

Skylo Technologies Inc. (“Skylo”)
Request for 60-day Special Temporary Authority (“STA”)

The Commission granted STA to Skylo to operate up to one million mobile customer terminals. See IBFS File No. SES-STA-20220725-00799 (granted Aug. 17, 2022) (the “August STA”); see also Skylo Technologies Inc., Application for STA Renewal, IBFS File No. SES-STA-20221010-01090 (filed Oct. 10, 2022). The points of communication are Skyterra-1 and the ISAT list (including, specifically, Inmarsat 4-F3). Skylo has a pending license application for blanket authorization of the same authority as granted under its STA. See Skylo Technologies Inc., Application for Blanket Licensed Earth Stations, IBFS File No. SES-LIC-20210505-00772 (filed May 4, 2021) (the “License Application”).

By this application for STA, Skylo seeks authority to (1) operate additional classes of earth stations to communicate with the same space stations as in the August STA, and (2) the ability for both the prior-authorized and newly added earth stations to communicate with an additional point of contact, Gamma Acquisition L.L.C. Echostar T1 at 111.0W, Call Sign S2633. Skylo seeks STA for 60 days, as should the FCC grant the License Application, Skylo would file to modify its license for the authority sought in this STA. See 47 C.F.R. § 25.120(b)(3).

New Terminals

Skylo seeks to add STA blanket authority for a total of 5.7 million mobile customer terminals of varying types as listed below. Some of these terminals will operate in the currently authorized frequency bands (1626.5-1660.5 MHz and 1525-1559 MHz), and others will operate in the 2000-2020 MHz (transmitting) and 2180-2200 MHz (receiving) bands. Skylo seeks authority to deploy and operate these earth stations throughout the contiguous United States, Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands.

The proposed devices are fixed antennas commonly found in cellular communication devices. The transmit power into the antenna for all devices is 23 dBm. The highest antenna gain is 7, resulting in a maximum EIRP of 30 dBm across all devices, with a minimum EIRP of 16 dBm for lower antenna gains, in order to meet minimum BER requirements.

ID	Frequency	Output Power EIRP (max)	Frequency Tolerance	Emission Designator	Modulation	Antenna	Antenna Gain (dBi)	Manufacturer	Polarization	Number of Devices
1	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 1	7	Varies	Linear	50000
2	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 1	7	Varies	Linear	250000
3	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	23 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 2	0	Varies	Linear	1000000
4	Tx: 2000 - 2020 MHz	23 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 2	0	Varies	Linear	250000

ID	Frequency	Output Power EIRP (max)	Frequency Tolerance	Emission Designator	Modulation	Antenna	Antenna Gain (dBi)	Manufacturer	Polarization	Number of Devices
	Rx: 2180 - 2200 MHz									
5	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 3	-7	Varies	Linear	500000
6	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 3	-7	Varies	Linear	250000
7	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 1	7	Varies	RHCP	50000
8	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 1	7	Varies	RHCP	50000
9	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	23 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 2	0	Varies	RHCP	50000
10	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	23 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 2	0	Varies	RHCP	50000
11	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 3	-7	Varies	RHCP	50000
12	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 3	-7	Varies	RHCP	50000
13	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 1	7	Varies	LHCP	50000
14	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	30 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 1	7	Varies	LHCP	50000
15	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	23 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 2	0	Varies	LHCP	50000
16	Tx: 2000 - 2020 MHz	23 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 2	0	Varies	LHCP	50000

ID	Frequency	Output Power EIRP (max)	Frequency Tolerance	Emission Designator	Modulation	Antenna	Antenna Gain (dBi)	Manufacturer	Polarization	Number of Devices
	Rx: 2180 - 2200 MHz									
17	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 3	-7	Varies	LHCP	50000
18	Tx: 2000 - 2020 MHz Rx: 2180 - 2200 MHz	16 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 3	-7	Varies	LHCP	50000
19	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	30 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 1	7	Varies	Linear	250000
20	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	30 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 1	7	Varies	Linear	250000
21	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	23 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 2	0	Varies	Linear	1000000
22	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	23 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 2	0	Varies	Linear	250000
23	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	16 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 3	-7	Varies	Linear	500000
24	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	16 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 3	-7	Varies	Linear	250000
25	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	30 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 1	7	Varies	RHCP	50000
26	Tx: 1626.5 - 1660.5 MHz	30 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 1	7	Varies	RHCP	50000

ID	Frequency	Output Power EIRP (max)	Frequency Tolerance	Emission Designator	Modulation	Antenna	Antenna Gain (dBi)	Manufacturer	Polarization	Number of Devices
	Rx: 1525-1559 MHz									
27	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	23 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 2	0	Varies	RHCP	50000
28	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	23 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 2	0	Varies	RHCP	50000
29	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	16 dBm	100 PPB	65K0G7D	BPSK/QPSK	ANT 3	-7	Varies	RHCP	50000
30	Tx: 1626.5 - 1660.5 MHz Rx: 1525-1559 MHz	16 dBm	100 PPB	195KG7D	BPSK/QPSK	ANT 3	-7	Varies	RHCP	50000

Additional Point of Communication

In the August STA and underlying license application, Skylo identified Skyterra-1 and the ISAT list (including, specifically, Inmarsat 4-F3) as points of communication. Skylo herein seeks authorization to add Gamma Acquisition L.L.C. Echostar T1 at 111.0W, Call Sign S2633, as an additional point of communication.

Public Interest

Skylo was founded by a team focused on bringing low-cost, ubiquitous, narrow band connectivity to the 15 billion devices coming online globally by 2024, with a significant percentage of these being in areas that do not have cellular coverage. Granting this application would serve the public interest by helping to enable a low latency, 3GPP standards-based, narrow band deployment of the Internet of Things (“NB-IoT”) throughout the United States, territories and surrounding waters by authorizing additional Skylo mobile user terminals that can bring millions of connected sensors and across a range of industrial IoT applications to provide connectivity between these devices and user platforms. The additional point of communication will also help to expand the coverage of Skylo’s solutions, helping Skylo to reach additional customers with its solutions.

NVNG and MSS Mobile Station Requirements

The Skylo system is designed to operate at frequencies including 1525-1559 MHz (space-to-Earth) and 1626.5-1660.5 MHz (Earth-to-space). As these frequency bands overlap the spectrum providing

maritime distress and emergency communications, the Skylo system has been developed to comply with the specifications of FCC rule § 25.287 providing priority and preemptive access to maritime distress and safety communications.¹ Skylo’s network uses an NB-IoT protocol system that operates in accordance with 3GPP defined practices which are inherently compliant with § 25.287. Skylo’s terminals operate in a continuous monitoring mode. Additionally, Skylo terminals are not intended for use as a part of a maritime distress or safety communication system. As such, Skylo commits that the terminals will be designed to operate in compliance with § 25.287. Refer to the table below for the applicable sections:

47 C.F.R. § 25.287	COMPLIANCE
(a)(1)	Yes
(a)(2)	N/A - not for emergency comms.
(a)(3)	Yes
(a)(4)	Yes
(a)(5)	N/A - continuous monitoring
(a)(6)	Yes
(a)(7)	Yes
(a)(8)	N/A - not for emergency comms.
(b)(1)	Yes
(b)(2)	Yes
(b)(3)	Yes
(b)(4)	Yes
(b)(5)	N/A - continuous monitoring
(b)(6)	N/A - continuous monitoring
(b)(7)	Yes
(b)(8)	Yes
(b)(9)	N/A - not for emergency comms.
(b)(10)	N/A - not for emergency comms.

Specifically, Skylo’s transmissions:

- Are assigned a priority level by the satellite network operator LES, which gives precedence to maritime distress and safety communications – refer to §§ 25.287(a)(1), b(1), (b)(2);
- Uniquely identify each transmit terminal. All remote terminals are controlled by a Skylo Base Station (located within the satellite network Land Earth Station (“LES”)) that acts as a centralized land-based network control device that provides access to authorized terminals and prohibits unauthorized users – refer to §§ 25.287(a)(3), (a)(4), (b)(3);
- The Skylo Base Station provides a channel and time burst plan to all Skylo devices – refer to § 25.287(b)(4);

¹ See 47 C.F.R. § 25.287.

- As part of TDM network, each terminal constantly monitors its network to determine its access to the network – refer to § 25.287(a)(4);
- All Skylo devices are designed to inhibit transmission in case of not correctly receiving Skylo Base Station signals or in case of receiving shut off commands from the Base Station – refer to §§ 25.287(a)(7), (a)(8); and,
- By virtue of the TDM resource allocation plan, all Skylo Base Stations are capable of inhibiting remote Skylo devices that are not part of the resource allocation plan. In addition, Skylo Base Stations are capable of issuing shut off commands by virtue of the plan – refer to §§ 25.287(b)(7), (b)(8).

Protection of Aeronautical Radionavigation-Satellite Services

Skylo commits that the proposed terminals will comply with the limits on emissions for protection of aeronautical radionavigation-satellite services in applicable portions of FCC rule § 25.216. Refer to the table below for the applicable sections:

47 C.F.R. § 25.216	COMPLIANCE
(a)	N/A - in service after 2002
(b)	N/A - in service after 2002
(c)	Yes
(d)	N/A - in service after 2002; not for emergency comms.
(e)	N/A - Out of band
(f)	Yes
(g)	N/A - Out of band
(h)	Yes
(i)	Yes
(j)	Yes