REDACTED FOR PUBLIC INSPECTION

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Application of Viasat, Inc. to Modify	)	IBFS File Nos. SAT-LOI-20140204-00013,
Market Access Grant and for Extension or	)	SAT-AMD-201402018-00023, SAT-MOD-
Waiver of Milestone Date	)	20150618-00037
	)	Call Sign S2917
	)	

APPLICATION FOR MODIFICATION OF MARKET ACCESS GRANT AND FOR EXTENSION OR WAIVER OF MILESTONE DATE

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APPLICATION FOR MODIFICATION OF MARKET ACCESS GRANT AND FOR EXTENSION OR WAIVER OF MILESTONE DATE

Viasat, Inc. ("Viasat") holds a market access grant from the Commission to serve the United States using a Ka-band GSO FSS satellite at 88.9º W.L., currently known as ViaSat-3.[1] In this Application, Viasat seeks a technical modification to that market access grant to add frequencies and to revise certain technical specifications to reflect the design of the satellite being built for operation at 88.9º W.L. Viasat also requests that the Commission extend the milestone for launch and operation of the satellite until December 31, 2021.[2] Finally, Viasat seeks to operate the satellite in the 19.7-20.2 GHz and 29.5-30 GHz band segments under a U.S. space station license instead of its current market access grant, and is contemporaneously filing an application for such a license.[3]

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[1] Viasat refers herein to the ViaSat-3-class satellite granted U.S. market access at 88.9º W.L., as such grant is modified in accordance with this application, as "VIASAT-3 (89W)."

[2] As discussed in more detail below, the proposed milestone date reflects a reasonable estimate of the time required to complete construction, launch and begin operations of the satellite, to accommodate unanticipated delays that may occur in the remaining manufacturing processes, with satellite delivery, or in connection with launch or in-orbit testing.

[3] The proposed U.S.-licensed payload in the 29.5-30 GHz and 19.7-20.2 GHz band segments is referred to as "VIASAT-89US."

I. BACKGROUND

Viasat has market access to serve the United States at 88.9º W.L. using the 18.3-19.3 GHz and 19.7-20.2 GHz band segments for downlinks and the 28.1-29.1 GHz and 29.5-30 GHz band segments for uplinks on a satellite that will operate under authority of the United Kingdom.[4] The market access grant requires the satellite to be launched and operated by June 18, 2019 and is subject to an escalating $3 million bond.[5]

In 2013, Viasat acquired the Ka-band payload on the U.S.-licensed Galaxy-28 satellite from Intelsat.[6] Establishing operations at 89º W.L. through Galaxy-28 provided Viasat with the opportunity to further develop capabilities at this location with advanced technology, and Viasat has since embarked on the development of a high-throughput satellite, building on the revolutionary satellite designs that Viasat has implemented at other orbital locations.

The latest generation of Viasat's satellite technology, which first will be implemented at 88.9º W.L. to serve the United States, will be truly transformative and revolutionize the availability and coverage of reliable and affordable broadband services to homes and businesses in the United States, in metropolitan and rural areas alike, and to the thousands of airplanes and ships whose routes cross the United States or adjacent oceans. Among other things, this satellite will support speeds of 100 Mbit/s (and up to 1 Gbit/s) to users located anywhere within its service area. To enable these capabilities, as part of the technical modifications requested in this Application, Viasat seeks to add the 17.7-18.3 GHz and 19.3-19.7 GHz downlink band segments

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[4] Call Sign S2917; File Nos. SAT-LOI-20140204-00013; SAT-AMD-20140218-00023 (granted June 18, 2014) as modified by File No. SAT-MOD-20150618-00037 (granted Oct. 21, 2015), as reissued on Mar. 23, 2017 ("89º W.L. Grant"). The 0.1-degree offset was used because of the operations of Galaxy-28 at 89.0º W.L.

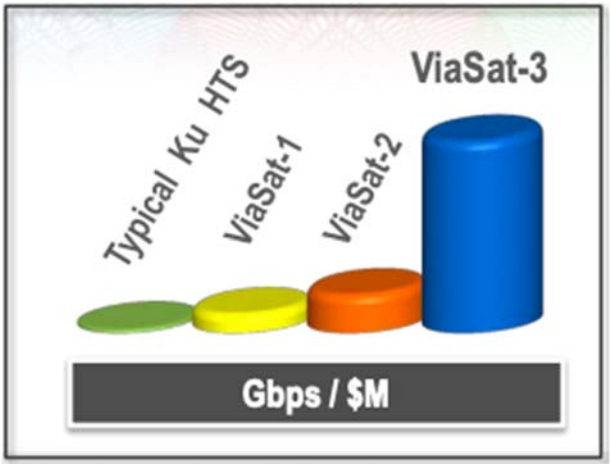
[5] The bond was converted from the original declining bond to an escalating bond.

[6] *See* IBFS File No. SAT-ASG-20130515-00070, Call Sign S2160 (granted Apr. 8, 2014).

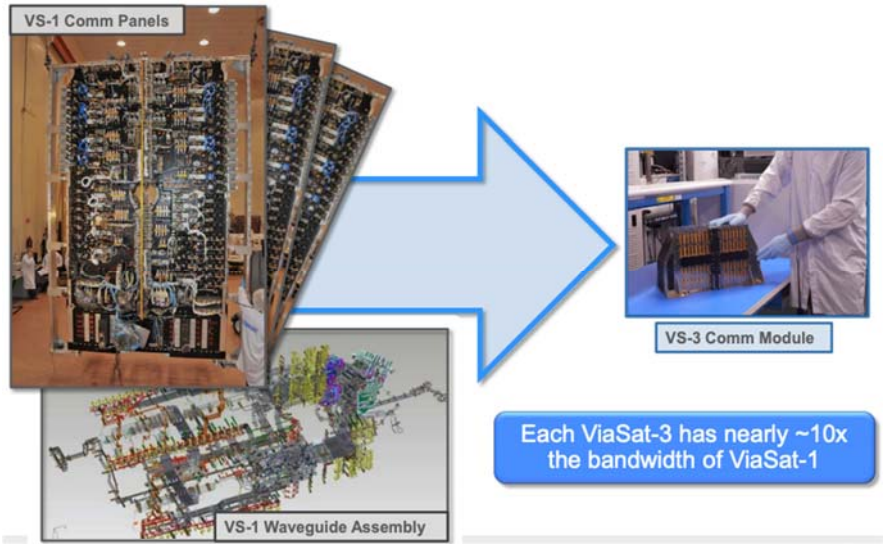
and the 27.5-28.1 GHz and 29.1-29.5 GHz uplink band segments, and to modify certain other technical parameters to reflect this satellite design.

II. THE VIASAT-3-CLASS SATELLITE DESIGN AND TECHNOLOGY OFFERS UNPRECEDENTED CAPABILITIES THAT ADVANCE SEVERAL PUBLIC INTEREST BENEFITS

Viasat has a long history of innovation in satellite technologies and is a leading provider of communications solutions to U.S. businesses, consumers and government users. Viasat has a proven ability to successfully deploy the new satellite technologies that it develops, including groundbreaking capabilities that reduce the "cost per bit" of delivering satellite broadband service, making it possible to provide reliable high-speed broadband connections that are comparable to what consumers have come to expect for terrestrial broadband services, at competitive prices. Viasat's first-generation broadband satellite, ViaSat-1, supports maximum throughput of approximately 140 Gbit/s. When ViaSat-1 commenced operations in 2012, it had more than 14 times the throughput of any other Ka-band satellite in orbit at that time. Viasat's second-generation high-capacity satellite provides approximately 260 Gbit/s of capacity. With each evolutionary step of Viasat's satellite technology, the bandwidth economics improve because of the significantly greater capacity Viasat has enabled on a single spacecraft.

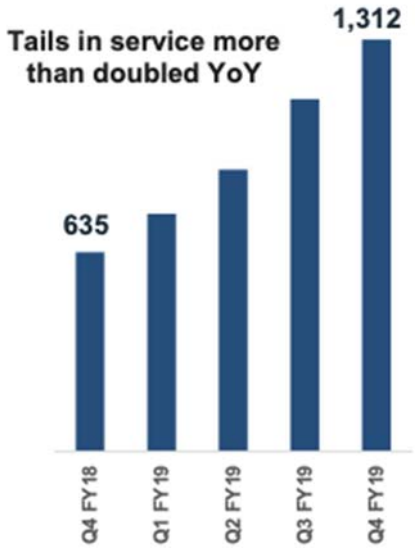


In turn, the ViaSat-3-class design represents the next giant leap forward in broadband satellite capabilities, with unprecedented capacity, service speed and flexibility for a satellite platform. With over 1 terabit per second of capacity, this satellite will offer over four times the throughput of the best performing satellite in the marketplace today (ViaSat-2), and approximately five times that of the next highest-throughput Ka-band satellite currently in orbit (Jupiter 2). The service area of this ViaSat-3-class design covers approximately one-third of the Earth's surface—about four times the coverage of ViaSat-2. In addition, the ViaSat-3-class design supports even more individual users with 100 Mbit/s service (and up to 1 Gbit/s) anywhere within the service area. And through its ability to dynamically direct capacity to where customers and demand are located, the satellite can extend capacity and coverage where and when it is most needed. One of the key advances that has led to these developments and enabled these capabilities is the ability to substantially reduce the size and mass of the communications modules on the spacecraft, as depicted in the figure below.



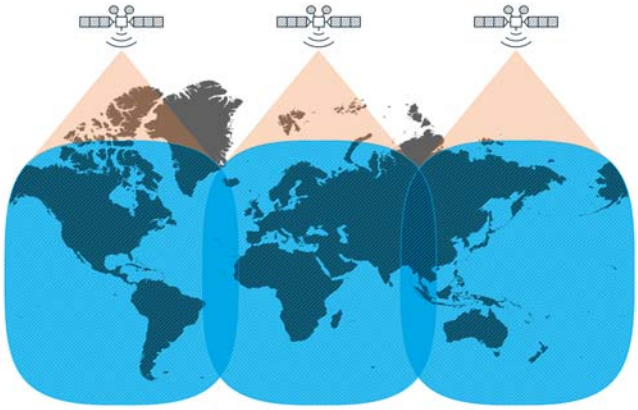
The ViaSat-3-class design provides far greater bandwidth economics than any other satellite in operation today and will enable the provision of services and the offer of service terms never before possible. These unparalleled capabilities are critical to bridging the digital

divide and increasing the availability and affordability of high-quality, high-speed connectivity for unserved and underserved communities: areas without cost-effective alternatives or where services with only slower speeds are available. Moreover, the capacity of the satellite allows it to satisfy the demand for satellite-powered broadband services that are growing exponentially, as people increasingly demand high-speed service in mobile settings—on airplanes, trains, buses, cars, trucks, helicopters, ambulances, and ships alike. Today, Viasat provides over 150 million connections annually to personal electronic devices on just 1,312 commercial aircraft, a number that has more than doubled in the past year.



Viasat expects to install in-flight connectivity systems on an additional 490 aircraft under existing contracts, which, once completed, will put Viasat closer to the mark of 2,000 in-service aircraft. Projections indicate that there will be hundreds of millions of personal electronic device connections per year on airplanes served by the ViaSat-3-class satellite to be deployed at 88.9º W.L. once it becomes operational. Viasat's success in North America is helping the company

engage with airlines on a global basis, commensurate with the expansion of Viasat's global satellite fleet.



For these reasons, the capabilities and capacity afforded by the ViaSat-3-class design are truly transformative and will revolutionize the availability and coverage of broadband services delivered to homes and businesses in metropolitan urban and rural areas alike, and for both fixed and mobile applications.

Moreover, the ViaSat-3-class design includes a number of features that enable extremely secure and reliable service for the most demanding needs of U.S. government users. Viasat's current broadband services support a variety of U.S. military and national security initiatives, and provide reliable communications for first responders. Viasat has developed and enhanced security and encryption capabilities for U.S. military users and has been recognized for its forward-looking approach to cybersecurity services for government and military customers. The ViaSat-3-class design extends these types of features by introducing the most advanced security features to the United States market on the first ViaSat-3-class satellite to be launched, allowing for use in training during the ramp up toward the full launch of the global network.

Significantly, these features of the satellite network design will offer new resiliency and reliability capabilities for Government customers.

The ViaSat-3-class design continues to raise the bar for satellite broadband services and capabilities that drive innovation in the industry and enhance competition with terrestrial service providers. Therefore, the public interest will be served by authorizing the deployment of a ViaSat-3-class design satellite at 88.9º W.L.

III. 88.9º W.L. SATELLITE CONSTRUCTION AND DEPLOYMENT

Viasat has proceeded diligently with the construction of the ViaSat-3-class satellite slated for 88.9º W.L., but significant delays have made it infeasible to meet the current milestone date. Viasat submits that the significant public interest benefits that will accrue from the unmatched capabilities of this satellite warrant grant of the requested extension. As discussed below, Viasat's ability and commitment to complete construction and launch of a ViaSat-3-class satellite into 88.9º W.L. are evidenced by the tremendous investments that Viasat already has made in developing and constructing this satellite, and the significant progress Viasat has made to date.

A. Viasat Has Proceeded Diligently with Construction of its 88.9º W.L. Satellite

For the past four years, Viasat has been developing and implementing the ground-breaking Ka-band satellite network technology underlying the satellite, advancing satellite broadband capabilities that enable the provision of more cost-effective services than ever before possible. The development of the ViaSat-3-class technology has required significant investment. The first two ViaSat-3-class satellites are now under construction, and Viasat reached an agreement with Boeing for a third ViaSat-3-class satellite, which is targeted for launch in the second half of 2022. The first ViaSat-3-class spacecraft will be launched to serve the United States and the rest of the Americas, as well as trans-oceanic routes. The other two spacecraft

subsequently will be launched over Europe/Africa/Middle East ("EMEA") and Asia-Pacific ("APAC") to provide global connectivity.

Viasat is working in partnership with Boeing to implement these extraordinary capabilities on one of Boeing's satellite buses. Viasat is building the satellite payload itself at its satellite manufacturing facility in Tempe, Arizona, which includes a newly-constructed high bay specifically designed for integration and testing of the Viasat-3-class spacecraft. Viasat's manufacturing contract with Boeing provides for Boeing to deliver the modular structure that Viasat is using as the basis for building the payload, and for Boeing to integrate that payload into the satellite bus at Boeing's facilities.[7]

To date, Boeing has commenced construction of the satellite bus at its facility in El Segundo, California, and has delivered the payload module structure to Viasat's Tempe facility.[8] Upon completion of the payload, Viasat will conduct payload integration and testing at its Tempe facility, and will send the completed payload back to Boeing's facilities, where Boeing will integrate the completed payload with the satellite bus and conduct environmental testing of the satellite, and also provide launch vehicle integration and mission operation services.

By the end of June 2019, Viasat will have expended over 80 percent of the total cost of developing and manufacturing the ViaSat-3-class satellite slated for 88.9º W.L.—a total sum in excess of **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}**. Viasat has more than adequate financial resources to complete the construction of this satellite,

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[7] *See* Viasat, Inc., Press Release, "Viasat and Boeing Proceeding with Full Construction on the First Two ViaSat-3 Satellites," Sept. 25, 2017, *available at* https://www.viasat.com/news/viasat-and-boeing-proceeding-full-construction-first-two-viasat-3-satellites.

[8] *See* Viasat, Inc., Press Release, "Viasat, Boeing Enter Next Phase of ViaSat-3 Satellite Integration," Aug. 30, 2018, *available at* https://www.viasat.com/news/viasat-boeing-enter-next-phase-viasat-3-satellite-integration.

launch it, and bring it into service. Moreover, Viasat has secured launch contracts to enable this satellite to be launched within a few months after construction is completed.

When Viasat contracted with Boeing for the manufacture of the satellite to be deployed at 88.9º W.L., changes were implemented to modify the original contract specifications from a ViaSat-2-generation design to afford the significantly enhanced capabilities of the ViaSat-3-class design. Given the 15+ year design life of the satellite to be deployed at 88.9° W.L., and the growing demand for satellite broadband connectivity, implementing the most state-of-the-art technology provides the greatest capability to meet end-user demands.

Subsequently, the first vendor whom Viasat engaged **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** These issues have resulted in unexpected delays **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** and, in turn, the completion of the payload.

Once these issues arose, Viasat worked with the vendor to address **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** Viasat has also **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** Viasat continues to work with its vendors to address **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** Viasat's confidence in the resolution of these issues related to **{{BEGIN CONFIDENTIAL}}** [redacted]

[redacted] **{{END CONFIDENTIAL}}** is evidenced by its entry into a contract with Boeing for a third ViaSat-3-class satellite a few months ago. **{{BEGIN CONFIDENTIAL}}** [redacted] **{{END CONFIDENTIAL}}** will allow Viasat to complete construction of the payload, which can then be integrated with the bus at Boeing's facility, with the satellite from that point being finished on a typical construction schedule.

In the meantime, Viasat and Boeing have diligently worked to produce as many other components of the satellite to be deployed at 88.9º W.L. as possible. The satellite bus is in advanced integration and testing stages, the first solar array wing has been completed and the second is in integration, one of the reflectors has been delivered, the satellite has been fueled, and the batteries have been delivered. Virtually all of the other long lead-time items are on hand or ordered such that they are or will be ready for integration into the spacecraft in that final phase of the production cycle.

B. Viasat is Committed to Completing Construction and Launching the 88.9º W.L. Satellite within the Requested Timeframe

As discussed above, Viasat's progress and expenditures on the ViaSat-3-class satellite to be operated at 88.9º W.L. demonstrates its ability and commitment to complete construction of and launch this satellite. Viasat respectfully requests an extension of the milestone date until December 31, 2021.

The December 31, 2021 date is based on a reasonable estimate of the time needed to complete the remaining phases of construction through commencement of operations of the satellite. More specifically, Viasat anticipates that the payload will be integrated by Boeing by September 5, 2020, launched by May 29, 2021, and the system will be operational by December 31, 2021. Viasat believes that the requested extension will accommodate unanticipated delays

that may occur. The Commission knows well that moderate interruptions to the manufacturing and launch schedule often can occur as a result of unexpected delays in discrete portions of the manufacturing process, the unavailability of launch windows, work stoppages at launch sites, and other variables.

In addition, the state-of-the-art design of the ViaSat-3-class satellite will necessitate a longer in-orbit testing period than usual after it arrives at 88.9º W.L., including optimizing and configuring its expanded gateway operations, which will require more time than usual to configure the spacecraft before bringing it into service. The requested milestone date takes these factors into account.

Moreover, Viasat proposes to maintain the existing $3 million bond during the period of the extension, and increase the bond at the same rate provided in the current rules for GSO-like satellites, so that it would reach a maximum value of approximately $4 million by the end of the extension period.[9]

C. Commission's Milestone Policies and Precedent Support the Requested Extension

The unexpected delays Viasat has encountered in connection with the construction of a state-of-the-art satellite—which will enable the unprecedented capacity and capabilities detailed above—warrant additional time to complete construction, particularly when over 80 percent of the cost of constructing the satellite has already been expended, and launch arrangements have been secured. The Commission's rules provide that a milestone extension for a space station may be granted when there is a delay due to unforeseen circumstances beyond the applicant's

[9] *See* 47 C.F.R. § 25.165(a)(2) (requiring the posting of a surety bond equal to $1 million plus an amount per day that escalates to $2 million over a five-year period, *i.e.*, approximately $1,100 per day, rounded to the nearest $10,000).

control, or when there are unique and overriding public interest concerns that justify an extension.[10] In this case, Viasat's request satisfies both factors, and more generally, is supported by the Commission's milestone policies and precedent.

1. Viasat has demonstrated its intent to proceed with completing construction and launching the 88.9º W.L. satellite.

As a threshold matter, the Commission's milestone for satellite system implementation aims to ensure that construction and launch of a satellite actually occur, and that valuable spectrum is not warehoused by those without a demonstrated intention and ability to proceed with deployment of a satellite network.[11] The Commission has granted milestone extensions or waivers where a demonstrated intent and ability to deploy is apparent.[12] Significantly, the Commission's analysis in milestone extension cases is highly dependent upon the applicant's progress in constructing the satellite and the efforts that applicant has made and is continuing to make toward completing the satellite and actually bringing it into service.

The Commission has found applicants to be committed to satellite construction and system implementation where the satellite is at an advanced stage of construction and the applicant has made substantial payments in connection with satellite construction, as well as other evidence of proceeding diligently with system construction.[13] The Commission has considered significant expenditures on satellite construction as indicative of an applicant's

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[10] 47 C.F.R. § 25.117(e)(1), (2).

[11] *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order, 18 FCC Rcd 10760 ¶ 173 (2003).

[12] *See, e.g., TerreStar Networks, Inc*., 22 FCC Rcd 17698 ¶ 7 (2007) ("*TerreStar Order*"); *AT&T Co.*, 5 FCC Rcd 5590 ¶ 17 (1990) ("*AT&T Order*").

[13] *See, e.g., TerreStar Order* at ¶ 7; *DIRECTV Enterprises, LLC*, 30 FCC Rcd 4796 ¶ 7 (2015) ("*DIRECTV Order*").

substantial and continuing commitment to implement the system.[14] In Viasat's case, construction of the satellite is well underway, and given that Viasat has expended the vast majority of the cost of constructing the satellite, it is clear that Viasat is not merely "decid[ing] whether to proceed with their plans, at the exclusion of others who would use that location."[15]

Moreover, the Commission considers and affords substantial weight to an applicant's continuing efforts after the milestone extension is requested.[16] The Commission extended DIRECTV's launch and commence operations milestone based in part on DIRECTV's continued progress on construction and launch after filing the request.[17] In addition, the Commission has considered an applicant's proposed course of action to complete construction and commence service in assessing an applicant's intent to proceed.[18] As set forth in Section III.B above, Viasat has provided its targeted schedule for completing construction of the satellite and bringing it into service at 88.9º W.L. Moreover, Viasat has proposed to increase its performance bond through the remaining period until launch and the commencement of service. Each of these considerations evidences Viasat's commitment to launch and operate a ViaSat-3-class satellite at 88.9º W.L.

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[14] *See DIRECTV Order* at ¶ 3; *New ICO Satellite Services G.P.*, 22 FCC Rcd 2229 ¶ 15 (2007) ("*ICO 2007 Order*"); *TerreStar Order* at ¶¶ 7, 10.

[15] *AT&T Order* at ¶ 15.

[16] *See DIRECTV Order* at ¶ 7.

[17] *See id.*

[18] *See, e.g., ICO Satellite Services G.P.*, 20 FCC Rcd 9797 ¶ 26 (2005) ("*ICO 2005 Order*"); *TerreStar Order* at ¶ 9 (outlining the remaining tasks to complete construction and finding reasonable TerreStar's request for a contingency margin).

2. The public interest benefits of the ViaSat-3-class design, and unforeseen delays in constructing the satellite for 88.9º W.L. support grant of the extension.

Both unforeseen construction delays and the extraordinary public interest benefits that will be realized by allowing Viasat to deploy a Viasat-3-class satellite at 88.9º W.L. support grant of the extension request. The issues encountered by Viasat's vendor are the type of unanticipated technical issues that the Commission has found to constitute a circumstance beyond the applicant's control. In the case of ICO, after granting a one-year extension on public interest grounds necessitated by ICO's modification to its system to operate a GSO satellite in lieu of an NGSO system, the Commission granted a second further milestone extension of an additional five months based on construction delays resulting from technical performance anomalies and manufacturing problems with certain satellite components.[19]

The Commission has also granted milestone extensions based on unique and overriding public interest benefits,[20] and regardless whether unforeseeable circumstances beyond the applicant's control exist.[21] The Commission has relied on this standard to grant milestone extensions to accommodate proposals for substantial technical modifications.[22] In the case at hand, given the typical greater than 15-year design life of a satellite assets, deploying the most

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[19] *ICO 2007 Order* at ¶¶ 3, 15; *see* 47 C.F.R. § 25.117(e)(1).

[20] *See id.* at § 25.117(e)(2).

[21] *See, e.g., TerreStar Order* at ¶¶ 7, 10 (granting milestone extension based solely on public interest grounds where TerreStar demonstrated "a substantial and continuing commitment to satellite construction and system implementation"); *AT&T Order* at ¶¶ 16, 17 (finding that extension would serve the public interest where additional time was needed to incorporate technical modifications requested by AT&T's customers).

[22] *See, e.g., Hughes Communications Galaxy, Inc.*, 5 FCC Rcd 3423 ¶¶ 8, 10 (1990) (finding that granting an extension of the launch milestone to accommodate a modification to implement a hybrid satellite design that would lower costs and increase efficiencies); *AT&T Order* at ¶ 15 (granting milestone extensions to provide additional time to incorporate technical modifications that would provide enhanced services to customers).

advanced satellite technology best enables keeping pace with the ever-growing demands for high-throughput, high-capacity broadband connections. The unprecedented capabilities of the ViaSat-3-class design promise extraordinary benefits that easily satisfy the standard for a milestone extension based on public interest grounds.

Even where construction delays may have been attributable to technical issues arising from the satellite design changes, the Commission has looked to evidence of the applicant's intent to proceed with construction and the level of progress made. In granting TerreStar a milestone extension based solely on public interest grounds, the Commission held that it was unnecessary to determine whether manufacturing problems associated with the delivery of critical components were a foreseeable outcome of TerreStar's decision to modify its satellite design, and instead relied on unique and overriding public interest benefits to grant an extension.[23] The Commission considered that TerreStar was proceeding diligently to address concrete manufacturing problems that had delayed project completion to be determinative in allowing TerreStar to implement "a satellite system with advanced capabilities for homeland security, rural connectivity, and other critical communications purposes."[24] Similarly, the public interest benefits associated with the unprecedented capabilities of the ViaSat-3-class satellite slated for 88.9º W.L. described above—capabilities that will revolutionize the broadband industry, coupled with the progress and expenditures that Viasat has made, and continues to make—more than satisfy the Commission's standards for a milestone extension on public interest grounds.

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[23] *See TerreStar Order* at ¶¶ 7, 10.

[24] *Id.* at ¶10.

3. In the alternative, Viasat seeks a waiver of the 88.9º WL milestone condition.

The Commission has also granted waivers of milestones to allow implementation of technical modifications for a redesigned satellite on an extended schedule necessitated both by the technical changes and manufacturing issues. For instance, the Commission granted milestones waivers in response to Loral's request to allow Loral to incorporate "technological advances [that] will provide significant operating efficiencies and more valuable services to customers."[25] During the course of implementing changes to the satellite, Loral encountered manufacturing issues that resulted in further construction delays.[26] The Commission granted an extension and waiver of milestones to accommodate the satellite redesign and the associated construction delays.[27]

To the extent necessary, Viasat requests a waiver of its launch and operate milestone for 88.9º W.L. The Commission may waive its rules for good cause shown.[28] "Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule," including when a waiver would result in "more effective implementation of overall policy,"[29] and "tak[ing]

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[25] *See* Loral Space & Communications Ltd. Application for Extension of Milestone Dates, File No. SAT-MOD-19991101-00107, at 4-5 (filed Nov. 1, 1999); *see also Loral SpaceCom Corporation and Loral Space & Communications Corp*, 18 FCC Rcd 6301 ¶¶ 9, 23 (2003) ("*Loral Order*").

[26] *Loral Order* at ¶ 9.

[27] *See id.* at ¶ 23.

[28] 47 C.F.R. § 1.3; *see also WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), *cert. denied*, 409 U.S. 1027 (1972); *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990).

[29] *GE American Communications, Inc.*, 16 FCC Rcd 11038 ¶ 9 (2001).

into account considerations of hardship, equity, or more effective implementation of overall policy."[30]

As discussed above, grant of the requested waiver would not undermine the purpose of the milestone requirements. Viasat has demonstrated substantial progress, significant investment and a strong commitment toward completing the satellite and bringing it into service at 88.9º W.L. In addition, enabling the deployment of the transformative capabilities and capacity of the satellite unquestionably would advance the public interest. Therefore, Viasat's request to extend or waive the milestone to enable the satellite to be launched and brought into service at 88.9º W.L. by December 31, 2021 is fully consistent with the Commission's milestone policies and extension precedent.

IV. ADDITION OF FREQUENCIES AND MODIFICATION OF TECHNICAL PARAMETERS

A. Description of Modifications

Viasat seeks to modify the terms of its market access grant for 88.9º W.L. to add frequencies and reflect the technical characteristics of the ViaSat-3-class spacecraft to be deployed at that location. Specifically, Viasat seeks to add the 29.1-29.5 GHz and 27.5-28.1 GHz uplink bands, and the 17.7-18.3 GHz and 19.3-19.7 GHz downlink bands and no longer intends to use the previously specified TT&C frequencies. The coverage of the United States does not change, nor are there changes in any of the fundamental RF characteristics that would affect the operating environment with other spectrum users.[31]

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[30] *WAIT Radio v. FCC*, 418 F.2d at 1159.

[31] Although not directly related to the existing terms of the market access grant for 88.9º W.L., Viasat notes that the satellite to be deployed will now provide near-hemispheric coverage.

This narrative discussion and the attached Schedule S and Supplemental Technical Annex contain information relevant to the additional frequencies, and the ViaSat-3-class satellite design.

B. Spectrum Currently Authorized

As noted above, Viasat has market access to serve the United States at 88.9º W.L. using the 18.3-19.3 GHz and 19.7-20.2 GHz bands for downlinks, and the 28.1-29.1 GHz and 29.5-30 GHz bands for uplinks. The Commission's Ka-band band plan designates GSO FSS operations (i) on a primary basis in the 18.3-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz and 29.5-30 GHz bands, (ii) on a secondary basis in the 18.8-19.3 GHz and 28.6-29.1 GHz with respect to NGSO FSS operations,[32] and (iii) on a secondary basis in the 28.1-28.35 GHz with respect to Upper Microwave Flexible Use ("UMFU") services with the rights and protections afforded by Section 25.136.[33]

Viasat is the licensee of the Ka-band payload on Galaxy-28, located at 89.0º W.L. orbital location, and which currently operates in the 19.7-20.2 GHz and 29.5-30 GHz bands. Other than Viasat's Ka-band payload on Galaxy-28 at 89.0º W.L., there are no other Ka band GSO FSS networks authorized by the Commission, or for which there is a pending application with the Commission, within two-degrees of the 88.9º W.L. orbital location.

Viasat previously demonstrated compatibility with other GSO FSS networks in the 18.3-18.8, 19.7-20.2 GHz, 28.35-28.6 GHz and 29.5-30 GHz bands, with primary NGSO FSS networks in the 18.8-19.3 GHz and 28.6-29.1 GHz bands, and with terrestrial operations in the

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[32] *See* 47 C.F.R. § 2.106 n.NG165; *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order 32 FCC Rcd 7809 ¶ 14 (2017).

[33] *See* 47 C.F.R. § 25.136(a).

28.1-28.35 GHz band segment. Nothing in the ViaSat-3-class design changes the demonstrated compatibility with these other spectrum uses.

C. Availability of Additional Spectrum

Viasat requests to add the 17.7-18.3 GHz, 19.3-19.7 GHz, 29.1-29.5 GHz and 27.5-28.1 GHz band segments to its existing market access for 88.9º W.L. Specifically, Viasat seeks to operate: (i) at 29.25-29.5 GHz on a co-primary basis with NGSO MSS feeder links; (ii) at 19.3-19.4 GHz and 19.6-19.7 GHz on a co-primary basis with Fixed Services ("FS"); (iii) at 17.8-18.3 GHz on a secondary basis with respect to FS; (iv) at 27.5-28.1 GHz on a secondary basis with respect to UMFU (and subject to the protections afforded in Section 25.136); (v) at 19.4-19.6 GHz and 29.1-29.25 GHz on an unprotected, non-interference basis with respect to NGSO MSS feeder links; and (vi) at 17.7-17.8 GHz on an unprotected, non-interference basis with respect to Broadcasting Satellite Service ("BSS") and FS. As detailed below, Viasat respectfully requests waivers of the Commission's Ka-band band plan and the U.S. Table of Frequency Allocations ("U.S. Table") to use the 19.4-19.6 GHz, 29.1-29.25 GHz and 17.7-17.8 GHz band segments to serve the United States market.

Viasat's proposed operations in the 17.7-18.3 GHz, 19.3-19.7 GHz, 29.1-29.5 GHz and 27.5-28.1 GHz band segments would be fully compliant with the Commission's two-degree spacing policies, would not cause harmful interference to any other authorized user of the spectrum, and otherwise would be consistent with Commission precedent. For these reasons, this Application is fully consistent with the policies articulated in the *Space Station Licensing Reform Order* regarding processing of applications for GSO-like spacecraft.[34]

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[34] *See Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd 10760 ¶ 113 (2003).

1. Primary Operations in the 29.25-29.5 GHz Band Segment

The 29.25-29.5 GHz band segment is allocated for FSS and is designated in the Commission's Ka-band band plan for GSO FSS on a co-primary basis with NGSO MSS feeder link earth stations. Uplink transmissions to VIASAT-3 (89W) in this band segment will comply with the off-axis EIRP density levels specified in Section 25.138 of the Commission's rules and thus will be is compatible with adjacent satellite systems. In addition, consistent with Section 25.258 of the Commission's rules, Viasat will coordinate with operators of NGSO MSS feeder link earth stations operating on a co-primary basis in the 29.25-29.5 GHz band segment.[35] Iridium currently is the only NGSO MSS operator that utilizes a portion of this band segment (29.25-29.3 GHz) for feeder links in the United States.

2. Primary Operations in the 19.3-19.4 GHz and 19.6-19.7 GHz Band Segments

The 19.3-19.4 GHz and 19.6-19.7 GHz band segments are allocated for FSS and FS operations on a co-primary basis.[36] As specified in the Supplemental Technical Annex, VIASAT-3 (89W) satellite downlinks in these bands will comply with the PFD limits in Section 25.208 established to protect FS stations.[37]

3. Secondary Operations in the 17.8-18.3 GHz Band Segment

The 17.8-18.3 GHz band segment is allocated to the FSS on a secondary basis with respect to FS operations;[38] GSO FSS operations are subject to the PFD limits in Section

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[35] *See* 47 C.F.R. § 25.258.

[36] *See Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order, 32 FCC Rcd 7809 ¶ 19 & n.46 (2017) ("*NGSO Order*"). There are no NGSO MSS feeder link operations in these band segments within the United States. *See id.* at ¶ 17.

[37] *See* 47 C.F.R. § 25.208(c).

[38] *See NGSO Order* at ¶ 7.

25.208(c) of the Commission's rules established to protect FS stations.[39] As specified in the Supplemental Technical Annex, VIASAT-3 (89W) satellite downlinks will comply with these limits.

4. Secondary Operations in the 27.5-28.1 GHz Band Segment

The 27.5-28.1 GHz band segment is allocated to the FSS and fixed and mobile terrestrial services on a co-primary basis, and the Commission has designated FSS as secondary to Upper Microwave Flexible Use ("UMFU") service but with protection for FSS earth station operations in accordance with the conditions set forth in Section 25.136(a).[40] Because operations in this band will consist of transmissions from earth stations to VIASAT-3 (89W) satellite, Viasat will demonstrate compatibility with UMFU operations in the context of the future earth station applications.

5. Non-Conforming Use of the 19.4-19.6 GHz and 29.1-29.25 GHz Band Segments

The U.S. Table allocates the 19.4-19.6 GHz and 29.1-29.25 GHz band segments for FSS and FS on a co-primary basis, but the FSS allocated is limited to NGSO MSS feeder link operations.[41] Iridium is the only NGSO MSS operator that uses these bands for feeder links in the United States. The Commission's Ka-band band plan also designates the FS operations in 29.1-29.25 GHz for LMDS. Because there is no designation in these bands for GSO FSS operations, Viasat requests a waiver of the U.S. Table and the Commission's Ka-band band plan to allow VIASAT-3 (89W) to operate in these band segments, as discussed below.

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[39] *See* 47 C.F.R. § 25.208(c).

[40] 47 C.F.R. § 25.136(a).

[41] 47 C.F.R. § 2.106 n.NG166.

6. Non-Conforming Use of the 17.7-17.8 GHz Band Segment

In the United States, the 17.7-17.8 GHz band segment is allocated on a co-primary basis to FS and FSS, but the FSS allocation is limited by footnote US271 to broadcasting-satellite service ("BSS") feeder links in the Earth-to-space direction.[42] Thus, Viasat requests a waiver of the U.S. Table in connection with the FSS downlink communications from VIASAT-3 (89W) in the 17.7-17.8 GHz band segment, as discussed below.

D. Waiver Requests for Non-Conforming Uses

As referenced above, Viasat requests waivers of the U.S. Table and the Commission's Ka-band band plan for VIASAT-3 (89W) operations in the 17.7-17.8 GHz, 19.4-19.6 GHz and 29.1-29.25 GHz bands, in which the Commission's rules or band plan do not provide for GSO FSS operations. The Commission has granted waivers for non-conforming spectrum uses where, as detailed below, a demonstration is made that the non-conforming operations would not likely cause harmful interference into the services for which an allocation or designation exists, and where the non-conforming operator accepts any interference from conforming spectrum users.[43]

Good cause exists for the Commission to grant the requested waivers.[44] Access to these frequencies will provide for more intensive use of the scarce radio spectrum resources and enable greater capacity for broadband service to end users and this serve the public interest. At the same time, because Viasat's operations would not cause harmful interference into conforming uses on these band segments, and Viasat proposes to operate on a non-protected, non-

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[42] *Id.* at § 2.106 n.US271.

[43] *See, e.g., contactMEO Communications*, LLC, 21 FCC Rcd 4035 ¶ 34 (2006) ("*AtContact Order*"); *Northrop Grumman Space & Mission Systems Corp.*, 24 FCC Rcd 2330 ¶¶ 76, 90 (2009) ("*Northrop Grumman Order*"); *Hughes Network Systems, LLC*, 26 FCC Rcd 8521 ¶ 13 (2011).

[44] *See* 47 C.F.R. § 1.3.

interference basis with respect to conforming uses, grant of the requested waivers "would not undermine the policy objective of the rule in question."[45]

1. Terrestrial Fixed Services in the 17.7-17.8 GHz, 19.4-19.6 GHz and 29.1-29.25 GHz Band Segments

VIASAT-3 (89W) operations in the 17.7-17.8 GHz, 19.4-19.6 GHz and 29.1-29.25 GHz band segments will not cause harmful interference into FS operations. With respect to FS operations in the 17.7-17.8 GHz and 19.4-19.6 GHz band segments, VIASAT-3 (89W) downlinks will comply with the PFD limits in Section 25.208(c) of the Commission's rules established to protect FS stations in both of these bands.[46] The Commission has previously granted waivers to allow GSO FSS operations in the 17.7-17.8 GHz and 19.4-19.6 GHz bands based on compliance with these same PFD limits.[47]

In the 29.1-29.25 GHz band segment, Viasat will demonstrate in earth station applications that uplinks to VIASAT-3 (89W) will not cause harmful interference and will be compatible with LMDS operations.

2. NGSO MSS Feeder Links in the 19.4-19.6 GHz and 29.1-29.25 GHz Band Segments

VIASAT-3 (89W) operations will not cause harmful interference into Iridium's NGSO MSS feeder link operations in these bands, as demonstrated by the analysis in the Supplemental Technical Annex. Viasat is currently seeking to coordinate with Iridium regarding the operation

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[45] *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1166 (D.C. Cir. 1990); *see also Fugro-Chance, Inc.*, 10 FCC Rcd 2860, at ¶ 2 (1995) (waiver of U.S. Table of Frequency Allocations appropriate "when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.").

[46] *See* 47 C.F.R. § 25.208(c).

[47] *See, e.g.*, Viasat, Inc., File No. SAT-MOD-20160527-00053, Call Sign S2902 (granted Jan. 12, 2017); Inmarsat Mobile Networks, Inc., 30 FCC Rcd 2770 ¶ 27 (2015) ("*Inmarsat Order*").

of the satellite in these band segments. Until such coordination is concluded, Viasat will maintain a suitable separation distance for co-frequency, co-polar operations in the vicinity of Iridium's U.S. feeder link stations. The Commission has granted waivers to allow GSO FSS operations in these bands where the operator demonstrated coexistence with Iridium.[48]

3. BSS in the 17.7-17.8 GHz Band Segment

As demonstrated in the Supplemental Technical Annex, downlinks from VIASAT-3 (89W) in this band segment would not cause harmful interference into adjacent BSS spacecraft. The off-axis PFD of the VIASAT-3 (89W) downlinks in this band segment would be significantly lower than the coordination trigger threshold for BSS spacecraft, including the nearest U.S.-licensed system, which is located at 85.4º W.L.

E. Change in Authority with Respect to the 19.7-20.2 GHz and 29.5-30 GHz Band Segments

As detailed in a companion application being contemporaneously filed, Viasat proposes to operate its satellite at 88.9º W.L. in the 19.7-20.2 GHz and 29.5-30 GHz band segments under a U.S. space station license, rather the current terms for market access in that spectrum. The accompanying Supplemental Technical Annex describes the operations of the entire satellite to be deployed at 88.9º W.L., including the 19.7-20.2 GHz and 29.5-30 GHz portions.

F. Section 304 Waiver

In accordance with Section 304 of the Communications Act of 1934, as amended, Viasat hereby waives any claim to the use of any particular frequencies or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise.

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[48] *See, e.g., Inmarsat Order* at ¶¶ 17, 27.

G. Ownership Information

Viasat is a Delaware corporation and a publicly traded company headquartered at 6155 El Camino Real, Carlsbad, California 92009. As a publicly traded company, the stock of Viasat is widely held. Based on publicly available SEC filings, the following entities and their affiliates beneficially owned 10 percent or more of Viasat's voting stock as of March 31, 2019:

Beneficial Owner	Citizenship	Voting Percentage
The Baupost Group, L.L.C. 10 St. James Avenue Suite 1700 Boston, MA 02116	Massachusetts	23.06%
Blackrock Inc. 55 East 52nd Street New York, NY 10055	Delaware	10.92%

No other stockholders are known by Viasat to hold 10 percent or more of Viasat's voting stock.

The following are the officers and directors of Viasat, all of whom can be reached c/o Viasat, Inc., 6155 El Camino Real, Carlsbad, CA 92009:

Directors

Mark D. Dankberg, Chairman, CEO
Richard A. Baldridge, President, COO
Frank J. Biondi Jr.
Dr. Robert W. Johnson
B. Allen Lay
Dr. Jeffrey M. Nash
Sean Pak
Varsha Rao
John P. Stenbit
Harvey P. White

Officers/Senior Management

Mark D. Dankberg, Chairman, CEO
Richard A. Baldridge, President, COO
Melinda Del Toro, Senior VP, People & Culture
Bruce Dirks, Senior VP, Treasury & Corporate Development

Shawn Duffy, Senior VP, CFO
Kevin Harkenrider, President, Broadband Services
Keven K. Lippert, Chief Commercial Officer & EVP of Strategic Initiatives
Mark J. Miller, Executive VP, Chief Technical Officer
Ken Peterman, President, Government Systems
Douglas Abts, VP Strategy Development, Broadband Services
Robert Blair, VP, General Counsel and Secretary
Girish Chandran, Vice President and Chief Technical Officer
Marc Agnew, Vice President, Commercial Networks
Dave Ryan, Vice President, and President of Space Systems

V. CONCLUSION

Viasat respectfully requests that the Commission modify the terms for Viasat's market access at 88.9º W.L. and also extend or waive the associated launch and operate milestone, as detailed in this Application.

Respectfully submitted,

/s/

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CERTIFICATION

I, Christopher J. Murphy, hereby make the following certifications to the Federal Communications Commission.

1. I am Associate General Counsel, Regulatory Affairs of Viasat, Inc.

2. The factual information contained in the foregoing Application for Modification of Market Access Grant and for Extension or Waiver of Milestone Date is true and correct to the best of my knowledge, information and belief.

Christopher J. Murphy

Executed June 17, 2019