List of Subjects

40 CFR Part 350

Environmental protection, Confidential business information, Reporting and recordkeeping requirements.

40 CFR Part 355

Environmental protection, Reporting and recordkeeping requirements.

Peter Wright,
Assistant Administrator, Office of Land and Emergency Management.

For the reasons stated in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 350—TRADE SECRECY CLAIMS FOR EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW INFORMATION: AND TRADE SECRET DISCLOSURES TO HEALTH PROFESSIONALS

1. The authority citation for Part 350 continues to read as follows:


2. Amend §350.7 by revising paragraphs (a) introductory text, (b), (c) and (d)(2) to read as follows:

§350.7 Substantiating claims of trade secrecy.

(a) Claims of trade secrecy must be substantiated by providing a specific answer including, where applicable, specific facts, to each of the following questions with submission to which the trade secrecy claim pertains. Submitters must answer these questions on the form entitled “Substantiation to Accompany Claims of Trade Secrecy.” The form and instructions are posted on the EPA program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi.

(b) The answers to the substantiation questions listed in paragraph (a) of this section are to be submitted on the form entitled “Substantiation to Accompany Claims of Trade Secrecy” and included with a submitter’s trade secret claim. The form is posted on the EPA program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi.

(c) An owner, operator, or senior official with management responsibility shall sign the certification at the end of the form entitled “Substantiation to Accompany Claims of Trade Secrecy,” which is posted on the EPA program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi. The certification in both the sanitized and unsanitized versions of the substantiation must bear an original signature.

(d) * * *

(2) An owner, operator, or senior official with management responsibility shall sign the certification stating that those portions of the substantiation claimed as confidential would, if disclosed, reveal the chemical identity being claimed as a trade secret, or would reveal other confidential business or trade secret information. This certification is combined on the substantiation form found on EPA program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi, with the certification described in paragraph (c) of this section.

3. Revise §350.16 to read as follows:

§350.16 Address to send trade secrecy claims and petitions requesting disclosure.

The address and location to send all claims of trade secrecy under sections 303(d)(2) and (d)(3), 311, 312, and 313 of Title III and all public petitions requesting disclosure of chemical identities claimed as trade secret are posted on the following EPA program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi. Any subsequent changes to the address and location will be announced in Federal Register Notices as these changes occur. Also, the changes will be posted on these websites. Submitters may also contact the EPCRA, RMP & Oil Information Center at (800) 424–9346 or (703) 348–5070, https://www.epa.gov/epcra/forms/contact-us-about-emergency-planning-and-community-right-know-act-epcra to obtain this information.

4. Amend §350.27 by revising paragraph (a) and removing and reserving paragraph (b), including the form and instructions to the form, to read as follows:

§350.27 Substantiation form to accompany claims of trade secrecy, instructions to substantiation form.

(a) The substantiation form to accompany claims of trade secrecy must be completed and submitted as required in §350.7(a). The form and instructions are posted on the Emergency Planning and Community Right-to-Know Act (EPCRA) website, http://www.epa.gov/epcra and the Toxics Release Inventory Program Division website, http://www.epa.gov/tri/rfi. Submitters may also contact the National Service Center for Environmental Publications (NSCEP) at (800) 490–9198 or https://www.epa.gov/nscep to obtain the form.

The address to send all trade secrecy claims is posted on the following EPA Program websites, http://www.epa.gov/epcra and http://www.epa.gov/tri/rfi. This information can also be obtained by contacting the EPCRA, RMP & Oil Information Center at (800) 424–9346 or (703) 348–5070, or https://www.epa.gov/epcra/forms/contact-us-about-emergency-planning-and-community-right-know-act-epcra.

PART 355—EMERGENCY PLANNING AND NOTIFICATION

5. The authority citation for Part 355 continues to read as follows:


7. Amend the Note to §355.41 to read as follows:

§355.41 In what format should the information be submitted?

Note 1 to §355.41: The SERC and LEPC may request a specific format for this information.

[F.R. Doc. 2020–15139 Filed 7–23–20; 8:45 am]
BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2 and 25
[IB Docket Nos. 17–95, 18–315; FCC 20–66; FRS 16866]

Earth Stations in Motion

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) amends its rules to facilitate the deployment of earth stations in motion (ESIMs) communicating with geostationary (GSO) and non-geostationary orbit (NGSO) fixed-satellite service (FSS) satellite systems.

DATES: This rule is effective: July 24, 2020.

FOR FURTHER INFORMATION CONTACT: Cindy Spiers, 202–418–1593.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission’s Report and Order, IB Docket Nos. 17–95 and 18–315, FCC 20–66, adopted on May 13, 2020, and released on May 14, 2020. The full text of this document is
text of this document is also available for
inspection and copying during business hours in the FCC Reference
Information Center, Portals II, 445 12th
Street SW, Room CY—A257,
Washington, DC 20554. To request
materials in accessible formats for
people with disabilities, send an email
to FCC504@fcc.gov or call the Consumer
& Governmental Affairs Bureau at 202–

**Paperwork Reduction Act**

This document does not contain new
or modified information collection
requirements subject to the Paperwork
Reduction Act of 1995 (PRA), Public
Law 104–13. In addition, therefore, it
does not contain any new or modified
information collection burden for small
business concerns with fewer than 25
employees, pursuant to the Small
Business Paperwork Relief Act of 2002,
Public Law 107–198, see 44 U.S.C.
3506(c)(4).

**Synopsis**

In this Second Report and Order in IB
Docket No. 17–95 and Report and Order in IB Docket No. 18–315 (Report and
Order) and Further Notice of Proposed
Rulemaking (Further Notice), the
Commission continues to facilitate the
deployment of, and reduce the
regulatory burdens on, Earth Stations in
Motion (ESIMs). First, we allow ESIMs
to communicate in additional frequency
bands with geostationary-satellite orbit
(GSO) satellites operating in bands
allocated to the fixed-satellite service
(FSS). Second, we adopt rules for ESIMs
to communicate with non-geostationary
orbit (NGSO) satellites in specific
frequency bands allocated to the FSS.
Finally, we seek to further develop the
record regarding potential interference
from out-of-band emissions of ESIMs in
the 28.35–28.4 GHz band into the
adjacent 27.5–28.35 GHz band used by
Upper Microwave Flexible Use Service
(UMFUS). These actions will promote
innovative and flexible use of satellite
technology, as well as provide
regulatory equity between GSO and
NGSO FSS systems.

**Report and Order**

Because of the interrelated nature of the
two proceedings, we address both
proceedings in here. In the discussion
below, we first address the addition of
frequency bands in which ESIMs can
communicate with GSO FSS satellites.
Specifically, we adopt our proposal to
allow ESIMs to operate in all of the
frequency bands in which earth stations at
fixed locations operating with GSO
FSS satellite networks can be blanket-
licensed, and to allow ESIMs to receive
signals from GSO FSS satellite space
stations in the Ka-band, with some
restrictions. We then address the issues
raised in the NGSO ESIMs NPRM, and
adopt a regulatory framework for ESIMs
communications with NGSO FSS
systems that is analogous to that which
currently exists for ESIMs
communications with GSO FSS systems,
with the exception of the frequency
bands 18.6–18.8 GHz, 28.35–28.4 GHz,
and 29.25–29.5 GHz. We also extend
blanket earth station licensing to ESIMs
communications with NGSO FSS
systems. We defer consideration of our
proposal to allow ESIMs to operate in the
28.35–28.4 GHz band while we study the
potential interference from
out-of-band emissions of ESIMs into the
adjacent 27.5–28.35 GHz band.

**ESIMs Communications With GSO
Satellites in Additional Frequency
Bands (IB Docket No. 17–95)**

In the GSO ESIMs FNPRM, the
Commission sought comment on
allowing ESIMs to operate in all of the
frequency bands in which earth stations at
fixed locations operating in GSO FSS
satellite networks can be blanket-
licensed. The Commission believed in
this situation operation of earth stations in
motion should not introduce a
material change to the interference
environment created or to the protection
required. Many commenters support
these changes and no commenters
opposed. Boeing points out that among
other benefits, the use of many of these
frequencies by ESIMs will help to align
the FSS frequencies that are available
for use by ESIMs in different regions of
the world, and that this alignment
is important because many ESIMs
— including those on airplanes and
ships—do not limit their operations to
single continents.3 SES, O3b, and
Intelsat note that expanding the
frequencies available for GSO ESIM
networks will allow more intensive
spectrum use and is fully consistent
with other authorized operations in
these frequency bands.5

We agree that, for the reasons stated
by commenters, the public interest is
served by the addition of frequency
bands in which ESIMs are allowed to
communicate with GSO FSS satellites.
We address the individual frequency bands in turn below. We then address
general issues that are not specific to
any particular frequency band.

**The Extended Ku-Band**

The Commission sought comment on
expanding the Ku-band frequency
ranges in which ESIMs can be
authorized to receive transmissions from
GSO FSS satellites to include the
10.7–10.95 GHz and 11.2–11.45 GHz
bands.7 These frequency bands are
allocated on a co-primary basis to the
fixed service and FSS (space-to-Earth),
but GSO FSS use of both bands is limited
to international systems (that is,
to communications that do not originate
and terminate within the United
States). The Commission noted,
however, that in the 10.95–11.2 GHz
(space-to-Earth) and 11.45–11.7 GHz
(space-to-Earth) bands, communications of ESIMs with GSO satellites is allowed
subject to the condition that these earth
stations may not claim protection from
transmissions of non-Federal fixed
service stations.9 The Commission
requested comment on whether
communications in the 10.7–10.95 GHz
and 11.2–11.45 GHz (space-to-Earth)
bands could also be allowed on an
unprotected basis with respect to other
services.10

Satellite operators overwhelmingly
support allowing ESIMs to receive
transmissions from GSO FSS satellites
on an unprotected basis in these
bands.11 Commenters state that, because

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1 The term “ESIMs” is the collective designation for three types of earth stations that the Commission authorizes to transmit while in motion: Earth Stations on Vessels (ESVs), Vehicle-Mounted Earth Stations (VMEs), and Earth Stations Aboard Aircraft (ESAs) to communicate with space stations using frequencies allocated to the fixed satellite service. Broadly stated, Earth Stations on Vessels refers to earth stations that communicate with a satellite while located on maritime vessels such as boats, cargo ships or cruise ships, whereas Vehicle-Mounted Earth Stations and Earth Stations Aboard Aircraft refer to earth stations that communicate with satellites while located on land-based vehicles or aircraft, respectively.

2 Many commenters support these changes and no commenters opposed. Boeing points out that among other benefits, the use of many of these frequencies by ESIMs will help to align the FSS frequencies that are available for use by ESIMs in different regions of the world, and that this alignment is important because many ESIMs—including those on airplanes and ships—do not limit their operations to single continents. SES, O3b, and Intelsat note that expanding the frequencies available for GSO ESIM networks will allow more intensive spectrum use and is fully consistent with other authorized operations in these frequency bands.

3 See, e.g., Boeing FNPRM Comments at 1; Hughes FNPRM Comments at 2; Inmarsat FNPRM Comments at 2.

4 See, e.g., Boeing FNPRM Comments at 3.

5 GSO ESIMs FNPRM, 33 FCC Rcd at 9358, para. 91.

6 SES, O3b and Inmarsat FNPRM Reply Comments at 1–2.

7 See 47 CFR 2.106, NG527A.

8 See GSO ESIMs FNPRM, 33 FCC Rcd at 9354, para. 90. As we noted in the FNPRM, the Commission’s part 25 rules currently allow for blanket licensing in the 10.7–10.95 GHz, 11.2–11.45 GHz, and 17.8–18.3 GHz (space-to-Earth) on an unprotected basis with respect to the fixed service.4 47 CFR 2.106, NG527A (“Except as provided for by NG527A, use of the bands 10.7–11.7 GHz (space-to-

9 See also GSO ESIMs FNPRM, 33 FCC Rcd at 9340, para. 44.

10 GSO ESIMs FNPRM, 33 FCC Rcd at 9355, para. 91.

11 See, e.g., Boeing FNPRM Comments at 2–3; Hughes FNPRM Comments at 2–3; SES FNPRM Comments at 2–3.

Continued
ESIMs operations are receive-only in the 10.7–10.95 GHz and 11.2–11.45 GHz bands, allowing ESIMs to operate in these frequency bands does “not increase the potential for harmful interference” to other spectrum users. In addition, they state that because ESIMs operate on mobile platforms (that is, in aeronautical, maritime and land-mobility applications) and often far from other co-frequency systems and services (for example, aircraft in flight or vessels in international waters), there is no need to protect ESIMs reception in these frequency bands. The Fixed Wireless Communications Coalition (FWCC) asks the Commission to clarify that fixed service will not be required to protect ESIMs in the 10.7–10.95 GHz and 11.2–11.45 GHz bands without requiring protection from fixed service stations that have primary status in these bands. The Fixed Wireless Communications Coalition (FWCC) asks the Commission to clarify that fixed service will not be required to protect ESIMs in the 10.7–10.95 GHz and 11.2–11.45 GHz bands from interference. We so clarify.

We address each of these frequency bands in turn below. Specifically, we will allow ESIMs to receive signals from GSO FSS satellites on a secondary basis in the 17.8–18.3 GHz bands. The Commission also requested comment on whether to allow ESIMs to communicate with GSO FSS satellites in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) bands on an unprotected, non-interference basis with respect to NGSO FSS satellite systems. It sought comment on any possible effects these proposals may have on existing or future services in these frequency bands or adjacent frequency bands and on any necessary changes to our rules that may be appropriate to accommodate them. We add NG527A(d) in the U.S. Table of Operations in the 17.8–18.3 GHz (space-to-Earth) and 19.6–19.7 GHz (space-to-Earth) bands.}

Satellite operators therefore state that ESIMs can co-exist with terrestrial fixed service operations in these bands. Commenters also point out that the authorization of ESIMs to receive signals from GSO networks in the 17.8–18.3 GHz band will help to align the frequencies available to ESIMs in the United States with those that are available in the rest of the world. In addition, ESIMs communications with GSO FSS satellites in these bands will be required to be coordinated with Federal FSS systems pursuant to the U.S. Table. No commenters disagree with allowing ESIMs to receive signals from GSO FSS satellites in these bands. We proposed allowing ESIMs to receive signals from GSO FSS satellites in the 17.8–18.3 GHz (space-to-Earth) band on a secondary basis. FSS is allocated in the space-to-Earth direction on a secondary basis to the fixed service band in the 17.8–18.3 GHz band and no parties objected to our proposal. Thus, we add NG527A(d) in the U.S. Table of Allocations to allow ESIMs to receive signals from GSO FSS satellites in the 17.8–18.3 GHz (space-to-Earth) band on a secondary basis. Further, we proposed allowing ESIMs to receive signals from GSO FSS satellites in the 19.3–19.4 GHz (space-to-Earth) and 19.6–19.7 GHz (space-to-Earth) bands on a co-primary basis with fixed service and Federal FSS. However, given the difficulties with coordinating ESIM operations with terrestrial stations, we conclude here, as proposed by FWCC, that in the 19.3–19.4 GHz (space-to-Earth) and 19.6–19.7 GHz (space-to-Earth) bands, ESIMs should be allowed to operate on an unprotected basis with regard to fixed service and Federal FSS. Allowing such ESIM operations will not change the existing interference environment in these bands. FSS is already allocated in the space-to-Earth direction on a co-primary basis with fixed service in the 19.3–19.4 GHz and 19.6–19.7 GHz bands subject to power flux density limits designed to

12 Panasonic FNPRM Comments at 2; see also Boeing FNPRM Comments at 3.
13 Id.
14 Panasonic FNPRM Comments at 2; see also Boeing FNPRM Comments at 3; SES FNPRM Comments at 2; Viasat FNPRM Comments at 3–4.
15 GSO FSS downlink transmissions are already permitted in these frequency bands, subject to power flux density limits designed to protect fixed service stations from unacceptable interference. See International Telecommunication Union (ITU) Article 21.
16 FWCC FNPRM Comments at 1–2.
17 See Appendix B, 47 CFR 2.106, NG527A(a).
18 Although on page 7 of its FNPRM Comments CORF mentions 10.6–11.7 GHz, it is clear from the context that their intention was to reference the 10.6–10.7 GHz band which has a primary allocation to the Radio Astronomy Services. 47 CFR 2.106.
19 Footnotes to the U.S. Table already provide such protections, and satellite licenses and grants of U.S. market access are issued by the Commission subject to such footnotes. Accordingly, no additional action is necessary.
20 COF FNPRM Comments at 7.
22 47 CFR 25.208(c).
23 See SES FNPRM Reply Comments at 2; see also Boeing FNPRM Comments at 3 (stating that the existence of ESIMs in these frequencies will not interfere with fixed service networks because they will continue to be protected by the power flux density limits on satellite downlink communications that are maintained by the ITU to protect primary terrestrial uses of the 17.7–18.3 GHz frequencies).
24 SES FNPRM Comments at 2; Inmarsat FNPRM Comments at 2–3; Viasat FNPRM Comments at 3–4. See also Boeing FNPRM Comments at 4–5 (stating that ESIMs experiencing interference can either shift to a different receiving frequency or can move to a new location where interference does not exist; further, given the relatively high speeds in which many ESIMs will be in motion, any unacceptable interference received from fixed service transmitters will only be momentary in duration and likely result in no detectible interference to the ESIM end user’s services).
25 Boeing FNPRM Comments at 4.
27 See FWCC Comments at 1, 3.
protection and terrestrial systems. Accordingly, we revise NG527A(a) in the U.S. Table of Allocations to allow ESIMs to receive signals from GSO FSS satellites in the 19.3–19.4 GHz (space-to-Earth), and 19.6–19.7 GHz (space-to-Earth) bands on an unprotected basis.

18.8–19.3 GHz and 28.6–29.1 GHz.—The record supports a finding that allowing ESIMs to communicate with GSO FSS satellites in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) bands serves the public interest. Viasat asserts that such a band provides the potential for valuable aeronautical, maritime and land services to be performed in the near future.

We find that it is possible with a high degree of coordination among operators for ESIMs to communicate with GSO FSS satellites in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) bands without causing interference to GSO FSS systems. Inmarsat, for example, states that “[t]he demand for “mobile” communications with GSO FSS systems in these bands will not materially change current interference scenarios.”

We agree with Boeing that the priority of NGSO FSS systems in these frequency bands is critical to their growth and operation. As explained by Telesat, the demand for “mobile” aeronautical, maritime and land services is one of the key drivers of the burgeoning NGSO demand for this spectrum.”

While recognizing that it would be inequitable to alter the regulatory status between NGSO and GSO FSS systems in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) frequency bands, allowing communications between ESIMs and GSO FSS satellites in these frequency bands on an unprotected, non-interference basis with respect to NGSO FSS satellite systems leads to more efficient use of spectrum without imposing a burden on NGSO FSS operations in this band. The GSO system, operating on a non-interference, non-protected basis, is expected to show, to the NGSO system satisfaction, that it is capable of protecting the NGSO’s operation. The only burden on the NGSO system is to examine the GSO ESIM’s operation. The only burden on the NGSO system is to examine the GSO ESIM’s operation.

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We agree with Boeing that the priority of NGSO FSS systems in these frequency bands is critical to their growth and operation. As explained by Telesat, the demand for “mobile” aeronautical, maritime and land services is one of the key drivers of the burgeoning NGSO demand for this spectrum.”

While recognizing that it would be inequitable to alter the regulatory status between NGSO and GSO FSS systems in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) frequency bands, allowing communications between ESIMs and GSO FSS satellites in these frequency bands on an unprotected, non-interference basis with respect to NGSO FSS satellite systems leads to more efficient use of spectrum without imposing a burden on NGSO FSS operations in this band. The GSO system, operating on a non-interference, non-protected basis, is expected to show, to the NGSO system satisfaction, that it is capable of protecting the NGSO’s operation. The only burden on the NGSO system is to examine the GSO ESIM’s operation.
10.95 GHz band.\textsuperscript{44} CORF also suggests that the Commission prohibit the reception of satellite signals by ESIMs in the bottom 25 megahertz portion of the 10.7–10.95 GHz band in order to create a guard band to further protect scientific monitoring by Earth exploration-satellite service systems.\textsuperscript{45} We decline to adopt new limits on out-of-band emissions or prohibitions on GSO FSS downlink use in this proceeding. References to ESIMs communications with GSO FSS satellites as “ESIM downlinks” are inaccurate, and concerns regarding the difficulty of addressing interference from “moving targets” are misplaced, because the only transmissions in the frequency ranges discussed by CORF will be from GSO satellites, not from ESIM terminals.\textsuperscript{46} Accordingly, CORF concerns are not with ESIMs, which solely receive in the frequency bands that CORF identified as being of concern, but rather with the space-to-Earth transmissions of GSO FSS satellites, which are not the subject of this rulemaking. In this respect, we note that the Commission’s rules already impose specific limits on out of band emissions in the frequency bands and services at issue here.\textsuperscript{47} Possible revisions to these limits are the subject of a separate rulemaking.\textsuperscript{48} In addition, as mentioned above, protection of radio astronomy service observations is also ensured through specific footnotes to the U.S. Table of Allocations.\textsuperscript{49} Additionally, CORF expresses concern about the use of the 18.6–18.8 GHz (space-to-Earth) band, which was not proposed as an additional frequency band for communications of ESIMs with NGSO FSS satellites.\textsuperscript{50} This band is allocated for passive scientific observations on a co-primary basis with GSO FSS in the space-to-Earth direction, with GSO FSS downlinks subject to power flux density limits designed to protect other authorized spectrum users.\textsuperscript{51} Specifically, CORF states that any new use by ESIMs in these frequency bands should be mindful of the need to preserve the extensive existing scientific use of the 18.6–18.8 GHz (space-to-Earth) band.\textsuperscript{52} The Commission has previously concurred with this need,\textsuperscript{53} and no further action is appropriate because the 18.6–18.8 GHz band is not one of the additional frequency bands included in this proceeding.\textsuperscript{54} Boeing proposes to open the 19.4–19.6 GHz band to both GSO and NGSO FSS systems, including those operating with ESIMs, on a secondary basis with respect to feeder links to NGSO MSS space stations operating in these frequencies.\textsuperscript{55} Boeing argues that GSO and NGSO FSS systems are already permitted to operate below 19.4 GHz and above 19.6 GHz, so the reception of these transmissions by ESIMs will not alter the spectrum sharing conditions.\textsuperscript{56} We disagree. As Iridium accurately notes, the Ka-band plan and U.S. Table of Frequency Allocations prohibit any earth station—fixed, in motion, individually-licensed, or blanket-licensed—from communicating with an FSS space station in this frequency band.\textsuperscript{57} Further, Iridium points out that this proposal is beyond the scope of the current rulemaking and not associated with Iridium, and finds that this proceeding is not the appropriate forum to address Boeing’s proposal.

Regulatory Framework for Communications of ESIMs With NGSO Satellites (IB Docket No. 18–315)

In the ESIMs NGSO NPRM, the Commission sought comment on allowing ESIMs to communicate with NGSO FSS satellites in the 11.7–12.2 GHz (space-to-Earth); 14.0–14.5 GHz (Earth-to-space); 18.3–18.6 GHz (space-to-Earth); 19.7–20.2 GHz (space-to-Earth); 28.35–28.6 GHz (Earth-to-space); and 29.5–30.0 GHz (Earth-to-space) bands, as well as the 18.8–19.3 GHz (space-to-Earth), the 28.6–29.1 GHz (Earth-to-space) bands, the 10.7–11.7 GHz (space-to-Earth) bands, the 17.8–18.3 GHz (space-to-earth) band, and the 19.3–19.4 GHz and 19.6–19.7 GHz (space-to-Earth) bands,\textsuperscript{58} which encompass most of the same frequency ranges discussed by CORF, including at 17.1–17.4 GHz and above 19.6 GHz, so the reception of these transmissions by ESIMs will not alter the spectrum sharing conditions. Concerns are not with ESIMs, which solely receive in the frequency bands that CORF identified as being of concern, but rather with the space-to-Earth transmissions of GSO FSS satellites, which are not the subject of this rulemaking. In this respect, we note that the Commission’s rules already impose specific limits on out of band emissions in the frequency bands and services at issue here.\textsuperscript{47} Possible revisions to these limits are the subject of a separate rulemaking.\textsuperscript{48} In addition, as mentioned above, protection of radio astronomy service observations is also ensured through specific footnotes to the U.S. Table of Allocations.\textsuperscript{49} Additionally, CORF expresses concern about the use of the 18.6–18.8 GHz (space-to-Earth) band, which was not proposed as an additional frequency band for communications of ESIMs with NGSO FSS satellites.\textsuperscript{50} This band is allocated for passive scientific observations on a co-primary basis with GSO FSS in the space-to-Earth direction, with GSO FSS downlinks subject to power flux density limits designed to protect other authorized spectrum users.\textsuperscript{51} Specifically, CORF states that any new use by ESIMs in these frequency bands should be mindful of the need to preserve the extensive existing scientific use of the 18.6–18.8 GHz (space-to-Earth) band.\textsuperscript{52} The Commission has previously concurred with this need,\textsuperscript{53} and no further action is appropriate because the 18.6–18.8 GHz band is not one of the additional frequency bands included in this proceeding.\textsuperscript{54} Boeing proposes to open the 19.4–19.6 GHz band to both GSO and NGSO FSS systems, including those operating with ESIMs, on a secondary basis with respect to feeder links to NGSO MSS space stations operating in these frequencies.\textsuperscript{55} Boeing argues that GSO and NGSO FSS systems are already permitted to operate below 19.4 GHz and above 19.6 GHz, so the reception of these transmissions by ESIMs will not alter the spectrum sharing conditions.\textsuperscript{56} We disagree. As Iridium accurately notes, the Ka-band plan and U.S. Table of Frequency Allocations prohibit any earth station—fixed, in motion, individually-licensed, or blanket-licensed—from communicating with an FSS space station in this frequency band.\textsuperscript{57} Further, Iridium points out that this proposal is beyond the scope of the current rulemaking and not associated with Iridium, and finds that this proceeding is not the appropriate forum to address Boeing’s proposal.
mobility services; 65 promote global spectrum harmonization, allow customers to take advantage of seamless connectivity; 66 increase investment in NGSO FSS capacity that can serve remote and rural areas and provide restoration if terrestrial networks are damaged due to natural disasters; 67 and ensure that antenna manufacturers are able to bring their antennas to the market quickly, enabling a faster return on their investment, and thus making the U.S. a desirable market in which to introduce innovative new equipment. 68 We agree with many of the public interest benefits expressed in the record of the proceeding and adopt the framework discussed in the NGSO ESIMs NPRM.

Ku- and Ka-Frequency Bands

11.7–12.2 GHz, 14.0–14.5 GHz, 18.3–18.6 GHz, 19.7–20.2 GHz, 28.35–28.6 GHz, and 29.5–30.0 GHz. —The Commission sought comment on allowing, to the extent feasible, ESIMs to communicate with NGSO FSS systems in the Ku- and Ka-bands where the Commission’s rules allow ESIM communications with GSO FSS space stations. The Commission proposed to allow ESIMs to communicate with NGSO FSS systems under the existing primary FSS allocation in the following six frequency bands: 11.7–12.2 GHz (space-to-Earth); 14.0–14.5 GHz (Earth-to-space); 18.3–18.6 GHz (space-to-Earth); 19.7–20.2 GHz (space-to-Earth); 28.35–28.6 GHz (Earth-to-space); and 29.5–30.0 GHz (Earth-to-space). 69 There are no allocations to terrestrial services in any of these bands. Under the Commission’s rules, NGSO FSS operations cannot cause interference to, or claim protection from, GSO FSS networks. 70 Accordingly, the Commission sought comment on adding new paragraphs to footnote NG527A of the Table of Frequency Allocations set forth at 47 CFR 2.106 to indicate that ESIMs can operate with NGSO FSS space stations in these six frequency bands.

We adopt the proposal to add a paragraph to footnote NG527A to specify that ESIMs may be authorized to communicate with NGSO FSS satellites in these six bands, with the exception of the 28.35–28.4 GHz band, under the existing primary FSS allocation. Many commenters agree that the Commission should adopt its proposal to allow ESIMs to communicate with NGSO FSS systems on a primary basis in these frequency bands. 71 For example, the ESIM Coalition supports adoption of the proposal to add a paragraph to footnote NG527A to indicate that ESIMs can operate with NGSO FSS satellites in these six frequency bands. 72 This will ensure that the part 25 rules accurately reflect the current NGSO-GSO sharing framework and extend this well accepted framework to NGSO FSS operations with ESIMs.

Some concerns, however, were recently raised about potential interference from out-of-band emissions of ESIMs in the 28.35–28.6 GHz band into the adjacent 27.5–28.35 GHz band used by UMFUS, generated by ESIM transmissions to NGSO FSS space stations in frequencies above 28.35 GHz. 73 Contrarily, others have argued that the Commission already considered and dismissed similar concerns when it authorized ESIMs to communicate with GSO satellites, and the authorization of ESIM communications with GSOs does not raise any new concerns. 74 Given these differences of opinion, we are initiating a Further Notice to further develop the record on these issues. As such, we will not permit ESIM operations with NGSO FSS space stations in the lowest 50 megahertz of the 28.35–28.6 GHz band (28.35–28.4 GHz), subject to further consideration. However, in the interest of avoiding delay in potential ESIMs operations in the remaining 200 megahertz of the 28.35–28.6 GHz band, we will permit the filing and processing of ESIMs applications for use of spectrum between 28.4–28.6 GHz, with any grants conditioned on compliance with any future determinations made in this proceeding. Based on the current record, we do not anticipate that ESIM operations above 28.4 GHz will have a significant out-of-band emissions impact on UMFUS operation below 28.35 GHz. 75 Additionally, should parties have concerns about specific applications for ESIM use, they can be addressed as part of the public comment review process for each ESIM application filed before the Commission. Before granting any of these applications, the possible need to require more stringent limits than those in § 25.202(i), even for ESIM operations with NGSO FSS space stations above 28.4 GHz, can be considered and addressed as appropriate.

Several commenters believe that the use of the term “primary” to describe the status of communications of ESIMs with NGSO FSS satellites in these six bands is potentially confusing because of the need of such communications to protect GSO FSS operations. 76 We clarify here and in the new paragraph (c) to footnote NG527A, that NGSO ESIM operations in these bands are on an unprotected, non-interference basis only with respect to GSO FSS operations. As Intelsat correctly states, we do not propose to elevate the NGSO protection status vis-à-vis GSO operations. 77 Rather, communications of ESIMs with NGSO FSS satellites is an application in the FSS, 78 which has a primary allocation in these bands. 79 The rules for communications of ESIMs with both NGSO and GSO satellites maintain the existing protection status offered to GSO operations vis-à-vis NGSO operations, which is articulated in the proposed revision to footnote NG527A. In other words, NGSO ESIM operations will be provided the same protections, and have the same obligations, as NGSO FSS already possesses. This includes the obligation for NGSO FSS to protect GSO FSS—including GSO FSS communications to ESIMs—in these frequency bands under part 25 of the Commission’s rules. 80

65 ESIM Coalition NPRM Comments at 2–3; Hughes NPRM Comments at 3.
66 See also SES and O3b NPRM Comments at 7.
67 Letter from Daudeline Meme, Verizon and US Cellular to Marlene H. Dortch, Secretary, Federal Communications Commission (filed Nov. 26, 2019).
68 Id. at 5.
69 Id. at 5.
70 ESIMs NGSO FSS NPRM, 33 FCC Rcd at 11419, para. 9. T-Mobile asks the Commission to clarify that its proposals in this proceeding will not expand use of ESIM operations in the 3.7–4.2 GHz band. T-Mobile NPRM Comments at 1–3. We so clarify here.
71 47 CFR 25.289.
72 ESIM Coalition NPRM Comments at 2–3; Hughes NPRM Comments at 3.
73 See also SES and O3b NPRM Comments at 7.
74 Letter from Suzanne Malloy, Vice President of Regulatory Affairs for SES Americom, Inc. and O3b Limited, Kimberly M. Baum Vice President Regulatory Affairs Hughes Network Systems, LLC, and EchoStar Satellite Services, L.L.C. to Marlene H. Dortch, Secretary, Federal Communications Commission (filed May 6, 2020) (Viasat May 6 Ex Parte Letter).
75 47 CFR 25.289 (stating that, unless provided otherwise, “an NGSO system licensee must not cause unacceptable interference to, or claim protection from, a GSO FSS . . . network”).
76 As per § 25.202(i), ESIM emissions will be attenuated by approximately 35 dB at 28.35 GHz.
77 ESIMS Coalition NPRM Comments at 2–3; Intelsat NPRM Reply Comments at 2.
78 Intelsat NPRM Reply Comments at 2.
79 See U.S. Table of Frequency Allocations, 47 CFR 2.106, n. NG527A.
80 Id.
Some commenters noted the Commission used the term “harmful interference” in some contexts and “unacceptable interference” in the NPRM. The specific obligation on NGSO FSS operations is that they do not cause unacceptable interference to GSO FSS networks. We believe that “unacceptable interference” is the appropriate term to use here. To the extent that “harmful interference” was used elsewhere in the ESIMs NGSO NPRM, we clarify that there was no intent to alter the “unacceptable interference” obligation.

18.8–19.3 GHz and 28.6–29.1 GHz.— The Commission proposed to allow ESIMs to communicate with NGSO FSS systems on a primary basis in the 18.8–19.3 GHz (space-to-Earth), and the 28.6–29.1 GHz (Earth-to-space) bands. In these bands, there are no terrestrial allocations, and GSO FSS operations are secondary with respect to NGSO FSS. Accordingly, the Commission sought comment on adding a new paragraph (e) to footnote NG527A to indicate that ESIMs can operate both with a GSO FSS space station and with NGSO FSS systems in these two frequency bands, but that GSO FSS operations in these bands must not cause unacceptable interference to, or claim protection from, NGSO FSS networks. We adopt this proposal.

Boeing and other commenters support this proposal. Boeing asserts that the Commission already appropriately treats ESIMs as a permitted application of FSS, employing the same frequency allocation and protection rights as FSS. Hughes, on the other hand, supports permitting NGSO ESIM operation in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) bands, not on a primary basis as the Commission proposes, but “with a status equal to that of any GSO operation that takes place in the frequency band.” Hughes notes that, to date, the Commission has authorized use of these bands by GSO FSS on a secondary basis with respect to communications between NGSO systems and fixed earth stations, and that Hughes has successfully entered into coordination agreements with several NGSO system operators to utilize these frequency bands in its GSO satellite networks, with the expectation that coordination would require analysis only of networks with fixed earth stations. According to Hughes, allowing NGSO ESIMs to operate on a primary basis would complicate the ability of GSO licensees to seek coordination agreements with NGSO systems that will allow these frequency bands to be used with maximum efficiency. Therefore, Hughes argues the Commission should permit all GSO operations and ESIM NGSO operations to have equal status, with each having secondary status with respect to fixed earth stations communicating with NGSO satellites in these frequency bands.

We agree with Boeing that Hughes’ proposal overreaches with respect to the appropriate regulatory treatment of ESIMs operating in the 18.8–19.3 GHz (space-to-Earth) and the 28.6–29.1 GHz (Earth-to-space) bands. As Hughes acknowledges, these frequency bands constitute one of the few FSS allocations where NGSO FSS systems have priority over GSO FSS networks. Nonetheless, Hughes urges the Commission to treat ESIM operations with NGSO FSS systems as co-equal with GSO FSS networks in this spectrum. As the Commission has stated, “limiting the primary designation in these frequency bands to NGSO FSS systems will give operators of these systems greater flexibility in the coordination discussions and ultimate deployment.” Further, we agree with Boeing that Hughes’ private agreements with certain NGSO FSS operators are immaterial to Commission policy regarding the rights of future NGSO FSS systems. Accordingly, we decline to lower the status of ESIMs.

94 *See Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, Hughes Network Systems, to Marlene H. Dortch, Secretary, Federal Communications Commission, 32 FCC Rcd No. 18–315, at 2 (Apr. 19, 2019).*
95 Hughes NPRM Reply Comments at 2.
96 Hughes NPRM Comments at 4.
97 Viasat NPRM Comments at 5.
99 Hughes NPRM Comments at 4.
100 CORF also notes that increased usage of the adjacent bands may degrade this band if out-of-band emissions are not severely curtailed.
101 CORF raised similar arguments against operation in these bands in the context of ESIM operation with GSO FSS satellites. As we noted in addressing their arguments there, CORF’s concerns are not with ESIMs, which solely communicate with NGSO FSS satellites below that of other earth stations communicating with NGSO FSS satellites.

Viasat argues that the Commission must ensure that any primary NGSO ESIM operations that may be allowed in the 18.8–19.3 GHz (space-to-Earth) and 28.6–29.1 GHz (Earth-to-space) bands do not impact GSO operations outside of the United States, where GSO and NGSO systems are co-primary and are subject to ITU coordination requirements. Similarly, Hughes requests that the Commission clarify that while GSO operations are secondary to NGSO operations in the United States in these frequency bands, the services are co-primary outside the United States. As has been the Commission’s policy in other situations involving operations outside the United States, ESIM operations in a NGSO FSS system licensed by the United States will: (i) Have higher status than operations in a GSO FSS satellite network licensed by the United States anywhere in the world; (ii) have higher status than operations in a GSO FSS satellite network that holds a grant to access the U.S. market only for communications to or from the U.S. territory; and (iii) be co-primary with a GSO FSS satellite network in all other cases.

In addition, CORF raises concerns regarding the Earth exploration-satellite service co-primary allocation at 18.6–18.8 GHz (space-to-Earth). Specifically, CORF is concerned that NGSO ESIM operations in 18.3–18.6 GHz (space-to-Earth) and 18.8–19.3 GHz (space-to-Earth) may contaminate Earth exploration-satellite service observations, as radio interference from moving targets is even more difficult to flag and remove than interference from fixed stations. CORF also notes that increased usage of the adjacent bands may degrade this band if out-of-band emissions are not severely curtailed. CORF raised similar arguments against operation in these bands in the context of ESIM operation with GSO FSS satellites. As we noted in addressing their arguments there, CORF’s concerns are not with ESIMs, which solely communicate in the frequency bands that CORF identified as being of concern, but rather with the space-to-Earth...
transmissions of NGSO satellites, which are not the subject of this rulemaking. Therefore, as before, we note that the Commission’s rules already impose specific limits on out of band emissions. Kymeta argues for even further streamlining than the Commission has proposed. For example, in the case of existing licensees seeking to operate with NGSO satellite systems on a primary basis in the 28.6–29.1 GHz (Earth-to-space) band, Kymeta states that no additional technical information should be required. Further, Kymeta requests the Commission to find that for existing licensees seeking to operate with NGSO satellite systems on a primary or secondary basis in all other authorized Ku-band and Ka-band frequencies, the only additional technical showing required would be a demonstration that the ESIM complies with the equivalent power flux density up limits referenced in §25.289. While other commenters do not oppose Kymeta’s proposals as a general matter, commenters disagree about the specific technical showing that should be required. We note that such proposals are well beyond the current rulemaking. Moreover, any showing of the kind proposed by Kymeta would be more appropriately provided by the licensee of the NGSO FSS system since equivalent power flux density limits refer to the aggregate of all emissions within the system. We therefore decline to adopt Kymeta’s proposals at this time.

10.7–11.7 GHz.—The Commission sought comment on allowing ESIMs to receive signals from NGSO FSS space stations in the 10.7–11.7 GHz (space-to-Earth) band, on an unprotected basis, with respect to transmissions from non-Federal fixed service stations. FSS and fixed service are co-primary in these frequency bands, and receive terrestrial stations are protected by existing power flux density limits on space station transmissions. Accordingly, the Commission sought comment on revising paragraph (a) of footnote NG527A to indicate that ESIMs can operate with NGSO FSS systems on an unprotected basis with regard to non-Federal fixed service in this frequency band. Many commenters support this proposal. Also, in this frequency band, NGSO FSS operations must not cause unacceptable interference to, or claim protection from, GSO FSS networks. Boeing states that the downlink transmissions from NGSO FSS satellites to ESIMs will be indistinguishable from existing NGSO FSS downlink transmissions. We agree with Boeing and find that the operation of ESIMs in this band will be indistinguishable from other NGSO FSS operations. Because the mechanisms the Commission already has in place to protect GSO FSS networks from NGSO FSS will also provide protection against NGSO FSS operations, we adopt the revisions proposed to paragraph (a) of footnote NG527A, which will allow ESIMs to operate on an unprotected basis with regard to non-Federal fixed service in this frequency band.

CORF asserts that there is a significant risk of interference to radio astronomy observations from downlinks in the 10.7–11.7 GHz band. We agree that protection of these services is important but find that existing protections are sufficient to guard against interference to radio astronomy operations. CORF suggests that the primary allocation of Earth exploration-satellite service in the 10.68–10.70 GHz portion of the frequency band either through use of a guard band of 25 megahertz, so that the lowest frequency of this ESIM downlink would be 10.725 GHz, or through use of a more stringent out-of-band emission standard for ESIM downlinks to protect Earth exploration-satellite service observations in the 10.66–10.70 GHz band. As CORF notes, however, radio astronomy service observations in the 10.6–10.7 GHz band are already entitled to protection under the Commission’s rules, as established by footnote 25.289. Commenters here again raise the issue of the use of the term “unacceptable interference” versus “harmful interference” in the NPRM. See, e.g., SES and Dbl NPRM Comments at 8. This issue is addressed at paragraph 30, supra. Boeing NPRM Comments at 8.

Consistent with our decision in paragraph 8 above, we revise footnote NG527A to allow ESIMs to communicate with NGSO satellites, subject to the conditions that ESIMs may not claim protection from transmissions from non-Federal fixed service stations and that NGSO systems may not cause unacceptable interference to, or claim protection from, GSO FSS networks. See Appendix B, NG527A.

CORF NPRM Comments at 8. Id. at 9–10.

As we note in fn 27, CORF mentions 10.6–11.7 GHz on page 7 of its FNPRM Comments. However, it is clear from the context that their intention was to reference the 10.6–10.7 GHz band which has a primary allocation to the Radio Astronomy Services. 47 CFR 2.106.

Id. In the 10.68–10.70 GHz portion of the frequency band, radio astronomy service has a primary allocation and is protected domestically by footnote US246, and by RR No. 5.340 worldwide. Pursuant to US246, “no station shall be authorized to transmit” at 10.66–10.7 GHz, and pursuant to RR US74, which states that “the radio astronomy service shall be protected from unwanted emissions only to the extent that such radiation exceeds the level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates.” Since our actions today do not change this balance that the rules strike, and since the question of modifying the current protection of radio astronomy observation is part of an ongoing Commission proceeding regarding out-of-band emissions, the appropriate forum to address these requests is that proceeding. Accordingly, we decline to address those requests here. CORF also asks the Commission to include a requirement for NGSO operators transmitting in the 10.7–11.7 GHz band to coordinate with radio astronomy observatories; however, as CORF acknowledges, such a requirement is already included in footnote US131.

17.6–18.3 GHz.—The Commission sought comment on allowing ESIMs to receive signals from NGSO FSS systems on a secondary basis in the 17.6–18.3 GHz (space-to-Earth) band. This frequency band is allocated to the fixed service on a primary basis and, given the FSS secondary status, ESIM receive earth stations are not entitled to protection. Protection of terrestrial operations in this band will be ensured by imposing on space station transmissions the appropriate power flux density limits. Accordingly, the Commission sought comment on adding a paragraph to footnote NG527A to indicate that ESIMs can operate on a secondary basis with regard to non-Federal fixed service in this frequency band, both with NGSO FSS space station and with NGSO FSS systems.

The ESIM Coalition and other commenters support the proposal to allow ESIMs to receive signals from

5.340, “[a]ll emissions are prohibited” at 10.66–10.7 GHz. See 47 CFR 2.106, US246. Similarly, in footnote US211, applicants for airborne or space station assignments at, among other frequency bands, 10.7–11.7 GHz, are urged to take all practicable steps to protect radio astronomy observations in the adjacent bands from harmful interference. 47 CFR 2.106, US211; see also 47 CFR 2.106, US131 (requiring prior coordination with specific radio astronomy service sites).
NGSO FSS space stations on a secondary basis in the 17.8–18.3 GHz (space-to-Earth) band, and no commenter opposed this proposal.\(^{120}\) As the Commission explained in the NGSO ESIMs NPRM,\(^{121}\) NGSO ESIMs can ensure adequate protection of terrestrial operations via compliance with the existing International Telecommunication Union power flux density limits, currently codified in the Commission’s rules.\(^{122}\) Accordingly, we adopted the proposed addition of paragraph (d) to footnote NG527A.

The Commission sought comment on allowing ESIMs to receive signals from NGSO FSS space stations in the 19.3–19.4 GHz and 19.6–19.7 GHz bands, on an unprotected basis, with respect to transmissions from non-Federal fixed service stations. FSS and fixed service are co-primary in these frequency bands, and receive terrestrial stations are protected by imposing the appropriate power flux density limits on space station transmissions.\(^{123}\) In addition, NGSO FSS operations must not cause unacceptable interference to, or claim protection from, GSO FSS networks.\(^{124}\) Accordingly, the Commission sought comment on revising footnote NG527A to indicate that ESIMs can operate with NGSO FSS systems in these two frequency bands on an unprotected basis with regard to non-Federal fixed service. The Commission also proposed revisions to footnote NG527A to indicate that ESIMs can operate with NGSO FSS systems in these two bands, provided that NGSO FSS operations not cause unacceptable interference to, or claim protection from, GSO FSS satellite networks.\(^{125}\) Commenters support all of these proposals and raise no concerns.\(^{126}\)

Accordingly, we further revise paragraph (a) of footnote NG527(A) to state that NGSO ESIM operations in the 19.3–19.4 GHz and 19.6–19.7 GHz (space-to-Earth) bands may be authorized on an unprotected basis with respect to fixed service and NGSO FSS systems operating with ESIMs may be authorized on an unprotected, non-interference basis with respect to GSO FSS satellite networks.\(^{127}\)

### Additional Frequency Bands

Several parties filed comments requesting that we consider including frequency bands that were not proposed in the NGSO ESIMs NPRM. Boeing states that the Commission should permit GSO and NGSO ESIMs in every frequency band that is allocated for use by FSS.\(^{128}\) SES encourages the Commission to consider NGSO ESIMs matters as part of any future proceeding developing service rules for “V-band” FSS in the 37.5–52.4 GHz range of frequencies.\(^{129}\) Other commenters ask that the Commission authorize NGSO systems to support ESIMs in additional space-to-Earth frequency bands including 12.2–12.7 GHz, and throughout the V-band.\(^{130}\) While some other parties join these proposals, other commenters oppose them.\(^{131}\) For example, Iridium strongly objects to proposals to include the 19.4–19.6 GHz and the 29.1–29.5 GHz bands, arguing that these bands are beyond the scope of this proceeding.\(^{132}\) MDS Operations argues that allowing NGSO ESIM links in the 12.2–12.7 GHz band would create insurmountable coordination challenges for incumbent licensees.\(^{133}\) The MVDDS 5G Coalition concurs.\(^{134}\) Specifically, they assert that ensuring that the 12.2–12.7 GHz band remains free of ESIMs communications with NGSO FSS satellites would protect in-band terrestrial services and preserve the possibility of future two-way mobile 5G services.\(^{135}\) CTIA asserts that permitting ESIM operations in the UMFUS bands would be inconsistent with the carefully calibrated framework the Commission adopted in the Spectrum Frontiers proceeding,\(^{136}\) which allows for limited siting of new earth stations under very specific rules.\(^{137}\)

These additional frequency bands were not included in this proceeding, and the record is insufficient for us to consider use of these bands for ESIMs communications with NGSO FSS satellites. Moreover, allowing ESIMs to transmit in the UMFUS bands would be inconsistent with the Commission’s decisions adopted in the Spectrum Frontiers proceeding. Accordingly, we decline to include these additional frequency bands in the rules adopted in this proceeding.

### Blanket Licensing

In the NGSO ESIMs NPRM, the Commission proposed extending blanket licensing for communications of ESIMs with NGSO FSS systems since such licensing would be limited to frequency bands in which NGSO FSS systems have a primary status or have been found to be able to operate on a secondary or non-conforming basis without causing interference to primary users of those bands. The Commission sought comment on extending blanket licensing to ESIMs operating with NGSO FSS space stations in all the frequency bands being proposed here for ESIM NGSO operation.

Commenters were uniformly supportive of blanket licensing.\(^{138}\) Commenters argue that blanket licensing would be more efficient than individually licensing ESIM terminals,\(^{139}\) and that individual licensing is only necessary to facilitate site-by-site coordination, which is not needed for terminals in-motion, which employ technical means to operate on a shared basis with other spectrum users.\(^{140}\) In the past, the Commission has granted blanket licenses to ESIMs communicating with GSO FSS satellites for each specific type of ESIM—Earth Stations on Vessels, Vehicle-Mounted Earth Stations, and Earth Stations Aboard Aircraft—concluding that

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\(^{120}\) Boeing NPRM Comments at 10; ESIM Coalition NPRM Comments at 4; SES and O3b NPRM Comments at 8; Viasat Comments at 4.  
\(^{121}\) ESIMs NGSO NPRM, at para. 13.  
\(^{122}\) ESIM Coalition NPRM Comments at 4; see also 47 CFR 25.146(a)(1).  
\(^{123}\) 47 CFR 25.146(a)(1).  
\(^{124}\) 47 CFR 25.289.  
\(^{125}\) ESIMs NGSO NPRM, 33 FCC Rcd at 11420, para. 12.  
\(^{126}\) Boeing NPRM Comments at 8; ESIM Coalition NPRM Comments at 4; OneWeb NPRM Comments at 10; SES and O3b NPRM Comments at 8; Viasat NPRM Comments at 4.  
\(^{127}\) See Appendix B, NG527A.  
\(^{128}\) Boeing FNPRM Comments at 1.  
\(^{129}\) SES and O3b NPRM Comments at 9; SES and O3b NPRM Reply Comments at 6–7.  
\(^{130}\) Boeing NPRM Reply Comments at 1; Viasat NPRM Comments at 3; WorldVu NPRM Comments at i–ii, 3–7; WorldVu NPRM Reply Comments at 1–3.  
\(^{131}\) MDS Operations support the Commission’s proposal to exclude the 12 GHz MVDDS band from the bands in which ESIMs may communicate with NGSOs. MDS Operations NPRM Reply Comments at 2. MDS Operations asserts that allocation for ESIM use in the 12 GHz band would stymie investment and innovation for MVDDS use.  
\(^{132}\) See generally MDS NPRM Reply Comments.  
\(^{133}\) MVDDS 5G Coalition NPRM Reply Comments at 1–4.  
\(^{134}\) Id. at 1.  
\(^{136}\) Letter from Jennifer L. Oberhausen, Director, Regulatory Affairs, CTIA to Marlene H. Dortch, Secretary, Federal Communications Commission (filed May 1, 2020) (CTIA May 1 Ex Parte Letter).  
\(^{137}\) Letter from Dr. Jennifer L. Oberhausen, Director, Regulatory Affairs, CTIA to Marlene H. Dortch, Secretary, Federal Communications Commission (filed May 6, 2020) (CTIA May 6 Ex Parte Letter).  
\(^{138}\) ESIM Coalition NPRM Comments at 5; Kymeta NPRM Comments at 2–3; SES and O3b NPRM Comments at 10; WorldVu NPRM Comments at 10–11; Boeing NPRM Comments at 12–13.  
\(^{139}\) ESIM Coalition NPRM Comments at 5; Kymeta NPRM Comments at 2–3.
Implementing Rule Revisions

In the paragraphs below, we address other changes to our rules, in addition to those discussed above in connection with the frequency bands being proposed for NGSO FSS ESIM operation. The Commission sought comment on these changes, and on any other revisions necessary to implement the ESIM NGSO FSS operations described here.

Section 25.202. The Commission sought comment on amending the list of frequencies available to ESIMs in §25.202(a)(8), (a)(10), and (a)(11) to reflect changes made in this Report and Order to frequency bands in which ESIMs can communicate with NGSO FSS satellites. Other than the objections to the 28.35–28.6 GHz band discussed above, there were no objections to this change, and we amend §25.202, with the exception of 28.35–28.4 GHz, also taking into account the additional frequencies made available for ESIM operation with GSO FSS satellites, as specified in section III.A of this Report and Order.

Section 25.115. The Commission sought comment on changes to extend the rules adopted for NGSO FSS ESIMs to NGSO FSS ESIMs, with the appropriate conforming technical changes. Specifically, comment was sought on excluding NGSO ESIMs from rules that pertain to “two-degree spacing” for GSO FSS space stations. Comment was also sought on adding a new paragraph (o) to §25.115 to codify these requirements for ESIMs that communicate with NGSO FSS space stations. The Commission also sought comment on changing the cross-references contained in the information requirements for earth station applications set forth in §25.115 for earth stations communicating with GSO and NGSO FSS space stations. All commenters who addressed this issue support this approach and agree that the rules should exclude NGSO ESIMs from the application of off-axis Equivalent Isotropically Radiated Power (EIRP) density requirements for two-degree spaced GSO FSS earth stations. We adopt these conforming revisions with a small modification to take into account that §25.115(e)(2) is limited to GSO FSS earth stations.

Finally, the Commission’s Ka-band Plan has a secondary designation for ESIM operations in the 29.5–30.0 GHz band, as described in the NGSO FSS Order.

The licensing provisions in §25.115(f) adopted in the NGSO FSS Order, however, inadvertently omitted the 29.5–30.0 GHz band. In the NGSO ESIMS NPRM, the Commission proposed to correct this omission and to extend the provisions of §25.115(f) to the 29.5–30.0 GHz band. Commenters did not address this specific point. We adopt the revision to correct the omission consistent with the Ka-band Plan as previously adopted by the Commission.

The Commission released an Erratum on December 28, 2018 to correct the ESIM NGSO FSS NPRM which initially suggested revisions to, rather than removal of, §25.202(a)(11). See Erratum to the ESIM NGSO FSS NPRM.


Sections 25.115(l)(i)–(vi) contain requirements in paragraphs (1), (2), and (3)(i) that pertain to the two-degree spacing rules for ESIMs communicating with GSO FSS space stations, which are not applicable to NGSO systems. The requirements in paragraphs (3)(ii)(i)–(iv) of this section, however, are also appropriate for ESIMs operating in NGSO FSS systems.

ESIMs NGSO NPRM; 33 FCC Rcd at 11421, para. 18.

For a list of agencies and contact persons, see ESIM Coalition NPRM Comments at 5–6; Viastar NPRM Comments at 6.

ESIMs NGSO FSS NPRM, 33 FCC Rcd at 11422, paras. 23. No comments were received.

The procedures to govern the use of satellites that aim to balance competing interests in a manner consistent with the purposes of the regulations.

The procedures to govern the use of satellites that are intended to balance competing interests in a manner consistent with the purposes of the regulations.

The procedures to govern the use of satellites that are intended to balance competing interests in a manner consistent with the purposes of the regulations.
network control and monitoring center requirements for NGSO FSS ESIMs. We agree with these concerns. Therefore, we adopt modified language to ensure that GSO and NGSO FSS ESIM operators comply with the same general monitoring and control requirements, and limit applicability to GSO ESIMs only for § 25.228(a).

Specifically, to confirm the applicability of §§ 25.228(b) and 25.228(c) to both GSO and NGSO FSS ESIMs, we do not include the word “GSO” in the initial sentence, and include clauses specifically applicable to GSO and NGSO in the remaining text of the rule.156 We agree with commenters that there should be parity between the GSO and NGSO ESIM self-monitoring and network monitoring and control requirements.157 We also agree with commenters that self-monitoring and network monitoring and control requirements are necessary to ensure operations are in accordance with the Commission’s rules and licensing conditions.158 Relatedly, we note that the adoption of the § 25.228 rules in the GSO ESIMs Report & Order and FNPRM inadvertently created an inconsistency with regard to network control and monitoring centers for Earth Stations on Vessels.159 Specifically, in that decision, the Commission adopted § 25.228(e)(1) which states, in part, that Earth Stations on Vessels operators must control Earth Stations on Vessels by a network control and monitoring center or equivalent facility located in the United States.160 Kepler argues that further clarification may be required on how various systems should operate their ESIMs, and in particular notes that a satellite network need not be controlled in “real-time” from a network control and monitoring center, but may instead rely either on Artificial Intelligence ("AI") or predetermined rules in order to mitigate interference as it relates to aggregate EIRP.161 Kepler further asserts that while this does not preclude the requirement for a network control and monitoring center, it should be clarified that operations without bent-pipe architecture may implement alternate safety measures, and could use the satellite itself as an “equivalent facility.”162 Although we agree that technology may evolve to such a point in the future, we find that such a discussion is beyond the scope of this ruling.

Paragraph (j) of § 25.228 is explicitly limited to ESIMs transmitting to GSO FSS satellites, and the Commission sought comment on revising the language of the rule to apply to Ku-band ESIMs communicating with NGSO FSS space stations as well.163 Additionally, in the 14.0–14.2 GHz (Earth-to-space) band, there is a secondary allocation to the Space Research service. In order to ensure compatibility with Space Research operations, the Commission sought comment on modifying § 25.228(b)(1) to eliminate cross-references to § 25.223, systems conditions that currently apply to ESIM operation with GSO FSS space stations.164 CORF asserts that since radio astronomy observatories are just as vulnerable to interference from NGSO uplinks as from GSO uplinks, the Commission should modify the text of § 25.228(f) to apply the same coordination requirement to NGSO operators.165 ViaSat agrees with the Commission and CORF that such a requirement would be reasonable.166 We adopt the revision.

Section 25.103. Consistent with these changes, the Commission proposed to amend the definitions of Earth Stations on Vessels, Vehicle-Mounted Earth Stations, and Earth Stations Aboard Aircraft in § 25.103, which restrict communications to “geostationary-orbit FSS space stations.”167 Pursuant to what was described above, Earth Stations on Vessels, Vehicle-Mounted Earth Stations, and Earth Stations Aboard Aircraft would also be permitted to operate in NGSO FSS systems. Accordingly, the Commission sought comment on removing the word “geostationary-orbit” from these definitions. No commenters objected to this change, and we adopt it herein. Additional conforming changes. Pursuant to changes to part 25 of the Commission’s rules in another proceeding,170 we take this opportunity to eliminate cross-references to § 25.223, which has been removed and reserved. Specifically, we delete the cross references in §§ 25.103, Routine processing or licensing, 25.115(g)(1)(vii), and 25.209(l).171 Further, we add text in § 25.218(a) and (j) to incorporate the 24.75–25.25 GHz band that had been included in the now reserved § 25.138.172 Additionally, we take this opportunity to harmonize the language of the revisions to § 25.115(l)(3)(i)–(n)(3)(i) adopted in the GSO ESIMs Report & Order and FNPRM with the text of that decision.173 Specifically, in the GSO ESIMs Report & Order and FNPRM, we stated that § 25.115(l)(3)(i)–(n)(3)(i) would require all applicants to “provide a certification that the ESIM system is capable of detecting and automatically ceasing emissions when an individual ESIM transmitter exceeds the relevant off-axis EIRP spectral density limits specified in § 25.218, or the limits provided to the target satellite operator for operation under § 25.220.” However, in the text of the rules, we

156 See § 25.228(b) and (c) in Appendix B of the Report and Order.
157 ESIM Coalition NPRM Comments at 5–6; Eutelsat NPRM Comments at 2; SES NPRM Reply Comments at 1; WorldVu NPRM Reply Comments at 3; Kepler Comment at 1.
158 Intelsat NPRM Reply Comments at 3.
159 GSO ESIM Report & Order, 33 FCC Rcd at Appendix B.
160 See 47 CFR 25.228(c) and (e).
162 See Appendix B (setting forth amendments adopted herein to 47 CFR 25.228(e)) (emphasis added). Because this change is editorial and non-substantive, we find good cause to conclude that notice and comment are unnecessary for its adoption. See 5 U.S.C. 553(b)(B).
163 Kepler Comment at 3.
164 See also Kepler NPRM Comments at 2.
165 ESIMs NGSO NPRM, 33 FCC Rcd at 11421, para. 19.
166 Id. at 11419, para. 9.
167 CORF NPRM Comments at 11.
168 ViaSat NPRM Reply Comments at 7–8.
169 ESIMs NGSO NPRM, 33 FCC Rcd at 11421, para. 20; 47 CFR 25.103.
171 Because these changes are editorial and non-substantive, we find good cause to conclude that notice and comment are unnecessary for their adoption. See 5 U.S.C. 553(b)(B).
172 In the Spectrum Frontiers Third Report and Order, the Commission amended § 25.138 of the Commission’s rules to include the 24.75–25.25 GHz band vis-à-vis GSO FSS earth station licensing requirements. 33 FCC Rcd 5576. Based on the timing of rules becoming effective, that section was brought the adopted edits into the appropriate rule section is a simple ministerial update. As such, we find good cause to conclude that notice and comment are unnecessary for their inclusion. See 5 U.S.C. 553(b)(B).
173 GSO ESIMs Report & Order and FNPRM, 33 FCC Rcd at 9351, para. 75.
174 Id. (emphasis added).
stated that an application would need to certify that “an individual ESIM transmitter” meets these requirements. The revisions here conform the text of the rule to the language of the Order regarding “systems,” and therefore they are editorial and non-substantive changes.

**Final Regulatory Flexibility Analysis.**

Pursuant to the Regulatory Flexibility Act of 1980, as amended, 5 U.S.C. 601 et seq. (RFA), the Commission’s Final Regulatory Flexibility Analysis (FRFA) on the possible significant economic impact on small entities of the policies and rules was addressed in this Second Report and Order in IB Docket No. 17–95 and Report and Order in IB Docket No. 18–315. The Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this Second Report and Order in IB Docket No. 17–95 and Report and Order in IB Docket 18–315, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).

**Paperwork Reduction Act.**

This document does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104–13. In addition, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107–198, see 44 U.S.C. 3506(c)(4).

**Congressional Review Act.**

The Commission has determined, and the Administrator of the Office of

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176 See Appendix B, Final Rules.


**Ordering Clauses.**

It is Ordered, pursuant to sections 4(i), 7(a), 303, 308(b), and 316 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 157(a), 303, 308(b), 316, that this Second Report and Order in IB Docket No. 17–95 and Report and Order in IB Docket No. 18–315 Is Adopted, the policies, rules, and requirements discussed herein Are Adopted, and parts 2 and 25 of the Commission’s rules Are Amended as set forth in Appendix B.

It is Further Ordered that the rules and requirements adopted in the Second Report and Order in IB Docket No. 17–95 and Report and Order in IB Docket No. 18–315 Will Become Effective 30 days from the date of publication in the Federal Register.

It is Further Ordered that the Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, Shall Send a copy of this Second Report and Order in IB Docket No. 17–95 and Report and Order in IB Docket No. 18–315 Will Become Effective 30 days from the date of publication in the Federal Register.

**List of Subjects**

47 CFR Part 2

Radio, Table of frequency allocations.

47 CFR Part 25


Marlene Dortch, Secretary.

**Final Rules.**

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2 and 25 as follows:

**PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

   Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

   a. Pages 52 and 53 are revised.

   b. In the list of Non-Federal Government (NG) footnotes, footnote NG527A is revised.

The revisions and additions read as follows:

**§2.106 Table of Frequency Allocations.**

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3. The authority citation for part 25 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302, 303, 307, 309, 310, 319, 332, 605, and 721, unless otherwise noted.

4. Amend § 25.103 by revising the definitions of “Earth Station on Vessel,” “Earth Stations Aboard Aircraft,” “Routine processing or licensing,” and “Vehicle-Mounted Earth Station” to read as follows:

§ 25.103 Definitions.
* * * * *

Earth Station Aboard Aircraft (ESAA). An earth station operating aboard an aircraft that receives from and transmits to Fixed-Satellite Service space stations.

Earth Station on Vessel (ESV). An earth station onboard a craft designed for traveling on water, receiving from and transmitting to Fixed-Satellite Service space stations.

Routine processing or licensing. Expedited processing of unopposed applications for earth stations in the FSS communicating with GSO space stations that satisfy the criteria in § 25.211(d), § 25.212(c) through (f), or § 25.218, including all required information, are consistent with all Commission rules, and do not raise any policy issues. Some, but not all, routine earth station applications are eligible for an expeditious procedure under § 25.115(a)(3).

Vehicle-Mounted Earth Station (VMES). An earth station, operating from a motorized vehicle that travels primarily on land, that receives from and transmits to Fixed-Satellite Service space stations and operates within the United States.

4. Amend § 25.115 by revising paragraphs (f), (g)(1)(vii), (l)(3)(i), (m)(3), and (n)(3)(l), and adding paragraph (o) to read as follows:

§ 25.115 Applications for earth station authorizations.
* * * * *

(f) NGSO FSS earth stations in 10.7–30.0 GHz. (1) An application for an NGSO FSS earth station license in the 10.7–30.0 GHz band must include the certification described in § 25.146(a)(2).

(2) Individual or blanket license applications may be filed for operation in the 10.7–12.7 GHz, 14–14.5 GHz, 17.8–18.6 GHz, 18.8–19.4 GHz, 19.6–20.2 GHz, 28.35–29.1 GHz, or 29.5–30.0 GHz bands; however, ESIMs cannot operate in the 28.35–28.4 GHz band and blanket licensing in the 19.6–19.7 GHz, 17.8–18.3 GHz, 19.3–19.4 GHz, and 19.6–19.7 GHz bands is on an unprotected basis with respect to current and future systems operating in the fixed service.

(3) Individual license applications only may be filed for operation in the 12.75–13.15 GHz, 13.2125–13.25 GHz, 13.75–14 GHz, or 27.5–28.35 GHz bands.

(g) * * *

(1) * * *

(vii) The relevant off-axis EIRP density envelopes in § 25.218 must be superimposed on plots submitted pursuant to paragraphs (g)(1)(i) through (vi) of this section.

* * * * *

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. ESIM applicants that do not meet the relevant off-axis EIRP density mask must provide a detailed showing that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if receiving a command to do so from the system’s network control and monitoring center, if the aggregate off axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

* * * * *

(m) * * *

(3) * * *

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if receiving a command to do so from the system’s network control and monitoring center, if the aggregate off axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

* * * * *

(n) * * *

(3) * * *

(i) ESIM applicants that meet the relevant off-axis EIRP density mask must certify that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits.
density limits. ESIM applicants that do not meet the relevant off-axis EIRP density mask must provide a detailed showing that an ESIM system is self-monitoring and capable of automatically ceasing or reducing emissions within 100 milliseconds if the ESIM transmitter exceeds the relevant off-axis EIRP density limits. Variable-power ESIM applicants must certify that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command to do so from the system’s network control and monitoring center, if the aggregate off-axis EIRP densities of the transmitter or transmitters exceed the relevant off-axis EIRP density limits.

* * * * *

(o) The requirements in this paragraph apply to applications for ESIMs operation with NGSO satellites in the Fixed-Satellite Service, in addition to the requirements in paragraphs (a)(1), (a)(5), and (i) of this section:

(1) An exhibit describing the geographic area(s) in which the ESIMs will operate and the location of hub and/or gateway stations.

(2) The point of contact information referred to in §25.226(e)(2), (f), or (g)(1) as appropriate.

(3) Applicants for ESIMs that will exceed the guidelines in §1.1310 of this chapter for radio frequency radiation exposure must provide, with their environmental assessment, a plan for mitigation of radiation exposure to the extent required to meet those guidelines.

* * * * *

5. Amend §25.202 by revising paragraph (a)(8), adding paragraphs (a)(10)(i) and (ii) and by removing and reserving paragraph (a)(11) as follows:

§25.202 Frequencies, frequency tolerance, and emission limits.

(a) * * * *(8) The following frequencies are available for use by Earth Stations on Vessels (ESVs) communicating with GSO FSS space stations, subject to the provisions in §2.106 of this chapter:

3700–4200 MHz (space-to-Earth)
5925–6425 MHz (Earth-to-space)

* * * * *

(10) * * * *(i) The following frequencies are available for use by Earth Stations in Motion (ESIMs) communicating with GSO FSS space stations, subject to the provisions in §2.106 of this chapter:

10.7–11.7 GHz (space-to-Earth)
11.7–12.2 GHz (space-to-Earth)
14.0–14.5 GHz (Earth-to-space)
17.8–18.3 GHz (space-to-Earth)

18.3–18.8 GHz (space-to-Earth)
18.8–19.3 GHz (space-to-Earth)
19.3–19.4 GHz (space-to-Earth)
19.6–19.7 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.35–28.6 GHz (Earth-to-space)
28.6–29.1 GHz (Earth-to-space)
29.25–30.0 GHz (Earth-to-space)

14.0–14.5 GHz (Earth-to-space)
19.3–19.4 GHz (space-to-Earth)
19.6–19.7 GHz (space-to-Earth)
19.7–20.2 GHz (space-to-Earth)
28.4–28.6 GHz (Earth-to-space)
28.6–29.1 GHz (Earth-to-space)
29.5–30.0 GHz (Earth-to-space)

* * * * *

8. Amend §25.228 by revising paragraphs (a), (b), (c), (e)(1), and paragraph (j) introductory text to read as follows:

§25.228 Operating and coordination requirements for earth stations in motion (ESIMs).

(a) GSO FSS ESIM transmissions must comply with the applicable EIRP density limits in §2.218, unless coordinated pursuant to the requirements in §25.220.

(b) Each FSS ESIM must be self-monitoring, and should a condition occur that would cause the ESIMs to exceed its authorized off-axis EIRP density limits in the case of GSO FSS ESIMs or any emission limits included in the licensing conditions in the case of NGSO FSS ESIMs, the ESIM must automatically cease transmissions within 100 milliseconds, and not resume transmissions until the condition that caused the ESIM to exceed those limits is corrected.

(c) Each FSS ESIM must be monitored and controlled by a network control and monitoring center (NCMC) or equivalent facility. Each ESIM must comply with a “disable transmission” command from the NCMC within 100 milliseconds of receiving the command. In addition, the NCMC must monitor the operation of each ESIM in its network, and transmit a “disable transmission” command to any ESIM that operates in such a way as to exceed the authorized off-axis EIRP density limit for GSO FSS ESIMs or any emission limits included in the licensing conditions in the case of NGSO FSS ESIMs. The NCMC must not allow the ESIM(s) under its control to resume transmissions until the condition that caused the ESIM(s) to exceed the authorized EIRP density limits is corrected.

(e) The following frequencies are available for use by Earth Stations on Vessels (ESVs) by a NCMC or equivalent facility located in the United States, except that an ESV on a U.S.-registered vessel may operate under control of a NCMC located outside the United States.

25.218 Off-axis EIRP density envelopes for FSS earth stations transmitting in certain frequency bands.

(a) This section applies to applications for fixed and temporary-fixed FSS earth stations transmitting to geostationary space stations in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, conventional Ka-band, or 24.75–25.25 GHz and applications for ESIMs transmitting in the conventional C-band, conventional Ku-band, or conventional Ka-band, except for applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signal with bandwidths greater than 200 kHz.

* * * * *

(j) Applications for authority for fixed earth station operation in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, conventional Ka-band, or 24.75–25.25 GHz that do not qualify for routine processing under relevant criteria in this section, §25.211, or §25.212 are subject to the requirements in §25.220.

§25.209 Earth station antenna performance standards.

(f) A GSO FSS earth station with an antenna that does not conform to the applicable standards in paragraphs (a) and (b) of this section will be authorized only if the applicant demonstrates that the antenna will not cause unacceptable interference. This demonstration must show that the transmissions of the earth station comport with the requirements in §25.218 or the applicant must demonstrate that the operations of the earth station have been coordinated under §25.220.

* * * * *

7. Amend §25.218 by revising paragraphs (a) and (j) to read as follows:

§25.218 Off-axis EIRP density envelopes for FSS earth stations transmitting in certain frequency bands.

(a) This section applies to applications for fixed and temporary-fixed FSS earth stations transmitting to geostationary space stations in the conventional C-band, extended C-band, conventional Ku-band, extended Ku-band, conventional Ka-band, or 24.75–25.25 GHz and applications for ESIMs transmitting in the conventional C-band, conventional Ku-band, or conventional Ka-band, except for applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signal with bandwidths greater than 200 kHz.

* * * * *

(e) The following frequencies are available for use by Earth Stations on Vessels (ESVs) by a NCMC or equivalent facility located in the United States, except that an ESV on a U.S.-registered vessel may operate under control of a NCMC located outside the United States.
provided the ESV operator maintains a point of contact within the United States that will have the capability and authority to cause an ESV on a U.S.-registered vessel to cease transmitting if necessary.

(j) The following requirements govern all ESIMs transmitting to GSO or NGSO satellites in the Fixed-Satellite Service in the 14.0–14.5 GHz band.