



Appendix for test report



1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.24	24.89	33	PASS
		MCH	23.13	25.00	33	PASS
		HCH	22.96	24.84	33	PASS
WCDMA1700	UMTS/TM1	LCH	22.09	23.76	30	PASS
		MCH	21.78	23.29	30	PASS
		HCH	21.98	23.55	30	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
WCDMA1900	UMTS/TM1	LCH	3.06	13	PASS
		MCH	3.21	13	PASS
		HCH	3.39	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.83	13	PASS
		MCH	3.17	13	PASS
		HCH	3.08	13	PASS

3Appendix_C: Modulation Characteristics

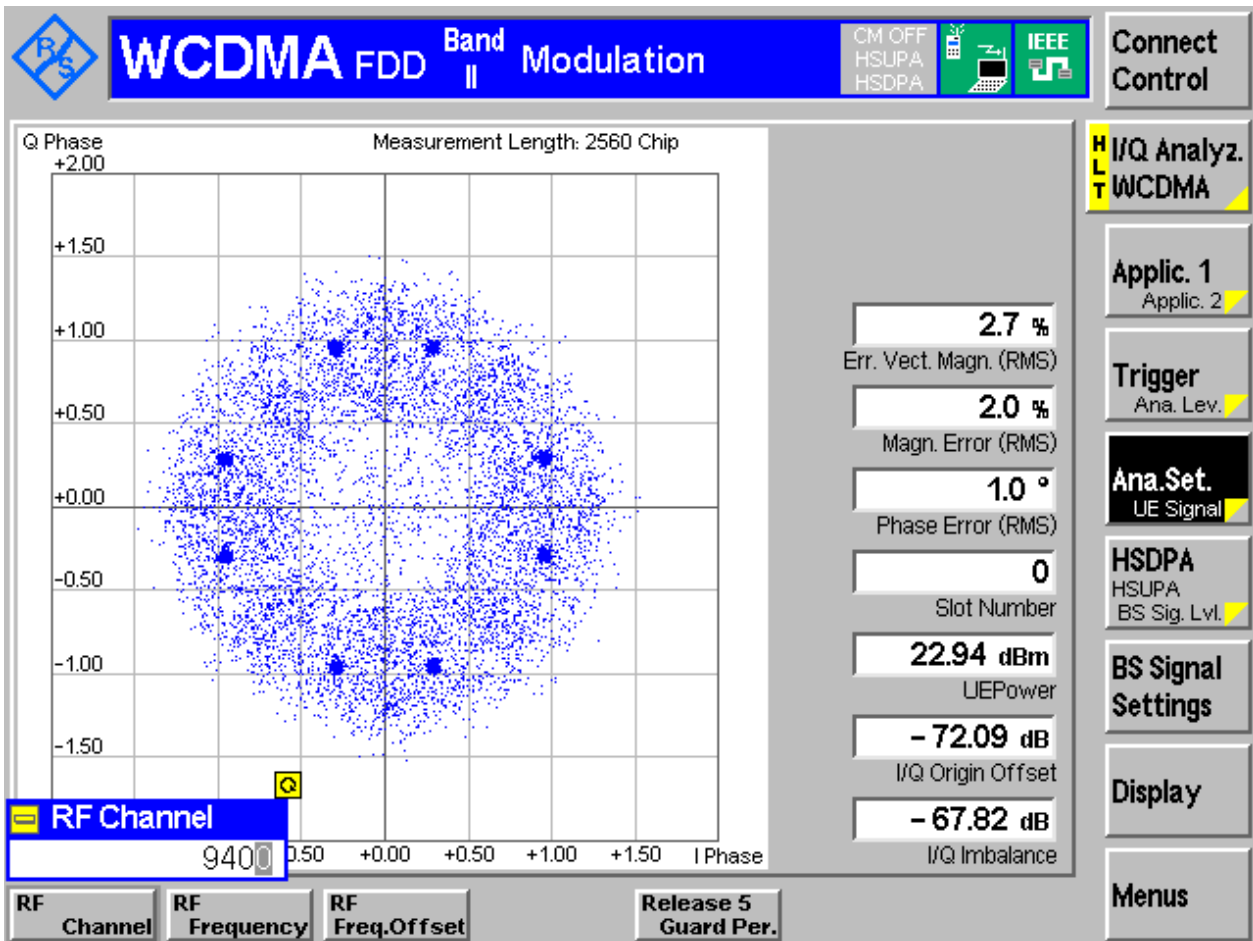
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA1900

3.1.1.1 Test Mode = UMTS/TM1

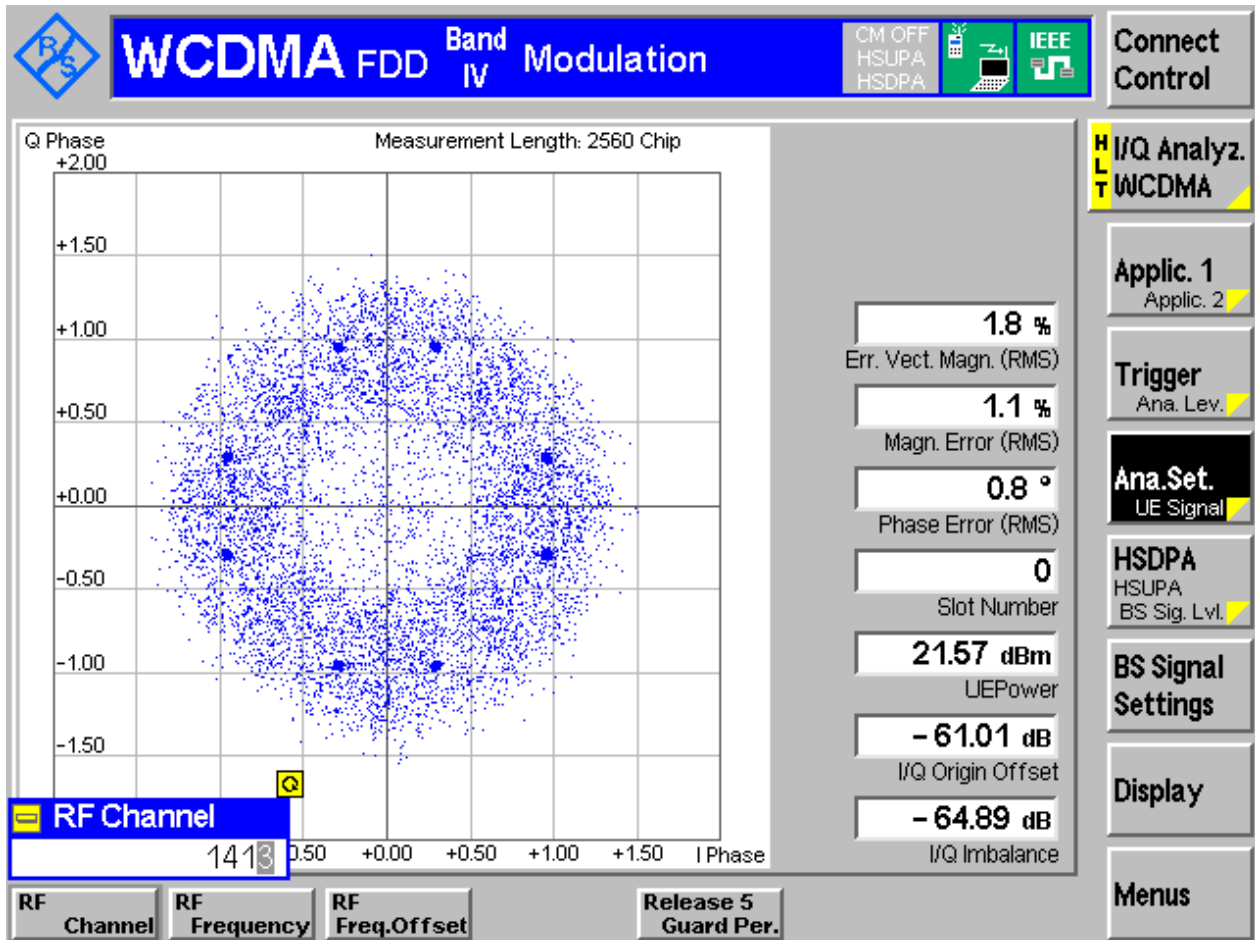
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

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
WCDMA1900	UMTS/TM1	LCH	4.16	4.70	Pass
		MCH	4.17	4.71	Pass
		HCH	4.17	4.70	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.72	Pass
		MCH	4.17	4.70	Pass
		HCH	4.15	4.71	Pass

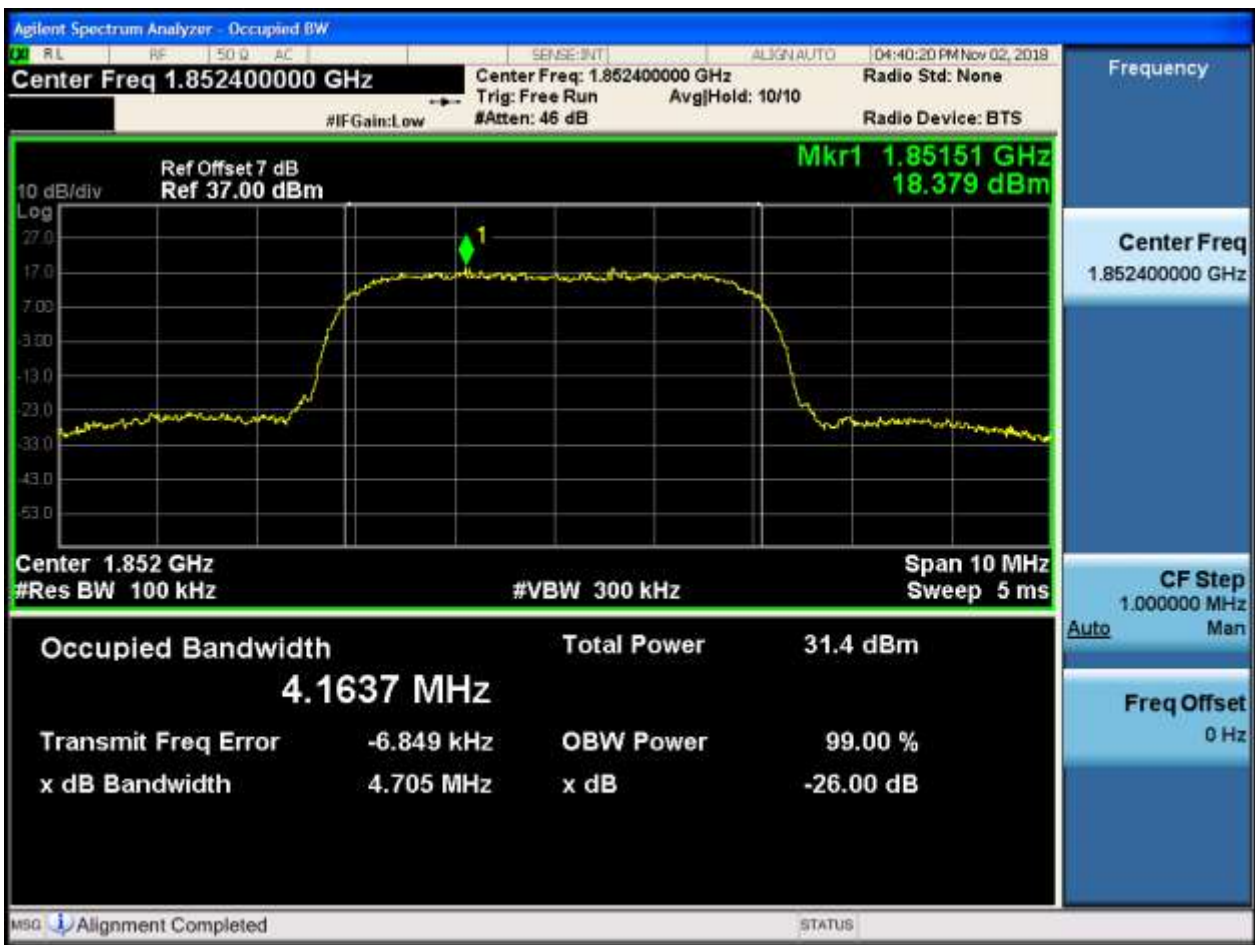
Part II - Test Plots

4.1 For UMTS

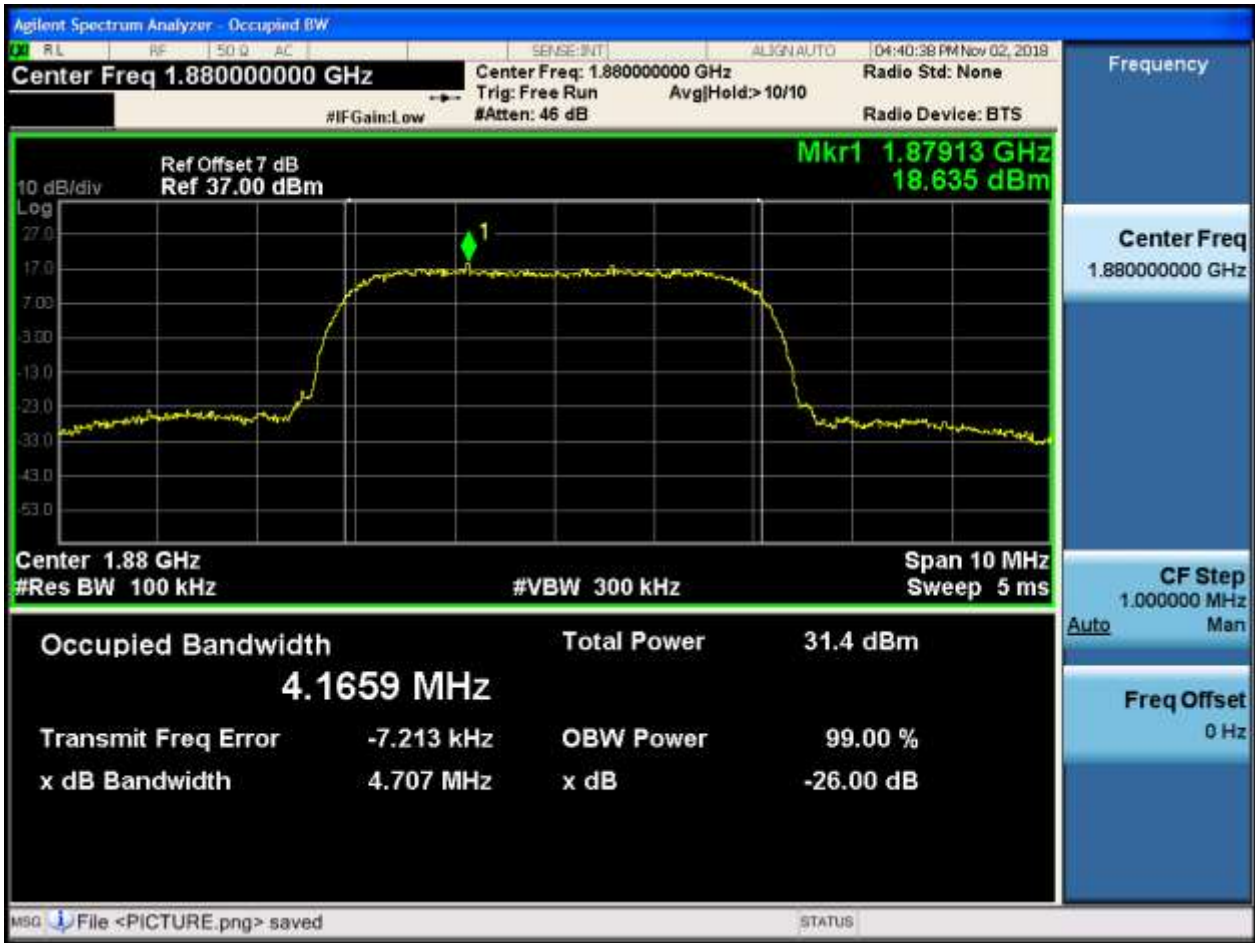
4.1.1 Test Band = WCDMA1900

4.1.1.1 Test Mode = UMTS/TM1

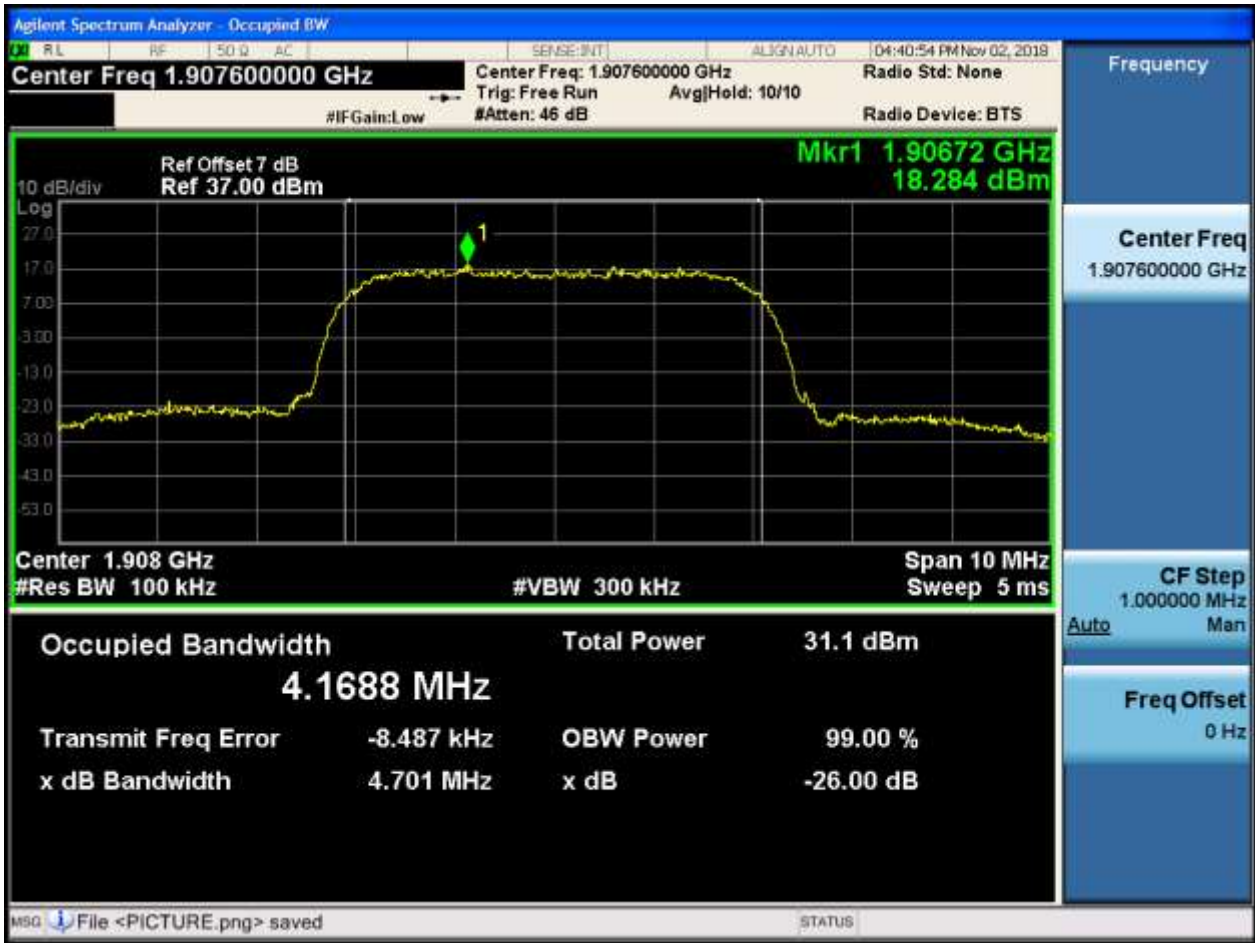
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



4.1.1.1.3 Test Channel = HCH

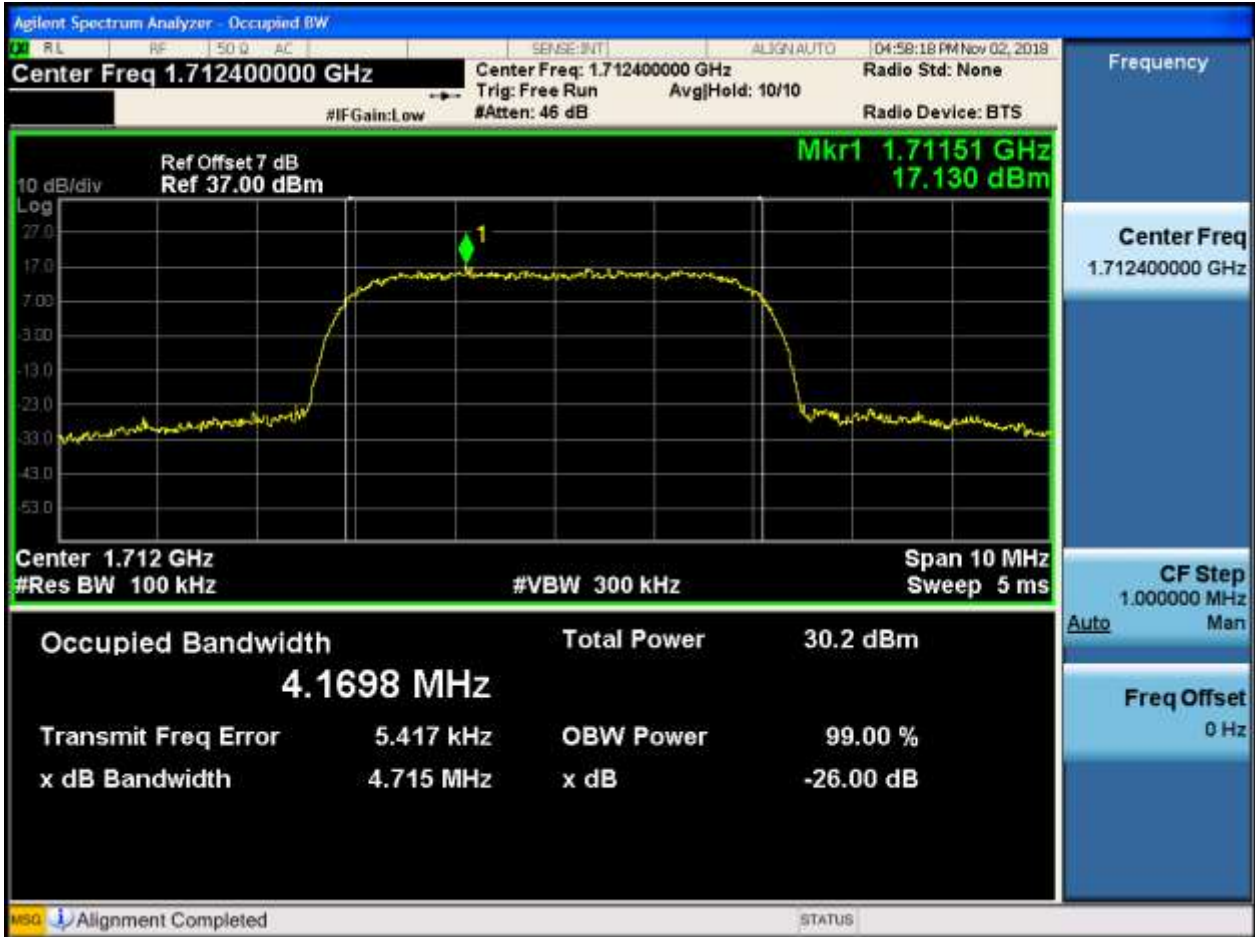




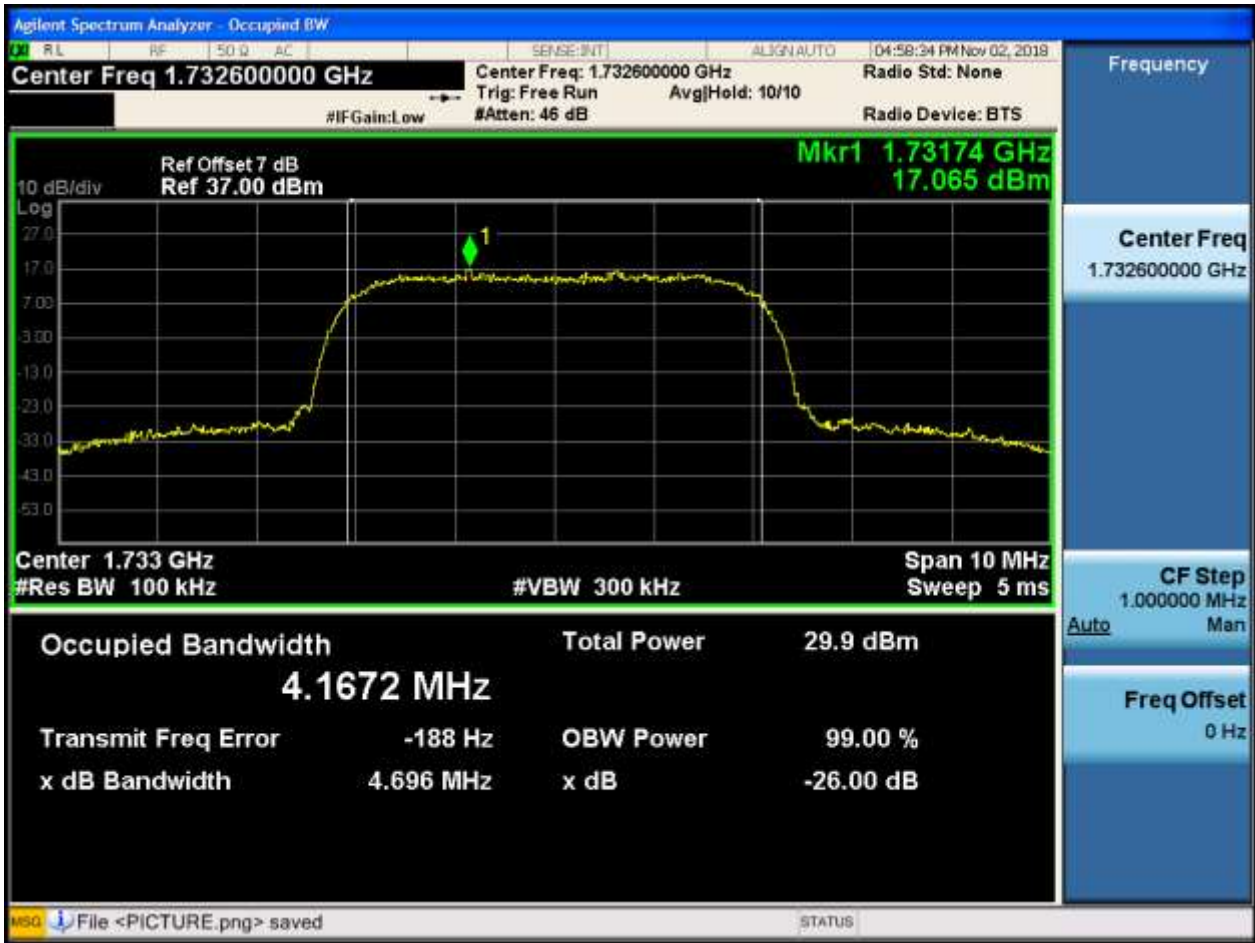
4.1.2 Test Band = WCDMA1700

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 = WCDMA1900

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 = WCDMA1700

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

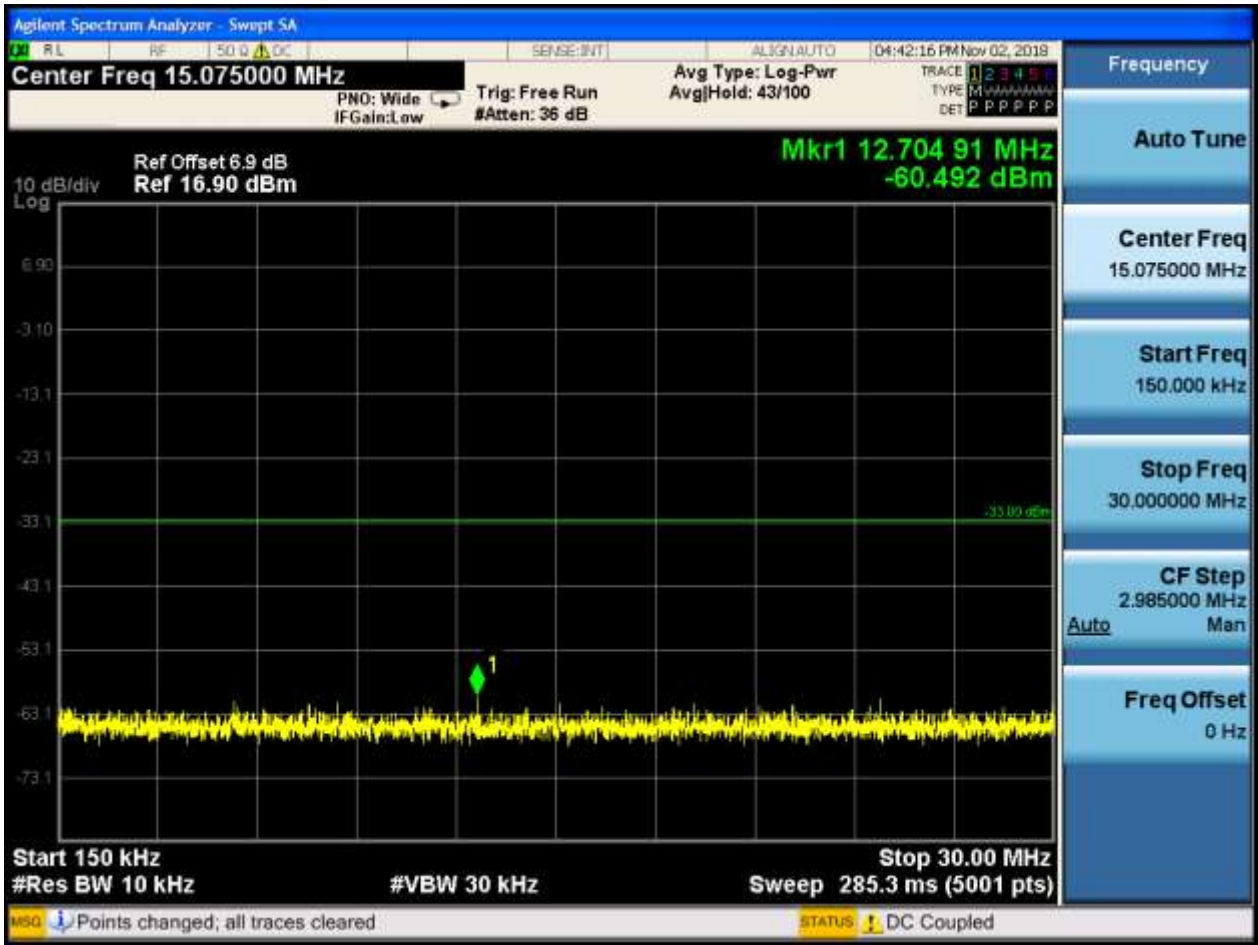
6.1 For UMTS

6.1.1 Test Band = WCDMA1900

6.1.1.1 Test Mode = UMTS/TM1

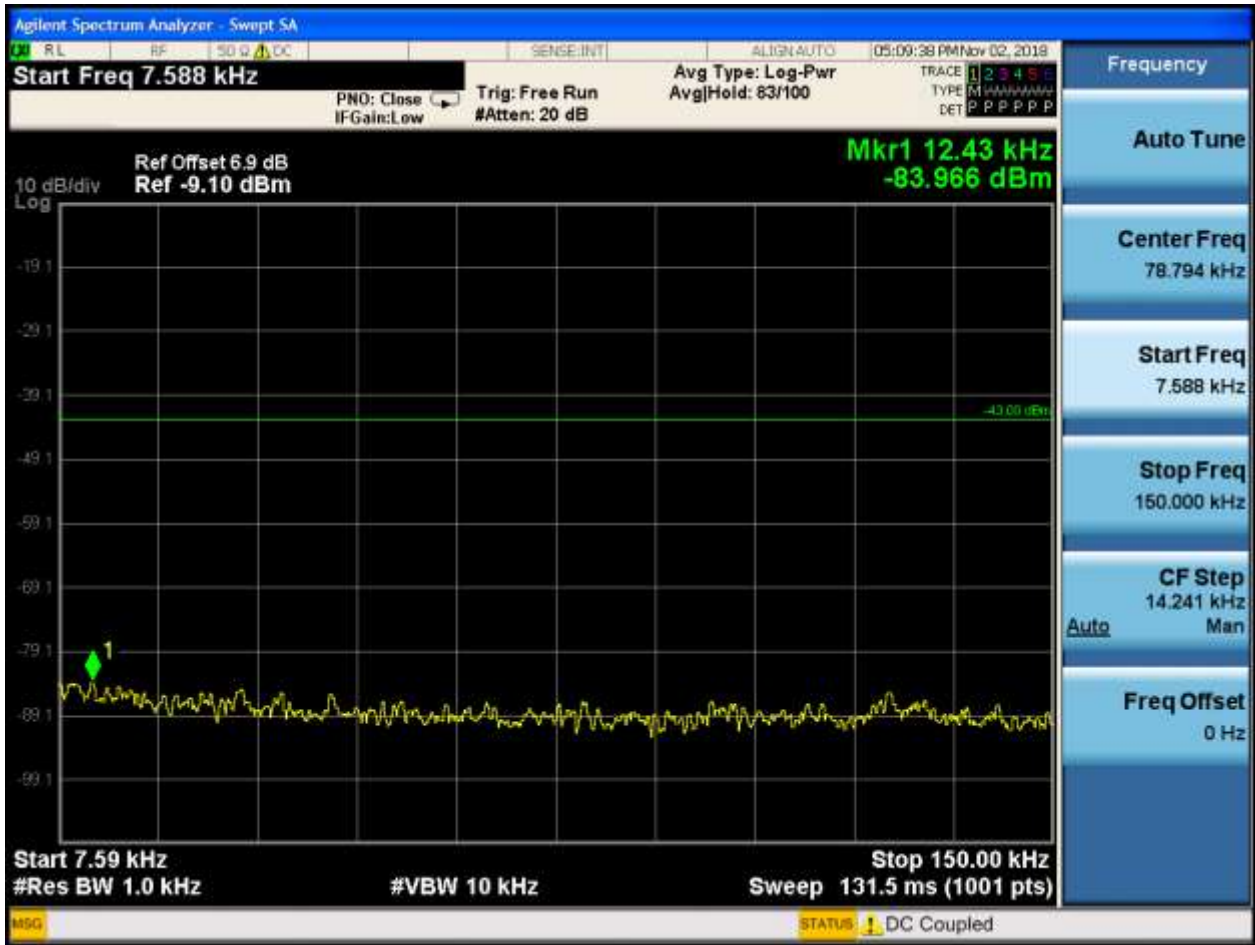
6.1.1.1.1 Test Channel = LCH

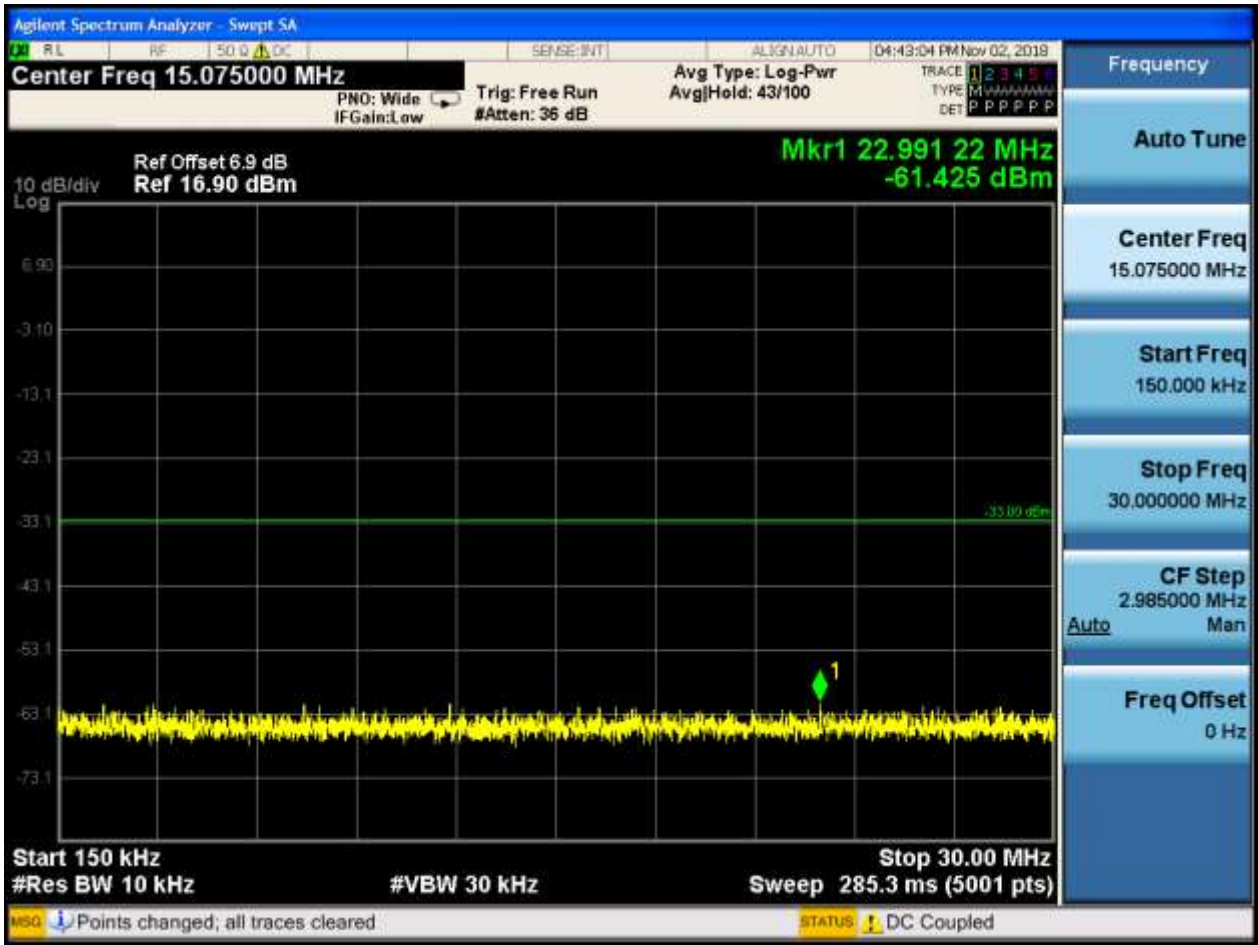






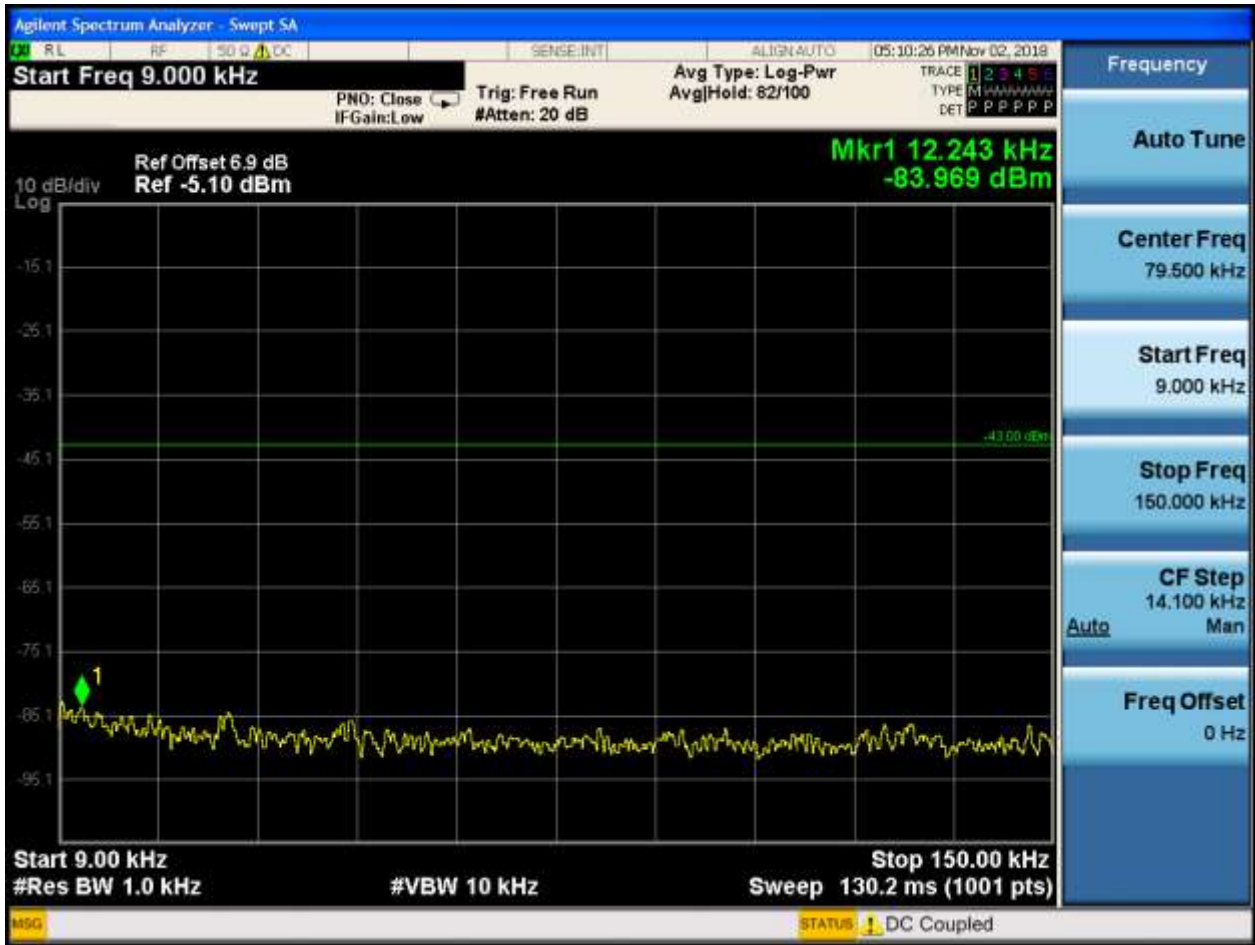
6.1.1.1.2 Test Channel = MCH

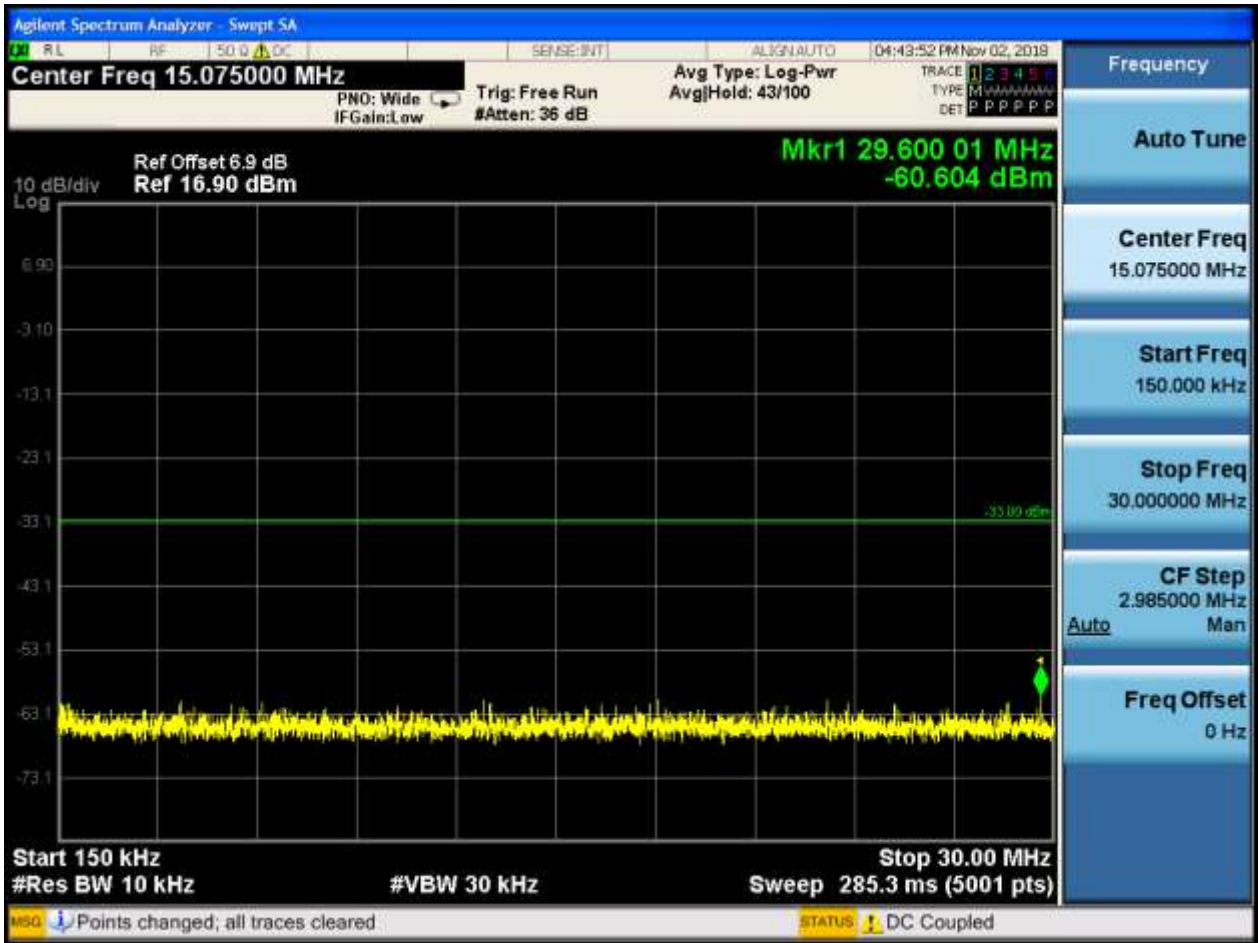


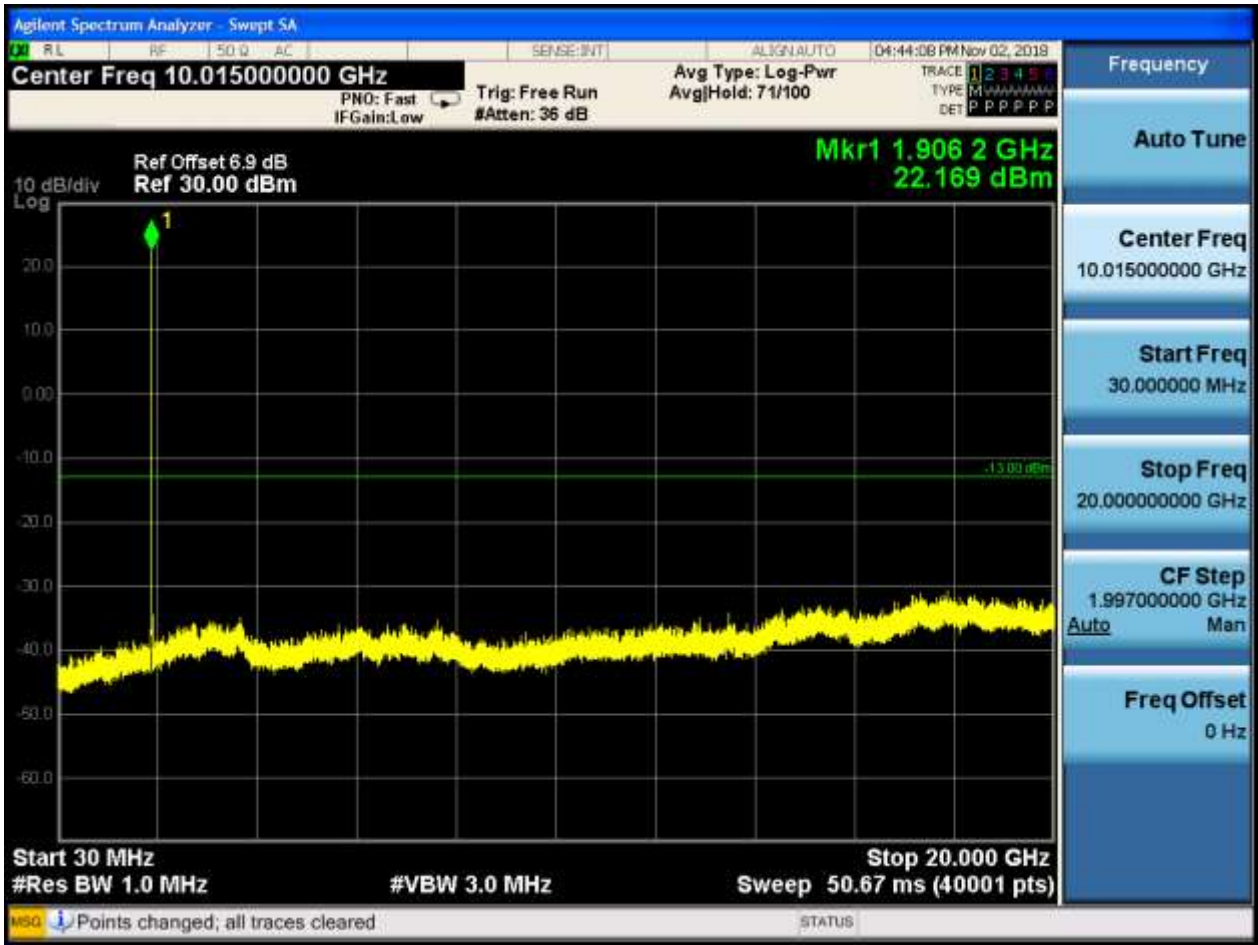




6.1.1.1.3 Test Channel = HCH



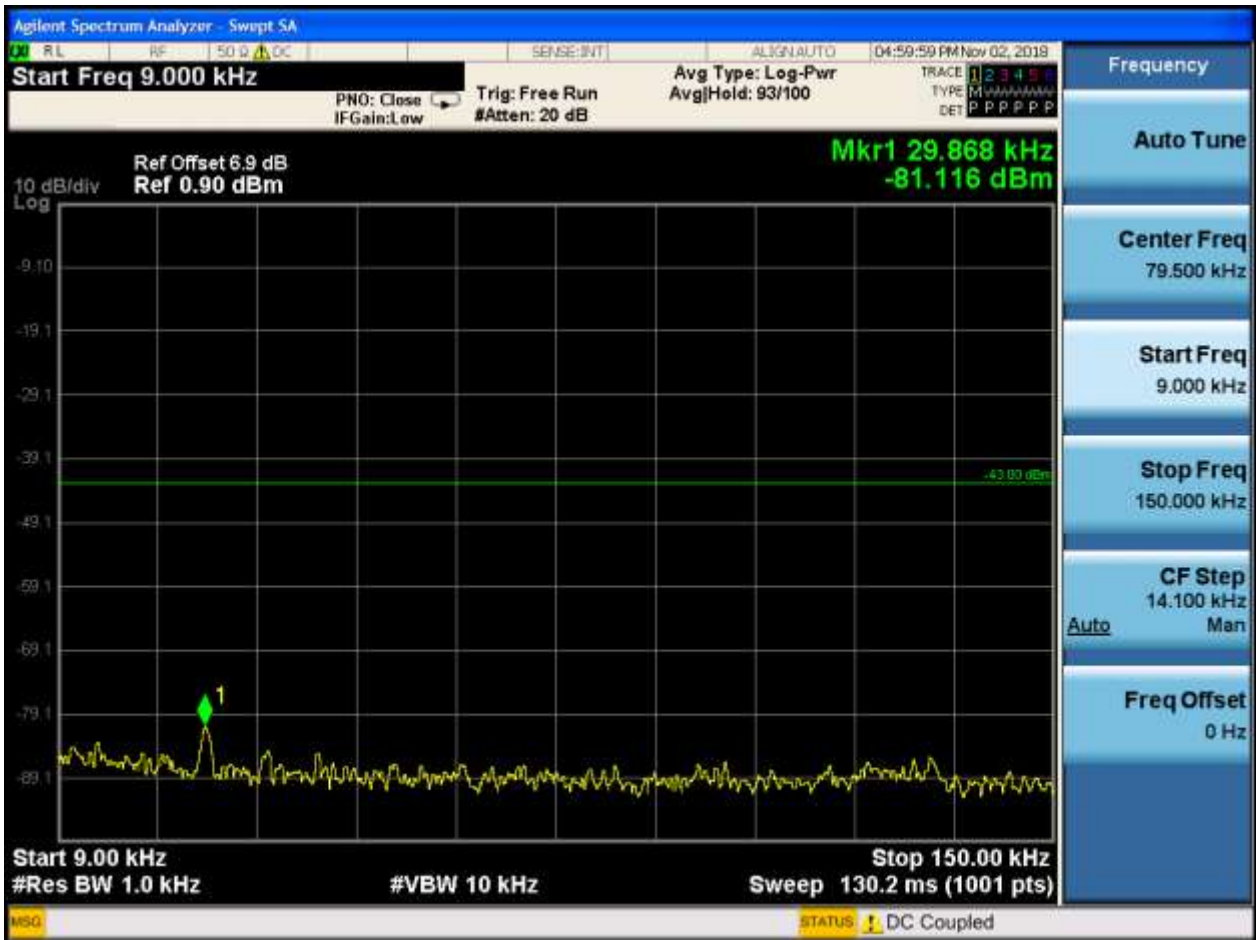


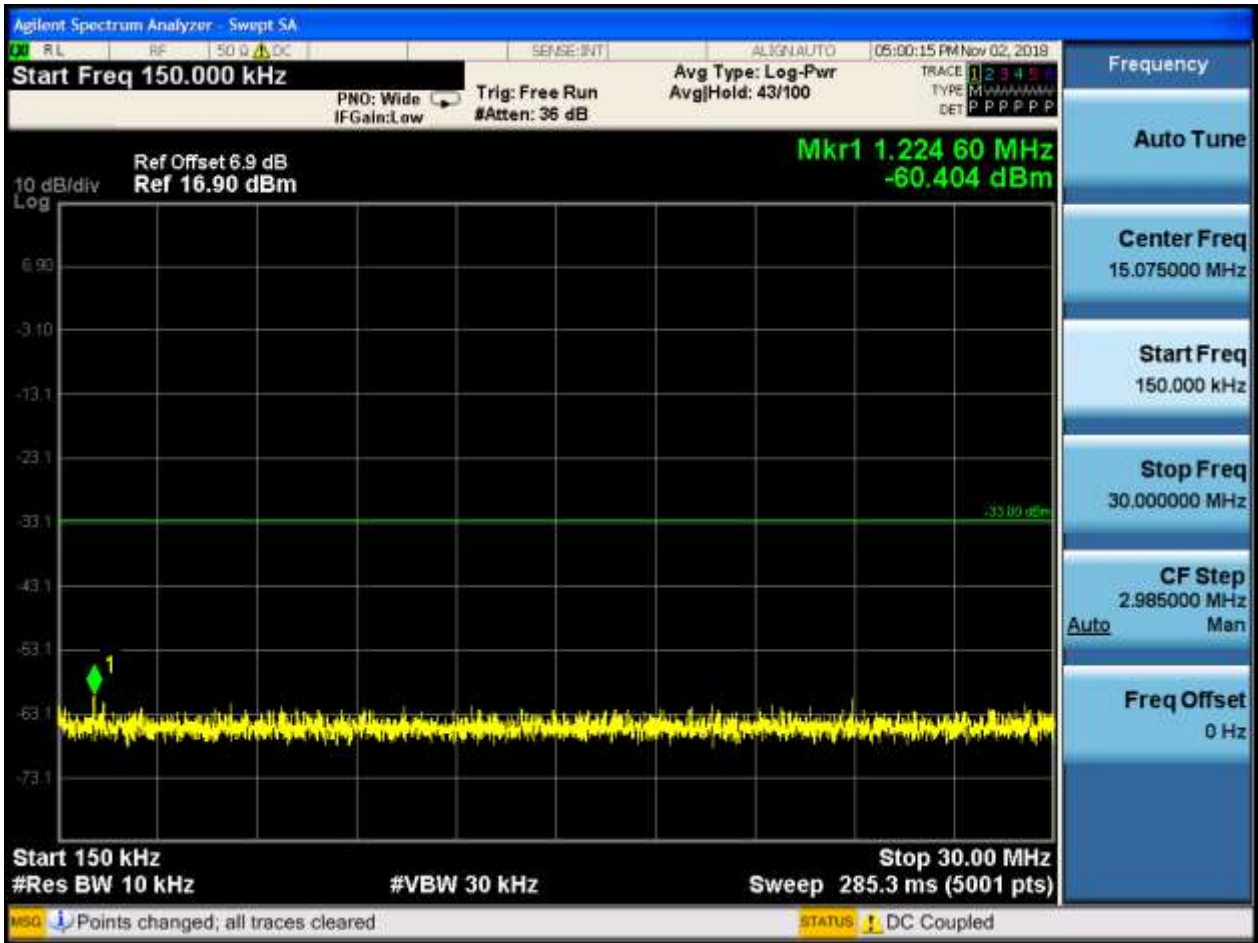


6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

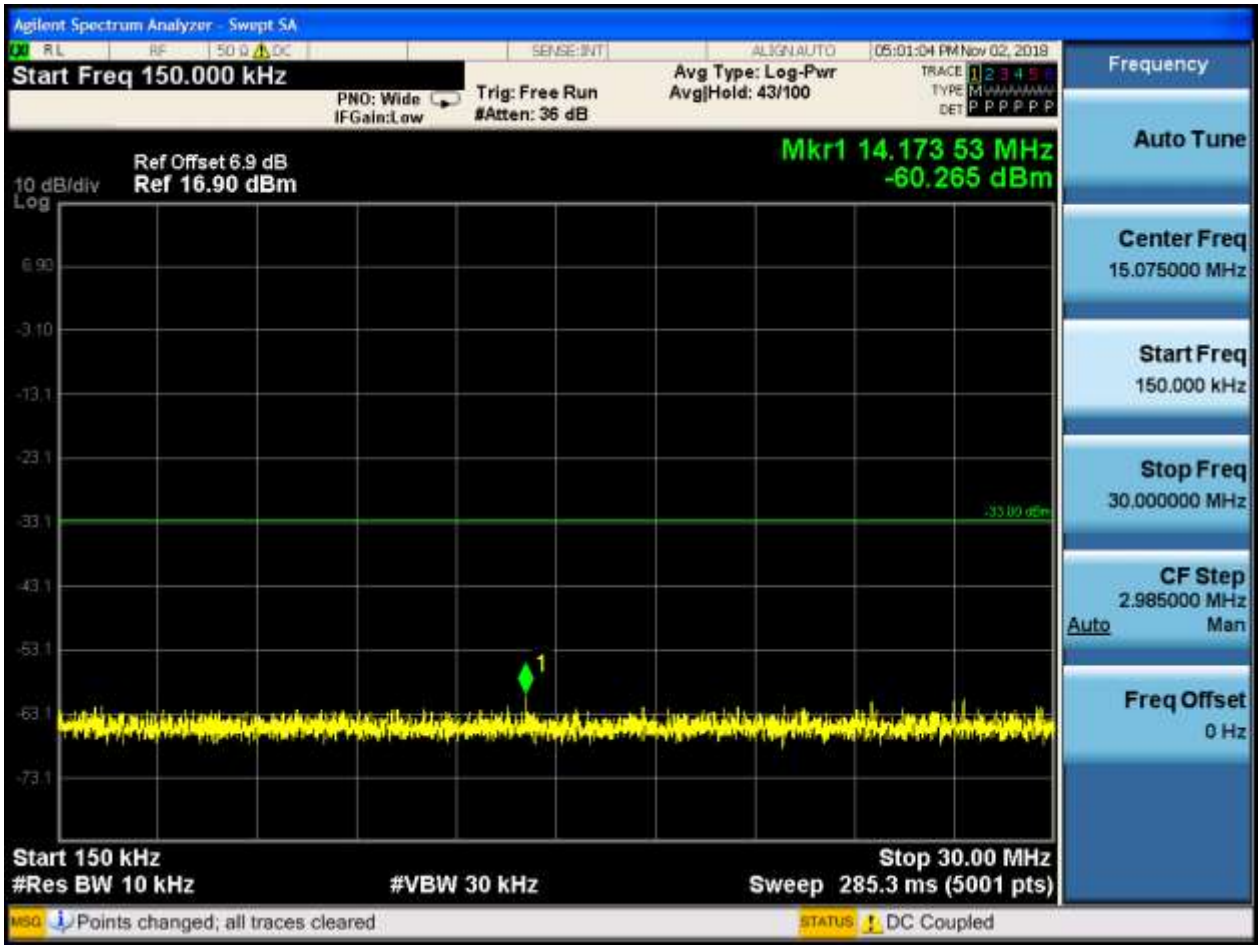






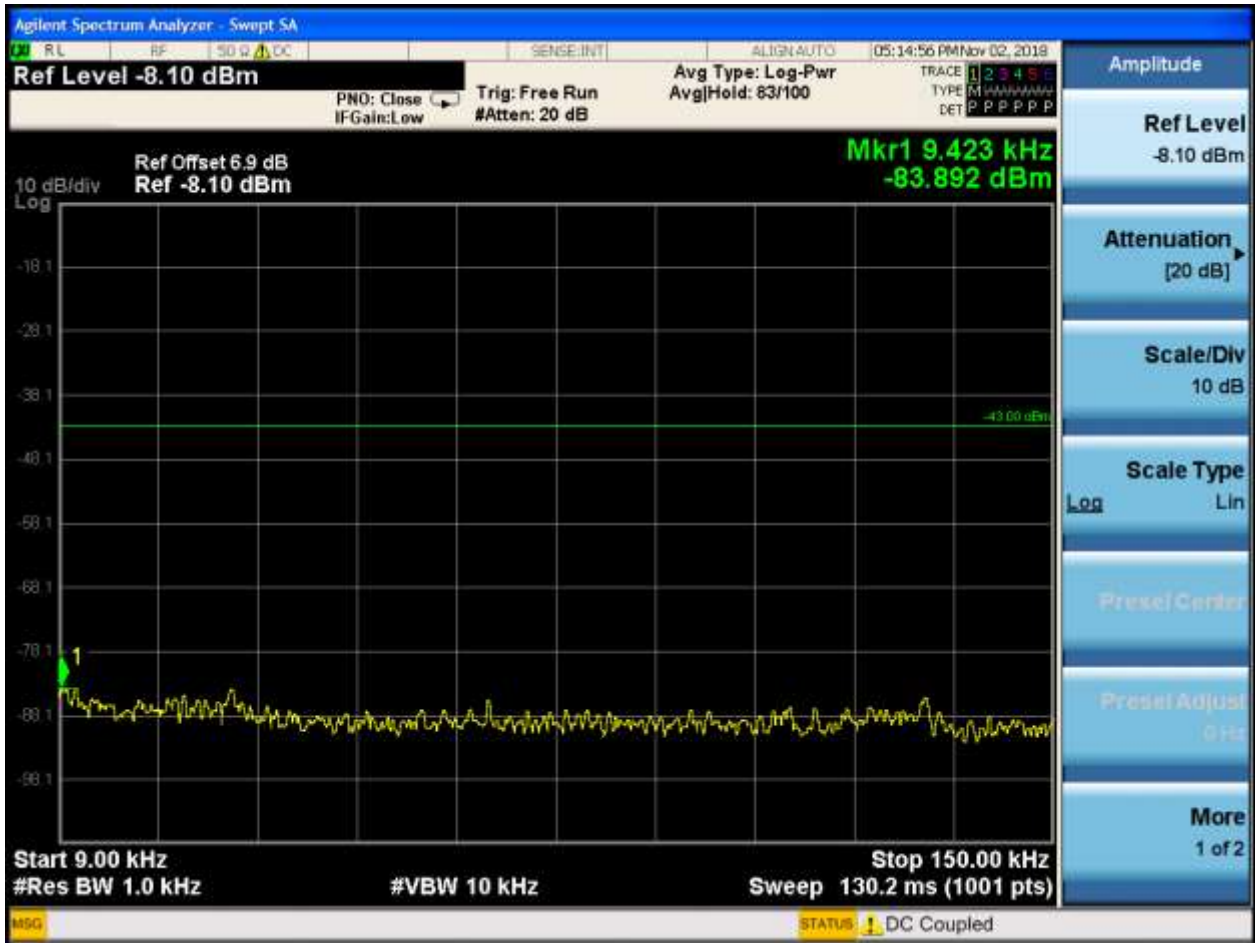
6.1.2.1.2 Test Channel = MCH

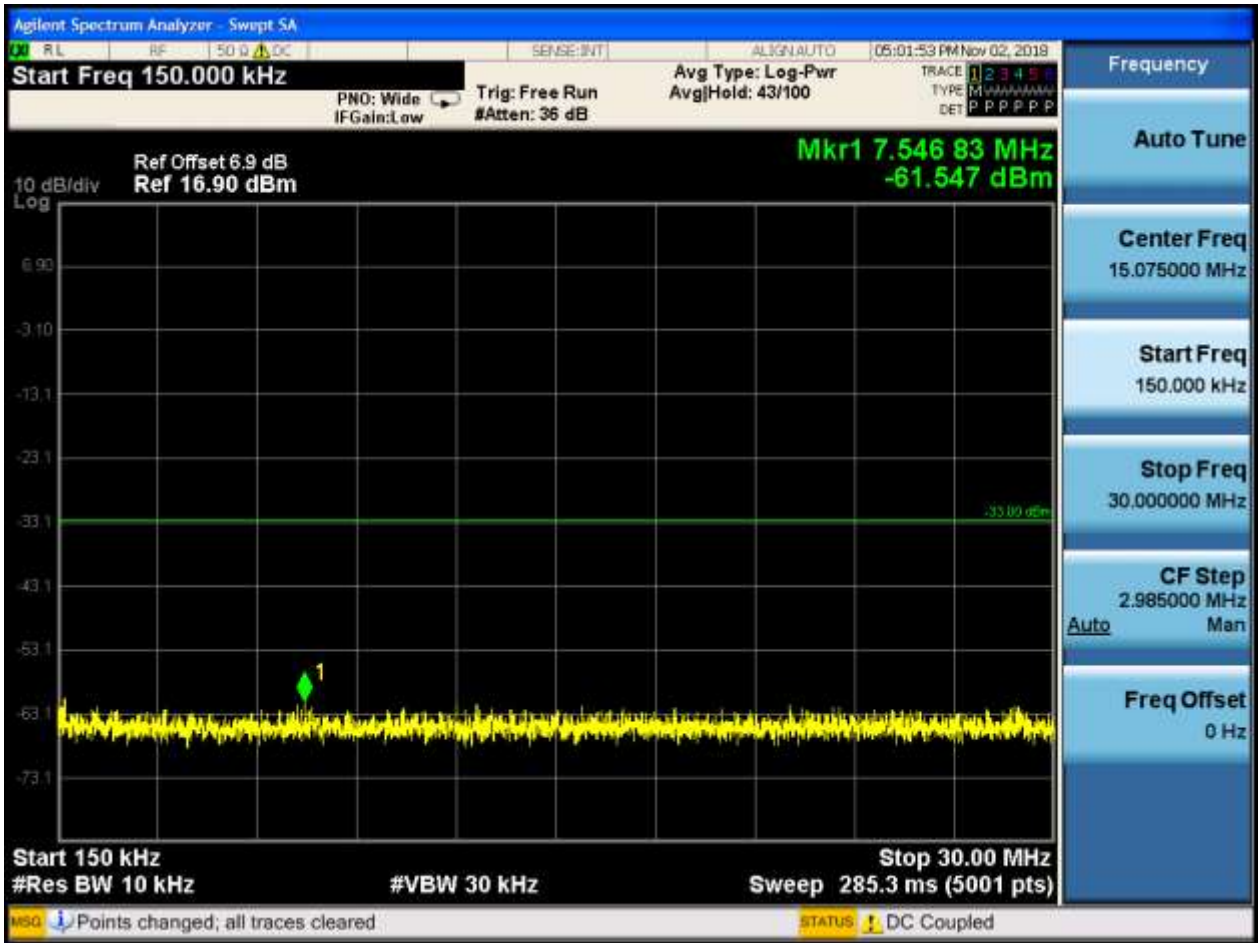






6.1.2.1.3 Test Channel = HCH









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

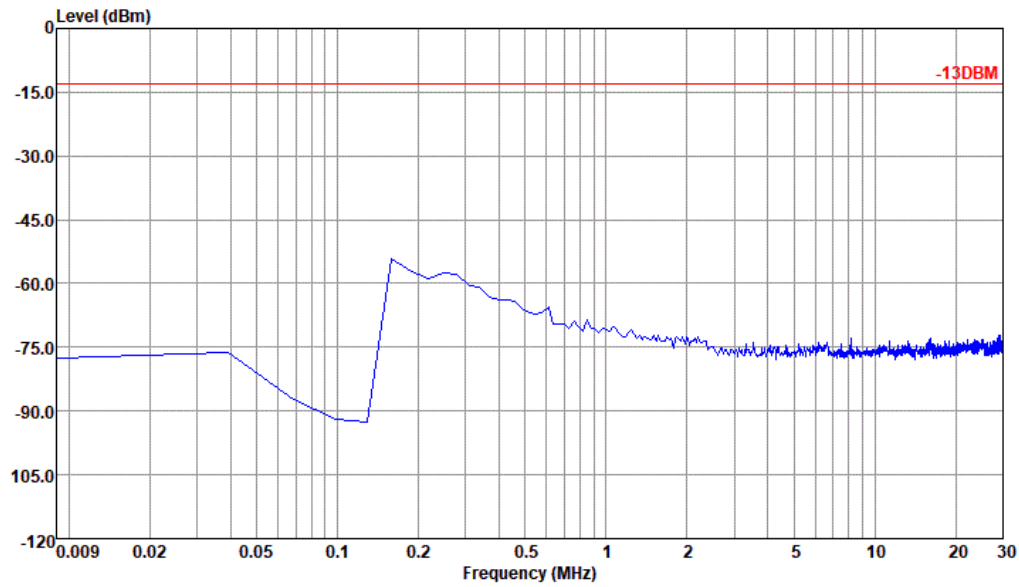
7.1 For UMTS

7.1.1 Test Band = WCDMA1900

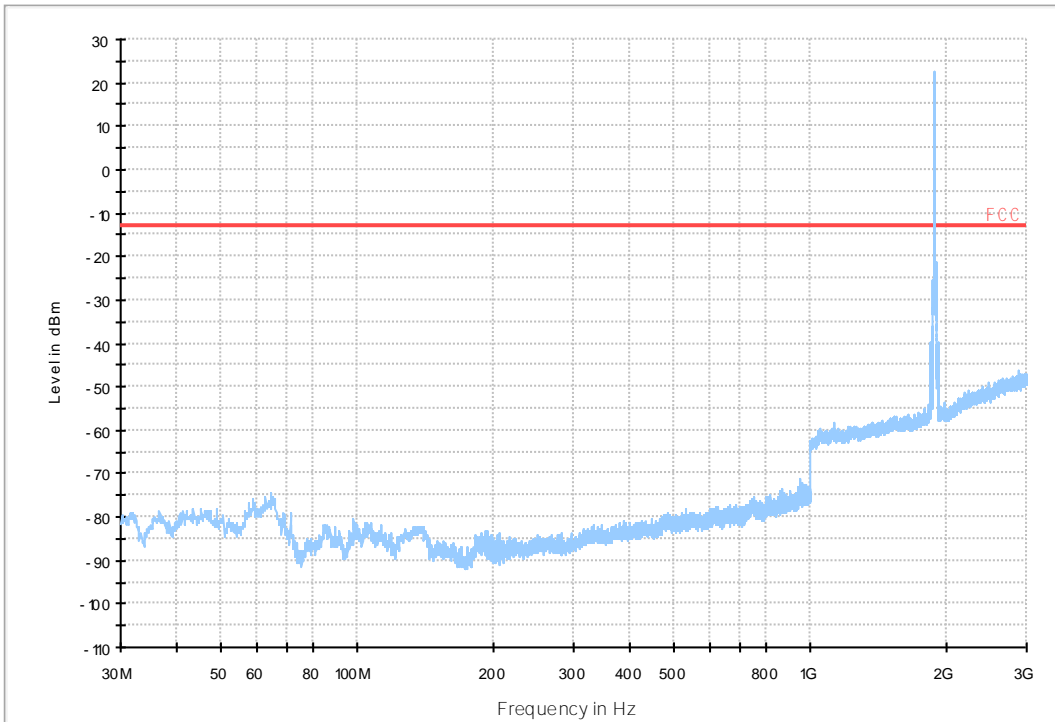
7.1.1.1 Test Mode = UMTS/TM1



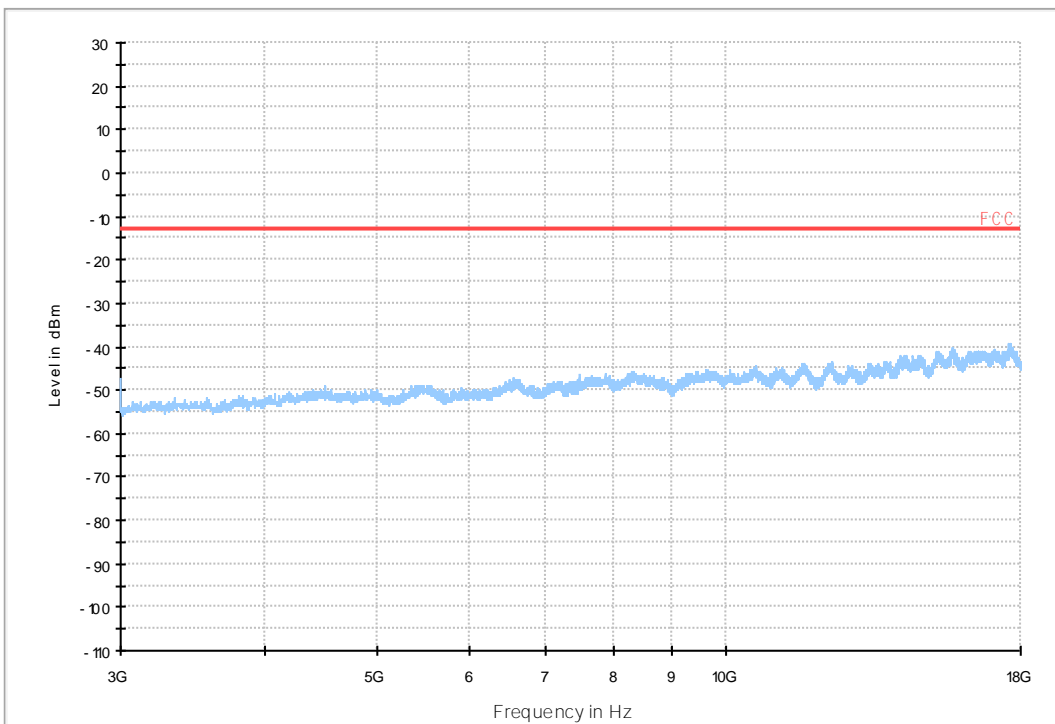
Data: 26



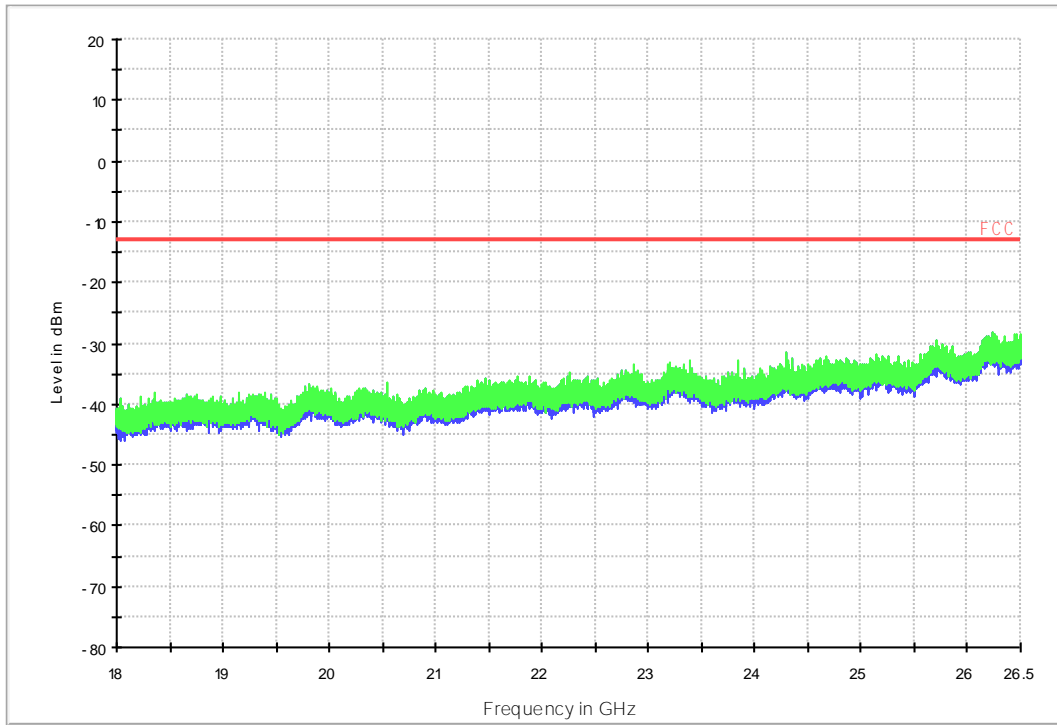
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H

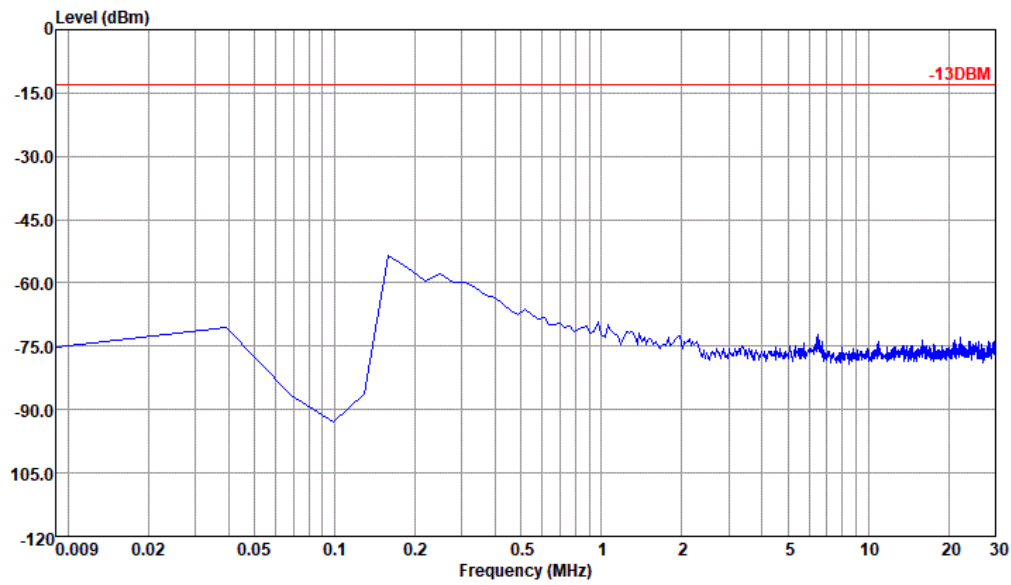


18G-26.5G RSE-TX-DIRECT OR ABOVE 1.5G PK

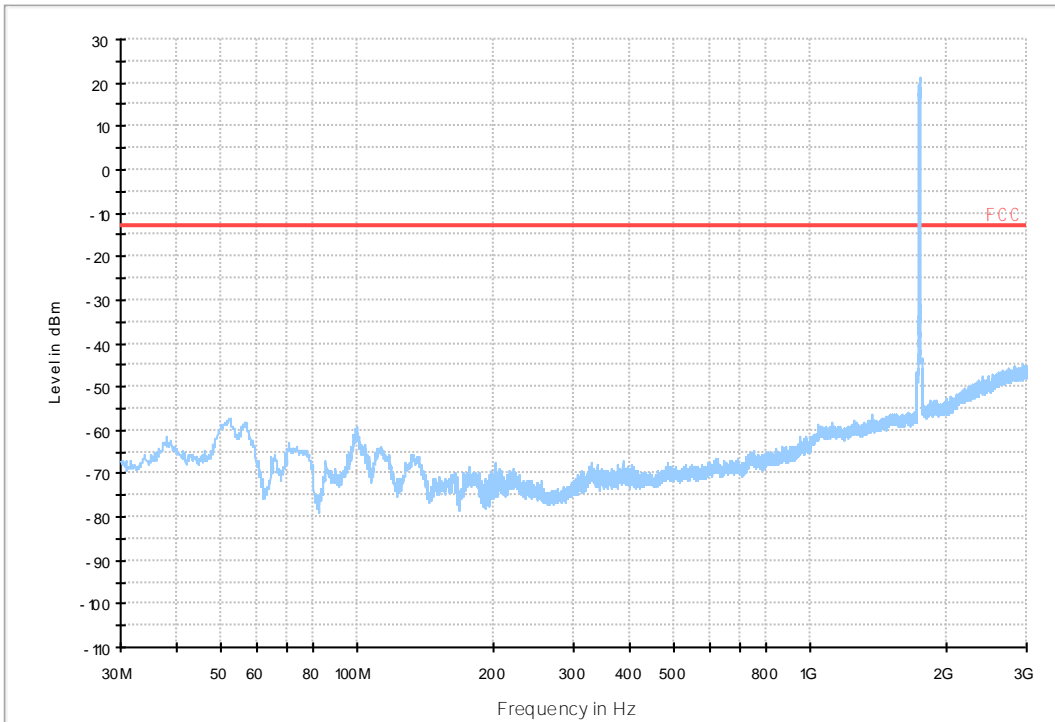


7.1.2 Test Band = WCDMA1700

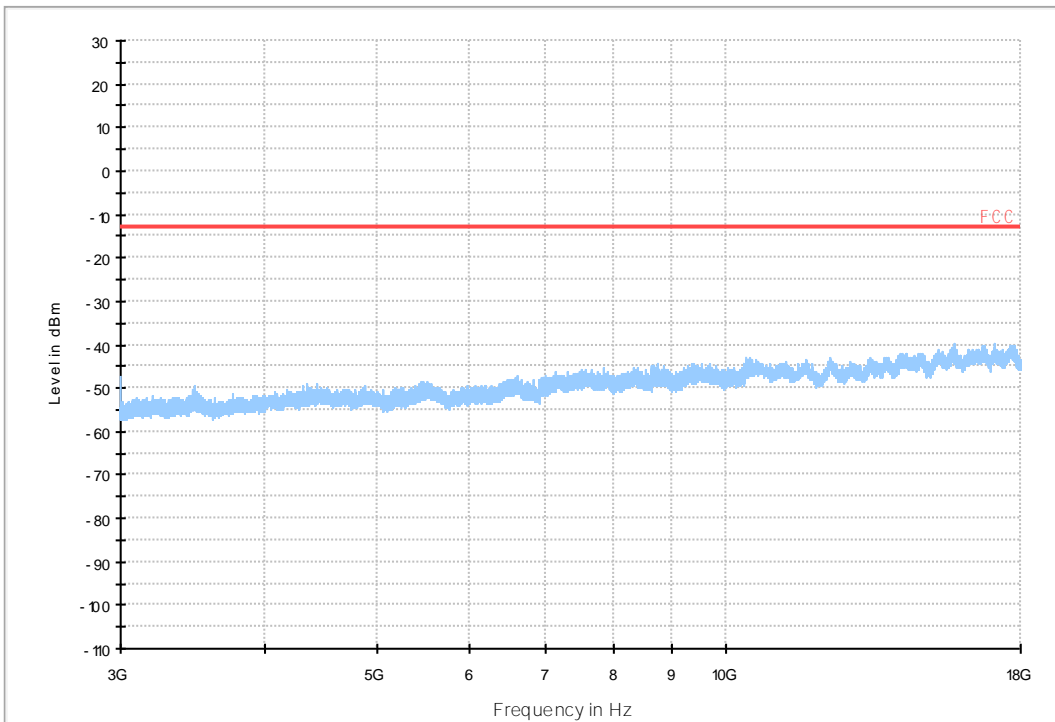
7.1.2.1 Test Mode = UMTS/TM1



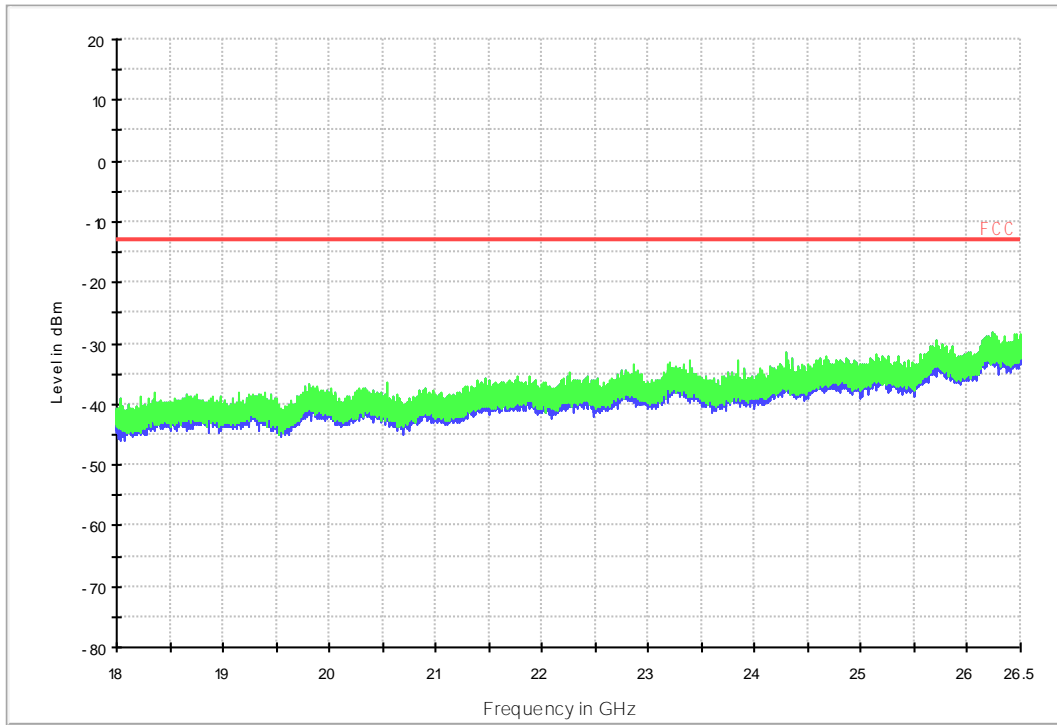
18 FCC PART 27 WCDMA1700_L



17 FCC PART 27 WCDMA1700_H



18G-26.5G RSE-TX-DIRECT OR ABOVE 1.5G PK



8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1 Frequency 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	-1.94	-0.00105	PASS
				VN	-1.43	-0.00077	PASS
				VH	1.91	0.00103	PASS
		MCH	TN	VL	1.46	0.00078	PASS
				VN	1.86	0.00099	PASS
				VH	4.61	0.00245	PASS
		HCH	TN	VL	4.68	0.00245	PASS
				VN	2.99	0.00157	PASS
				VH	8.1	0.00425	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	8.88	0.00519	PASS
				VN	3.94	0.0023	PASS
				VH	6.52	0.00381	PASS
		MCH	TN	VL	-0.93	-0.00054	PASS
				VN	-0.47	-0.00027	PASS
				VH	-1.5	-0.00087	PASS
		HCH	TN	VL	-0.03	-0.00002	PASS
				VN	2.29	0.00131	PASS
				VH	4.85	0.00277	PASS

8.1.2 Frequency 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	-3.14	-0.0017	PASS
				-20	3.08	0.00166	PASS
				-10	2.53	0.00137	PASS
				0	3.49	0.00188	PASS
				10	2.67	0.00144	PASS
				20	2.66	0.00144	PASS
				30	3.6	0.00194	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	3.69	0.00199	PASS
				50	5.02	0.00271	PASS
		MCH	VN	-30	-0.76	-0.0004	PASS
				-20	1.33	0.00071	PASS
				-10	-0.93	-0.00049	PASS
				0	0.75	0.0004	PASS
				10	3.6	0.00191	PASS
				20	1.94	0.00103	PASS
				30	1.3	0.00069	PASS
				40	-1.57	-0.00084	PASS
				50	2.64	0.0014	PASS
				HCH	VN	-30	1.68
		-20	0.47			0.00025	PASS
		-10	-5.78			-0.00303	PASS
		0	-4.27			-0.00224	PASS
		10	-3.05			-0.0016	PASS
		20	2.2			0.00115	PASS
		30	5.77			0.00302	PASS
		40	-2.52			-0.00132	PASS
		50	-1.62	-0.00085	PASS		
WCDMA1700	UMTS/TM1	LCH	VN	-30	7.78	0.00454	PASS
				-20	12.15	0.0071	PASS
				-10	8.21	0.00479	PASS
				0	5.78	0.00338	PASS
				10	2.81	0.00164	PASS
				20	1.33	0.00078	PASS
				30	0.69	0.0004	PASS
				40	3.31	0.00193	PASS
				50	0.38	0.00022	PASS
				MCH	VN	-30	-0.78
		-20	4.21			0.00243	PASS
		-10	1.98			0.00114	PASS
		0	-0.08			-0.00005	PASS
		10	-0.46			-0.00027	PASS
		20	1.21			0.0007	PASS
		30	-0.4			-0.00023	PASS
		40	0.58			0.00033	PASS
		50	4.2			0.00242	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
		HCH	VN	-30	4.15	0.00237	PASS
				-20	5.77	0.00329	PASS
				-10	1.6	0.00091	PASS
				0	1.86	0.00106	PASS
				10	5.14	0.00293	PASS
				20	8.36	0.00477	PASS
				30	0.31	0.00018	PASS
				40	3.2	0.00183	PASS
				50	1.16	0.00066	PASS

END