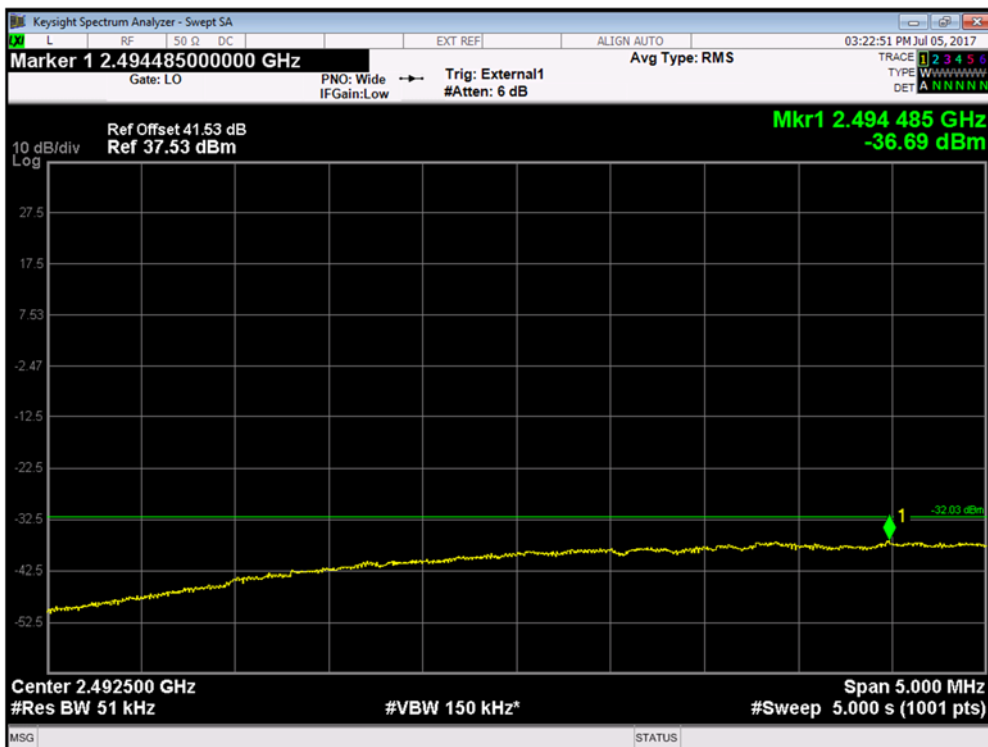
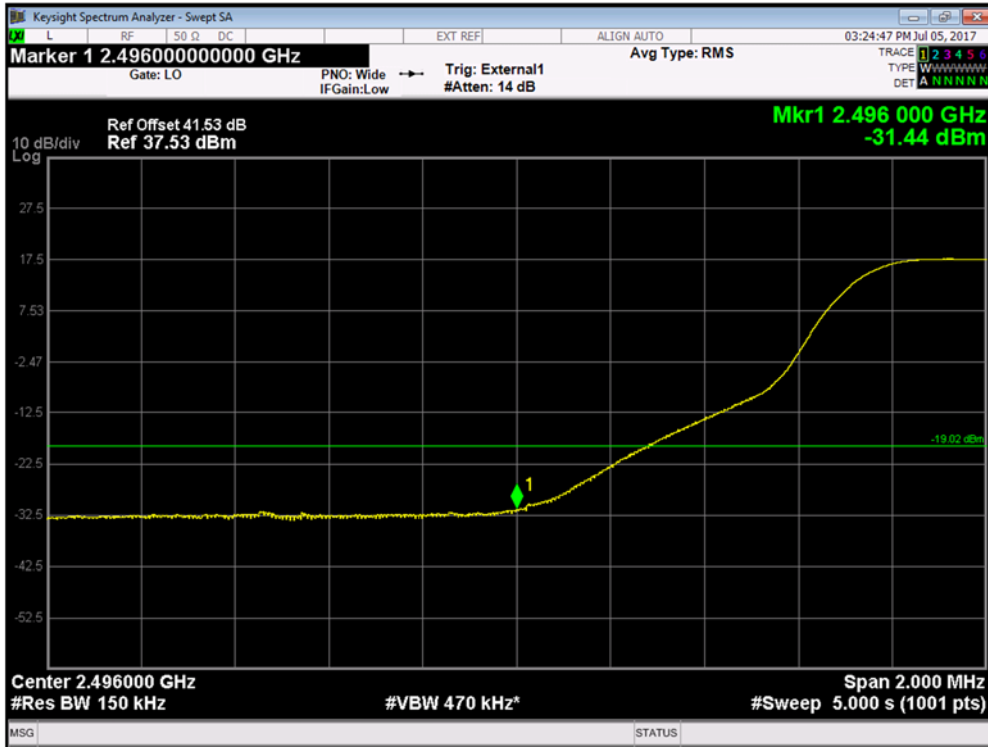




Product Service

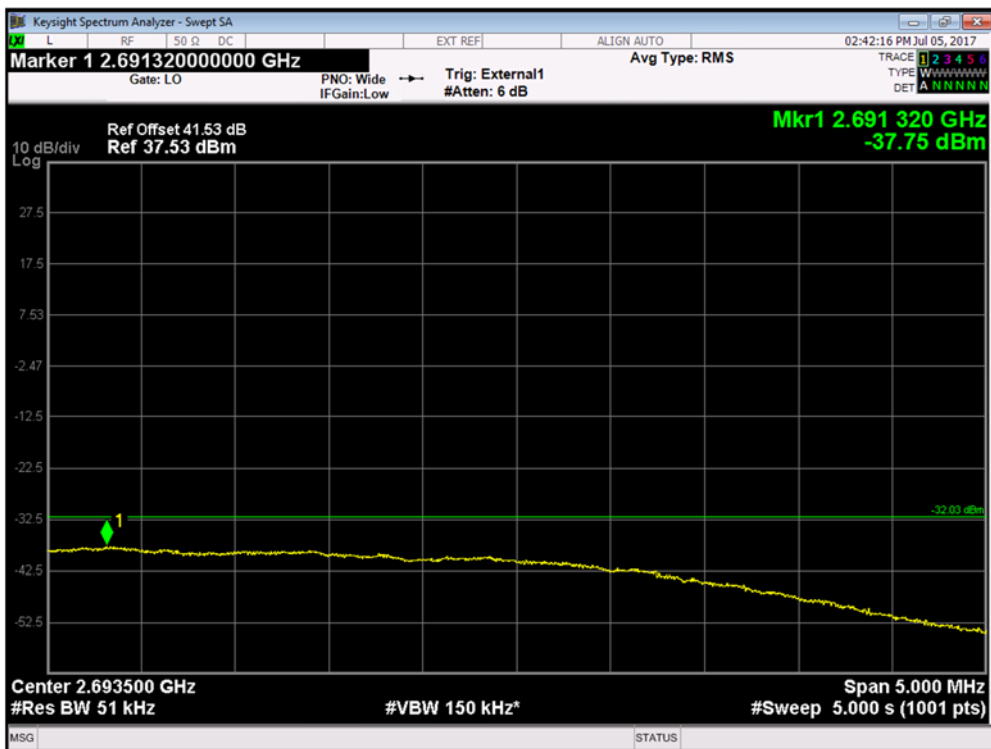
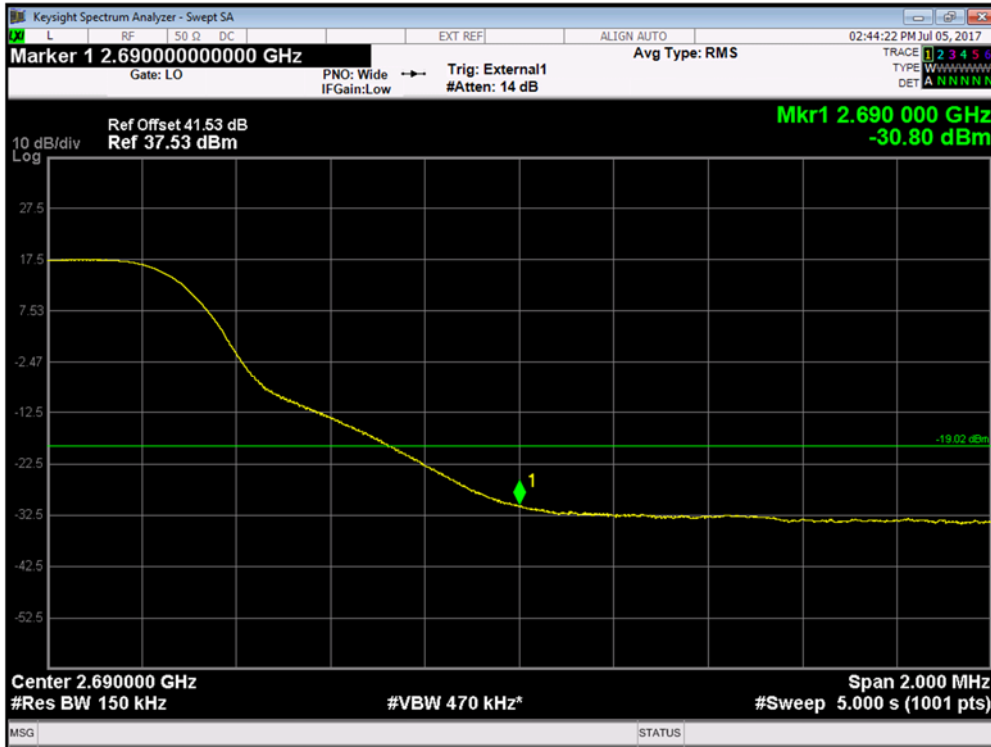
Channel Position B_{RFBW} - QPSK / Bandwidth 15.0 MHz





Product Service

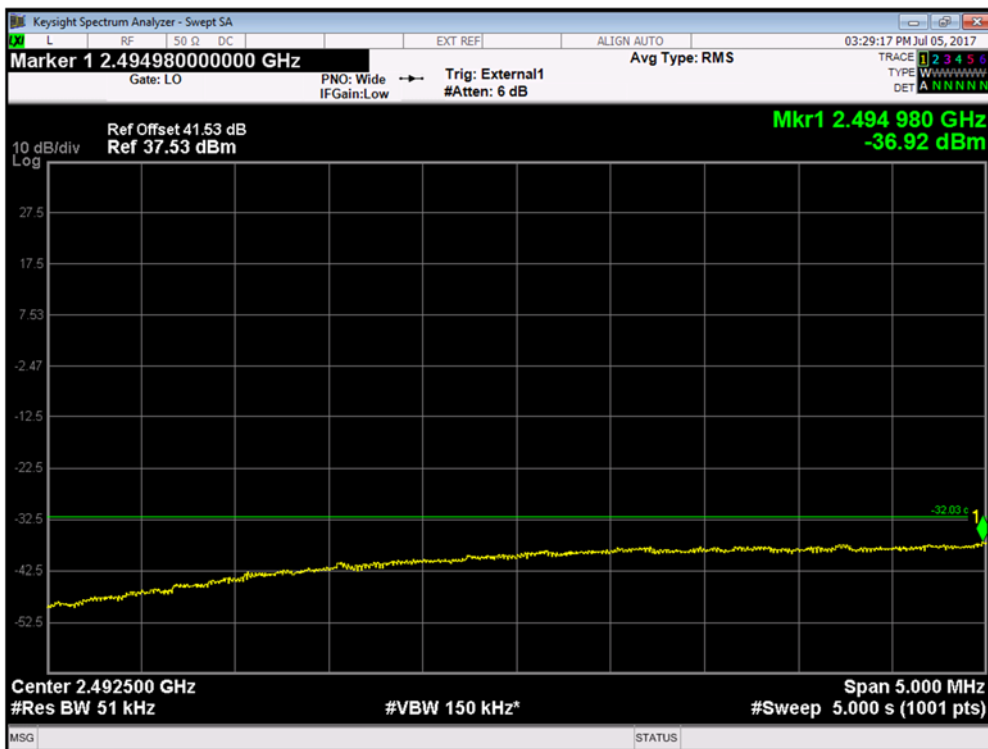
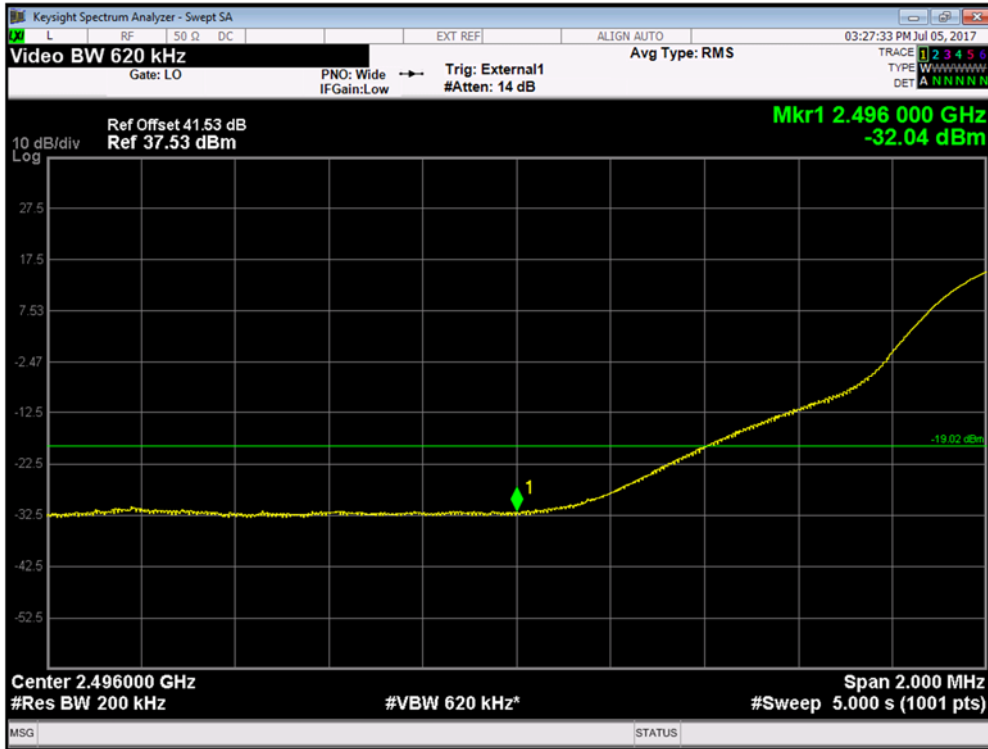
Channel Position T_{RFBW} - QPSK / Bandwidth 15.0 MHz





Product Service

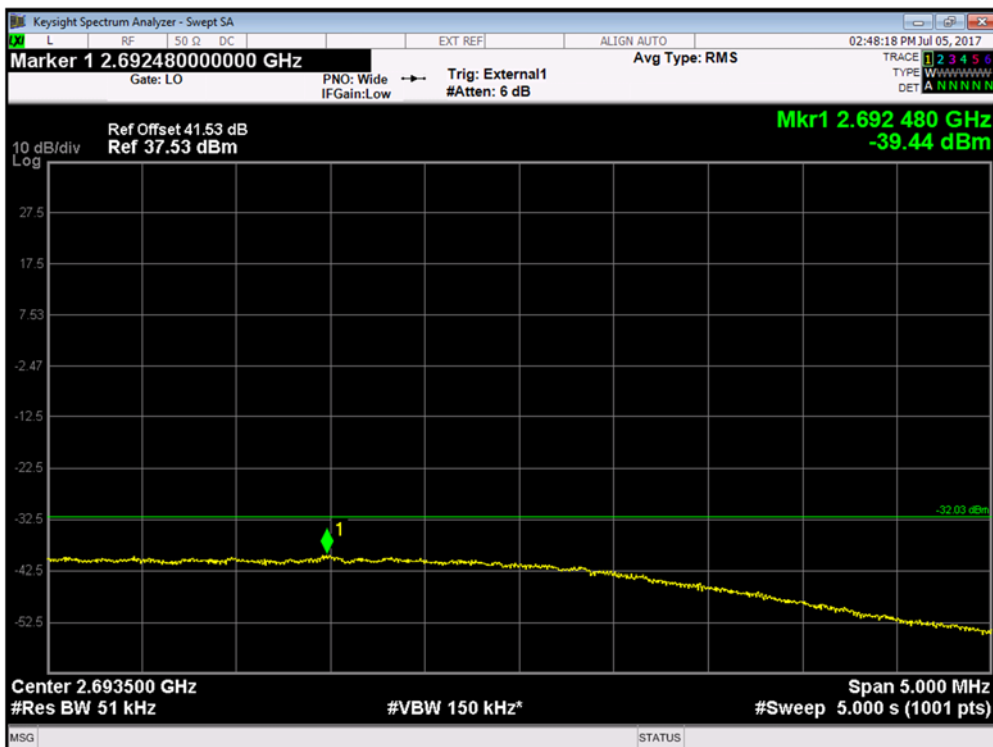
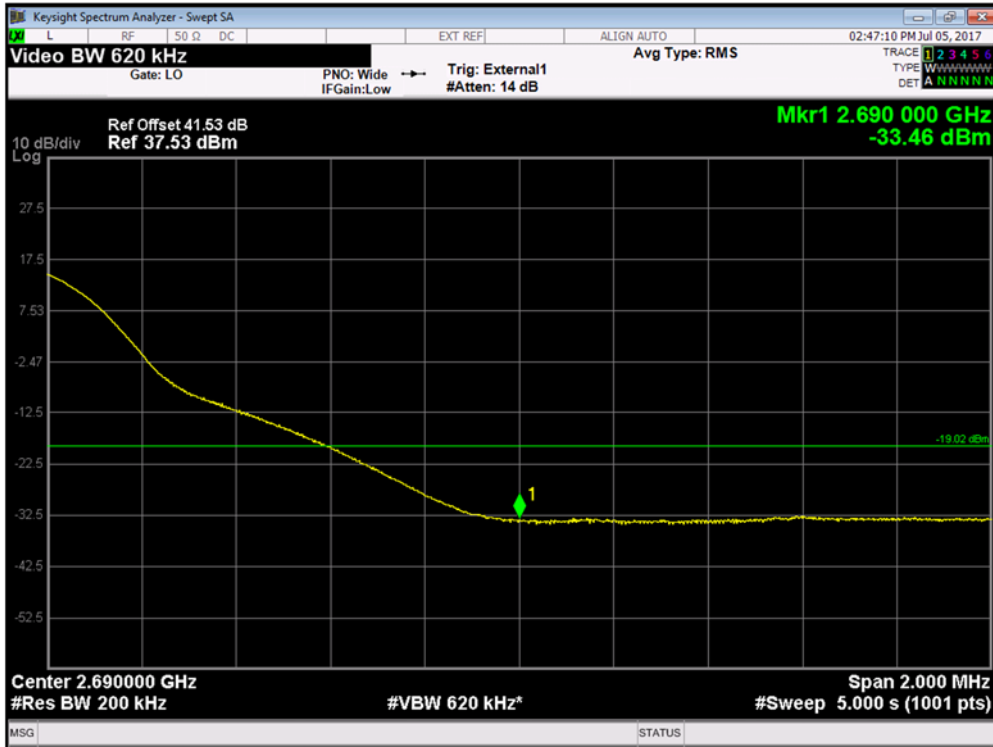
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0 MHz





Product Service

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





Limit

The power of any emission outside the frequency band shall be attenuated below the transmitter power (P) by at least $43 + 10\log P$ dB.



Product Service

2.4 RADIATED SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1053
FCC CFR 47 Part 27, Clause 27.53 (m)

2.4.2 Equipment Under Test

Radio 4412 B41, KRC 161 697/1, S/N: D825931318

2.4.3 Date of Test and Modification State

07 July 2017 - Modification State 0

2.4.4 Test Equipment Used

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

2.4.5 Environmental Conditions

Ambient Temperature	30.0 °C
Relative Humidity	32.0 %

2.4.6 Test Method

The test was applied in accordance with test method requirements of FCC Part 2, Part 27 and ANSI/TIA-603-C-2004.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the measurement antenna in both horizontal and vertical polarisations.

Emissions identified within the range 30MHz to 27GHz were then formally measured using a peak detector as the worst case.

The limits for outside a licensee's frequency band(s) of operation the power of the spurious emissions have been calculated, as shown below using the following formula:

Field Strength of Carrier - $(43 + 10\text{Log}(P))$ dB

Where:

Field Strength is measured in $\text{dB}\mu\text{V}/\text{m}$

P is measured Transmitter Power in Watts

The EUT was measured with the antenna height varied between 1 and 4 m with the turntable rotated between 0 and 360 degrees. The emission of any outside a licensee's frequencies within 20dB of the limit were measured with the substitution method used according to the standard.

The measurements were performed at a 3m distance unless otherwise stated.



Determination of Spurious Emission Limit

The field strength of the carrier has been calculated assuming that the power is to be fed to a half-wave tuned dipoles as per 2.1053 (a).

$$E_{(v/m)} = (30 \times G_i \times P_o)^{0.5} / d$$

Where G_i is the antenna gain of ideal half-wave dipoles,
 P_o is the power out of the transceiver in W,
 d is the measurement distance in meter.

Therefore at 3m measurement distance the field strength using the lowest transceiver output power would be:

$$E_{(v/m)} = (30 \times 1.64 \times 63.62)^{0.5} / 3 = 18.60 \text{ V/m} = 145.40 \text{ dB}\mu\text{V/m}$$

As per 27.53 (h) the spurious emission must be attenuated by $43 + 10\log(P_o)$ dB this gives:

$$43 + 10\log(63.62) = 61.04 \text{ dB}$$

Therefore the limit at 3m measurement distance is:

$$145.40 - 61.04 = 84.4 \text{ dB}\mu\text{V/m}$$

These limits have been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

The results are shown in the plots below.



2.4.7 Test Results

Note: Only the worst case results plots have been included as all of the emissions are greater than 20dB below the limit. A set of plots have been included to show the measurement system noise floor.

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port, LTE Bandwidth 10.0MHz

Channel Position	Channel Frequencies
Channel Position B	2501.0MHz
Channel Position M	2593.0MHz
Channel Position T	2685.0MHz

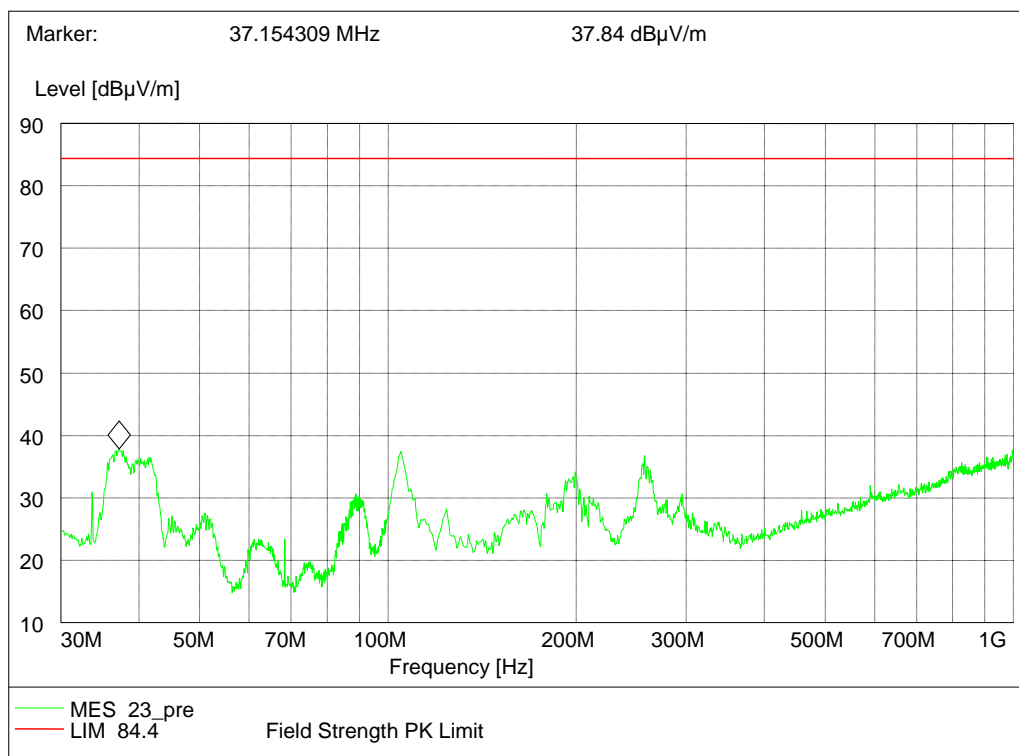
Channel Position M - QPSK/64QAM/256QAM

No emissions were detected within 20dB of the limit.

Channel Position B - 16QAM

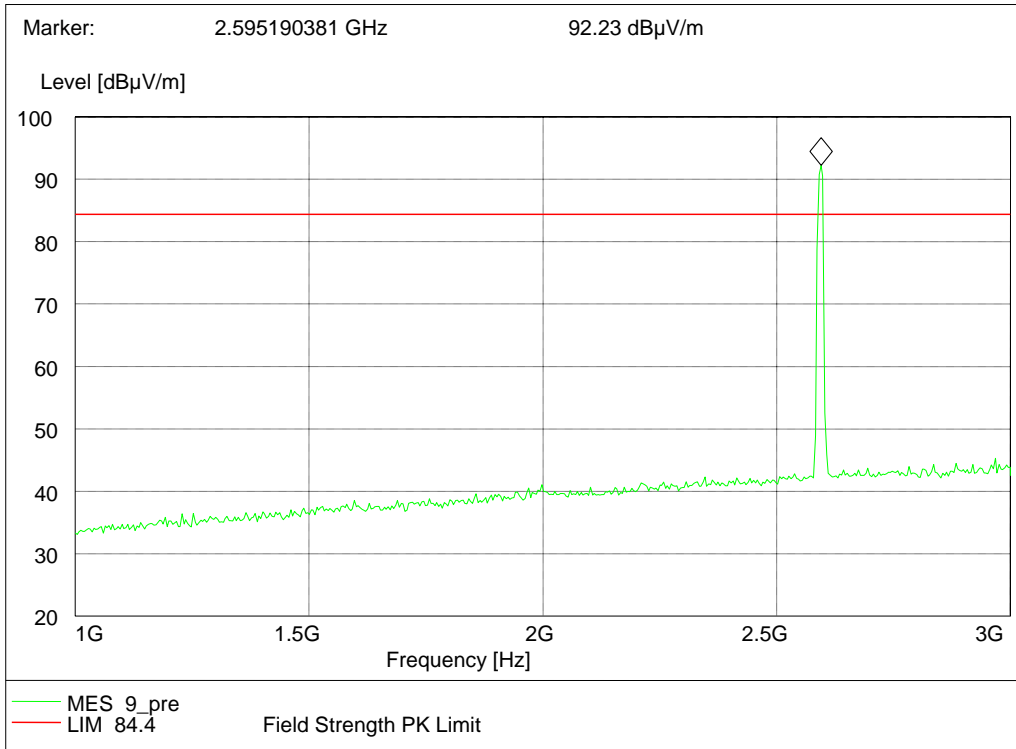
No emissions were detected within 20dB of the limit.

Channel Position M - 16QAM - 30MHz - 1GHz



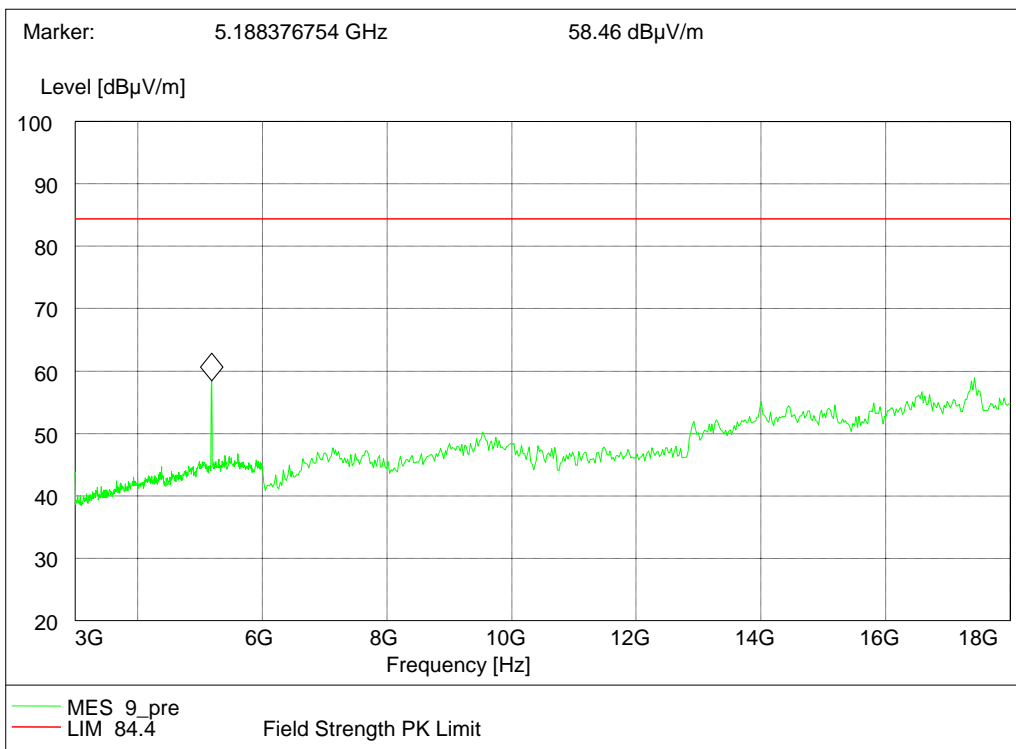


Channel Position M - 16QAM - 1GHz - 3GHz



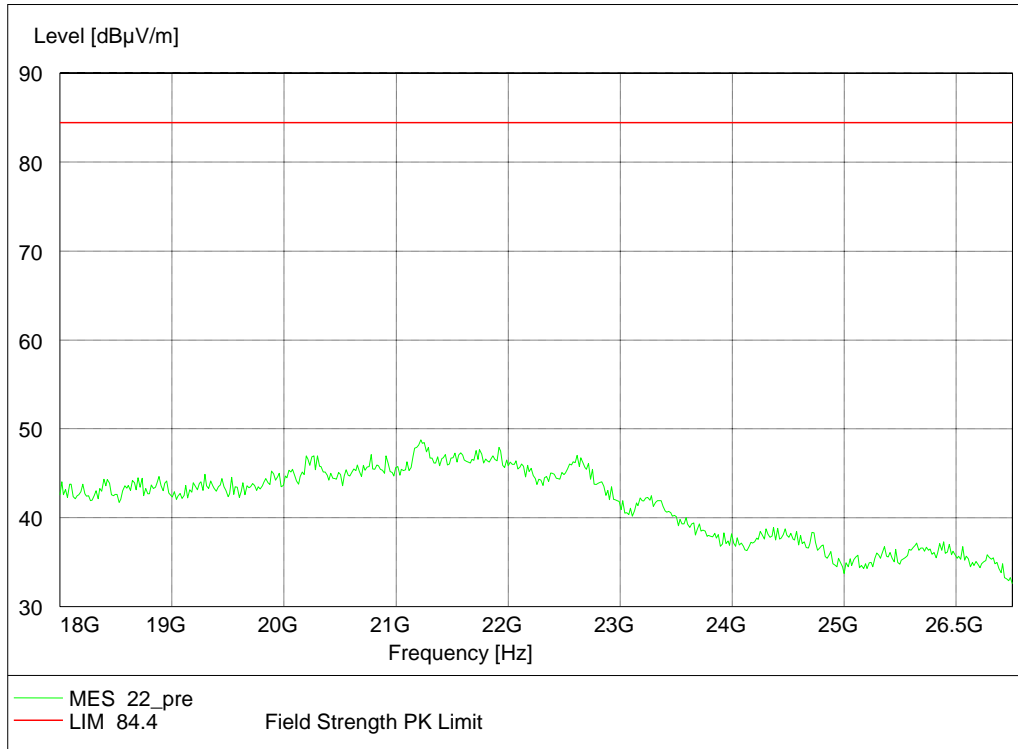
Note: The emission beyond the limit is the operating frequency.

Channel Position M - 16QAM - 3GHz - 18GHz

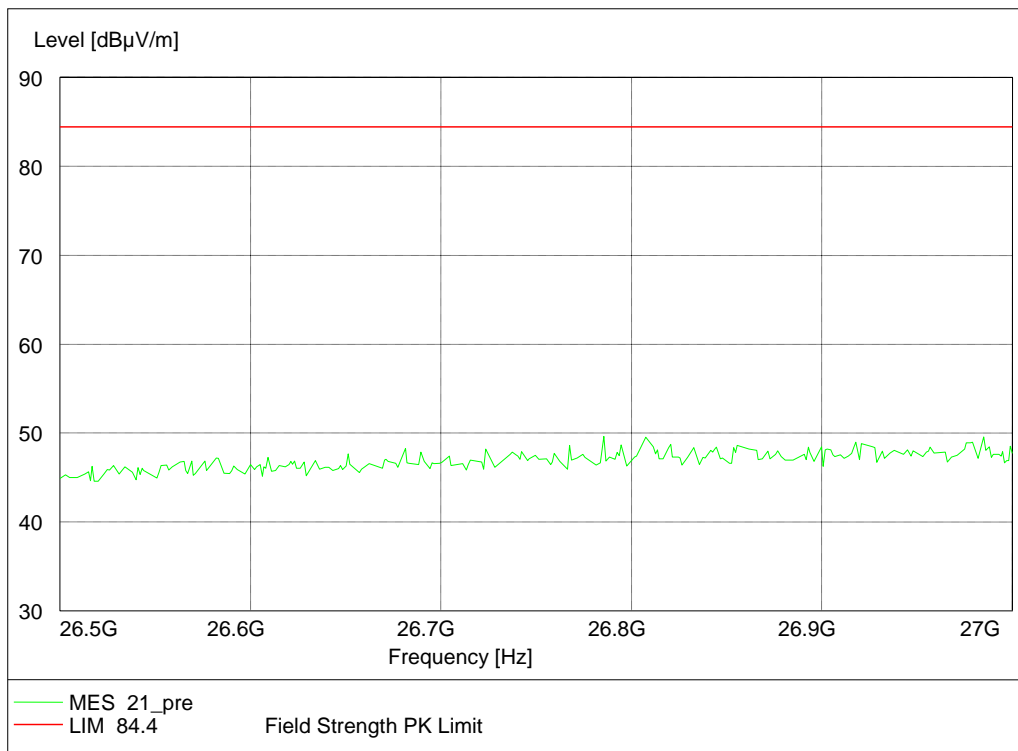




Channel Position M - 16QAM - 18GHz - 26.5GHz



Channel Position M - 16QAM - 26.5GHz - 27GHz





Channel Position T - 16QAM

No emissions were detected within 20dB of the limit.

Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 43.0dBm per port, LTE Bandwidth 10.0MHz

Channel Position	Channel Frequencies
Channel Position M_{RFBW}	2568.0MHz + 2618.0MHz

Channel Position M_{RFBW} – 16QAM

No emissions were detected within 20dB of the limit.

Configuration L-MIMO-MC 1 (3C)

Maximum Output Power 43.0dBm per port, LTE Bandwidth 10.0MHz

Channel Position	Channel Frequencies
Channel Position M_{RFBW}	2568.0MHz + 2608.0MHz + 2618.0MHz

Channel Position M_{RFBW} – 16QAM

No emissions were detected within 20dB of the limit.

Limit	-13dBm / 84.4dB μ V/m.
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Remarks

The EUT does not exceed -13dBm / 84.4dB μ V/m at the measured frequencies.



Product Service

2.5 CONDUCTED SPURIOUS EMISSIONS

2.5.1 Specification Reference

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

2.5.2 Equipment Under Test

Radio 4412 B41, KRC 161 697/1, S/N: D825931318

2.5.3 Date of Test and Modification State

05 and 06 July 2017 - Modification State 0

2.5.4 Test Equipment Used

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

2.5.5 Environmental Conditions

Ambient Temperature	24.1 - 24.8°C
Relative Humidity	60.0 - 61.0%

2.5.6 Test Method

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

In accordance with FCC CFR 47 Part 27, Clause 24.238 (a), any emissions outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB, and the measurement should be performed with a resolution bandwidth of 1MHz.

The spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 9kHz to 27GHz. The resolution bandwidth of 1MHz was employed for frequency band 9kHz to 27GHz. The spectrum analyzer detector was set to RMS.

For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [10Log4] by using the Measure and Add 10Log(N) dB technique according to FCC KDB 662911 D01 Multiple Transmitter Output v02r01 accounting for simultaneous transmission from antenna ports RF A , B, C and RF D. Then the limit was adjust to -19.02dBm.

The measurements were performed on the output connector RF D. Limited complementary measurement were done at output conector RF A to RF C to verify identical performance for both transmitter chains in MIMO mode.

The maximum path loss across the measurement band was used as the reference level offset to ensure worst case.

The worst results are shown in the plots below.



2.5.7 Test Results

Remark:

The emissions at 9kHz on the plots was not generated by the test object.

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port

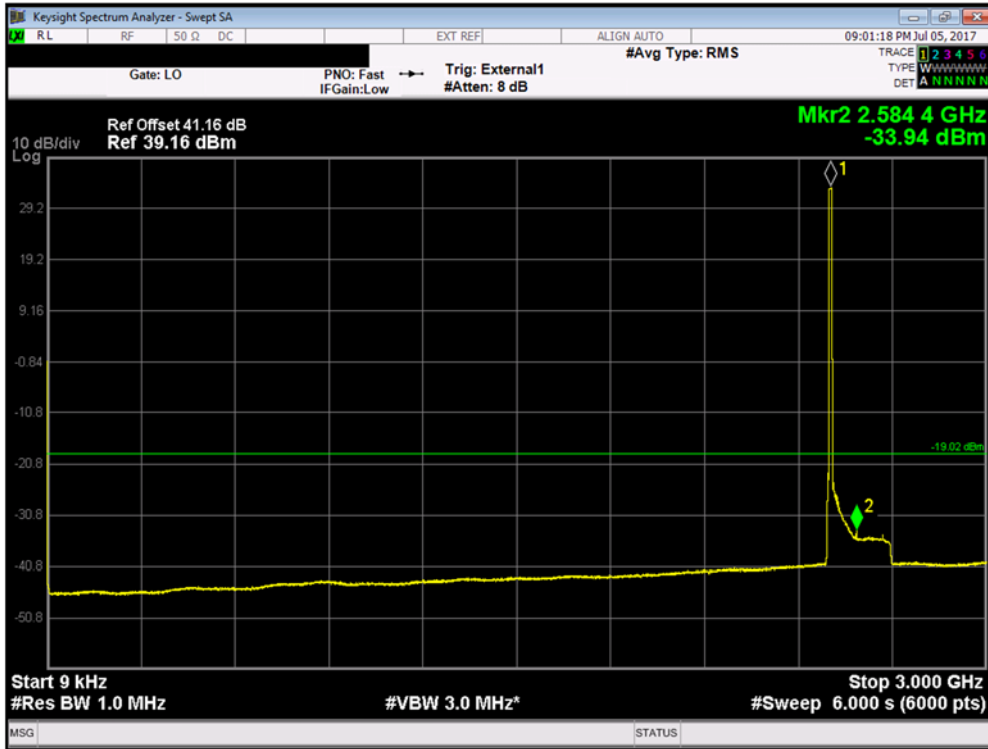
Channel Position	Bandwidth	Channel Frequency
Channel Position B	10.0 MHz	2501.0MHz
Channel Position M	10.0 MHz	2593.0MHz
Channel Position T	10.0 MHz	2685.0MHz

Channel Position	Bandwidth	Channel Frequency
Channel Position B	20.0 MHz	2506.0MHz
Channel Position M	20.0 MHz	2593.0MHz
Channel Position T	20.0 MHz	2680.0MHz

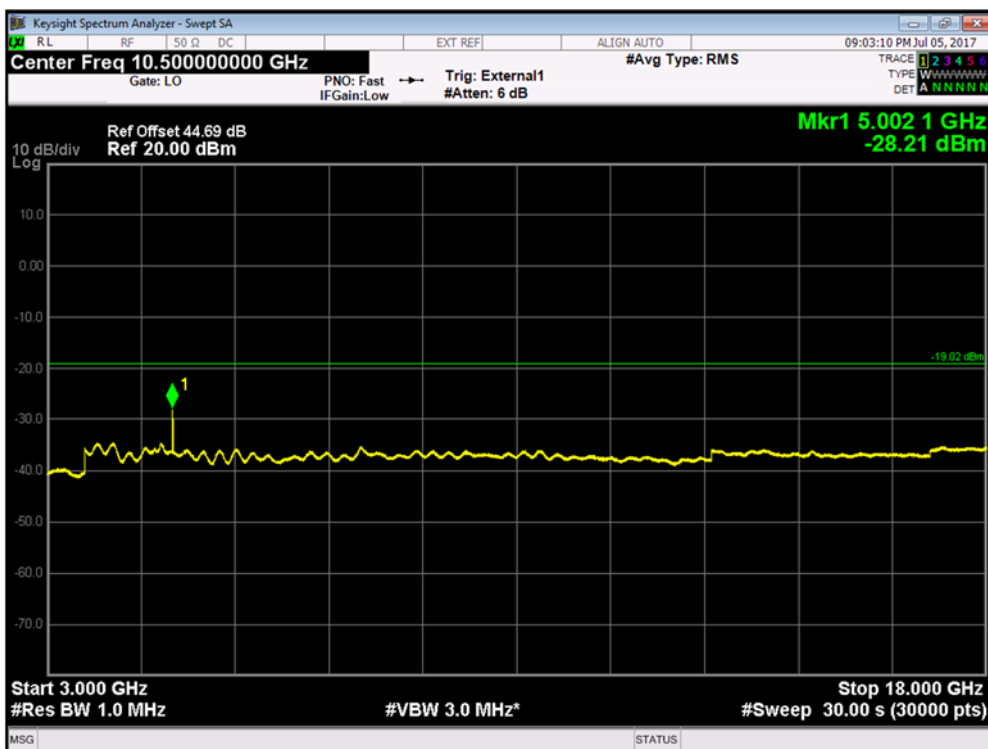


Product Service

Channel Position B - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



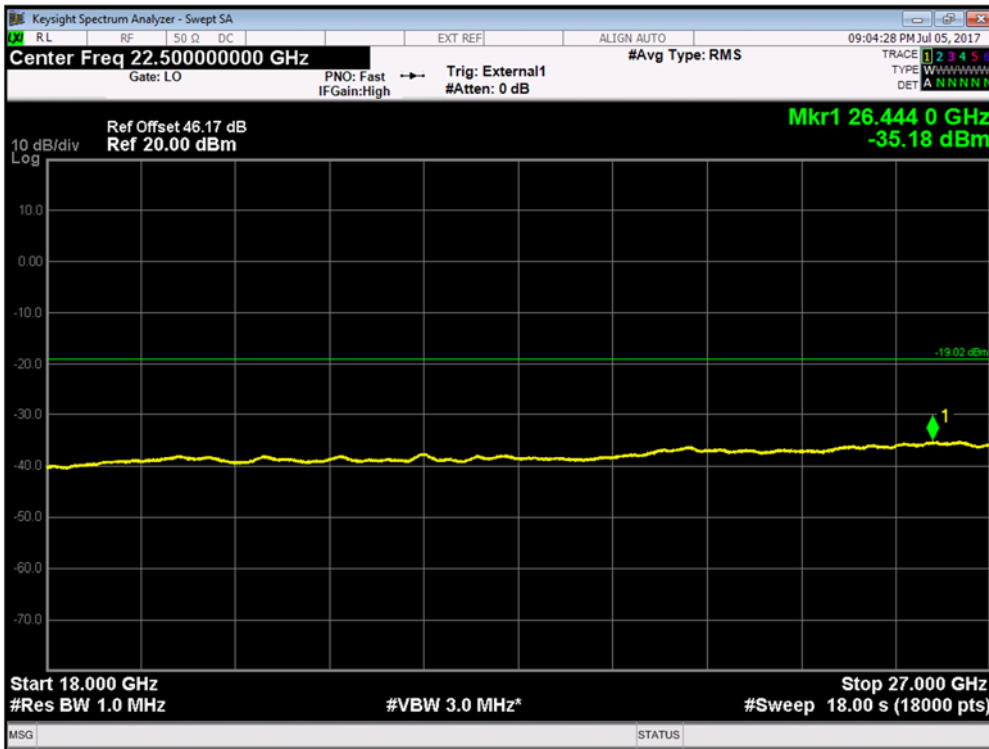
Channel Position B - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



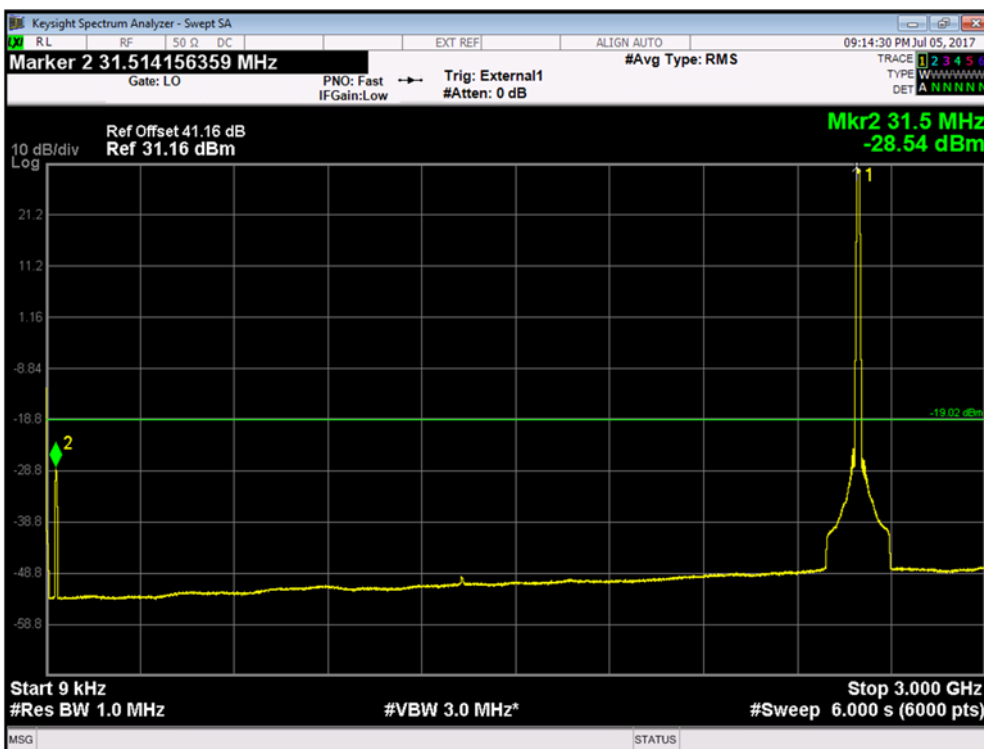


Product Service

Channel Position B - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



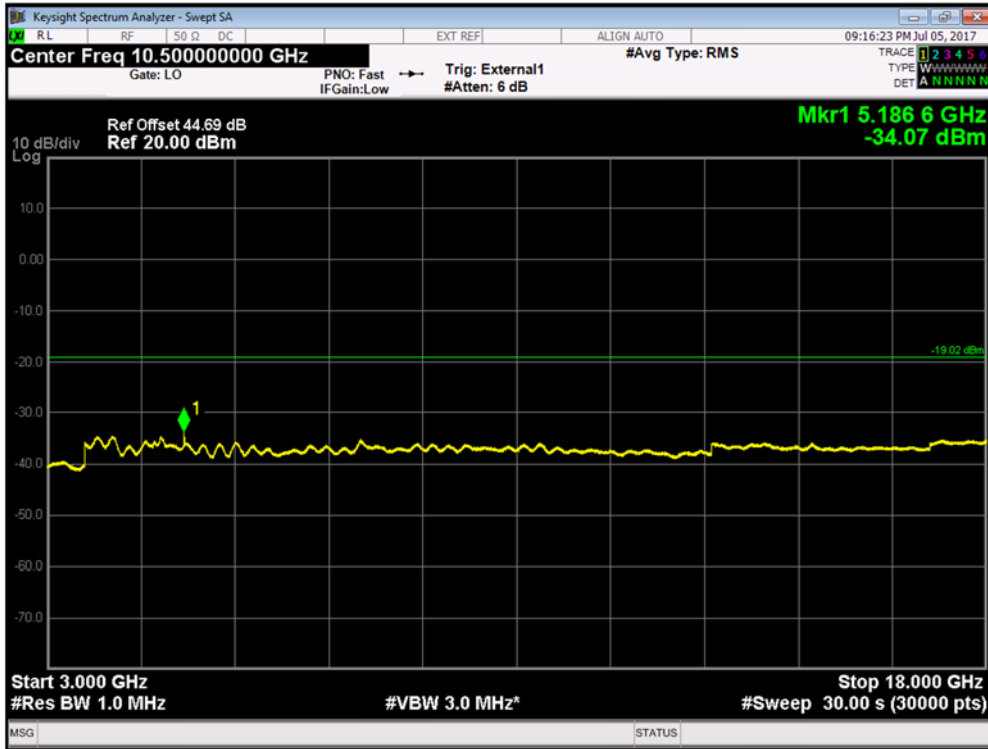
Channel Position M - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



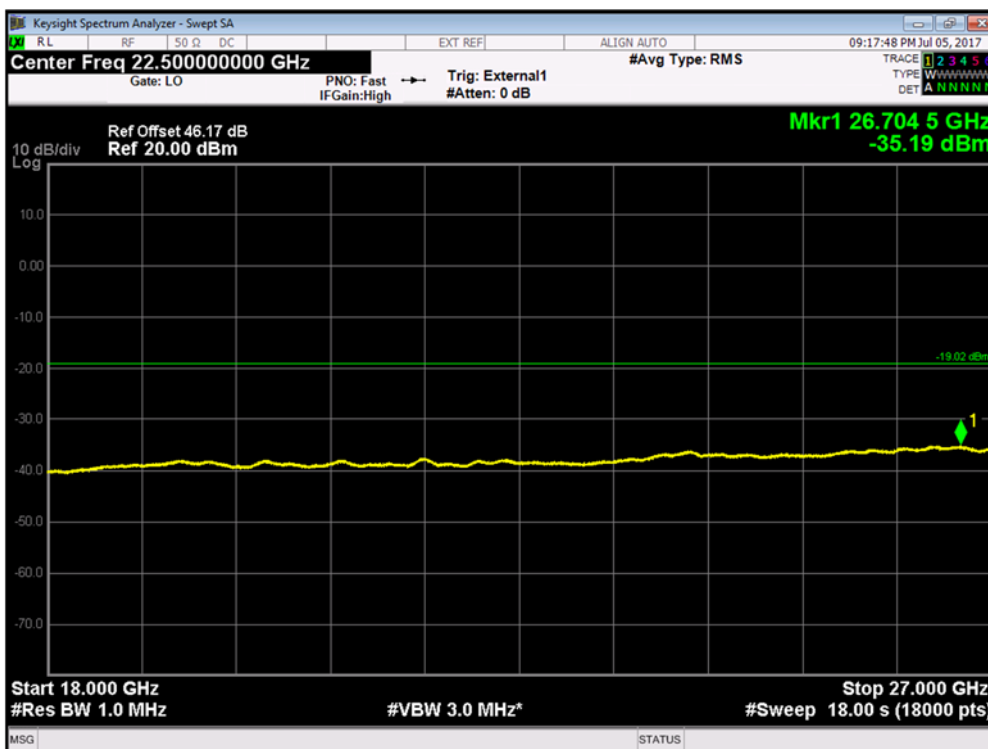


Product Service

Channel Position M - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



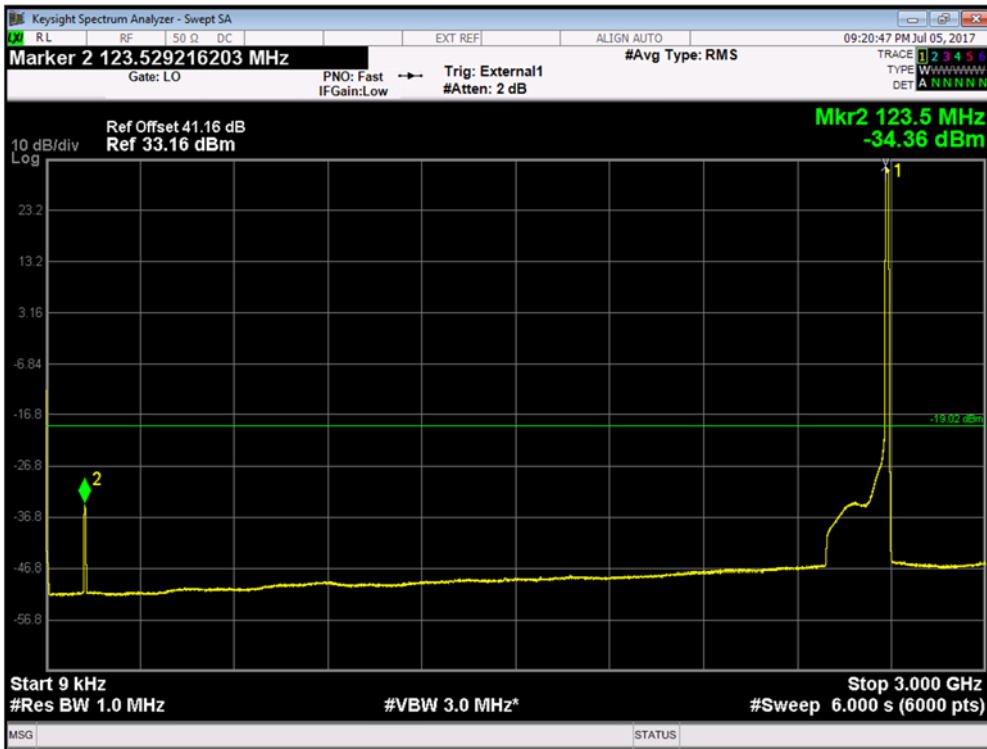
Channel Position M - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



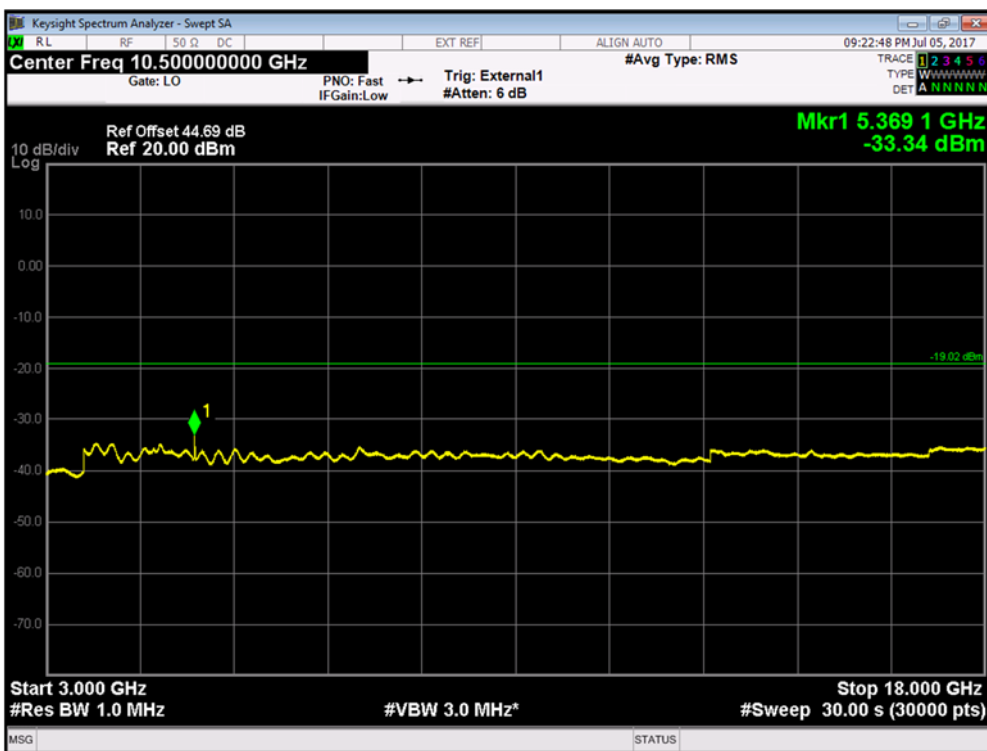


Product Service

Channel Position T - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



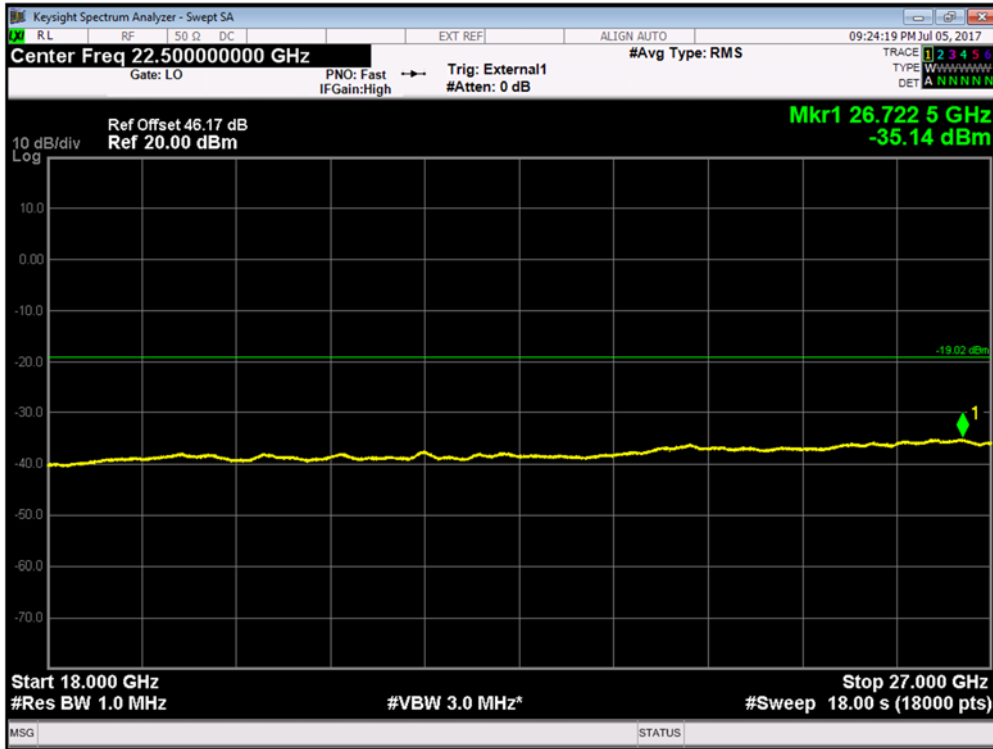
Channel Position T - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



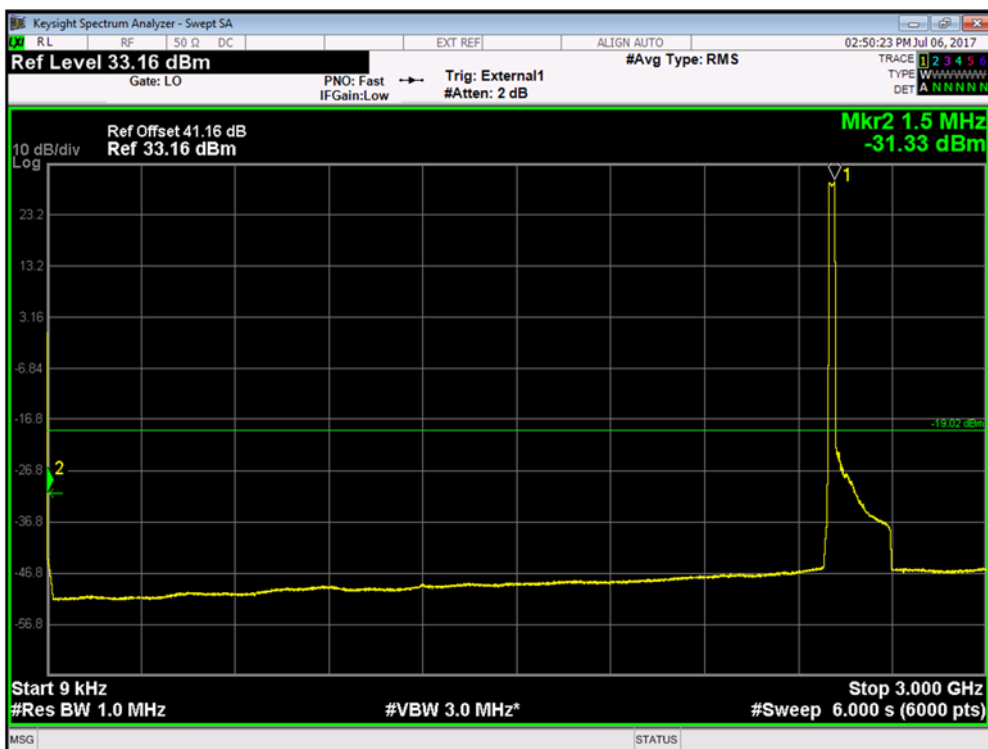


Product Service

Channel Position T - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



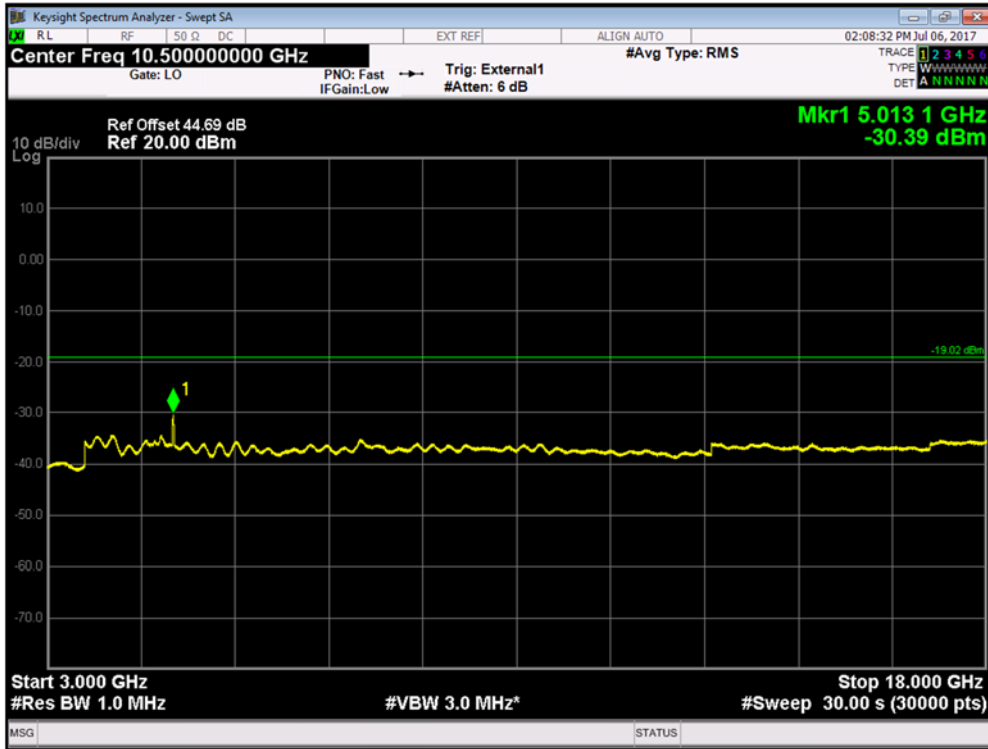
Channel Position B - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



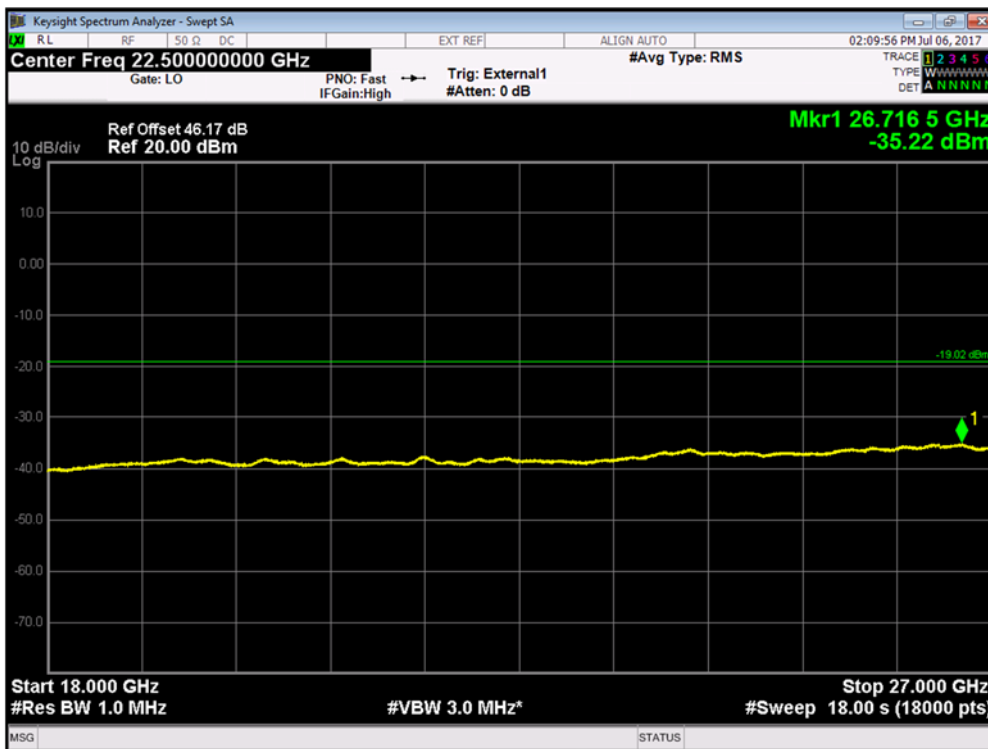


Product Service

Channel Position B - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



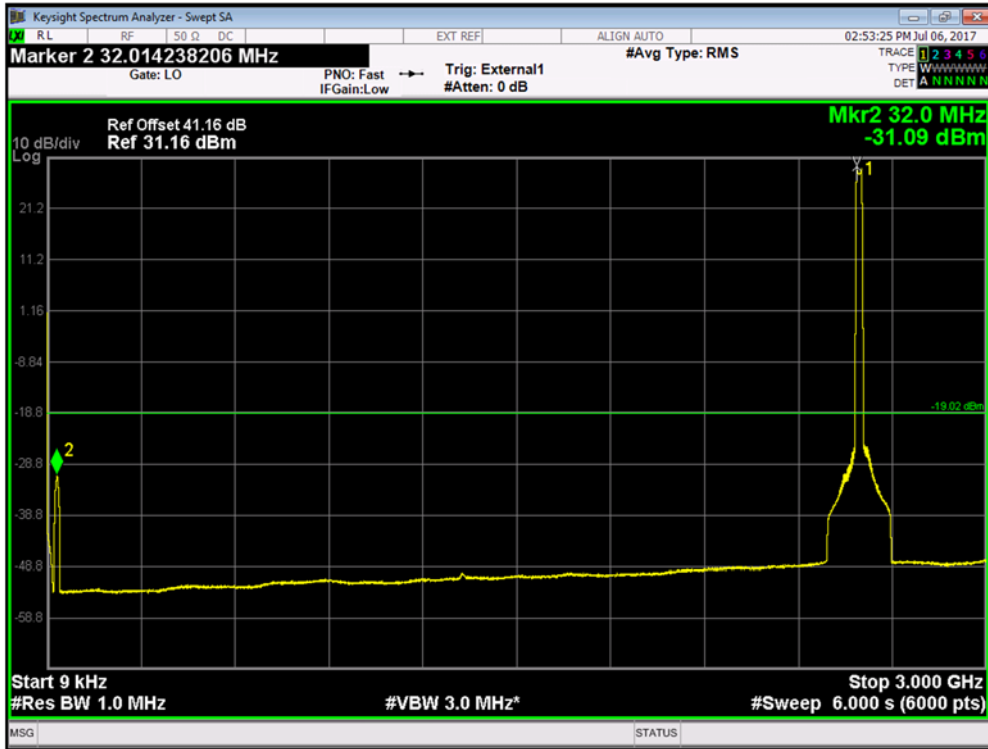
Channel Position B - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



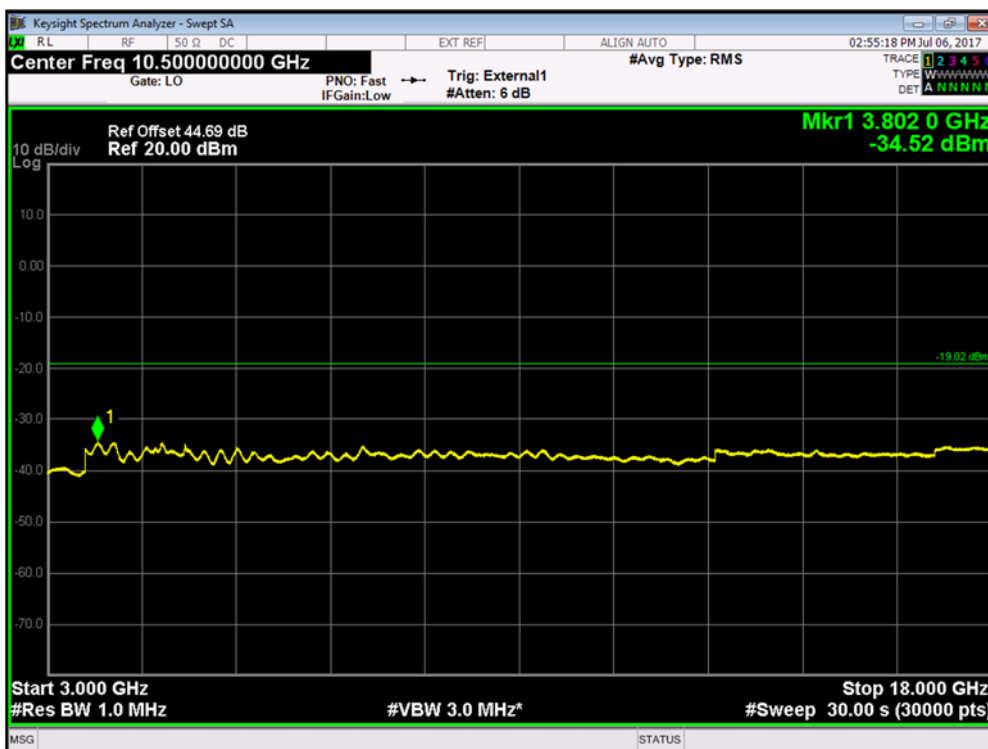


Product Service

Channel Position M - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



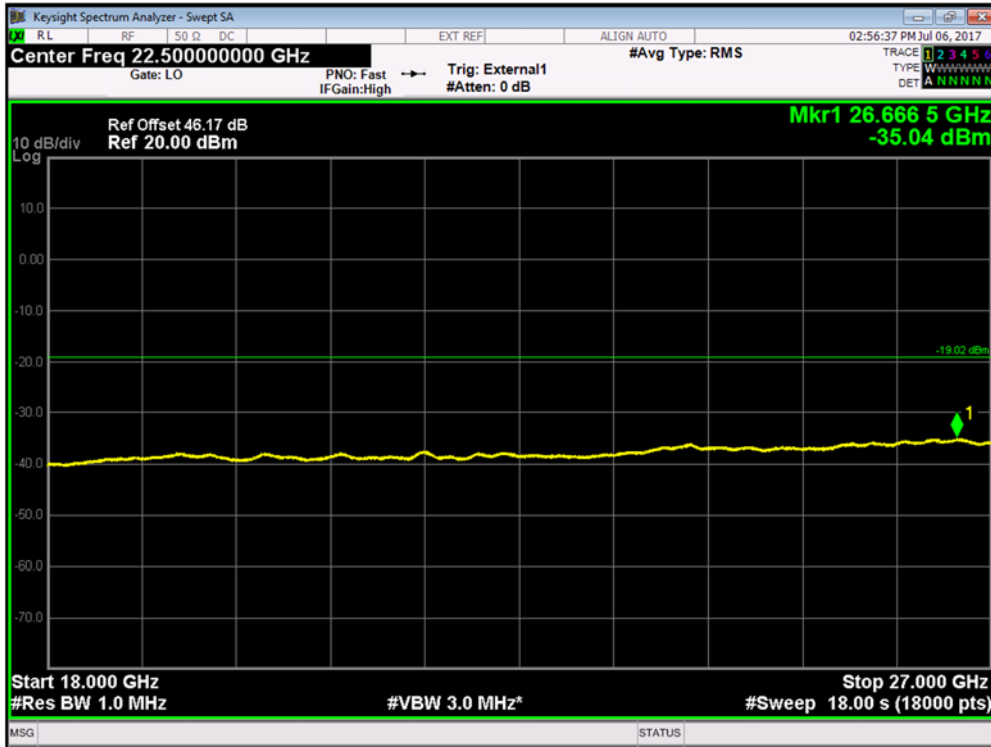
Channel Position M - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



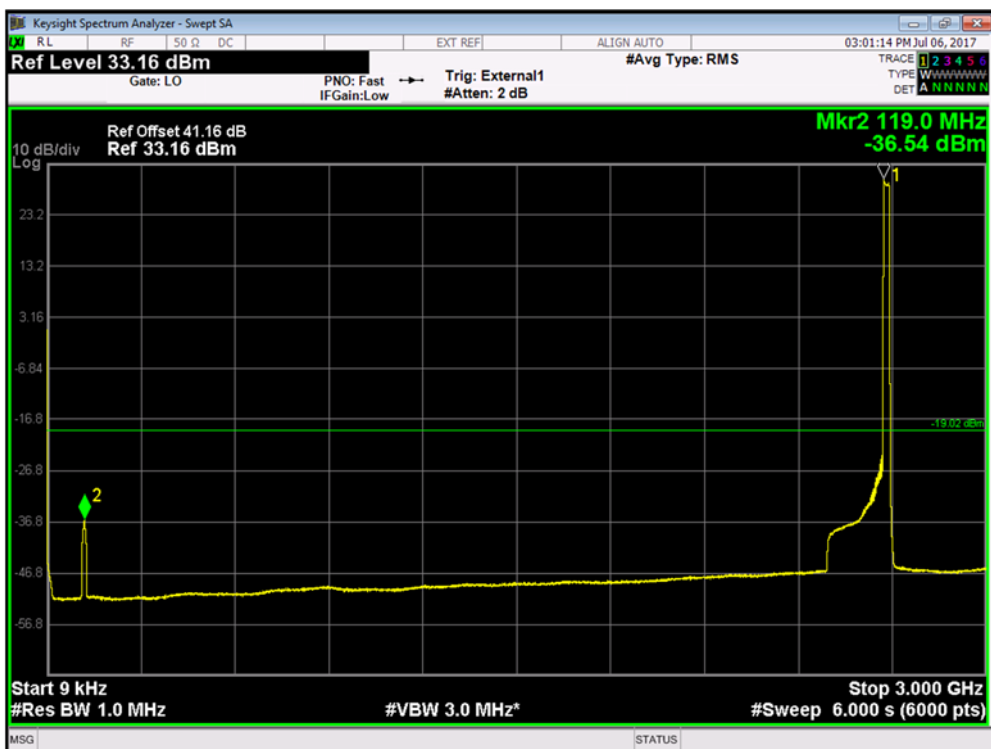


Product Service

Channel Position M - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



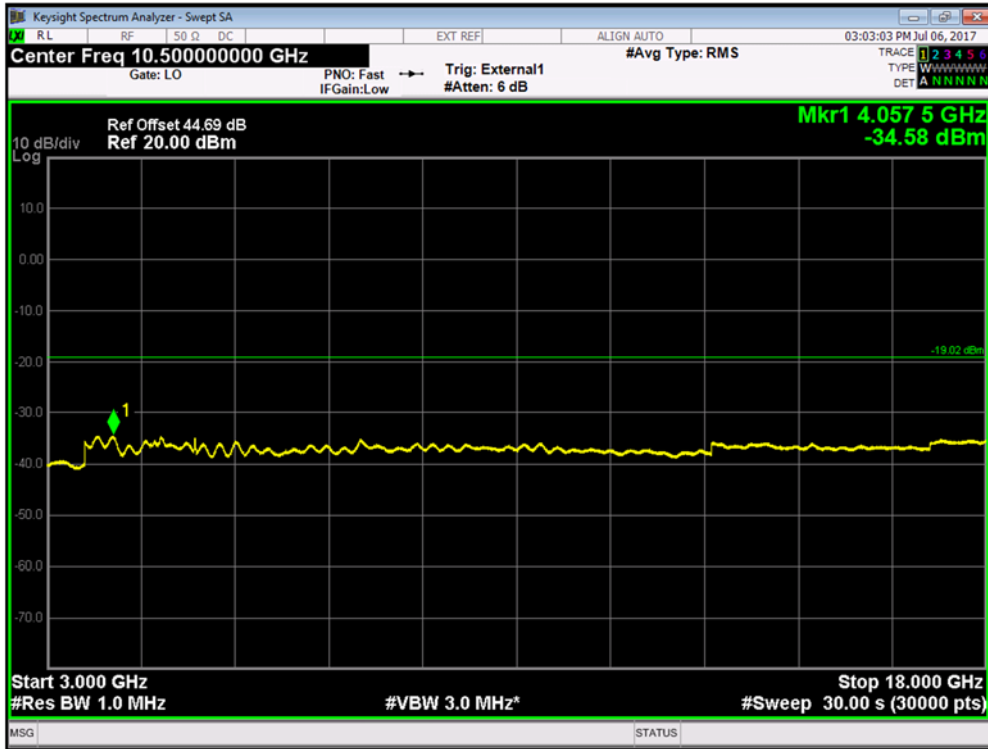
Channel Position T - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



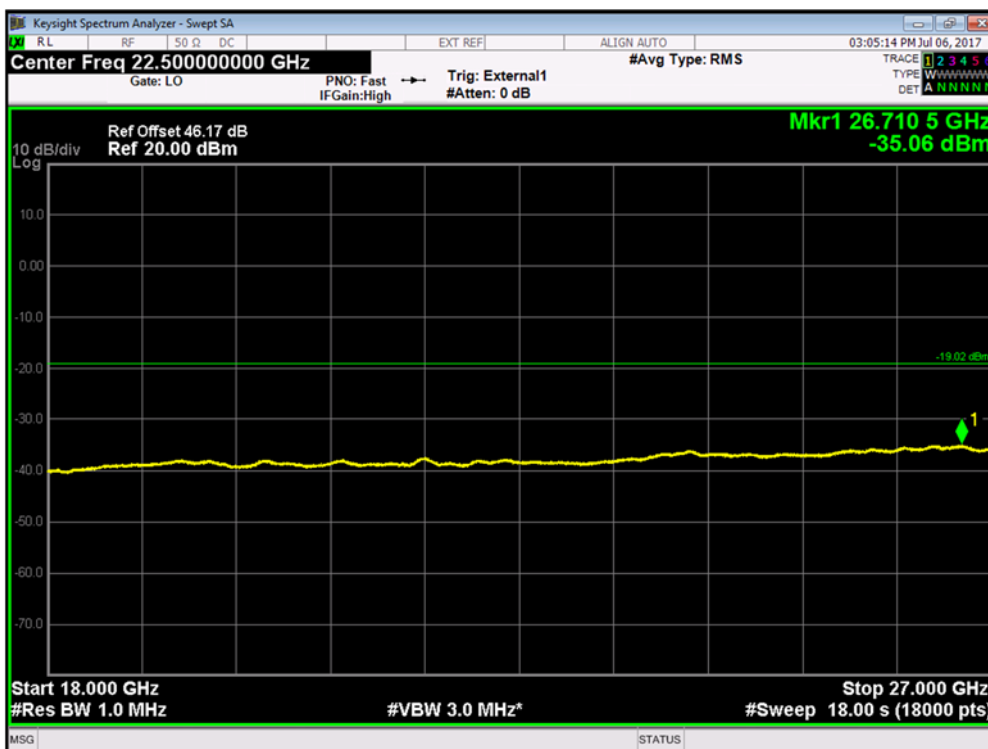


Product Service

Channel Position T - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



Channel Position T - QPSK / Bandwidth 20.0 MHz - 18GHz - 27GHz





Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 43.0dBm per port

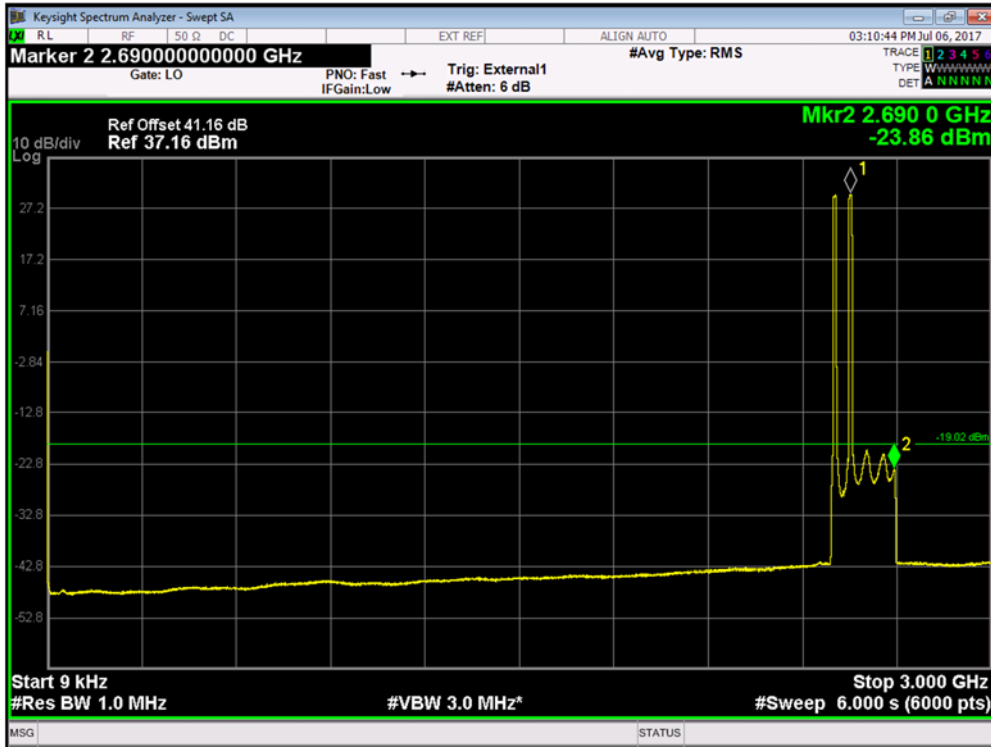
Channel Position	Bandwidth	Channel Frequency
Channel Position B_{RFBW}	10.0 MHz	2501.0MHz + 2551.0MHz
Channel Position M_{RFBW}	10.0 MHz	2568.0MHz + 2618.0MHz
Channel Position T_{RFBW}	10.0 MHz	2635.0MHz + 2685.0MHz

Channel Position	Bandwidth	Channel Frequency
Channel Position B_{RFBW}	20.0 MHz	2506.0MHz + 2546.0MHz
Channel Position M_{RFBW}	20.0 MHz	2573.0MHz + 2613.0MHz
Channel Position T_{RFBW}	20.0 MHz	2640.0MHz + 2680.0MHz

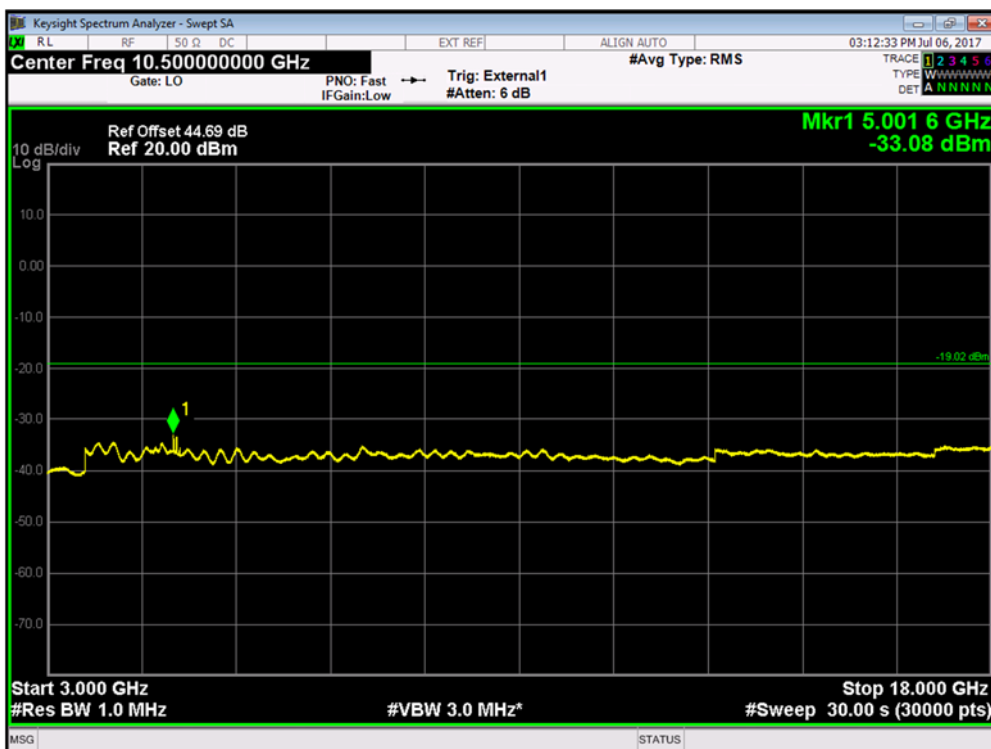


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz - 9kHz - 3GHz



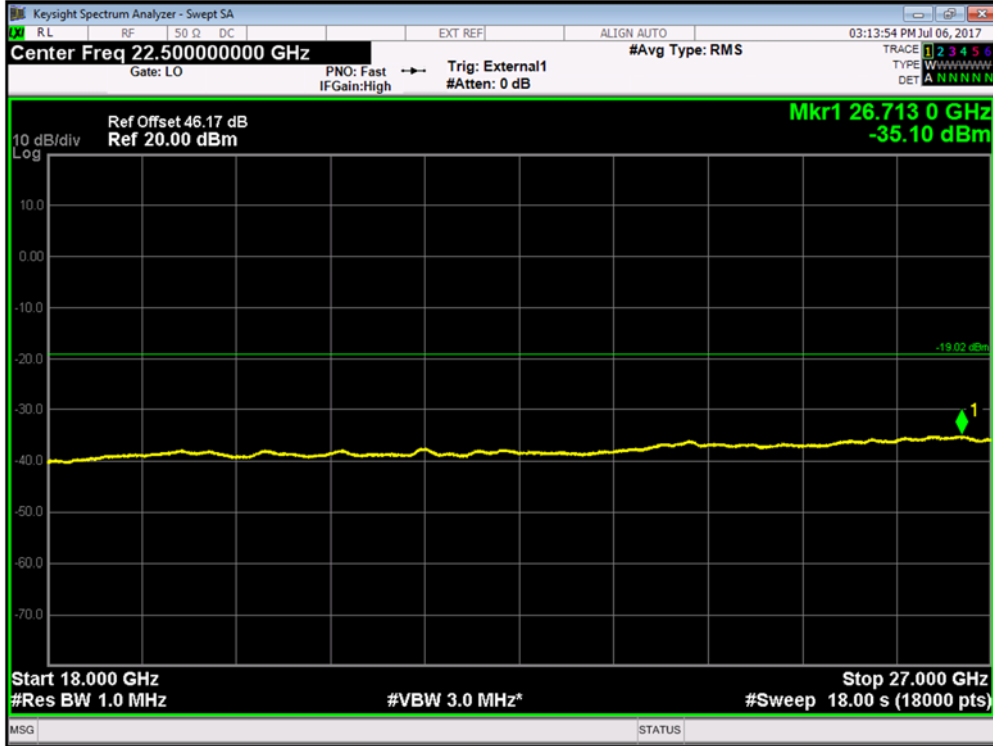
Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz - 3GHz - 18GHz



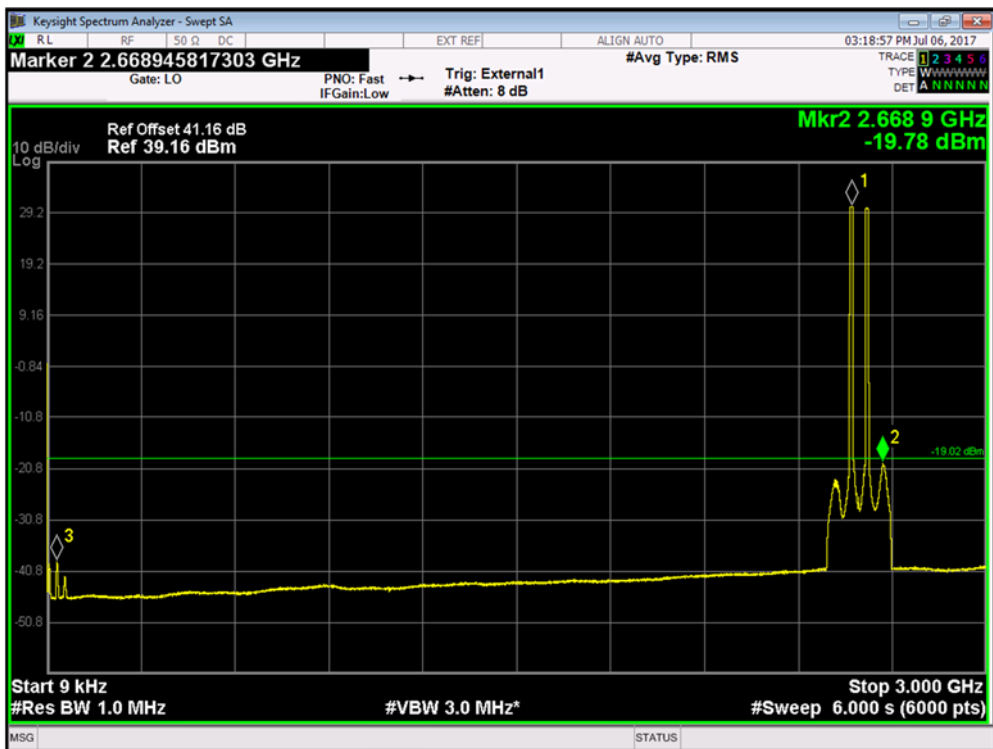


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



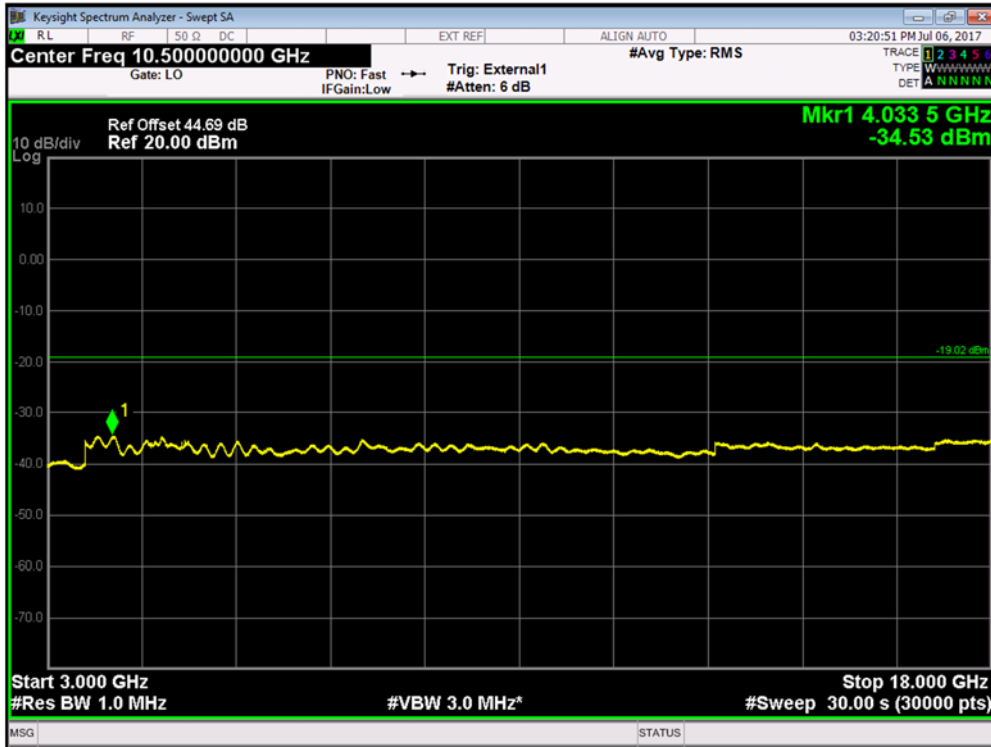
Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



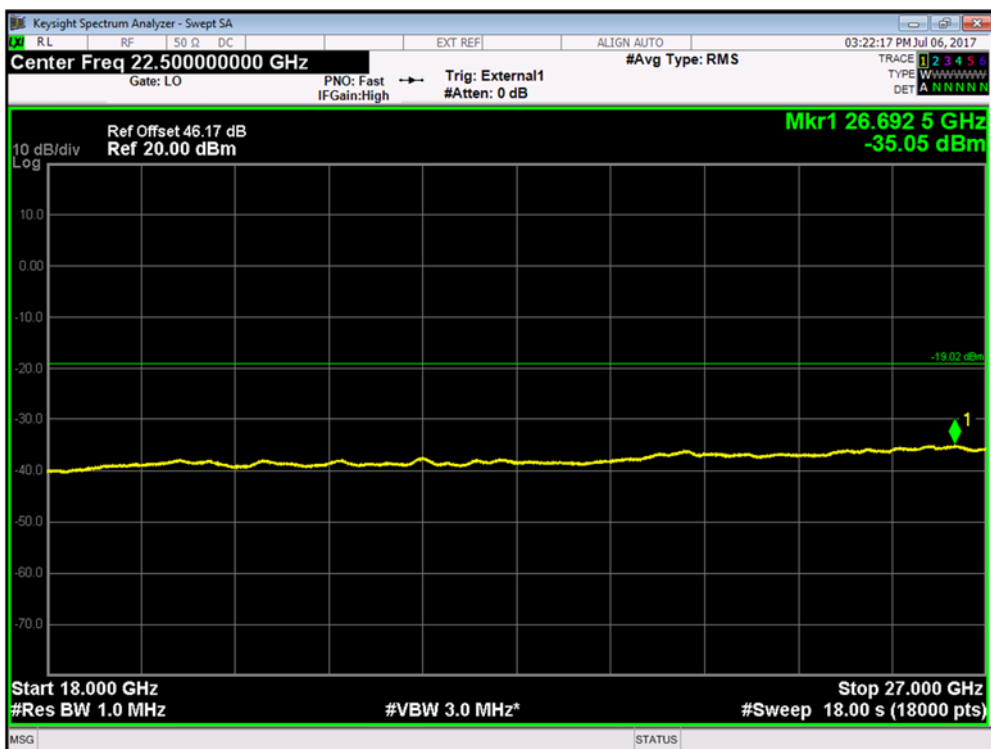


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



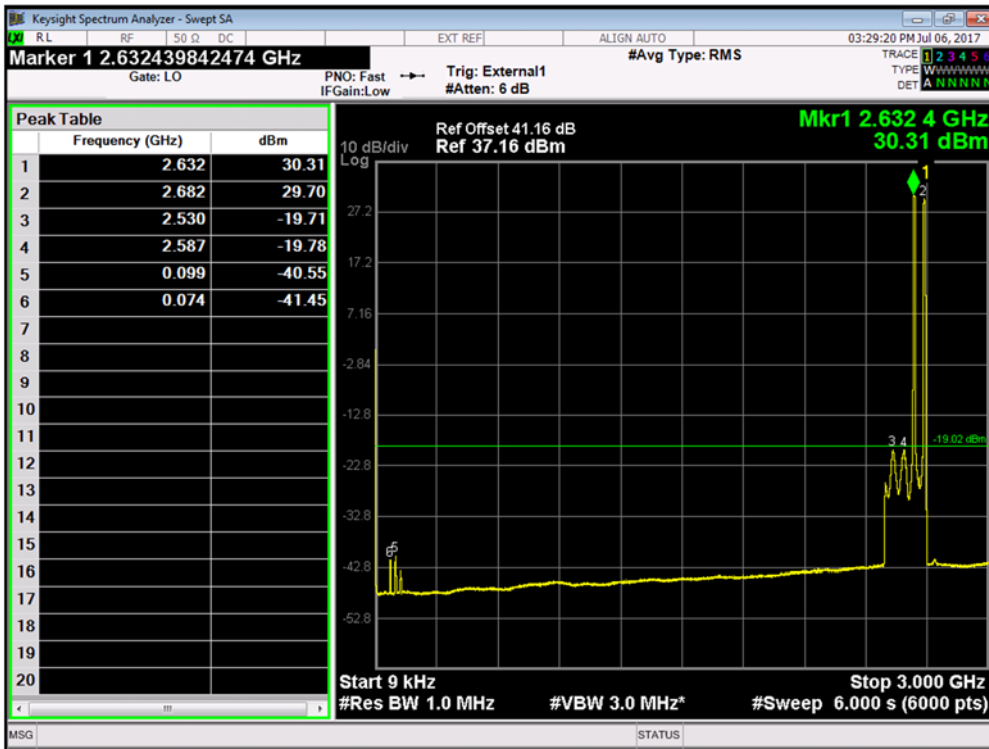
Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



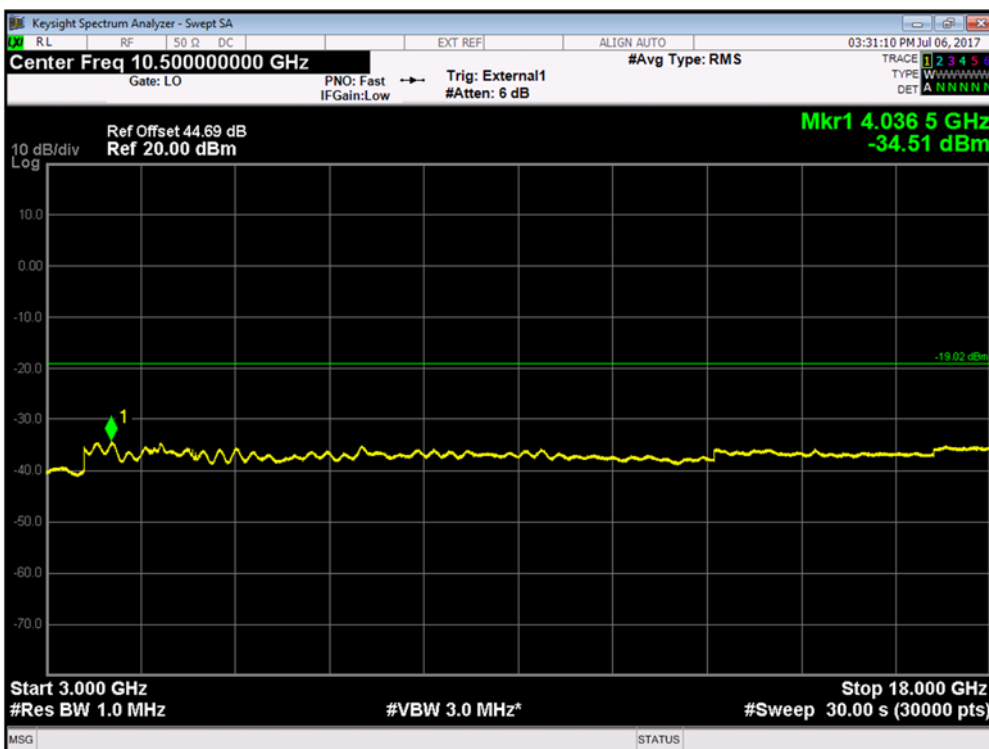


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



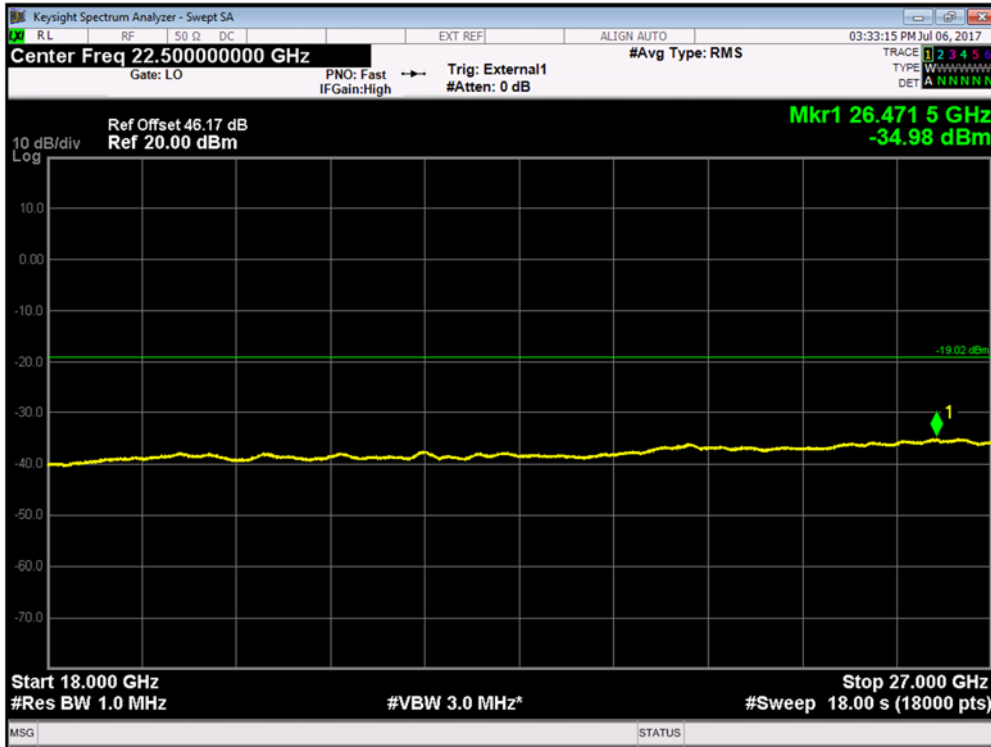
Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



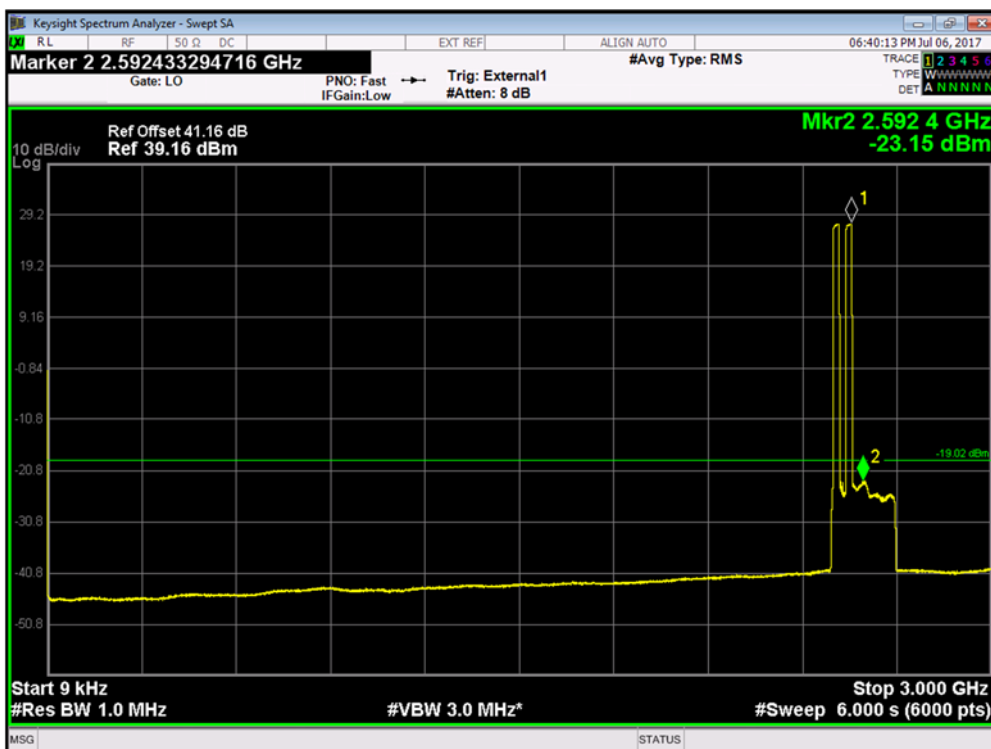


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



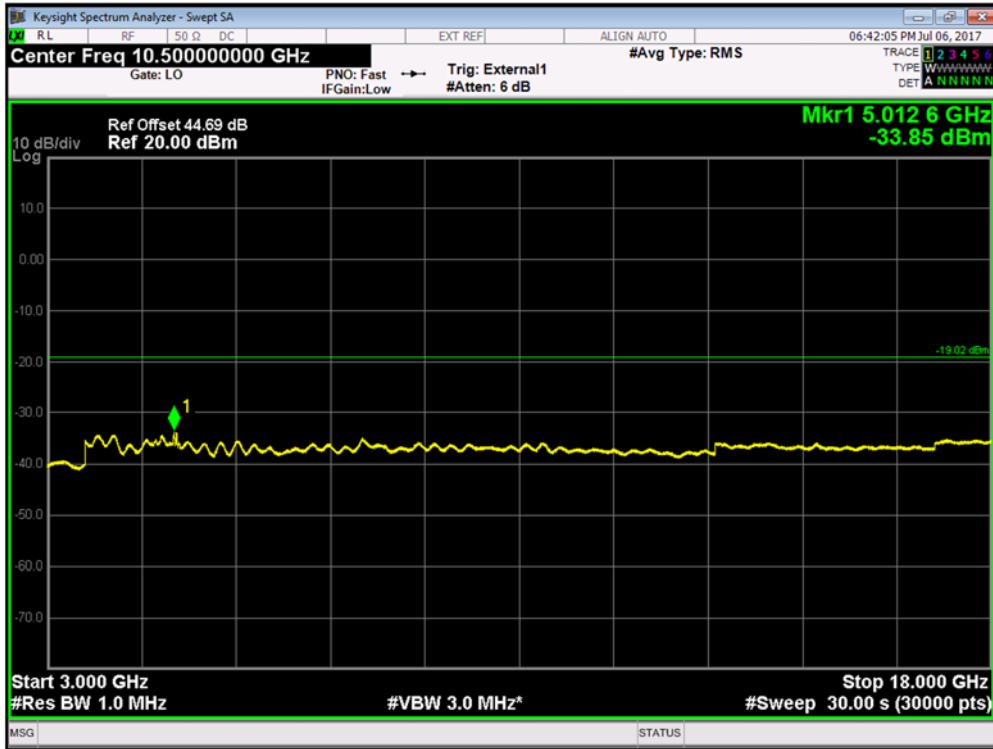
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



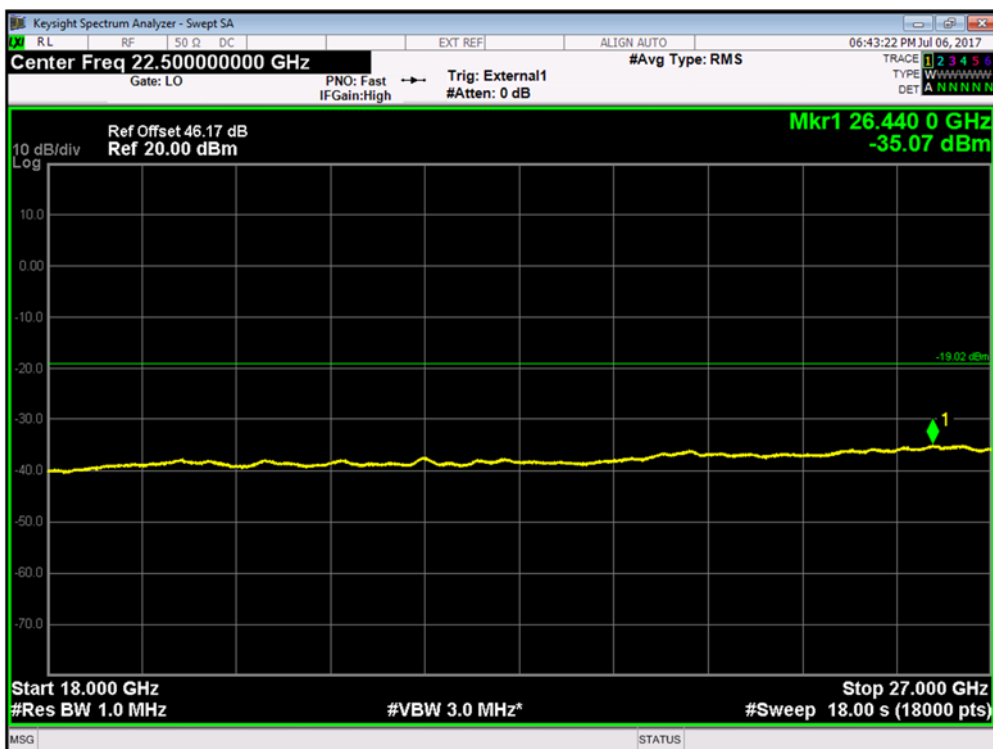


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



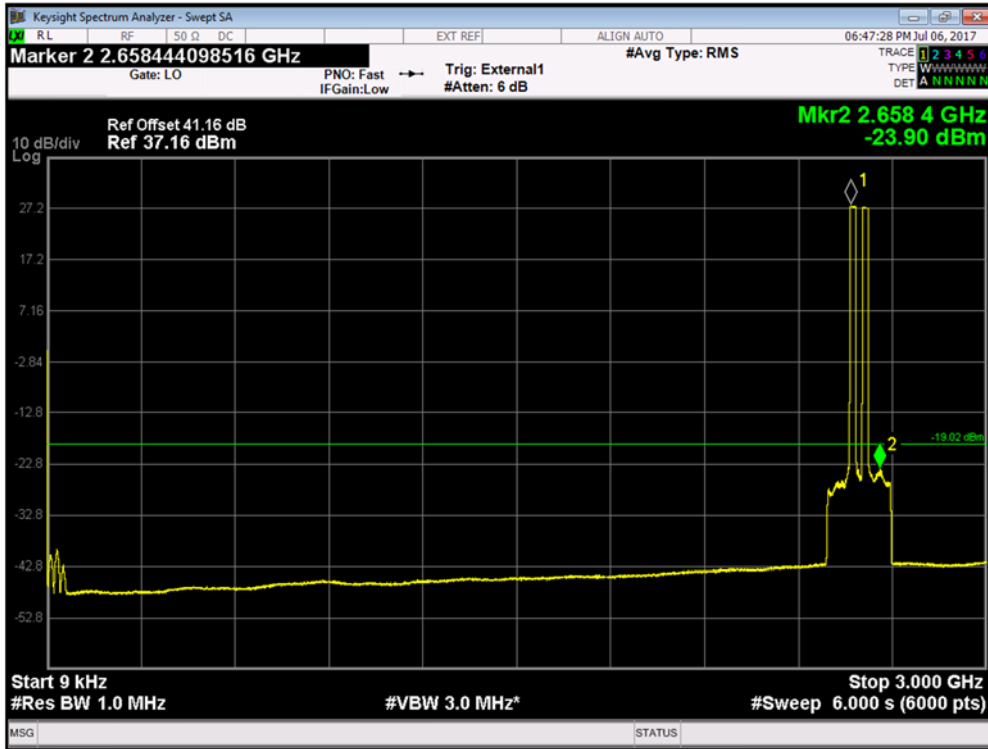
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



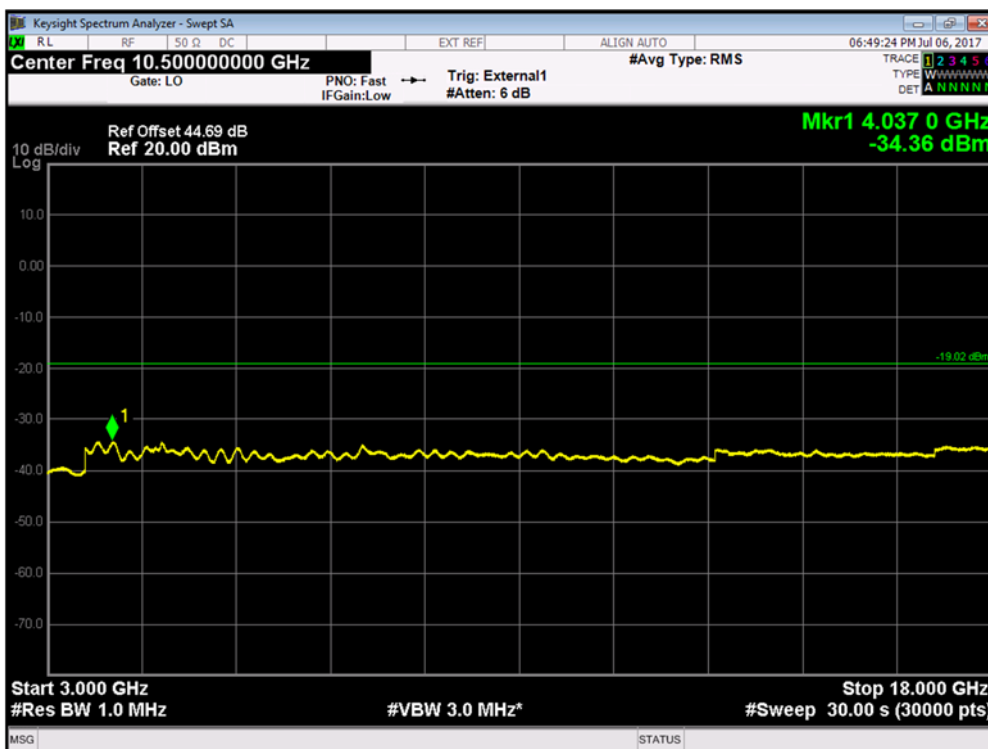


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



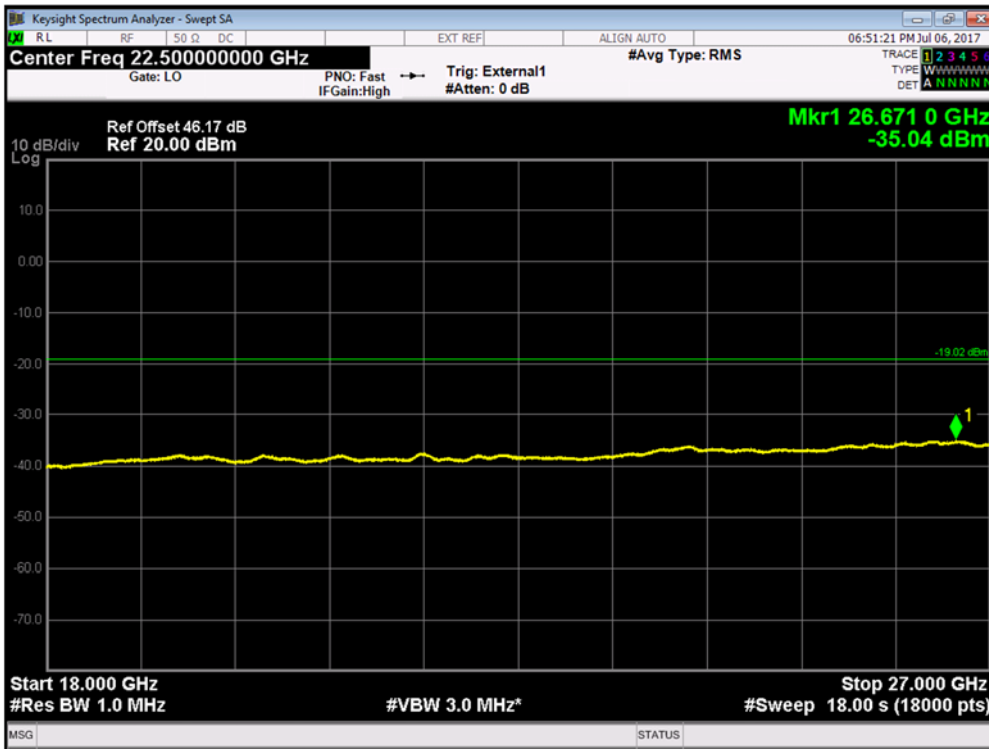
Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



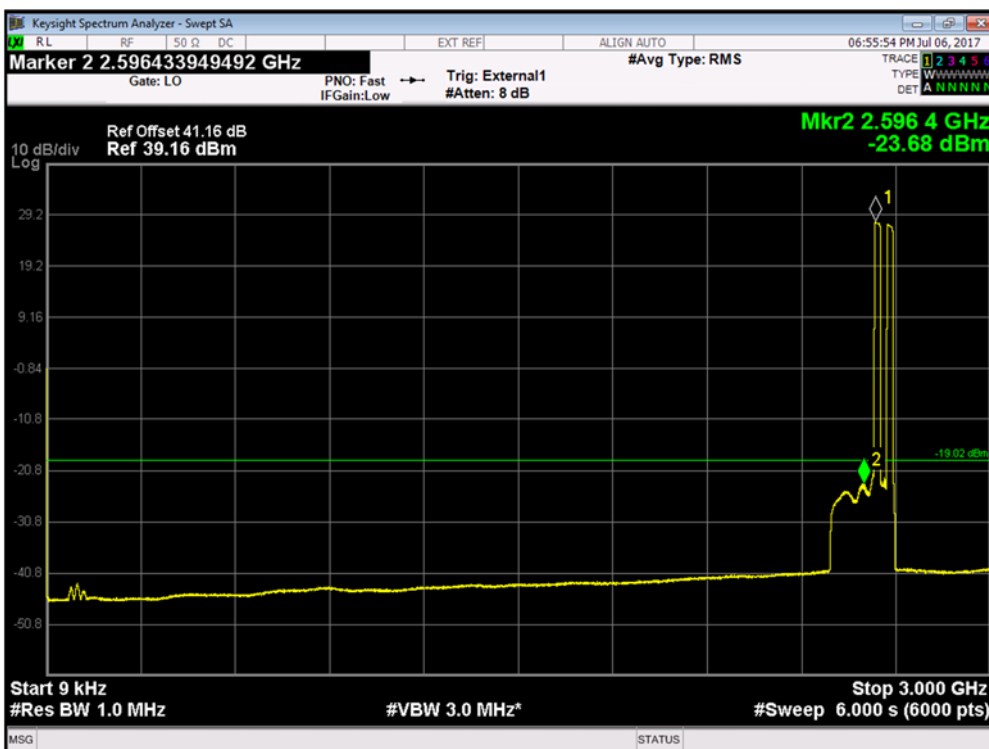


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



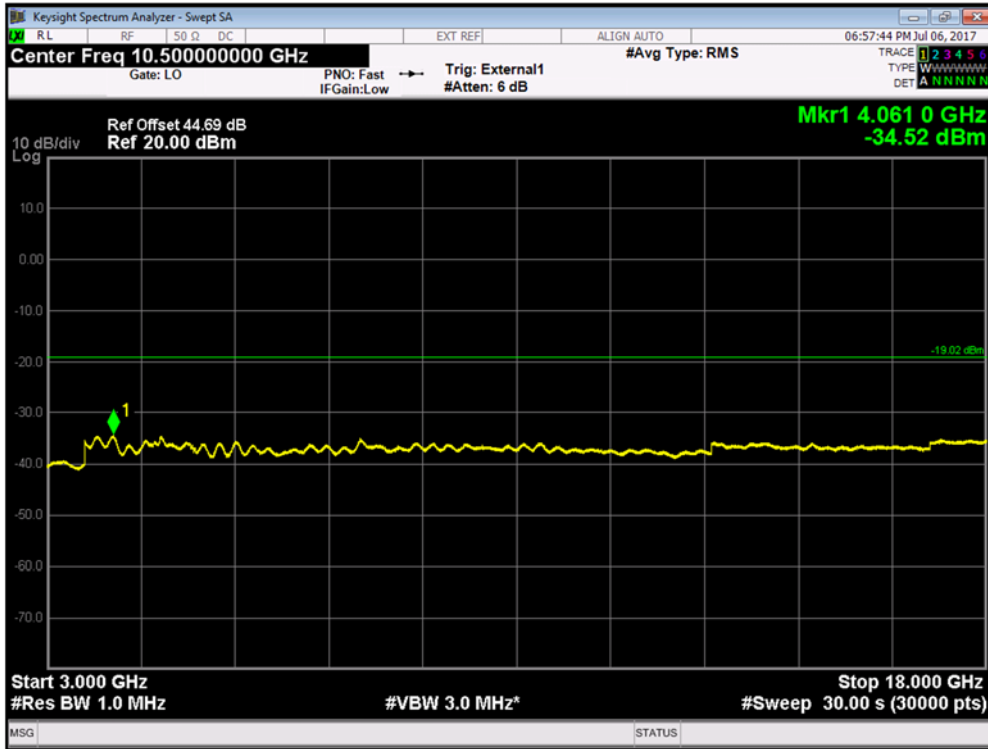
Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



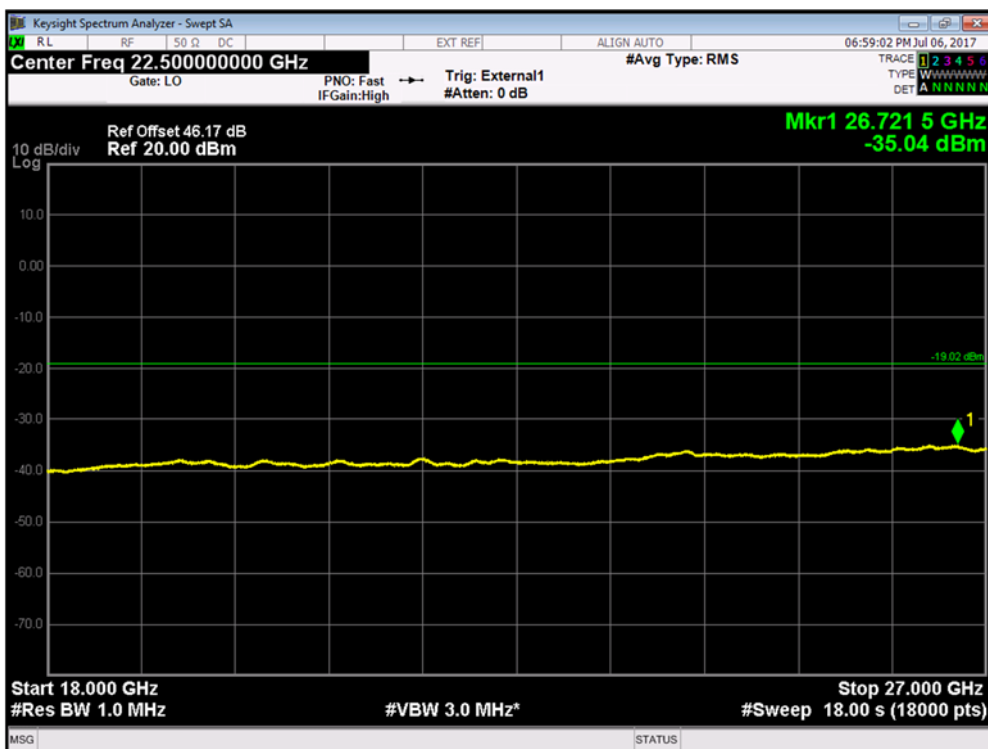


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz





Configuration L-MIMO-MC 2 (3C)

Maximum Output Power 43.0dBm per port

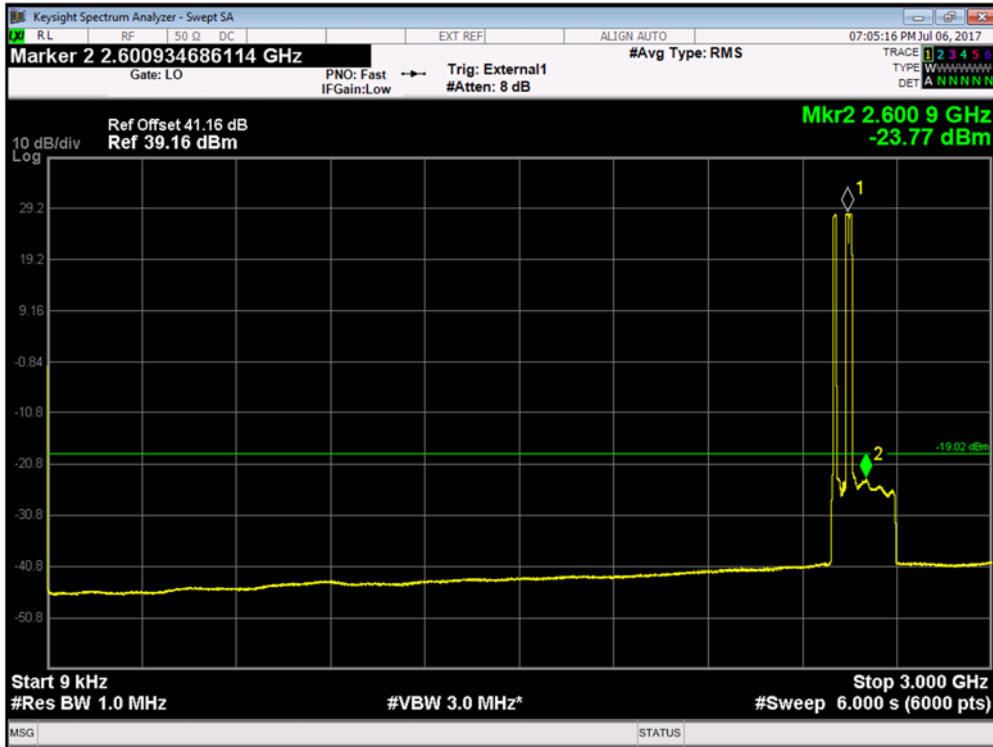
Channel Position	Bandwidth	Channel Frequency
Channel Position B_{RFBW}	10.0 MHz	2501.0MHz + 2541.0MHz + 2551.0MHz
Channel Position M_{RFBW}	10.0 MHz	2568.0MHz + 2608.0MHz + 2618.0MHz
Channel Position T_{RFBW}	10.0 MHz	2635.0MHz + 2675.0MHz + 2685.0MHz

Channel Position	Bandwidth	Channel Frequency
Channel Position B_{RFBW}	20.0 MHz	2506.0MHz + 2526.0MHz + 2546.0MHz
Channel Position M_{RFBW}	20.0 MHz	2573.0MHz + 2593.0MHz + 2613.0MHz
Channel Position T_{RFBW}	20.0 MHz	2640.0MHz + 2660.0MHz + 2680.0MHz

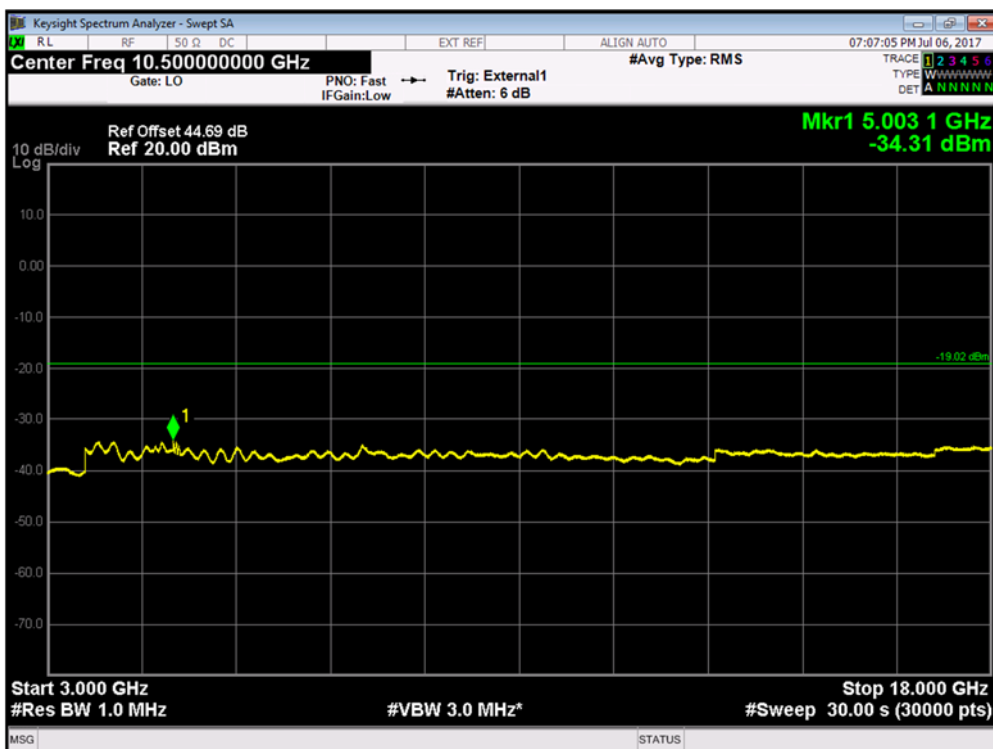


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz - 9kHz - 3GHz



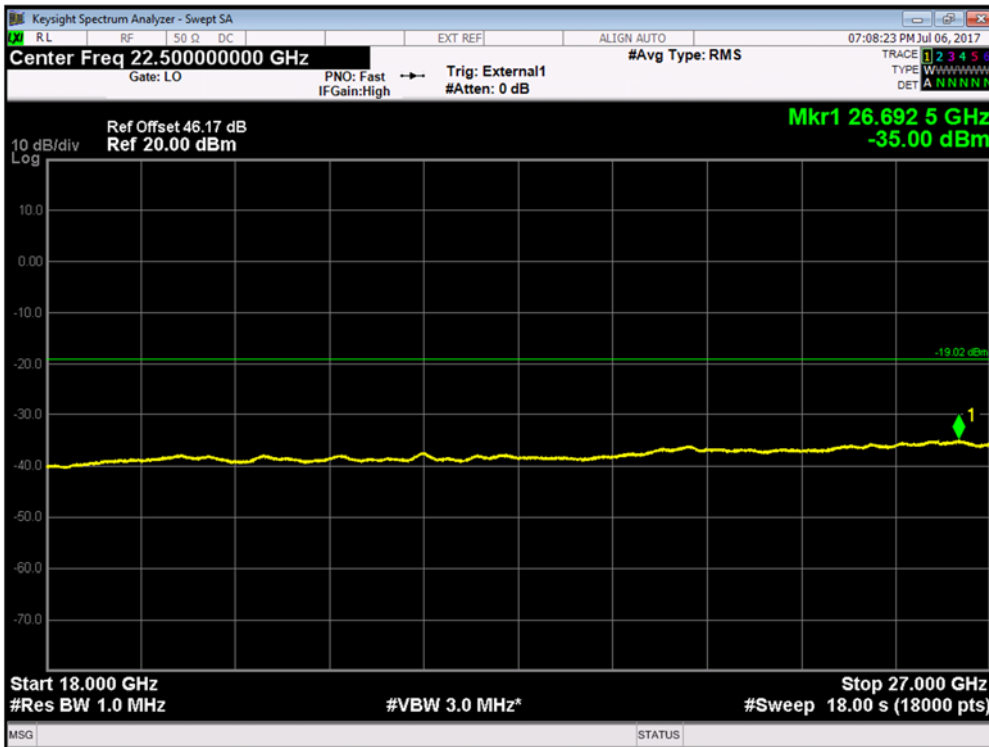
Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz - 3GHz - 18GHz



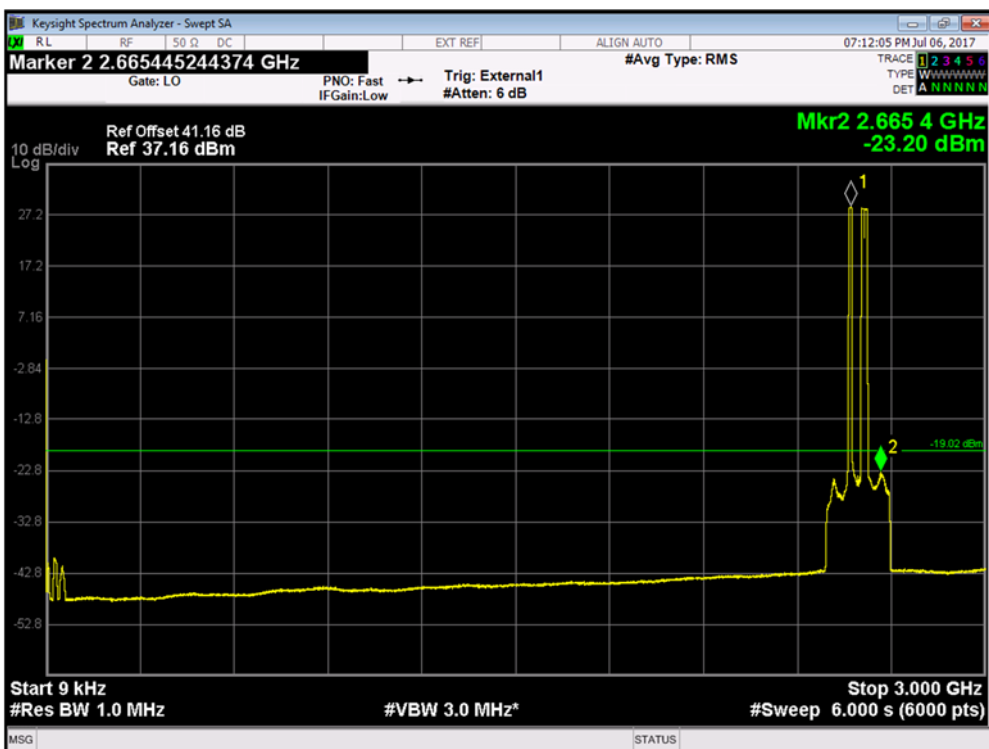


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



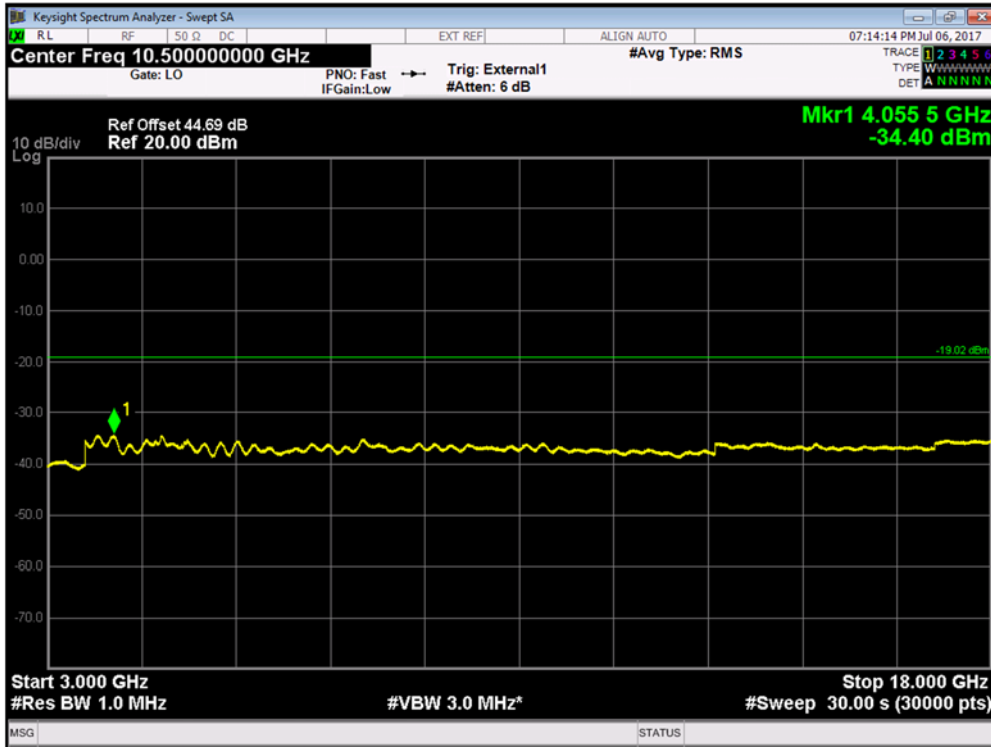
Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



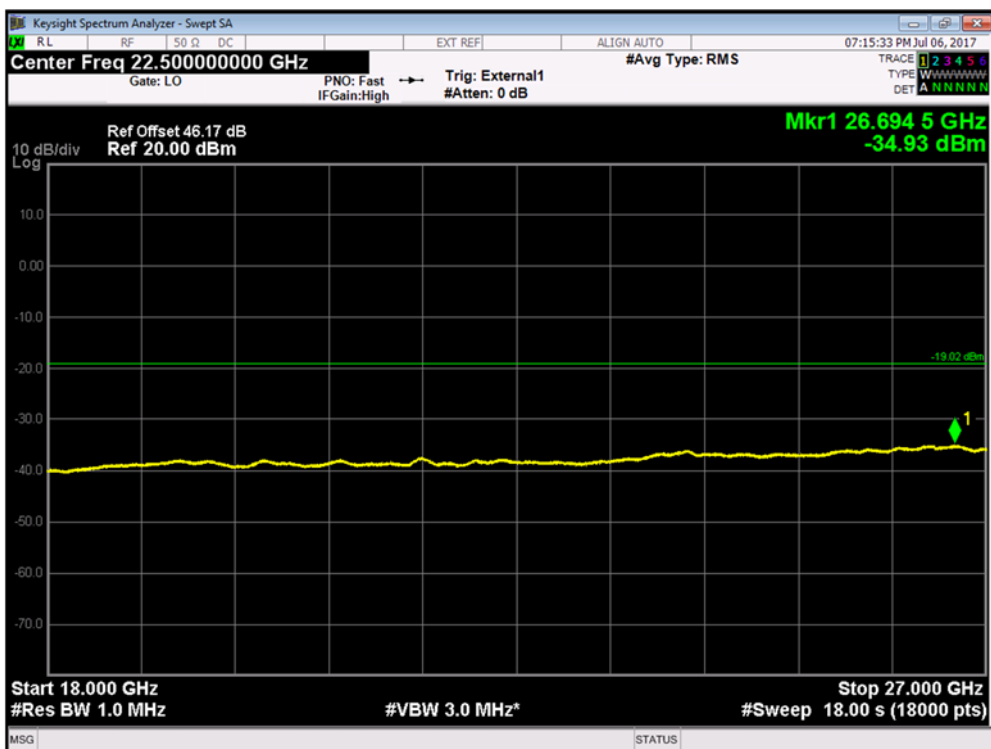


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



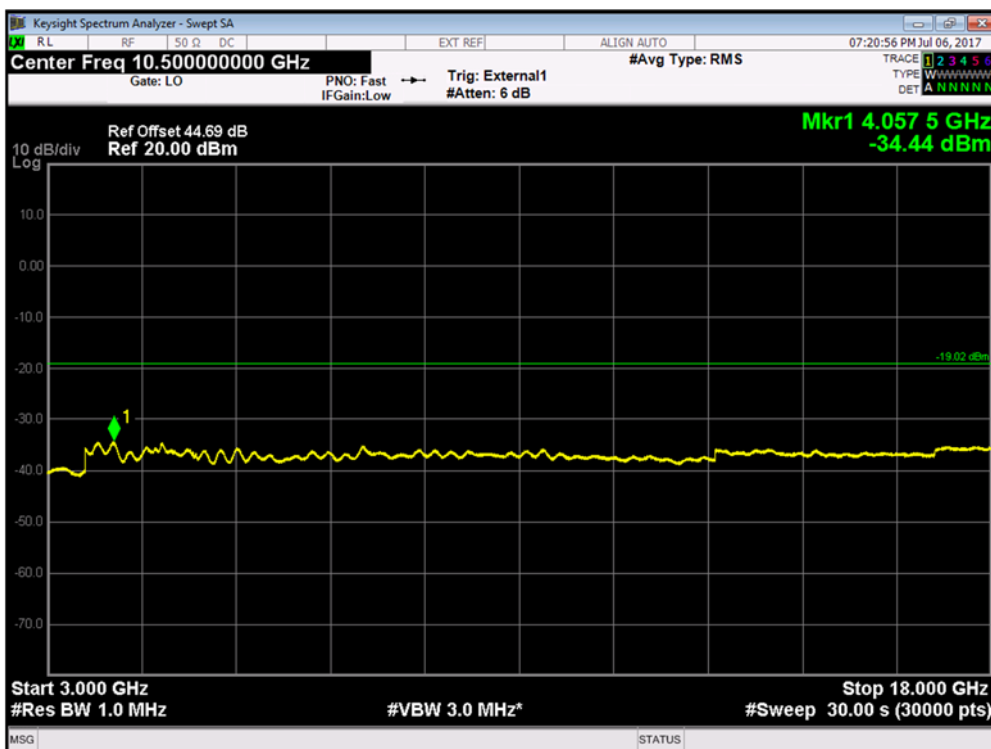


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



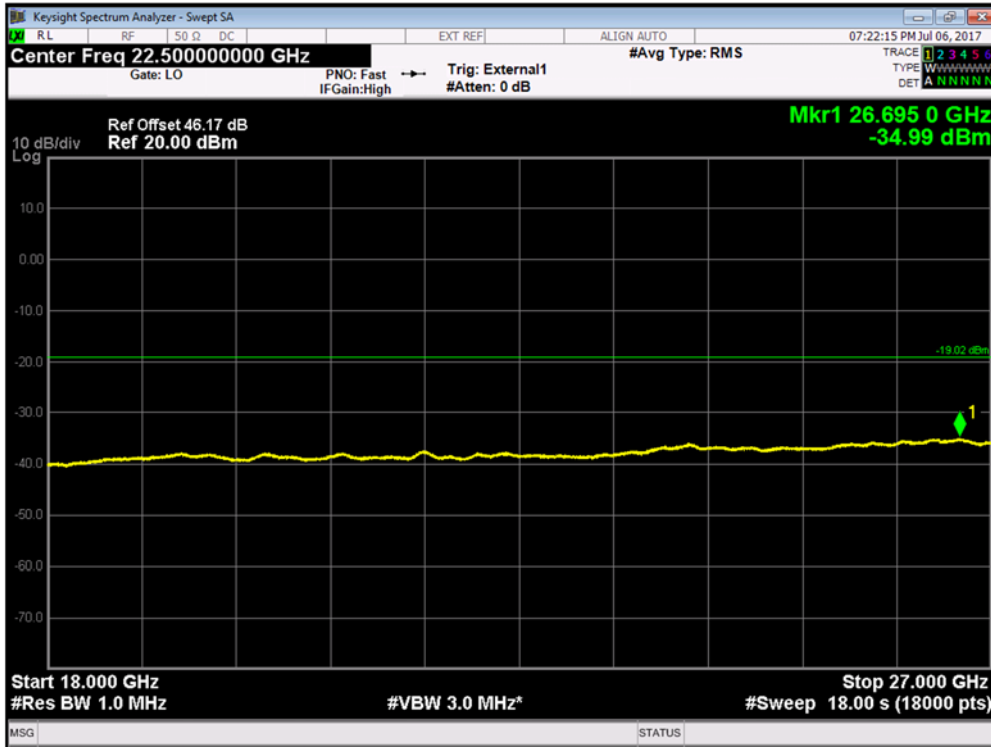
Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz - 18GHz



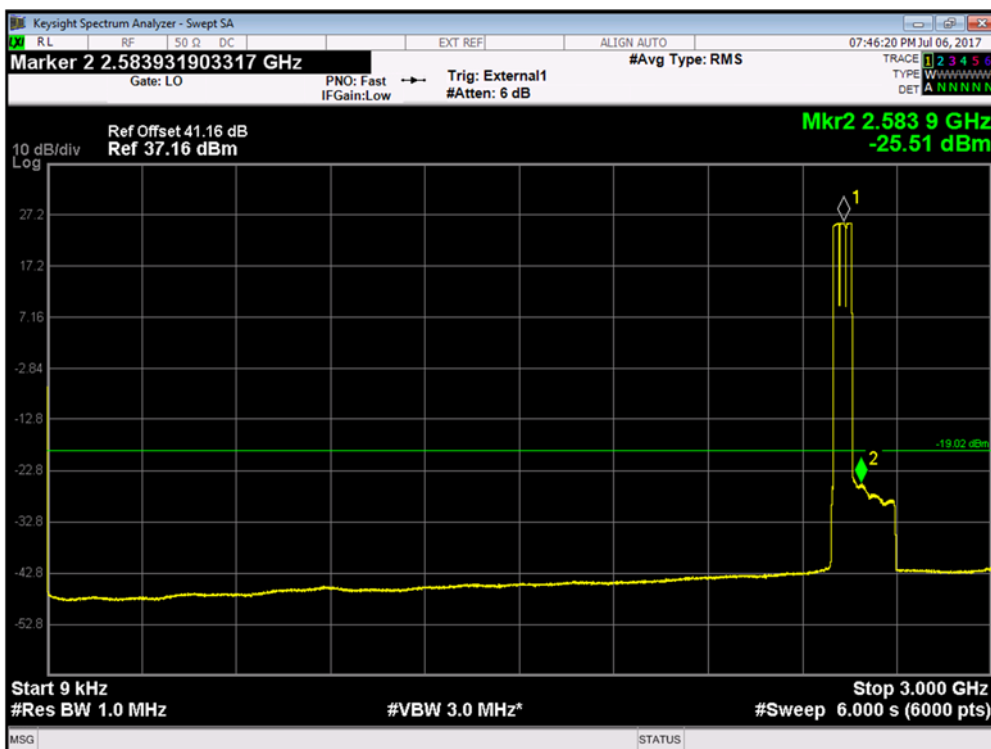


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 18GHz - 27GHz



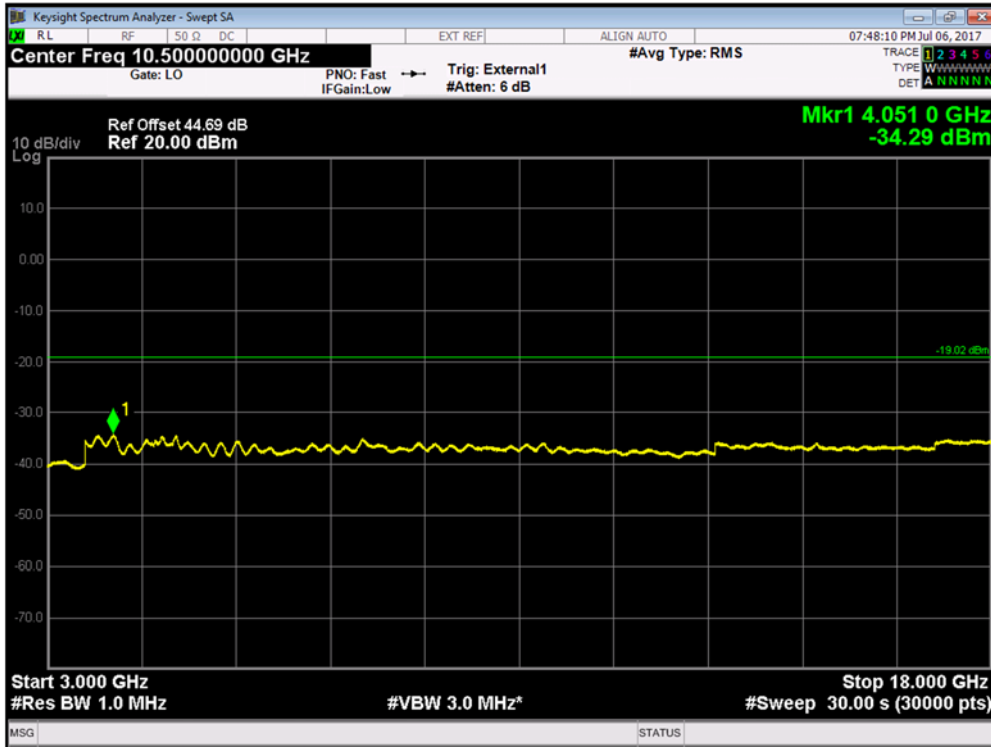
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



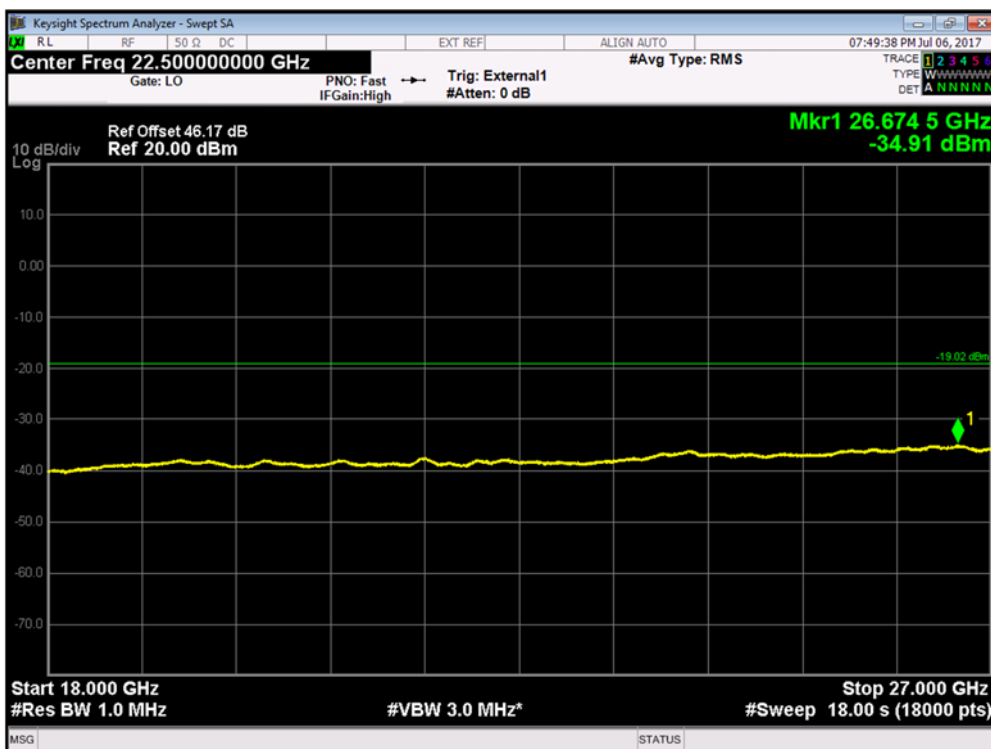


Product Service

Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



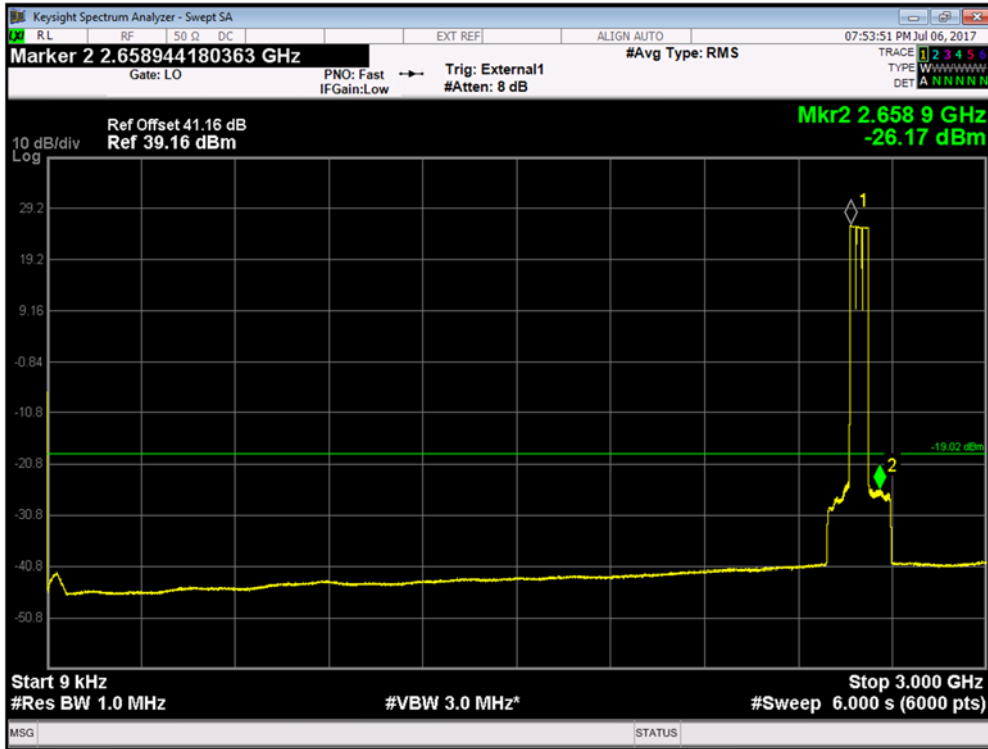
Channel Position B_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



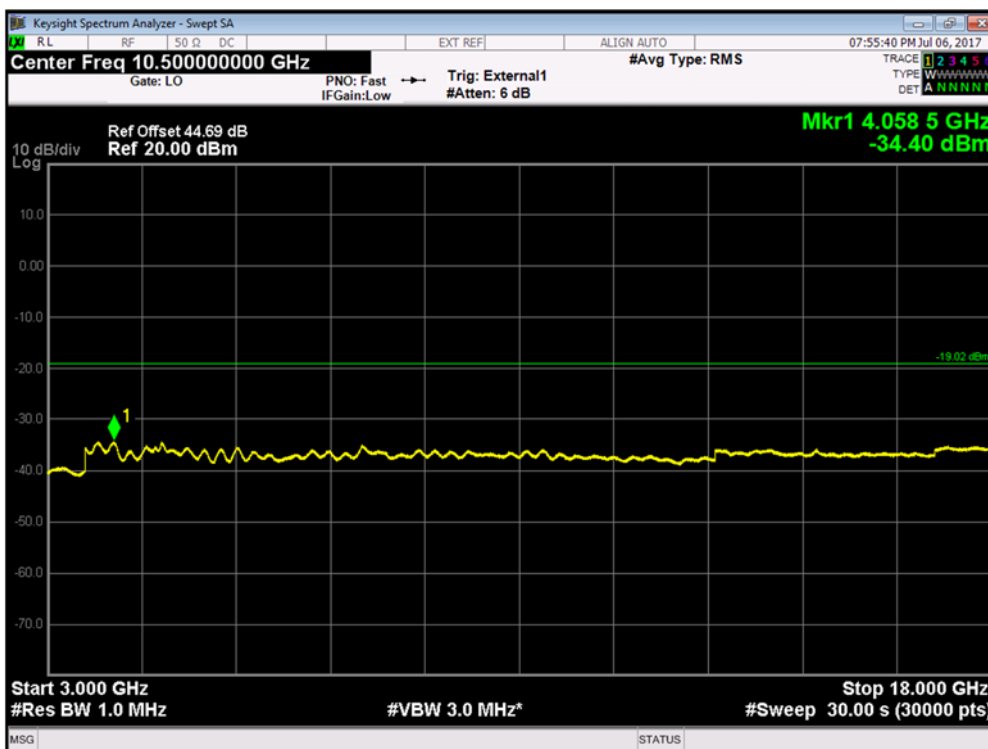


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



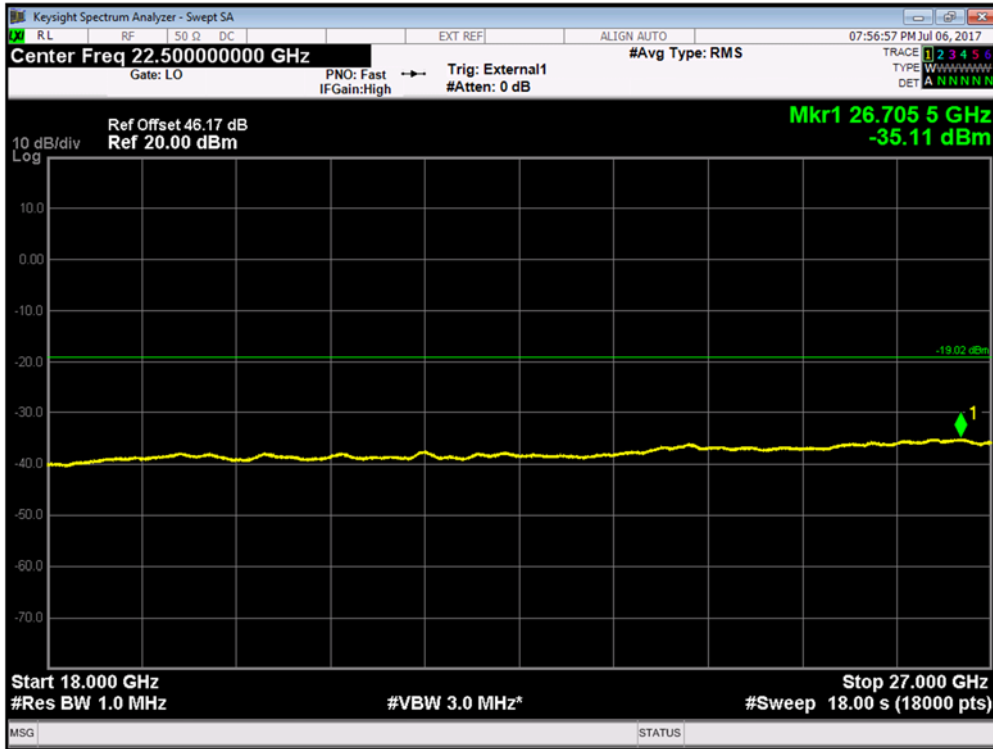
Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



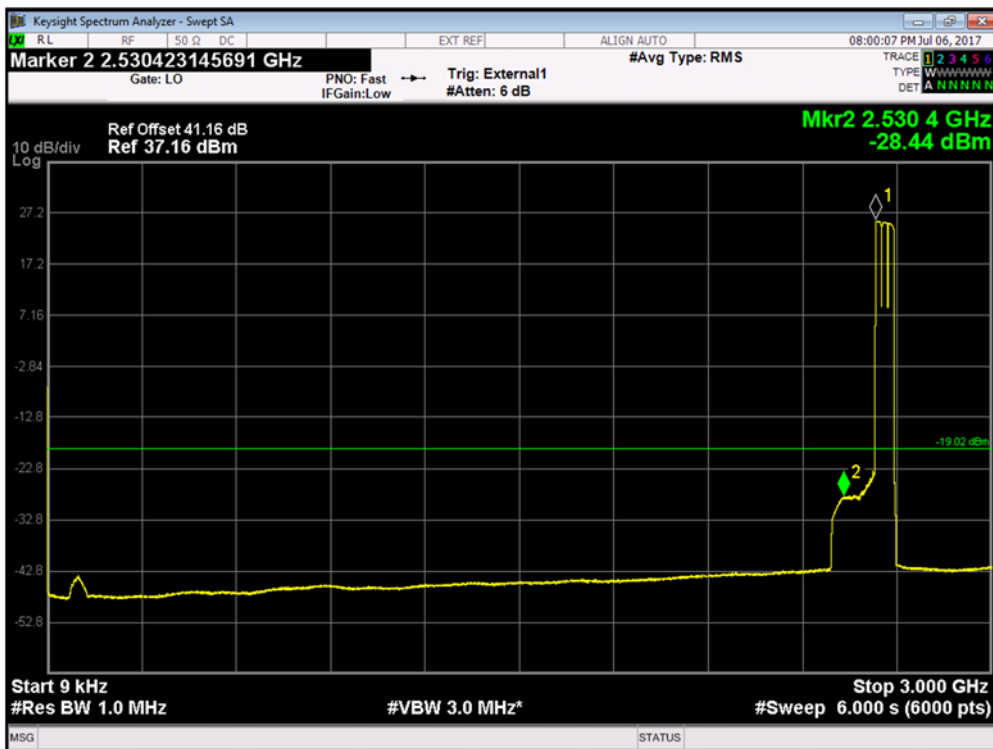


Product Service

Channel Position M_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz



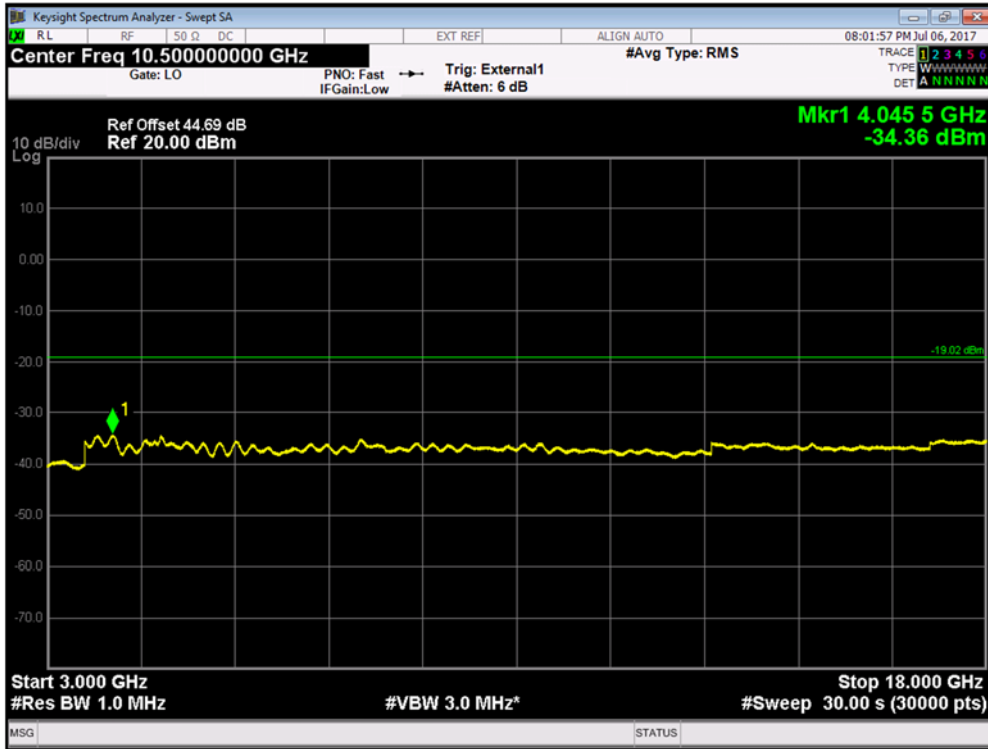
Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 9kHz - 3GHz



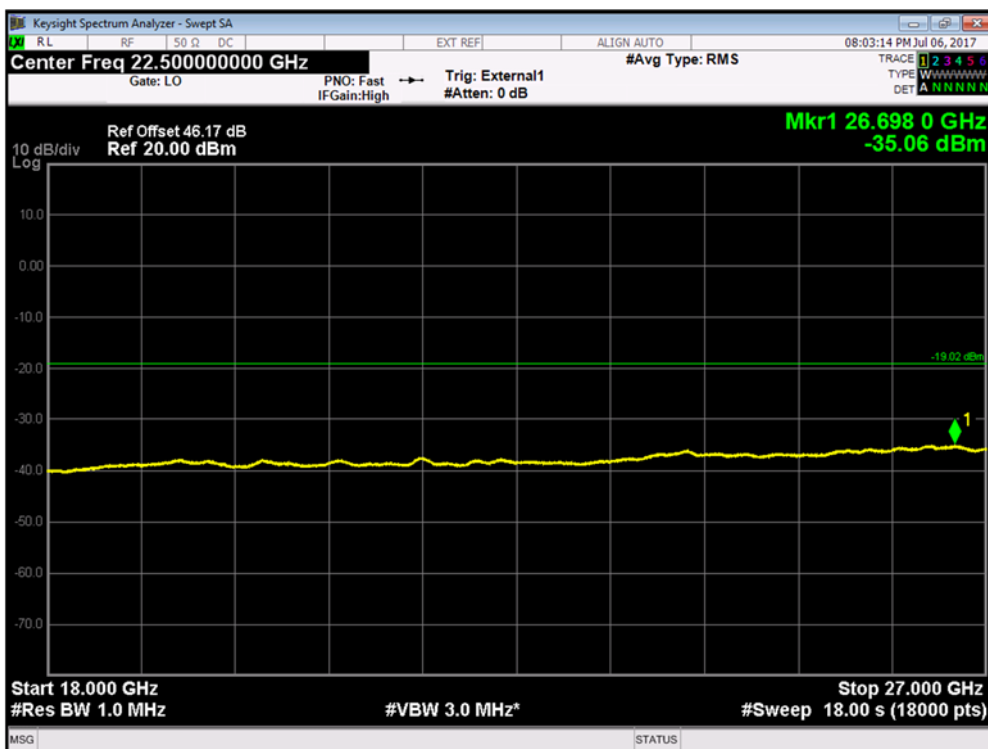


Product Service

Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 3GHz - 18GHz



Channel Position T_{RFBW} - QPSK / Bandwidth 20.0MHz - 18GHz - 27GHz





Limit	-13dBm for outside a licensee's frequency band(s) of operation
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Remarks

All the unwanted emissions of EUT does not exceed the limitations at the frequency range of 9kHz to 20GHz.



Product Service

2.6 FREQUENCY STABILITY

2.6.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 27, Clause 27.54

2.6.2 Equipment Under Test

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

2.6.3 Date of Test and Modification State

29 and 30 June 2017 - Modification State 0

2.6.4 Test Equipment Used

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

2.6.5 Environmental Conditions

Ambient Temperature	20.2 - 24.5°C
Relative Humidity	41.0 - 56.0%

2.6.6 Test Method

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

Frequency Error – Temperature Variation

The EUT was tested over the temperature range -30°C to +50°C in 10°C steps with -48 VDC Power Supply. At each temperature step, the Base Station was configured to transmit an [RAT]* at maximum power on the middle channel of the operating band. After achieving thermal balance, the averages of 200 transmission bursts were measured and the result recorded.

Frequency Error – Voltage Variation

The EUT was tested at the supplied voltages varied from 85 to 115 percent of the nominal values of -48 VDC. At +20°C, the Base Station was configured to transmit an [RAT]* at maximum power on the bottom, middle and top channel of the operating band. The average of 200 transmission bursts was measured and the result recorded.

[RAT]*: LTE (10.0 MHz OBW) - Test Model E-TM1.1 Single Carrier with QPSK modulation
GSM



Product Service

2.6.7 Test Results

Frequency Error – Temperature Variation

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port, Channel Bandwidth 10.0MHz

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)		
		Channel Position B (2501.0MHz)	Channel Position M (2593.0MHz)	Channel Position T (2685.0MHz)
-48.0	-30°C	-13.30	-13.90	-14.10
	-20°C	-13.20	-13.50	-15.20
	-10°C	-14.10	-14.50	-14.12
	0°C	-14.44	-14.27	-15.93
	+10°C	-16.55	-17.78	-18.83
	+20°C	-16.67	-20.25	-17.23
	+30°C	-14.12	-14.90	-17.13
	+40°C	-18.88	-22.45	-21.47
	+50°C	-20.01	-19.79	-18.76

Frequency Error – Voltage Variation

Configuration L-MIMO-SC

Maximum Output Power 43.0dBm per port, Channel Bandwidth 10.0MHz

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)		
		Channel Position B (2501.0MHz)	Channel Position M (2593.0MHz)	Channel Position T (2685.0MHz)
-40.8	+20°C	-15.19	-17.35	-16.48
-48.0		-16.67	-20.25	-17.23
-55.2		-16.12	-18.04	-16.14

Limit	The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.
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Remarks

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature and voltage interval across the measured range.



SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Maximum Output Power and Peak to Average Ratio - Conducted					
Network Analyzer	Agilent	N5230C	MY49002402	12	30-Mar-2018
Power Meter	Rohde & Schwarz	NRP	101593	12	14-Aug-2017
Power Sensor	Rohde & Schwarz	NRP-Z11	121216	12	14-Aug-2017
Power Sensor	Rohde & Schwarz	NRP-Z11	121228	12	05-Apr-2018
Power Meter	Rohde & Schwarz	NRP2	104221	12	21-Mar-2018
Power Sensor	Rohde & Schwarz	NRP-Z11	121220	12	05-Apr-2018
Power Sensor	Rohde & Schwarz	NRP-Z11	121215	12	05-Apr-2018
Spectrum Analyser	KEYSIGHT	N9030A	MY54490502	12	05-Apr-2018
40dB Attenuator	Aeroflex/Weinschel	66-40-33	CD4019	-	O/P MON
40dB Attenuator	Shanghai Huaxiang	DTS150-40dB	15093066	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	57-40-33	SK392	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	48-40-43-LIM	BR5020	-	O/P MON
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018
Occupied Bandwidth					
Network Analyzer	Agilent	N5230C	MY49002402	12	30-Mar-2018
Spectrum Analyser	KEYSIGHT	N9030A	MY54490502	12	05-Apr-2018
40dB Attenuator	Aeroflex/Weinschel	66-40-33	CD4019	-	O/P MON
40dB Attenuator	Shanghai Huaxiang	DTS150-40dB	15093066	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	57-40-33	SK392	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	48-40-43-LIM	BR5020	-	O/P MON
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018
Band Edge					
Network Analyzer	Agilent	N5230C	MY49002402	12	30-Mar-2018
Spectrum Analyser	KEYSIGHT	N9030A	MY54490502	12	05-Apr-2018
40dB Attenuator	Aeroflex/Weinschel	66-40-33	CD4019	-	O/P MON
40dB Attenuator	Shanghai Huaxiang	DTS150-40dB	15093066	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	57-40-33	SK392	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	48-40-43-LIM	BR5020	-	O/P MON
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018



Conducted Spurious Emission					
Network Analyzer	Agilent	N5230C	MY49002402	12	30-Mar-2018
Spectrum Analyser	KEYSIGHT	N9030A	MY54490502	12	05-Apr-2018
40dB Attenuator	Aeroflex/Weinschel	66-40-33	CD4019	-	O/P MON
40dB Attenuator	Shanghai Huaxiang	DTS150-40dB	15093066	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	57-40-33	SK392	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	48-40-43-LIM	BR5020	-	O/P MON
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018
Radiated Spurious Emissions					
Load	Shanghai Huaxiang	TF50	08116326	-	O/P MON
Load	Shanghai Huaxiang	TF50	090323026	-	O/P MON
Load	Shanghai Huaxiang	TF50	08090219	-	O/P MON
Load	Shanghai Huaxiang	TF50	05111804	-	O/P MON
EMI Receiver	Rohde & Schwarz	ESI40	100015	12	19-Aug-2017
Ultra Log Test Antenna	Rohde & Schwarz	HL562	100167	12	19-Aug-2017
Double-Ridge Waveguide Horn Antenna	Rohde & Schwarz	HF 907	1000513	12	19-Aug-2017
Pyramidal Horn Antenna	EMCO	3160-09	-	-	-
Pyramidal Horn Antenna	EMCO	3160-10	808234	-	19-Aug-2017
Semi Anechoic Chamber	Frankonia	23.18m×16.88m×9.60m	-	12	19-Aug-2017
Antenna Master	Frankonia	MA 260	-	12	19-Aug-2017
Relay Switch Unit	Rohde & Schwarz	331.1601.31	338965002	-	TU
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018
Frequency Stability					
Network Analyzer	Agilent	N5230C	MY49002402	12	30-Mar-2018
Spectrum Analyser	KEYSIGHT	N9030A	MY54490502	12	05-Apr-2018
40dB Attenuator	Aeroflex/Weinschel	66-40-33	CD4019	-	O/P MON
40dB Attenuator	Shanghai Huaxiang	DTS150-40dB	15093066	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	57-40-33	SK392	-	O/P MON
40dB Attenuator	Aeroflex/Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Climate Chamber	Votsch	C1000	ETD/L518	-	O/P MON
DC Power Supply	Keysight	N5767A	US25C1833P	-	O/P MON
Digital Multi-meter	FLUKE	179	91820401	12	20-Dec-2017
Thermo-hygrometer	AZ Instruments	8705	9151665	12	02-Jan-2018

N/A – Not Applicable

OP MON – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30MHz to 10GHz Amplitude	0.5dB*
Conducted Emissions	30MHz to 40GHz Amplitude	3.0dB*
Frequency stability	30MHz to 3GHz	$<\pm 1 \times 10^{-7}$
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Worst case error for both Time and Frequency measurement 12 parts in 10^6		

* In accordance with CISPR 16-4



SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

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