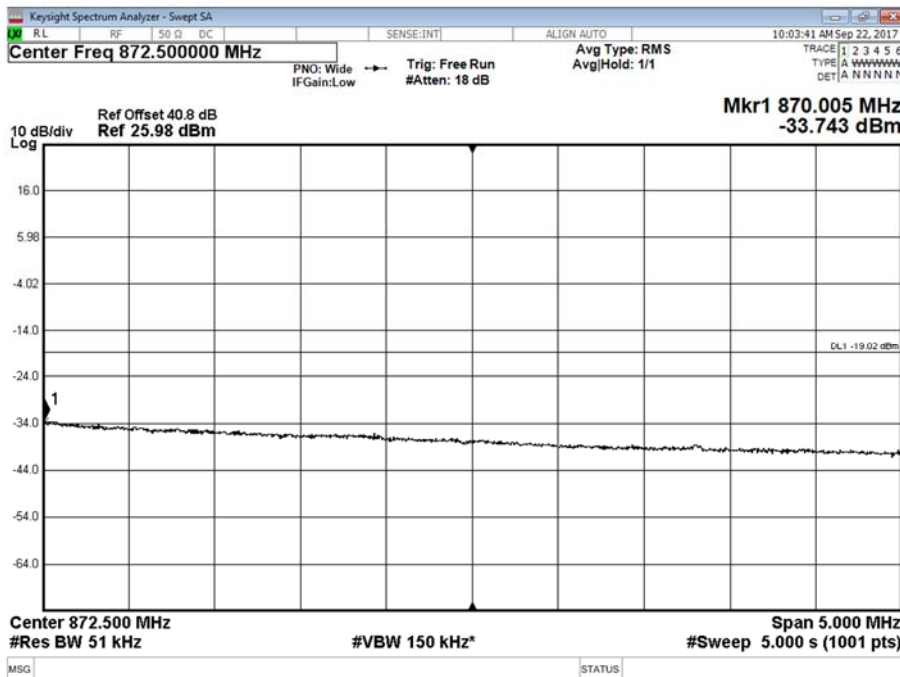
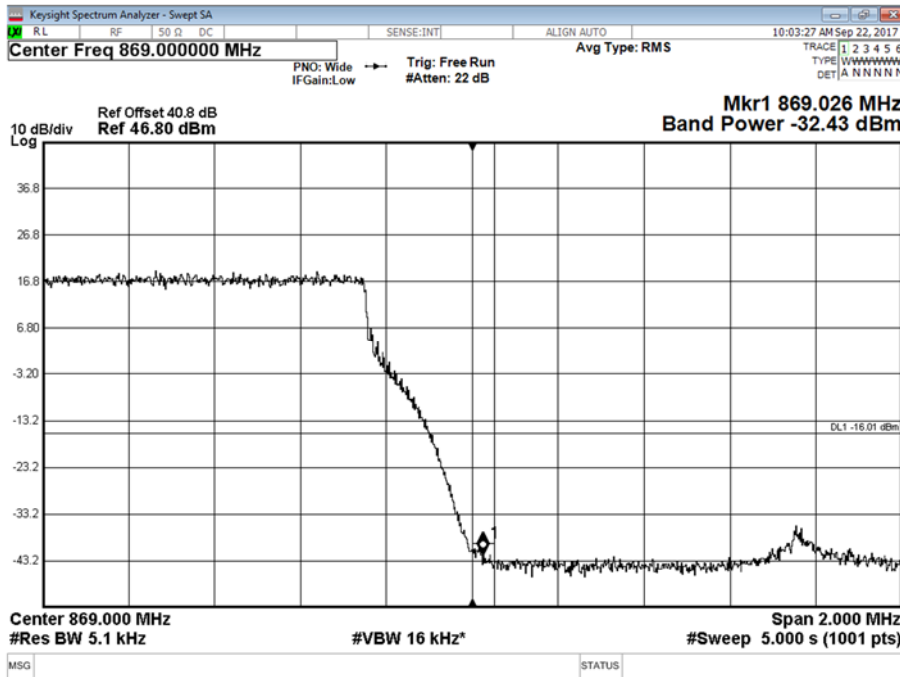




Product Service

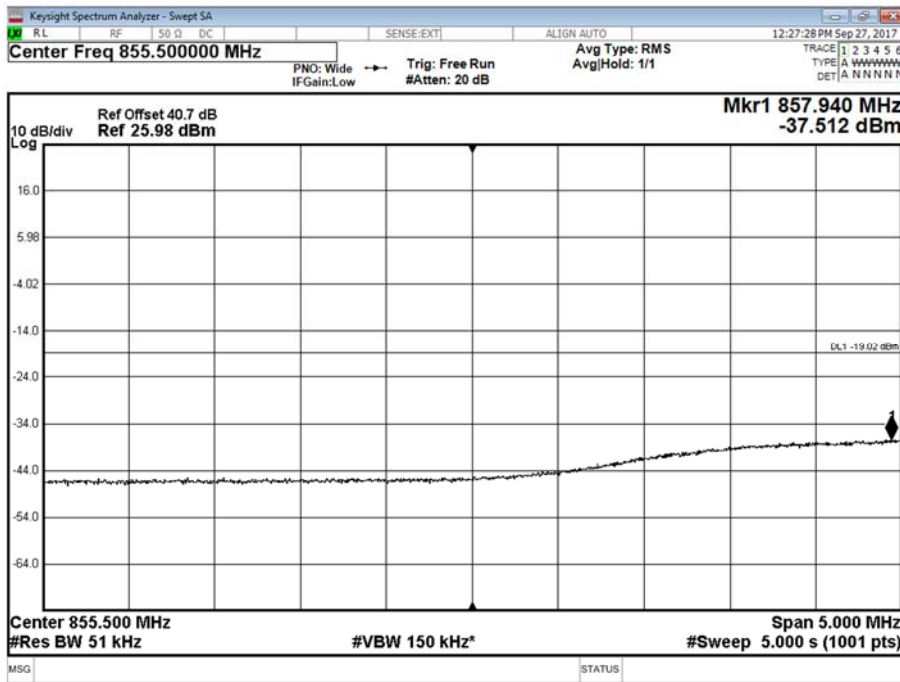
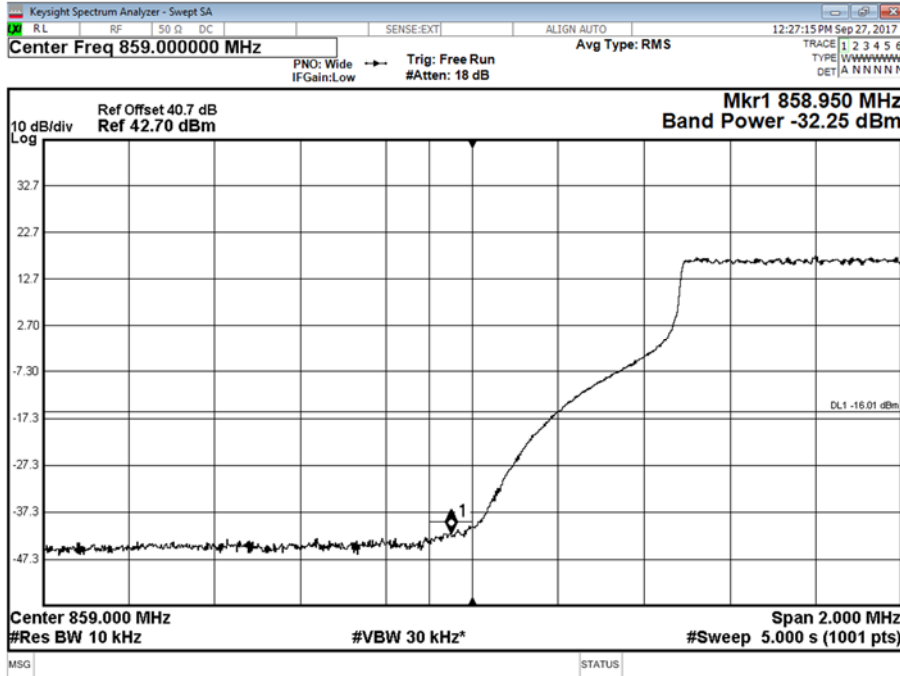
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T





Product Service

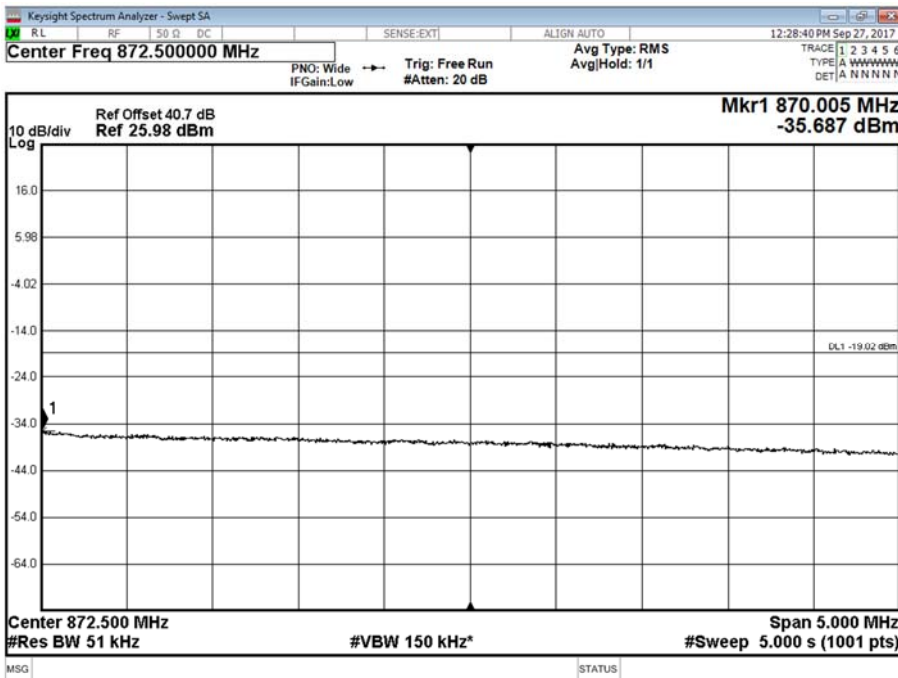
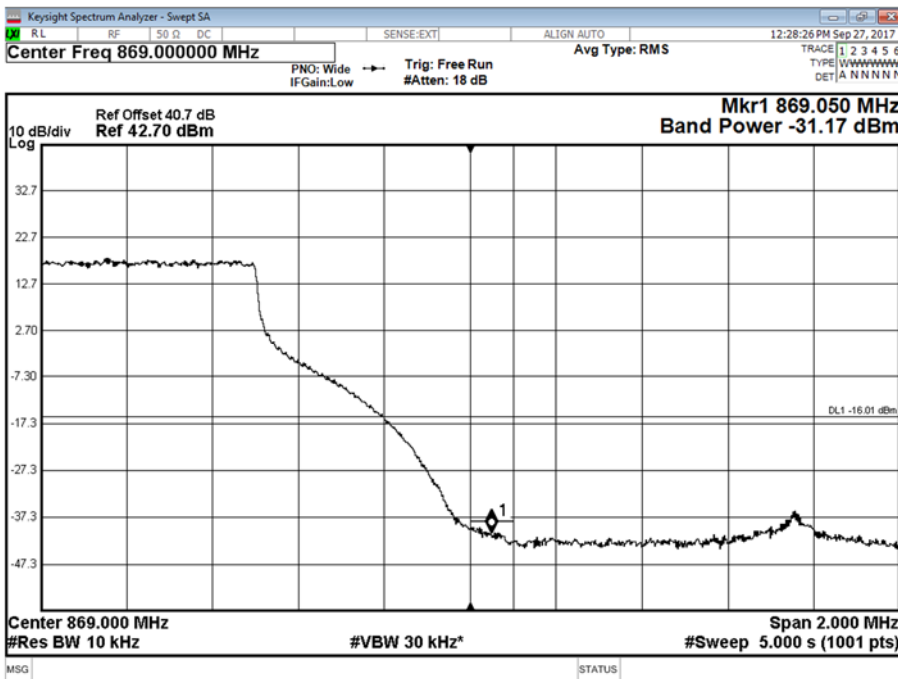
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M





Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M





Product Service

Configuration B

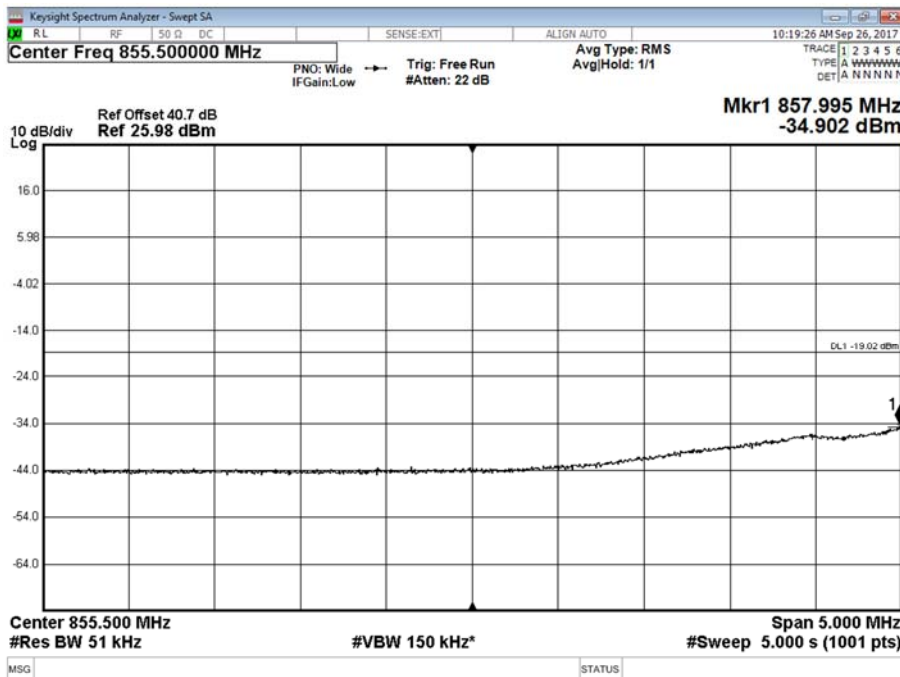
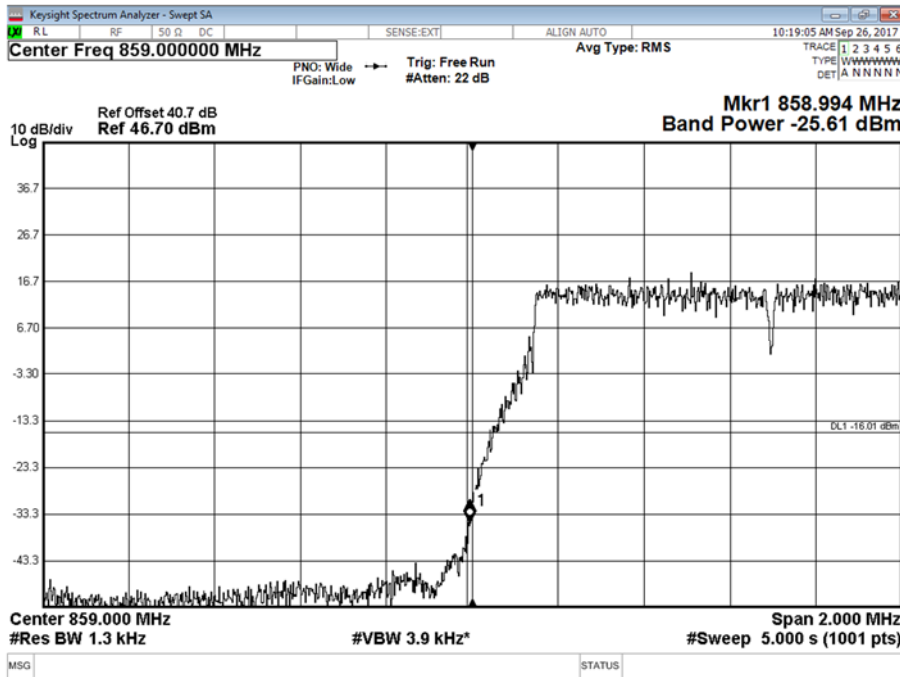
Maximum Output Power 46 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	QPSK	1.4 MHz	859.7+861.1	866.9+868.3
A	QPSK	3.0 MHz	860.5+863.5	864.5+867.5
A	QPSK	5.0 MHz	861.5+866.5	861.5+866.5



Product Service

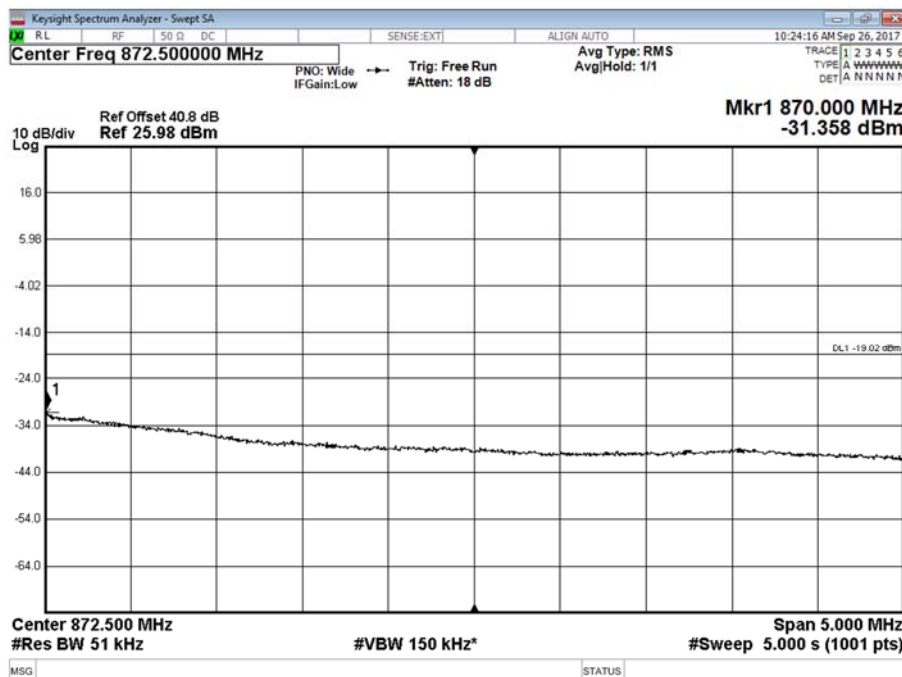
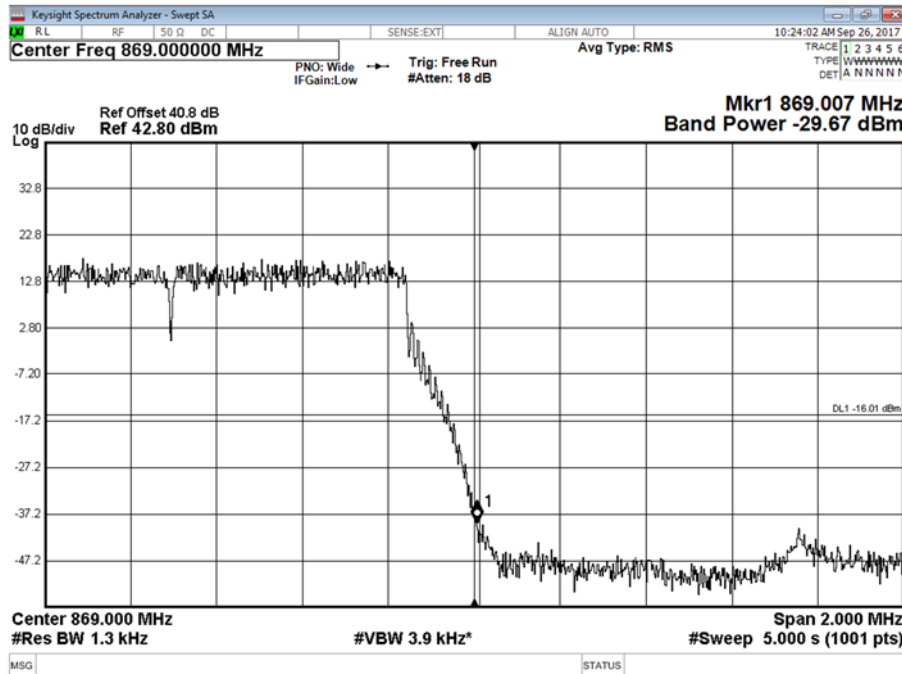
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position B





Product Service

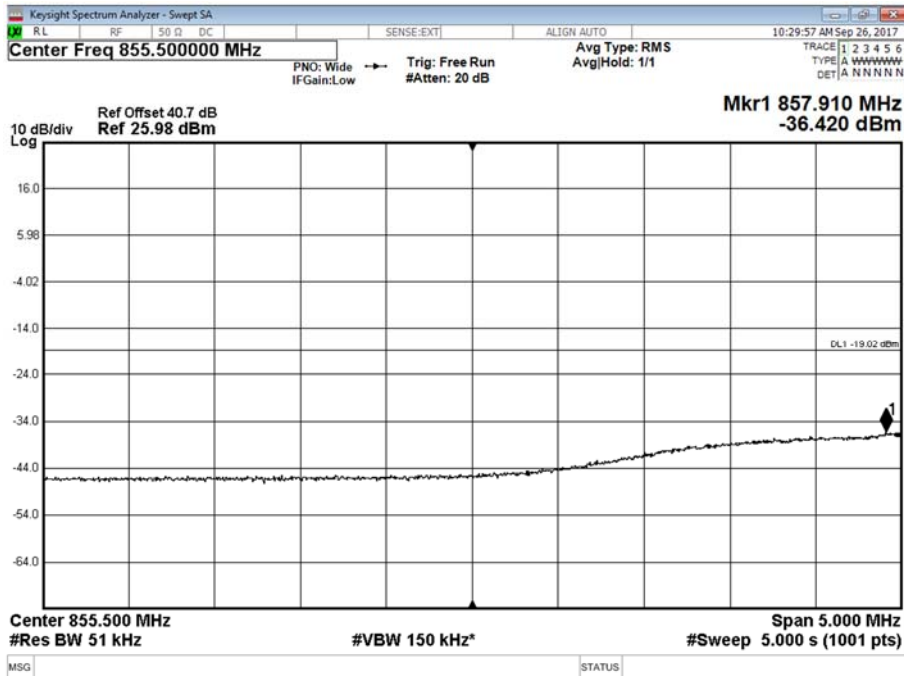
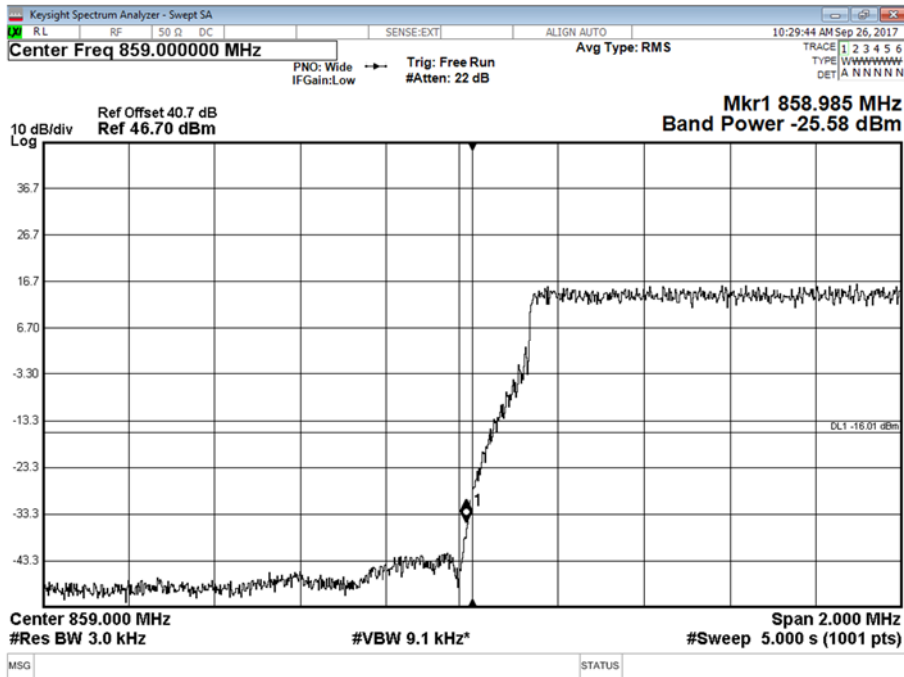
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position T





Product Service

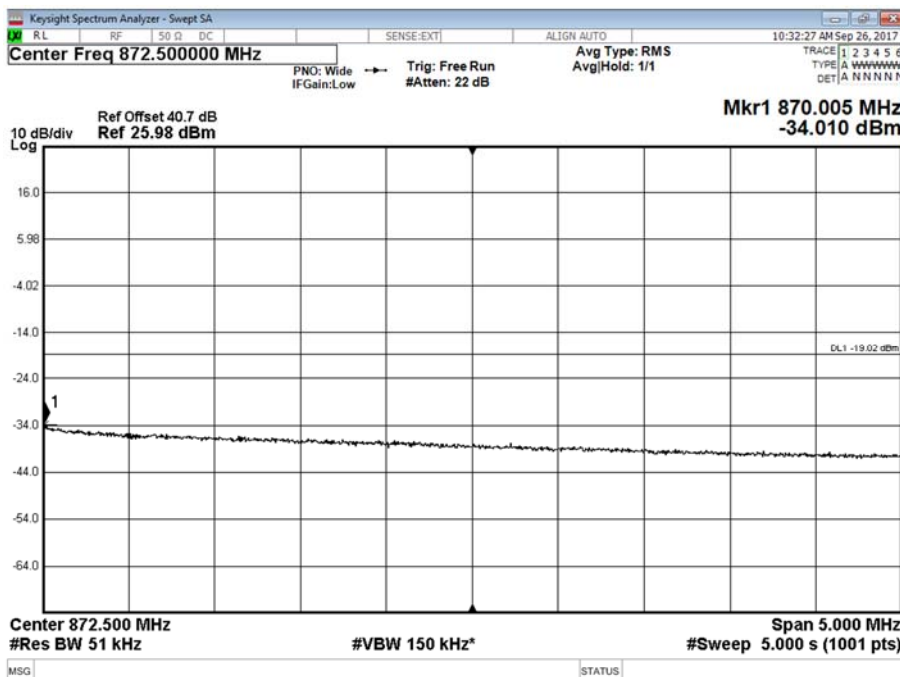
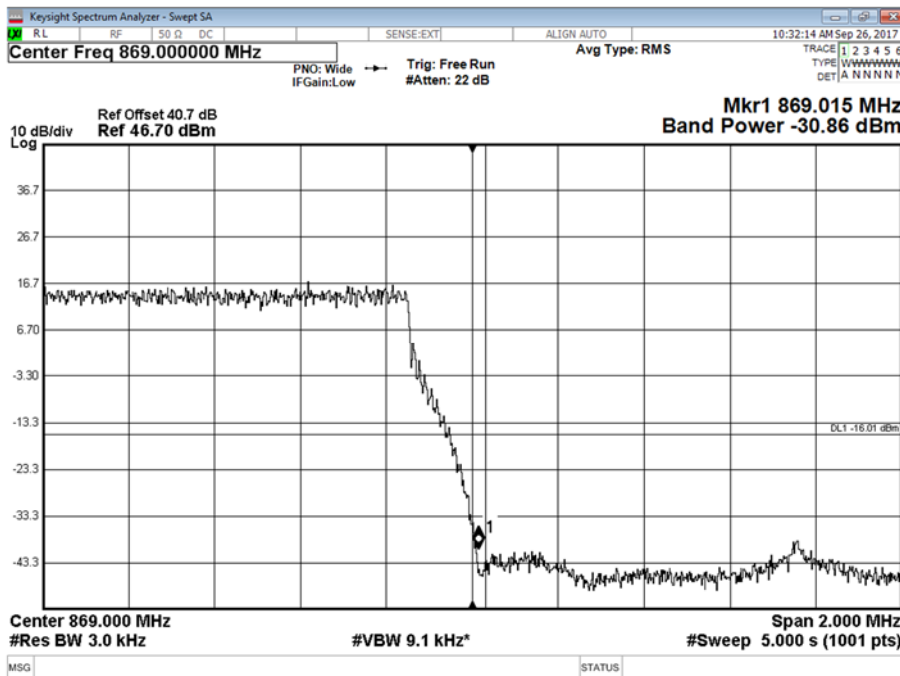
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position B





Product Service

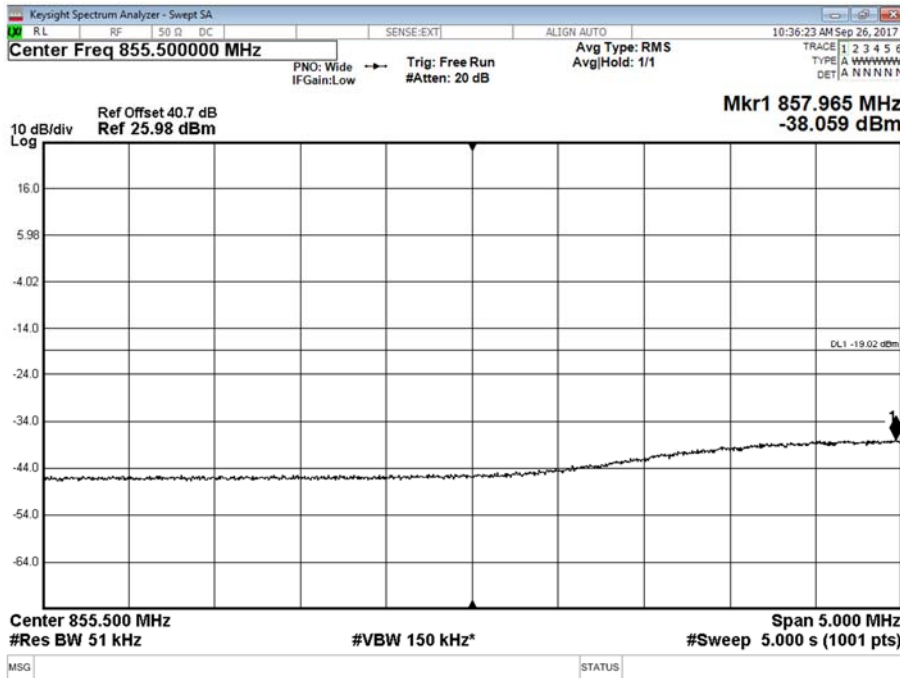
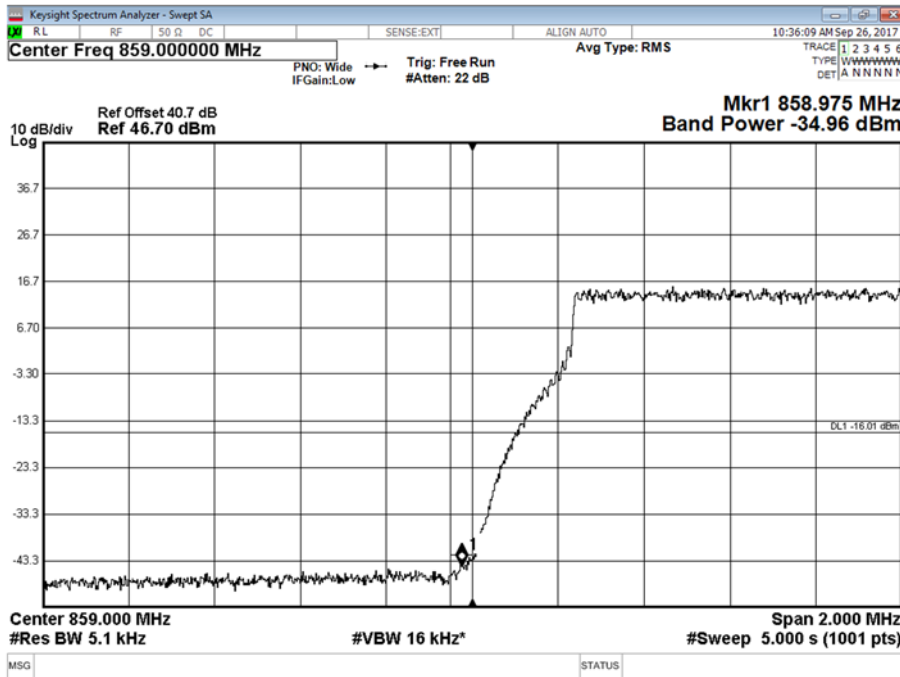
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position T





Product Service

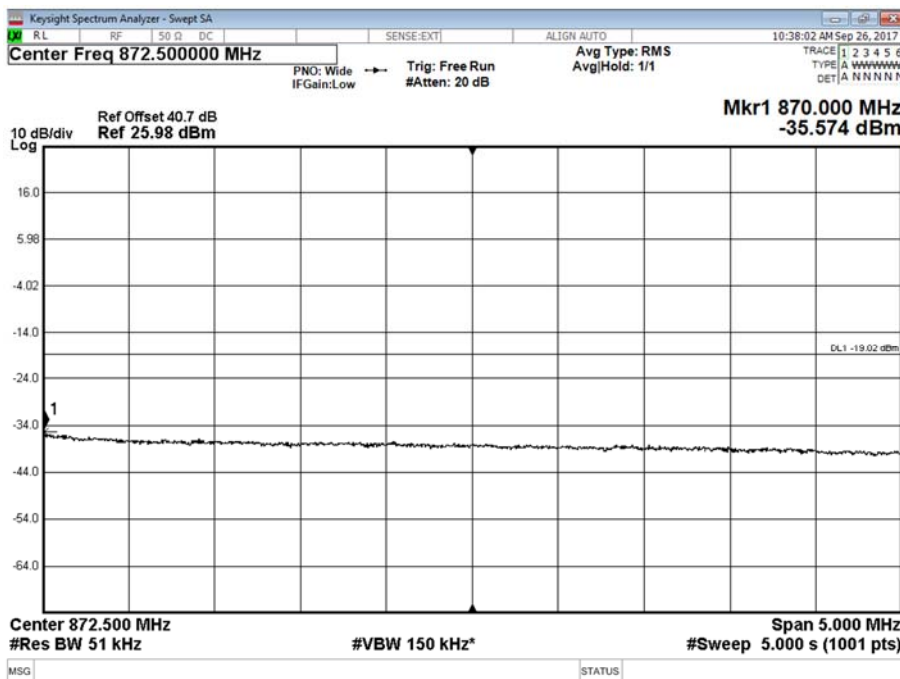
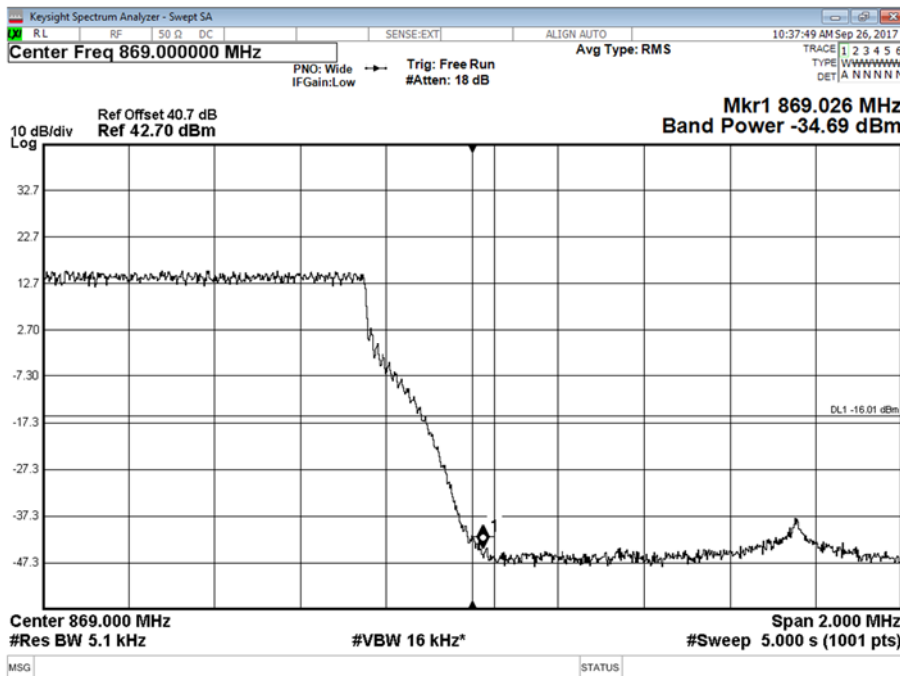
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B





Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T



Configuration C

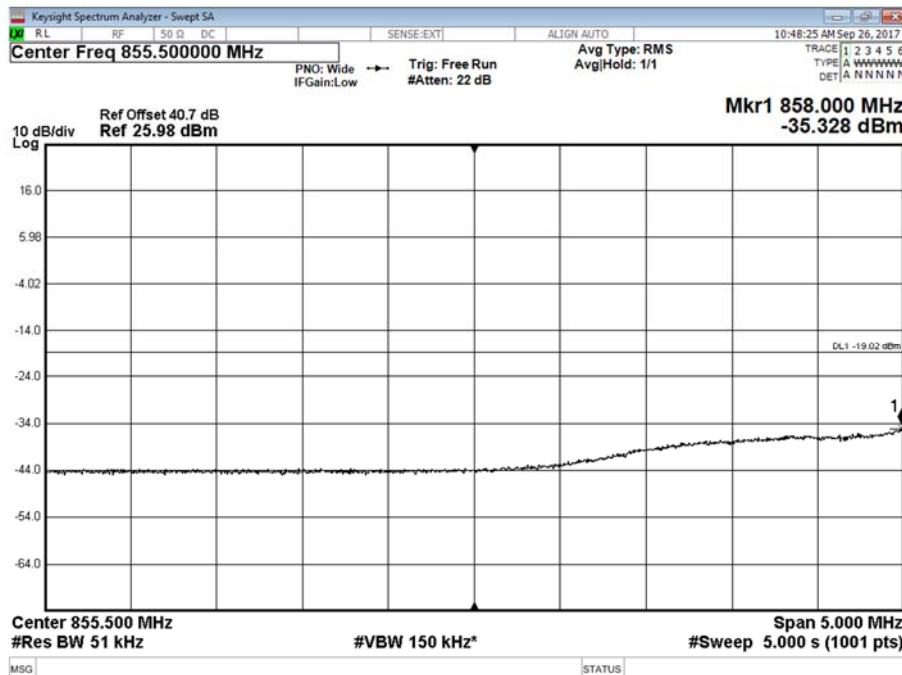
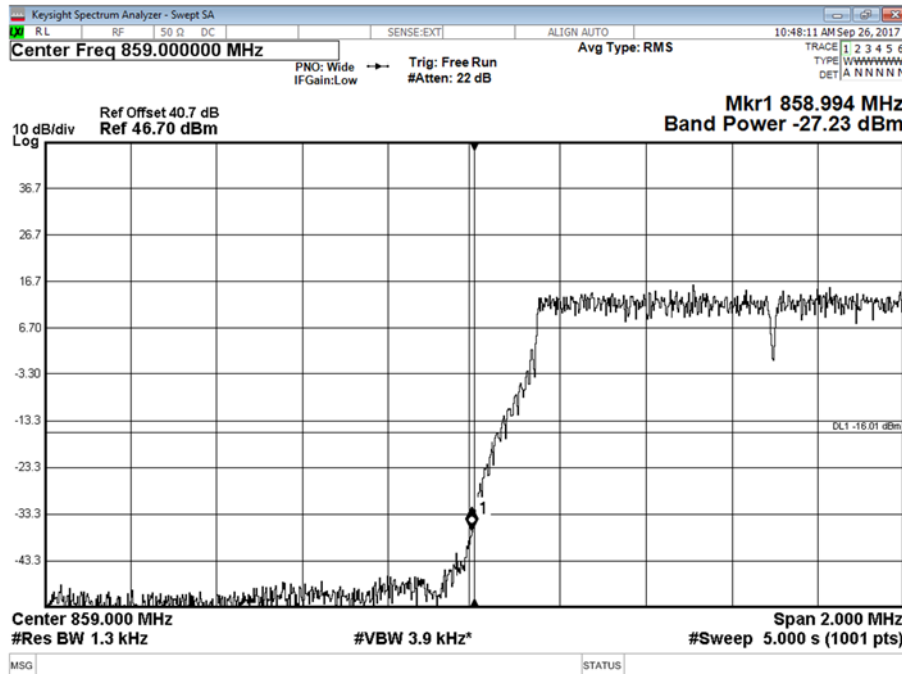
Maximum Output Power 46 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	QPSK	1.4 MHz	859.7+861.1+862.5	865.5+866.9+868.3
A	QPSK	3.0 MHz	860.5+863.5+866.5	867.5+864.5+861.5



Product Service

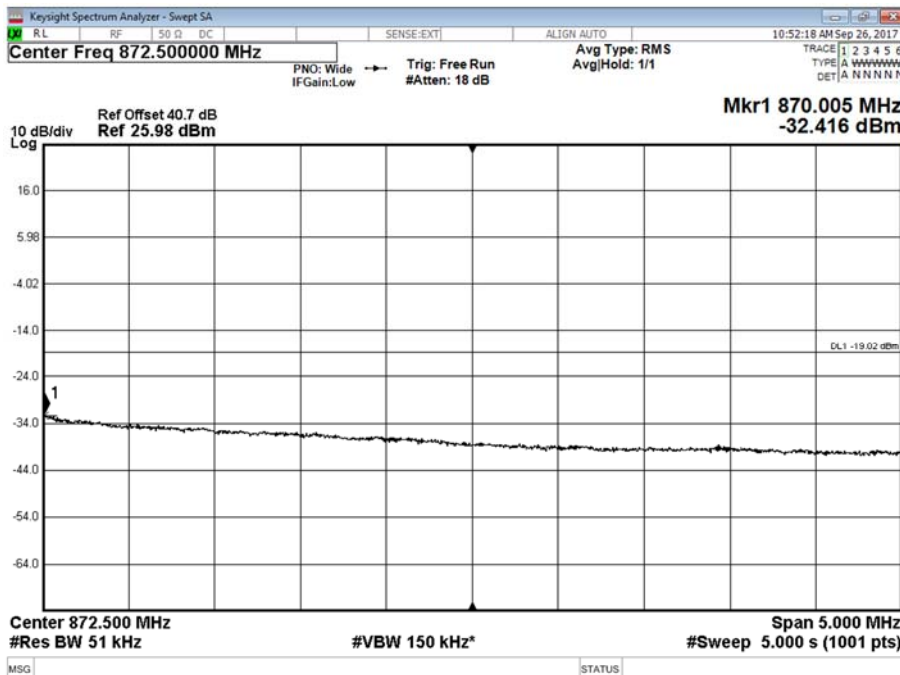
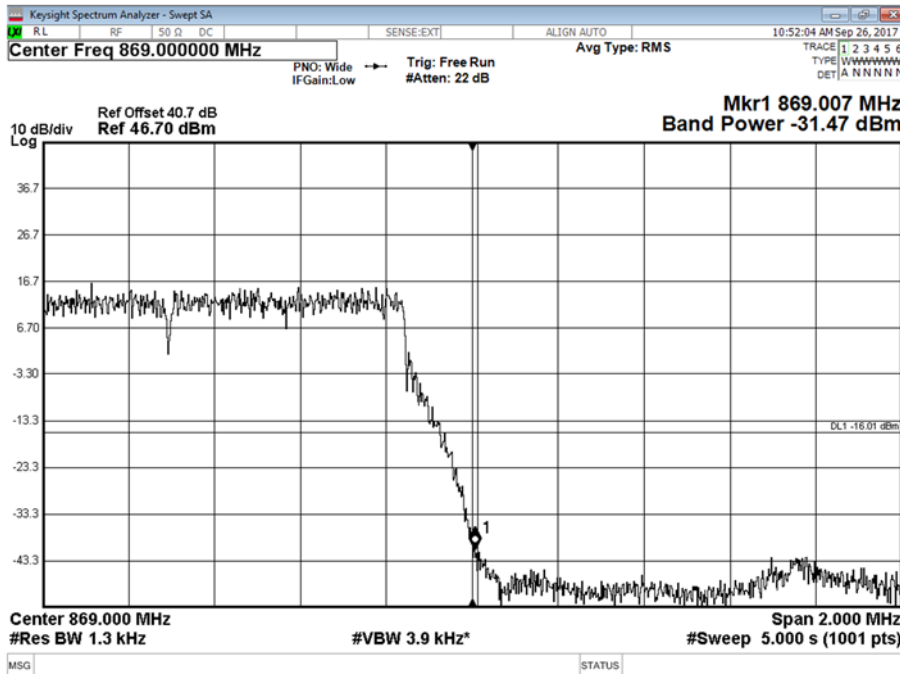
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position B





Product Service

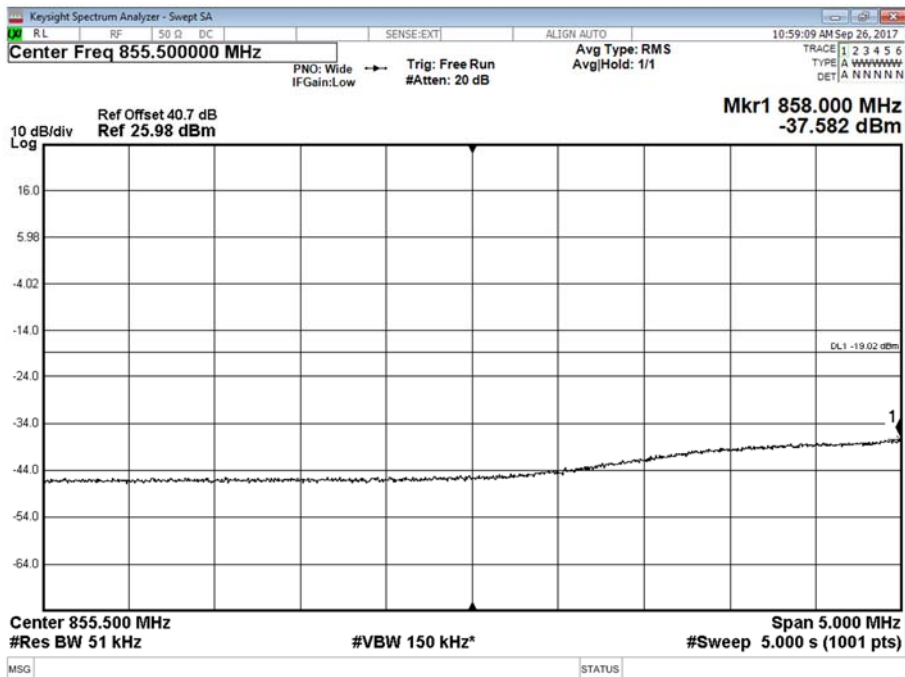
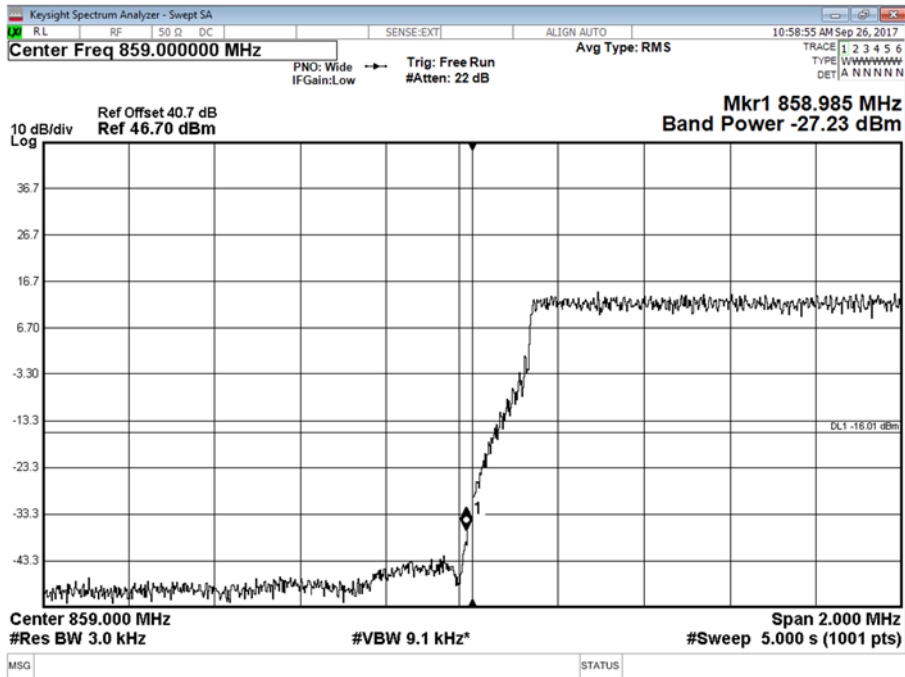
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position T





Product Service

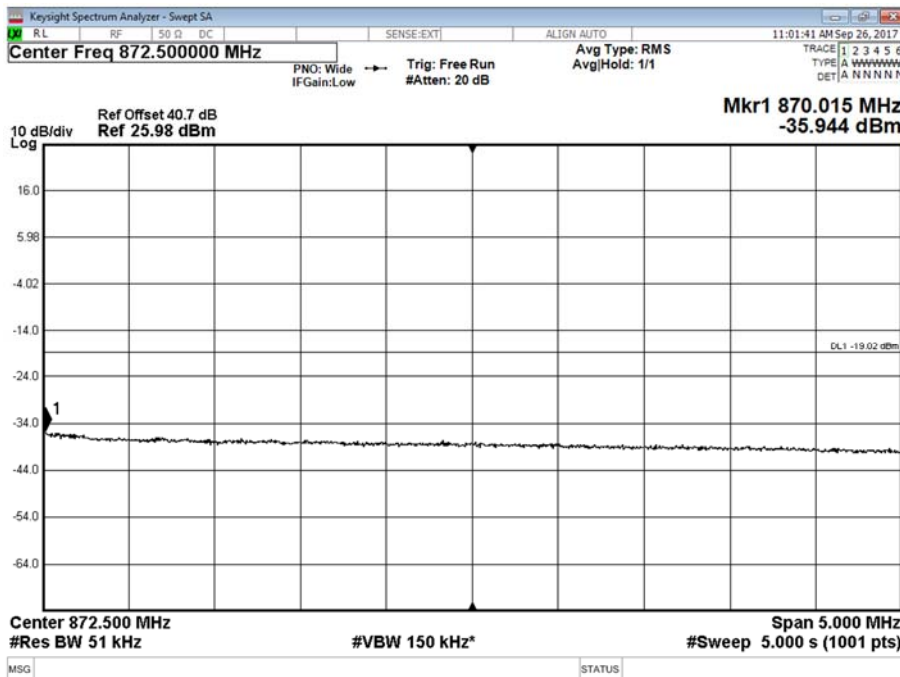
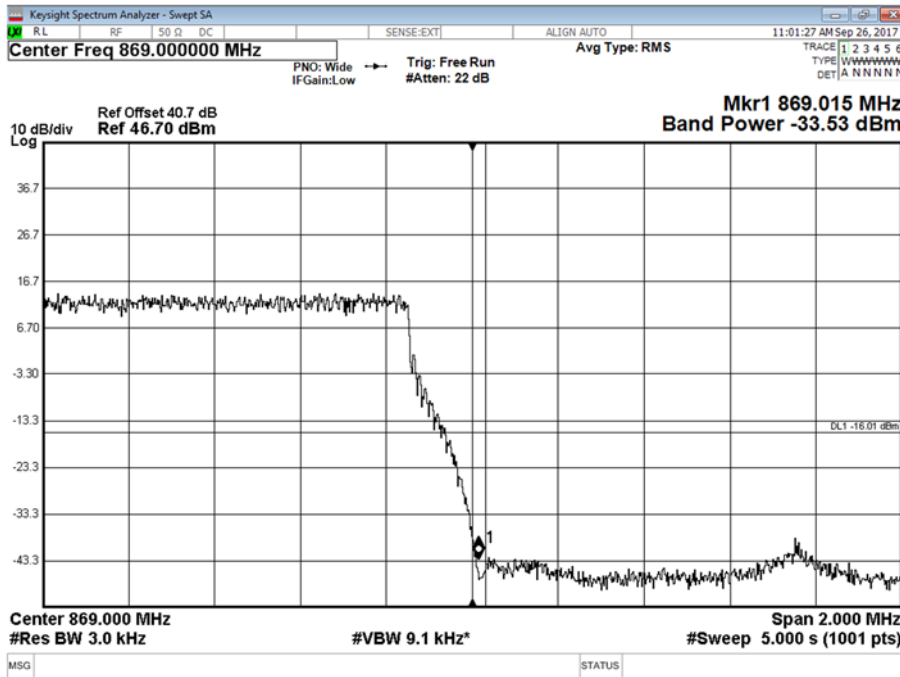
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position B





Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position T



Limit	-13 dBm
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Product Service

2.1 RADIATED SPURIOUS EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1053
FCC CFR 47 Part 90, Clause 90.691

2.1.2 Date of Test and Modification State

20 September 2017 - Modification State 0

2.1.3 Test Equipment Used

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

2.1.4 Environmental Conditions

Ambient Temperature	22.1°C
Relative Humidity	49.4%

2.1.5 Test Method

The test was applied in accordance with test method requirements of FCC Part 90 and ANSI/TIA-603-C-2004.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the measurement antenna in both horizontal and vertical polarisations.

Emissions identified within the range 30MHz to 9GHz were then formally measured using a peak detector as the worst case.

In the frequency range 30MHz – 9GHz, the measurement was performed with a resolution bandwidth of 1MHz.

The limits for the power of the Spurious Emissions outside a licensee's frequency band(s) of operation have been calculated, as shown below using the following formula:

Field Strength of Carrier - $(43 + 10\text{Log}(P))$ dB

Where:

Field Strength is measured in dB μ V/m

P is measured Transmitter Power in Watts

The EUT was measured with the antenna height varied between 1 and 4 m with the turntable rotated between 0 and 360 degrees. The emission of any outside a licensee's frequencies within 10dB of the limit were measured with the substitution method used according to the standard.

The measurements were performed at a 3m distance unless otherwise stated.

Determination of Spurious Emission Limit



Product Service

The field strength of the carrier has been calculated assuming that the power is to be fed to a half-wave tuned dipoles as per 2.1053 (a).

$$E(v/m)=(30 \times G_i \times P_o)^{0.5} / d$$

Where G_i is the antenna gain of ideal half-wave dipoles,
 P_o is the power out of the transceiver in W,
 d is the measurement distance in meter.

Therefore at 3m measurement distance the field strength using the lowest transceiver output power would be:

$$E(v/m)=(30 \times 1.64 \times 62.37)^{0.5} / 3 = 18.46 \text{ V/m} = 145.32 \text{ dB}\mu\text{V/m}$$

As per 90.691 the spurious emission must be attenuated by $43 + 10\log(P_o)$ dB this gives:

$$43 + 10\log(62.37) = 60.94 \text{ dB}$$

Therefore the limit at 3m measurement distance is:

$$145.32 - 60.94 = 84.4 \text{ dB}\mu\text{V/m}$$

Therefore, the EIRP limit at 3m measurement distance above 1GHz is:

$$145.32 - 60.94 = 84.4 \text{ dB}\mu\text{V/m}$$

The relationship between ERP and EIRP is:

$$\text{ERP} = \text{EIRP} - 2.15\text{dB}$$

Therefore, the ERP Limit at 3m measurement distance below 1GHz is:

$$84.4 \text{ dB}\mu\text{V/m} - 2.15\text{dB} = 82.25 \text{ dB}\mu\text{V/m}$$

This limit has been applied across all frequency ranges as it is the more stringent of the limits. These limits have been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

The results are shown in the plots below.



2.1.6 Test Results

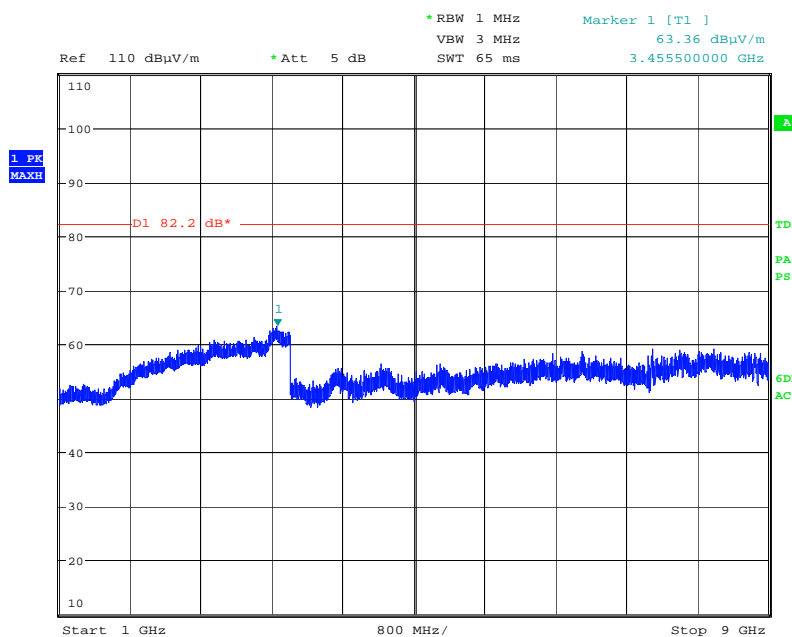
Note: Only the worst-case results plots have been included as all of the emissions are greater than 20dB below the limit. A set of plots have been included to show the measurement system noise floor.

Configuration L-MIMO-SC

Maximum Output Power 46.0dBm per port, LTE Bandwidth 1.4 MHz

Channel Position	Channel Frequencies
Channel Position B	859.7MHz
Channel Position M	864.0MHz
Channel Position T	868.3MHz

Channel Position B – QPSK 1-9 GHz



Date: 20.SEP.2017 11:13:38

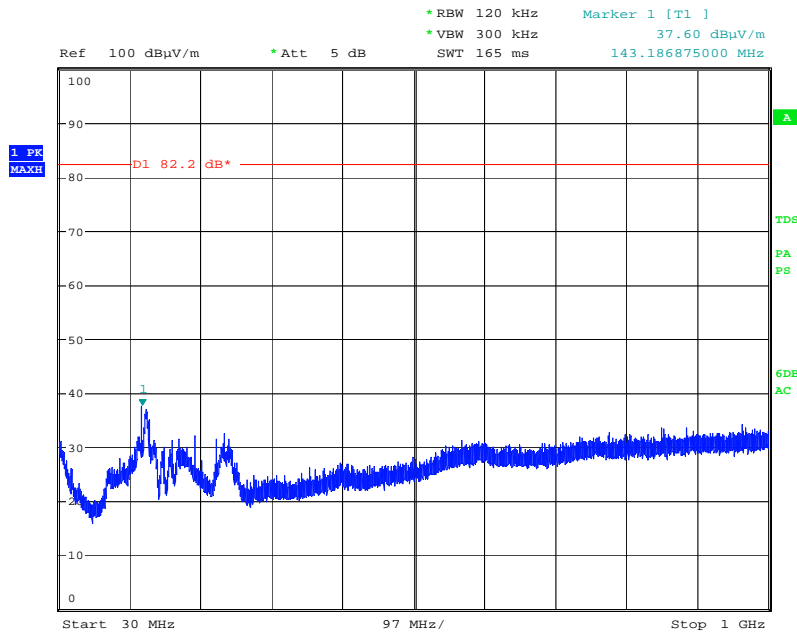
Channel Position M - QPSK

No emissions were detected within 20dB of the limit.



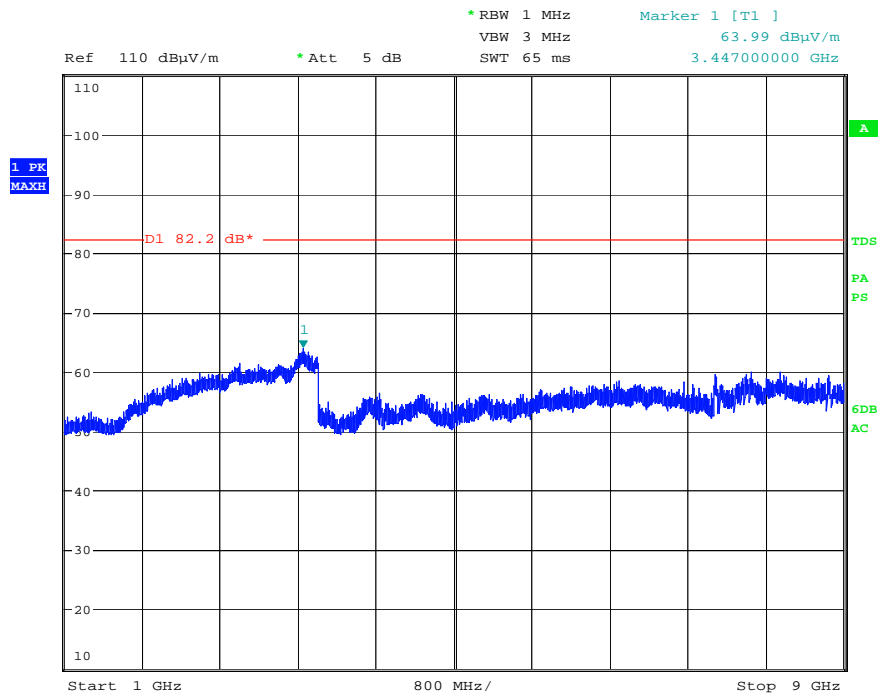
Product Service

Channel Position T - QPSK – 30MHz to 1GHz



Date: 20.SEP.2017 14:36:31

Channel Position T - QPSK – 1GHz to 9GHz



Date: 20.SEP.2017 11:17:44



Product Service

Configuration L-MIMO-MC

Maximum Output Power 43.0dBm per port, LTE Bandwidth 1.4MHz

Channel Position	Channel Frequencies
Channel Position M	859.7 MHz + 868.3.0MHz

Channel Position M - QPSK

No emissions were detected within 20dB of the limit.

Configuration L-MIMO-MC1

Maximum Output Power 43.0dBm per port, LTE Bandwidth 1.4MHz

Channel Position	Channel Frequencies
Channel Position M	859.7 MHz + 866.9 MHz + 868.3.0MHz

Channel Position M - QPSK

No emissions were detected within 20dB of the limit.

Limit	-13dBm / 84.4dB μ V/m.
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Product Service

2.2 TRANSMITTER SPURIOUS EMISSIONS

2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 90, Clause 90.691

2.2.2 Date of Test and Modification State

22 September 2017 - Modification State 0

2.2.3 Test Equipment Used

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

2.2.4 Environmental Conditions

Ambient Temperature	22.5°C
Relative Humidity	55.2%

2.2.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01 Clause 6.

The EUT was connected to a Spectrum Analyser via 40dB of attenuation for measurements below 1.5GHz and up to 9 GHz using 30dB of attenuation and a high pass filter. Prior to testing, a Network Analyser was used to calibrate the path loss between the EUT and the Spectrum Analyser. The worst case path loss in the measured ranges was entered as a reference level offset. Over the measured ranges, the RBW was set to 1MHz with a VBW of 3MHz. All measurement results are specified as average with an RMS detector being used in conjunction with a trace setting of Max Hold. Measurements were performed in configurations of the EUT as reported below.

The EUT can transmit with 1 or 2 ports simultaneously. Testing was performed on all ports with the test limits being reduced from the specification limit of $43+10\log(P)$ by a factor of $10\log(2)$ in accordance with KDB 662911 D01 v02r01 to cover all MIMO configurations. This equated to a limit of -16 dBm, (worst case).

2.2.6 Test Results

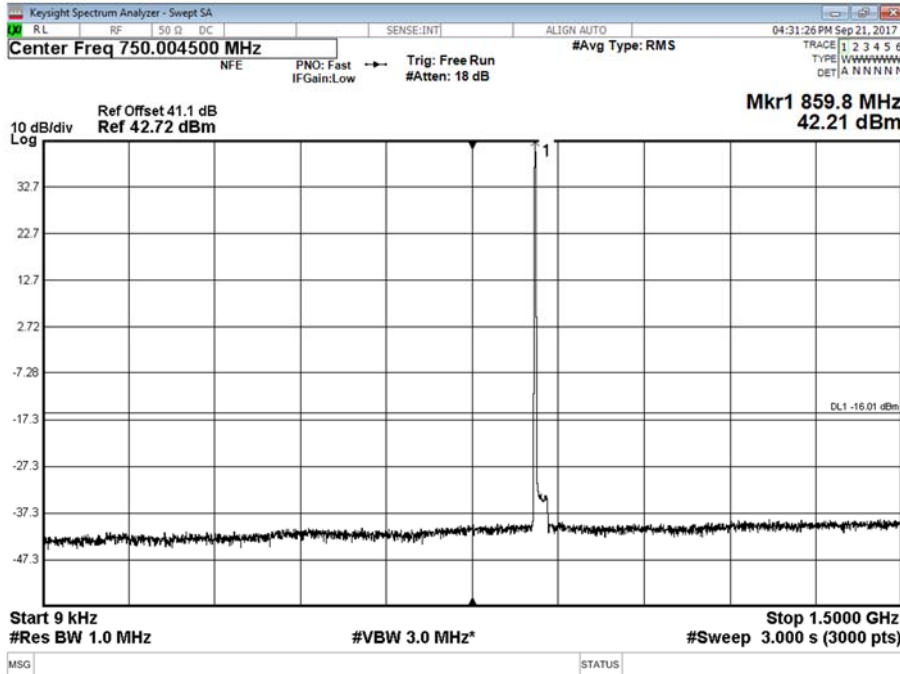
Configuration A

Maximum Output Power 46 dBm

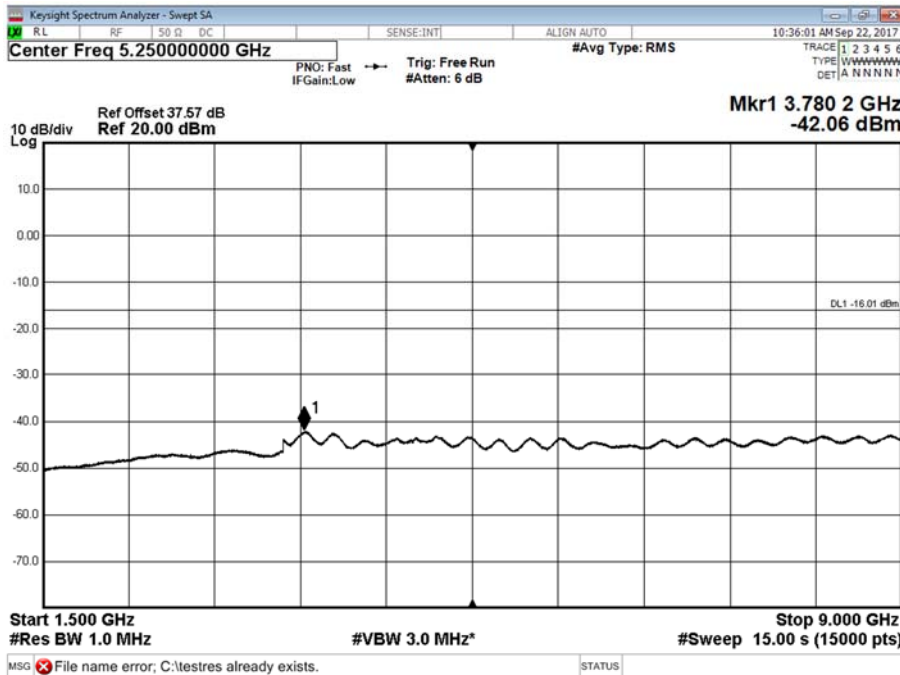


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position B - Band 1 - Range 0.009 to 1500 MHz



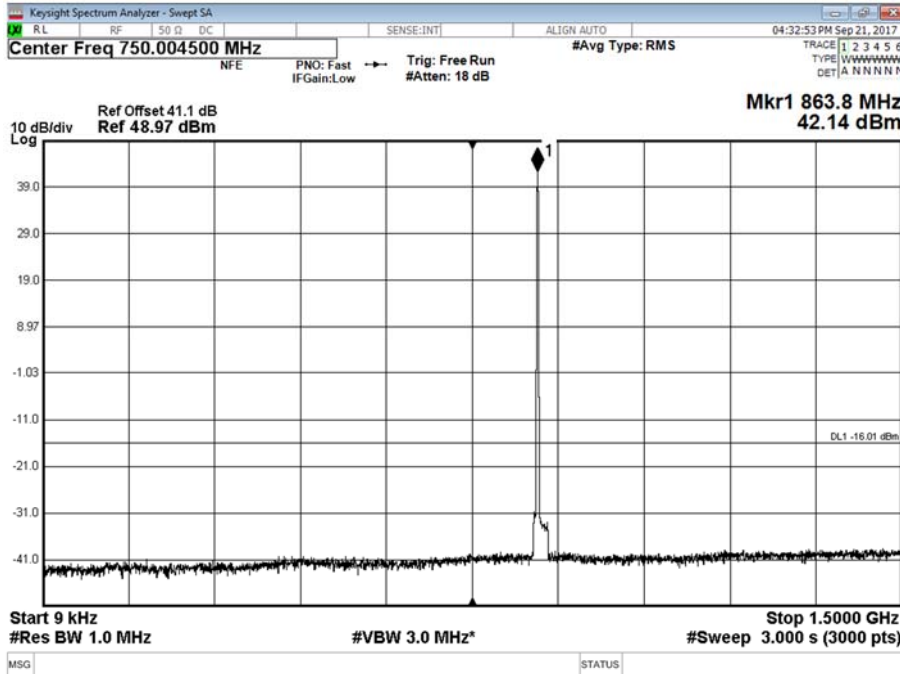
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position B - Band 2 - Range 1500 to 9000 MHz



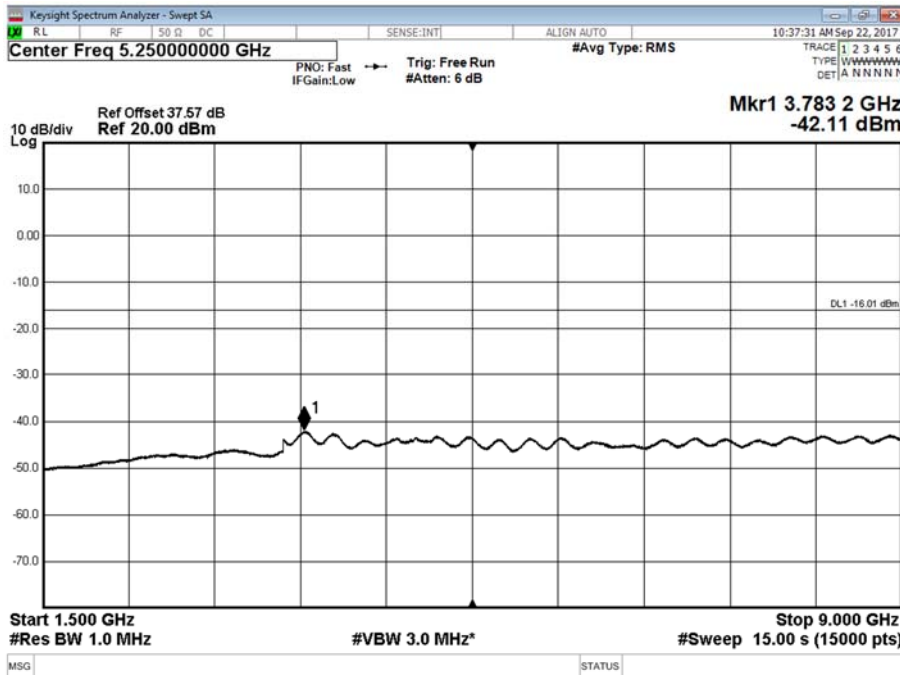


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



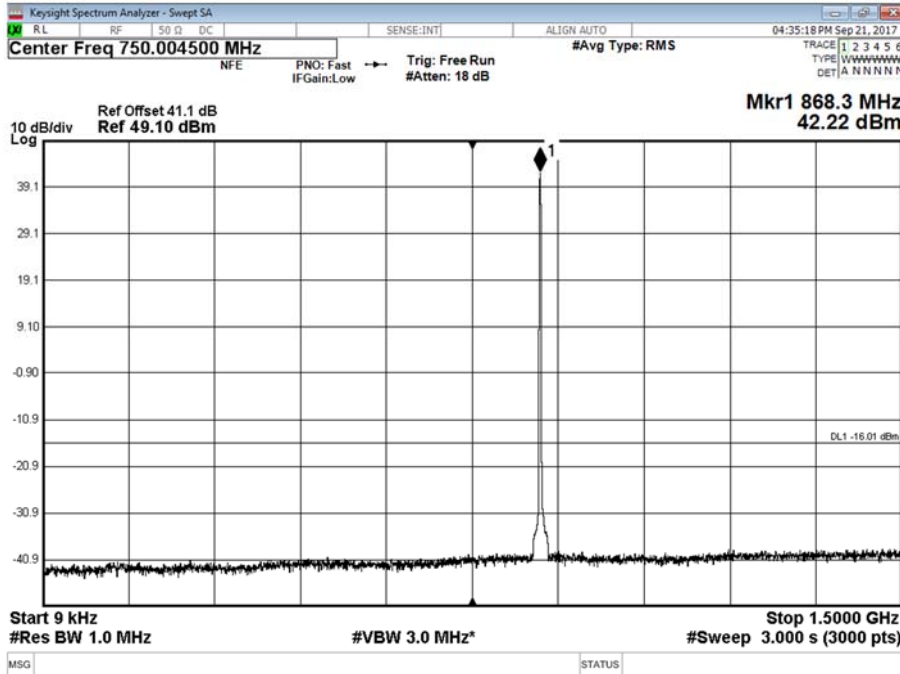
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



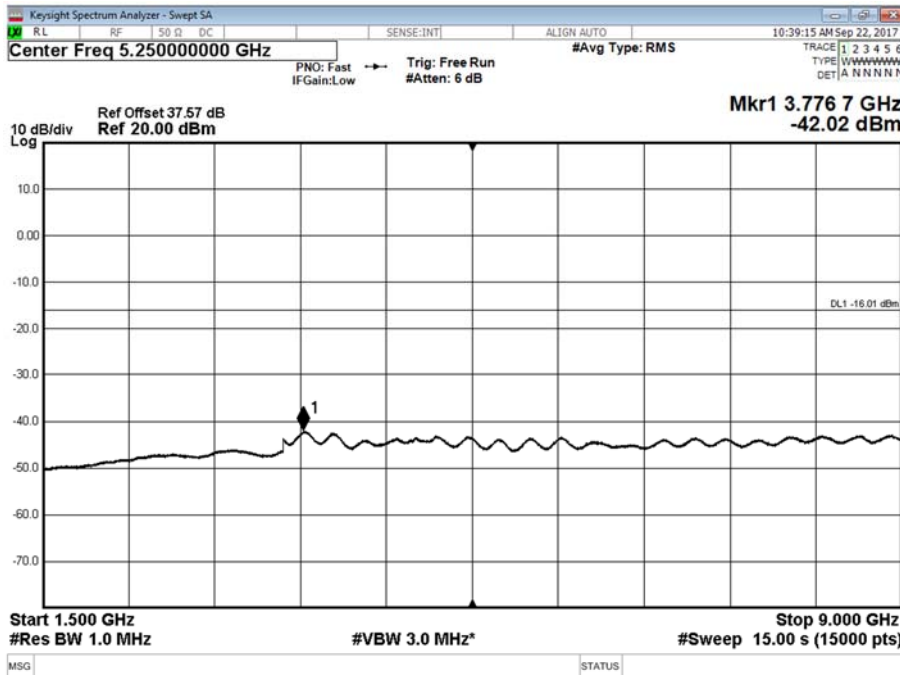


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position T - Band 1 - Range 0.009 to 1500 MHz



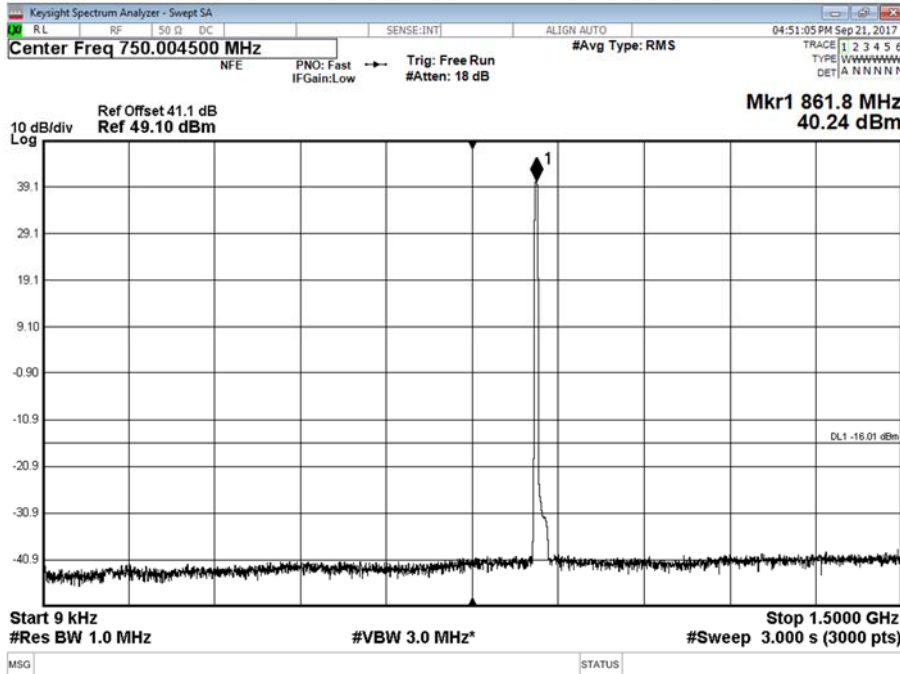
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position T - Band 2 - Range 1500 to 9000 MHz



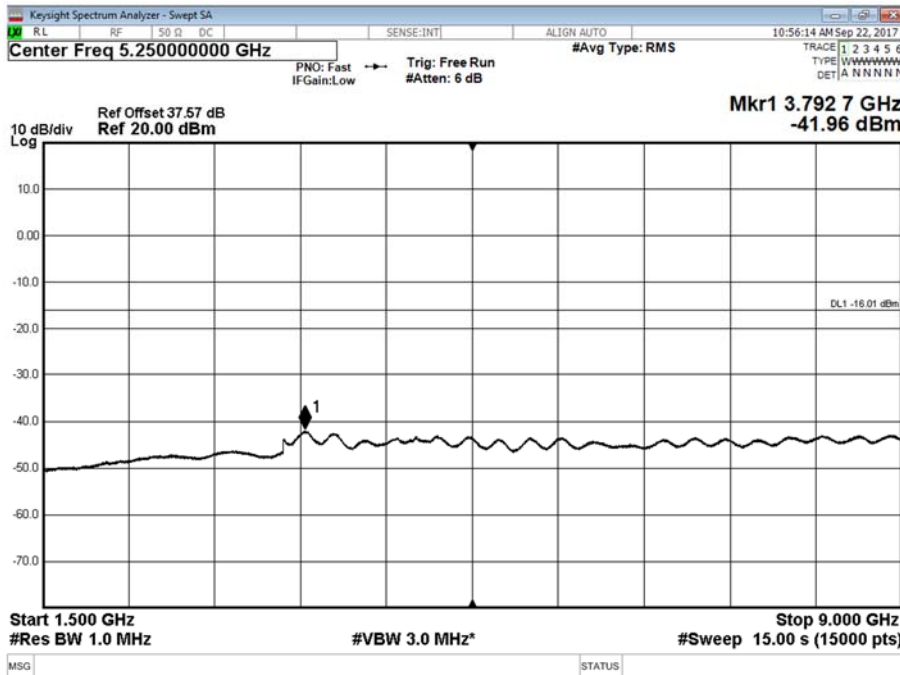


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1500 MHz



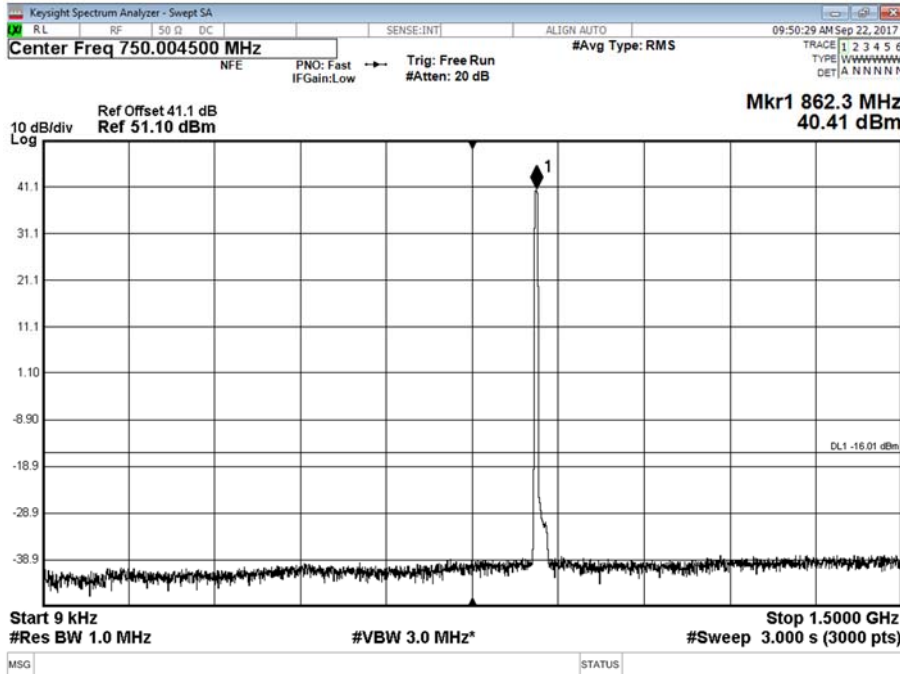
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 2 - Range 1500 to 9000 MHz



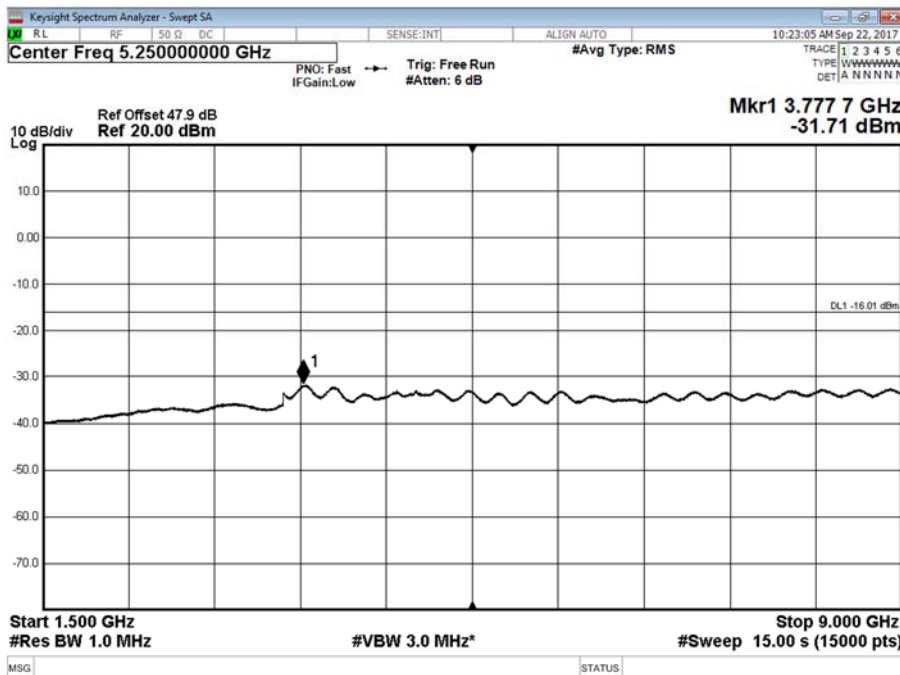


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 1 - Range 0.009 to 1500 MHz



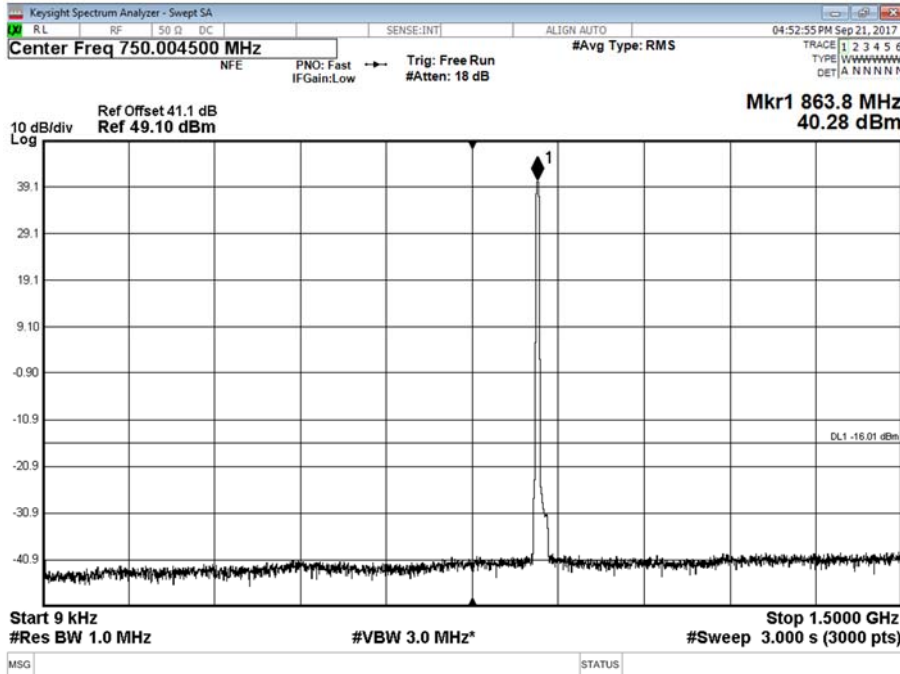
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position B - Band 2 - Range 1500 to 9000 MHz



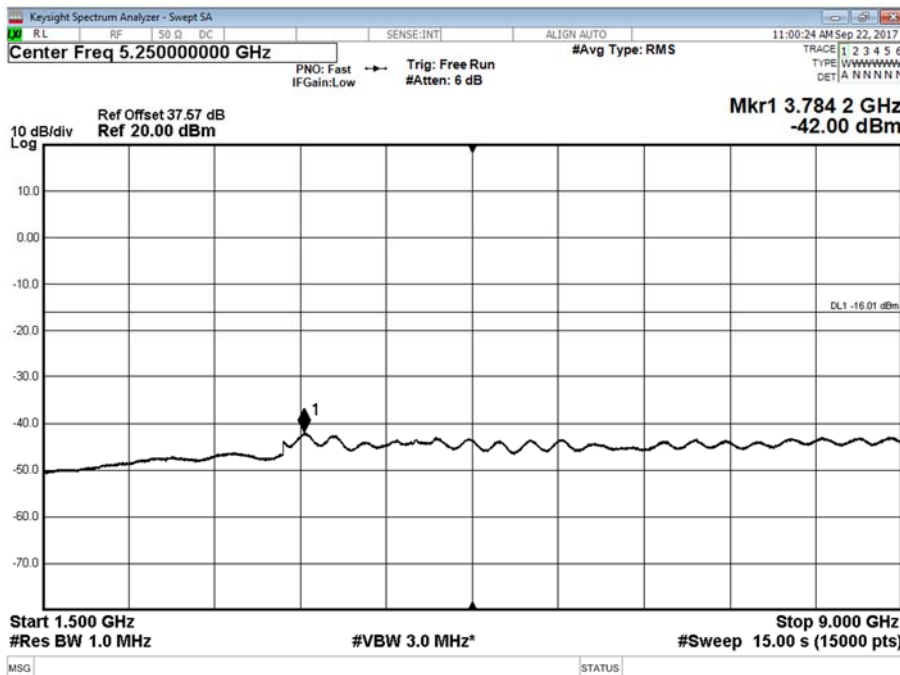


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



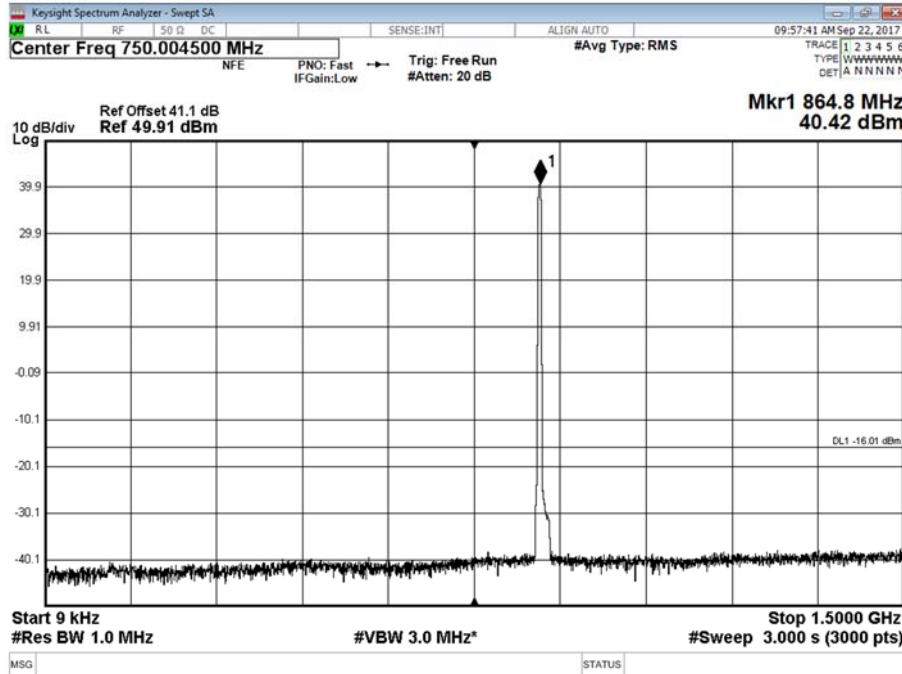
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



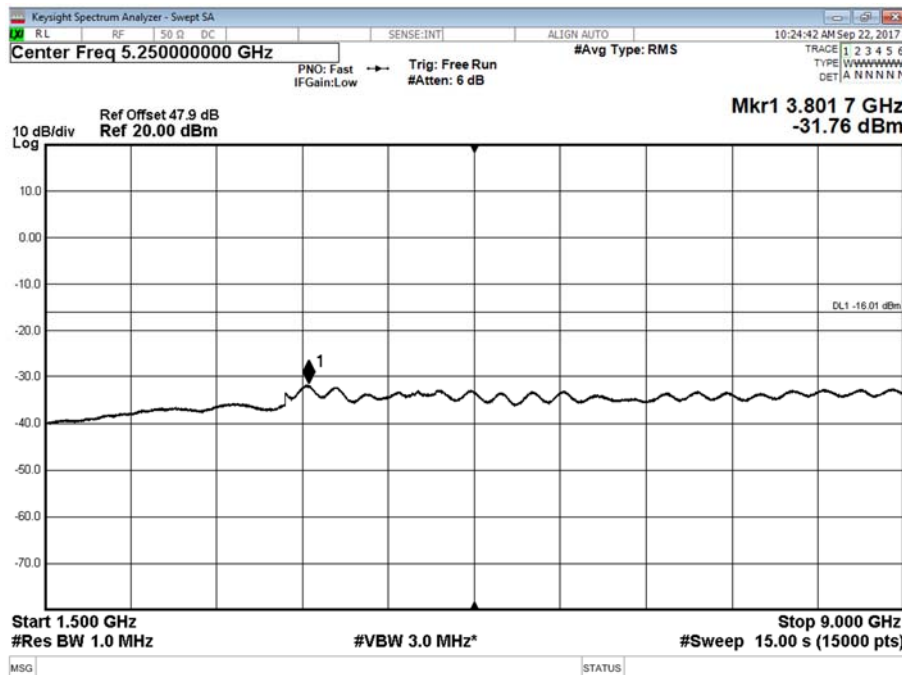


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



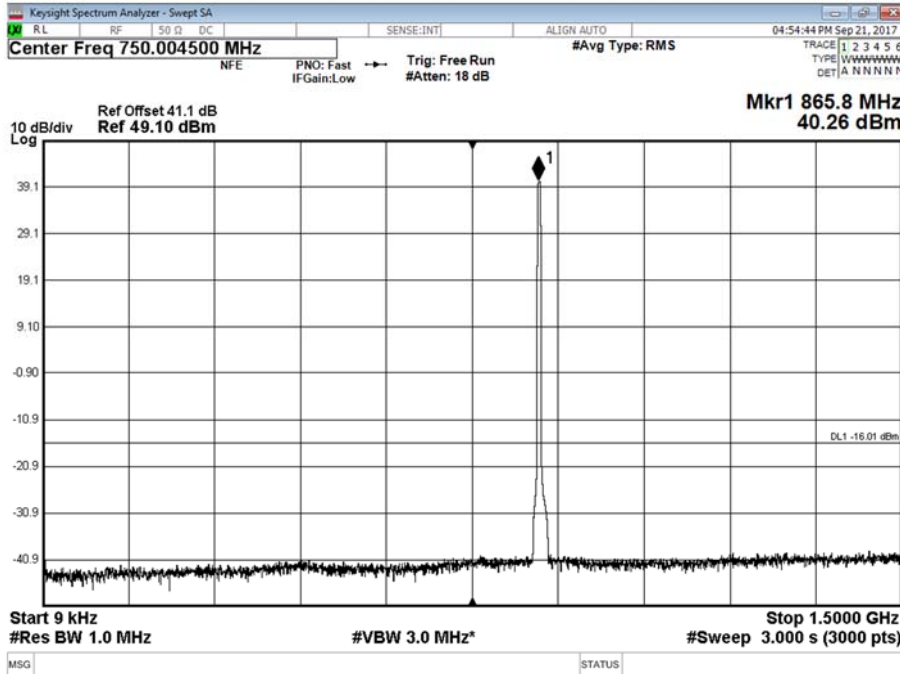
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



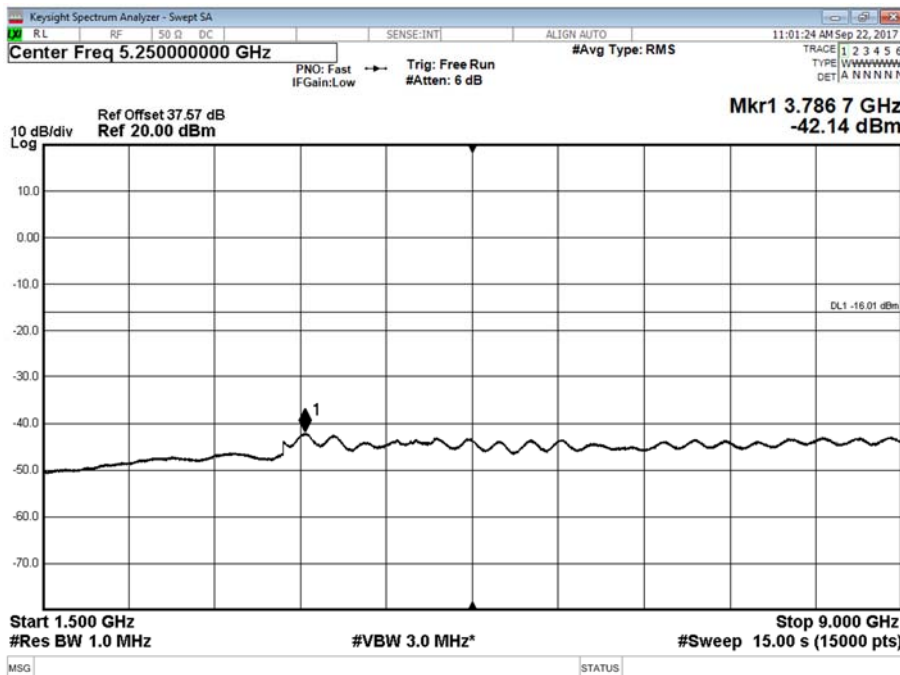


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1500 MHz



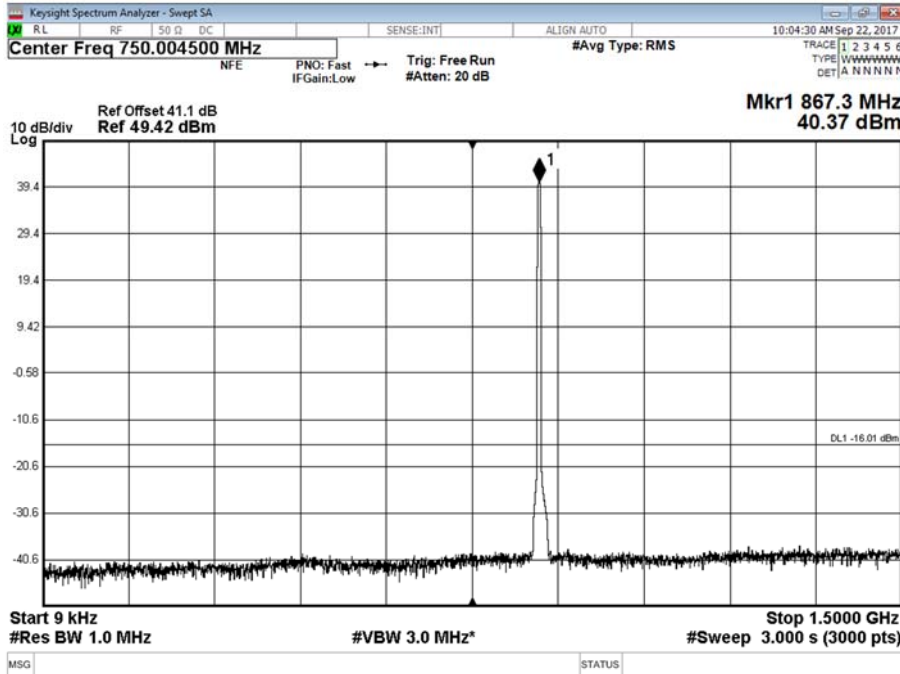
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 2 - Range 1500 to 9000 MHz



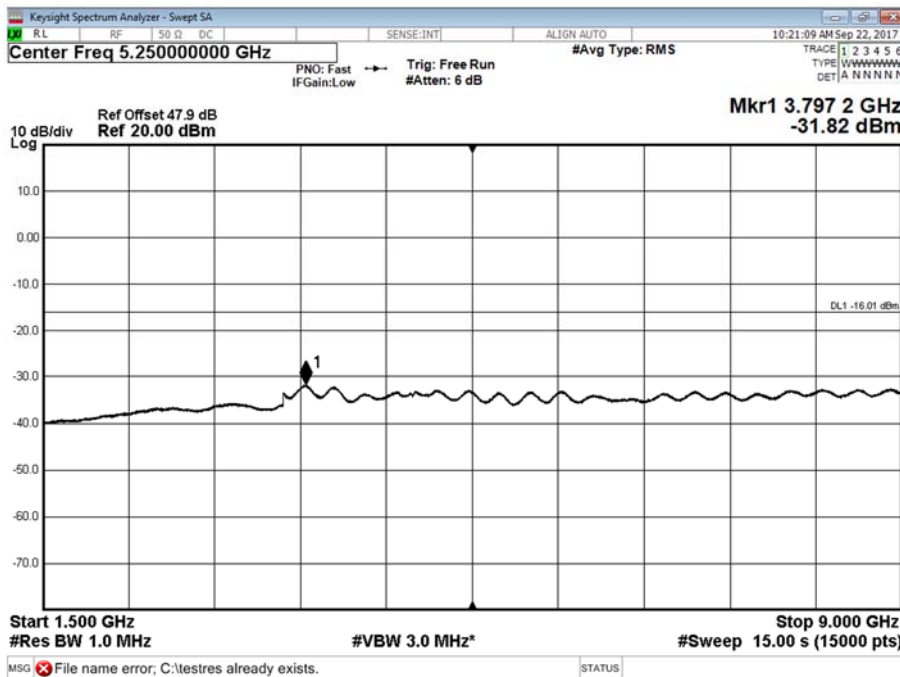


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 1 - Range 0.009 to 1500 MHz



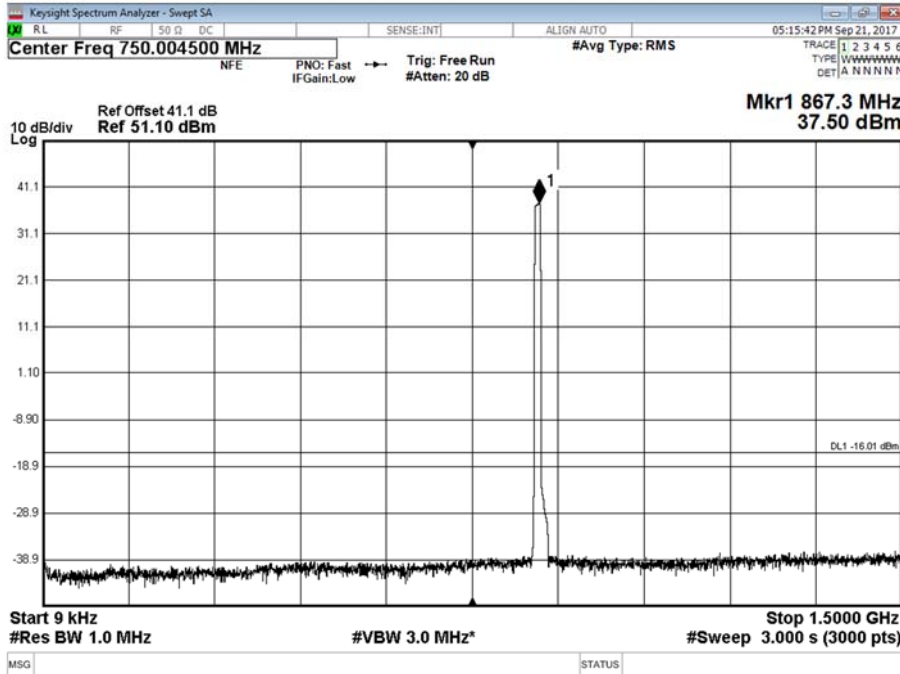
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position T - Band 2 - Range 1500 to 9000 MHz



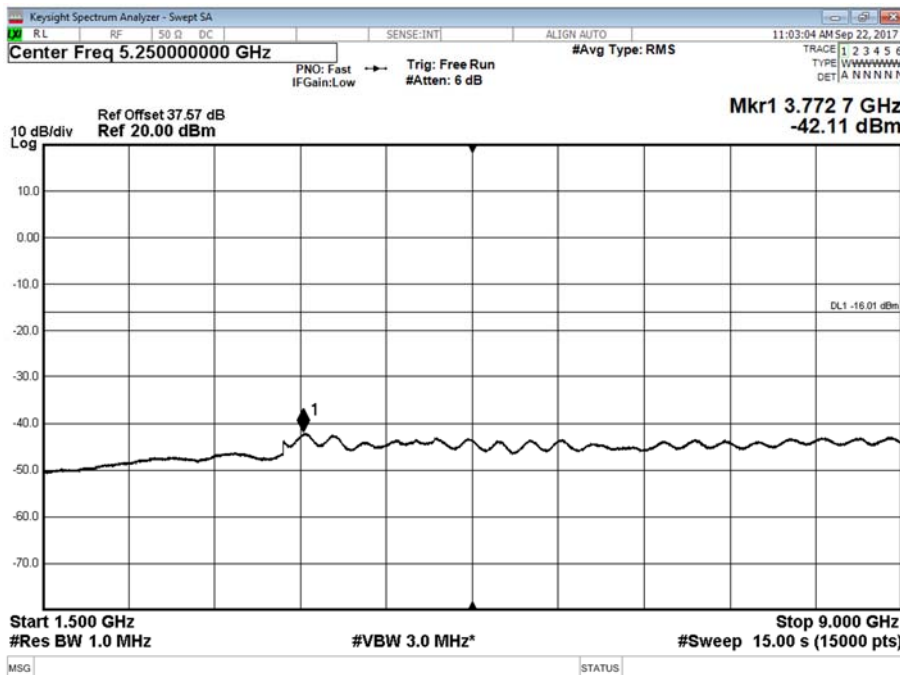


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



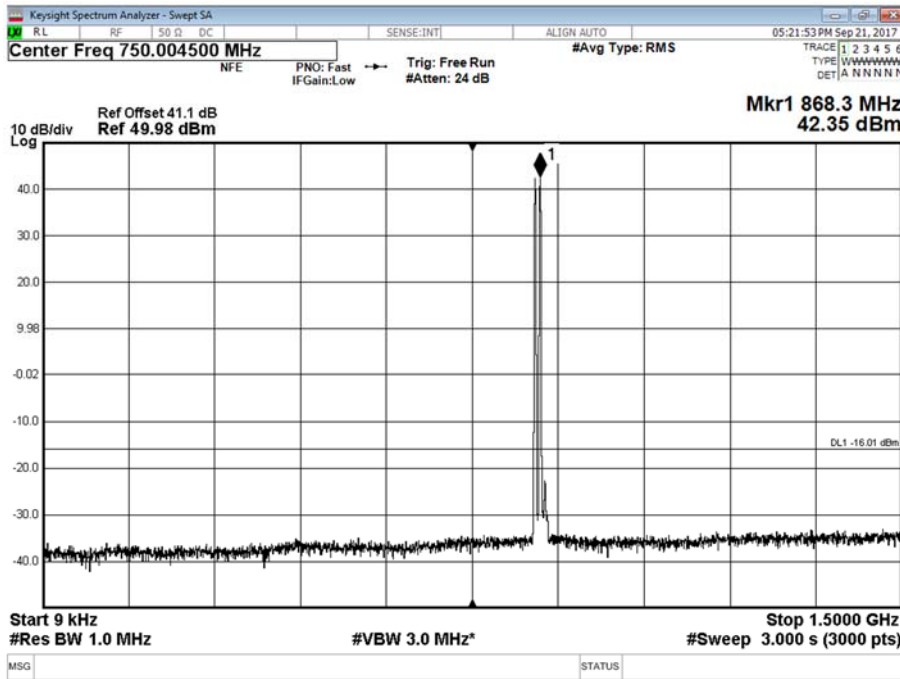


Product Service

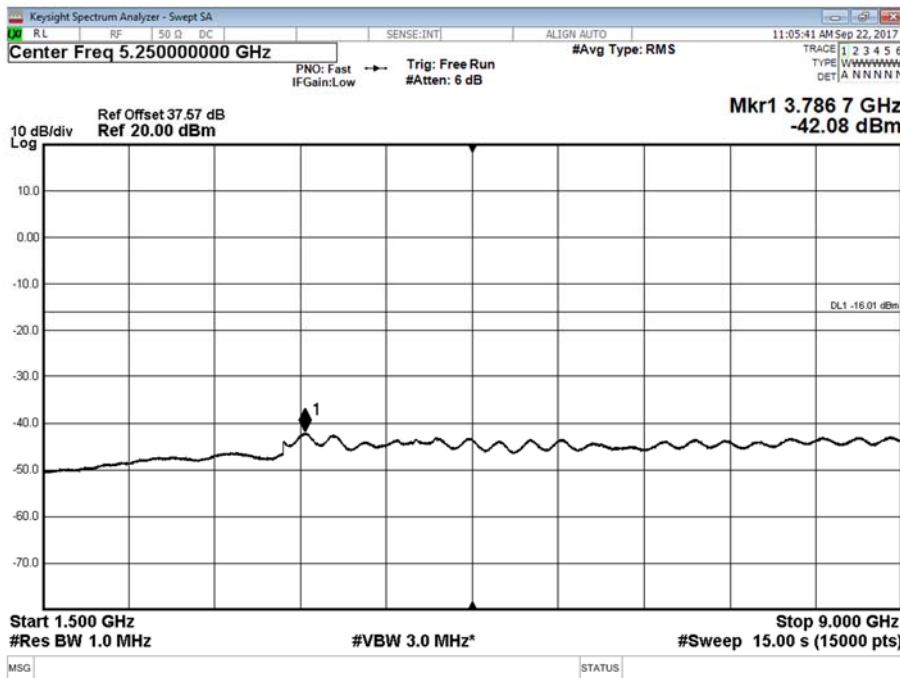
Configuration B

Maximum Output Power 46 dBm

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



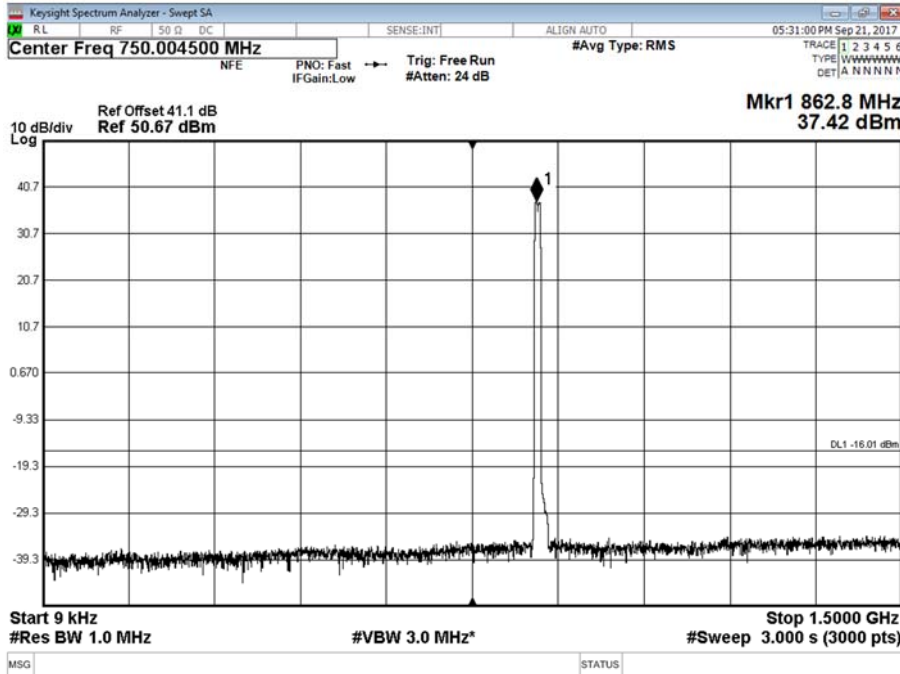
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



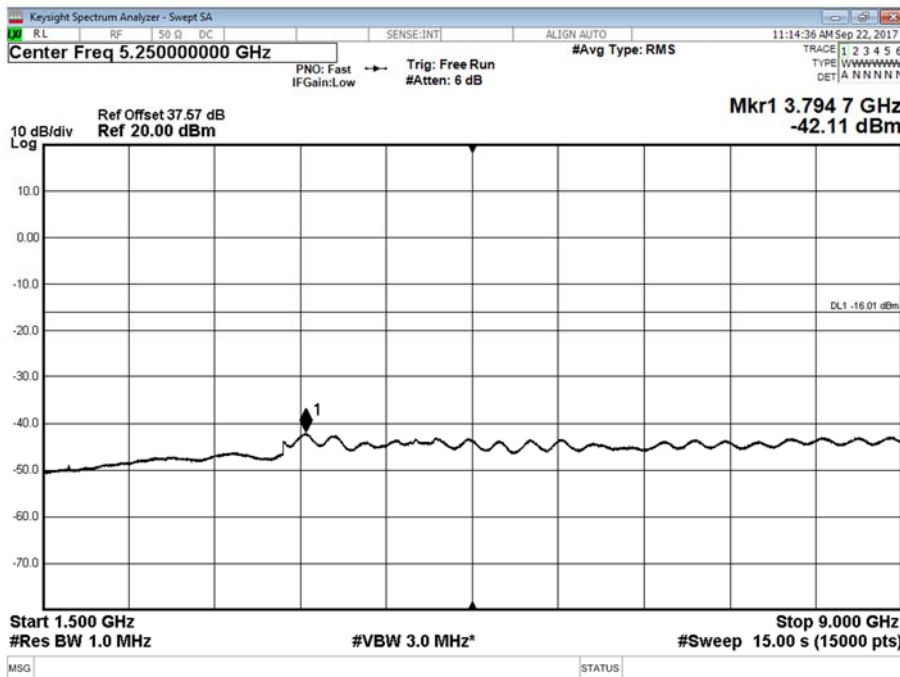


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



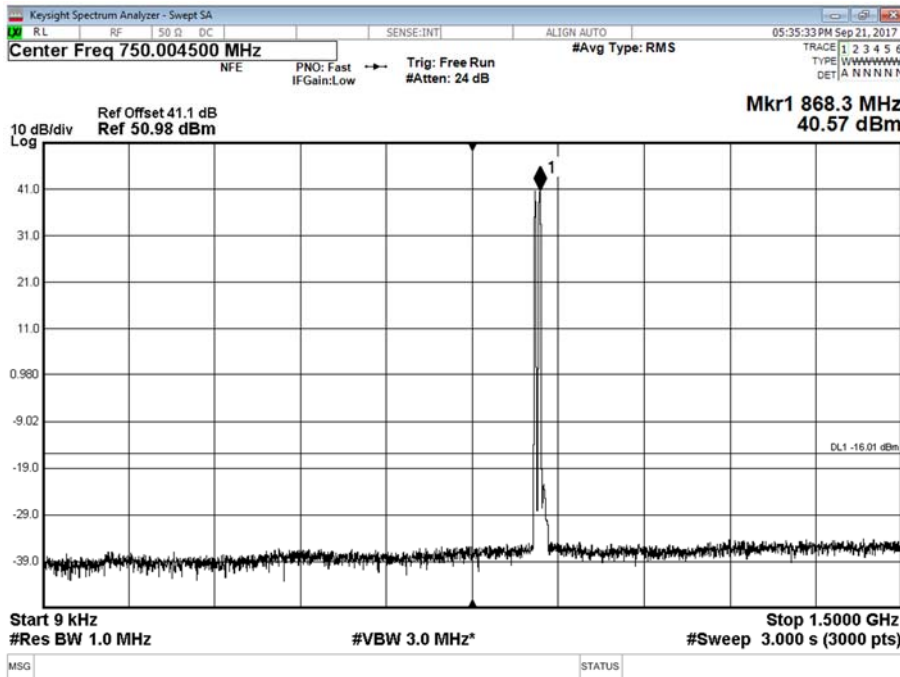


Product Service

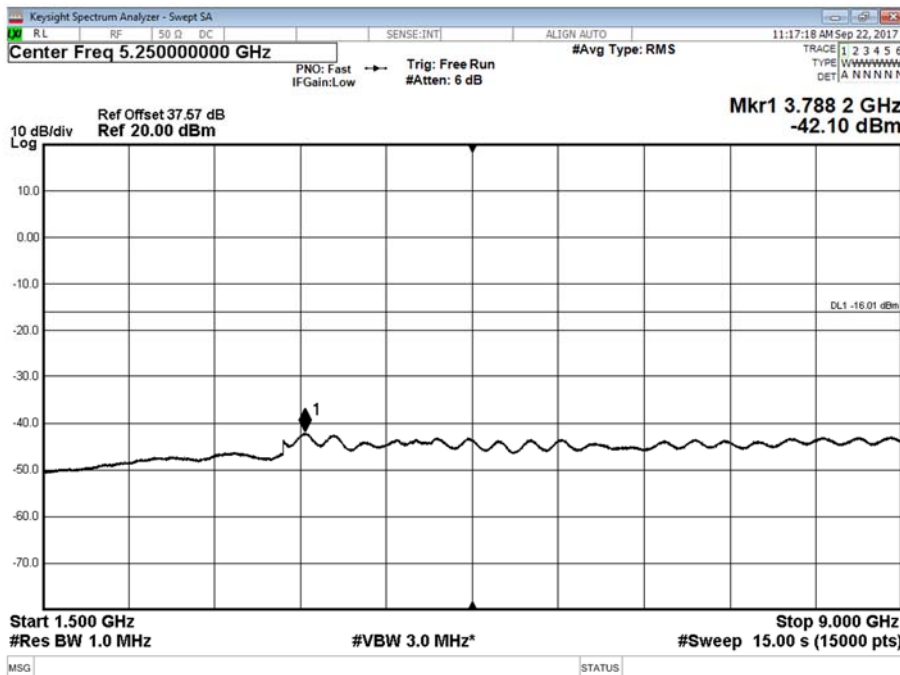
Configuration C

Maximum Output Power 46 dBm

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



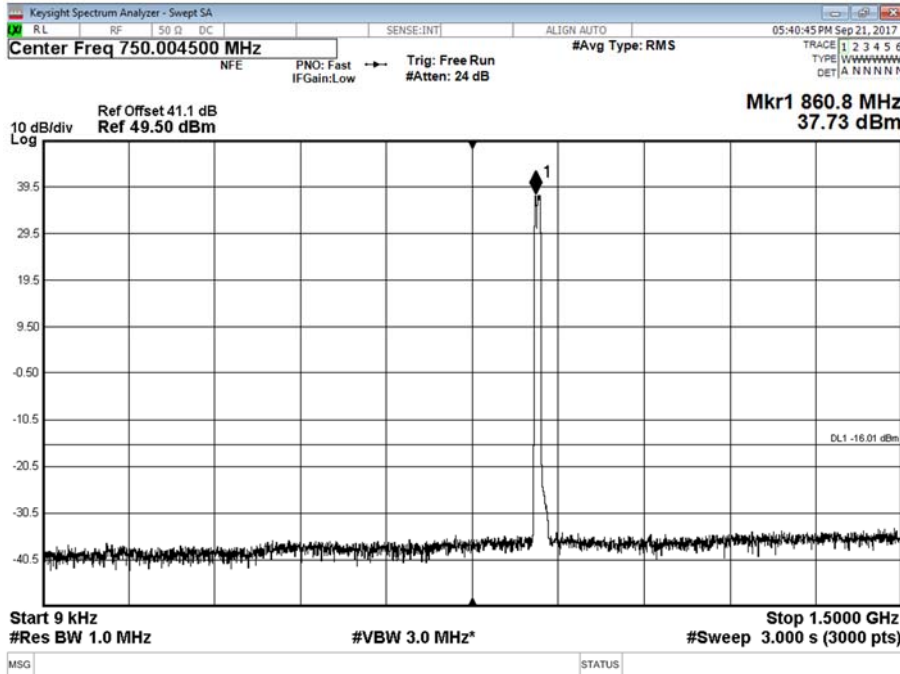
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 1.4 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



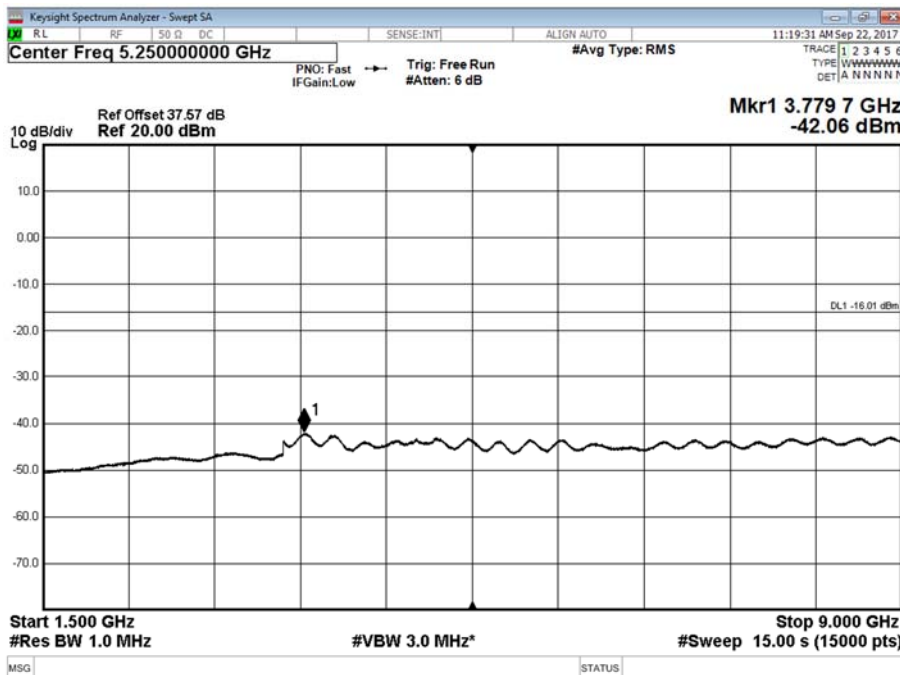


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position M - Band 1 - Range 0.009 to 1500 MHz



Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 3.0 MHz - Channel Position M - Band 2 - Range 1500 to 9000 MHz



Limit	-13dBm
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Product Service

2.3 FREQUENCY STABILITY

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 90, Clause 90.213

2.3.2 Date of Test and Modification State

13 September 2017 - Modification State 0

2.3.3 Test Equipment Used

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

2.3.4 Environmental Conditions

Ambient Temperature	24.2°C
Relative Humidity	50.3%

2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01 Clause 9.

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 5 MHz channel bandwidth with QPSK modulation and all Resource Blocks active.

At 20°C, the voltage was varied between 85 % and 115 % of the nominal declared voltage. At each extreme voltage, the maximum Frequency Error was measured and recorded.



Product Service

2.3.6 Test Results

Configuration A

Maximum Output Power 46 dBm

Temperature	Voltage	Frequency Error (Hz)
		Channel Position M
-30°C	-48.0 V DC	-2.99
-20°C	-48.0 V DC	3.24
-10°C	-48.0 V DC	-3.01
0°C	-48.0 V DC	-2.71
+10°C	-48.0 V DC	2.64
+20°C	-40.8 V DC	-2.71
+20°C	-48.0 V DC	2.56
+20°C	-55.2 V DC	-3.07
+30°C	-48.0 V DC	2.69
+40°C	-48.0 V DC	2.61
+50°C	-48.0 V DC	-2.48

Limit	± 1.5 ppm or ± 1.322 kHz
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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
Maximum Peak Output Power and Peak to Average Ratio - Conducted					
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	15-Sep-2017
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	29-Sep-2017
Spectrum Analyser	Keysight	N9030A	4409	12	09-Aug-2018
40dB Attenuator		TSG150R-4-450N11	15093066	-	O/P MON
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Aug-2018
Calibration Kit	Hewlett Packard	85054A	1309	12	29-Mar-2018
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Precision 'N' Termination	Maury	2510A6	0487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	0488	12	21-Oct-2017
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
Occupied Bandwidth					
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	15-Sep-2017
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	29-Sep-2017
Spectrum Analyser	Keysight	N9030A	4409	12	09-Aug-2018
40dB Attenuator		TSG150R-4-450N11	15093066	-	O/P MON
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Aug-2018
Calibration Kit	Hewlett Packard	85054A	1309		29-Mar-2018
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Precision 'N' Termination	Maury	2510A6	0487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	0488	12	21-Oct-2017
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
Band Edge					
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	15-Sep-2017
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	29-Sep-2017



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Spectrum Analyser	Keysight	N9030A	4409	12	09-Aug-2018
40dB Attenuator		TSG150R-4-450N11	15093066	-	O/P MON
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Aug-2018
Calibration Kit	Hewlett Packard	85054A	1309		29-Mar-2018
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Precision 'N' Termination	Maury	2510A6	0487	12	21-Oct-2017
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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
Transmitter Spurious Emissions					
Network Analyzer	Rohde & Schwarz	ZVA40	3548	12	15-Sep-2017
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	29-Sep-2017
Spectrum Analyser	Keysight	N9030A	4409	12	09-Aug-2018
40dB Attenuator		TSG150R-4-450N11	15093066	-	O/P MON
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Aug-2018
Calibration Kit	Hewlett Packard	85054A	1309		29-Mar-2018
Analyser	Hewlett Packard	8753D	1149	12	05-Sep-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	23-May-2018
Precision 'N' Termination	Maury	2510A6	0487	12	21-Oct-2017
Precision 'N' Termination (Load)	Maury	2510B6	0488	12	21-Oct-2017
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
Frequency Stability					
Network Analyzer	Rohde & Schwarz	ZVA40	3548		
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	15-Sep-2017
Spectrum Analyser	Keysight	N9030A	4409	12	29-Sep-2017
40dB Attenuator		TSG150R-4-450N11	15093066	12	09-Aug-2018
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	-	O/P MON
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Dec-2017
Calibration Kit	Hewlett Packard	85054A	1309	12	20-Aug-2018
Analyser	Hewlett Packard	8753D	1149		29-Mar-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	05-Sep-2018



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Precision 'N' Termination	Maury	2510A6	0487	12	23-May-2018
Precision 'N' Termination (Load)	Maury	2510B6	0488	12	21-Oct-2017
Network Analyser	Hewlett Packard	8510A	1151	12	21-Oct-2017
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	12-May-2018
Receiver Spurious Emissions					
Network Analyzer	Rohde & Schwarz	ZVA40	3548		
Network Analyzer	Rohde & Schwarz	ZVA40	4368	12	15-Sep-2017
Power Meter	Agilent	N1911A	3981	12	15-Sep-2017
Spectrum Analyser	Keysight	N9030A	4409	12	29-Sep-2017
40dB Attenuator		TSG150R-4-450N11	15093066	12	09-Aug-2018
40dB Attenuator		DTS100G-40dB-18G		-	O/P MON
30dB Attenuator	Weinschel	CH9182	4863	12	03/05/2018
DC Power Supply	Farnell	H 60/50	1095	-	O/P MON
Digital Multi-meter	FLUKE	79 Series III	498	-	O/P MON
Thermo-hygrometer	AZ Instruments	8705	3220	12	20-Dec-2017
Calibration Kit	Hewlett Packard	85054A	1309	12	20-Aug-2018
Analyser	Hewlett Packard	8753D	1149		29-Mar-2018
Calibration Kit	Hewlett Packard	85032B	1282	12	05-Sep-2018
Precision 'N' Termination	Maury	2510A6	0487	12	23-May-2018
Precision 'N' Termination (Load)	Maury	2510B6	0488	12	21-Oct-2017
Network Analyser	Hewlett Packard	8510A	1151	12	21-Oct-2017
S' Parameter Test Box	Hewlett Packard	8514A	1152	12	12-May-2018
Signal Generator	Hewlett Packard	8340A	1159	12	12-May-2018
Radiated Spurious Emissions					
Antenna (Bilog)	Schaffner	CBL6143	287	24	18-Apr-2018
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Compliance 5 Emissions	Schaffner	C5e Software V.5.00.00	3275	-	N/A - Software
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	mature GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	mature GmbH	NCD	3917	-	TU
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	17-Feb-2018

N/A – Not Applicable

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	± 0.1 dB
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.3 dB
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz
Occupied Bandwidth	Up to 20 MHz Bandwidth	± 1.1 Hz
Band Edge	30 MHz to 20 GHz Amplitude	± 2.3 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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Product Service

ANNEX A

MODULE LIST



Product Service

Configurations A, B & C			
Product	Product No	R-State	Serial No
Radio 2217 B26D	KRC 161 592/1	R1E	SD825975510
Software Version:	CXP 901 7316/2	Revision:	R67GK