

C2N Pte. Ltd. Comments on MDA's Public Consultation on:

POLICY AND REGULATORY FRAMEWORK FOR MOBILE BROADCASTING SERVICES IN SINGAPORE issued on 21st November 2007

2. TECHNICAL ISSUES

- (A) Request for Clarification on MDA's Network Coverage Requirements
- (B) Availability of High Sites and Top of Tall Buildings
- (C) Availability of Critical Transmission Parameters for Trial Licences & for Frequency Co-ordination in Future

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POLICY AND REGULATORY FRAMEWORK FOR MOBILE BROADCASTING
SERVICES IN SINGAPORE issued on 21st November 2007**

Comments on Technical Issues Relating to:

(A) Request for Clarification on MDA's Network Coverage Requirements

The following is extracted from section 2.4 of the Public Consultation document:

"The MDA does however propose to impose network coverage requirements on multiplex licences to ensure that MTVS are offered on a nationwide basis in Singapore.

In setting network coverage requirements the MDA will need to specify the probability of a signal being satisfactorily received at any given location in Singapore. The MDA proposes to specify a 95% (outdoor coverage) level for multiplex licences for two reasons:"

The following points need to be clarified:

Clarification 1:

ETSI TR 102 377 V1.2.1 (2005-11) classifies outdoor reception as follows:

- Class A Outdoor reception (Portable reception - low or no speed)
- Class C Outdoor reception (Mobile reception - medium to high speed)
- Class D Inside reception in moving objects like cars)

Is the coverage requirement for Class A, B and C? It is best that this point be clearly specified, otherwise it is would be more difficult to compare different tenderers.

Clarification 2:

Does the 95% probability refer to that in the small area (second level) coverage as defined in ETSI TR 102 377 V1.2.1 (2005-11) or to the coverage area (third level) of a transmitter or a group of transmitters? If it refers to the small area (second level) coverage, what is the MDA's required area coverage (third level) for Singapore?

(B) Suggestion Regarding Availability of High Sites and the Top of Tall Buildings

Since frequency re-use is not a prime consideration in the design of a DVB-H system, there are indications to suggest that it may be more cost effective if the transmitters are located at greater heights above ground and that existing infra-structures like towers and the tops of tall buildings are used by the new operators. Existing operators like Mediacorp and SingTel have the advantage of high sites. It would be extremely difficult and costly to find new high sites to install antennas. Hence, where possible the antennas and transmitters

should be housed in existing or new tall buildings. Unfortunately most tall buildings do not have the space or capacity to house the broadcast transmitters. It is suggested that the Media Development Authority/URA should proactively encourage owners especially the HDB and JTC to selectively plan for such facilities.

(C) Availability of Critical Transmission Parameters for Trial Licences & for Frequency Co-ordination in Future

When trial licences or actual licences are granted for DVB-H or other services, the critical transmission equipment parameters must be made available to organizations that can justify the need to know. Technical details such as the polarization, the effective isotropic radiated power (EIRP) and antenna patterns in the horizontal and vertical planes should be provided to the licensing authority. This would allow research institutions or other organizations to make their own independent measurements if they choose to do so.

These transmission parameters for future systems should also be made available to facilitate detailed studies on frequency interferences between different systems. Who would be responsible for frequency co-ordination between the different broadcast operators?