

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Eutelsat S.A.)	
)	
Petition for Declaratory Ruling for)	File No.:
EUTELSAT 12 WEST D To Access the)	Call Sign:
U.S. Market and To Be Added to the)	
Permitted Space Station List at the)	
12.5° W.L. Orbital Location)	

PETITION FOR DECLARATORY RULING

Eutelsat S.A. (“Eutelsat”) respectfully files this Petition for Declaratory Ruling (“Petition”) pursuant to Section 25.137(a) of the Commission’s Rules, 47 C.F.R § 25.137(a), to access the U.S. market using the French-licensed EUTELSAT 12 WEST D satellite, which will soon replace the EUTELSAT 12 WEST B satellite at the 12.5° W.L. orbital location, and to add EUTELSAT 12 WEST D to the Permitted Space Station List (“Permitted List”) in relevant Ku-band frequencies.

In this Petition, Eutelsat demonstrates that it is legally, technically, and otherwise qualified to hold the requested authority; that the proposed operations are compliant with applicable Commission rules and policies; and that grant of the Petition would serve the public interest, convenience, and necessity.¹

I. INTRODUCTION AND BACKGROUND

The EUTELSAT 12 WEST D satellite (currently known as EUTELSAT 7 A) is a French-licensed satellite that was launched on 16 March 2004, and the end of its operational life is not expected before mid-2025. EUTELSAT 12 WEST D is being moved to 12.5°

¹ Eutelsat provides its ownership information in Attachment A, a Regulatory Compliance Matrix in Attachment B, a complete Engineering Statement in Attachment C, a Space Debris Mitigation Plan in Attachment D, and other relevant information with this Petition in FCC Form 312 and Schedule S.

W.L. to replace the aging EUTELSAT 12 WEST B satellite to provide fixed-satellite service (“FSS”) services, including Ku-band connectivity for aeronautical and maritime earth stations in motion (“ESIMs”) in Europe, the Atlantic Ocean, the eastern United States, and the Caribbean region until a new purpose-built satellite can be launched to this location. Eutelsat seeks Commission authority to provide service from this location in the 10.7-11.7 GHz and 12.5-12.75 GHz (space-to-Earth) bands and the 12.75-13.25 GHz and 13.75-14.5 GHz (Earth-to-space) bands,² and requests inclusion on the Permitted List³ at 12.5° W.L. for eligible bands.⁴

EUTELSAT 12 WEST D will replace EUTELSAT 12 WEST B, the satellite currently operated by Eutelsat at 12.5° W.L, which received similar authority to provide Ku-band mobility and other FSS services over parts of the Americas (including the eastern United States and U.S. Caribbean territories) but is approaching its end of life.⁵ For this reason, Eutelsat is relocating the EUTELSAT 12 WEST D to 12.5° W.L. and is surrendering its market access authority for EUTELSAT 12 WEST B in a separate filing submitted concurrently with this Petition. The EUTELSAT 12 WEST D satellite should arrive at its intended location in December 2020 to continue to serve the U.S. market from this important location, in which France holds date priority for Ku-band frequencies.

² The EUTELSAT 12 WEST D also has Ka-band payload, as well as emergency telemetry, tracking, and command functionality in the S-band. However, no market access is requested for these additional bands and so they are not subjects of this filing.

³ The Commission will allow non-U.S. licensed satellites to access the U.S. market and will include them on the Permitted List upon their establishing compliance with Sections 25.114 and 25.137 of the Commission’s Rules, 47 C.F.R. §§ 25.114 & 25.137, and demonstrating that the public interest would be served by such inclusion.

⁴ Eutelsat understands that the 10.95-11.2 GHz and 11.45-11.7 GHz bands (space-to-Earth) and the 13.75-14.5 GHz bands (Earth-to-space) can be utilized for communication with EUTELSAT 12 WEST D under Permitted List authority, subject to appropriate demonstrations, but that authority to operate with EUTELSAT 12 WEST D in the 10.7-10.95 GHz, 11.2-11.45 GHz, 12.5-12.75 GHz, and 12.75-13.25 GHz bands must be specifically added to U.S earth station licenses.

⁵ See File Nos. SAT-MPL-20191017-00117 and SAT-MPL-20200517-00046, Call Sign S2596.

II. DISCUSSION

A. Legal Qualifications

The legal qualifications of Eutelsat are a matter of record before the Commission. Eutelsat and its affiliates operate many satellites that have been approved by the Commission for inclusion on the Permitted Space Station List or as authorized points of communication for U.S. earth station licensees,⁶ and ES 172 LLC, a Eutelsat subsidiary, holds two Commission space station licenses. Eutelsat provides additional information regarding its legal qualifications in FCC Form 312 and relevant attachments to this Petition.⁷

As explained below, Eutelsat seeks market access and Permitted List inclusion for EUTELSAT 12 WEST D to provide Ku-band capacity to afford additional flexibility to satisfy continuing U.S. demand for aeronautical and maritime mobility and other FSS services.

B. Technical Qualifications

Pursuant to Section 25.137(d) of the Commission's Rules, 47 C.F.R. § 25.137(d), Eutelsat demonstrates in this Petition that the proposed operations of EUTELSAT 12 WEST D comply with applicable Commission requirements for non-U.S. licensed satellites to access the U.S. market. Eutelsat provides the attached Engineering Statement, Schedule S, and associated materials containing information relating to the technical and operational characteristics of EUTELSAT 12 WEST D.

The EUTELSAT 12 WEST D satellite will operate consistent with the Commission's two-degree spacing levels and associated requirements and, thus, will be compatible with

⁶ See FCC Space Station Approval List (available at <https://www.fcc.gov/approved-space-station-list>).

⁷ EUTELSAT 12 WEST D is a French-licensed satellite and France is a member country of the World Trade Organization ("WTO"). Where, as here, a non-U.S. satellite licensed by a WTO-member country seeks authority to provide satellite service covered by the WTO Basic Telecommunications Agreement, the Commission presumes that foreign country participation will promote competition in the United States. See 47 C.F.R. § 25.137(a)(2); see also *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed satellites Providing Domestic and International Service in the United States*, Report and Order, IB Docket No. 96-111, 12 FCC Rcd 24094, ¶ 39 (1997). Accordingly, Eutelsat need not make the effective competitive opportunities showing set out in Section 25.137 of the Commission's Rules.

other satellites authorized to serve the United States. In this connection, the Telstar 12V satellite is located at 15° W.L., 2.5 degrees away from the 12.5° W.L. orbit location. Given greater than two-degree orbital separation, co-frequency operations at 12.5° W.L., including current operations of the EUTELSAT 12 WEST B satellite and the proposed operations of the EUTELSAT 12 WEST D satellite, are compatible with Telstar 12V's operations.⁸

1. Spectrum Compatibility

Eutelsat seeks market access for operations in the 10.7-11.7 GHz and 12.5-12.75 GHz (space-to-Earth) bands, and the 12.75-13.25 GHz and 13.75-14.5 GHz (Earth-to-space) bands. The Commission has previously granted authority for satellite operations in all of these bands and Eutelsat affirms that EUTELSAT 12 WEST D and associated earth stations will be operated consistent with other approved operations.⁹ In addition, the Commission has authorized operation at the 12.5° W.L. orbital location in similar frequencies for EUTELSAT 12 WEST B.¹⁰ Eutelsat proposes to add Appendix 30B Ku-band frequencies (10.70-10.95 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space)) to the frequencies previously authorized at 12.5° W.L. Spectrum compatibility issues for all of the bands proposed for use by the EUTELSAT 12 WEST D satellite are discussed below.

The United States Table of Frequency Allocations ("Table of Allocations"), Section 2.106 of the Commission's Rules, 47 C.F.R. § 2.106, identifies conditions for spectrum use by FSS networks in the 10.7-11.7 GHz, 12.5-12.75 GHz, 12.75-13.25 GHz, and 13.75-14.5 GHz bands. Space stations in the FSS operating in any portion of the 10.7-12.7 GHz, 12.75-13.25 GHz or 13.75-14.5 GHz bands shall employ state-of-the-art full frequency reuse, either

⁸ See Engineering Statement and Schedule S; see also File No. SAT-LOA-20141010-00107, Narrative at Attachment A (Technical Exhibit for "Telstar 12 VANTAGE" Satellite at 15°WL) at 14-15.

⁹ See generally FCC Space Station Approval List.

¹⁰ See File Nos. SAT-MPL-20191017-00117 (10.95-11.2 GHz, 11.45-11.7 GHz, and 12.5-12.75 GHz bands (space-to-Earth) and the 13.75-14.5 GHz band (Earth-to-space)) and SAT-MPL-20200517-00046 (11.2-11.45 GHz (space-to-Earth)), Call Sign S2596.

through the use of orthogonal polarizations within the same beam and/or the use of spatially independent beams.¹¹

The 10.7-11.7 GHz (space-to-Earth) band is available for use by ESIMs communicating with geostationary orbit (“GSO”) FSS space stations, subject to the provisions in the Table of Allocations,¹² including not claiming protection from transmissions of non-Federal stations in the terrestrial fixed service (“FS”)¹³ and taking all practicable steps to protect radio astronomy observations in the adjacent bands from harmful interference.¹⁴ Eutelsat will comply with these provisions.

Footnote NG52 to the Table of Allocations limits the use of bands 10.7-11.7 GHz (space-to-Earth) by GSO satellites in the FSS to international systems.¹⁵ The gateway earth station uplink for EUTELSAT 12 WEST D is located in Europe and the system is therefore an international system compliant with Footnote NG52.¹⁶

EUTELSAT 12 WEST D’s operations in the 10.7-10.95 GHz, 11.2-11.45 GHz, and 12.75-13.25 GHz bands will also be in accordance with the provisions of Appendix 30B of the ITU Radio Regulations pursuant to Section 25.140(a)(3)(v) and footnote 5.441 to the Table of Allocations.¹⁷ First, as demonstrated in the attached Schedule S and Engineering Statement, EUTELSAT 12 WEST D downlink operations comply with applicable PFD limits, which will serve to protect terrestrial FS operations in the band. There is also little

¹¹ See 47 C.F.R. § 25.210(f).

¹² See *id.* §25.202(a)(10)(i).

¹³ See Table of Allocations at footnote NG527A.

¹⁴ See *id.* at footnote US211.

¹⁵ See 47 C.F.R. § 2.106 at footnote NG52.

¹⁶ *Id.* Even if U.S. gateway operations were envisioned, however, Eutelsat submits that both the plain language and intent of Footnote NG 52 would be satisfied because the EUTELSAT 12 WEST D will primarily support international Ku-band mobility operations.

¹⁷ See Table of Allocations at footnote 5.441, § 25.140(a)(3)(v). Footnote 5.441 states that the use of the band 11.2-11.45 GHz (space-to-Earth) by GSO systems in the FSS must be compliant with the provisions of Appendix 30B. Similarly, Section 25.140(a)(3)(v) requires that an applicant submit a statement that the proposed operation will incorporate the applicable requirements of Appendix 30B and a demonstration of compatibility with other U.S. ITU filings under that appendix.

potential for interference with non-geostationary orbit (“NGSO”) FSS systems that may operate in the associated bands given this PFD compliance.¹⁸ Moreover, the closest U.S. Appendix 30B ITU filing with date priority over the ITU filings supporting EUTELSAT 12 WEST D is 30.5 degrees away from the EUTELSAT 12WEST D satellite, and therefore there are no compatibility issues with EUTELSAT 12 WEST D operations under Appendix 30B with respect to U.S. Appendix 30B ITU filings.

In the 10.7-11.7 GHz band, FSS operations are co-primary with terrestrial FS and access to the band has been permitted for a range of earth station receive operations subject, in part, to not claiming protection from FS operations.¹⁹ Again, Eutelsat will not claim protection from FS operations and its PFD compliance will ensure compatibility with FS operations.

The Table of Allocations identifies FSS operations in the 13.75-14.0 GHz band as co-primary with U.S. government shipboard radar radiolocation and National Aeronautics and Space Administration (“NASA”) Tracking and Data Relay Satellite Systems (“TDRSS”) operations. Eutelsat will operate the EUTELSAT 12 WEST D satellite consistent with the Table of Allocations and the Commission’s policies governing use of the 13.75-14.0 GHz band. In particular, Eutelsat acknowledges that applicants proposing uplink earth station operations with EUTELSAT 12 WEST D would be required to comply with FCC Report and Order 96-377²⁰ to protect U.S. government operations from harmful interference. Eutelsat also will coordinate operation of the EUTELSAT 12 WEST D satellite with NASA TDRSS operations, as required.

¹⁸ EUTELSAT 12 WEST D downlink operations comply with applicable PFD limits, and authorized NGSO systems cannot claim protection from GSO satellite networks in the FSS operating in accordance with the Radio Regulations.

¹⁹ See 47 C.F.R. § 2.106 at footnote NG52.

²⁰ See *Amendment of Parts 2, 25 and 90 of the Commission’s Rules to Allocate 13.75-14.0 GHz Band to the Fixed-Satellite Service*, Report and Order, FCC 96-377 (rel. September 26, 1996).

In the 14.0-14.5 GHz band FSS operations are considered primary and the Commission routinely grants authority for satellite operations in this band. Eutelsat affirms that operations of the EUTELSAT 12 WEST D satellite in this band will comply with the Commission's rules, including to the extent applicable, footnotes 5.149, US113, US133, US342, and NG527A to the Table of Allocations, by taking all practicable steps to protect the radio astronomy service and TDRSS operations from harmful interference.

As with the EUTELSAT 12 WEST B satellite, Eutelsat also seeks authority for EUTELSAT 12 WEST D to use the 12.5-12.75 GHz (space-to-Earth) band on a non-conforming basis that will not conflict with other operations in the band and Eutelsat includes a waiver request to enable these proposed operations.²¹ The 12.5-12.7 GHz downlink band is allocated to terrestrial FS and Broadcast Satellite Service ("BSS"), and the 12.7-12.75 GHz downlink band is allocated to FS, mobile service and FSS (Earth-to-space). Eutelsat will operate in the 12.5-12.75 GHz downlink band consistent with power levels applicable to FSS operations designed to protect co-frequency terrestrial services.²²

Importantly, because earth station operations outside the Ku-band frequencies included in Permitted list authority require separate licensing, the Commission will have an opportunity to fully review any proposed operations in other bands to ensure compliance with its rules and policies (including compatibility with BSS downlinks). Thus, the EUTELSAT 12 WEST D satellite can be authorized to operate in this spectrum, on a non-conforming (unprotected, non-harmful interference) basis like EUTELSAT 12 WEST B before it.²³

²¹ Eutelsat's subsidiary, ES 172 LLC, and New Skies Satellites B.V. have been granted authority to operate in this band in similar circumstances. *See* ES 172 LLC, File No. SAT-RPL-20170927-00136 (grant reissued Sept. 5, 2018) ("EUTELSAT 172B Grant"); New Skies Satellites B.V., File No. SAT-PDR-20190403-00022 (granted Sept. 12, 2019) ("NSS-6 Grant").

²² *See* Engineering Statement and Schedule S; *see also* EUTELSAT 172B Grant at Condition 4, and NSS-6 Grant at Condition 8(e).

²³ *See* Section II.E.1, *infra*, for associated waiver request.

2. Satellite Service Area

EUTELSAT 12 WEST D includes two regional fixed Ku-band uplink beams and three fixed Ku-band downlink beams that may be used to serve the United States (satellite receive: ATLANTIC-A Uplink and ATLANTIC-SOUTH Uplink; and satellite transmit: ATLANTIC-A Downlink, ATLANTIC-B Downlink, and ATLANTIC-SOUTH Downlink). The beams will be configured as indicated in the attached Engineering Statement.

Eutelsat seeks to obtain the operational flexibility to facilitate reorientation of these beams. Specifically, Eutelsat wishes to accommodate potential future access to EUTELSAT 12 WEST D by Ku-band mobility terminals, possibly requiring reorientation of the entire satellite or some beams, which would in turn alter the beam footprints on the surface of the Earth from the 12.5° W.L. orbital location.

The technical information in this Petition includes beam characteristics as EUTELSAT 12 WEST D is currently planned to be oriented upon arrival at its proposed location. To the extent the beams are reoriented, Eutelsat will conform to all Commission operating requirements in the new orientation, including permissible transmit and receive power levels. Thus, the spectrum compatibility demonstration set forth in this application would be valid and applicable to any satellite orientation adjustments that Eutelsat might make in response to customer requirements.

3. Inclined Orbit

The EUTELSAT 12 WEST D satellite will operate in a slightly inclined orbit at the 12.5° W.L. orbital location. It will arrive on-station with an inclination of 0.5°, which is expected to increase at a rate of 0.9° per year. Eutelsat anticipates the satellite's end-of-life to be no earlier than mid-2025, even considering the impact of inclined orbit operations.

4. Space Debris Mitigation

Eutelsat has provided a EUTELSAT 12 WEST D Space Debris Mitigation Plan as part of this Petition to demonstrate compliance with the Commission’s orbital debris mitigation and satellite end-of-life requirements. As set forth below, Eutelsat is requesting a waiver of 47 C.F.R. § 25.283(c).

C. Petition Processing Issues

Section 25.137(c) of the Commission’s Rules provides that a non-U.S.-licensed GSO-like satellite system seeking to serve the United States “can have its request placed in a queue pursuant to §25.158 and considered before later-filed applications of other U.S. satellite system operators, if the non-U.S.-licensed satellite system: (1) [i]s in orbit and operating; (2) [h]as a license from another administration; or (3) [h]as been submitted for coordination to the International Telecommunication Union.”²⁴ Because the EUTELSAT 12 WEST D satellite is in orbit, Eutelsat is to be authorized by France to exploit French ITU filings at the 12.5° W.L. orbital location, and French ITU filings that include the relevant bands have been submitted for the 12.5° W.L. orbital location, Eutelsat understands this Petition will be processed consistent with Section 25.158 of the Commission’s Rules.²⁵

In addition, the International Bureau may grant this application without imposing specific implementation milestones or a bond²⁶ because the EUTELSAT 12 WEST D satellite is already in-orbit and thus implementation milestones need not be imposed. Out of an abundance of caution, however, Eutelsat requests a waiver of these requirements below.

²⁴ See 47 C.F.R. § 25.137(c).

²⁵ Eutelsat also notes that the spacecraft it proposes to operate at 12.5° W.L. (known as EUTELSAT 7A) was previously authorized to serve the U.S. market from the 139° W.L. orbit location. See File No. SAT-PDR-20191017-00115, Call Sign S3055. As a result of significant changes in demand for aeronautical and maritime services resulting from the COVID-19 pandemic and related factors, Eutelsat is not currently operating the satellite at that location. Eutelsat will engage with the Commission staff to confirm the appropriate process to adjust the authority granted at 139° W.L. to the extent necessary to facilitate acceptance, consideration, and grant of this Petition.

²⁶ See *id.* §§ 25.164, 25.165.

D. Public Interest Considerations

EUTELSAT 12 WEST D is currently in-orbit, is scheduled to arrive at the 12.5° W.L. orbit location in December 2020, and it is expected to be operational until approximately mid-2025. At 12.5° W.L., the satellite will replace an aging spacecraft, EUTELSAT 12 WEST B, that is reaching the end of its operational life and will be deorbited shortly.

Grant of this Petition will enable Eutelsat to use an in-orbit satellite asset to provide continued service to U.S. consumers. It also will afford Eutelsat additional flexibility to address U.S. demand for Ku-band mobility and other FSS services, thereby strongly serving the public interest.

E. Waiver Requests

Eutelsat requests waivers of certain Commission rules in the context of this Petition. The Commission has authority to grant waivers of its rules for “good cause shown.”²⁷ In general, good cause exists if grant of a waiver would not undermine the purposes of the rule and would otherwise serve the public interest.²⁸ As discussed below, compelling reasons exist to grant the requested waivers in connection with Eutelsat’s Petition to access the U.S. market and add EUTELSAT 12 WEST D to the Permitted List.

1. Waiver of Section 2.106 To Permit Downlink Operations in the 12.5-12.75 GHz Band

Good cause exists to waive Section 2.106 for EUTELSAT 12 WEST D operations in the 12.5-12.75 GHz frequency band. Under the U.S. Table of Frequency Allocations, the 12.5-12.7 GHz band has a primary allocation for BSS and FS in the United States, and additional primary allocations for certain terrestrial services elsewhere in Region 2. The 12.7-12.75 GHz downlink band is allocated to FS, mobile services (except aeronautical mobile), and FSS (uplinks) in Region 2.

²⁷ See *id.* § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

²⁸ *WAIT Radio*, 418 F.2d at 1157; *Intelsat North America LLC*, 22 FCC Rcd. 11989 ¶6 (2007).

Grant of a waiver to utilize the 12.5-12.75 GHz downlink band for Ku-band operations would be consistent with Commission policy and precedent, serving the public interest by enabling communications with terminals that do not interfere with or require any protection from other authorized operations in the U.S. market. Eutelsat has carefully examined the potential impact of its proposed FSS downlinks in the 12.5-12.7 GHz band on BSS operations. Because EUTELSAT 12 WEST D satellite is located nearly 50 degrees away from the closest BSS satellite serving the U.S. market²⁹ and the satellite operates at downlink PFDs that are no greater than those permitted for FSS services in Region 1 and 3,³⁰ no interference is possible in the 12.5-12.7 GHz band segment.³¹ There is also little potential for interference with NGSO FSS systems that may operate in the 12.5-12.7 GHz band,³² and PFD compliance will protect terrestrial operations in the 12.7-12.75 GHz band.

Finally, access to additional downlink spectrum for satellite applications will facilitate more service to consumers and help address issues of traffic asymmetry, where greater satellite downlink capacity is needed to transport traffic to users (versus uplink capacity to transport traffic from users). For these reasons, the Commission granted a similar waiver to the EUTELSAT 12 WEST B satellite.³³ Thus, use of the 12.5-12.75 GHz band by EUTELSAT 12 WEST D can be authorized on an unprotected, non-interference basis as proposed herein.

²⁹ The closest BSS space station is at 61.3° W.L., which is 48.8 degrees from EUTELSAT 12 WEST D's proposed location. BSS satellites are typically spaced 9 degrees apart.

³⁰ In the band 12.5-12.7 GHz, downlink PFD limits for FSS services in Regions 1 and 3 are equal to downlink PFD limits for BSS services in Region 2. See ITU RR No. 21.16 and ITU RR Appendix 30, Annex 1, §4.

³¹ See note 9, *supra*. There is no material potential for interference given sufficient orbital separation and the compliant downlink power levels of the EUTELSAT 12 WEST D satellite.

³² EUTELSAT 12 WEST D downlink operations comply with applicable PFD limits, and authorized NGSO systems must similarly comply with PFD limits applicable to their operations. Through mutual compliance with these limits, the operations of EUTELSAT 12 WEST D and NGSO systems will be compatible in this downlink band.

³³ See File No. SAT-MPL-20200517-00046 (11.2-11.45 GHz (space-to-Earth)), Call Sign S2596.

2. EUTELSAT 12 WEST D Station-keeping Tolerance

Commission rule 47 C.F.R. § 25.210(j) requires satellite operators to maintain station-keeping within $\pm 0.05^\circ$ of their assigned orbital longitude in the east/west direction, unless specifically authorized by the Commission to operate with a different longitudinal tolerance. The Commission has previously allowed an increased station-keeping tolerance based on a finding that doing so would not adversely affect the operations of other spacecraft and would have benefits such as conserving fuel for future operations.³⁴ For the reasons discussed below, Eutelsat requests a limited waiver of 47 C.F.R. § 25.210(j).

Eutelsat operates EUTELSAT 12 WEST D with an increased station-keeping volume of $\pm 0.10^\circ$. Operating with this station-keeping tolerance will have no adverse impact on other operators because the volume will not overlap with that of any other satellites. Furthermore, a station-keeping tolerance of $\pm 0.10^\circ$ affords Eutelsat additional operational flexibility and conserves fuel to extend the on-orbit lifetime of this valuable satellite asset. Thus, permitting a larger station-keeping tolerance under Section 25.210(j) will serve the public interest.

Eutelsat notes that the Commission has repeatedly granted authority to operate with a $\pm 0.10^\circ$ station-keeping tolerance, subject to the condition that authority to operate with the larger tolerance shall terminate in the event that another satellite is launched into a location such that its station-keeping would overlap the satellite's ± 0.10 degree station-keeping volume, but would not overlap a $\pm 0.05^\circ$ degree station-keeping volume, unless the satellite operator has successfully coordinated physical operations with those of the other spacecraft.³⁵

There are no active satellites close enough to 12.5° W.L. for the station-keeping box of EUTELSAT 12 WEST D to overlap with another non-Eutelsat-operated satellite. As the operator of the EUTELSAT 12 WEST B spacecraft, and having extensive experience in

³⁴ See, e.g., SES Americom, Inc. Application for Modification of Satcom SN-4 Fixed Satellite Space Station License, 20 FCC Rcd 11542, 11545 (Sat. Div. 2005).

³⁵ See, e.g., File No. SAT-MPL-20191017-00117, Call Sign S2596 (EUTELSAT 12 WEST B).

operating co-located spacecraft, Eutelsat will ensure safe flight operations during any temporary co-location of EUTELSAT 12 WEST D and EUTELSAT 12 WEST B (prior to that satellite's deorbiting).

3. EUTELSAT 12 WEST D End-of-Life Venting

Commission rule 47 C.F.R. § 25.283(c) requires that after the completion of a satellite mission "all stored energy sources onboard the satellite are discharged, by venting excess propellant, discharging batteries, relieving pressure vessels, and other appropriate measures." Eutelsat requests waiver of 47 C.F.R. § 25.283(c) to the extent necessary to grant this Petition.

The EUTELSAT 12 WEST D satellite is built by Astrium on the widely used Eurostar 3000 spacecraft bus. The E3000 design allows removal of electrical stored energy by discharging the batteries and actuating the batteries bypasses, and allows depletion of chemical stored energy from the chemical propulsion tanks and the plasmic propulsion tank. It does not, however, allow complete depressurization of helium contained in the pressurant tank. Instead, after the launch and early operations phase of the spacecraft's mission, this tank is sealed off with a small remaining residual pressure using pyrotechnic valves, so as to completely isolate it from the rest of the system. Therefore, as a result of the satellite design, Eutelsat cannot vent all of the pressurant from EUTELSAT 12 WEST D at end-of-life.

Multiple factors, however, ensure that EUTELSAT 12 WEST D's design is consistent with a safe-flight profile and will not pose a risk of creating orbital debris. As explained in the EUTELSAT 12 WEST D Space Debris Mitigation Plan, the remaining helium in the two pressurant tanks will be *de minimis*. Only 1.5 kg of helium will remain in the 178-liter tank. Additionally, the isolation of the pressurant tank from other systems and its internal location minimizes the risk of damage to other systems in the case of external impacts.

Eutelsat notes that the Commission has granted a waiver in analogous circumstances.³⁶

Eutelsat respectfully submits that a similar waiver is justified in this circumstance because

EUTELSAT 12 WEST D's propellant and pressurant tanks operate in a similar manner.

Based on the above, a grant of this waiver would be consistent with Commission policy and

precedent, will serve the public interest by enabling new U.S. commercial operations at the

12.5° W.L. orbital location, and will not undermine the purpose of the Commission's rule.

4. Waiver of Milestone and Bond Requirements

Eutelsat submits that the Commission need not impose milestone or bond requirements in connection with this request to serve the U.S. market using the EUTELSAT 12 WEST D satellite. Section 25.137(d)(1) of the Commission's Rules provides for milestones and Section 25.137(d)(4) of the Commission's Rules provides for a bond to be posted where a non-U.S. licensed satellite operator files a petition for declaratory ruling to access the U.S. market for non-U.S.-licensed space station that is not in orbit and operating.

Although EUTELSAT 12 WEST D is an in-orbit satellite, it is not currently operating at the 12.5° W.L. orbital location. As noted herein, Eutelsat plans to relocate the satellite and commence operations by December 2020. To the extent the Commission grants this petition prior to EUTELSAT 12 WEST D's arrival at its proposed location, Eutelsat requests an appropriate waiver or other confirmation that no milestone or bond requirement will be imposed. If the Commission determines that the milestone and/or bond requirement applies and a waiver is not warranted, however, Eutelsat will comply with such requirements in connection with grant of this Petition.

³⁶ See, e.g., Telesat Canada Petition for Partial Waiver of Section 25.283(c), File No. SAT-APL-20111117-00222, Call Sign S2703 (granted April 11, 2012); Hispamar Satélites, S.A. Petition for Declaratory Ruling to Add Amazonas-3 Satellite to the Permitted Space Station List, File No. SAT-PPL-20121018-00183, Call Sign S2886 (granted March 14, 2013) (granting Permitted List status to Amazonas-3, which will retain a *de minimis* quantity of helium pressurant at end of life); Boeing Application Supplement and Request for Waiver, Eutelsat 36B Space Debris Mitigation Plan at 6, File No. SES-LIC-20140922-00748, Call Sign E140097 (granted March 13, 2015).

III. CONCLUSION

Eutelsat seeks to access the U.S. market and add the in-orbit EUTELSAT 12 WEST D satellite to the Permitted List for bands that are eligible for such authority. EUTELSAT 12 WEST D will commence operations at 12.5° W.L. by December 2020 using Ku-band frequencies for which France holds ITU date priority at the nominal 12.5° W.L. orbital location. Eutelsat requests grant of this Petition to permit the introduction of service upon the satellite's arrival at its new location.

Authorizing EUTELSAT 12 WEST D to provide service to U.S. customers will serve the public interest by enhancing competition in the United States, making efficient use of in-orbit satellite assets and meeting U.S. demand for aeronautical and maritime mobility and other FSS services. For all of these reasons, Eutelsat respectfully requests that the EUTELSAT 12 WEST D satellite be permitted to access the U.S. market and be added to the Permitted List in relevant Ku-band frequencies at the 12.5° W.L. orbital location.

Attachment A

FCC Form 312, Response to Questions 34 and 40: Foreign Ownership, Officers, Directors, and Ten Percent or Greater Shareholders of Eutelsat S.A.

Eutelsat S.A. is a *société anonyme* organized under the laws of France and incorporated under number 422 551 176 RCS Paris. The address of Eutelsat S.A. is 70 rue Balard, 75015 Paris, France. An organizational chart showing the ownership of Eutelsat S.A. is attached.

96.37% of Eutelsat S.A.'s share capital is held by Eutelsat Communications S.A., the publicly traded parent of Eutelsat S.A. In addition, the Russian Satellite Communications Company ("RSCC") holds 3.38% of the shares issued by Eutelsat S.A. and 0.25% of the shares of Eutelsat S.A. are held by other non-Eutelsat entities as set out on the ownership chart attached hereto. RSCC and these other entities have no control over Eutelsat S.A. All shareholdings of Eutelsat S.A. (other than the 0.05% of such shares held by Eutelsat S.A.'s employees and executives) are a result of the privatization of Eutelsat S.A., formerly an intergovernmental organization.

19.98% of the share capital of Eutelsat Communications S.A. is held by Bpifrance Participations (formerly named Fonds Stratégique d'Investissement), a *société anonyme* formed in 2008 to enhance equity in France and help stabilize French companies during the economic crisis. Approximately 50% of Bpifrance Participations' share capital is held by the Caisse des Dépôts et Consignations (the "CDC") and approximately 50% of its share capital is held by the French State. Bpifrance Participations must present its strategic plans and annual report to the supervisory commission of the CDC. The Bpifrance Participations' board of directors has nine members. Three of the directors are representatives of the CDC, three of the directors are representatives of the French State and two of the directors are independent directors. The chief executive officer of Bpifrance Participations is appointed by its board of directors. The address of Bpifrance Participations is 27-31, avenue du Général Leclerc, 94710 Maisons-Alfort, Cedex, France.

The CDC is a financial institution wholly owned by the French State and under the supervision of the French Parliament that serves the general interest and the economic development of France. CDC has a mission of long-term investment. Approximately 50% of the CDC's recurring and non-recurring net profit is paid to the French State. The CDC is managed by a chief executive officer, who is appointed by the President of the French State. The CDC is supervised by a supervisory commission of thirteen members, all of which are appointed by various sectors of the French government.

7.58% of the share capital of Eutelsat Communications is held by Fonds Stratégique de Participation (FSP). Backed by six major French insurance companies (BNP PARIBAS CARDIF, CNP ASSURANCES, CREDIT AGRICOLE ASSURANCES, SOGECAP (SOCIETE GENERALE group), GROUPAMA and NATIXIS ASSURANCES), the FSP is a long-term equity investor in French companies. Through FSP, insurance companies and key institutional investors with long-term liabilities channel some of France's long-term savings into equity investments.

6.73% of the share capital of Eutelsat Communications S.A. is held by China Investment Corp. ("CIC") through Flourish Investment Corporation (0.014%), Best Investment Corporation (0.035%) and Fullbloom Investment Corporation (6.68%), all organized under the laws of the People's Republic of China. Information about CIC can be found on its website: www.china-inv.cn.

To the best of Eutelsat Communications S.A.'s knowledge, no other shareholders own, directly or indirectly, more than 10% of its share capital or voting rights. Eutelsat Communications S.A. is managed by a board of directors that currently has ten members, each of whom has a four-year renewable term of office. Currently, seven of the directors are independent, two are affiliated with the Bpifrance Participations. No decisions of the board of directors can be taken or be blocked by two

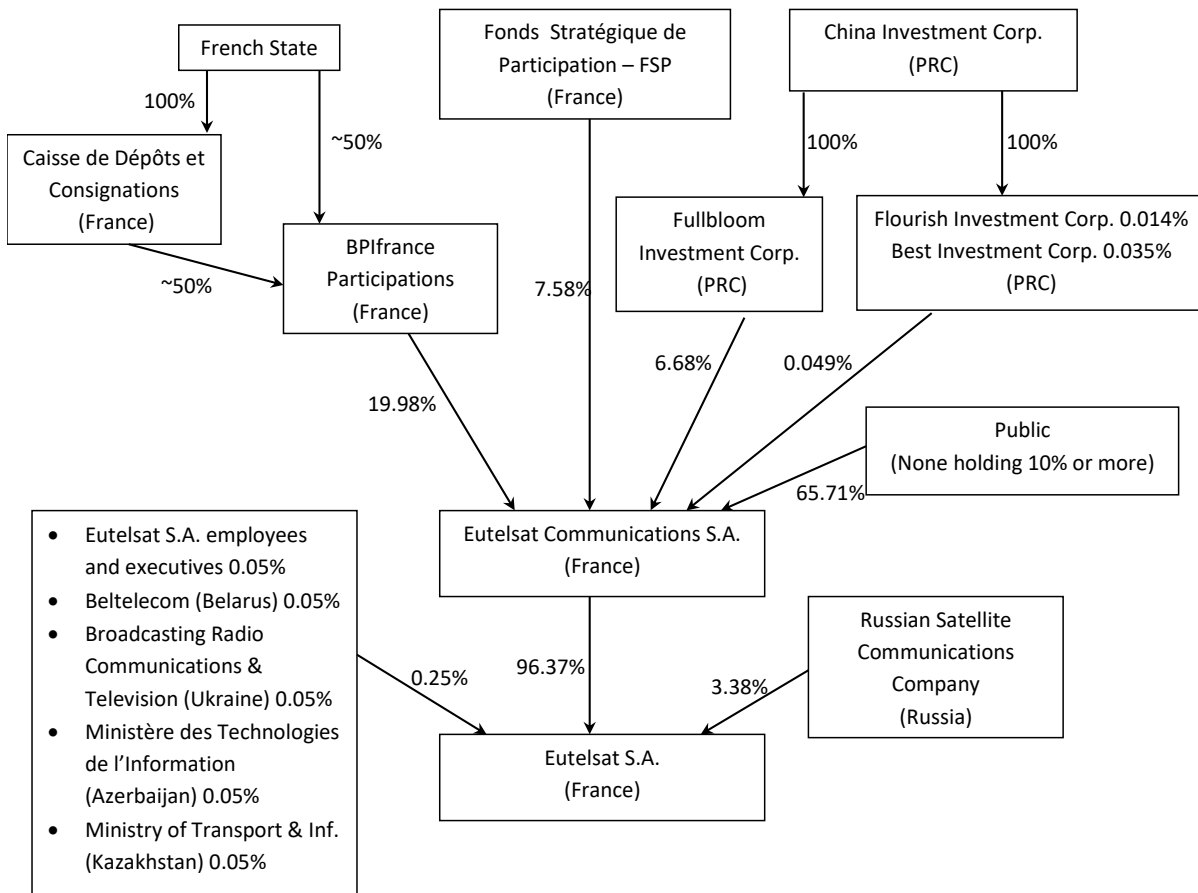
directors. Neither the Bpifrance Participations, nor any of the CIC Entities or FSP, nor any foreign government or person controlled by or acting on behalf of a foreign government has or will have the right or power to appoint any of Eutelsat Communications S.A.'s principal officers. None of the CIC Entities or FSP has the right or power to appoint any of Eutelsat Communications S.A.'s directors.

More information about Eutelsat Communications S.A., its shareholders, and its governance can be found on its website at www.eutelsat.com.

Principal officers of Eutelsat Communications S.A. include:

Rodolphe Belmer, CEO
 Michel Azibert, Deputy CEO

The individuals listed above can be contacted c/o Eutelsat S.A., 70 rue Balard, 75015 Paris, France. Mr. Belmer and Mr. Azibert are citizens of the Republic of France.



Attachment B – Regulatory Compliance Matrix

Reference Section	Reference Location	Topic / Reason for (n/a)
25.114(a)(1)	FCC Form 312; Schedule S; Narrative; Attachment C	Overall description of filing
25.114(a)(2)	n/a	NGSO constellation
25.114(a)(3)	n/a	Application filed pursuant to two-step procedure
25.114(b)	Form 312	Waiver required by 47 U.S.C §304
25.114(c)(1)	FCC Form 312; Schedule-S	Applicant information
25.114(c)(2)	Schedule-S	Applicant points of contact
25.114(c)(3)	FCC Form 312; Narrative; Schedule-S	Type of authorization
25.114(c)(4)(i)	Attachment C – Section 6; Schedule-S	Channel frequency, bandwidth and polarization
25.114(c)(4)(ii)	Schedule-S	Maximum EIRP and EIRP density of TX beams
25.114(c)(4)(v)	Schedule-S	RX beam: G/T, SFD
25.114(c)(4)(vi)(A)	Schedule-S	GSO: Antenna Gain Contours
25.114(c)(4)(vi)(B)	n/a	NGSO: Antenna Gain Contours
25.114(c)(4)(vi)(C)	n/a	Shapeable Beams: Antenna Gain Contours
25.114(c)(4)(vi)(D)	n/a	Steerable, non-shapeable beams
25.114(c)(4)(vii)(A-C)	n/a	GSO: Large number of spot beams
25.114(c)(5)(i-v)	Schedule-S	GSO: Orbital parameters
25.114(c)(6)(i-ix)	n/a	NGSO: Orbital parameters
25.114(c)(7)	Schedule-S; Attachment C – Sections 3, 6, and Exh. 1; Narrative	Frequency Bands, Types of Service and Coverage Areas
25.114(c)(8)	Schedule-S, See §25.208	TX Beams: PFD
25.114(c)(10)	Schedule-S; Narrative	Operational Lifetime
25.114(c)(11)	FCC Form 312	Common Carrier Status
25.114(c)(13)	n/a	17/24 GHz BSS polarization isolation
25.114(d)(1)	Narrative; Attachment C - Section 2	Overall description
25.114(d)(6)	Narrative	Public Interest
25.114(d)(7)	See §25.140(a)	Interference Analysis
25.114(d)(8)	n/a	L-Band MSS
25.114(d)(9)	n/a	MSS: Multiple Satellites
25.114(d)(10)	n/a	L/S-Band MSS
25.114(d)(11)	n/a	DBS
25.114(d)(12)	n/a	NGSO FSS
25.114(d)(13)(i-ii)	n/a	DBSS
25.114(d)(14)(i-v)	Narrative; Attachment D	Space Debris Mitigation Plan
25.114(d)(15)(i-v)	n/a	17/24 GHz BSS
25.114(d)(16)	n/a	17/24 GHz BSS
25.114(d)(17)	n/a	17/24 GHz BSS
25.114(d)(18)	n/a	17/24 GHz BSS

Reference Section	Reference Location	Topic / Reason for (n/a)
25.137(a)	Narrative	Requirements for U.S. market access request
25.137(b)	FCC Form 312, Schedule S, Attachment C, Narrative	Legal and technical information required for U.S. market access
25.137(c)	Narrative (see § 25.158)	Petition processing; queue placement
25.137(d)	Narrative	Non-U.S.-licensed satellite requirements
25.137(e-g)	n/a	Changes/modifications
25.140(a)(3)(i)	n/a	C-band limits
25.140(a)(3)(ii)	Attachment C - Section 13	Ku-band limits
25.140(a)(3)(iii)	n/a	Ka-band limits
25.140(a)(3)(iv)	n/a	24.75-25.25 GHz band
25.140(a)(3)(v)	Attachment C - Section 13	AP30B limits
25.140(a)(3)(vi)	n/a	2°-spacing interference analysis
25.140(d)	n/a	Non-routine transmission levels
25.156(a)	Narrative	Petition consideration - general
25.158	Narrative	Petition consideration – GSO satellite
25.159	n/a	Unbuilt systems
25.172(a)(1-4)	Attachment C – Section 4	TT&C Reporting
25.202(e)	Attachment C - Section 7	Frequency Tolerance
25.202(f)(1-3)	Attachment C - Section 8	Out of band - emissions
25.202(g)	Attachment C – Section 4	TT&C on band edge
25.208(a-g)	Attachment C - Section 12	PFD Analysis
25.210(f)	Attachment C - Section 9	Full Frequency Reuse
25.210(j)	Narrative, Schedule S	EW Station keeping tolerance
25.283(a-c)	Narrative; Attachment D	Space Debris Mitigation Plan
25.207	Attachment C - Section 10	Cessation of Emissions

Attachment C - Engineering Statement

1. Scope

As required by Section 25.114 and other sections of the Part 25 rules, this Attachment contains additional information that cannot be entered into the Schedule S online submission system regarding the proposed relocation and operations of the EUTELSAT 12 WEST D satellite at the nominal 12.5° W.L. orbital location.

2. General Description (Section 25.114(d)(1))

The EUTELSAT 12 WEST D satellite was formerly the EUTELSAT 7A satellite located at 7° E.L. The satellite is being relocated to 12.5° W.L. and is expected to reach its new orbital location in December 2020. The EUTELSAT 12 WEST D satellite will support fixed-satellite service (FSS) applications including mobility services to aeronautical and maritime earth stations in motion (ESIMs) operating from the East Coast of the United States through the Atlantic Ocean region to Europe from the nominal 12.5° W.L. orbital location. It should be noted that the Schedule S rounds this orbital location to 13° W.L. EUTELSAT 12 WEST D will begin operations at 12.5° W.L. with an inclination of 0.5° and the inclination will increase by approximately 0.9°/year.

EUTELSAT 12 WEST D will employ 58 Ku-band primary transponders using both linear polarizations, thereby providing dual-frequency reuse. The satellite will employ two regional fixed Ku-band uplink beam and three regional fixed Ku-band downlink beams. The fixed Ku-band beams will be configured to provide service to the eastern United States and the Caribbean, the Atlantic Ocean, and neighboring regions. The EUTELSAT 12 WEST D satellite has additional regional fixed uplink and downlink beams in Ka-band frequencies. However, they are not the subject of this filing.

The EUTELSAT 12 WEST D satellite is capable of conducting emergency TT&C operations in S-band. However, no U.S. market access is requested and therefore the S-band capabilities are not a part of this application.

3. Spacecraft Overview

EUTELSAT 12 WEST D was manufactured and supplied by EADS Astrium based on the Eurostar-3000 bus platform. The satellite is three-axis stabilized and uses bi-propellant chemical propulsion for attitude, on-station control, repositioning, and end-of-life deorbit.

The satellite will operate in Ku-band at the frequencies listed below, in addition to some specific frequencies for TT&C and ULPC functions:

Ku-band Uplink	Ku-band Downlink
12.75 – 13.25 GHz	10.7 – 10.95 GHz
13.75 – 14.0 GHz	10.95 – 11.2 GHz
14.0 – 14.5 GHz	11.2 – 11.45 GHz
	11.45 – 11.7 GHz
	12.5 – 12.75 GHz

EUTELSAT 12 WEST D provides the following coverage (illustrations of the beam coverage areas are provided in Exhibit 1):

Ku-band Uplink	ATLANTIC A	Eastern United States and Canada, the North Atlantic Ocean, and portions of Europe and Northwest Africa
	ATLANTIC SOUTH	Northeastern South American, the Caribbean, the South Atlantic Ocean, and portions of West Africa
Ku-band Downlink	ATLANTIC A	Eastern United States and Canada, the North Atlantic Ocean, and portions of Europe and Northwest Africa
	ATLANTIC B	Northeastern United States and Canada, the North Atlantic Ocean, and portions of Western Europe and Northwest Africa
	ATLANTIC SOUTH	Northeastern South American, the Caribbean, the South Atlantic Ocean, and portions of West Africa

The technical information in this Petition includes beam characteristics as EUTELSAT 12 WEST D is currently planned to be oriented upon arrival at its proposed location. To the extent the beams are

reoriented, Eutelsat will conform to all Commission operating requirements in the new orientation, including permissible transmit and receive power levels. Thus, the spectrum compatibility demonstration set forth in this application would be valid and applicable to any satellite orientation adjustments that Eutelsat might make in response to customer requirements.

4. Telemetry, Tracking and Control (TT&C)

As required by 25.172(a), this section describes how TT&C operations will be conducted for the EUTELSAT 12 WEST D satellite. No TT&C sites within the United States will be employed for operation of the satellite.

The TT&C sub-system provides for communications during on-station operations, as well as during spacecraft emergencies. Ku-band telecommand transmissions are normally received and Ku-band telemetry communications are normally transmitted by the spacecraft through wide-beam uplink and downlink horn antennas. During emergency operations, TT&C communications are transmitted and received through a near omni-directional S-band antenna.

TT&C communication channels have been selected at the edge of the assigned Ku-bands in accordance with Section 25.202(g). The satellite utilizes two Ku-band telemetry channels. The Ku-band telemetry channel center frequencies are 11699.8 MHz and 11700.4 MHz with a bandwidth of 300 kHz and horizontal polarization. The satellite utilizes one Ku-band command channel. The Ku-band command channel center frequency is 13752.5 MHz with a bandwidth of 600 kHz and employs horizontal polarization. TT&C operations will be conducted from earth station facilities located in Mexico.

The coverage patterns of the Ku-band uplink and downlink TT&C beams (TCH & TMH) have been included as .GXT files with a GIMS container database in the Schedule S.

Contact details for the control stations are provided below:

EUTELSAT 12 WEST D TT&C station 1:

Rambouillet Teleport
Route de Cerqueuse
78660 Prunay en Yvelines
France

Satellite control center addresses and telephone numbers:

EUTELSAT 12 WEST D Control Center

Address: Eutelsat
70 rue Balard
75015 Paris
France

EUTELSAT 12 WEST D control contact info:

Email: csc@eutelsat.com
24/7 hours number(s): +33 1 45 57 06 66

5. Uplink Power Control

EUTELSAT 12 WEST D utilizes four Ku-band ULPC channels in three beacon beams. The Ku-band ULPC channel center frequencies are 11,200.0 and 12,500.0 MHz and have bandwidths of 100 kHz and employ horizontal polarization. In addition, the telemetry channels 11699.8 and 11700.4 MHz also operate as ULPC channels via the TT&C downlink beam with bandwidths of 300 kHz and employ horizontal polarization. The coverage patterns of the Ku-band ULPC beacon beams have been included as .GXT files with a GIMS container database in the Schedule S.

6. Frequency Plan

The following tables list the uplink and downlink Ku-band channel plan for EUTELSAT 12 WEST D. This information is also provided in the accompanying Schedule S but is included here for clarity.

Table 1 Ku-Band Uplink Frequency Plan

Channel ID	Bandwidth (kHz)	Center Frequency (MHz)	Polarization
B1	72000	14291.67	V
B2	72000	14291.67	H
B3	72000	14375.00	V
B4	72000	14375.00	H
B5	72000	14458.33	V
B6	72000	14458.33	H
C1	36000	13001	V
C2	36000	13021.75	H
C3	36000	13042.5	V
C4	36000	13063.25	H
C5	36000	13084	V
C6	36000	13104.75	H

C7	36000	13125.5	V
C8	36000	13146.25	H
C9	36000	13167	V
C10	36000	13187.75	H
C11	36000	13208.5	V
C12	36000	13229.25	H
D1	36000	13771.41	V
D2	36000	13792.16	H
D3	36000	13812.91	V
D4	36000	13833.66	H
D5	36000	13854.41	V
D6	36000	13875.16	H
D7	36000	13895.91	V
D8	36000	13916.66	H
D9	36000	13937.41	V
D10	36000	13967.75	H
D11	49500	13978.91	V
F1	72000	14041.67	V
F2	72000	14041.67	H
F3	72000	14125.00	V
F4	72000	14125.00	H
F5	72000	14208.33	V
F6	72000	14208.33	H
G01	72000	14291.67	V
G02	72000	14375	V
G03	72000	14458.33	V
J01	108000	14062	V
J02	108000	14187	V
TC1	600	13752.5	H

Table 2 Ku-Band Downlink Frequency Plan

Channel ID	Bandwidth (kHz)	Center Frequency (MHz)	Polarization
A1	36000	10720.75	H
A2	36000	10720.75	V
A3	36000	10762.25	H
A4	36000	10762.25	V
A5	36000	10803.75	H
A6	36000	10803.75	V

A7	36000	10845.25	H
A8	36000	10845.25	V
A9	36000	10886.75	H
A10	36000	10886.75	V
A11	36000	10928.25	H
A12	36000	10928.25	V
B1	72000	10991.67	H
B2	72000	10991.67	V
B3	72000	11075.00	H
B4	72000	11075.00	V
B5	72000	11158.33	H
B6	72000	11158.33	V
C1	36000	11220.75	H
C2	36000	11241.5	V
C3	36000	11262.25	H
C4	36000	11283	V
C5	36000	11303.75	H
C6	36000	11324.5	V
C7	36000	11345.25	H
C8	36000	11366	V
C9	36000	11386.75	H
C10	36000	11407.5	V
C11	36000	11428.25	H
C12	36000	11449	V
D1	36000	11471.41	H
D2	36000	11492.16	V
D3	36000	11512.91	H
D4	36000	11533.66	V
D5	36000	11554.41	H
D6	36000	11575.16	V
D7	36000	11595.91	H
D8	36000	11616.66	V
D9	36000	11637.41	H
D10	49500	11667.75	V
D11	36000	11678.91	H
F1	72000	12541.67	H
F2	72000	12541.67	V
F3	72000	12625.00	H
F4	72000	12625.00	V
F5	72000	12708.33	H
F6	72000	12708.33	V

G01	72000	10991.67	H
G02	72000	11075	H
G03	72000	11158.33	H
H01	36000	12520.75	H
H02	36000	12562.25	H
H03	36000	12603.75	H
H04	36000	12645.25	H
H05	36000	12686.75	H
H06	36000	12728.25	H
BC2	100	12500.00	H
BC3	100	11200.00	H
TM1	300	11699.8	H
TM2	300	11700.4	H

7. Frequency Tolerance

Section 25.202(e) requires that the carrier frequency of each space station transmitter be maintained within 0.002% of the reference frequency. These frequency tolerance requirements will be met.

8. Out of Band Emissions

The out-of-band emission limits of Section 25.202(f)(1), (2) and (3) will be met.

9. Frequency Reuse

EUTELSAT 12 WEST D employs full frequency reuse on the Ku-band uplink and downlink by employing dual orthogonal linear polarization and frequency reuse across multiple regional beams.

10. Cessation of Emissions

As required by Section 25.207 of the FCC's rules, all downlink transmissions can be turned on and off by ground telecommand, thereby causing cessation of emissions from the satellite.

11. ITU Filings

The EUTELSAT 12 WEST D satellite will operate in Ku-bands (10.95-11.2, 11.45-11.701, 12.499-12.75 and 13.75-14.5 GHz) at the 12.5° W.L. orbital location under the EUTELSAT 3-12.5W, F-SAT-KU2-E-12.5W, F-SAT-N-E-12.5W, and F-SAT-N3-12.5W ITU satellite network filings. The satellite will operate in the AP30B Ku-band (10.7-10.95, 11.2-11.45, and 12.75-13.25 GHz) at the 12.5° W.L. orbital location under the F-SAT-30B-12.5W and EUTELSAT EXB-12.5W ITU satellite network filing. The operation of the satellite will fall within the envelope of the parameters disclosed in these ITU satellite network filings.

12. PFD Analysis

The power flux density (“PFD”) limits for space stations operating in the 10950–11200 MHz and 11450–11700 MHz bands are specified in Section 25.208 of the Commission’s rules. The Commission’s rules do not specify a PFD limit for FSS in the 10700-10950 MHz, 11200-11450MHz, and 12.5-12.75 GHz bands. However, the PFD limits specified by ITU No. 21.16 in these bands are considered applicable to EUTELSAT 12 WEST D as well.

The maximum PFD levels for the EUTELSAT 12 WEST D transmissions were calculated for the bands 10700-10950 MHz, 10950–11200 MHz, 11200-11450 MHz, 11450–11700 MHz, and 12500-12750 MHz.¹ The results, provided in Schedule S, show that the downlink PFD levels of EUTELSAT 12 WEST D’s carriers do not exceed the limits specified in either Section 25.208 of the Commission’s rules or in the ITU Radio Regulations.

Should the EUTELSAT 12 WEST D satellite be reoriented, the orientation of the beams and/or the downlink power density will be adjusted to ensure the downlink PFD will still be compliant with applicable PFD limits.

13. Interference Analysis

In this section, the information specified in Section 25.140(a) is presented (as required by Section 25.114(d)(7)).

The downlink EIRP density of EUTELSAT 12 WEST D transmissions will not exceed levels provided in Section 25.140(a)(3)(ii). Associated uplink transmissions will not exceed applicable EIRP density envelopes in Sections 25.218, 25.222(a)(1), 25.226(a)(1), or 25.227(a)(1) of the Commission’s rules unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the satellite. In view of the foregoing, the uplink and downlink frequencies at issue do not require interference analysis under the Commission’s rules. Furthermore, in all cases, Eutelsat will comply with the applicable coordination agreements for 12.5° W.L.

¹ PFD compliance of beacon and telemetry carriers overlapping the service band edges is also demonstrated.

For 12.5-12.7GHz band, the closest US authorized satellite is at 61.3° W.L. This results in a nominal spacing separation of 48.8° from EUTELSAT 12 WEST D which far exceeds the 9°-spacing criteria for BSS satellites.

Per Section 25.140 (a)(3)(v), EUTELSAT 12 WEST D operations in the 10700-10950 MHz, 11200-11450 MHz and 12750-13250 MHz bands will take into account the applicable requirements of Appendix 30B of the ITU's Radio Regulations. There are no U.S. Appendix 30B ITU filings within 6 degrees of 12.5° W.L. having precedence against the AP30B ITU filings supporting the EUTELSAT 12 WEST D satellite, and therefore there are no compatibility issues with EUTELSAT 12 WEST D operations under Appendix 30B with respect to U.S. Appendix 30B ITU filings.

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge and belief.

/s/

David C Morse, Ph.D.
Avaliant, LLC
Bellevue, WA USA
(425) 246-3080

Exhibit 1: Service Areas

This document illustrates the service areas for the uplink and downlink beams of EUTELSAT 12 WEST D at 12.5° W.L. in the accompanying Schedule S.

The Ku-band ATLANTIC-A fixed uplink service area includes Eastern United States and Canada, the North Atlantic Ocean, and portions of Europe and Northwest Africa and is illustrated in Figure 1. Figure 1 reflects the service area for uplink beams F1H1, F1H2, F1H3, F1V1, F1V2 and F1V3.

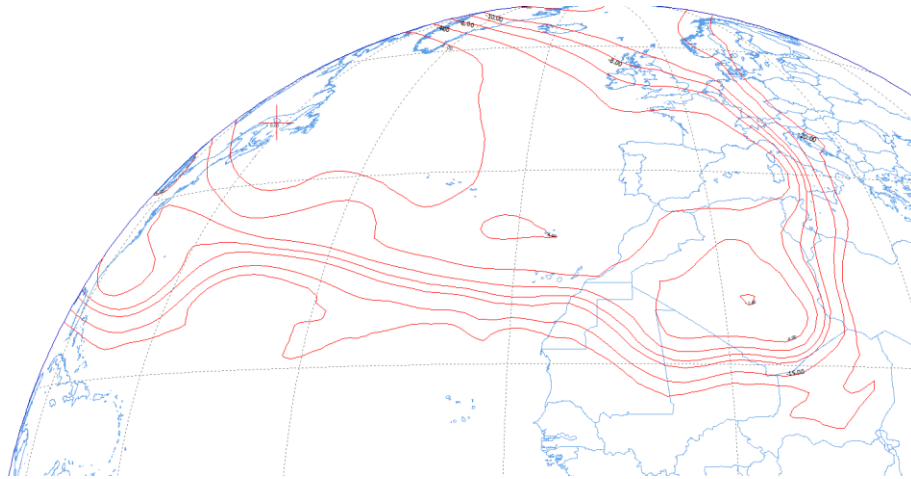


Figure 1 Ku-band ATLANTIC-A Fixed Uplink Service Area from 12.5° W.L.

The Ku-band ATLANTIC-SOUTH fixed uplink service area includes Northeastern South American, the Caribbean, the South Atlantic Ocean, and portions of West Africa and is illustrated in Figure 2. Figure 2 reflects the service area for uplink beam F4V2.

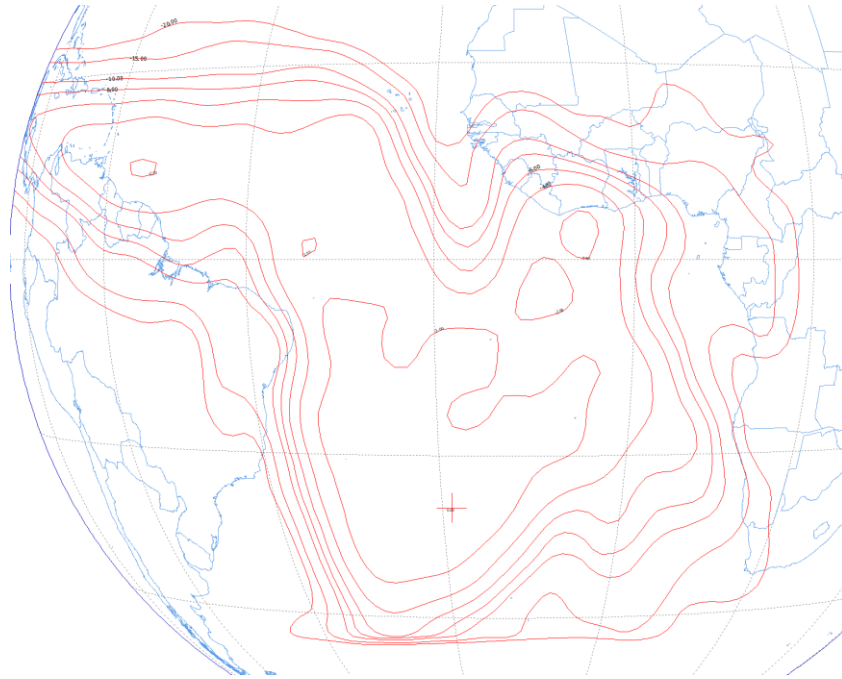


Figure 2 Ku-band ATLANTIC-SOUTH Fixed Uplink Service Area from 12.5° W.L.

The Ku-band ATLANTIC-A fixed downlink service area includes Eastern United States and Canada, the North Atlantic Ocean, and portions of Europe and Northwest Africa and is illustrated in Figure 3. Figure 3 reflects the service area for uplink beams F2H1, F2H2, F2H3, F2H5, F2V1, F2V2, F2V3, F2V5 and F2V6.

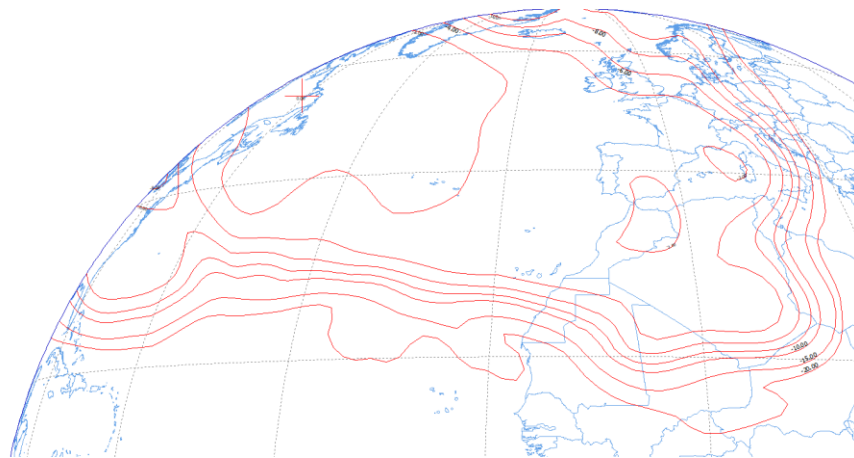


Figure 3 Ku-band ATLANTIC-A Fixed Downlink Service Area from 12.5° W.L.

The Ku-band ATLANTIC-B fixed downlink service area includes Northeastern United States and Canada, the North Atlantic Ocean, and portions of Western Europe and Northwest Africa and is illustrated in Figure 4. Figure 4 reflects the service area for uplink beams F3H2, F3H4, F3V2 and F3V4.



Figure 4 Ku-band ATLANTIC-B Fixed Downlink Service Area from 12.5° W.L.

The Ku-band ATLANTIC-SOUTH fixed downlink service area includes Northeastern South American, the Caribbean, the South Atlantic Ocean, and portions of West Africa and is illustrated in Figure 5. Figure 5 reflects the service area for uplink beams F5H2 and F5H3.

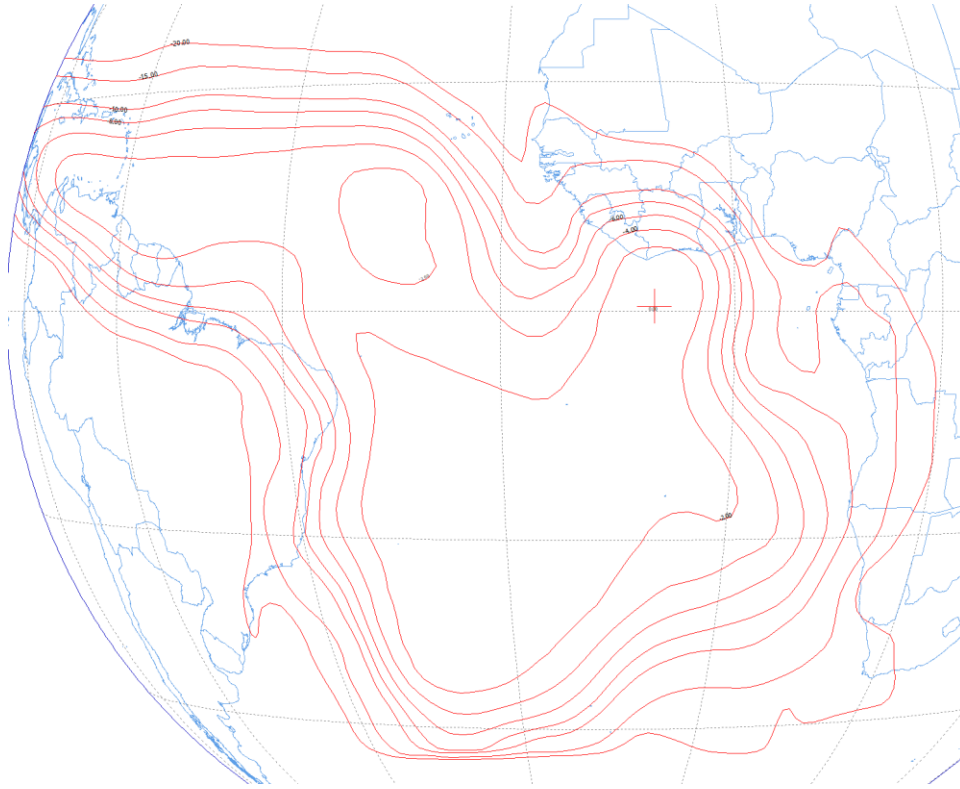


Figure 5 Ku-band ATLANTIC-SOUTH Fixed Downlink Service Area from 12.5° W.L.

The Ku-band regional beacon service area includes Eastern North America, Central America, South America, the Atlantic Ocean, Europe and Africa and is illustrated in Figure 6. Figure 6 reflects the service area for downlink beams BH1 and BH2.



Figure 6 Ku-band Regional Service Area from 12.5° W.L.

ATTACHMENT D -
EUTELSAT 12 WEST D
SPACE DEBRIS MITIGATION PLAN

**EUTELSAT 12WD Space Debris Mitigation Plan
(prepared for the Federal Communications Commission)**

ISSUE/REVISION: Issue 1, Rev. 0

ISSUE DATE: 30 September 2020

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CHANGE RECORD

<i>Date</i>	<i>Issue/rev</i>	<i>Pages affected</i>	<i>Description</i>
30/09/2020	1/0	All	First issue.

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1. Introduction

This document describes the space debris mitigation plan that Eutelsat Communications S.A (“Eutelsat”) shall apply to the EUTELSAT 12WD satellite at the 12.5° West Longitude (W.L.) orbital location.

Eutelsat 12WD is based on the Astrium Eurostar 3000 bus and it was manufactured according to European standards and specifications. The satellite is 3-axis stabilised and uses bi-propellant chemical propulsion for attitude and on-station control.

Eutelsat 12WD was launched on the 15th of March 2004 and the end of its operational life is not expected to be before Mid-2025.

2. Related documents

2.1. Applicable Documents

1. EUTELSAT Space Debris Mitigation Plan. Issue 3.0. EUT_CTL_SAT_QMS_PLN_00021, 6 April 2020.
2. FCC. Orbital Debris Mitigation Standard Practices. FCC 04-130. June 21, 2004.
3. Mitigation of Orbital Debris in the New Space Age. Doc. Number: 2020-13185. August 25 2020.

2.2. Reference Documents

1. European Code of Conduct for Space Debris Mitigation. Issue 1.0. 28 June 2004.
2. IADC Space Debris Mitigation Guidelines. IADC-02-01. Revision 2. March 2020.
3. Space Product Assurance. Safety. ECSS-Q-40C Rev. 1. 15 February 2017.
4. NASA. Process for Limiting Orbital Debris. NASA-STD-8719.14 (Revision B). 25 April 2019.
5. ITU Environment Protection of the Geostationary Orbit. S.1003-2 (12/2010).
6. 2007 UN COPUOS. Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space
7. U.S. Government Orbital Debris Mitigation Standard Practices November 2019 Update.

3. EUTELSAT 12WD Operations

Eutelsat operates the satellite to control and limit the amount of debris released in a planned manner during normal operations, and assesses and limits the probability of the space station becoming a source of debris by collisions with small debris or meteoroids that could cause loss of control and prevent post-mission disposal.

Eutelsat has assessed the amount of debris released in a planned manner and no intentional debris will be released during normal operations of the EUTELSAT 12WD spacecraft. A safe operational configuration of the satellite system is ensured thanks to the hardware design and operational procedures

Eutelsat minimizes the probability of the satellite becoming a source of debris by collisions with large debris or other operational satellites. Eutelsat assessed and determined that there are no other non-Eutelsat operated satellites located at or sufficiently near EUTELSAT 12WD's planned orbital location that might result in overlap of satellite orbit control windows. As the operator of the EUTELSAT 12 WEST B spacecraft and having extensive experience in operating co-located spacecraft, Eutelsat will ensure safe flight operations during any temporary co-location of EUTELSAT 12 WEST D and EUTELSAT 12 WEST B (prior to that satellite's re-orbiting).

EUTELSAT 12WD will be controlled within its orbit control window (12.5° W.L. $\pm 0.1^\circ$) by standard routine periodic orbit correction manoeuvres. In case of anticipated violation of the window, correction manoeuvres would be implemented to avoid such violation.

Eutelsat has assessed the probability of accidental explosions during and after completion of mission operations. Thanks to design safety margins, the probability of occurrence of accidental explosion of the EUTELSAT 12WD satellite is negligible.

Satellite design is such that high levels of thruster activity and orbit perturbation do not result when foreseeable on-board events occur

4. EUTELSAT 12WD End of life disposal

The post-mission disposal activities have been planned as follows:

1. The orbit of the satellite will be raised by 300 km in order to ensure that the spacecraft will not re-enter into the GEO protected region (GEO height ± 200 km) in the long term. A mass of 10.7 kg of propellant has been allocated and reserved with a confidence level of 99% to carry out the post-mission disposal manoeuvres. The FCC will be informed of any material change to the above quantity of propellant.

The minimum perigee height to avoid re-entering into the GEO protected region can be computed using the IADC formula applied to this satellite:

$$\Delta H \text{ (km)} = 235 + 1000 \cdot (A/m) \cdot \text{eff} = 262 \text{ km}$$

where the final term is the effective area/mass ratio of the satellite. Therefore, the planned 300 km above GEO height is sufficient to satisfy the 262 km requirement.

Eutelsat will monitor the remaining propellant to ensure that sufficient fuel remains in the tanks to reach the 300 km minimum perigee.

2. The satellite tracking, telemetry and control operations are planned to avoid interference and coordinated with potentially affected satellite networks.
3. As part of the end of life activities, EUTELSAT 12WD energy sources will be rendered inactive such that debris generation will not result from the conversion or

dissipation of energy sources on-board the satellite. For EUTELSAT 12WD, this involves the following:

- Discharge the batteries during end of life operations and isolate them from the solar arrays to prevent further electrical energy storage.
- Switch off the momentum wheels.
- Deplete and eventually vent the propellant tanks, which allows depressurizing during passivation operations and results in only negligible residuals remaining in the helium tank that cannot be vented. The helium tank is isolated just after the completion of Launch and Early Operations Phase (LEOP) operations and therefore cannot be fully vented as part of the end of life (EOL) operations. The following table summarises information regarding the residual helium in the tank:

Volume [L]	Pressure [bar]	Temp. [°C]	He Mass [kg]
178	53.0	46.6	1.5

In addition, the tank has been designed, manufactured, and validated according to the MIL-STD-1522 standard and it is “leak before burst” designed. Therefore, the risk of break-up is negligible.

- All pyrotechnic systems are fired at initial stage of satellite operations. Those systems do not generate any debris.

5. Notifications

Eutelsat undertakes to provide the relevant bodies as required (UNCOPUOS, FCC, ITU, French ANFR, etc.) with all appropriate notifications as required by law or regulations for Eutelsat satellites including but not limited to those concerning initial entry of service, location, relocations, inclined orbit operations and de-orbiting operations.