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The Manager, Spectrum Planning Section

Spectrum Planning and Engineering Branch

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[**IFC 32/2018**](https://www.acma.gov.au/theACMA/options-for-wireless-broadband-in-the-26-ghz-band) **- Options for wireless broadband in the 26 GHz band – Questions for Consultation**

(Consultation closes: 09 November 2018)

Dear Manager,

Thank you for the opportunity to comment on the ACMA’s recently released consultation paper titled “Options for wireless broadband in the 26 GHz band”.

The European Space Agency (ESA) is happy to provide constructive comments on this options paper and I, acting as a proxy for ESA, am therefore pleased to herein present their thoughts and suggestions for consideration by the ACMA. In submitting the comments (below) on behalf of ESA I am pleased to be able to articulate their thoughts from the perspective of ESA’s long term operations interests particularly as related to potential implications for the current and future security of interference free operations of Space Research Service activities at New Norcia, W.A.

In addressing this Options consultation document, the European Space Agency notes that it primarily provides information for and seeks comments from prospective new 5G (IMT-2020) broadband operators. Therefore, while the questions are targeted to prospective new 5G Wireless Broadband licensed operators, ESA is pleased to take this opportunity to contribute to the work of the ACMA by providing some constructive inputs to those few questions where there is some relevance from the perspective of an established Space Research Service licensed user at New Norcia across the 25.5 – 27.0 GHz band. Notwithstanding this limited scope, ESA is nevertheless pleased to provide the following input with a view to assisting ACMA in its plans towards candidate options for licensing of new 5G broadband operators in the generically titled “26 GHz band”.

Finally, ESA’s interest in the consultation paper on Options for wireless broadband (IMT-2020) in the 26 GHz band relates to their planned critical space research missions support commitments at New Norcia in the medium to long term, which includes the 25.5 – 27.0 GHz band, allocated to the Space Research Service (space-to-Earth) on a primary basis. These immutable plans have been made within the productive and mutually beneficial arrangements, for planned critical tracking, telemetry and control purposes, under the long standing collaborative partnership arrangement between the Australian government and ESA, as reflected within the provisions of the Treaty Arrangements between ESA and the Australian government.

To the questions provided in the Options document, ESA is pleased to offer the following comments:

1. **Does the three-type model constitute an appropriate high-level representation of potential usage of the 26 GHz band? If not, are there any use cases that should be included, excluded or omitted?**

No comment.

1. **What are the implications for 26 GHz wireless broadband in Australia of the Electronic Communication Committee of CEPT (ECC) decision on emission limits to protect passive EESS[[1]](#footnote-1)?**

While ESA, as a licensed SRS operator, has limited scope to respond to this question, it has been a participant in and contributor to studies within the ITU-R in relation to this important Science Services matter of passive environmental monitoring. The following summary of activities and recommended actions to avoid potentially irreversible contamination to EESS observations in the 23.6 – 24.0 GHz passive band are provided to ACMA in considering this matter, as follows:

* The EESS (passive) has a primary frequency allocation in the 23.6-24.0 GHz band, and this band is extensively used by passive microwave remote sensors to perform global climate observations worldwide. EESS (passive) remote sensors can be interfered by excessive unwanted emissions from wireless broadband systems operating in the adjacent band 24.25-27.5 GHz. ESA has been a participant in and contributor to studies within the CEPT and the ITU-R expert groups in relation to WRC19 AI 1.13 in general, and in particular in relation to the protection of passive remote sensors.
* The CEPT Decision (18)06 sets the limits of unwanted emission power for IMT base stations (-42dBW/200 MHz) and IMT user equipment (-38 dBW/200 MHz). These levels constitute a compromise among the different stakeholders and CEPT administrations to ensure the protection of passive sensors without over-constraining IMT-2020/5G equipment and deployments. ESA emphasises that the compromised limits were the absolute maximum achievable given the pressure to implement 26 GHz wireless broadband systems as soon as possible.
* ESA therefore strongly urges ACMA, to request the same unwanted emission limits as those in the CEPT decision for 26GHz wireless broadband system in Australia. Unacceptable interference from wireless broadband into this EESS passive band will severely contaminate the critical work of ongoing environmental observations and monitoring of global parameters.

1. **Are the proposed defined geographic areas for wide-area licensing appropriate?**

The proposed geographic area in and around Perth fortunately does not envelop the ESA deep space station at New Norcia. Further, ESA has conducted some studies of the requisite separation distance around New Norcia to enable compatible sharing between the proposed IMT-2020 mobile broadband services in Perth and operations at New Norcia in the 25.5 – 27.0 GHz band. A coordination contour map showing requisite minimum separation distances to protect the SRS operations at 26 GHz illustrates sharing will be possible under the criteria proposed by ACMA (refer Annex A). In the interests of future practicality, ESA believes that if the separation contour pattern developed through studies within ESA can be smoothed into an agreed geographical HCIS block format, perhaps within a RALI, this would serve to make future assignments easier for the ACMA and its accredited assigners in considering future 5G mobile broadband license applications from prospective operators. This approach will ensure the continued integrity of ESA’s SRS operations in 26GHz at New Norcia is preserved through the avoidance of an undermining of the critically important radio quiet environment of New Norcia, as defined within the ITU-R Radio Regulations.

1. **What is the expected proliferation of—or demand for—services deployed under type 2 (apparatus-licensed) and/or 3 (class-licensed) models?**

No comments.

1. **Comment is sought on preferred option(s) for configuring and licensing the 26 GHz band.**

No comments.

1. **If options 3 or 5 (all variants[[2]](#footnote-2)) are preferred, how much of the band should be available for spectrum licensing and apparatus licensing?**

No comments.

1. **If options 4 or 5 (all variants) are preferred, how much of the band should be available for class licensing?**

No comments.

1. **If options 4 or 5 (all variants) are preferred, what conditions should be applied to a class licence to protect co-frequency spectrum-licensed operations (in defined areas)? Would it be appropriate to define a means of making class-licensed use visible (for example, through a form of voluntary device registration)?**

No comments.

1. **Are there any other replanning options that should be considered?**

No comments.

1. **Is there likely to be sufficient demand for type 1 services in regional centres outside metropolitan areas, and if so, what centres (either explicitly listed or by population threshold) should be included in the expanded licence areas?**

No comment.

As a final observation, ESA has noted in Appendix 1, Table 6 titled “Summary of ITU-R Sharing Studies” there is an inference that future potential 5G/IMT-2020 operators might assume that geographical separation from SRS stations could be as small as “less than 1km (with clutter/terrain losses)”. This may be misleading and amendment of the text in the “Results” column of Table 6 is recommended. Accordingly, perhaps the text in the Results column could read “Results indicate the need for geographical separation in the range less than 1km (non-site specific analysis) to 92 km (site-specific analysis) between IMT-2020 transmitters and EESS/SRS Earth stations. This is recommended noting that ITU-R document [5-1/406](https://www.itu.int/md/R15-TG5.1-C-0406/en) (Annex 3), Attachment 1, Clause 1.3.4.4 concludes that for New Norcia “The maximum separation distance is around 79 km.”

The development in collaboration with ACMA of a graphical representation of this separation distance plot around New Norcia at 26 GHz in HCIS blocks format is suggested above under Question 3.

**Conclusion.**

Again, thank you for your invitation to comment on this consultation paper titled “Options for wireless broadband in the 26 GHz band” (IFC 32/2018). ESA is keen to continue to work collaboratively with the ACMA on these important issues. Accordingly, ESA (and I on behalf of ESA) would be pleased to further elaborate on any matter raised within this submission. I have pleasure in presenting this contribution on behalf of ESA for your consideration.

Yours sincerely,



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Richard Jacobsen

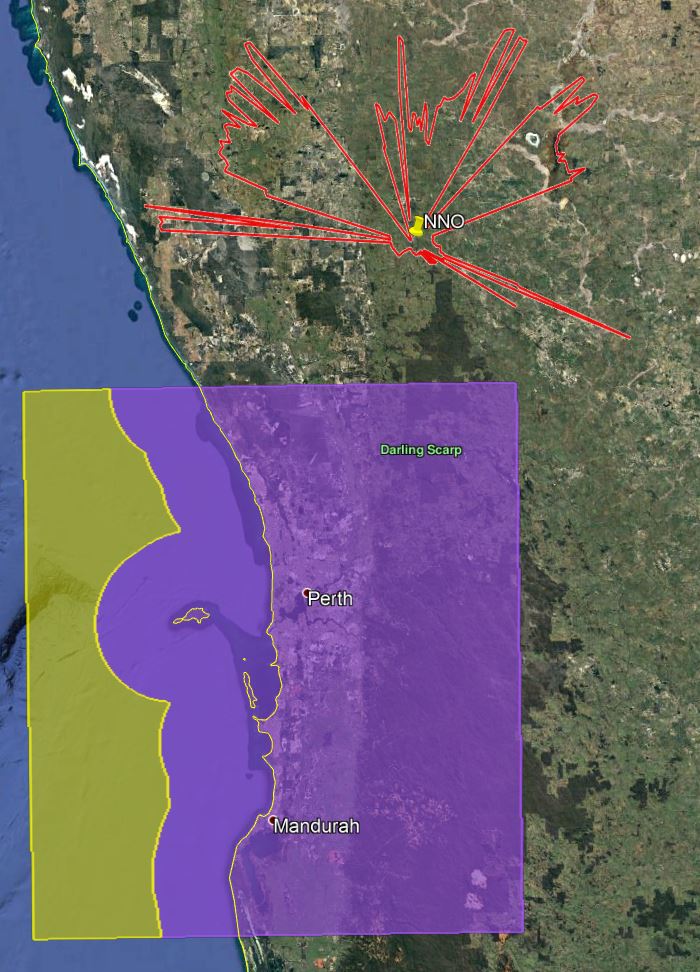
Managing Director

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**Annex A**

**New Norcia 26-GHz coordination contour for IMT-2020 (suburban single entry / TVG Gtx only / no clutter - worst case result with 78.5 km of maximum separation distance) with the embargo 69 area over Perth.**



1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)