EXHIBIT A

TECHNICAL ANNEX
REASON-2 SATELLITE

I. SCOPE AND PURPOSE

This exhibit provides additional technical information regarding the Reason-2 non-geostationary orbit ("NGSO") satellite as proposed by Cowboy Space Corp. ("Cowboy Space").

II. GENERAL DESCRIPTION

The following tables summarize Reason-2's radiofrequency and earth station characteristics. The predicted maximum number of passes is based on a 510-km circular orbit at 97.4 degrees inclination. Although Reason-2 may not be injected into this orbit, the vast majority of its operational lifetime will occur at this orbital altitude and inclination.

Cowboy Space will test its optical communications system to facilitate uploading and downloading data from Reason-2 via optical link. In order for the satellite and earth station to close the optical link, Reason-2 will utilize optical beacons transmitting between Reason-2 and Cowboy Space-operated earth stations at four locations in the United States. These ground stations will also include a narrow RF signal as a backup, communicating with Reason-2's radio system. Cowboy Space will also utilize earth stations operated by 3rd party operators Leaf Space and AnySignal for telemetry, tracking, and command, beacon, and data operations with Reason-2. Cowboy Space seeks authority to communicate with these ground stations as described below.

III. FREQUENCY PLAN

Table 1: Frequency Plan[1]

Beam ID	UHFD	UHFU	SD	SU	XD
Description	UHF Downlink (space-to-Earth)	UHF Uplink (Earth-to-space)	S-band Downlink (Payload and TT&C) (space-to-Earth)	S-band Uplink (Payload and TT&C) (Earth-to-space)	X-band Downlink (space-to-Earth)
Frequency Band (MHz)[2]	400.15-401	402-403	2200-2290	2025-2110	8025-8400
Center Frequency (MHz)[3]	400.65	402.2	TT&C: 2240.0 Payload: 2272.5	TT&C: 2100.0 Payload: 2092.59375	8212
Bandwidth	20 kHz	20 kHz	4.0 MHz	1.02 MHz	80 MHz
Transmit Power (dBW)	0.8	-8.4	-1.5	AS: 18.45 Leaf: 15	2
Transmit Antenna Gain (dBi)	0	15.4	SDA: 4.8 SDB: 6.5	AS: 33.3 Leaf: 35 Cowboy: 30.5	16.6
EIRP (dBW)	0.8	7	SDA: 3.3 SDB: 5	AS: 51.83 Leaf: 50 Cowboy: 50.5	18.6
Polarization	Linear	Linear	RHCP	RHCP	RHCP
Receive Antenna G/T (dB/K)	-9.2	-24.6	AS: 9.7 Leaf: 12.6 Cowboy: 10	SUA: -20.5 SUB: -22.5	AS: 22.3 Leaf: 25.9 Cowboy: 23

[1] Where the technical characteristics differ between the two ground station network operators the values are listed as "AS" for AnySignal ground stations or "Leaf" for Leaf Space ground stations.

[2] Reason-2 will also receive Global Positioning System signals (specifically, GPS L1 (1575.42 MHz), L2 (1227.60 MHz), and L5 (1176.45 MHz)) for orbit determination.

[3] The center frequencies in Table 1 are used throughout this exhibit, but the precise center frequency will be finalized through the coordination process.

IV. EARTH STATIONS

Table 2: Earth Station Plan (Operated by Leaf Space)

Earth Station Location	Coordinates	# Passes Per Day	Average Contact Duration Per Pass (Minutes)	GS Rx (Beam ID)	GS Tx (Beam ID)
Peterborough, Southern Australia	32° 57' 43.2" S, 138° 50' 58.2" E	2.9	5.9	SD	SU
Nangetty, Western Australia	29° 00' 37.5" S, 115° 20' 30.0" E	2.7	5.9	SD	SU
Absheron, Azerbaijan	40° 27' 58.6" N, 49° 29' 08.9" E	3.3	5.9	SD	SU
Plana, Bulgaria	42° 28' 58.6" N, 23° 26' 43.0" E	3.4	5.9	SD	SU
Punta Arenas, Chile	53° 02' 28.4"S, 70° 50' 49.6"W	4.2	5.9	SD, XD	SU
Blönduós, Iceland	65° 38' 50.5" N, 20° 14' 45.9" W	6.9	5.9	SD, XD	SU

Earth Station Location	Coordinates	# Passes Per Day	Average Contact Duration Per Pass (Minutes)	GS Rx (Beam ID)	GS Tx (Beam ID)
Kandy, Sri Lanka	07° 16' 27.2" N, 80° 43' 29.5" E	2.5	5.6	SD	SU
Jeju, South Korea	33° 23' 14.27" N, 126° 19' 2.78" E	2.9	5.9	SD	SU
Mon Loisir, Mauritius	20° 08' 20.85" S, 57° 41' 13.23" E	2.6	5.7	SD, XD	SU
La Paz, Mexico	24° 05' 57.6" N, 110° 23' 10.2" W	2.7	5.9	SD, XD	SU
Awarua, New Zealand	46° 31' 41.2" S, 168° 22' 45.1" E	3.6	5.9	SD, XD	SU
Santa Maria, Azores, Portugal	36° 59' 51.2" N, 25° 08' 14.3" W	3.0	6.0	SD, XD	SU
Unst, Shetland, United Kingdom	60° 44' 53.9" N, 00° 51' 30.2" W	5.5	5.8	UHFD, SD	UHFU, SU

Earth Station Location	Coordinates	# Passes Per Day	Average Contact Duration Per Pass (Minutes)	GS Rx (Beam ID)	GS Tx (Beam ID)
Talkeetna, Alaska, USA	62°19'55.5"N, 150°01'55.9"W	3	6	UHFD, XD	UHFU, SU
Pretoria, South Africa	25° 51' 37.2" S, 28° 27' 13.6" E	2.7	5.8	UHFD, SD, XD	UHFU, SU

Table 3: Earth Station Plan (Operated by AnySignal)

Earth Station Location	Coordinates	# Passes Per Day	Average Contact Duration Per Pass (Minutes)	GS Rx (Beam ID)	GS Tx (Beam ID)
Selfoss, Iceland	64° 3' 4.3" N, 20° 25' 18" W	6	6.1	SD, XD	SU
Pitea, Sweden	65° 20' 17" N, 21° 25' 31" E	8	5.2	SD	SU

Torrance, CA, USA	33° 48' 27" N, 118° 21' 0" W	3	5.9	-	SU
Punta Arenas, Chile	53° 7' 3" S, 70° 53' 39" W	4	5.7	SD, XD	SU
North Pole	64° 45' 49.0" N, 147° 22' 12.7" W	8	4.9	XD	SU

Table 4: Earth Station Plan (Operated by Cowboy Space)

Earth Station Location	**Coordinates**	**# Passes Per Day**	**Average Contact Duration Per Pass (Minutes)**	**GS Rx (Beam ID)**	**GS Tx (Beam ID)**
San Carlos, CA, USA (Cowboy Space HQ)	37° 30' 26.7" N, 122° 15' 16.0" W	3	5.9	UHFD, SD	UHFU, SU
White Sands, NM, USA (HELSTF)	32° 30' 53.4" N, 106° 14' 41.2" W	3	5.8	UHFD, SD	UHFU, SU
Kent, WA	47° 23' 57" N, 122° 14' 13" W	4	5.9	UHFD, SD, XD	UHFU, SU
Space Gun Ranch	35° 00' 47" N, 116° 55' 45" W	3	5.9	UHFD, SD	UHFU, SU

V. OTHER PAYLOADS

The following table identifies non-RF payloads on the satellite used, all of which are owned and operated by Cowboy Space.[4] Cowboy Space will only receive signals in the S-band downlink at its earth stations in Table 4 when operating in support of Federal operations and/or activities. This limitation is consistent with the conditions of the license grant for the Reason-1 satellite.[5]

Table 5: Non-RF Payloads

Payload	Function
Cowboy Space Laser System	Ytterbium fiber laser at 1064 nm wavelength designed for optical communications that demonstrate the fastest 1064 nm space-to-Earth data downlink. Power density on the ground is Class 1. This system does not have an independent radio transceiver.
Cowboy Space Optical Uplink Camera	CMOS photodetector array coupled with a 100 mm diameter aperture. Designed for detecting an optical data uplink at 1064 nm. This is not an imaging system. This system does not have an independent radio transceiver.
Payload Selfie Camera	A 2MP close-up camera that points at the payload and will be used for deployment validation. The camera has no zoom optics and the majority of the field of view is blocked by the payload. The camera includes a flash to illuminate the payload components to validate deployment. This system does not have an independent radio transceiver.

[4] All payloads will stay on board Reason-2. None has radiofrequency components that require additional FCC licensing.

[5] *See*, File No. 0124-EX-CM-2026, Cowboy Space Corp., Granted Jul. 14, 2026, Conditions 11-12.

VI. CESSATION OF TRANSMISSIONS AND STOP BUZZER

Reason-2 will be capable of immediately ceasing operations in compliance with Section 5.84 of the FCC's Rules.[6] The stop buzzer contact information for this mission is as follows:

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+1 (352) 359-7818
andrew@cowboyspace.com
Cowboy Space Corp.

VII. SPECTRUM SHARING ANALYSIS

Interference between Reason-2 and other systems is unlikely. Space operation and space research service systems normally communicate only in short periods of time while visible from the dedicated earth stations (typically less than 10 minutes for a single pass). For interference to occur, either another operator's satellite would have to travel through the antenna beam of Reason-2's serving earth station or Reason-2 would have to pass through the antenna beam of the other operator's serving earth station and both systems would need to transmit at the same time on overlapping frequencies. In such a very unlikely event, interference avoidance is possible by coordinating the communications so that they do not occur simultaneously in the time, frequency, and geographic dimensions. Cowboy Space recognizes that federal spectrum users have priority access to these bands and that any non-federal users must protect federal in-band operations. Cowboy Space commits to coordinate in all its requested frequency bands and will not transmit until its coordination is complete. Further, as demonstrated in the following sections, Reason-2 satisfies relevant in-band and adjacent-band power limits.

[6] 47 C.F.R. § 5.84.

A. Power-Flux Density ("PFD") Analysis

i. 2200-2290 MHz

Cowboy Space seeks authority to operate its TT&C downlink at a center frequency 2240 MHz and its payload downlink at a center frequency of 2272.5 MHz. The bandwidth for both payload and TT&C transmissions will be 4 MHz. PFD limits are specified in ITU Radio Regulations Table 21-4. Cowboy Space calculated the maximum PFD levels for the Reason-2 SD transmissions and determined that the downlink PFD levels of the Reason-2 carriers do not exceed the ITU limits. Although Cowboy Space does not yet know its injection altitude, the figures below are provided for 510 km altitude, where the majority of the Reason-2 mission will occur, regardless of the injection altitude. If Reason-2 is injected above 510 km, its PFD on the surface of the Earth will be lower than the values presented below. Therefore, Cowboy Space believes that its 510 km PFD showings represent a "worst-case" scenario from an operational standpoint and should be sufficient for demonstrating the ability to protect in-band terrestrial operators. Figure 1 illustrates the PFD analysis results for Reason-2 downlinking in its maximum EIRP spectral density configuration (5 dBW EIRP and an emission BW of 4 MHz) at a 510-km nominal operating altitude. At lower altitudes, Reason-2 will decrease the transmit power, as necessary, to stay within the limit at a 510-km nominal operating altitude, as illustrated in Figure 2 below. (EIRP reduced by 1 dB to 4 dBW at an orbit altitude of 450 km).

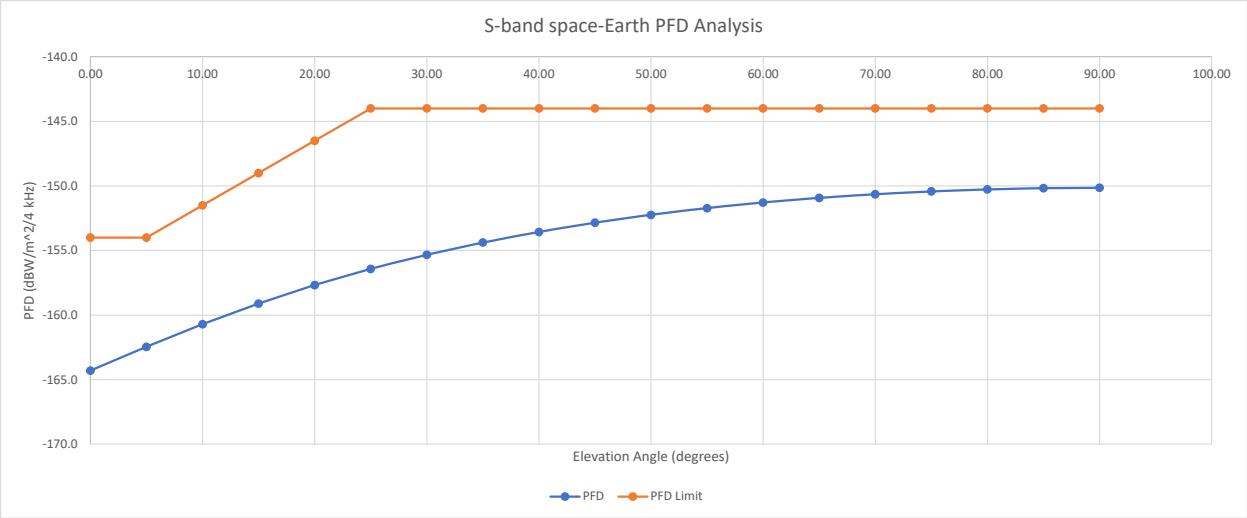

Figure 1: S-Band PFD vs Limit at 510 km for SD at maximum EIRP of 5 dBW and Emission BW of 4.0 MHz

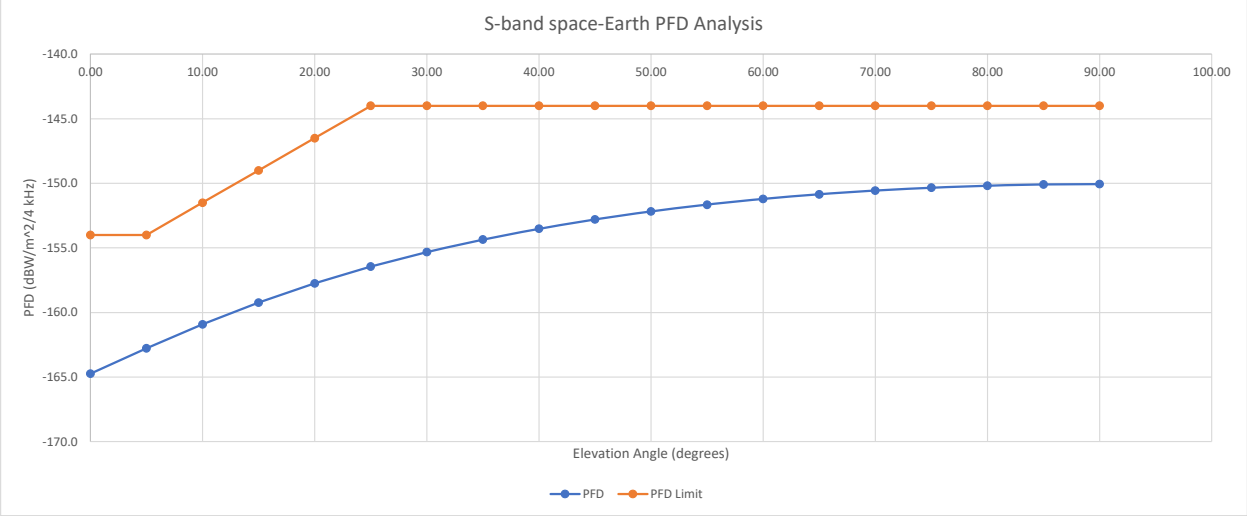

Figure 2: S-Band PFD vs Limit at 450 km for SD at reduced EIRP of 4 dBW and Emission BW of 4.0 MHz

ii. 8025-8400 MHz

Cowboy Space seeks authority to operate its another payload downlink at a center frequency of 8212 MHz. The Commission's rules do not specify a PFD limit for the 8025-8400 MHz band. However, rule No. 21.16 of the International Telecommunication Union (ITU) Radio Regulations does. Cowboy Space has calculated the maximum PFD levels for

transmissions from Reason-2 in accordance with these ITU PFD limits. As demonstrated below, Cowboy Space's operations will also be consistent with the ITU Recommendation SA.1157-1 in order to protect adjacent band deep-space research operations.

Figure 3 below represents the maximum transmitted EIRP at the nominal orbit altitude of 510 km for the X-band downlink.

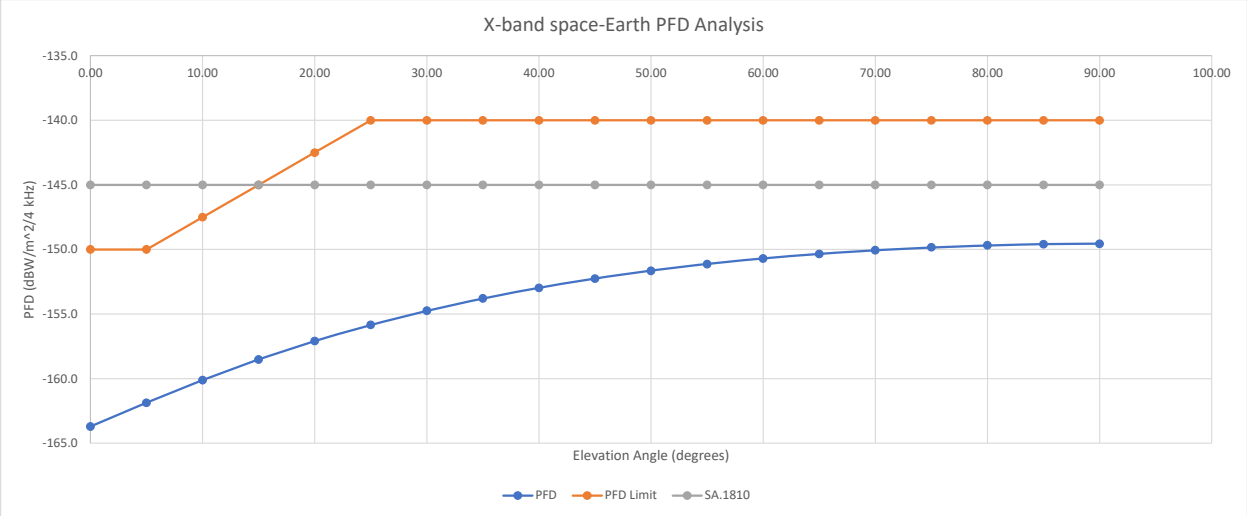

Figure 3: X-Band Spectral PFD vs Limit at 510 km for XD (18.6 dBW EIRP and 80 MHz Emission BW)

Figure 4 below represents the maximum transmitted EIRP at the minimum operational orbit altitude of 450 km as Reason-2 descends for the X-band downlink.

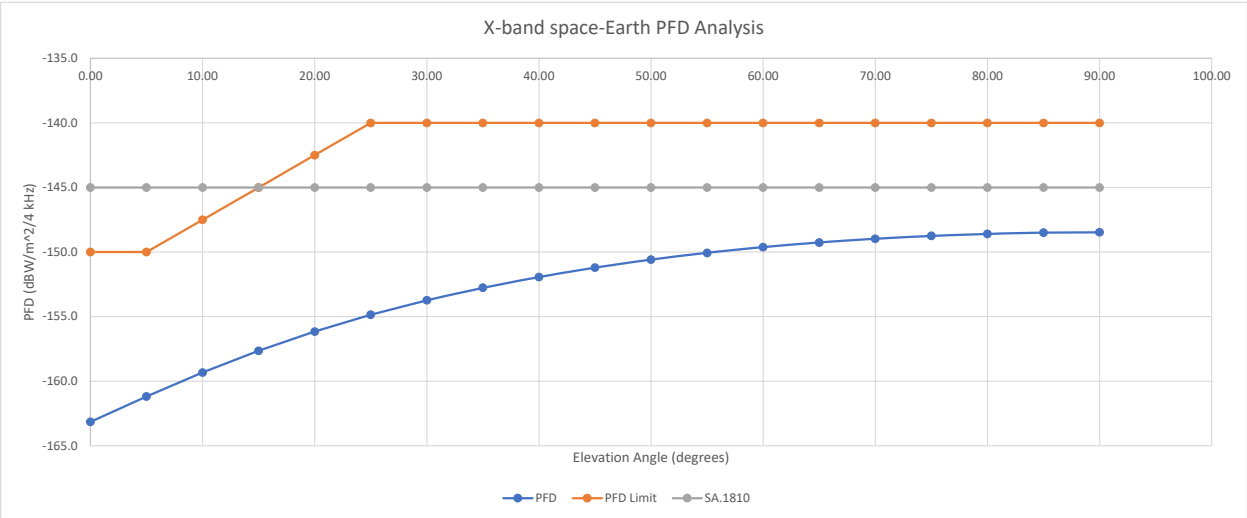

Figure 4: X-Band PFD vs Limit at 450 km for XD (18.6 dBW EIRP and 80 MHz Emission BW)

Cowboy Space will also be able to protect in-band systems operating in the geostationary orbit ("GSO"). No. 22.5 of the ITU Radio Regulations specifies that in the frequency band 8025-8400 MHz, the maximum PFD produced at the geostationary satellite orbit ("GSO") by any NGSO space station shall not exceed -174 dB(W/m2) in any 4 kHz band. Although Cowboy Space seeks to operate Reason-2 in the 8025-8400 MHz band, it opts to demonstrate that its proposed operations will protect GSO systems in the 8025-8400 MHz band. The calculation below shows that the PFD produced by the proposed transmissions does not exceed the limit in No. 22.5, even in the worst possible hypothetical case. The PFD at the GSO produced by the transmission is:

PFD [dBW/m2 /4 kHz] = EIRP (dBW) - 71 - 20log10(D) - 10log10(BW) - 24

Where:

- EIRP is the Maximum EIRP of the transmission, in dBW;
- D is distance between the transmitting satellite and GSO, in km; and
- BW is the symbol bandwidth of the transmission, in MHz.

The closest distance between the Reason-2 satellite and the GSO is 35,786 - 600 = 35,186 km for the highest possible satellite orbit of 600 km. A worst-case hypothetical assumption that the satellite antenna is radiating at its peak EIRP toward the GSO, to assure that the worst-case PFD is computed. The highest PFD producing emission from 600 km orbit altitude is 18.6 dBW EIRP which produces a maximum EIRP density of -24.4 dBW/4 kHz and results in a PFD at the GSO arc of -188.1 dBW/m2/4 kHz which is over 10 dB below the protection criteria.

B. Adjacent-Band Power Limit Analysis

i. 8025-8400 MHz

ITU-R Recommendation SA-1157-1 specifies a maximum allowable interference power spectral flux density level ("PSFD") at the Earth's surface to protect ground receivers in the deep-space research band operating in the 8400-8450 MHz frequencies. Reason-2 complies with this requirement by avoiding the use of the band when in line of site for the Deep Space Network ("DSN"). By avoiding line of sight to any DSN site, any emissions from Reason-2 will not be able to cause harmful interference to these protected sites. Cowboy Space has included a list of ground stations, indicating where it will and will not use its XD channel to demonstrate that Reason-2 will not transmit in this band when in LOS of any DSN receiver in the adjacent band.

VIII. COWBOY SPACE GROUND STATIONS

In addition to the Leaf Space and AnySignal ground station networks, Cowboy Space will be building and operating its own ground stations, as noted in Table 4 above, in support of its tests regarding the delivery of data through optical links. In addition to RF terminals with the characteristics described above, the Cowboy Space ground stations consist of a transmit and receive telescope equipped to track and both receive optical signals and transmit optical signals.

Commands to Reason-2 are issued from Cowboy Space's mission command center via its cloud connection with Cowboy Space's ground station network providers. Once a command is issued, it will be transmitted to Reason-2 as soon as it comes into view of a ground station. If Cowboy Space receives a report of harmful interference, Cowboy Space can issue the command to cease transmissions at any or all of the ground stations that transmit to Reason-2. This cloud-enabled protocol ensures that, upon Cowboy Space's receipt of any harmful interference

complaint, the command can be sent globally in seconds and that Reason-2 will receive the command to cease transmitting once it is in view of any of ground stations identified in Tables 2, 3, and 4 above. Reason-2 will only transmit when in view of its authorized ground stations.

IX. ORBITAL DEBRIS RISK MITIGATION PLAN

The Reason-2 mission will be compliant with Section 5.64 of the FCC's rules and Cowboy Space is submitting an orbital debris assessment report with this application that demonstrates that Reason-2 will meet all the requirements of the Commission's orbital debris mitigation rules.

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 5 of the FCC'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/ Andrew Yarmola
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