



RAL, R104
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24th November 2022

Consultation 35/2022: New arrangements for LIPD. Response Lacuna Space

Comment on new arrangements for LIPD

Lacuna Space would like to thank ACMA for their endeavour to include space systems in the LIPD framework. This is an important proof of openness towards new technologies for end users. Lacuna is of the view that ACMA has found an elegant solution. First, it does not overly complicate the existing framework; satellite transmitters are simply authorised by their Earth station receiver, plus a reference to power limits defined in Schedule 1 of the LIPD class licence. Second, it complements the ITU procedure for filing satellite systems under ITU RR No. 4.4. Third, the reasoning why this proposed change does not impact the RF environment more than terrestrial or airborne systems is evident: The transmitters have the same power limit, but are hundreds of kilometres farther away from the area of impact. Lacuna Space has conducted testing with selected partners in Australia throughout 2022, already using the power limitations as proposed by ACMA. The system was found to be a performant solution to extend the existing LoRaWAN/ IoT ecosystem to remote regions.

Question 11

Should we consider the introduction of arrangements to facilitate systems that utilise space-based transmitters that operate in the bands 915–928 MHz and 2400–2483.5 MHz at power levels higher than currently permitted under the LIPD class licence? If so, what matters should be considered in the regulatory framework? In particular, comment is sought on:

- > What is an appropriate power for such services so that there is no impact on other services? While some might operate at power levels slightly higher than those currently supported under the LIPD class licence, others could at operate higher levels. The impact also depends on other technical parameters such the orbital characteristics, number of satellites and what types of services are sharing the band. Such considerations suggest a case-by-case approach (more akin to an apparatus licensing regime) may be required.

Lacuna Space is welcoming the introduction of space-based systems that operate in the band 915-928 MHz. We do however currently not see the

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need to introduce higher power levels than what is currently defined in Schedule 1 (item 20, 54, 58).

Since the band 2400-2483.5 MHz is not focused by Lacuna Space, we will not comment on this band.

- > What effect, if any, will the proposed use have on existing services such as the amateur-satellite services and services authorised under the LIPD class licence? For example, Wi-Fi, Bluetooth and radio frequency identification devices (RFID).

Transmissions will raise the noise floor. Depending on the actual power limits this effect can be negligible or harmful. The limits as in item 20, 54, 58 of Schedule 1 clearly do not affect the RF environment more than terrestrial LIPD.

- > Do systems need to be brought under the scope of the Radiocommunications Act via variations to the Radiocommunications (Australian Space Objects) Determination 2014 or the Radiocommunications (Foreign Space Objects) Determination 2014?

Lacuna Space cannot judge if a variation is necessarily required, although we see the reason for having space object lists. It is believed that some kind of knowledge of space-based LIPD transmitters is required, such that in case that operators violate the regulations countermeasures can be implemented at the earliest time. However, the existence of space objects might be covered by the ITU procedures (filing under ITU RR No. 4.4)

- > Is the LIPD class licence or the communication with space objects (CSO) class licence the appropriate legislative instrument to be used to facilitate such systems?



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Lacuna Space believes that the LIPD class is the most appropriate instrument.

- > If apparatus licensing is used, are the current apparatus licence fees and taxes appropriate? (Assuming the entire band is licensed, for the 915–928 MHz band, the annual tax for an Australia-wide space licence is estimated as \$36,673; for the 2400–2483.5 MHz band, the annual tax for an Australia-wide space licence is \$235,194.)

Lacuna Space wonders whether an apparatus licence, including a fee, would grant the space station any exclusive rights (which are currently not sought/ required by us). If not, the licence concept might not be appropriate for systems operating in the 915-928 MHz band.