



13 January 2023

**The Public Services Regulatory Commission**  
45 Unijas street, Riga, LV-1039

Submitted to: sprk@sprk.gov.lv

**Re: Consultation on the planned use of the right to use the limited radio frequency spectrum band 25.1-27.5 GHz from January 1, 2024.**

Viasat provides the following comments to the Public Services Regulatory Commission (PSRC) on the *Consultation on the planned use of the right to use the limited radio frequency spectrum band 25.1-27.5 GHz from January 1, 2024*<sup>1</sup> ("Consultation"). Viasat submits these comments on the 26 GHz (24.25-27.5 GHz) and 28 GHz (27.5-29.5 GHz) bands to ensure that the PSRC has a full record on the use of these bands as satellite broadband services continue to deploy, particularly in the 28 GHz band.

In these comments Viasat: (1) provides information on the satellite-powered broadband services that Viasat and other satellite operators provide in Europe and around the world in the paired 17.7-20.2 GHz downlink and 27.5-30 GHz uplink bands, that include the critical 27.5-29.5 GHz (28 GHz) band; (2) supports the identification of the 26 GHz band for terrestrial IMT/5G and the preservation of the 28 GHz band for satellite-powered broadband services; (3) proposes aligning the amount of spectrum being identified for terrestrial IMT/5G in the 26 GHz band with the actual and demonstrated market demand for terrestrial IMT/5G; (4) recommends conditions that need to be placed on terrestrial IMT/5G services in the 26 GHz band to protect satellite-powered services in the adjacent 28 GHz band; (5) recommends that PSRC ensure that the *aggregate* level of terrestrial IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band does not cause interference into satellite receivers in the 28 GHz band; and (6) urges the PSRC to impose a condition on 26 GHz terrestrial 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.

Viasat is a global provider of communications solutions across a wide variety of technologies, both satellite and terrestrial. Viasat's use of the Ka band, specifically the paired frequency bands 27.5-30 GHz (Earth-to-space) and 17.7-20.2 GHz (space-to-Earth), is robust as Viasat uses this spectrum today to provide hundreds of millions of high-speed

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<sup>1</sup> See Consultation document on the planned exercise of the right to use the limited band of the radio frequency spectrum 25.1-27.5 GHz from January 1, 2024 (15 December 2022, Riga), [https://www.sprk.gov.lv/sites/default/files/editor/ESPD/Faili/Dokumenti/KD\\_ES\\_par\\_planoto\\_radiofrekvencu\\_25.1\\_27.5GHz\\_izmantosanu\\_15122022.pdf](https://www.sprk.gov.lv/sites/default/files/editor/ESPD/Faili/Dokumenti/KD_ES_par_planoto_radiofrekvencu_25.1_27.5GHz_izmantosanu_15122022.pdf).



broadband connections every year to households, businesses and passengers in North America, Central America, Latin America,<sup>2</sup> Australia,<sup>3</sup> and across Europe<sup>4</sup>.

The 28 GHz portion of the Ka band, which is adjacent to the 26 GHz band, is a critical element of the satellite-powered 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 also provide ubiquitous connectivity using the same 28 GHz band spectrum for users on the move. Viasat has pioneered mobile broadband services using innovative antenna designs for earth stations on mobile platforms (ESOMPs)<sup>5</sup> to aircraft, ships and other land-based vehicles and users.

Viasat supports identifying the 26 GHz band for terrestrial IMT/5G to provide broadband wireless electronic communications services pursuant to European Commission Decisions

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<sup>2</sup> See <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>.

<sup>3</sup> See *Viasat Wins \$286M Satellite Broadband Deal with Australia*, <https://spacenews.com/viasat-wins-286m-satellite-broadband-deal-australia/>.

<sup>4</sup> See *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://news.viasat.com/newsroom/press-releases/viasat-affirms-commitments-to-bring-its-powerful-viasat-3-satellite-to-europe> ; *KLM Introduces Viasat In-Flight Wi-Fi on European Flights*, <https://www.viasat.com/about/newsroom/press-releases/klm-introduces-viasat-flight-wi-fi-european-flights/> (April 22, 2021); *Viasat Completes Acquisition of Remaining Stake in its European Broadband Joint Venture, inclusive of the Ka-Sat Satellite and Ground Assets* (April 30, 2021), <https://www.viasat.com/about/newsroom/press-releases/viasat-completes-acquisition-remaining-stake-its-european/>; *Viasat Ramps Satellite in the Middle East and Western Europe Ahead of ViaSat-3 Launch; Signs Ka-Band capacity Lease Deal with Avanti Communications* (June 3, 2021), <https://investors.viasat.com/news-releases/news-release-details/viasat-ramps-satellite-services-middle-east-and-western-europe>.

<sup>5</sup> ESOMP is the terminology used in CEPT. The ITU and other regions also use the term earth station in motion (ESIM). For purposes of these comments Viasat uses the CEPT term ESOMPs.

(EU) 2019/784<sup>6</sup> and (EU) 2020/590<sup>7</sup>. Notably, the CEPT 5G Roadmap expressly provides that the 28 GHz band is to be preserved across CEPT administrations for satellite broadband services. The CEPT 5G Roadmap (Version 10, Revised 6 March 2020) explains that “Europe has harmonized the 27.5-29.5 GHz band for broadband satellite and is supportive of the worldwide use of this band for ESOMPs. This band is therefore not available for 5G”<sup>8</sup>.

**Market use cases for the 26 GHz band are in early development thus requirements for terrestrial IMT/5G services can be fully accommodated in the 26 GHz band and other bands identified for terrestrial IMT/5G.**

There is little usage of the 26 GHz band in Europe and internationally due to limited demand for terrestrial use of mmWave at this point given the business case uncertainty. Viasat urges the PSRC to protect existing services, including satellite-powered broadband services, operating in the adjacent 28 GHz band.

The ITU WRC-19 designated over 17 gigahertz of spectrum for terrestrial IMT/5G in the mmWave bands, including the 26 GHz band<sup>9</sup>. Viasat urges the PSRC to take the vast amount of spectrum available for terrestrial 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 terrestrial IMT/5G, into account as part of its overall review of spectrum for terrestrial IMT/5G services. Given the vast amount of spectrum available for terrestrial IMT/5G in the mmWave bands, including the 26 GHz and other bands, Viasat encourages the PSRC to preserve the 28 GHz band for satellite-powered broadband services.

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<sup>6</sup> See Commission Implementing Decision (EU) 2019/784 of 14 May 2019 *on harmonisation of the 24,25-27,5 GHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services in the Union* (notified under document C(2019) 3450), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019D0784>.

<sup>7</sup> See Commission Implementing Decision (EU) 2020/590 of 24 April 2020 *amending Decision (EU) 2019/784 as regards an update of relevant technical conditions applicable to the 24,25-27,5 GHz frequency band* (notified under document C(2020) 2542), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019D0784>.

<sup>8</sup> See European Conference of Postal and Telecommunications Administrations (CEPT), *Spectrum for wireless broadband – 5G*, Section B.3 (Version 10, Revised 6 March 2020), [https://www.cept.org/Documents/ecc/57839/ecc-20-055-annex-15\\_cept\\_5g\\_roadmap](https://www.cept.org/Documents/ecc/57839/ecc-20-055-annex-15_cept_5g_roadmap).

<sup>9</sup> See 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://www.itu.int/hub/2020/01/wrc-19-identifies-additional-frequency-bands-for-5g/>.



**Any spectrum award procedure for terrestrial IMT/5G in the 26 GHz band should only be considered based on demonstrated demand.**

Viasat supports the initiation of the process for considering the assignment of spectrum for terrestrial IMT/5G, including the 26 GHz band. When considering the amount of spectrum to assign for terrestrial IMT/5G, Viasat urges the PSRC to take into account that mobile operators can accommodate 400-megahertz channel block sizes in the 26 GHz band. Block sizes of 800-megahertz are based on the implementation of multiple 400-megahertz carriers per licensee, exceeding the minimum specifications set by international standards<sup>10</sup>. Viasat urges the PSRC to carefully consider the required terrestrial IMT/5G block sizes for grants and local licensing in the 26 GHz band and only assign the amount of spectrum necessary to meet demonstrated market demand.

**Power limits on the 26 GHz band should be set to prevent out-of-band emissions.**

As stated above, Viasat, as with many satellite operators, provides broadband services in the adjacent 28 GHz frequency band 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 terrestrial IMT/5G systems into the 28 GHz band. Increases in power by terrestrial IMT/5G systems in the 26 GHz band could increase terrestrial IMT/5G out-of-band emissions into the 28 GHz band. Increased out-of-band emissions in the 26 GHz band could adversely affect the interference environment in the 28 GHz band by interfering with the ability of satellite receivers on spacecraft in space to receive signals from earth stations in their networks. Therefore, Viasat respectfully requests that the PSRC limit out-of-band emissions from terrestrial IMT/5G operations in the 26 GHz band to protect satellite-powered broadband service in the adjacent 28 GHz band. Viasat also requests that the PSRC ensure that the *aggregate level* of terrestrial IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band does not cause interference to satellite receivers in space in the 28 GHz band.

In addition to the out-of-band emissions that may be generated by terrestrial IMT/5G deployment on the ground, Viasat is also concerned about deployment of unmanned aircraft in the 26 GHz band because the terrestrial IMT/5G base station antennas pointed upwards to communicate with the unmanned aircraft could transmit signals towards satellite receivers in space and increase out-of-band emissions in the adjacent 28 GHz band. Viasat urges the PSRC to ensure that Resolution 242 (WRC-19) 26 GHz band out-of-band limits and pointing requirements are applied to terrestrial IMT/5G operations in order to protect 28 GHz band satellite receivers in space.

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<sup>10</sup> 5G specifications in ITU-R M.2150 require a minimum average spectral efficiency of 7.8 bps/Hz in dense urban areas for a cell capacity of 3 Gbps per cell in a 400 MHz channel.

Viasat has supported the study and development of reasonable operating parameters for terrestrial IMT/5G in the 26 GHz band throughout the ITU WRC-19 process. Viasat urges the PSRC to conform domestic implementation of terrestrial 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 terrestrial IMT/5G base stations within the 26 GHz frequency band with high power operations (e.i.r.p. per beam exceeding 30 dBW/200 MHz) not point their antenna beams upward and maintain a minimum separation angle of  $\geq 7.5$  degrees from the geostationary orbit (GSO). Viasat urges the PSRC to adopt these technical limitations on terrestrial IMT/5G base stations as outlined in Resolution 242 (WRC-19) to protect critical satellite broadband services operating in the 28 GHz band.

In conclusion, Viasat encourages the PSRC to follow the global trends and ensure end users in Latvia receive the benefits of satellite-powered broadband services in the 28 GHz band and terrestrial IMT/5G services in the 26 GHz band (as well as the numerous other bands that are available). These actions are consistent with the CEPT 5G Roadmap, preserve the 28 GHz band for satellite-powered broadband services, and allow the ITU's WRC-19 terrestrial IMT/5G decision to pave the way for terrestrial IMT/5G across the 26 GHz band. Viasat summarizes the following points and invites the PSRC to:

1. Recognize the robust use of the entire 28 GHz band for satellite broadband services, including gateways and ESOMPs;
2. Implement terrestrial IMT/5G in the 26 GHz band and protect the 28 GHz band for satellite-powered services consistent with the CEPT 5G Roadmap;
3. Align the amount of offered spectrum in the 26 GHz band with international standards and actual and demonstrated market demand for terrestrial IMT/5G services;
4. Ensure that the use of terrestrial IMT/5G in the 26 GHz band does not constrain the use of any part of 27.5-29.5 GHz band for satellite broadband services, including ESOMPs operations;
5. Ensure that the *aggregate* level of terrestrial IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band does not cause interference into satellite receivers in the 28 GHz band; and
6. Condition 26 GHz terrestrial 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.

We remain at your disposal to answer any further questions or provide further details, as requested.