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The Manager

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**Re: Comments and Views of Lockheed Martin – Australia Pty Ltd on ACMA Consultation No. IFC 12/2019, Optimising the 3400-3575 MHz band**

Lockheed Martin Corporation, on behalf of Lockheed Martin – Australia Pty Ltd (“LMA”), provides these comments in connection with the Australia Communications and Media Authority (“ACMA”) Consultation No. IFC 12/2019, concerning ACMA’s proceeding on Optimising the 3400-3575 MHz band (the “3.4 GHz band”). LMA’s principal interest in this proceeding stems from its Australia-based satellite support business -- its longstanding operation of two 14.2 meter earth station antennas utilizing frequencies in the 3.4 GHz fixed-satellite service (“FSS”) space-to-Earth frequency band at its Uralla, New South Wales earth station complex. In this frequency band, LMA operates under license 1913278/1; however, in order to support its Transfer Orbit Satellite Services (TOSS) and In-Orbit Testing (IOT) business operations, LMA’s Uralla earth station facility needs continued access to the entire 3400-3575 MHz band on a protected basis.

LMA’s interest in this proceeding is much broader and more complicated than the operations of a single earth station facility. Since its initial investment in January 1999, LMA’s Uralla facility has been a critical component part of a global network of earth station facilities used to control satellites through launch and transfer orbit to the satellites’ intended locations in the geostationary arc. The Uralla facility is also essential to providing communications during a satellite’s initial in-orbit testing, which is a necessary technical and contractual step prior to the owner/operator seeking to use the satellite to provide services for which it is intended. The Uralla complex also provides continuing support for on-orbit satellites in case anomalies are encountered with the flight hardware, or in the event a customer’s primary and backup control facilities become non-operational. The Uralla site’s location in Australia and the 3.4 GHz band (and other C-band) FSS capability enables LMA to provide frequent support to satellite missions from commercial operators around the world. LMA does not overstate or exaggerate in any way when it states that the safe and orderly use of the entire geostationary orbital/spectrum resource, and the protection of hundreds of satellite missions worldwide in multiple satellite services, depends on ensuring that control earth stations, such as LMA’s Uralla facility (and its sister facilities strategically located around the world), have access to the spectrum they need to provide their vital services.[[1]](#footnote-1)

As explained below, LMA urges ACMA to include in its replanning decision the same accommodation for continued protected operation of Uralla in the 3.4 GHz band that ACMA made for the Uralla facility in its 2017 decision on the 3.6 GHz band.[[2]](#footnote-2) There, ACMA provided a carve out in the wireless broadband service to avoid interference impacts that have enabled LMA’s Uralla facility to continue to provide critical support to the commercial spacecraft missions of satellite operators and manufacturers from around the world.

LMA Comments on ACMA Options:

LMA’s preference among the options ACMA identifies is for the no change option (Option 1), as this option will undoubtedly avoid disruption of existing infrastructure and sunk investment in the Uralla facility, while preserving the benefits to satellite services in Australia and beyond for the foreseeable future. It also invites further infrastructure investment. Option 1, of course, means that wireless broadband would have to be accommodated in alternative frequency bands.

If ACMA concludes that it must try to accommodate the wireless broadband industry spectrum requests in the 3.5 GHz band, LMA believes that its long-term interests for the Uralla facility and continued satellite access can potentially be accommodated under other options (either Option 2 or 3) if wireless broadband spectrum licensing is only in metropolitan and regional areas, but not in remote areas. In particular, LMA agrees with the proposal that the Earth station protection zones defined in RALI MS44 should be excised from any re-allocation process to support current and future FSS use at those locations. To ensure that the Uralla Earth Station can continue its current and future 3.4 GHz band operations, LMA proposes that ACMA address protection of the earth station similarly to how the 3.6 GHz band was addressed – i.e., by excising HCIS identifier NU7K4 and including boundary conditions for coordination that were ultimately placed in RALI MS44. LMA proposes that the RALI MS44 be revised to include the 3400-3575 MHz band for the Uralla Earth Station.

LMA intends to continue to invest in the Australian space industry. LMA would like to use the Uralla facility to provide Australia greater future access to satellite communications, including the potential installation of a Ka antenna for future expansion into the 28 GHz band to support the growing broadband satellite demand; and to provide Australia with higher accuracy GNSS services via our Satellite Based Augmentation System (SBAS) testbed to be followed by operational SBAS services.

LMA notes below the information it provided in the 3.6 GHz proceeding that would be equally appropriate to consider here.

For Cost and Logistical Reasons, Relocation of the Uralla Facility into a Remote area Is Not Practical

As LMA informed ACMA in 2011, in frequency bands below 3.7 GHz, there are two massive 14.2 meter antennas in operation at the Uralla facility. These antennas also provide operations in bands at 14/10-12 GHz and at 17 GHz. Operation of the earth station complex involves extensive associated equipment.[[3]](#footnote-3) In 2011, when these factors were coupled with the expectation that detailed technical analysis and mitigation techniques can be employed to solve potential interference issues, the conclusion LMA offered then was that mandatory relocation of the Uralla facility to a “satellite park” was not required.[[4]](#footnote-4)

LMA reiterates that relocation would need to be an all-or-nothing venture. LMA could not relocate only its 3.4 GHz operations and leave all others in Uralla. Many of the operations in conventional C-band downlink spectrum, and all uplink operations are conducted over the same 14.2 meter antennas at issue for 3.4 GHz, so all those operations would need to be relocated (and perhaps re-coordinated) to a further remote area. Duplication of equipment is not an option, nor is duplication of the specialized Uralla staff that maintains and operates all of the Uralla equipment.

Second, it may be difficult to convince or otherwise incentivize LMA Uralla-based staff to relocate from the already-rural area in which Uralla is located to an even more remote area. This difficulty would undoubtedly extend to the prospect of replacing staff. If qualified staff are found that are willing to locate to a more remote location, higher personnel costs for wages and allowances at the new location would be expected.

Third, discontinuing operations altogether is not an acceptable option in ensuring the continued safe operation and exploitation of space. LMA’s Uralla facility operates as part of a specialized global network to support launch/transfer orbit operations and initial in-orbit testing. The only other commercial earth station facility with similar longitudinal capabilities is in Korea. The continued availability of a facility such as Uralla in Australia is essential to the long-term success of the commercial space industry not only in Australia and ITU Region 3, but around the world.

In terms of the projected costs of relocating the Uralla facility to a further remote site, LMA has previously indicated that preliminarily it had determined that it would cost greater than a $20 million threshold to procure, prepare, and equip an appropriate new site; establish landline and any necessary terrestrial communications links if not readily available; relocate and/or replace staff (including expected higher salaries to attract personnel to the remote location); and physically relocate operations and shut-down Uralla operations.

Conclusion

LMA appreciates the opportunity to provide its comments and views on the ACMA consultation on optimising the 3400-3575 MHz band. As indicated here, LMA recognizes the dual importance to the Australian economy and future of wireless broadband and the role of space, including commercial satellite services worldwide that LMA helps serve through its investment in the longstanding operations of its Uralla facility in rural New South Wales. LMA is hopeful that the information and views presented here will enable ACMA to ensure the long-term viability of the Uralla facility, by protecting it from wireless broadband interference. While Option 1 is LMA’s preferred option, LMA also believes that an achievable result could be made through excising HCIS identifier NU7K4, including the 3400-3575 MHz band to the Uralla facility in RALI MS44, and applying the boundary conditions to ensure that wireless services coordinate with Uralla prior to it being authorized for operation.

LMA stands prepared to address any further points that require discussion as this consultation moves forward.

Respectfully submitted,

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*on behalf of Lockheed Martin – Australia Pty Ltd*

1. In addition to the 3.4 and 3.6 GHz receive frequencies, LMA’s Uralla facility utilizes spectrum in the 5.725-6.735 GHz FSS (Earth-to-space) range, the FSS bands at 14/10-12 GHz, and the broadcasting-satellite service uplink band in the 17 GHz range. [↑](#footnote-ref-1)
2. Future use of the 3.6 GHz band: Decisions and preliminary views (October 2017). [↑](#footnote-ref-2)
3. *See* October 2011 Letter, at 2 and Attachment 1. [↑](#footnote-ref-3)
4. *Id.* at Attachment 1. [↑](#footnote-ref-4)