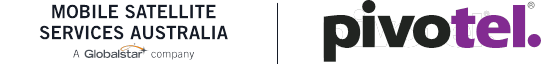
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**Joint response by Mobile Satellite Services Australia and Pivotel to ACMA’s consultation 37/2021** **of 18 October, 2021: *Radio local area networks (RLANs) in the 6 GHz band***

**Introduction and background**

On 30 June, 2021, Mobile Satellite Services Australia Pty Ltd, ACN 645 696 251 (*MSSA*), a wholly owned subsidiary of Globalstar, Inc. in the United States, acquired from Pivotel Group Pty Ltd (*Pivotel*) the three Australian gateway Earth stations that access Globalstar’s worldwide Mobile Satellite Service (*MSS*) network. MSSA has been operating the Australian wholesale satellite business for the past few months under its own carrier licence and eight apparatus licences, with Pivotel continuing to operate its own Globalstar business at the retail customer level.

Two of the frequency bands licensed to MSSA are 5 091-5 250 MHz (used for Earth-to-space feeder links) and 6 875-7 055 MHz (used for space-to-Earth feeder links) at its gateway sites in Dubbo, NSW, Mt. Isa, QLD and Meekatharra, WA. Since taking over the wholesale MSS business MSSA has made a significant capital investment to upgrade the gateway stations with multiple new non-geostationary orbit (*non-GSO*) tracking antennas and related transmitting and receiving equipment.

MSSA and Pivotel have reviewed the ACMA’s *Proposed updates to the LIPD Class Licence for 6 GHz RLANs*consultancy of October, 2021 and would like to provide our feedback and recommendations on a number of the *Issues for comment* on pages 2 and 3 of the paper.

* **Lower 6 GHz band (5925–6425 MHz)**

We note the ACMA’s proposal to make this 500 MHz of additional bandwidth available to *class licensed* low power and very low power RLANs in the short term. Under technical conditions which will allow reasonable RLAN operating performance and provide adequate protection from interference to other spectrum users in the band.

As advised in our submission to the previous 12/2021 consultation, while we do not use this particular frequency band for our Australian MSS operations, we do not oppose this ACMA initiative which we feel is timely and appropriate.

* **Upper 6 GHz band (6 425-7 125 MHz)**

For the past 23 years, MSSA and its forerunners Vodafone and Pivotel have used the 6 875-7 055 MHz band for feeder downlinks into our 3 major gateway sites in regional and remote Australia. Our sensitive Earth station receivers employ 51.2 dBi tracking antennas which continuously track the Globalstar non-GSO MSS satellite constellation from horizon to horizon every 15 mins or so and must operate in an interference free environment for which we pay significant apparatus licence fees.

We would therefore have serious concerns if anything was done to potentially worsen the interference landscape in the 6 425-7 125 MHz band around our sites. Which, we anticipate, would be likely if *class licensed* devices were permitted to use the band without restrictions on their operating locations.

Our responses to the ACMA’s specific questions on the band follow:

**Q4 Should *the ACMA make arrangements that permit high-gain directional antennas (for example, for wireless internet service providers in remote areas) under a class licensing regime?***

A4 We would have *major* concerns with any proposal to introduce *class licensed* (rather than *apparatus licensed*) devices to the 6 425-7 125 MHz band. By its very nature, *class licensing* means that the users of such equipment are essentially anonymous and the location of the transmitting devices would be unknown, resulting in no frequency coordination to ensure that potential interference to services such as our frequency coordinated feeder downlinks was avoided.

If harmful interference did occur, the ACMA would have no easy or fast way of determining the source of the interference, resulting in severe disruption to our downlink traffic for a likely extended period, during which time the owner of the transmitter causing the interference would be unaware they were causing an issue.

MSSA/Pivotel’s strong recommendation is that no further action be taken to introduce *class licensed* devices to the 6 425-7 125 MHz band until after the completion of a rigorous technical analysis of the interference potential of such devices, followed by the development of interference mitigation rules that were agreed by all stakeholders of the band.

We would also like to highlight that an additional 500 MHz of bandwidth is likely to soon be available for RLANs in the lower 6 GHz band and we would therefore question the need for the upper 6 GHz band for such devices.

**Q5 If ‘high power’ class-licensed devices were to be introduced under an AFC system, what aspects of the system would need to be considered in setting it up? Is there interest from industry in administering such a system?**

A5 Even if an *Automatic Frequency Coordination* (AFC) system could be funded, set up and operated by a competent entity outside the ACMA, we remain concerned about the potential for *high power class licensed* co-band devices to interfere with our operational MSS feeder downlinks in the 6 875-7 055 MHz band.

We would need to be convinced that such an AFC system could, and would, ensure that *every* co-band *class licensed* device was operated from a location sufficiently removed from our *apparatus licensed* feeder downlink receiver sites to mitigate against any possibility of harmful interference. Particularly as the *class licenced* device owners would typically have little to no knowledge of their regulatory obligations or of the LIPD rules that were in force in the 6 425-7 125 MHz band.

MSSA/Pivotel’s strong recommendation is that a significant amount of detailed RF engineering work would need to be carried out by the ACMA and industry before any action was taken to introduce *class licensed* devices to the 6 425-7 125 MHz band and, as a minimum, should be deferred until after a decision is taken at WRC-23 on the agenda item 1.2 matter.

**Q6 If ‘high power’ class-licensed devices were to be introduced under an AFC system:**

**Is there interest from industry in administering such a system?**

**Are there any impediments to developing and/or operating a system in Australia? What could be done to help enable, or otherwise encourage, the development and/or operation of a system in Australia?**

**To what extent would an Australian system need to be aligned with those to be implemented elsewhere? What scope could there be for customisation in an Australian system?**

**What aspects of an AFC system would need to be considered in the design, establishment, and ongoing operation, of such a system, including:**

**regulator and industry commitments**

**technical spectrum coordination and coexistence rules – for example, a tiered hierarchy framework for spectrum uses**

**IT infrastructure and system design, including security and system reliability issues**

**communication interfaces between an AFC system, the ACMA’s Register of Radiocommunications Licences (RRL) and devices**

**ongoing interaction between the ACMA and system operators**

A6 MSSA/Pivotel would not be interested in administering such an AFC system. While our knowledge of AFC in other countries is limited, given the serious risk of harmful interference occurring to licensed services in the subject 6 425-7 125 MHz band, we would expect that a significant amount of detailed engineering work, analysis and stakeholder liaison would be needed before such a system could be countenanced.

At this stage, it is our strong recommendation that the ACMA do nothing further on the 6 425 to 7 125 MHz band until at least WRC-23 makes a decision on agenda item 1.2.

**Q7 If ‘high power’ devices were to be introduced under a manual registration process, what might those arrangements look like? Would the introduction of apparatus licensing for such devices be an appropriate option?**

A7 In our view, standard frequency coordination followed by *apparatus licensing* would be essential as we are not convinced that *class licensing* would provide the necessary protection from interference to other licensed services in this frequency band.

**Q8 Would there be advantages in implementing different licensing and/or access management arrangements in different geographic areas for the use of high power RLAN devices?**

A8 While we do not support *class licensing* in the 6 425-7 125 MHz band anywhere in Australia, we can’t see any particular advantage of having different licensing/access rules for such devices in different geographic areas.

**Q9 Are there additional sharing scenarios and/or studies relevant to this band that have not been identified in this paper?**

A9 We have nothing to add on this.

* **5 GHz band**

In our detailed submission to the previous 12/2021 consultation in Apr, ’21 we provided our view that Australia should continue its long held position that *all* RLANs in the 5 150-5 250 MHz band should be operated indoors at a maximum 200 mW (23 dBm) e.i.r.p level. We also provided detailed commentary on agenda item 1.16 at WRC-19 in Egypt and how that led to last minute, essentially unworkable, decisions for limited outdoor RLANs.

Having noted that Europe (CEPT/ECC), UK (OFCOM) and other key administrations around the world have decided to only allow indoor RLAN operation in the 5 150-5 250 MHz band , we see absolutely no reason for Australia to depart from the fundamental NOC position that it (and most other nations) took to WRC-19.

We have also observed the post WRC-19 situation in USA and Canada where high power (36 dBm) e.i.r.p. outdoor RLANs are continuing to use the 5 150-5 250 MHz band under the no protection/non-interference basis (NP/NIB) Article **4.4** provisions of the Radio Regulations. With Canada notably deciding that every outdoor RLAN must operate under a 12 month renewable licence due to the potential for harmful aggregate interference to co-band MSS feeder uplinks and other services.

Over the last few years Globalstar has been conducting real-time measurements of terrestrial aggregate noise into its 5 GHz satellite receivers over Europe, Africa, North America, Australia and the oceans and has found a significant noise increase over the United States with no noise increase in the other regions. We would be happy to provide the noise measurements to the ACMA.

Our responses to the specific questions in this consultation follow:

**Q10 In addition to comments made to the April 2021 consultation paper, do you have any comments on the other proposals for updates to the 5 GHz band listed in this paper?**

A10 We note that the ACMA is currently proposing to make no changes to the indoor only and maximum 200mW (23 dBm) e.i.r.p *class licensed* rules for RLANs in the 5 150-5 250 MHz band and we fully support that decision.

**Q11 If outdoor and/or higher power RLAN devices were authorised in parts of the 5 GHz band (for example, 5150–5250 MHz), would it be appropriate to implement measures similar to those being considered for high power devices in the 6 GHz band (for example, a registration system, or apparatus licensing)?**

A11 Resolution **229 (Rev.WRC-19)** is a particularly complex and messy regulatory outcome which maintains the fundamental 200 mW maximum e.i.r.p. and indoor only rules for RLANs in the 5 150-5 250 MHz band (as well as allowing RLANs to be used in cars, trains and aircraft at up to 40mW e.i.r.p. and, sometimes, up to 200mW. e.i.r.p.) It also permits administrations to exercise *some flexibility* to allow limited (*controlled*) outdoor RLANs at the same 200mW e.i.r.p.

However, as a further concession, some indoor and *controlled* outdoor RLANs are permitted to use up to 1W (30 dBm) e.i.r.p. provided that the number of these higher power outdoor RLANs does not exceed 2% of the total number of RLANs in the band. With a further need to ensure that one of three antenna e.i.r.p elevation masks (the first mask came from Australia at WRC-19) is complied with. All of which would clearly be difficult, if not impossible, to commit to and enforce.

If the ACMA did choose to proceed to allow limited outdoor RLANs in the 5 150-5 250 MHz band in the future, it would seem to us that the only way of meeting the complex conditions of Resolution **229 (Rev.WRC-19)** would be to use individual registration as a minimum and, more likely, apparatus licensing.

**Q12 If high power devices were to be authorised in both the 5 GHz and 6 GHz band, would it be appropriate to use the registration/authorisation method and system for both?**

A12 As previously stated, our view is that, as a minimum, individual registration or more likely individual apparatus licensing would be required for such devices in each frequency band.

Sincerely,

Bill McDonald,

Director

Mobile Satellite Services Australia Pty Ltd

Peter Bolger,

CEO

Pivotel Group Pty Ltd

28 November, 2021