Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Satélites Mexicanos, S.A. de C.V.	)	File No.:
	)	Call Sign:
To Add Eutelsat 115 West B to the	)	
Permitted Space Station List	)	

PETITION FOR DECLARATORY RULING

Satélites Mexicanos, S.A. de C.V., a Mexican Corporation (formerly "Satmex" and now operating as "Eutelsat Americas"), respectfully files this Petition for Declaratory Ruling pursuant to Section 25.137(c) of the Commission's Rules, 47 C.F.R § 25.137(c), to add the Eutelsat 115 West B ("Eutelsat 115 WB", formerly known as Satmex 7) geostationary satellite to the Permitted Space Station List ("Permitted List") at the 114.9°W orbital location. Eutelsat 115 WB will operate in conventional C- and Ku-band frequencies and offer fixed-satellite services ("FSS") and direct-to-home ("DTH") services in the United States. Grant of the requested authority is consistent with Commission rules and precedent, and will serve the public interest by allowing Eutelsat Americas to provide communication services using the Eutelsat 115 WB from the 114.9°W location and respond to customer demand for FSS and DTH capacity.

I. ADDING EUTELSAT 115 WB TO THE PERMITTED LIST WOULD SERVE THE PUBLIC INTEREST

Eutelsat Americas has an extensive history before the Commission and currently has three operational space stations on the Commission's Permitted List.[1] In order to enhance its ability to provide satellite communication services in the United States, Eutelsat Americas

[1] The three Eutelsat Americas satellites on the Permitted List are Satmex 5 (a/k/a Eutelsat 115 West A), Satmex 6 (a/k/a Eutelsat 113 West A), and Satmex 8 (a/k/a Eutelsat 117 West A).

presently seeks to add the Eutelsat 115 WB space station to the Commission's Permitted List at the 114.9°W orbital location. Eutelsat 115 West A (formerly known as Satmex 5) currently occupies this Mexican orbit location and will be relocated after transition of services to Eutelsat 117 West B.

Eutelsat Communications ("Eutelsat"), a Paris-based satellite operator and service provider, acquired Eutelsat Americas (then Satmex) in early 20l4.[2] Eutelsat has previously demonstrated its qualifications before the Commission, and currently has two operational satellites on the Commission's Permitted List.[3]

Eutelsat 115 WB is scheduled to launch on or about March 1, 2015, and after an extended orbit raising period, it will assume the 114.9°W orbital location in the second half of 2015. Eutelsat 115 WB is intended as a replacement for Eutelsat 115 WA, which is nearing its operational end-of-life.

A. Eutelsat 115 WB - Satellite Overview

The Eutelsat 115 WB space station is an innovative all-electric propulsion satellite, the Boeing 702SP. The Boeing 702SP propulsion bus provides more efficient options for satellite movement and allows satellites to be stacked and launched together.[4] Eutelsat 115 WB will be launched from the Cape Canaveral Air Force Station in Florida by a SpaceX Falcon 9 rocket. Eutelsat 115 WB is equipped with C- and Ku-band frequencies and will provide a range of FSS

[2] The Commission reviewed Eutelsat's acquisition of Eutelsat Americas and approved the transaction on Dec. 24, 2013. *See* File No. SAT-PPL-20131120-00137.

[3] The two Eutelsat satellites on the Permitted List are Eutelsat 12 West A (formerly AB-1) at 12.5° W.L. and Eutelsat 8 West A (formerly AB-2) at 8° W.L.

[4] The Eutelsat 115 WB satellite is stacked, and will launch concurrently, with the Asia Broadcast Satellite Ltd. ABS-3A satellite.

and DTH services, including video and data. Additional technical information regarding Eutelsat 115 WB is available in the Schedule S and Technical Supplement provided with this petition. [5]

Eutelsat Americas does not seek Commission authorization for TT&C operations, and all TT&C operations for Eutelsat 115 WB will be performed at C-band and will take place from a satellite control center and TT&C earth stations located in Mexico. Frequency and beam information is provided in the Technical Supplement but no additional information is included in the Schedule S.

B. Adding Eutelsat 115 WB to the Permitted List Is Fully Consistent with the Commission's Rules and Policies

The Commission will include non-U.S. licensed satellites on the Permitted List upon demonstrating compliance with Sections 25.114 and 25.137 of the Commission's Rules, 47 C.F.R. §§ 25.114 & 25.137, and that the public interest would be served by such inclusion. The instant petition and accompanying technical information, including the waivers requested herein, demonstrate that adding the Eutelsat 115 WB satellite to the Permitted List would be consistent with the Commission's rules and policies.

As the Commission is aware, the 114.9°W orbital location is assigned to Mexico under the Trilateral Agreement for C- and Ku-band frequencies between Canada, Mexico and the United States.[6] Accordingly, the Commission cannot license U.S. satellites in these frequency bands at this location. Allowing the Eutelsat 115 WB satellite to serve the United States from the 114.9°W orbit location would be consistent with the international obligations of the United

[5] *See* Attachment A.

[6] Trilateral Arrangement Regarding Use of the Geostationary Orbit by Canada, Mexico, and the United States, Public Notice, Mimeo No. 4406 (Sept. 2, 1988).

States under the Trilateral Agreement, would not affect operations of any U.S.-licensed satellites and would not contravene the Commission's spectrum management policies.

Furthermore, Mexico is a member country of the WTO. Given Mexico's membership in the WTO, Eutelsat Americas is not required to make the effective competitive opportunities showing set out in Section 25.137.[7] In addition, Mexico and the United States have reached a bilateral agreement that allows Mexican satellites to offer DTH services in the United States, after those satellites have been coordinated with the United States for these services.[8]

The relevant filing information for Eutelsat 115 WB at the 114.9°W location has been submitted to the International Telecommunications Union ("ITU"). Furthermore, the network filing under which Eutelsat 115 WB will operate has been notified under the ITU Radio Regulations and been recorded in the Master Register. All traffic on Eutelsat 115 WB will be in accordance with Eutelsat America's coordination agreements at the 114.9°W orbital location.

As noted, the Commission has also already authorized the addition of other Eutelsat Americas (then Satmex) satellites to the Permitted Space Station List.[9] Importantly, Eutelsat

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[7] *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) ("We adopt our proposal to apply a presumption in favor of entry in considering applications to access non-U.S. satellites licensed by WTO members to provide services covered by the U.S. commitments under the WTO Basic Telecom Agreement."); *Id.*, ¶ 64 ("[W]e will not evaluate the effective competitive opportunities in the route market for non-U.S. satellites licensed by a WTO Member providing WTO covered services. Thus, we will not perform an ECO-Sat test on any route, whether a WTO route market or a non-WTO route market.").

[8] *See* Protocol Concerning the Transmission and Reception of Signals from Satellites for the Provision of Direct-to-Home Satellite Television Services in the United States of America and the United Mexican States, November 8, 1996; *See also Televisa International, LLC,* Order and Authorization, 13 FCC Rcd 100074, 10075-76, ¶ 5 (Int'l Bur. 1997 ("*Televisa Order*") (discussing DTH Protocol).

[9] SAT-PPL-20121218-00217 and SAT-PPL-20130308-00028 (2013) (adding Satmex 5 to the Permitted Space Station List at 114.9°W); SAT-PPL-20060329-00030 and SAT-PPL-20060724-

Americas is requesting to use Eutelsat 115 WB at the planned 114.9°W location to replace Eutelsat 115 West A, which is reaching end of life, and to provide FSS and DTH services that are covered by the WTO Basic Telecom Agreement and the U.S. and Mexican Bilateral Agreement, respectively. Thus, the Commission has already determined that Eutelsat Americas' operation of a satellite at the requested orbit location to provide the specific services would serve the public interest. Replacement of the currently approved Eutelsat 115 West A satellite with the more Eutelsat 115 WB to enhance the offerings available to the U.S. market would even more strongly serve the public interest.

II. WAIVER REQUESTS

Eutelsat Americas requests partial waivers of Commission rules in the context of this petition, including certain orbital debris/satellite end-of-life provisions and satellite operational rules. The Commission has authority to grant waivers of its rules for "good cause shown."[10] 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.[11] As discussed below, substantial Commission precedent and compelling reasons exist to grant the requested waivers in connection with Eutelsat Americas' petition to add Eutelsat 115 WB to the Permitted List.

A. Request for Partial Waiver of 47 C.F.R. §§ 25.114(d)(14)(ii) and 25.283(c)

The orbital debris mitigation/satellite end-of-life data for Eutelsat 115 WB is included in this application as Attachment B. The Eutelsat 115 WB satellite is constructed on Boeing's new

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00080 (2006) (adding Satmex 6 to the Permitted Space Station List at 113°W); SAT-PPL-20120823-00140 (2012) (adding Satmex 8 to the Permitted Space Station List at 116.8°W).

[10] *See* 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

[11] *See*, *e.g.*, *WAIT Radio*, 418 F.2d at 1157; *Intelsat North America LLC*, 22 FCC Rcd. 11989 ¶6 (2007).

all-electric bus platform and does not carry chemical liquid fuel tanks. The 702SP model uses a Xenon Ion Propulsion System ("XIPS"), which is fueled by electronically-ionized xenon, to perform all necessary propulsion movements and maintain its position in the geostationary orbit. No gases other than xenon will be used on the space station.

The 702SP XIPS system uses a single tank that has a total unpressurized volume of ~233L. The mass of the xenon gas used on the spacecraft is 300 kg nominal, with a 320 kg maximum. While the volume of the tank is capable of accommodating up to 450 kg of fuel, the tank is typically filed to a 320 kg limit to maintain a 4:1 burst ratio.

The tank is designed to leak before burst and the residual pressure is low enough that there is no way to have a catastrophic leak event. Thus, there is no need to leave the valves open after de-orbiting and shutdown. Once Eutelsat 115 WB reaches its disposal orbit, the mass of the xenon gas is projected to be approximately 4.2 kg and the pressure of the residual xenon gas in the tank is projected to be between 45 and 85 psi (well below the tank burst pressure specification of 7500 psi). In addition, the batteries will be left in a permanent state of discharge.

Eutelsat Americas respectfully requests a partial waiver of Sections 25.114(d)(14)(ii) and 25.283(c) of the Commission's Rules, 47 C.F.R. §§ 25.114(d)(14)(ii) & 25.283(c), to the extent necessary to grant this petition. Section 25.283(c) of the Commission's Rules requires space stations to ensure that at the end of life, "all stored energy sources on board the satellite are discharged, by venting excess propellant, discharging batteries, relieving pressure vessels, and other appropriate measures."[12] Similarly, Section 25.114(d)(14)(ii) requires space station applications to address "whether store energy will be removed at the spacecraft's end of life, by depleting residual fuel and leaving all fuel line valves open, venting any pressurized system,

[12] 47 C.F.R. § 25.283(c).

leaving all batteries in a permanent discharge state, and removing any remaining source of stored energy, or through other equivalent procedures specifically disclosed in the application."[13]

Eutelsat Americas projects that the amount of xenon gas remaining on the spacecraft at end of life will be 4.2 kg. Given that (i) xenon is inert to most common chemical reactions (such as combustion); (ii) the xenon tank on the spacecraft is designed to leak before burst; and (iii) the projected end-of-life residual pressure in the tank of between 45 and 85 psi is only a small fraction of the tank burst pressure specification of 7300 psi (and far below the qualification model testing that showed a 9300 psi burst specification), the probability of accidental explosions during and after completion of mission operations is exceedingly low.

Because the inability of Eutelsat Americas to fully vent all xenon is a direct result of the Boeing 702SP spacecraft design, and given the extremely low probability of the remaining xenon becoming a source of accidental explosions or orbital debris, the public interest would be served by a grant of the requested waiver. There is Commission precedent for granting waivers to satellite operators with similar Boeing spacecraft unable to fully vent all xenon at end-of-life.[14] Moreover, the new 702SP satellite platform's all-electric propulsion bus makes the satellite even less of a risk to become a source of accidental explosions or orbital debris than the previous generation of satellites for which the Commission has granted waivers of its orbital debris mitigation requirements.[15] Thus, the requested waiver would serve the public interest.

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[13] 47 C.F.R. § 25.114(d)(14)(ii).

[14] *See, e.g.*, Stamp Grant, *XM Radio, LLC*, IBFS File. No. SAT-STA-20140922-00103 (granted Sept. 26, 2014) (granting a waiver to XM Radio of the venting requirement for the XM-2 satellite, a Boeing 702 satellite).

[15] *See, e.g.*, Stamp Grant, *DIRECTV Enterprises, LLC*, IBFS File No. SAT-LOA-20090807-00085 (granted Dec. 15, 2009) (granting waiver of the venting requirement for DIRECTV 12/RB2-A, a Boeing 702 satellite, given its imminent launch); Stamp Grant, *Lightsquared Subsidiary, LLC*, IBFS File No. SATMOD-20100405-00064 (granted Nov. 8, 2010) (granting

B. Request for Partial Waiver of 47 C.F.R. §25.210(i) Cross-Polarization Requirement

Section 25.210(i) of the Commission's rules requires space station antennas in the FSS to meet a cross-polarization (x-pol) isolation of 30 dB within its primary coverage area. Eutelsat 115 WB's transmit and receive antennas have a cross-polarization performance level, as set forth in the associated Schedule S, of between 25 and 27 dB. This cross-polarization performance is typical of current satellite designs.

Cross-polarization interference results from both the transmit terminal and the receive terminal. A cross-polarization isolation of 30 dB is difficult to achieve without compromising other satellite performance parameters such as antenna gain. The effects of cross-polarization interference are accounted for in the overall link budgets as intra-system effects. These effects are negligible compared to downlink thermal C/N, which typically dominates the link. Satellite cross-polarization levels in this range have no effect on inter-system interference and therefore will not impact any other users of the spectrum.

The Commission has previously waived the 30 dB cross-polarization performance requirement in circumstances similar to those presented here.[16] Given this precedent, and

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waiver of venting requirement to Lightsquared Subsidiary, LLC for the SkyTerra-1 satellite, a Boeing 702 satellite); and Stamp Grant, *PanAmSat Licensee Corp.* IBFS File No. SAT-STA-20110112-00011 (granted Jan. 14, 2011) (granting waiver of venting requirement to Intelsat 2, a Boeing 601 satellite).

[16] *See Star One, S.A., Petition for Declaratory Ruling*, Order, DA 10-1957, ¶ 23 (2010) ("*Star One Order*") (granting a waiver of Section 25.210(i) on the grounds that a cross-polarization isolation no lower than 27 dB within the primary coverage area would not produce a significant increase in interference and would not adversely affect other operators). *See* SAT-PPL-20081205-00225 and File No. SAT-PPL-20071113-00159; s*ee also New Skies Satellites, N.V., Petition for Declaratory Ruling*, Order, DA 02-1256, ¶ 19 (2002) (finding good cause exists for a waiver of Section 25.210(i) where the cross-polarization isolation range was between 25-30 dB, with typical ratios better than 27 dB, because that the impact on a neighboring satellite system would be negligible). *See* SAT-PDR-20010309-00020 and SAT-PDR-20011016-00137.

because the impact of Eutelsat 115 WB's cross-polarization isolation will not adversely affect the satellite's performance or the performance of neighboring satellites, waiver of the Commission's 30 dB cross-polarization isolation requirement would further the public interest.

C. Request for Partial Waiver of 47 C.F.R. §25.210(a)(3) Ground Switchable Polarization for C-band FSS

Section 25.210(a)(3) requires C-band satellites operating in the 3700-4200 MHz band be capable of switching polarization sense upon ground command. This requirement was devised to facilitate coordination of high-power analog C-band transmissions on adjacent satellites. The Eutelsat 115 WB satellite's transmissions cannot be switched from the ground.

Eutelsat Americas has no intention of transmitting analog signals on Eutelsat 115 WB, or its two-degree neighbors - Eutelsat 113 West A and Eutelsat 117 West A. Therefore, there is no need to have ground-switchable polarization to facilitate coordination. Moreover, the Commission has previously waived the ground-switchable polarization requirement in circumstances similar to those presented here, including recently for the Eutelsat 115 West A (Satmex 5) satellite at the subject orbit location without any adverse interference consequences.[17] Given this precedent, and because waiver of the ground-switchable polarization requirement will not adversely affect the operations of neighboring C-band satellites, Eutelsat Americas requests a waiver of Section 25.210(a)(3).

[17] *See* SAT-PPL-20121218-00217 and SAT-PPL-20130308-00028, ¶ 4; s*ee also Star One Order at* ¶ 22 (granting a waiver of Section 25.210(a)(3) because there were no co-frequency space stations located within two degrees of the subject satellite orbital location and Star One was not proposing to offer analog television services in the United States); *see also Telesat Canada, Petition for Declaratory Ruling,* Order, DA 02-3490, ¶ 17 (2002) (granting a waiver of Section 25.210(a)(3) as long as the satellite remains at one of the Canadian orbital positions under the *Trilateral Agreement* and the satellite operates in accordance with existing and future coordination agreements with other authorized U.S. market satellite providers). *See* SAT-PDR-20010906-00082 and SAT-PDR-20020321-00027.

D. Request for Waiver of 47 C.F.R. §§ 25.137(d)(4) & 25.165

Section 25.137(d)(4) of the Commission's rules requires 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.[18] For GSO-like systems that are not yet in orbit and operating, like Eutelsat 115 WB, the bond is typically set at $3 million.[19] The GSO-applicant posting the bond, however, may reduce the amount of the bond by $750,000 once each of the four space station implementation milestones is met.[20] Eutelsat has met three of the implementation milestones and would be subject to a maximum performance bond amount of $750,000. Nonetheless, Eutelsat Americas should not be required to post a bond in connection with its request to service the U.S. market.

First, Section 25.165(a) expressly excludes replacement satellites from the bond requirement. Section 25.165(e) defines a "replacement satellite" as one that is:

> (1) Authorized to be operated at the same orbit location, in the same frequency bands, and with the same coverage area as one of the licensee's existing satellites, and
> (2) Scheduled to be launched so that it will be brought into use at approximately the same time as, but no later than, the existing satellite is retired.

47 C.F.R. **§** 25.165(e). As noted previously, Eutelsat 115 WB will be launch into the orbit location currently occupied by Eutelsat 115 West A, uses the same frequency bands and has an equivalent U.S. coverage area as the current satellite. In addition, the launch of Eutelsat 115 WB

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[18] 47 C.F.R. **§** 25.137(d)(iv).

[19] *Id.*

[20] 47 C.F.R. § 25.137(d)(iv); *see also* 47 C.F.R. § 25.165(d). The milestones include (1) *one year:* enter into a binding non-contingent contract to construct the licensed satellite system; (2) *two years:* complete the critical design review of the licensed satellite system; (3) *three years:* begin the construction of the satellite; and (4) *five years:* launch and operate the satellite. *See* 47 C.F.R. § 25.164(a).

is scheduled so that it will be brought into use to permit service transition from Eutelsat 115 West A, and only then will the current satellite be relocated. Thus, Eutelsat 115 WB plainly satisfies the definition of replacement satellite.[21]

Second, if the Commission concludes for some reason that Eutelsat 115 WB is not a replacement for Eutelsat 115 West A, Eutelsat Americas respectfully request the Commission waive the bond requirement based on applicable Commission precedent. The purpose of the bond requirement is to prevent warehousing of orbital locations by operators and, given that Eutelsat Americas has already completed three of the four milestones for the Eutelsat 115 WB satellite, plans to launch into orbit and will commence operations in advance of relocating Eutelsat 115 West A so there is no gap in service from the subject orbit location and on the subject frequencies, the bond requirement should be waived consistent with the public interest.[22]

If the Commission deems the bond requirement applies and a waiver is not warranted, Eutelsat Americas will provide necessary information and post any bonds that the Commission deems required in connection with grant of this petition.

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[21] *See also EchoStar Satellite, LLC, Blanket Earth Station Application,* Order and Authorization, DA 05-3227 at ¶¶ 17-23 (2005) (describing the Commission's analysis of replacement satellites for purposes of applying the bond requirements).

[22] *Afrispace, Inc., Request for Authority to Launch and Operate*, Order and Authorization, DA 06-4, ¶¶ 28 & 29 (2006) ("*Afrispace Order*") (granting a waiver of the bond requirement where there was no reason for concern about spectrum warehousing because the orbital location and frequencies requested for the subject satellite were currently being used by a different Afrispace satellite. The waiver of the bond requirement was premised on Afrispace launching its new satellite prior to the removal of the existing satellite so that there was no lapse in service).

III. CONCLUSION

Eutelsat Americas seeks to add the Eutelsat 115 WB satellite to the Permitted List at the 114.9°W orbital location, which is assigned to Mexico under the Trilateral Agreement, to replace the aging Eutelsat 115 West A satellite at that location. Allowing Eutelsat 115 WB to provide FSS and DTH services to U.S. customers will serve the public interest by enhancing competition in the United States and will not adversely affect to operations of other satellite service providers. For these and other reasons set forth herein, Eutelsat Americas respectfully requests that Eutelsat 115 WB operating in C-band and Ku-band frequencies be added to the Permitted List at the 114.9°W orbital location.