Consultation on planning of the 3700-4200 MHz band

Submission by the Australian Safeguards and Non-Proliferation Office (ASNO)

ASNO is Australia’s National Authority for implementation of Australia’s commitments related to the Comprehensive Nuclear Test-Ban Treaty (CTBT). In this role, ASNO liaises with the CTBT Organisation (CTBTO), which holds licences for a number of VSATs using C-band satellite spectrum. Each of these VSATs is associated with a facility that is part of the CTBT’s International Monitoring System (IMS).

Twenty IMS stations have been established / upgraded pursuant to Australia’s commitments under the CTBT. Their purpose is to monitor for evidence from any terrestrial event that might indicate that a nuclear explosion has been carried out. The IMS is a global system, and Australian stations monitor a significant part of the southern hemisphere. Each station monitors either for seismic, infrasound, hydroacoustic or radionuclide indicators and transmits data, much of it in near real time to the CTBTO International Data Centre in Vienna. The data is thereby available to other CTBT member states to enable them to identify any event indicative of a nuclear explosion. The data can also be used for civil and scientific purposes, for example as part of national tsunami warning arrangements. Most Australian IMS stations use a satellite-based Global Communications Infrastructure (GCI) for this purpose and with VSATs using C-band satellite spectrum.

The location of each IMS station is specified in the text of the CTBT. This can only be changed with the agreement of all CTBT member states. Such a change would need strong argumentation related to the technical performance of the station as part of the IMS. Changes in telecommunications requirements would be unlikely to qualify as relevant. It is possible that a VSAT could be relocated away from the other parts of a monitoring station, but not more than a short distance (metres).

Each IMS station has redundant communications links but in the case of Australia there is only one VSAT per station using Intelsat 19 (C Band) with a 2.4M reflector and 5W BUC with the redundant link using an alternate technology. It is however possible that there is a co-located VSAT for another organisation at some IMS sites.

Due to the remote locations of most IMS stations, there is limited opportunity for the use of alternate technologies, typically the backup technology in use is BGAN or 3G. For the small number of stations in more populous locations, an alternative may be possible. That said the treaty requires real time data availability >99.5%.

For the relevant IMS stations, the 3.7 to 4.2GHz band is the downlink, there is also a continuous uplink transmission in the 5.925-6.425 GHz band. Currently the CTBTO’s GCI contract has no Ku band available covering the Australian region.

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