

File Number: **DRAFT-SAT-LOA-20251230-00409**

Call Sign:

S1. Satellite Information

a. Space Station or Satellite Network Name	b. Orbit Type	c. Estimated Operational Lifetime of Space Station(s) From Date of Launch (yrs)	d. Will the space station(s) operate on a Common Carrier basis?	e. Application Description
Impulse-4	Non-Geostationary (NGSO)	2	N/A	Impulse requests authority to launch and operate one NGSO satellite (Impulse-4) using 2025-2110 MHz and 8450-8500 MHz for propulsion testing.

S2. Operating Frequency Bands

a. Type of Service	b. If a. is Other, provide a service description	c. Satellite Frequency Band (MHz)	d. Satellite Frequency (Lower Band Edge) (MHz)	e. Satellite Frequency (Upper Band Edge) (MHz)	f. Direction of Transmission	g. Non Conforming Indicator
SRS		8450 - 8500	8450	8500	Space-to-Earth (Transmit)	No
SOS		2025 - 2110	2025	2110	Earth-to-Space (Receive)	No
SRS		2025 - 2110	2025	2110	Earth-to-Space (Receive)	No

S3. NGSO Orbital Information

a. Total Number of Simultaneously Operating Satellites in Constellation	b. Total Number of Satellites Deployed During the License Term	c. Orbit Epoch Date	d. Celestial Reference Body	e. If d. is "Other", provide the name of celestial body being referenced	f. Total Number of Orbital Planes
1	1	2026-07-31	Earth		1

g. Orbital Plane Information

(i) Orbital Plane No.	(ii) Number of Satellites in Plane	(iii) Inclination Angle (°)	(iv) Inclination Angle Tolerance (+/- °)	(v) Orbital Period (seconds)	(vi) Apogee (km)	(vii) Apogee Tolerance (+/- km)	(viii) Perigee (km)	(ix) Perigee Tolerance (+/- km)	(x) Argument of Perigee (°)	(xi) Right Ascension of Ascending Node (°)	(xii) Right Ascension of Ascending Node Tolerance (+/- °)	(xiii) Active Service Arc Begin Angle with Respect to Ascending Node (°)	(xiv) Active Service Arc End Angle with Respect to Ascending Node (°)	(xv) Is additional info on the active service arc provided in the application?	(xvi) Satellite Spacing	(xvii) Phase Angle Spacing (°)	(xviii) First Satellite Initial Phase Angle (°)	(xix) Maximum Orbital Eccentricity
1	1	88	2	5,700	1,600	0	325	0	0	63	1	-90	90	No	Evenly-Spaced	360	0	

h. Initial Phase Angle Information

(i) Orbital Plane No.	(i) Satellite No.	(ii) Initial Phase Angle (°)
1	1	0

S4. Earth-to-Space (Receive) Beams

a. Beam ID:	US	n. Beam Peak Flux Density at Command Threshold (dBW/m²):				
b. Beam Frequency (Lower Band Edge) (MHz):	2025	o. Peak Isotropic Antenna Gain (dBi):	5.2			
c. Beam Frequency (Upper Band Edge) (MHz):	2110	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):				
d. Polarization:	RHCP	q. Antenna Pointing Error (°):				
e. Can the space station vary the channel bandwidth with on-board processing?:	Yes	r. Antenna Rotational Error (°):				
f. Is this a command beam? (Check box if Yes):	No	s. Will a GIMS container file containing all antenna contour data be provided?:				
g. Is the beam shapeable? (Check box if Yes):	No	t. Under what rules will the associated antenna contours be submitted?:				
h. Is the beam steerable? (Check box if Yes):	No	u. Provide a list of each orbital plane in which this antenna beam is used.:				
i. Is the beam fed into transponders? (Check box if Yes):	No	v. Are all space stations in the NGSO constellation identical?:				
j. Maximum G/T (dB/K):	-21.8	w. What information will be provided with the predicted antenna gain contours?:				
k. Minimum G/T (dB/K):						
l. Maximum Saturation Flux Density (dBW/m²):						
m. Minimum Saturation Flux Density (dBW/m²):						
x. Receive Channels						
(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
US06	0.675	2099	2098.6625	2099.3375	TT&C	
US07	0.0675	2055	2054.96625	2055.03375	Service Link	
US02	0.0675	2099	2098.96625	2099.03375	TT&C	
US01	0.0675	2055	2054.96625	2055.03375	TT&C	
US09	0.27	2055	2054.865	2055.135	Service Link	
US08	0.0675	2099	2098.96625	2099.03375	Service Link	
US10	0.27	2099	2098.865	2099.135	Service Link	
US03	0.27	2055	2054.865	2055.135	TT&C	
US11	0.675	2055	2054.6625	2055.3375	Service Link	
US12	0.675	2099	2098.6625	2099.3375	Service Link	
US04	0.27	2099	2098.865	2099.135	TT&C	
US05	0.675	2055	2054.6625	2055.3375	TT&C	

S5. Space-to-Earth (Transmit) Beams

a. Beam ID:	DX	n. Beam Peak Flux Density at Command Threshold (dBW/m²):	
b. Beam Frequency (Lower Band Edge) (MHz):	8450	o. Peak Isotropic Antenna Gain (dBi):	6.5
c. Beam Frequency (Upper Band Edge) (MHz):	8500	p. Isotropic Antenna Gain at 3 dB Beamwidth (dBi):	
d. Polarization:	RHCP	q. Antenna Pointing Error (°):	
e. Can the space station vary the channel bandwidth with on-board processing?:	Yes	r. Antenna Rotational Error (°):	

f. Is this a command beam? (Check box if Yes):	No	s. Will a GIMS container file containing all antenna contour data be provided?:
g. Is the beam shapeable? (Check box if Yes):	No	t. Under what rules will the associated antenna contours be submitted?:
h. Is the beam steerable? (Check box if Yes):	No	u. Provide a list of each orbital plane in which this antenna beam is used.:
i. Is the beam fed into transponders? (Check box if Yes):	No	v. Are all space stations in the NGSO constellation identical?:
j. Maximum Transmit EIRP Density (dBW/Ref BW):	-41.3	w. What information will be provided with the predicted antenna gain contours?:
k. Maximum Transmit EIRP (dBW):	7	

x. Transmit Channels						
(i) Channel ID	(ii) Channel Bandwidth (MHz)	(iii) Center Frequency (MHz)	(iv) Channel Frequency (Lower Band Edge) (MHz)	(v) Channel Frequency (Upper Band Edge) (MHz)	(vi) Channel Type	(vii) Point of Communication
DX02B	0.135	8493	8492.9325	8493.0675	TT&C	
DX01B	0.0135	8493	8492.99325	8493.00675	TT&C	
DX04B	1.35	8493	8492.325	8493.675	TT&C	
DX08A	0.135	8495	8494.9325	8495.0675	TT&C	
DX05B	2.7	8493	8491.65	8494.35	TT&C	
DX06A	5.4	8493	8490.3	8495.7	Service Link	
DX05A	2.7	8493	8491.65	8494.35	Service Link	
DX11A	2.7	8495	8493.65	8496.35	TT&C	
DX04A	1.35	8493	8492.325	8493.675	Service Link	
DX03A	0.675	8493	8492.6625	8493.3375	Service Link	
DX09A	0.675	8495	8494.6625	8495.3375	TT&C	
DX07A	0.0135	8495	8494.99325	8495.00675	TT&C	
DX12B	5.4	8495	8492.3	8497.7	Service Link	
DX08B	0.135	8495	8494.9325	8495.0675	Service Link	
DX11B	2.7	8495	8493.65	8496.35	Service Link	
DX09B	0.675	8495	8494.6625	8495.3375	Service Link	
DX10A	1.35	8495	8494.325	8495.675	TT&C	
DX12A	5.4	8495	8492.3	8497.7	TT&C	
DX01A	0.0135	8493	8492.99325	8493.00675	Service Link	
DX10B	1.35	8495	8494.325	8495.675	Service Link	
DX03B	0.675	8493	8492.6625	8493.3375	TT&C	
DX06B	5.4	8493	8490.3	8495.7	TT&C	
DX02A	0.135	8493	8492.9325	8493.0675	Service Link	
DX07B	0.0135	8495	8494.99325	8495.00675	Service Link	

y. Max. Power-Flux Densities													
			Angles of Arrival PFD						Geographic Region PFD				
(i) Beam Sub-Frequency (Lower Band Edge) (MHz)	(ii) Beam Sub-Frequency (Upper Band Edge) (MHz)	(iii) Reference Bandwidth (BW)	(iv) 0-2° (dBW/m²/BW)	(v) 2-5° (dBW/m²/BW)	(vi) 5-15° (dBW/m²/BW)	(vii) 15-20° (dBW/m²/BW)	(viii) 20-25° (dBW/m²/BW)	(ix) 25-90° (dBW/m²/BW)	(x) Southeastern Region (dBW/m²/BW)	(xi) Northeastern Region (dBW/m²/BW)	(xii) Western Region (dBW/m²/BW)	(xiii) Other Region (dBW/m²/BW)	(xiv) Energy Dispersal Bandwidth (kHz)
		4 kHz		-152.6	-149.2	-147.8	-146.5	-140.2					

S6. Space-to-Space (Receive) Beams

S7. Space-to-Space (Transmit) Beams

S8. Attachments
