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# Report On

FCC and IC Testing of the  
Ericsson Remote Radio Unit WCDMA and RD 4442 B25B66A, KRY 901 386/1  
and RD 2243 B66A, KRY 901 404/1 (2100 MHz), with compatible Main Unit in a  
Base Station configuration in accordance with FCC CFR 47 Part 2, FCC CFR 47  
Part 27, Industry Canada RSS-GEN and Industry Canada RSS-139

COMMERCIAL-IN-CONFIDENCE

FCC ID: TA8AKRY901386-1

IC: 287AB-AS9013861

FCC ID: TA8AKRY901404-1

IC: 287AB-AS9014041

PREPARED BY

Maggie Whiting  
Key Account Manager

APPROVED BY

Scott Drysdale  
Authorised Signatory

DATED

11/16/2017

November 2017

Page 1 of 174

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A2L  
ACCREDITED  
Testing Laboratory  
Certificate #2955.02



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## SECTION 1

### REPORT INFORMATION



Product Service

## 1.1 REPORT DETAILS

Manufacturer	Ericsson
Address	349 Terry Fox Drive Ottawa Ontario K2K 2V6 Canada
Product Name	RD 4442 B25B66A
Product Number	KRY 901 386/1
IC Model Name	287AB-AS9014041
Serial Number(s)	TD3T308275
Software Version	R65FH08
Hardware Version	R1A
Non-Tested Variant	RD 2243 B66A – KRY 901 404/1
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2016 FCC CFR 47 Part 27: 2016 Industry Canada RSS-GEN: Issue 4: 2014 Industry Canada RSS-139: Issue 3: 2015
Start of Test	10 October 2017
Finish of Test	23 October 2017
Name of Test Personnel(s)	Scott Drysdale
Related Document(s)	KDB 971168 D01 v02r02 KDB 662911 D01 v02r01



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## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 27, Industry Canada RSS-GEN and Industry Canada RSS-139 is shown below.

Section	Specification Clause				Test Description	Result
	FCC CFR 47 Part 2	FCC CFR 47 Part 27	RSS- GEN	RSS- 139		
2.1	2.1046	27.50	-	6.4	Maximum Peak Output Power, ERP, and Peak to Average Ratio - Conducted	Pass
2.2	2.1049	27.53	6.6	-	Occupied Bandwidth	Pass
2.3	2.1051	27.53 (h)	-	6.5	Band Edge	Pass
2.4	2.1051	27.53 (h)	-	6.5	Transmitter Spurious Emissions	Pass
2.5	2.1055	27.54	-	6.3	Frequency Stability	Pass
-	-	15.111	-		Receiver Spurious Emissions	N/A <sup>1</sup>

N/A<sup>1</sup> – Not Applicable, as this is a transceiver.



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### 1.3 CONFIGURATION DESCRIPTION

The RD 4442 B25B66A / KRY 901 386/1 supports Single, Multi Carrier and Mixed Mode operation from either a single or dual port configuration.

The RD 4442 B25B66A supports LTE Test Models E-TM1.1, E-TM3.1, E-TM3.1a, E-TM3.2 and WCDMA Test Models TM1, TM5 and TM6 in Band 2 (1930 MHz – 1995 MHz).

The LTE Test Models (as defined in 3GPP TS 36.141) E-TM1.1, E-TM3.1, E-TM3.1a and E-TM3.2 were used to represent QPSK, 64QAM, 256 QAM and 16QAM modulation respectively.

The WCDMA Test Models (as defined in 3GPP TS 25.141) TM1, TM5 and TM6 were used to represent QPSK, 16QAM and 64QAM modulation respectively.

The RD 4442 B25B66A has been tested and authorized for LTE and WCDMA SC, MC and MM transmission. The Test Model used, unless otherwise stated, for LTE was E-TM1.1 and WCDMA TM5.

TX test cases: Maximum Conducted Output Power, Spurious Emissions at Antenna Terminals ( $\pm 1\text{MHz}$ ) and Conducted Spurious Emissions, measurements were performed on both RF Ports using a test limit accounting for MIMO operation with 4 ports. All RF ports were tested for RF Carrier Power and results recorded using the Measure and Sum approach to account for MIMO operation. The test limits shown are representative of the worst case. All testing was performed with the EUT transmitting at maximum RF power unless otherwise stated.

The EUT was powered via POE (Power Over Ethernet) from the IRU 2242 using a -48V DC Power supply.

#### WCDMA B66A (2110 MHz – 2180 MHz) Channel Configurations

#### All tests except MC Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
				Bottom (BRFBW)	Middle (MRFBW)	Top (TRFBW)
1	W	1	5 / 4.2	2112.4	2145.0	2177.6
2	W	2	5	2112.4+2117.4	2142.4+2147.4	2172.6+2177.6
3	W	4	5	2112.4+2117.4+2122.4+2127.4	2137.4+2142.4+2147.4+2152.4	2162.6+2167.6+2172.6+2177.6

Table 1

#### MC Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)	
				BRFBW (Bottom Edge)	TRFBW (Top Edge)
2 (BE)	W	2	5	2112.4+2117.4	2172.6+2177.6

Table 2



Product Service

LTE B66A (2110 MHz – 2180 MHz) Channel Configurations

All tests except MC Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
				Bottom (BRFBW)	Middle (MRFBW)	Top (TRFBW)
4	L	1	5	2112.5	2145	2177.5
4	L	1	10	2115.0	2145	2175.0
4	L	1	15	2117.5	2145	2172.5
4	L	1	20	2120.0	2145	2170.0
5	L	2	5	2112.5+2117.5	2142.5+2147.5	2172.5+2177.5
5	L	2	10	2115.0+2125.0	2140.0+2150.0	2165.0+2175.0
5	L	2	15	2117.5+2132.5	2137.5+2152.5	2157.5+2172.5
5	L	2	20	2120.0+2140.0	2135.0+2155.0	2150.0+2170.0

Table 3

MC Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)	
				BRFBW (Bottom Edge)	TRFBW (Top Edge)
5 (BE)	L	2	5	2112.5+2117.5	2172.5+2177.5
5 (BE)	L	2	10	2115.0+2125.0	2165.0+2175.0
5 (BE)	L	2	15	2117.5+2132.5	2157.5+2172.5
5 (BE)	L	2	20	2120.0+2140.0	2150.0+2170.0

Table 4

WCDMA/LTE (MM) B66A (2110 MHz – 2180 MHz) Channel Configurations

All tests except Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
				BRFBW	MRFBW	TRFBW
6	W + L	2	5 + 15	2112.4+2127.4	2137.4+2152.4	2162.6+2177.6
7	W + W + W + W + L + L	6	5 + 5 + 5 + 5 + 10 + 10	2112.4+2117.4+ 2122.4+2127.4+ 2132.5+2137.5	2137.4+2142.4+ 2147.4+2152.4+ 2157.5+2162.5	2152.6+2157.6+ 2162.6+2167.6+ 2172.5+2177.5

Table 5

Band Edge Emissions

Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)	
				BRFBW (Bottom Edge)	TRFBW (Top Edge)
6 (BE)	W + L	2	5 + 5	2112.4+2117.4	2172.6+2177.6

Table 6



Product Service

## 1.4 DECLARATION OF BUILD STATUS

MAIN EUT	
<b>MANUFACTURING DESCRIPTION</b>	Radio Dot
<b>MANUFACTURER</b>	Ericsson
<b>TYPE</b>	Remote Radio Base Station
<b>PART NUMBER</b>	RD 4442 B25B66A: KRY 901 386/1 RD 2243 B25: KRY 901 402/1 RD 2243 B66A: KRY 901 404/1
<b>SERIAL NUMBER</b>	TD3T308275 (for RD 4442 B25B66A)
<b>HARDWARE VERSION</b>	R1A
<b>SOFTWARE VERSION</b>	R65FH08
<b>TRANSMITTER OPERATING RANGE</b>	B25 1930 – 1995 MHz B66A 2110 – 2180 MHz
<b>RECEIVER OPERATING RANGE</b>	B25 1850 – 1915 MHz B66A 1710 – 1780 MHz
<b>COUNTRY OF ORIGIN</b>	China
<b>INTERMEDIATE FREQUENCIES</b>	DL: 110 – 150MHz, UL: 40 – 80MHz
<b>EMISSION DESIGNATOR(S):</b> (i.e. G1D, GXW)	LTE 5M00 W7D 10M0 W7D 15M0 W7D 20M0 W7D  WCDMA 5M00 F9W
<b>MODULATION TYPES:</b> (i.e. GMSK, QPSK)	LTE: QPSK, 16QAM, 64QAM, 256QAM WCDMA: QPSK, 16QAM, 64QAM
<b>HIGHEST INTERNALLY GENERATED FREQUENCY</b>	2.2 GHz
<b>OUTPUT POWER (W or dBm)</b>	4x 0.05 W (17dBm)
<b>FCC ID</b>	Tested EUT: TA8AKRY901386-1 Non-tested variant: TA8AKRY901402-1 Non-tested variant: TA8AKRY901404-1
<b>INDUSTRY CANADA ID</b>	Tested EUT: 287AB-AS9013861 Non-tested variant: 287AB-AS9014021 Non-tested variant: 287AB-AS9014041
<b>TECHNICAL DESCRIPTION</b> (a brief description of the intended use and operation)	The RD 4442 B25B66A (KRY 901 386/1) is a dual band Remote Radio Unit forming part of the Ericsson Radio Base Station (RBS) equipment. The RD provides radio access for mobile and fixed devices and is intended for the indoor environment. The radio operates over 4 Transmit ports in MRO;Single, Multi-Carrier, and MIMO transmission with a maximum rated RF Output of 0.050W per port over an operational temperature of 5°C to +40°C. The unit is designed to be ceiling mounted.  The RD 2243 B25 product is a single band radio identical to the dual band RD 4442 B25B66A product except that B66A circuits have been de-populated.  The RD 2243 B66A product is a single band radio identical to the dual band RD 4442 B25B66A product except that B25 circuits have been de-populated.



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**Signature:**

A handwritten signature in blue ink, appearing to read "Denis Lalonde".

**Denis Lalonde**

**Date: 25 October 2017**

**Declaration of Build Status Serial Number:** TD3T308275

No responsibility will be accepted by TÜV SÜD Product Service UK Limited and TÜV SÜD Canada as to the accuracy of the information declared in this document by the manufacturer.



Product Service

## 1.5 PRODUCT INFORMATION

### 1.5.1 Technical Description

The Equipment Under Test (EUT) RD 4442 B25B66A - KRY 901 386/1 is an Ericsson AB Radio Unit working in the public mobile service 1900 and 2100 MHz band which provides communication connections to 1900 and 2100 MHz network. The RD 4442 B25B66A - KRY 901 386/1 operates from a -48V DC supply.

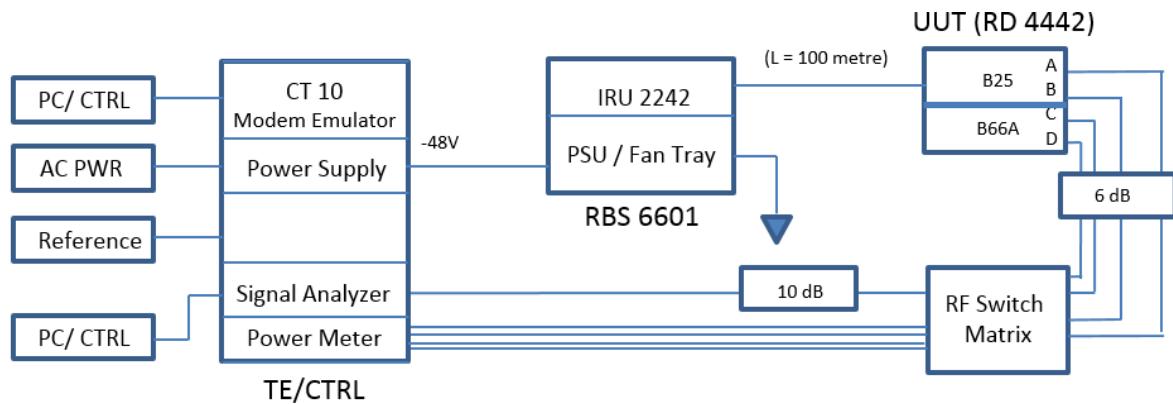
The RD 2243 B66A product is a single band radio identical to the dual band RD 4442 B25B66A product except that B25 circuits have been depopulated.

The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.



Equipment Under Test

## 1.6 TEST SETUP





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## 1.7 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or a chamber as appropriate.

The EUT was powered from a -48V DC supply.

FCC Measurement Facility Accreditation Designation Number: CA6845  
TÜV SÜD Canada (Laval)

## 1.8 DEVIATION FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

## 1.9 MODIFICATION RECORD

No modifications were made to the EUT during testing.

## 1.10 ALTERNATIVE TEST SITE

Under our Accreditation, TÜV SÜD Canada, Laval conducted the following tests at Ericsson in Ottawa.

Test Name	Name of Test Personnel(s)
Maximum Peak Output Power and Peak to Average Ratio - Conducted	Scott Drysdale
Occupied Bandwidth	Scott Drysdale
Band Edge	Scott Drysdale
Transmitter Spurious Emissions	Scott Drysdale
Frequency Stability	Scott Drysdale



Product Service

## 1.11 ADDITIONAL INFORMATION

Testing performed with Gavin Gan and Denis Lalonde of Ericsson - Ottawa.

The RD 4442 B25B66A (KRY 901 386/1) is a dual band Remote Radio Unit forming part of the Ericsson Radio Base Station (RBS) equipment. The RD provides radio access for mobile and fixed devices and is intended for the indoor environment. The radio operates over 4 Transmit ports in MRO;Single, Multi-Carrier, and MIMO transmission with a maximum rated RF Output of 0.050W per port over an operational temperature of 5°C to +40°C. The unit is designed to be ceiling mounted.

The RD 2243 B25 product is a single band radio identical to the dual band RD 4442 B25B66A product except that B66A circuits have been de-populated.

The RD 2243 B66A product is a single band radio identical to the dual band RD 4442 B25B66A product except that B25 circuits have been de-populated.



Product Service

## SECTION 2

### TEST DETAILS



Product Service

## 2.1 MAXIMUM PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

### 2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046  
FCC CFR 47 Part 27, Clause 27.50  
Industry Canada RSS-139, Clause 6.4

### 2.1.2 Date of Test and Modification State

19 and 20 October 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 23°C  
Relative Humidity 50%

### 2.1.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, clause 5.2.1 and summed in accordance with FCC KDB 662911 D01.

### 2.1.6 Test Results

Configuration 1

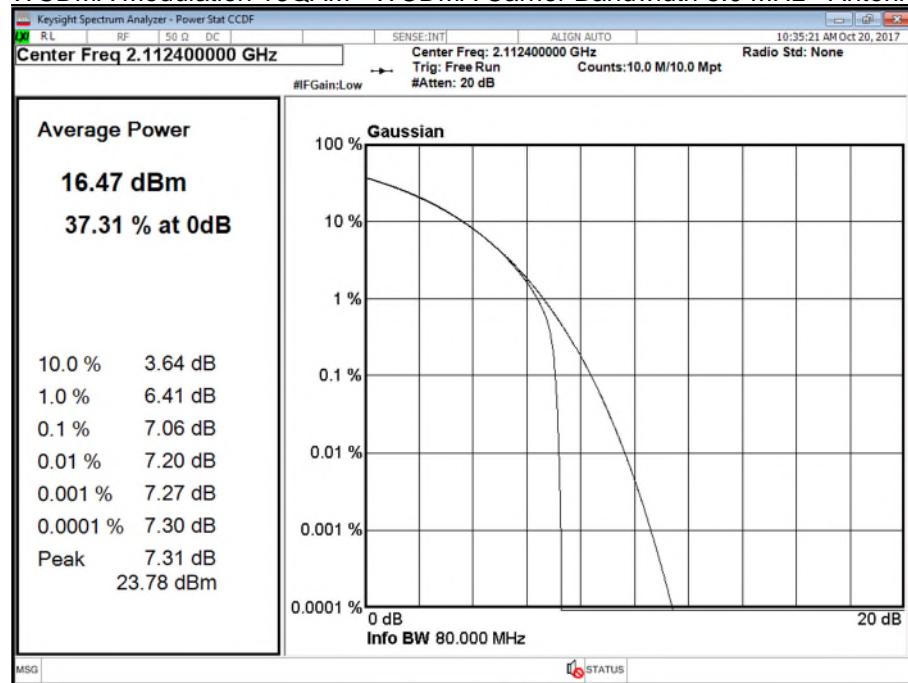
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	7.06	16.44	11.25
D	16QAM	5.0 MHz	7.07	16.22	11.06
Total			-	19.34	14.17

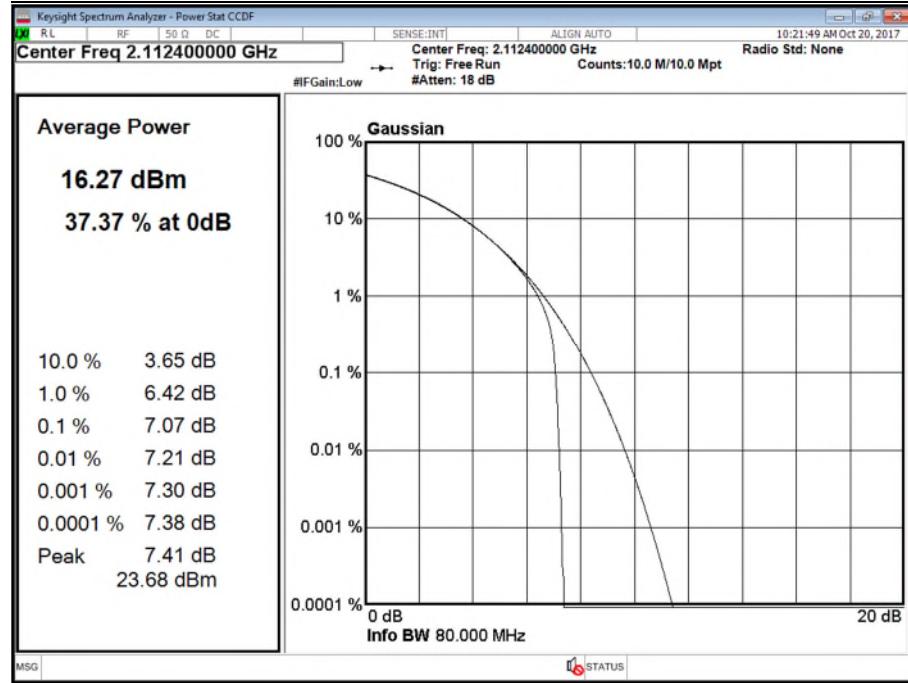
Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power (eirp)	
C	16QAM	5.0 MHz	7.06	19.34	14.15
D	16QAM	5.0 MHz	7.07	19.12	13.96
Total			-	22.24	17.07

## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna C



## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna D





Product Service

## Configuration 1

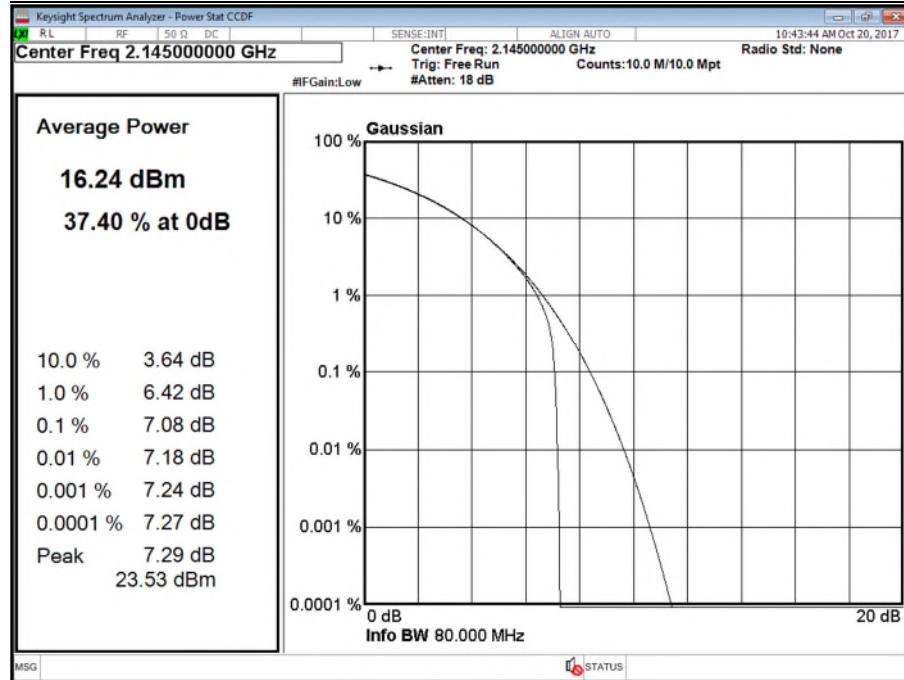
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	7.08	16.20	10.96
D	16QAM	5.0 MHz	7.08	16.33	11.05
Total			-	19.28	14.02

Maximum Output Power 19.9 dBm (Including 2.9 dBi Antenna Gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power (eirp)	
C	16QAM	5.0 MHz	7.08	19.10	13.86
D	16QAM	5.0 MHz	7.08	19.23	13.95
Total			-	22.18	16.92

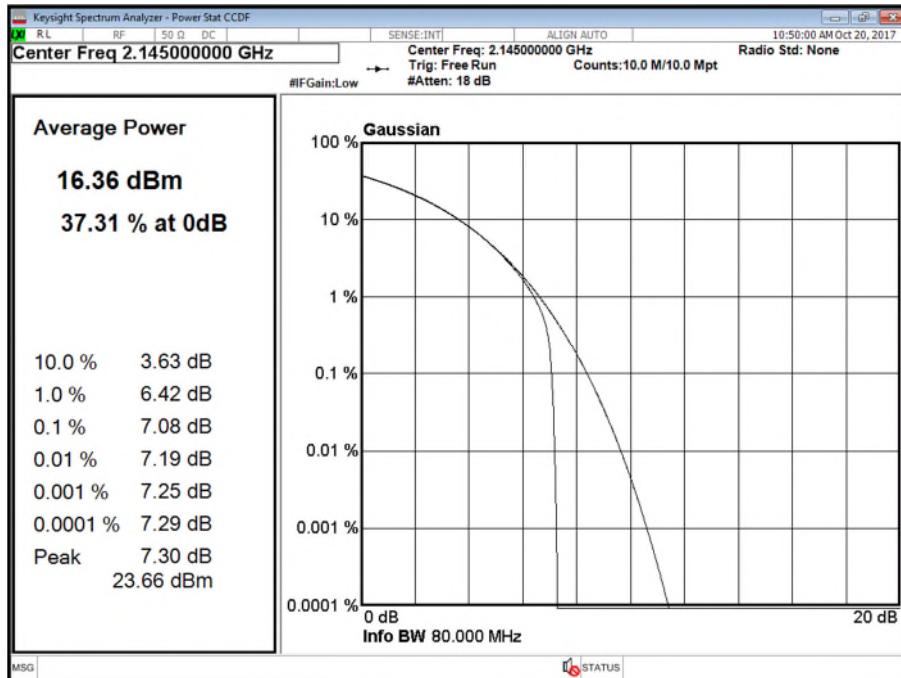
## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna C



## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna D



Product Service



## Configuration 1

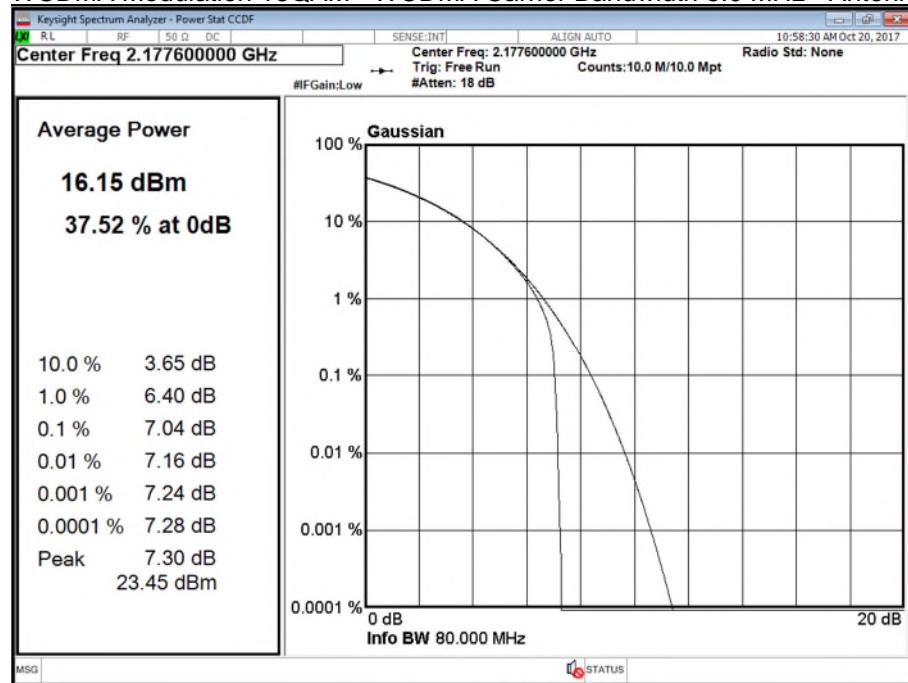
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	7.04	16.09	10.93
D	16QAM	5.0 MHz	7.02	16.06	10.98
Total			-	19.09	13.97

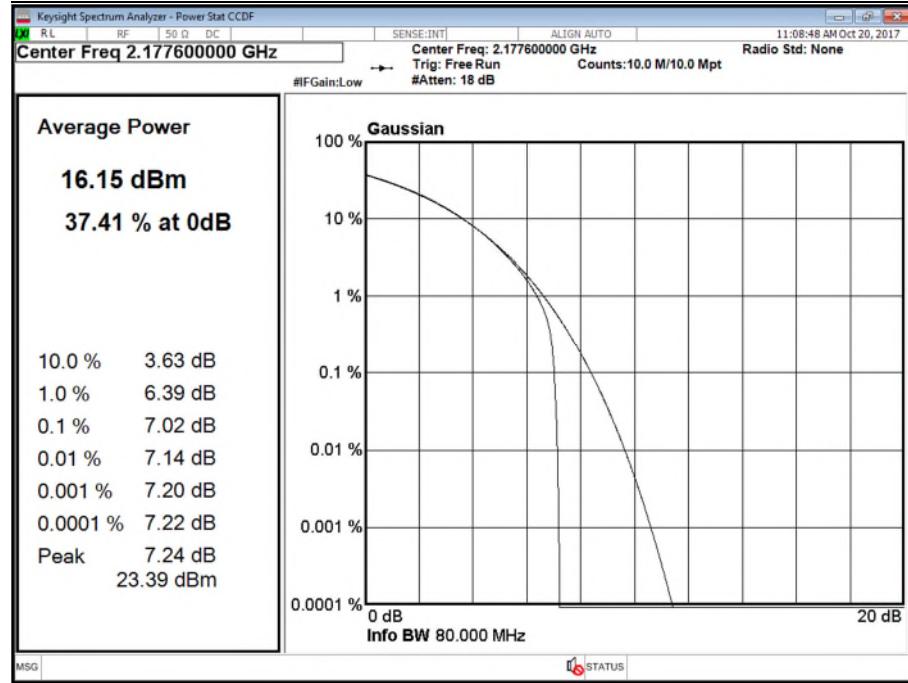
Maximum Output Power 19.9 dBm (Including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz	7.04	18.99	13.83
D	16QAM	5.0 MHz	7.02	18.96	13.88
Total			-	21.99	16.87

## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna C



## WCDMA Modulation 16QAM - WCDMA Carrier Bandwidth 5.0 MHz - Antenna D





Product Service

## Configuration 2

Maximum Output Power 17 dBm or 14 dBm/carrier

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	-	16.17	8.36
D	16QAM	5.0 MHz	-	16.51	8.72
Total			-	19.35	11.55

Maximum Output Power 19.9 dBm (including 2.9 dBi Antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz	-	19.07	11.26
D	16QAM	5.0 MHz	-	19.41	11.62
Total			-	22.25	14.45

## Configuration 2

Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	-	16.31	8.35
D	16QAM	5.0 MHz	-	16.54	8.56
Total			-	19.44	11.47

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz	-	19.21	11.25
D	16QAM	5.0 MHz	-	19.44	11.46
Total			-	22.34	14.37



Product Service

## Configuration 2

Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	-	16.06	8.31
D	16QAM	5.0 MHz	-	16.46	8.50
Total			-	19.27	11.42

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz	-	18.96	11.21
D	16QAM	5.0 MHz	-	19.36	11.40
Total			-	22.17	14.32

## Configuration 3

Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz	-	16.17	5.55
D	16QAM	5.0 MHz	-	16.55	5.94
Total			-	19.37	8.76

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz	-	19.07	8.45
D	16QAM	5.0 MHz	-	19.45	8.84
Total			-	22.27	11.66



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### Configuration 3

Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz		-	16.17
D	16QAM	5.0 MHz	-	16.33	5.54
Total			-	19.26	8.42

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz		-	19.07
D	16QAM	5.0 MHz	-	19.23	8.44
Total			-	22.16	11.32

### Configuration 3

Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
C	16QAM	5.0 MHz		-	17.10
D	16QAM	5.0 MHz	-	16.34	5.41
Total			-	19.75	8.80

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power (EIRP)	
C	16QAM	5.0 MHz		-	20.00
D	16QAM	5.0 MHz	-	19.24	8.31
Total			-	22.65	11.70



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#### Configuration 4

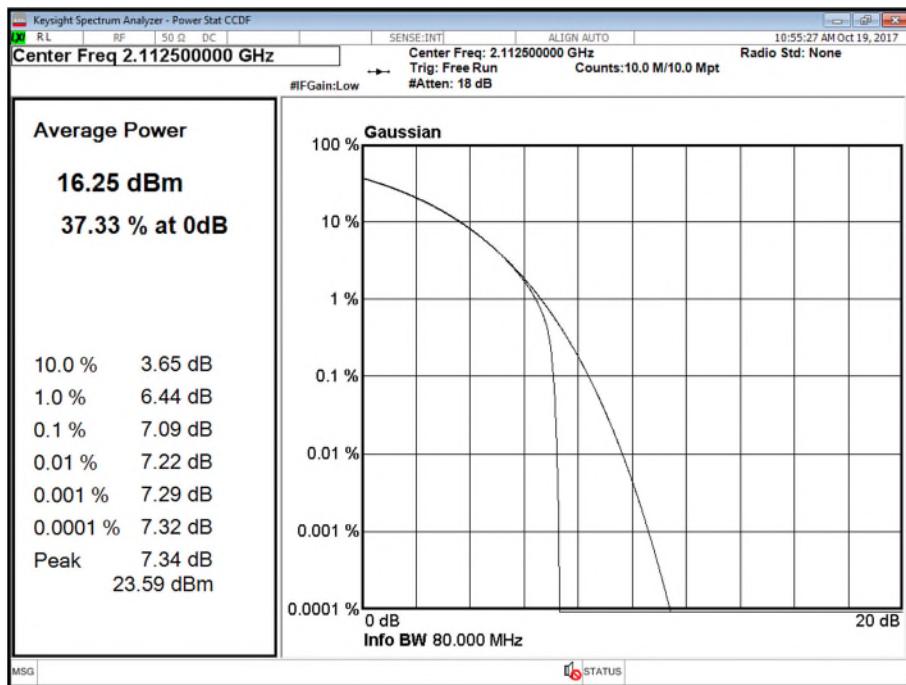
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.09	16.16	10.36
D	QPSK	5.0 MHz	7.09	16.18	10.30
Total			-	19.18	13.34
C	QPSK	10.0 MHz	7.15	16.13	7.71
D	QPSK	10.0 MHz	7.14	16.47	7.93
Total			-	19.31	10.83
C	QPSK	15.0 MHz	7.19	16.22	6.18
D	QPSK	15.0 MHz	7.17	16.57	6.52
Total			-	19.41	9.36
C	QPSK	20.0 MHz	7.16	16.93	5.15
D	QPSK	20.0 MHz	7.16	16.14	4.84
Total			-	19.56	8.01

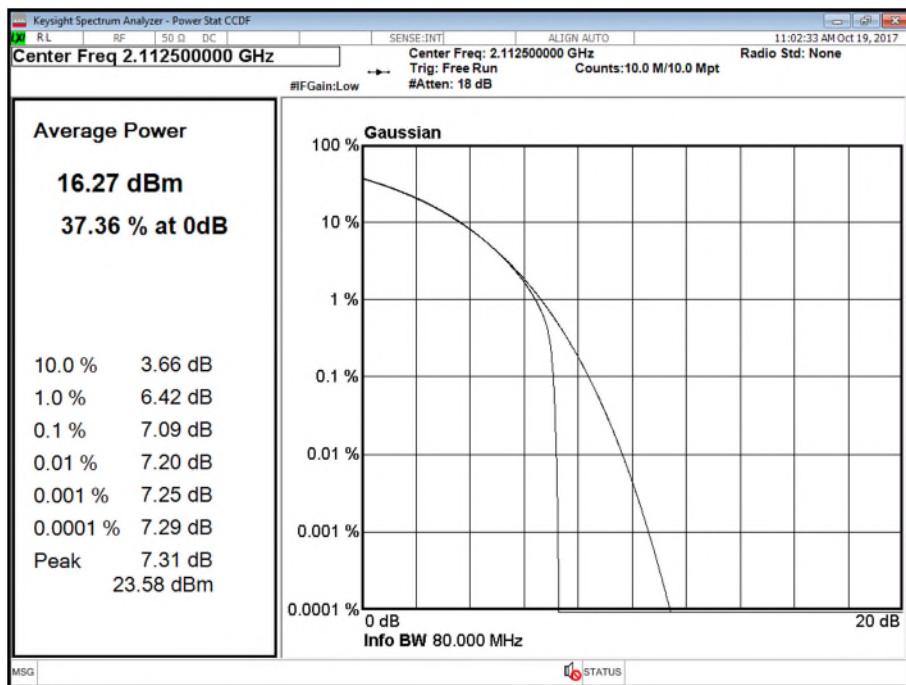
Maximum Output Power 19.9 dBm (including 2.9 dBi)

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power (EIRP)	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.09	19.06	13.26
D	QPSK	5.0 MHz	7.09	19.08	13.20
Total			-	22.08	16.24
C	QPSK	10.0 MHz	7.15	19.03	10.61
D	QPSK	10.0 MHz	7.14	19.37	10.83
Total			-	22.21	13.73
C	QPSK	15.0 MHz	7.19	19.12	9.08
D	QPSK	15.0 MHz	7.17	19.47	9.42
Total			-	22.31	12.26
C	QPSK	20.0 MHz	7.16	19.83	8.05
D	QPSK	20.0 MHz	7.16	19.04	7.74
Total			-	22.46	10.91

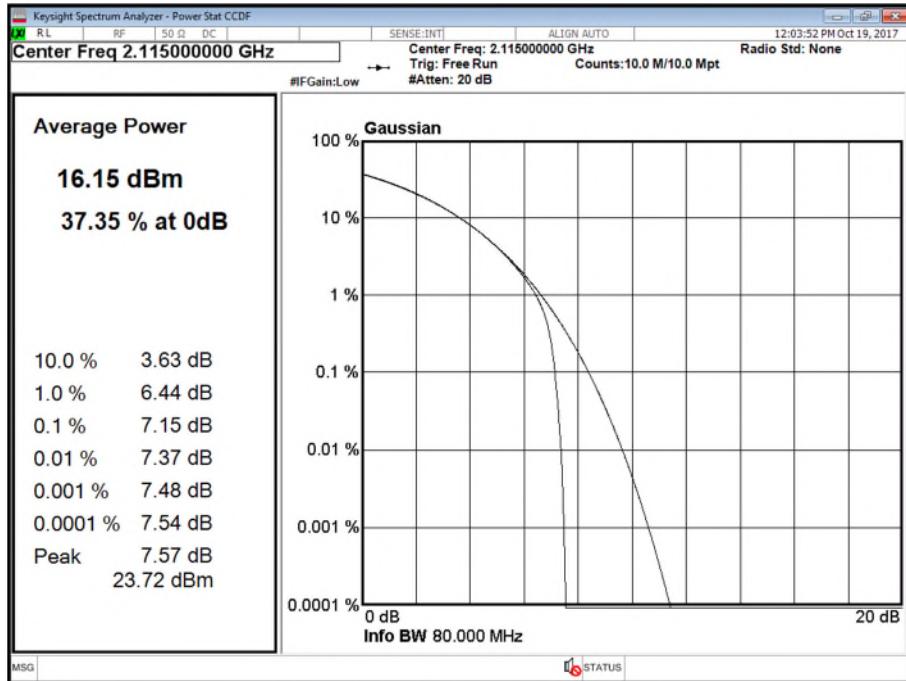
## LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna C



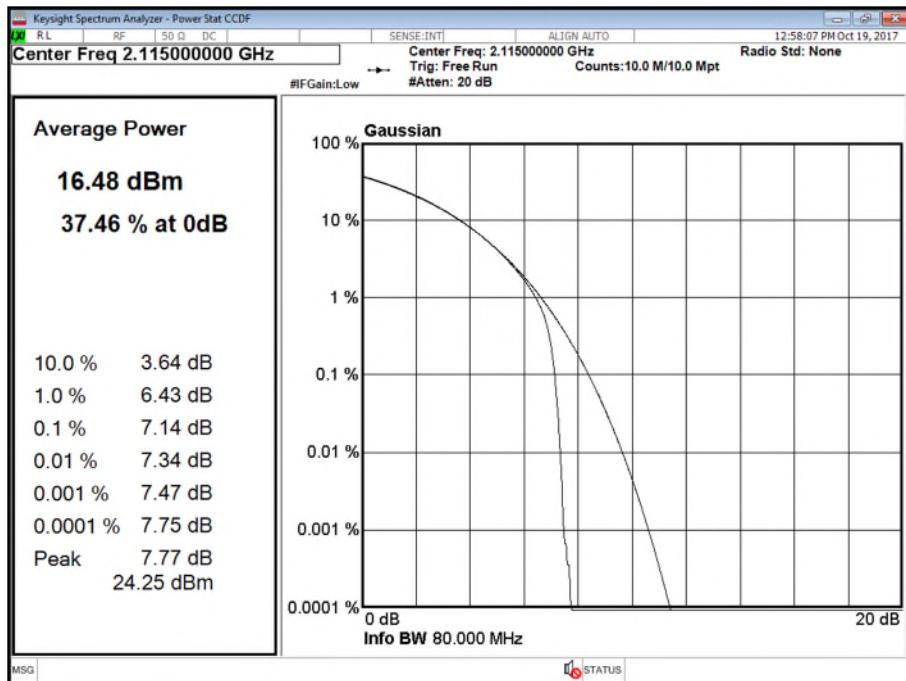
## LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna D



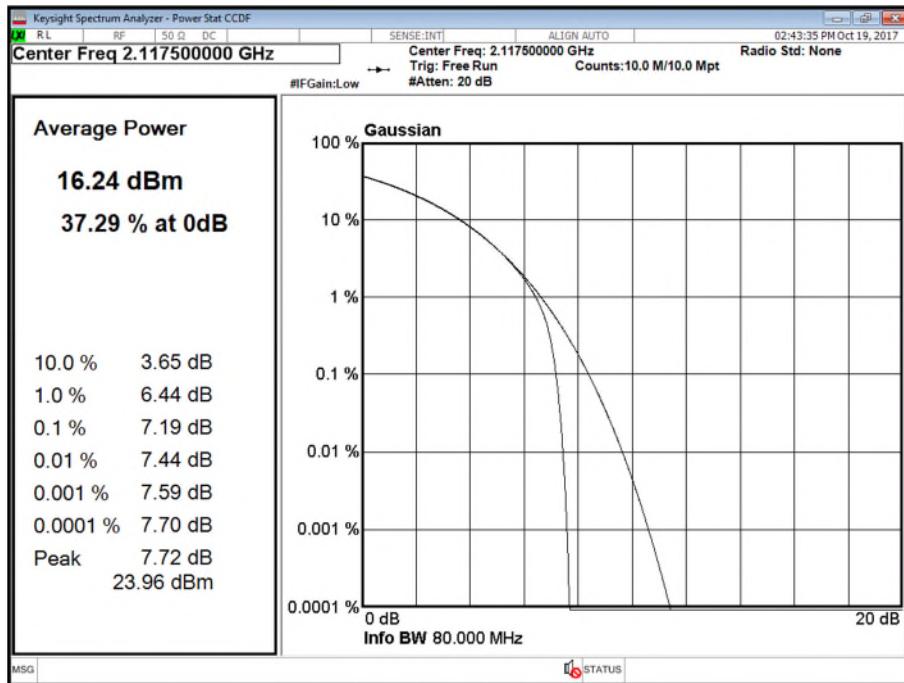
## LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna C



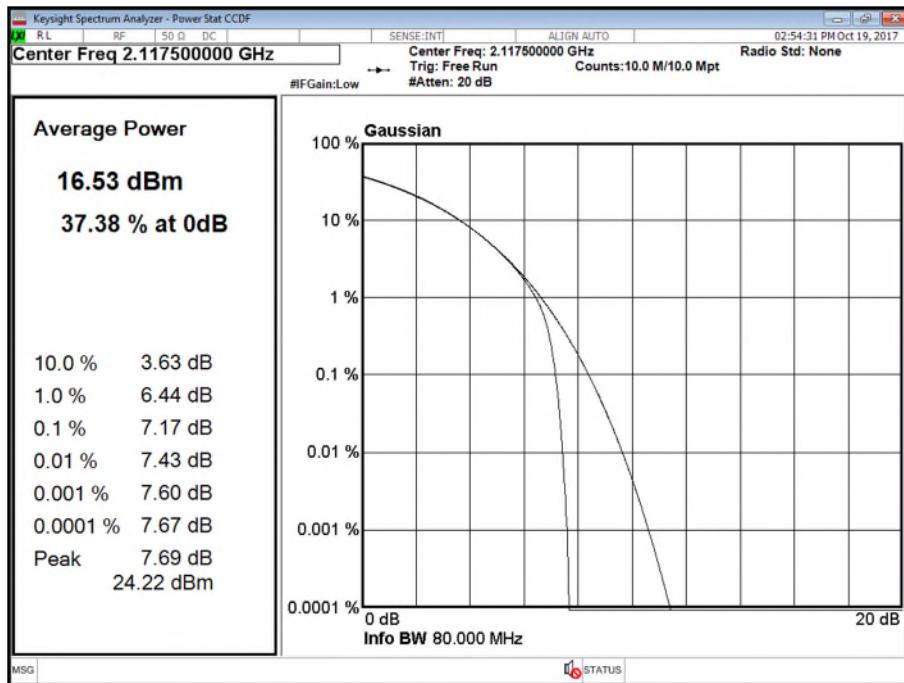
## LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna D



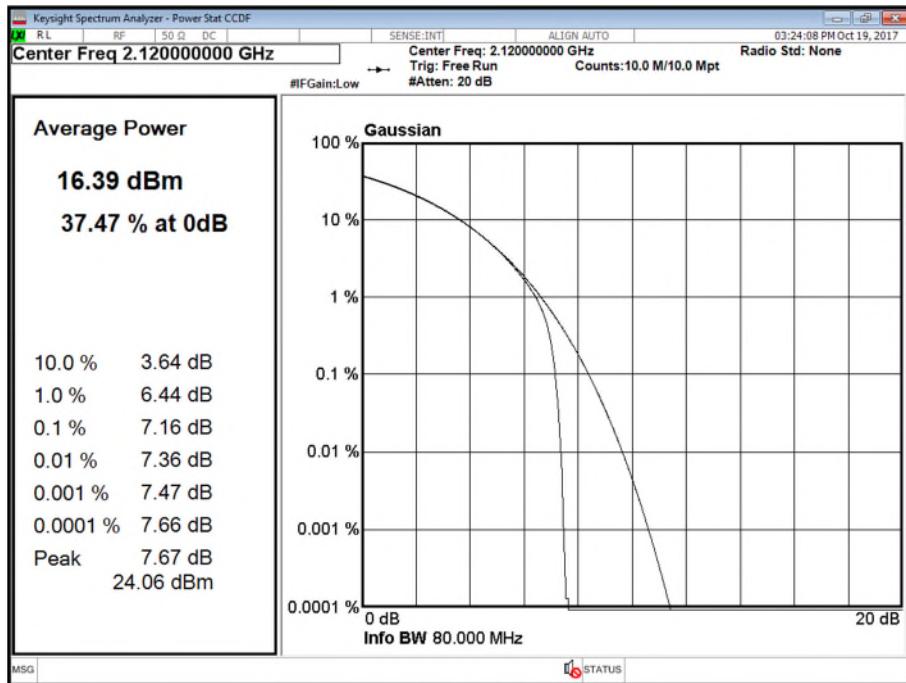
## LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna C



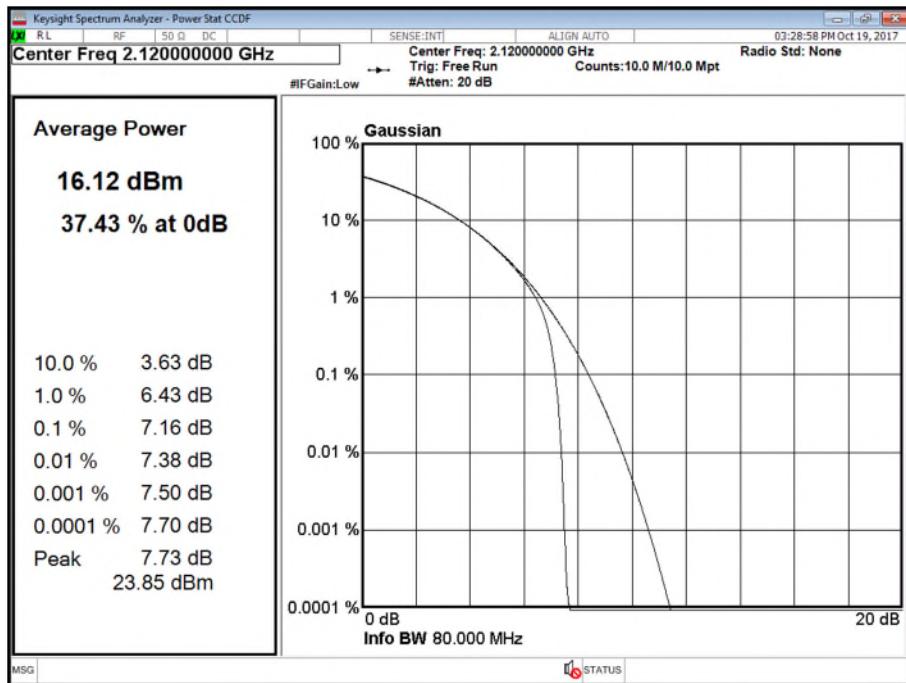
## LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna D



## LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna C



## LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna D





Product Service

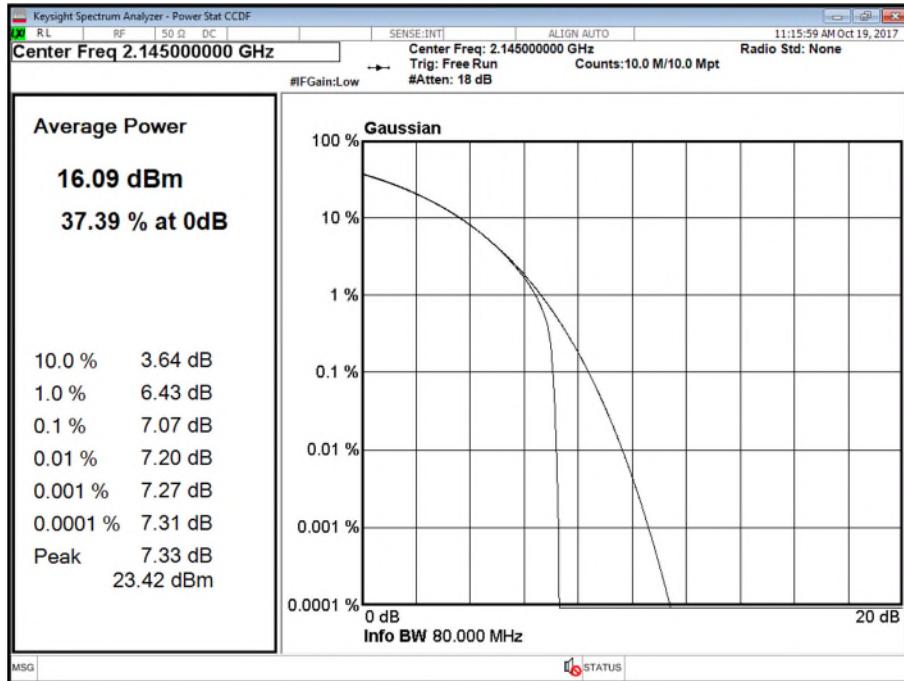
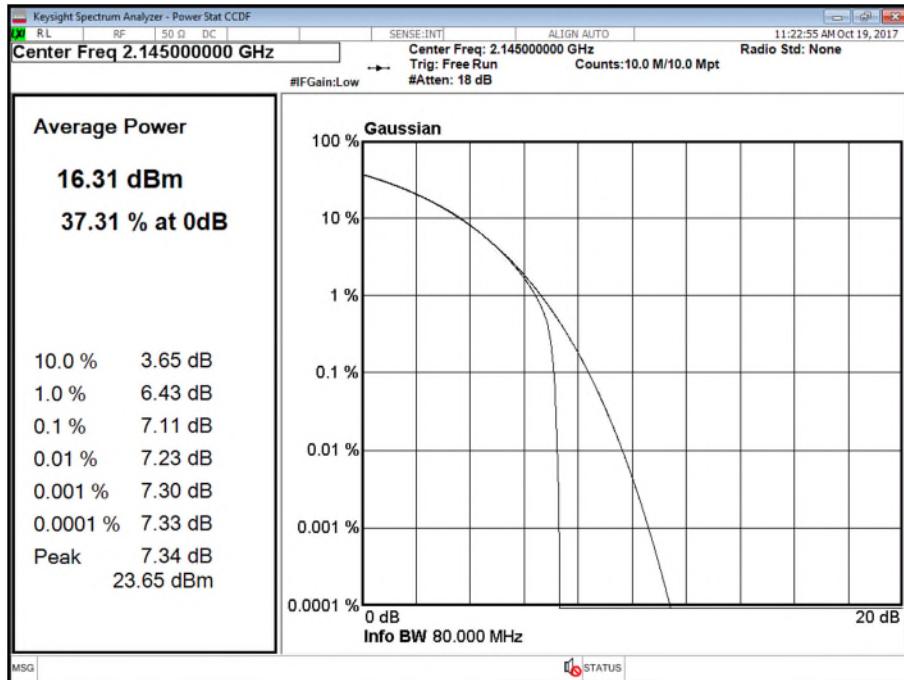
#### Configuration 4

Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.07	16.03	10.17
D	QPSK	5.0 MHz	7.11	16.30	10.36
Total			-	19.18	13.28
C	QPSK	10.0 MHz	7.13	16.32	7.85
D	QPSK	10.0 MHz	7.13	16.51	7.83
Total			-	19.43	10.85
C	QPSK	15.0 MHz	7.16	16.18	5.90
D	QPSK	15.0 MHz	7.15	16.49	6.17
Total			-	19.35	9.05
C	QPSK	20.0 MHz	7.14	16.18	4.67
D	QPSK	20.0 MHz	7.13	16.28	4.77
Total			-	19.24	7.73

Maximum Output Power 19.9 dBm (Including 2.9 dBi antenna gain)

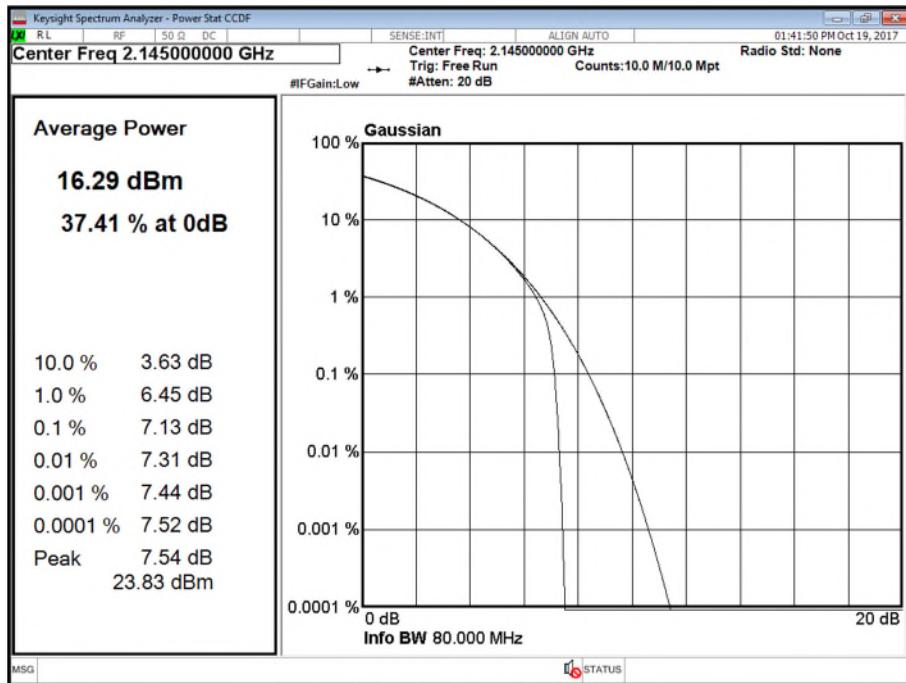
Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power (EIRP)	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.07	18.93	13.07
D	QPSK	5.0 MHz	7.11	19.20	13.26
Total			-	22.08	16.18
C	QPSK	10.0 MHz	7.13	19.22	10.75
D	QPSK	10.0 MHz	7.13	19.41	10.73
Total			-	22.33	13.75
C	QPSK	15.0 MHz	7.16	19.08	8.80
D	QPSK	15.0 MHz	7.15	19.39	9.07
Total			-	22.25	11.95
C	QPSK	20.0 MHz	7.14	19.08	7.57
D	QPSK	20.0 MHz	7.13	19.18	7.67
Total			-	22.14	10.63

LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna C

LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna D


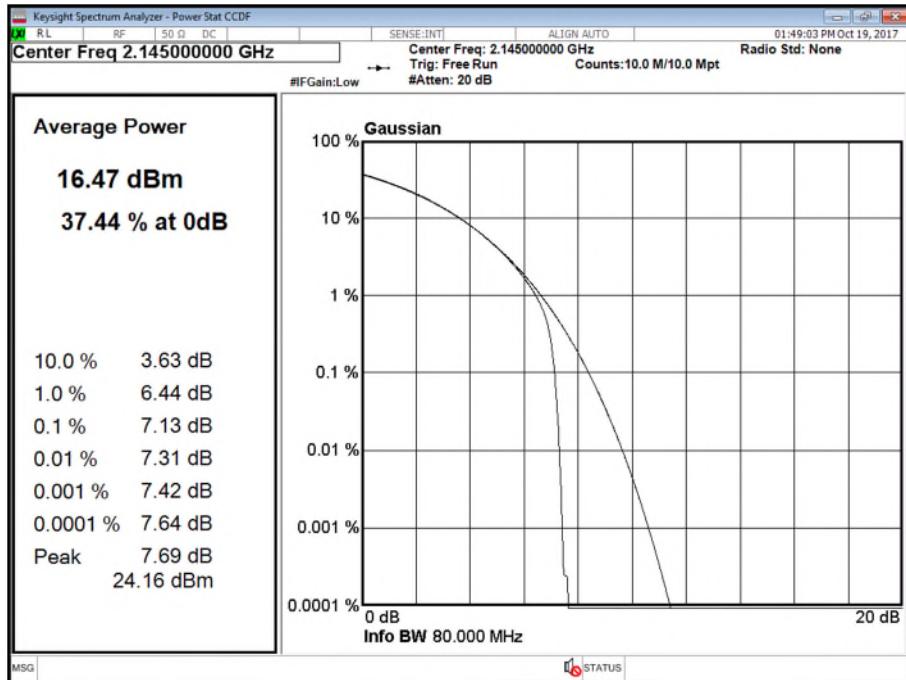


Product Service

### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna C



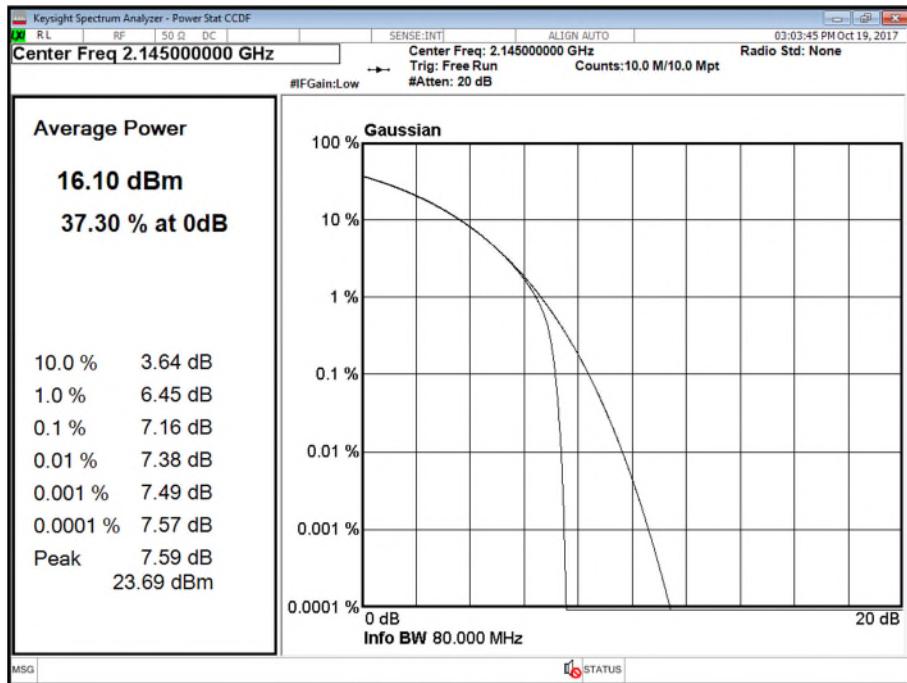
### LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna D



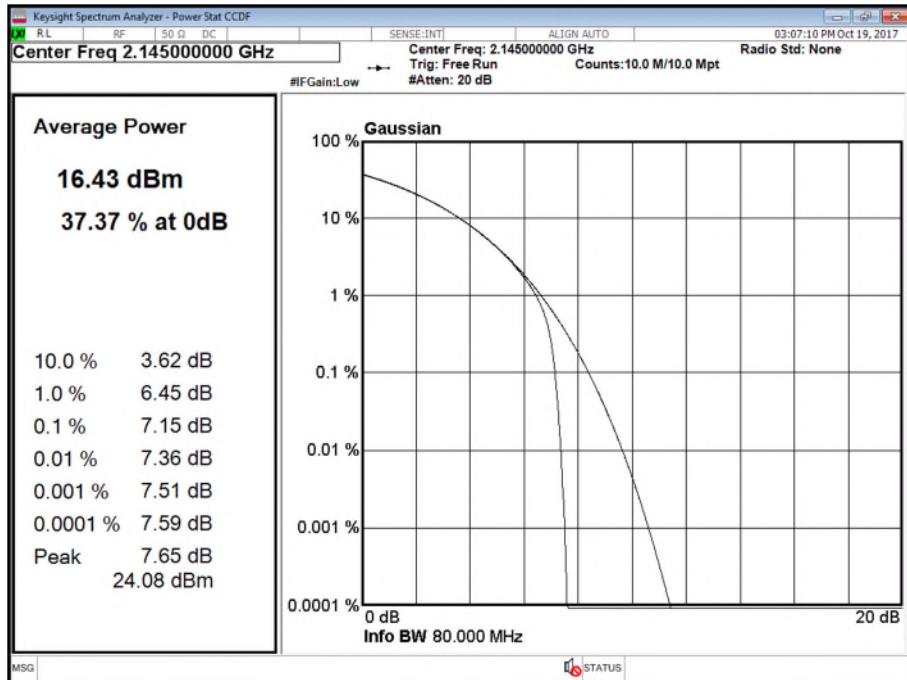


Product Service

### LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna C



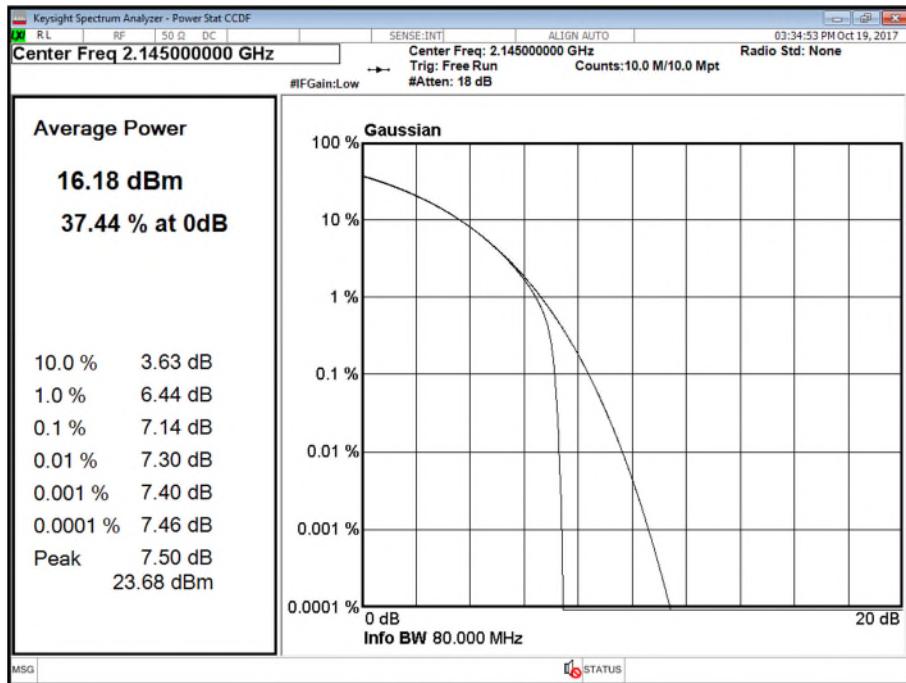
### LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna D



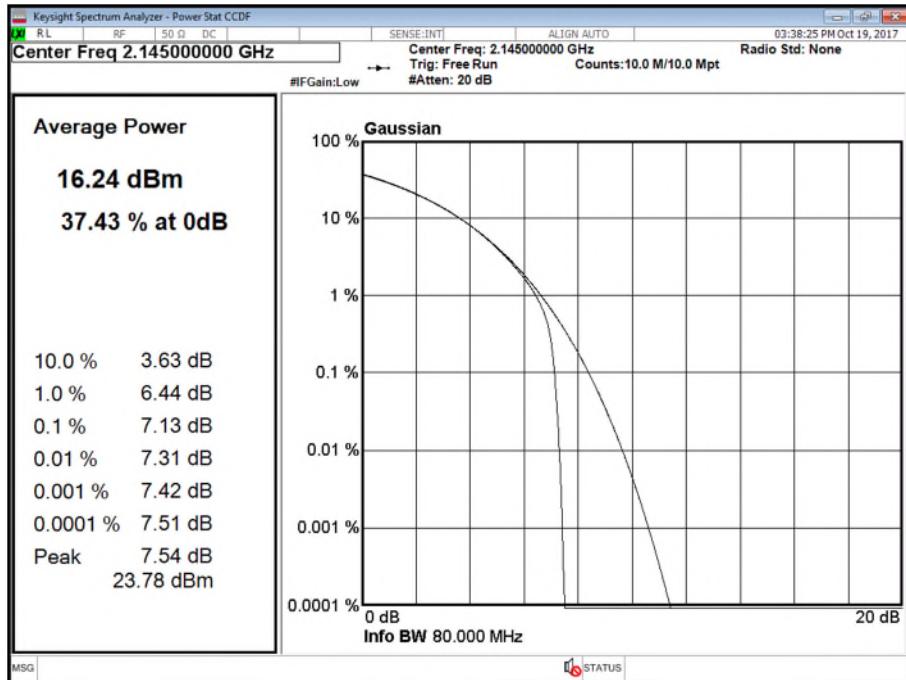


Product Service

### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna C



### LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna D





Product Service

#### Configuration 4

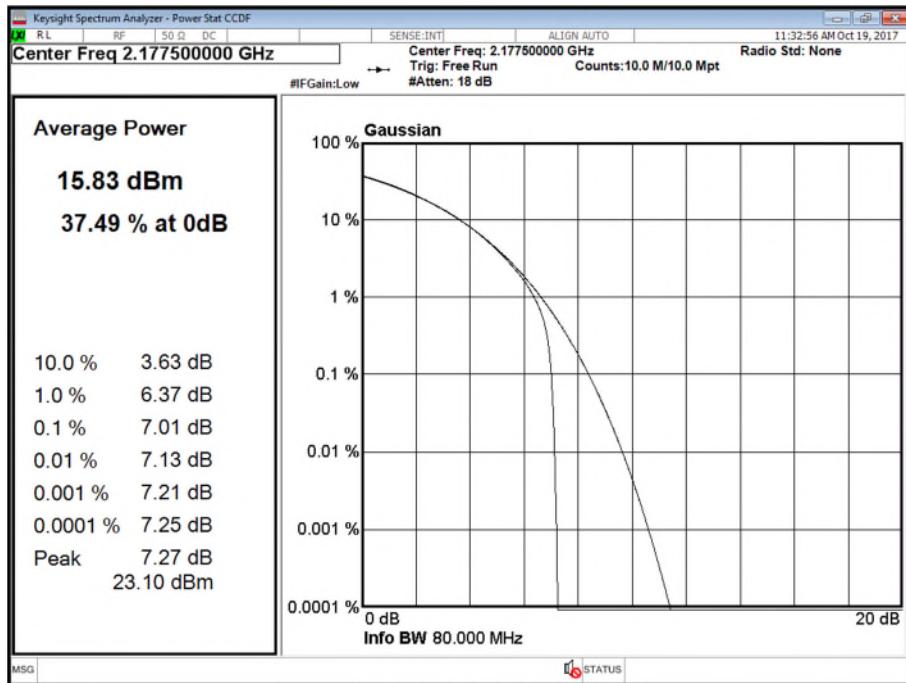
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.01	15.85	9.99
D	QPSK	5.0 MHz	7.02	16.14	10.34
Total			-	19.01	13.18
C	QPSK	10.0 MHz	7.13	16.18	7.69
D	QPSK	10.0 MHz	7.11	16.20	7.72
Total			-	19.20	10.72
C	QPSK	15.0 MHz	7.18	16.24	5.95
D	QPSK	15.0 MHz	7.16	16.10	6.35
Total			-	19.18	9.16
C	QPSK	20.0 MHz	7.19	16.15	4.75
D	QPSK	20.0 MHz	7.16	16.27	4.62
Total			-	19.22	7.70

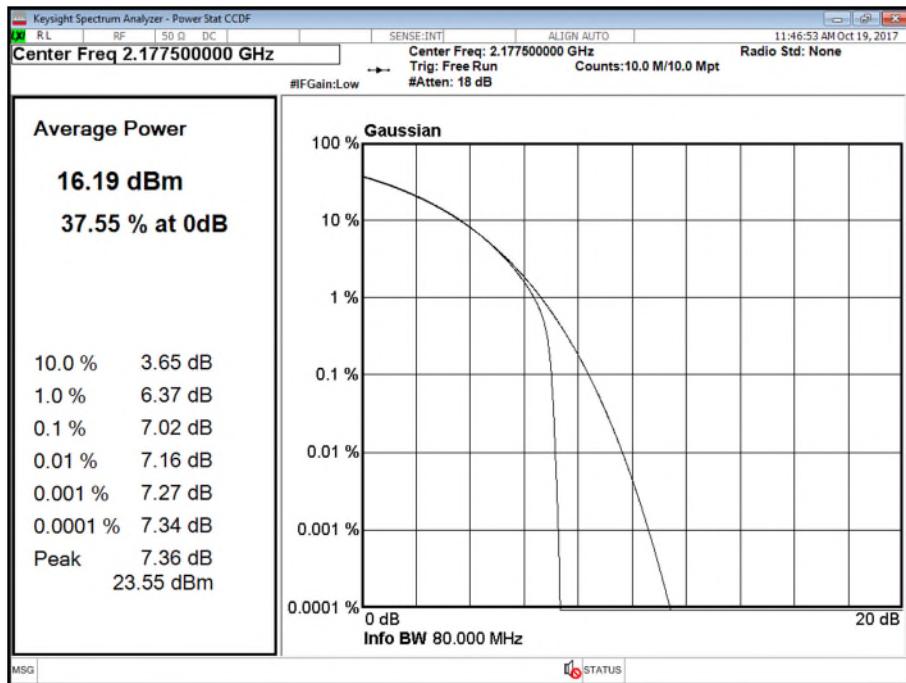
Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power (EIRP)	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	7.01	18.75	12.89
D	QPSK	5.0 MHz	7.02	19.04	13.24
Total			-	21.91	16.08
C	QPSK	10.0 MHz	7.13	19.08	10.59
D	QPSK	10.0 MHz	7.11	19.10	10.62
Total			-	22.10	13.62
C	QPSK	15.0 MHz	7.18	19.14	8.85
D	QPSK	15.0 MHz	7.16	19.00	9.25
Total			-	22.08	12.06
C	QPSK	20.0 MHz	7.19	19.05	7.65
D	QPSK	20.0 MHz	7.16	19.17	7.52
Total			-	22.12	10.60

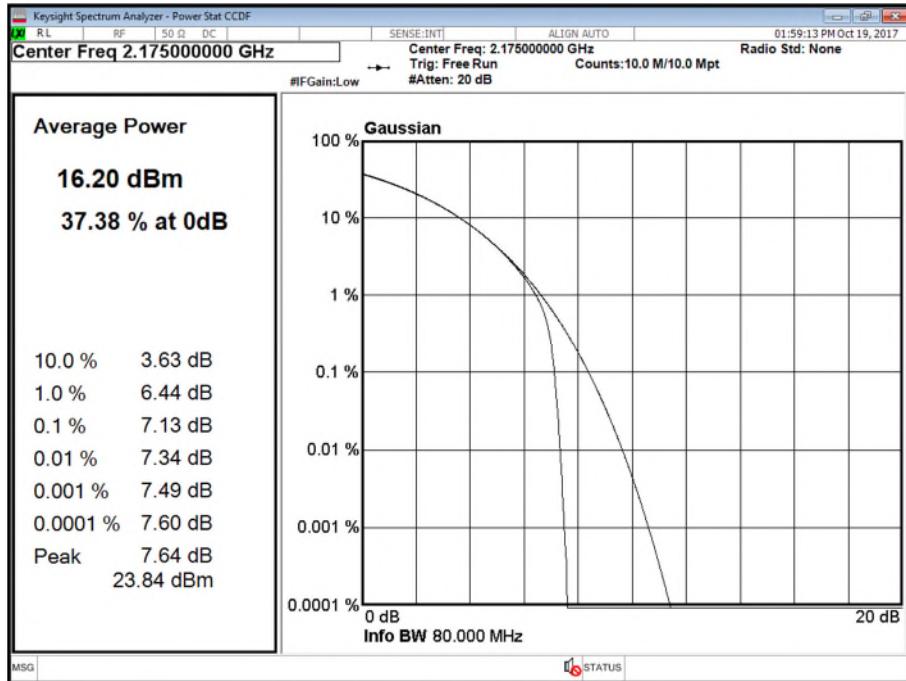
## LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna C



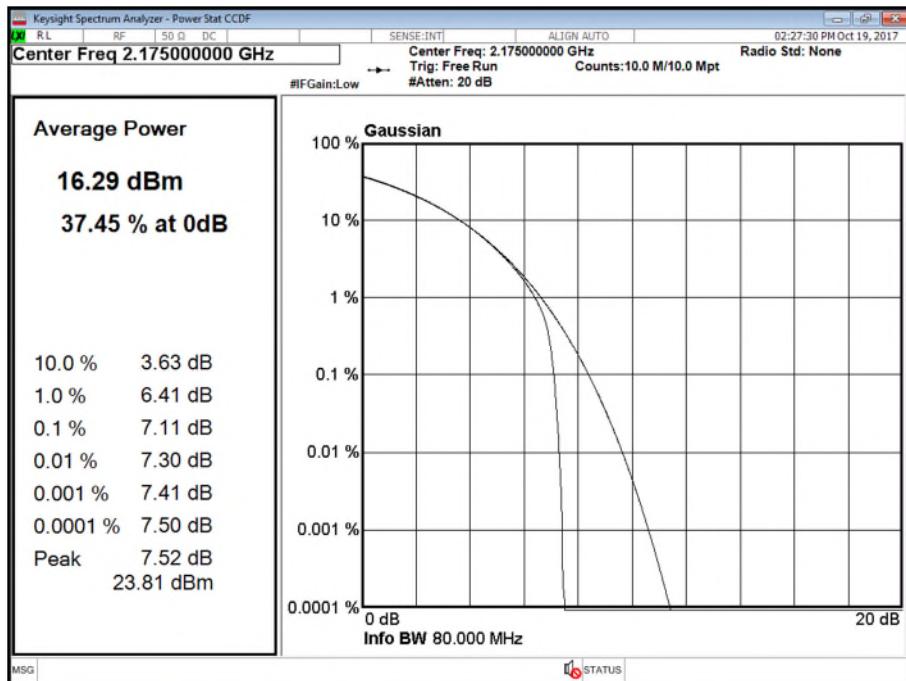
## LTE Modulation QPSK - LTE Carrier Bandwidth 5.0 MHz - Antenna D



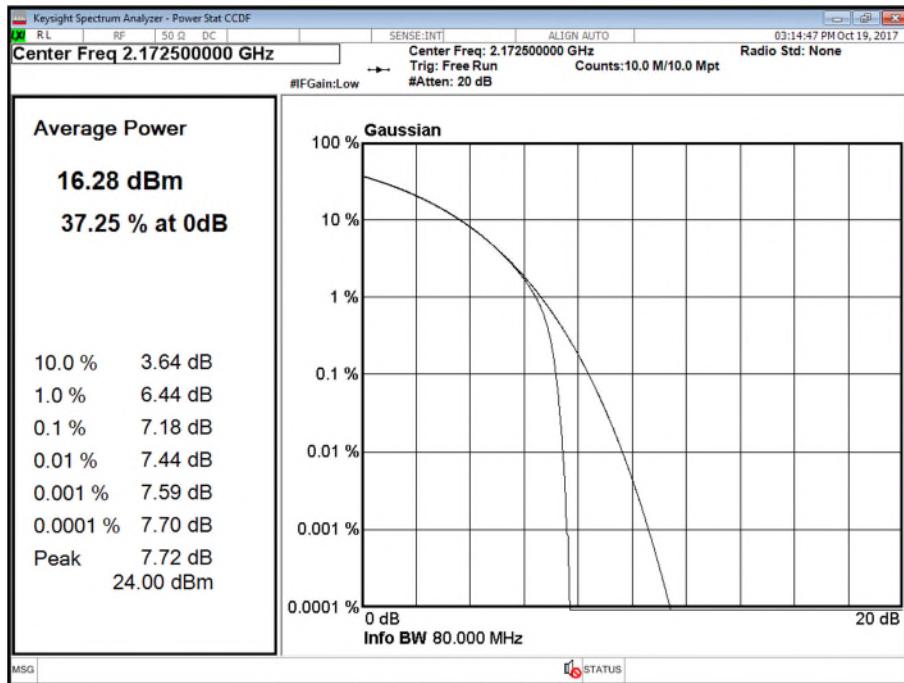
## LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna C



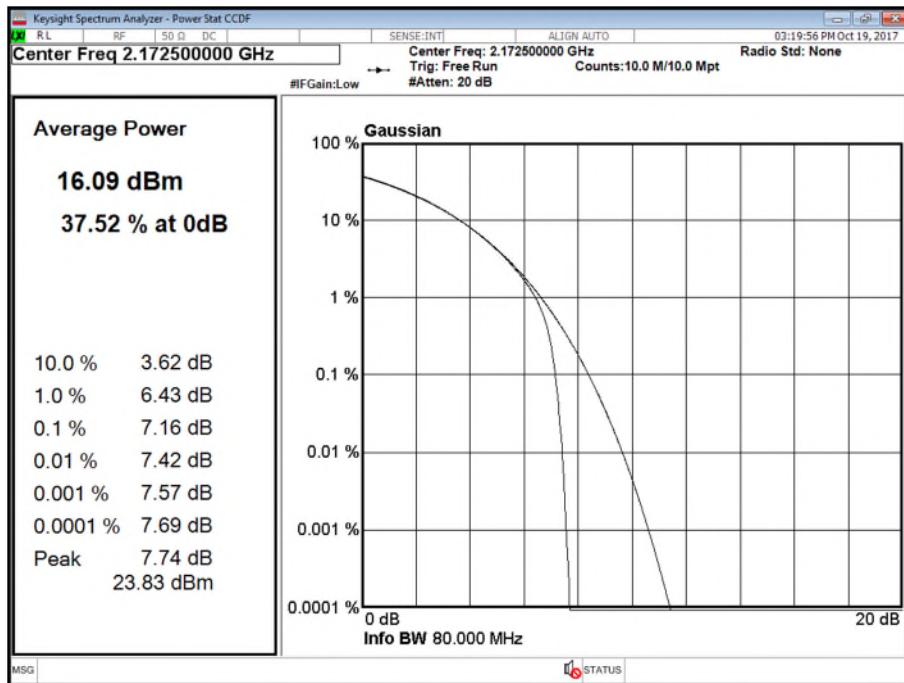
## LTE Modulation QPSK - LTE Carrier Bandwidth 10.0 MHz - Antenna D



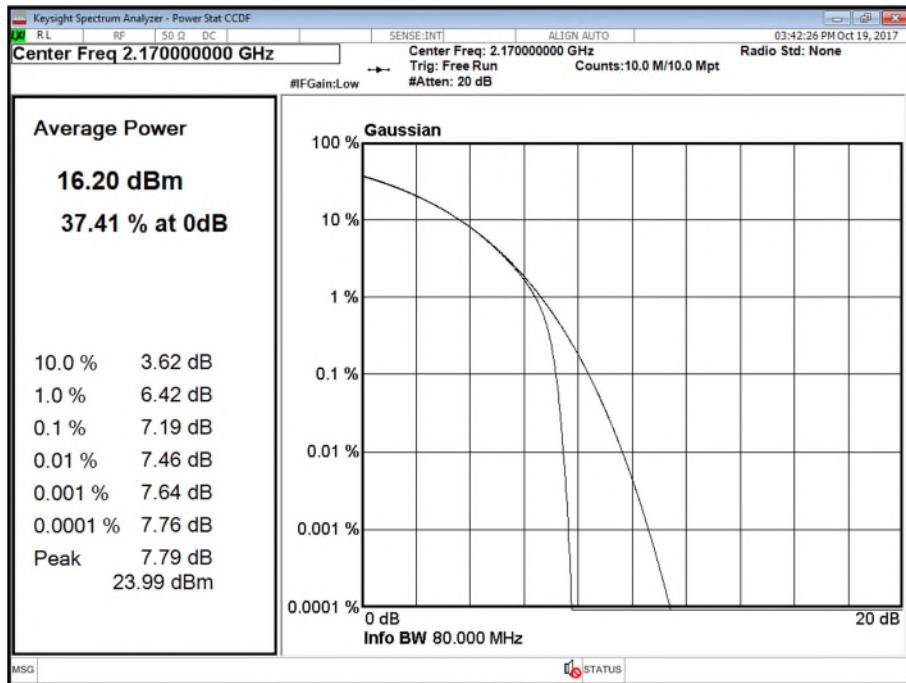
## LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna C



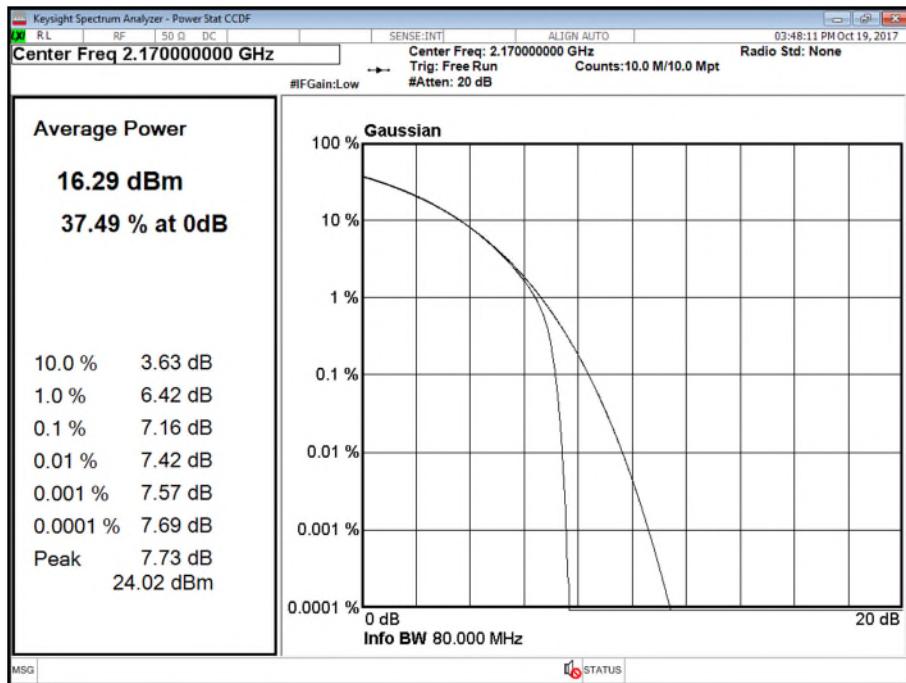
## LTE Modulation QPSK - LTE Carrier Bandwidth 15.0 MHz - Antenna D



## LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna C



## LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Antenna D





Product Service

## Configuration 5

Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	16.12	7.84
D	QPSK	5.0 MHz	-	16.43	8.06
Total			-	19.29	10.96
C	QPSK	10.0 MHz	-	16.14	4.92
D	QPSK	10.0 MHz	-	16.25	5.05
Total			-	19.21	8.00
C	QPSK	15.0 MHz	-	16.21	3.36
D	QPSK	15.0 MHz	-	16.38	3.48
Total			-	19.31	6.43
C	QPSK	20.0 MHz	-	16.30	2.10
D	QPSK	20.0 MHz	-	16.15	2.02
Total			-	19.24	5.07

Maximum Output Power 19.9 dBm (including 2.9 dBi Antenna gain)

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position B		
			PAR (dB)	Average Power (EIRP)	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	19.02	10.74
D	QPSK	5.0 MHz	-	19.33	10.96
Total			-	22.19	13.86
C	QPSK	10.0 MHz	-	19.04	7.82
D	QPSK	10.0 MHz	-	19.15	7.95
Total			-	22.11	10.90
C	QPSK	15.0 MHz	-	19.11	6.26
D	QPSK	15.0 MHz	-	19.28	6.38
Total			-	22.21	9.33
C	QPSK	20.0 MHz	-	19.20	5.00
D	QPSK	20.0 MHz	-	19.05	4.92
Total			-	22.14	7.97



Product Service

## Configuration 5

Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	16.11	7.48
D	QPSK	5.0 MHz	-	16.46	8.00
Total			-	19.30	10.76
C	QPSK	10.0 MHz	-	16.39	4.73
D	QPSK	10.0 MHz	-	16.27	4.89
Total			-	19.34	7.82
C	QPSK	15.0 MHz	-	16.13	3.07
D	QPSK	15.0 MHz	-	16.27	3.41
Total			-	19.21	6.25
C	QPSK	20.0 MHz	-	16.15	1.95
D	QPSK	20.0 MHz	-	16.33	2.30
Total			-	19.25	5.14

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position M		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	19.01	10.38
D	QPSK	5.0 MHz	-	19.36	10.9
Total			-	22.20	13.66
C	QPSK	10.0 MHz	-	19.29	7.63
D	QPSK	10.0 MHz	-	19.17	7.79
Total			-	22.24	10.72
C	QPSK	15.0 MHz	-	19.03	5.97
D	QPSK	15.0 MHz	-	19.17	6.31
Total			-	22.11	9.15
C	QPSK	20.0 MHz	-	19.05	4.85
D	QPSK	20.0 MHz	-	19.23	5.20
Total			-	22.15	8.04



Product Service

## Configuration 5

Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	16.14	7.67
D	QPSK	5.0 MHz	-	16.27	7.69
Total			-	19.22	10.69
C	QPSK	10.0 MHz	-	16.14	4.86
D	QPSK	10.0 MHz	-	16.21	4.65
Total			-	19.19	7.77
C	QPSK	15.0 MHz	-	16.21	2.89
D	QPSK	15.0 MHz	-	16.42	3.09
Total			-	19.33	6.00
C	QPSK	20.0 MHz	-	16.36	1.93
D	QPSK	20.0 MHz	-	16.16	1.80
Total			-	19.27	4.88

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	LTE Modulation	LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position T		
			PAR (dB)	Average Power (EIRP)	
				dBm	dBm/MHz
C	QPSK	5.0 MHz	-	19.04	10.57
D	QPSK	5.0 MHz	-	19.17	10.59
Total			-	22.12	13.59
C	QPSK	10.0 MHz	-	19.04	7.76
D	QPSK	10.0 MHz	-	19.11	7.55
Total			-	22.09	10.67
C	QPSK	15.0 MHz	-	19.11	5.79
D	QPSK	15.0 MHz	-	19.32	5.99
Total			-	22.23	8.90
C	QPSK	20.0 MHz	-	19.26	4.83
D	QPSK	20.0 MHz	-	19.06	4.70
Total			-	22.17	7.78



Product Service

## Configuration 6

Maximum Output Power 17 dBm

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position $M_{RFBW}$		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	16QAM / QPSK	5.0 MHz / 5.0 MHz	-	16.25	10.69
D	16QAM / QPSK	5.0 MHz / 5.0 MHz	-	16.08	10.49
Total			-	19.18	13.60
C	16QAM / QPSK	5.0 MHz / 10.0 MHz	-	16.14	19.67
D	16QAM / QPSK	5.0 MHz / 10.0 MHz	-	16.44	19.98
Total			-	19.30	22.84
C	16QAM / QPSK	5.0 MHz / 15.0 MHz	-	16.06	19.68
D	16QAM / QPSK	5.0 MHz / 15.0 MHz	-	16.27	20.00
Total			-	19.18	22.85
C	16QAM / QPSK	5.0 MHz / 20.0 MHz	-	16.21	19.83
D	16QAM / QPSK	5.0 MHz / 20.0 MHz	-	16.36	19.80
Total			-	19.30	22.83

Maximum Output Power 19.9 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position $M_{RFBW}$		
			PAR (dB)	Average Power (eirp)	
				dBm	dBm/MHz
C	16QAM / QPSK	5.0 MHz / 5.0 MHz	-	19.15	13.59
D	16QAM / QPSK	5.0 MHz / 5.0 MHz	-	18.98	13.39
Total			-	22.08	16.50
C	16QAM / QPSK	5.0 MHz / 10.0 MHz	-	19.04	22.57
D	16QAM / QPSK	5.0 MHz / 10.0 MHz	-	19.34	22.88
Total			-	22.20	25.74
C	16QAM / QPSK	5.0 MHz / 15.0 MHz	-	18.96	22.88
D	16QAM / QPSK	5.0 MHz / 15.0 MHz	-	19.17	22.90
Total			-	22.08	25.75
C	16QAM / QPSK	5.0 MHz / 20.0 MHz	-	19.11	22.73
D	16QAM / QPSK	5.0 MHz / 20.0 MHz	-	19.26	22.70
Total			-	22.20	25.73



Product Service

## Configuration 7

Maximum Output Power 9.2 dBm

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position $M_{RFBW}$		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	16QAM / QPSK	5.0 MHz / 5.0 MHz		16.27	6.45
D	16QAM / QPSK	5.0 MHz / 5.0 MHz		16.48	6.69
Total			-	19.39	9.58
C	16QAM / QPSK	5.0 MHz / 10.0 MHz		15.97	9.48
D	16QAM / QPSK	5.0 MHz / 10.0 MHz		16.31	9.21
Total			-	19.15	12.36

Maximum Output Power 12.1 dBm (including 2.9 dBi antenna gain)

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Peak to Average Ratio (PAR) / Output Power		
			Channel Position $M_{RFBW}$		
			PAR (dB)	Average Power	
				dBm	dBm/MHz
C	16QAM / QPSK	5.0 MHz / 5.0 MHz		19.17	9.35
D	16QAM / QPSK	5.0 MHz / 5.0 MHz		19.38	9.59
Total			-	22.29	12.48
C	16QAM / QPSK	5.0 MHz / 10.0 MHz		18.87	12.38
D	16QAM / QPSK	5.0 MHz / 10.0 MHz		19.21	12.11
Total			-	22.05	15.26

Limit
Peak Power
Peak to Average Ratio



Product Service

## 2.2 OCCUPIED BANDWIDTH

### 2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049  
FCC CFR 47 Part 27, Clause 27.53  
Industry Canada RSS-GEN, Clause 6.6

### 2.2.2 Date of Test and Modification State

19 and 20 October 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 23°C  
Relative Humidity 50%

### 2.2.5 Test Method

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

### 2.2.6 Test Results

Configuration 1

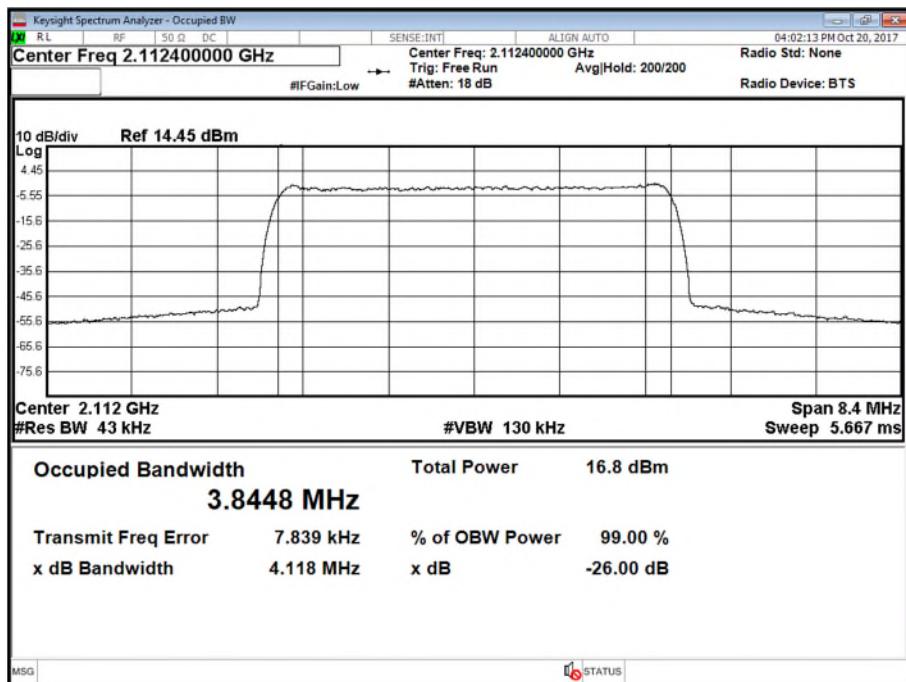
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Result (KHz)					
			Channel Position B		Channel Position M		Channel Position T	
			Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth
C	QPSK	4.2 MHz	3,844.80	4,118.35	3,843.62	4,121.94	3,843.06	4,121.11
D	QPSK	4.2 MHz	3,845.01	4,122.76	3,847.80	4,122.26	3,852.15	4,120.72
C	QPSK	5.0 MHz	4,164.25	4,657.49	4,152.84	4,658.42	4,154.03	4,655.01
D	QPSK	5.0 MHz	4,153.13	4,648.60	4,145.84	4,648.43	4,146.94	4,645.77

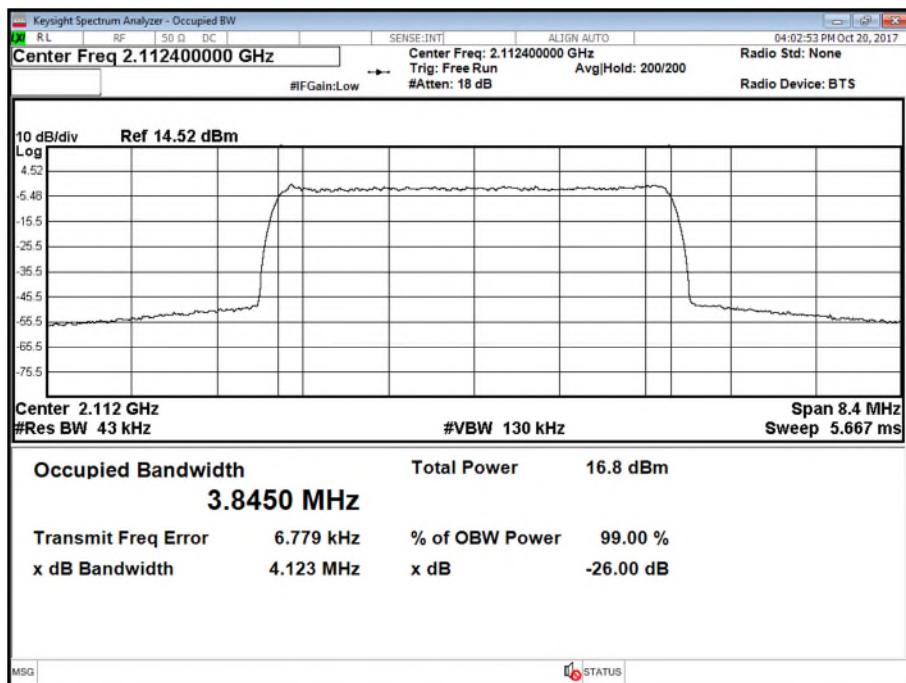


Product Service

### Antenna C - Bandwidth QPSK – Channel B



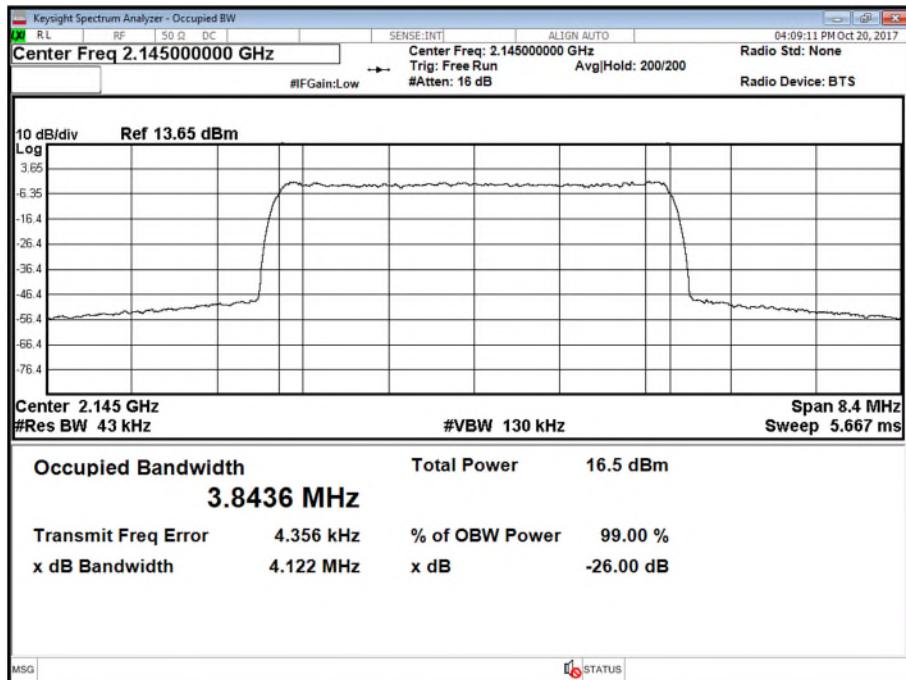
### Antenna D - Bandwidth QPSK – Channel M



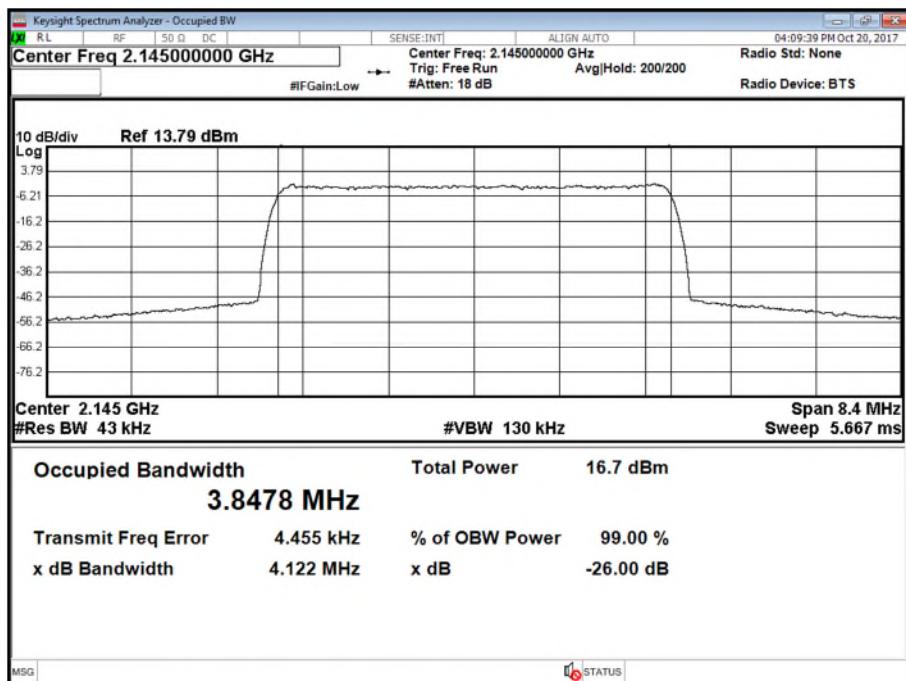


Product Service

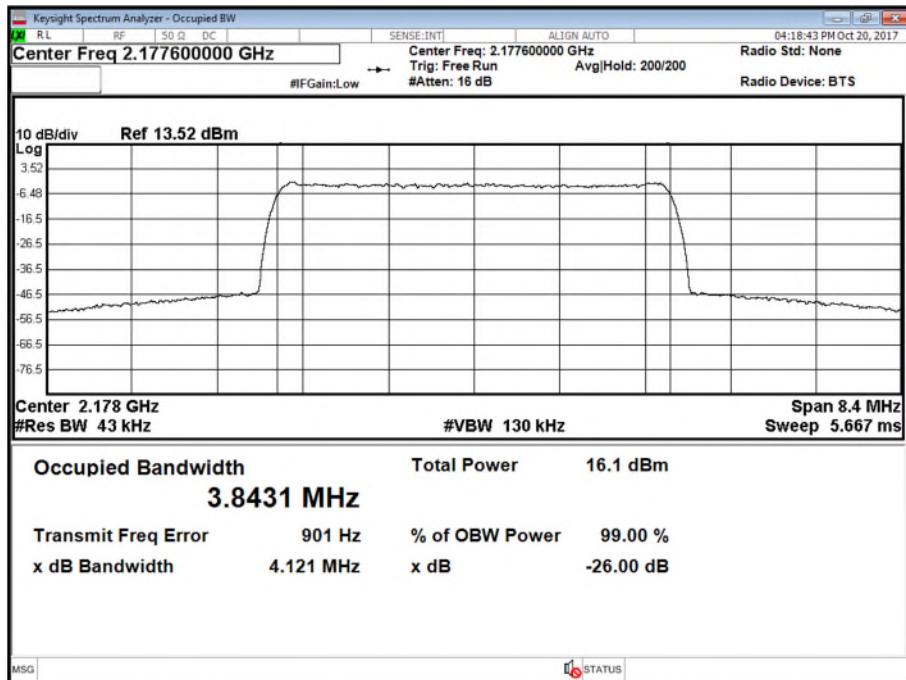
### Antenna C - Bandwidth QPSK – Channel T



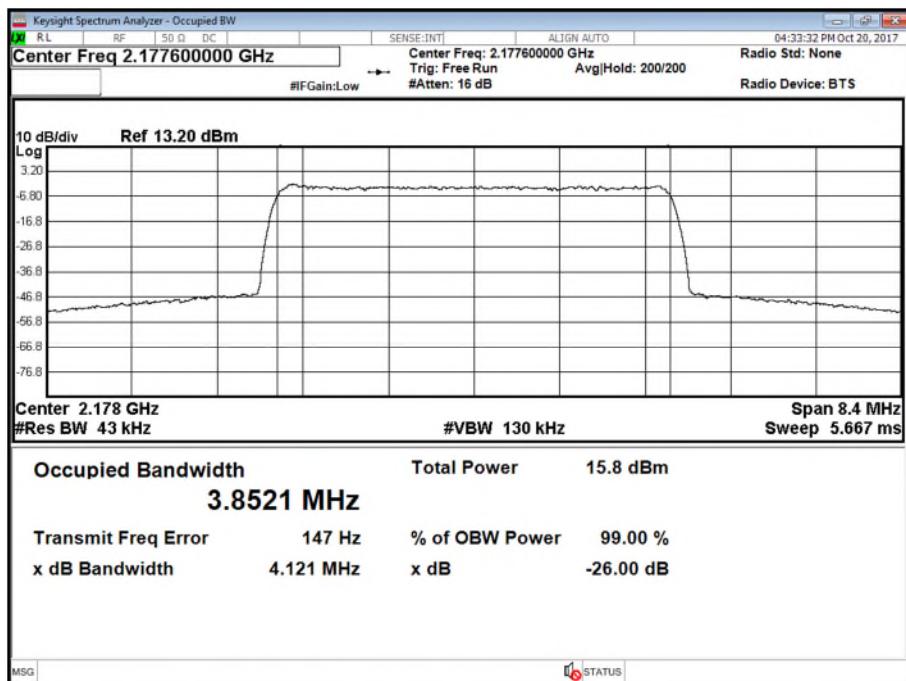
### Antenna D - Bandwidth QPSK – Channel B



## Antenna C - Bandwidth QPSK – Channel M



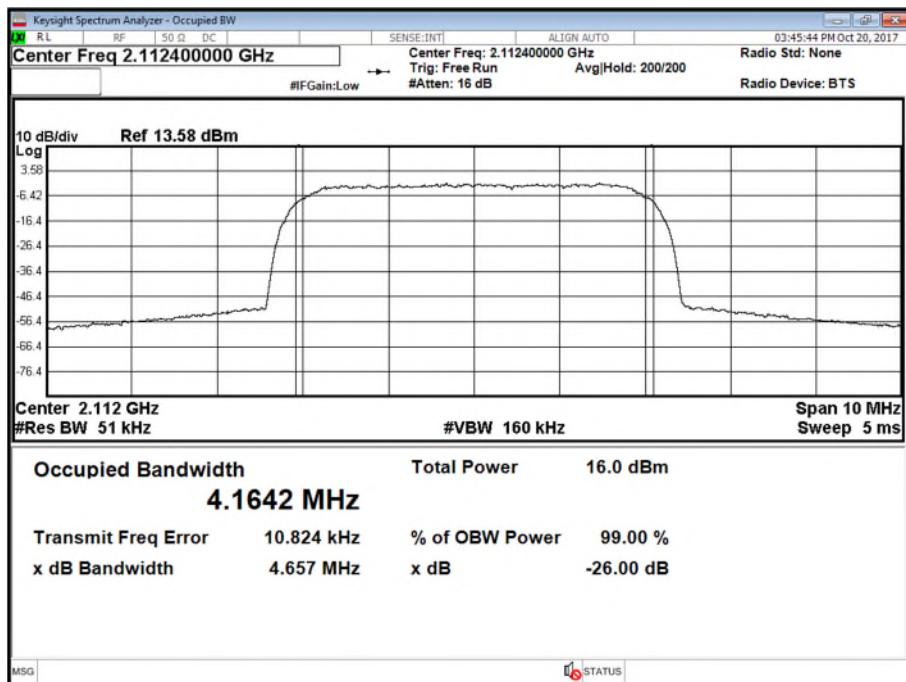
## Antenna D - Bandwidth QPSK – Channel T



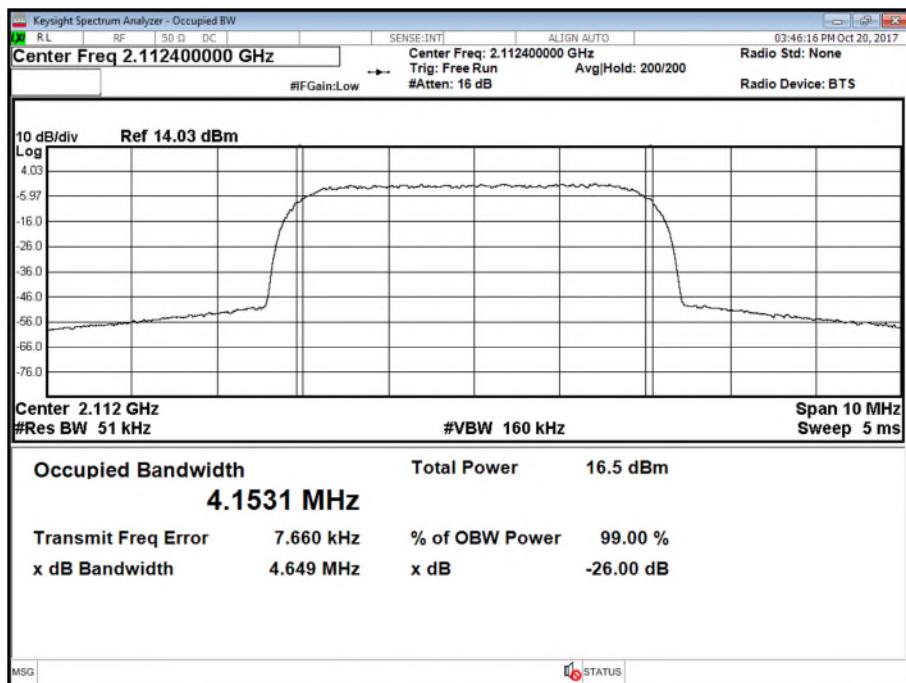


Product Service

### Antenna C - Bandwidth QPSK – Channel B



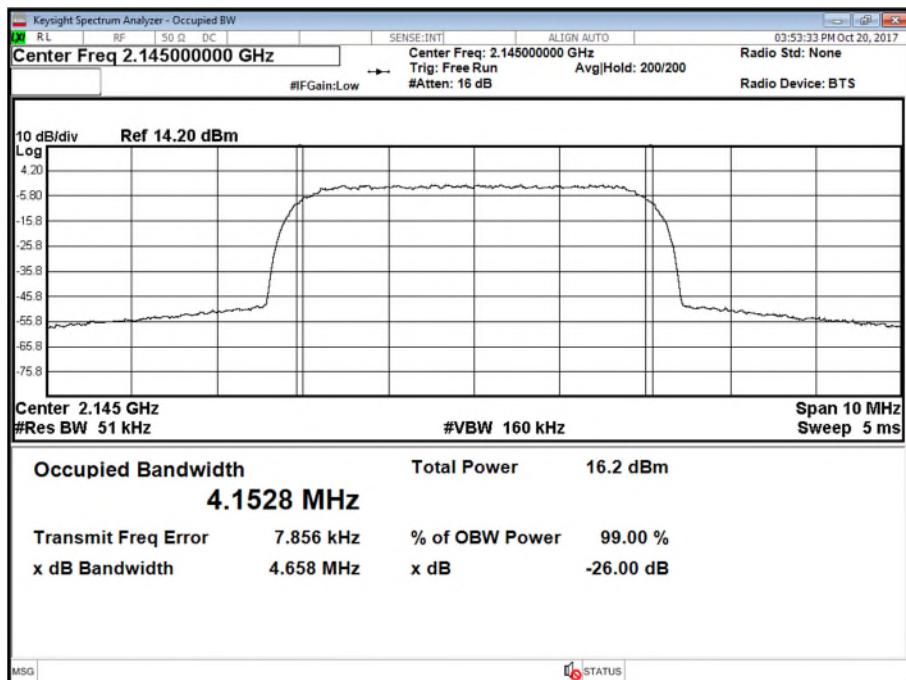
### Antenna D - Bandwidth QPSK – Channel M



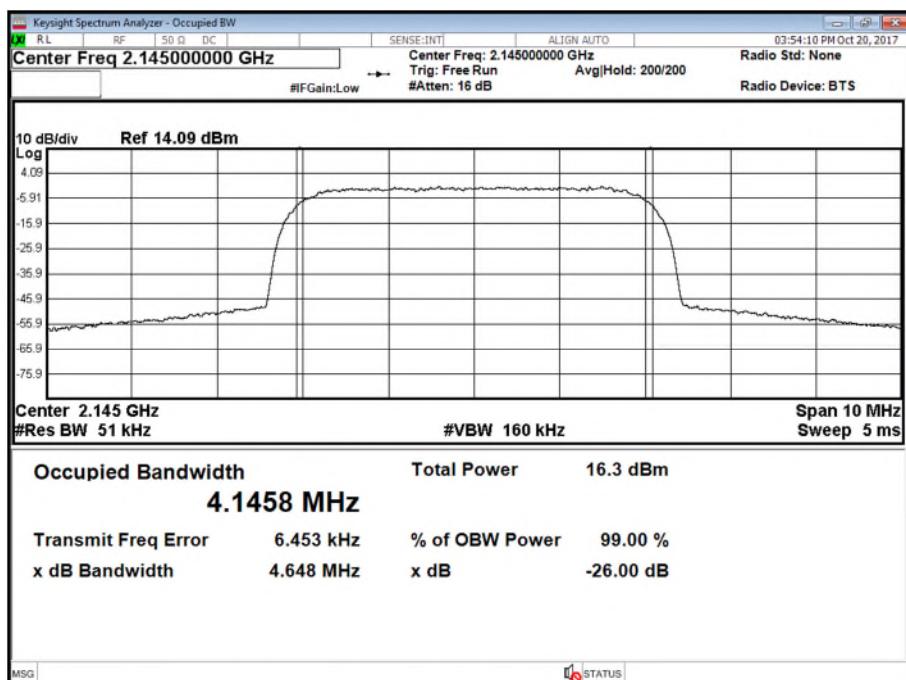


Product Service

### Antenna C - Bandwidth QPSK – Channel T



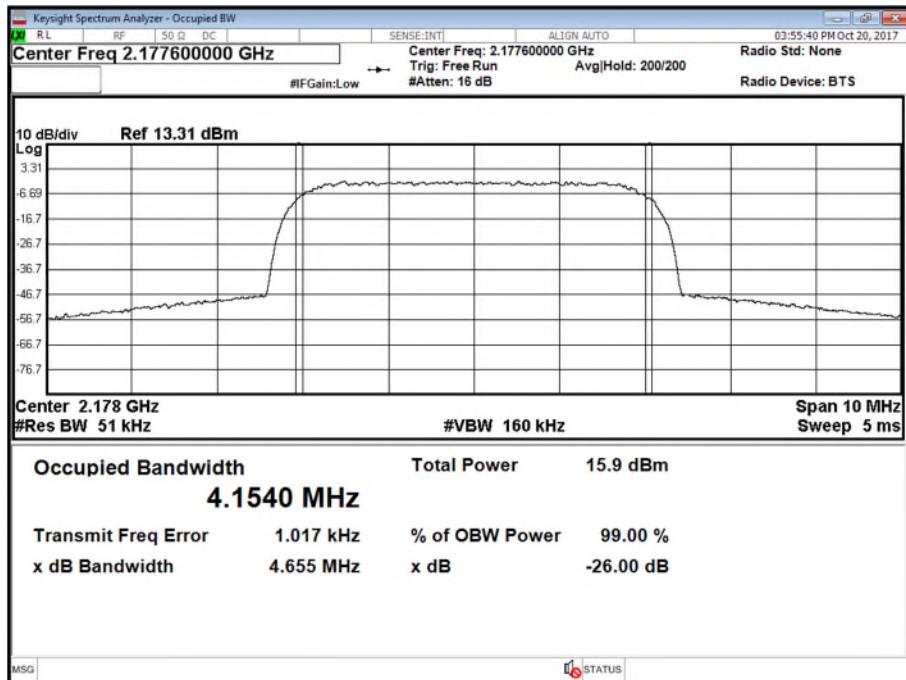
### Antenna D - Bandwidth QPSK – Channel B



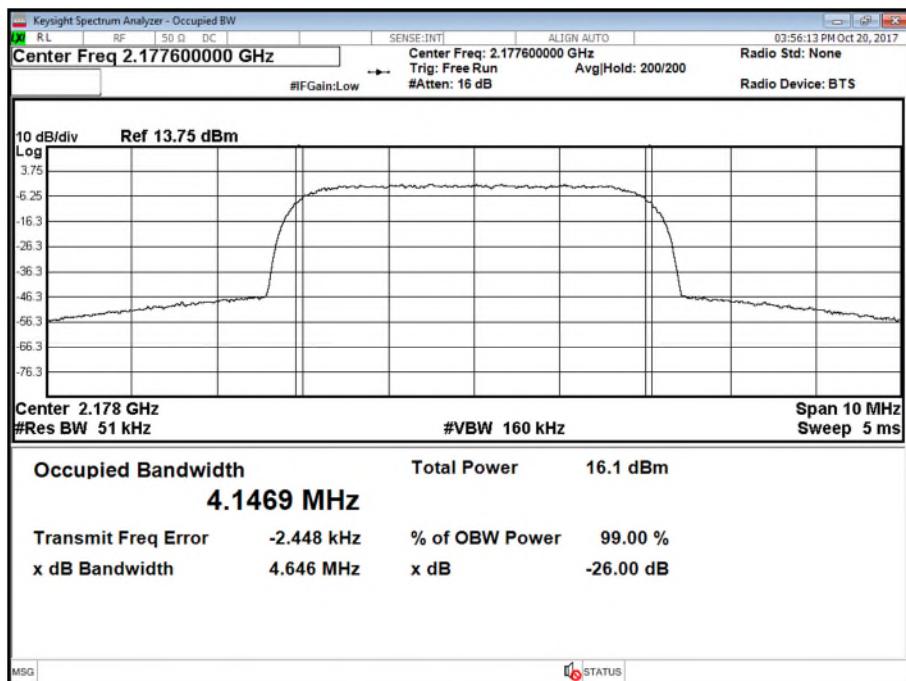


Product Service

### Antenna C - Bandwidth QPSK – Channel M



### Antenna D - Bandwidth QPSK – Channel T





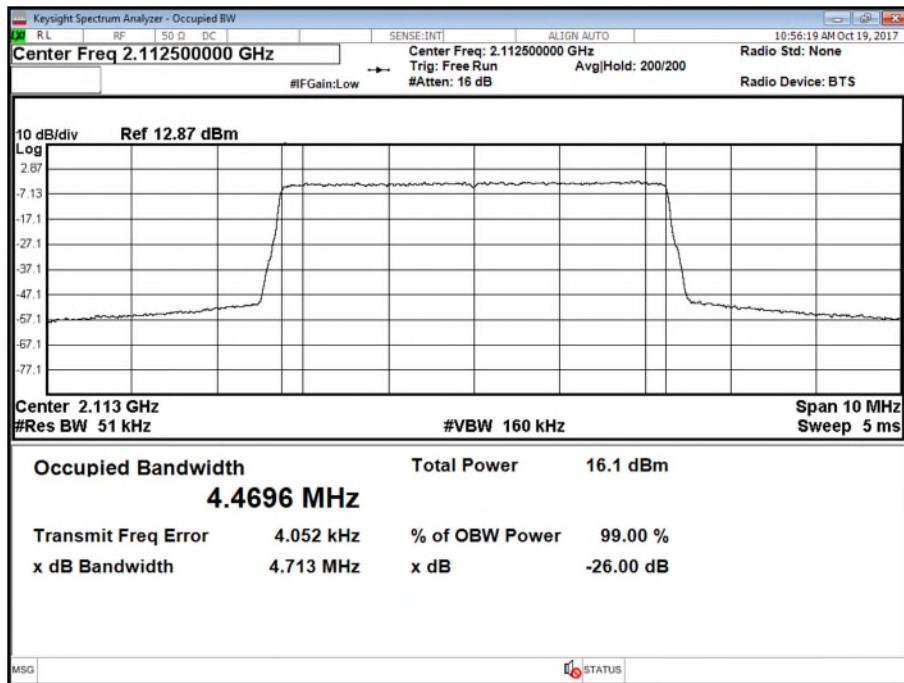
Product Service

#### Configuration 4

Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Result (KHz)					
			Channel Position B		Channel Position M		Channel Position T	
			Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth	Occupied Bandwidth	-26 dB Bandwidth
C	QPSK	5.0 MHz	4,469.64	4,712.83	4,471.68	4,705.12	4,467.16	4,723.34
D	QPSK	5.0 MHz	4,471.26	4,718.35	4,471.96	4,702.97	4,467.56	4,716.10
C	QPSK	10.0 MHz	8,925.69	9,357.58	8,920.62	9,356.69	8,928.83	9,323.80
D	QPSK	10.0 MHz	8,926.00	9,333.91	8,932.19	9,369.71	8,918.68	9,344.10
C	QPSK	15.0 MHz	13,361.64	13,928.54	13,378.09	13,946.77	13,379.89	13,944.47
D	QPSK	15.0 MHz	13,371.43	13,931.87	13,373.08	13,924.63	13,377.50	13,911.58
C	QPSK	20.0 MHz	17,830.74	18,546.86	17,841.92	18,515.18	17,834.05	18,520.82
D	QPSK	20.0 MHz	17,821.53	18,511.79	17,834.01	18,563.68	17,846.67	18,583.33

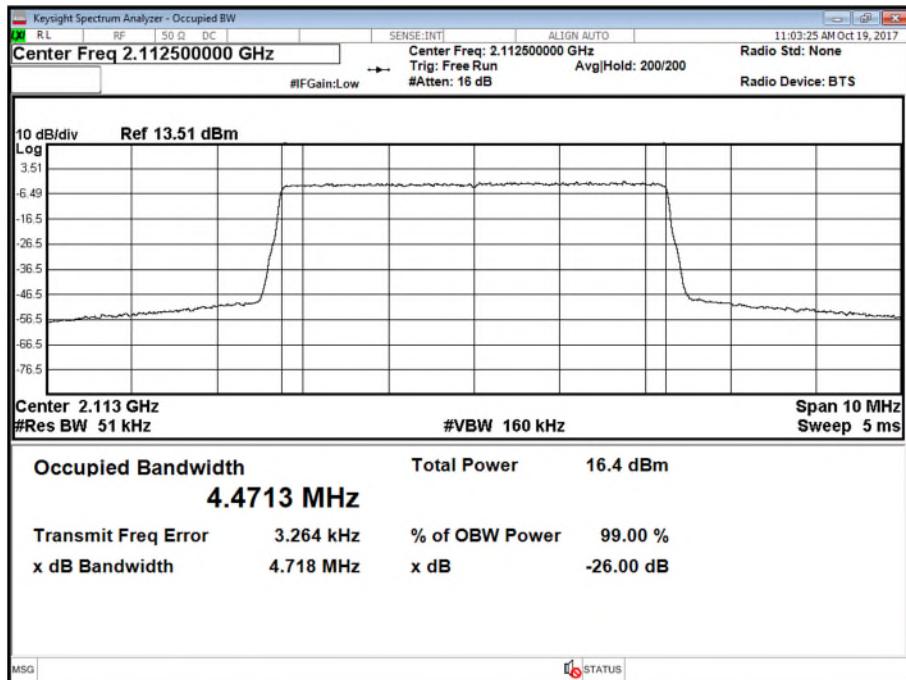
#### Antenna C - Bandwidth QPSK – Channel B



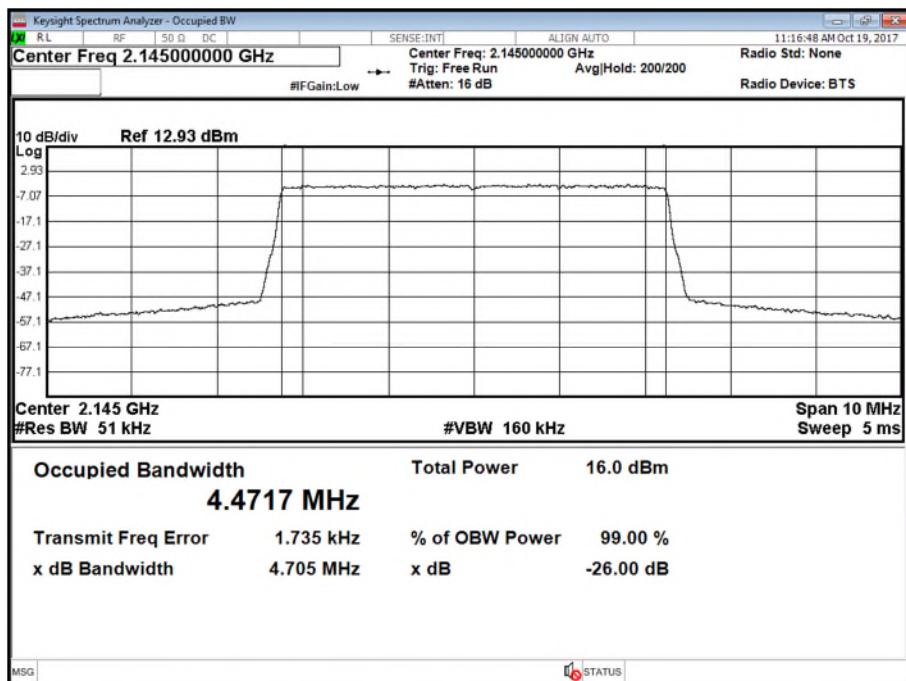


Product Service

### Antenna D - Bandwidth QPSK – Channel M



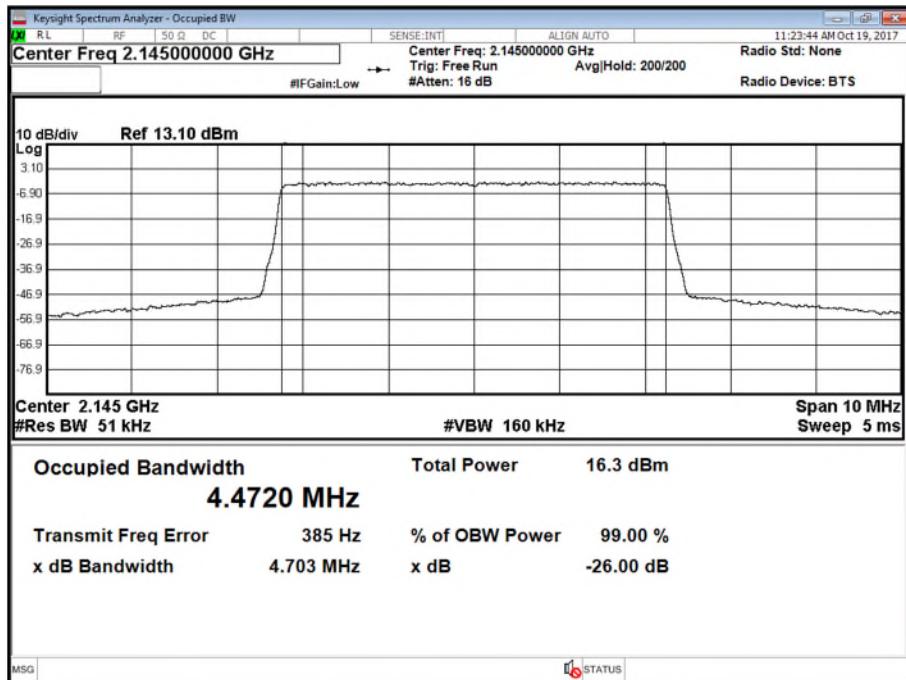
### Antenna C - Bandwidth QPSK - Channel T



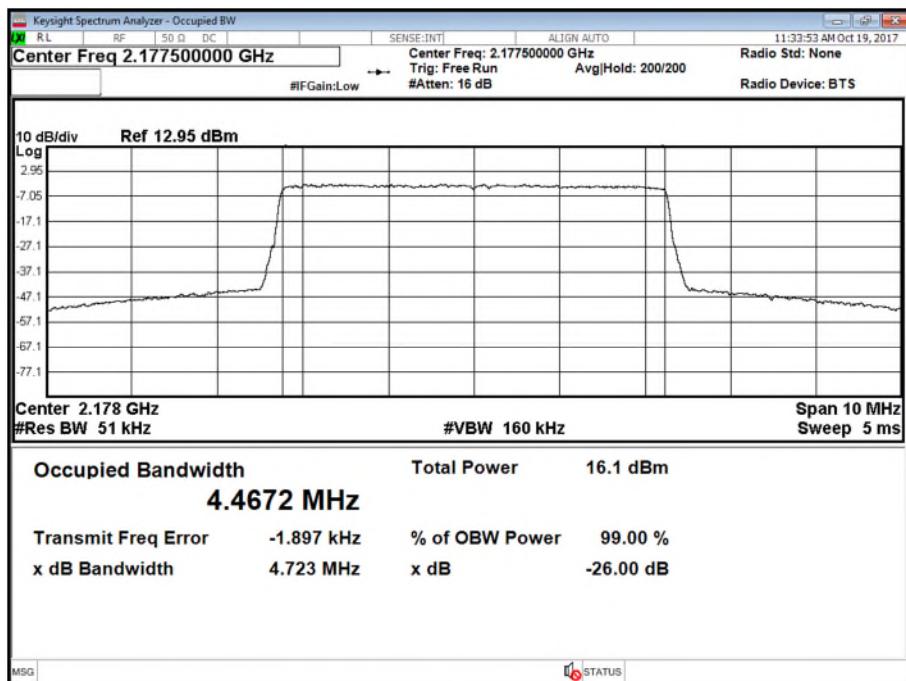


Product Service

### Antenna D - Bandwidth QPSK - Channel B



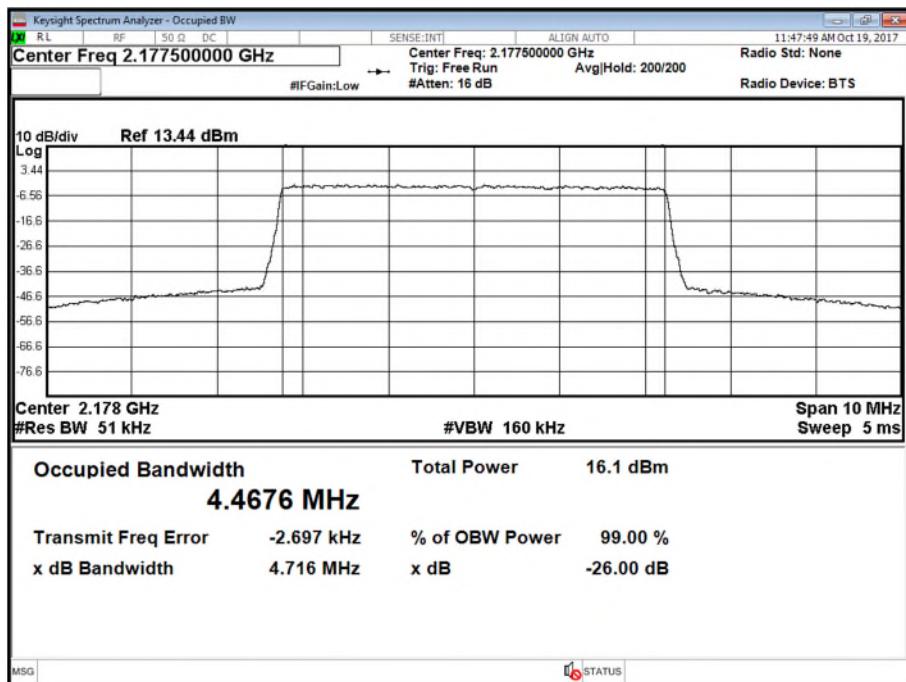
### Antenna C - Bandwidth QPSK - Channel M



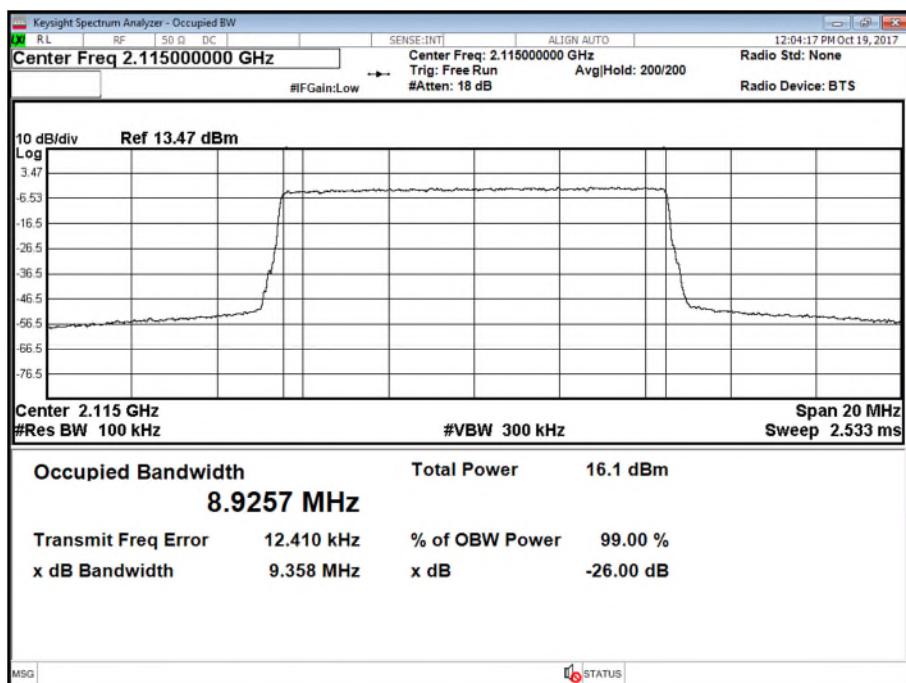


Product Service

### Antenna D - Bandwidth QPSK - Channel T



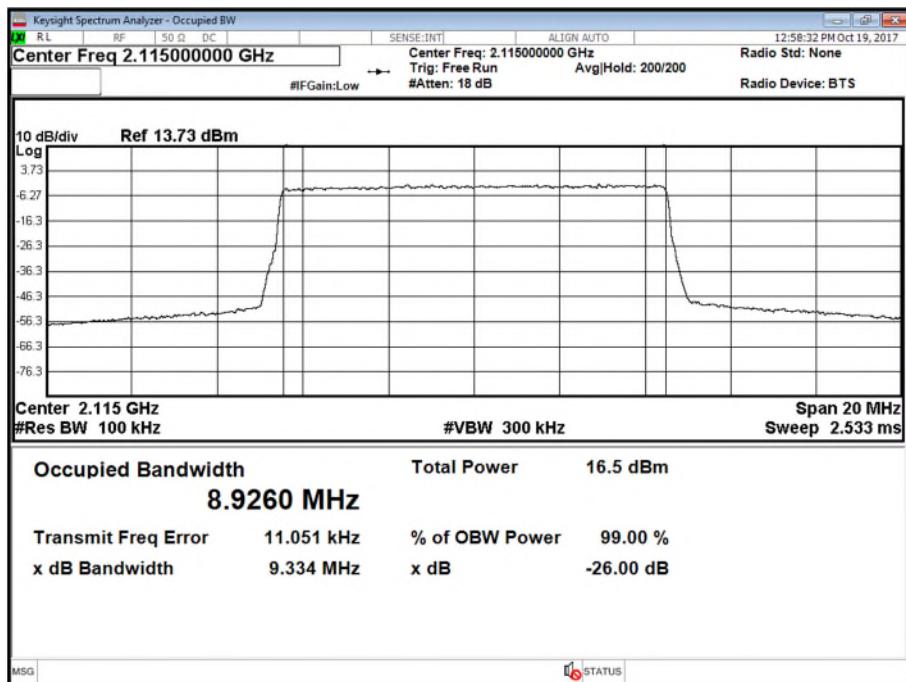
### Antenna C - Bandwidth QPSK - Channel B



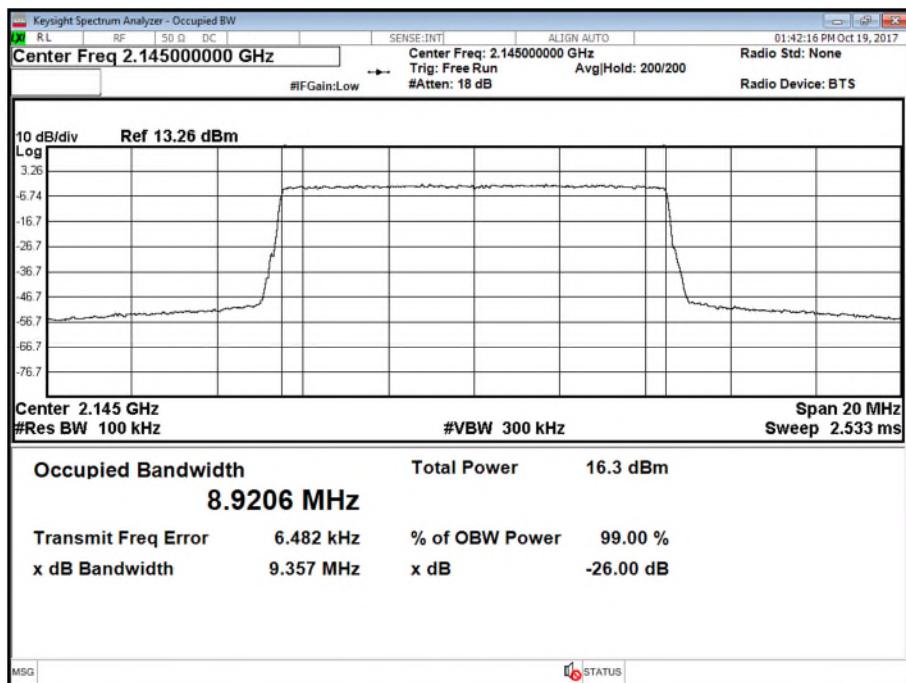


Product Service

### Antenna D - Bandwidth QPSK - Channel M



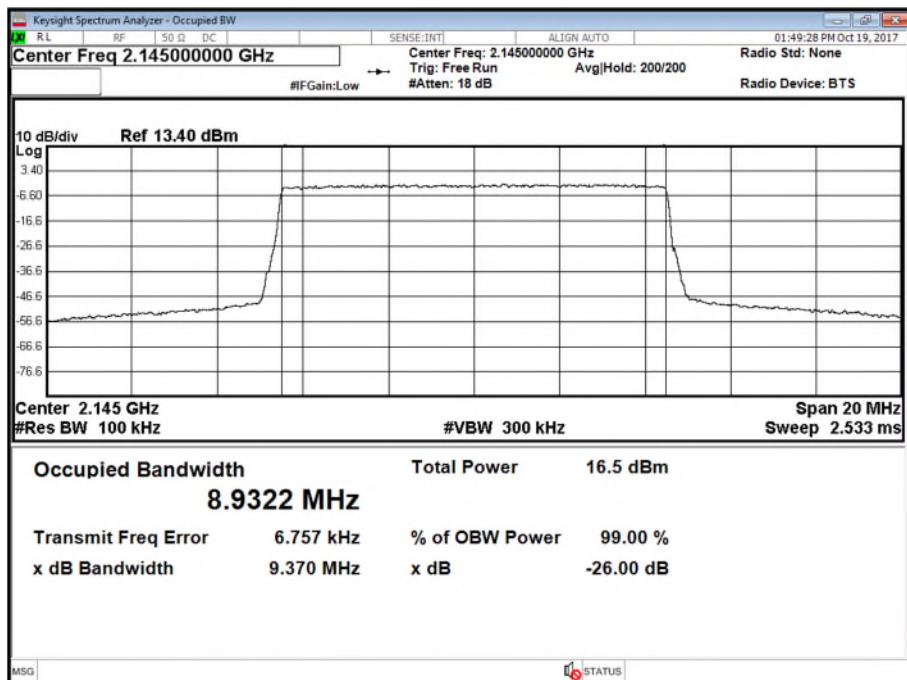
### Antenna C - Bandwidth QPSK - Channel T



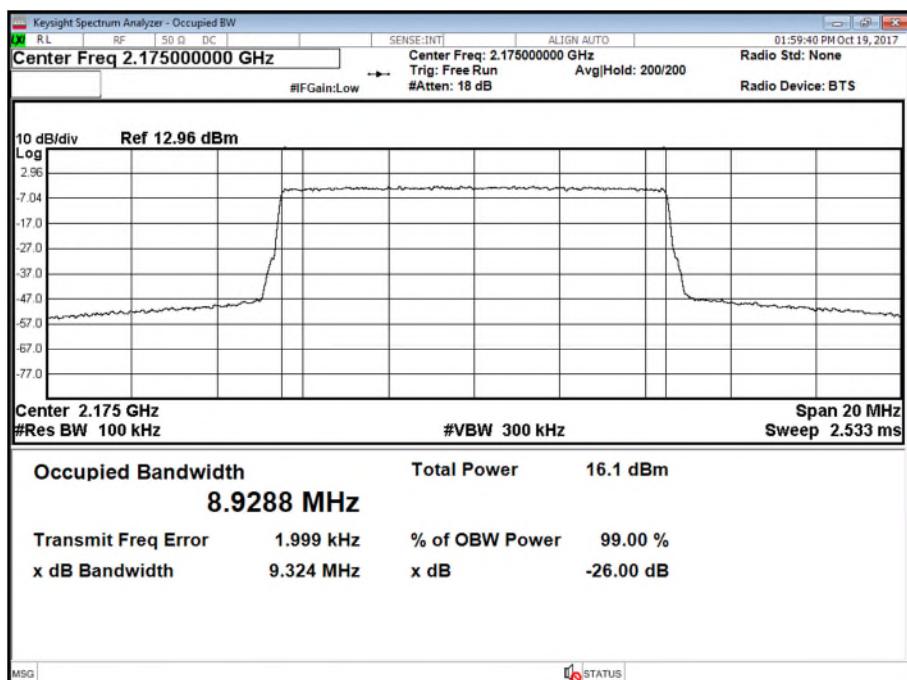


Product Service

### Antenna D - Bandwidth QPSK - Channel B



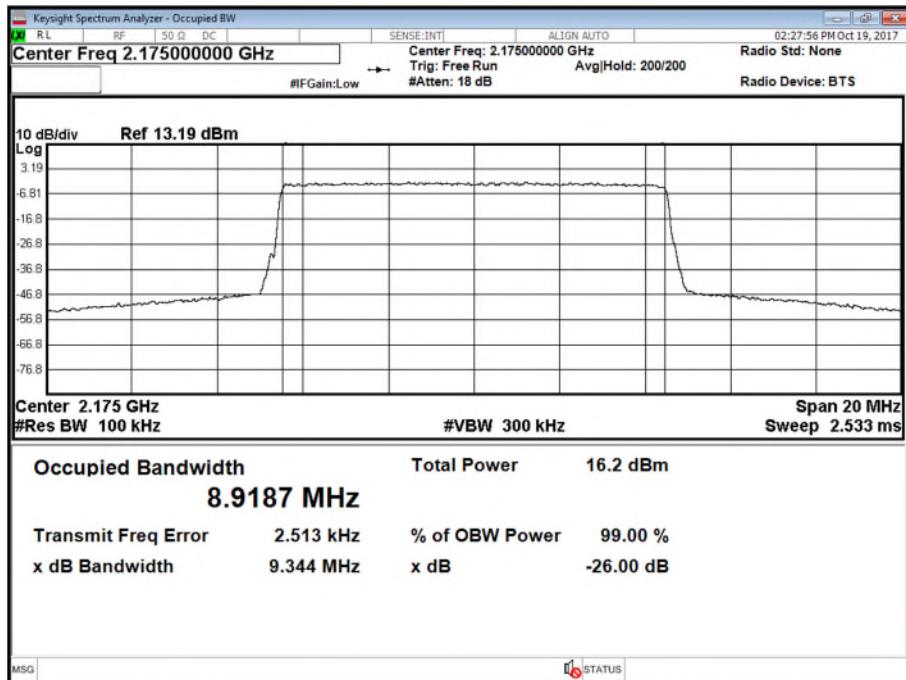
### Antenna C - Bandwidth QPSK - Channel M



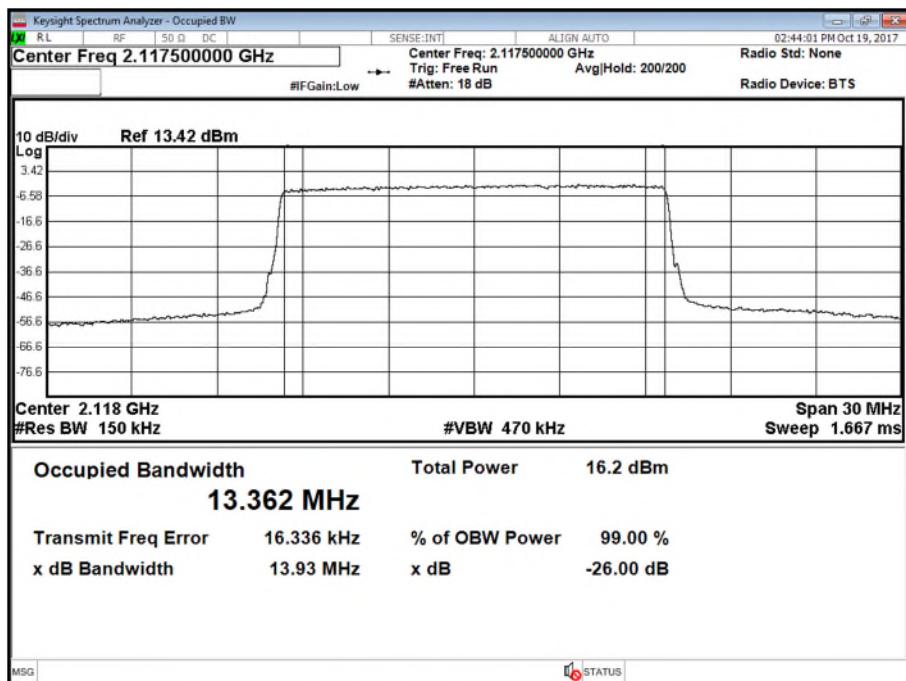


Product Service

### Antenna D - Bandwidth QPSK - Channel T



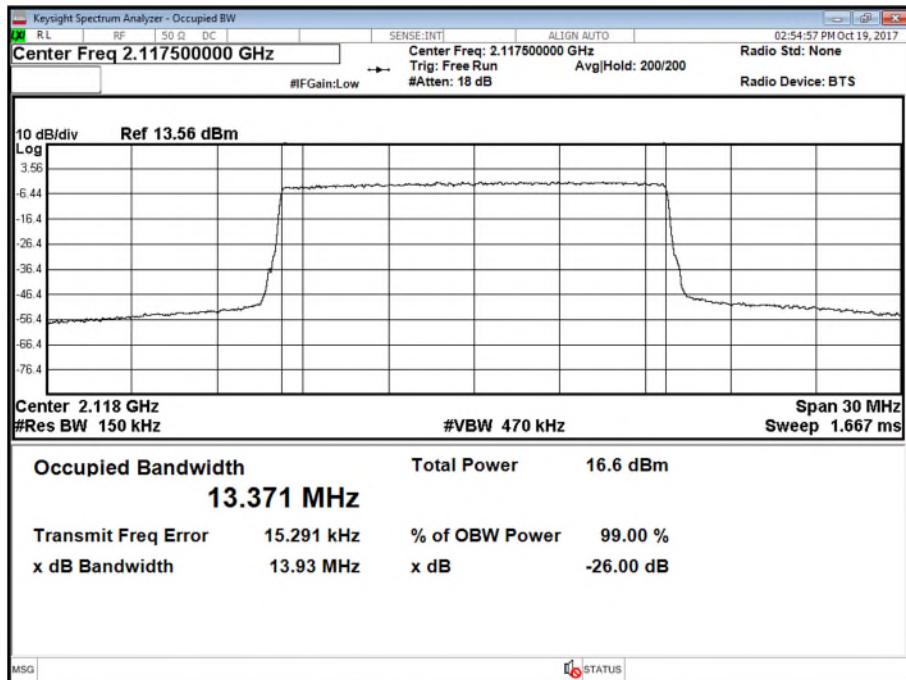
### Antenna C - Bandwidth QPSK - Channel B



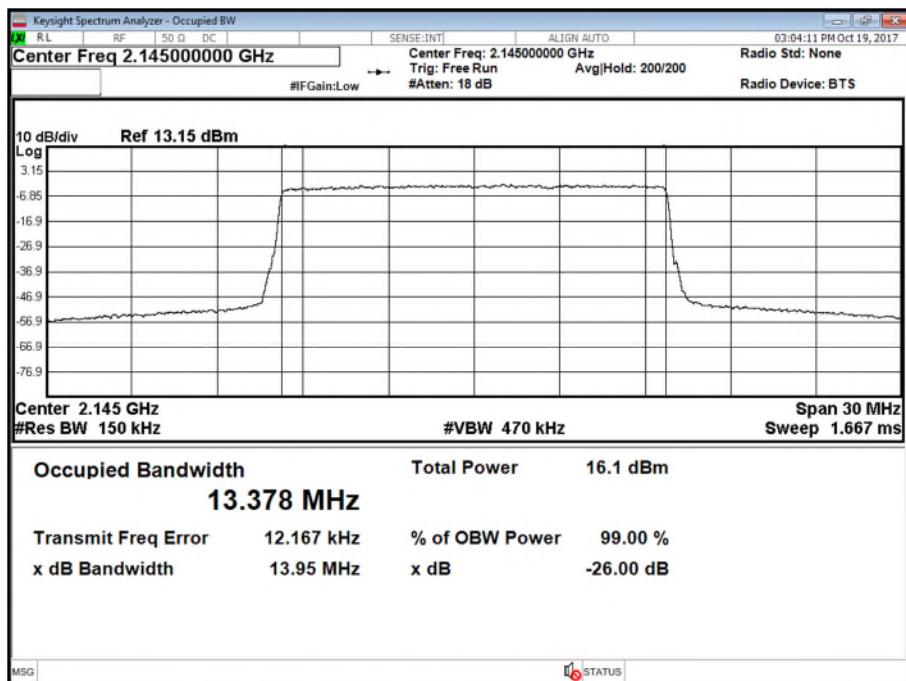


Product Service

### Antenna D - Bandwidth QPSK - Channel M



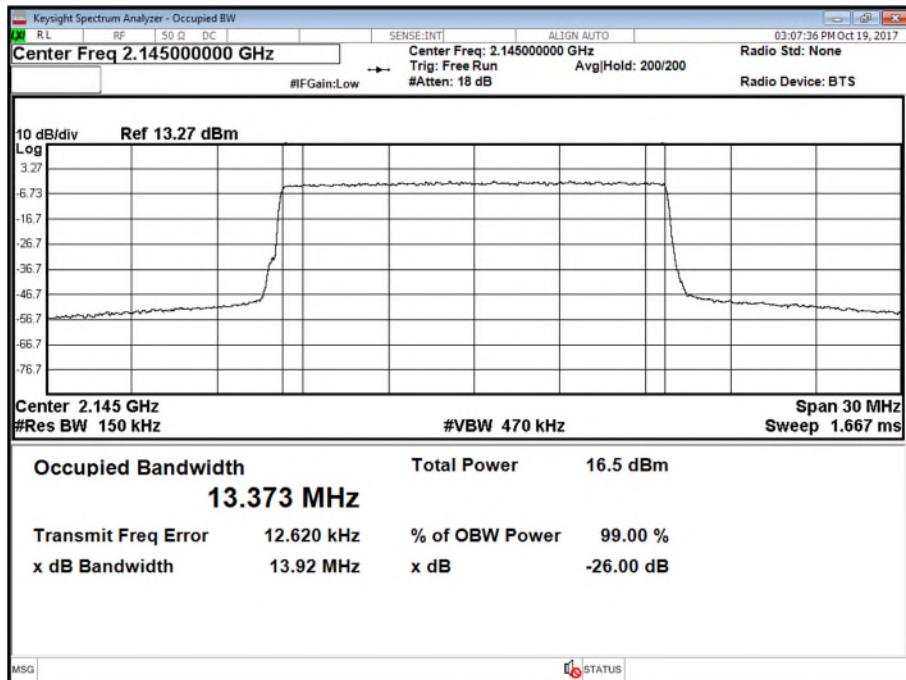
### Antenna C - Bandwidth QPSK - Channel T



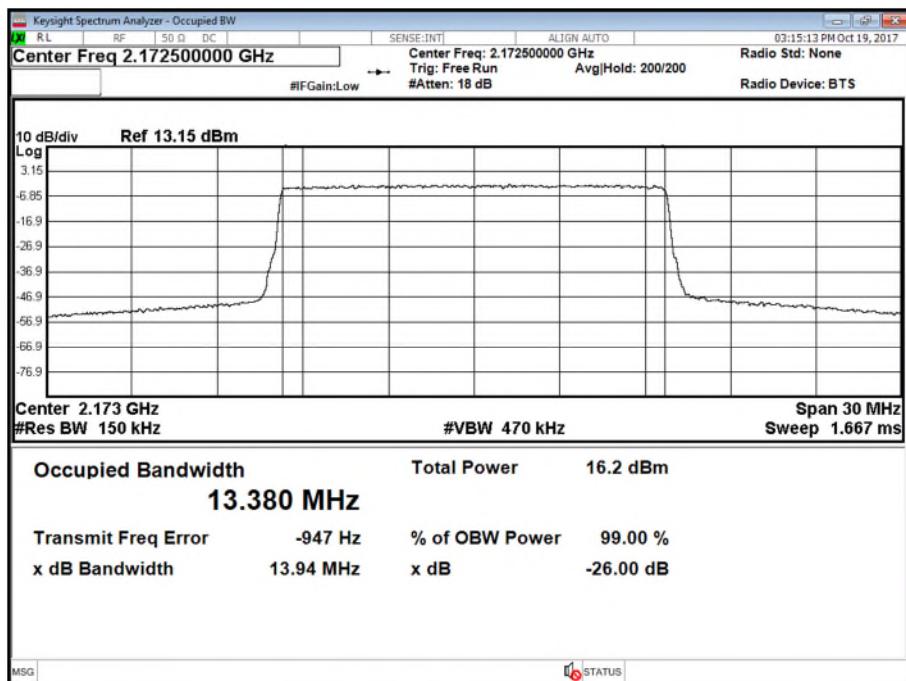


Product Service

### Antenna D - Bandwidth QPSK - Channel B



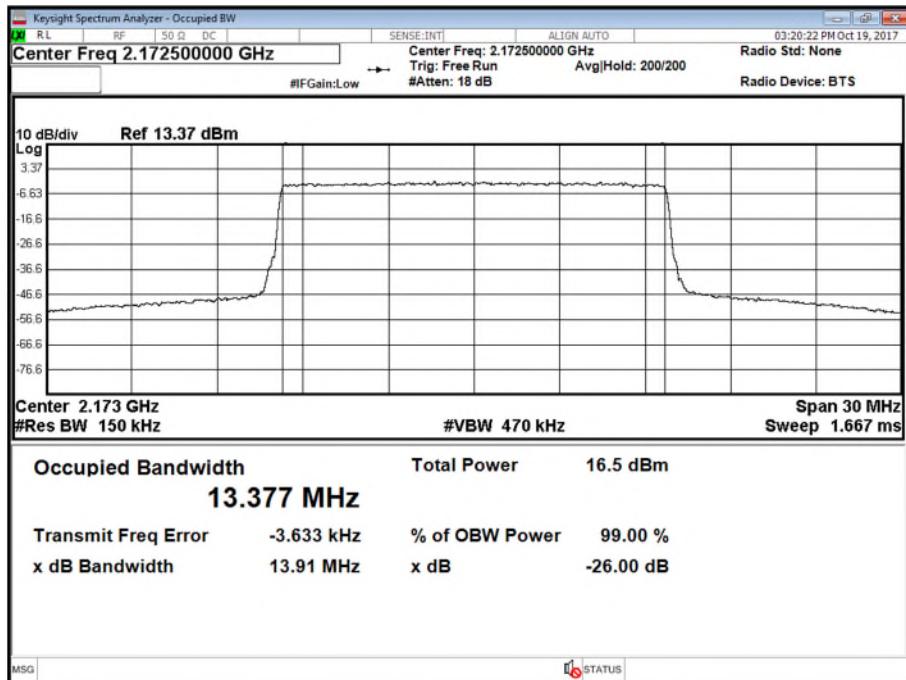
### Antenna C - Bandwidth QPSK - Channel M



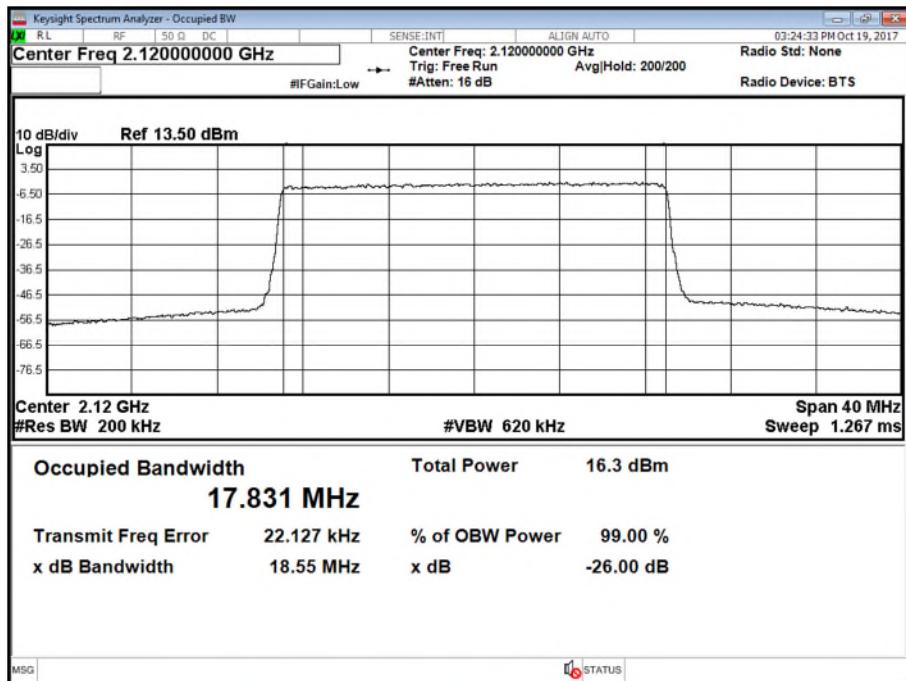


Product Service

### Antenna D - Bandwidth QPSK - Channel T



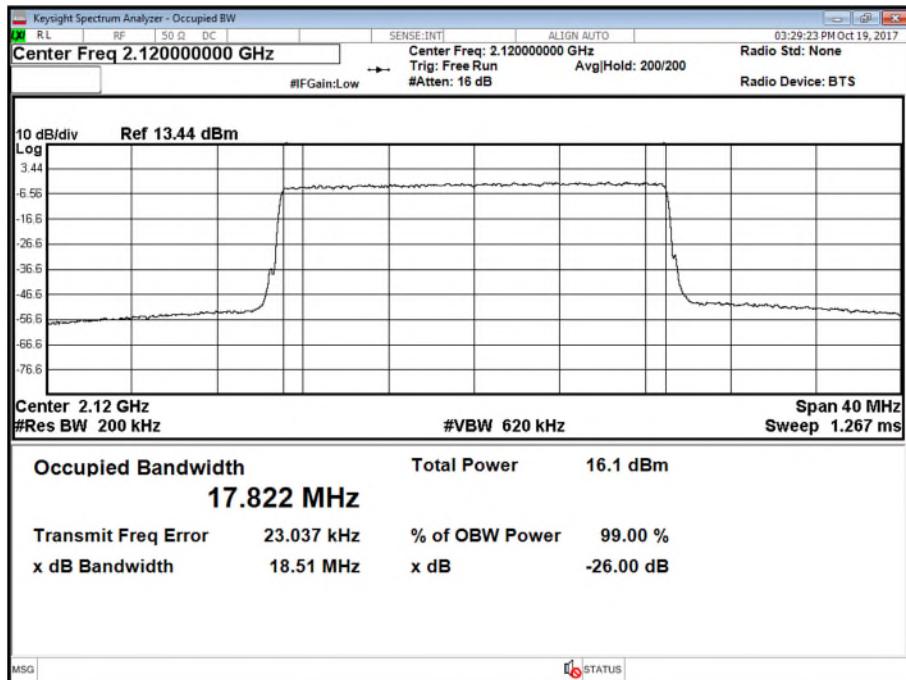
### Antenna C - Bandwidth QPSK - Channel B



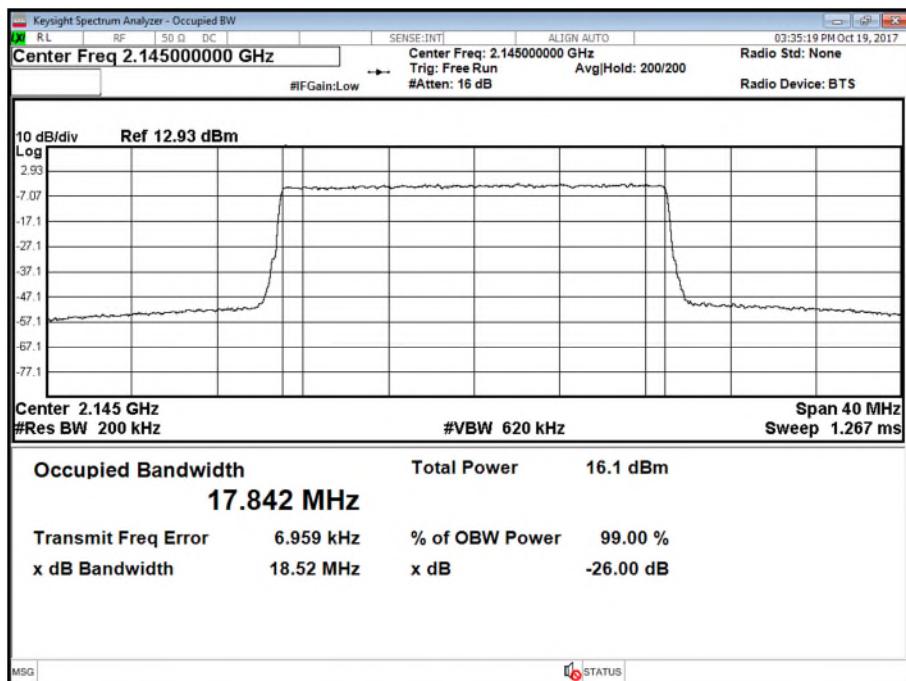


Product Service

### Antenna D - Bandwidth QPSK - Channel M



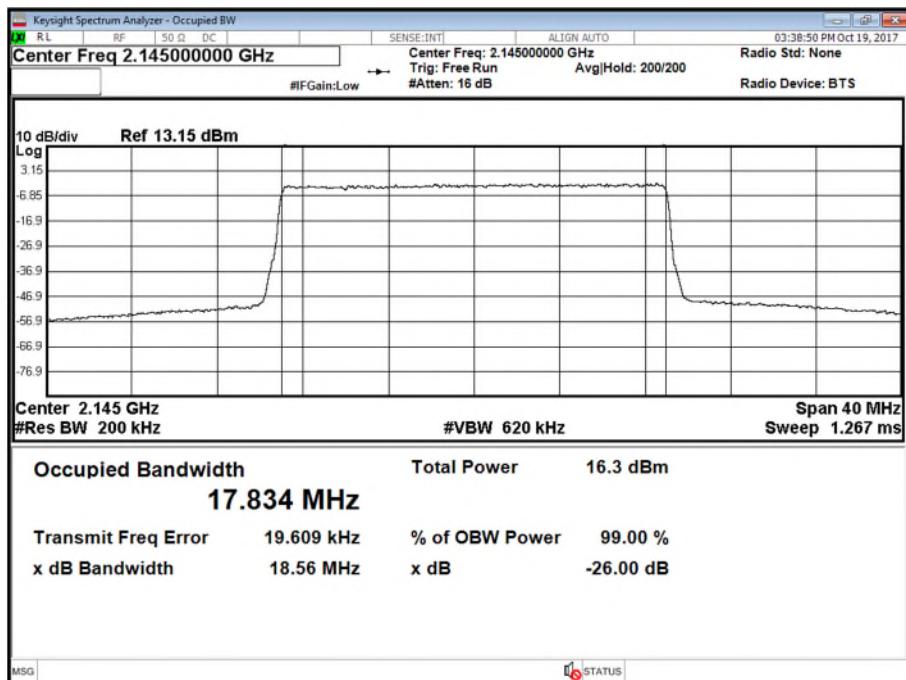
### Antenna C - Bandwidth QPSK - Channel T



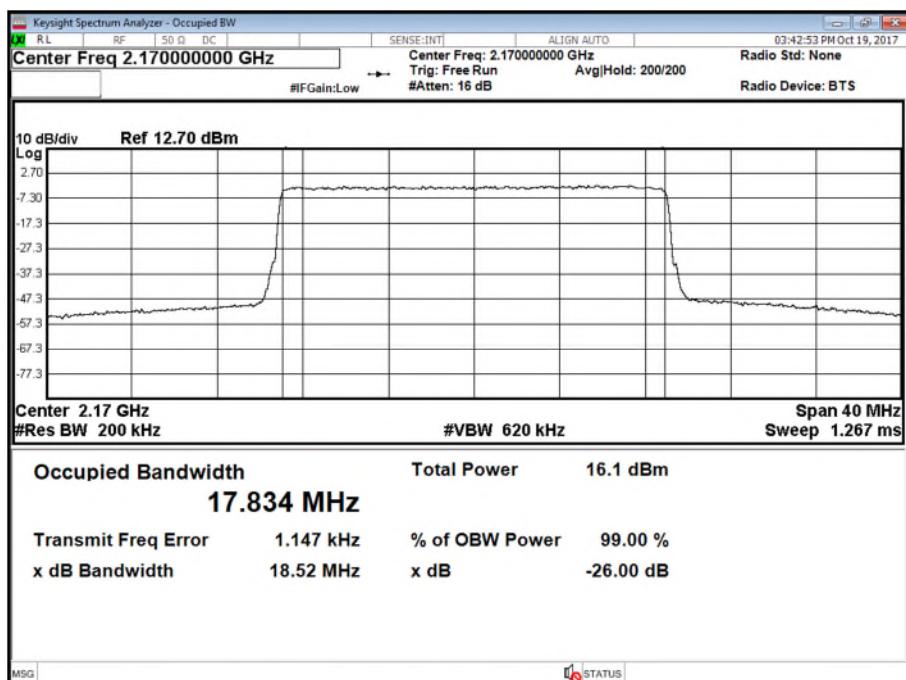


Product Service

### Antenna D - Bandwidth QPSK - Channel B



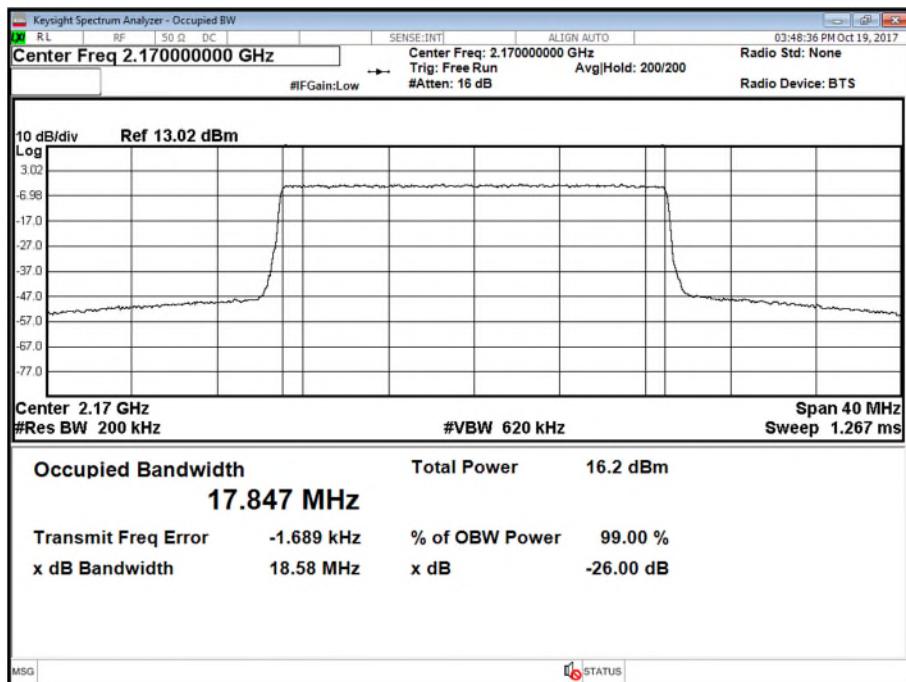
### Antenna C - Bandwidth QPSK - Channel M





Product Service

### Antenna D - Bandwidth QPSK - Channel T





Product Service

## 2.3 BAND EDGE

### 2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051  
FCC CFR 47 Part 27, Clause 27.53 (h)  
Industry Canada RSS-139, Clause 6.5

### 2.3.2 Date of Test and Modification State

19, 20 and 23 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 B66A 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  $43+10\log(P) - 10\log(4) = -19$  dBm.

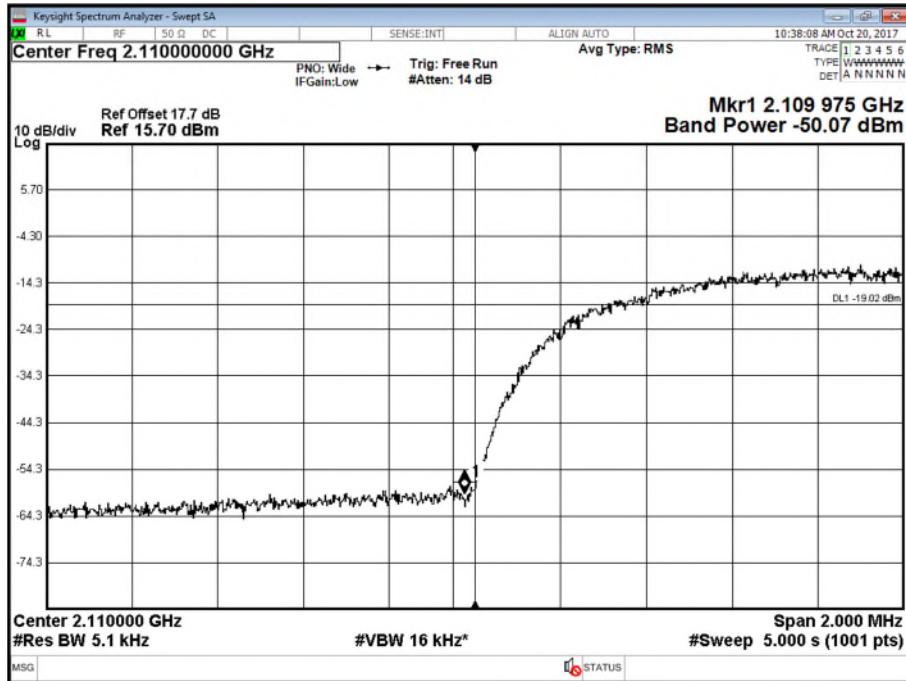
### 2.3.6 Test Results

Configuration 1

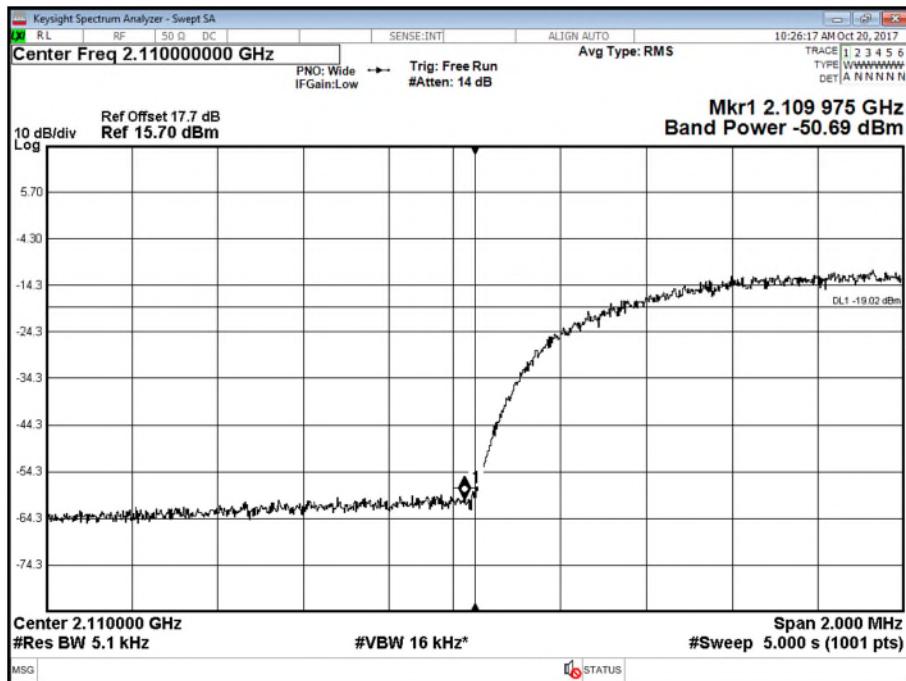
Maximum Output Power 17 dBm

Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
C	16QAM	5.0 MHz	2,112.4	2,177.6
D	16QAM	5.0 MHz	2,112.4	2,177.6

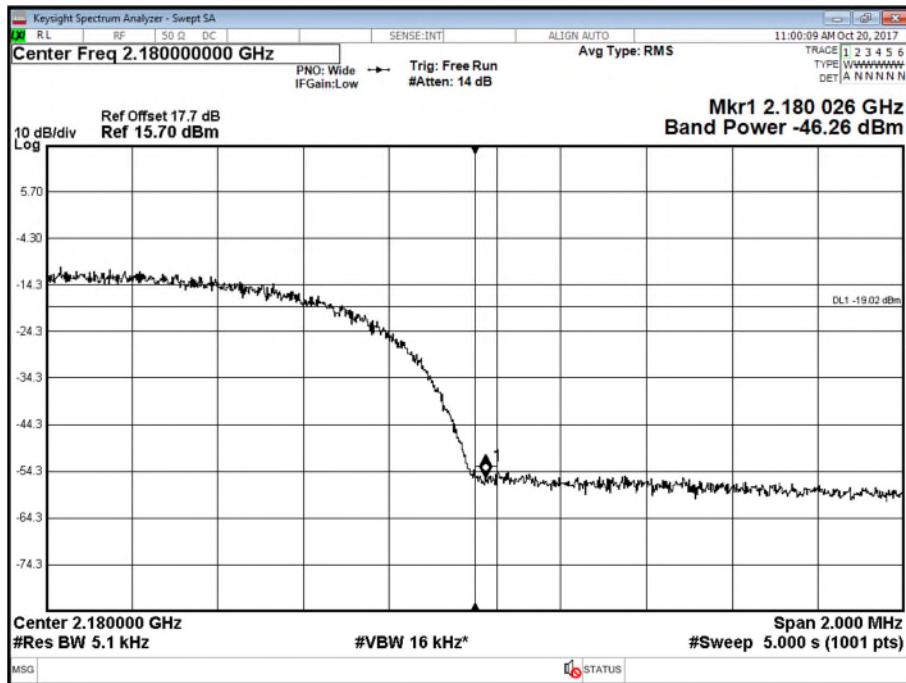
## Antenna C - WCDMA Modulation 16QAM - Channel B



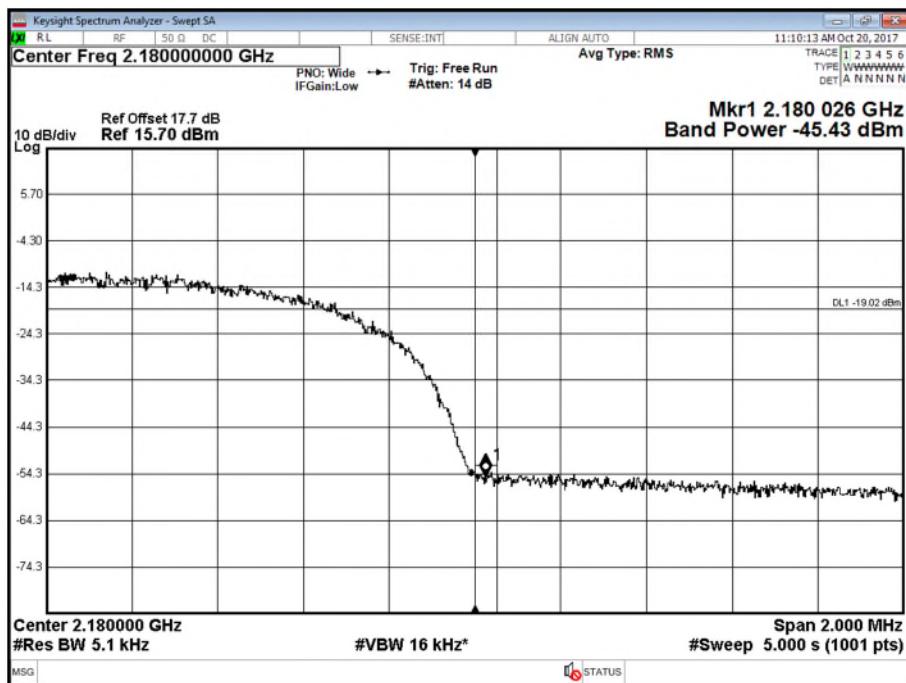
## Antenna D - WCDMA Modulation 16QAM - Channel B



## Antenna C - WCDMA Modulation 16QAM - Channel T



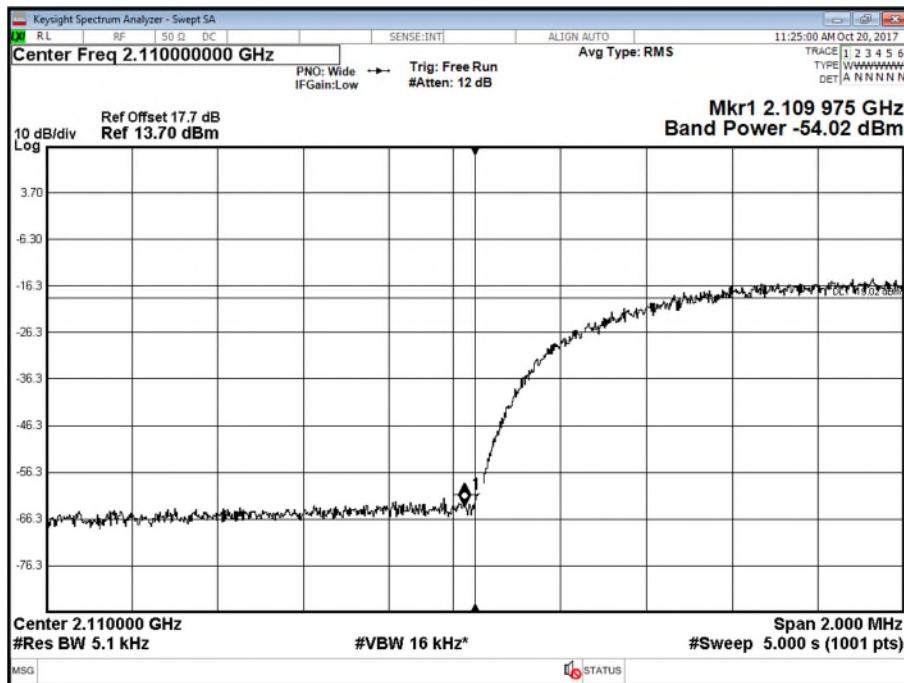
## Antenna D - WCDMA Modulation 16QAM - Channel T



## Configuration 2

Maximum Output Power 17 dBm

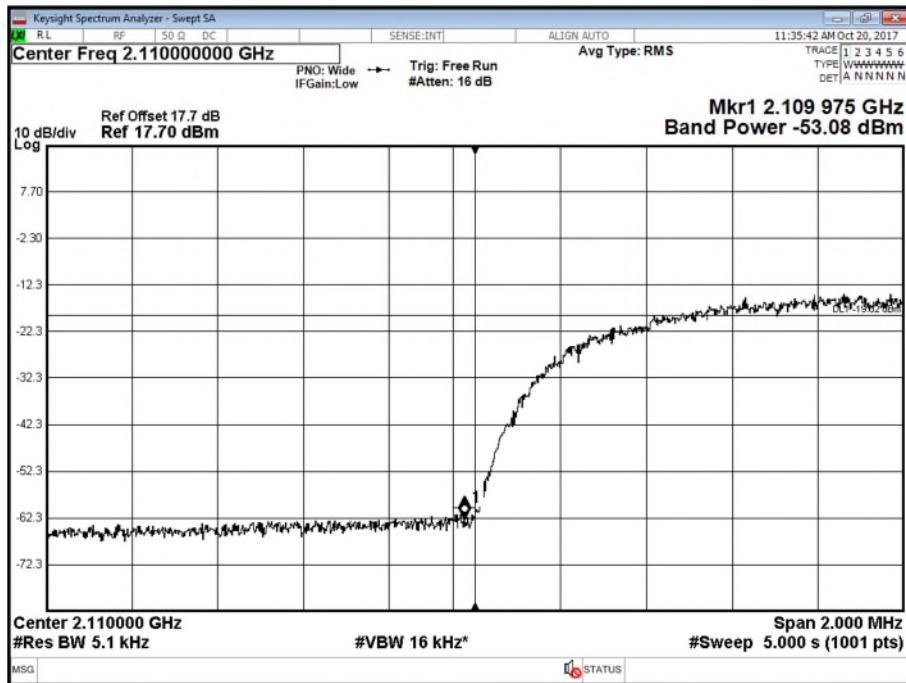
Antenna	WCDMA Modulation	WCDMA Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
C	16QAM	5.0 MHz	2112.4 + 2117.4	2172.6 + 2177.6
D	16QAM	5.0 MHz	2112.4 + 2117.4	2172.6 + 2177.6

Antenna C - WCDMA Modulation 16QAM – Channel B


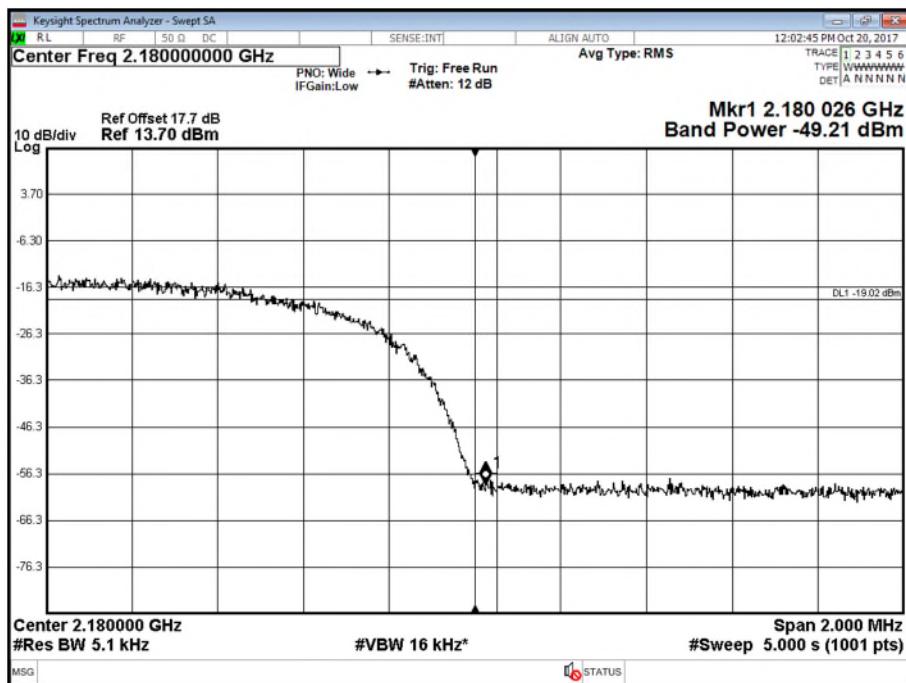


Product Service

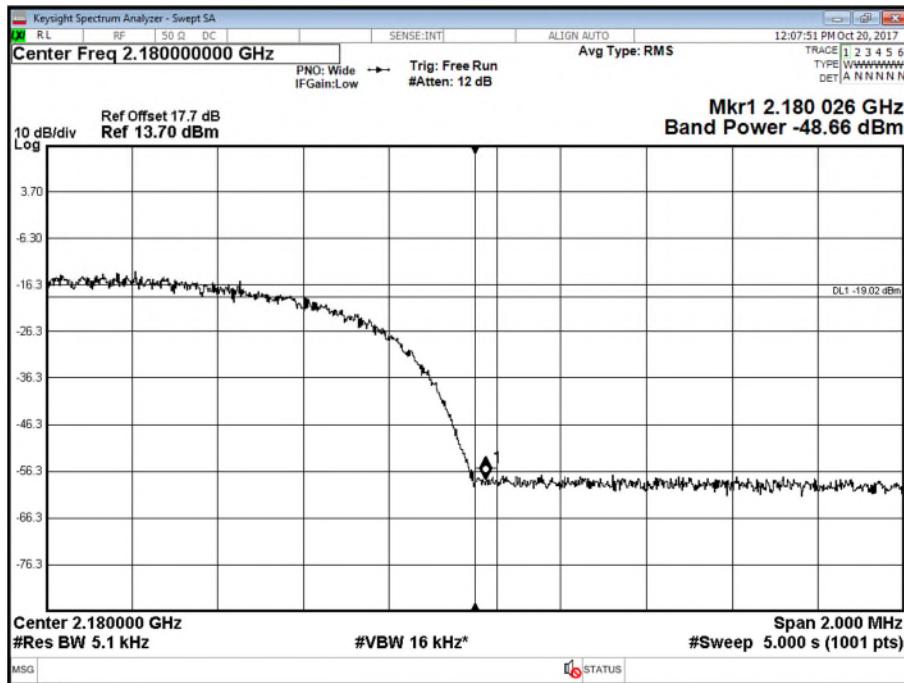
### Antenna D - WCDMA Modulation 16QAM - Channel B



### Antenna C - WCDMA Modulation 16QAM - Channel T



## Antenna D - WCDMA Modulation 16QAM - Channel T

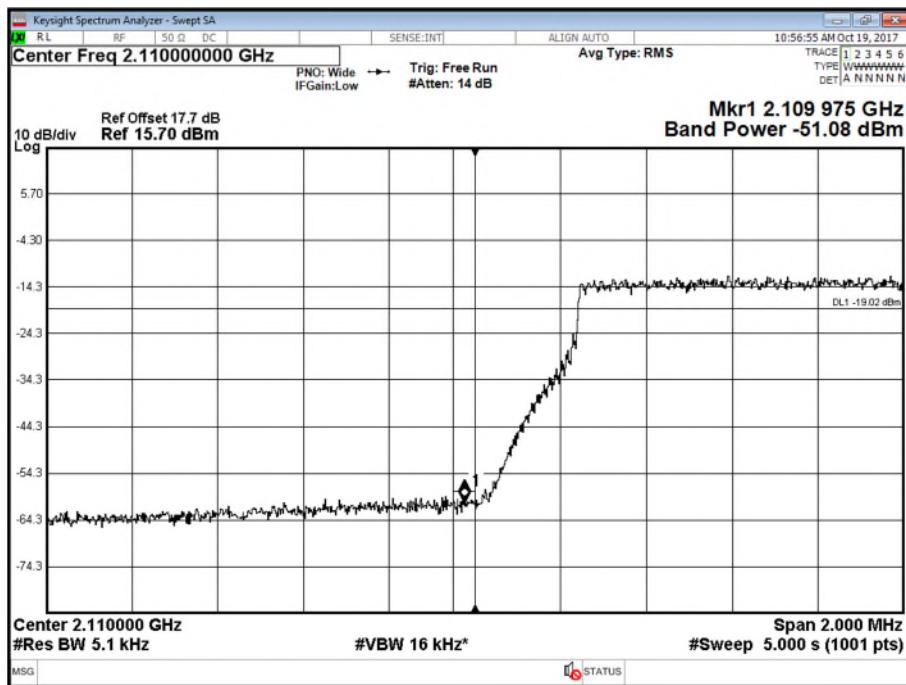


## Configuration 4

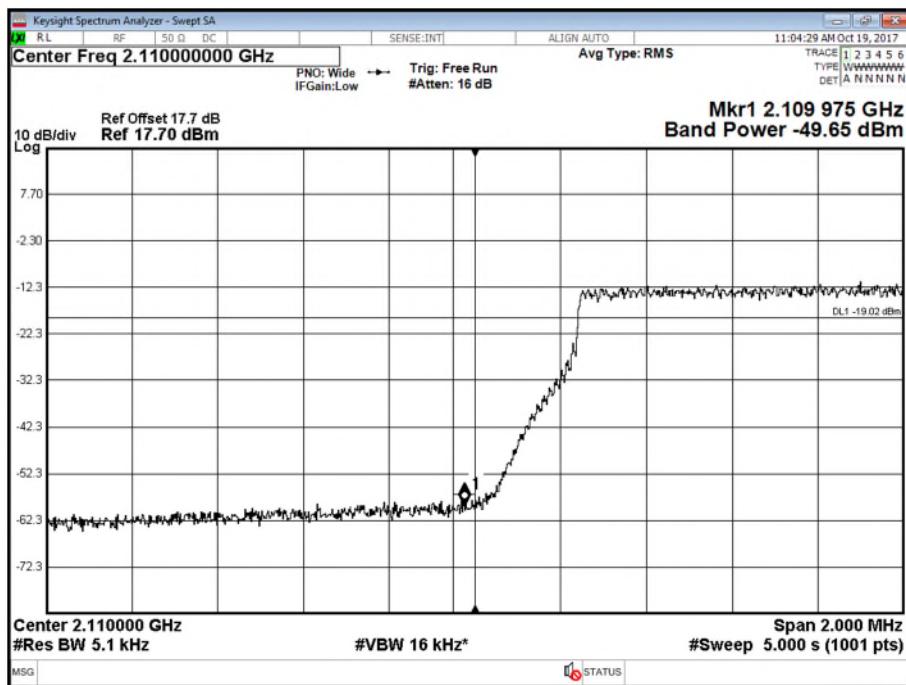
Maximum Output Power 17 dBm

Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
C	QPSK	5.0 MHz	2,112.5	2,177.5
D	QPSK	5.0 MHz	2,112.5	2,177.5
C	QPSK	10.0 MHz	2,115.0	2,175.0
D	QPSK	10.0 MHz	2,115.0	2,175.0
C	QPSK	15.0 MHz	2,117.5	2,172.5
D	QPSK	15.0 MHz	2,117.5	2,172.5
C	QPSK	20.0 MHz	2,120.0	2,170.0
D	QPSK	20.0 MHz	2,120.0	2,170.0

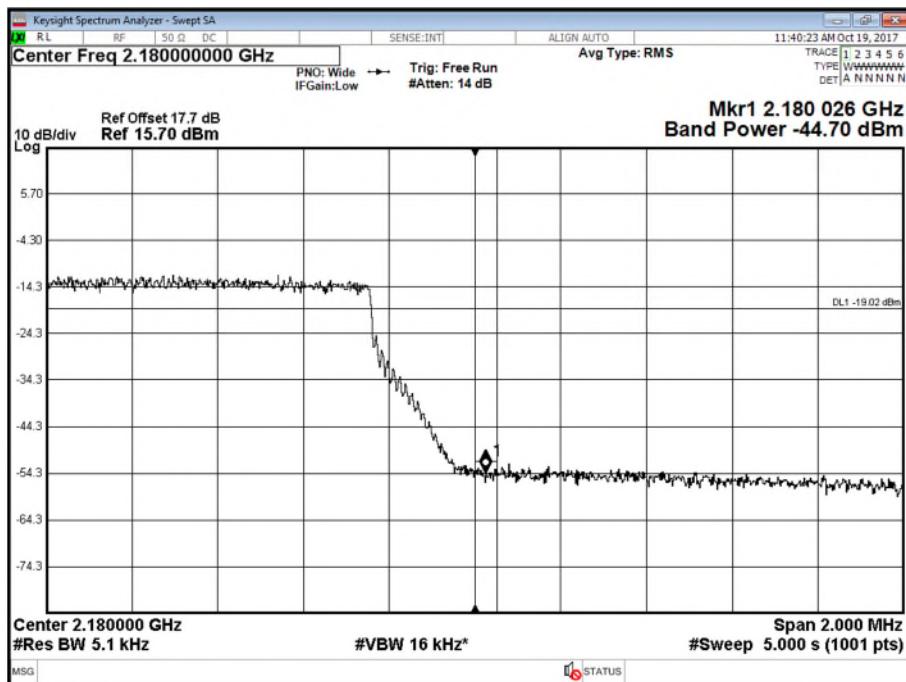
## Antenna C - LTE Modulation QPSK - Channel B, 5MHz



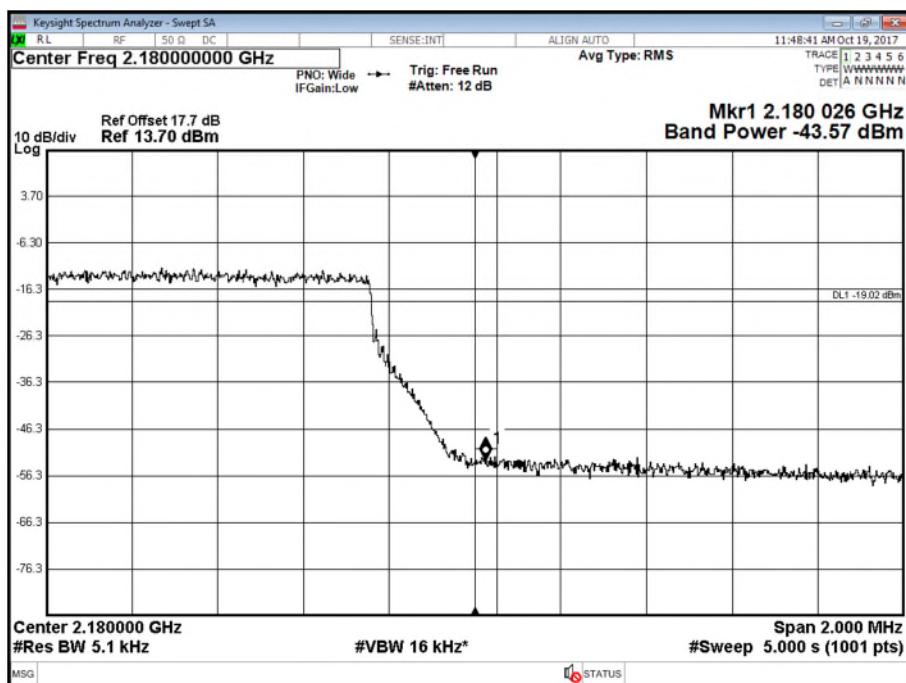
## Antenna D - LTE Modulation QPSK - Channel B, 5MHz



## Antenna C - LTE Modulation QPSK - Channel T, 5MHz



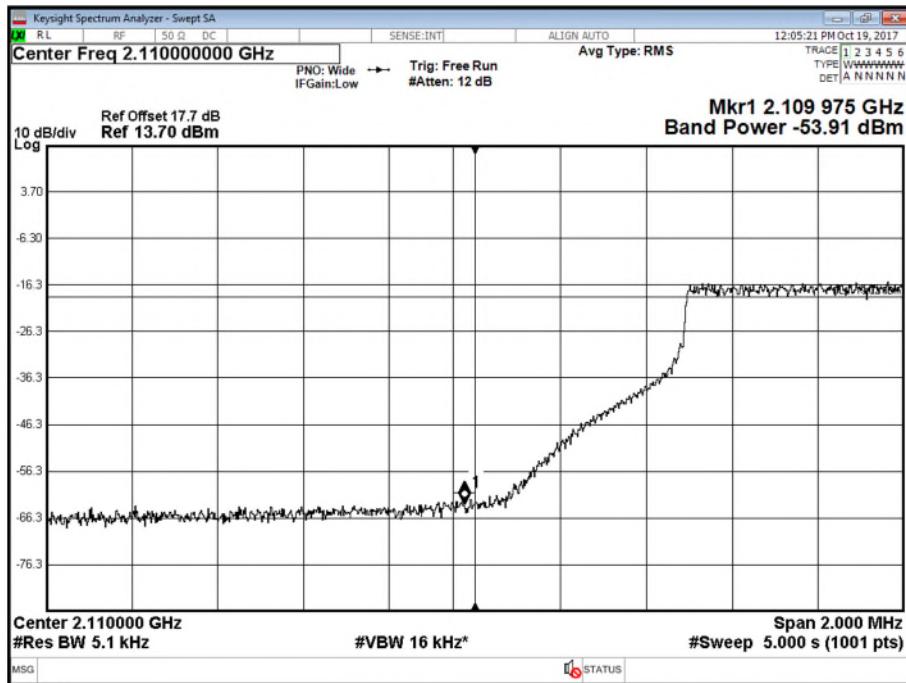
## Antenna D - LTE Modulation QPSK - Channel T, 5MHz



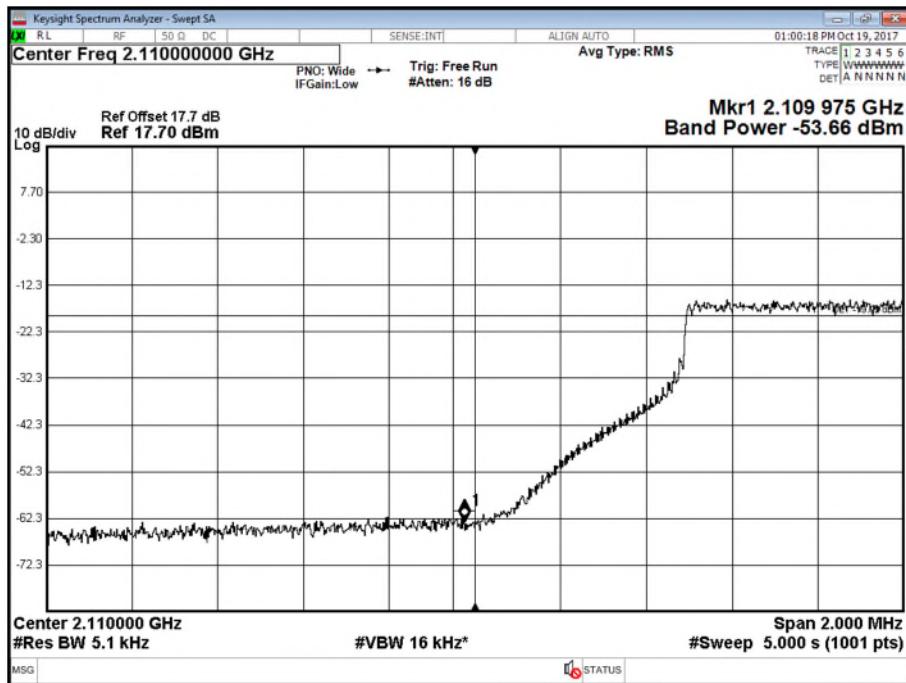


Product Service

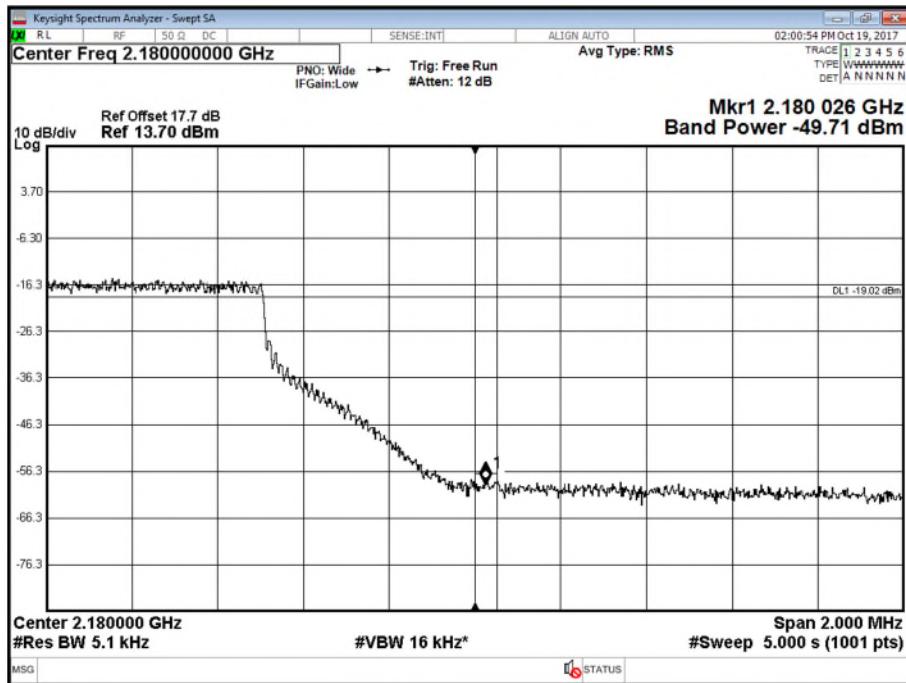
### Antenna C - LTE Modulation QPSK - Channel B, 10MHz



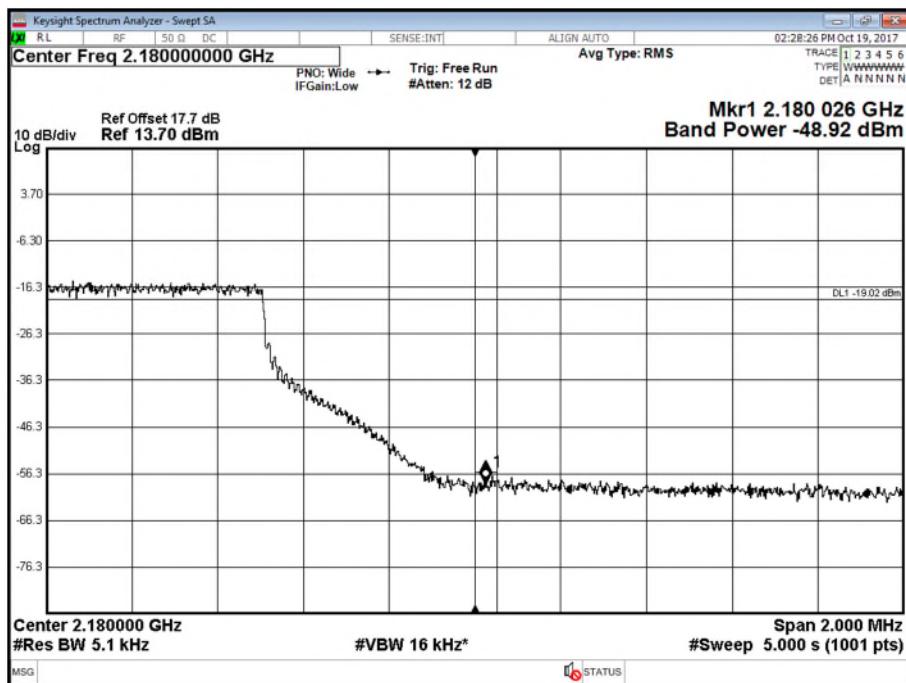
### Antenna D - LTE Modulation QPSK - Channel B, 10MHz



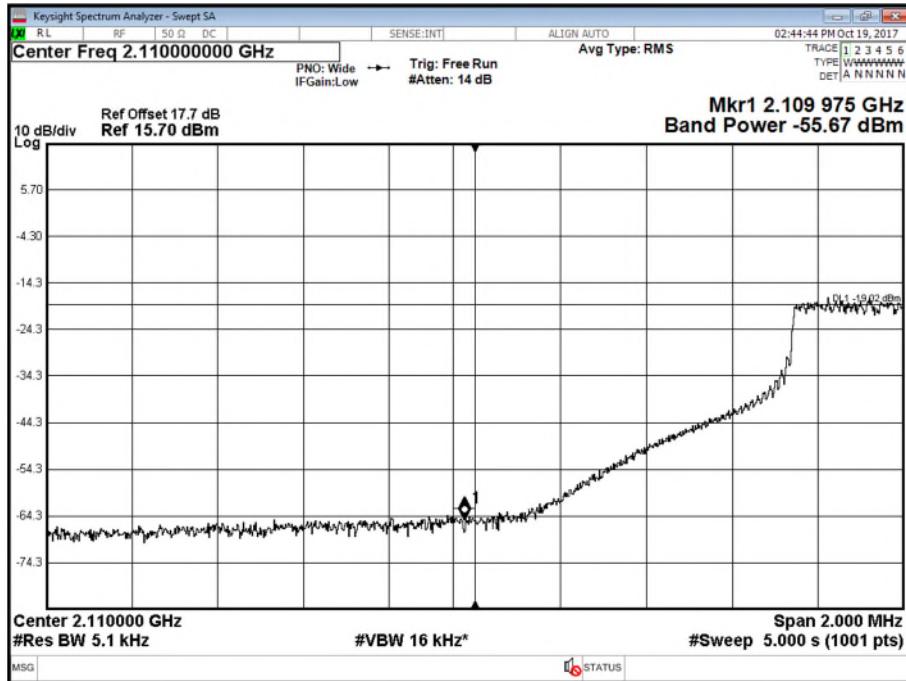
## Antenna C - LTE Modulation QPSK - Channel T, 10MHz



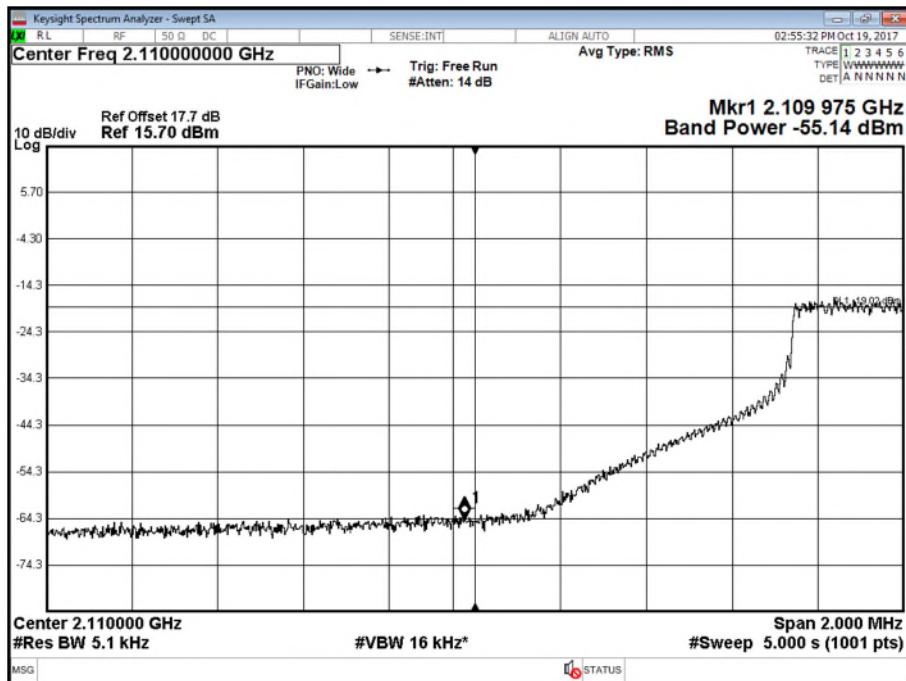
## Antenna D - LTE Modulation QPSK - Channel T, 10MHz



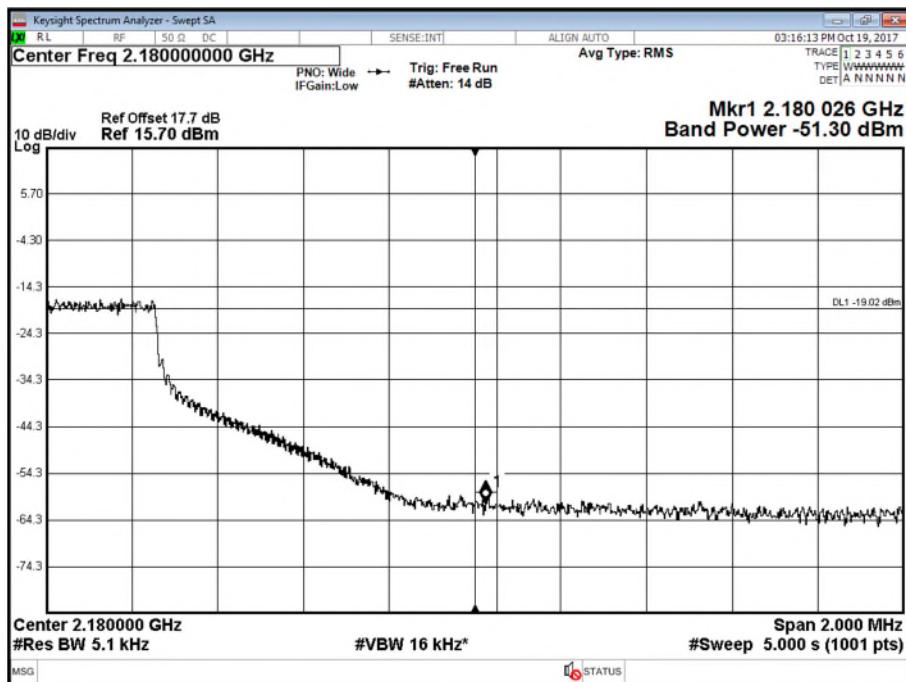
## Antenna C - LTE Modulation QPSK - Channel B, 15MHz



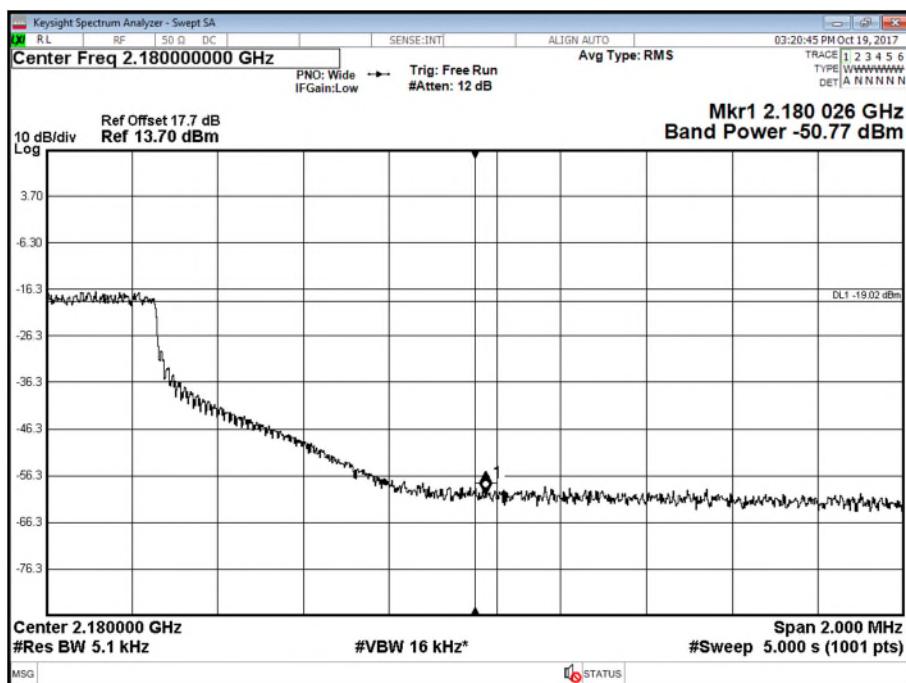
## Antenna D - LTE Modulation QPSK - Channel B, 15MHz



## Antenna C - LTE Modulation QPSK - Channel T, 15MHz



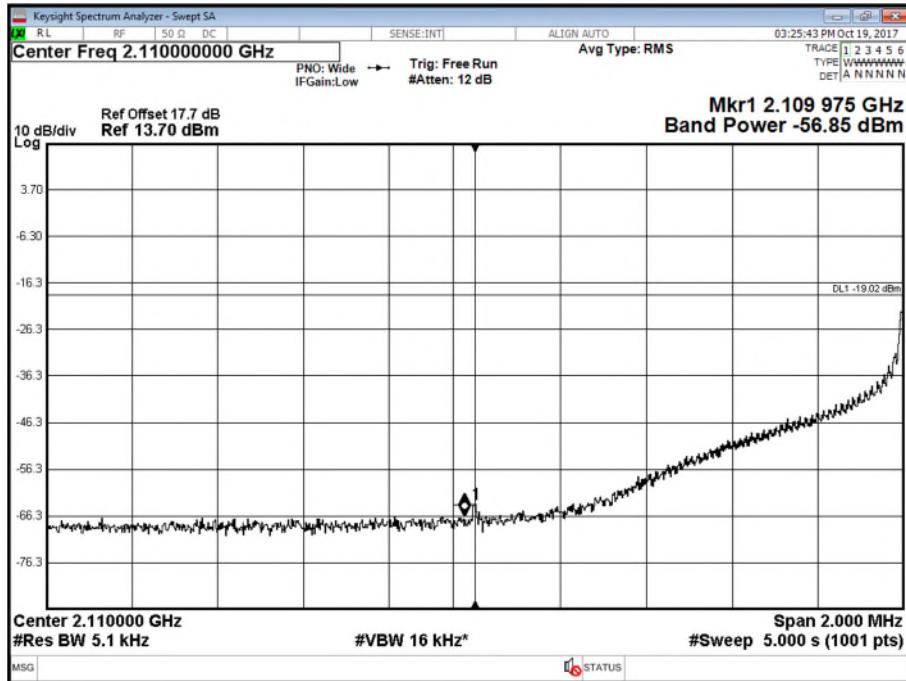
## Antenna D - LTE Modulation QPSK - Channel T, 15MHz



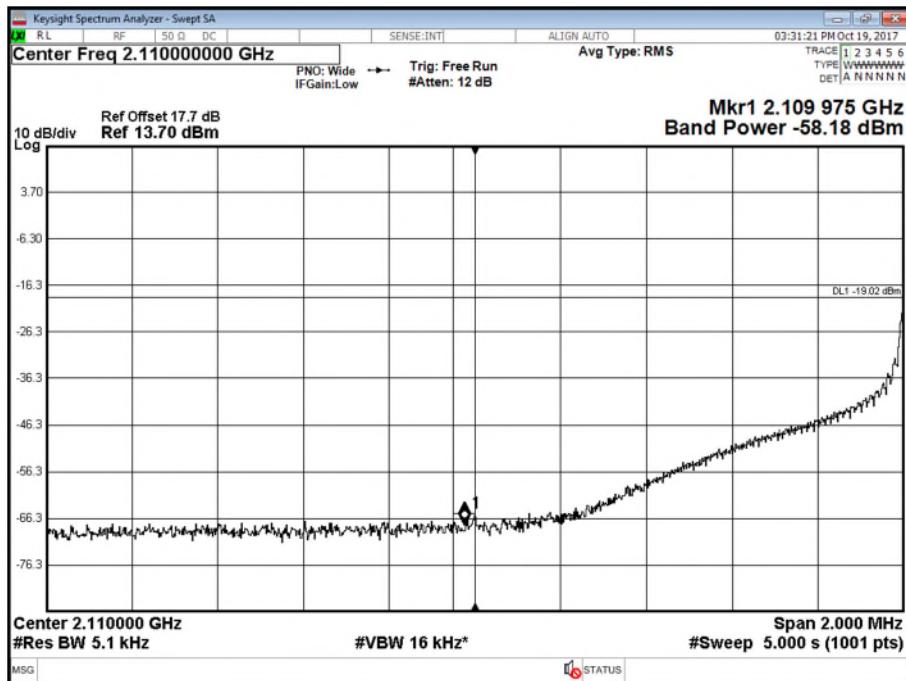


Product Service

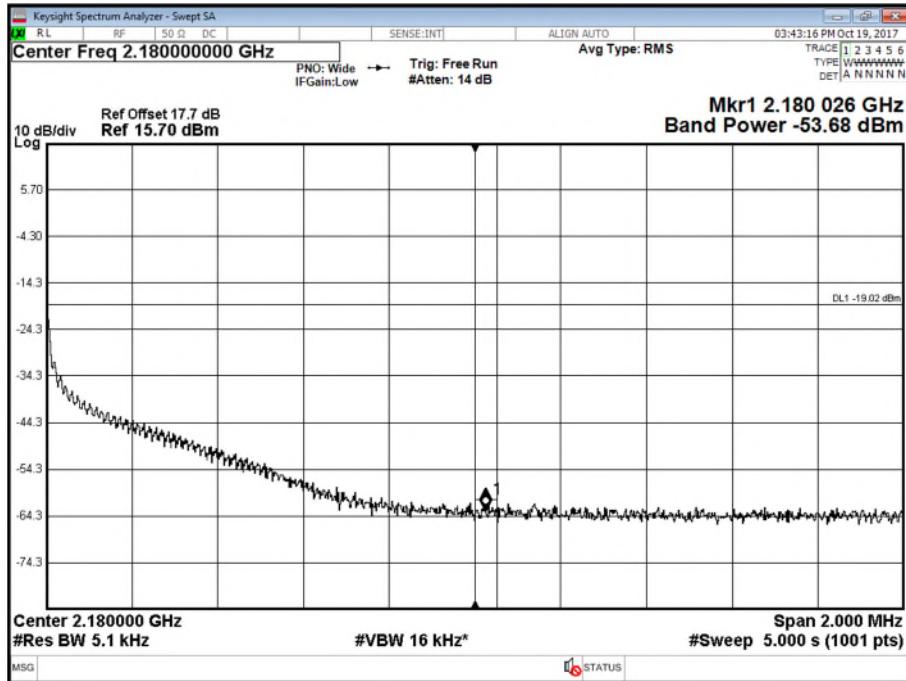
### Antenna C - LTE Modulation QPSK - Channel B, 20MHz



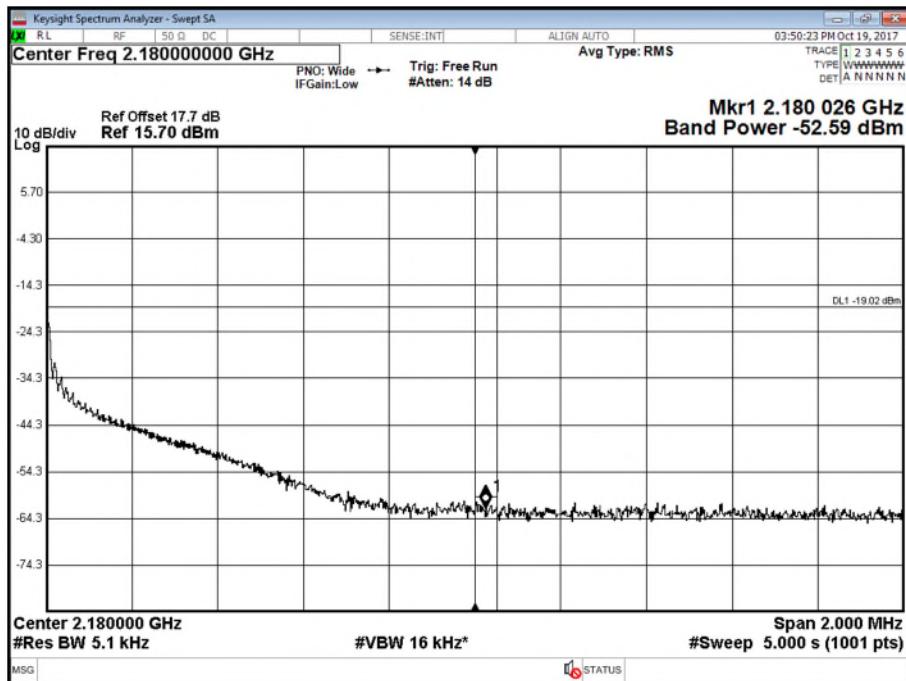
### Antenna D - LTE Modulation QPSK - Channel B, 20MHz



## Antenna C - LTE Modulation QPSK - Channel T, 20MHz



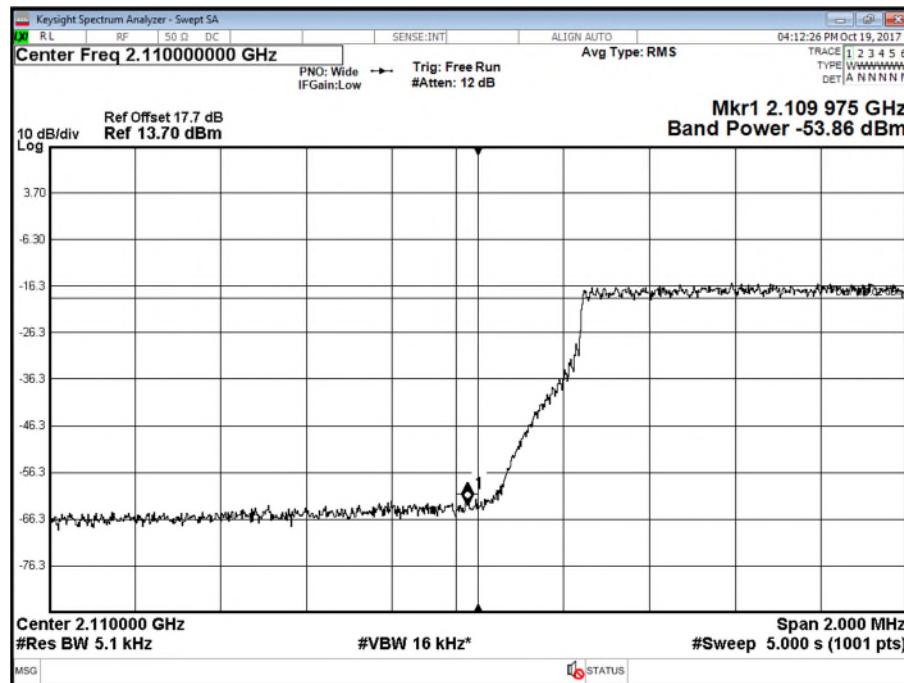
## Antenna D - LTE Modulation QPSK - Channel T, 20MHz



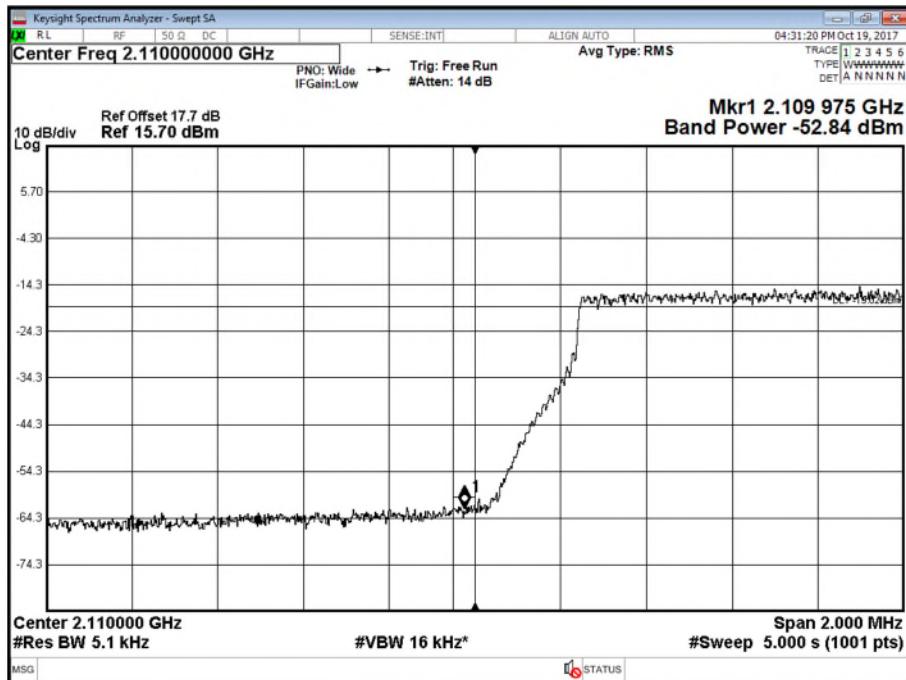
## Configuration 5

Maximum Output Power 17 dBm

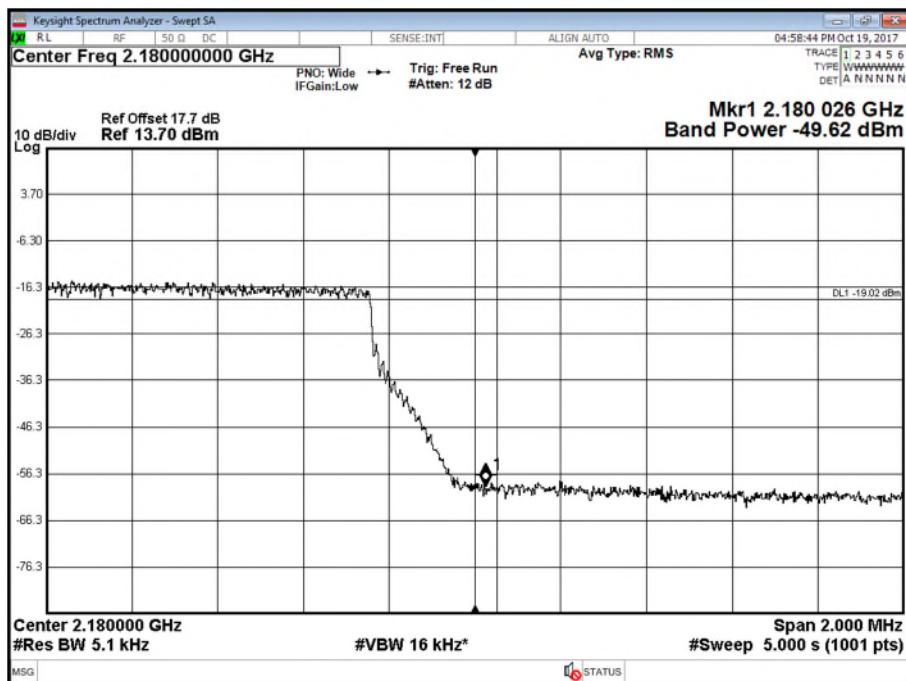
Antenna	LTE Modulation	LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
C	QPSK	5.0 MHz	2112.5 + 2117.5	2172.5 + 2177.5
D	QPSK	5.0 MHz	2112.5 + 2117.5	2172.5 + 2177.5
C	QPSK	10.0 MHz	2115 + 2125	2165 + 2175
D	QPSK	10.0 MHz	2115 + 2125	2165 + 2175
C	QPSK	15.0 MHz	2117.5 + 2132.5	2157.5 + 2172.5
D	QPSK	15.0 MHz	2117.5 + 2132.5	2157.5 + 2172.5
C	QPSK	20.0 MHz	2120 + 2140	2150 + 2170
D	QPSK	20.0 MHz	2120 + 2140	2150 + 2170

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


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



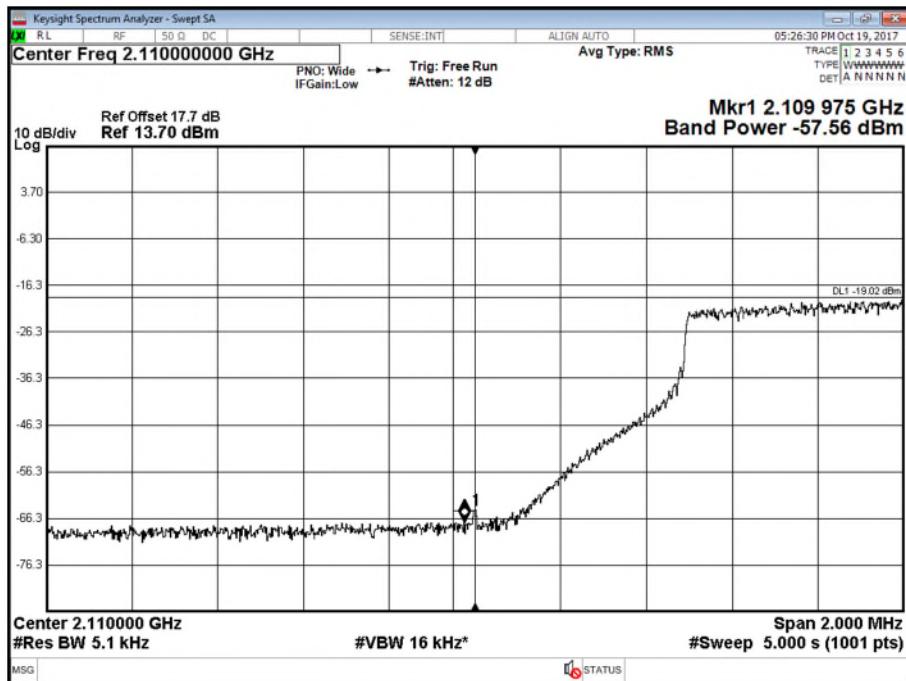
## Antenna C - LTE Modulation QPSK - Channel T, 5MHz



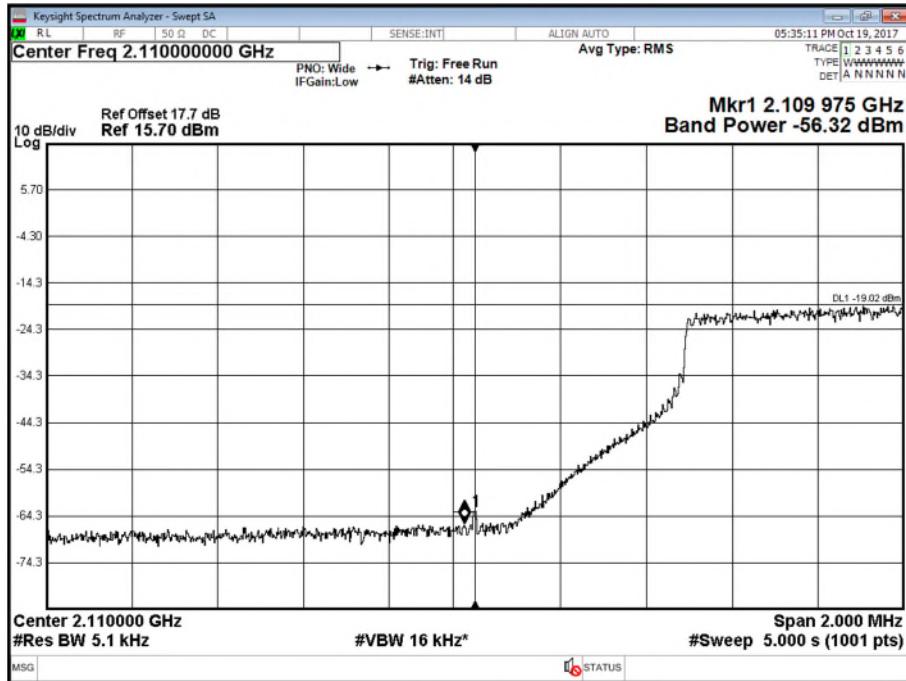
## Antenna D - LTE Modulation QPSK - Channel T, 5MHz



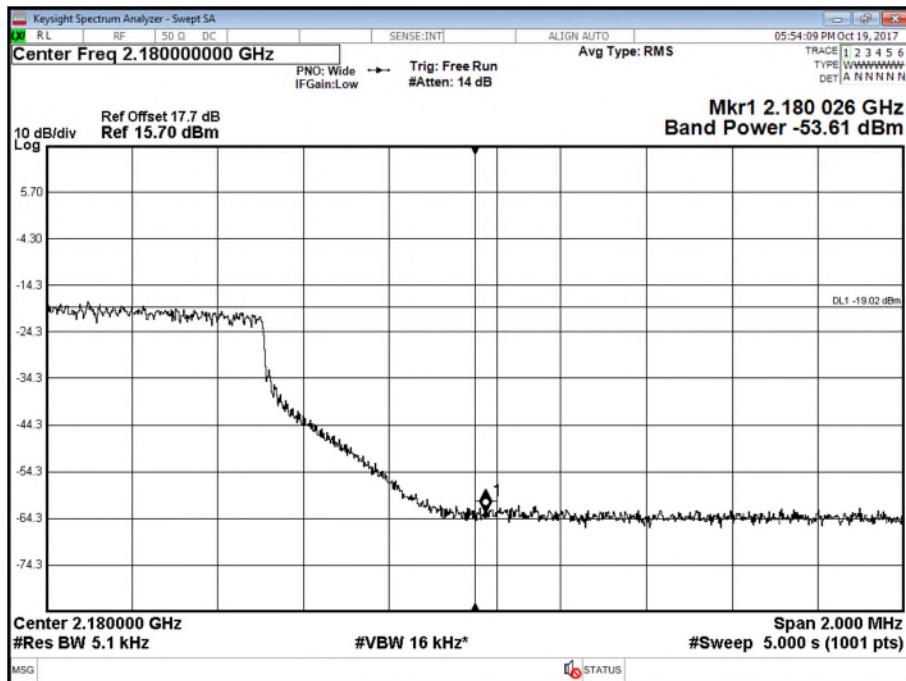
## Antenna C - LTE Modulation QPSK - Channel B, 10MHz



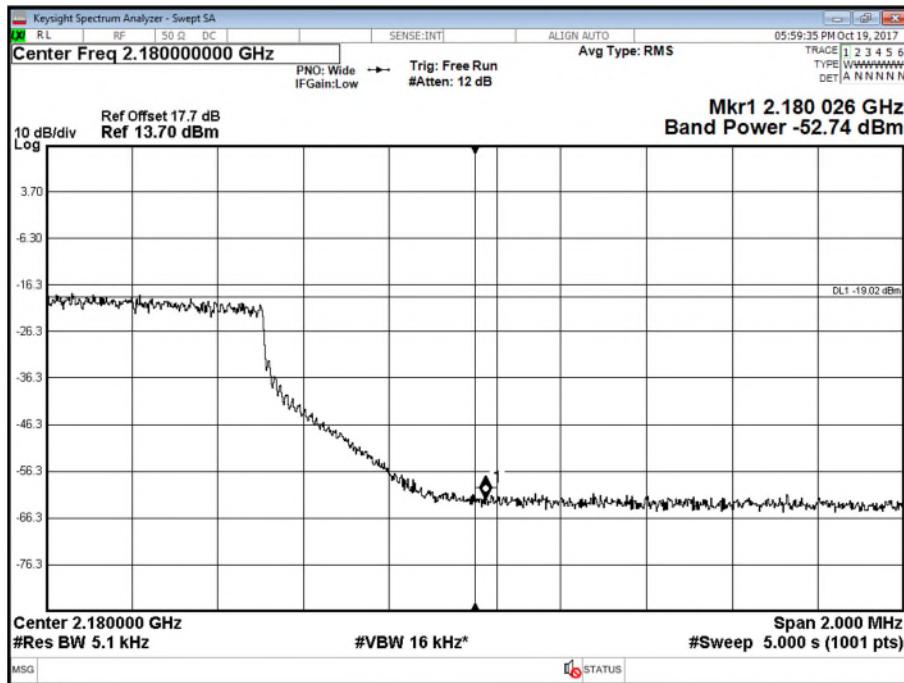
## Antenna D - LTE Modulation QPSK - Channel B, 10MHz



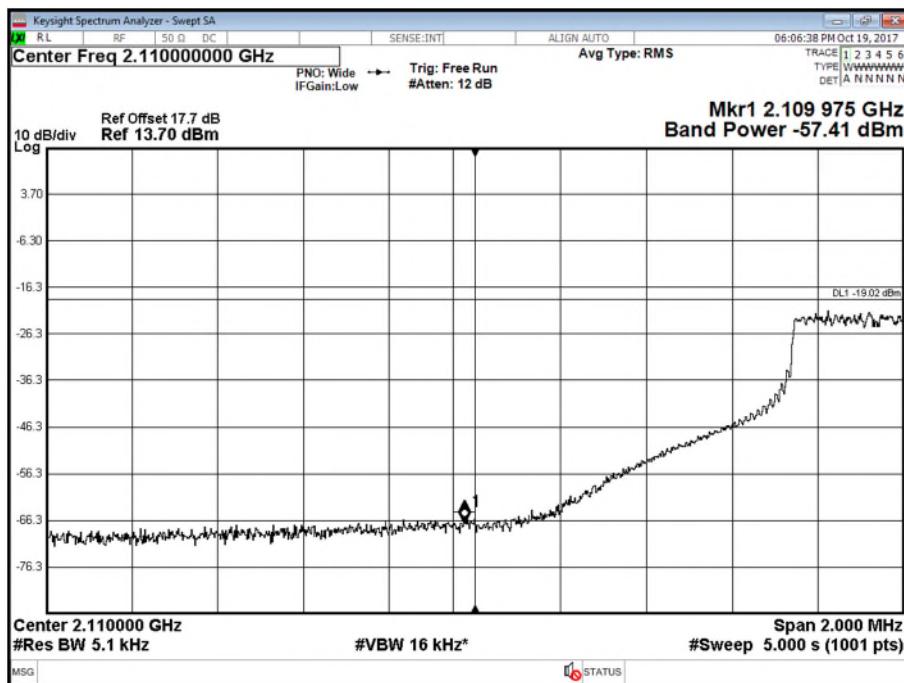
## Antenna C - LTE Modulation QPSK - Channel T, 10MHz



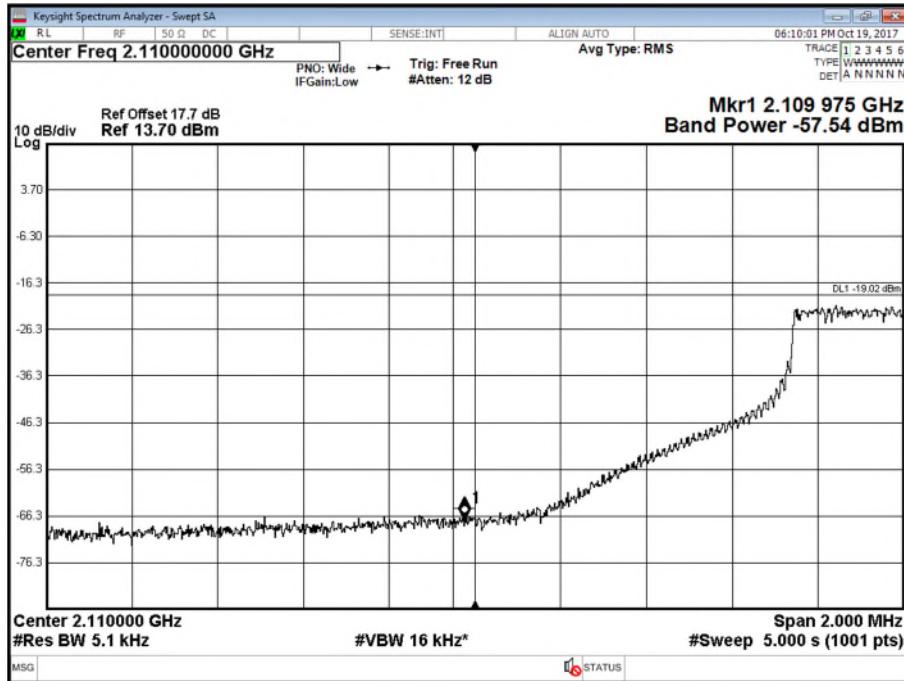
## Antenna D - LTE Modulation QPSK - Channel T, 10MHz



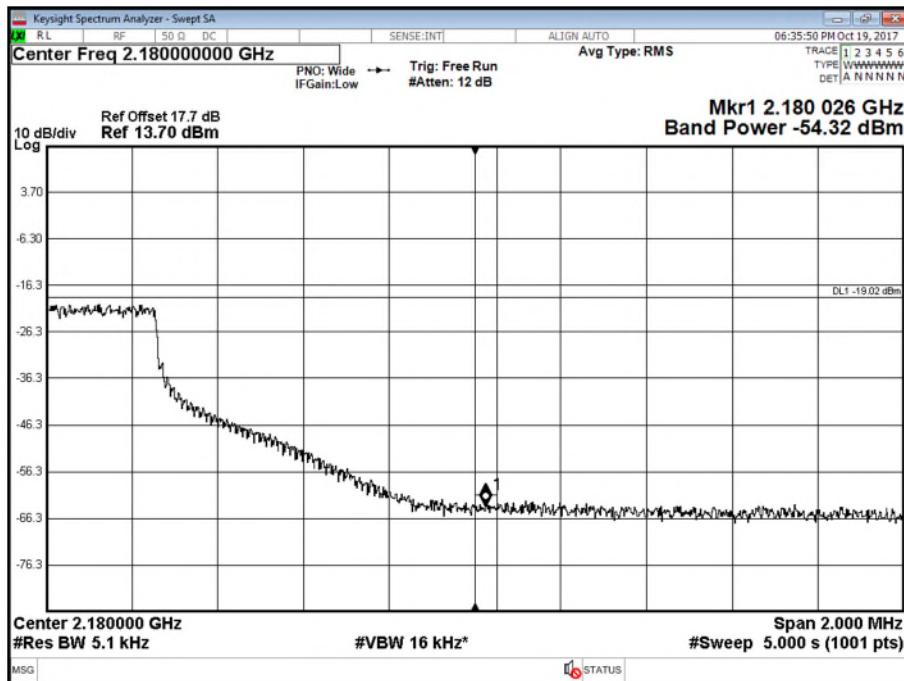
## Antenna C - LTE Modulation QPSK - Channel B, 15MHz



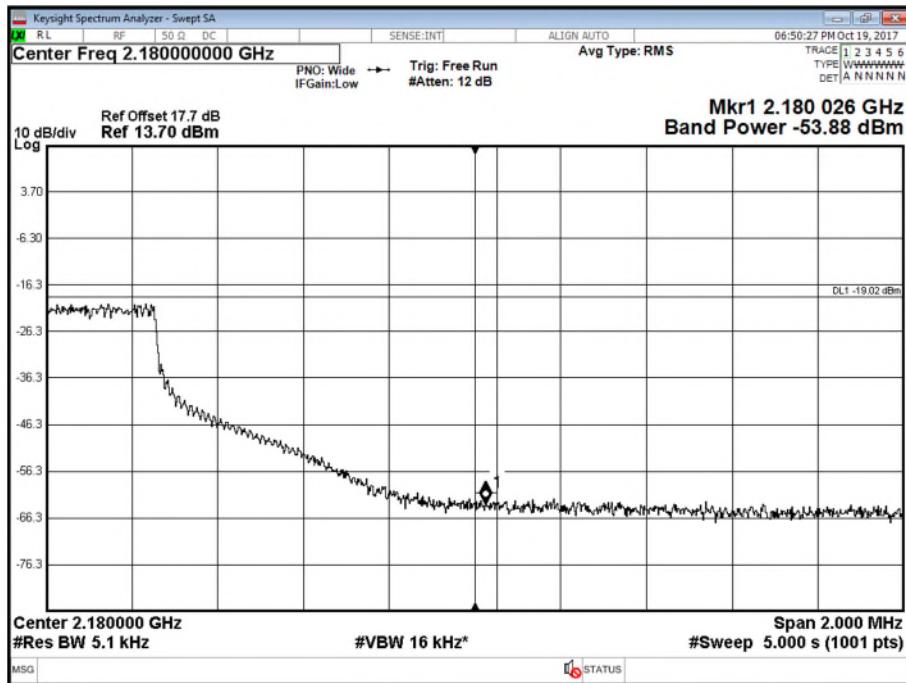
## Antenna D - LTE Modulation QPSK - Channel B, 15MHz



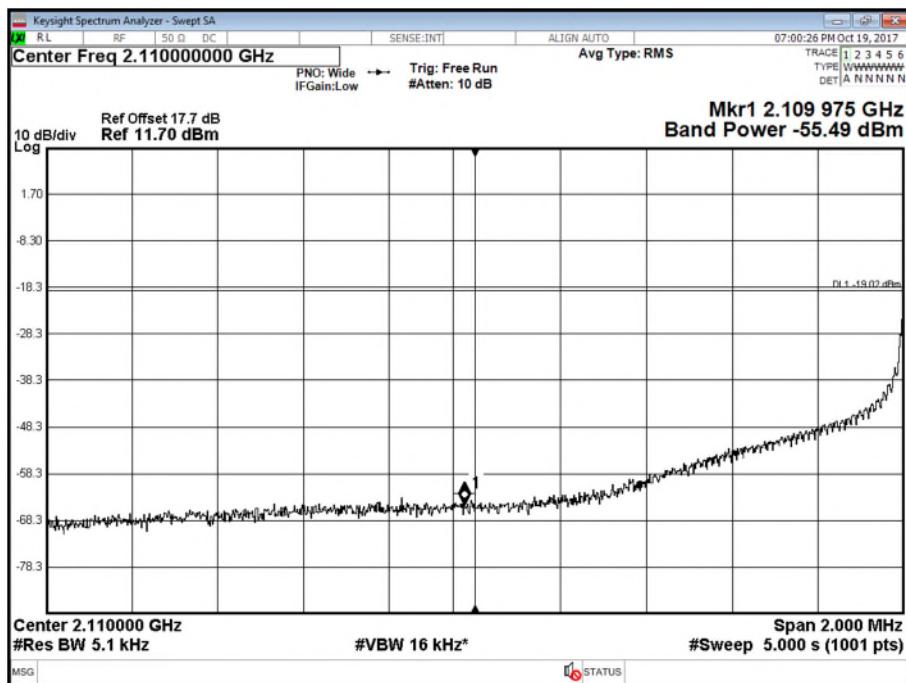
## Antenna C - LTE Modulation QPSK - Channel T, 15MHz



## Antenna D - LTE Modulation QPSK - Channel T, 15MHz



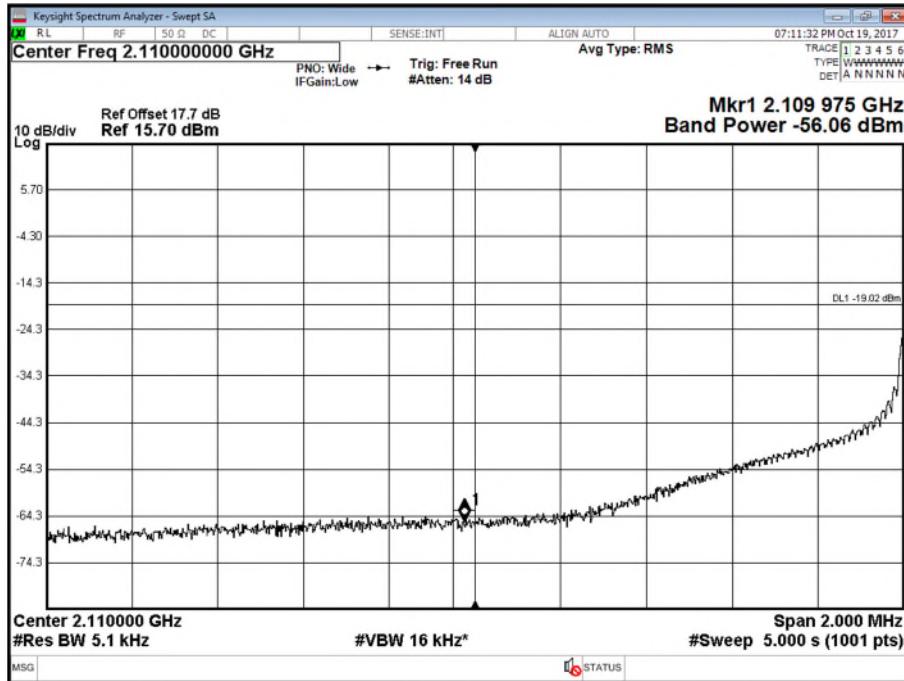
## Antenna C - LTE Modulation QPSK - Channel B, 20MHz



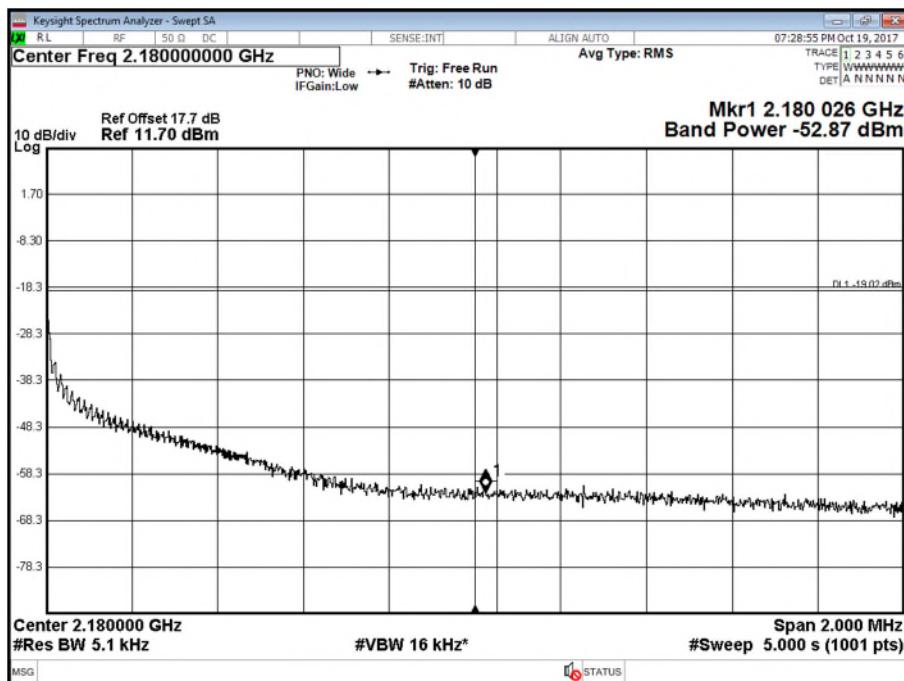


## Product Service

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



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



## Antenna D - LTE Modulation QPSK - Channel T, 20MHz



## Configuration 6

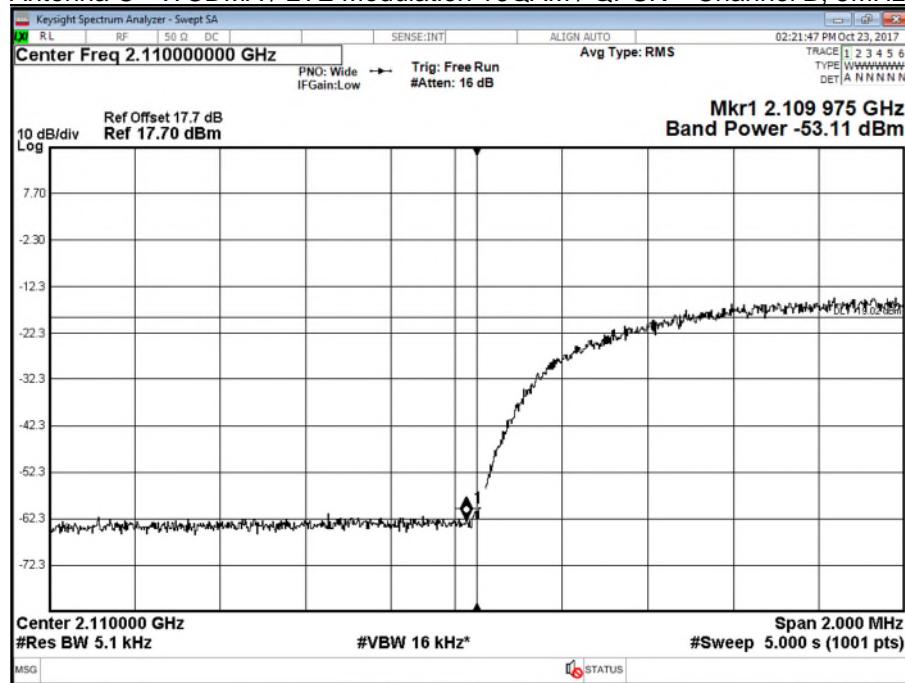
Maximum Output Power 17 dBm

Antenna	WCDMA / LTE Modulation	WCDMA / LTE Carrier Bandwidth	Band Edge (MHz)	
			Channel Position BRFBW	Channel Position TRFBW
C	16QAM / QPSK	5.0 MHz / 5.0 MHz	2112.4 + 2117.5	2172.6 + 2177.5
D	16QAM / QPSK	5.0 MHz / 5.0 MHz	2112.4 + 2117.5	2172.6 + 2177.5
C	16QAM / QPSK	5.0 MHz / 10.0 MHz	2112.4 + 2120	2167.6 + 2175
D	16QAM / QPSK	5.0 MHz / 10.0 MHz	2112.4 + 2120	2167.6 + 2175
C	16QAM / QPSK	5.0 MHz / 15.0 MHz	2112.4 + 2122.5	2162.6+ 2172.5
D	16QAM / QPSK	5.0 MHz / 15.0 MHz	2112.4 + 2122.5	2162.6+ 2172.5
C	16QAM / QPSK	5.0 MHz / 20.0 MHz	2112.4 + 2125	2157.6 + 2170
D	16QAM / QPSK	5.0 MHz / 20.0 MHz	2112.4 + 2125	2157.6 + 2170

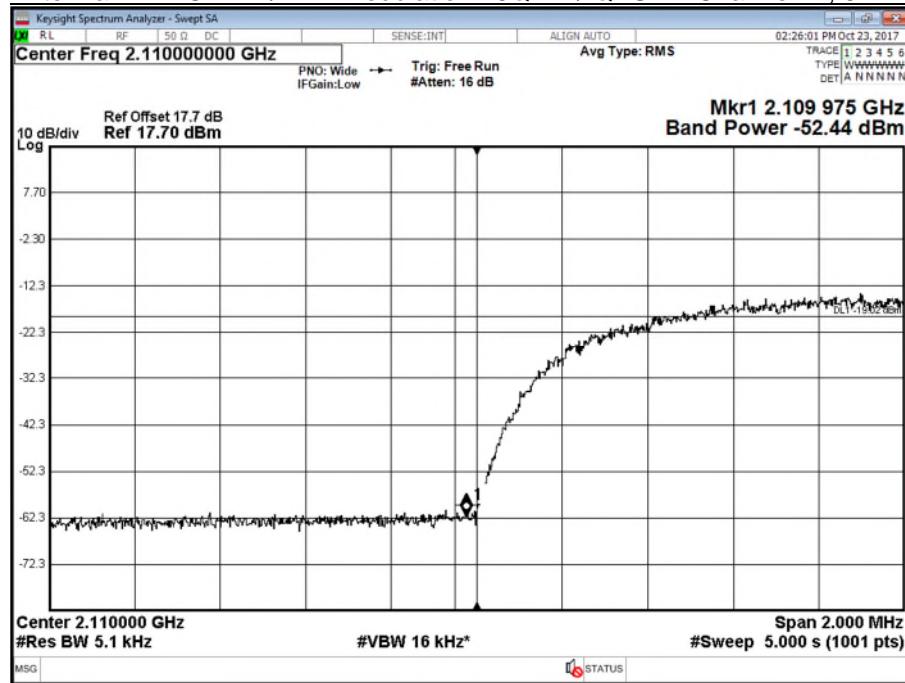


Product Service

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



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





Product Service

### Antenna C - WCDMA / LTE Modulation 16QAM / QPSK – Channel T, 5MHz



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



Limit	-19 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 27, Clause 27.53 (h)  
Industry Canada RSS-139, Clause 6.5

### 2.4.2 Date of Test and Modification State

19 and 20 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

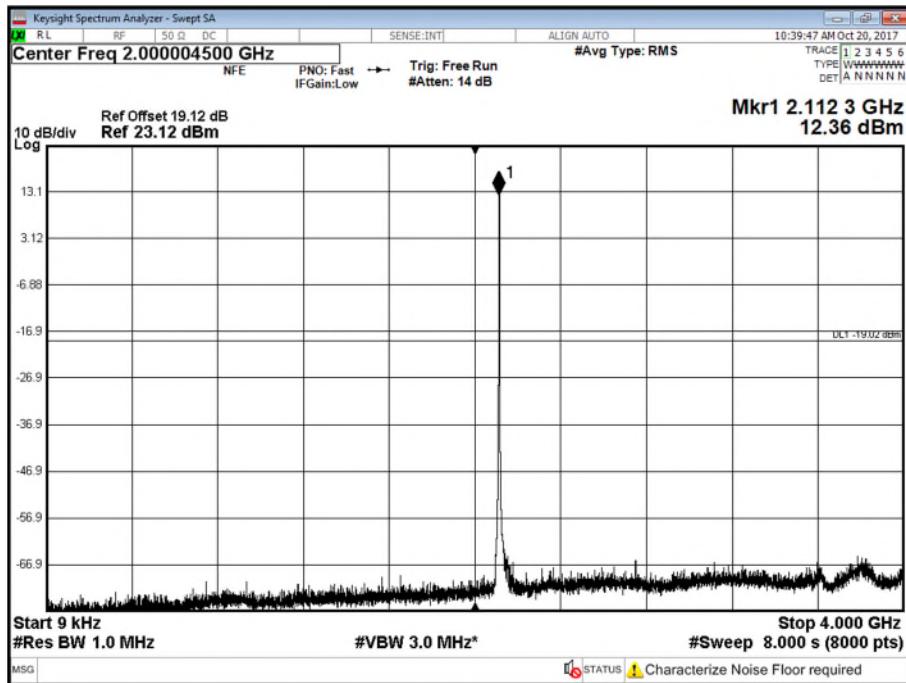
All measurements were made in accordance with FCC KDB 971168 D01 Clause 6. The EUT was connected to a Spectrum Analyser via an attenuator and switching box. Prior to testing, a Network Analyser was used to calibrate the path loss between the EUT and the Spectrum Analyser. The worst-case path loss in 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 B66A 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  $43 + 10\log(P) - 10\log(4) = -19$  dBm.

### 2.4.6 Test Results

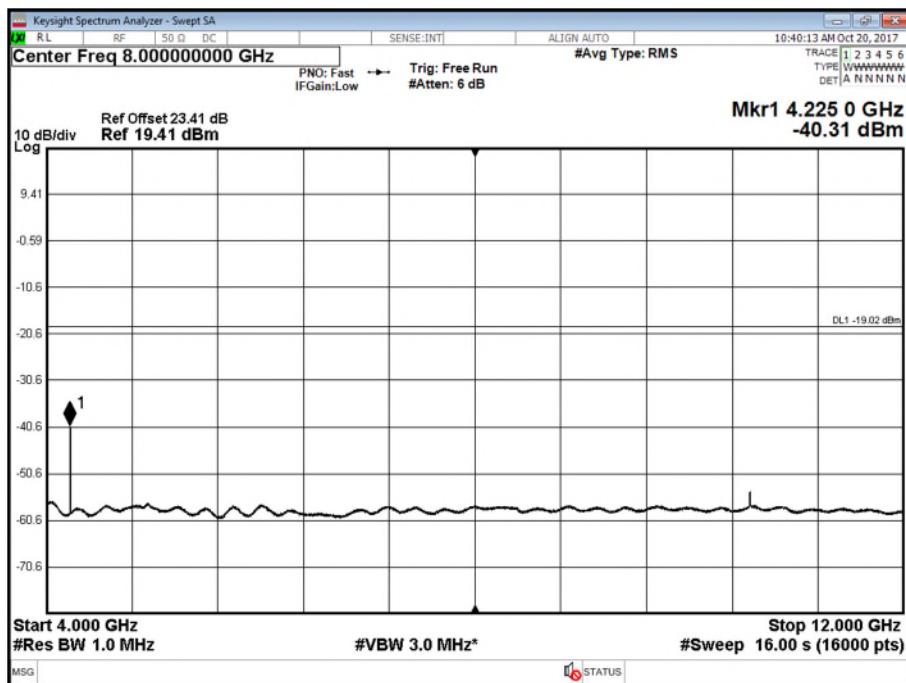
Configuration 1

Maximum Output Power 17 dBm

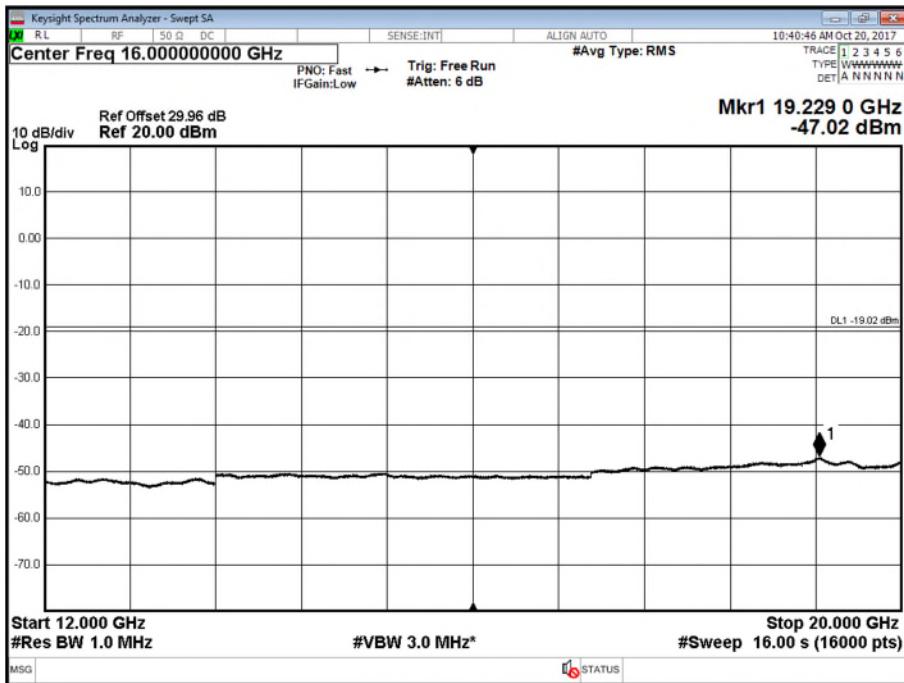
## Antenna C - WCDMA Modulation 16QAM – Channel B, 5MHz



## Antenna C - WCDMA Modulation 16QAM - Channel B, 5MHz

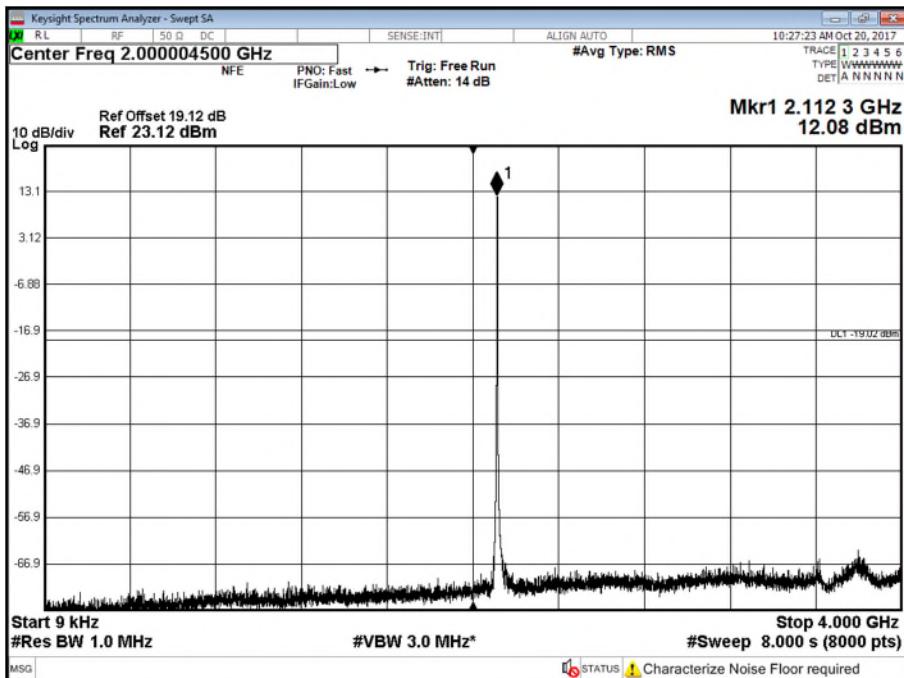


## Antenna C - WCDMA Modulation 16QAM - Channel B, 5MHz

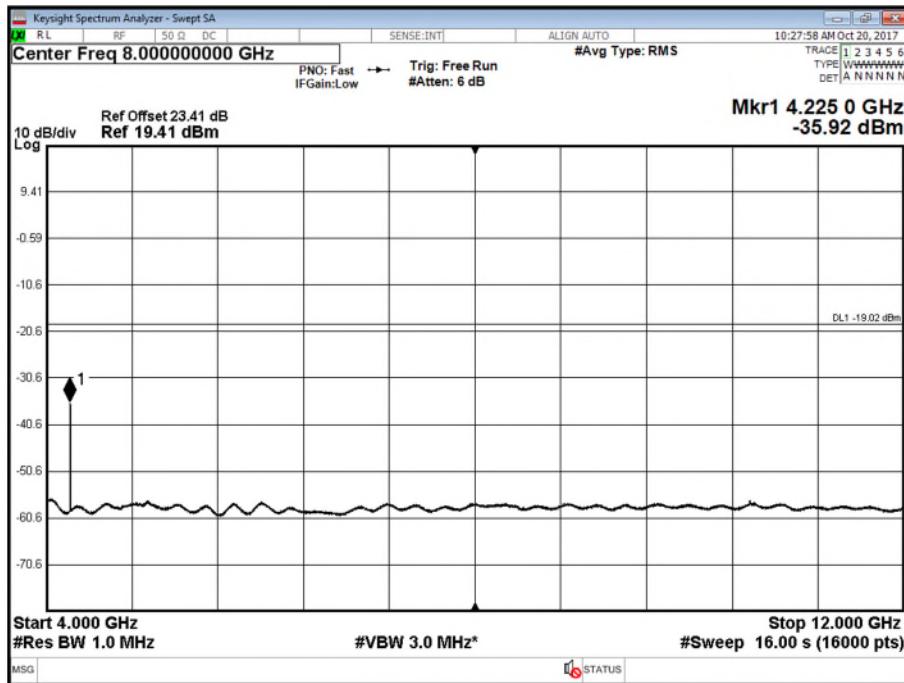


Note: No emissions were observed in the 20-22 GHz band and the margin observed was more than 20 dB.

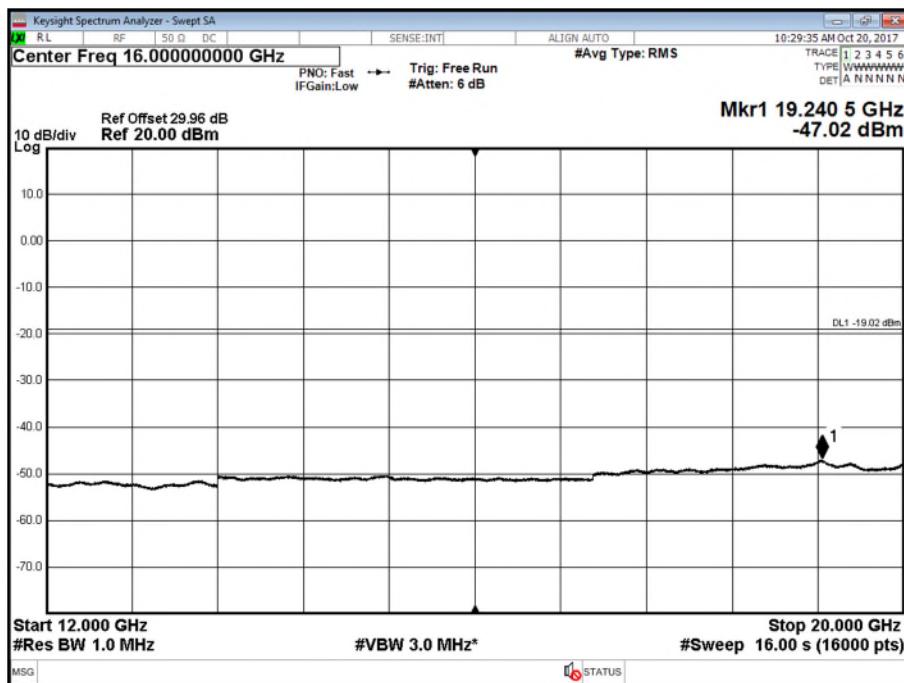
## Antenna D - WCDMA Modulation 16QAM - Channel B, 5MHz



## Antenna D - WCDMA Modulation 16QAM - Channel B, 5MHz



## Antenna D - WCDMA Modulation 16QAM - Channel B, 5MHz



Note: No emissions were observed in the 20-22 GHz band and the margin observed was more than 20 dB.