20 January 2020

Bridget Kerans
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Space Systems Section
Spectrum Planning and Engineering Branch
PO Box 78
Belconnen ACT 2616

Dear Bridget,

RE: Review of licensing procedures for space-based communication systems

The Communications Alliance Satellite Services Working Group (SSWG) thanks the ACMA for the opportunity to comment on the ACMA *Review of licensing procedures for space-based communication systems* Discussion Paper.

The SSWG welcomes the ACMA's intention to undertake a staged revision of the assessment of all space/space receive and earth/earth receive apparatus licences. This current discussion paper is recognised as the first phase, with more complex matters to follow.

We concur with the principles underpinning the revisions, i.e. to ensure that Australia's obligations as a member of the ITU are met, while seeking to minimise the regulatory burden placed on industry. Furthermore, the ACMA's licensing procedures have, over time, become subject to interaction with a range of subordinate legislation. The procedures would benefit, we believe, from simplification and greater clarity of presentation and visibility.

This Discussion Paper represents a good step forward, with the request for comments on two (out of four) specific Business Operating Procedures (BOPs). It comes at a time when the satellite industry is seeing ubiquitous operation of earth stations needed to interact with numerous new multi-satellite constellations, while High-Throughput Satellites are also proliferating alongside more 'traditional' geostationary systems. These developments further heighten the importance of a clear licensing framework, especially for space-based networks and systems.

The two BOPs relating to Earth Stations in Motion (ESIM) in the Ka-band are not the subject of this Discussion Paper - these will be dealt with later but will nevertheless be drawn into the objective of consistency across the board. This leaves this Discussion Paper to concentrate on earth and earth receive apparatus licences and space and space receive licences, taking into account previous changes to the specific case of Ku-band licensing which have general application.

As a brief summary, the proposed changes in this discussion paper include:

- assessment of the regulatory status of satellite networks with the ITU.
- compatibility of NGSO networks with very large earth stations.
- increased visibility of existing protection requirements for the Mid-West Radio Quiet Zone.
- a requirement to provide a contact for interference management; and
- some minor editorial changes.

Additional changes to the space/space receive BOP are in a new section on interference management, and include:

- a requirement in the licence application for due diligence and an engineering assessment considering the risk and likelihood of interference to and from existing services in Australia.
- demonstration of appropriate interference management measures in place for all ubiquitous earth stations to be authorised (both fixed and mobile).
- demonstration that ITU requirements for NGSO/GSO/BSS coordination have been (or are able to be) met as detailed in the table of frequency allocation footnotes as applicable to the frequency in the licence application.

The next phase of the review is anticipated to include a number of issues as listed on Page 6 of the Discussion Paper. The SSWG considers that all of the matters nominated by the ACMA would benefit from a consolidated discussion, thus paving the way for a composite and coherent framework which would further assist visibility and clarity in licensing needs. Where possible this should aim to reduce the burden on industry. With this in mind, parallel considerations of pricing and taxes on spectrum should also be borne in mind with a view to reducing these as a barrier to entry into the Australian market and to ensure that Australia gets the full benefit of new services and applications available to the satellite industry. This latter topic is of high importance and a priority of the industry.

Business operating procedures

The comments that follow relate to the two Business Operating Procedures Consultation Drafts that accompany the Discussion paper:

- *Business operating procedure - Submission and processing of applications for earth and earth receive apparatus licences for fixed earth stations*
- *Business operating procedure - Submission and processing of applications for space and space receive apparatus licences*

The SSWG notes that there is a degree of overlap in the proposed amendments to the two BOPs, with more changes being proposed to the space/space receive BOP. The following SSWG comments apply to both BOPs, but it is with the space/space receive BOP where industry has provided more comments, noting that this is the area covering many recent advances in satellite technology for ubiquitous and high capacity systems.

Regulatory considerations
(Section 3 E&ER and S&SR)

The SSWG is generally comfortable with the earth/earth receive considerations where these relate to gateways or other fixed earth stations. The conditions do not appear overly onerous and faithfully reflect ITU requirements and coordination / notification status. In Appendix E of the space/space receive BOP, the ACMA makes mention of the need for a class of station identifier for ESIM. However, the ITU has not defined this and retains a general identifier (code EC) covering ESIM. This is accepted as the best that is available at present.

Australian space regulations
(Section 3.1 S&SR)

The relevance of the Australian and Foreign Space Objects Determinations, along with the CSO Class Licence is succinctly summarised in this section. It would also be relevant to note that amendments to the CSO CL are currently under way in the 10.7-11.7 GHz Band in the whole package of current developments, in order to complete the picture.

Determining the ITU regulatory status
(Section 3.1 E&ER; 3.2 S&SR)

The relevance and context of the ITU Master International Frequency Register (MIFR) appears to mirror the ITU processes and is a useful summary.

Checking consistency with ITU registration details
(Section 3.2 E&ER; 3.3 S&SR)

These details, which it is understood that the ACMA will be checking, appear to be relatively straightforward and useful advice, subject to the comment above on the class of Earth station.

With regard to launch and transfer orbit support services and/or in-orbit testing and whether any special conditions or advisory notes should apply, the SSWG notes the ACMA comment that due to the temporary nature of launch and Transfer Orbit Support Services (TOSS) and/or In-Orbit Testing (IOT) services, such services are not identified in the ITU regulatory information. For the licensing of space-based communication systems, there is a need to consider the international (ITU) registration details of the satellite network filing that will cover operation of the proposed fixed earth station. This assessment is undertaken by the ACMA's satellite coordination area, using information provided by the applicant.

Since TOSS and IOT operations involve moving a spacecraft from one orbital location to another, a single satellite network filing cannot be specified to cover such operation. Thus, whilst providing satellite network filing information is necessary for the operation of a fixed earth station when a satellite is on station, applying the same requirement to TOSS, drift or IOT missions only imposes unnecessary burdens on the ACMA as verification of the information does not result in any technical value in the total assessment of the operation.

The SSWG agrees with the additional note on the point of contact.

Information required
(Section 3.4 E&ER and S&SR)

The SSWG agrees with the information required for regulatory assessment as detailed in Appendix C.

Interference management requirements
(Section 3.5 E&ER and S&SR)

At first glance, the industry should not have too much trouble in providing the information that the ACMA is seeking.

The Radio Quiet Zone associated with Murchison in Western Australia has a Radiocommunications Assignment and Licensing Instruction (RALI MS32) associated with it for coordination with apparatus licensees. However, as the ACMA notes, space and space receive licensees are exempt from this RALI, as are itinerant services.

However, as a consequence of the Band Plan, such licensees are responsible for ensuring that their Earth stations do not cause harmful interference to radioastronomy services in the RQZ and it is intended to make this more visible and explicit in a condition of licence. Contact with the Radio Astronomy Observatory is available for negotiation purposes and may be subject to permission of the Murchison Radioastronomy Observatory (MRO). The conditions cited derive from the Band Plan.

The SSWG agrees with this approach, rather than the ACMA specifying technical conditions in a licence which may not be necessary.

Consultation with relevant government organisations
(Section 4 E&ER and S&SR)

The SSWG notes these comments and recognises them as a consequence of ACMA's responsibilities.

Frequency coordination
(Section 5 E&ER)

The SSWG welcomes the suggestion by the ACMA that for frequency bands or sharing scenarios for which the ACMA has not published coordination criteria, the relevant ITU Recommendations should be considered. Industry would welcome the opportunity to work with the ACMA to develop co-existence technical studies to ensure the continued efficient use of both the fixed-satellite and fixed services is maintained, without impeding the development of either service in shared spectrum.

Licensing arrangements
(Section 6 E&ER; 5 S&SR)

These arrangements are a helpful statement of facts and advice on licensing. Whilst there is repetition in the two BOPs it may be viewed as constructive repetition which serves to have all the needed information in each respective document.

As stated in prior submissions to the ACMA, the SSWG supports the use of a combination of apparatus and class licences for satellite operations, and which includes VSATs and ESIM. As long as harmful interference is unlikely to occur – or with minimal risk, the installation and use of radio equipment should be exempted from licensing of individual terminals. This condition applies to the frequency bands exclusively available for satellite services and where interference is low risk. In such cases, a blanket-type licensing approach or Class Licence (i.e., one licence for large network of terminals) is the most appropriate regulatory regime. With this type of regulation, typical FSS terminals such as VSATs or ESIM are configured based upon standard technical criteria – involving power level, frequency, etc. – that effectively eliminate the risk of unacceptable interference. A single blanket licence can be issued covering a very large number of terminals, thereby reducing the cost and administrative burden associated with individual terminal authorisation. Authorisation fees for blanket licensed terminals should reflect the actual administrative costs and the lowest taxation if spectrum denial is not involved, when issuing that authorization, thus keeping fees low and affordable as an incentive to market introduction.

Special licence conditions and advisory notes
(Section 7 E&ER; 6 S&SR)

It is at the discretion of the ACMA whether an amendment to the *Radiocommunications Licence Conditions (Apparatus Licence) Determination 2015* is relevant, or how this dovetails with the anticipated regime of Area Wide Apparatus Licences. The SSWG looks forward to assisting with these considerations.

ACMA online radiocommunications database

The CA SSWG would like to take the opportunity in this submission to raise a related item concerning the online Register of Radiocommunications Licences that has come to its attention.

This essential database allows industry to evaluate licenced transmitter/receivers impacting or being impacted by potential new communications system sites in an area. The utility of database could be greatly improved by a review of the tools provided to access the information, to make it more user friendly and to enable quicker evaluations. For example, it

would be very helpful if there was a way to extract a CSL file that contained information such as location of the transmitters, transit and elevation pointing angle, the antenna size, the transmitter power level etc. The ACMA's consideration of this issue would be welcomed.

The SSWG looks forward to continuing to engage with the ACMA on this and associated spectrum-related consultations. If you have any queries with respect to this submission, please contact Mike Johns on 0414 898 841.

Yours sincerely,

John Stanton
Chair, SSWG