



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
WCDMA850	UMTS/TM1	LCH	22.72	21.40	38.5	PASS
		MCH	22.73	21.65	38.5	PASS
		HCH	22.78	21.59	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23	27.82	33	PASS
		MCH	23	27.90	33	PASS
		HCH	23.06	27.72	33	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:

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

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

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

SET Sweep time=auto-couple.

Detector:RMS



2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	3.28	13	PASS
		MCH	3.41	13	PASS
		HCH	3.4	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.28	13	PASS
		MCH	3.35	13	PASS
		HCH	3.27	13	PASS

3Appendix_C: Modulation Characteristics

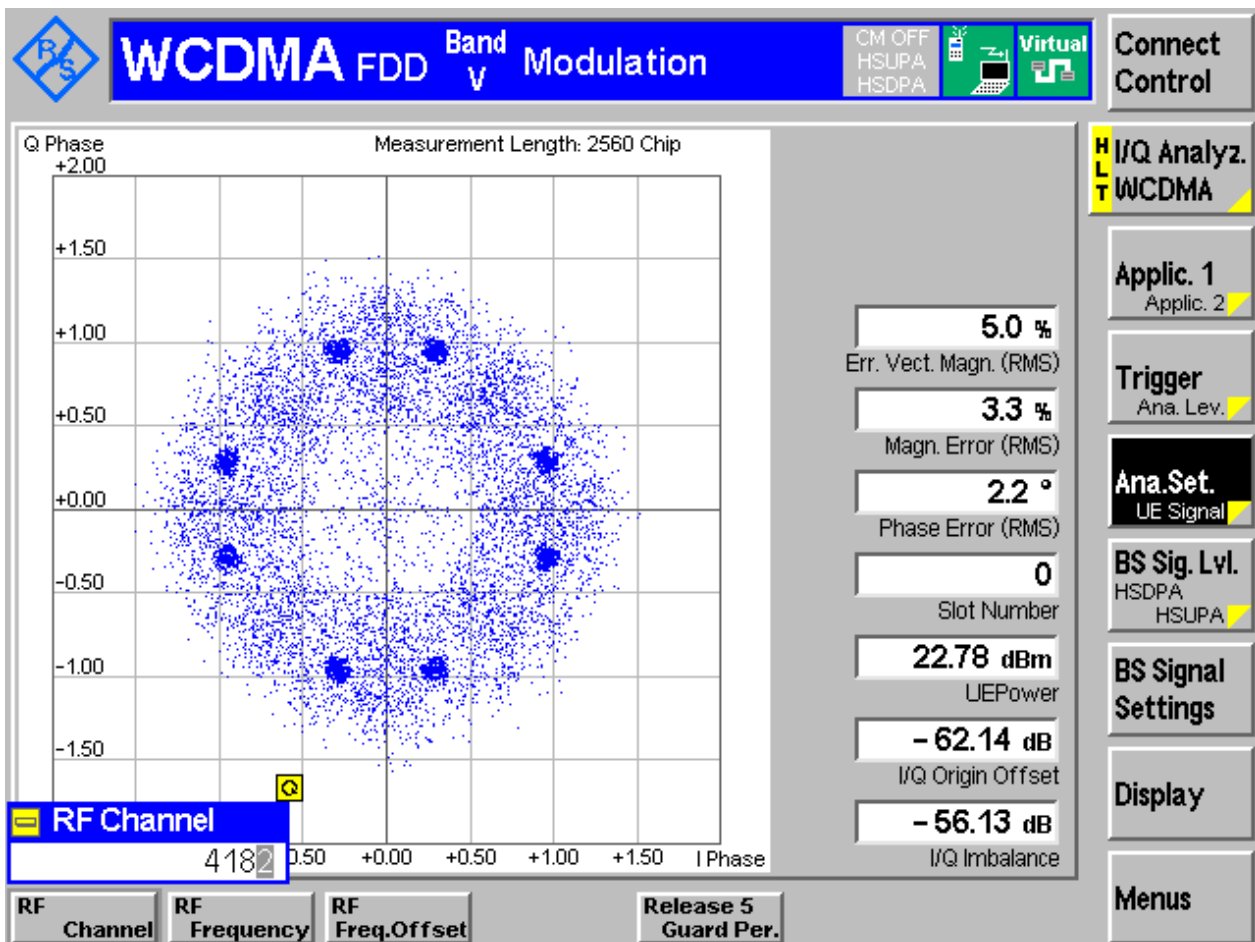
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

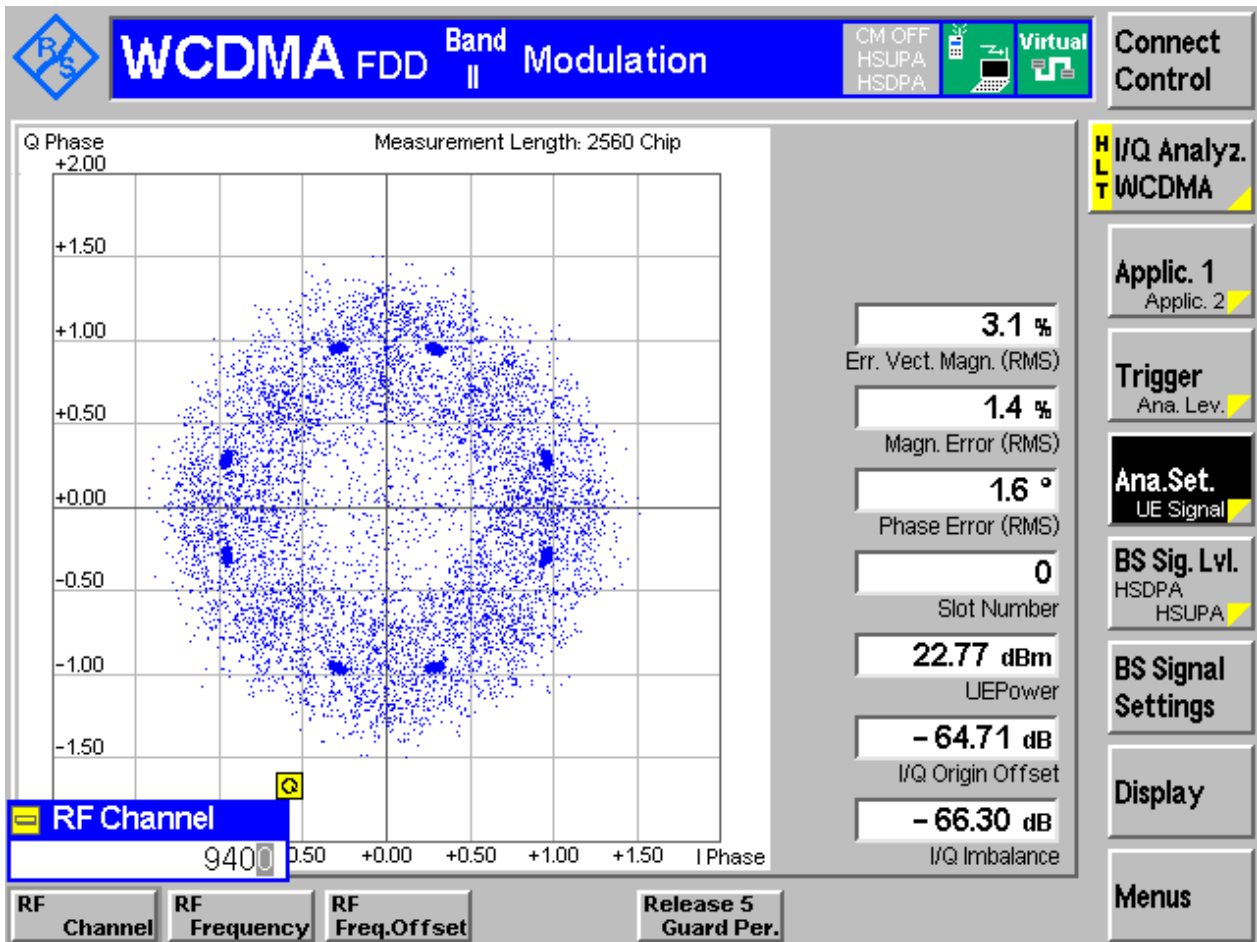
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1900

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.13	4.69	Pass
		MCH	4.12	4.68	Pass
		HCH	4.10	4.68	Pass
WCDMA1900	UMTS/TM1	LCH	4.12	4.70	Pass
		MCH	4.11	4.69	Pass
		HCH	4.13	4.70	Pass



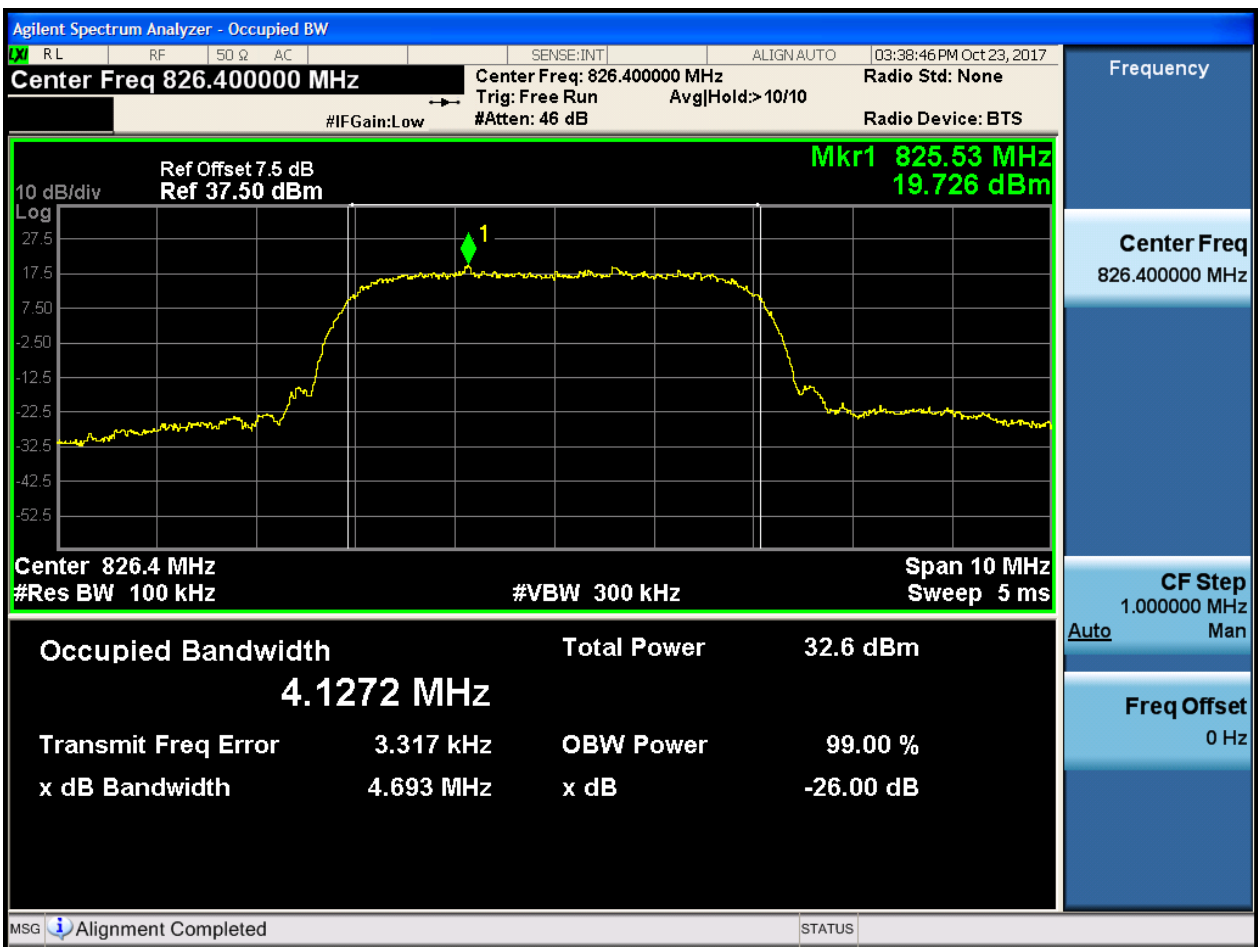
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

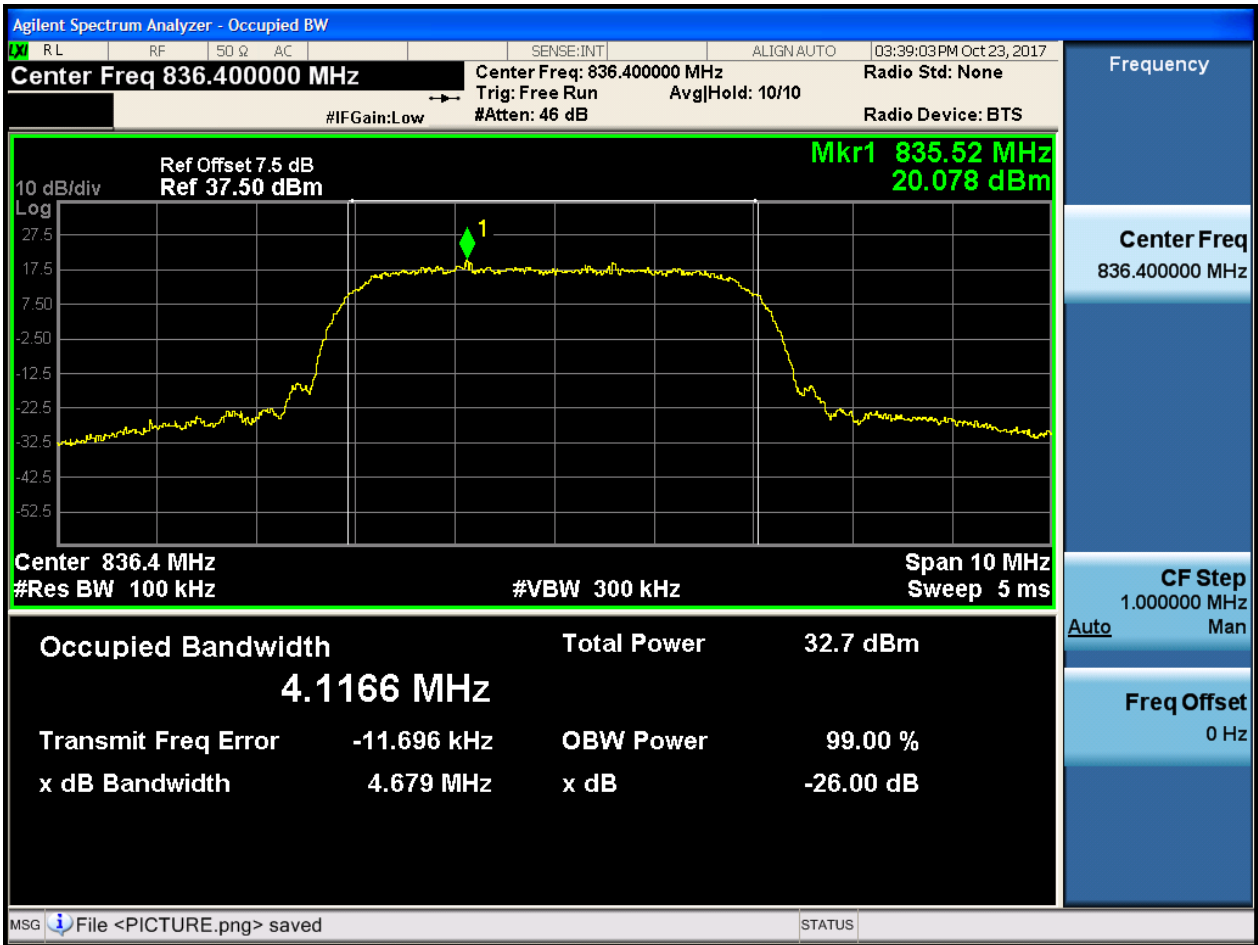
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH





4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

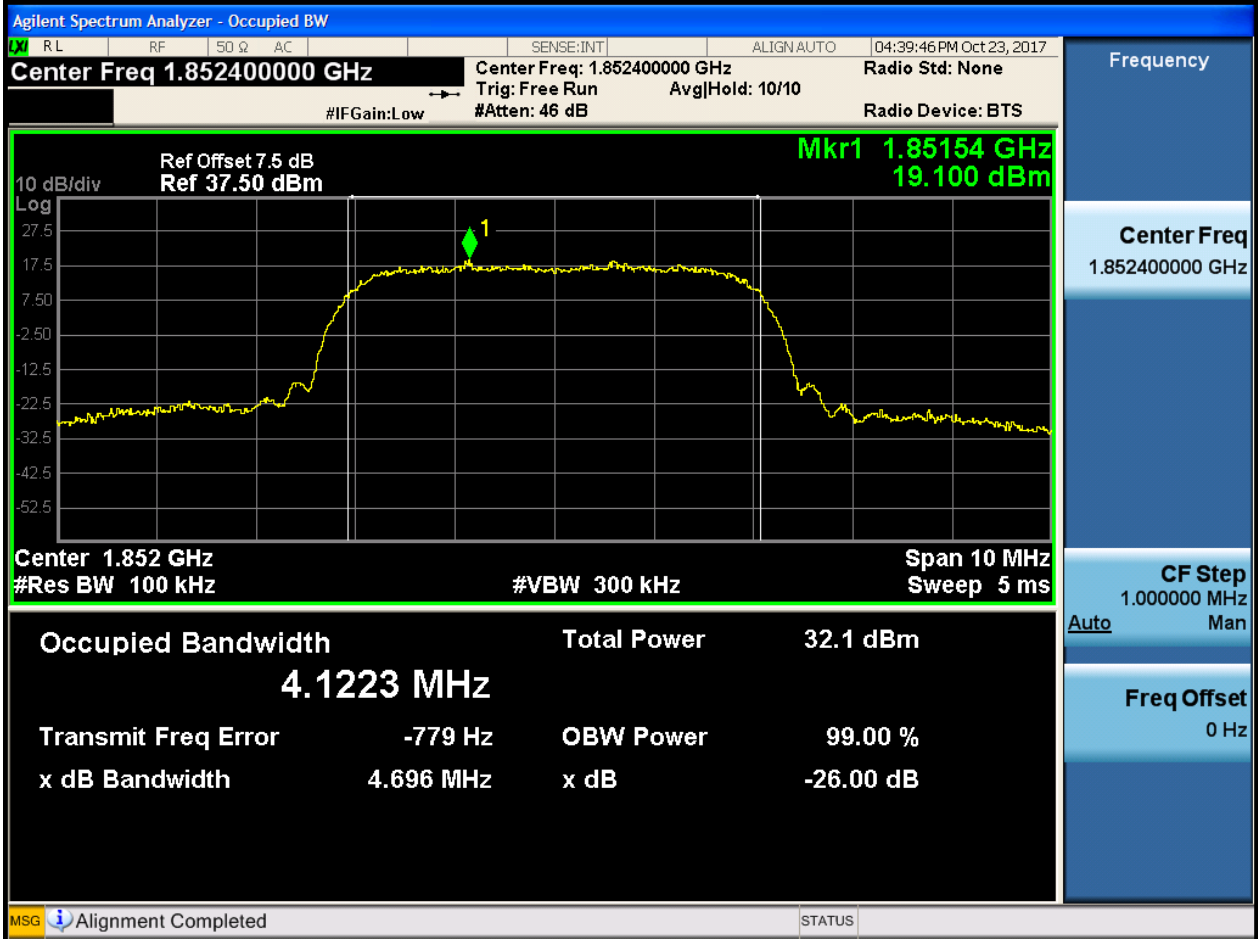




4.1.2 Test Band = WCDMA1900

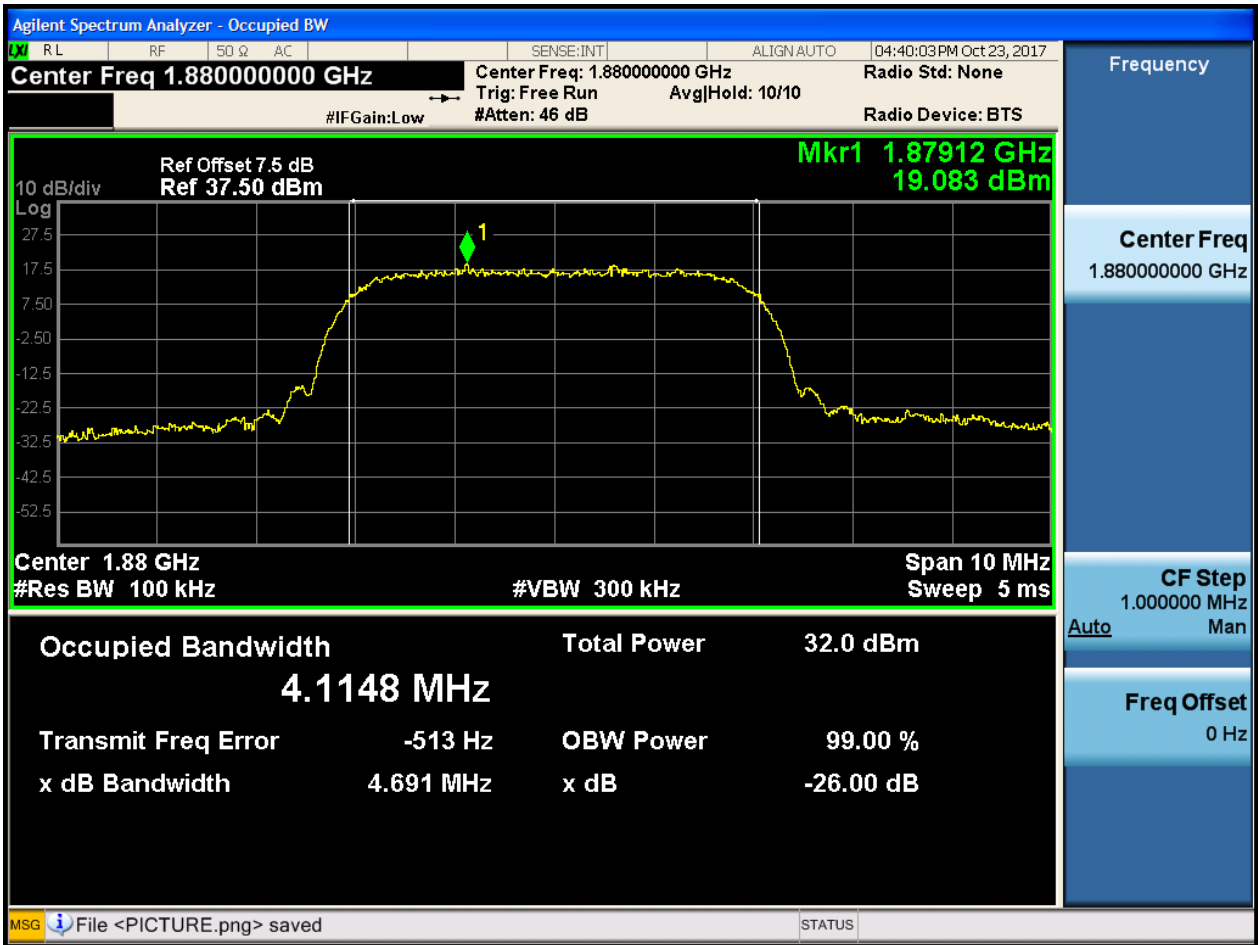
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



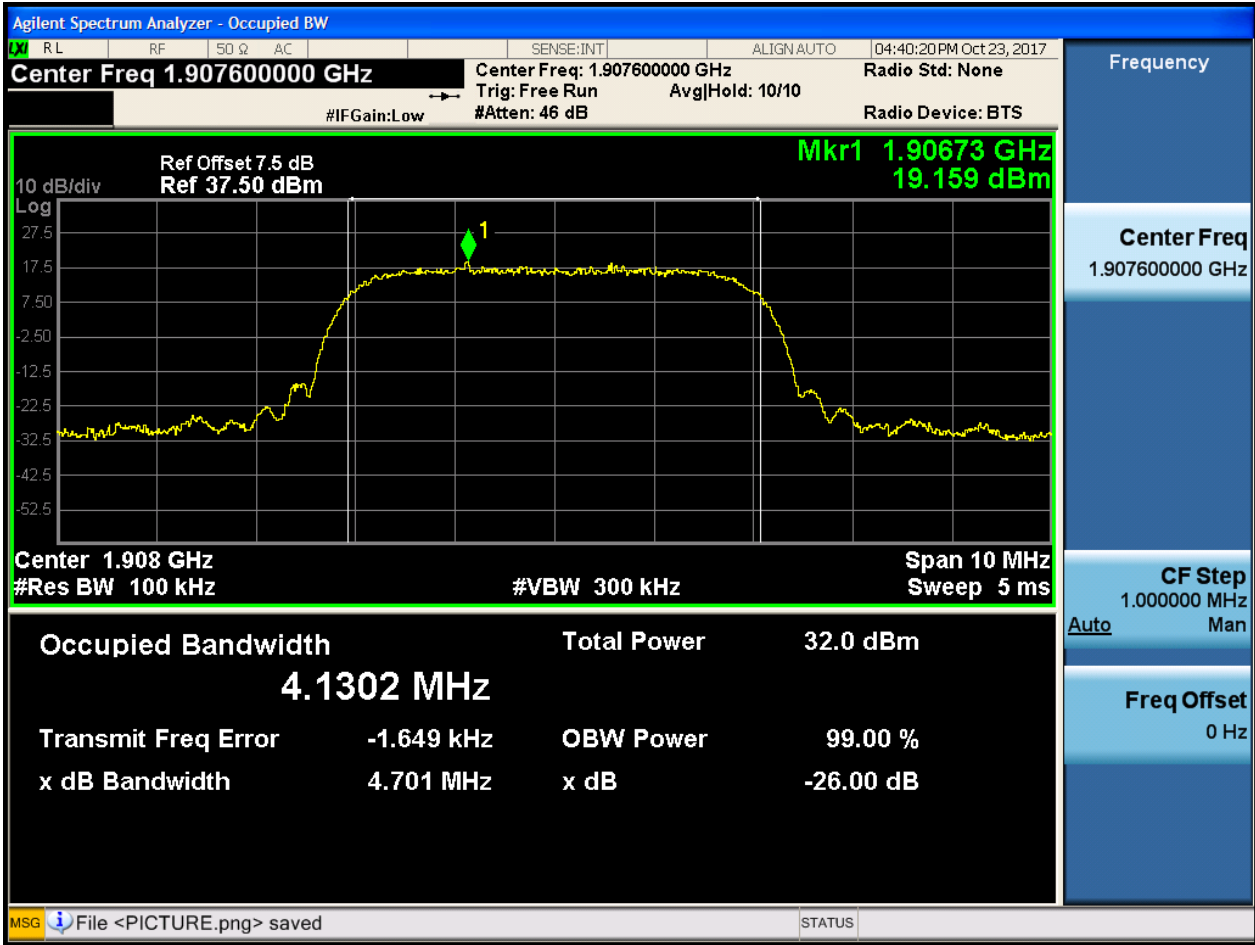


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

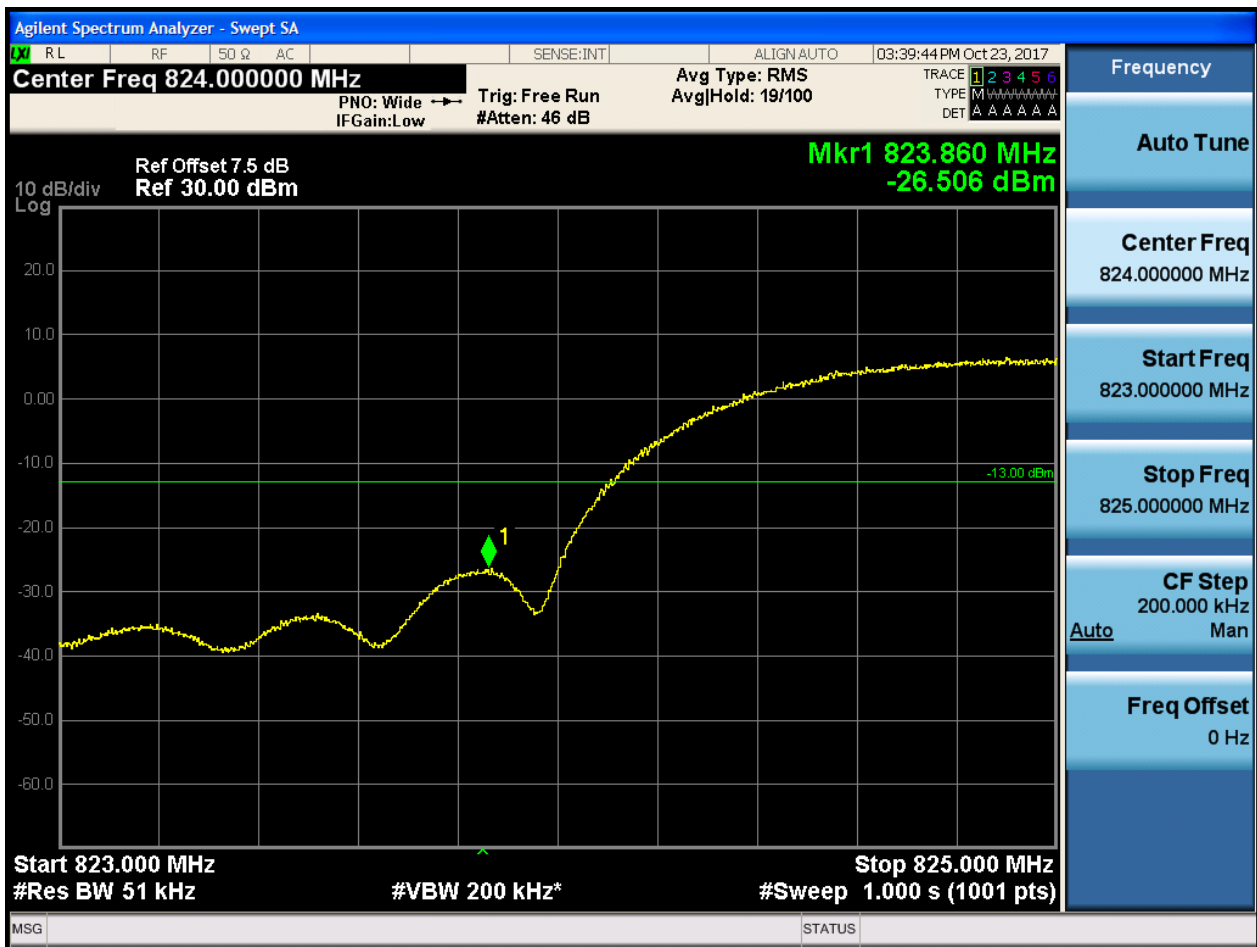
Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



5.1.1.1.2 Test Channel = HCH





5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH





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.

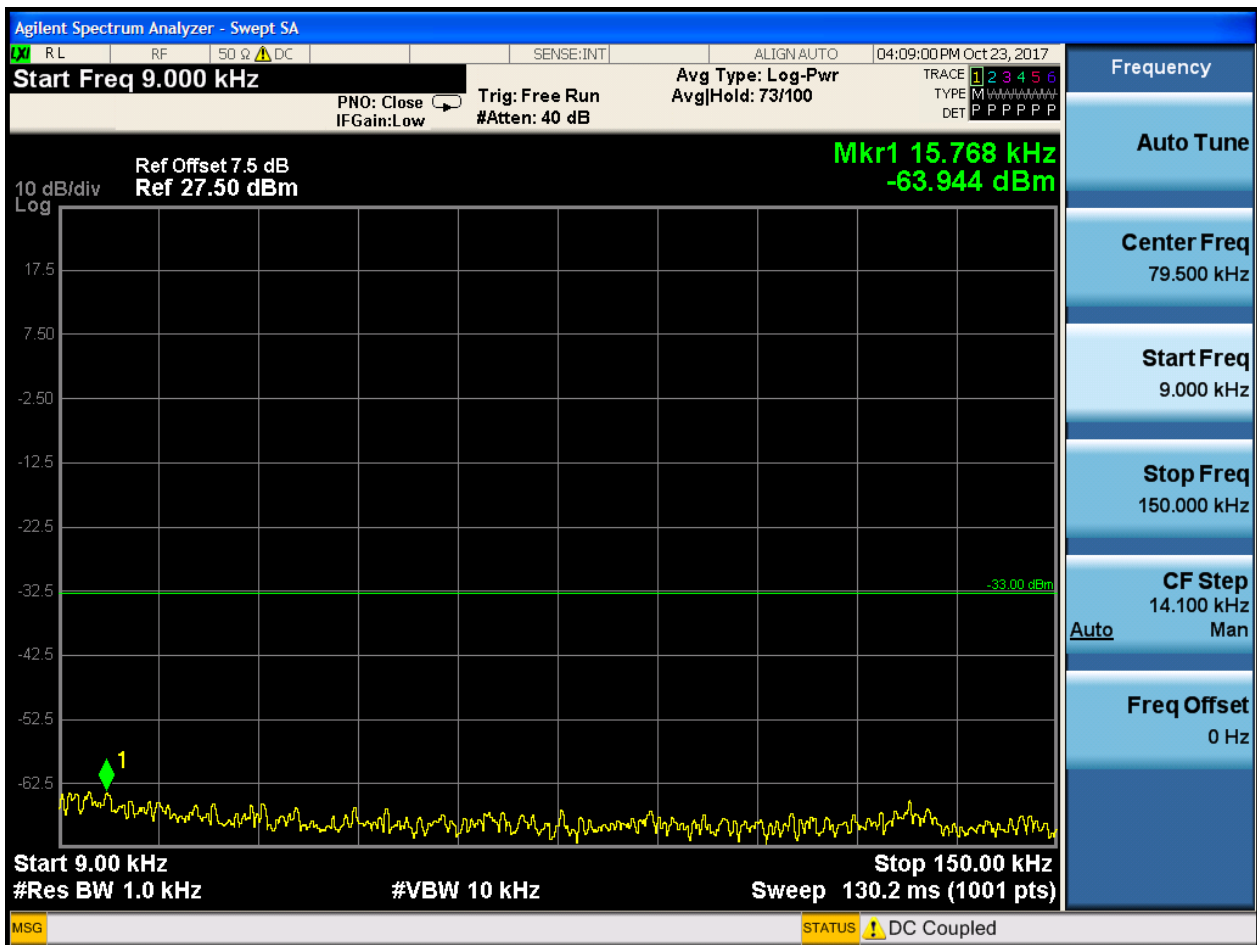
Part I - Test Plots

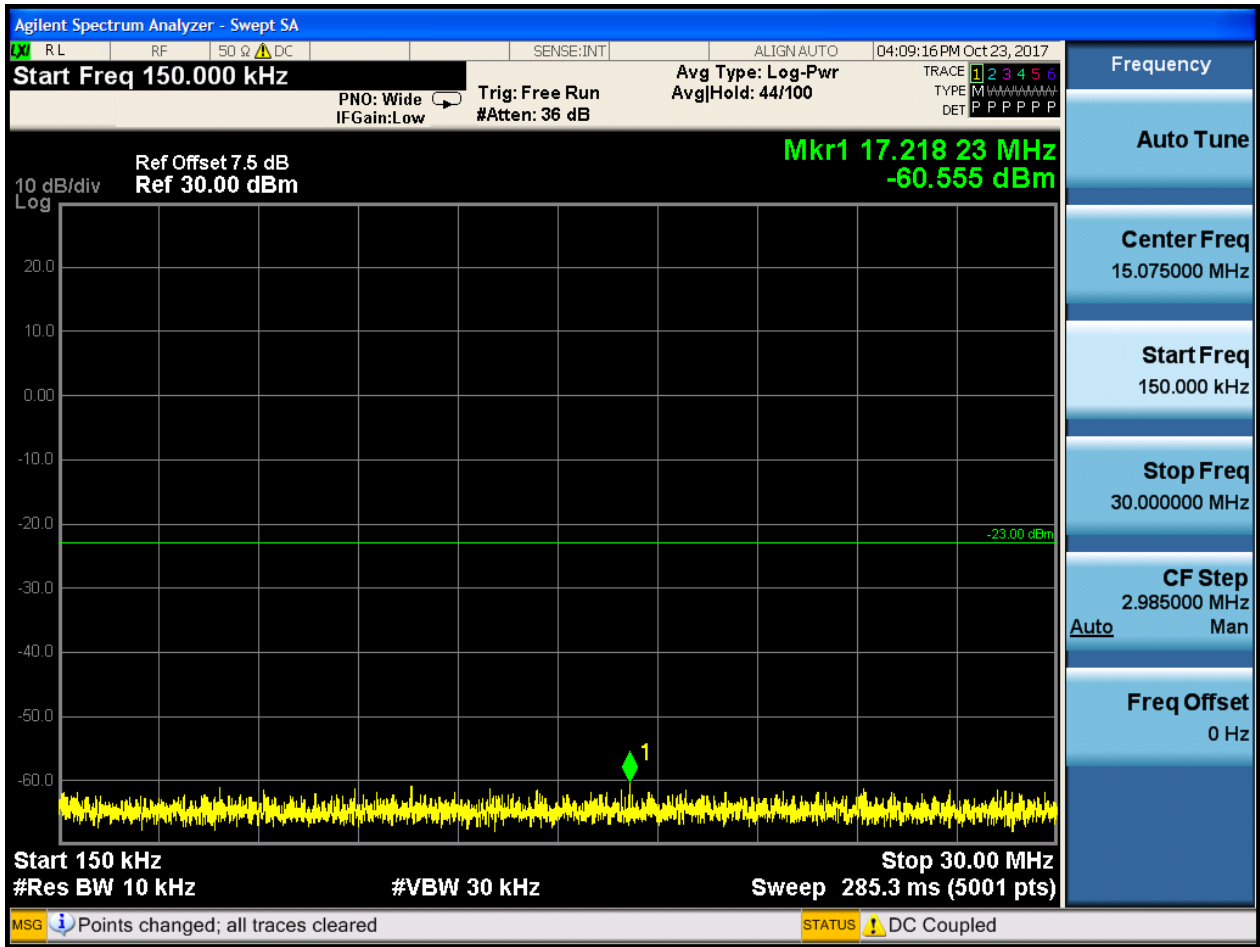
6.1 For UMTS

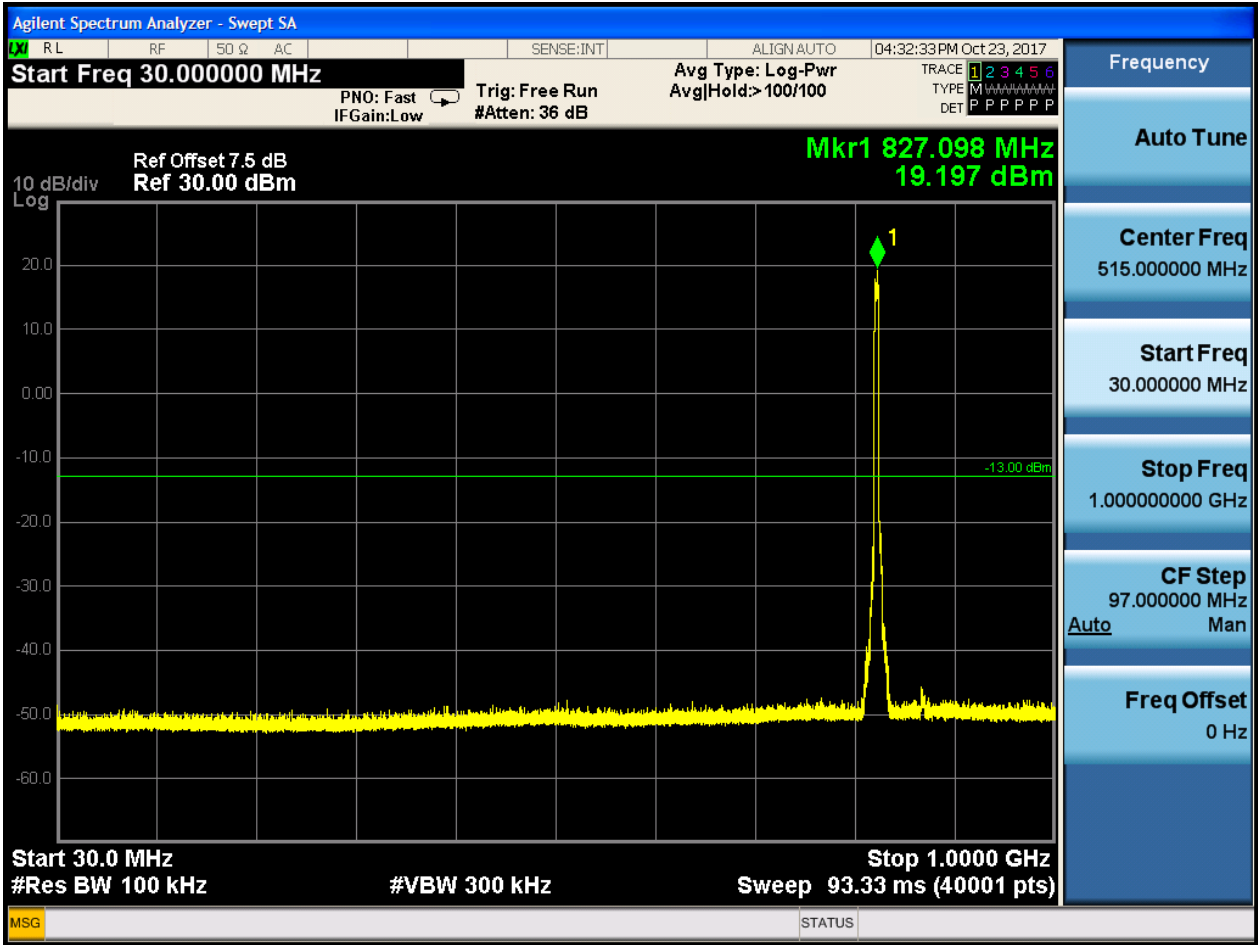
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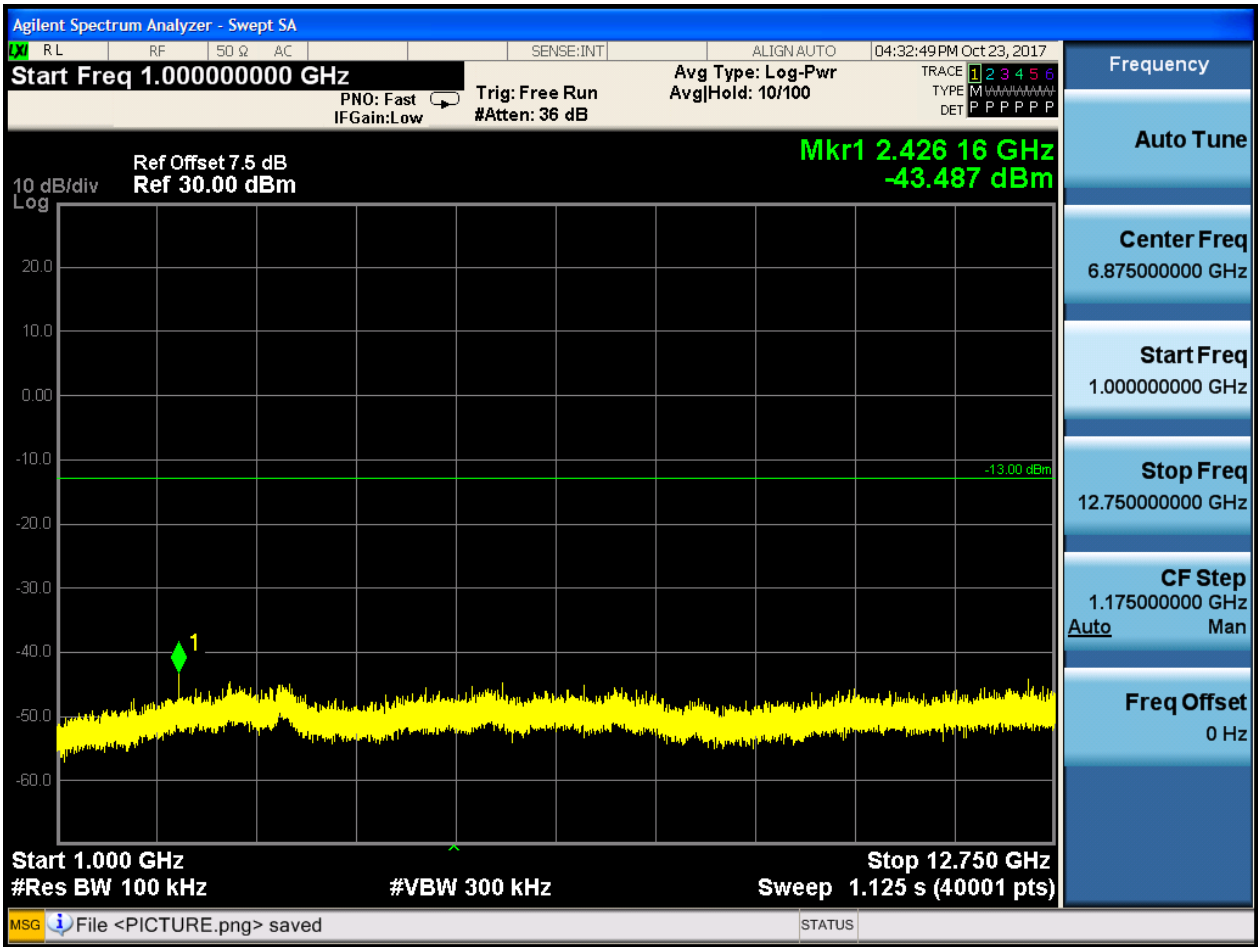
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH



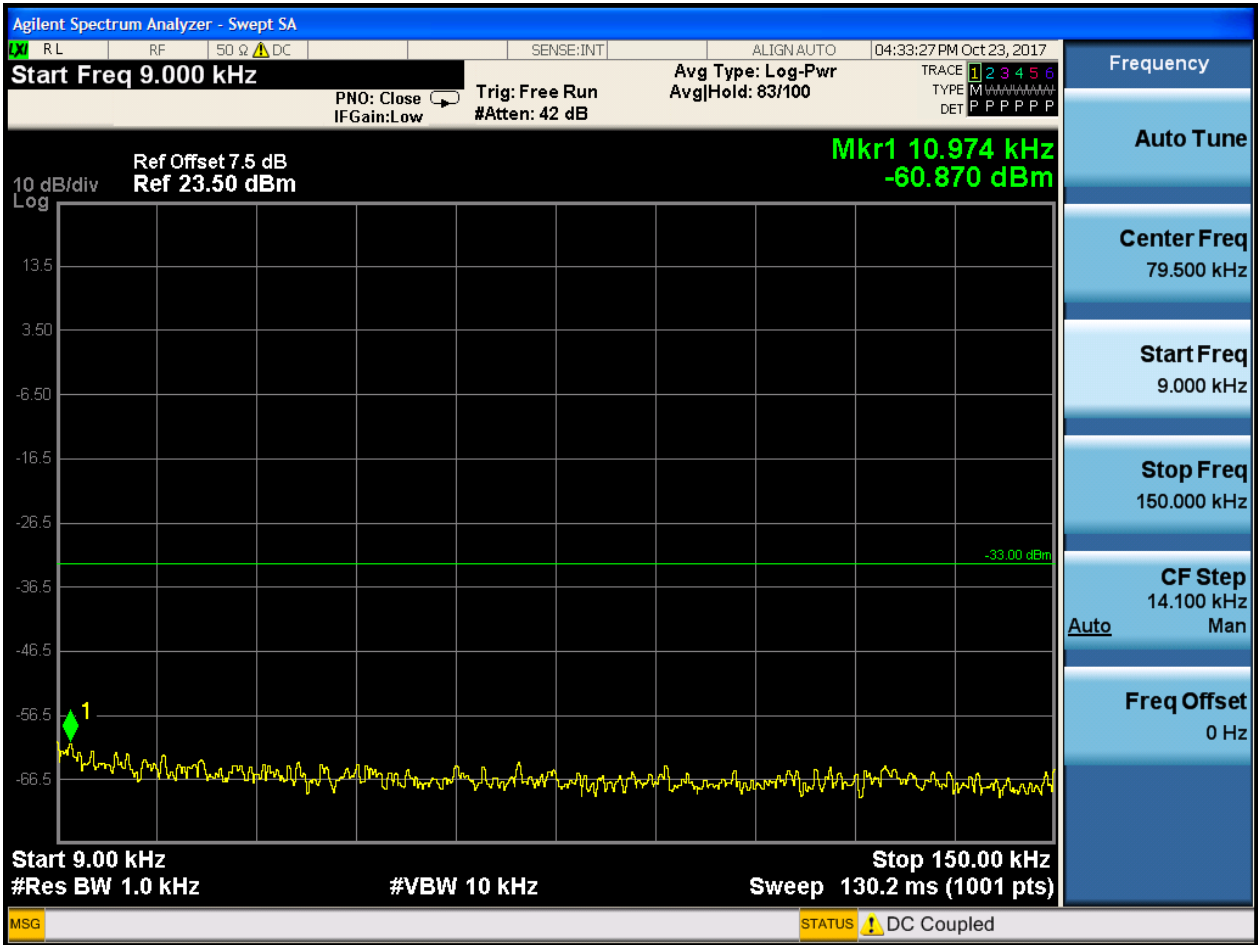


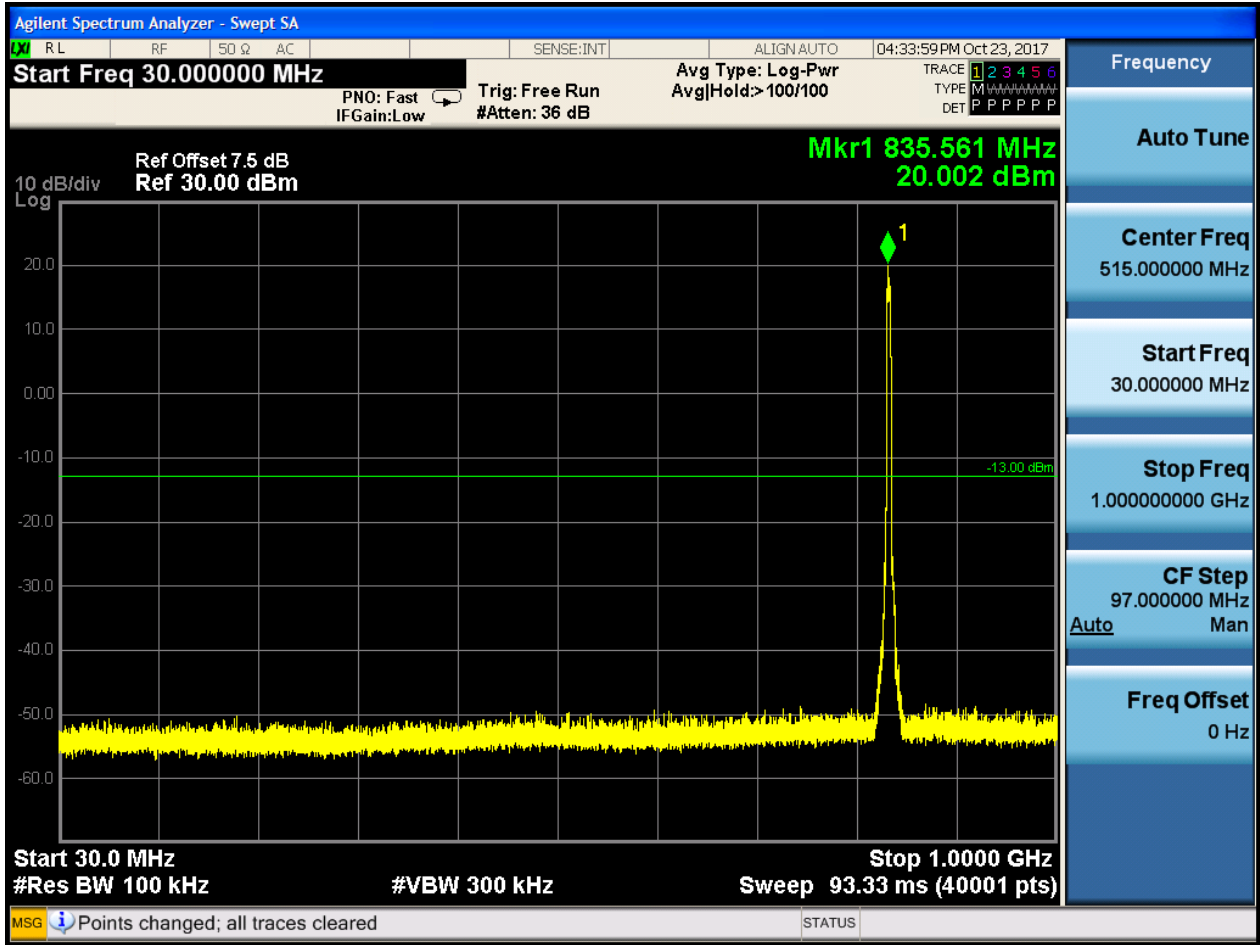


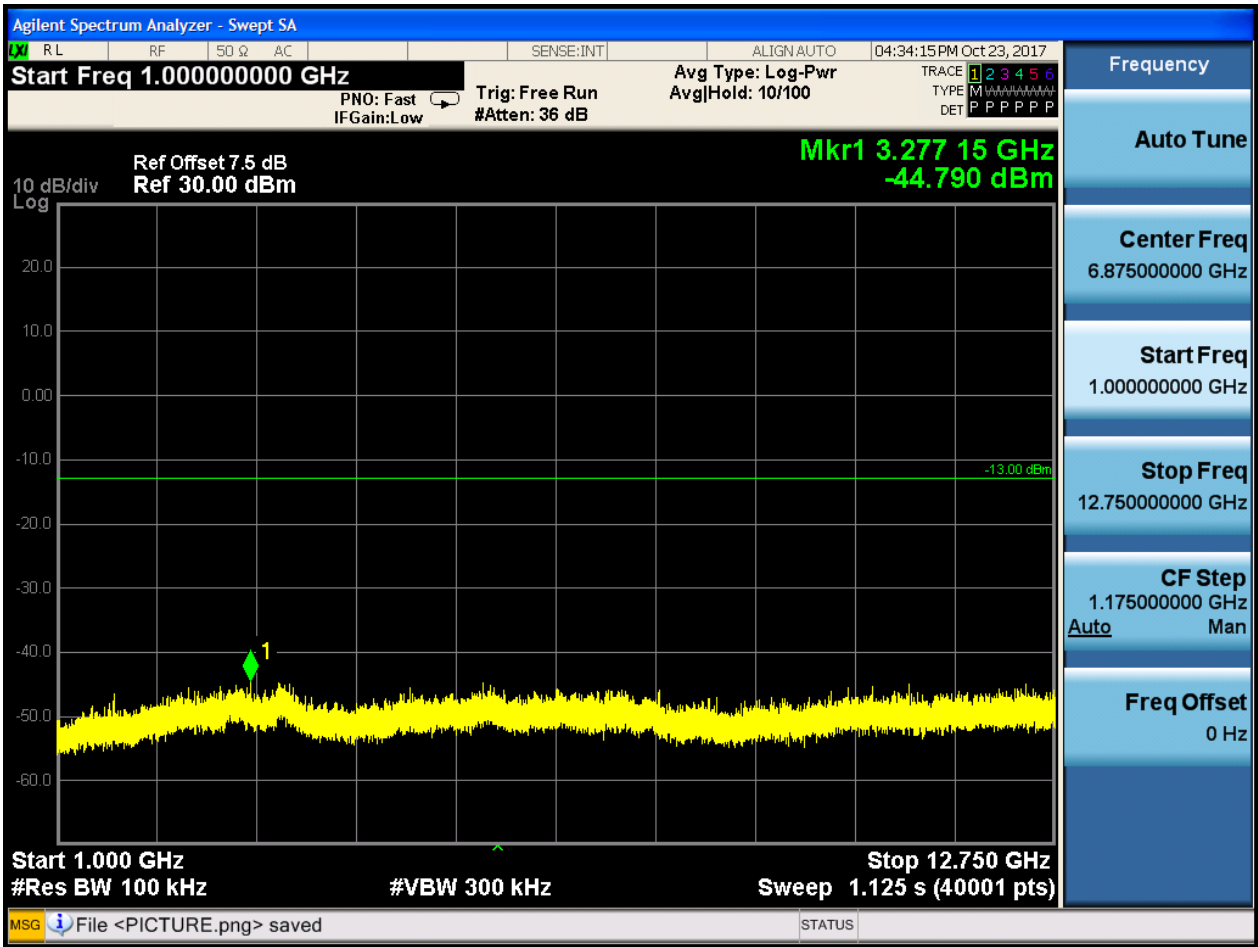




6.1.1.1.2 Test Channel = MCH

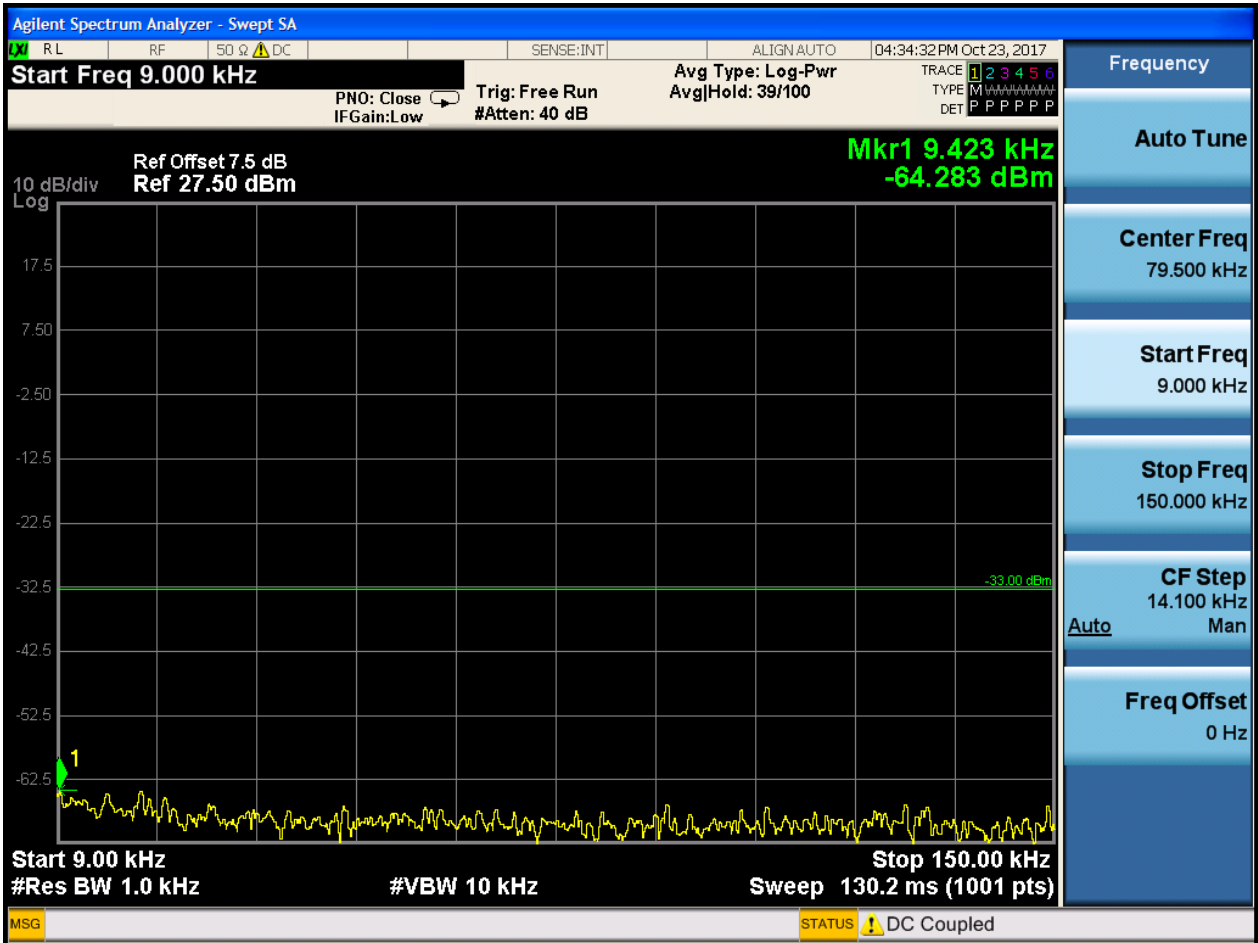


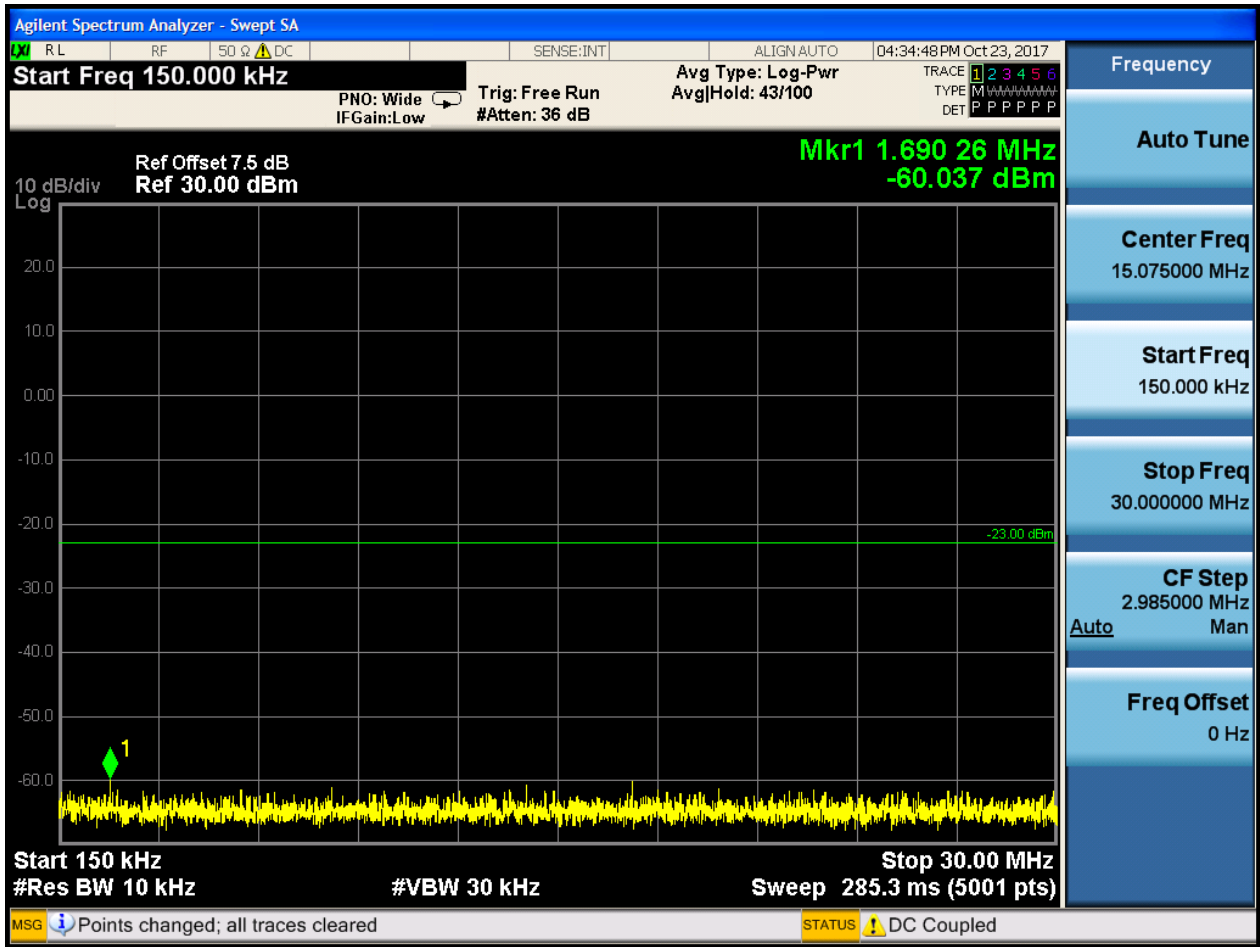


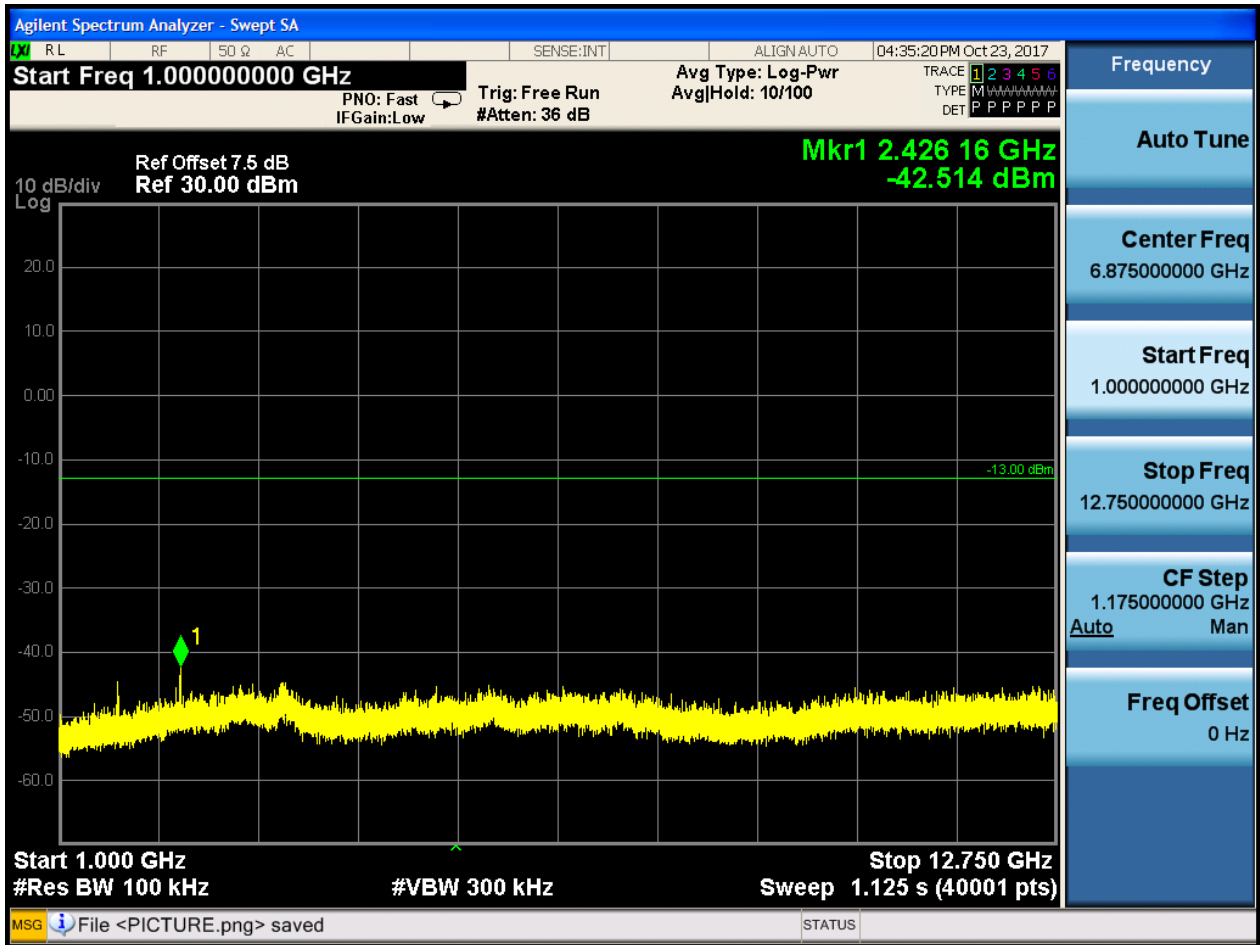




6.1.1.1.3 Test Channel = HCH





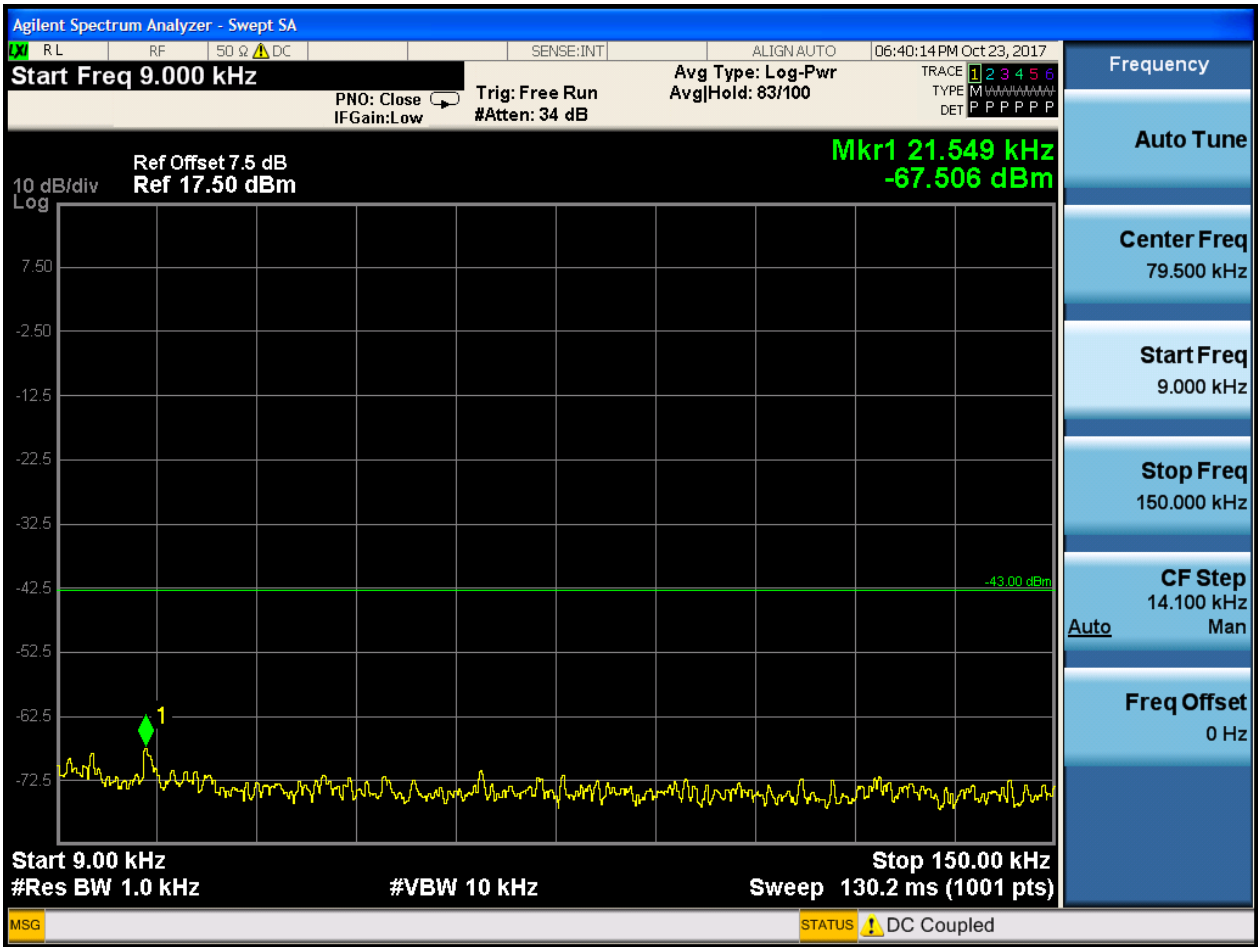


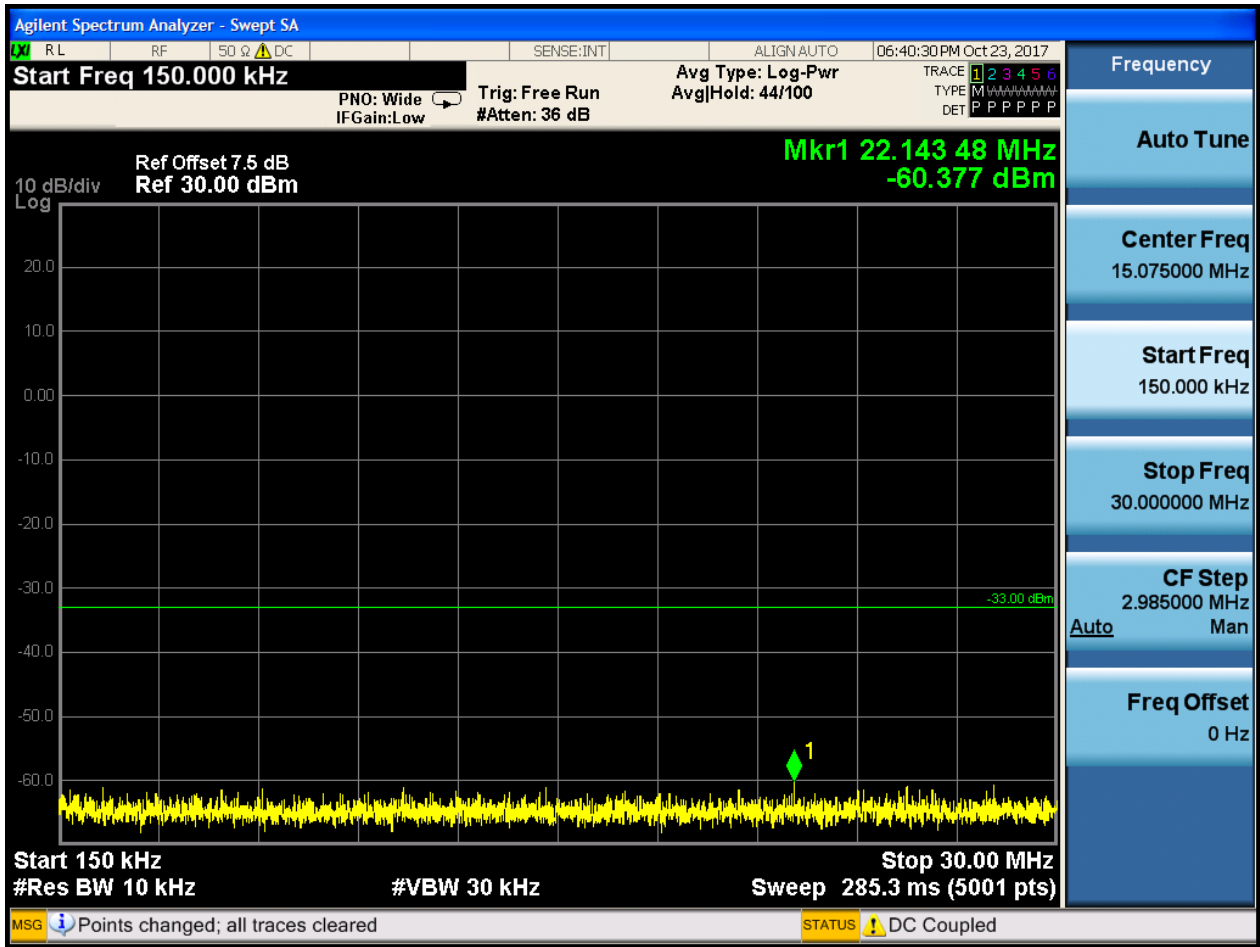


6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

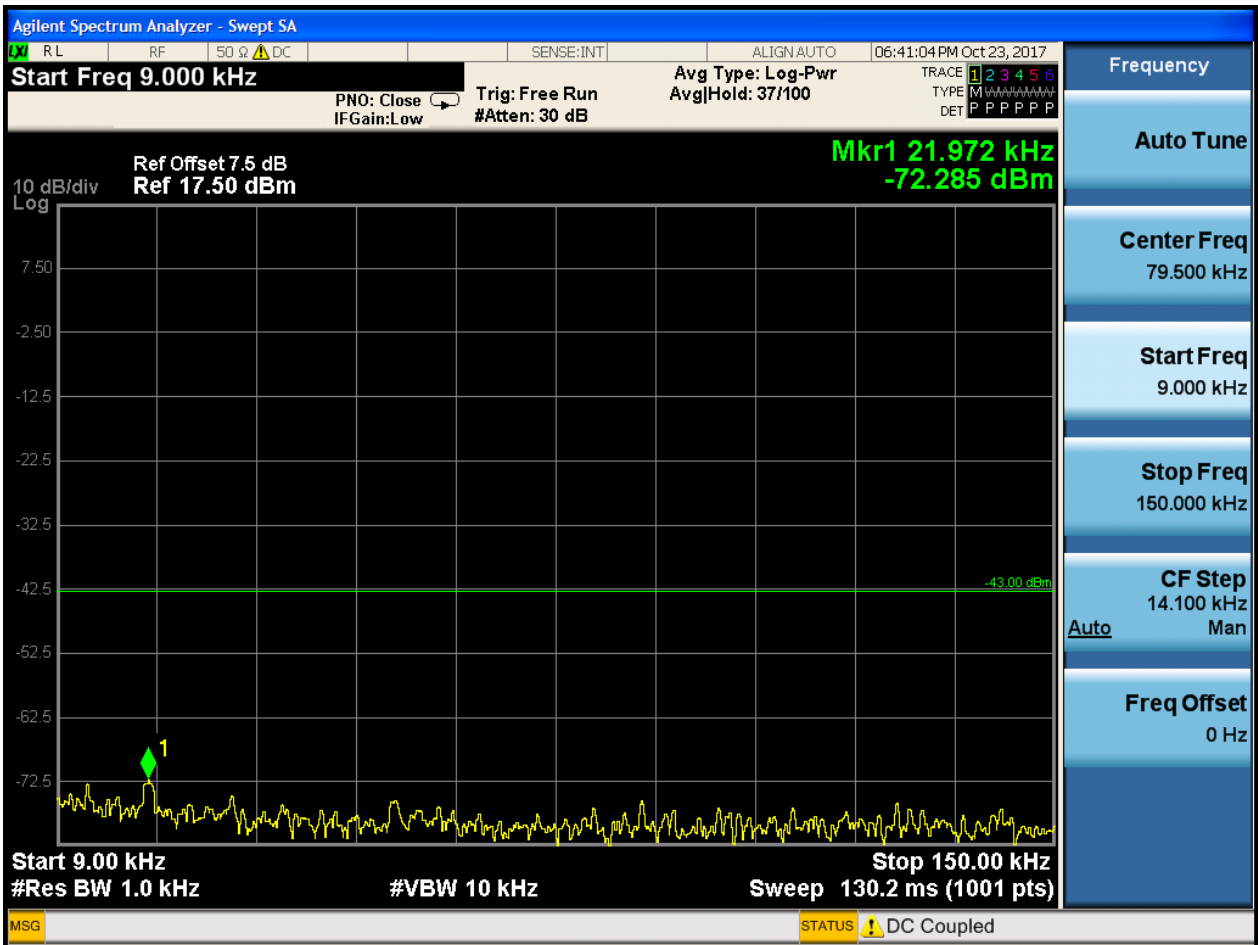
6.1.2.1.1 Test Channel = LCH





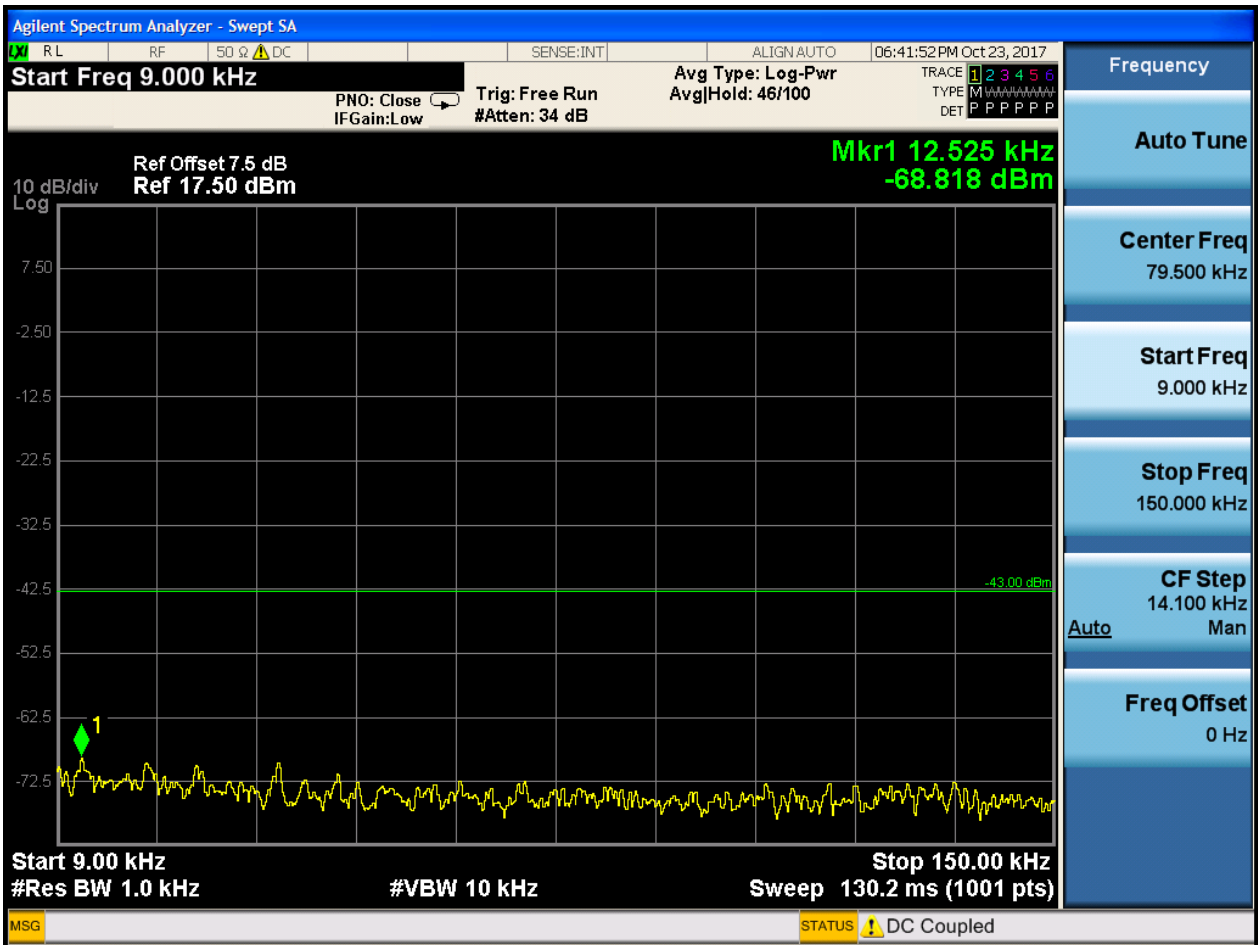


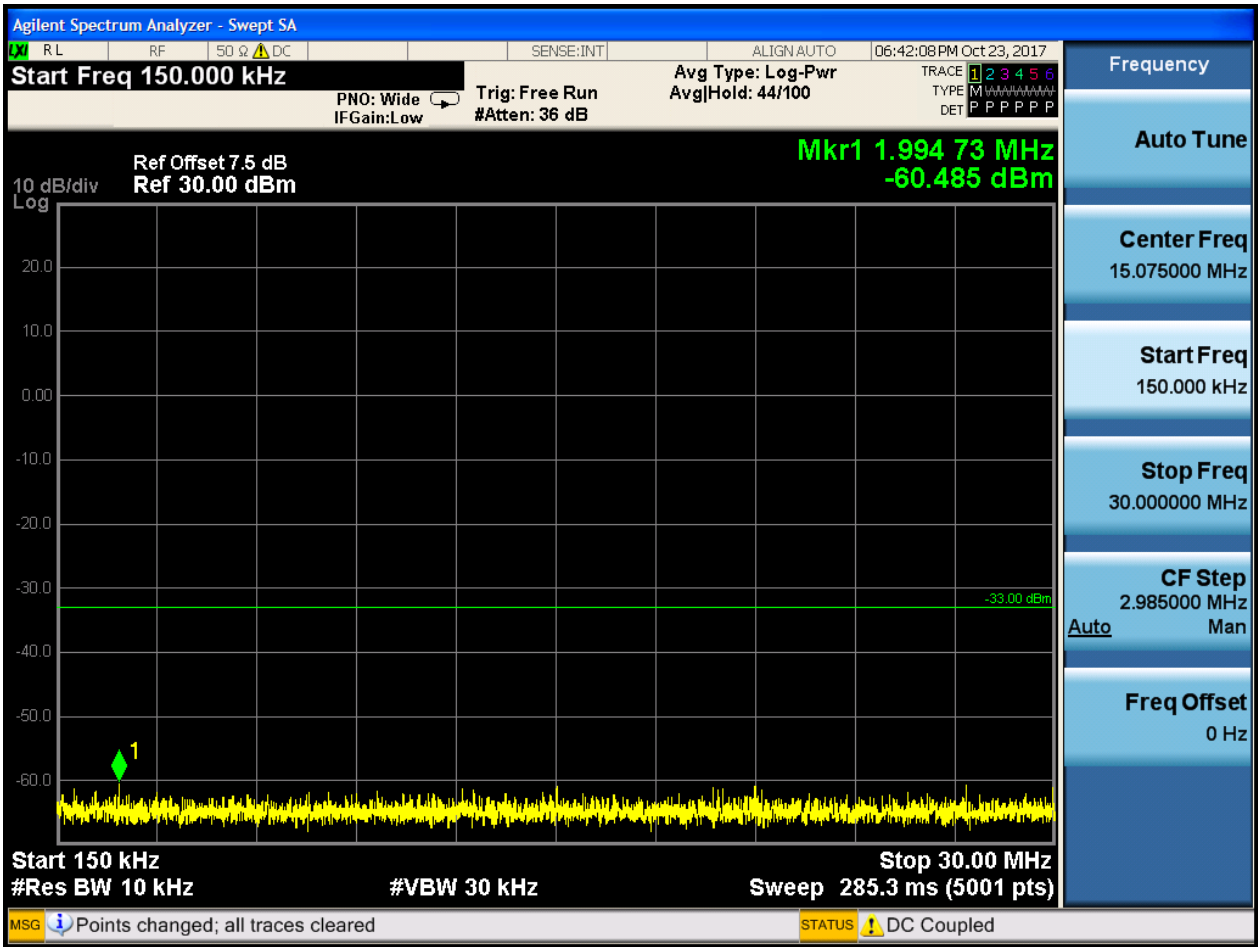
6.1.2.1.2 Test Channel = MCH





6.1.2.1.3 Test Channel = HCH





7Appendix_G: Field Strength of Spurious Radiation

Note: We tested all modes, but the data presented below is the worst case.

9kHz~150kHz, RBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, RBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

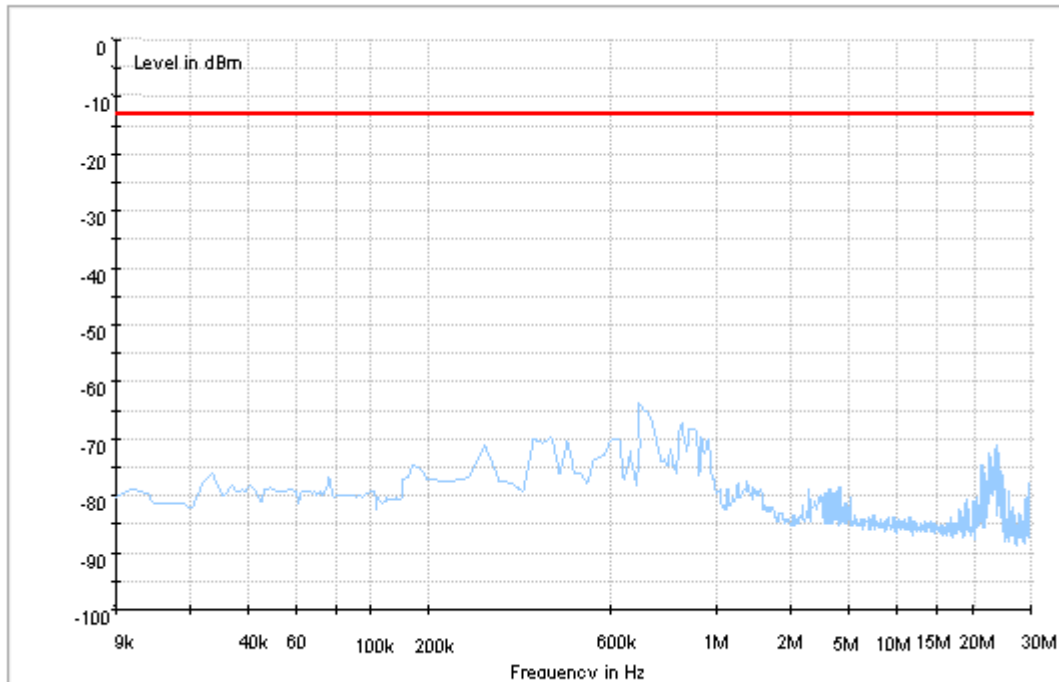
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

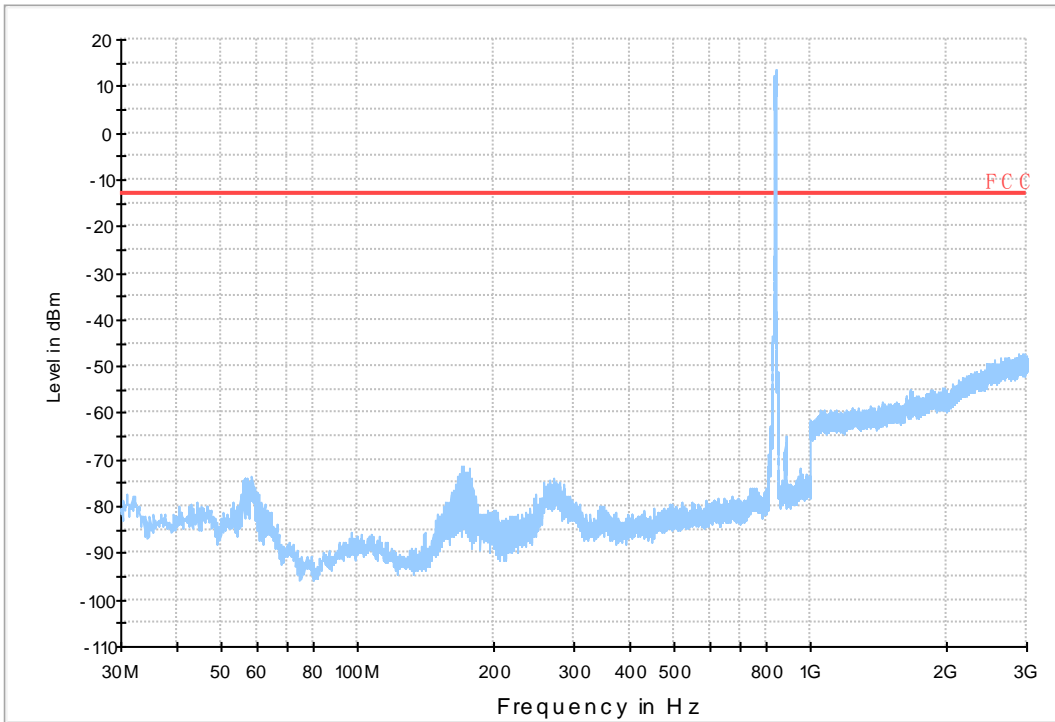
7.1 For UMTS

7.1.1 Test Band = WCDMA850

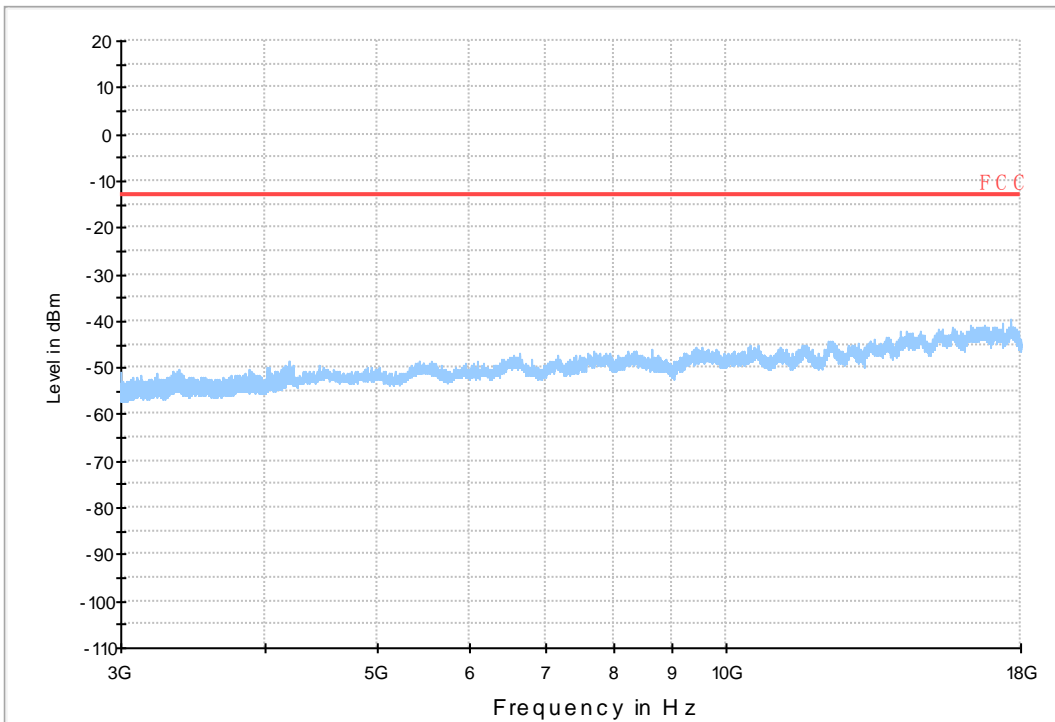
7.1.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L

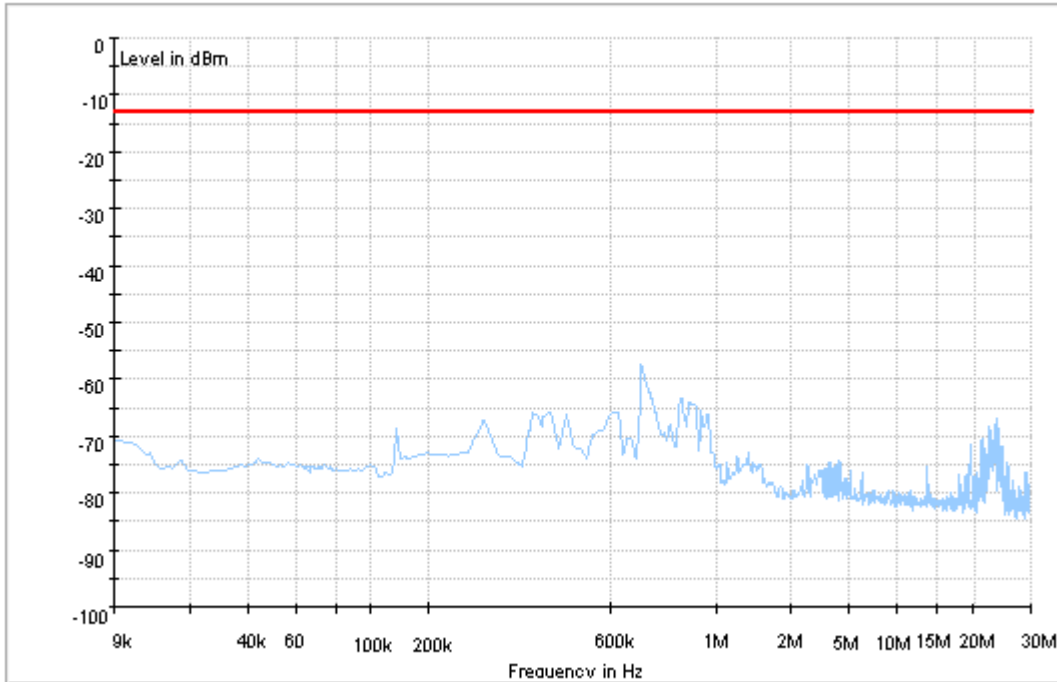


Copy of FCC PART22 W CDMA850_H

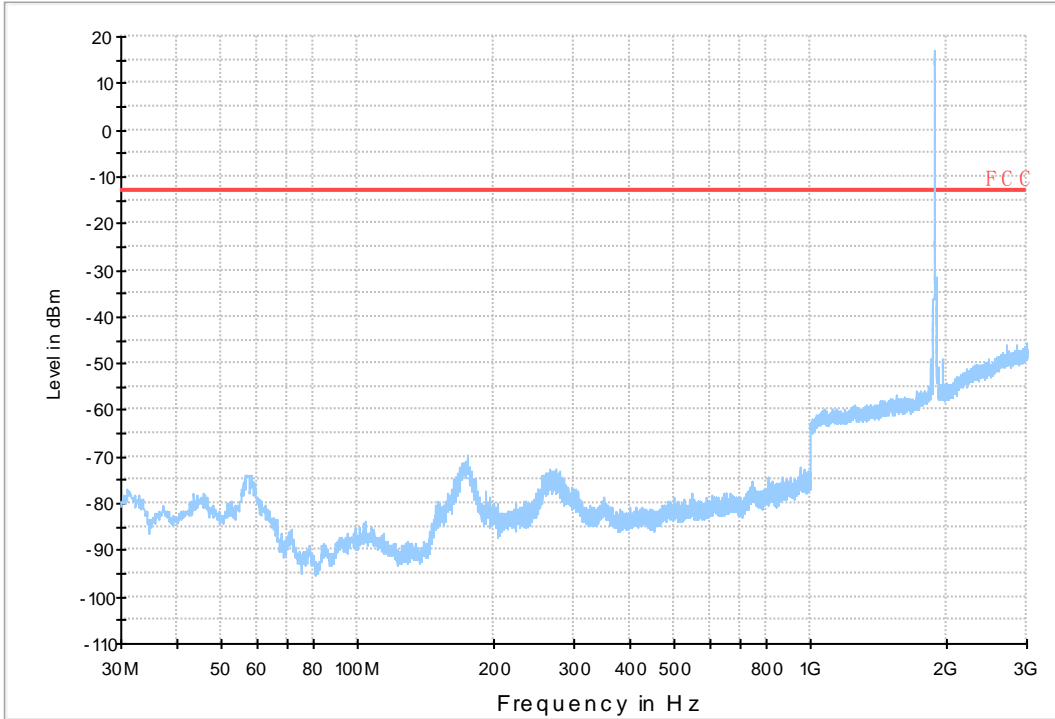


7.1.2 Test Band = WCDMA1900

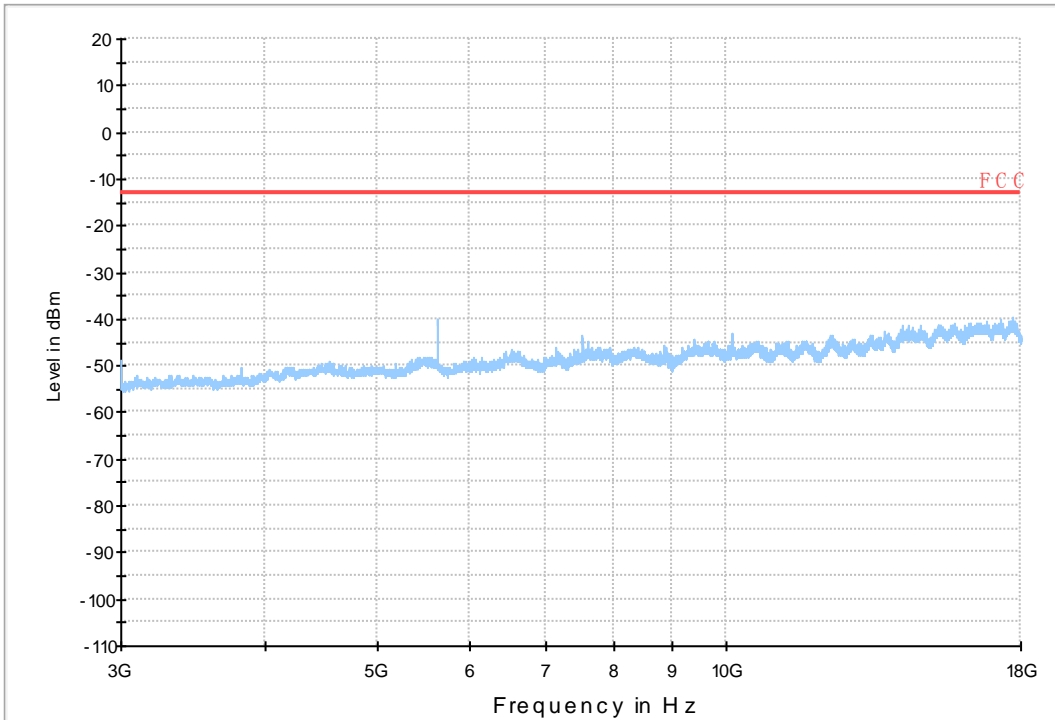
7.1.2.1 Test Mode = UMTS/TM1

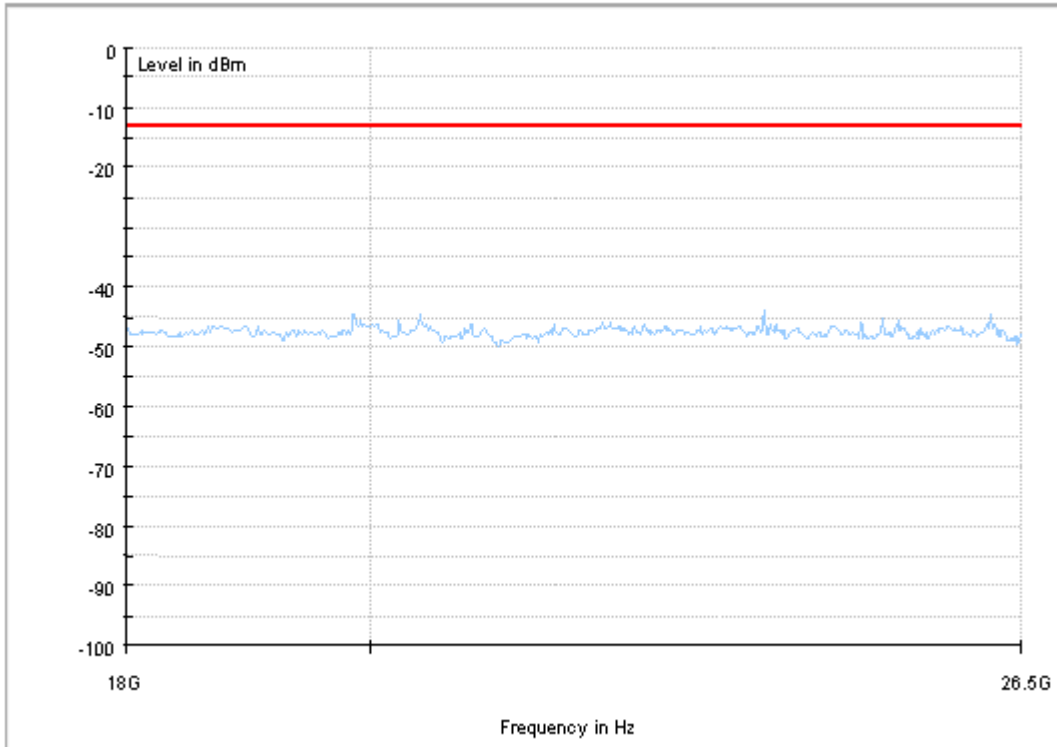


Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H





8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	TN	VL	2.14	0.00259	PASS
				VN	0.81	0.00098	PASS
				VH	-2.64	-0.00319	PASS
		MCH	TN	VL	2.03	0.00243	PASS
				VN	-0.06	-0.00007	PASS
				VH	-0.98	-0.00117	PASS
		HCH	TN	VL	-2.73	-0.00322	PASS
				VN	-1.71	-0.00202	PASS
				VH	2.73	0.00322	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	12.50	0.00675	PASS
				VN	13.85	0.00748	PASS
				VH	16.39	0.00885	PASS
		MCH	TN	VL	10.67	0.00568	PASS
				VN	12.53	0.00666	PASS
				VH	12.41	0.0066	PASS
		HCH	TN	VL	5.81	0.00305	PASS
				VN	12.08	0.00633	PASS
				VH	7.64	0.00401	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	VN	-30	3.19	0.00386	PASS
				-20	1.66	0.00201	PASS
				-10	-0.63	-0.00076	PASS
				0	0.49	0.00059	PASS
				10	-1.72	-0.00208	PASS
				20	2.09	0.00253	PASS
				30	0.63	0.00076	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	1.63	0.00197	PASS
				50	2.11	0.00255	PASS
		MCH	VN	-30	-0.78	-0.00093	PASS
				-20	0.47	0.00056	PASS
				-10	0.37	0.00044	PASS
				0	-1.25	-0.00149	PASS
				10	-0.66	-0.00079	PASS
				20	0.08	0.0001	PASS
				30	-1.57	-0.00188	PASS
				40	0.03	0.00004	PASS
				50	-1.80	-0.00215	PASS
				HCH	VN	-30	-0.76
		-20	-3.27			-0.00386	PASS
		-10	-1.39			-0.00164	PASS
		0	-0.87			-0.00103	PASS
		10	-3.65			-0.00431	PASS
		20	-3.65			-0.00431	PASS
		30	-3.68			-0.00435	PASS
		40	-1.82			-0.00215	PASS
		50	-3.11	-0.00367	PASS		
WCDMA1900	UMTS/TM1	LCH	VN	-30	15.64	0.00844	PASS
				-20	14.24	0.00769	PASS
				-10	12.12	0.00654	PASS
				0	10.15	0.00548	PASS
				10	15.76	0.00851	PASS
				20	16.59	0.00896	PASS
				30	11.73	0.00633	PASS
				40	15.24	0.00823	PASS
				50	12.68	0.00685	PASS
		MCH	VN	-30	12.86	0.00684	PASS
				-20	8.41	0.00447	PASS
				-10	11.12	0.00591	PASS
				0	10.97	0.00584	PASS
				10	11.03	0.00587	PASS
				20	11.63	0.00619	PASS
				30	13.70	0.00729	PASS
				40	10.16	0.0054	PASS
		50	9.66	0.00514	PASS		
		HCH	VN	-30	11.05	0.00579	PASS
				-20	8.82	0.00462	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	7.68	0.00403	PASS
				0	6.58	0.00345	PASS
				10	8.13	0.00426	PASS
				20	7.42	0.00389	PASS
				30	9.14	0.00479	PASS
				40	7.48	0.00392	PASS
				50	7.22	0.00378	PASS

END