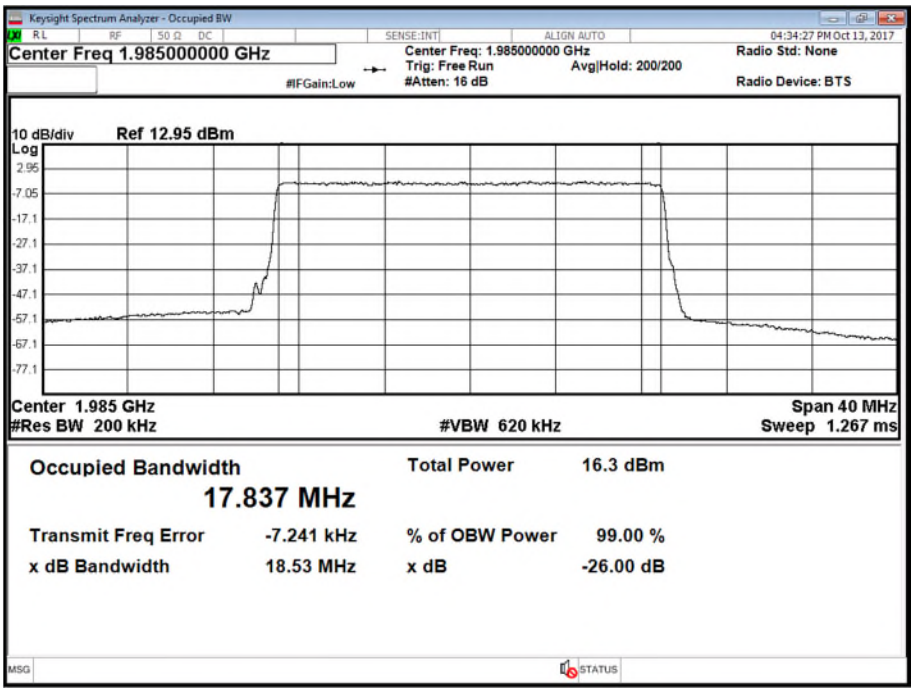
Antenna B - Bandwidth QPSK - Channel T



2.3 BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 24, Clause 24.238 (b)
Industry Canada RSS-133, Clause 6.5

2.3.2 Date of Test and Modification State

12, 13, 16, 17 October 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	23°C
Relative Humidity	50%

2.3.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01 Clause 6.
The EUT was connected to a Spectrum Analyser via an attenuator and switching box. The path loss between the EUT and the Spectrum Analyser was measured using a Network Analyser. 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 B25 EUT has 2 transmit ports, but can be configured to operate with 2 devices co-located.
Therefore, the test limits used were calculated on a worst-case basis accounting for an effective 4 port MIMO configuration. Testing was performed on this port with a test limit of 43+10log(P) - 10log(4) = -19 dBm.

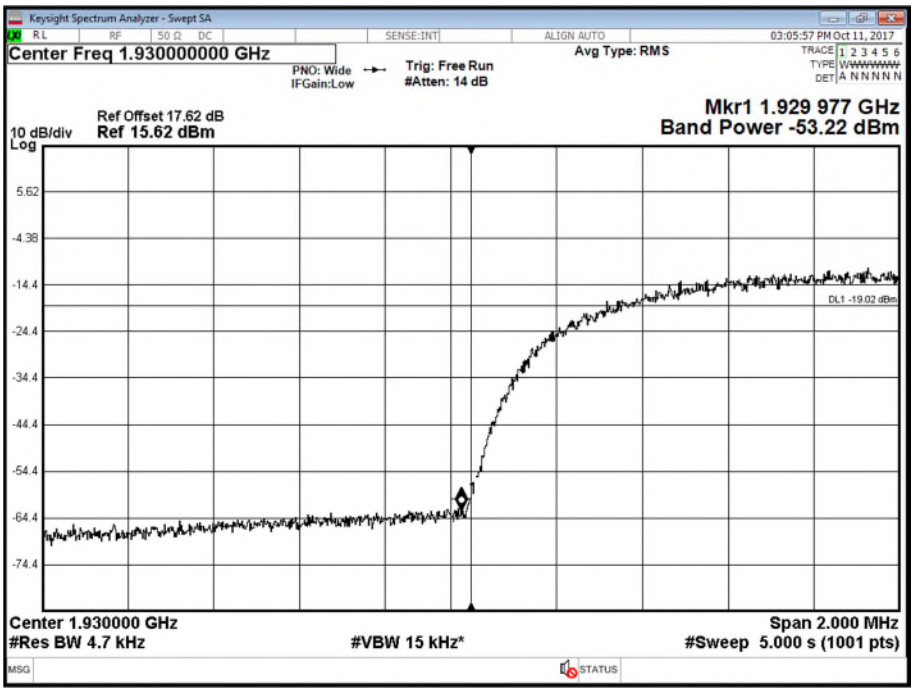
2.3.6 Test Results

Configuration 1

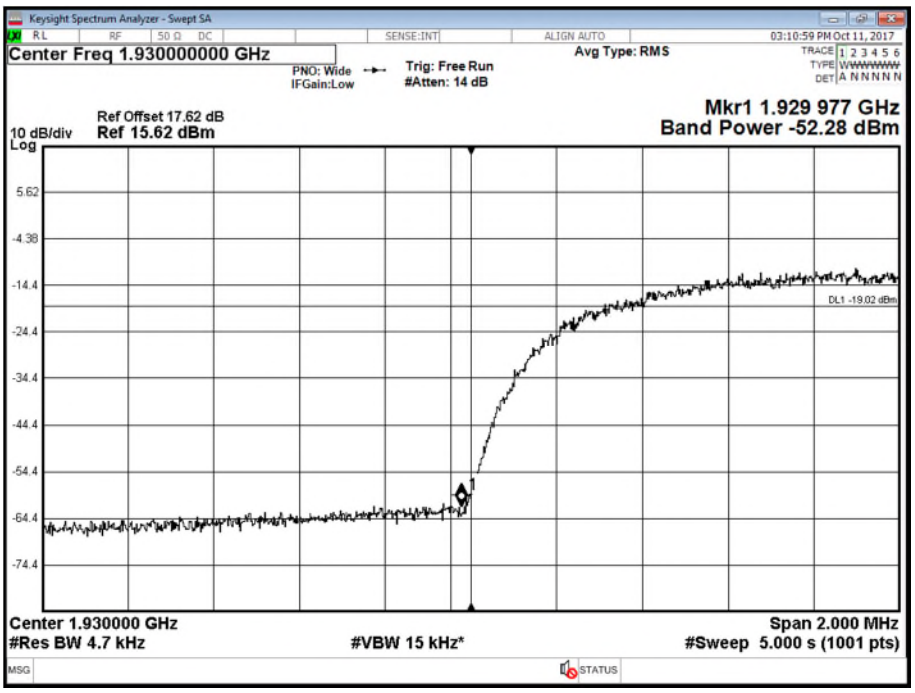
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	16QAM	5.0 MHz	1,932.4	1,992.6
B	16QAM	5.0 MHz	1,932.4	1,992.6

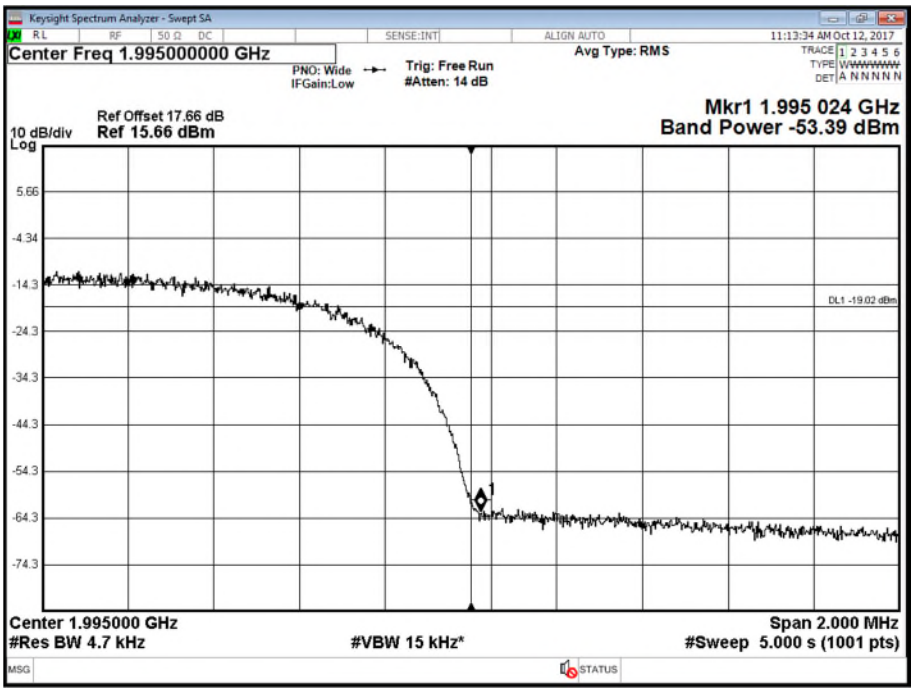
Antenna A - WCDMA Modulation 16QAM - Channel B



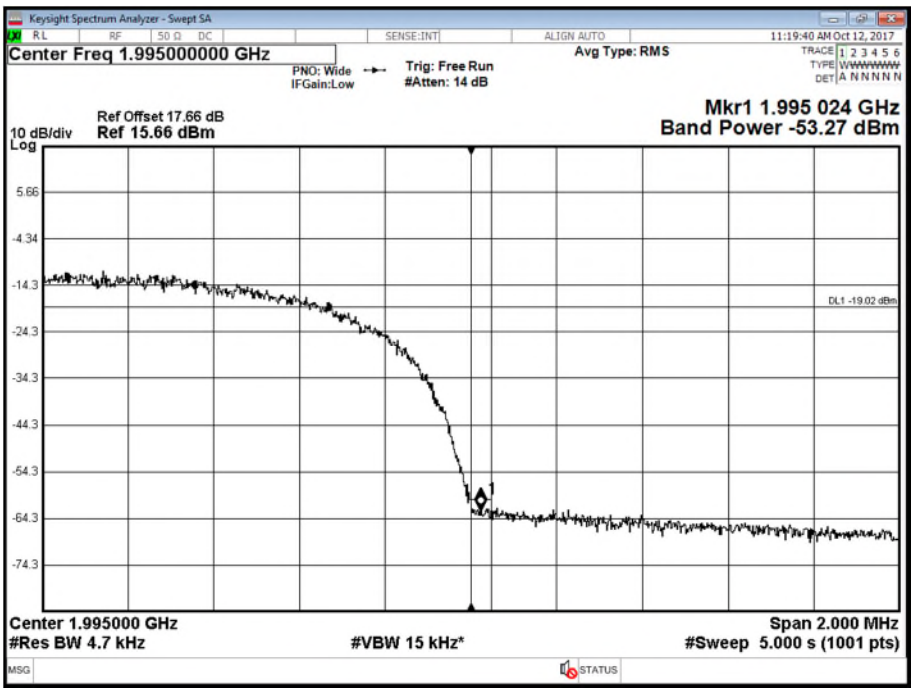
Antenna B - WCDMA Modulation 16QAM - Channel B



Antenna A - WCDMA Modulation 16QAM - Channel T



Antenna B - WCDMA Modulation 16QAM - Channel T

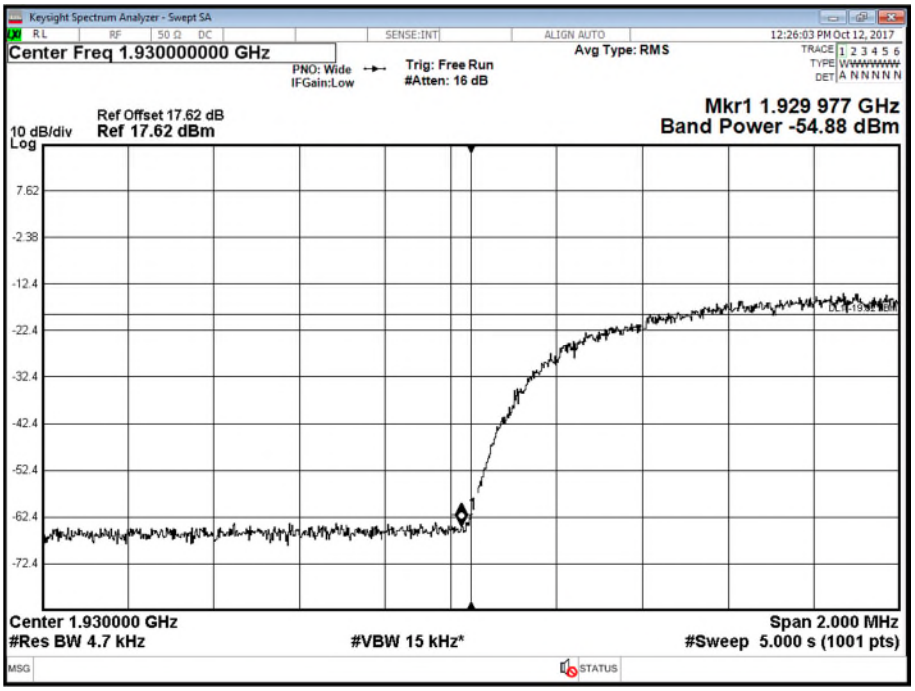


Configuration 2

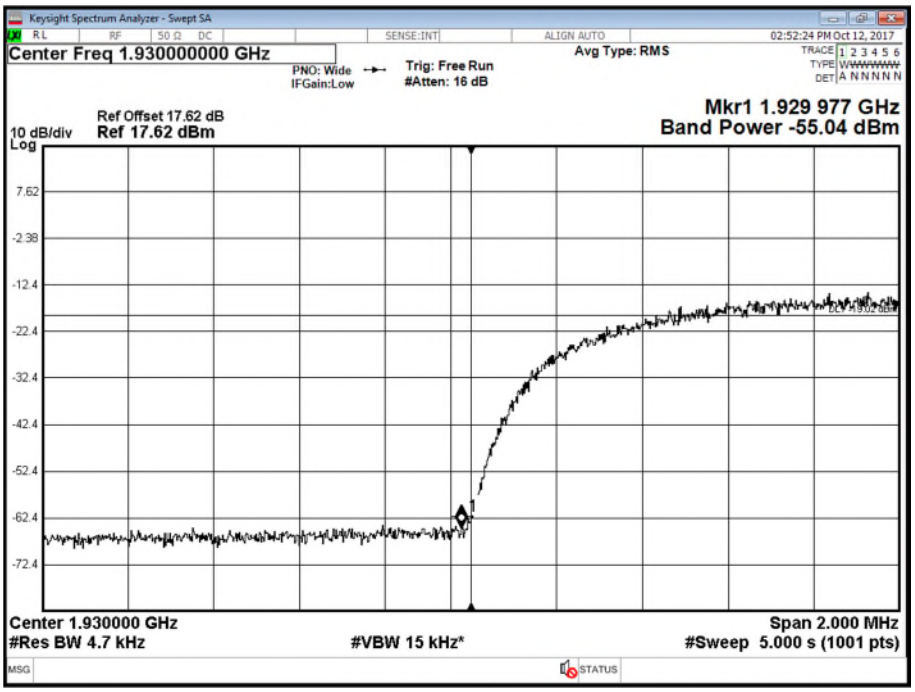
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	16QAM	5.0 MHz	1932.4 + 1937.4	1987.6 + 1992.6
B	16QAM	5.0 MHz	1932.4 + 1937.4	1987.6 + 1992.6

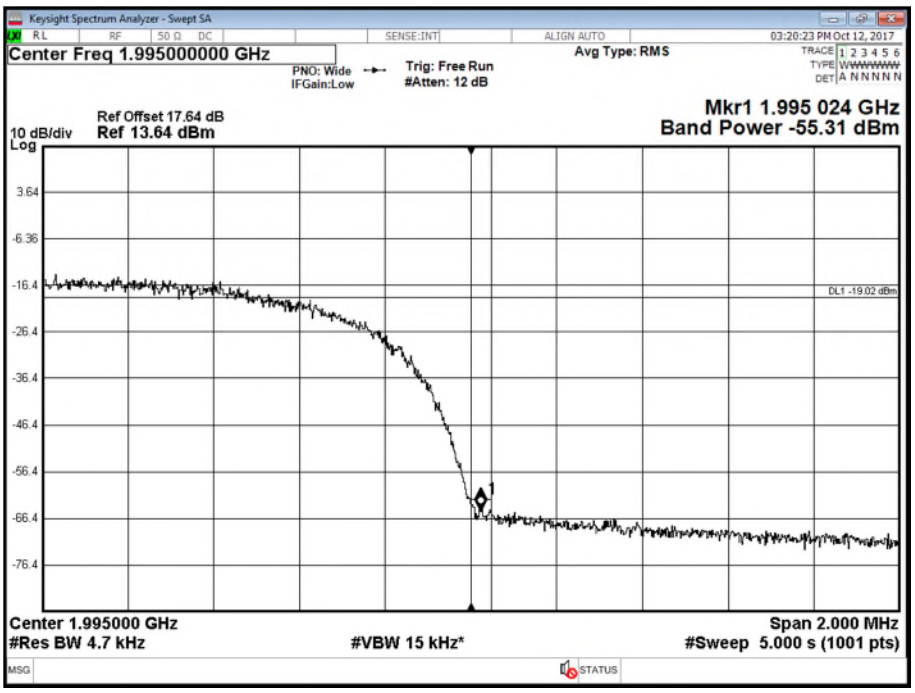
Antenna A - WCDMA Modulation 16QAM - Channel B



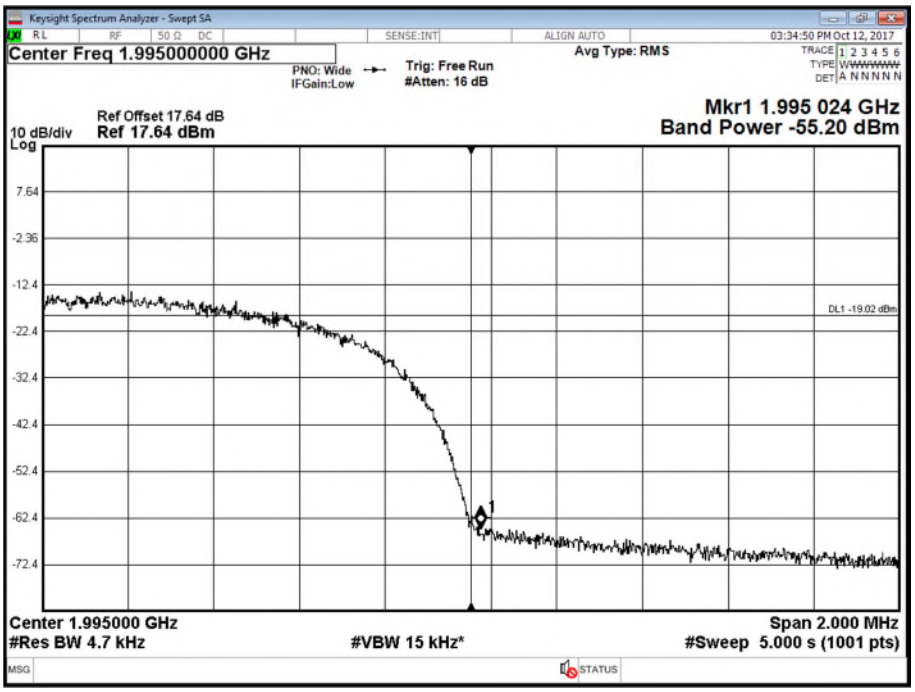
Antenna B - WCDMA Modulation 16QAM - Channel B



Antenna A - WCDMA Modulation 16QAM - Channel T



Antenna B - WCDMA Modulation 16QAM - Channel T

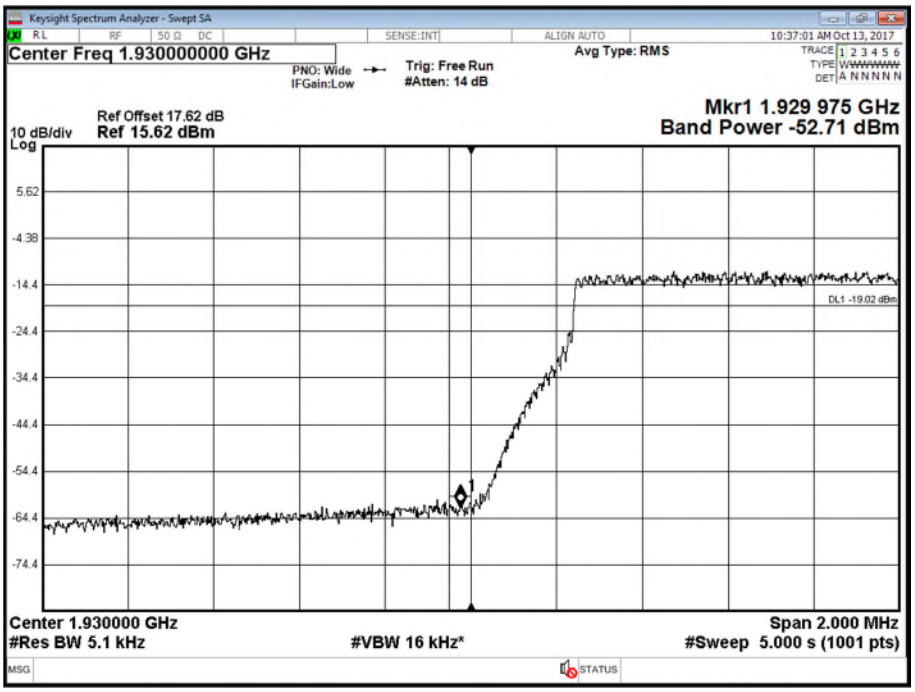


Configuration 4

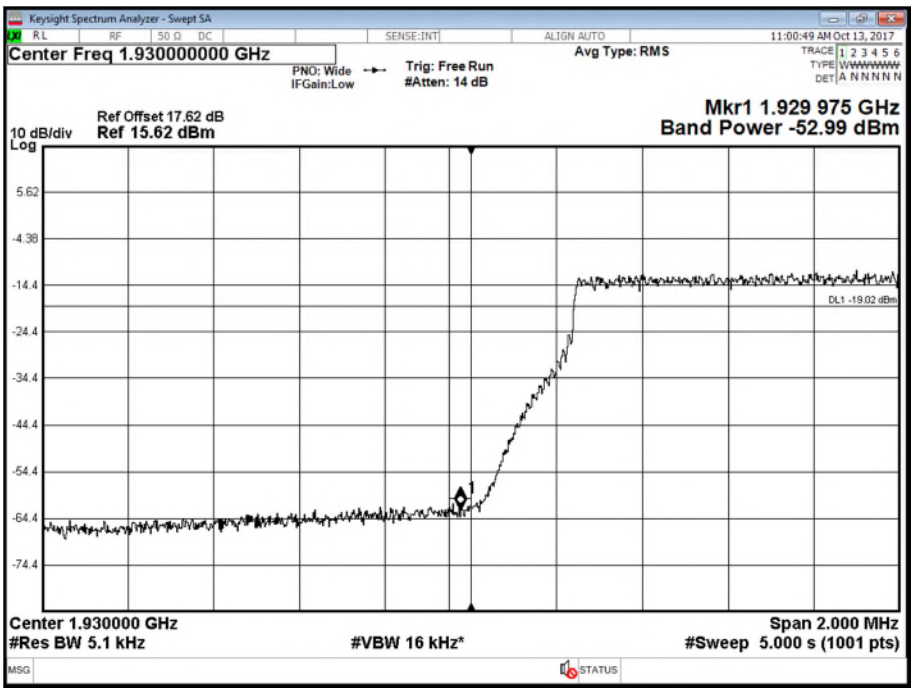
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	QPSK	5.0 MHz	1,932.5	1,992.5
B	QPSK	5.0 MHz	1,932.5	1,992.5
A	QPSK	10.0 MHz	1,935.0	1,990.0
B	QPSK	10.0 MHz	1,935.0	1,990.0
A	QPSK	15.0 MHz	1,937.5	1,987.5
B	QPSK	15.0 MHz	1,937.5	1,987.5
A	QPSK	20.0 MHz	1,940.0	1,985.0
B	QPSK	20.0 MHz	1,940.0	1,985.0

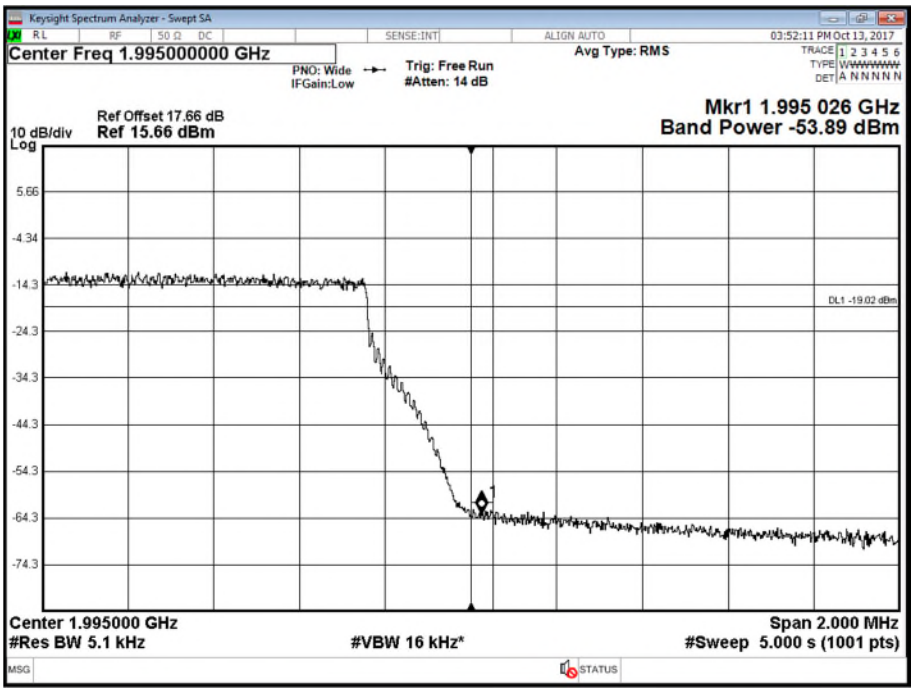
Antenna A - LTE Modulation QPSK - Channel B, 5MHz



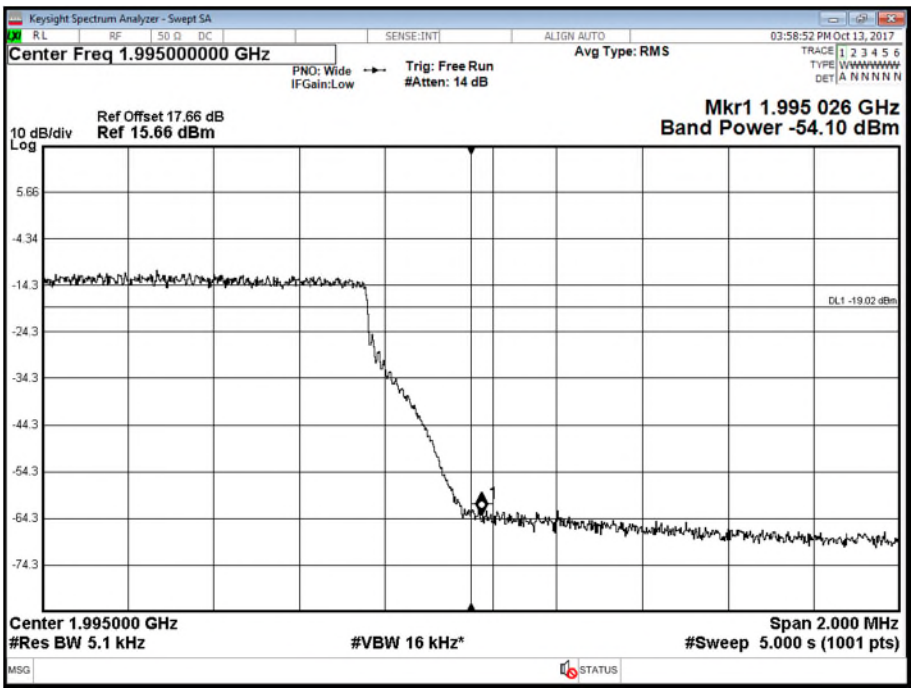
Antenna B - LTE Modulation QPSK - Channel B, 5MHz



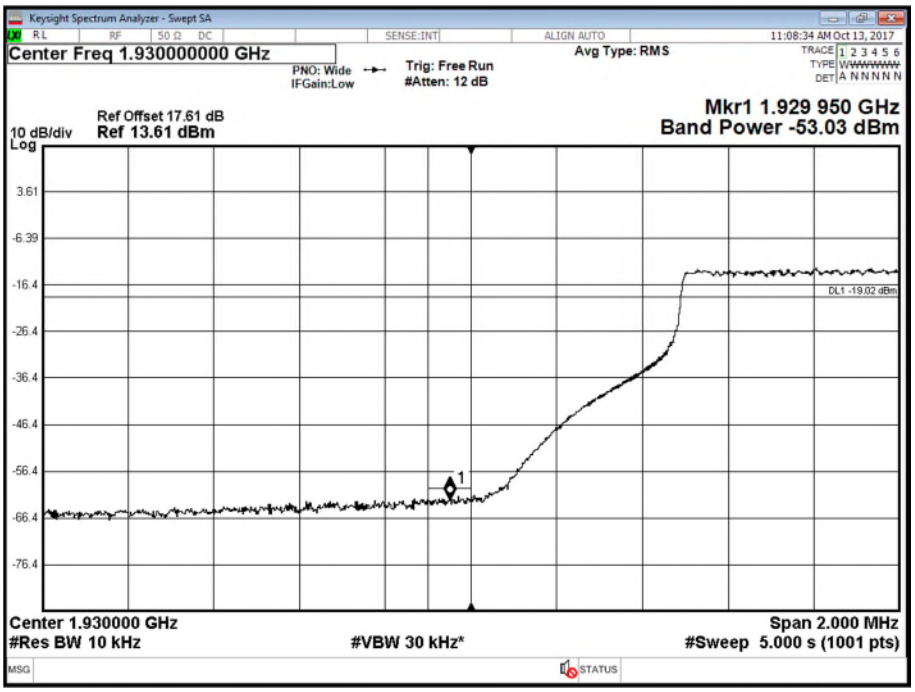
Antenna A - LTE Modulation QPSK - Channel T, 5MHz



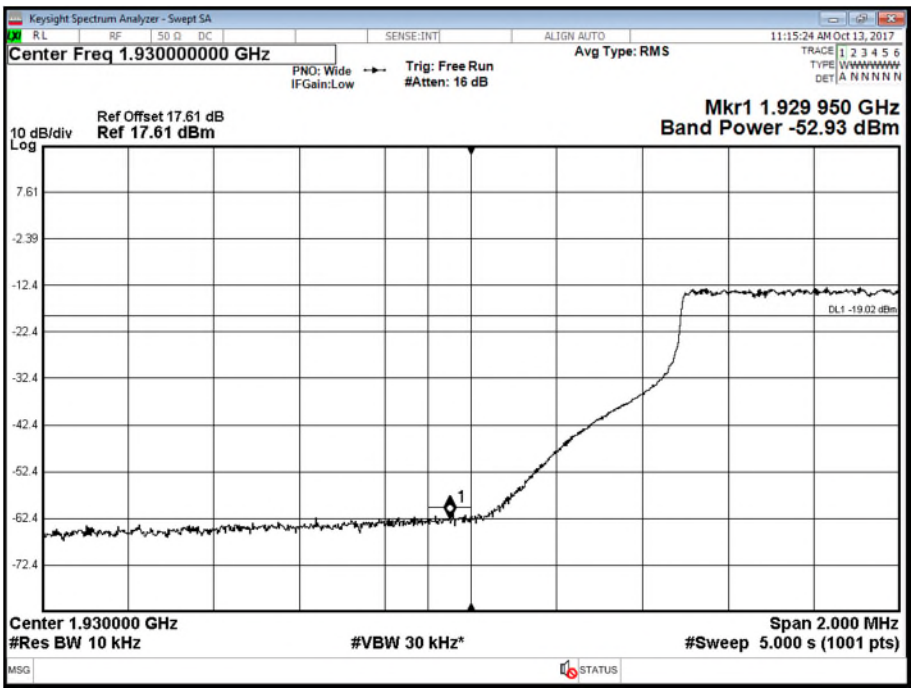
Antenna B - LTE Modulation QPSK - Channel T, 5MHz



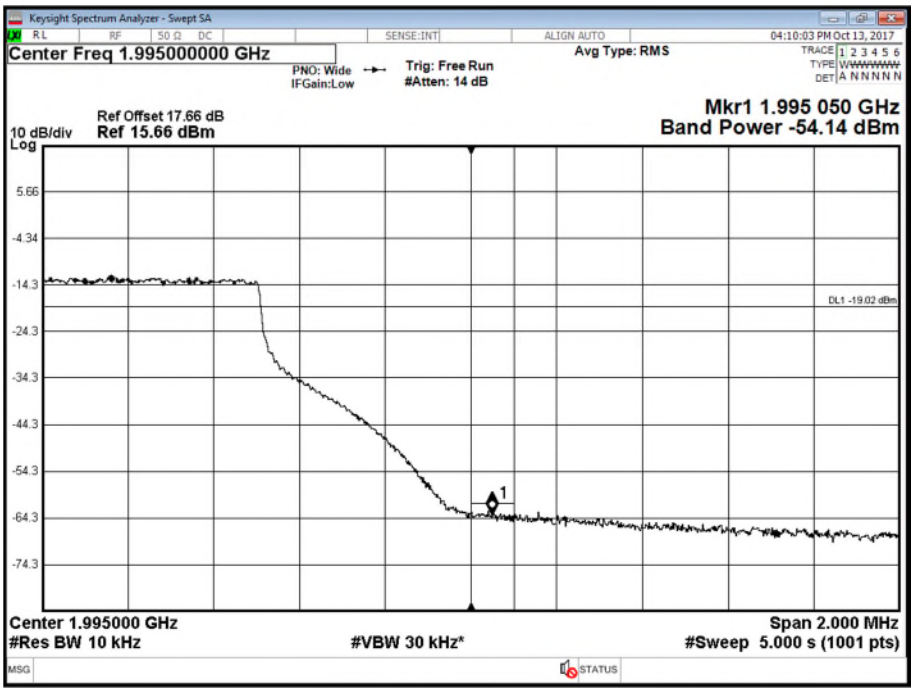
Antenna A - LTE Modulation QPSK - Channel B, 10MHz



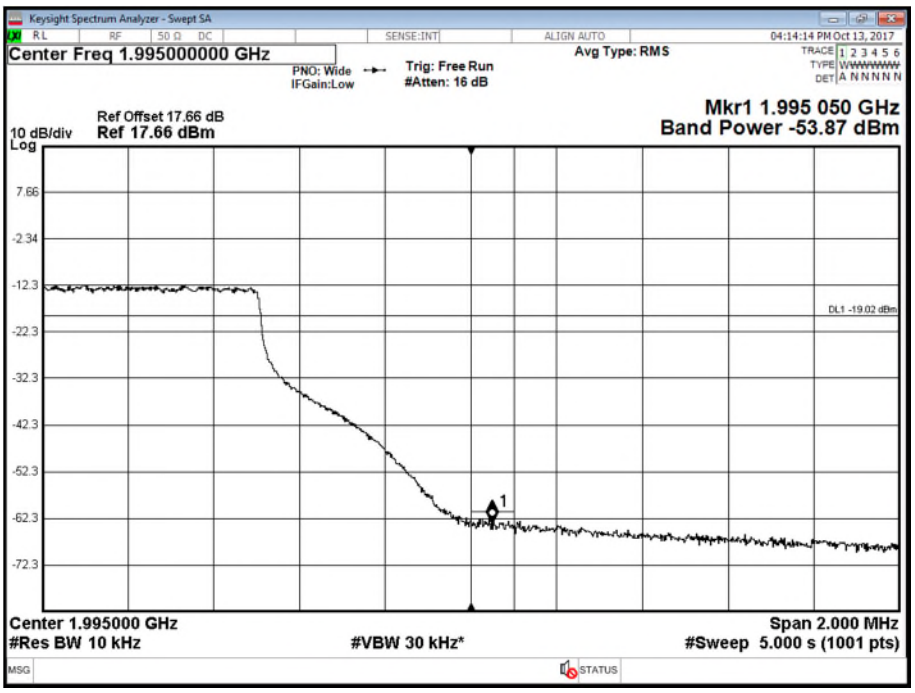
Antenna B - LTE Modulation QPSK - Channel B, 10MHz



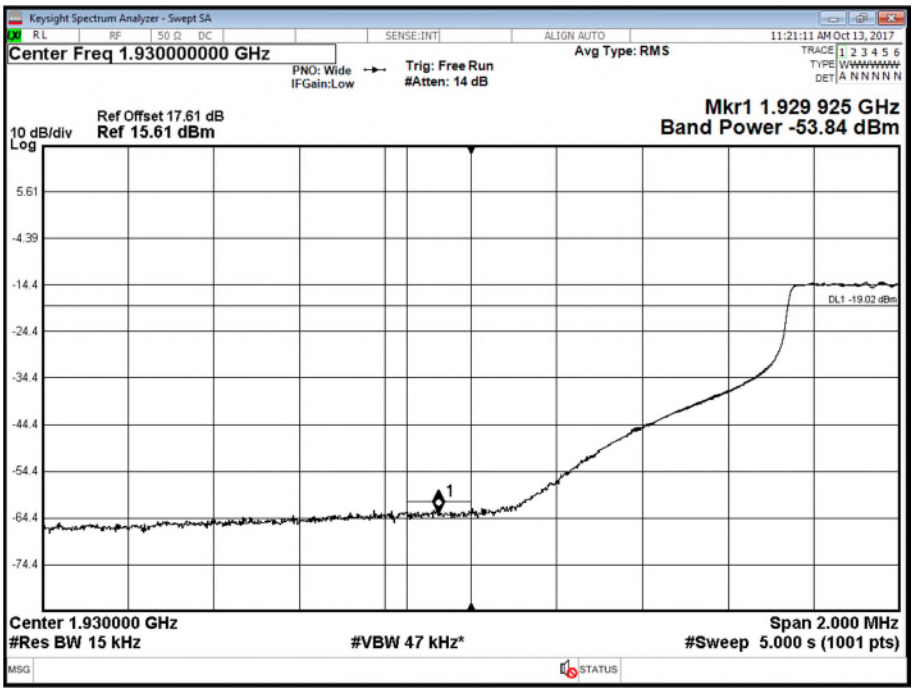
Antenna A - LTE Modulation QPSK - Channel T, 10MHz



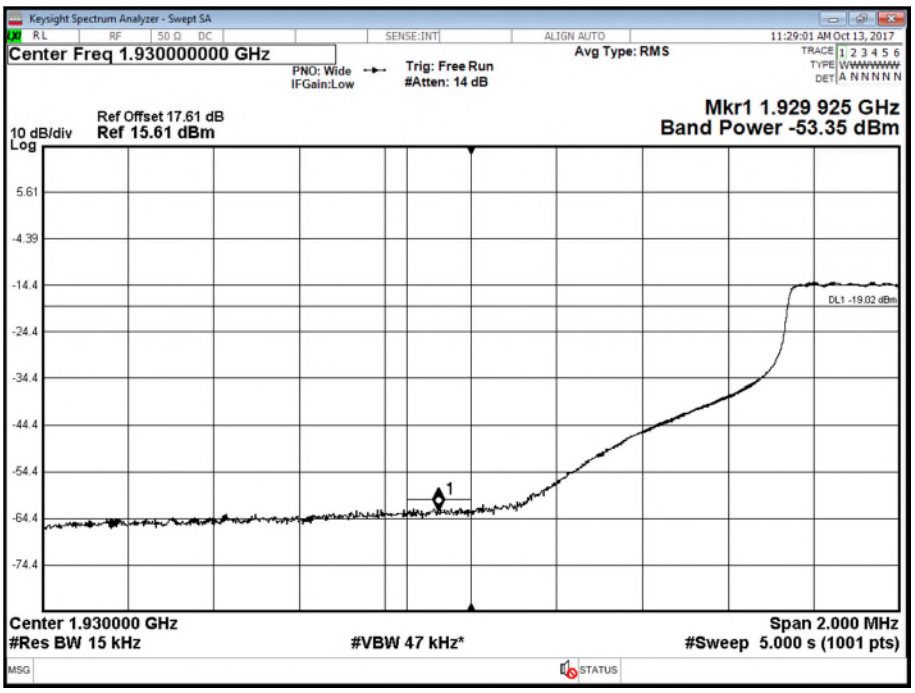
Antenna B - LTE Modulation QPSK - Channel T, 10MHz



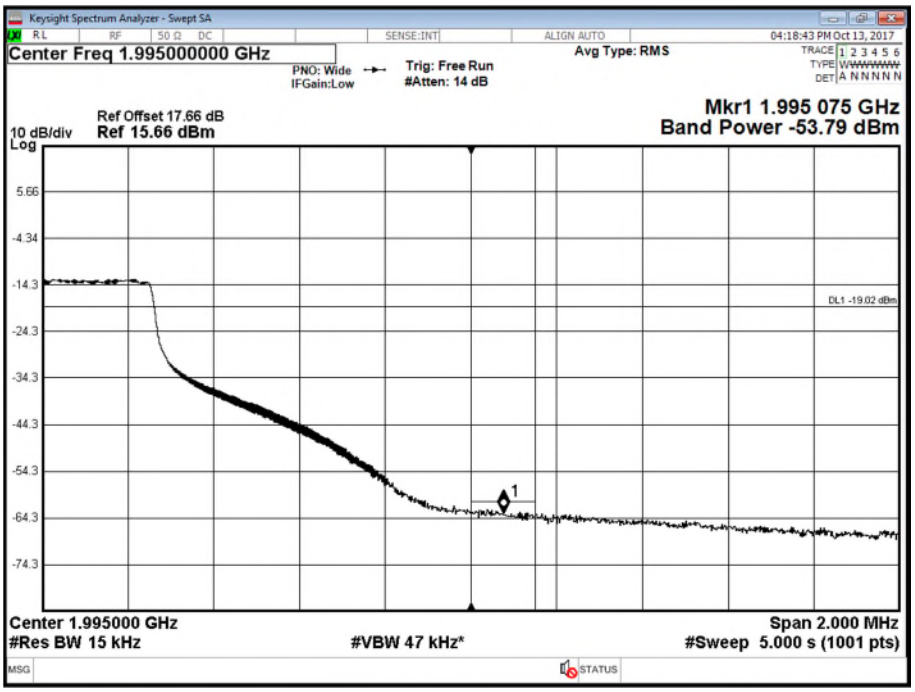
Antenna A - LTE Modulation QPSK - Channel B, 15MHz



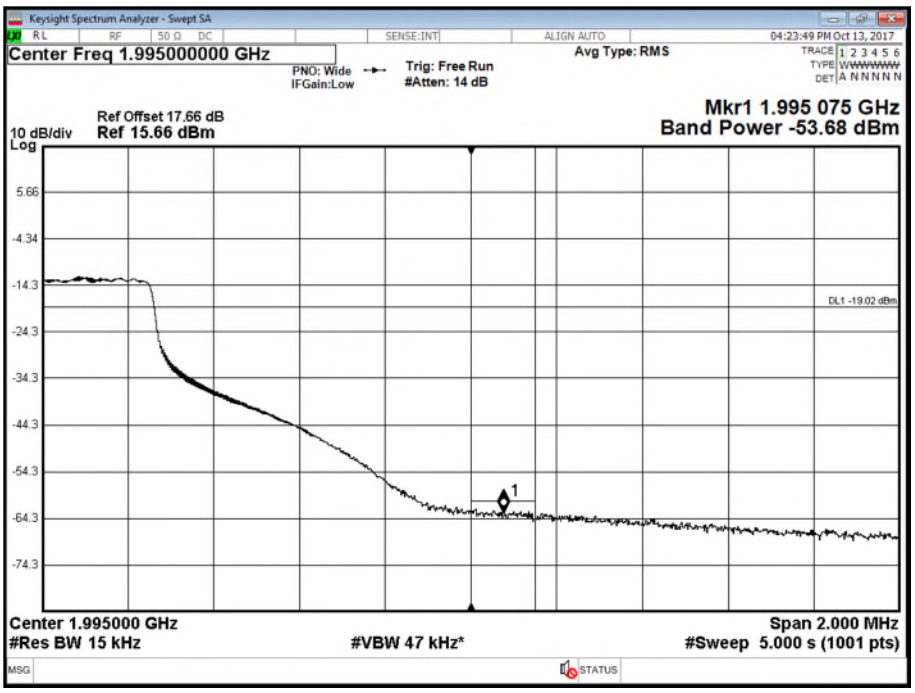
Antenna B - LTE Modulation QPSK - Channel B, 15MHz



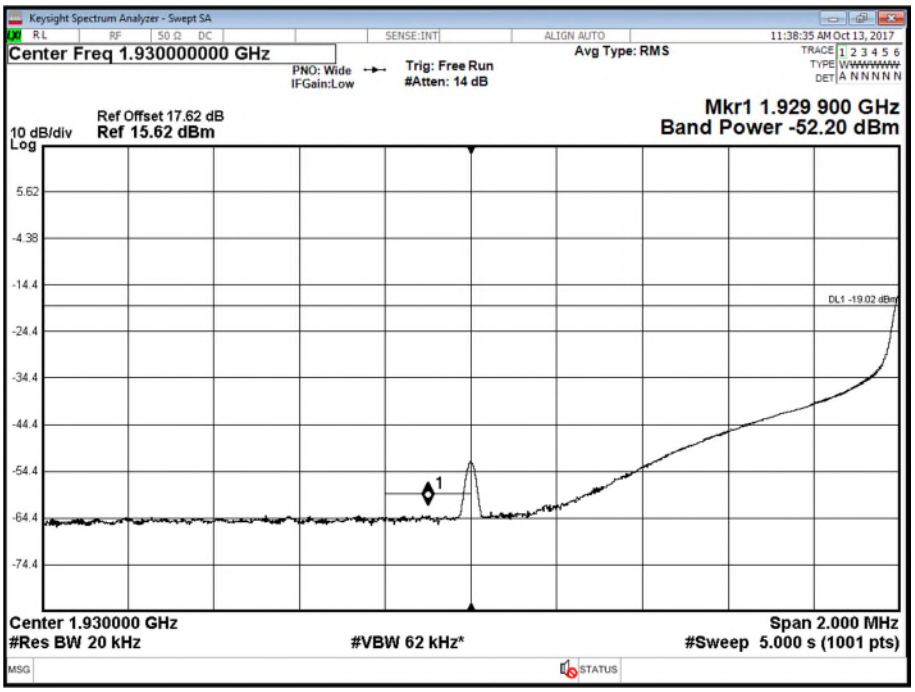
Antenna A - LTE Modulation QPSK - Channel T, 15MHz



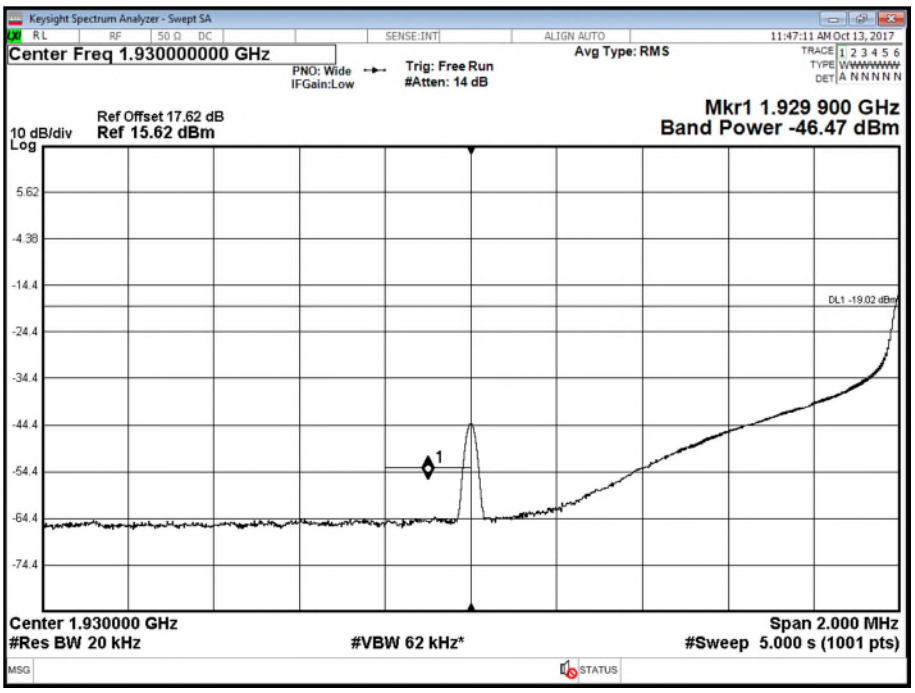
Antenna B - LTE Modulation QPSK - Channel T, 15MHz



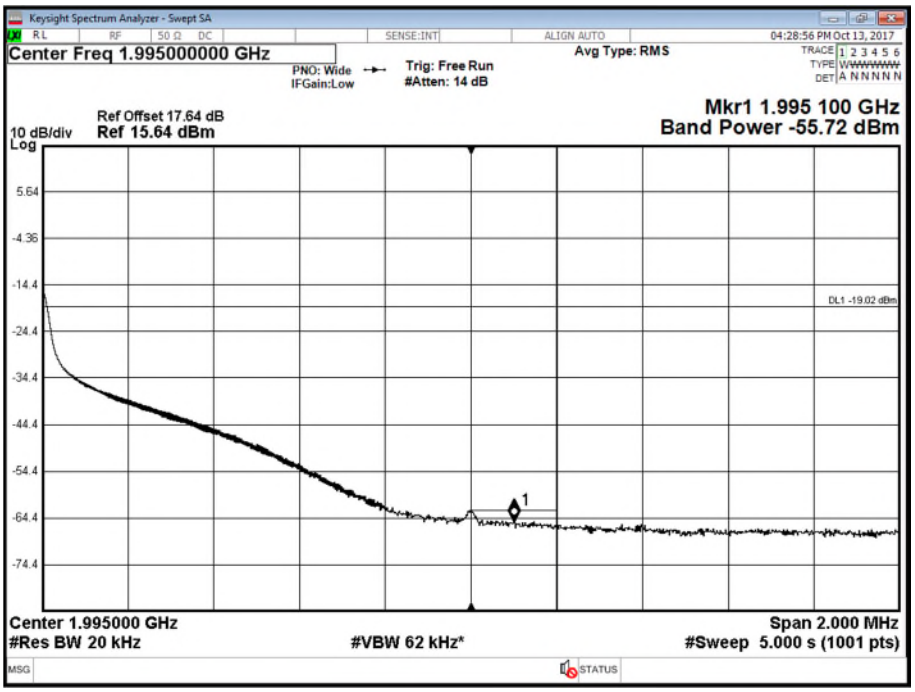
Antenna A - LTE Modulation QPSK - Channel B, 20MHz



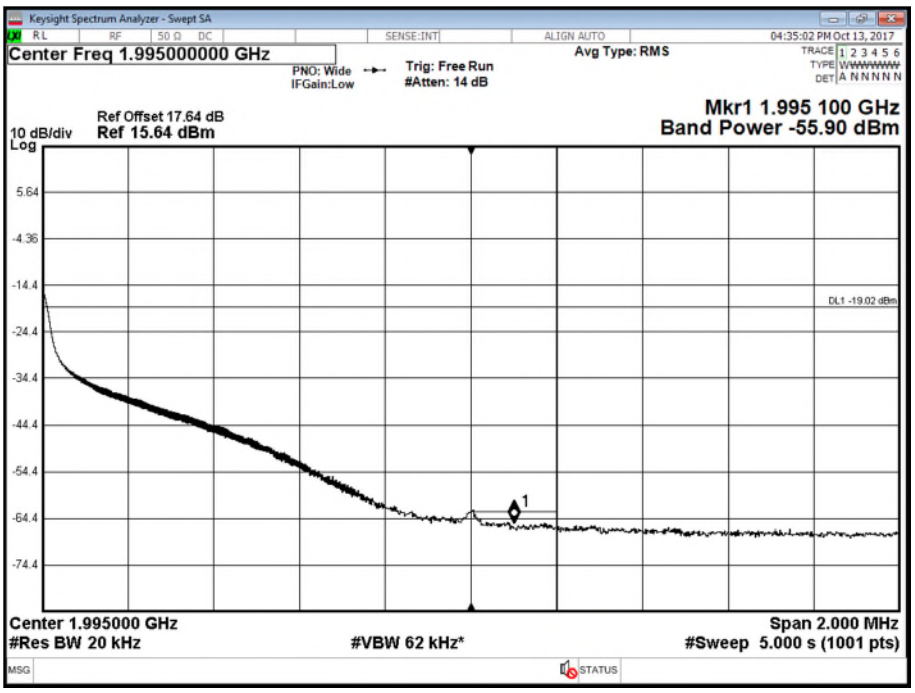
Antenna B - LTE Modulation QPSK - Channel B, 20MHz



Antenna A - LTE Modulation QPSK - Channel T, 20MHz



Antenna B - LTE Modulation QPSK - Channel T, 20MHz

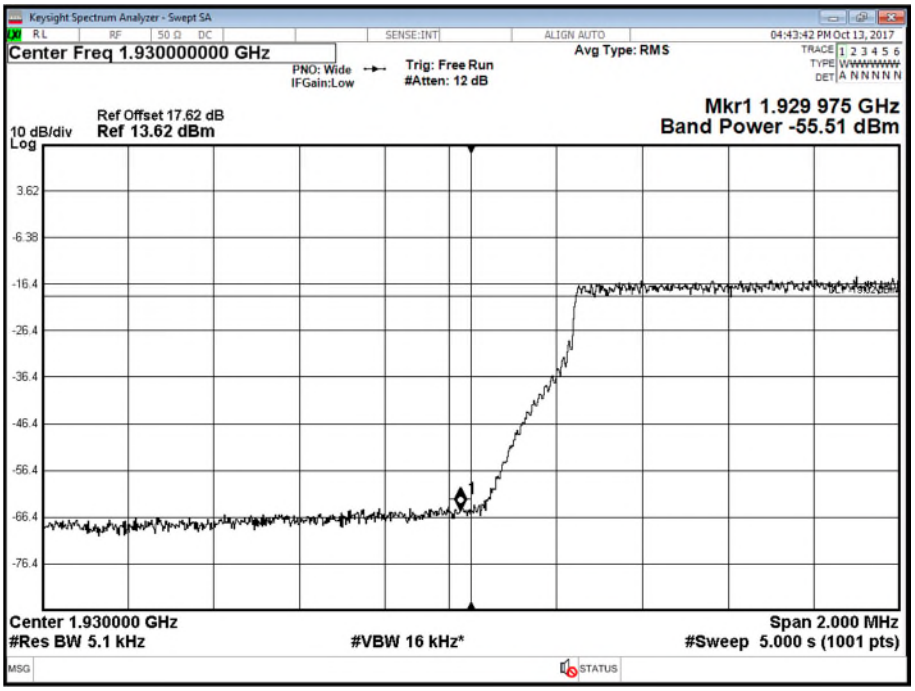


Configuration 5

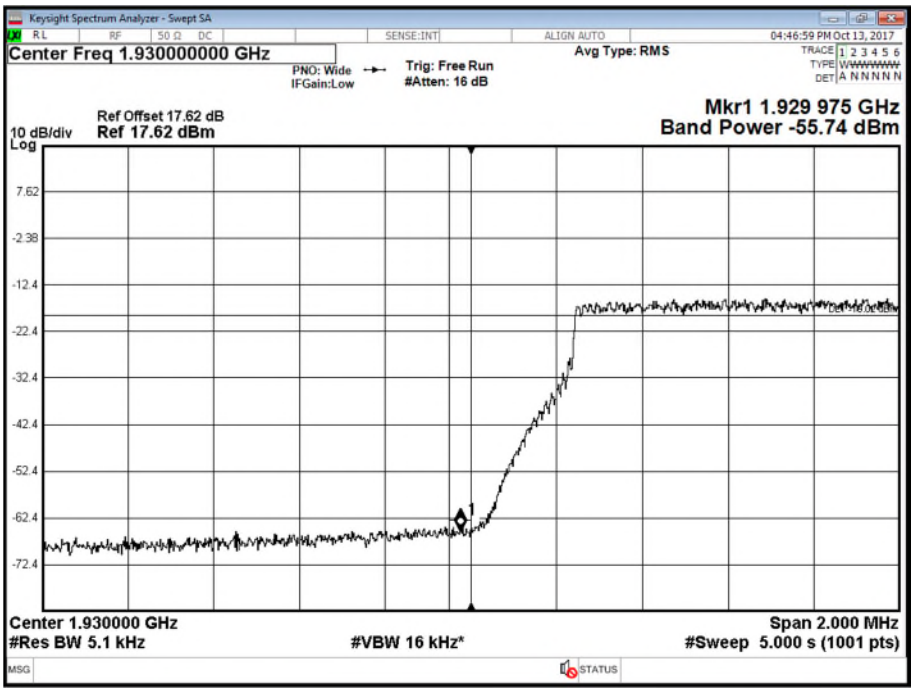
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	QPSK	5.0 MHz	1932.5 + 1937.5	1987.5 + 1992.5
B	QPSK	5.0 MHz	1932.5 + 1937.5	1987.5 + 1992.5
A	QPSK	10.0 MHz	1935 + 1945	1980 + 1990
B	QPSK	10.0 MHz	1935 + 1945	1980 + 1990
A	QPSK	15.0 MHz	1937.5 + 1952.5	1972.5 + 1987.5
B	QPSK	15.0 MHz	1937.5 + 1952.5	1972.5 + 1987.5
A	QPSK	20.0 MHz	1940 + 1960	1965 + 1985
B	QPSK	20.0 MHz	1940 + 1960	1965 + 1985

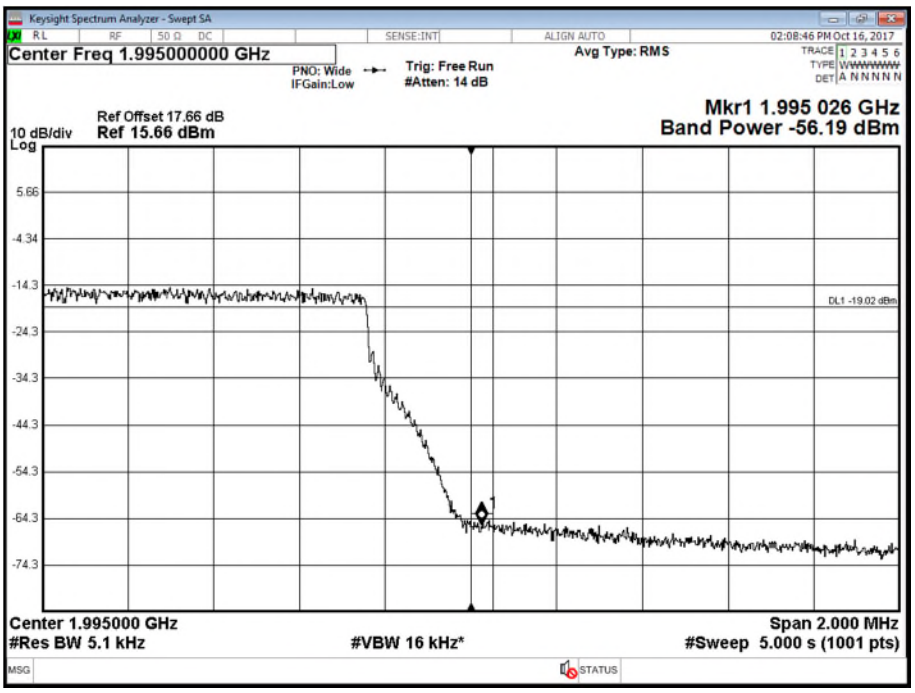
Antenna A - LTE Modulation QPSK - Channel B, 5MHz



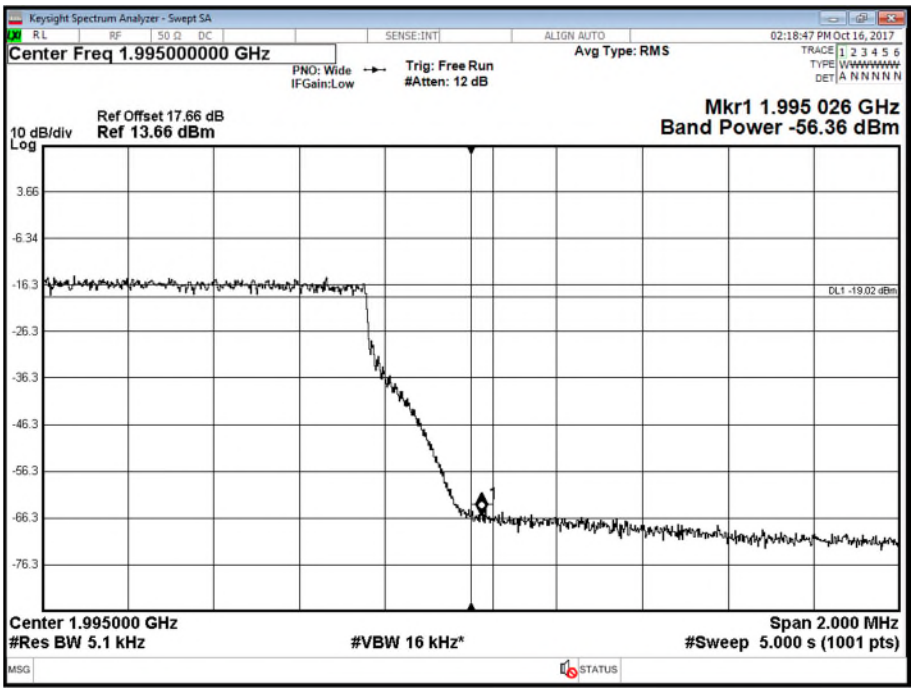
Antenna B - LTE Modulation QPSK - Channel B, 5MHz



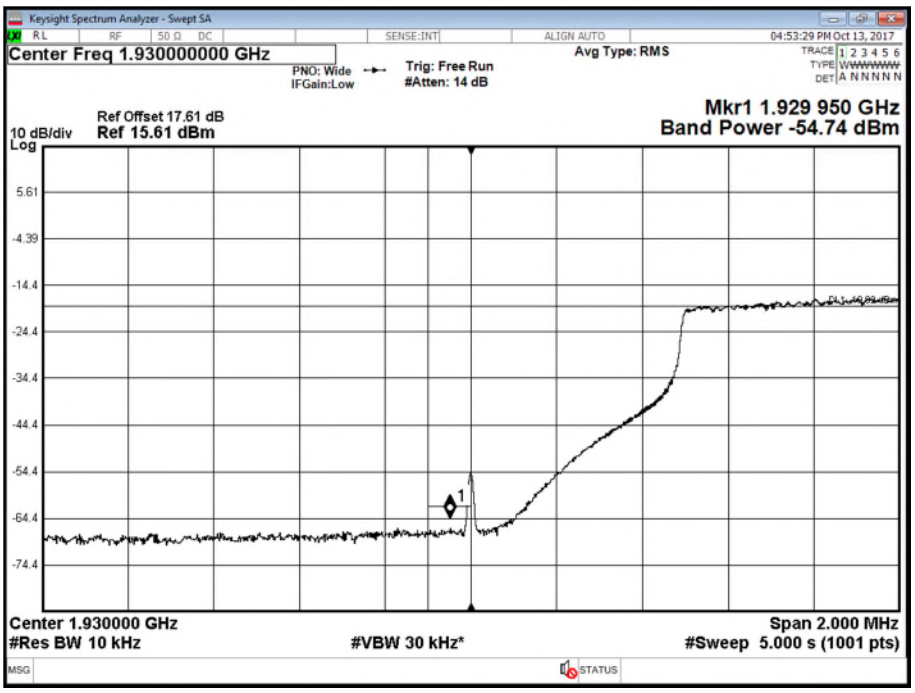
Antenna A - LTE Modulation QPSK - Channel T, 5MHz



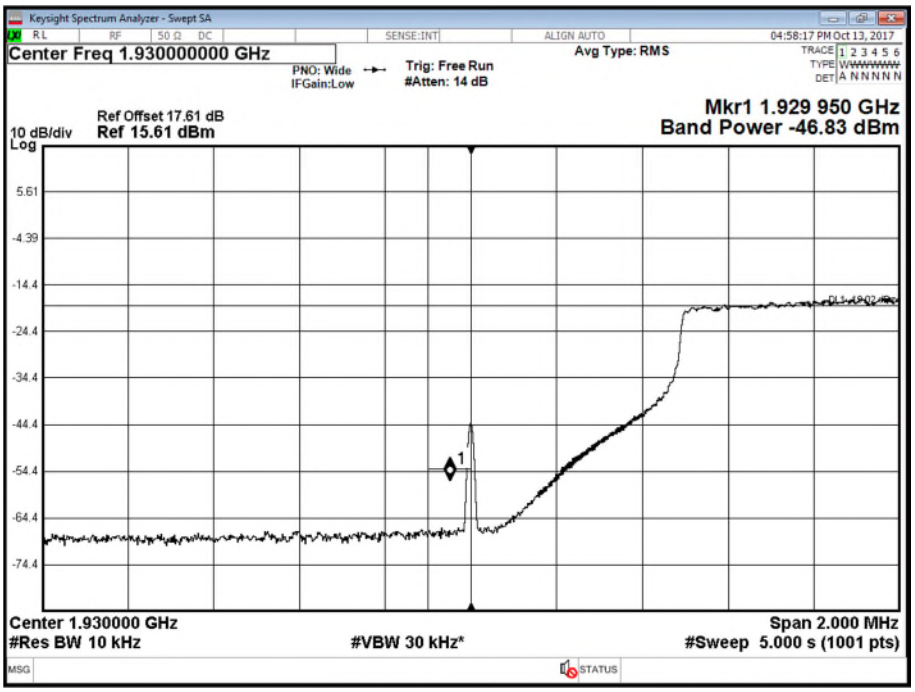
Antenna B - LTE Modulation QPSK - Channel T, 5MHz



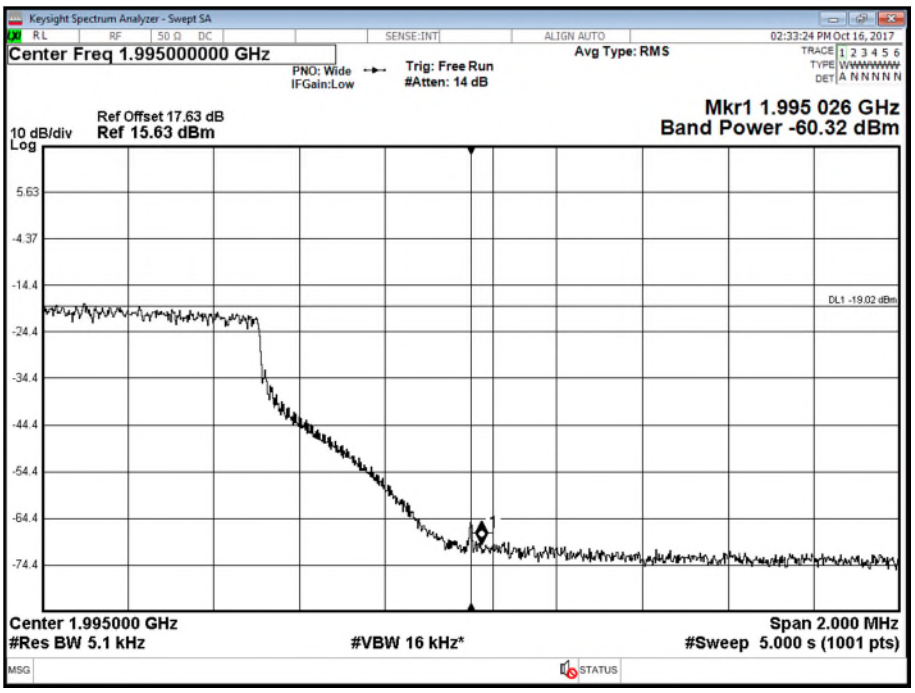
Antenna A - LTE Modulation QPSK - Channel B, 10MHz



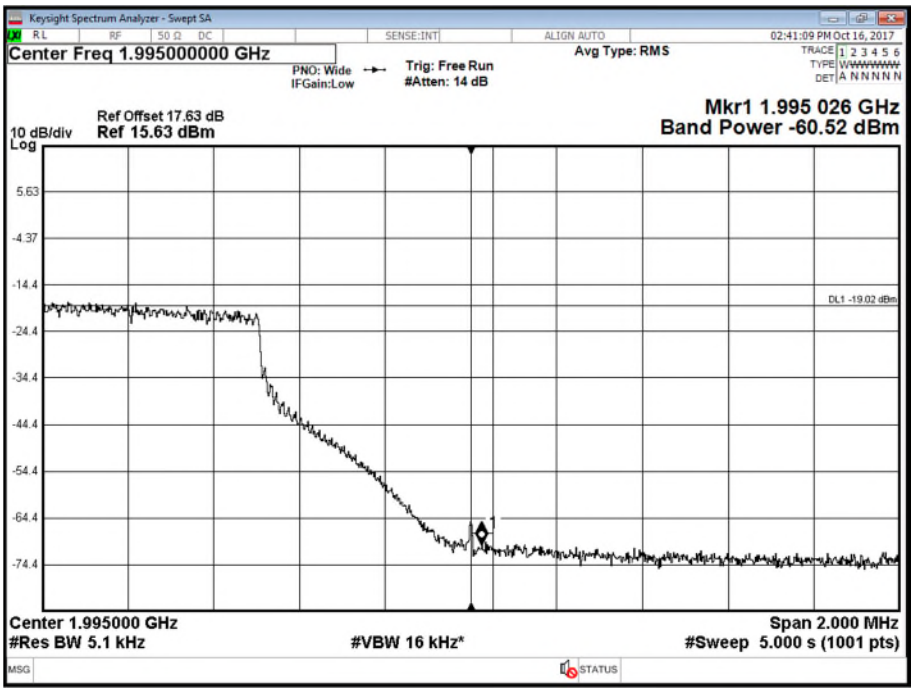
Antenna B - LTE Modulation QPSK - Channel B, 10MHz



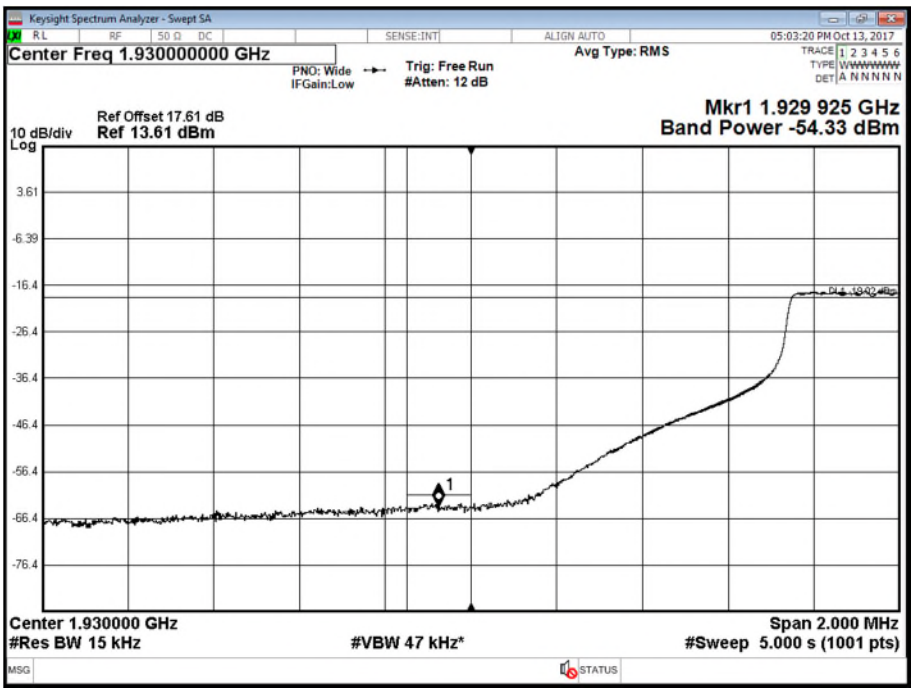
Antenna A - LTE Modulation QPSK - Channel T, 10MHz



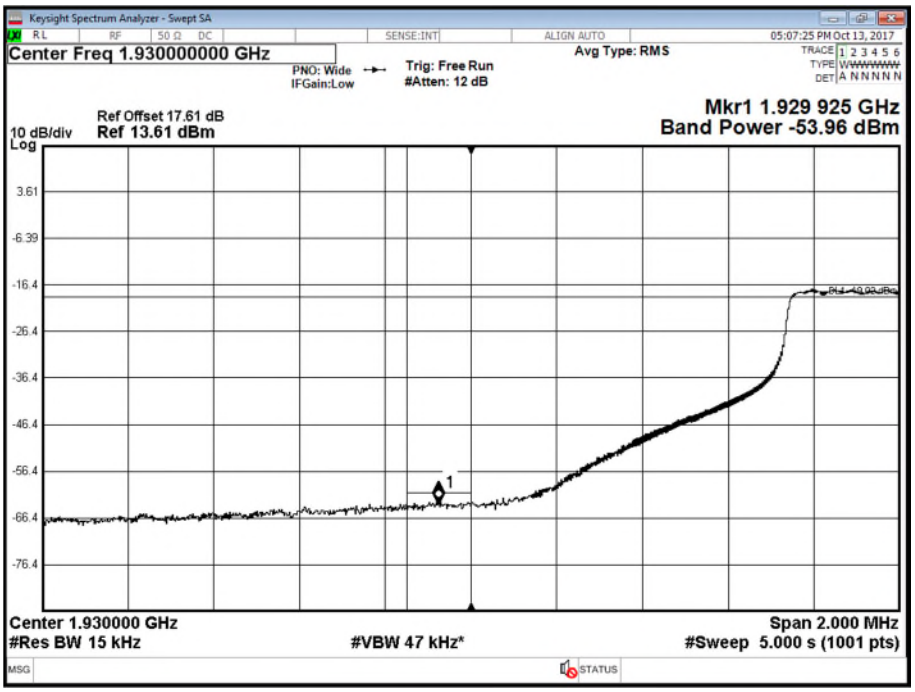
Antenna B - LTE Modulation QPSK - Channel T, 10MHz



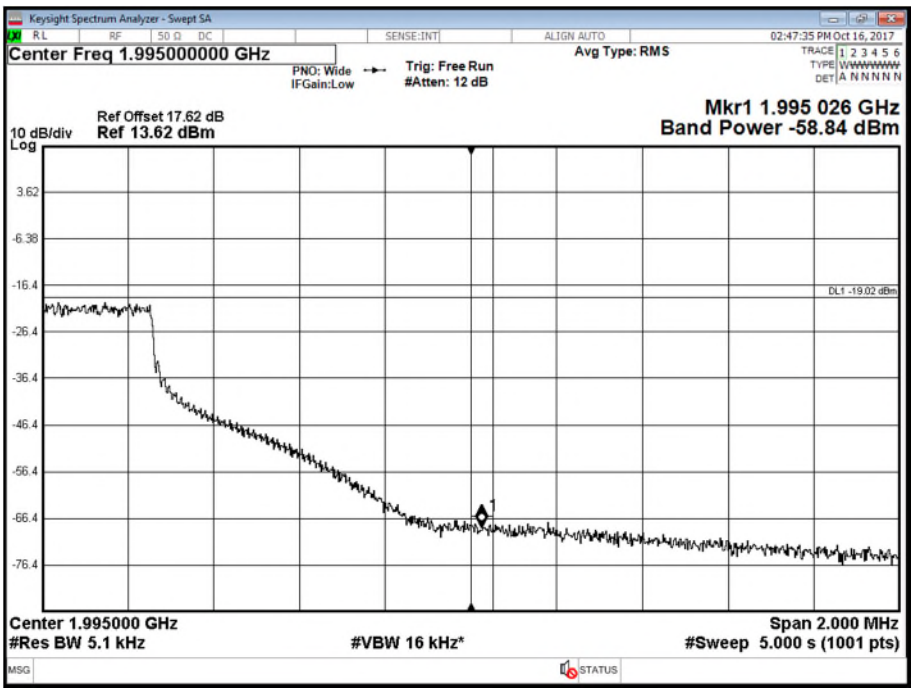
Antenna A - LTE Modulation QPSK - Channel B, 15MHz



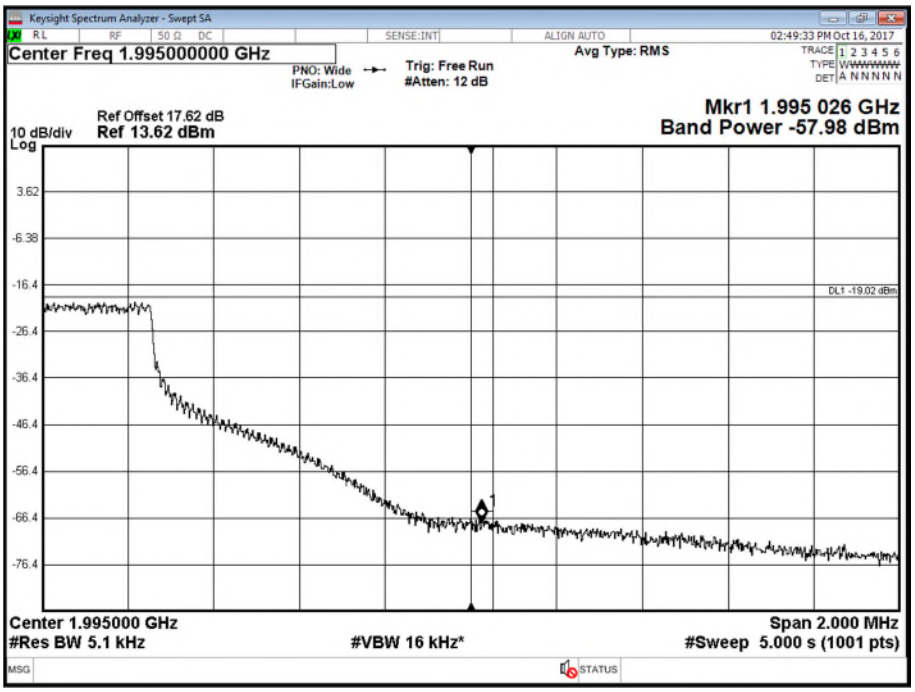
Antenna B - LTE Modulation QPSK – Channel B, 15MHz



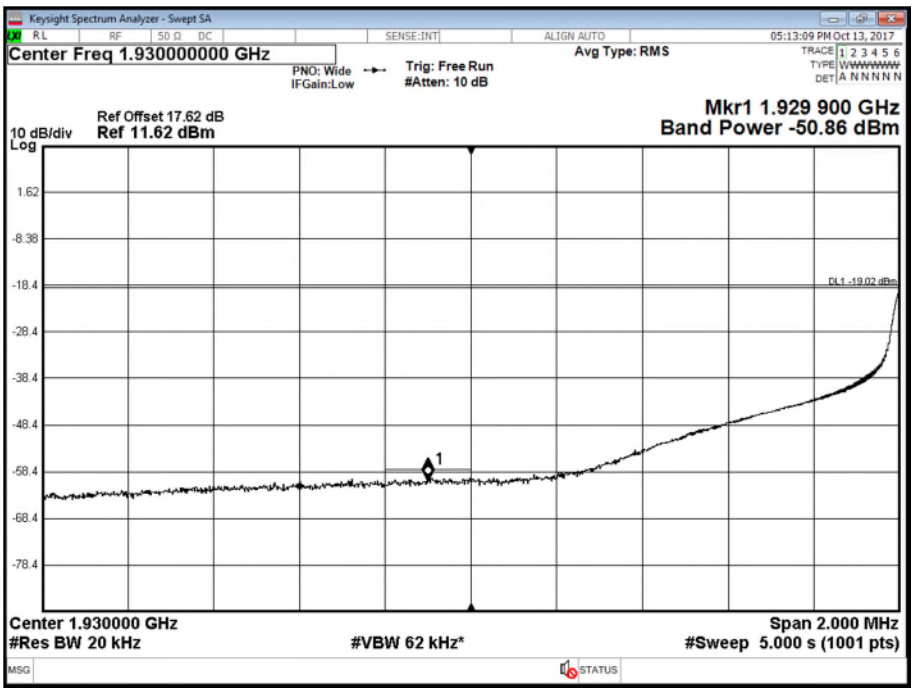
Antenna A - LTE Modulation QPSK - Channel T, 15MHz



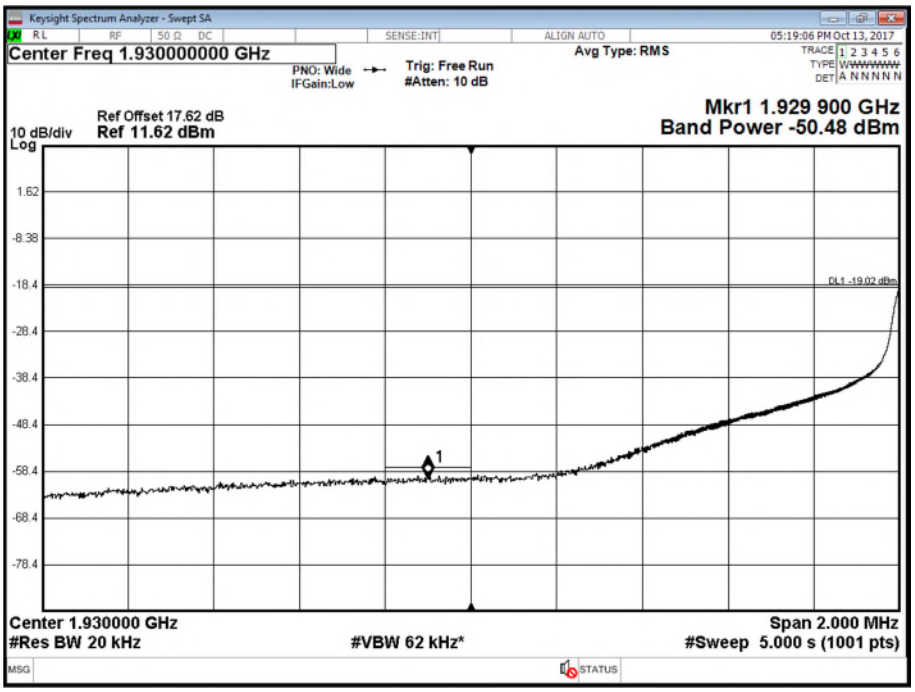
Antenna B - LTE Modulation QPSK - Channel T, 15MHz



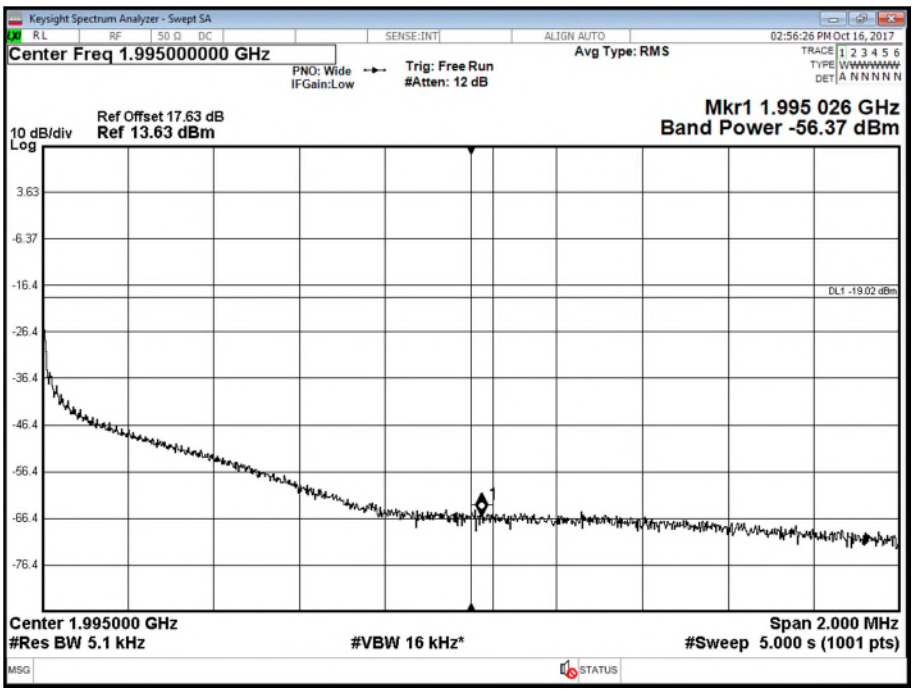
Antenna A - LTE Modulation QPSK - Channel B, 20MHz



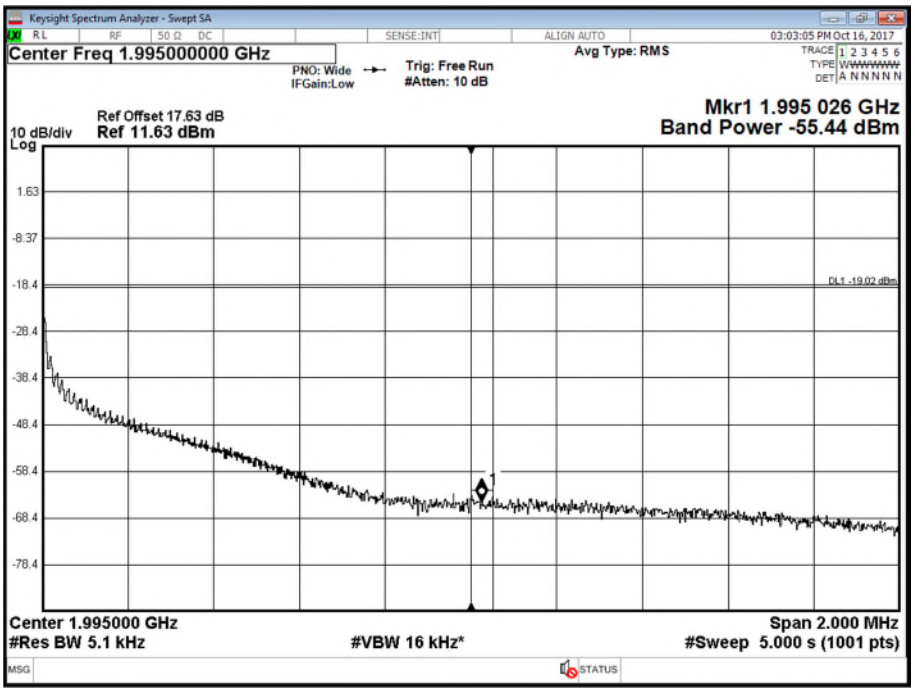
Antenna B - LTE Modulation QPSK - Channel B, 20MHz



Antenna A - LTE Modulation QPSK - Channel T, 20MHz



Antenna B - LTE Modulation QPSK - Channel T, 20MHz

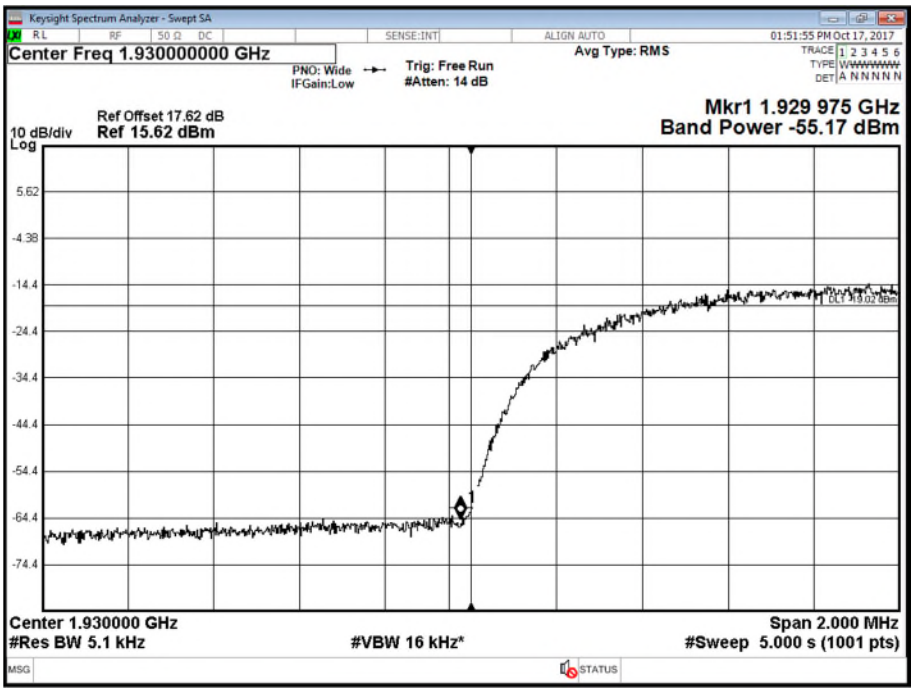


Configuration 6

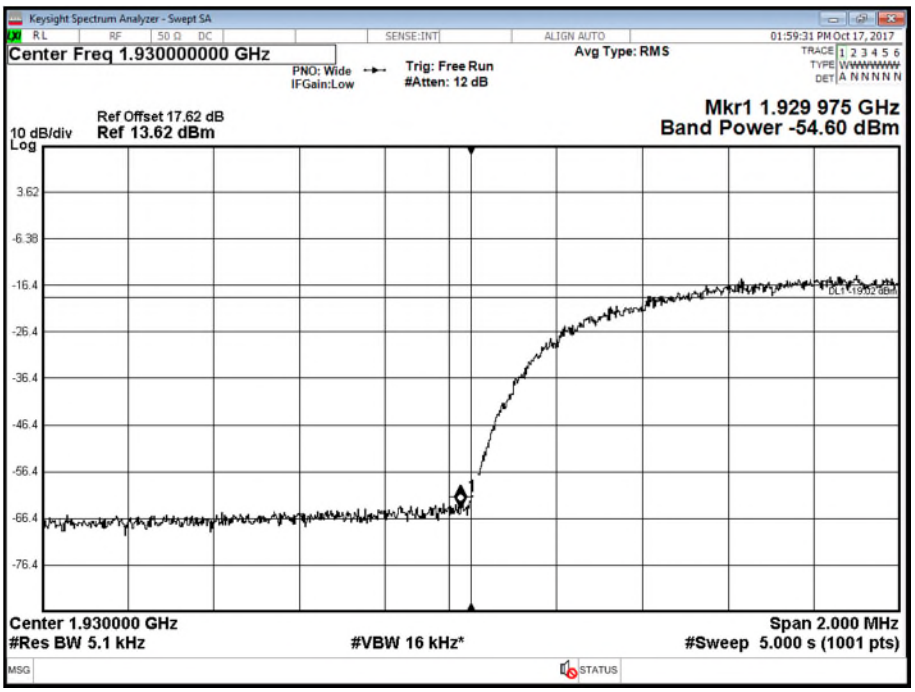
Maximum Output Power 17 dBm

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B_{RFBW}	Channel Position T_{RFBW}
A	16QAM / QPSK	5.0 MHz / 5.0 MHz	1932.4 (W) + 1937.5 (L)	1987.4 (W) + 1992.5 (L)
B	16QAM / QPSK	5.0 MHz / 5.0 MHz	1932.4 (W) + 1937.5 (L)	1987.4 (W) + 1992.5 (L)
A	16QAM / QPSK	5.0 MHz / 10.0 MHz	1932.4 (W) + 1940 (L)	1982.4 (W) + 1990 (L)
B	16QAM / QPSK	5.0 MHz / 10.0 MHz	1932.4 (W) + 1940 (L)	1982.4 (W) + 1990 (L)
A	16QAM / QPSK	5.0 MHz / 15.0 MHz	1932.4 (W) + 1942.5 (L)	1977.4 (W) + 1987.5 (L)
B	16QAM / QPSK	5.0 MHz / 15.0 MHz	1932.4 (W) + 1942.5 (L)	1977.4 (W) + 1987.5 (L)
A	16QAM / QPSK	5.0 MHz / 20.0 MHz	1932.4 (W) + 1945 (L)	1972.4 (W) + 1985 (L)
B	16QAM / QPSK	5.0 MHz / 20.0 MHz	1932.4 (W) + 1945 (L)	1972.4 (W) + 1985 (L)

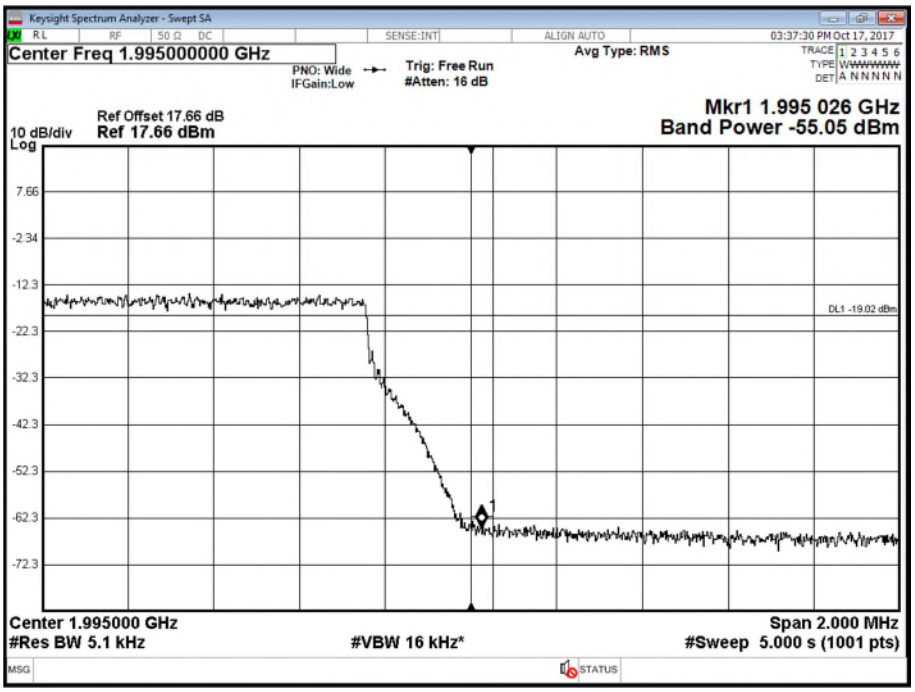
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 5MHz



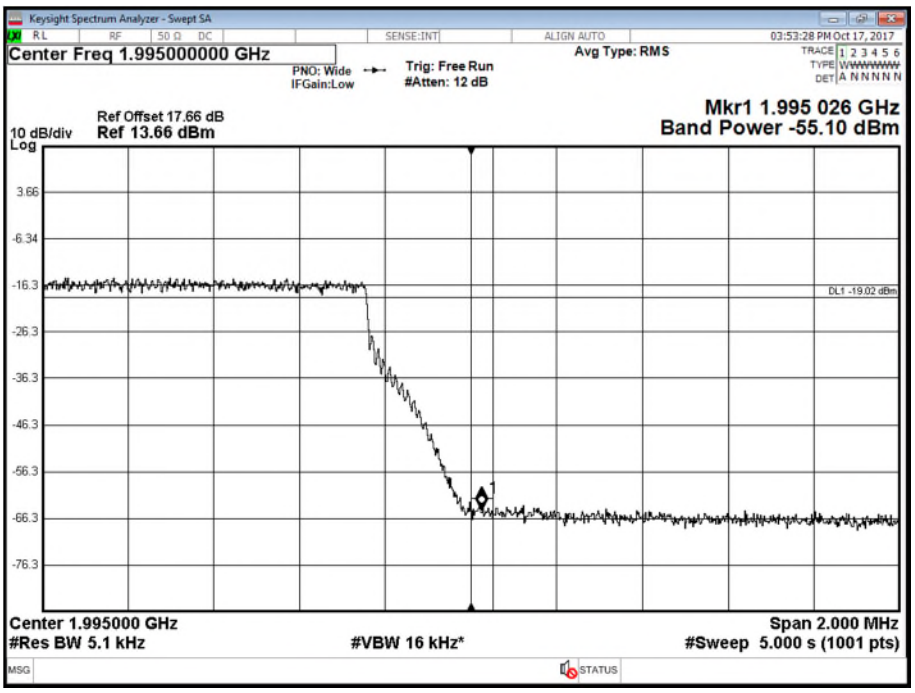
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 5MHz



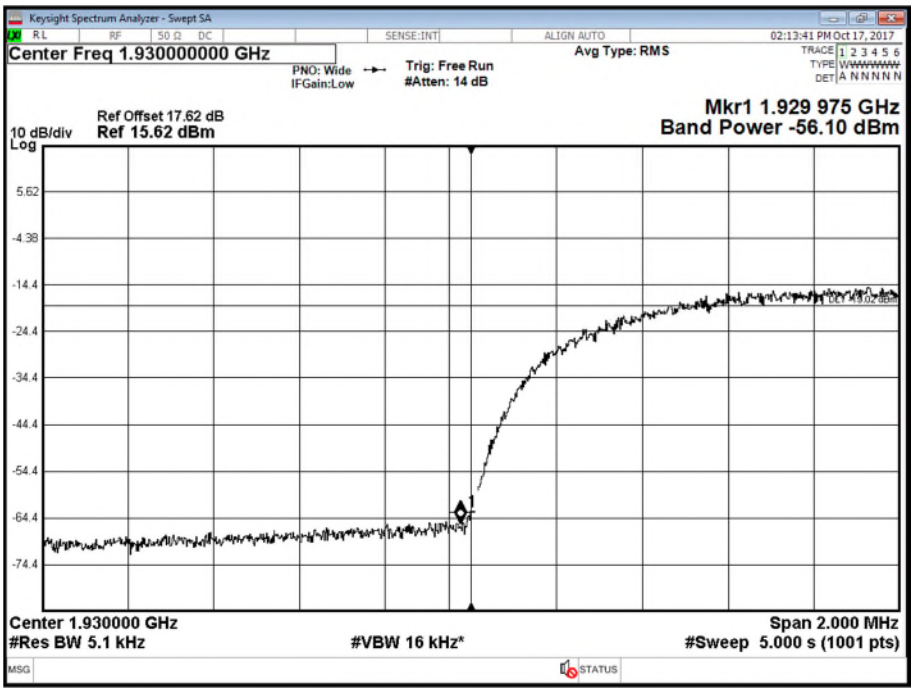
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 5MHz



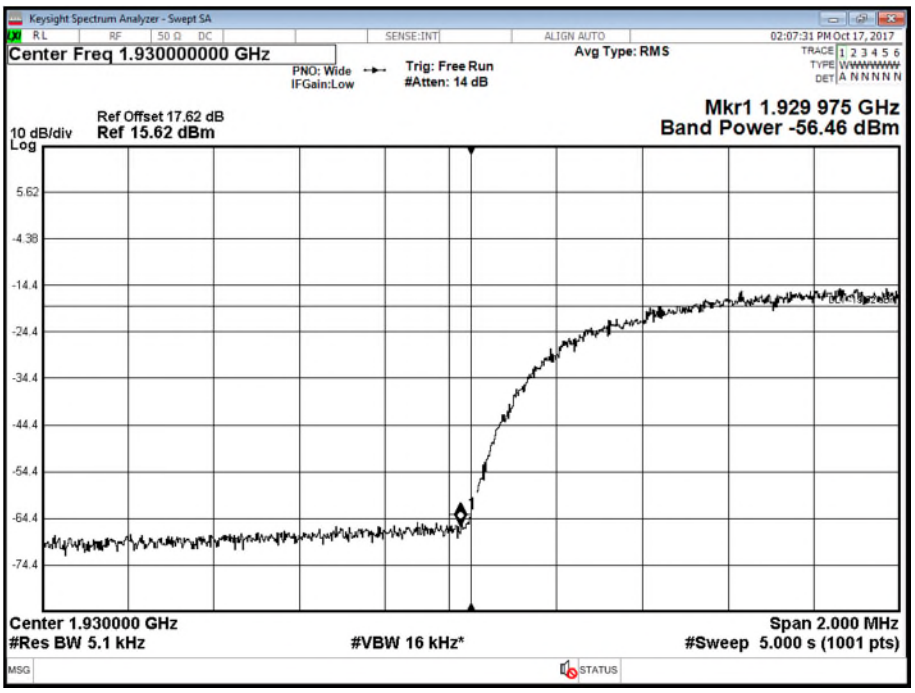
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 5MHz



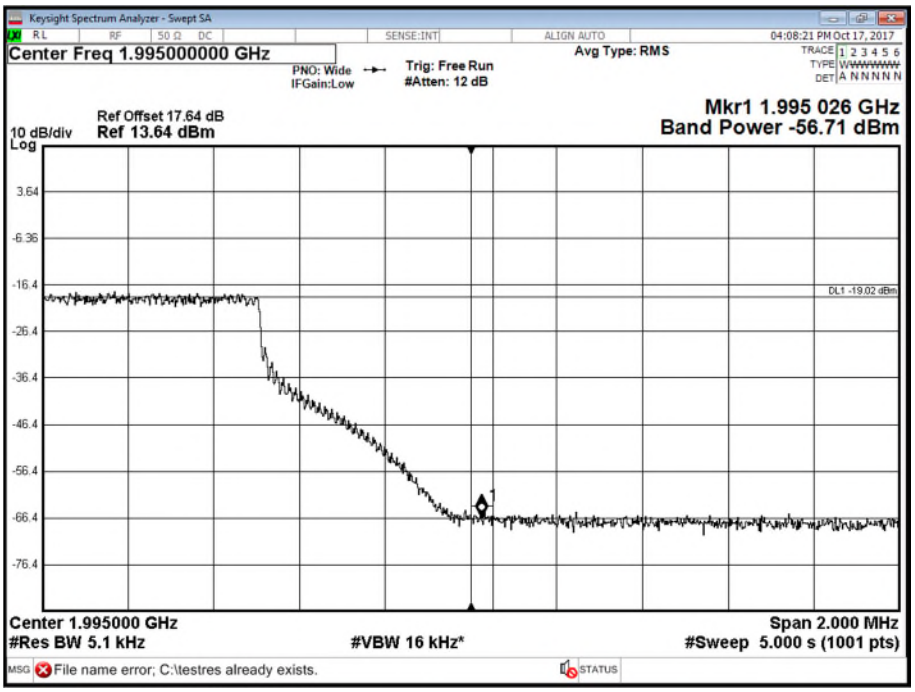
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 10MHz



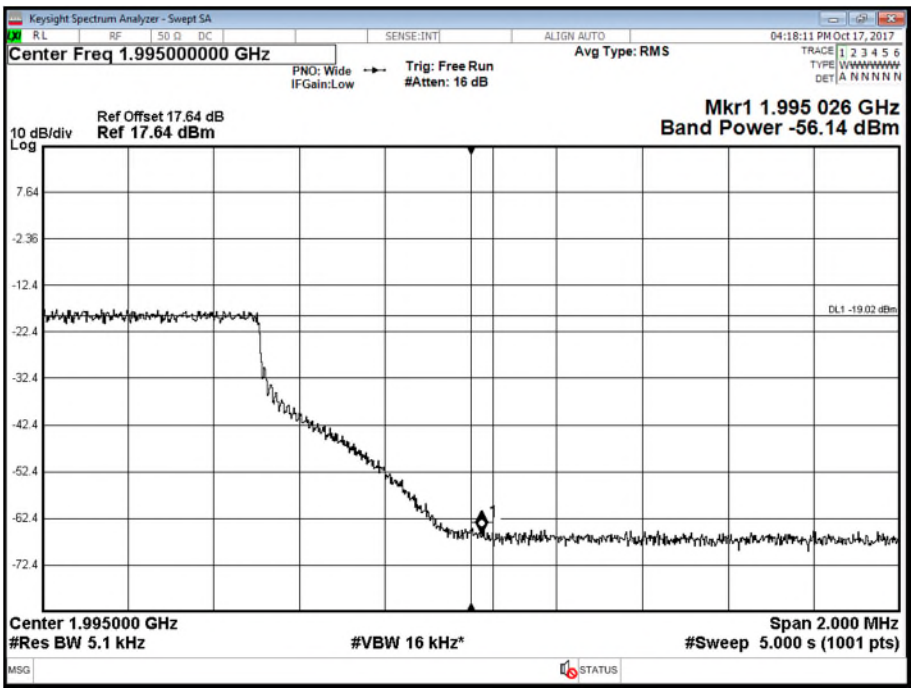
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 10MHz



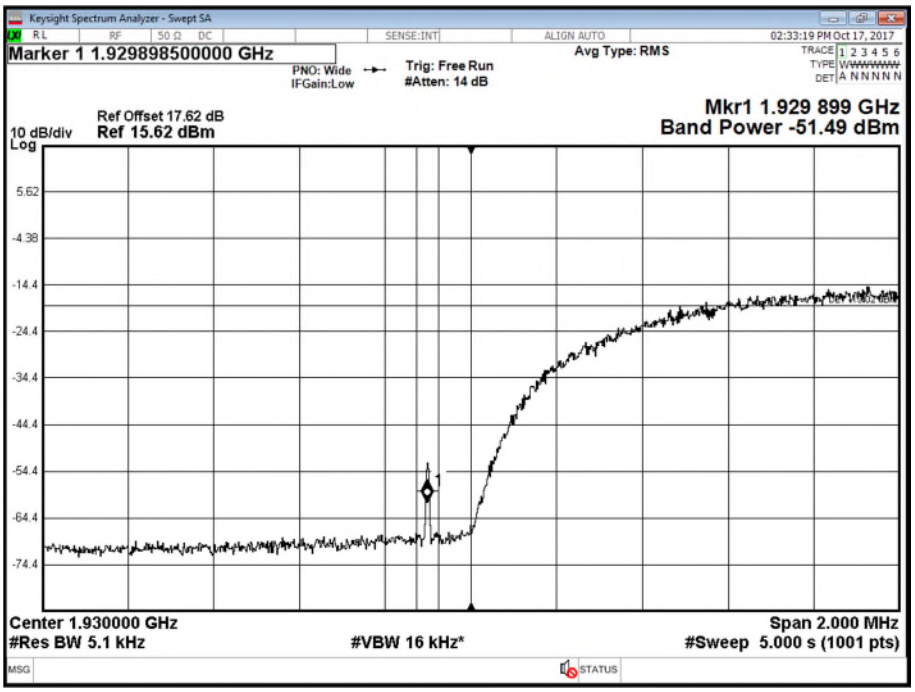
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 10MHz



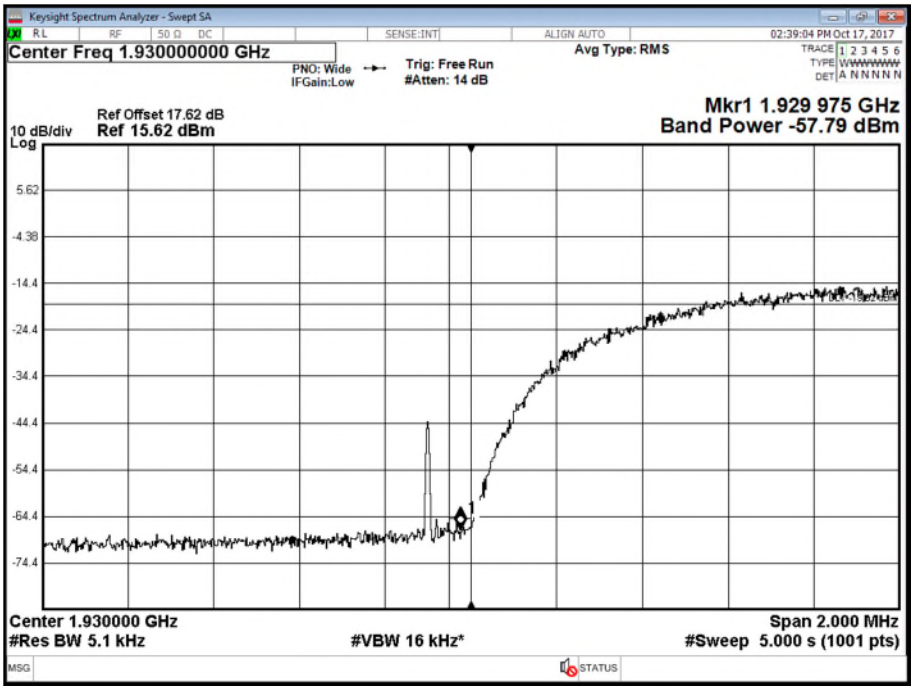
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 10MHz



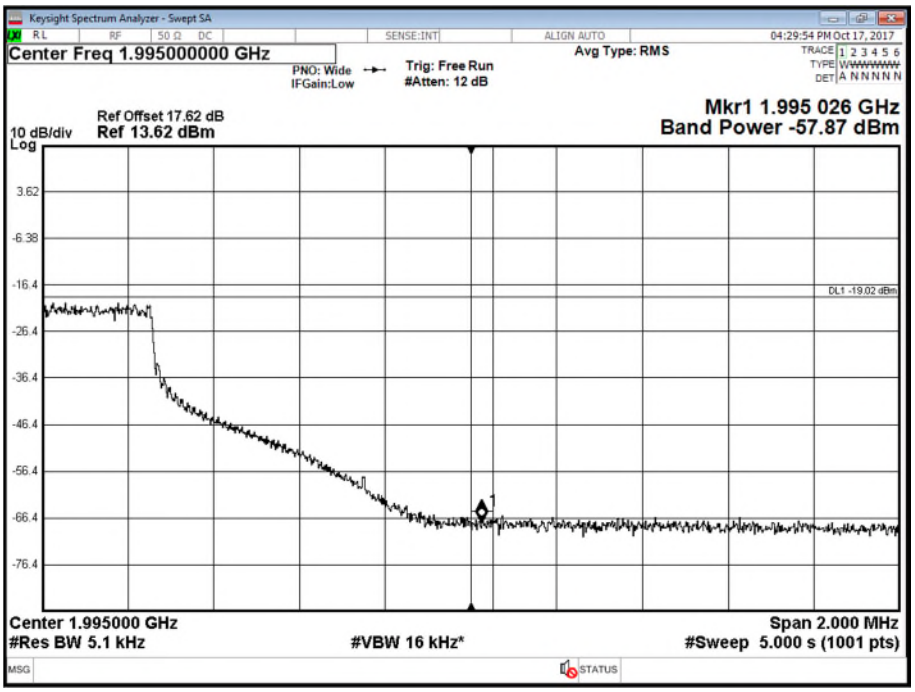
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 15MHz



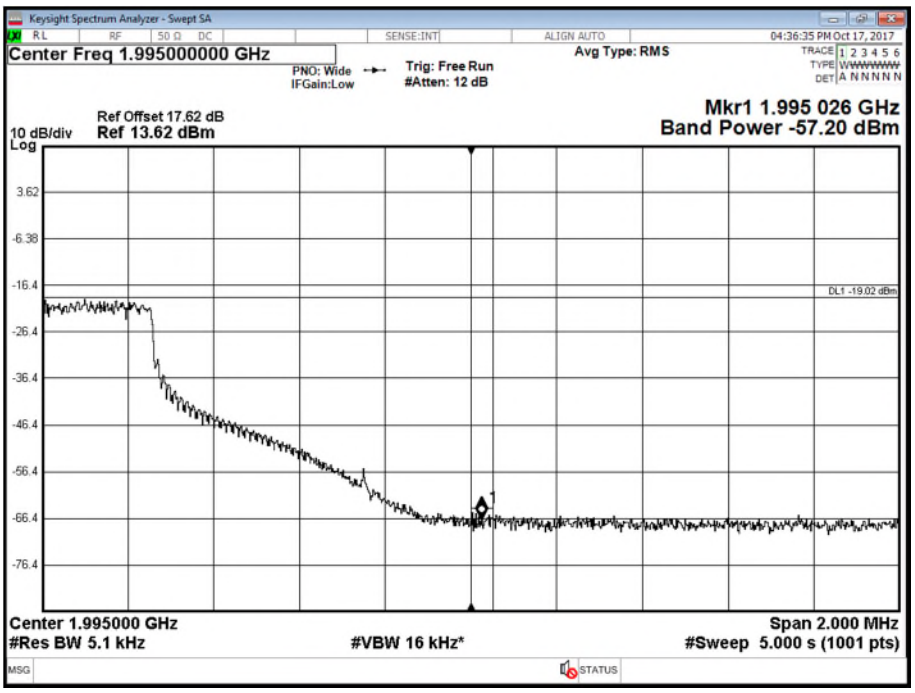
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 15MHz



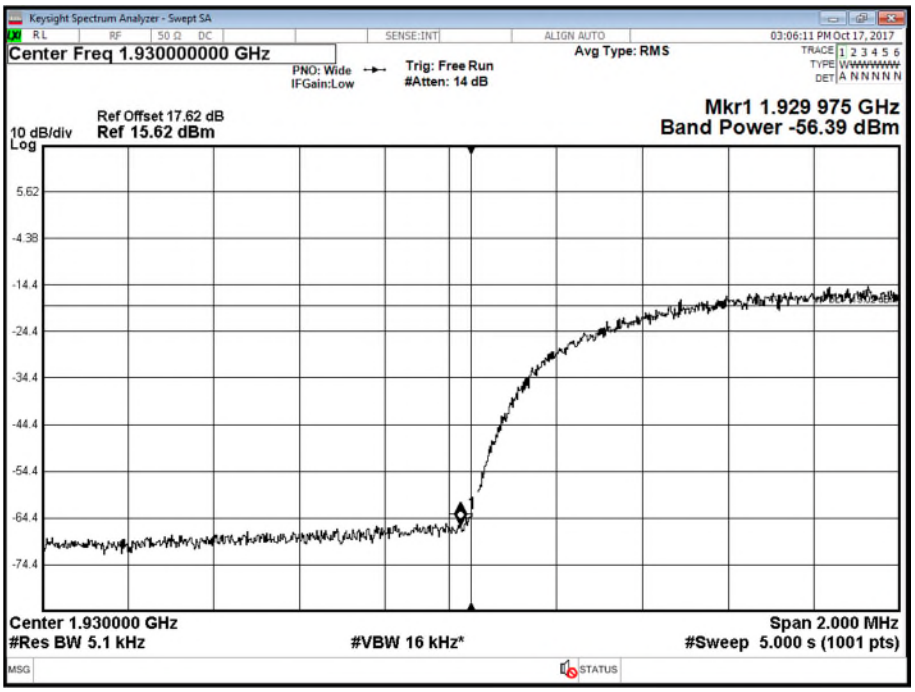
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 15MHz



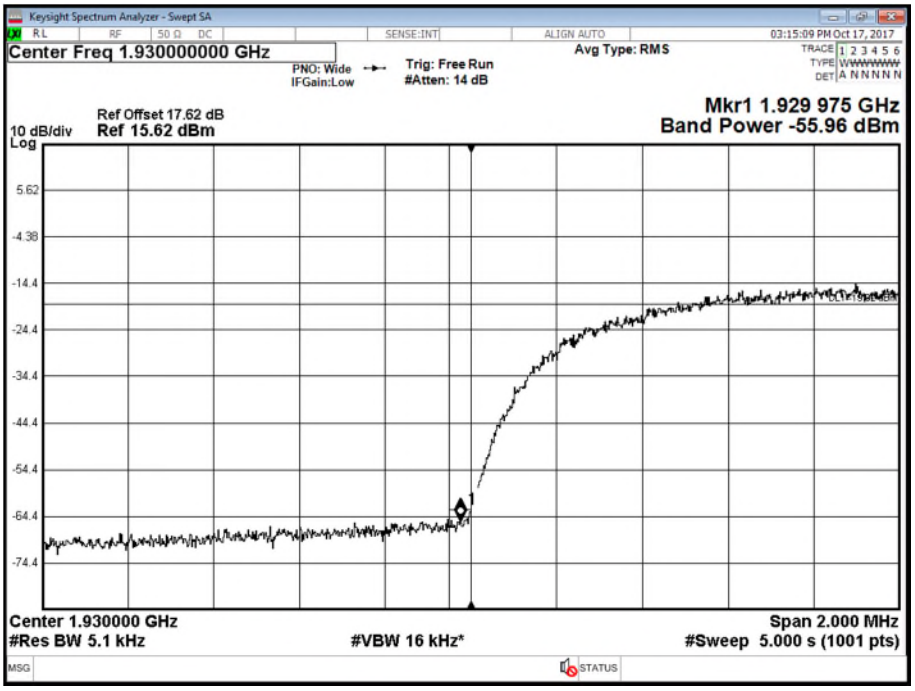
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 15MHz



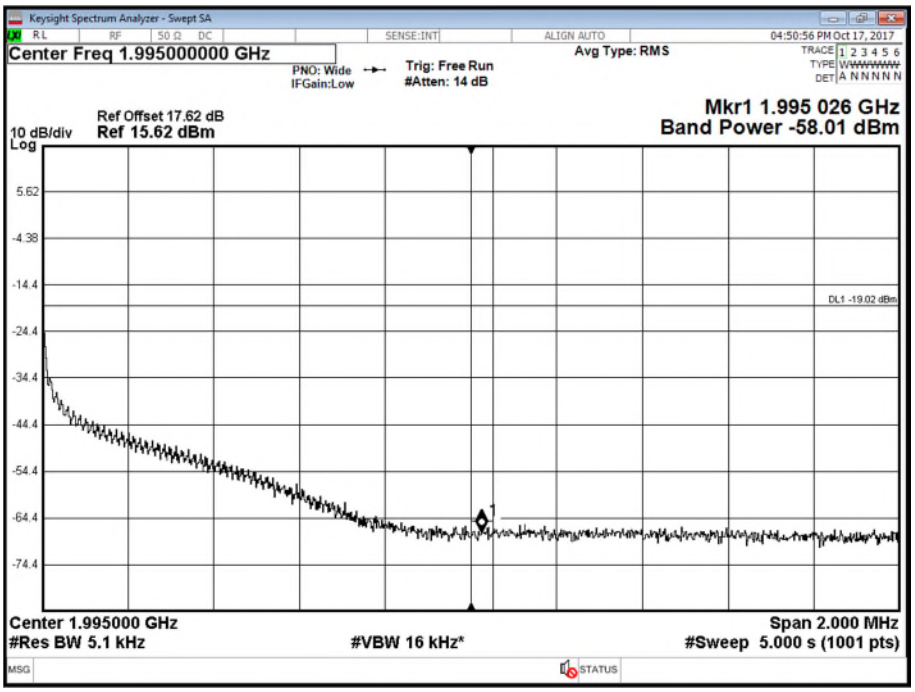
Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 20MHz



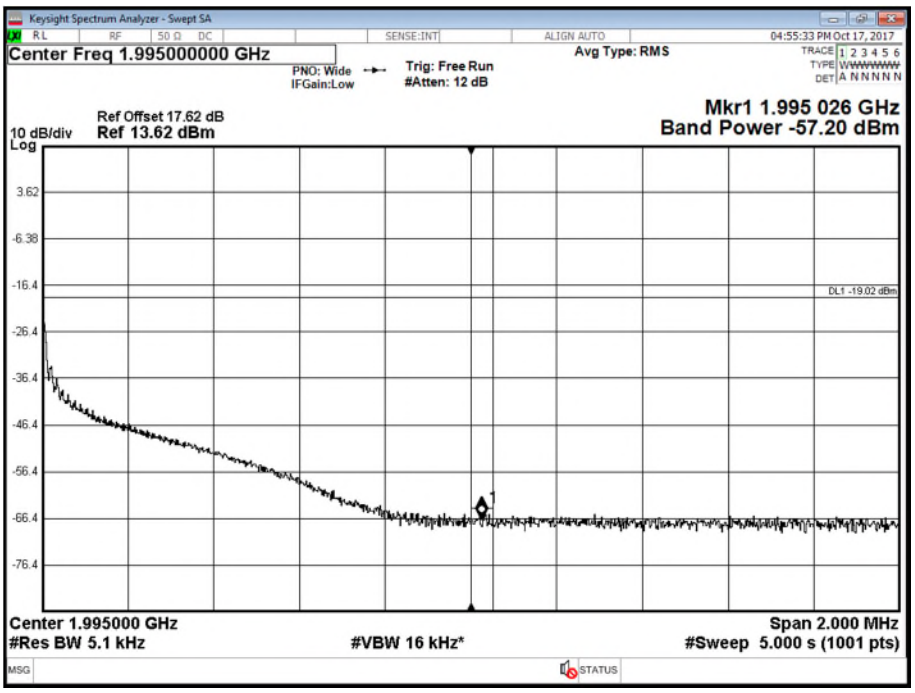
Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel B, 20MHz



Antenna A - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 20MHz



Antenna B - WCDMA / LTE Modulation 16QAM / QPSK - Channel T, 20MHz



Limit	-19 dBm

2.4 TRANSMITTER SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 24, Clause 24.238 (a)
Industry Canada RSS-133, Clause 6.5

2.4.2 Date of Test and Modification State

12, 13, 16, 17 October 2017 - 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	50%

2.4.5 Test Method

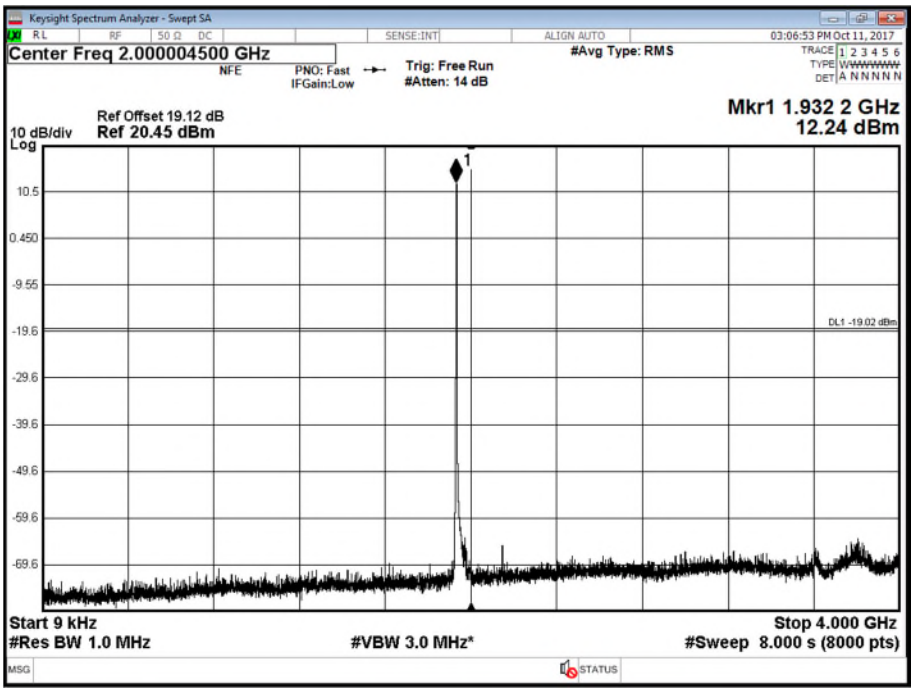
All measurements were made in accordance with FCC KDB 971168 D01 Clause 6.
The EUT was connected to a Spectrum Analyser via an attenuator and switching box. Prior to testing, a Network Analyser was used to calibrate the path loss between the EUT and the Spectrum Analyser. The worst case path loss in 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 B25 EUT has 2 transmit ports, but can be configured to operate with 2 devices co-located. Therefore, the test limits used were calculated on a worst case basis accounting for an effective 4 port MIMO configuration. Testing was performed on this port with a test limit of 43+10log(P) - 10log(4) = -19 dBm.

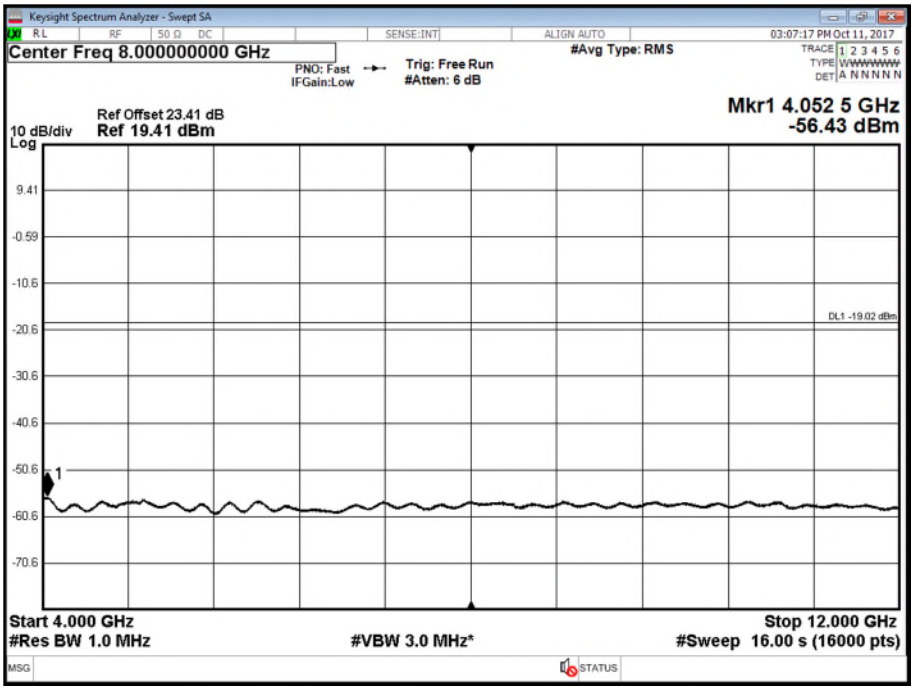
2.4.6 Test Results

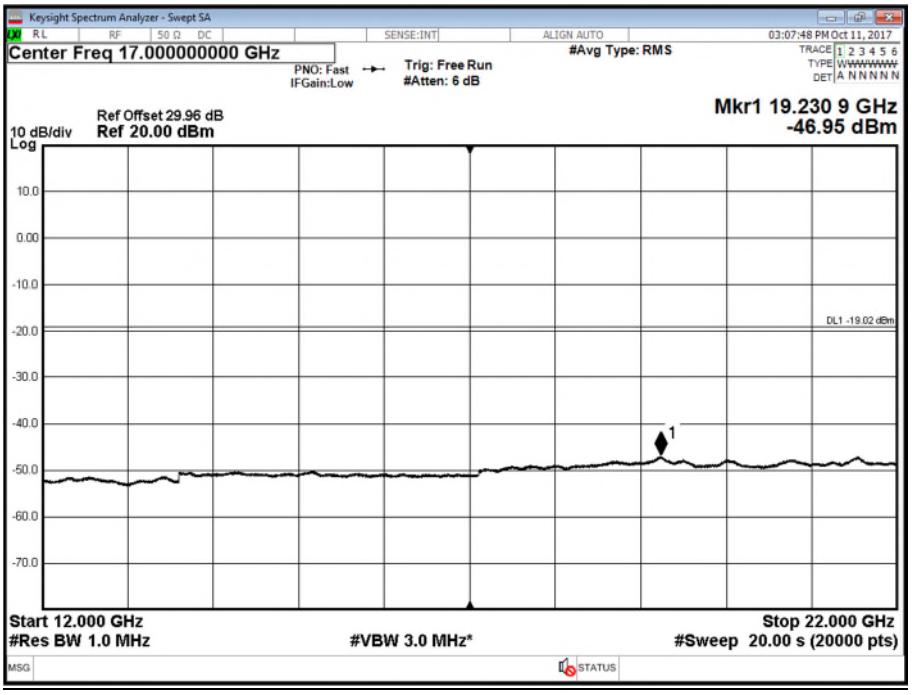
Configuration 1

Maximum Output Power 17 dBm

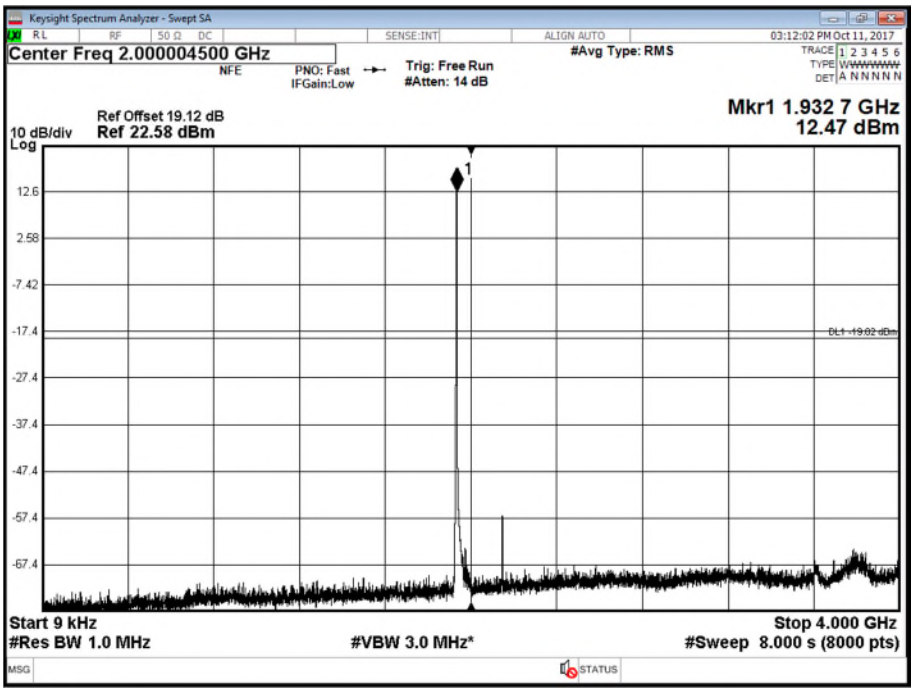
Antenna A - WCDMA Modulation 16QAM – Channel B

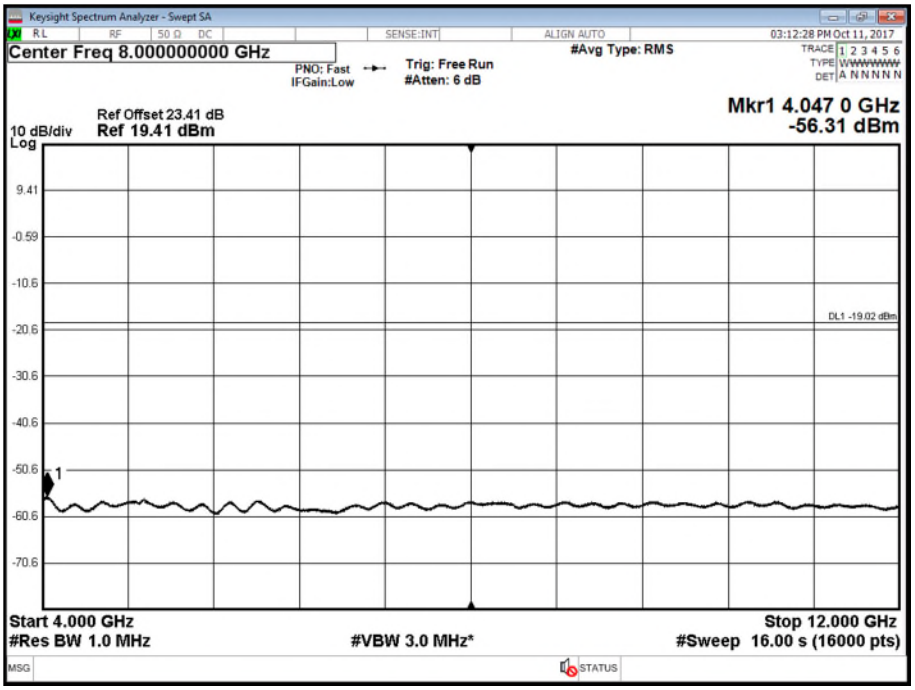


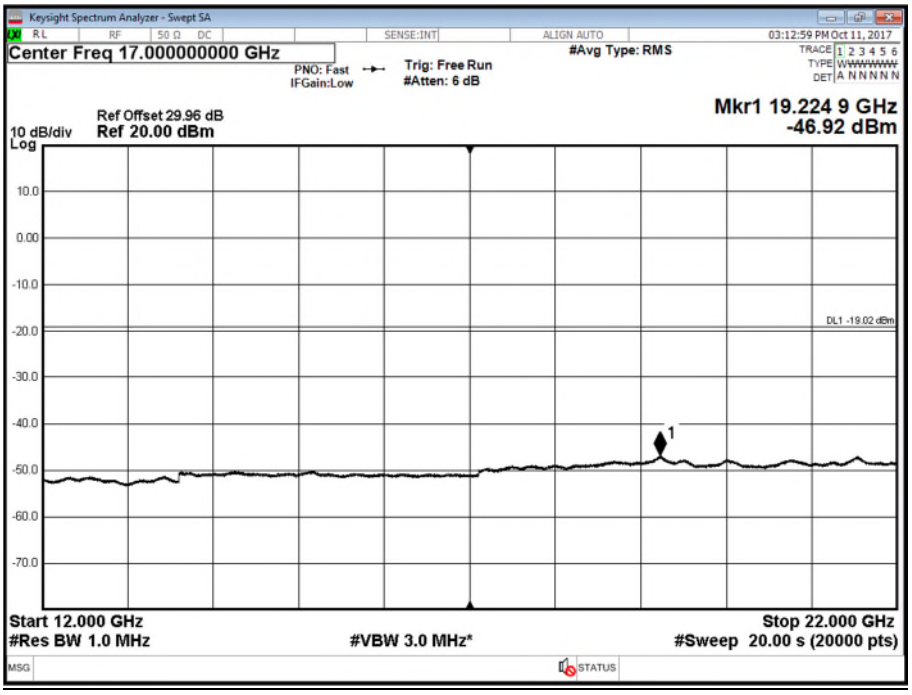




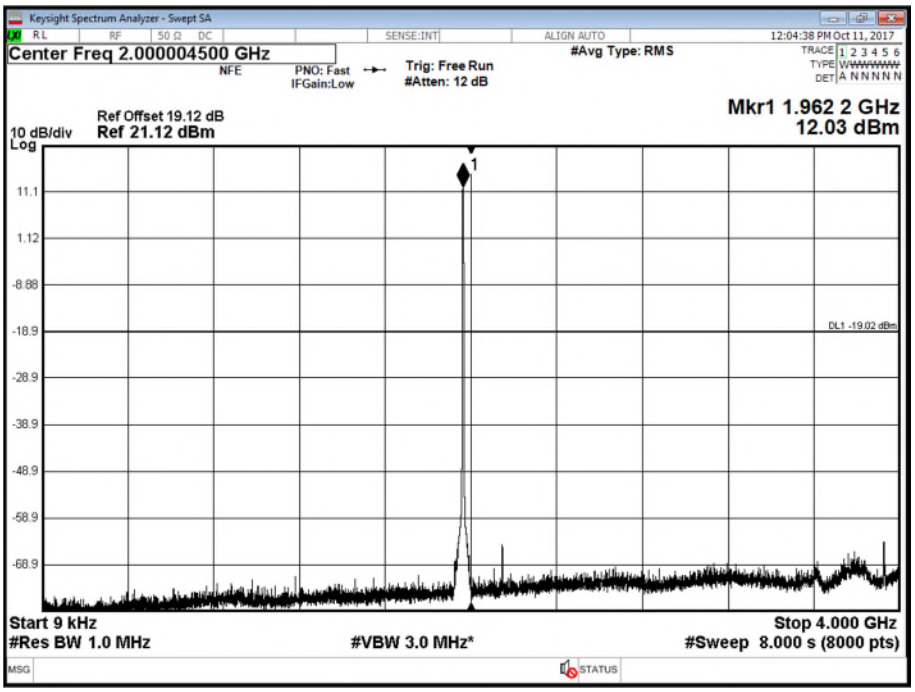
Antenna B - WCDMA Modulation 16QAM Channel B

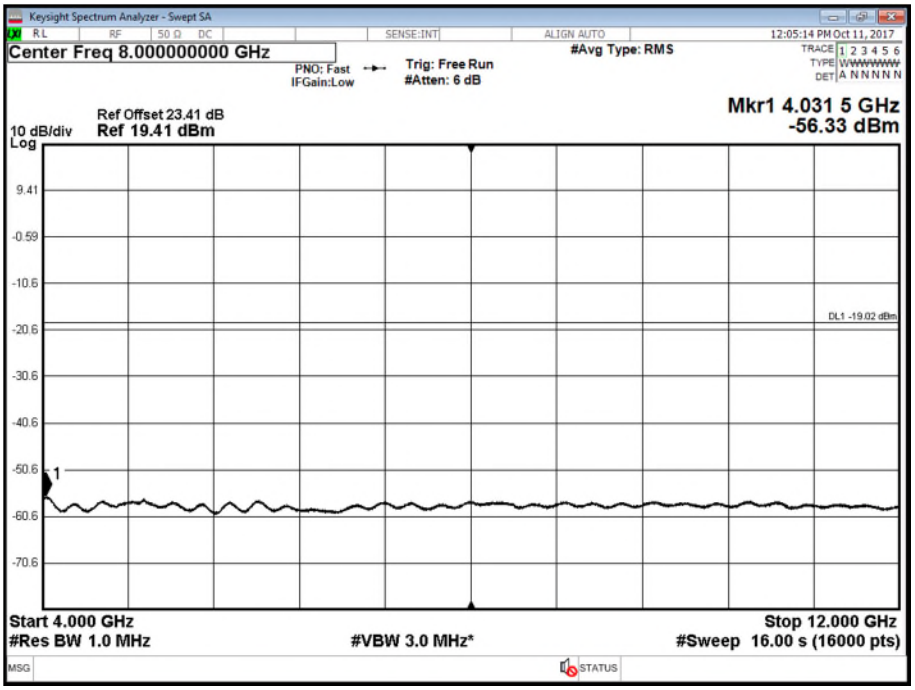


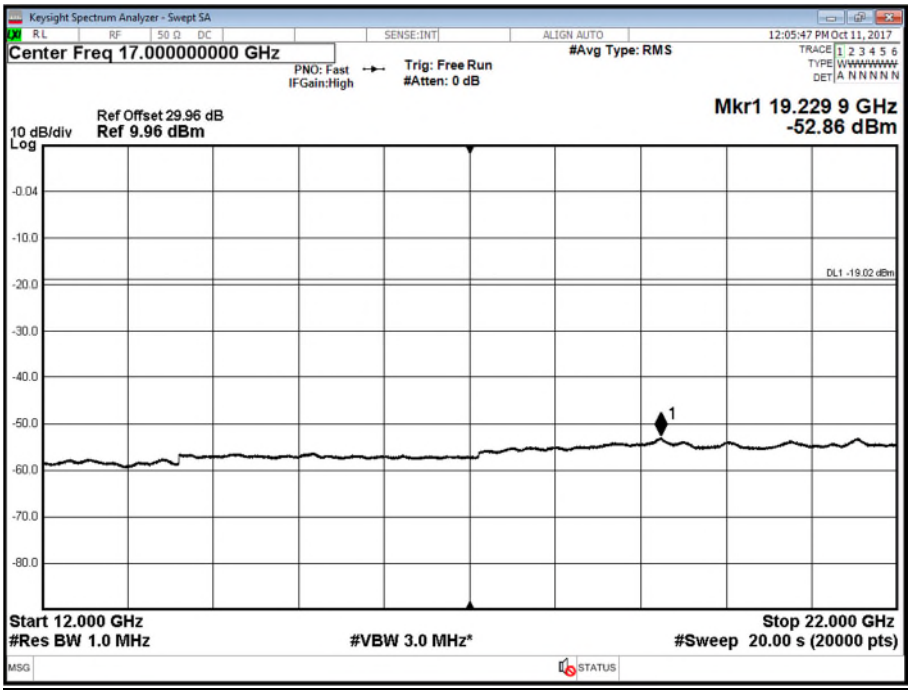




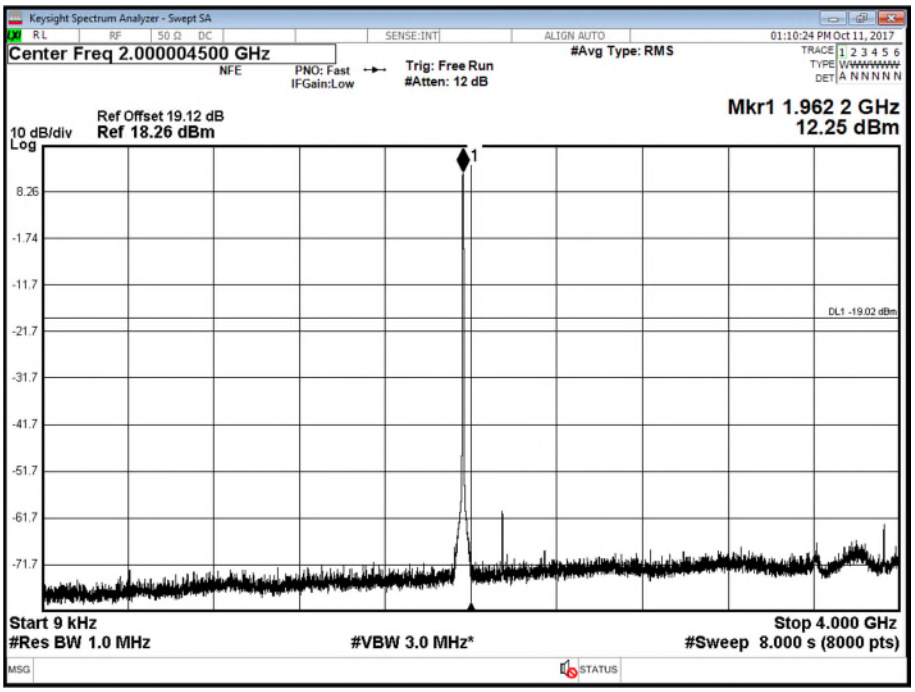
Antenna A - WCDMA Modulation 16QAM - Channel M

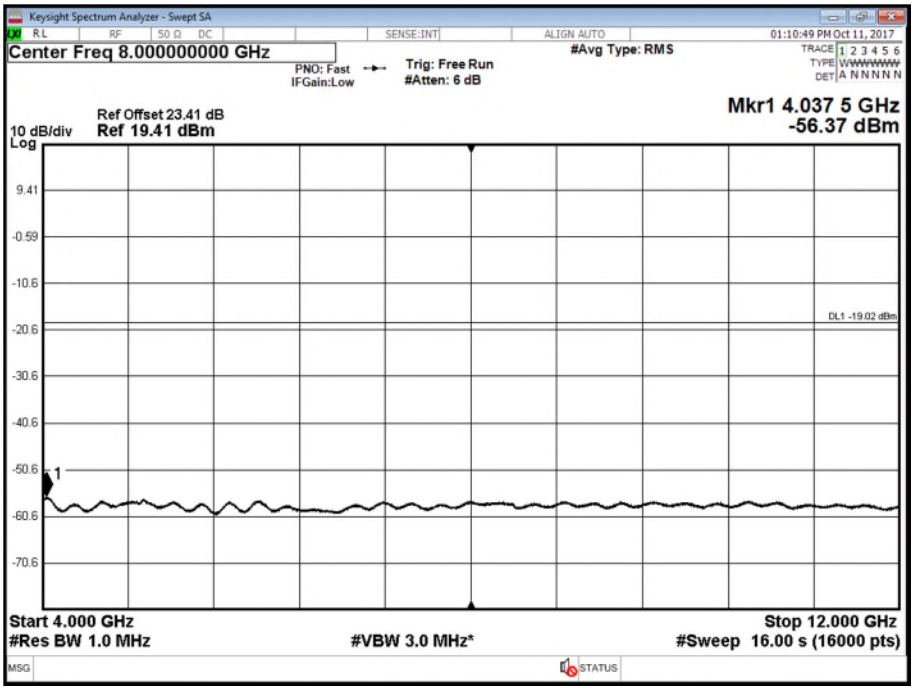


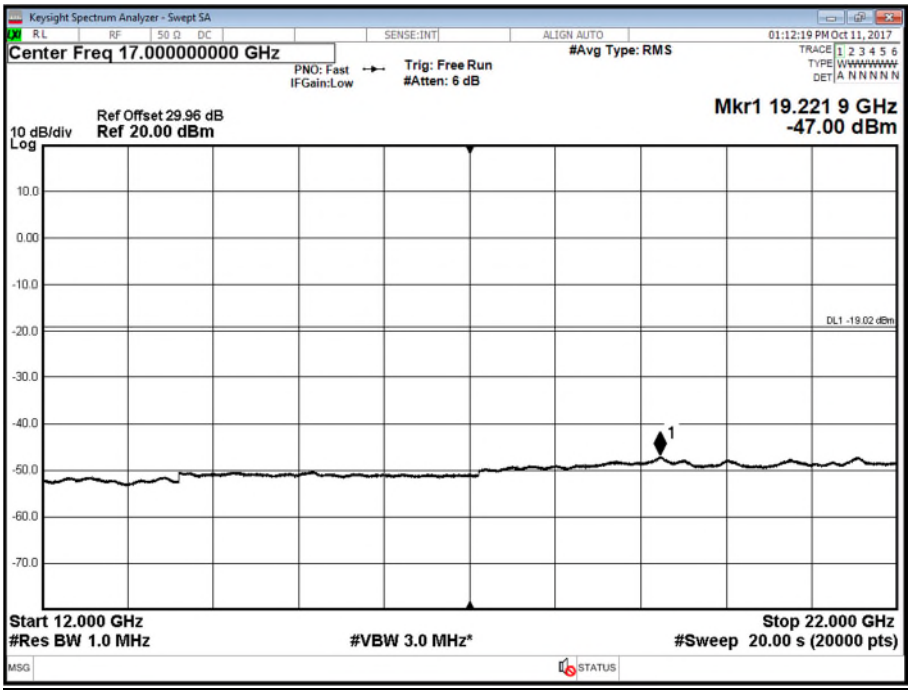




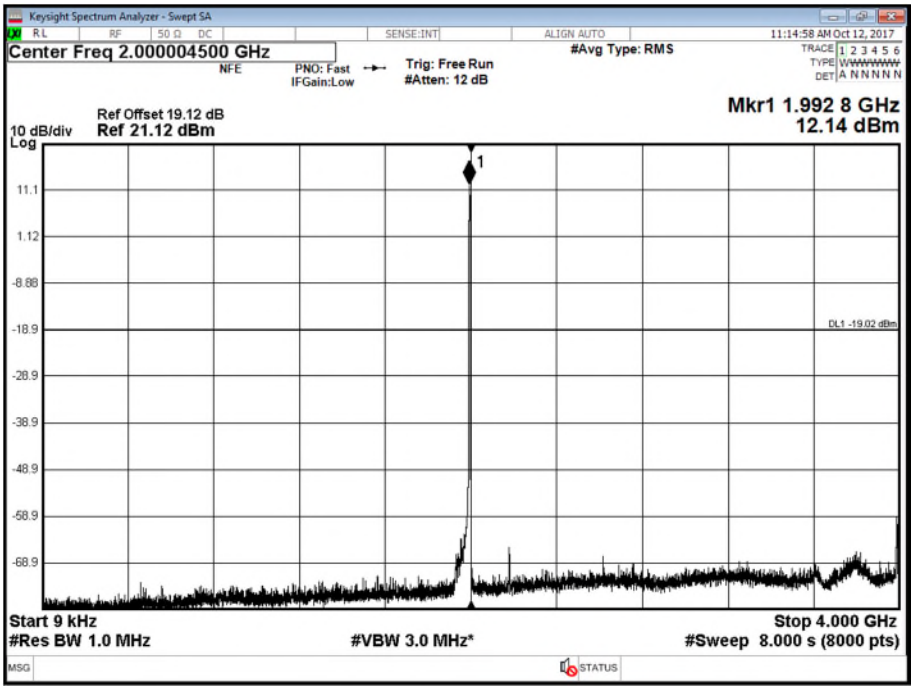
Antenna B - WCDMA Modulation 16QAM - Channel M

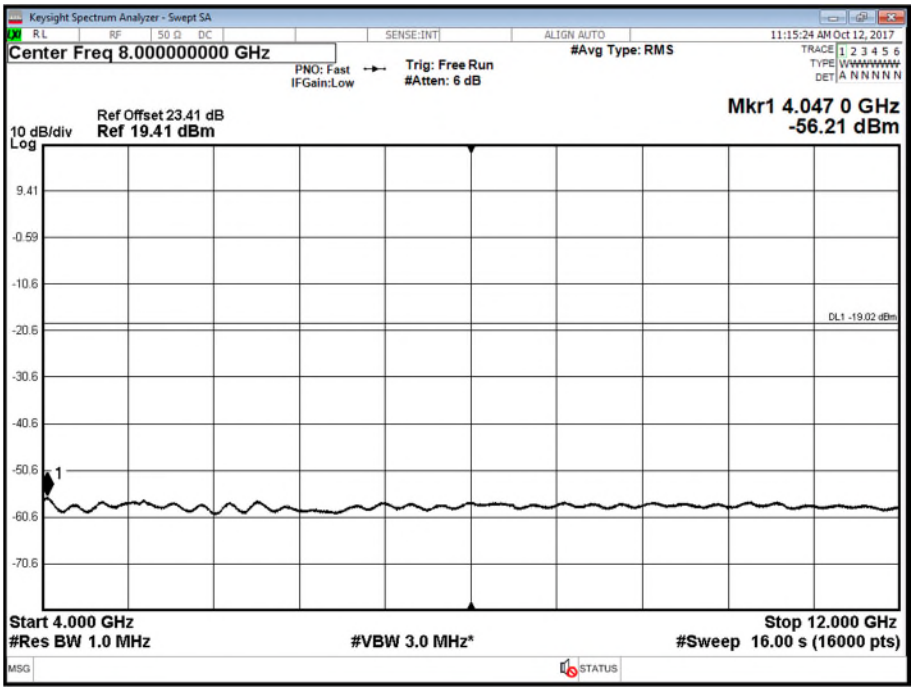


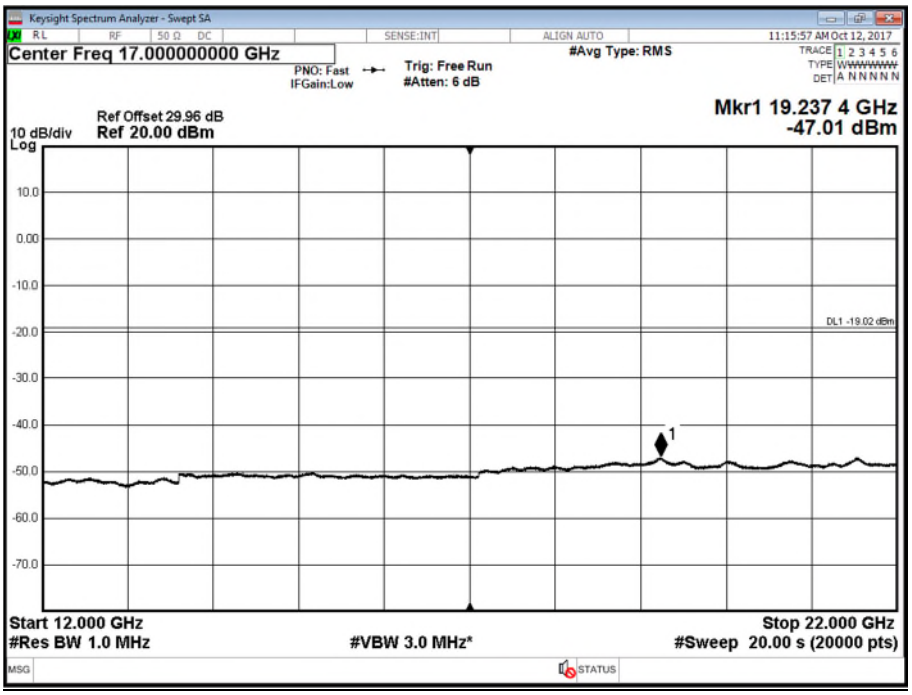




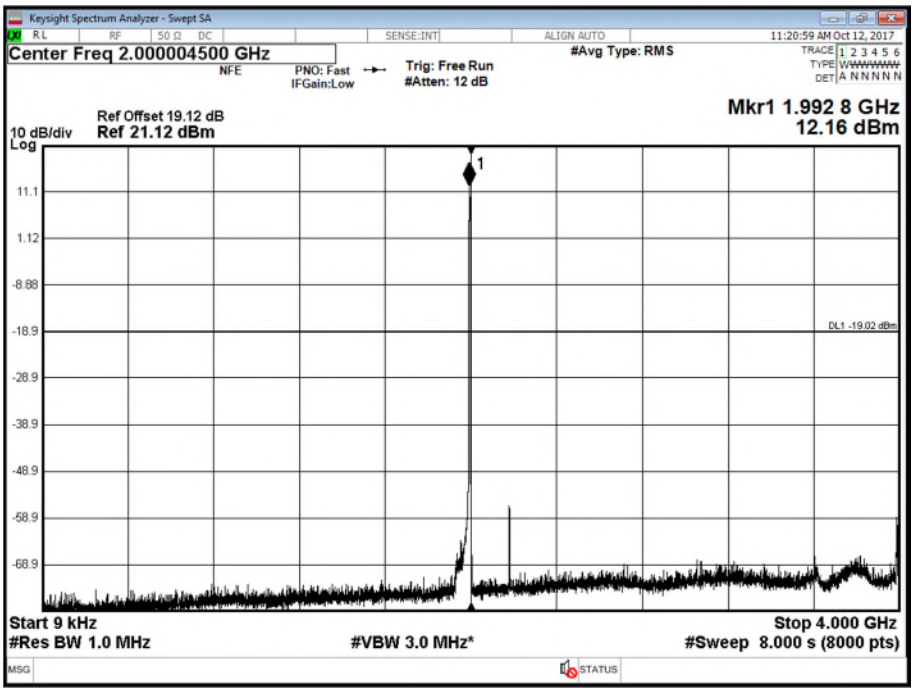
Antenna A - WCDMA Modulation 16QAM - Channel T

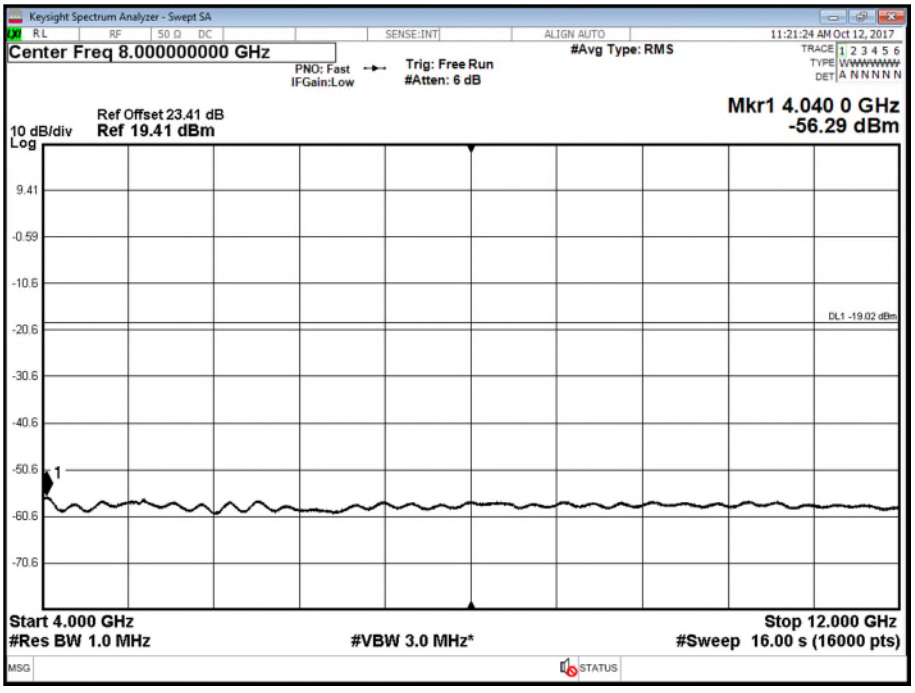


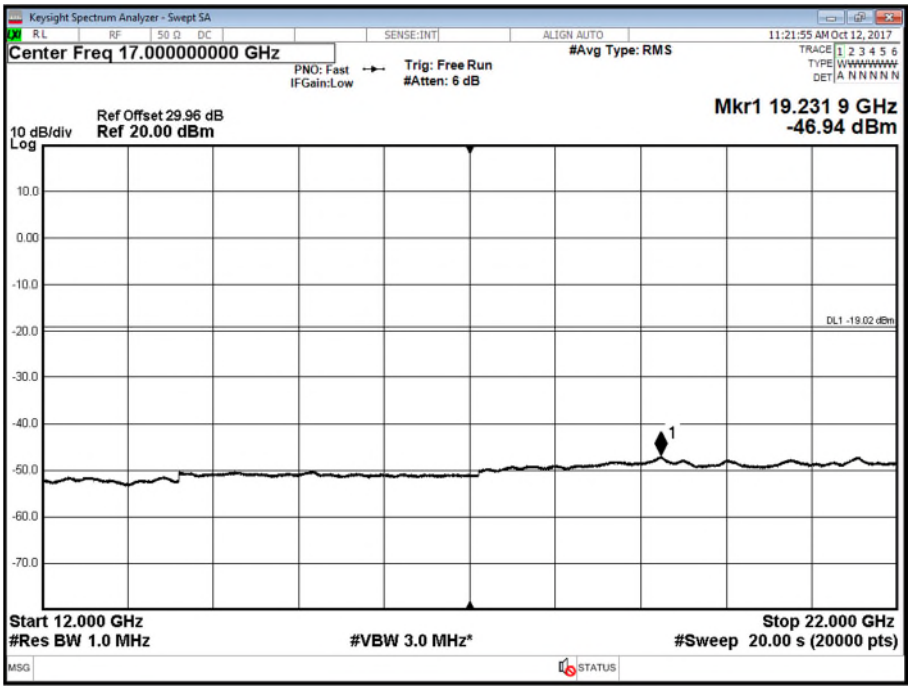




Antenna B - WCDMA Modulation 16QAM - Channel T



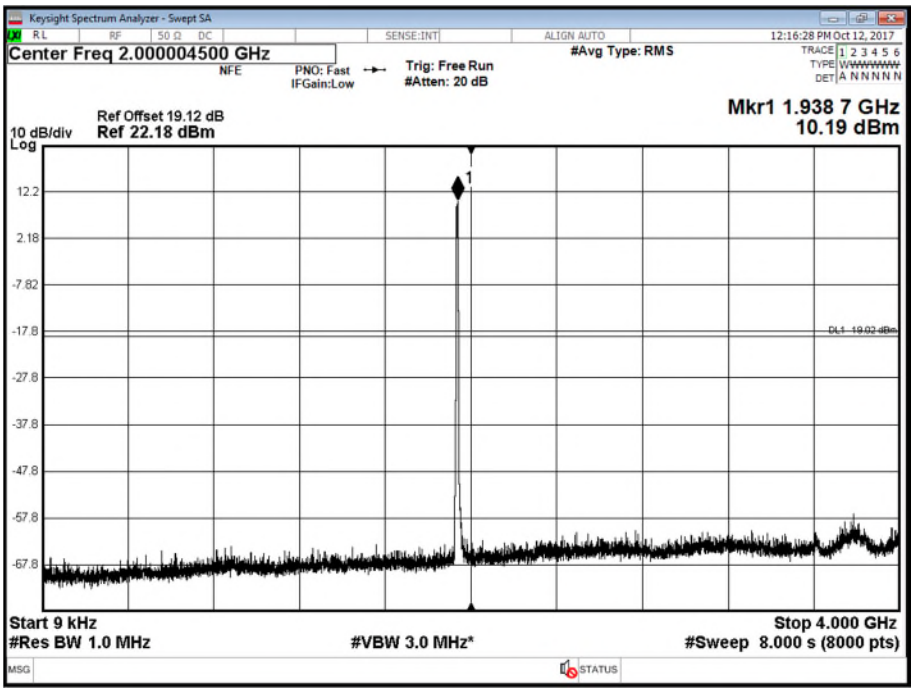


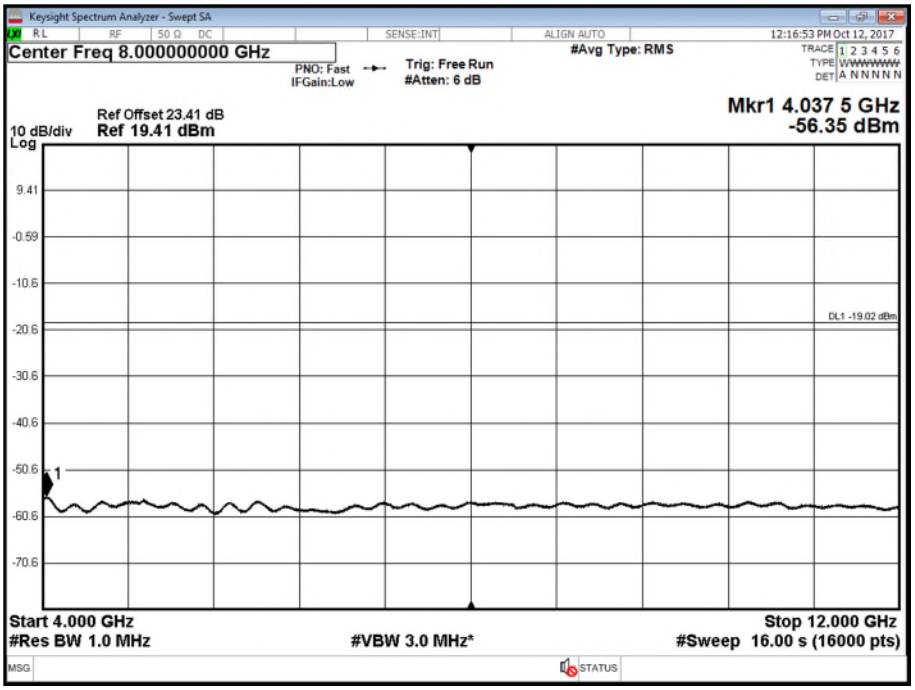


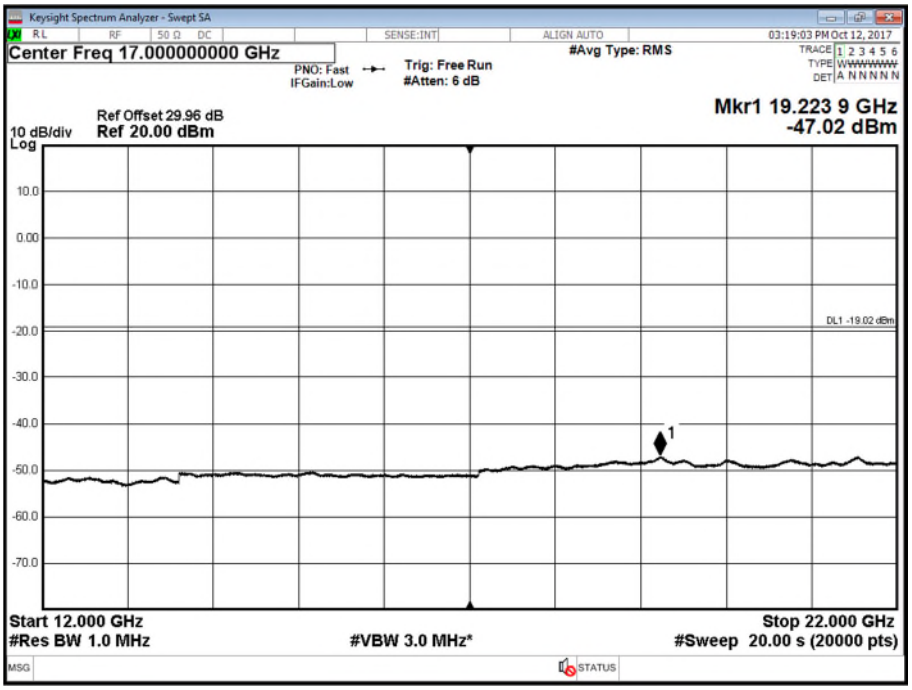
Configuration 2

Maximum Output Power 17 dBm

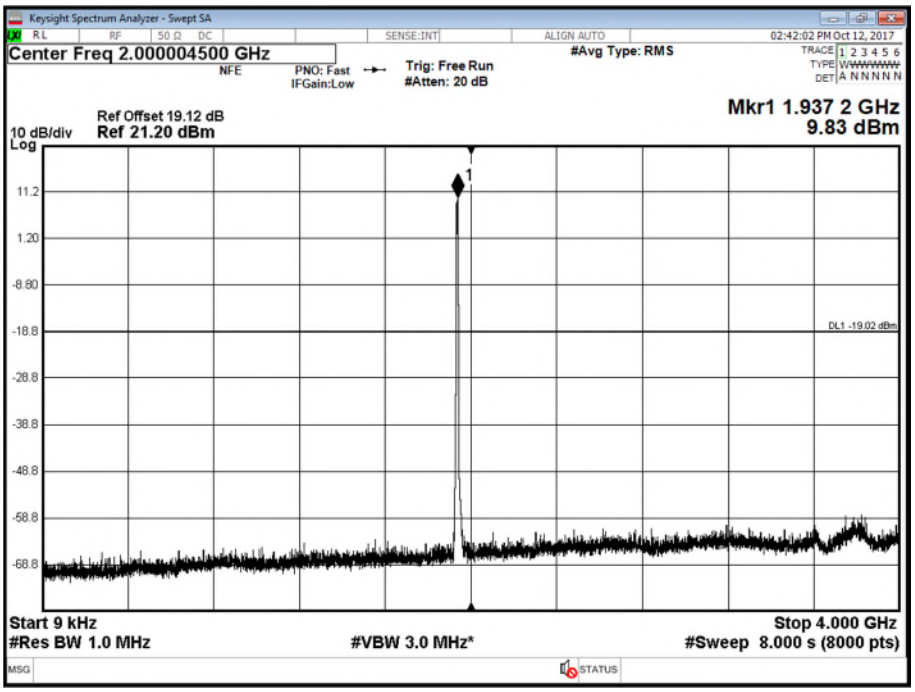
Antenna A - WCDMA Modulation 16QAM - Channel B

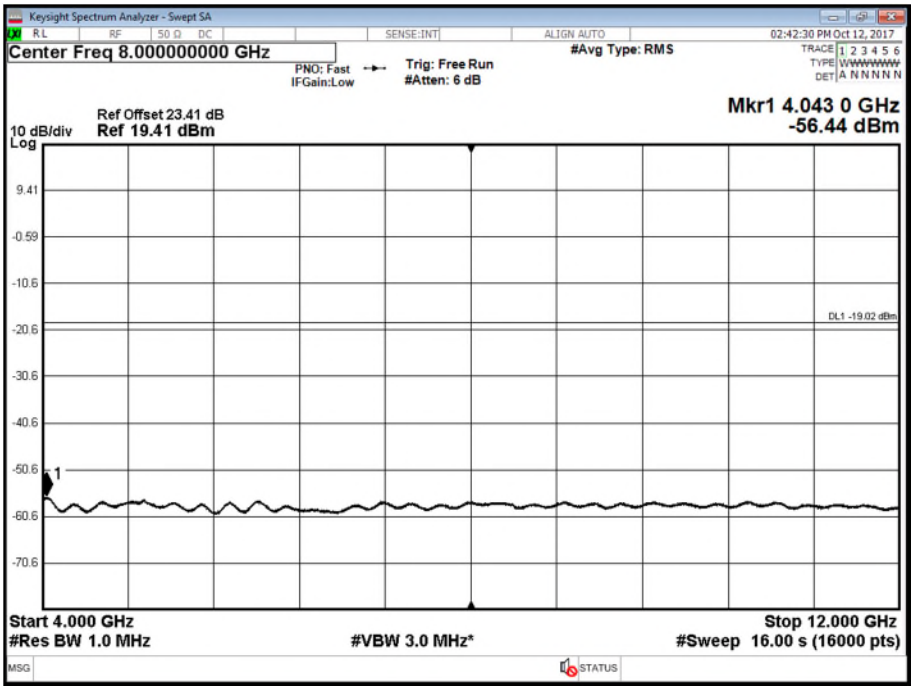


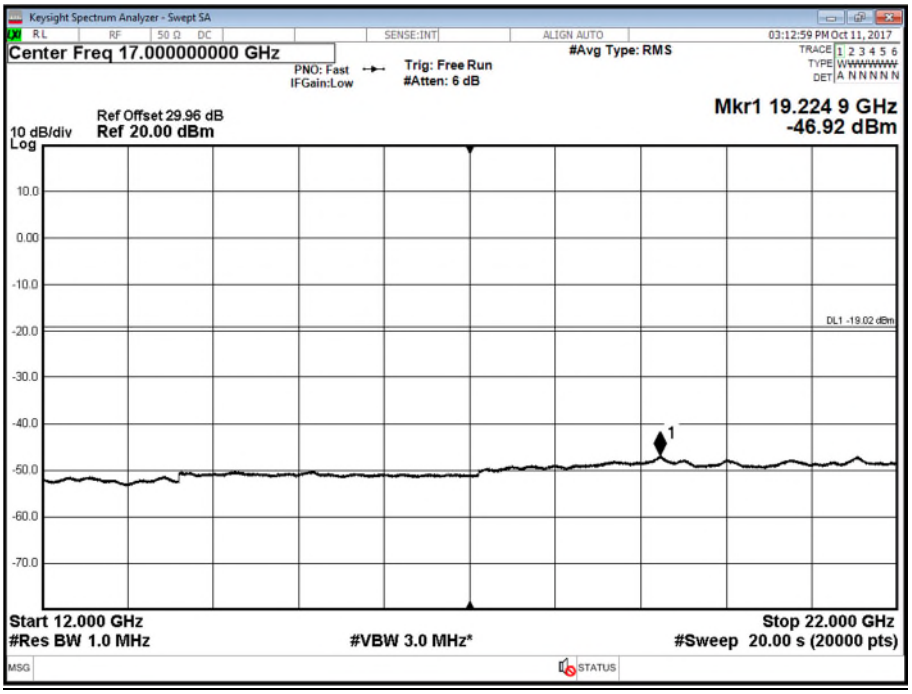




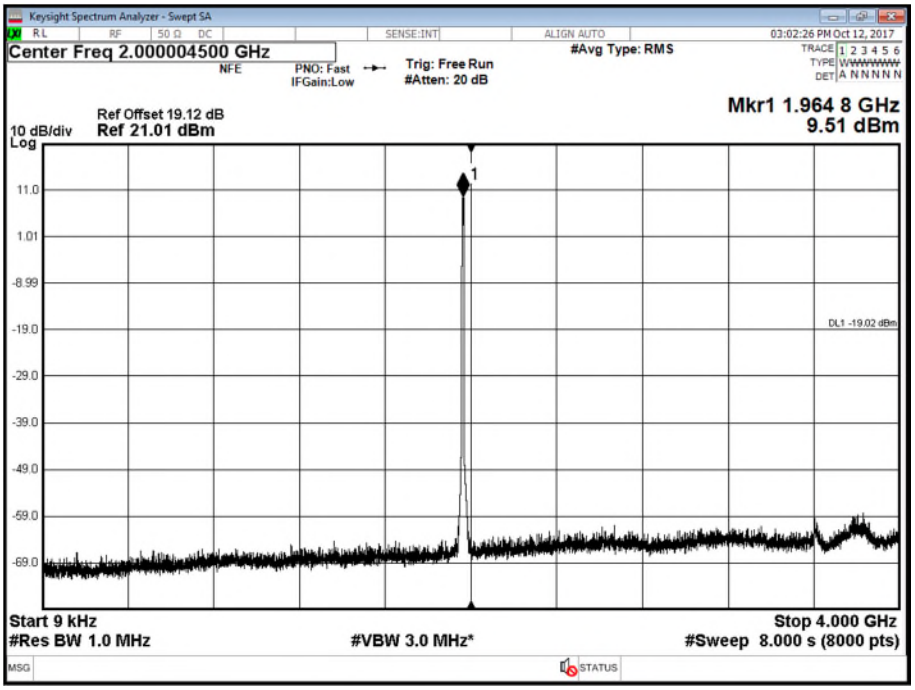
Antenna B - WCDMA Modulation 16QAM - Channel B

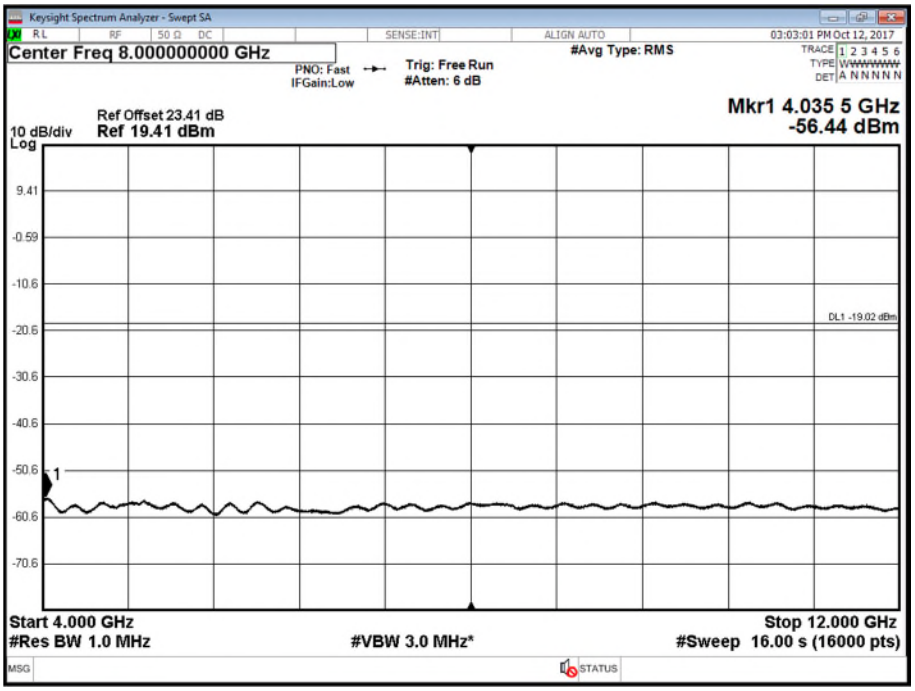


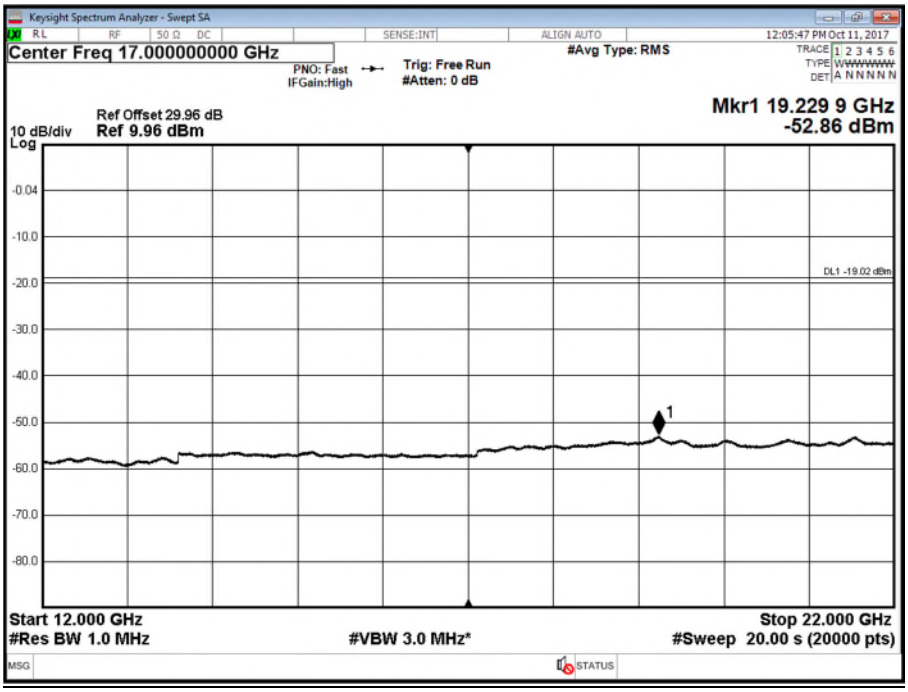




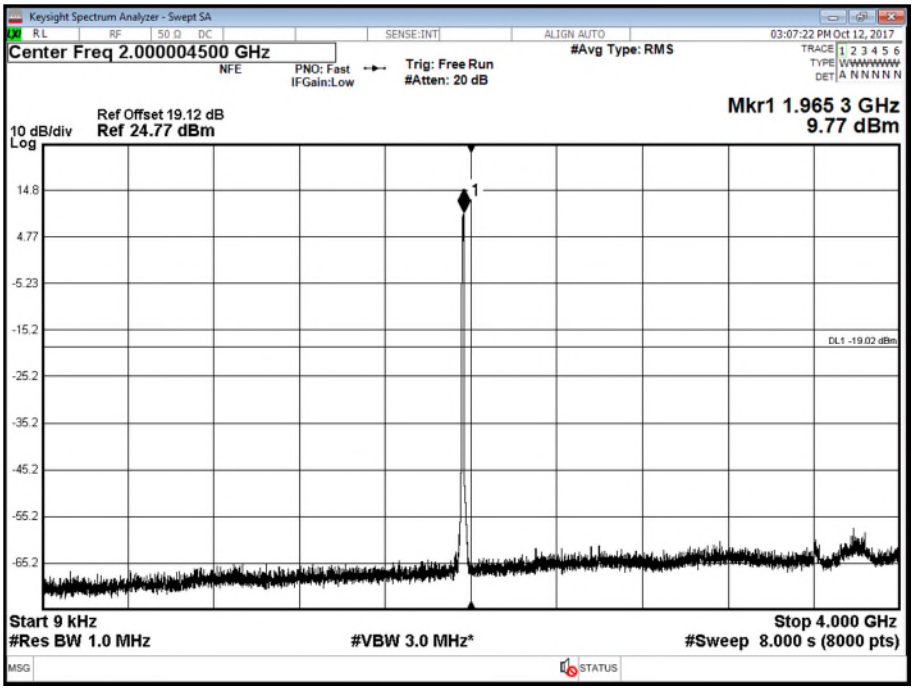
Antenna A - WCDMA Modulation 16QAM - Channel M



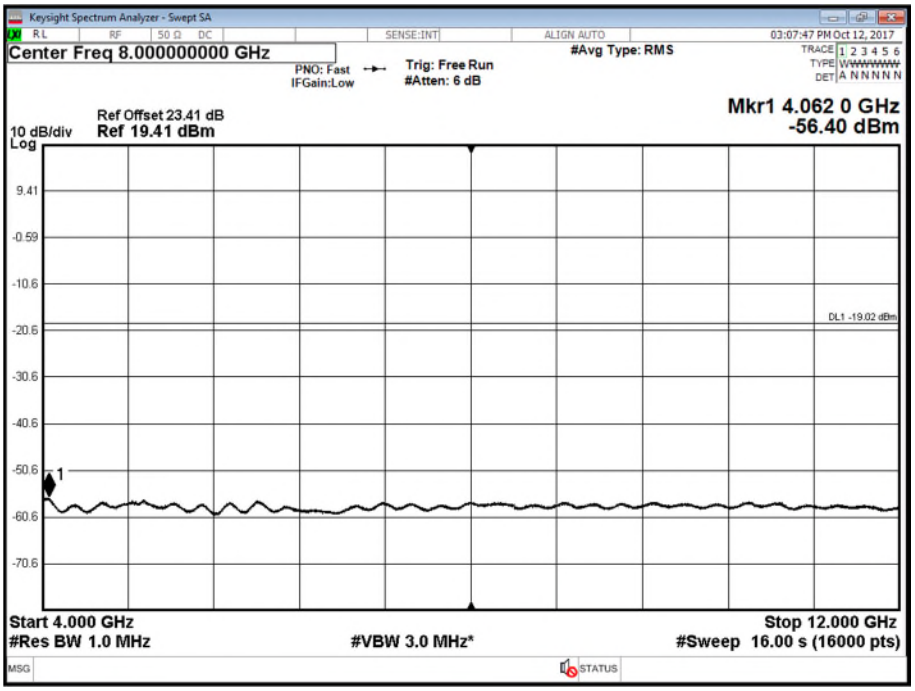


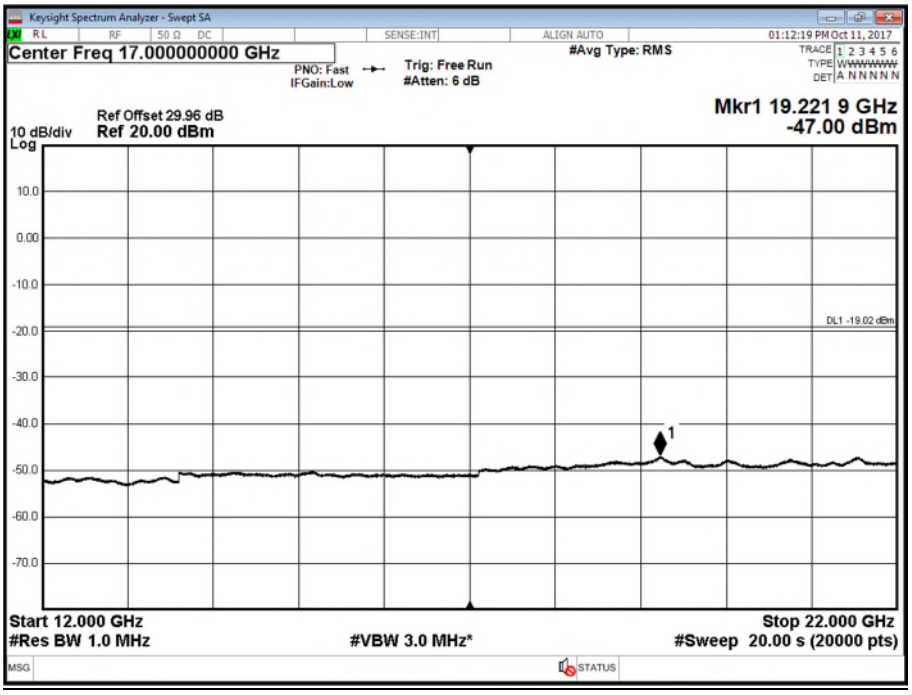


Antenna B - WCDMA Modulation 16QAM - Channel M

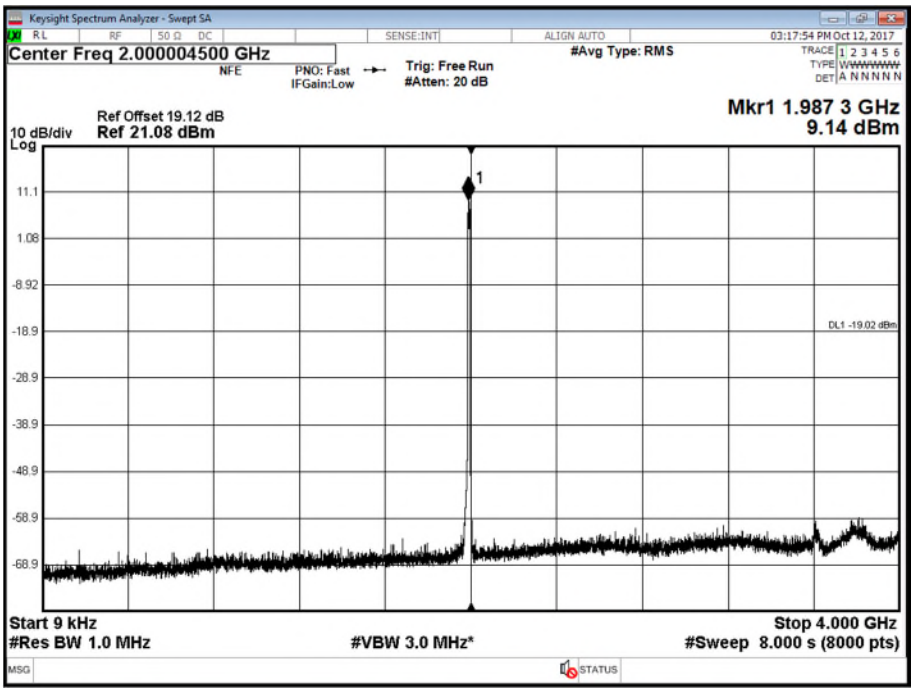


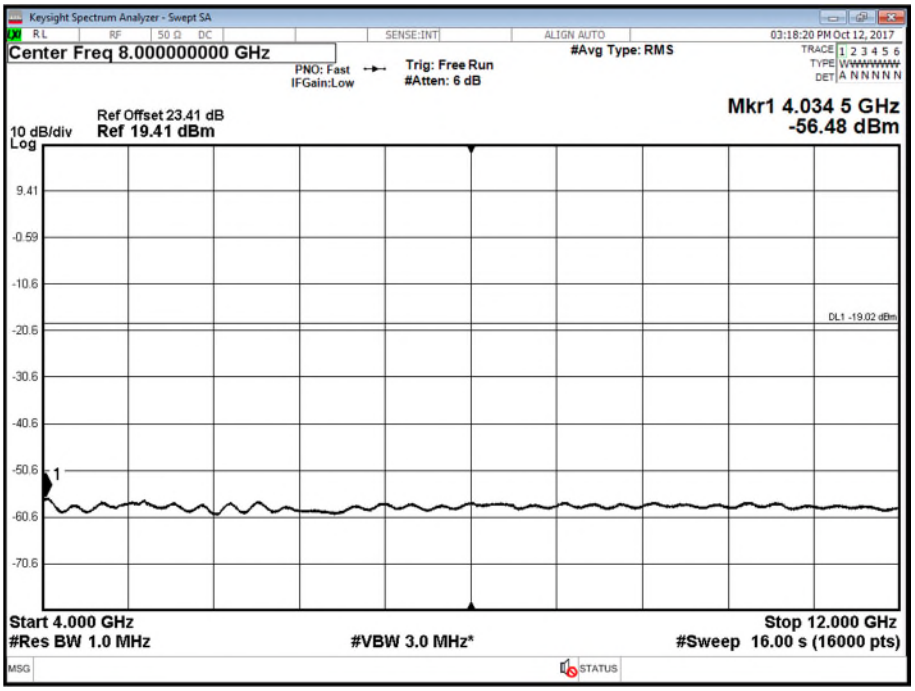
Antenna B - WCDMA Modulation 16QAM - Antenna A

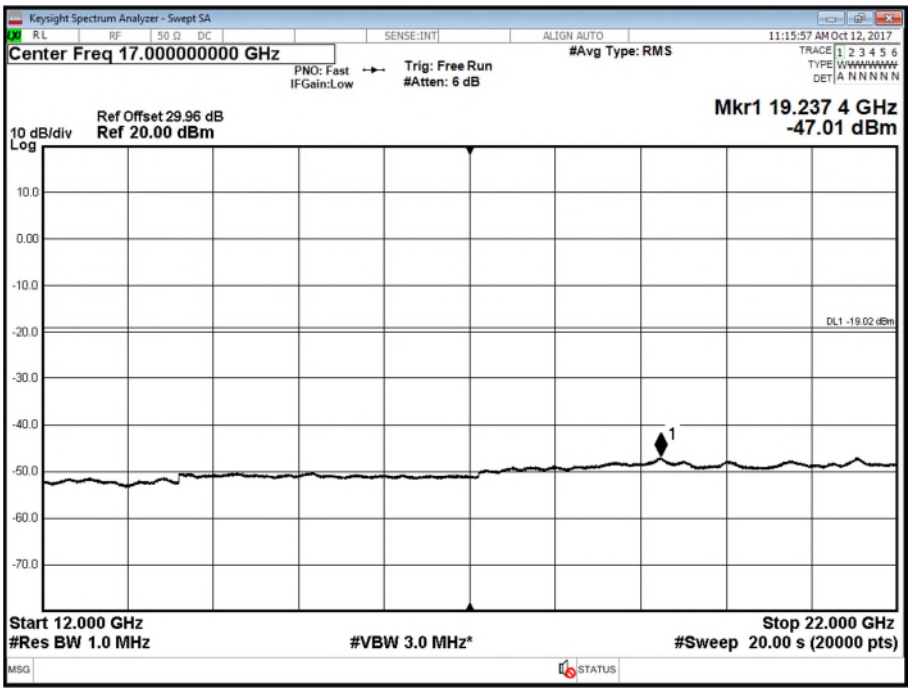




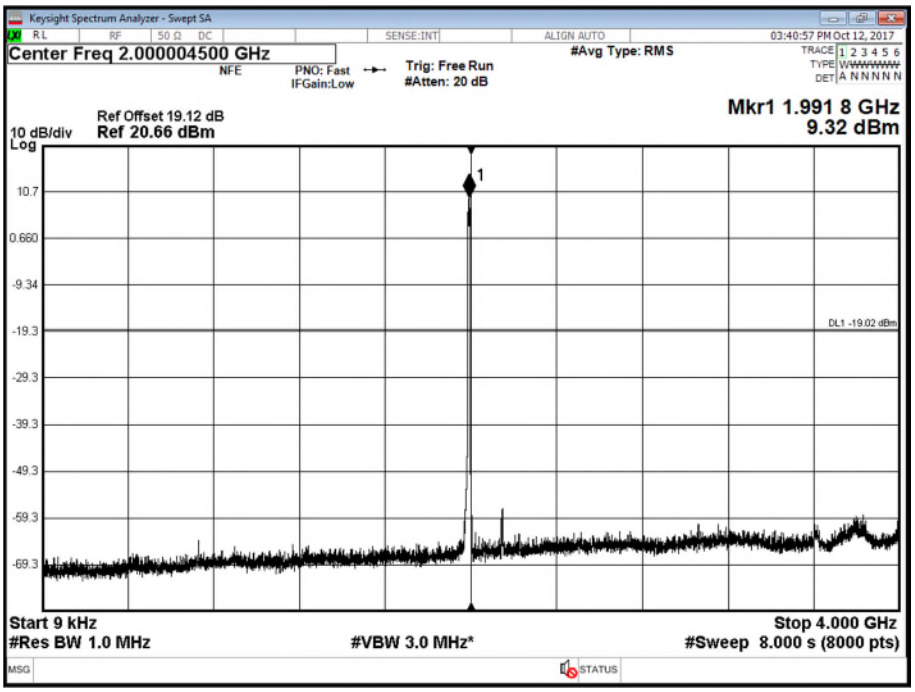
Antenna A - WCDMA Modulation 16QAM - Channel T

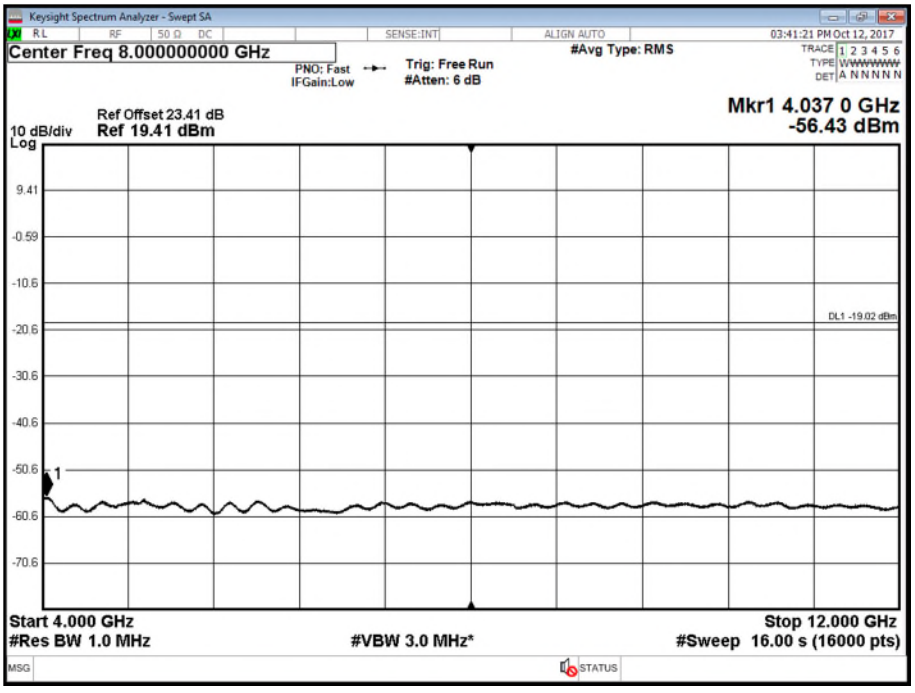


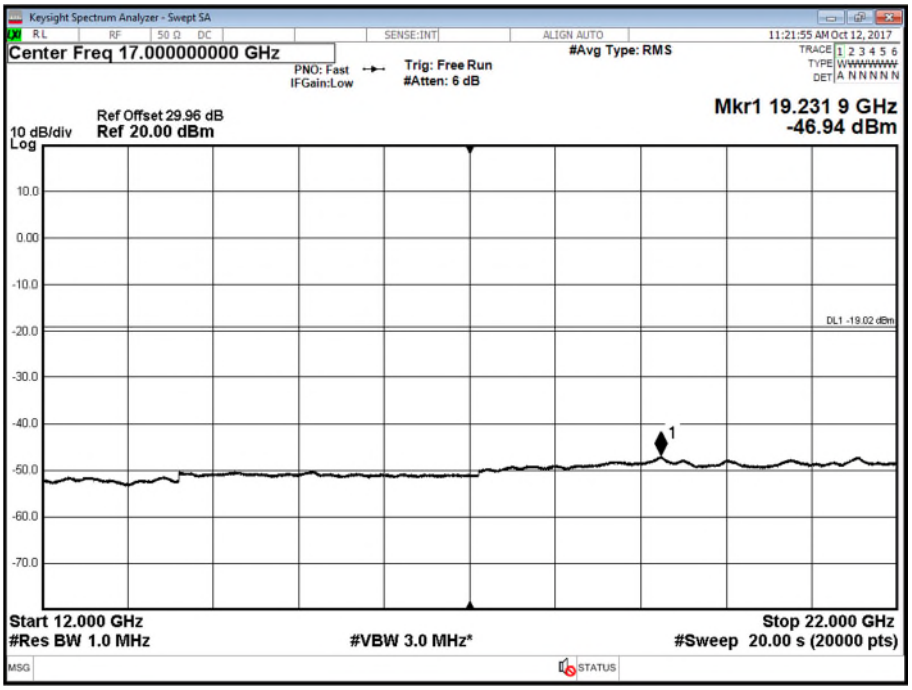




Antenna B - WCDMA Modulation 16QAM - Channel T



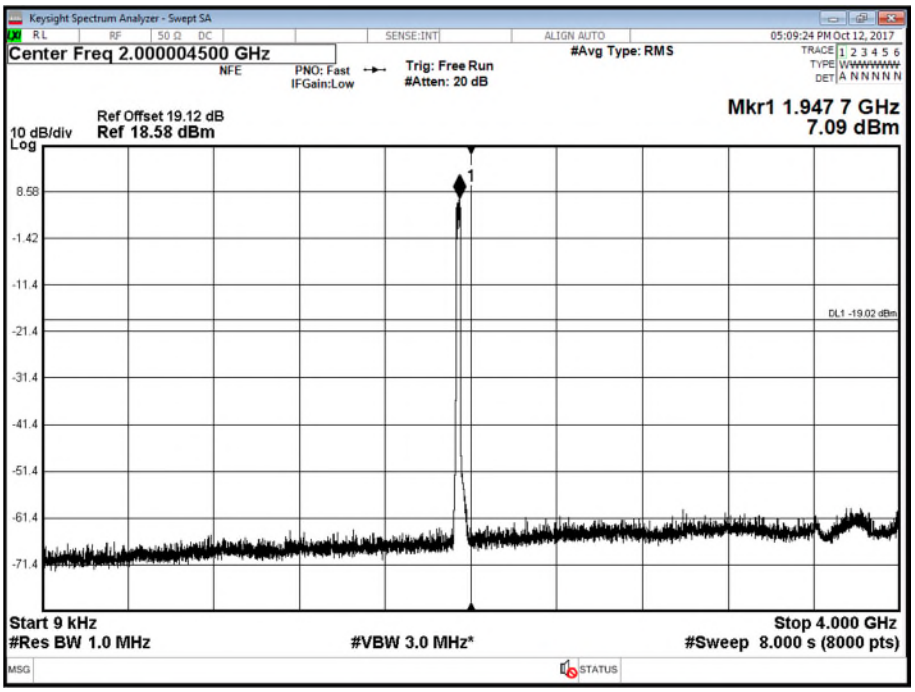


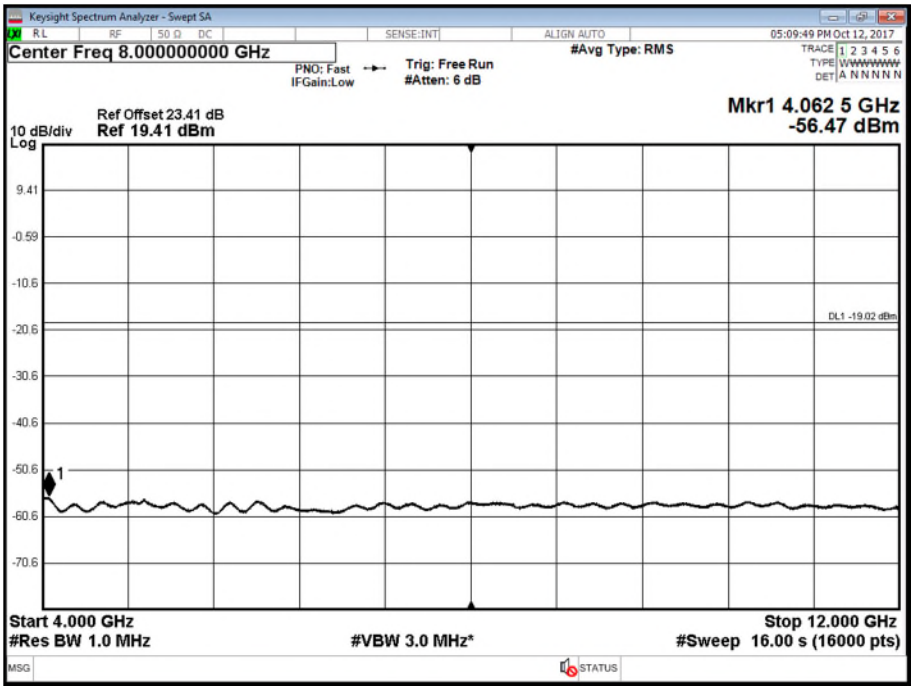


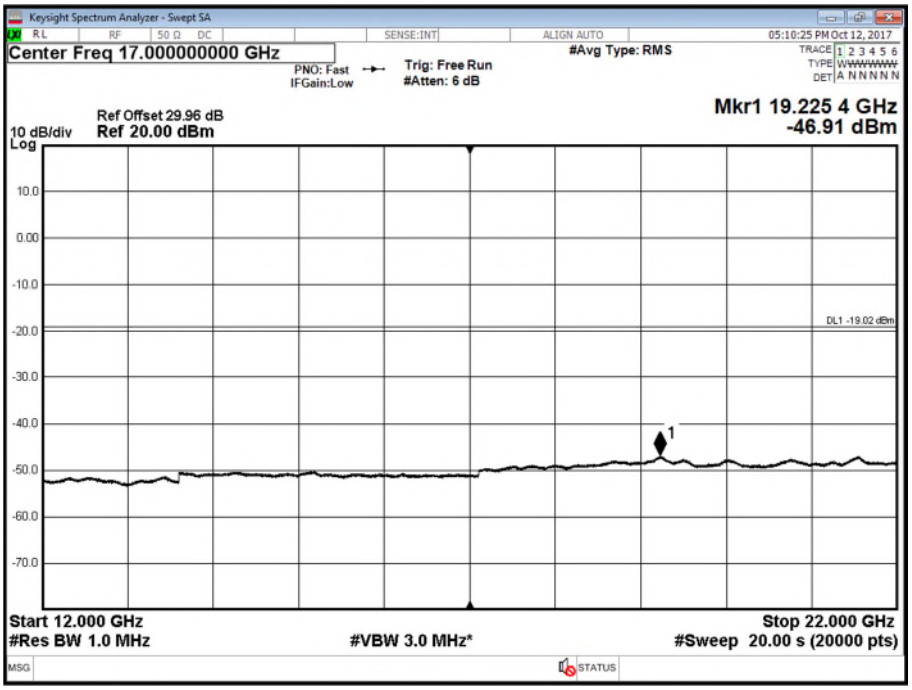
Configuration 3

Maximum Output Power 17 dBm

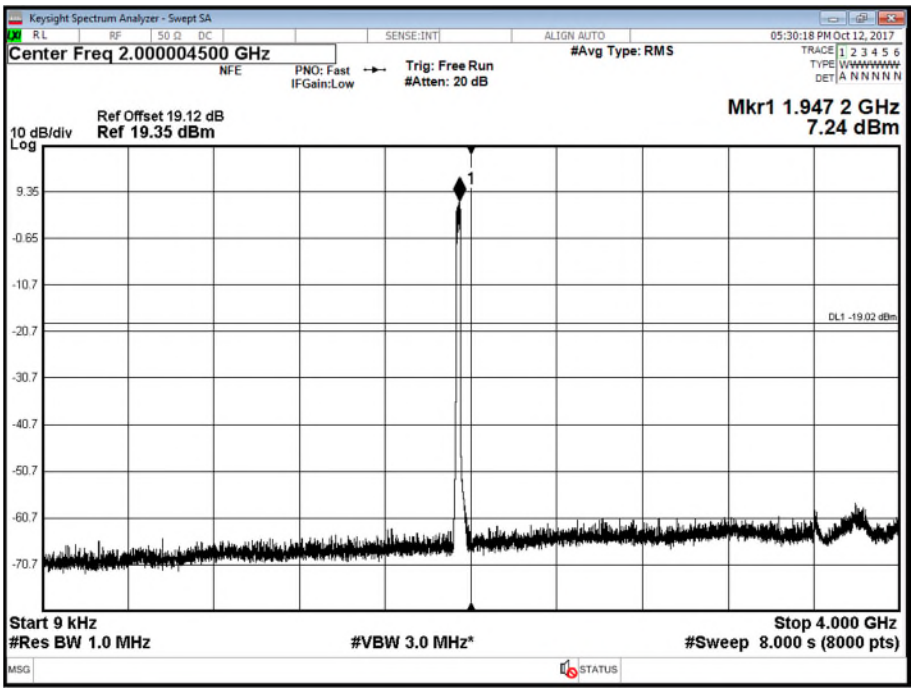
Antenna A - WCDMA Modulation 16QAM - Channel B

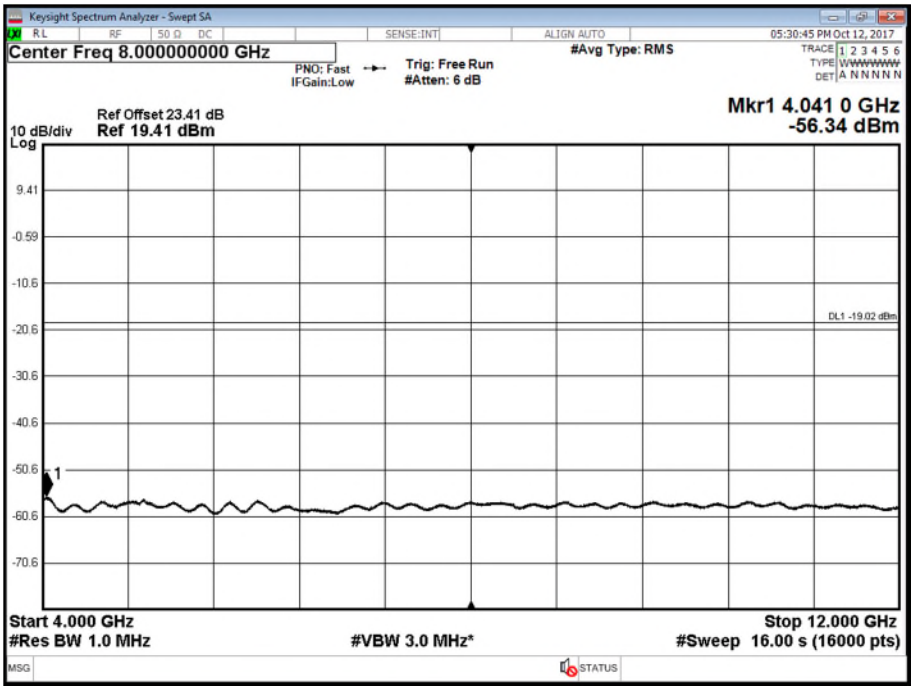


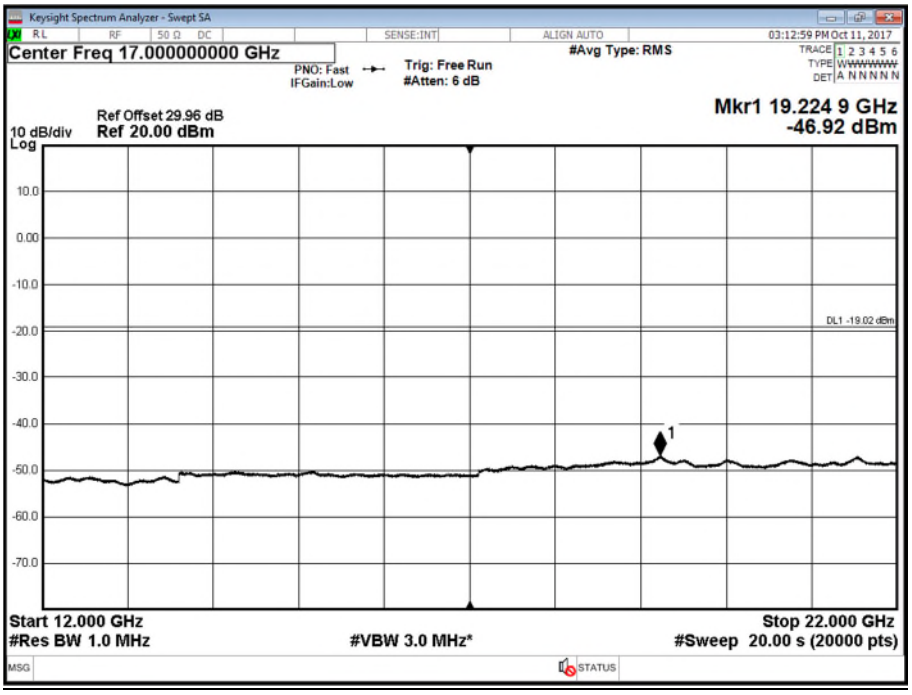




Antenna B - WCDMA Modulation 16QAM - Channel B







Antenna A - WCDMA Modulation 16QAM - Channel M