



Appendix for test report



1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	22.33	24.41	33	PASS
		MCH	22.27	24.35	33	PASS
		HCH	22.18	24.26	33	PASS
WCDMA850	UMTS/TM1	LCH	21.92	21.30	38.5	PASS
		MCH	21.96	21.34	38.5	PASS
		HCH	21.83	21.21	38.5	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	ERP/ EIRP [dBm]	Limit [dBm]	Verdict
BAND17	LTE/TM 1	5	LCH	RB1#0	22.02	20.33	34.8	PASS
				RB1#13	21.98	20.29	34.8	PASS
				RB1#24	21.88	20.19	34.8	PASS
				RB12#0	20.79	19.1	34.8	PASS
				RB12#6	20.79	19.1	34.8	PASS
				RB12#13	20.76	19.07	34.8	PASS
				RB25#0	20.78	19.09	34.8	PASS
			MCH	RB1#0	22.09	20.4	34.8	PASS
				RB1#13	21.94	20.25	34.8	PASS
				RB1#24	21.99	20.3	34.8	PASS
				RB12#0	20.9	19.21	34.8	PASS
				RB12#6	20.87	19.18	34.8	PASS
				RB12#13	20.79	19.1	34.8	PASS
				RB25#0	20.79	19.1	34.8	PASS
			HCH	RB1#0	22.11	20.42	34.8	PASS
				RB1#13	22.13	20.44	34.8	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	ERP/ EIRP [dBm]	Limit [dBm]	Verdict
				RB1#24	21.92	20.23	34.8	PASS
				RB12#0	20.99	19.3	34.8	PASS
				RB12#6	20.95	19.26	34.8	PASS
				RB12#13	20.98	19.29	34.8	PASS
				RB25#0	20.96	19.27	34.8	PASS
		10	LCH	RB1#0	22.27	20.58	34.8	PASS
				RB1#25	21.9	20.21	34.8	PASS
				RB1#49	21.98	20.29	34.8	PASS
				RB25#0	20.95	19.26	34.8	PASS
				RB25#13	20.9	19.21	34.8	PASS
				RB25#25	20.75	19.06	34.8	PASS
				RB50#0	20.78	19.09	34.8	PASS
			MCH	RB1#0	22.04	20.35	34.8	PASS
				RB1#25	21.59	19.9	34.8	PASS
				RB1#49	21.94	20.25	34.8	PASS
				RB25#0	20.82	19.13	34.8	PASS
				RB25#13	20.86	19.17	34.8	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	ERP/EIRP [dBm]	Limit [dBm]	Verdict
				RB25#25	20.71	19.02	34.8	PASS
				RB50#0	20.75	19.06	34.8	PASS
			HCH	RB1#0	22.07	20.38	34.8	PASS
				RB1#25	22	20.31	34.8	PASS
				RB1#49	21.73	20.04	34.8	PASS
				RB25#0	20.95	19.26	34.8	PASS
				RB25#13	20.93	19.24	34.8	PASS
				RB25#25	20.81	19.12	34.8	PASS
				RB50#0	20.92	19.23	34.8	PASS
	LTE/TM 2	5	LCH	RB1#0	22.41	20.72	34.8	PASS
				RB1#13	22.14	20.45	34.8	PASS
				RB1#24	22.24	20.55	34.8	PASS
				RB12#0	20.4	18.71	34.8	PASS
				RB12#6	20.38	18.69	34.8	PASS
				RB12#13	20.36	18.67	34.8	PASS
				RB25#0	20.3	18.61	34.8	PASS
			MCH	RB1#0	22.27	20.58	34.8	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	ERP/EIRP [dBm]	Limit [dBm]	Verdict
				RB1#13	22.11	20.42	34.8	PASS
				RB1#24	22.25	20.56	34.8	PASS
				RB12#0	20.42	18.73	34.8	PASS
				RB12#6	20.43	18.74	34.8	PASS
				RB12#13	20.35	18.66	34.8	PASS
				RB25#0	20.26	18.57	34.8	PASS
			HCH	RB1#0	22.52	20.83	34.8	PASS
				RB1#13	22.52	20.83	34.8	PASS
				RB1#24	22.45	20.76	34.8	PASS
				RB12#0	20.46	18.77	34.8	PASS
				RB12#6	20.38	18.69	34.8	PASS
				RB12#13	20.48	18.79	34.8	PASS
				RB25#0	20.48	18.79	34.8	PASS
		10	LCH	RB1#0	22.75	21.06	34.8	PASS
				RB1#25	22.6	20.91	34.8	PASS
				RB1#49	22.42	20.73	34.8	PASS
				RB25#0	20.23	18.54	34.8	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	Test RB	Measured[dBm]	ERP/ EIRP [dBm]	Limit [dBm]	Verdict
				RB25#13	20.23	18.54	34.8	PASS
				RB25#25	20.19	18.5	34.8	PASS
				RB50#0	20.26	18.57	34.8	PASS
			MCH	RB1#0	22.53	20.84	34.8	PASS
				RB1#25	22.61	20.92	34.8	PASS
				RB1#49	22.2	20.51	34.8	PASS
				RB25#0	20.21	18.52	34.8	PASS
				RB25#13	20.29	18.6	34.8	PASS
				RB25#25	20.14	18.45	34.8	PASS
				RB50#0	20.26	18.57	34.8	PASS
			HCH	RB1#0	22.18	20.49	34.8	PASS
				RB1#25	22.34	20.65	34.8	PASS
				RB1#49	21.95	20.26	34.8	PASS
				RB25#0	20.41	18.72	34.8	PASS
				RB25#13	20.39	18.7	34.8	PASS
				RB25#25	20.28	18.59	34.8	PASS
				RB50#0	20.36	18.67	34.8	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: $\text{RBW} > \text{emission bandwidth}$, $\text{VBW} > 3 \times \text{RBW}$.

Detector: RMS

2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	3.04	13	PASS
		MCH	2.97	13	PASS
		HCH	2.55	13	PASS
WCDMA850	UMTS/TM1	LCH	3.04	13	PASS
		MCH	3.06	13	PASS
		HCH	2.48	13	PASS

Test Band(For LTE)	Test Mode	Test Bandwidth (MHz)	Test Channel	Test RB	Measured[dB]	Limit [dB]	Verdict
BAND17	LTE/TM1	5	LCH	RB1#0	4.67	13	PASS
				RB1#13	4.3	13	PASS
				RB1#24	4.31	13	PASS
				RB12#0	5.01	13	PASS
				RB12#6	4.76	13	PASS
				RB12#13	4.83	13	PASS
				RB25#0	5.02	13	PASS
			MCH	RB1#0	4.36	13	PASS
				RB1#13	4.26	13	PASS
				RB1#24	4.56	13	PASS
				RB12#0	4.79	13	PASS
				RB12#6	4.73	13	PASS
				RB12#13	4.9	13	PASS
				RB25#0	5.1	13	PASS
			HCH	RB1#0	4.43	13	PASS
				RB1#13	4.41	13	PASS
				RB1#24	4.4	13	PASS
				RB12#0	5.01	13	PASS
				RB12#6	4.92	13	PASS
				RB12#13	5.12	13	PASS
				RB25#0	5.16	13	PASS
		10	LCH	RB1#0	4.64	13	PASS
				RB1#25	4.32	13	PASS
				RB1#49	4.49	13	PASS
				RB25#0	4.9	13	PASS
				RB25#13	4.72	13	PASS
				RB25#25	4.92	13	PASS
				RB50#0	5.16	13	PASS
			MCH	RB1#0	4.46	13	PASS
				RB1#25	4.31	13	PASS
				RB1#49	4.47	13	PASS
				RB25#0	4.86	13	PASS
				RB25#13	4.77	13	PASS
				RB25#25	5.01	13	PASS
				RB50#0	5.26	13	PASS
			HCH	RB1#0	4.39	13	PASS
				RB1#25	4.38	13	PASS
				RB1#49	4.39	13	PASS

Test Band(For LTE)	Test Mode	Test Bandwidth (MHz)	Test Channel	Test RB	Measured[dB]	Limit [dB]	Verdict
	LTE/TM2			RB25#0	4.81	13	PASS
				RB25#13	4.73	13	PASS
				RB25#25	4.93	13	PASS
				RB50#0	5.69	13	PASS
		5	LCH	RB1#0	5.54	13	PASS
				RB1#13	4.9	13	PASS
				RB1#24	4.68	13	PASS
				RB12#0	5.32	13	PASS
				RB12#6	5.55	13	PASS
				RB12#13	5.65	13	PASS
				RB25#0	6.67	13	PASS
			MCH	RB1#0	4.72	13	PASS
				RB1#13	4.86	13	PASS
				RB1#24	5	13	PASS
				RB12#0	5.66	13	PASS
				RB12#6	5.48	13	PASS
				RB12#13	5.72	13	PASS
				RB25#0	6.14	13	PASS
			HCH	RB1#0	4.2	13	PASS
				RB1#13	4.27	13	PASS
				RB1#24	4.57	13	PASS
				RB12#0	5.82	13	PASS
				RB12#6	5.25	13	PASS
				RB12#13	5.39	13	PASS
				RB25#0	6.04	13	PASS
		10	LCH	RB1#0	5.69	13	PASS
				RB1#25	4.83	13	PASS
				RB1#49	5.32	13	PASS
				RB25#0	6.06	13	PASS
				RB25#13	5.66	13	PASS
				RB25#25	6.05	13	PASS
				RB50#0	6.33	13	PASS
			MCH	RB1#0	5.24	13	PASS
				RB1#25	5.04	13	PASS
				RB1#49	5.51	13	PASS
				RB25#0	5.87	13	PASS
				RB25#13	5.75	13	PASS
				RB25#25	6.05	13	PASS
				RB50#0	6.77	13	PASS

Test Band(For LTE)	Test Mode	Test Bandwidth (MHz)	Test Channel	Test RB	Measured[dB]	Limit [dB]	Verdict
			HCH	RB1#0	5	13	PASS
				RB1#25	4.9	13	PASS
				RB1#49	5.34	13	PASS
				RB25#0	5.73	13	PASS
				RB25#13	5.72	13	PASS
				RB25#25	5.95	13	PASS
				RB50#0	6.57	13	PASS

3Appendix_C: Modulation Characteristics

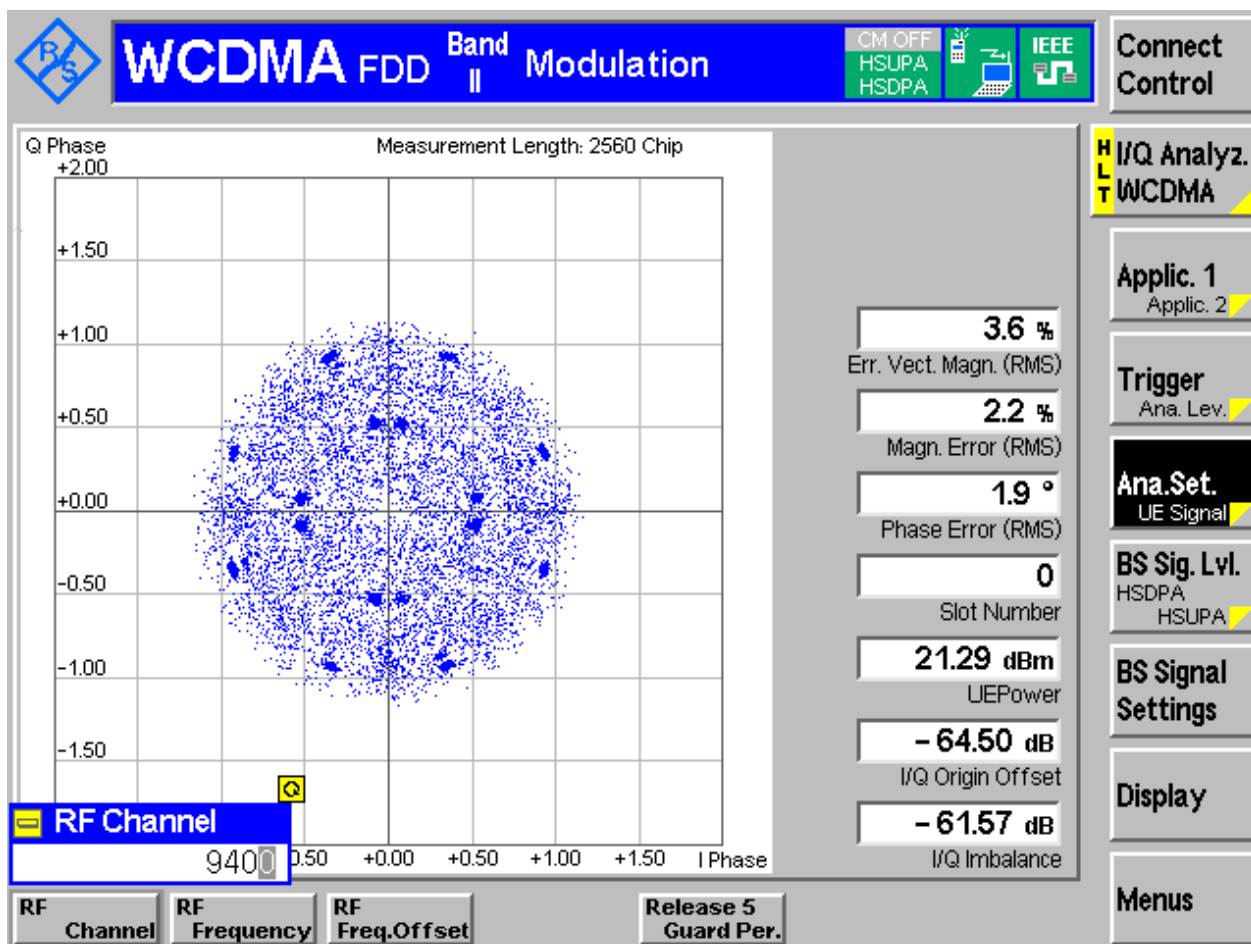
Part I - Test Plots

3.2 For UMTS

3.2.1 Test Band = WCDMA1900

3.2.1.1 Test Mode = UMTS/TM1

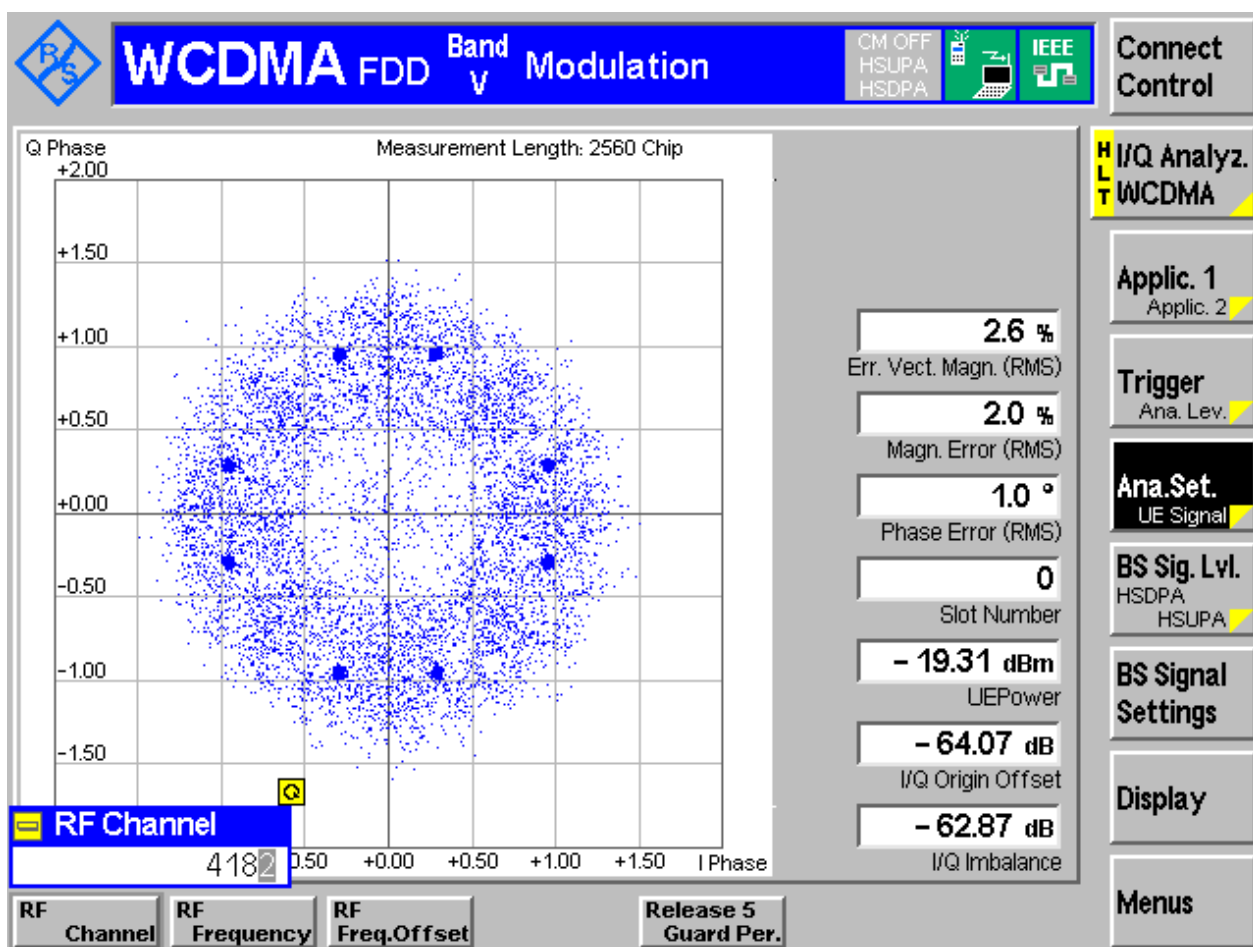
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA850

3.2.2.1 Test Mode = UMTS/TM1

3.2.2.1.1 Test Channel = MCH



3.1 For LTE

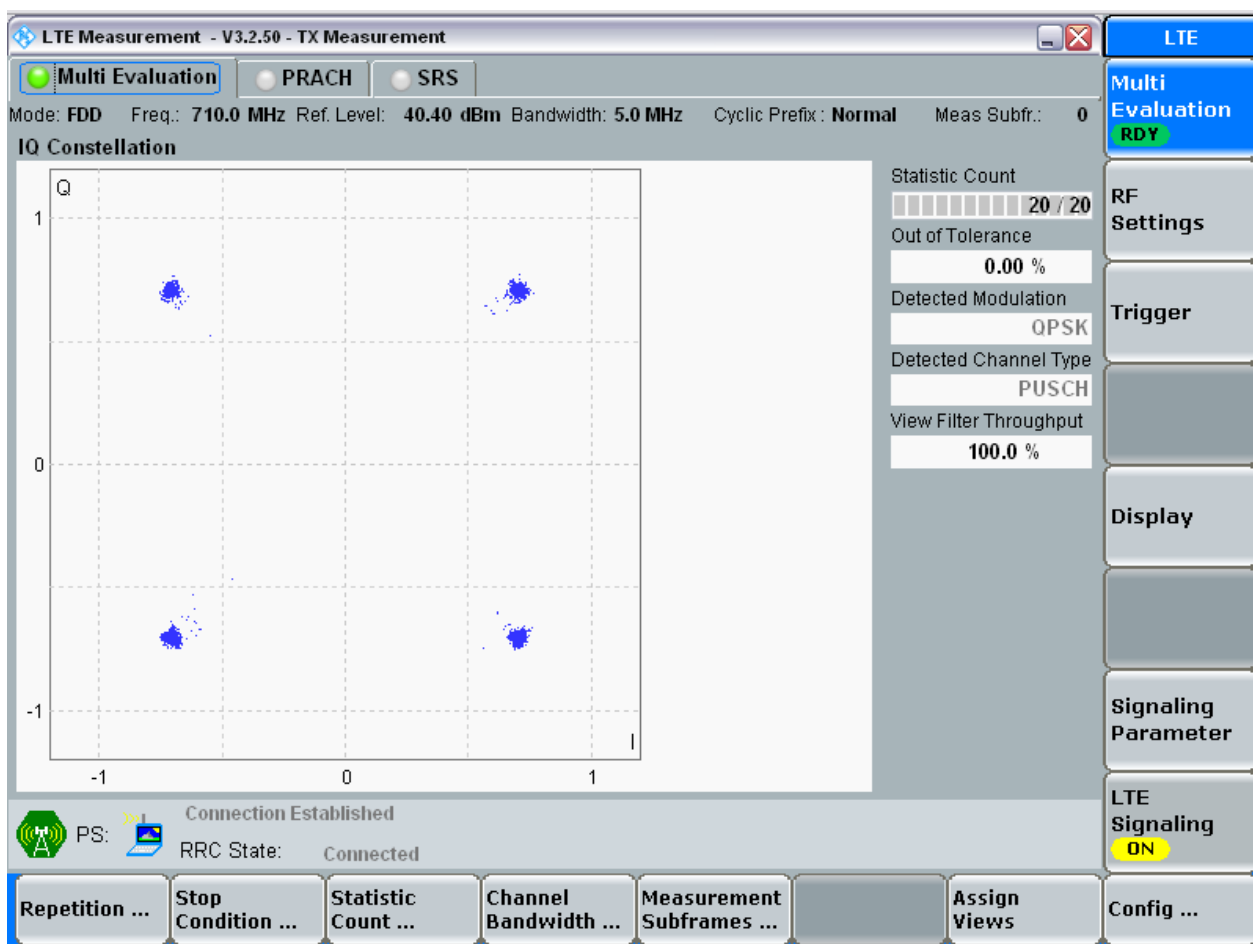
3.1.1 Test Band = BAND17

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

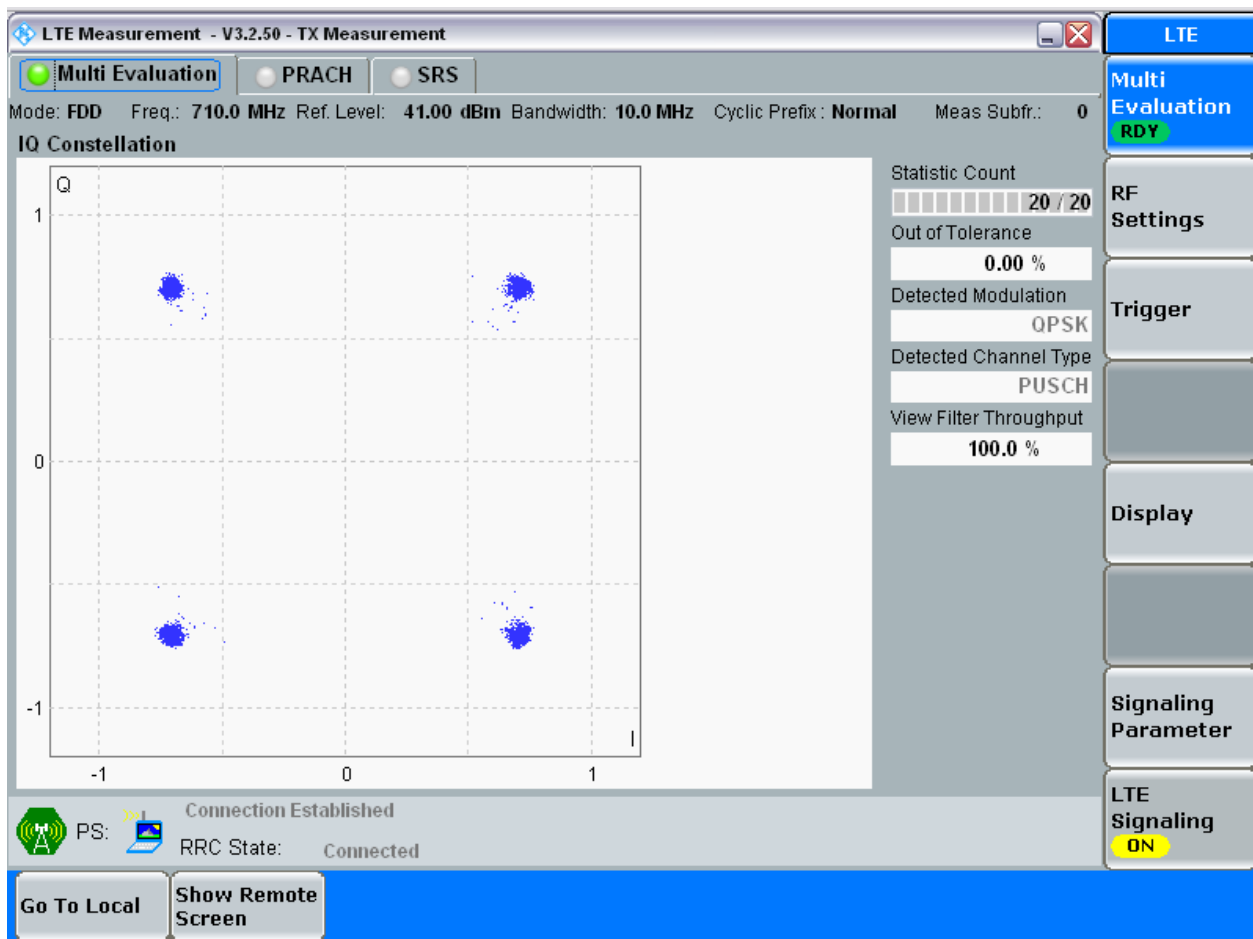
3.1.1.1.1.1.1 Test RB = RB25#0



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

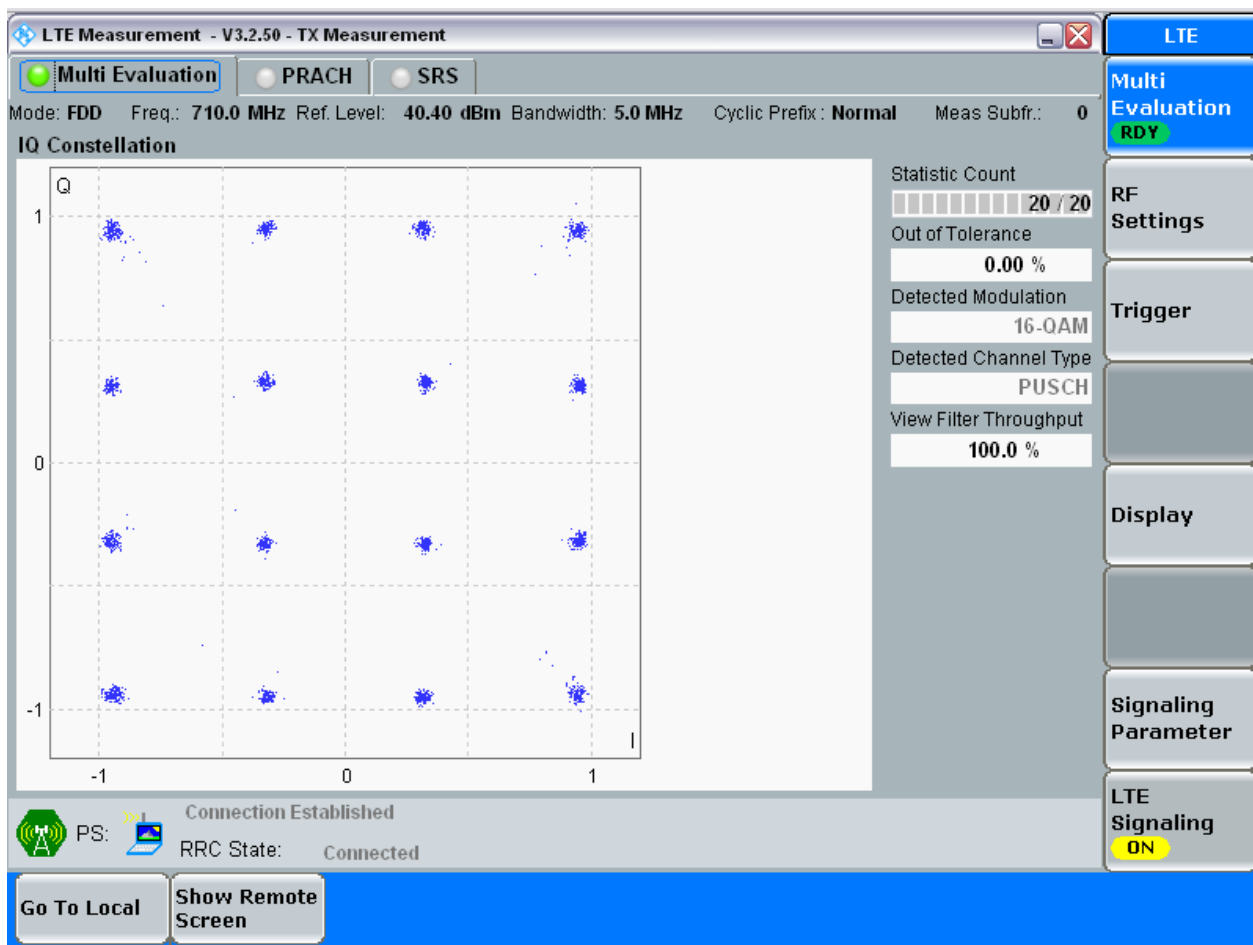


3.1.1.2 Test Mode = LTE/TM2

3.1.1.2.1 Test Bandwidth = 5

3.1.1.2.1.1 Test Channel = MCH

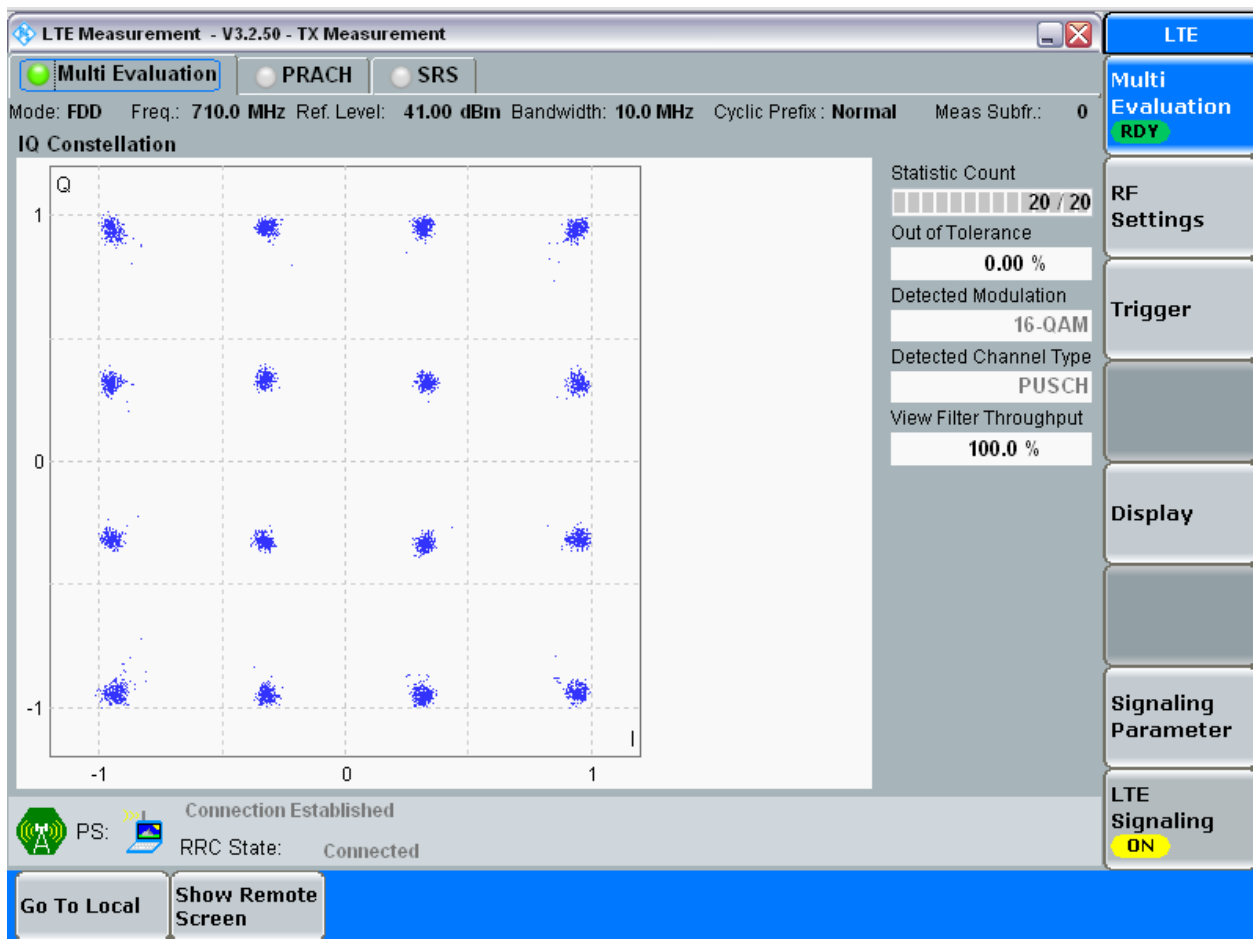
3.1.1.2.1.1.1 Test RB = RB25#0



3.1.1.2.2 Test Bandwidth = 10

3.1.1.2.2.1 Test Channel = MCH

3.1.1.2.2.1.1 Test RB = RB50#0



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.18	4.81	Pass
		MCH	4.28	4.94	Pass
		HCH	4.17	4.78	Pass
WCDMA850	UMTS/TM1	LCH	4.17	4.75	Pass
		MCH	4.15	4.73	Pass
		HCH	4.14	4.73	Pass

Test Band	Test Mode	Test Bandwidth	Test Channel	Test RB	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
BAND17	LTE/TM1	5	LCH	RB25#0	4.50	4.82	Pass
			MCH	RB25#0	4.51	4.85	Pass
			HCH	RB25#0	4.50	4.86	Pass
		10	LCH	RB50#0	8.99	9.60	Pass
			MCH	RB50#0	9.00	9.63	Pass
			HCH	RB50#0	8.99	9.66	Pass
	LTE/TM2	5	LCH	RB25#0	4.50	4.85	Pass
			MCH	RB25#0	4.50	4.87	Pass
			HCH	RB25#0	4.51	4.88	Pass
		10	LCH	RB50#0	8.98	9.57	Pass
			MCH	RB50#0	8.99	9.55	Pass
			HCH	RB50#0	9.01	9.59	Pass

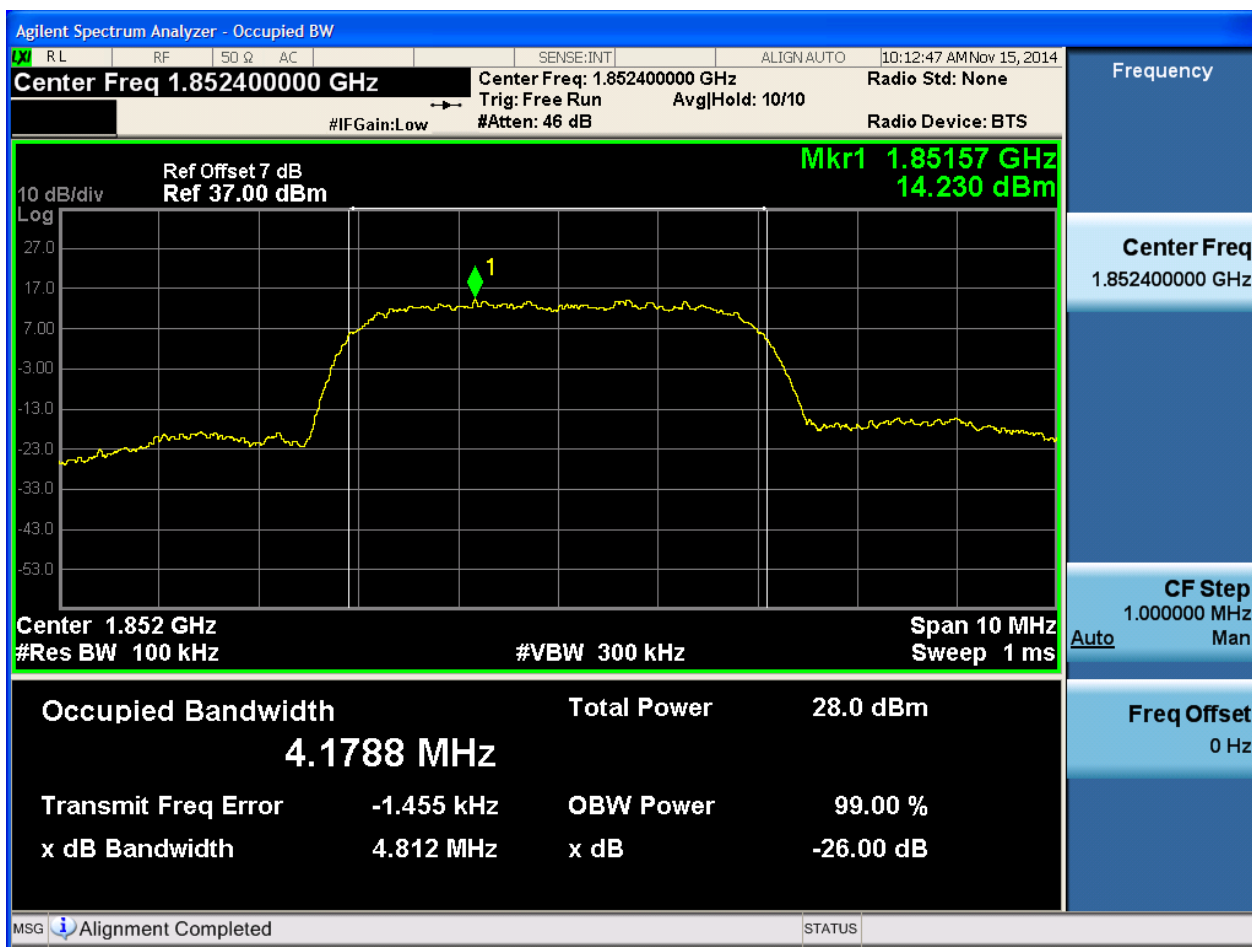
Part II - Test Plots

4.2 For UMTS

4.2.1 Test Band = WCDMA1900

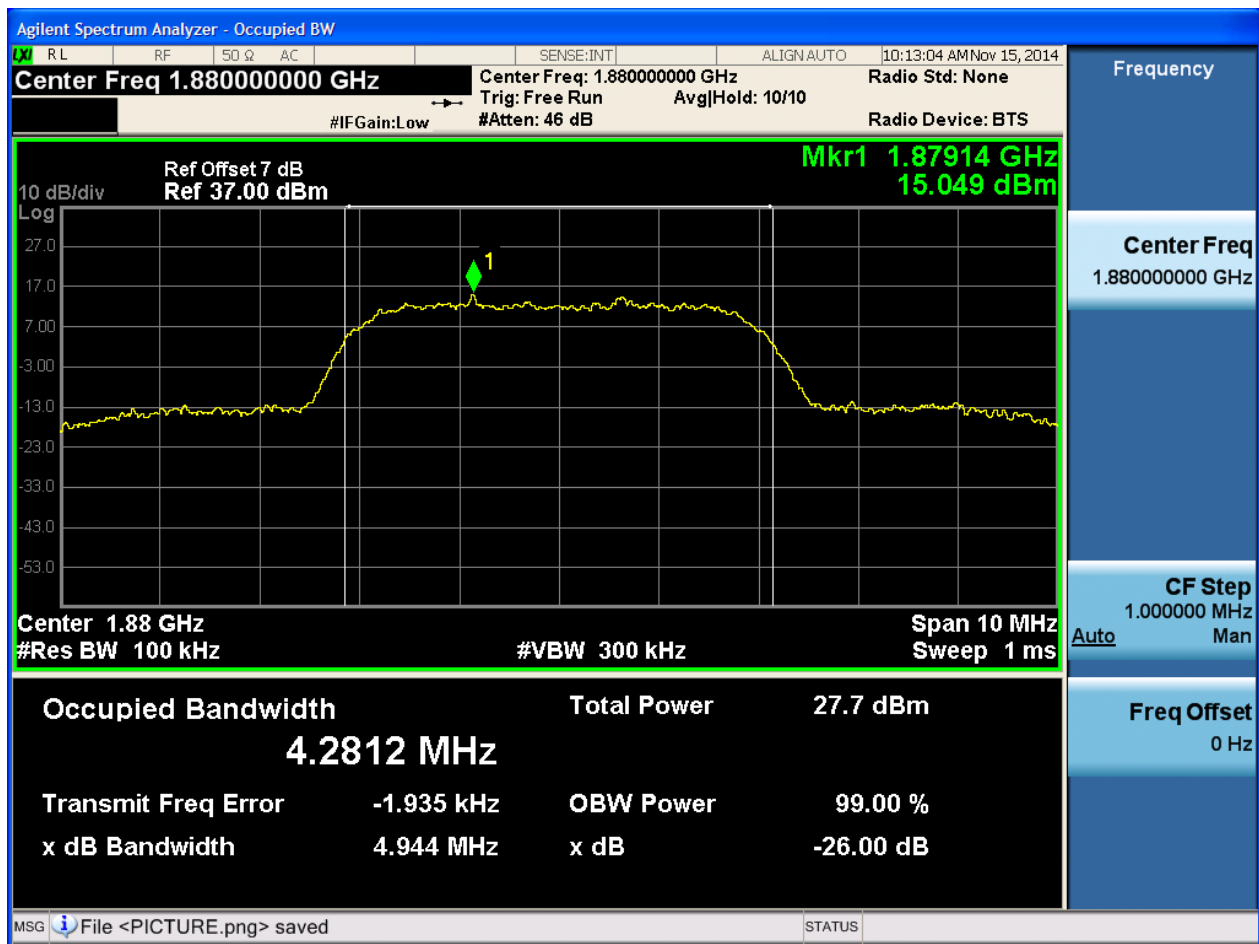
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



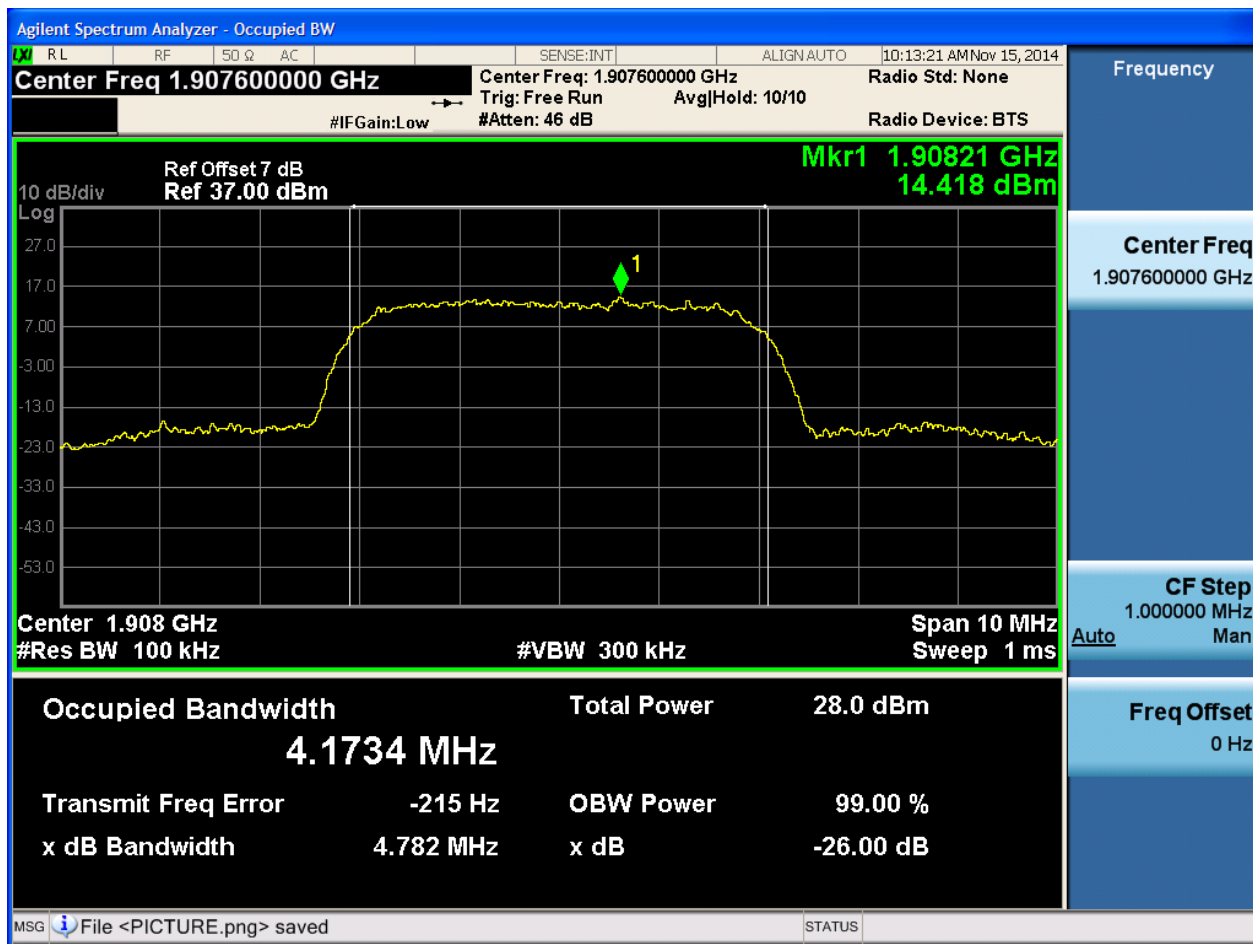


4.2.1.1.2 Test Channel = MCH





4.2.1.1.3 Test Channel = HCH

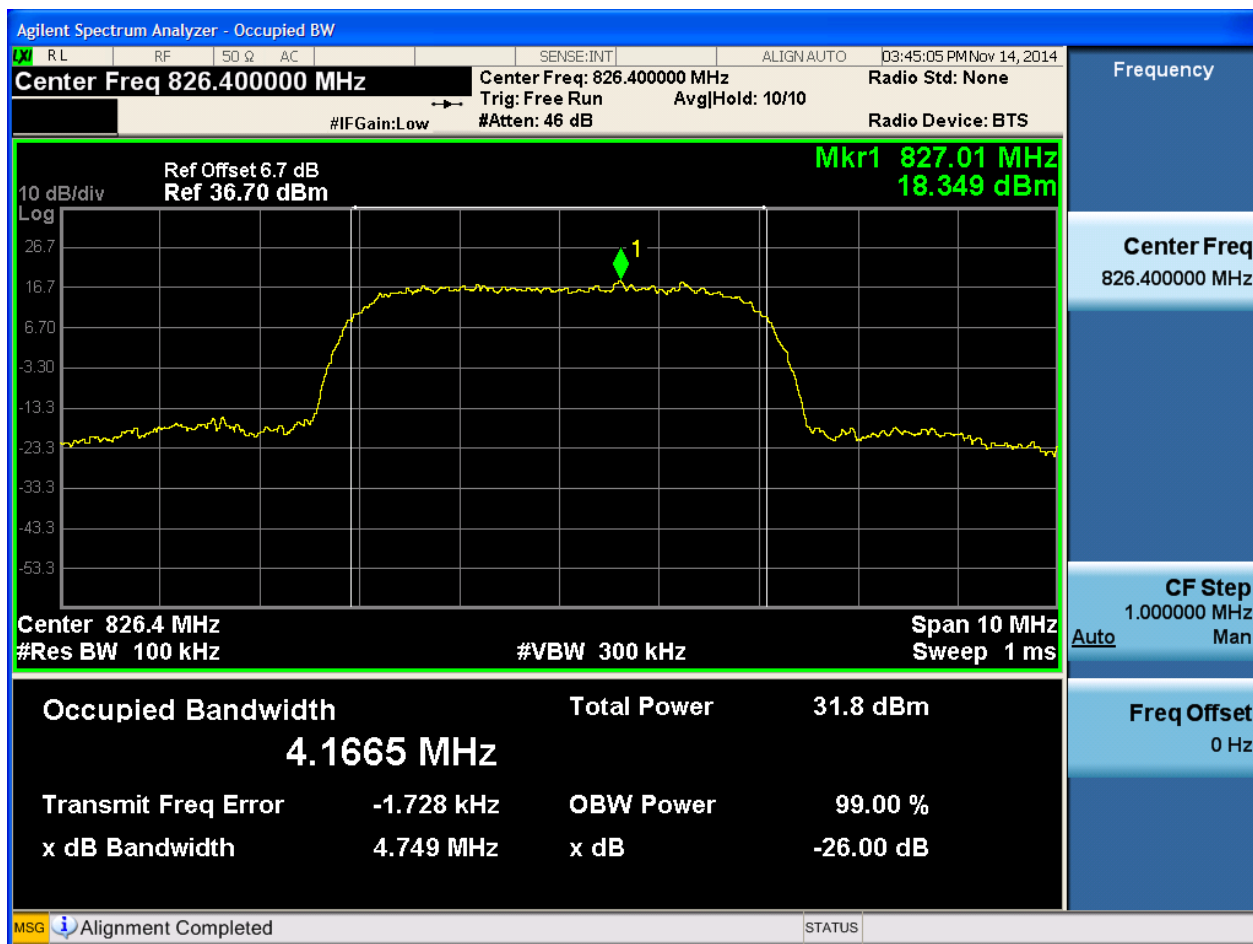




4.2.2 Test Band = WCDMA850

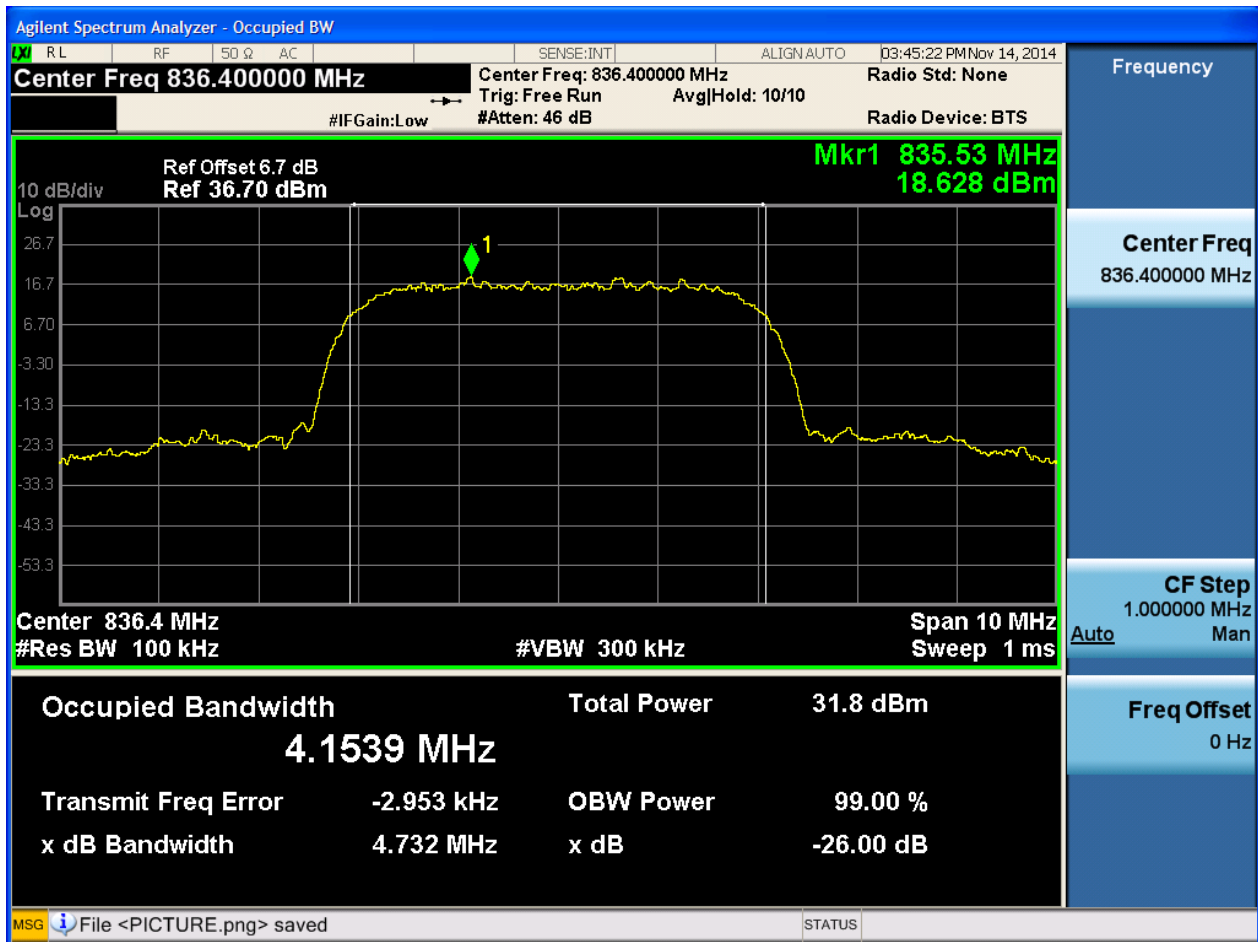
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



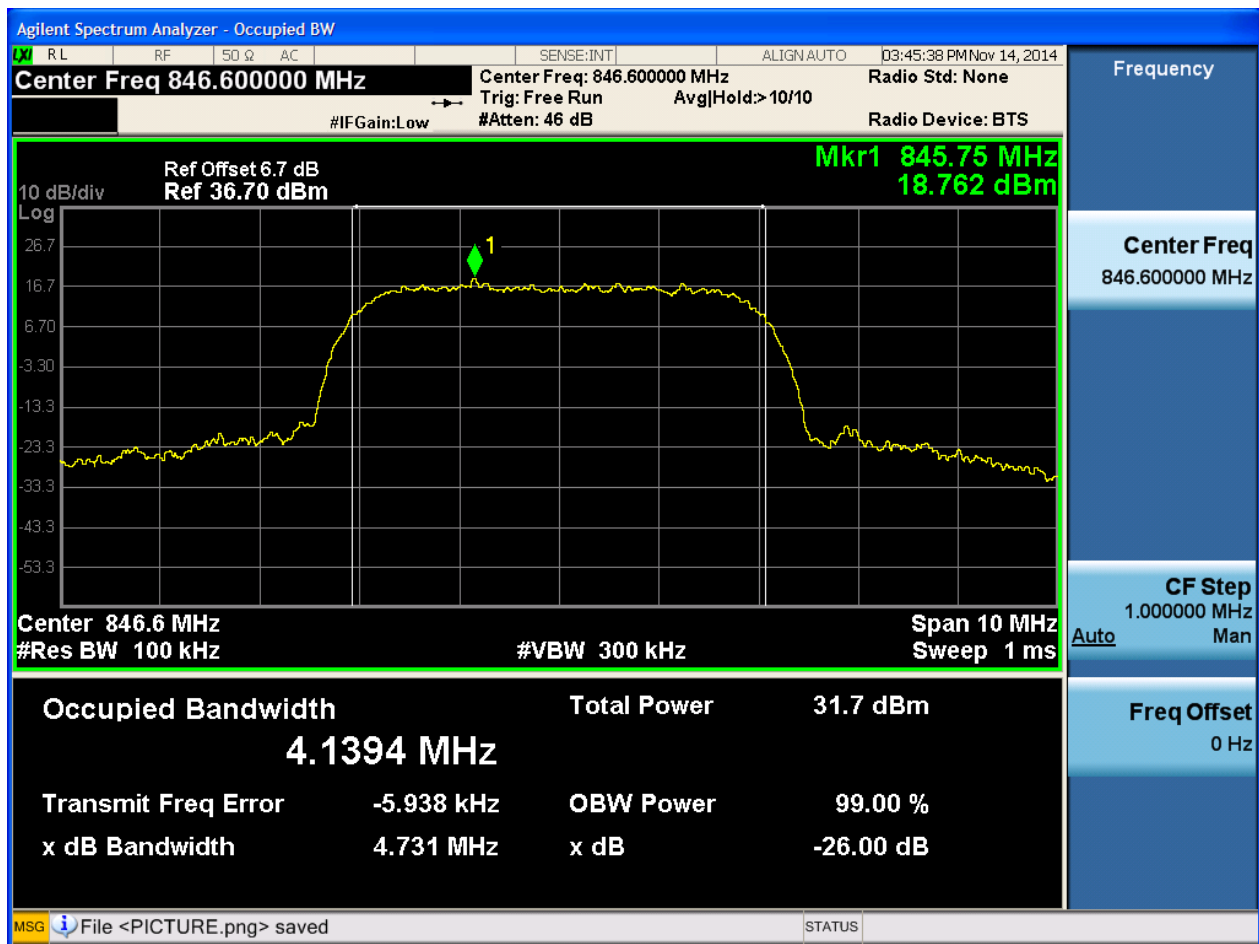


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH



4.1 For LTE

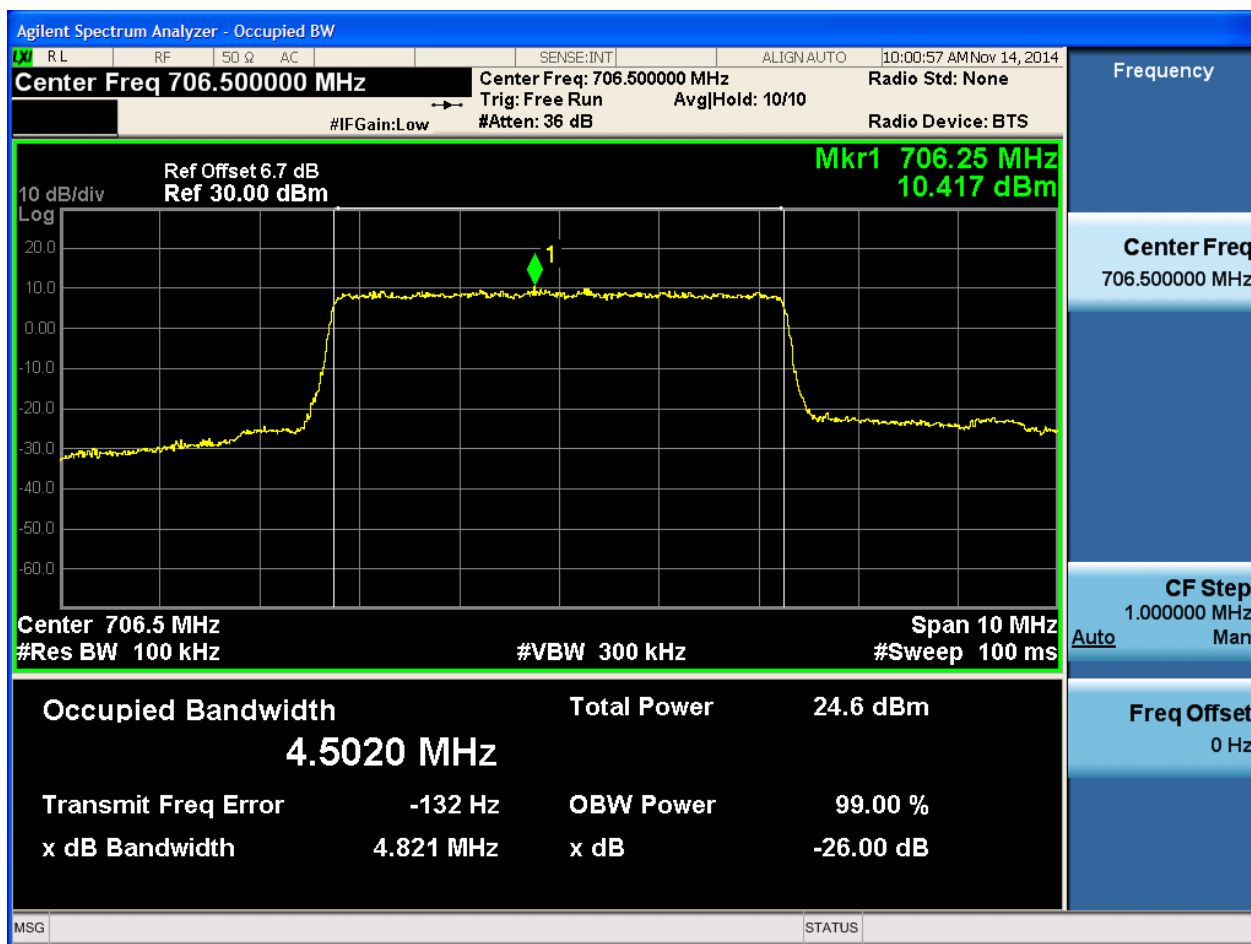
4.1.1 Test Band = BAND17

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

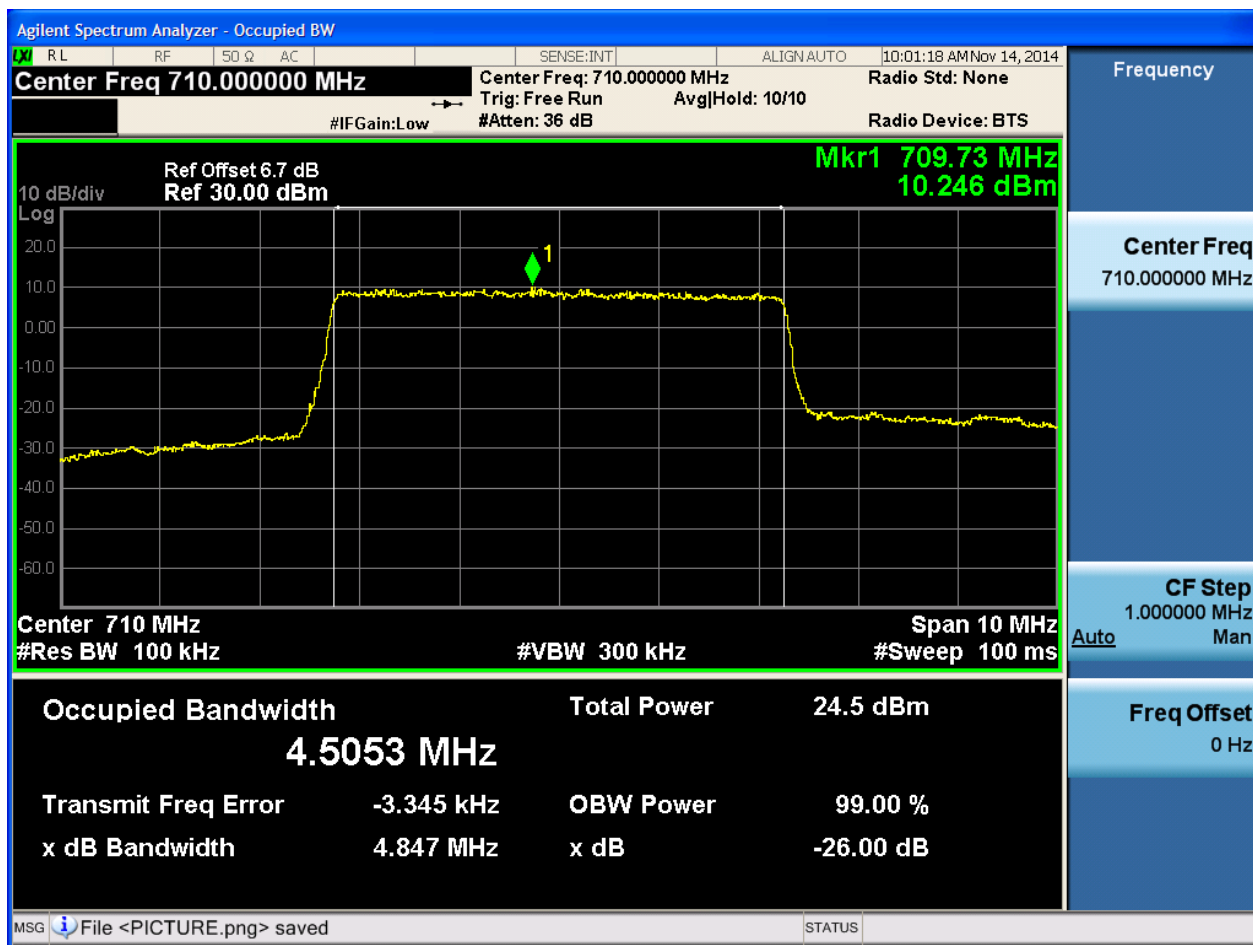
4.1.1.1.1.1.1 Test RB = RB25#0





4.1.1.1.1.2 Test Channel = MCH

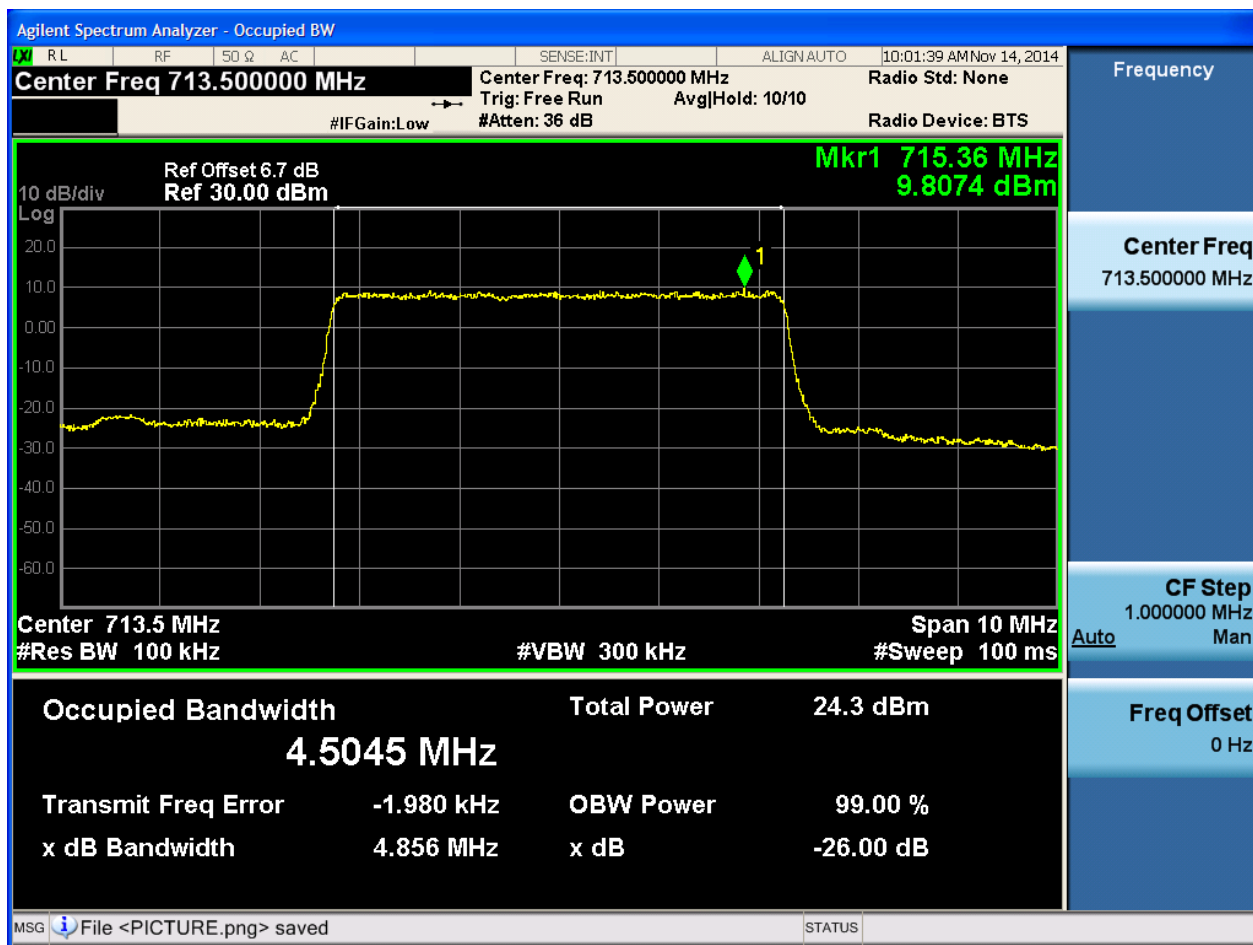
4.1.1.1.1.2.1 Test RB = RB25#0





4.1.1.1.1.3 Test Channel = HCH

4.1.1.1.1.3.1 Test RB = RB25#0

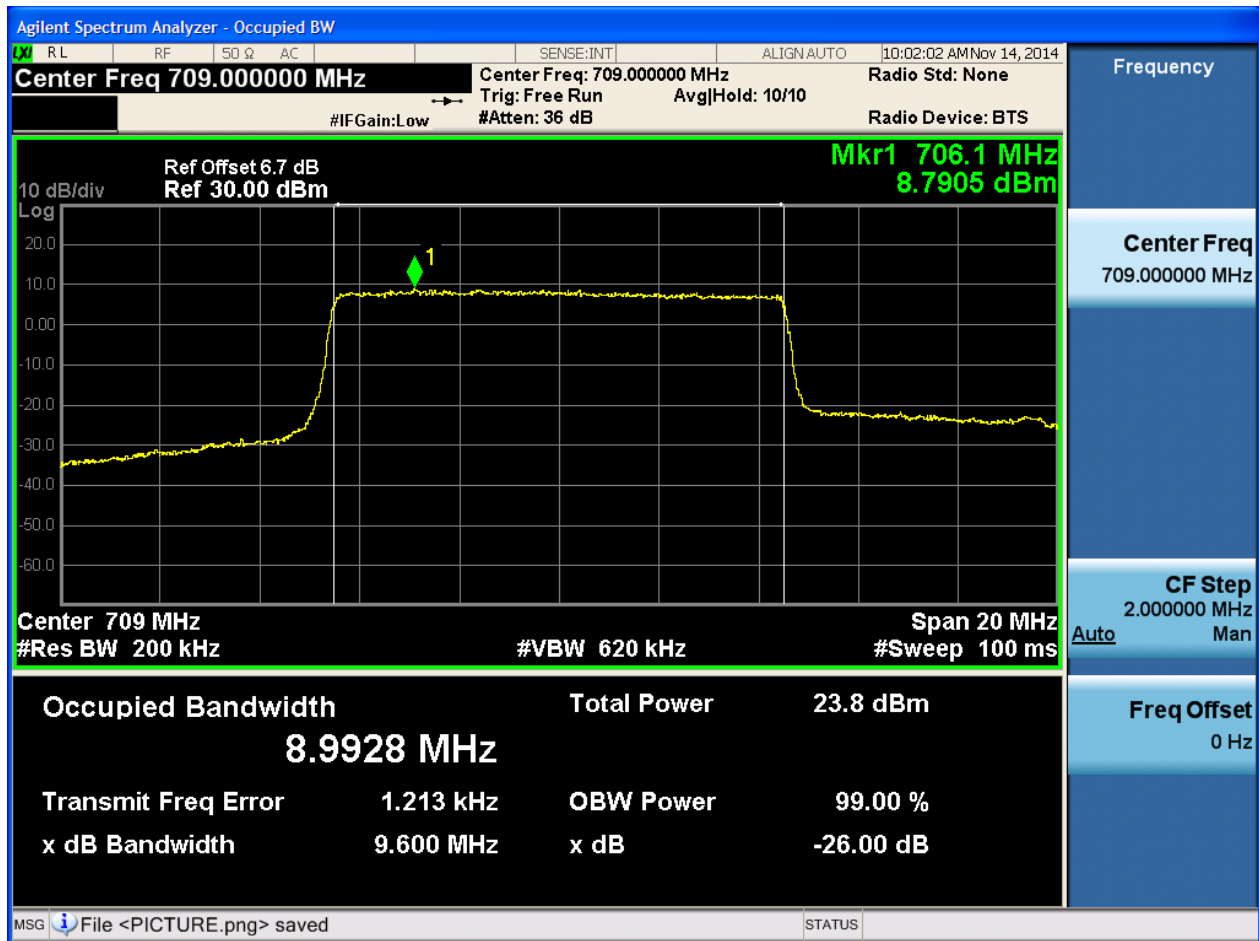




4.1.1.1.2 Test Bandwidth = 10

4.1.1.1.2.1 Test Channel = LCH

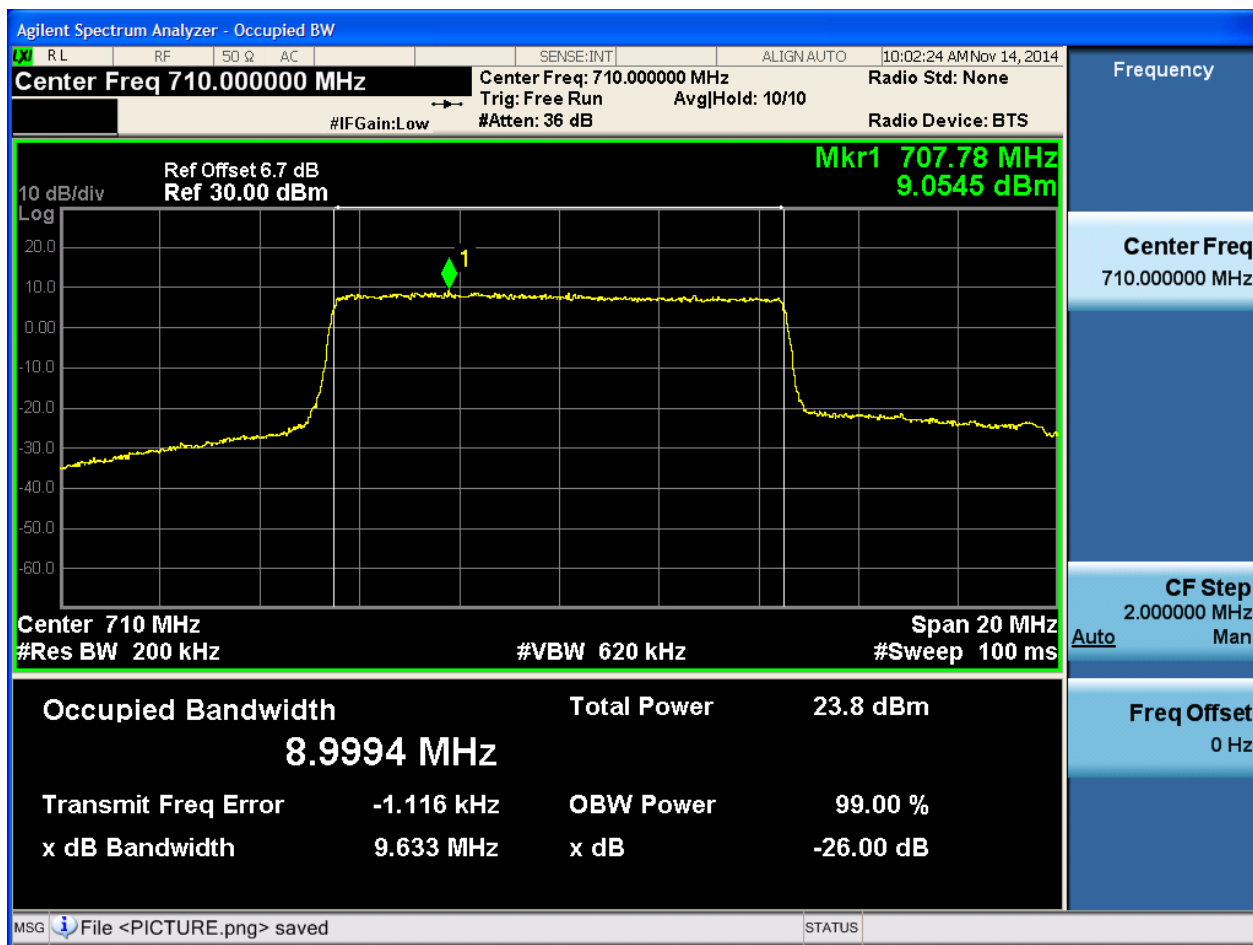
4.1.1.1.2.1.1 Test RB = RB50#0





4.1.1.1.2.2 Test Channel = MCH

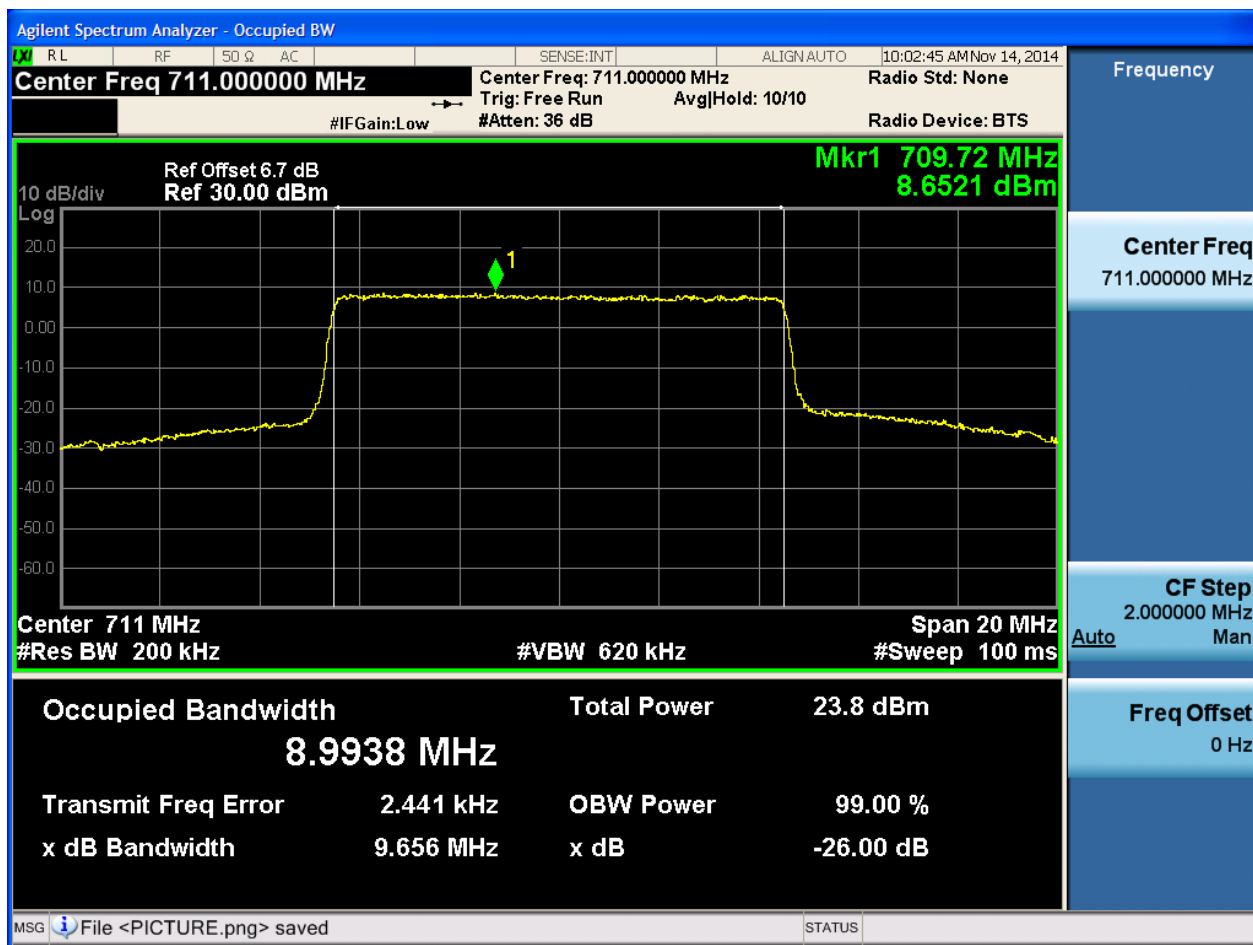
4.1.1.1.2.2.1 Test RB = RB50#0





4.1.1.1.2.3 Test Channel = HCH

4.1.1.1.2.3.1 Test RB = RB50#0



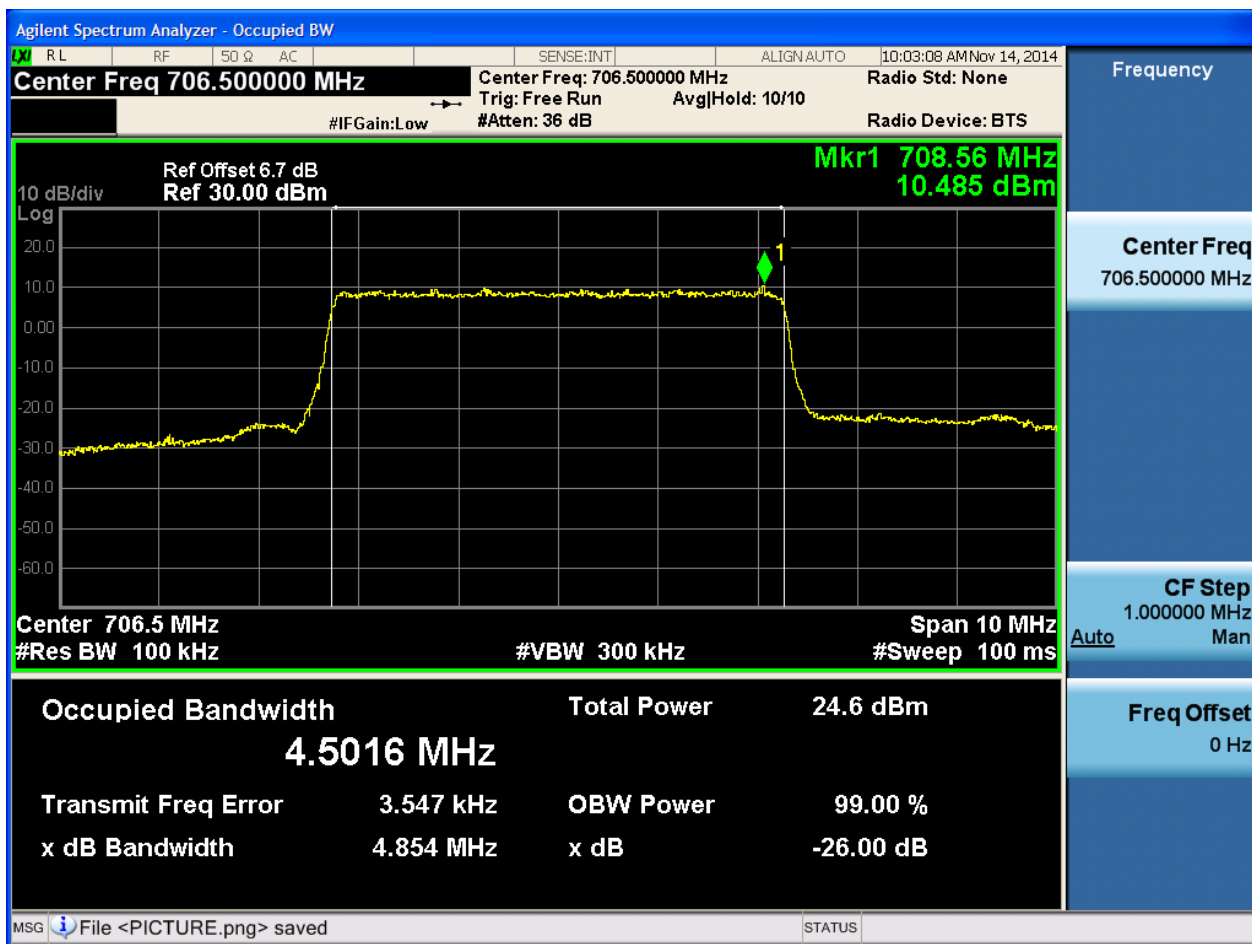


4.1.1.2 Test Mode = LTE/TM2

4.1.1.2.1 Test Bandwidth = 5

4.1.1.2.1.1 Test Channel = LCH

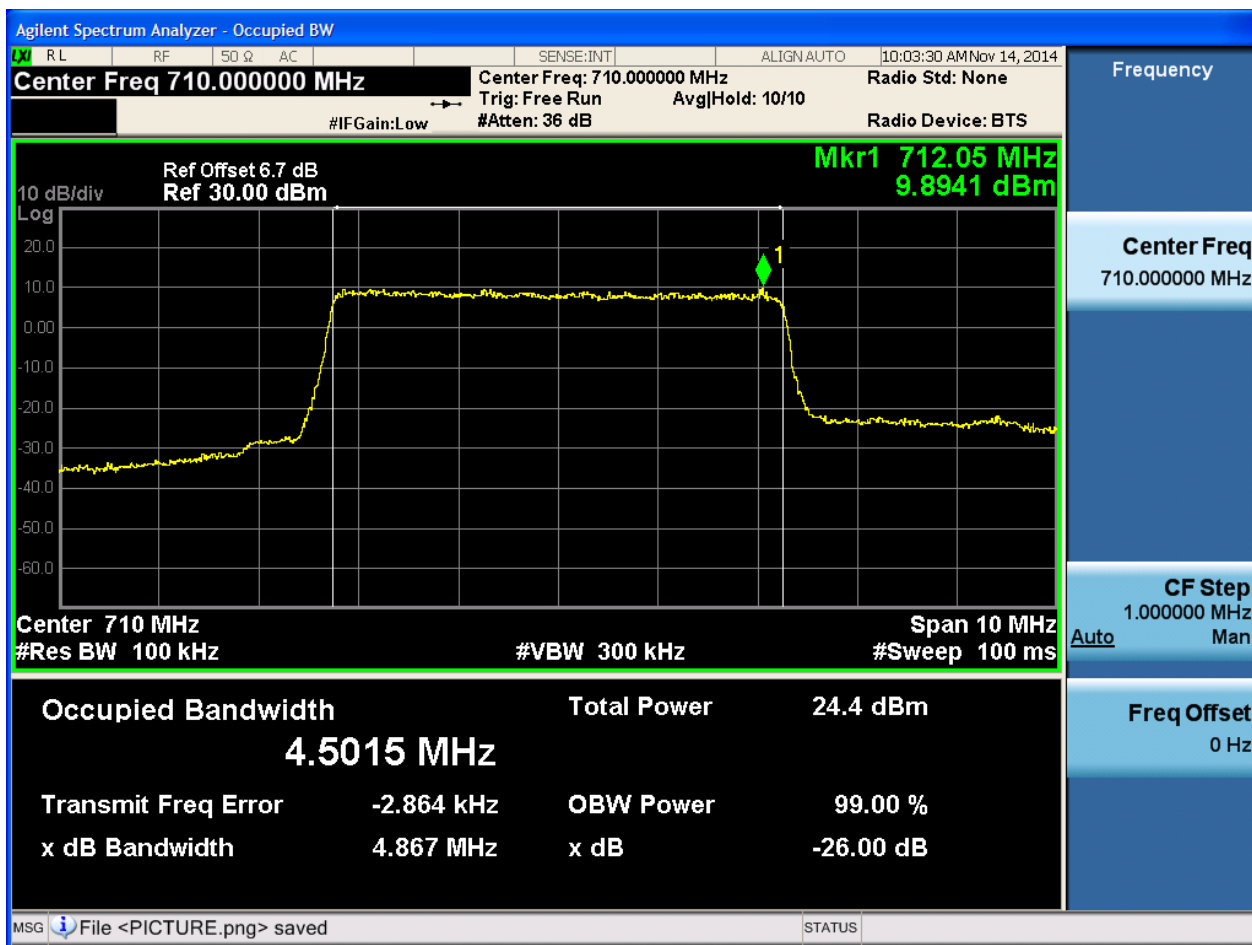
4.1.1.2.1.1.1 Test RB = RB25#0





4.1.1.2.1.2 Test Channel = MCH

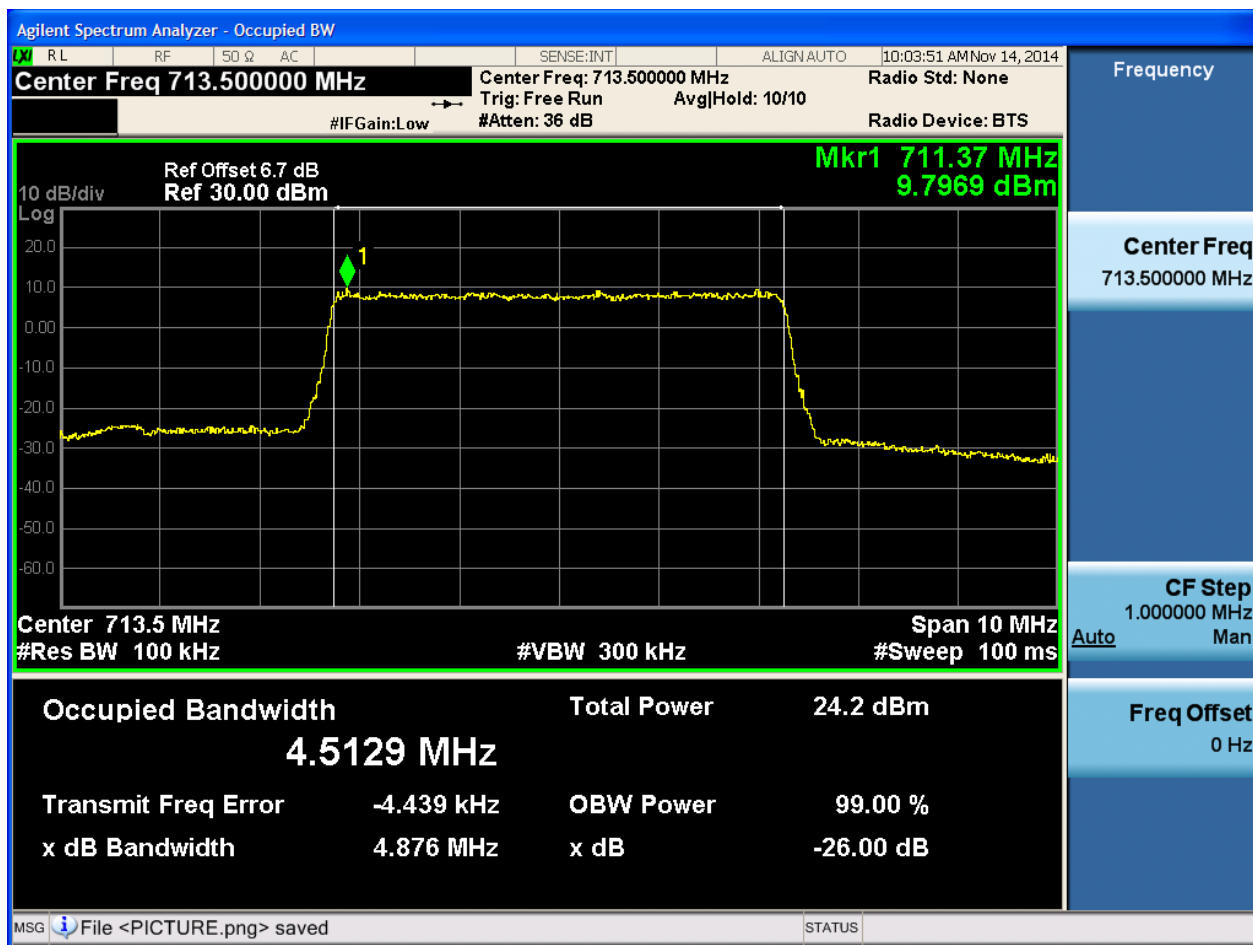
4.1.1.2.1.2.1 Test RB = RB25#0





4.1.1.2.1.3 Test Channel = HCH

4.1.1.2.1.3.1 Test RB = RB25#0

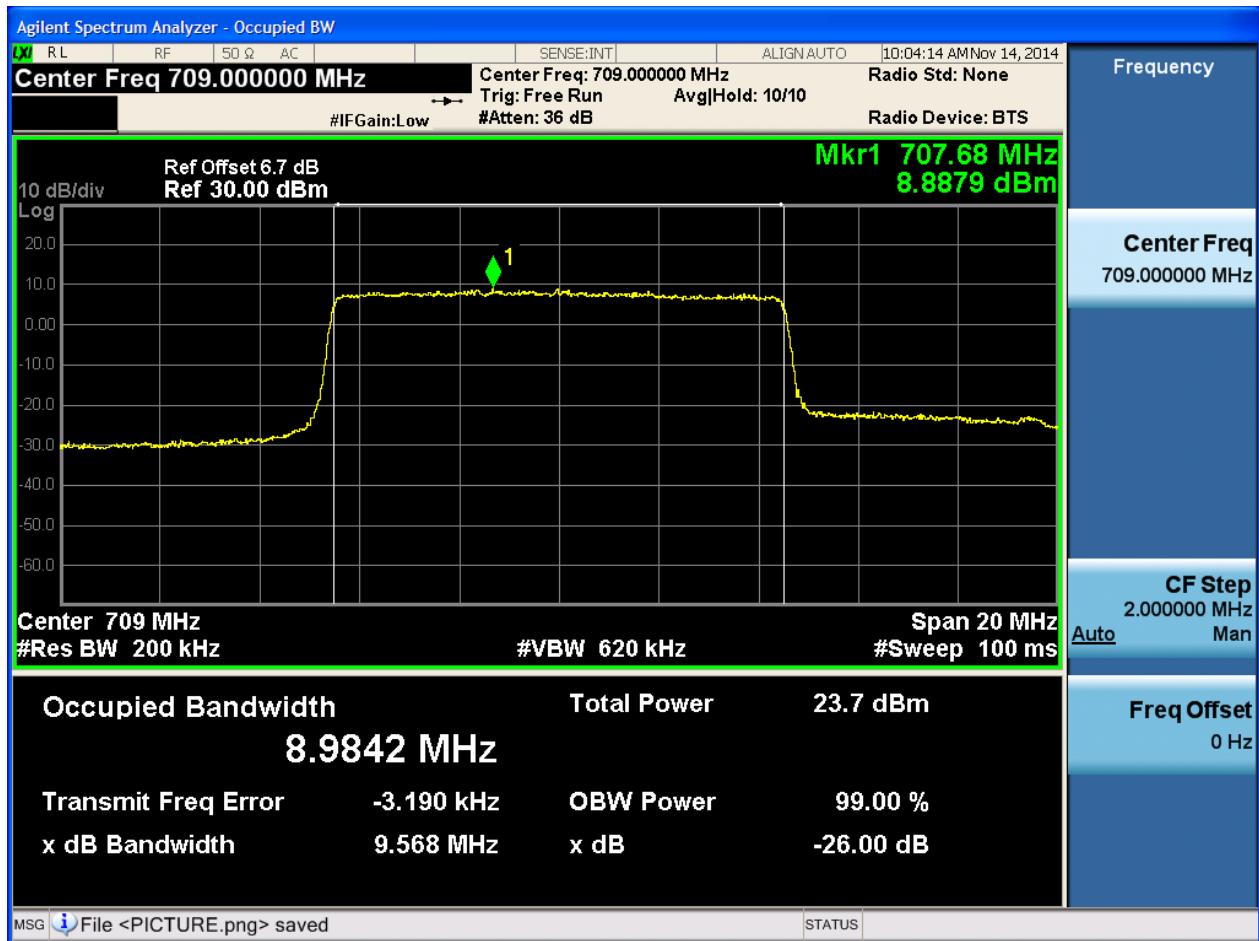




4.1.1.2.2 Test Bandwidth = 10

4.1.1.2.2.1 Test Channel = LCH

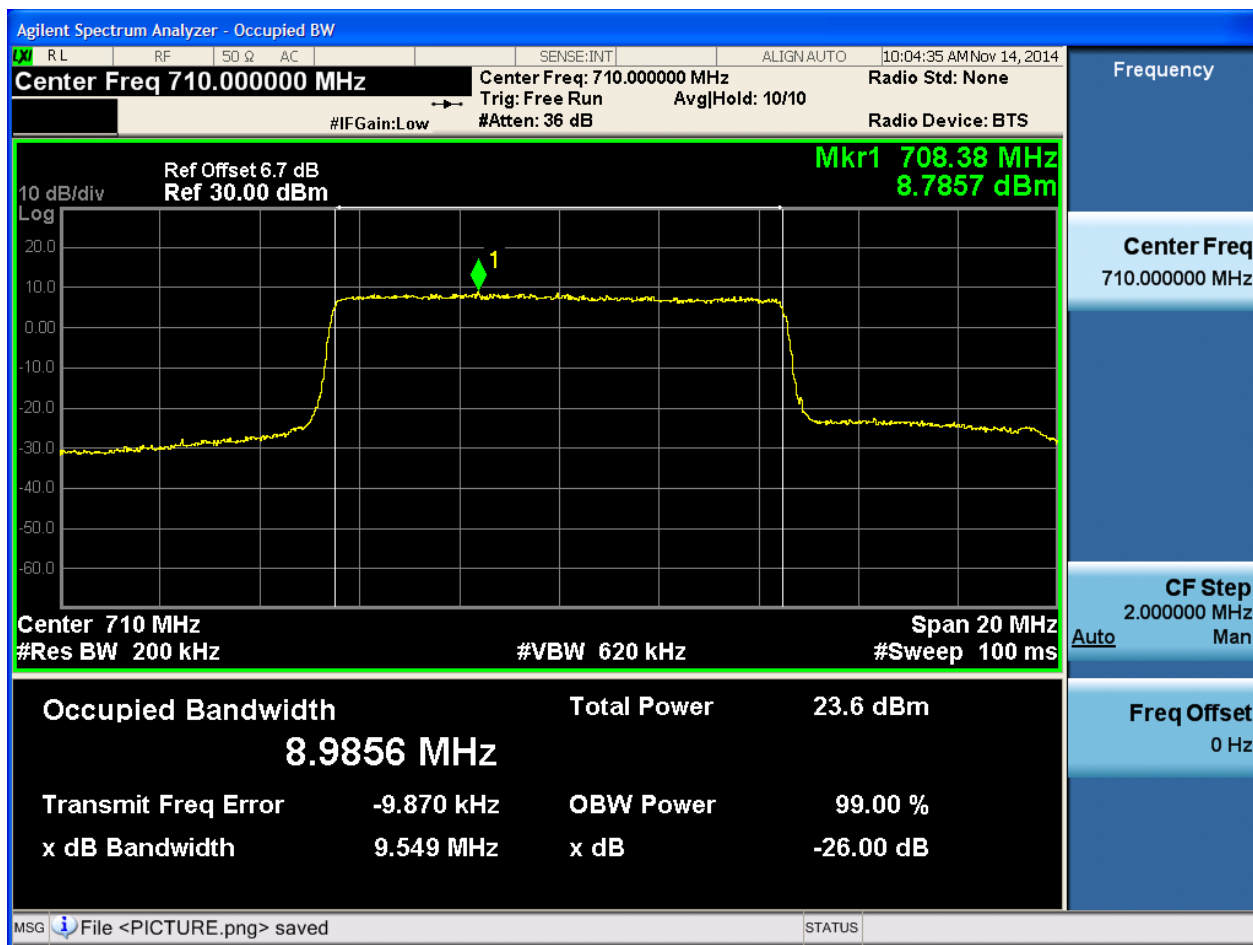
4.1.1.2.2.1.1 Test RB = RB50#0





4.1.1.2.2.2 Test Channel = MCH

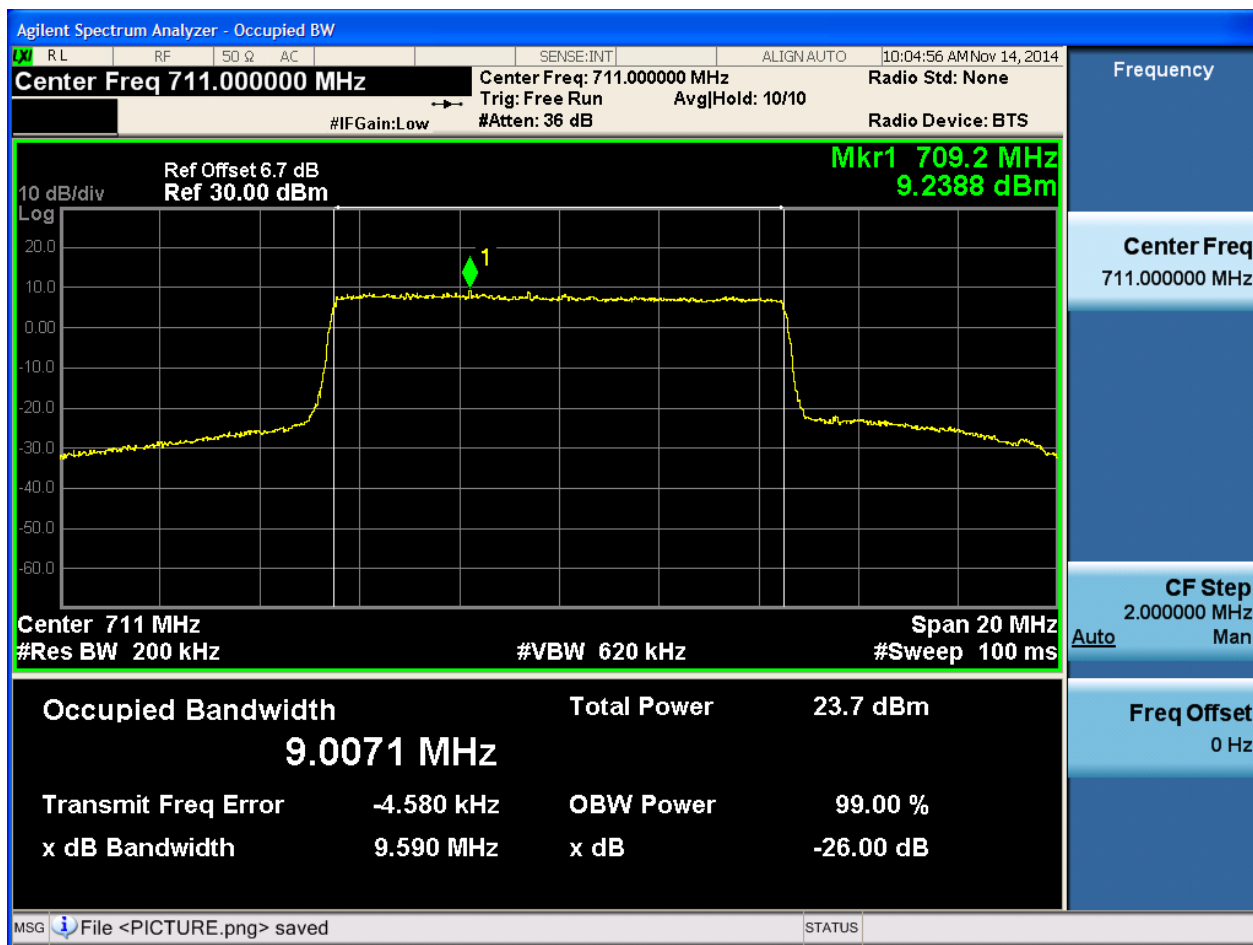
4.1.1.2.2.1 Test RB = RB50#0





4.1.1.2.2.3 Test Channel = HCH

4.1.1.2.2.3.1 Test RB = RB50#0





5Appendix_E: Band Edges Compliance

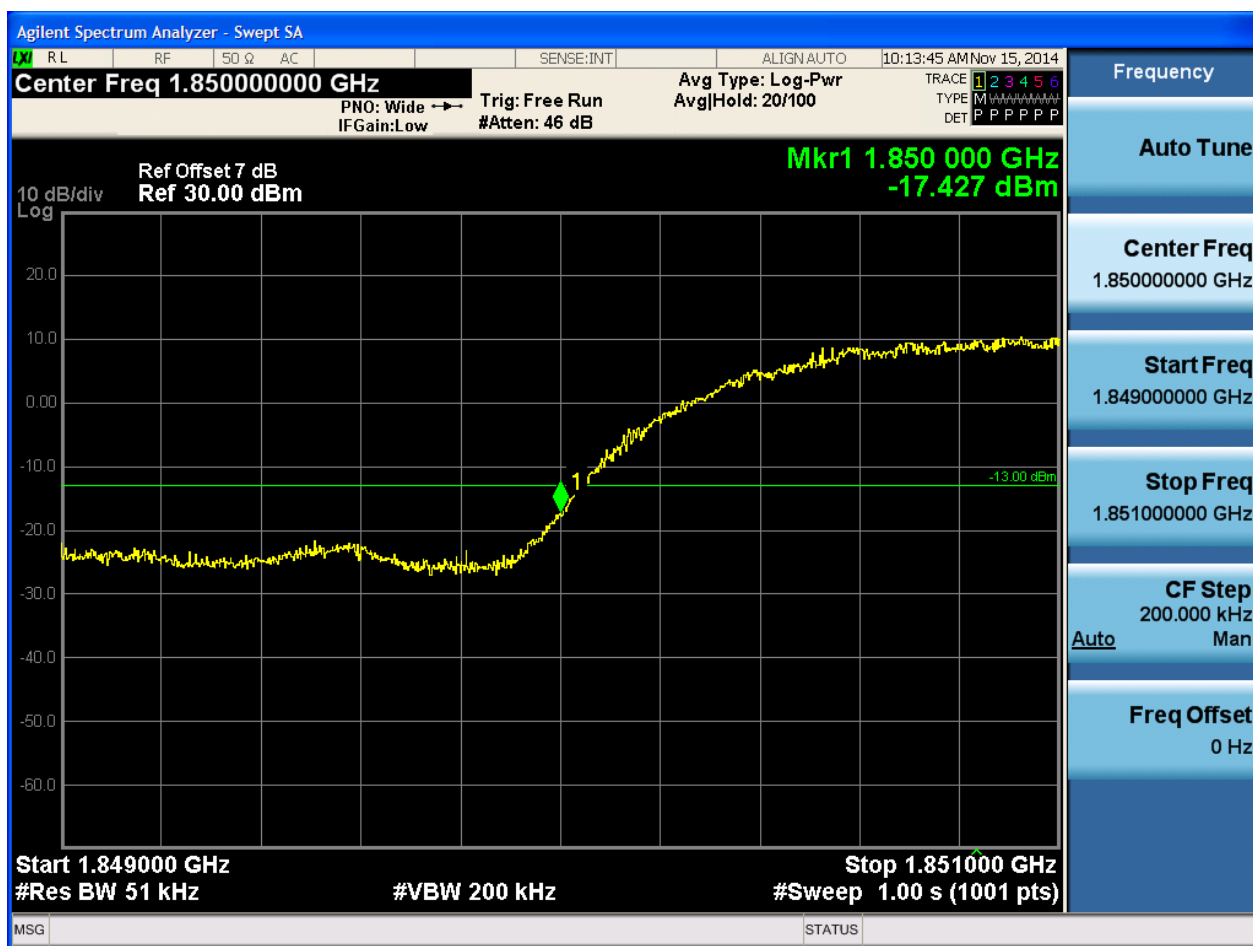
Part I - Test Plots

5.2 For UMTS

5.2.1 Test Band = WCDMA1900

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH





5.2.1.1.2 Test Channel = HCH

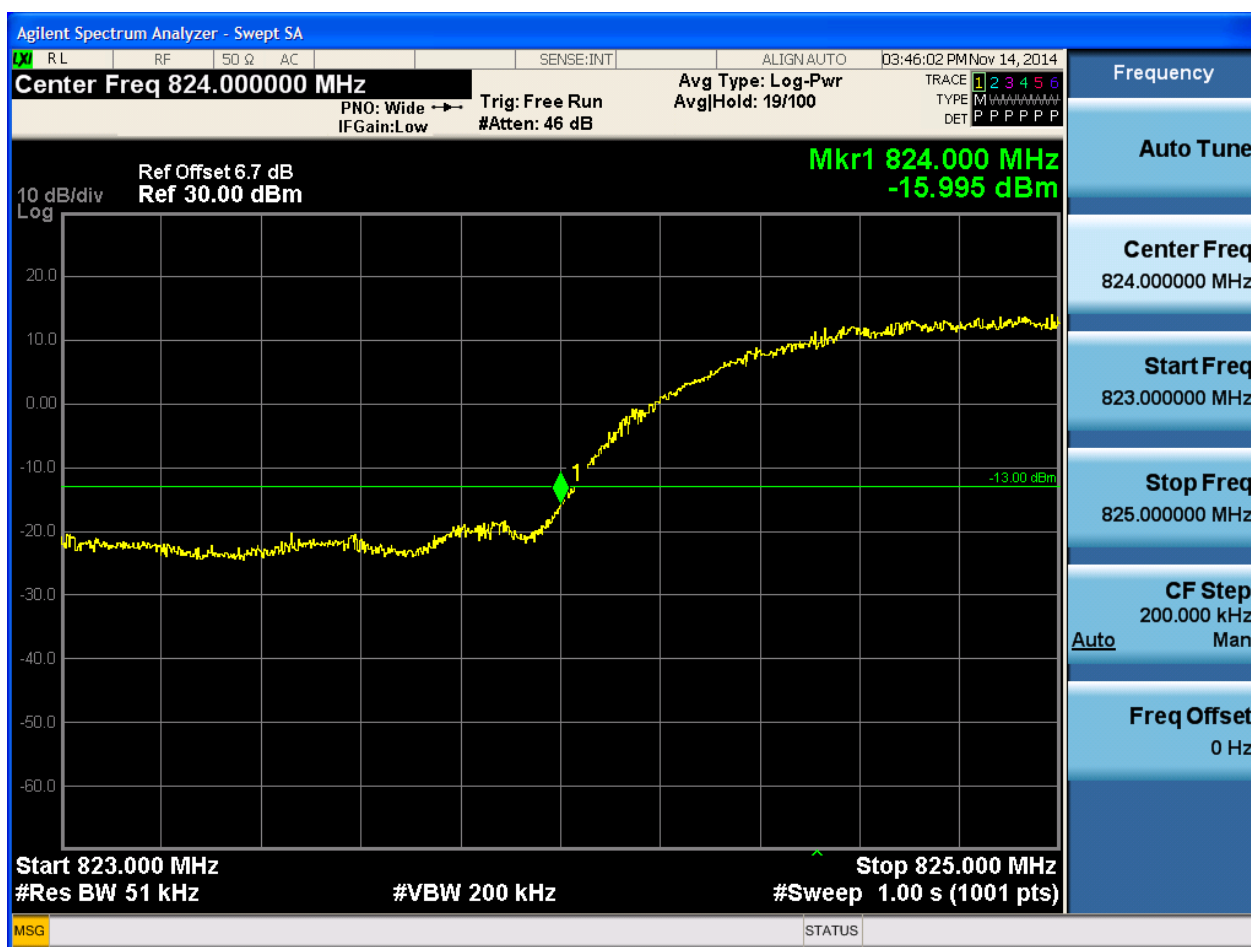




5.2.2 Test Band = WCDMA850

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH





5.2.2.1.2 Test Channel = HCH





5.1 For LTE

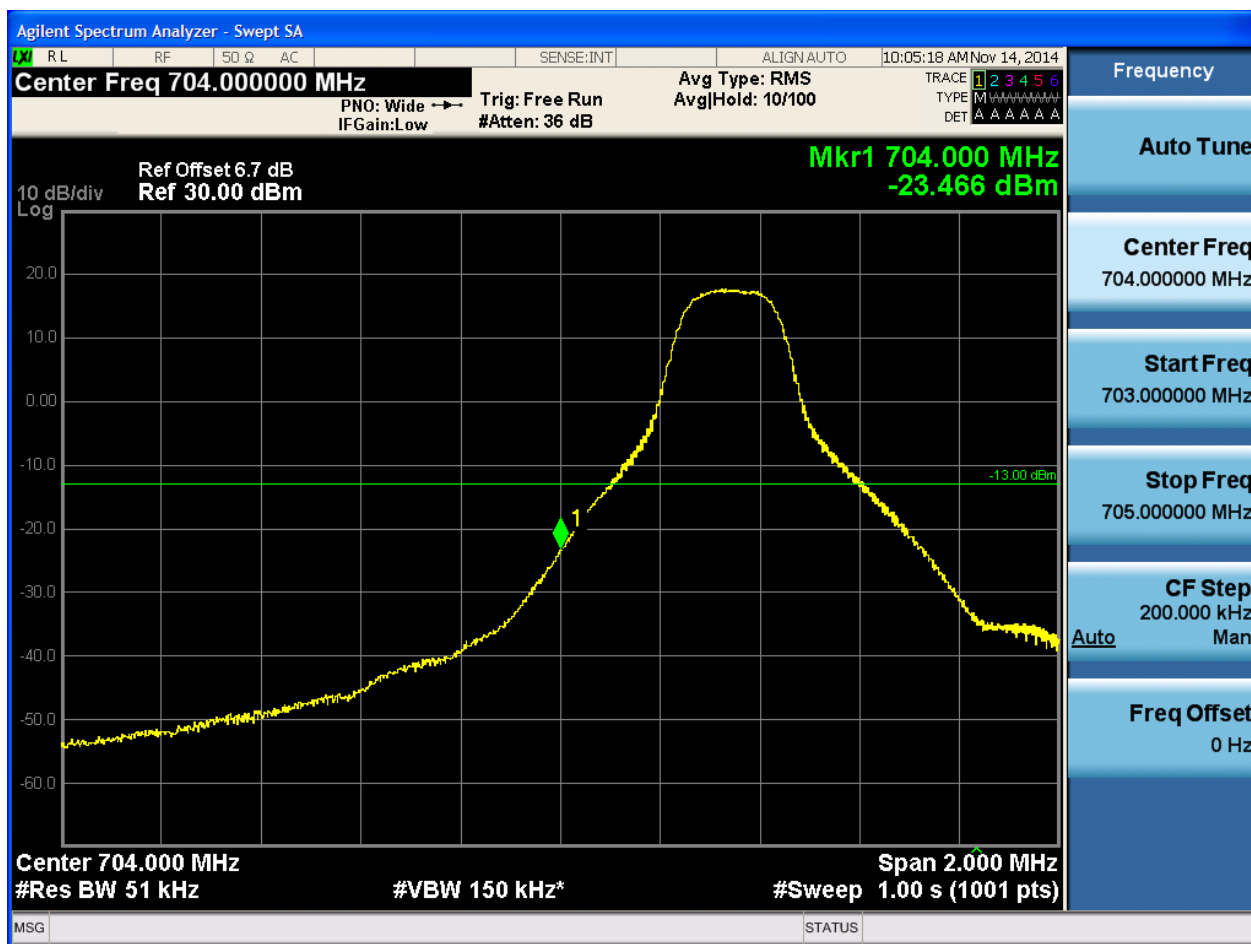
5.1.1 Test Band = BAND17

5.1.1.1 Test Mode = LTE/TM1

5.1.1.1.1 Test Bandwidth = 5

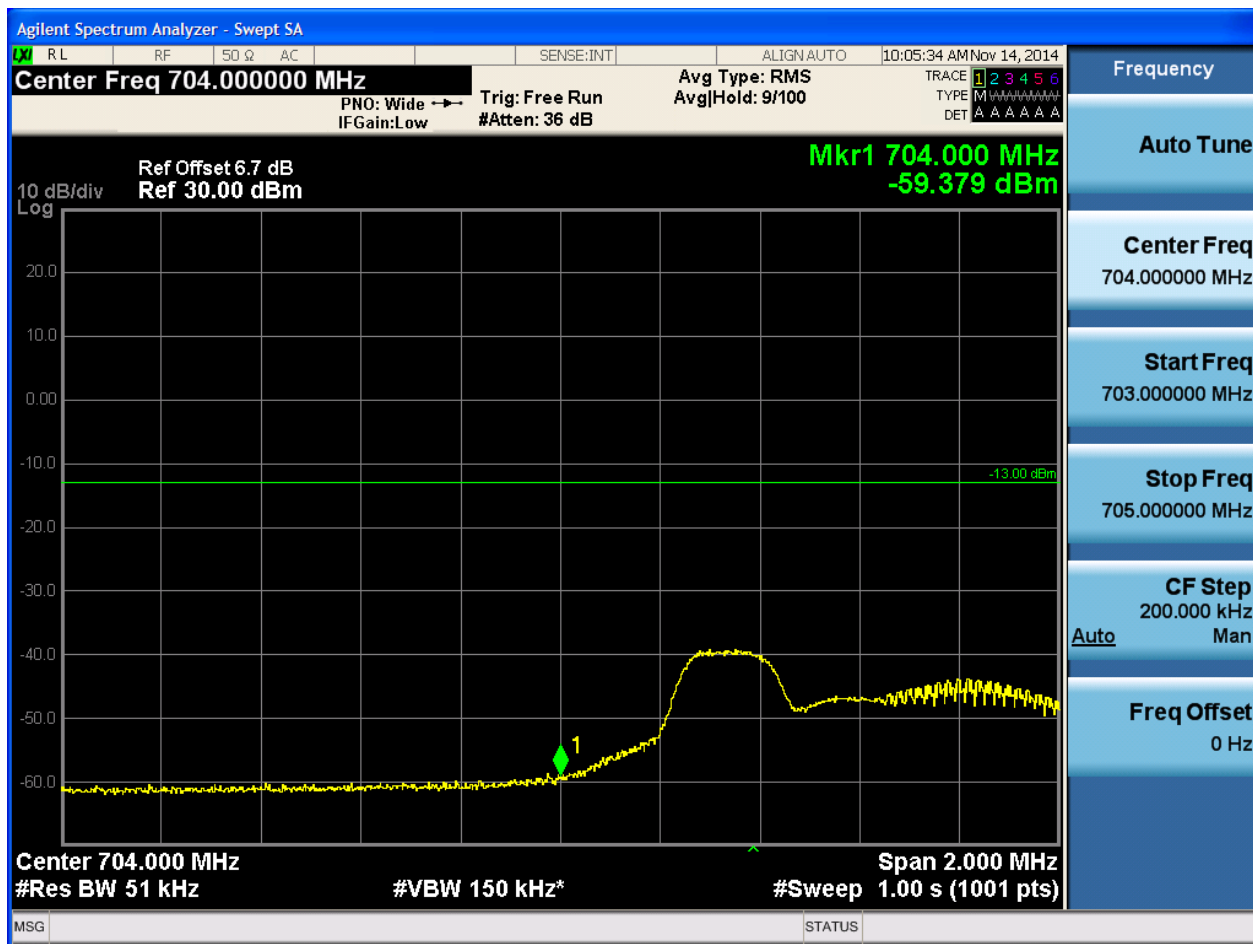
5.1.1.1.1.1 Test Channel = LCH

5.1.1.1.1.1.1 Test RB = RB1#0





5.1.1.1.1.2 Test RB = RB1#24



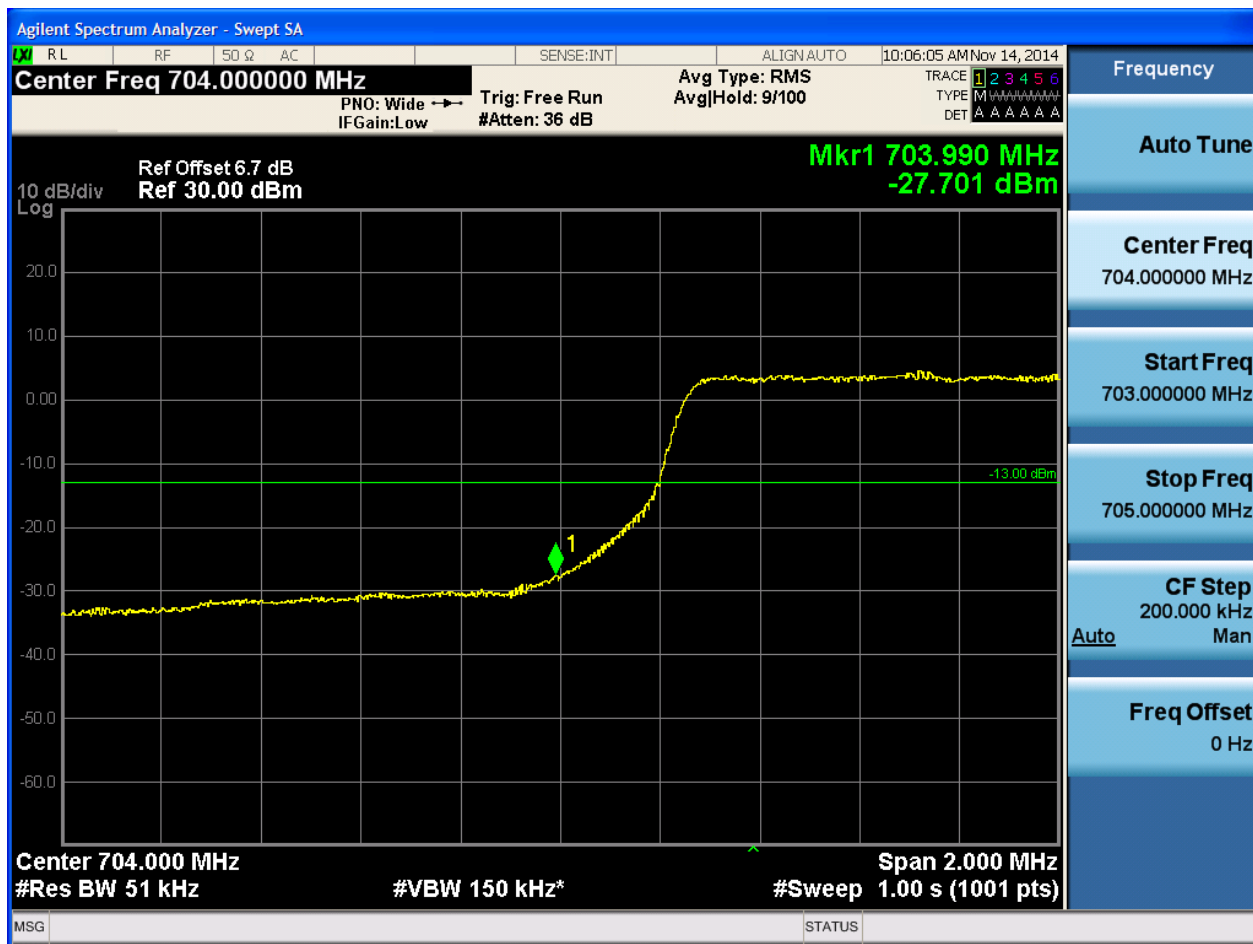


5.1.1.1.1.3 Test RB = RB12#6





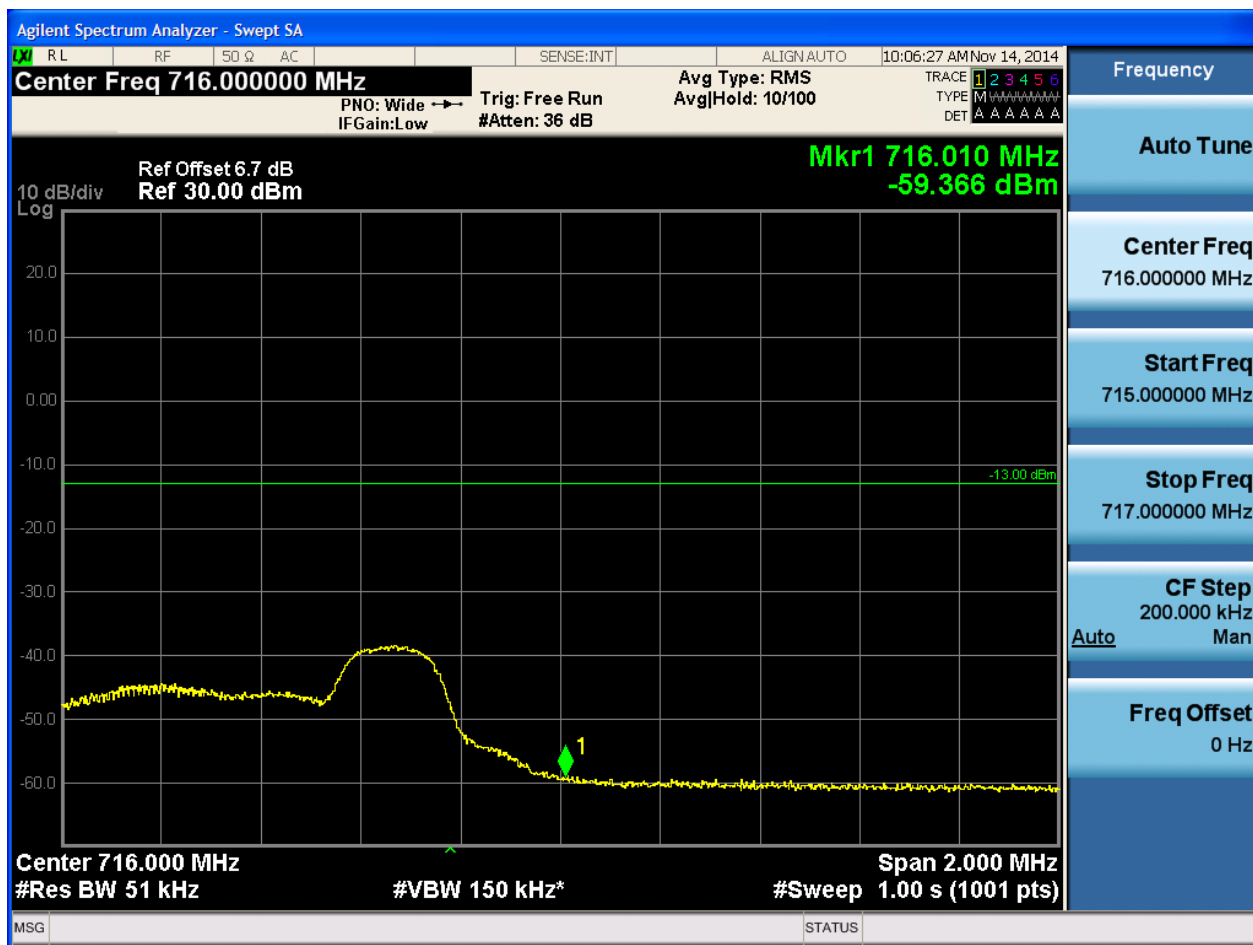
5.1.1.1.1.4 Test RB = RB25#0

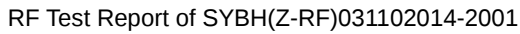




5.1.1.1.1.2 Test Channel = HCH

5.1.1.1.1.2.1 Test RB = RB1#0





Agilent Spectrum Analyzer - Swept SA

Center Freq 716.000000 MHz

Ref Offset 6.7 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 716.000 MHz
-23.879 dBm

Center 716.000 MHz
#Res BW 51 kHz

#VBW 150 kHz*

Span 2.000 MHz
#Sweep 1.00 s (1001 pts)

Frequency

Auto Tune

Center Freq
716.000000 MHz

Start Freq
715.000000 MHz

Stop Freq
717.000000 MHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

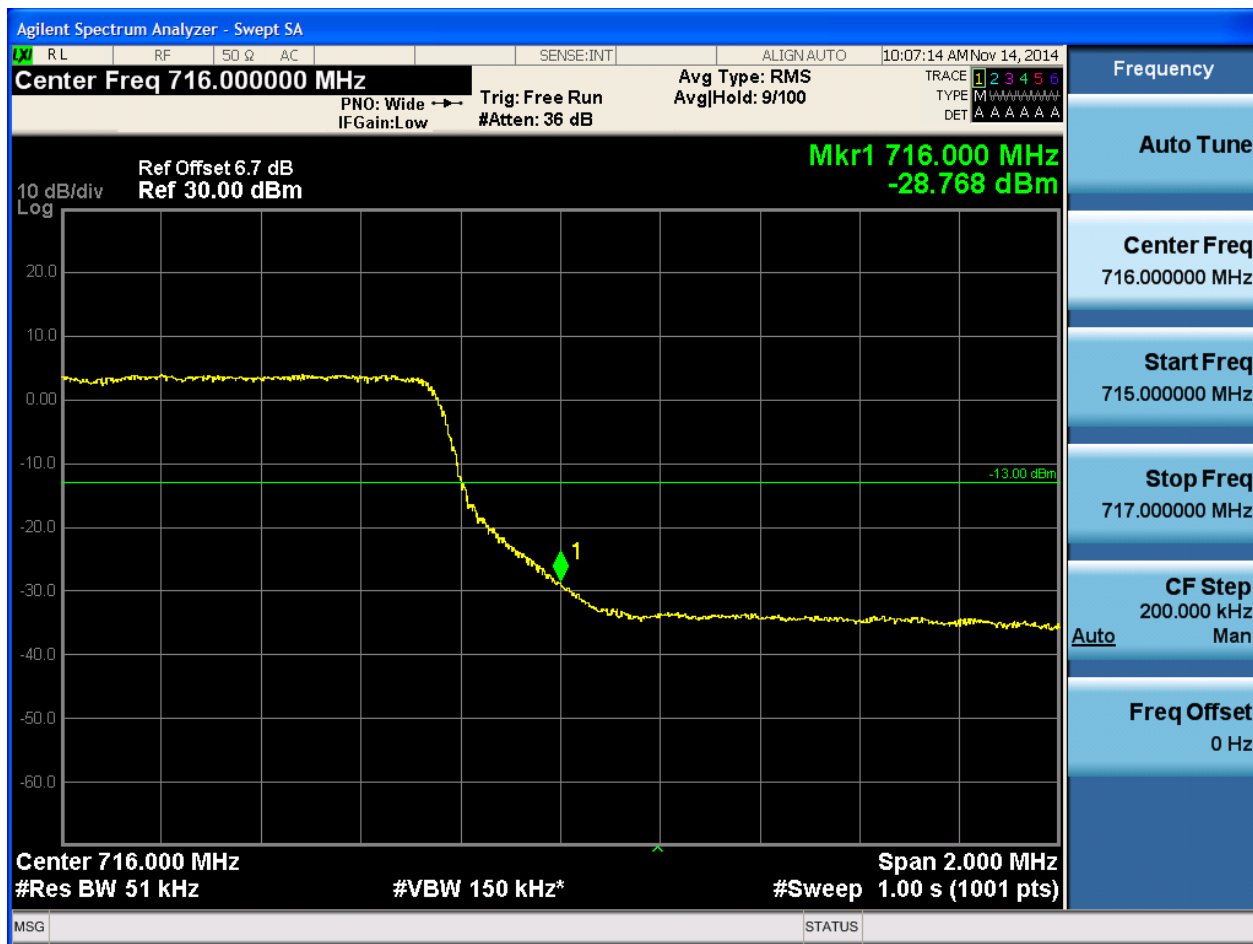


5.1.1.1.1.2.3 Test RB = RB12#6





5.1.1.1.1.2.4 Test RB = RB25#0

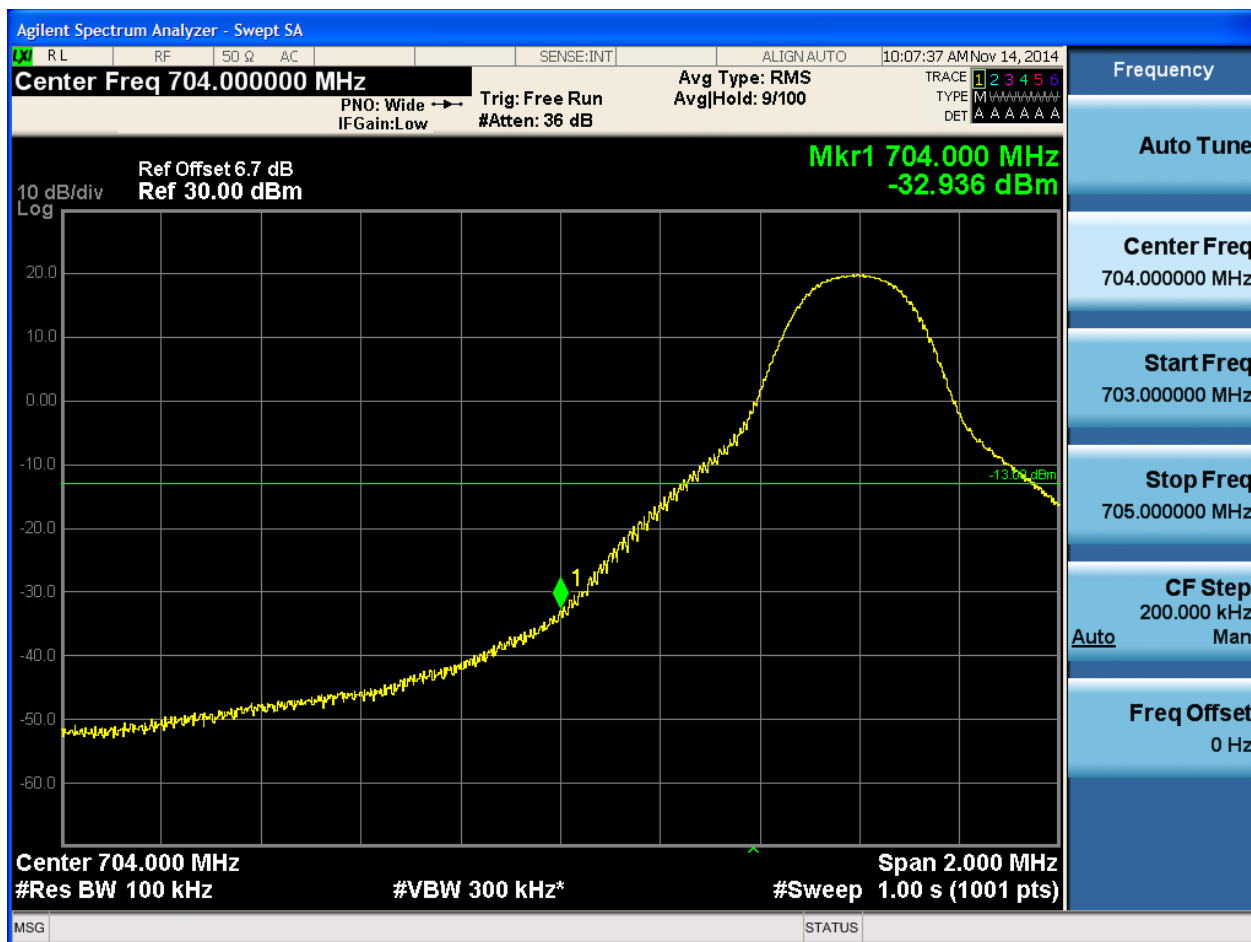




5.1.1.1.2 Test Bandwidth = 10

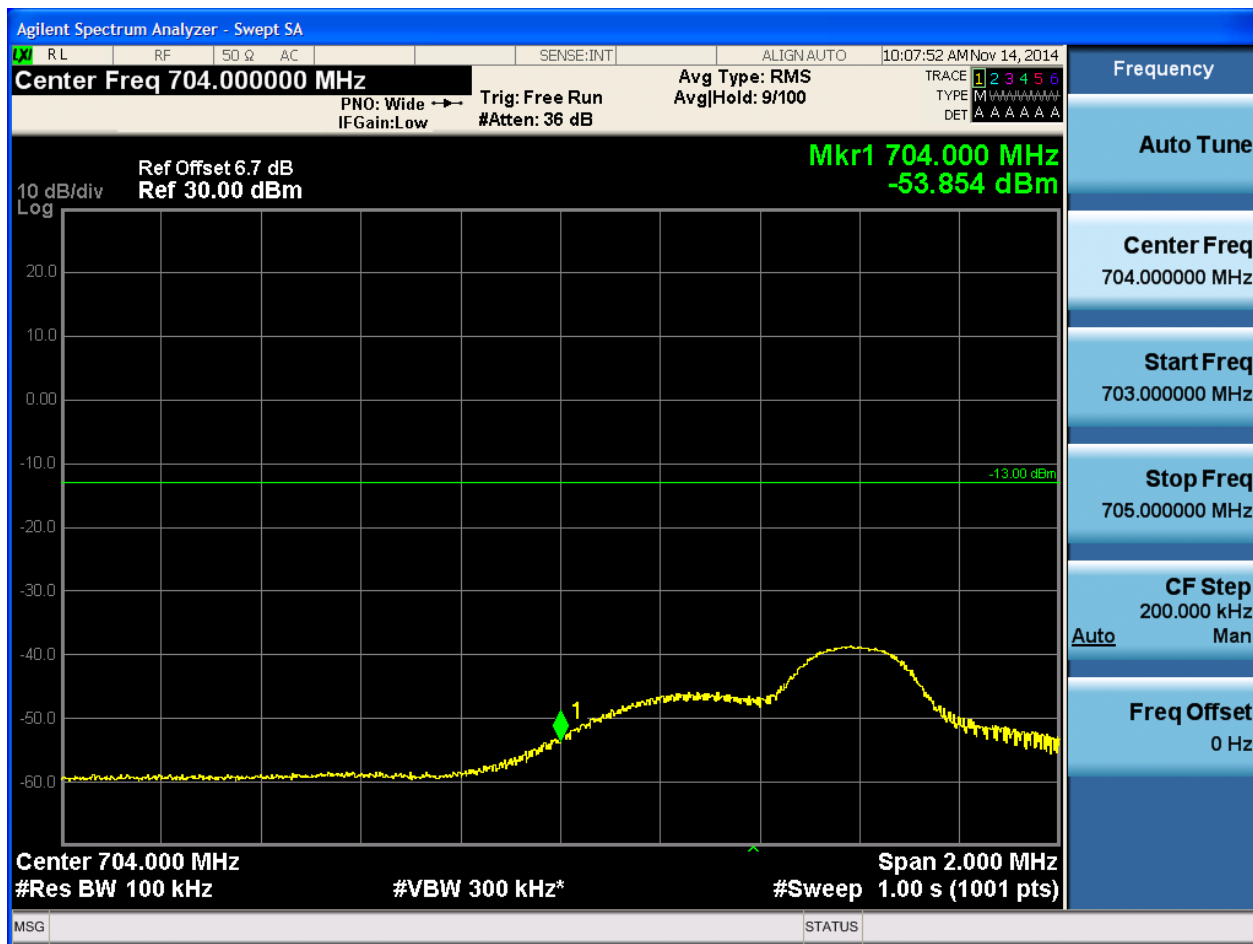
5.1.1.1.2.1 Test Channel = LCH

5.1.1.1.2.1.1 Test RB = RB1#0





5.1.1.1.2.1.2 Test RB = RB1#49



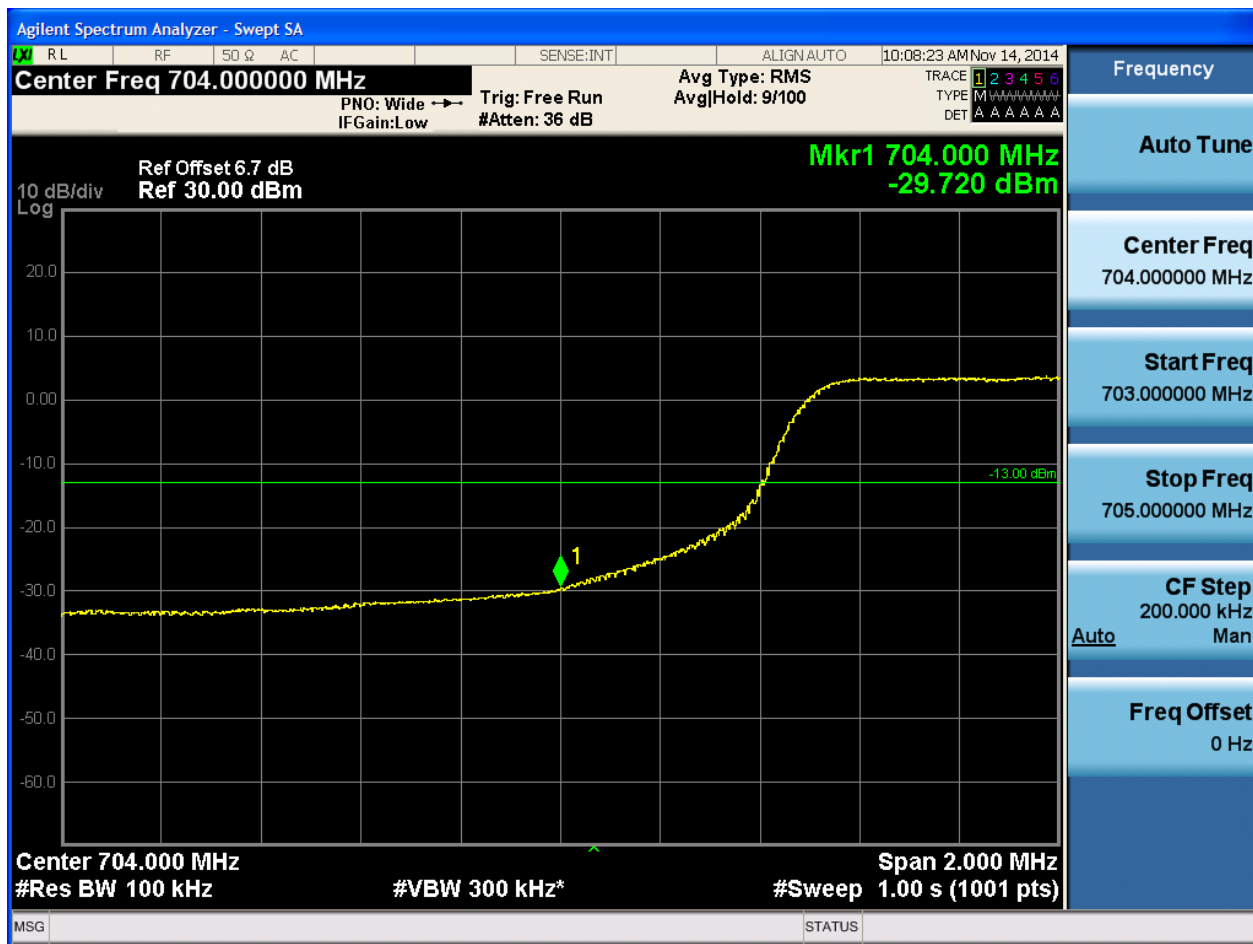


5.1.1.1.2.1.3 Test RB = RB25#13





5.1.1.1.2.1.4 Test RB = RB50#0





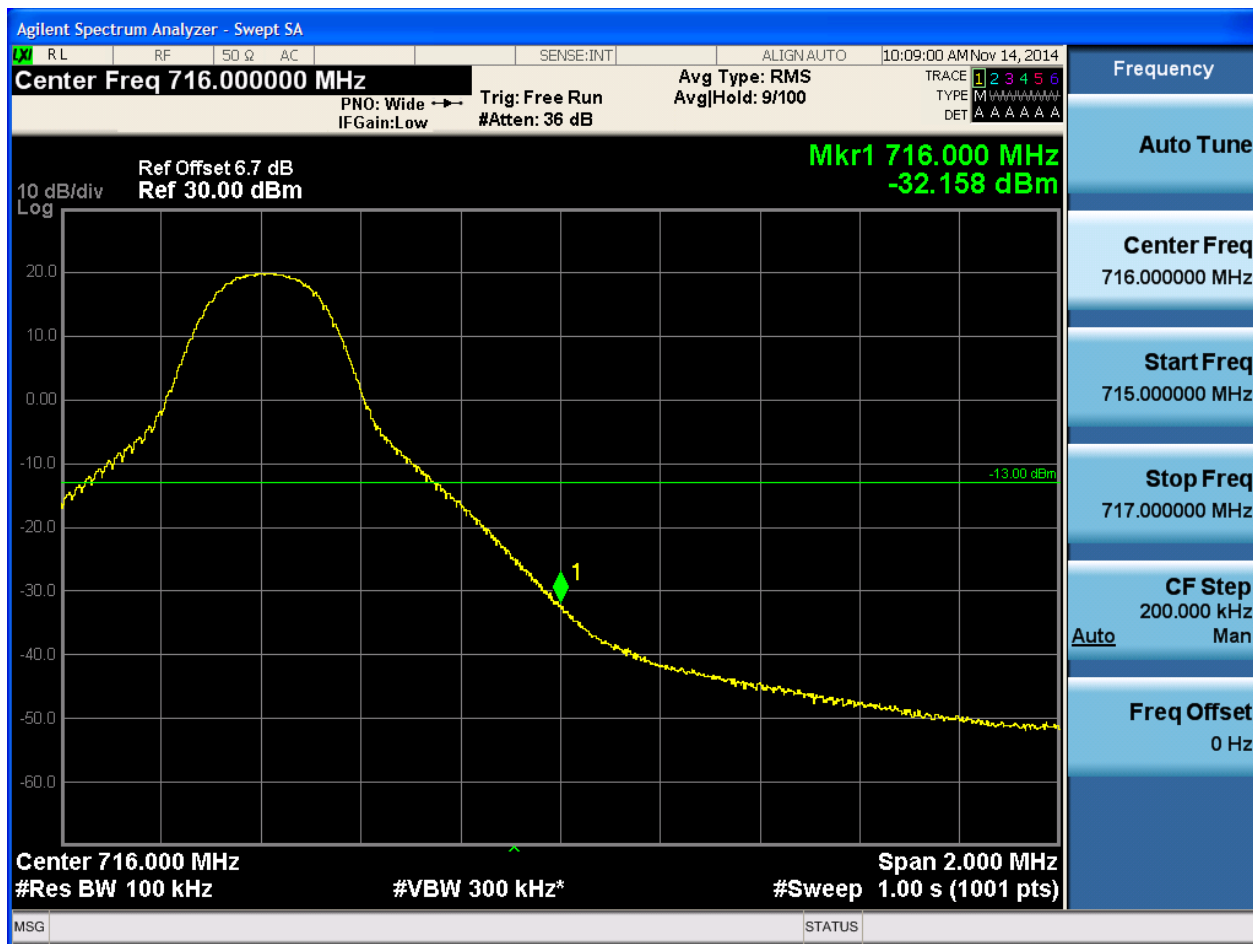
5.1.1.1.2.2 Test Channel = HCH

5.1.1.1.2.2.1 Test RB = RB1#0



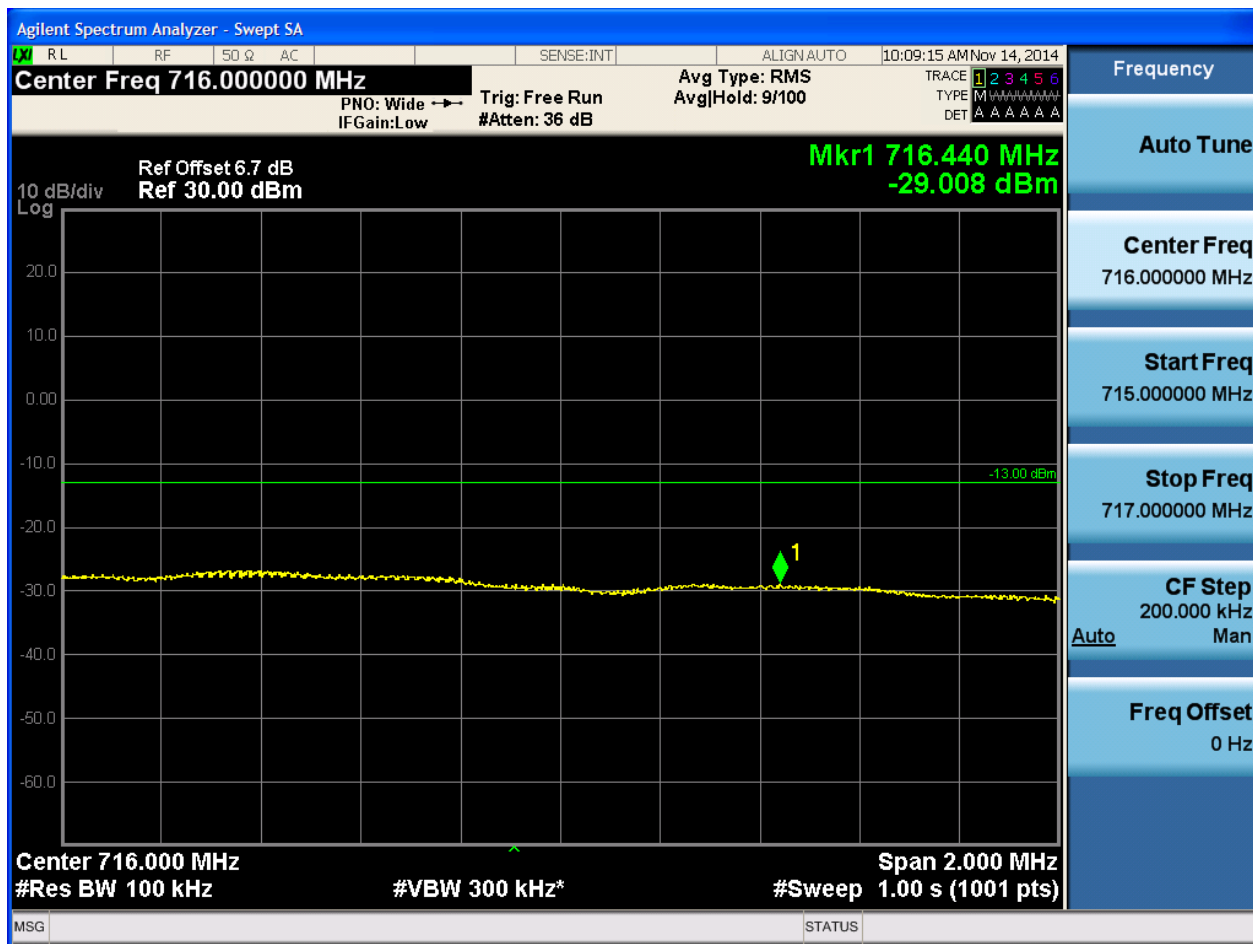


5.1.1.1.2.2.2 Test RB = RB1#49





5.1.1.1.2.3 Test RB = RB25#13





5.1.1.1.2.2.4 Test RB = RB50#0



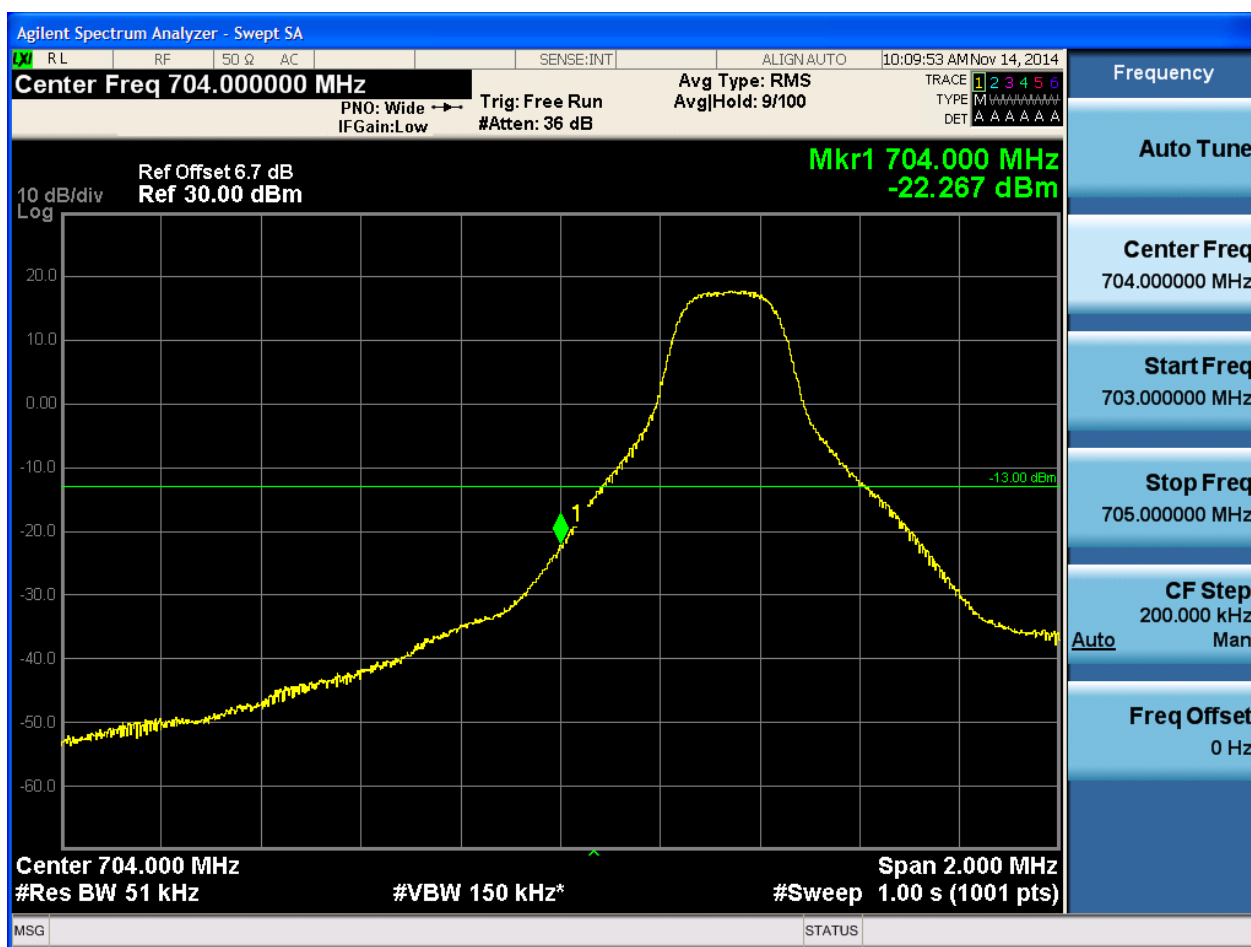


5.1.1.2 Test Mode = LTE/TM2

5.1.1.2.1 Test Bandwidth = 5

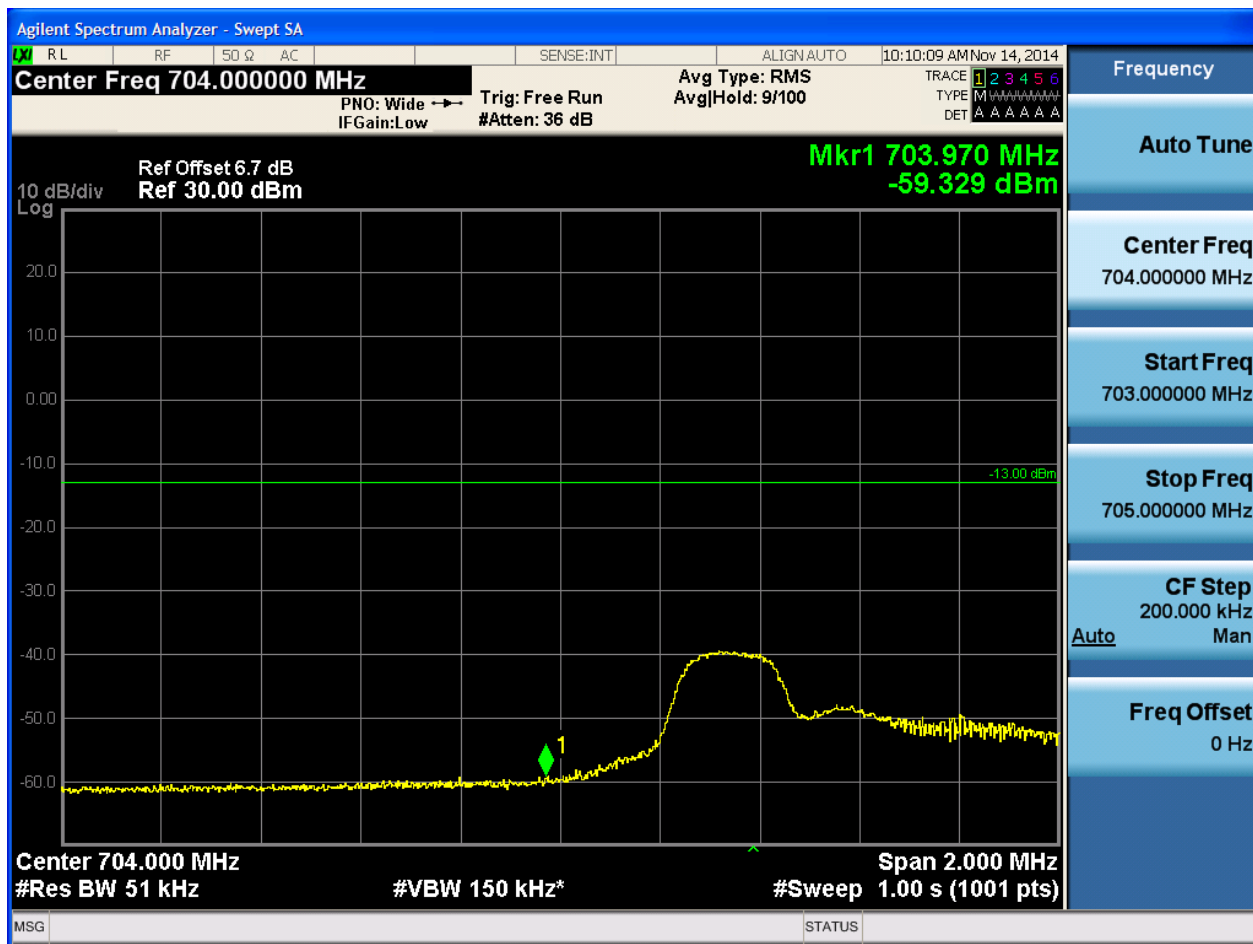
5.1.1.2.1.1 Test Channel = LCH

5.1.1.2.1.1.1 Test RB = RB1#0





5.1.1.2.1.1.2 Test RB = RB1#24



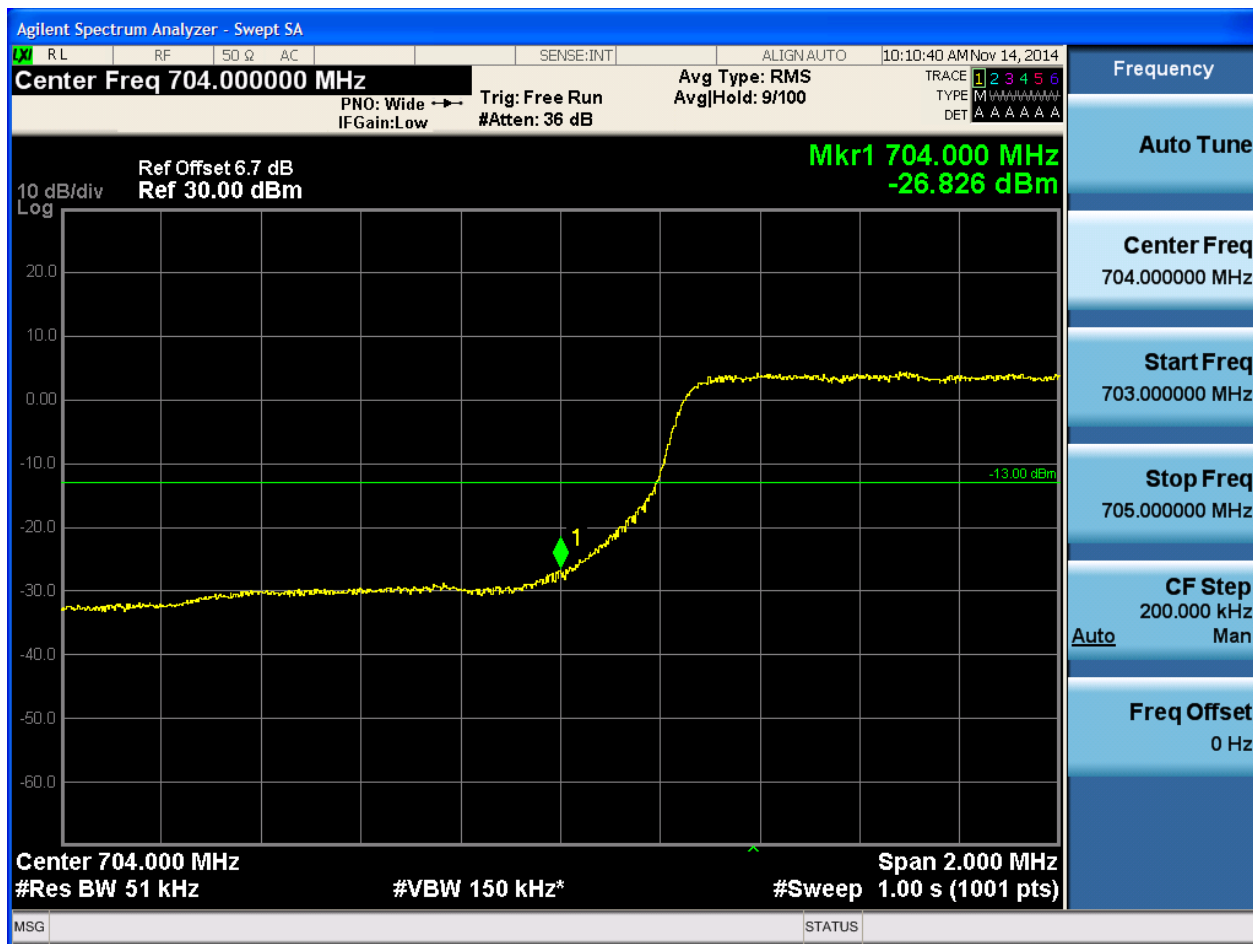


5.1.1.2.1.1.3 Test RB = RB12#6





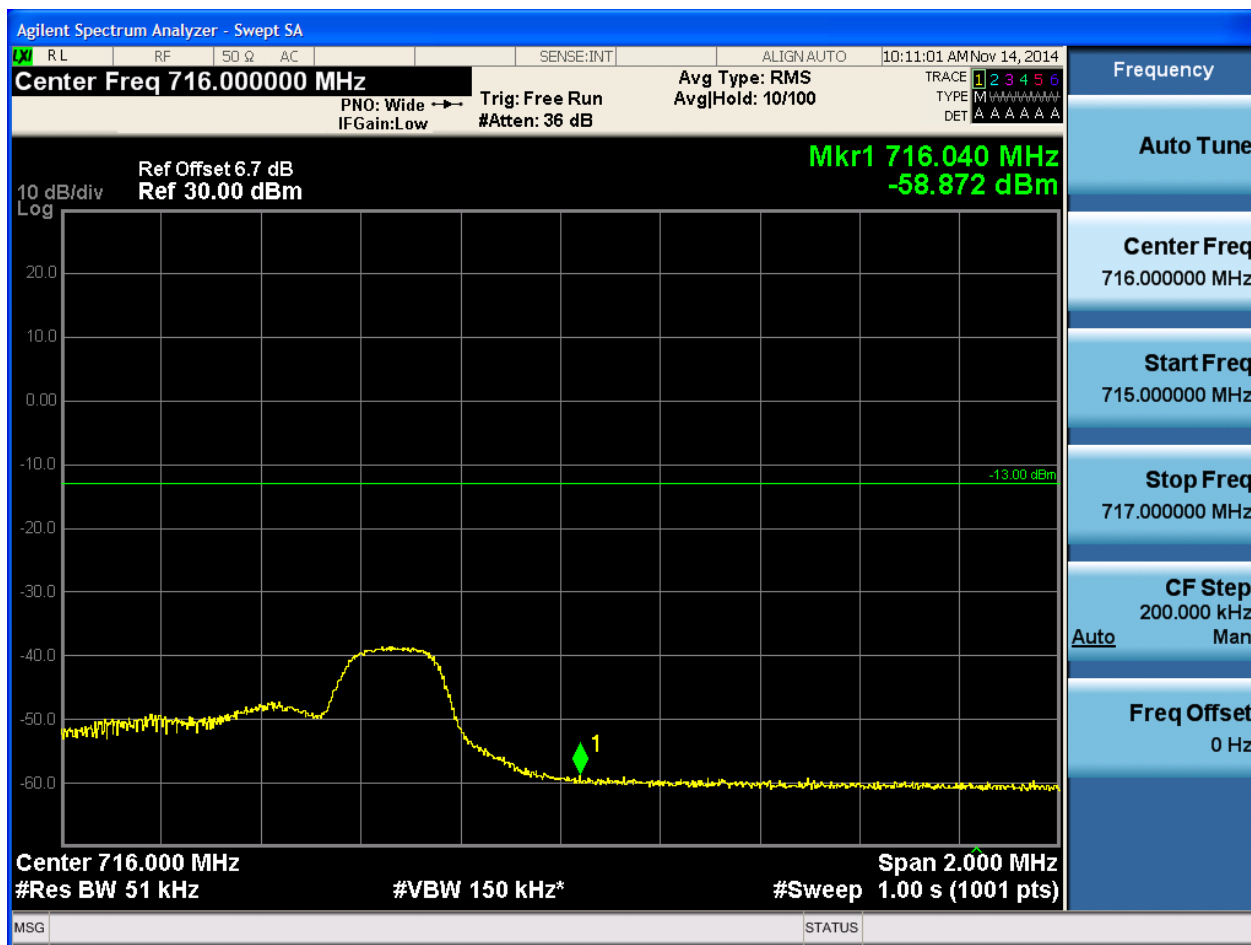
5.1.1.2.1.1.4 Test RB = RB25#0





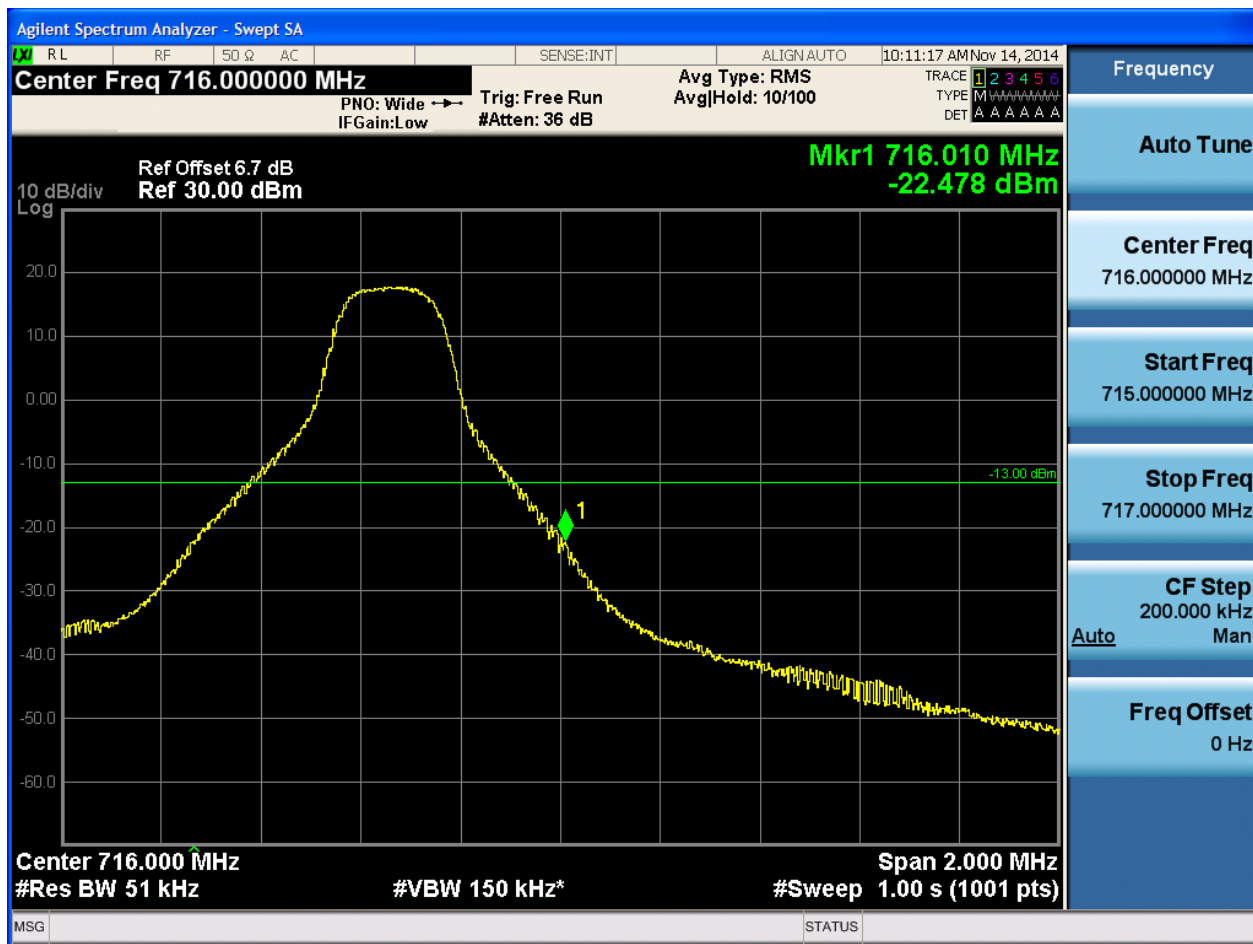
5.1.1.2.1.2 Test Channel = HCH

5.1.1.2.1.2.1 Test RB = RB1#0





5.1.1.2.1.2.2 Test RB = RB1#24



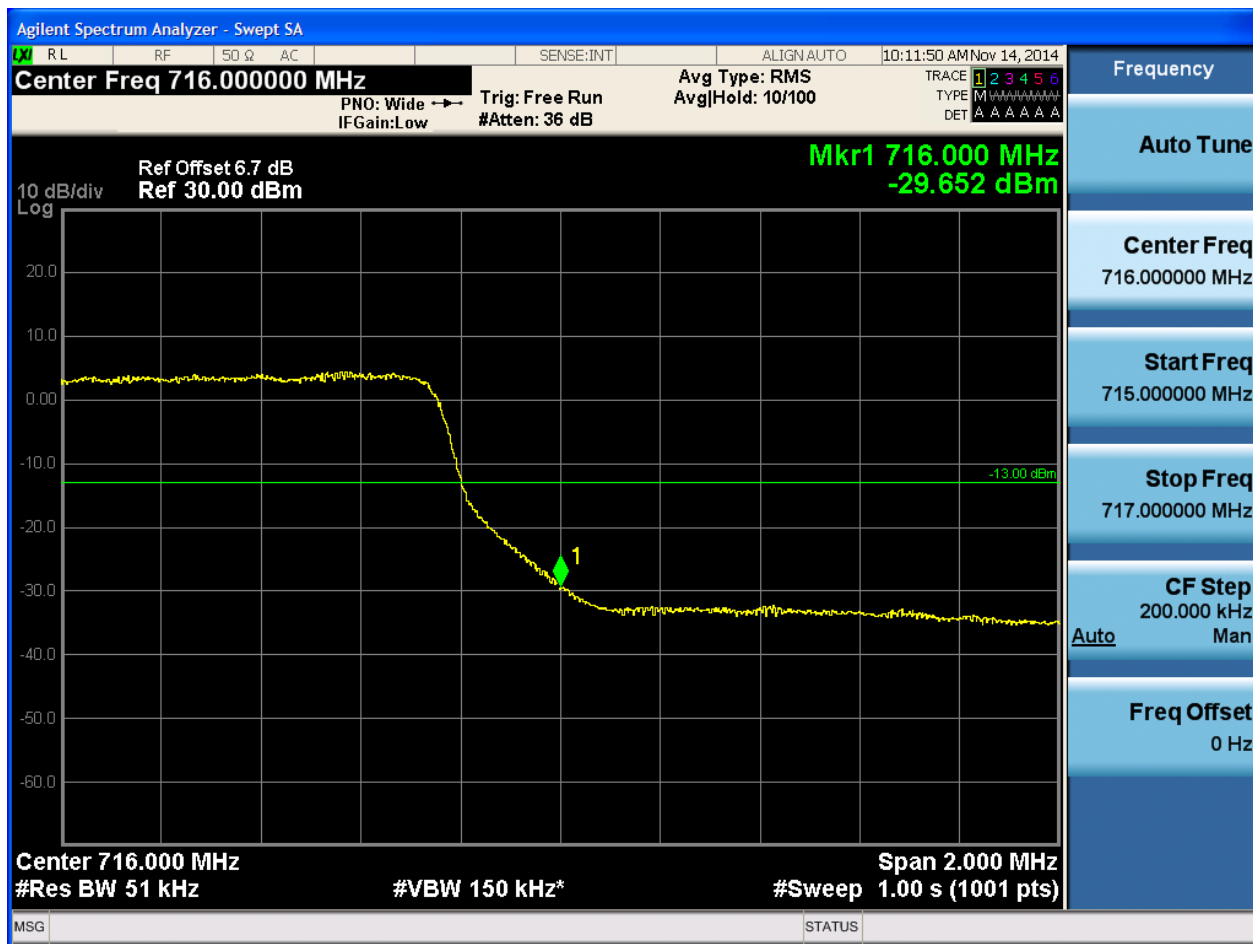


5.1.1.2.1.2.3 Test RB = RB12#6





5.1.1.2.1.2.4 Test RB = RB25#0

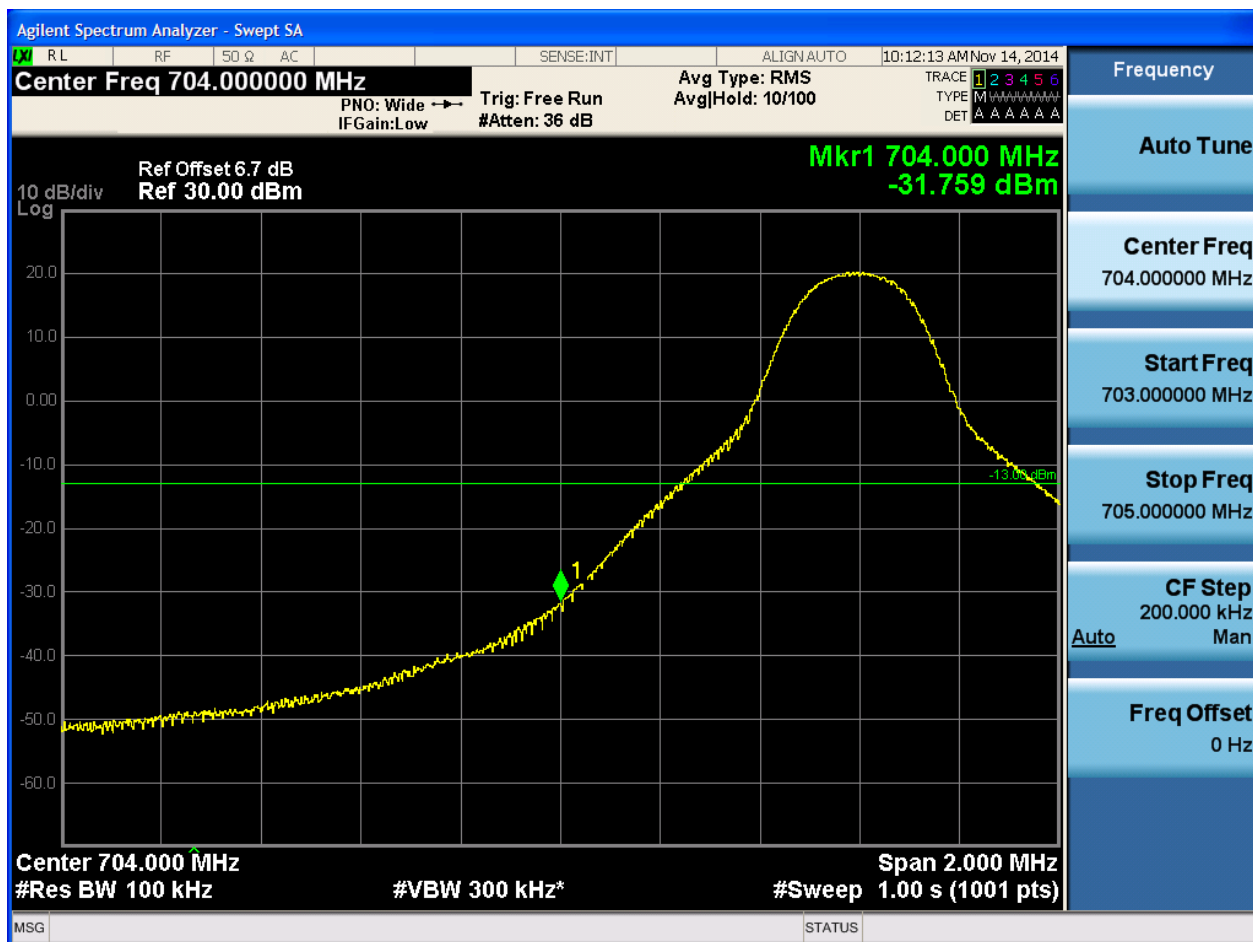




5.1.1.2.2 Test Bandwidth = 10

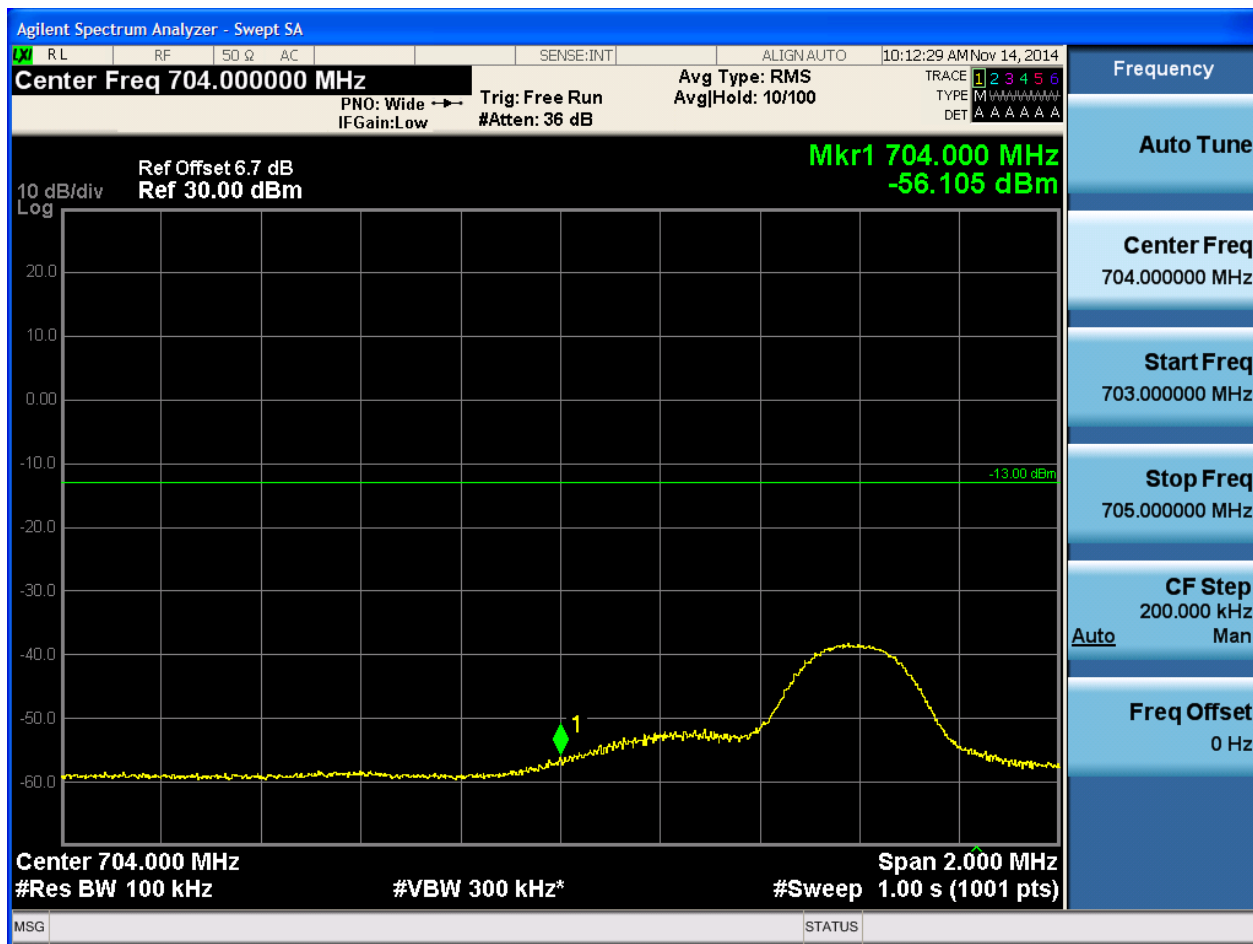
5.1.1.2.2.1 Test Channel = LCH

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





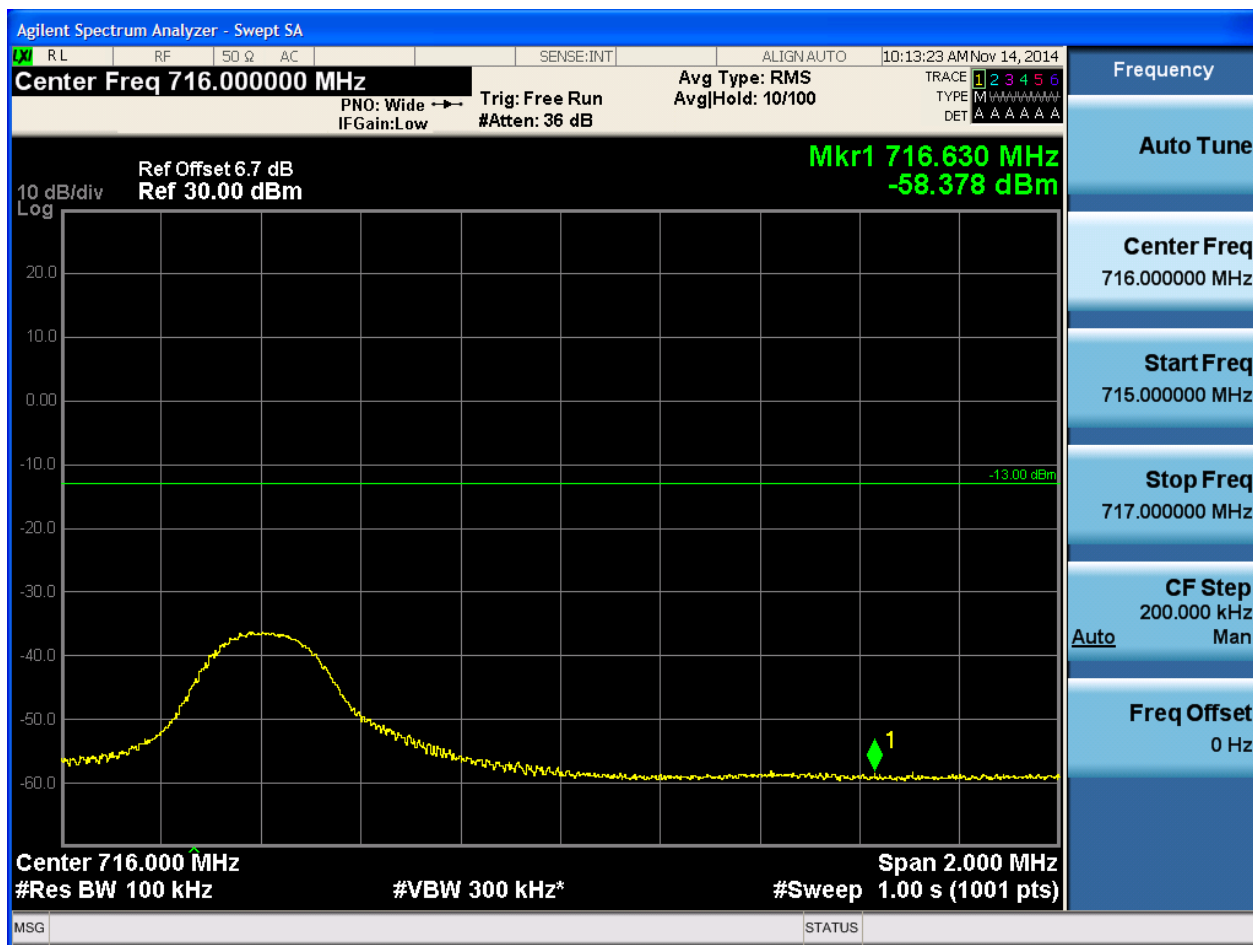
5.1.1.2.2.1.4 Test RB = RB50#0





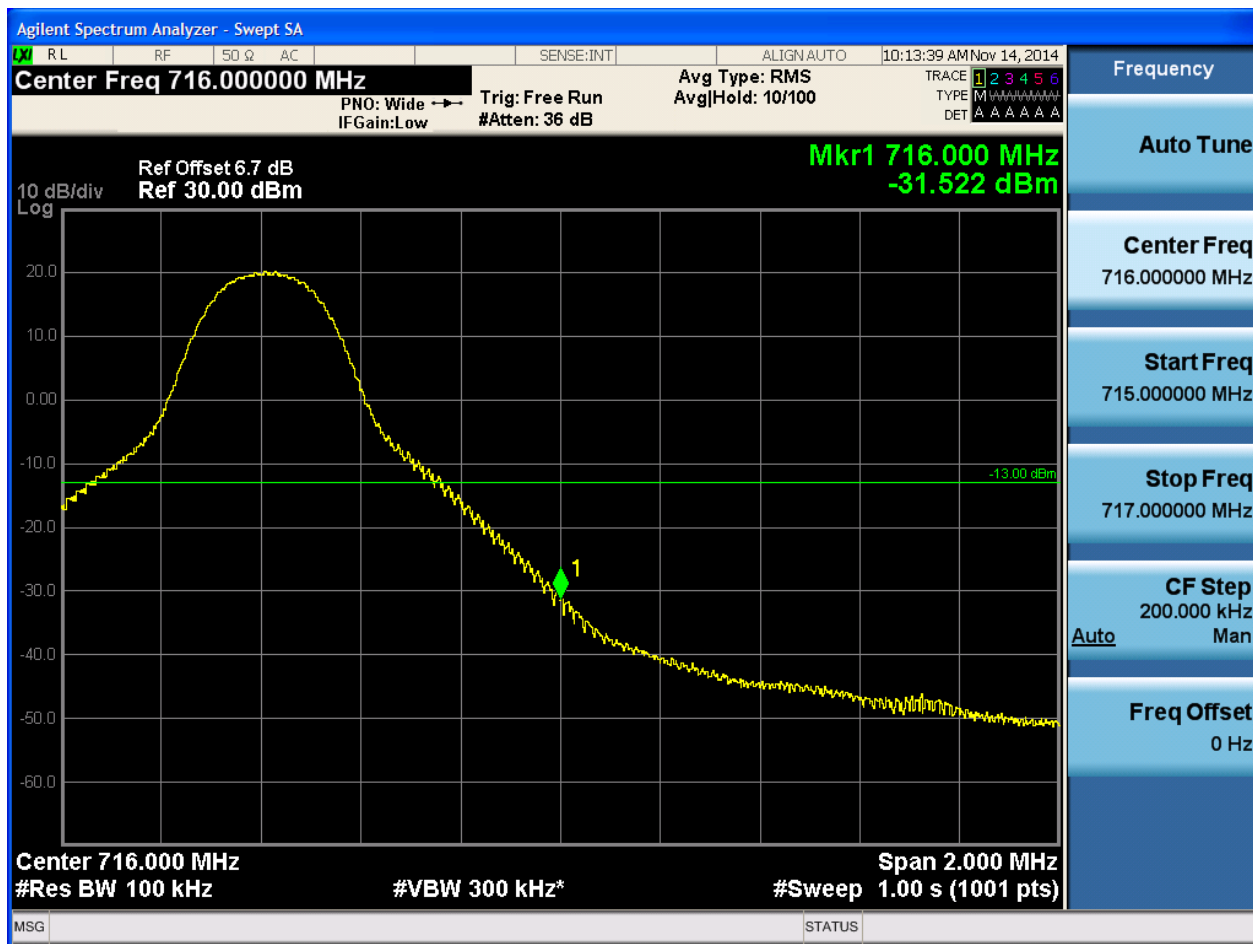
5.1.1.2.2.2 Test Channel = HCH

5.1.1.2.2.2.1 Test RB = RB1#0



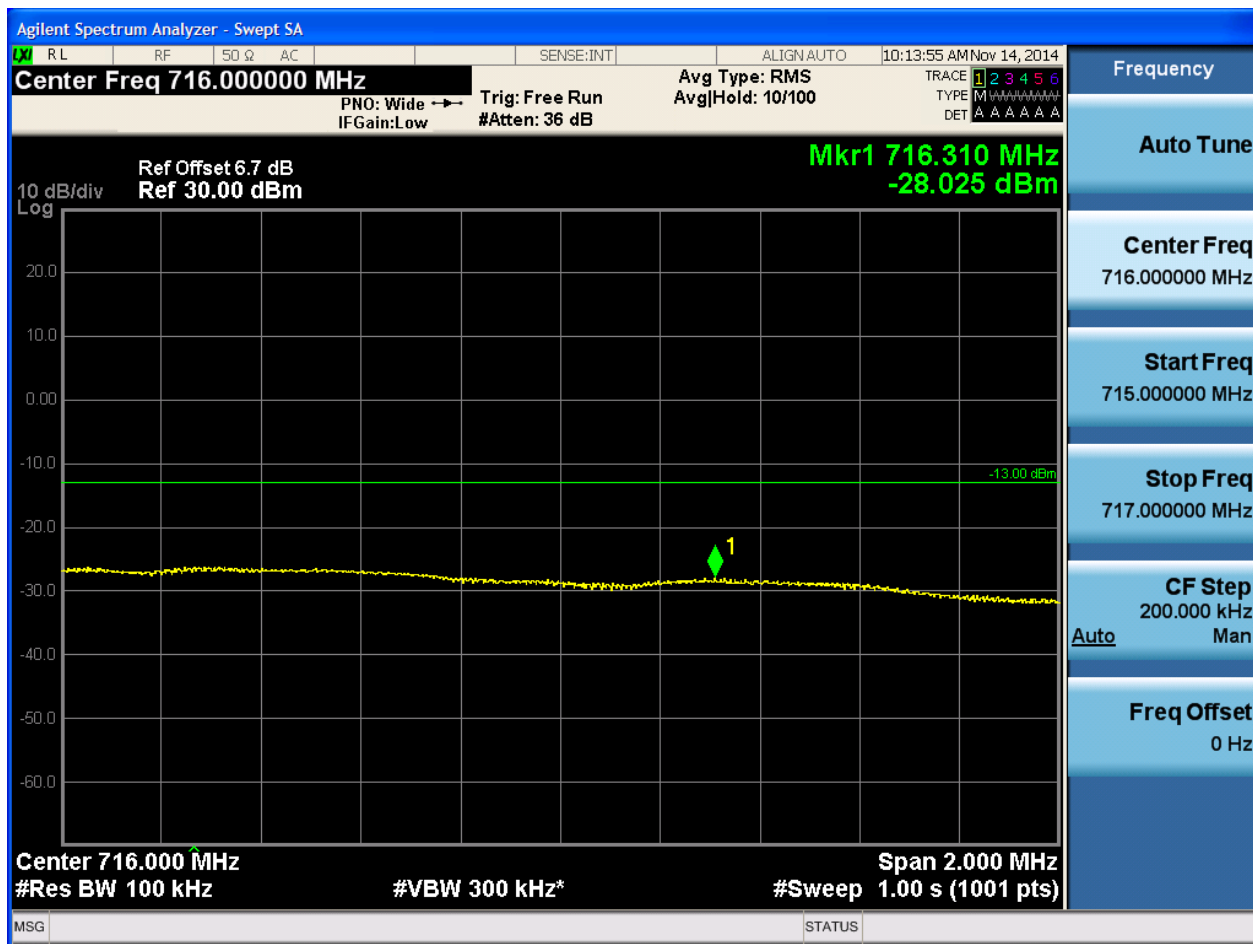


5.1.1.2.2.2 Test RB = RB1#49





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

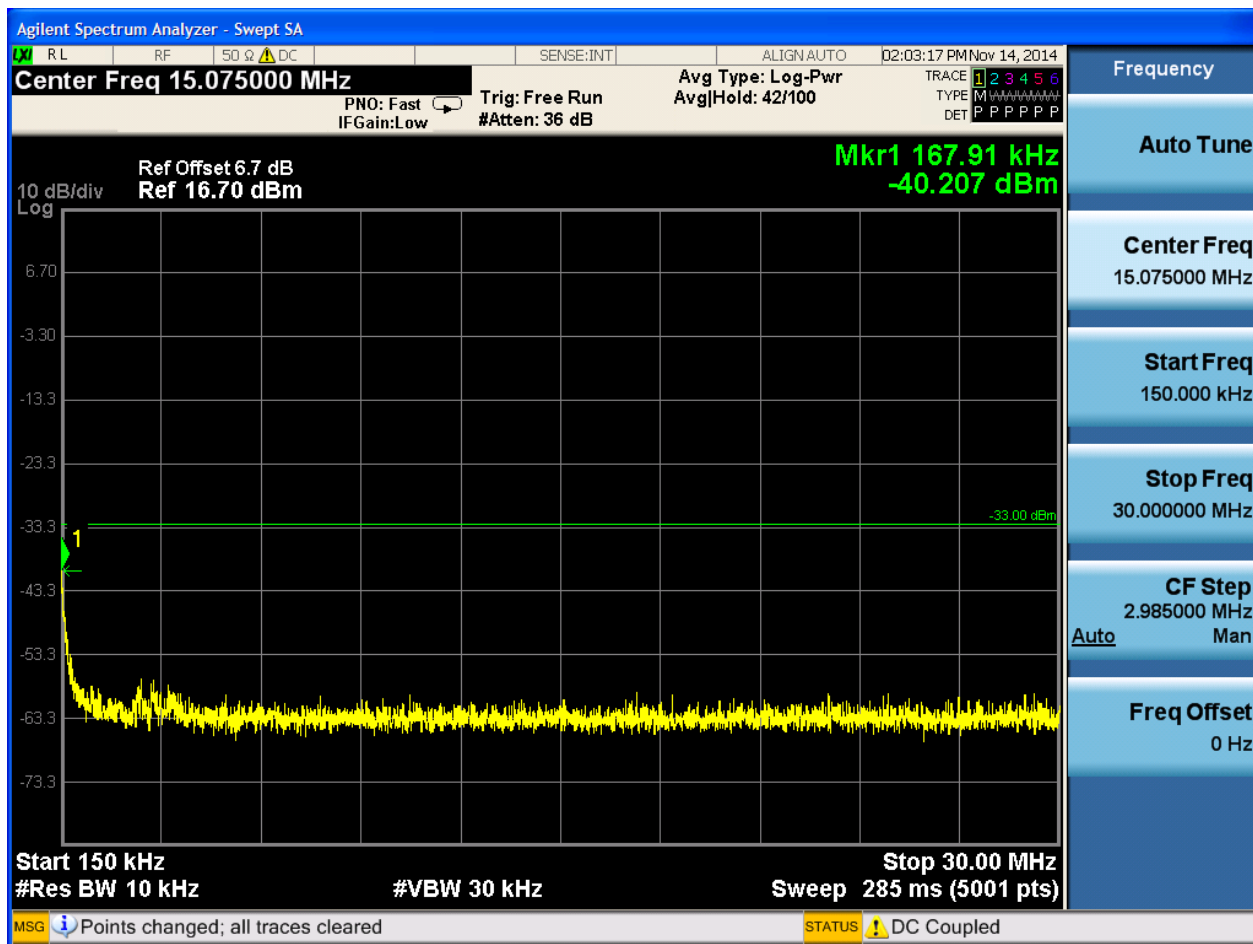
6.2 For UMTS

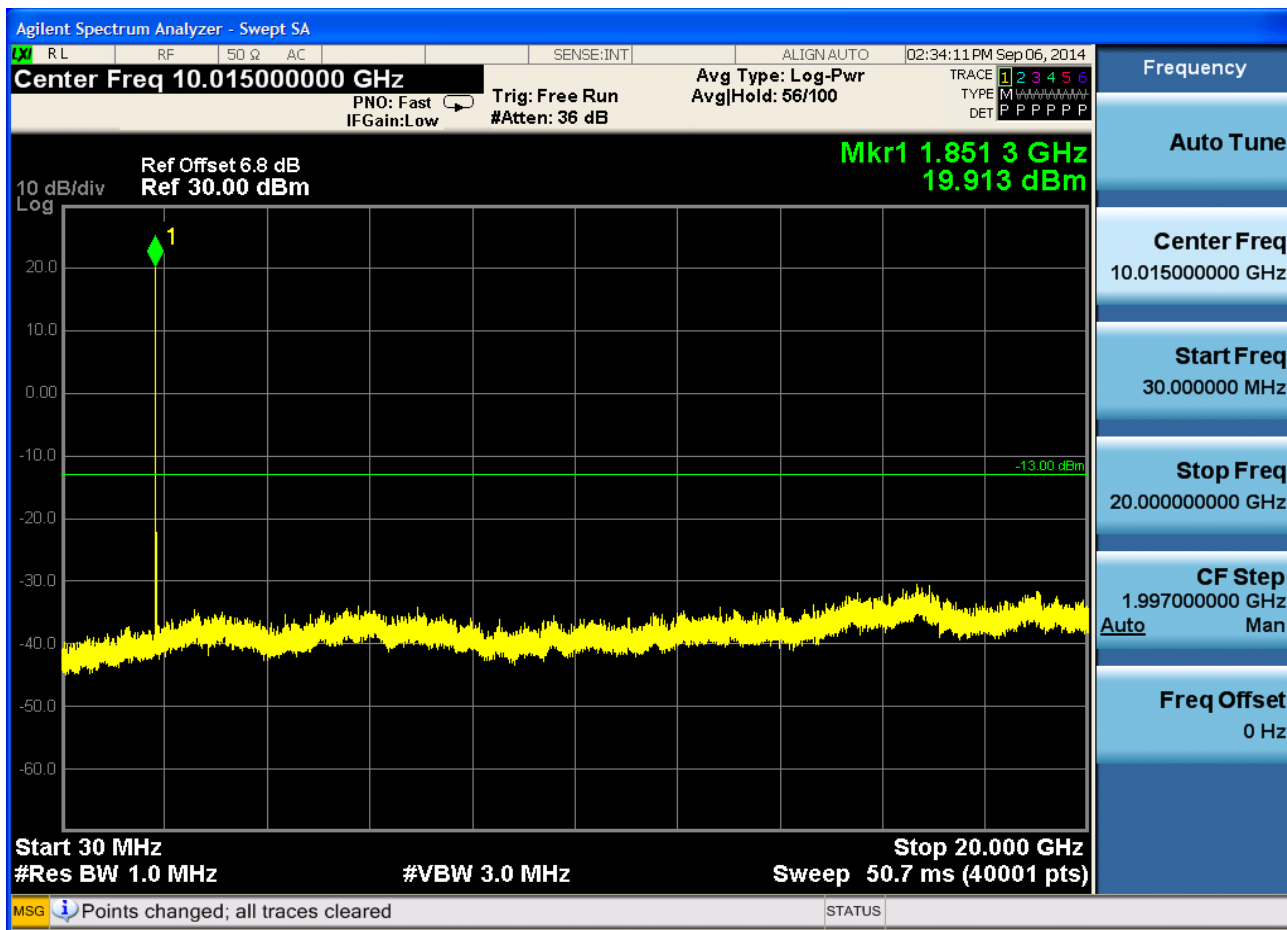
6.2.1 Test Band = WCDMA1900

6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH

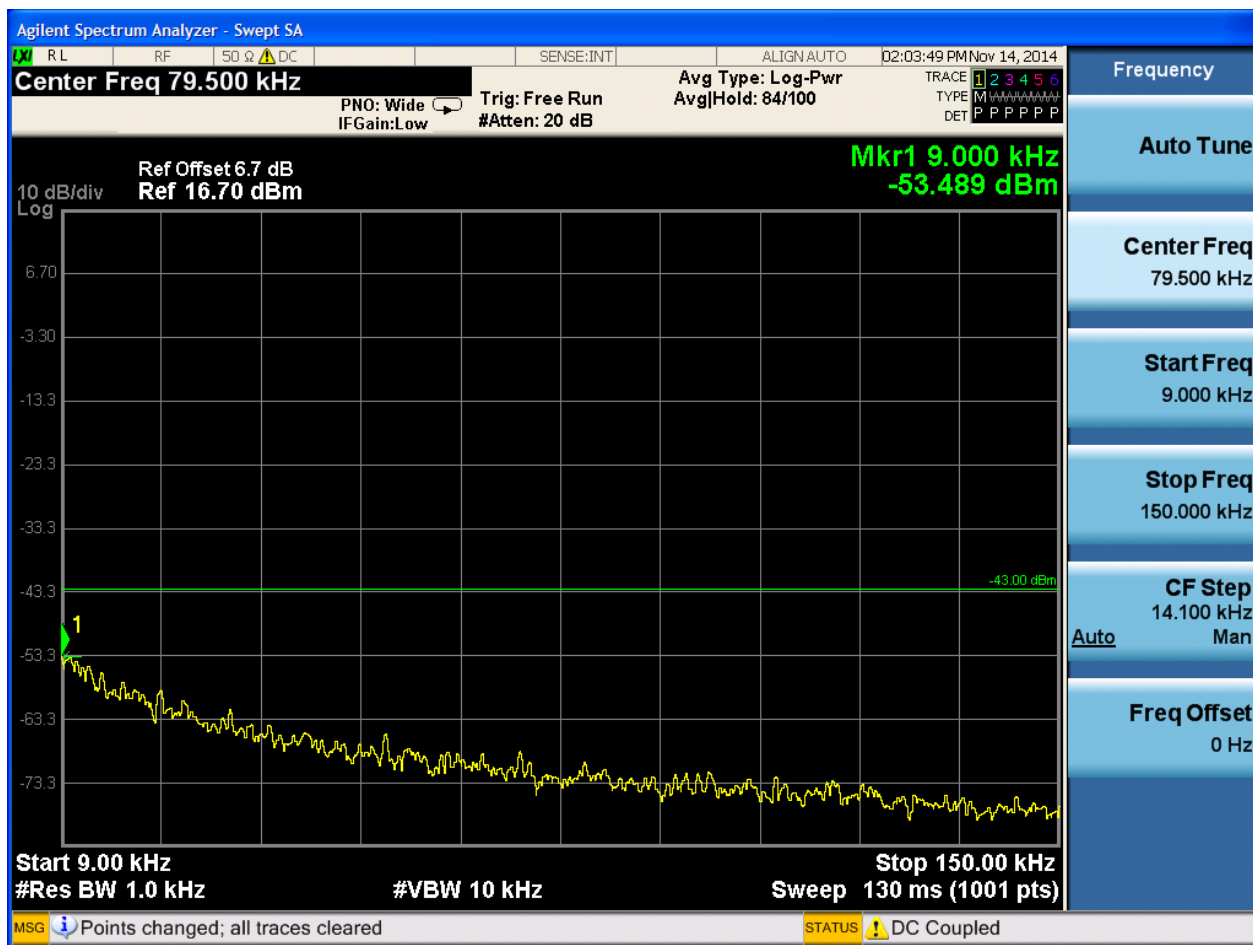


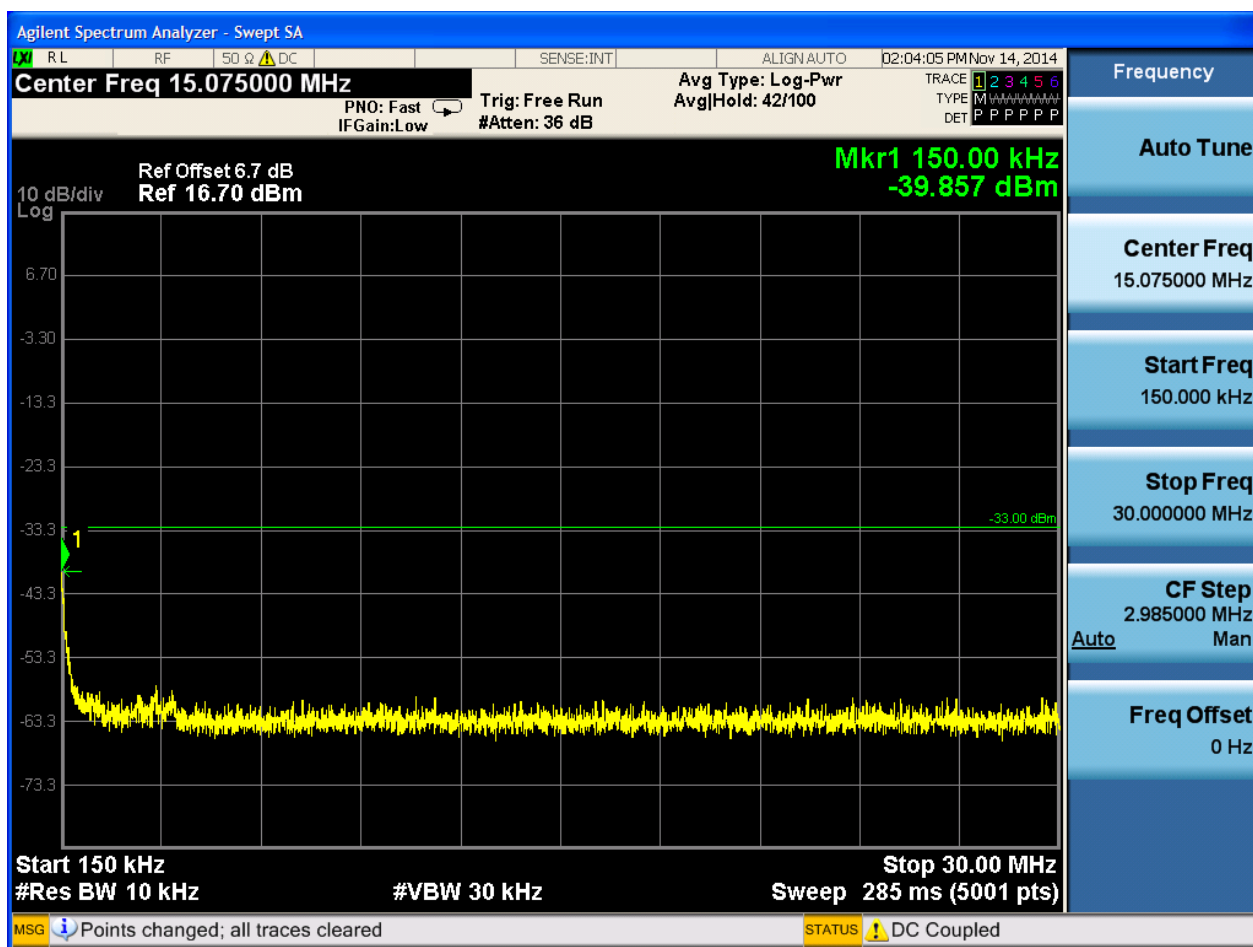


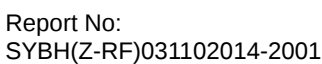
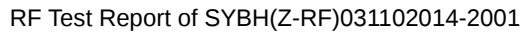




6.2.1.1.2 Test Channel = MCH

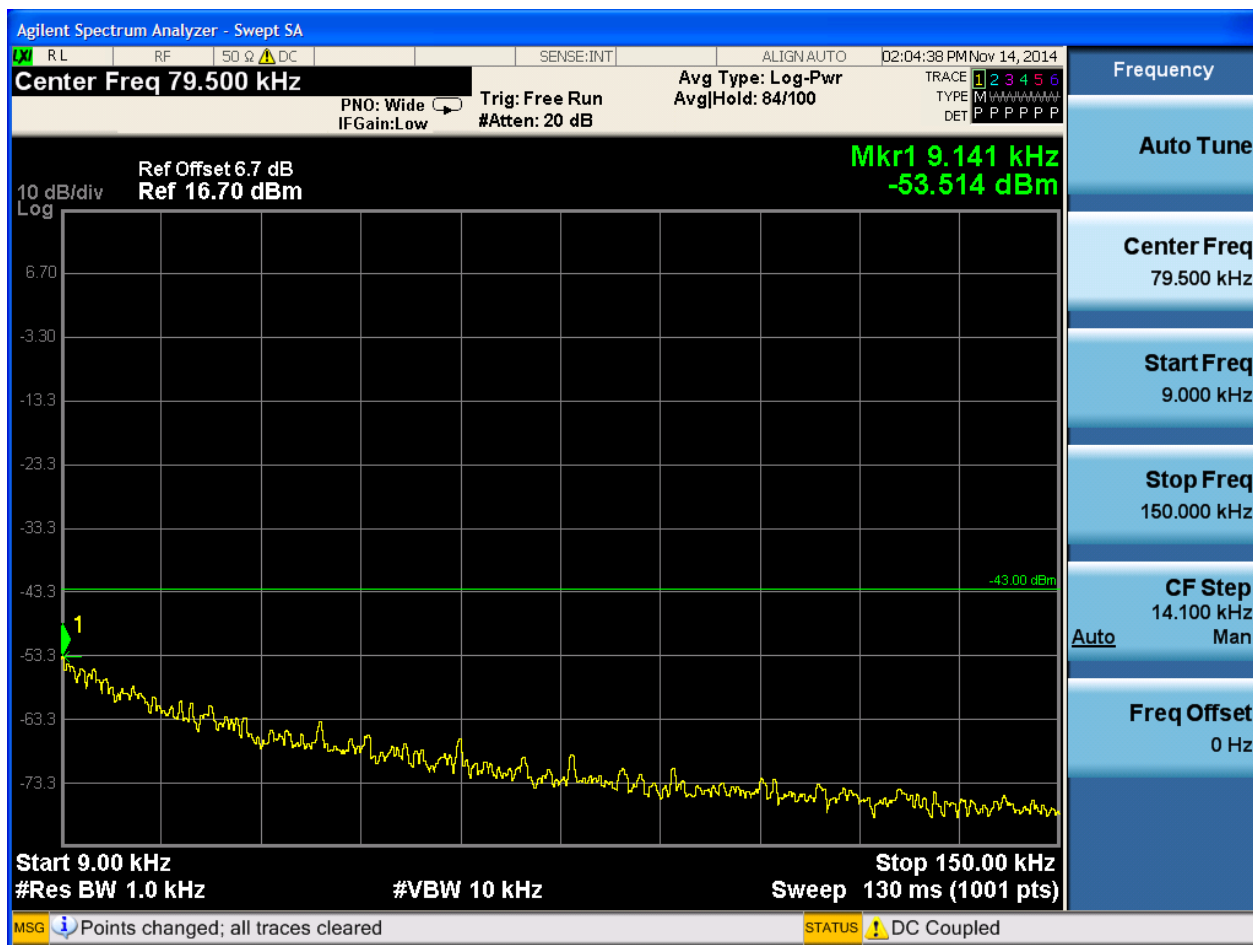


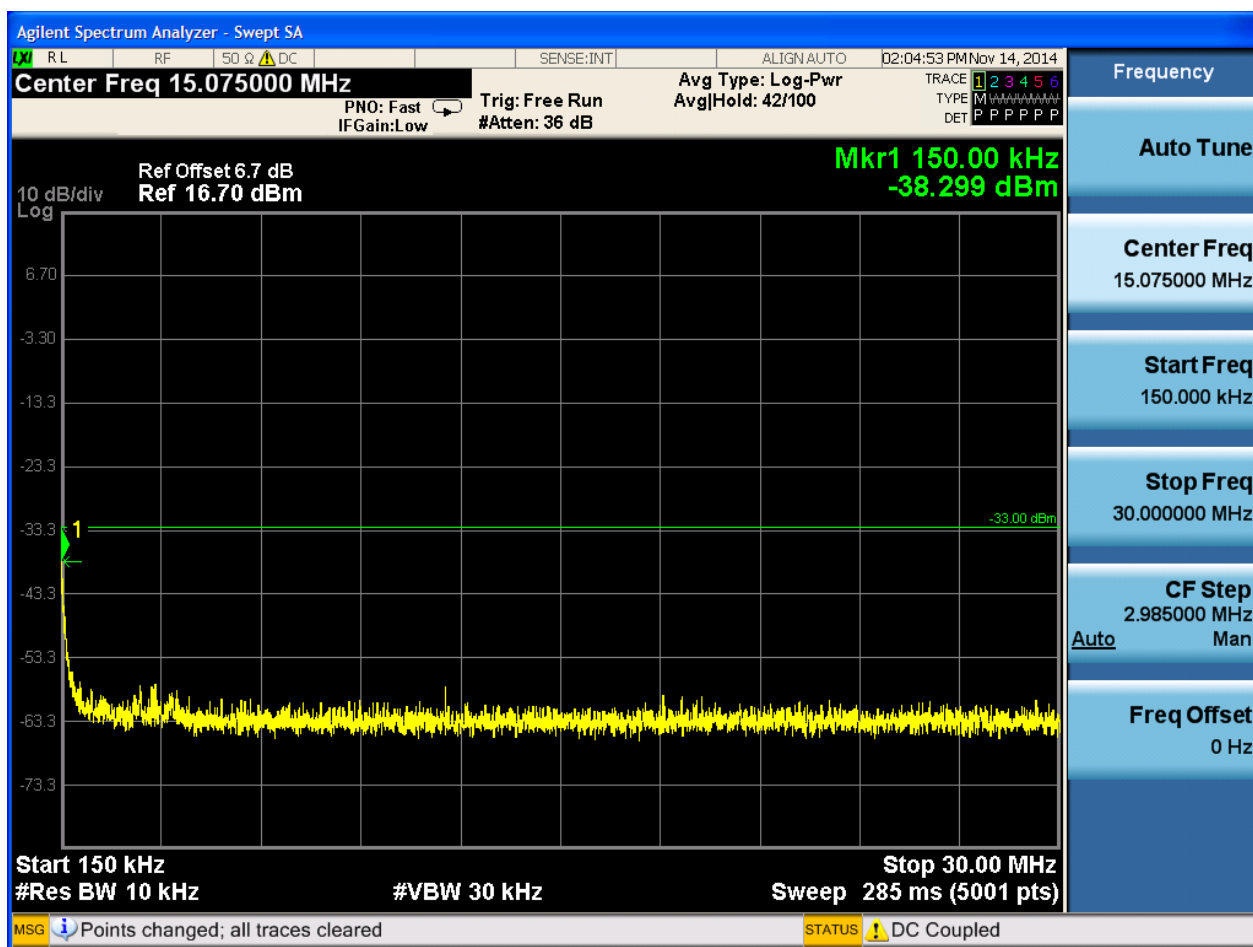


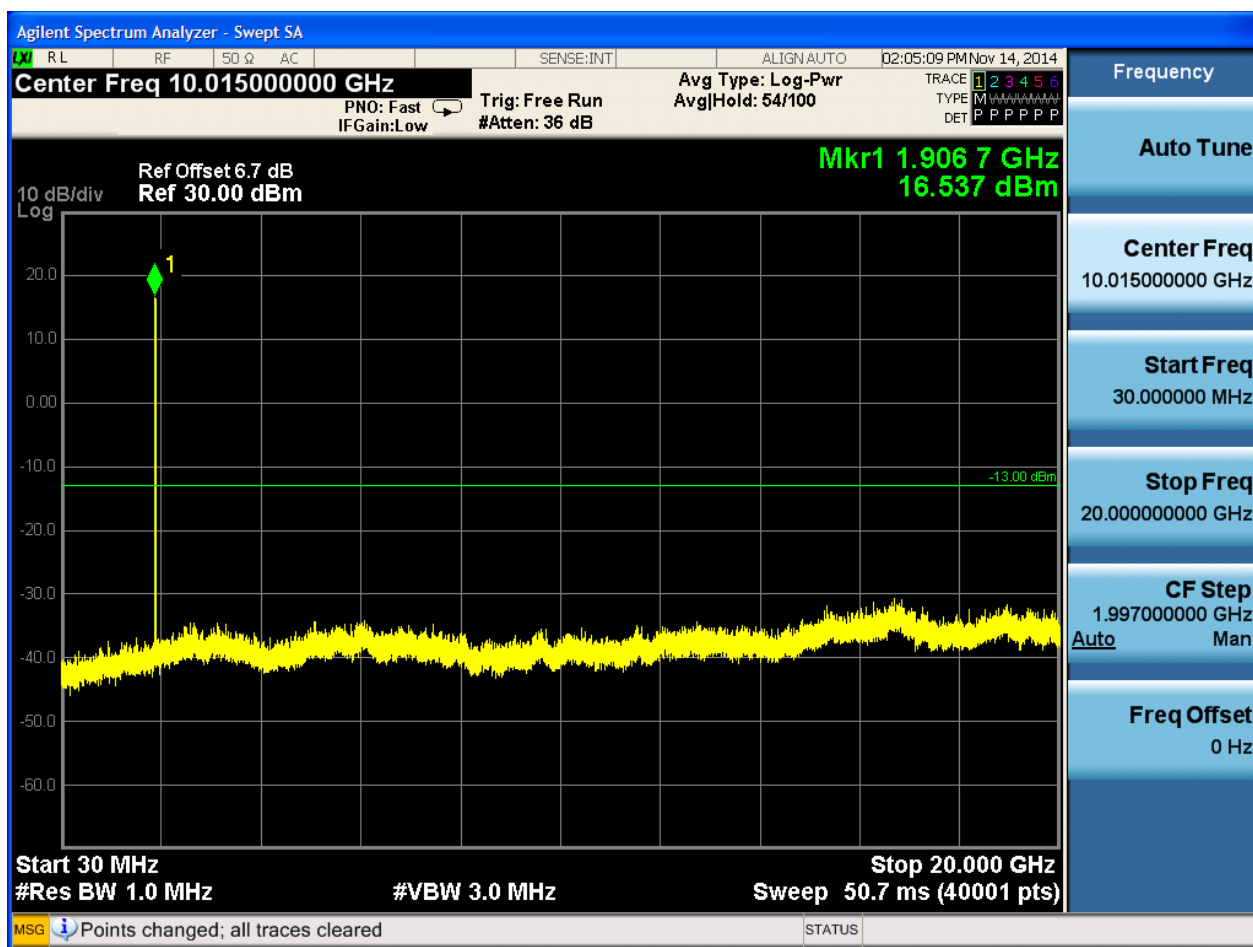




6.2.1.1.3 Test Channel = HCH





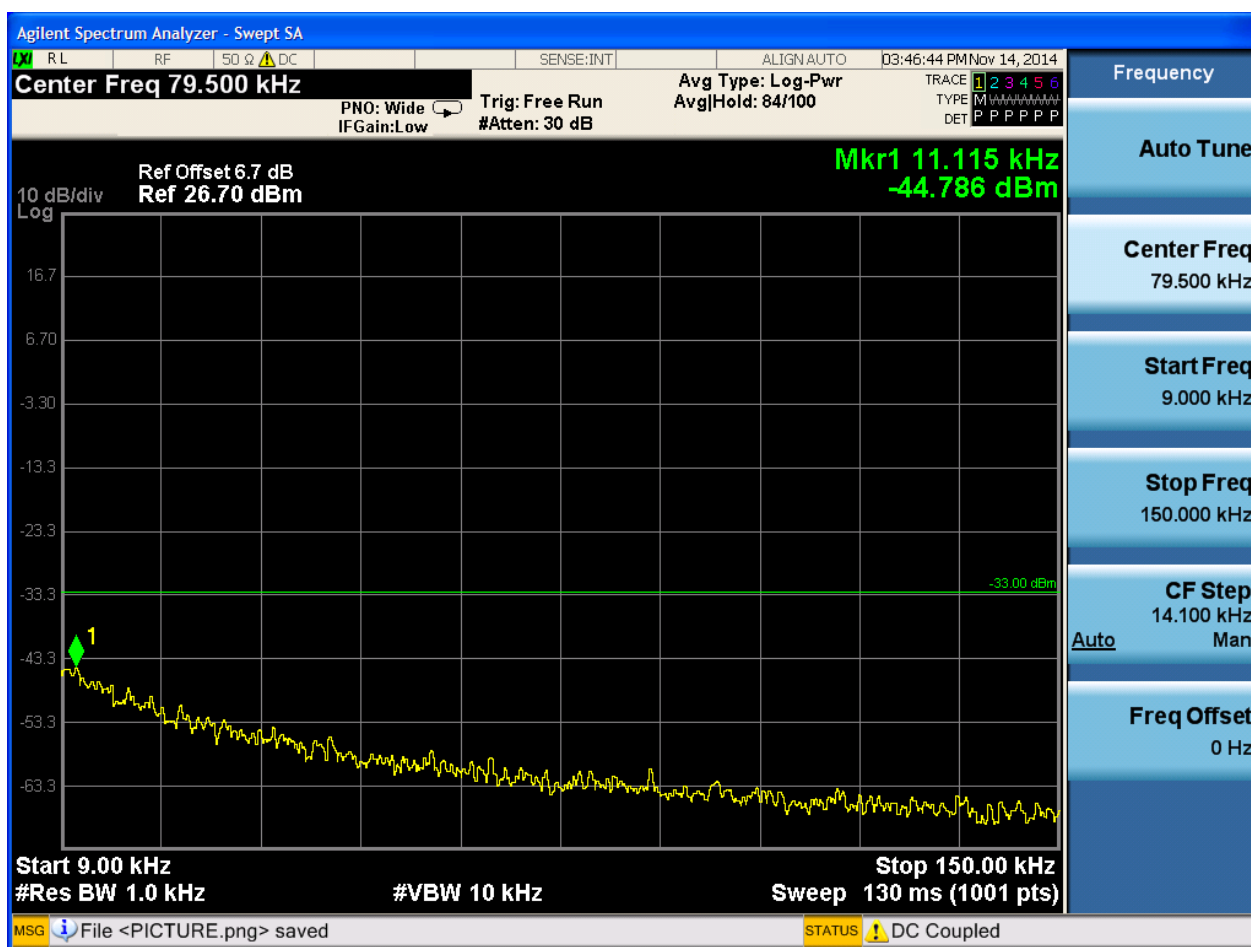


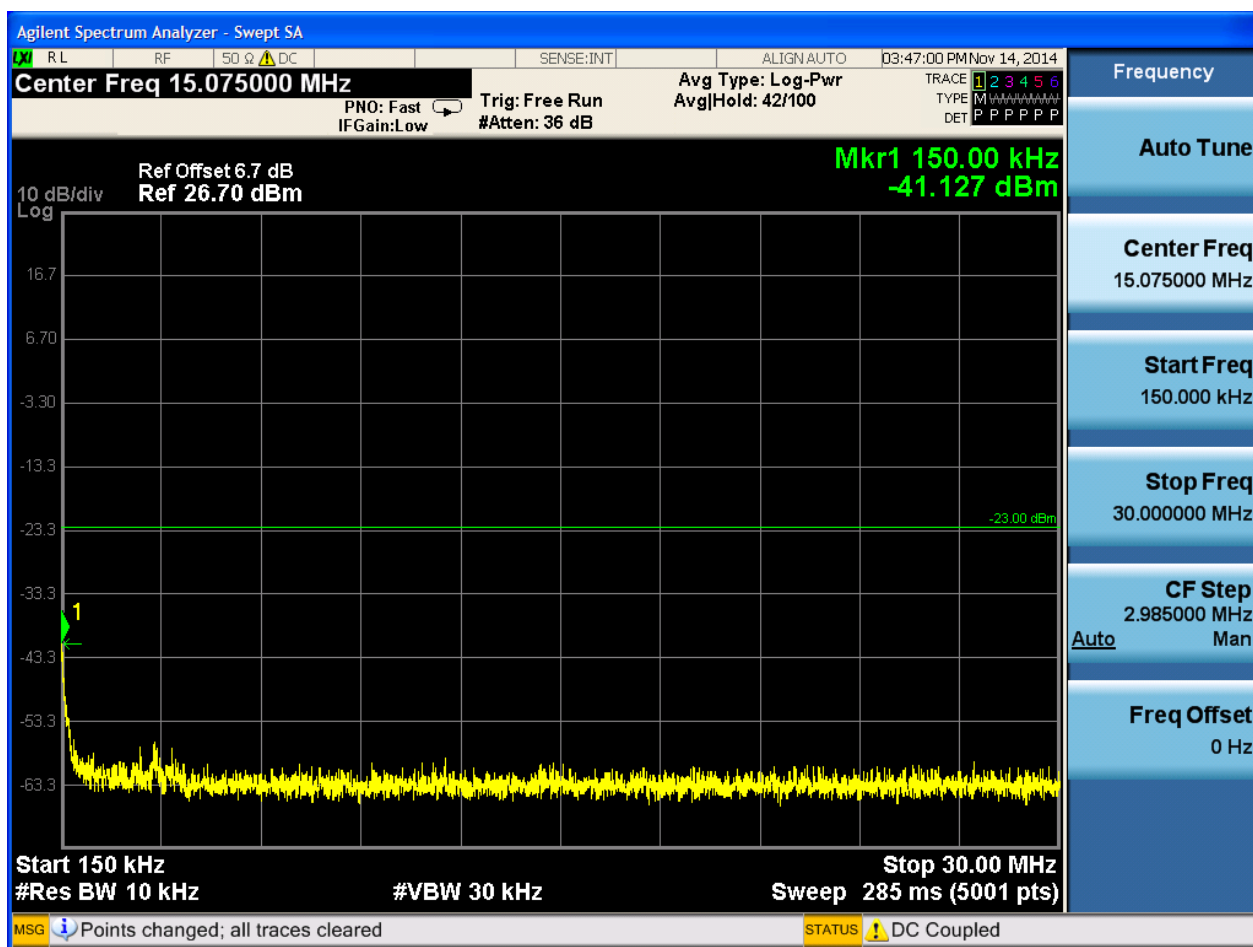


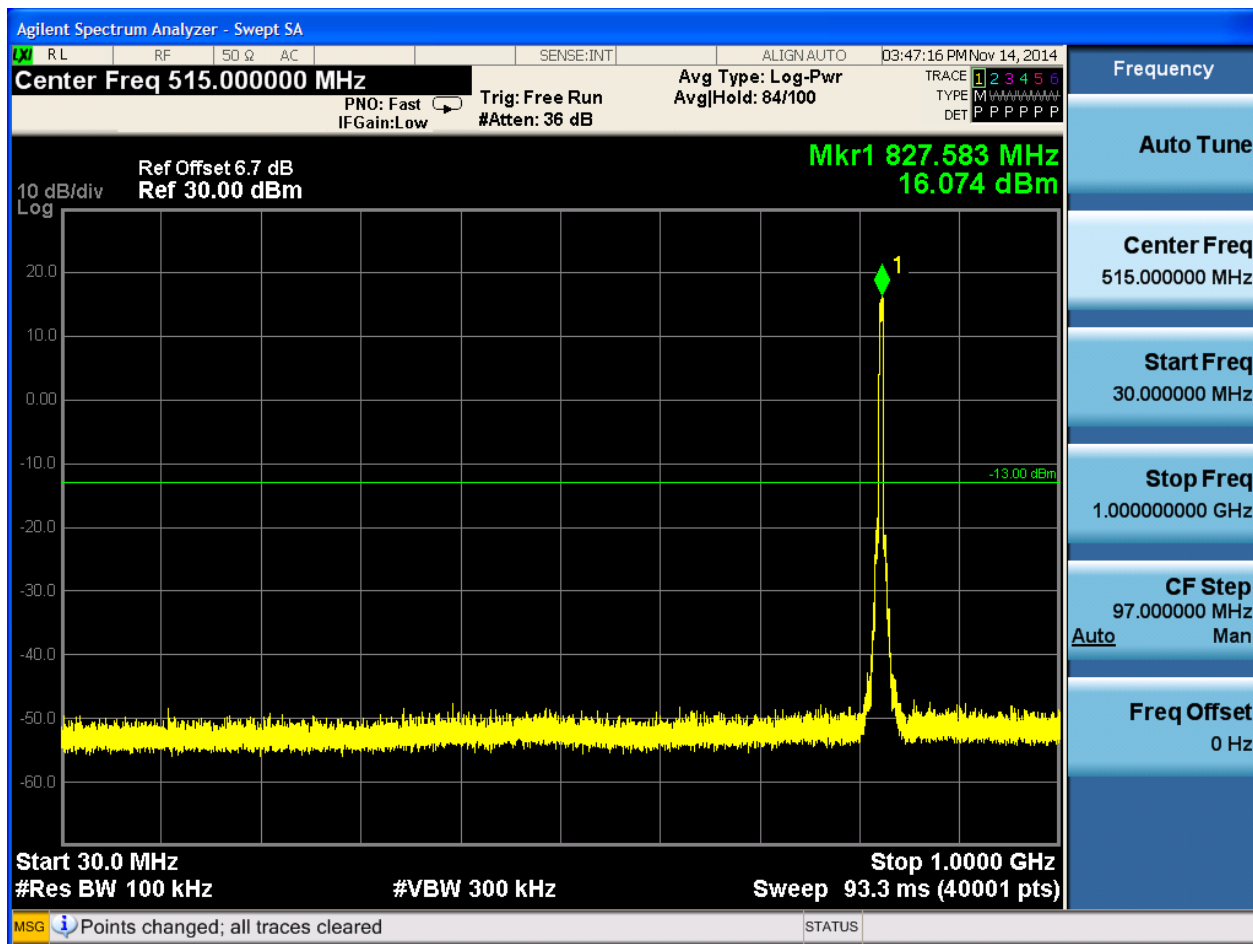
6.2.2 Test Band = WCDMA850

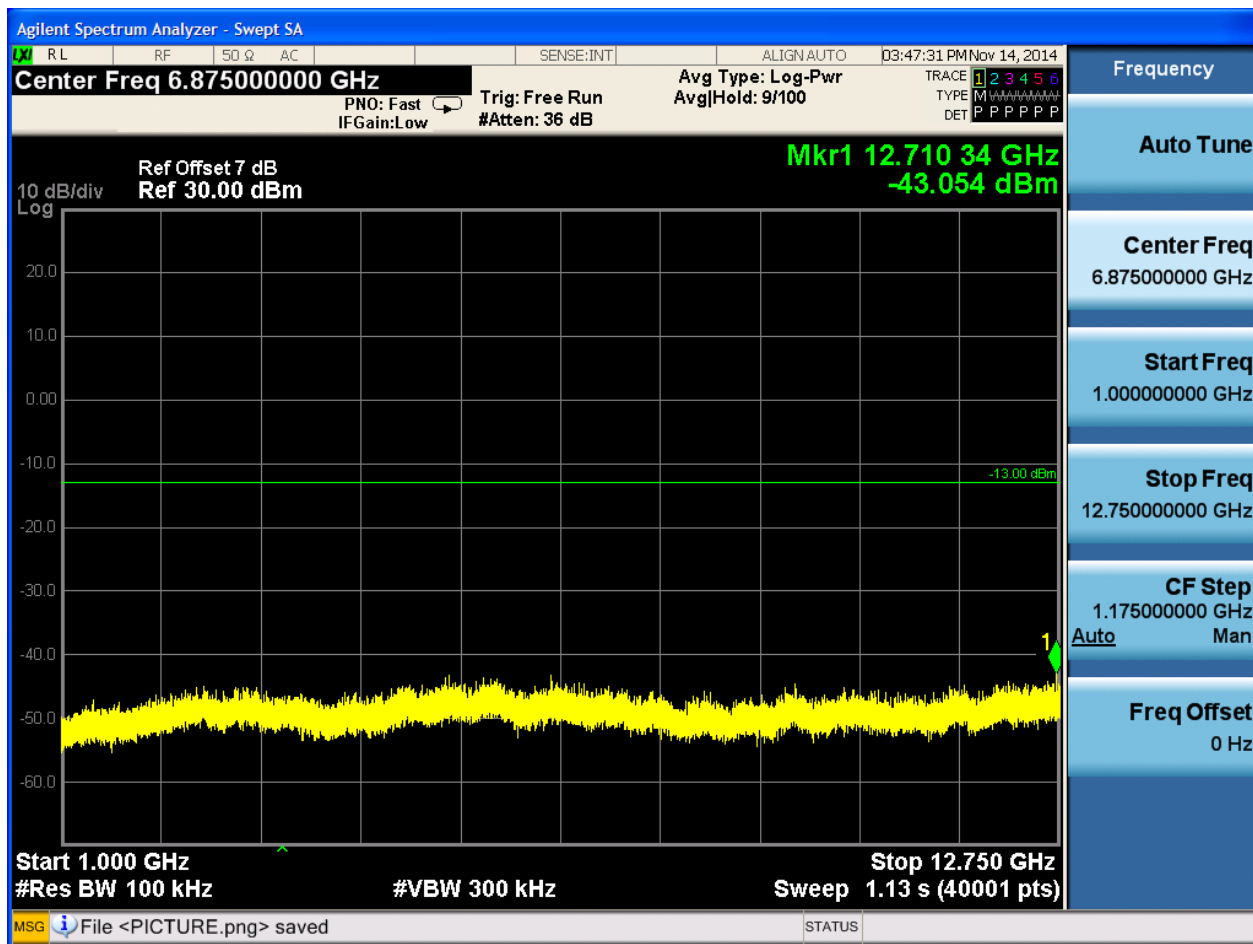
6.2.2.1 Test Mode = UMTS/TM1

6.2.2.1.1 Test Channel = LCH





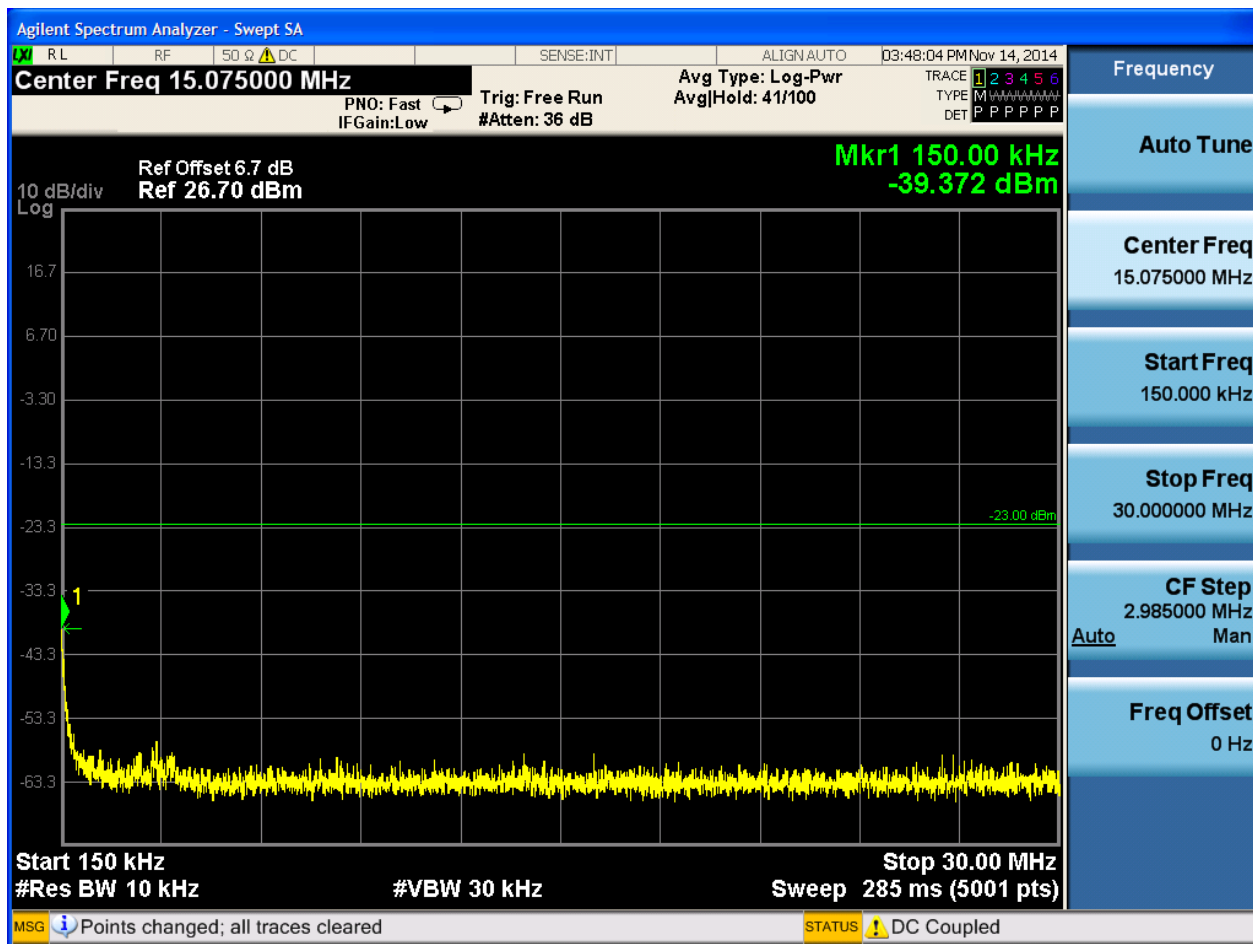


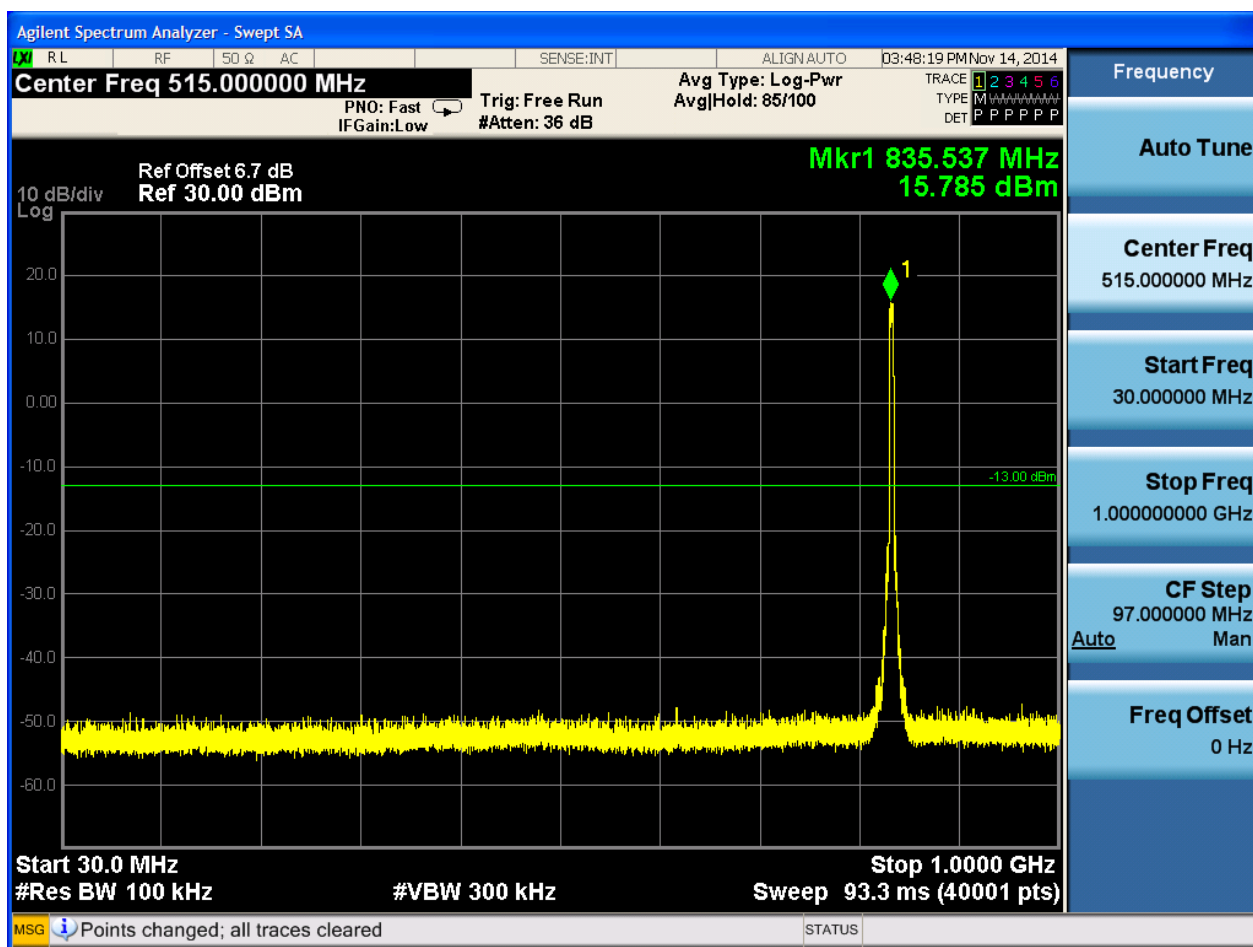


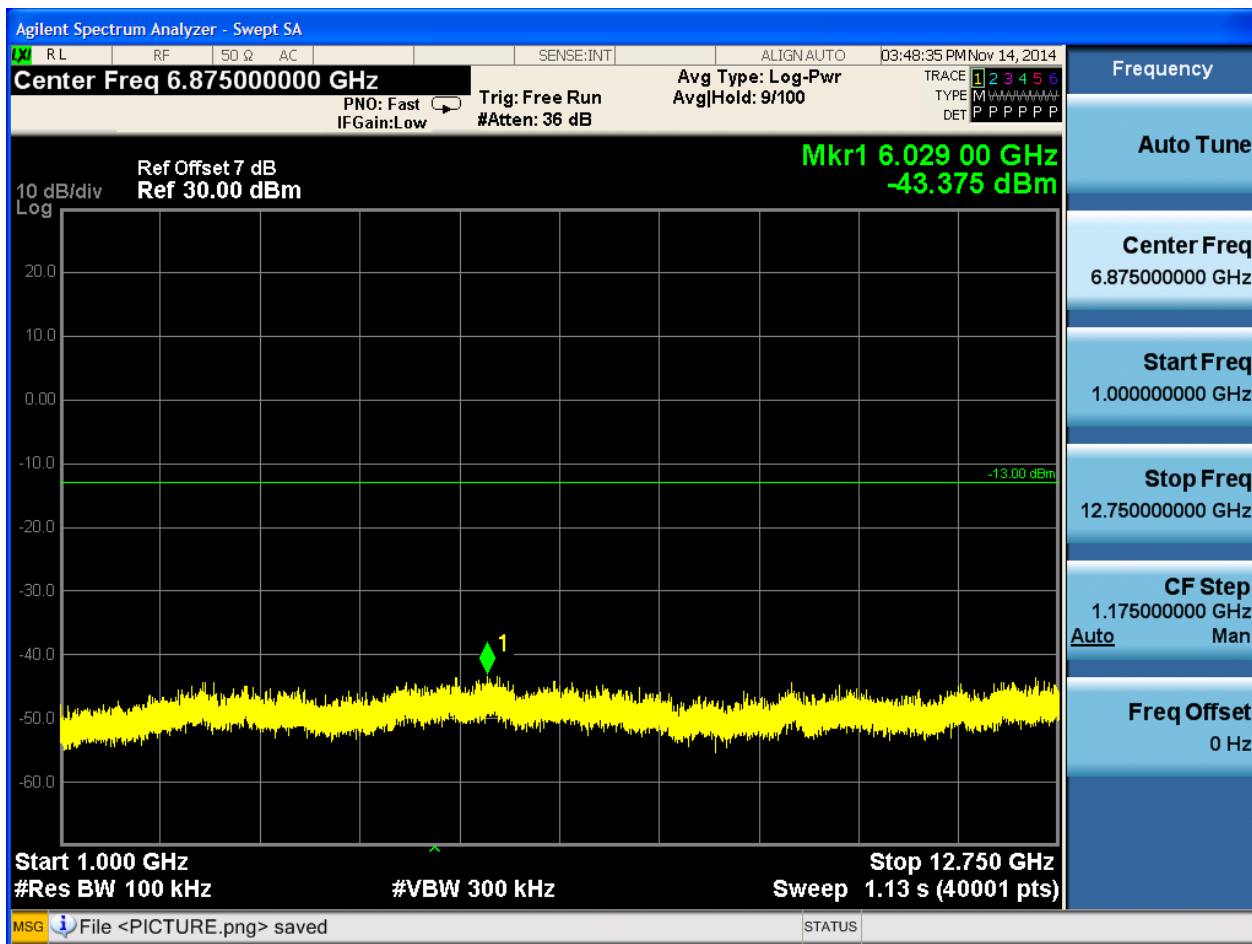


6.2.2.1.2 Test Channel = MCH



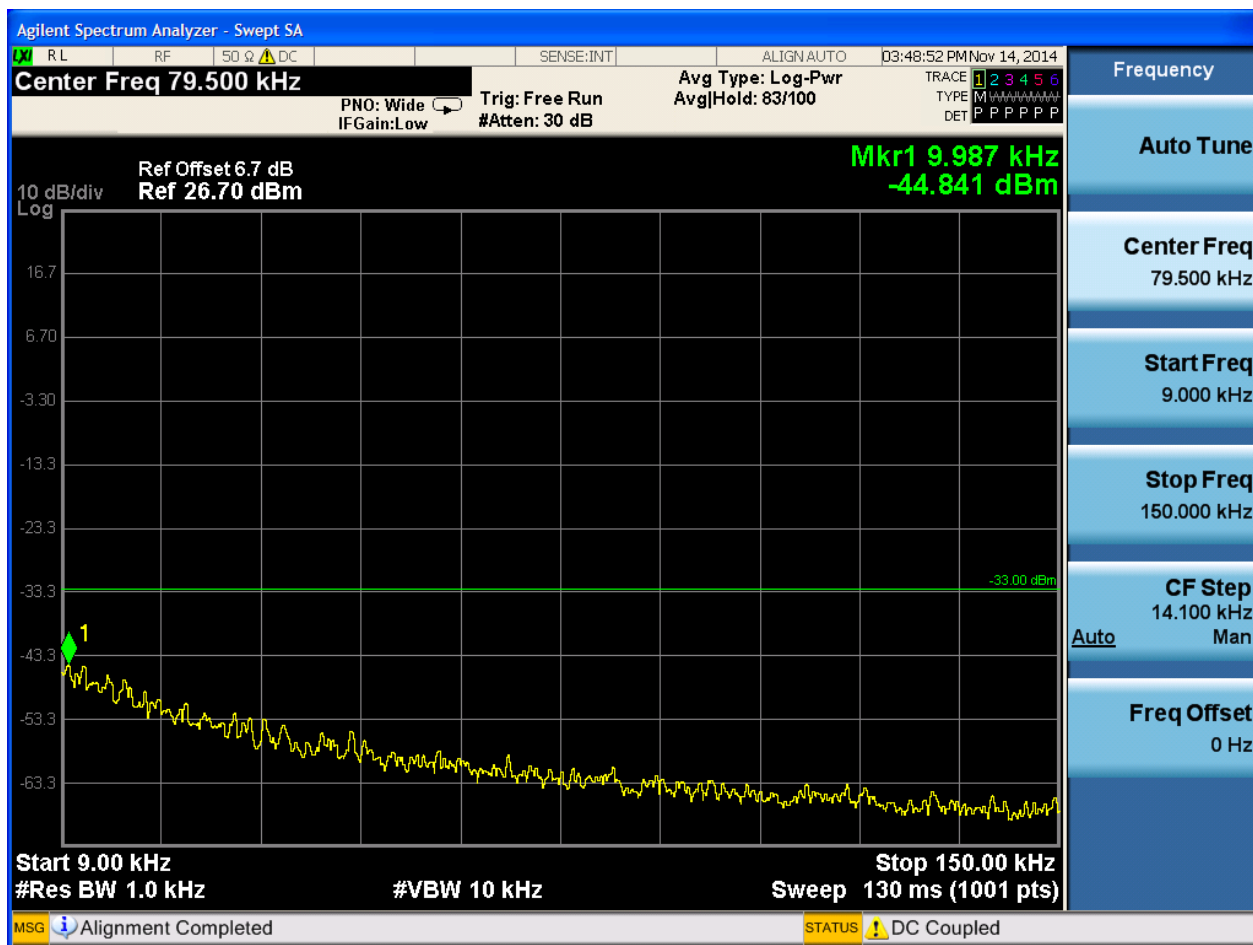


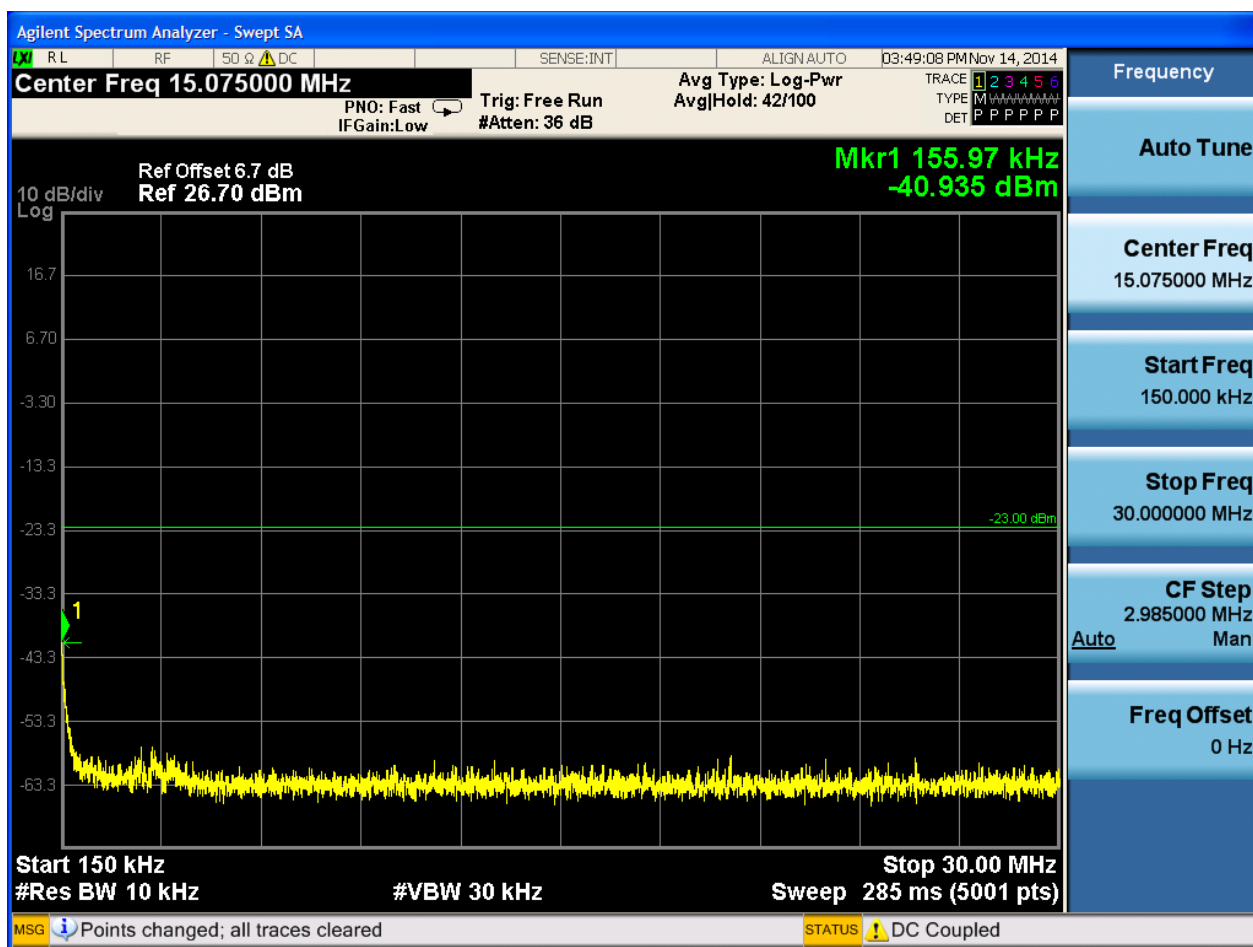


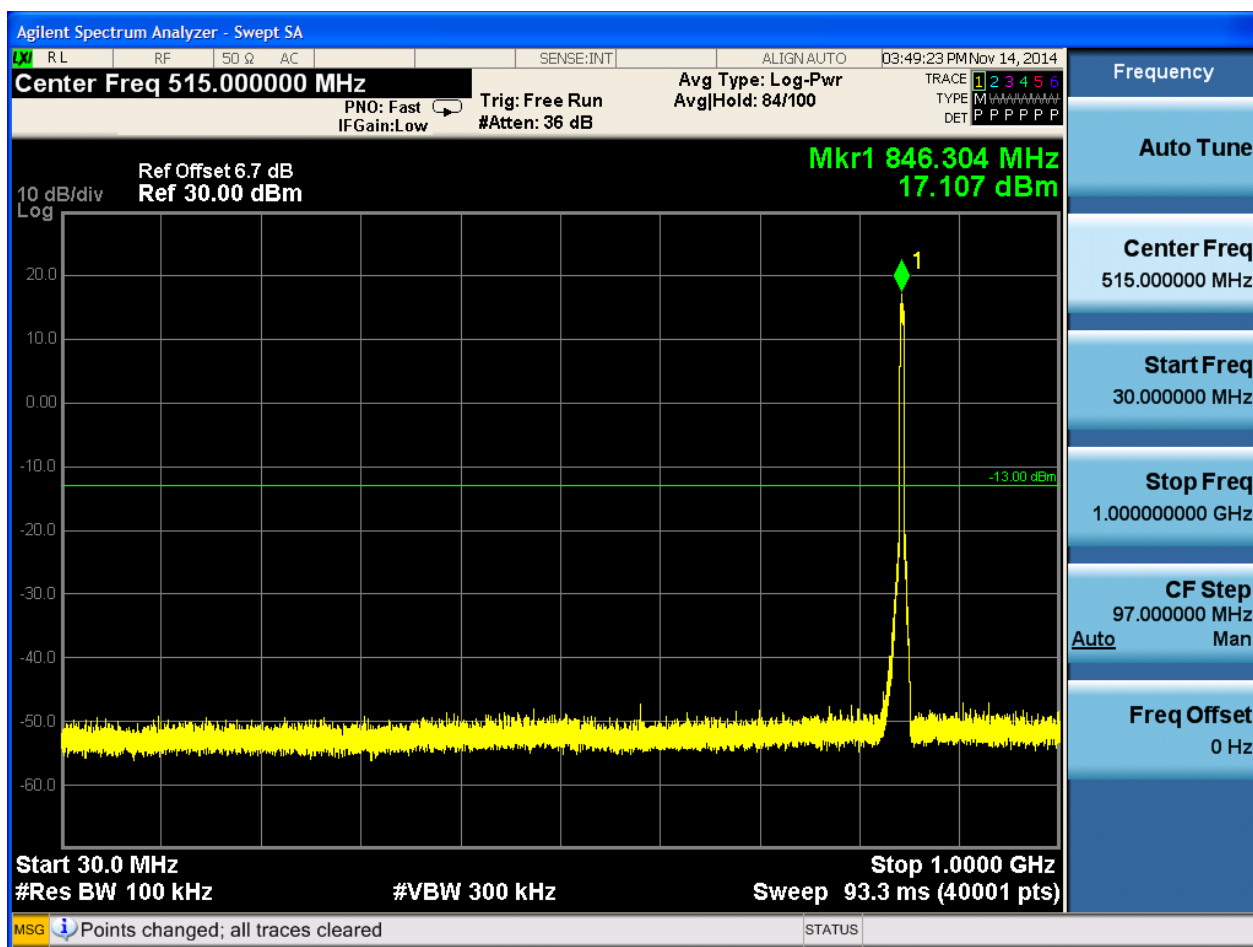


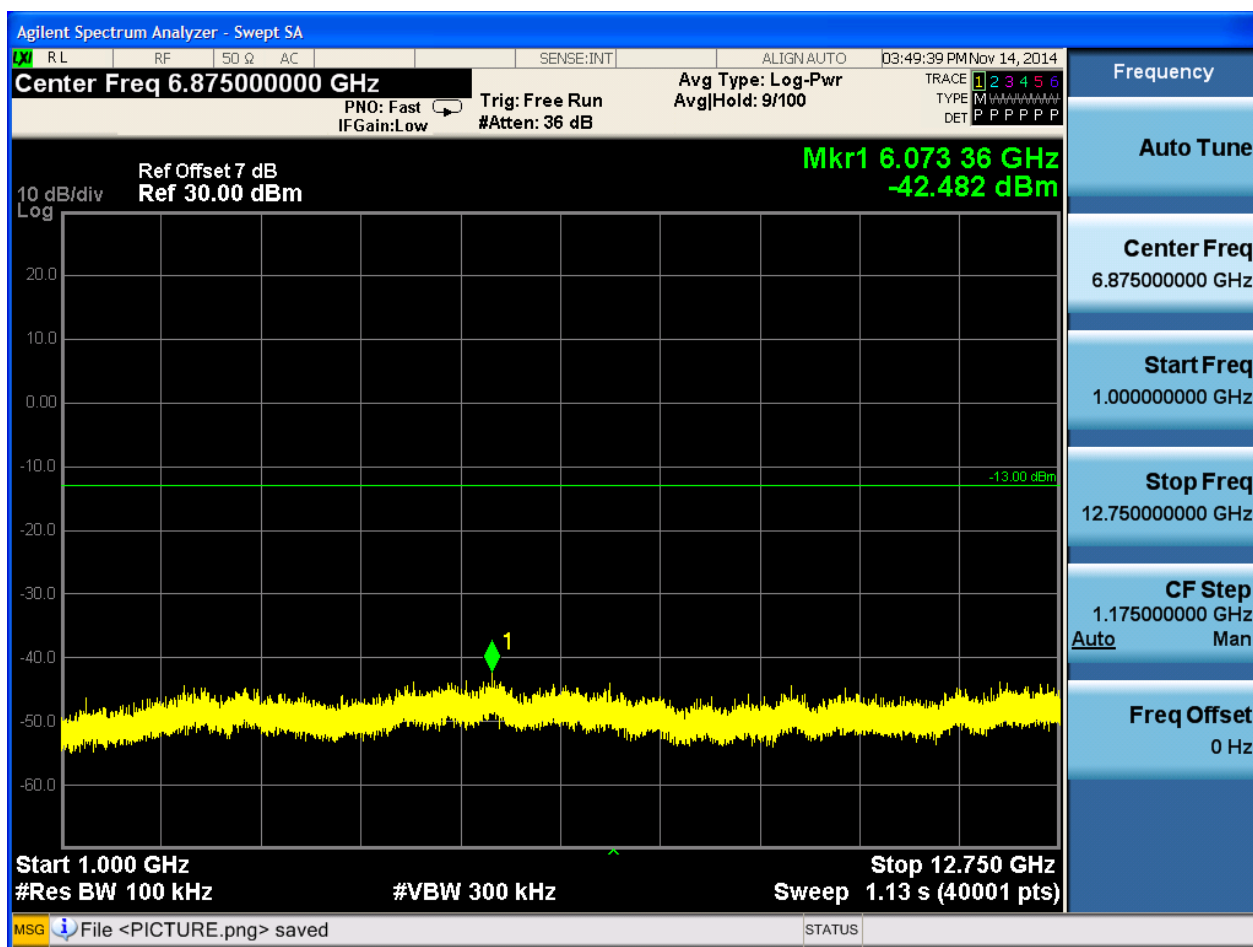


6.2.2.1.3 Test Channel = HCH











6.1 For LTE

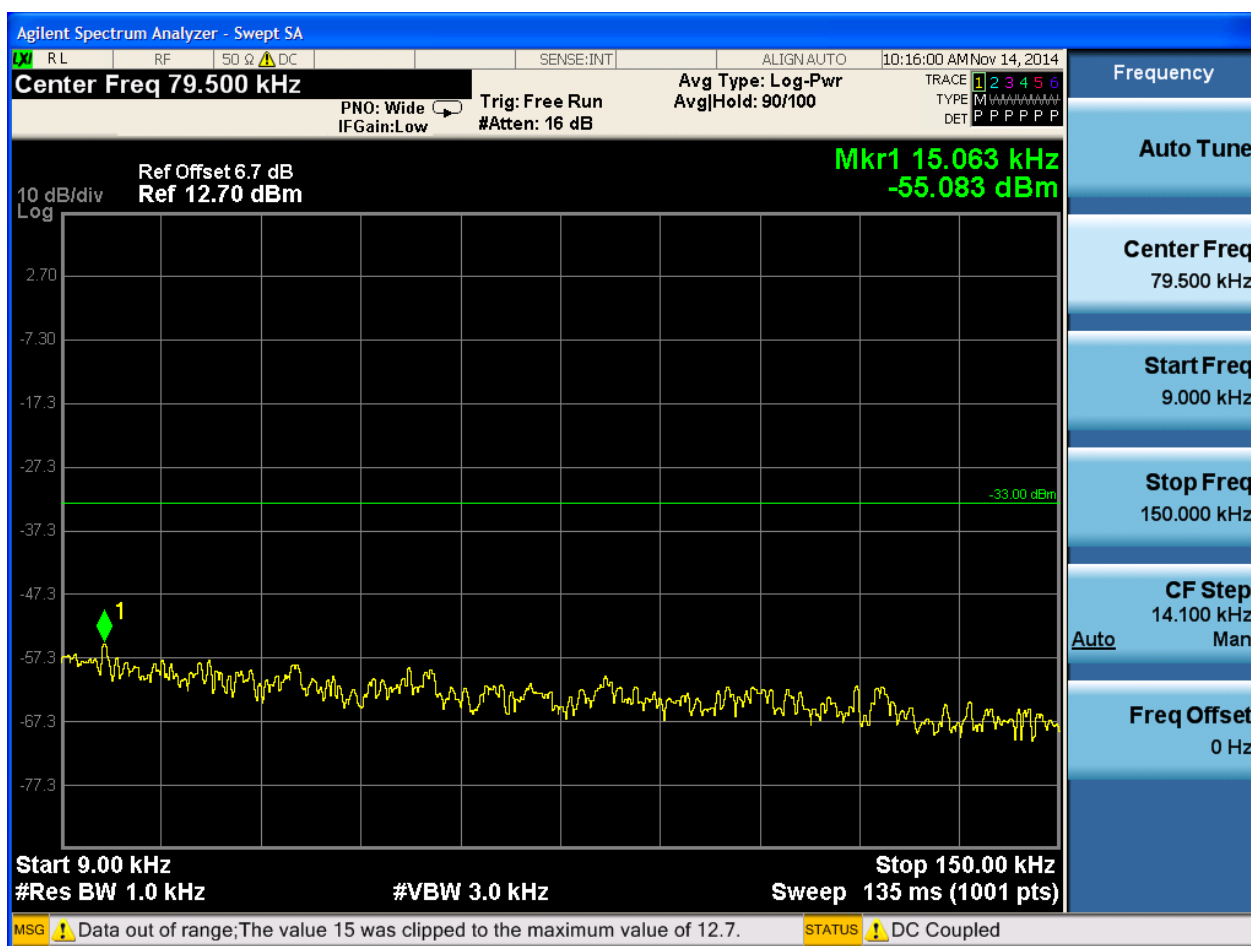
6.1.1 Test Band = BAND17

6.1.1.1 Test Mode = LTE/TM1

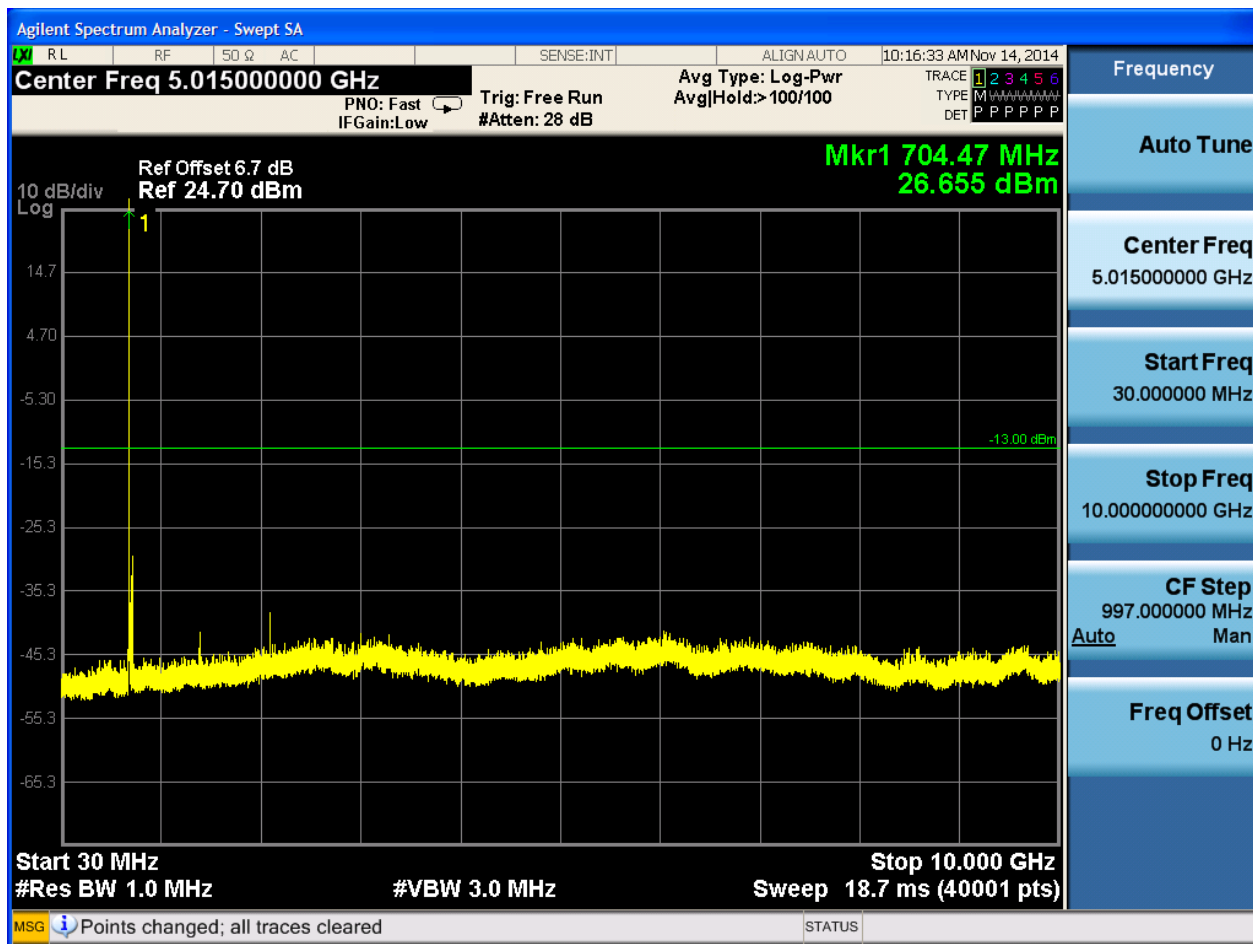
6.1.1.1.1 Test Bandwidth = 5

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0









6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0

