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7 December 2016

Mr. Daniel SIN
Clerk, Panel on Information Technology and Broadcasting
Legislative Council
1 Legislative Council Road
Central, Hong Kong

Dear Mr. Sin,

**An Update on the Implementation
of Digital Terrestrial Television Broadcasting**

At the panel meeting on 14 November 2016, Members requested the Government to provide supplementary information about the locations with poor digital terrestrial television (DTT) reception and technical means to improve the reception. Having consulted the Office of the Communications Authority (OFCA), we would like to reply as below.

DTT was officially launched in 2007. Presently there are altogether 29 DTT transmitting stations built and operated by two domestic free television programme service (free TV) licensees, covering more than 99% of the population in Hong Kong¹. Taking into account the hilly landscape of Hong Kong, the coverage of 99% is rather satisfactory.

¹ The population within a building where the television signal receivable on the rooftop of the building is not lower than a specified level. Under normal circumstances, the specified signal level allows viewers to receive normal television programme services. At individual locations where the receivable television signal is lower than the specified level, TV reception can be improved by appropriate means such as using antennas with better reception characteristics or installing TV antenna amplifiers.

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Transmission of radio waves is affected by topographic features and other barriers. Given the hilly terrain of Hong Kong, there will be practical difficulties for any broadcasting network to achieve 100% coverage. Moreover, it is necessary to strike an appropriate balance between requesting free TV licensees to extend the coverage of their network and causing them to incur additional network construction costs. As such, in accordance with the Guideline on Exemption from Service Provision Requirements (the Exemption Guideline)², the Communications Authority (CA) will normally exempt free TV licensees from serving those areas where the populations affected by poor television reception are below 2 000 persons within an area of a radius of three kilometres.

In recent years, OFCA has received complaints about the effect of newly-built multi-storey buildings on the TV reception of their neighbouring village houses. In view of the surging number of multi-storey buildings and the fact that the affected village houses are not located in remote areas, the population size affected by poor TV reception may have exceeded the required population density stipulated in the Exemption Guideline. However, as the poor TV reception is not caused by insufficient provision of transmitting stations by TV broadcasters, it is unfair to request them to keep extending their network coverage to address the reception problems of the affected village houses. In this connection, OFCA considers that the Exemption Guideline is not applicable to poor TV reception problems caused by newly-built multi-storey buildings. Instead, it is up to the developers concerned to consider whether they need to provide assistance to the affected households (such as installing additional transposers) to solve the TV reception problems.

² Section 18(1) of the Broadcasting Ordinance (BO) provides that a fee TV licensee shall, within such period as is specified in the licence or such other period as may be determined in writing by the CA, provide the service in such manner as to enable the service to be received throughout Hong Kong to the satisfaction of the CA. However, in accordance with section 18(2) of the BO, the CA may exempt the licensee from complying with section 18(1) of the BO in relation to any parts of Hong Kong specified in the notice and during any period specified in the notice.

The Exemption Guideline provides that the CA will consider, without limitation, the following factors prior to exercising its discretion in accordance with section 18(2) of the BO:

- (a) Population density of an area
The licensees will normally be exempted from serving those areas where the populations affected by poor television reception are less than 2 000 persons within an area of a radius of three kilometres.
- (b) Technical feasibility
This includes, without limitation, the availability of interference-free frequency channels in the television broadcasting band for the operation of the transposers, and the availability of suitable transposer sites.

The above Exemption Guideline was set by the former Broadcasting Authority. The CA continues to adopt the Exemption Guideline upon its establishment in 2012.

Locations and Number of Households with Poor DTT Reception

Based on results of computer simulation, the areas with poor DTT reception in Hong Kong are listed in **Annex**. These areas are blocked by hills or far from TV transmitting stations and could only receive weak DTT signals which affect the quality of DTT reception.

Areas with poor DTT reception are mainly located in some remote areas in Sai Kung, North District, Lantau South and other outlying islands. According to the building database of the Lands Department, the estimated number of rural buildings with poor DTT reception in these areas is as follows:

Main Areas with Poor DTT Reception	Estimated Number of Rural Buildings (Note)
Sai Kung District (including Hoi Ha, Kei Ling Ha, Sai Keng, Ko Tong, Ko Lau Wan)	2 300
North District (including Lin Ma Hang, Ta Kwu Ling, Lai Chi Wo, Luk Keng)	1 000
Lantau Island (including Sha Lo Wan, Luk Tei Tong, some villages in Lantau South)	1 500
Other outlying islands (including Peng Chau, Cheung Chau, Lamma Island)	1 400

(Note: OFCA has estimated the number of buildings with poor DTT reception on the basis of computer simulated assessment of the overall receivable TV signal level in the above areas and the building database of the Lands Department. Since OFCA does not have information about the number of households and population in the buildings concerned, it cannot provide actual figures of the affected households and population. Most of the buildings in these areas with poor DTT reception are remote village houses with low population density. There is no information showing that over 2 000 persons within an area of a radius of three kilometres are affected by poor DTT reception in these remote areas.)

Technical Means to Improve DTT Reception

Since signals transmitted by TV broadcasters and TV reception systems used by the public (including reception characteristics of receiving TV antennas, the locations and directions of antennas,

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quality of TV signal cables and connection arrangements, and sensitivity of TV sets or set-top boxes) will affect the quality of TV signals received, TV broadcasters and residents of affected areas may use different technical means to improve DTT reception. At present, OFCA provides technical advice and support on such means. Technical means which could be adopted by TV broadcasters and residents concerned are as follows:

TV Broadcasters

Television Broadcasters may explore feasible and cost-effective ways, including increasing the transmitting power and adjusting the antennas of individual transmitting stations, to extend the coverage of their networks as far as possible and where circumstances permit, so as to improve the DTT reception in the affected areas. The costs involved should be absorbed by free TV licensees.

For example, free TV broadcasters increased the transmitting power of the transmitting stations in Tai O and Hill 297 of Yuen Long in 2015 to improve the DTT reception at Tai O, Lung Kwu Tan and Shap Pat Heung of Yuen Long. To further improve the DTT reception in Cheung Chau and Lantau, free TV broadcasters are exploring and studying ways to increase the transmitting power of the transmitting stations in Cheung Chau and Hill 275 of Lantau Island as well as replacing the antenna of the transmitting station in Cheung Chau.

Residents Experiencing Poor DTT Reception

Affected residents may improve their DTT reception by the following methods:

- using receiving antennas with better reception characteristics;
- installing additional TV antenna amplifiers;
- re-positioning the antennas to suitable locations/directions; and
- using appropriate TV signal cables and connection arrangements.

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In response to enquiries and complaints received from residents about poor DTT reception, OFCA conducted over 500 field measurements over the past three years (i.e. from November 2013 to October 2016) and provided the enquirers/complainants with technical advice. The measurements taken by OFCA show that in general the DTT signal reception problems of the residents have been resolved or improved if they use the above methods. Moreover, residents of remote areas may also considering setting up their own self-help transposers to improve the overall DTT reception in their areas. OFCA is pleased to provide the necessary technical advice.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Edward TO", with a horizontal line underneath the name.

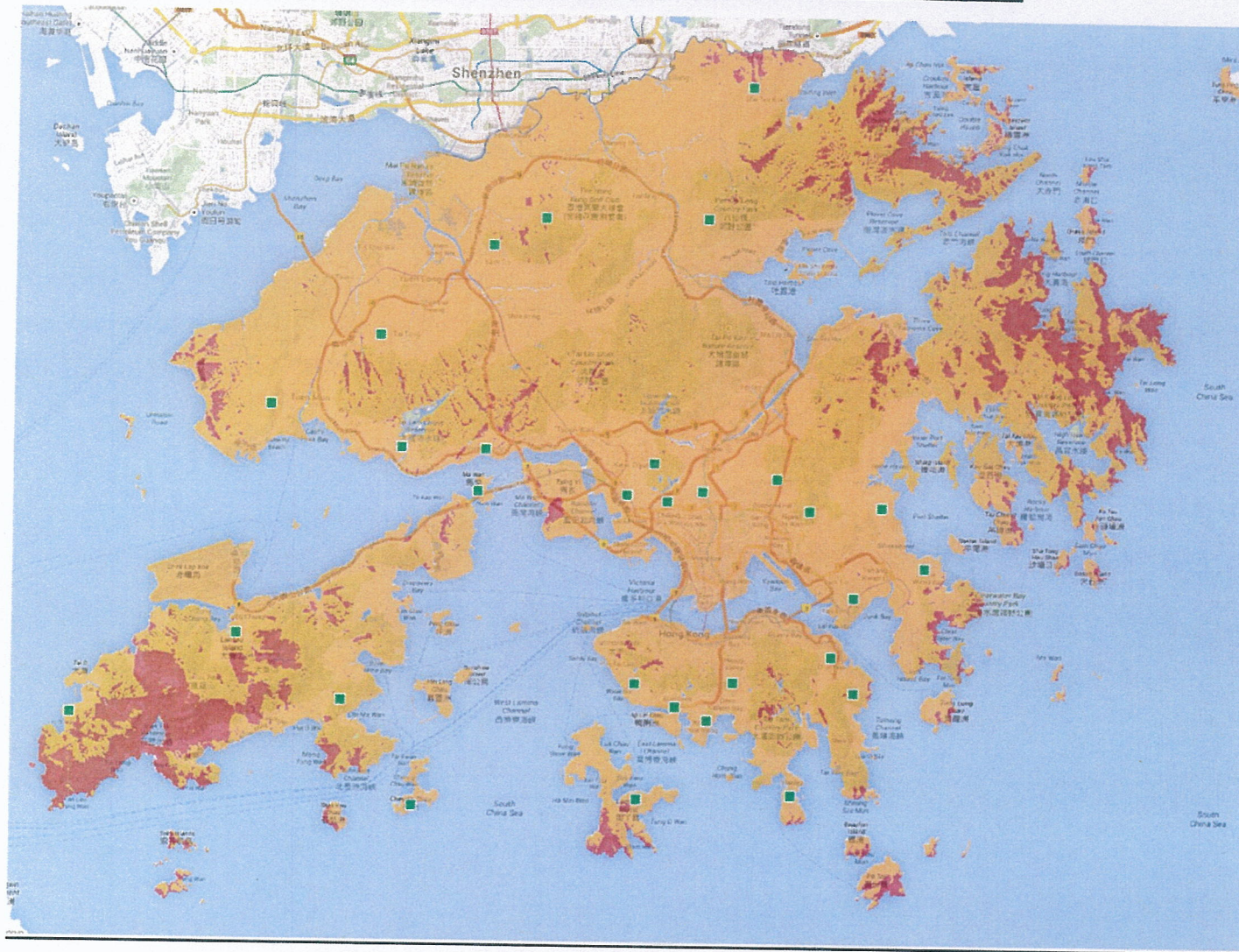
(Edward TO)

for Secretary for Commerce and Economic Development

Encl.

c.c. Director-General of Communications

Areas with Poor Digital Terrestrial Television (DTT) Reception



- Red areas are those with poor DTT reception.
- Green cubes are locations of the 29 DTT transmitting stations and one self-help transposer.