Attachment B

Ground Station Exhibit

Ground Station Exhibit

Table 1. List of ground stations.

Licensee	Location	Latitude	Longitude	Dish Size (m)	Uplink Frequencies	Downlink Frequencies	Purpose
Leaf	Peterborough, Australia	32° 57' 43" S	138° 50' 58" E	3.7	S	S, X	Primary
Leaf	Nangetty, Western Australia	29° 00' 37" S	115° 20' 32" E	3.7	S	S, X	Primary
KSAT	Mingenew, Australia	29° 00' 39" S	115° 20' 29" E	3.7	S	S, X	Primary
Leaf	Absheron, Azerbaijan	40° 27' 59" N	49° 29' 10" E	3.7	S	S, X	Primary
Leaf	Punta Arenas, Chile	53° 02' 30" S	70° 50' 45" W	3.7	S	S, X	Primary
KSAT	Punta Arenas, Chile	52° 56' 08" S	70° 52' 24" W	3.7, 3.9	S, EXP S	S, X, EXP S	Primary
AnySignal	Punta Arenas, Chile	53° 07' 03" S	70° 53' 39" W	3.7	S	UHF, S, X	Backup
KSAT	Punta Arenas, Chile	52° 56' 32" S	70° 50' 59" W	5.4	S	S, X	Primary
Leaf	Santiago, Chile	33° 21' 53" S	70° 46' 20" W	3.7	S	S, X	Primary
Leaf	Blonduos, Iceland	65° 38' 50" N	20° 14' 21" W	3.9	S	S, X	Primary
AnySignal	Selfoss, Iceland	64° 03' 04" N	20° 25' 18" W	3.7	S	UHF, S, X	Backup
Leaf	Kandy, Sri Lanka	07° 16' 27" N	80° 43' 29" E	3.7	S	S, X	Primary
Leaf	Mon Loisir, Mauritius	20° 08' 22" S	57° 41' 13" E	3.9	S	S, X	Primary
KSAT	Bel Ombre, Mauritius	20° 30' 02" S	57° 27' 03" E	3.7	S	S, X	Primary
Leaf	La Paz, Mexico	24° 05' 59" N	110° 23' 11" W	3.7	S	S, X	Primary
Leaf	Awarua, New Zealand	46° 31' 41" S	168° 22' 45" E	3.7	S	S, X	Primary
KSAT	Awarua, New Zealand	46° 31' 42" S	168° 22' 44" E	3.7, 3.9	S, EXP S	S, X, EXP S	Primary
AnySignal	Awarua, New Zealand	46° 31' 44" S	168° 22' 51" E	3.7	S	UHF, S, X	Backup
Leaf	Santa Maria, Azores, Portugal	36° 59' 51" N	25° 08' 14" W	3.7	S	S, X	Primary
Leaf	Pretoria, South Africa	25° 51' 37" S	28° 27' 13" E	3.7	S	S, X	Primary
AnySignal	Pretoria, South Africa	25° 45' 08" S	28° 14' 23" E	3.7	S	UHF, S, X	Backup
KSAT	Hartebeesthoek, South Africa	25° 53' 10" S	27° 42' 22" E	3.7	S	S, X	Primary
Leaf	Nova Scotia, Canada	45° 19' 04" N	61° 02' 09" W	3.7	S	S, X	Primary
Leaf	Al Ain, UAE	24° 11' 56" N	55° 41' 00" E	3.7	S	S, X	Primary
Leaf	Talkeetna, AK, United States	62° 19' 55" N	150° 01' 57" W	3.7	S	X	Primary

AnySignal	Colorado Springs, CO, United States	38° 50' 25" N	104° 43' 15" W	3.7	S	UHF, X	Backup
AnySignal	Torrance, CA, United States	33° 50' 02" N	118° 18' 48" W	3.7	S	UHF, X	Backup
AnySignal	Pitea, Sweden	65° 20' 16" N	21° 25' 31" E	3.7	S	UHF, S, X	Backup
AnySignal	Umea, Sweden	63° 49' 20" N	20° 15' 17" E	3.7	—	UHF	Backup
AnySignal	North Pole, AK, United States	64° 46' 34" N	147° 22' 52" W	3.7	S	UHF, X	Backup
KSAT	Jeju, South Korea	33° 23' 14" N	126° 19' 01" E	3.7	S	S, X	Primary
KSAT	Puertollano, Spain	38° 40' 20" N	04° 09' 46" W	3.7	S	S, X	Primary
KSAT	Athens, Greece	37° 50' 43" N	22° 37' 26" E	3.7	S	S, X	Primary
KSAT	Tromso, Norway	69° 39' 44" N	18° 56' 29" E	3.0	S, EXP S	S, X, EXP S	Primary
KSAT	Fairbanks, AK, United States	64° 49' 04" N	147° 43' 30" W	3.9	S	X	Primary
KSAT	Puunene, HI, United States	20° 49' 02" N	156° 27' 17" W	3.7	S	X	Primary
KSAT	Dublin, Ireland	53° 24' 24" N	06° 13' 28" W	5.4	S	S, X	Primary
KSAT	Singapore, Singapore	01° 18' 59" N	103° 42' 03" E	5.4	S	S, X	Primary
KSAT	Stockholm, Sweden	59° 38' 57" N	16° 35' 05" E	5.4	S	S, X	Primary
KSAT	Sydney, Australia	32° 10' 31" S	148° 36' 56" E	5.4	S	S, X	Primary
KSAT	Cape Town, South Africa	34° 01' 39" S	18° 43' 07" E	5.4	S	S, X	Primary
KSAT	Columbus, OH, United States	40° 06' 03" N	83° 11' 51" W	5.4	S	X	Primary
KSAT	Boardman, OR, United States	45° 51' 16" N	119° 37' 55" W	5.4	S	X	Primary
KSAT	Kapolei, HI, United States	21° 20' 12" N	158° 05' 24" W	5.4	S	X	Primary
KSAT	Deadhorse, AK, United States	70° 12' 14" N	148° 28' 24" W	5.4	S	X	Primary
Northwood (Prism)	Bismarck, ND, United States	46° 52' 56" N	100° 48' 17" W	2.4	S, EXP S	X	Primary
Northwood (Prism)	Loring, ME, United States	46° 56' 01" N	67° 54' 34" W	2.4	S, Ka, EXP S	X, Ka	Primary
Northwood (Portal + Prism)	Kihei, HI, United States	20° 44' 44" N	156° 26' 13" W	2.4	S, Ka, EXP S	X, Ka	Primary
Northwood (Prism)	Vodno, Bulgaria	43° 51' 41" N	27° 09' 03" E	2.4	S, EXP S	S, X, EXP S	Primary
Northwood (Prism)	Neu Poserin, Germany	53° 33' 15" N	12° 13' 27" E	2.4	S, EXP S	S, X, EXP S	Primary

Northwood (Prism)	Rio Gallegos, Argentina	51° 40' 03" S	69° 15' 51" W	2.4	S, EXP S	S, X, EXP S	Primary
Northwood (Prism)	Brewster, WA, United States	48° 08' 47" N	119° 42' 00" W	2.4	Ka	Ka	Experimental

Table 2. Ground station antenna RF specifications.

	Leaf 3.7 m	**Leaf 3.9 m**	**KSAT 3.7 m**	**AnySignal 3.7 m**	**KSAT 5.4 m**	**Northwood Prism 2.4 m**	**Northwood Portal v2**
Polarization	RHCP	RHCP	RHCP	RHCP	RHCP	RHCP	RHCP
UHF Downlink							
Frequency Range (MHz)	N/A	N/A	N/A	400.15 – 401	N/A	N/A	N/A
G/T (dB/K)	N/A	N/A	N/A	-8	N/A	N/A	N/A
Beamwidth (deg)	N/A	N/A	N/A	30	N/A	N/A	N/A
S-Band Uplink							
Frequency Range (MHz)	2025 – 2110	2025 – 2110	2025 – 2110	2025 – 2110	2025 – 2110	2025 – 2110	2025 – 2120
EIRP (dBW)	50	45	45	51.8	50	50.6	64.6
Frequency Tolerance (ppm)	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Beamwidth (deg)	2.76	2.3	2.71	4.0	1.9	3.9	3.2
S-Band Downlink							
Frequency Range (MHz)	2200 – 2290	2200 – 2290	2200 – 2290	2200 – 2290	2200 – 2290	2200 – 2290	2200 – 2300
Receive Gain (dBi)	34.6	37.7	34.66	31.2	38.4	32.6	43.4
G/T (dB/K)	12.53	12.6	12	12	17.1	9	19.5

Beamwidth (deg)	2.4	2.1	2.5	3.1	1.74	5.3	2.2
Efficiency (%)	70	70	60	70	60	65	N/A
X-Band Downlink							
Frequency Range (MHz)	8450 – 8500	8450 – 8500	8450 – 8500	8450 – 8500	8450 – 8500	8450 – 8500	N/A
Receive Gain (dBi)	47.0	49.5	47.6	43.7	51.1	40.0	N/A
G/T (dB/K)	24.65	26.5	26.2	27.57	29.8	23	N/A
Beamwidth (deg)	0.6	0.576	0.66	0.85	0.49	1.0	N/A
Efficiency (%)	70	70	60	70	60	65	N/A
Ka-Band Downlink							
Frequency Range (MHz)	N/A	N/A	N/A	N/A	N/A	19700 – 20200	N/A
Receive Gain (dBi)	N/A	N/A	N/A	N/A	N/A	50.3	N/A
G/T (dB/K)	N/A	N/A	N/A	N/A	N/A	26	N/A
Beamwidth (deg)	N/A	N/A	N/A	N/A	N/A	0.48	N/A
Efficiency (%)	N/A	N/A	N/A	N/A	N/A	65	N/A
Ka-Band Uplink							
Frequency Range (MHz)	N/A	N/A	N/A	N/A	N/A	29500 – 30000	N/A
EIRP (dBW)	N/A	N/A	N/A	N/A	N/A	86.6	N/A
Frequency Tolerance (ppm)	N/A	N/A	N/A	N/A	N/A	0.025	N/A
Beamwidth (deg)	N/A	N/A	N/A	N/A	N/A	0.30	N/A

Notes:

1. G/T values reported at 5° elevation.

2. KSAT Fairbanks uses a 3.9 m dish; KSAT Tromso uses a 3.0 m dish. Table 2 specs reflect the primary 3.7 m KSATlite configuration.

3. Northwood Prism stations at Bismarck, Loring, and Kihei receive X-band only (no S-band downlink at those sites).

4. Ka-band experimental operations (SDR, model BSDR1) are conducted at Northwood Prism stations in Loring, Brewster, and Kihei only. Ka-band ground station specs are from the Northwood Prism antenna specification (June 2026).

5. Experimental S-band operations from the phased array (BFA33) and SDR (BSDR1) use a subset of ground stations. S-band experimental downlink (2232.5/2242.5 MHz) is received at: Northwood Vodno, Northwood Neu Poserin, Northwood Rio Gallegos, KSAT Tromso, KSAT Punta Arenas, and KSAT Awarua. S-band experimental uplink (2052/2062 MHz) is transmitted from all of the above plus Northwood Bismarck, Northwood Loring, and Northwood Kihei. These frequencies are within the same 2200–2290 MHz and 2025–2110 MHz allocations as TT&C S-band (2222 MHz downlink, 2040 MHz uplink) and are never operated simultaneously on the same frequency.