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

In the Matter of	)	
	)	
Inmarsat Hawaii Inc.	)	File Nos. SES-LIC-20120426-00397
	)	SES-AMD-20120823-00781
	)	Call Sign E120072
Application for a License	)	
for a Gateway Earth Station	)	
to be Located in Lino Lakes, MN	)	

PETITION TO DENY OF IRIDIUM SATELLITE LLC

Iridium Satellite LLC ("Iridium") hereby petitions to deny in part the above-captioned gateway earth station application filed by Inmarsat Hawaii Inc. (collectively with its affiliates, "Inmarsat").

I. SUMMARY OF ARGUMENT

This petition is limited to issues relating to the 29.1-29.25 GHz and 19.4-19.6 GHz bands, which Iridium uses and Inmarsat proposes to use. (Iridium has no objection, subject to successful completion of coordination pursuant to Section 25.258 of the rules, to Inmarsat's request for its gateway earth station to transmit in the 29.25-29.3 GHz band, which Iridium also uses.) Inmarsat's proposal to use the 29.1-29.25 GHz and 19.4-19.6 GHz bands should be denied for the following reasons:

- The proposal conflicts with the Commission's frequency plan for Ka-band.
  - GSO FSS systems already have access to 3,350 of the 5,000 MHz in the Ka-band frequency plan.
  - Inmarsat seeks access to the remaining 1,650 MHz covered by the Ka-band frequency plan.
  - Inmarsat's request is inconsistent with the Commission's determination in a lengthy and contentious Ka-band proceeding that this 1,650 MHz should be reserved for services other than GSO FSS.
- If Inmarsat were successful, other GSO FSS systems would seek access to the same 1,650 MHz of spectrum as Inmarsat, which would put additional pressure on the Commission to revisit its band plan without the benefit of a rulemaking.
- Permitting GSO FSS systems to operate gateway earth stations and user terminals that transmit in the 29.1-29.25 GHz band would replicate in that band the interference issues that already have arisen in the adjacent 29.25-29.3 GHz band.
- Permitting GSO FSS space stations to transmit in the 19.4-19.6 GHz band would expose Iridium to interference from
  - wide-area space station beams that encompass areas in which Iridium's earth station are located; and
  - space station spot beams that are steerable but that, because of service requirements, GSO FSS operators will want to focus on areas in which Iridium's earth stations are located.

II. INTRODUCTION

In its above-captioned application, Inmarsat proposes to operate a gateway earth station that would be located in Lino Lakes, MN. The gateway earth station would communicate with a geostationary satellite orbit ("GSO") fixed-satellite service ("FSS") space station, Inmarsat-5 F2, that will be licensed by the United Kingdom and that will be operated by Inmarsat at 55° W.L. Inmarsat's Lino Lakes application is the first filing in which access to the U.S. market has been sought for Inmarsat-5 F2. For this reason,

the application includes a showing addressing the factors the Commission uses to determine whether U.S. market access should be permitted.

Iridium operates a constellation of 66 non-geostationary satellite orbit ("NGSO") mobile satellite service ("MSS") space stations in low earth orbit. Through its satellite constellation, which is the largest in the world, Iridium is able to deliver communication services to first responders, public safety personnel, the U.S. Department of Defense, border security officers, the aviation industry, and the energy sector in addition to providing essential backup communications across urban and rural areas alike.

Most user communication on the Iridium satellite system is routed through a gateway earth station. Iridium's gateways operate on feeder links in the 29.1 -29.3 GHz and 19.4-19.6 GHz bands, which Inmarsat proposes to use. Iridium also employs these bands for the TT&C links it uses to receive telemetry from its space stations and to control and command its space stations.

Inmarsat-5 F2 will use 5,000 MHz of spectrum in the 27.5-30.0 GHz (Earth-to-space) and 17.7-20.2 GHz (space-to-Earth) bands, which will make it one of the largest satellites, in terms of spectrum capacity, ever constructed. Iridium's sole focus in this petition is on the 150 MHz of spectrum Inmarsat proposes to use between 29.1 GHz and 29.25 GHz and the 200 MHz of spectrum Inmarsat proposes to use between 19.4 GHz and 19.6 GHz. There is no GSO FSS designation for these spectrum blocks in the United States, and Inmarsat proposes to operate on a non-conforming use basis.

29.1-29.25 GHz. The 29.1-29.25 GHz band is designated in the United States on a primary basis for NGSO MSS feeder links and LMDS. Inmarsat's proposal to use this band for GSO FSS uplink transmissions, therefore, constitutes a non-conforming use.

19.4-19.6 GHz. The 19.4-19.6 GHz band is designated in the United States on a primary basis for MSS feeder links and fixed service stations. Inmarsat's proposal to use this band for GSO FSS downlink transmissions, therefore, also constitutes a non-conforming use.

III. INMARSAT'S PROPOSAL TO OPERATE ITS GATEWAY EARTH STATION IN THE 29.1-29.25 GHz/19.4-19.6 GHz BANDS SHOULD BE DENIED

The Commission adopted a frequency plan for the Ka-band following a highly contested rulemaking proceeding that began in the 1990s and lasted a decade. That frequency plan features a series of interlocking pieces that establish the conditions under which GSO FSS systems, NGSO FSS systems, MSS feeder links, LMDS stations, government stations, and fixed service stations may operate either on a primary basis or on a secondary basis in portions of the 5,000 MHz of Ka-band spectrum that are covered by the Commission's frequency plan.

GSO FSS systems have access to 3,350 of the 5,000 MHz, *i.e.,* they have access to 67% of the spectrum: 1,000 MHz in the uplink direction on a primary or co-primary basis; 1,000 MHz in the downlink direction on a primary or co-primary basis; and 1,350 MHz in the uplink direction on a secondary basis.

In its application, Inmarsat seeks access, on a non-conforming use basis, to all 1,650 MHz of the spectrum that the Commission, in its Ka-band frequency plan, determined should be reserved for services other than GSO FSS. More specifically, Inmarsat requests authority to operate in the 17.7-18.3 GHz, 18.8-19.3 GHz, 19.3-19.7 GHz and 29.1-29.25 GHz bands. These bands include the 29.1-29.25 GHz and 19.4-19.6 GHz band segments that overlap with Iridium's feeder links and TT&C links.

Although Inmarsat's proposal conflicts with the Commission's frequency plan, Inmarsat offers no rationale for why it believes the frequency plan should be revisited. Rather, Inmarsat seeks access to 1,650 MHz of spectrum that the Commission reserved for services other than GSO FSS based solely on its proposal, in light of its status as a non-conforming use, to operate on the spectrum on a non-interference/ non- protected basis. Inmarsat's attempted justification is inadequate, because the Commission's Ka-band frequency plan already takes into account which services may operate on a primary basis and which services may operate on a non-interference/ non- protected basis.

Inmarsat's application, moreover, cannot be viewed in isolation. Although the filing by its terms covers a single gateway earth station, it discloses that Inmarsat also intends to seek authority to operate multiple high capacity beam user terminals. It is certain, moreover, that if Inmarsat were successful, other GSO FSS systems would seek access to the same 1,650 MHz of spectrum as Inmarsat. If Inmarsat's application were granted, therefore, the practical effect could be to modify the Commission's frequency

plan *de facto* by giving GSO FSS systems access, on a non-interference/ non- protected basis, to spectrum the Commission previously decided should not be used by GSO FSS systems on a primary or a secondary basis.

Permitting GSO FSS systems to operate gateway earth stations and user terminals in the 29.1-29.25 GHz band also would replicate in that band the interference issues that already have arisen in the adjacent 29.25-29.3 GHz band. Iridium has provided technical analyses to the FCC in other proceedings demonstrating how GSO FSS earth stations in the 29.25-29.3 GHz band pose a risk of unacceptable interference to Iridium's feeder links and TT&C links.[1] The interference risk presented by GSO FSS earth stations in the 29.1-29.25 GHz band is identical to the risk posed by GSO FSS earth stations in the 29.25-29.3 GHz band. Permitting GSO FSS earth stations to operate in the 29.1-29.25 GHz band, therefore, would expand the interference risks to Iridium's feeder links to another band before the Commission has completed its evaluation of the interference issue in the context of the 29.25-29.3 GHz band.

There are interference issues in the 19.4-19.6 GHz band as well. During in-line events, some GSO FSS space station downlink satellite antennas will be transmitting in the direction of Iridium's gateway/TT&C earth station receivers. In some cases, these transmissions will be via global and wide area beams that are not steerable.

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[1] *See* Petition to Dismiss of Iridium Constellation LLC, File No. SAT-LOI-20110809-00148 (Jan. 17, 2012); Comments of Iridium Satellite LLC, File No. SAT-LOI-20111220-00242 (Mar. 26, 2012); Comments of Iridium Satellite LLC, File No. SAT-LOA-20111223-00248 (Mar. 26, 2012); Emergency Petition to Dismiss or Deny of Iridium Satellite LLC, File No. SES-MFS-20120426-00395 (May 24, 2012); Emergency Petition to Dismiss or Deny of Iridium Satellite LLC, File Nos. SES-MFS-20120322-00290 and SES-AFS-20120426-00396 (June 22, 2012).

Transmitting on 19.4-19.6 GHz band frequencies in the direction of Iridium's gateway/TT&C earth station receivers will be unavoidable for wide-area beams that encompass areas in which Iridium's gateway/TT&C earth station are located. In other cases, the GSO FSS downlink transmissions will be via spot beams that are steerable but that, because of service requirements, GSO FSS operators will want to focus on areas in which Iridium's gateway/TT&C earth station are located. Either way, the potential for unacceptable interference with Iridium's feeder links and TT&C links is a significant issue when these beams use 19.4-19.6 GHz band frequencies.

In sum, Inmarsat's proposal to use 1,650 MHz of spectrum for which there is no GSO FSS designation conflicts with the Commission's frequency plan for the Ka-band and would expose Iridium's feeder links and TT&C links to unacceptable interference on both the uplink side and the downlink side. The Commission should not be granting applications that pose a risk of unacceptable interference. And if Inmarsat wants the Commission to revisit the Ka-band frequency plan, it needs to file a petition for rulemaking, not a license application. For all of these reasons, the Commission should deny Inmarsat's request to operate in the 29.1-29.25 GHz and 19.4-19.6 GHz bands.

IV. THIS PROCEEDING AND ANY RELATED PROCEEDINGS SHOULD BE CLASSIFIED AS PERMIT BUT DISCLOSE

Iridium respectfully requests that this proceeding, and any proceedings relating to blanket authority for user terminals that would communicate with Inmarsat-5 F2, be classified as permit but disclose. The issues in these matters have broad implications, and permit but disclose classification will facilitate a complete airing of the considerations at play. Establishing a better record on which the Commission can base its decision is unquestionably in the public interest.

CONCLUSION

For the reasons stated herein, Inmarsat's request to use the 29.1-29.25 GHz and 19.4-19.6 GHz bands should be denied.

Respectfully submitted,

IRIDIUM SATELLITE LLC

By: /s/Donna Bethea Murphy
Donna Bethea Murphy
Vice President, Regulatory Engineering
Iridium Satellite LLC
1750 Tysons Boulevard
Suite 1400
McLean, VA 22102
(703) 287-7400

September 28, 2012

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **PETITION TO DENY OF IRIDIUM SATELLITE LLC** was sent by hand delivery, this 28th day of September, 2012, to each of the following:

Inmarsat Hawaii Inc.
1101 Connecticut Avenue NW
Suite 1200
Washington, D.C. 20036
Attention: Diane J Cornell

Inmarsat Hawaii Inc.
1101 Connecticut Ave NW
Suite 1200
Washington, D.C. 20036
Attention: Chris Murphy

/s/ Jennifer Tisdale
Jennifer Tisdale