8 September, 2020

Submitted to: 226.postfach@bnetza.de

Re: Viasat response to the draft of the administrative regulation for local broadband (IMT/5G) frequency allocations in the 26 GHz band

Viasat is pleased to submit comments on the draft regulation for local broadband frequency allocation for local broadband frequency use of the 24.25-27.5 GHz (26 GHz band) published by Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railways Unit on 27th July 2020. Viasat supports the proposal to identify the 26 GHz band for IMT/5G and to maintain compliance with the European Roadmap that preserves 27.5-29.5 GHz (28 GHz band) for satellite broadband services.

Viasat is a global leading provider of communications solutions across a wide variety of technologies, both satellite and terrestrial. As the world's only vertically integrated end-to-end satellite operator, we design and build every component of our system—user terminals, satellite payloads and ground stations—to meet the market demand for reliable, effective and affordable high-speed broadband connectivity.

Our use of the Ka band, specifically 27.5-30 GHz, is robust as Viasat uses this spectrum to make high-speed broadband services available to millions of households and businesses in North America, Central America, Latin America,[1] Australia,[2] and across Europe[3]. Viasat also connects airline passengers and crew around the world with a home-like broadband experience wherever they travel and to support airlines' digitization of their fleets.

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[1] *https://viasat.com.mx/community-wi-fi/?lang=en; Viasat brings fastest home satellite internet service to Mexico, https://www.viasat.com/news/viasat-brings-fastest-home-satellite-internet-service-mexico; Viasat, Visiontec broaden Brazilian partnership to focus on delivering high-speed, high-quality satellite internet to homes across brazil, https://www.viasat.com/news/viasat-visiontec-broaden-brazilian-partnership-focus-delivering-high-speed-high-quality.*

[2] *ViaSat Wins $286M Satellite Broadband Deal with Australia, https://spacenews.com/viasat-wins-286m-satellite-broadband-deal-australia/.*

[3] *Viasat's expansion in Europe helps bridge the gap to faster broadband (video) https://corpblog.viasat.com/viasats-expansion-in-europe-helps-bridge-the-gap-to-faster-broadband/; Viasat affirms commitments to bring its powerful viasat-3 satellite to Europe, https://www.viasat.com/news/viasat-affirms-commitments-bring-its-powerful-viasat-3-satellite-europe; Viasat affirms commitments to bring its powerful viasat-3 satellite to Europe, https://www.viasat.com/news/viasat-affirms-commitments-bring-its-powerful-viasat-3-satellite-europe.*

With regard to IMT/5G deployment in the 26 GHz band in Germany, the subject of the current consultation, Viasat has supported the study and the development of reasonable operating paremeters for IMT/5G in the 26 GHz band through the ITU WRC-19 process and supports Germany's proposal to designate the 26 GHz band for IMT/5G. To this end, Viasat urges Germany to conform domestic implementation of IMT/5G to the operating parameters decided in Resolution 242 (WRC-19). Among several items, Viasat emphasizes the importance of the portion of Resolution 242 (WRC-19) that requires that IMT/5G base stations within the 26 GHz frequency band with high power operations (e.i.r.p. per beam exceeding 30 dB(W/200 MHz)) not point their antenna beams upward at the geostationary satellite orbit, and maintain a minimum separation angle of ≥ ±7.5 degrees.

As stated, Viasat, as with many satellite operators, uses the 28 GHz band. As such, Viasat is concerned about potential out-of-band emissions from 26 GHz band IMT/5G systems into the 28 GHz band. Increases in power by IMT/5G systems in the 26 GHz band could increase out-of-band emissions in the 28 GHz band. The potential impact of increased out-of-band emissions in the 26 GHz band could adversely affect the interference environment in the 28 GHz band by impacting the ability of satellite receiving signals from earth stations. Therefore, the consultation should address appropriate consideration for out-of-band limitations on IMT/5G to protect satellite service in the 28 GHz band.

In addition to the out-of-band emissions that may be caused by IMT/5G deployment on the ground, Viasat is also concerned about deployment of unmanned aircraft in the 26 GHz band because the IMT/5G base station antennas pointed upwards to communicate with the unmanned aircraft could transmit signals towards satellites and potentially increase out-of-band emissions toward space-based satellite receivers operating in the adjacent 28 GHz band.

Viasat also supports the collection of IMT/5G deployment information, as described in subsection 2.4 of the draft regulation, which requires new applicants to provide details including geographic coverage area, frequency demand and the type of applications being deployed (e.g., Hotspots, Fixed Wireless Access, etc.). This information will help ensure efficient and appropriate usage of the 26 GHz band.

WRC-19 designated over 17 gigahertz of spectrum for IMT/5G in the mmWave bands, including the 26 GHz band. Further, Germany's draft regulation states that even more mmWave spectrum will be available for IMT/5G including the 42 GHz band (40.5-43.3 GHz), and many countries are making even more spectrum available for IMT/5G in low- mid- and high-bands.

Viasat supports the draft regulation's proposal that the 26 GHz band continue to protect existing radio relay applications (e.g., fixed service point-to-point, FS P-P), allow

new radio relay applications (e.g. fixed service point-to-point, FS P-P), and allow IMT/5G to use the band on a coordinated basis. In aggregate, the identified spectrum for IMT/5G is more than adequate for deployment in Germany.

As clear recognition of satellite's use of the mmWave band at the European level, the CEPT roadmap of IMT/5G (Doc. ECC(20)055 Annex 15) harmonized the 28 GHz band for satellite broadband service and supports the worldwide use in this band for ubiquitous Earth Stations on Mobile Platforms (ESOMPs) based on the results of WRC-15 and WRC-19 and Footnote 5.517A RR (WRC-19)[4]. CEPT has started the work in the relevant working groups and project teams to reflect the results of WRC-19 in ECC/DEC/(13)01[5].

In conclusion, the draft regulation allows Germany to achieve robust IMT/5G and satellite broadband mmWave deployments by following the global trends that allow 5G to deploy in the 26 GHz band (as well as numerous other bands) and satellite to deploy in the 28 GHz band thereby capturing economies of scale in both industries. Here again, the ITU's WRC-19 has paved the way with the mmWave designation for IMT/5G across the 26 GHz band. As the draft proposal outlines, Germany has 3.25 gigahertz of spectrum available in the 26 GHz band that can readily accommodate multiple IMT/5G operators. Current German regulation appropriately does not propose IMT/5G use in the 28 GHz band which would foreclose the opportunity to provide satellite broadband services.

Viasat would like to highlight the following five final points:

1. Frequency assignments for IMT/5G in the 26 GHz band should require the proposed deployment information.
2. Viasat urges Germany to conform its domestic implementation of IMT/5G in the 26 GHz band to the operating parameters adopted in Resolution 242 (WRC-19).
3. The aggregate level of IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band must not cause harmful interference to satellite receivers in the 28 GHz band.

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[4] WRC-19 adopted footnote 5.517A establishing Earth Stations in Motion (ESIM), known in CEPT as ESOMP, as part of the Fixed Satellite Service in the 27.5-29.5 GHz band. Footnote 5.517A cross references Resolution 169 (WRC-19) "Use of the frequency bands 17.7-19.7 GHz and 27.5-29.5GHz by earth stations in motion communicating with geostationary space stations in the fixed-satellite service" for rare cross border situations.

[5] ECC/DEC/(13)01 ECC Decision of 8 March 2013 on the use, free circulation, and exemption from individual licensing of Earth stations on mobile platforms (ESOMPs) in the frequency bands available for use by uncoordinated FSS Earth stations within the ranges 17.3-20.2 GHz and 27.5-30.0 GHz, amended 26 October 2018.

4. Caution should be taken when permitting the 26 GHz band to be used for IMT/5G base stations for unmanned aircraft as upward pointing of base station antennas towards the geostationary arc can increase out-of-band emissions toward satellite receivers in the adjacent 28 GHz band.
5. The use of IMT/5G in the 26 GHz band must not constrain continued use of the entire 28 GHz band spectrum for satellite broadband services.

Viasat appreciates Germany's consideration of the information above and commitment to the development of satellite broadband services throughout the 27.5-30 GHz part of the Ka band. We remain at your disposal to answer any further questions or provide further details as requested.