Request for Special Temporary Authority

The National Telecommunications and Information Administration ("NTIA") has authorized the National Aeronautics and Space Administration ("NASA") to conduct experiments with the Technical Educational Satellite -10 ("TechEdSat-10") low earth orbit nanosatellite. A copy of that authorization is attached hereto.[1]

In connection with these experiments, NASA will operate an Iridium satellite phone that it will host on TechEdSat-10. The satellite phone will transmit from TechEdSat-10 to space stations in Iridium's "Big LEO" constellation.[2] The transmissions will, among other goals, utilize Iridium's constellation as a tracking and data relay satellite ("TDRS") for nanosatellites.

Iridium hereby requests special temporary authority ("STA") commencing on February 7, 2020, and continuing for a period of one hundred and eighty (180) days, to transmit from its space stations to TechEdSat-10 in the 1618.725–1626.5 MHz band.[3] For reasons stated below, Iridium asks that its STA request be granted no later than November 18, 2019.

There will be no change during the experiment in the operating parameters of Iridium's space stations, which are licensed as Part 25 space stations under Call Sign S2110. For this reason, no operating parameters, other than effective radiated power and emission designator, are used in the form that this exhibit accompanies. The only change for which Iridium seeks an STA is adding TechEdSat-10 as a point of communication. Iridium's Part 25 space station license does not cover space-to-space communications.

TechEdSat-10 has been added to the launch manifest for a Northrop Grumman Antares rocket launch scheduled for February 7, 2020, NG-13, which will deliver cargo to the International Space Station ("ISS").

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[1] As explained in a letter from NASA that also is attached, although the NASA authorization only refers to TechEdSat-8, it also covers satellites, including TechEdSat-10, that have the same parameters and technical characteristics as TechEdSat-8.

[2] The form that this narrative accompanies states that two satellite phone units will be used. This statement reflects the fact that there will be a primary unit and a back-up unit. But only a single unit will be operational at any given time.

[3] Iridium's constellation is comprised of 66 satellites, any one of which may be used as part of the experiment at any point in time.

The spacecraft launch integrator for NG-13 is requiring that TechEdSat-10 have all spectrum approvals in place by the hand-off for integration in November. Accordingly, Iridium respectfully requests that its STA be granted no later than November 18, 2019.

National Aeronautics and
Space Administration

Ames Research Center
Moffett Field, CA 94035-1000

October 24, 2019

Reply to Attn of: Code IO

Maureen C. McLaughlin
Vice President Public Policy, Iridium
1750 Tysons Boulevard
Suite 1400, McLean VA 22102

As delegated to me by the NASA National Spectrum Manager, I am providing this letter to confirm the official reference information Iridium will require to pursue authorization from the Federal Communications Commission (FCC) to allow their satellites to support an Iridium payload on NASA's series of low earth orbiting Technical Educational Satellites (TechEdSats). The National Telecommunications and Information Administration (NTIA) concurs with the use of TechEdSat nanosatellites to communicate with Iridium satellites per Section 2, para 3, sub para c of the attached NTIA Certification of Spectrum Support for SPS-23290/1. It cites Iridium remains responsible for securing separate FCC authorizations for its satellites to communicate with TechEdSats. Although this certification notes a previously launched TechEdSat-8, I hereby confirm the NTIA certification also covers all TechEdSat satellites, including TechEdSat-10, operating under the same parameters and technical characteristics specified in the certification.

If you have any questions or require additional clarification on this, please feel free to contact me at (650) 604-1415, or William.K.Notley@nasa.gov. .

William K. Notley
Ames Research Center Spectrum Manager

Attachment

Cc:
John E. Zuzek/GRC 142:248
William D. Horne/HQ:7Y59
Bryan Rhodes/GRC 142:244
Marcus S. Murbach/ARC/RD 202-1
Justin Hopkins/ARC/IO 233-17
Paul H. Kim/ARC/IO-Aerospace Corp. 233-17
Margaret Abraham/ARC/IO-Aerospace Corp. 233-17

FORM NTIA-44 (3/91)	U.S. DEPARTMENT OF COMMERCE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION	Classification	Control Number
	CERTIFICATION OF SPECTRUM SUPPORT	**UNCLASSIFIED**	Doc. 43772/1 SPS-23290/1

Recipient Agency	System	Stage of Review
NASA	**Technical Education Satellite 8 (TechEdSat-8) Mission**	2 – Experimental

Section 1: OPERATING CHARACTERISTICS FOR WHICH SUPPORT IS CERTIFIED

Frequency (MHz)	Emission	Mean Power (W)	Station Class (Stage 2)	Transmit Locations	Receive Locations
401.9928	300HG1D	10	XT	Space (TechEdSat-8)	Space (GOES-R East) (GOES-R West)
1616.25	2M50G1D	0.1			Space (Globalstar)
1618.725- 1626.5	41K7Q7W	1			Space (Iridium)
2280	5M00G1D	3			Wallops Island, VA

Section 2: SOURCE DOCUMENTS

Docket Number	Description of Document	Dated
SPS-23230/1	NASA Request for Stage 2 System Review	July 23, 2018
SPS-23266/1	NTIA Preliminary Assessment	July 26, 2018

Section 3: SPECTRUM PLANNING SUBCOMMITTEE (SPS) RECOMMENDATIONS

The SPS reviewed this system under the provisions of Chapter 10 of the NTIA Manual, noting that this system will not advance to Stage 4, and recommends that:

1. NTIA certify Stage 2 spectrum support for the Technical Education Satellite 8 (TechEdSat-8) Mission as specified in Section 1.
2. NASA be aware that:
   a. operations of this system are limited for a duration of 3-6 months from the date of frequency assignment;
   b. operations of this system using the frequencies 401.9928 MHz and 1616.25 MHz, and frequency range 1618.725-1626.5 MHz in the space research service are to be conducted on an unprotected, noninterference basis in accordance with Section 8.2.40 of the NTIA Manual;
   c. coordination with Globalstar and Iridium is required for use of the frequency 1616.25 MHz and frequency range 1618.725-1626.5 MHz, respectively, and that operation of this system is contingent upon Globalstar and Iridium and successfully obtaining authorization from the FCC; and
   d. NASA must coordinate the TechEdSat-8's space-to-space operations at the frequency 1616.25 MHz and in the frequency range 1618.725-1626.5 MHz with authorized users of these frequencies to preclude interference to duly authorized federal and non-federal users of the band 1613.8-1626.5 MHz.
3. NASA ensure that this system is equipped with the ability to turn on or to provide immediate cessation of emission by telecommand in accordance with Section 8.2.32 of the NTIA Manual.

FORM NTIA-44 (3/91) CONTINUATION PAGE	Classification **UNCLASSIFIED**	System **Technical Education Satellite 8 (TechEdSat-8) Mission**

4. NASA submit a request that NTIA waive the ITU international registration requirement to the Space Systems Subcommittee (SSS) in accordance with Section 3.3.1.2 of the NTIA Manual.

5. NASA protect personnel from radiation levels that exceed generally accepted exposure criteria.

Name/Title of Recommending Official	Signature	Date
Stephen J. Butcher SPS Chairperson	Stephen J. Butcher	AUG 17 2018

Section 4: NTIA CERTIFICATION

The Office of Spectrum Management concurs with the SPS recommendations in Section 3.
This office certifies Stage 2 spectrum support for this system.

Name/Title of Certifying Official	Signature	Date
Peter A. Tenhula Deputy Associate Administrator		AUG 17 2018

Distribution	Classification	Page Number
IRAC, SPS, FAS	**UNCLASSIFIED**	2 of 2