Information Note
Baseline Requirements for
Satellite Master Antenna Television System
Operating in the 3.7 – 4.2 GHz band

Purpose

This information note sets out the minimum performance requirements (hereinafter referred to as the "Baseline Requirements") of the designated mitigation measures for Satellite Master Antenna Television ("SMATV") systems operating in the 3.7 – 4.2 GHz band.

Background

2. On 28 March 2018, the Communications Authority issued a Statement[1] entitled "Change in the Allocation of the 3.4 – 3.7 GHz Band from Fixed Satellite Service to Mobile Service", which promulgates its decision to change the primary allocation of radio spectrum in the 3.4 – 3.7 GHz band from fixed satellite service to mobile service effective from 1 April 2020, for the provision of public mobile services. As a result of the re-allocation, existing installations of SMATV systems originally operating in the 3.4 – 4.2 GHz band may be adversely affected by the radio emissions from public mobile services operating in the adjacent 3.4 – 3.6 GHz band.

Baseline Requirements

3. The Baseline Requirements for SMATV systems operating in the 3.7 – 4.2 GHz band, including recommended technical parameters for individual sub-systems of a SMATV system, are set out in the **Schedule**. In particular, SMATV systems will need to be upgraded by retrofitting an appropriate band-pass filter thereby reducing their receiving frequency range from 3.4 – 4.2 GHz to 3.7 – 4.2 GHz so as to co-exist with the prospective systems of public mobile services to be operating in the 3.4 – 3.6 GHz band. The technical specifications of the band-pass filter are set out in clause 2.3 of the **Schedule**.

4. Notwithstanding the Baseline Requirements, SMATV operators should always assess, among other things, the local electromagnetic compatibility environment such as strong transmissions from the existing radio stations in the immediate vicinity that might adversely affect their SMATV

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[1] The Statement is available at: https://www.coms-auth.hk/filemanager/statement/en/upload/441/ca_statements20180328_en.pdf

systems, and path clearance to the intended satellite(s) to be received etc., before the installation of a SMATV system at a particular location.

Enquiries

5. Any enquiries concerning this information note may be directed to:

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Office of the Communications Authority
28 March 2018

Schedule

Baseline Requirements for Satellite Master Antenna Television System Operating in the 3.7 – 4.2 GHz Band

This Schedule sets out the Baseline Requirements for Satellite Master Antenna Television ("SMATV") systems operating in the 3.7 – 4.2 GHz band. It also serves as a useful reference for other satellite receiving systems operating in the same frequency band.

2. Typical configuration of a SMATV system operating in the 3.7 – 4.2 GHz band is made up of the following sub-systems: (i) a satellite antenna; (ii) a feedhorn, (iii) a band-pass filter; (iv) a low-noise block downconverter; and (v) an integrated receiver/decoder, operating in cascade for hooking up to an in-building coaxial cable distribution system. The Baseline Requirements for individual sub-systems of a SMATV system are set out in clauses 2.1 - 2.5 below.

2.1 Satellite Antenna

Technical Parameters	
Antenna diameter	3 meters
Antenna gain	40 dBi
Polarization	Linear

2.2 Feedhorn

Technical Parameters	
Operating frequency	3.7 – 4.2 GHz
F/D range	0.33 to 0.45
Polarization	Linear

2.3 Band Pass Filter

Technical Parameters	
Pass Band	3.7 – 4.2 GHz
Suppression at 3.6 GHz	larger than 55 dB
Suppression at 4.2 GHz	larger than 50 dB
Insertion loss	less than 0.5 dB

2.4 Low Noise Block Downconverter

Technical Parameters	
Operating frequency	3.7 – 4.2 GHz
Noise temperature	20 K
Conversion gain	larger than 60 dB
Output 1 dB compression point	8 dBm
Output Intermediate Frequency (IF)	950 – 1450 MHz
Local oscillatory stability	+/- 500 kHz

2.5 Integrated Receiver/Decoder

Technical Parameters	
Input power range	- 65 dBm to - 25 dBm
Input frequency	950 – 1450 MHz

3. Any new SMATV system established after 28 March 2018 should comply with the Baseline Requirements with a view to co-existing with the prospective systems of public mobile services to be operating in the 3.4 – 3.6 GHz band.