Exhibit A

Supplemental Technical Information

EXHIBIT A

Supplemental Technical Information

A.1 Scope and Purpose

Viasat, Inc. (Viasat) seeks authority to use the ViaSat-3F3 satellite to communicate with U.S.-licensed terminals on aircraft located outside of U.S. territory. These operations will occur in the 17.7 –20.2 GHz band in the space-to-Earth direction and the 27.5-30.0 GHz band in the Earth-to-space direction.[1] The satellite will operate under the authority of the United Kingdom using the UK-KA-159E ITU filing. This Exhibit A, in conjunction with the companion Schedule S, provides the technical characteristics required by §25.114.

A.2 General Description

The ViaSat-3F3 satellite will operate at the 158.55° E.L. orbital location. At this time, Viasat seeks Commission authority to communicate with U.S.-licensed terminals on aircraft located outside of U.S. territory. These operations will occur in the 27.5 –30.0 GHz band (Earth-to-space) and the 17.7–20.2 GHz band (space-to-Earth). All analyses in this Attachment apply to that service area and those bands. For the avoidance of doubt, there will not be any ViaSat-3F3 gateways located in the U.S., and no authority for the operation of gateway links is requested in this application.[2]

The satellite's antenna beam coverage, both transmit and receive, consists of multiple spot beams that collectively can provide service to all parts of the Earth visible from the 158.55° E.L. orbital location. The satellite network uses asymmetric forward and return links. It also uses adaptive coding and modulation to combat rain fades—*i.e.,* the modulation type, amount of

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1 The satellite will be capable of operating in the 27.5 – 31 GHz (Earth-to-space) and the 17.7 – 21.2 GHz (space-to-Earth) bands (the "Ka-bands").

2 For informational purposes, the non-U.S. gateway links operate in the Ka-band under the authority of the United Kingdom and the countries in which the gateway terminals are situated.

coding and/or user data rate will be dynamically varied to meet the link requirements during rain events (in addition to employing uplink power control).

A.3 Frequency and Polarization Plan

The frequency plan for the ViaSat-3F3 satellite is provided in Table A.3-1, indicating channel center frequency, polarization, and bandwidth. The table also shows the connectivity between each uplink and downlink band segment. Circular polarization (including right-hand circular (RHC) and left-hand circular (LHC) polarization) is used on both the uplinks and downlinks with the downlink polarization being orthogonal to the uplink polarization. The satellite employs state-of-the-art full frequency reuse such that each channel is reused multiple times through a combination of polarization and spatial isolation. This satisfies the requirements of §25.210(f).

Table A.3-1. Frequency Plan

Uplink Center Frequency (MHz)	Uplink Polarization	Downlink Center Frequency (MHz)	Downlink Polarization	Bandwidth (MHz)
28750	LHC	18950	RHC	2500
28750	RHC	18950	LHC	2500

Viasat is not seeking Commission authorization to communicate in the 20.2 – 21.2 GHz or 30.0 – 31.0 GHz band segments at this time.

The ViaSat-3F3 network will operate in a manner that adequately protects the following services in the specified band segments while communicating with U.S.-licensed earth stations:

- GSO FSS (Section A.8)
- UMFUS in the 27.5 – 28.35 GHz band segment (Section A.9)
- FS in the 17.7 – 18.3 GHz band segment (Section A.10)
- 17/24 GHz BSS (s-E) and DBS Feeder Links (E-s) in the 17.7 – 17.8 GHz band segment (Section A.11)
- NGSO FSS in the 28.6 – 29.1 GHz and 18.8 – 19.3 GHz band segments (Section A.12)
- NGSO MSS Feeder Links in the 29.1 – 29.5 GHz and 19.3 – 19.7 GHz bands (Section A.13)

A.4 Satellite Antenna Beams and Antenna Gain Contours

The satellite's payload employs multiple spot beams in both the uplink and downlink directions. There are two types of spot beams: small beams ("A"-type beams) and larger beams ("B"-type beams). For each beam-type, the beams are nominally identical.

In accordance with §25.114(c)(4)(vii), Viasat is providing the predicted antenna gain contours for representative transmit and receive beams of each type, and maps of the isolines formed by combining all the spot beams into composite beams. In both the uplink and downlink directions, the isoline contours depict, on a composite basis across the entire coverage area, the -2 dB relative gain of all spot beams that may be operated within that area. The contour at 4 dB below peak falls entirely beyond the edge of the visible Earth.

The representative transmit and receive antenna beam contours are plotted on an area map at 2 dB intervals down to 10 dB below the peak gain and at 5 dB intervals between 10 dB and 20 dB below the peak gain. The composite and representative beam contours are provided in a GIMS-readable format, as listed in Table A.4-1.

Table A.4-1. Beam Contours

Beam Contour	Beams	Link	Beam Type	Polarization	Contour Type
RXAR	RXAR	Up	A	RHC	Composite
RXAL	RXAL	Up	A	LHC	Composite
TXAR	TXAR	Down	A	RHC	Composite
TXAL	TXAL	Down	A	LHC	Composite
RXBR	RXBR	Up	B	RHC	Composite
RXBL	RXBL	Up	B	LHC	Composite
TXBR	TXBR	Down	B	RHC	Composite
TXBL	TXBL	Down	B	LHC	Composite
RXAR_REP	RXAR	Up	A	RHC	Representative
RXAL_REP	RXAL	Up	A	LHC	Representative
TXAR_REP	TXAR	Down	A	RHC	Representative
TXAL_REP	TXAL	Down	A	LHC	Representative
RXBR_REP	RXBR	Up	B	RHC	Representative
RXBL_REP	RXBL	Up	B	LHC	Representative
TXBR_REP	TXBR	Down	B	RHC	Representative
TXBL_REP	TXBL	Down	B	LHC	Representative

A.5 TT&C Information

TT&C operations will be conducted from outside the US in the conventional Ku-band and are not the subject of this application. For informational purposes, the TT&C center frequencies available to be used by ViaSat-3F3 are provided in Table A.5-1.

Table A.5-1. TT&C Frequency and Polarization

Usage	Frequency (MHz)	Polarization[3]
Command	14004.5	H or V
	14496.0	H or V
Telemetry	11197.00	H or V
	11198.50	H or V
	11451.00	H or V
	11453.00	H or V

A.6 Cessation of Emissions

All ViaSat-3F3 downlink transmissions can be turned on and off by ground telecommand, thereby causing cessation of emissions from the satellite, as required by §25.207.

A.7 Power Flux Density at the Earth's Surface

Viasat certifies that the proposed space station will not generate power flux-density (PFD) at the Earth's surface in excess of -118 dBW/m^2/MHz at any point in US territory in the 17.7 – 20.2 GHz band segment, and that associated uplink operation of earth stations within the US will not exceed applicable EIRP density envelopes in §25.218(i) unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of the orbital location. This satisfies the requirements of §25.140(a)(3)(iii).

Because PFD is dependent on the slant path and hence spreading loss, the maximum EIRP density from the satellite can vary accordingly. For example, for a spreading loss of 162.8 dB (25° elevation angle), the satellite's transmissions would not exceed an EIRP density of 44.8 dBW/MHz.

The -118 dBW/m^2/MHz maximum PFD is compliant with the §25.208(c) limits that apply in the 17.7 – 19.7 GHz band segment and the §25.208(d) limit that applies in the 18.6 – 18.8 GHz

[3] Horizontal (H) polarization or vertical (V) polarization.

band segment.

A.8 Sharing with GSO FSS

No FSS space stations operate on a co-frequency basis within two degrees of the 158.55° E.L. orbital location. It is unlikely that any such operations will commence in the future given Viasat's ITU priority at that location, unless Viasat agrees to accommodate such operations through coordination.

Viasat acknowledges that the FCC has authorized Astranis Projects USA LLC (Astranis) to operate a GSO FSS satellite in the Ka-band at the 157° E.L. orbital location.[4] That grant conditions Astranis's operating authority on compliance with relevant provisions of the ITU Radio Regulations. Viasat notes that the parties are actively engaged in coordination discussions and Viasat has every expectation that these discussions will result in a coordinated arrangement that facilitates the operations of both networks.

There are no other co-frequency FSS satellites authorized by the FCC at two-degree spacing from 158.55° E.L. Consistent with §25.140(a)(3)(vi), Viasat provides an interference analysis demonstrating compatibility with a hypothetical co-frequency space station two degrees away with the same receiving and transmitting characteristics as ViaSat-3F3.

Table A.8-1 provides a summary of the typical transmission parameters used by the ViaSat-3F3 satellite network. These parameters were derived from the link budgets that are provided in Annex 1 and were used in the interference analysis. The interference calculations assume a 1 dB advantage for topocentric-to-geocentric conversion and that all wanted and interfering carriers are co-polarized. Table A.8-2 shows the results in terms of the overall C/I margin, which is positive for all cases.

[4] *See* ICFS File No. SAT-LOA-20260220-00092 (granted Aug. 21, 2026).

Table A.8-1. Typical ViaSat-3F3 Network Parameters

Carrier ID	Emission Designator	Bandwidth (MHz)	Tx E/S Gain (dBi)	Uplink EIRP (dBW)	Downlink EIRP (dBW)	Rx E/S Gain (dBi)	C/I Criterion (dB)
1	600MG7D	600	65.0	75.0	70.8	49.3	19.7
2	500MG7D	500	65.0	75.0	70.0	49.3	20.5
3	500MG7D	500	65.0	75.0	70.0	40.7	13.8
4	500MG7D	500	65.0	75.0	70.0	33.7	9.3
5	400MG7D	400	65.0	75.0	69.0	40.7	14.7
6	300MG7D	300	65.0	75.0	67.8	40.7	9.6
7	200MG7D	200	44.3	58.3	63.0	61.4	14.0
8	100MG7D	100	44.3	57.7	60.0	61.4	13.3
9	50M0G7D	50	44.3	57.1	57.0	61.4	11.3
10	12M5G7D	12.5	44.3	55.4	51.0	61.4	11.9
11	6M25G7D	6.25	37.3	39.1	48.0	61.4	9.3

Table A.8-2. Summary of the Overall C/I Margin (dB)

	Interfering Carriers										
Carrier ID	1	2	3	4	5	6	7	8	9	10	11
1	9.0	9.0	9.0	9.0	9.0	8.9	10.7	9.9	8.7	5.8	5.6
2	8.3	8.3	8.3	8.3	8.2	8.2	10.1	9.4	8.3	5.6	5.4
3	6.5	6.5	6.5	6.5	6.4	6.4	9.3	9.1	8.9	8.1	8.0
4	4.0	4.0	4.0	4.0	4.0	3.9	6.9	6.9	6.8	6.6	6.6
5	5.5	5.5	5.5	5.5	5.5	5.5	8.3	8.2	8.0	7.3	7.3
6	10.6	10.6	10.6	10.6	10.6	10.6	13.5	13.4	13.3	12.7	12.7
7	17.5	16.9	16.9	16.9	16.1	15.0	9.8	7.3	5.0	0.6	0.3
8	19.9	19.4	19.4	19.4	18.7	17.7	12.8	10.4	8.1	3.8	3.4
9	23.3	22.9	22.9	22.9	22.3	21.5	17.1	14.7	12.4	8.1	7.8
10	24.6	24.3	24.3	24.3	24.0	23.5	20.5	18.3	16.1	11.9	11.5
11	16.5	16.0	16.0	16.0	15.4	14.6	10.2	7.8	5.5	1.2	0.8

ViaSat- 3F3 will operate in compliance with the limits on downlink EIRP density and PFD specified in §25.140(a)(3) and communicate only with U.S.-licensed terminals on aircraft located outside of U.S. territory operating in conformance with routine uplink parameters specified in §25.212(e) or §25.218.

A.9 Sharing with UMFUS in the 27.5 – 28.35 GHz Band Segment

As noted above, at this time Viasat seeks authority to use the ViaSat-3F3 satellite to communicate with U.S.-licensed terminals on aircraft located outside of U.S. territory. These terminals will be geographically separated from any UMFUS operations in the 27.5-28.35 GHz band segment and would not pose any risks of interference to those operations.

A.10 Sharing with Fixed Service (FS) in the 17.7 – 18.3 GHz Band Segment

As noted above, at this time Viasat seeks authority to use the ViaSat-3F3 satellite to communicate with U.S.-licensed terminals on aircraft located outside of U.S. territory. These terminals will be geographically separated from any FS operations in the US in the 17.7-18.3 GHz band segment and would not pose any risks of interference to those operations. Further, as discussed in Section A.7, ViaSat-3F3 is compliant with the §25.208(c) limits that apply in the 17.7 – 19.7 GHz band segment and the §25.208(d) limit that applies in the 18.6 – 18.8 GHz band segment. That said, Viasat only seeks authority to operate in this band segment on a non-interference, unprotected basis with respect to the FS in the US.

A.11 Sharing with 17/24 GHz BSS (space-to-Earth) and DBS Feeder Links (Earth-to-space) in the 17.7 – 17.8 GHz Band Segment

Viasat's operations in the 17.7 – 17.8 GHz band segment using U.S.-licensed terminals on aircraft located outside of U.S. territory would be on a non-conforming, unprotected basis. As discussed in the legal narrative, Viasat requests waivers of the U.S. Table and the Commission's Ka-band band plan to facilitate these operations.

The are no 17/24 GHz BSS satellites authorized, or pending authorization, by the Commission to operate in the 17.7 – 17.8 GHz band segment within four-degrees of 158.55° E.L. International use of this frequency band for DBS feeder links is governed by Appendix 30A of the ITU Radio Regulations, and there are no US Appendix 30A Plan assignments or ITU filings within six degrees of 158.55º E.L.

Viasat accepts the risk of interference from a transmitting 17/24 GHz BSS satellite and a transmitting DBS feeder link Earth Station into a receiving ViaSat-3F3 terminal on aircraft located outside of U.S.

A.12 Sharing with NGSO FSS in the 28.6 – 29.1 GHz and 18.8 – 19.3 GHz Band Segments

As noted above, at this time Viasat seeks authority to use the ViaSat-3F3 satellite to communicate with U.S.-licensed terminals on aircraft located outside of U.S. territory. In such areas, Viasat has clear priority in the 18.8 – 19.3 GHz and 28.6 – 29.1 GHz band segments with respect to operations involving its non-U.S.-licensed terminals. As such, any NGSO FSS systems will need to operate on a secondary basis with respect to operations of the ViaSat-3F3 satellite and those terminals outside of the U.S. As a practical matter, those NGSO FSS systems will also need to operate on a secondary basis with respect to operations of Viasat's U.S.-licensed terminals, which will operate in a manner indistinguishable from its non-U.S.-licensed terminals.

That said, Viasat notes that it has successfully coordinated use of these band segments with OneWeb, SpaceX, and Space Norway, and is pursuing coordination with other NGSO systems. Viasat will also operate its earth stations in a manner that would minimize the potential for interference into NGSO FSS operations in the United States.

A.13 NGSO MSS Feeder Links in the 29.1 – 29.5 GHz and 19.3 – 19.7 GHz Band Segments

Viasat would not cause harmful interference to, or seek protection from, NGSO MSS feeder link systems operating in the 19.3 – 19.7 GHz and 29.1 – 29.5 GHz band segments. Iridium, O3b, and Kuiper are currently authorized to operate in the U.S. in all or a portion of these band segments (no other NGSO MSS system is so authorized). The following sections demonstrate that Viasat's proposed operations in the 19.3 – 19.7 GHz and 29.1 – 29.5 GHz band segments would not cause harmful interference to these systems. Similar mitigation techniques could be used to protect any additional NGSO MSS feeder link system authorized to operate in the U.S. Viasat may also complete coordination with additional NGSO MSS systems in lieu of providing a compatibility analysis.

A.13.1 Sharing Analysis of ViaSat-3F3 Network with the Iridium

NGSO System

Several analyses were performed using ITU and/or FCC filed characteristics for the Iridium HIBLEO-2FL2 system, and the ViaSat-3F3 satellite network and associated earth stations. These analyses were run for the Iridium gateway locations within the ViaSat-3F3 coverage area using the protection criteria specified by Iridium as part of coordination discussions. This analysis considers the two Iridium gateway locations within the U.S. portion of the ViaSat-3F3 coverage area: Wahiawa, HI and Fairbanks, AK.

Viasat has worked collaboratively with Iridium during coordination discussions to ensure that the methodology and the various satellite and earth station characteristics for the Iridium system and Viasat network were correctly entered into the Transfinite Visualyse Professional system analysis software and that the simulations were producing the expected results. Each simulation was performed for a 30-day period with a step interval of 1 second. The results showed that in all cases with the specified exclusion zone the Viasat operations could meet the protection criteria specified by Iridium.

The analysis considered seven cases:

- Case 1 considered a Viasat aero and maritime in-motion earth station RHCP uplink near the Wahiawa, HI Iridium gateway while maintaining a minimum 450 km exclusion zone.
- Case 2 considered the Viasat LHCP user downlink beams near the Wahiawa gateway while maintaining a minimum 450 km exclusion zone.
- Case 3 considered a Viasat fixed and in-motion earth station RHCP uplink near the Fairbanks, AK Iridium gateway while maintaining a minimum 400 km exclusion zone.
- Case 4 considered the Viasat LHCP user downlink beams near the Fairbanks, AK gateway while maintaining a minimum 100 km exclusion zone.

Case 1

Viasat in-motion earth station RHCP uplink with minimum 450 km exclusion zone around Wahiawa, HI. Includes 60 cm maritime ESIM and GM40 aeronautical ESIM evaluated at various symbol rates and maximum EIRP density.

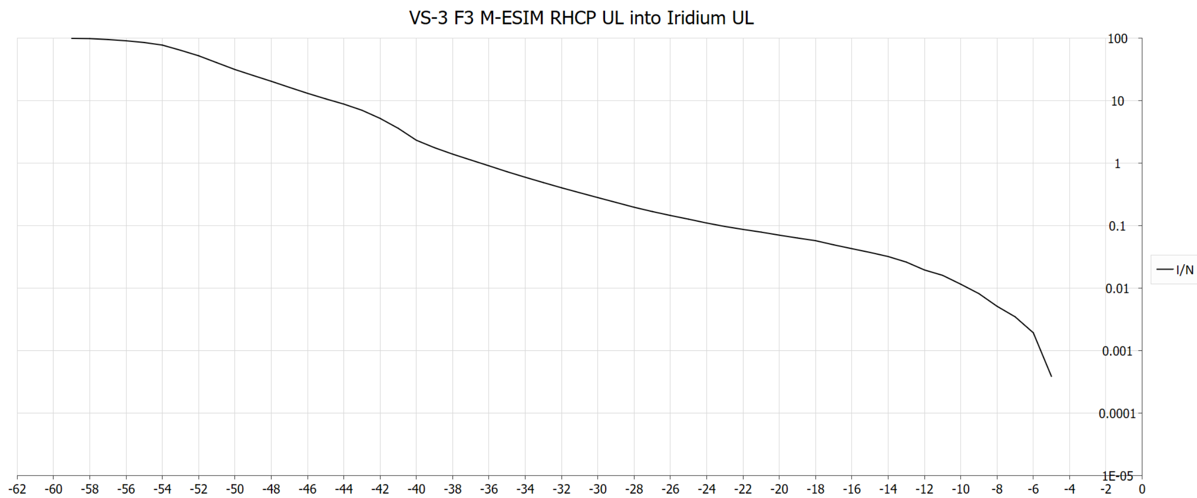

Figure A.13.1-1a, 60 cm M-ESIM with 80 MBd carrier at 58.1 dBW EIRP

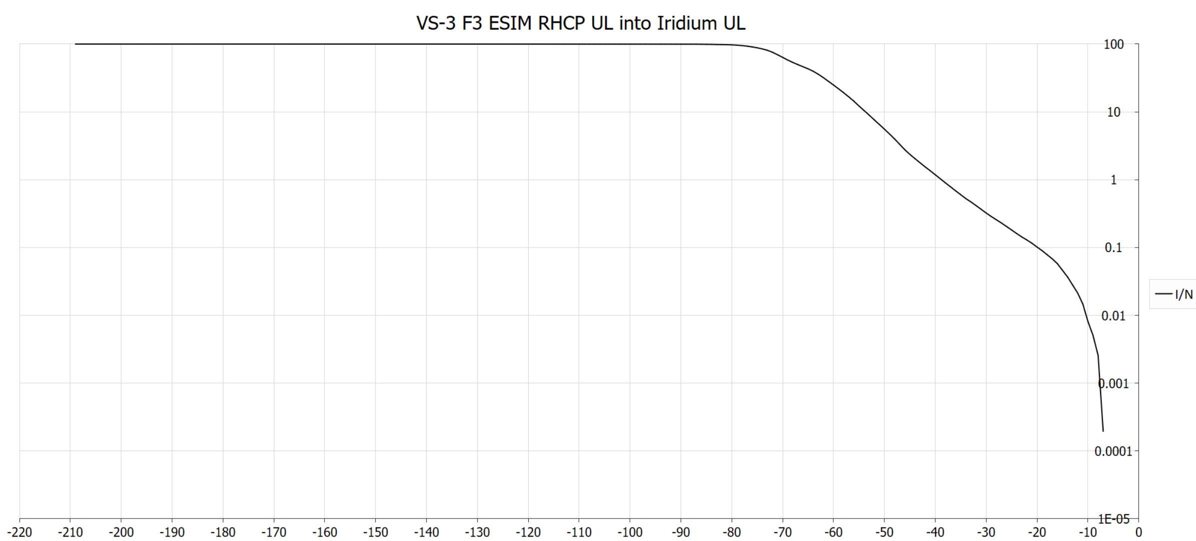

Figure A.13.1-1c, GM40 ESIM with 80 MBd carrier at 55.1 dBW EIRP

Case 2

ViaSat-3F3 at 158.55 E, LHCP 500 MHz User Beam Forward Link downlinks with minimum 400 km beam center separation distance from Wahiawa, HI.

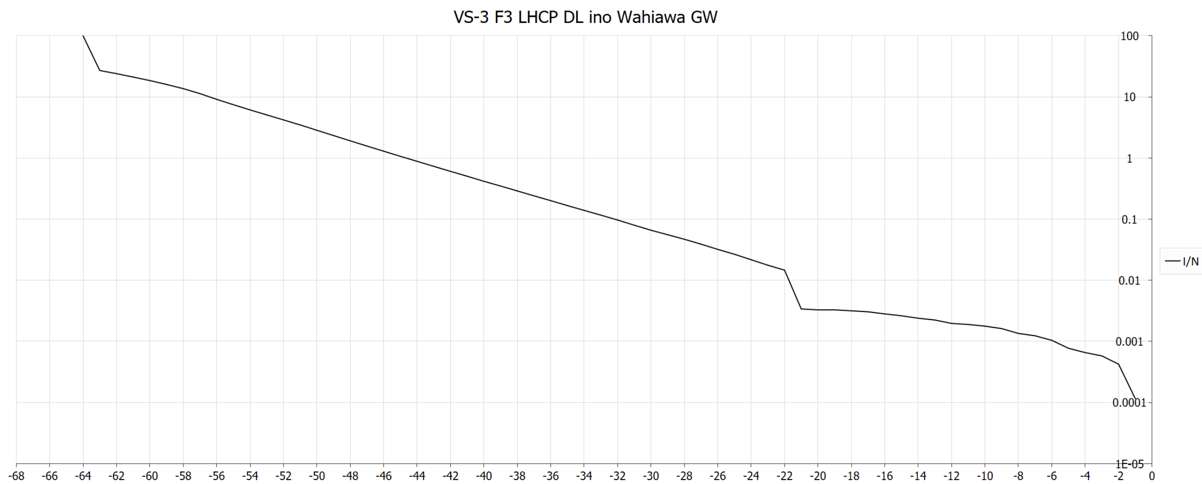

*Figure A.13.1-2, ViaSat-3F3 LHCP 464 MBd carrier downlink at -118 dB(W/(m^2*MHz)) pfd*

Case 3

Viasat in-motion user earth station RHCP uplink with minimum 400 km separation distance from Fairbanks, AK gateway.

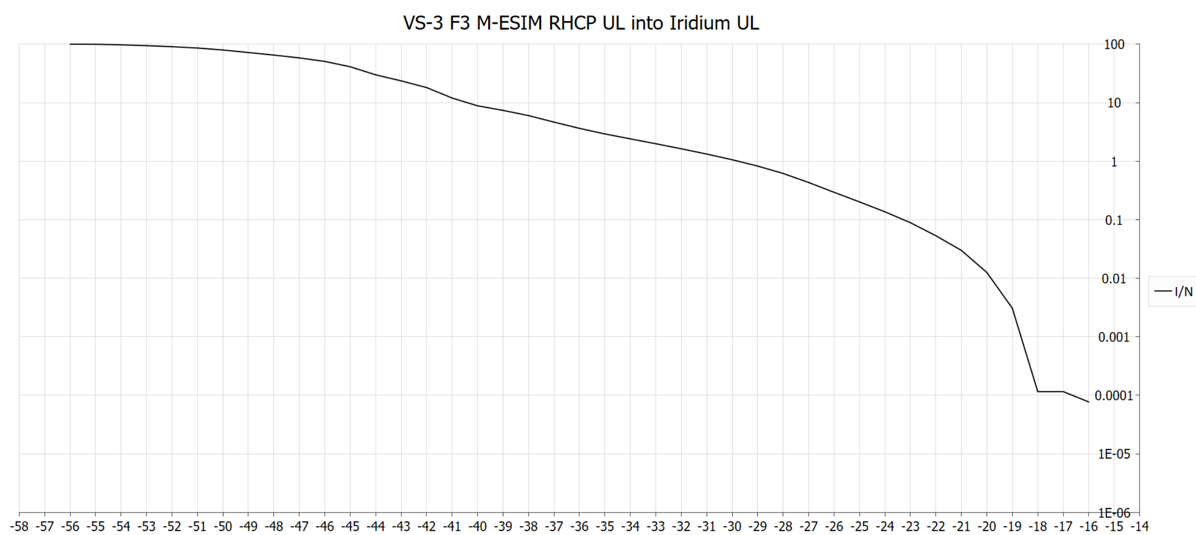

Figure A.13.1-3a, 60 cm M-ESIM with 80 MBd carrier at 58.1 dBW EIRP

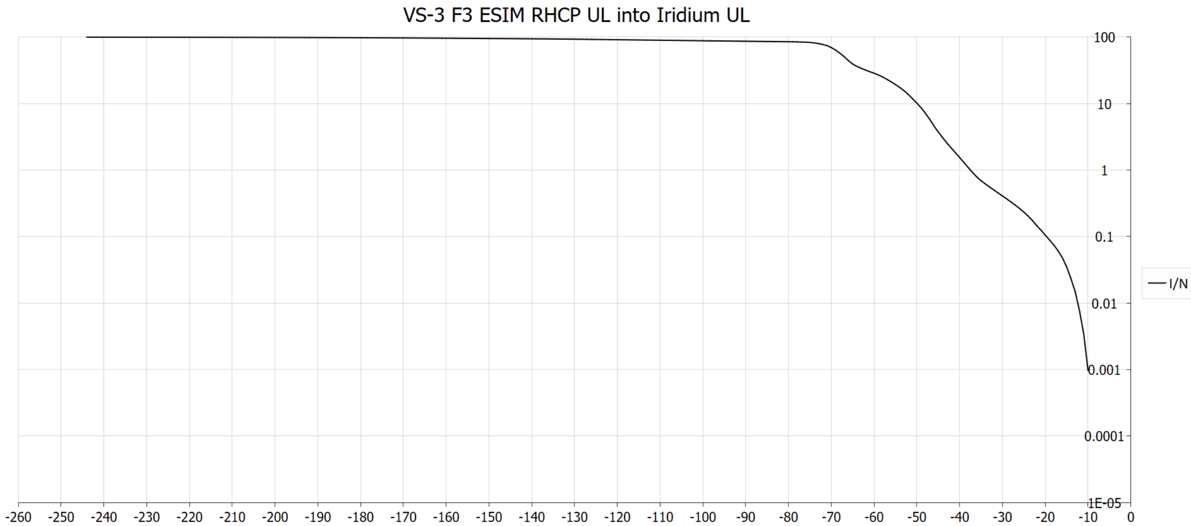

Figure A.13.1-3c, GM40 ESIM with 80 MBd carrier at 55.1 dBW EIRP

Case 4

ViaSat-3F3 at 158.55E LHCP 464 MBd carrier User Beam downlink at -118 dB(W/(m^2*MHz)) pfd with minimum 100 km beam center separation distance from Fairbanks, AK. Note, because the elevation angle to ViaSat-3F3 from the Iridium gateway is ~5° and the minimum operational elevation angle for the Iridium gateway earth station is 8°, in-line events cannot occur and the required separation distance from the *ViaSat-3F3* beam center, and the Iridium gateway is reduced over ***Case 1***.

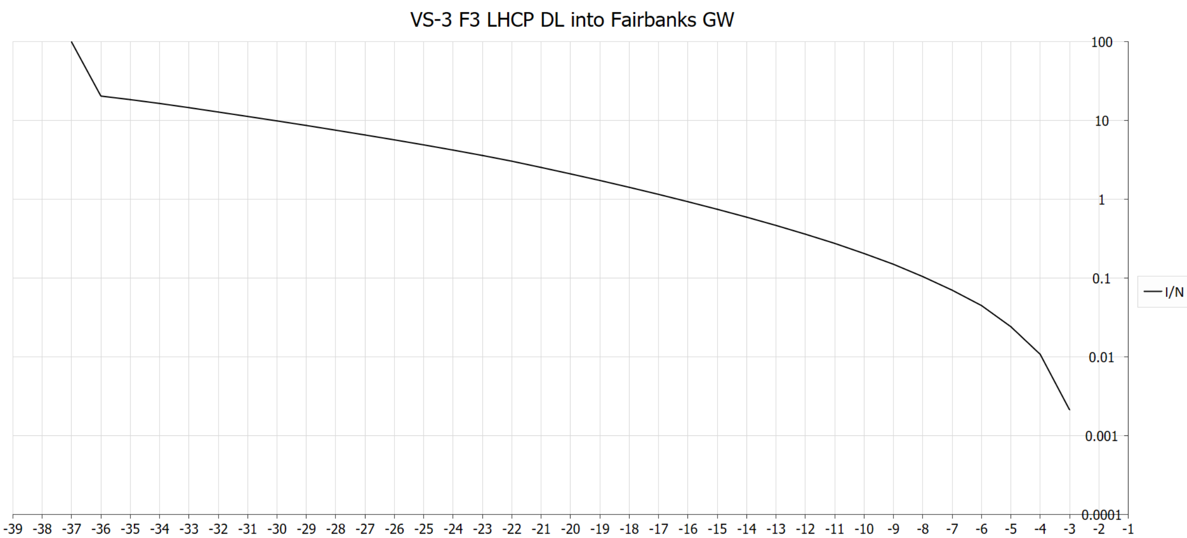

*Figure A.13.1-4, ViaSat-3F3 LHCP 464 MBd carrier downlink at -118 dB(W/(m^2*MHz)) pfd*

A.13.2 Sharing Analysis of ViaSat-3F3 Network with the O3b NGSO System

O3b has an authorization from the Commission for operation of MSS-FL gateways in Haleiwa with the O3b NGSO system in portions of the Ka band. O3b currently operates its NGSO satellites in a non-inclined MEO orbit at an altitude of 8062 km under ITU filings O3B-A and O3B-B. Additionally, O3b has received a grant for an additional 16 MEO satellites to be operated in a 70° inclined orbit with an altitude of 8062 km but which are not yet in service. The inclined orbits are addressed in the O3B-C ITU filing. The only O3b gateway earth station within the ViaSat-3F3 footprint that is within U.S. territory is located at Haleiwa, HI. While this gateway is located approximately 17 km from the Iridium Wahiawa, HI gateway and would similarly be protected by the 450 km exclusion zone that protects the Iridium gateway, the analysis below that Viasat has performed of the separation angles for the O3b gateway antenna between the ViaSat-3F3 satellite and the O3b non-inclined orbit satellites and resulting power levels does not reflect use of any exclusion area for the O3b system. The minimum separation angle was found to be 44.1° which in addition to the exclusion zone above provides ample protection for the O3b system.

Table A.13.2-1 shows the pertinent transmission parameters of the ViaSat-3F3 network and the O3b system.

Table A.13.2-1. Summary of ViaSat-3F3 and O3b parameters

Parameters	ViaSat-3F3	O3b System
Uplink Input Power Density	-56.5 dBW/Hz	-53.4 dBW/Hz
Satellite Rx Antenna Gain	60 dBi	34.5 dBi
Satellite Rx System Noise Temp	650 K	1000 K
Satellite Tx EIRP Density	-15.6 dBW/Hz	-28.32 dBW/Hz
Earth Station Rx System Noise Temperature	224 K	225 K

Table A.13.2-2 shows the interference calculations for the assumed worst-case situation described above. The results show that the O3b system is adequately protected. The calculated ΔT/T values in all cases are small, indicating the technical compatibility of the ViaSat-3F3 satellite network with the O3b network and with an O3b gateway earth station located at Wahiawa, AK. Viasat makes the following additional observations:

- To be conservative, the interference calculation of uplink interference into Viasat uses an O3b uplink input power density of -53.4 dBW/Hz.
- To be conservative, the interference calculation of downlink interference into O3b uses a ViaSat-3F3 downlink EIRP density of -15.6 dBW/Hz, which equates to a downlink pfd of -118 dB(W/(m^2*MHz)).
- The interference analysis does not address the mutual interference environment with respect to O3b operations located outside of the U.S. For non-U.S. locations, Viasat would operate in a manner consistent with Ofcom's rules between U.K. registered satellite operators.

Table A.13.2-2. Interference calculations between ViaSat-3F3 and O3b

Victim network Interfering network		O3b ViaSat-3F3	ViaSat-3F3 O3b
Uplink:			
Frequency band	GHz	29.2	29.2
Interfering uplink input power density	dBW/Hz	-56.5	-53.4
Angular separation between interfering E/S and victim satellite	degrees	43.1	43.1
Slant range (Interfering path)	km	8828	38147
Free space path loss (Interfering path)	dB	200.6	213.4
Atmospheric losses	dB	1.2	1.2
Victim satellite receive antenna gain	dBi	34.5	60
Victim Satellite's Antenna Discrimination towards Interfering E/S	dB	0	0
Victim satellite Rx system noise temperature	K	1000	650
No	dBW/Hz	-198.6	-200.5
Io	dBW/Hz	-233.8	-218.0
Io/No	dB	-35.2	-17.5
ΔT/T	%	0.03	1.8
Downlink:			
Frequency band	GHz	19.4	19.4
Interfering satellite downlink EIRP density	dBW/Hz	-15.6	-28.32
Slant range (Interfering path)	km	38147	8828
Free space path loss (Interfering path)	dB	209.8	197.1
Atmospheric losses	dB	1	1
Angular separation between interfering satellite and victim E/S	degrees	43.1	43.1
Interfering Satellite's Antenna Discrimination towards Victim E/S	dB	0	0
Victim Rx earth station system noise temperature	K	225	224
No	dBW/Hz	-205.1	-205.1
Io	dBW/Hz	-236.4	-236.4
Io/No	dB	-31.3	-31.3
ΔT/T	%	0.07	0.07

For the inclined orbit O3b satellites, Viasat created a Visualyse Professional simulation using the satellite characteristics from the Schedule S filing with the FCC. To be conservative, the simulation considered an aeronautical ESIM at an altitude of 10.6 km over the O3b gateway and only included the inclined satellites and did not include any of the equatorial satellites in the time statistics. Additionally, the 400 km exclusion zone protecting the Iridium gateway was also not considered.

In the Earth-to-space direction the simulation showed good compatibility with worst case I/N of -15.8 dB.

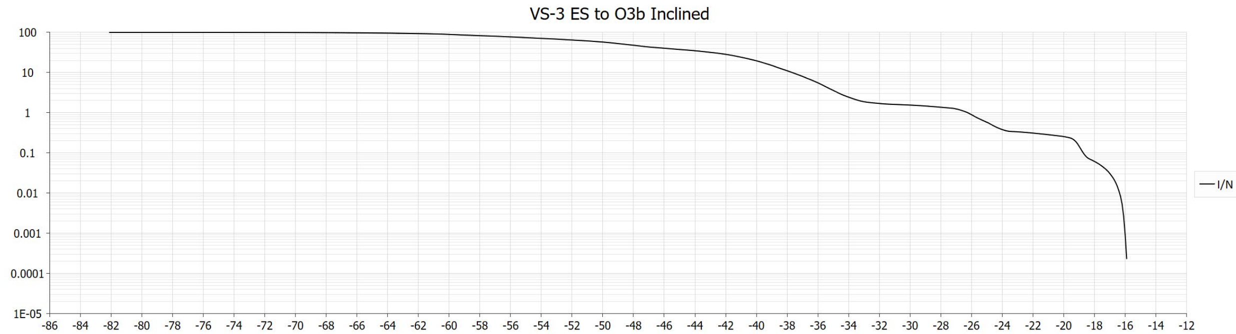

Figure A.13.2-1 ESIM uplink to O3B inclined orbit I/N

For the inclined O3B orbits in the space-to-Earth direction the Visualyse simulation was configured to examine the end-to-start direction of the links, again excluding the equatorial orbits. While the exclusion zone that covers the Iridium Wahiawa, HI gateway would also cover the O3B gateway location, this exclusion zone was not considered in simulation, and the ViaSat-3F3 User beam was placed directly over the O3B gateway. When the exclusion zone is considered, no User downlink beam is placed within 400 km of the O3b gateway ensuring compatibility between the two systems.

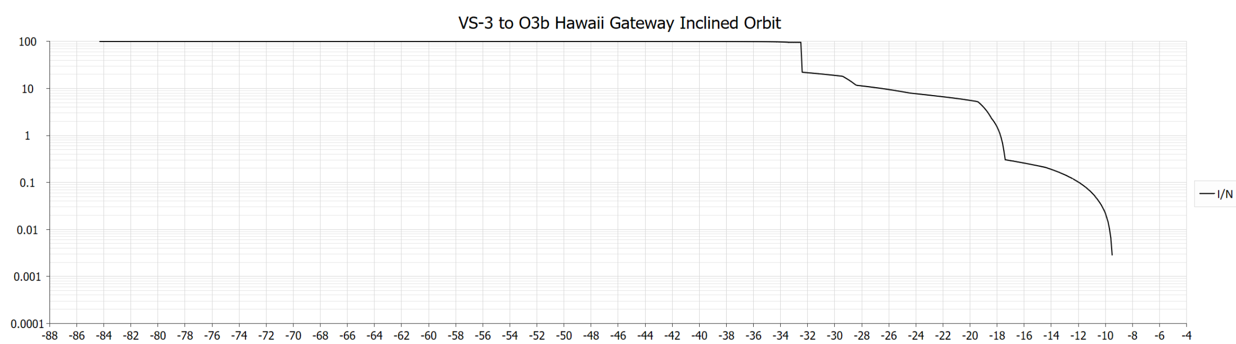

Figure A.13.2-3 ViaSat-3F3 User beam to O3B gateway I/N

A.14 Orbital Debris Mitigation Plan

The ViaSat-3F3 satellite is based on the flight-proven Boeing 702 HP and MP heritage platform. In conjunction with Boeing, Viasat has assessed and limited the amount of debris released in a planned manner during normal operations. The satellite has been designed to not become a source of debris during launch, drift, or operating mode. All separation and deployment mechanisms, and any other potential source of debris, are expected to be retained by the spacecraft or launch vehicle. ViaSat-3F3 will not engage in any proximity operations.

A.14.1 Large Debris and Operational Space Stations

Viasat has assessed and limited the probability of ViaSat-3F3 becoming a source of debris by collisions with large debris objects and operational space stations. Requirement 4.5-1 of NASA-STD-8719.14B requires that for GSO spacecraft the probability of accidental collision with space objects larger than 10 cm in diameter shall not exceed 0.001 when integrated over 100 years from time of launch. NASA's DAS software shows that ViaSat-3F3 meets this requirement with a value of 0.000158, i.e., is better than the requirement by over a factor of 6.

A.14.2 Small Debris and Meteoroids

Viasat and Boeing have assessed and limited the probability that the space station will become a source of debris by collision with small debris or meteoroids that could cause loss of control and prevent disposal. NASA-STD-8719.14B requires that during the mission of the spacecraft the probability of accidental collision with orbital debris and meteoroids sufficient to prevent compliance with the applicable post-mission disposal maneuver requirements does not exceed 0.01.

The satellite includes redundant TT&C, bus control electronics, and propulsion subsystems to ensure successful end-of-life disposal. The spacecraft TT&C system, vital for orbit raising, is extremely rugged with regard to small debris and meteoroids less than 1 cm, by virtue of its redundancy, shielding, separation of components and physical characteristics. The TT&C subsystem has no single points of failure. Near-omni-directional antenna coverage is provided using a combination of independent bicone and forward/aft pipe antennas. These antenna feeds are extremely rugged and capable of providing adequate coverage even if struck, bent or otherwise damaged by a small or medium sized particle. The command receivers and decoders and telemetry encoders and transmitters are located within a shielded area and totally redundant and physically separated. The Xenon tank, shielded in the spacecraft structure central cylinder, and a redundant pair of thrusters, provide the energy for orbit-raising.

Boeing's high-fidelity assessment, using NASA and ESA tools, calculates that the probability of accidental collision with orbital debris and meteoroids sufficient to prevent compliance with the post-mission disposal maneuver requirements does not exceed 0.01.

A.14.3 Minimizing Accidental Explosions

Viasat and Boeing have assessed and limited the probability, during and after completion of mission operations, of accidental explosions or of release of liquids that will persist in droplet form. Stored energy (chemical, pressure, and kinetic) will be removed or depleted and made safe at the spacecraft's end of life. Valves in the propulsion subsystems will be opened and residual fuel vented, battery charging will be disabled, reaction wheels will be turned off and disabled, and drivers will be turned off and power removed from any redundant squibs and other unfired pyrotechnic valves. Thus, debris generation will not result from the conversion of energy sources on board the spacecraft into energy that fragments the spacecraft.

A.14.4 Safe Flight Profiles

Viasat has taken multiple precautions to ensure safety of flight and sustainability of operations. These include entering into a SSA Sharing Agreement with USSPACECOM and routinely providing ephemeris data to the 18th Space Control Squadron (18 SPSC) to ensure identification of potential collisions. Viasat receives conjunction assessment services from 18 SPSC as well as the Space Data Association (SDA), an organization which aims to enhance safety of flight via sharing of operational data and promotion of best practices across the industry, where it also processes Viasat's ephemeris and incorporates planned maneuver data in their assessments. Additionally, as a participant in the USSF Commercial Integration Cell (CIC), Viasat is privy to additional threats to its spacecraft and their operation.

Viasat has registered ViaSat-3F3 with the 18 SPSC. Viasat maintains accurate track of its spacecraft by conducting hourly ranging sessions from two separate geographic locations. This provides the data to generate precise ephemerides that feed into the SDA and 18 SPSC assessments. Viasat will operate ViaSat-3F3 such that its orbit is maintained within 0.05° of its assigned orbital longitude in the east/west direction, except during end-of-life disposal.

Viasat has assessed the known satellites located at, or reasonably expected to be located at, the requested 158.55° E.L. orbital location, in addition to those assigned in the vicinity of that location such that the station keeping volumes of the respective satellites might overlap or touch. In doing so, Viasat has reviewed data from Space-Track, the ITU's SpaceExplorer, and the Commission's International Communications Filing System (ICFS). The nearest satellites currently in orbit are listed in Table A13-1. None of them has a station keeping volume that overlaps, or touches, that planned for ViaSat-3F3. Viasat is unaware of any proposed satellites expected to be located within ±0.15° of the 158.55° E.L. location, Astranis at 157.0° E.L. would be the closest.

Table A13-1. Satellites Near 158.55° E.L. Orbit Location

Satellite	Orbit Location	E-W Station Keeping
OPTUS D3	156.1° E.L.	±0.05°
MEV-1	156.1° E.L.	±0.05°
OPTUS-X (ADS-01)	156.4° E.L.	±0.05°
ABS-6	159.0° E.L.	±0.05°
KOREASAT 6	159.9° E.L.	±0.05°

A.14.5 Post-Mission Disposal

At the end of its useful life, and barring catastrophic failure of satellite components, ViaSat-3F3 will be relocated, to an orbit with a perigee altitude of 36,086 km (300 km above GSO). This exceeds the requirement of §25.283 for a minimum disposal orbit perigee altitude of:

36,021 km + ($1000 \cdot C_R \cdot A/M$)

where C_R is the solar radiation pressure coefficient of the spacecraft, and A/M (m^2/kg) is the Area- to-Mass ratio of the spacecraft.

For ViaSat-3F3:

C_R = 1.3

A/M = 0.0229 m^2/kg

Thus, the minimum disposal orbit perigee altitude is:

= 36,021 km + 1000 x C_R x A/m

= 36,021 km + 1000 x 1.3 x 0.0229

= 36,051 km

= 265 km above GSO (35,786 km)

Thus ViaSat-3F3's 300 km above GSO disposal orbit provides an additional margin of 35 km. Disposal will require 1.7 kg of Xenon propellant which will be reserved, taking account of all fuel measurement uncertainties, to perform the final orbit raising maneuver.

Annex 1
Clear Sky Link Budgets

General												
Emission Designator		600MG7D	500MG7D	500MG7D	500MG7D	400MG7D	300MG7D	200MG7D	100MG7D	50M0G7D	12M5G7D	6M25G7D
Carrier Bandwidth	MHz	600	500	500	500	400	300	200	100	50	12.5	6.25
Uplink Frequency	GHz	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3
Downlink Frequency	GHz	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5
Uplink												
Tx E/S Antenna Diameter	m	7.4	7.4	7.4	7.4	7.4	7.4	0.7	0.7	0.7	0.7	0.3
Tx E/S Power to Antenna	W	10.0	10.0	10.0	10.0	10.0	10.0	14.0	13.4	12.8	11.1	1.8
Tx E/S Antenna Gain	dBi	65.0	65.0	65.0	65.0	65.0	65.0	44.3	44.3	44.3	44.3	37.3
Tx E/S EIRP per Carrier	dBW	75.0	75.0	75.0	75.0	75.0	75.0	58.3	57.7	57.1	55.4	39.1
Tx E/S Antenna Pointing Loss	dB	1.2	1.2	1.2	1.2	1.2	1.2	0.5	0.5	0.5	0.5	0.5
Atmospheric and Rain Losses	dB	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Free Space Loss	dB	213.6	213.6	213.6	213.6	213.6	213.6	213.6	213.6	213.6	213.6	213.6
G/T (peak)	dB/K	16.1	16.1	16.1	16.1	22.2	22.2	22.2	22.2	22.2	22.2	22.2
C/I - Intra-system	dB	25.5	25.5	25.5	25.5	25.5	25.5	14.3	14.3	14.3	14.3	14.3
Downlink												
EIRP per Carrier towards Rx E/S	dBW	70.8	70	70	70	69	67.8	63	60	57	51	48
Atmospheric and Rain Losses	dB	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Free Space Loss	dB	210.1	210.1	210.1	210.1	210.1	209.9	209.9	209.9	209.9	209.9	209.9
Rx E/S Antenna Pointing Loss	dB	0.5	0.5	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.55
Rx E/S Antenna Diameter	m	1.8	1.8	0.7	0.3	0.7	0.7	7.4	7.4	7.4	7.4	7.4
Rx E/S Antenna Gain	dBi	49.3	49.3	40.7	33.7	40.7	40.7	61.4	61.4	61.4	61.4	61.4
Rx E/S G/T	dB/K	23.3	23.3	14.7	7.7	14.7	14.7	36.6	36.6	36.6	36.6	36.6
System Noise Temp (LNA+Sky)	K	400	400	400	400	400	400	300	300	300	300	300
C/I - Intra-system	dB	18.7	18.7	18.7	18.7	18.7	13.3	13.3	13.3	13.3	13.3	13.3
End-to-End												
C/N - Thermal Uplink	dB	16.6	17.4	17.4	17.4	24.5	25.7	11.5	13.9	16.3	20.6	7.3
C/I Up - ASI	dB	22.7	23.5	16.8	12.3	17.7	12.6	17	16.3	14.3	14.9	12.3
C/N - Thermal Downlink	dB	23.9	23.9	15.3	8.3	15.3	15.5	34.4	34.4	34.4	34.4	34.4
C/I Down - ASI	dB	22.7	23.5	16.8	12.3	17.7	12.6	17	16.3	14.3	14.9	12.3
C/(N+I) - Total Actual	dB	12.8	13.2	9.8	5.2	10.8	7.2	7.1	7.6	7.4	8.0	4.1
C/N - Required	dB	10.3	3.6	-2.8	-0.9	6.2	-1.3	-0.9	6.2	-1.3	3.6	-0.9
Excess Margin	dB	2.5	9.6	12.6	6.1	4.6	8.5	8.0	1.4	8.7	4.4	5.0

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge and belief.

*/s/*______________________________________
Mark A. Sturza
President
3C Systems Company

10 September 2026