

RF EXPOSURE EVALUATION REPORT

Product Name: Iridium GO!
Trade Mark: Iridium
Model No.: 9560N
Report Number: 190705027RFC-2
Test Standards: FCC 47 CFR Part 1 Subpart I
FCC ID: Q639560N
Test Result: PASS
Date of Issue: September 16, 2019

Prepared for:

Iridium Satellite LLC
1750 Tysons Boulevard Suite 1400, McLean, VA 22102, United States

Prepared by:

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Version

Version No.	Date	Description
V1.0	September 16, 2019	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Iridium Satellite LLC
Address of Applicant:	1750 Tysons Boulevard Suite 1400, McLean, VA 22102, United States
Manufacturer:	Beam Communications
Address of Manufacturer:	Unit 5/8 Anzed Court, Mulgrave, Victoria, Australia 3710

1.2 EUT INFORMATION

Product Name:	Iridium GO!	
Model No. / HVIN:	9560N	
Trade Mark:	Iridium	
DUT Stage:	Identical Prototype	
EUT Supports Function:	2.4 GHz ISM Band:	IEEE 802.11b
	MSS frequency band(s):	1 610 MHz to 1 626.5 MHz
Sample Received Date:	July 5, 2019	
Sample Tested Date:	July 5, 2019 to August 5, 2019	

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

MSS frequency bands:	1 610 MHz to 1 626.5 MHz
Frequency Range:	1616.020833 MHz to 1625.979167 MHz
Channel Separation:	41.667 kHz
Antenna Type:	Integral Antenna
Antenna Gain:	1.6 dBi
Equipment Category:	☒ Handheld, ☐ other than handheld
Maximum TX power	36.8 dBm

For 2.4 GHz ISM Band of Wi-Fi	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2412 MHz to 2462 MHz
Support Standards:	IEEE 802.11b
Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK)
Data Rate:	IEEE 802.11b: Up to 11 Mbps
Number of Channels:	IEEE 802.11b: 11
Channel Separation:	5 MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0.5 dBi
Maximum Peak Power:	IEEE 802.11b: 19.15dBm

1.4 OTHER INFORMATION

Frequency Band	Test RF Channel Lists		
	Lowest	Middle	Highest
1 610 MHz to 1 626.5 MHz	1616.020833 MHz	1621.020833 MHz	1625.979167 MHz

Test channels for 2.4 GHz ISM Band of Wi-Fi				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
IEEE 802.11b	2412 MHz to 2462 MHz	Channel 1	Channel 6	Channel 11
		2412 MHz	2437 MHz	2462 MHz

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I

All test items have been performed and recorded as per the above standards

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

2. EQUIPMENT LIST

Please refer to the RF test report: (Document 75932207 Report 07 Issue 3) & 266892-1.

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

3.3 MPE CALCULATION METHOD

FCC 47 CFR Part 1 Subpart I

$$S = PG/4\pi R^2 = EIRP/4\pi R^2$$

S = power density (in appropriate units, e.g., mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For WLAN

For Wi-Fi function, operating at 2412MHz to 2462 MHz for IEEE802.11b.

3.4.1.1 Antenna Type:

Chain 0: Integral Antenna

3.4.1.2 Antenna Gain:

Chain 0: 2412MHz to 2462 MHz: 0.5 dBi

3.4.1.3 Results for FCC 47 CFR Part 1 Subpart I

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)		(dBi)	(dBm)	(mW)		(mW/cm ²)
IEEE 802.11b	2412-2462	19	1	0.5	20.5	112.2018	1	0.0223

3.4.2 For Satellite

For Satellite function, operating at 1610 MHz to 1626.5 MHz.

3.4.2.1 Antenna Type:

Chain 0: Integral Antenna

3.4.2.2 Antenna Gain:

Chain 0: 1610 MHz to 1626.5 MHz: 1.6 dBi

3.4.2.3 Results for FCC 47 CFR Part 1 Subpart I

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Duty cycle	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(%)	(mW)		(mW/cm ²)
Satellite	1610-1626.5	36	1	1.6	38.6	9.2	666.4811	1	0.1327

3.5 SIMULTANEOUS MULTI-BAND TRANSMISSION MPE ANALYSIS

List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Support/Not Support
1	WIFI + Satellite	Support

3.5.1 Results for transmit simultaneously

FCC 47 CFR Part 1 Subpart I

No.	Configurations	Maximum MPE Value			Limits
		WIFI	Satellite	Transmit simultaneously	
1	WIFI + Satellite	0.0223	0.1327	0.155	1

Note:

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

$$\text{Transmit simultaneously MPE} = \Sigma \text{ of MPE ratios}$$

$$\text{MPE ratios} = \text{Field strengths or power density} / \text{MPE limit at the test frequency}$$

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
