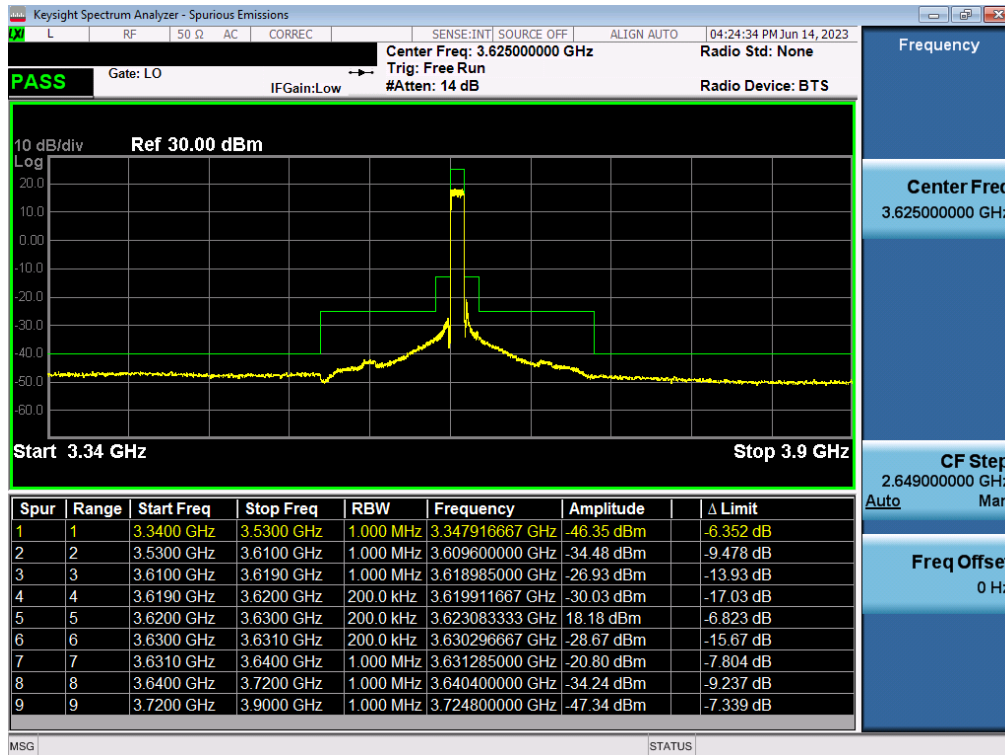
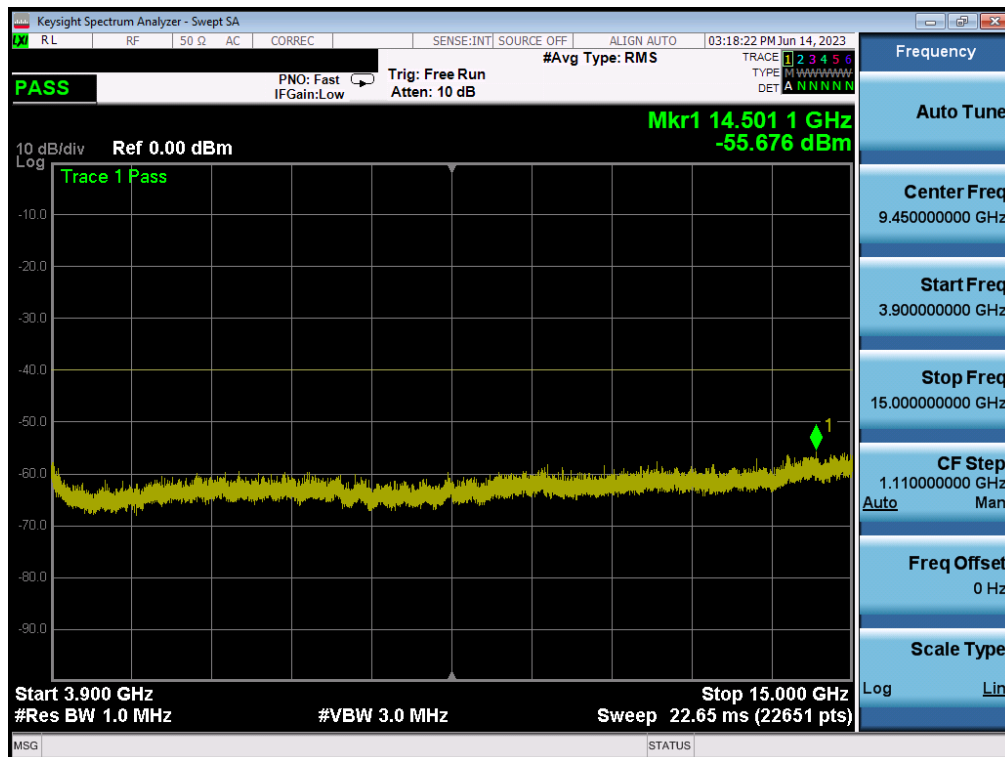


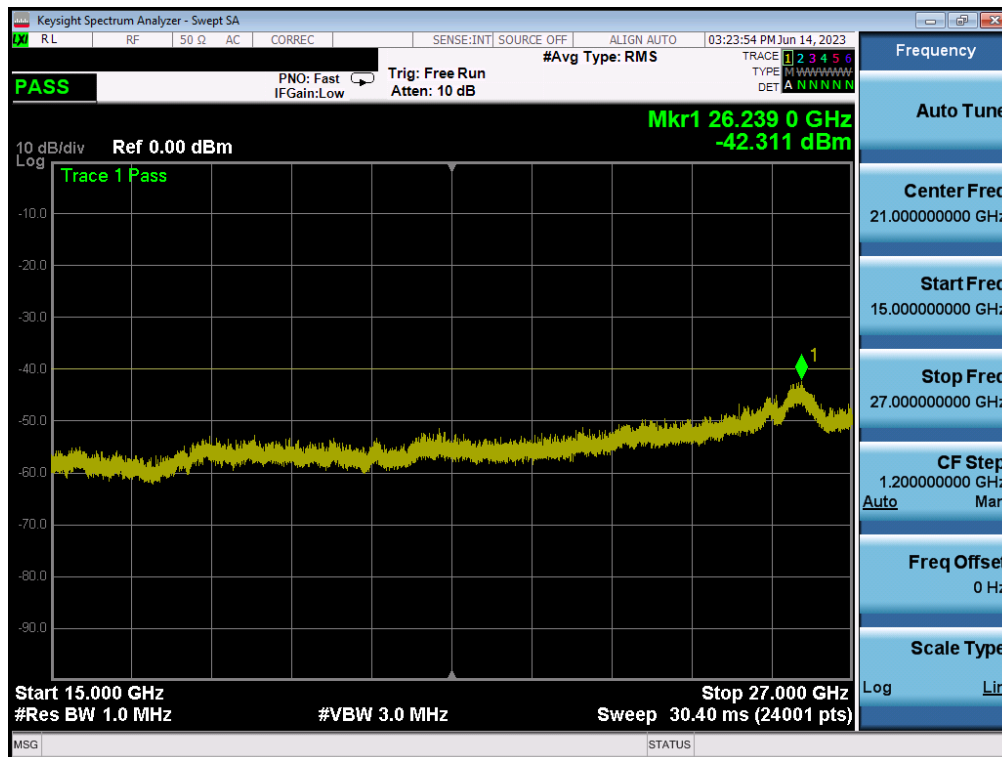


Plot 7.114. Conducted Spurious Plot (10MHz QPSK, Mid Channel)

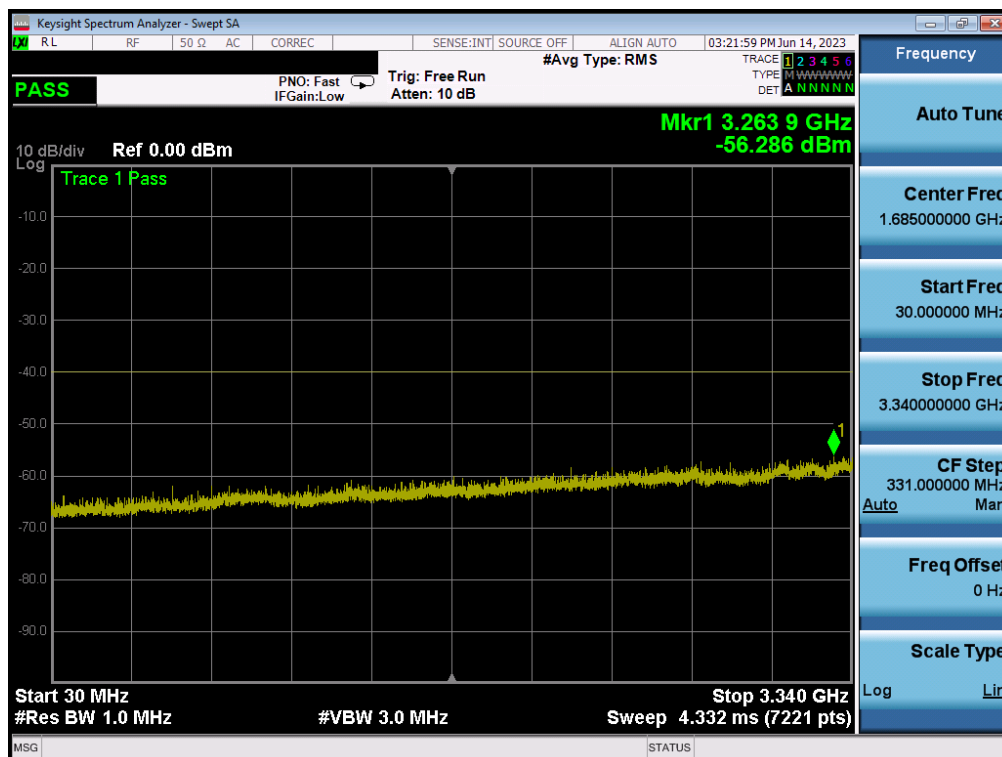


Plot 7.115. Conducted Spurious Plot (10MHz QPSK, Mid Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 87 of 121



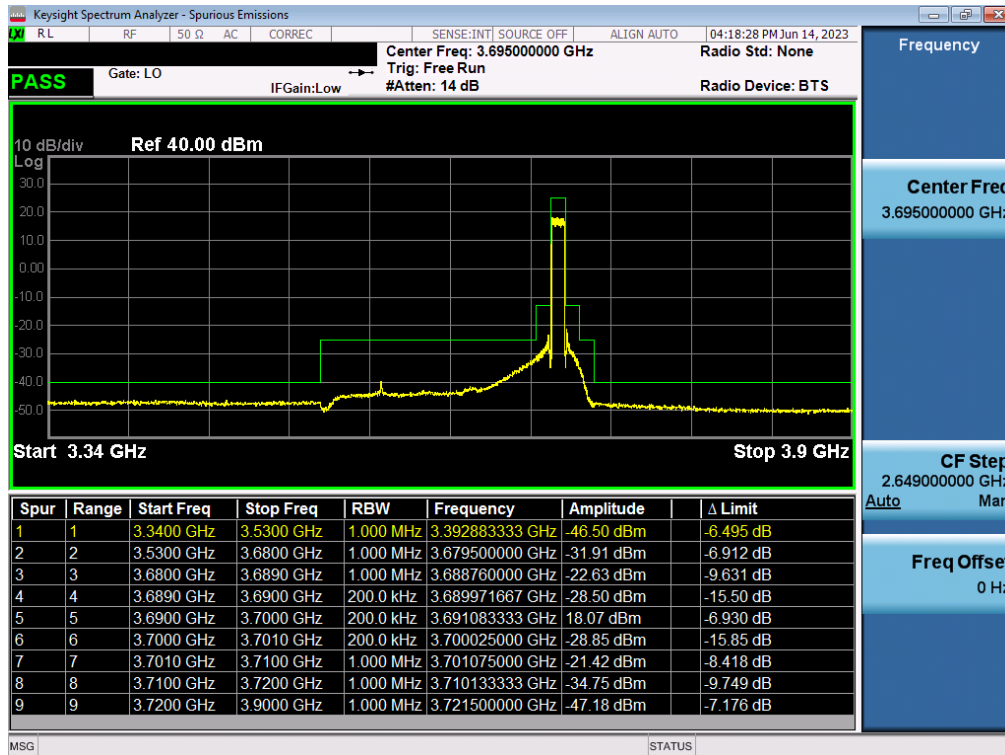
Plot 7.116. Conducted Spurious Plot (10MHz QPSK, Mid Channel)



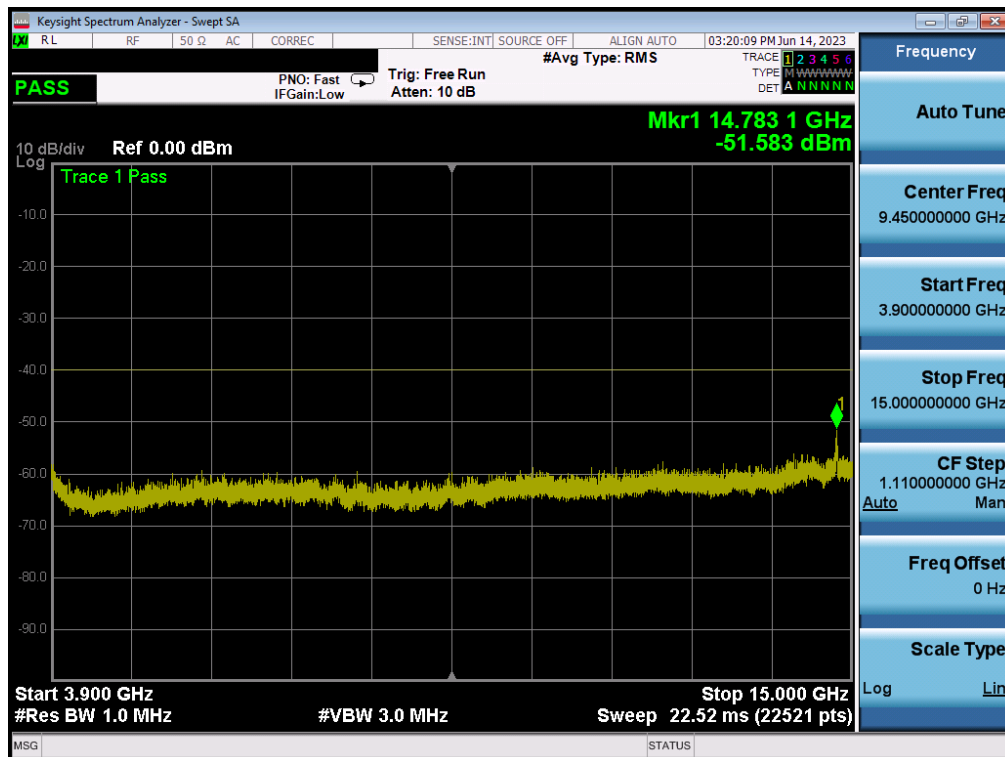
Plot 7.117. Conducted Spurious Plot (10MHz QPSK, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 - 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 88 of 121

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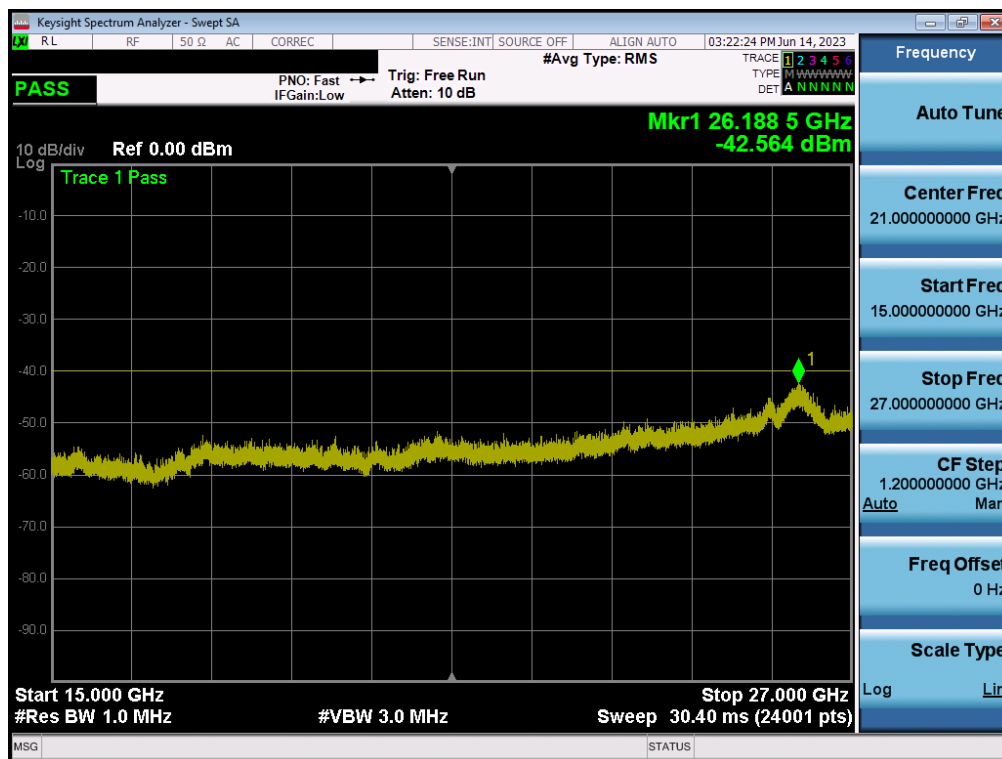


Plot 7.118. Conducted Spurious Plot (10MHz QPSK, High Channel)



Plot 7.119. Conducted Spurious Plot (10MHz QPSK, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 89 of 121



Plot 7.120. Conducted Spurious Plot (10MHz QPSK, High Channel)

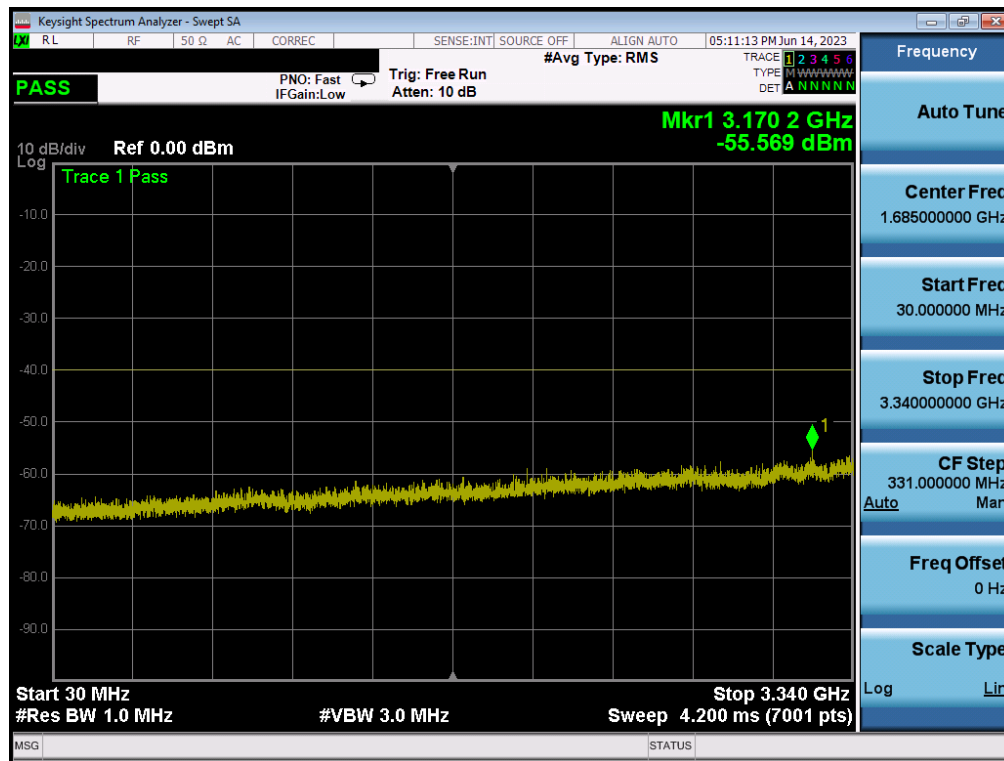
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 90 of 121

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Spurious and Harmonic Emissions – CA LTE BAND 48

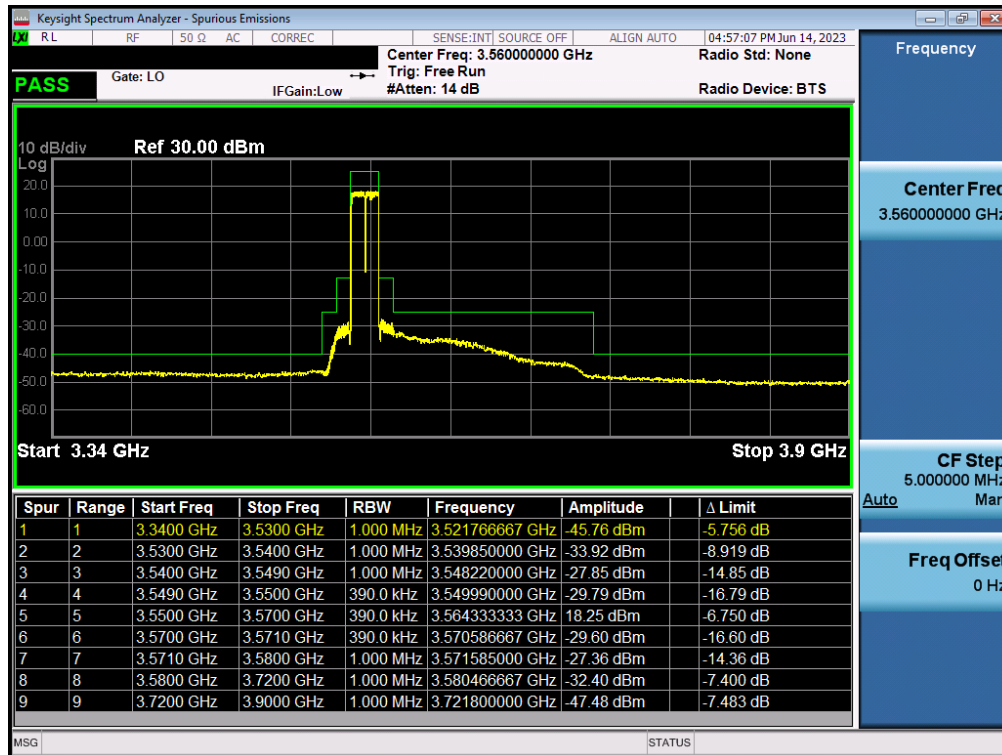
Mode	Bandwidth	Channel	Test Cases	Range [MHz]	CSE Level [dBm]	MIMO Correction [dB]	MIMO CSE Level [dBm]	Limit [dBm]	Margin [dB]
CA LTE-B48	20 MHz	Low	CSE	30.0 - 3340.0	-55.57	3.01	-52.56	-40	-12.56
			CSE	3340.0 - 3900.0	-45.76	3.01	-42.75	-40	-2.75
			CSE	3900.0 - 15000.0	-55.04	3.01	-52.03	-40	-12.03
			CSE	15000.0 - 27000.0	-	-	-	-40	-
		Mid	CSE	30.0 - 3340.0	-56.10	3.01	-53.09	-40	-13.09
			CSE	3340.0 - 3900.0	-45.98	3.01	-42.97	-40	-2.97
			CSE	3900.0 - 15000.0	-55.07	3.01	-52.06	-40	-12.06
			CSE	15000.0 - 27000.0	-	-	-	-40	-
		High	CSE	30.0 - 3340.0	-56.34	3.01	-53.33	-40	-13.33
			CSE	3340.0 - 3900.0	-46.09	3.01	-43.08	-40	-3.08
			CSE	3900.0 - 15000.0	-50.65	3.01	-47.64	-40	-7.64
			CSE	15000.0 - 27000.0	-	-	-	-40	-

Table 7-12 Spurious and Harmonic Emissions Measurements – CA LTE BAND 48

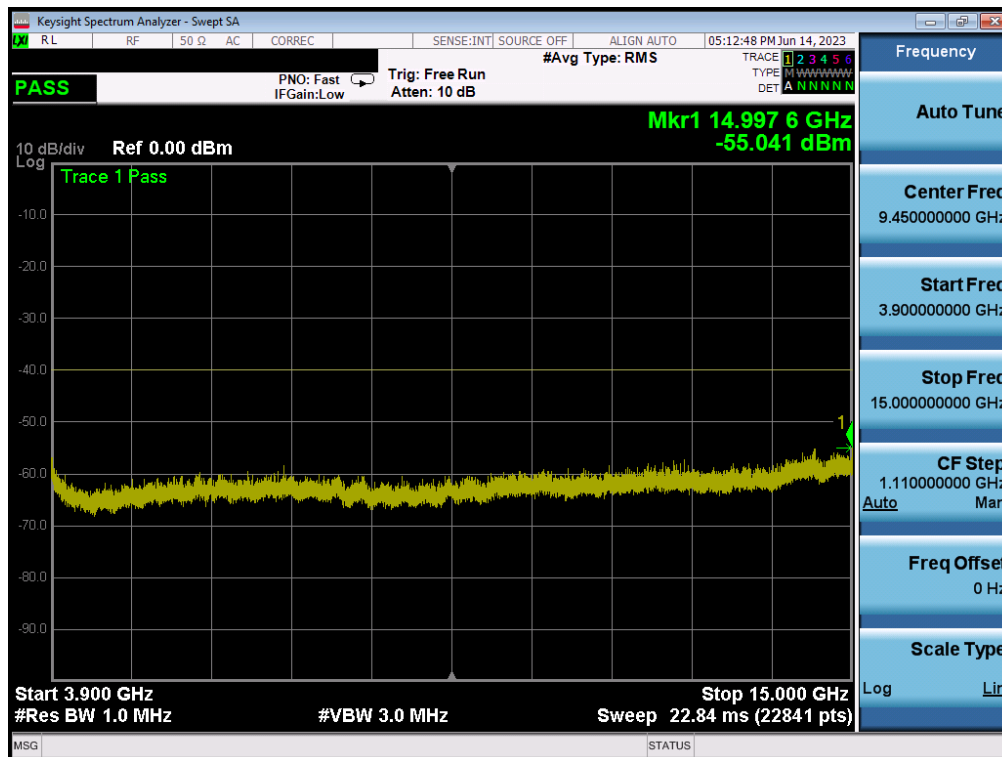


Plot 7.121. Conducted Spurious Plot (20MHz QPSK, Low Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 91 of 121

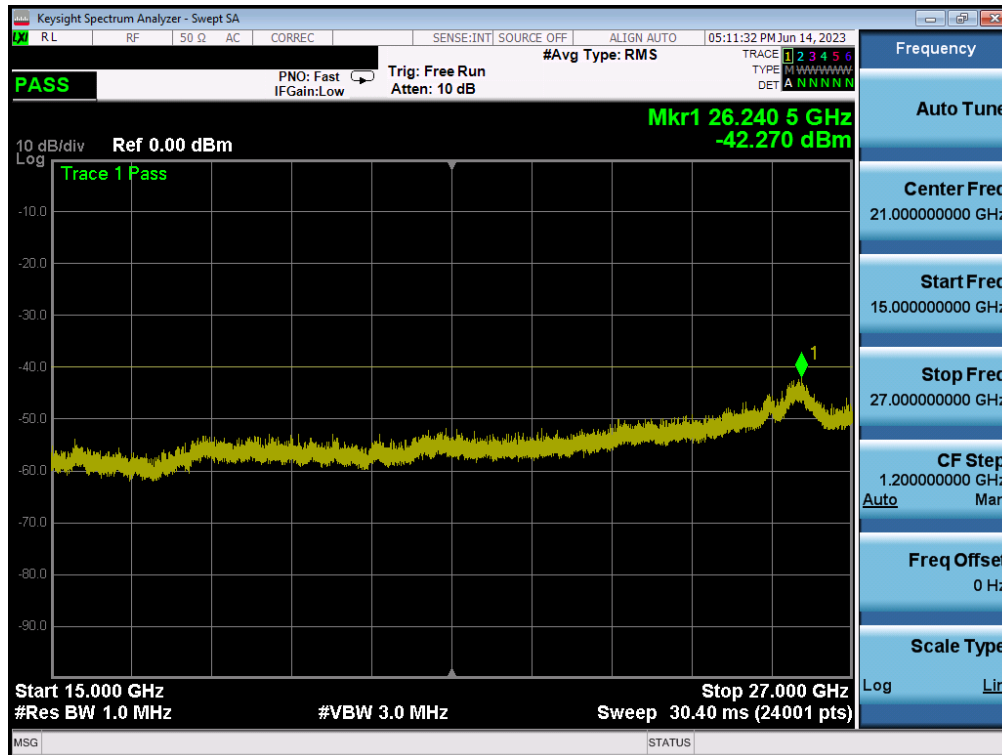


Plot 7.122. Conducted Spurious Plot (20MHz QPSK, Low Channel)

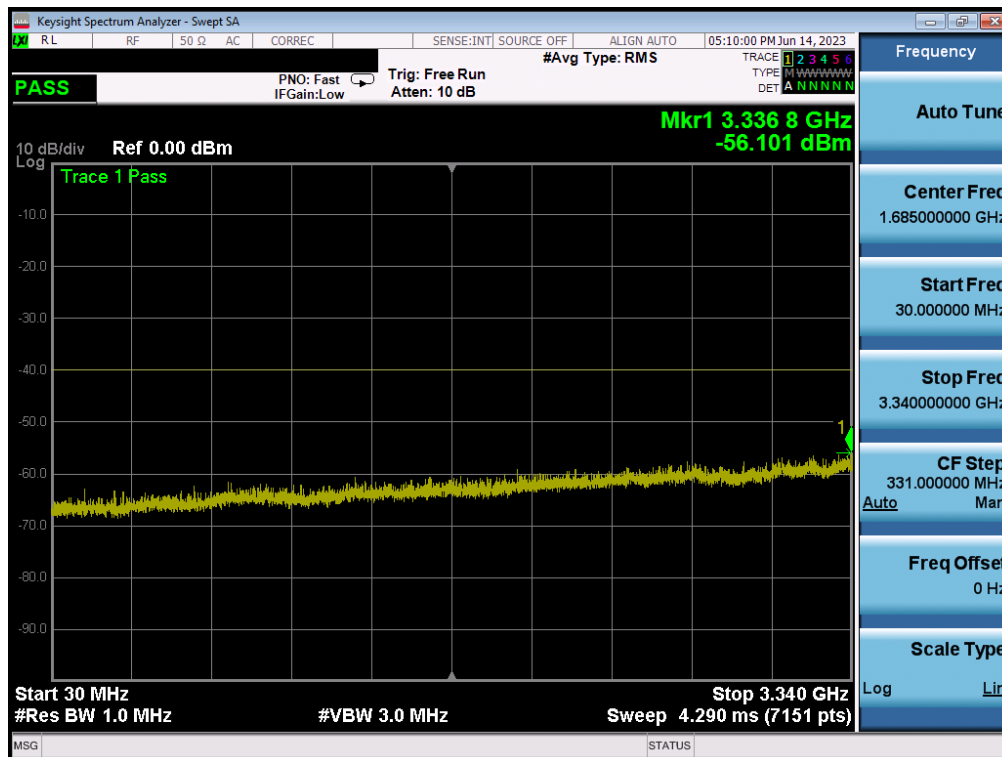


Plot 7.123. Conducted Spurious Plot (20MHz QPSK, Low Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 92 of 121



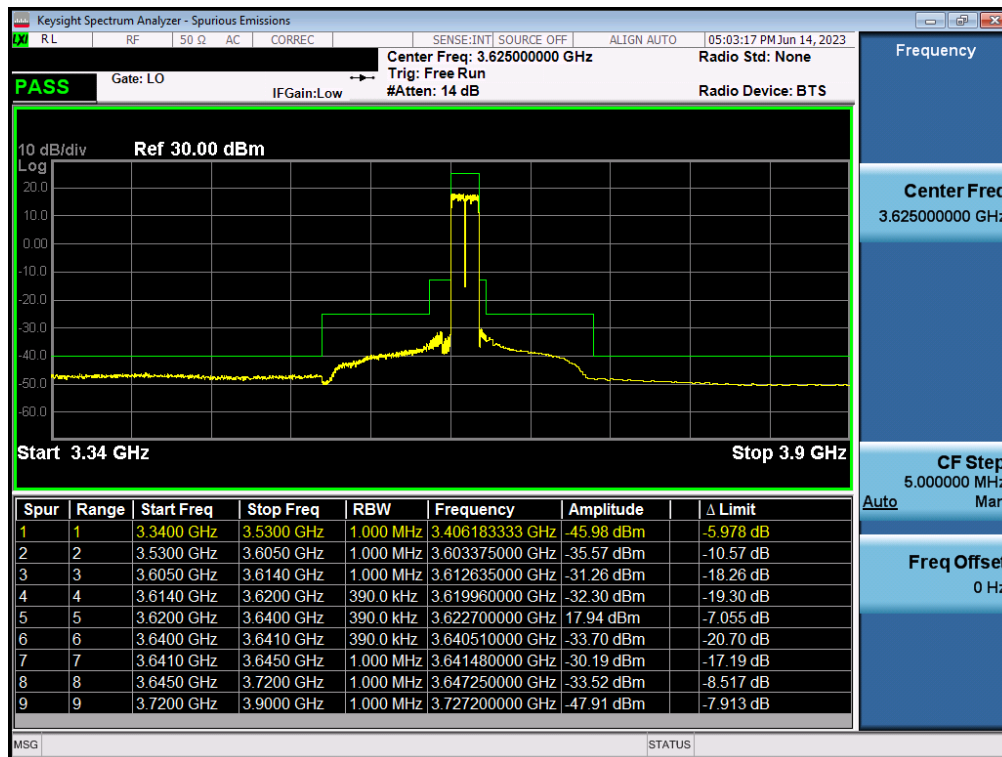
Plot 7.124. Conducted Spurious Plot (20MHz QPSK, Low Channel)



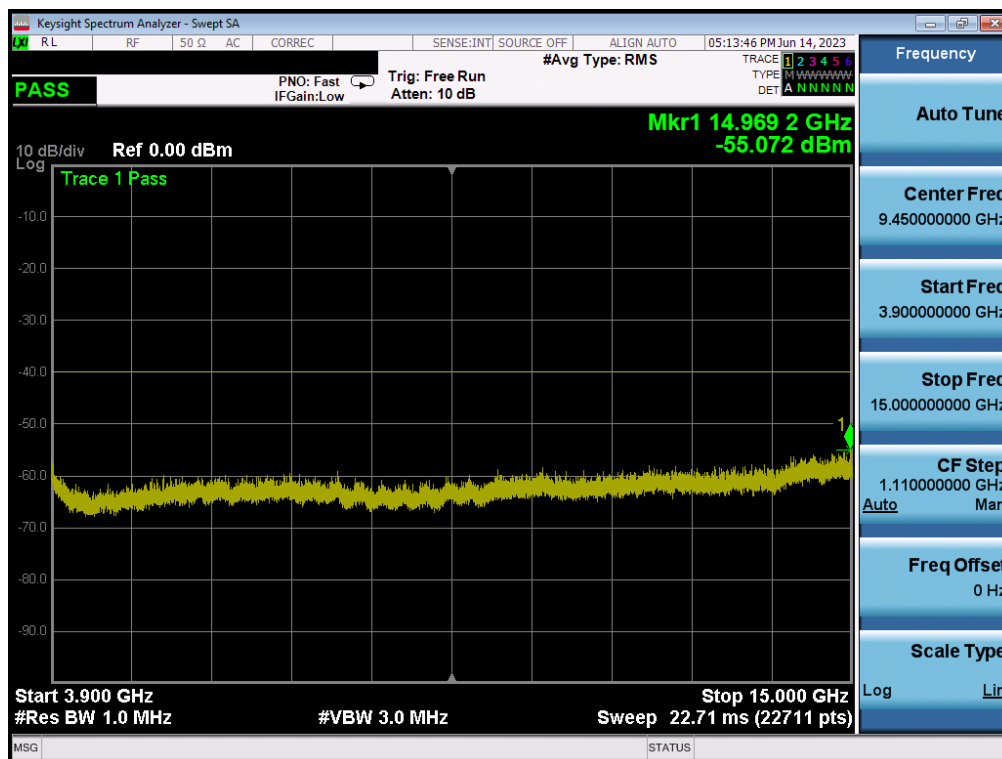
Plot 7.125. Conducted Spurious Plot (20MHz QPSK, Mid Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 - 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 93 of 121

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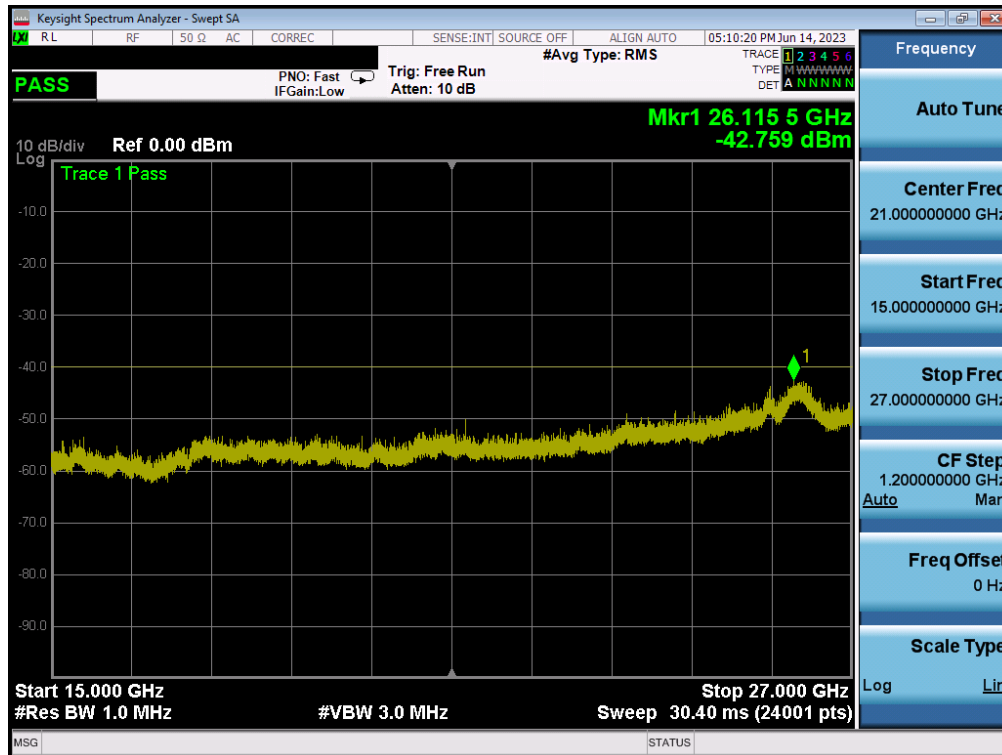


Plot 7.126. Conducted Spurious Plot (20MHz QPSK, Mid Channel)

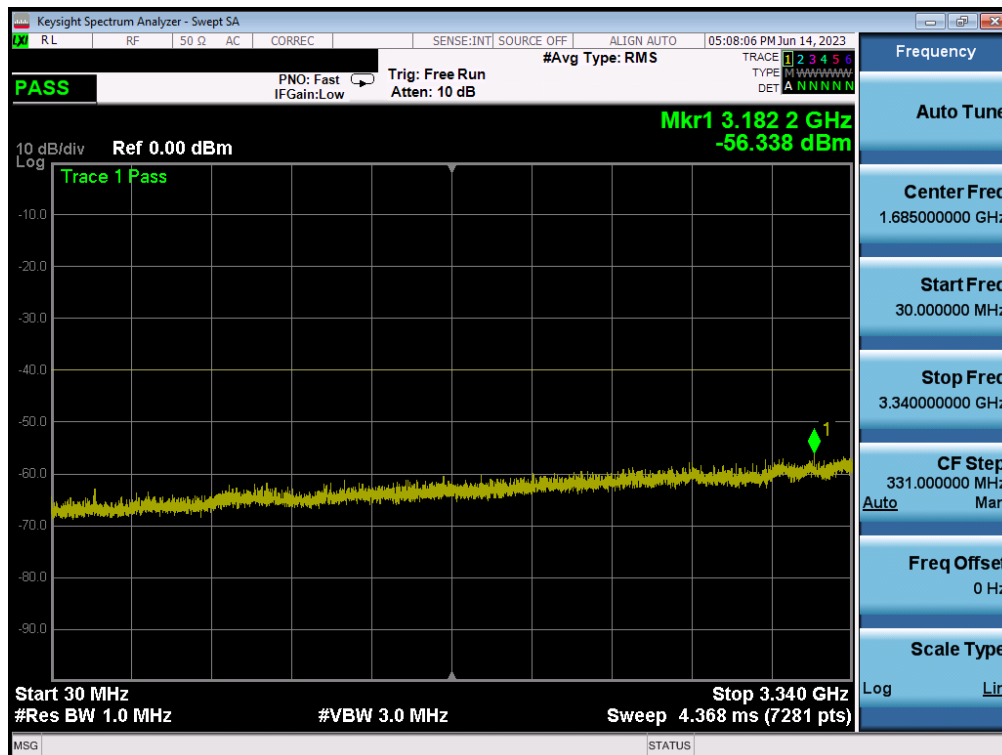


Plot 7.127. Conducted Spurious Plot (20MHz QPSK, Mid Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 94 of 121



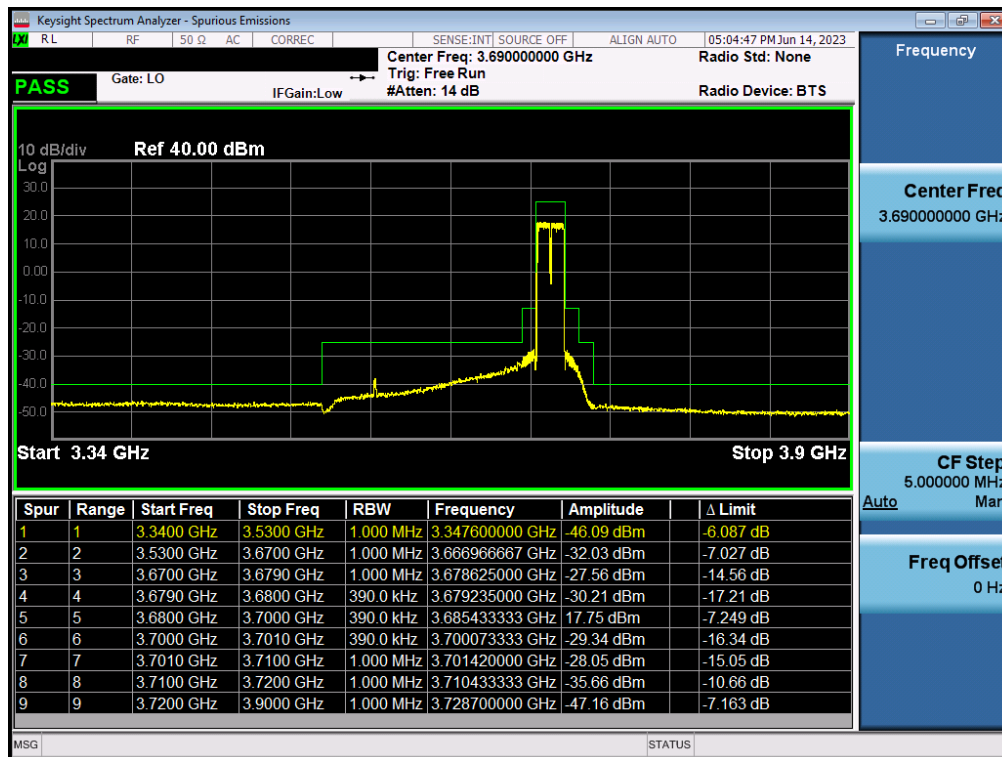
Plot 7.128. Conducted Spurious Plot (20MHz QPSK, Mid Channel)



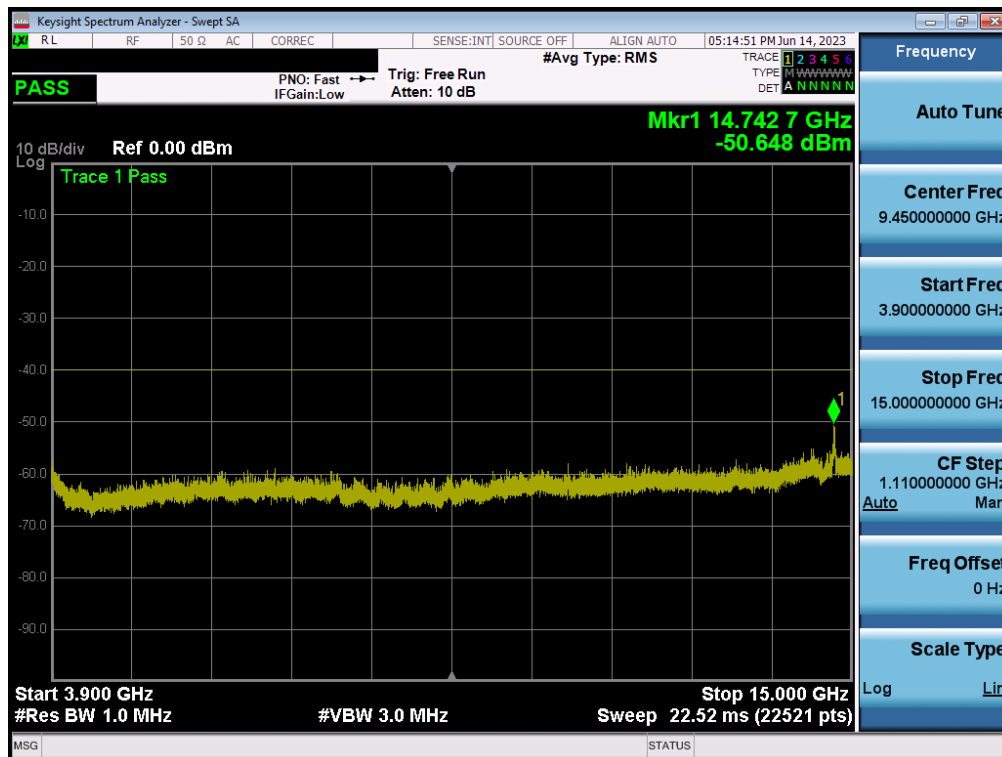
Plot 7.129. Conducted Spurious Plot (20MHz QPSK, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 - 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 95 of 121

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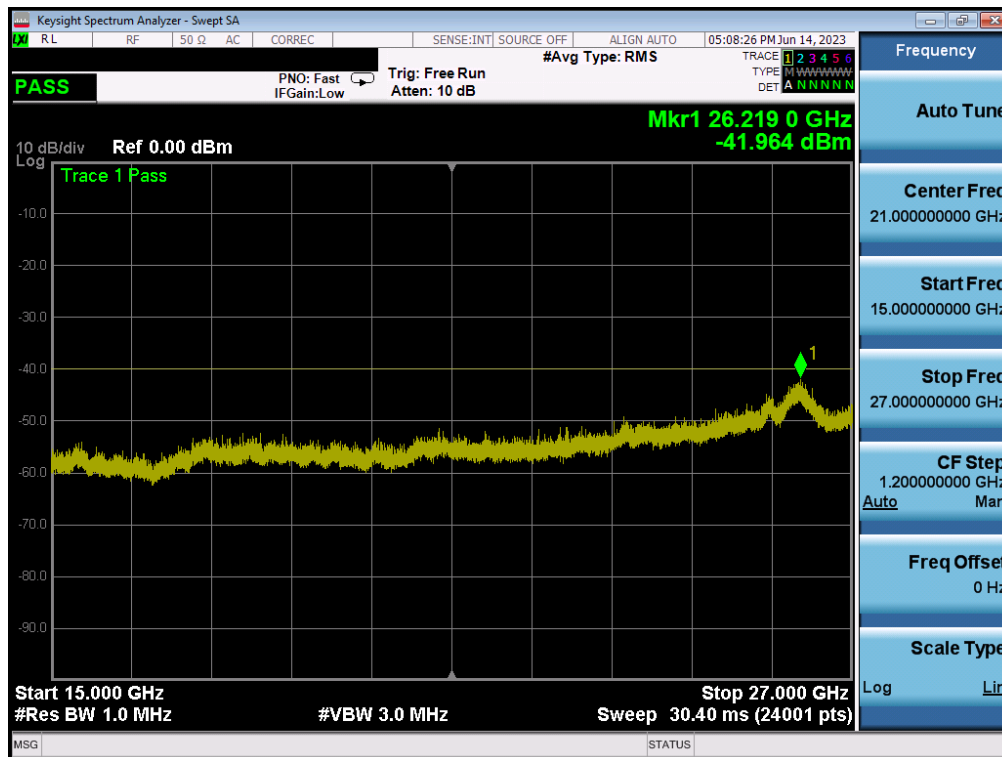


Plot 7.130. Conducted Spurious Plot (20MHz QPSK, High Channel)



Plot 7.131. Conducted Spurious Plot (20MHz QPSK, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 96 of 121



Plot 7.132. Conducted Spurious Plot (20MHz QPSK, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 97 of 121

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7.8 Band Edge Emissions at Antenna Terminal

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

For an End User Device, the conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B MHz (where B is the bandwidth in MHz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B MHz below the lower CBSD-assigned channel edge. At all frequencies greater than B MHz above the upper CBSD assigned channel edge and less than B MHz below the lower CBSD-assigned channel edge, the conducted power of any end user device emission shall not exceed -25 dBm/MHz. The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.3

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW $\geq 1\%$ of the emission bandwidth
4. VBW $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-7. Test Instrument & Measurement Setup

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Notes

1. Per 96.41(e)(3)(i), compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The fundamental emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

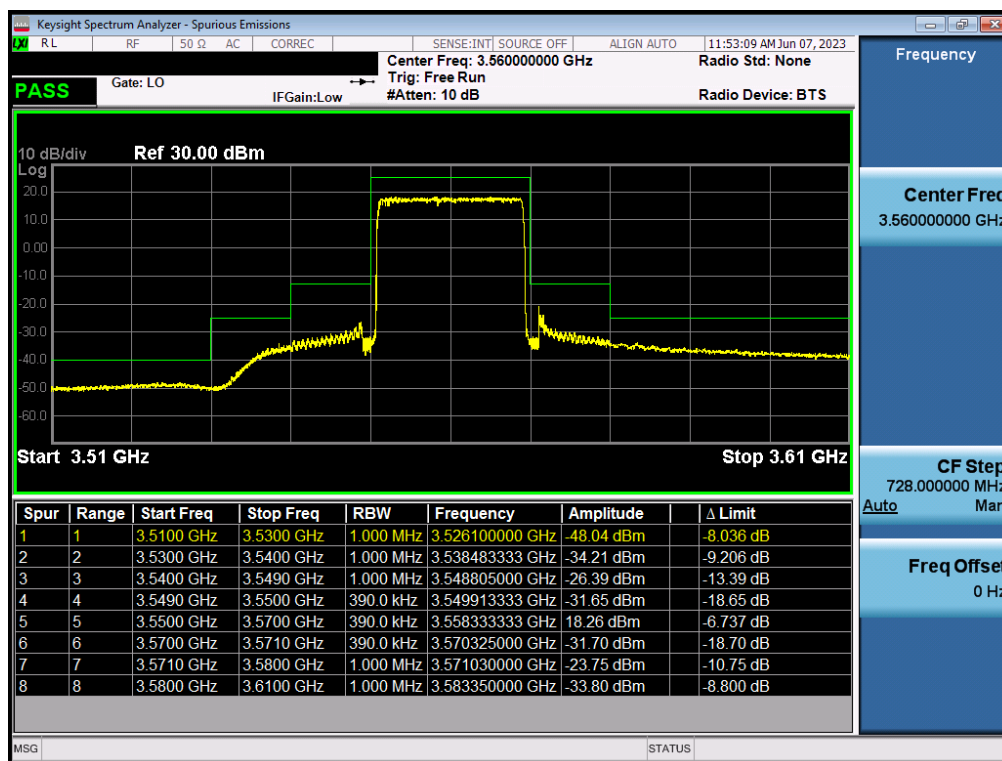
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 99 of 121

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Band Edge Emissions – LTE BAND 48

Mode	Bandwidth	Channel	Test Cases	CBE Level [dBm]	MIMO Correction [dB]	MIMO CBE Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B48	20 MHz	Low	Band Edge	-48.04	3.01	-45.03	-40	-5.03
		Mid	Band Edge	-33.46	3.01	-30.45	-25	-5.45
		High	Band Edge	-30.73	3.01	-27.72	-25	-2.72
	10 MHz	Low	Band Edge	-45.52	3.01	-42.51	-40	-2.51
		Mid	Band Edge	-32.29	3.01	-29.28	-25	-4.28
		High	Band Edge	-30.55	3.01	-27.54	-25	-2.54

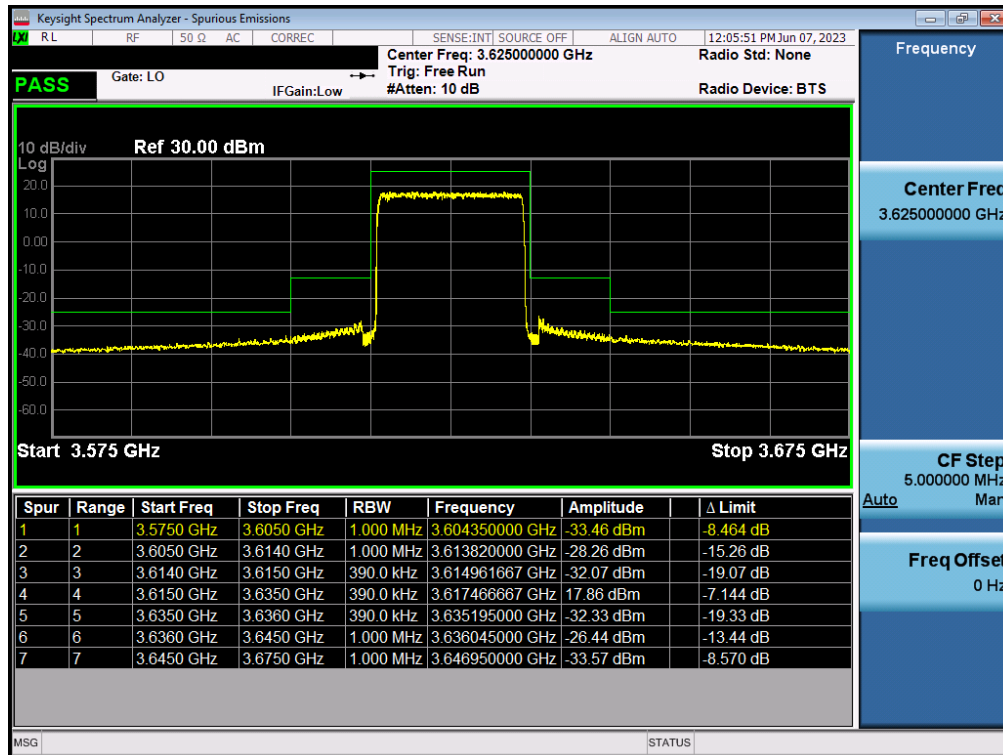
Table 7-13 Band Edge Emissions Measurements – LTE BAND 48



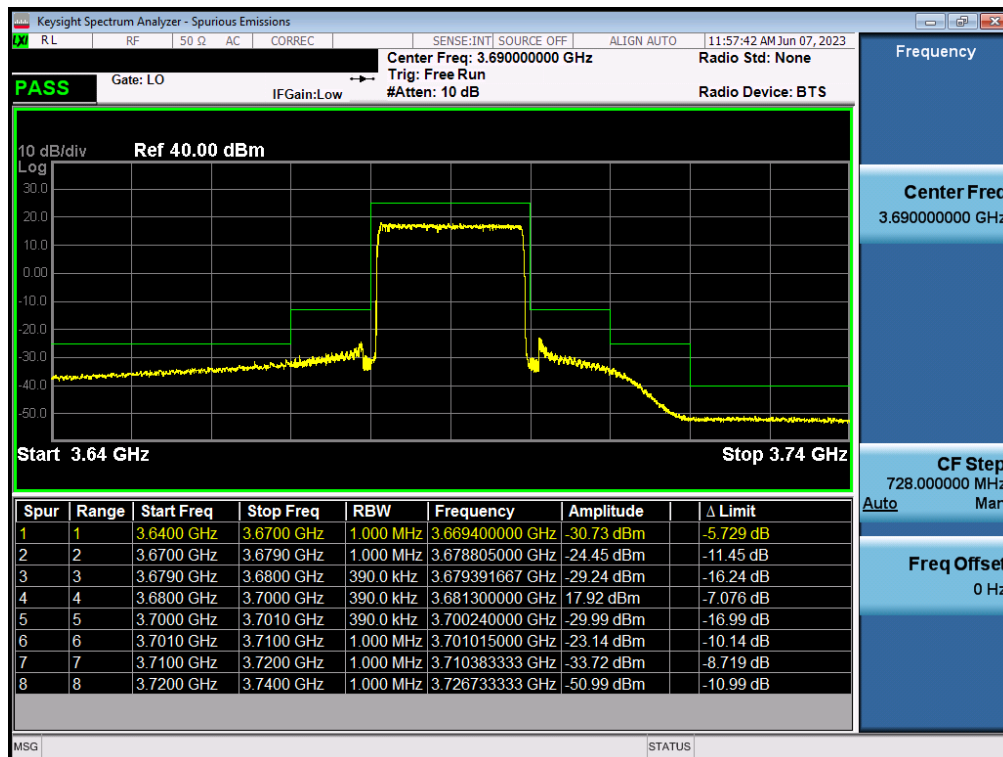
Plot 7.133. Conducted Band Edge Plot (20MHz QPSK, Low Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 100 of 121

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Plot 7.134. Conducted Band Edge Plot (20MHz 64-QAM, Mid Channel)

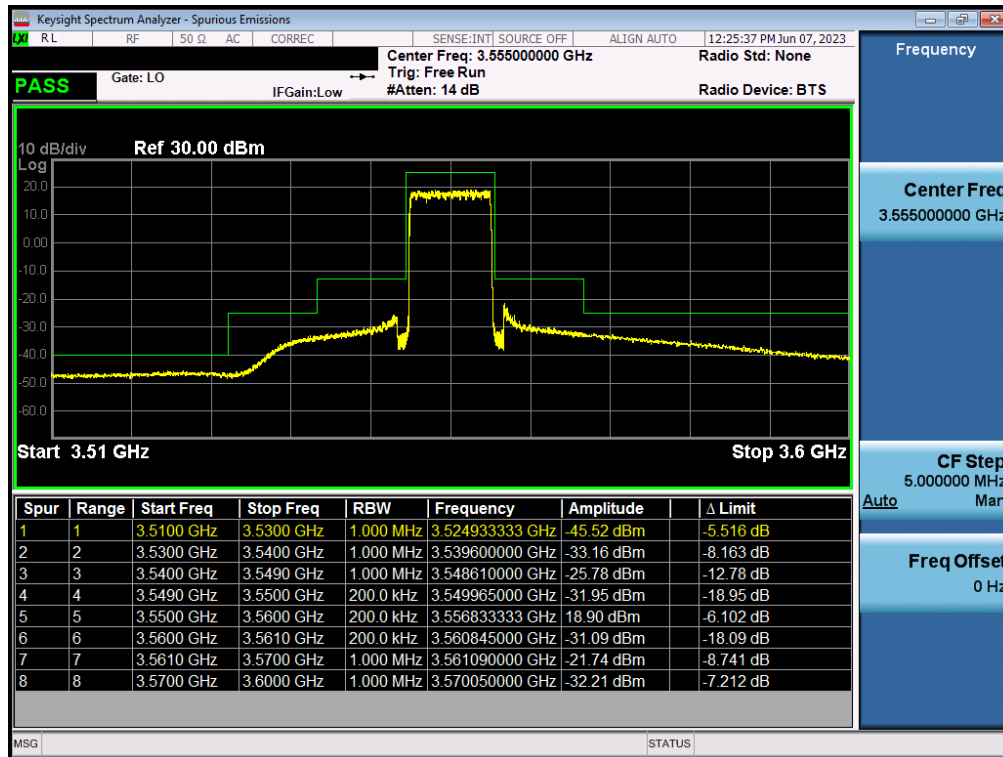


Plot 7.135. Conducted Band Edge Plot (20MHz QPSK, High Channel)

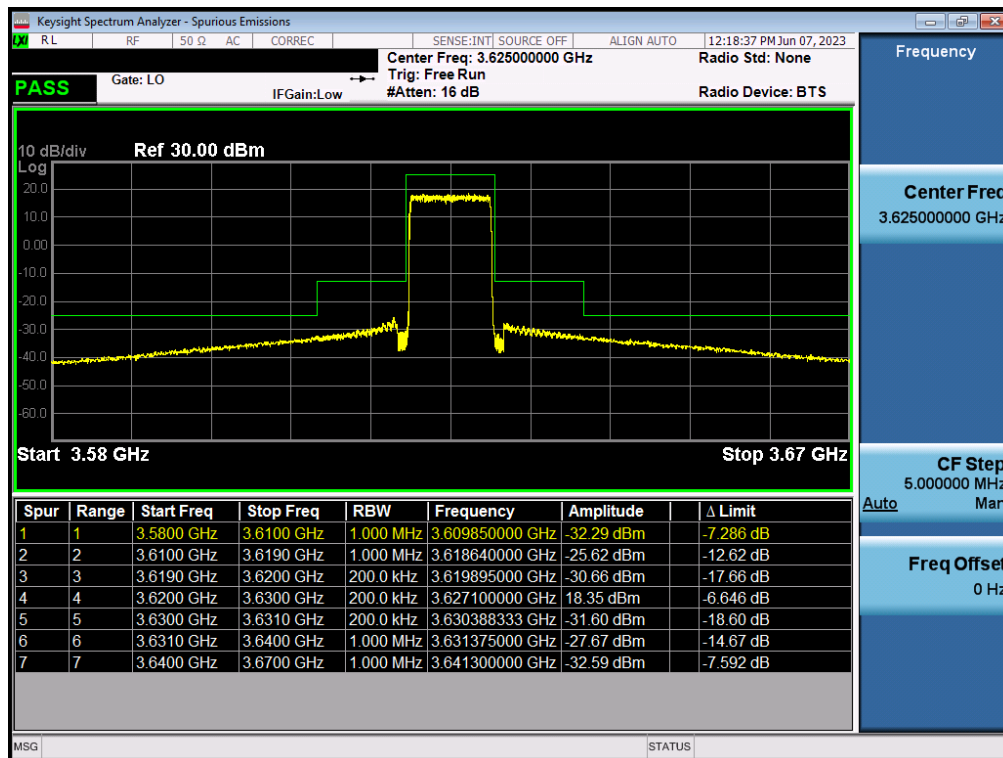
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 101 of 121

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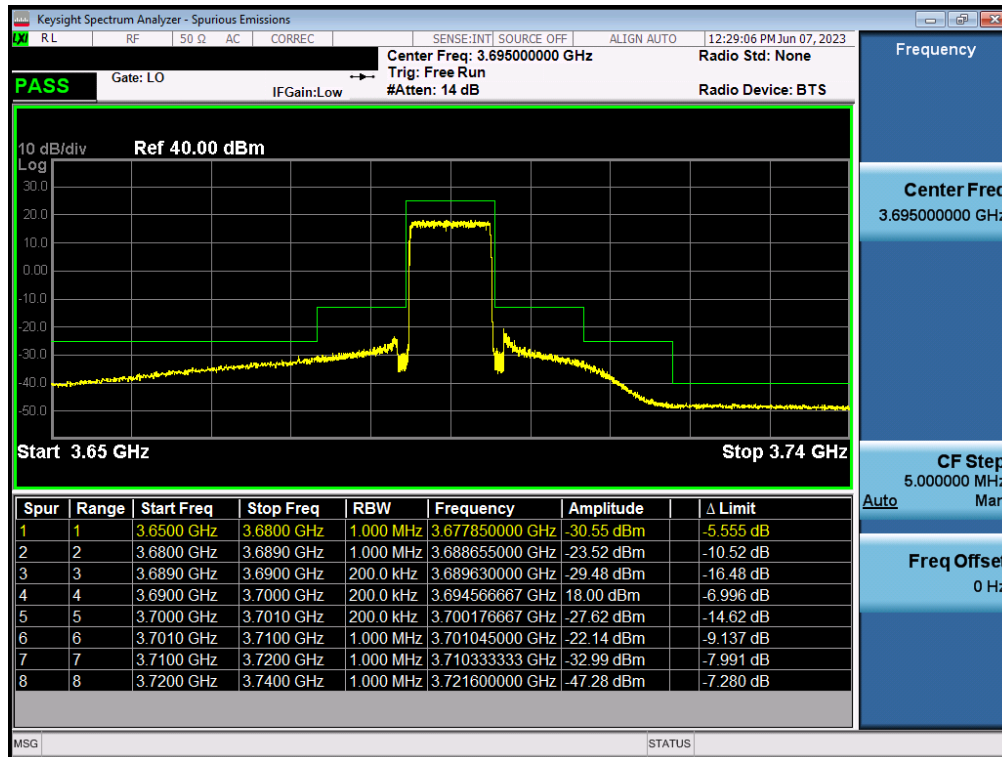
Plot 7.136. Conducted Band Edge Plot (10MHz 256-QAM, Low Channel)



Plot 7.137. Conducted Band Edge Plot (10MHz QPSK, Mid Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7.138. Conducted Band Edge Plot (10MHz 256-QAM, High Channel)

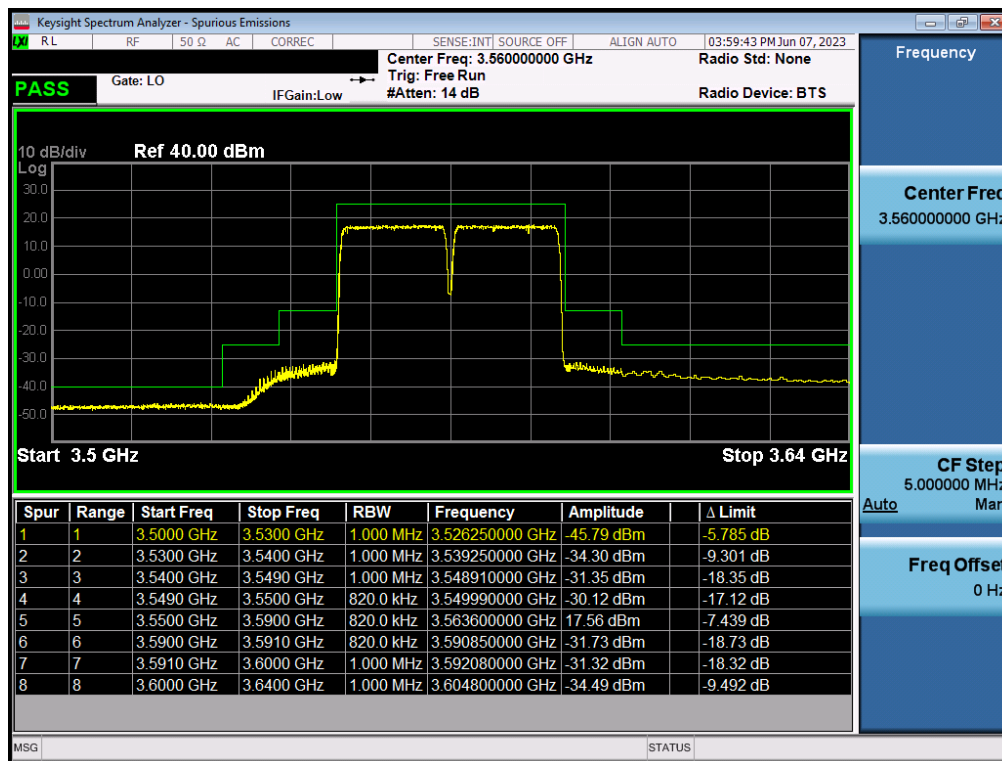
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 103 of 121

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Band Edge Emissions – CA LTE BAND 48

Mode	Bandwidth	Channel	Test Cases	CBE Level [dBm]	MIMO Correction [dB]	MIMO CBE Level [dBm]	Limit [dBm]	Margin [dB]
CA LTE-B48	40 MHz	Low	Band Edge	-45.79	3.01	-42.78	-40	-2.78
		Mid	Band Edge	-32.24	3.01	-29.23	-25	-4.23
		High	Band Edge	-31.29	3.01	-28.28	-25	-3.28

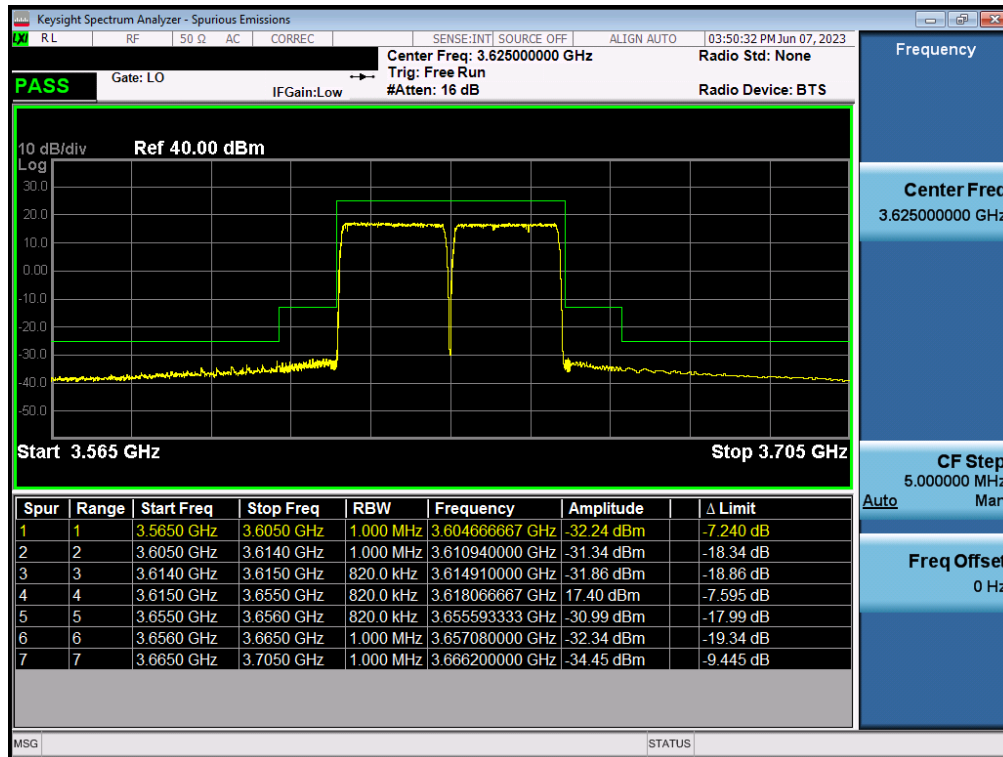
Table 7-14 Band Edge Emissions Measurements – CA LTE BAND 48



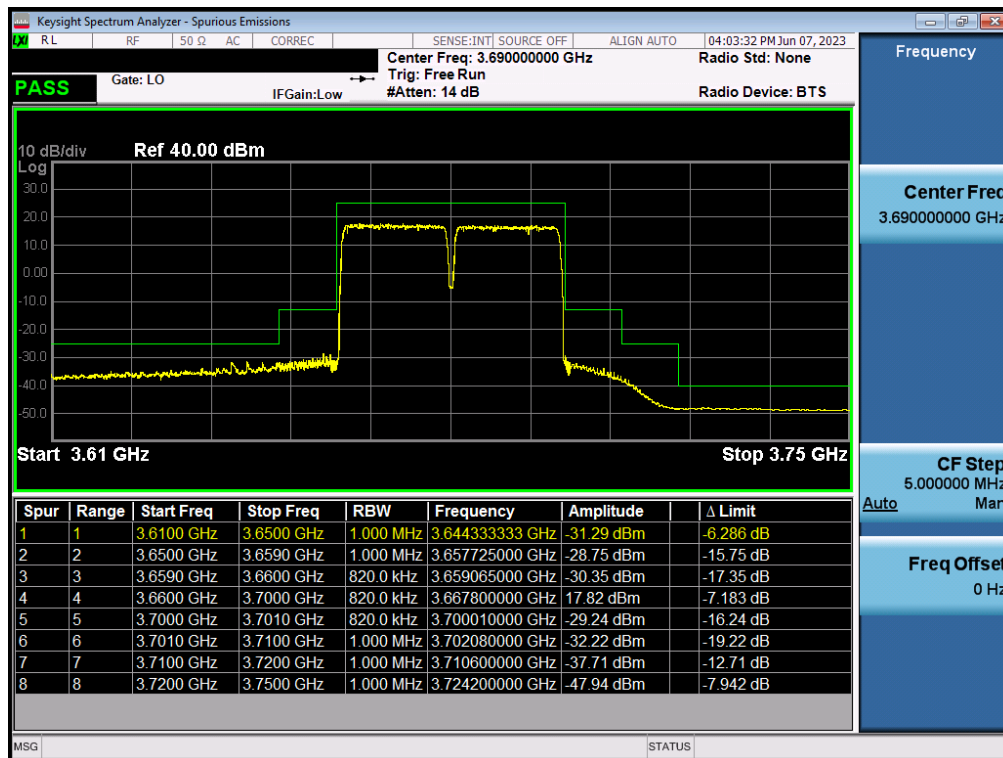
Plot 7.139. Conducted Band Edge Plot (20MHz QPSK, Low Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7.140. Conducted Band Edge Plot (20MHz QPSK, Mid Channel)



Plot 7.141. Conducted Band Edge Plot (20MHz 64-QAM, High Channel)

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 105 of 121

7.9 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into a 50 ohm termination. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Max Hold (In cases where the level is within 2dB of the limit, the final measurement is taken using triggering/gating and trace averaging.)
7. The trace was allowed to stabilize

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

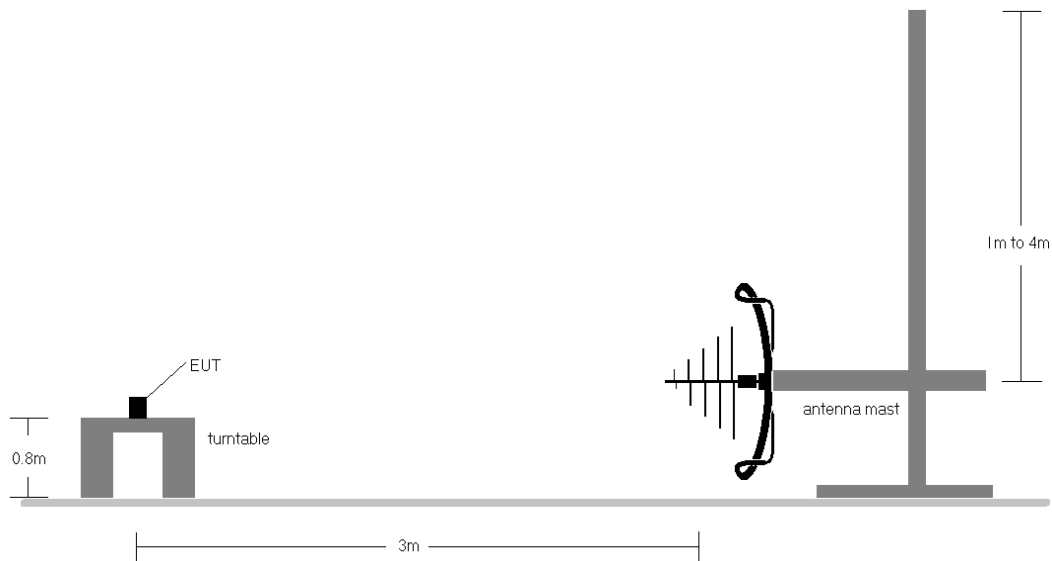


Figure 7-8. Test Instrument & Measurement Setup < 1GHz

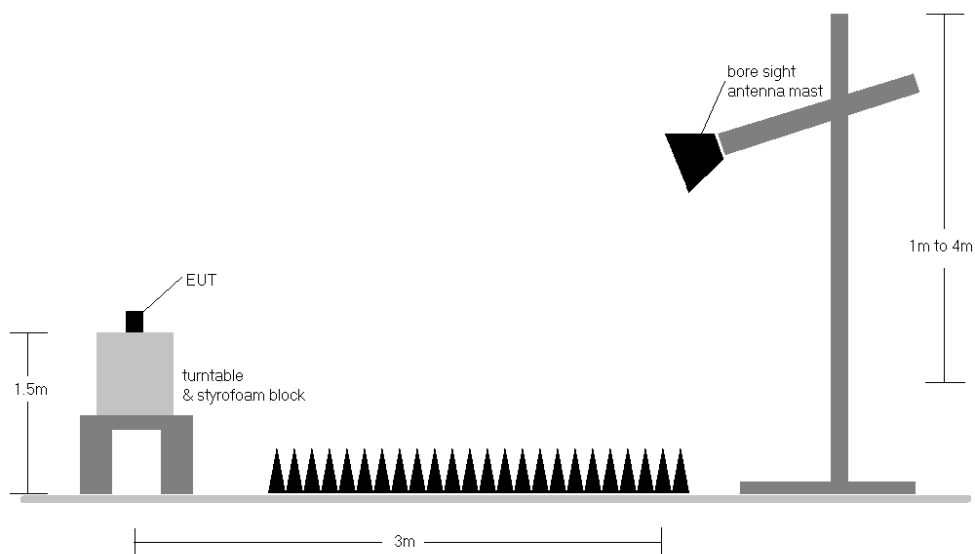


Figure 7-9. Test Instrument & Measurement Setup >1 GHz

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 107 of 121

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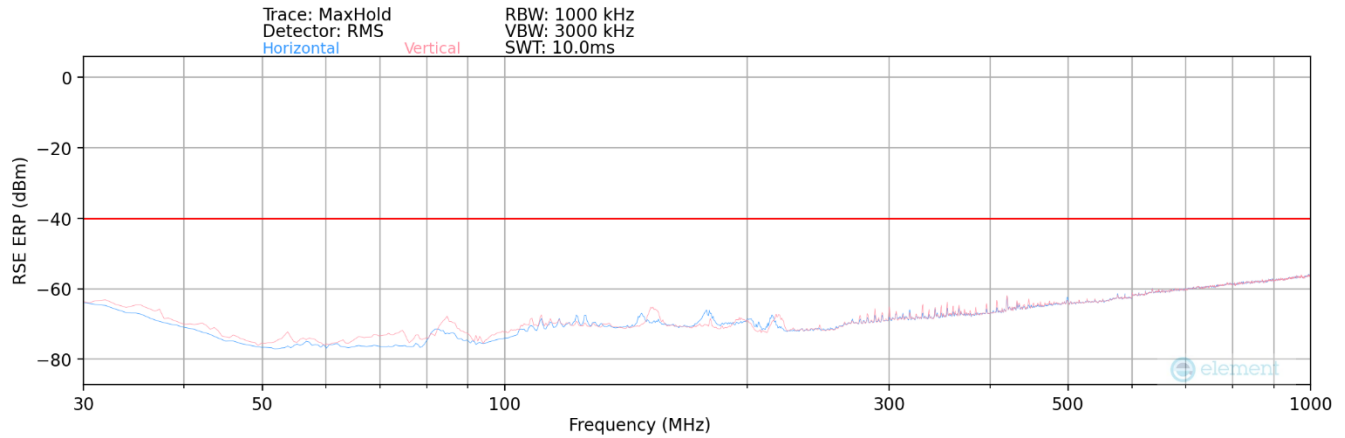
Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - a) $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) The spectrum is measured from 30MHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE BAND 48



Plot 7.142. Radiated Spurious Plot 30MHz-1GHz - LTE BAND 48

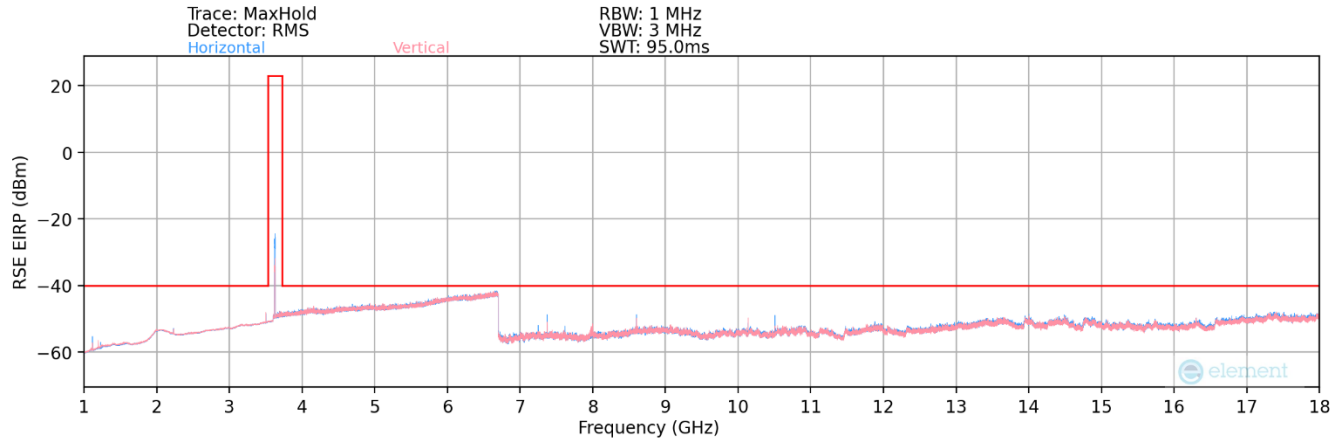
Bandwidth (MHz):	10
Frequency (MHz):	3555.0
Modulation Signal:	QPSK
RB Config (Size / Offset):	50 / 0
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
54.0	V	159	30	-92.42	14.09	28.67	-68.74	-40.00	-28.74
86.9	V	149	98	-90.31	14.37	31.06	-66.35	-40.00	-26.35
105.0	V	147	60	-95.07	18.54	30.47	-66.94	-40.00	-26.94
157.1	V	165	283	-96.99	20.26	30.27	-67.14	-40.00	-27.14
180.0	H	149	102	-90.94	18.53	34.59	-62.82	-40.00	-22.82
209.0	V	155	234	-93.92	17.93	31.01	-66.40	-40.00	-26.40
330.0	V	145	226	-92.99	22.02	36.03	-61.38	-40.00	-21.38
420.0	V	124	220	-92.83	24.08	38.25	-59.16	-40.00	-19.16

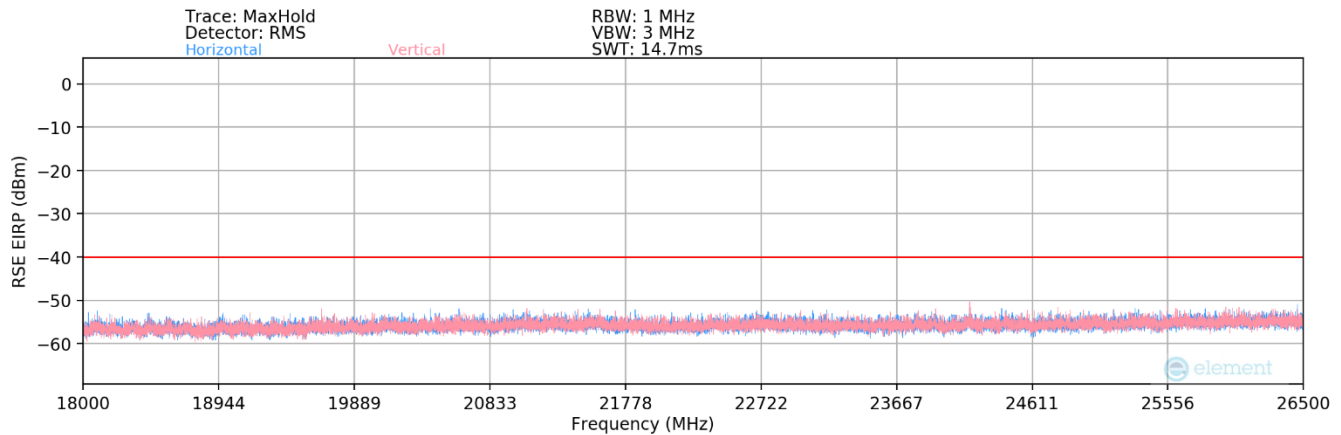
Table 7-15. Radiated Spurious Data 30MHz-1GHz - LTE BAND 48

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 109 of 121

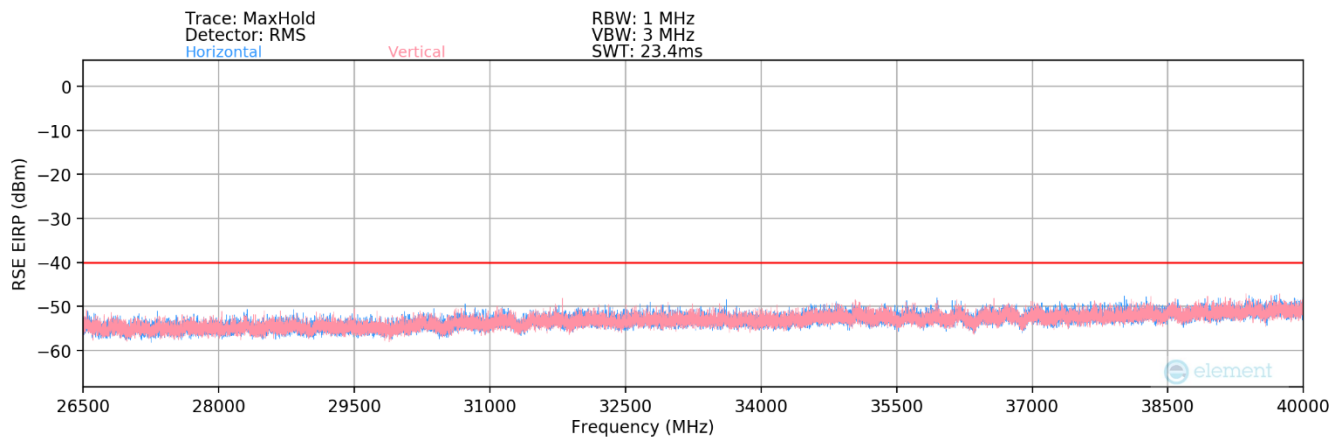
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Plot 7.143. Radiated Spurious Plot 1-18GHz - LTE BAND 48



Plot 7.144. Radiated Spurious Plot 18-26.5GHz - LTE BAND 48



Plot 7.145. Radiated Spurious Plot 26.5-40GHz - LTE BAND 48

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 110 of 121

Bandwidth (MHz):	10
Frequency (MHz):	3555.0
Modulation Signal:	QPSK
RB Config (Size / Offset):	50 / 0
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7110.0	H	238	171	-72.81	9.01	43.20	-52.06	-40.00	-12.06
7478.5	H	184	227	-68.76	9.87	48.11	-47.15	-40.00	-7.15
10296.5	H	141	196	-66.28	11.62	52.34	-42.92	-40.00	-2.92
10665.0	H	176	202	-72.91	12.62	46.71	-48.55	-40.00	-8.55
14220.0	H	-	-	-77.73	15.90	45.17	-50.09	-40.00	-10.09
17775.0	H	-	-	-78.27	17.56	46.29	-48.97	-40.00	-8.97
21330.0	H	-	-	-59.16	4.04	51.87	-52.93	-40.00	-12.93
24885.0	H	-	-	-58.69	4.19	52.51	-52.29	-40.00	-12.29
28440.0	H	-	-	-60.01	5.26	52.25	-52.55	-40.00	-12.55
31995.0	H	-	-	-60.52	7.43	53.92	-50.88	-40.00	-10.88

Table 7-16. Radiated Spurious Data – Low Channel - LTE BAND 48

Bandwidth (MHz):	10
Frequency (MHz):	3625.0
Modulation Signal:	QPSK
RB Config (Size / Offset):	50 / 0
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7250.0	H	203	179	-71.32	9.18	44.86	-50.40	-40.00	-10.40
7618.5	H	150	226	-71.88	9.26	44.38	-50.88	-40.00	-10.88
10506.5	H	163	197	-67.22	12.13	51.91	-43.35	-40.00	-3.35
10875.0	H	160	166	-73.09	11.95	45.86	-49.40	-40.00	-9.40
14500.0	H	-	-	-77.64	15.94	45.30	-49.96	-40.00	-9.96
18125.0	H	-	-	-57.47	1.60	51.13	-53.67	-40.00	-13.67
21750.0	H	-	-	-58.59	3.86	52.26	-52.54	-40.00	-12.54
25375.0	H	-	-	-59.76	4.26	51.50	-53.30	-40.00	-13.30
29000.0	H	-	-	-59.38	5.40	53.02	-51.78	-40.00	-11.78
32625.0	H	-	-	-60.68	7.10	53.42	-51.38	-40.00	-11.38

Table 7-17. Radiated Spurious Data – Mid Channel - LTE BAND 48

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 111 of 121

Bandwidth (MHz):	10
Frequency (MHz):	3695.0
Modulation Signal:	QPSK
RB Config (Size / Offset):	50 / 0
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7390.0	H	242	159	-68.69	9.87	48.18	-47.08	-40.00	-7.08
7758.5	H	146	226	-67.58	8.71	48.13	-47.13	-40.00	-7.13
10716.5	H	193	165	-73.83	12.39	45.56	-49.70	-40.00	-9.70
11085.0	H	211	169	-71.66	12.25	47.59	-47.67	-40.00	-7.67
14780.0	H	-	-	-78.09	16.33	45.24	-50.02	-40.00	-10.02
18475.0	H	-	-	-58.05	1.86	50.81	-53.99	-40.00	-13.99
22170.0	H	-	-	-59.66	3.80	51.14	-53.66	-40.00	-13.66
25865.0	H	-	-	-58.96	4.64	52.68	-52.12	-40.00	-12.12
29560.0	H	-	-	-60.41	5.85	52.44	-52.36	-40.00	-12.36
33255.0	H	-	-	-60.61	7.63	54.03	-50.77	-40.00	-10.77

Table 7-18. Radiated Spurious Data – High Channel - LTE BAND 48

Bandwidth (MHz):	10
Modulation Signal:	QPSK
RB Config (Size / Offset):	50 / 0
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7372.5	H	222	190	-66.78	9.75	49.97	-45.29	-40.00	-5.29
8601.5	H	199	233	-69.74	11.69	48.95	-46.31	-40.00	-6.31
13770.0	H	235	178	-73.62	15.79	49.17	-46.09	-40.00	-6.09

Table 7-19. Radiated Spurious Data – LTE BAND 48

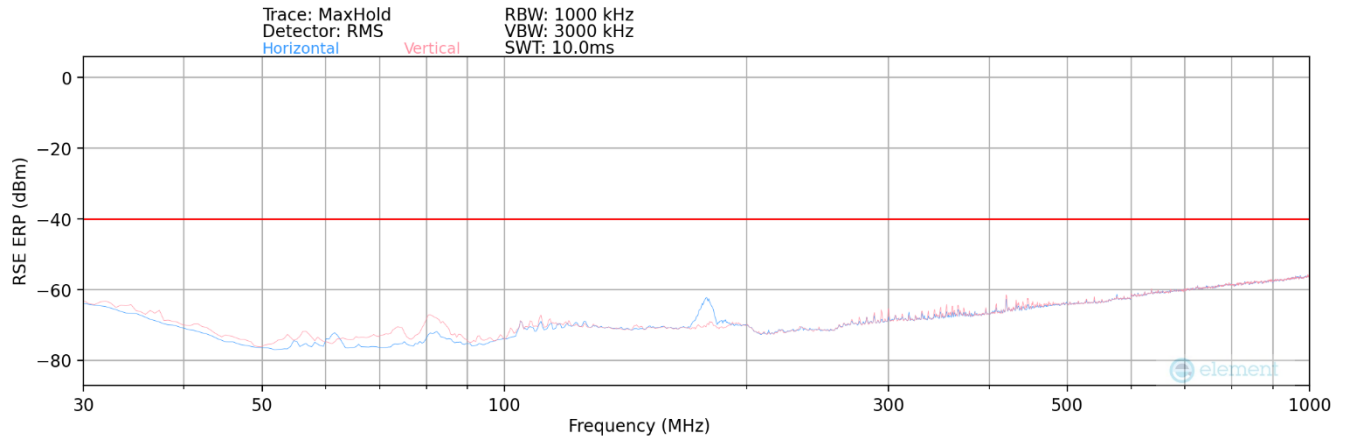
Notes:

The unwanted spurious emissions were found at same frequency while EUT was transmitting different channels, low/mid/high. Worst spurious emissions were reported in table 7-19.

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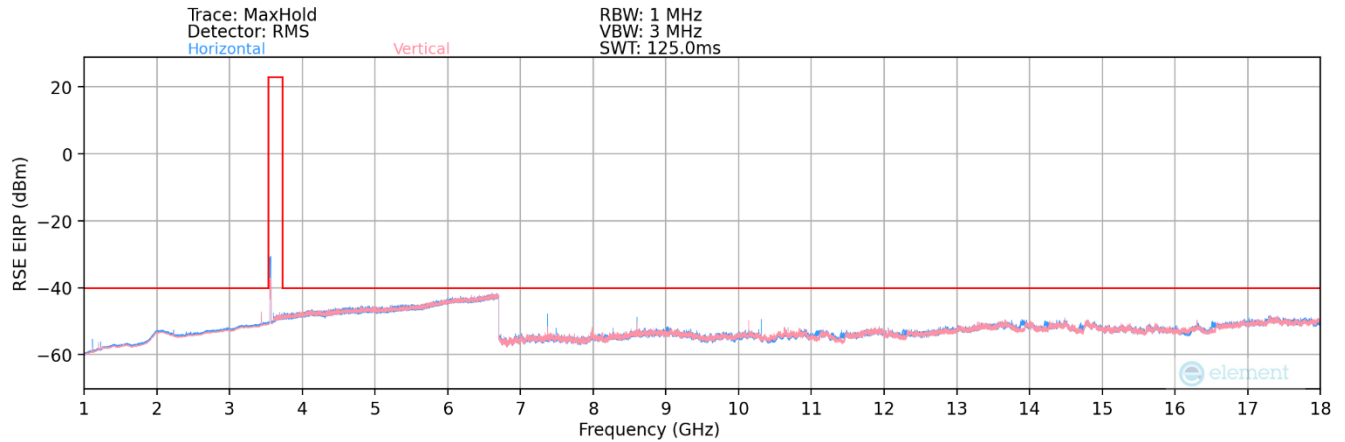
Plot 7.146. Radiated Spurious Plot 30MHz-1GHz - CA LTE BAND 48

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	3695.0
PCC RB / Offset:	50 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	3685.1
SCC RB / Offset:	50 / 0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

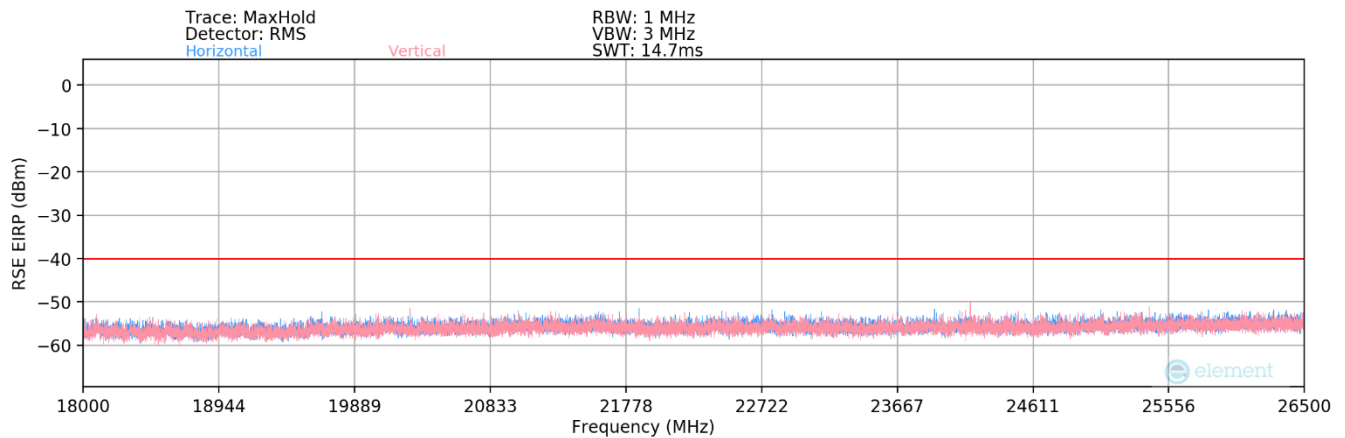
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
42.4	V	149	35	-95.42	18.56	30.14	-67.27	-40.00	-27.27
54.0	V	142	29	-93.53	14.09	27.56	-69.85	-40.00	-29.85
78.0	V	140	36	-91.55	14.51	29.96	-67.45	-40.00	-27.45
81.0	V	144	22	-85.46	14.54	36.08	-61.33	-40.00	-21.33
105.1	V	128	58	-93.47	18.56	32.09	-65.32	-40.00	-25.32
179.3	H	137	78	-88.64	18.39	36.75	-60.66	-40.00	-20.66
300.0	V	182	231	-93.23	21.05	34.82	-62.59	-40.00	-22.59
354.0	V	179	245	-91.78	21.87	37.09	-60.32	-40.00	-20.32
420.0	V	187	278	-91.65	24.08	39.43	-57.98	-40.00	-17.98

Table 7-20. Radiated Spurious Data 30MHz-1GHz - CA LTE BAND 48

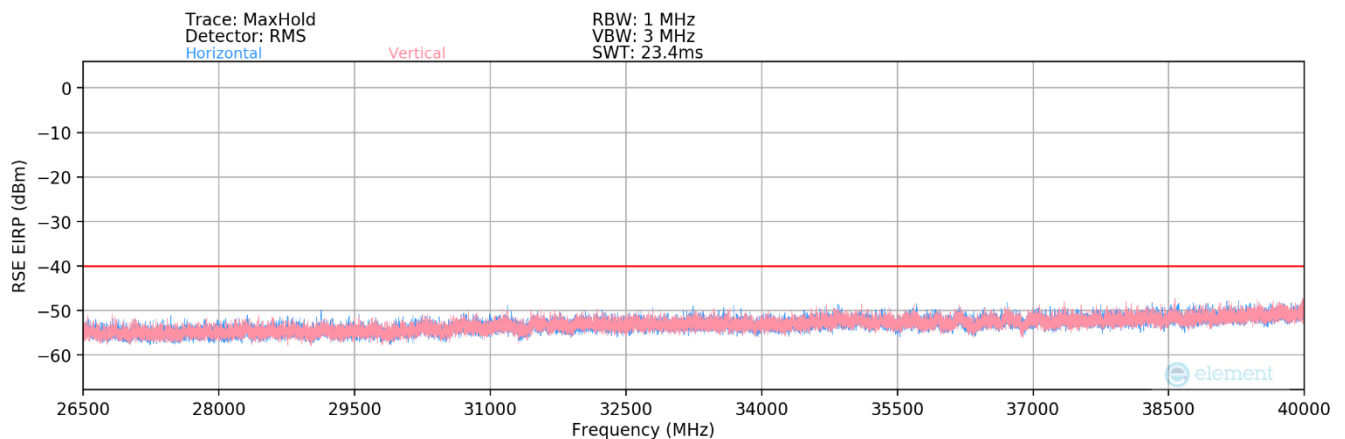
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7.147. Radiated Spurious Plot 1-18GHz – Low Channel - CA LTE BAND 48

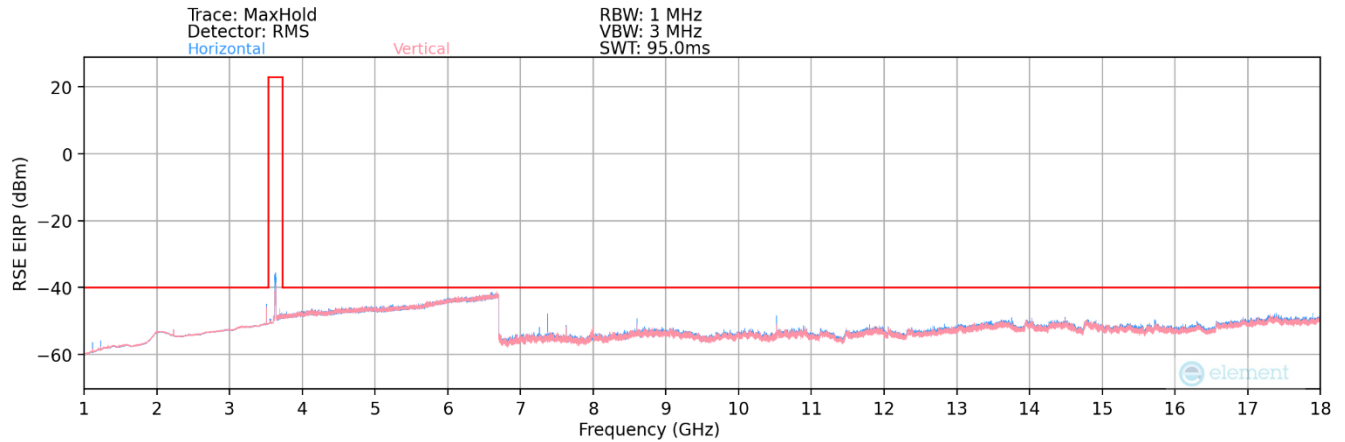


Plot 7.148. Radiated Spurious Plot 18-26.5GHz – Low Channel - CA LTE BAND 48

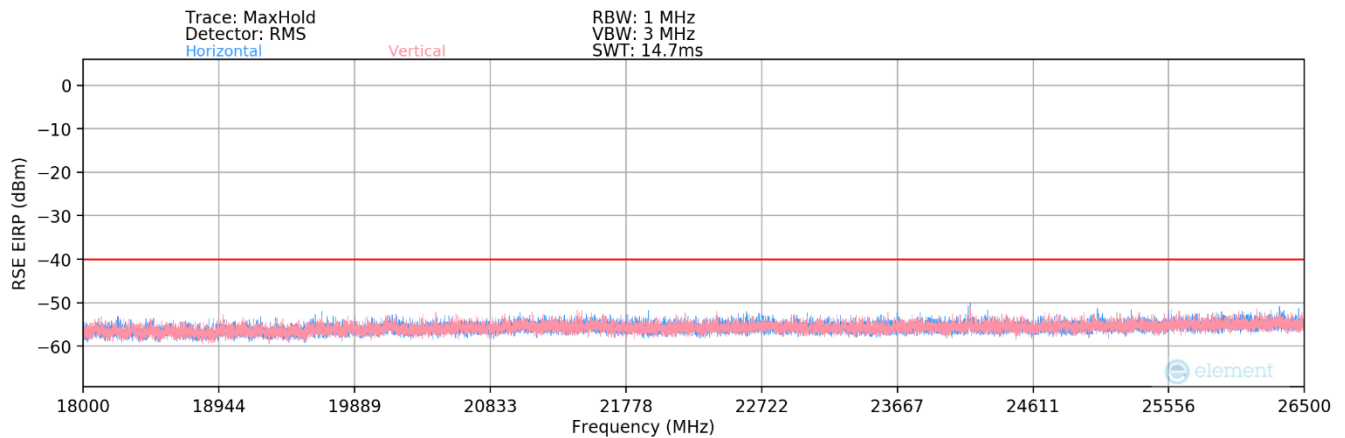


Plot 7.149. Radiated Spurious Plot 26.5-40GHz – Low Channel - CA LTE BAND 48

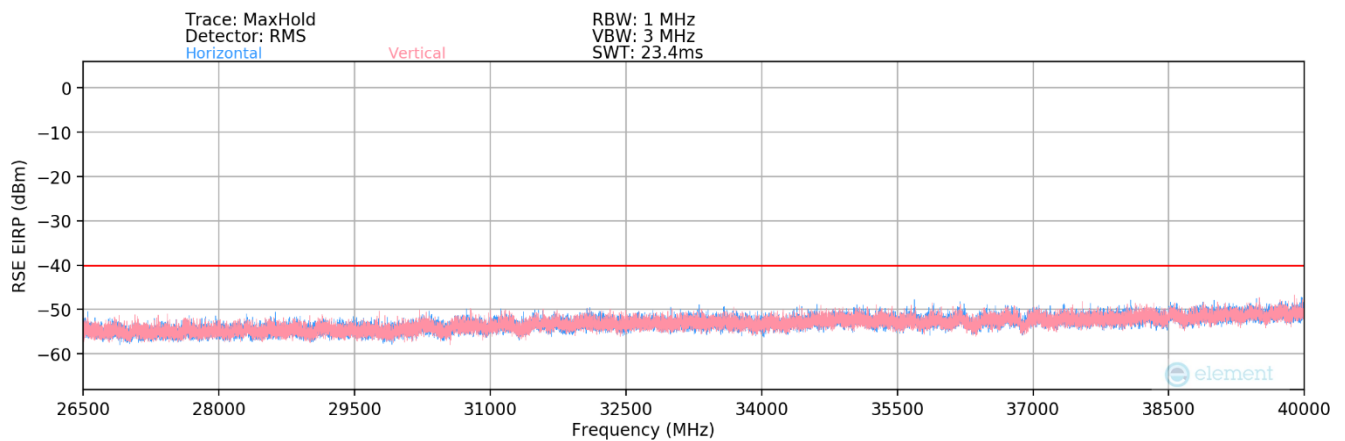
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7.150. Radiated Spurious Plot 1-18GHz – Mid Channel - CA LTE BAND 48

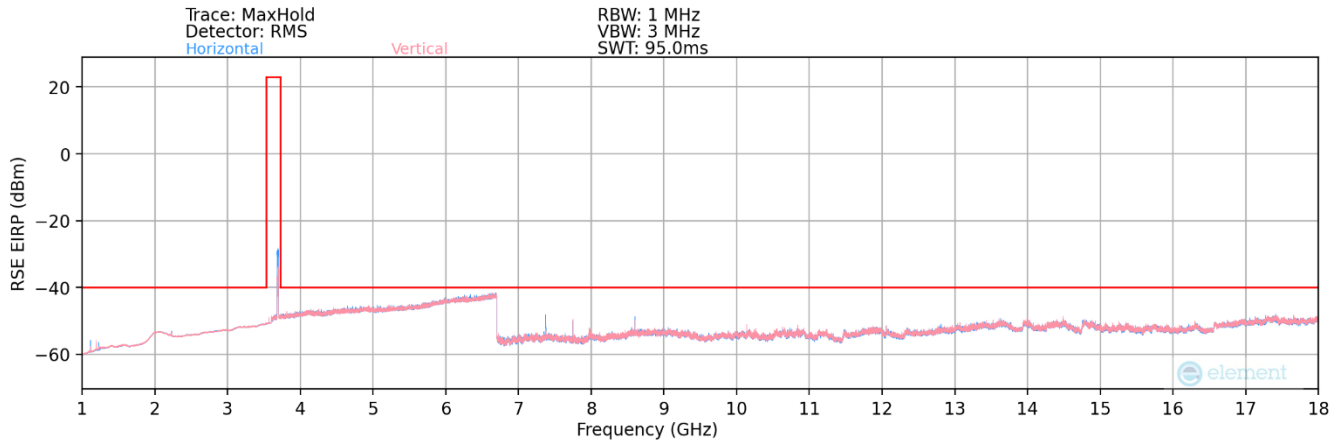


Plot 7.151. Radiated Spurious Plot 18-26.5GHz – Mid Channel - CA LTE BAND 48

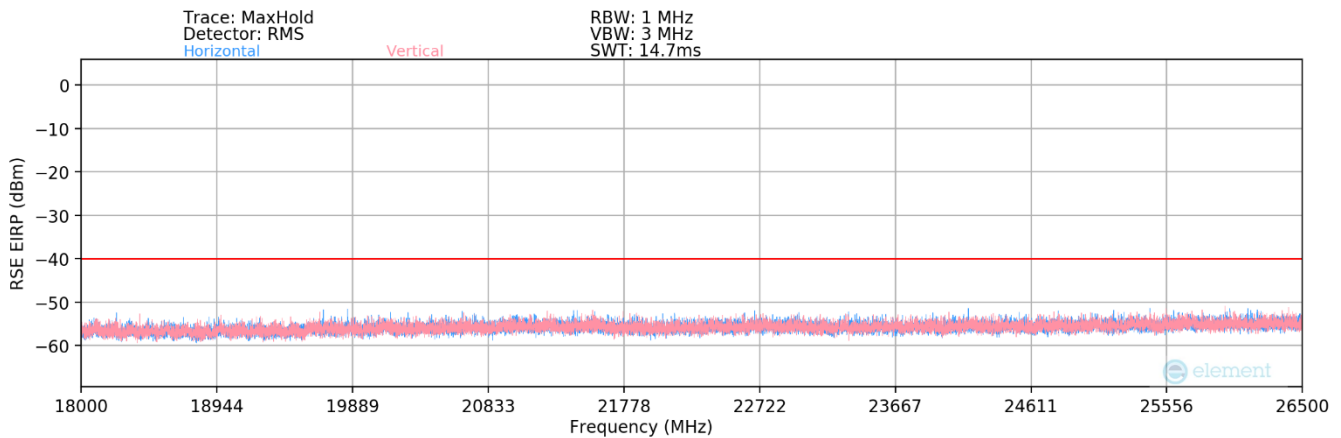


Plot 7.152. Radiated Spurious Plot 26.5-40GHz – Mid Channel - CA LTE BAND 48

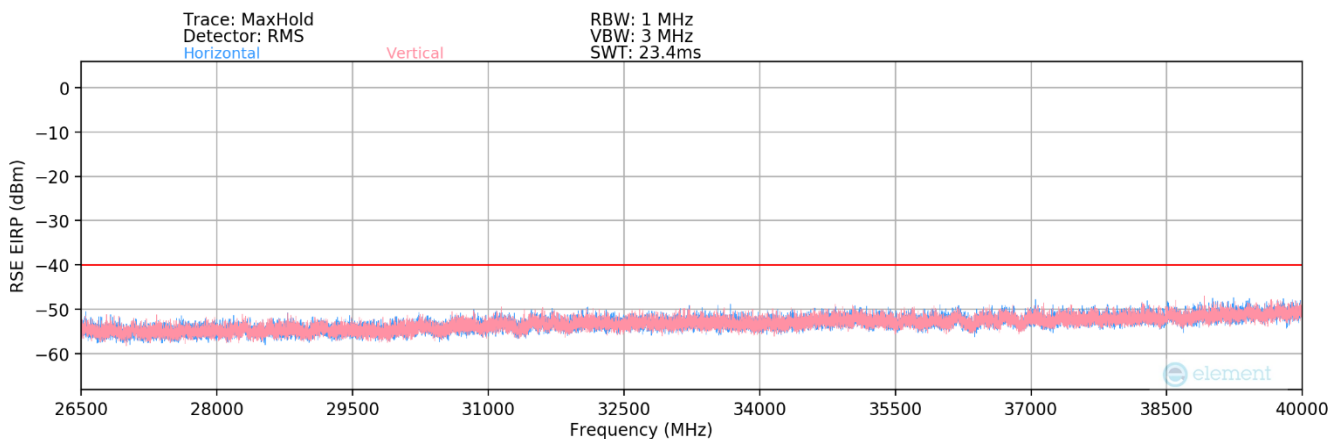
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7.153. Radiated Spurious Plot 1-18GHz – High Channel - CA LTE BAND 48



Plot 7.154. Radiated Spurious Plot 18-26.5GHz – High Channel - CA LTE BAND 48



Plot 7.155. Radiated Spurious Plot 26.5-40GHz – High Channel - CA LTE BAND 48

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304200057-01.2A289	Test Dates: 5/2 – 7/31/2023	EUT Type: CBRS Remote Radio Head	Page 116 of 121

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	3555.0
PCC RB / Offset:	50 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	3564.9
SCC RB / Offset:	50 / 0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7119.9	H	168	225	-73.99	9.26	42.27	-52.99	-40.00	-12.99
7488.5	H	223	156	-70.90	9.76	45.86	-49.40	-40.00	-9.40
10311.0	H	151	198	-67.27	11.57	51.30	-43.96	-40.00	-3.96
10679.9	H	258	156	-73.85	12.33	45.48	-49.78	-40.00	-9.78
14239.8	H	-	-	-77.69	16.02	45.33	-49.93	-40.00	-9.93
17799.8	H	-	-	-78.21	17.29	46.08	-49.18	-40.00	-9.18
21359.7	H	-	-	-59.67	4.00	51.33	-53.47	-40.00	-13.47
24919.7	H	-	-	-59.86	4.19	51.33	-53.47	-40.00	-13.47
28479.6	H	-	-	-60.04	5.13	52.10	-52.70	-40.00	-12.70
32039.6	H	-	-	-60.44	7.58	54.14	-50.66	-40.00	-10.66

Table 7-21. Radiated Spurious Data – Low Channel - CA LTE BAND 48

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	3625.0
PCC RB / Offset:	50 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	3634.9
SCC RB / Offset:	50 / 0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7259.9	H	219	166	-69.86	9.01	46.15	-49.11	-40.00	-9.11
7628.5	H	165	227	-70.31	9.14	45.83	-49.43	-40.00	-9.43
10521.5	H	179	196	-67.85	12.55	51.70	-43.56	-40.00	-3.56
10889.9	H	166	199	-71.92	12.16	47.24	-48.02	-40.00	-8.02
14519.8	H	-	-	-77.72	15.96	45.24	-50.01	-40.00	-10.01
18149.8	H	-	-	-58.04	1.51	50.47	-54.33	-40.00	-14.33
21779.7	H	-	-	-59.40	3.93	51.53	-53.27	-40.00	-13.27
25409.7	H	-	-	-59.15	4.52	52.38	-52.42	-40.00	-12.42
29039.6	H	-	-	-60.33	5.36	52.03	-52.77	-40.00	-12.77
32669.6	H	-	-	-60.85	7.07	53.22	-51.58	-40.00	-11.58

Table 7-22. Radiated Spurious Data – Mid Channel - CA LTE BAND 48

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PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	3695.0
PCC RB / Offset:	50 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	3685.1
SCC RB / Offset:	50 / 0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7380.1	H	239	228	-70.18	9.82	46.64	-48.62	-40.00	-8.62
7748.5	H	227	159	-69.54	8.69	46.15	-49.11	-40.00	-9.11
10701.5	H	152	168	-73.92	11.90	44.98	-50.28	-40.00	-10.28
11070.2	H	175	172	-72.05	12.06	47.01	-48.25	-40.00	-8.25
14760.2	H	157	169	-77.89	15.63	44.74	-50.52	-40.00	-10.52
18450.3	H	-	-	-57.86	1.82	50.96	-53.84	-40.00	-13.84
22140.3	H	-	-	-60.58	3.80	50.23	-54.57	-40.00	-14.57
25830.4	H	-	-	-59.48	4.83	52.34	-52.46	-40.00	-12.46
29520.4	H	-	-	-59.76	5.77	53.02	-51.78	-40.00	-11.78
33210.5	H	-	-	-60.15	7.57	54.42	-50.38	-40.00	-10.38

Table 7-23. Radiated Spurious Data – High Channel - CA LTE BAND 48

PCC Bandwidth (MHz):	10
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1115.5	H	141	231	-58.45	-8.53	40.02	-55.24	-40.00	-15.24
1229.0	H	140	254	-60.48	-8.24	38.28	-56.98	-40.00	-16.98
2230.5	H	288	241	-60.83	-3.65	42.52	-52.74	-40.00	-12.74
7372.5	H	237	189	-66.91	9.75	49.84	-45.42	-40.00	-5.42
8601.5	H	152	213	-70.75	11.69	47.94	-47.32	-40.00	-7.32
13770.0	H	252	179	-72.47	15.79	50.32	-44.94	-40.00	-4.94

Table 7-24. Radiated Spurious Data – CA LTE BAND 48

Notes:

The unwanted spurious emissions were found at same frequency while EUT was transmitting different channels, low/mid/high. Worst spurious emissions were reported in table 7-24.

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7.10 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 96, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

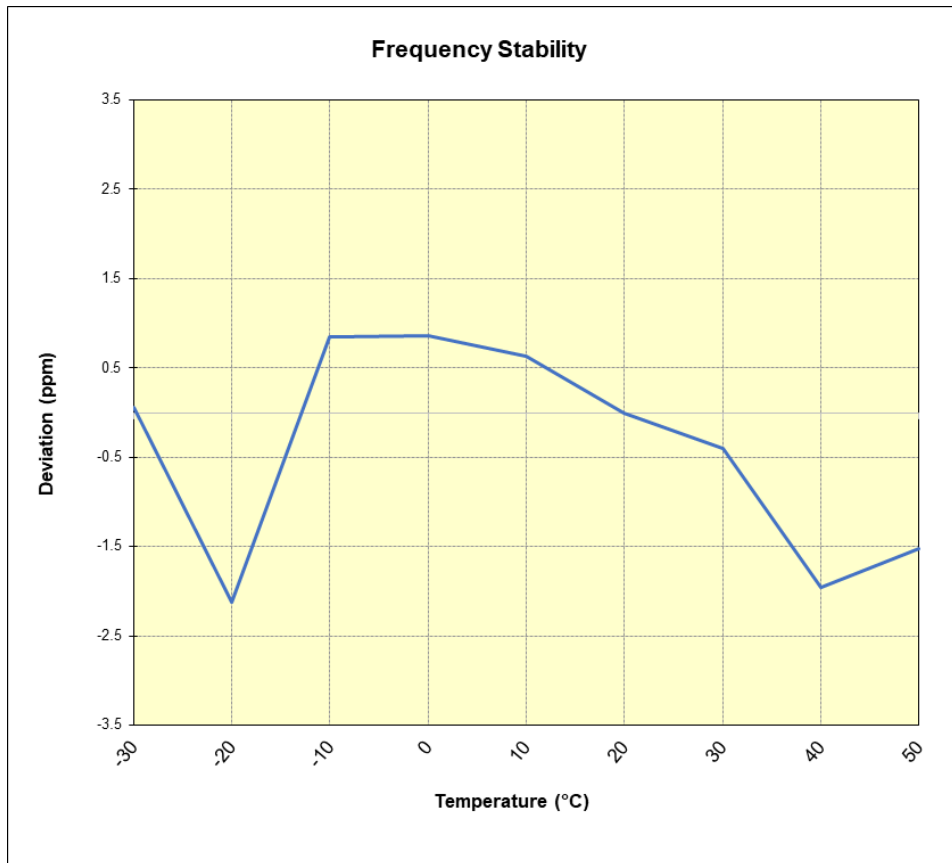
FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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Operating Frequency (Hz):	3,625,000,000
Ref. Voltage (VDC):	48.00

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	48.00	- 30	3,625,014,418	220	0.0000061
		- 20	3,625,006,506	-7,692	-0.0002122
		- 10	3,625,017,266	3,068	0.0000846
		0	3,625,017,322	3,124	0.0000862
		+ 10	3,625,016,497	2,299	0.0000634
		+ 20 (Ref)	3,625,014,198	0	0.0000000
		+ 30	3,625,012,723	-1,474	-0.0000407
		+ 40	3,625,007,107	-7,091	-0.0001956
		+ 50	3,625,008,693	-5,505	-0.0001519
85 %	40.80	+ 20	3,625,011,785	-2,412	-0.0000665
115 %	55.20	+ 20	3,625,010,333	-3,865	-0.0001066

Table 7-25. Frequency Stability Data



Plot 7.156. Frequency Stability Chart

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Atos CBRS Remote Radio Head FCC ID: 2A289-LFW-EXTENSE48** complies with all of the End User Device requirements of Part 96 of the FCC Rules for Band operation only.

FCC ID: 2A289-LFW-EXTENSE48	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
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