

# Application for Blanket Earth Station Authorization

## 1. Overview

By the instant application, Hiber Inc. (“Hiber”) requests from the Federal Communications Commission (“FCC” or “Commission”) a blanket license to operate up to 500,000 mobile earth station user terminals, known as the Hiber Edge, in the United States in conjunction with leased capacity provided on the Inmarsat satellite network. Pursuant to this blanket license application, Hiber seeks authority to deploy and operate the Edge user terminals throughout the continental United States, Alaska, Hawaii, Puerto Rico, Guam, American Samoa, the U.S Virgin Islands, the North Mariana Islands, all other U.S territories and possessions, and U.S territorial waters. The mobile earth station will communicate with the Inmarsat geostationary satellite network on authorized and coordinated frequency bands, *i.e.*, 1626.5-1660.5 MHz (uplink / return link) and 1525-1559 MHz (downlink / forward link). Once authorized by the FCC, Hiber will offer low-cost, low power Internet-of-Things (“IoT) services and solutions throughout the United States, predominantly focusing on rural and remote areas. Among other things, customers will be able to use the connectivity to track (by means of location) their industrial assets whilst the device simultaneously provides data insights for movement detection, shock-vibration, vehicle runtime/idle time & ge-fencing capabilities. The Edge can be used in a range of industries, including but not limited to Rail, Agriculture, Oil & Gas, Environmental Monitoring & Disaster Prevention.

## 2. User Terminal

The Edge user terminal consists of a battery-powered device with an integrated Global Navigation Satellite System or GNSS module that will receive GPS and Galileo signals in the United States, a 3-axis accelerometer, internal temperature & humidity sensors and a magnetic field sensor (HAL). It includes an embedded L-band transmitter and antenna built into the enclosure and is designed for two-way communication.

The device is capable of transmitting one message every 15 minutes and has a battery lifetime of up to 3 years. The message frequency of the Edge is configurable and will depend on the demand of the use case/customers that Hiber will work with. The Edge is a rugged device, which was developed with sustainability in mind, using sustainable materials and is designed to withstand environmental corrosion and water damage. It is IP67 waterproof rated and is mounted by means of a mounting plate and magnets, and that, in turn, is mounted onto the industrial equipment and/or transport vehicle.

## 3. IoT Service

Hiber will use the Inmarsat satellite network using dedicated beams leased from Inmarsat. The Edge will allow customers to easily install and operate an end-to-end multi-purpose asset tracking device, with data transmitted via the device and presented in Hiber’s own mission control dashboards. The Edge terminal has been designed with the full cooperation of Inmarsat to operate with the Inmarsat network according to Inmarsat’s technical specifications in full coordination with other operations on the Inmarsat satellites and in this band. The Edge terminal will communicate with the

Inmarsat satellites listed on the Commission’s ISAT list. *See, Inmarsat, Inc. Request to Streamline Licensing of L-band Mobile-Satellite Service Terminals Using Inmarsat Satellites as Points of Communication, Order, 23 FCC Rcd 15268, 15270, para. 8 (Int’l Bur., Sat. Div. 2008).* *See also, FCC Approved Space Station List, available at <https://www.fcc.gov/approved-space-station-list> (last visited May 27, 2021).*

Hiber believes that the potential applications of its technology are limitless. Many U.S customers have expressed a desire to use the Edge technology and to build on creating new innovative solutions, once the instant application has been granted. Such uses include fleet tracking for railcars and heavy industrial machinery, as well as equipment from the mining, oil and gas, construction and/or the agriculture sectors.

Hiber’s technology and solutions will allow users to tackle environmental challenges concerning their industrial operations in difficult environments, such as geographically remote areas or other areas without terrestrial or infrastructure, which otherwise would not be possible because of prohibitively high costs and/or maintenance requirements. For the above reasons, the public interest would be served by the expeditious grant of this application.

#### 4. Technical Information

##### a. Frequencies

The user terminals will operate in the 1525-1559 MHz (downlink) and 1626.5-1660.5 MHz (uplink) frequency bands authorized to and coordinated by Inmarsat. For the service uplink, Hiber will operate in 12.5 kHz, 25 kHz, and 50 kHz channels, using Offset-Quadrature Phase Shift Keying (“OQPSK”) modulation. Hiber is leasing these channels from Inmarsat on a power and bandwidth basis.

##### b. Emission Characteristics

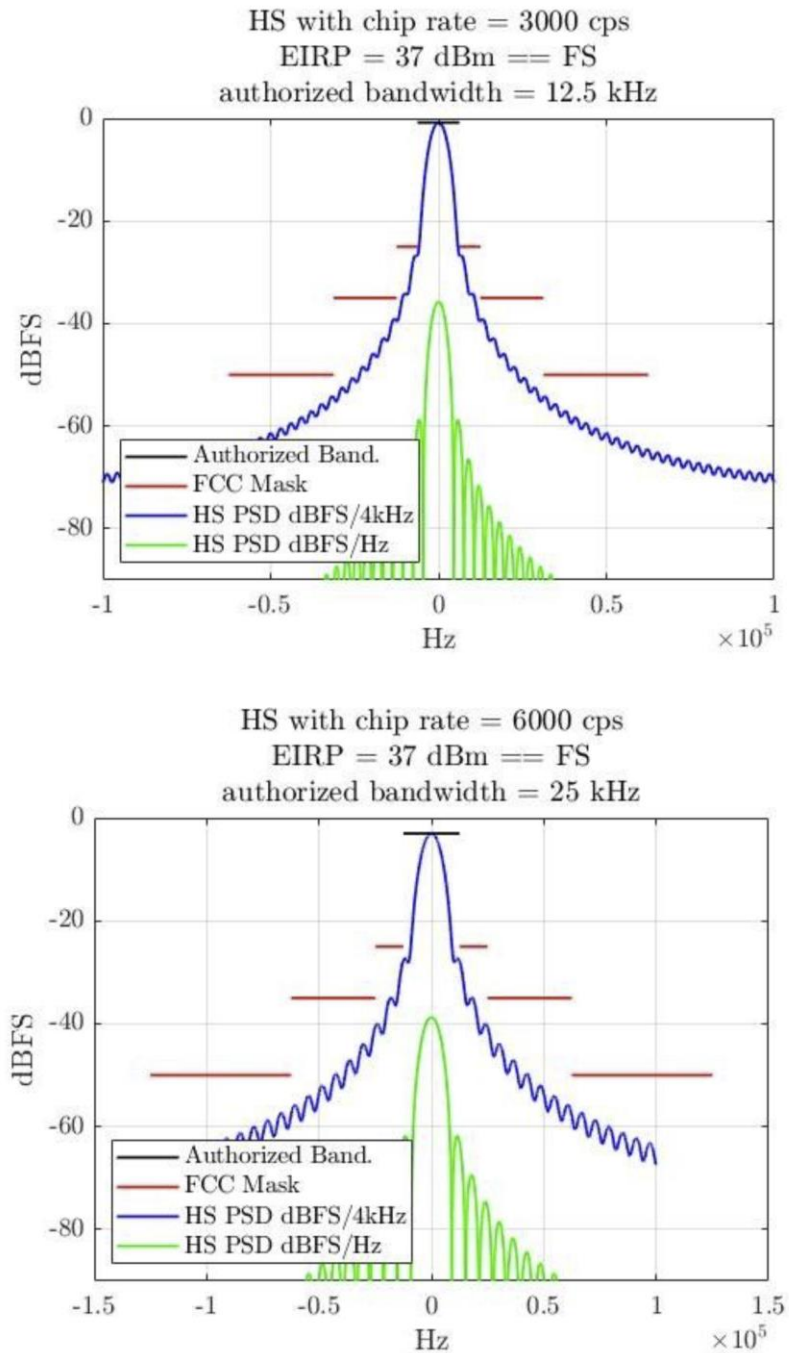
Information regarding the characteristics of additional emissions designators and their corresponding power, EIRP, and EIRP density levels is provided in Table 1, below.

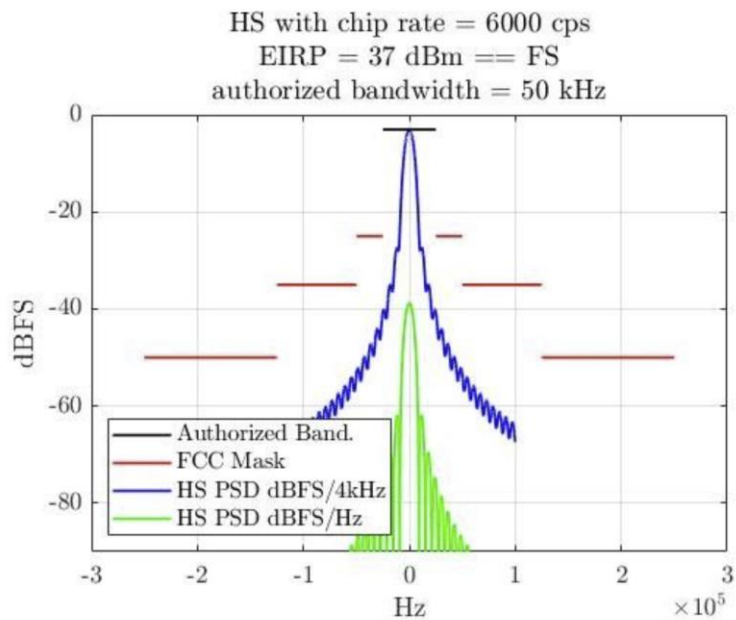
Emissions Designator	Bandwidth	Power Level (W)	Max EIRP (dBW)	Max EIRP Density (dBW/4KHz)	Max EIRP Density towards horizon (dBW/4KHz)
12K5G1D	12.5 kHz	1.5	7	6.20	-13.8
25K0G1D	25 kHz	1.5	7	3.97	-16.03
50K0G1D	50 kHz	1.5	7	3.97	-16.03

c. *Out of Band Emissions*

Figure 1 below shows the specific spectrum mask for the Hiber service uplink in the 1626.5 to 1660.5 MHz band at 12.5, 25, and 50 kHz. The spectrum mask demonstrates that Hiber's user terminals will comply with the out-of-band emission limitations specified in 47 C.F.R. § 25.202(f).

Fig.1





*d. Additional Technical Parameters and Operating Conditions*

For the service uplink, the user terminals can transmit uplink messages of varying sizes depending on the bandwidth and other factors. For the downlink, as the Edge terminal will use Inmarsat leased spectrum, connectivity is always available, provided that the specific beam is turned on, and as such enables a large degree of flexibility regarding the message frequency and configurable scheduling capabilities. The geographical distribution of the terminals in rural and remote areas will reduce the probability of signal interference.

As the Inmarsat network beams are segmented over the Earth's surface area; the device will switch from one beam to another automatically, depending on where the beam transition lines exist.

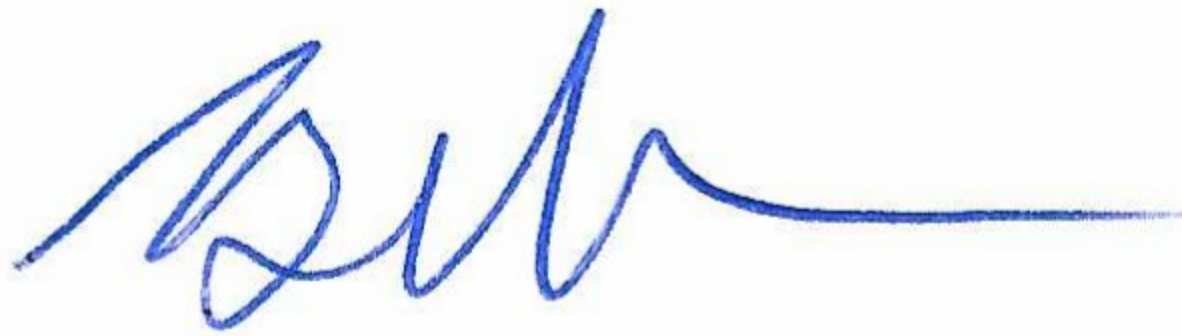
*e. Compliance with priority and real-time preemption requirements*

Hiber leases capacity from Inmarsat, and the earth stations applied for herein will operate through Inmarsat's network. Hiber's earth stations will operate in accordance with the requirements of Inmarsat, including the priority and real-time preemption requirements specified in the Commission's rules. See, 47 C.F.R. § 25.287

## 5. Conclusion

As demonstrated herein, grant of this application serves the public interest and is consistent with the Commission's rules. Accordingly, Hiber requests expeditious grant of the application to allow the company to commence providing service to U.S. customers.

Respectfully submitted,



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4 June 2021

## Technical Certification

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 the Part 25 Commission'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.



Maarten Engelen  
Chief Technology Officer  
Hiber B.V

Date: 4 June 2021