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Amela Hatibovic Sehic  
Swedish Post and Telecom Authority (PTS)  
Box 6101  
102 32 Stockholm  
Sweden

**Reference: 22-3093 Demand Analysis for the 26 GHz and 28 GHz bands**

Dear Ms. Hatibovic-Sehic,

We appreciate this opportunity to contribute to PTS's policy development for the 26 GHz and 28 GHz bands. Avanti is the leading Ka-band high-throughput satellite capacity partner to the communications industry in Europe, Middle East, and Africa. With over 15 years of commitment to deliver reliable and highly secure satellite capacity, we extend and guarantee coverage for defence missions, enterprise solutions and critical public services. We invested \$1.2 billion in the latest Ka-band technology and shaped it to meet the communications industry. We operate a fleet of five satellite constellation with 50 GHz of Ka-band capacity and we own a fully licensed, resilient, and secure ground network of 7 Gateway Earth Stations. Today we have the power to connect over 1.7 billion people across 118 countries with a belief that everyone should have an equal opportunity to be more secure, empowered, and prosperous. As a satellite network provider, we are a part of the 5G eco-system, and we share your goal to facilitate its deployment.

It is therefore our interest to promote and advocate for the important mission that satellite services have in order to fully reap the benefits of 5G and collaborate in the effort to leave no one behind in the effort to connect the unconnected. The allocations and assignment of spectrum plays an enormous part in guaranteeing that all services and technologies can achieve their full potential and collaborate in the connectivity ecosystem. PTS has successfully made available a significant amount of spectrum for IMT, and will soon have assigned ample mmWave spectrum for each terrestrial mobile operator. Our network currently uses the 28 GHz band to provide 5G use cases and other important services and it is our call to PTS to guarantee that these services will continue to be protected.

From our understanding, the PTS is considering changing the allocations in the 28 GHz band so as to remove fixed links that support mobile operators in two 504 MHz blocks, and to introduce IMT spectrum access. While fixed links already pose a barrier to growing Fixed Satellite Services (FSS) in this band, mobile services would create a much more challenging interference environment that would impact FSS domestically and internationally.

Given the quantity of spectrum currently available for IMT, contemplating the possible reallocation of the 28 GHz to IMT from FSS would not bring significant additional benefits, but would jeopardise the critical services that already rely on FSS access to the band and that IMT cannot technically, economically, or profitably provide.

**FSS use of the 28 GHz band**

We are the leading EMEA Ka-band high throughput satellite capacity partner to the communications industry - extending and guaranteeing their coverage for defence missions, enterprise solutions and critical public services.





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We currently provide electronic communication services in Sweden, which are duly notified under Chapter 2 Section 1 of the Electronic Communications Act, and the PTS is our Notifying Administration for the ITU. We also have general authorisations for the provision of electronic communications networks throughout Europe.

Our satellite solutions provide secure, rapid, and reliable connectivity for government digital inclusion programmes, disaster relief management and critical services. This includes connectivity for rural and ultra-rural communities, which is a key part of the 5G vision of a [network of networks](#). These services rely on continued access to the 27.5 – 30 GHz band for satellite uplinks.

The 28 GHz band is intensively used for satellite services and has become increasingly crowded in recent years as satellite operators pursue new opportunities to provide services using non-geostationary satellite systems and user Earth Stations in Motion terminals for aeronautical and maritime services. Avanti, as a High Throughput Satellite operator, uses the 27.5 – 30 GHz for its greater bandwidth. Meanwhile, a new generation of non-geostationary constellations use thousands of links to transmit on an unprotected basis. As we are sure the PTS understands, the increased demand for FSS spectrum presents challenges for operators of geostationary orbit satellites, such as Avanti.

Given the rapidly growing demand for FSS in the 28 GHz band, we would support any reform to allocate more of the band for FSS in Sweden, and PTS's proposal to remove fixed links from the band by the end of 2029 would be a positive contribution towards this.

Currently, the increasingly complex interference environment is only workable because of careful coordination process at the ITU level, in which Sweden actively participates. Avanti strongly urges the Administration to align its domestic spectrum policies with the international Radio Regulations. These provide a global primary allocation for FSS at 27.5 – 30 GHz and are being developed to enable more efficient and intensive use by satellite services.

As an established service operator providing critical services and using harmonised equipment, we trust that the PTS will ensure that any decisions are based on technical studies that demonstrate that any change to the interference environment would not have an impact on our partners in Sweden, or other Administrations.

### **Spectrum availability for IMT**

Terrestrial mobile providers in Sweden currently benefit from an abundance of spectrum resources. PTS has assigned enough IMT spectrum for each mobile operator in Sweden to have approximately 250 MHz of spectrum below 4 GHz. In the last four years alone, the PTS assigned 450 MHz of the conventional IMT bands below 4 GHz, increasing the amount of spectrum previously available for IMT by 76%.

These frequencies are distributed across the following bands, with recent assignments highlighted in **bold**:

- **450 MHz (2 x 5 MHz)**
- **700 MHz (2 x 20 MHz)**
- 800 MHz (2 x 30 MHz)
- 900 MHz (2 x 35 MHz)
- 1800 MHz (2 x 70 MHz)
- 2.1 GHz (2 x 59.4 MHz + 15 MHz)
- **2.3 GHz (80 MHz)**
- 2.6 GHz (2 x 70 MHz + 50 MHz)





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## - 3.6 GHz (320 MHz)

As the consultation paper explains, Sweden has also released a further 850 MHz of indoor-only 26 GHz band frequencies.

We note that PTS is also planning on awarding 2,400 MHz of 26 GHz spectrum for outdoor usage from 2025 and is facilitating trial access to 11.5 GHz of spectrum across several mmWave bands. This includes frequencies with IMT identifications and wide available bandwidths, such as the 66 – 71 GHz band.

For context, the European Commission's [Connectivity Toolbox](#) recommends assignment of at least **1 GHz** of 26 GHz spectrum "provided there is clear evidence of market demand". Despite this mandate, less than 30% of National Regulatory Authorities in the European Union have assigned the band as of Q1 2022, according to data gathered by the [European 5G Observatory](#).

For example, Cyprus originally planned in 2019 to award the 26 GHz band for IMT alongside the 700 MHz and 3.6 GHz bands. However, when the regulator issued a consultation, it found no clear demand for the band. In 2020 it [decided](#) to not proceed with its plan to assign the 26 GHz band.

It is important to also highlight the long history of 26 GHz spectrum awards in Europe, which in many cases have failed to deliver commercial mobile services to consumers, and yet, the IMT community keeps advocating for the need of more and more resources despite the abundance that they have already and the lack of evidence that it has contributed to reduce the connectivity gap.

The disappointing impact of the mmWave for IMT has also been observed beyond Europe. As the consultation paper notes, the United States assigned the band for IMT and promoted the use of the 28 GHz band internationally. It awarded a total of 1,550 MHz across both the 26 GHz and 28 GHz bands. However, in July 2021, the Chair of the Federal Communications Commission, Jessica Rosenworcel [stated](#) that the agency's focus on mmWaves had been a mistake and had risked increasing the digital divide.

Altogether, given the availability of spectrum for IMT in both conventional and mmWave bands, there are reasons to doubt there is sufficient demand for IMT spectrum to justify reallocation of the 28 GHz band. If there were additional demonstrated demand for mmWave spectrum for IMT, then the PTS could use one of the several harmonised mmWave bands identified internationally for IMT at WRC-19.

## Conclusion

We respectfully believe that the 28 GHz band may best contribute to the deployment of 5G by supporting existing and growing integrated satellite services. Achieving the connectivity goals requires a collaboration of technologies that best fit the purpose and we aim to highlight that satellite services are fundamental to do so. Reducing their access to spectrum in an already crowded environment that tends to get even more crowded with the deployment of NGSO constellations, will do a disservice to the industry and ultimately to consumers, government, and critical emergency services, amongst others.

There is no firm evidence that supports the need for even more spectrum resources for IMT over the already more than 4,000 MHz of spectrum available for IMT in Sweden, including the 26 GHz band.

Thank you for taking the time to read this submission. We are available to address any questions you have about our system.





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Sincerely,

Steve Jones

Head of Regulatory  
Avanti Communications

