



Space Sciences and Engineering (dba PlanetiQ)

15000 West 6th Avenue
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March 6th, 2023

Mr. Douglas Young
Spectrum Coordination Branch
Office of Engineering and Technology
Federal Communications Commission

Re: Updated Ground Station List (Ref: ELS File No. 0504-EX-CN-2020)

Dear Mr. Young,

Through additional pre-coordination with federal operators (USAF, USSF, NOAA, NASA), PlanetiQ is expanding the ground station network for the current and future GNOMES satellites utilizing the following frequency characteristics:

Table 1: Frequency characteristics

	Frequency Band	Center Frequency	Maximum Bandwidth	Data Rate
Uplink	S-band	2.081 GHz	200 kHz	100 kbps
Downlink	X-band	8.260 GHz	20 MHz	10 Mbps

Ground Stations:

PlanetiQ has contracts with Kongsberg Satellite Services (KSAT) and ATLAS Space Operations for use of their ground station networks. For S-band uplink and X-band downlink, KSAT supplies a network of 3.7 m to 13m antenna dishes while ATLAS supplies a network of 3.4 m to 9.1 m antenna dishes.

The ground stations shown in Table 2 and Table 3 represent the updated list of baseline ground station antennas with KSAT and ATLAS. Any need for antennas larger than 3.7m will be coordinated with KSAT and ATLAS.

Table 2: KSAT & ATLAS Receive Ground Stations

Location	Frequency Band	Lat. (N)	Long. (E)	Antenna	Receive Gain (dBi)	Receive Noise Temp (K)
Svalbard, Norway	X-Band	78°13'46"N	15°24'28"E	KSAT 3.7m	47.6	140°
Troll, Antarctica	X-Band	72°00'40"S	2°33'14"E	KSAT 3.7m	47.6	140°
Inuvik, Canada	X-Band	68.2° N	133.3° W	KSAT 3.7m	47.6	140°
Hartebeesthoek, S. Africa	X-Band	25.8° S	27.7° E	KSAT 3.7m	47.6	140°
Punta Arenas, Chile	X-Band	53.0 S	70.0° W	KSAT 3.7m	47.6	140°
Jeju, S. Korea	X-Band	33.5° N	126.8° E	KSAT 3.7m	48.0	140°
Maui, Hawaii	X-Band	20° 49'2.1" N	156° 27'16.1" W	KSAT 3.7m	47.6	140°
Harmon, Guam	X-Band	13°30'45"N	144°49'29"E	ATLAS 3.7m	47.6	140°
Dubai, UAE	X-Band	24°56'32"N	55° 20' 52"E	ATLAS 3.7m	47.6	140°
Chitose, Japan	X-Band	42.77° N	141.62° E	ATLAS 3.4m	47.6	140°
Utqiagvik (Barrow), AK	X-Band	71.27° N	156.8° W	ATLAS 3.7m	47.6	140°

Green text indicates ground sites under ELS File No. 0504-EX-CN-2020

Black text indicates added ground sites

Table 2.3-1 KSAT & ATLAS Transmit Ground Stations

Location	Frequency Band	Lat. (N)	Long. (E)	Antenna	Transmit Gain (dBi)	Transmit Power (W) (at the antenna port)
Svalbard, Norway	S-Band	78°13'46" N	15°24'28" E	KSAT 3.7m	34.0	44.0
Troll, Antarctica	S-Band	72°00'40" S	2°33'14" E	KSAT 3.7m	34.0	44.0
Inuvik, Canada	S-Band	68.2° N	133.3° W	KSAT 3.7m	34.0	44.0
Hartebeesthoek, S. Africa	S-Band	25.8° S	27.7° E	KSAT 3.7m	34.0	44.0
Punta Arenas, Chile	S-Band	53.0 S	70.0° W	KSAT 3.7m	34.0	44.0
Jeju, S. Korea	S-Band	33.5° N	126.8° E	KSAT 3.7m	35.8	44.0
Maui, Hawaii	S-Band	20° 49' 2.1" N	156° 27' 16.1" W	KSAT 3.7m	34.0	44.0
Harmon, Guam	S-Band	13°30'45" N	144°49'29" E	ATLAS 3.7m	34.0	44.0
Dubai, UAE	S-Band	24°56'32" N	55° 20' 52" E	ATLAS 3.7m	34.0	44.0
Chitose, Japan	S-Band	42.77° N	141.62° E	ATLAS 3.4m	34.0	44.0
Utqiagvik (Barrow), AK	S-Band	71.27° N	156.8° W	ATLAS 3.7m	34.0	44.0

Green text indicates ground sites under ELS File No. 0504-EX-CN-2020

Black text indicates added ground sites

The GNOMES-2 satellite under ELS File No. 0504-EX-CN-2020 will eventually need to utilize some of the additional 7 ground station antennas for current operations through de-orbit operations.

Best Regards,



Daniel P. Smith
VP - Operations