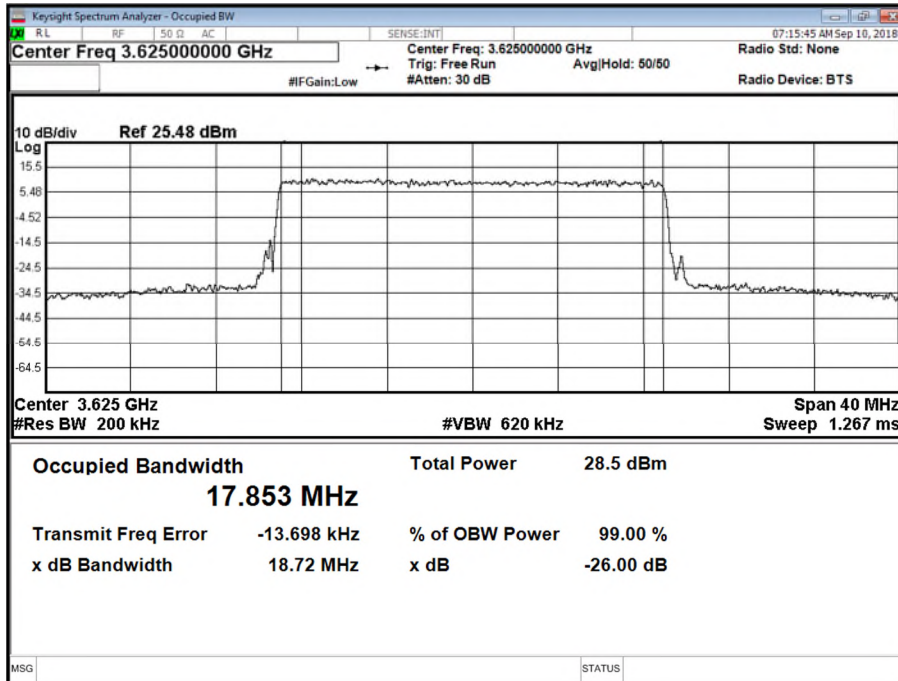


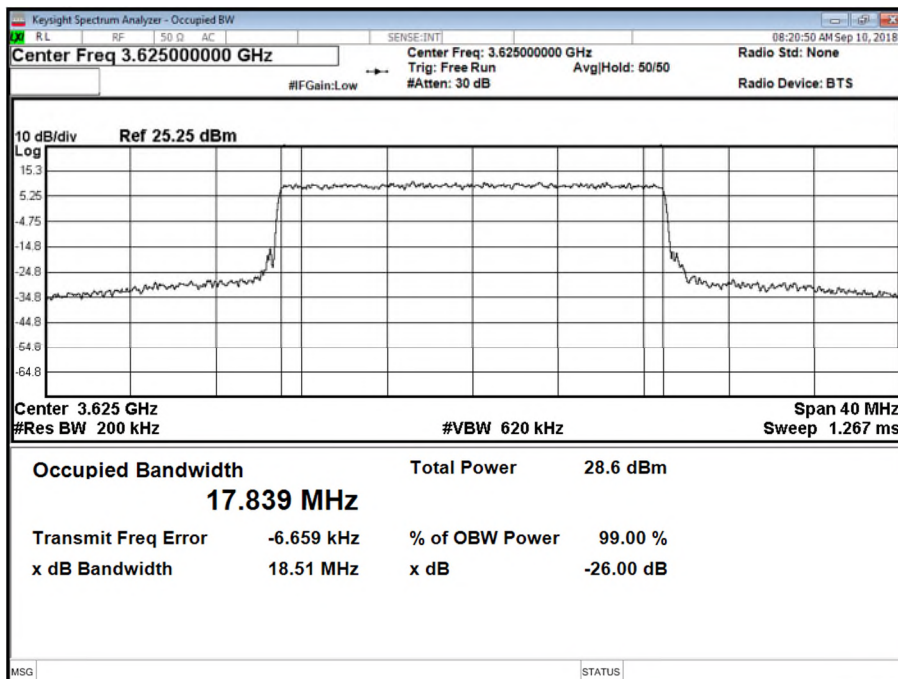


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M



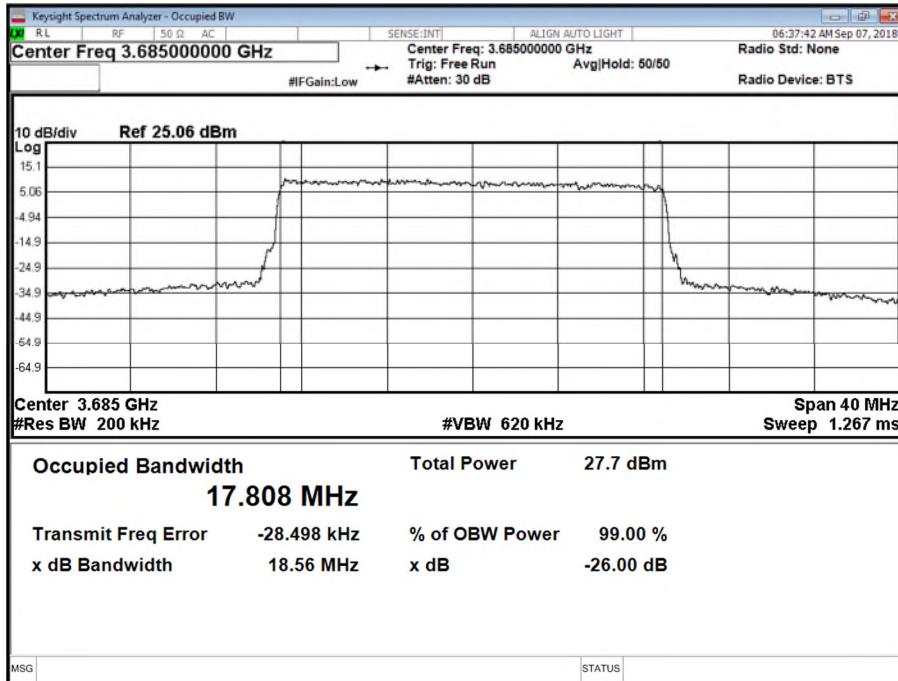
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M



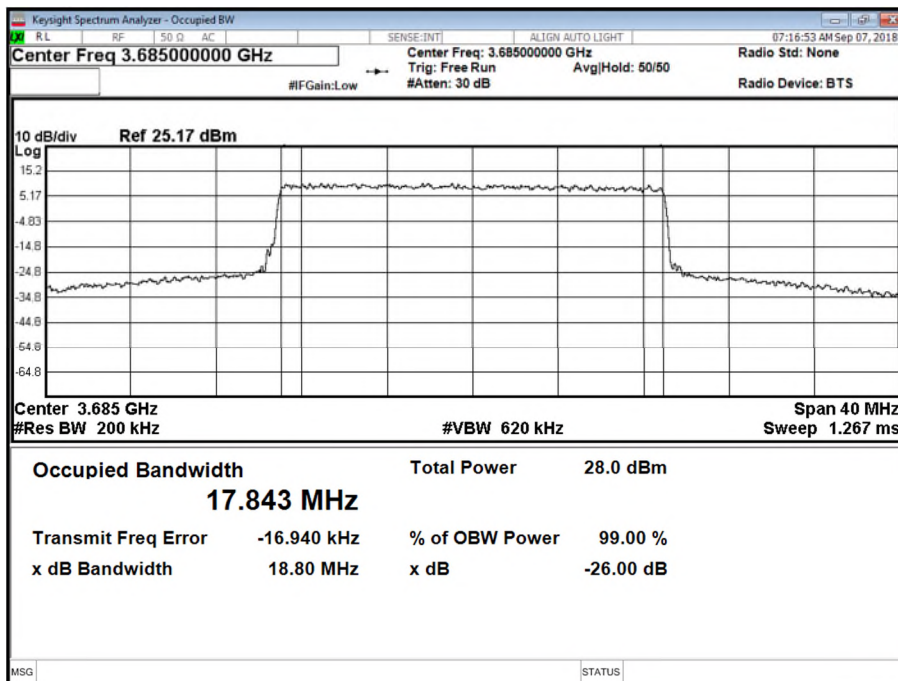


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



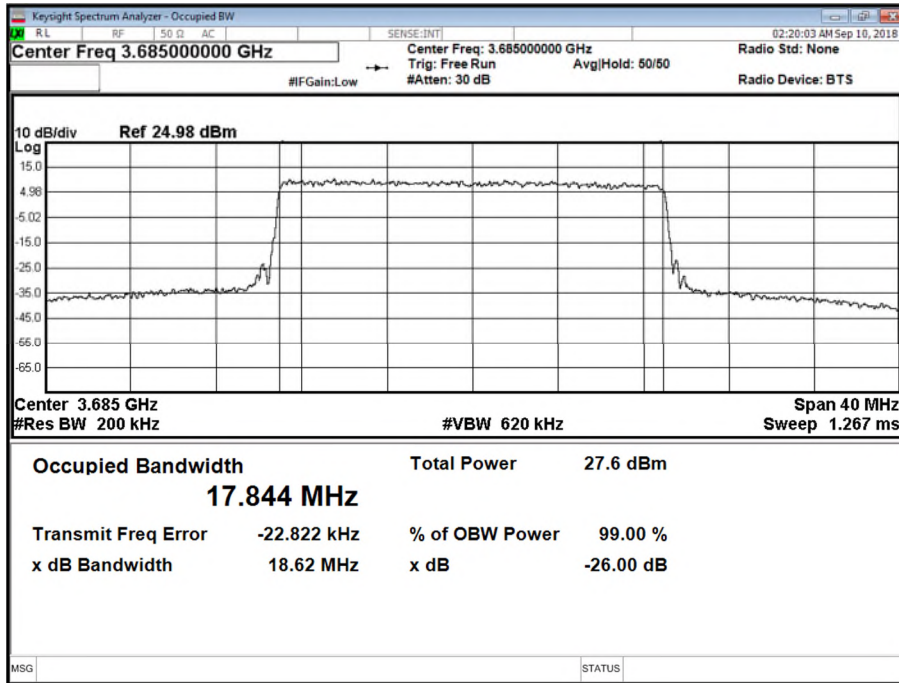
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



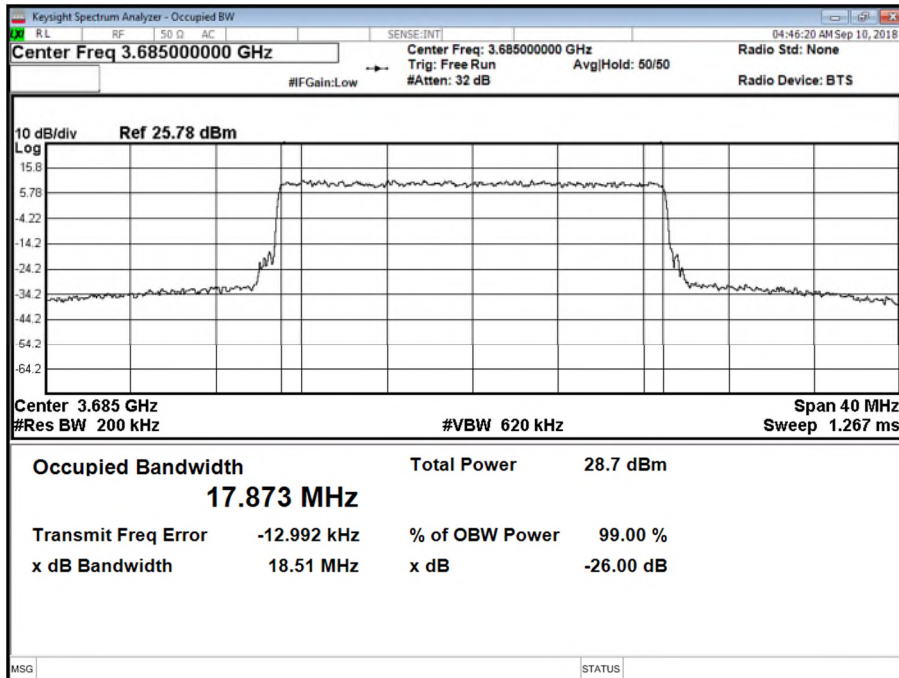


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



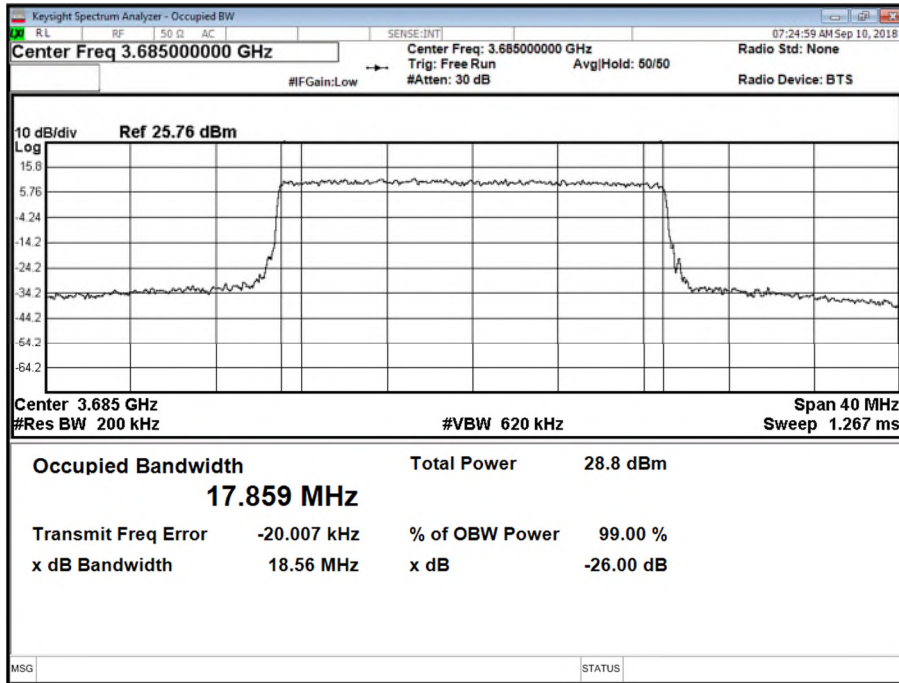
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



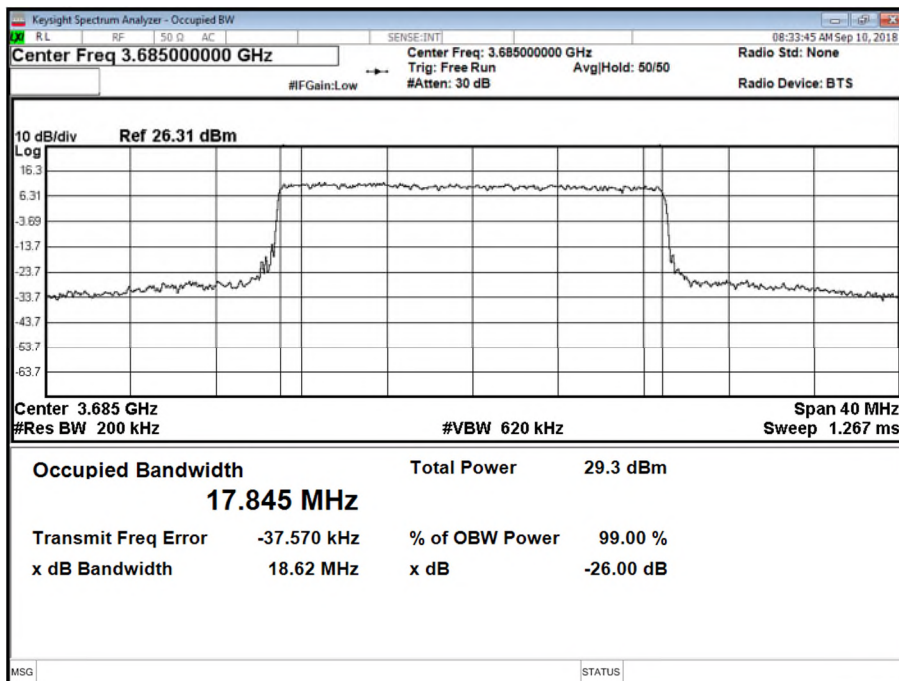


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T





Product Service

2.3 BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 96, Clause 96.41 (e)(3)

2.3.2 Date of Test and Modification State

August 22 and September 20 - 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	23°C
Relative Humidity	35%

2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01. The EUT was connected to a Spectrum Analyser via an attenuator and switching box. The path loss between the EUT and the Spectrum Analyser was measured using a Signal Generator. The measured path loss was entered as a Reference Level Offset in the Spectrum Analyser. The Spectrum Analyser RBW was adjusted to be at least 1% of the measured 26dB Bandwidth. Using an RMS detector, the frequency spectrum up to 1MHz away from the Band Edge was investigated. The B48 EUT has an effective 2 port MIMO configuration. Testing was performed on these ports with a test limit of $43+10\log(P) - 10\log(2) = -16$ dBm.



Product Service

2.3.6 Test Results

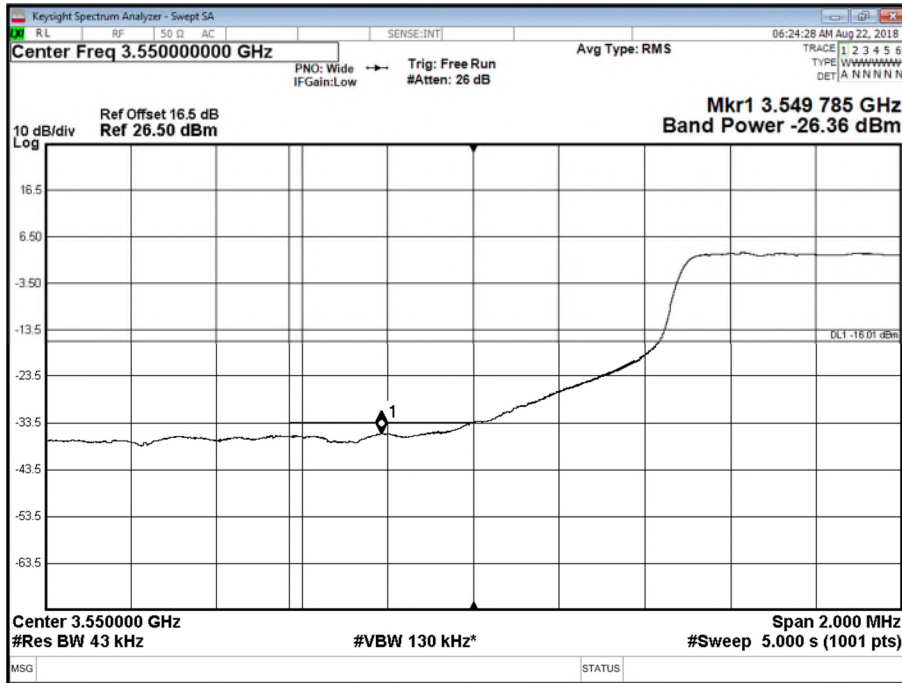
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	QPSK	10.0 MHz	3,555.0	3,695.0
B	QPSK	10.0 MHz	3,555.0	3,695.0
C	QPSK	10.0 MHz	3,555.0	3,695.0
D	QPSK	10.0 MHz	3,555.0	3,695.0
A	QPSK	20.0 MHz	3,560.0	3,690.0
B	QPSK	20.0 MHz	3,560.0	3,690.0
C	QPSK	20.0 MHz	3,560.0	3,690.0
D	QPSK	20.0 MHz	3,560.0	3,690.0

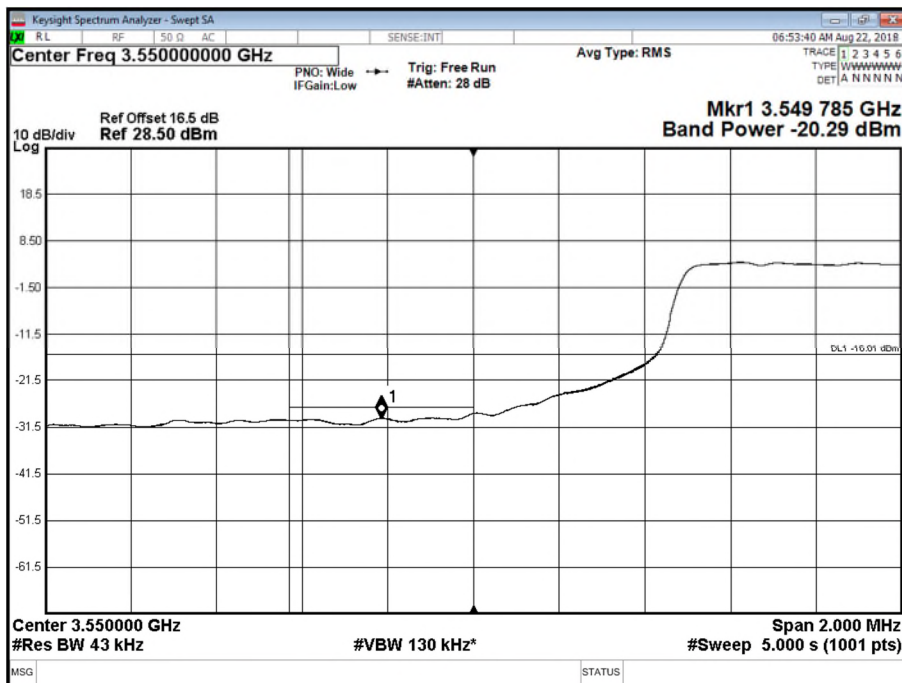


Product Service

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



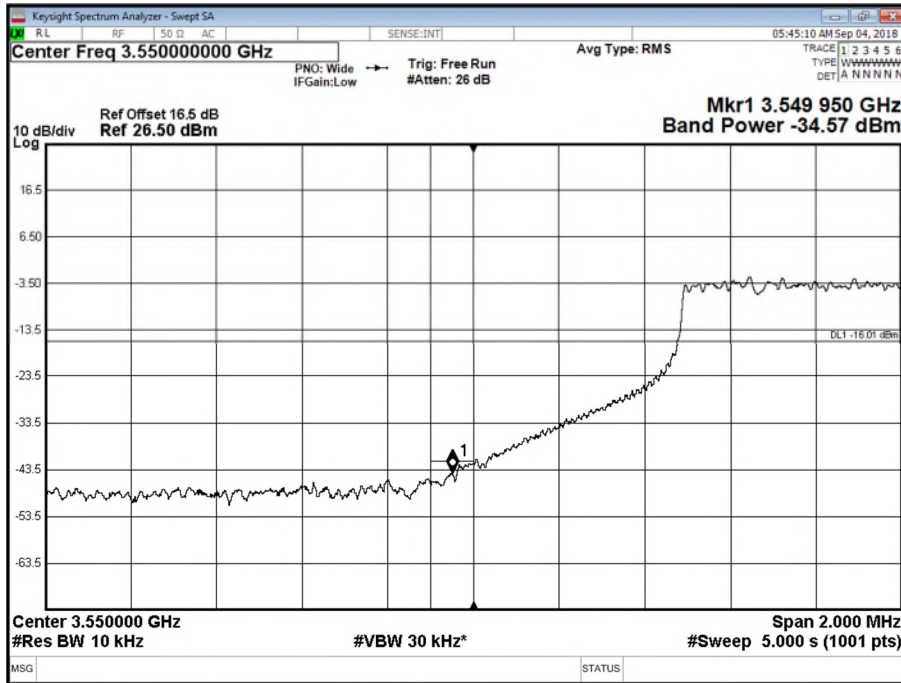
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



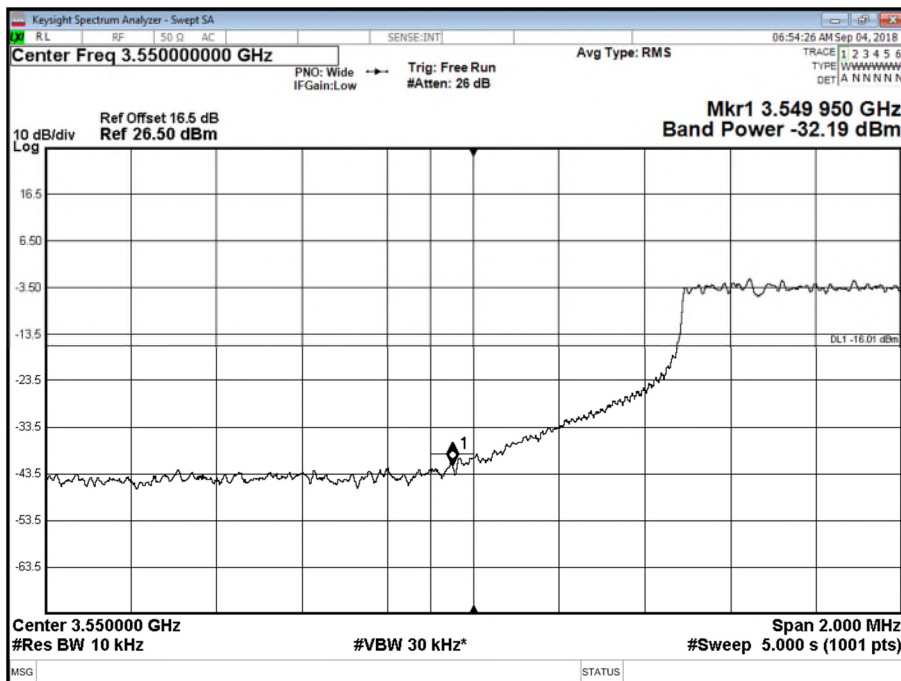


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



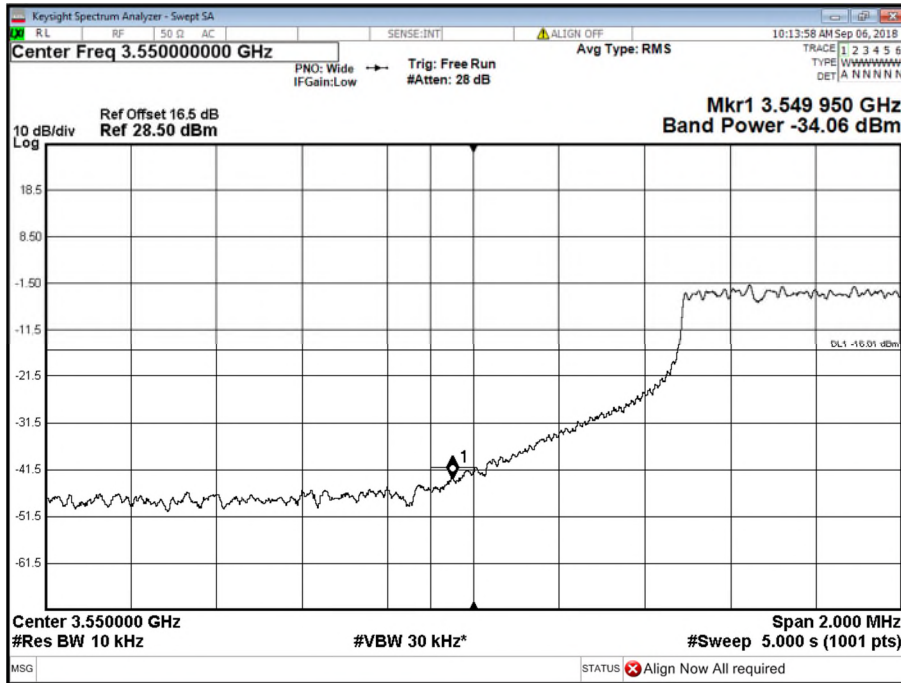
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



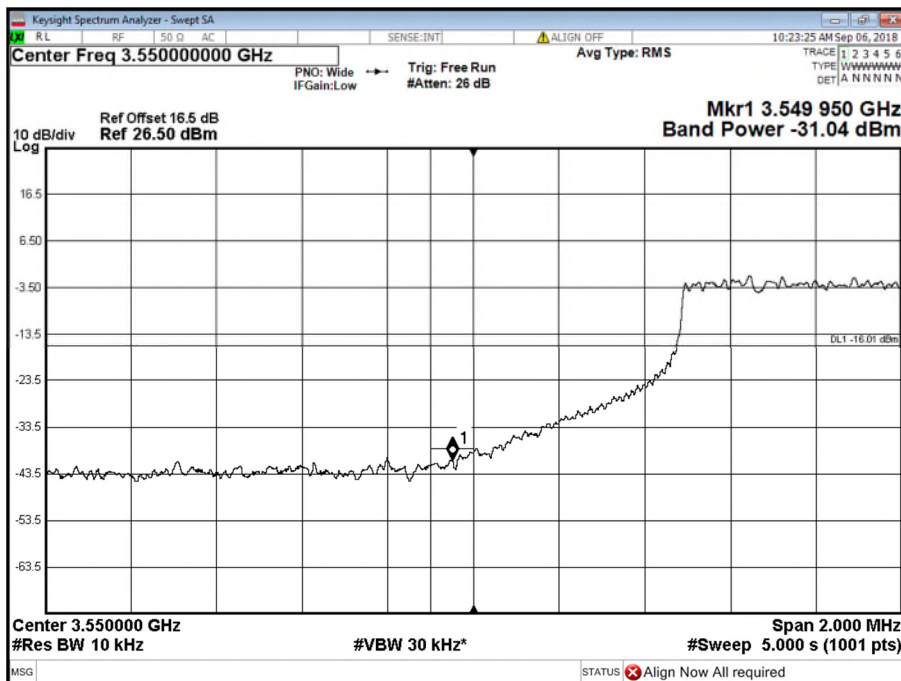


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



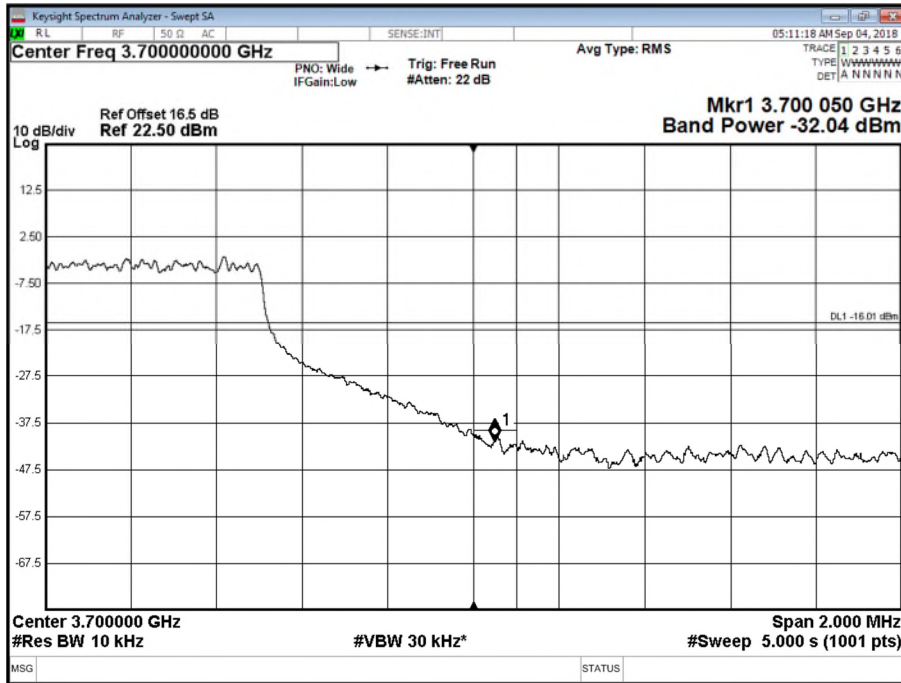
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B



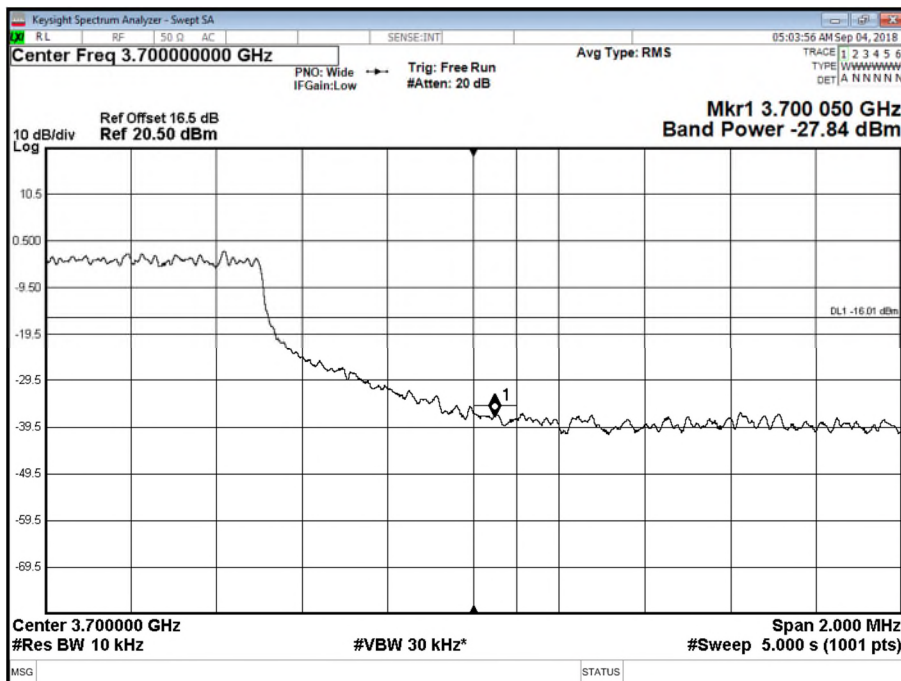


Product Service

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



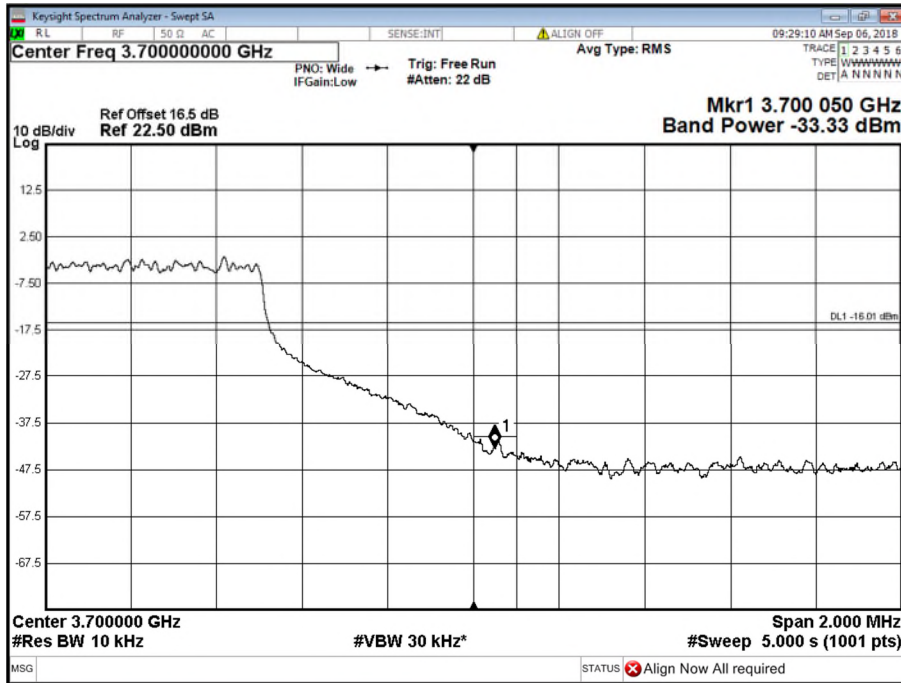
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



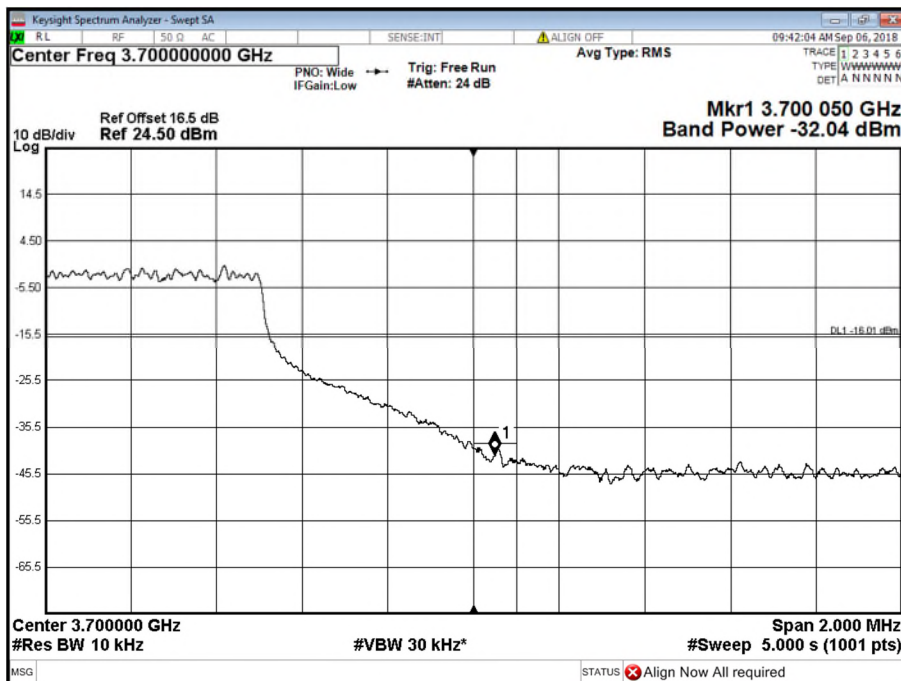


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



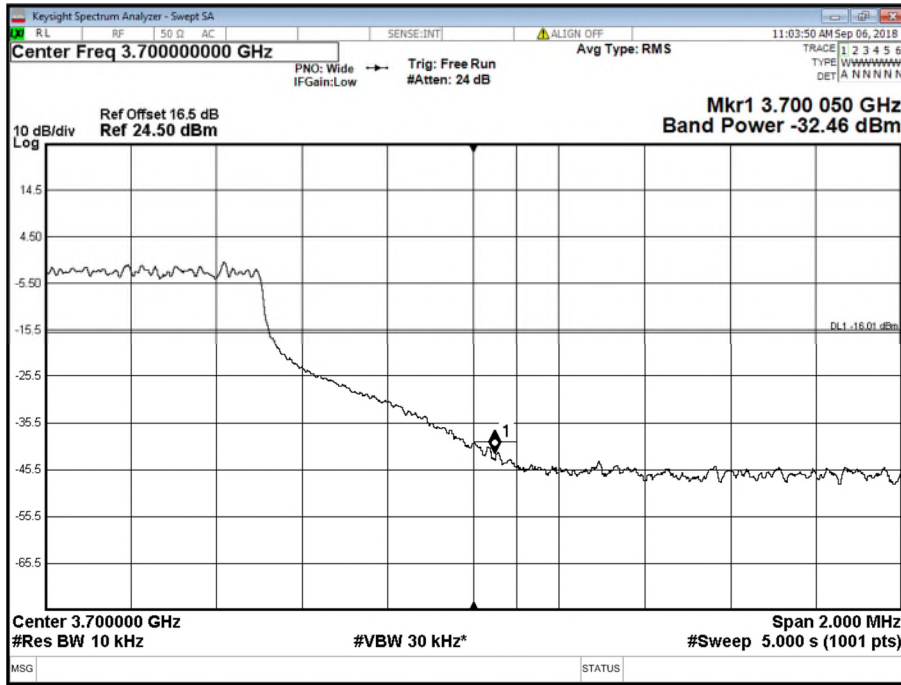
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



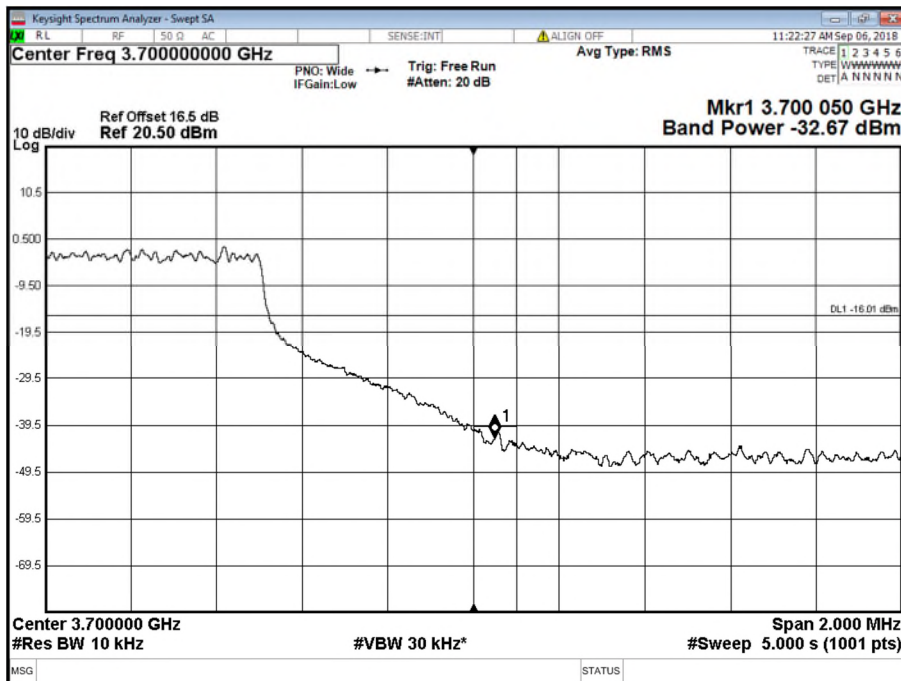


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



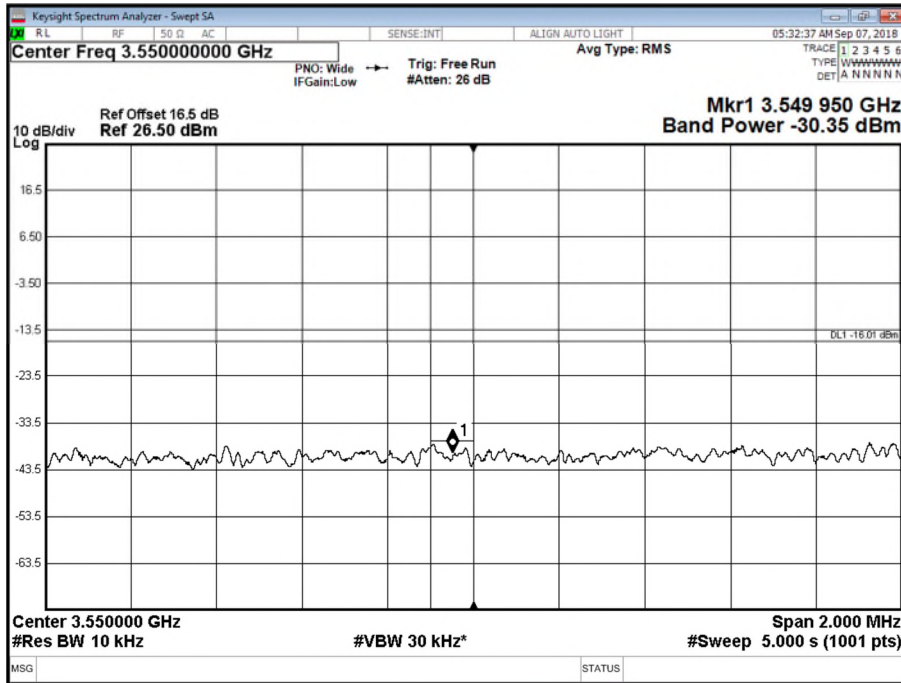
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T



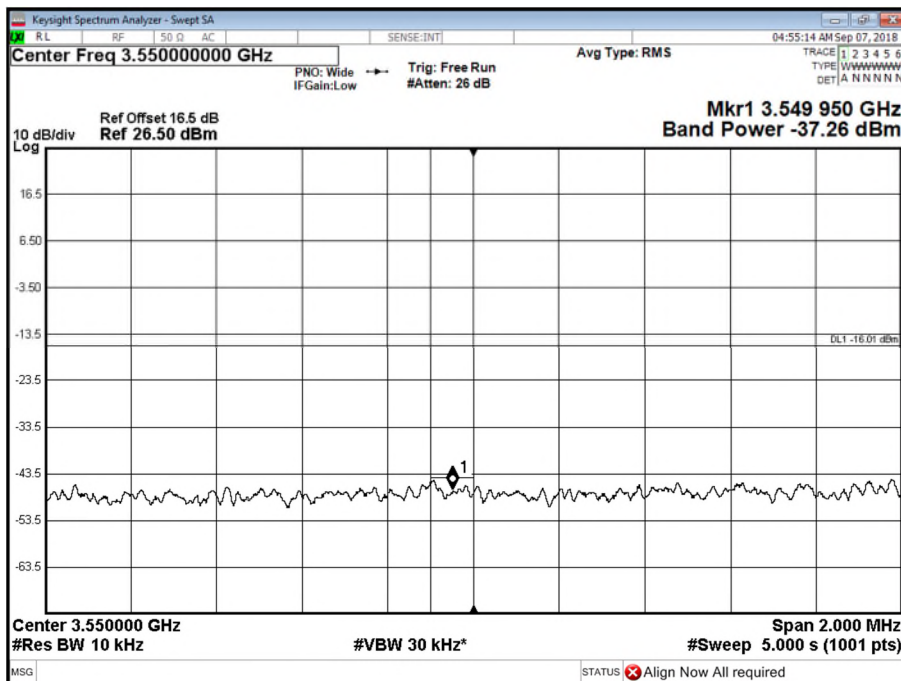


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



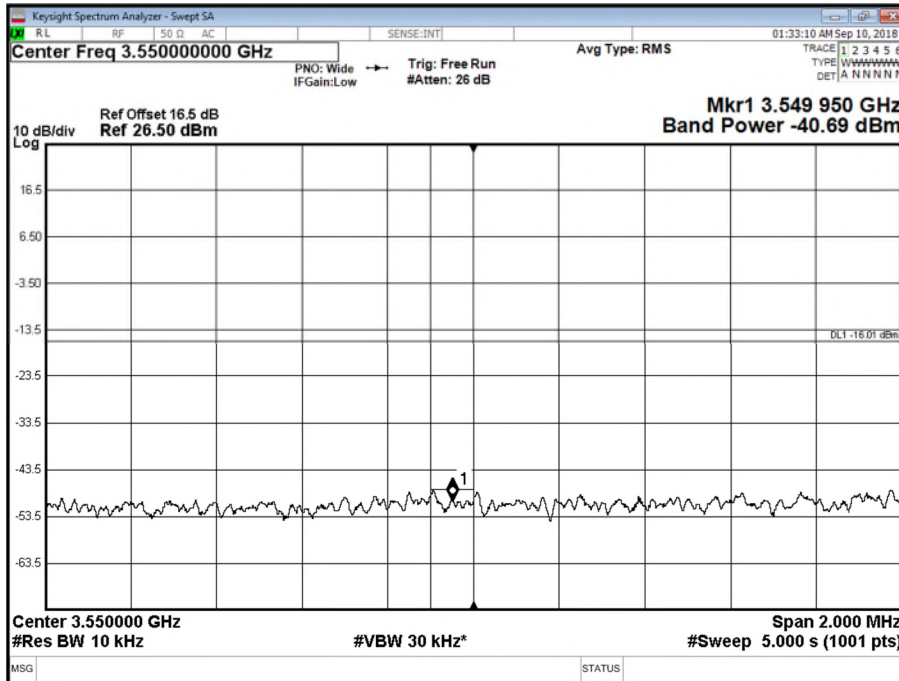
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



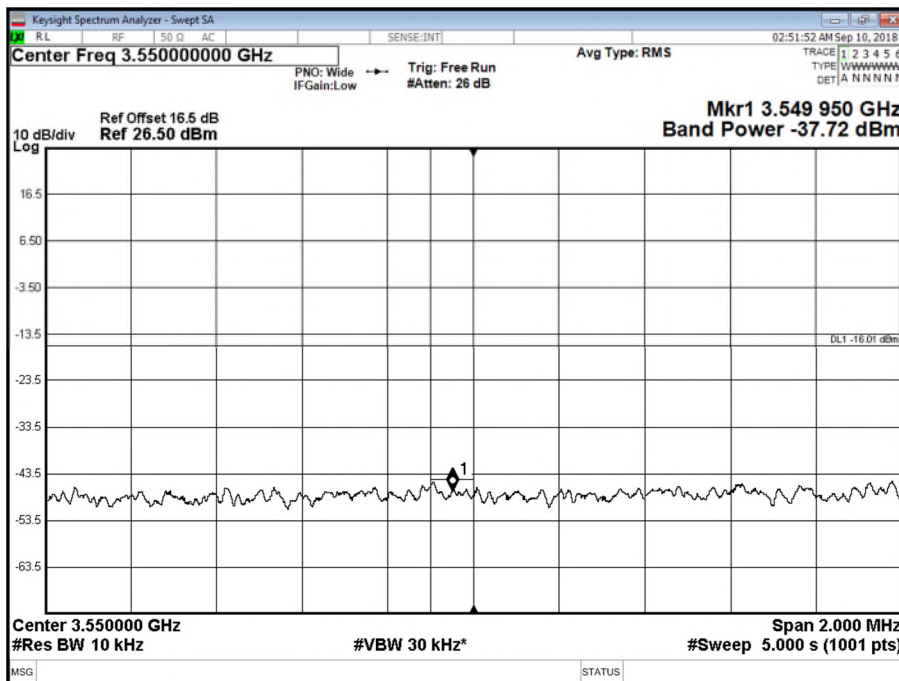


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



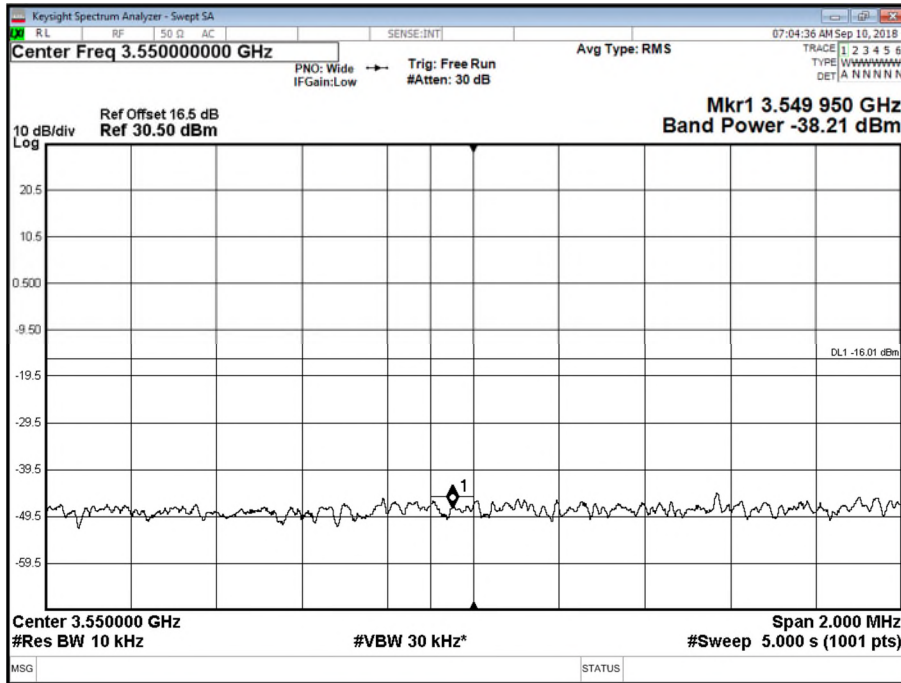
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



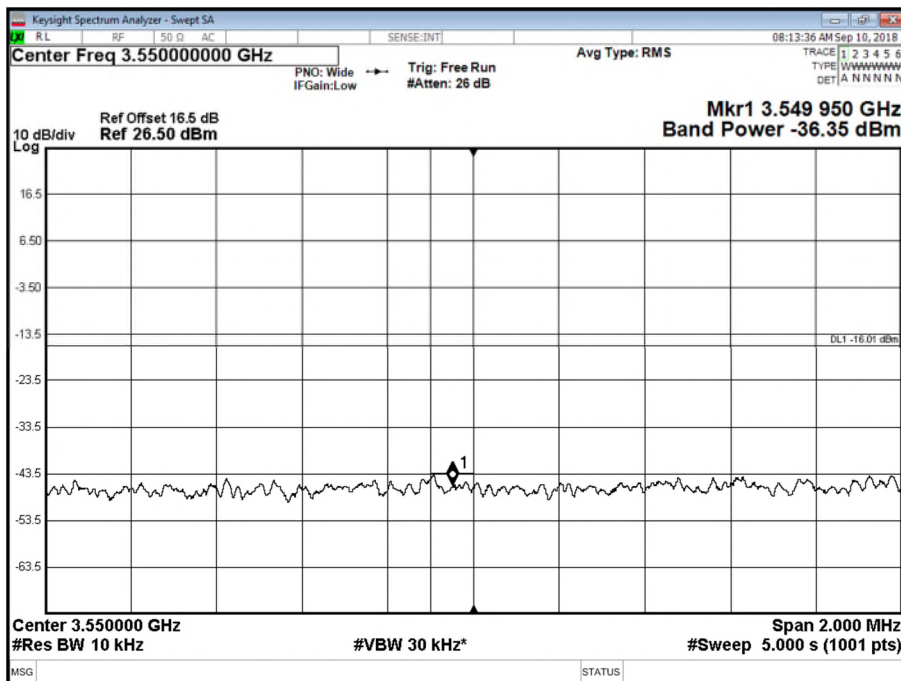


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



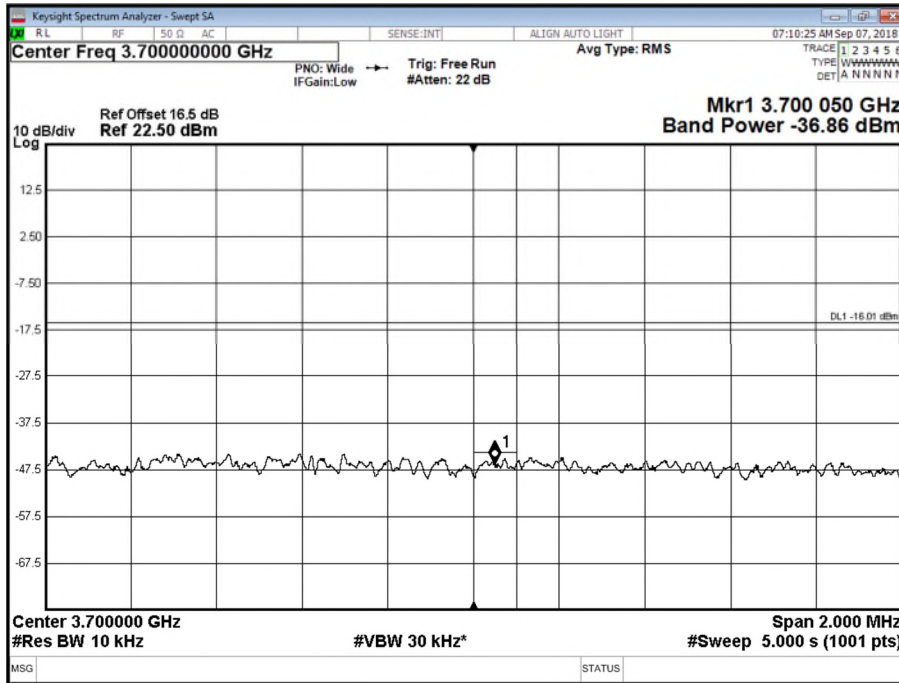
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B



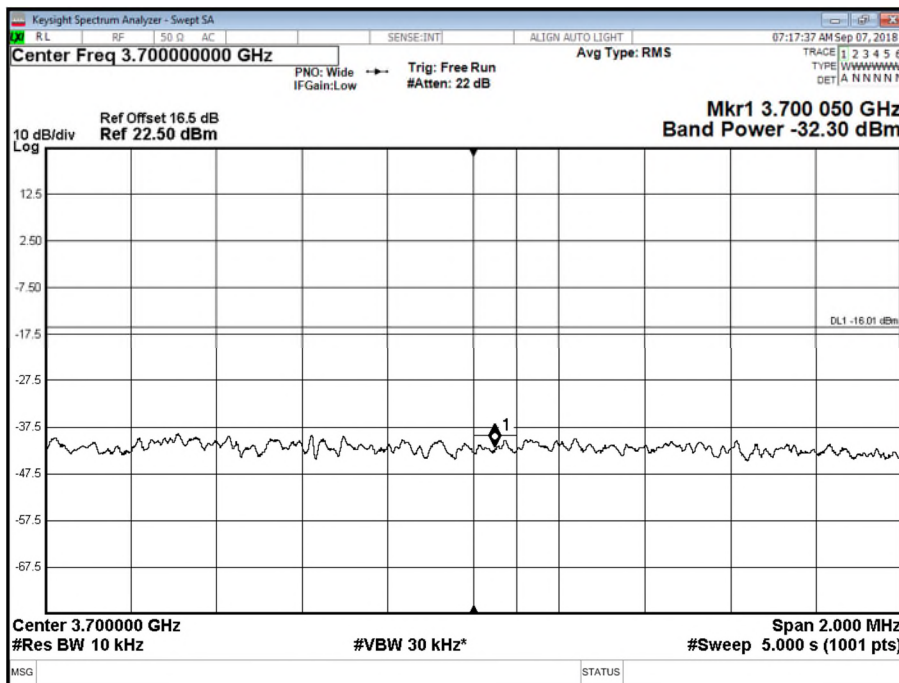


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



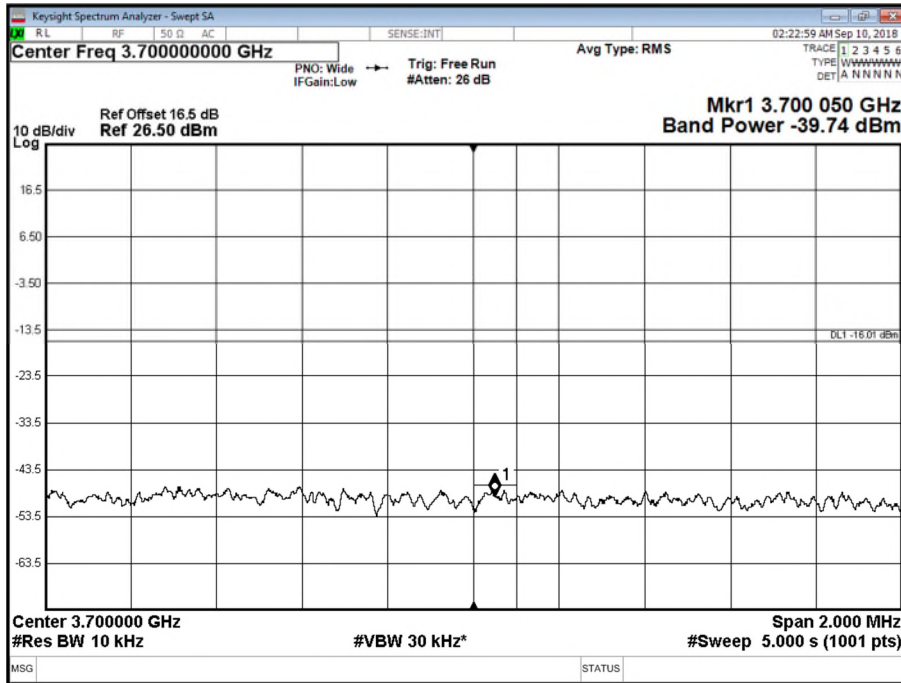
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



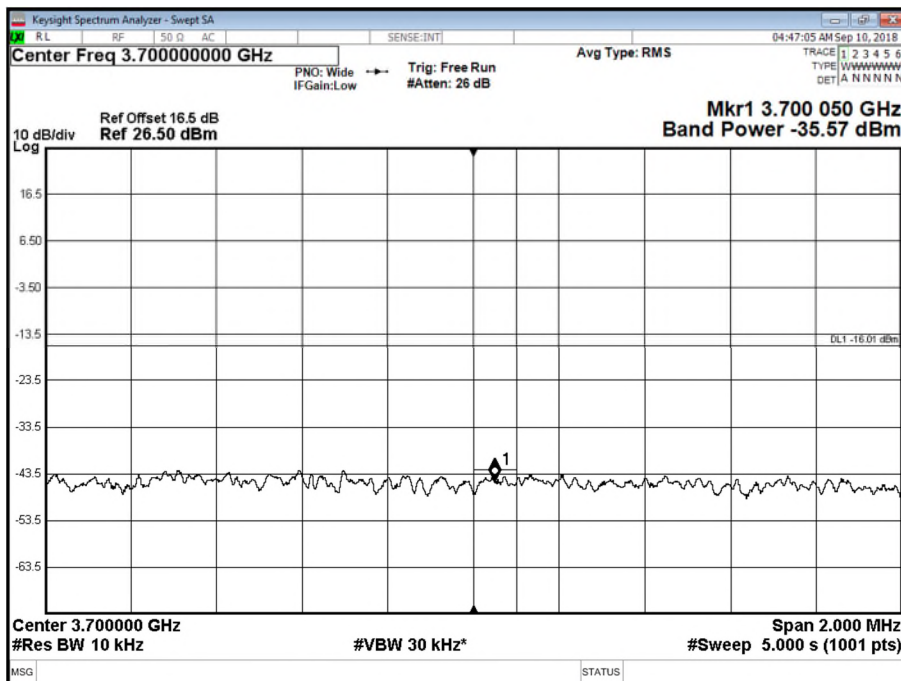


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



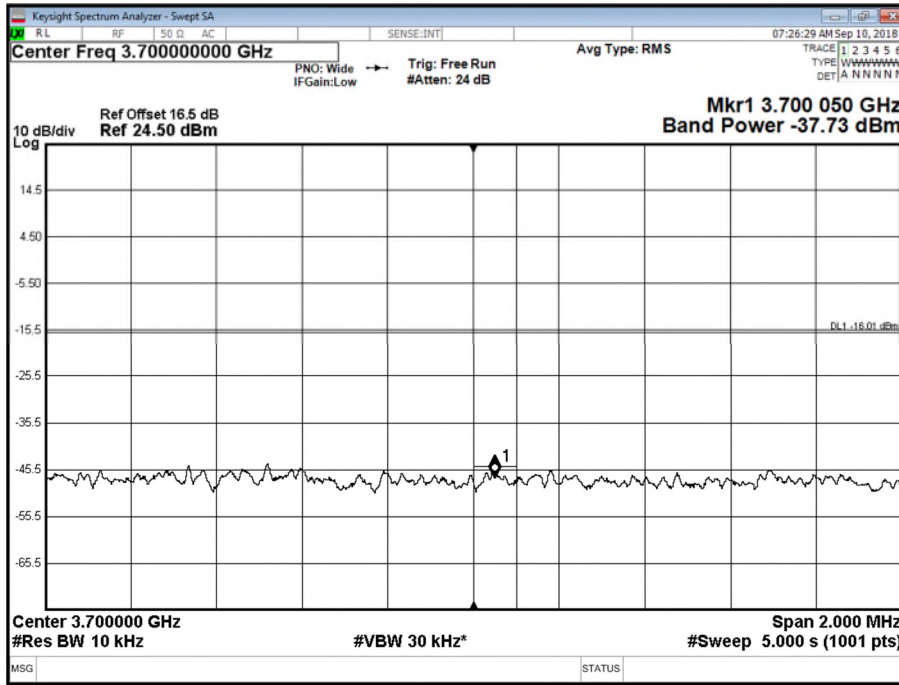
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



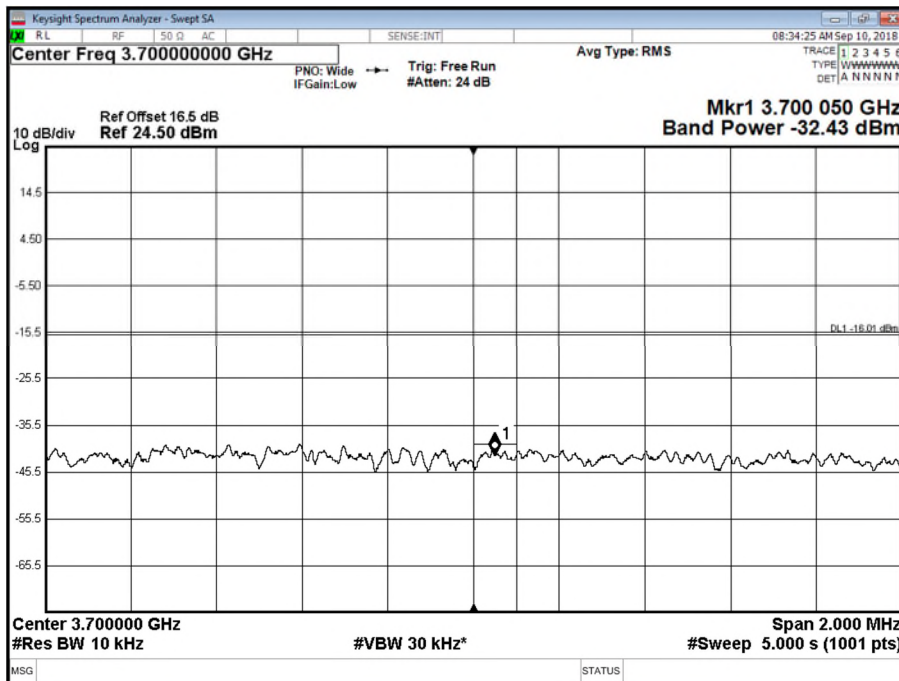


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T



Limit	-16 dBm
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Product Service

2.4 TRANSMITTER SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 96, Clause 96.41 (e)(1)

2.4.2 Date of Test and Modification State

August 22 and September 20, 2018 - Modification State 0

2.4.3 Test Equipment Used

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

2.4.4 Environmental Conditions

Ambient Temperature	23°C
Relative Humidity	35%

2.4.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01. The EUT was connected to a Spectrum Analyser via an attenuator and switching box. Prior to testing, a Signal Generator 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 test limits used were calculated on a worst case basis accounting for an effective 2 port MIMO configuration.

Testing was performed on this port with a test limit of $-40 \text{ dBm/MHz} - 10\log(2) = -43 \text{ dBm}$ (for emissions $< 3530 \text{ MHz}$ and $> 3720 \text{ MHz}$).

Testing was performed on this port with a test limit of $-25 \text{ dBm/MHz} - 10\log(2) = -28 \text{ dBm}$ (for emissions within 10 MHz of the carrier).

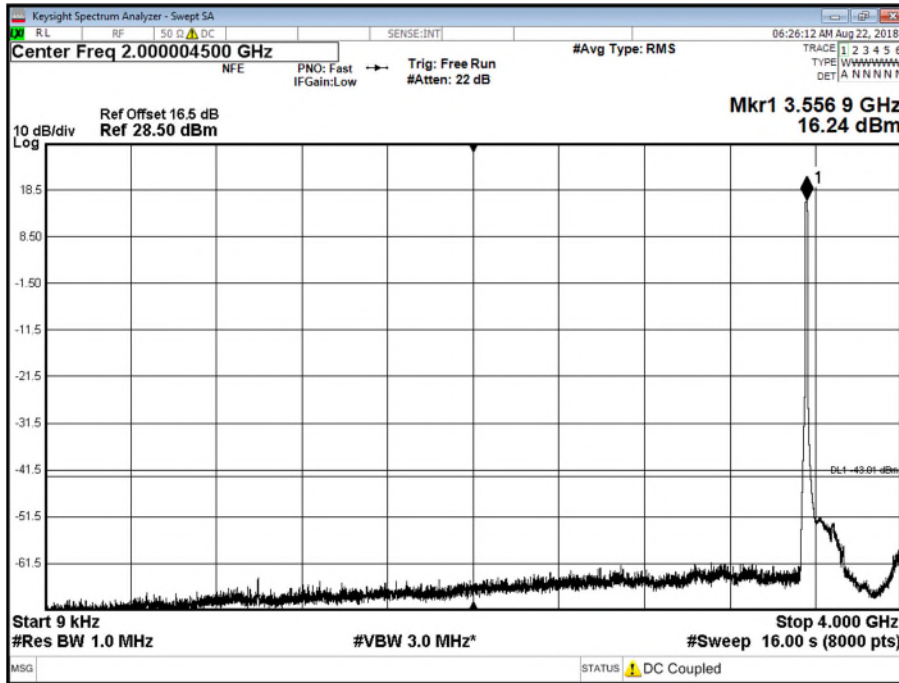
2.4.6 Test Results

Maximum Output Power per 10 MHz, 27 dBm EIRP (47 dBm EIRP – 17 dBi – 3 dB MIMO).

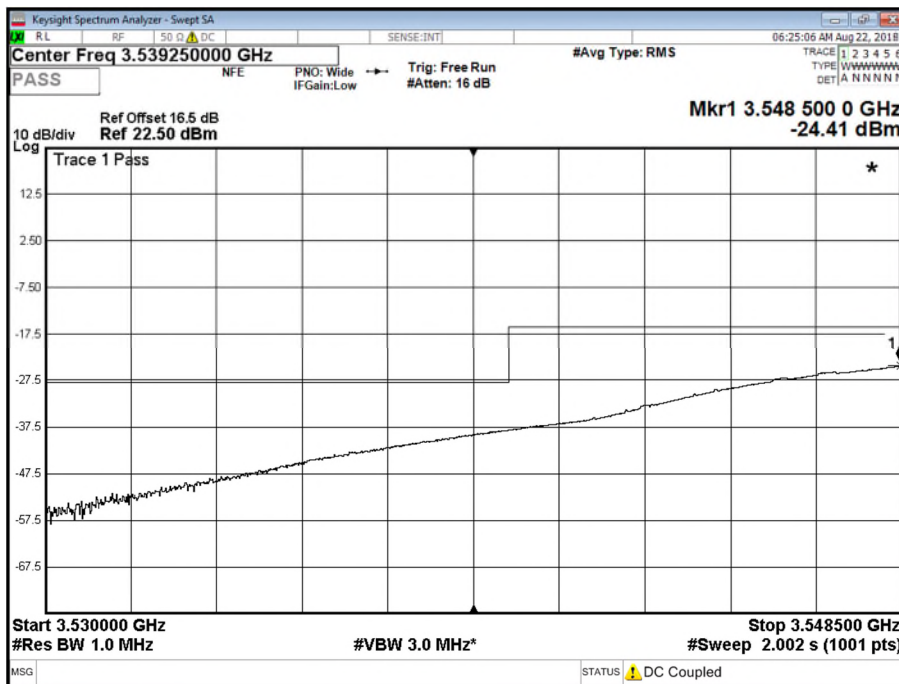


Product Service

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



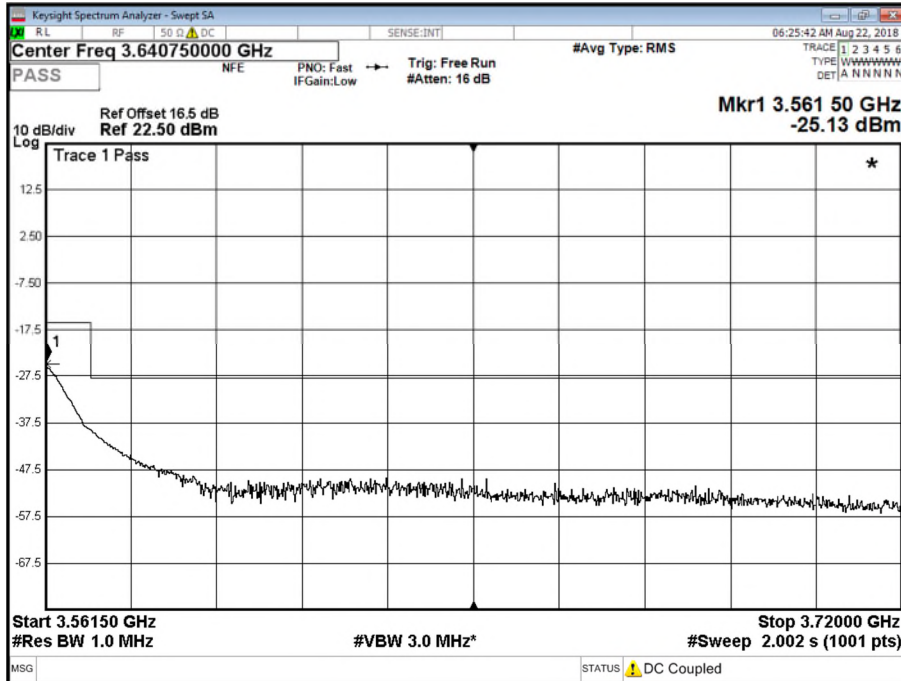
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1



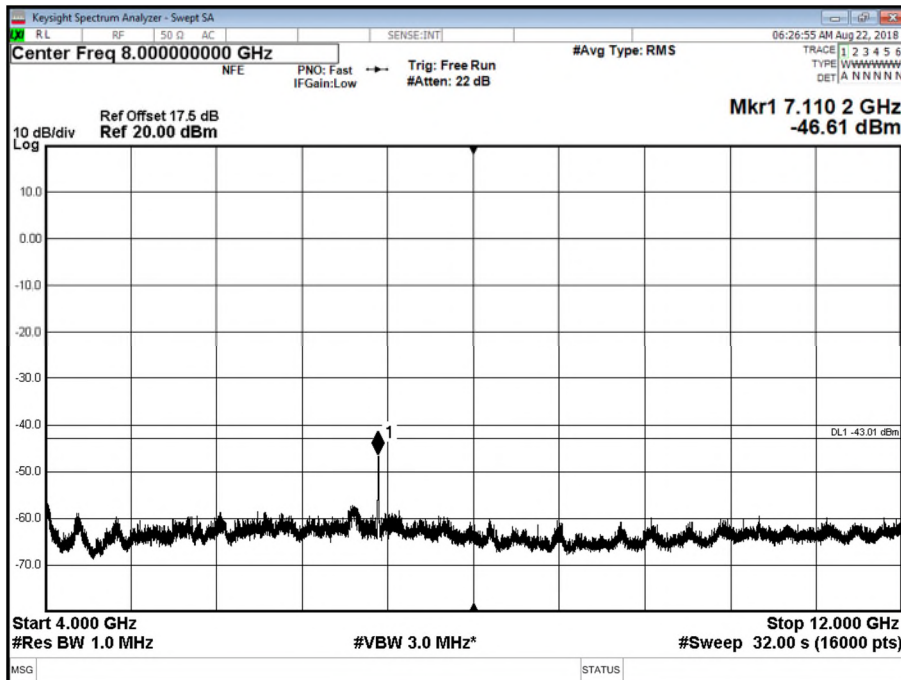


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



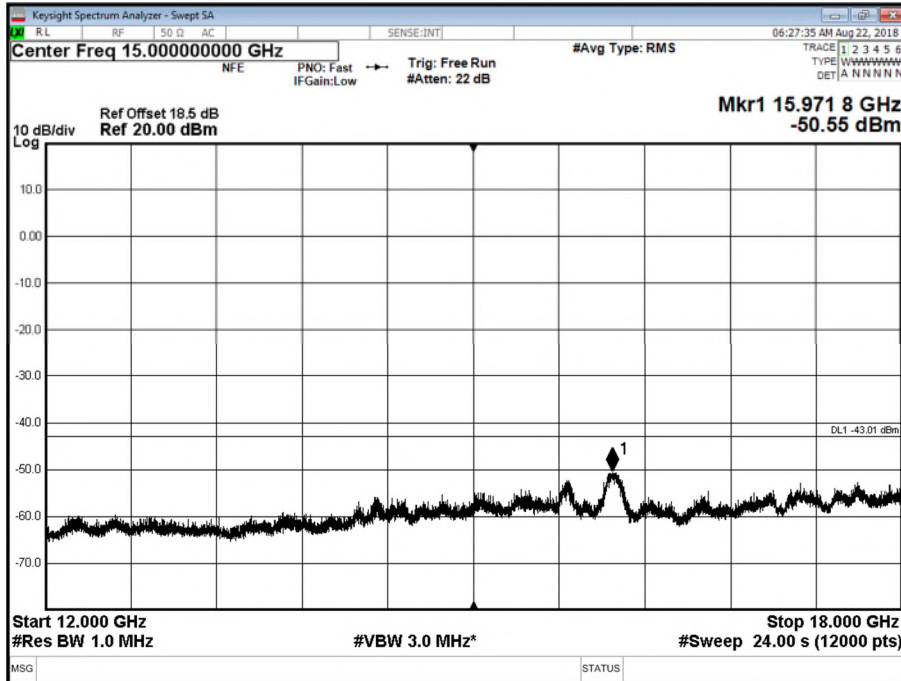
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz





Product Service

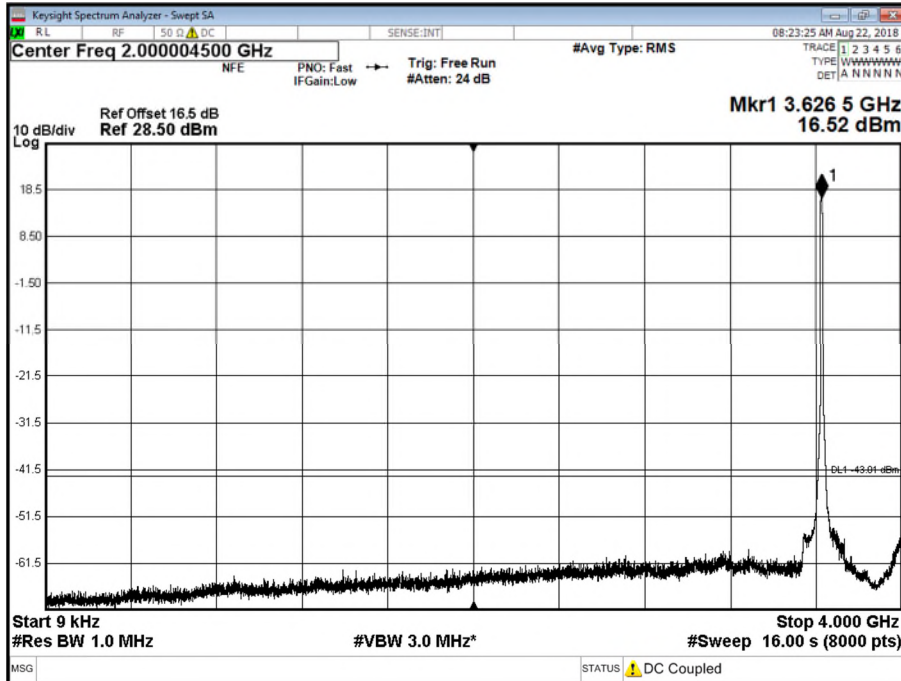
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 12000 to 18000 MHz



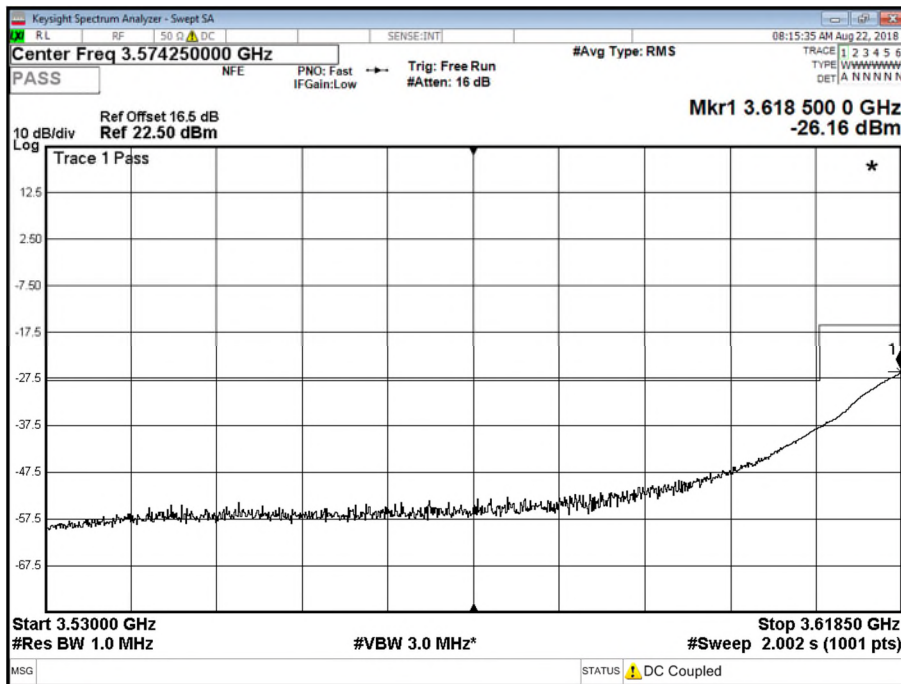


Product Service

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



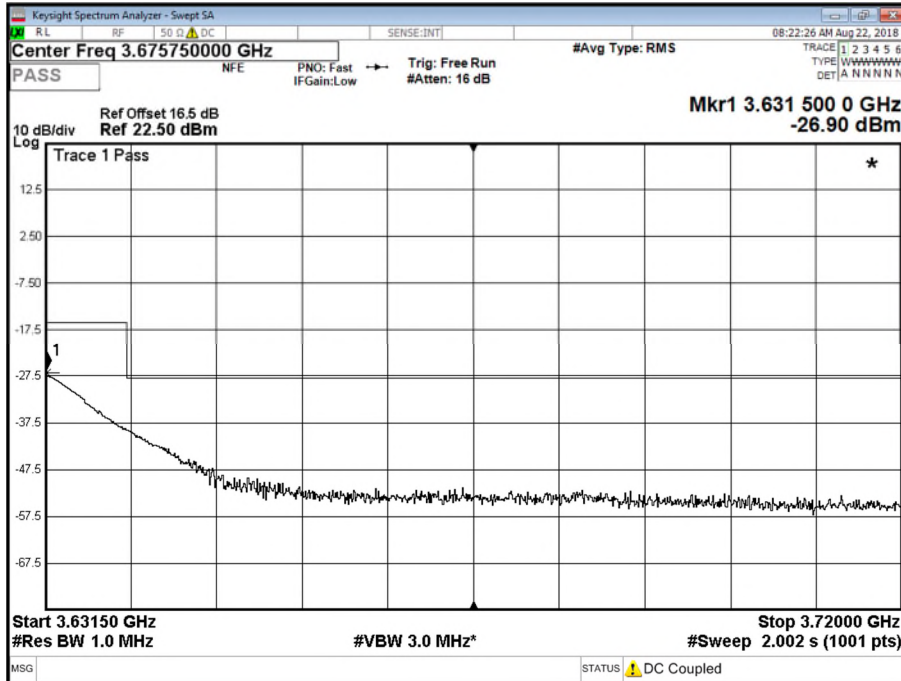
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask Low 1 - Range Mask Low 1



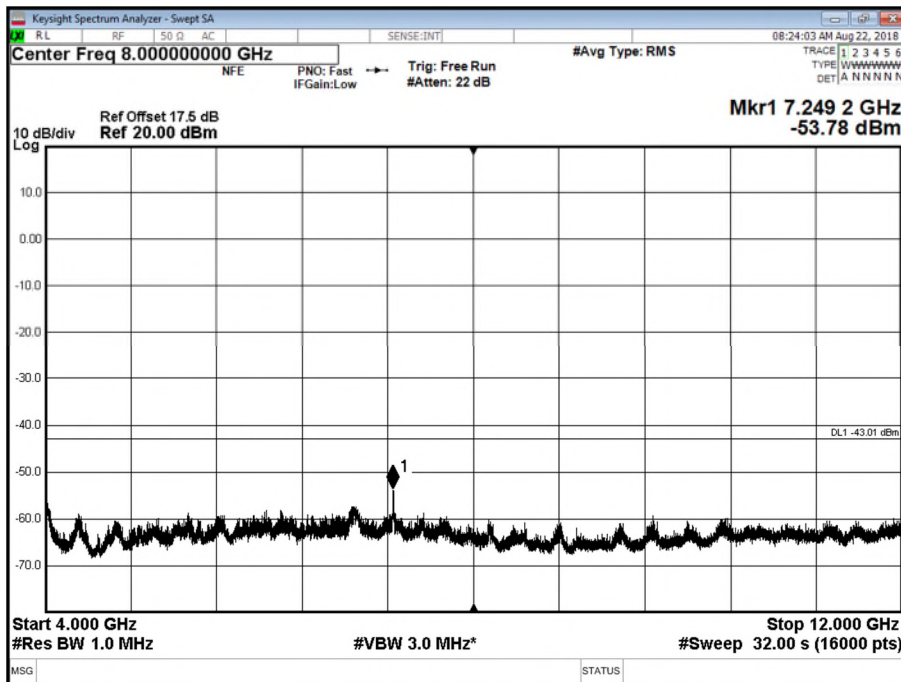


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask High 1 - Range Mask High 1



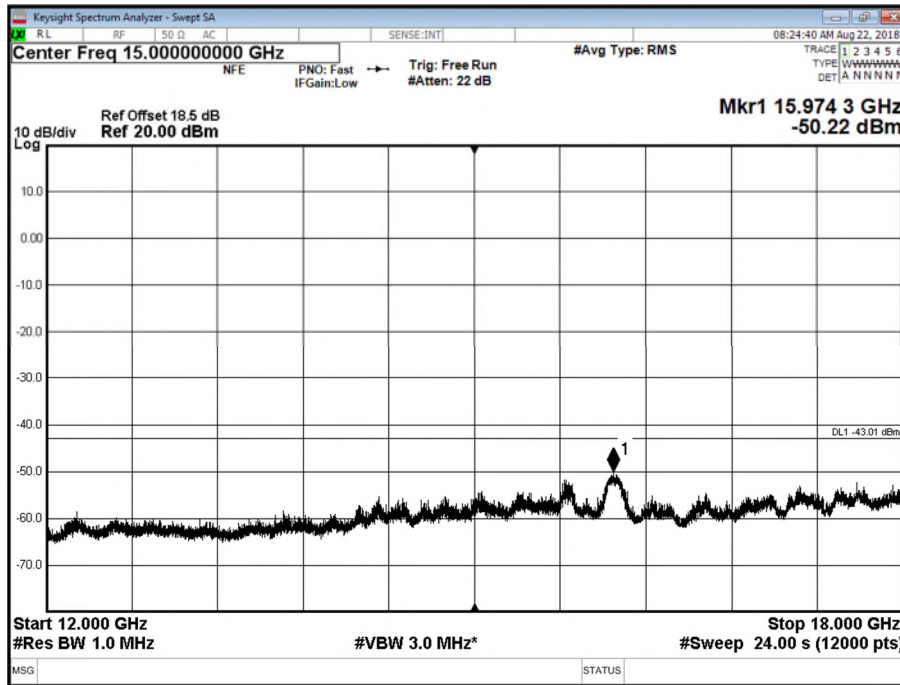
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz





Product Service

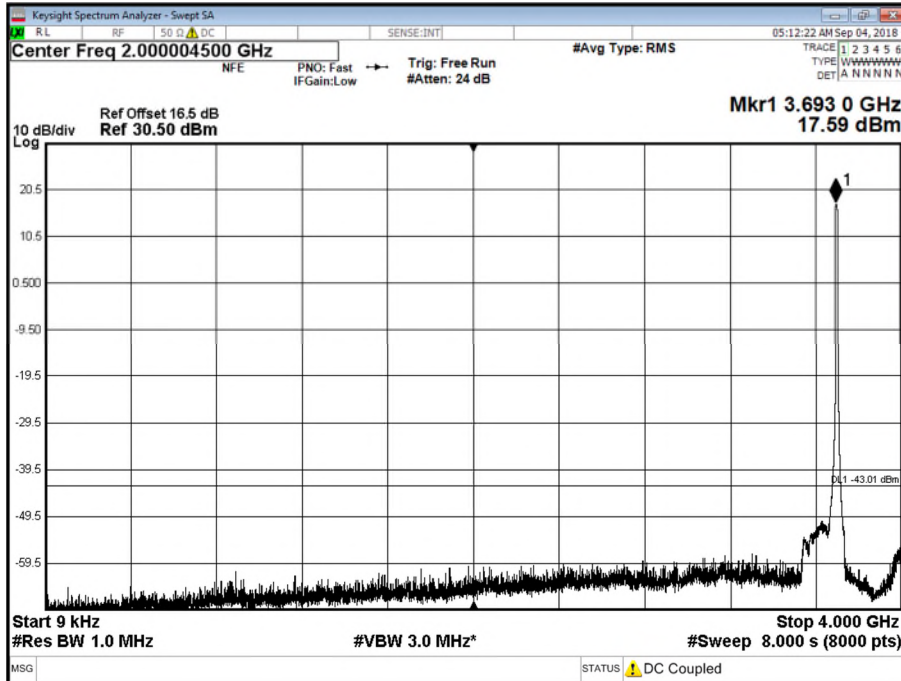
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 12000 to 18000 MHz



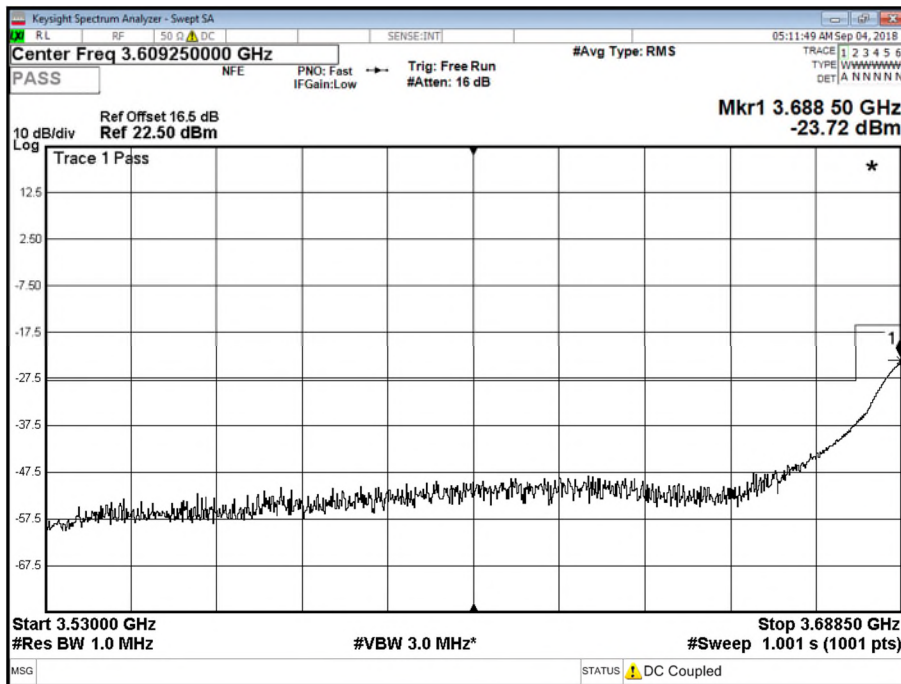


Product Service

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



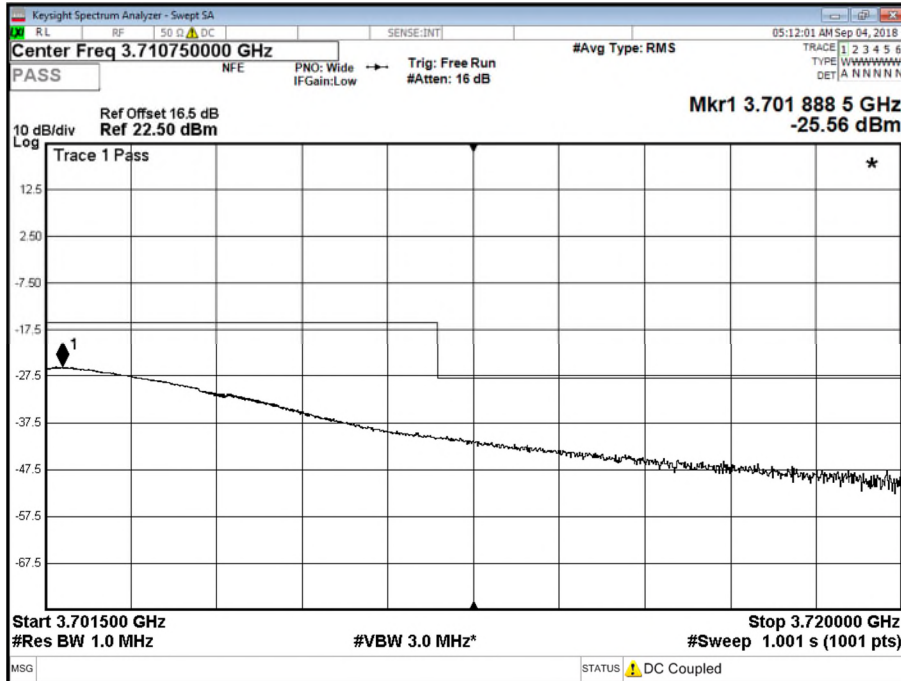
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1



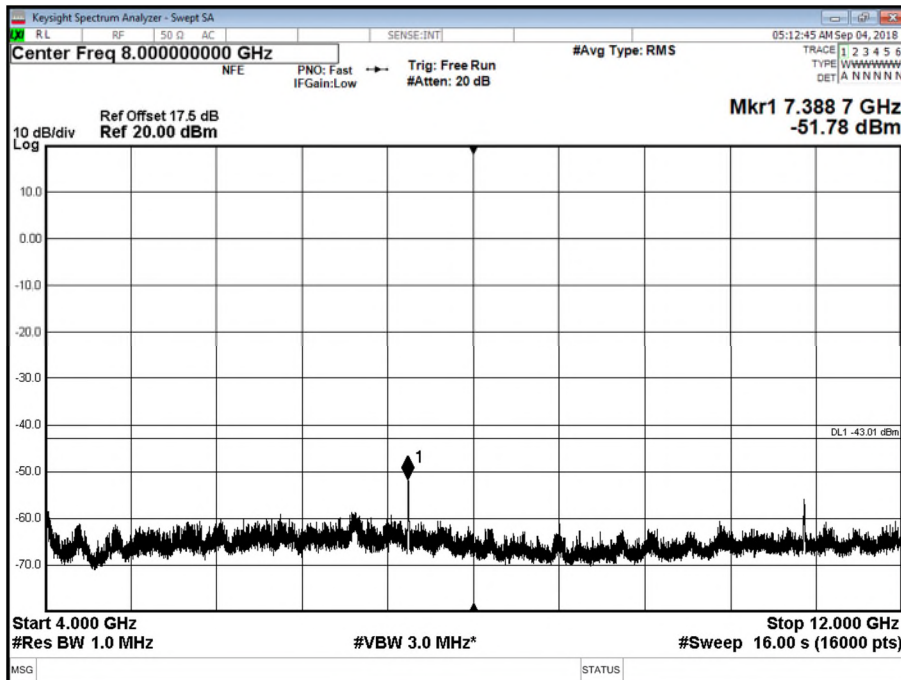


Product Service

Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



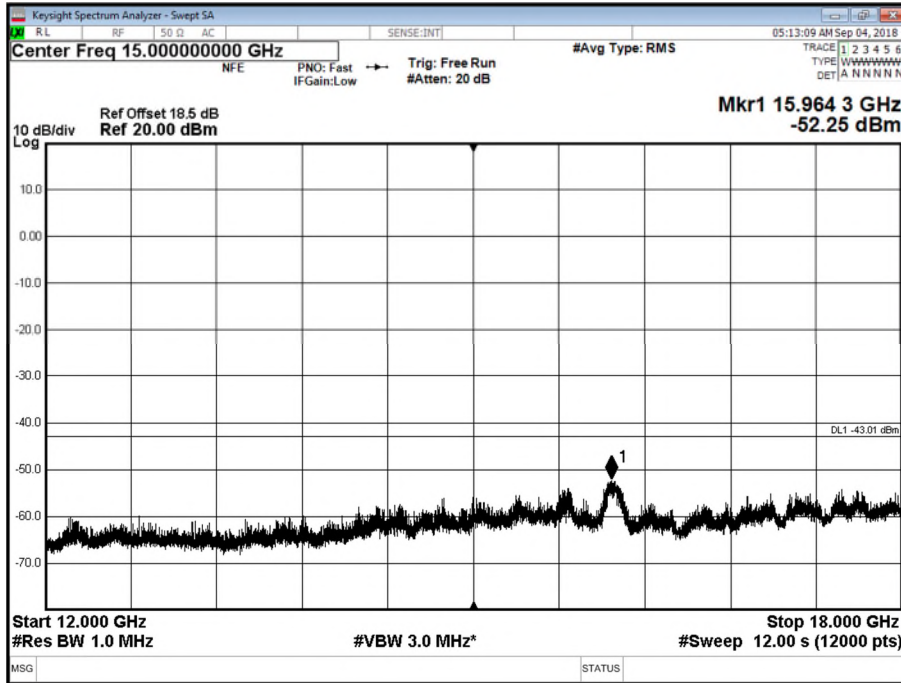
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz





Product Service

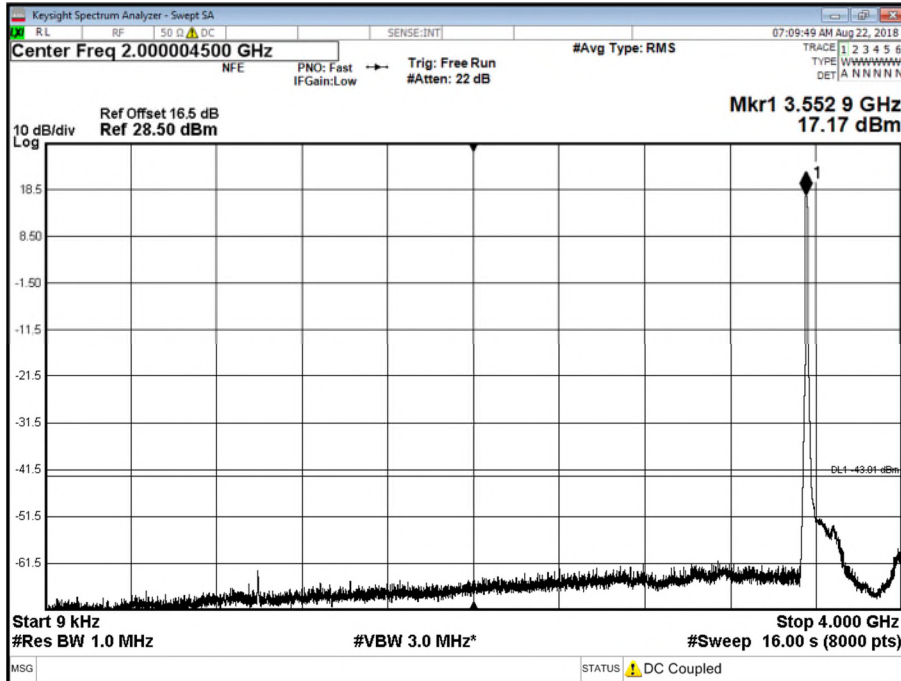
Antenna A - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



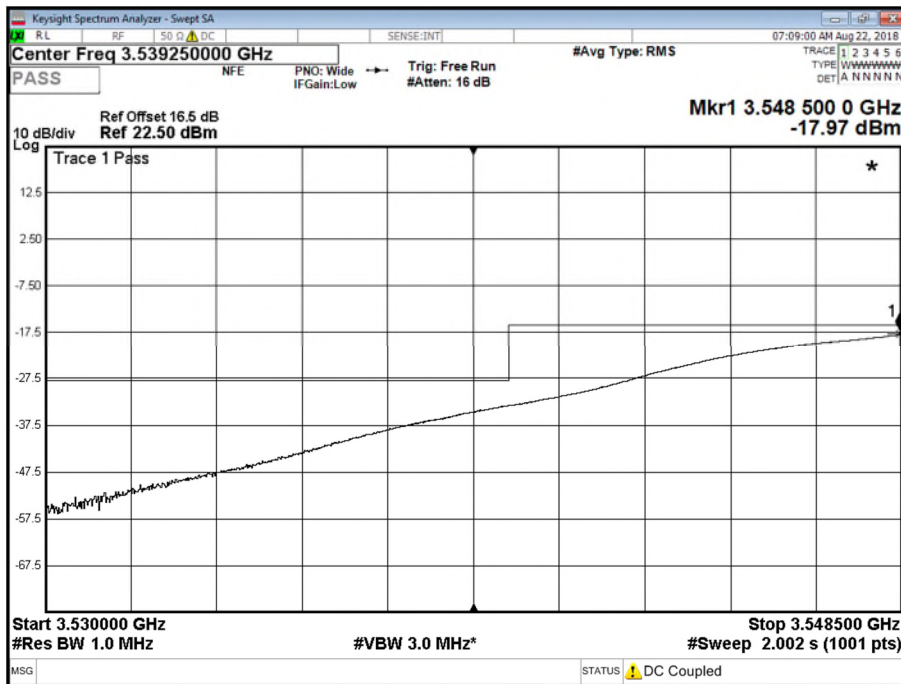


Product Service

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



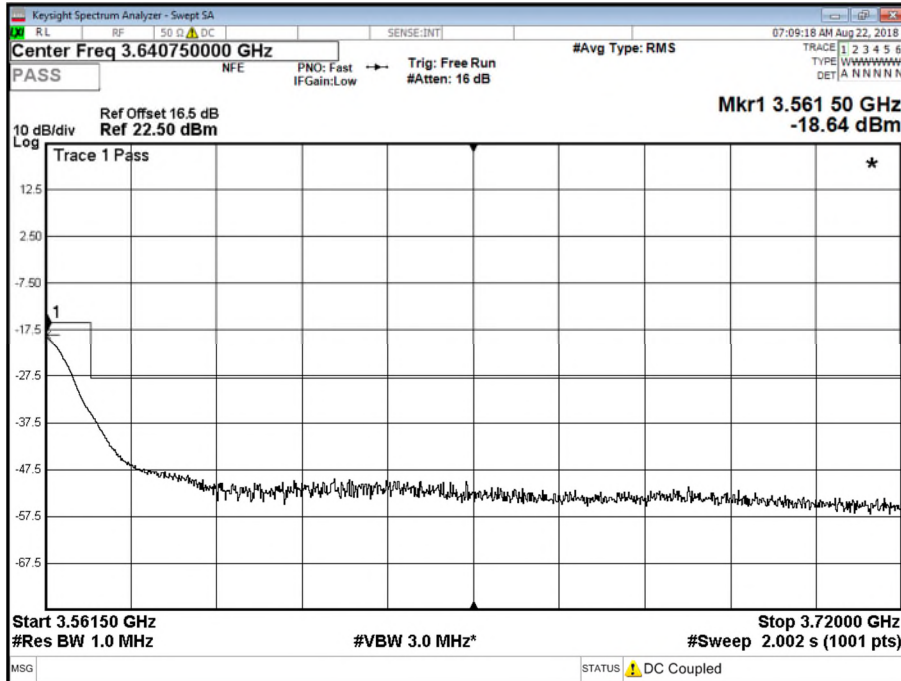
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1



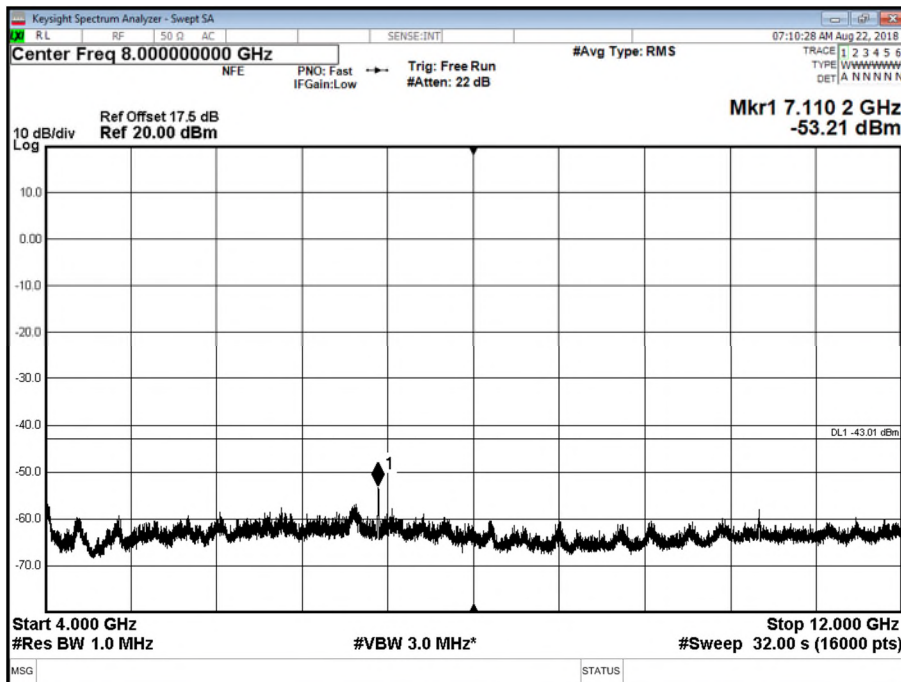


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



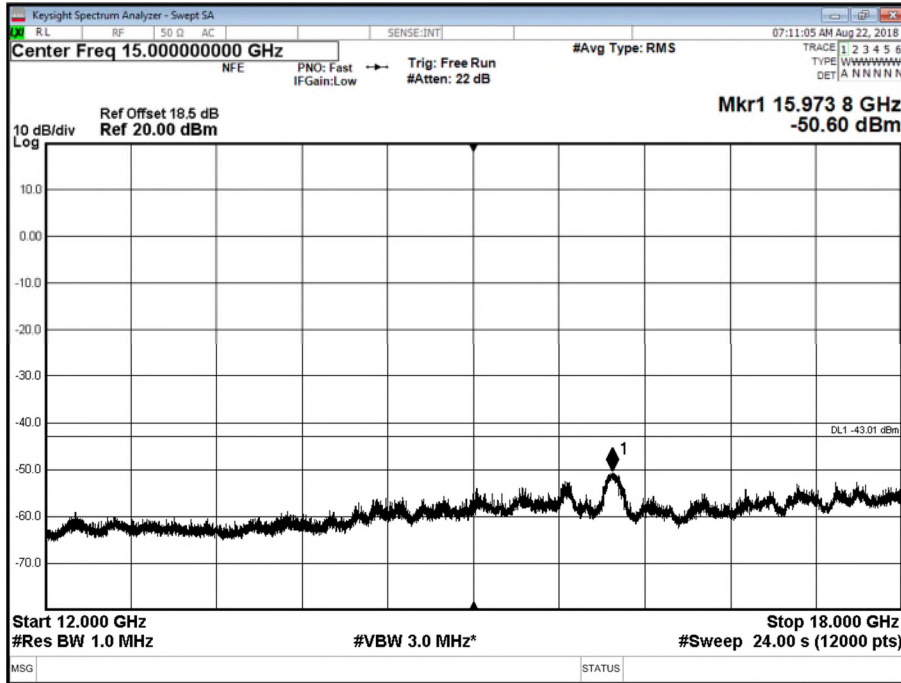
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz





Product Service

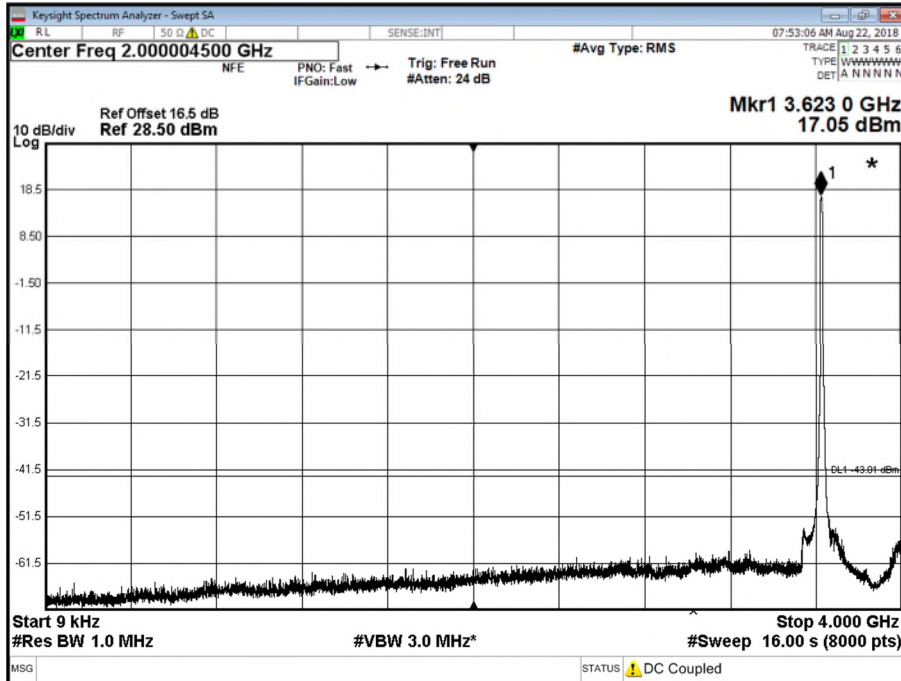
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 12000 to 18000 MHz



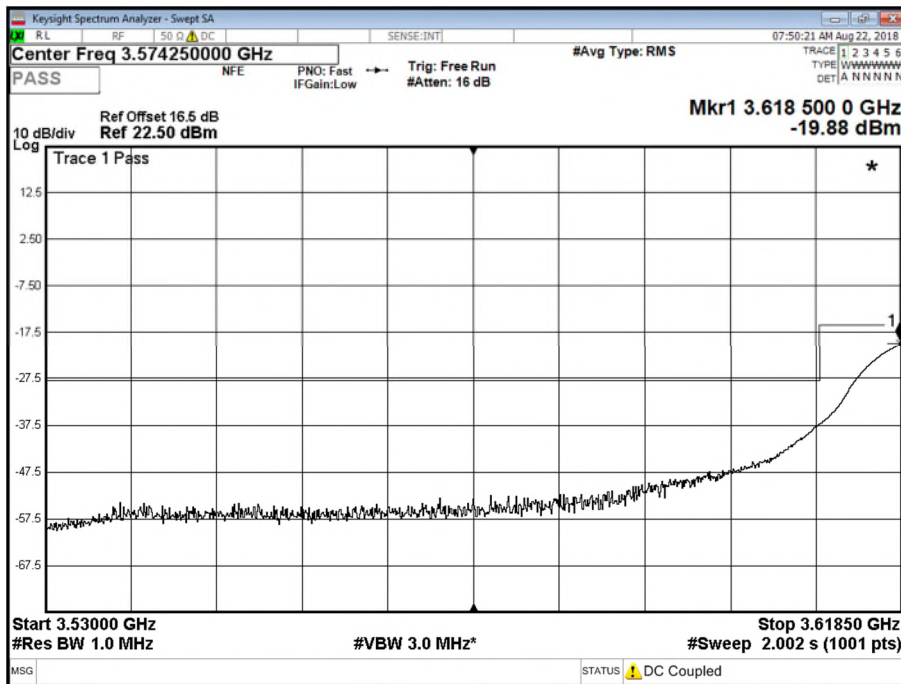


Product Service

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



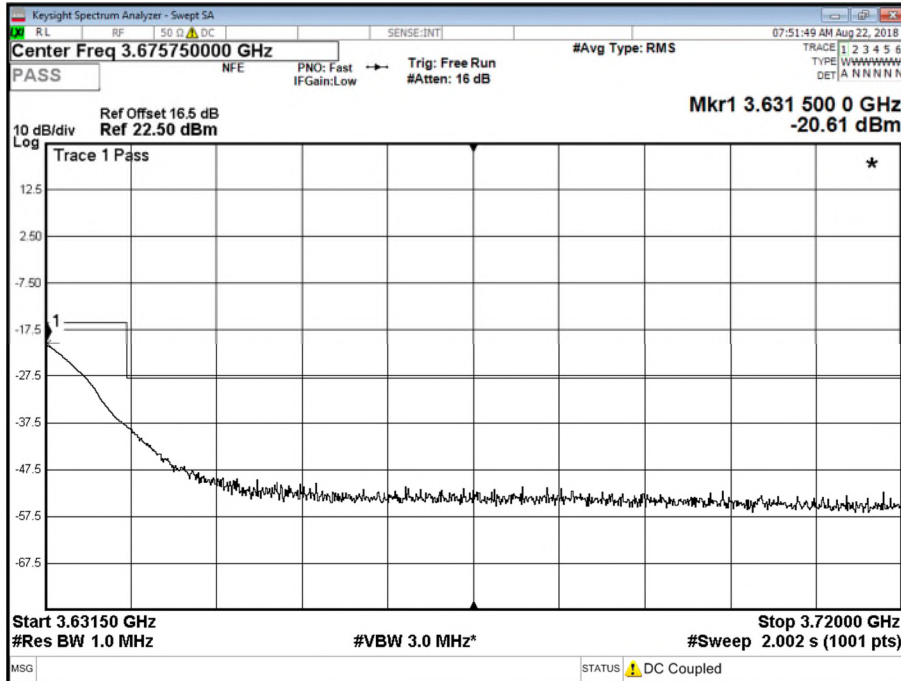
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask Low 1 - Range Mask Low 1



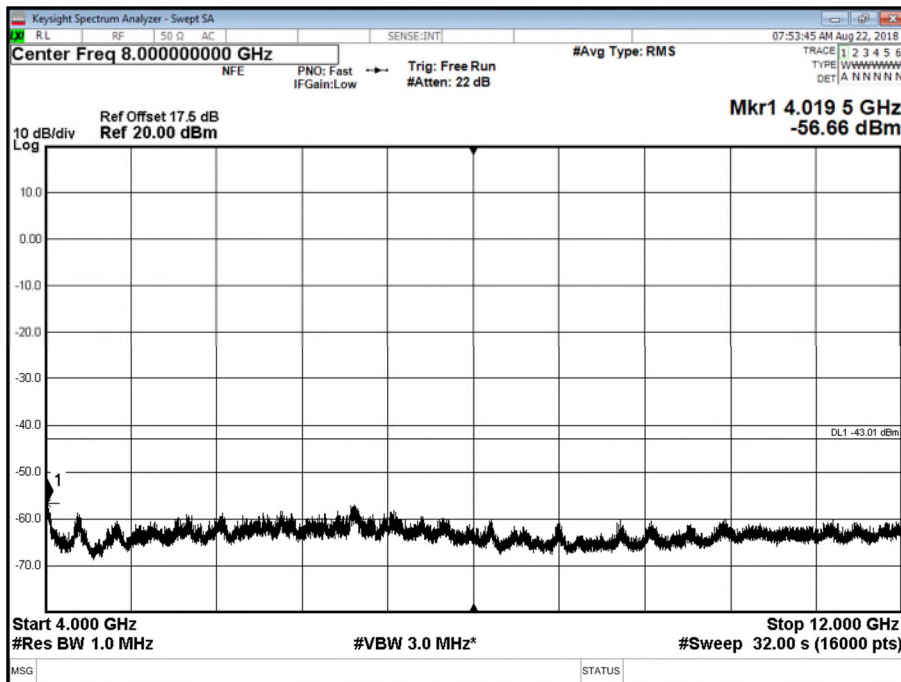


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask High 1 - Range Mask High 1



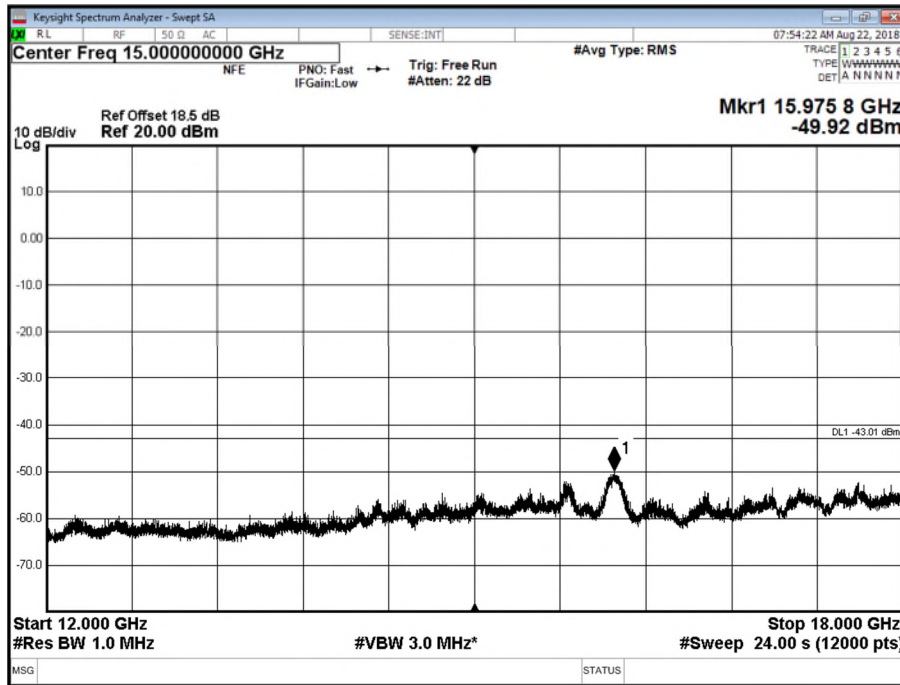
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz





Product Service

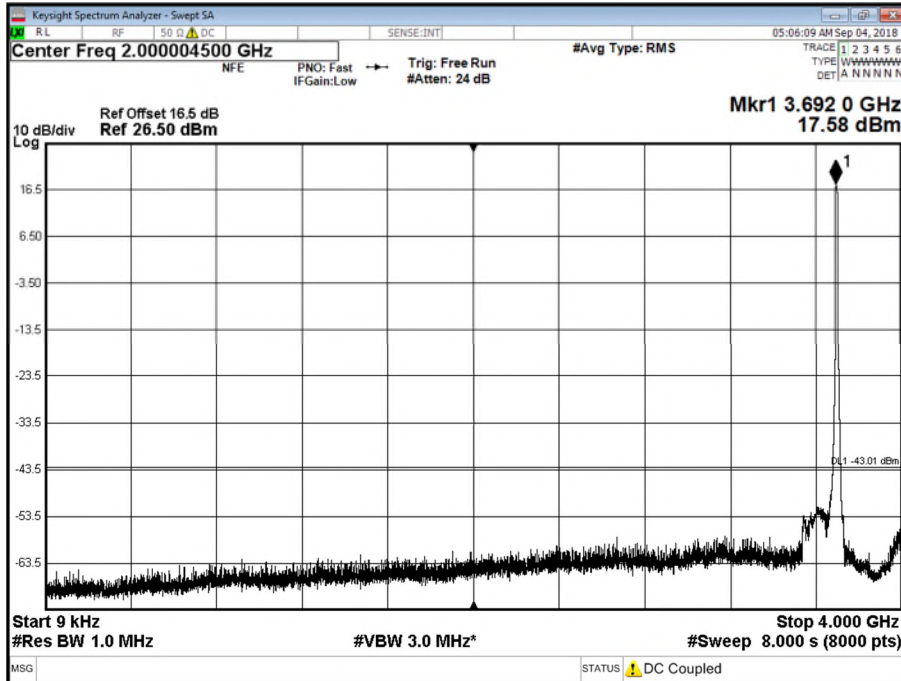
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 12000 to 18000 MHz



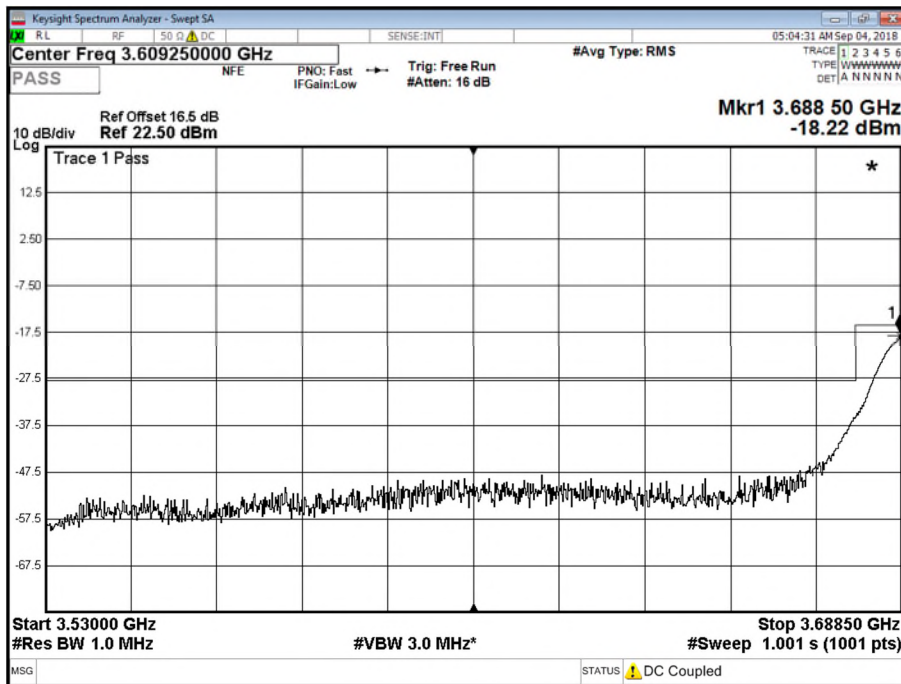


Product Service

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



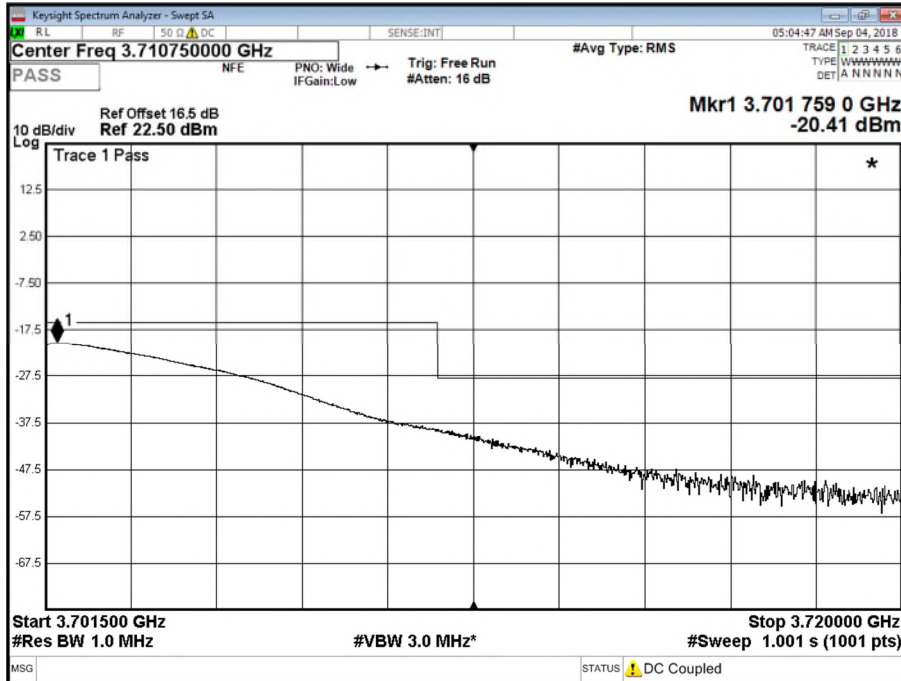
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1



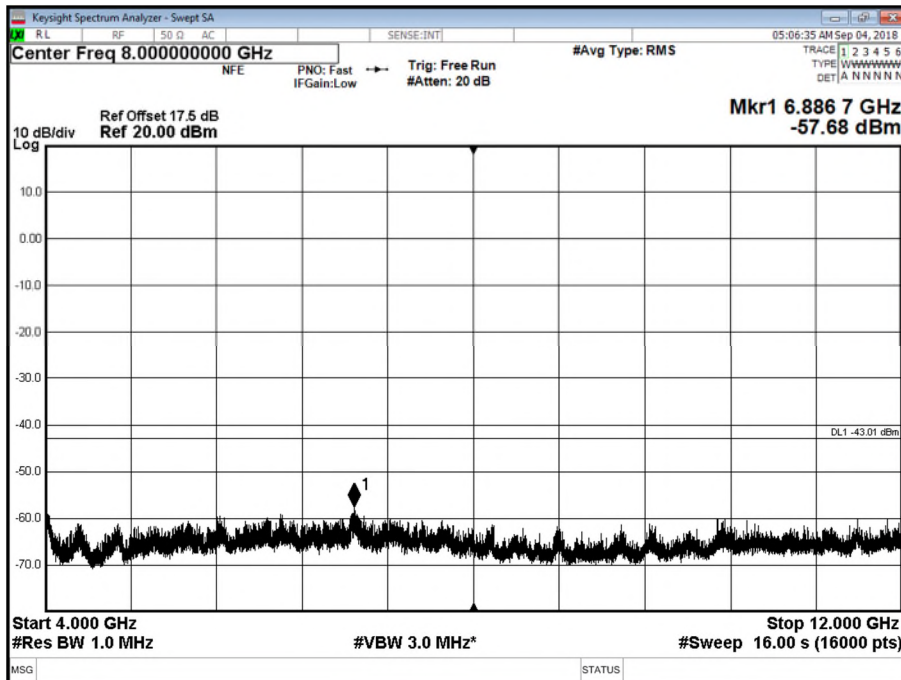


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



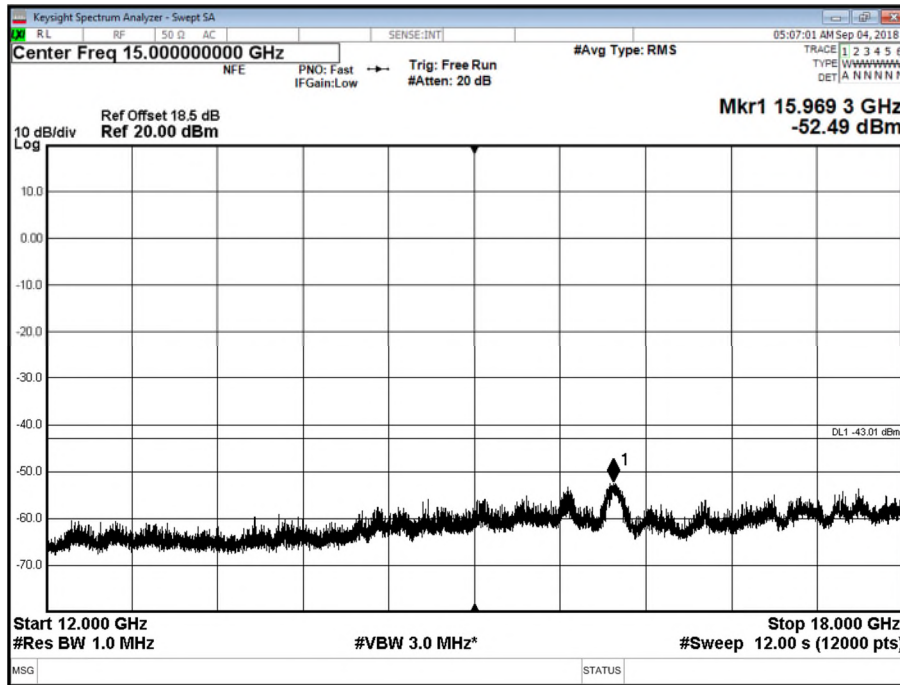
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz





Product Service

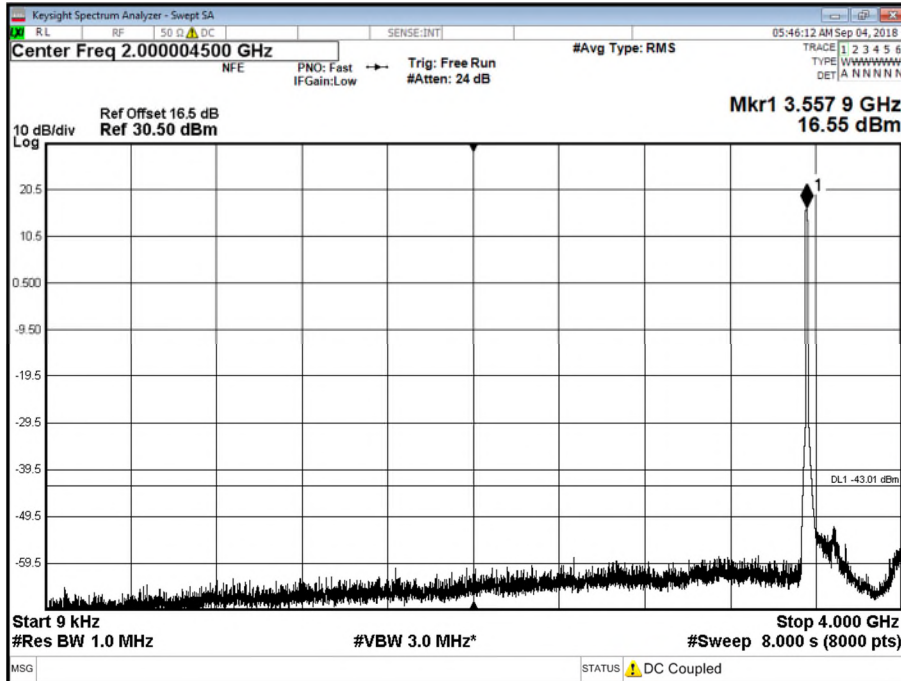
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



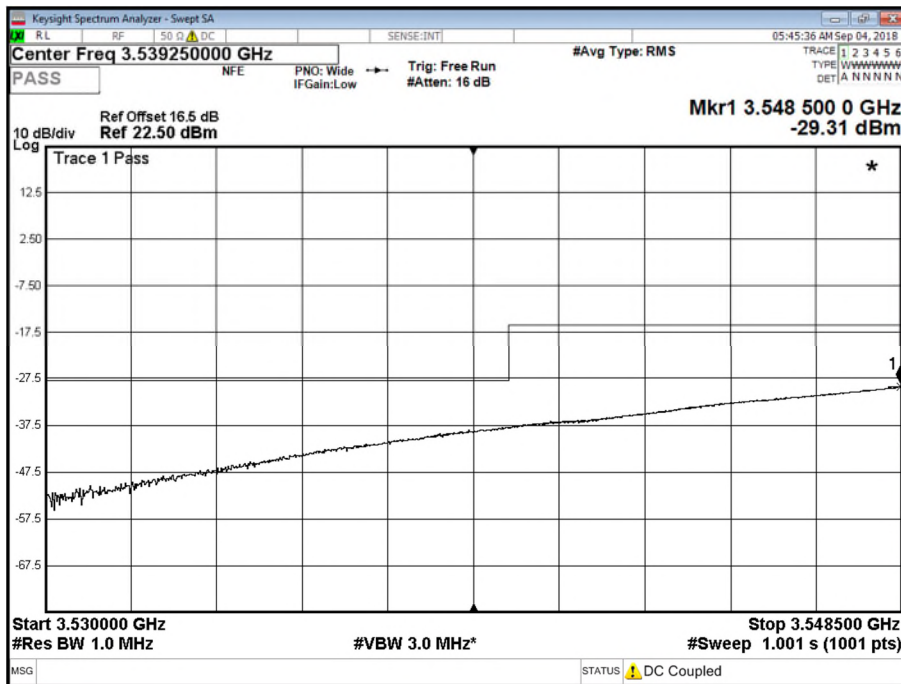


Product Service

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



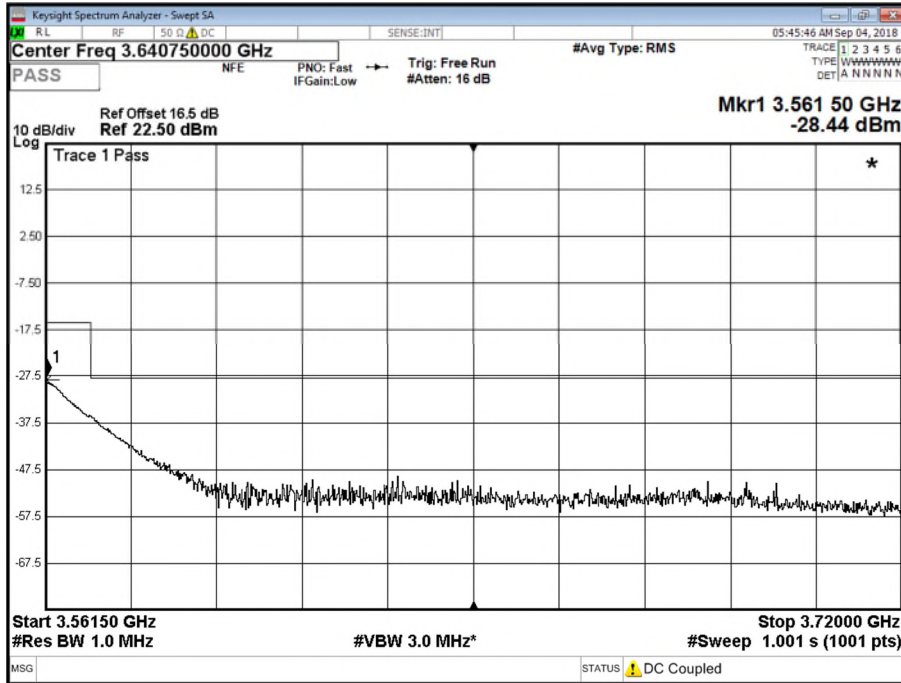
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1



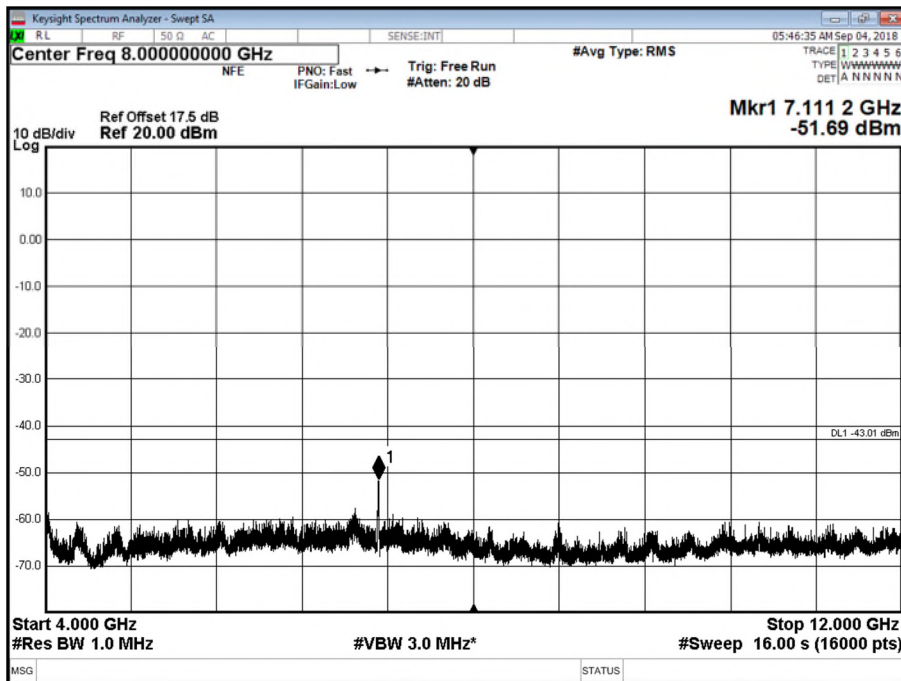


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



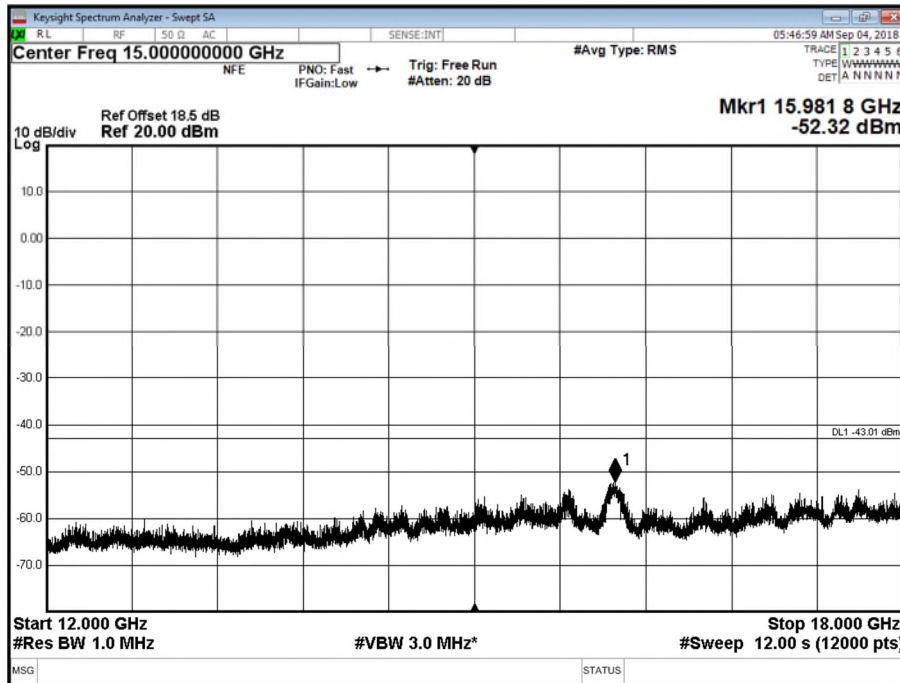
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz





Product Service

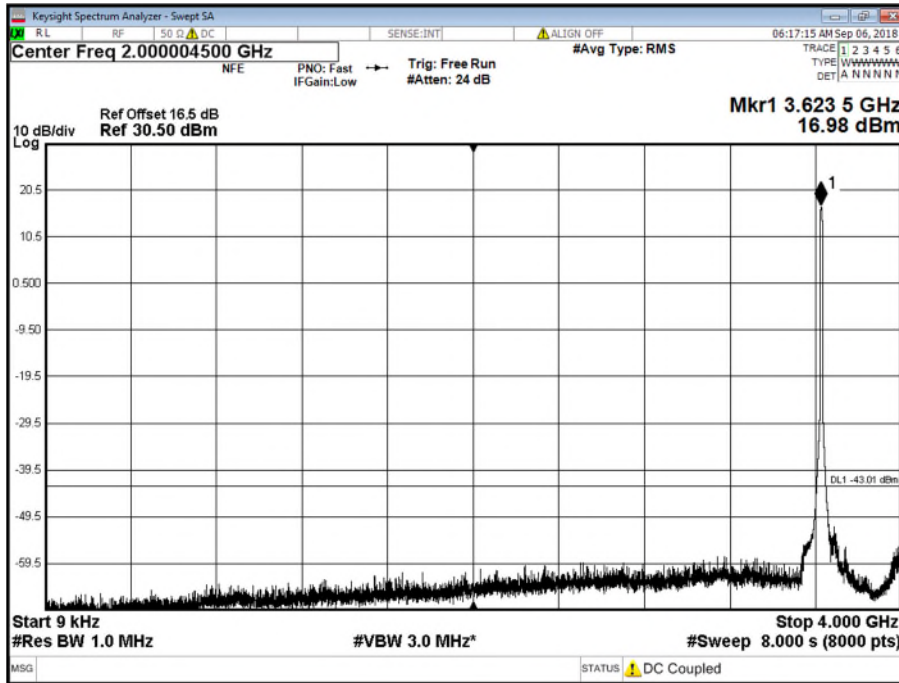
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 12000 to 18000 MHz





Product Service

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



Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Channel Position M - Band Mask Low 1 - Range Mask Low 1

