The Manager  
Economics and Market Analysis  
Australian Communications and Media Authority  
PO Box 13112 Law Courts  
Melbourne Vic 8010

12th February 2021

Dear Madam / Sir,

This document contains Goonhilly Earth Station Ltd’s response to ACMA document IFC-39-2020-Response-to-implementation-of-SPR-paper.docx

Please don’t hesitate to contact me should you have any questions or require further clarification.

Yours faithfully,

**Bob Gough**  
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PO Box 22, North Tamborine, Queensland 4272



1. **Comments on IFC-39-2020**It is clear from ACMA document IFC-39-2020-Response-to-implementation-of-SPR-paper.docx that ACMA has carefully analysed the responses received from Industry and others and is proposing a number of very welcome changes – particularly for the satellite and space industries.  
     
   **1.1** Focus Area 1: The proposed changes with respect to co-location of antennas is particularly welcome, and would appear to recognise the use of multiple antennas operating as a phased array to achieve the high gain required for deep space communications.  
     
   **1.2** The proposed changes with respect to the operation of multiple antennas on a single site for LEO satellites is welcomed.  
     
   **1.3** Division 8A of the Apparatus Licence Fee Schedule – space systems  
   (Table 26 on page 33) is very welcome news indeed, particularly for frequencies above 17.3 GHz where high bandwidths are often involved.
2. **Optical Earth>Space>Earth Communications Links  
     
   2.1** ACMA’s alignment of its spectrum licence fees with those of other countries as described under ‘Spectrum pricing guidelines’ on page 11 and illustrated by Figures 1 & 2 on page 28 is welcomed.  
     
   **2.2** However, there is a major concern that ACMA has not considered the disparity between its treatment of optical communications compared with that of other countries and the ITU itself. ACMA regulates and taxes spectrum up to 420 THz, whereas the ITU only regulates for frequencies up to 3 THz.  
     
   A detailed examination of the regulations of some other countries yields the following:

|  |  |
| --- | --- |
| **Country** | **Maximum Frequency Regulated** |
| Australia | 420 THz |
| International Telecommunications Union (ITU) | 3 THz |
| USA | 3 THz |
| UK | 999GHz |
| France | 3 THz |
| Germany | 3 THz |
| New Zealand | 3 THz |
| Brazil | 3 THz |

**2.3** As can be seen in the Division 8A Table 26 on page 33 ACMA currently applies the same Apparatus Licence Tax at all frequencies above 51.4 GHz, right up to 420 THz.  
  
Even taking the proposed reduced High and Medium Density tax figures of $0.0003 per kHz this will result in tax amounts as follows, and it is noted that this figure is applied to both the uplink and the downlink transmission:

|  |  |  |  |
| --- | --- | --- | --- |
| **Bandwidth, GHz** | **Uplink Licence Tax, $** | **Downlink Licence Tax, $** | **Total Link Tax, $** |
| 1 GHz | 300.00 | 300.00 | 600.00 |
| 3 GHz | 900.00 | 900.00 | 1,800.00 |
| 10 GHz | 3,000.00 | 3,000.00 | 6,000.00 |
| 20 GHz | 6,000.00 | 6,000.00 | 12,000.00 |
| 50 GHz | 15,000.00 | 15,000.00 | 30,000.00 |
| 100 GHz | 30,000.00 | 30,000.00 | 60,000.00 |

To put these bandwidth figures in context, a typical 1500 nm laser operates at a frequency of 200 THz. 100GHz bandwidth is thus 0.05% fractional bandwidth, whereas a 500MHz bandwidth at 31 GHz is 34 times greater at some 1.7%.  
  
As of today, the tax amounts currently in force are ten times those shown in the above table.  
  
**2.4** The above demonstrates that with the current and even the proposed reduced licence taxes Australia is at a significant competitive disadvantage when it comes to optical satellite communications.  
This is bad news indeed since optical satellite communications are now entering service across the globe, both for defence and commercial applications.  
  
Goonhilly can cite two specific examples:  
(A) The company is currently making significant business decisions about where to locate the ground stations in the rollout of it global deep space communications network, which will incorporate free space laser communications. This is to support ESA and NASA missions as well as those of other space agencies and Governments.  
  
(B) The company is in the negotiation of a 3-year project which involves a 200 THz Earth>Space>Earth laser which would operate from a Medium Density location. That project is intended to start in April 2021 and would initially require up to 3 GHz bandwidth; much more later if successful. The current spectrum licence taxes will result in an initial annual cost of $16,800. This amount of money could kill the project.

**2.5** Goonhilly Earth Station Ltd requests that the ACMA take note of the above and consider ceasing to regulate and tax spectrum usage for Earth>Space>Earth radiocommunications at frequencies above 3 THz.

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