



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	23.57	23.92	38.5	PASS
		MCH	23.57	23.92	38.5	PASS
		HCH	23.43	23.78	38.5	PASS
Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.18	25.68	33	PASS
		MCH	23.18	25.68	33	PASS
		HCH	23.02	25.52	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:

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

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

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

$$\text{SET Sweep time} = \text{auto} - \text{couple.}$$

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	2.97	13	PASS
		MCH	2.64	13	PASS
		HCH	2.77	13	PASS
Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	2.66	13	PASS
		MCH	2.85	13	PASS
		HCH	2.8	13	PASS

3Appendix_C: Modulation Characteristics

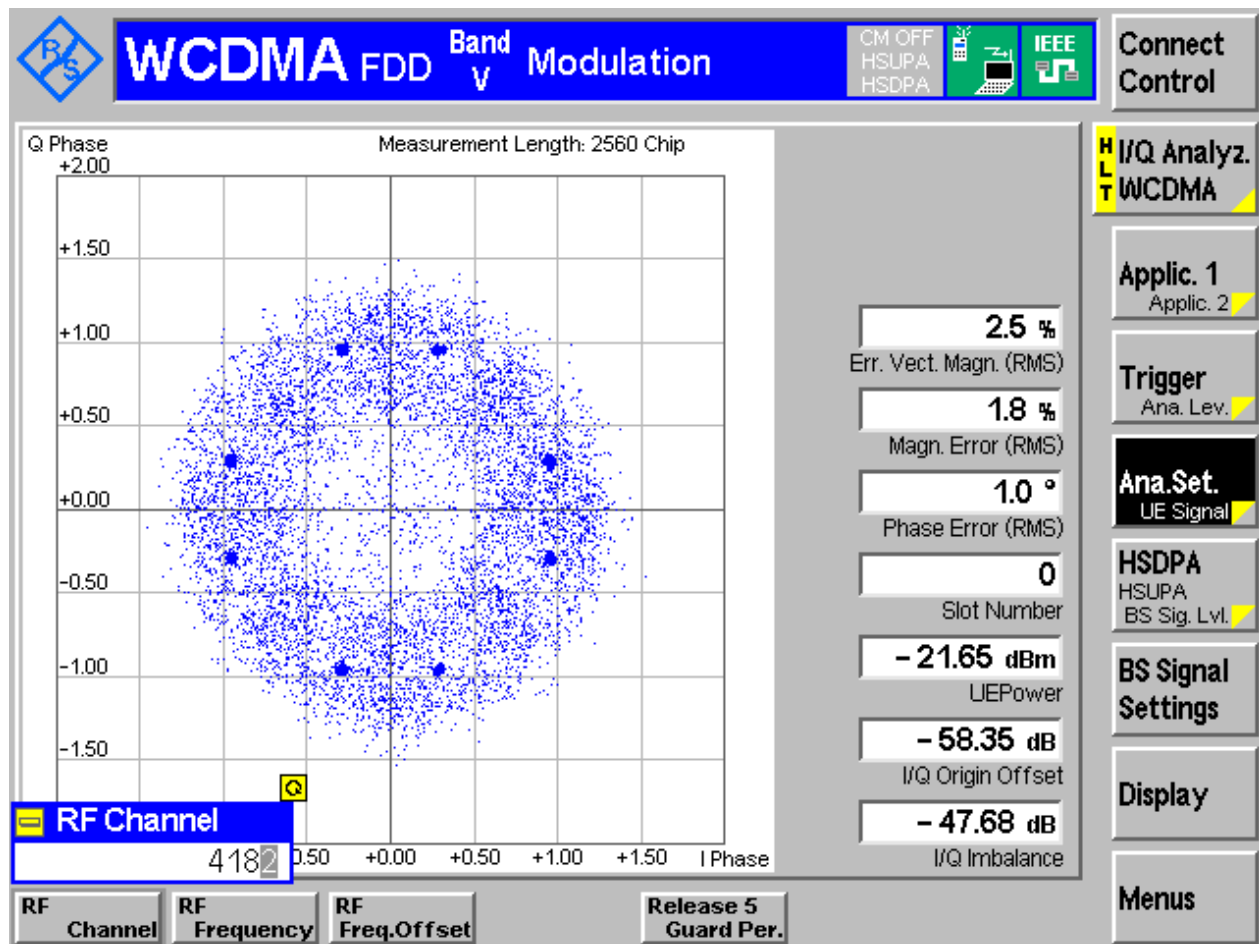
Part I - Test Plots

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

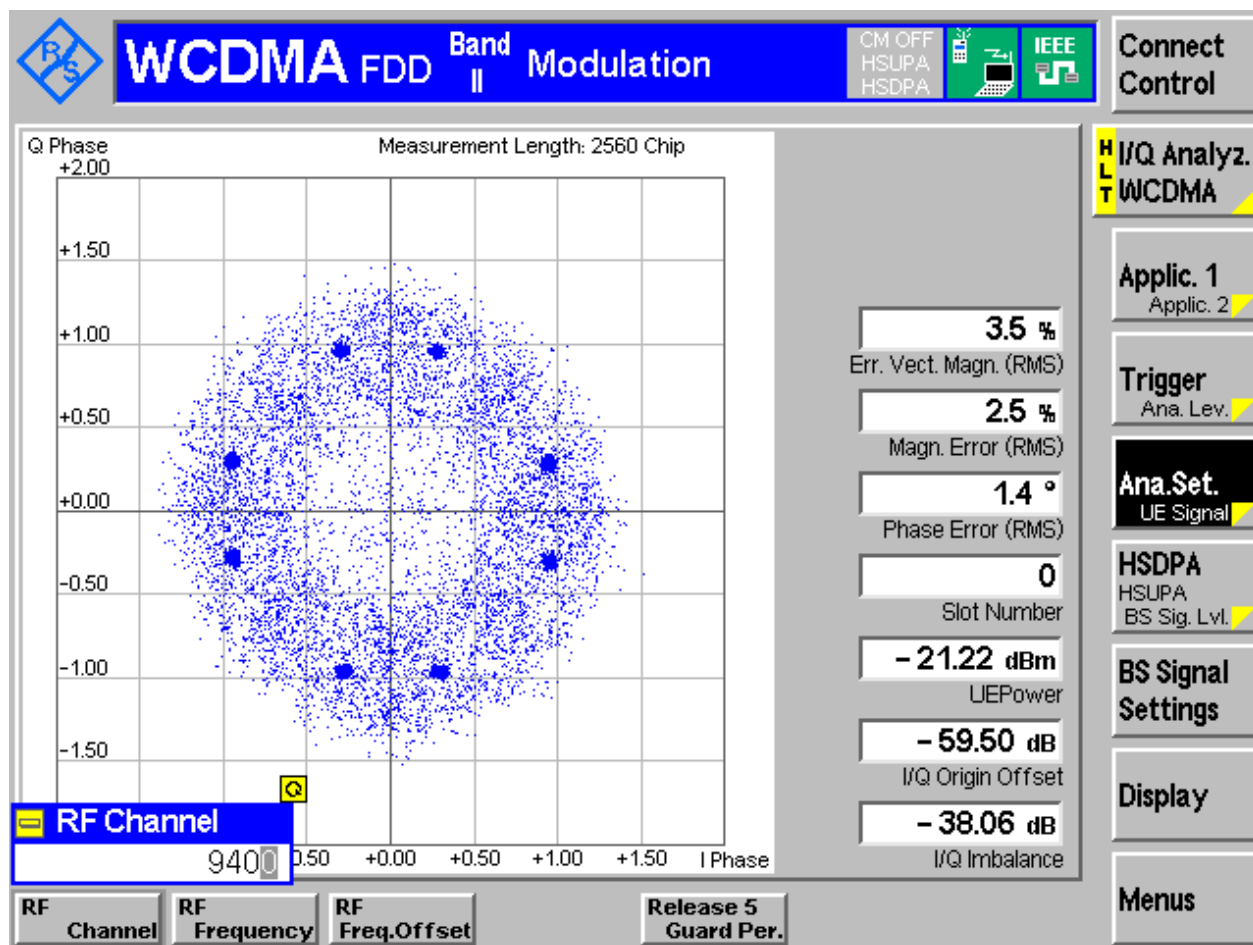


3.2 For UMTS

3.2.1 Test Band = WCDMA1900

3.2.1.1 Test Mode = UMTS/TM1

3.2.1.1.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.16	4.68	Pass
		MCH	4.16	4.72	Pass
		HCH	4.16	4.71	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.15	4.70	Pass
		MCH	4.15	4.70	Pass
		HCH	4.15	4.70	Pass

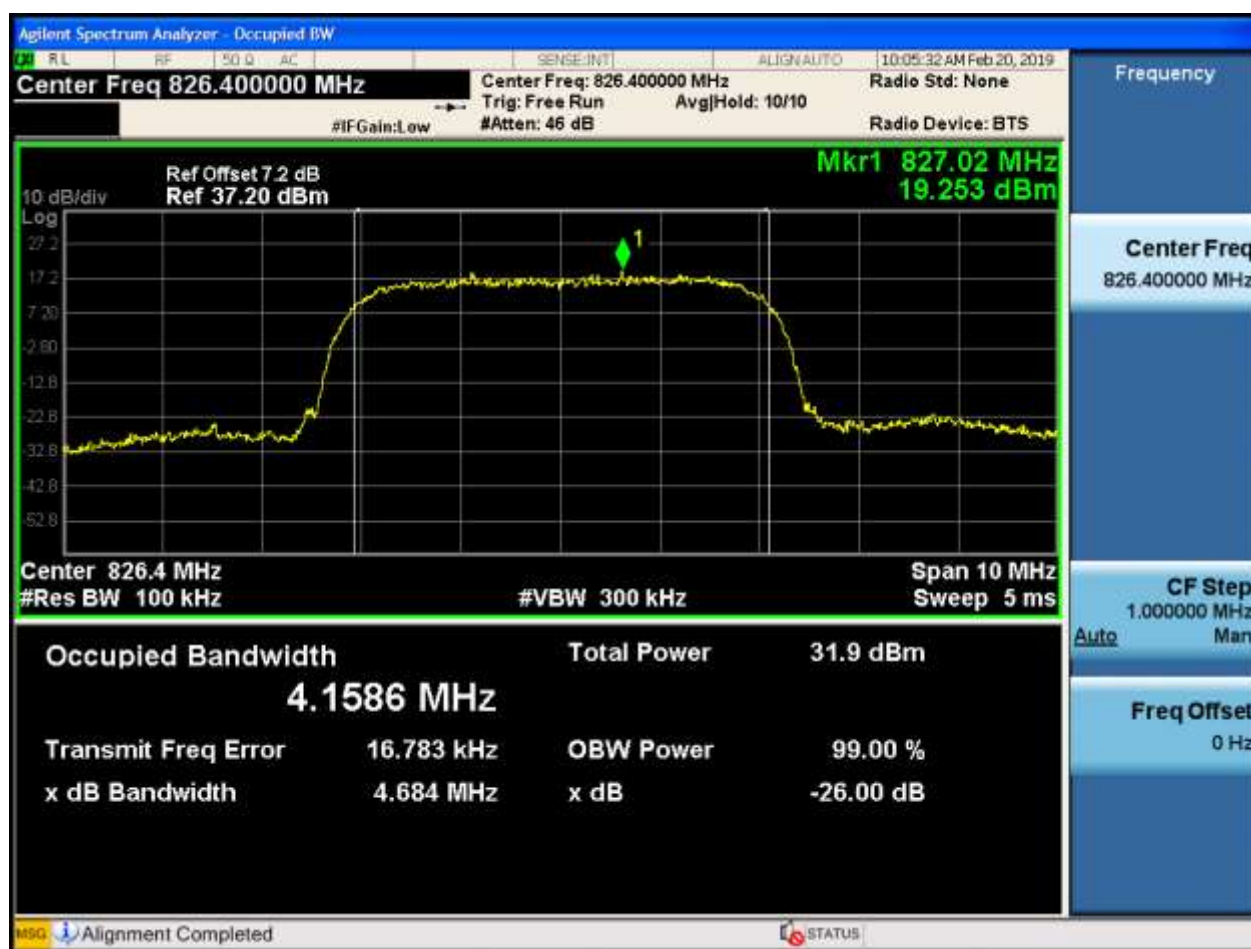
Part II - Test Plots

4.1 For UMTS

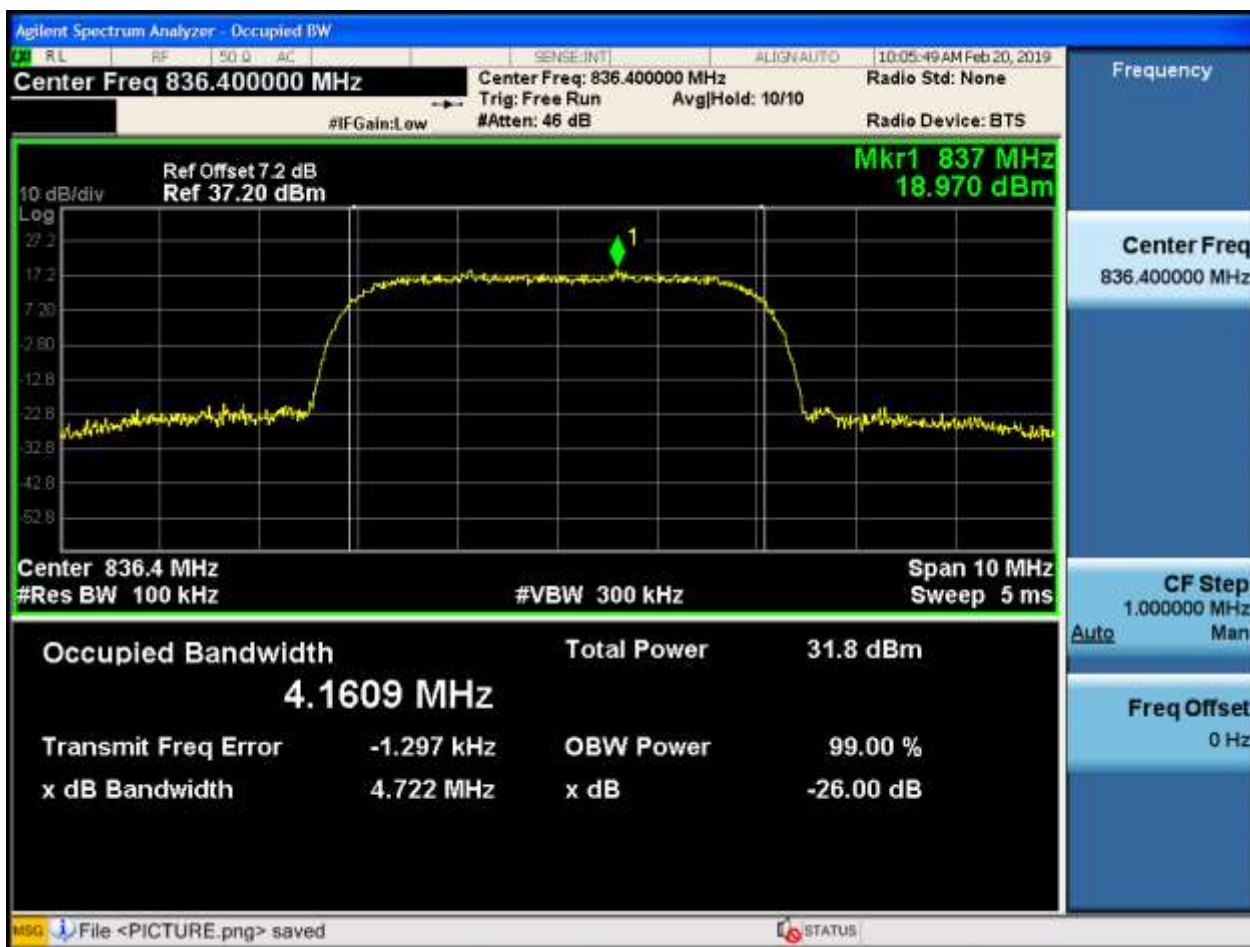
4.1.1 Test Band = WCDMA850

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

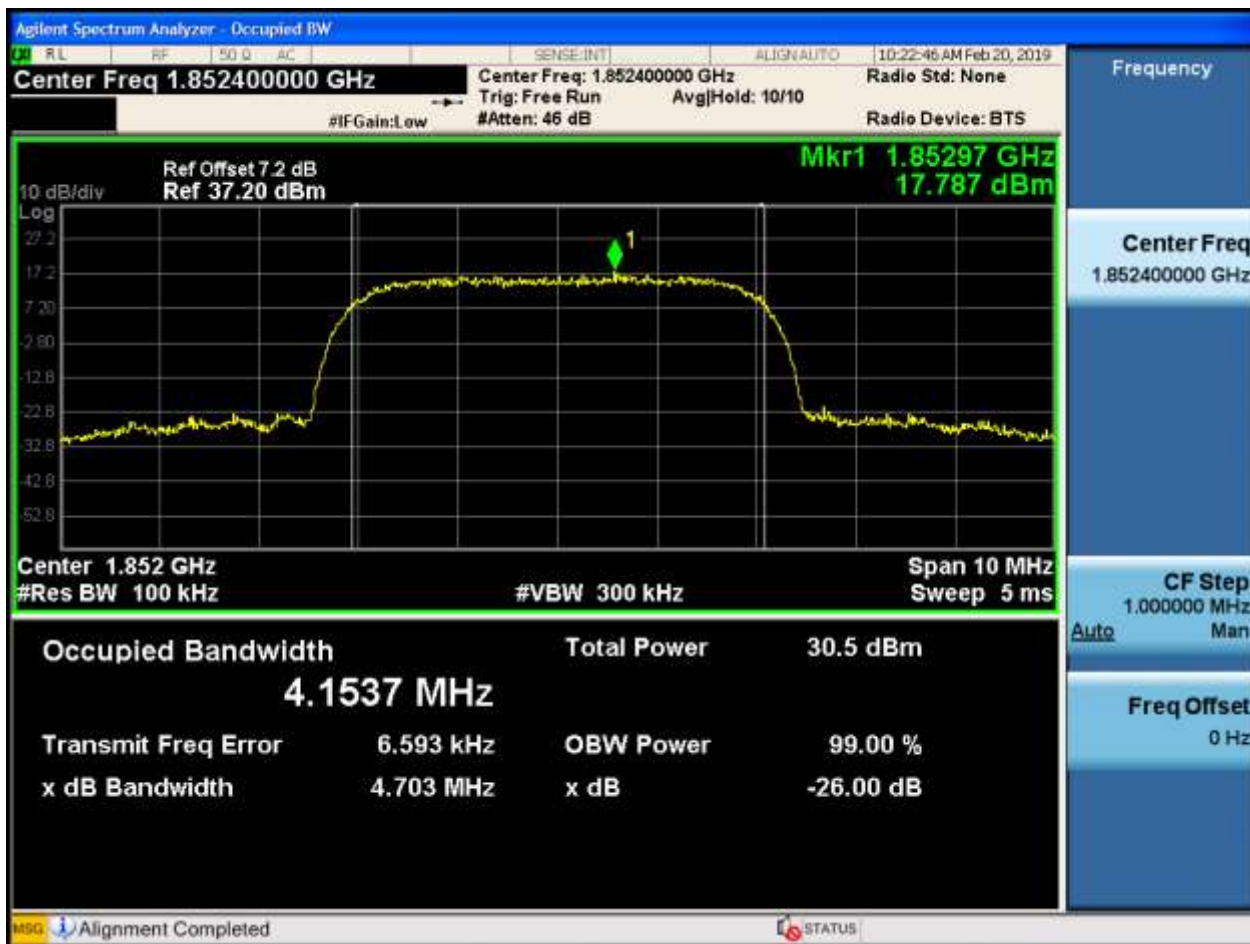


4.2 For UMTS

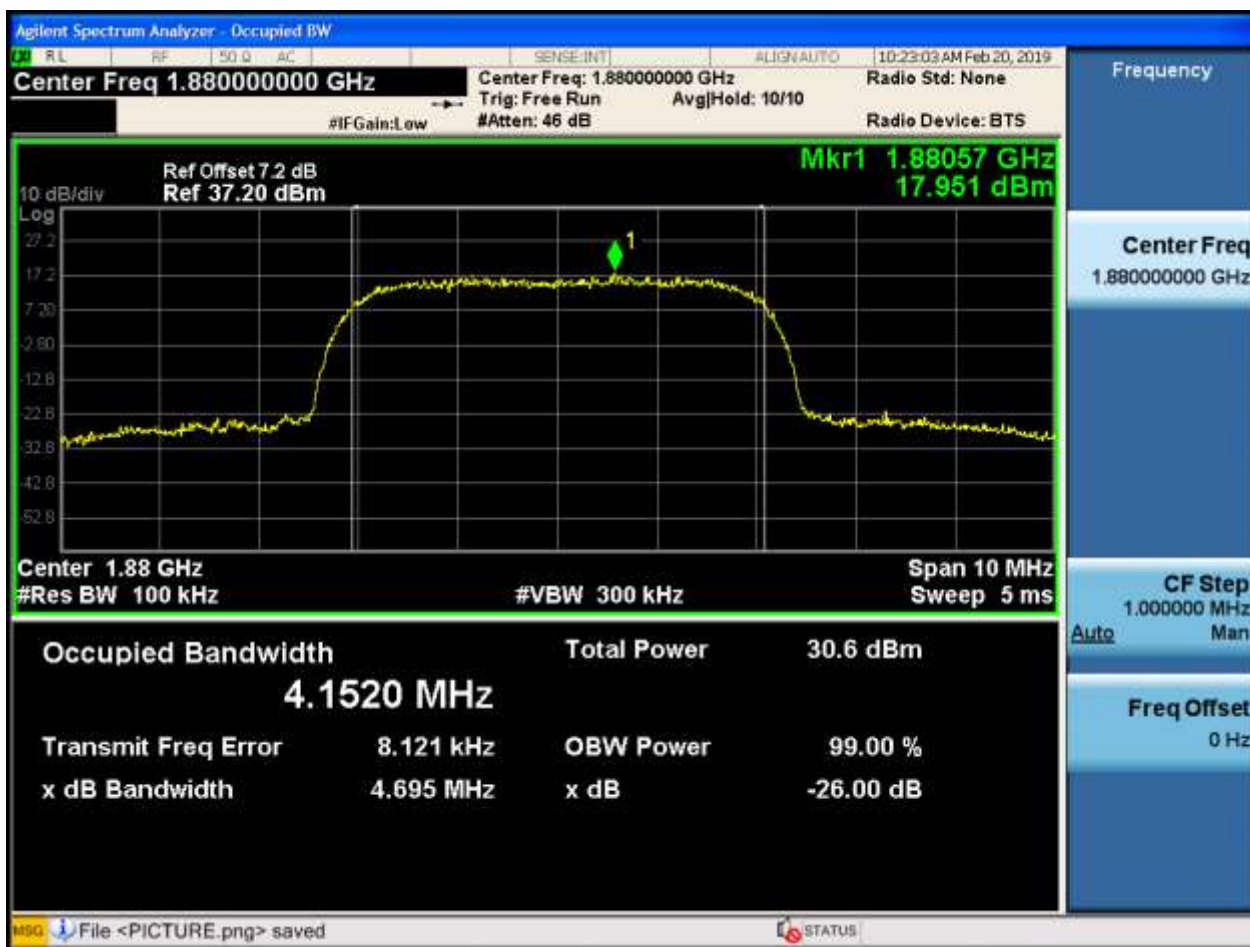
4.2.2 Test Band = WCDMA1900

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



5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For UMTS

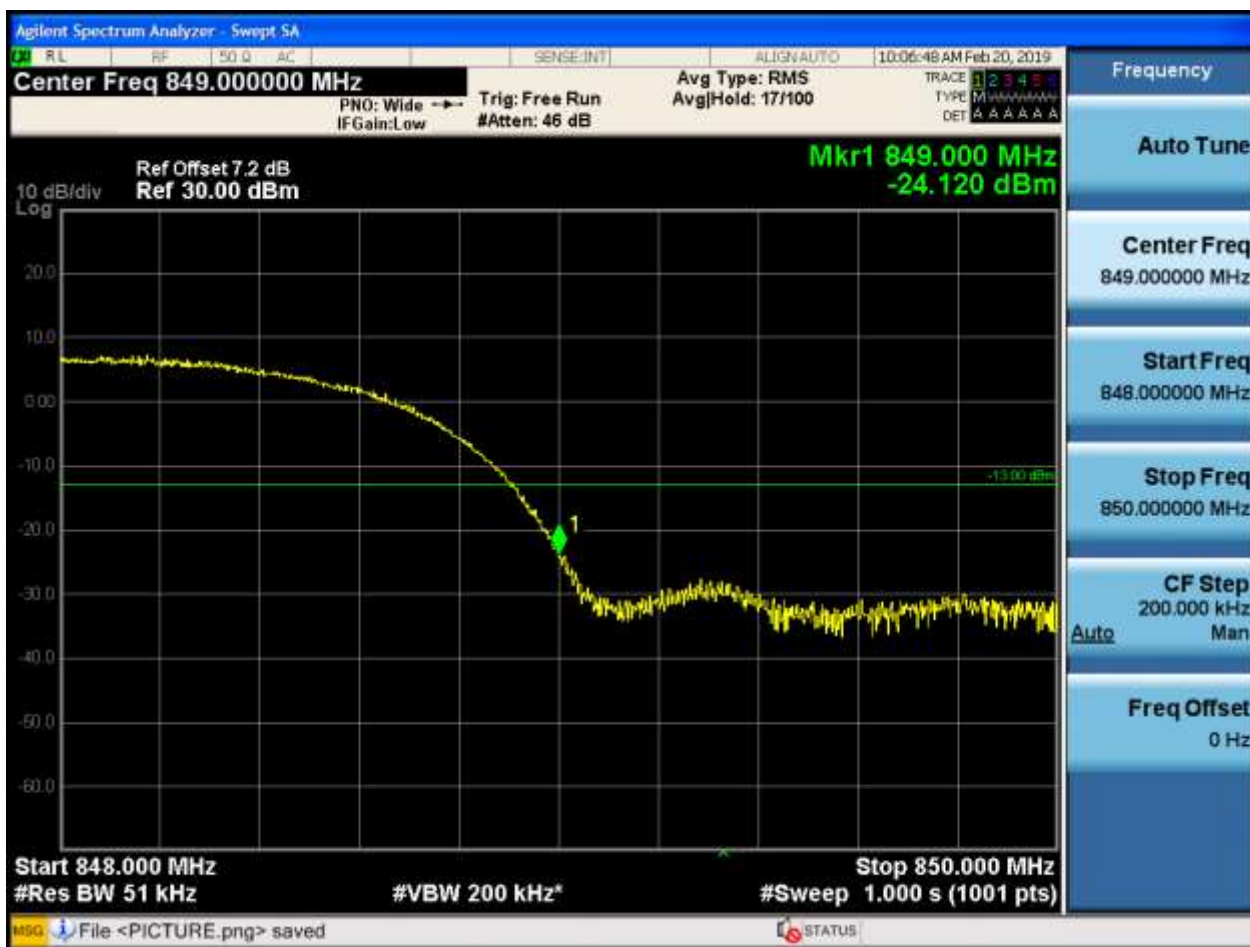
5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



5.1.1.1.2 Test Channel = HCH



5.2 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



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 $< \text{RBW}/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / \text{RBW})$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Part I - Test Plots

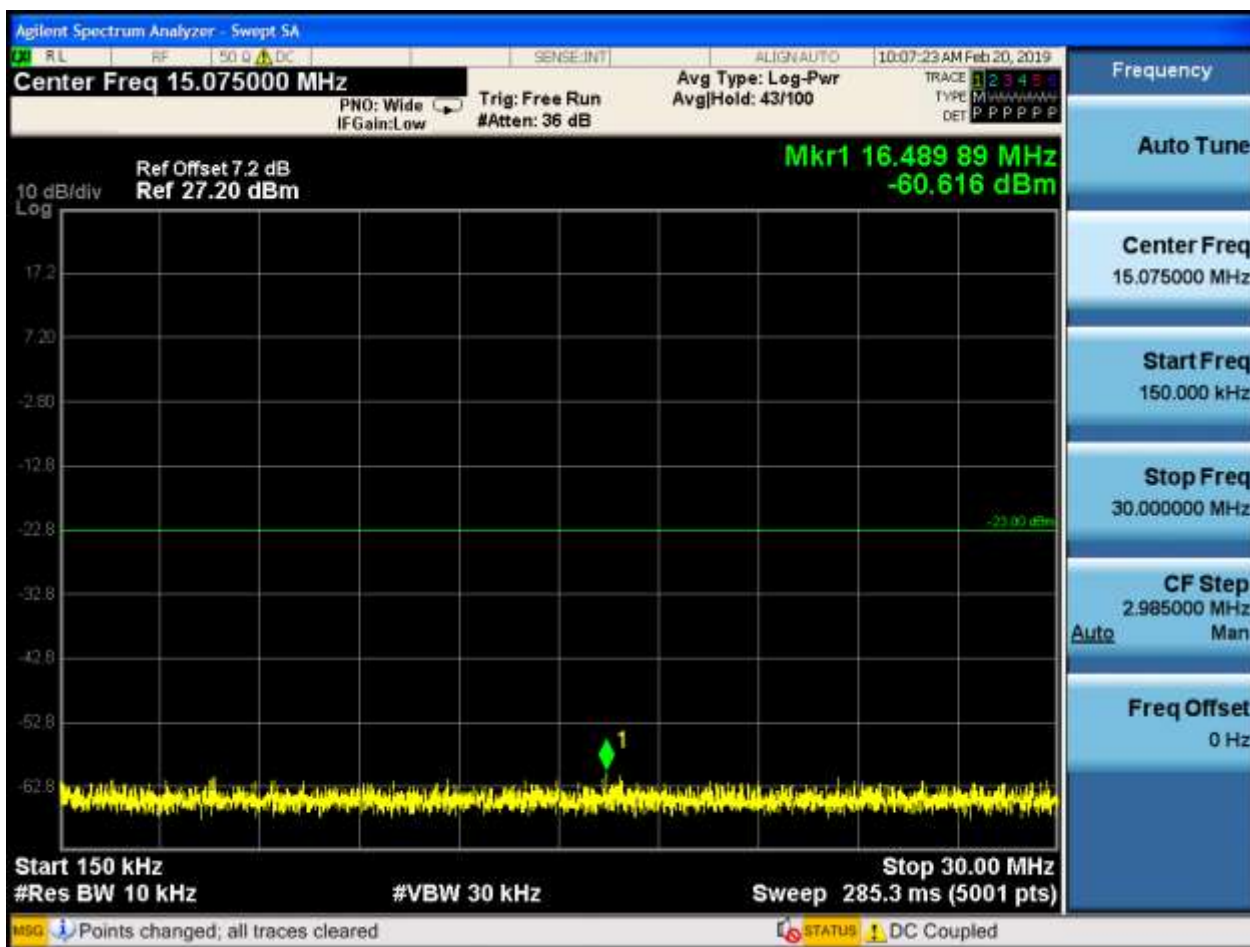
6.1 For UMTS

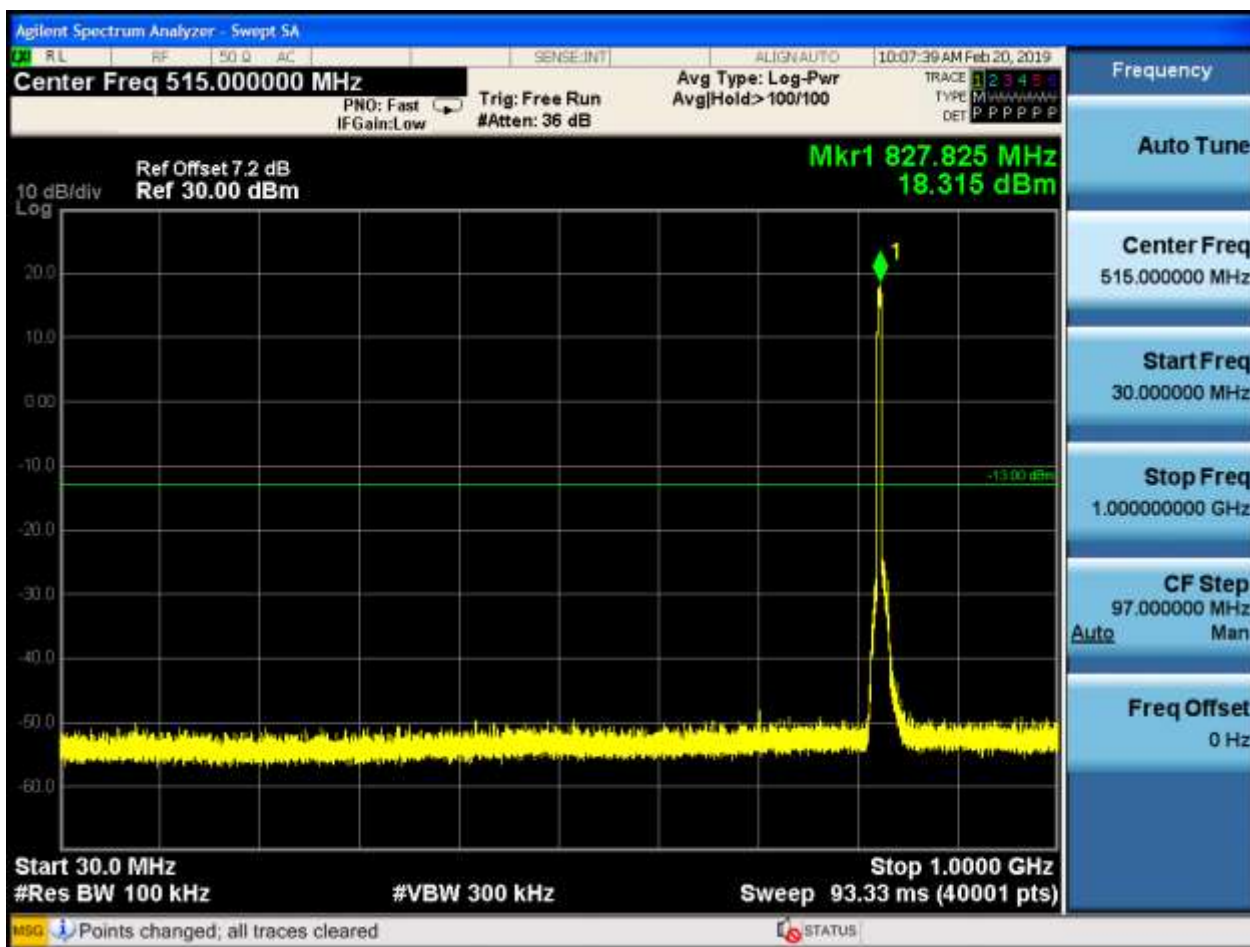
6.1.1 Test Band = WCDMA850

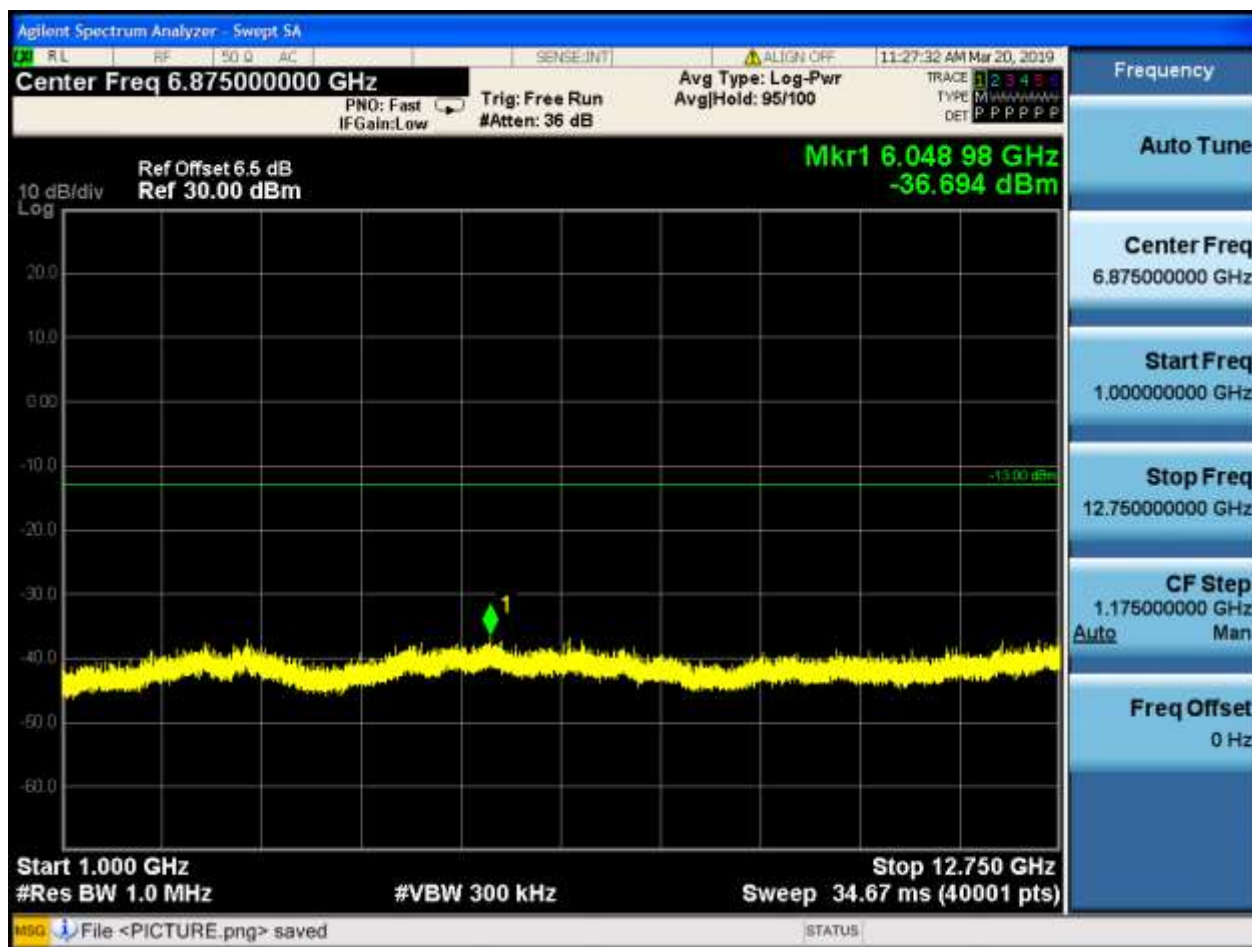
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

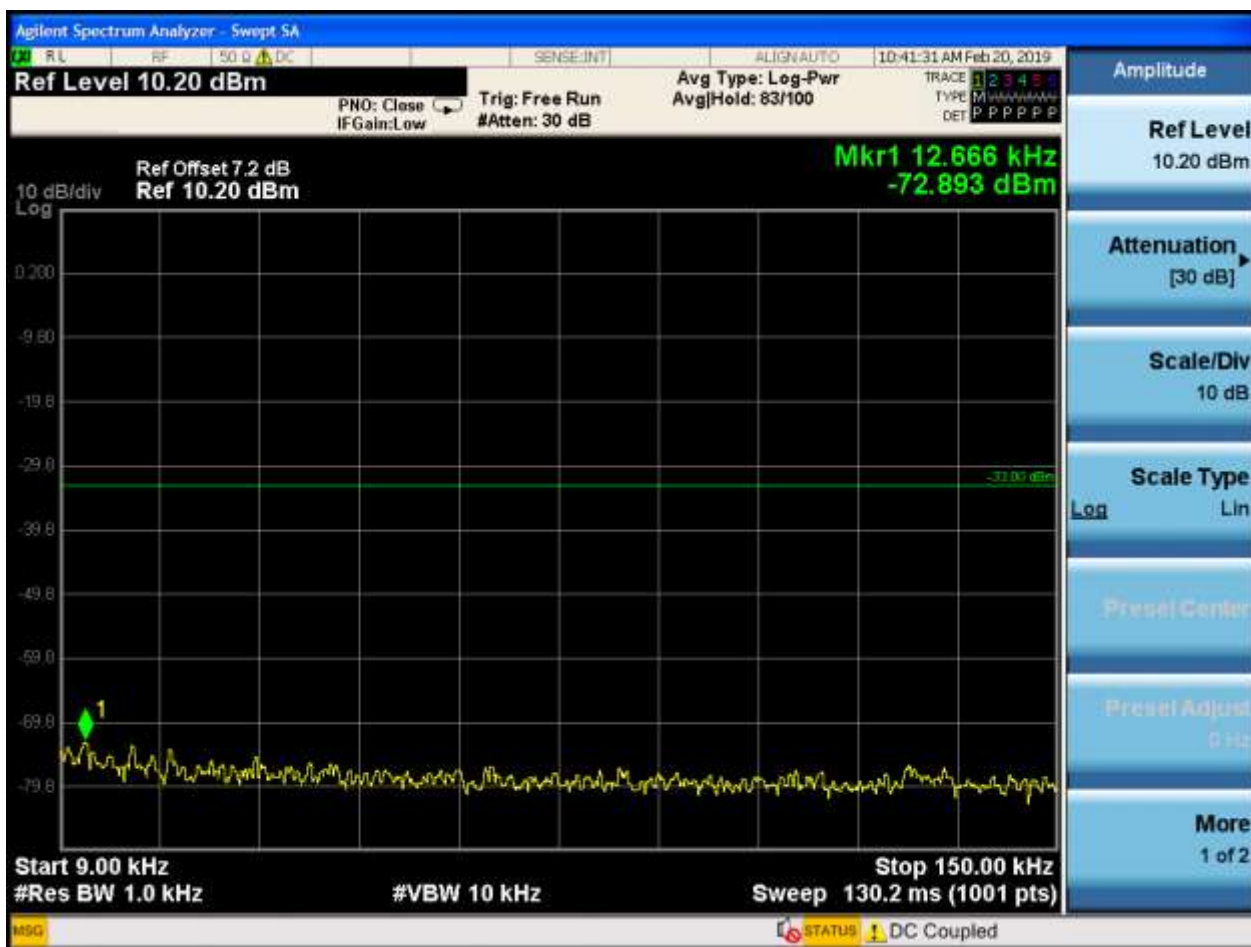




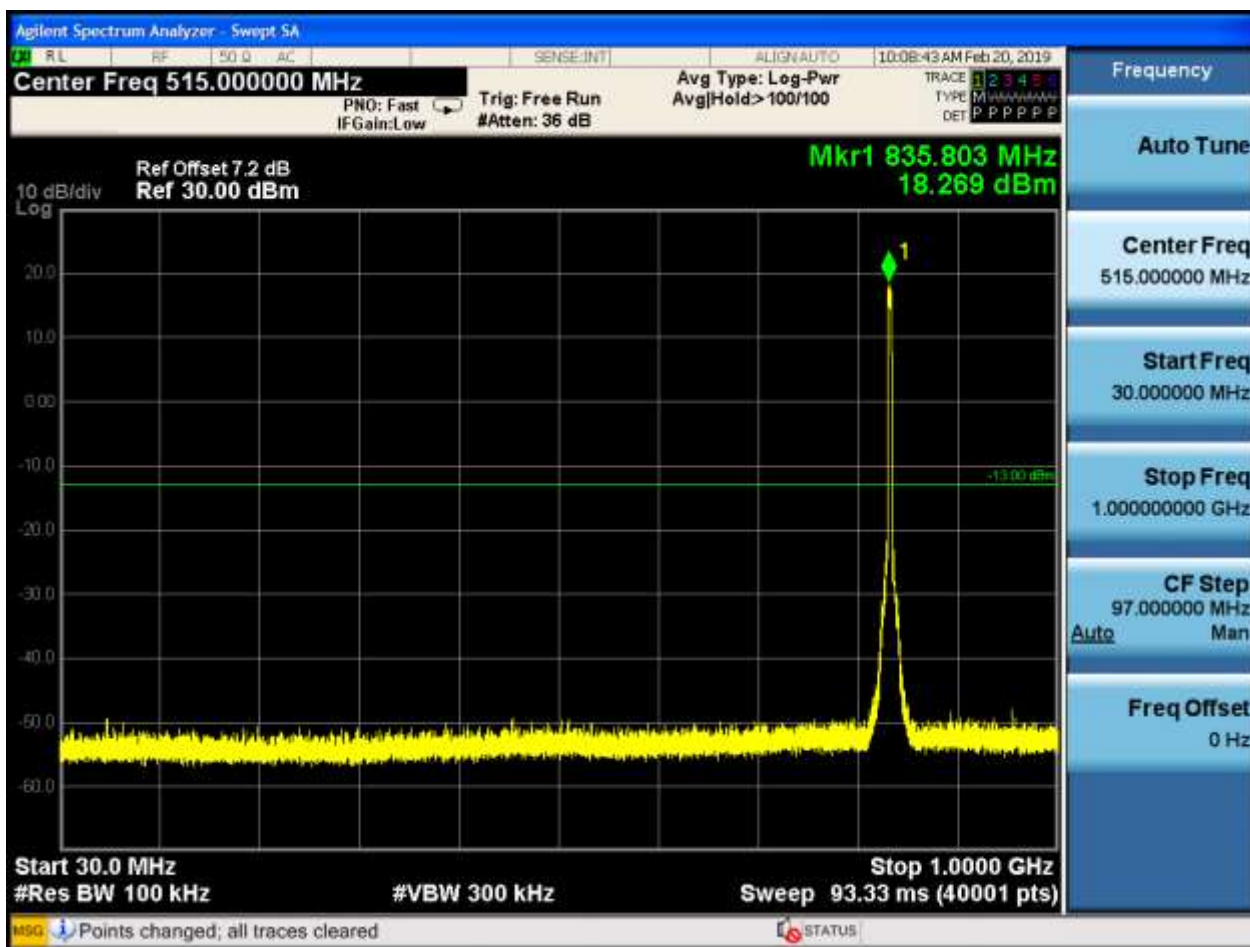


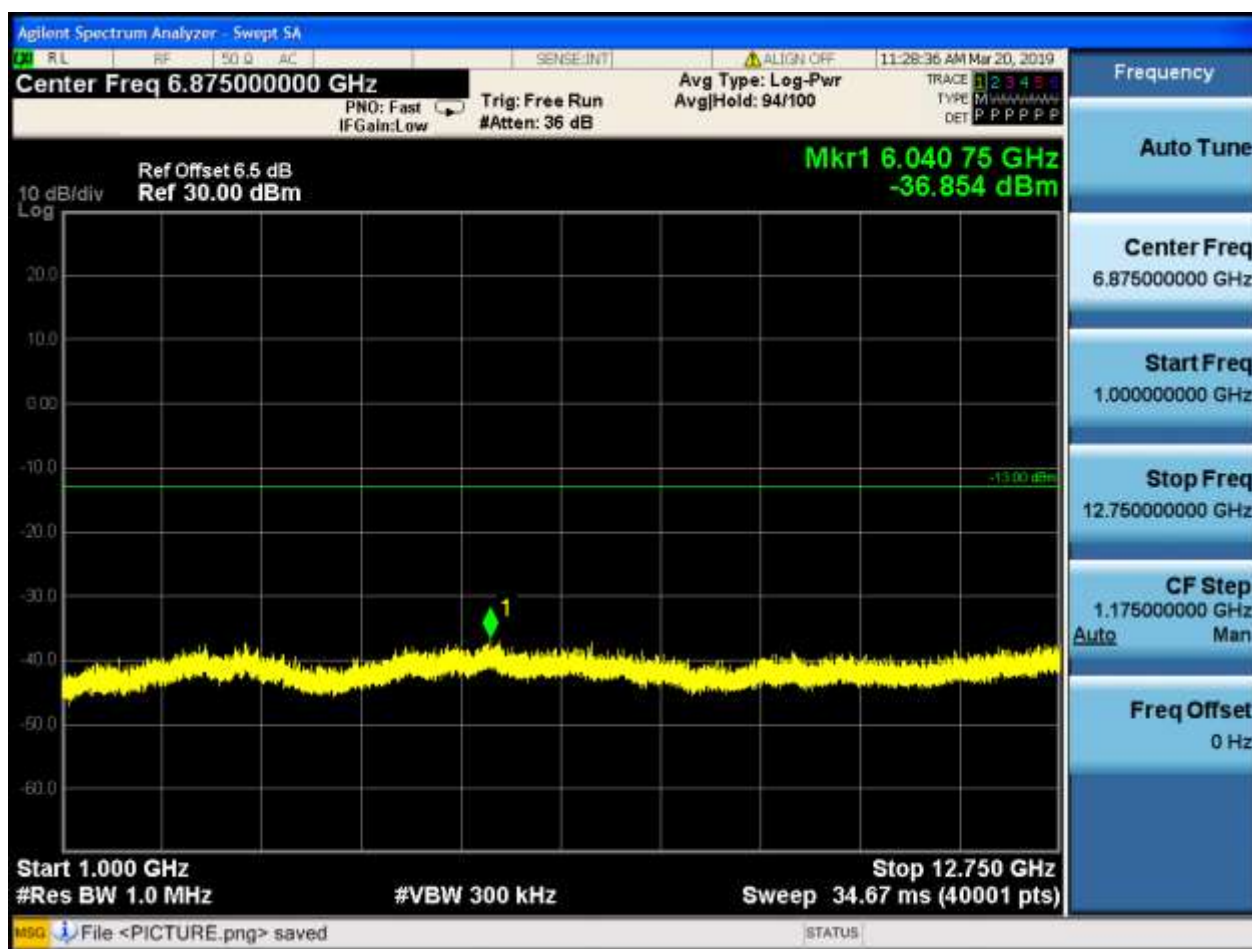


6.1.1.1.2 Test Channel = MCH





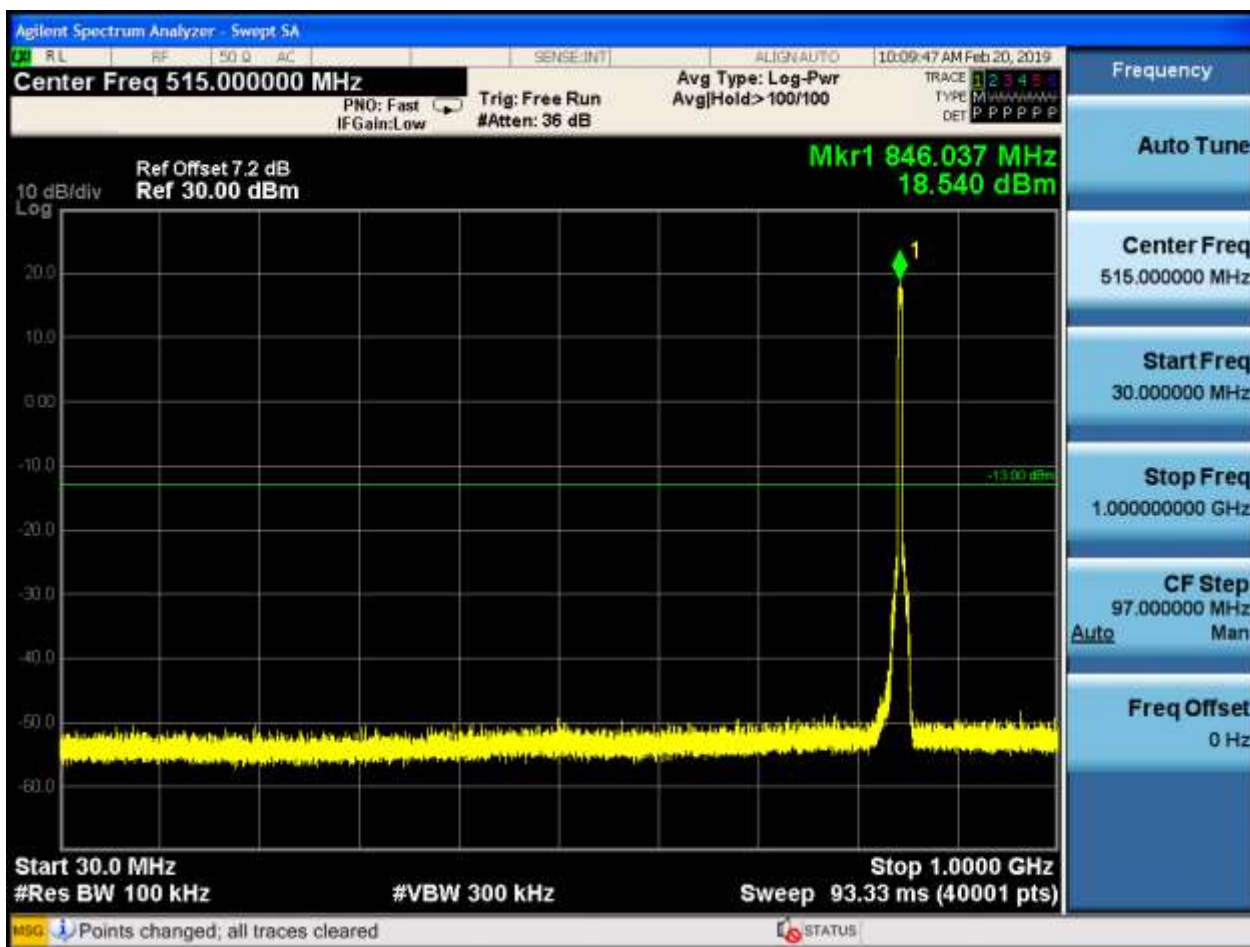


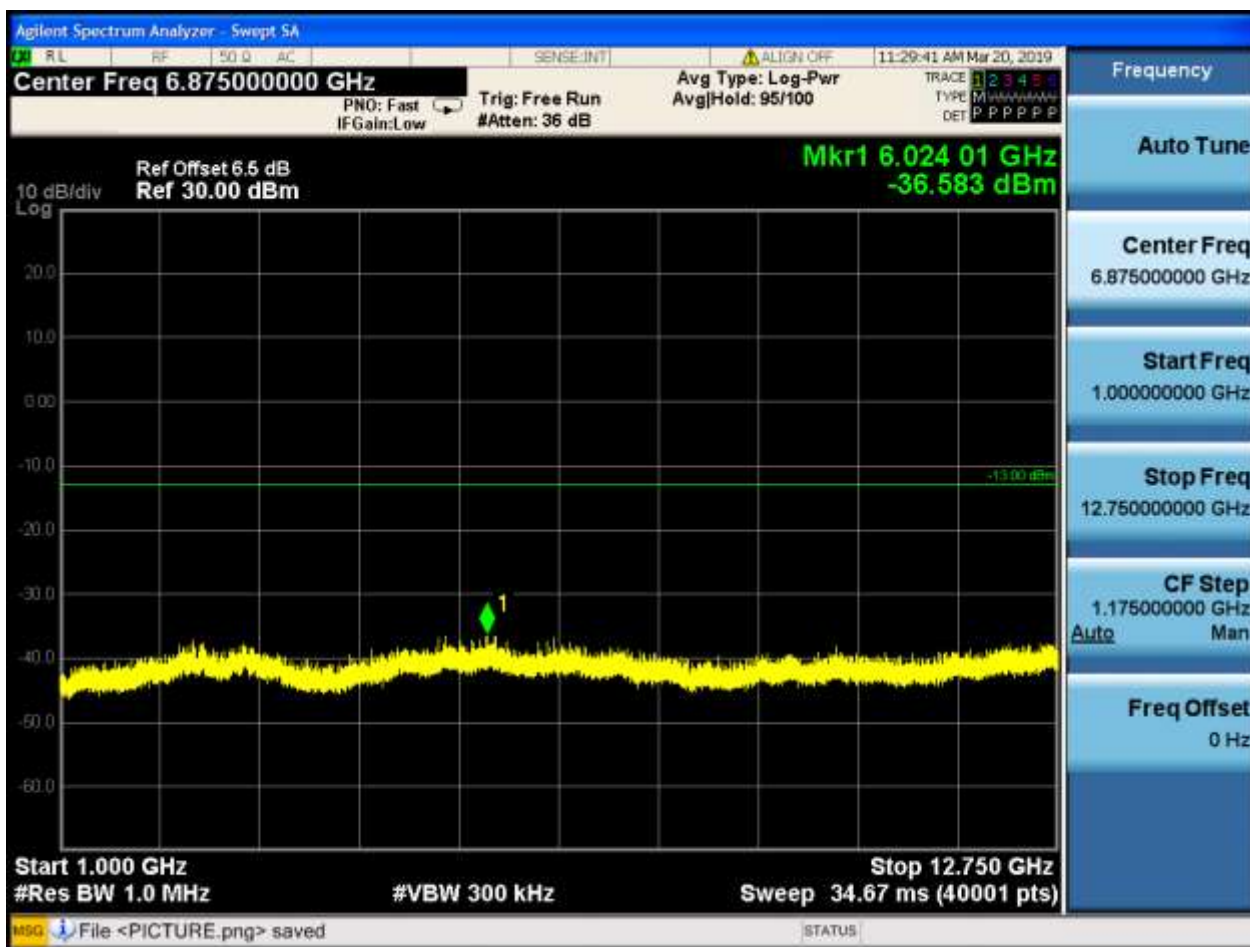


6.1.1.1.3 Test Channel = HCH









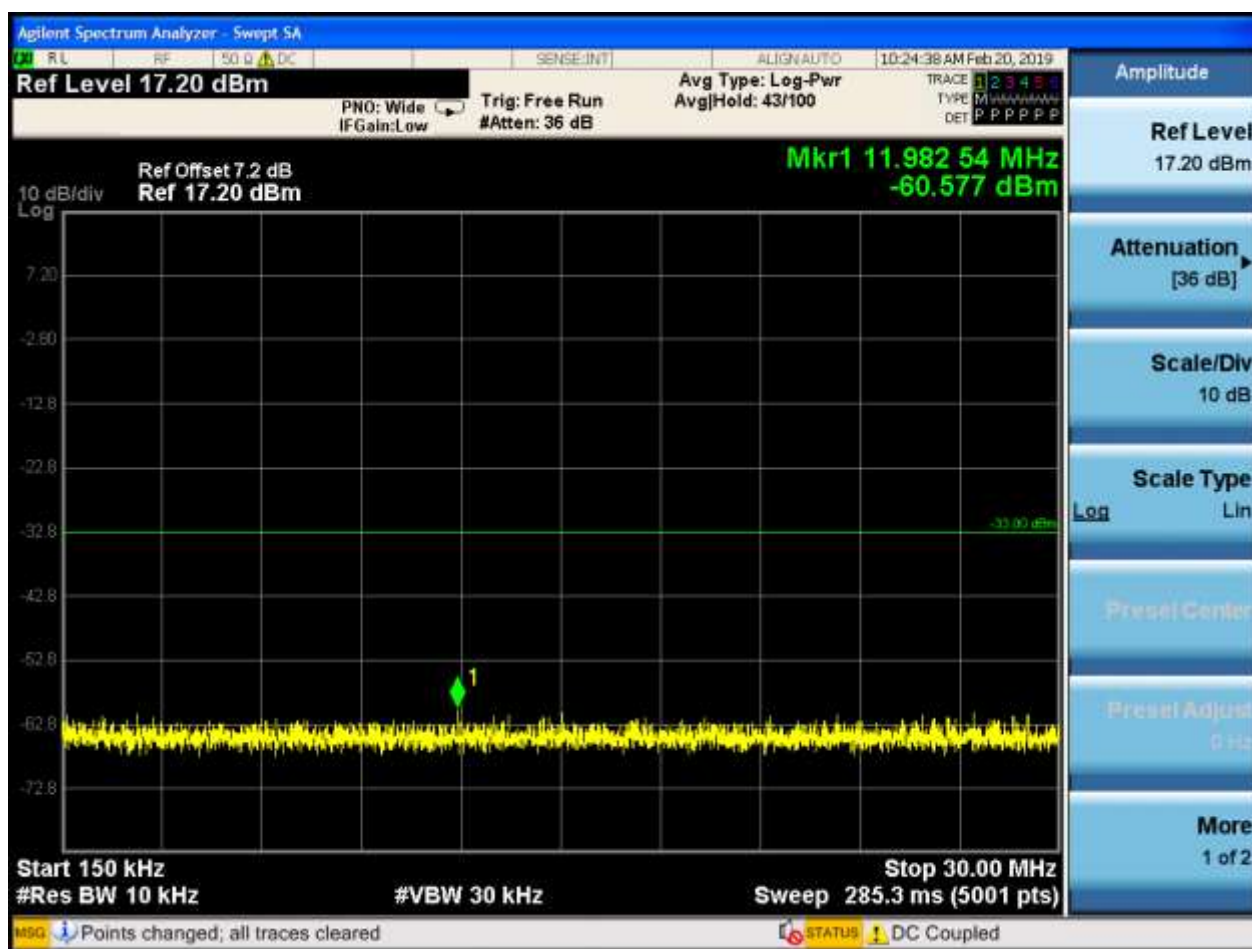
6.2 For UMTS

6.2.1 Test Band = WCDMA1900

6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH

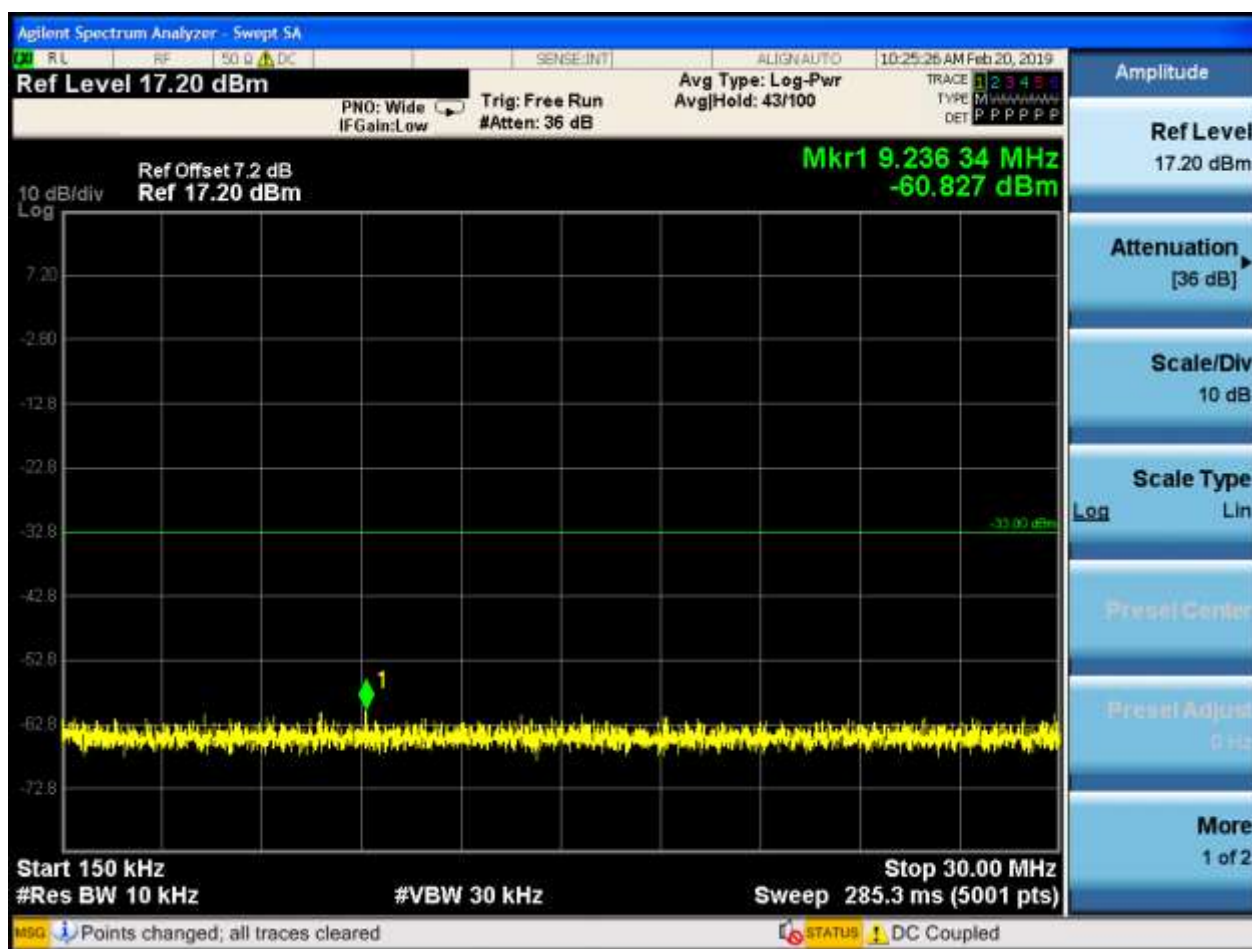






6.2.1.1.2 Test Channel = MCH

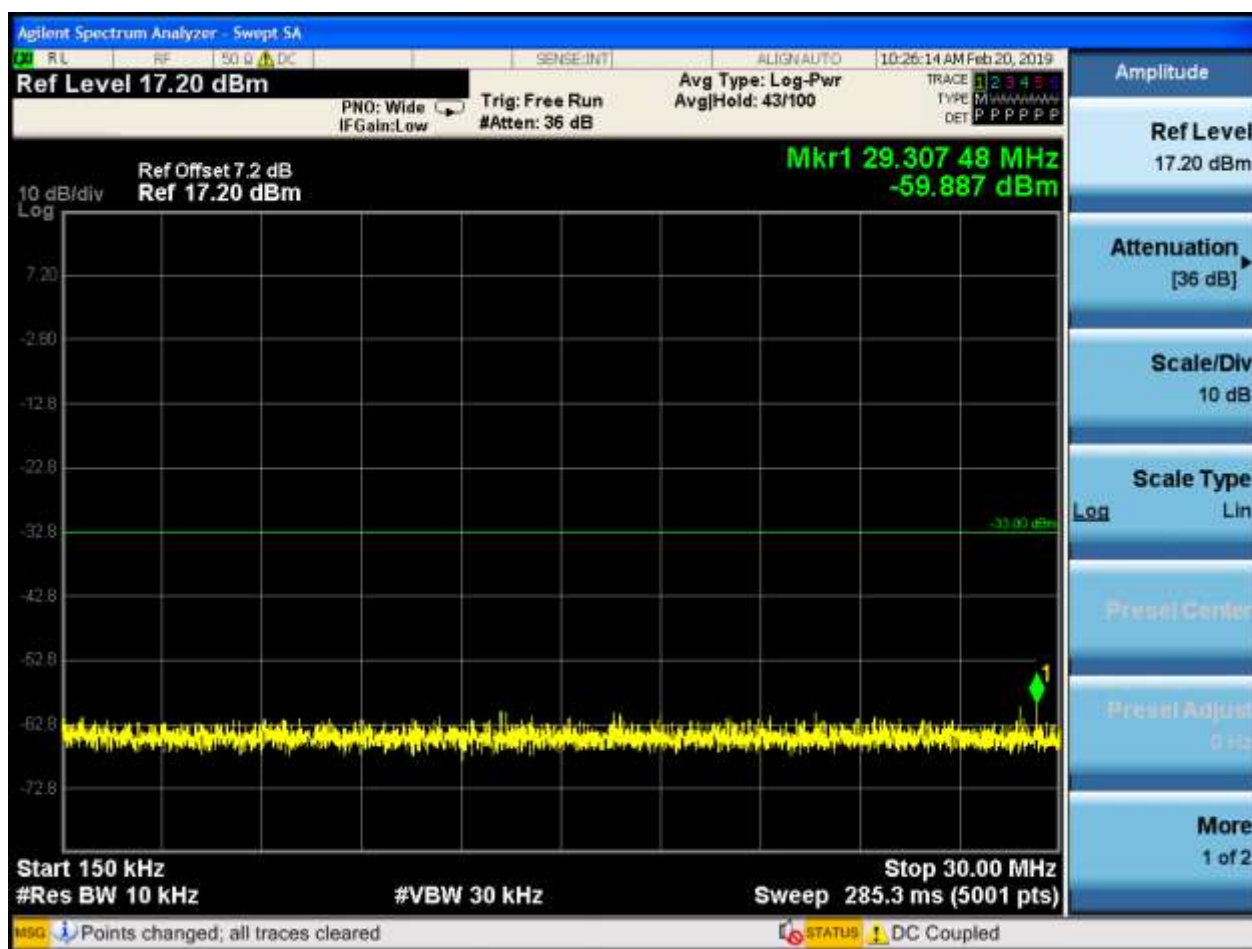






6.2.1.1.3 Test Channel = HCH







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

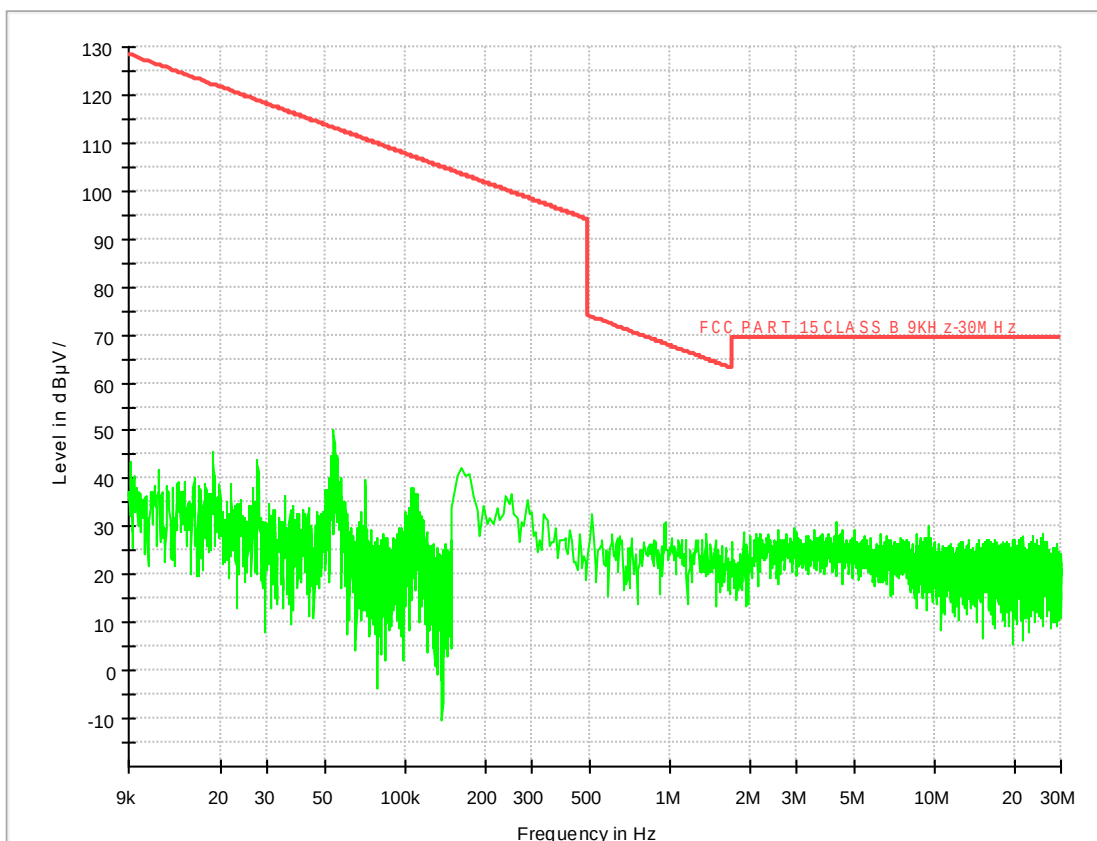
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

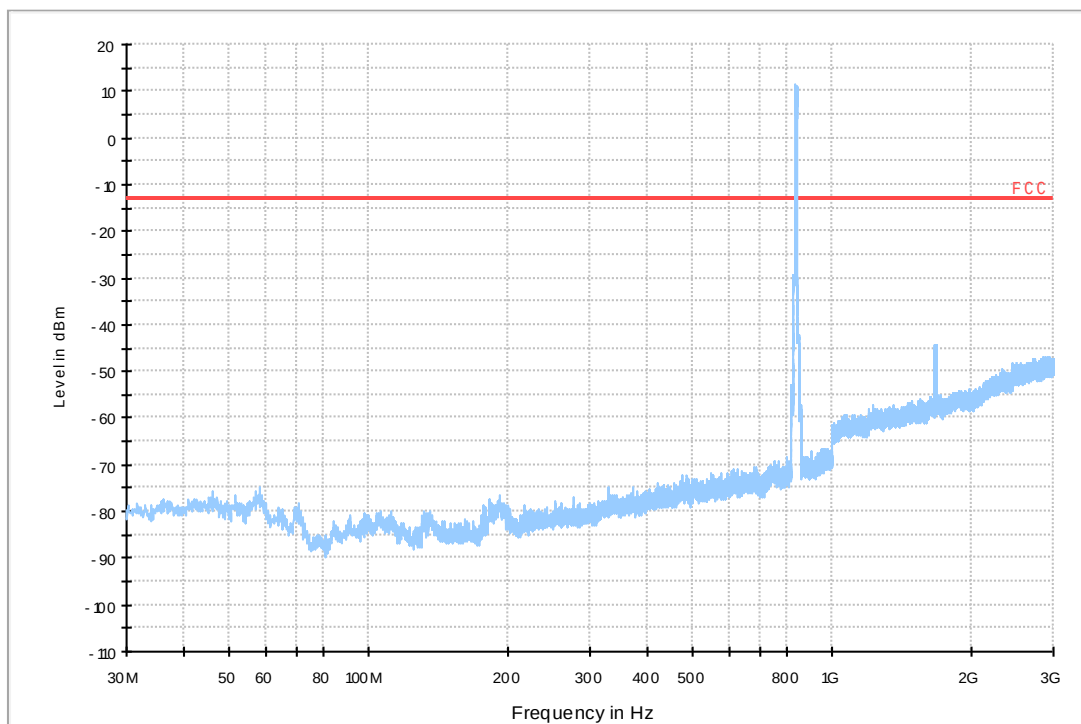
7.1 For UMTS

7.1.1 Test Band = WCDMA850

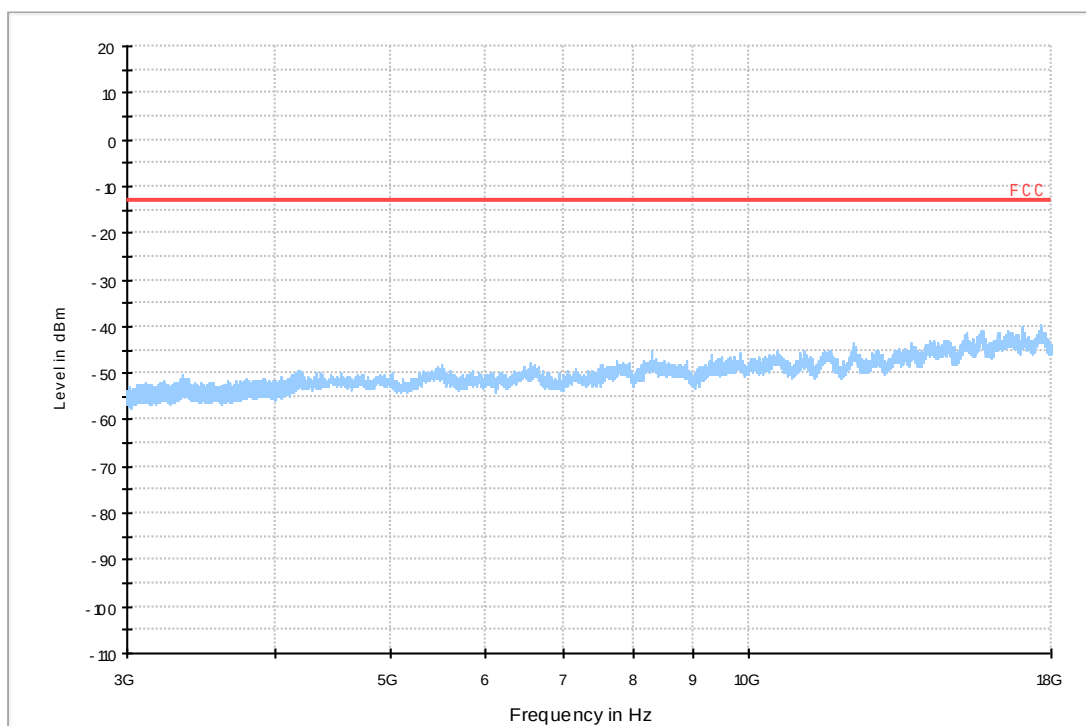
7.1.1.1 Test Mode = UMTS/TM1



06 FCC PART 22 WCDMA850_L

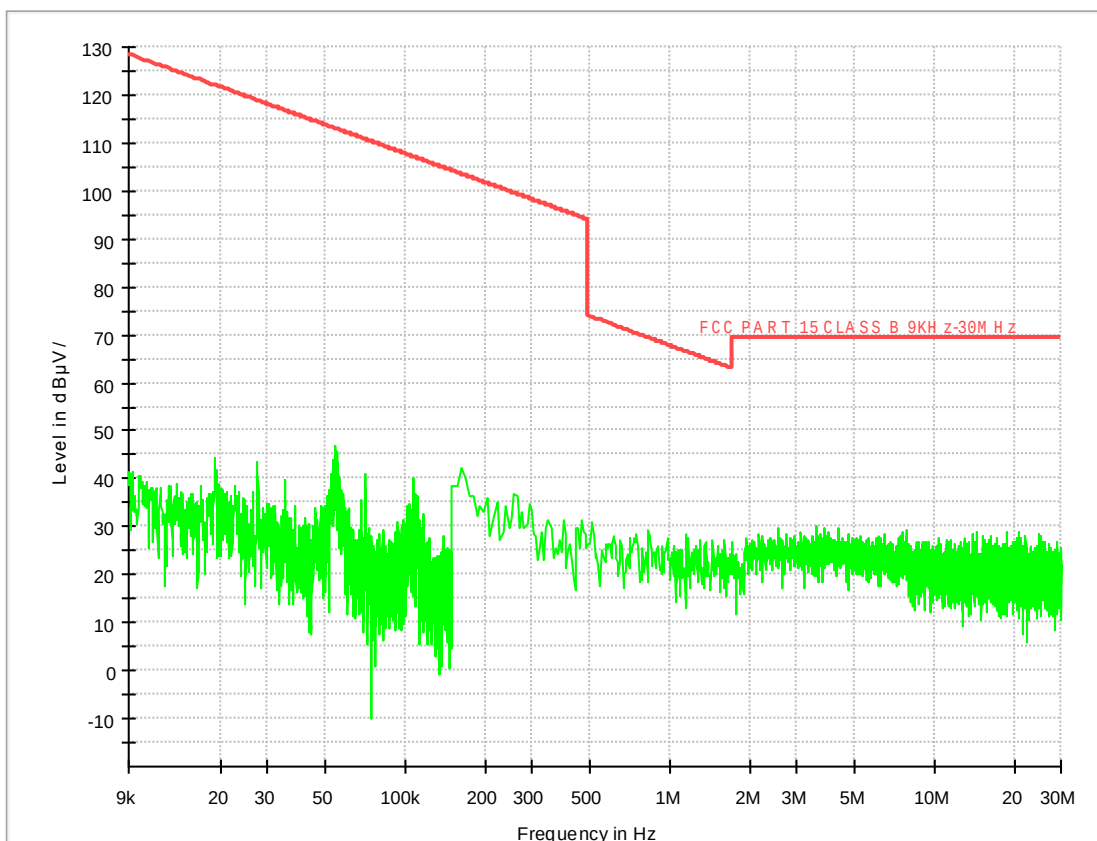


05 FCC PART 22 WCDMA850_H

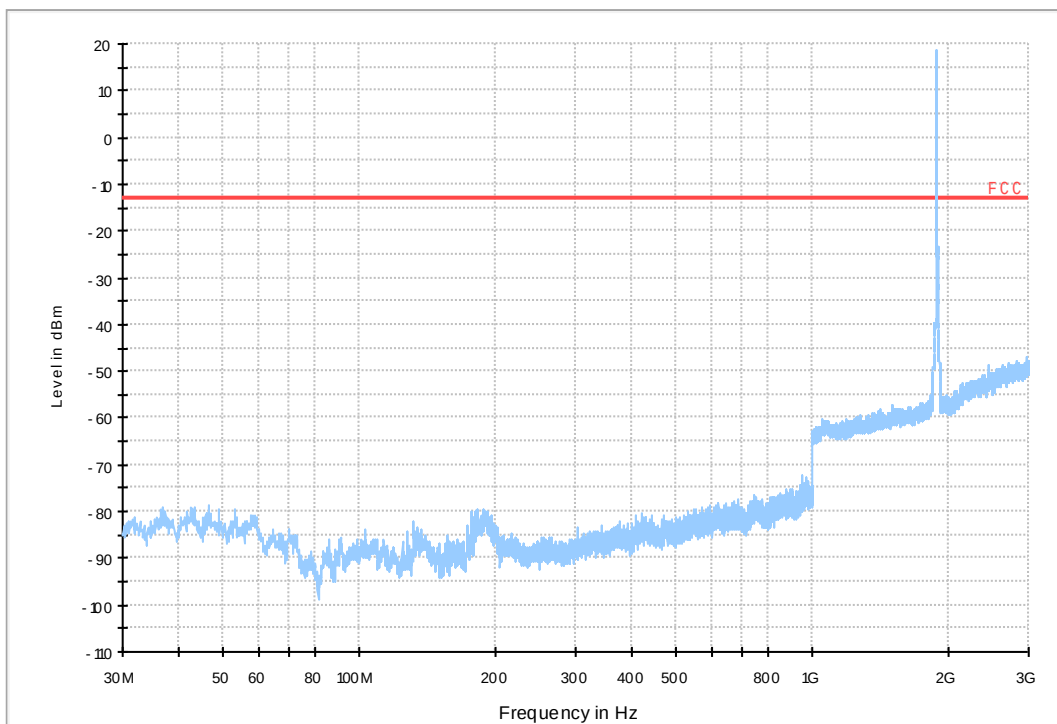


7.1.2 Test Band = WCDMA1900_ANT1

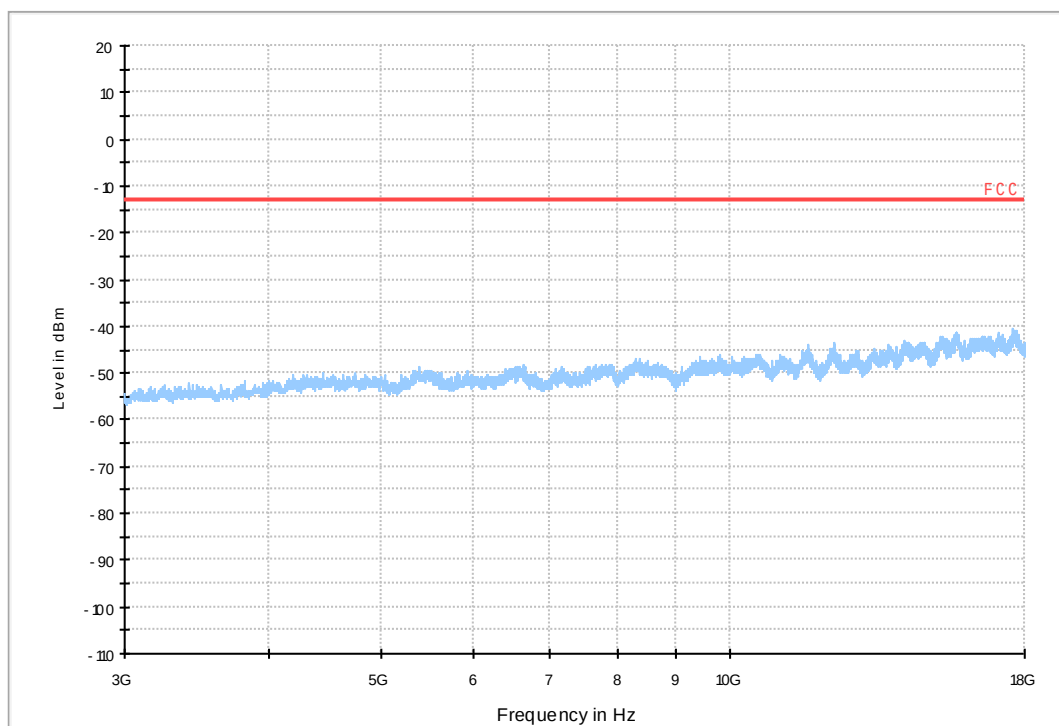
7.1.2.1 Test Mode = UMTS/TM1



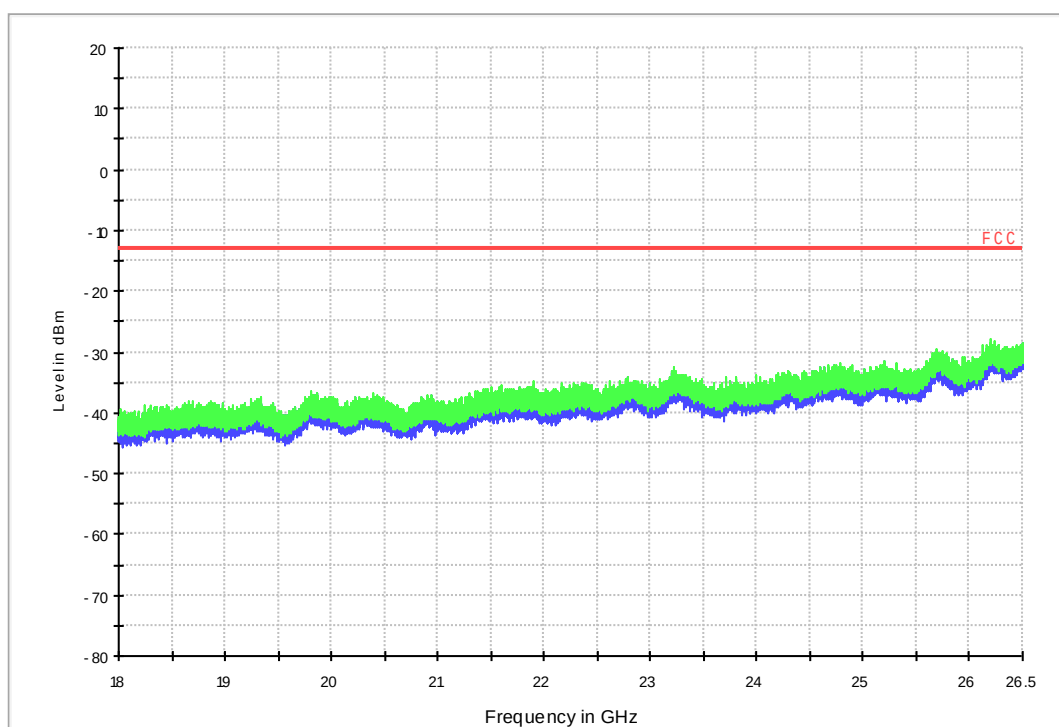
12.FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H



18G~26.5G R SE-TX-DIRECT OR ABOVE 1.5G PK



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
WCDMA1900	UMTS/TM1	LCH	TN	VL	-13.08	-0.00706	PASS
				VN	-3.95	-0.00213	PASS
				VH	-7.11	-0.00384	PASS
		MCH	TN	VL	-5.29	-0.00281	PASS
				VN	1.91	0.00102	PASS
				VH	4.27	0.00227	PASS
		HCH	TN	VL	1.53	0.0008	PASS
				VN	-1.63	-0.00085	PASS
				VH	-2.72	-0.00143	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-8.19	-0.00991	PASS
				VN	-0.37	-0.00045	PASS
				VH	-3.92	-0.00474	PASS
		MCH	TN	VL	-7.97	-0.00953	PASS
				VN	-1.31	-0.00157	PASS
				VH	-3.01	-0.0036	PASS
		HCH	TN	VL	-6.09	-0.00719	PASS
				VN	-3.04	-0.00359	PASS
				VH	-4.23	-0.005	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
WCDMA1900	UMTS/TM1	LCH	VN	-30	-2.76	-0.00149	PASS
				-20	-4.67	-0.00252	PASS
				-10	7.43	0.00401	PASS
				0	-0.44	-0.00024	PASS
				10	7.90	0.00426	PASS
				20	-0.24	-0.00013	PASS
				30	9.08	0.0049	PASS

				40	7.02	0.00379	PASS
				50	3.33	0.0018	PASS
				-30	1.74	0.00093	PASS
				-20	-0.06	-0.00003	PASS
				-10	-1.13	-0.0006	PASS
				0	-1.22	-0.00065	PASS
				10	0.43	0.00023	PASS
				20	0.87	0.00046	PASS
				30	-7.74	-0.00412	PASS
				40	-2.21	-0.00118	PASS
				50	2.04	0.00109	PASS
				-30	-2.75	-0.00144	PASS
				-20	-6.21	-0.00326	PASS
				-10	-3.83	-0.00201	PASS
				0	-3.57	-0.00187	PASS
				10	-3.75	-0.00197	PASS
				20	-6.39	-0.00335	PASS
				30	-5.75	-0.00301	PASS
				40	-3.89	-0.00204	PASS
				50	-5.42	-0.00284	PASS
				-30	-7.87	-0.00952	PASS
				-20	-1.51	-0.00183	PASS
				-10	3.74	0.00453	PASS
				0	-1.45	-0.00175	PASS
				10	-11.69	-0.01415	PASS
				20	-5.43	-0.00657	PASS
				30	2.69	0.00326	PASS
				40	3.19	0.00386	PASS
				50	-2.27	-0.00275	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	-0.67	-0.0008	PASS
				-20	-6.13	-0.00733	PASS
				-10	0.32	0.00038	PASS
				0	0.61	0.00073	PASS
				10	-9.19	-0.01099	PASS
				20	1.51	0.00181	PASS
				30	-10.27	-0.01228	PASS
				40	-0.37	-0.00044	PASS
		MCH	VN	50	-3.77	-0.00451	PASS
				-30	-9.95	-0.01175	PASS
				-20	0.72	0.00085	PASS
				-10	-1.01	-0.00119	PASS
				0	0.03	0.00004	PASS



				10	-1.33	-0.00157	PASS
				20	-7.05	-0.00833	PASS
				30	-0.05	-0.00006	PASS
				40	-7.97	-0.00941	PASS
				50	-2.52	-0.00298	PASS

END