**Inmarsat response to the ACMA consultation**

**Replanning of the 3700–4200 MHz band - Options paper**

11 September 2020

Inmarsat is pleased to provide comments to the ACMA in response to the options paper: “Replanning of the 3700–4200 MHz band”.

Inmarsat operates C-band links to support its satellite network from the Landsdale Earth Station in Perth. Inmarsat operates several antennas which are used to receive the feeder downlinks of our mobile satellite service (MSS) satellites, for which signals are received in the band 3550-3700 MHz. The Landsdale Earth Station is also used for reception of telemetry, tracking and control (TT&C) links which are received in the band 3700-4200 MHz. The TT&C links support Inmarsat’s “Inmarsat-3”, “Inmarsat-4” and “Global Xpress” series of satellites. New satellites being developed by Inmarsat will continue to use the C-band frequencies, including the “Inmarsat-6” satellites which are currently under construction and are expected to be in operation for 15-20 years. These satellites provide a wide range of satellite services using service links in L-band or Ka-band. The services are extensively used by Australian citizens, companies and government organisations for remote and resilient communications, including for ships at sea and for aircraft. Inmarsat services are heavily used in Australia and elsewhere to support safety-of-life requirements such as the global maritime distress safety system (GMDSS) and aeronautical mobile satellite (route) service (AMS(R)S).

Inmarsat also provides support to other satellite operators by providing telemetry communications in the band 3700-4200 MHz, during transfer orbit phase and during regular on-station operations. While the amount of spectrum required for spacecraft TT&C is relatively small, given that TT&C is used for the control and safe operation of the satellite in orbit, it is very important that telemetry signals are received without interruption due to interference. Also, the carrier frequencies used for TT&C vary depending on the satellite design, so the earth station may be required to operate over a large range of frequencies to allow reception of telemetry from a variety of satellites. Therefore, it is important to minimise the impact of the wireless broadband (WBB) deployment to the current satellite operations in Australia. Satellite services and investments in the C-band should not be jeopardised to meet the WBB requirements.

Inmarsat is already facing the need to terminate use of C-band in the band 3600-3700 MHz in early 2023, given the recent decision by the ACMA to make this band available for mobile broadband and to cease protection for incumbent fixed satellite service (FSS) users. This will not however impact on the use of the band 3700-4200 MHz for TT&C for Inmarsat’s network and other operators, which are anticipated to continue at Landsdale for the foreseeable future.

Given the pending termination of our licence to operate in the band below 3700 MHz in Perth, Inmarsat has already taken significant and expensive steps to adapt its operations in Australia to accommodate WBB systems in Australia in that band. Inmarsat is investing in a new earth station location in the Mingenew Earth Station Protection Zone (ESPZ) that will pick up the loss of access at Perth for operations below 3700 MHz.

It is with some dismay that we now see that some options put forward by the ACMA would introduce new and additional constraints on our operations in the remaining C-band spectrum.

Inmarsat is doubtful about the need for additional spectrum for WBB in metropolitan and regional areas such as Perth given the extensive bands already available. Noting that C-band WBB operations are relatively new, and only just beginning to be deployed, the demand for any additional spectrum is unproven. It is certainly premature to start to introduce new constraints or terminate existing licences on the strength of uncertain demand for WBB.

All options put forward by the ACMA would result in additional spectrum being available for WBB. Option 2 seems to allow existing operations to continue with less impact, while still giving access to additional spectrum for WBB in many areas, if that is actually needed. Options 1 and 3 on the other hand, would require the termination of some existing critical operations at FSS earth stations, including those in Perth. Under Option 1, operations at Perth in the band 3700-3900 or 4000 MHz would be “cleared”. Under Option 3, operations at Perth in the band 3700-3800 MHz would be “cleared”. Option 1 would have the most drastic impact on Inmarsat operations given the extensive use of the upper part of the band for TT&C operations in particular.

The proposals for options presented by the ACMA have their foundation on the assumption of a need for four future 5G mobile network operators (MNOs) in Australia, each of which would need 100 MHz of capacity. This has not been convincingly demonstrated and Inmarsat’s belief is that three MNOs would be practically suited to Australia and these would need substantially less than 100 MHz each. A total of 300 MHz has already been earmarked below 3700 MHz for this purpose, and the resulting balance of spectrum below 3700 MHz would assist with fixed local or wide area broadband wireless access in the metropolitan and regional areas.

Inmarsat is therefore doubtful about the need for any additional C-band spectrum for WBB systems in Australia. If an option is selected by the ACMA, Option 2 would seem to be the least harmful.

Whichever approach is taken, Inmarsat wishes to stress the need for protection of the operations in the ESPZs throughout the whole of the band 3550-4200 MHz so as to provide a long-term safe harbour for C-band FSS operations in Australia.

Inmarsat thanks the ACMA for the opportunity to comment on the options paper and looks forward to further engagement with the ACMA to the extent that its work on this issue is taken forward.

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