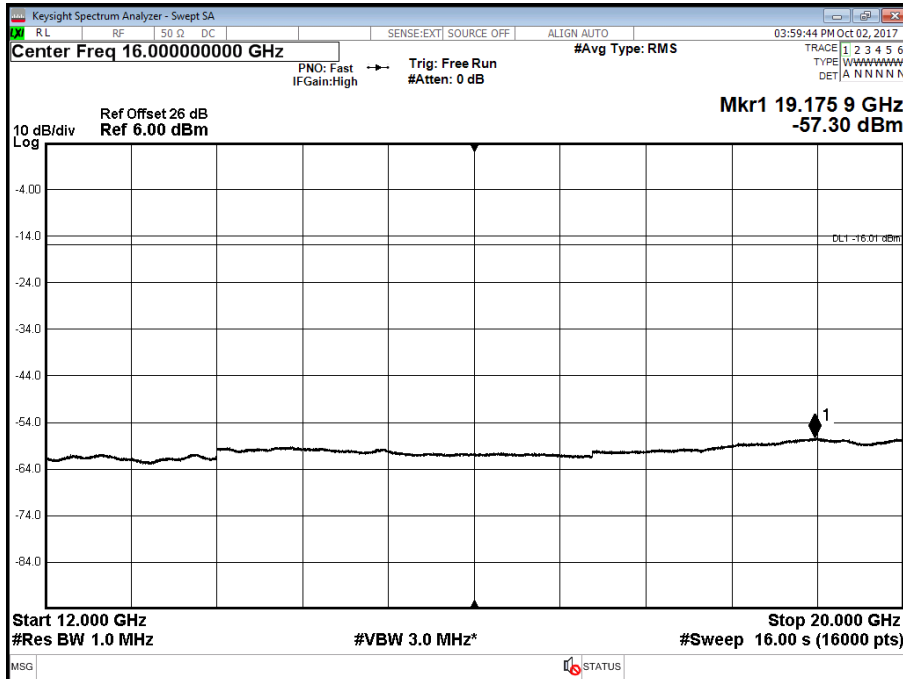


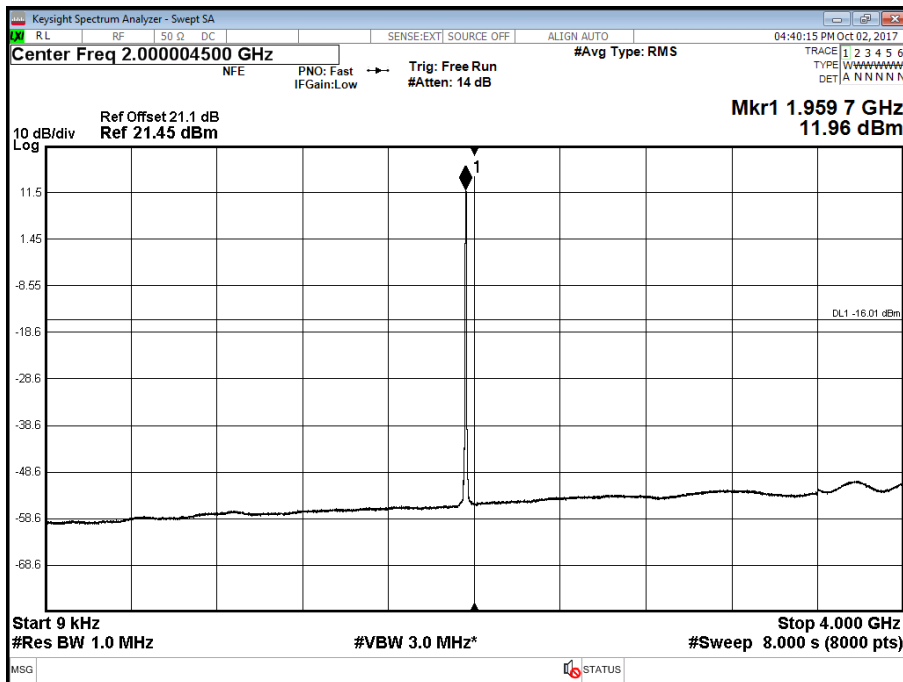


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



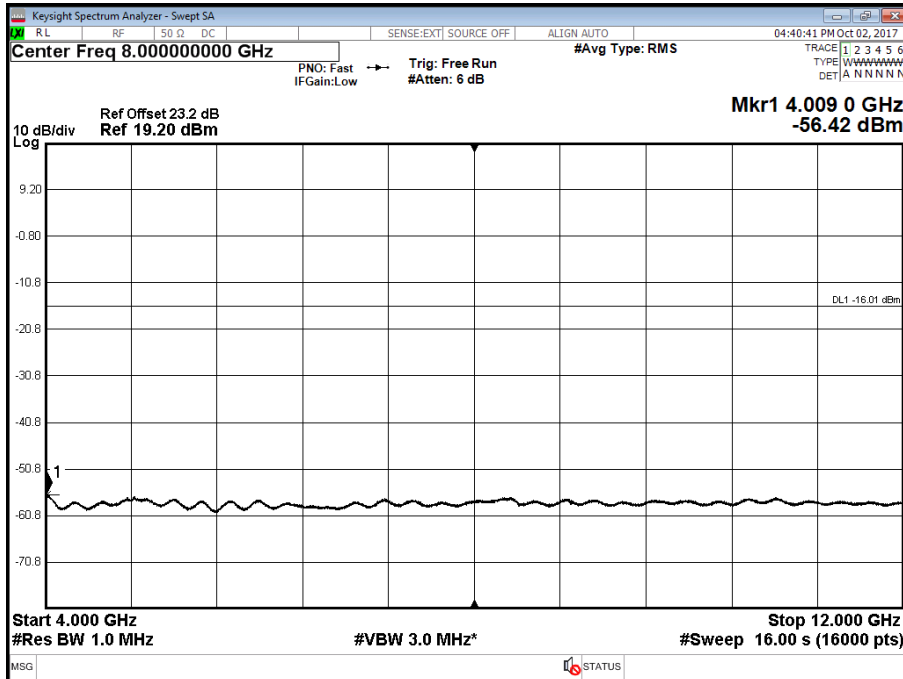
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



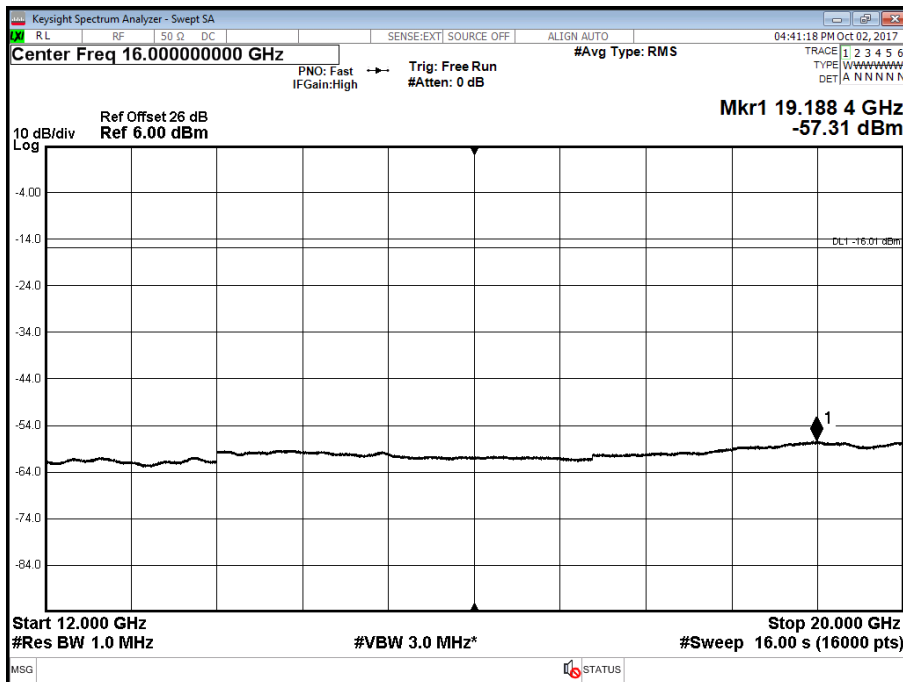


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



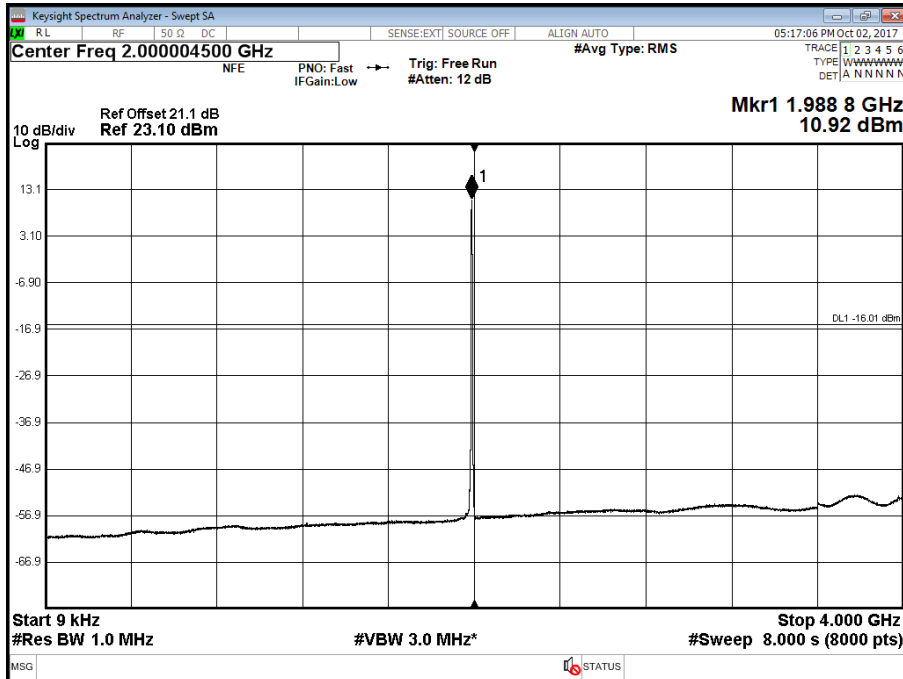
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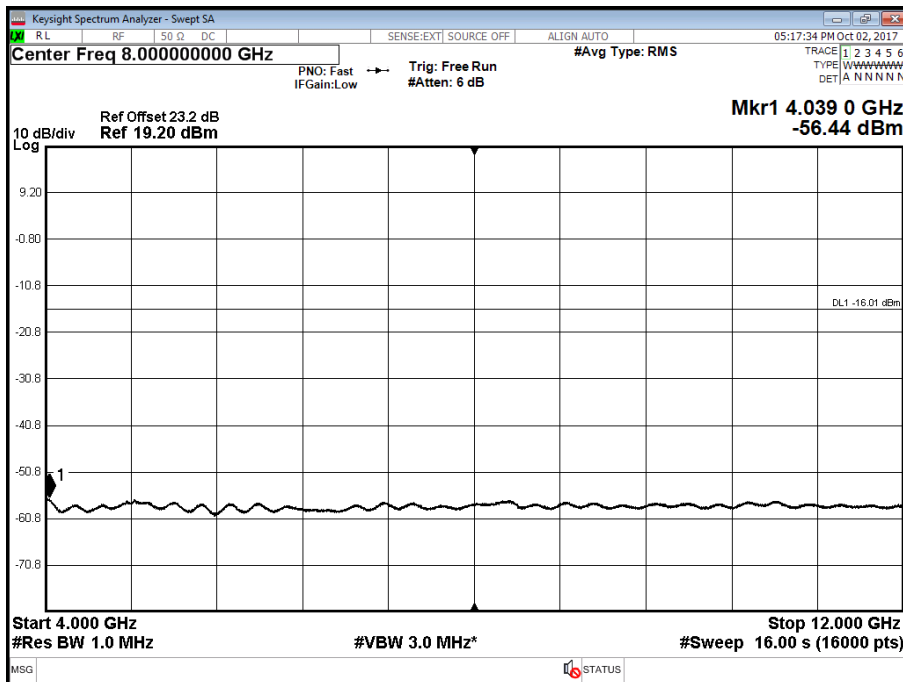


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



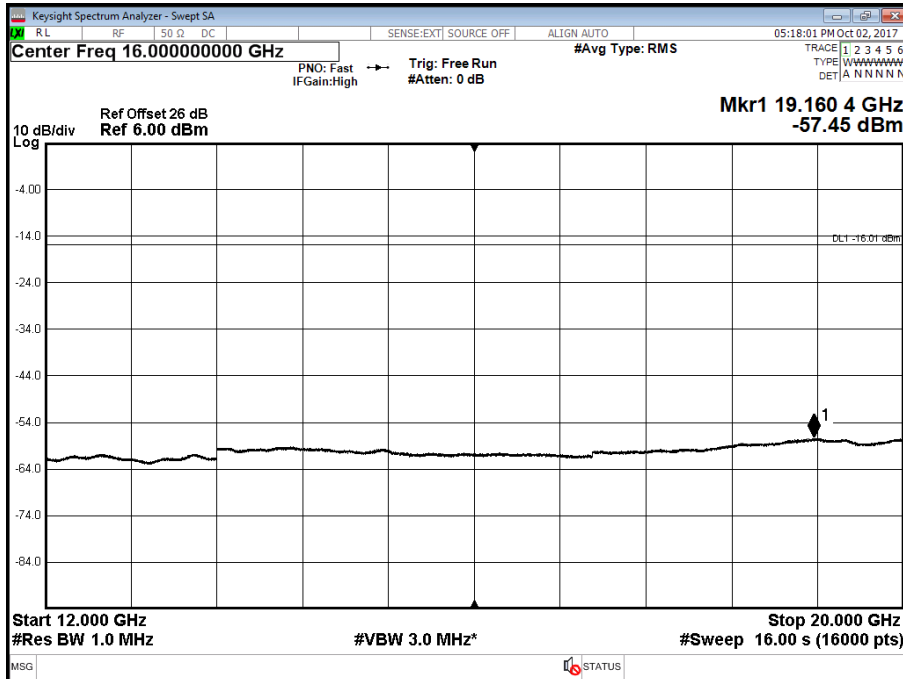
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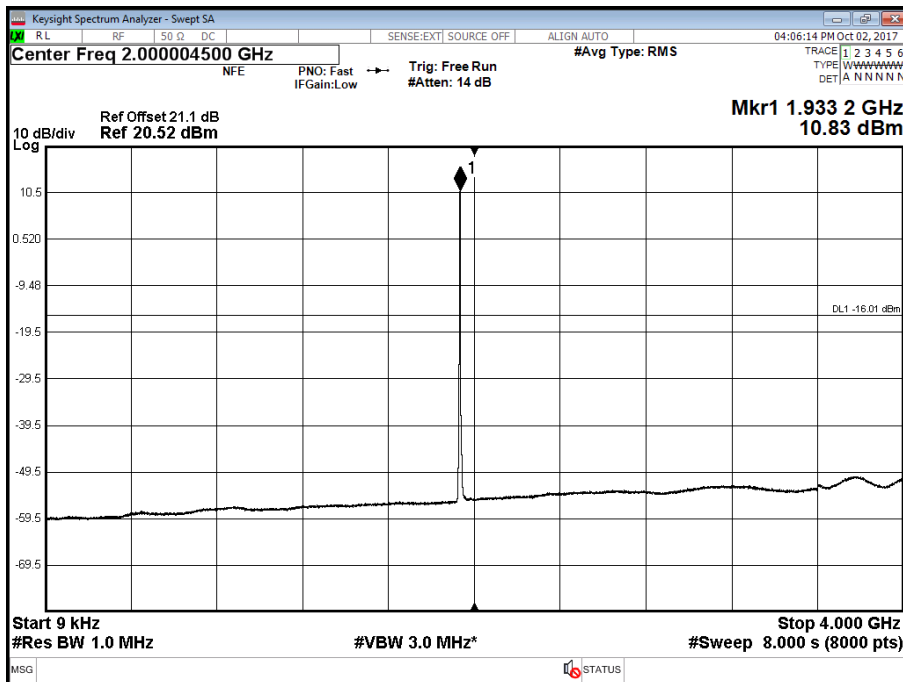


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



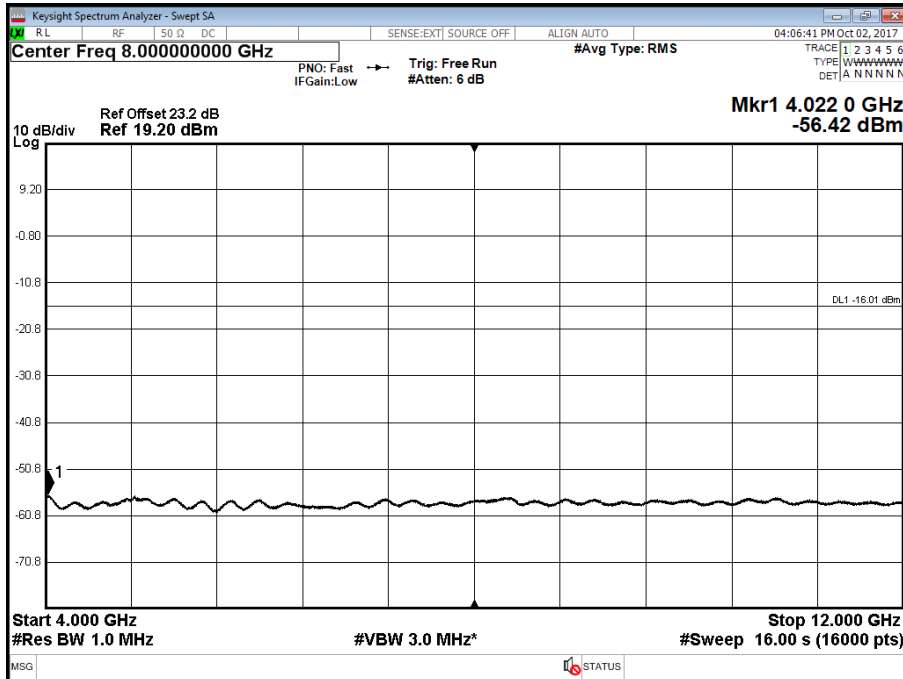
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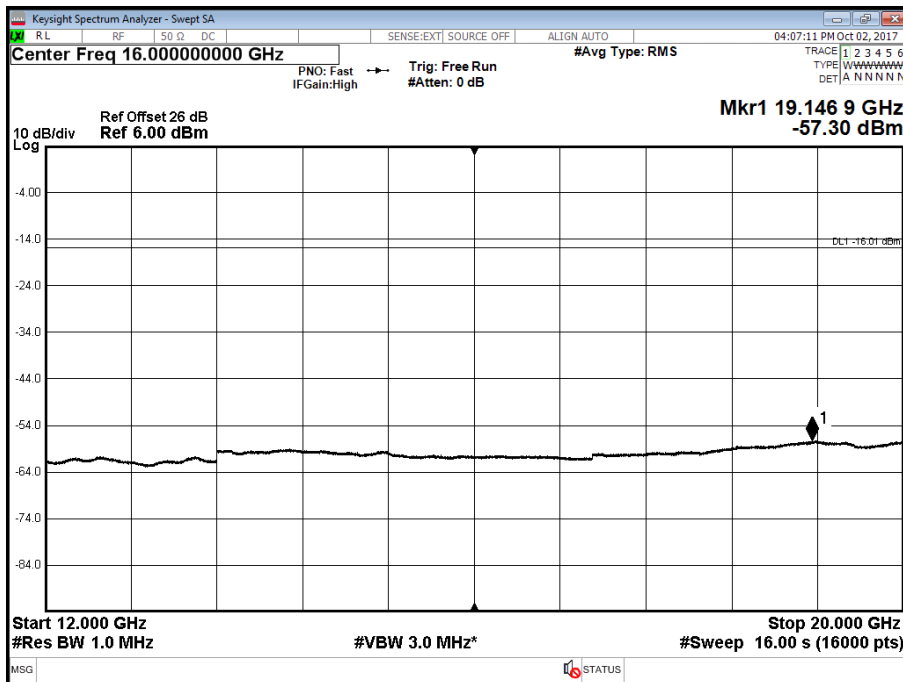


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



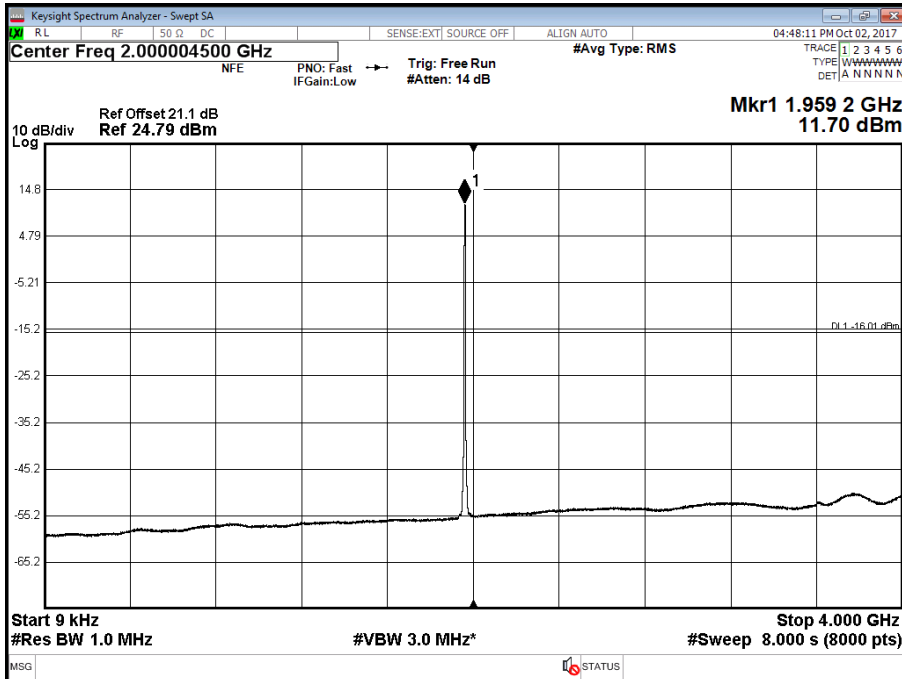
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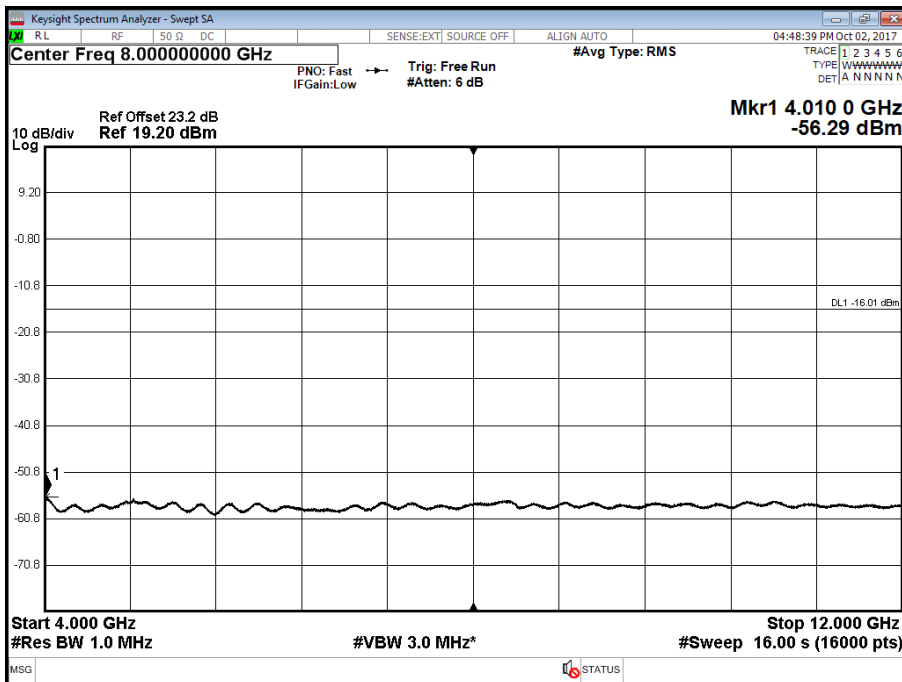


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



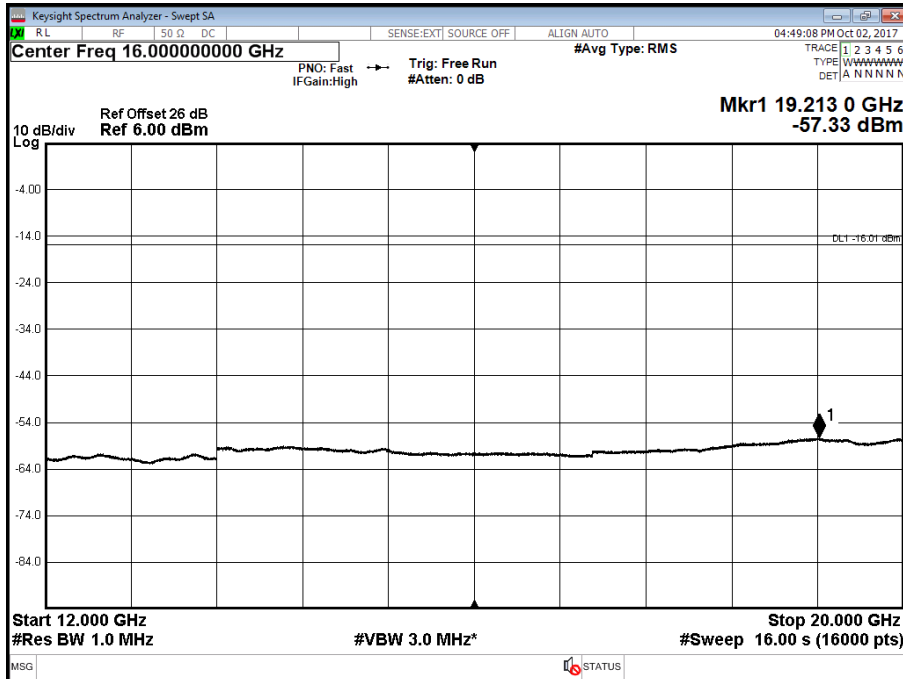
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



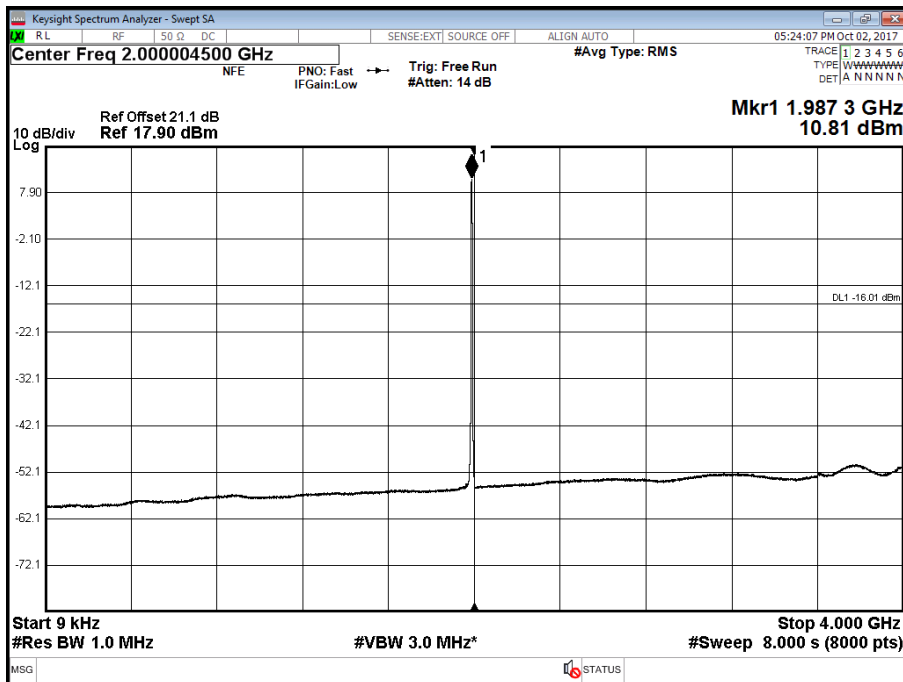


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



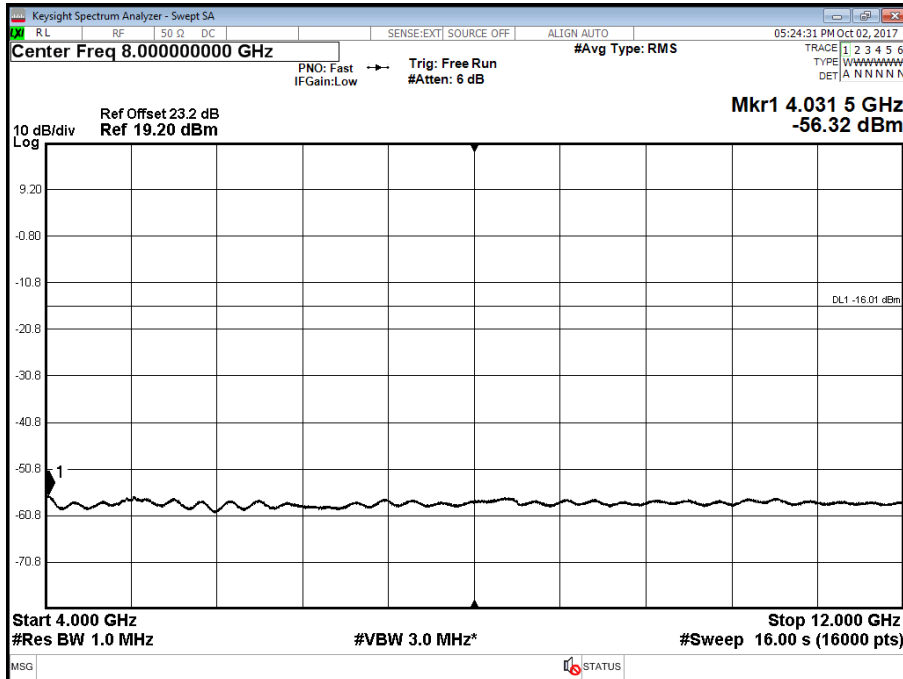
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



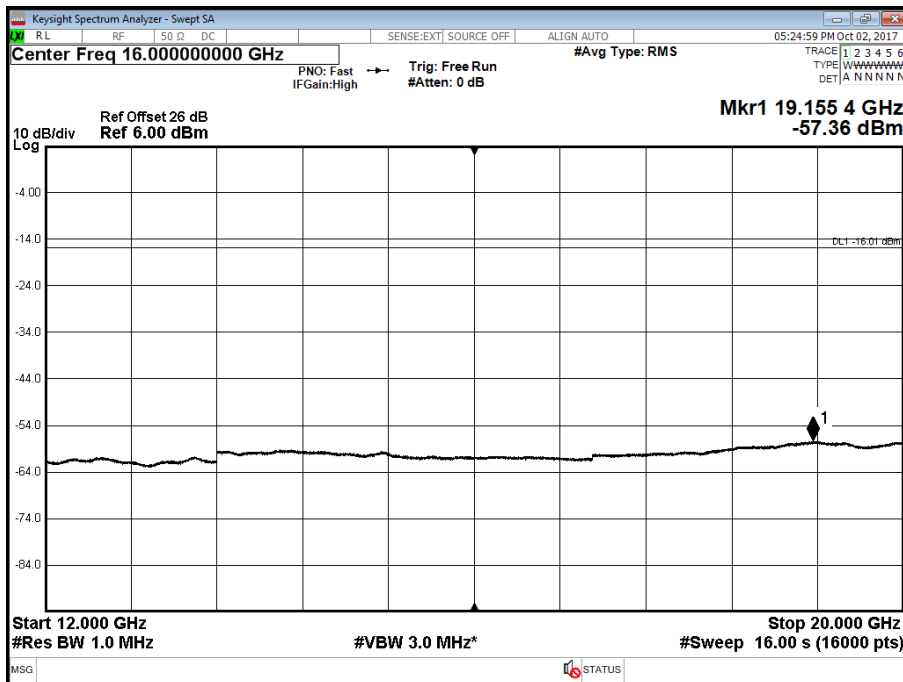


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz

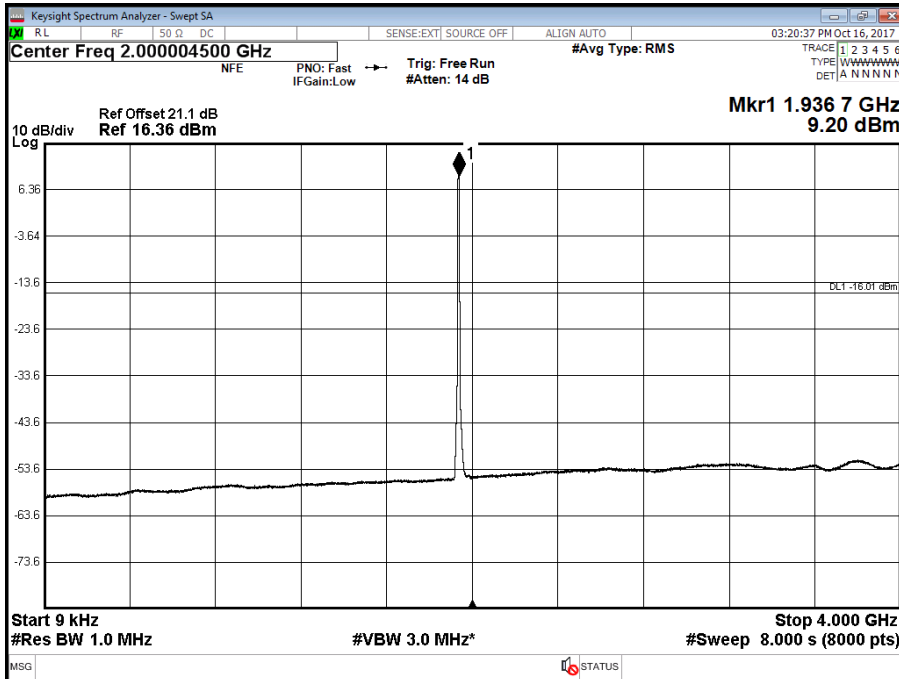




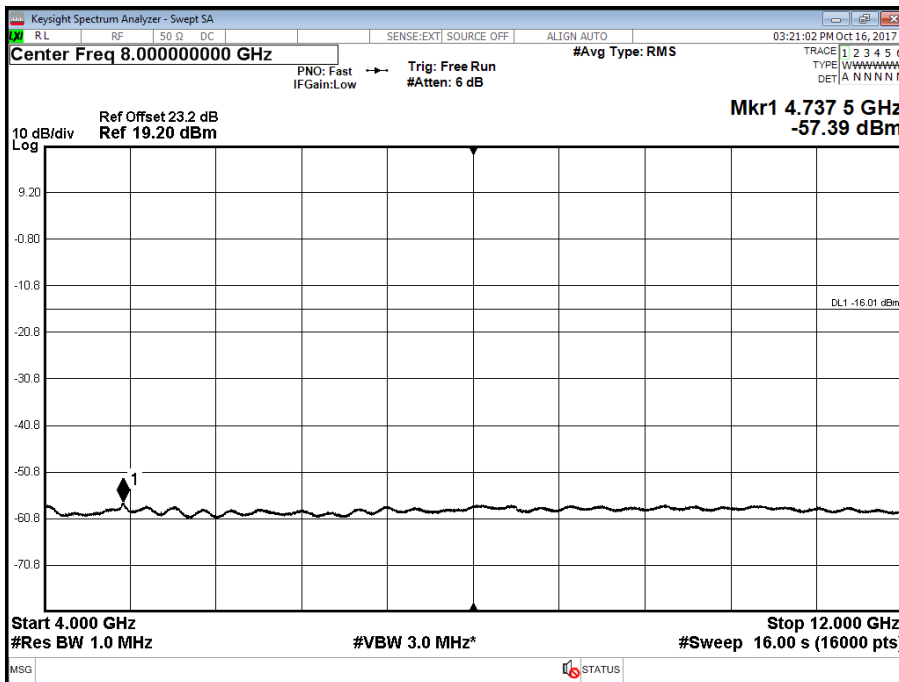


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



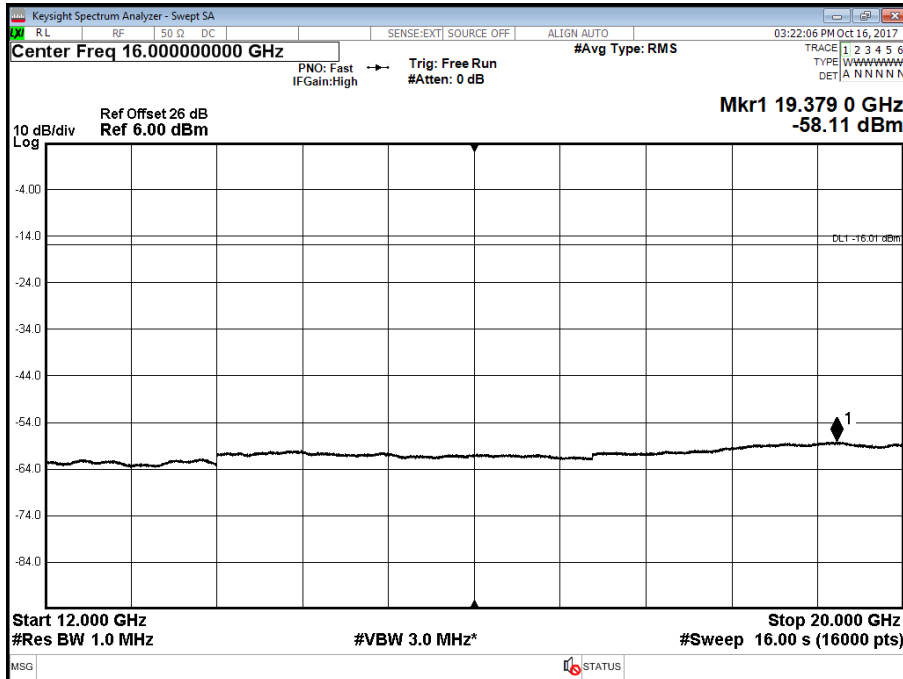
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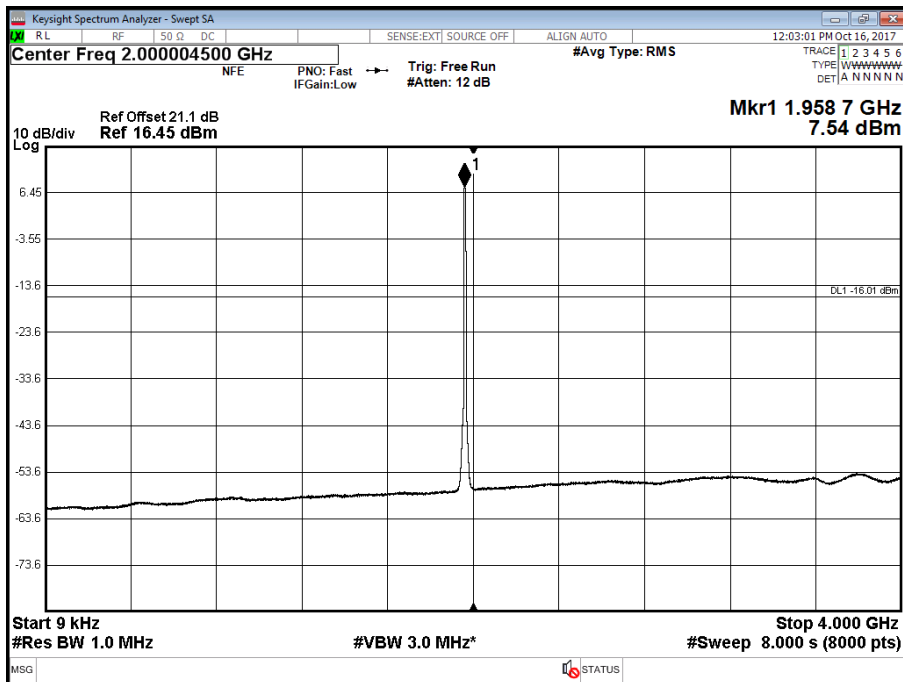


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



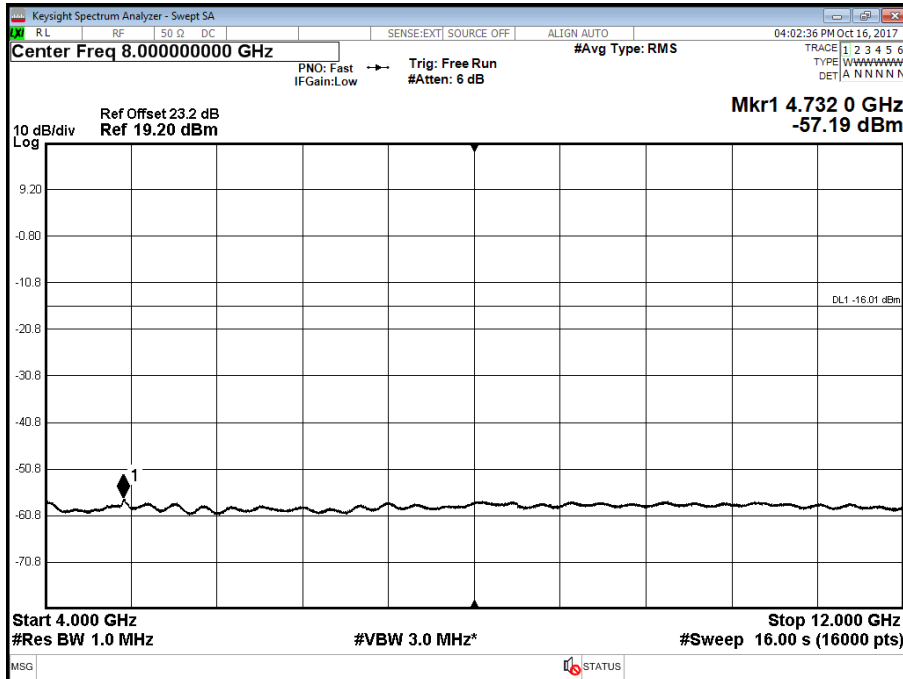
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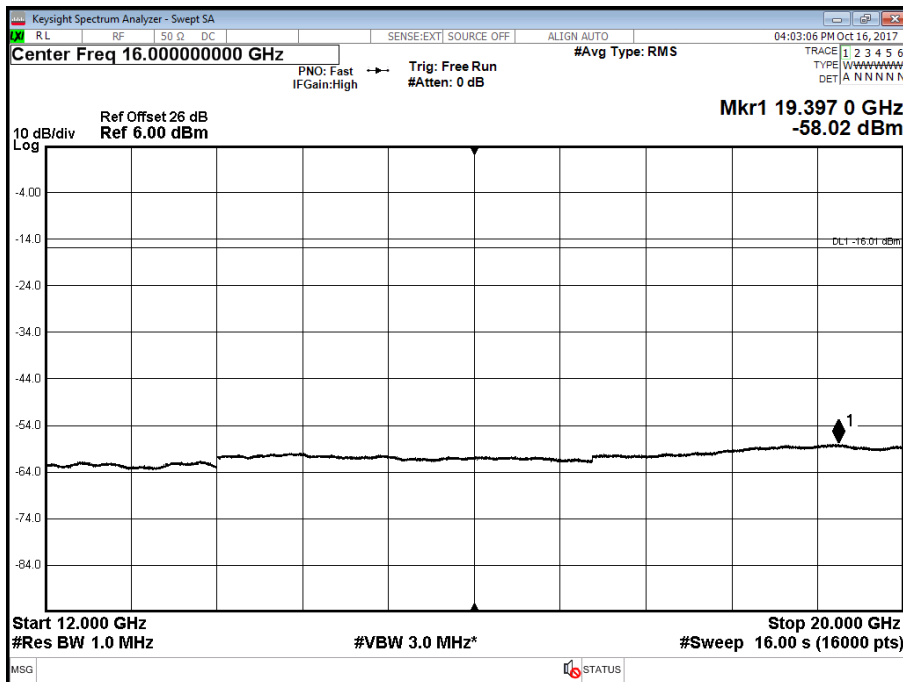


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



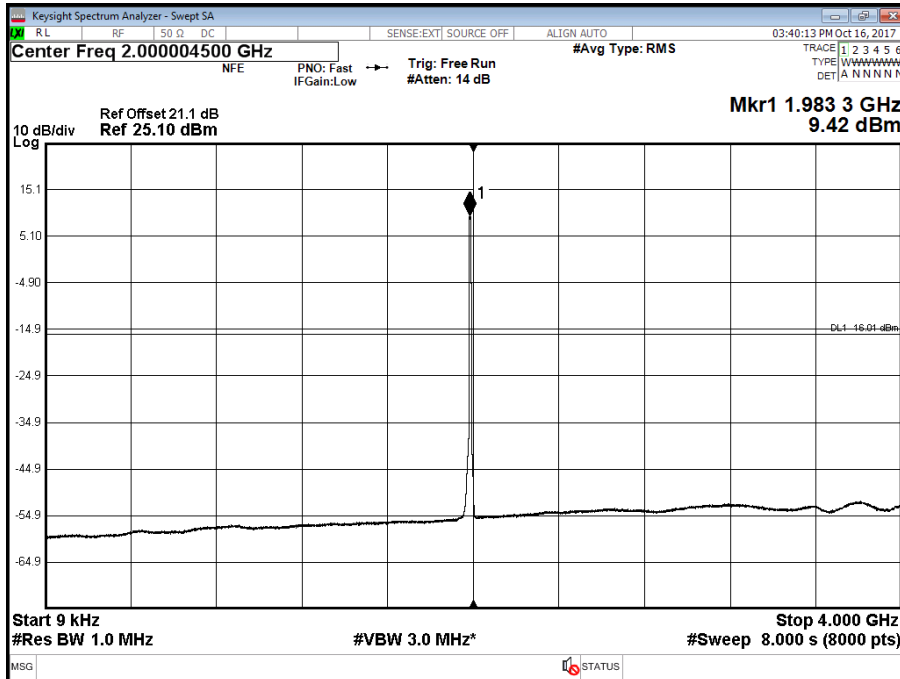
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



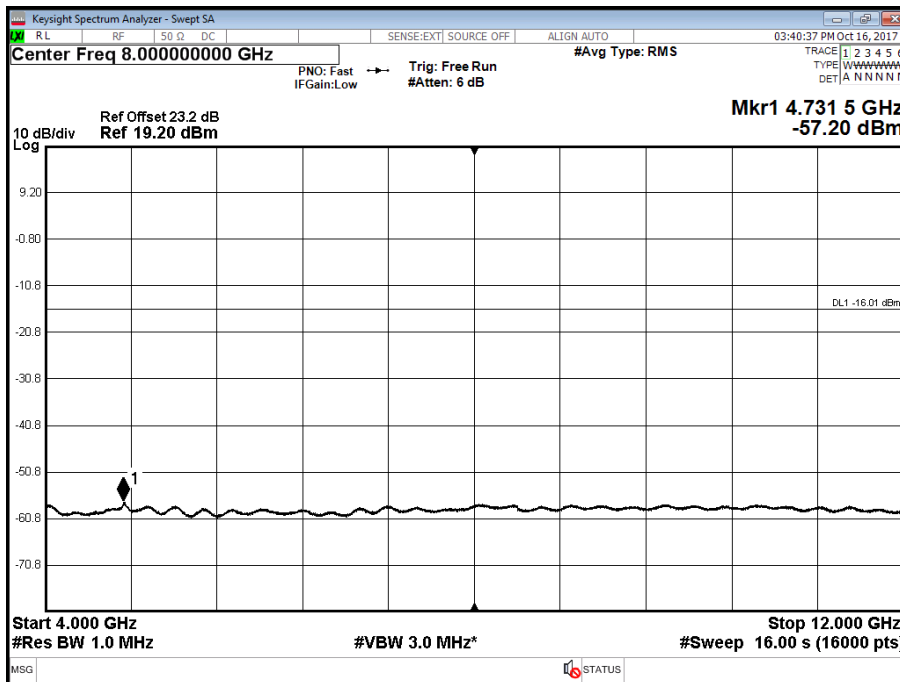


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



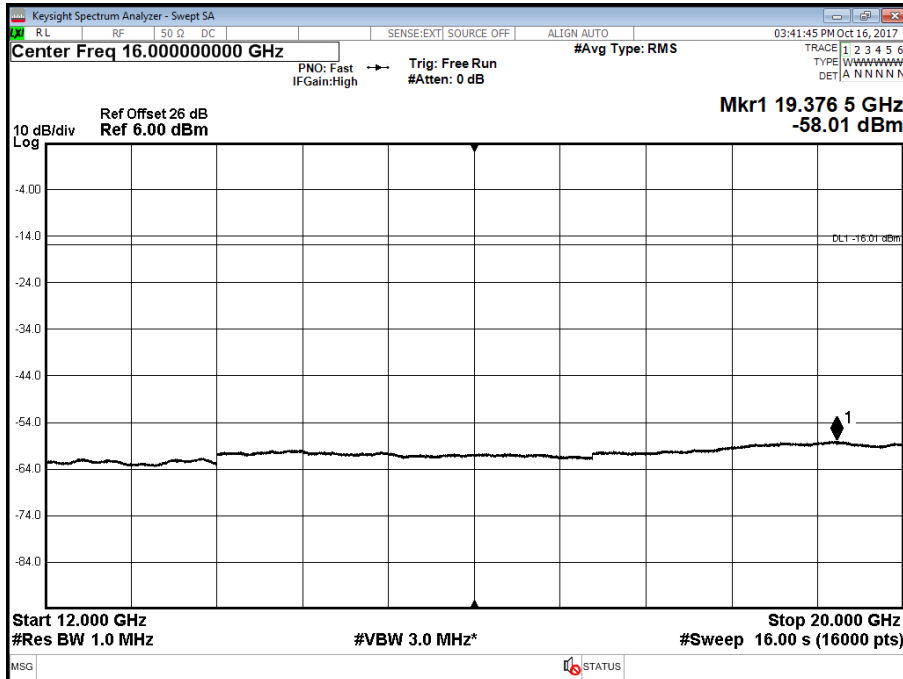
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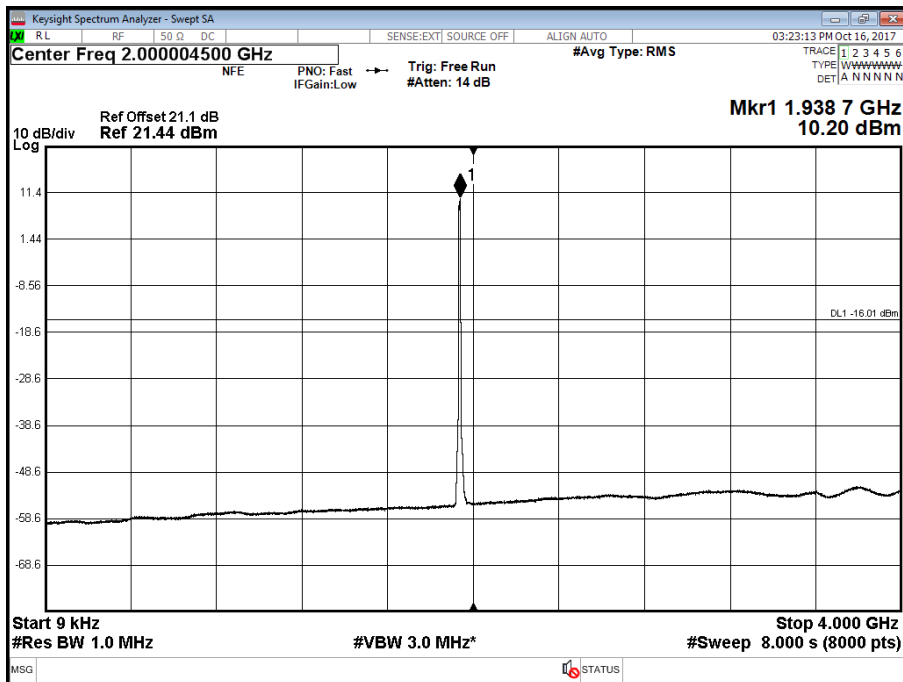


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



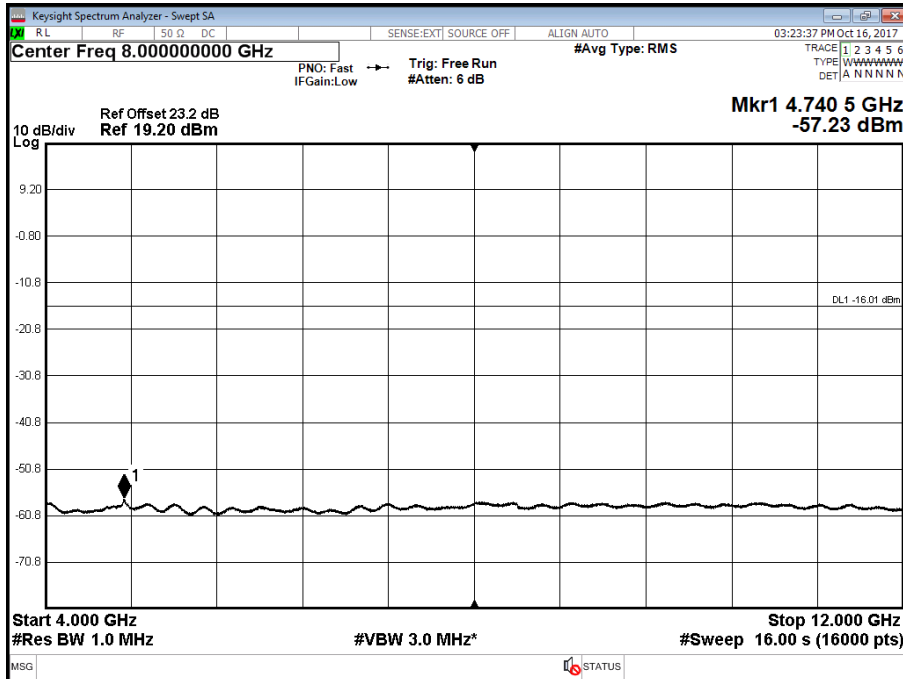
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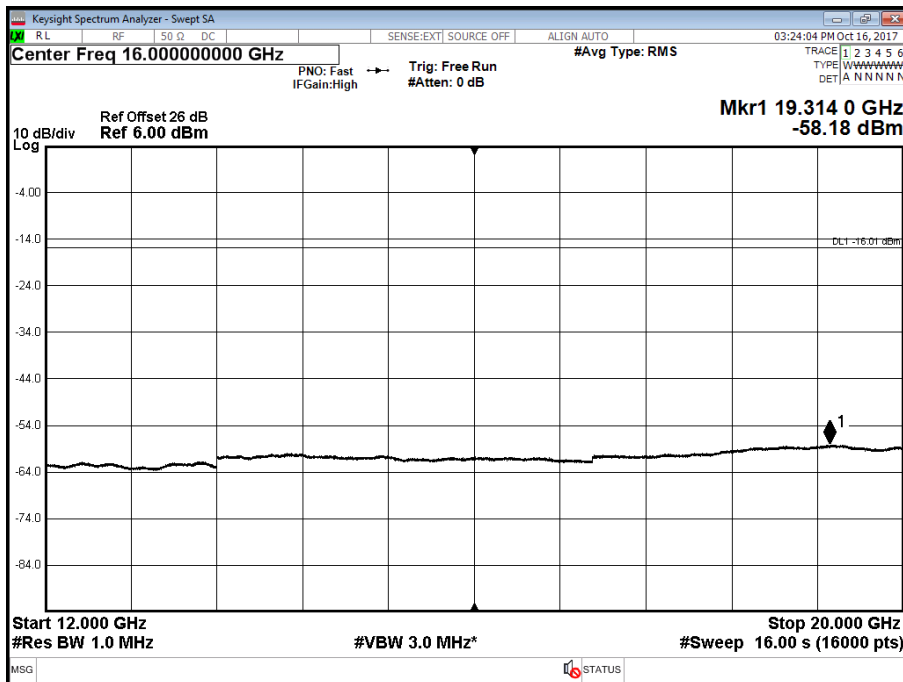


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



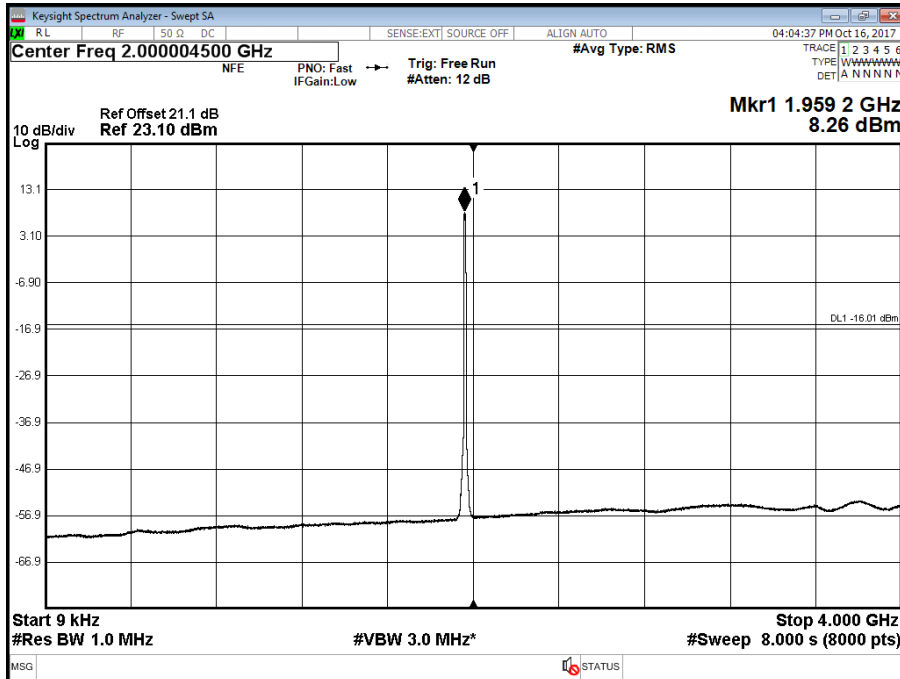
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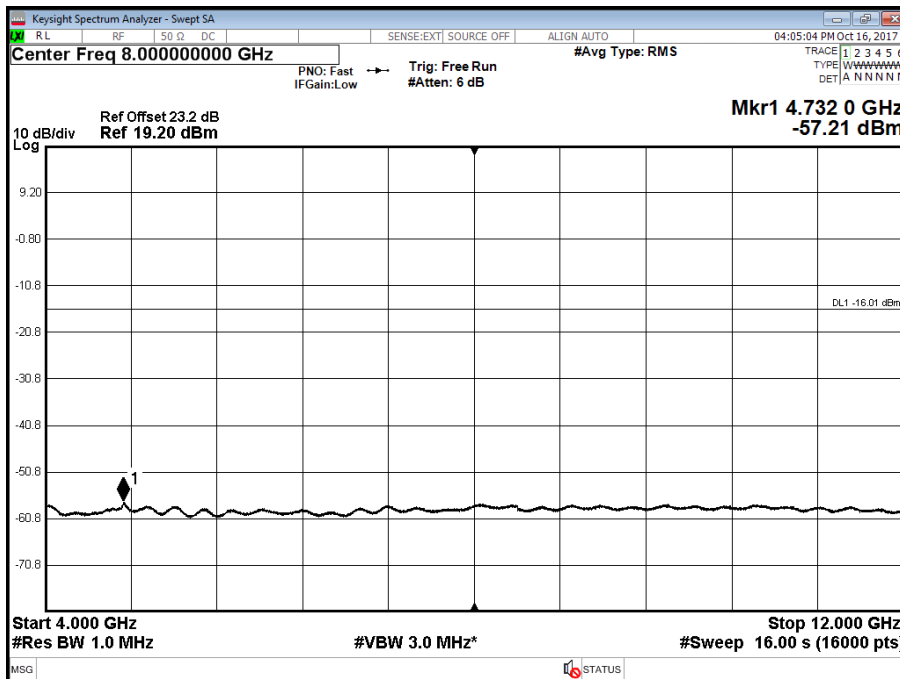


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



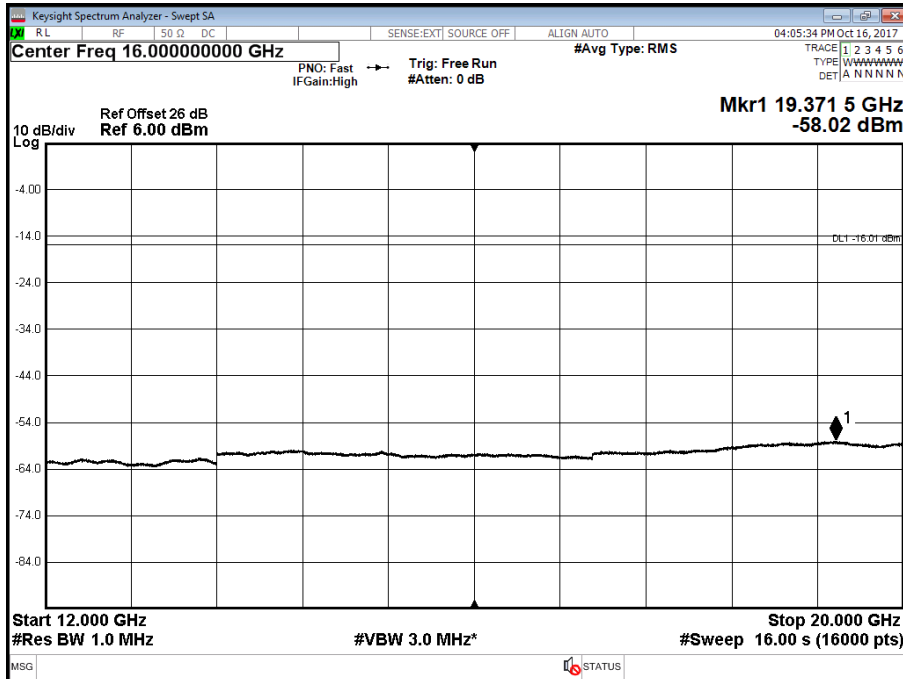
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



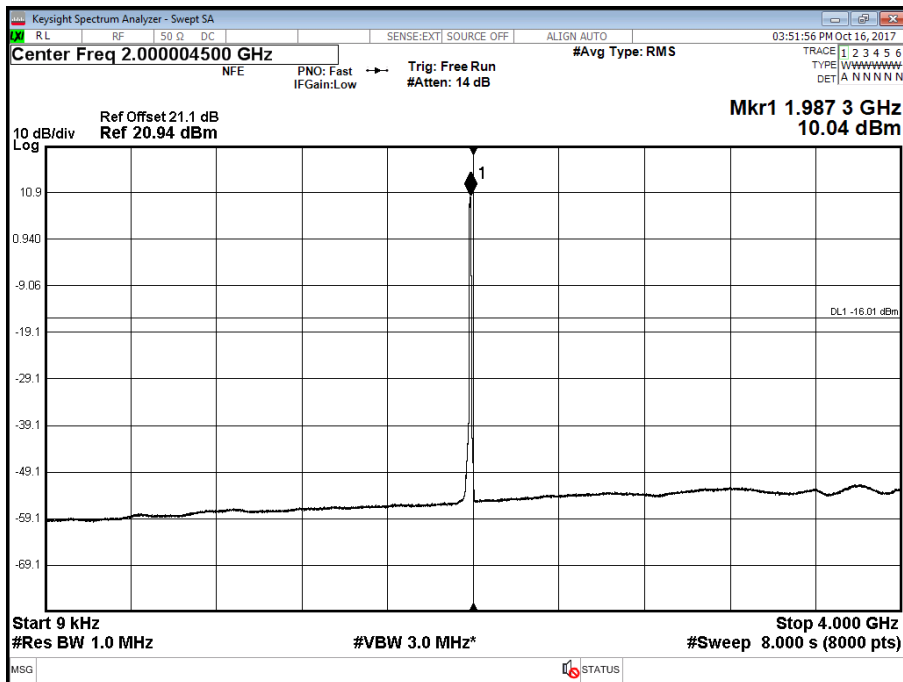


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz

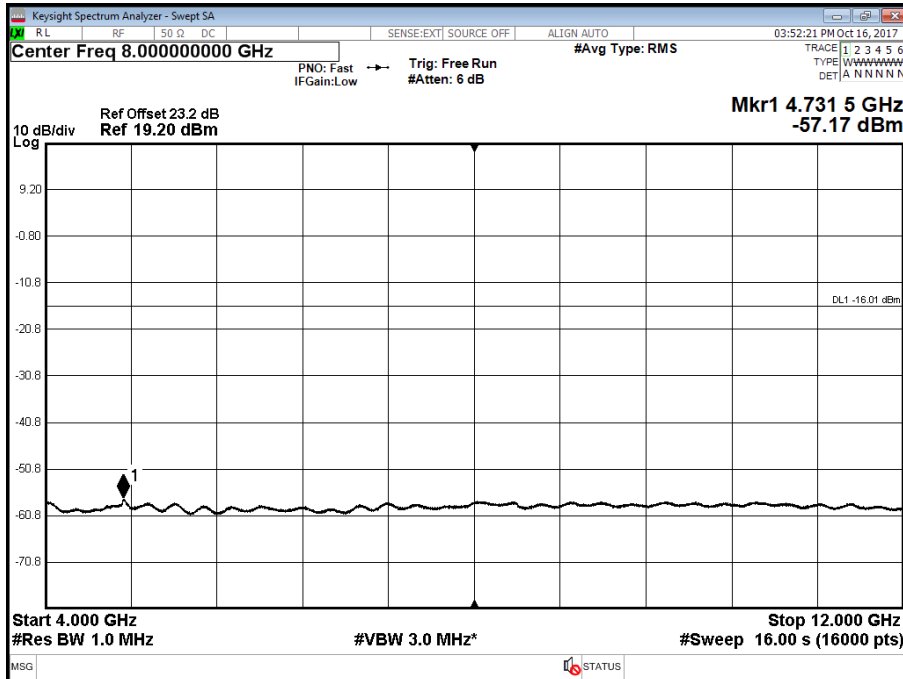




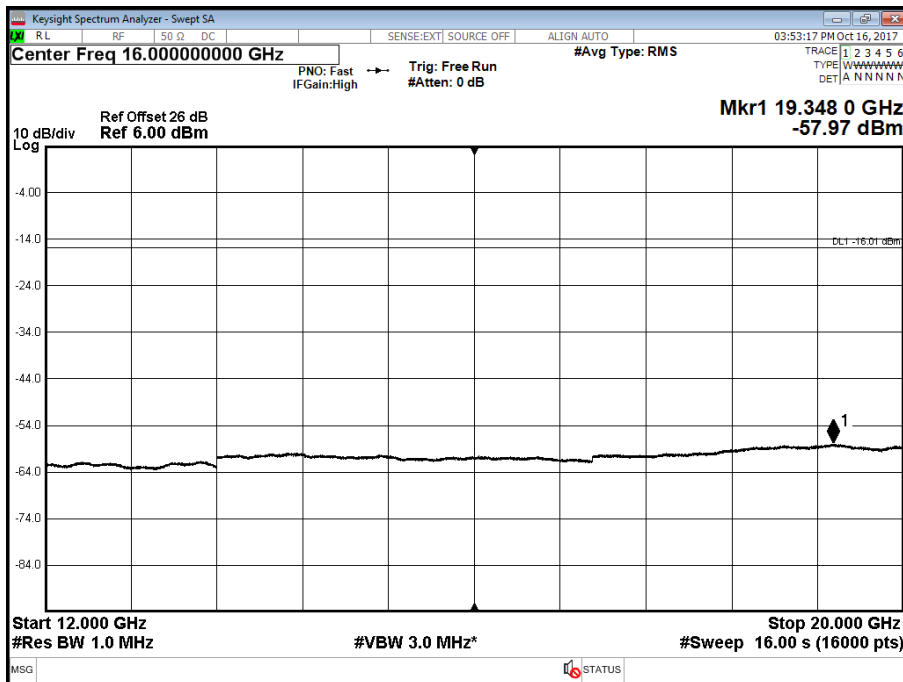


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



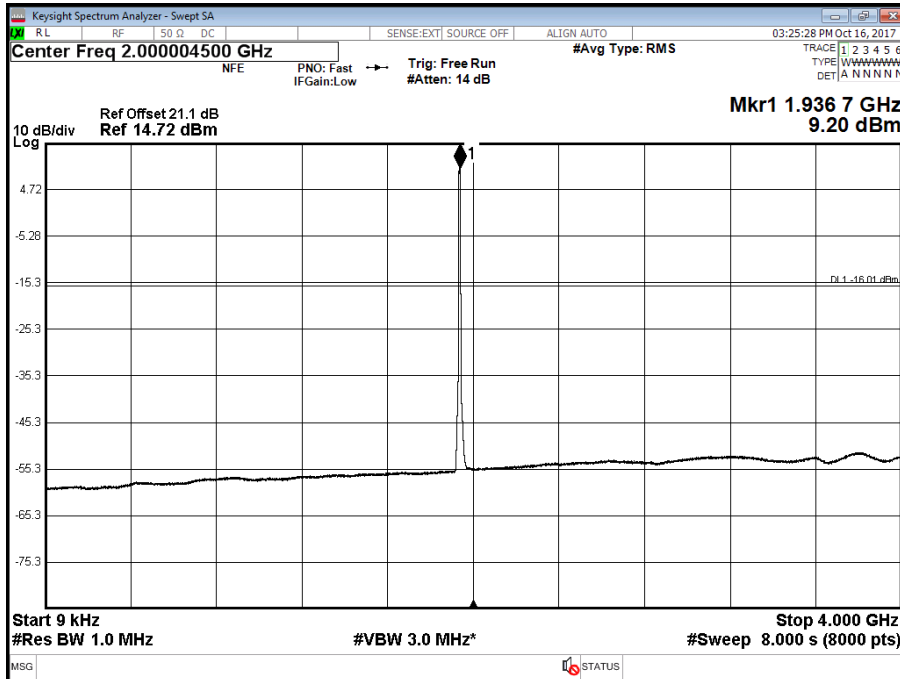
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



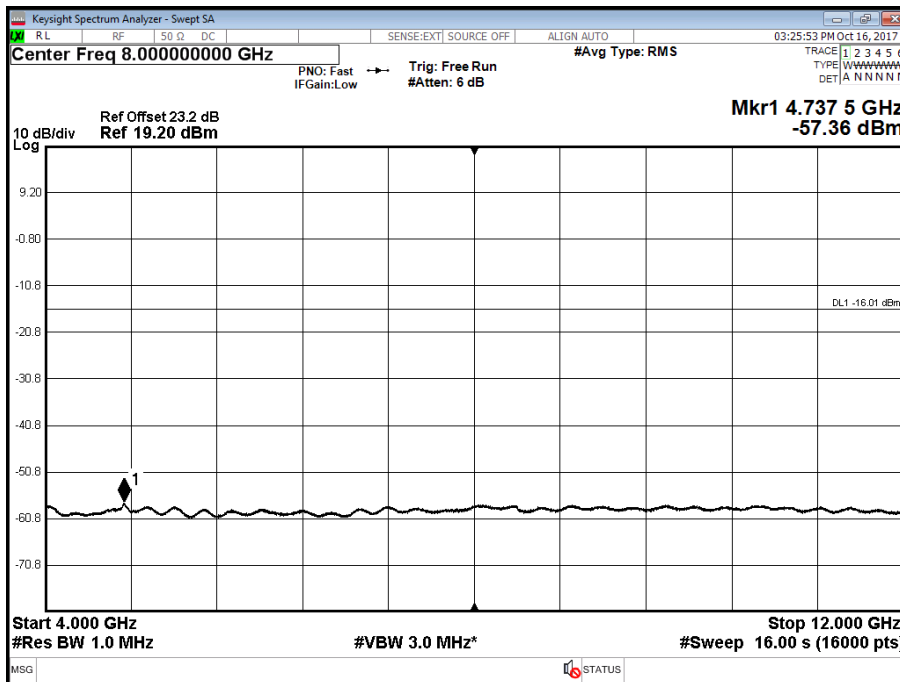


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



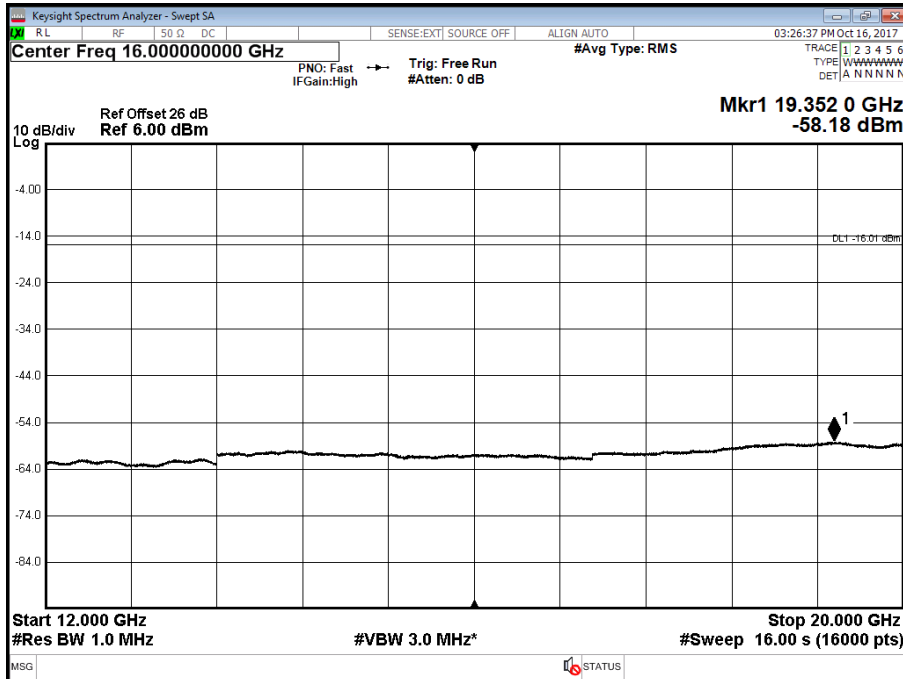
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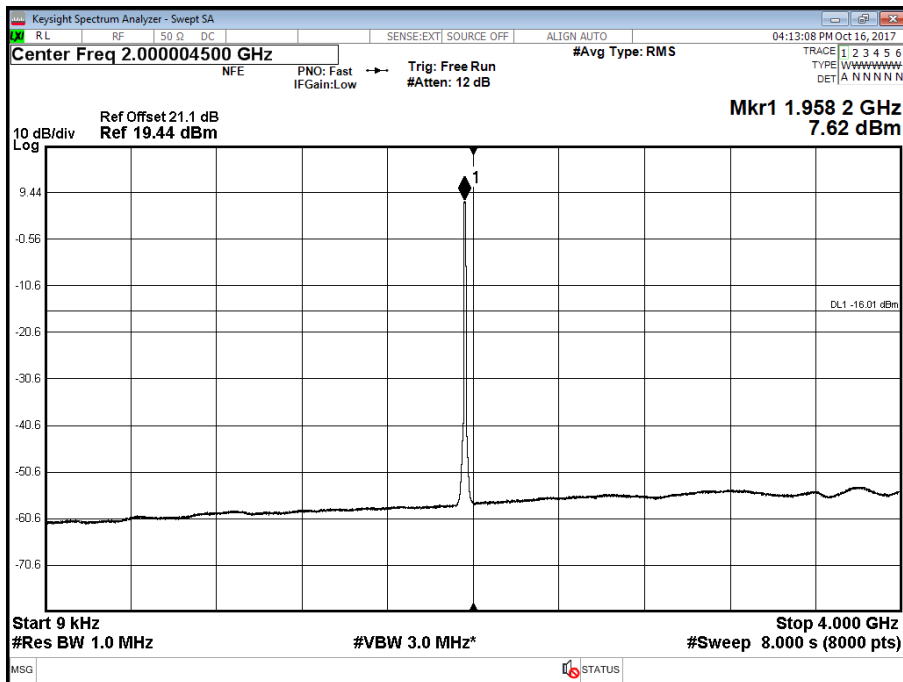


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



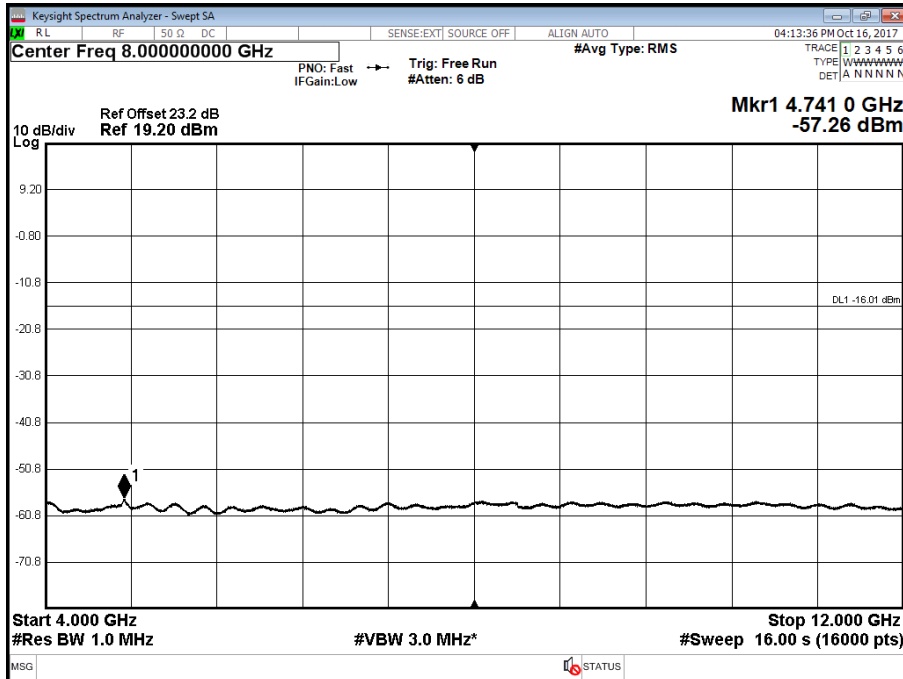
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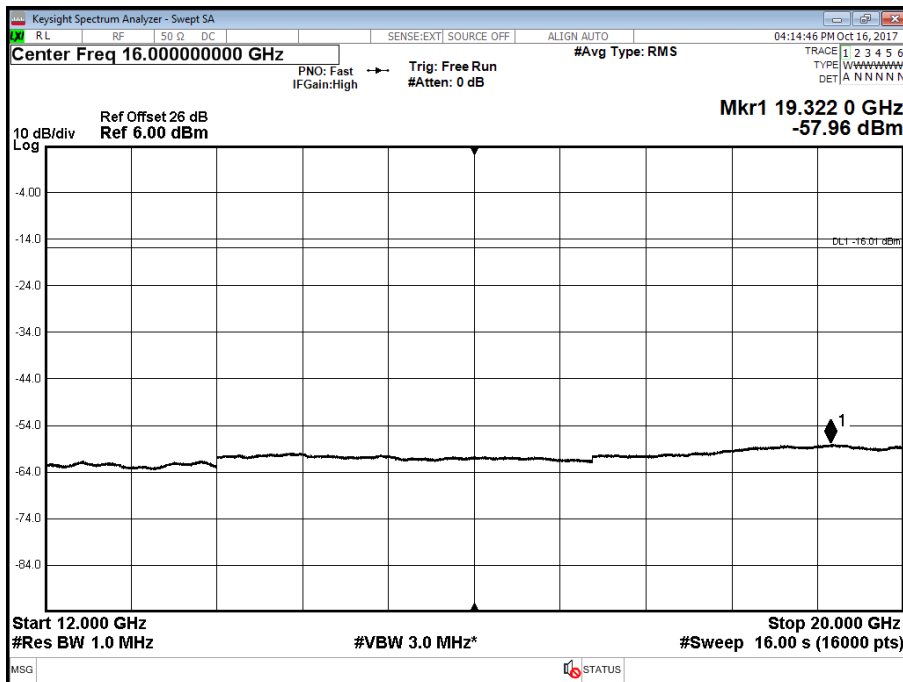


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



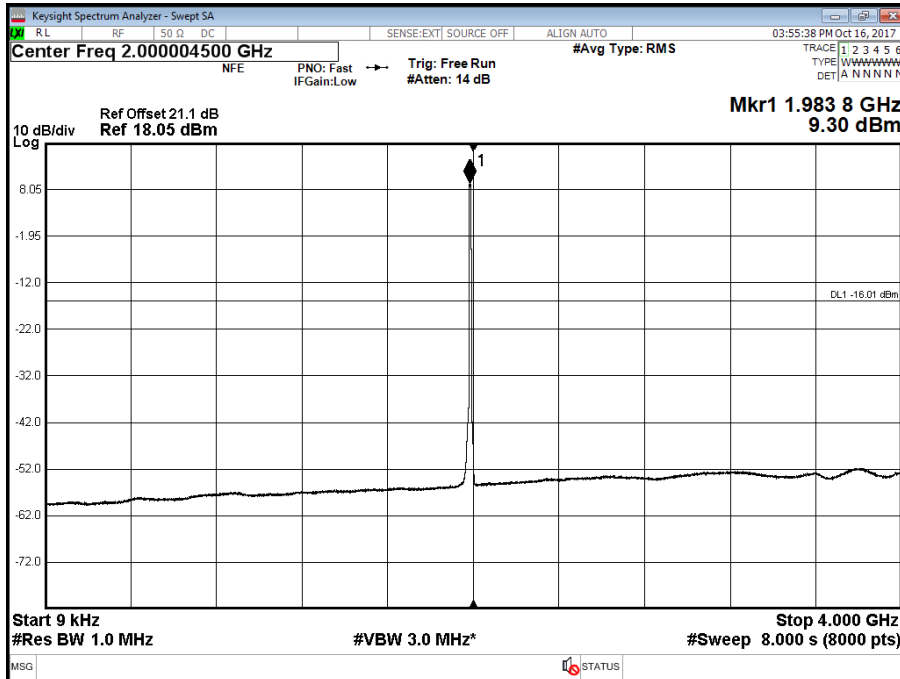
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



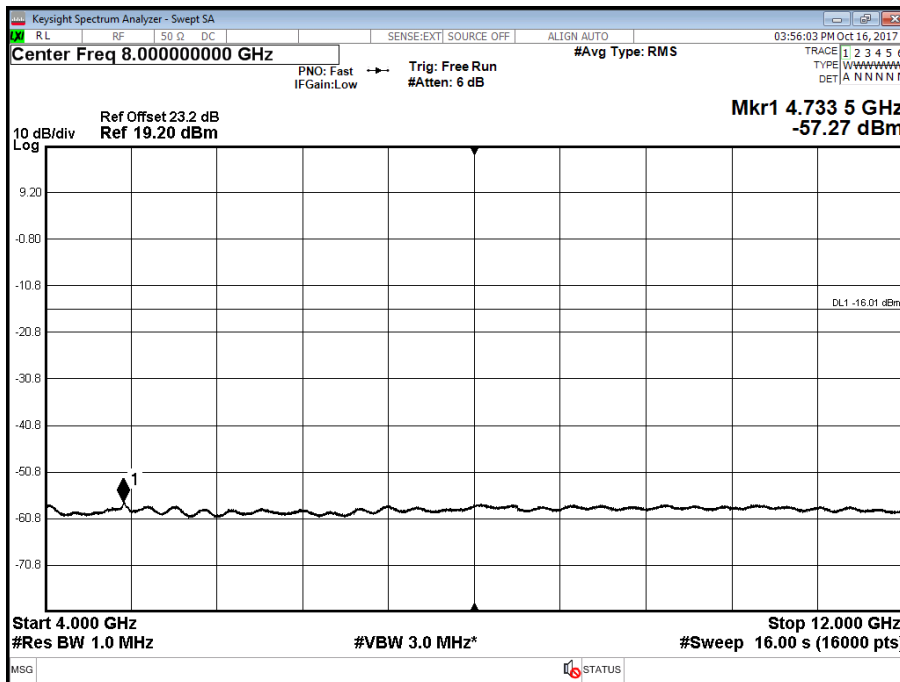


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



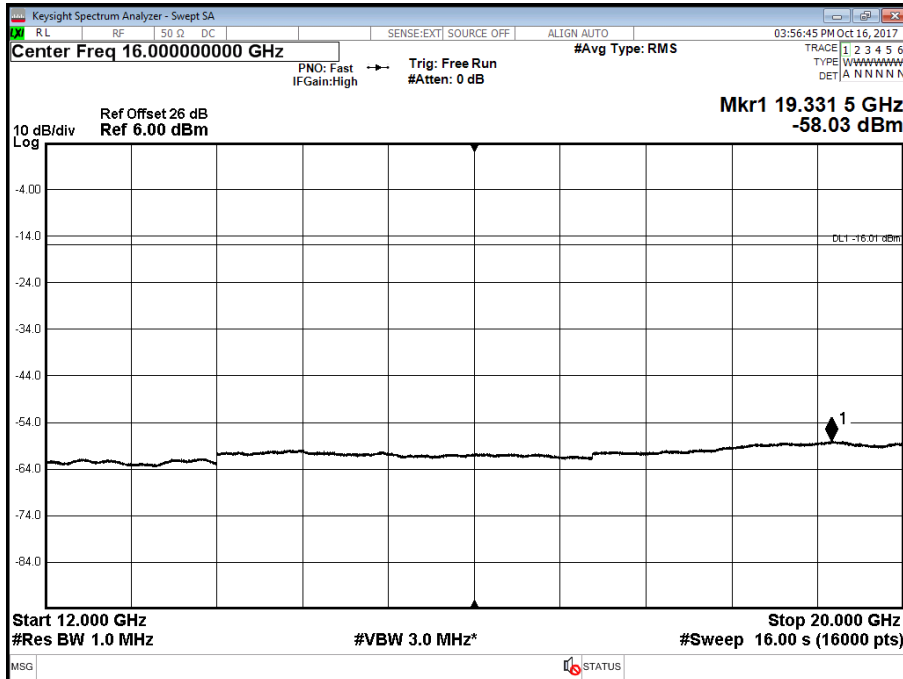
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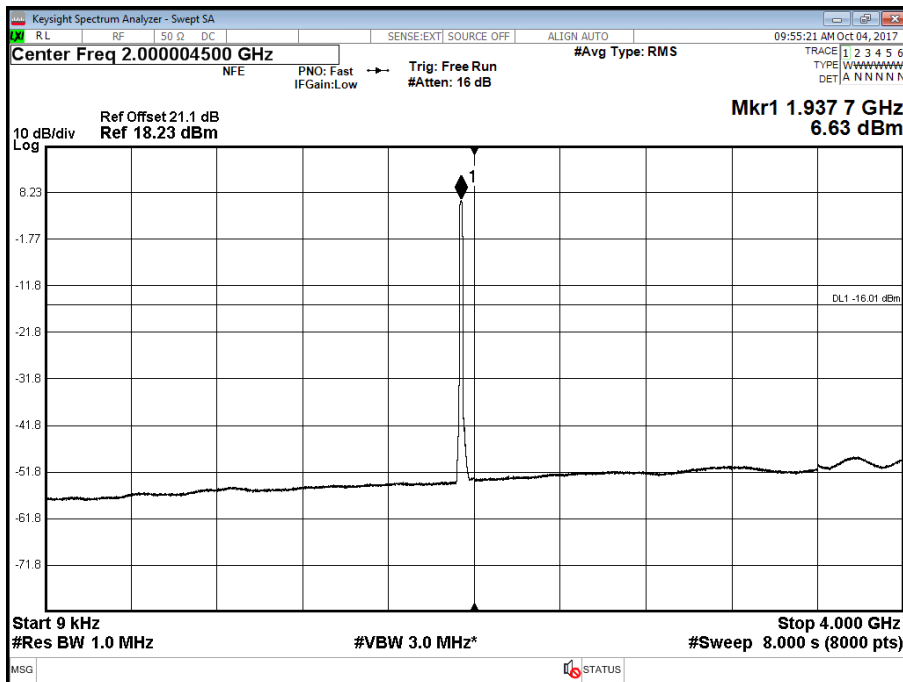


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



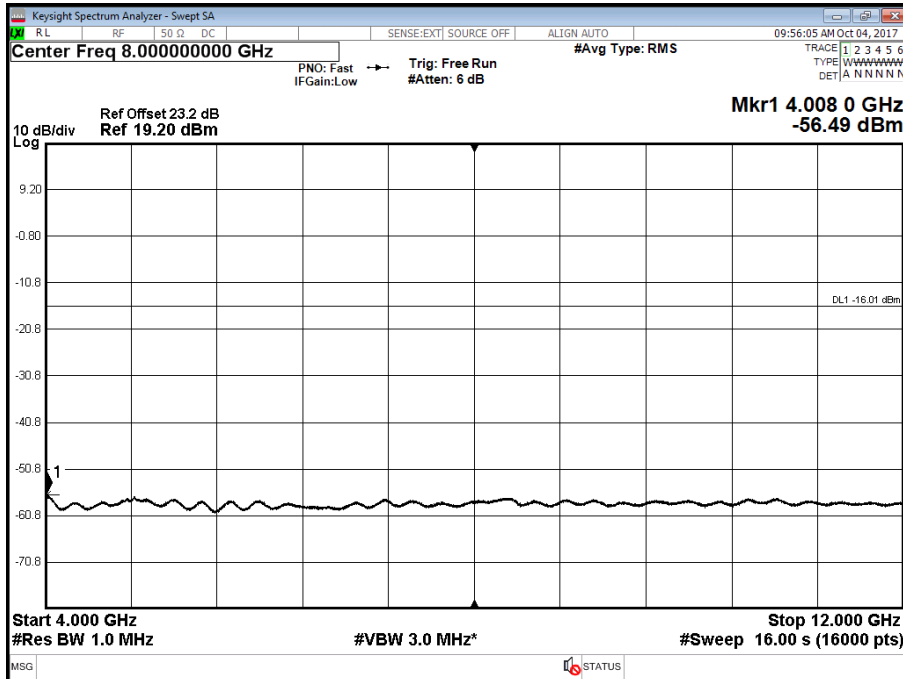
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



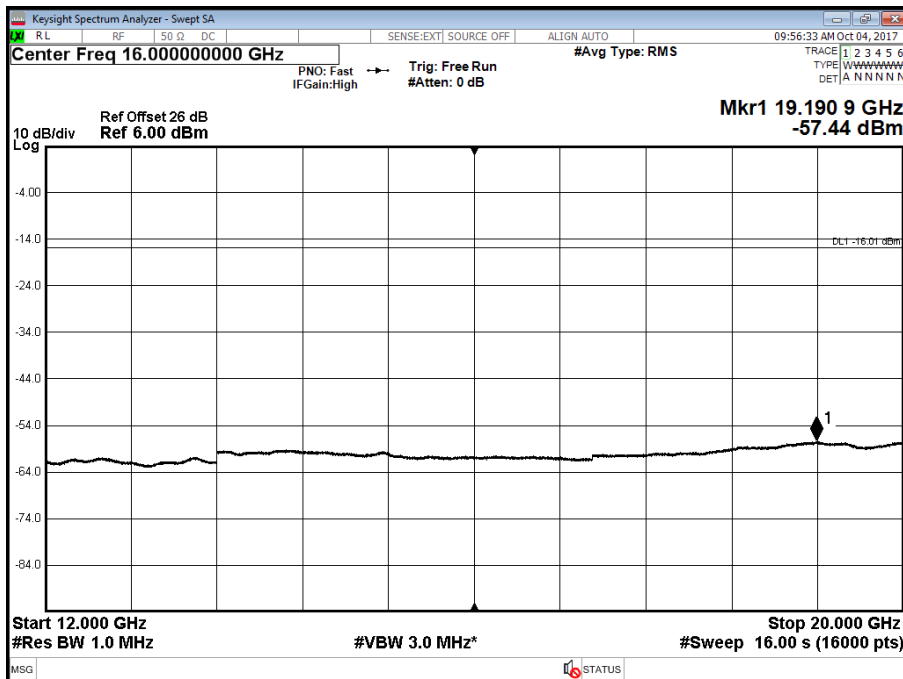


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



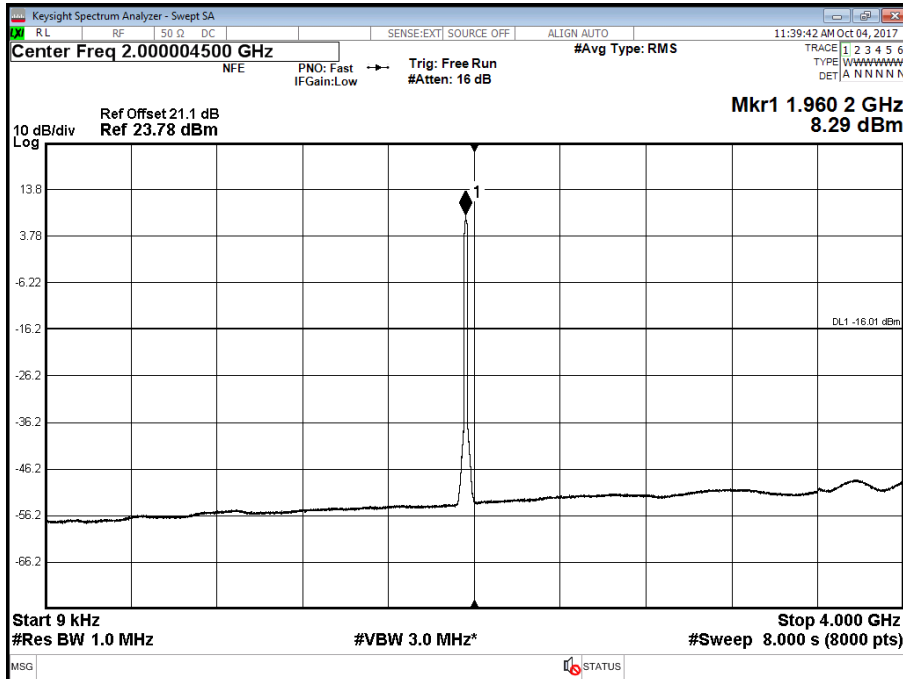
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



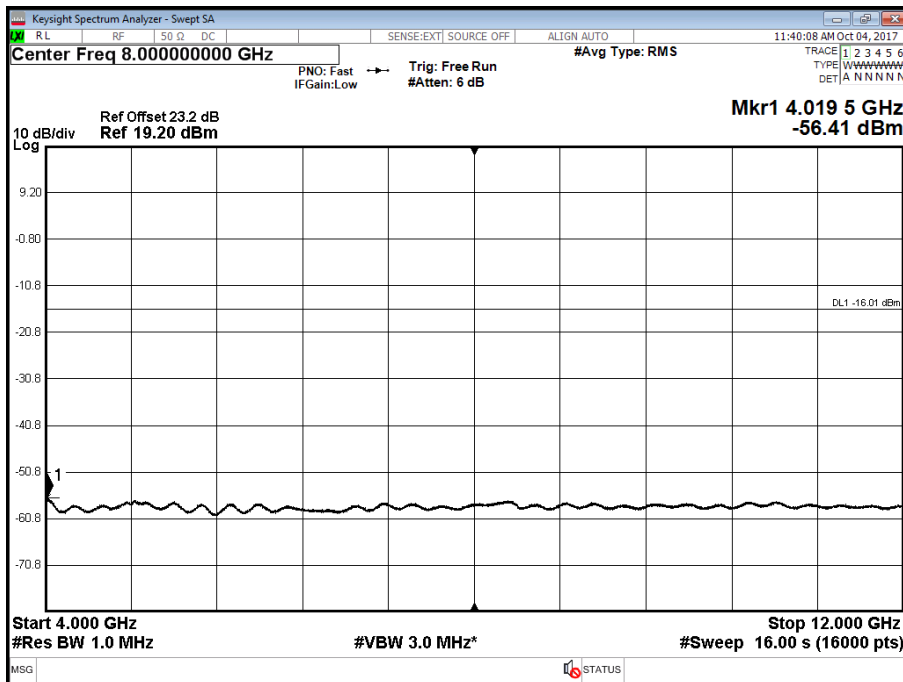


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz

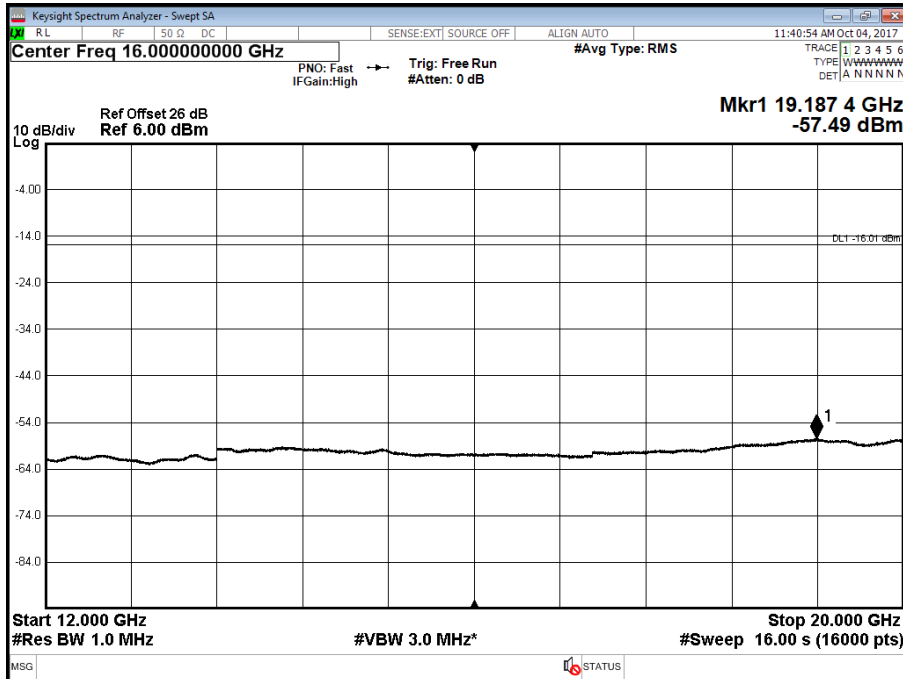




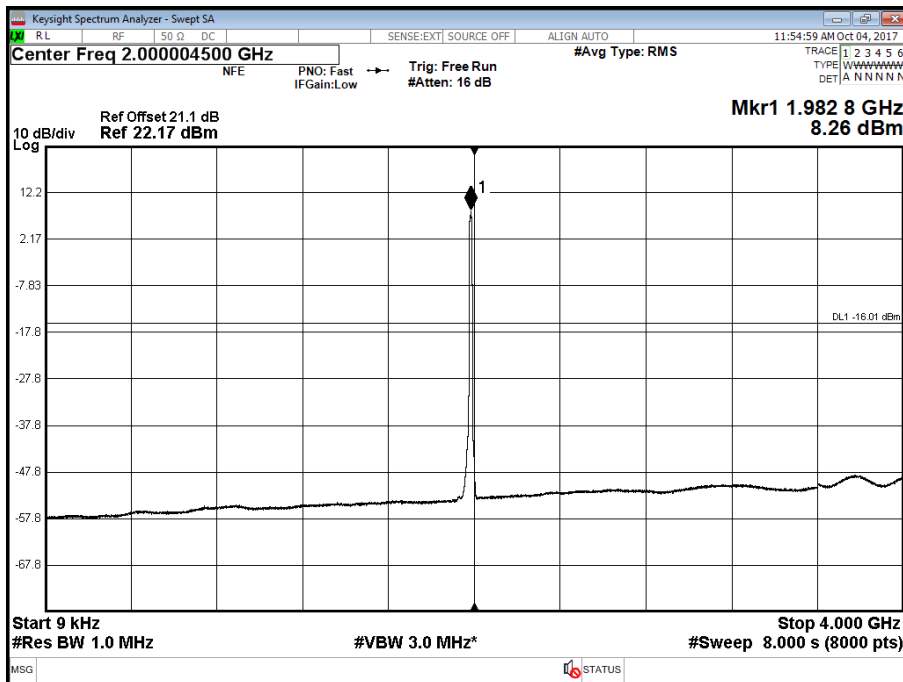


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



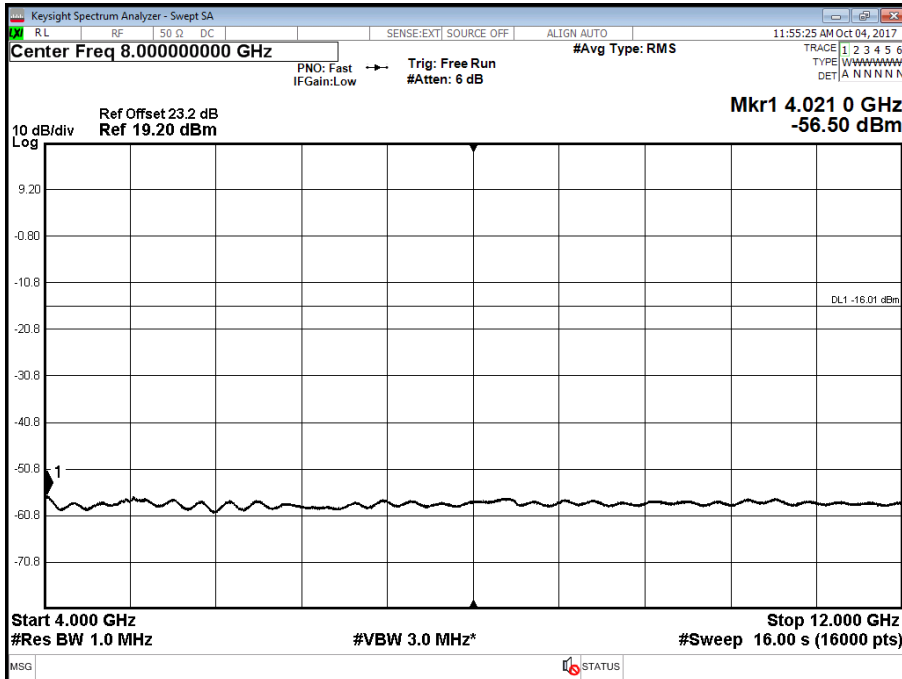
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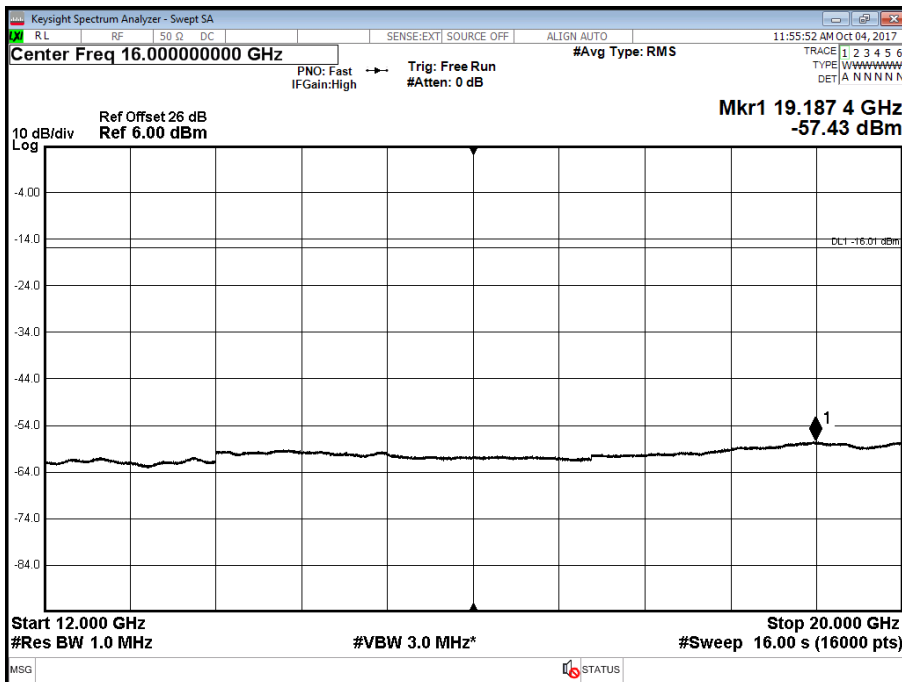


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



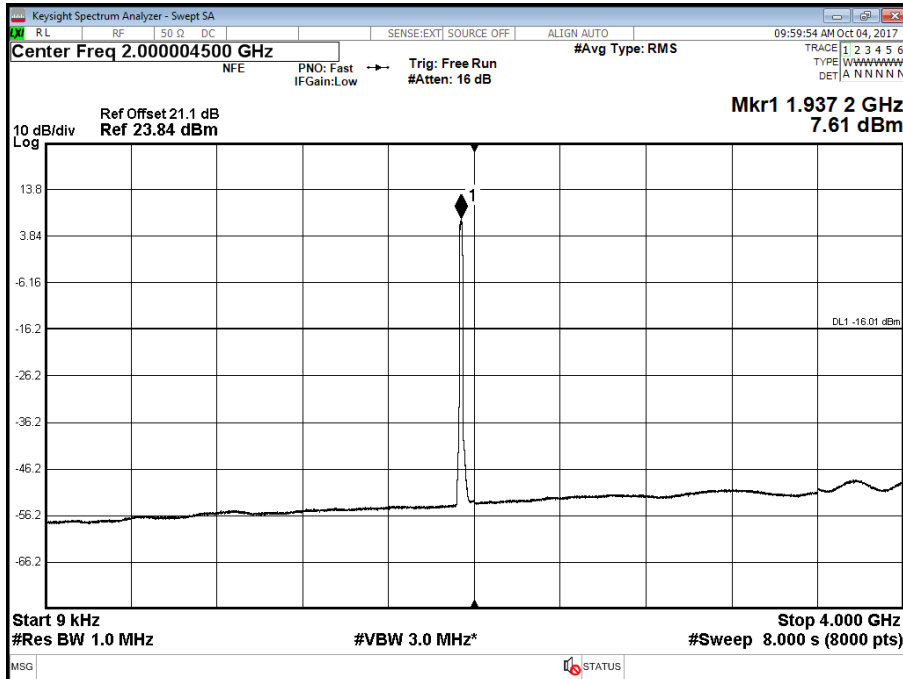
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



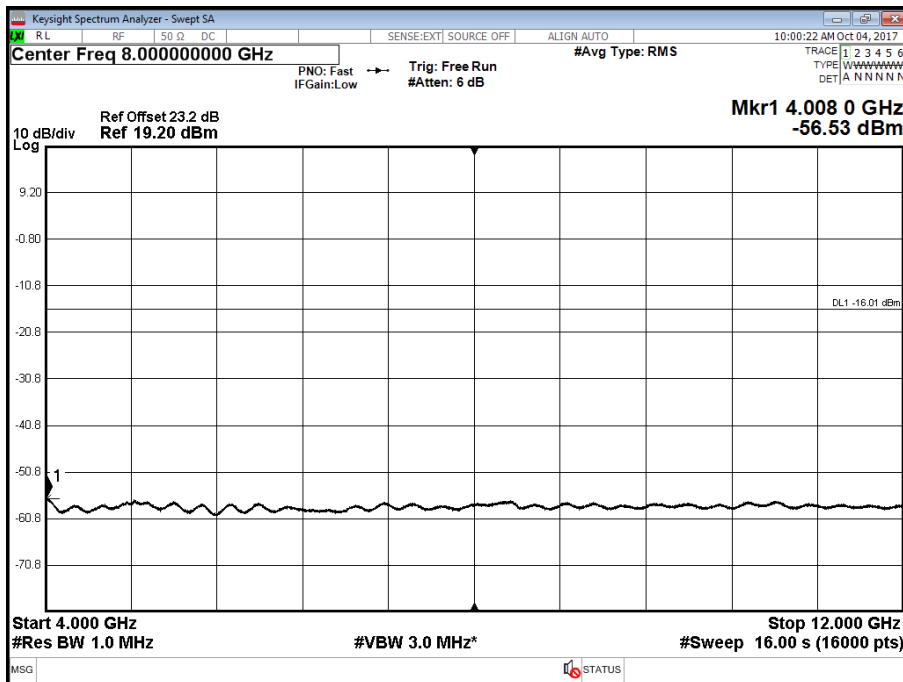


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



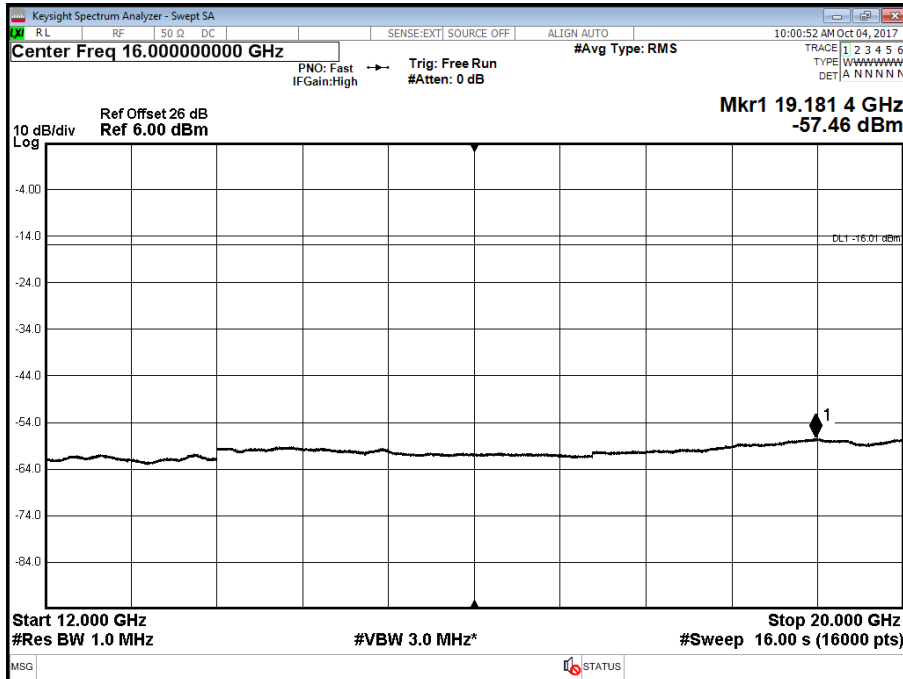
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



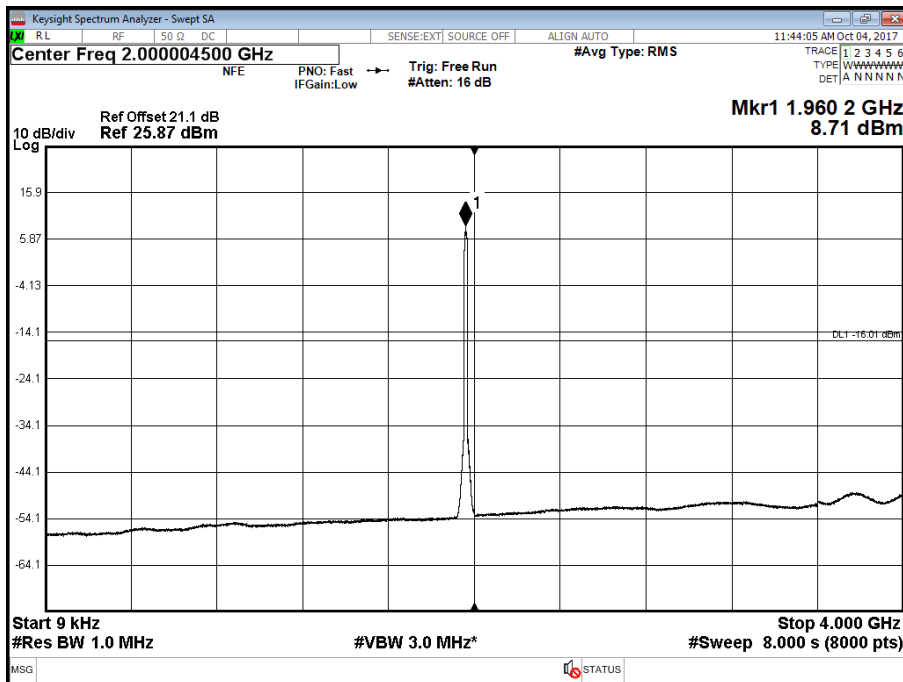


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



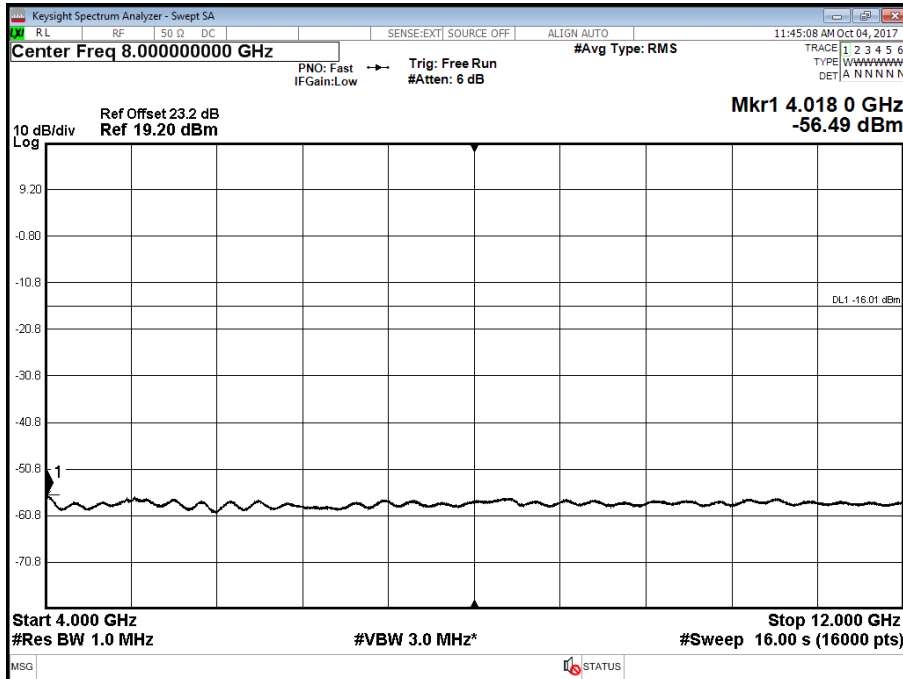
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



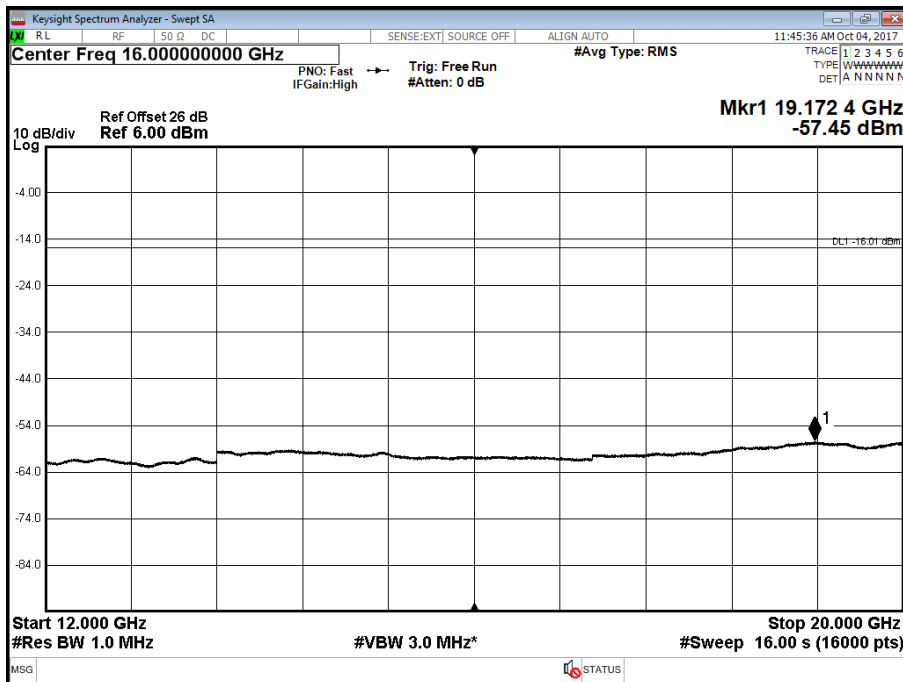


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



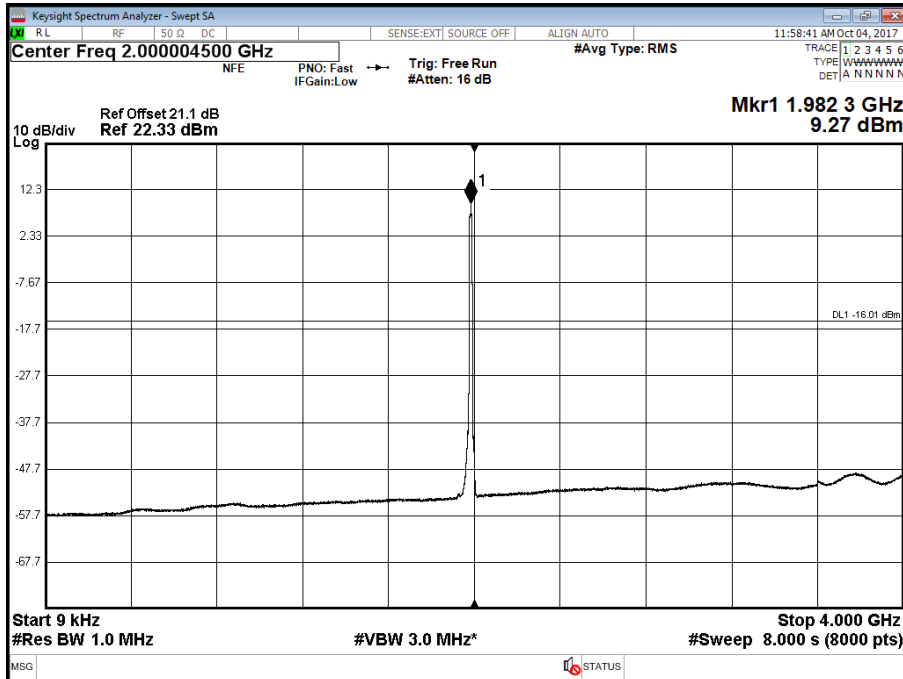
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



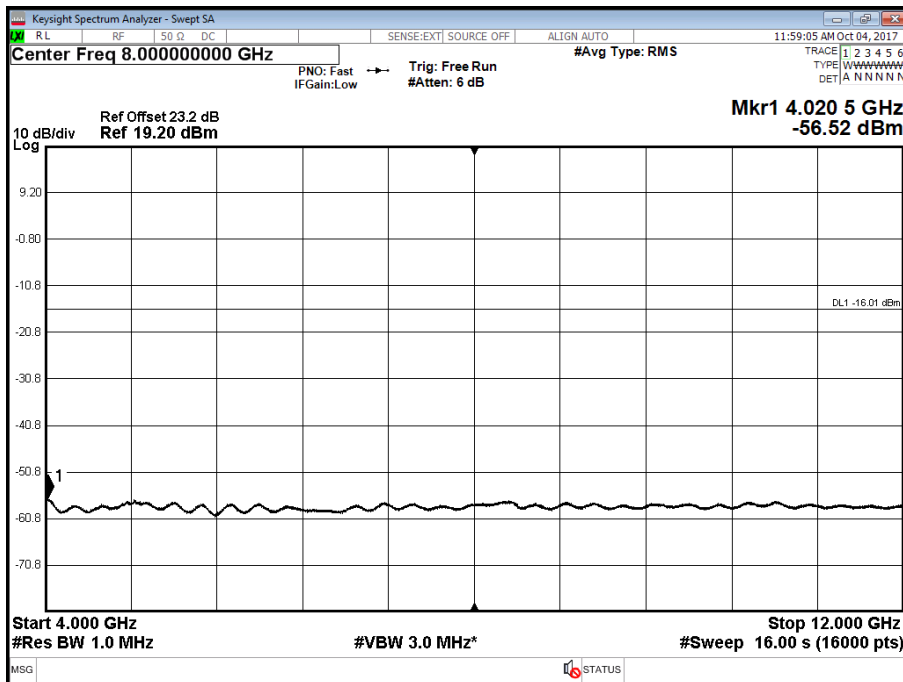


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



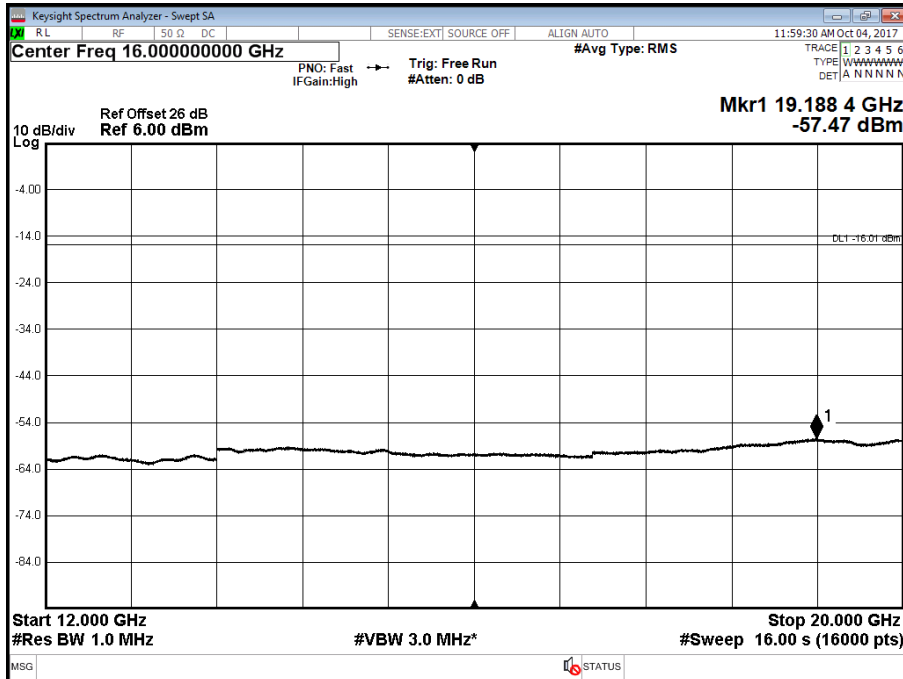
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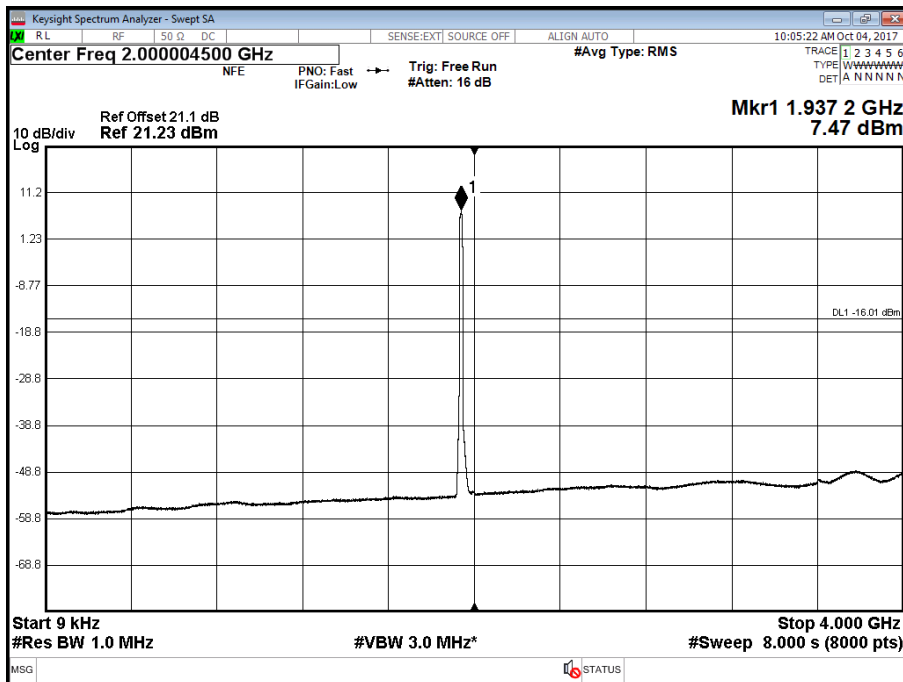


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



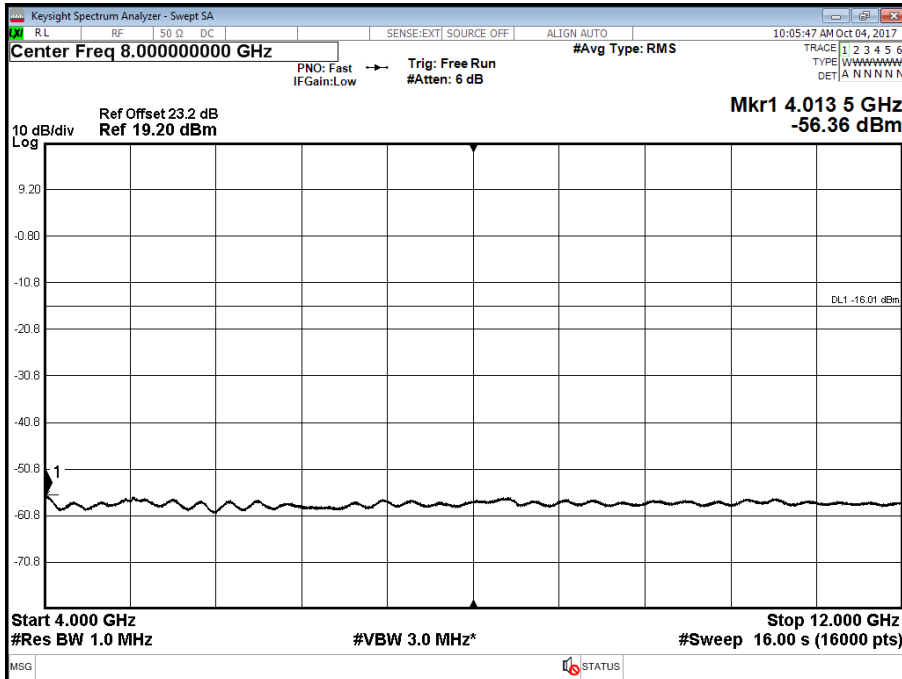
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



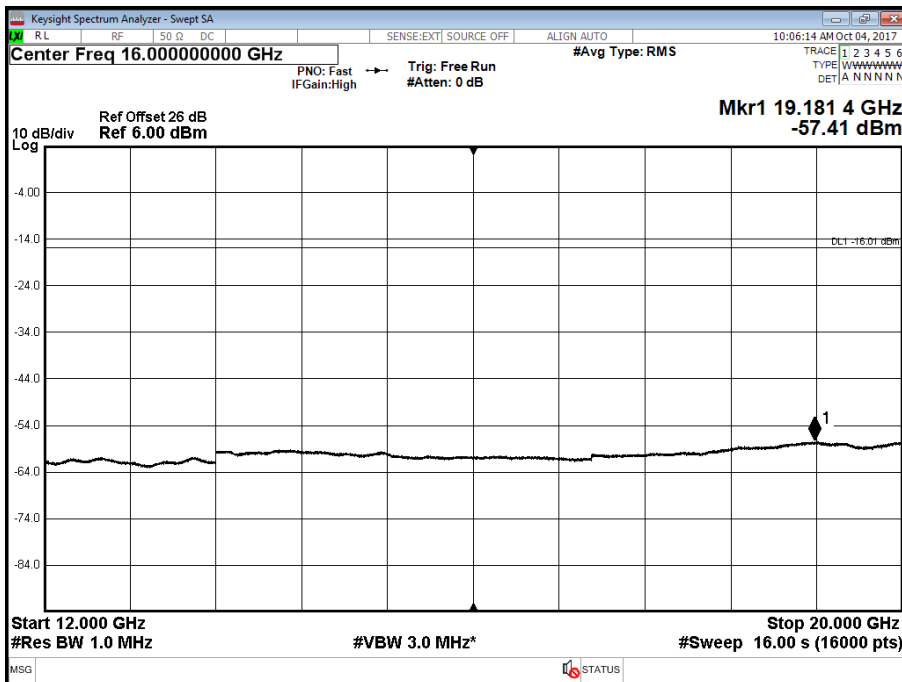


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz

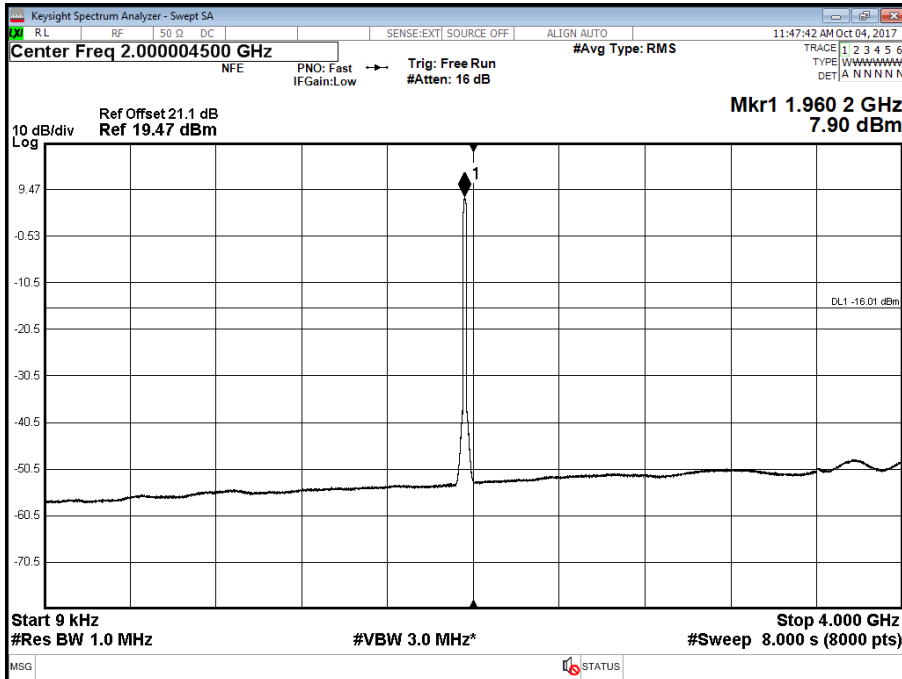




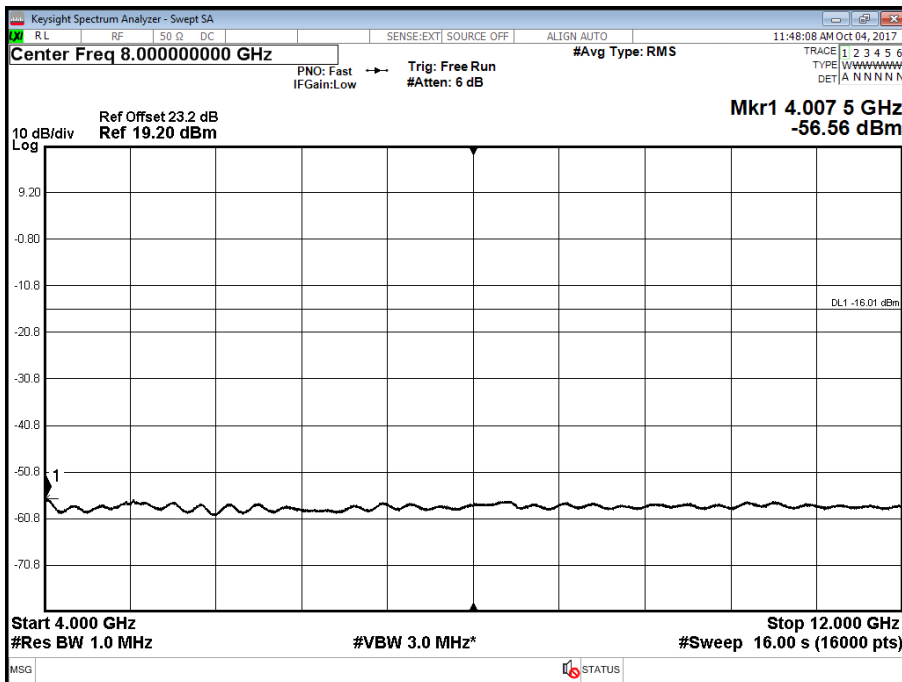


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



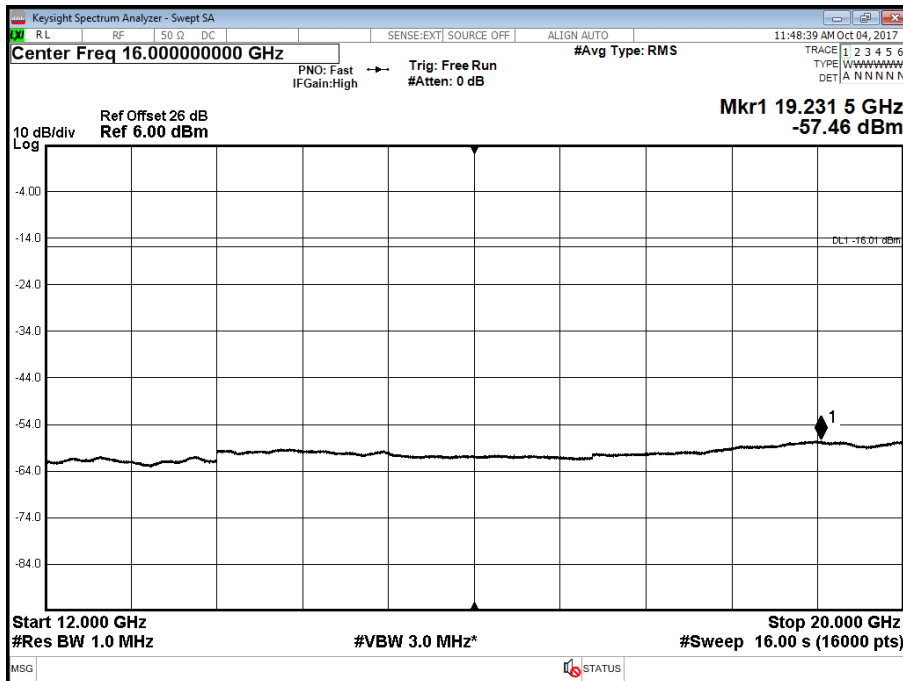
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



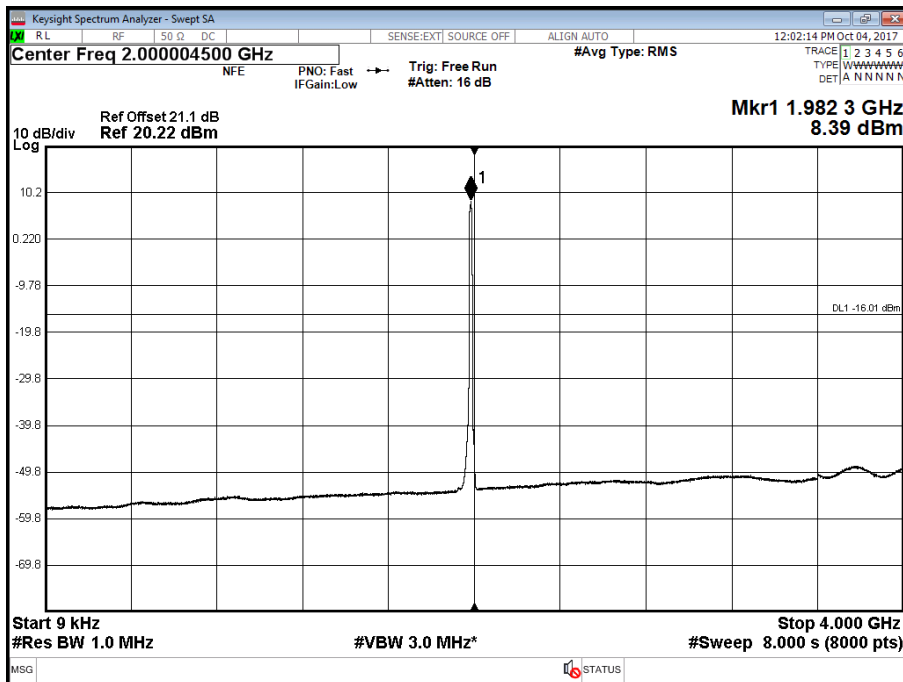


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



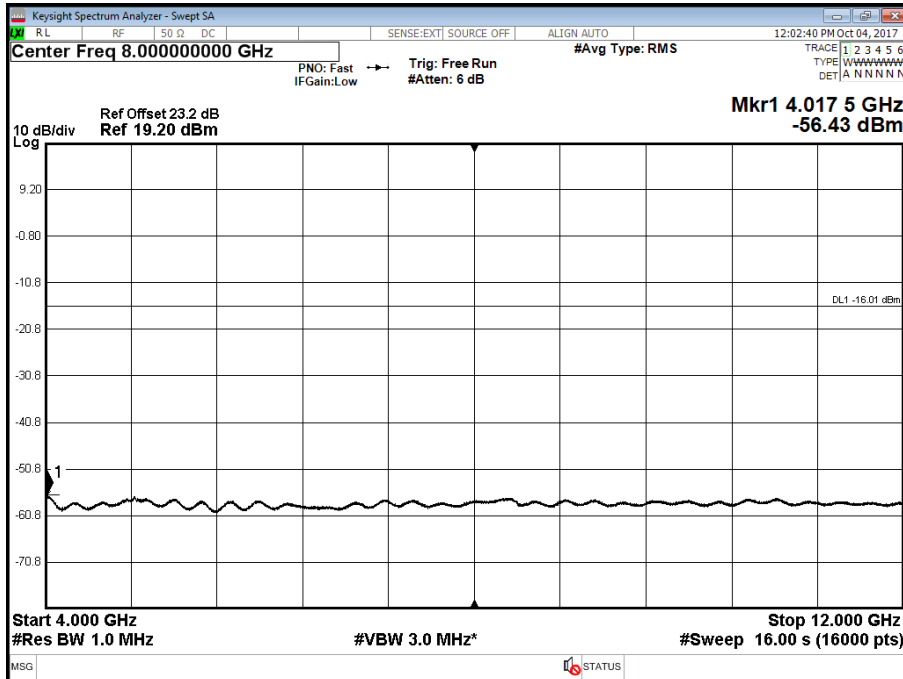
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



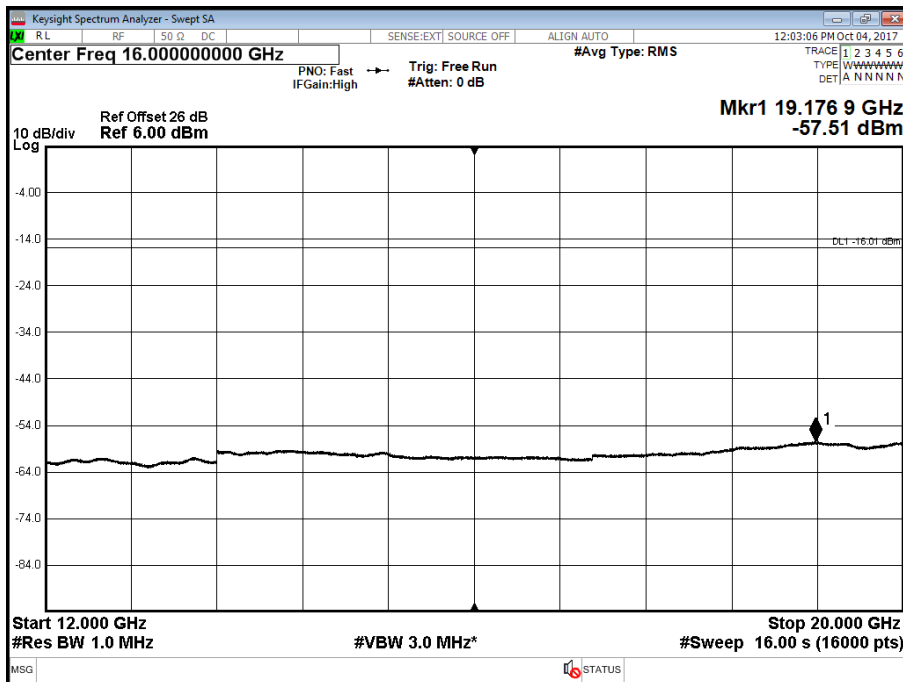


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



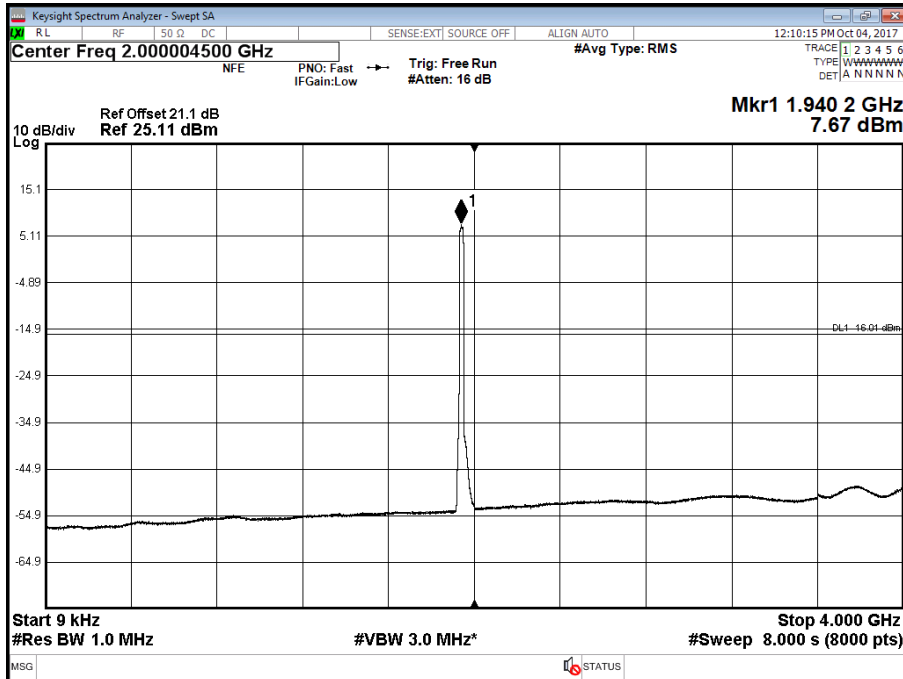
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 15.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



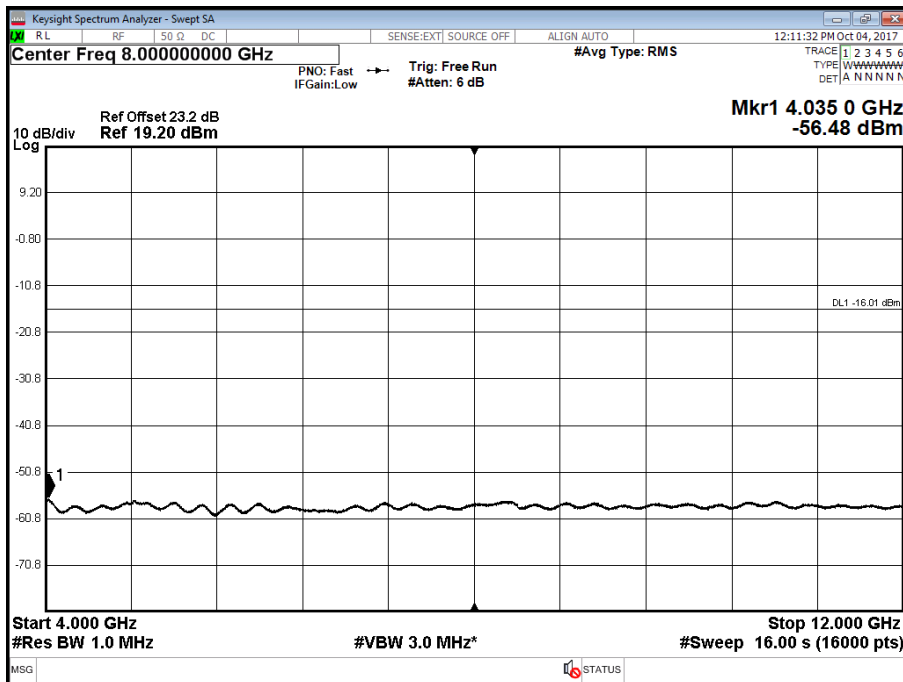


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



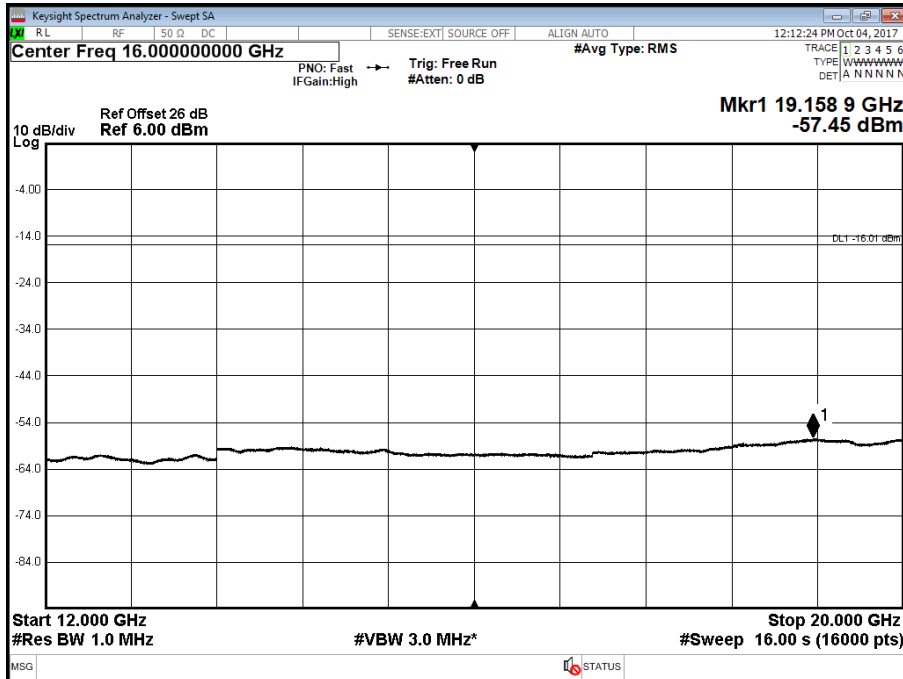
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



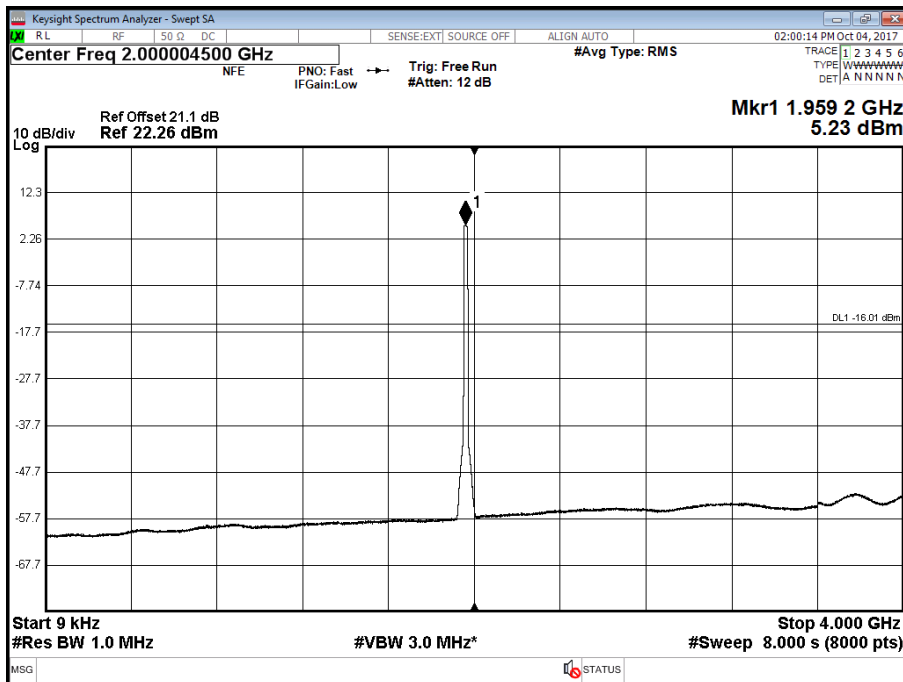


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



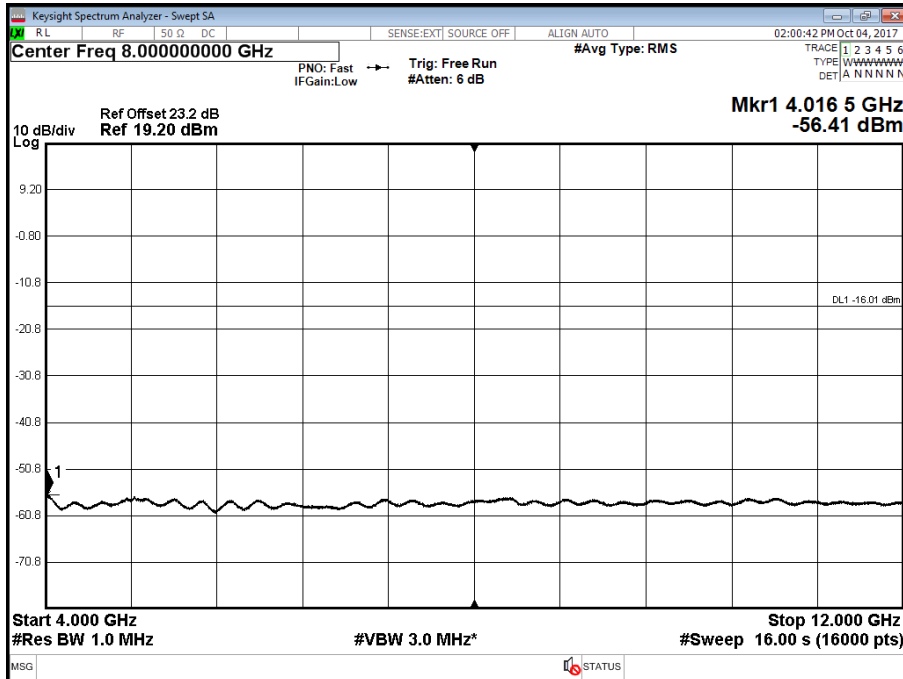
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



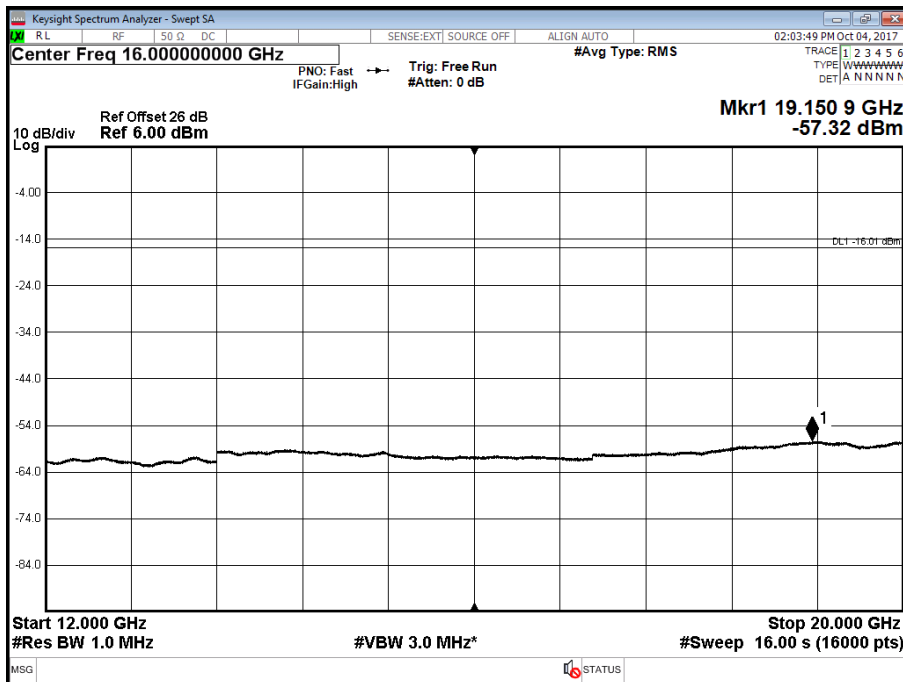


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



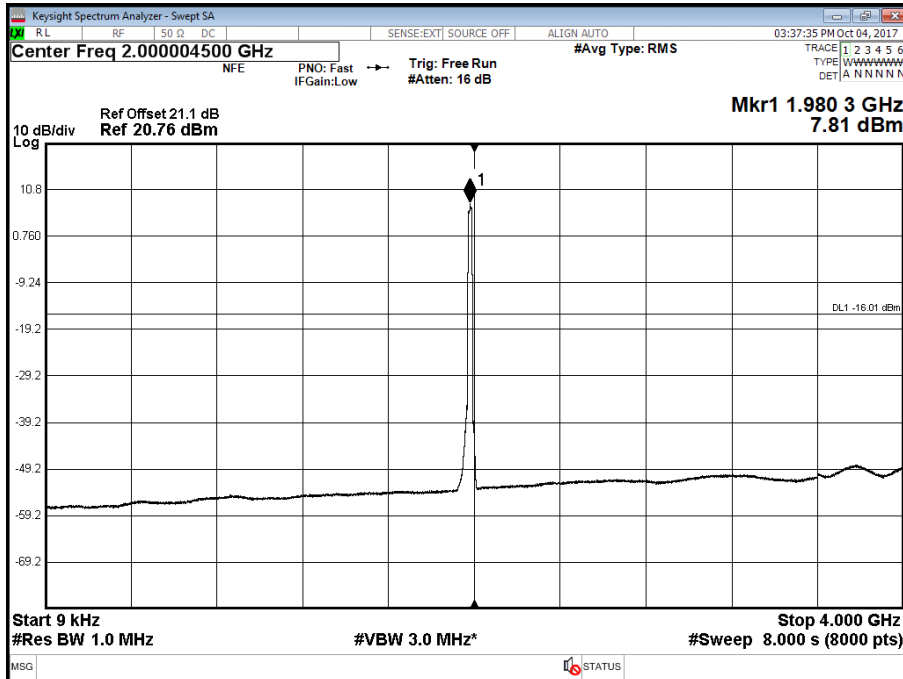
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



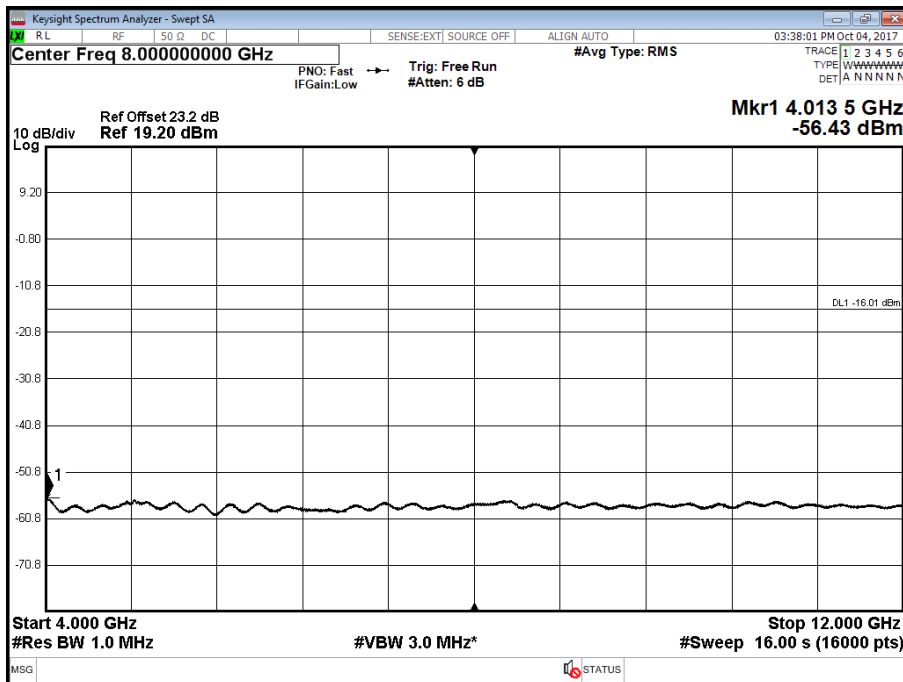


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



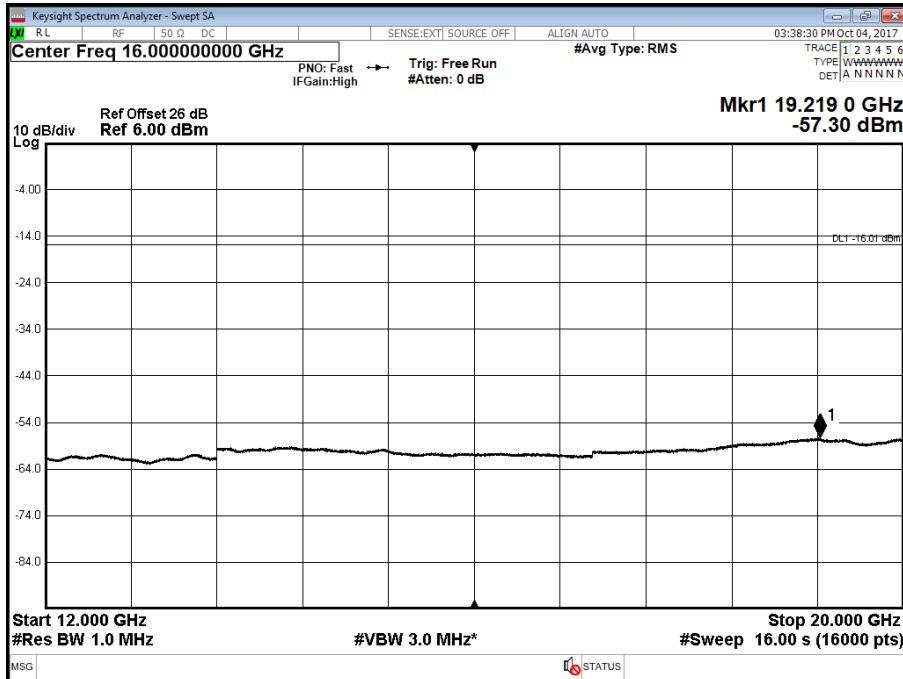
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



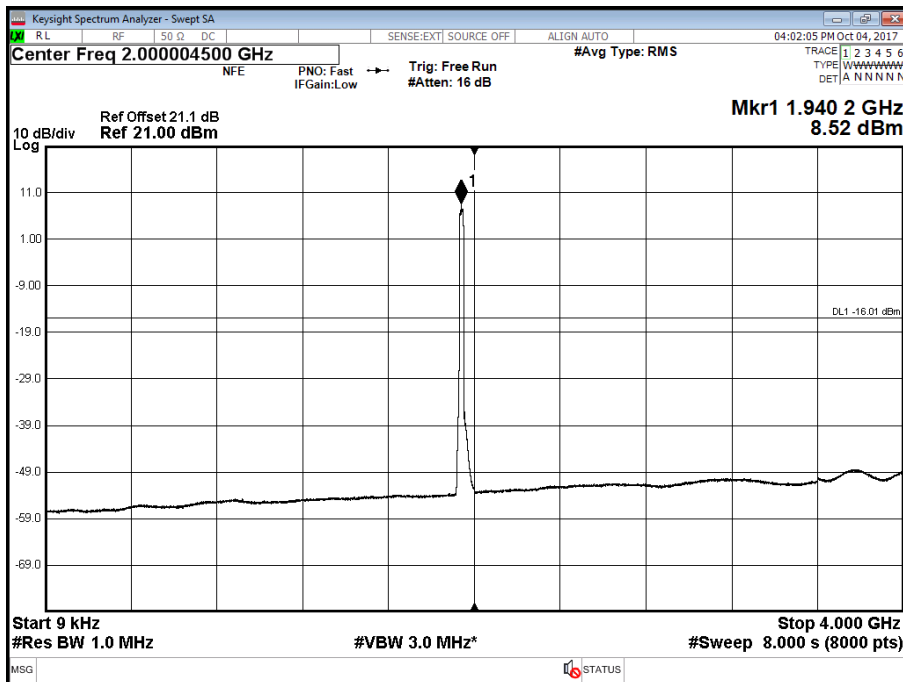


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz

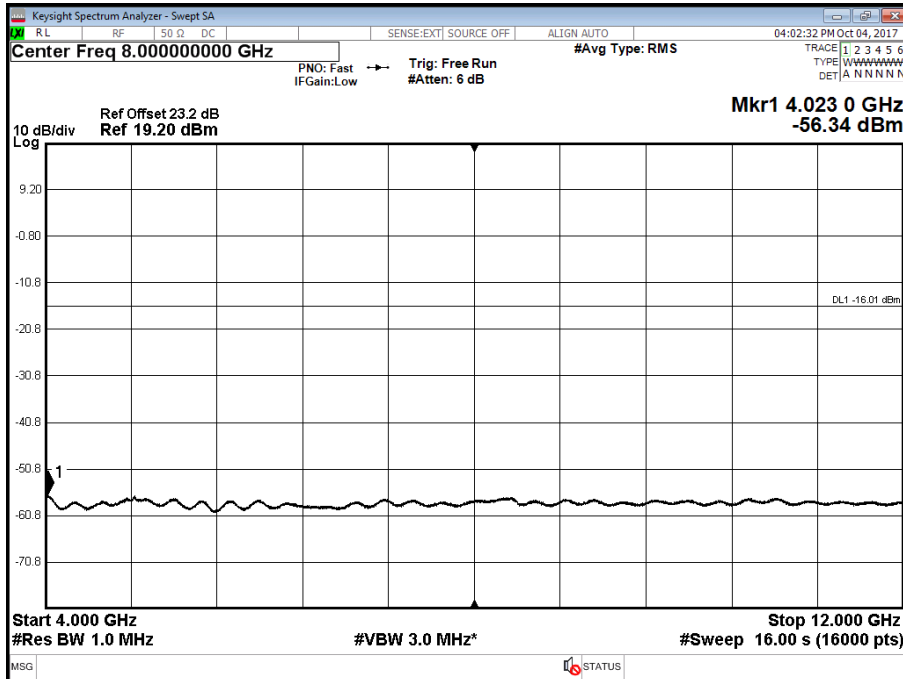




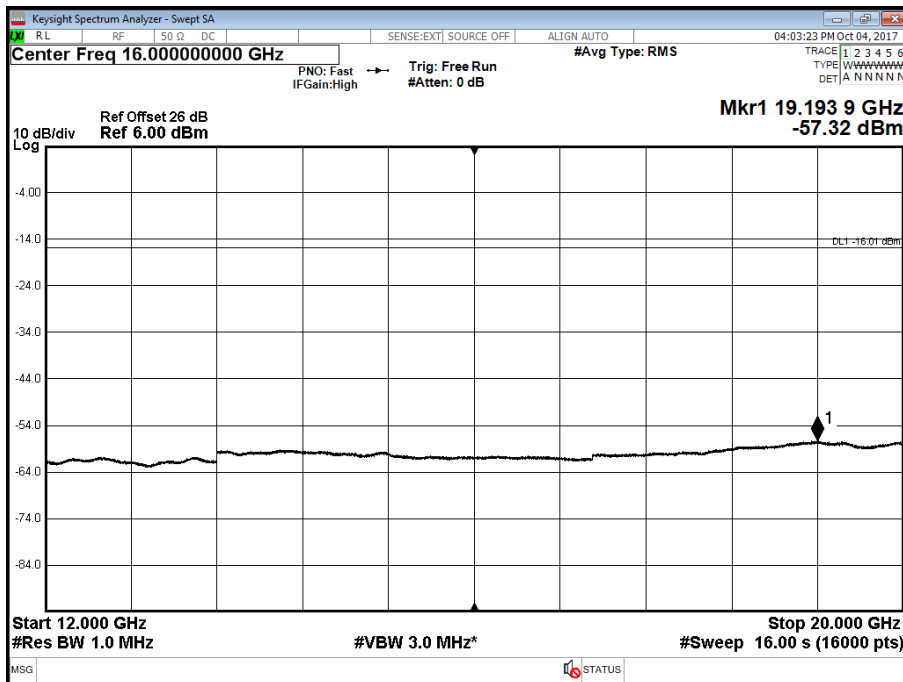


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



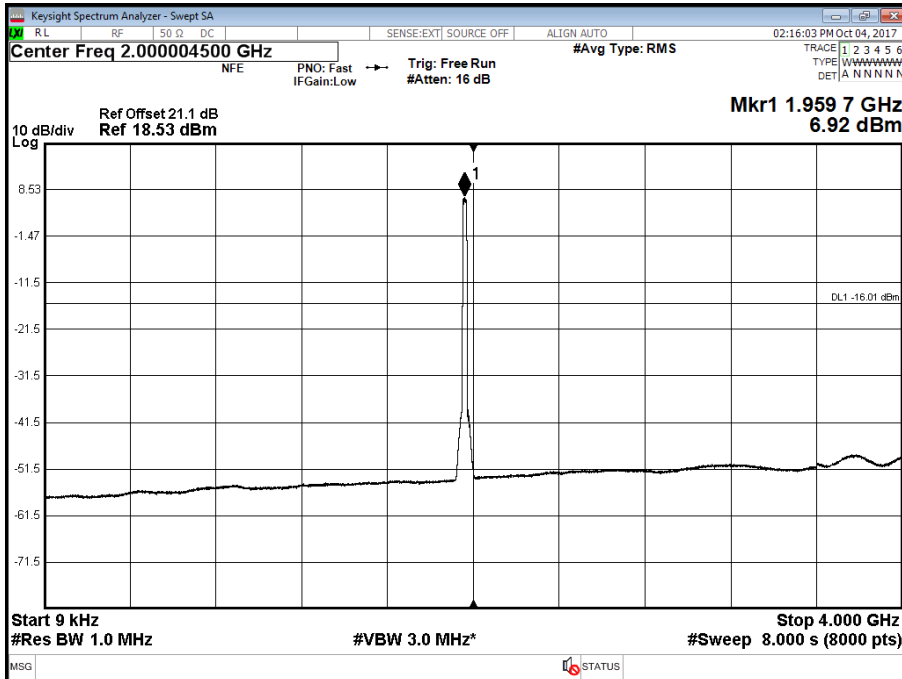
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



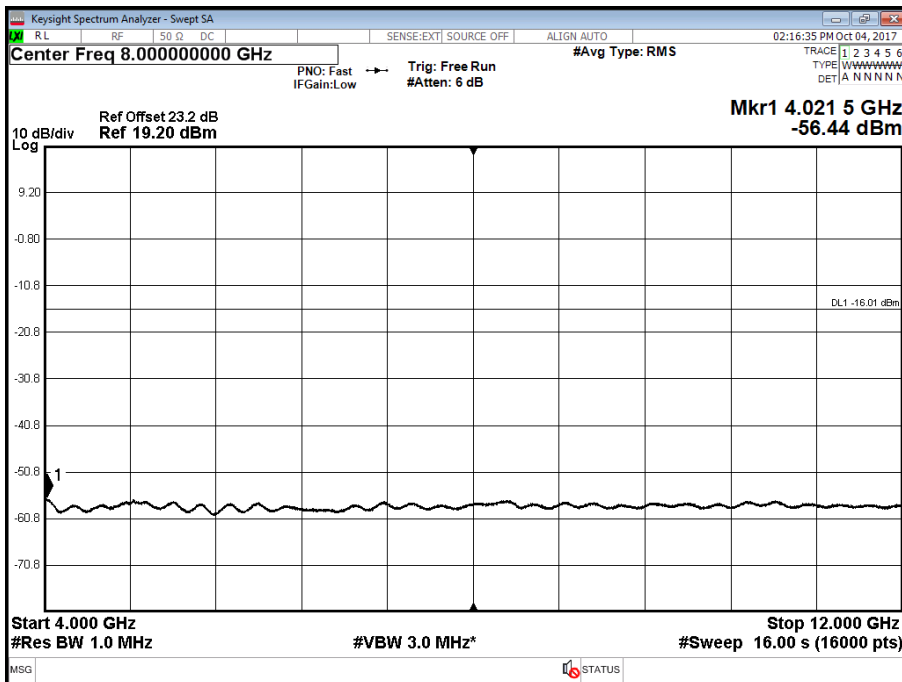


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



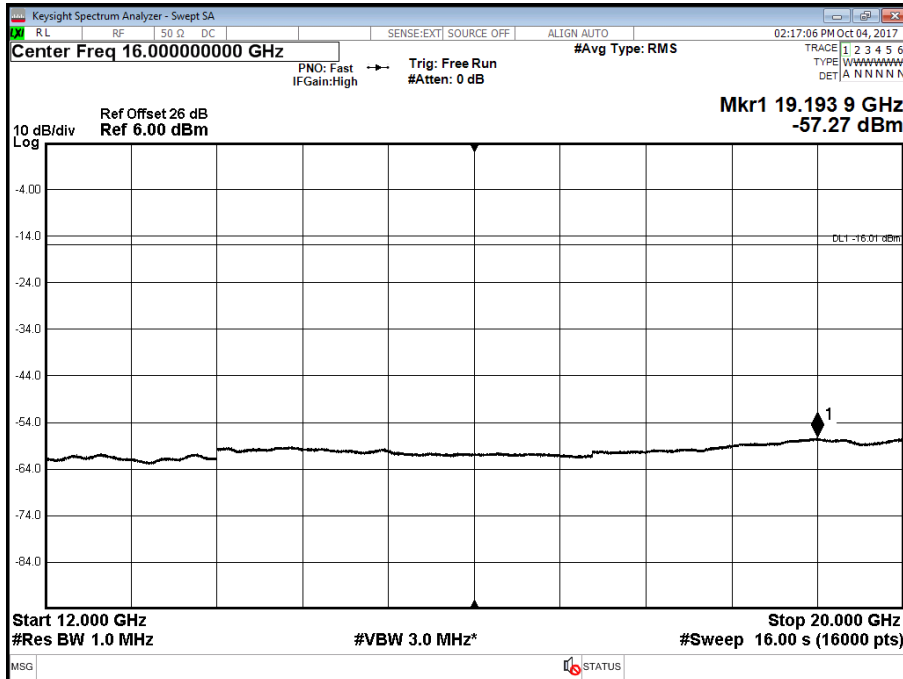
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



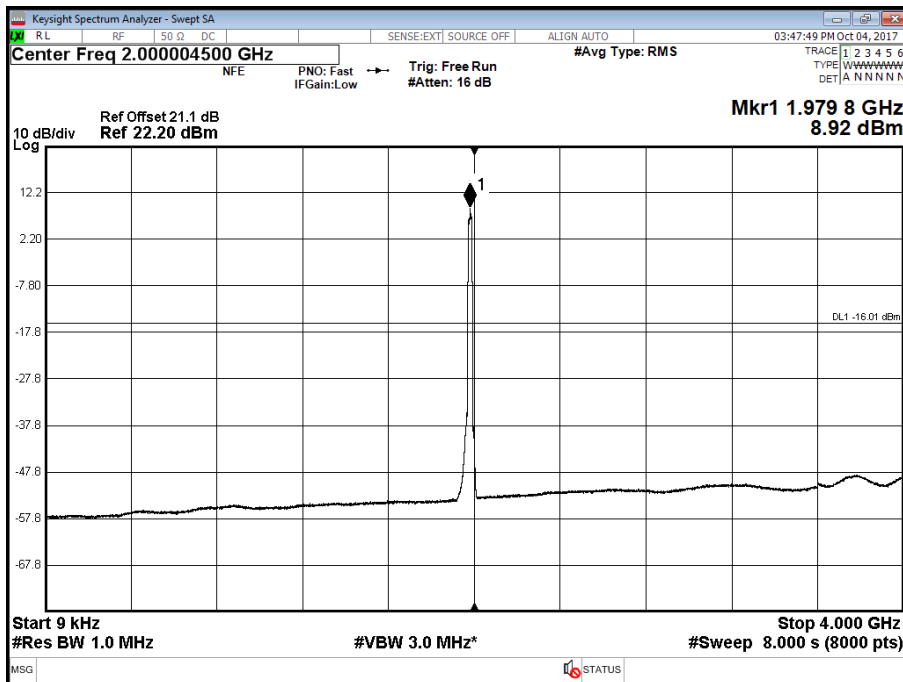


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



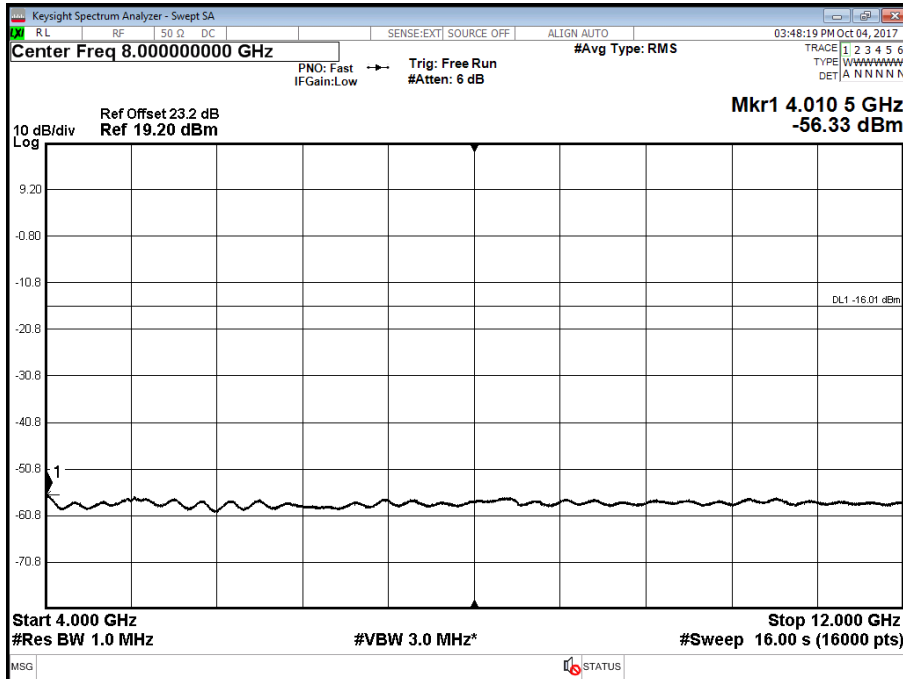
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



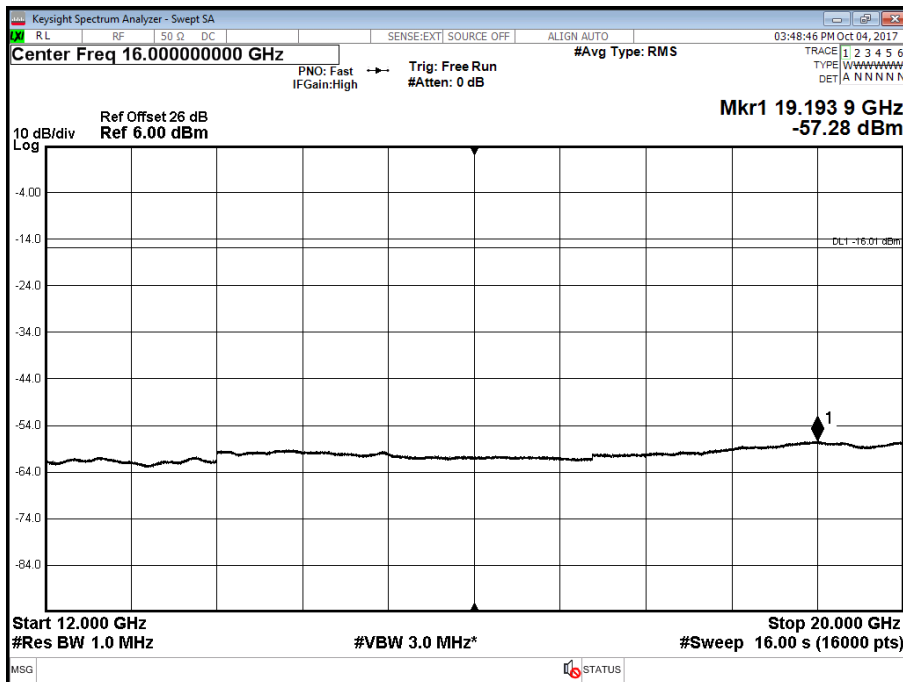


Product Service

Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



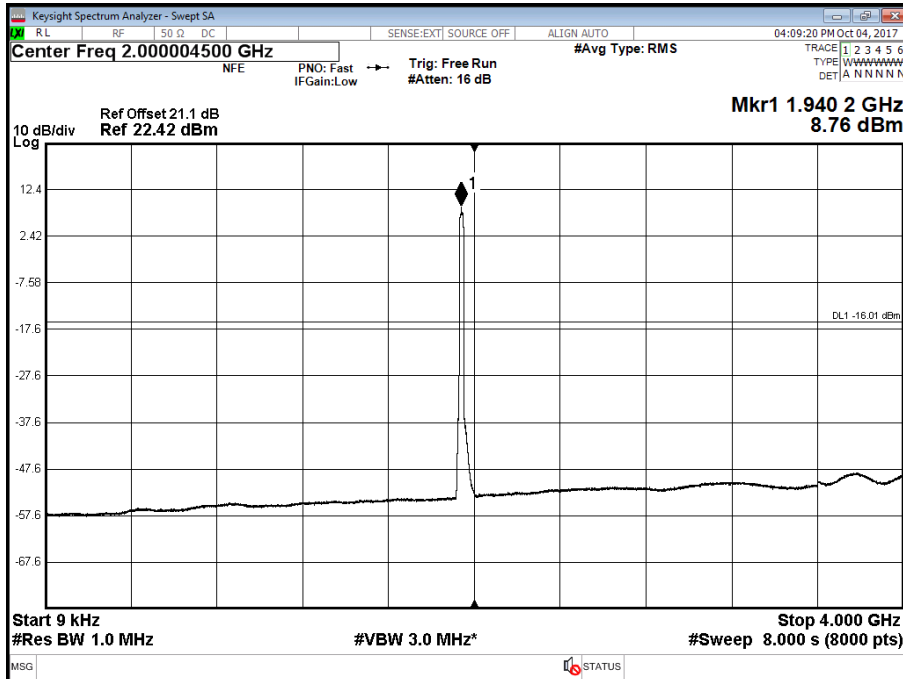
Antenna B - LTE Modulation 16QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



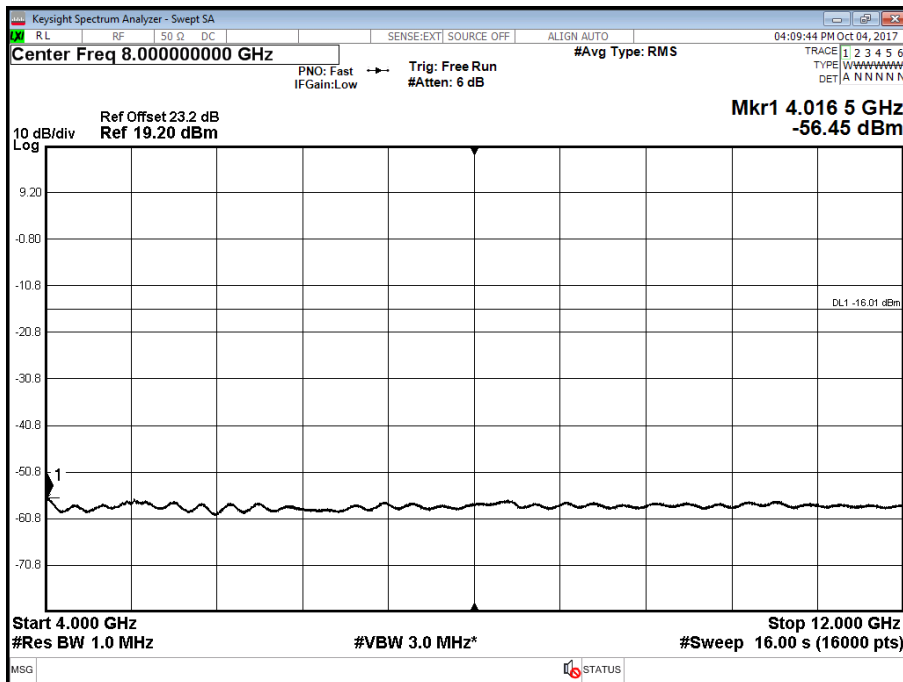


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



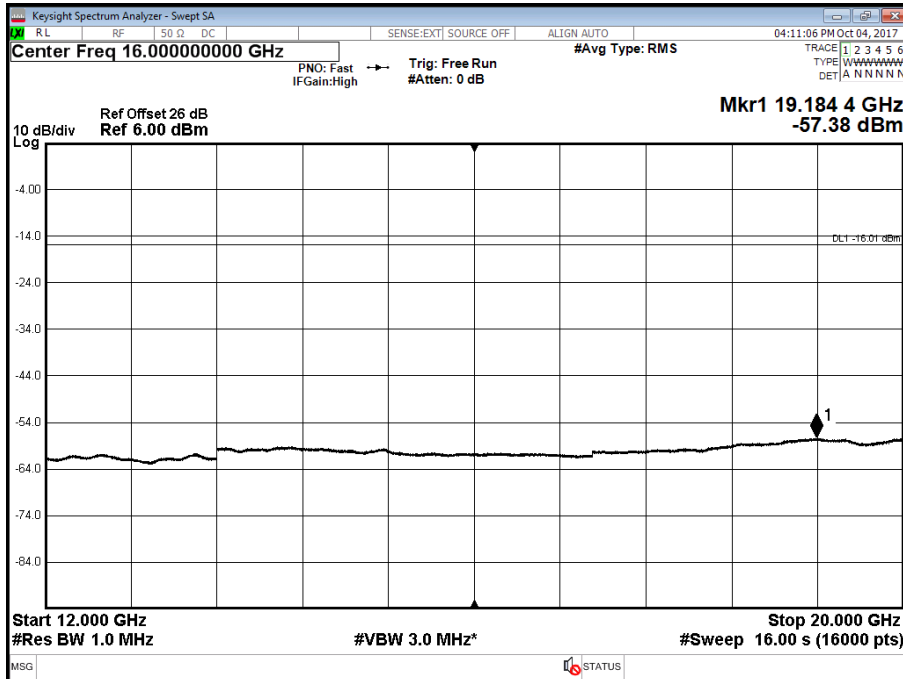
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



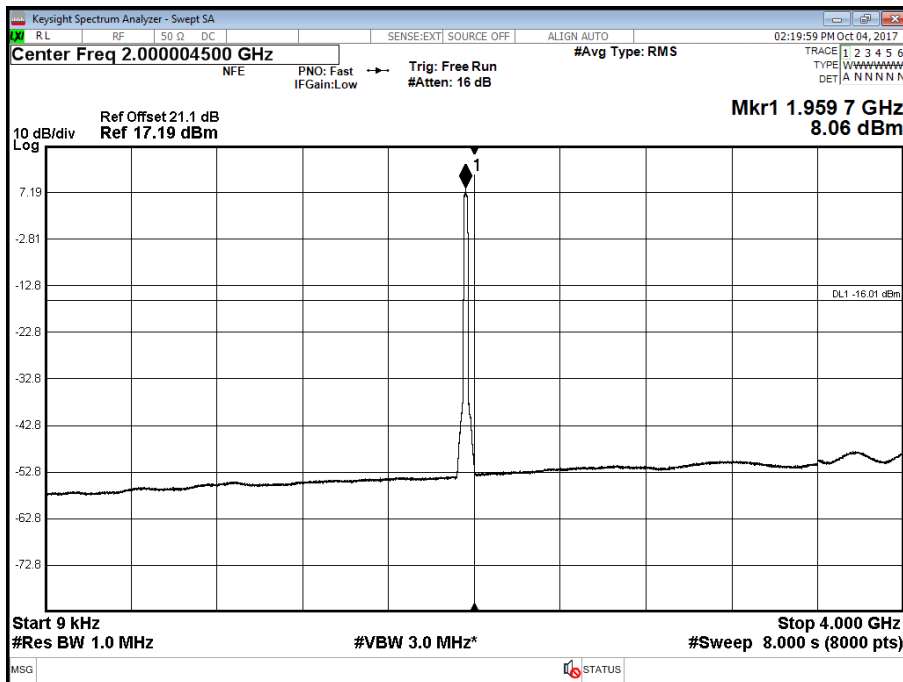


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



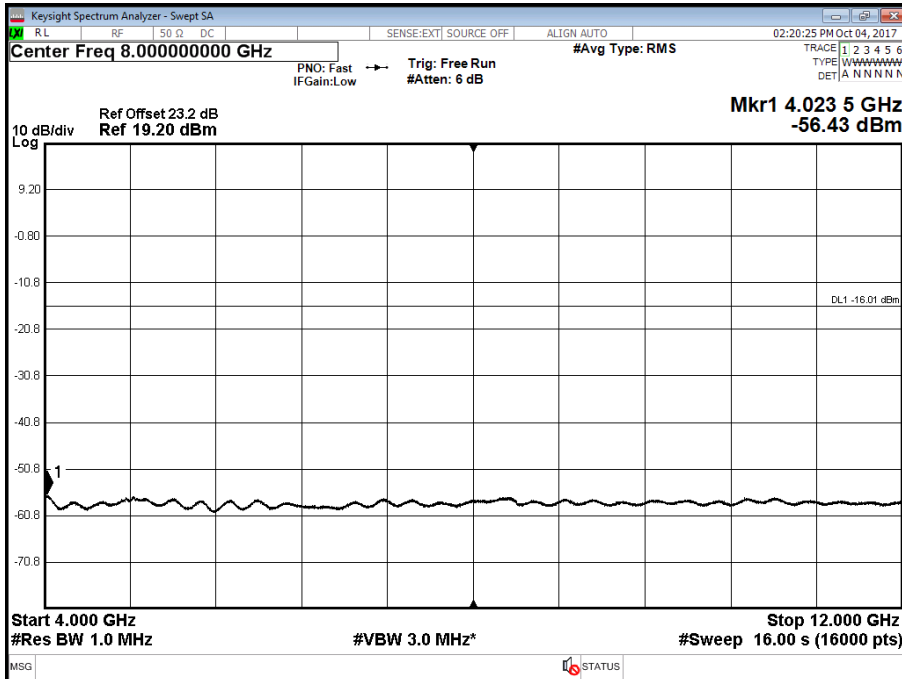
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



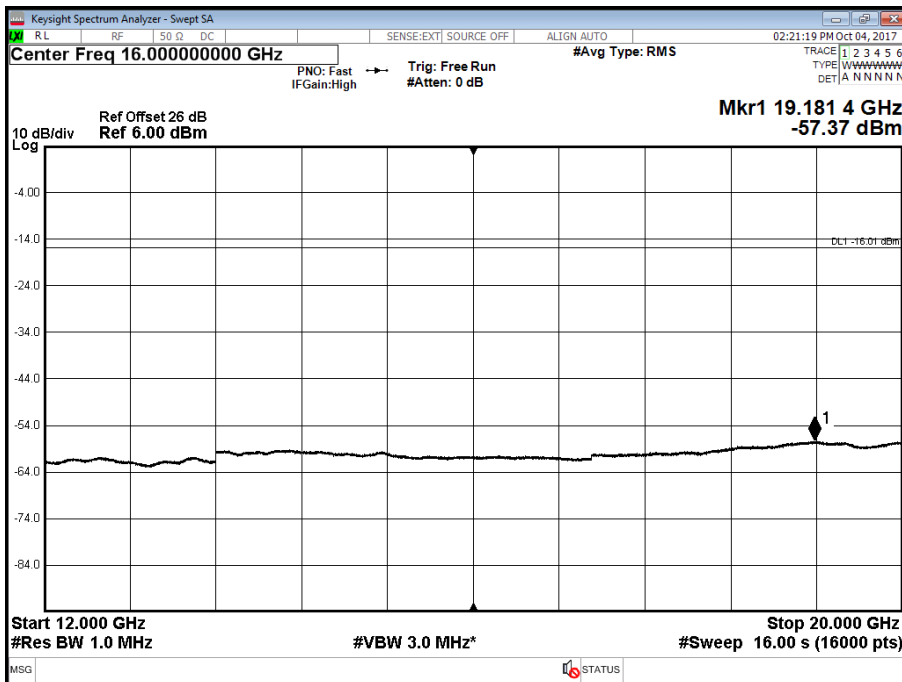


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



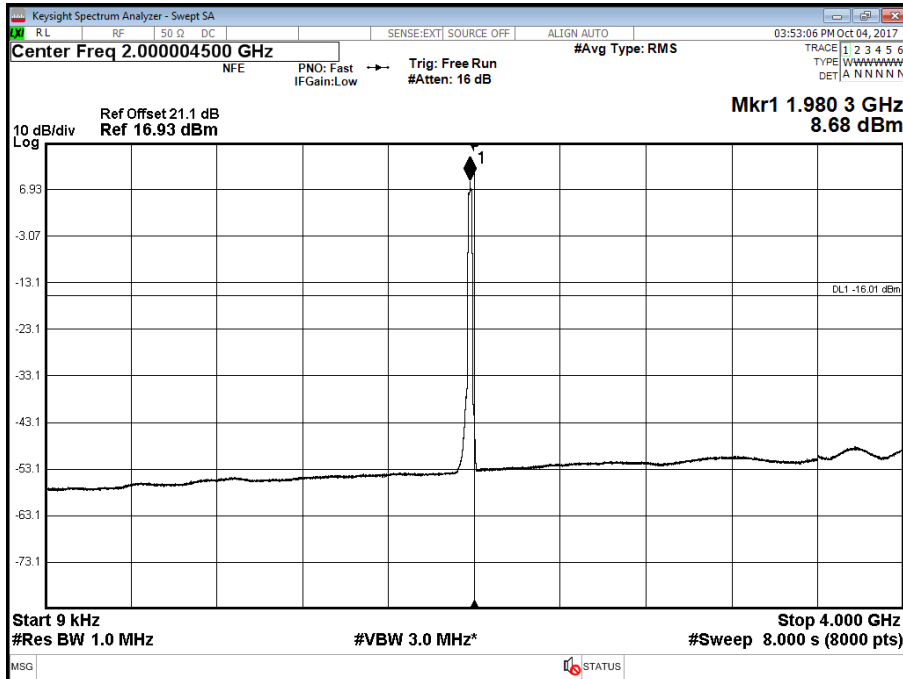
Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



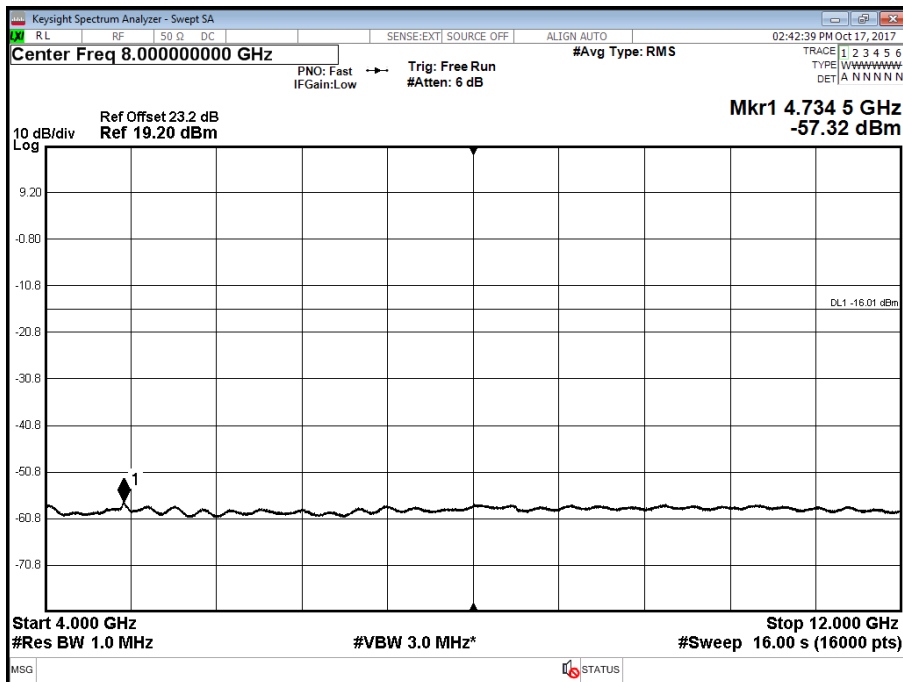


Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz

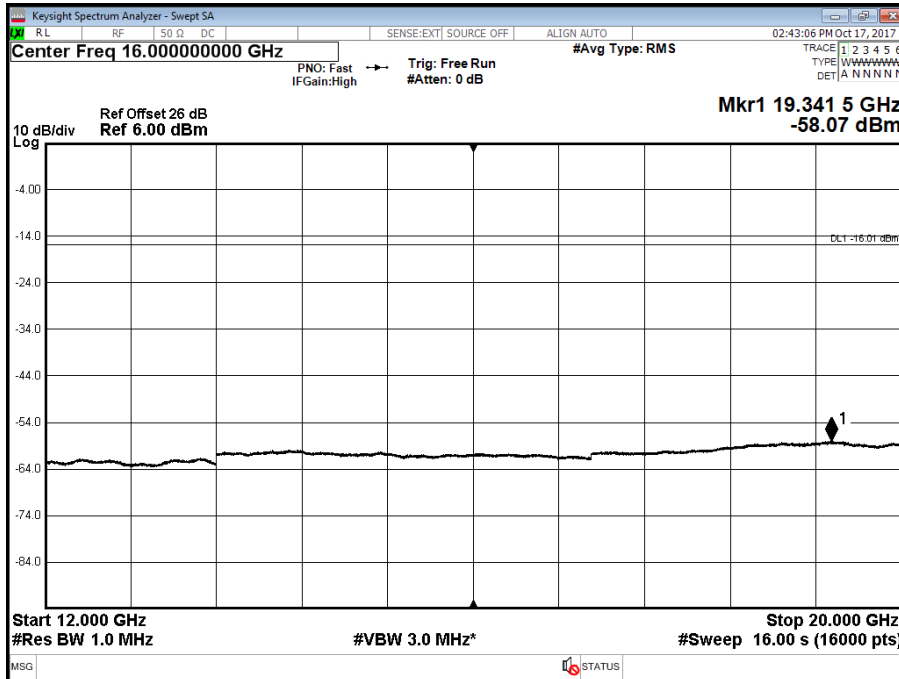






Product Service

Antenna B - LTE Modulation 64QAM - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



Limit	-16 dBm: $(43 + 10\log(P) - 10\log(2))$
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Product Service

## **2.6 FREQUENCY STABILITY**

### **2.6.1 Specification Reference**

FCC CFR 47 Part 2, Clause 2.1055  
FCC CFR 47 Part 24, Clause 24.235  
Industry Canada RSS-133, Clause 6.3

### **2.6.2 Date of Test and Modification State**

24 August 2017 to 25 August 2017 - Modification State 0

### **2.6.3 Test Equipment Used**

The major items of test equipment used for the above tests are identified in Section 3.1.

### **2.6.4 Environmental Conditions**

Ambient Temperature	23.9°C
Relative Humidity	52.8%

### **2.6.5 Test Method**

All measurements were made in accordance with FCC KDB 971168 D01.

The EUT was setup in a Climatic Chamber and connected to a Vector Signal Analyser via attenuators. The temperature was varied over the range -30°C to +50°C in 10°C steps. At each temperature interval, the EUT was left to stabilise. After this period of time, the maximum Frequency Error was measured and recorded on the Middle channel.

For LTE, testing was performed using a 10 MHz channel bandwidth, 50 RB with QPSK modulation



Product Service

## 2.6.6 Test Results

Configuration 1

Maximum Output Power 20 dBm

Temperature	Voltage	Frequency Error (Hz)
		Channel Position M
-30°C	12.0 V DC	-510.00
-20°C	12.0 V DC	-489.65
-10°C	12.0 V DC	-364.43
0°C	12.0 V DC	-236.53
+10°C	12.0 V DC	-215.57
+20°C	12.0 V DC	-177.92
+30°C	12.0 V DC	-147.22
+40°C	12.0 V DC	-51.20
+50°C	12.0 V DC	15.21
+20°C	10.2 V DC	-165.54
+20°C	13.8 V DC	-156.75

### Remarks

The maximum frequency error was then added to the band edge measurements to ensure compliance with the limit specified below.

FCC 47 CFR Part 24, Limit Clause 24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.



Product Service

## **SECTION 3**

### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Maximum Peak Output Power and Peak to Average Ratio – Conducted</b>					
20dB Attenuator	Sealectro	60-674-1020-89	345	12	30-Jun-2018
Precision 'N' Termination	Maury	2510A6	487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	488	12	21-Oct-2017
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Power Supply	Rohde & Schwarz	HMP4040	4736	-	O/P Mon
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Network Analyser	Hewlett Packard	8510A	1151	12	12-May-2018
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	13-May-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Calibration Kit	Hewlett Packard	85054A	1309	12	29-Mar-2018
Thermo-hygrometer	Rotronic	I-1000	3220	12	30-Aug-2018
Thermo-hygrometer	Rotronic	I-1000	2891	12	30-Aug-2018
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	02-Oct-2018
Power Meter	Agilent	N1911A	3980	12	28-Sep-2018
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	02-Oct-2018
Spectrum Analyser	KEYSIGHT	N9030A	4409	12	09-Aug-2018
<b>Occupied Bandwidth</b>					
20dB Attenuator	Sealectro	60-674-1020-89	345	12	30-Jun-2018
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Power Supply	Rohde & Schwarz	HMP4040	4736	-	O/P Mon
Precision 'N' Termination	Maury	2510A6	487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	488	12	21-Oct-2017
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Network Analyser	Hewlett Packard	8510A	1151	12	12-May-2018
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	13-May-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Calibration Kit	Hewlett Packard	85054A	1309	12	29-Mar-2018
Thermo-hygrometer	Rotronic	I-1000	3220	12	30-Aug-2018
Thermo-hygrometer	Rotronic	I-1000	2891	12	30-Aug-2018
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	02-Oct-2018
Power Meter	Agilent	N1911A	3980	12	28-Sep-2018
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	02-Oct-2018
Spectrum Analyser	KEYSIGHT	N9030A	4409	12	09-Aug-2018



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Radiated Spurious Emissions</b>					
Antenna (Bilog)	Schaffner	CBL6143	287	24	18-Apr-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	31-Jul-2018
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Multimeter	Iso-tech	IDM101	2417	12	30-Sep-2017
Comb Generator	Schaffner	RSG1000	3034	-	TU
Signal Generator	Rohde & Schwarz	SMR40	3171	12	2-Nov-2017
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	2-May-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	maturu GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturu GmbH	NCD	3917	-	TU
Digital thermo Hygrometer	Radio Spares	1260	4300	12	30-Aug-2018
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	17-Oct-2017
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	6	4-Nov-2017
Cable (Rx, SMAm-SMAm 0.5m)	Scott Cables	SLSL18-SMSM-00.50M	4528	-	TU
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	17-Feb-2018
<b>Band Edge</b>					
20dB Attenuator	Seaelectro	60-674-1020-89	345	12	30-Jun-2018
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Power Supply	Rohde & Schwarz	HMP4040	4736	-	O/P Mon
Precision 'N' Termination	Maury	2510A6	487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	488	12	21-Oct-2017
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Network Analyser	Hewlett Packard	8510A	1151	12	12-May-2018
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	13-May-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Calibration Kit	Hewlett Packard	85054A	1309	12	29-Mar-2018
Thermo-hygrometer	Rotronic	I-1000	3220	12	30-Aug-2018
Thermo-hygrometer	Rotronic	I-1000	2891	12	30-Aug-2018
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	02-Oct-2018
Power Meter	Agilent	N1911A	3980	12	28-Sep-2018
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	02-Oct-2018
Spectrum Analyser	KEYSIGHT	N9030A	4409	12	09-Aug-2018



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Transmitter Spurious Emissions</b>					
20dB Attenuator	Seaelectro	60-674-1020-89	345	12	30-Jun-2018
Precision 'N' Termination	Maury	2510A6	487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	488	12	21-Oct-2017
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Power Supply	Rohde & Schwarz	HMP4040	4736	-	O/P Mon
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Network Analyser	Hewlett Packard	8510A	1151	12	12-May-2018
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	13-May-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Calibration Kit	Hewlett Packard	85054A	1309	12	29-Mar-2018
Thermo-hygrometer	Rotronic	I-1000	3220	12	30-Aug-2018
Thermo-hygrometer	Rotronic	I-1000	2891	12	30-Aug-2018
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	02-Oct-2018
Power Meter	Agilent	N1911A	3980	12	28-Sep-2018
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	02-Oct-2018
Spectrum Analyser	KEYSIGHT	N9030A	4409	12	09-Aug-2018
<b>Frequency Stability</b>					
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	09-Sep-2017
Power Supply	Iso-tech	IPS 2010	2440	-	O/P Mon
Hygrometer	Rotronic	I-1000	3068	12	01-Jun-2018
Thermocouple Thermometer	Fluke	51	3172	12	16-Nov-2017
TRUE RMS MULTIMETER	Fluke	179	4006	12	13-Dec-2017
Climatic Chamber	Aralab	FitoTerm 300E45	4823	12	O/P Mon
Vector Signal Generator	Rohde & Schwarz	SMBV100A	4886	12	11-May-2018
*Signal Analyser	Rhode & Schwarz	FSQ 3	S/N: 200049	12	14-Mar-2018*

\*Item was supplied by manufacturer. Item had standard manufacturer calibration (non accredited). Prior to testing, measurements were made to verify the measurement accuracy of the equipment using accredited calibrated equipment, results of which are held by the test lab.

O/P Mon – Output Monitored with Calibrated Equipment



Product Service

### 3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30 MHz to 20 GHz Amplitude	± 0.68 dB
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.62 dB
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz
Occupied Bandwidth	Up to 20 MHz Bandwidth	3 MHz BW: ± 6.93 kHz 20 MHz BW: 46.2 kHz
Band Edge	30 MHz to 20 GHz Amplitude	± 0.81 dB





Product Service

## **SECTION 5**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



Product Service

#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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