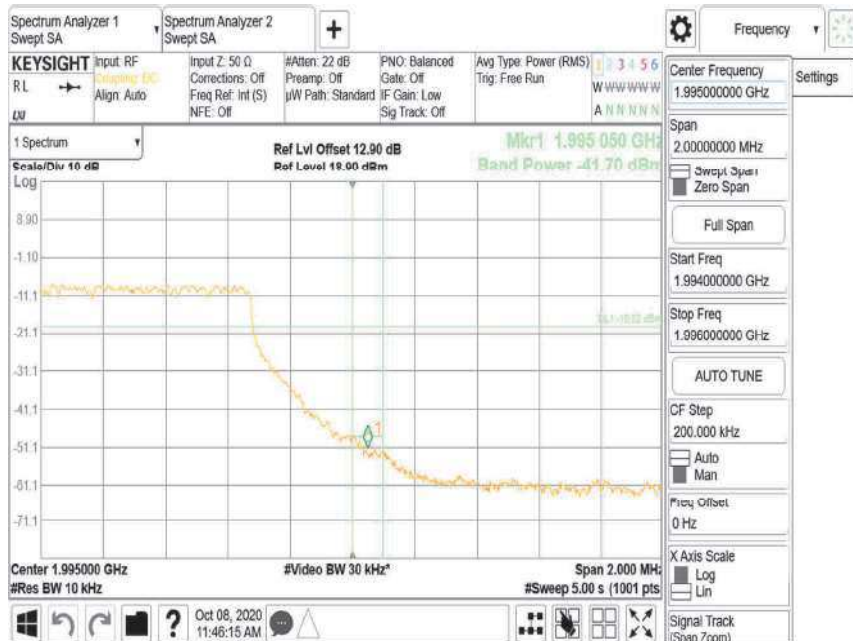




### Modulation NR: QPSK - Carrier Bandwidth NR: 10.0 MHz - Channel Position B

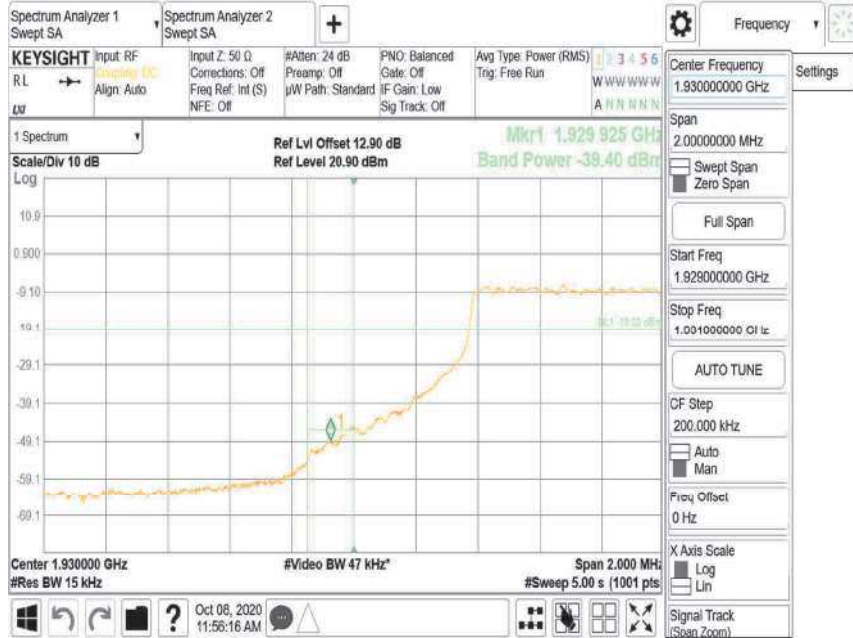


### Modulation NR: QPSK - Carrier Bandwidth NR: 10.0 MHz - Channel Position T





Modulation NR: QPSK - Carrier Bandwidth NR: 15.0 MHz - Channel Position B

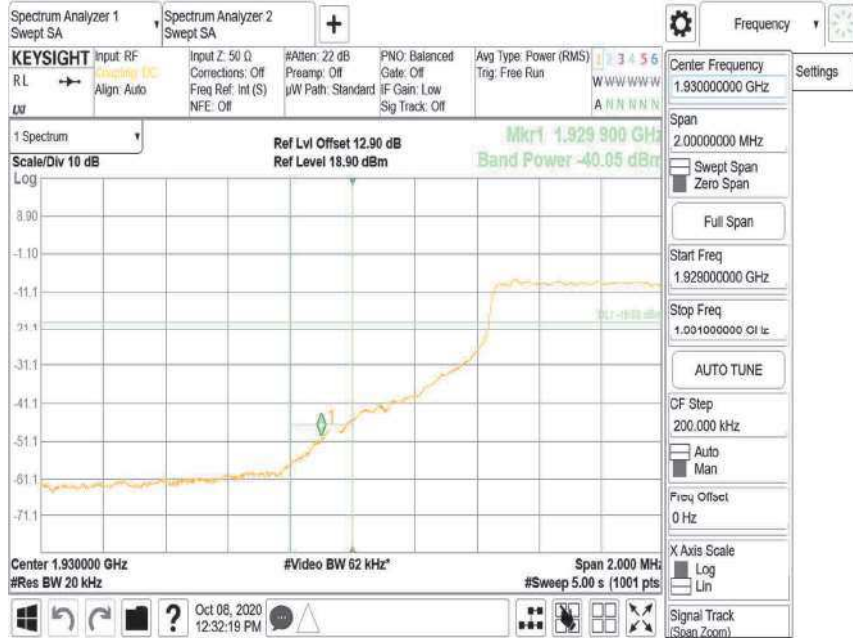


Modulation NR: QPSK - Carrier Bandwidth NR: 15.0 MHz - Channel Position T

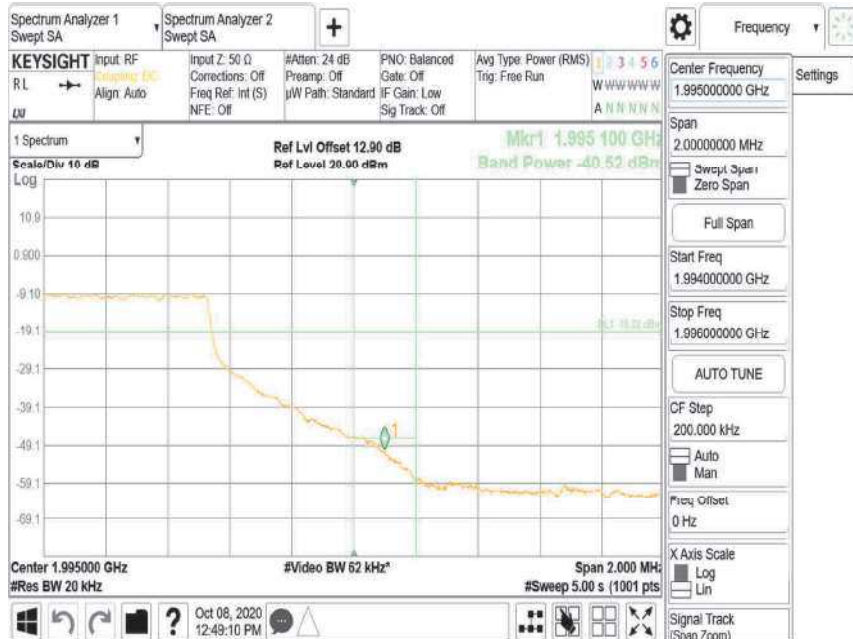




Modulation NR: QPSK - Carrier Bandwidth NR: 20.0 MHz - Channel Position B



Modulation NR: QPSK - Carrier Bandwidth NR: 20.0 MHz - Channel Position T





**Configuration B**

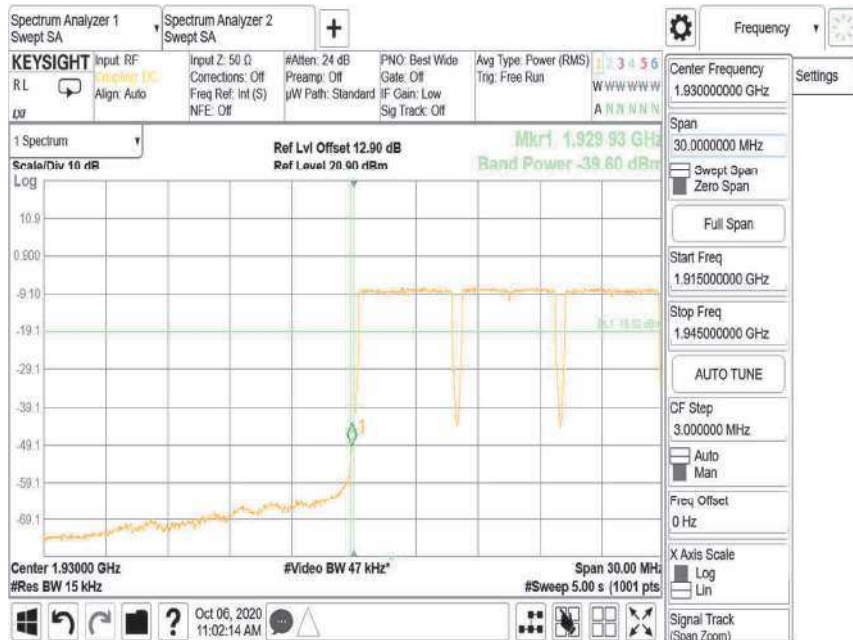
Maximum Output Power 22 dBm / Port.

Antenna	Modulation	Carrier Bandwidth	Band Edge (MHz)	
			Channel Position B	Channel Position T
A	LTE: QPSK	5.0+5.0+5.0 MHz	1932.5+1937.5+1942.5	1982.5+1987.5+1992.5
A	LTE: QPSK	10.0+10.0+10.0 MHz	1935.0+1945.0+1955.0	1970.0+1980.0+1990.0
A	LTE: QPSK	15.0+15.0+15.0 MHz	1937.5+1952.5+1967.5	1957.5+1972.5+1987.5
A	LTE: QPSK	20.0+20.0+20.0 MHz	1940.0+1960.0+1980.0	1945.0+1965.0+1985.0
A	NR: QPSK	5.0+5.0+5.0 MHz	1932.5+1937.5+1942.5	1982.5+1987.5+1992.5
A	NR: QPSK	10.0+10.0+10.0 MHz	1935.0+1945.0+1955.0	1970.0+1980.0+1990.0
A	NR: QPSK	15.0+15.0+15.0 MHz	1937.5+1952.5+1967.5	1957.5+1972.5+1987.5
A	NR: QPSK	20.0+20.0+20.0 MHz	1940.0+1960.0+1980.0	1945.0+1965.0+1985.0
A	LTE + NR QPSK	5.0+5.0+5.0 MHz	1932.5+1937.5+1942.5	1982.5+1987.5+1992.5
A	LTE + NR QPSK	10.0+10.0+10.0 MHz	1935.0+1945.0+1955.0	1970.0+1980.0+1990.0
A	LTE + NR QPSK	15.0+15.0+15.0 MHz	1937.5+1952.5+1967.5	1957.5+1972.5+1987.5
A	LTE + NR QPSK	20.0+20.0+20.0 MHz	1940.0+1960.0+1980.0	1945.0+1965.0+1985.0

**Remarks**

Three carrier transmitter performance is presented. The plot results represent typical radio performance. Plot data performance for all transmitter ports and channels are on file and available on request.

**Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position B**





### Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position T



### Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position B







Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position I



Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position B

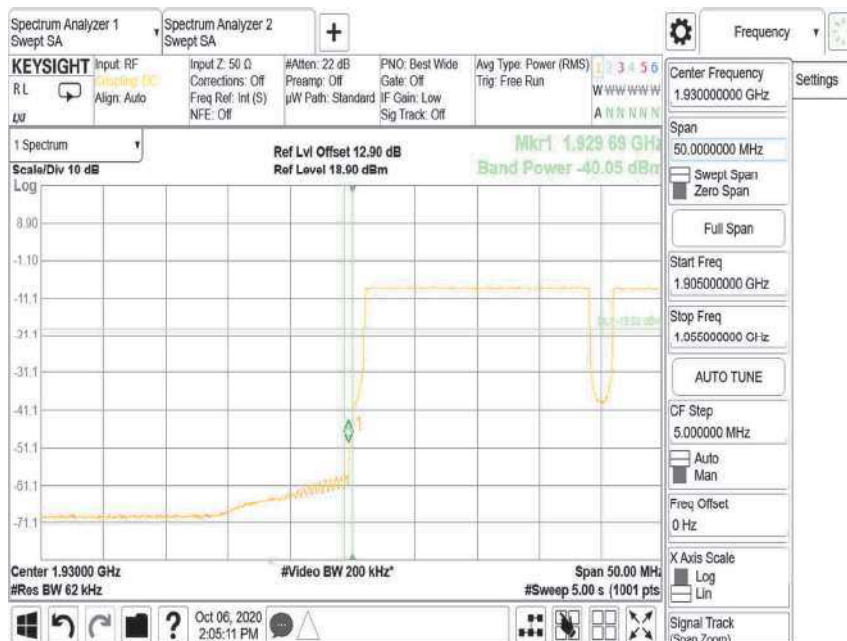




Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position I



Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position B

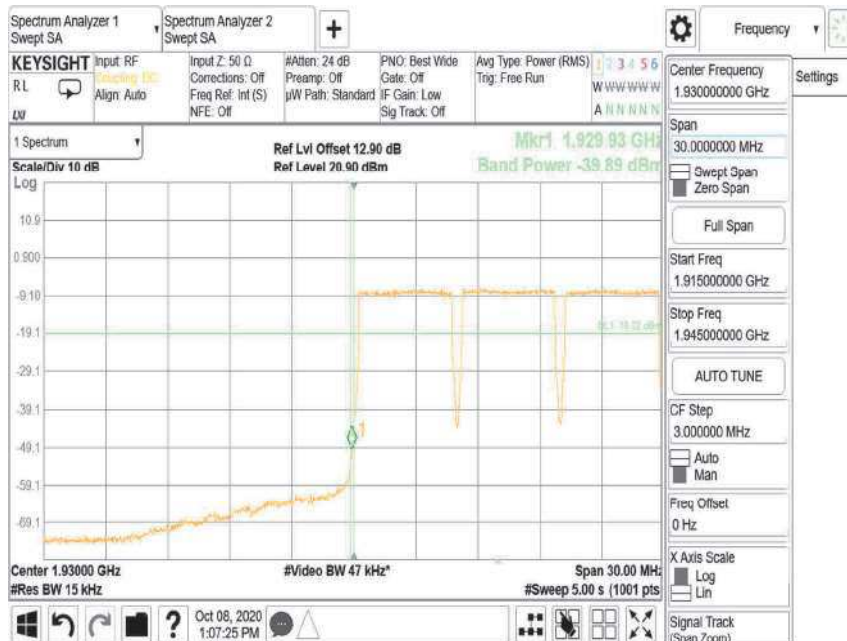




Antenna A - Modulation LTE: QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position I



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position B







Antenna A - Modulation NR: QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position T



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position B

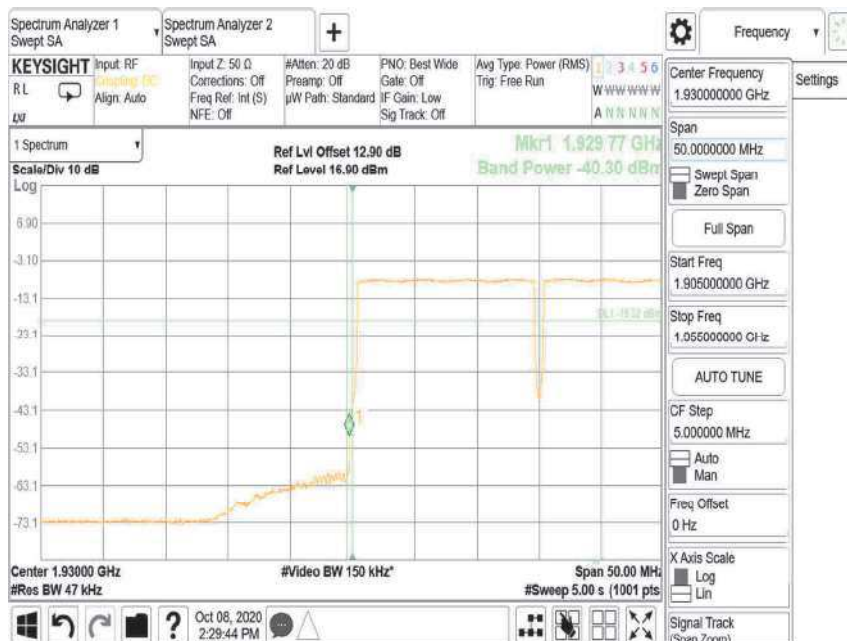




Antenna A - Modulation NR: QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position I



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position B

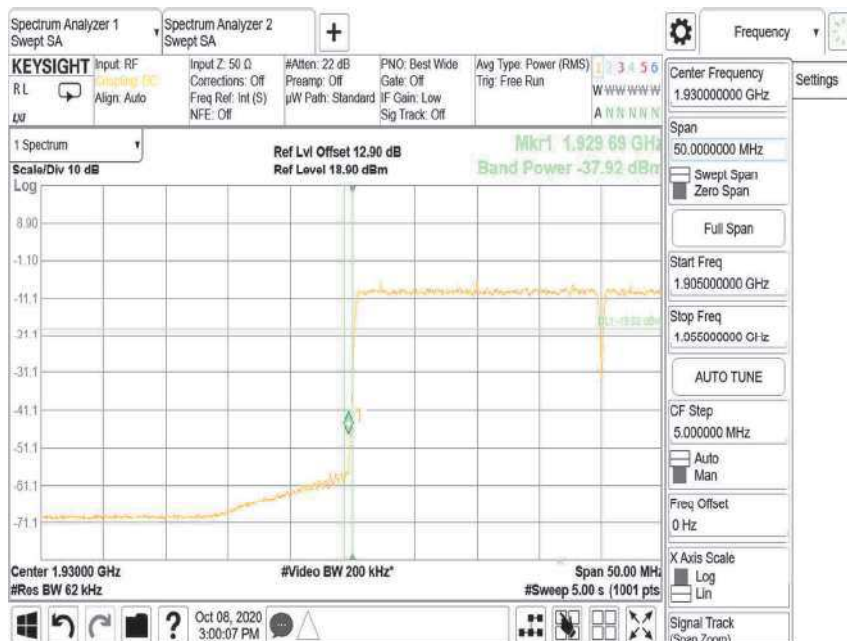




Antenna A - Modulation NR: QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position I



Antenna A - Modulation NR: QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position B

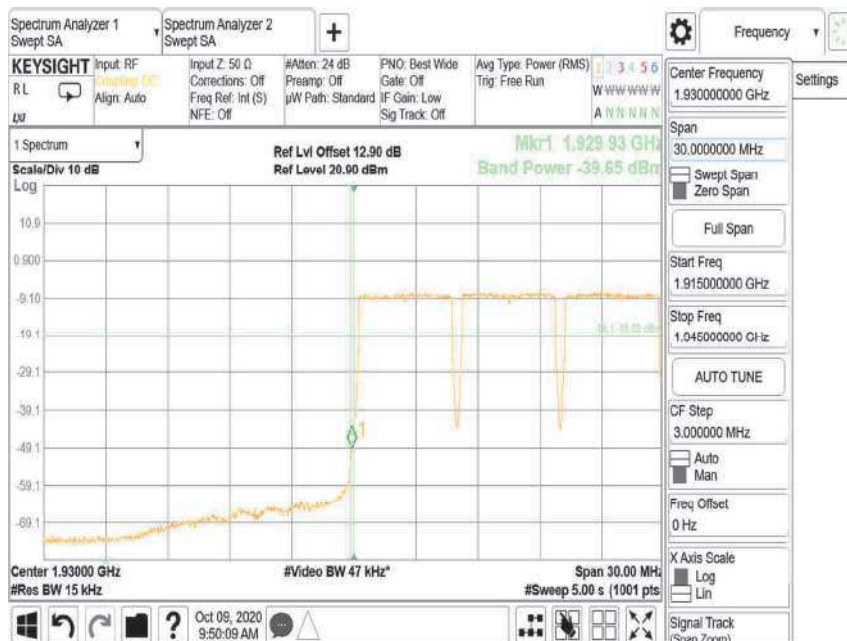




Antenna A - Modulation NR: QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position I



Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position B

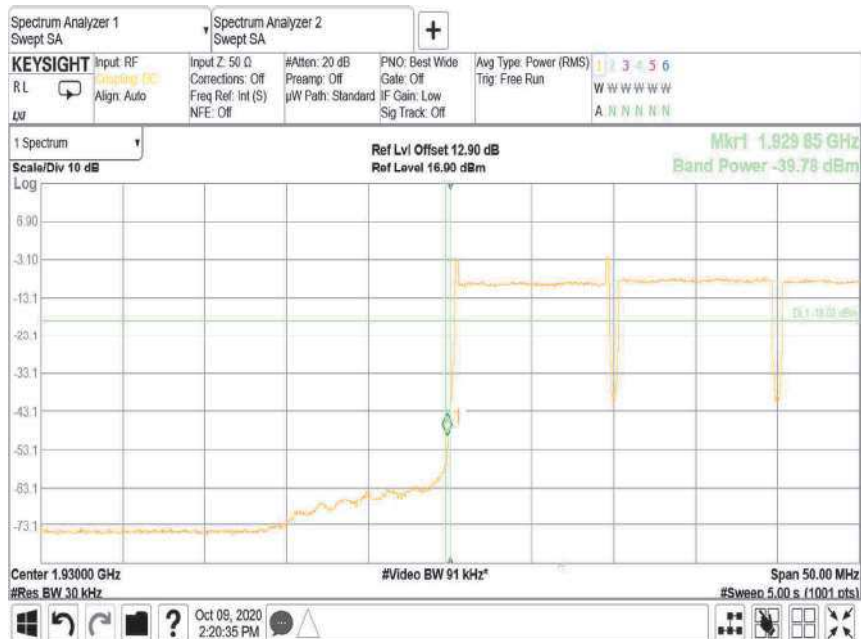




### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 5.0+5.0+5.0 MHz - Channel Position I



### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position B



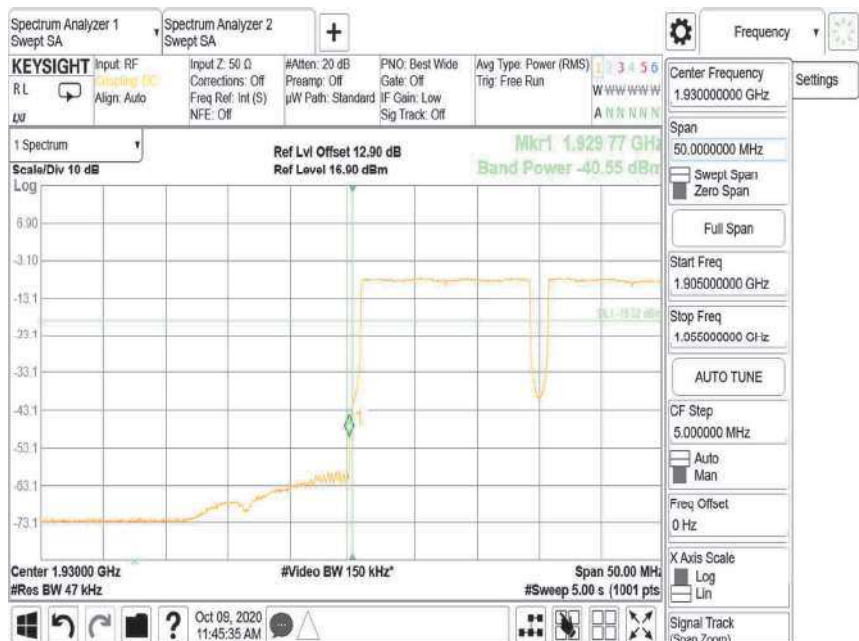




### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 10.0+10.0+10.0 MHz - Channel Position I



### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position B

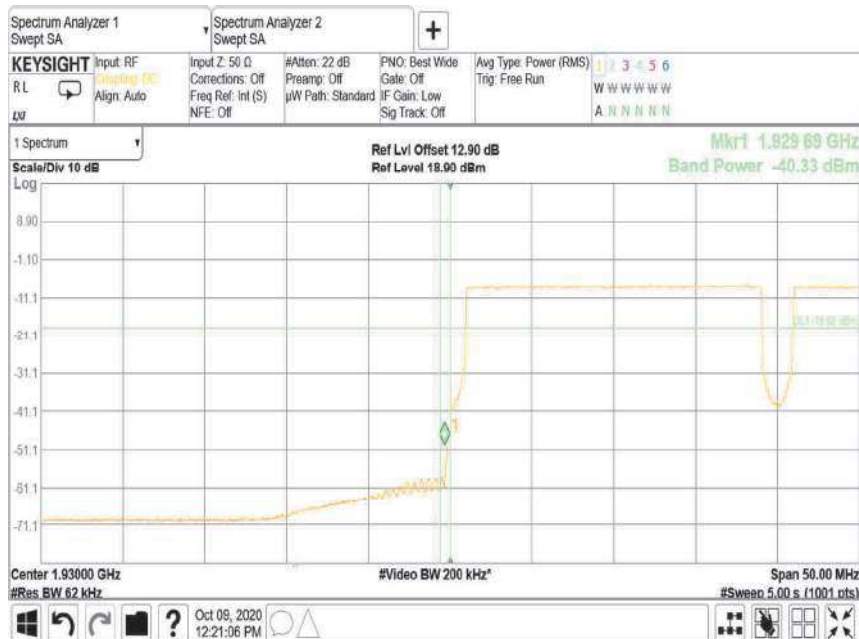




### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 15.0+15.0+15.0 MHz - Channel Position I



### Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position B





Antenna A - Modulation LTE + NR QPSK - Carrier Bandwidth 20.0+20.0+20.0 MHz - Channel Position I



Limit	-19 dBm
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## 2.4 TRANCEIVER 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-GEN, Clause 6.13  
Industry Canada RSS-133, Clause 6.5

### 2.4.2 Date of Test and Modification State

01 October 2020 - 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	24.1°C
Relative Humidity	31.7%

### 2.4.5 Test Method

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

Each of the 2 bands of the EUT has 4 transmit ports, therefore, the test limits used were calculated on a worst-case basis accounting for an effective 4 port MIMO configuration. Testing was performed on this port with a test limit of  $43+10\log(P) - 10\log(4) = -19$  dBm

### 2.4.6 Test Results

Configuration A

Maximum Output Power 22 dBm / Port.

#### Remarks

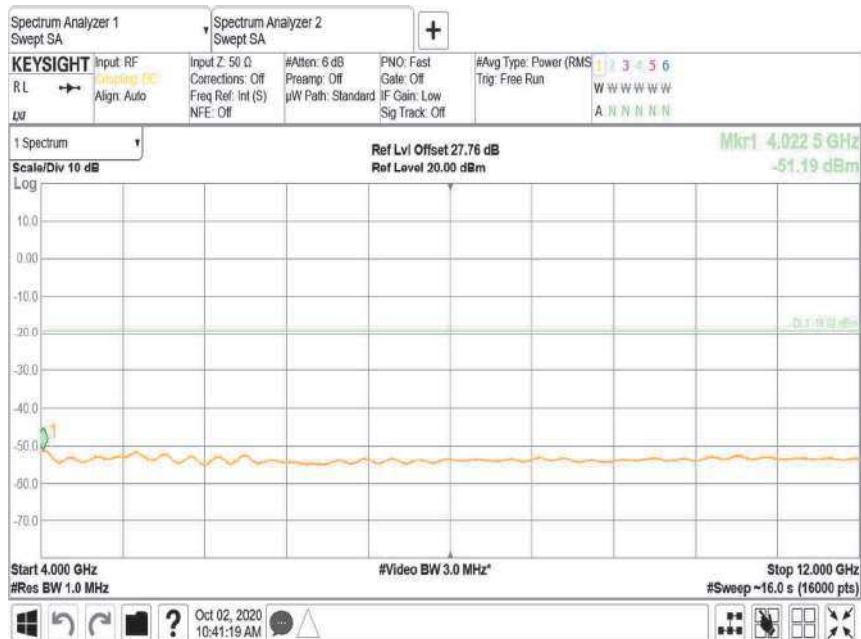
1. Spurious emissions have been searched for all channel bandwidths and antenna ports.
2. Representative spurious emissions performance has been presented for all modulations.
3. Plot data performance for all transmitter ports, channel bandwidths, and channel positions are on file and available on request.



**Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz**



**Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz**



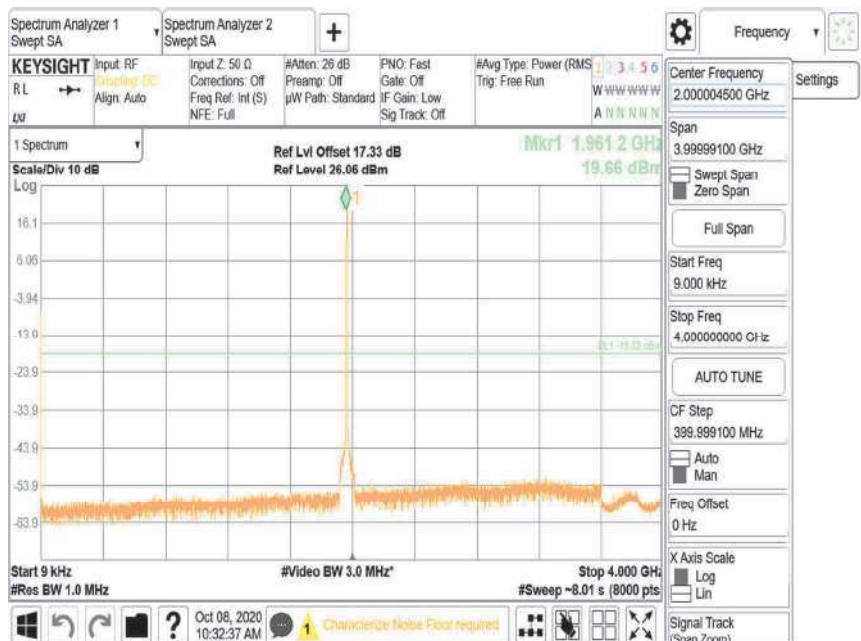




Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz

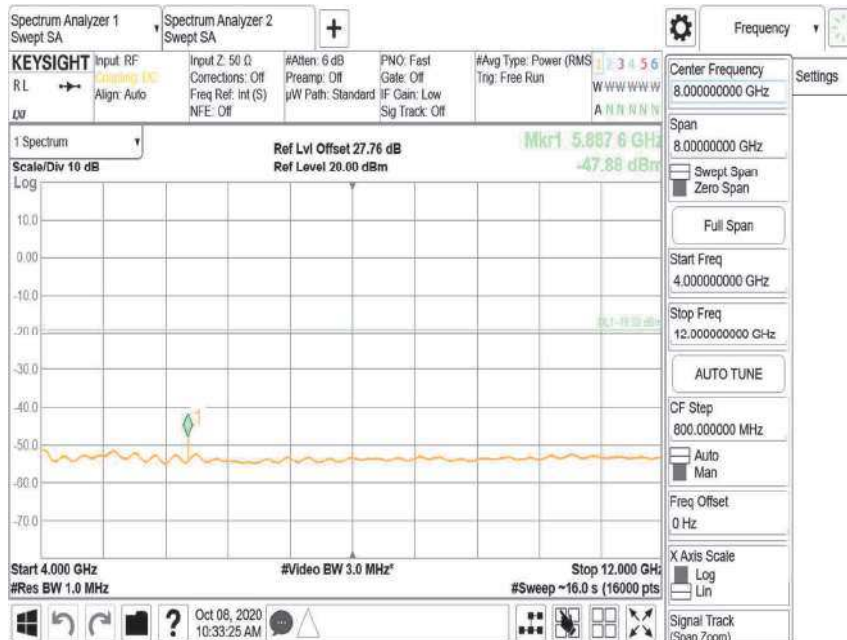


Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz

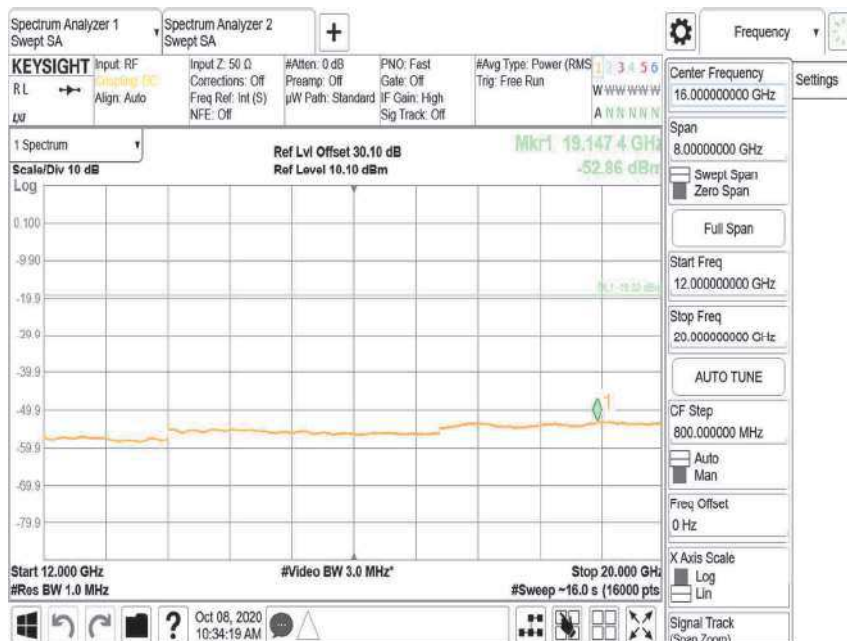




Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz

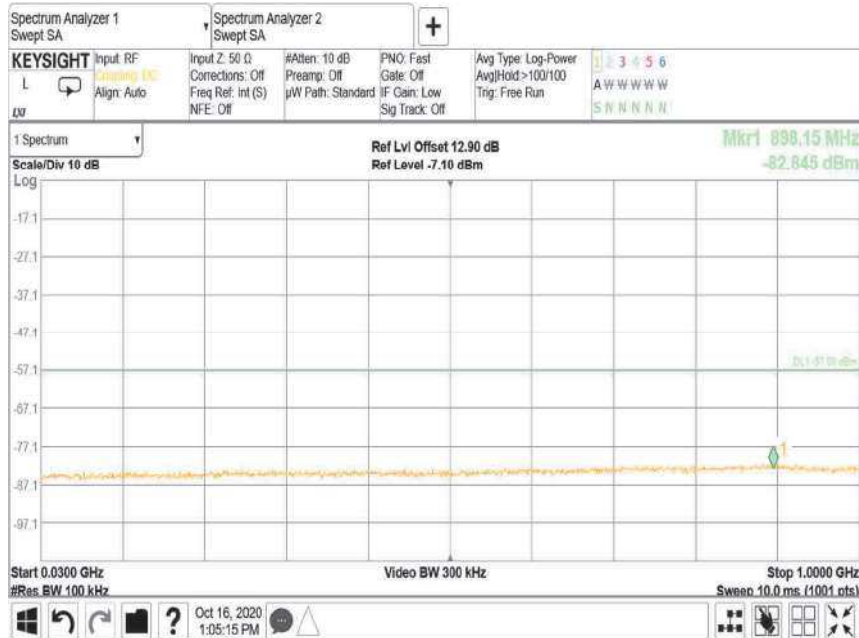


Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz

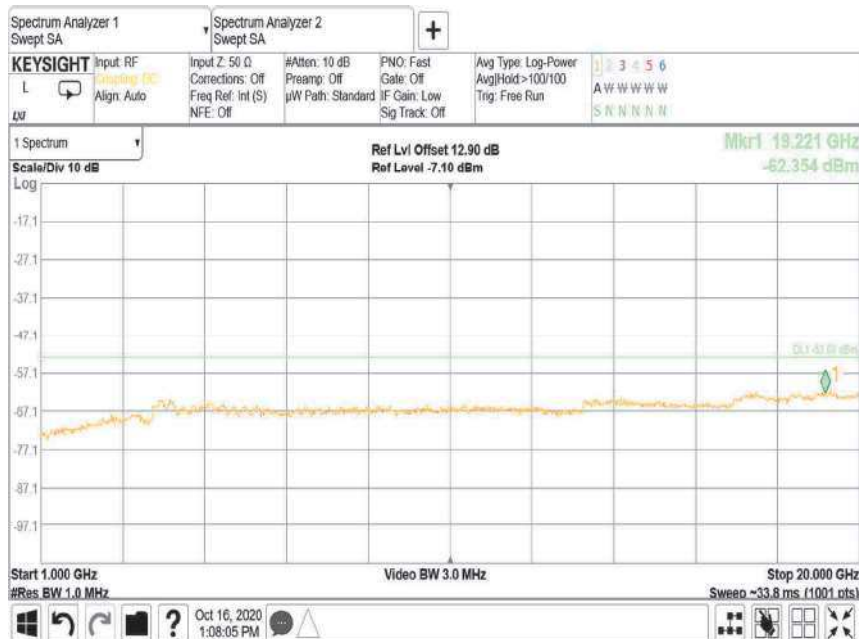




Modulation Receiver Spurious - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 30 MHz to 1000 MHz



Modulation Receiver Spurious - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1000 to 20000 MHz





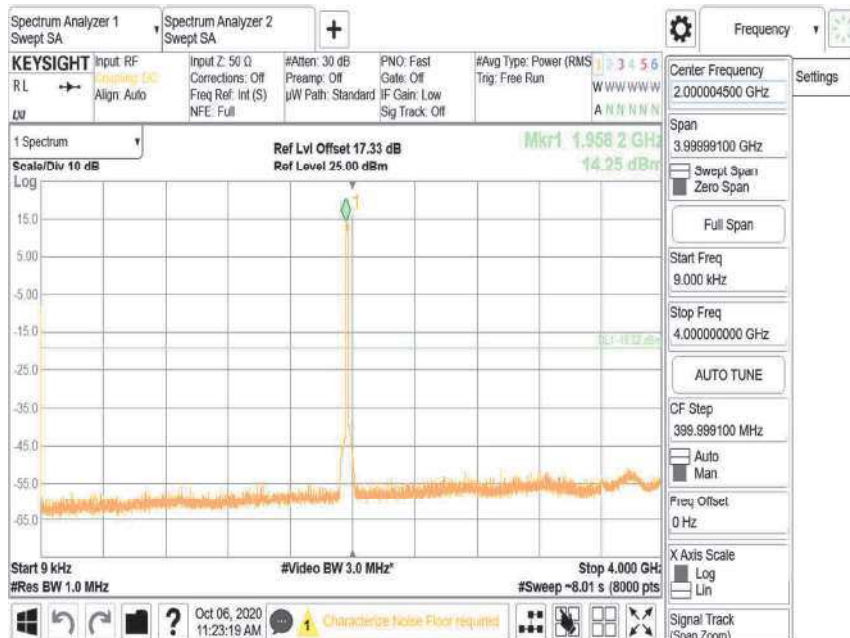
## Configuration B

Maximum Output Power 22 dBm / Port.

### Remarks

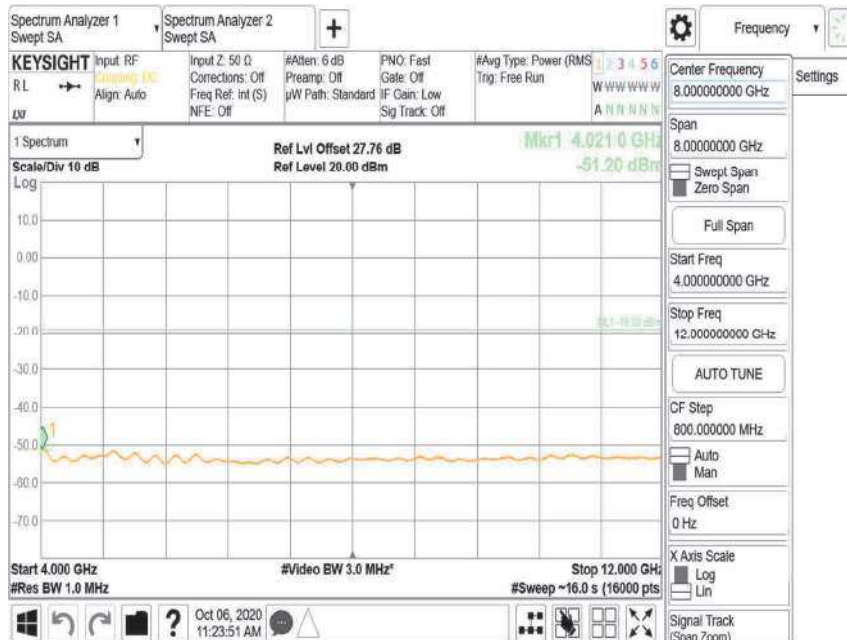
1. Spurious emissions have been searched for all channel bandwidths and antenna ports.
2. Representative spurious emissions performance has been presented for all modulations.
3. Plot data performance for all transmitter ports, channel bandwidths, and channel positions are on file and available on request.

Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz

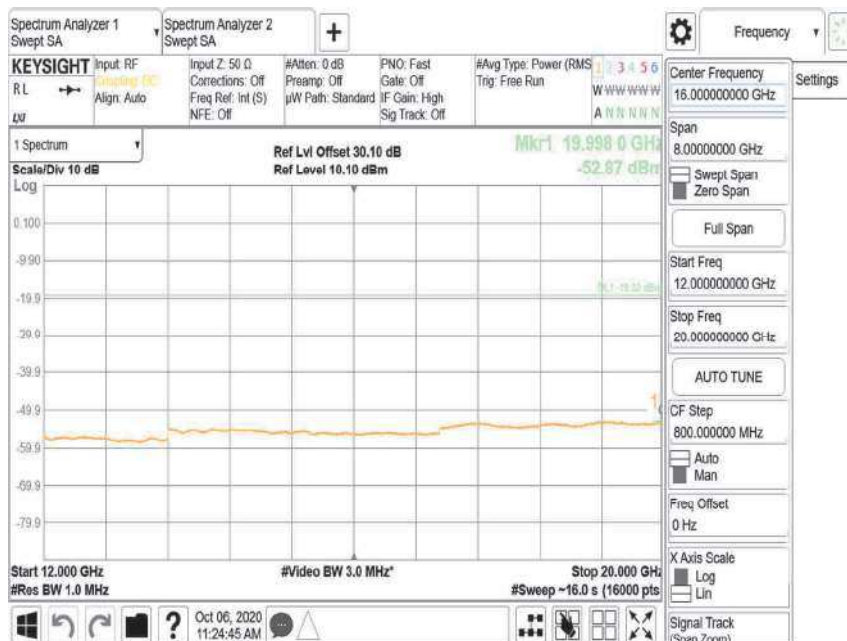




Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



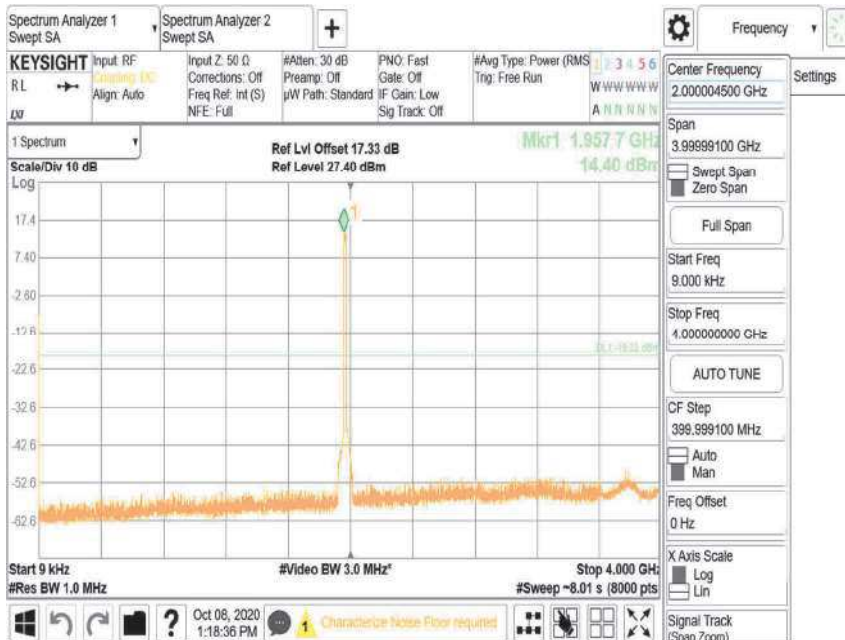
Modulation LTE: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz







Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz

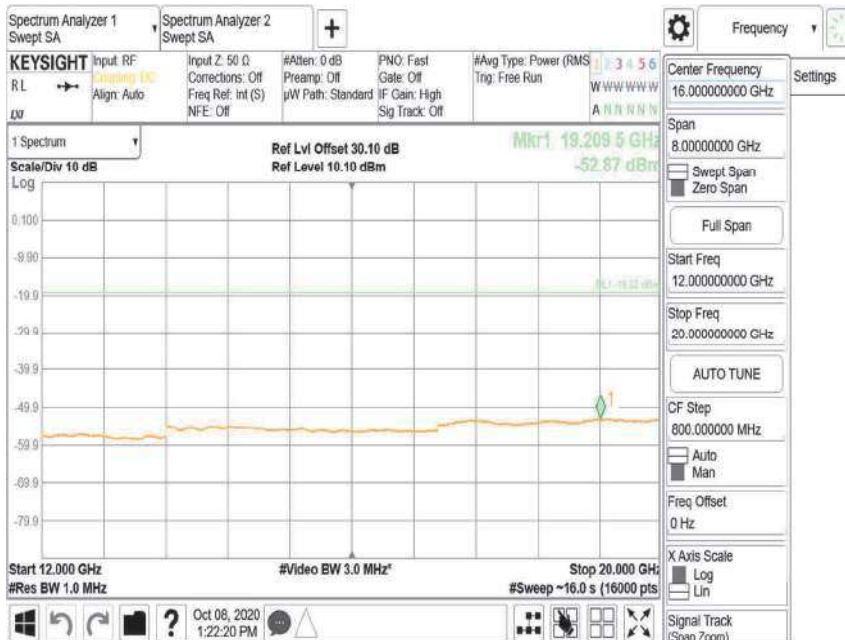


Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz

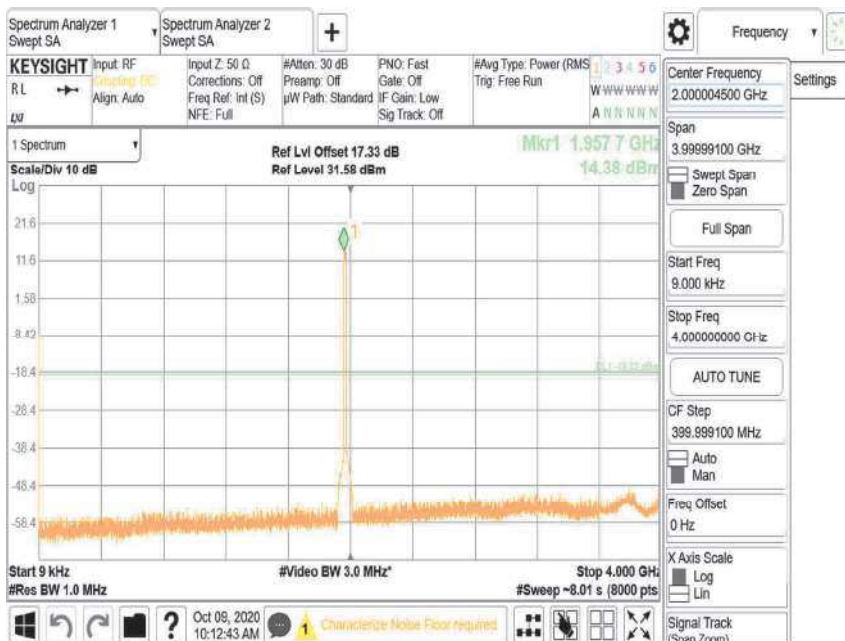




Modulation NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz

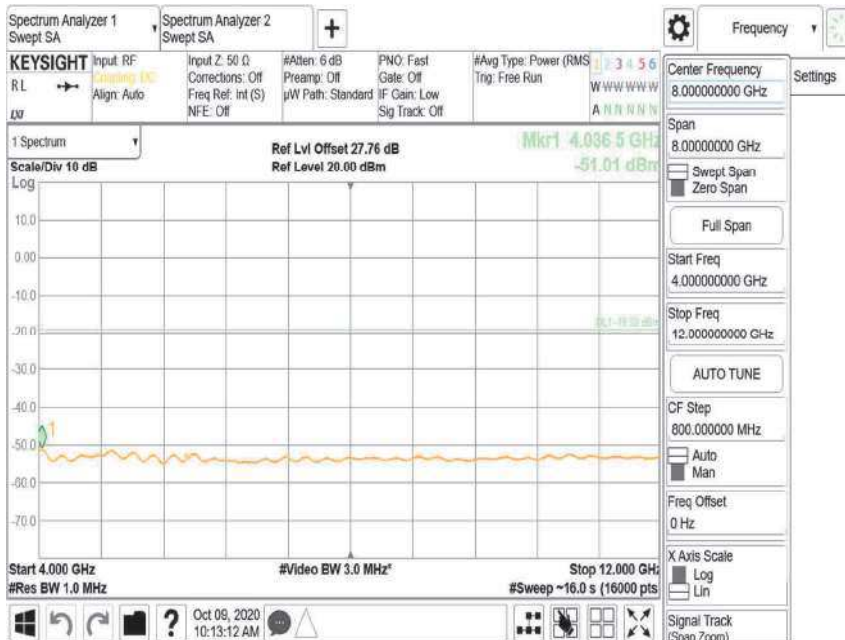


Modulation LTE+NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz

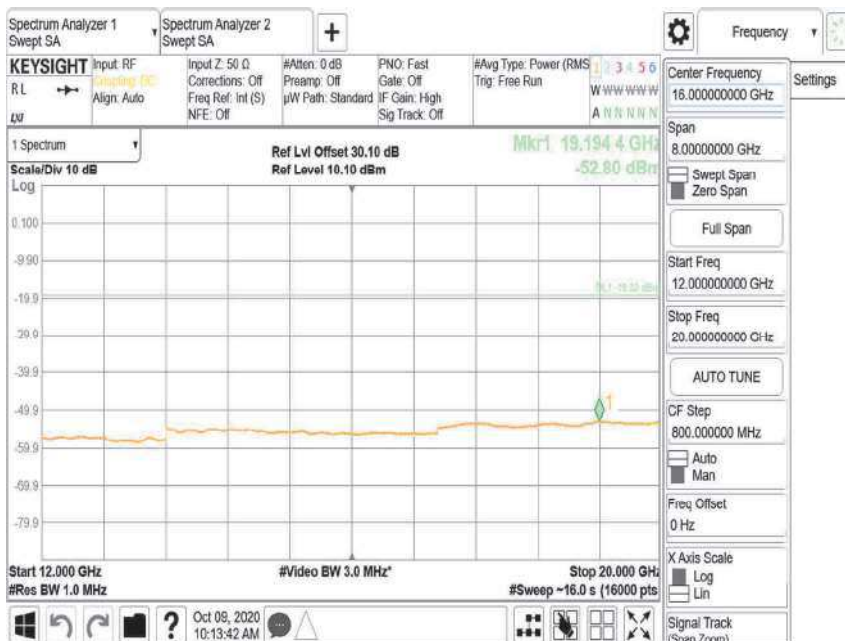




Modulation LTE+NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz

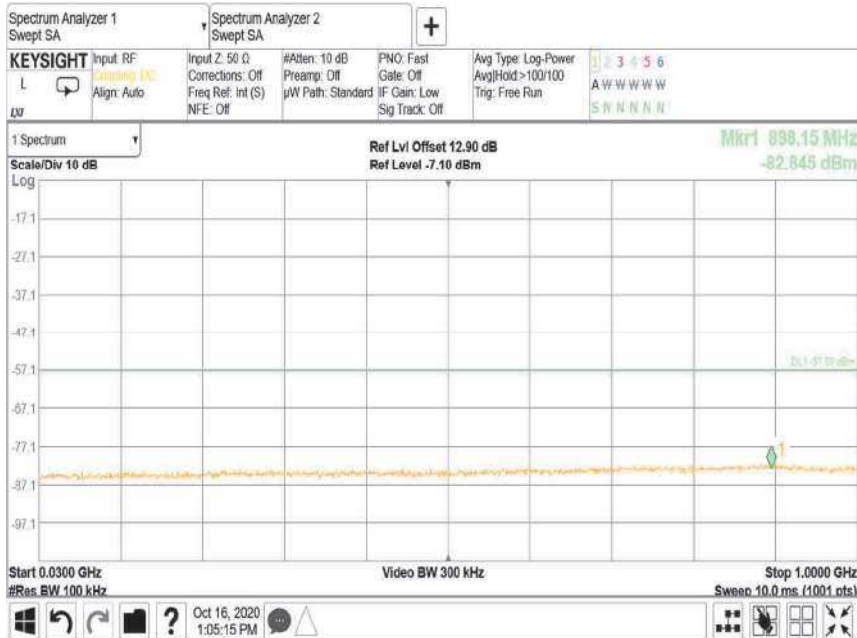


Modulation LTE+NR: QPSK - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz

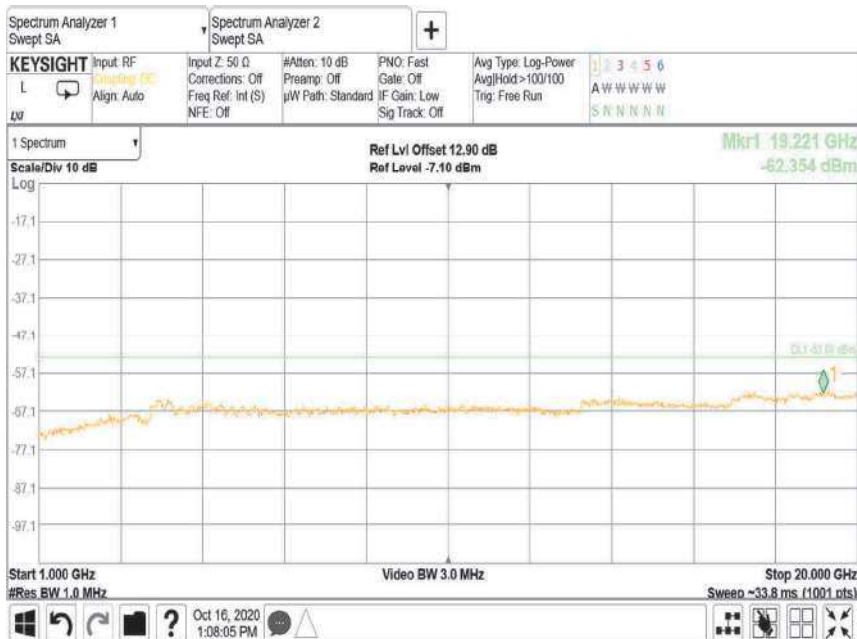




**Modulation Receiver Spurious - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 1 - Range 30 MHz to 1000 MHz**



**Modulation Receiver Spurious - Carrier Bandwidth 5.0 MHz - Channel Position M - Band 2 - Range 1000 to 20000 MHz**



Limit	-19dbm
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## 2.5 FREQUENCY STABILITY

### 2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055  
 FCC CFR 47 Part 24, Clause 24.235  
 Industry Canada RSS-GEN, Clause 6.11  
 Industry Canada RSS-133, Clause 6.3

### 2.5.2 Date of Test and Modification State

16 October 2020 - Modification State 0

### 2.5.3 Test Equipment Used

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

### 2.5.4 Environmental Conditions

Ambient Temperature 26.7°C  
 Relative Humidity 32.2%

### 2.5.5 Test Method

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

### 2.5.6 Test Results

Configuration A

Maximum Output Power 22 dBm / Port.

Temperature	Voltage	Frequency Error (Hz)
		Channel Position M: 1962.5 MHz
-30°C	-48.0 V DC	N/A
-20°C	-48.0 V DC	39.20
-10°C	-48.0 V DC	37.60
0°C	-48.0 V DC	37.50
+10°C	-48.0 V DC	37.30
+20°C	-40.5 V DC	37.40
+20°C	-48.0 V DC	36.20
+20°C	-57.5 V DC	36.50
+30°C	-48.0 V DC	37.00
+40°C	-48.0 V DC	37.90
+50°C	-48.0 V DC	37.40

Limit	±1.5 ppm or ±2.944 kHz
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## 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
Spectrum Analyzer	Keysight	PXA N9030B	MY 57144347	24	24/04/2022
Digital Multimeter	Fluke	/5	54041218	24	16/11/2020
Thermometer	VWR	61161-364	192595396	24	25-10-2021
PSU	Xantrex	XKW60-50	E00109862	-	O/P Mon
Attenuator (10dB)	Mini-Circuits	BWAK10-2W44+	-	-	O/P Mon
RF Switch	Ericsson	RAR SFW 4x1	1	-	O/P Mon
Switching Control Unit	HP	11713A	3748A060876	-	O/P Mon
Climate Chamber	Burnsco	RTC-37P-3-3	07-07	-	O/P Mon

N/A – Not Applicable

O/P 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	30 MHz to 20 GHz Amplitude	± 0.7 dB	
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.1 dB	
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz	
Occupied Bandwidth	Up to 20 MHz Bandwidth	5 MHz Bandwidth	± 11547 Hz
		10 MHz Bandwidth	± 23094 Hz
		15 MHz Bandwidth	± 34641 Hz
		20 MHz Bandwidth	± 46188 Hz
Band Edge	30 MHz to 20 GHz Amplitude	±0.8 dB	
Radiated Spurious Emissions	30 MHz to 1 GHz	± 5.2 dB	
	1 GHz to 40GHz	± 6.3 dB	

#### Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.



## SECTION 5

### ACCREDITATION, DISCLAIMERS AND COPYRIGHT



#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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

This report does not imply product endorsement by any government, accreditation agency, or TÜV SÜD Canada Inc.

Opinions or interpretations expressed in this report, if any, are outside the scope of TÜV SÜD Canada Inc. accreditations. Any opinions expressed do not necessarily reflect the opinions of TÜV SÜD Canada Inc., unless otherwise stated.

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## ANNEX A

### MODULE LIST





Configuration A			
Product	Product No	R-State	Serial No
CT11	LPC 102 494/1	R2A	T01G495060
LPRU 4420 B25B66	KRC 161 906/1	R1B	1D3F0827/9
Software Version:			
	CXP 901 3268/17	Revision:	R84FH