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Úrad pre reguláciu elektronických komunikácií a poštových služieb
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Submitted to: e-podatelna@teleoff.gov.sk

Re: Viasat response to Slovakia's Office for the Regulation of Electronic Communications and Postal Services consultation on the future use of the 26 GHz frequency band

Viasat is pleased to have the opportunity to comment on the Office of the Regulation of Electronic Communications and Postal Services ("RU") request for public comment on the future use as well as possible frequency allocation of the 24.25-27.5 GHz (26 GHz) frequency band in Slovakia ("Consultation").

As the Consultation highlights, the 26 GHz frequency band, among many other bands, has been identified for terrestrial systems including IMT/5G to provide broadband wireless electronic communications services pursuant to European Commission Decisions (EU) 2019/784 of 14.5.2019 and (EU) 2020/590 of 24.4.2020.

In order to support new IMT/5G technologies, the RU is considering the possibility of allocating frequencies in the 26 GHz frequency band for public electronic communications services. Viasat provides general comments and then answers to relevant questions of the Consultation to assist the RU on this important spectrum use proposal.

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, Viasat designs and builds every component of our networks—user terminals, satellite payloads and ground stations—to meet the market demand for reliable, effective and affordable, high-speed broadband connectivity.

Viasat's use of the Ka band, specifically the paired frequency bands 27.5-30 GHz (Earth-to-space)/17.7-20.2 GHz (space-to-Earth), 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 Europe³.

The 27.5-29.5 GHz (28 GHz) portion of the Ka band, that is adjacent to the 26 GHz band, is a critical element of the satellite broadband connected world. The satellites using the 28 GHz band bridge the digital divide today and will continue to do so in the future. These satellites provide ubiquitous connectivity that no other technology can offer.

Viasat has pioneered mobile broadband services using innovative antenna designs for Earth Stations in Motion (ESIM) service to aircraft, ships and other land-based users. For example, passengers and crew on aircraft, use the 28 GHz band, in addition to the rest of the Ka bands identified above, to meet demand for gate-to-gate, high-speed broadband for communications and entertainment, cabin support, and fleet digitization and maintenance. Global shipping and passenger vessels rely on the 28 GHz and the rest of the Ka bands above for navigation and broadband communications benefiting passengers and crew and facilitating the transportation of cargo. Trains, buses and other land-based vehicles also rely on satellite broadband services, operating in the 28 GHz band and the rest of the Ka bands above, for passenger connectivity, operations and maintenance support, and fleet tracking.

Viasat supports the RU identifying the 26 GHz band for IMT/5G and aligning Slovakia's spectrum plan with the European Roadmap. Viasat also supports the EU Roadmap's preservation of the 28 GHz band for satellite broadband services.

Viasat has supported the study and development of reasonable operating parameters for IMT/5G in the 26 GHz band throughout the ITU WRC-19 process and supports Slovakia's decision to designate the 26 GHz band for IMT/5G. To this end, Viasat

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 Completes Brazilian Residential Internet Service Roll-Out--Now Covers 100% of the Country; Offers New Premium Satellite Internet Service Plan with Highest Speed and Data*, <https://www.prnewswire.com/news-releases/viasat-completes-brazilian-residential-internet-service-roll-outnow-covers-100-of-the-country-offers-new-premium-satellite-internet-service-plan-with-highest-speed-and-data-301161443.html>.

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>.



urges Slovakia 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 to be permitted to point their antenna beams upward at the geostationary satellite orbit, and to maintain a minimum separation angle of ≥ 7.5 degrees.

As stated above, Viasat, as with many satellite operators, uses the adjacent 28 GHz frequency band for satellite broadband services throughout Europe and the rest of the world. As such, Viasat is concerned about potential out-of-band emissions from the 26 GHz band by 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 receivers in space to receive signals from earth stations. Therefore, Viasat respectfully requests that the RU's Consultation and conditions for IMT/5G operations in the 26 GHz band also address out-of-band limitations on IMT/5G operations to protect satellite broadband 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 satellite receivers in space and potentially increase out-of-band emissions in the adjacent 28 GHz band. Viasat urges the RU to ensure that Resolution 242 (WRC-19) 26 GHz band out-of-band limits and pointing requirements are applied to IMT/5G operations in order to protect 28 GHz satellite receivers in space.

WRC-19 designated over 17 gigahertz of spectrum for IMT/5G in the mmWave bands, including the 26 GHz band.⁴ Viasat urges Slovakia to take the vast amount of spectrum available for IMT/5G in the mmWave bands identified by WRC-19 and the additional low-band and mid-band spectrum being made available in countries around the world for IMT/5G into account as part of its overall review of spectrum for IMT/5G services.

⁴ ITU Press Release, *WRC-19 identifies additional frequency bands for 5G*, (22 Nov. 2020) (those bands include the following: 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 and 66-71 GHz), <https://news.itu.int/wrc-19-agrees-to-identify-new-frequency-bands-for-5g/>.

In addition to the general comments above, Viasat provides answers to the following questions included in the Consultation:

Question 5.1: In your opinion, is it appropriate to consider co-existence between mobile broadband wireless networks and fixed point-to-point links in the 26 GHz frequency band?

Answer: Viasat is of the view that the use of the 26 GHz band by FS point-to-point and IMT/5G is possible on a coordinated basis as described in ECC Report 303.⁵ Furthermore, industry consensus is that IMT/5G in millimeter bands will be used on a very localized and geographically limited basis due to a short signal propagation radius. A UK OFCOM paper titled “5G Spectrum Access in 26 GHz”, states that 5G cell radius will only be “50 meters to a few hundred meters.”⁶ Such small cell radius limits the deployment of IMT/5G in the 26 GHz band. As such, the short range and limited deployment of IMT/5G limits the occurrences of potential interference with fixed point-to-point links in the 26 GHz band.

Question 5.2: Do you think that the Authority should grant current individual license holders permission to migrate to other frequencies for the operation of fixed point-to-point connections from the 26 GHz frequency band before the expiry date of individual permits, for example by the end of 2025 at the latest?

Answer: Viasat’s view is that current operators of fixed service point-to-point (FS P-P) systems are unlikely to invest in a migration from 26 GHz without significant market demand to justify the investment in equipment upgrades.⁷ As mentioned earlier, there is ample spectrum within the 3.25 GHz comprising the 26 GHz frequency band for both existing FS P-P and new IMT/5G. Within the 26 GHz band, more than 1 GHz should be considered for IMT/5G use only if there is a market demand of more than 1 GHz of spectrum by IMT/5G providers. And if market demand is more than the 1 GHz of 26 GHz spectrum as outlined by the ECC, all possible measures should be taken so that new IMT/5G systems can use the 26 GHz spectrum on a coordinated basis with existing fixed

⁵ ECC/Rpt/303 (5 July 2019) on “Guidance to administrations for Coexistence between 5G and Fixed Links in the 26 GHz band (“Toolbox”)”.

⁶ https://www.ofcom.org.uk/_data/assets/pdf_file/0014/104702/5G-spectrum-access-at-26-GHz.pdf.

⁷ TELKO.in Roundtable (17 August 2020) “The addition of the 26 GHz band also complicates the strategic situation. While - it seems - all four players are interested in the C-band, I am not sure if the same is true for the 26 GHz band.” Cezary Albrecht, (T-Mobile PL). <https://www.telko.in/nowa-aukcja-5g-wszystkie-zmiany-jeszcze-mozliwe>.

point-to-point **users**. The use of the 26 GHz band by FS P-P and IMT/5G is possible on a coordinated basis as described in ECC Report 303.⁸ In aggregate, the 26 GHz band is more than adequate to accommodate deployment of existing FS and new IMT/5G without migration of FS point-to-point links to other bands.

The 26 GHz band is only in the early stages of use by the terrestrial industry allowing for growth in the band for IMT/5G. Given the ample room in the 26 GHz band for IMT/5G, migration of the FS links from the 26 GHz is not necessary.

Question 6.1: Do you think that the RU should offer in the tender the whole frequency band of 3.25 GHz (24.25 - 27.5 GHz) with local restrictions on its use caused by the current operation of fixed point-to-point links?

Answer: The amount of the spectrum offered in the tender should align with the actual and demonstrated market demand for IMT/5G.

Question 6.4: In your opinion, which way of authorizing base stations is most appropriate - an individual authorization for each base station or one decision by the RU on the conditions under which the frequencies can be used?

Answer: An individual base station authorization framework for IMT/5G should be the preferred approach to manage national coordination with existing FS links in the shared portions of the spectrum.

In conclusion, Viasat urges Slovakia to follow global trends that identify the 26 GHz band (as well as numerous other bands) for IMT/5G and the 28 GHz band for satellite broadband services. Here again, the ITU's WRC-19 has paved the way with the mmWave designation for IMT/5G across the 26 GHz band.

Viasat summarizes the following points and urges RU to:

1. Implement IMT/5G in the 26 GHz band and maintain the 28 GHz band for satellite services.
2. Conform its domestic spectrum plan for the 26 and 28 GHz bands to the CEPT Roadmap for IMT/5G and harmonize and secure the 28 GHz band for satellite broadband service and not make the 28 GHz band available for IMT/5G.

⁸ ECC/Rpt/303 (5 July 2019) on "Guidance to administrations for Coexistence between 5G and Fixed Links in the 26 GHz band ("Toolbox")".



3. Ensure that the aggregate level of IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band does not cause harmful interference to satellite receivers in the 28 GHz band.
4. Condition IMT/5G base station authorizations on Resolution 242 (WRC-19) out-of-band limits and pointing requirements in order to protect 28 GHz satellite receivers in space.
5. Ensure that the use of IMT/5G in the 26 GHz band must not constrain the use of the entire 27.5-29.5 GHz band for satellite broadband services, including GSO ESIM.

Viasat appreciates RU's consideration of the information above and commitment to the development of satellite broadband services throughout the 27.5-30 GHz and 17.7-20.2 GHz portions of the Ka band, including the 28 GHz portion of the band. We remain at your disposal to answer any further questions or provide further details as requested.