



Product Service

**Choose certainty.
Add value.**



Report On

FCC Testing of the
Ericsson AB (2496 - 2690MHz) Radio 4412 B41 KRC 161 697/1
Remote Radio Unit In accordance with FCC CFR 47 Part 27

COMMERCIAL-IN-CONFIDENCE

FCC ID: TA8AKRC161697-1

PREPARED BY

Zhao Lei

Lei Zhao
Project Engineer

APPROVED BY

Steve Scarfe

Steve Scarfe
Authorised Signatory

DATED

10 July 2017

Document 75939631 Report 01 Issue 1

July 2017



Product Service

CONTENTS

Section	Page No
1	REPORT INFORMATION 2
1.1	Report Details 3
1.2	Brief Summary of Results 4
1.3	Configuration Description 5
1.4	Declaration of Build Status 6
1.5	Product Information 7
1.6	Test Setup 8
1.7	Test Conditions..... 10
1.8	Deviation From The Standard 10
1.9	Modification Record 10
1.10	Alternative Test Site..... 10
2	TEST DETAILS 11
2.1	Maximum Output Power and Peak to Average Ratio - Conducted 12
2.2	Occupied Bandwidth..... 23
2.3	Spurious Emission at Band Edge 33
2.4	Radiated Spurious Emissions..... 56
2.5	Conducted Spurious Emissions..... 62
2.6	Frequency Stability 94
3	TEST EQUIPMENT USED 96
3.1	Test Equipment Used 97
3.2	Measurement Uncertainty..... 99
4	ACCREDITATION, DISCLAIMERS AND COPYRIGHT..... 100
4.1	Accreditation, Disclaimers and Copyright..... 101



SECTION 1

REPORT INFORMATION



1.1 REPORT DETAILS

The information contained in this report is intended to show verification of the Ericsson Radio 4412 B41 KRC 161 697/1 Remote Radio Unit to the requirements of FCC CFR 47 Part 27.

Testing was carried out in support of an application for Grant of Radio 4412 B41 KRC 161 697/1 in LTE SR mode.

Manufacturer	Ericsson AB
Address	Isafjordsgatan 10 SE-164 80 Stockholm 16480 Sweden
Product Name	Radio 4412 B41
Product Number	KRC 161 697/1
Serial Number(s)	D825931326 D825931318
Software Version	CXP9029743/5 Rev R1H02
Hardware Version	R1B
Test Specification/Issue/Date	FCC CFR 47 Part 27: 2016
Start of Test	29 June 2017
Finish of Test	10 July 2017
Name of Engineer(s)	Lei Zhao
Related Document(s)	ANSI C63.4: 2014 ANSI/TIA-603-D:2010 FCC CFR 47 Part 2: 2016 3GPP TS 36.141 V13.6.0 (2017-01) KDB 971168 D01 v02r02 KDB 662911 D01 v02r01



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2 and Part 27 is shown below.

Section	Spec Clause		Test Description	Result
	Part 2	Part 27		
2.1	2.1046	27.50(h) 27.50 (i)	Maximum Output Power and Peak to Average Ratio – Conducted	Pass
	-	27.53 (a)	Equivalent Isotropically Radiated Power (EIRP)	N/A ¹
2.2	2.1049(h)	27.53(m)	Occupied Bandwidth	Pass
2.3	2.1051	27.53(m)	Spurious Emissions at Band Edge	Pass
2.4	2.1053	27.53(m)	Radiated Spurious Emissions	Pass
2.5	2.1051	27.53(m)	Conducted Spurious Emissions	Pass
2.6	2.1055	27.54	Frequency Stability	Pass
	-	-	Receiver Spurious Emission	N/A

N/A¹ – Not Applicable, due to no integral antenna

N/A – Not Applicable

1.3 CONFIGURATION DESCRIPTION

Configuration Code	Carrier(s)	Configuration Description
L-MIMO-SC	1C	LTE MIMO, Single Carrier
L-MIMO-MC 1	2C	LTE MIMO, Multi Carrier x2
L-MIMO-MC 2	3C	LTE MIMO, Multi Carrier x3

The settings below were deemed representative for all traffic scenarios when settings with different modulations, channel bandwidths, number for carriers and RF configurations have been tested to find the worst case setting. The settings below were used for all measurements unless otherwise noted:

LTE:

MIMO mode sigle carrier: E-TM1.1

MIMO mode multi carrier (x2): E-TM1.1

MIMO mode multi carrier (x3): E-TM1.1

MIMO mode sigle carrier: E-TM3.2

MIMO mode multi carrier (x2): E-TM3.2

MIMO mode multi carrier (x3): E-TM3.2

MIMO mode sigle carrier: E-TM3.1

MIMO mode multi carrier (x2): E-TM3.1

MIMO mode multi carrier (x3): E-TM3.1

MIMO mode sigle carrier: E-TM3.1a

MIMO mode multi carrier (x2): E-TM3.1a

MIMO mode multi carrier (x3): E-TM3.1a

The EUT includes four TX/RX ports and it can be configured to transmit in MIMO mode for LTE carriers, and MIMO mode for LTE was used for measurements as the worst configuration.

The complete testing was performed with the EUT transmitting at maximum RF power unless otherwise stated.

For LTE single RAT (Radio Access Technology) MIMO mode, the maximum output power was tested on all TX/RX output connector RF A, B, C and D. All the other TX measurements of LTE single RAT were performed on the combined TX/RX output connector RF D of the EUT as the representative port.



Product Service

1.4 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Remote Radio Unit
MANUFACTURER	Ericsson AB
PRODUCT NAME	Radio 4412 B41
PRODUCT NUMBER	KRC 161 697/1
TRANSMITTER OPERATING RANGE	TX/RX:2496 MHz - 2690 MHz
MODULATIONS	LTE: QPSK, 16QAM, 64QAM, 256QAM
ITU DESIGNATION OF EMISSION	LTE: 10M0F9W, 15M0F9W, 20M0F9W
NUMBER OF CARRIERS	Maximum 3 carriers
SUPPORTED CHANNEL BANDWIDTH CONFIGURATION	10MHz, 15MHz and 20MHz
OUTPUT POWER (RMS) (W or dBm)	Maximum 43.0dBm per port
OUTPUT POWER TOLERANCE	+0.6dB / - 2.0dB
INSTANTANEOUS BANDWIDTH	60MHz
NUMBER OF ANTENNA PORTS	4 TX/RX ports
FCC ID	TA8AKRC161697-1
Power source	-48V DC
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The equipment is the Remote Radio Part of LTE SR Base Station.

Signature

Date

29 June 2017

D of B S Serial No

75939631/01

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

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

The Equipment Under Test (EUT) Radio 4412 B41 KRC 161 697/1 is an Ericsson Remote Radio Unit working in the public mobile service 2496 - 2690MHz band which provides communication connections to 2496 - 2690MHz network in LTE SR modes. The Radio 4412 B41 KRC 161 697/1 operates from a -48V DC supply.

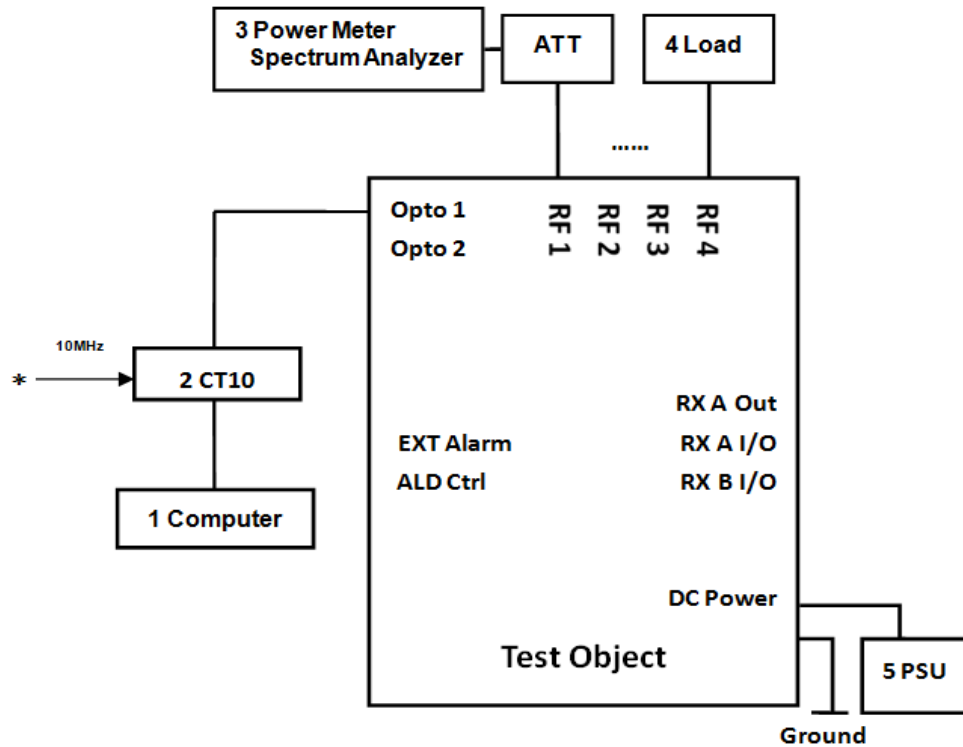
The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.



Equipment Under Test

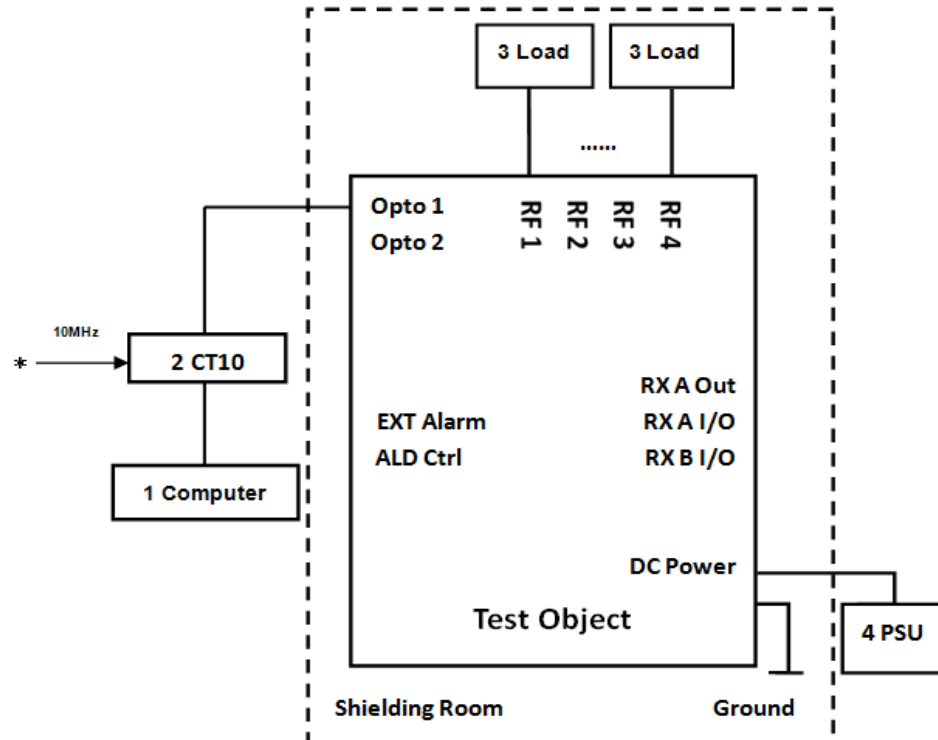
1.6 TEST SETUP

Test Setup, Conducted Measurement:



Product Name	Product Number	Version	Serial Number
Radio 4412 B41	KRC 161 697/1	R1B	D825931326

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Computer	HP EliteBook 8540w	--	CND1234694
2	CT10	LPC 102 487/1	R1C	T01F262515
3	Spectrum Analyzer	N9030A	--	MY54490502
	Power Meter	NRP	--	101593
	Power Sensor	NRP-Z11	--	121216
	Power Sensor	NRP-Z11	--	121228
	Power Meter	NRP2	--	104221
	Power Sensor	NRP-Z11	--	121220
	Power Sensor	NRP-Z11	--	121215
4	40dB Attenuator	66-40-33	--	CD4019
	Load	TF50	--	090323026
	Load	TF50	--	08090219
	Load	TF50	--	05111804
5	Keysight	N5768A	--	US25C1833P

Test Setup, Radiated Measurement:

Product Name	Product Number	Version	Serial Number
Radio 4412 B41	KRC 161 697/1	R1B	D825931318

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Computer	HP EliteBook 8540w	--	CND1234694
2	CT10	LPC 102 487/1	R1C	T01F262515
3	Load	TF50	--	08116326
	Load	TF50	--	090323026
	Load	TF50	--	08090219
	Load	TF50	--	05111804
4	Keysight	N5768A	--	US25C1833P



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.

All test case were tested with the EUT supplied with -48V DC by an external power supply.

1.8 DEVIATION FROM THE STANDARD

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

1.9 MODIFICATION RECORD

Modification State 0 - 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 Beijing, China:

- Maximum Output Power and Peak to Average Ratio – Conducted
- Occupied Bandwidth
- Band Edge
- Conducted Spurious Emissions
- Frequency Stability

Only Radiated Spurious Emissions testing has been performed under the following site registrations:

FCC Accreditation 910917:

The State Radio Monitoring Centre, No.80 Beilishi Road, Xicheng District, Beijing, China



SECTION 2

TEST DETAILS



Product Service

2.1 MAXIMUM 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 (h)(1)(i)

2.1.2 Equipment Under Test

Radio 4412 B41, KRC 161 697/1, S/N: D825931326

2.1.3 Date of Test and Modification State

30 June to 3 July 2017 - Modification State 0

2.1.4 Test Equipment Used

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

2.1.5 Environmental Conditions

Ambient Temperature	23.8 - 24.1°C
Relative Humidity	55.0 - 58.0%

2.1.6 Test Method

The test was applied in accordance with the test method requirements of FCC Part 2 and Part 27.

Using a power meter and attenuator(s), the output power of the EUT was measured at the antenna terminal. The path loss between the EUT and the power sensor was measured and recorded for the test band. The path loss was entered as an offset into the Power Meter and Spectrum Analyzer.

The EUT was configured to transmit on maximum power on the configurations defined in the tables below. In case of the EUT was configured to MIMO mode, since the EUT transmits on four antennas simultaneously in the same frequency range for MIMO devices, i.e., TX MIMO mode, using the Measure-and-Sum approach, the output power at both antennas were tested, and the total output power were then summed mathematically in linear power units according to FCC KDB 662911 D01.

A peak to average ratio measurement is performed at the conducted ports of the EUT for single carrier for single RAT mode. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) was used and 0.1% probability value recorded.

The RMS Power and Peak to Average Ratio was measured and recorded with the results being compared with the limits.

2.1.7 Test Results

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2501.0MHz			Channel Position M 2593.0MHz			Channel Position T 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 10.0 MHz	42.37	17.26	10.10	43.07	20.28	9.68	42.34	17.14	10.02
B		42.53	17.91	10.10	42.89	19.45	9.68	42.60	18.20	10.02
C		42.42	17.46	10.10	42.87	19.36	9.69	42.55	17.99	10.02
D		42.53	17.91	10.11	42.79	19.01	9.69	42.37	17.26	10.02
Total (dBW)		18.48			18.93			18.49		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2501.0MHz			Channel Position M 2593.0MHz			Channel Position T 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 10.0 MHz	-	-	-	43.07	20.28	9.69	-	-	-
B		-	-	-	42.84	19.23	9.68	-	-	-
C		-	-	-	42.99	19.91	9.68	-	-	-
D		-	-	-	42.84	19.23	9.69	-	-	-
Total (dBW)		-			18.96			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2501.0MHz			Channel Position M 2593.0MHz			Channel Position T 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 10.0 MHz	-	-	-	43.06	20.23	9.70	-	-	-
B		-	-	-	42.85	19.28	9.69	-	-	-
C		-	-	-	42.93	19.63	9.70	-	-	-
D		-	-	-	42.91	19.54	9.69	-	-	-
Total (dBW)		-			18.96			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2501.0MHz			Channel Position M 2593.0MHz			Channel Position T 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 10.0 MHz	-	-	-	43.06	20.23	9.71	-	-	-
B		-	-	-	42.82	19.14	9.70	-	-	-
C		-	-	-	42.92	19.59	9.72	-	-	-
D		-	-	-	42.87	19.36	9.70	-	-	-
Total (dBW)		-			18.94			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2503.5MHz			Channel Position M 2593.0MHz			Channel Position T 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 15.0 MHz	-	-	-	43.08	20.32	9.69	-	-	-
B		-	-	-	42.90	19.50	9.68	-	-	-
C		-	-	-	43.02	20.04	9.69	-	-	-
D		-	-	-	42.94	19.68	9.69	-	-	-
Total (dBW)		-			19.01			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2503.5MHz			Channel Position M 2593.0MHz			Channel Position T 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 15.0 MHz	-	-	-	43.02	20.04	9.68	-	-	-
B		-	-	-	42.79	19.01	9.68	-	-	-
C		-	-	-	42.99	19.91	9.68	-	-	-
D		-	-	-	42.87	19.36	9.69	-	-	-
Total (dBW)		-			18.94			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2503.5MHz			Channel Position M 2593.0MHz			Channel Position T 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 15.0 MHz	-	-	-	42.99	19.91	9.70	-	-	-
B		-	-	-	42.81	19.10	9.70	-	-	-
C		-	-	-	42.96	19.77	9.70	-	-	-
D		-	-	-	42.86	19.32	9.69	-	-	-
Total (dBW)		-			18.93			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2503.5MHz			Channel Position M 2593.0MHz			Channel Position T 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 15.0 MHz	-	-	-	43.00	19.95	9.87	-	-	-
B		-	-	-	42.78	18.97	9.87	-	-	-
C		-	-	-	42.65	18.41	9.90	-	-	-
D		-	-	-	42.78	18.97	9.88	-	-	-
Total (dBW)		-			18.82			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2506.0MHz			Channel Position M 2593.0MHz			Channel Position T 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 20.0 MHz	42.70	18.62	10.01	43.17	20.75	9.69	42.62	18.28	10.03
B		42.76	18.88	10.01	43.04	20.14	9.69	42.77	18.92	10.03
C		42.72	18.71	10.00	42.97	19.82	9.69	42.64	18.37	10.03
D		42.83	19.19	9.98	43.05	20.18	9.69	42.50	17.78	10.00
Total		18.77			19.08			18.65		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2506.0MHz			Channel Position M 2593.0MHz			Channel Position T 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 20.0 MHz	-	-	-	43.12	20.51	9.68	-	-	-
B		-	-	-	42.95	19.72	9.69	-	-	-
C		-	-	-	42.94	19.68	9.68	-	-	-
D		-	-	-	42.91	19.54	9.70	-	-	-
Total (dBW)		-			19.00			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2506.0MHz			Channel Position M 2593.0MHz			Channel Position T 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 20.0 MHz	-	-	-	43.08	20.32	9.68	-	-	-
B		-	-	-	42.93	19.63	9.69	-	-	-
C		-	-	-	43.03	20.09	9.70	-	-	-
D		-	-	-	43.02	20.04	9.69	-	-	-
Total (dBW)		-			19.04			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B 2506.0MHz			Channel Position M 2593.0MHz			Channel Position T 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 20.0 MHz	-	-	-	43.11	20.46	9.69	-	-	-
B		-	-	-	42.94	19.68	9.70	-	-	-
C		-	-	-	43.01	20.00	9.71	-	-	-
D		-	-	-	42.93	19.63	9.68	-	-	-
Total (dBW)		-			19.02			-		

Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 43.0dBm per port

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 10.0 MHz	42.03	15.96	-	42.48	17.70	-	41.91	15.52	-
B		42.02	15.92	-	42.51	17.82	-	42.22	16.67	-
C		42.08	16.14	-	42.53	17.91	-	42.24	16.75	-
D		42.09	16.18	-	42.52	17.86	-	42.12	16.29	-
Total (dBW)		18.08			18.53			18.15		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 10.0 MHz	-	-	-	42.52	17.86	-	-	-	-
B		-	-	-	42.39	17.34	-	-	-	-
C		-	-	-	42.61	18.24	-	-	-	-
D		-	-	-	42.53	17.91	-	-	-	-
Total (dBW)		-			18.53			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 10.0 MHz	-	-	-	42.49	17.74	-	-	-	-
B		-	-	-	42.43	17.50	-	-	-	-
C		-	-	-	42.53	17.91	-	-	-	-
D		-	-	-	42.52	17.86	-	-	-	-
Total (dBW)		-			18.51			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 10.0 MHz	-	-	-	42.52	17.86	-	-	-	-
B		-	-	-	42.38	17.30	-	-	-	-
C		-	-	-	42.57	18.07	-	-	-	-
D		-	-	-	42.45	17.58	-	-	-	-
Total (dBW)		-			18.50			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 15.0 MHz	-	-	-	42.74	18.79	-	-	-	-
B		-	-	-	42.63	18.32	-	-	-	-
C		-	-	-	42.82	19.14	-	-	-	-
D		-	-	-	42.73	18.75	-	-	-	-
Total (dBW)		-			18.75			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 15.0 MHz	-	-	-	42.72	18.71	-	-	-	-
B		-	-	-	42.61	18.24	-	-	-	-
C		-	-	-	42.78	18.97	-	-	-	-
D		-	-	-	42.66	18.45	-	-	-	-
Total (dBW)		-			18.71			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 15.0 MHz	-	-	-	42.64	18.37	-	-	-	-
B		-	-	-	42.62	18.28	-	-	-	-
C		-	-	-	42.78	18.97	-	-	-	-
D		-	-	-	42.69	18.58	-	-	-	-
Total (dBW)		-			18.70			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 15.0 MHz	-	-	-	42.74	18.79	-	-	-	-
B		-	-	-	42.55	17.99	-	-	-	-
C		-	-	-	42.50	17.78	-	-	-	-
D		-	-	-	42.53	17.91	-	-	-	-
Total (dBW)		-			18.60			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 20.0 MHz	42.26	16.83	-	42.95	19.72	-	42.49	17.74	-
B		42.30	16.98	-	42.85	19.28	-	42.46	17.62	-
C		42.53	17.91	-	42.80	19.05	-	42.43	17.50	-
D		42.44	17.54	-	42.79	19.01	-	42.37	17.26	-
Total (dBW)		18.40			18.87			18.46		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 20.0 MHz	-	-	-	42.99	19.91	-	-	-	-
B		-	-	-	42.72	18.71	-	-	-	-
C		-	-	-	42.79	19.01	-	-	-	-
D		-	-	-	42.81	19.10	-	-	-	-
Total (dBW)		-			18.85			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 20.0 MHz	-	-	-	42.94	19.68	-	-	-	-
B		-	-	-	42.67	18.49	-	-	-	-
C		-	-	-	42.80	19.05	-	-	-	-
D		-	-	-	42.77	18.92	-	-	-	-
Total (dBW)		-			18.82			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 20.0 MHz	-	-	-	42.89	19.45	-	-	-	-
B		-	-	-	42.71	18.66	-	-	-	-
C		-	-	-	42.74	18.79	-	-	-	-
D		-	-	-	42.75	18.84	-	-	-	-
Total (dBW)		-			18.79			-		



Configuration L-MIMO-MC 2 (3C)

Maximum Output Power 43.0dBm per port

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2541.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2608.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2675.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 10.0 MHz	41.98	15.78	-	42.51	17.82	-	41.89	15.45	-
B		41.97	15.74	-	42.47	17.66	-	42.22	16.67	-
C		42.08	16.14	-	42.58	18.11	-	42.13	16.33	-
D		42.03	15.96	-	42.40	17.38	-	42.09	16.18	-
Total (dBW)		18.04			18.51			18.10		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2541.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2608.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2675.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 10.0 MHz	-	-	-	42.46	17.62	-	-	-	-
B		-	-	-	42.45	17.58	-	-	-	-
C		-	-	-	42.50	17.78	-	-	-	-
D		-	-	-	42.46	17.62	-	-	-	-
Total (dBW)		-			18.49			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2541.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2608.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2675.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 10.0 MHz	-	-	-	42.43	17.50	-	-	-	-
B		-	-	-	42.45	17.58	-	-	-	-
C		-	-	-	42.54	17.95	-	-	-	-
D		-	-	-	42.48	17.70	-	-	-	-
Total (dBW)		-			18.50			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2501.0MHz + 2541.0MHz + 2551.0MHz			Channel Position M _{RFBW} 2568.0MHz + 2608.0MHz + 2618.0MHz			Channel Position T _{RFBW} 2635.0MHz + 2675.0MHz + 2685.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 10.0 MHz	-	-	-	42.39	17.34	-	-	-	-
B		-	-	-	42.44	17.54	-	-	-	-
C		-	-	-	42.56	18.03	-	-	-	-
D		-	-	-	42.47	17.66	-	-	-	-
Total (dBW)		-			18.49			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2533.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2600.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2667.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 15.0 MHz	-	-	-	42.70	18.62	-	-	-	-
B		-	-	-	42.54	17.95	-	-	-	-
C		-	-	-	42.73	18.75	-	-	-	-
D		-	-	-	42.67	18.49	-	-	-	-
Total (dBW)		-			18.68			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2533.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2600.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2667.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 15.0 MHz	-	-	-	42.63	18.32	-	-	-	-
B		-	-	-	42.64	18.37	-	-	-	-
C		-	-	-	42.75	18.84	-	-	-	-
D		-	-	-	42.67	18.49	-	-	-	-
Total (dBW)		-			18.69			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2533.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2600.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2667.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 15.0 MHz	-	-	-	42.54	17.95	-	-	-	-
B		-	-	-	42.59	18.16	-	-	-	-
C		-	-	-	42.79	19.01	-	-	-	-
D		-	-	-	42.65	18.41	-	-	-	-
Total (dBW)		-			18.66			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2503.5MHz + 2533.5MHz + 2548.5MHz			Channel Position M _{RFBW} 2570.5MHz + 2600.5MHz + 2615.5MHz			Channel Position T _{RFBW} 2637.5MHz + 2667.5MHz + 2682.5MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 15.0 MHz	-	-	-	42.80	19.05	-	-	-	-
B		-	-	-	42.54	17.95	-	-	-	-
C		-	-	-	42.48	17.70	-	-	-	-
D		-	-	-	42.50	17.78	-	-	-	-
Total (dBW)		-			18.60			-		



Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2526.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2593.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2660.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	QPSK / 20.0 MHz	42.50	17.78	-	42.84	19.23	-	42.43	17.50	-
B		42.52	17.86	-	42.63	18.32	-	42.49	17.74	-
C		42.57	18.07	-	42.82	19.14	-	42.50	17.78	-
D		42.54	17.95	-	42.80	19.05	-	42.45	17.58	-
Total (dBW)		18.55			18.79			18.49		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2526.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2593.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2660.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	16QAM / 20.0 MHz	-	-	-	42.89	19.45	-	-	-	-
B		-	-	-	42.67	18.49	-	-	-	-
C		-	-	-	42.79	19.01	-	-	-	-
D		-	-	-	42.74	18.79	-	-	-	-
Total		-			18.79			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2526.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2593.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2660.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	64QAM / 20.0 MHz	-	-	-	42.87	19.36	-	-	-	-
B		-	-	-	42.71	18.66	-	-	-	-
C		-	-	-	42.82	19.14	-	-	-	-
D		-	-	-	42.86	19.32	-	-	-	-
Total (dBW)		-			18.84			-		

Antenna	Modulation / Carrier Bandwidth (MHz)	RMS Output Power / Peak to Average Ratio (PAR)								
		Channel Position B _{RFBW} 2506.0MHz + 2526.0MHz + 2546.0MHz			Channel Position M _{RFBW} 2573.0MHz + 2593.0MHz + 2613.0MHz			Channel Position T _{RFBW} 2640.0MHz + 2660.0MHz + 2680.0MHz		
		Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)	Power (dBm)	Power (W)	PAR (dB)
A	256QAM / 20.0 MHz	-	-	-	42.98	19.86	-	-	-	-
B		-	-	-	42.78	18.97	-	-	-	-
C		-	-	-	42.83	19.19	-	-	-	-
D		-	-	-	42.76	18.88	-	-	-	-
Total (dBW)		-			18.86			-		

Note :

Licensees are required to take into account maximum allowed antenna gain used in combination with above power settings to prevent the radiated output power to exceed the limits.

Limit	
33 dBW +10log(X/Y) dBW	Where X is the actual channel width and Y is 6 MHz X=9.298, Limit = 34.90 X=13.890, Limit = 36.65 X=18.480, Limit = 37.89
Peak to Average Ratio	13 dB

Remarks

The maximum output power of the EUT is sufficient to keep it within the range of the rated transmitter power that the manufacture declared and the requirements of FCC standards. The peak to average ratio is under the limit of 13dB.



2.2 OCCUPIED BANDWIDTH

2.2.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049(h)
FCC CFR 47 Part 27, Clause 27.53 (m)

2.2.2 Equipment Under Test

Radio 4412 B41, KRC 161 697/1, S/N: D825931326

2.2.3 Date of Test and Modification State

04 and 10 July 2017 - Modification State 0

2.2.4 Test Equipment Used

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

2.2.5 Environmental Conditions

Ambient Temperature	23.1 - 24.1°C
Relative Humidity	59.0 - 61.0%

2.2.6 Test Method

The test was applied in accordance with the test method requirements of FCC Part 2, Part 27 and KDB 971168 D01.

The EUT was set to transmit at maximum power and testing was carried out on bottom, middle and top channels. Using the Occupied Bandwidth measurement function in the spectrum analyser, the 26dB bandwidth was measured in accordance with FCC KDB 971168 D01 Power Meas License Digital Systems v02r02 Clause 4.2. The RBW was configured to 1% of the theoretical channel bandwidth, meeting the requirement of being between 1 to 5% of the Occupied Bandwidth described in the KDB aforementioned.

The results are shown in the plots below.

2.2.7 Test Results

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port

-26dBc Occupied Bandwidth

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2501.0MHz	Channel Position M 2593.0MHz	Channel Position T 2685.0MHz
QPSK / 10.0 MHz	9.347	9.354	9.349
16QAM / 10.0 MHz	-	9.298	-
64QAM / 10.0 MHz	-	9.310	-
256QAM / 10.0 MHz	-	9.353	-

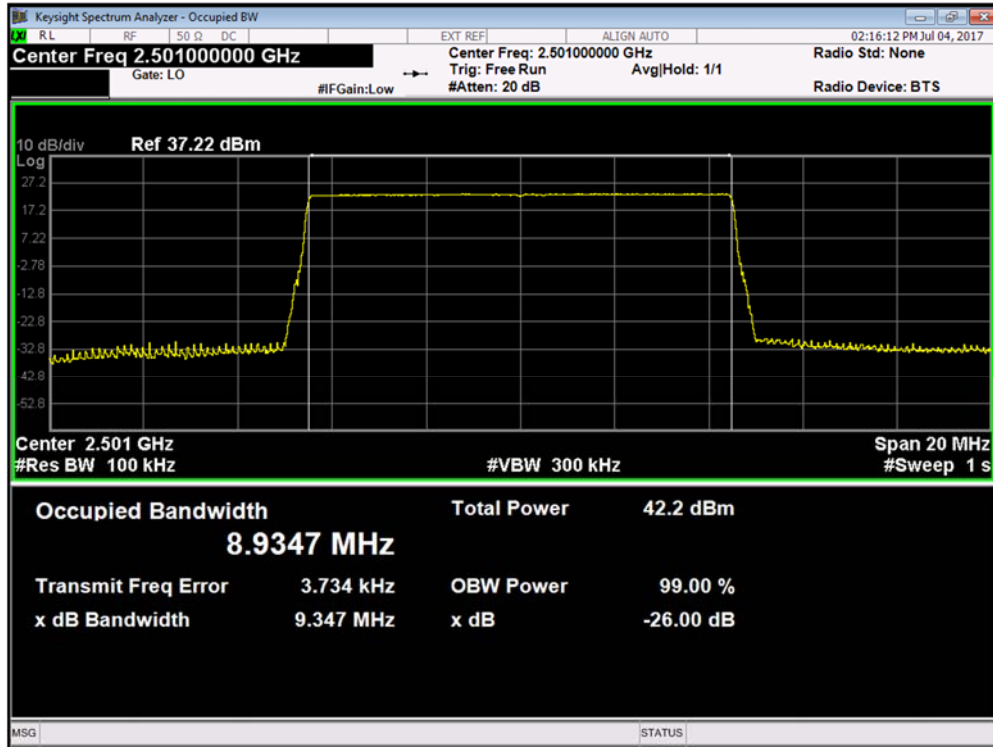
Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2503.5MHz	Channel Position M 2593.0MHz	Channel Position T 2682.5MHz
QPSK / 15.0 MHz	-	13.940	-
16QAM / 15.0 MHz	-	13.890	-
64QAM / 15.0 MHz	-	13.930	-
256QAM / 15.0 MHz	-	13.960	-

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2506.0MHz	Channel Position M 2593.0MHz	Channel Position T 2680.0MHz
QPSK / 20.0 MHz	18.550	18.560	18.550
16QAM / 20.0 MHz	-	18.480	-
64QAM / 20.0 MHz	-	18.570	-
256QAM / 20.0 MHz	-	18.570	-

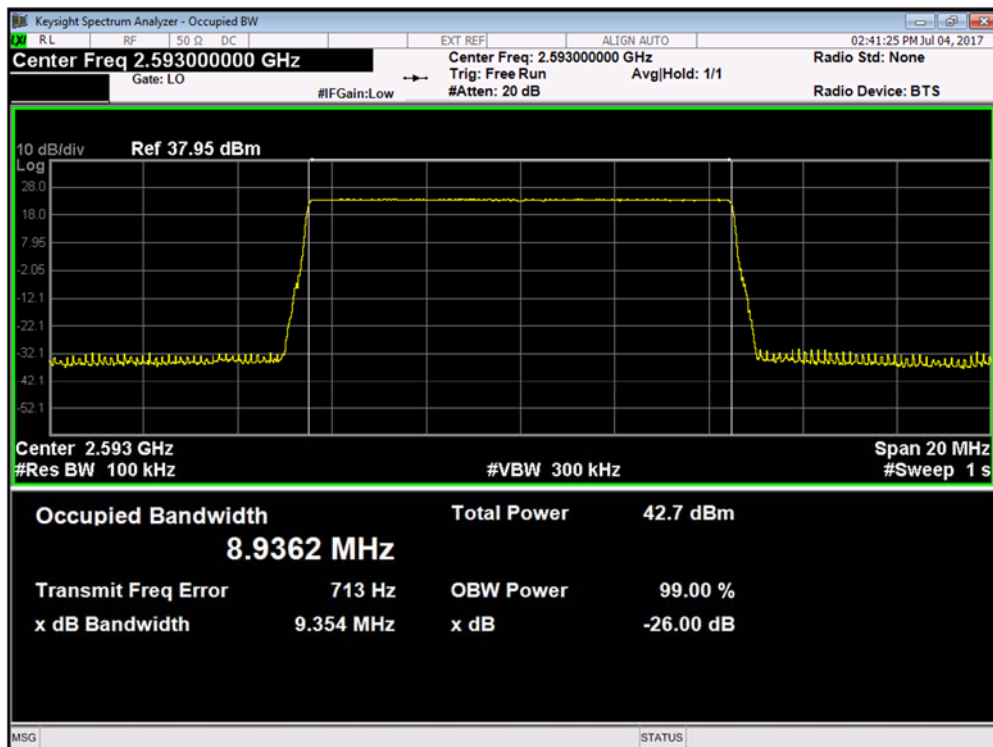


Product Service

Channel Position B - QPSK / Bandwidth 10.0 MHz



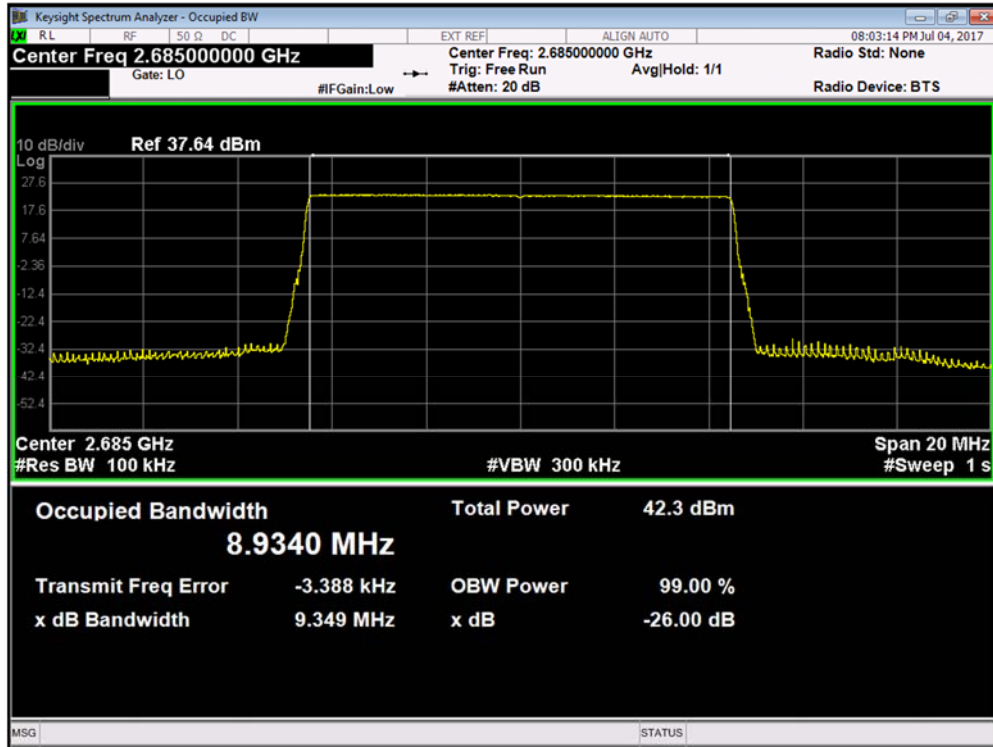
Channel Position M - QPSK / Bandwidth 10.0 MHz



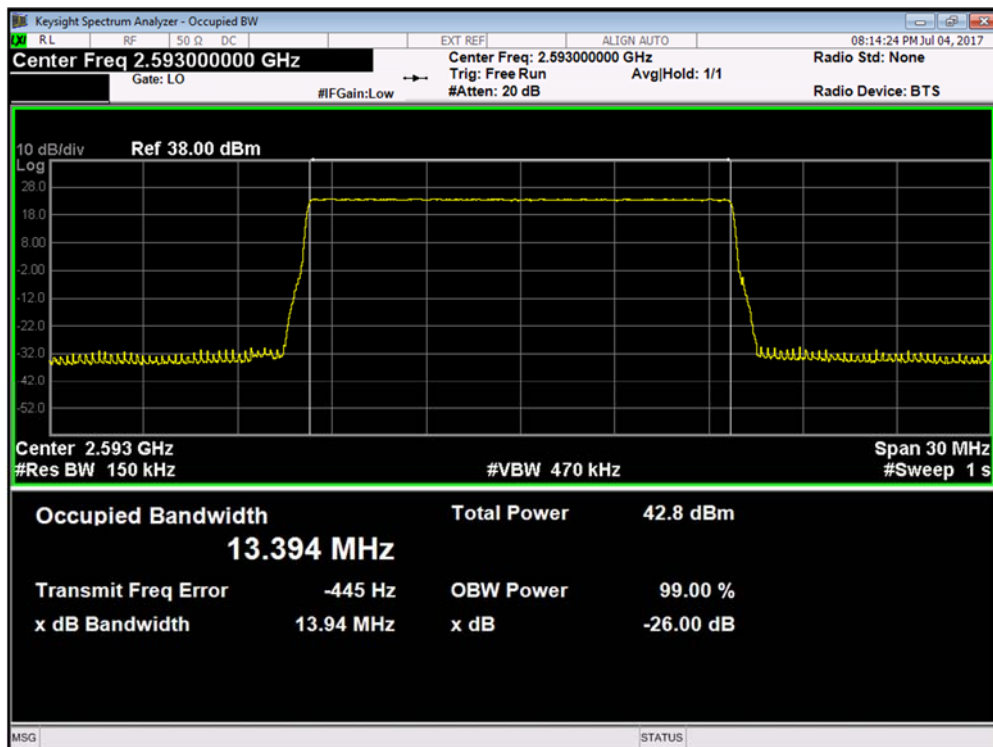


Product Service

Channel Position T - QPSK / Bandwidth 10.0 MHz



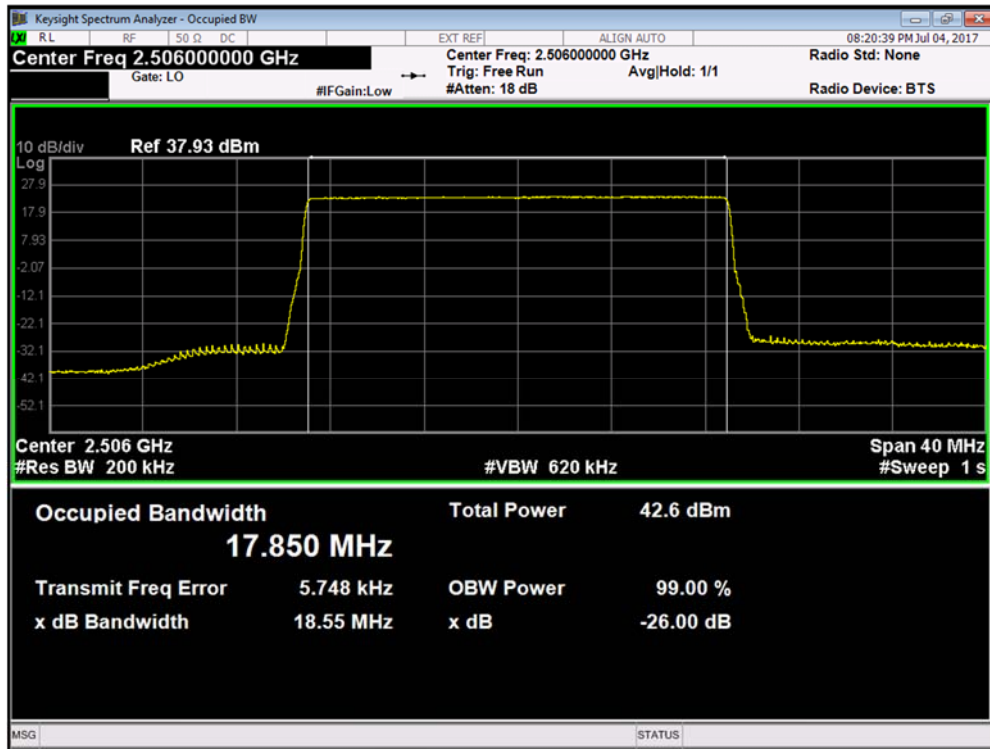
Channel Position M - QPSK / Bandwidth 15.0 MHz



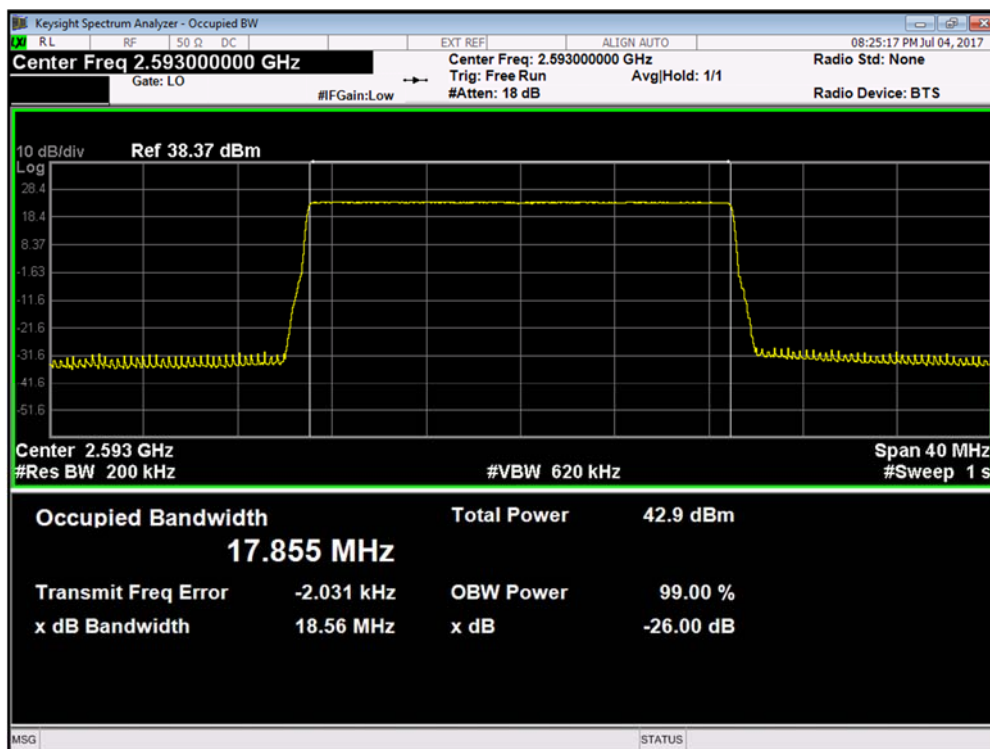


Product Service

Channel Position B - QPSK / Bandwidth 20.0 MHz



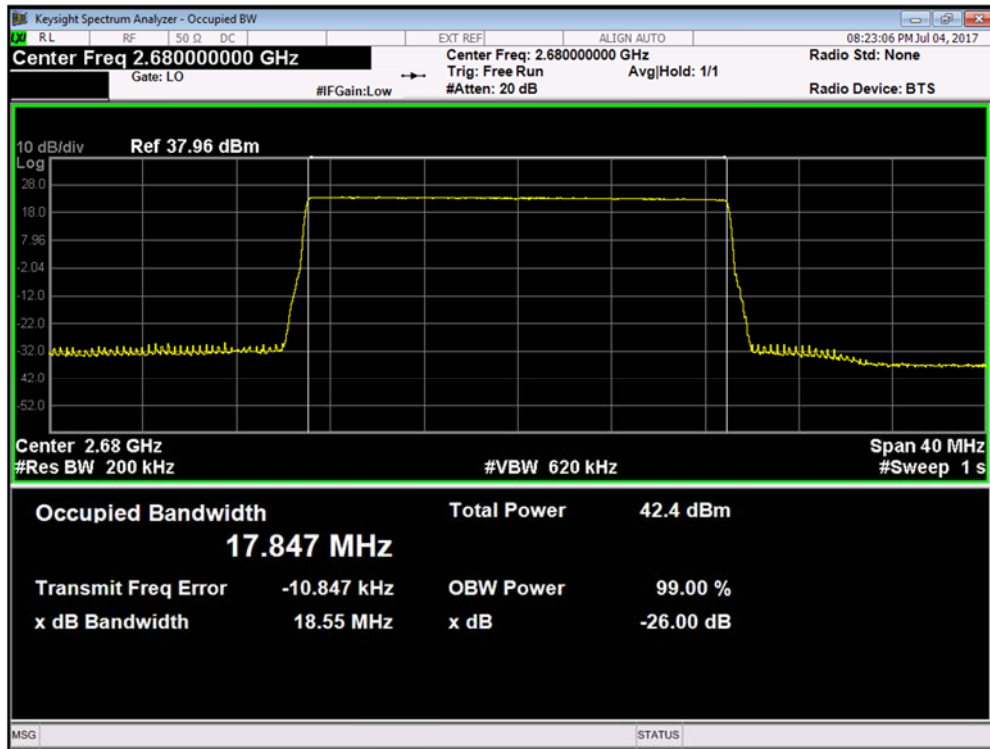
Channel Position M - QPSK / Bandwidth 20.0 MHz



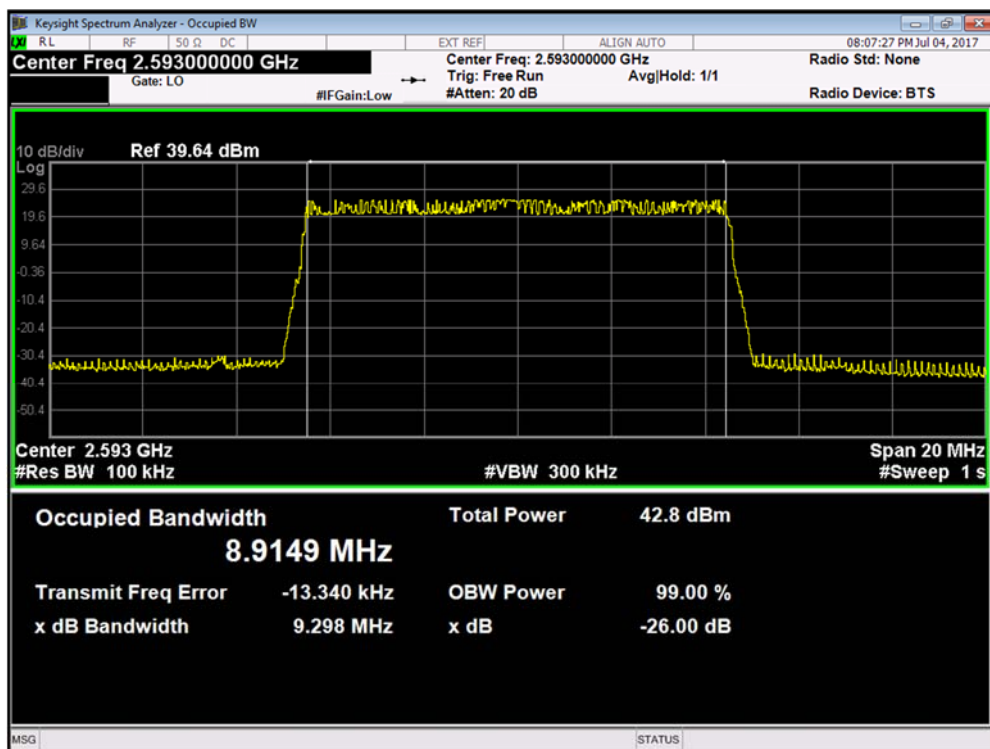


Product Service

Channel Position T - QPSK / Bandwidth 20.0 MHz



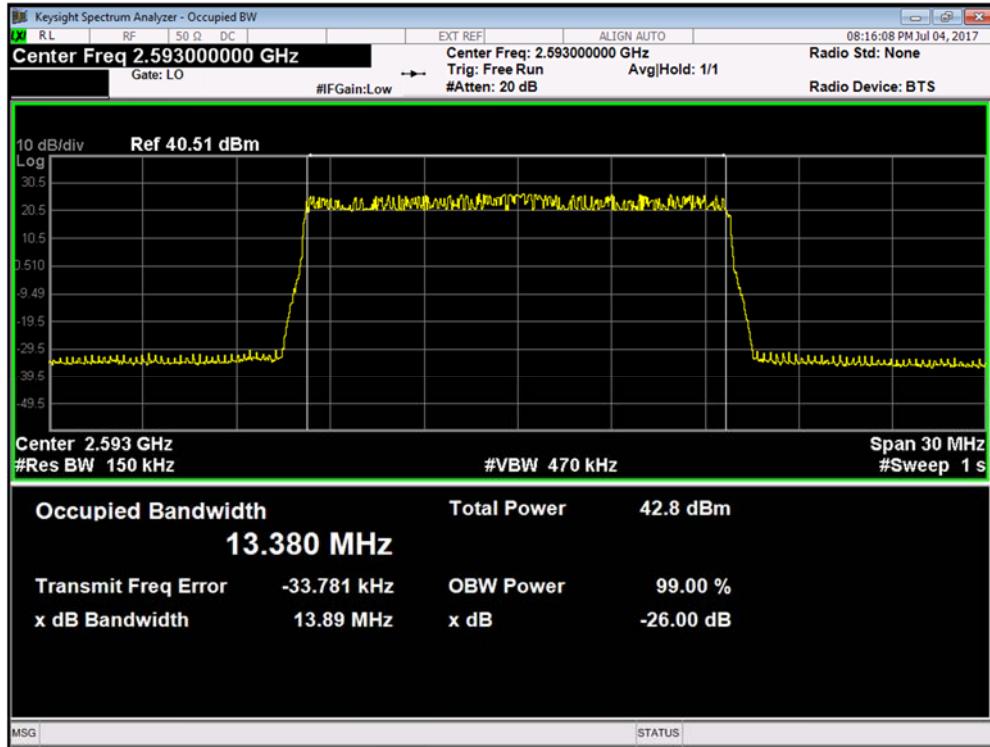
Channel Position M - 16QAM / Bandwidth 10.0 MHz



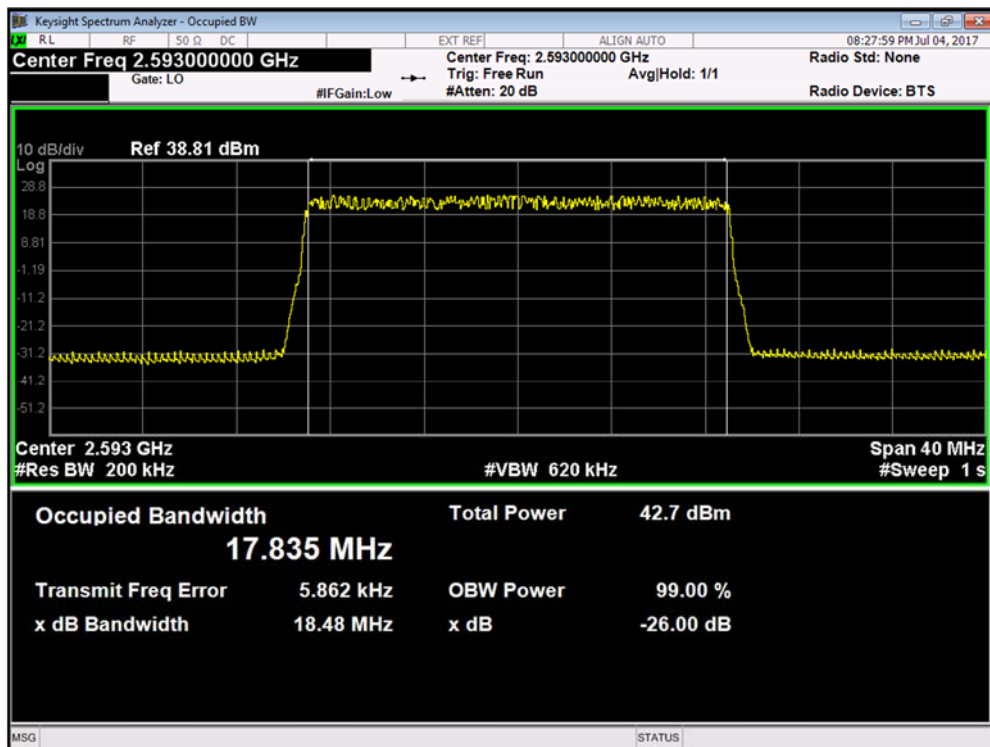


Product Service

Channel Position M - 16QAM / Bandwidth 15.0 MHz



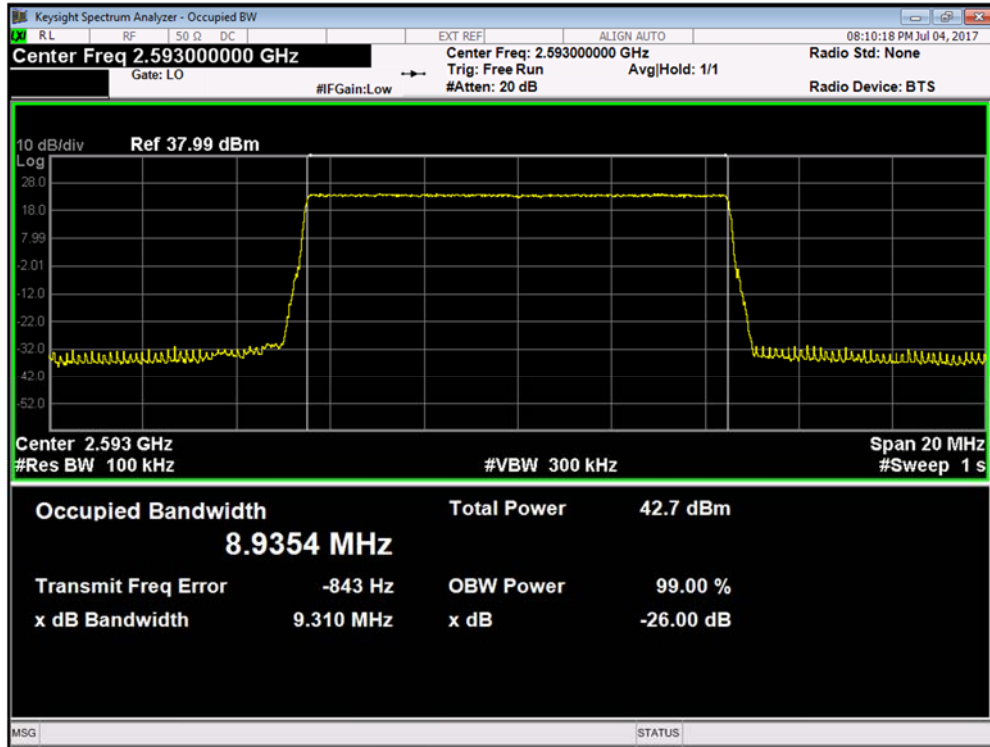
Channel Position M - 16QAM / Bandwidth 20.0 MHz



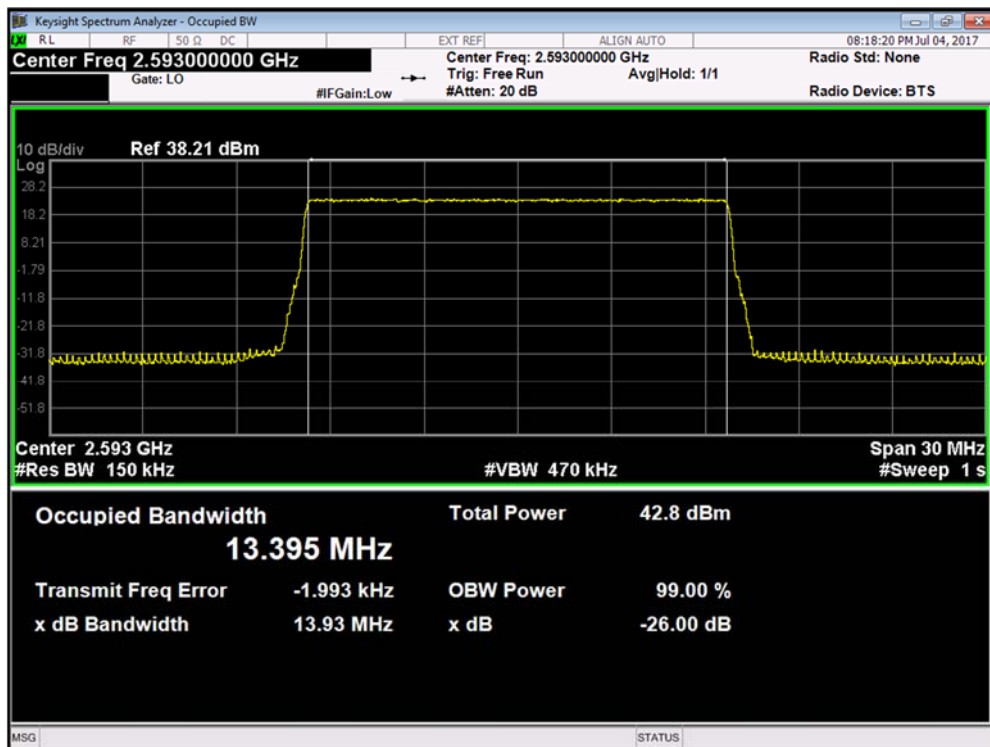


Product Service

Channel Position M - 64QAM / Bandwidth 10.0 MHz



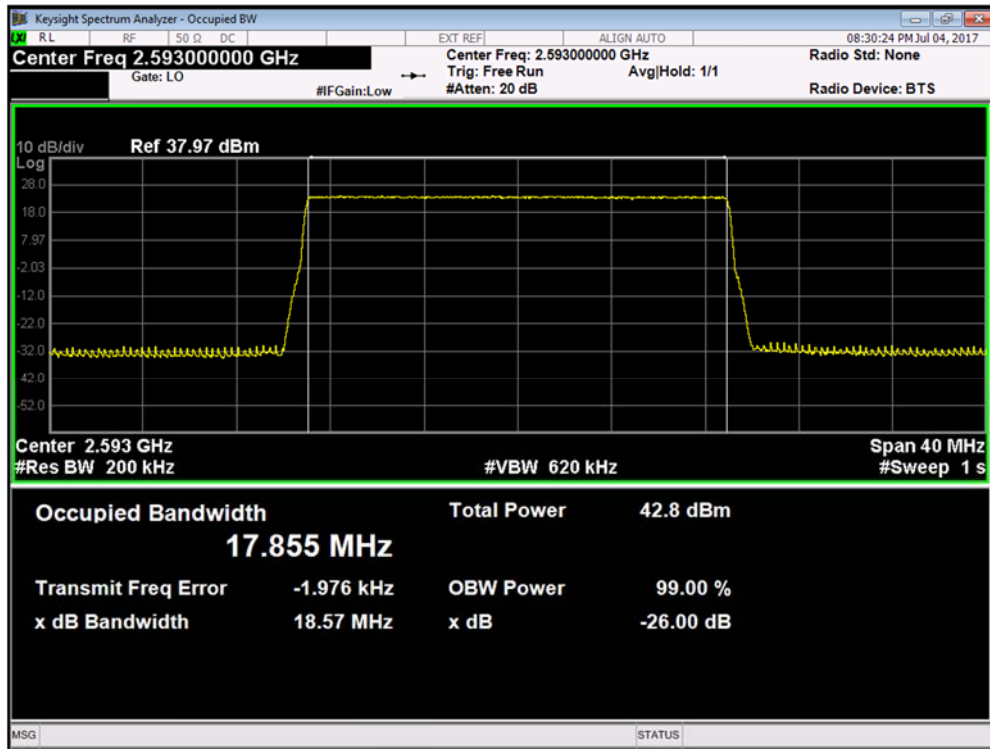
Channel Position M - 64QAM / Bandwidth 15.0 MHz



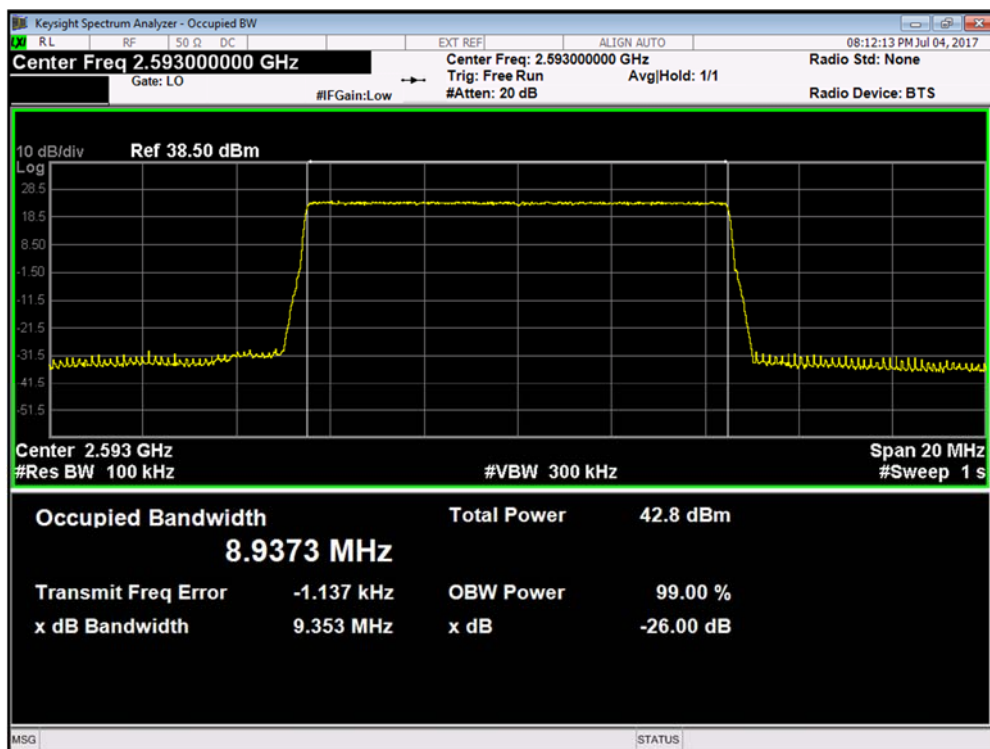


Product Service

Channel Position M - 64QAM / Bandwidth 20.0 MHz



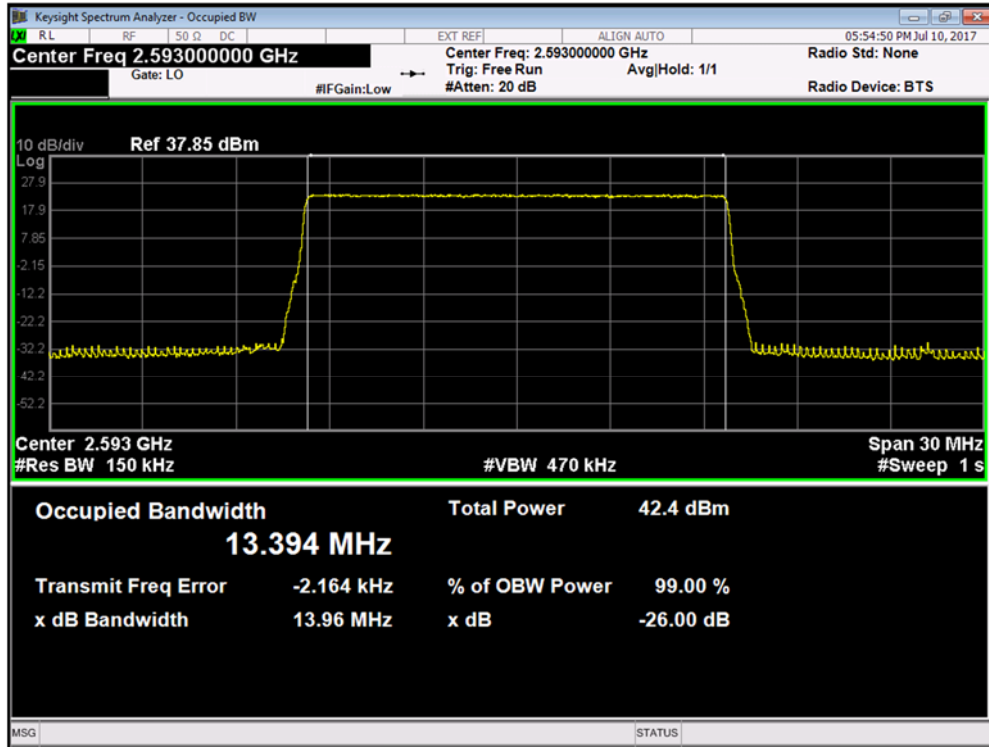
Channel Position M - 256QAM / Bandwidth 10.0 MHz



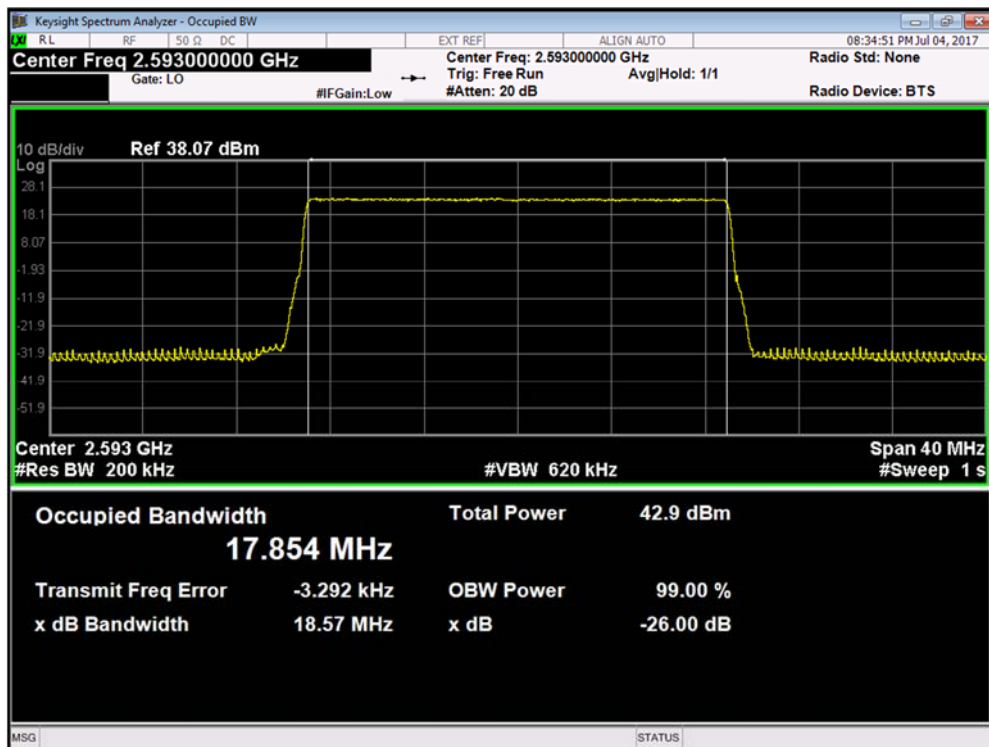


Product Service

Channel Position M - 256QAM / Bandwidth 15.0 MHz



Channel Position M - 256QAM / Bandwidth 20.0 MHz





Product Service

2.3 SPURIOUS EMISSION AT BAND EDGE

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 27, Clause 27.53 (m)

2.3.2 Equipment Under Test

Radio 4412 B41, KRC 161 697/1, S/N: D825931326

2.3.3 Date of Test and Modification State

05 July 2017 - Modification State 0

2.3.4 Test Equipment Used

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

2.3.5 Environmental Conditions

Ambient Temperature	24.8 °C
Relative Humidity	60.0 %

2.3.6 Test Method

The test was applied in accordance with the test method requirements of FCC Part 2 and Part 27.

In accordance with FCC CFR 47 Part 27, Clause 24.238(b), the power of any emissions outside of the block edges shall be attenuated below the transmitter power (P) with the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. At least 1% of the emission bandwidth was used for the resolution bandwidths up to 1MHz away from the block edge.

For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB $[10\log(4)]$ by using the Measure and Add $10\log(4)$ dB technique according to FCC KDB 662911 D01 Multiple Transmitter Output v02r01 accounting for simultaneous transmission from antennas port RF A to RF D.

As the FCC rules specify a RBW of 1MHz for measurements of emissions > 1MHz away from the band edges, the limit was adjusted with -13.01dB $[10\log(50/1000)]$ to compensate for the reduce measurement bandwidth. For MIMO mode, the limit of -32.03dBm was used for emission > 1MHz away from the band edges. Spectrum analyser detector was set as RMS.

The limits and RBW applied to the measurement of emissions in the 1MHz immediately outside and adjacent to the frequency block were shown in the test results for each test configuration.

The path loss measured 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 measurements were made at the bottom and top of the band with all channel bandwidth.

2.3.7 Test Results

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port

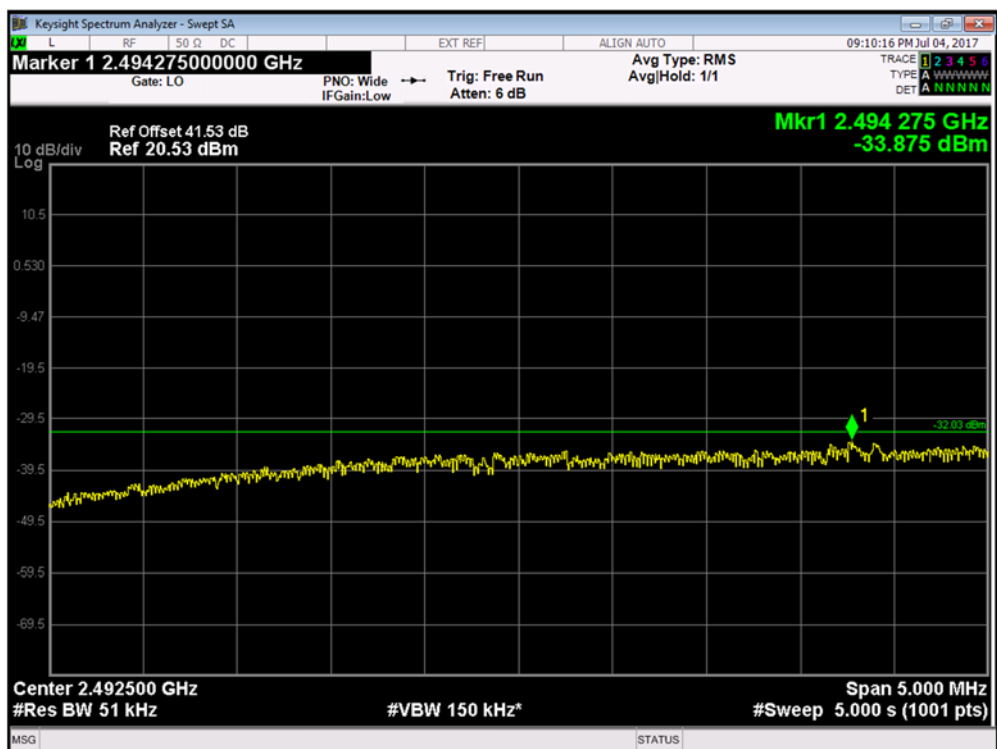
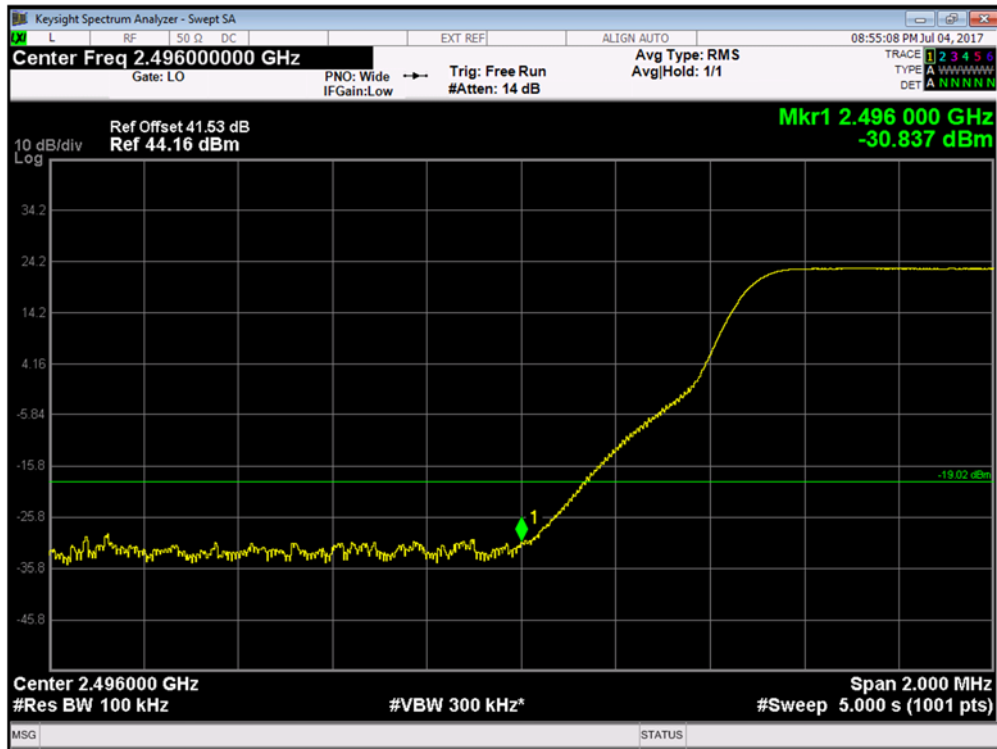
Band Edge Frequency	Channel Bandwidth	Edge Test with modulation QPSK Channel Frequencies	RBW (kHz)	Limit (dBm)
Channel Position B 2496.0 MHz	10.0 MHz	2501.0MHz	100	-19.02
	15.0 MHz	2503.5MHz	150	-19.02
	20.0 MHz	2506.0MHz	200	-19.02
Channel Position T 2690.0 MHz	10.0 MHz	2685.0MHz	100	-19.02
	15.0 MHz	2682.5MHz	150	-19.02
	20.0 MHz	2880.0MHz	200	-19.02

Note 1: For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [10Log(4)] to -13dBm.

Note 2: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.



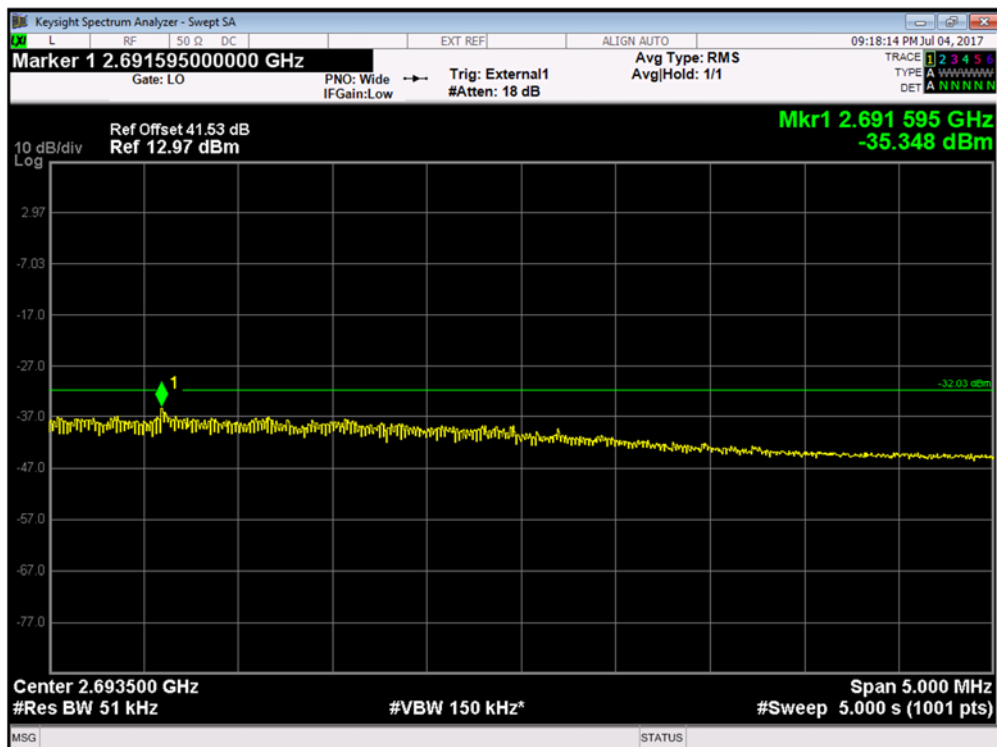
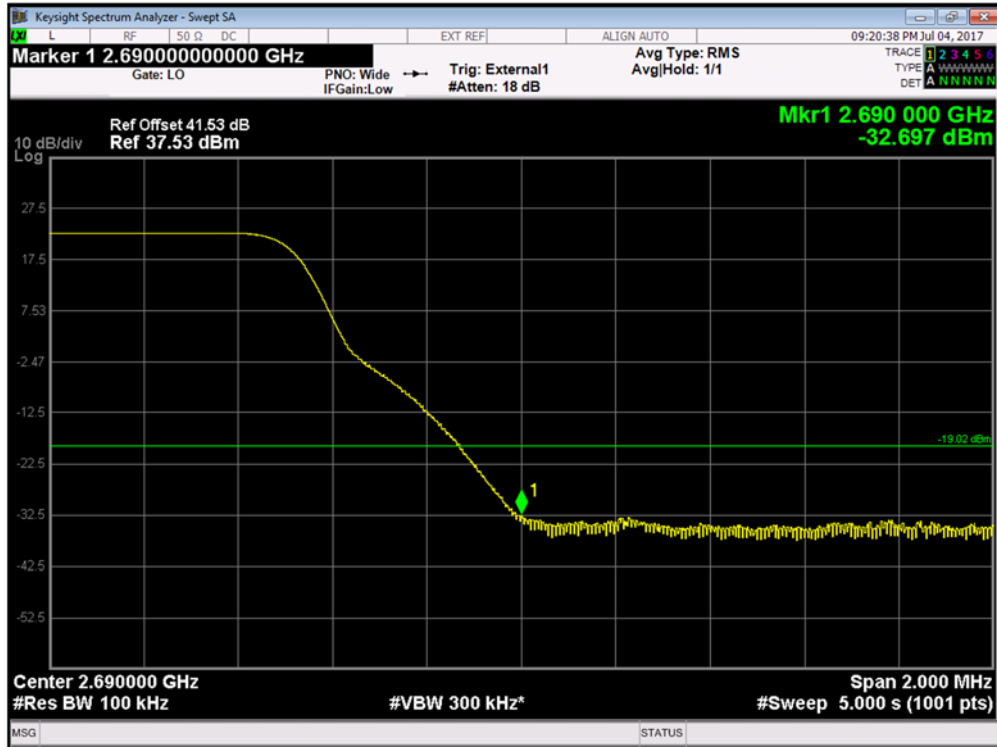
Product Service

Channel Position B - QPSK / Bandwidth 10.0 MHz



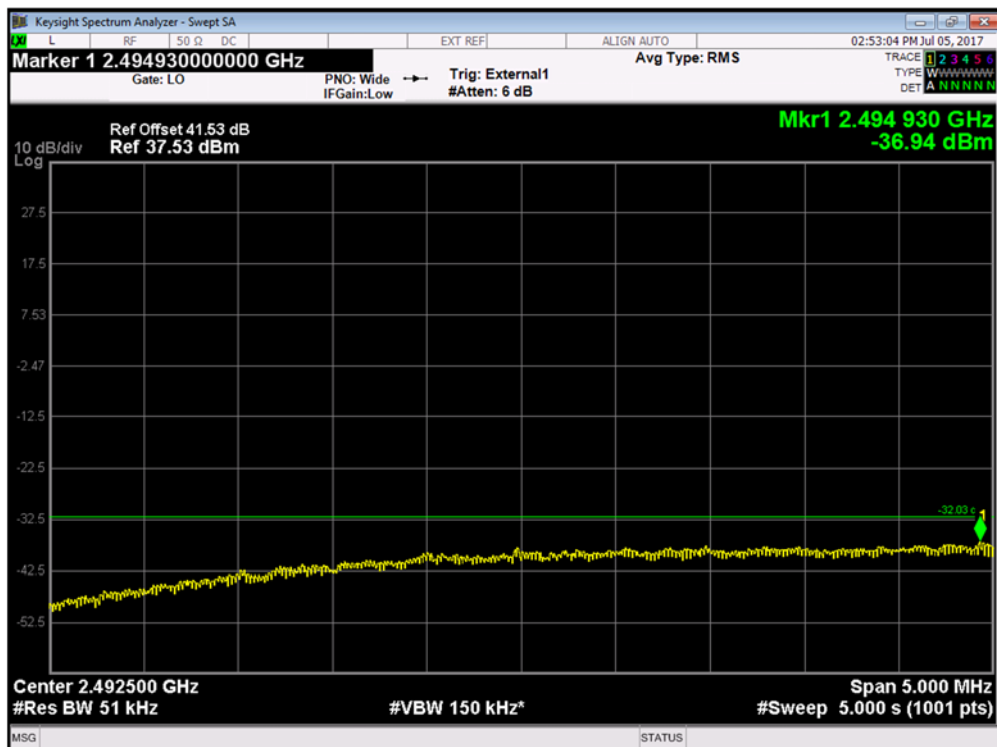
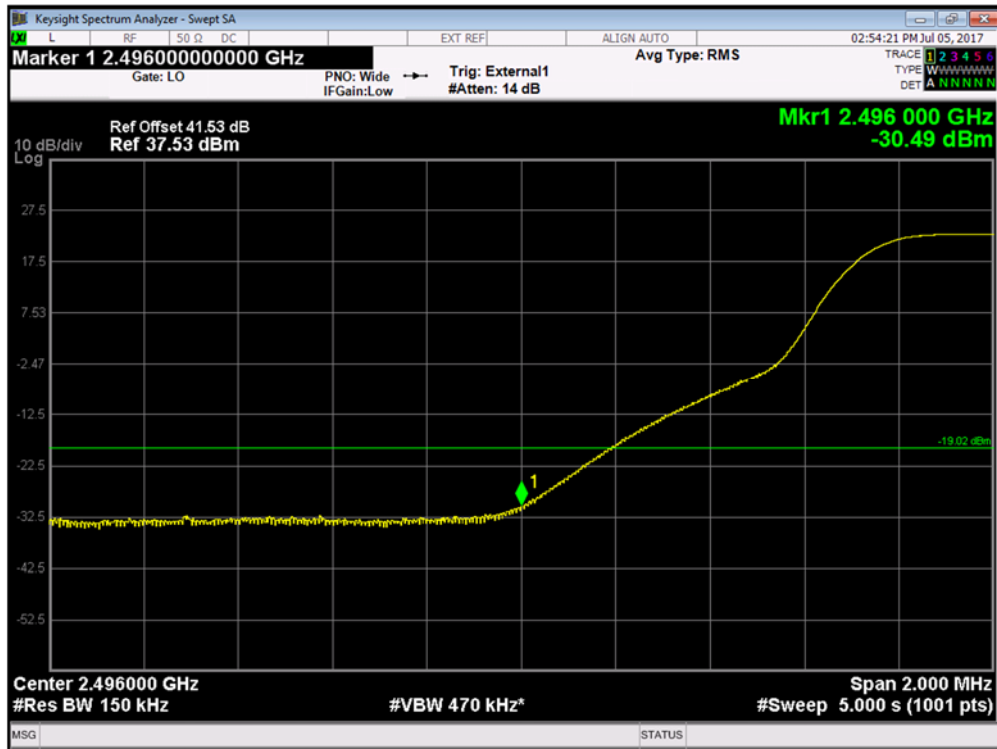
Product Service

Channel Position T - QPSK / Bandwidth 10.0 MHz



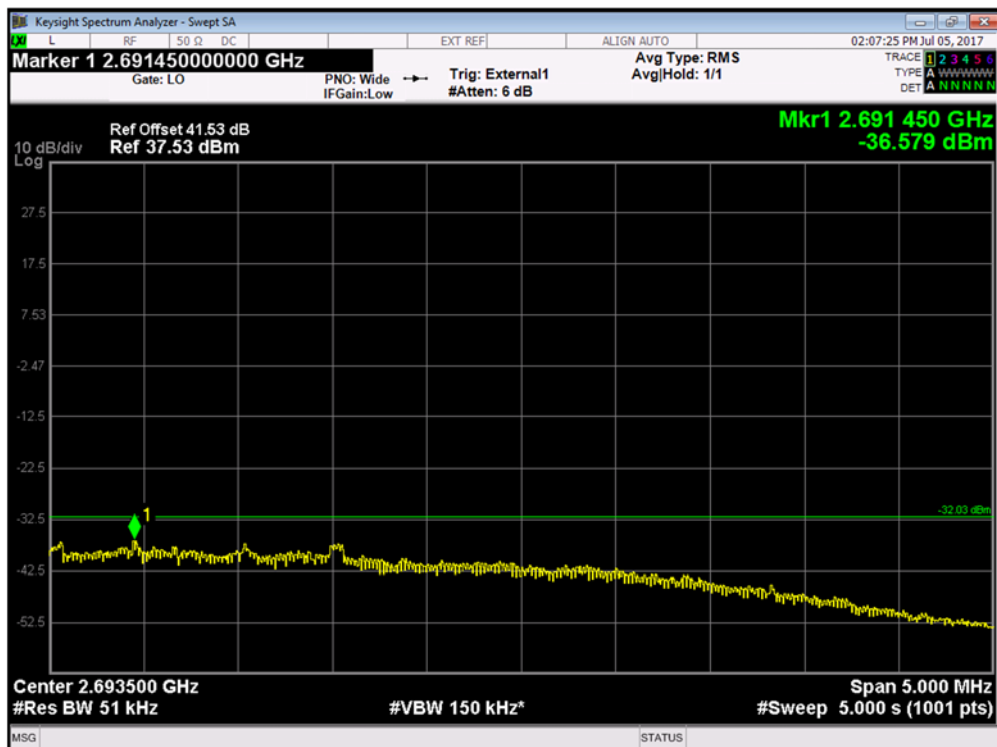
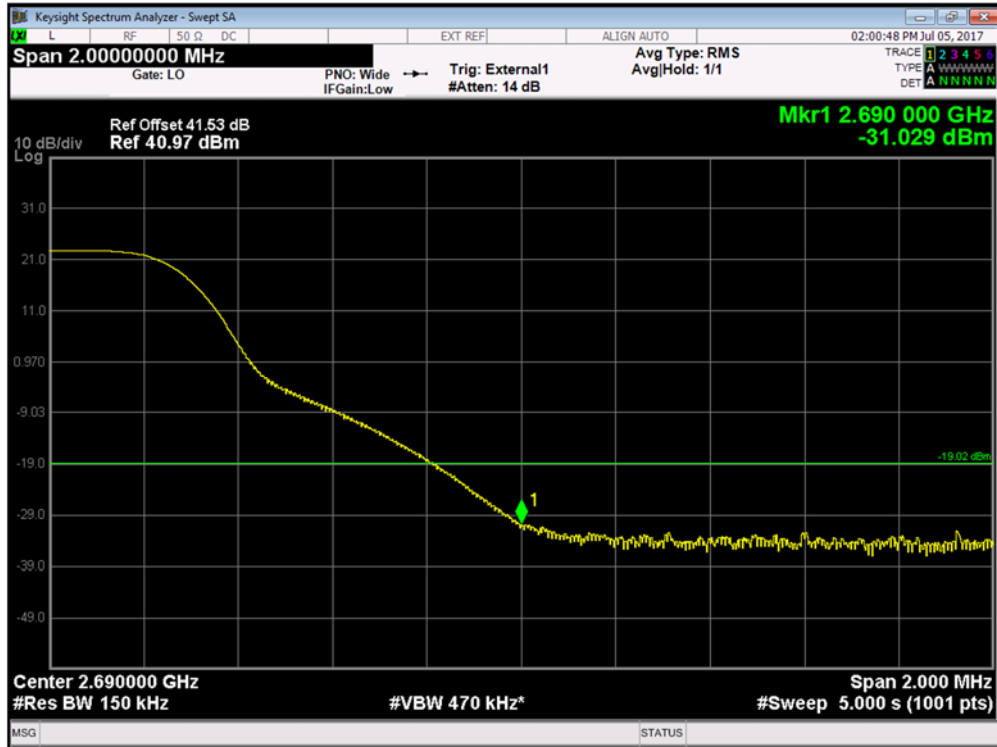


Product Service

Channel Position B - QPSK / Bandwidth 15.0 MHz



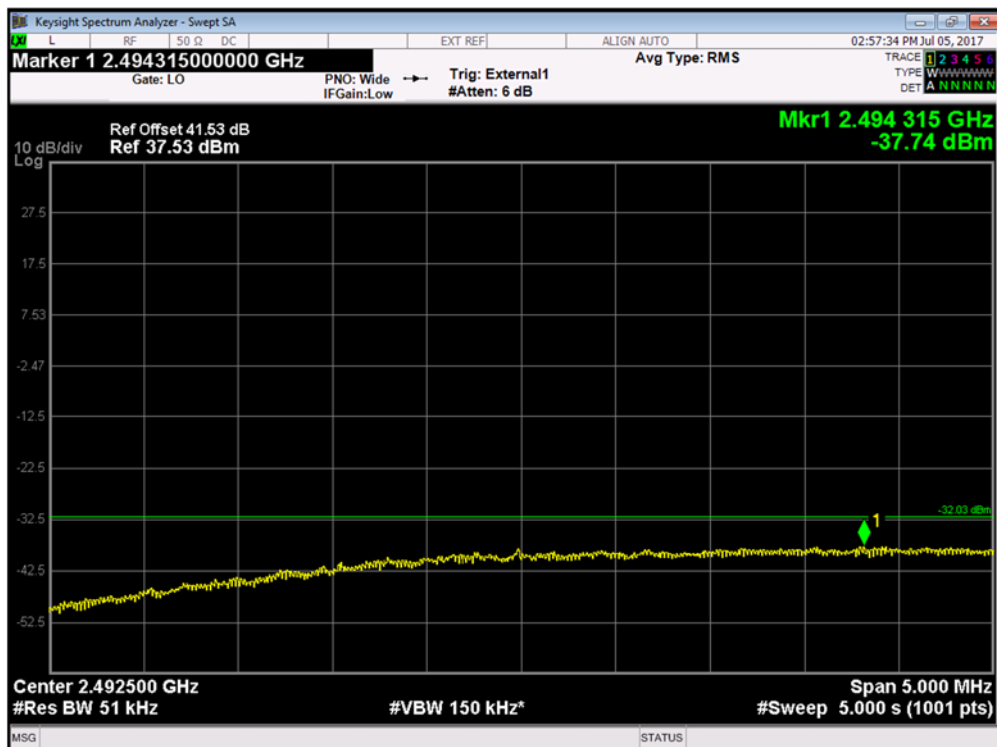
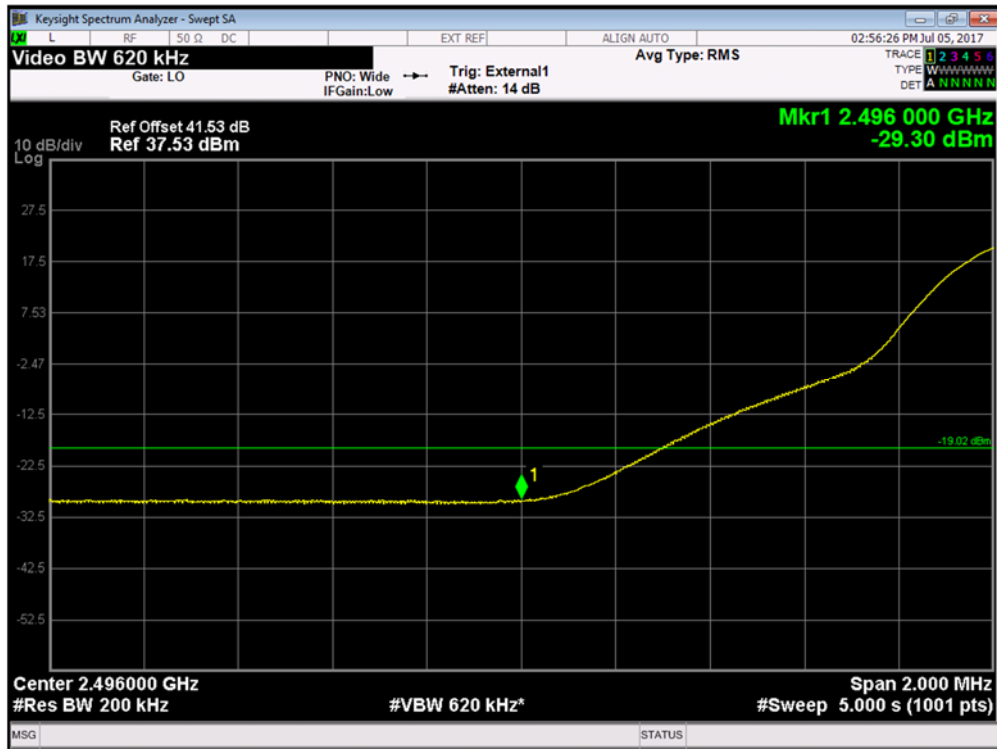
Product Service

Channel Position T - QPSK / Bandwidth 15.0 MHz



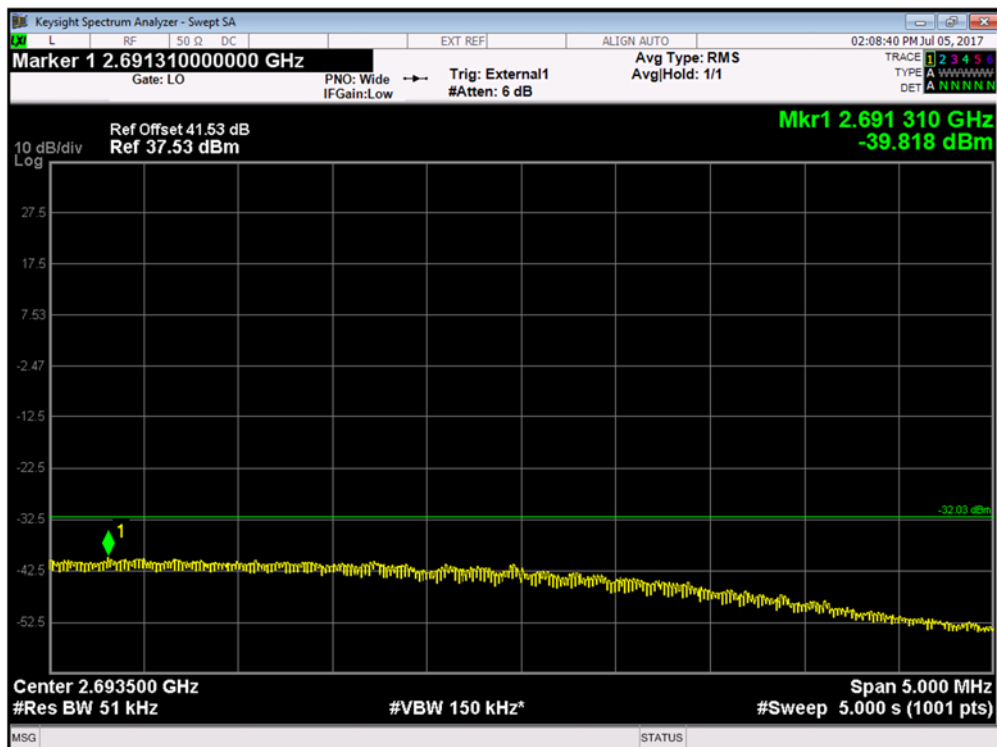
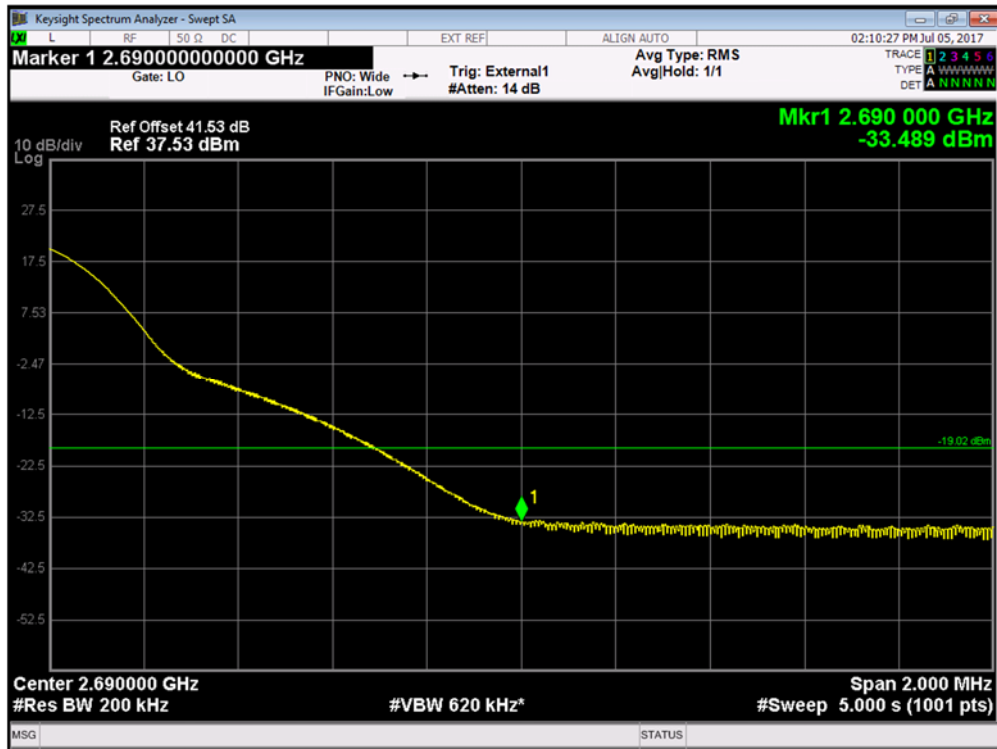
Product Service

Channel Position B - QPSK / Bandwidth 20.0 MHz





Product Service

Channel Position T - QPSK / Bandwidth 20.0 MHz

Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 43.0dBm per port

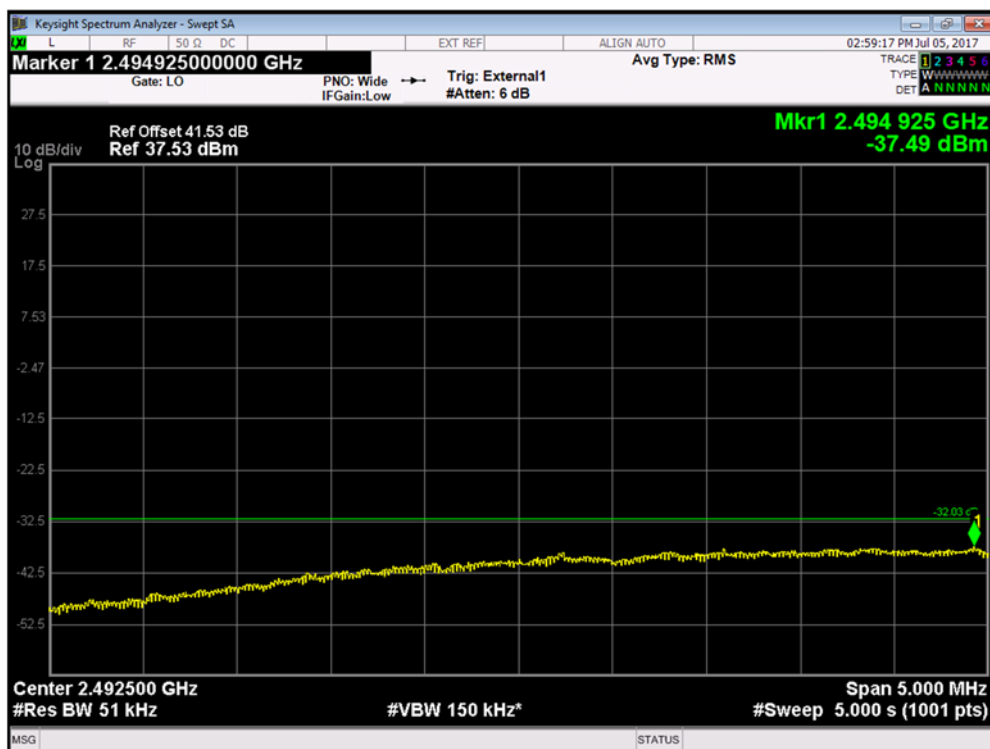
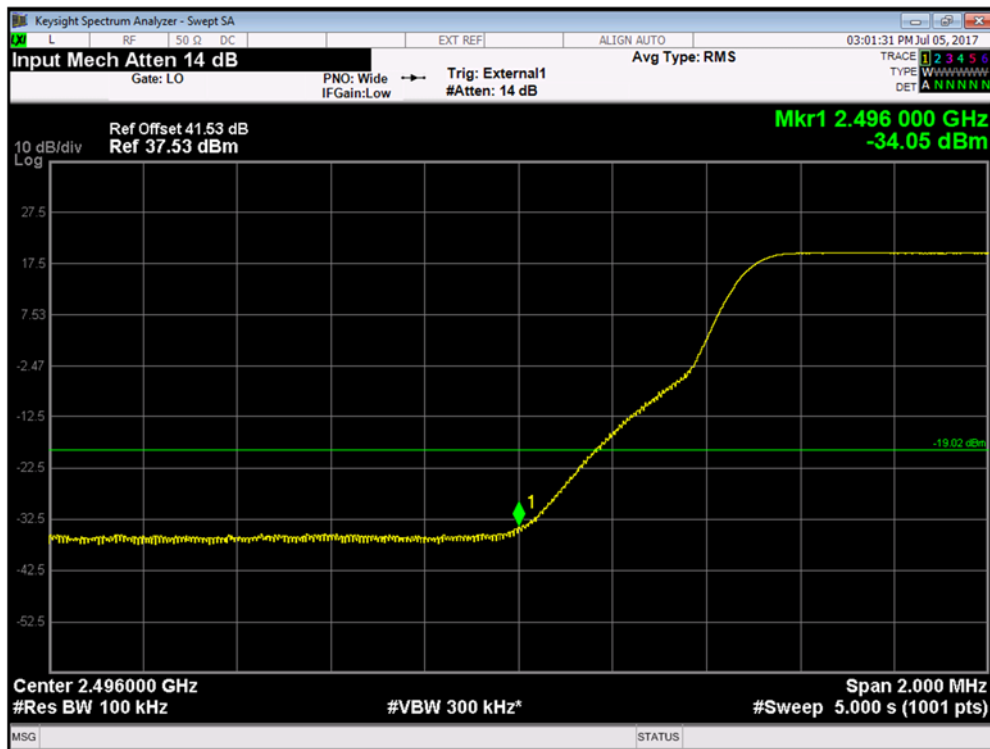
Band Edge Frequency	Channel Bandwidth	Edge Test with modulation QPSK Channel Frequencies	RBW (kHz)	Limit (dBm)
Channel Position B_{RFBW} 2496.0 MHz	10.0 MHz	2501.0MHz + 2511.0MHz	100	-19.02
	15.0 MHz	2503.5MHz + 2518.5MHz	150	-19.02
	20.0 MHz	2506.0MHz + 2526.0MHz	200	-19.02
Channel Position T_{RFBW} 2690.0 MHz	10.0 MHz	2675.0MHz + 2685.0MHz	100	-19.02
	15.0 MHz	2667.5MHz + 2682.5MHz	150	-19.02
	20.0 MHz	2660.0MHz + 2680.0MHz	200	-19.02

Note 1: For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB $[10\log(4)]$ to -13dBm.

Note 2: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be available to the end user.

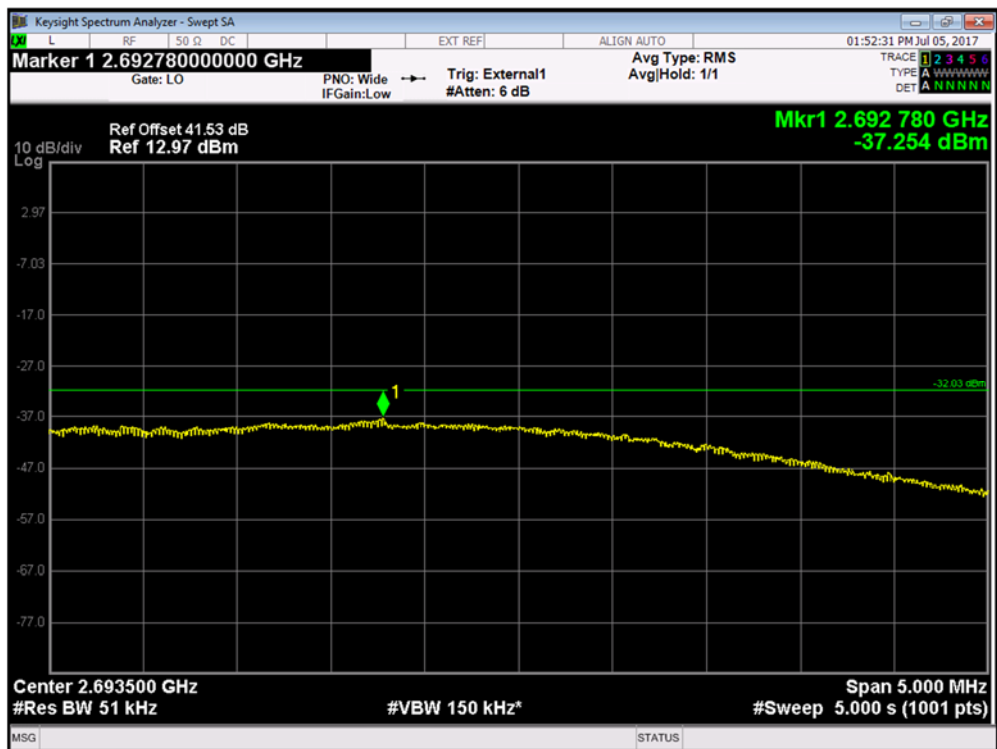
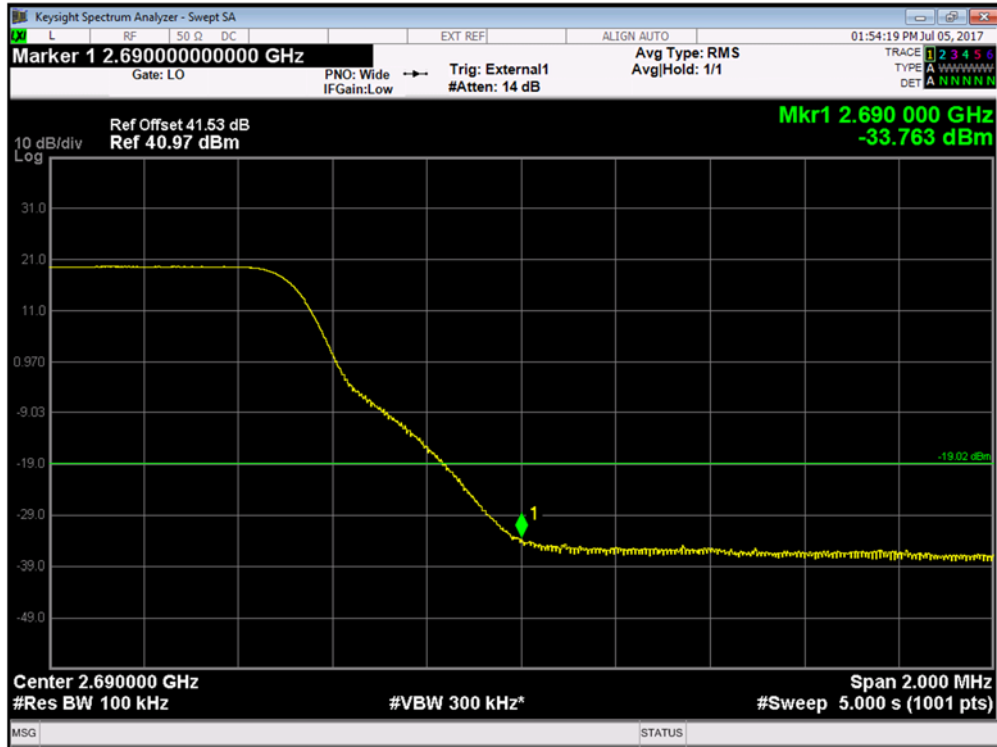


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz



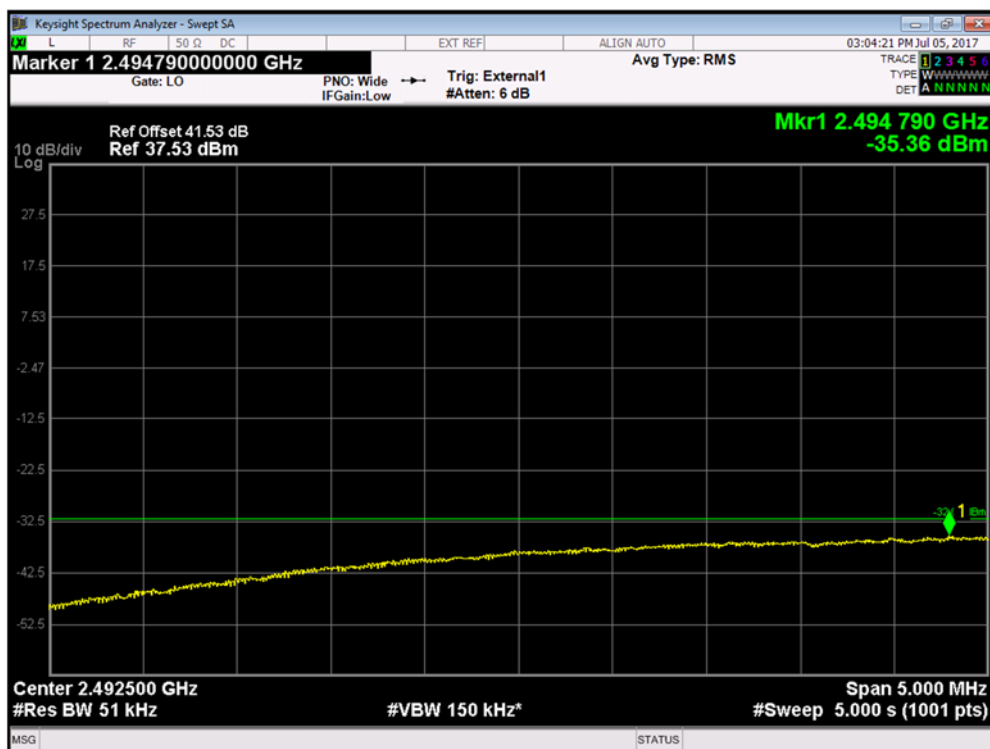
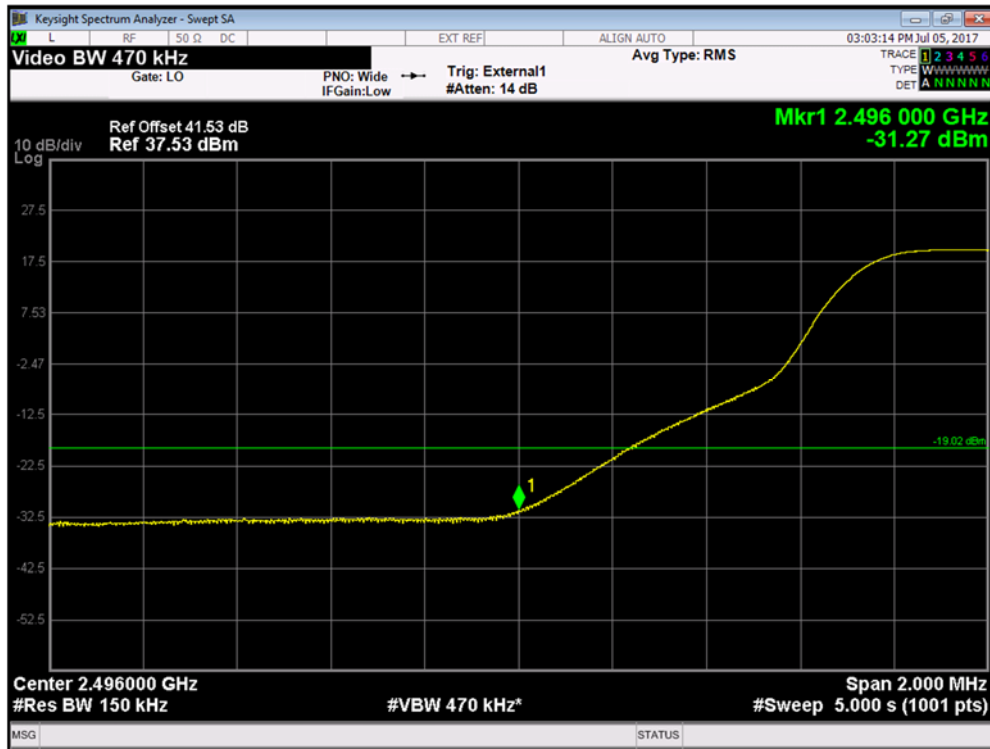
Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0 MHz



Product Service

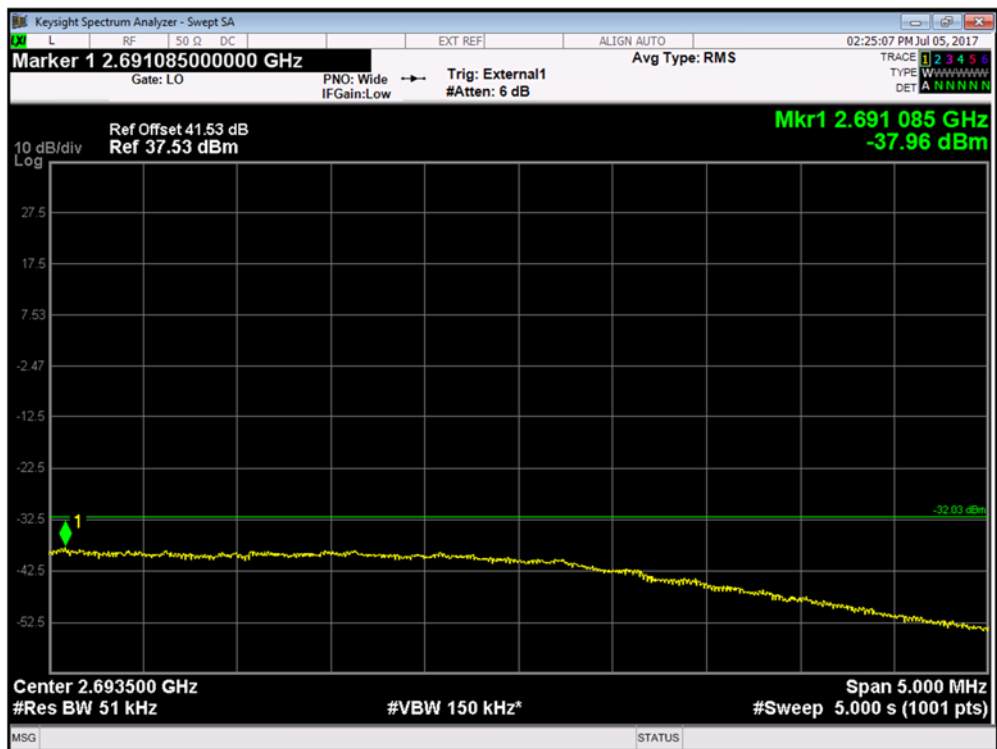
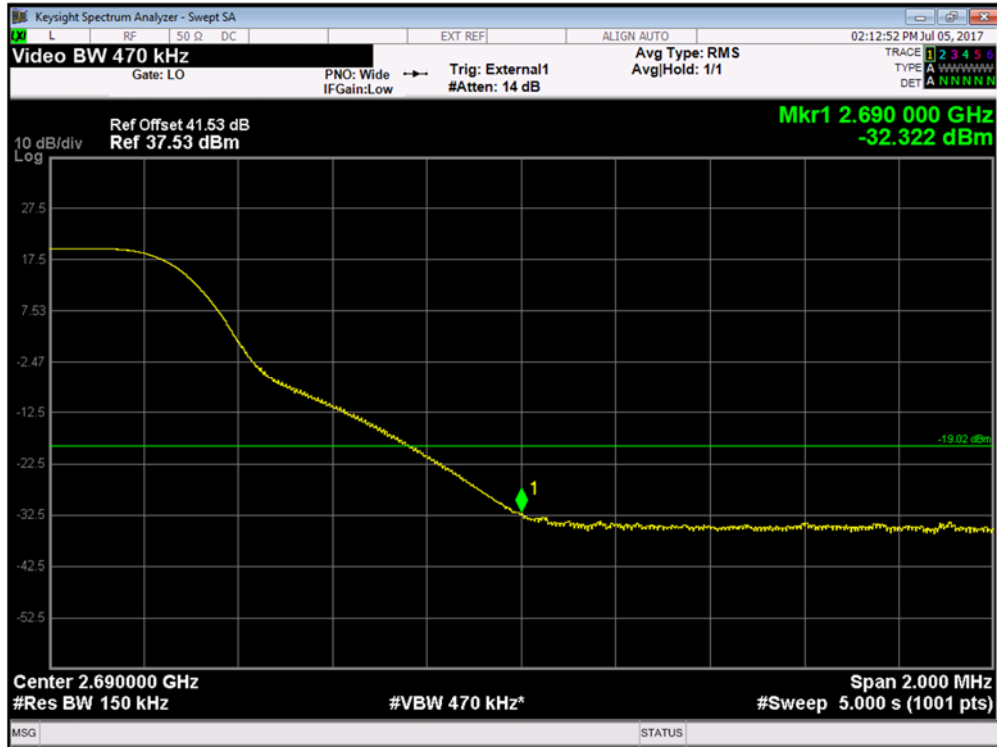
Channel Position B_{RFBW} - QPSK / Bandwidth 15.0 MHz





Product Service

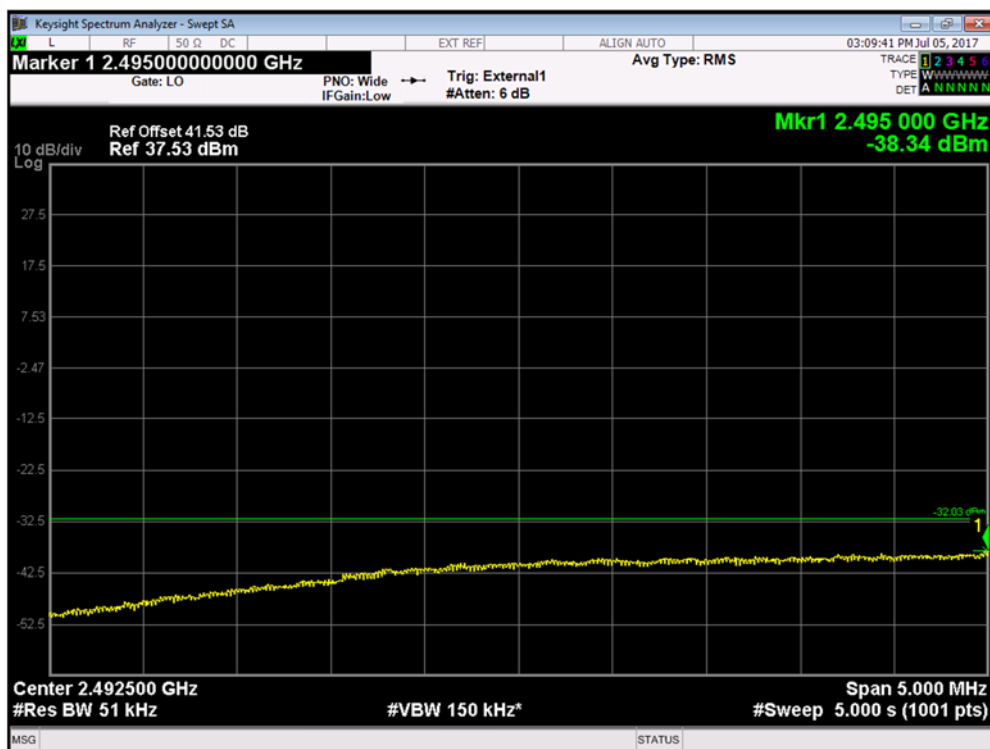
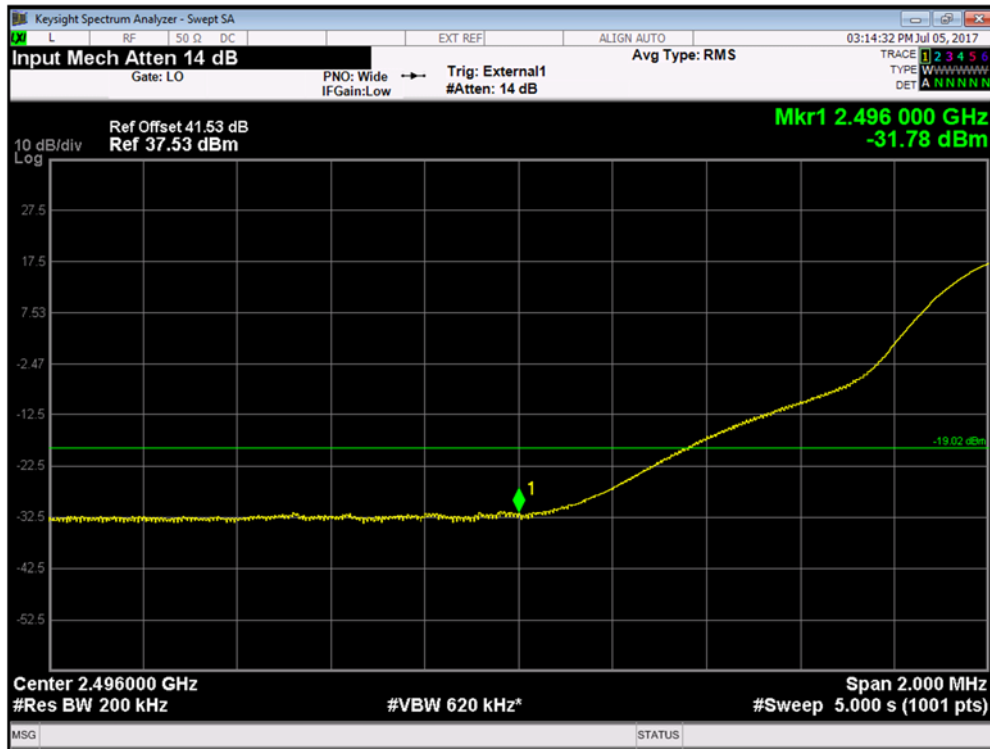
Channel Position T_{RFBW} - QPSK / Bandwidth 15.0 MHz





Product Service

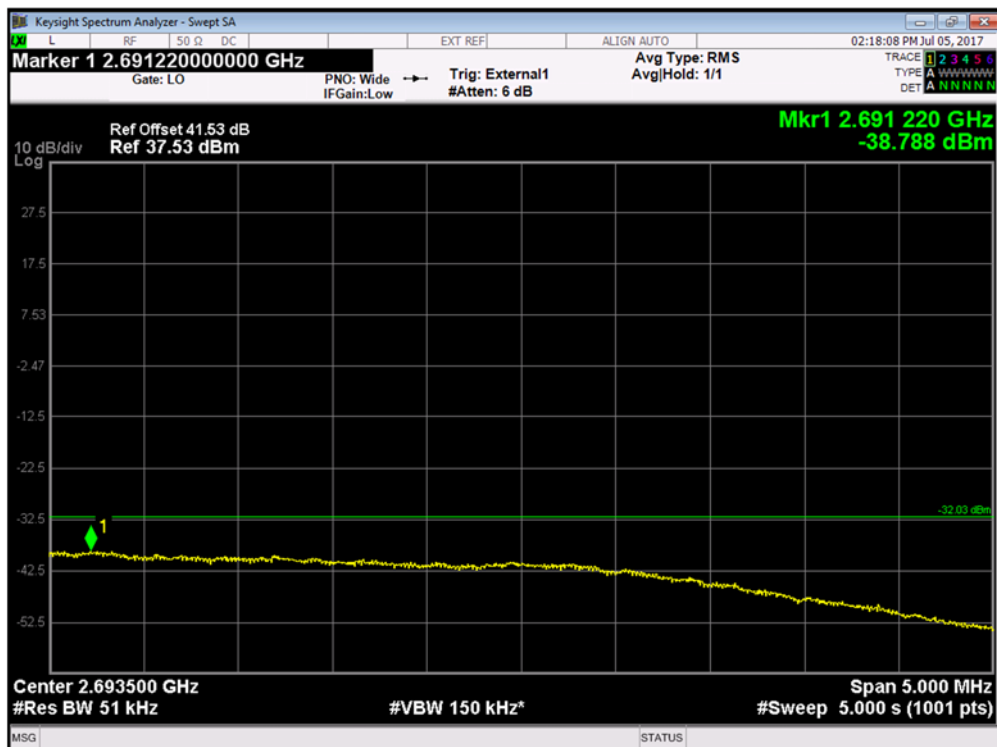
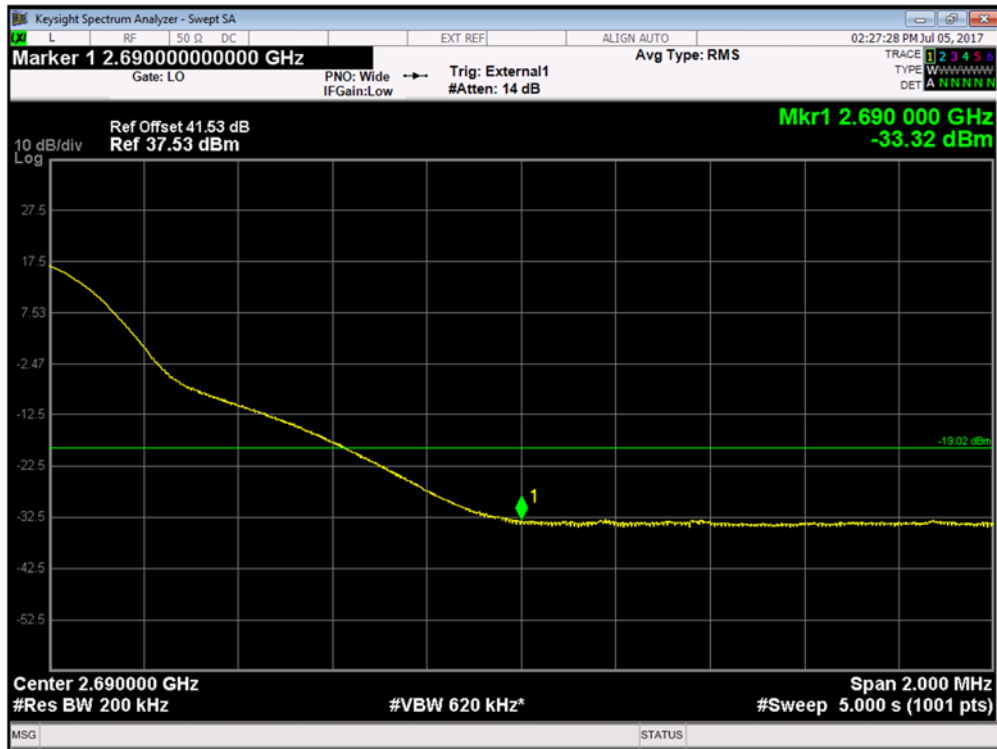
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0 MHz





Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 20.0 MHz



Configuration L-MIMO-MC 1 (3C)

Maximum Output Power 43.0dBm per port

Band Edge Frequency	Channel Bandwidth	Edge Test with modulation QPSK Channel Frequencies	RBW (kHz)	Limit (dBm)
Channel Position B_{RFBW} 2496.0 MHz	10.0 MHz	2501.0MHz + 2511.0MHz + 2521.0MHz	100	-19.02
	15.0 MHz	2503.5MHz + 2518.5MHz + 2533.5MHz	150	-19.02
	20.0 MHz	2506.0MHz + 2526.0MHz + 2526.0MHz	200	-19.02
Channel Position T_{RFBW} 2690.0 MHz	10.0 MHz	2665.0MHz + 2675.0MHz + 2685.0MHz	100	-19.02
	15.0 MHz	2652.5MHz + 2667.5MHz + 2682.5MHz	150	-19.02
	20.0 MHz	2640.0MHz + 2660.0MHz + 2680.0MHz	200	-19.02

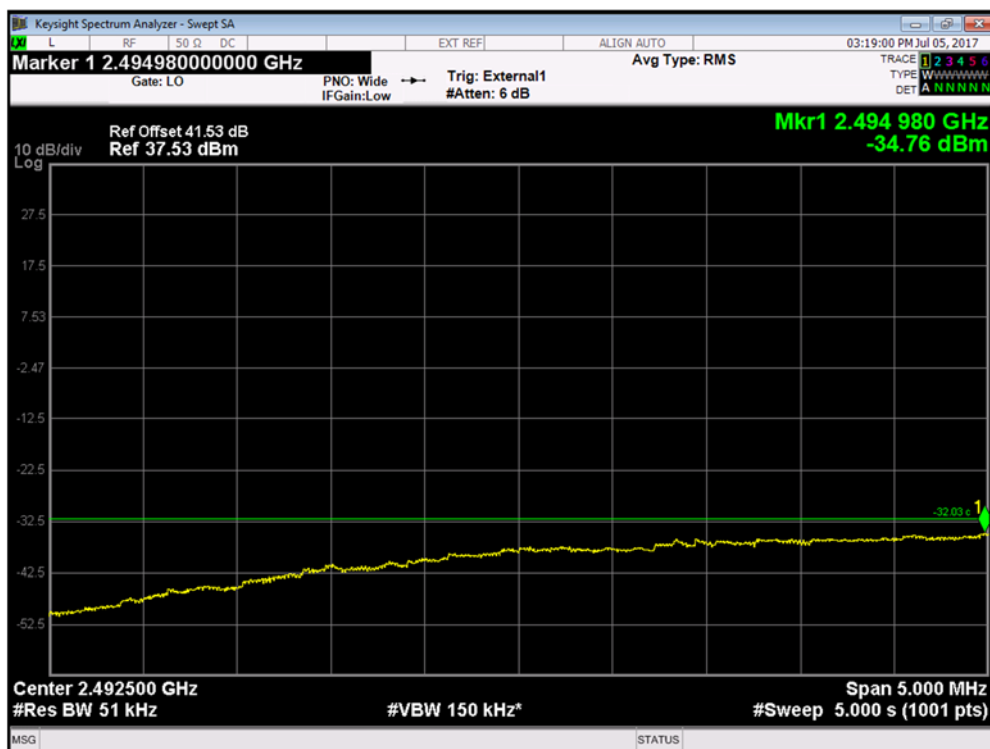
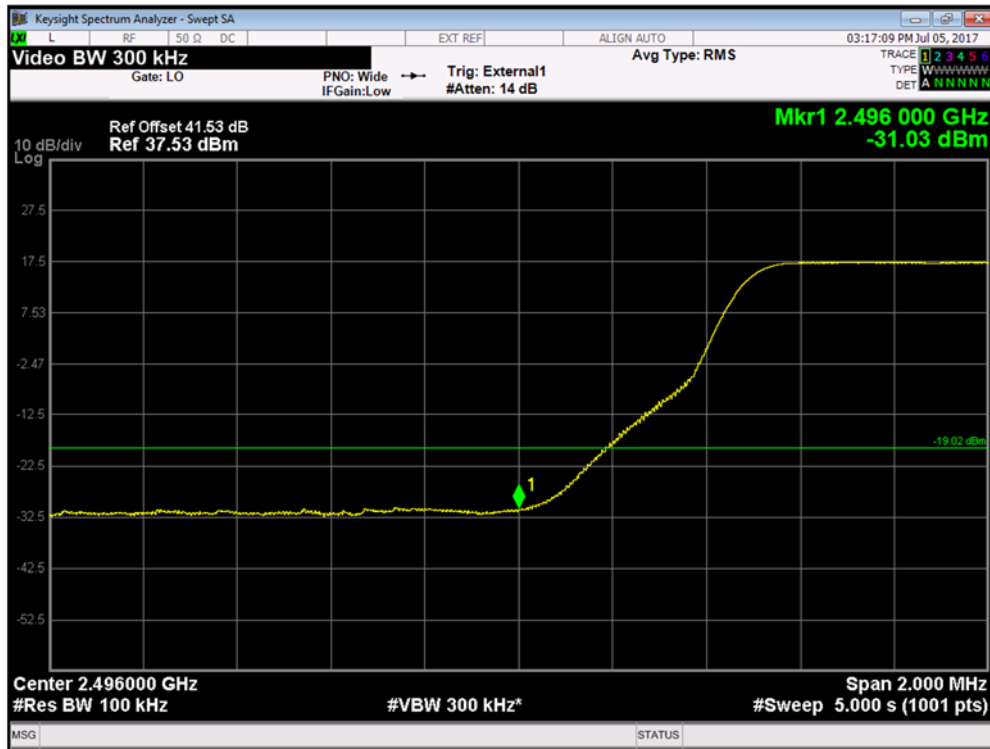
Note 1: For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [10Log(4)] to -13dBm.

Note 2: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be available to the end user.



Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz





Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0 MHz