

**SubmissionToAustralian Communications and Media AuthorityOn 26  
GHz**

**9 November 2018**

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## 1. Who is Viasat?

Viasat Inc (Viasat) is a NASDAQ listed global communications company that has been in operation for more than 30 years comprising more than 5,200 employees across 28 offices around the world.

Viasat is a leading provider of both satellite and terrestrial broadband communications solutions, and as the operator of a large fleet of Ka-band spacecraft, Viasat services 60 million devices per year on airplanes, and 700,000 homes, through 5 satellites currently in orbit. Viasat has two additional Ka-band spacecraft under construction, and over AUD 4 billion in broadband investment globally.

Viasat believes in fearless innovation. Viasat is finding better ways to deliver connections with the capacity to change the world. Viasat is developing the ultimate global communications network to power high-quality, secure, affordable, fast connections to impact people's lives anywhere they are—on the ground, in the air or at sea.

## 2. Submission on options for wireless broadband in the 26 GHz band

Viasat welcomes the opportunity to provide these short comments on the Australian Communications and Media Authority's (ACMA) consultation on options for wireless broadband in the 26 GHz band (**Consultation Paper**).

Viasat is filing these brief comments to address any possibility that ACMA may decide to take a holistic view of all issues affecting the 26 and 28 GHz bands. Viasat seeks to emphasize that the environments in the 26 and 28 GHz bands are very different and urges ACMA to recognize that fact as it approaches these two proceedings. Specifically, the existing allocations, uses and operating environments in the two bands have different histories. Therefore, ACMA should not assume that there can be any extrapolation from the 26 GHz band to the 28 GHz band.

## 3. Studies conclude that 5G is not compatible with satellite.

In the ITU Radiocommunication Sector (ITU-R), as part of the studies called for by the World Radiocommunication Conference in 2015 (WRC-15), the 5G and other industries, including the satellite industry, have examined the potential to coexist in the 26 GHz spectrum, even though the deployment of satellite user terminals in the 26 GHz band is very limited.

In the 26 GHz band it has been determined that 5G systems are not compatible with the operation of satellite user terminals in nearby areas.<sup>1</sup> Another ITU-R study concluded: “For the case of ubiquitous deployment of small FSS earth stations, sharing between IMT [5G] and FSS is not practicable within the same geographical areas, particularly as it is not feasible to individually coordinate large numbers of ubiquitous earth stations, nor is it even possible to determine a coordination contour around ubiquitous earth stations.”<sup>2</sup>

While these studies involved the 26 GHz band, which is not used as intensively as the 28 GHz band, the conclusions about 5G's incompatibility with widely-deployed satellite services nevertheless are significant, and very likely understate the problem of introducing 5G into the 28 GHz band.

As to 5G compatibility with satellite use of the 28 GHz band, the issue has not been fully studied because the 28 GHz band was taken “off the table” for consideration as a candidate for 5G, and 33 GHz of other spectrum has been identified instead (See Resolution 238 (WRC-15) a copy of which is

<sup>1</sup> ITU Document TG 5-1/406 Attachment 3 to Annex 3, Study L.

<sup>2</sup> *Id.*, Study O.

included as **Annexure A**). Therefore, it is not possible to extrapolate the results from the 26 GHz band to the 28 GHz band.

Viasat looks forward to continued engagement with ACMA.

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## Attachment A

**RESOLUTION 238 (WRC-15)**  
**Studies on frequency-related matters for International Mobile Telecommunications identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of International Mobile Telecommunications for 2020 and beyond**

The World Radiocommunication Conference (Geneva, 2015),

*considering*

- a)* that International Mobile Telecommunications (IMT) is intended to provide telecommunication services on a worldwide scale, regardless of location and type of network or terminal;
- b)* that IMT systems have contributed to global economic and social development;
- c)* that IMT systems are now being evolved to provide diverse usage scenarios and applications such as enhanced mobile broadband, massive machine-type communications and ultrareliable and low-latency communications;
- d)* that ultra-low latency and very high bit rate applications of IMT will require larger contiguous blocks of spectrum than those available in frequency bands that are currently identified for use by administrations wishing to implement IMT;
- e)* that it may be suitable to examine higher frequency bands for these larger blocks of spectrum;
- f)* that there is a need to continually take advantage of technological developments in order to increase the efficient use of spectrum and facilitate spectrum access;
- g)* that the properties of higher frequency bands, such as shorter wavelength, would better enable the use of advanced antenna systems including MIMO and beam-forming techniques in supporting enhanced broadband;
- h)* that ITU-T has initiated the study of network standardization for IMT for 2020 and beyond;
- i)* that adequate and timely availability of spectrum and supporting regulatory provisions is essential to realize the objectives in Recommendation ITU-R M.2083;
- j)* that harmonized worldwide bands and harmonized frequency arrangements for IMT are highly desirable in order to achieve global roaming and the benefits of economies of scale;
- k)* that identification of frequency bands allocated to mobile service for IMT may change the sharing situation regarding applications of services to which the frequency band is already allocated, and may require additional regulatory actions;
- l)* the need to protect existing services and to allow for their continued development when considering frequency bands for possible additional allocations to any service,

*noting*

- a) that Resolution ITU-R 65 addresses the principles for the process of development of IMT for 2020 and beyond, and that Question ITU-R 77-7/5 considers the needs of developing countries in the development and implementation of IMT;
- b) that Question ITU-R 229/5 seeks to address the further development of IMT;
- c) that IMT encompasses both IMT-2000, IMT-Advanced, and IMT-2020 collectively, as described in Resolution ITU-R 56-2;
- d) Recommendation ITU-R M.2083, on the framework and objectives of the future development of IMT for 2020 and beyond;
- e) that Report ITU-R M.2320 addresses future technology trends of terrestrial IMT systems;
- f) Report ITU-R M.2376, on technical feasibility of IMT in the frequency bands above 6 GHz;
- g) that Report ITU-R M.2370 analyses trends impacting future IMT traffic growth beyond the year 2020 and estimates global traffic demands for the period 2020 to 2030;
- h) that there are ongoing studies within ITU-R on the propagation characteristics for mobile systems in higher frequency bands;
- i) the relevance of provisions in Nos. **5.340**, **5.516B**, **5.547** and **5.553**, which may need to be taken into account in studies;
- j) that the FSS allocation in the frequency band 24.65-25.25 GHz was made by WRC-12,

*recognizing*

- a) that there is a lead time between the allocation of frequency bands by world radiocommunication conferences and the deployment of systems in those bands, and that timely availability of wide and contiguous blocks of spectrum is therefore important to support the development of IMT;
- b) that frequency bands allocated to passive services on an exclusive basis are not suitable for an allocation to the mobile service;
- c) that any identification of frequency bands for IMT should take into account the use of the bands by other services and the evolving needs of these services;
- d) that there should be no additional regulatory or technical constraints imposed to services to which the band is currently allocated on a primary basis,

*resolves to invite ITU-R*

1. to conduct and complete in time for WRC-19 the appropriate studies to determine the spectrum needs for the terrestrial component of IMT in the frequency range between 24.25 GHz and 86 GHz, taking into account:
  - technical and operational characteristics of terrestrial IMT systems that would operate in this frequency range, including the evolution of IMT through advances in technology and spectrally efficient techniques;
  - the deployment scenarios envisaged for IMT-2020 systems and the related requirements of high data traffic such as in dense urban areas and/or in peak times;

- the needs of developing countries;
- the time-frame in which spectrum would be needed;

2. to conduct and complete in time for WRC-19 the appropriate sharing and compatibility studies<sup>3</sup>, taking into account the protection of services to which the band is allocated on a primary basis, for the frequency bands:

- 24.25-27.5 GHz<sup>4</sup>, 37-40.5 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz, 66-76 GHz and 81-86 GHz, which have allocations to the mobile service on a primary basis; and
- 31.8-33.4 GHz, 40.5-42.5 GHz and 47-47.2 GHz, which may require additional allocations to the mobile service on a primary basis,

*further resolves*

1. to invite CPM19-1 to define the date by which technical and operational characteristics needed for sharing and compatibility studies are to be available, to ensure that studies referred to in *resolves to invite ITU-R* can be completed in time for consideration at WRC-19;

2. to invite WRC-19 to consider, based on the results of the above studies, additional spectrum allocations to the mobile service on a primary basis and to consider identification of frequency bands for the terrestrial component of IMT; the bands to be considered being limited to part or all of the bands listed in *resolves to invite ITU-R* 2,

*invites administrations*

to participate actively in these studies by submitting contributions to ITU-R.

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<sup>3</sup> including studies with respect to services in adjacent bands, as appropriate.

<sup>4</sup> When conducting studies in the band 24.5-27.5 GHz, to take into account the need to ensure the protection of existing earth stations and the deployment of future receiving earth stations under the EESS (space-to-Earth) and SRS (space-to-Earth) allocation in the frequency band 25.5-27 GHz