TECHNICAL EXHIBIT FOR MINOR MODIFICATION TO EARTH STATION

GUSA Licensee LLC (Globalstar USA) hereby provides the FCC with notice of a minor modification to its licensed fixed earth station operations at its Clifton, Texas Gateway site. On February 9, 2012, Globalstar USA updated its In-Orbit Test (IOT) equipment at the Clifton, TX Gateway site by replacing the facility's fixed earth station antenna with an improved model. The new antenna has higher antenna gain, but will be operated at a considerably lower power level. The net effect of this modification is a reduction in maximum EIRP for these earth station operations (22.6 dBW for the new antenna versus 24.0 dBW for the prior antenna). Accordingly, deployment of the new IOT antenna is fully consistent with Globalstar USA's existing earth station authorization, including the FCC's waiver of Footnote 5.364 of the Table of Allocations (*see* Order and Authorization, 25 FCC Rcd 14411, ¶¶ 5-10 (IB 2010)).

As background, Globalstar USA's IOT facility was designed for initial in-orbit assessment of payload performance following launches of Globalstar, Inc.'s (Globalstar's) 1.6/2.4 GHz MSS satellites. The Clifton earth station has successfully performed this function. The facility has also proven extremely useful in monitoring and maintaining the RF performance of the payloads, particularly the gains. CDMA systems require a gain balance when calls are handed off from beam to beam, and from satellite to satellite. As Globalstar establishes a new constellation of second-generation satellites through its ongoing launch campaign, the new antenna will improve its ability to measure gains and to maintain gain balances. Updating the IOT equipment with a new antenna will also enable Globalstar to maintain the health and prolong the life of its satellites, which have a designed lifetime of 15 years. In addition, this modification will help to ensure that Globalstar's operations comply with the terms of its license over the long term as its satellites age.

One of the key purposes of Globalstar USA's IOT equipment is to measure performance in the return-link L-Band portion (1610 MHz to 1618.725 MHz) of the Globalstar frequency plan. The IOT equipment operating in this band must comply with the FCC's requirements for protection of GPS (47 C.F.R. § 25.216(c)) and GLONASS (47 C.F.R. §§ 25.216 (f) and (g)).

This exhibit documents the testing that demonstrates that Globalstar USA's updated IOT equipment meets these FCC requirements. First, the exhibit provides the location and parameters of the IOT equipment, including the site plan, the IOT signal modulation, and the IOT filter characteristics. The exhibit then provides the test measurements in raw and in tabular form. These measurements show that the IOT equipment complies with FCC requirements. Finally, the test method is described, including the test setup and characteristics of a key filter used in the measurements.

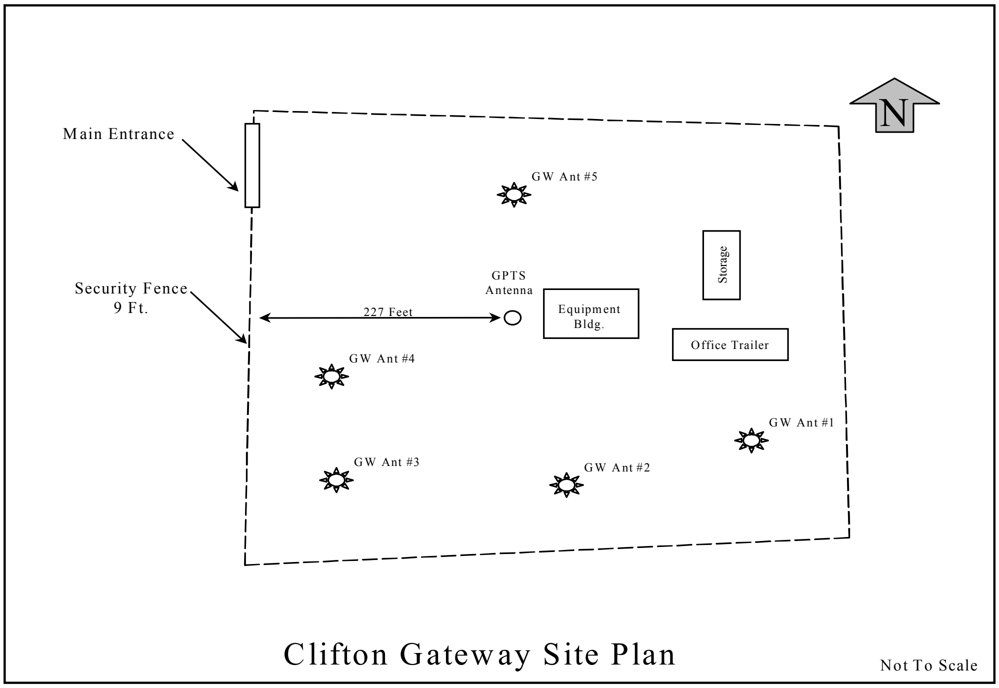


Figure 1: Clifton Gateway Site Plan

Location and Parameters of the IOT Equipment

The location for the IOT equipment is the Clifton Gateway Site, as shown in Figure 1.

The parameters of the IOT equipment are as follows:

a) Frequency of operation: Transmit band of 1610 to 1618.725 MHz; Receive band of 2483.5 to 2500 MHz.

b) Antenna Polarization: Left hand circular.

c) Emission Designator: N0N.

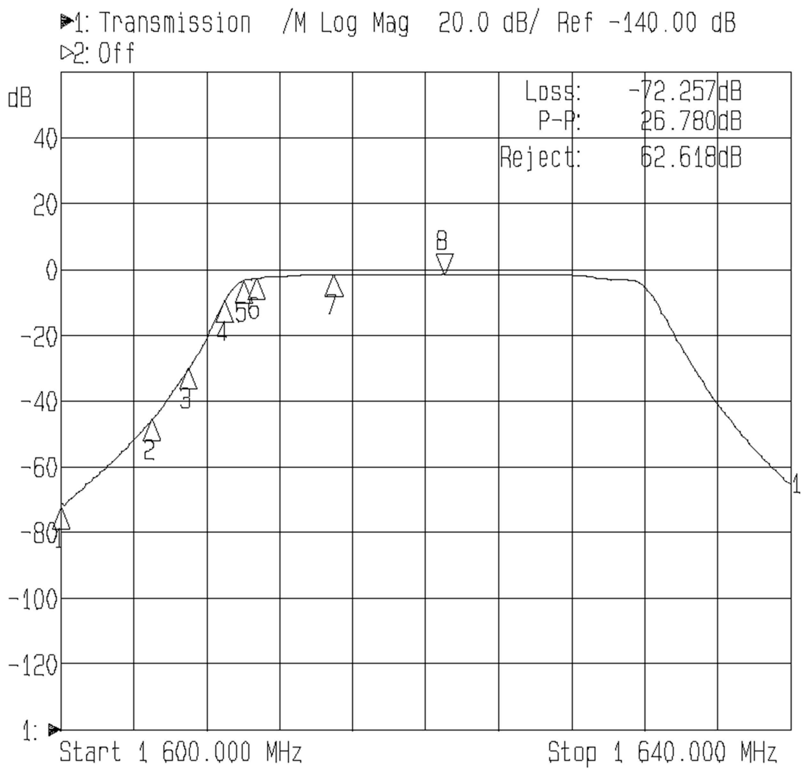
d) Maximum EIRP: The maximum EIRP is dictated by the maximum available transmitter power for a particular radio and its peak antenna gain.

e) Maximum EIRP density: The EIRP density is the EIRP divided by the carrier bandwidth and further corrected for the required 4 kHz bandwidth. This is same as the EIRP for CW carrier as all the RF power is present in the narrow bandwidth around the carrier.

Transmit Mode

Antenna Type and Mode	*Max EIRP (dBW)*	*Max EIRP Density (dBW/4 kHz)*
IOT	22.6	22.6

f) Description of Modulation: The Globalstar IOT transmitter will use single carrier CW only signal. This transmitter will not be used for CDMA signals. Bandpass filtering will be implemented as shown in Figure 2 below.



1: Mkr (MHz)	dB	2: Mkr (MHz) dB
1: 1600.0000	-72.257	
2: 1605.0000	-45.477	
3: 1607.0000	-30.201	
4: 1609.0000	-9.639	
5: 1610.0000	-3.398	
6: 1610.7300	-2.667	
7: 1615.0000	-1.658	
8> 1621.0000	-1.473	

Figure 2: Bandpass Filter Frequency Response

Summary of Measurements for Compliance with FCC Rules

Measurements were taken for the IOT equipment to demonstrate compliance with the FCC's requirements for protection of GPS (47 C.F.R. § 25.216(c)) and GLONASS (47 C.F.R. § 25.216 (f) and (g)). The measurements were obtained by transmitting two CW signals in the lower and upper 1.23 MHz channels of the Globalstar L-band frequency range, at 22.6 dBW. The two frequencies correspond to Globalstar Channel 2 (1611.96 MHz center frequency) and Channel 7 (1618.11 MHz CF). This equipment will be used for only single carrier frequency measurement, and therefore third order intermodulation products will be not generated in the frequencies of interest. Third intermodulation products can only be generated when two different carriers are transmitted through the same power amplifier.

During testing, the GPS and GLONASS frequency bands were monitored for both discrete (narrowband) and noise related (broadband) interference signals. The detailed measurement method used for these tests is described in the next section. The results of these tests are listed in Table 1.

Table 1: GPS Out-of-Band Emissions Measurements

GPS Broadband Tests into 1559 MHz-1605 MHz

RBW = 1.0 MHz Signal Generator CF	SA Noise FL Max (dBm)	Max SA EIRP Level (dBW)	Spurious EIRP Level (dBW)	Spec (dBW)	Picture #
1611.96 MHz	-68.50	-76.70	-70.79	-70.00	1
1618.11 MHz	-66.50	-74.70	None Observed	-70.00	2

GPS Narrowband Tests into 1559 MHz-1605 MHz

RBW = 1.0 kHz Signal Generator CF	SA Noise FL Max (dBm)	Max SA EIRP Level (dBW)	Spurious EIRP Level (dBW)	Spec (dBW/ 600 Hz)	Picture #
1611.96 MHz	-74.57	-84.47	None Observed	-80.00	3
1618.11 MHz	-74.50	-84.40	None Observed	-80.00	4

GLONASS Broadband Tests into 1605 MHz-1610 MHz

RBW = 1.0 MHz Signal Generator CF	SA Noise FL @1605 MHz (dBm)	SA Noise FL @1610 MHz (dBm)	Max EIRP @ 1605 MHz (dBW)	Spec @ 1605 MHz (dBW)	Max EIRP @ 1610 MHz (dBW)	Spec @ 1610 MHz (dBW)	Spurious EIRP Level (dBW)	Picture #
1611.96 MHz	-67.50	-24.92	-75.70	-70.00	-20.03	-10.00	None Observed	5
1618.11 MHz	-69.36	-67.30	-75.50	-70.00	-62.41	-10.00	None Observed	6

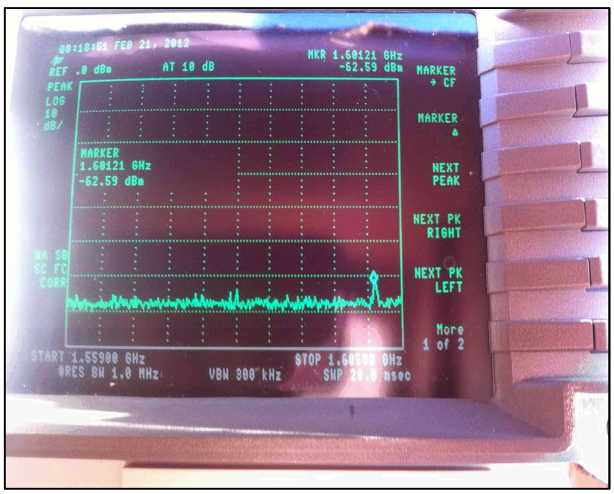
GLONASS Narrowband Tests into 1605 MHz-1610 MHz

RBW = 1.0 kHz Signal Generator CF	SA Noise FL @1605 MHz (dBm)	SA Noise FL @1610 MHz (dBm)	Max EIRP @ 1605 MHz (dBW)	Spec A 1605 MHz (dBW/600 Hz)	Max EIRP @ 1610 MHz (dBW)	Spec @ 1610 MHz (dBW)	Max Spurious EIRP (dBW)	Picture #
1611.96 MHz	-74.49	-75.20	-86.20	-80.00	-66.85	-20.00	None Observed	7
1618.11 MHz	-74.49	-74.75	-86.20	-80.00	-66.40	-20.00	None Observed	8

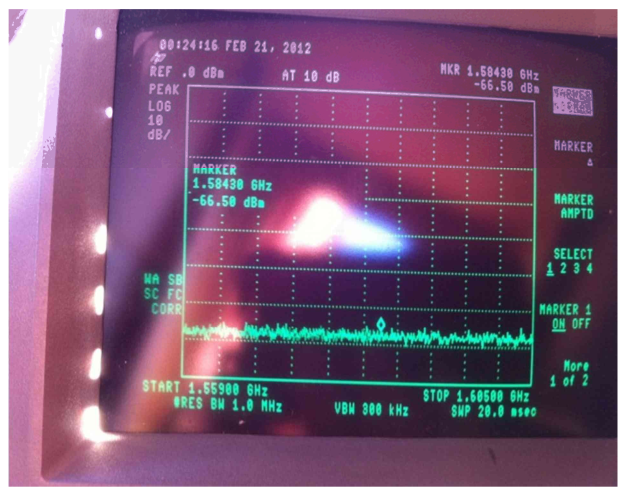
These results indicate that the IOT equipment meets the FCC regulations for EIRP and EIRP density for protection of GPS and GLONASS.

Figures 3 and 4 show the results of tests performed for section 25.216(c) of the FCC's rules, pertaining to GPS. The IOT antenna's discrete (narrowband) emissions in the 1559 to 1605 MHz band meet the requirement by ~4 dB or more. The IOT antenna's noise emissions with 1 MHz bandwidth meet the requirement by ~5 in the 1559 to 1605 MHz band, except for one narrow spurious noise near 1605 MHz when testing with the 1611.96 MHz carrier (Globalstar Channel 2). The EIRP density at that one point met the requirements by 0.8 dB. The noise floor of the spectrum analyzer mainly limited the noise measurements in the 1 MHz bandwidth. These data indicate that the IOT equipment meets the EIRP requirements in the GPS frequency bands by ~4 dB at all but one point, and the EIRP density requirements by ~5 dB margin.

Additional testing was performed for FCC rules 25.216(f) and 25.216(g), pertaining to the GLONASS band. Figures 5 and 6 show the test results with the carriers at the same frequencies chosen for the earlier testing. Figure 6 shows that the EIRP requirement in the 1605 to 1610 MHz band is met by ~6 dB or more margin. Figure 5 shows that the EIRP density requirements in the 1605 to 1610 MHz band are met by ~6 dB margin.

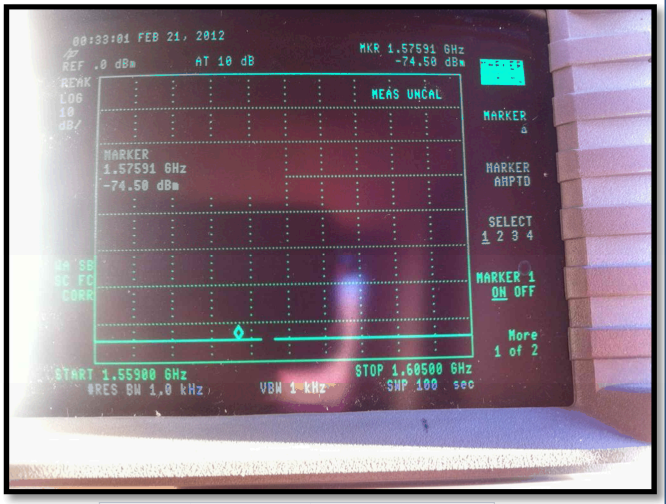


Picture #1			
Synthesizer Frequency		1611.96	MHz
Spectrum Analyzer			
	Start =	1559.00	MHz
	Stop =	1605.00	MHz
	RBW =	1.00	MHz

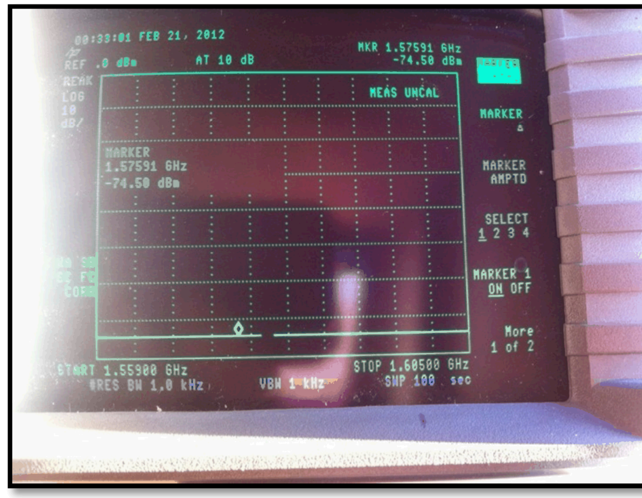


Picture #2			
Synthesizer Frequency		1618.11	MHz
Spectrum Analyzer			
	Start =	1559.00	MHz
	Stop =	1605.00	MHz
	RBW =	1.00	MHz

Figure 3: FCC Part 25.216 (c) EIRP Results @GPS band

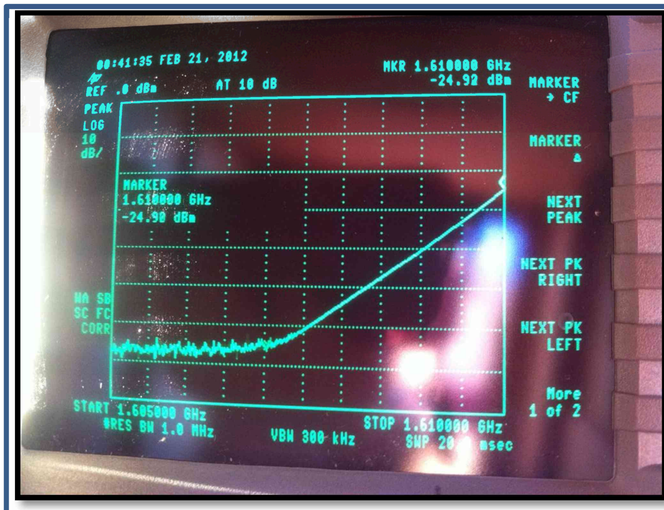


Picture #4			
Synthesizer Frequency		1618.11	MHz
Spectrum Analyzer			
	Start =	1559.00	MHz
	Stop =	1605.00	MHz
	RBW =	1.00	KHz

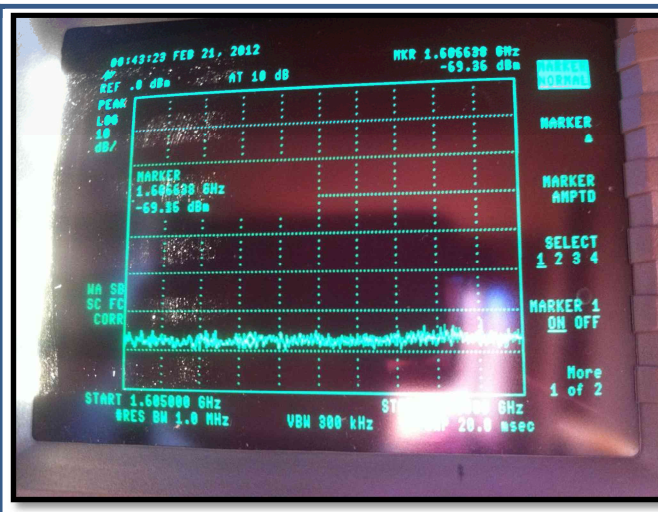


Picture #3			
Synthesizer Frequency		1611.96	MHz
Spectrum Analyzer			
	Start =	1559.00	MHz
	Stop =	1605.00	MHz
	RBW =	1.00	KHz

Figure 4: FCC Part 25.216 (c) EIRP Density Results @GPS band



Picture #5			
Synthesizer Frequency		1611.96	MHz
Spectrum Analyzer			
	Start =	1605.00	MHz
	Stop =	1610.00	MHz
	RBW =	1.00	MHz



Picture #6			
Synthesizer Frequenc		1618.11	MHz
Spectrum Analyzer			
	Start =	1605.00	MHz
	Stop =	1610.00	MHz
	RBW =	1.00	MHz

Figure 5: FCC Part 25.216 (f) EIRP Results @GLONASS band

Picture #7			
Synthesizer Frequenc		1611.96	MHz
Spectrum Analyzer			
	Start =	1605.00	MHz
	Stop =	1610.00	MHz
	RBW =	1.00	KHz

Picture #8			
Synthesizer Frequenc		1618.11	MHz
Spectrum Analyzer			
	Start =	1605.00	MHz
	Stop =	1610.00	MHz
	RBW =	1.00	KHz

Figure 6: FCC Part 25.216 (g) EIRP Density Results @GLONASS band

Method of Measurements for Compliance with FCC Rules

Figure 7 shows the test methodology used for the measurements for compliance with FCC rules. The measurements were made at the input of the antenna and the output of the bandstop filter. The SSPA input/output power was calibrated prior to making the spurious measurements using the power meter to generate the maximum output power while maintaining the linearity of the amplifier. The peak input power -27.9 dBm corresponds to the peak EIRP 22.58 dBW. A bandstop filter was required while making the spurious measurements to avoid the intermodulation products generated in the spectrum analyzer. Figure 8 shows the frequency response of the bandstop filter used to attenuate the main signal level into the spectrum analyzer while passing the out of band emissions. The bandstop filter had more than 15-30 dB attenuation in the band 1610-1618.725 MHz, while, 1.8 dB attenuation in the band 1559-1605 MHz and 10-15 dB attenuation in 1605-1610 MHz where the out of band emission measurements were required. This filter helped to reduce the internal spurs generated by the spectrum analyzer. The results shown in Table 1 and Figure 1 are corrected for the cable loss, antenna gain, and the insertion loss for the bandstop filter.

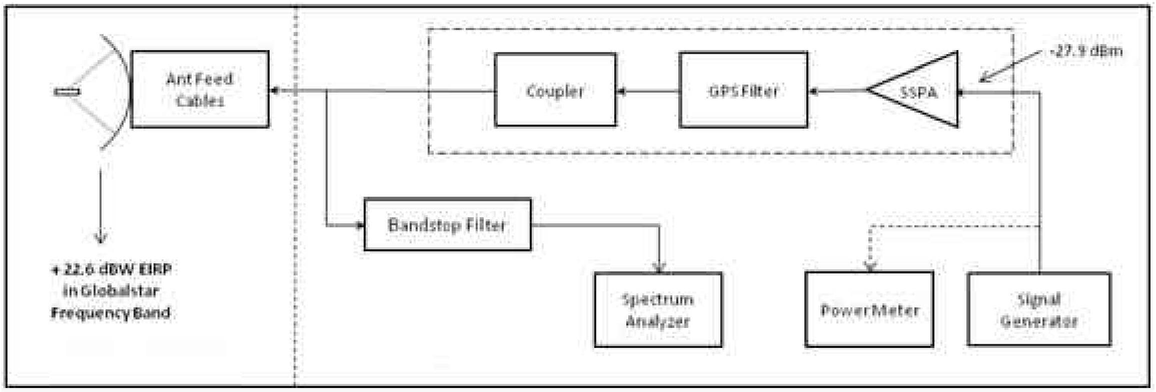


Figure 7: Measurement Setup

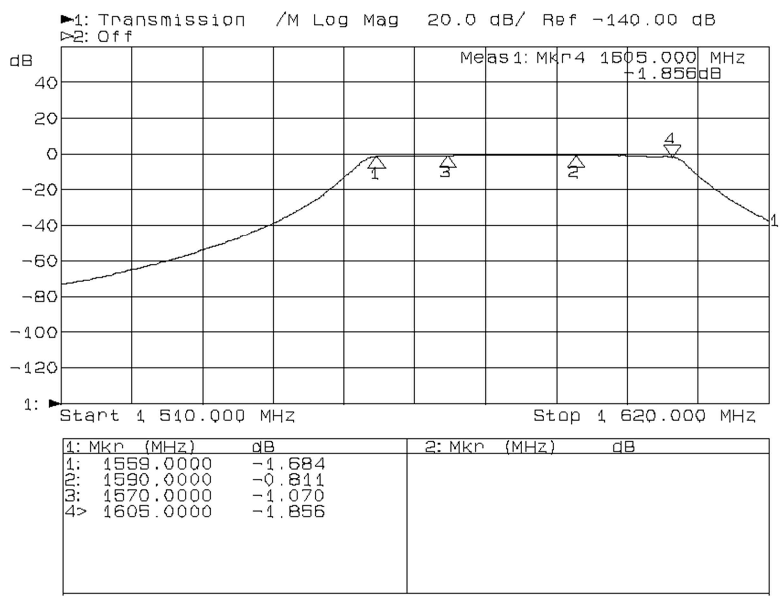


Figure 8: Measured Bandstop Filter Frequency Response