



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	EIRP [dBm]	Verdict
BAND40	LTE/TM1	5	LCH	RB1#0	22.3	23.19	PASS
				RB1#13	22.32	23.25	PASS
				RB1#24	22.23	23.23	PASS
				RB12#0	21.28	22.51	PASS
				RB12#6	21.14	22.09	PASS
				RB12#13	21.22	22.42	PASS
				RB25#0	21.16	22.17	PASS
			MCH	RB1#0	22.15	23.39	PASS
				RB1#13	22.11	23.13	PASS
				RB1#24	22.1	23.20	PASS
				RB12#0	21.29	22.37	PASS
				RB12#6	21.16	22.35	PASS
				RB12#13	21.12	22.11	PASS
				RB25#0	21.12	22.14	PASS
		10	HCH	RB1#0	22.19	23.28	PASS
				RB1#13	22.17	23.24	PASS
				RB1#24	22.24	23.39	PASS
				RB12#0	21.12	22.39	PASS
				RB12#6	21.03	22.08	PASS
				RB12#13	21.23	22.45	PASS
				RB25#0	21.08	22.10	PASS
		5	LCH/MCH/HCH	RB1#0	22.24	23.38	PASS
				RB1#25	22.26	23.17	PASS
				RB1#49	22.16	23.03	PASS
				RB25#0	21.24	22.31	PASS
				RB25#13	21.09	22.08	PASS
				RB25#25	21.13	22.36	PASS
				RB50#0	21.12	22.05	PASS
	LTE/TM2	5	LCH	RB1#0	21.33	22.57	PASS
				RB1#13	21.25	22.14	PASS
				RB1#24	21.18	22.42	PASS
				RB12#0	20.26	21.41	PASS
				RB12#6	20.03	21.19	PASS
				RB12#13	20.14	21.31	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	EIRP [dBm]	Verdict
				RB25#0	20.2	21.35	PASS
				RB1#0	21.25	22.32	PASS
			MCH	RB1#13	21.1	22.33	PASS
				RB1#24	21.28	22.28	PASS
				RB12#0	20.25	21.29	PASS
				RB12#6	20.13	21.06	PASS
				RB12#13	20.11	21.07	PASS
				RB25#0	20.08	21.28	PASS
			HCH	RB1#0	21.32	22.45	PASS
				RB1#13	21.41	22.42	PASS
				RB1#24	21.42	22.59	PASS
				RB12#0	20.22	21.32	PASS
				RB12#6	20.11	21.18	PASS
				RB12#13	20.2	21.22	PASS
				RB25#0	20.07	21.08	PASS
		10	LCH/ MCH/ HCH	RB1#0	21.45	22.53	PASS
				RB1#25	21.28	22.40	PASS
				RB1#49	21.38	22.55	PASS
				RB25#0	20.14	21.29	PASS
				RB25#13	20.15	21.26	PASS
				RB25#25	20.14	21.01	PASS
				RB50#0	20.08	21.22	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm/5MHz]	EIRP[dBm/5MHz]	Limit [dBm/5MHz]	Verdict
BAND 40	LTE/T M1	5	LCH	RB25#0	21.16	22.17	23.98	PASS
			MCH	RB25#0	21.12	22.14	23.98	PASS
			HCH	RB25#0	21.08	22.10	23.98	PASS
	LTE/T M2	10	LCH/MCH/HCH	RB50#0	21.12	22.05	23.98	PASS
		5	LCH	RB25#0	20.2	21.35	23.98	PASS
			MCH	RB25#0	20.08	21.28	23.98	PASS
			HCH	RB25	20.07	21.08	23.98	PASS



				#0				
		10	LCH/MCH/ HCH	RB50 #0	20.08	21.18	23.98	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP = Signal Generator Level

Note2:

$$\text{SET Span} = 1.5 * \text{OBW}$$

SET RBW = 1% of the OBW, not to exceed 1MHz

$$\text{SET VBW} \geq 3 * \text{RBW}$$

SET Sweep time = auto - couple.

Detector: RMS



2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band(For LTE)	Test Mode	Test Bandwidth (MHz)	Test Channel	Test RB	Measured[dB]	Limit [dB]	Verdict
B40	LTE/TM1	5	LCH	RB1#0	5.23	13	PASS
				RB1#13	5.13	13	PASS
				RB1#24	5.19	13	PASS
				RB12#0	5.94	13	PASS
				RB12#6	6.01	13	PASS
				RB12#13	5.93	13	PASS
				RB25#0	6.36	13	PASS
			MCH	RB1#0	5.11	13	PASS
				RB1#13	5.16	13	PASS
				RB1#24	5.21	13	PASS
				RB12#0	6.63	13	PASS
				RB12#6	6.63	13	PASS
				RB12#13	6.55	13	PASS
				RB25#0	6.48	13	PASS
		10	HCH	RB1#0	5.73	13	PASS
				RB1#13	5.69	13	PASS
				RB1#24	5.67	13	PASS
				RB12#0	6.58	13	PASS
				RB12#6	6.59	13	PASS
				RB12#13	6.61	13	PASS
				RB25#0	6.47	13	PASS
			LCH/ MCH/ HCH	RB1#0	4.90	13	PASS
				RB1#25	4.85	13	PASS
				RB1#49	4.89	13	PASS
				RB25#0	6.72	13	PASS
				RB25#13	6.75	13	PASS
				RB25#25	6.80	13	PASS
				RB50#0	6.53	13	PASS
	LTE/TM2	5	LCH	RB1#0	6.01	13	PASS
				RB1#13	6.07	13	PASS
				RB1#24	6.07	13	PASS
				RB12#0	6.75	13	PASS
				RB12#6	6.75	13	PASS
				RB12#13	6.86	13	PASS



Test Band(For LTE)	Test Mode	Test Bandwidth (MHz)	Test Channel	Test RB	Measured[dB]	Limit [dB]	Verdict
				RB25#0	7.00	13	PASS
				RB1#0	6.16	13	PASS
			MCH	RB1#13	6.18	13	PASS
				RB1#24	6.22	13	PASS
				RB12#0	6.78	13	PASS
				RB12#6	6.93	13	PASS
				RB12#13	7.03	13	PASS
				RB25#0	7.03	13	PASS
			HCH	RB1#0	5.77	13	PASS
				RB1#13	5.76	13	PASS
				RB1#24	5.80	13	PASS
				RB12#0	7.37	13	PASS
				RB12#6	7.45	13	PASS
				RB12#13	7.44	13	PASS
				RB25#0	7.07	13	PASS
		10	LCH/ MCH/ HCH	RB1#0	5.00	13	PASS
				RB1#25	5.09	13	PASS
				RB1#49	5.22	13	PASS
				RB25#0	7.78	13	PASS
				RB25#13	7.61	13	PASS
				RB25#25	7.60	13	PASS
				RB50#0	7.97	13	PASS

3Appendix_C: Modulation Characteristics

Part I - Test Plots

3.1 For LTE

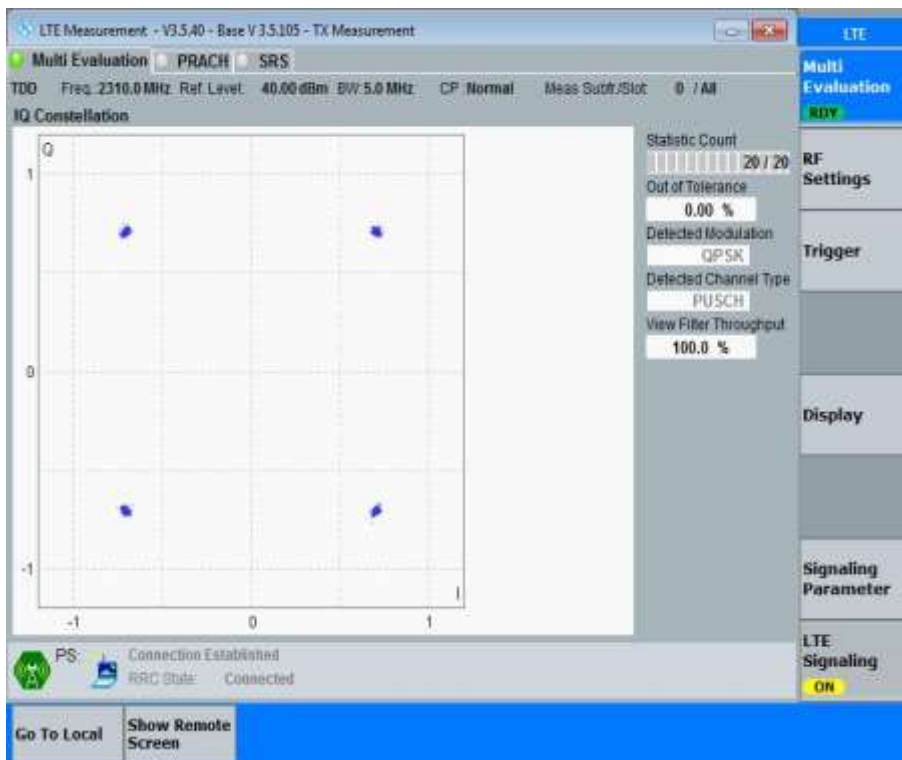
3.1.1 Test Band = B40

3.1.1.1 Test Mode = LTE/TM1

3.1.1.1.1 Test Bandwidth = 5

3.1.1.1.1.1 Test Channel = MCH

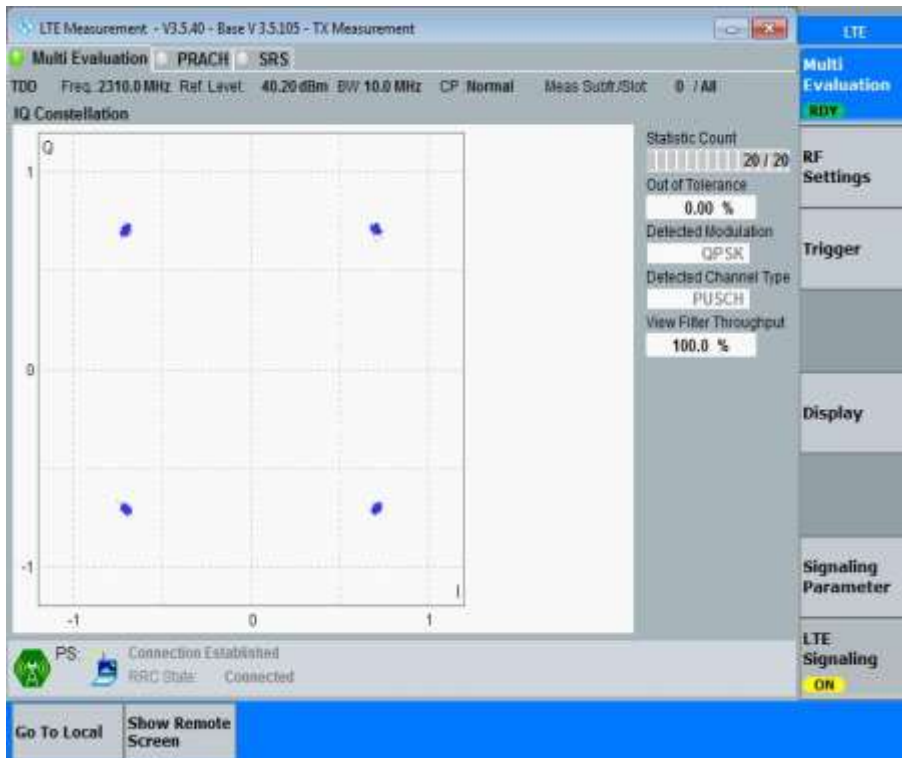
3.1.1.1.1.1.1 Test RB = RB25#0



3.1.1.1.2 Test Bandwidth = 10

3.1.1.1.2.1 Test Channel = MCH

3.1.1.1.2.1.1 Test RB = RB50#0

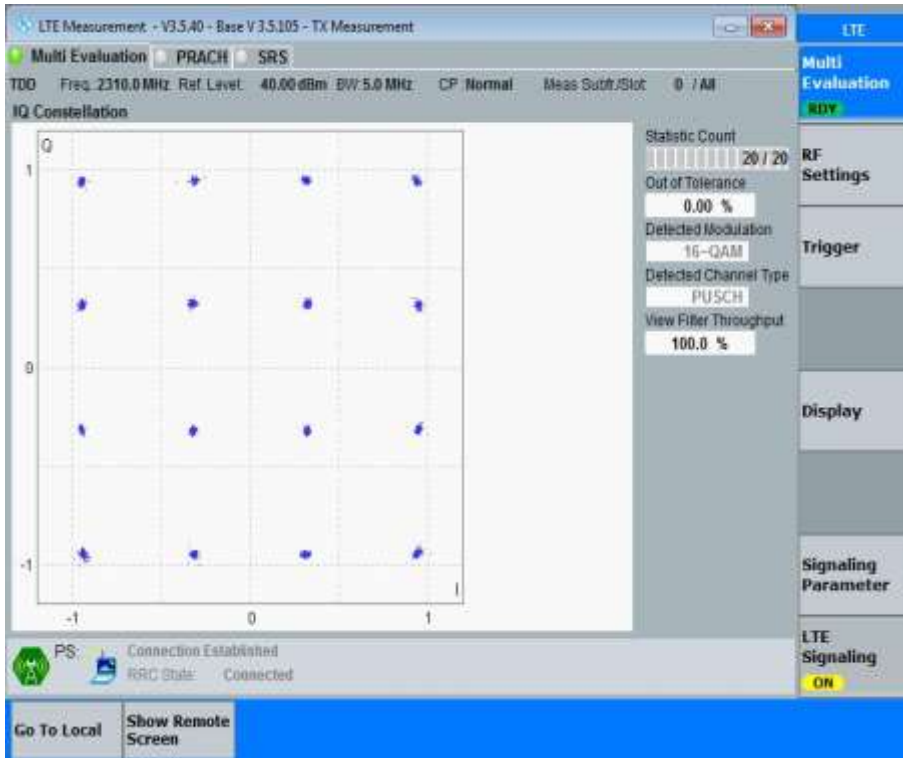


3.1.1.2 Test Mode = LTE/TM2

3.1.1.2.1 Test Bandwidth = 5

3.1.1.2.1.1 Test Channel = MCH

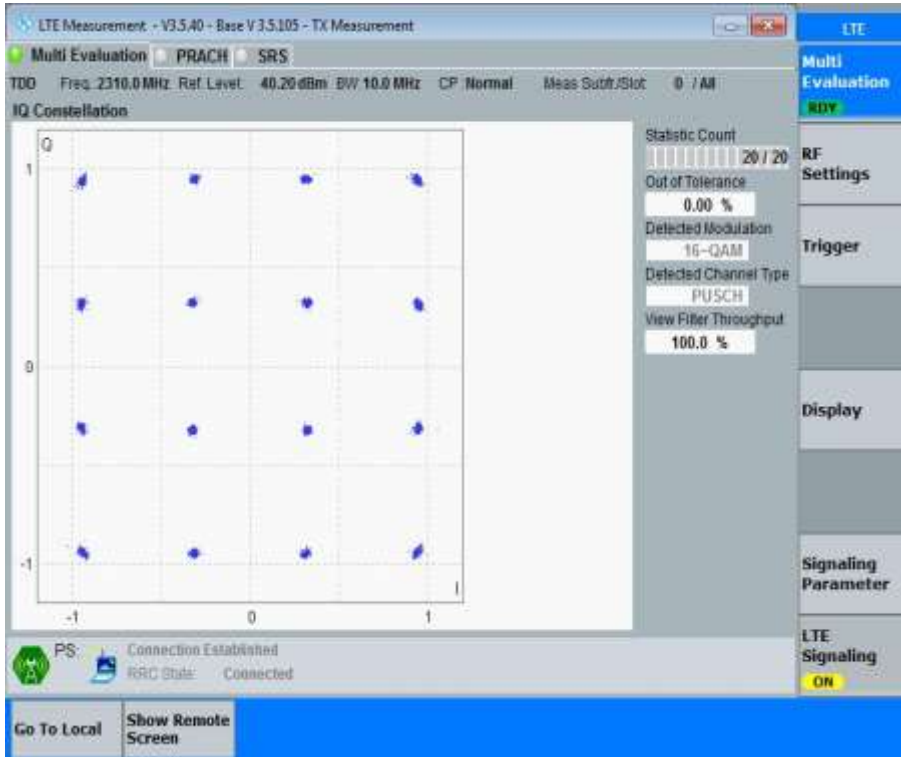
3.1.1.2.1.1.1 Test RB = RB25#0



3.1.1.2.4 Test Bandwidth = 10

3.1.1.2.4.1 Test Channel = MCH

3.1.1.2.4.1.1 Test RB = RB50#0





4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Bandwidth	Test Channel	Test RB	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
B40	LTE/TM1	5	LCH	RB25#0	4.51	4.95	Pass
			MCH	RB25#0	4.53	5.04	Pass
			HCH	RB25#0	4.51	5.12	Pass
		10	LCH/ MCH/ HCH	RB50#0	9.00	9.87	Pass
	LTE/TM2	5	LCH	RB25#0	4.51	5.00	Pass
			MCH	RB25#0	4.52	4.99	Pass
			HCH	RB25#0	4.53	4.93	Pass
		10	LCH/ MCH/ HCH	RB50#0	9.03	9.94	Pass



Part II - Test Plots

4.1 For LTE

4.1.1 Test Band = B40

4.1.1.1 Test Mode = LTE/TM1

4.1.1.1.1 Test Bandwidth = 5

4.1.1.1.1.1 Test Channel = LCH

4.1.1.1.1.1.1 Test RB = RB25#0



4.1.1.1.1.2 Test Channel = MCH

4.1.1.1.1.2.1 Test RB = RB25#0



4.1.1.1.1.3 Test Channel = HCH

4.1.1.1.1.3.1 Test RB = RB25#0



4.1.1.1.2 Test Bandwidth = 10

4.1.1.1.2.1 Test Channel = LCH/MCH/HCH

4.1.1.1.2.1.1 Test RB = RB50#0



4.1.1.2 Test Mode = LTE/TM2

4.1.1.2.1 Test Bandwidth = 5

4.1.1.2.1.1 Test Channel = LCH

4.1.1.2.1.1.1 Test RB = RB25#0



4.1.1.2.1.2 Test Channel = MCH

4.1.1.2.1.2.1 Test RB = RB25#0



4.1.1.2.1.3 Test Channel = HCH

4.1.1.2.1.3.1 Test RB = RB25#0



4.1.1.2.2 Test Bandwidth = 10

4.1.1.2.2.1 Test Channel = LCH/MCH/HCH

4.1.1.2.2.1.1 Test RB = RB50#0



5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For LTE

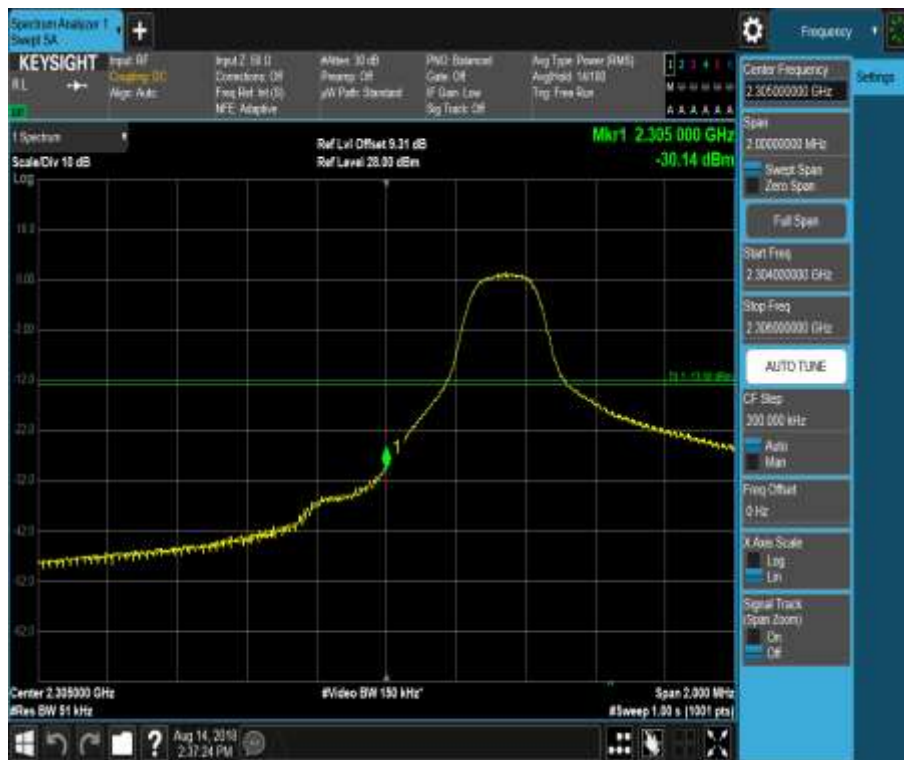
5.1.1 Test Band = B40

5.1.1.1 Test Mode = LTE/TM1

5.1.1.1.1 Test Bandwidth = 5

5.1.1.1.1.1 Test Channel = LCH

5.1.1.1.1.1.1 Test RB = RB1#0





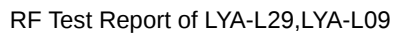
5.1.1.1.1.2 Test RB = RB1#24





5.1.1.1.1.3 Test RB = RB12#6





The screenshot displays the Keysight Spectrum Analyzer interface. The main plot shows a signal trace with a prominent peak at 2.305 GHz, labeled 'Mkr1 2.305 000 GHz' and '-38.27 dBm'. The plot is set to a scale of 10 dB and a video bandwidth of 150 kHz. The center frequency is 2.305000 GHz, and the span is 2.000 MHz. The plot is in Log mode. The interface includes various control panels for input, resolution, and settings, as well as a 'Settings' menu on the right.

5.1.1.1.1.2 Test Channel = HCH

5.1.1.1.1.2.1 Test RB = RB1#0





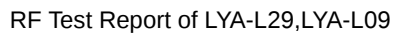
5.1.1.1.1.2.2 Test RB = RB1#24





5.1.1.1.1.2.3 Test RB = RB12#6





The screenshot displays the Keysight Spectrum Analyzer 1 Sweep SA interface. The main plot area shows a spectrum trace with a sharp drop in power around 2.315 GHz. The Y-axis is labeled 'Scale/Div 10 dB' and ranges from -40.0 to 10.0 dBm. The X-axis is labeled 'Video BW 150 kHz' and ranges from 2.313005 GHz to 2.317005 GHz. The interface includes various control panels on the right for settings like Span, Start Freq, Stop Freq, and Auto Tune. The bottom status bar shows the date and time: Aug 14, 2010, 2:42:22 PM.

5.1.1.1.2 Test Bandwidth = 10

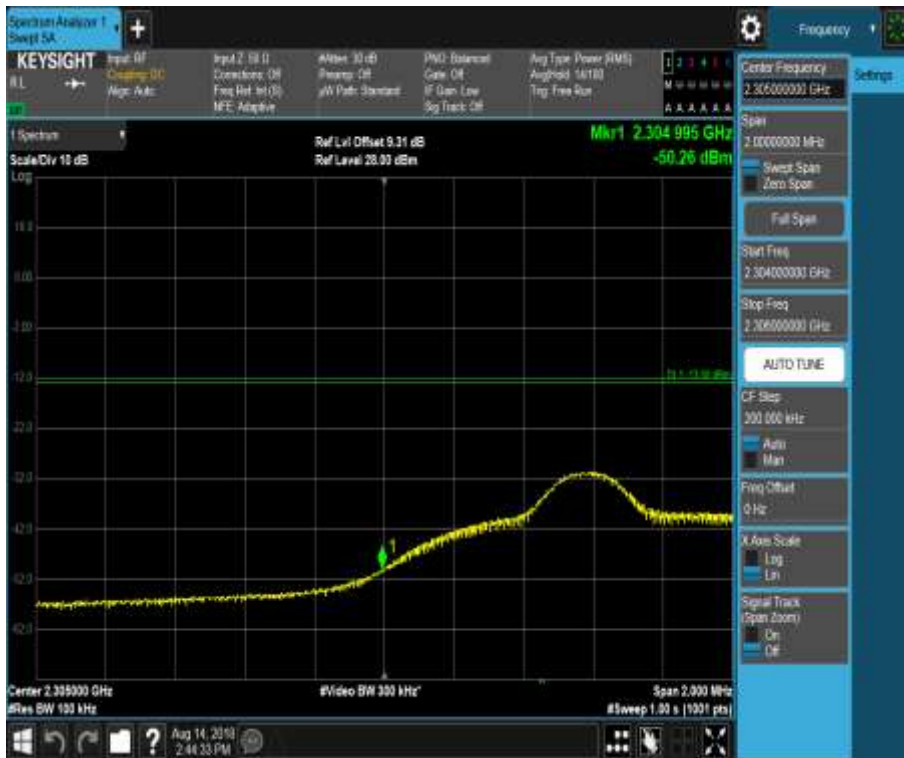
5.1.1.1.2.1 Test Channel = LCH

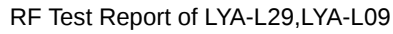
5.1.1.1.2.1.1 Test RB = RB1#0



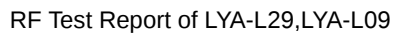


5.1.1.1.2.1.2 Test RB = RB1#49





The image shows the Keysight Spectrum Analyzer 1 software interface. The main display is a spectrum plot with a single peak at 2.304980 GHz, labeled 'Mkr1 2.304 980 GHz -41.91 dBm'. The plot has a scale of 10 dB and a video bandwidth of 300 kHz. The interface includes various control panels on the right for settings like Center Frequency, Span, Start/Stop Freq, and Auto Tune. The bottom status bar shows the date and time as Aug 14, 2010, 2:45:14 PM.



The screenshot displays the Keysight Spectrum Analyzer software interface. The main plot area shows a spectrum trace with a yellow curve. A green cursor labeled '1' is positioned on the trace. The plot shows a signal rising from a noise floor at approximately -40 dBm. The interface includes various control panels on the right for settings like Center Frequency, Span, and Resolution Bandwidth. The bottom status bar shows the date and time as Aug 14, 2010, 2:45:57 PM.

5.1.1.1.2.2 Test Channel = HCH

5.1.1.1.2.2.1 Test RB = RB1#0





5.1.1.1.2.2.2 Test RB = RB1#49





5.1.1.1.2.3 Test RB = RB25#13





5.1.1.1.2.2.4 Test RB = RB50#0

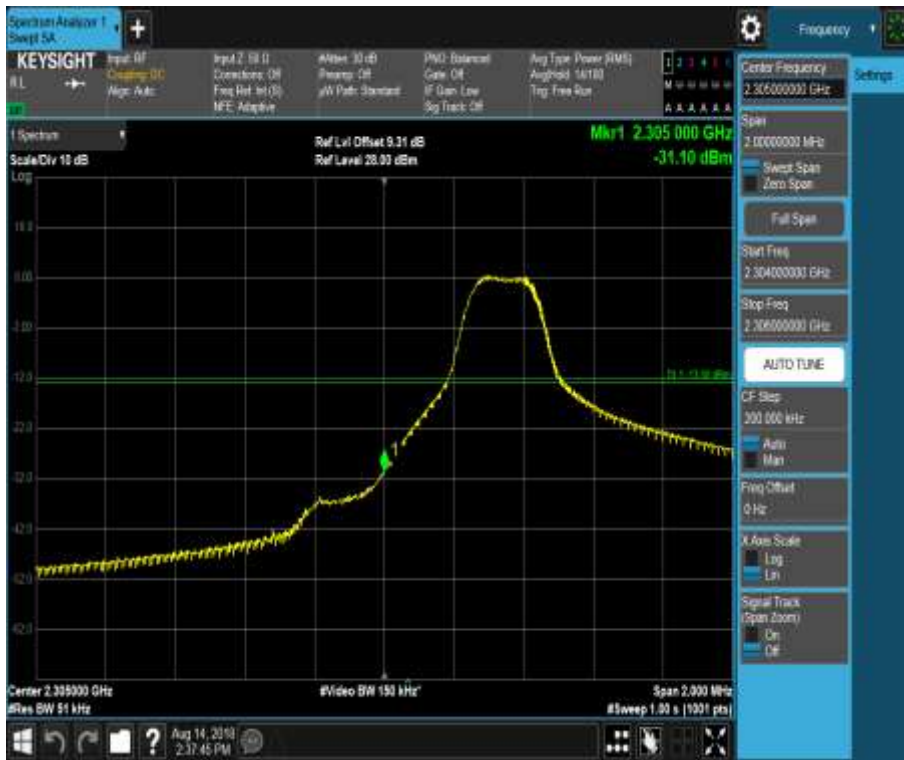


5.1.1.2 Test Mode = LTE/TM2

5.1.1.2.1 Test Bandwidth = 5

5.1.1.2.1.1 Test Channel = LCH

5.1.1.2.1.1.1 Test RB = RB1#0





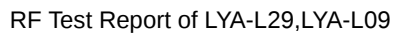
5.1.1.2.1.1.2 Test RB = RB1#24





5.1.1.2.1.1.3 Test RB = RB12#6





Spectrum Analyzer 1
Sweep SA

KEYSIGHT

Input: RF
Output: DC
High: Auto

Input 2: Off
Correction: Off
Freq Ref: Int (S)
MFE: Adaptive

Attenu: 30 dB
Preamp: Off
uW Path: Standard

PN0: Balanced
Gate: Off
IF Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Averaging: 16110
Integ: Free Run

Center Frequency: 2.305000000 GHz
Span: 2.000000000 MHz
Start Freq: 2.304000000 GHz
Stop Freq: 2.306000000 GHz
AUTO TUNE

CF Step: 300.000 kHz
Auto Man
Freq Offset: 0 Hz
X Axis Scale: Log Lin
Signal Track (Span Zoom): On Off

Ref Level Offset: 0.31 dB
Ref Level: 20.00 dBm

Mkr1 2.304995 GHz
-39.71 dBm

Scale/Div 10 dB
Log

Center 2.305000 GHz
Video BW 150 kHz
Span 2.000 MHz
#Sweep 1.00 s (1001 pts)

Aug 14, 2010
2:39:52 PM

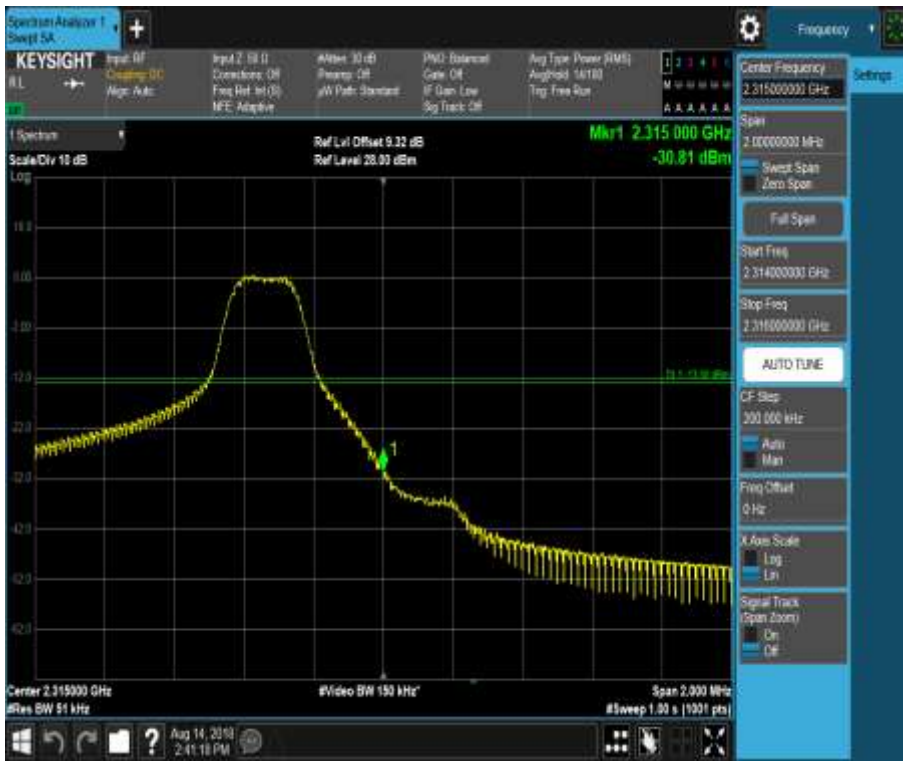
5.1.1.2.1.2 Test Channel = HCH

5.1.1.2.1.2.1 Test RB = RB1#0





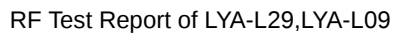
5.1.1.2.1.2.2 Test RB = RB1#24





5.1.1.2.1.2.3 Test RB = RB12#6





The screenshot displays the Keysight Spectrum Analyzer 1 Sweep SA interface. The main display area shows a signal trace on a grid. The trace is a yellow line representing the signal power across a frequency range. A green marker labeled 'Mkr1' is positioned at 2.315 GHz, with a reading of -40.53 dBm. The trace shows a relatively flat signal at higher frequencies, which then drops sharply around 2.3 GHz, leveling off at a lower power level. The interface includes various control panels and status indicators.

Top Panel:

- Keysight Spectrum Analyzer 1 Sweep SA**
- Input:** RF, Output: DC, High: Auto
- Input 2:** Off, Corrections: Off, Freq Ref: 10 (0), MFE: Adaptive
- Attenu:** 30 dB, Preamp: Off, μ W Pwr: Standard
- PMO:** Balanced, Gate: Off, IF Gain: Low, Seg Track: Off
- Avg Type:** Power (RMS), Averages: 13100, Trig: Free Run
- Buttons:** 1 2 3 4 5 6, M, A, A, A, A, A, A
- Buttons:** Settings, Frequency

Left Panel:

- 1 Spectrum**
- Scale/Div:** 10 dB
- Log**

Right Panel:

- Center Frequency:** 2.315000000 GHz
- Span:** 2.000000000 MHz
- Buttons:** Sweep Span, Zero Span, Full Span
- Start Freq:** 2.314000000 GHz
- Stop Freq:** 2.316000000 GHz
- AUTO TUNE**
- CF Step:** 300.000 kHz
- Buttons:** Auto, Man
- Freq Offset:** 0 Hz
- X-Axis Scale:** Log, Lin
- Signal Track (Span Zoom):** On, Off

Main Display:

- Ref Level Offset:** 0.32 dB
- Ref Level:** 28.00 dBm
- Marker:** Mkr1 2.315 000 GHz, -40.53 dBm
- Center:** 2.315000 GHz
- Span:** 2.000 MHz
- Video BW:** 150 kHz
- Resolution BW:** 91 kHz
- Sweep:** 1.00 s (1001 pts)

Bottom Panel:

- Windows Taskbar:** Aug 14, 2010, 2:42:42 PM



5.1.1.2.2 Test Bandwidth = 10

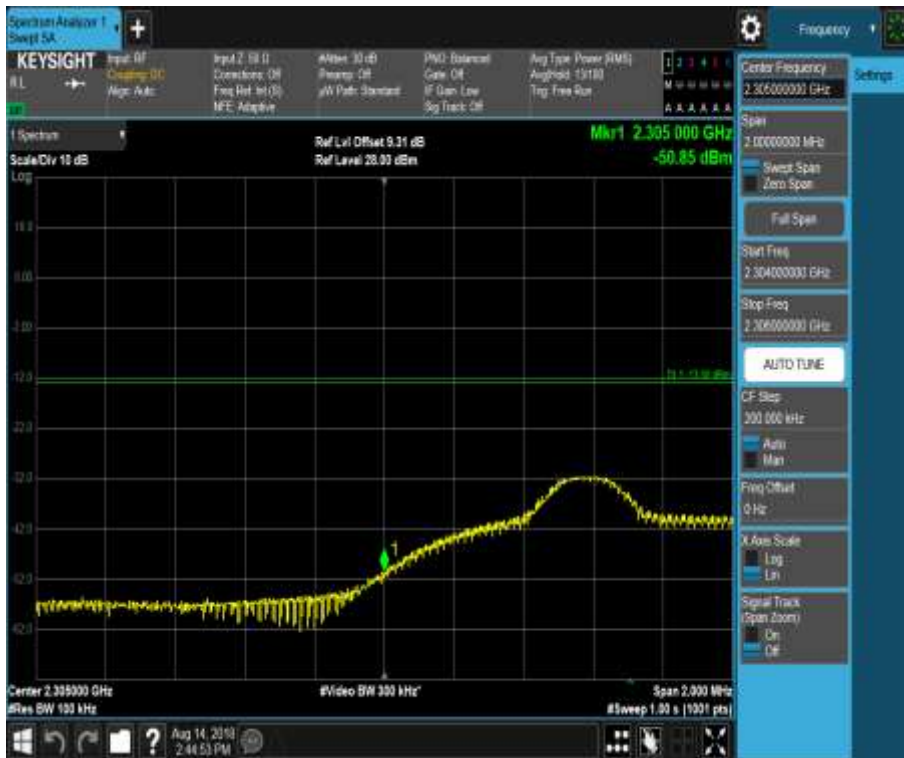
5.1.1.2.2.1 Test Channel = LCH

5.1.1.2.2.1.1 Test RB = RB1#0





5.1.1.2.2.1.2 Test RB = RB1#49





5.1.1.2.2.1.3 Test RB = RB25#13





5.1.1.2.2.1.4 Test RB = RB50#0



5.1.1.2.2.2 Test Channel = HCH

5.1.1.2.2.2.1 Test RB = RB1#0





5.1.1.2.2.2 Test RB = RB1#49





5.1.1.2.2.3 Test RB = RB25#13





5.1.1.2.2.4 Test RB = RB50#0





6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (Span / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Part I - Test Plots

6.1 For LTE

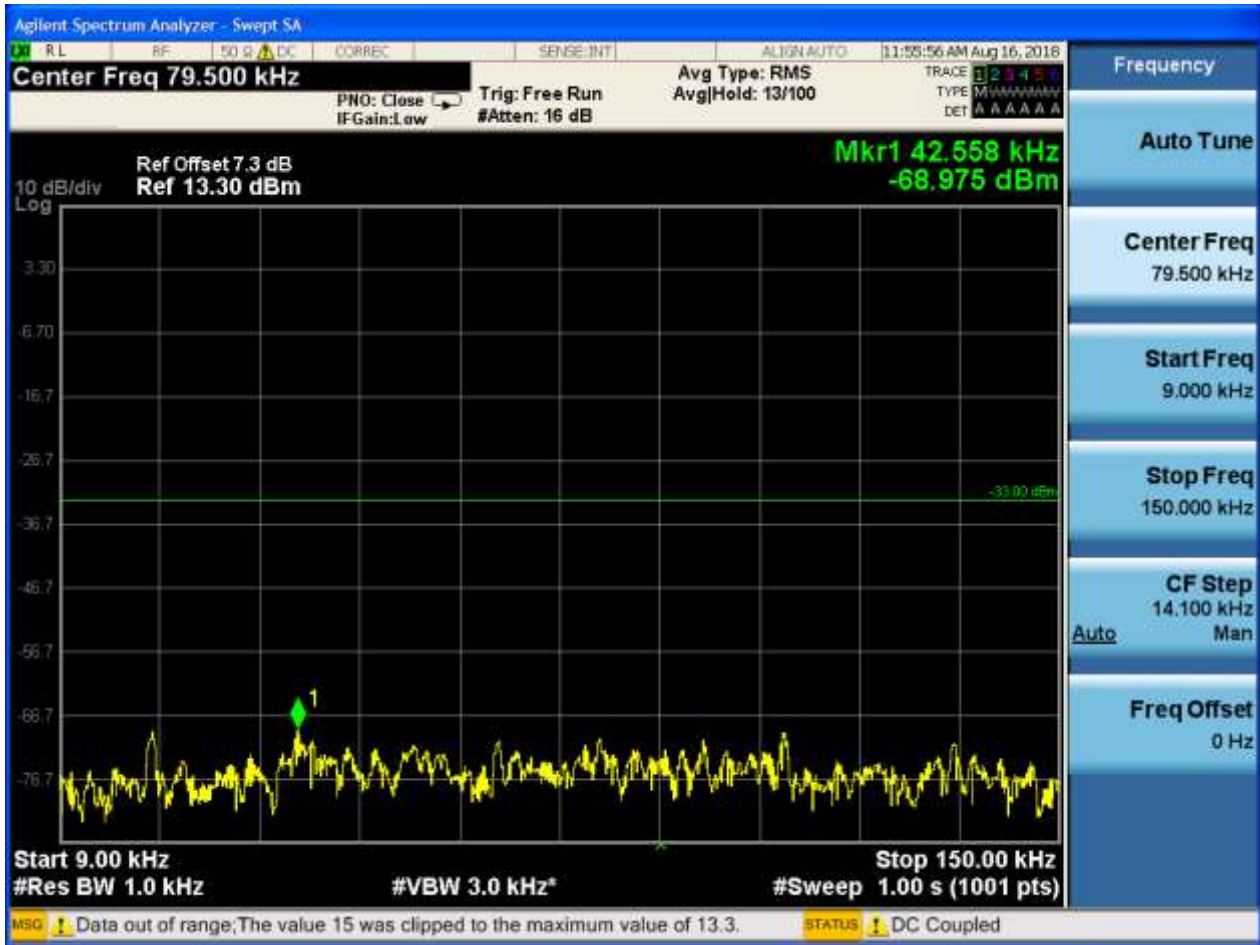
6.1.1 Test Band = B40

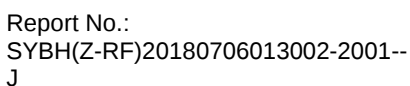
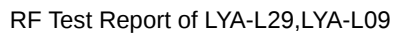
6.1.1.1 Test Mode = LTE/TM1

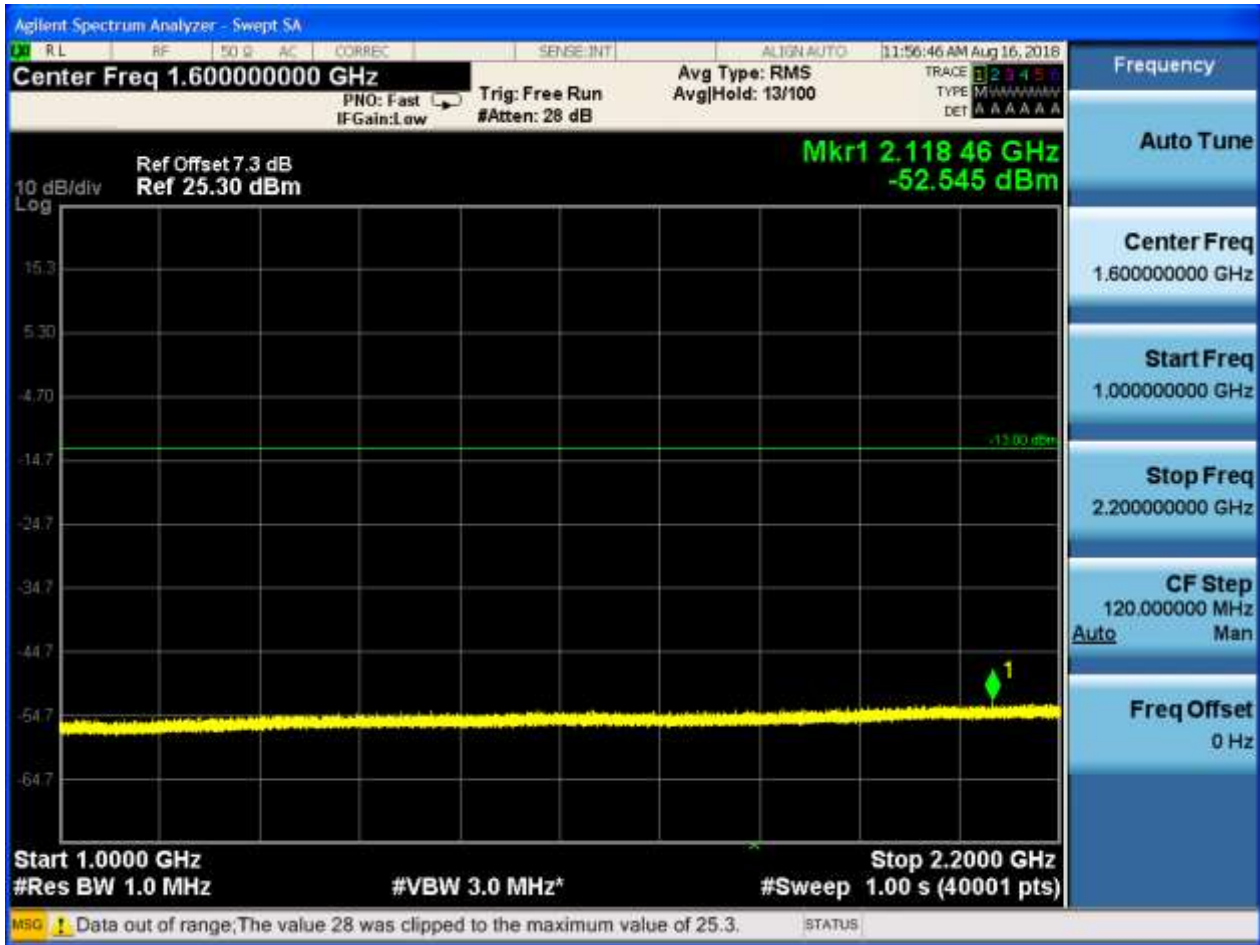
6.2.1.1.1 Test Bandwidth = 5

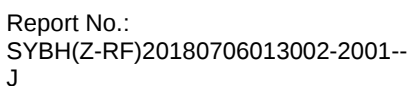
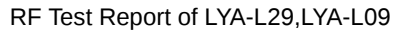
6.2.1.1.1.1 Test Channel = LCH

6.2.1.1.1.1.1 Test RB = RB1#0

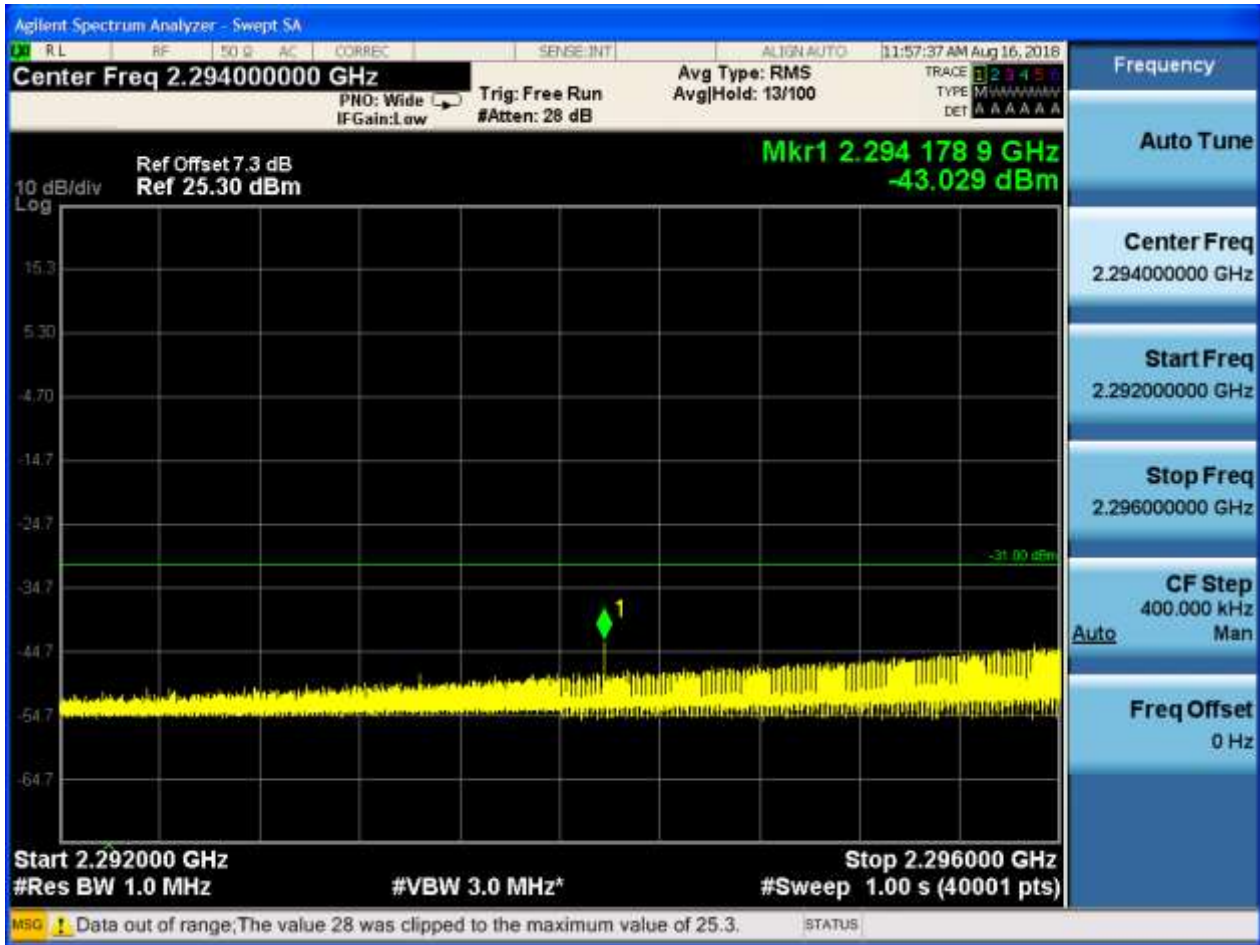










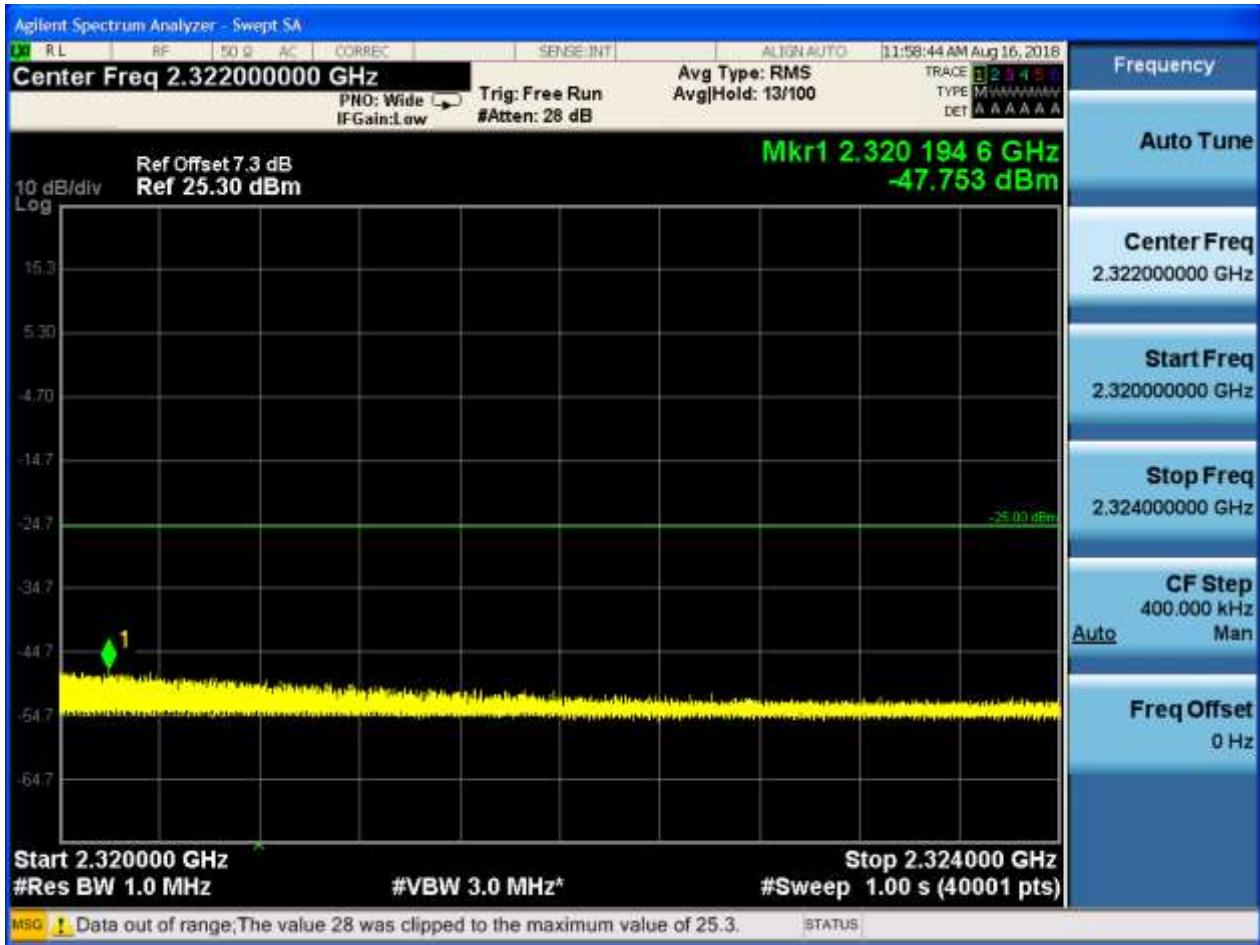


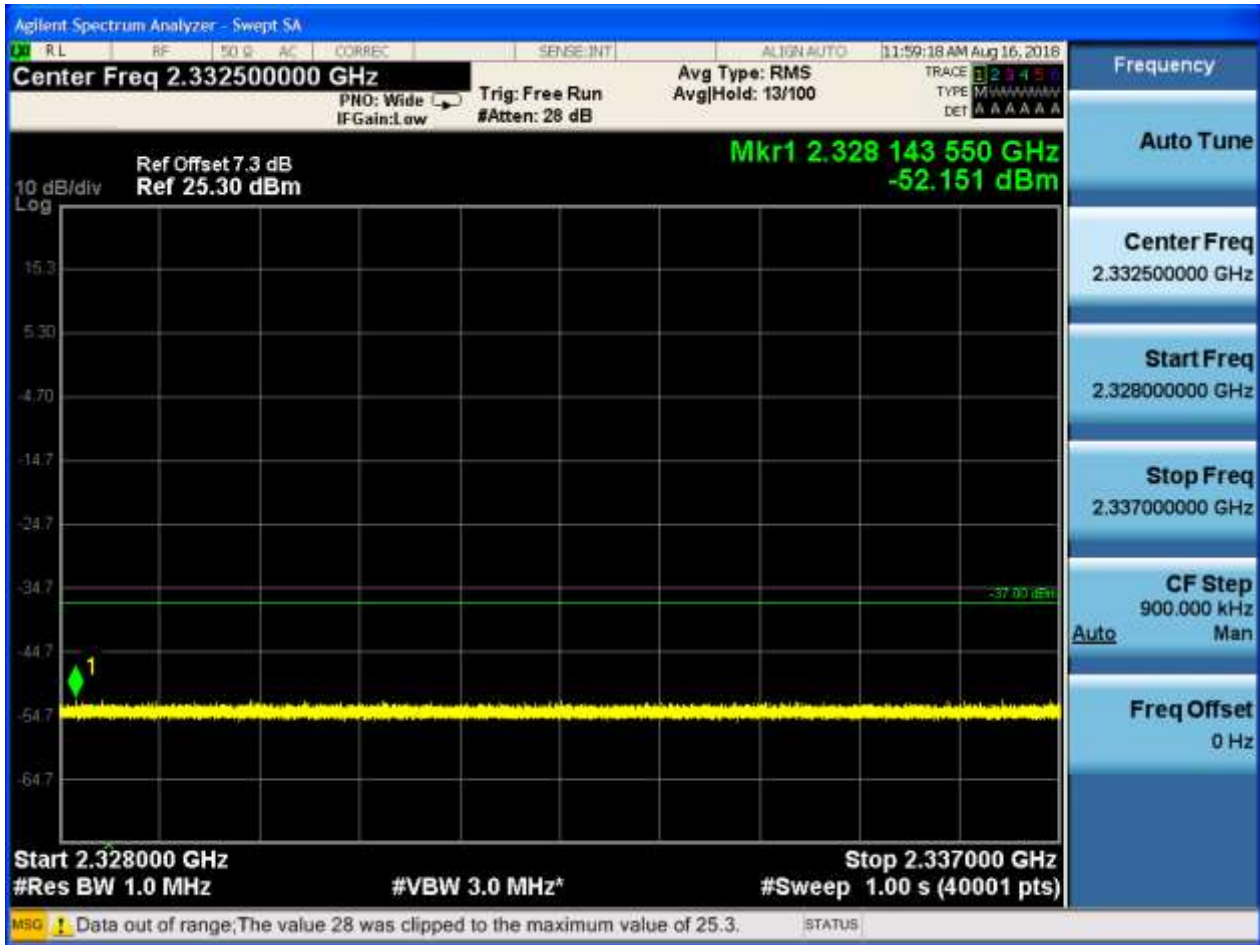




note: In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth is allowed to be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz 1%/2% of the occupied bandwidth, as applicable.



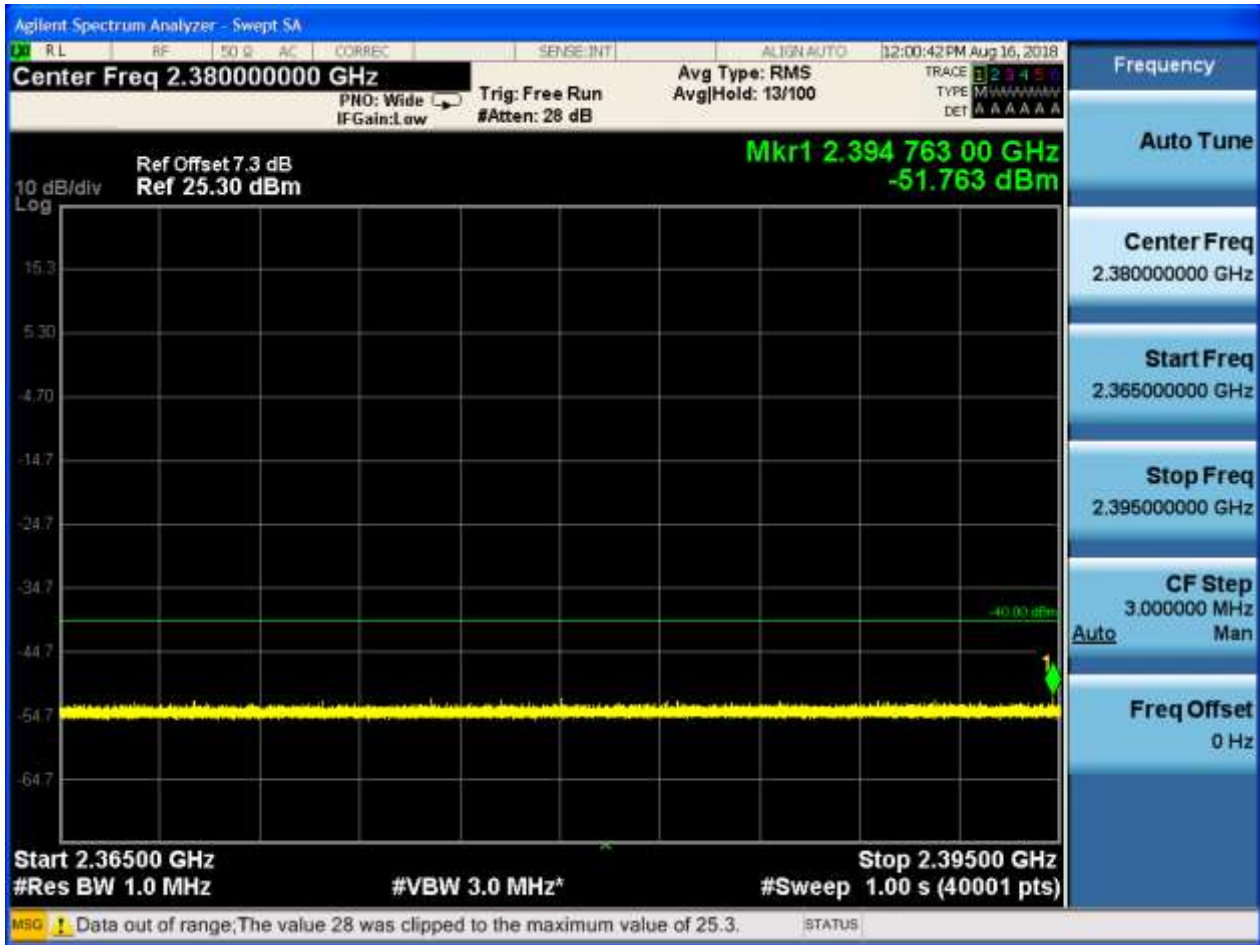














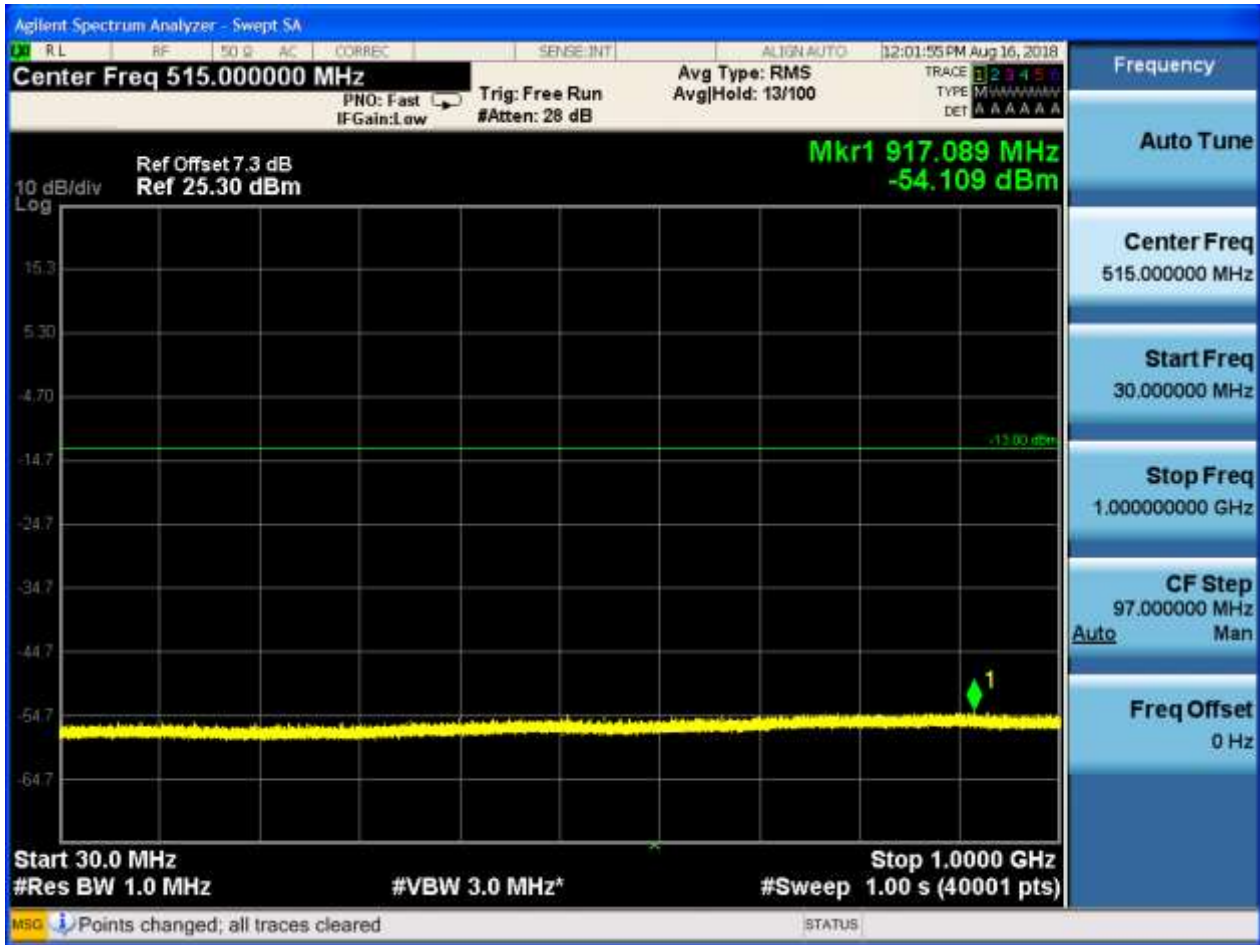


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0



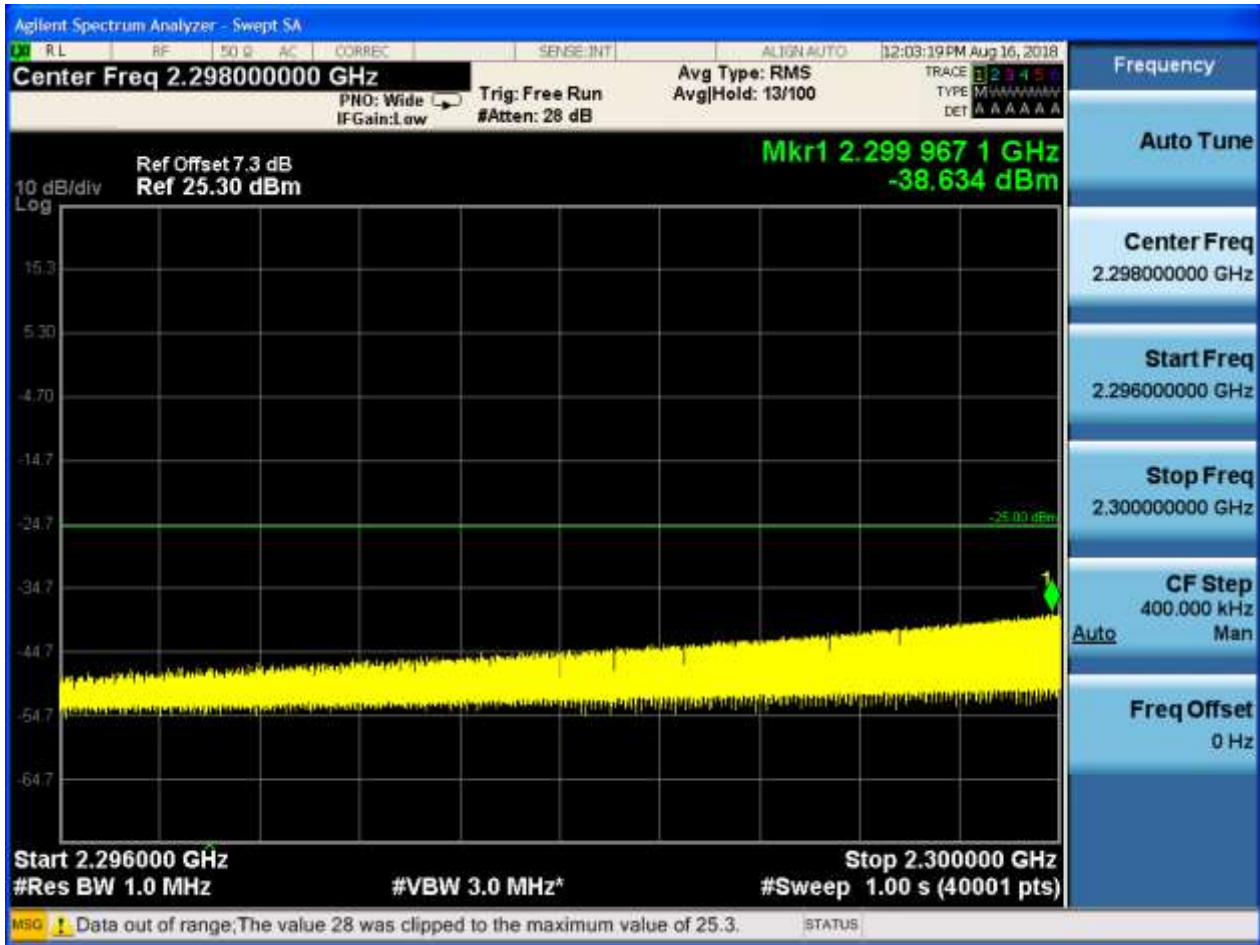


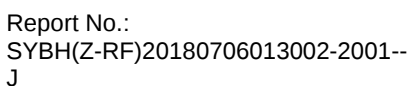
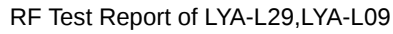


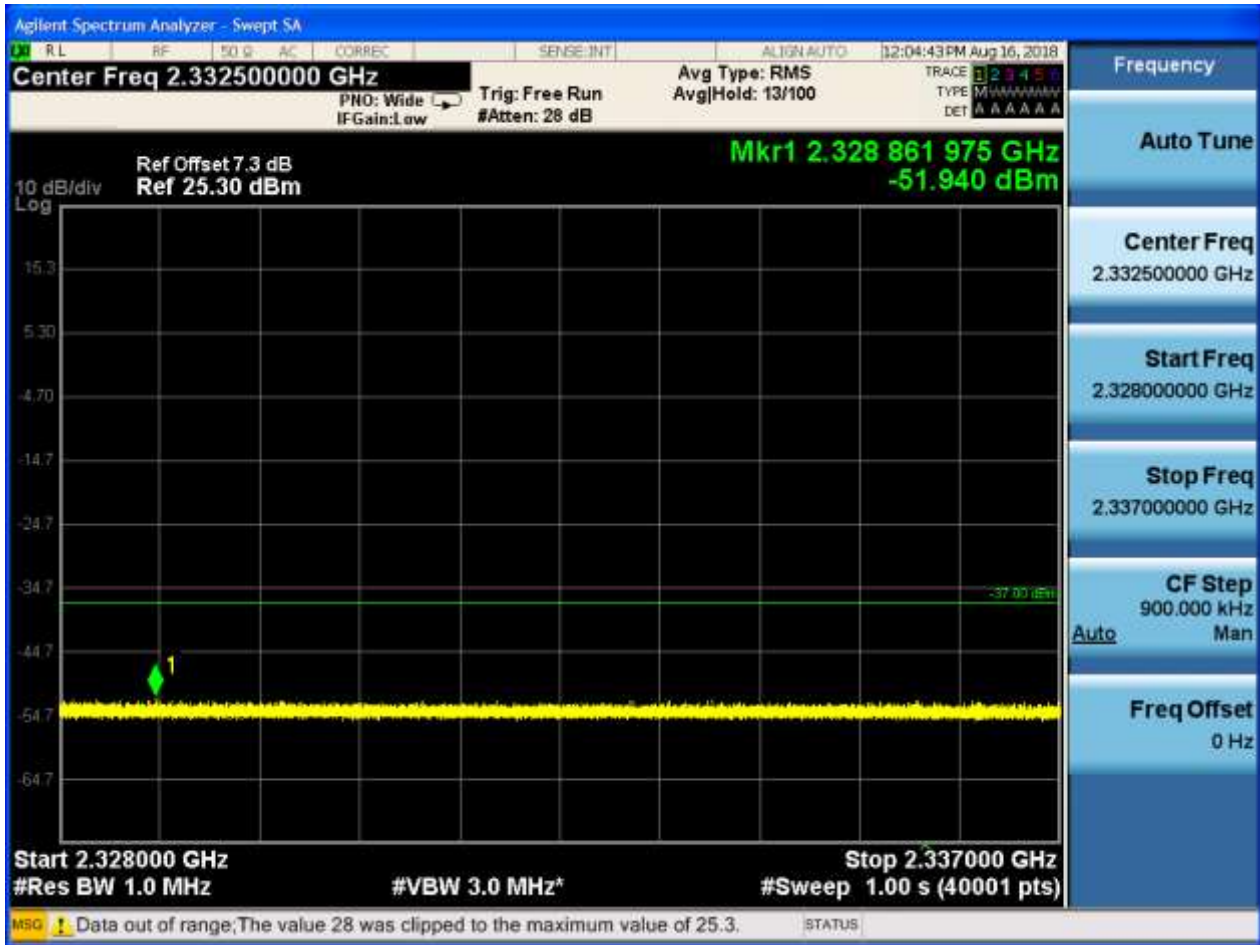








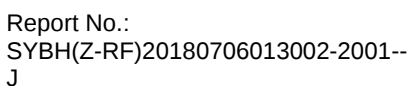
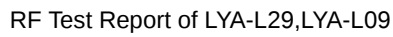


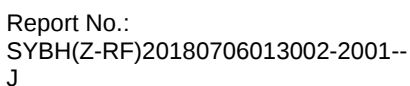
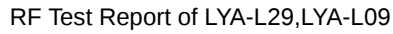








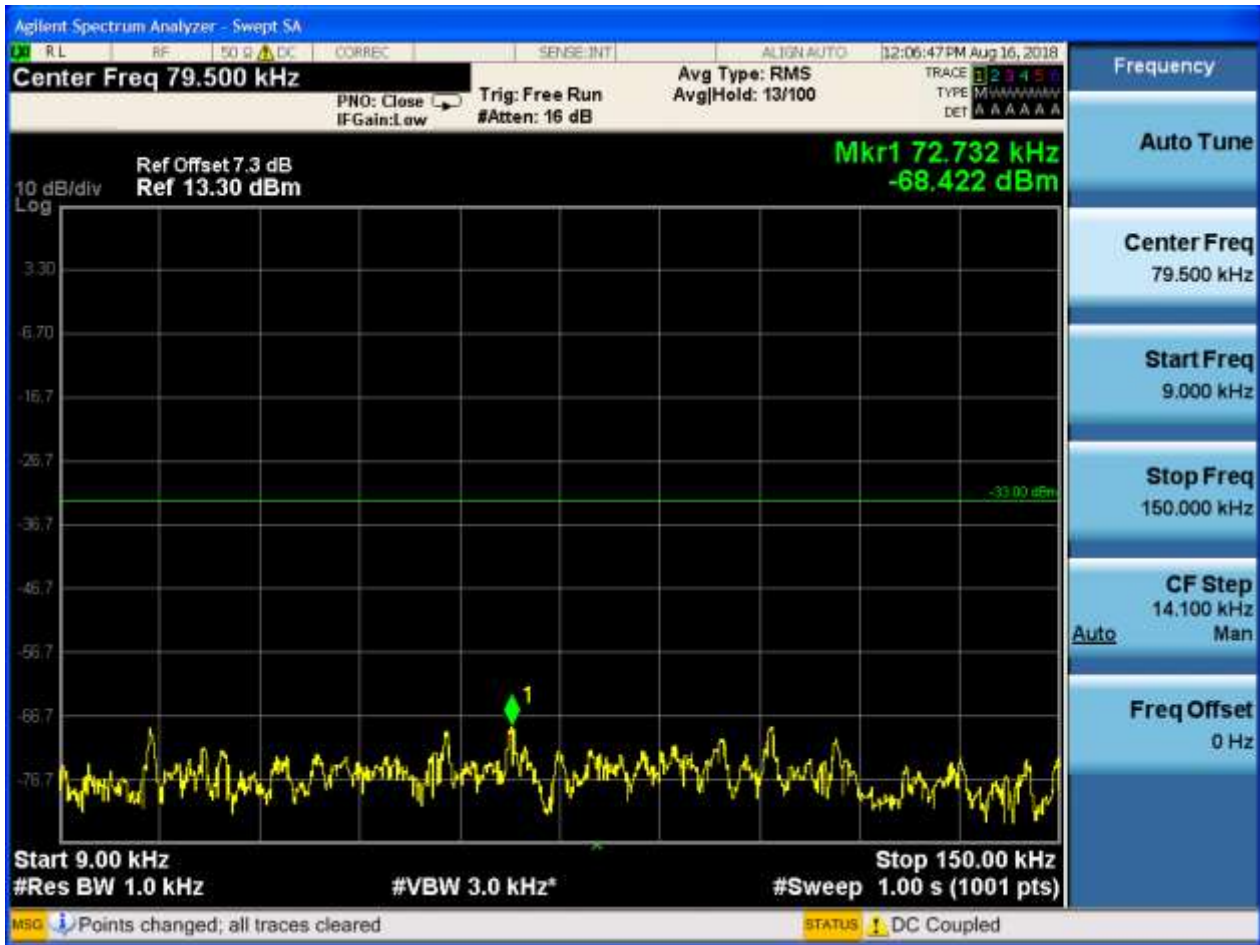




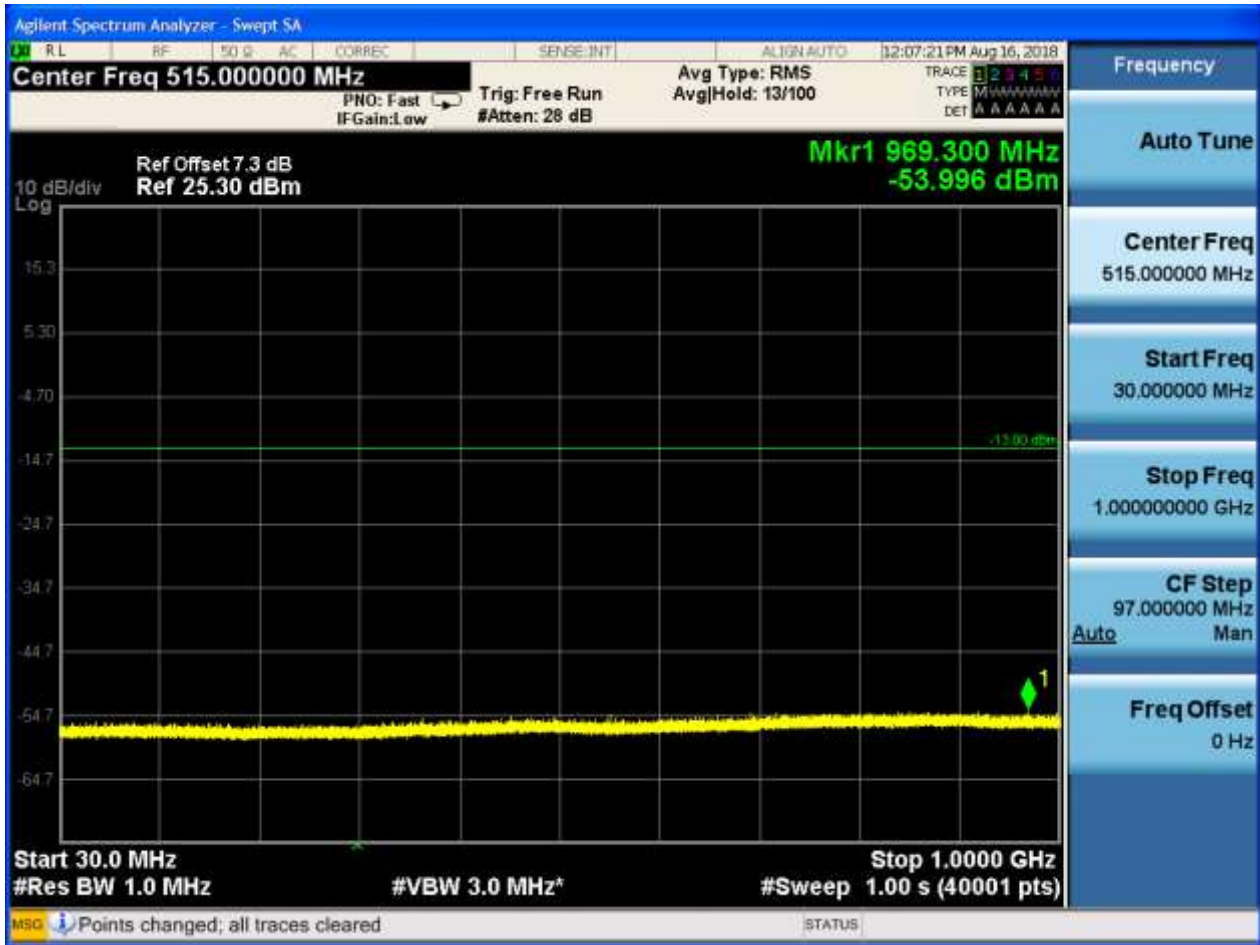


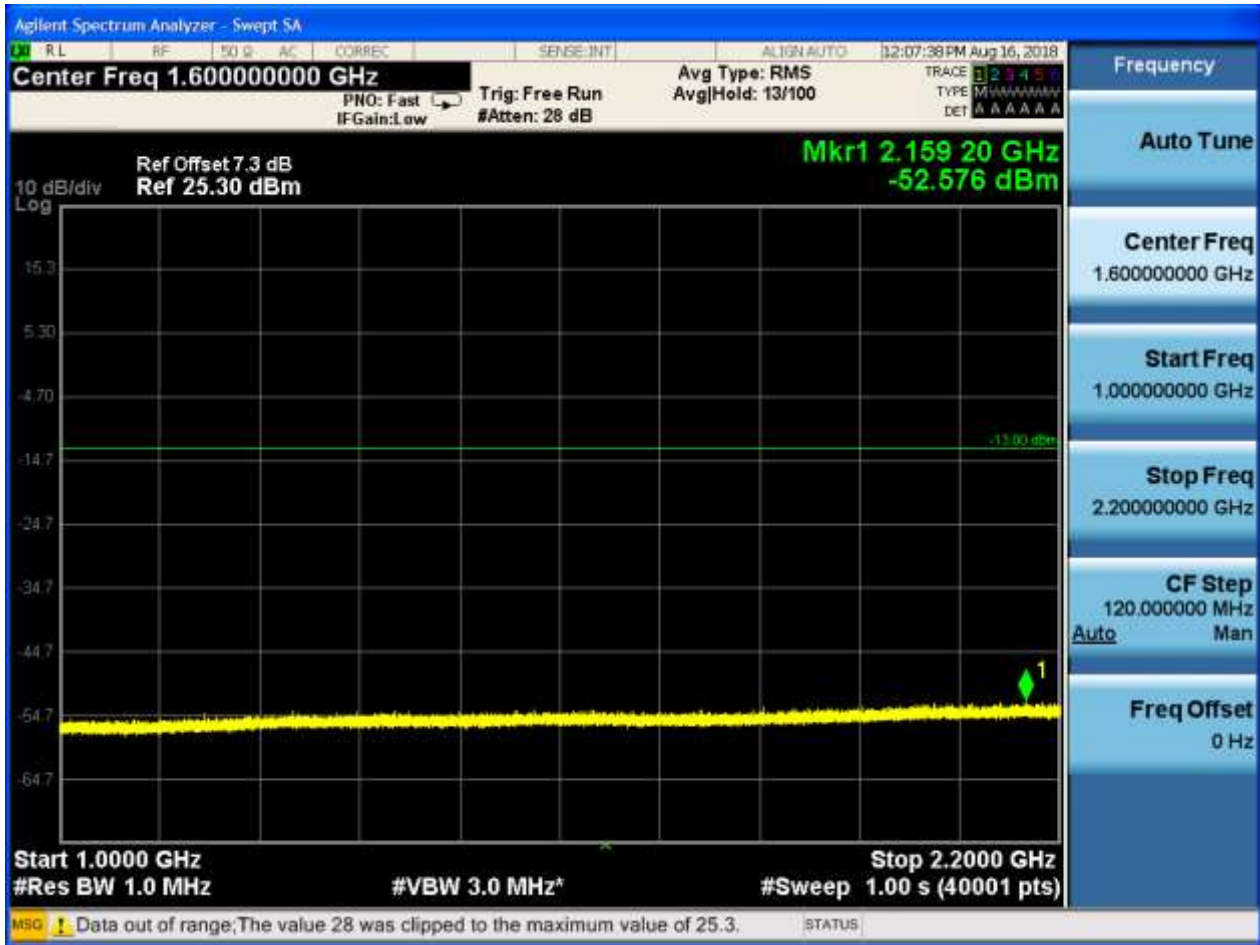
6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0





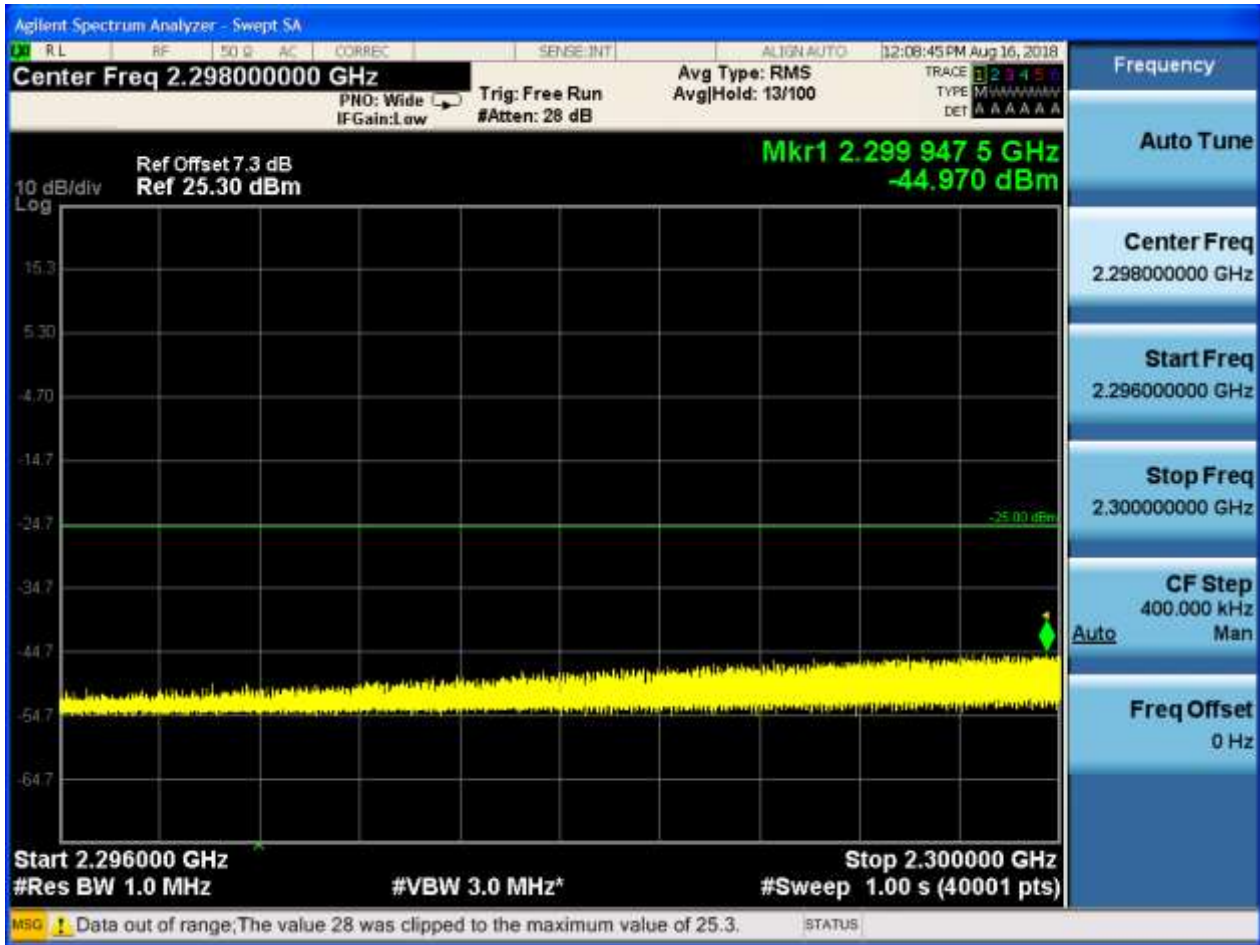


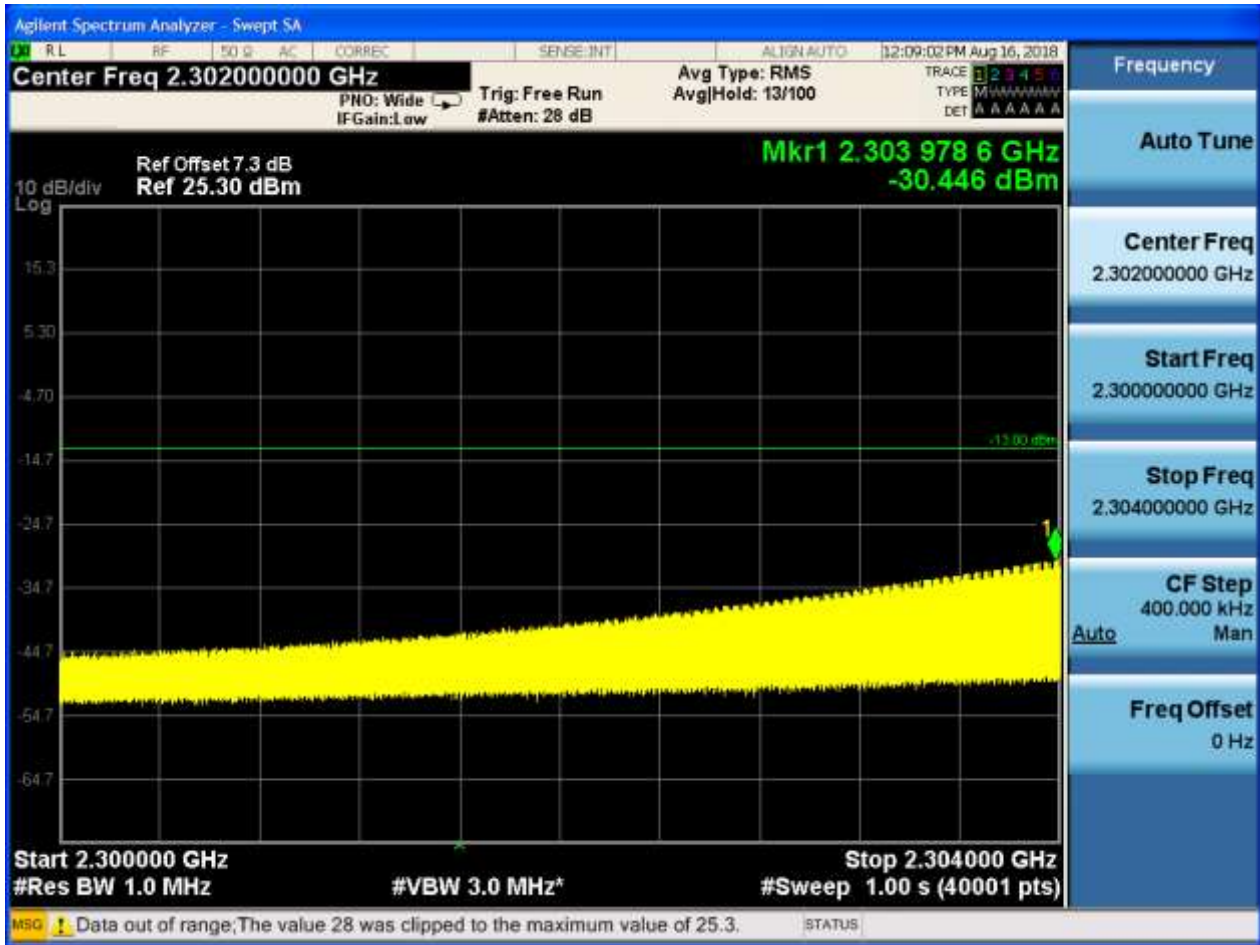


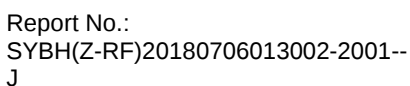
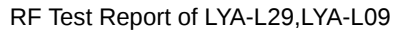


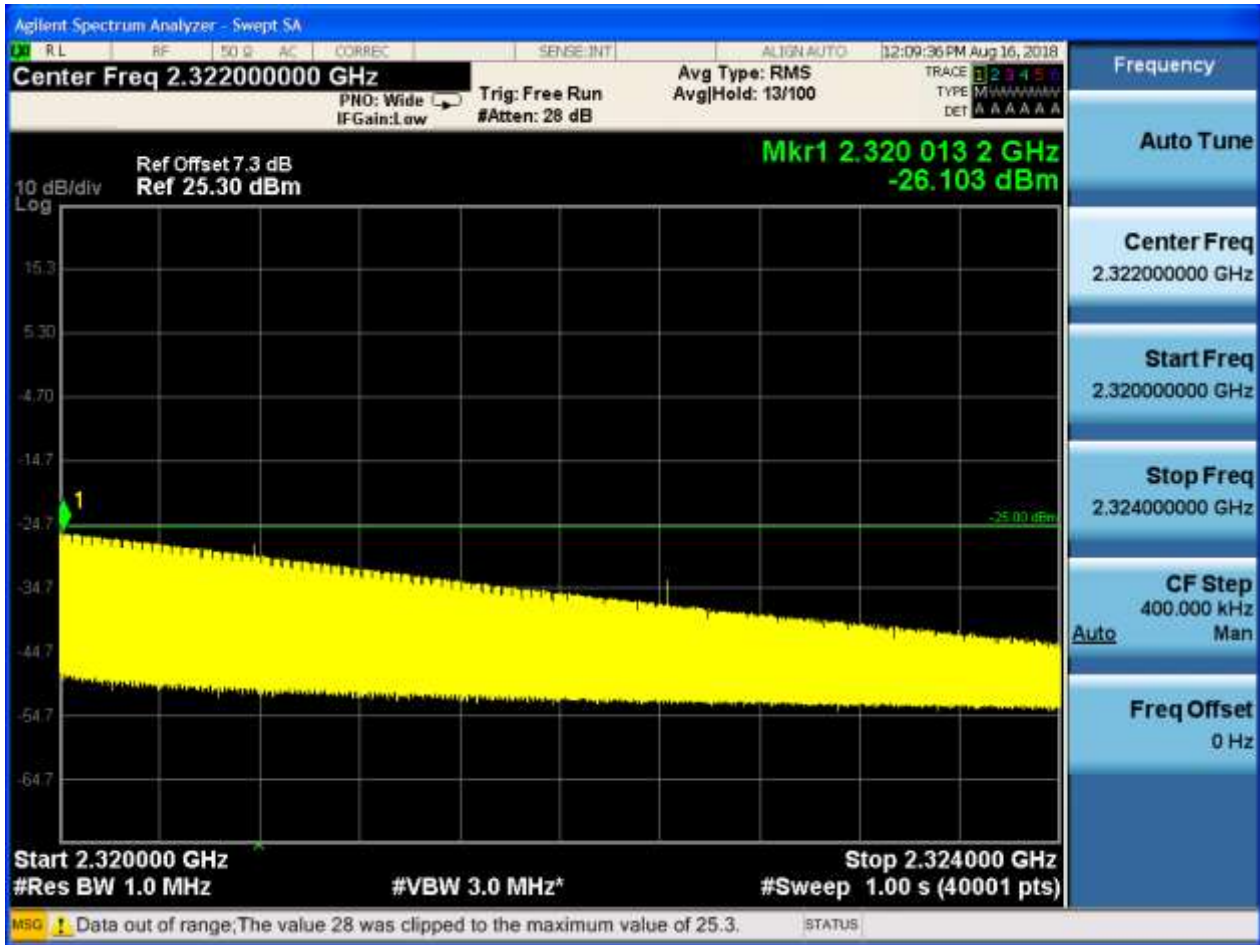


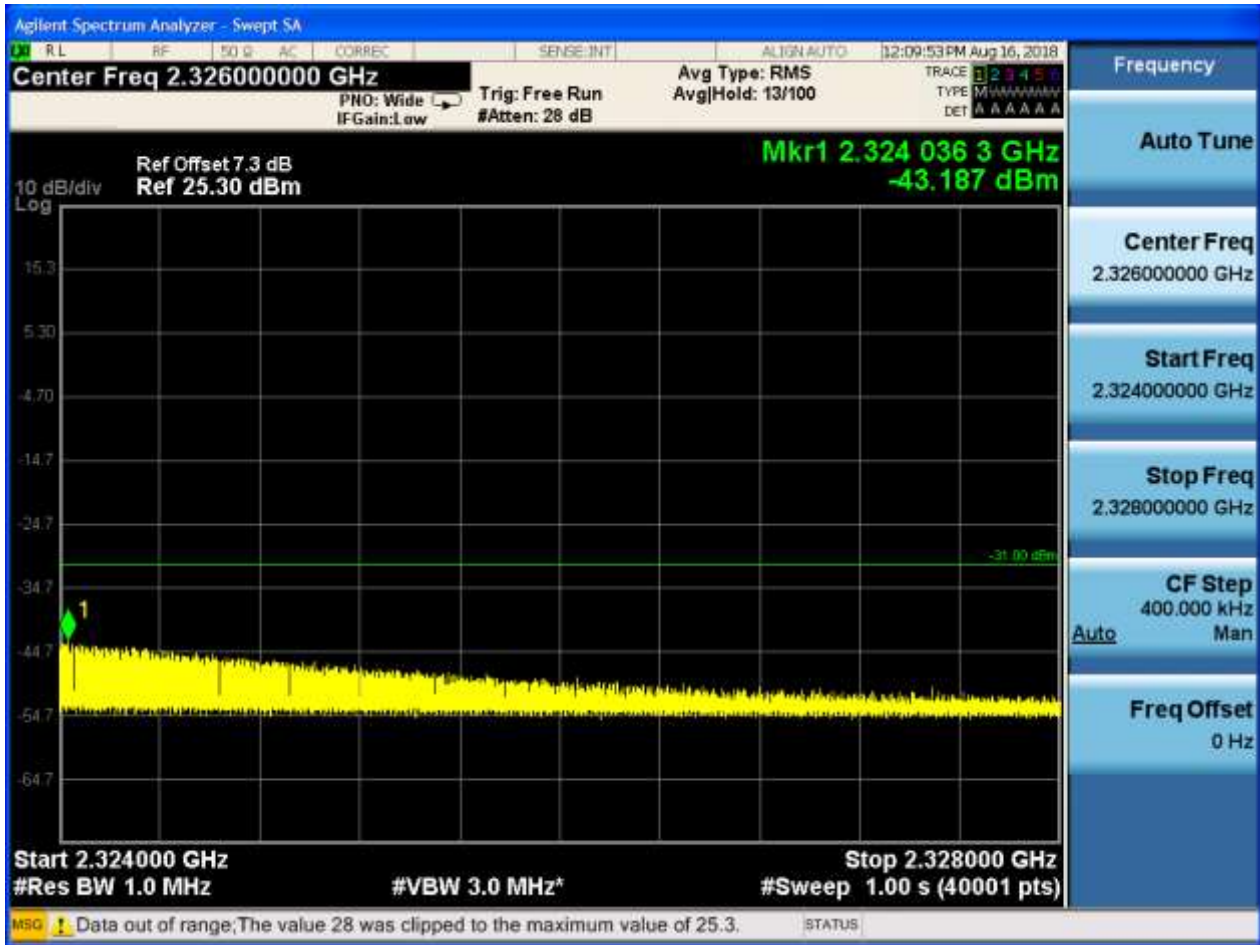


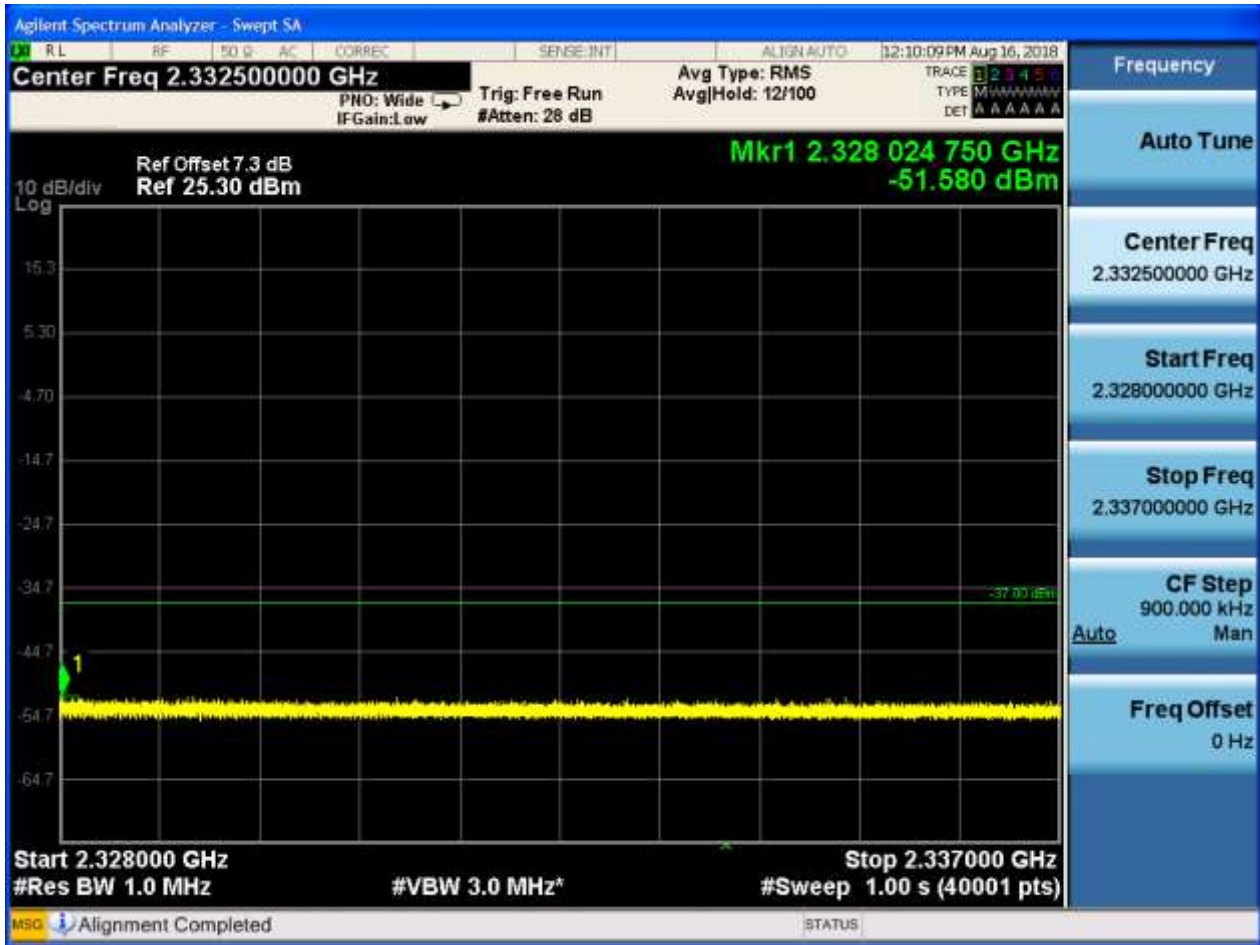






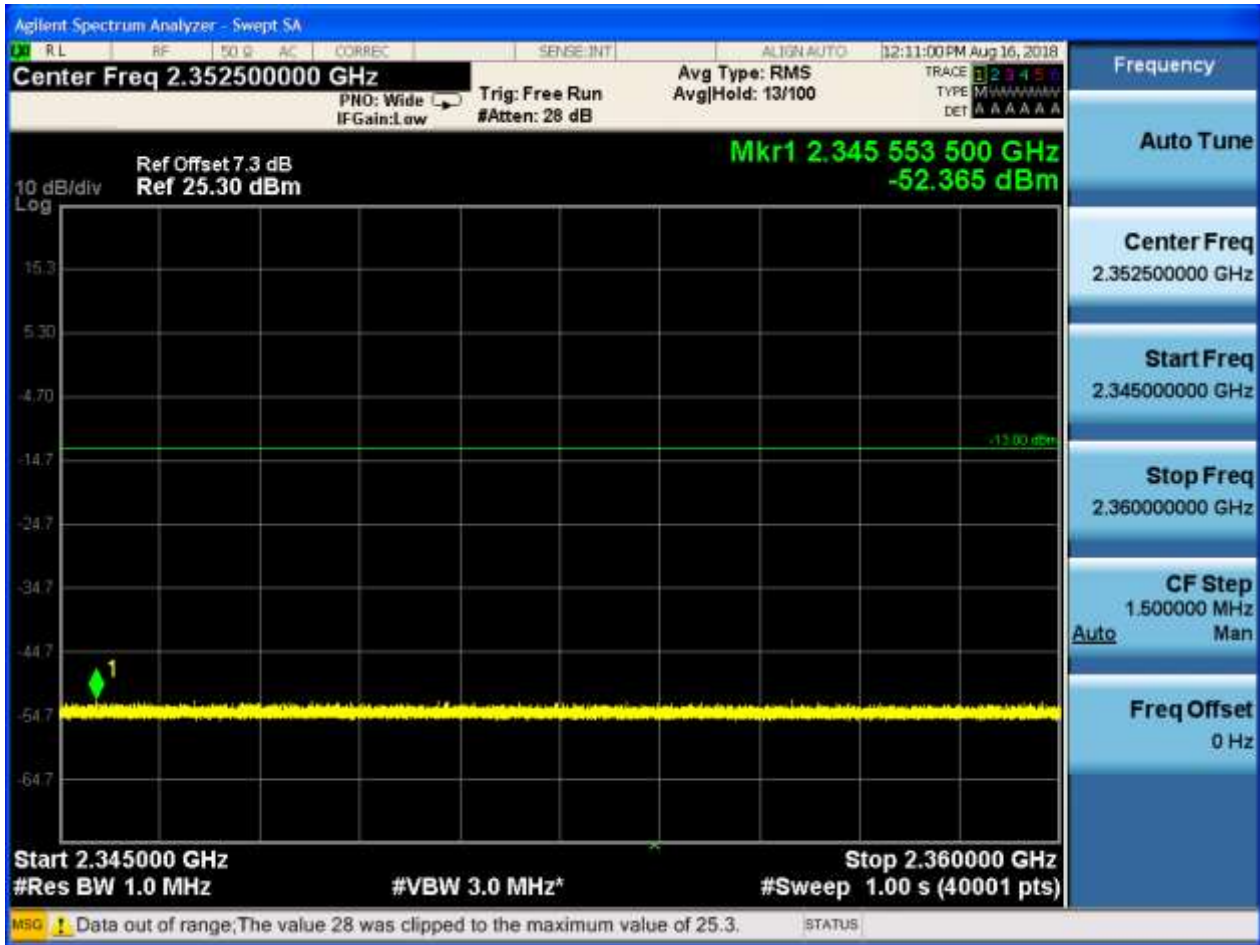


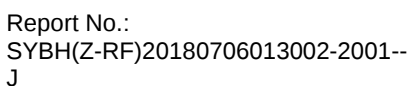
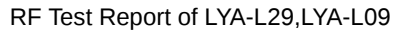












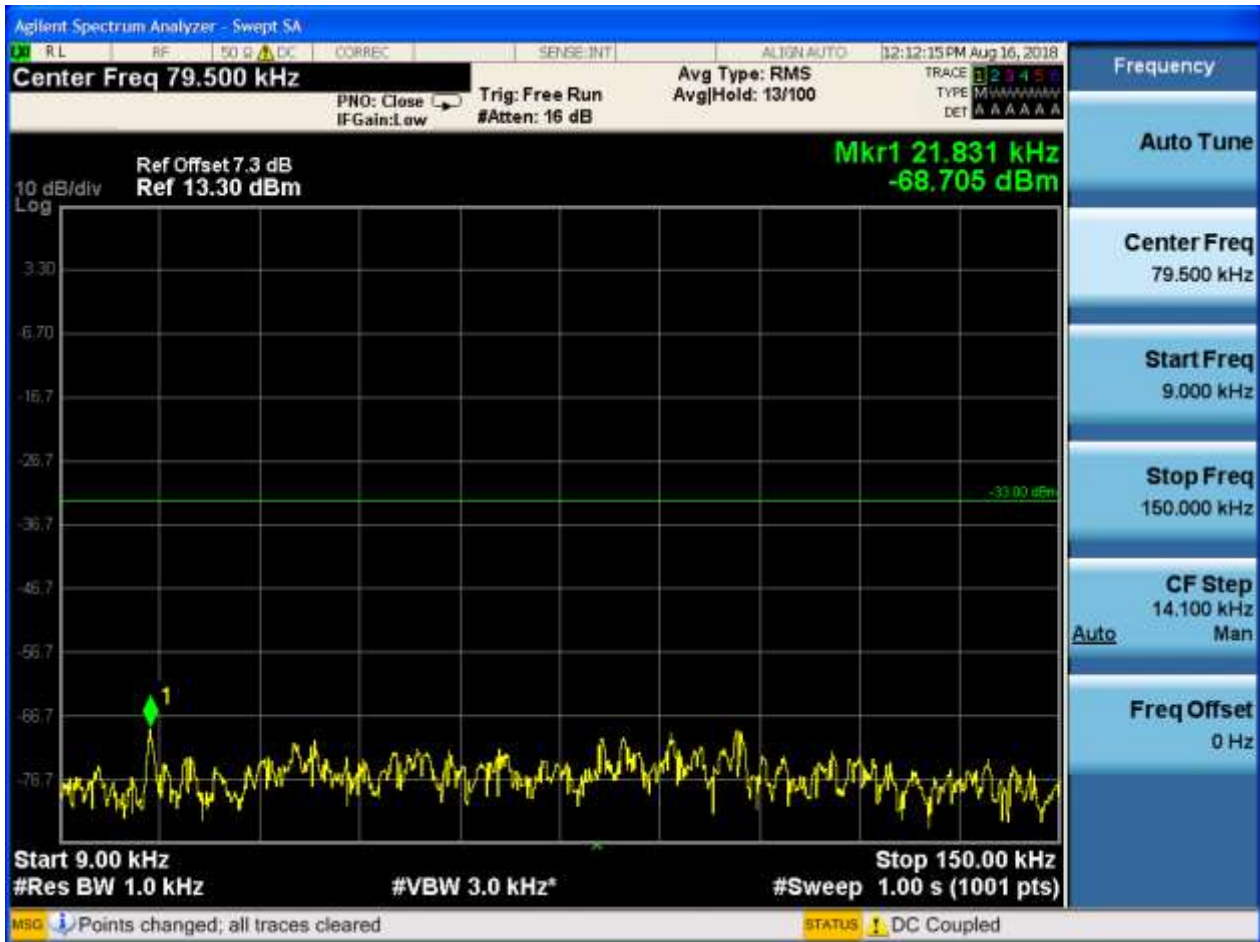




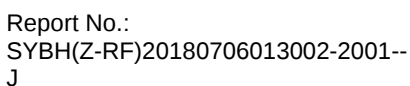
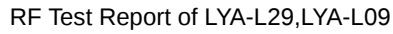
6.1.1.1.2 Test Bandwidth = 10

6.1.1.1.2.1 Test Channel = LCH/MCH/LCH

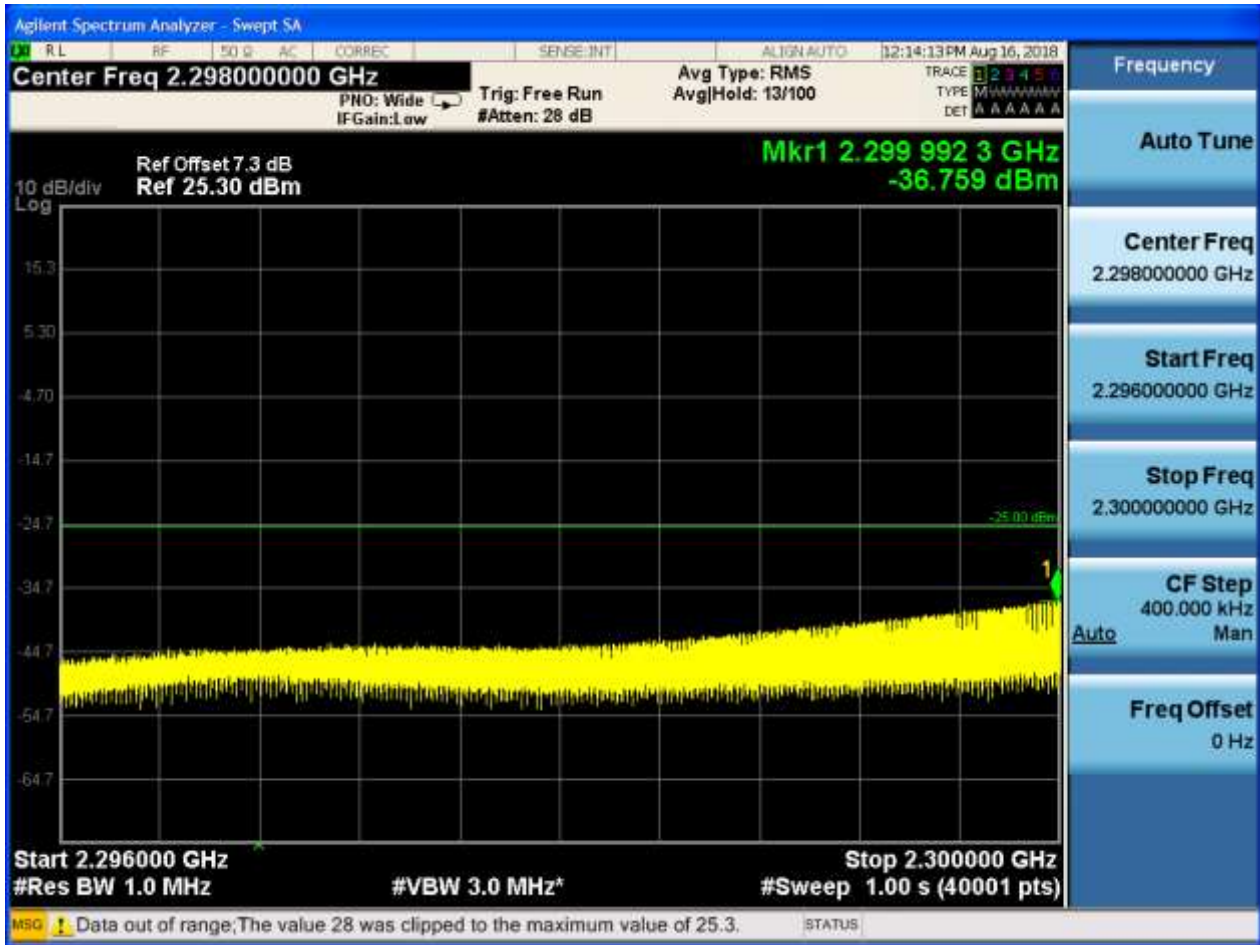
6.1.1.1.2.1.1 Test RB = RB1#0

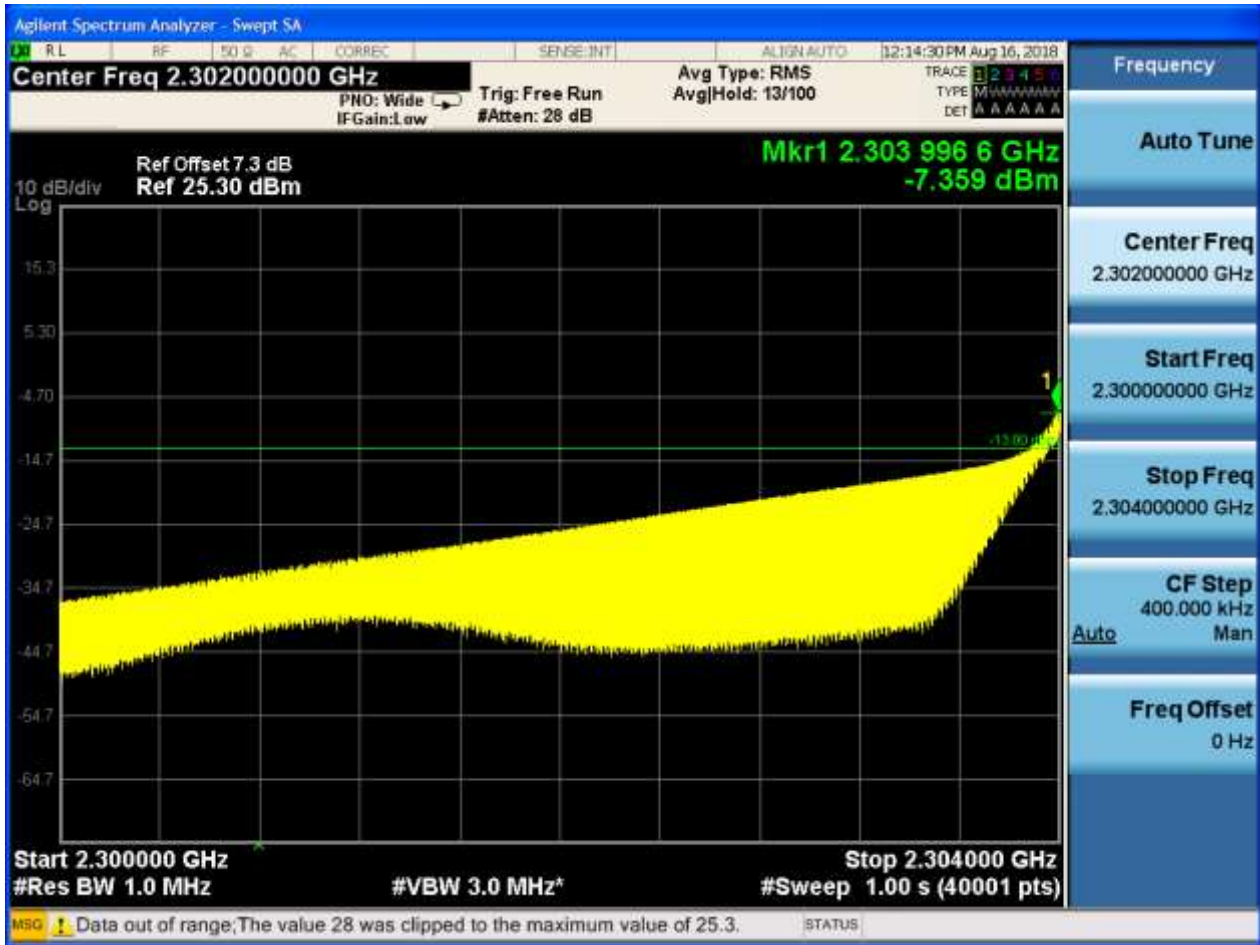












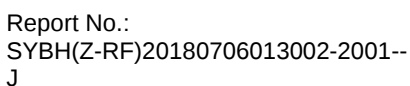
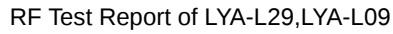
note: In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth is allowed to be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz 1%/2% of the occupied bandwidth, as applicable.

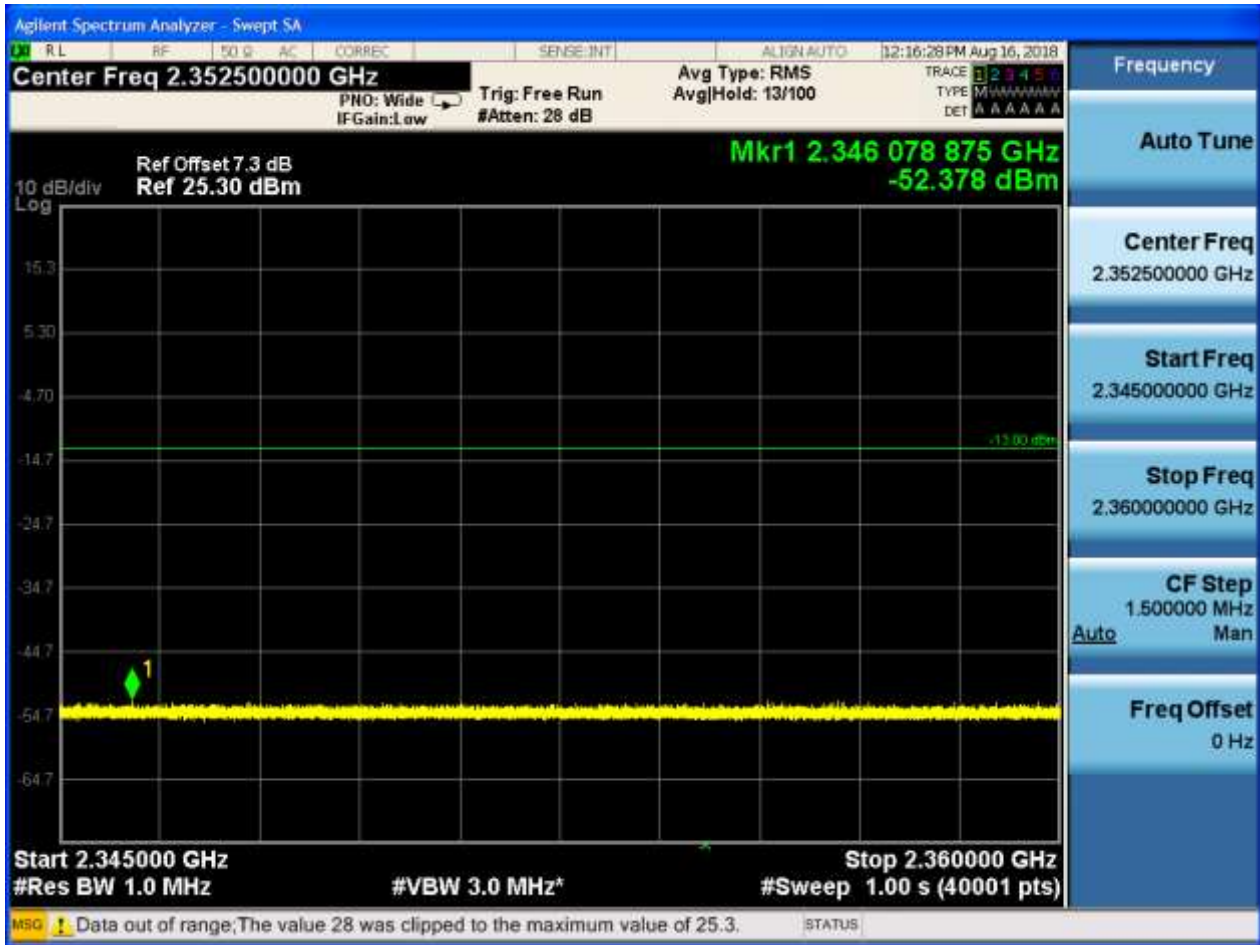


















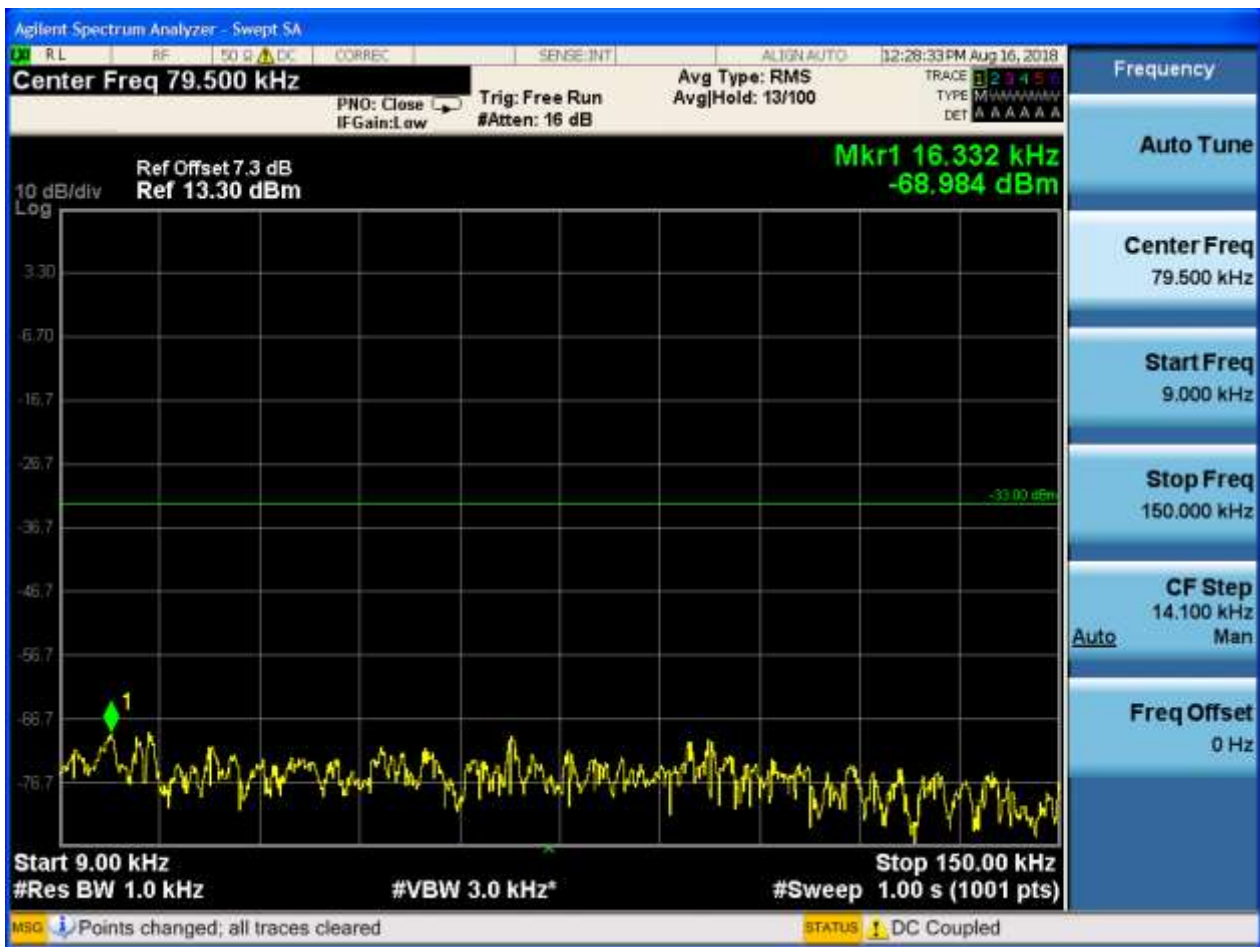


6.1.1.2 Test Mode = LTE/TM2

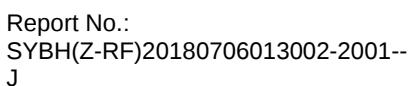
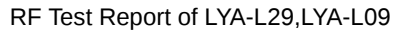
6.1.1.2.1 Test Bandwidth = 5

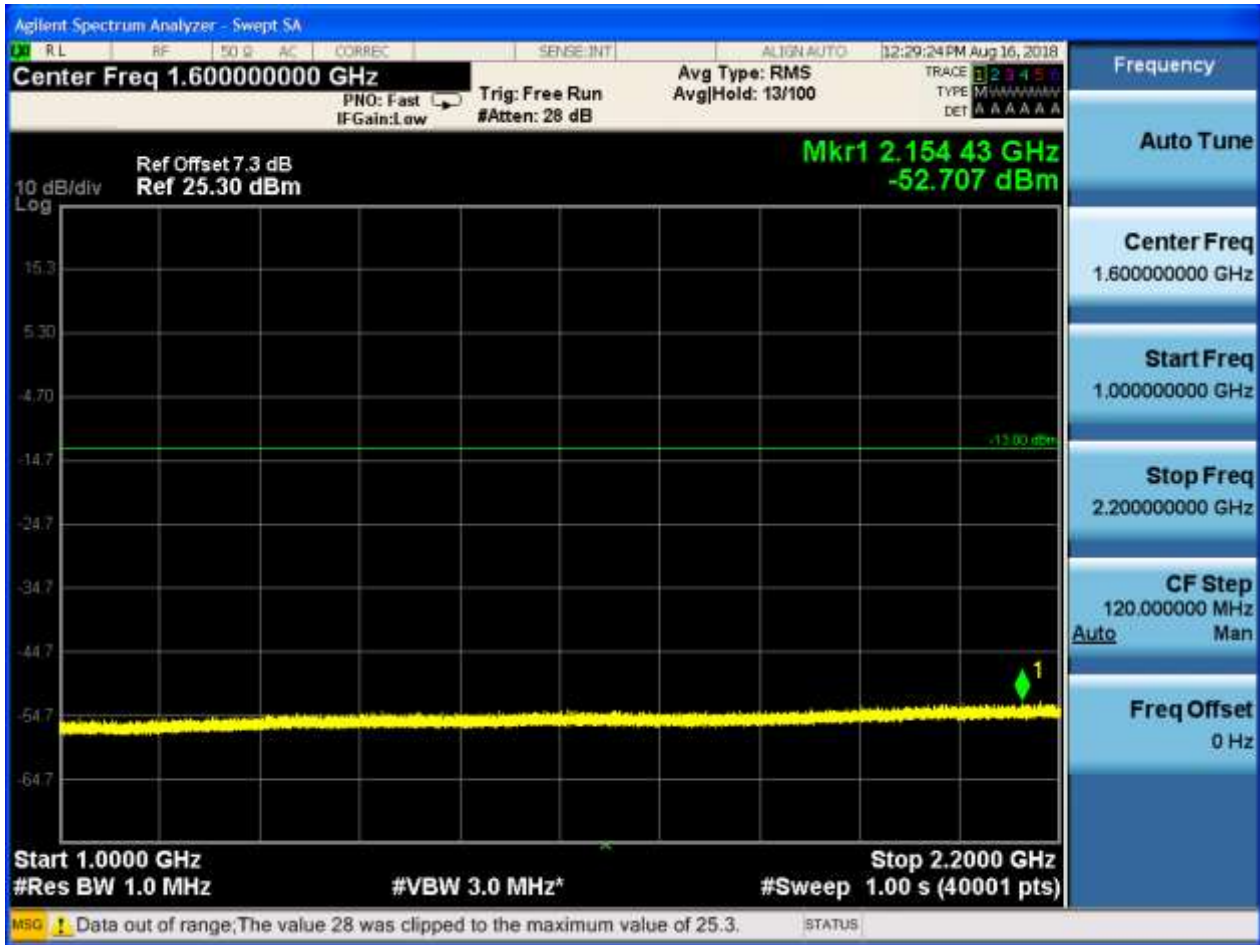
6.1.1.2.1.1 Test Channel = LCH

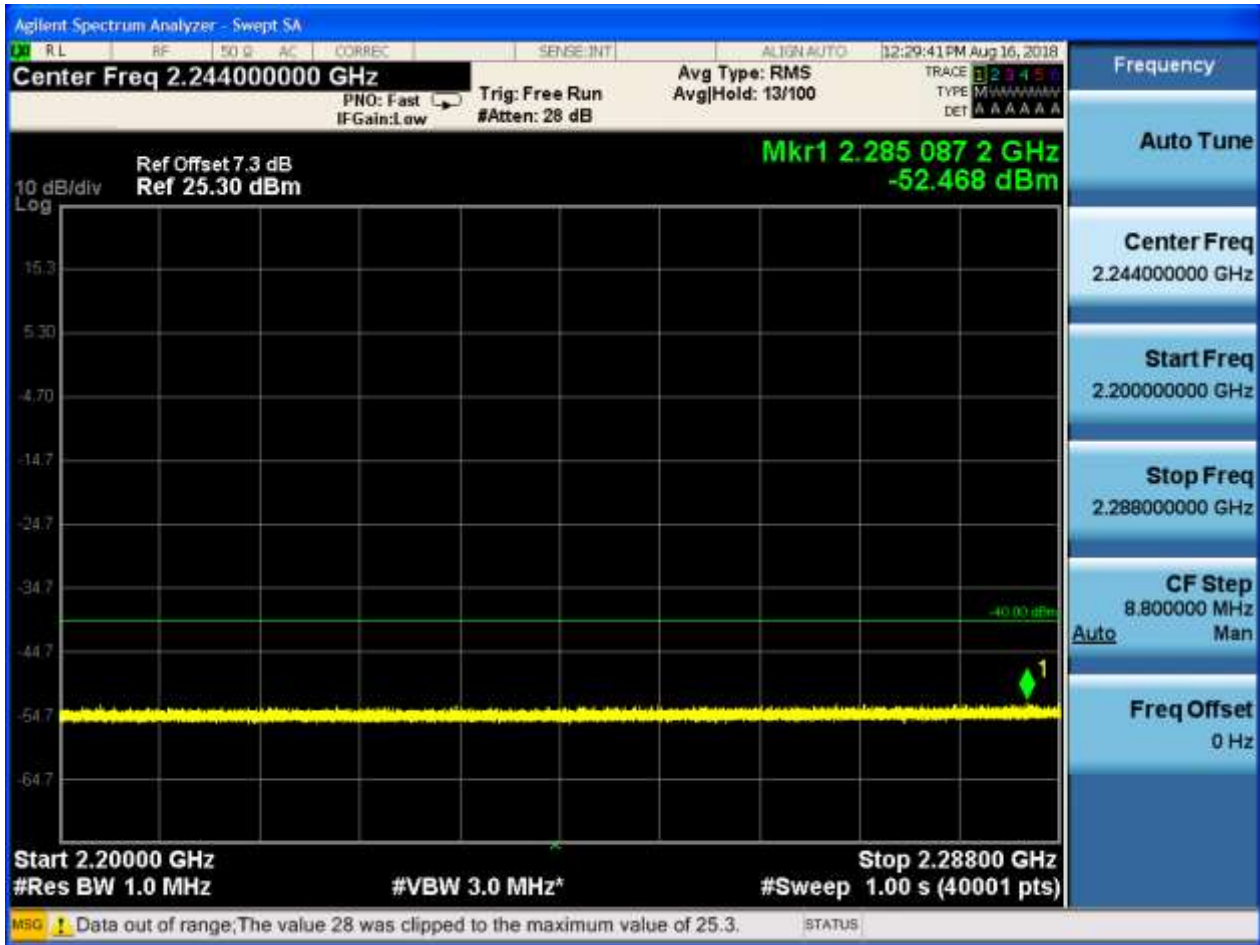
6.1.1.2.1.1.1 Test RB = RB1#0

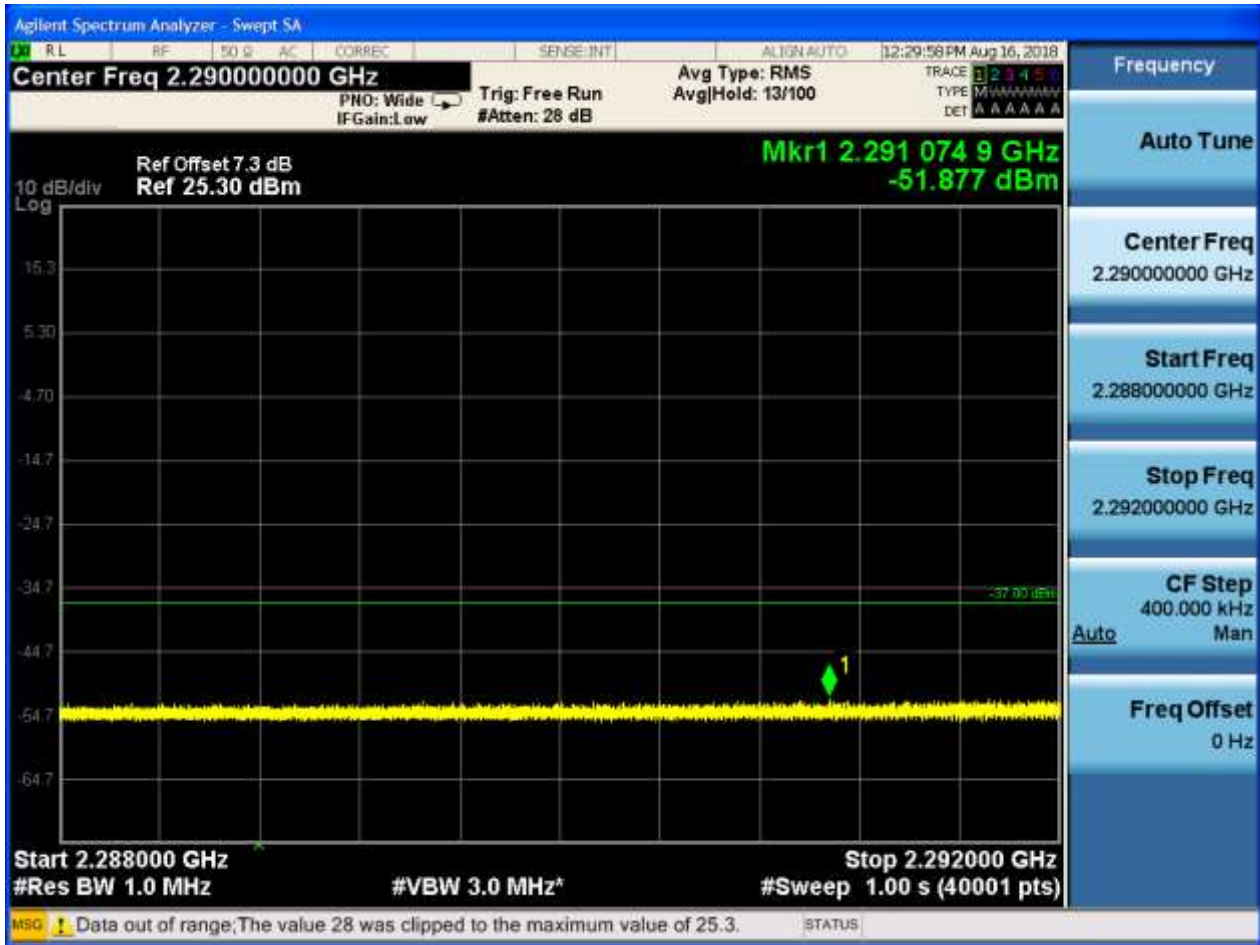


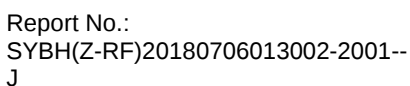
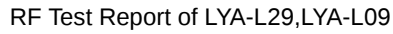


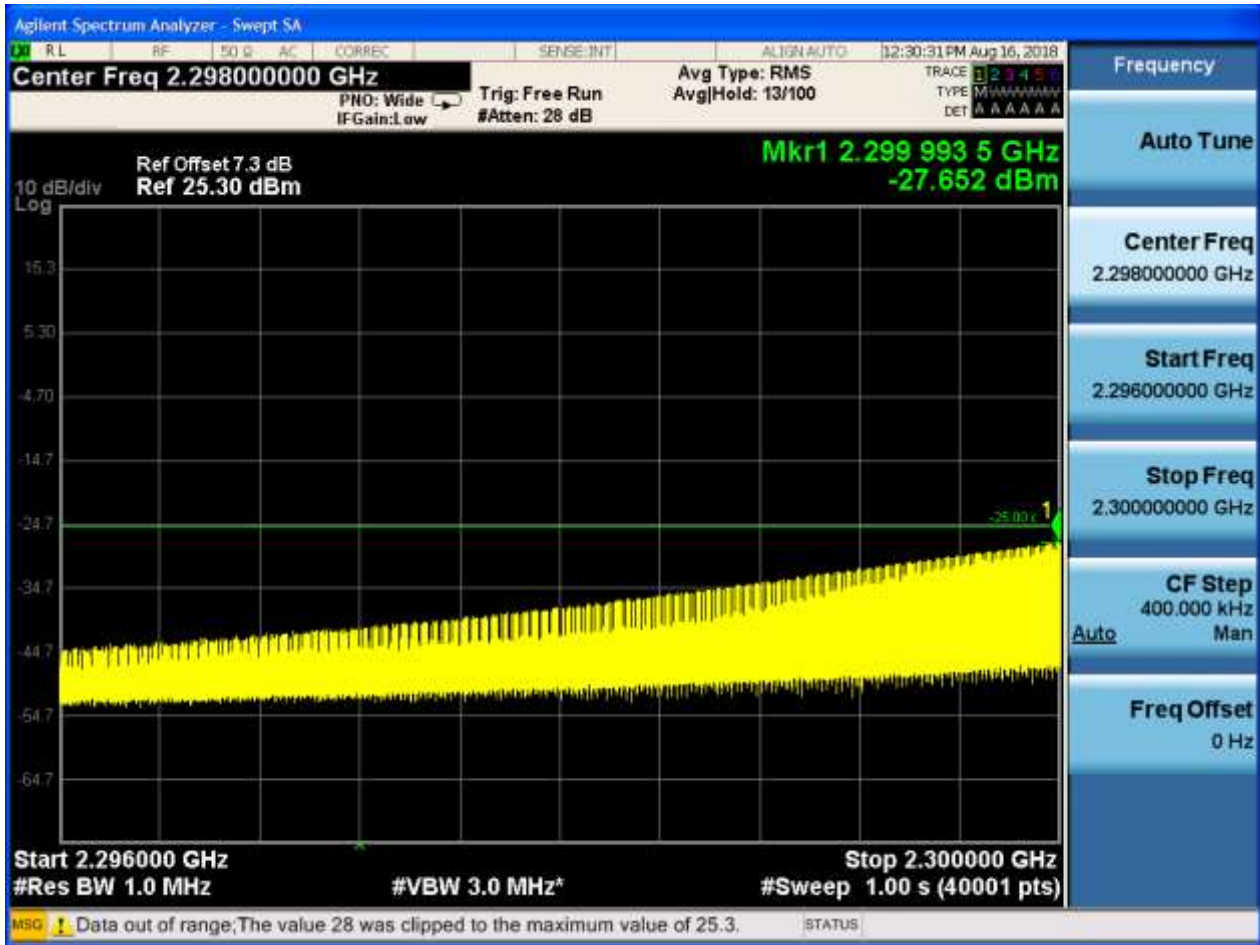








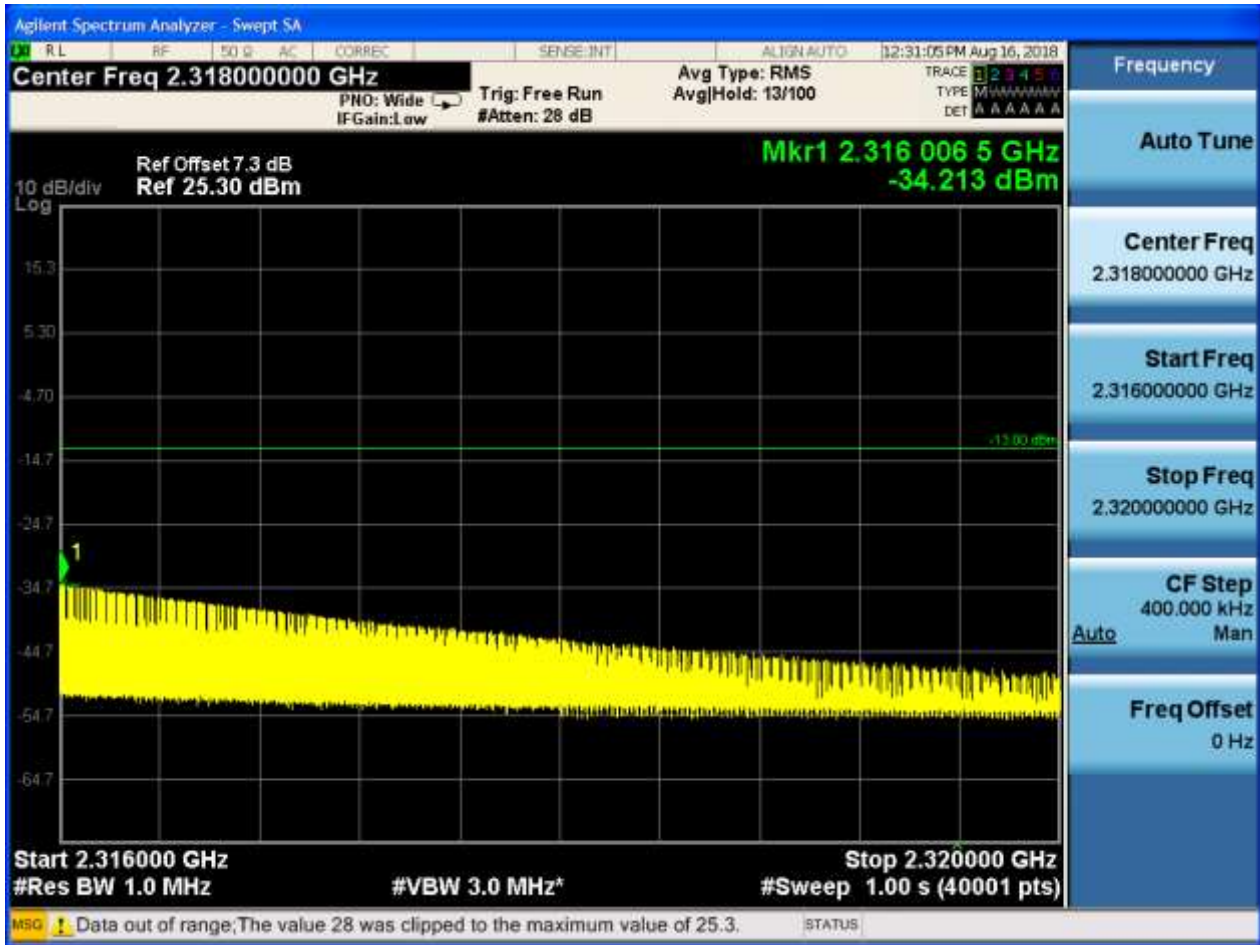






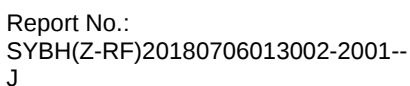
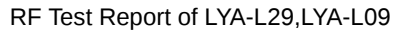
note: In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth is allowed to be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz 1%/2% of the occupied bandwidth, as applicable.







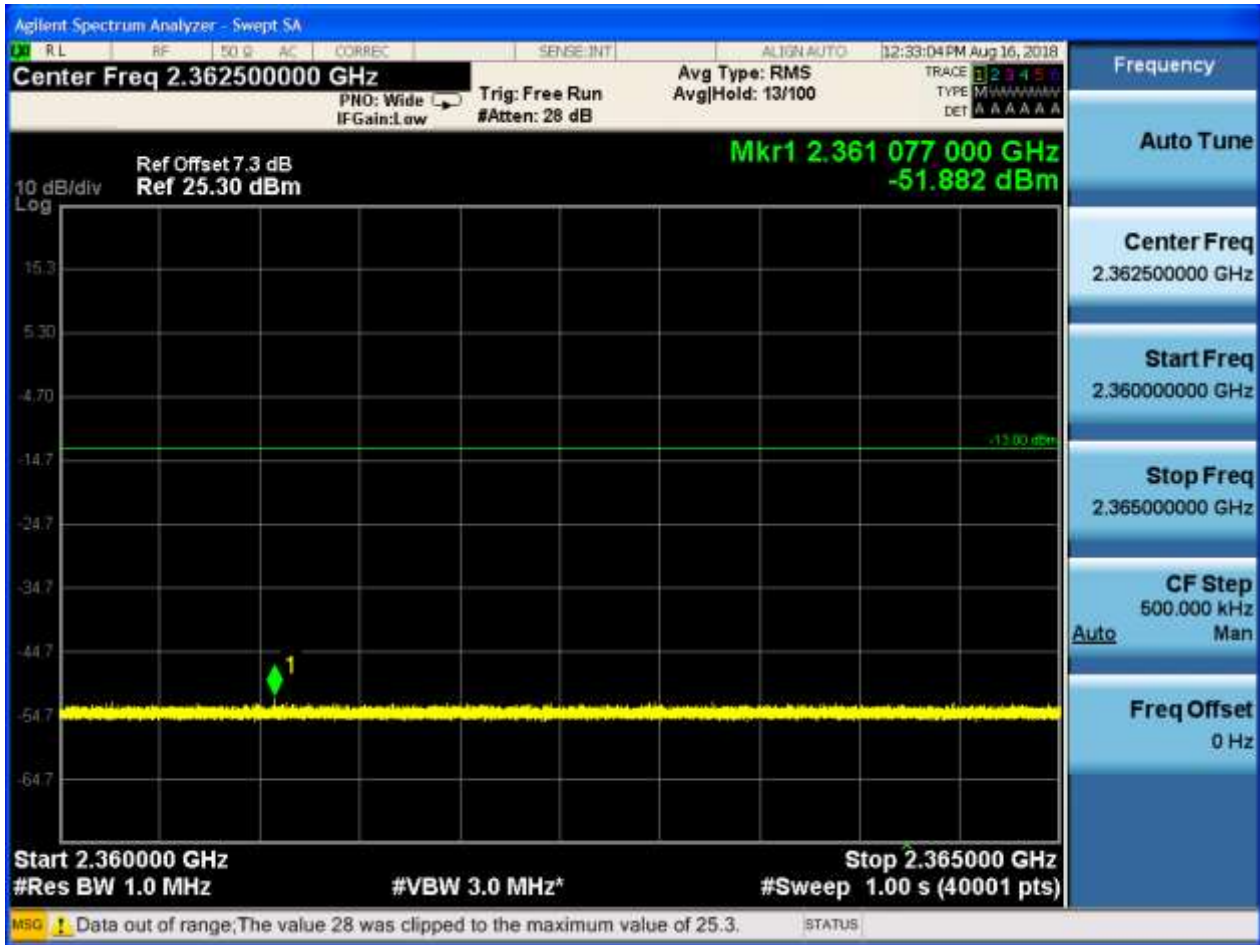




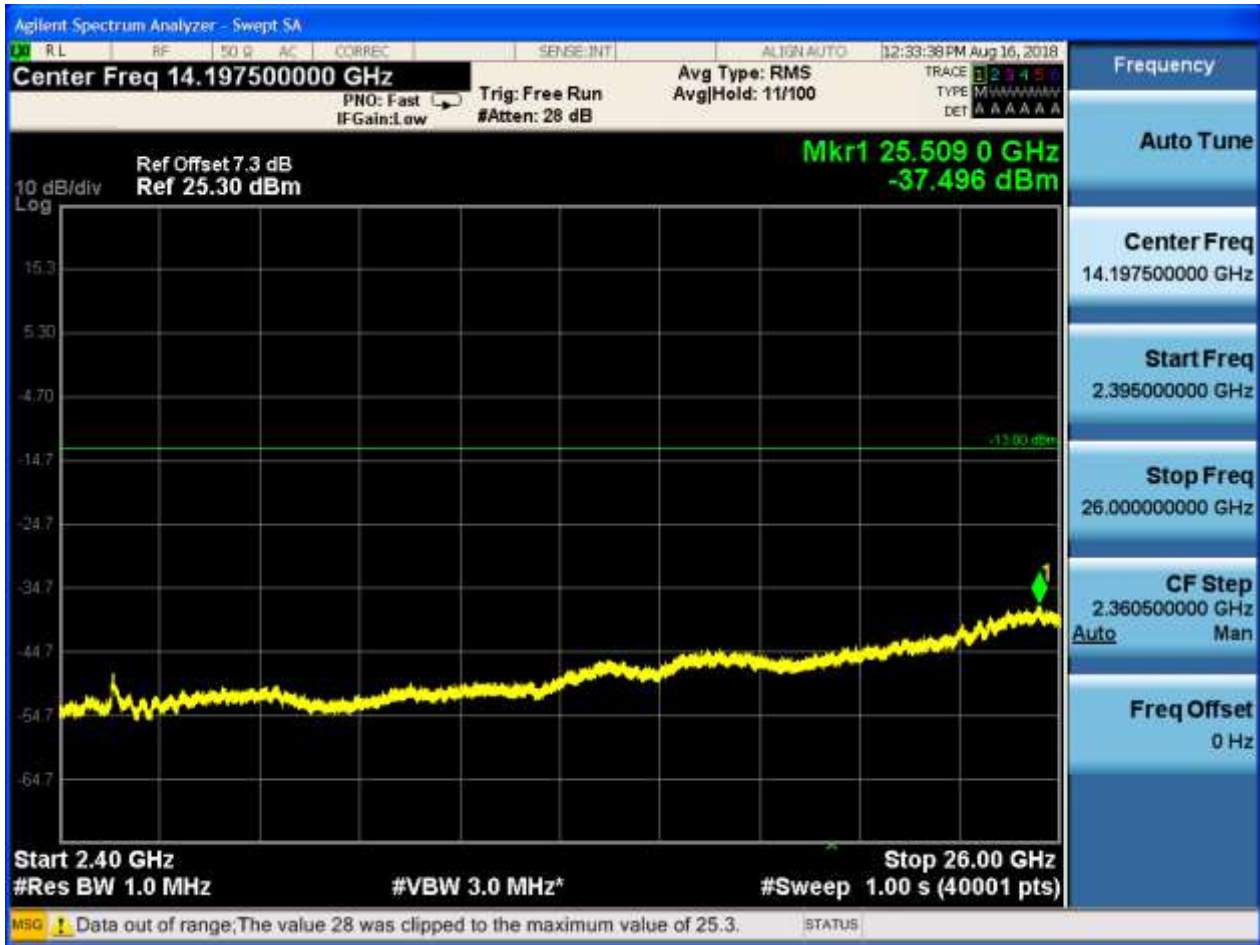














6.1.1.2.1.2 Test Channel = MCH

6.1.1.2.1.2.1 Test RB = RB1#0

