# MYRIOTA PTY LTD

**Submission in response to the ACMA’s Consultation paper: Proposed area-wide apparatus licence**

Myriota welcomes the opportunity to provide a submission to the ACMA in response to the issues raised in the *Proposed area-wide apparatus licence consultation paper*. Myriota has addressed the provided questions regarding the development of a new transmitter licence type and a receiver licence type, collectively known as an area-wide apparatus licence (AWL) type:

1. Do you think the proposed characteristics of the AWL type will support your current or intended network deployments? Are there any other kinds of deployments that you believe the AWL type should support?
2. Which bands and/or geographic areas do you believe would be conducive to the use of an AWL?
3. What technical and other matters do you believe the ACMA should consider in deciding to use AWL licensing in a particular band?
4. Do you have any other comments on the AWL concept?

Based in Adelaide, Myriota was established in 2015 to commercialise breakthrough communications technology developed during a three-year, $12 million research project at the University of South Australia. This technology is designed for the emerging Internet of Things (IoT) market, and makes use of low Earth orbit satellites for direct-to-orbit communications. Myriota received a further $4 million investment up to the completion of our Series A funding round in March 2018. Our Series A raised $20 million and brought several high-profile investors to the company, including Main Sequence Ventures, and Boeing via its Horizon X investment company.

Myriota is grateful for the ACMA’s approach to developing a new AWL type through open dialogue with industry. As a key early participant in the Australian space industry, Myriota looks forward to working with the ACMA as Australia’s use of spectrum continues to evolve.

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### 1. Do you think the proposed characteristics of the AWL type will support your current or intended network deployments? Are there any other kinds of deployments that you believe the AWL type should support?

#### Communications with Space Stations

The AWL type should enable communications with space stations, when appropriate. Currently in Australia, the only licensing options for Earth stations are:

* Class Licence, if the frequency band is listed in the *Radiocommunications (Communication with Space Object) Class Licence*;
* Apparatus Licence, with one licence per Earth station per frequency band (either “Earth licence” or “Earth receive licence”).

These existing Earth station licensing options are suitable for many applications and situations. But currently there aren’t suitable options for licensing multiple Earth stations without going to the extent of a Class Licence arrangement. For example, to licence 1000 Earth stations in a frequency band not listed in the CSO Class Licence, it is not technically practical or financially feasible to obtain 1000 individual apparatus licences, and the ACMA might not deem suitable to implement a Class Licence in the band.

If the AWL type enables communications with space stations, then it would increase the flexibility of licensing options. This reduces complexity such that Earth stations can be rapidly licensed and deployed at scale, which encourages new technologies to thrive, and new services to be introduced for the benefit of the Australian public.

#### Variety of Station Types

To further increase flexibility, the AWL type could enable communications between a variety of different stations. For example, the conditions of a particular AWL could list possibility of communications between...

* terrestrial stations, and
* terrestrial stations or space stations.

This would enable flexible integration between terrestrial and space systems, as is being developed by IoT service providers such as Myriota.

#### Receiver-only AWL

As outlined in the Consultation Paper, “The ACMA is proposing to establish a receiver-only version of the AWL type to cater for possible future demand for such a (receiver-only) licence option.” Myriota supports this proposal, and believes it will be useful for many applications and services. Myriota suggests that a receive-only AWL type should include both terrestrial and space stations. For systems that do not require protection, a receive-only AWL should be more readily available to licensees than a licence that requires protection. A no-protection, receive-only AWL should be available to a licensee in any frequency band at the ACMA’s discretion, without need for public consultation.

### 2. Which bands and/or geographic areas do you believe would be conducive to the use of an AWL?

#### Frequency Bands

The goal of the Spectrum Review and the purpose of introducing the AWL type is to improve licensing flexibility. Therefore, it should be theoretically possible to implement the AWL in any frequency band, if the ACMA decides appropriate to do so. The Consultation Paper proposes that the AWL type will not be limited to a particular frequency band. Myriota strongly supports this approach, since any restrictions will reduce flexibility for future applications that are currently unknown, and it may eventually be suitable to implement an AWL in frequency bands currently believed inappropriate.

Myriota understands that the ACMA would only approve an AWL in a given frequency band if it is shown to be appropriate. Myriota believes the frequency bands most conducive for the AWL type are those under 960 MHz. Such VHF and UHF frequency bands are ideally suited for low cost Internet-of-Things applications. Of particular interest to Myriota are the following specific frequency ranges allocated in Australia to the Fixed and Mobile services:

150.05-156 MHz

157.45-160.6 MHz

160.975-161.475 MHz

162.05-174 MHz

Myriota looks forward to further discussion with the ACMA to implement the AWL type in these frequency bands.

#### Geographic Areas

The definition of geographic areas should be flexible enough to suit a range of technologies and services. Predefined geographic areas that are not flexible could lead to licensees obtaining licences for areas much larger than what they need - which reduces spectrum efficiency. Or conversely, a licensee might only be able to obtain a licence that is unsuitable to their needs. The closer the geographic area fits with a licensee’s needs, the better the spectrum utilisation.

The Consultation Paper mentions the geographic size of an AWL, “It is intended that the licence type may be used to authorise deployments in geographic areas smaller than those common to spectrum licences.” Myriota agrees with the ACMA’s intent, but recommends not to completely exclude the option of an AWL that is Australia-wide, state-wide, or any other large geographic area. This will provide added flexibility to the licensing framework to cover future situations that might not easily fit in with a Class Licence, Spectrum Licence, or Area-Wide Licence (small geographic area only). For example, an Australia-wide AWL might offer an interim licensing option to a new service while more permanent arrangements are made, such as a Class or Spectrum Licence. The ability to offer an interim licensing solution will enable services to be implemented sooner, which is as intended by the Spectrum Review.

### 3. What technical and other matters do you believe the ACMA should consider in deciding to use the AWL licensing in particular band?

Consideration should be given to systems operating under an AWL arrangement that have minimal impact on other services. Systems that cause less spectrum denial, or have less potential to cause harmful interference will be easier to integrate with existing services in a particular band. Such systems would be lower risk, which should expedite implementing AWLs into a frequency band.

Technical matters that reduce the impact on other services include:

* Geofencing ability, i.e. stations are aware of their own location, and are able to be programmed not to transmit when near certain locations (e.g. radio astronomy sites);
* Systems able to command specific stations to cease transmission;
* Stations that operate with EIRP levels and duty cycle considerably less than that of existing services in the band;
* Systems operating receivers on a no protection basis.

### 4. Do you have any other comments on the AWL concept?

#### Defining AWL Boundaries

Details of boundary conditions should be appropriate to the frequency band and services involved, determined case by case. There may be circumstances where a boundary defined by signal level might not be appropriate, and implementing a geographic boundary where devices can be physically located might be preferred by all stakeholders. Otherwise, the type of signal level defining a boundary should be compatible with the incumbent services and services planned to implement an AWL, such as using statistical averages.

#### Compliance/Certification of Devices

As outlined in the Consultation Paper, the AWL type will be capable of authorising a variety of services, uses, applications and technologies. The purpose of the AWL type is to provide licensing flexibility, including not being specific to certain technology. Myriota strongly supports this approach. Myriota suggests further clarification from the ACMA regarding certification of devices that are licensed under an AWL. Once AWLs are implemented, there may be some confusion within industry regarding which standards are believed to be relevant to a device, based on the service type and frequency band of operation.

#### AWL Determination 2019

Regarding Section 7 of the proposed *Radiocommunications Licence Conditions (Area-Wide Licence) Determination 2019*, the ACMA suggests that any other person may request location information from a licensee. Myriota suggests that “any other person” should request this information from the ACMA, and that only the ACMA should contact the licensee directly. Also, the ten business day time limit may not be practical if any request involves the Australian postal system. Myriota suggests that such requests are made via email only, otherwise the ACMA should consider allowing a longer time limit.