

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Starlink Services, LLC)	WC Docket No. 09-197
)	
Petition for Designation as an Eligible)	
Telecommunications Carrier)	

**COMMENTS OF ENSURING RDOF INTEGRITY COALITION ON
PETITION FOR ETC DESIGNATION OF STARLINK SERVICES, LLC**

The Ensuring RDOF Integrity Coalition (“ERIC”),¹ by its counsel, submits these Comments on the Petition² and subsequent Amendments³ (“Petitions”) of Starlink Services, LLC (“Starlink” or “Petitioner”)⁴ for Designation as an Eligible Telecommunications Carrier (“ETC”) in all census blocks subject to Rural Digital Opportunities Fund (“RDOF”) performance obligations by Starlink within Alabama, Connecticut, Florida, New Hampshire, New York, North Carolina, Tennessee, Virginia and West Virginia (collectively, the “FCC Jurisdiction

¹ ERIC is a coalition consisting of rural broadband providers, rural Americans, and local government officials who have joined together to work to ensure that the Federal Communications Commission’s (“FCC” or “Commission”) Rural Digital Opportunity Fund (“RDOF”) proceeding will result in timely broadband service to rural America.

² [*Petition of Starlink Services, LLC for Designation as an Eligible Telecommunications Carrier*](#), WC Docket No. 09-197, filed on February 03, 2021 (“Petition”).

³ [*Amendment to Petition of Starlink Services, LLC for Designation as an Eligible Telecommunications Carrier*](#), WC Docket No. 09-197 (March 9, 2021) and [*Second Amendment to Petition Amendment to Petition of Starlink Services, LLC for Designation as an Eligible Telecommunications Carrier*](#), WC Docket No. 09-197 (March 29, 2021) (“Amendments”).

⁴ Starlink Services is the wholly-owned subsidiary of RDOF Auction 904 winning bidder Space Exploration Technologies Corp. (“SpaceX”) to which SpaceX assigned its winning bids on December 22, 2020.

States”). Petitioner’s RDOF winning bids were for speeds of ≥ 100 Mbps downstream and ≥ 20 Mbps upstream and low latency (≤ 100 milliseconds).⁵

I. BACKGROUND

For an applicant to qualify for ETC status, the FCC must find that its designation would be in the public interest.⁶ An applicant also must certify that it will comply with the service requirements applicable to the support that it receives.⁷ Specifically to RDOF support requirements, an auction winner whose supported deployment will rely on wireless spectrum must certify “that it will retain such access [to its identified spectrum bands] for at least 10 years

⁵ Low latency means that 95% or more of all peak period measurements of network round trip latency are at or below 100 milliseconds.

⁶ ERIC notes that in 2005 the Commission placed the burden of proof on the ETC applicant to demonstrate that ETC designation is in the public interest. *See Federal-State Joint Board on Universal Service*, Report and Order, 20 FCC Rcd 6371, 6390, para. 44 (2005) (ETC Designation Report and Order). At the end of last year, the Wireline Competition Bureau (“Bureau”) improperly shifted this burden of proof from the ETC petitioner to the Commission to determine whether the public interest standard has been met. Commission staff now has the burden of proof as to whether the public interest will be served based on the review of the long form application without any input or vetting by the public of the information contained in the long form application. *See Rural Digital Opportunity Fund Phase I Auction (Auction 904) Closes; Winning Bidders Announced; FCC Form 683 Due January 29, 2021*, Public Notice, 35 FCC Rcd 13888, 13901 n.71 (RBATF OEA WCB 2020); *Wireline Competition Bureau Seeks Comment on Rural Digital Opportunity Fund Petitions for Designation as an Eligible Telecommunications Carrier*, WC Docket No. 09-197, Public Notice, DA 21-279, at 2 & n.15 (Mar. 8, 2021). In doing so, the Bureau acted without statutory authority and against Commission precedent. The Bureau cannot waive that burden of proof *sua sponte* without notice and comment. While Starry may argue it provided information that would allow it to meet its burden of proof in its short or long form applications, there is no such information in the *public* record. ERIC has filed a Request for Informal Commission Action to address this lack of transparency. The Request seeks access to Starry’s short and long form applications pursuant to a protective order. The Request remains pending. Upon grant of that Request, ERIC and others would be allowed to review and evaluate Starry’s applications and supplement the record as appropriate to further demonstrate that grant of ETC status to Starry is not in the public interest and that Starry has not met its burden of proof to become an ETC. In the meantime, there is sufficient evidence provided herein to call into serious question whether designation of Starry as an ETC is in the public interest, and to provide a sufficient basis for a finding that it does not.

⁷ *See also* 47 CFR § 54.202(a).

after the date on which it is authorized to receive support.”⁸ In particular, such RDOF auction winner “must demonstrate that it currently has sufficient access to spectrum” by identifying the spectrum bands it will use, describing the total amount of uplink and downlink bandwidth that it has access to in each spectrum band for the last mile, and describing the authorizations it has obtained to operate in the spectrum.

As detailed below, the concerns and issues raised by ERIC demonstrate that the Petitioner falls short of satisfying the above-listed criteria, and the Petitions may not be ripe for disposition until the Commission and/or Petitioner have taken additional actions or provided additional information. Until then, ERIC requests that the Commission either deny or defer action on the Petitions.

II. DISCUSSION

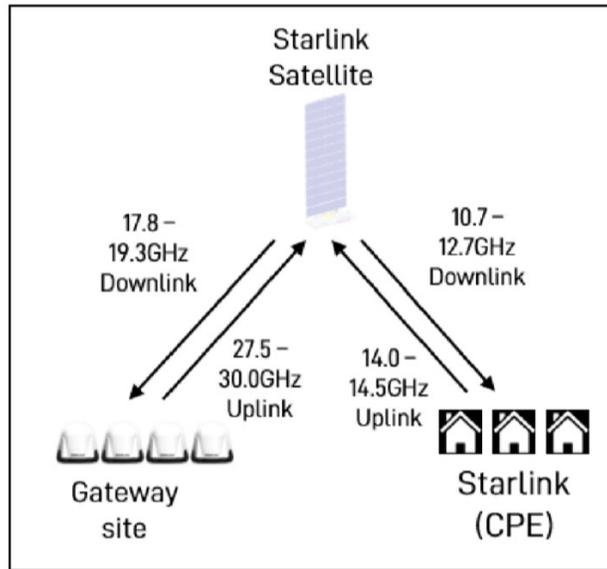
a. Petitioner’s Downlink Reliability Remains Questionable Until Spectrum Issues in the 12 GHz Band Are Resolved.

According to Petitioner, the network architecture of its non-geostationary orbit (“NGSO”) system has two primary components: the space segment and the ground network. According to a network architecture illustration provided in the Petition (Figure 1 below), downlink transmissions will use 10.7-12.7 GHz spectrum from Starlink satellites to customer-premises equipment (“CPE”) terminals, bandwidth that includes the 12.2-12.7 GHz band (“12 GHz band”).⁹

⁸ *Rural Digital Opportunity Fund Phase 1 Auction Scheduled for October 29, 2020*, [Notice and Filing Requirements and Other Procedures for Auction 904](#), 35 FCC Rcd. 6077, 6175 ¶ 314 (June 11, 2020).

⁹ Petition at 5.

Figure 1 - Starlink Network Architecture



SpaceX has previously characterized the 12 GHz band as “an essential component to delivering high-throughput, low-latency downlink connections to consumers” from such satellite systems as the Starlink network.¹⁰

However, there is no guarantee that Petitioner will actually be able to utilize the 12 GHz band for this purpose. Currently, the 12 GHz band in particular is subject to an open rulemaking proceeding on the feasibility of allowing flexible-use services, including two-way mobile 5G service, in the 12 GHz band while also protecting incumbents from harmful interference.¹¹

Indeed, the 12 GHz NPRM raises questions specifically relating to SpaceX’s RDOF winning bids and its ability to deploy its NGSO operations in the future:

SpaceX was a winning bidder in the Rural Digital Opportunity Fund Phase I auction, where it won \$888.5 million to deploy high-speed broadband to unserved homes and businesses over a ten-year period.[140] SpaceX claims that its service is capable of providing downlink/uplink speeds of 103/42 megabits-per-second and a consistently observed median latency of 30 milliseconds.[141] **According to**

¹⁰ [Letter](#) from David Goldman, Director of Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC, FCC, Docket No. RM-11768, at 1 (filed June 4, 2020).

¹¹ *Expanding Flexible Use of the 12.2-12.7 GHz Band*, WT Docket No. 20-443, [Notice of Proposed Rulemaking](#), FCC 21-13, ¶ 5 (January 15, 2021) (“12 GHz NPRM”).

SpaceX, making changes to the band potentially could threaten its planned operations while doing little to close the digital divide.^[142] *How might this uncertainty affect future investment in new systems, whether in 12 GHz or in other frequency bands?*^[143] *What actions can we take in this proceeding to ensure that the locations successfully bid for through the RDOF process get access to the broadband Internet access service committed to through that program?* SpaceX further claims that NGSO systems have the potential to provide low latency 5G backhaul using 12 GHz band spectrum.^[144] Could maintaining the current framework allow NGSO-provided backhaul to proliferate? Alternatively, would allowing terrestrial mobile service in the band harm NGSOs' ability to provide backhaul? If terrestrial mobile and satellite-based backhaul services cannot both be provided in the band, then which service would best serve the public interest?¹²

Though the 12 GHz NPRM proceeding stands to directly impact Petitioner's downlink capabilities and the comment record is not yet developed, the Petitions provide no detailed information at all as to how Petitioner will be able to use and retain access to 12 GHz spectrum even in light of potential changes to the band resulting from the 12 GHz NPRM proceeding. Accordingly, the Commission lacks adequate information that would support an affirmative public interest determination on Petitioner's capabilities and functionalities to serve its FCC Jurisdiction States.

Until such time that the Commission is sufficiently informed by the 12 GHz comment record to take actions to ensure the feasibility of the 12 GHz band for Petitioner's purposes, the Commission should refrain from ruling on the Petitions. Ruling on the Petitions before the 12 GHz NPRM proceeding has been resolved would be premature as the 12 GHz band component of Petitioner's NGSO system could feasibly be subject to a new and different wireless spectrum regime based on the Commission's own determinations following the comment cycle.

¹² 12 GHz NPRM at ¶56 *citing* [Letter](#) from David Goldman, Director of Satellite Policy, SpaceX, to Marlene H. Dortch, Secretary, FCC, FCC, Docket No. RM-11768, at 3 (filed June 4, 2020) (emphasis added).

Moreover, the Wireless Telecommunications Bureau decided that a 30-day extension of the 12 GHz NPRM comment cycle was warranted after a number of industry and public interest groups demonstrated a need for additional assessment time, indicating that the 12 GHz NPRM “solicits comments on important factual, legal, technical and policy issues that require thorough analyses from engineers, lawyers, and consultants and will take time to substantively address.”¹³ The Petitions themselves provide sparse detail regarding the Starlink network’s specific use of the 12 GHz band, and details provided in Petitioner’s long-form application are essentially out of date as the 12 GHz NPRM proceeding is still well under way. Until the Commission has determined the future use of the 12 GHz band with greater certainty, it should defer action on or deny the Petitions based on Petitioner’s reliance on the 12 GHz band.

b. Questions Raised Regarding Petitioner’s Pending License Modification Application Should Be Resolved Before Granting the Petitions.

Petitioner has a pending license modification application¹⁴ that faces opposition and scrutiny from multiple parties relating to claims of interference. Of more concern, some opponents of the modification application go further and allege possible instances of obfuscation and clandestine antenna redesign.

DISH has opposed the modification application, arguing that Petitioner’s proposed modification would adversely affect reception at DBS consumer dishes and exceed the

¹³ *Expanding Flexible Use of the 12.2-12.7 GHz Band, Expanding Flexible Use in Mid-Band Spectrum Between 3.7-24 GHz*, WT Docket No. 20-443, GN Docket No. 17-183, [Order](#), DA 21-370 (March 29, 2021). Comments are now due by May 7 and reply comments by June 7, 2021.

¹⁴ Application of Space Exploration Holdings, LLC for Modification of Authorization for the SpaceX NGSO Satellite System, [IBFS File No. SAT-MOD-20200417-00037](#) (filed April 17, 2020).

applicable power limits under International Telecommunication Union and Commission rules.¹⁵

Should these interference claims prove to be accurate, then Petitioner may be unable use the 12 GHz band to meet its RDOF obligations in the FCC Jurisdiction States and elsewhere, and it may be able to reasonably certify to complying with the applicable service requirements for RDOF.

WorldVu Satellites Limited (“OneWeb”) has argued that Petitioner’s modification application “effectively constitutes an entirely new satellite system” such that “SpaceX’s proposed constellation architecture is nearly unrecognizable from its currently authorized system.”¹⁶

OneWeb, referencing information from SES Americom, Inc. and O3b Limited, has called on SpaceX to clarify an “apparent clandestine antenna redesign of the previously authorized and operating satellites.”¹⁷ Amazon has made similar allegations in connection with interference with its Kuiper System, stating that “SpaceX has made contradictory claims about its modified antenna design, and has refused requests to provide clarity on its antenna redesign and performance. SpaceX has instead obfuscated the impacts of its antenna redesign by portraying its currently authorized antenna patterns and power flux-density contours using its proposed modified antenna.”¹⁸ Petitioner reportedly has not clarified or otherwise provided any response to these claims, and no relevant information is provided in the Petitions.

¹⁵ Petition of Starlink Services, LLC for Designation as an Eligible Telecommunications Carrier, WC Docket No. 09-197, [Partial Opposition of DISH Network Corporation](#), at 5 (February 22, 2021).

¹⁶ [OneWeb Ex Parte Letter](#), Space Exploration Holdings, LLC, Application for Modification of Authorization for the SpaceX NGSO Satellite System, IBFS File No. SAT-MOD-20200417-00037 (March 15, 2021).

¹⁷ *Id.* at 4, *citing* [Reply of SES Americom, Inc. and O3b Limited](#), IBFS File No. SAT-MOD-20200417-00037, at 12, 14 (“SES Reply”) (filed Aug. 7, 2020).

¹⁸ [Amazon Ex Parte Communication](#), Space Exploration Holdings, LLC, Application for Modification of Authorization for the SpaceX NGSO Satellite System, IBFS File No. SAT-MOD-20200417-00037 (March 31, 2021).

These claims at minimum warrant some investigation by the Commission or clarification by SpaceX, which in turn could feasibly lead to an enforcement action if it is determined that satellite transmissions have exceeded authorized power levels or there is some other material discrepancy. Should this situation reveal broader systematic discrepancies or any willful misrepresentations, then such actions should factor significantly in the Commission’s public interest determination for the Petitions.

c. The Starlink Network’s Dynamic Nature May Lead to Capacity Shortfalls for RDOF Locations in the Long Term.

An engineering analysis prepared by Cartesian (“Cartesian Report”) that was commissioned by the Fiber Broadband Association (“FBA”) and NTCA – The Rural Broadband Association (“NTCA”)¹⁹ reveals a potential gap between Petitioner’s theoretical performance and actual network performance based on publicly available information. The Cartesian Report specifically calls out a capacity shortfall for approximately 56% of RDOF subscribers in 2028—the year that Petitioner is estimated to complete its six-year buildout—using a low demand scenario. The Cartesian Report forecasts that the shortfall could be “significantly worse” if Starlink capacity is allocated to non-RDOF use cases.

Viasat, in a recent analysis and *ex parte* presentation filed on the RDOF record, similarly identified “significant shortfalls in Starlink capacity” due to “a fundamental disconnect” between the maximum capacity Starlink’s satellites and the geographic density of the RDOF-locations won at auction.²⁰ In short, Viasat claims that SpaceX bid beyond its capabilities, and that this

¹⁹ [Starlink RDOF Assessment](#), Prepared for Fiber Broadband Association and NTCA—The Rural Broadband Association WC Docket No. 19-126, WC Docket No. 10-90, AU Docket No. 20-34 (February 8, 2021).

²⁰ [Ex Parte Presentation of Viasat, Inc.](#), AU Docket No. 20-34, WC Docket No. 19-126, WC Docket No. 09-197, IBFS File No. SAT-MOD20200417-00037, WT Docket No. 20-443 (April

disconnect was not apparent in SpaceX’s short-form application because the purpose of the short-form stage is focused merely on determining whether an applicant is eligible to bid for certain performance tier and latency combinations.²¹

Further exacerbating the problem is that, according to the Cartesian Report, current testing methodology currently used for Connect America Fund (“CAF”) performance testing may fail to detect capacity issues due to the dynamic nature of the Starlink network allowing capacity to be steered towards areas of greatest demand. Because the Starlink network is unlikely to differentiate between rural RDOF locations and non-RDOF locations, which are more likely to be in high density areas generating the highest demand, performance of the Starlink network may tend to favor non-RDOF areas when capacity is limited. ERIC agrees with NTCA and FBA that “the Commission will need to adjust its performance testing regime – which has been constructed largely based upon the notion of testing a fixed amount of capacity deployed and devoted to a fixed location – to account for the dynamic nature of the SpaceX network, i.e. testing a small sample may be inadequate to reveal capacity constraints (and service degradation) elsewhere on the network.”²² Because RDOF’s public interest goals are so heavily invested in performance obligations, the Commission should commit to adopting a new performance testing regime and any ETC designation granted to Petitioner should be conditioned on conformance with such new performance testing.

5, 2021), enclosing “Analysis of the Starlink System’s Ability to Satisfy SpaceX’s RDOF Commitments.”

²¹ *Id.* at 3.

²² [Ex Parte Filing of NTCA and FBA](#), WC Docket No. 19-126, WC Docket No. 10-90, AU Docket No. 20-34, 4, (February 8, 2021).

III. CONCLUSION

For the foregoing reasons, the Commission should either deny or defer action on the Petitions until subsequent actions are undertaken by Commission and/or Petitioner that would support a determination that granting ETC status to Petitioner would be in the public interest.

Respectfully submitted,

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