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Report On

FCC and IC Testing of the
Ericsson RD 2242 B2 (1930-1990 MHz) WCDMA/LTE Base Station In
accordance with FCC CFR 47 Part 2 and 24 and Industry Canada
RSS-133 and RSS-GEN

COMMERCIAL-IN-CONFIDENCE

FCC ID: TA8BKRY901328-1

IC: 287AB-BS9013281

PREPARED BY

Neil Rousell
Senior Engineer (RF)

APPROVED BY

Steve Scarle
Authorised Signatory

DATED

17 July 2015

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Product Service

SECTION 1

REPORT INFORMATION

1.1 REPORT DETAILS

Manufacturer	Ericsson
Address	349 Terry Fox Drive Kanata Ottawa Ontario K2K 2V6
Product Name	RD 2242 B2
Product Number	KRY 901 328/1
IC Model Name	BS9013281
Serial Number(s)	C829931604
Software Version	CXP9013268/14_R60GY
Hardware Version	R2C
Test Specification/Issue/Date	FCC CFR 47 Part 2: 2014 FCC CFR 47 Part 24: 2014 Industry Canada RSS-133 Issue 6: 2013
Start of Test	22 June 2015
Finish of Test	26 June 2015
Name of Engineer(s)	Neil Rousell
Related Document(s)	Industry Canada RSS-GEN Issue 4: 2014

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2 and 24 and Industry Canada RSS-133 and RSS-GEN is shown below.

Section	Spec Clause			Test Description	Result
	Part 2	Part 24	RSS-GEN / RSS 133		
2.1	2.1046	24.232	6.4	Average Output Power – Conducted	Pass
2.2	2.1049(h)	24.238(b)	6.6	Occupied Bandwidth	Pass
2.3	2.1051	24.238(b)	6.5.1	Spurious Emissions at Band Edge	Pass
2.4	2.1051	24.238(a)	6.5.1	Conducted Spurious Emissions	Pass
2.5	2.1055 (d)(1),(b)	24.235	6.3	Frequency Stability Under Temperature Variations	Pass
2.6	2.1055(d)(1)	24.235	6.3	Frequency Stability Under Voltage Variations	Pass
-	-	-	6.6	Receiver Spurious Emissions	Pass *
-	-	-	6.5.1	Transmitter Radiated Emissions	Pass*

* - Reference Flextronics Design Validation Centre, Canada EMC Test Report: Reference Number K002569-TR-EMC-07-R1

Flextronics Canada Design Services Inc.
1280 Teron Side Road
Kanata, Ontario, K2K 2C1, Canada

Accreditations (Flextronics)

The Design Validation Centre (DVC) test facilities are accredited by the Standards Council of Canada (SCC) to ISO/IEC 17025 in accordance with the scope of accreditation outlined at the web site http://palcan.scc.ca/Specs/PDF/95_e.pdf. The SCC is a signatory of the APLAC [4] and ILAC [14] Mutual Recognition Arrangements. The SCC's Laboratory Accreditation Program has been evaluated and has demonstrated its competence to operate according to the requirements of ISO/IEC 17011.

- 4) APLAC, Asia Pacific Laboratory Accreditation Cooperation, Website (<http://www.aplac.org>).
14) ILAC, International Laboratory Accreditation Cooperation, Website (<http://www.ilac.org/>)

1.3 CONFIGURATION DESCRIPTION

The RD 2242 B2 / KRY 901 328/1 supports Single, Multi Carrier and Mixed Mode operation from either a single or dual port configuration.

The RD 2242 B2 supports LTE Test Models E-TM1.1, E-TM3.1, E-TM3.2 and WCDMA Test Models TM1, TM5 and TM6 in Band 2 (1930 MHz – 1990 MHz).

The LTE Test Models (as defined in 3GPP TS 36.141) E-TM1.1, E-TM3.1 and E-TM3.2 were used to represent QPSK, 64QAM 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 2242 B2 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 (± 1 MHz) and Conducted Spurious Emissions, measurements were performed on both RF Ports using a test limit accounting for MIMO operation with 2 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 B2 (1930 MHz – 1990 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	1932.4	1960	1987.6
2	W	2	5	1932.4 + 1967.6	1942.4 + 1977.6	1952.4 + 1987.6
3	W	4	5	1932.4 + 1937.4 + 1962.6 + 1967.6	1942.4 + 1947.4 + 1972.6 + 1977.6	1952.4 + 1957.4 + 1982.6 + 1987.6

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	1932.4 + 1937.4	1982.6 + 1987.6

Table 2

LTE B2 (1930 MHz – 1990 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	1932.5	1960	1987.5
4	L	1	10	1935	1960	1985
4	L	1	15	1937.5	1960	1982.5
4	L	1	20	1940	1960	1980
5	L	2	5	1932.5 + 1967.5	1942.5 + 1977.5	1952.5 + 1987.5
5	L	2	10	1935 + 1965	1945 + 1975	1955 + 1985
5	L	2	15	1937.5 + 1962.5	1947.5 + 1972.5	1957.5 + 1982.5
5	L	2	20	1940 + 1960	1950 + 1970	1960 + 1980

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	1932.5 + 1937.5	1982.5 + 1987.5
5 (BE)	L	2	10	1935 + 1945	1975 + 1985
5 (BE)	L	2	15	1937.5 + 1952.5	1967.5 + 1982.5
5 (BE)	L	2	20	1940 + 1960	1960 + 1980

Table 4

WCDMA/LTE (MM) B2 (1930 MHz – 1990 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	-	1942.4 (W) + 1972.5 (L)	-
7	W + W + L	3	5 + 5 + 5	-	1942.4 (W) + 1947.4 (W) + 1977.5 (L)	-
8	W + W + W + W + L + L	6	5 + 5 + 5 + 5 + 10 + 10	-	1942.4 (W) + 1947.4 (W) + 1952.4 (W) + 1957.4 (W) + 1965 (L) + 1975 (L)	-

Table 5

Band Edge Emissions

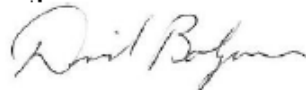
Configuration	RAT	No. of Carriers	Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)	
				BRFBW (Bottom Edge)	TRFBW (Top Edge)
6 (BE)	W + L	2	5 + 5	1932.4 (W) + 1937.4 (L)	1982.6 (L) + 1987.6 (W)

Table 6

1.4 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Dot
MANUFACTURER	Ericsson
TYPE	Remote Radio Base Station
PART NUMBER	KRY 901 328/1
SERIAL NUMBER	C829931604
HARDWARE VERSION	R2C
SOFTWARE VERSION	R60GY
TRANSMITTER OPERATING RANGE	1930MHz – 1990MHz
RECEIVER OPERATING RANGE	1850MHz – 1910MHz
COUNTRY OF ORIGIN	Sweden
INTERMEDIATE FREQUENCIES	DL: 110 – 150MHz, UL: 40 – 80MHz
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	LTE 5M00 W7D 10M0 W7D 15M0 W7D 20M0 W7D WCDMA 5M00 F9W
MODULATION TYPES: (i.e. GMSK, QPSK)	LTE: QPSK, 16QAM, 64QAM WCDMA: QPSK, 16QAM, 64QAM
HIGHEST INTERNALLY GENERATED FREQUENCY	2.1 GHz
OUTPUT POWER (W or dBm)	2 x 0.05W (17dBm)
FCC ID	TA8BKRY901328-1
INDUSTRY CANADA ID	287AB-BS9013281
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The RD 2242 B2 (KRY 901 328/1) is a 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 2 Transmit ports in MRO; Single, Multi-Carrier, and MIMO transmission with a maximum rated RF Output of 0.05W per port over an operational temperature of 5°C to +40°C. The unit is designed to be ceiling mounted.

Signature:



David Bolzon

Date: 03 July 2015

Declaration of Build Status Serial Number: C829931604

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

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

The RD 2242 B2 (KRY 901 328/1) is a multi-standard radio forming part of Ericsson's RBS 6000 series Radio Base Station (RBS) equipment. The RD 2242 (Radio Dot System) product provides radio access for mobile and fixed devices and is intended for the indoor environment.

An RDI (Radio Dot Interface) cable provides the RD 2242 with a power, control and digital communications between the RD 2242 and RBS. The location of the RD 2242 with respect to the RBS is limited to a distance of 100 metres.

The RD 2242 B2 supports two (2) Transmit / Receive ports operating in MSR Band 2 at a Downlink (transmit) frequency from 1930 MHz to 1990 MHz and an Uplink (receive) frequency from 1850 MHz to 1910 MHz. The radio operates in FDD (Frequency Division Duplex) with a duplex spacing of 80 MHz and supports operation on multi Radio Access Transmission Standards (RATS) at transmit carrier bandwidths up to 20 MHz.

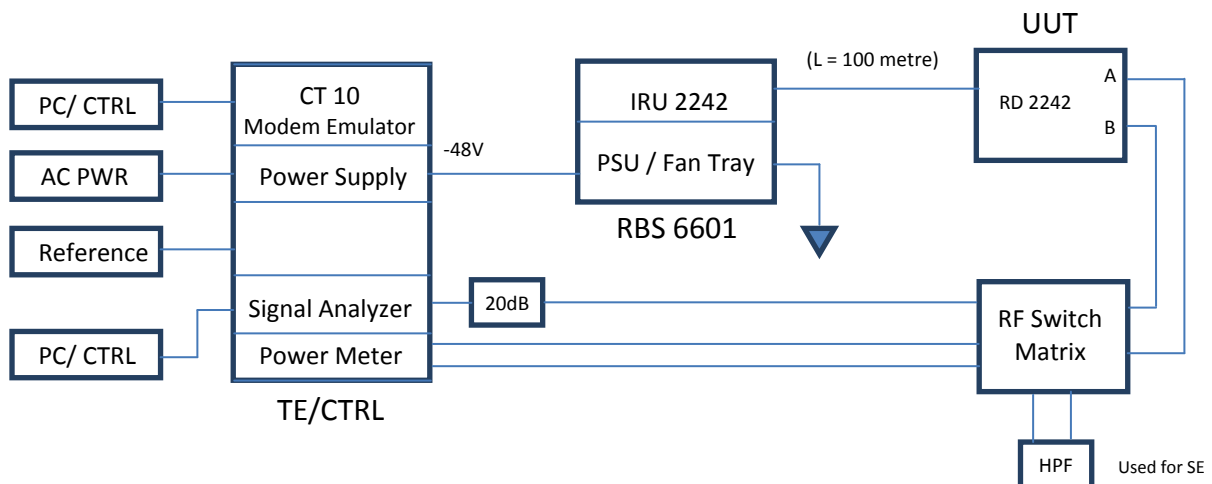
The radio operates over 2 transmit ports in Single, Multi-Carrier, and Mixed Mode MIMO transmission with a maximum rated RF output power of 50mW per port over an operational temperature of +5° C to +40° C.

A full technical description can be found in the Manufacturer's documentation.

1.6 TEST SETUP

Test Setup, Conducted Measurement:

RD 2242 B2 RU Radio Compliance Set-Up



See Section 3 for a list of the test equipment used.

Test Setup, Radiated Measurement:

Reference: Flextronics Design Validation Centre, Canada Report Reference Number K002569-TR-EMC-07-R1

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 via POE (Power Over Ethernet).

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 group UKAS Accreditation, TÜV SÜD Product Service conducted the following tests at Ericsson in Ottawa, Canada.

1.11 ADDITIONAL INFORMATION

Testing performed in the presence of Mr Denis Lalonde.



Product Service

SECTION 2

TEST DETAILS

2.1 AVERAGE 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 24, Clause 24.232
Industry Canada RSS-133, Clause 6.4

2.1.2 Date of Test and Modification State

22, 23 and 24 June 2015 - 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	24.5 - 25.1°C
Relative Humidity	44.9 - 50.4%

2.1.5 Test Method

The EUT was connected to a Signal Analyser via 20dB of attenuation and an RF switch. The path loss between the EUT and the Analyser was measured using a Network Analyser and entered as a Reference Level Offset.

The EUT was set to transmit at its maximum rated output power in the configurations described below.

Measurements were performed with the Analyser Band Power measurement function in accordance with FCC KDB 971168 D01 v02r02. The detector was set to RMS with a RBW of at least 1% of the theoretical signal bandwidth and a VBW of 3 times the RBW. The detection bandwidth was configured to be wider than the total bandwidth of the carrier or combinations of carriers, (multi-carrier). The sweep time was set to Auto and 200 averages were performed before the result was recorded. Prior to testing, comparative measurements were made with an Average Power sensor and Power Meter to confirm correlation with the method used.

Due to Average measurements being recorded, an additional Peak to Average measurement was made in all single carrier configurations. This was achieved using the CCDF function of the Analyser with the RBW being set to 80MHz (In this case 40MHz was the maximum total RF Bandwidth in single and multi-carrier mode). A comparison was made with a wide band Power Meter capable of measuring Peak to Average ratio to confirm correlation with the method used.

In order to confirm the Average Equivalent Isotropically Radiated Power (EIRP) an Average Power Spectral Density (PSD) measurement was made using a 1MHz bandwidth in accordance with FCC KDB 971168 D01 v02r02 clause 5.4.1.

Testing was performed on both ports.

2.1.6 Test Results

Configuration 1 WCDMA SC (See table 1)

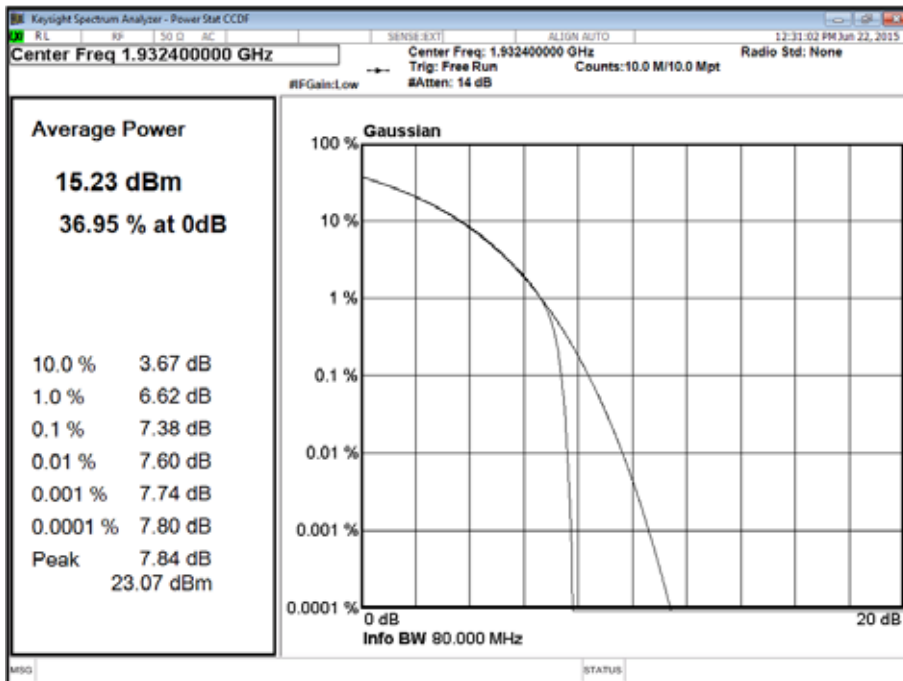
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position B						
			PAR (dB)	Average Power		Average EIRP			
dBm	dBm/MHz	dBm		dBm/MHz	W	W/MHz			
16QAM	5.0 MHz	A	7.38	15.42	10.43	18.42	13.43	0.0695	0.0220
		B	7.29	16.09	11.15	19.09	14.15	0.0811	0.0260
Total			-	18.78	13.82	21.78	16.82	0.1506	0.0480

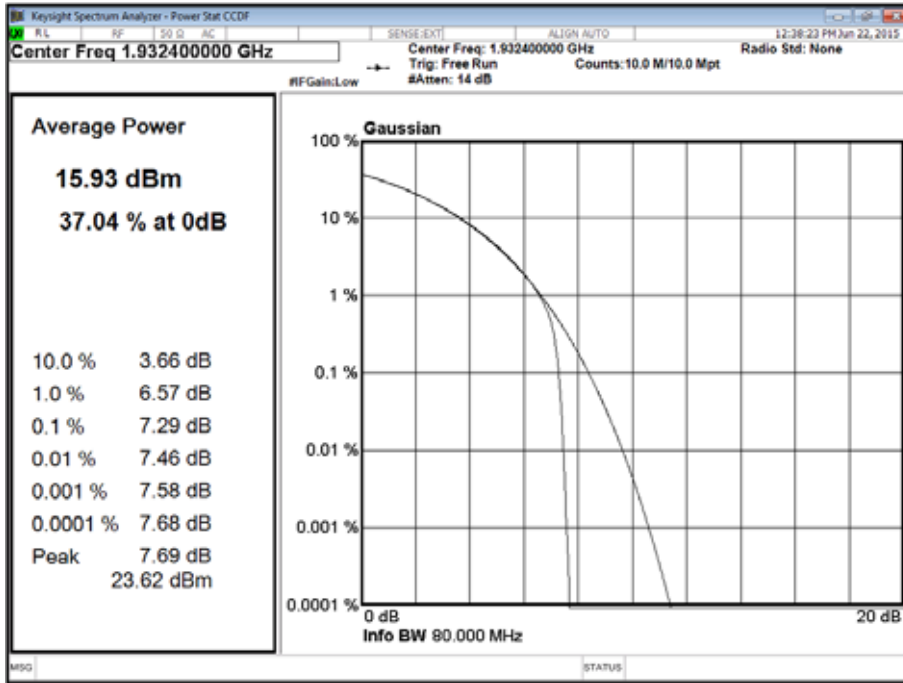
Remarks

Antenna Gain = 3dBi.

Channel Position B - Bandwidth 5.0 MHz - Antenna A



Channel Position B - Bandwidth 5.0 MHz - Antenna B



Configuration 1 WCDMA SC (See table 1)

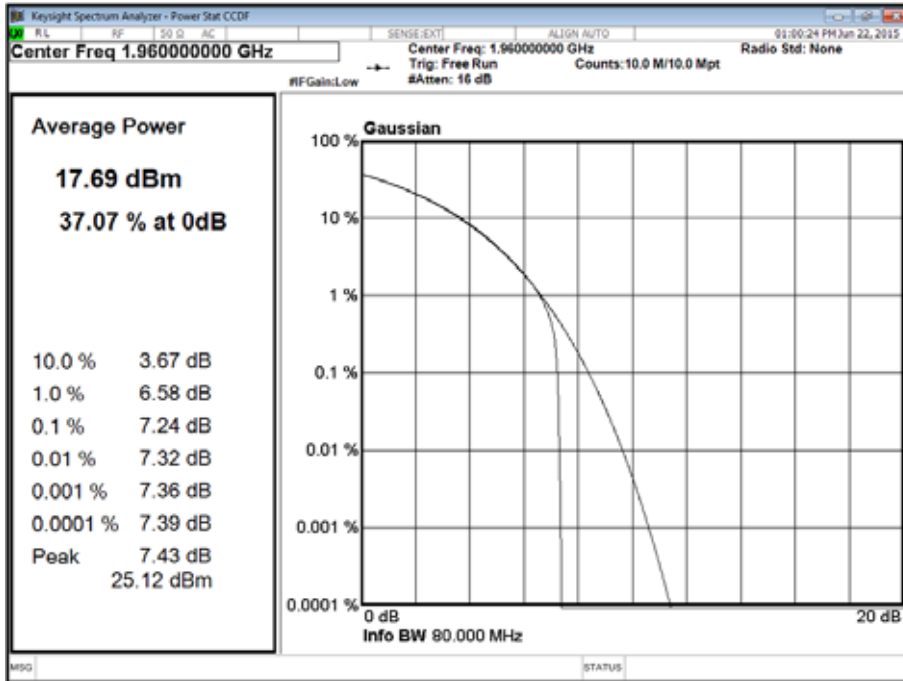
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position M						
			PAR (dB)	Average Power		Average EIRP			
dBm	dBm/MHz	dBm		dBm/MHz	W	W/MHz			
16QAM	5.0 MHz	A	7.24	17.88	12.51	20.88	15.51	0.1225	0.0356
		B	7.14	18.70	13.34	21.70	16.34	0.1479	0.0431
Total			-	21.32	15.96	24.32	18.96	0.2704	0.0786

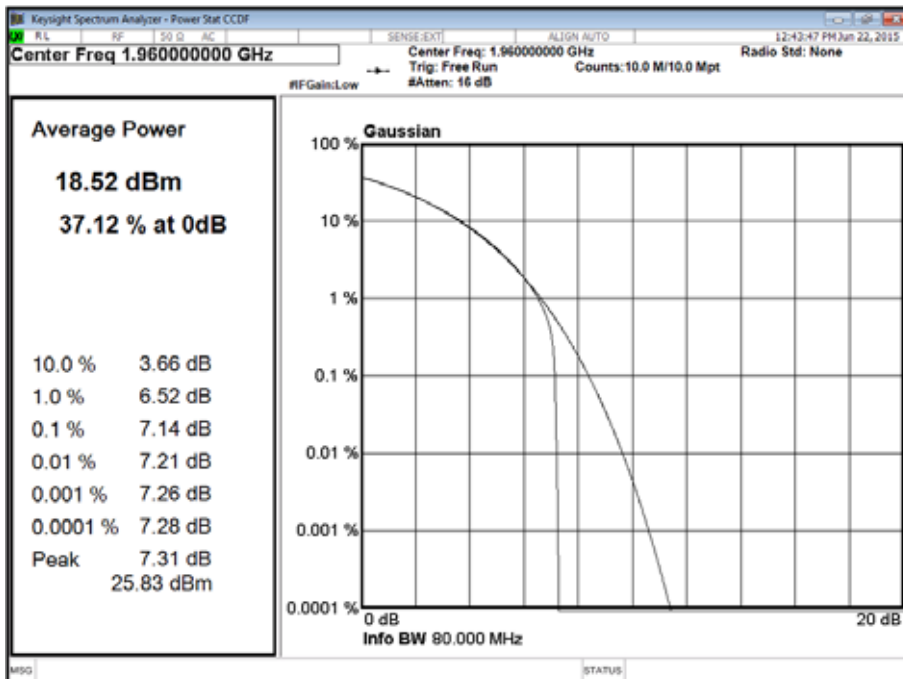
Remarks

Antenna Gain = 3dBi.

Channel Position M - Bandwidth 5.0 MHz - Antenna A



Channel Position M - Bandwidth 5.0 MHz - Antenna B



Configuration 1 WCDMA SC (See table 1)

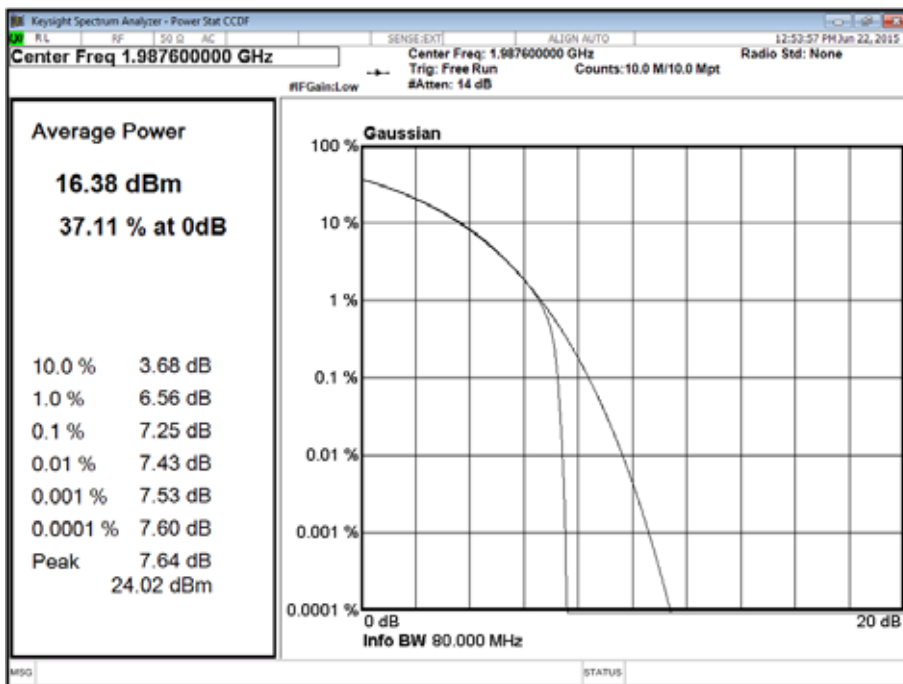
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position T						
			PAR (dB)	Average Power		Average EIRP			
				dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	7.25	16.56	11.42	19.56	14.42	0.0904	0.0277
		B	7.18	17.10	11.81	20.10	14.81	0.1023	0.0303
Total			-	19.85	14.63	22.85	17.63	0.1927	0.0579

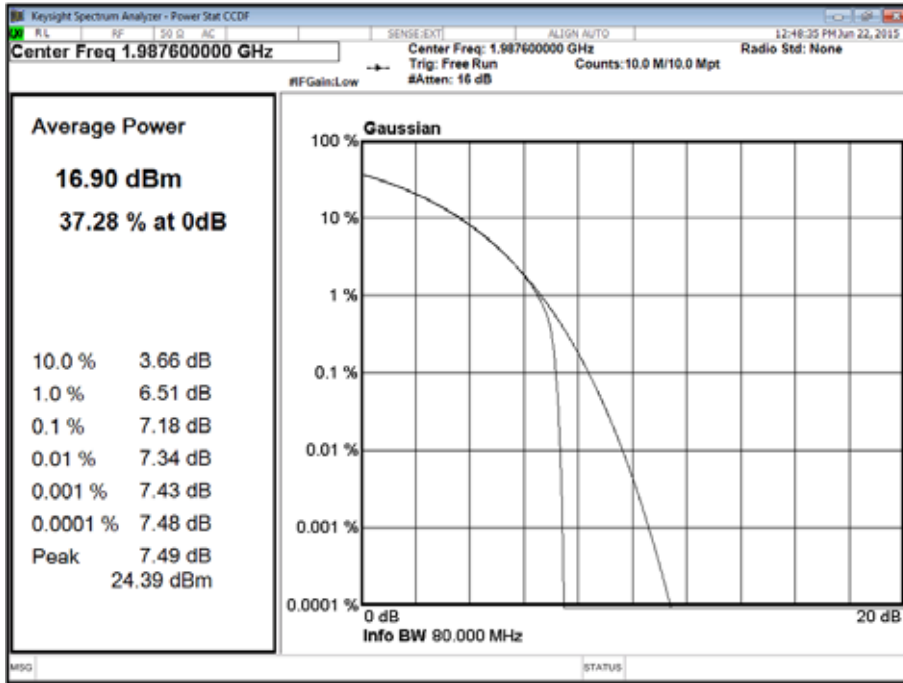
Remarks

Antenna Gain = 3dBi.

Channel Position T - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna B



Configuration 2 WCDMA MC (See table 1)

Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position B					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	16.19	8.98	19.19	11.98	0.0830	0.0158
		B	16.75	9.57	19.75	12.57	0.0944	0.0181
Total			19.49	12.30	22.49	15.30	0.1774	0.0338

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position M					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	17.36	9.68	20.36	12.68	0.1086	0.0185
		B	17.95	10.06	20.95	13.06	0.1245	0.0202
Total			20.68	12.88	23.68	15.88	0.2331	0.0388

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position T					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	16.99	9.03	19.99	12.03	0.0998	0.0160
		B	17.57	9.79	20.57	12.79	0.1140	0.0190
Total			20.30	12.44	23.30	15.44	0.2138	0.0350

Remarks

Antenna Gain = 3dBi.

Configuration 3 WCDMA MC (See table 1)

Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position B					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	18.42	8.21	21.42	11.21	0.1387	0.0132
		B	18.07	7.35	21.07	10.35	0.1279	0.0108
Total			21.26	10.81	24.26	13.81	0.2666	0.0241

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position M					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	18.82	8.29	21.82	11.29	0.1521	0.0135
		B	18.84	7.98	21.84	10.98	0.1528	0.0125
Total			21.84	11.15	24.84	14.15	0.3048	0.0260

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position T					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	5.0 MHz	A	18.47	8.29	21.47	11.29	0.1403	0.0135
		B	18.09	7.97	21.09	10.97	0.1285	0.0125
Total			21.29	11.14	24.29	14.14	0.2688	0.0260

Remarks

Antenna Gain = 3dBi.

Configuration 4 LTE SC (See table 3)

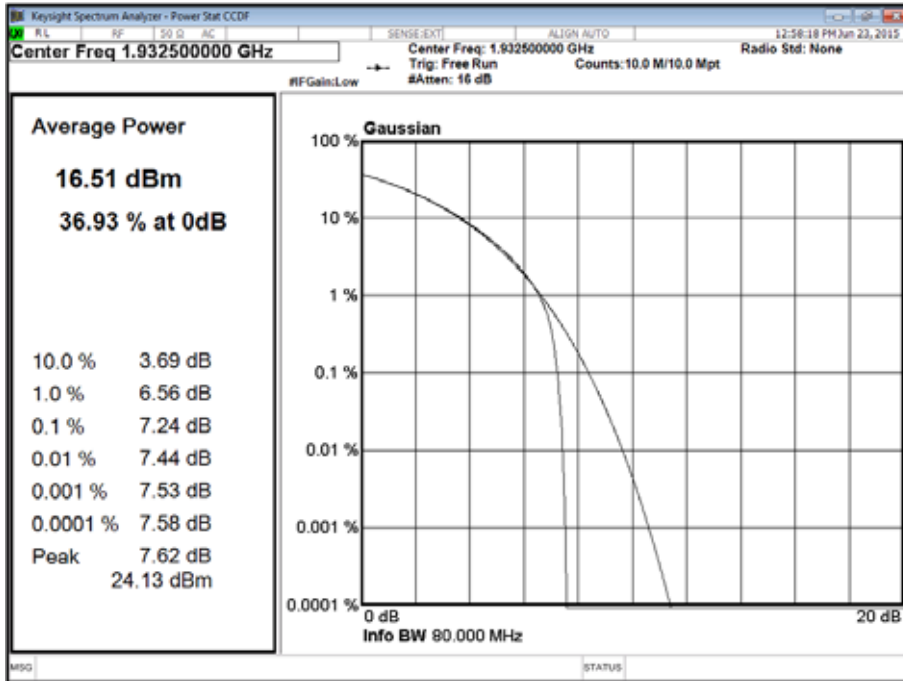
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position B						
			PAR (dB)	Average Power		Average EIRP			
				dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
QPSK	5.0 MHz	A	7.24	16.71	11.11	19.71	14.11	0.0935	0.0258
		B	7.25	16.75	10.98	19.75	13.98	0.0944	0.0250
Total			-	19.74	14.06	22.74	17.06	0.1879	0.0508
QPSK	10.0 MHz	A	7.31	17.27	8.91	20.27	11.91	0.1064	0.0155
		B	7.28	17.33	8.78	20.33	11.78	0.1079	0.0151
Total			-	20.31	11.86	23.31	14.86	0.2143	0.0306
QPSK	15.0 MHz	A	7.40	17.46	7.20	20.46	10.20	0.1112	0.0105
		B	7.36	17.56	7.16	20.56	10.16	0.1138	0.0104
Total			-	20.52	10.19	23.52	13.19	0.2249	0.0208
QPSK	20.0 MHz	A	7.48	17.50	5.98	20.50	8.98	0.1122	0.0079
		B	7.42	17.74	6.17	20.74	9.17	0.1186	0.0083
Total			-	20.63	9.09	23.63	12.09	0.2308	0.0162

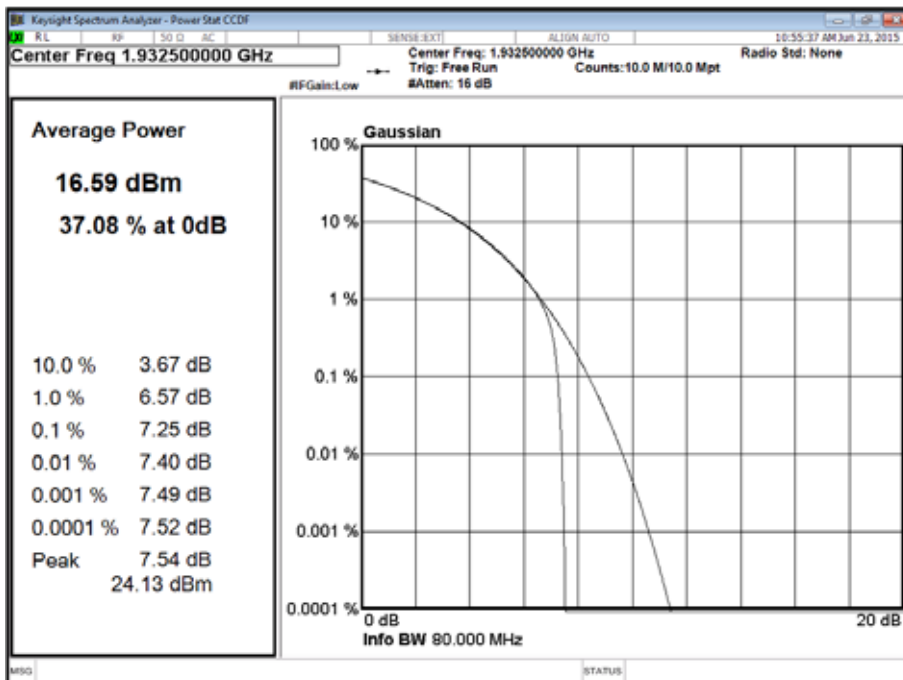
Remarks

Antenna Gain = 3dBi.

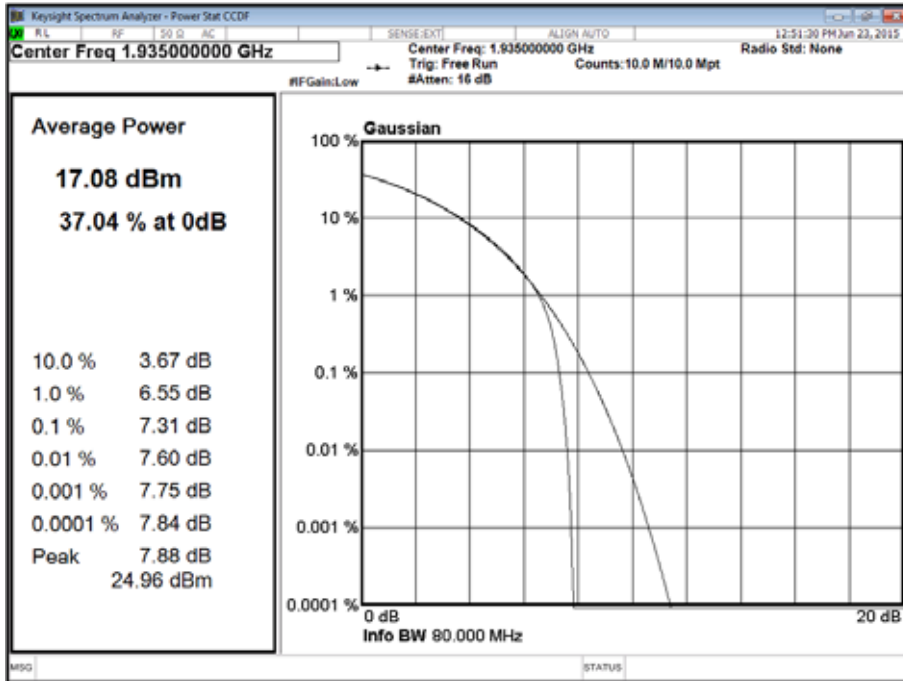
Channel Position B - Bandwidth 5.0 MHz - Antenna A



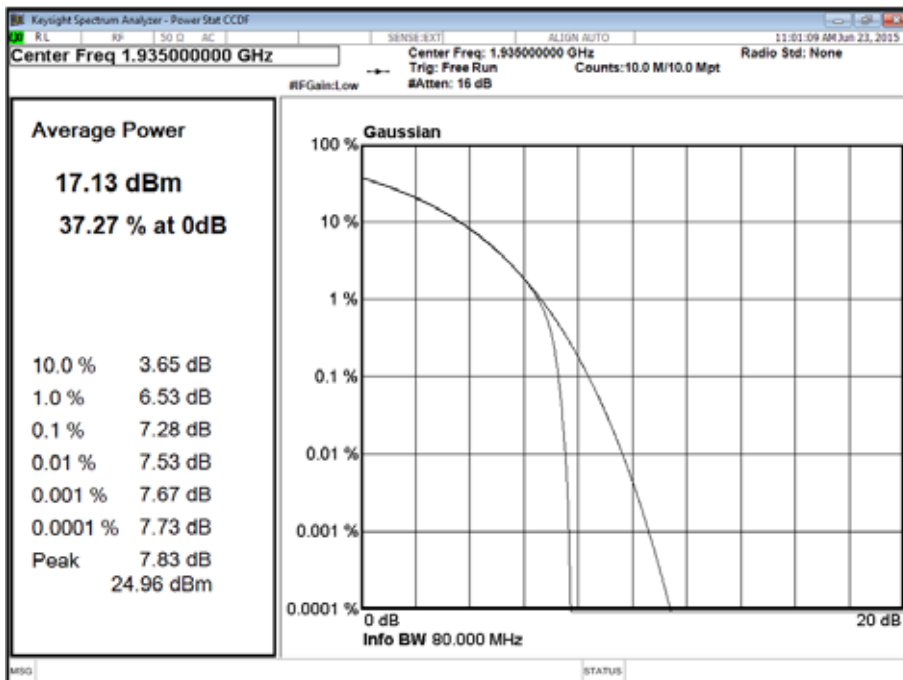
Channel Position B - Bandwidth 5.0 MHz - Antenna B



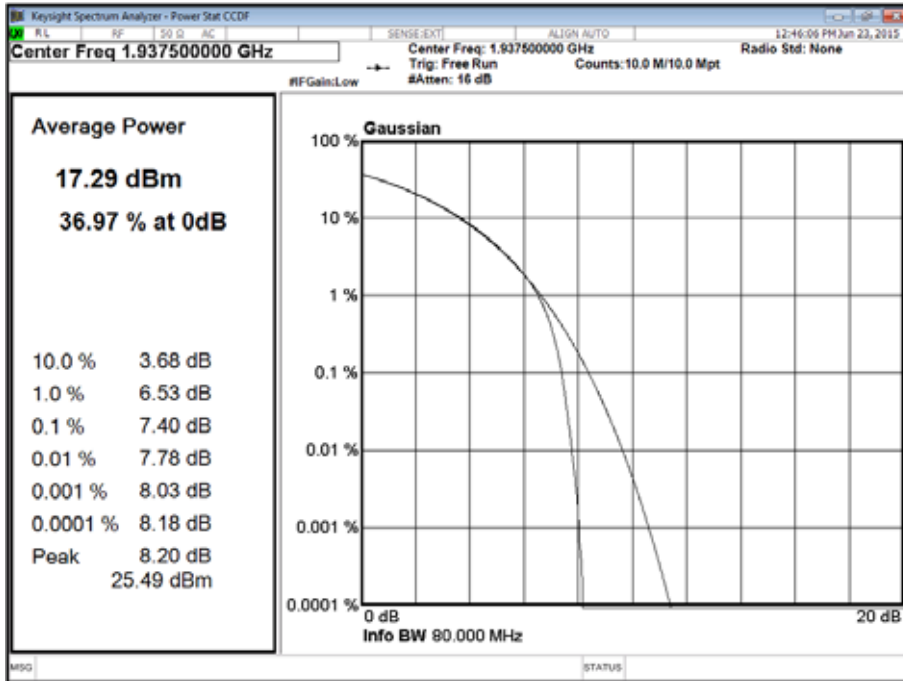
Channel Position B - Bandwidth 10.0 MHz - Antenna A



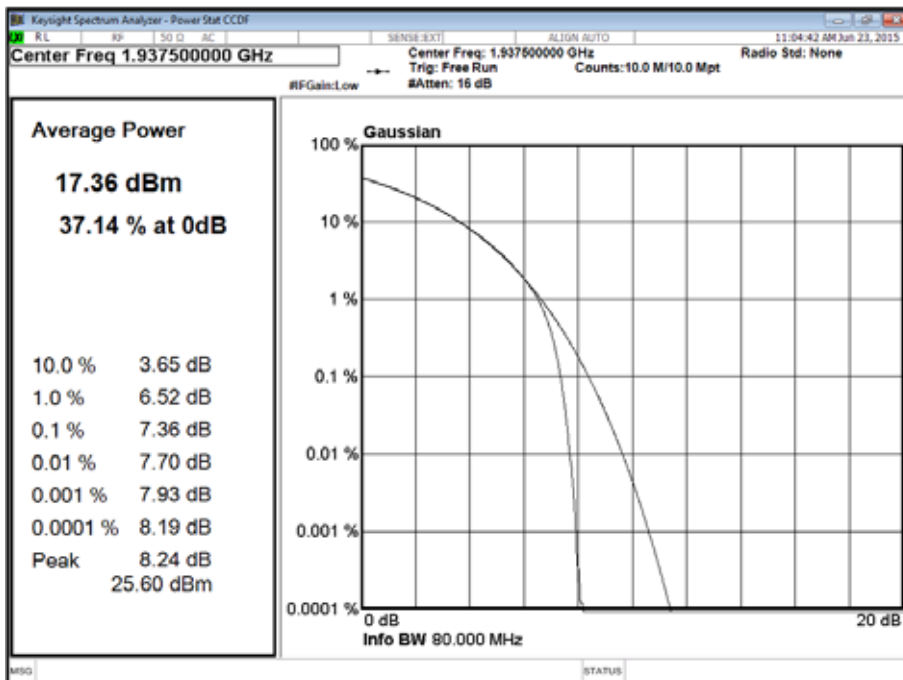
Channel Position B - Bandwidth 10.0 MHz - Antenna B



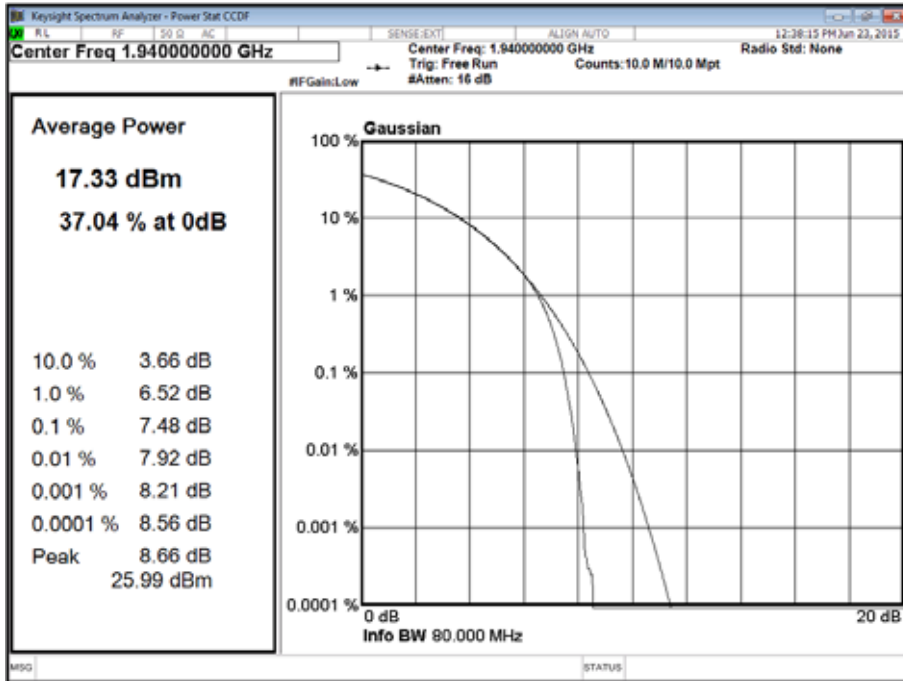
Channel Position B - Bandwidth 15.0 MHz - Antenna A



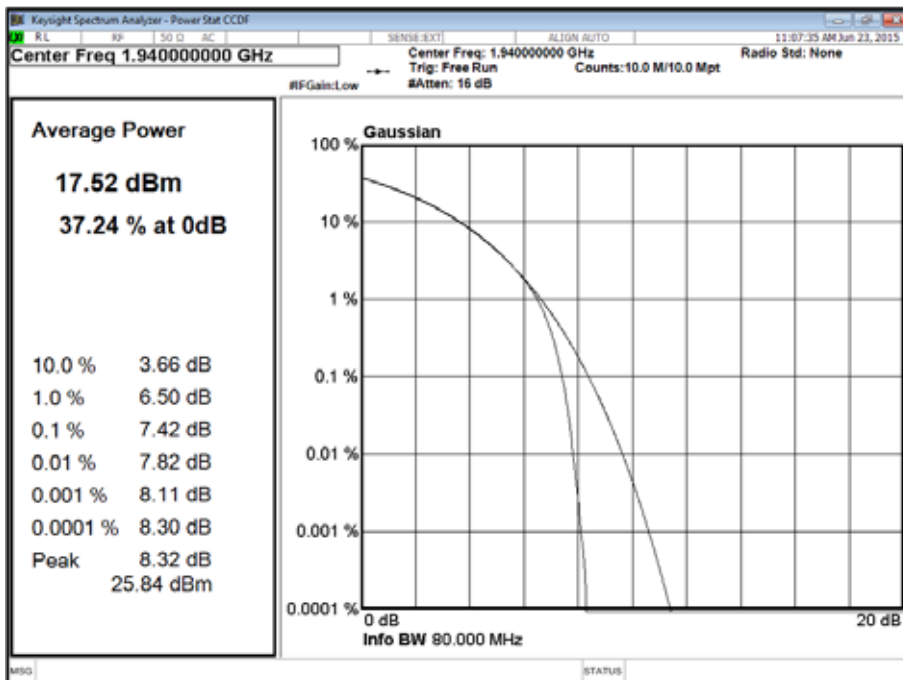
Channel Position B - Bandwidth 15.0 MHz - Antenna B



Channel Position B - Bandwidth 20.0 MHz - Antenna A



Channel Position B - Bandwidth 20.0 MHz - Antenna B



Configuration 4 LTE SC (See table 3)

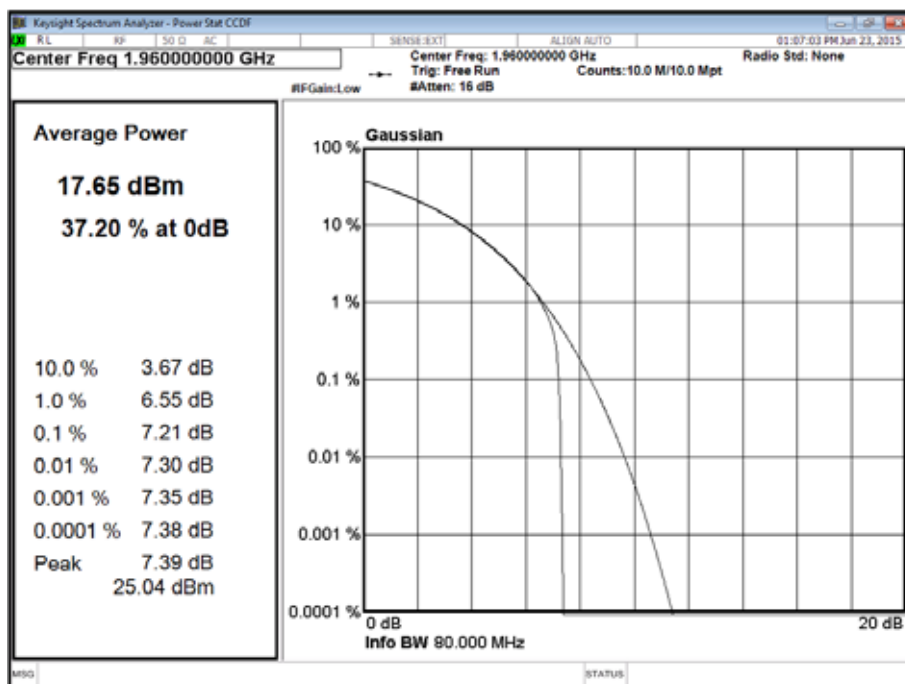
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position M						
			PAR (dB)	Average Power		Average EIRP			
dBm	dBm/MHz	dBm		dBm/MHz	W	W/MHz			
QPSK	5.0 MHz	A	7.21	17.85	11.78	20.85	14.78	0.1216	0.0301
		B	7.17	18.37	12.24	21.37	15.24	0.1371	0.0334
Total			-	21.13	15.03	24.13	18.03	0.2587	0.0635
QPSK	10.0 MHz	A	7.23	17.97	9.25	20.97	12.25	0.1250	0.0168
		B	7.18	18.47	9.78	21.47	12.78	0.1403	0.0190
Total			-	21.24	12.53	24.24	15.53	0.2653	0.0358
QPSK	15.0 MHz	A	7.25	17.98	7.60	20.98	10.60	0.1253	0.0115
		B	7.21	18.43	8.12	21.43	11.12	0.1390	0.0129
Total			-	21.22	10.88	24.22	13.88	0.2643	0.0244
QPSK	20.0 MHz	A	7.27	17.99	6.48	20.99	9.48	0.1256	0.0089
		B	7.22	18.34	6.70	21.34	9.70	0.1361	0.0093
Total			-	21.18	9.60	24.18	12.60	0.2617	0.0182

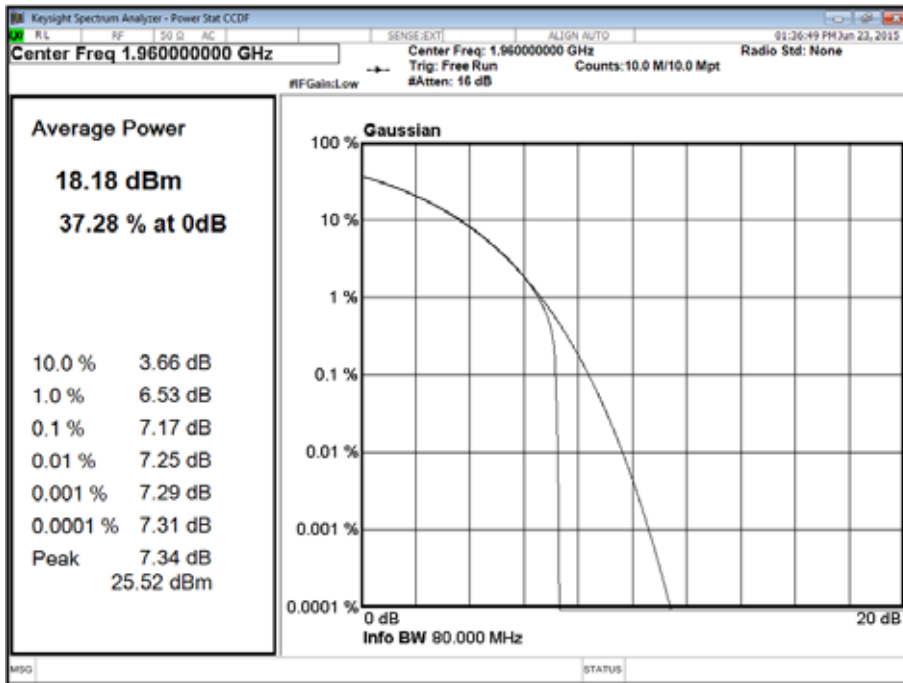
Remarks

Antenna Gain = 3dBi.

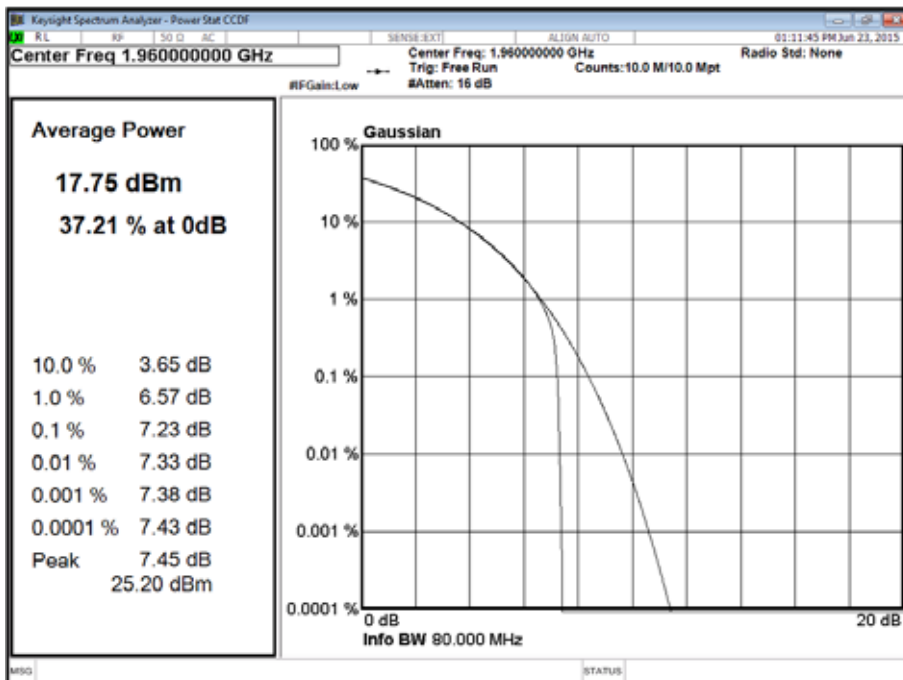
Channel Position M - Bandwidth 5.0 MHz - Antenna A



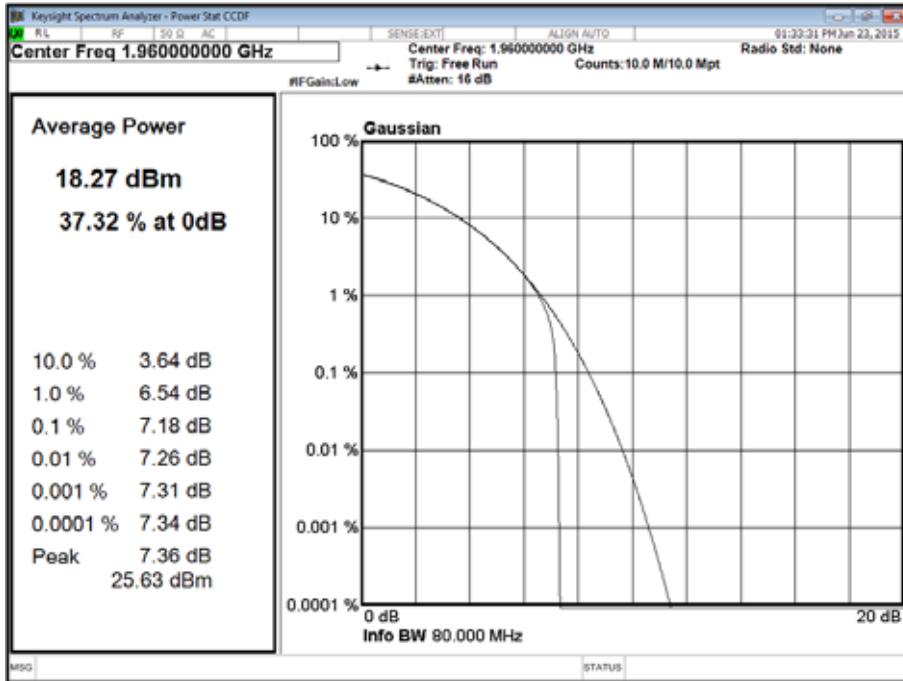
Channel Position M - Bandwidth 5.0 MHz - Antenna B



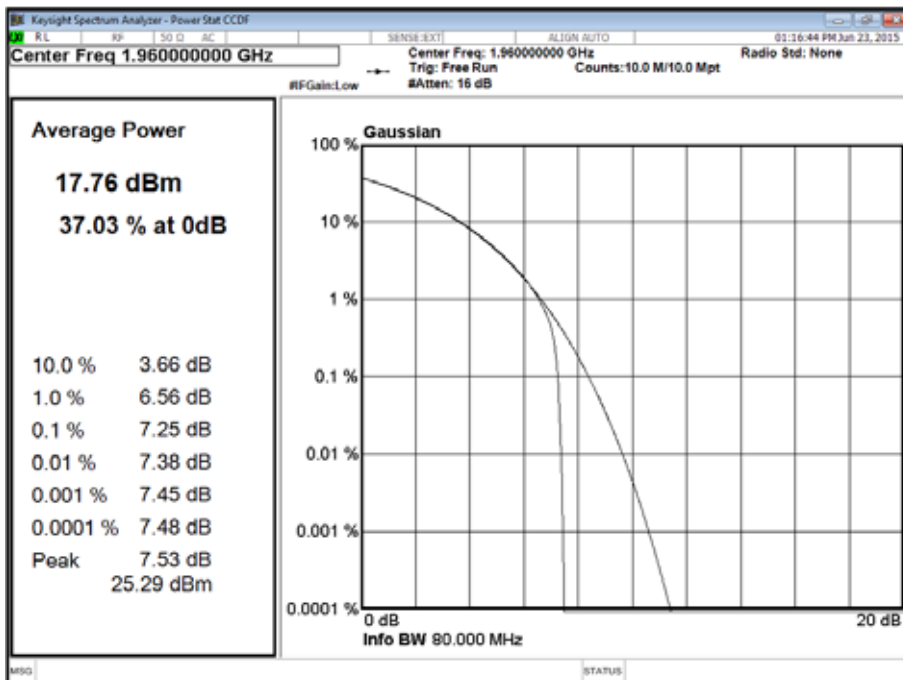
Channel Position M - Bandwidth 10.0 MHz - Antenna A



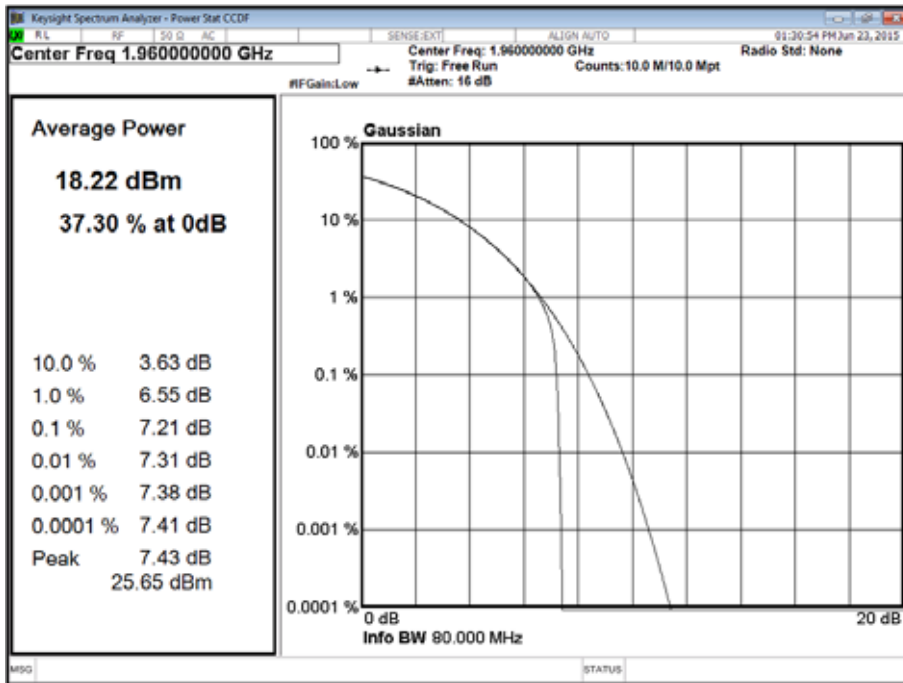
Channel Position M - Bandwidth 10.0 MHz - Antenna B



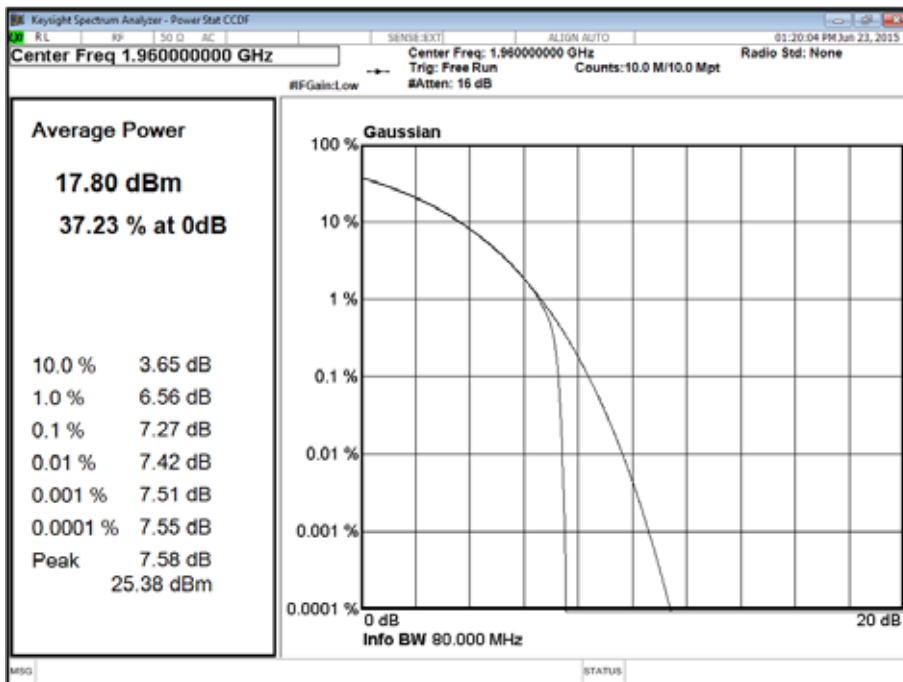
Channel Position M - Bandwidth 15.0 MHz - Antenna A



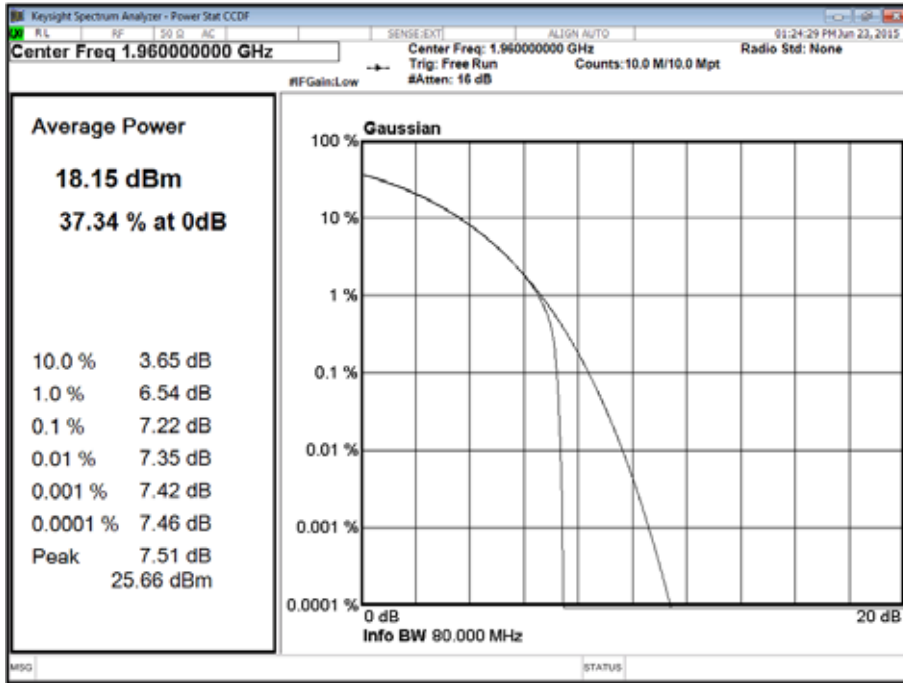
Channel Position M - Bandwidth 15.0 MHz - Antenna B



Channel Position M - Bandwidth 20.0 MHz - Antenna A



Channel Position M - Bandwidth 20.0 MHz - Antenna B



Configuration 4 LTE SC (see table 3)

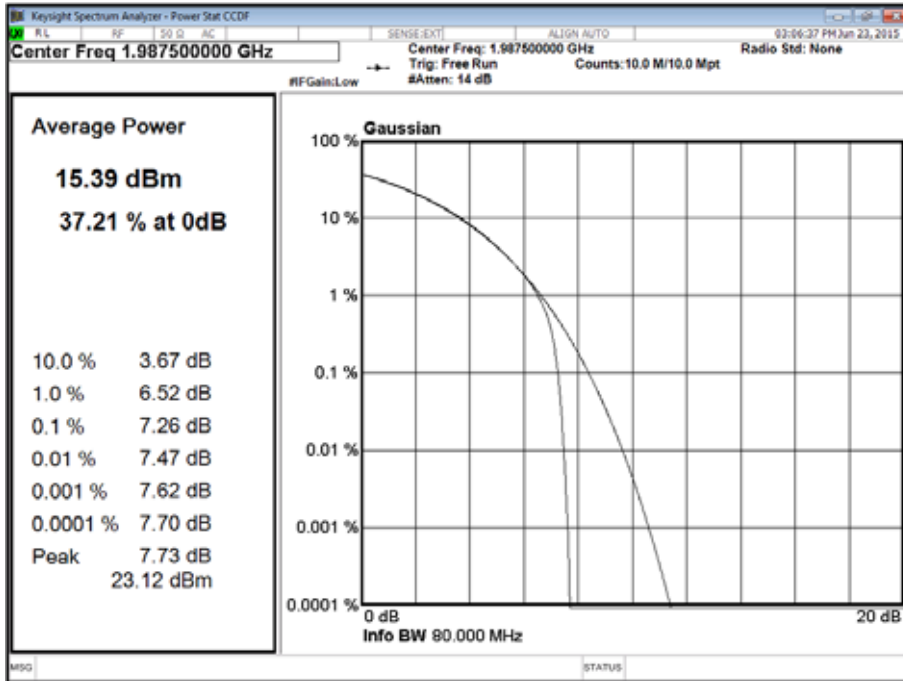
Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power						
			Channel Position T						
			PAR (dB)	Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz	
QPSK	5.0 MHz	A	7.26	15.59	10.05	18.59	13.05	0.0723	0.0202
		B	7.25	15.58	10.04	18.58	13.04	0.0721	0.0201
Total			-	18.60	13.06	21.60	16.06	0.1444	0.0403
QPSK	10.0 MHz	A	7.30	15.91	7.72	18.91	10.72	0.0778	0.0118
		B	7.34	16.73	8.75	19.73	11.75	0.0940	0.0150
Total			-	19.35	11.28	22.35	14.28	0.1718	0.0268
QPSK	15.0 MHz	A	7.39	16.33	6.30	19.33	9.30	0.0857	0.0085
		B	7.43	17.36	7.84	20.36	10.84	0.1086	0.0121
Total			-	19.89	10.15	22.89	13.15	0.1943	0.0206
QPSK	20.0 MHz	A	7.45	16.81	5.89	19.81	8.89	0.0957	0.0077
		B	7.45	17.85	7.09	20.85	10.09	0.1216	0.0102
Total			-	20.37	9.54	23.37	12.54	0.2173	0.0180

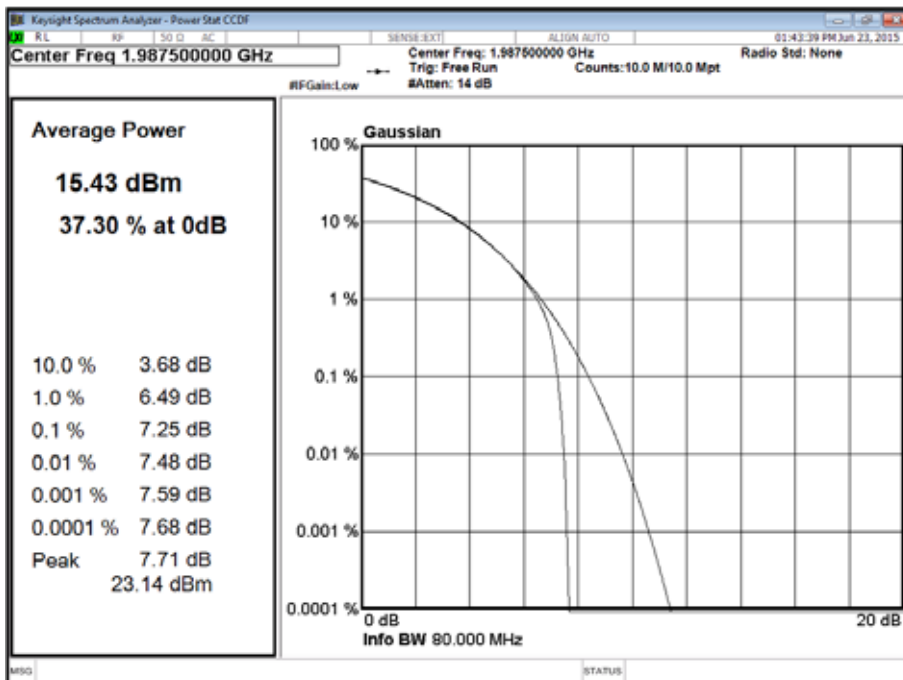
Remarks

Antenna Gain = 3dBi.

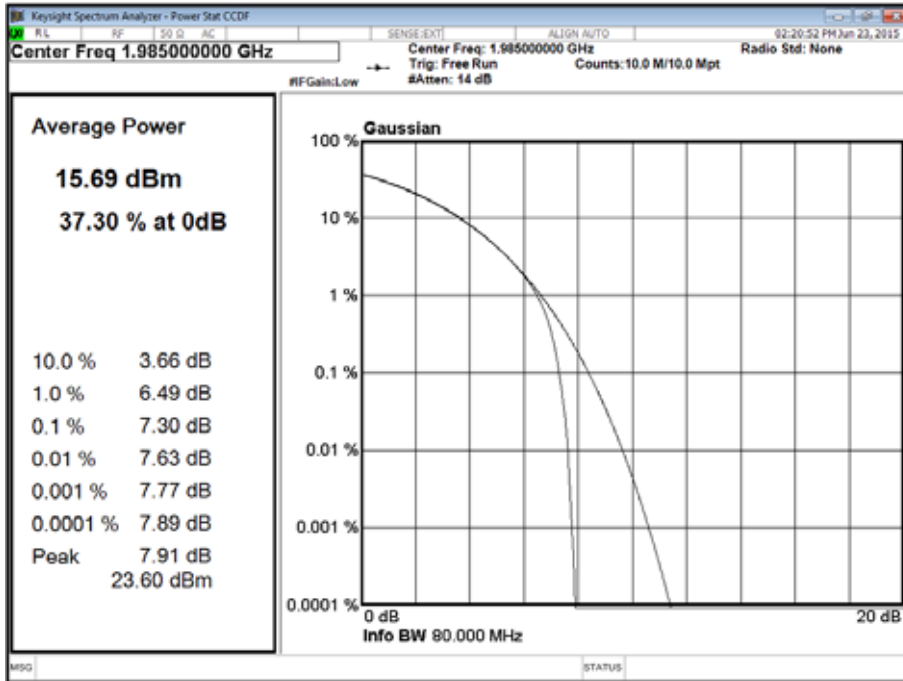
Channel Position T - Bandwidth 5.0 MHz - Antenna A



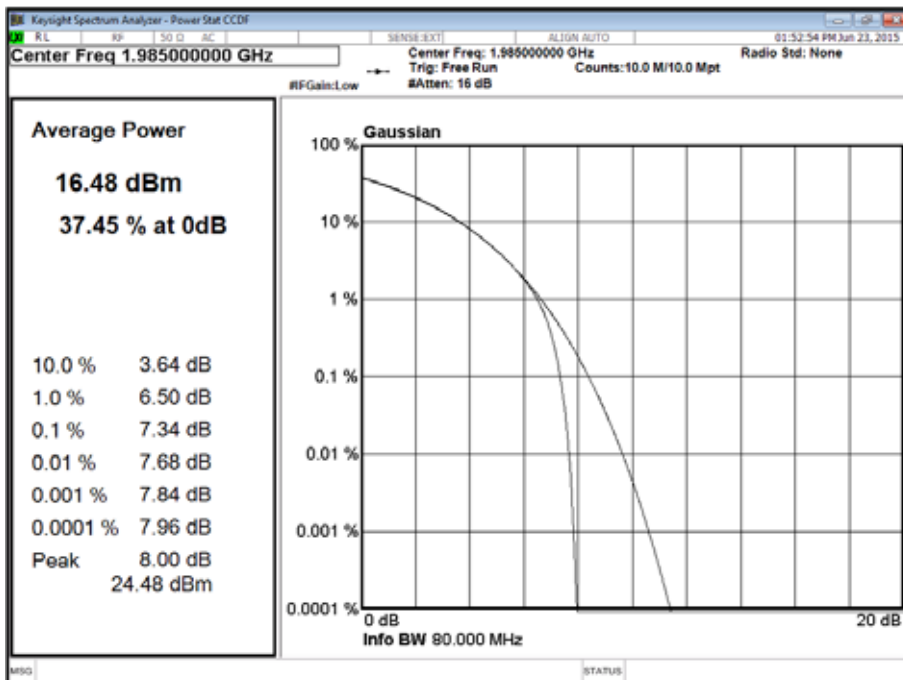
Channel Position T - Bandwidth 5.0 MHz - Antenna B



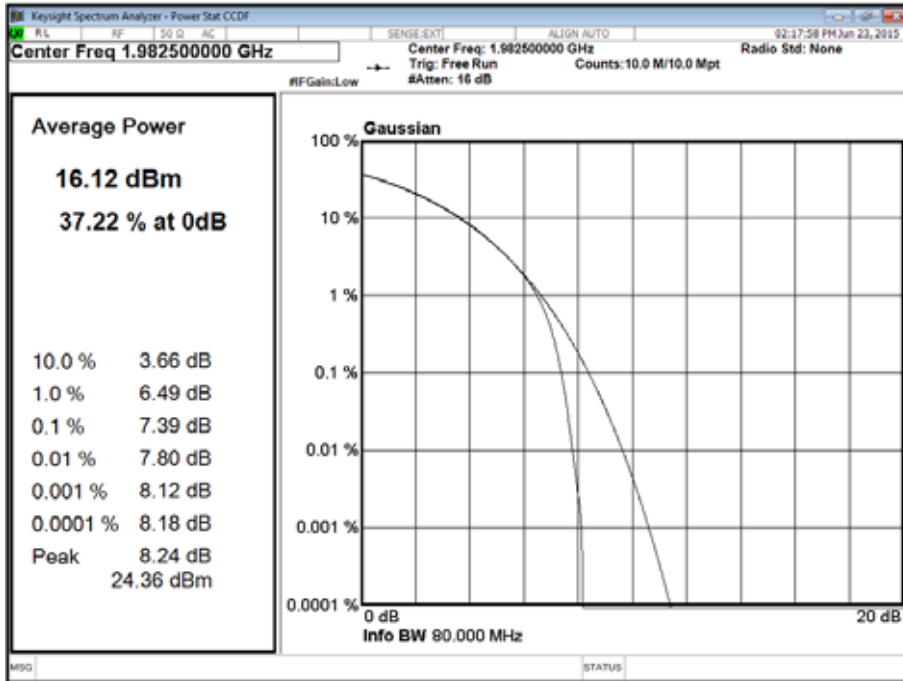
Channel Position T - Bandwidth 10.0 MHz - Antenna A



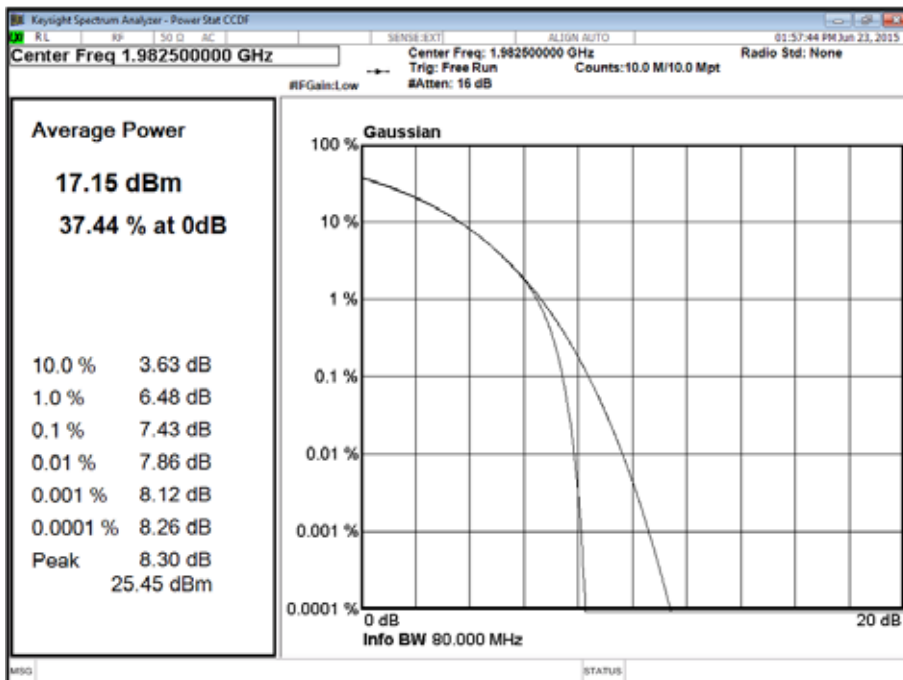
Channel Position T - Bandwidth 10.0 MHz - Antenna B



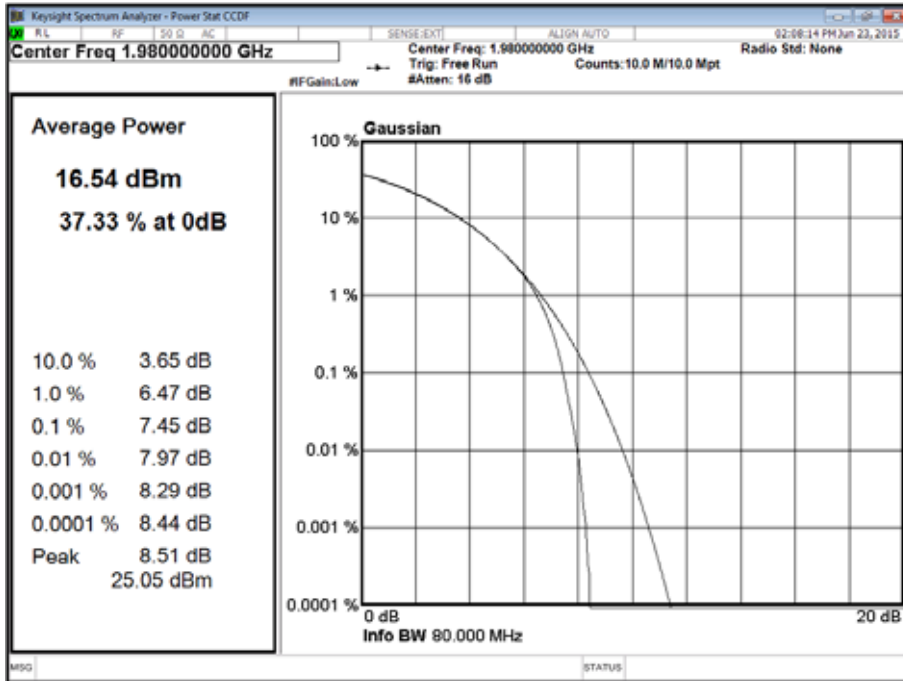
Channel Position T - Bandwidth 15.0 MHz - Antenna A



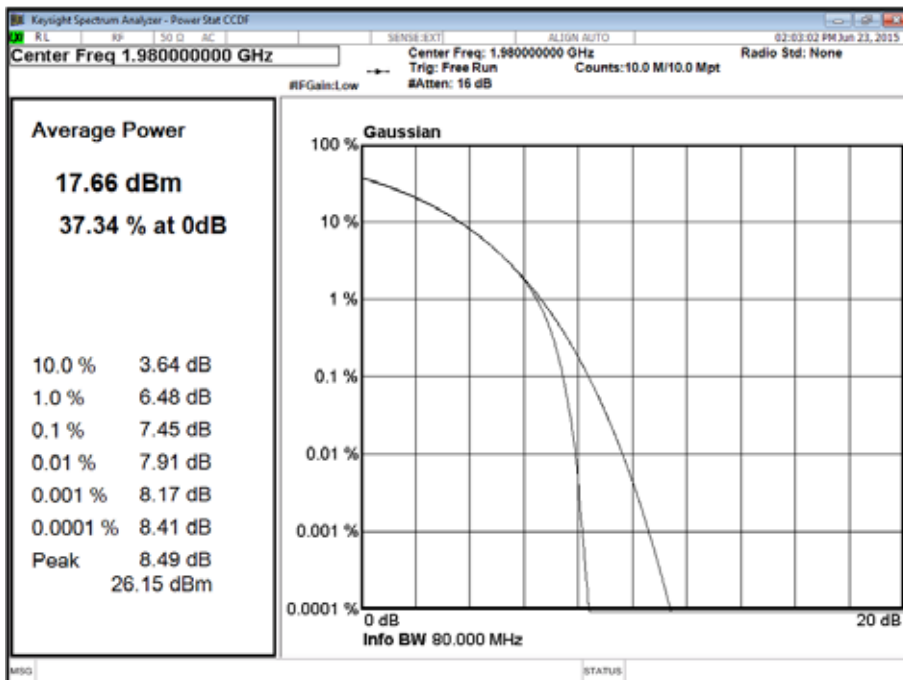
Channel Position T - Bandwidth 15.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna B



Configuration 5 LTE MC (See table 3)

Maximum Output Power 17 dBm

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position B					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
QPSK	5.0 MHz	A	16.70	8.27	19.70	11.27	0.0933	0.0134
		B	17.08	9.19	20.08	12.19	0.1019	0.0166
Total			19.90	11.76	22.90	14.76	0.1952	0.0300
QPSK	10.0 MHz	A	17.28	6.06	20.28	9.06	0.1067	0.0081
		B	17.47	6.30	20.47	9.30	0.1114	0.0085
Total			20.39	9.19	23.39	12.19	0.2181	0.0166
QPSK	15.0 MHz	A	17.35	4.23	20.35	7.23	0.1084	0.0053
		B	17.62	4.65	20.62	7.65	0.1153	0.0058
Total			20.50	7.46	23.50	10.46	0.2237	0.0111
QPSK	20.0 MHz	A	17.47	3.04	20.47	6.04	0.1114	0.0040
		B	17.77	3.46	20.77	6.46	0.1194	0.0044
Total			20.63	6.27	23.63	9.27	0.2308	0.0084

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position M					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
QPSK	5.0 MHz	A	17.40	8.92	20.40	11.92	0.1096	0.0156
		B	17.24	8.79	20.24	11.79	0.1057	0.0151
Total			20.33	11.87	23.33	14.87	0.2153	0.0307
QPSK	10.0 MHz	A	17.61	6.03	20.61	9.03	0.1151	0.0080
		B	18.13	6.86	21.13	9.86	0.1297	0.0097
Total			20.89	9.48	23.89	12.48	0.2448	0.0177
QPSK	15.0 MHz	A	17.67	4.29	20.67	7.29	0.1167	0.0054
		B	17.83	4.74	20.83	7.74	0.1211	0.0059
Total			20.76	7.53	23.76	10.53	0.2377	0.0113
QPSK	20.0 MHz	A	17.61	2.98	20.61	5.98	0.1151	0.0040
		B	17.99	3.53	20.99	6.53	0.1256	0.0045
Total			20.81	6.27	23.81	9.27	0.2407	0.0085

Modulation	Carrier Bandwidth (MHz)	Antenna	Output Power					
			Channel Position T					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
QPSK	5.0 MHz	A	17.08	8.56	20.08	11.56	0.1019	0.0143
		B	16.98	8.78	19.98	11.78	0.0995	0.0151
Total			20.04	11.68	23.04	14.68	0.2014	0.0294
QPSK	10.0 MHz	A	17.63	6.26	20.63	9.26	0.1156	0.0084
		B	17.46	6.05	20.46	9.05	0.1112	0.0080
Total			20.56	9.17	23.56	12.17	0.2268	0.0165
QPSK	15.0 MHz	A	17.34	3.94	20.34	6.94	0.1081	0.0049
		B	17.69	4.87	20.69	7.87	0.1172	0.0061
Total			20.53	7.44	23.53	10.44	0.2254	0.0111
QPSK	20.0 MHz	A	17.93	3.35	20.93	6.35	0.1239	0.0043
		B	17.88	3.62	20.88	6.62	0.1225	0.0046
Total			20.92	6.50	23.92	9.50	0.2463	0.0089

Remarks

Antenna Gain = 3dBi.

Configuration 6 WCDMA/LTE MM (See table 5)

Maximum Output Power 17 dBm

WCDMA Modulation	LTE Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power					
			Channel Position M _{RFBW}					
			Average Power		Average EIRP			
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	15.0 MHz	A	17.60	9.03	20.60	12.03	0.1148	0.0160
		B	17.76	8.93	20.76	11.93	0.1191	0.0156
Total			20.69	11.99	23.69	14.99	0.2339	0.0316

Remarks

Antenna Gain = 3dBi.

Configuration 8 WCDMA/LTE MM (See table 5)

Maximum Output Power 17 dBm

WCDMA Modulation	LTE Bandwidth (MHz)	Antenna	Peak to Average Ratio (PAR) / Output Power					
			Channel Position M_{RFBW}					
			Average Power			Average EIRP		
			dBm	dBm/MHz	dBm	dBm/MHz	W	W/MHz
16QAM	10.0 MHz	A	17.78	5.12	20.78	8.12	0.1197	0.0065
		B	17.93	5.19	20.93	8.19	0.1239	0.0066
Total			20.87	8.17	23.87	11.17	0.2436	0.0131

Remarks

Antenna Gain = 3dBi.

Limit	
Peak Power	≤ 1640 W/MHz or $\leq +62$ dBm/MHz
Peak to Average Ratio	13 dB

2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049(h)
 FCC CFR 47 Part 24, Clause 24.238(b)
 Industry Canada RSS-GEN, Clause 6.6

2.2.2 Date of Test and Modification State

22 and 23 June 2015 - 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 24.5 - 25.1°C
 Relative Humidity 49 - 50.4%

2.2.5 Test Method

The EUT was connected to a Signal Analyser via 20dB of attenuation and an RF switch. The path loss between the EUT and the Analyser was measured using a Network Analyser and entered as a Reference Level Offset.

The EUT was set to transmit at its maximum rated output power in the configurations described below.

Measurements were performed using the Analyser Occupied Bandwidth measurement mode function in accordance with FCC KDB 971168 D01 v02r02.

The Analyser RBW was configured to be at least 1% of the channel bandwidth of the carrier to be measured.

Testing was performed on both ports.

The results are shown in the plots below.

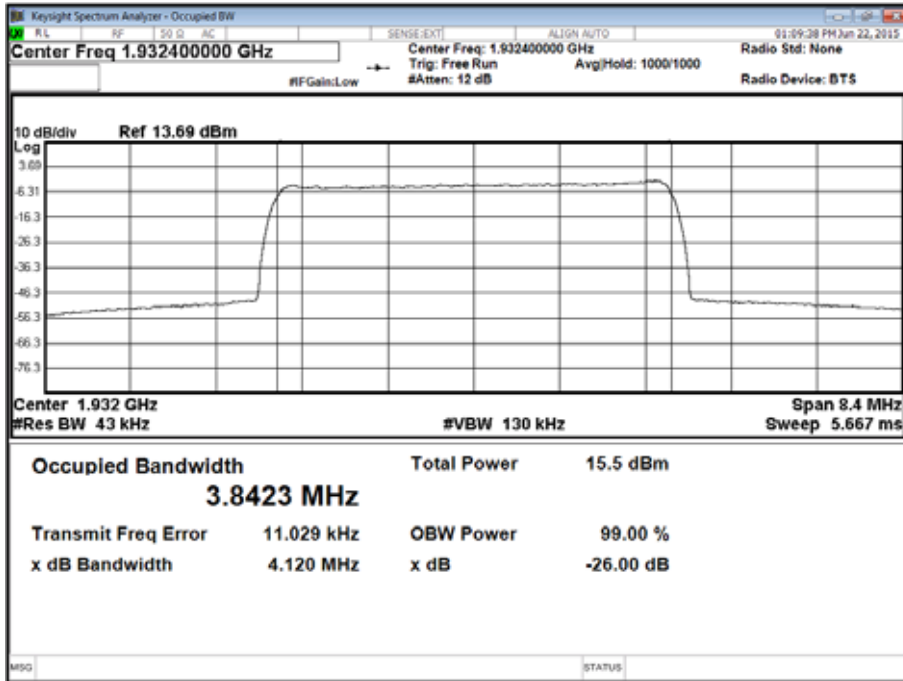
2.2.6 Test Results

Configuration 1 WCDMA SC, Antenna A (See table 1)

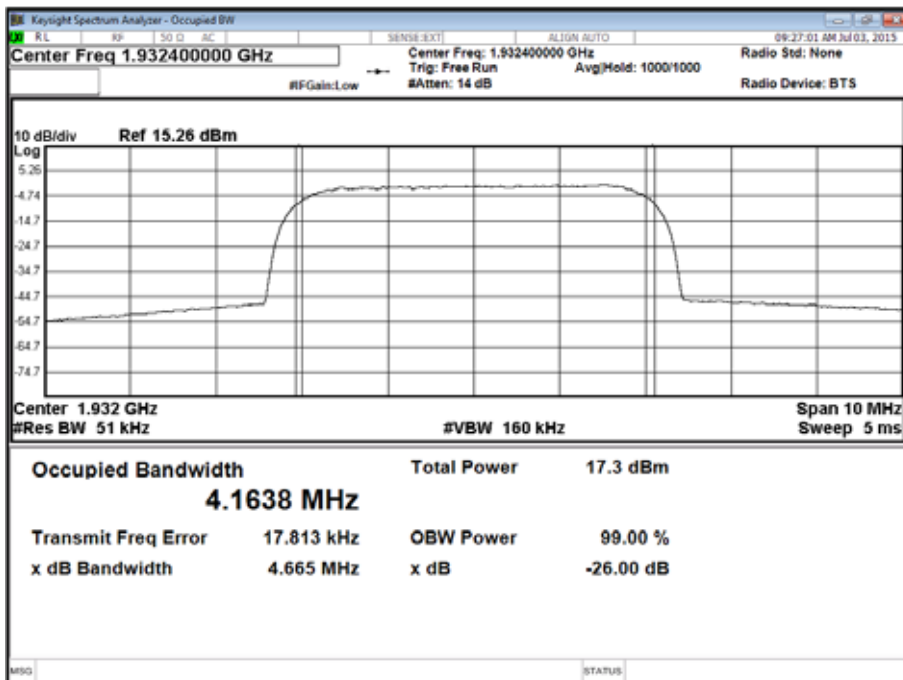
Maximum Output Power 17 dBm

Carrier Bandwidth / Modulation	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
4.2 MHz / QPSK	3,842.29	4,120.33	3,846.14	4,122.69	3,846.45	4,120.55
5.0 MHz / QPSK	4,160.83	4,660.10	4,170.32	4,669.15	4,174.05	4,664.88

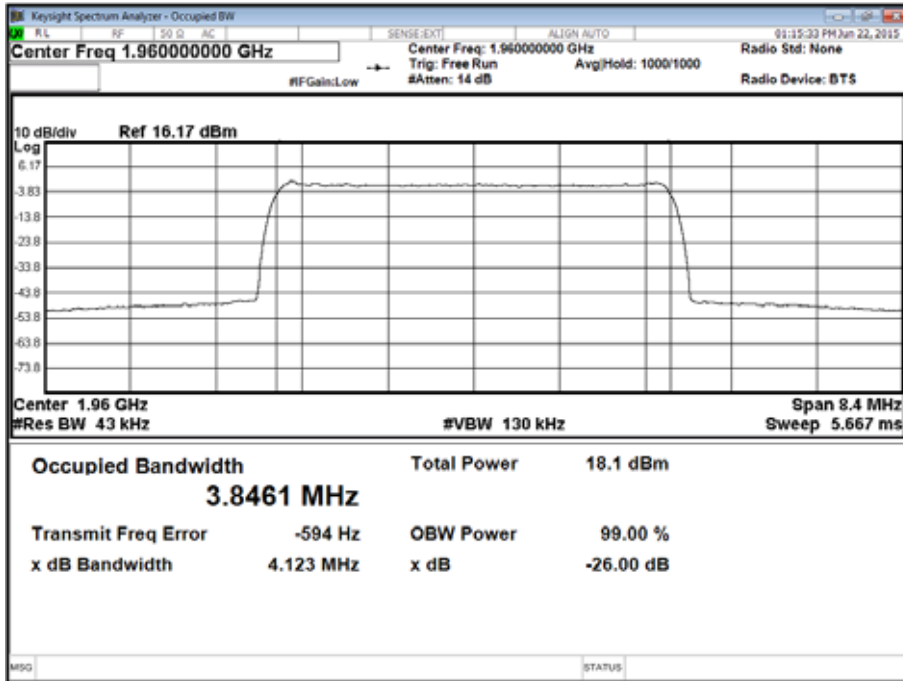
Channel Position B - Bandwidth 4.2 MHz - Antenna A



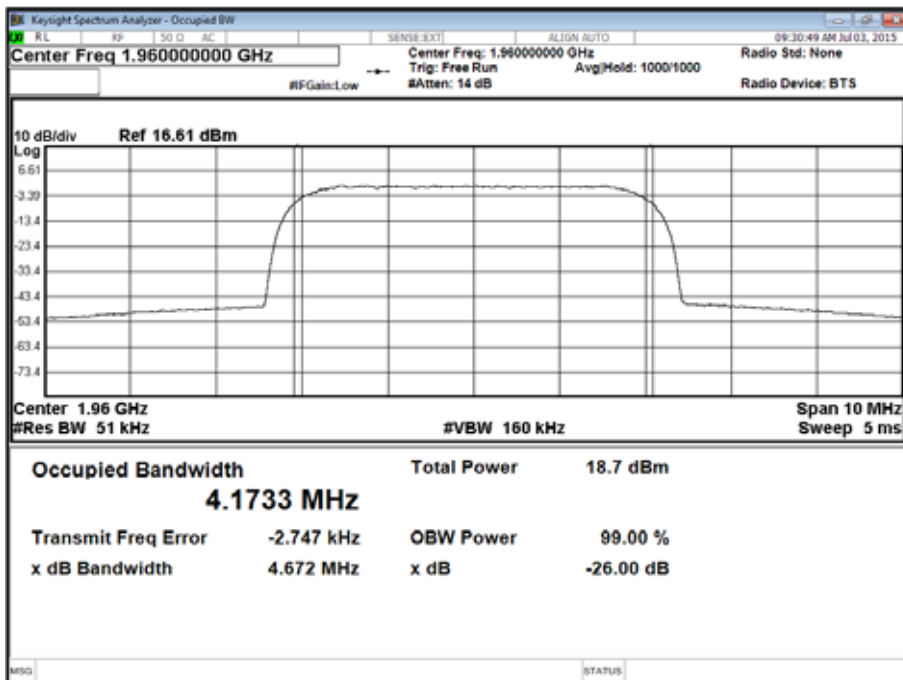
Channel Position B - Bandwidth 5.0 MHz - Antenna A



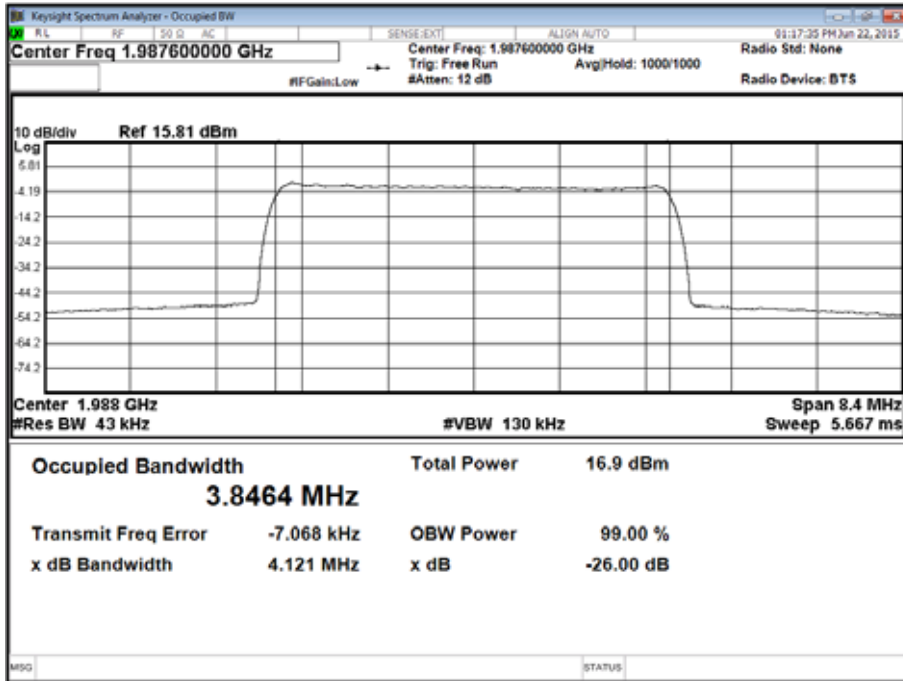
Channel Position M - Bandwidth 4.2 MHz - Antenna A



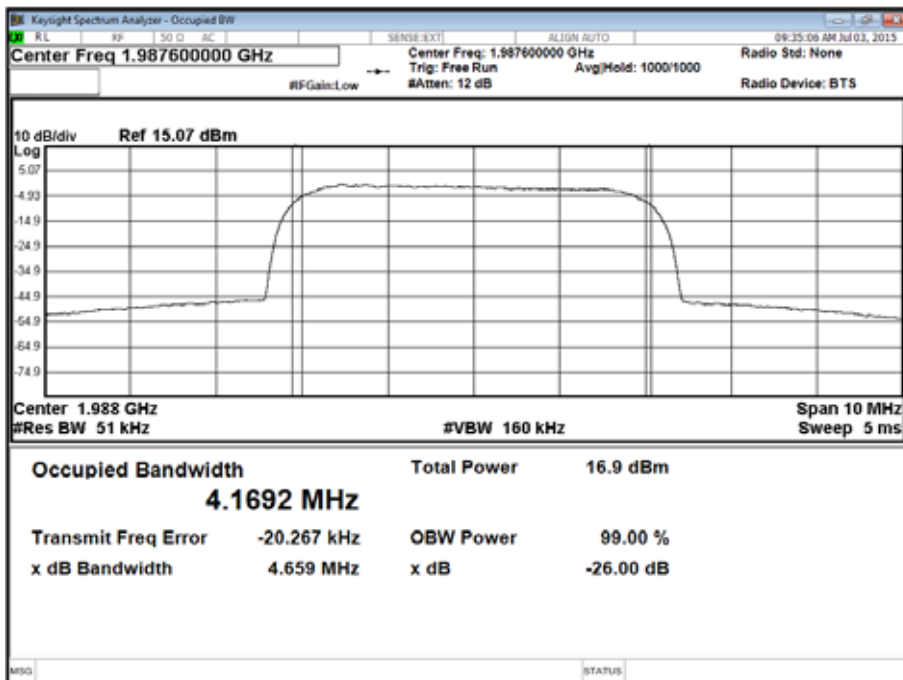
Channel Position M - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 4.2 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna A

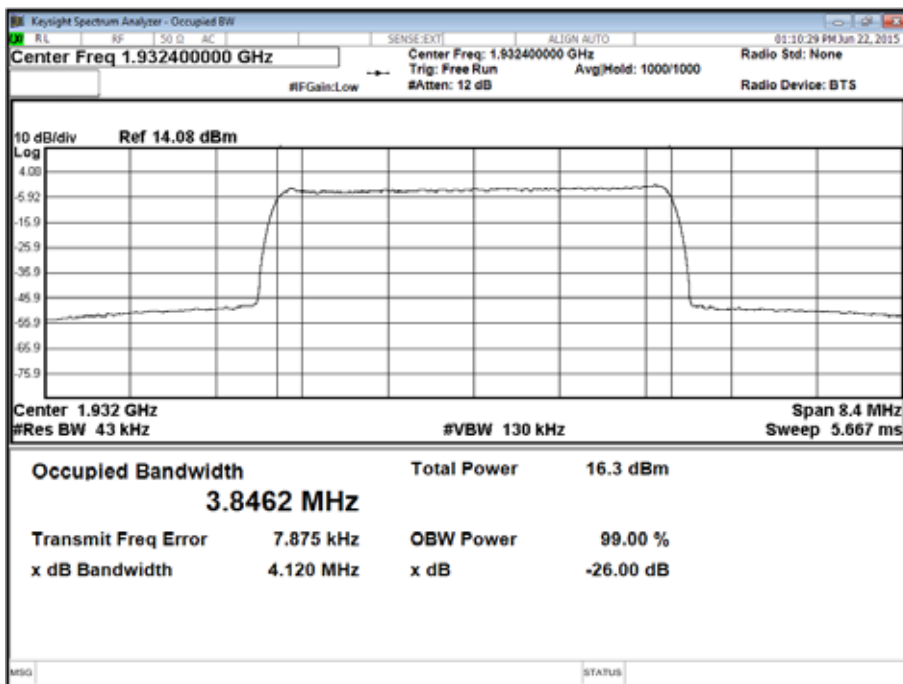


Configuration 1 WCDMA SC, Antenna B (See table 1)

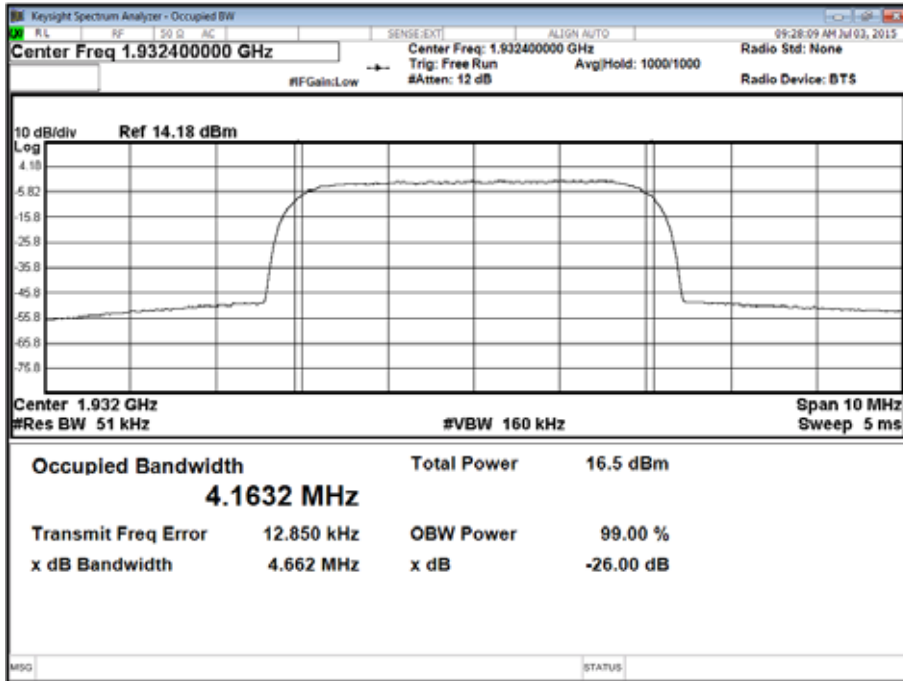
Maximum Output Power 17 dBm

Carrier Bandwidth / Modulation	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
4.2 MHz / QPSK	3,846.18	4,119.69	3,851.03	4,125.57	3,851.47	4,116.54
5.0 MHz / QPSK	4,157.30	4,657.50	4,168.00	4,662.26	4,165.62	4,658.69

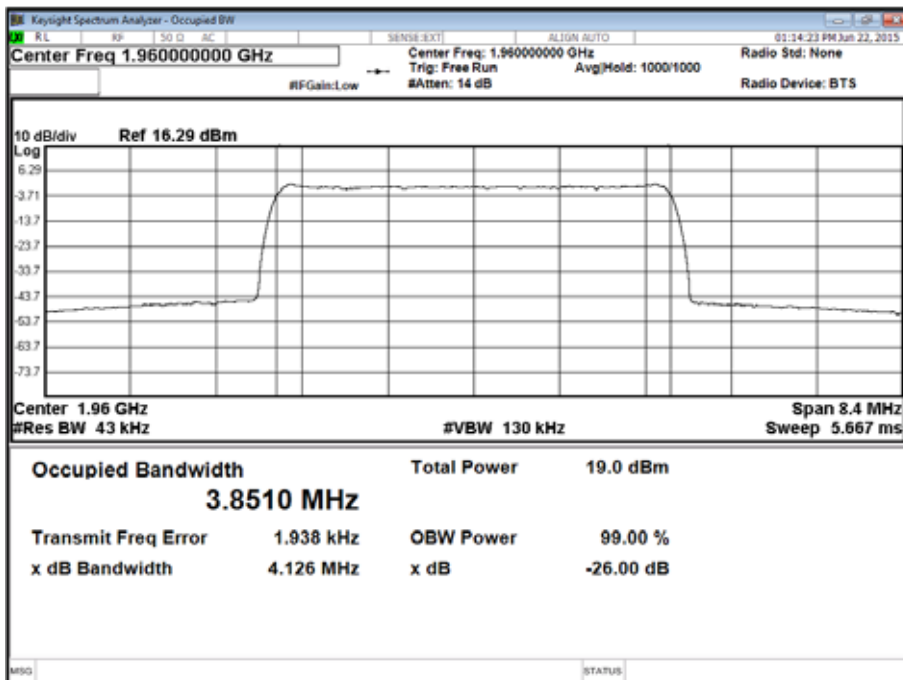
Channel Position B - Bandwidth 4.2 MHz - Antenna B



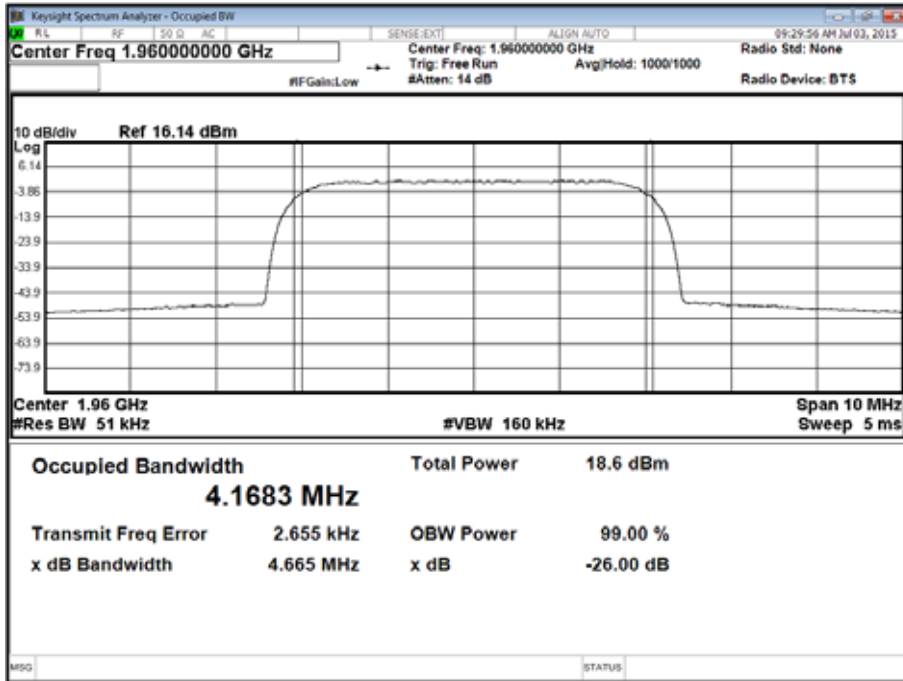
Channel Position B - Bandwidth 5.0 MHz - Antenna B



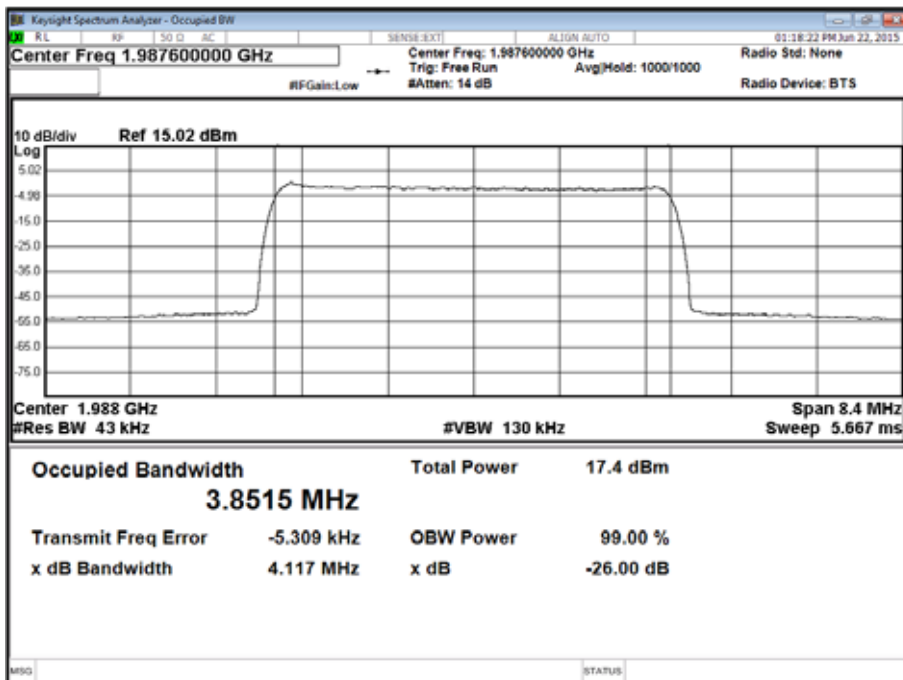
Channel Position M - Bandwidth 4.2 MHz - Antenna B



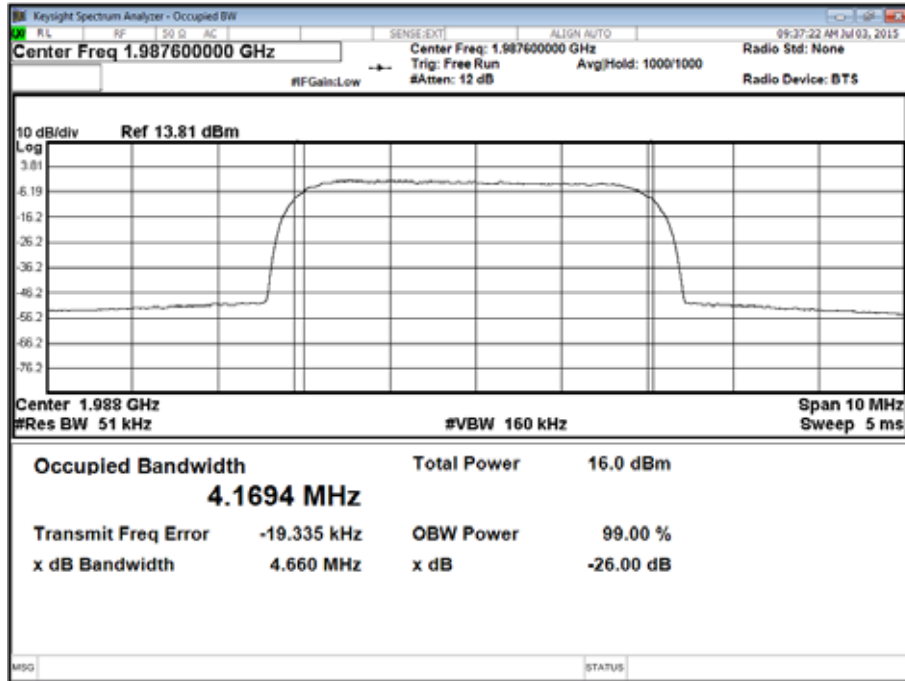
Channel Position M - Bandwidth 5.0 MHz - Antenna B



Channel Position T - Bandwidth 4.2 MHz - Antenna B



Channel Position T - Bandwidth 5.0 MHz - Antenna B

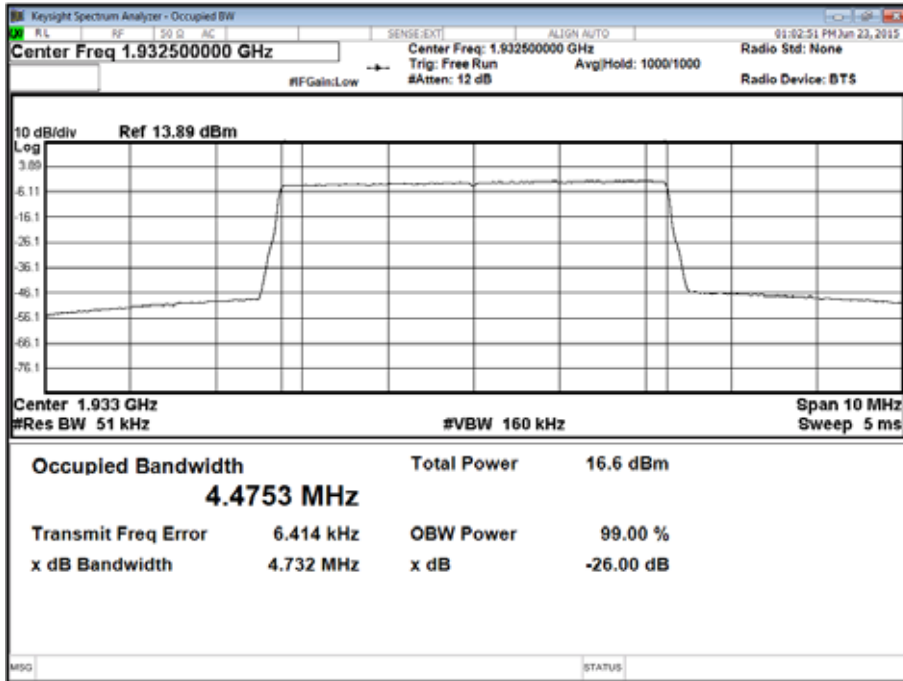


Configuration 4 LTE SC, Antenna A (See table 3)

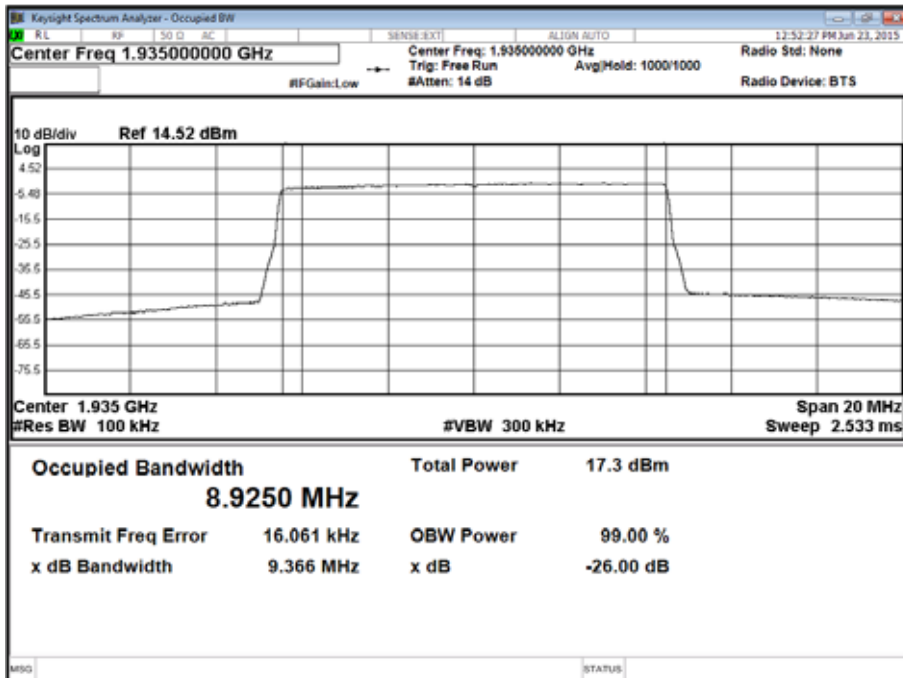
Maximum Output Power 17 dBm

Carrier Bandwidth / Modulation	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
5.0 MHz / QPSK	4,475.28	4,732.36	4,479.72	4,742.53	4,477.57	4,721.97
10.0 MHz / QPSK	8,924.98	9,365.94	8,941.43	9,395.79	8,925.43	9,368.32
15.0 MHz / QPSK	13,369.86	13,941.85	13,392.96	13,985.44	13,375.43	13,958.28
20.0 MHz / QPSK	17,817.85	18,545.20	17,847.03	18,574.05	17,802.04	18,525.26

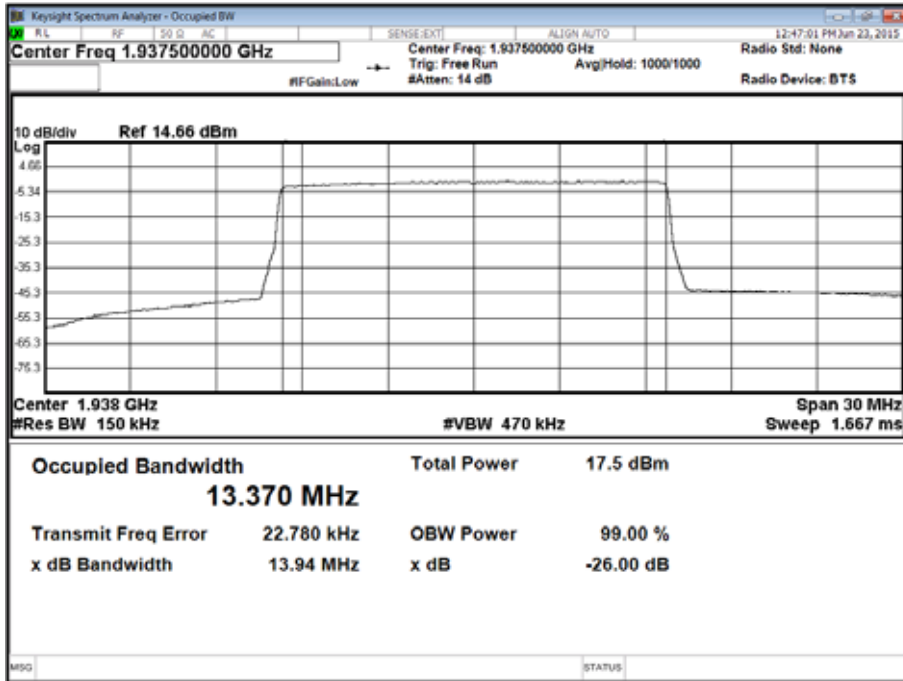
Channel Position B - Bandwidth 5.0 MHz - Antenna A



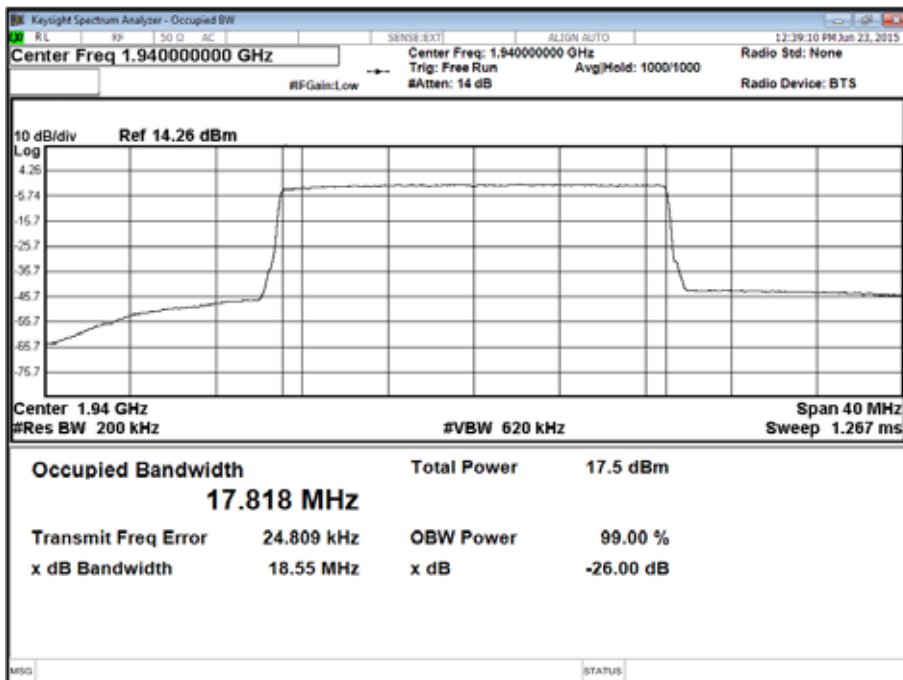
Channel Position B - Bandwidth 10.0 MHz - Antenna A



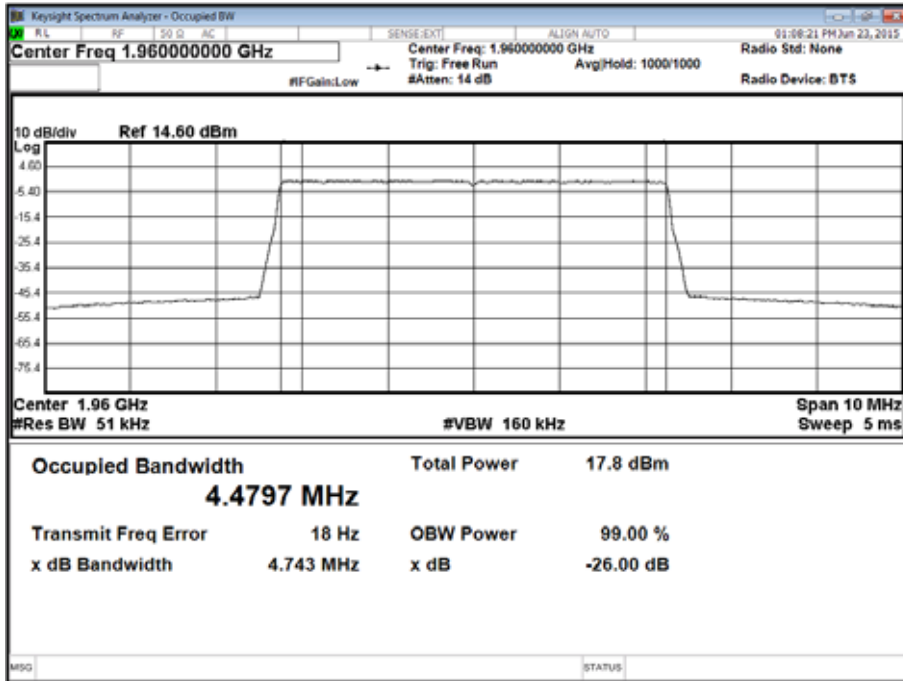
Channel Position B - Bandwidth 15.0 MHz - Antenna A



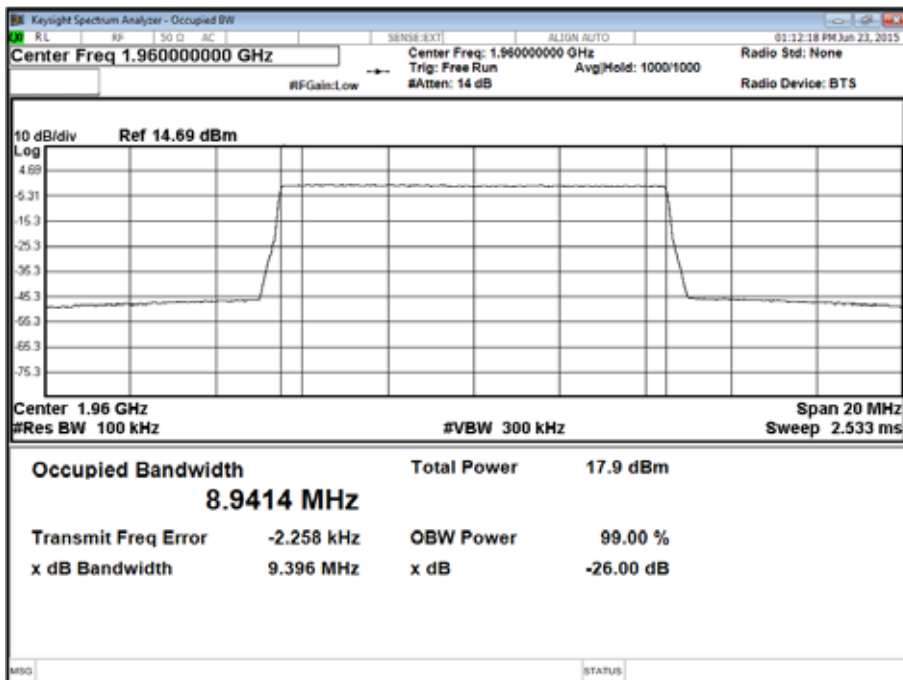
Channel Position B - Bandwidth 20.0 MHz - Antenna A



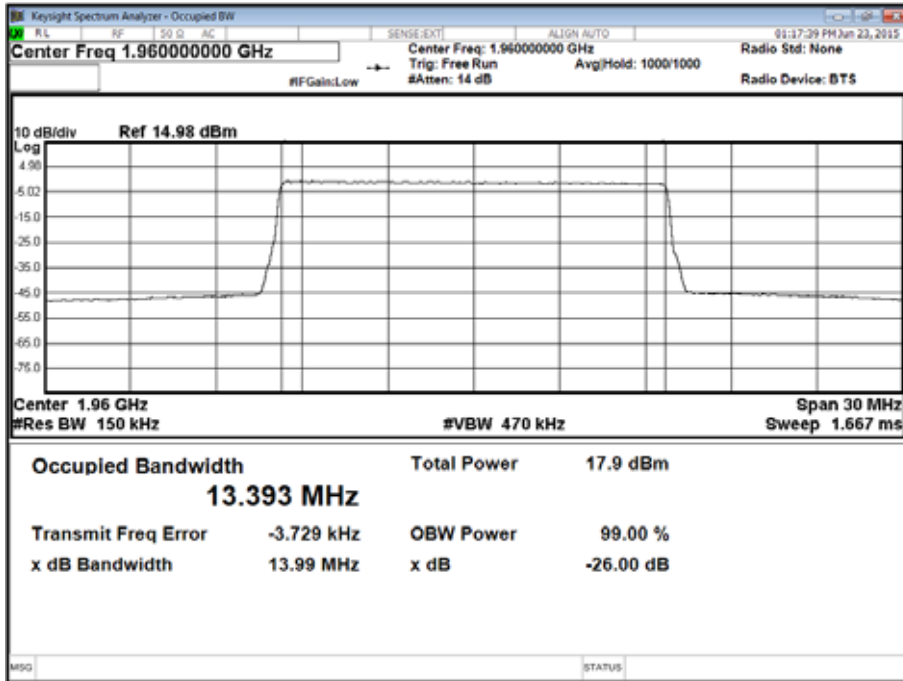
Channel Position M - Bandwidth 5.0 MHz - Antenna A



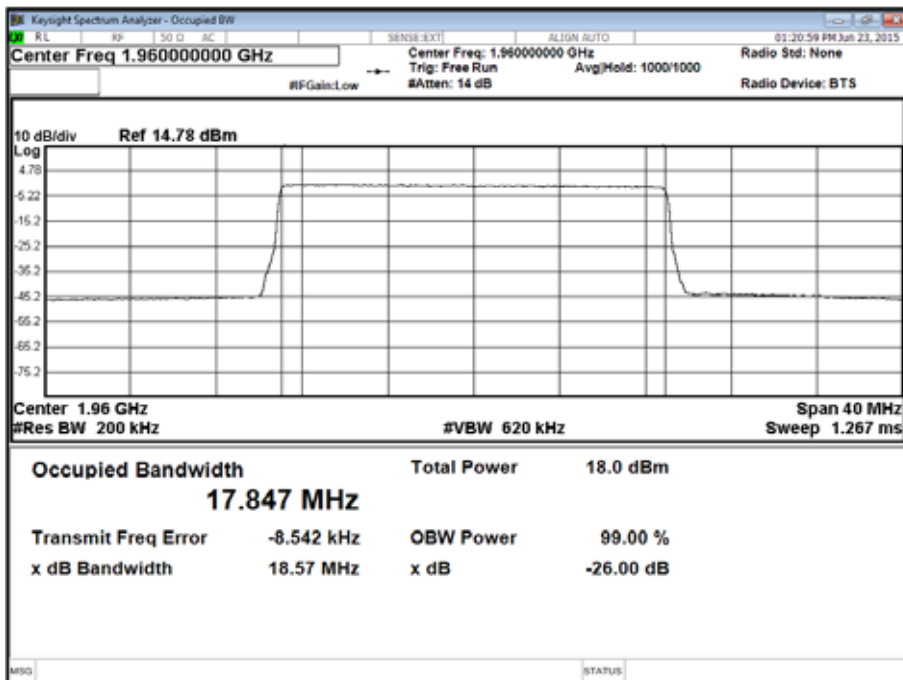
Channel Position M - Bandwidth 10.0 MHz - Antenna A



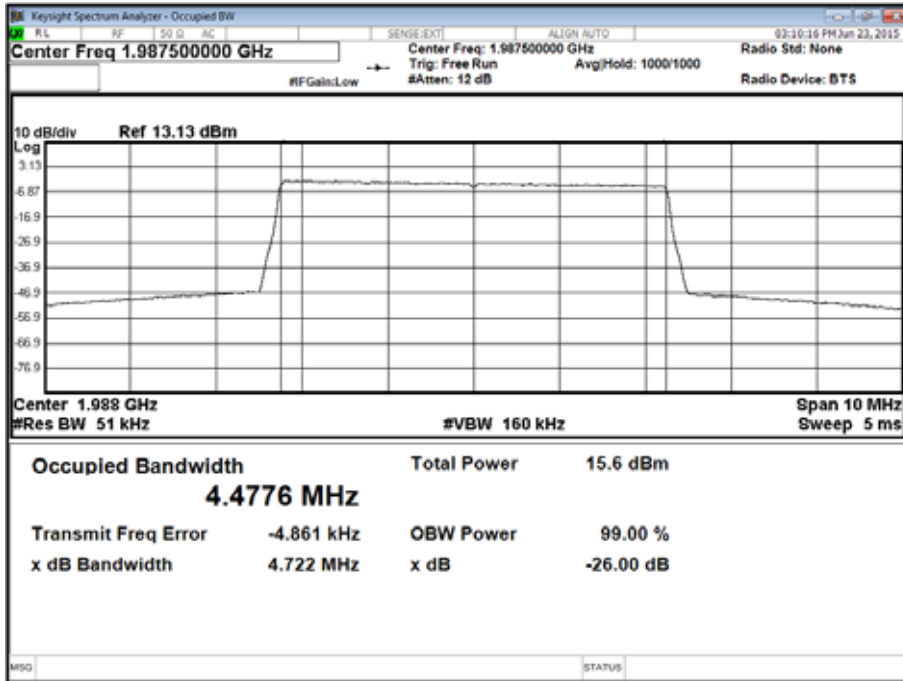
Channel Position M - Bandwidth 15.0 MHz - Antenna A



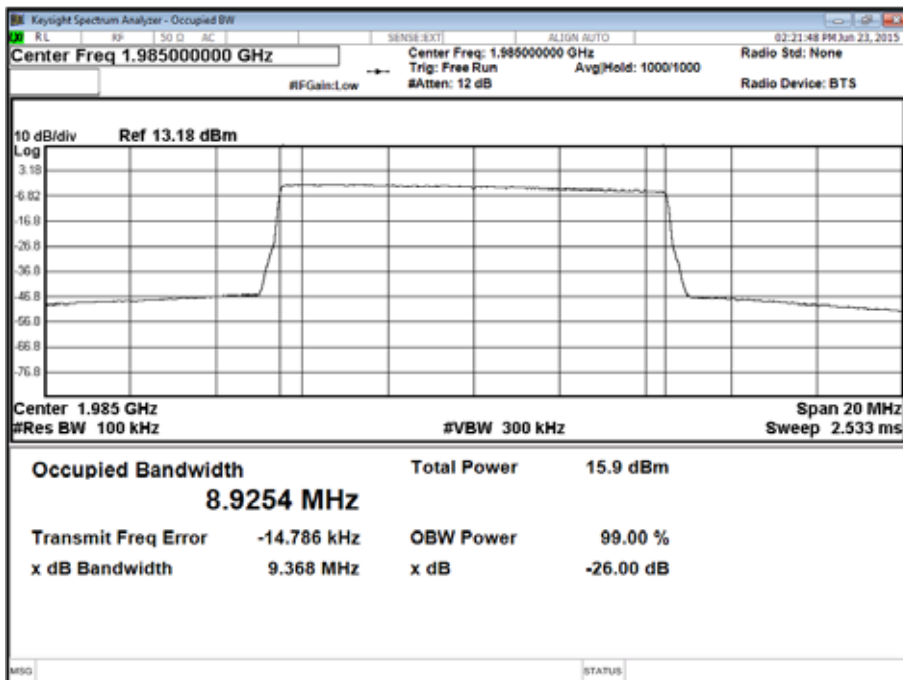
Channel Position M - Bandwidth 20.0 MHz - Antenna A



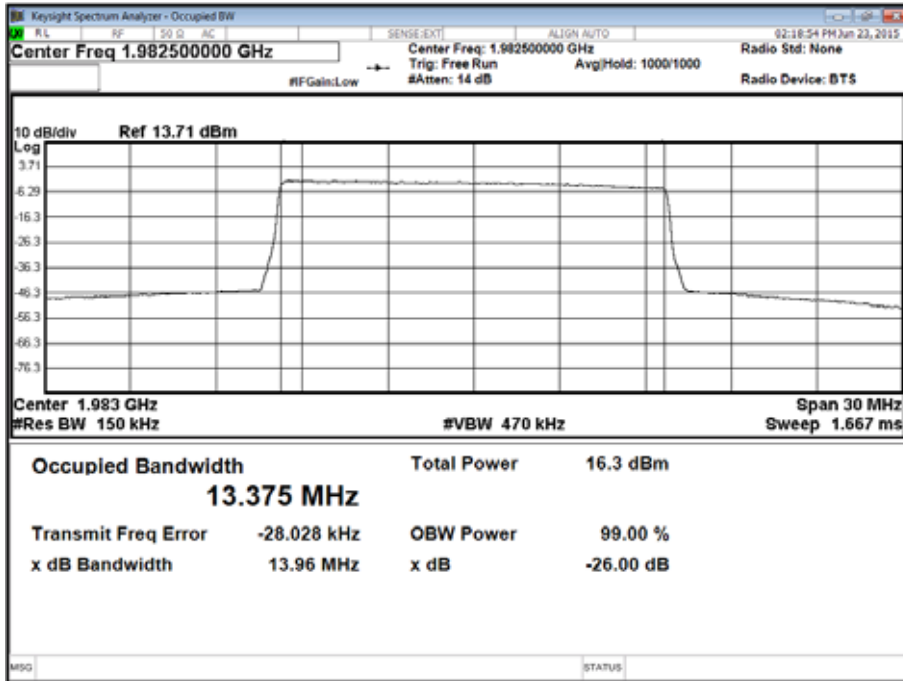
Channel Position T - Bandwidth 5.0 MHz - Antenna A



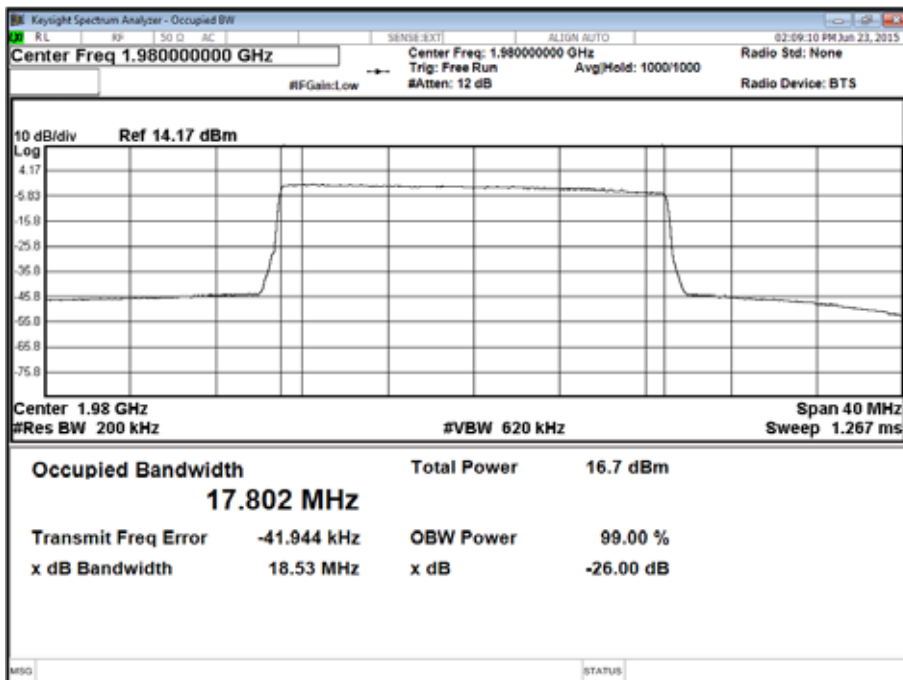
Channel Position T - Bandwidth 10.0 MHz - Antenna A



Channel Position T - Bandwidth 15.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna A

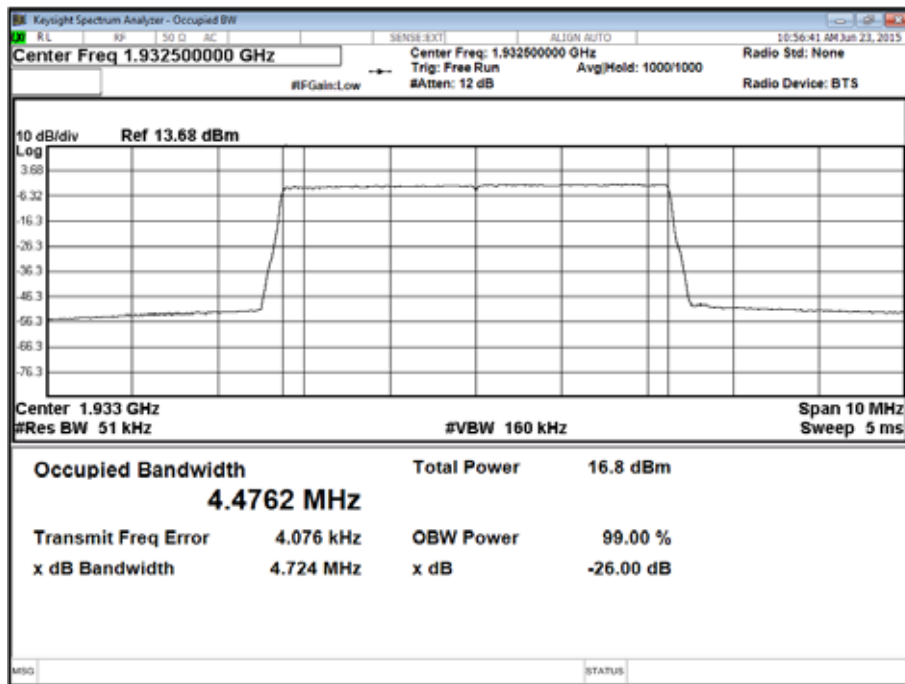


Configuration 4 LTE SC, Antenna B (See table 3)

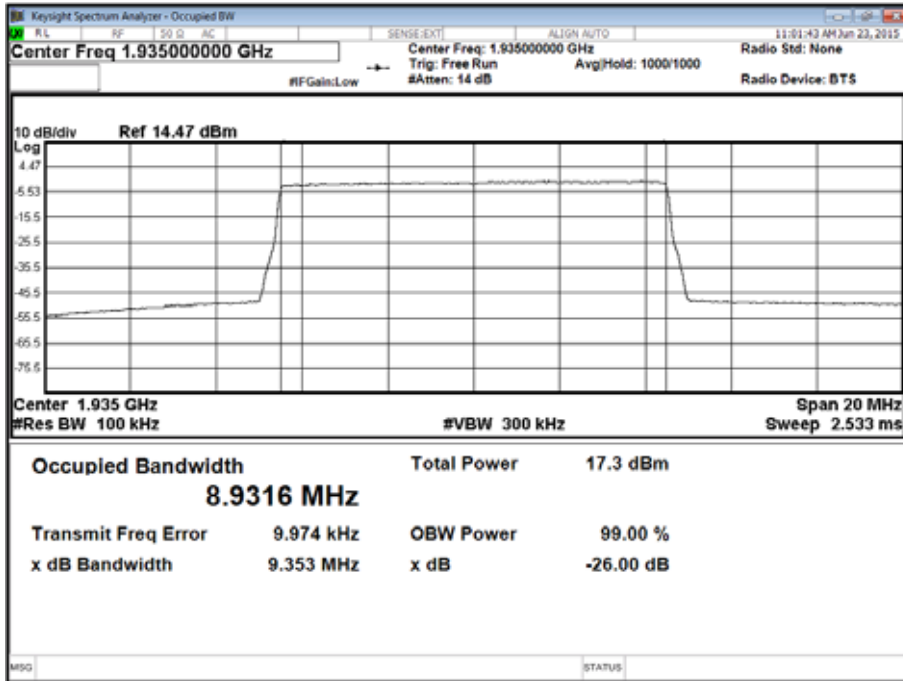
Maximum Output Power 17 dBm

Carrier Bandwidth / Modulation	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
5.0 MHz / QPSK	4,476.18	4,724.13	4,478.48	4,739.65	4,476.06	4,723.50
10.0 MHz / QPSK	8,931.57	9,352.92	8,935.87	9,387.02	8,929.13	9,337.65
15.0 MHz / QPSK	13,383.31	13,940.97	13,393.73	13,945.10	13,365.52	13,922.12
20.0 MHz / QPSK	17,836.05	18,583.05	17,860.71	18,574.20	17,800.16	18,514.81

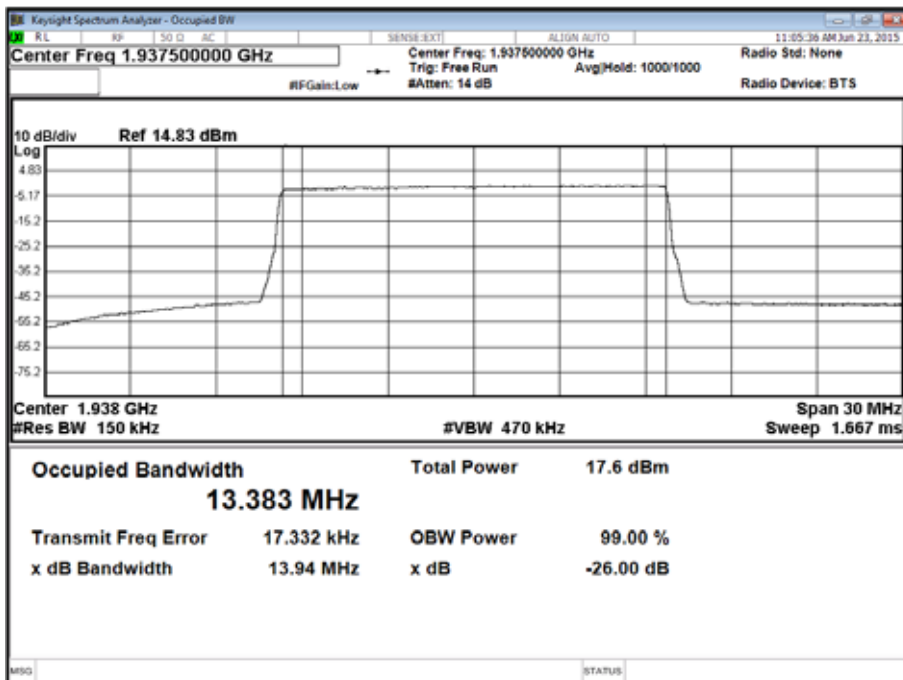
Channel Position B - Bandwidth 5.0 MHz - Antenna B



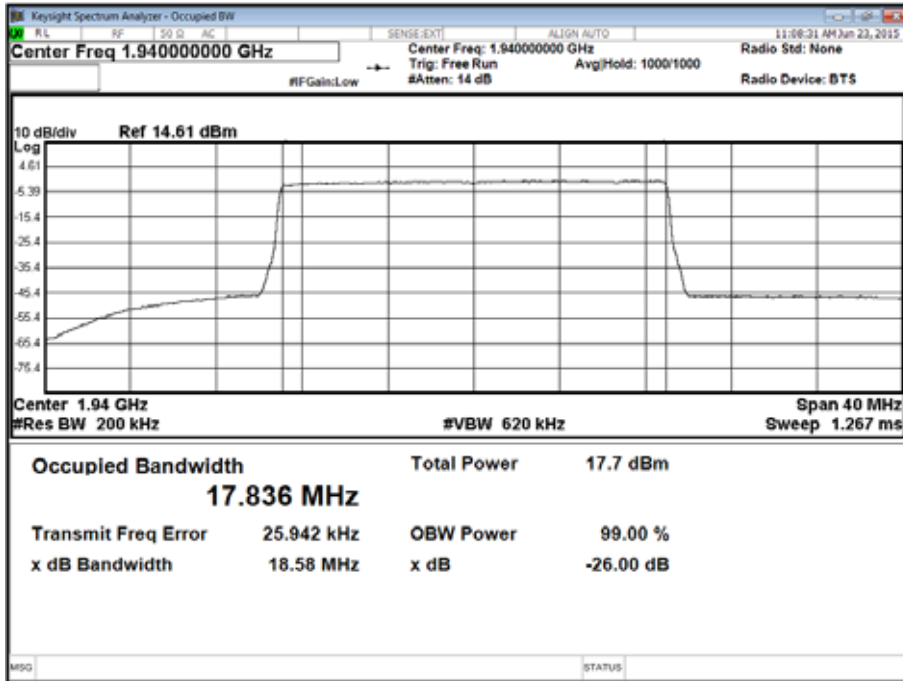
Channel Position B - Bandwidth 10.0 MHz - Antenna B



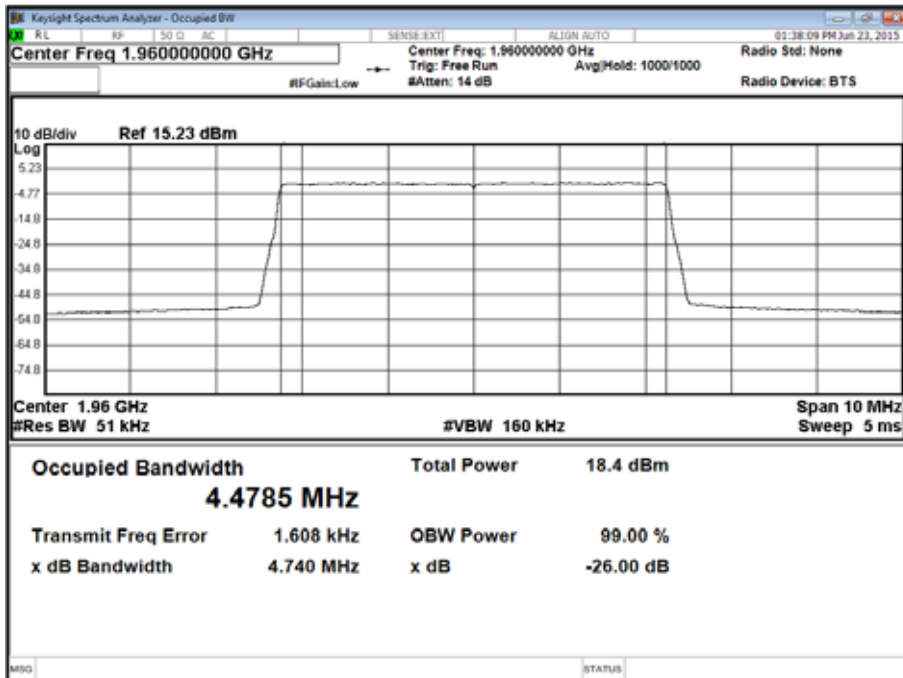
Channel Position B - Bandwidth 15.0 MHz - Antenna B



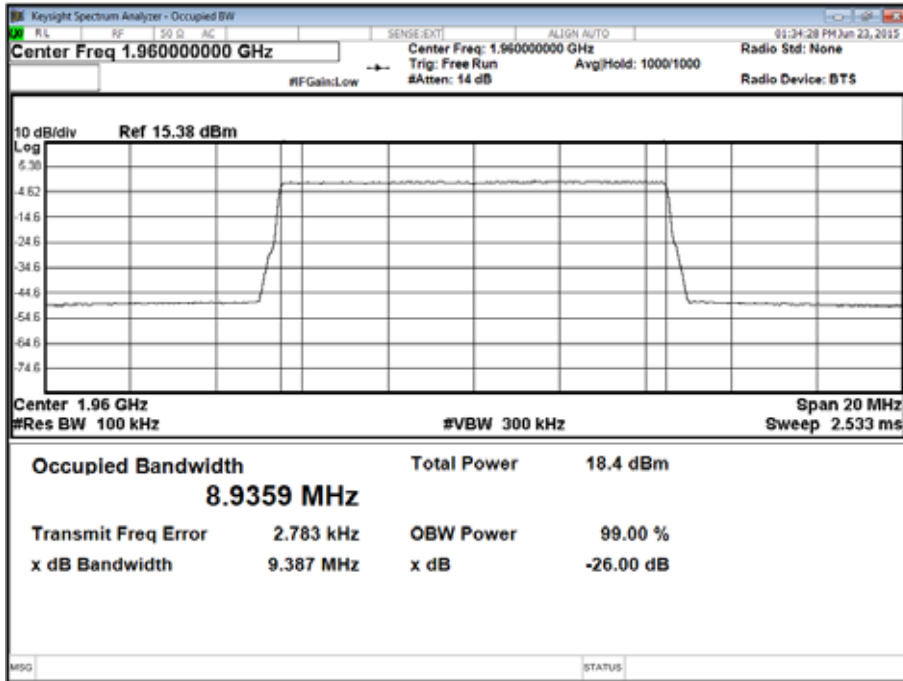
Channel Position B - Bandwidth 20.0 MHz - Antenna B



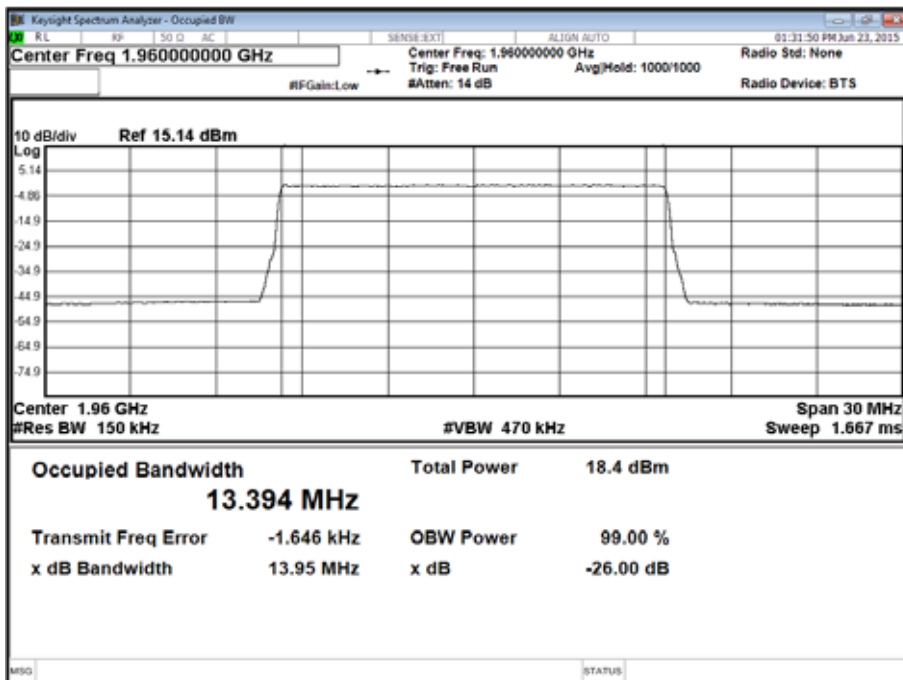
Channel Position M - Bandwidth 5.0 MHz - Antenna B



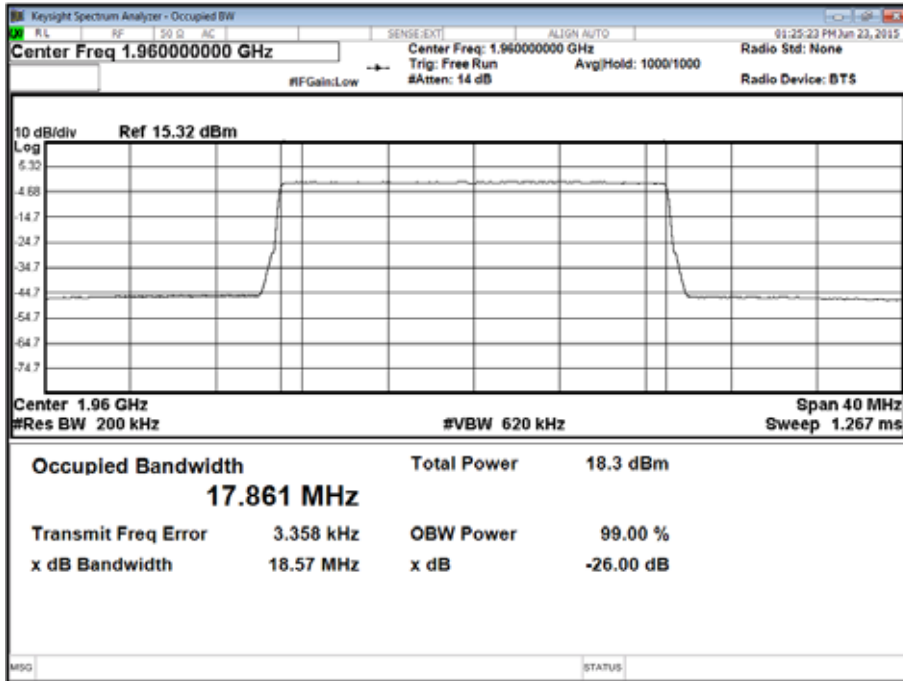
Channel Position M - Bandwidth 10.0 MHz - Antenna B



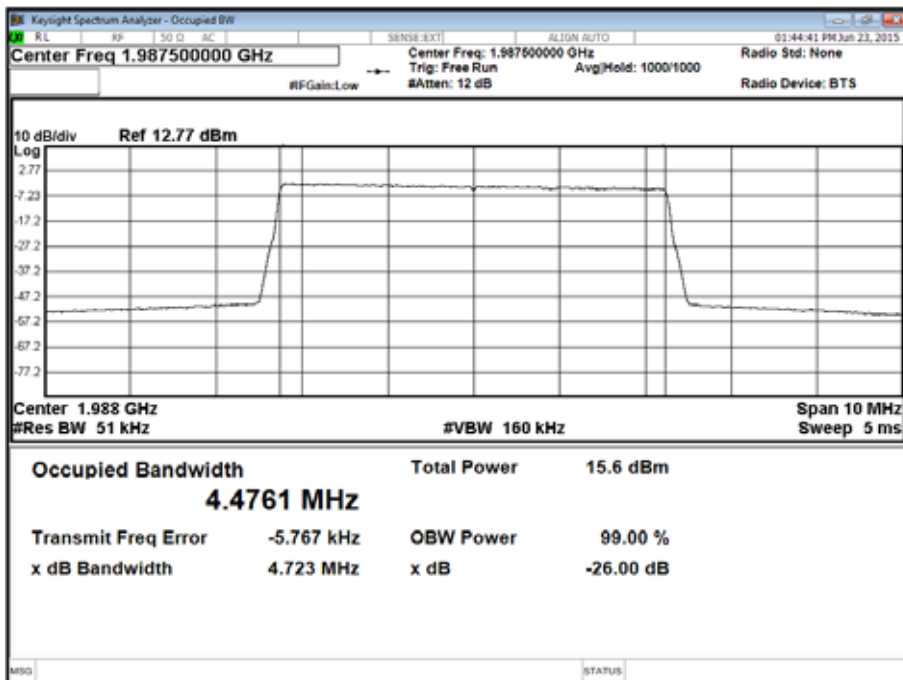
Channel Position M - Bandwidth 15.0 MHz - Antenna B



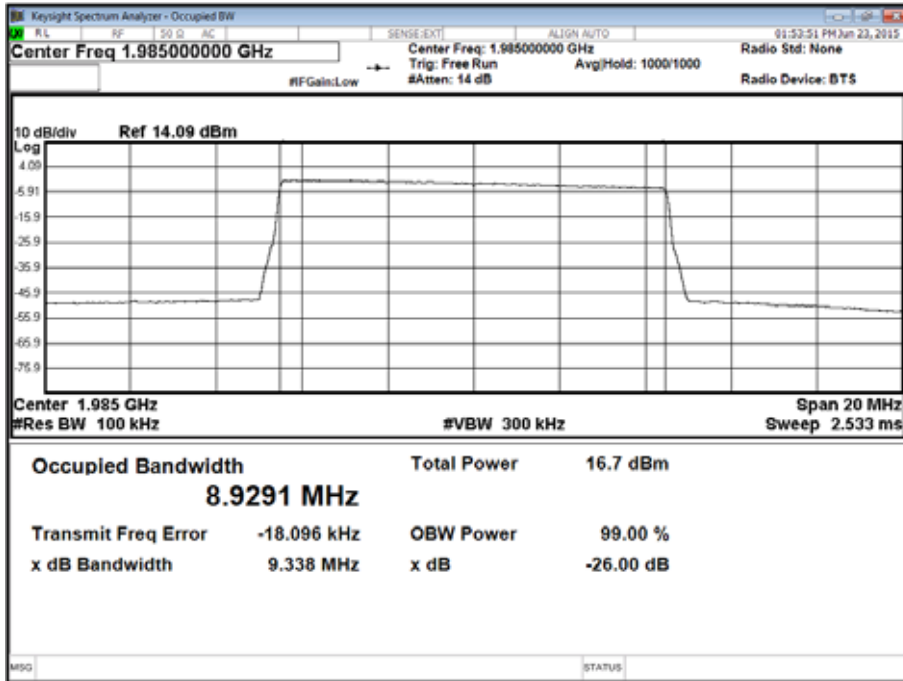
Channel Position M - Bandwidth 20.0 MHz - Antenna B



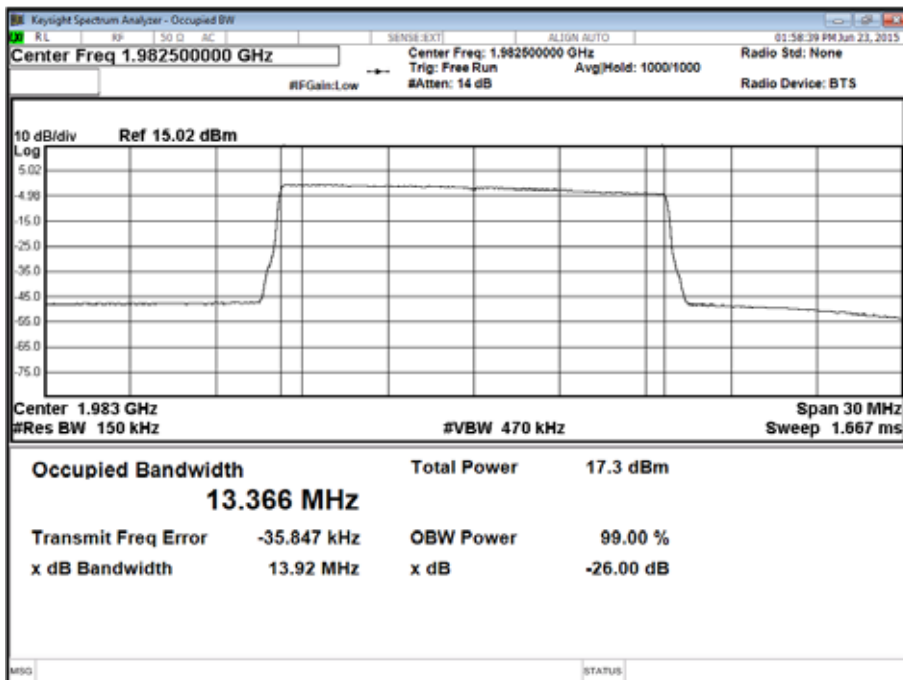
Channel Position T - Bandwidth 5.0 MHz - Antenna B



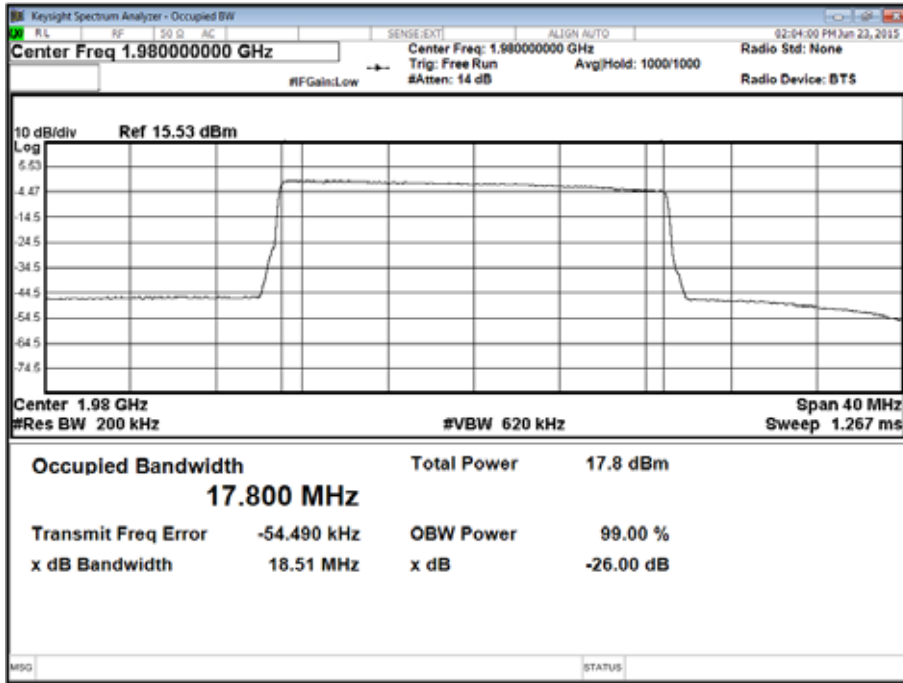
Channel Position T - Bandwidth 10.0 MHz - Antenna B



Channel Position T - Bandwidth 15.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna B



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 6.5.1

2.3.2 Date of Test and Modification State

22, 23, 24 and 25 June 2015 - Modification State 0

2.3.3 Test Equipment Used

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

2.3.4 Environmental Conditions

Ambient Temperature 24.5 - 25.6°C
 Relative Humidity 42.7 - 50.4%

2.3.5 Test Method

The EUT was connected to a Signal Analyser via 20dB of attenuation and an RF switch. The path loss between the EUT and the Analyser was measured using a Network Analyser and entered as a Reference Level Offset.

The EUT was set to transmit at its maximum rated output power in the configurations described in the tables below. The Band Power function of the Analyser with an RMS detector was used to make measurements at the Top and Bottom of the band using an RBW which was at least 1% of the measured 26dB bandwidth. The test limits were set to a worst case value of -16dBm (MIMO).

Testing was performed on both ports.

The results are shown in the plots below.

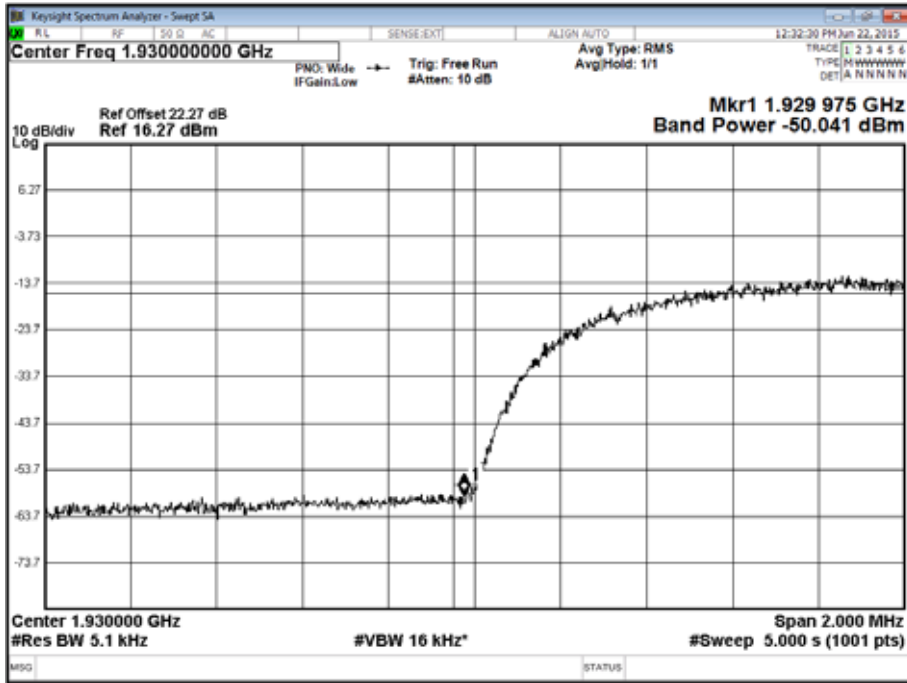
2.3.6 Test Results

Configuration 1 WCDMA SC, Antenna A

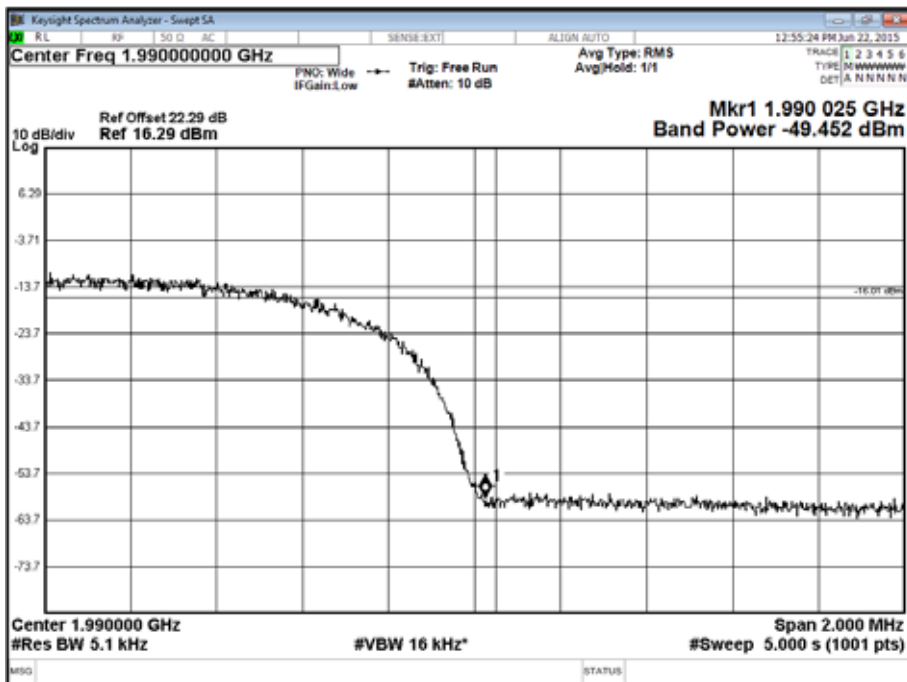
Maximum Output Power 17 dBm

Modulation	Band Edge (MHz)	
	Channel Position B	Channel Position T
16QAM	1,932.40	1,987.60

Channel Position B - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna A

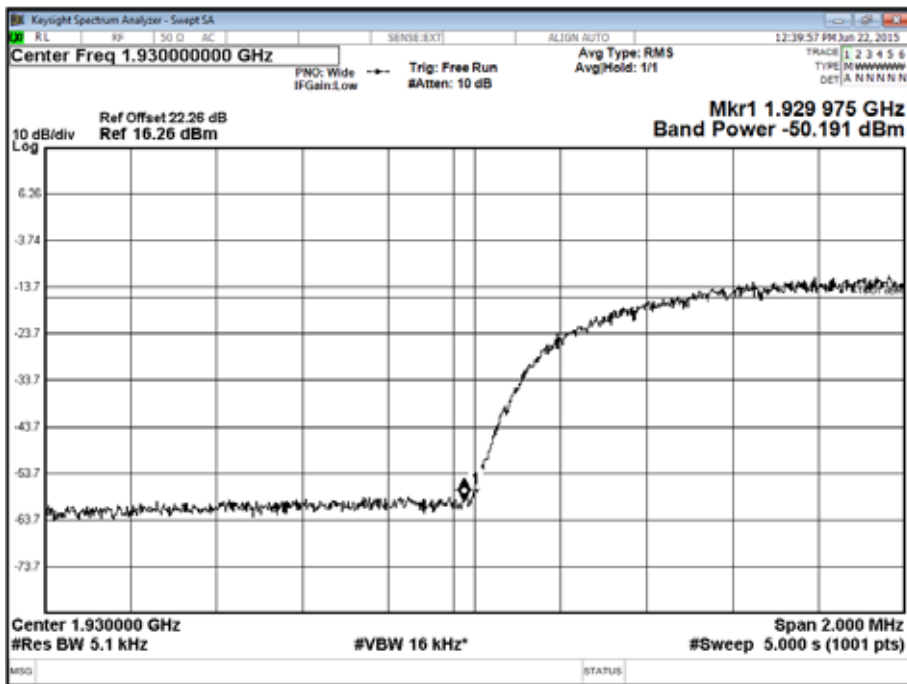


Configuration 1 WCDMA SC, Antenna B

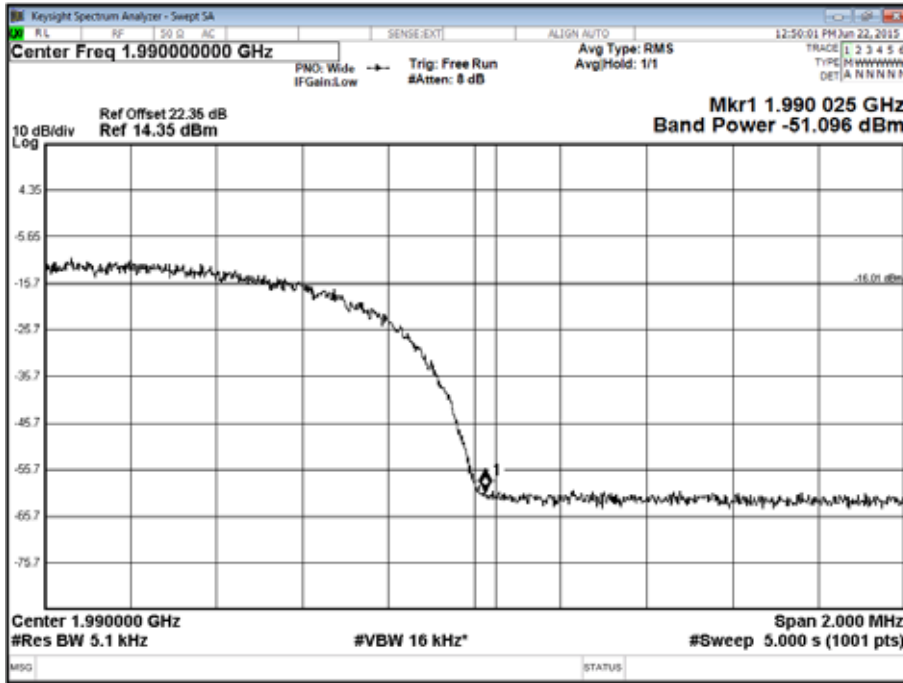
Maximum Output Power 17 dBm

Modulation	Band Edge (MHz)	
	Channel Position B	Channel Position T
16QAM	1,932.40	1,987.60

Channel Position B - Bandwidth 5.0 MHz - Antenna B



Channel Position T - Bandwidth 5.0 MHz - Antenna B

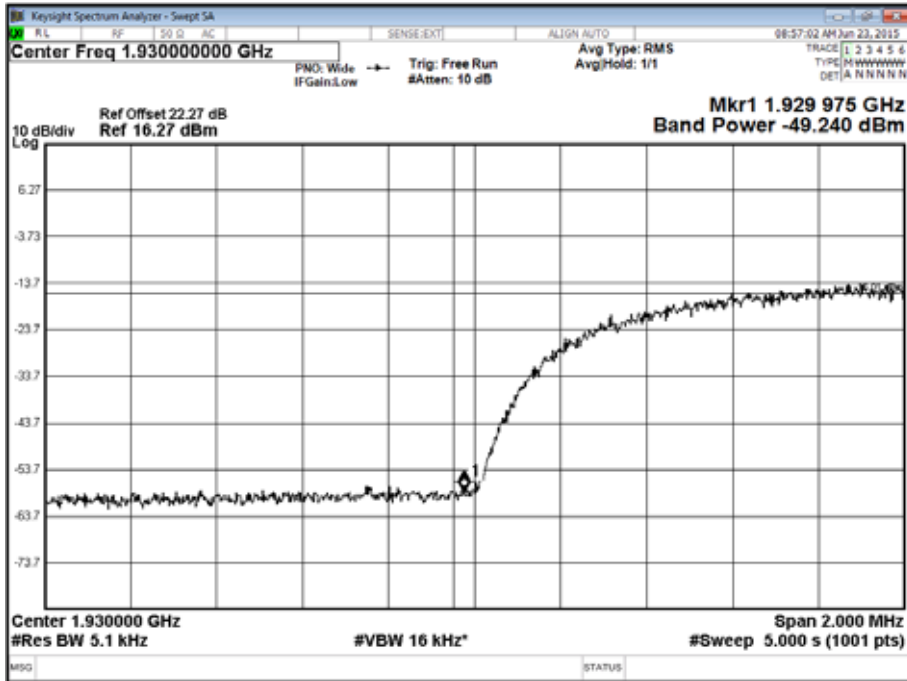


Configuration 2 WCDMA MC, Antenna A

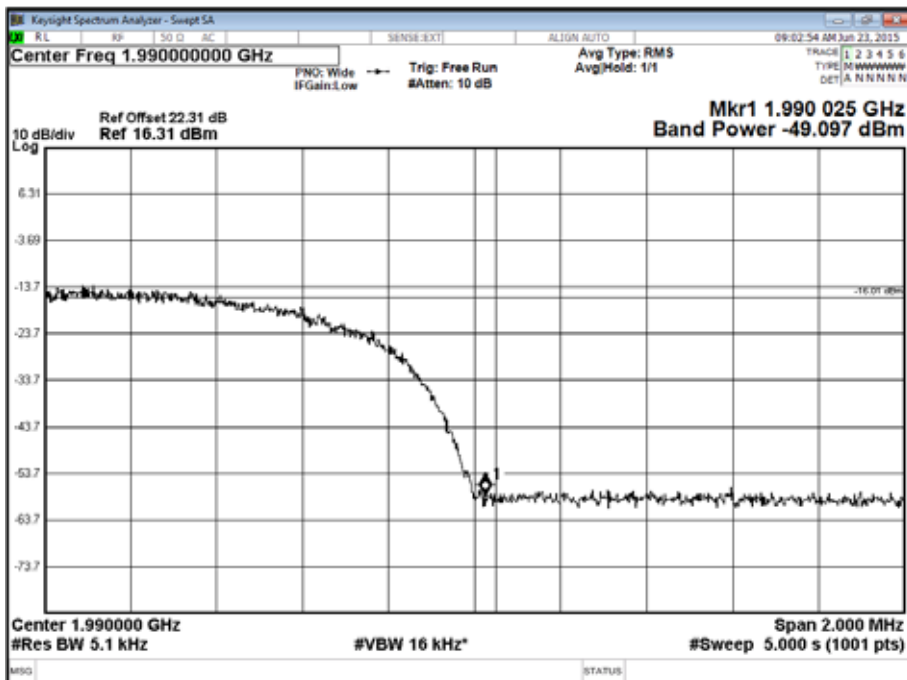
Maximum Output Power 17 dBm

Modulation	Band Edge (MHz)	
	Channel Position B	Channel Position T
16QAM	1932.4 + 1937.4	1982.6 + 1987.6

Channel Position B - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna A

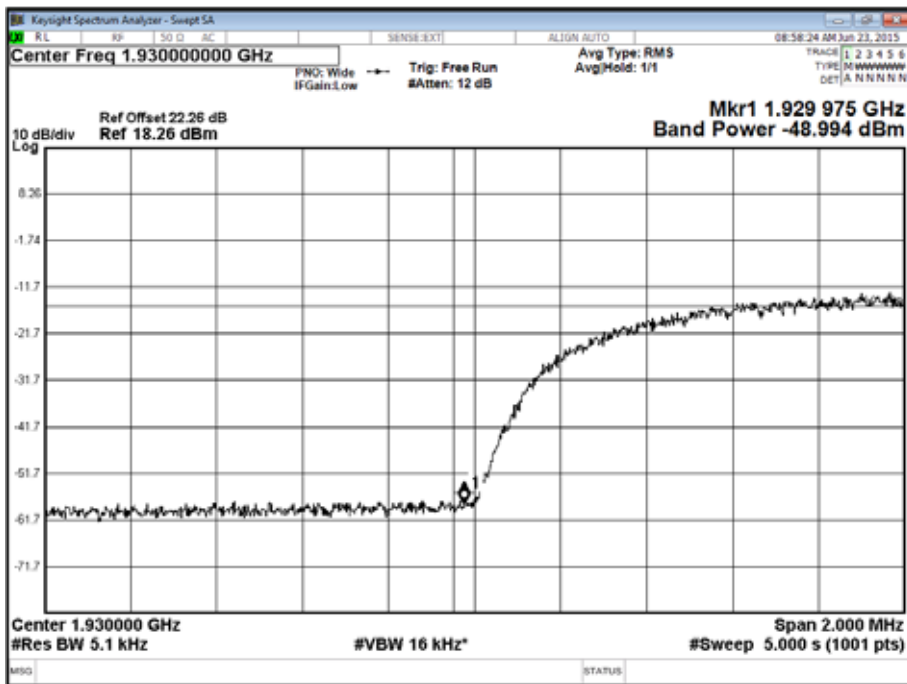


Configuration 2 WCDMA MC, Antenna B

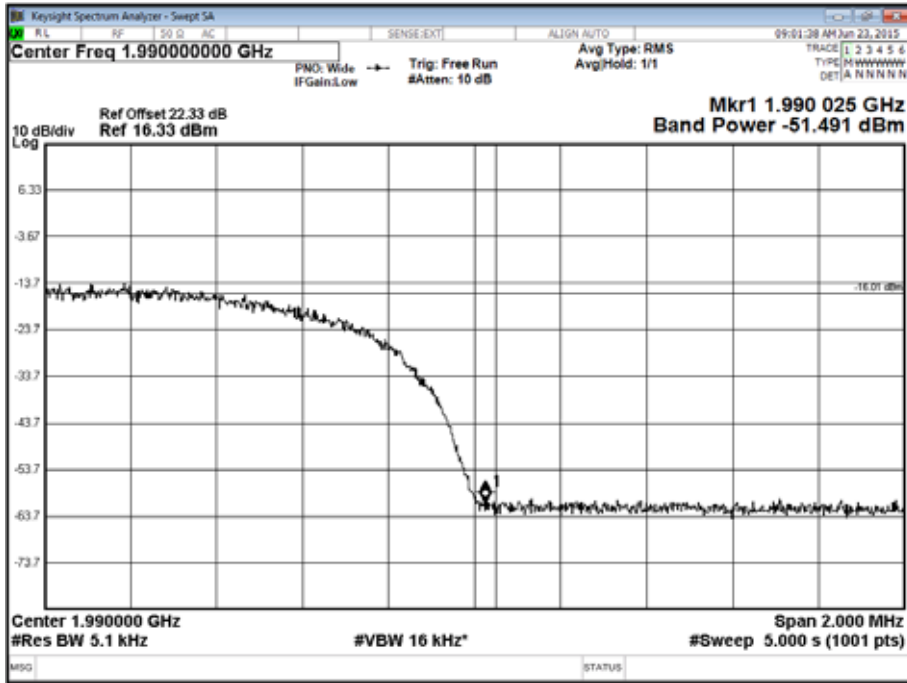
Maximum Output Power 17 dBm

Modulation	Band Edge (MHz)	
	Channel Position B	Channel Position T
16QAM	1932.4 + 1937.4	1982.6 + 1987.6

Channel Position B - Bandwidth 5.0 MHz - Antenna B



Channel Position T - Bandwidth 5.0 MHz - Antenna B

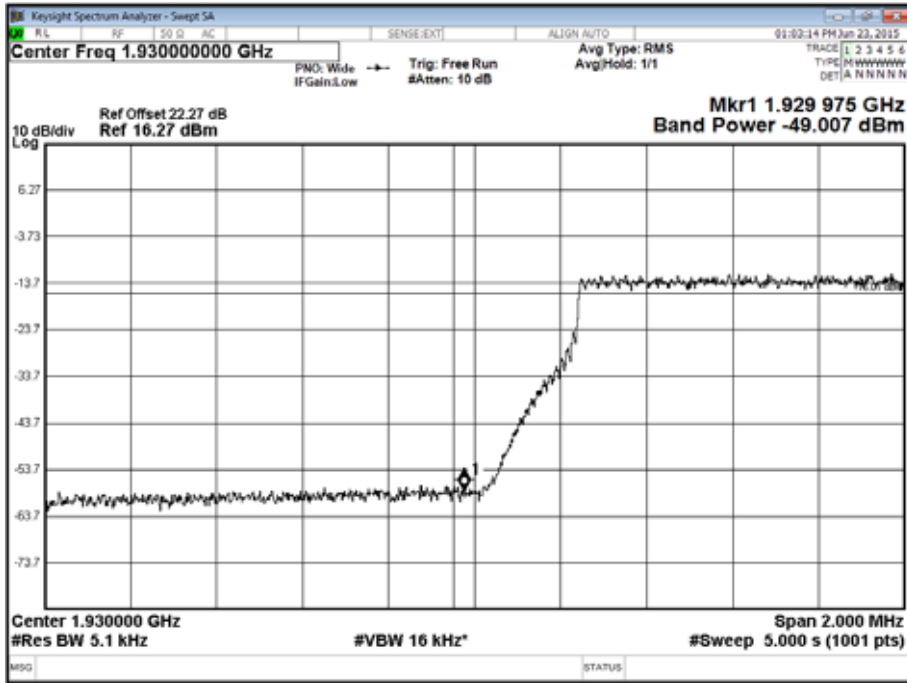


Configuration 4 LTE SC, Antenna A

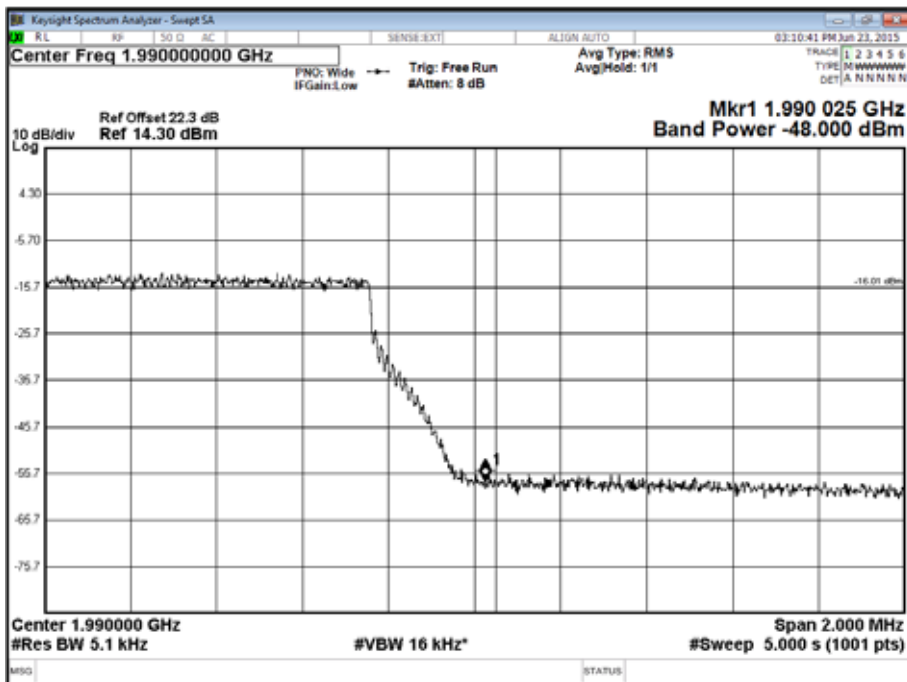
Maximum Output Power 17 dBm

Carrier Bandwidth	Modulation	Band Edge (MHz)	
		Channel Position B	Channel Position T
5.0 MHz	QPSK	1,932.50	1,987.50
10.0 MHz	QPSK	1,935.00	1,985.00
15.0 MHz	QPSK	1,937.50	1,982.50
20.0 MHz	QPSK	1,940.00	1,980.00

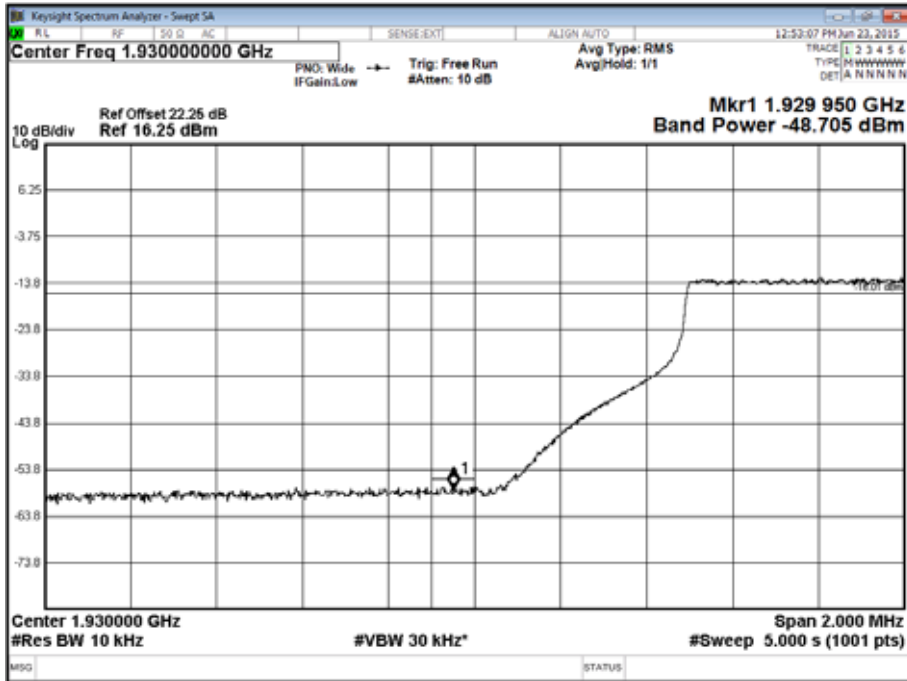
Channel Position B - Bandwidth 5.0 MHz - Antenna A



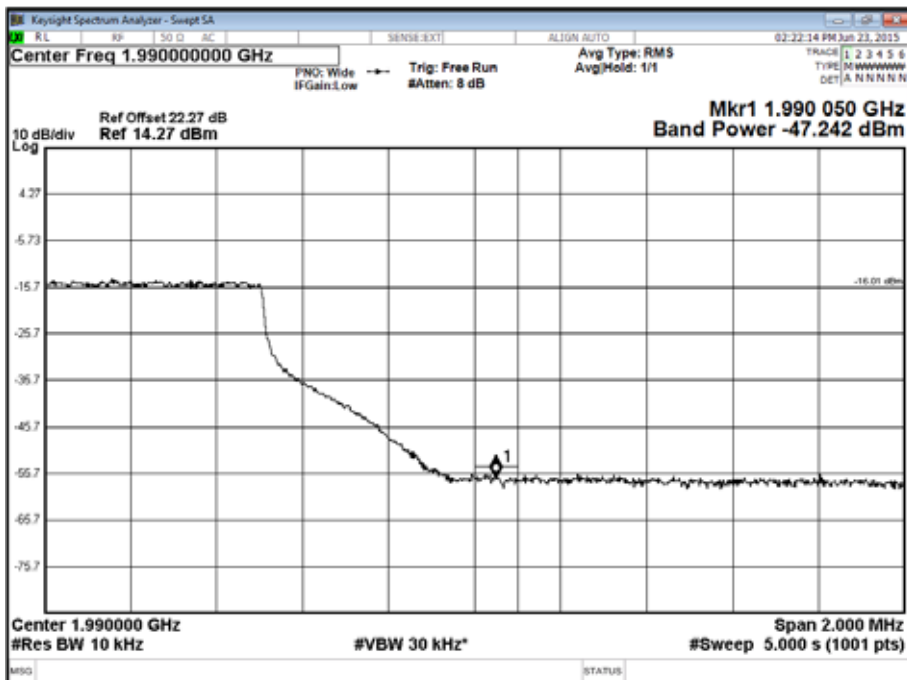
Channel Position T - Bandwidth 5.0 MHz - Antenna A



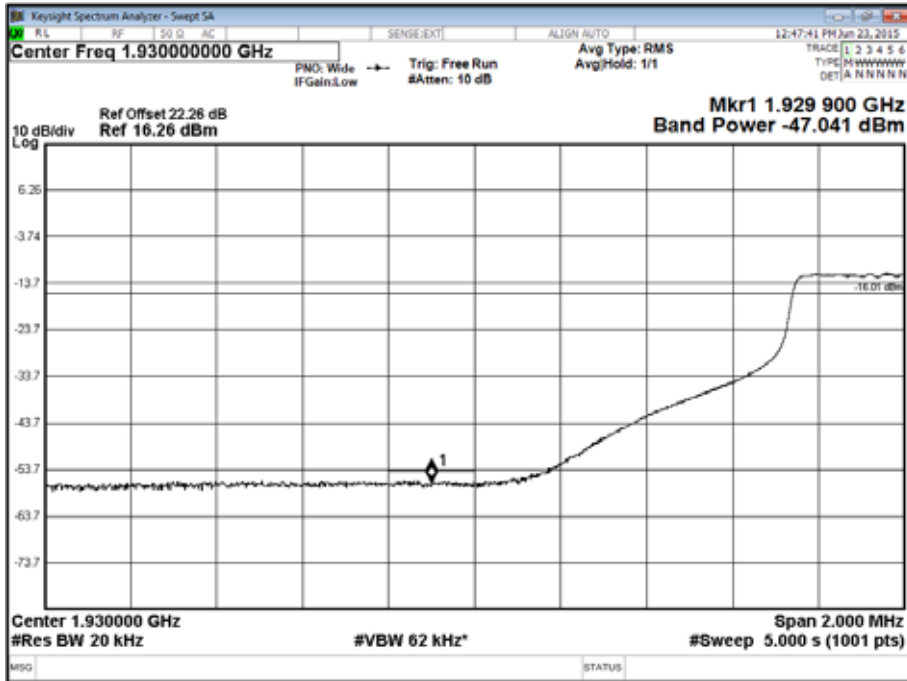
Channel Position B - Bandwidth 10.0 MHz - Antenna A



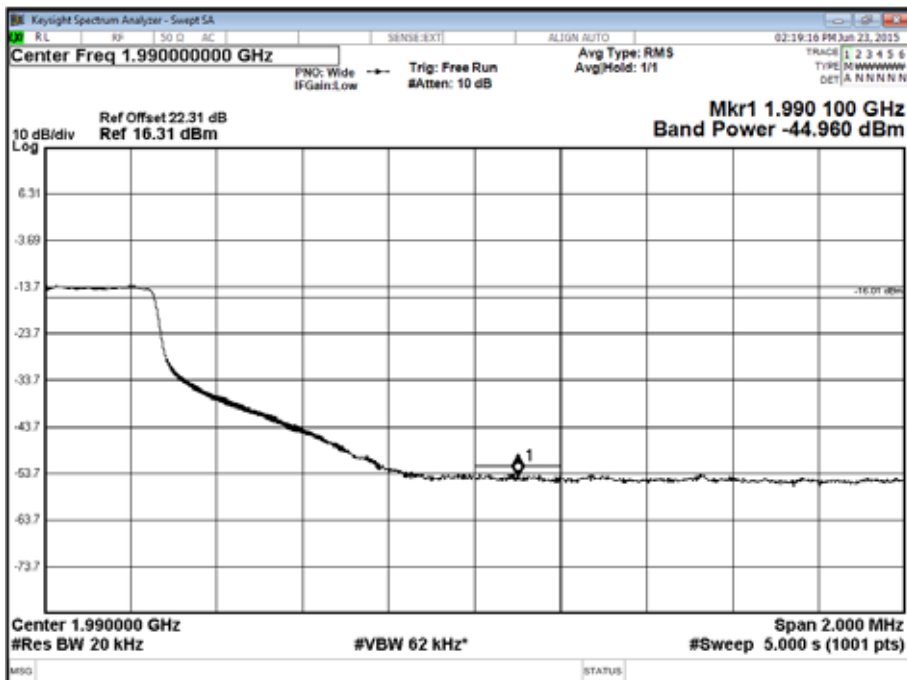
Channel Position T - Bandwidth 10.0 MHz - Antenna A



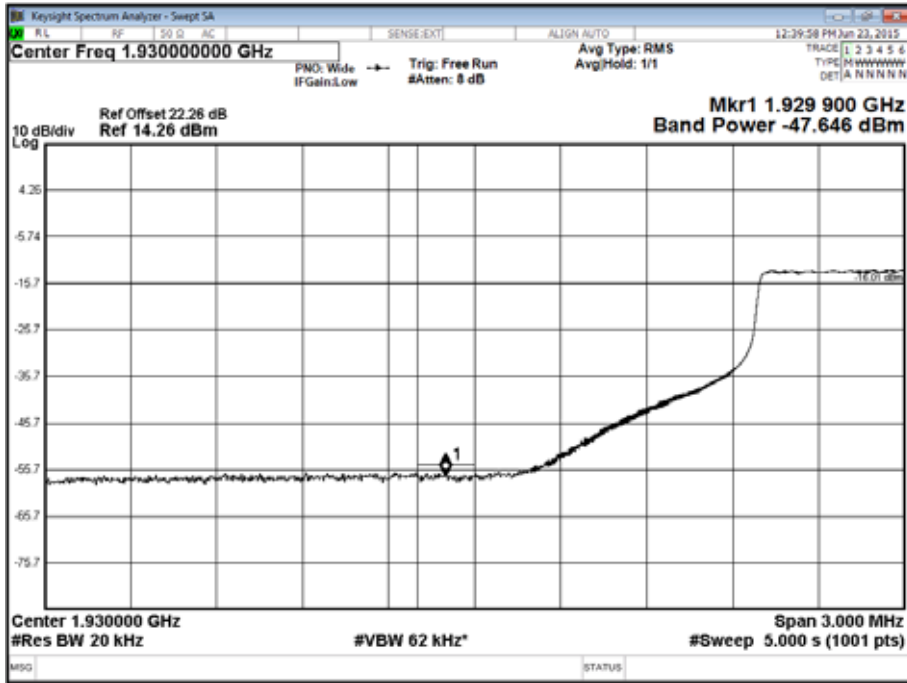
Channel Position B - Bandwidth 15.0 MHz - Antenna A



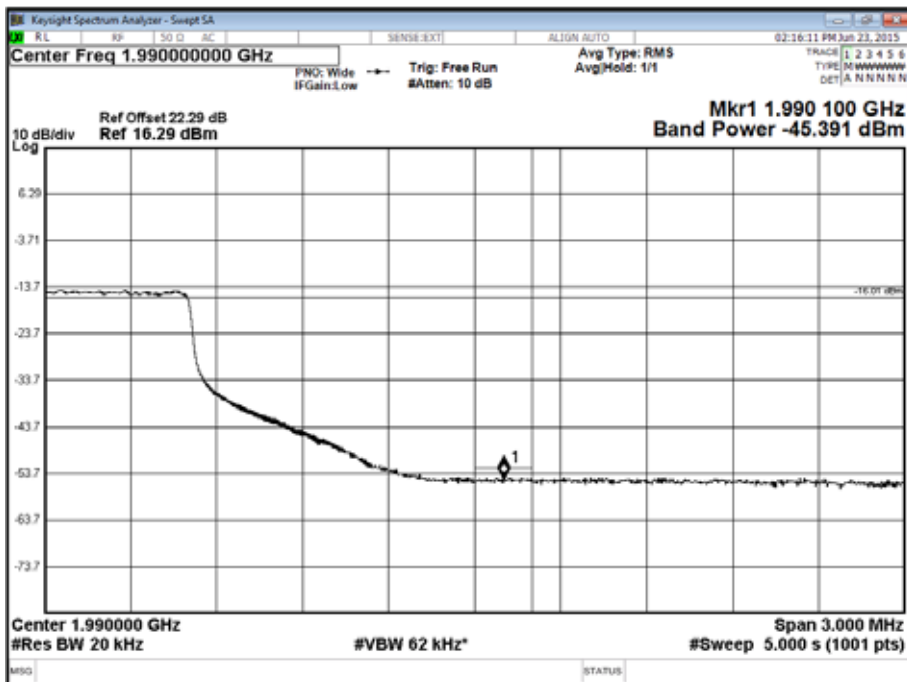
Channel Position T - Bandwidth 15.0 MHz - Antenna A



Channel Position B - Bandwidth 20.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna A

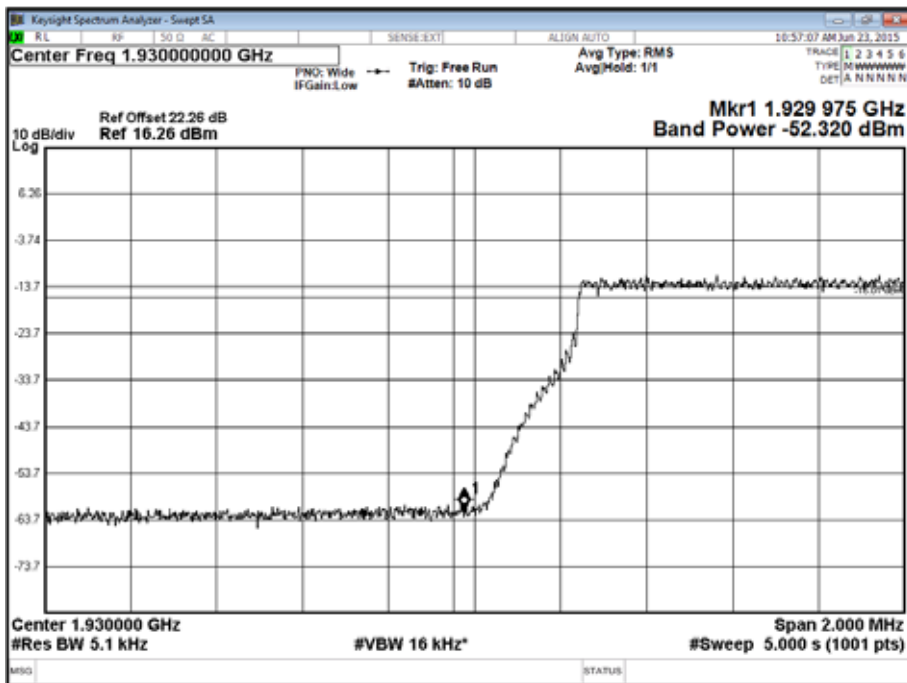


Configuration 4 LTE SC, Antenna B

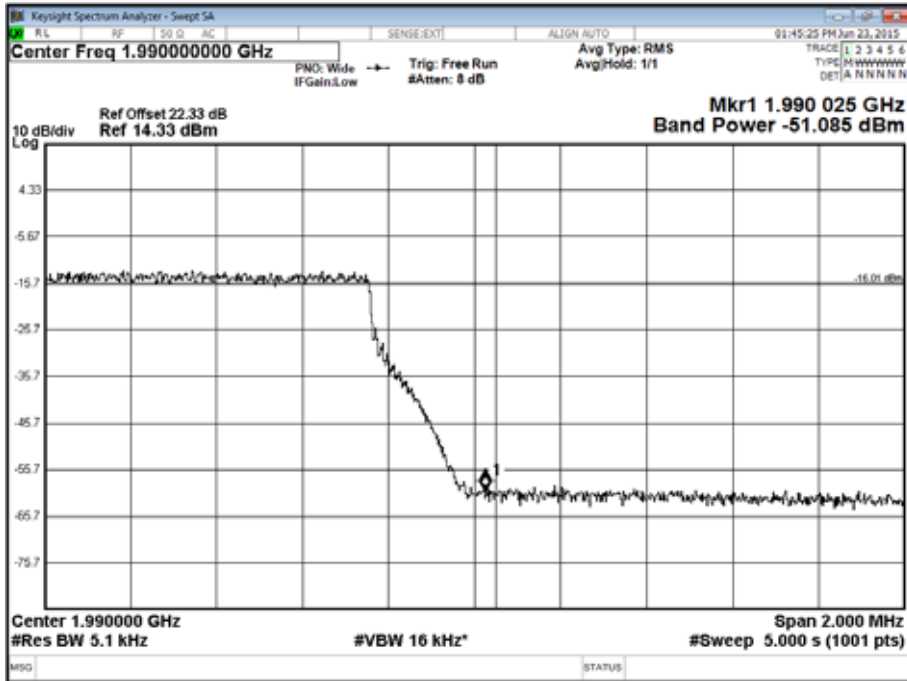
Maximum Output Power 17 dBm

Carrier Bandwidth	Modulation	Band Edge (MHz)	
		Channel Position B	Channel Position T
5.0 MHz	QPSK	1,932.50	1,987.50
10.0 MHz	QPSK	1,935.00	1,985.00
15.0 MHz	QPSK	1,937.50	1,982.50
20.0 MHz	QPSK	1,940.00	1,980.00

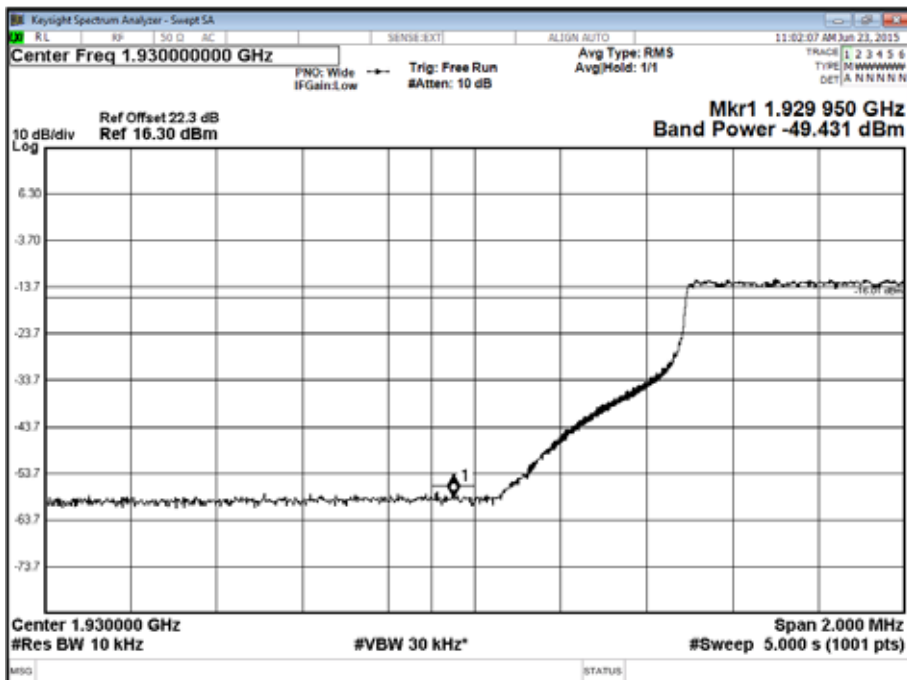
Channel Position B - Bandwidth 5.0 MHz - Antenna B



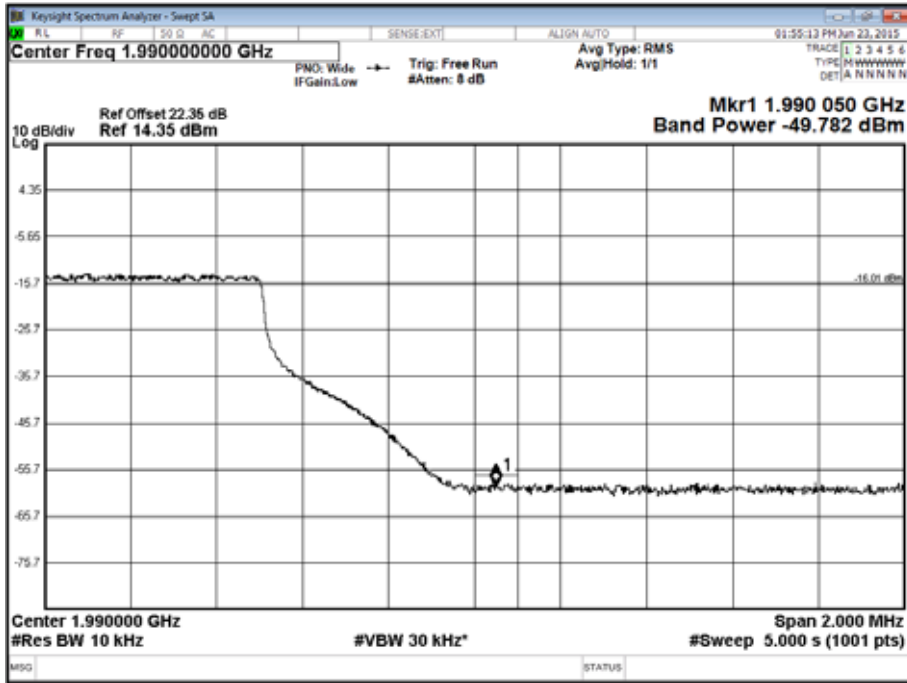
Channel Position T - Bandwidth 5.0 MHz - Antenna B



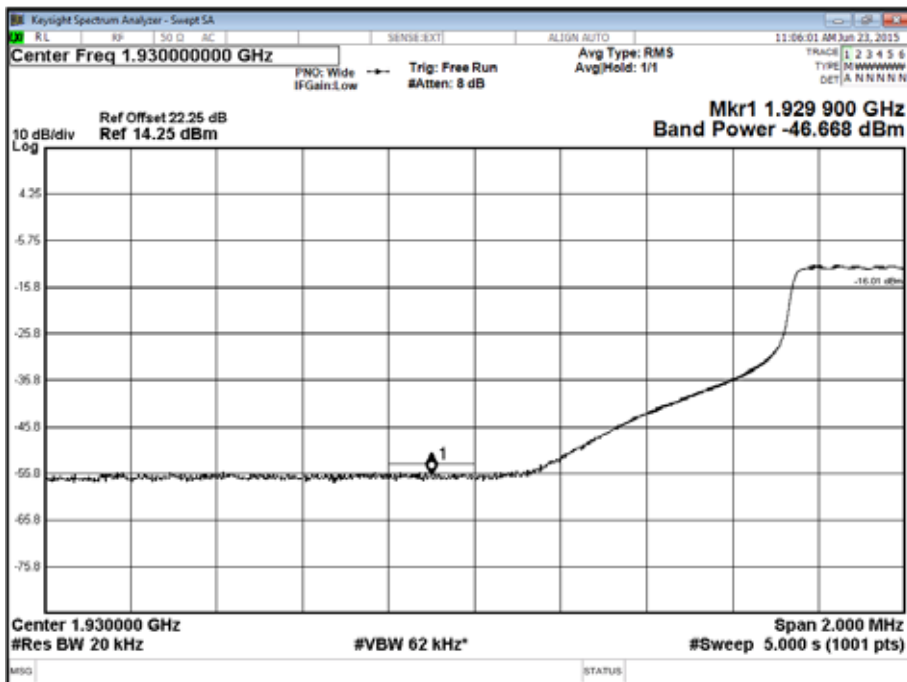
Channel Position B - Bandwidth 10.0 MHz - Antenna B



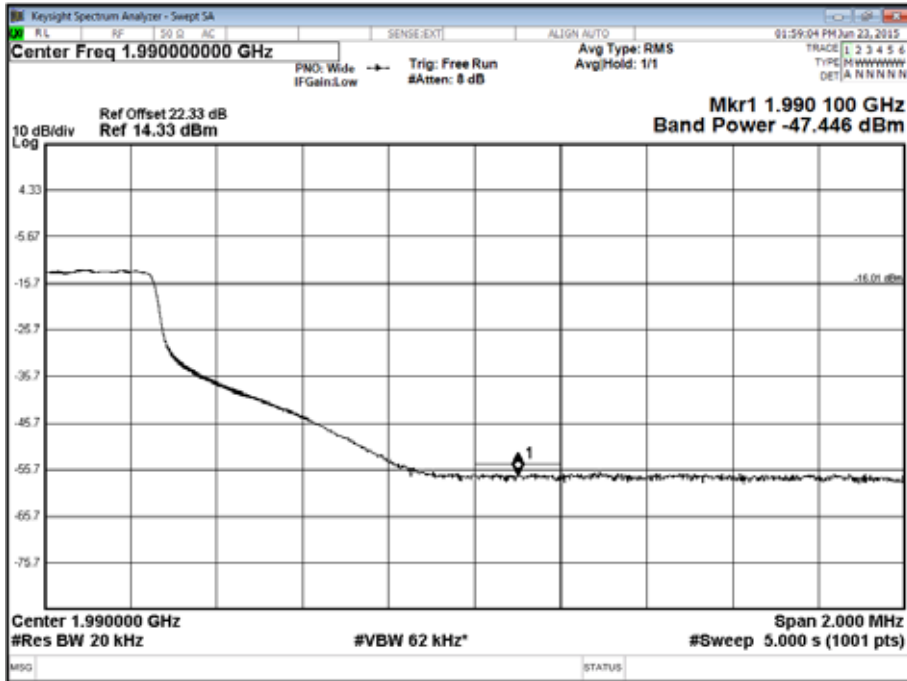
Channel Position T - Bandwidth 10.0 MHz - Antenna B



Channel Position B - Bandwidth 15.0 MHz - Antenna B



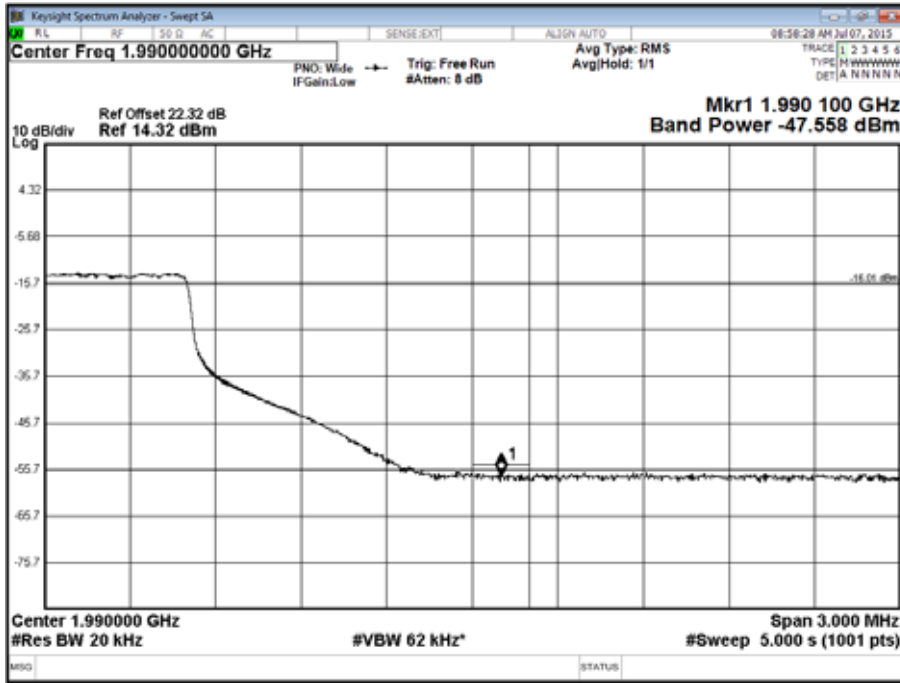
Channel Position T - Bandwidth 15.0 MHz - Antenna B



Channel Position B - Bandwidth 20.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna B

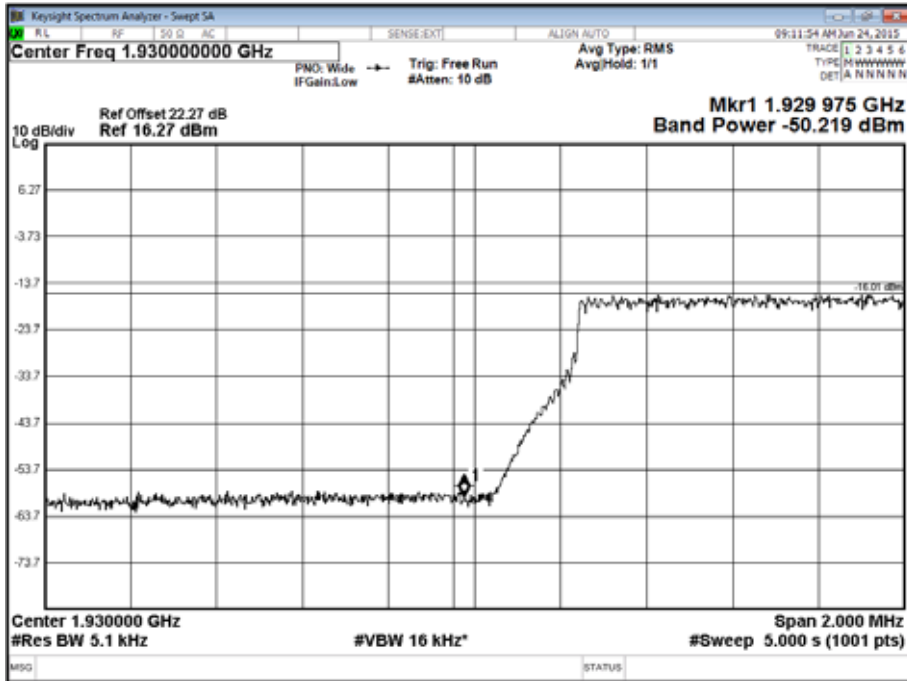


Configuration 5 LTE MC, Antenna A

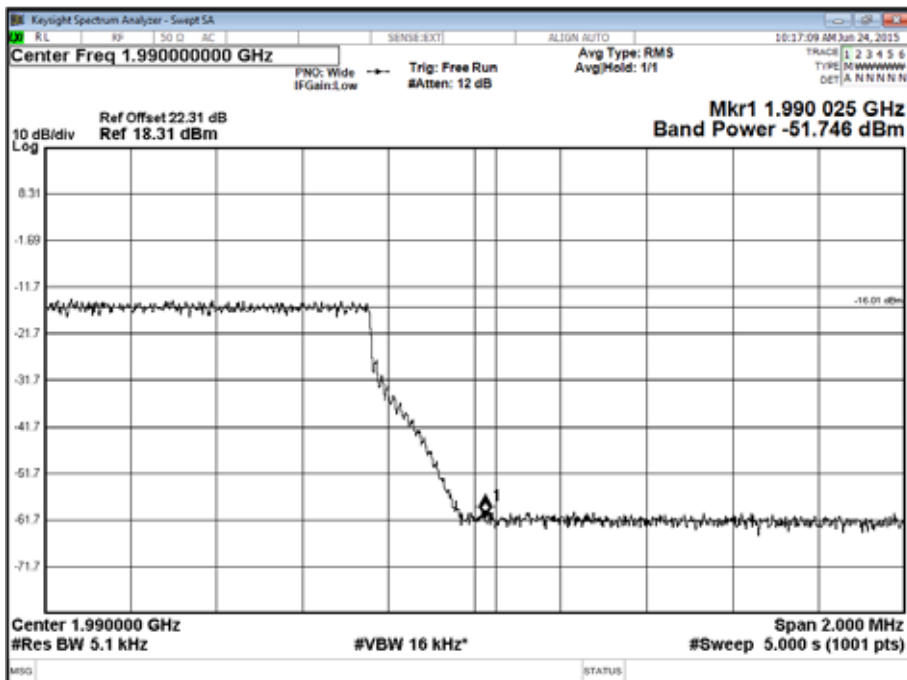
Maximum Output Power 17 dBm

Carrier Bandwidth	Modulation	Band Edge (MHz)	
		Channel Position B	Channel Position T
5.0 MHz	QPSK	1,932.50 + 1,937.50	1,982.50 + 1,987.50
10.0 MHz	QPSK	1,935.00 + 1,945.00	1,975.00 + 1,985.00
15.0 MHz	QPSK	1,937.50 + 1,952.50	1,967.50 + 1,982.50
20.0 MHz	QPSK	1,940.00 + 1,960.00	1,960.00 + 1,980.00

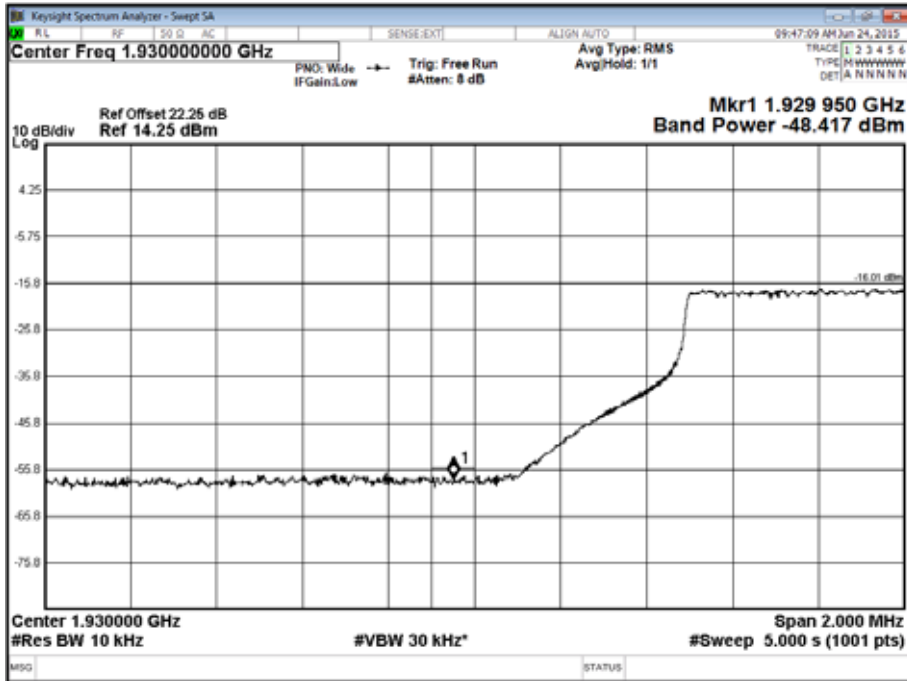
Channel Position B - Bandwidth 5.0 MHz - Antenna A



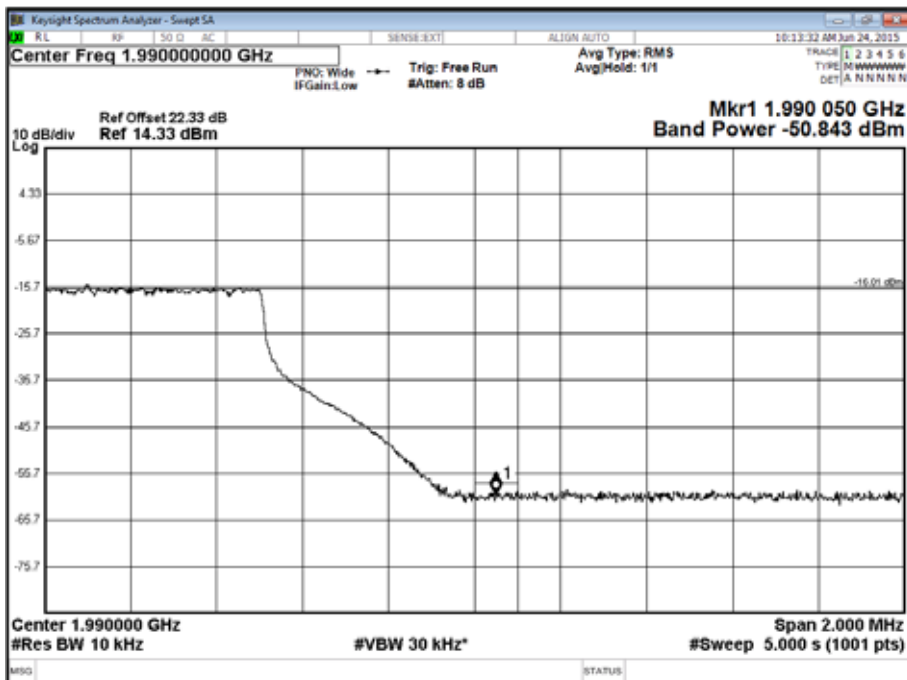
Channel Position T - Bandwidth 5.0 MHz - Antenna A



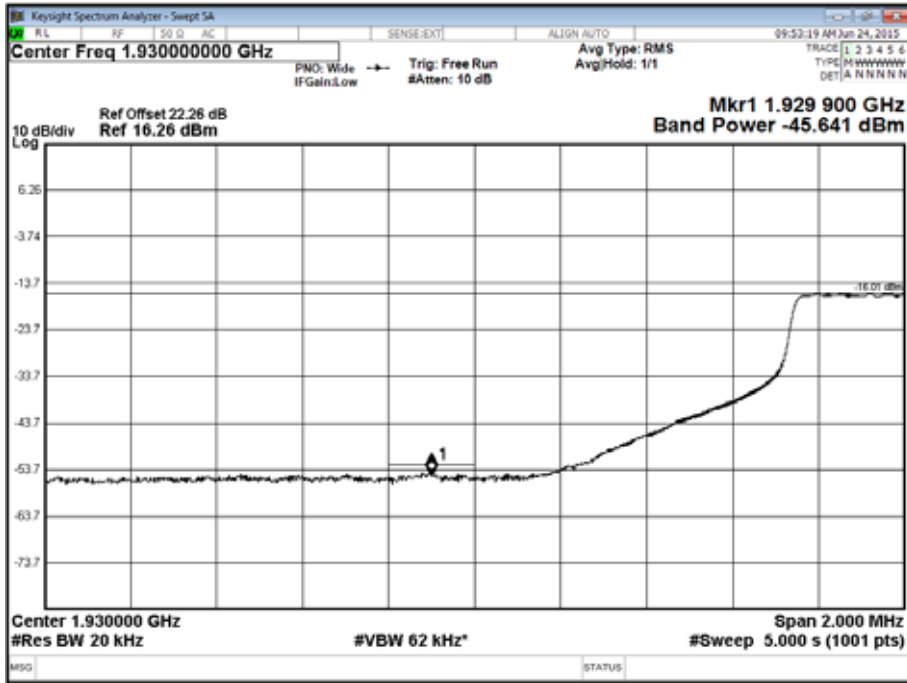
Channel Position B - Bandwidth 10.0 MHz - Antenna A



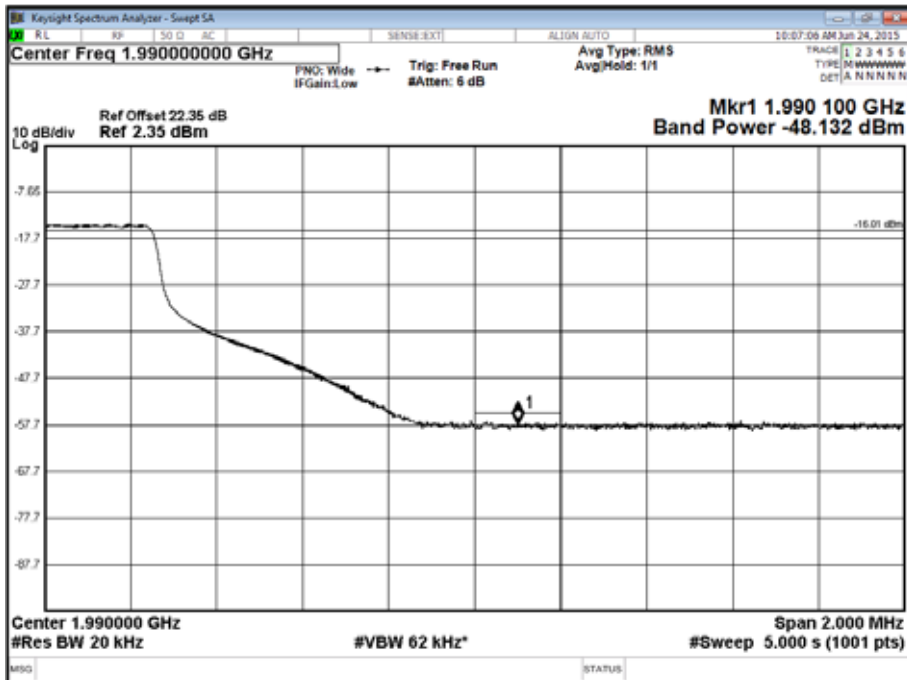
Channel Position T - Bandwidth 10.0 MHz - Antenna A



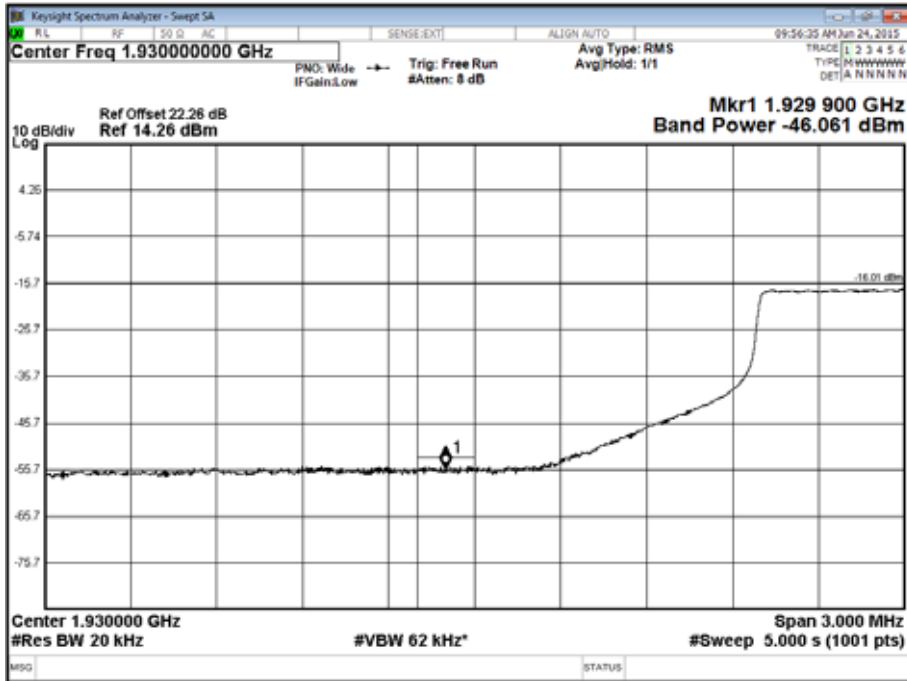
Channel Position B - Bandwidth 15.0 MHz - Antenna A



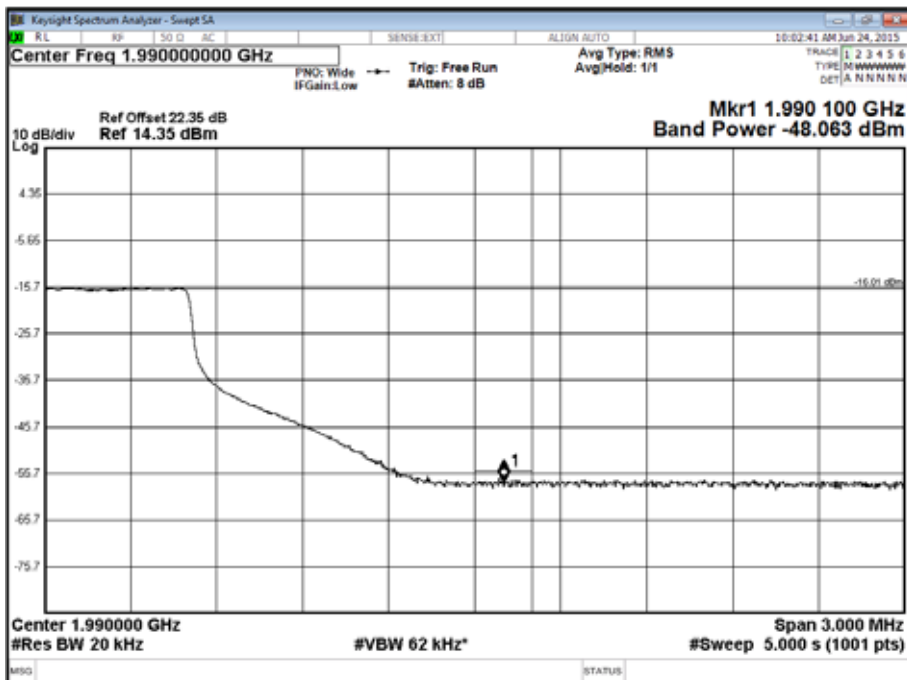
Channel Position T - Bandwidth 15.0 MHz - Antenna A



Channel Position B - Bandwidth 20.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna A

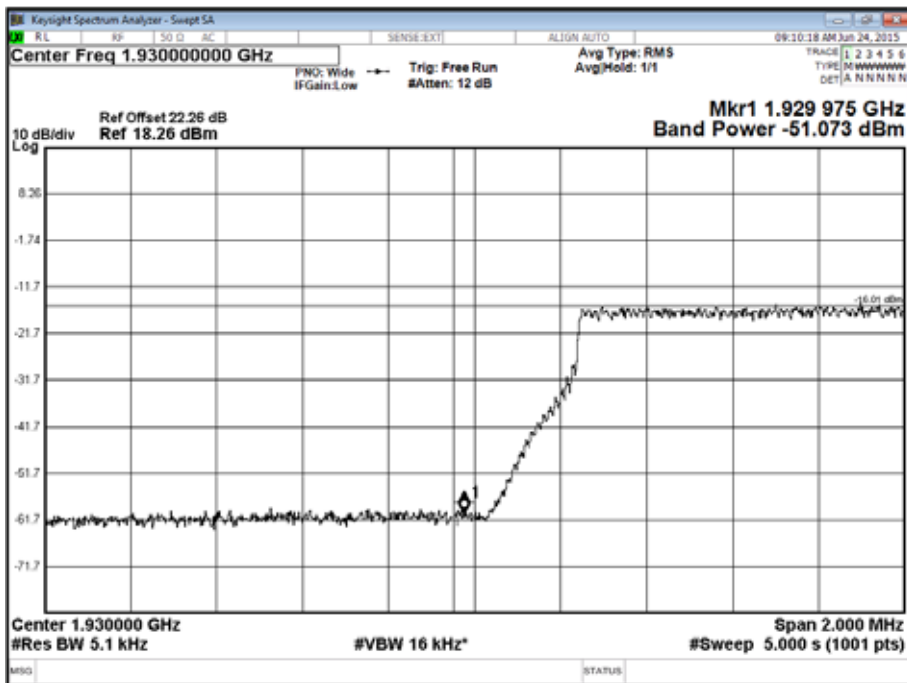


Configuration 5 LTE MC, Antenna B

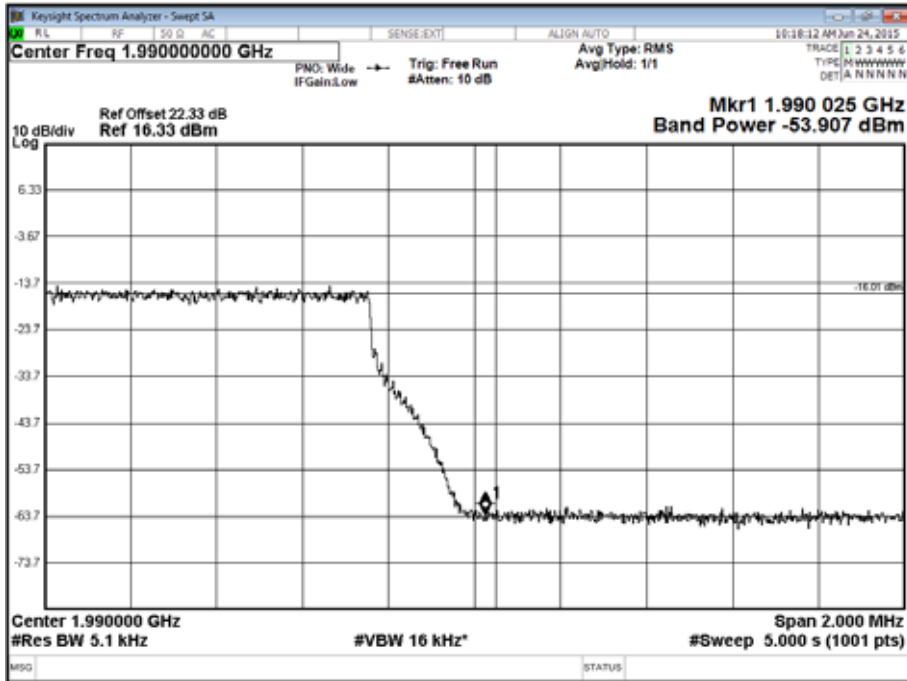
Maximum Output Power 17 dBm

Carrier Bandwidth	Modulation	Band Edge (MHz)	
		Channel Position B	Channel Position T
5.0 MHz	QPSK	1,932.50 + 1,937.50	1,982.50 + 1,987.50
10.0 MHz	QPSK	1,935.00 + 1,945.00	1,975.00 + 1,985.00
15.0 MHz	QPSK	1,937.50 + 1,952.50	1,967.50 + 1,982.50
20.0 MHz	QPSK	1,940.00 + 1,960.00	1,960.00 + 1,980.00

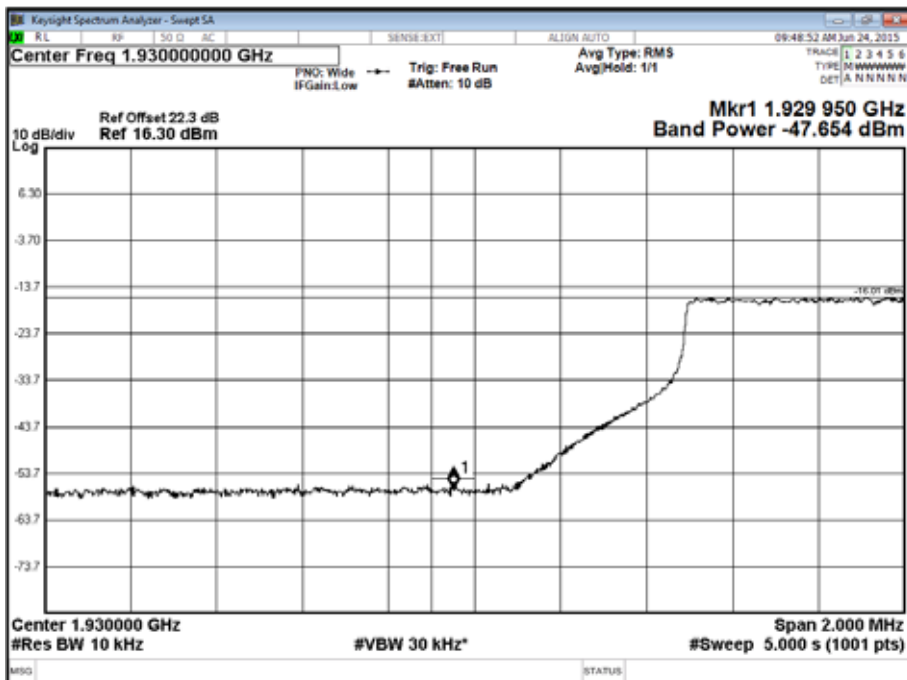
Channel Position B - Bandwidth 5.0 MHz - Antenna B



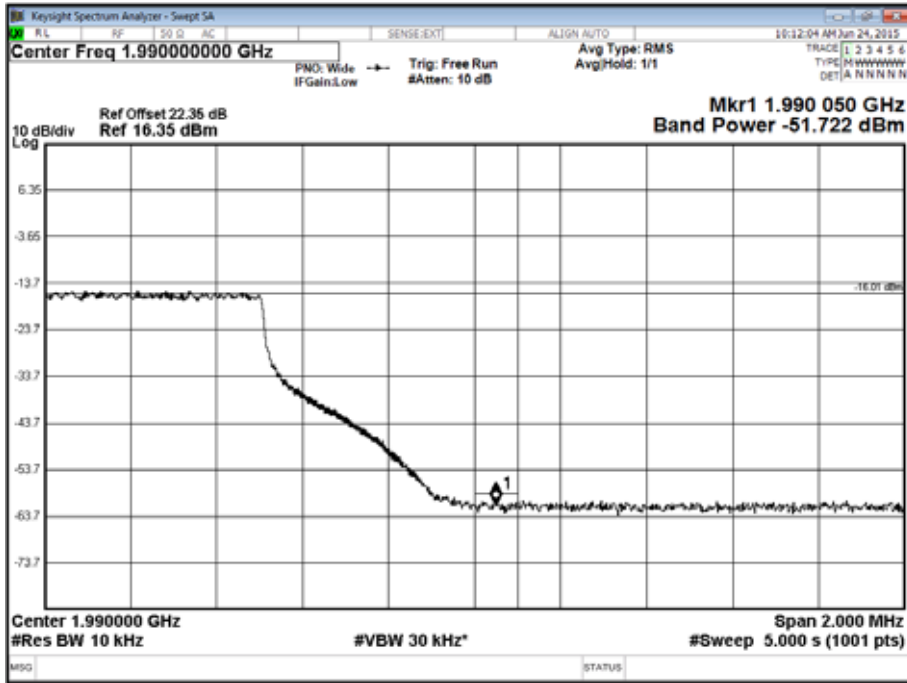
Channel Position T - Bandwidth 5.0 MHz - Antenna B



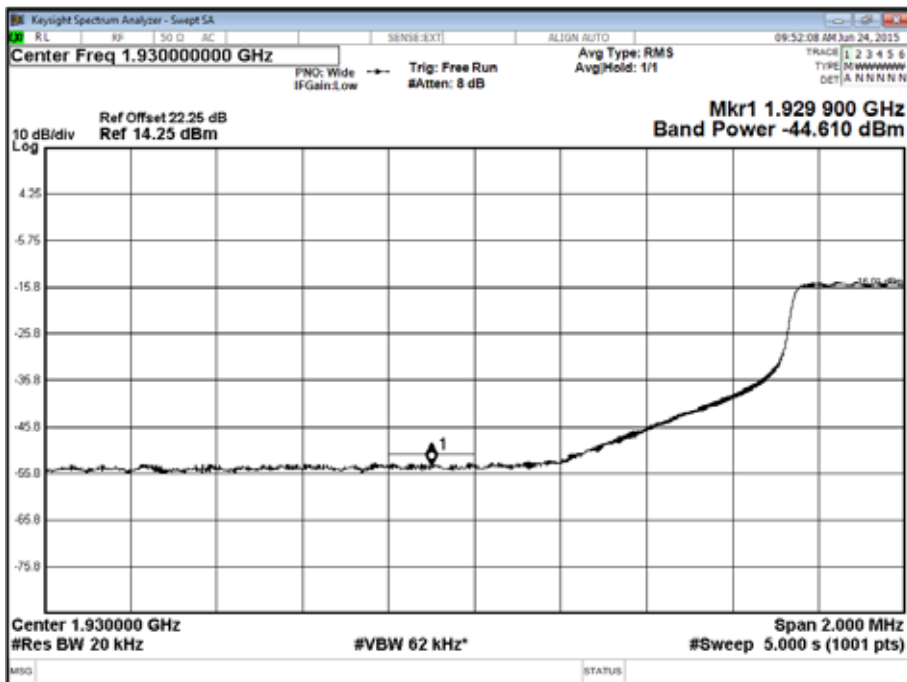
Channel Position B - Bandwidth 10.0 MHz - Antenna B



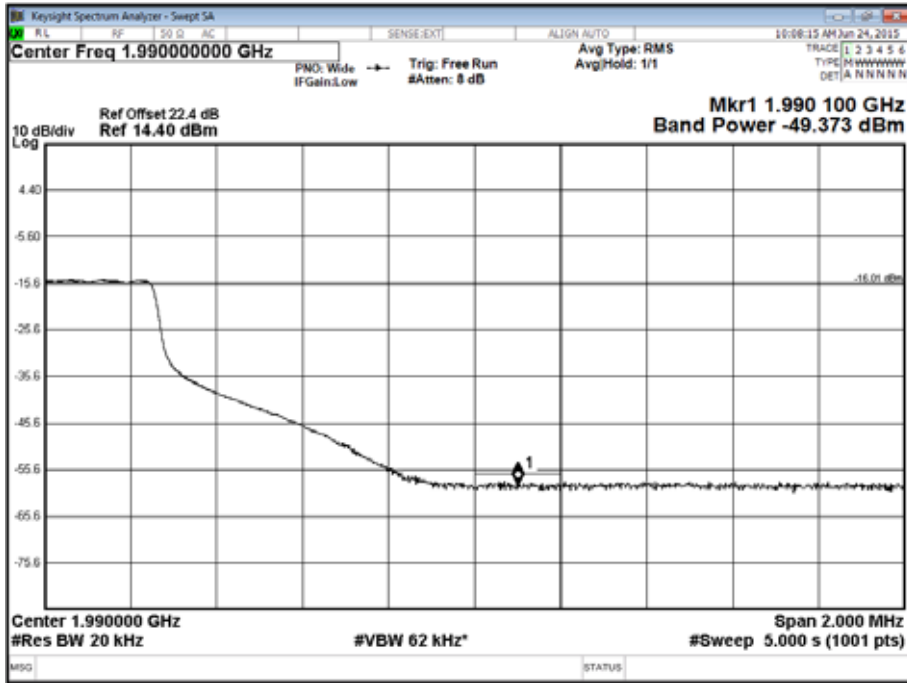
Channel Position T - Bandwidth 10.0 MHz - Antenna B



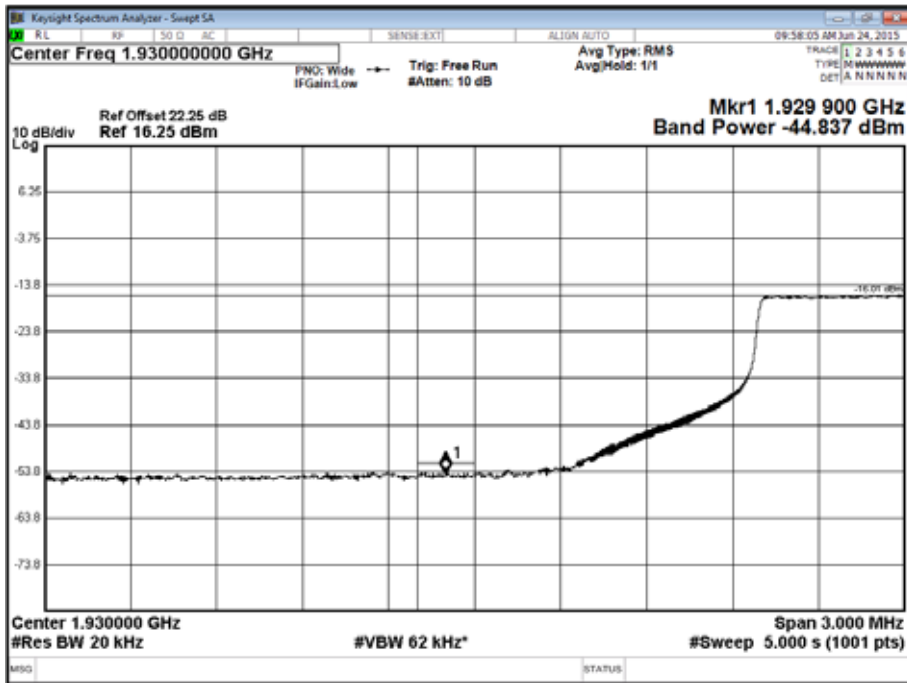
Channel Position B - Bandwidth 15.0 MHz - Antenna B



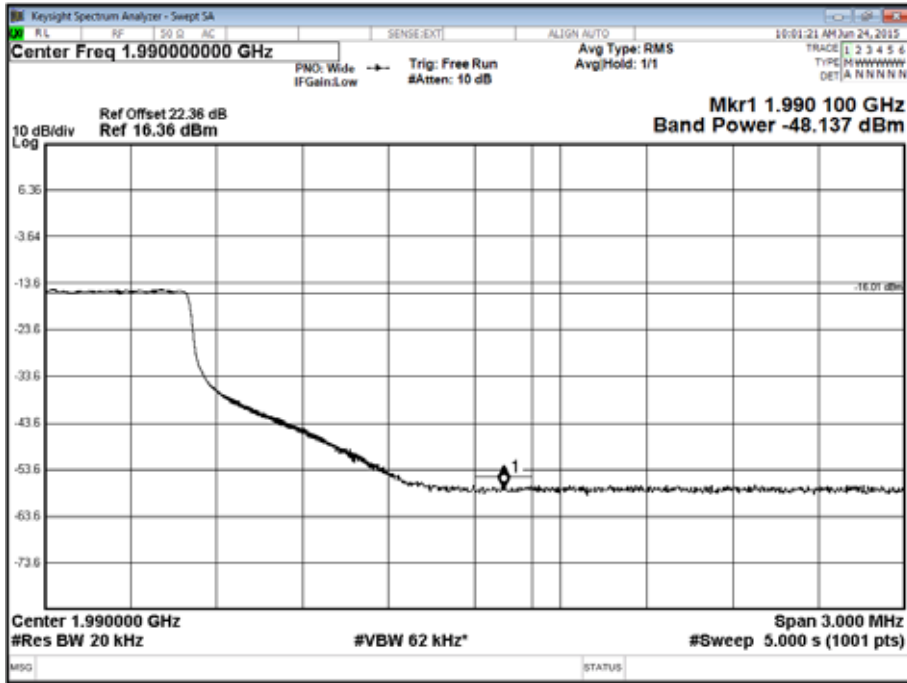
Channel Position T - Bandwidth 15.0 MHz - Antenna B



Channel Position B - Bandwidth 20.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna B



Configuration 6 WCDMA/LTE MM, Antenna A

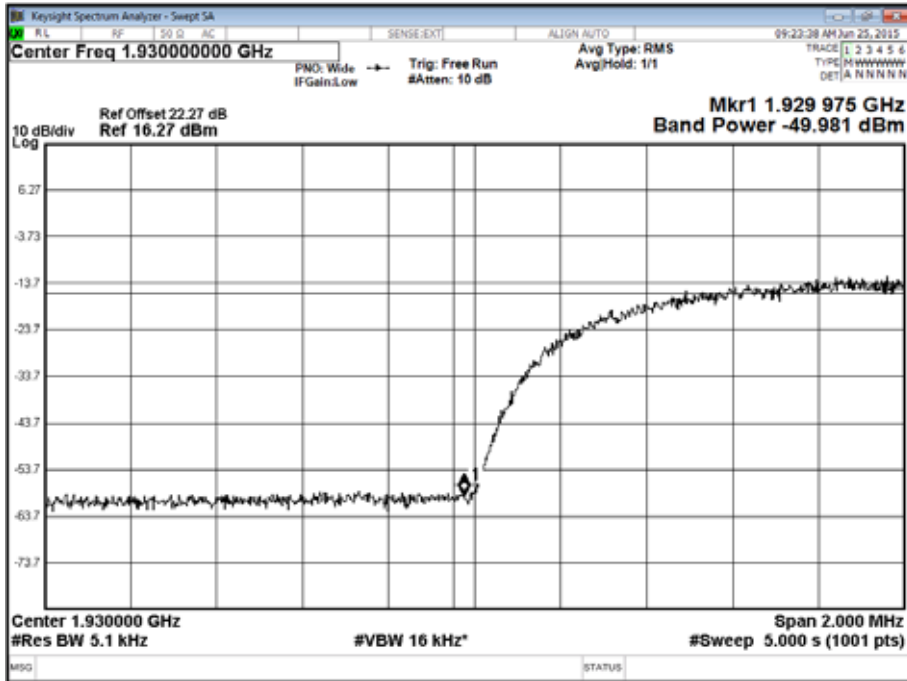
Maximum Output Power 17 dBm

WCDMA Modulation / LTE Bandwidth	Band Edge (MHz)	
	Channel Position BRFBW	Channel Position TRFBW
16QAM / 5.0 MHz	1932.4 + 1937.4	1982.6 + 1987.6

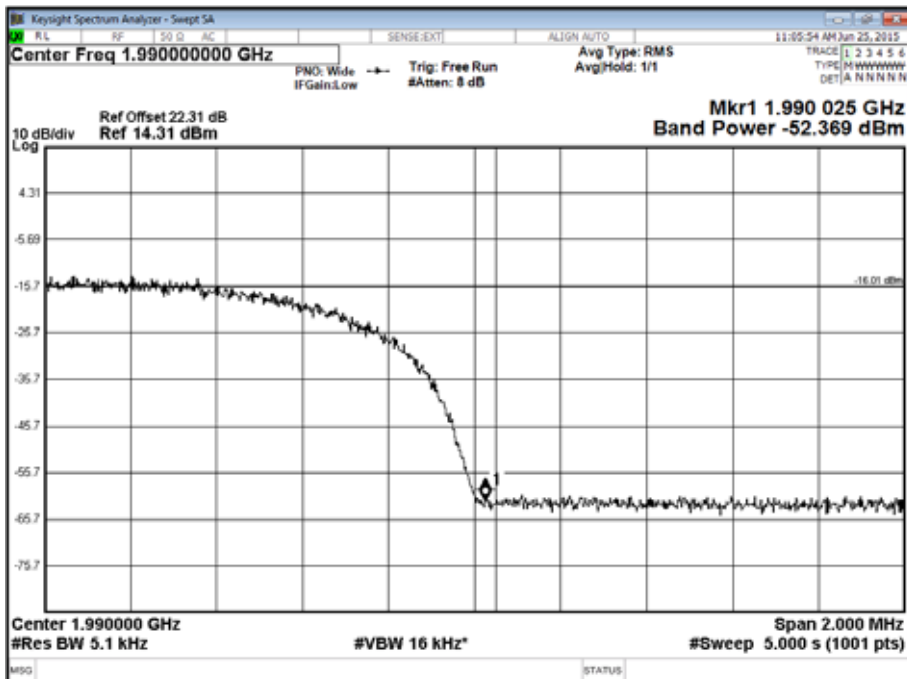
Remarks

LTE Modulation = QPSK

Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna A



Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna A



Configuration 6 WCDMA/LTE MM, Antenna B

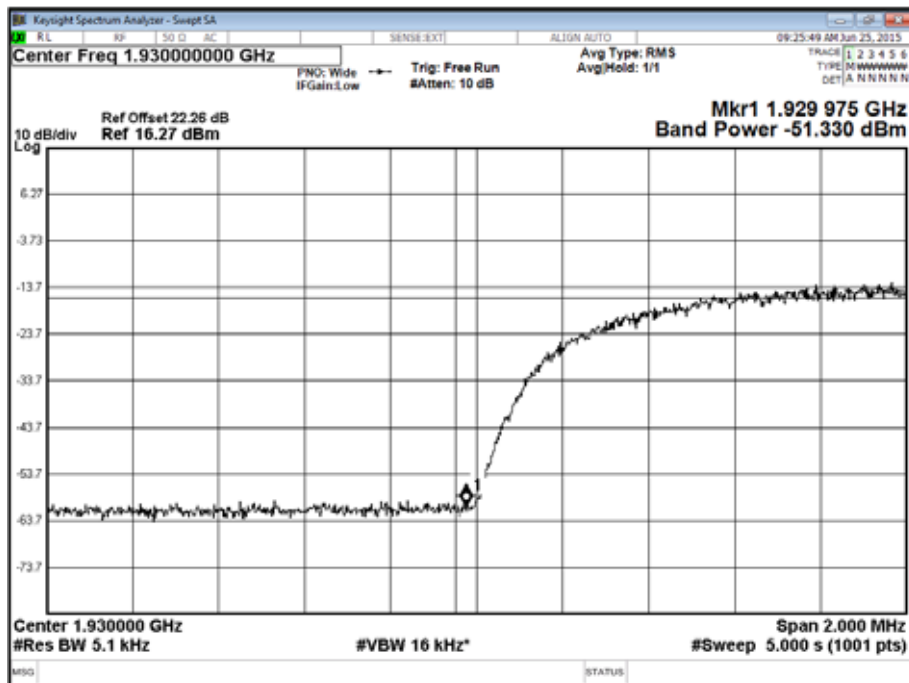
Maximum Output Power 17 dBm

WCDMA Modulation / LTE Bandwidth	Band Edge (MHz)	
	Channel Position BRFBW	Channel Position TRFBW
16QAM / 5.0 MHz	1932.4 + 1937.4	1982.6 + 1987.6

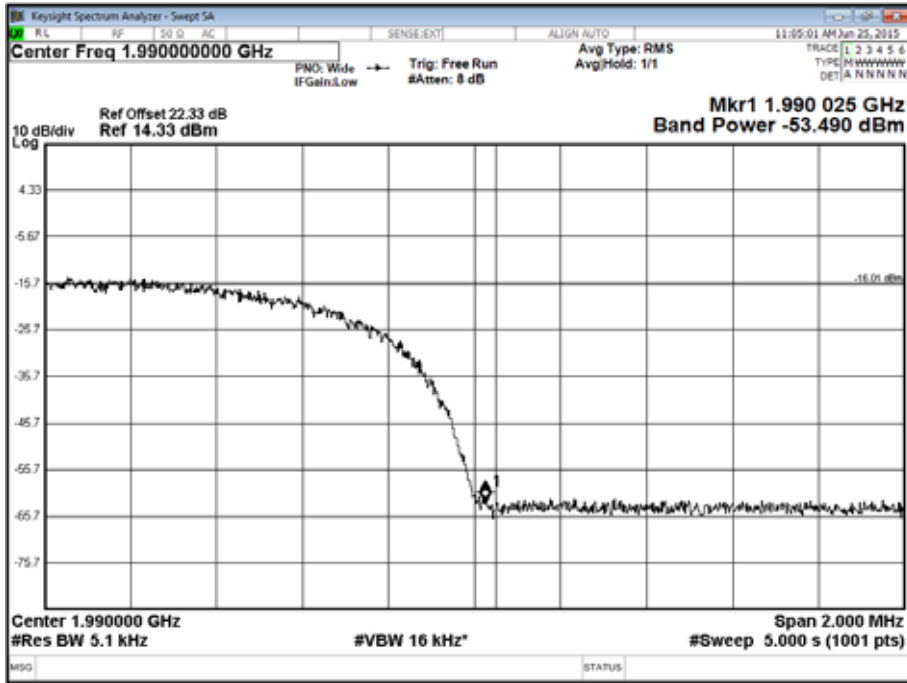
Remarks

LTE Modulation = QPSK

Channel Position BRFBW - Antenna B



Channel Position TRFBW - Antenna B



Limit	-16 dBm (-13 dBm - 10log(NANT) where N = 2)
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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 6.5.1

2.4.2 Date of Test and Modification State

22, 23 and 24 June 2015 - 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	24.5 - 25.1°C
Relative Humidity	44.9 - 50.4%

2.4.5 Test Method

The EUT was connected to a Signal Analyser via 20dB of attenuation and an RF switch for measurements from 9KHz to 20GHz except the measurement band from 3.5GHz to 12GHz where 20dB of attenuation and a high pass filter were used.

The path loss between the EUT and the Analyser was measured using a Network Analyser and entered as a Reference Level Offset.

The EUT was set to transmit at its maximum rated output power in the configurations described below.

The analyser was set to measure with RBW/VBW at 1MHz and 3MHz respectively using an RMS detector and trace Max Hold.

The test limits were set to a worst case value of -16dBm.

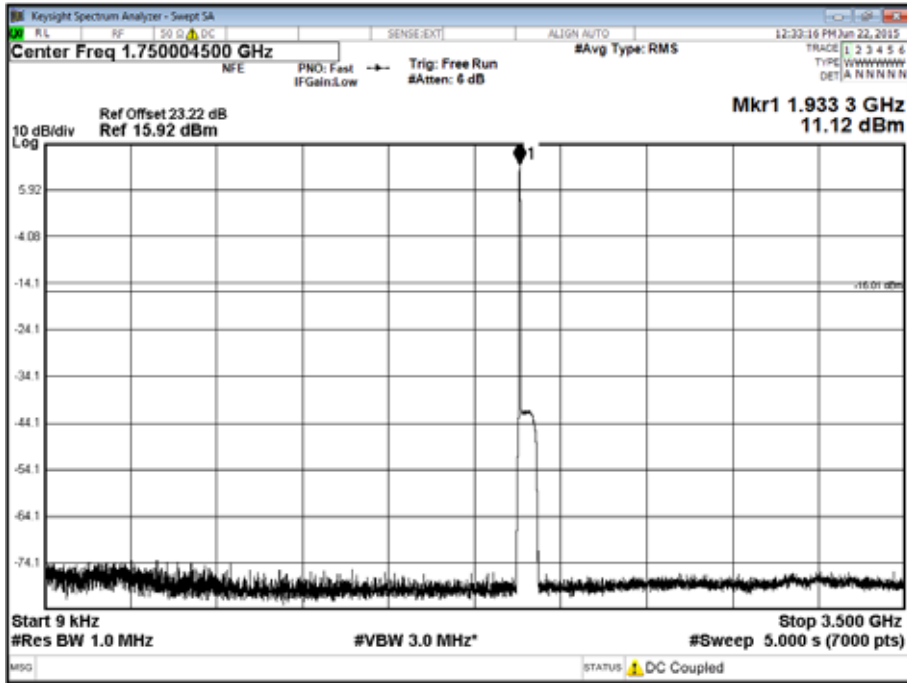
The results are shown in the plots below.

2.4.6 Test Results

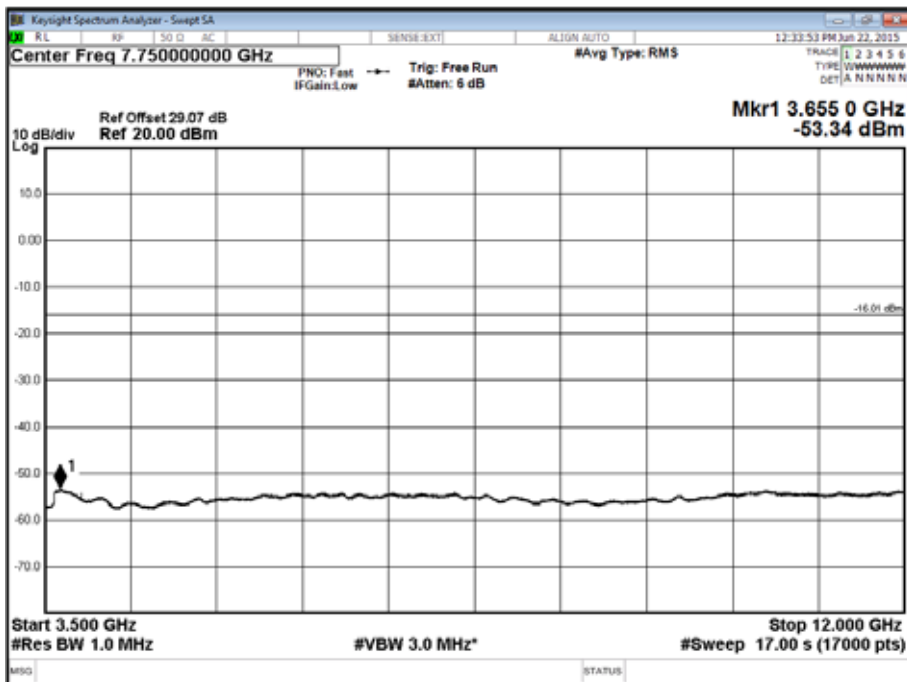
Configuration 1 WCDMA SC, Antenna A (See table 1)

Maximum Output Power 17 dBm

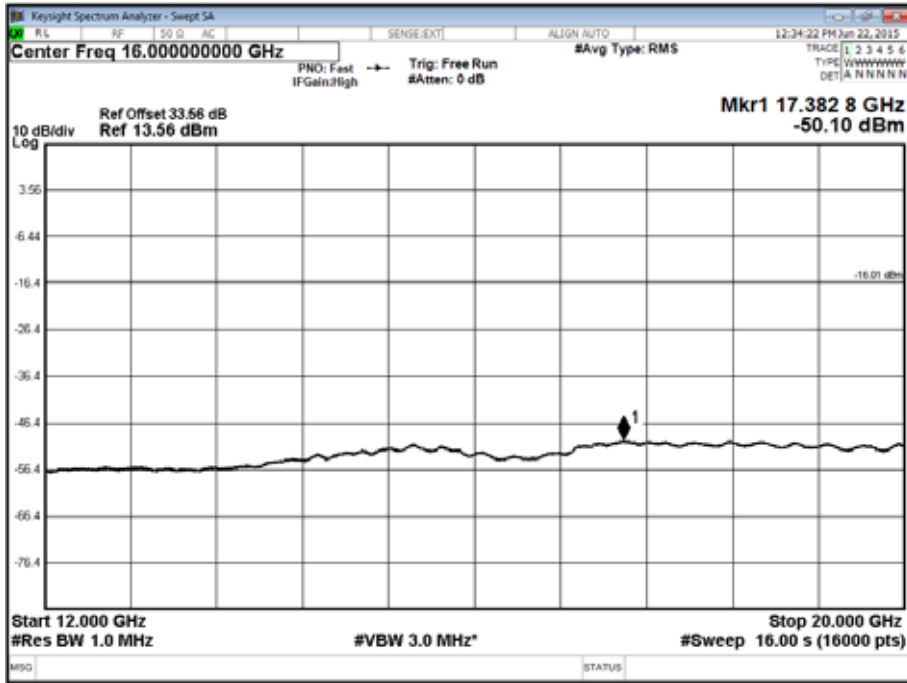
Channel Position B - Bandwidth 5.0 MHz - Antenna A



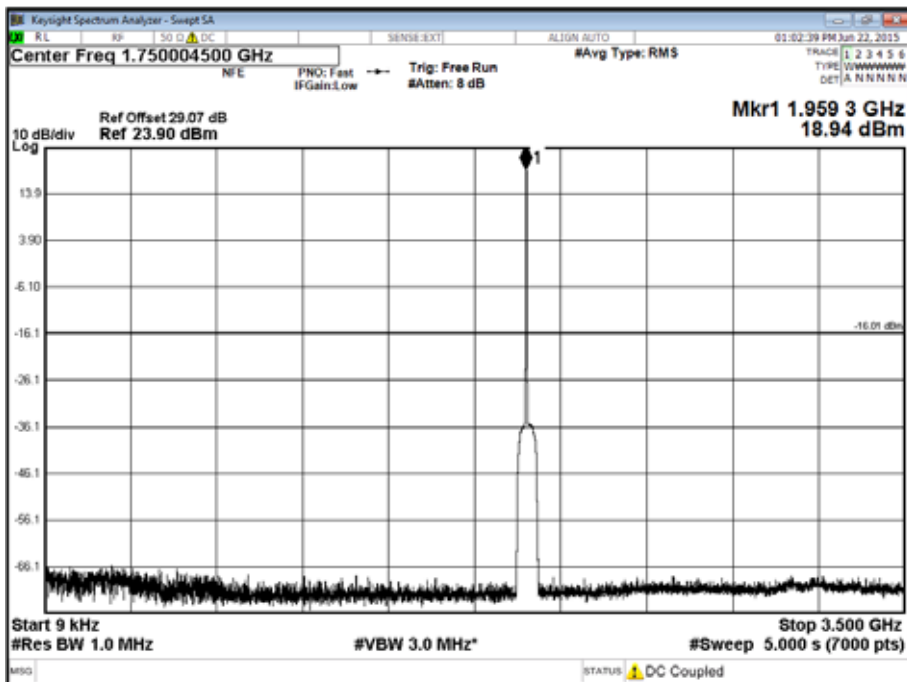
Channel Position B - Bandwidth 5.0 MHz - Antenna A



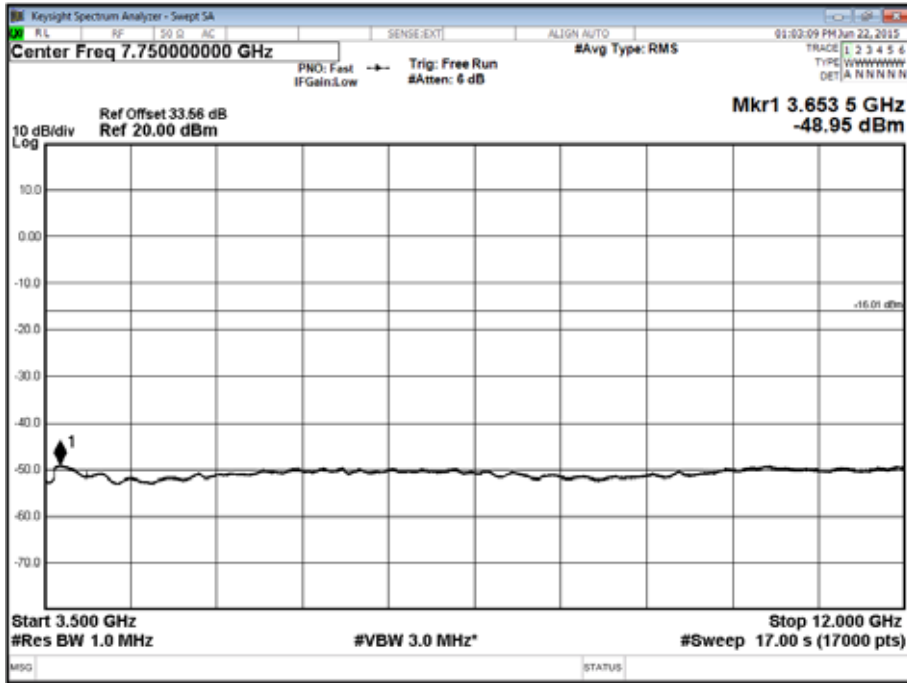
Channel Position B - Bandwidth 5.0 MHz - Antenna A



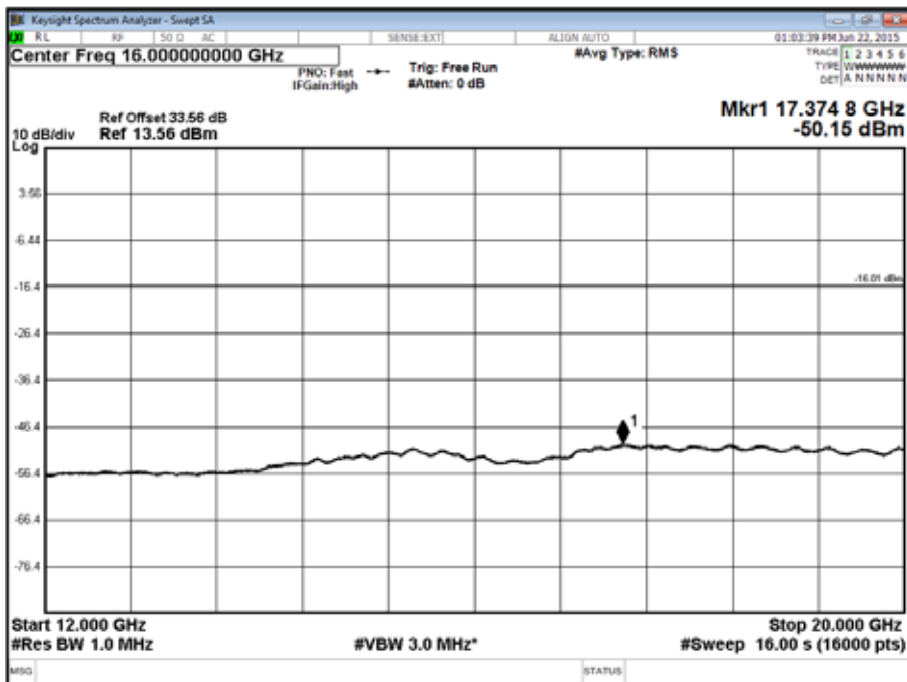
Channel Position M - Bandwidth 5.0 MHz - Antenna A



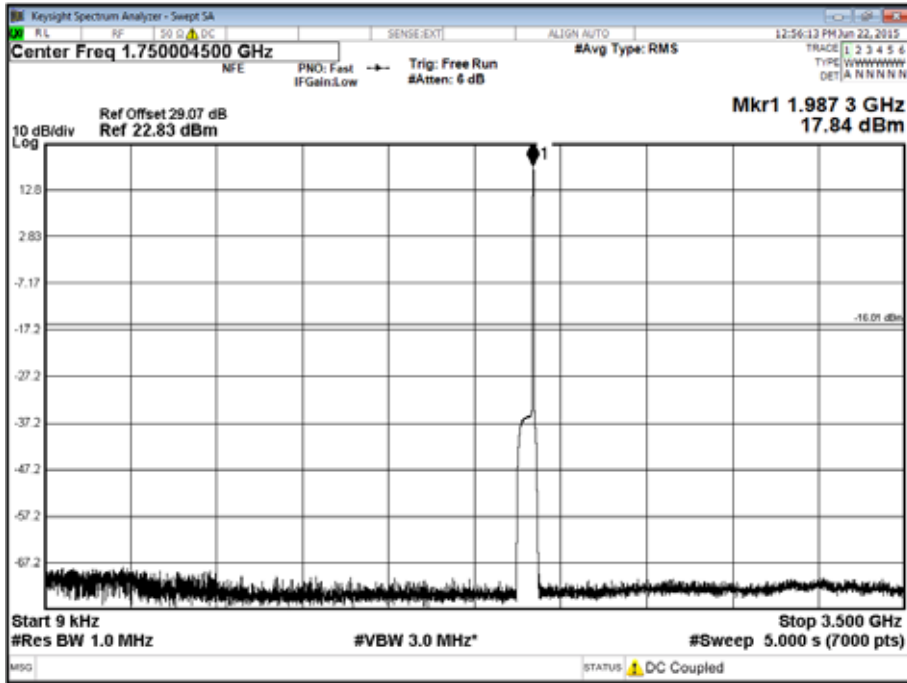
Channel Position M - Bandwidth 5.0 MHz - Antenna A



Channel Position M - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna A



Channel Position T - Bandwidth 5.0 MHz - Antenna A

