EXHIBIT B: TECHNICAL ANNEX (REVISED)

Note: ICEYE submitted its Technical Annex with the application that it filed on February 12, 2021. ICEYE now submits this revised Technical Annex, which revises several technical values. The revisions are highlighted in yellow.

I. Introduction and Background

Please see Section I of the Narrative Statement.

II. System Facilities and Operations

A. Space Segment Including Orbital Parameters

Please see Section II.A of the Narrative Statement for a general description of the space segment. The information set forth below provides additional details.

The Attitude Determination and Control System ("ADCS") for the satellites consists of a GPS, Inertial Management Units (IMU), magnetometers, star trackers, torque rods, and reaction wheels and is capable of achieving a pointing accuracy of better than +/- 0.1 degrees and a GPS accuracy of better than five meters. Each satellite will carry propulsion for the purpose of orbit maintenance and intra-constellation phasing, coupled with conjunction avoidance and deorbit of spacecraft after its lifetime.

The anticipated orbital parameters and expected range for the satellites are set forth in the table below. ICEYE will provide exact operational inclination angle and elevation values prior to launch of each satellite.

Orbital Parameters	Values	Accuracy
Inclination Angle (degree)	97 - 98	+/- 1
Apogee (km)	550	+/- 50

Perigee (km)	550	+/- 50
Semi-major Axis (km)	6921	+/- 50

Each satellite has an expected operational lifetime of 3 years. ICEYE has utilized NASA's Debris Assessment Software version 3.0.1 ("DAS") to determine that all satellites will be compliant with existing orbital debris mitigation requirements. At the end of the satellite's operational life, the satellite will be commanded to de-orbit. All satellites will be de-orbited before expiration of the 6-year license term, with no objects surviving reentry. Post-mission disposal is achieved through the natural effects of atmospheric drag.

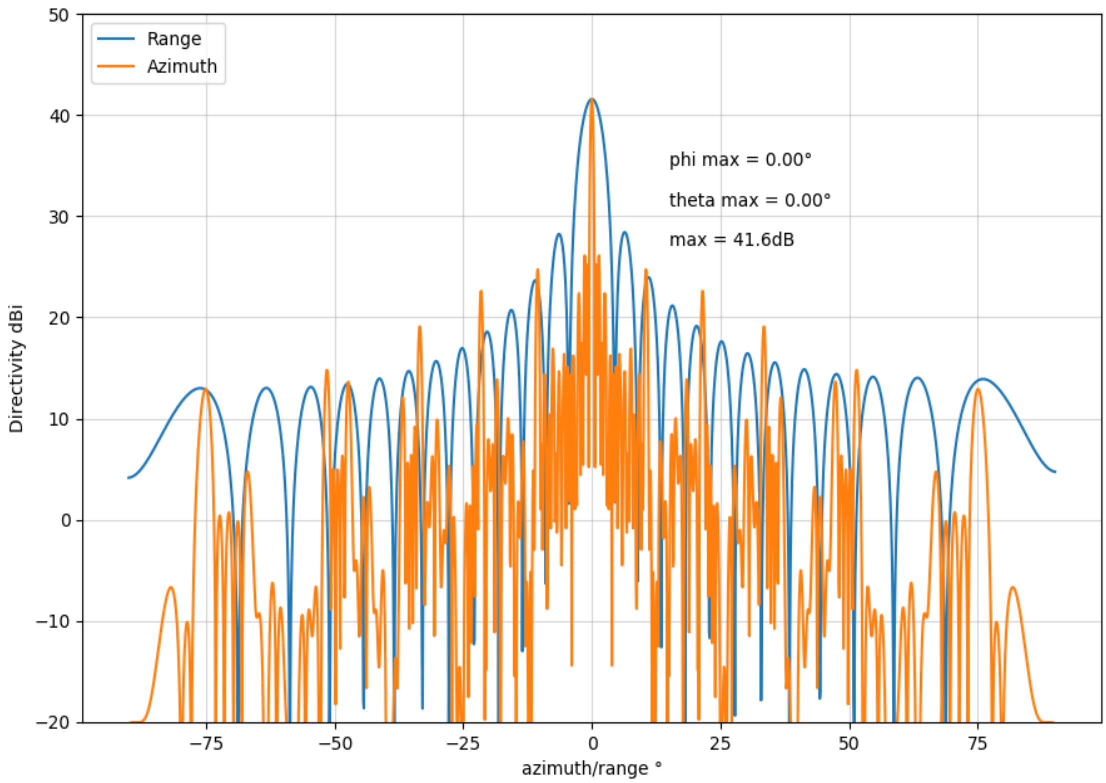
B. Ground Segment

Please see Section II.B. of the Narrative Statement for a general description of the ground segment.

III. Description of SAR System

The sensor is a Synthetic Aperture Radar ("SAR") system consisting of an active phased array with transmit (Tx) and receive (Rx) modules, transmit and receive radios, and data converter (A/D and D/A). The modules also use phase shifters for beam formation with azimuth and range control. The SAR antenna is a modular phased array with a gain of approximately 42 dB and a beamwidth of 1 degree on the short side, and 0.4 degrees on the long side.

Figure 1: Typical SAR Transmit/Receive Beam Pattern



A. SAR Transmission Specifications

The SAR transmission event consists of a series of linear FM pulses transmitted at an even interval (pulse repetition frequency) with a specific duration (pulse width) over a period of time (dwell time). Table 1 below provides a full list of the SAR transmission characteristics.

Table 1: Typical Transmission Parameters for SAR

Specification	Value	Unit
Frequency Range	9.3 - 9.9	GHz
Bandwidth	Up to 600	MHz
Frequency Tolerance	+/- 0.002	%
Noise Equivalent Sigma Zero (NESZ)	< -16.5	dB
Polarization	VV	
-3 dB beamwidth (short side)	4.0	degrees
-3 dB beamwidth (long side)	0.5	degrees
RF emitted power (peak)	3	kW
RF emitted power (avg)	600	W
Waveform	FM linear chirp and bandwidth limited noise	
Dwell Time	1 - 90	seconds
Duty Cycle	20%	
Pulse Repetition Frequency	2 – 10	kHz

IV. Communication System Description and Antenna Beam Patterns

Each satellite will be equipped with 3 communication link channels: Payload Data Downlink, Command Uplink, and Telemetry downlink. Each communication link has its own specifications and uses. Payload Data Downlink is utilized solely to downlink raw SAR data. Command Uplink is used for sending commands to the spacecraft. Telemetry downlink is used to send telemetry and tracking data to ground earth stations. Each satellite will be identifiable by a unique signal-based telemetry marker to distinguish it from other space stations or space objects. The communication specifications for each communication link channel are set forth in Table 2 below.

Table 2: Communications Specifications

Communication Link Channel	Payload Data Downlink	Command Uplink	Telemetry Downlink
Frequency Band	8025 – 8400 MHz	2025 – 2110 MHz	2200 – 2290 MHz
Channel Bandwidth	150 - 375 MHz	1.2 MHz	6 MHz
Modulation	OQPSK and 8PSK	PCM/PM/SP-L	QPSK
Polarization	RHCP	RHCP	RHCP
Tx Power	6 dBW	N/A	3 dBW
EIRP	13.4 dBW*	N/A	11.3 dBW

*Power can be adjusted to comply with maximum PFD limits.

Figure 2: X-band Downlink Radiation Pattern (revised)

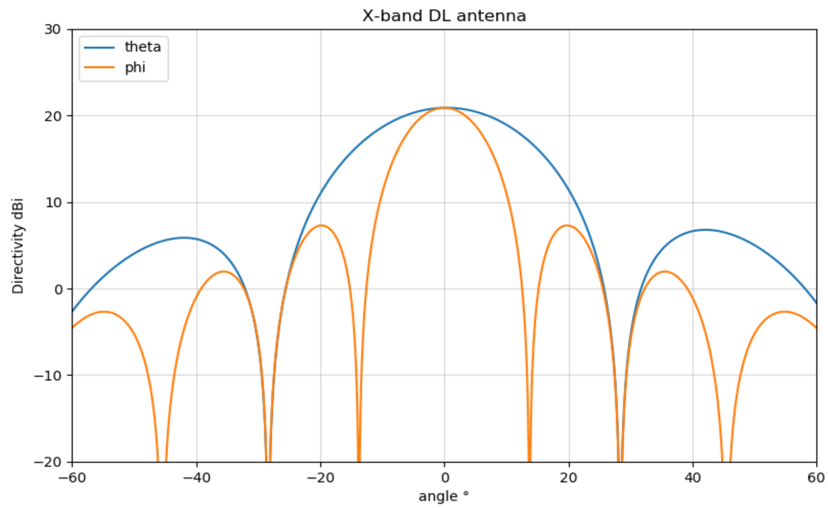


Figure 3: Telemetry Downlink Radiation Pattern

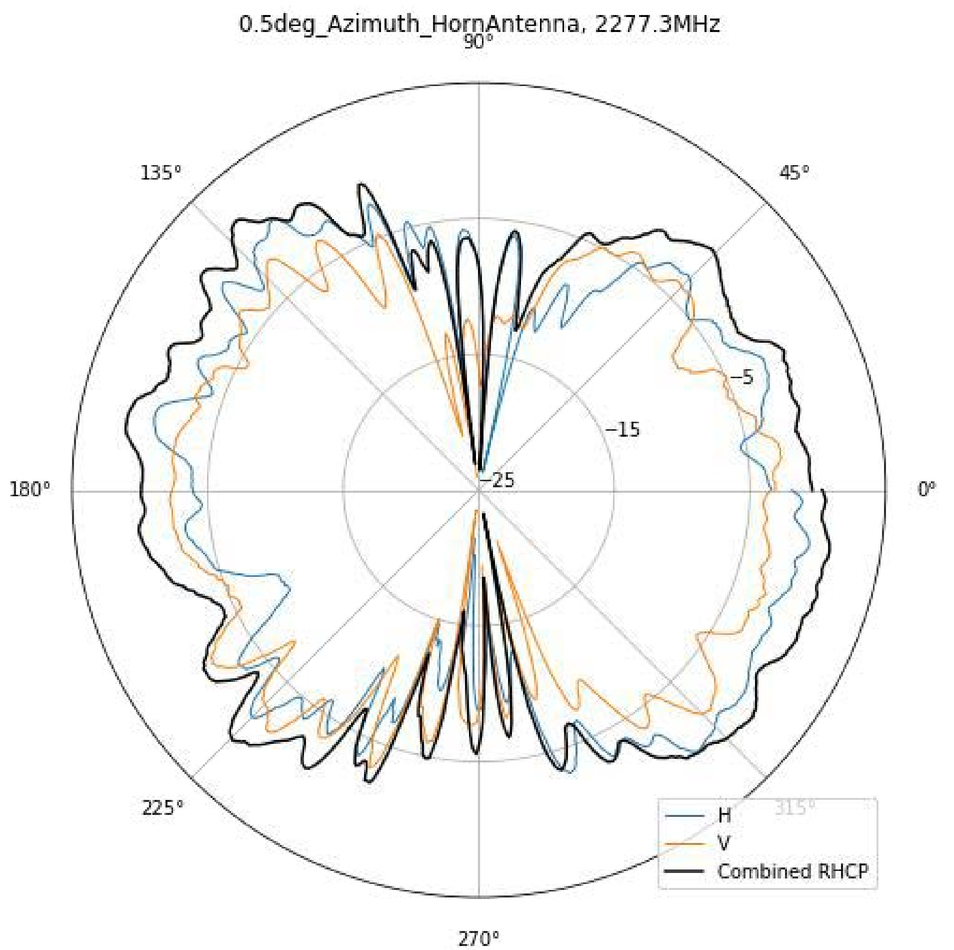
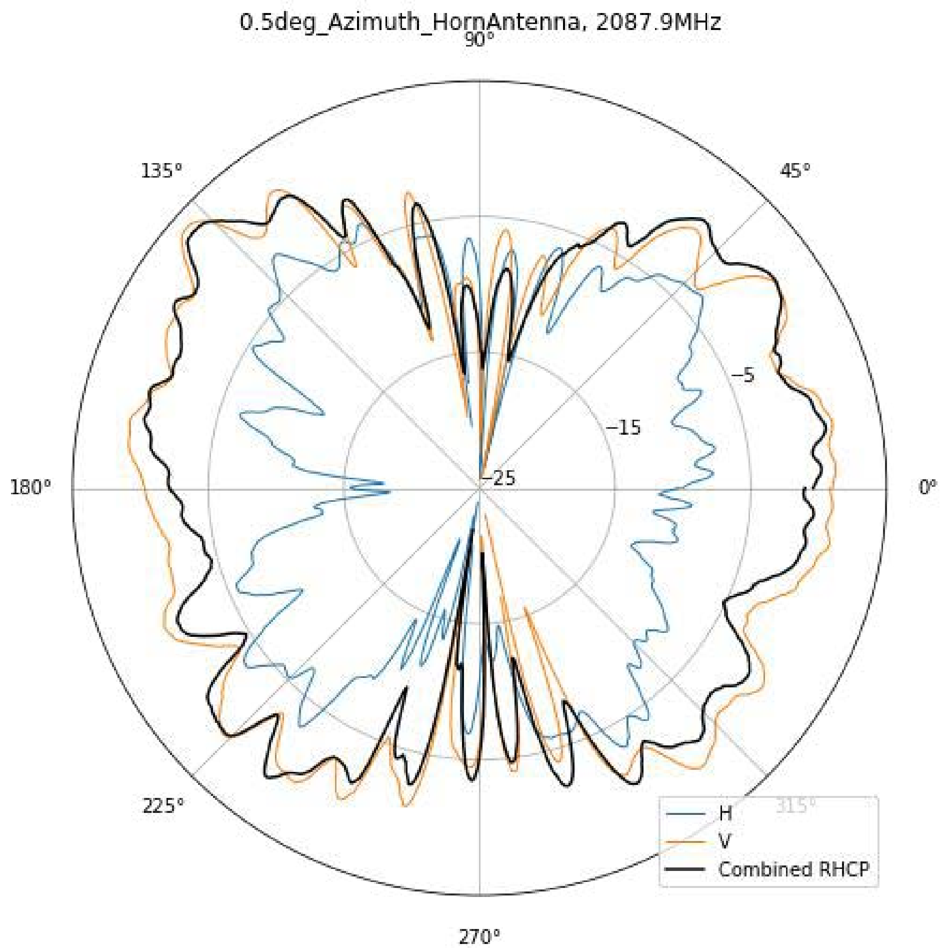


Figure 4: Command Uplink Radiation Pattern



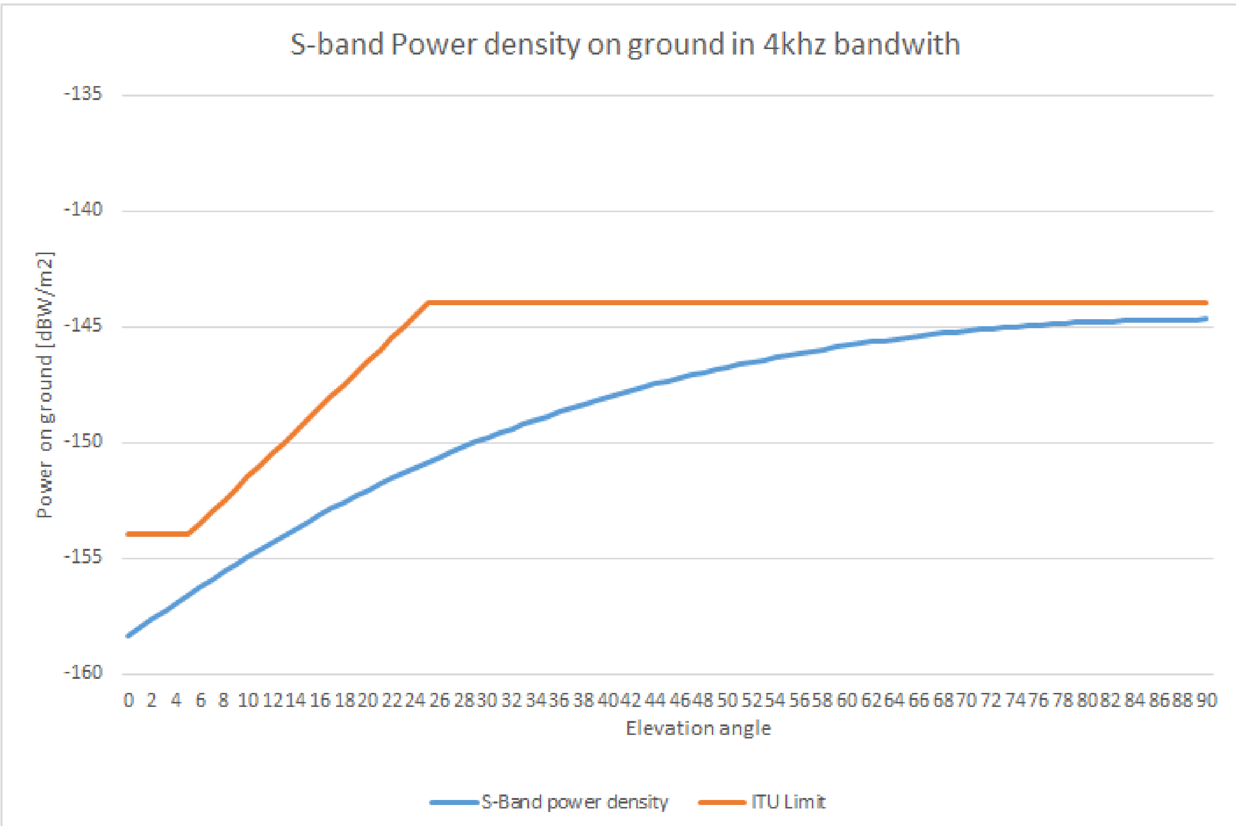
V. Interference Analysis

Please see Section IV of the Narrative Statement for a discussion of the interference analysis. The information set forth below provides additional details, particularly regarding compliance with ITU guidelines regarding Power Flux Density (“PFD”). PFD (W/m2) = PSD (output of radio system) + Gain of antenna (dB) – Free space loss at 567 km.

A. 2200 - 2290 MHz

Set forth below is a graph of the PFD on the ground at different elevation angles during a standard S-Band downlink event. Across all potential orbits, the PFD on the ground during telemetry downlink operations remains safely under the limit, ensuring that no harmful interference occurs.

Figure 5: Telemetry Downlink Power Flux Density on ground in worst case 4 kHz reference bandwidth by elevation angle on ground

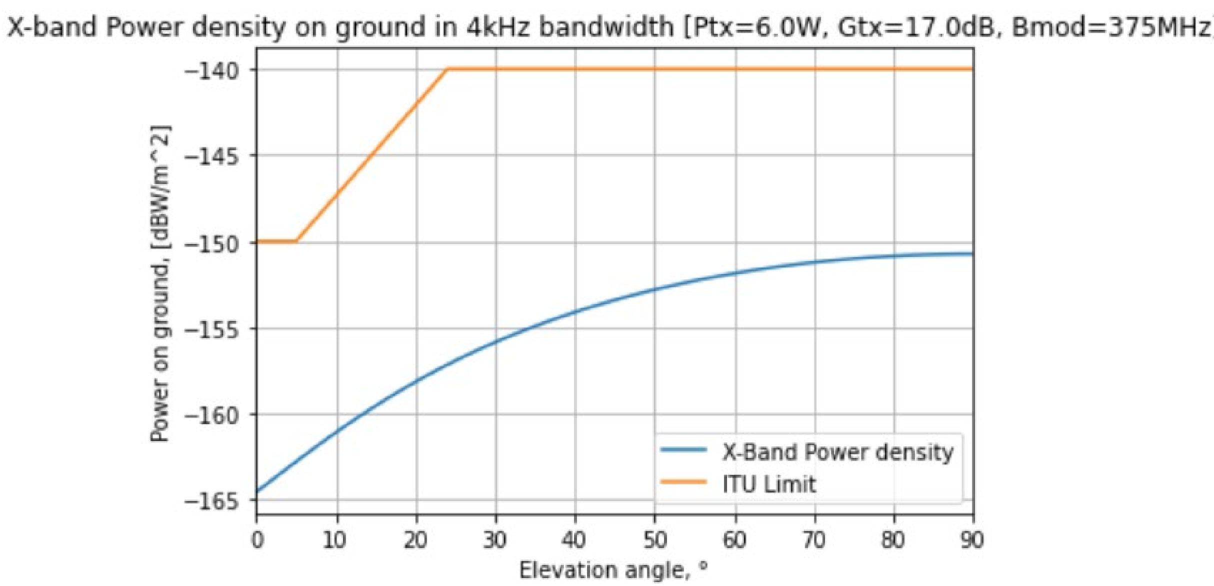


B. 8025 - 8400 MHz

ITU Radio Regulations (Table 21-4) states a Power Flux Density ("PFD") limit at the Earth's surface for space-to-Earth X-band EESS (8025 – 8400 MHz) emissions must not exceed the following values: (1) -150 dB (W/m² /4kHz) for angles of arrival between 0 and 5 degrees above the horizontal plane; (2) -150 + 0.5(d – 5) dB (W/m² / 4kHz) between 5 and 25 degrees above the horizontal plane; and (3) -140 dB (W/m² / 4 kHz) angles of arrival between 25 and 90 degrees above the horizontal plane.

ICEYE has performed an analysis and determined that all communication links surpass this standard. As shown in the figure below, the payload data downlink satisfies the PFD limits with at least 4 dB of margin at all angles of arrival. Across all potential orbits, the PFD on the ground during payload data downlink operations remains under the limit, ensuring that no harmful interference occurs.

Figure 6: Payload data downlink Power Flux Density on ground in worst case 4 kHz bandwidth by elevation on ground



TECHNICAL CERTIFICATION OF DEEPAK GROVER

I, Deepak Grover, hereby certify, under penalty of perjury, that the following statements are true and correct to the best of my knowledge, information and belief:

1. I am the technically qualified person responsible for reviewing the engineering information contained in the foregoing Technical Annex, the related Schedule S and exhibits thereto;

2. I am familiar with Part 25 of the Rules of the Federal Communications Commission (47 C.F.R. § 25.101 *et seq.*); and

3. I have either prepared or reviewed the engineering information contained in the aforementioned documents and found it to be complete and accurate.

By: 

Deepak Grover
Vice President
ICEYE US, Inc.

Dated: August 30, 2021