



MEASAT's response to the Consultation Paper of the Office of the Communication Authority of Hong Kong on the Proposed Change in the Allocation of the 3.4 – 3.7 GHz Band from Fixed Satellite Service to Mobile Service

Question 1: What are your views on the above Proposed Re-Allocation?

OFCA proposes to make available additional spectrum to meet the demand of public mobile services, including 5G services, by early 2020. If implemented, this less than 3-year notice, leaves satellite operators with existing and planned satellites with C-band payload in a dilemma. Amongst others, the Proposed Re-Allocation would result in significant economic loss to satellite operators and end users whose services may be significantly degraded or lost altogether.

MEASAT would like to highlight that despite the 100 MHz guard-band, should the transmit power of IMT be unmanaged, it will affect satellite broadcasting services. Based upon MEASAT's experience in the Philippines, the IMT signal transmitted within the frequency range of 3.4-3.6 GHz caused the entire C-band Low Noise Block (LNB) to be saturated, which in turn completely wiped out all video services.

Following WRC-15, satellite operators already noted the administrations that have opted to supplement radio spectrum at lower frequency bands i.e. 3.4-3.6 GHz band for mobile service (MS). *Note: Majority of administrations in ITU Region 3 did not support MS allocation at the expense of FSS allocation during the last WRC.* Accordingly, being two years down the road, some satellite operators are well underway in their investments for future satellites that include the entire C-band spectrum.

As noted in Section 20 of the Consultation Paper, there is no possibility to retro-fit a geostationary satellite once launched. MEASAT would like to add that, the design and deployment cycle for satellites is around 20 years. Typically 18 months before launch there is a design freeze, and where possible, any change to the satellite design would come at a significant cost and impact to the business case.

Additionally, the Consultation Paper already acknowledges in Section 3 that current MS frequency assignments are not fully utilised, with 35 MHz unassigned. MEASAT believes that it is unreasonable to re-allocate additional spectrum from FSS to MS without a clear understanding of why the existing sub-6 GHz spectrum allocated for MS is still underutilised.

As such, MEASAT opposes the Proposed Re-Allocation by the Office of the Communication Authority (OFCA).

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Question 2: Do you agree with the principle of protecting existing SMATV/EFTNS/SPETS systems operating in the adjacent band of 3.7 – 4.2 GHz with the implementation of the mitigating measures?

MEASAT agrees to the implementation of the mitigating measures to protect existing SMATV/EFTNS/SPETS systems operating in the adjacent band of 3.7-4.2 GHz. However, the mitigating measures proposed in Sections 26 to 32 of the Consultation Paper seem simplistic and high-level.

MEASAT also proposes that the satellite TT&C (Telemetry, Tracking and Command) and TVRO systems be protected from public mobile service licensee late comer(s).

Satellite TT&C protection is particularly important. If lost for any period, these mission-critical communications will result in severe consequences, including potentially loss of services or more drastically loss of the entire satellites. Additionally there will also be losses to the service providers on the ground. Yet at the same time, the satellite operators are expected to incur additional cost to undertake their own mitigation measures or for additional insurance against loss of control of satellites. The consultation paper is silent on how any issues arising from the reallocation of the spectrum between the satellite and mobile operators should be mediated.

Section 32 acknowledges that “the operator of the public mobile services, as the late comer, should be accountable for the necessary rectification work, i.e. in offering protection to the legacy systems with mitigating measures already in place or in adjusting the concerned radio base stations.” However, the paper is not clear on how the cost of such mitigation measures will be borne by the late comer(s) and how this should be mediated.

Question 3: For implementation of the Proposed Re-Allocation, please suggest or give your views about any mitigating measures to be implemented for the existing systems and services as well as any precautions to be taken for the operation of the new mobile base stations to be operating in the 3.4 – 3.6 GHz band.

Mitigating measures for the existing systems may involve shielding and relocating of the receivers/transmitters. Such measures are obviously challenging to most operators given that their existing facilities are designed to last beyond the lifetime of the satellites.

As for new mobile base stations, precautions shall include pre-implementation details such as site survey and comprehensive impact analysis to the existing satellite services. Post implementation measures shall include active monitoring



and establishment of process and procedure to resolve interference issues amicably.

MEASAT recommends consideration of ITU-R studies with regard any mitigating measures to be implemented for the existing systems and services as well as any precautions to be taken for the operation of new mobile base stations operating in the 3.4-3.6 GHz band.

Question 4: What are your views on effecting the Proposed Re-Allocation in the early 2020, giving an advance notice period of two years if the relevant decision of the CA is made in early 2018?

MEASAT reiterates that it opposes the Proposed Re-Allocation, particularly with such short notice period. Satellite operators, their service and content provider customers as well as end-users of the services are being severely affected and penalised by such action.

Question 5: What are your views on the need to protect the TT&C channels of the licensed satellite networks at their specific locations from any harmful interference to be caused by public mobile services?

MEASAT supports such protection and emphasizes such protection is critical to ensure safe operations of the satellites.

If TT&C channels are lost for any period, these mission-critical communications will result in severe consequences, including potentially loss of services or more drastically loss of satellites.

Mobile operators as late comers, should to the extent possible, bear the cost for any mitigating measures to be taken by the satellite operators

Question 6: Do you have any views on other aspects of or issues relevant to this consultation?

The Consultation Paper leaves MEASAT with a feeling of uncertainty about the future of all satellite FSS bands in Hong Kong and the processes and timescales by which OFCA will encroach on these in future years.