1, 2}
Advice	3	3	1	0	0	0	1	8
Strong Advice	1	0	0	0	2	0	1	4
Warning	0	0	0	0	0	1	3	4
Serious Warning	0	0	0	0	0	0	1	1
Financial Penalty	0	0	0	0	0	0	0	0
Total	7	3	2	1	2	1	12	28

Note 1: There was one substantiated complaint case for which no further action was taken against the broadcaster concerned having taken into account, among others, that the broadcaster relayed the programme with little discretion over its content.

Note 2: There was one unsubstantiated complaint case involving four broadcasters (viz. TVB, HKCTV, PCCW Media and RTHK) and no further action was taken against them.

Telecommunications

6.6 Assignment of Spectrum for 5G Services

Making 5G Spectrum Available in Multiple Frequency Bands

In 2019, the Government assigned about 2 000 MHz of radio spectrum in the 3.3 GHz, 3.5 GHz, 4.9 GHz, and 26 GHz and 28 GHz bands in a timely manner for use in public mobile telecommunications including the provision of 5G services. Separately, 400 MHz of shared spectrum in the 26 GHz and 28 GHz bands was assigned to the Airport Authority for innovative 5G applications in support of the smart airport development in October 2019. Starting from April 2020, MNOs launched their commercial 5G services in Hong Kong. As at March 2021, 5G coverage in Hong Kong has reached over 90% of the population, covering major shopping centres and more than 50 mass transit railway stations.

In order to meet the needs of various 5G applications in terms of speed, capacity and coverage, more spectrum in different frequency bands would be released to the market. The Authority and SCED jointly launched two public consultations in the third quarter of 2020 and subsequently promulgated joint statements on 30 March 2021 on the arrangements for frequency allocation and assignment of additional 5G spectrum in the 600 MHz, 700 MHz and 4.9 GHz bands and the related spectrum utilisation fee (SUF). Pursuant to the above joint statements, a total of 220 MHz of new spectrum in the above three bands

will be assigned by way of auction in the fourth quarter of 2021.

With the sustained enhancement of 5G services and the growing availability of 5G equipment and consumer products, 5G services will revolutionise mobile user experience with empowerment by its excellent technical capabilities of high speed, high capacity, high reliability, massive connectivity, and low latency communications. It is widely expected that 5G will open up vast potential for various commercial and smart city applications.

6.7 Facilitating the Rollout of 5G Networks

For the deployment of 5G services in Hong Kong, MNOs are required to establish a larger number of radio base stations (RBSs) as compared with previous generations of mobile services. To facilitate the expedient and effective rollout of 5G networks, the Authority supported the Government in launching a pilot scheme in March 2019 to open up more than 1 000 suitable government premises for MNOs to install RBSs with a streamlined approval process. OFCA has set up a dedicated team to coordinate with MNOs and relevant government departments on the matters concerned, and issued the "Guidance Notes for Submission of Applications under the Pilot Scheme for Installation of Radio Base Stations at Selected Government Venues" to set out the principles, requirements and streamlined procedures in respect of the applications under the scheme. The scheme has been well received by the industry³². As a further policy initiative to facilitate 5G network rollout, MNOs will also be assisted

32 As at June 2021, 149 applications were received under the scheme, of which 81 were approved.



under a “demand-led” model to identify and gain access to more suitable government premises for installation of RBSs.

OFCA has also been working closely with the industry to identify suitable street level furniture and public facilities for the installation of RBSs, such as public payphone kiosks, sheltered bus stops, smart lampposts, etc. In respect of public payphone kiosks and sheltered bus stops, the Authority issued the “Guidelines on the Use of Public Payphone Kiosks for the Installation of Radio Base Stations for Provision of Public Mobile Services” and the “Guidelines on the Use of Sheltered Bus Stops for the Installation of Radio Base Stations for Provision of Public Mobile Services” in April and November 2020 respectively. OFCA will continue to work with the industry and the relevant government departments in identifying other suitable street furniture and public facilities for installation of RBSs.

Following the outcome of a consultancy study commissioned by OFCA, existing SMATV systems installed in buildings for receiving and distributing satellite television signals to occupants need to be upgraded for co-existence with 5G systems operating in the adjacent 3.5 GHz band starting from 1 April 2020. The Authority is mindful of the cost required for upgrading the existing SMATV systems and has implemented a subsidy scheme for supporting the SMATV owners to upgrade their existing SMATV systems. With funding provided by the four MNOs using the 3.5 GHz band and as jointly elected by these MNOs to administer the scheme, OFCA launched the subsidy scheme that was closed in November 2020 after 12 months’ operation to support the upgrading of existing SMATV systems. A total of 1 039 applications were successfully processed and a one-off subsidy of \$20,000 was granted to the applicant of each successful application for upgrading the SMATV system concerned. Following the completion of the scheme, the remaining fund was returned to the four MNOs.

In order to ensure efficient operation of 5G networks in the 3.3 GHz and 3.5 GHz bands, having consulted all MNOs, the Authority issued the "Guidelines for Setting the Frame Structure of Mobile Networks Operating in Time-Division-Duplex Mode in the 3.3 – 3.6 GHz Band" in April 2020 which have been observed by all MNOs in their 5G network settings. The Authority will continue to provide technical guidance to the industry as necessary to facilitate effective implementation of 5G networks in Hong Kong.

6.8 Facilitating Development of Wireless Internet of Things Services and Localised Wireless Broadband Services

Since the creation of a new licensing regime in December 2017 for the provision of WIoT platforms and services using the shared frequency band of 920 – 925 MHz by the Authority, three WIoT licences were issued as at March 2021. Meanwhile, the existing MNOs may also make use of the frequency spectrum assigned to them under their UCLs to provide WIoT services by adopting mobile technology such as Narrowband Internet of Things and 5G technology that enables massive IoT connections. Furthermore, with the introduction of the WIoT device fee under the SBO licence from August 2020, any WIoT devices operated under the SBO licence are also subject to the same fee of \$2 per device, which is on par with the fee level under the WIoT licence and UCL. The Authority will continue to facilitate the development and competitive supply of WIoT services in Hong Kong.

The 5G technology supports the development of new telecommunications infrastructure to cater for a wide variety of innovative services and applications. The Authority created a new Localised Wireless Broadband Services licence in July 2019 which allows the assignment of 400 MHz of the shared spectrum in the 26 GHz and 28 GHz bands to different spectrum assignees on a geographically shared basis to facilitate the development of innovative 5G and smart city applications at specified locations, such as airport, university campuses, industrial estates and technology parks. The CA will continue to update the licensing regime to cater for market development such as addressing potential demand for the operation of smaller scale 5G private systems by different industries and entities in localised areas.

6.9 Re-assignment of Frequency Spectrum in the Different Bands (900 MHz and 1800 MHz Bands, 850 MHz band and 2.5/2.6 GHz bands)

On 12 January 2021, 50 MHz of spectrum in the 900 MHz band was successfully handed over to assignees on a new 15-year term upon expiry of the previous assignment term. On the other hand, 150 MHz of spectrum in the 1800 MHz band was re-assigned in September 2021. While 20 MHz of spectrum in the 1800 MHz band was re-assigned administratively to each of the four incumbent MNOs, the remaining 70 MHz of spectrum was re-assigned to the four operators pursuant to the results of the auction conducted in December 2018. Similar to the re-assignment exercise for the spectrum in the 900 MHz band, as some of

the frequency assignments in the 1 800 MHz band changed hands upon commencement of the new 15-year term of assignments, OFCA had coordinated with all incumbent and new assignees of the spectrum to ensure a seamless transition in September 2021.

Meanwhile, the Authority and SCED jointly launched two public consultations in the third quarter of 2020 and subsequently promulgated joint statements on 30 March 2021 on the arrangements for re-assignment of the spectrum 15 MHz of spectrum in the 850 MHz band and 90 MHz of spectrum in the 2.5/2.6 GHz bands upon expiry and the related SUF. In view of the existing assignee's return of the spectrum in the 850 MHz band in June 2021, the term of the new assignment of the spectrum concerned will commence around end-2021 after conclusion of the auction. As to the spectrum in the 2.5/2.6 GHz bands, the term of new assignments will commence from 31 March 2024 following expiry of the existing assignments. Taken together, 105 MHz of spectrum in the above two bands will be re-assigned by way of auction.

6.10 Phasing out of 2G services to reform spectrum by some Mobile Network Operators

OFCA has received applications from some MNOs to seek the Authority's approval to cease their provision of 2G services pursuant to the relevant licence condition, which requires the licensee to make proper and appropriate arrangements for the affected customers to the satisfaction of the Authority before ceasing to provide a generation of mobile service. The Authority has approved the application of Hutchison Telephone Company Limited to cease the provision of all its 2G services

starting from 30 September 2021, so as to reform the spectrum previously supporting 2G services for new services or improving existing services. The Authority will consider any proposal from other MNOs and carefully examine the arrangements for the affected customers before approval.

6.11 Implementation of the Real-name Registration System for SIM Cards

In order to safeguard the integrity of the telecommunications services as well as the telecommunications network in Hong Kong, the Government has, after conducting a seven-week public consultation, introduced the Real-name Registration Programme for SIM cards (Registration Programme) essentially to tackle the loophole arising from the anonymous nature of pre-paid SIM cards. The Registration Programme was generally supported by the public and various stakeholders including the telecommunications operators. To implement the Registration Programme, the Telecommunications (Registration of SIM Cards) Regulation (Registration Regulation) was enacted and took effect on 1 September 2021, denoting the commencement of the Registration Programme.

Pursuant to section 14 of the Registration Regulation, the Authority issued a set of guidelines in August 2021 to provide practical and administrative guidance on the requirements of the Registration Regulation for the licensees to implement the Registration Programme. The guidelines took effect upon commencement of the Registration Programme on 1 September 2021. With the support from OFCA, the Authority will ensure the smooth implementation of the Registration Programme.

6.12 Enhancement of the Registration System for Class Licence for Offer of Telecommunications Services

The Class Licence for Offer of Telecommunications Services (CLOTS) regulates persons who offer telecommunications services to the general public without the establishment of any means of telecommunications. Previously only CLOTS licensees with a customer base of 10 000 subscriptions or more were required to register their business information with the Authority. As at March 2021, 21 CLOTS licensees were registered. To ensure full compliance with the Registration Programme, the Authority has enhanced the registration system for CLOTS in June 2021 such that all licensees offering SIM services during the course of business, irrespective of the size of their customer base, are required to register their information with the Authority.

6.13 Enhancement of Licensing Regime and Streamlining the Regulatory Practices for Services-based Operators

In order to enhance the licensing regime and streamline the regulatory practices for SBOs, since August 2020, the Authority has (a) extended the period of validity of the SBO licence from one year to two years with a view to enhancing regulatory certainty; (b) streamlined the categories of services authorised under the SBO licence; and (c) adopted a new licence fee structure to ensure regulatory symmetry between the SBO licence and other licences providing similar services.

6.14 Review of the Number of Public Payphones under the Universal Service Obligation

Public payphone is a basic service which the universal service provider (USP) is required to provide under its Universal Service Obligation (USO). The cost of providing a public payphone service subject to the USO is shared by the fixed and mobile service providers. In view of the diminishing demand for public payphone service in recent years, the Authority announced in June 2017 to embark on a review to determine the reasonable number of public payphones that should be subject to the USO.

The review was completed in 2019 in accordance with the guiding principles laid down by the Authority. For in-building type public payphones, the Authority decided to exclude 515 in-building type public payphones (about 35% of the total number of in-building type public payphones) from the USO. All the excluded in-building type public payphones have been removed by the USP.

For kiosk type public payphones, the Authority decided to exclude 765 kiosk type public payphones (about 50% of the total number of kiosk type public payphones) from the USO. As at March 2021, the USP has removed 668 excluded payphones from various locations. Meanwhile, the USP decided to retain a small number of excluded payphones at its own cost.

6.15 Processing Complaints Relating to Telecommunications Services

As the telecommunications market is fully liberalised and highly competitive, the Authority has adopted a light-handed regulatory approach. The Authority investigates consumer complaints against telecommunications operators if there is sufficient evidence to establish a prima facie case on possible breaches of any provisions under the TO, licence conditions or other relevant legislation which the Authority has jurisdiction to enforce, namely, TDO and CO. For other consumer complaints not involving any breach of the TO, licence conditions or other relevant legislation, it is the responsibility of the telecommunications operators to resolve the matters under complaint with their customers. The Authority would take note of their handling of the consumer complaints received and take necessary actions if any systemic issue is identified.

During the year under review, the Authority received a total of 1 210 consumer complaints relating to telecommunications services, representing a reduction of 2% compared to 1 234 complaints in the previous year. Among them, 708 cases (58.5%) were related to mobile services, 337 cases (27.9%) were related to Internet services, 137 cases (11.3%) were related to fixed-line services and 23 cases (1.9%) were related to external telecommunications. On the nature of complaints, the Authority received the largest number of complaints relating to customer service quality (331 cases or 27.4%), while complaints about service quality (270 cases or 22.3%) and disputes on contract terms (160 cases or 13.2%) ranked second and third respectively.

Breakdown of complaint cases by types of telecommunications services and nature of complaints received by the Authority during the period are shown in **Figure 20** and **Figure 21** respectively.

Figure 20: Distribution of Complaint Cases by Types of Telecommunications Services Received by the Authority in 2020/21

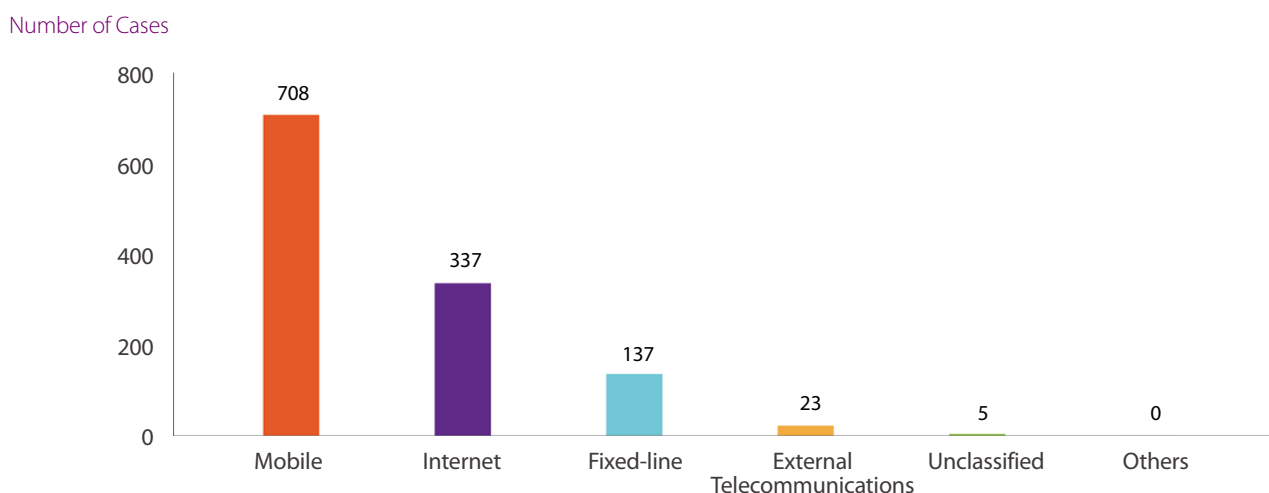
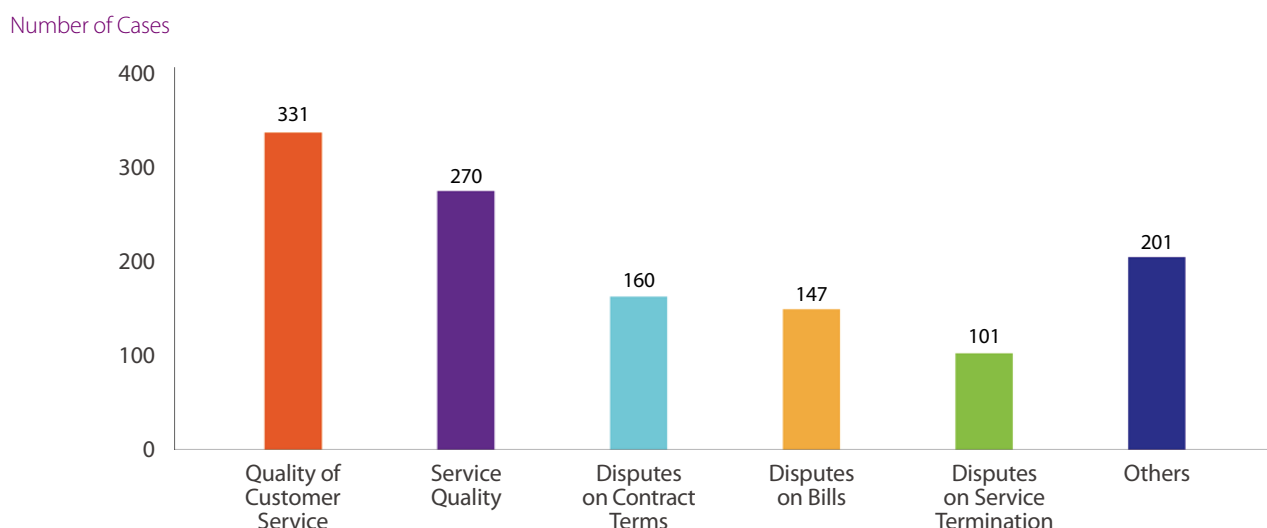


Figure 21: Distribution of Complaint Cases by Nature of Complaints Received by the Authority in 2020/21



Note: Types of complaint cases grouped under "others" include cases involving collection of overdue payment, porting of telecommunications numbers, application or suspension of telecommunications services, etc.

Among the 1 210 complaint cases received, 1 209 (99.9%) were outside the Authority's jurisdiction. For the remaining one case (0.1%), it involved allegation regarding incorrect billing information by an internet service provider. No case was found to be in breach of TO or licence conditions after investigation.

6.16 Strengthening Consumer Protection in the Use of Telecommunications Services

Consumer Protection Measures Adopted in the Telecommunications Industry

In order to safeguard consumer interests in the use of telecommunications services, OFCA takes proactive actions to implement various consumer protection measures and works with the industry to draw up and implement self-regulatory measures

for addressing new consumer issues that may arise from time to time.

These measures include the voluntary Customer Complaint Settlement Scheme (CCSS) administered by the Communications Association of Hong Kong, an industry association. The CCSS aims to help resolve billing disputes in deadlock between telecommunications service providers and their customers through mediation.

Other self-regulatory measures voluntarily implemented by the industry include promulgation of the Code of Practice for Telecommunications Service Contracts to improve the clarity of provisions in the telecommunications service contracts, as well as the Code for the Provision of Chargeable Mobile Content Services to govern the practices of third-party content service providers.

Other measures include implementation of mobile bill shock preventive measures as well as publication of details of the arrangements adopted by major residential broadband service providers to handle service termination requests from consumers on OFCA's website.

OFCA will continue to monitor the implementation and effectiveness of the various consumer protection measures adopted, and where necessary engage the industry to seek further improvement of the existing measures or introduce new measures.

Enhancement of the Broadband Performance Test System

Since December 2010, OFCA has been providing a broadband performance test system enabling fixed and mobile broadband service users to measure the performance of their broadband connections, including download and upload speeds, network latency, packet loss and jitter. Apart from users of desktop and notebook computers, users of smart phones and tablets running iOS and Android operating systems may also make use of the test system.

From time to time, OFCA reviews and upgrades the test system to further enhance its capability and performance. From September 2020 onwards, it supports speed tests up to 10 Gbps for desktop users and 1 200 Mbps for mobile device users. As at March 2021, more than 105 million tests were performed.

Consumer Education Programmes

During the year, the Authority continued to arrange publicity activities and disseminate consumer messages through different media channels. Apart

from the well-established Facebook fan page "Communications Master• OFCA", a new social media channel on Instagram was launched in February 2021 primarily for the younger generation. Various consumer information and tips were conveyed to the public through these two social media platforms to enable better understanding on smart use of communications services.

The fully re-designed and upgraded version of the websites of the Authority and OFCA were launched in March 2021. Apart from having brand new designs to enhance the corporate images of the Authority and OFCA, the websites also adopted a mobile-friendly design that enabled the general public to have better browsing experience on different mobile devices.

6.17 Enforcement of the Fair Trading Sections of the Trade Descriptions Ordinance

The fair trading sections of the TDO prohibit certain specified unfair trade practices by traders in the provision of goods and services to consumers. The Authority is conferred concurrent jurisdiction with the C&ED to enforce the fair trading sections of the TDO in relation to the commercial practices of licensees under the TO and the BO directly connected with the provision of telecommunications and broadcasting services. The two enforcement agencies have entered into a memorandum of understanding (MoU) to coordinate the performance of their functions under the fair trading sections of the TDO and have issued a set of enforcement guidelines to provide guidance for traders and consumers as to the operation of the fair trading sections.

From 1 April 2020 to 31 March 2021, the Authority handled a total of 264 complaint cases under the TDO, of which 207 were closed for insufficient evidence to suspect/establish a contravention or falling outside the scope of the TDO; three were closed after the issue of advisory letters to the licensees concerned to draw their attention to the need to improve the relevant commercial practices in relation to the sale, supply or promotion of telecommunications or broadcasting services to consumers, and the remaining 54 were under processing.

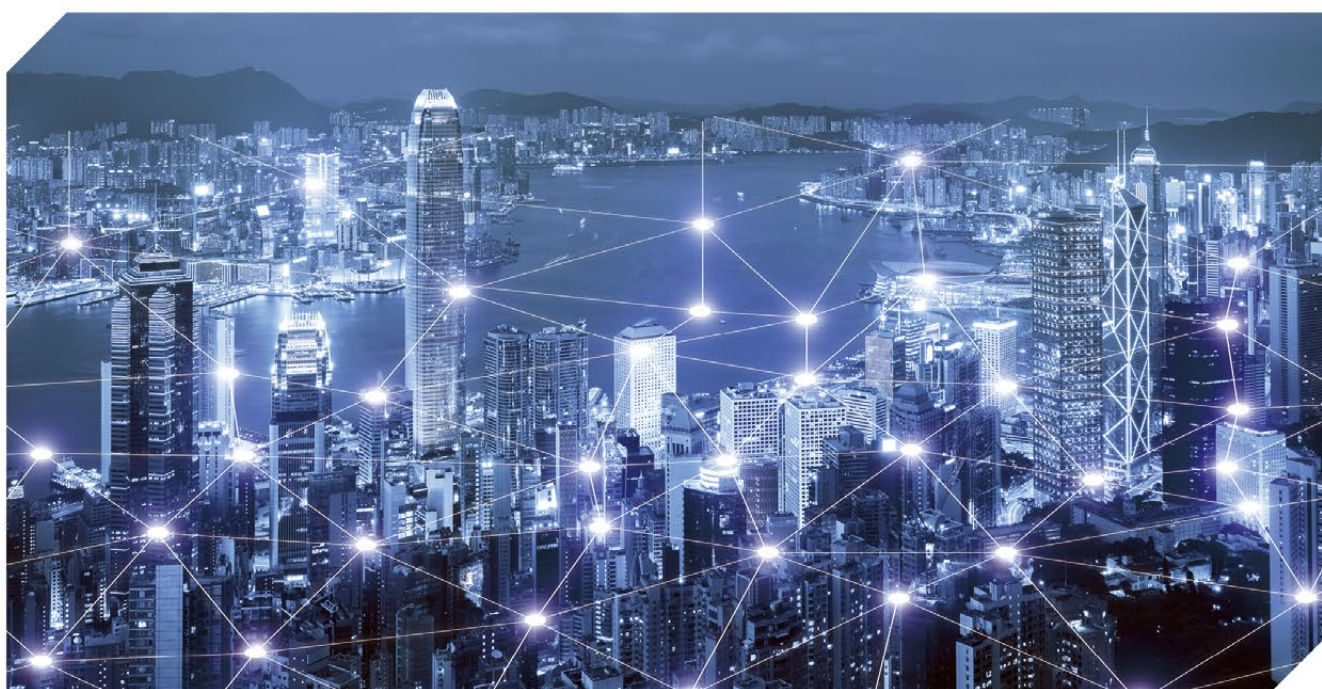
6.18 Enforcement of the Competition Ordinance

The CO provides for a cross-sectoral competition law prohibiting anti-competitive conduct in all sectors. Under the CO, the Authority is conferred concurrent jurisdiction with the Commission

to enforce the CO in respect of the conduct of undertakings operating in the telecommunications and broadcasting sectors, including merger and acquisition activities involving carrier licensees in the telecommunications sector.

Pursuant to the MoU signed by the Authority and the Commission, the Authority will ordinarily assume the role of the lead authority for matters falling within the concurrent jurisdiction. For matters involving issues that are partly within and partly outside the concurrent jurisdiction, the Authority and the Commission will discuss and agree on how best to process the matter on a case-by-case basis.

From 1 April 2020 to 31 March 2021, a total of 39 complaints and/or enquiries were received under the CO, with 38 cases closed without the need for further action and one case under processing.



6.19 Enforcement of the Unsolicited Electronic Messages Ordinance

The UEMO sets out the rules about sending CEMs, including the requirements to provide accurate sender information and honour unsubscribe requests. Under the UEMO, the Authority has established three Do-Not-Call (DNC) registers to allow members of the public to register their numbers to indicate their choice of not receiving commercial facsimile messages, short messages and/or pre-recorded telephone messages. As of March 2021, more than 2.6 million numbers had been registered under these DNC registers.

The Authority will continue to monitor compliance with the UEMO by CEM senders and streamline the procedures for more effective enforcement.

Major Regulatory Actions

6.20 Sanctions against Broadcasting Licensees

In February 2021, the Authority decided that a financial penalty of \$50,000 be imposed on TTV Asia Limited (TTV), an other licensable TV licensee for the provision of television programme services in hotel rooms in Hong Kong, for its breach of the statutory residence requirement on its director/principal officer.

In March 2021, the Authority decided that the other licensable TV licence of TTV be revoked for its failure to pay the variable licence fee for the licence year 2020/21.

6.21 Sanctions against Telecommunications Licensees

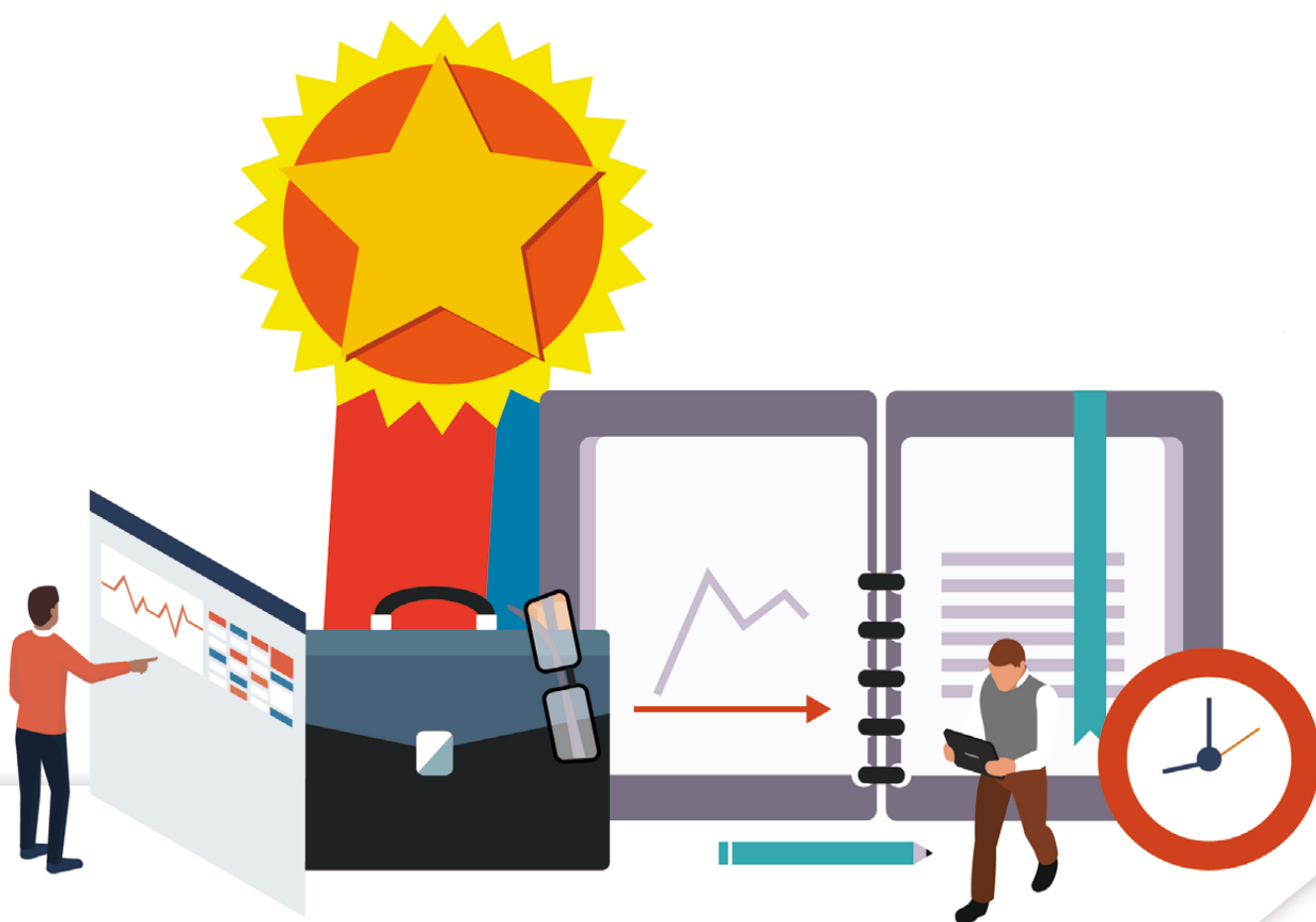
There was no major sanction against telecommunications licensees during the reporting period.

6.22 Sanctions against Senders of Commercial Electronic Messages

From April 2020 to March 2021, the Authority received 565 reports on suspected contraventions of the UEMO, representing a decrease of about 6% as compared to the 598 reports received in the previous year. The majority of these 565 reports was related to short messages, pre-recorded telephone messages and email messages. In dealing with these reports, the Authority would, depending on the circumstances, issue advisory letters to first time offenders explaining the requirements of the UEMO or issue warning letters to other CEM senders in more serious cases. During the period under review, 80 advisory letters and 16 warning letters were issued. In the event of repeated contraventions by a particular sender, the Authority may issue enforcement notices pursuant to the UEMO directing the sender to take steps to remedy the contraventions. Any persons who fail to comply with an enforcement notice may be liable to a fine of up to \$100,000 on the first conviction. In 2020/21, no enforcement notice was issued.

CHAPTER 7

Acknowledgement



The Communications Authority would like to express its appreciation for the cooperation and support given by the following organisations in preparing the Report:

Television Broadcasts Limited
HK Television Entertainment Company Limited
Fantastic Television Limited
Hong Kong Cable Television Limited
PCCW Media Limited
Disney Networks Group Asia Pacific Limited
APT Satellite TV Development Limited
Starbucks (HK) Limited
WarnerMedia Asia Pacific (HK) Limited
Sun Television Cybernetworks Enterprise Limited
Auspicious Colour Limited
Phoenix Satellite Television Company Limited
Hong Kong TV International Media Group Limited
One TV Media Global Limited
Star China Media Limited
Hong Kong Commercial Broadcasting Company Limited
Metro Broadcast Corporation Limited
admanGo
CSM Media Research
TeleGeography
Commerce and Economic Development Bureau
(Communications and Creative Industries Branch)
Office of the Communications Authority
Information Services Department
Radio Television Hong Kong

Annex 1

Summary of Non-Domestic Television Programme Services

Licensee	Date of Launch of Service	No. of Channels (No. receivable in HK)	Nature of Channels	Target Markets	Satellite
1. Disney Networks Group Asia Pacific Limited (formerly known as Fox Networks Group Asia Pacific Limited)	4.1991	21 (0)	General entertainment, movie, music, sports & news etc.	Asian region including the Mainland, India & Middle East	AsiaSat 5 AsiaSat 7
2. APT Satellite TV Development Limited	8.2000	83 (0)	General entertainment, news, movies & sports	Asia-Pacific region, Africa and Europe	Apstar 5C Apstar 6C Apstar 7 Apstar 9
3. Starbucks (HK) Limited	6.2000	1 (0)	Weather, sports, music and finance etc.	The Mainland	Apstar 6C
4. WarnerMedia Asia Pacific (HK) Limited (formerly known as Turner International Asia Pacific Limited)	1989	8 (0)	News, finance, movie, children & family programmes	Asia-Pacific region & South Asia	AsiaSat 7 Intelsat 20
5. Sun Television Cybernetworks Enterprise Limited	8.2000	1 (1)	History & culture-related documentaries	Asia-Pacific region	AsiaSat 7
6. Auspicious Colour Limited	1.2006	92 (71)	General entertainment, infotainment & music	Asia-Pacific region	AsiaSat 5 AsiaSat 7 AsiaSat 9
7. Phoenix Satellite Television Company Limited	5.2006	4 (3)	General entertainment, news & movie	Asia-Pacific region	AsiaSat 7
8. Hong Kong TV International Media Group Limited	3.2011	3 (3)	Infotainment	Asia-Pacific region	Apstar 6C
9. One TV Media Global Limited	5.2013	1 (1)	News, finance & entertainment	Asia-Pacific region	Apstar 5C
10. Star China Media Limited	1.2014	3 (2)	Music programmes, entertainment news & general entertainment	Asia-Pacific region	AsiaSat 7

Annex 2

Types and Numbers of Telecommunications Licences (as at 31 March 2021)

Type of Licences	Number of Licences
Academic Institution Self-provided Telecommunications Installation	2
Aeronautical VHF Fixed Station	33
Aircraft Station	330
Amateur Station	2 582
Broadcast Radio Relay Station & Broadcast Relay Station	12
Experimental Station	79
Hotel Television (Transmission)	165
Industrial, Scientific & Medical Electronic Machine	1 716
Localised Wireless Broadband Service	1
Maritime Radio (Local Vessel)	1 919
Mobile Carrier	1
Mobile Radio System Fixed Station	16
Mobile Radio System Mobile Station	1 819
Private Mobile Radio System	2 012
Private Radio Paging System	4
Public Radiocommunications Service	8
Radio Dealers (Unrestricted)	3 864
Radiocommunications School	6
Radiodetermination and Conveyance of Commands, Status and Data	170
Satellite Master Antenna Television	66
Self-Provided External Telecommunications System	5
Services-Based Operator of Class 1 Service and Class 2 Service ^{Note A}	18
Services-Based Operator of Class 3 Service	475
Ship Station	2 468
Space Station Carrier	10
Taxi Radiocommunications Service	17
Unified Carrier - Mobile Services ^{Note B}	12
Unified Carrier - Local/External Fixed Services ^{Note B and Note C}	55
Wide Band Link & Relay Station	50
Wireless Internet of Things	3
Total	17 918

Note A: This figure includes 16 licences which are also authorised for the provision of SBO Class 3 services.

Note B: This figure includes six licences which are authorised to provide both fixed and mobile services.

Note C: This figure includes the two licences authorising the transmission of domestic television programme services.

Annex 3

Glossary

In alphabetical order	Abbreviation
Announcement in the Public Interest	API
Broadcasting (Miscellaneous Provisions) Ordinance (Cap. 391)	B(MP)O
Broadcasting Ordinance (Cap. 562)	BO
Chief Executive in Council	CE in C
Class Licence for Offer of Telecommunications Services	CLOTS
Commercial Electronic Message	CEM
Communications Authority	The Authority
Communications Authority Ordinance (Cap. 616)	CAO
Competition Commission	Commission
Competition Ordinance (Cap. 619)	CO
Customer Complaint Settlement Scheme	CCSS
Customs and Excise Department	C&ED
Director-General of Communications	DG Com
Domestic Free Television Programme Service	Free TV
Domestic Pay Television Programme Service	Pay TV
Do-Not-Call Registers	DNC Registers
Fantastic Television Limited	Fantastic TV
Fifth Generation (Mobile Services/Subscriptions)	5G (Mobile Services/Subscriptions)
Fourth Generation (Mobile Services/Subscriptions)	4G (Mobile Services/Subscriptions)
Gigabits per second	Gbps
High Definition Television	HDTV
HK Television Entertainment Company Limited	HKTVE
Hong Kong Cable Television Limited	HKCTV
Hong Kong Commercial Broadcasting Company Limited	CRHK
Internet of Things	IoT
Megabits per second	Mbps
Memorandum of Understanding	MoU
Metro Broadcast Corporation Limited	Metro

In alphabetical order	Abbreviation
Mobile Network Operator	MNO
Mobile Virtual Network Operator	MVNO
Non-domestic Television Programme Service	Non-domestic TV
Office of the Communications Authority	OFCA
Other Licensable Television Programme Service	Other Licensable TV
PCCW Limited	PCCW
PCCW Media Limited	PCCW Media
Public Radiocommunications Service	PRS
Radio Base Stations	RBSs
Radio Television Hong Kong	RTHK
Real-name Registration System for SIM Cards	Registration Programme
Satellite Master Antenna Television Systems	SMATV systems
Second Generation (Mobile Services/Subscriptions)	2G (Mobile Services/Subscriptions)
Secretary for Commerce and Economic Development	SCED
Services-based Operator	SBO
Spectrum Utilisation Fee	SUF
Telecommunications Ordinance (Cap. 106)	TO
Telecommunications (Registration of SIM Cards) Regulation	Registration Regulation
Television Broadcasts Limited	TVB
Third Generation (Mobile Services/Subscriptions)	3G (Mobile Services/Subscriptions)
Trade Descriptions Ordinance (Cap. 362)	TDO
TTV Asia Limited	TTV
Unified Carrier Licence	UCL
Universal Service Obligation	USO
Universal Service Provider	USP
Unsolicited Electronic Messages Ordinance (Cap. 593)	UEMO
Wireless Internet of Things	WIoT



通訊事務管理局
COMMUNICATIONS
AUTHORITY

Communications Authority

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