

Targeted Consultation on Mobile Satellite Services in the EU 2 GHz MSS frequency band after May 2027

Fields marked with * are mandatory.

1. INTRODUCTION

In 2008, a common EU selection procedure for the use of the 1980-2010 MHz and 2170-2200 MHz frequency bands for Mobile Satellite Services (MSS) ('the EU 2 GHz MSS band') was established by Decision No 626/2008/EC of the European Parliament and of the Council (MSS Decision) to avoid fragmentation of the internal market for MSS and to minimise/prevent the risk of interference between different MSS systems.

On that basis and based on a call for application (OJ C 201/4, 7.8.2008), in 2009, the Commission selected two operators, Inmarsat (now Viasat) and Solaris (now Echostar), to whom all Member States subsequently granted national authorisations for 18 years. These authorisations will expire in May 2027.

In view of the expiry of the rights of use in 2027, the European Commission invited the Radio Spectrum Policy Group (RSPG) to assess different possible scenarios for the use of the frequency bands 1980-2010 MHz and 2170-2200 MHz beyond 2027. The RSPG delivered its opinion (RSPG24-007 FINAL) on 7 February 2024.

In parallel, the Commission contracted a study titled "Study on Mobile satellite services (MSS) in the 2 GHz band in the EU - Implementation of the current regulatory framework and an overview of the satellite connectivity market", with the aim to assess the EU 2 GHz MSS regulatory framework, the deployments in the band by licensees and how Member States have licenced the operators, and to take stock of the current state of play in international satellite markets (study under publication).

In this framework, taking into account the need to ensure predictability and consistency (Article 45(2)) but also effective competition (Article 52) when granting, amending or renew rights of use for radio spectrum, and in line with the considerations set out in Article 50(2) EECC, this consultation will help assess whether full or partial (e.g. for part of the spectrum, or for a shorter period of time) renewal could be justified to avoid severe service disruption and to ensure continuity of band specific services taking into account for instance the return on investments already made or delays in national authorisations for the incumbent operators; or whether, on the contrary, a renewal would limit competition in Mobile Satellite Services provision or stifle future development (of technical or service nature), e.g. excluding other potential stakeholders or usages, or deprive from an opportunity to increase European strategic autonomy and hence a new selection procedure would be necessary.

2. OBJECTIVES OF THE TARGETED CONSULTATION

The current consultation aims to collect information to assess the existence of actual market demand, in the sense of concrete, mature and financed projects, as well as the incumbents' and stakeholders' respective positions helping to define the Commission's next procedural steps in line with the RSPG recommendations. The RSPG recommended, in its Opinion of 7 February 2024, when considering the use of the 2 GHz band after the expiry of the existing rights in May 2027, to take into account the investments and market developments of existing operators as well as the possibility for new entrants to support innovation and offer new services.

The input to this consultation will be considered in order to assess the existence of credible market demand and weigh, in light of Article 50 and recital 129 of the EECC, the competitive impact of renewing the assigned spectrum usage rights against the possible promotion of more efficient exploitation or of innovative new uses that might result if the band were opened to new users. It will also help determine whether to allow only a limited amount of spectrum and/or duration for renewal, in order to prevent severe disruption of established use. It will not be used for assessing admissibility in any future selection procedure.

The common framework of the MSS is a unique case of spectrum selection at EU level. This common framework is necessary, as explained in recital 12 of the MSS Decision, considering that differences in national selection procedures could still create fragmentation of the internal market which would result in a patchwork of successful applicants selected in contradiction to the pan-European nature of those MSS.

Market fragmentation would undermine the single market and create risks of interference between different (satellite) services operating in the band. The RSPG, in its Opinion on the future use of the EU 2 GHz MSS band issued in February 2024, similarly warned against fragmented national authorisation initiatives.

While the rights of use granted in 2009 will expire in 2027, the MSS Decision will remain in force, as its application is not limited in time, and the "common framework for the selection and authorisation of operators of mobile satellite systems" established by this Decision continues to apply (recital 25). Therefore, its provisions establishing a selection procedure are to be applied again when deciding on the use of the 2 GHz band after 2027. The selection criteria set by Article 6(1) of the MSS Decision, and further defined in the call for applications for the selection procedure in 2009([1]), may however need to be further specified, to the extent allowed by the MSS Decision, in order to take into account new developments and trends in MSS networks and services.

The Commission's competence to select MSS operators in the EU 2 GHz MSS band under a common procedure should also include, in line with the general principles of the electronic communications' regulatory framework (in particular Article 50 of the European Electronic Communications Code), the possibility of renewing, in full or in part, the rights of use of the two operators selected on the basis of the MSS Decision.

When assessing the above, account should be taken of the various scenarios examined by the RSPG in its Opinion on MSS.

Moreover, an EU approach should facilitate the development of a competitive internal market for mobile satellite services (MSS) and provide legal certainty for the operation of pan-EU satellite service providers. It should also, to the extent possible, consider the need to ensure service continuity and avoid service

disruption and create opportunities for new satellite technologies and innovative services in the MSS band to boost socio-economic benefits for EU industry and citizens. It should promote digital sovereignty and security and economies of scale for satellite/mobile equipment, in support of the Union's digital autonomy, ensure the most efficient use of radio spectrum in the EU 2 GHz MSS band and contribute to meeting the Union's 2030 Digital Decade targets.

([1]) Official Journal of the European Union C 201 of 7.8.2008, p. 4.

[Call for applications for pan-European systems providing mobile satellite services \(MSS\)](#)

3. LEGAL BASE REFERENCES

MSS Harmonisation Decision

Commission Decision 2007/98/EC of 14 February 2007 on the harmonised use of radio spectrum in the 2 GHz frequency bands for the implementation of systems providing mobile satellite services.

MSS Decision

Decision 626/2008/EC of the European Parliament and of the Council of 30 June 2008 on the selection and authorisation of systems providing mobile satellite services (MSS)

MSS Selection Decision

Commission Decision 2009/449/EC of 13 May 2009 on the selection of operators of pan-European systems providing mobile satellite services (MSS)

MSS Enforcement Decision

Commission Decision of 10 October 2011 on modalities for coordinated application of the rules on enforcement with regard to mobile satellite services (MSS) pursuant to Article 9(3) of Decision No 626/2008 /EC of the European Parliament and of the Council

European Electronic Communications Code

Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code

4. REPLIES TO THE TARGETED CONSULTATION

This consultation is in English and is open to everybody. It aims to gather the views of a variety of stakeholders who are invited to provide detailed answers by filling out the set of questions in the EU Survey Tool.

Stakeholders include:

- Bodies responsible for electronic communications, including spectrum management and authorisation: local, regional, national and European Union bodies
- Fixed, mobile and satellite services providers
- Users of fixed, mobile and satellite services
- Other organisations than the above, such as academic and research institutions, consumer organisations, international non-governmental organisations, or business associations.

The Commission services welcome comments from all stakeholders until the **30th of June 2025**. You can download the pdf within the EU Survey Tool after clicking on the link above without finalizing your contribution. You can also download below the pdf version.

Please, be aware that responding to the consultation survey is only possible by filling out your answers in the online questionnaire.

The pdf versions are only for information purposes.

For any further questions, you may contact: CNECT-B4@ec.europa.eu .

Please note that replies to the questions will be made public and that the Commission services may not be in a position to respond before the expiry of the above deadline to questions submitted more than 15 days after the launch of this consultation.

Confidentiality

*The Commission may publish the responses received to this consultation. Respondents shall clearly mark which parts of their application they wish to be treated as confidential, marking the relevant parts of their answer as follows: ****CONFIDENTIAL****. Please note the possibility to submit a redacted file together with the confidential file. In such a case, you can upload both as part of your response, clearly mark each file as “confidential” or “redacted”. The file marked as “redacted” may be subject to publication after the end of the consultation. The Commission shall treat such applications accordingly. Complete submissions shall in all cases be accessible to other Commission services or any external experts engaged by the Commission for the analysis and/or evaluation of the consultation. Such external experts shall be bound by the confidentiality rules equivalent to those binding Commission officials. Authorised representatives of Member States may be granted access to any information included in the submissions to this consultation. Representatives of Member States are required to respect the confidentiality of such information.*

Following requests from stakeholders, it is now possible to upload files in Question 5 and its sub-questions and in Question 10.

Please be informed that any document you may upload would be considered as annexes to your main answer and should be clearly summarised and referred to in the answers you will submit in the related sub-question box.

Question 1

* You answer as:

- National/Regional Body responsible for electronic communications, including spectrum management and authorisation
- Other local, regional, national authority
- European Union body
- International non-governmental organisation
- Other organisations than the above, such as academic and research institutions
- Consumer organisation
- Fixed services provider

- Mobile services provider
- Satellite services provider
- Business association
- User of fixed, mobile and satellite services
- Private individual
- Other

* If you selected "Other", please specify here:

Mobile services provider, and MSS CGC network operator

* Country of origin

- AF - Afghanistan
- AL - Albania
- DZ - Algeria
- AD - Andorra
- AO - Angola
- AG - Antigua and Barbuda
- AR - Argentina
- AM - Armenia
- AU - Australia
- AT - Austria
- AZ - Azerbaijan
- BS - Bahamas
- BH - Bahrain
- BD - Bangladesh
- BB - Barbados
- BY - Belarus
- BE - Belgium
- BZ - Belize
- BJ - Benin
- BT - Bhutan
- BO - Bolivia
- BA - Bosnia and Herzegovina
- BW - Botswana
- BR - Brazil

- Ⓒ BN - Brunei Darussalam
- Ⓒ BG - Bulgaria
- Ⓒ BF - Burkina Faso
- Ⓒ BI - Burundi
- Ⓒ CV - Cabo Verde
- Ⓒ KH - Cambodia
- Ⓒ CM - Cameroon
- Ⓒ CA - Canada
- Ⓒ CF - Central African Republic
- Ⓒ TD - Chad
- Ⓒ CL - Chile
- Ⓒ CN - China
- Ⓒ CO - Colombia
- Ⓒ KM - Comoros
- Ⓒ CG - Congo
- Ⓒ CR - Costa Rica
- Ⓒ CI - Côte D'Ivoire
- Ⓒ HR - Croatia
- Ⓒ CU - Cuba
- Ⓒ CY - Cyprus
- Ⓒ CZ - Czechia
- Ⓒ CD - Democratic Republic of the Congo
- Ⓒ DK - Denmark
- Ⓒ DJ - Djibouti
- Ⓒ DM - Dominica
- Ⓒ DO - Dominican Republic
- Ⓒ EC - Ecuador
- Ⓒ EG - Egypt
- Ⓒ SV - El Salvador
- Ⓒ GQ - Equatorial Guinea
- Ⓒ ER - Eritrea
- Ⓒ EE - Estonia
- Ⓒ SZ - Eswatini
- Ⓒ ET - Ethiopia

- FJ - Fiji
- FI - Finland
- FR - France
- GA - Gabon
- GM - Gambia
- GE - Georgia
- DE - Germany
- GH - Ghana
- GR - Greece
- GD - Grenada
- GT - Guatemala
- GN - Guinea
- GW - Guinea Bissau
- GY - Guyana
- HT - Haiti
- HN - Honduras
- HU - Hungary
- IS - Iceland
- IN - India
- ID - Indonesia
- IR - Iran
- IQ - Iraq
- IE - Ireland
- IL - Israel
- IT - Italy
- JM - Jamaica
- JP - Japan
- JO - Jordan
- KZ - Kazakhstan
- KE - Kenya
- KI - Kiribati
- KW - Kuwait
- KG - Kyrgyzstan
- LA - Laos

- LV - Latvia
- LB - Lebanon
- LS - Lesotho
- LR - Liberia
- LY - Libya
- LI - Liechtenstein
- LT - Lithuania
- LU - Luxembourg
- MG - Madagascar
- MW - Malawi
- MY - Malaysia
- MV - Maldives
- ML - Mali
- MT - Malta
- MH - Marshall Islands
- MR - Mauritania
- MU - Mauritius
- MX - Mexico
- FM - Micronesia
- MC - Monaco
- MN - Mongolia
- ME - Montenegro
- MA - Morocco
- MZ - Mozambique
- MM - Myanmar
- NA - Namibia
- NR - Nauru
- NP - Nepal
- NL - Netherlands
- NZ - New Zealand
- NI - Nicaragua
- NE - Niger
- NG - Nigeria
- KP - North Korea

- Ⓒ MK - North Macedonia
- Ⓒ NO - Norway
- Ⓒ OM - Oman
- Ⓒ PK - Pakistan
- Ⓒ PW - Palau
- Ⓒ PA - Panama
- Ⓒ PG - Papua New Guinea
- Ⓒ PY - Paraguay
- Ⓒ PE - Peru
- Ⓒ PH - Philippines
- Ⓒ PL - Poland
- Ⓒ PT - Portugal
- Ⓒ QA - Qatar
- Ⓒ MD - Republic of Moldova
- Ⓒ RO - Romania
- Ⓒ RU - Russian Federation
- Ⓒ RW - Rwanda
- Ⓒ KN - Saint Kitts and Nevis
- Ⓒ LC - Saint Lucia
- Ⓒ VC - Saint Vincent and the Grenadines
- Ⓒ WS - Samoa
- Ⓒ SM - San Marino
- Ⓒ ST - Sao Tome and Principe
- Ⓒ SA - Saudi Arabia
- Ⓒ SN - Senegal
- Ⓒ RS - Serbia
- Ⓒ SC - Seychelles
- Ⓒ SL - Sierra Leone
- Ⓒ SG - Singapore
- Ⓒ SK - Slovakia
- Ⓒ SI - Slovenia
- Ⓒ SB - Solomon Islands
- Ⓒ SO - Somalia
- Ⓒ ZA - South Africa

- KR - South Korea
- SS - South Sudan
- ES - Spain
- LK - Sri Lanka
- SD - Sudan
- SR - Suriname
- SE - Sweden
- CH - Switzerland
- SY - Syrian Arab Republic
- TJ - Tajikistan
- TZ - Tanzania
- TH - Thailand
- TL - Timor-Leste
- TG - Togo
- TO - Tonga
- TT - Trinidad and Tobago
- TN - Tunisia
- TR - Türkiye
- TM - Turkmenistan
- TV - Tuvalu
- UG - Uganda
- UA - Ukraine
- AE - United Arab Emirates
- GB - United Kingdom
- US - United States of America
- UY - Uruguay
- UZ - Uzbekistan
- VU - Vanuatu
- VE - Venezuela
- VN - Viet Nam
- YE - Yemen
- ZM - Zambia
- ZW - Zimbabwe

I agree with the personal data protection provisions

Question 2

What types of mobile satellite services should be provided in the EU 2 GHz MSS band and what added value / benefits would these services provide in the future for EU businesses and/or citizens?

The EU 2 GHz MSS band should prioritize services that deliver high-value connectivity, particularly the European Aviation Network (EAN), which provides in-flight broadband across Europe through a unique hybrid of satellite and ground networks. This system, already serving millions of passengers and numerous airlines, exemplifies European innovation and supports business productivity, passenger satisfaction, and operational efficiency. Maintaining at least 2 x 15 MHz of spectrum for EAN is essential to ensure continued service quality, support growing data demand, and protect significant European investments.

In the short term (up to 2032), the focus should remain on supporting EAN and enabling the growth of IoT and M2M services, which are vital for sectors like logistics and smart infrastructure. In the longer term (up to 2045), the band should also accommodate emerging satellite constellations and new use cases, ensuring pan-European coverage, network resilience, and strategic autonomy. This approach will enhance digital inclusion, business competitiveness, and the EU's technological leadership, while providing robust, secure communications for both citizens and businesses.

Please provide your views for the short (up to 2032), and long term (up to 2045).

Question 3

What sharing opportunities/scenarios (if any) do you envisage or consider possible in the EU 2 GHz MSS band? What are the main challenges and enablers for their implementation and how would they ensure efficient spectrum use in all EU countries?

The EU 2 GHz MSS band offers limited sharing opportunities, primarily through band segmentation among the currently two operators and hybrid use models like the European Aviation Network (EAN), which combines satellite and terrestrial ground components. The RSPG has considered scenarios such as dividing the band into two blocks of 2 x 15 MHz (supporting current services like EAN and another MSS operator) or further fragmenting it into smaller blocks to allow more operators and new services, such as IoT or direct-to-device satellite communications. Hybrid models, where ground components reuse spectrum under and above aircraft, demonstrate efficient use without requiring additional spectrum. This ability to use Complementary Ground Components (CGCs) is unique to the 2 GHz MSS band. Both CEPT, in its report 013 and Recital 9 of the Harmonisation Directive establish, that in a self-managed system such as the EAN, interference issues can be managed much more effectively than if services were not managed within a single system.

However, significant challenges exist. Fragmenting the band into smaller blocks risks reducing capacity and degrading the quality of established services like EAN, potentially making them economically unviable. Sharing between different operators or technologies introduces complex interference management issues and could increase operational complexity and costs, especially for users like airlines that may need to support multiple systems. Regulatory certainty is also crucial, as operators need long-term stability to justify investments.

Efficient spectrum use across the EU will depend on maintaining sufficient contiguous spectrum for established, high-value services, harmonizing spectrum management across countries, and allowing sharing or new entrants only where it does not undermine existing service quality. Technology-neutral regulation and the potential for infrastructure sharing can further support efficient and innovative use of the band.

Question 4

Currently Article 4(1)(b) of the MSS Decision sets a maximum 2x15 MHz per single applicant, what is your view or preference regarding the future structure of the satellite market based on the use of the EU 2 GHz MSS band? How should this be reflected in any band segmentation in the future?

The current cap of 2x15 MHz per applicant, as set by Article 4(1)(b) of the MSS Decision, has enabled the deployment of innovative services such as the European Aviation Network (EAN). This network relies on the full 2x15 MHz to deliver high-quality, pan-European in-flight broadband connectivity, fostering significant investment and technological advancement. Maintaining the possibility for a single operator to access up to 2x15 MHz is essential for the continued viability and competitiveness of established services like EAN. Reducing the maximum allocation per operator by fragmenting the band into smaller blocks would risk undermining the performance, capacity, and economic sustainability of such services, leading to stranded investments and degraded user experience.

Furthermore, CEPT level work for a direct Air-to-Ground (DA2G) service, which started back in 2015, determined a minimum bandwidth of 2x20MHz (5855 MHz to 5875 MHz and 1900 MHz to 1920 MHz). Considering this initiative has ultimately failed, this underscores that the EAN is significantly more efficient by operating with 2x15 MHz of spectrum.

Future band segmentation should prioritize preserving at least one 2x15 MHz block for established services like EAN, either through a continuity scenario or a graded fragmentation that does not disrupt current operations. Introducing competition and new entrants is valuable, but this should not come at the expense of existing, commercially successful systems. Any segmentation should allow for both the continuation of current services and the introduction of new ones, potentially by allocating the remaining spectrum to other operators or new technologies. The regulatory framework should remain technology-neutral and harmonized across the EU, ensuring efficient spectrum use and flexibility for operators to upgrade technologies without facing artificial constraints. For services that have demonstrated efficient spectrum use and significant market acceptance, a "first right to prolongation" should be considered to provide investment certainty and avoid unnecessary disruption.

In answering this question, you could make reference to at least one of the band segmentation options below but also suggest (an) additional one(s):

Option A: Operator 1 = 2x15 MHz - Operator 2 = 2x15 MHz

Option B: Operator 1 = 2x10 MHz - Operator 2 = 2x10 MHz - Operator 3 = 2x10 MHz

Option C: Operator 1 = 2x15 MHz - Operator 2 = 2x10 MHz - Operator 3 = 2x5 MHz

Option D: Operator 1 = 2x15 MHz - Operator 2 = 2x10 MHz – Shared pool = 2x5 MHz

In case you address band segmentation option d. (or propose another one with a 'shared pool') please elaborate your view on the structure and management (possibly also further aspects) of such a 'shared 'pool'.

Regarding the “future structure of the satellite market”, more than the 2 GHz MSS band should be considered. It is nearly inevitable that the present line of questioning by the EC will find that the demand for access to the 2 GHz MSS band outweighs the available spectrum. This does, among other things, not reflect the additional MSS spectrum currently available already, as well as under discussion in the context of Agenda Items 1.12, 1.13 and 1.14 at the WRC 2027.

If a reduction from the currently assigned 2x15 MHz would take place, this would significantly reduce the capacity in the EAN compared to the current implementation. This is, because the operation of the EAN requires a fixed signalling overhead occupying 2x2.25 MHz of spectrum. This overhead is fixed irrespective of the system bandwidth. Therefore, a reduction in spectrum availability to 2x10MHz would reduce the current effective capacity of the EAN by roughly 40%. In the downlink direction, this would have the effect of reducing the peak capacity from 108Mbit/s to 66Mbit/s per sector.

Question 5

For satellite operators that either already provide or are interested in providing services in the EU 2 GHz MSS band:

What are your concrete and detailed service plans for the future use of the EU 2 GHz MSS band after 2027, both in the short (e.g. up to 2032) and in the long-term (up to 2045)?

Deutsche Telekom AG plans to continue operating the European Aviation Network (EAN) using the MSS 2 GHz spectrum beyond 2027. The EAN, a hybrid satellite/ground network, provides broadband connectivity to airline passengers and crews across Europe. The service is currently utilized by several airlines, with installations in hundreds of aircraft, serving millions of travelers annually. Advanced negotiations are underway with additional airlines, potentially expanding the network to over 550 aircraft. The current technology used for the supplementary ground component is LTE Release 10, with plans to transition to 5G NR as it becomes more mature. This upgrade will involve a hybrid deployment of 4G LTE and 5G NR, necessitating updates to hardware and software. Viasat (previously Inmarsat), the satellite provider, is also developing new terminals with smaller form factors suitable for various aviation sectors, including business aviation, large uncrewed aerial vehicles, and governmental helicopters.

To maintain and enhance service quality, Deutsche Telekom emphasizes the need for at least 2x15 MHz of paired spectrum. Any reduction in the available spectrum would negatively impact the system's attractiveness to airlines and other customers, potentially leading to the discontinuation of the service. Therefore, preserving the current spectrum allocation is crucial for the continued operation and economic viability of the EAN. Looking towards 2045, Deutsche Telekom envisions integrating the EAN with emerging technologies and networks, such as low earth orbit (LEO) satellite constellations. This integration would enhance the overall connectivity ecosystem, providing complementary services and improving coverage and performance. The company is open to evaluating the use of its ground network components to support additional networks, such as the Iris2 network, contributing to a more robust and versatile connectivity infrastructure.

To support these long-term plans, Deutsche Telekom advocates for a regulatory framework that remains technology-neutral and harmonized across the EU. This framework should allow for the continuation of current services while accommodating new entrants and technologies. The company suggests applying a "first right to prolongation" principle for services that have demonstrated efficient spectrum use and significant market acceptance, providing investment certainty and avoiding unnecessary disruptions.

Please include complete information and justification, addressing among others:

a. Business plan: use cases, service portfolio and evolution, evidence of market demand, number of end-users served or projected and the description of the MSS service portfolio (voice, data, IoT etc)

Deutsche Telekom, in partnership with Viasat (previously Inmarsat), operates the European Aviation Network (EAN), a hybrid satellite and ground-based system delivering high-speed in-flight broadband connectivity across Europe. The primary use case is providing reliable internet access to airline passengers and crews, supporting activities such as streaming, video conferencing, and general data usage. The service is already commercially deployed, serving around 40 million passengers annually on over 300 aircraft, with plans to expand to more than 550 aircraft as additional airlines are onboarded.

Market demand for in-flight connectivity is strong and growing rapidly, evidenced by a 60% year-on-year increase in data volumes from 2022 to 2023. The EAN's service portfolio is focused on high-speed data, but the underlying MSS platform is capable of supporting a range of services, including voice and IoT, as technology and market needs evolve. The network currently uses LTE technology for its ground component, with a planned transition to 5G NR to further boost capacity and performance.

To sustain and grow this service, Deutsche Telekom emphasizes the need to maintain at least 2x15 MHz of paired spectrum, as any reduction would threaten service quality and economic viability. The EAN is positioned as a unique, pan-European solution that meets the increasing expectations of airlines and passengers for seamless, high-quality connectivity throughout the continent.

Please upload your file(s)

b. Projections of service-specific and aggregate data payload over short-term (up to 2032) and long-term (up to 2045), EU-wide coverage, minimum coverage need for satellite usage, maximum required spectrum bandwidth per service and overall, efficient spectrum use based on used technology and/or sharing (or other) arrangements; expected average/peak throughput.

The European Aviation Network (EAN), operated by Deutsche Telekom and Viasat (previously Inmarsat), is experiencing rapid and ongoing growth in data demand for in-flight broadband connectivity. Data volumes increased by over 60% year-on-year from 2022 to 2023, and this trend is expected to continue, with projections indicating that network capacity could be saturated by around 2028 if spectrum allocations are not maintained or expanded. The EAN already provides near-complete EU-wide coverage, leveraging a hybrid architecture of satellite and ground-based LTE (with migration to 5G NR planned), ensuring uninterrupted service across all European airspace, including remote and maritime regions.

To sustain current service quality and support future growth, the EAN requires a minimum of 2x15 MHz paired spectrum (uplink: 1980–1995 MHz, downlink: 2170–2185 MHz). Any reduction below this threshold would significantly impair throughput, degrade user experience, and threaten the system's economic viability. The network's design allows for efficient spectrum reuse across its ground component, while the satellite ensures seamless coverage where ground infrastructure is not feasible. Spectrum sharing with other services is considered technically and economically disadvantageous, as it would fragment resources and introduce interference risks.

Overall, both average and peak data payloads are expected to rise sharply through 2032 and beyond, driven by more connected aircraft and increasing passenger expectations. The EAN's current capacity already exceeds 135 Gbps across the continent, and maintaining the full 2x15 MHz spectrum allocation is essential to accommodate future growth and ensure efficient, high-quality service delivery.

Please upload your file(s)

c. Any detailed description of the satellite network (including Network Operations Centre (NOC) location, gateway location, satellites used, Complementary Ground Components etc.), its status of filing (including notifying administration), deployment and life span, as well as its impact in terms of spectrum coexistence on other existing or potential new systems within the band. More specifically, please describe any possible impacts that would arise from the ITU-R orbital/ frequency rights held by existing licensees Viasat or Echostar and how do you plan to overcome them? Please elaborate your view

The European Aviation Network (EAN) is a hybrid connectivity system providing high-speed broadband to aircraft across Europe. Operated by Viasat (previously Inmarsat) and Deutsche Telekom, the EAN integrates a satellite link with a terrestrial LTE-based ground network. The satellite, operational since 2019, uses the 2 GHz MSS band (1980–1995 MHz uplink and 2170–2185 MHz downlink) and is expected to remain operational until at least 2034. The ground component consists of approximately 300 LTE base stations across Europe, with planned upgrades to 5G NR technology.

All necessary filings for the EAN's satellite and ground components are complete, and the service is registered with National Regulatory Agencies in every country within the network's footprint. The EAN has been fully operational since 2019, serving around 40 million passengers annually and covering nearly the entire European continent.

The EAN's use of the 2x15 MHz paired spectrum is highly efficient due to its hybrid architecture and spectrum reuse capabilities. However, any reduction or fragmentation of this spectrum would significantly degrade service quality, reduce capacity, and threaten the system's economic viability. Spectrum sharing with other services is technically challenging and would introduce interference risks, requiring complex mitigation measures.

Deutsche Telekom and Viasat (previously Inmarsat) advocate for the continuation of the current spectrum allocation (2x15 MHz) for EAN, emphasizing the need for regulatory certainty and a "first right to prolongation" for existing, commercially successful systems. This approach ensures stability for ongoing investments and service continuity. The preferred regulatory approach is to maintain the current technology-neutral, national-level assignment framework, allowing for the continuation and evolution of existing services while supporting innovation and competition in the MSS band.

Please upload your file(s)

d. Any schedule of service deployment, coverage and availability, including schedule regarding mature development and/or availability and type of equipment and end-user terminals intended to be used under your business case per application

The European Aviation Network (EAN) has been providing commercial in-flight broadband connectivity across Europe since 2019. The service is already mature, with coverage spanning all of Western and Central continental Europe and partial coverage in areas such as Malta, the Canary Islands, and the Arctic Circle. The network infrastructure includes around 300 LTE base stations distributed across the 27 EU member states and several neighboring countries, ensuring robust and consistent service availability.

The EAN operates using a hybrid architecture that combines a satellite component—operational since 2019—with a complementary ground network. The ground network currently uses LTE Release 10 technology, with plans to upgrade to 5G NR as the technology matures, allowing for a phased transition that will maintain service continuity. End-user equipment includes both existing aircraft terminals and new, smaller terminals under development, targeting business aviation, uncrewed aerial vehicles, and helicopters.

Overall, the EAN is a well-established, innovative European project, with ongoing investments in technology upgrades and terminal development to meet growing demand and ensure high-quality connectivity for millions of airline passengers each year.

Please upload your file(s)

e. All admissibility requirements set out in Article 4(1) of the MSS Decision

The European Aviation Network (EAN), a hybrid satellite and ground-based system operated by Viasat (previously Inmarsat) and Deutsche Telekom, is fully compliant with all legal and regulatory prerequisites required under Article 4(1) of the MSS Decision. All necessary ITU filings for the satellite component are in place, and the EAN holds the appropriate EU-level spectrum license in accordance with the MSS Decision and related Commission Decisions. At the national level, the service is registered and authorized by the relevant regulatory agencies in every country covered by the ground network, ensuring comprehensive legal compliance across the EU and several non-EU countries.

The EAN's operation is already established and commercially active, with all legal conditions for spectrum use and service provision met. The system's continued operation depends on the maintenance of its current spectrum allocation—specifically, at least 2 x 15 MHz paired in the 2 GHz MSS band—as any reduction would undermine both service quality and the economic viability of the network. The EAN's legal and regulatory foundation, combined with its proven operational track record, fully satisfies the admissibility requirements for ongoing spectrum rights beyond 2027.

Please upload your file(s)

f. Any alternative frequency range(s) (including for MSS or terrestrial IMT), which can be used instead of or in addition to the EU 2 GHz MSS band

The 2 GHz MSS band is uniquely critical for the European Aviation Network (EAN) and should remain allocated to this service. The EAN's hybrid satellite and ground network relies on a contiguous 2 x 15 MHz block within this band to deliver seamless, high-capacity broadband connectivity to aircraft across Europe. This allocation is not only technologically optimized for the EAN's current LTE-based infrastructure—with a clear migration path to 5G—but is also essential to meet the rapidly growing demand for in-flight connectivity. Any reduction or fragmentation of this spectrum would significantly degrade service quality, limit network capacity, and undermine the economic viability of the EAN, risking stranded investments and diminished competitiveness for European aviation connectivity.

Alternative frequency ranges would require costly and disruptive technical changes, including hardware modifications for both aircraft and ground stations, and would introduce regulatory uncertainty. The EAN has already fulfilled all legal and regulatory requirements for the 2 GHz MSS band, and its continued operation supports a successful, innovative, and uniquely European project. Maintaining the current allocation is therefore vital to preserve service continuity, protect existing investments, and ensure Europe remains at the forefront of aviation connectivity.

Please upload your file(s)

g. Additional relevant information

Please upload your file(s)

In general, please provide all relevant information, which will allow assessing the credibility and the level of maturity of your plans, and your capacity to meet the regulatory requirements of the MSS Decision or which will allow to assess the contribution of your project to public policy objectives, such as the ones included in Article 6 of the MSS Decision. Incumbent operators replying to this consultation should provide in the context of points a.-e. above, in addition to the information on investments already made for the use of this band (distinguishing common costs for investments which are also used with other bands) and their related amortisation, relevant data as regards their business plans for developing the satellite network, the evolution of existing and the provision of future services and their respective current and projected data payload, channel occupancy and spectrum need, both in the short-term (until 2032), and in the long-term (at least until 2045), the current and future use of the most spectrum-efficient technology and any other relevant conditions supporting efficient spectrum use (such as any sharing or wholesale arrangements). They should provide information on the existing clients/users per Member State (including their number), as well as the kind of services they or their clients are offering to retail end-users as well as the

end-users served (if possible per Member State), etc. Incumbent operators should also provide information as to whether there were delays in the deployment of services from 2009 and provide the reasons for such delays

Credibility and Maturity of EAN Plans: The European Aviation Network (EAN) is a fully operational and mature system, providing commercial in-flight broadband connectivity across Europe since 2019. It combines a satellite component, operational since 2019, with a complementary ground network of around 300 LTE base stations covering all 27 EU member states and several neighboring countries. The system is already installed in over 300 aircraft, serving tens of millions of passengers annually, with ongoing expansion plans. The technical architecture is robust, with the ground component using LTE Release 10 and a clear upgrade path to 5G NR, while the satellite is expected to remain operational well beyond 2027.

Capacity to Meet Regulatory Requirements: EAN has fulfilled all legal and regulatory requirements at the ITU, EU, and national levels. All necessary filings and licenses are in place, including the EU spectrum license and registrations with national regulatory agencies. The service is fully compliant with the MSS Decision, and its design and operation have been validated by European courts as an efficient use of spectrum. Long-term contracts with airlines and a business model based on the continued availability of the 2 x 15 MHz spectrum allocation further demonstrate the system's stability and regulatory readiness.

Contribution to Public Policy Objectives: As a flagship European project, EAN is developed and implemented by European companies using European technology and infrastructure. It delivers high-quality, low-latency broadband connectivity to commercial, business, and governmental aircraft, directly supporting the EU's digital and connectivity objectives. The EAN enhances competition and service quality in the aviation connectivity market, providing a unique alternative to non-European satellite solutions and ensuring that critical infrastructure remains under European control.

Overall, EAN's operational track record, regulatory compliance, and alignment with public policy objectives demonstrate a high level of credibility, maturity, and capacity to meet both current and future requirements under the MSS Decision.

Question 6

What would be in your view the best way to ensure the continuity of services which are currently provided in the EU 2 GHz MSS band ('incumbent services') by existing or new operators?

- a. In the case where any incumbent service is specific to the EU 2 GHz MSS band and cannot be migrated to another band without incurring disproportionate costs, would you consider a full or a partial renewal to be justified?

To ensure the continuity of incumbent services in the EU 2 GHz MSS band, the most effective approach is to maintain the current spectrum allocations for existing operators, such as the European Aviation Network (EAN). The EAN depends on a paired 2x15 MHz allocation to provide reliable, high-capacity in-flight broadband across Europe. Reducing or fragmenting this allocation would undermine service quality, disrupt business models, and risk stranding significant investments already made in infrastructure and technology.

Regulatory certainty is also essential. Granting incumbent operators a “first right to prolongation” of their spectrum rights—so long as they continue to meet regulatory and performance obligations—ensures stability for both operators and their customers, such as airlines that require long-term planning horizons for equipment installation and upgrades. Fragmenting the band into smaller blocks would introduce technical challenges, reduce capacity, and deter further investment, ultimately harming end users and the broader European connectivity ecosystem.

Preserving existing allocations and providing regulatory stability not only protects current services and investments but also aligns with European policy objectives of digital inclusion, industrial leadership, and technological sovereignty. This approach supports ongoing innovation and ensures that Europe remains at the forefront of advanced connectivity solutions.

b. If so, please specify the amount of spectrum needed and the proposed duration of the renewed rights.

The European Aviation Network (EAN) requires a 2x15 MHz allocation in the 2 GHz MSS band to maintain high-capacity, reliable in-flight broadband connectivity across Europe. This amount of spectrum is essential because current usage is already nearing saturation due to rapidly increasing demand from airlines and passengers. Any reduction would degrade service quality, limit speeds, and threaten the economic viability of the system, as the EAN’s hybrid satellite and ground network is specifically designed around this allocation. Fragmenting or reducing the spectrum would also necessitate costly technical changes and undermine airlines’ willingness to invest in onboard equipment.

The proposed duration for renewed spectrum rights should match the operational and investment cycles of the EAN, ideally extending at until the satellite’s expected end of life (beyond 2034), ideally for a full period (i. e. until up to 2045). This long-term certainty is crucial for both operators and airlines, enabling them to plan and invest with confidence. Granting a renewal period that aligns with these needs supports continued service, protects existing investments, and advances European policy objectives for digital innovation and connectivity leadership.

c. For satellite operators that already provide services in the EU 2 GHz MSS band: what is the estimated number or scope of potential users that would be impacted by a disruption or discontinuity of services?

Estimated Number and Scope of Potential Users Impacted by EAN Disruption: The European Aviation Network (EAN) currently provides in-flight broadband connectivity to around 40 million airline passengers annually across Europe. The service is installed on approximately 300 aircraft, with plans to expand to over 250 more, and is used by major airlines such as British Airways, Iberia, Vueling, and Aegean. A disruption or discontinuity of the EAN network would therefore directly impact tens of millions of passengers each year, depriving them of reliable high-speed internet access during flights. Frontier Economics estimated to reach 600 aircraft by the end of 2026 and forecasted 1200 aircraft by 2034.

In addition to passengers, airline crews and operators who depend on EAN for operational communications would also be affected. The impact would extend across the entire EU and several non-EU countries, given the network's broad coverage. Airlines that have invested in EAN equipment would face stranded investments and operational challenges, while the broader European aviation and connectivity sector would risk losing its competitive edge and innovative leadership in integrated satellite and ground-based communications.

d. To support an assessment of whether any of the existing rights of use should be partially or fully renewed, and in accordance with Article 50(2) of the EECC, please indicate under which conditions you would consider that:

- the objectives of Articles 3, 45(2) and 48(2) of the EECC and of Article 1 of the MSS decision are fulfilled;
- the harmonised technical requirements of the MSS Harmonisation Decision for the efficient use of the 2 GHz band are complied with;
- the conditions of Article 7 of the MSS Decision are implemented;
- there is sufficient competition in line with Article 52 of the EECC;
- there is need to render the use of radio spectrum more efficient in light of technological or market evolution;
- there is a need to avoid severe service disruption.

The existing rights of use for the 2 GHz MSS band, particularly those supporting the European Aviation Network (EAN), should be fully renewed to ensure continuity of a unique, pan-European in-flight broadband service. The EAN is already operational, serving millions of passengers and airlines across the EU, and is recognized as an efficient and innovative use of spectrum, with all legal and technical requirements met at EU, ITU, and national levels. The system is future-proof, with plans for technological upgrades such as migration to 5G, and has been validated by European courts as a model for efficient spectrum use.

Renewing the current allocation of 2 x 15 MHz is essential to maintain service quality, support ongoing investments, and avoid severe disruption to airlines and passengers. Reducing or fragmenting this spectrum would risk service degradation, stranded investments, and a loss of European leadership in integrated satellite and terrestrial communications. The current framework also allows for competition and could accommodate further segmentation in the future, provided it does not undermine established services like the EAN. Full renewal aligns with the objectives of the EECC and MSS Decision, ensures harmonised and efficient spectrum use, and supports both technological evolution and market stability.

Question 7

In the event of a full or partial renewal of licenses, would you consider that there is a need to review the conditions attached to the authorisations or to render the use of radio spectrum more efficient in light of technological or market evolution? If so, in which direction should such a review be undertaken? What measures could be taken to promote fair competition and avoid market distortion?

Need for Review of Authorisation Conditions: A review of the conditions attached to 2 GHz MSS authorisations upon renewal is reasonable to ensure spectrum use remains efficient and aligned with technological and market developments. The European Aviation Network (EAN) is a leading example of efficient, innovative spectrum use, already meeting all legal and operational prerequisites and serving millions of passengers across Europe.

Direction of Review: Any review should maintain a technology-neutral approach, allowing for upgrades such as migration to 5G, and must preserve the minimum required spectrum—2 x 15 MHz for EAN—to avoid degrading service quality or undermining the economic viability of established systems.

Measures to Promote Fair Competition and Avoid Market Distortion: To promote fair competition and avoid market distortion, established services like EAN should be granted a first right to prolongation, ensuring continuity and protecting significant investments. Renewal processes should be transparent and predictable, and any spectrum segmentation to accommodate new entrants must not compromise the performance of existing services. All measures under consideration should prioritize the stability and efficiency of existing high-value services, ensure sufficient spectrum for their continued operation, and introduce new competition only where it does not undermine these objectives. This approach will best support innovation, investment, and fair competition in the European MSS market.

Question 8

In your view, should the selection criteria set out in Article 6(1) of the MSS Decision be further specified, in order to better reflect state-of-the-art satellite technologies /services and contemporary EU-level public policy objectives?

The selection criteria in Article 6(1) of the MSS Decision could benefit from further specification to better reflect advances in satellite technologies and evolving EU policy objectives. Modern systems now include not only traditional geostationary satellites but also low earth orbit constellations and innovative hybrid networks like the European Aviation Network (EAN), which combines satellite and ground components for efficient, high-quality connectivity. The current criteria may not fully account for the technical and operational advantages of these new architectures, nor their potential to deliver on EU priorities such as digital sovereignty, industrial competitiveness, and resilient connectivity.

Updating the criteria would help ensure that spectrum assignments support both technological innovation and the EU's strategic interests. This could include prioritizing projects that enhance European leadership, provide broad and reliable coverage, and maintain security and resilience through European-controlled infrastructure. At the same time, the criteria should recognize the value of established, high-performing systems like EAN, whose continued operation and investment depend on stable and sufficient spectrum access. Balancing support for new entrants with the need to maintain proven solutions would promote efficient spectrum use and safeguard the interests of European citizens and industry.

Would you have any concrete proposals how to further specify the weighted selection criteria set out in Article 6(1) and summarised below, in order to reflect technological and service evolution and contemporary EU-level policies:

- Consumer and competitive benefits provided (20% weighting), referring in particular to the number of end-users and the range of services provided by the date of start of a continuous commercial MSS service, and the starting date of a continuous commercial MSS service:

To further specify the weighted selection criteria for consumer and competitive benefits (20% weighting), the criteria should prioritize applicants with a proven record of commercial operation and early service availability. Systems that are already in continuous commercial service, such as the European Aviation Network (EAN), which has been operational since 2019 and serves millions of passengers annually, should be recognized for their established consumer impact and reliability. This approach ensures that spectrum is allocated to solutions with demonstrable benefits rather than speculative projects.

Additionally, the criteria should quantitatively assess the number of end-users and the range of services provided at the start of commercial operation. Applicants should be required to provide verifiable data on active users and the diversity of services offered, with additional points for systems supporting multiple high-value use cases. Preference should also be given to systems that provide comprehensive EU coverage and involve significant European industrial participation, supporting both digital sovereignty and industrial competitiveness.

Finally, the ability to evolve technologically and scale services in response to growing demand should be considered, as well as the stability and continuity of service. Applicants with a track record of stable, long-term service and investment in infrastructure should be favored, as this reduces the risk of service disruption and maximizes consumer and competitive benefits in line with EU policy objectives.

- Spectrum efficiency (20% weighting), referring in particular to the total amount of spectrum required and the aggregated data stream capacity:

The European Aviation Network (EAN) exemplifies highly efficient use of the 2 GHz MSS spectrum through its unique hybrid architecture, which combines a geostationary satellite with a complementary ground network of around 300 LTE base stations across Europe. This setup allows for full reuse of the 2x15 MHz spectrum under each aircraft, maximizing data capacity and minimizing interference. The system delivers over 135 Gbps of capacity continent-wide, supporting rapidly growing data demands from airlines and passengers.

EAN's approach avoids the inefficiencies of spectrum fragmentation; any reduction in its current allocation would degrade service quality and reduce overall spectrum efficiency. The network is also designed for future upgrades, with a clear path from LTE to 5G NR, ensuring ongoing alignment with the latest technological standards. The efficiency of EAN's spectrum use has been validated by European courts and aligns with EU policy objectives for digital innovation and effective spectrum management, making it a benchmark for future integrated connectivity solutions in Europe.

- Pan-EU geographic coverage (40% weighting), referring in particular to the number of Member States and population, the degree of geographical coverage, and the time to reach a degree of service availability in all Member States (coverage of 50% of population and 60% of the aggregate territory):

To better reflect technological and service evolution as well as contemporary EU-level policies, the selection criteria for spectrum allocation should be refined to prioritize broad and inclusive coverage across the European Union. Specifically, applicants should be required to provide service in at least 80% of EU Member States at launch, with a clear, time-bound roadmap to reach 100% within a defined period (such as two years). This approach not only exceeds the current minimums but also aligns with the increasing demand for connectivity, as demonstrated by the European Aviation Network's (EAN) rapid growth and extensive reach.

- The extent of other public policy objectives (20% weighting), referring in particular to the provision of public interest services, the integrity and security of the services, and the range of services in rural or remote areas:

In addition to coverage requirements, the selection process should prioritize projects with significant European industrial participation, supporting the EU's strategic autonomy and industrial policy. Proposals should also be evaluated on their commitment to data localization, cybersecurity, and operational independence from non-EU jurisdictions, ensuring alignment with EU security and data sovereignty objectives. By refining the criteria in these ways, the process will better support the EU's digital and industrial policy goals, foster robust and inclusive pan-European connectivity, and encourage sustainable investment in innovative, future-proof infrastructure.

The proposals should include (but not be limited to) specification of various terms or parameters referred to in Article 6(1) (e.g. 'end-users', 'aggregated data stream capacity' or 'service security') and take into account different satellite constellations (e.g. GEO, LEO, hybrid etc), different business models, such as wholesale and

retail models, or technologies (e.g. 3GPP-based). The respondents are invited to consult the 2008 Call for application for an example of how the criteria of Article 6 could be further elaborated in practice

In practice, Article 6 criteria—originally designed to ensure effective and efficient use of the 2 GHz MSS band—could be further elaborated by setting more ambitious and clearly defined coverage obligations for applicants. For instance, applicants could be required to demonstrate the ability to provide service in at least 80% of EU Member States at launch, with a binding roadmap to reach 100% within a specified period. This approach would ensure that spectrum is allocated to operators capable of delivering broad, pan-European coverage, as exemplified by the European Aviation Network (EAN), which already provides extensive service across the EU and beyond.

To further align with EU policy objectives, Article 6 criteria could be expanded to prioritize projects with strong European industrial involvement and strategic relevance. This could include requiring applicants to demonstrate significant participation of European companies in the development, deployment, and operation of the network infrastructure, evaluating proposals based on their commitment to data localization, cybersecurity, and operational independence from non-EU jurisdictions, thereby supporting EU data sovereignty and security goals. Additionally, preference could be given to projects that contribute to the EU's industrial and digital policy objectives, such as fostering innovation, supporting the development of European technology, and ensuring resilience of critical infrastructure.

Finally, the criteria could be refined to promote efficient and sustainable use of the spectrum, encouraging spectrum sharing only where it does not compromise service quality or economic viability, and requiring long-term investment and service continuity commitments, with clear provisions for spectrum reassignment or renewal based on performance and ongoing need, would ensure that spectrum is awarded to operators best positioned to deliver high-quality, pan-European services while supporting the EU's broader industrial, digital, and security policy objectives.

Question 9

Do you see any need to apply spectrum management conditions, in order to optimise interference mitigation between different operators and thus ensure more efficient spectrum use (e.g. limiting technology neutrality by giving preference to (a) particular type(s) of technology in the EU 2 GHz MSS band)?

If so, please explain why and what would be your preferred spectrum management solution?

Efficient spectrum use and interference mitigation in the 2 GHz MSS band are best achieved through clear spectrum segmentation and technical coordination, rather than by limiting technology neutrality or mandating specific technologies.

Both Deutsche Telekom and the RSPG have recognized the value of maintaining a technology-neutral approach in the 2 GHz MSS band. This principle allows operators to deploy the most suitable and advanced technologies as they evolve, such as the transition from LTE to 5G NR. Technology neutrality encourages innovation and investment, enabling operators to upgrade their networks efficiently and respond to changing market and technical requirements. Limiting technology neutrality by mandating specific technologies would risk stifling innovation and could lock the market into inferior or outdated solutions.

The preferred spectrum management solution is to allocate sufficiently large, contiguous spectrum blocks to each operator—such as the 2x15 MHz required by the European Aviation Network (EAN)—to avoid harmful interference and ensure service quality. Technical coordination on parameters like power limits and out-of-band emissions, managed through regulatory conditions and operator agreements, is also essential. Spectrum sharing or excessive fragmentation should be avoided, as it increases interference risks and operational complexity. In summary, technology neutrality combined with robust technical coordination and clear spectrum segmentation offers the most effective and future-proof approach for the 2 GHz MSS band.

Question 10

Please provide any other information you consider relevant in the context of this consultation.

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