



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	22.94	23.29	38.5	PASS
		MCH	23.52	23.87	38.5	PASS
		HCH	23.54	23.89	38.5	PASS
WCDMA1900	UMTS/TM1	LCH	23.35	25.73	33	PASS
		MCH	24.06	26.44	33	PASS
		HCH	23.69	26.07	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:

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

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

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

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

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	3.32	13	PASS
		MCH	3.4	13	PASS
		HCH	3.39	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.54	13	PASS
		MCH	3.26	13	PASS
		HCH	3.31	13	PASS

3Appendix_C: Modulation Characteristics

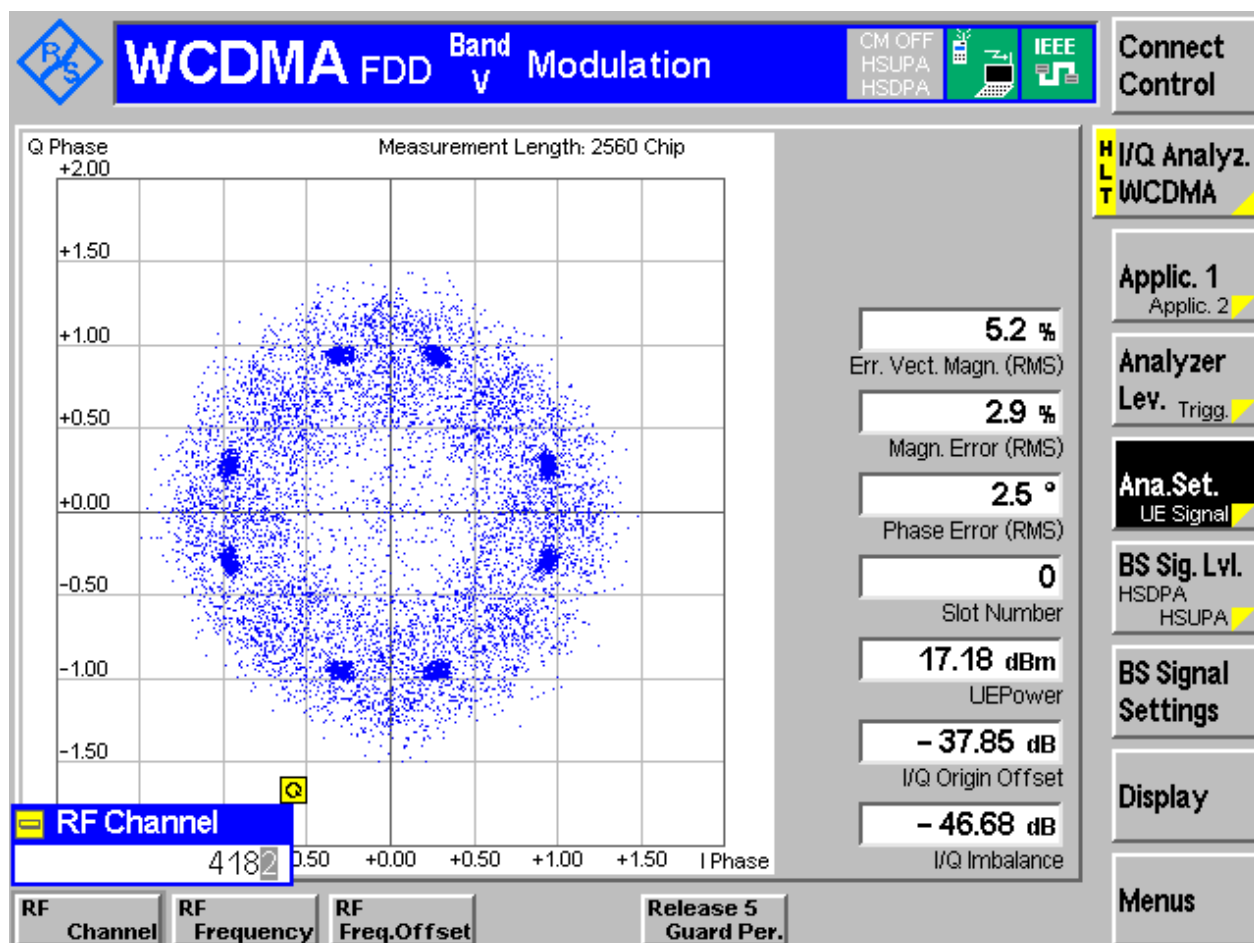
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

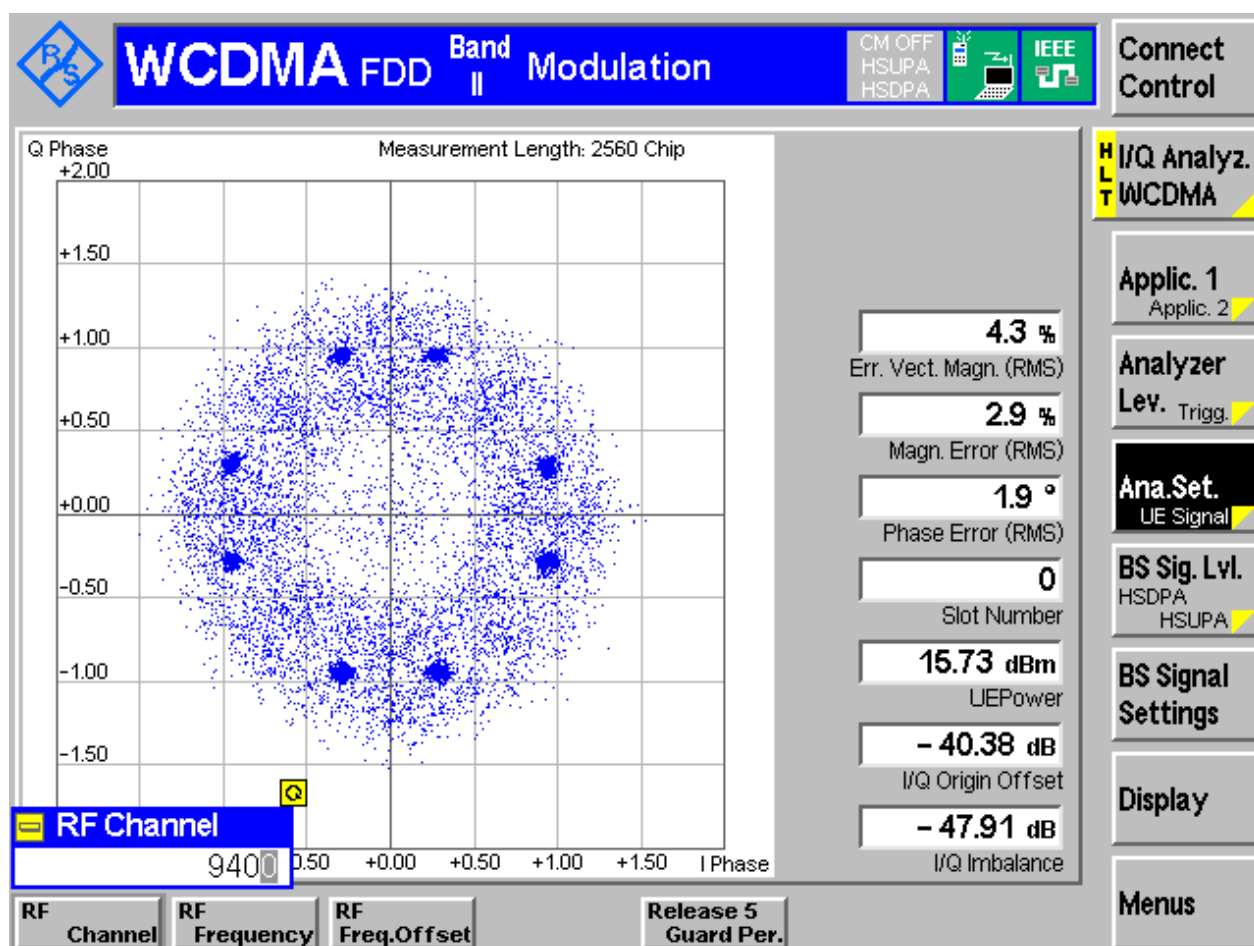
3.1.1.1.1 Test Channel = MCH



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	4.12	4.68	Pass
		MCH	4.13	4.67	Pass
		HCH	4.14	4.67	Pass
WCDMA1900	UMTS/TM1	LCH	4.16	4.67	Pass
		MCH	4.15	4.67	Pass
		HCH	4.15	4.66	Pass



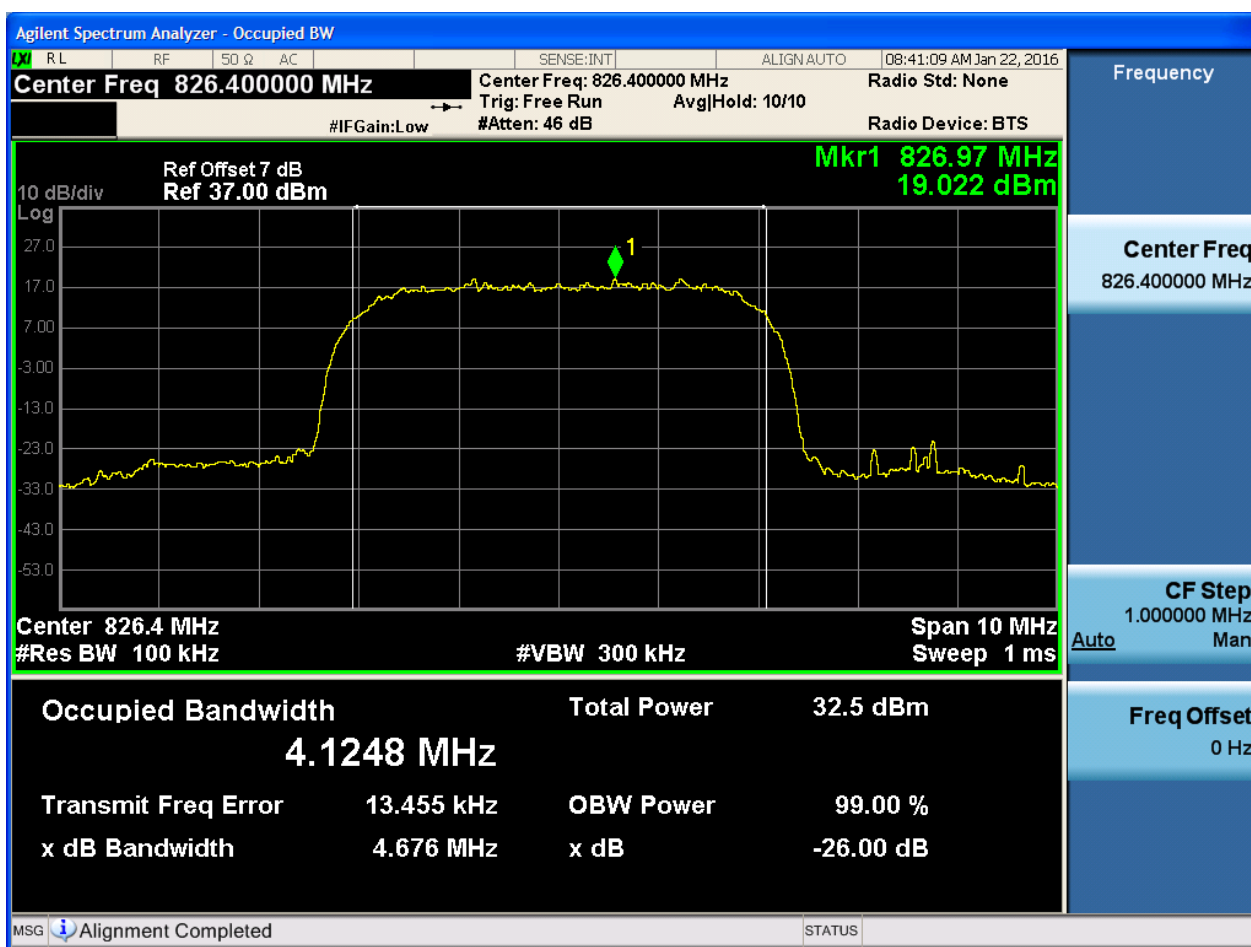
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

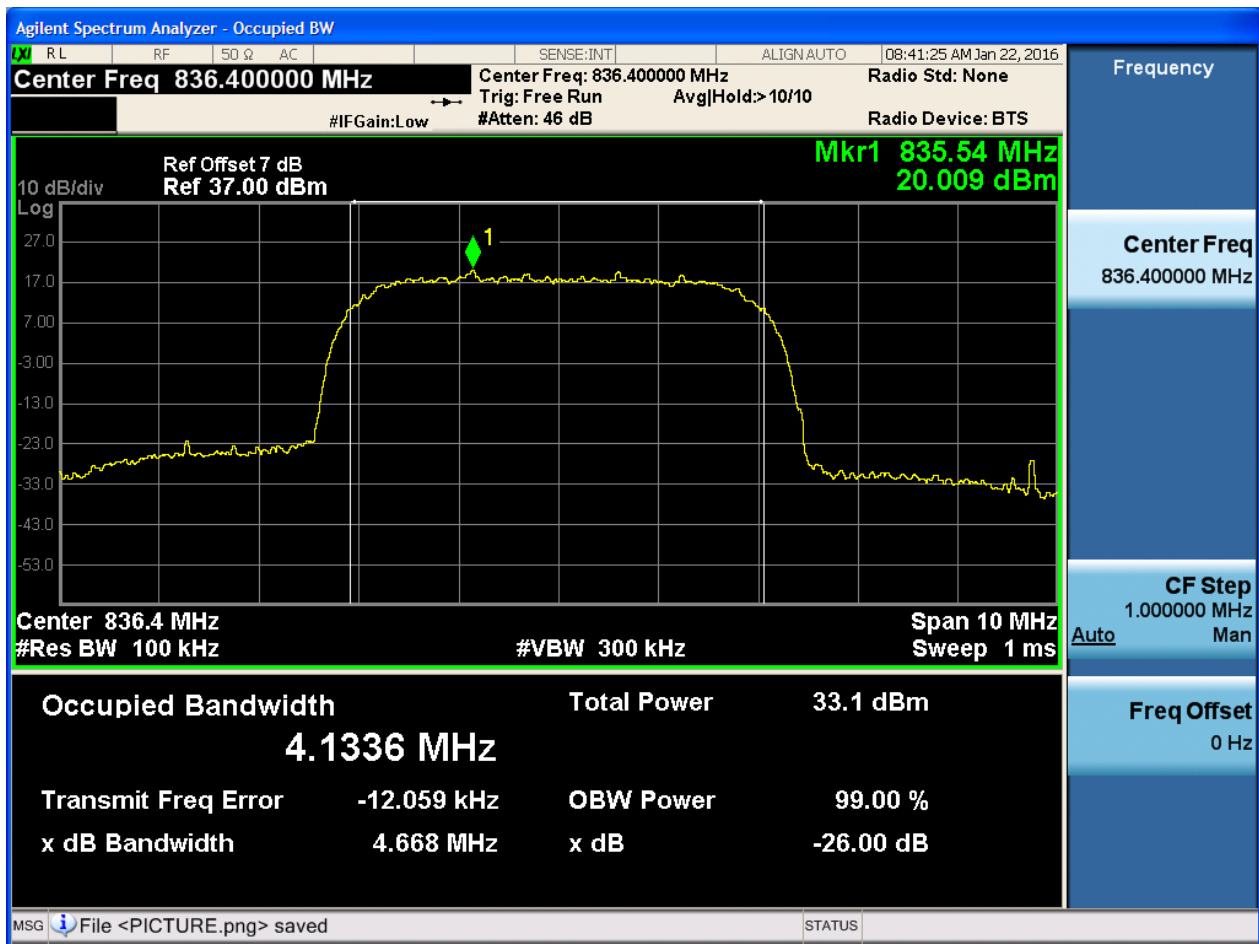
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



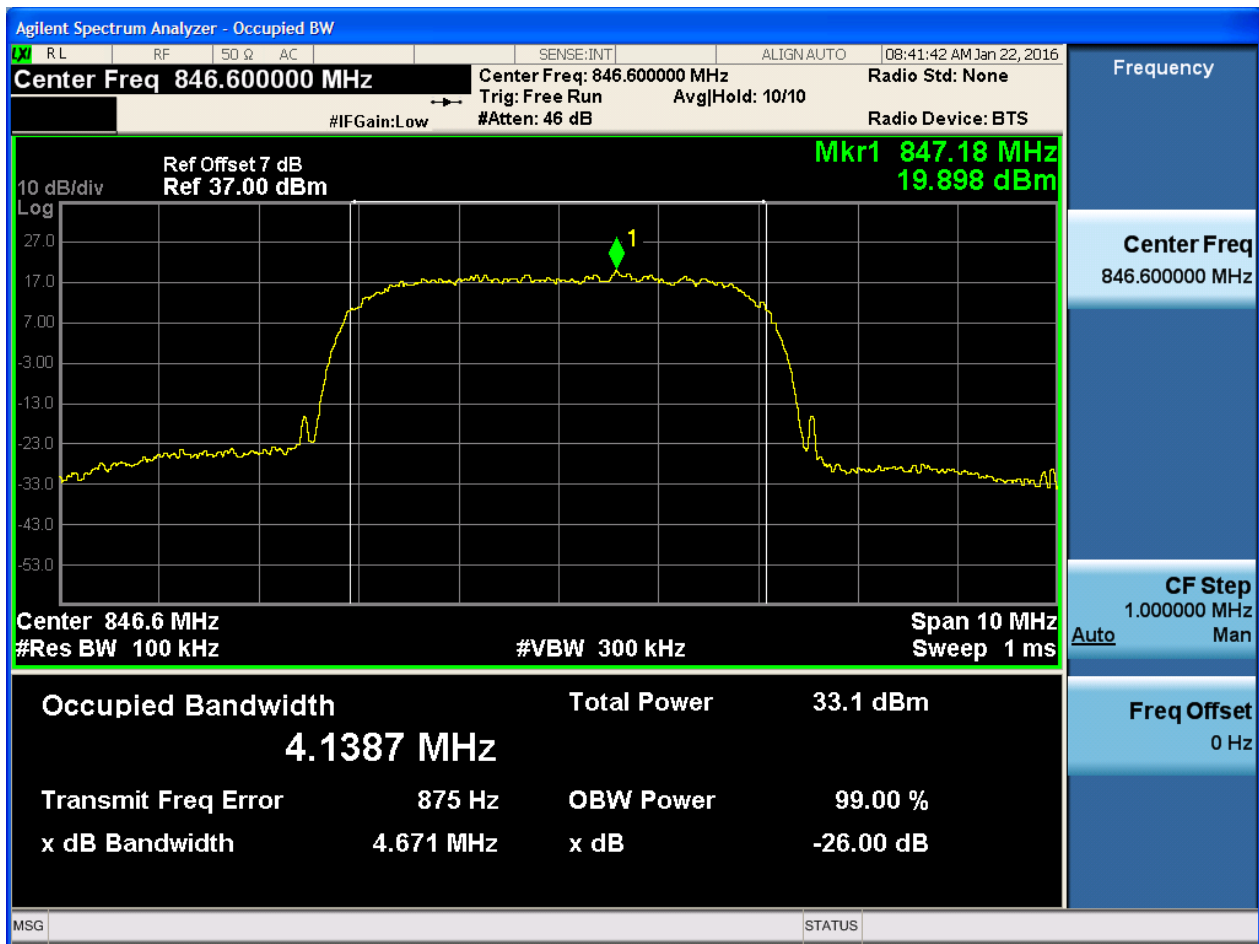


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

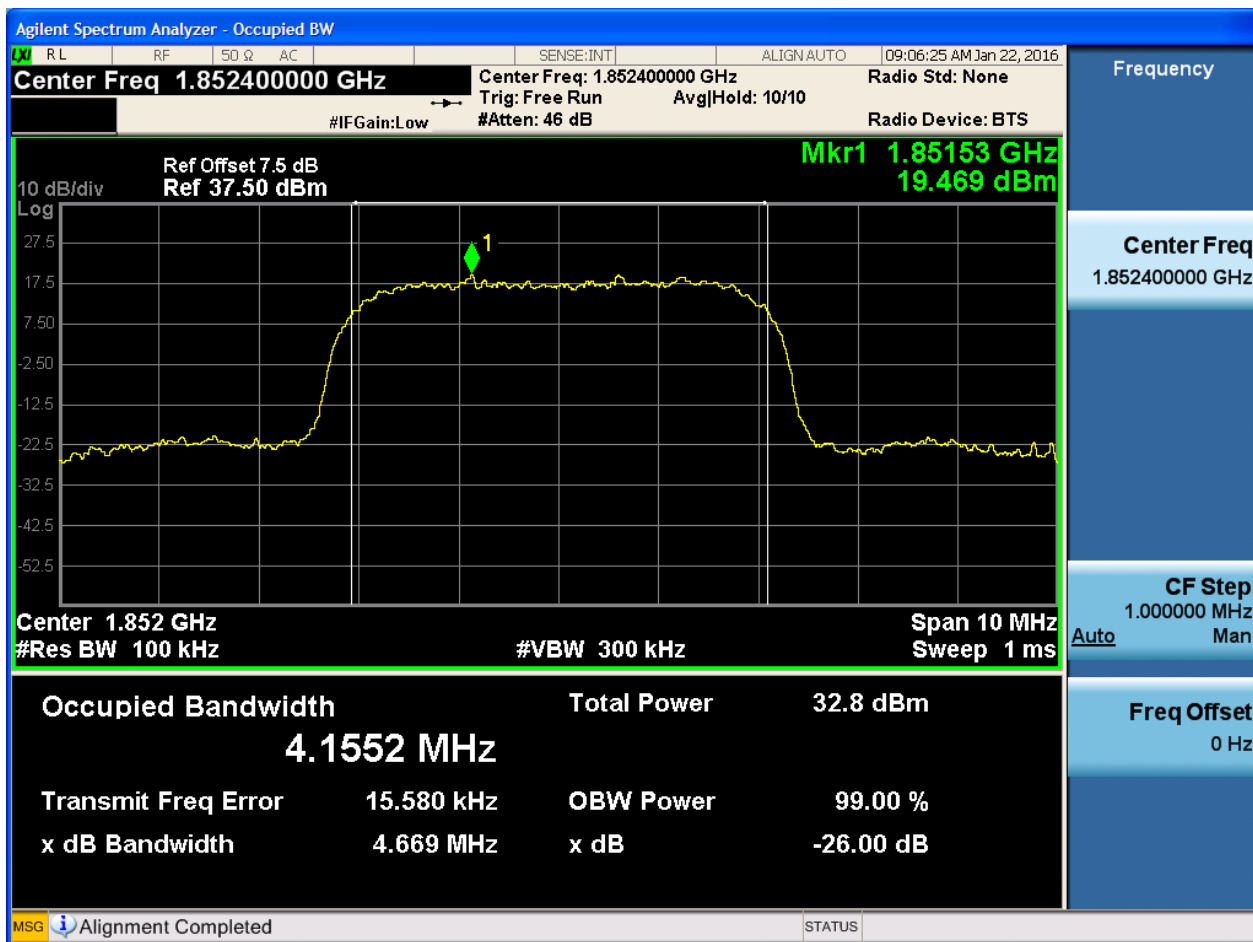




4.1.2 Test Band = WCDMA1900

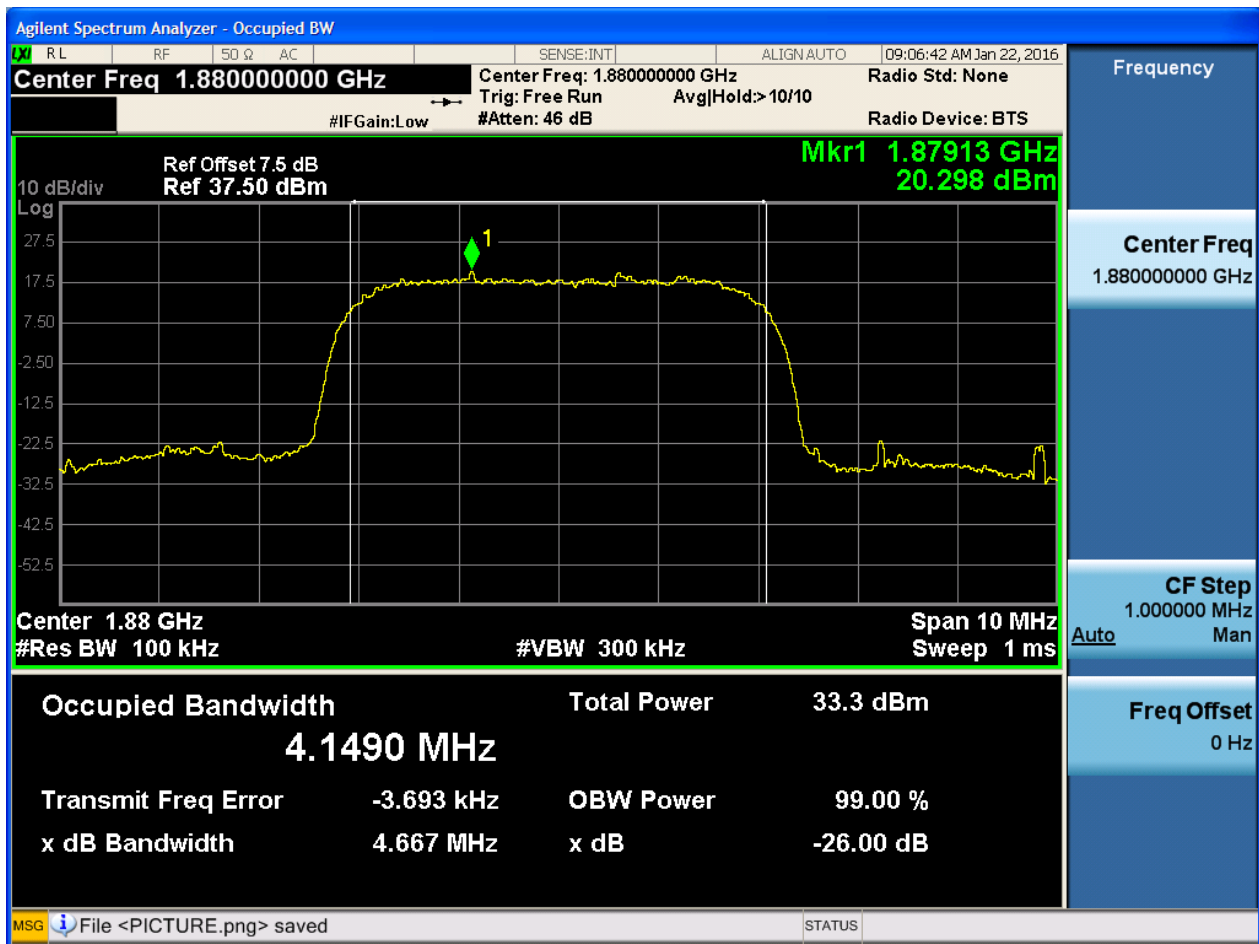
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



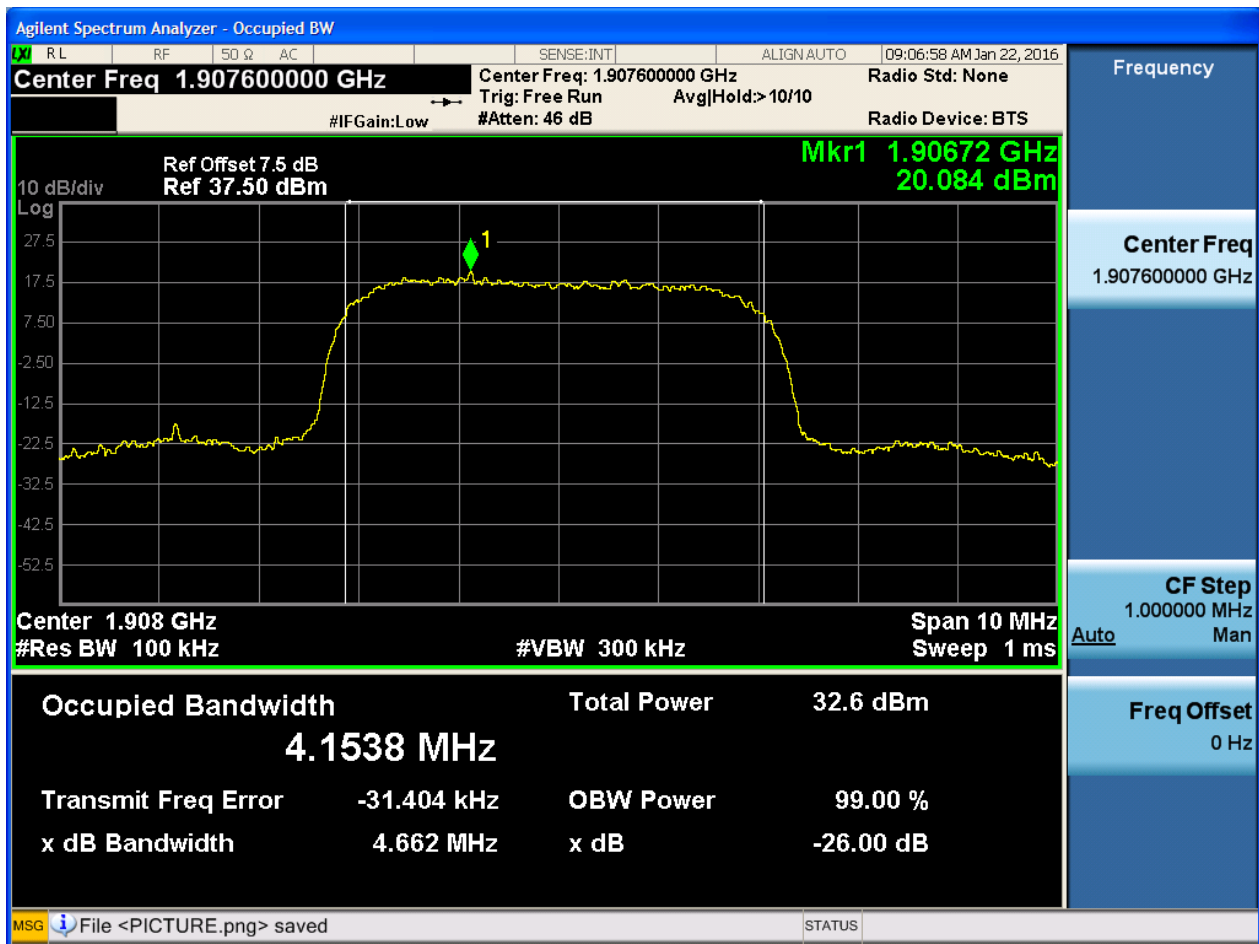


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

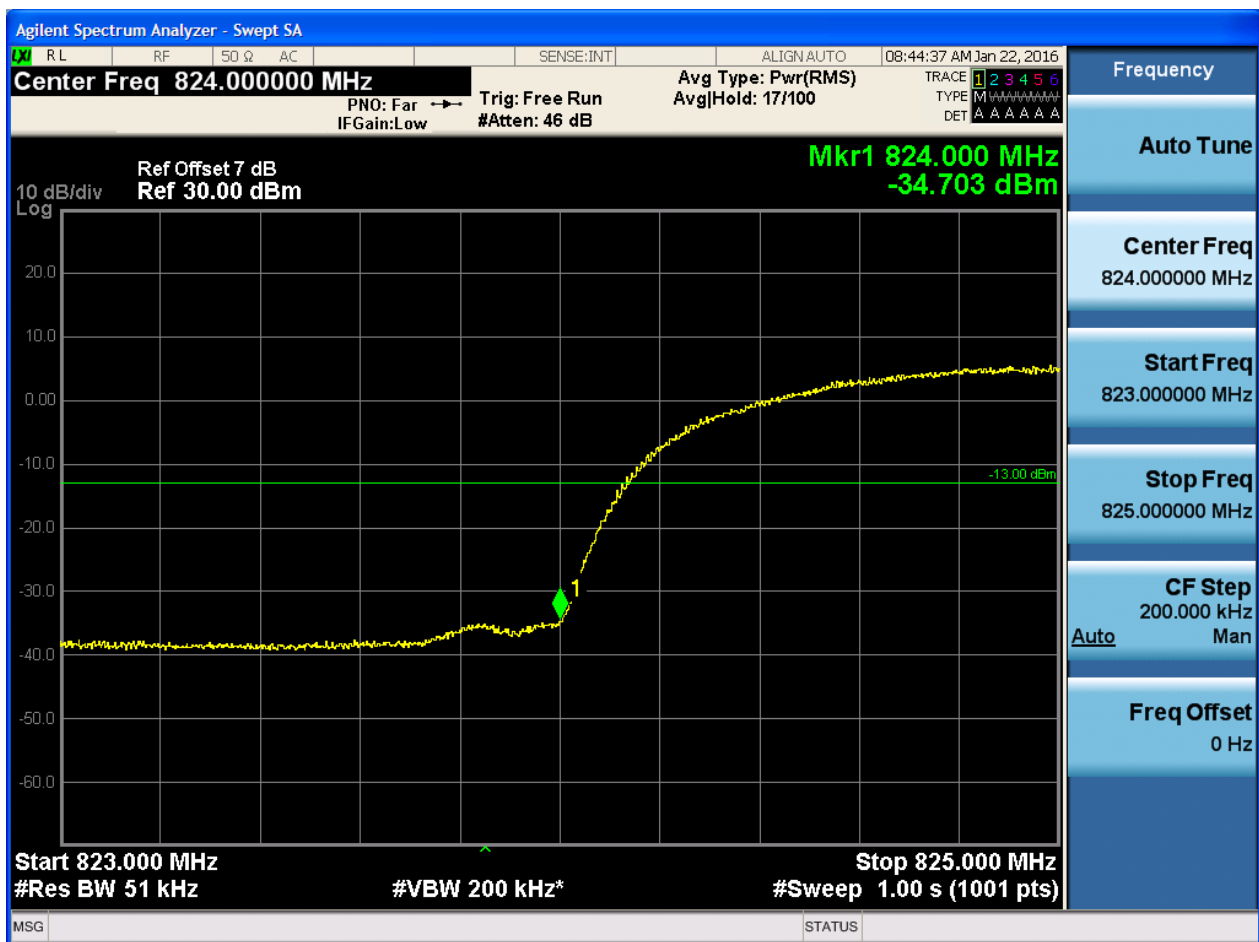
Part I - Test Plots

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.

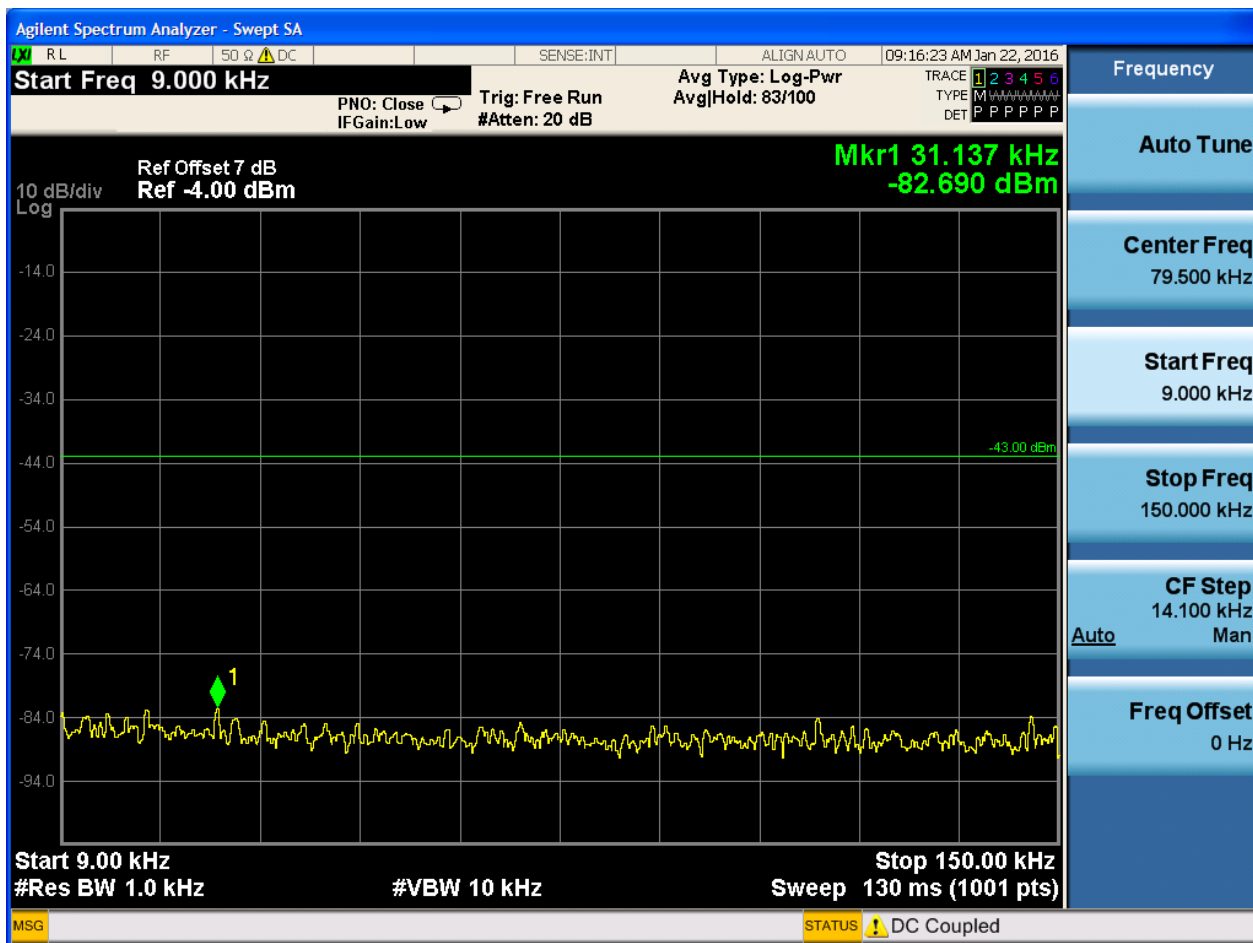
Part I - Test Plots

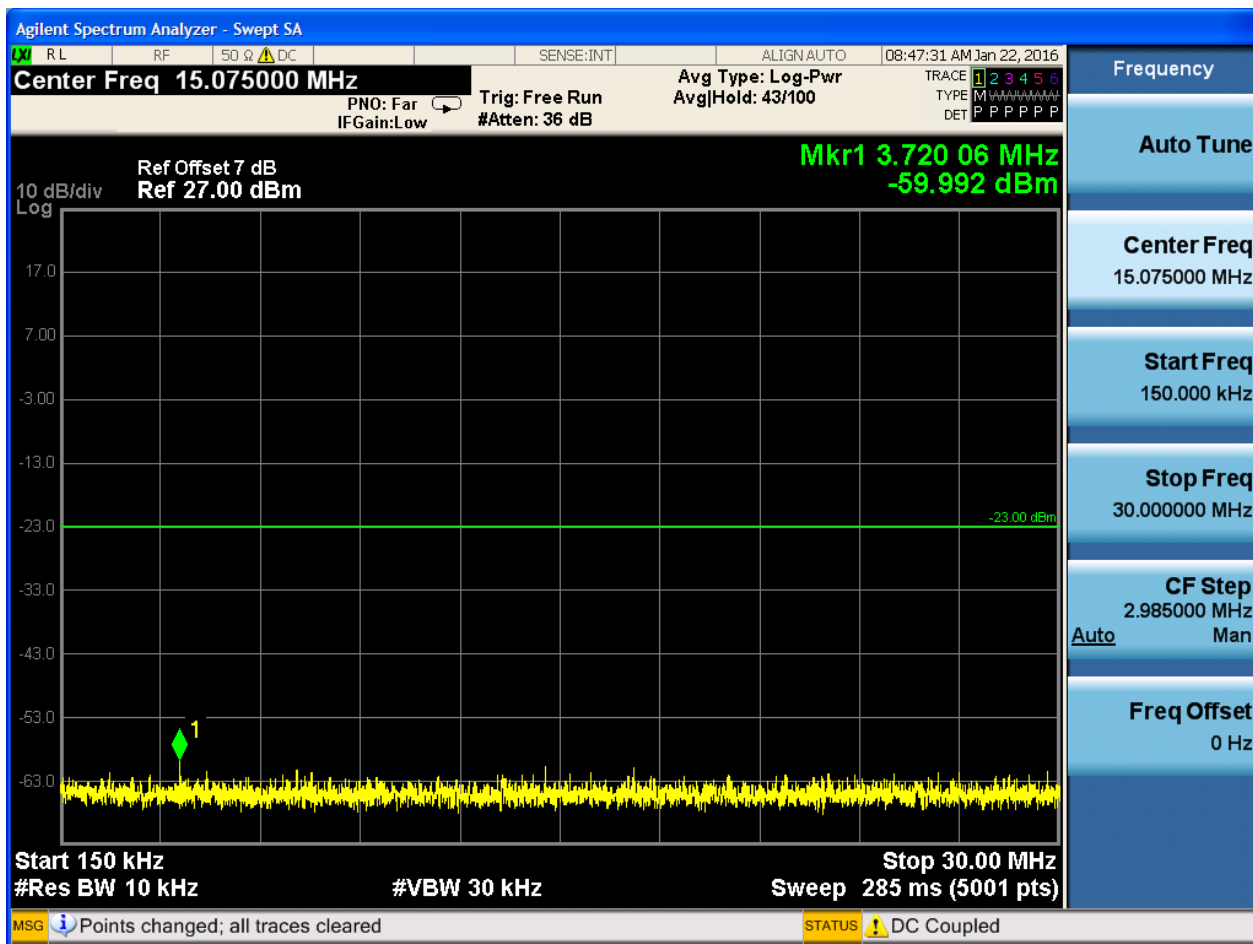
6.1 For UMTS

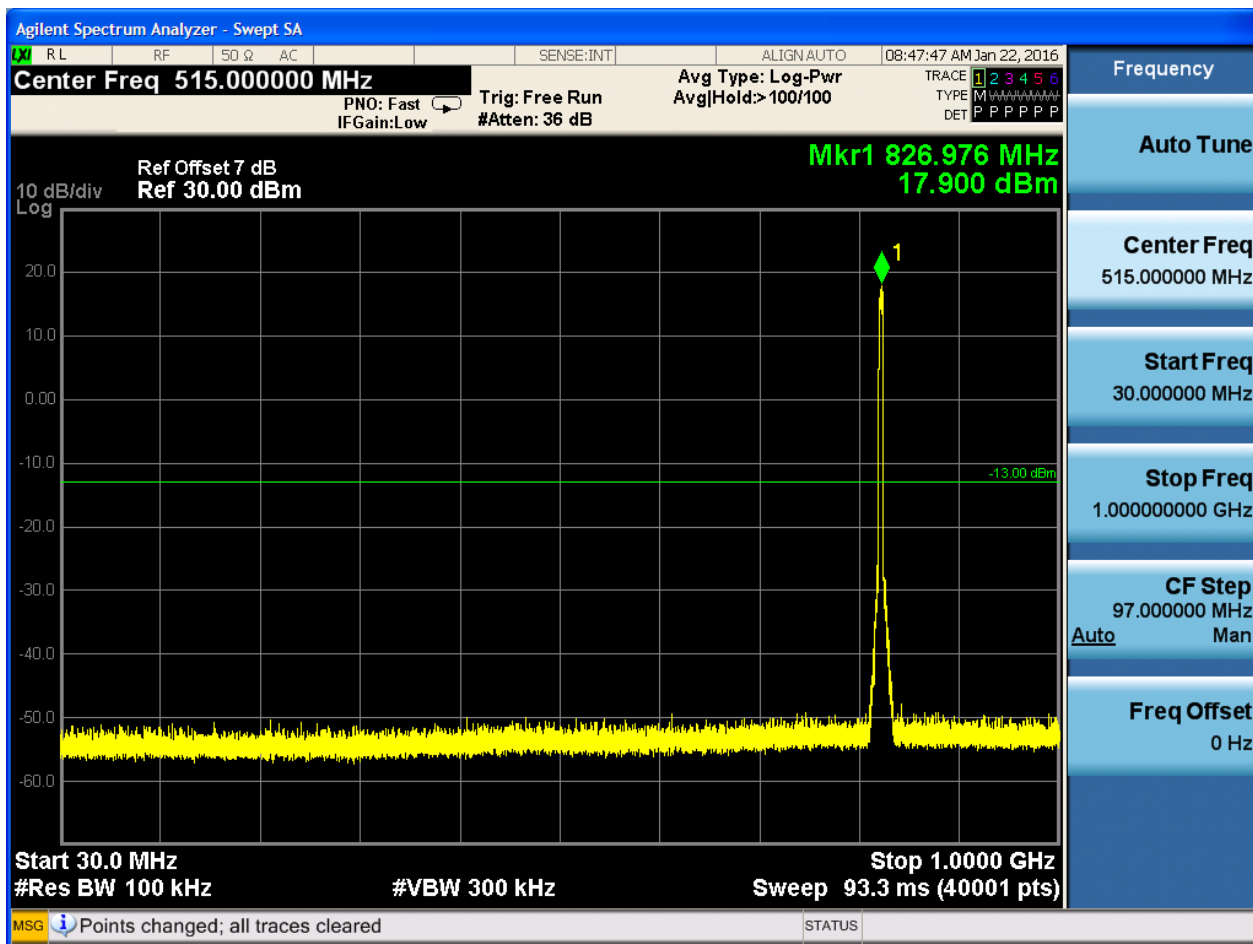
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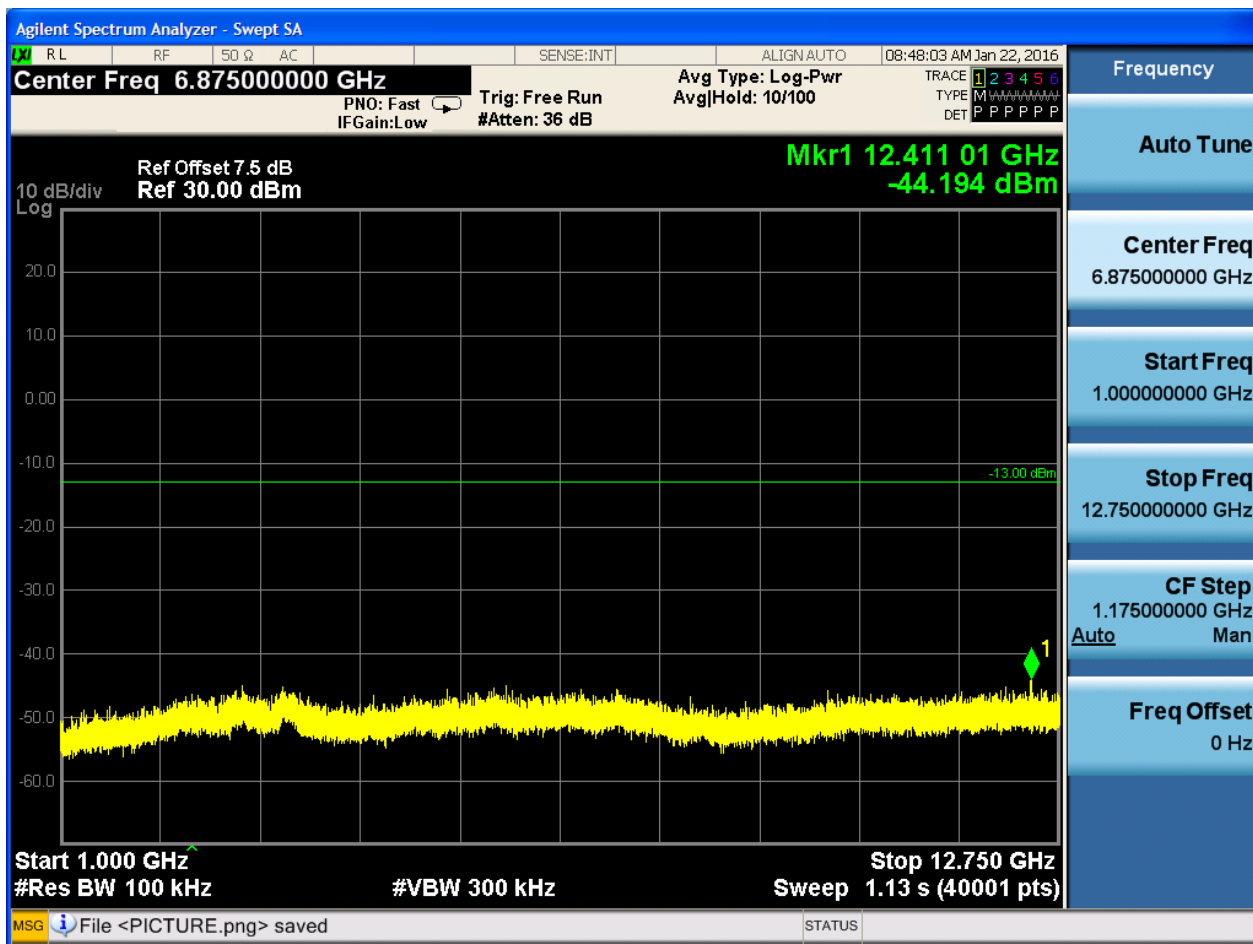
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

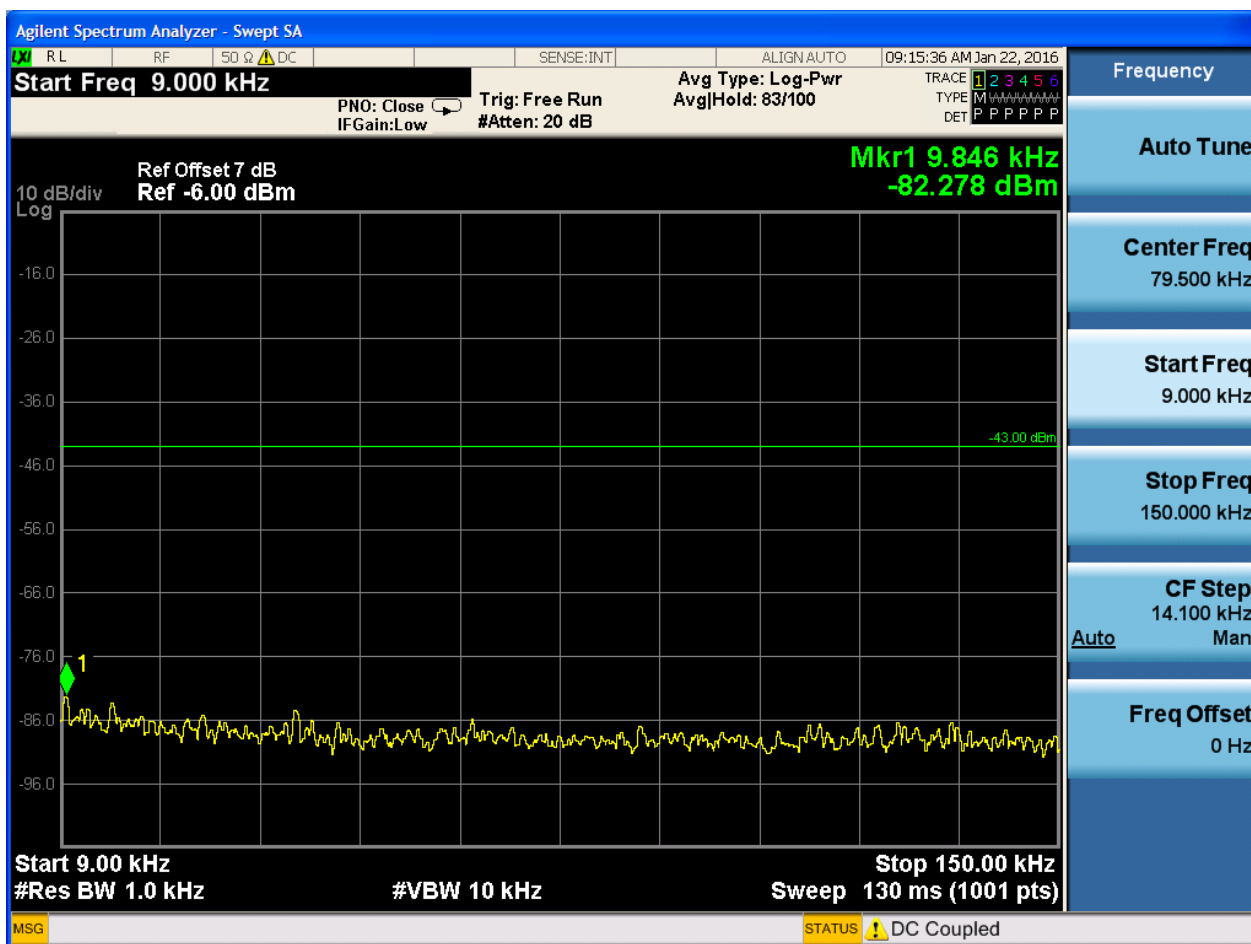


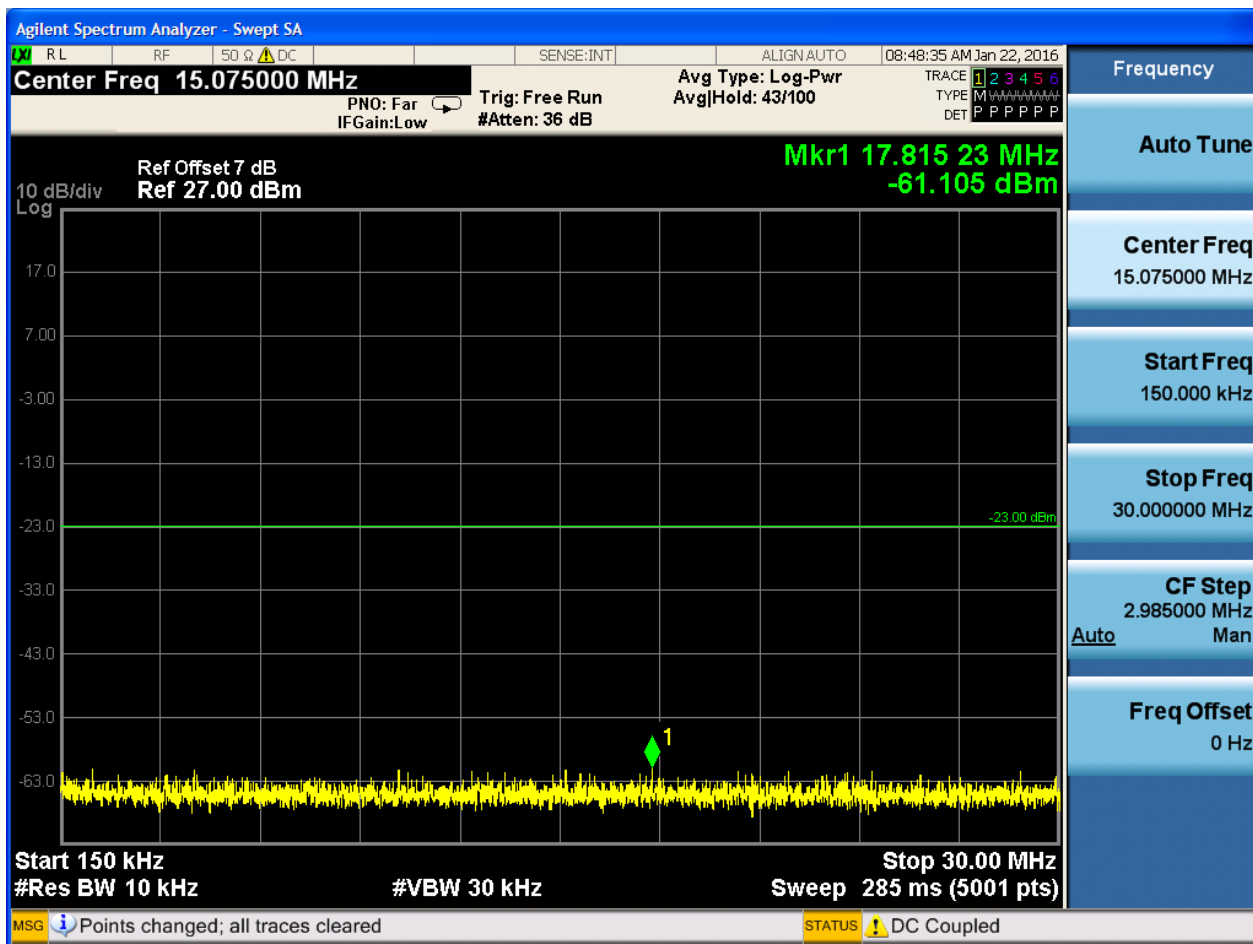


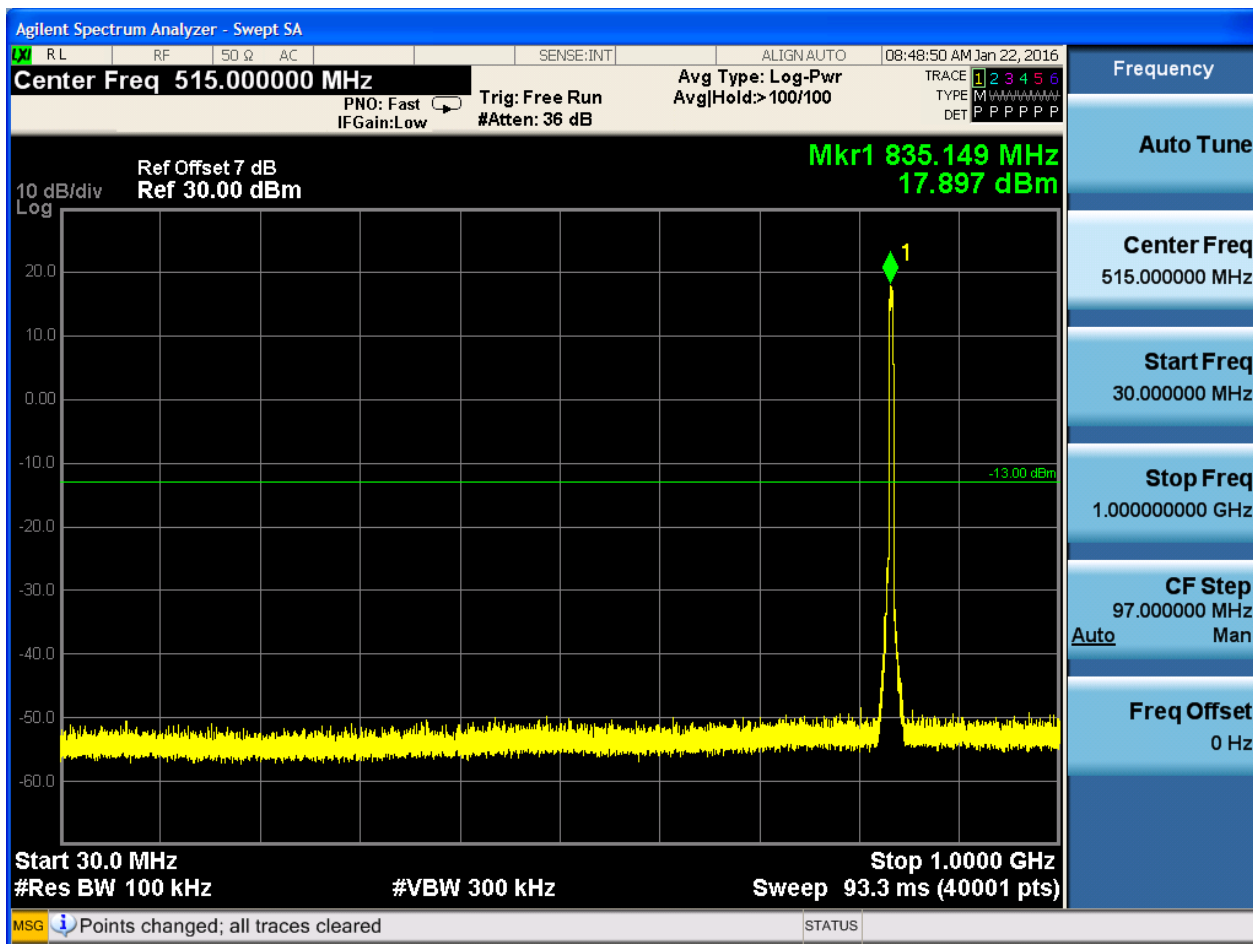


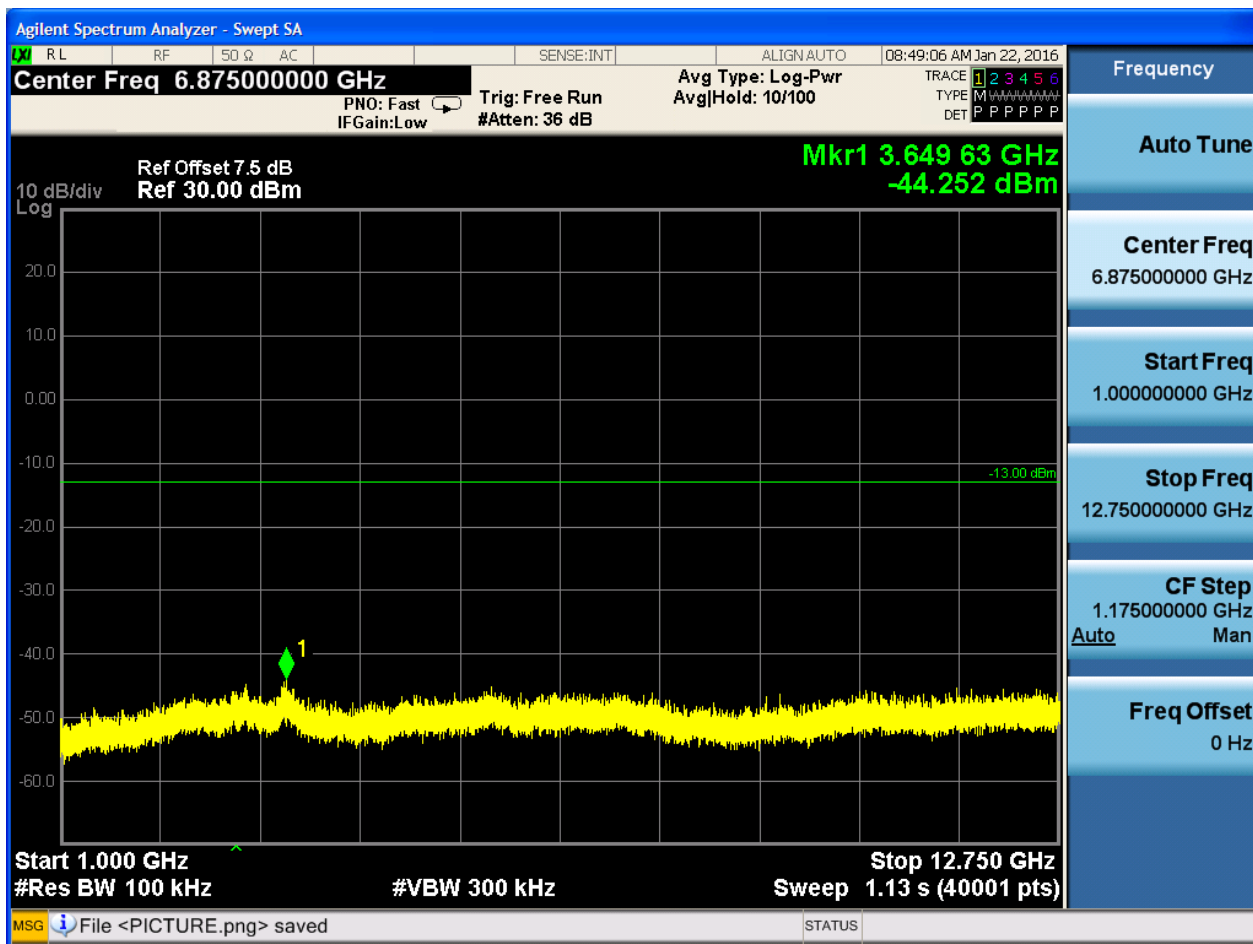


6.1.1.1.2 Test Channel = MCH

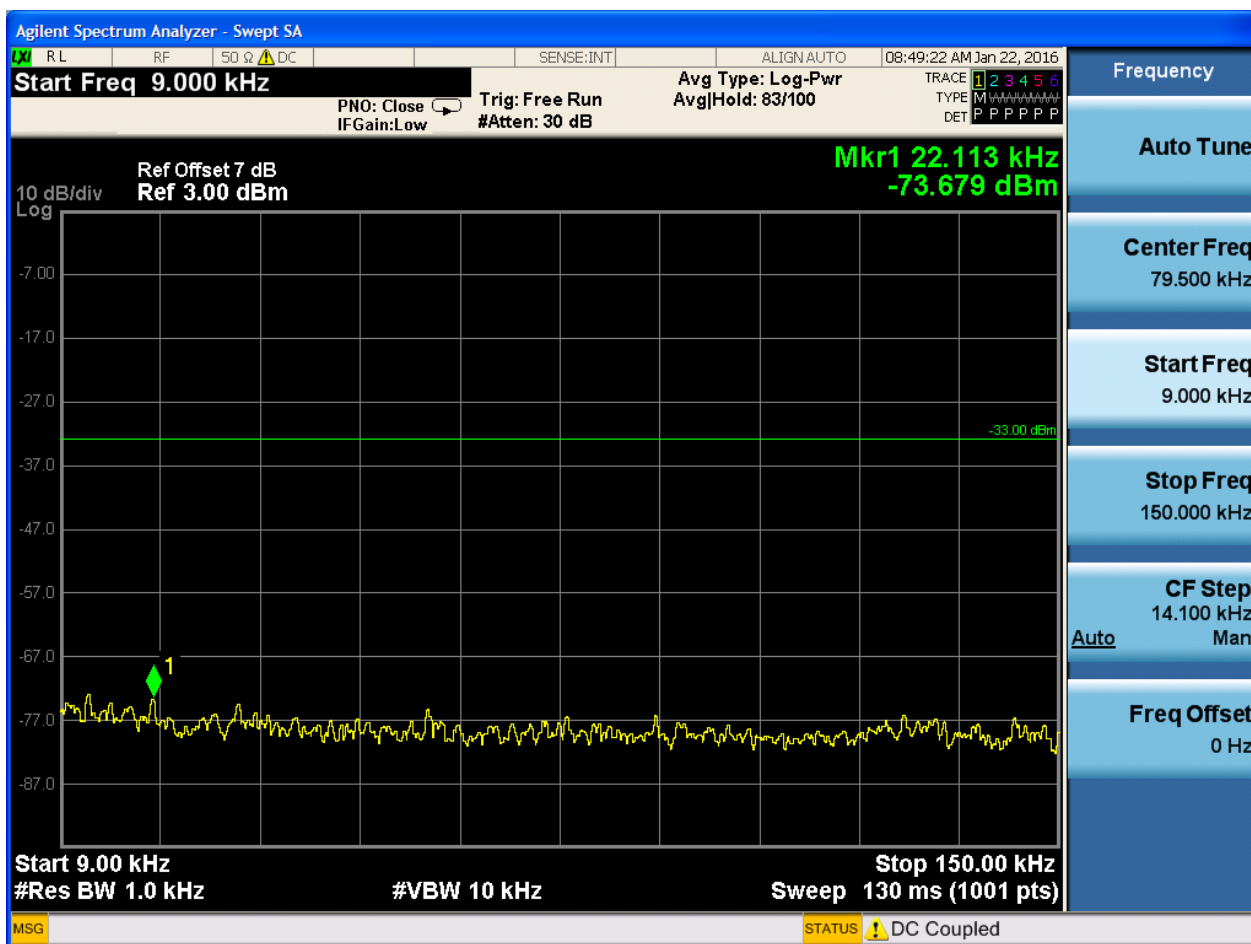


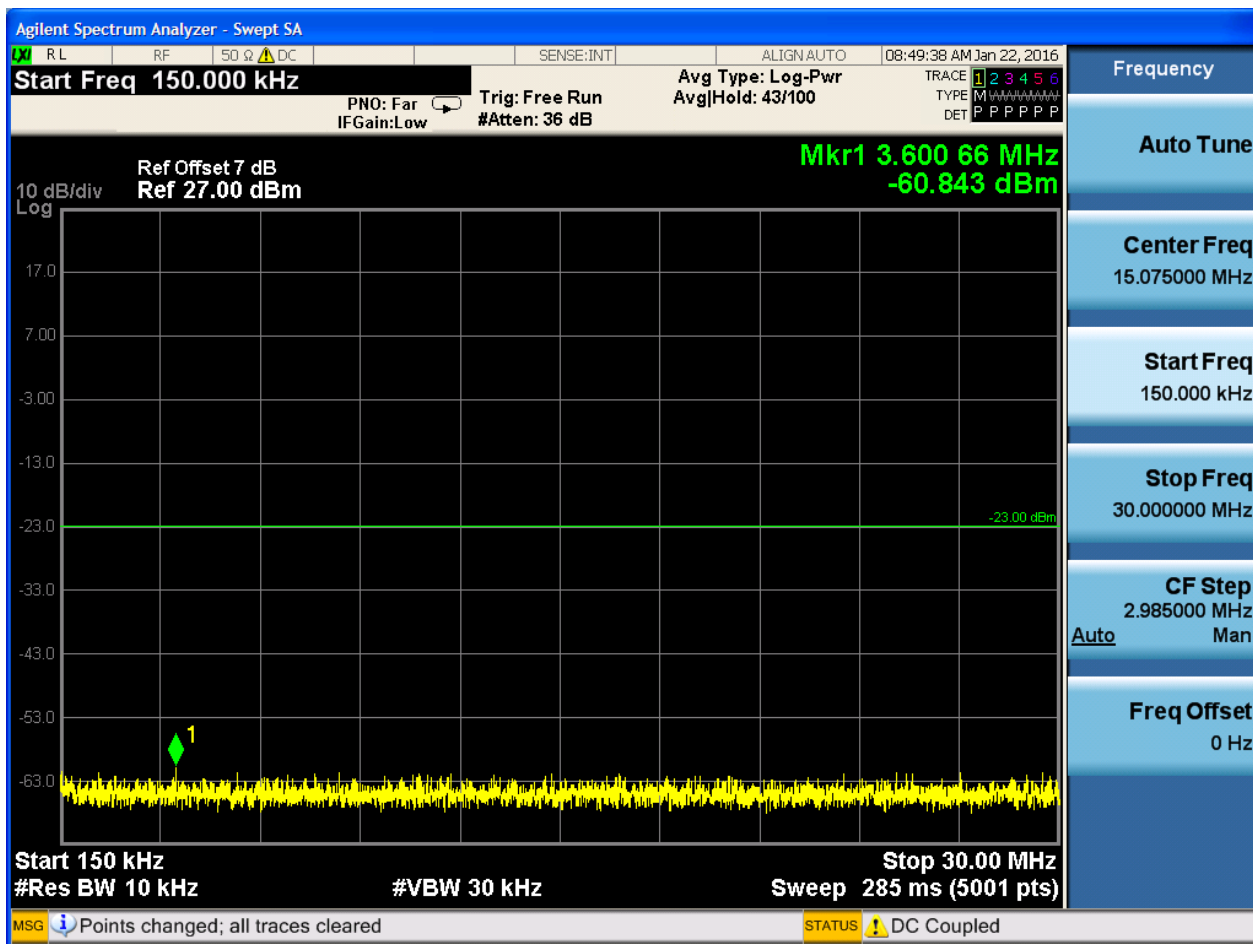


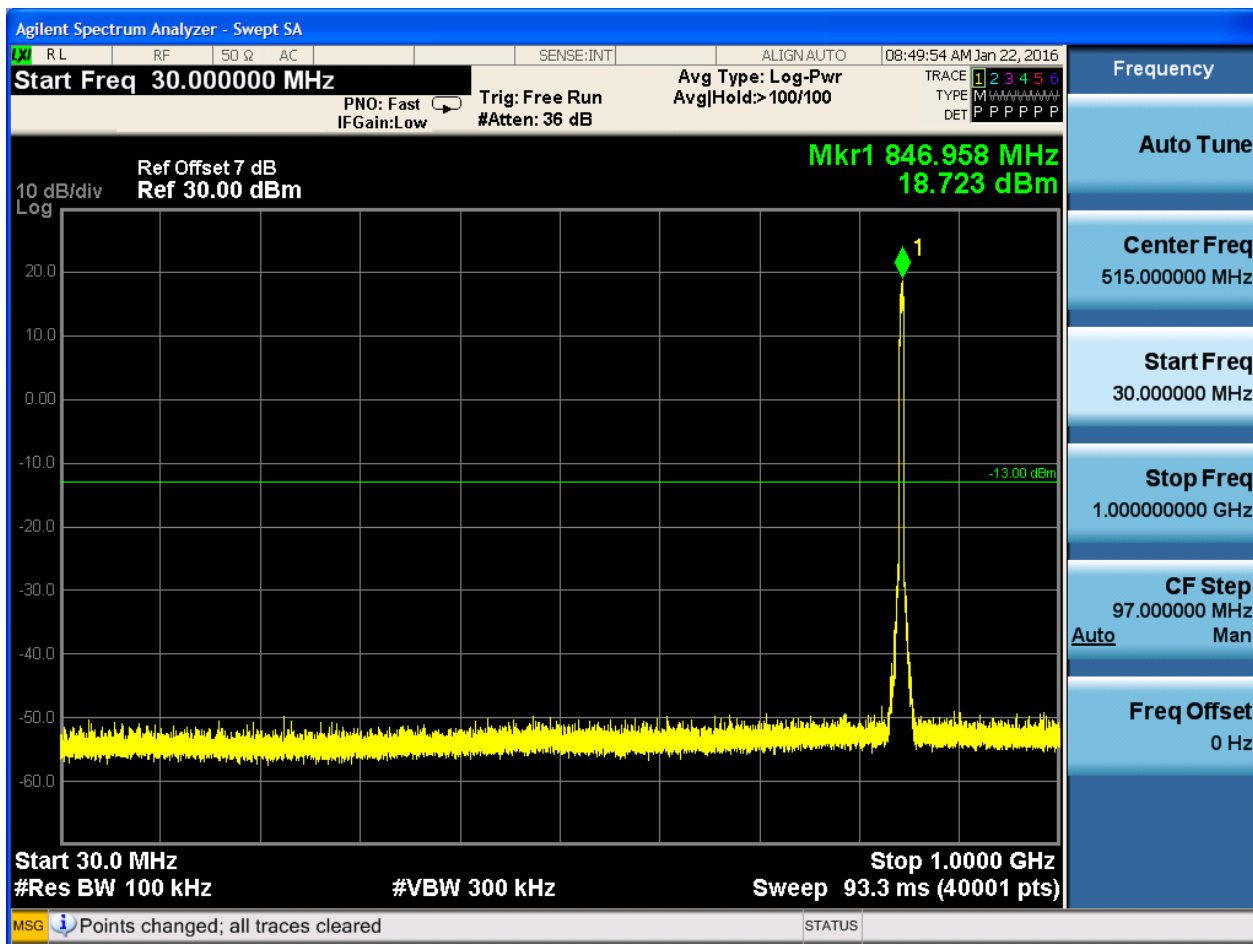


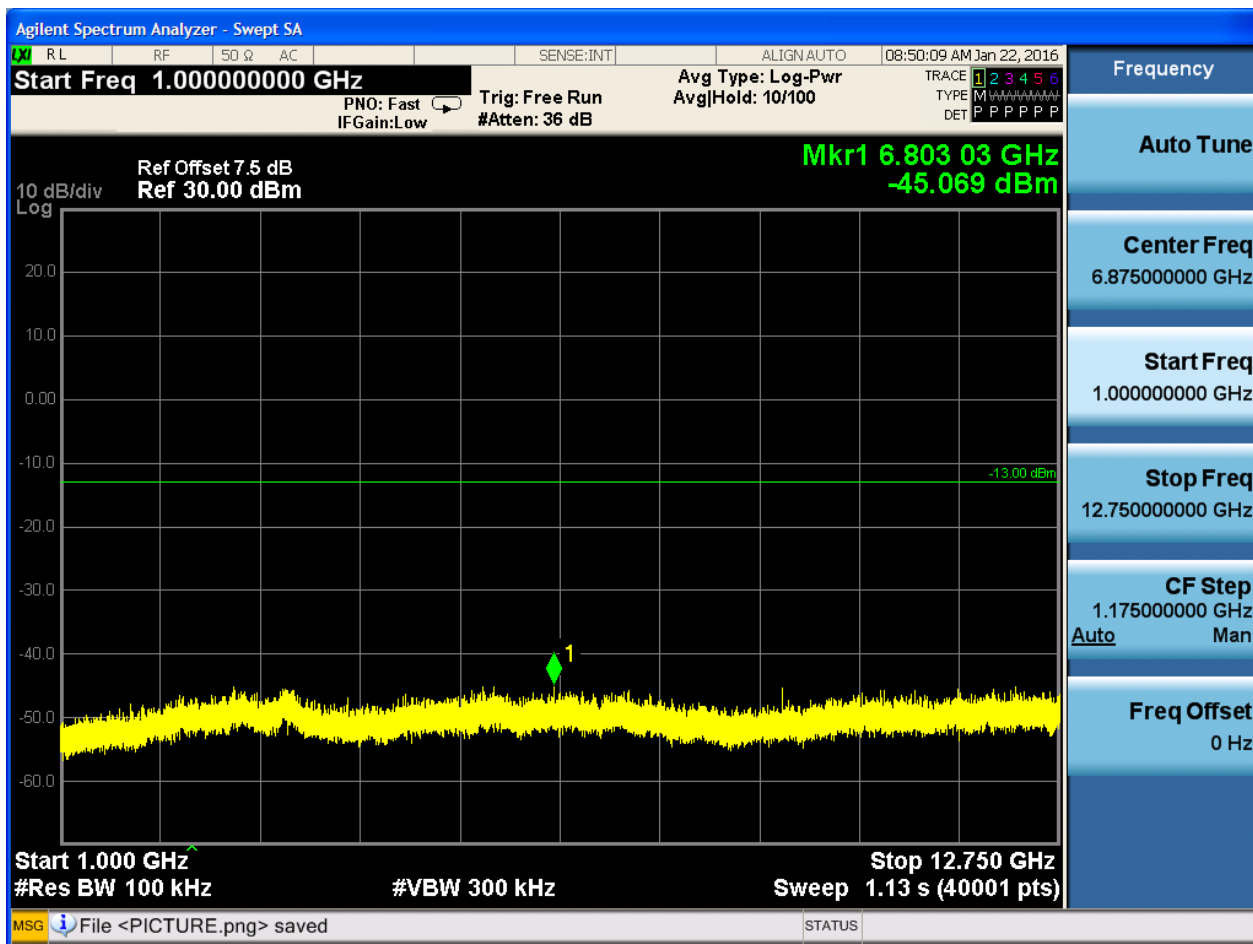


6.1.1.1.3 Test Channel = HCH





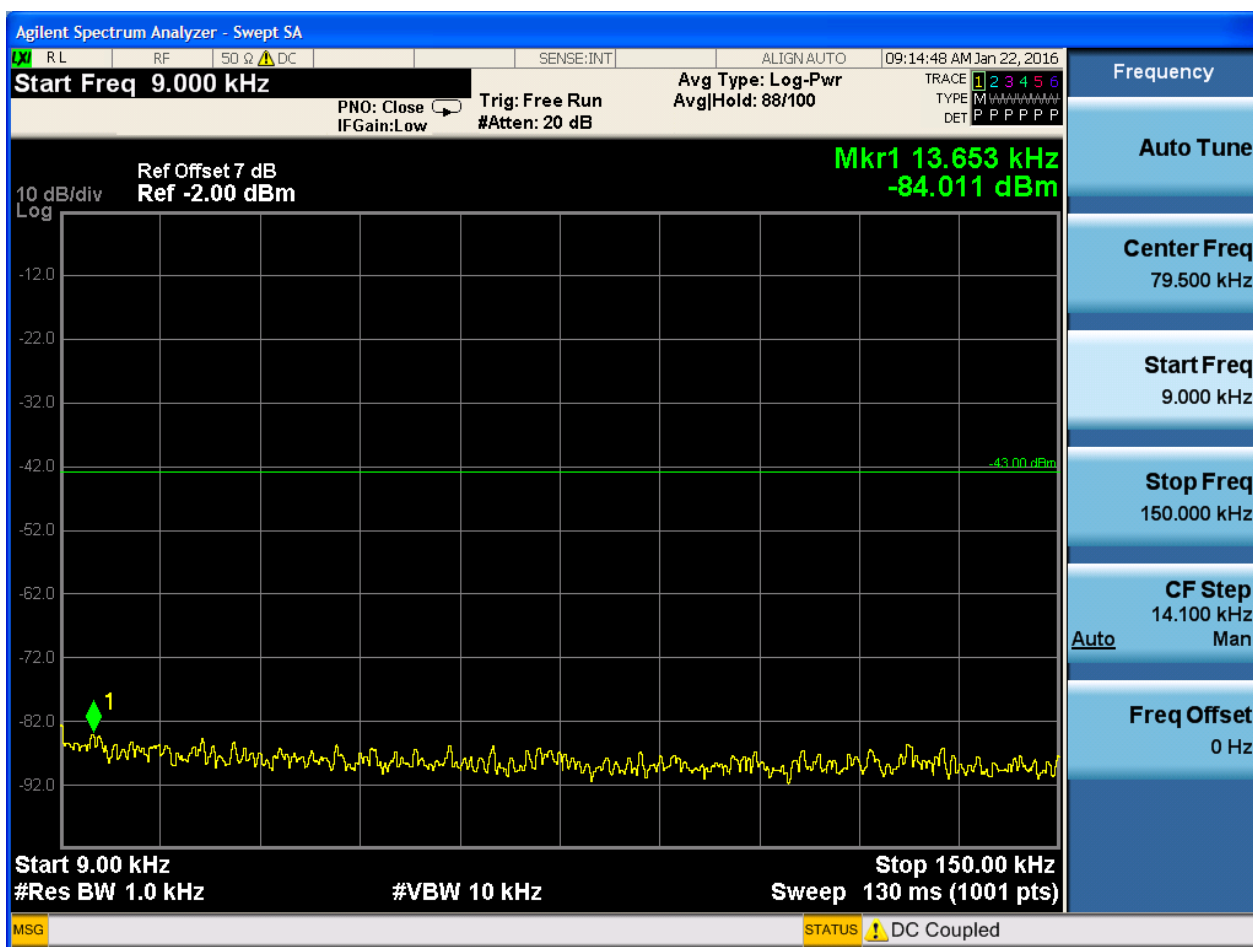


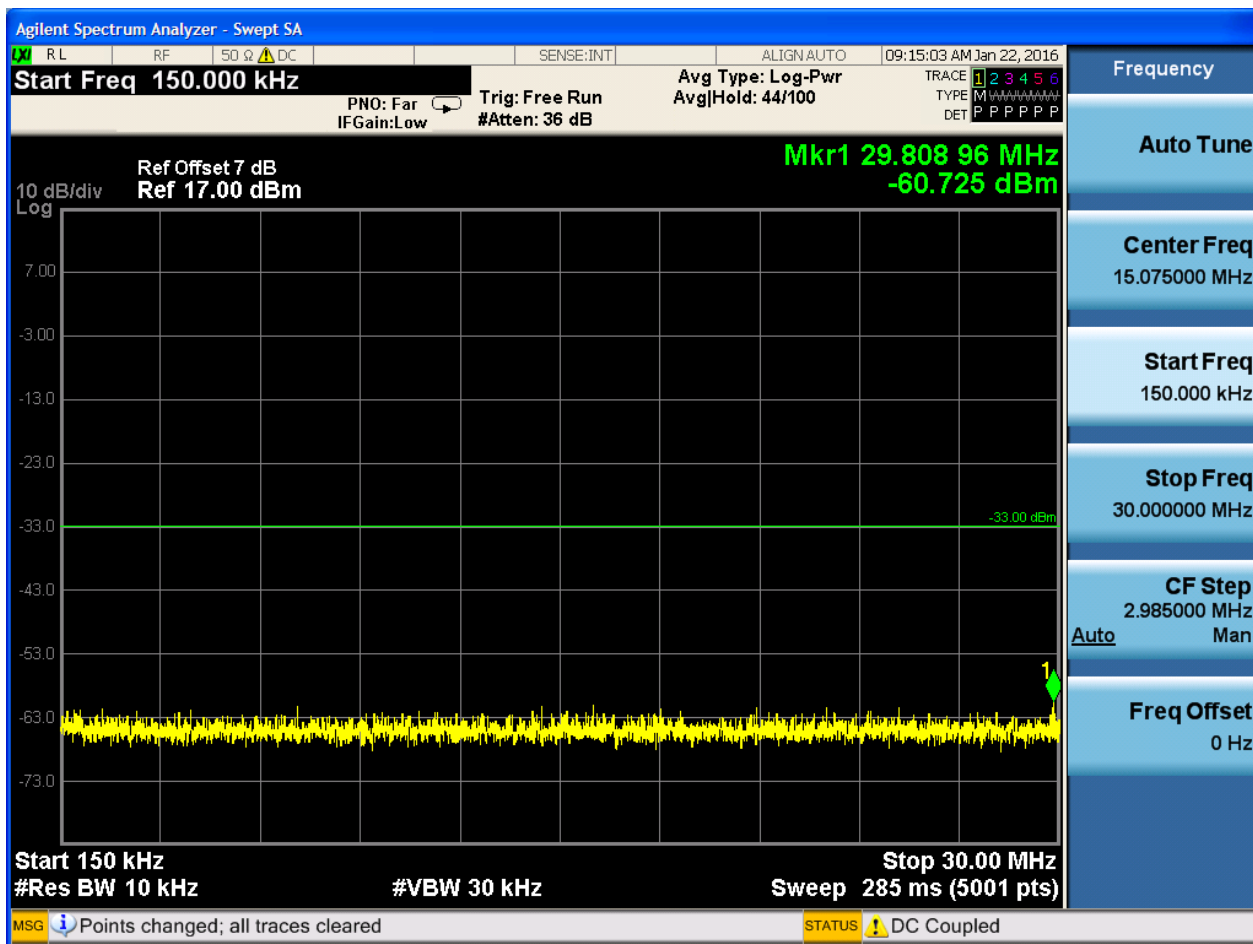


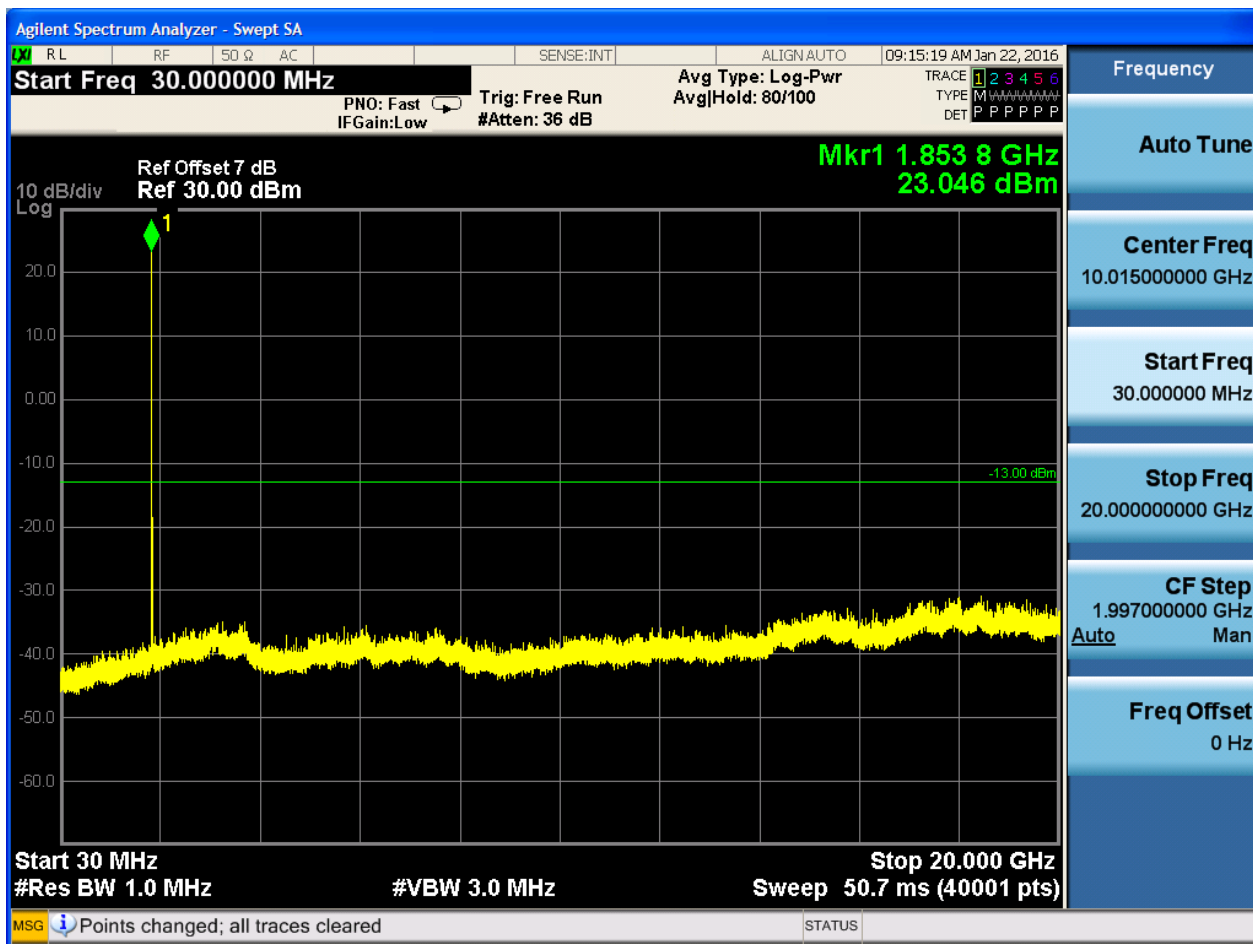
6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

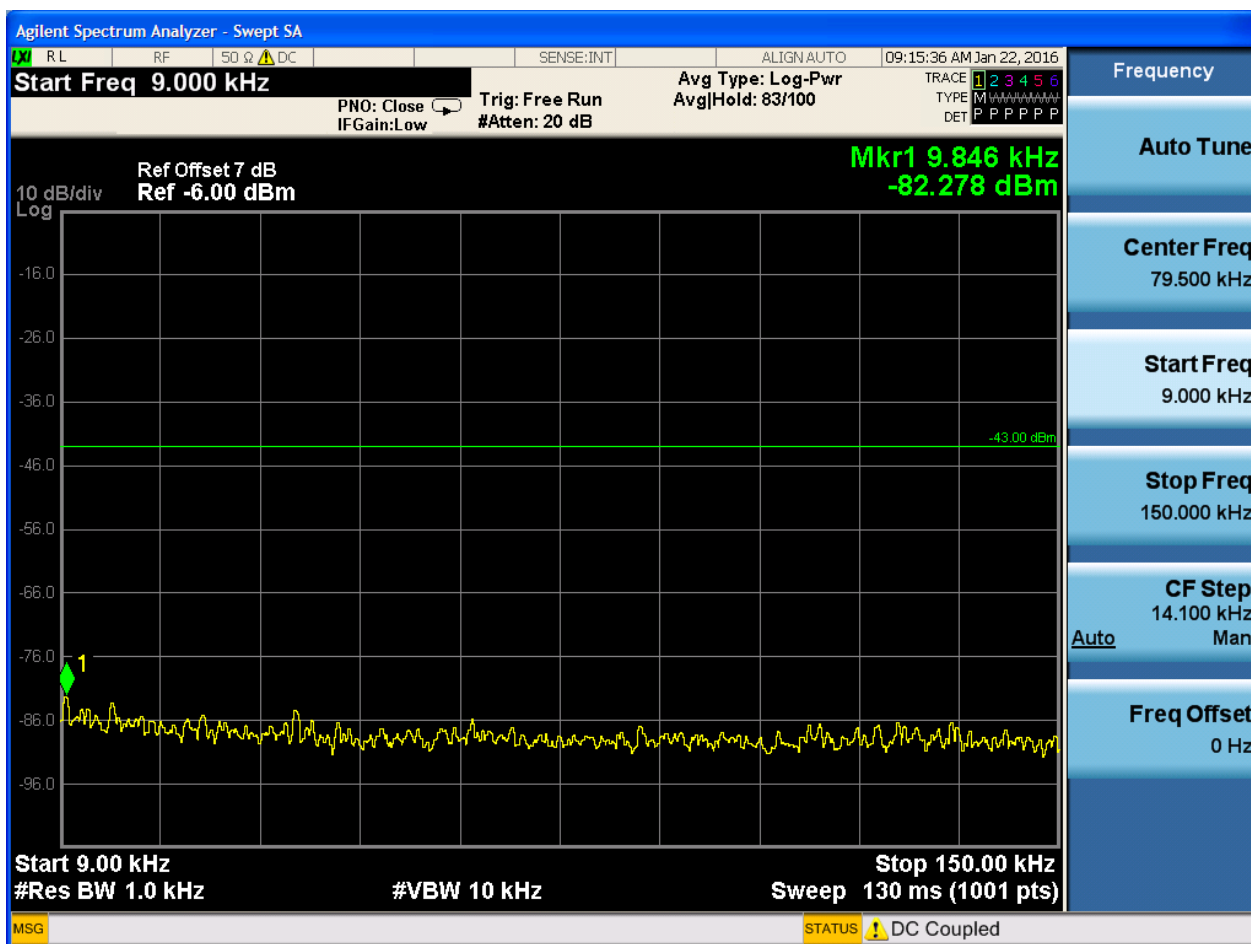
6.1.2.1.1 Test Channel = LCH

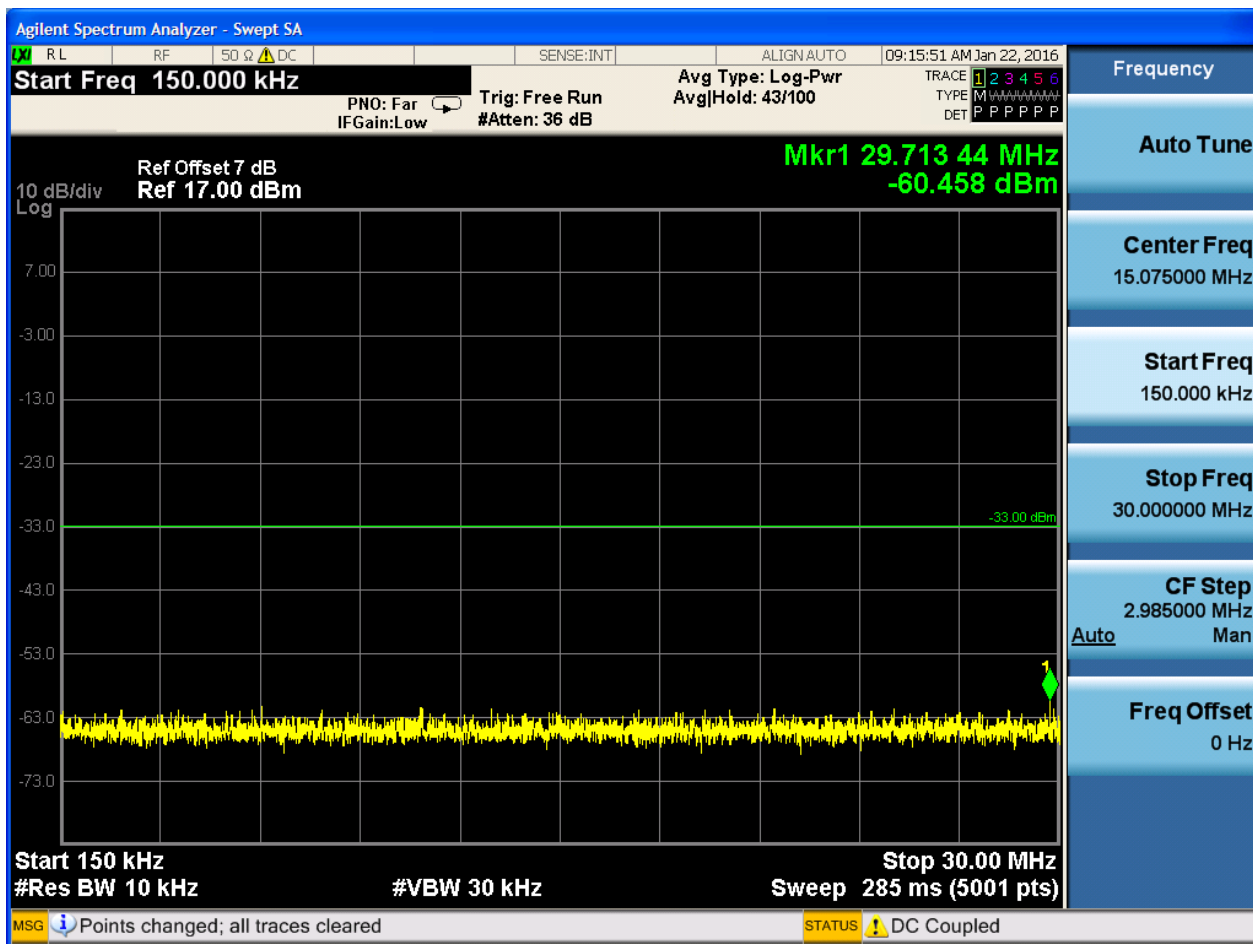


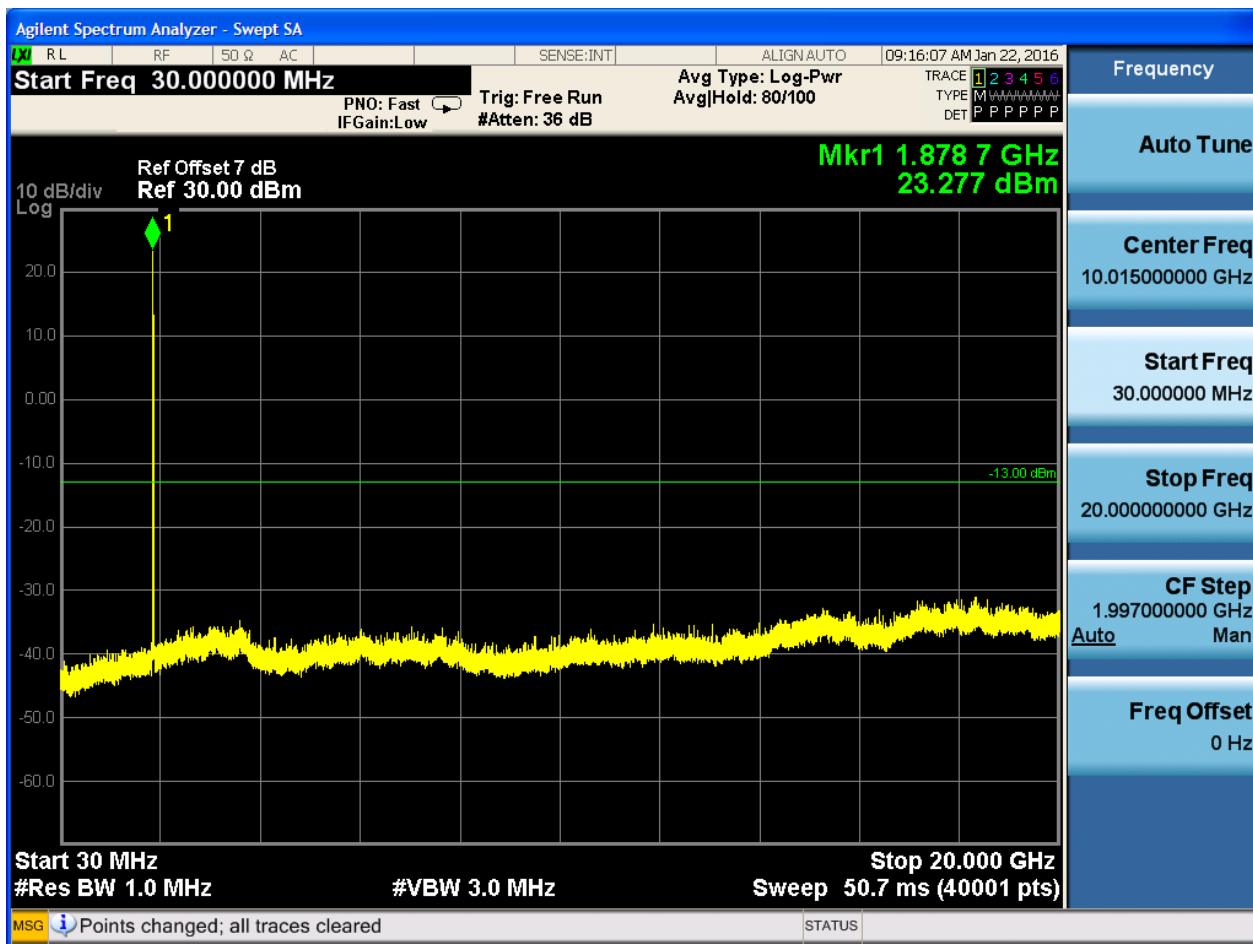




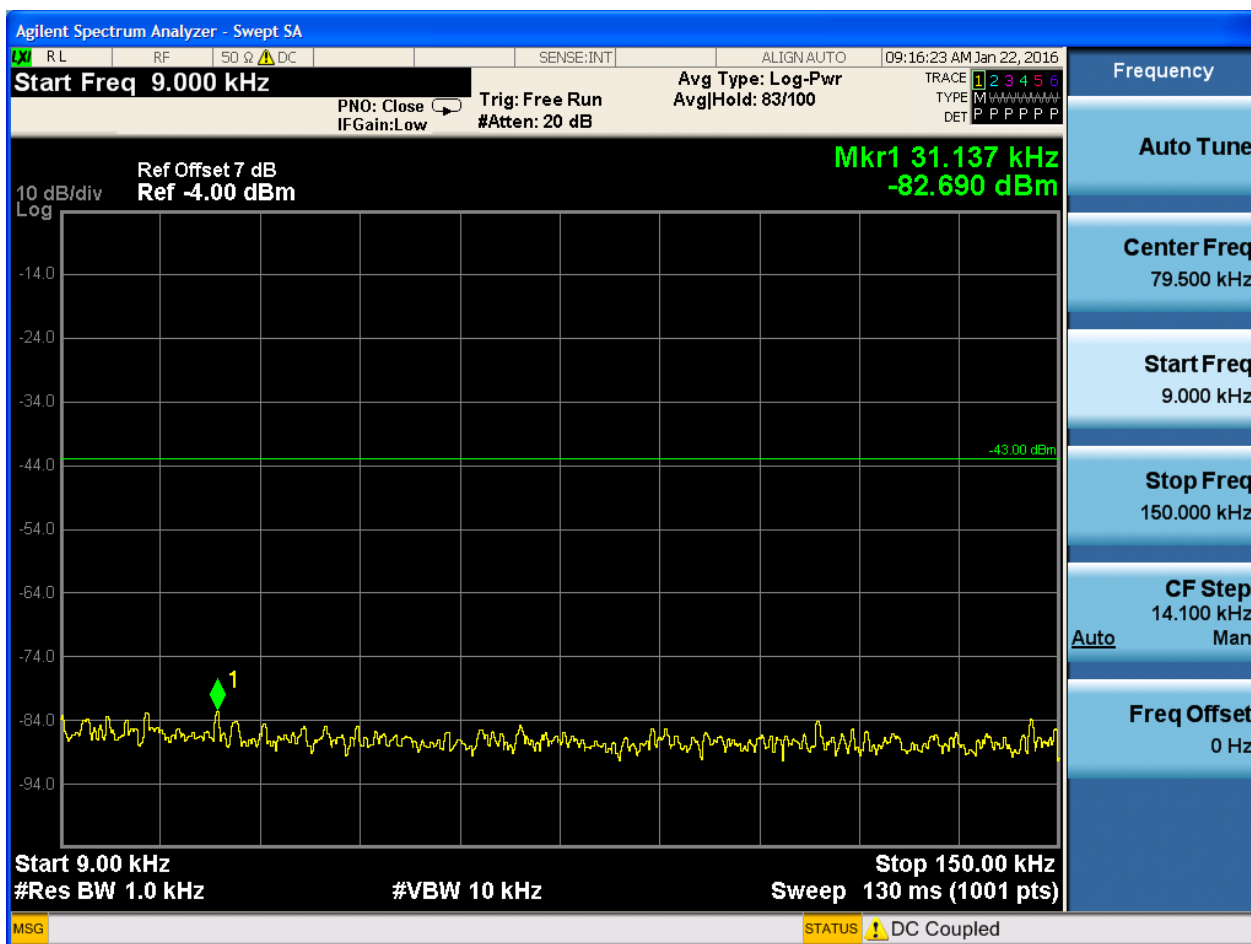
6.1.2.1.2 Test Channel = MCH

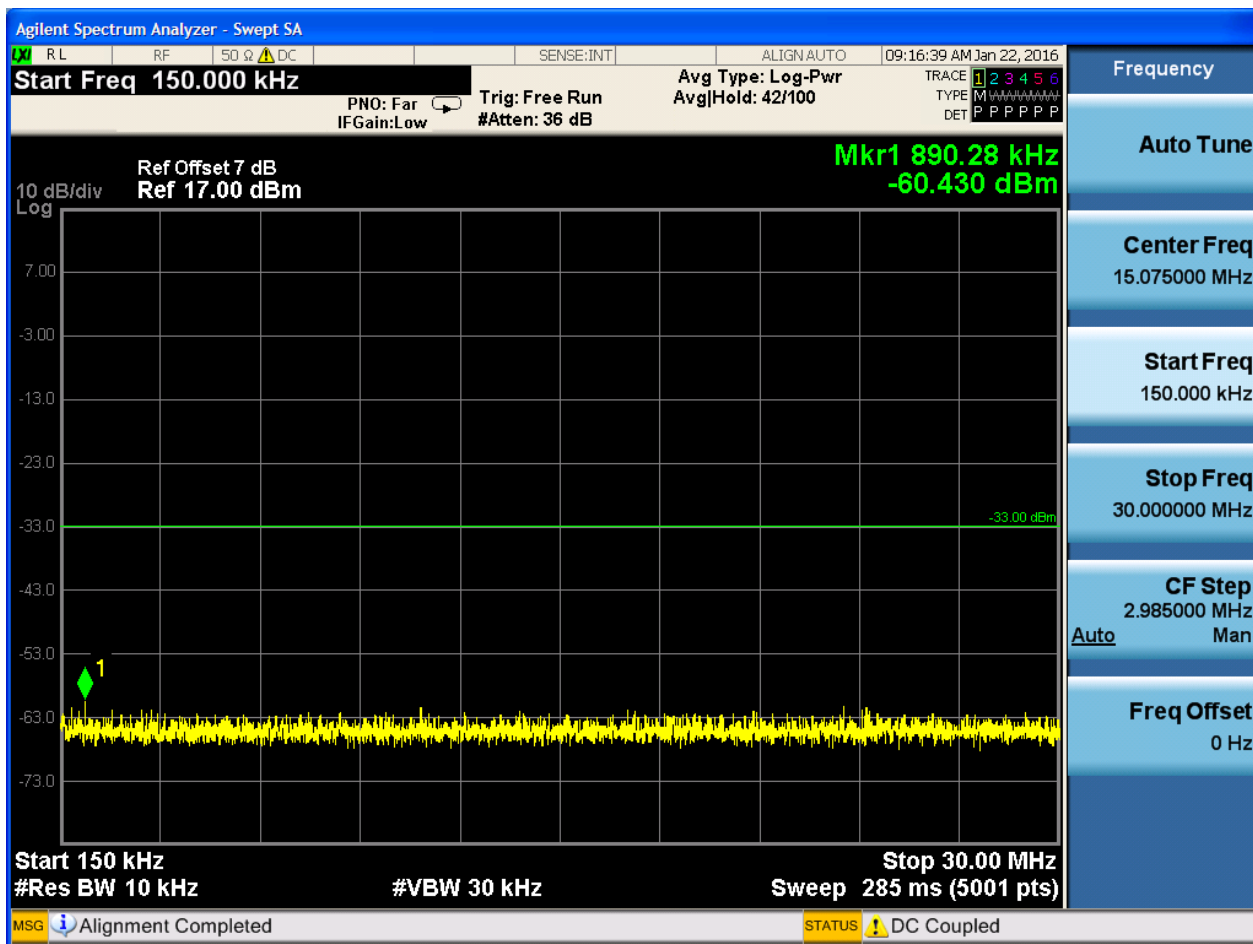


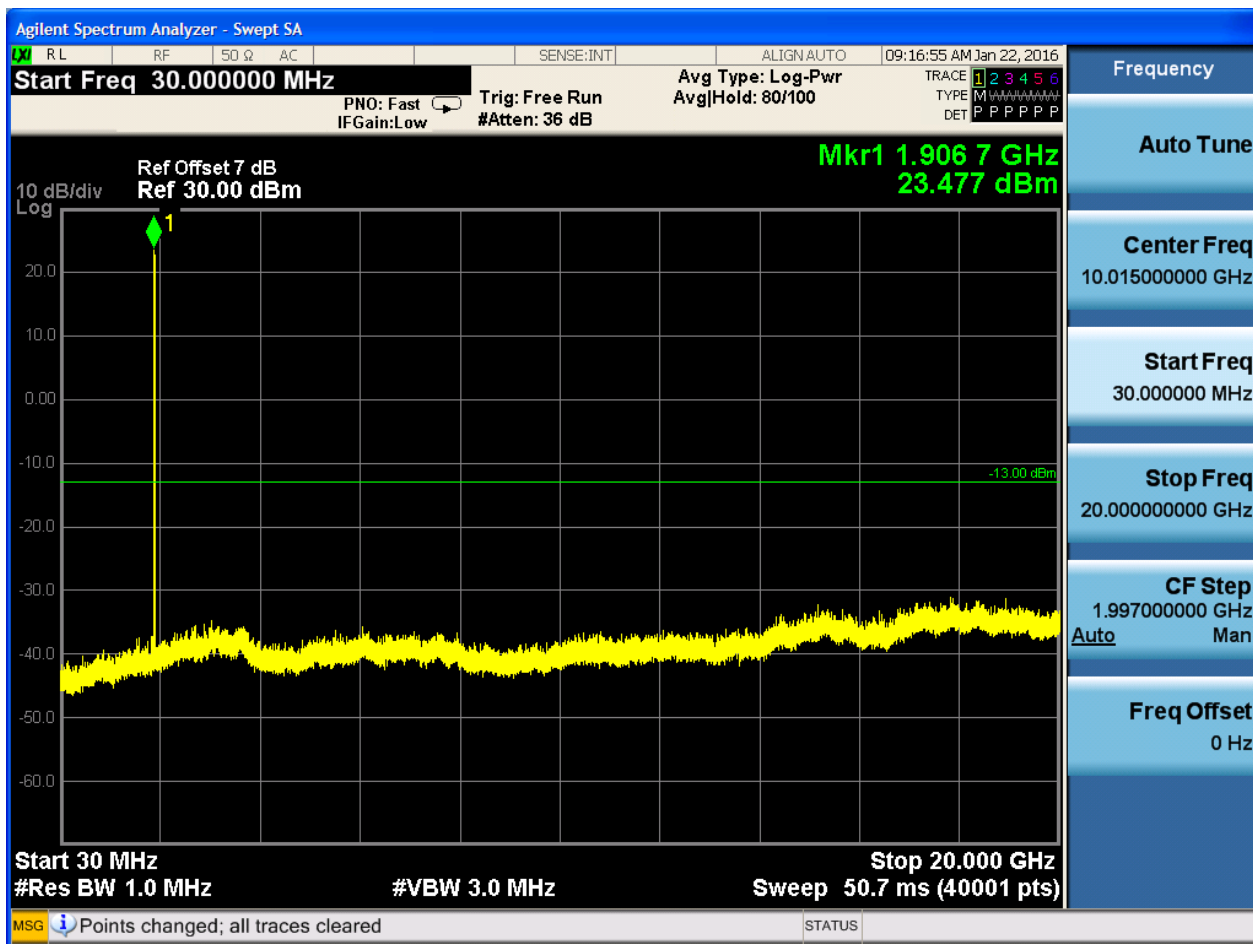




6.1.2.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

Note:

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

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

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

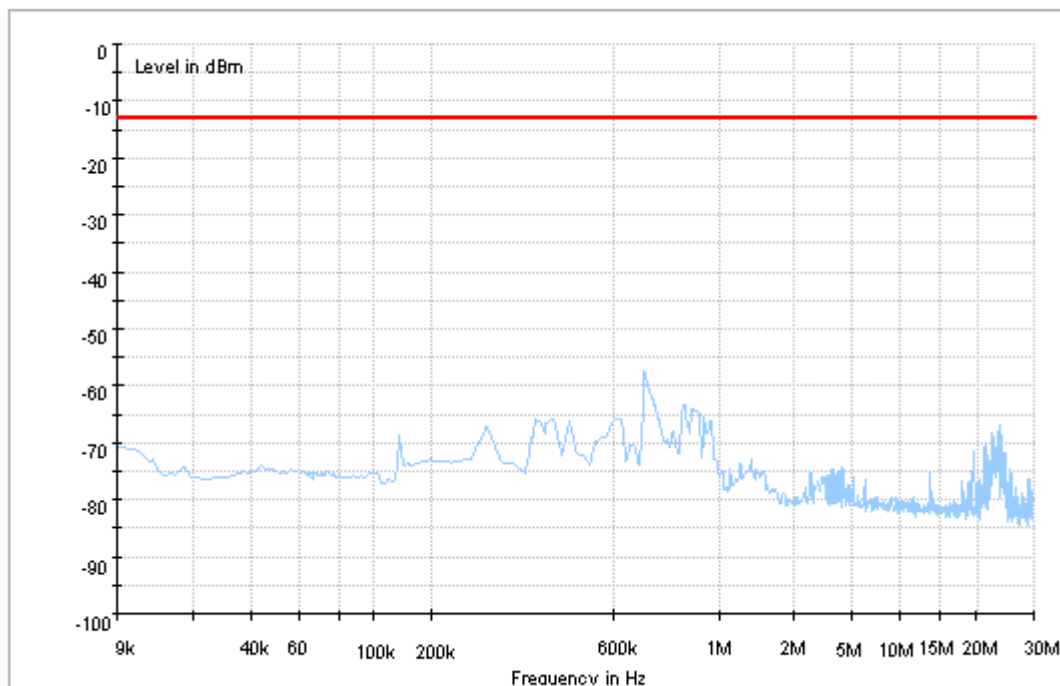
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

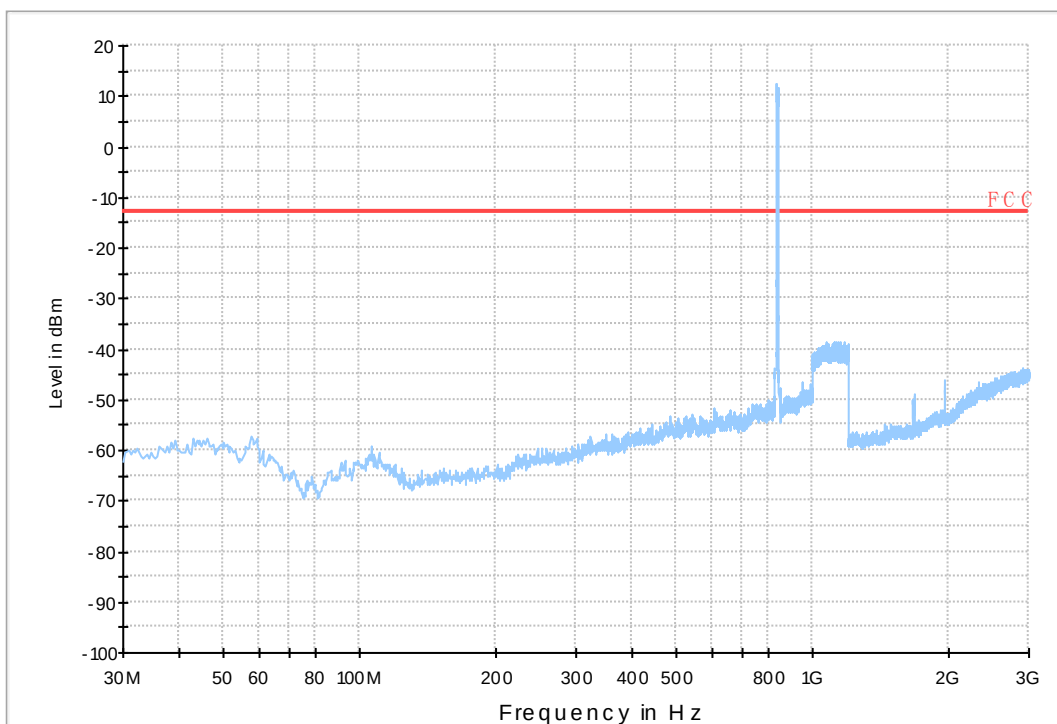
7.1 For UMTS

7.1.1 Test Band = WCDMA850

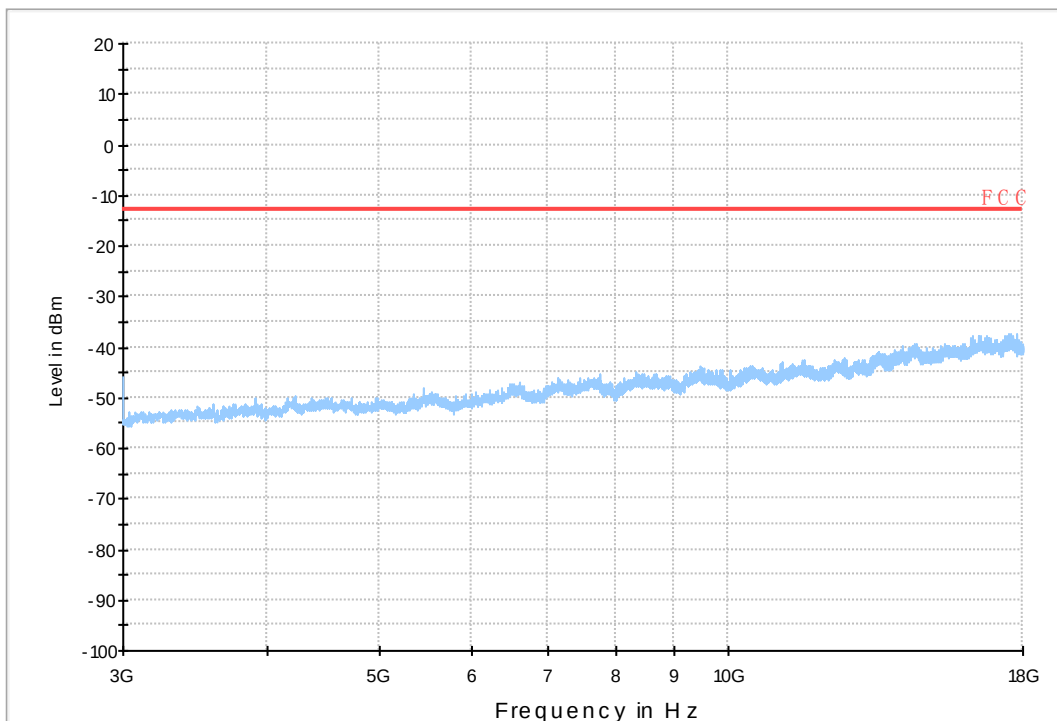
7.1.1.1 Test Mode = UMTS/TM1



Copy of RSE-TX-DIRECTOR BELOW 1G_L

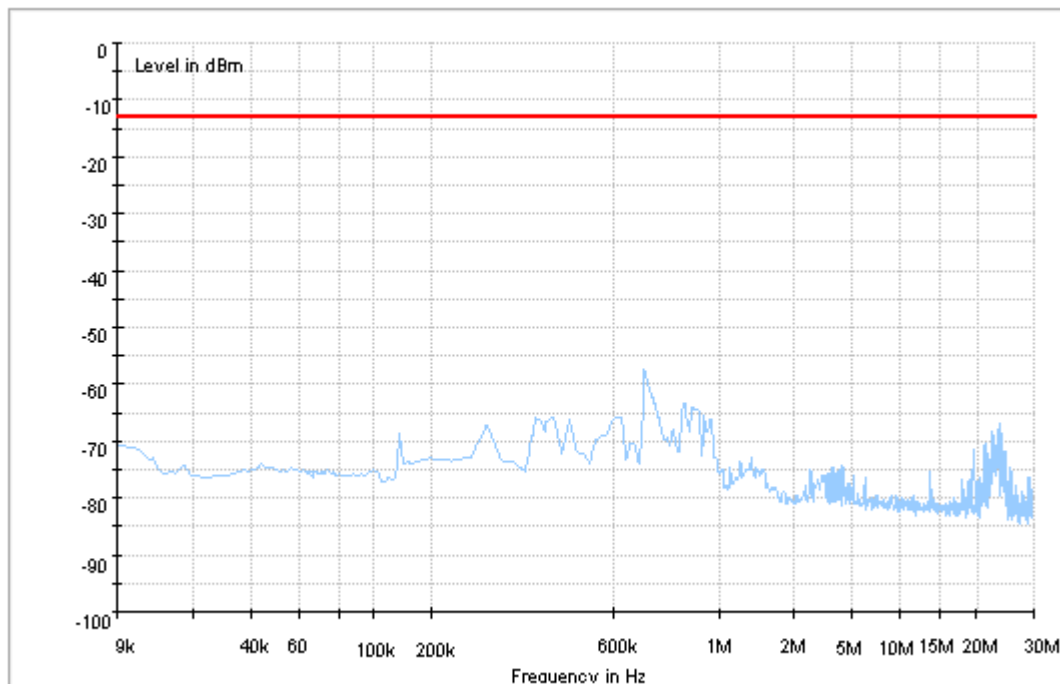


Copy of RSE-TX-DIRECTOR BELOW 1G_H

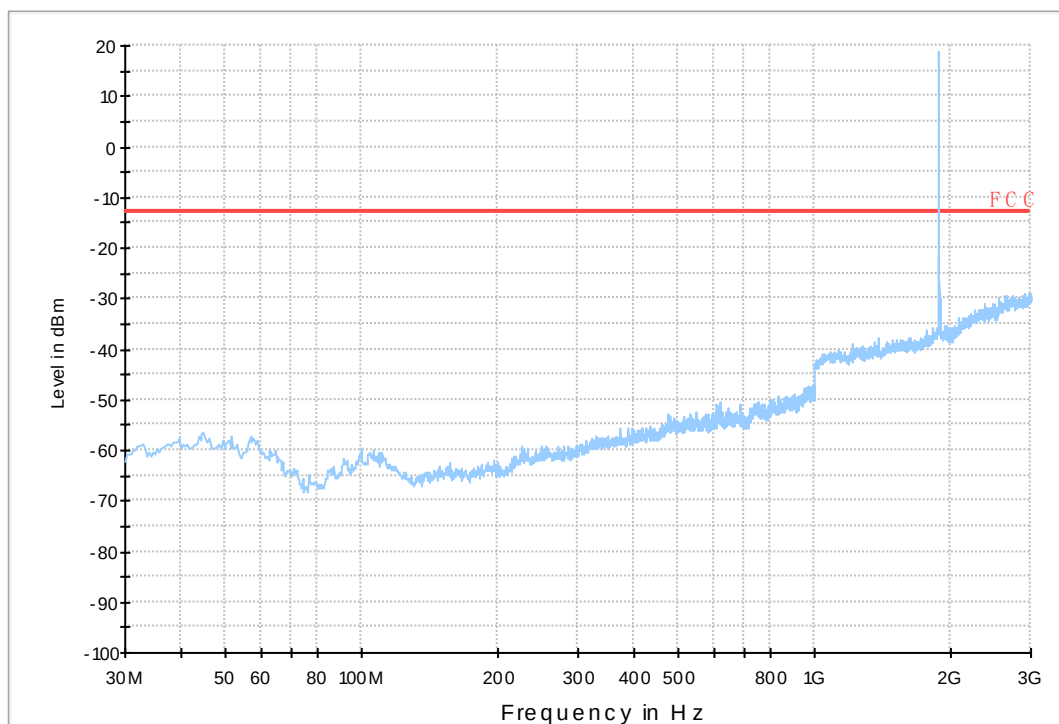


7.1.2 Test Band = WCDMA1900

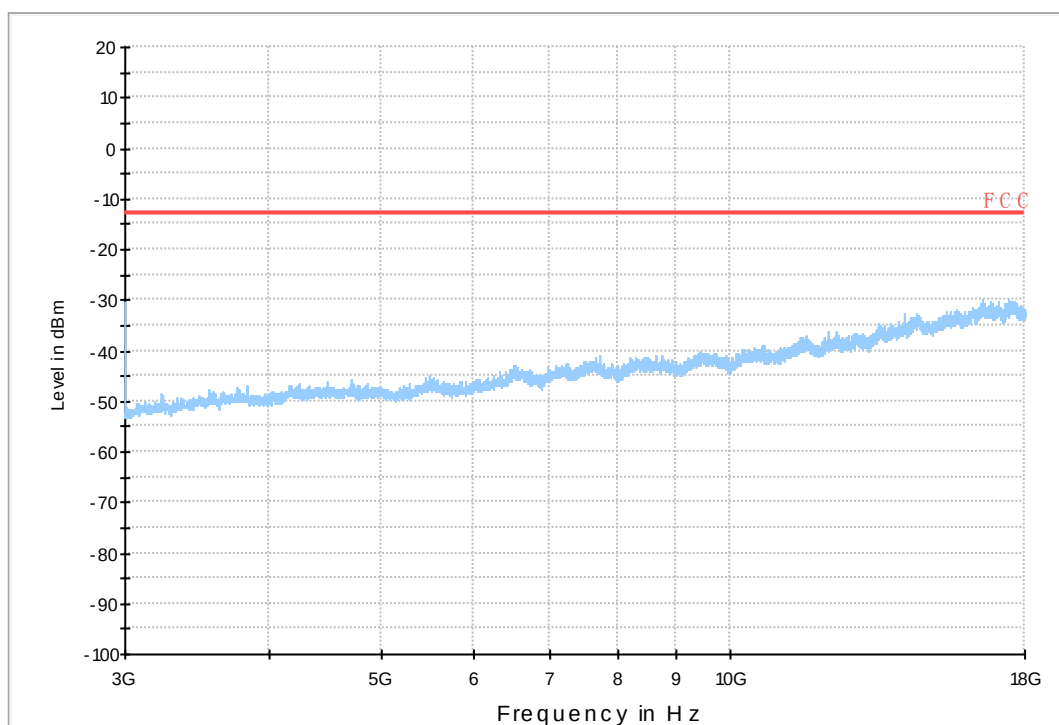
7.1.2.1 Test Mode = UMTS/TM1

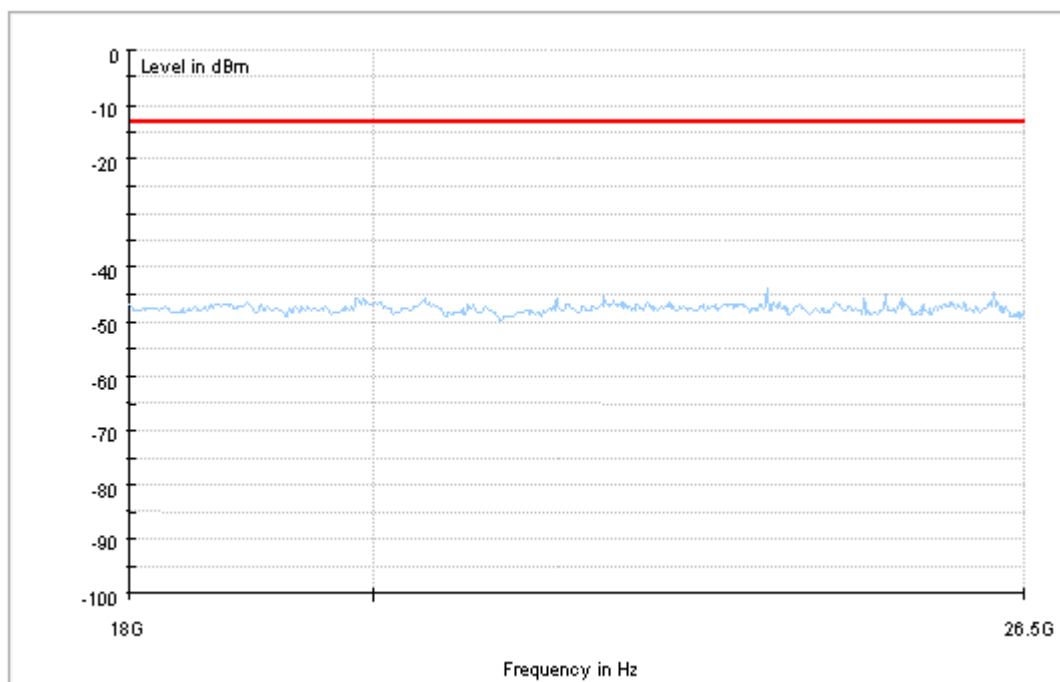


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_L



Copy of RSE-TX-DIRECTOR ABOVE 1.5G_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	1.72	0.00208	PASS
				VN	-2.64	-0.00319	PASS
				VH	-10.88	-0.01317	PASS
		MCH	TN	VL	-8.93	-0.01068	PASS
				VN	-11.9	-0.01423	PASS
				VH	-10.86	-0.01298	PASS
		HCH	TN	VL	-3.88	-0.00458	PASS
				VN	-6.99	-0.00826	PASS
				VH	3.16	0.00373	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	6.65	0.00359	PASS
				VN	4.82	0.0026	PASS
				VH	-0.35	-0.00019	PASS
		MCH	TN	VL	1.53	0.00081	PASS
				VN	-6.15	-0.00327	PASS
				VH	-11.98	-0.00637	PASS
		HCH	TN	VL	6.21	0.00326	PASS
				VN	3.65	0.00191	PASS
				VH	-25.67	-0.01346	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	-4.68	-0.00566	PASS
				-20	-11.57	-0.014	PASS
				-10	0.02	0.00002	PASS
				0	-5.98	-0.00724	PASS
				10	0.11	0.00013	PASS
				20	5.42	0.00656	PASS
				30	-14.68	-0.01776	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	-3.6	-0.00436	PASS
				50	5.63	0.00681	PASS
		MCH	VN	-30	-10.04	-0.012	PASS
				-20	-6.65	-0.00795	PASS
				-10	-1.63	-0.00195	PASS
				0	0.32	0.00038	PASS
				10	2.4	0.00287	PASS
				20	0.27	0.00032	PASS
				30	-1.59	-0.0019	PASS
				40	-17.21	-0.02058	PASS
				50	-9.03	-0.0108	PASS
		HCH	VN	-30	-3.02	-0.00357	PASS
				-20	-4.24	-0.00501	PASS
				-10	-8.59	-0.01015	PASS
				0	-15.69	-0.01853	PASS
				10	-10.15	-0.01199	PASS
				20	-9.46	-0.01117	PASS
				30	4.97	0.00587	PASS
				40	3.1	0.00366	PASS
				50	-8.74	-0.01032	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	-17.38	-0.00938	PASS
				-20	-6.59	-0.00356	PASS
				-10	-7.75	-0.00418	PASS
				0	-8.15	-0.0044	PASS
				10	5.63	0.00304	PASS
				20	9.61	0.00519	PASS
				30	-7.63	-0.00412	PASS
				40	0.56	0.0003	PASS
				50	5.08	0.00274	PASS
		MCH	VN	-30	-7.84	-0.00417	PASS
				-20	-0.47	-0.00025	PASS
				-10	-1.28	-0.00068	PASS
				0	-5.04	-0.00268	PASS
				10	-28.98	-0.01541	PASS
				20	-2.38	-0.00127	PASS
				30	-6.52	-0.00347	PASS
				40	-9.29	-0.00494	PASS
				50	5.49	0.00292	PASS
		HCH	VN	-30	-19.06	-0.00999	PASS
				-20	-15.15	-0.00794	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-12.86	-0.00674	PASS
				0	-9.09	-0.00477	PASS
				10	-11.29	-0.00592	PASS
				20	-11.08	-0.00581	PASS
				30	-31.72	-0.01663	PASS
				40	7.46	0.00391	PASS
				50	14.63	0.00767	PASS

END