



Appendix B

For

Test Report No.: SZEM SZEM1411006372HR

Authorized Signature:



Jack Zhang
EMC Laboratory Manager

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3 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Part I – RF Conducted Power of Transmitter for GSM850

TEST CONDITIONS	RF Output Power(Conducted)					
	Channel128(L)		Channel190(M)		Channel251(H)	
	824.2MHz		836.6 MHz		848.8 MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
GSM/TM1(GSM ONLY)	32.14	38.5	32.03	38.5	32.21	38.5
GSM/TM1(GPRS)	32.16	38.5	32.01	38.5	32.24	38.5
UMTS/TM1	23.46	38.5	23.46	38.5	23.35	38.5

Part 2– Effective Radiated Power of Transmitter (ERP) for GSM850

Test Mode	Freq. (MHz)	Meas. Level (dBm)	Substitution Antenna Type	SGP (dBm)	Substitution Gain(dBd)	Cable Loss (dB)	Substitution Level(ERP) / dBm	Limit (dBm)	Result
GSM/TM1(G SM ONLY)	824.2	31.54	Dipole Ant.	37.02	-4.90	0.6	31.52	38.5	Pass
GSM/TM1(G SM ONLY)	836.6	31.43	Dipole Ant.	37.07	-5.02	0.6	31.45	38.5	Pass
GSM/TM1(G SM ONLY)	848.8	31.61	Dipole Ant.	37.18	-5.00	0.6	31.58	38.5	Pass
GSM/TM1(G PRS)	824.2	31.56	Dipole Ant.	37.05	-4.90	0.6	31.55	38.5	Pass
GSM/TM1(G PRS)	836.6	31.41	Dipole Ant.	37.04	-5.02	0.6	31.42	38.5	Pass
GSM/TM1(G PRS)	848.8	31.64	Dipole Ant.	37.21	-5.00	0.6	31.61	38.5	Pass
UMTS/TM1	826.4	22.86	Dipole Ant.	28.33	-4.90	0.6	22.83	38.5	Pass
UMTS/TM1	836.4	22.86	Dipole Ant.	28.47	-5.02	0.6	22.85	38.5	Pass
UMTS/TM1	846.6	22.75	Dipole Ant.	28.33	-5.00	0.6	22.73	38.5	Pass

Note1:

- a. For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

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$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

b. SGP=Signal Generator Level

Note2:

RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS

Part I – RF Conducted Power of Transmitter for GSM1900

TEST CONDITIONS	RF Output Power(Conducted)					
	Channel128(L)		Channel190(M)		Channel251(H)	
	1850.2MHz		1880.0 MHz		1909.8 MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
GSM/TM1(GSM ONLY)	28.86	33	28.96	33	28.91	33
GSM/TM1(GPRS)	28.87	33	28.92	33	28.90	33
UMTS/TM1	21.36	33	21.52	33	21.36	33

Part 2– Effective Isotropic Radiated Power of Transmitter (EIRP) for GSM1900

Test Mode	Freq. (MHz)	Meas. Level (dBm)	Substitution Antenna Type	SGP (dBm)	Substitution Gain(dBi)	Cable Loss (dB)	Substitution Level(EIRP) / dBm	Limit (dBm)	Result
GSM/TM1(G SM ONLY)	1850.2	29.56	Horn Ant.	26.03	4.5	1	29.53	33	Pass
GSM/TM1(G SM ONLY)	1880.0	29.66	Horn Ant.	26.13	4.5	1	29.63	33	Pass
GSM/TM1(G SM ONLY)	1909.8	29.61	Horn Ant.	26.09	4.5	1	29.59	33	Pass
GSM/TM1(G PRS)	1850.2	29.57	Horn Ant.	26.02	4.5	1	29.52	33	Pass
GSM/TM1(G PRS)	1880.0	29.62	Horn Ant.	26.10	4.5	1	29.60	33	Pass
GSM/TM1(G PRS)	1909.8	29.6	Horn Ant.	26.06	4.5	1	29.56	33	Pass
UMTS/TM1	1852.4	22.02	Horn Ant.	18.50	4.5	1	22.00	33	Pass
UMTS/TM1	1880.0	22.19	Horn Ant.	18.66	4.5	1	22.16	33	Pass
UMTS/TM1	1907.6	22.04	Horn Ant.	18.51	4.5	1	22.01	33	Pass

Note1:

a. For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

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$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b. SGP=Signal Generator Level

Note2:

RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS



4 Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM850	GSM/TM1	LCH	0.13	13	PASS
		MCH	0.17	13	PASS
		HCH	0.14	13	PASS
GSM1900	GSM/TM1	LCH	0.18	13	PASS
		MCH	0.21	13	PASS
		HCH	0.19	13	PASS
Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.93	13	PASS
		MCH	3.13	13	PASS
		HCH	2.89	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.05	13	PASS
		MCH	2.99	13	PASS
		HCH	2.78	13	PASS

5 Appendix_C: Modulation Characteristics

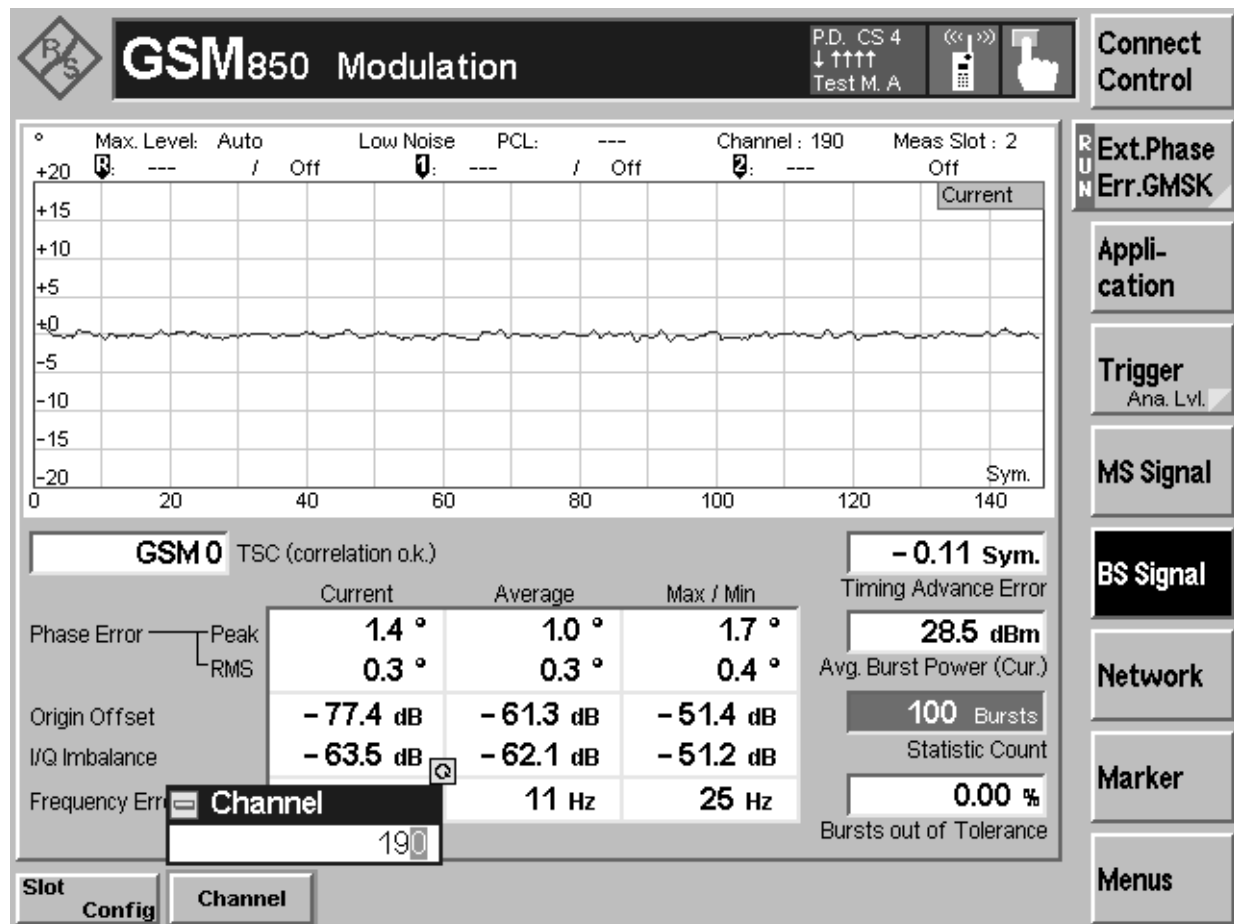
Part I - Test Plots

5.1 For GSM

5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = MCH

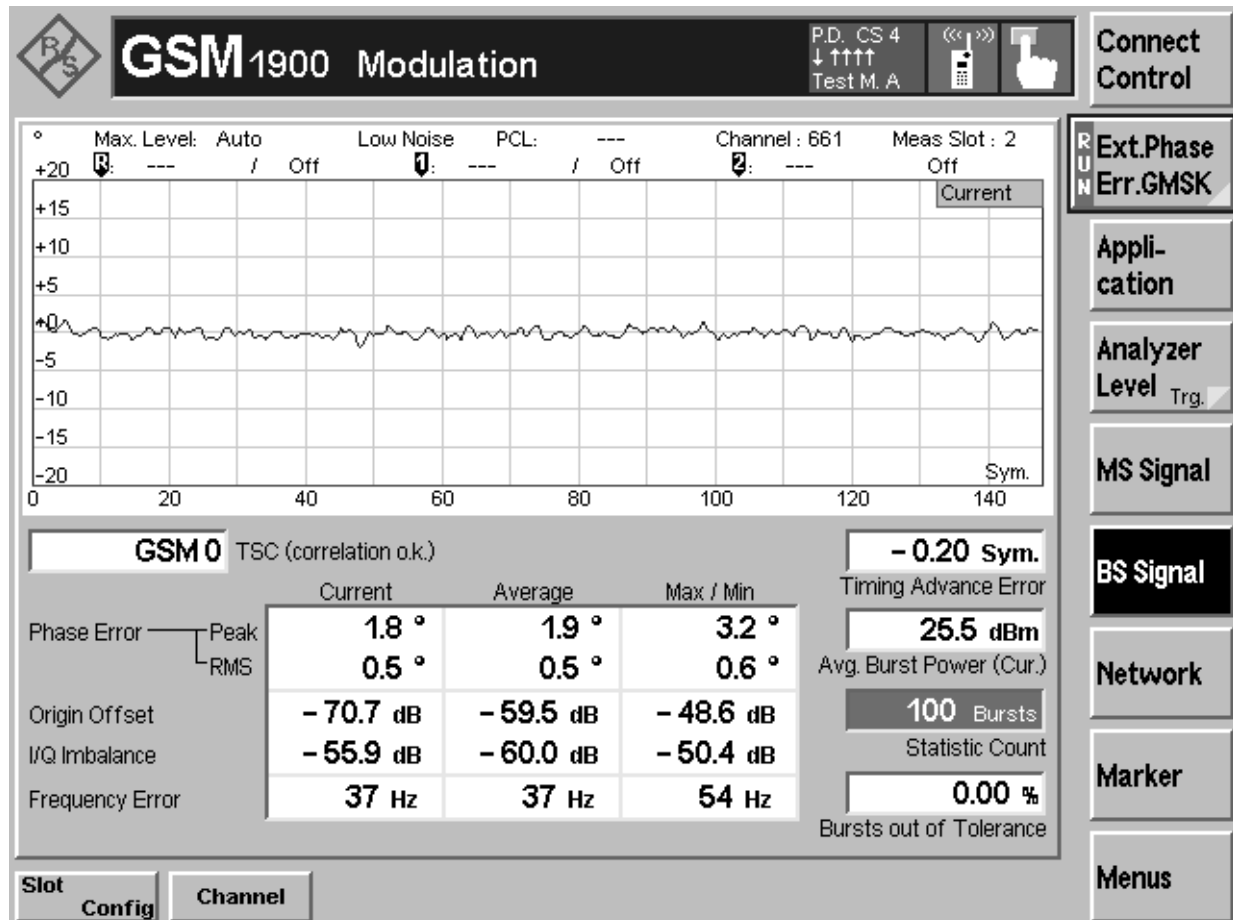




5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = MCH

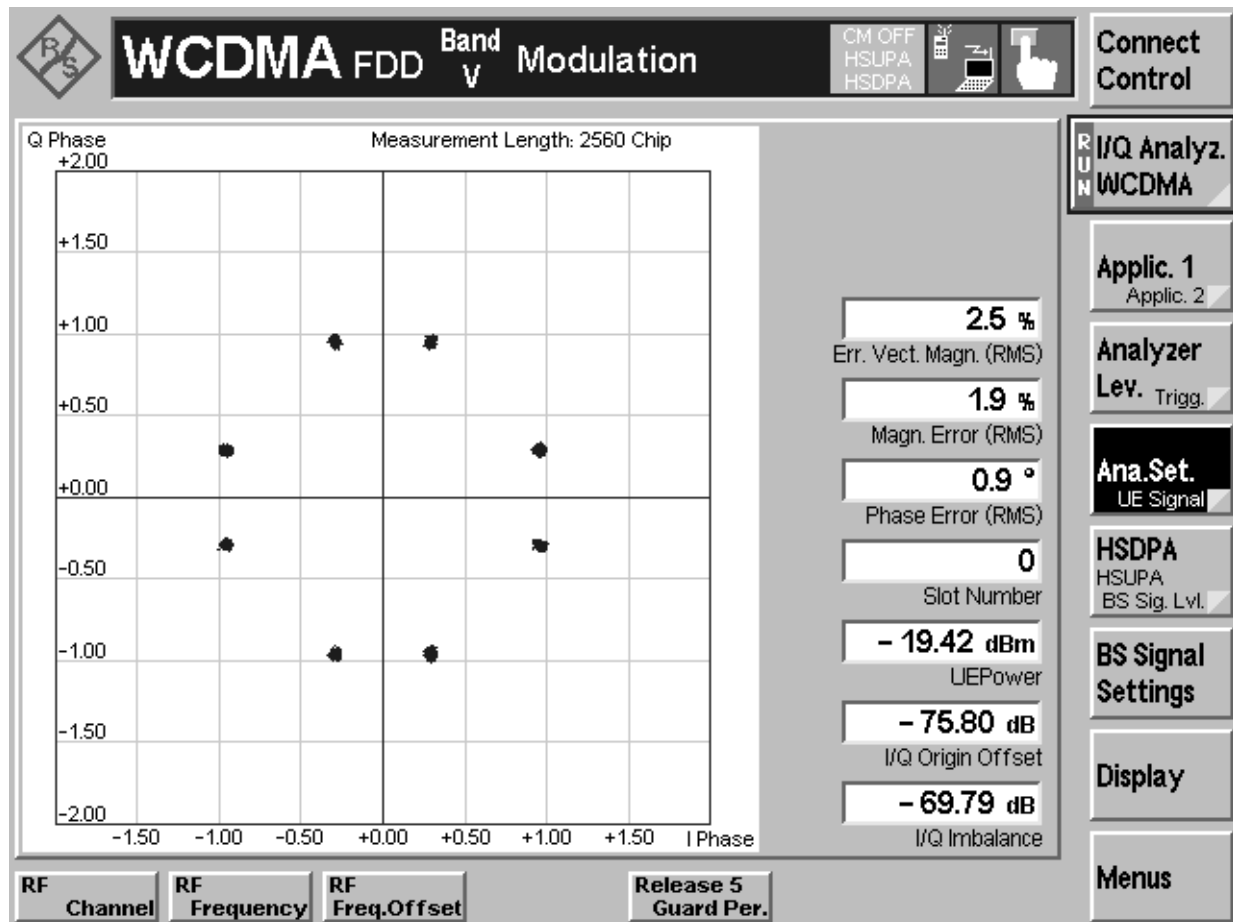


5.2 For UMTS

5.2.1 Test Band = WCDMA850

5.2.1.1 Test Mode = UMTS/TM1

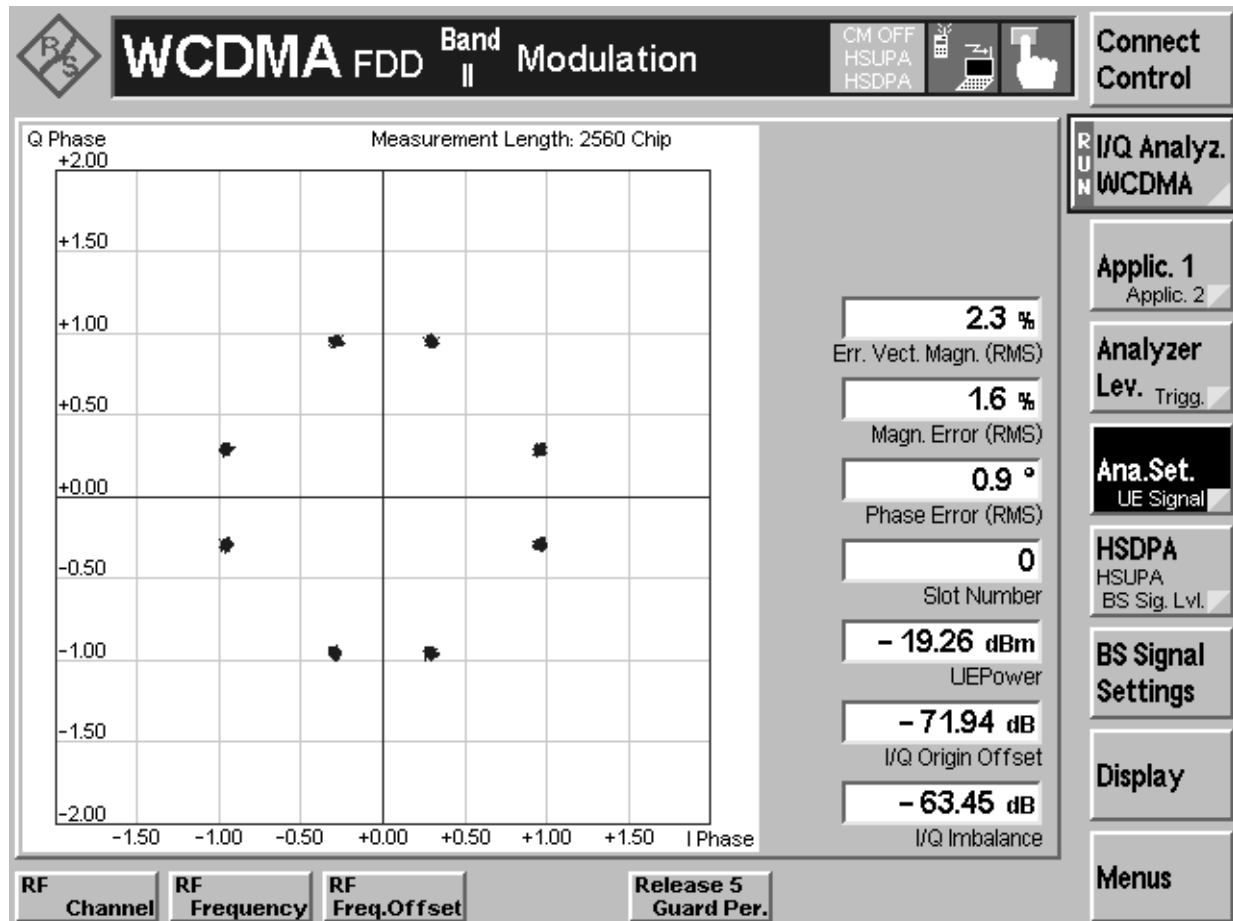
5.2.1.1.1 Test Channel = MCH



5.2.2 TEST BAND = WCDMA1900

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = MCH





6 Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850	GSM/TM1	LCH	244.18	319.80	PASS
		MCH	246.07	324.10	PASS
		HCH	244.28	319.50	PASS
GSM1900	GSM/TM1	LCH	245.21	317.60	PASS
		MCH	244.59	323.30	PASS
		HCH	246.68	321.90	PASS
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.1702	4.729	PASS
		MCH	4.1696	4.713	PASS
		HCH	4.1665	4.718	PASS
WCDMA1900	UMTS/TM1	LCH	4.1617	4.700	PASS
		MCH	4.1718	4.706	PASS
		HCH	4.1649	4.702	PASS



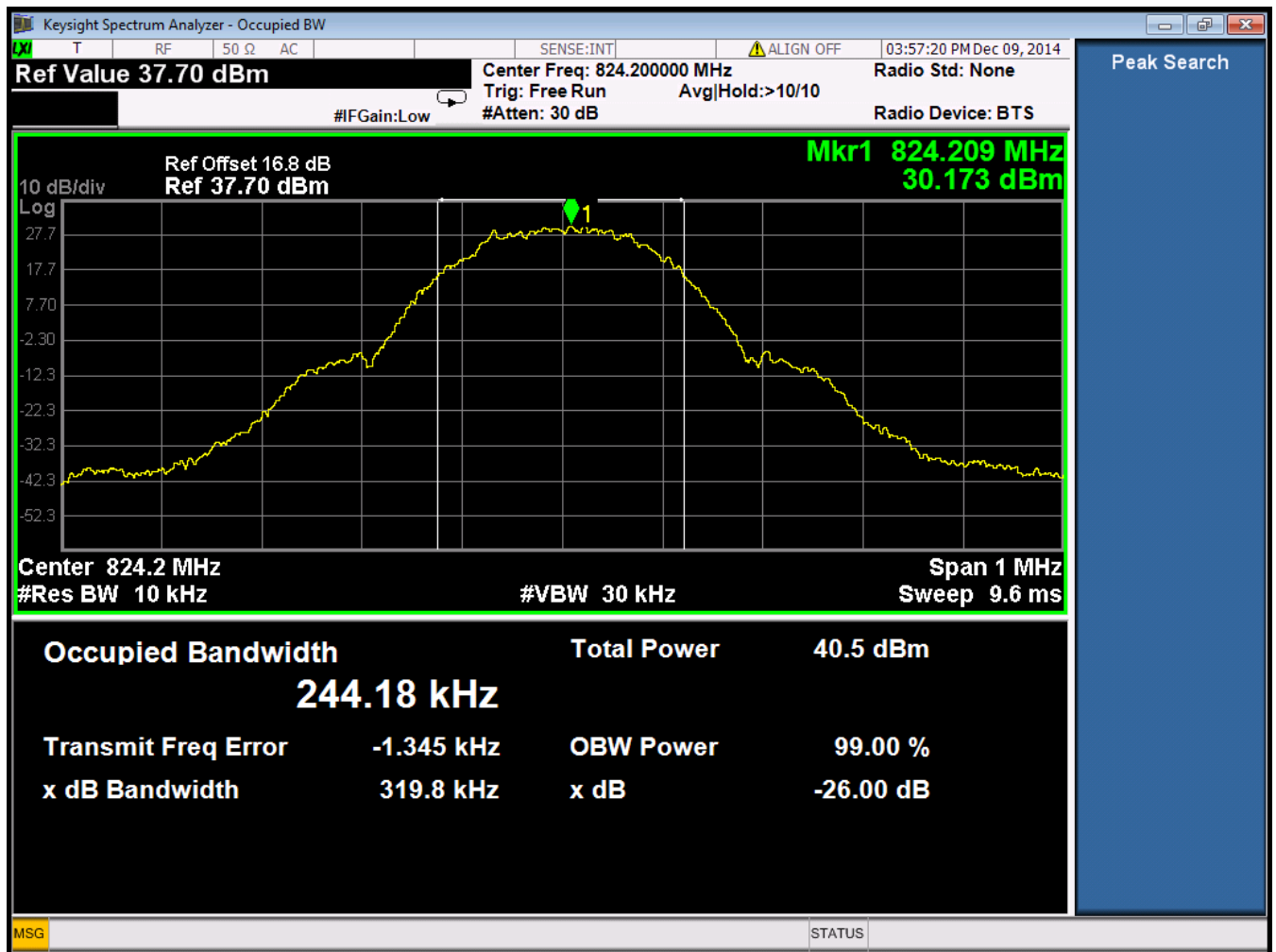
Part II - Test Plots

6.1 For GSM

6.1.1 Test Band = GSM850

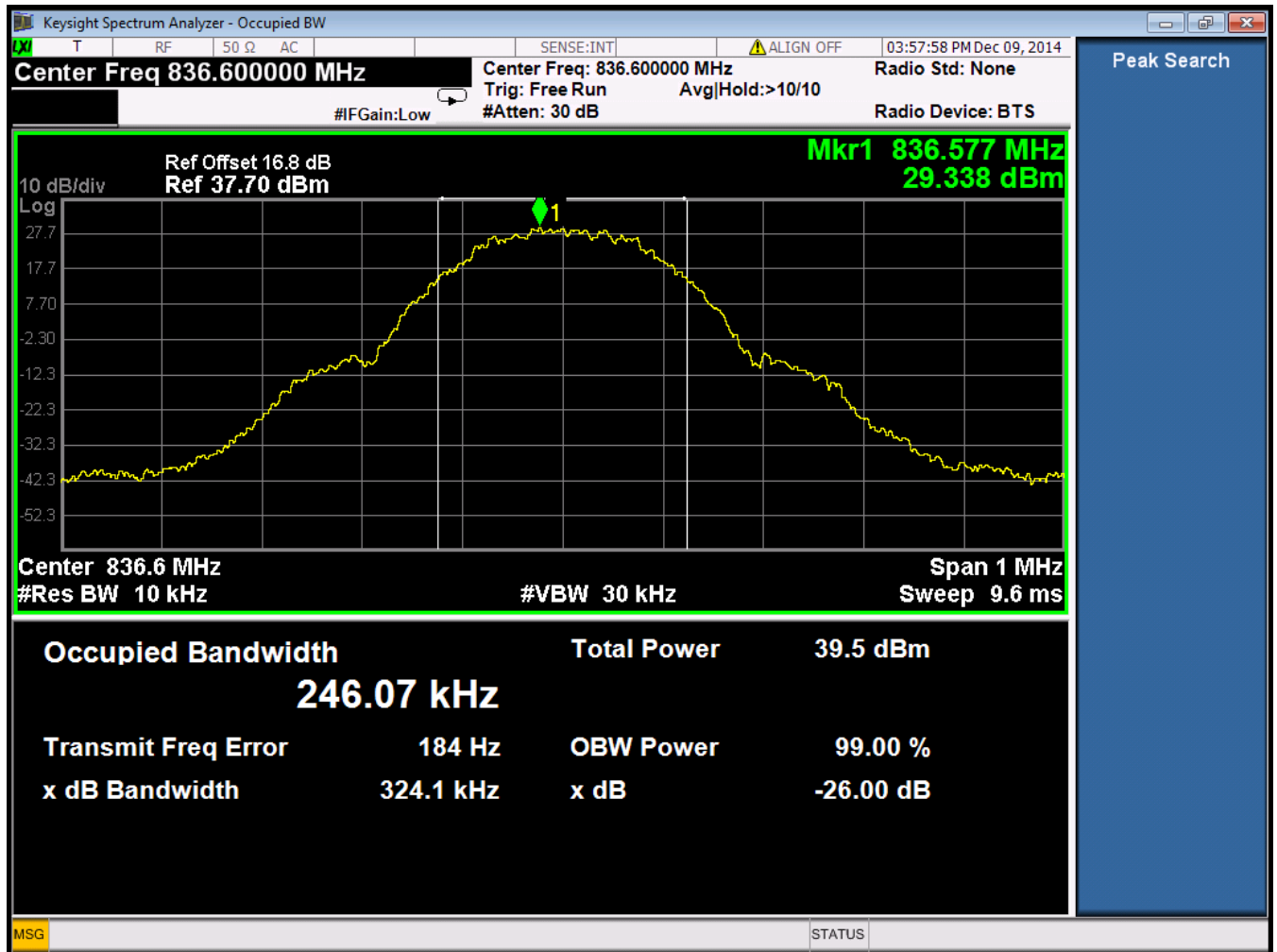
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



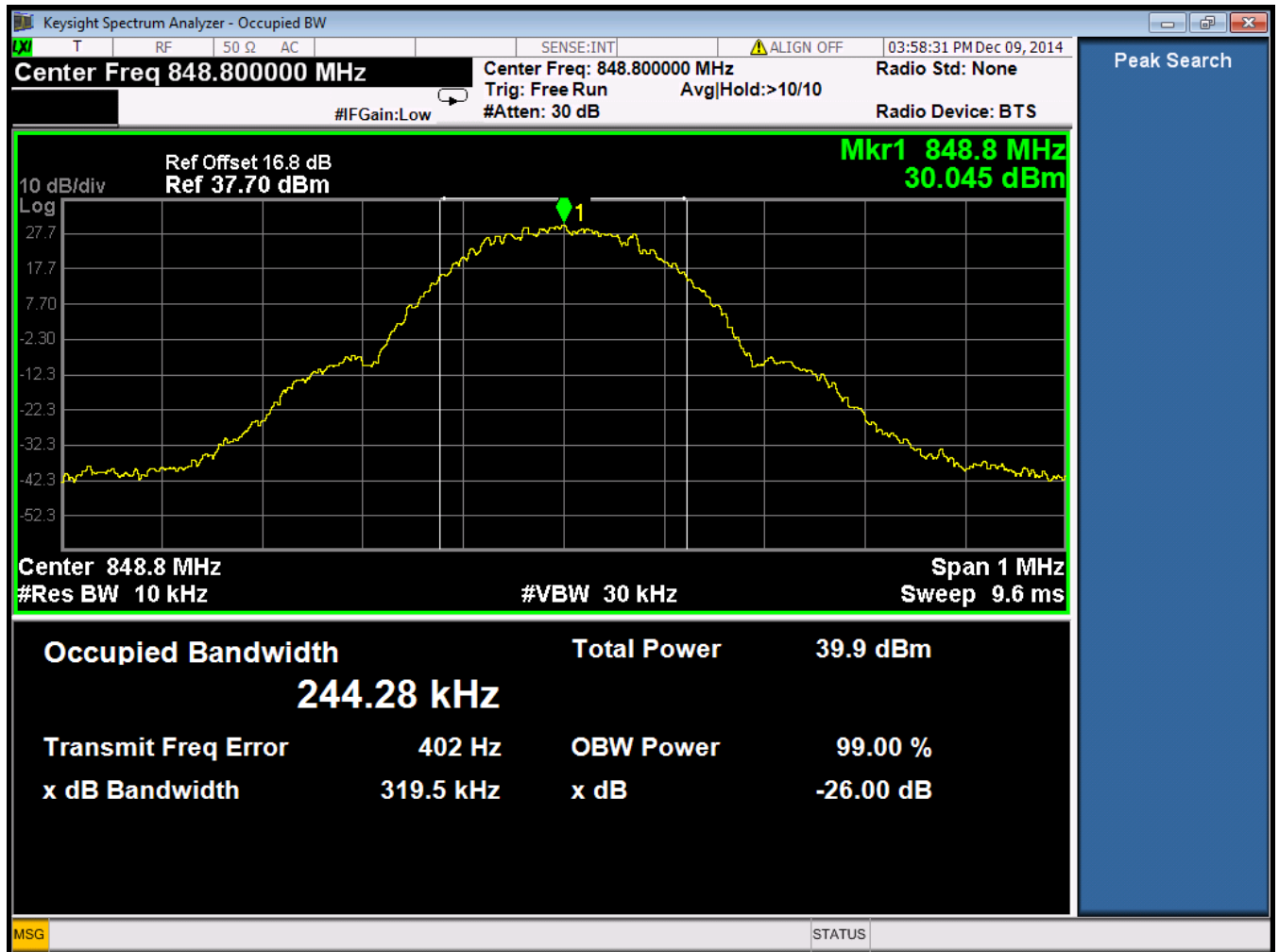


6.1.1.1.2 Test Channel = MCH





6.1.1.1.3 Test Channel = HCH

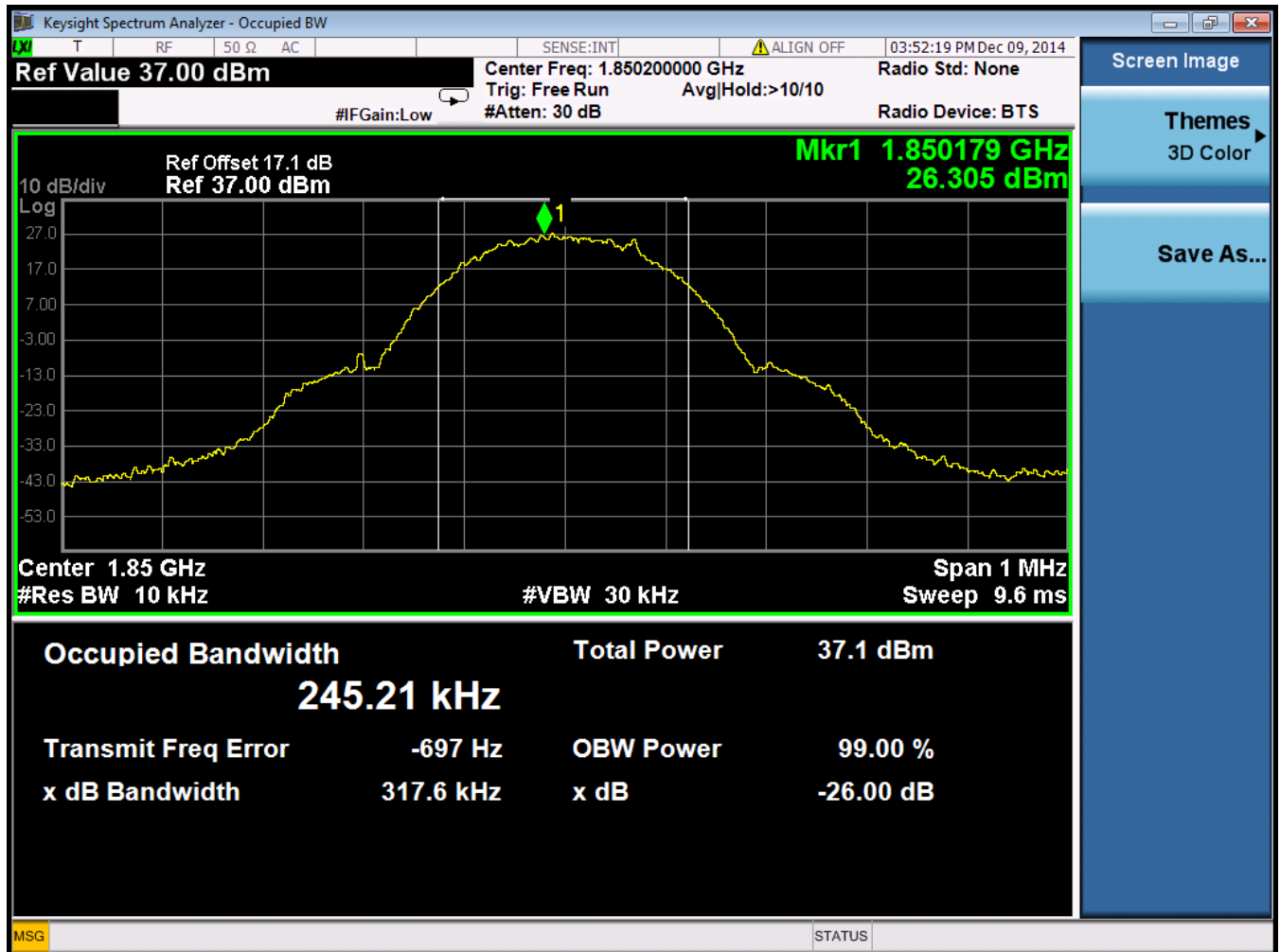




6.2 Test Band = GSM1900

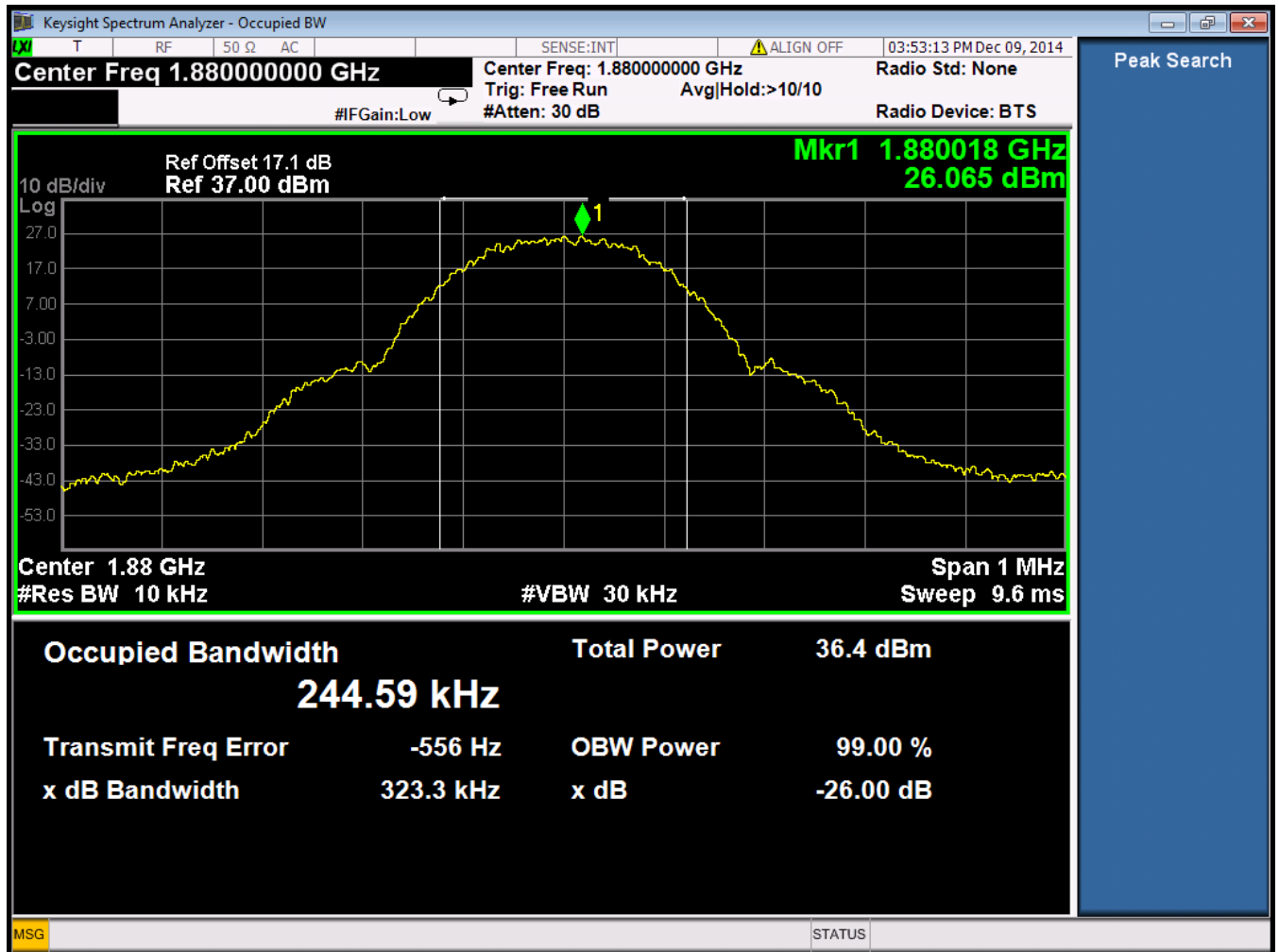
6.2.1.1 Test Mode = GSM/TM1

6.2.1.1.1 Test Channel = LCH



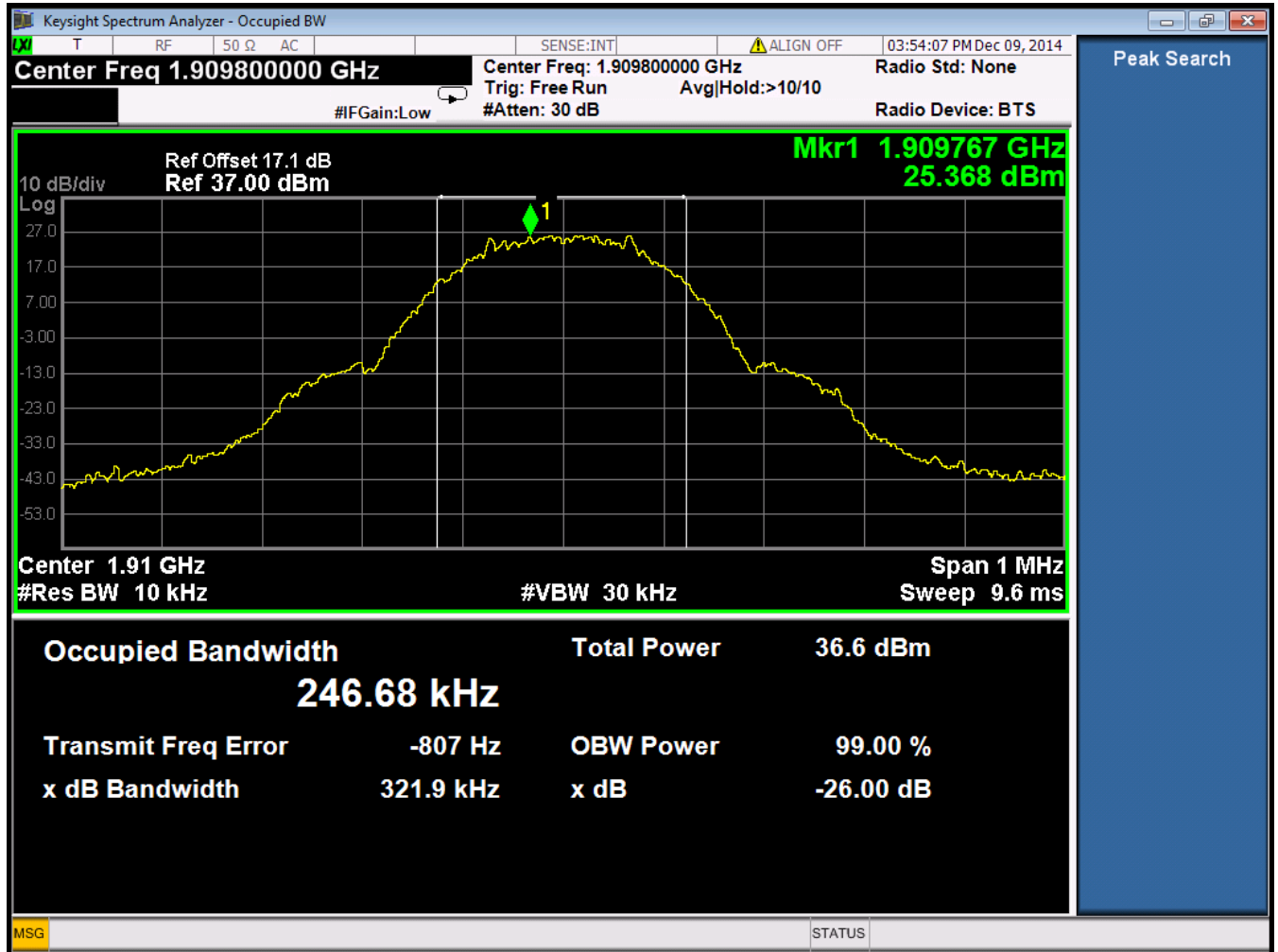


6.2.1.1.2 Test Channel = MCH





6.2.1.1.3 Test Channel = HCH



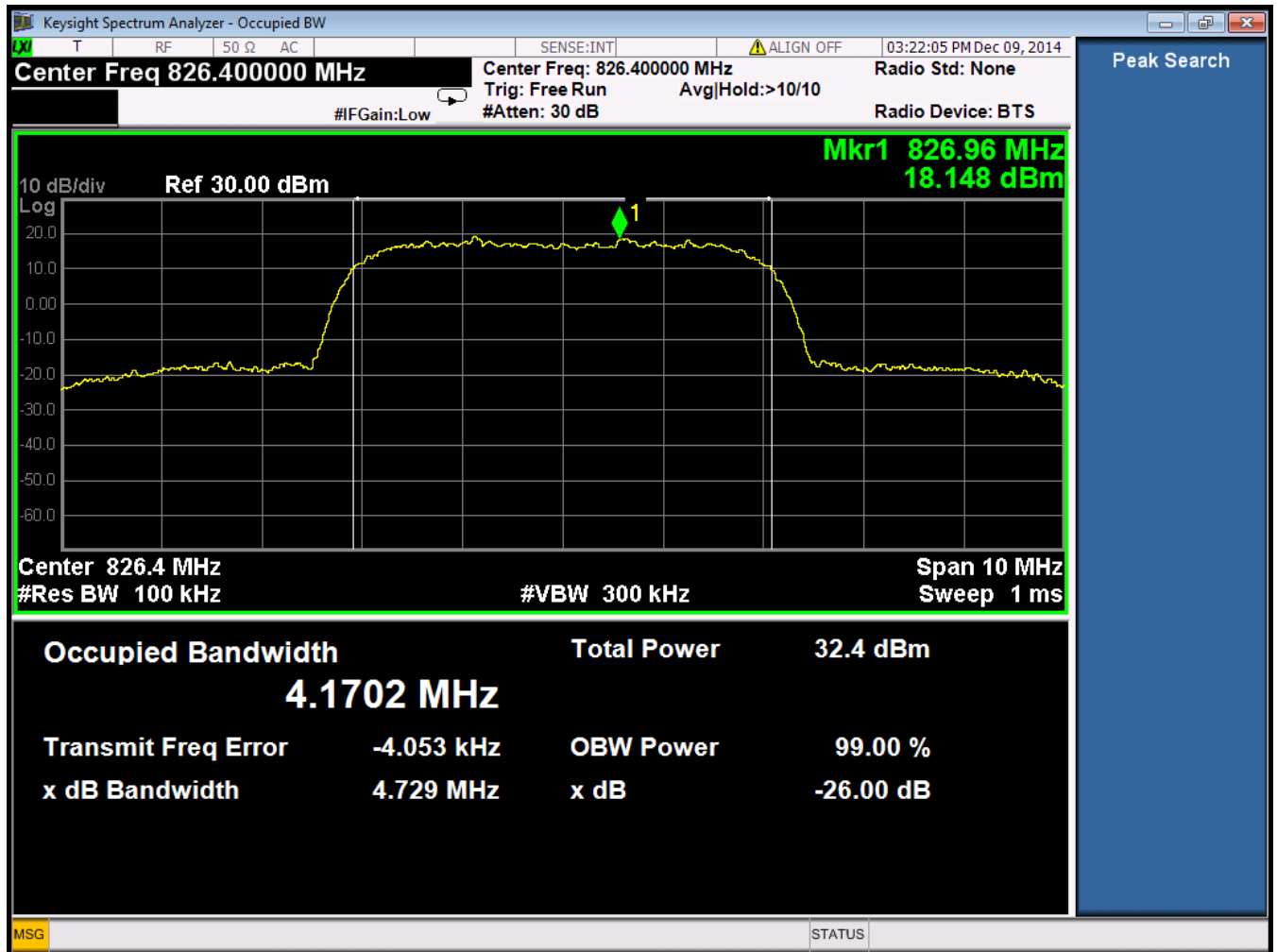


6.3 For UMTS

6.3.1 Test Band = WCDMA850

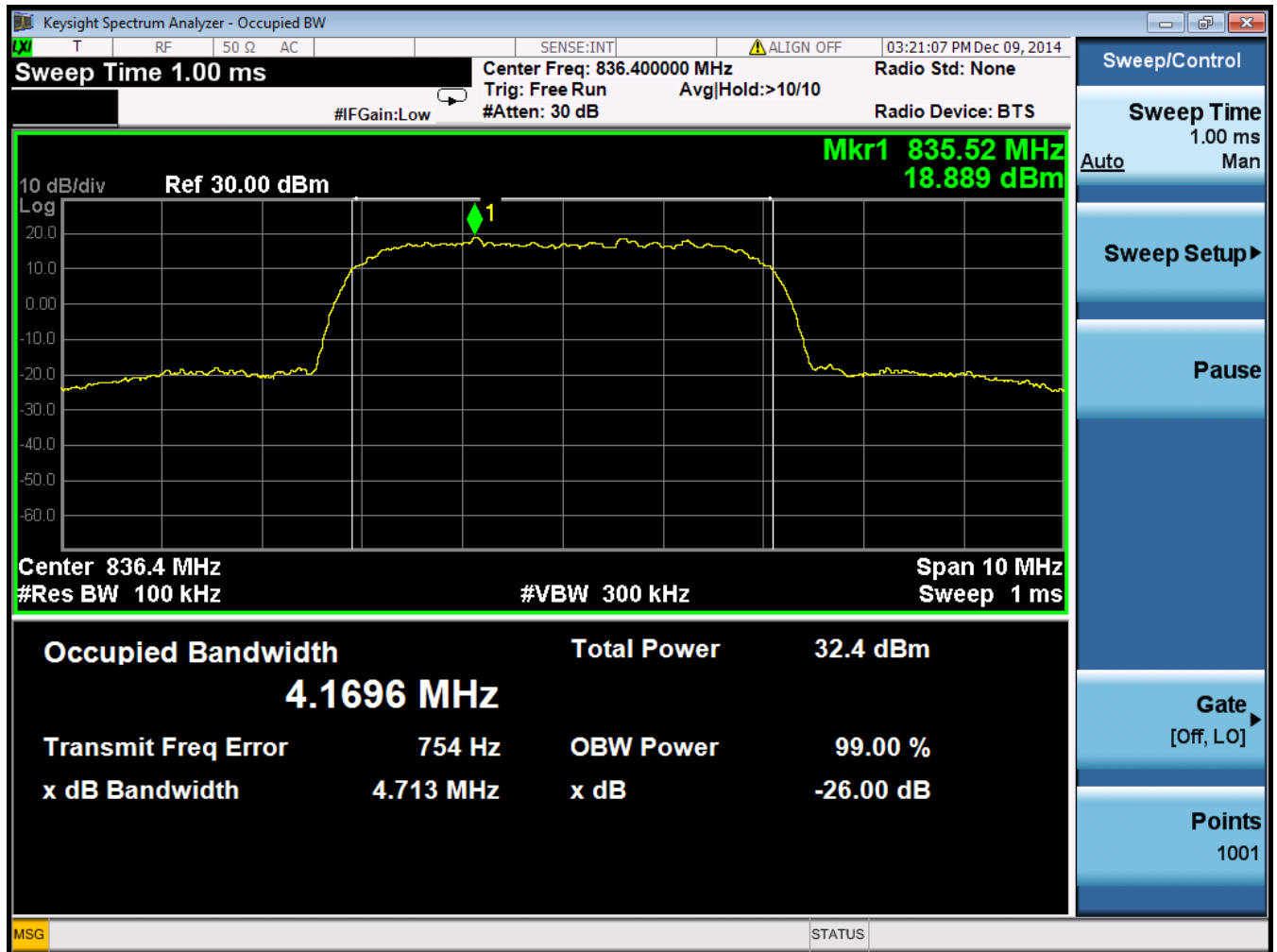
6.3.1.1 Test Mode = UMTS/TM1

6.3.1.1.1 Test Channel = LCH



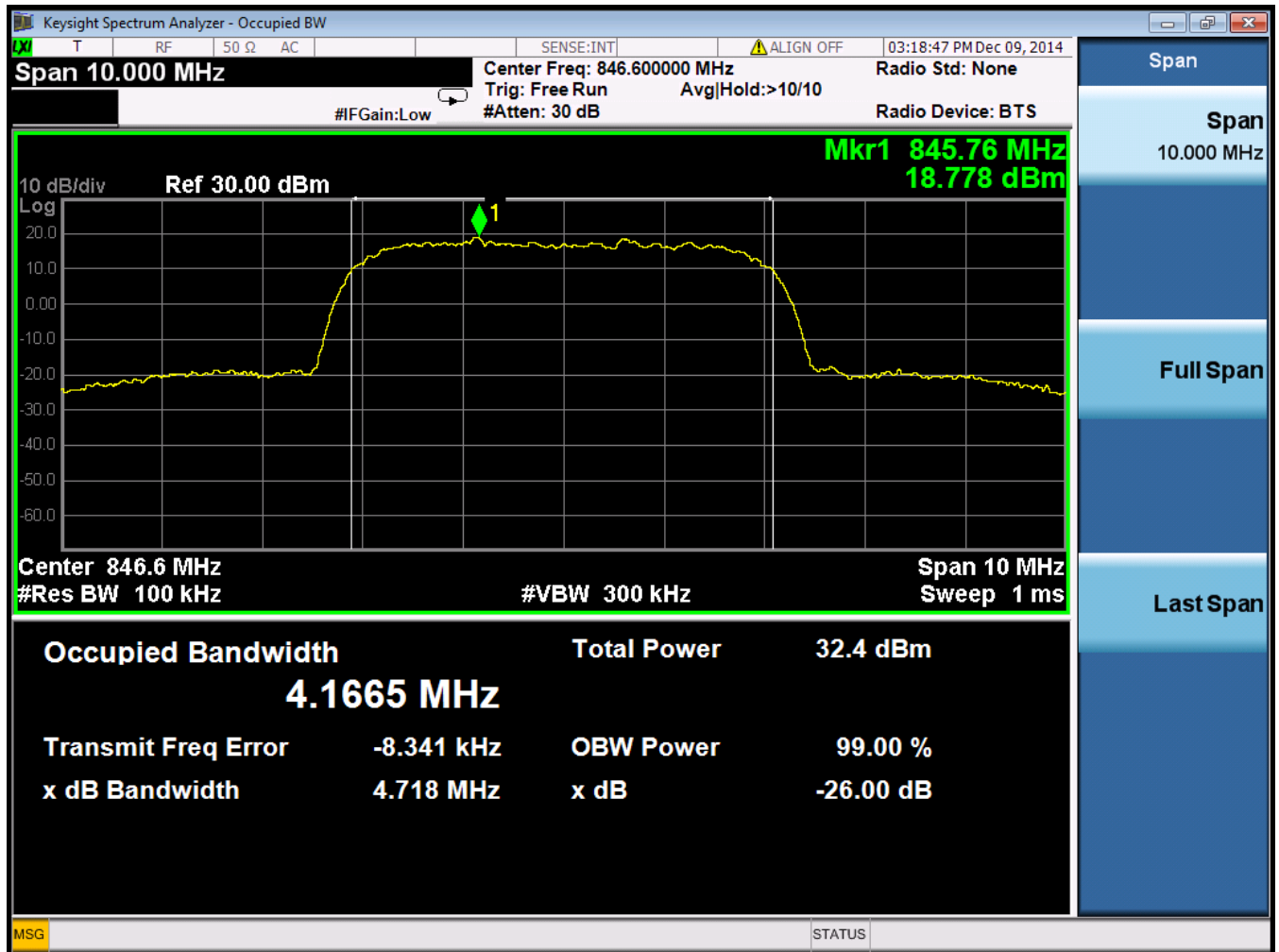


6.3.1.1.2 Test Channel = MCH





6.3.1.1.3 Test Channel = HCH

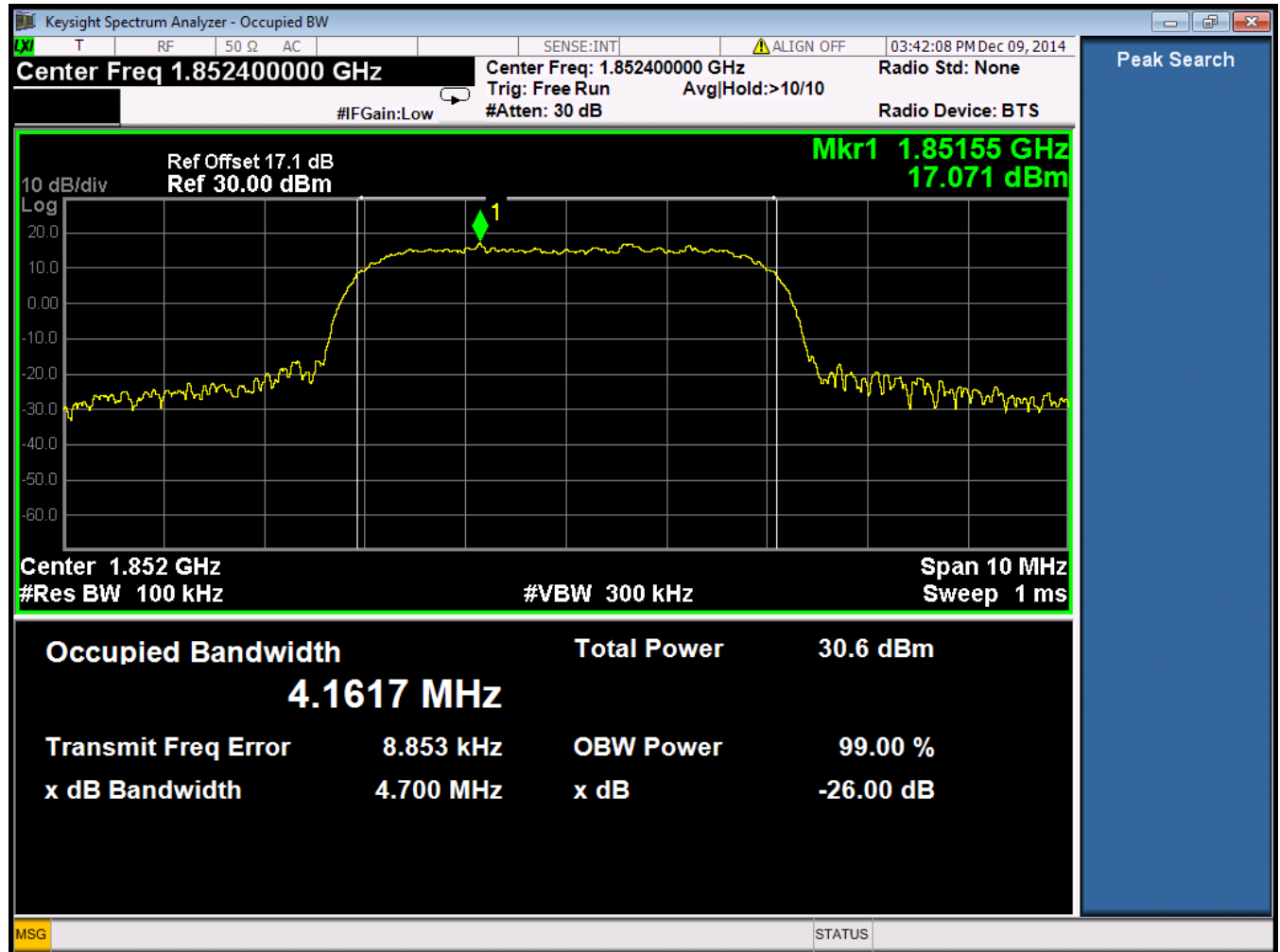




6.3.2 Test Band = WCDMA1900

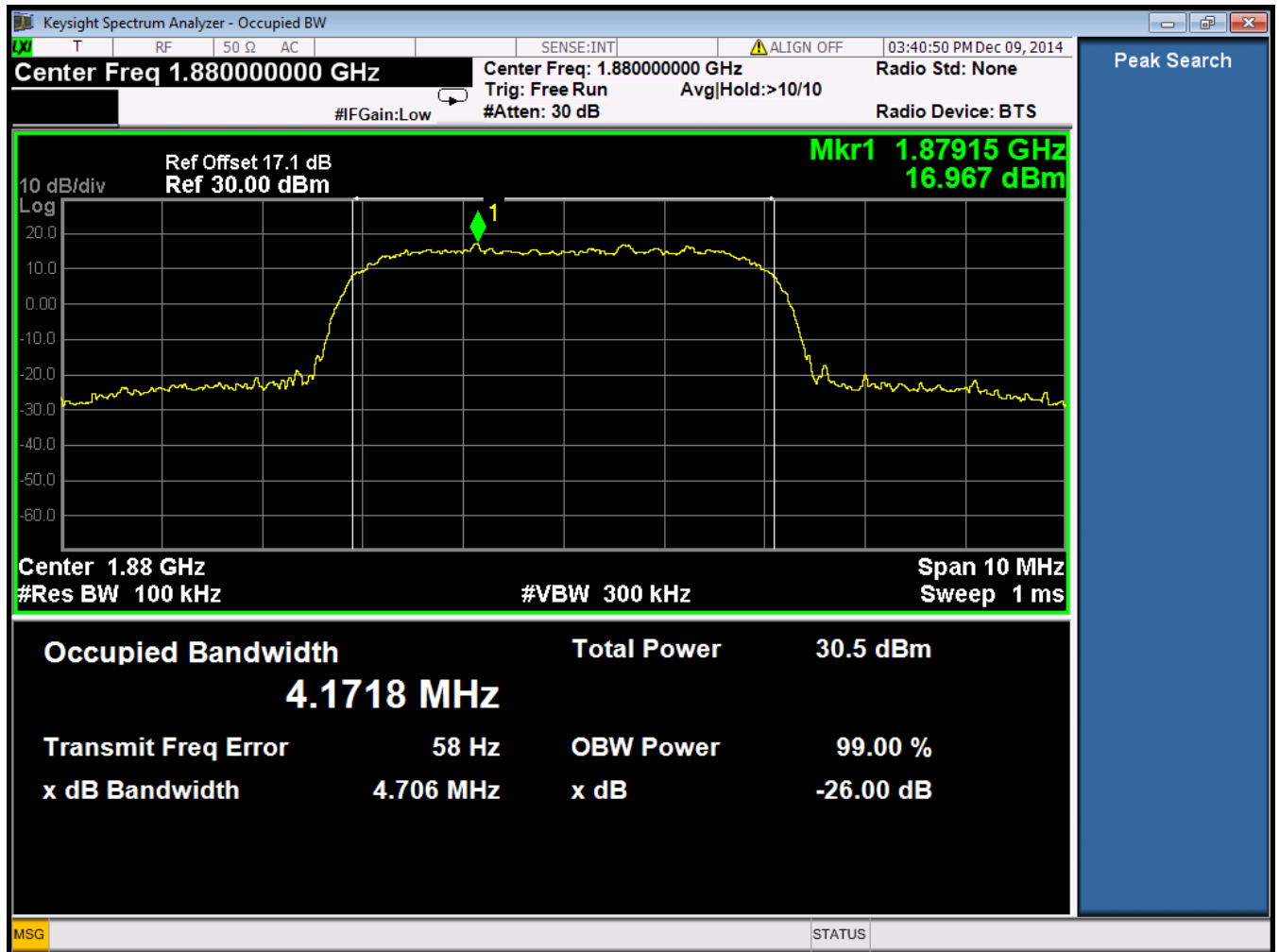
6.3.2.1 Test Mode = UMTS/TM1

6.3.2.1.1 Test Channel = LCH



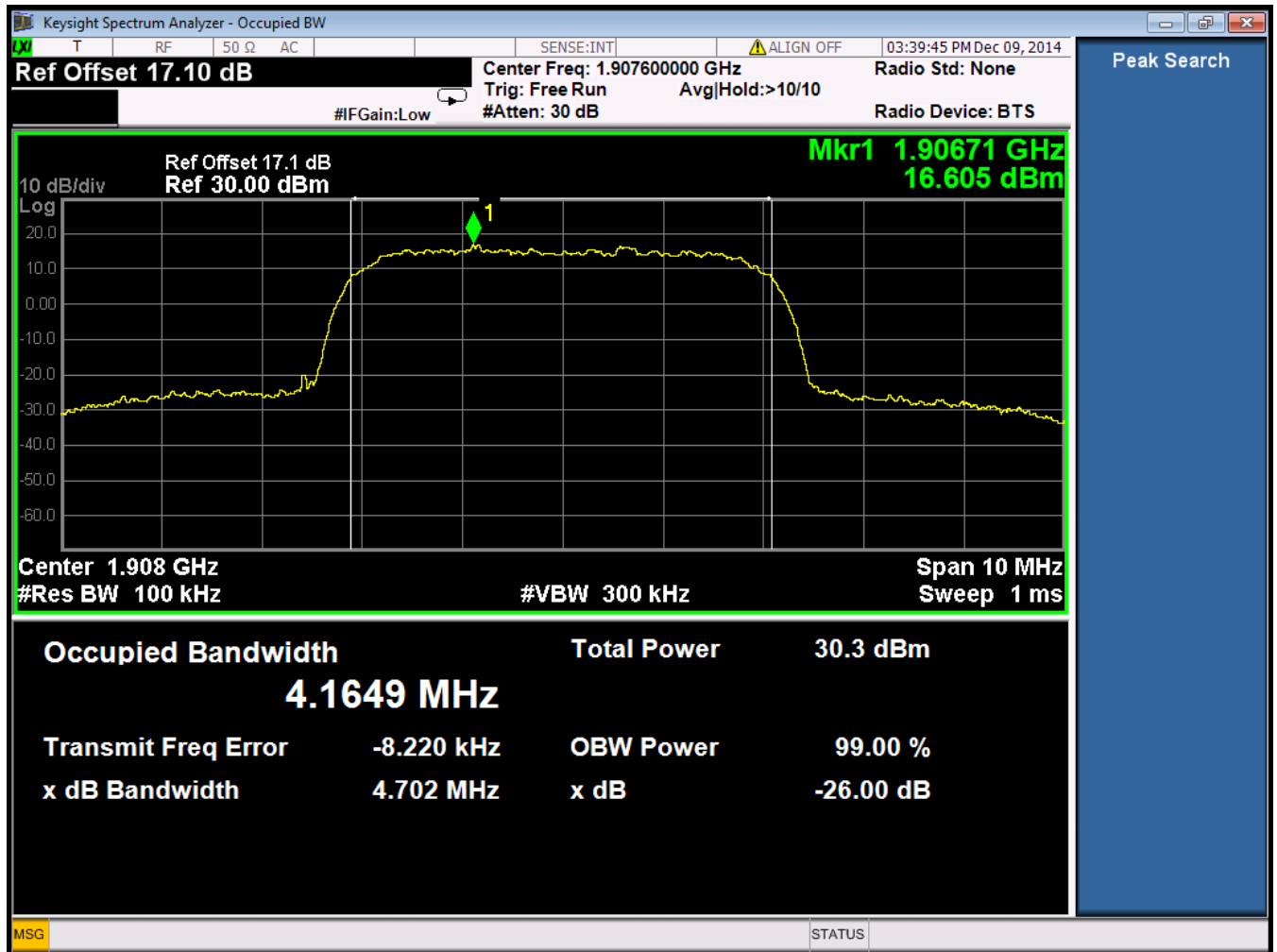


6.3.2.1.2 Test Channel = MCH





6.3.2.1.3 Test Channel = HCH





7 Appendix_E: Band Edges Compliance

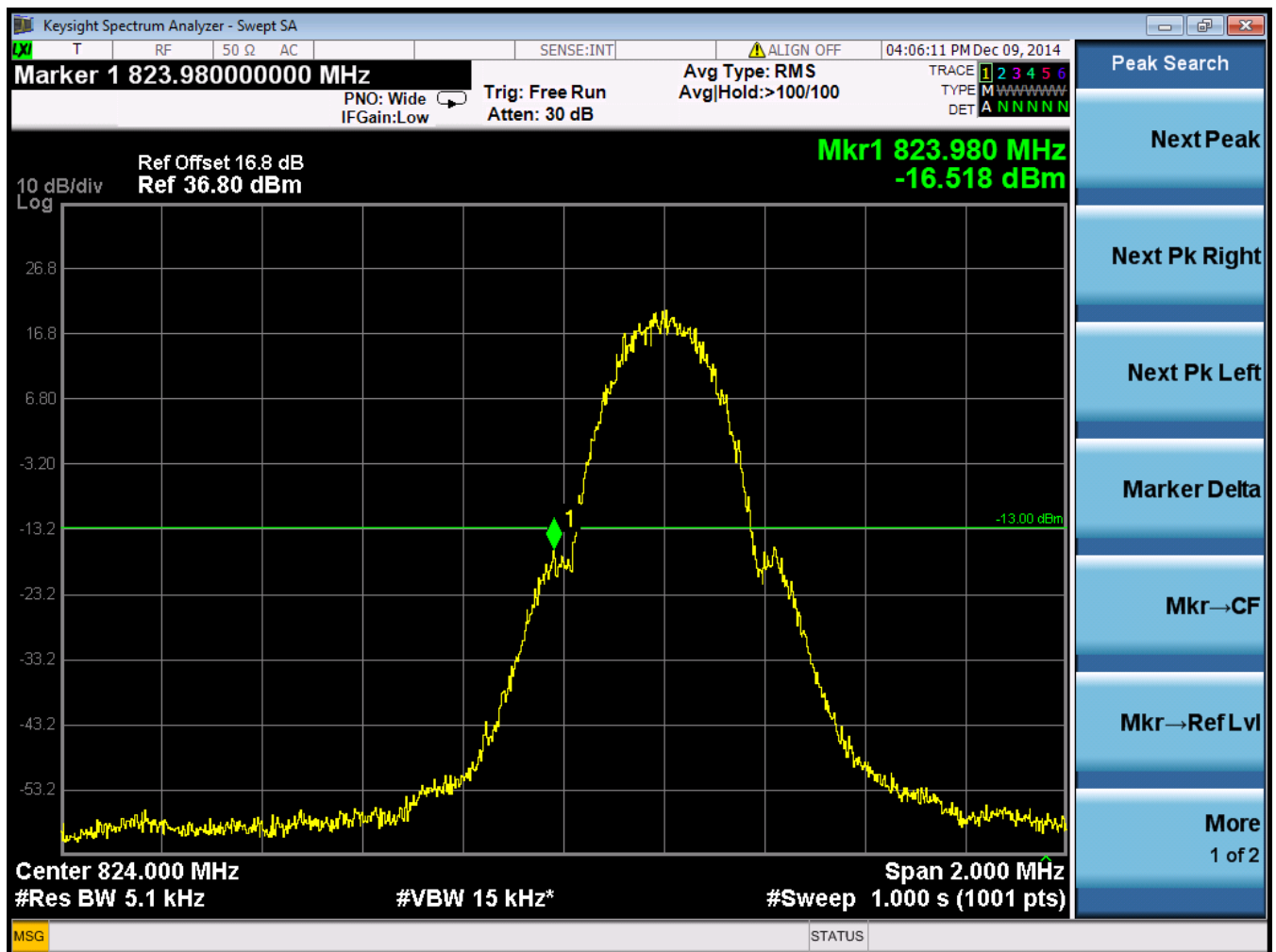
Part I - Test Plots

7.1 For GSM

7.1.1 Test Band = GSM850

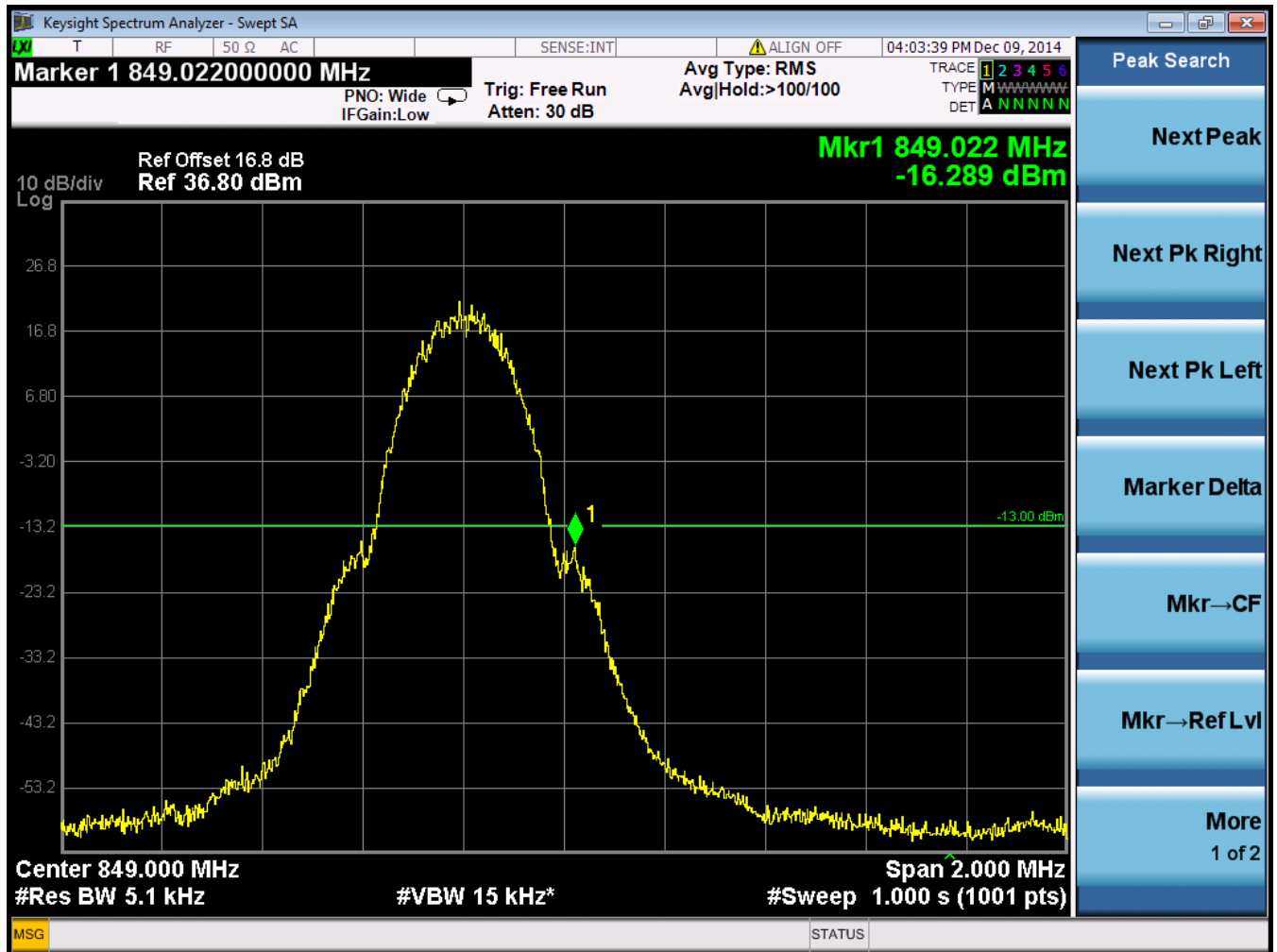
7.1.1.1 Test Mode = GSM/TM1

7.1.1.1.1 Test Channel = LCH





7.1.1.1.2 Test Channel = HCH

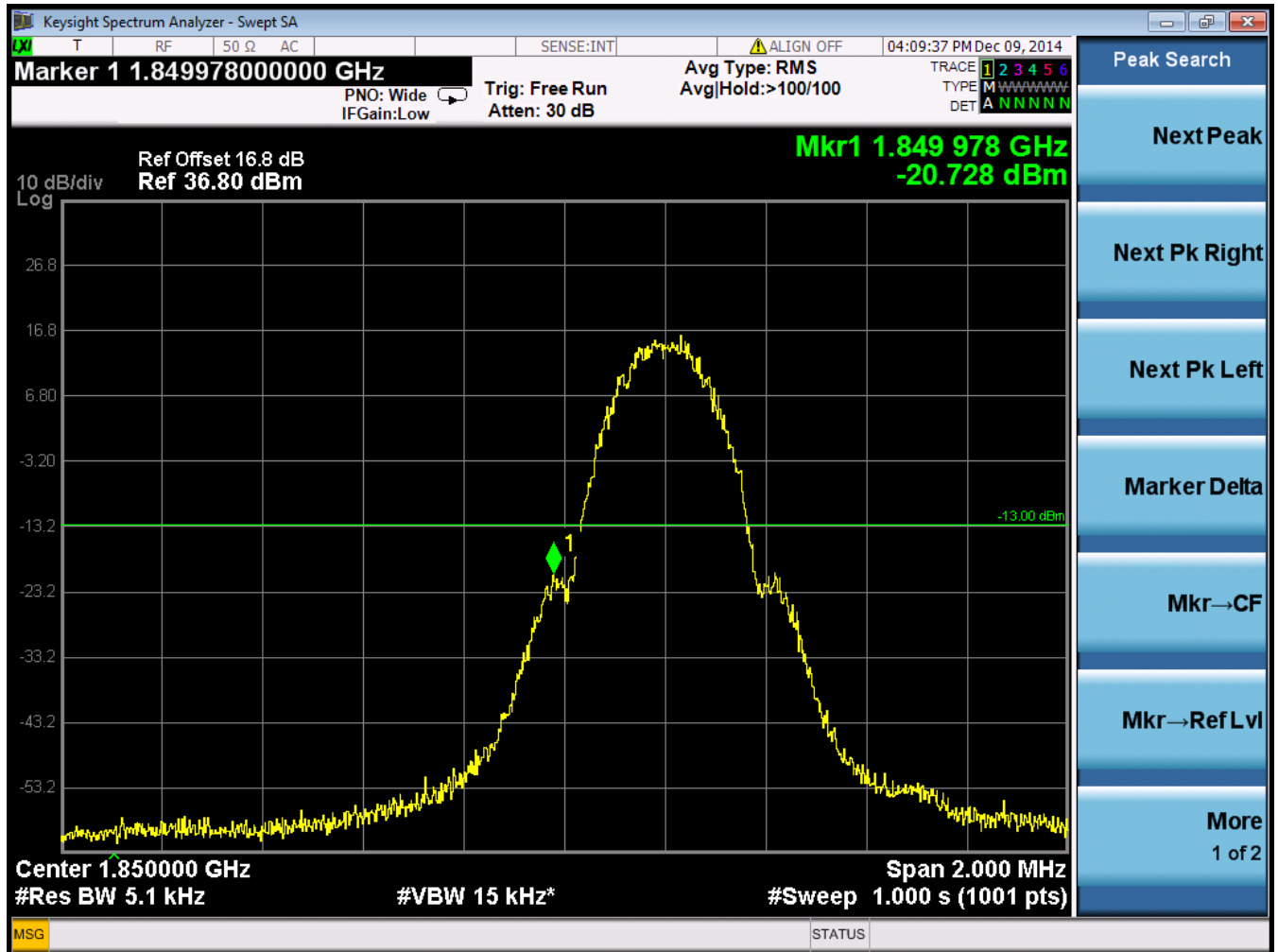




7.1.2 Test Band = GSM1900

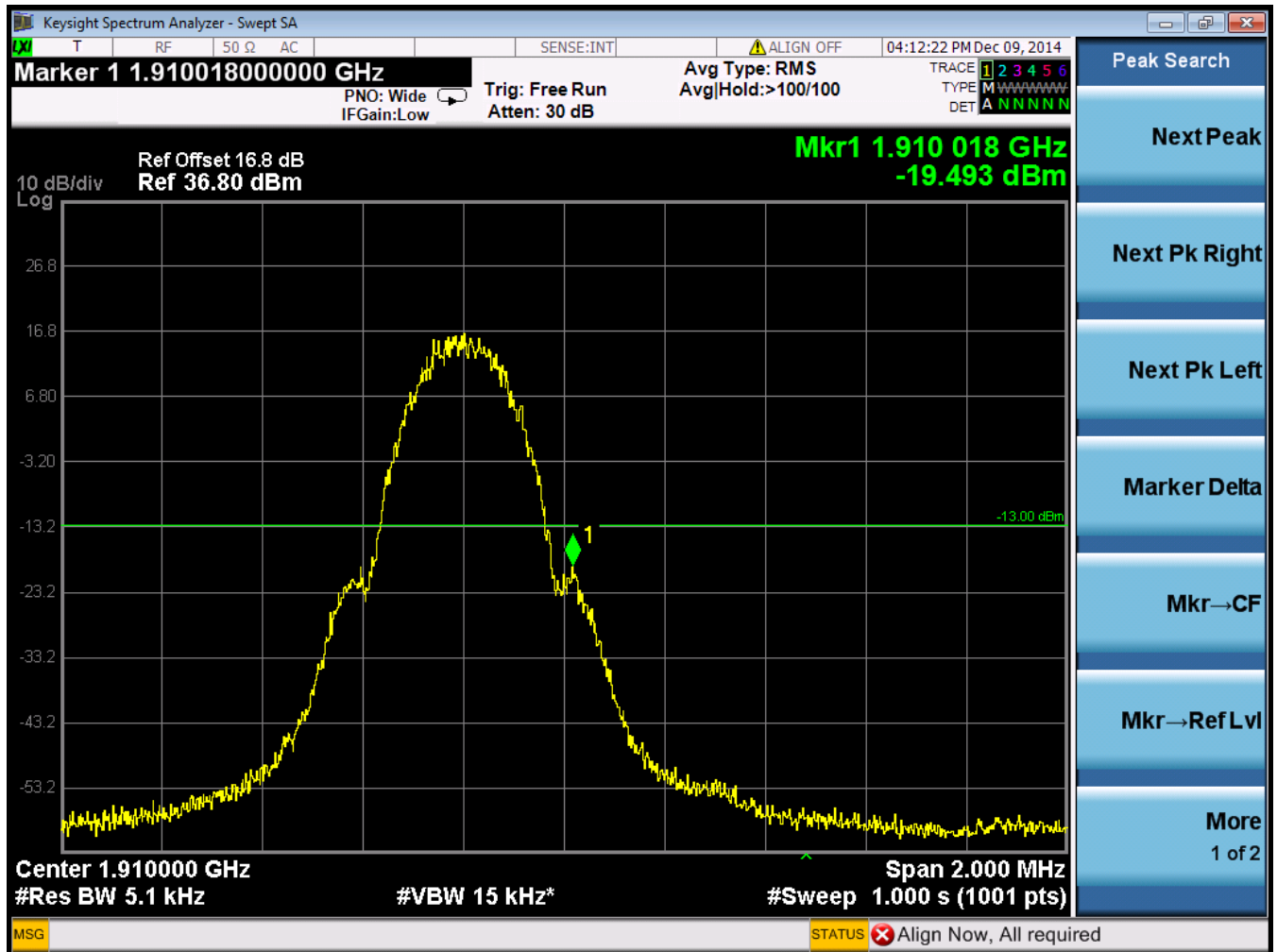
7.1.2.1 Test Mode = GSM/TM1

7.1.2.1.1 Test Channel = LCH





7.1.2.1.2 Test Channel = HCH





7.2 For UMTS

7.2.1 Test Band = WCDMA850

7.2.1.1 Test Mode = UMTS/TM1

7.2.1.1.1 Test Channel = LCH





7.2.1.1.2 Test Channel = HCH

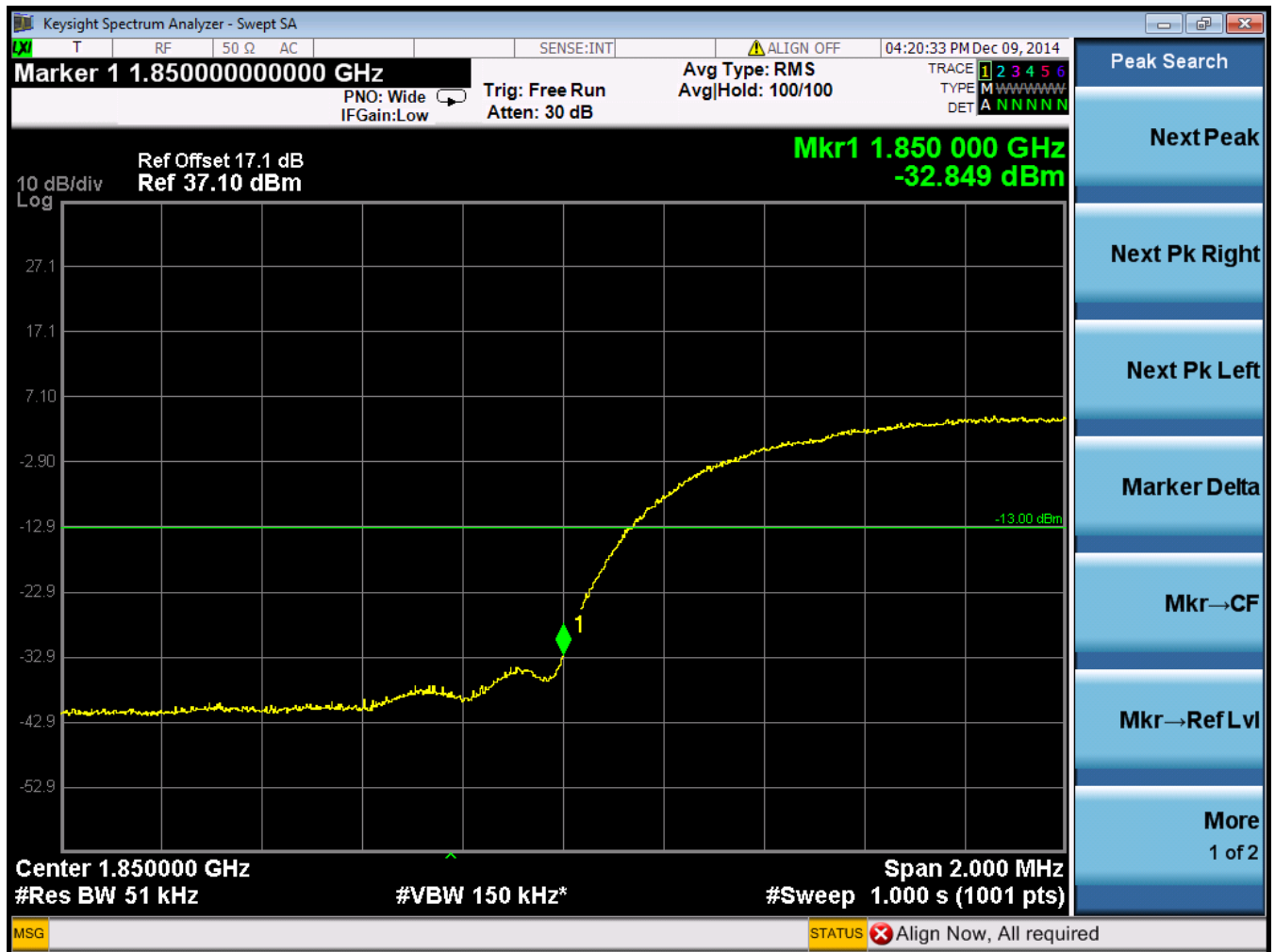




7.2.2 Test Band = WCDMA1900

7.2.2.1 Test Mode = UMTS/TM1

7.2.2.1.1 Test Channel = LCH





8 Appendix_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 = $k * (\text{Span} / \text{RBW})$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

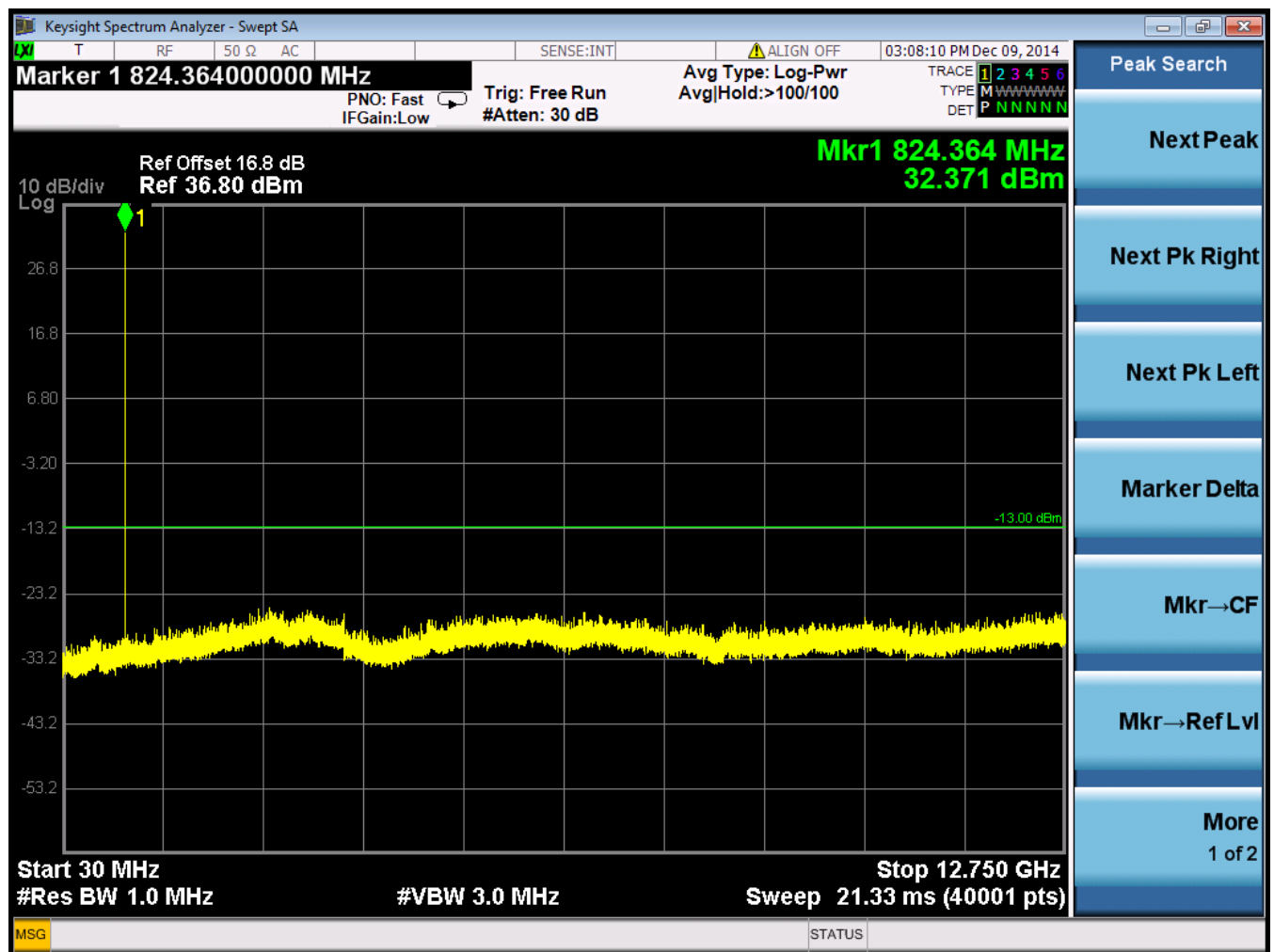
Part I - Test Plots

8.1 For GSM

8.1.1 Test Band = GSM850

8.1.1.1 Test Mode = GSM/TM1

8.1.1.1.1 Test Channel = LCH

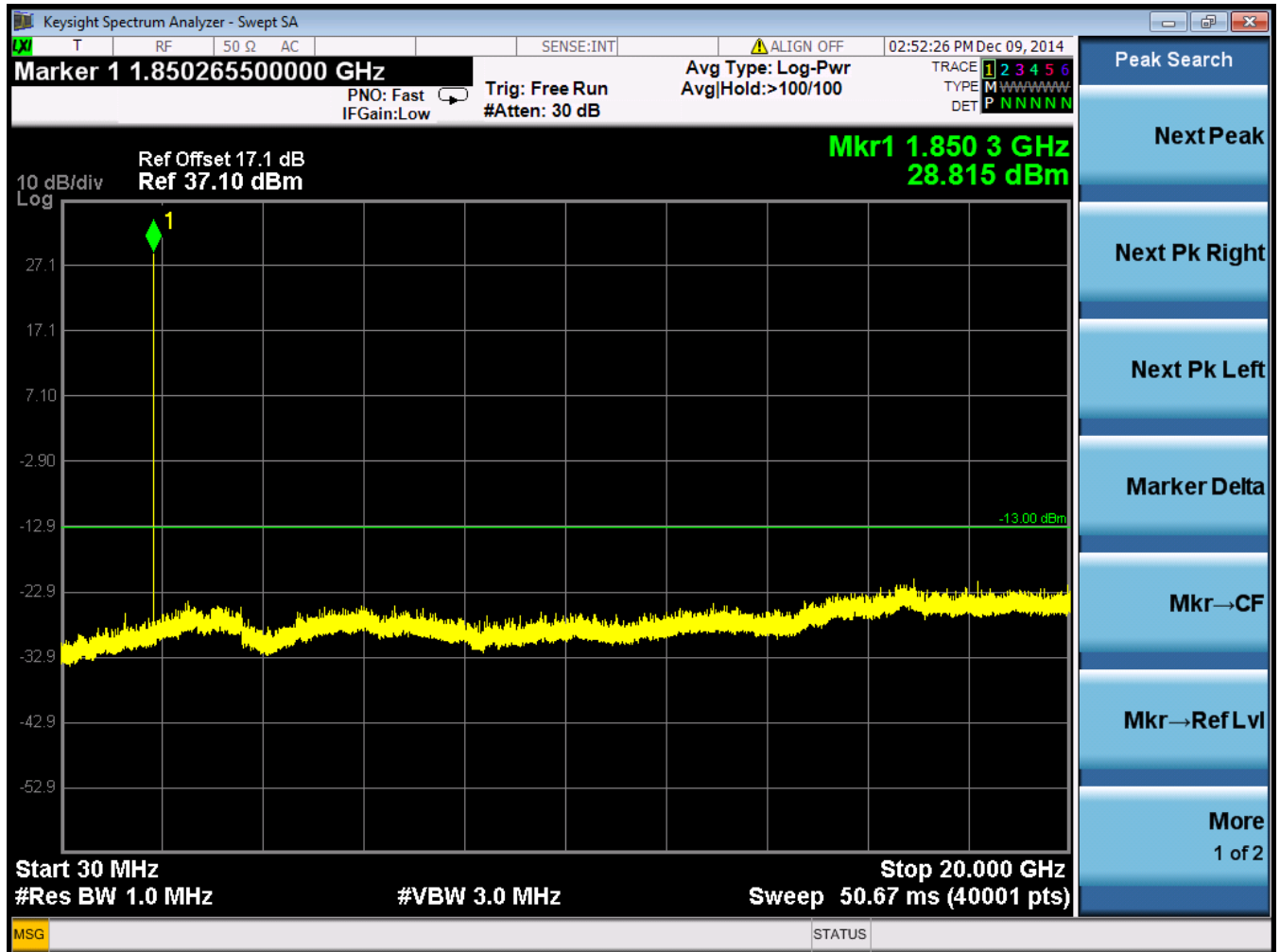




8.1.2 Test Band = GSM1900

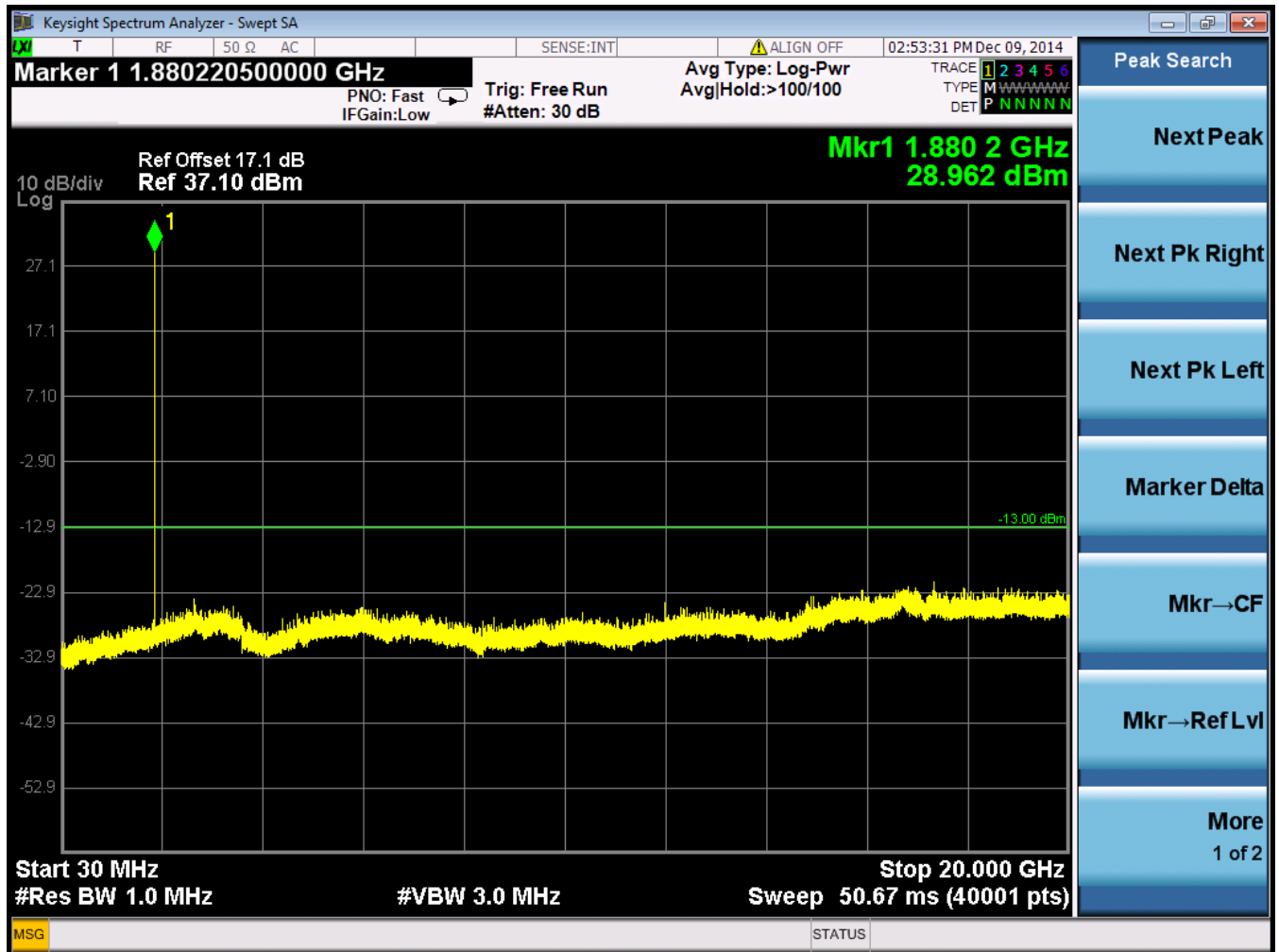
8.1.2.1 Test Mode = GSM/TM1

8.1.2.1.1 Test Channel = LCH



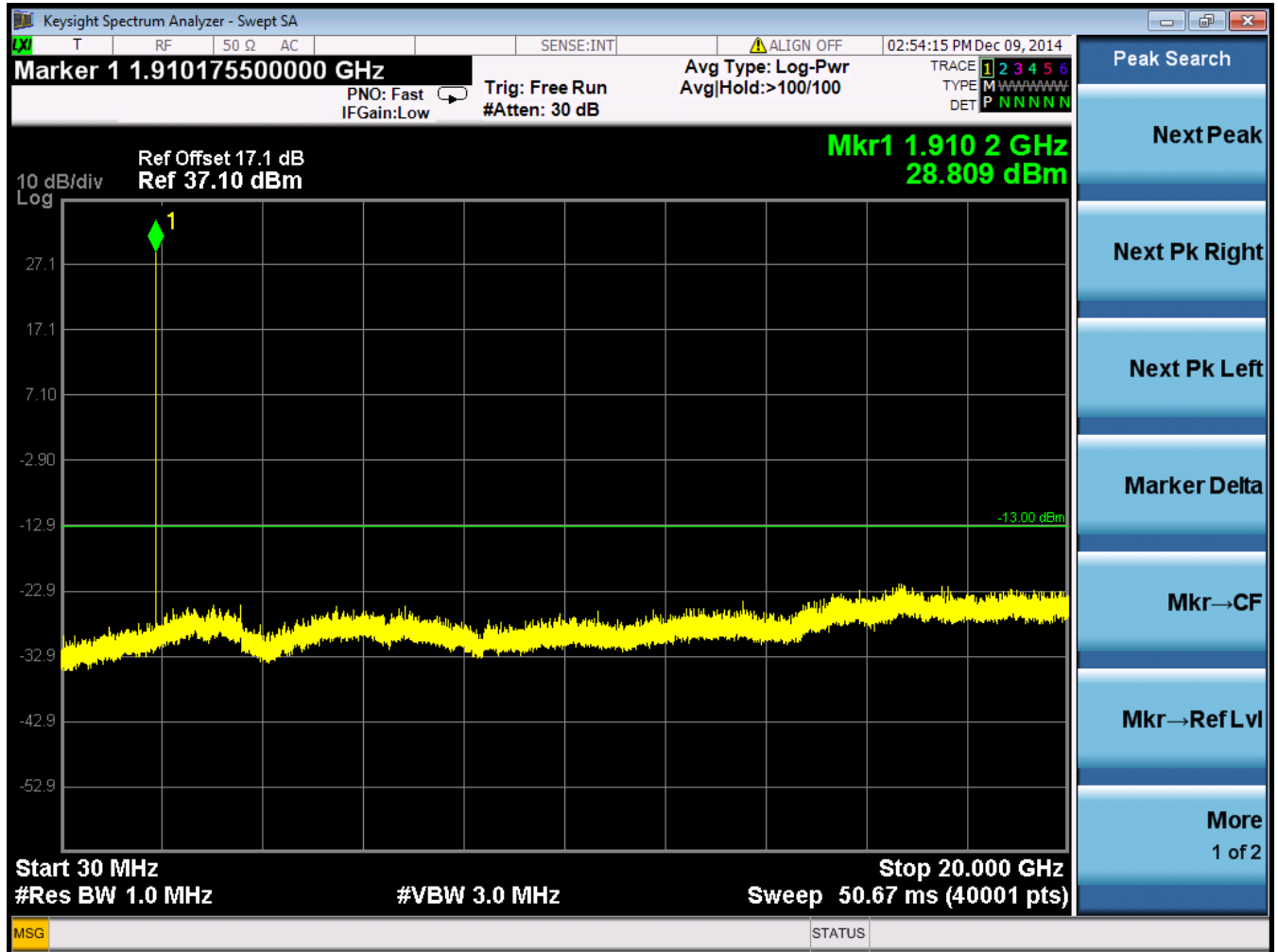


8.1.2.1.2 Test Channel = MCH





8.1.2.1.3 Test Channel = HCH



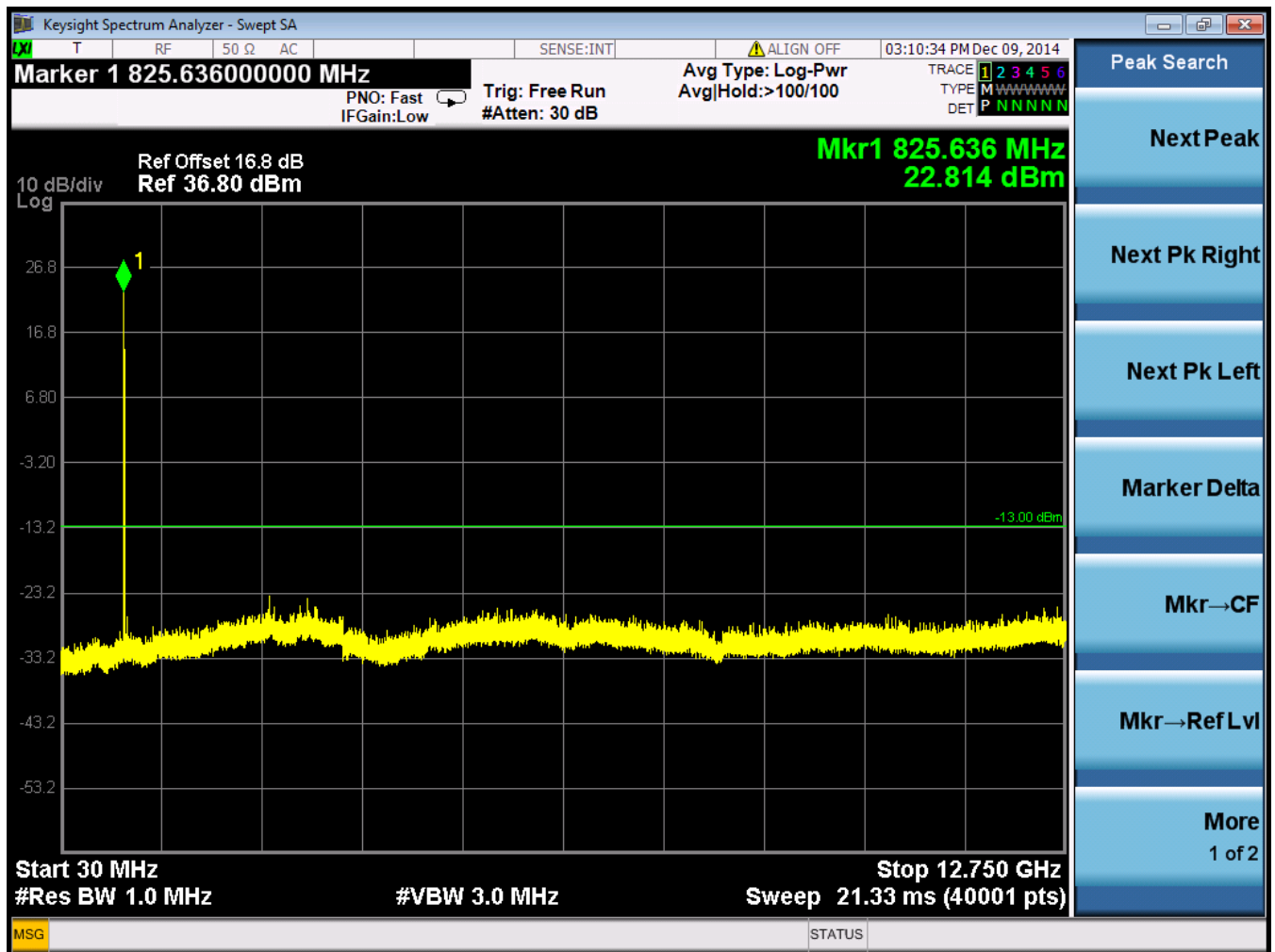


8.2 For UMTS

8.2.1 Test Band = WCDMA850

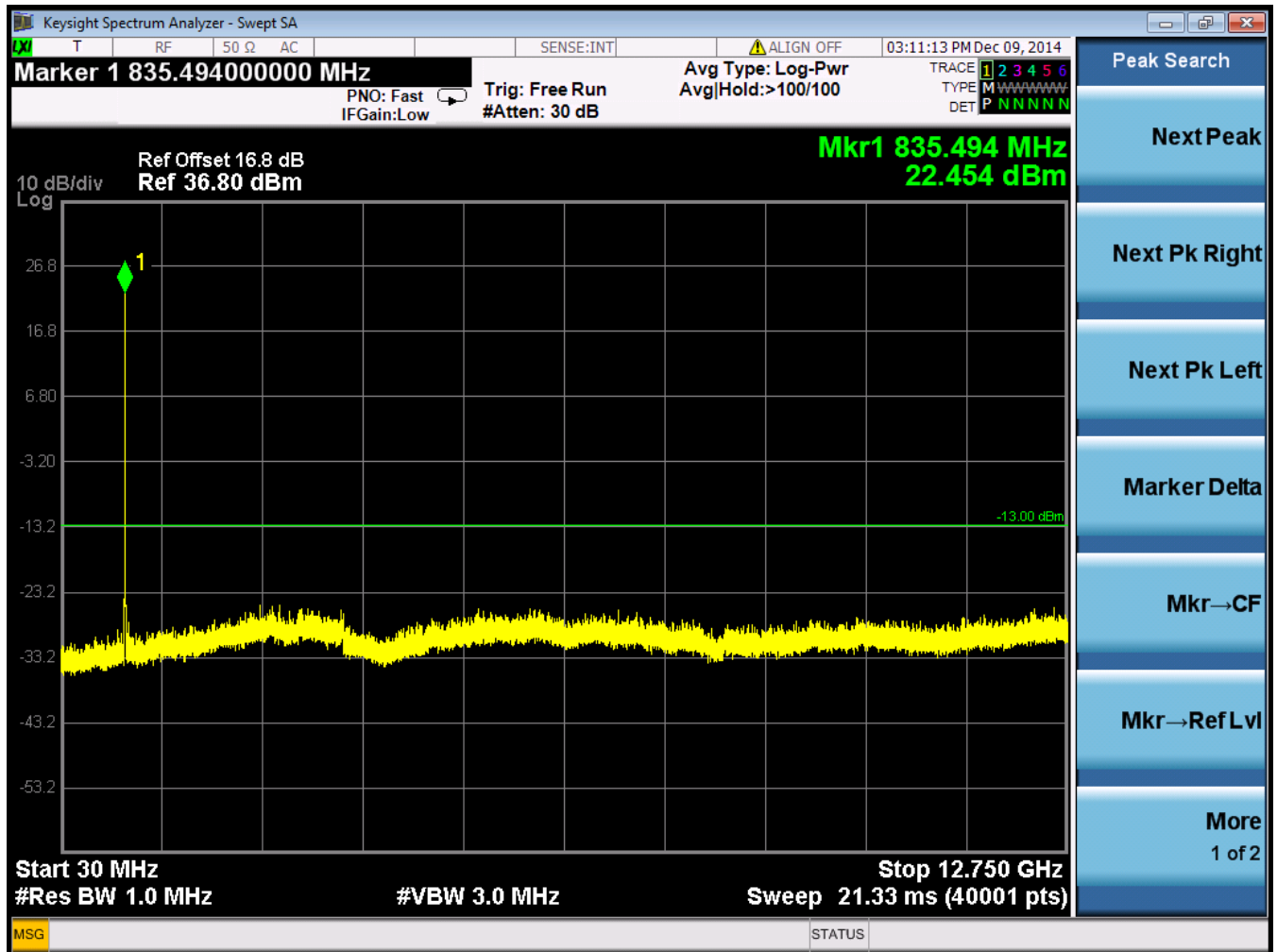
8.2.1.1 Test Mode = UMTS/TM1

8.2.1.1.1 Test Channel = LCH



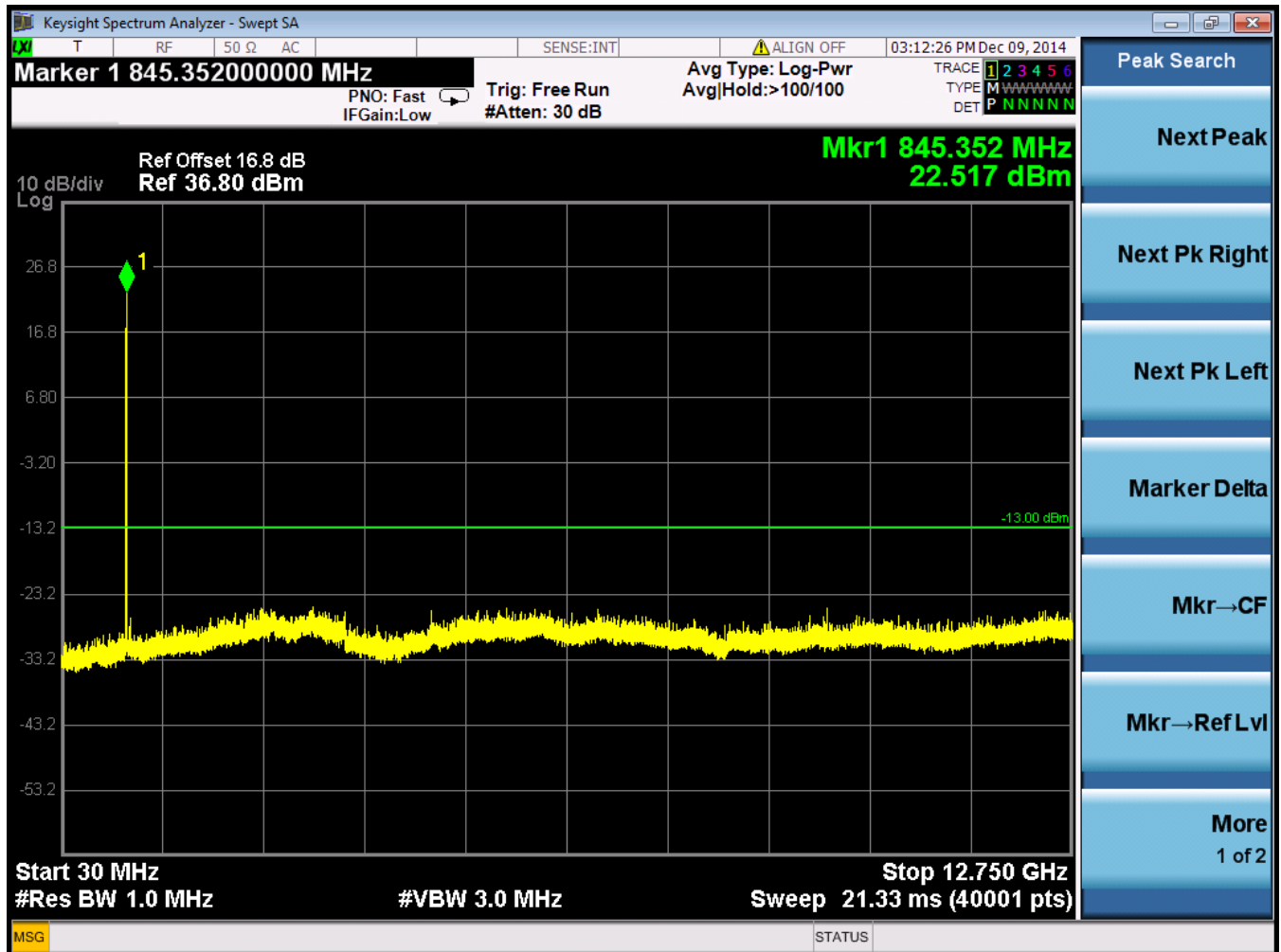


8.2.1.1.2 Test Channel = MCH





8.2.1.1.3 Test Channel = HCH

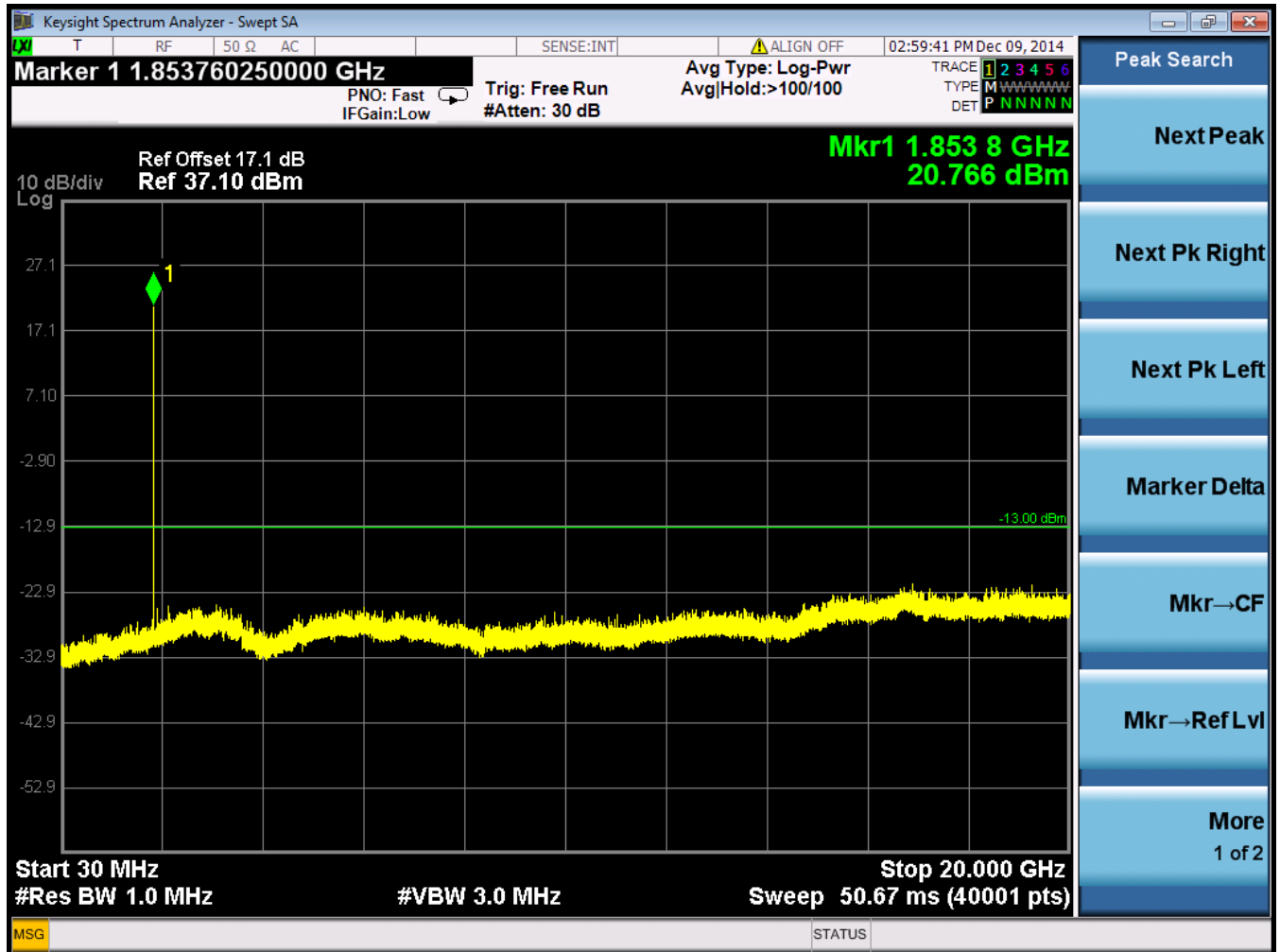




8.2.2 Test Band = WCDMA1900

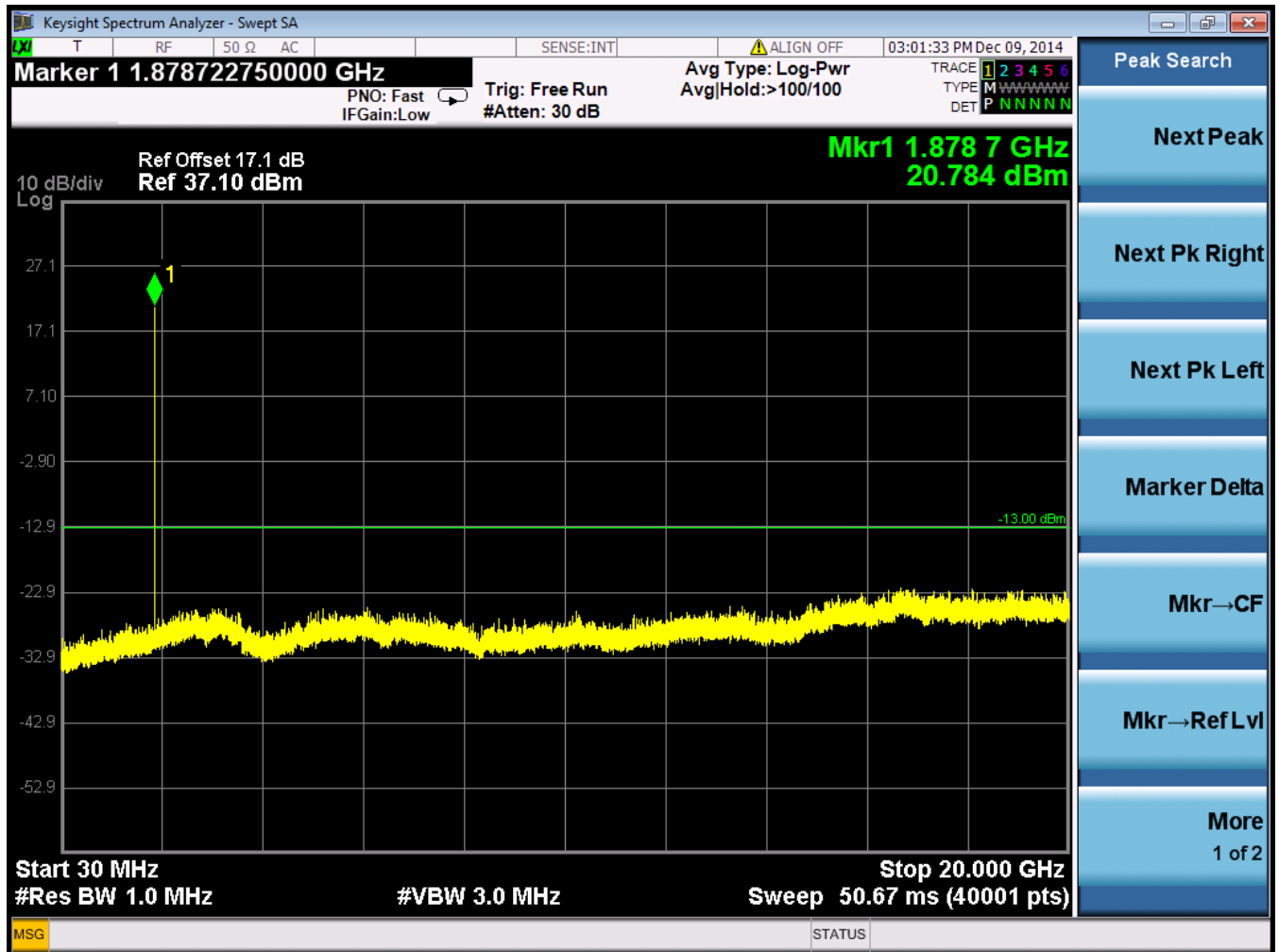
8.2.2.1 Test Mode = UMTS/TM1

8.2.2.1.1 Test Channel = LCH



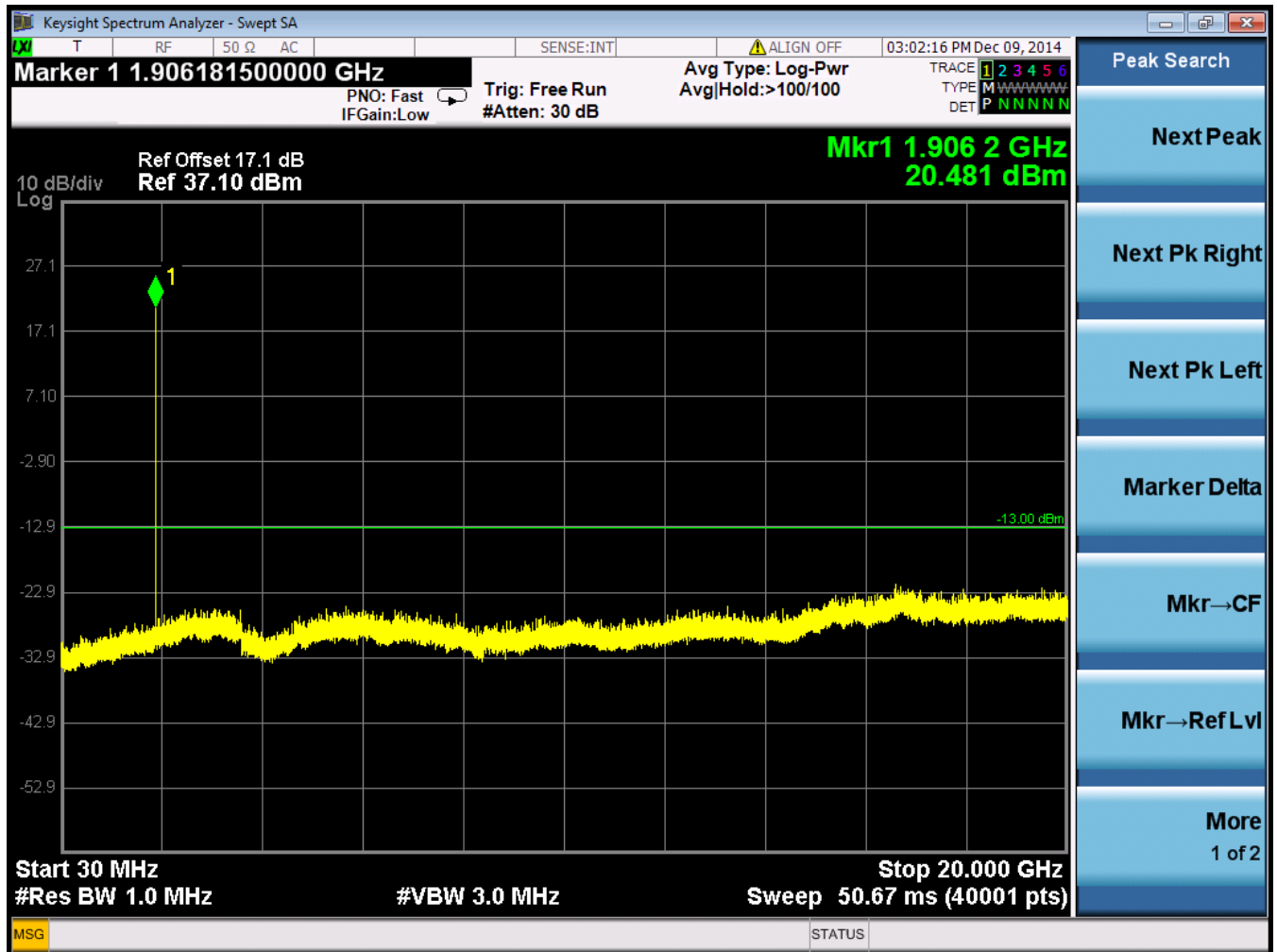


8.2.2.1.2 Test Channel = MCH





8.2.2.1.3 Test Channel = HCH





9 Appendix_G: Field Strength of Spurious Radiation

Part I - Test Plots

9.1 For GSM

9.1.1 Test Band = GSM850

9.1.1.1 Test Mode = GSM/TM1

GSM Below 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
41.660	-71.0	-13.0	-58.0	Vertical
94.359	-68.5	-13.0	-55.5	Vertical
181.364	-69.5	-13.0	-56.5	Vertical
309.731	-66.6	-13.0	-53.6	Vertical
448.869	-64.0	-13.0	-51.0	Vertical
715.496	-60.4	-13.0	-47.4	Vertical
39.788	-70.0	-13.0	-57.0	Horizontal
94.981	-70.1	-13.0	-57.1	Horizontal
212.324	-67.7	-13.0	-54.7	Horizontal
334.028	-66.4	-13.0	-53.4	Horizontal
479.335	-62.6	-13.0	-49.6	Horizontal
621.284	-60.9	-13.0	-47.9	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1467.773	-56.3	-13.0	-43.3	Vertical
2136.210	-52.0	-13.0	-39.0	Vertical
3189.178	-47.3	-13.0	-34.3	Vertical
4355.510	-46.3	-13.0	-33.3	Vertical
6420.205	-43.0	-13.0	-30.0	Vertical
8768.176	-40.5	-13.0	-27.5	Vertical
1474.011	-56.3	-13.0	-43.3	Horizontal
2073.731	-52.9	-13.0	-39.9	Horizontal
2954.808	-50.1	-13.0	-37.1	Horizontal
4309.580	-45.3	-13.0	-32.3	Horizontal
5713.521	-44.1	-13.0	-31.1	Horizontal
8280.320	-40.4	-13.0	-27.4	Horizontal

**GPRS Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
34.549	-73.4	-13.0	-60.4	Vertical
59.979	-70.2	-13.0	-57.2	Vertical
104.469	-68.2	-13.0	-55.2	Vertical
173.216	-71.1	-13.0	-58.1	Vertical
277.014	-68.0	-13.0	-55.0	Vertical
511.868	-62.8	-13.0	-49.8	Vertical
44.634	-68.6	-13.0	-55.6	Horizontal
94.359	-70.0	-13.0	-57.0	Horizontal
182.559	-70.0	-13.0	-57.0	Horizontal
258.557	-67.0	-13.0	-54.0	Horizontal
410.789	-64.6	-13.0	-51.6	Horizontal
520.341	-62.7	-13.0	-49.7	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1584.195	-54.3	-13.0	-41.3	Vertical
2238.216	-51.6	-13.0	-38.6	Vertical
3285.263	-47.5	-13.0	-34.5	Vertical
4515.366	-45.1	-13.0	-32.1	Vertical
6206.057	-42.9	-13.0	-29.9	Vertical
9363.854	-38.5	-13.0	-25.5	Vertical
1547.674	-53.5	-13.0	-40.5	Horizontal
2238.216	-51.3	-13.0	-38.3	Horizontal
3243.734	-47.2	-13.0	-34.2	Horizontal
4157.010	-45.5	-13.0	-32.5	Horizontal
5581.807	-42.4	-13.0	-29.4	Horizontal
8227.818	-40.3	-13.0	-27.3	Horizontal

**EGPRS Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
35.938	-72.3	-13.0	-59.3	Vertical
119.524	-70.7	-13.0	-57.7	Vertical
191.147	-70.0	-13.0	-57.0	Vertical
302.694	-67.1	-13.0	-54.1	Vertical
383.418	-65.0	-13.0	-52.0	Vertical
595.323	-60.9	-13.0	-47.9	Vertical
44.487	-68.7	-13.0	-55.7	Horizontal
118.741	-74.6	-13.0	-61.6	Horizontal
178.411	-72.4	-13.0	-59.4	Horizontal
295.816	-67.9	-13.0	-54.9	Horizontal
425.896	-62.9	-13.0	-49.9	Horizontal
609.164	-61.1	-13.0	-48.1	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1424.845	-56.3	-13.0	-43.3	Vertical
2375.116	-50.7	-13.0	-37.7	Vertical
3189.178	-47.3	-13.0	-34.3	Vertical
4592.609	-45.7	-13.0	-32.7	Vertical
5948.390	-43.2	-13.0	-30.2	Vertical
9363.854	-38.5	-13.0	-25.5	Vertical
1909.152	-53.3	-13.0	-40.3	Horizontal
2405.525	-51.4	-13.0	-38.4	Horizontal
3629.515	-46.9	-13.0	-33.9	Horizontal
5193.582	-43.3	-13.0	-30.3	Horizontal
7092.958	-41.1	-13.0	-28.1	Horizontal
9707.525	-39.4	-13.0	-26.4	Horizontal

**9.1.2 Test Band = GSM1900****9.1.2.1 Test Mode = GSM/TM1****GSM Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
38.503	-70.4	-13.0	-57.4	Vertical
91.311	-70.3	-13.0	-57.3	Vertical
183.762	-72.3	-13.0	-59.3	Vertical
302.694	-69.2	-13.0	-56.2	Vertical
418.962	-65.5	-13.0	-52.5	Vertical
699.238	-62.0	-13.0	-49.0	Vertical
35.749	-81.88	-13.0	-68.89	Horizontal
51.301	-79.26	-13.0	-66.27	Horizontal
87.112	-73.26	-13.0	-60.27	Horizontal
143.326	-68.84	-13.0	-55.85	Horizontal
226.894	-75.61	-13.0	-62.62	Horizontal
689.565	-68.01	-13.0	-55.02	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2968.445	-47.6	-13.0	-34.6	Vertical
4075.540	-46.5	-13.0	-33.5	Vertical
4797.300	-45.9	-13.0	-32.9	Vertical
6938.986	-43.2	-13.0	-30.2	Vertical
9342.630	-37.6	-13.0	-24.6	Vertical
12760.493	-36.8	-13.0	-23.8	Vertical
1673.200	-27.75	-13.0	-14.75	Horizontal
2509.800	-46.97	-13.0	-33.97	Horizontal
3346.400	-47.47	-13.0	-34.47	Horizontal
4183.000	-46.21	-13.0	-33.21	Horizontal
5019.600	-44.97	-13.0	-31.97	Horizontal
5856.200	-43.87	-13.0	-30.87	Horizontal

**GPRS Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
36.413	-70.8	-13.0	-57.8	Vertical
108.668	-70.4	-13.0	-57.4	Vertical
224.512	-73.1	-13.0	-60.1	Vertical
347.451	-68.7	-13.0	-55.7	Vertical
579.889	-62.8	-13.0	-49.8	Vertical
979.302	-57.0	-13.0	-44.0	Vertical
39.528	-68.9	-13.0	-55.9	Horizontal
133.202	-80.0	-13.0	-67.0	Horizontal
221.583	-73.4	-13.0	-60.4	Horizontal
334.028	-73.6	-13.0	-60.6	Horizontal
476.197	-69.3	-13.0	-56.3	Horizontal
817.099	-59.2	-13.0	-46.2	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2948.892	-47.2	-13.0	-34.2	Vertical
4053.691	-46.5	-13.0	-33.5	Vertical
5779.957	-44.3	-13.0	-31.3	Vertical
8420.471	-40.4	-13.0	-27.4	Vertical
10440.337	-37.2	-13.0	-24.2	Vertical
13084.634	-36.4	-13.0	-23.4	Vertical
2856.815	-48.5	-13.0	-35.5	Horizontal
4053.691	-45.6	-13.0	-32.6	Horizontal
4763.041	-45.2	-13.0	-32.2	Horizontal
6254.078	-42.4	-13.0	-29.4	Horizontal
8933.371	-39.7	-13.0	-26.7	Horizontal
12669.365	-35.2	-13.0	-22.2	Horizontal

**EGPRS Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
39.269	-69.9	-13.0	-56.9	Vertical
150.408	-73.5	-13.0	-60.5	Vertical
314.858	-67.1	-13.0	-54.1	Vertical
479.335	-64.5	-13.0	-51.5	Vertical
637.820	-60.8	-13.0	-47.8	Vertical
801.058	-59.2	-13.0	-46.2	Vertical
35.702	-70.7	-13.0	-57.7	Horizontal
96.871	-72.9	-13.0	-59.9	Horizontal
217.975	-73.9	-13.0	-60.9	Horizontal
389.765	-69.6	-13.0	-56.6	Horizontal
699.238	-65.2	-13.0	-52.2	Horizontal
850.150	-57.5	-13.0	-44.5	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2709.698	-49.9	-13.0	-36.9	Vertical
3673.266	-46.7	-13.0	-33.7	Vertical
5116.940	-44.2	-13.0	-31.2	Vertical
6976.386	-43.3	-13.0	-30.3	Vertical
9648.857	-38.3	-13.0	-25.3	Vertical
12921.547	-36.7	-13.0	-23.7	Vertical
2763.957	-48.6	-13.0	-35.6	Horizontal
4209.125	-45.4	-13.0	-32.4	Horizontal
5389.850	-43.9	-13.0	-30.9	Horizontal
6505.529	-41.1	-13.0	-28.1	Horizontal
8109.521	-41.5	-13.0	-28.5	Horizontal
12829.269	-35.0	-13.0	-22.0	Horizontal



9.2 For UMTS

9.2.1 Test Band = WCDMA850

9.2.1.1 Test Mode = UMTS/TM1

WCDMA Below 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
34.549	-73.4	-13.0	-60.4	Vertical
59.003	-69.4	-13.0	-56.4	Vertical
112.664	-69.9	-13.0	-56.9	Vertical
189.273	-71.2	-13.0	-58.2	Vertical
346.312	-65.2	-13.0	-52.2	Vertical
564.855	-60.4	-13.0	-47.4	Vertical
44.487	-68.7	-13.0	-55.7	Horizontal
94.981	-70.1	-13.0	-57.1	Horizontal
155.429	-74.7	-13.0	-61.7	Horizontal
268.948	-67.2	-13.0	-54.2	Horizontal
404.100	-65.7	-13.0	-52.7	Horizontal
595.323	-61.3	-13.0	-48.3	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1528.110	-55.3	-13.0	-42.3	Vertical
2100.281	-53.2	-13.0	-40.2	Vertical
3362.785	-47.9	-13.0	-34.9	Vertical
4811.910	-46.1	-13.0	-33.1	Vertical
6613.637	-42.2	-13.0	-29.2	Vertical
9147.989	-40.6	-13.0	-27.6	Vertical
1739.100	-54.3	-13.0	-41.3	Horizontal
2657.592	-50.4	-13.0	-37.4	Horizontal
3652.676	-46.9	-13.0	-33.9	Horizontal
4956.887	-43.4	-13.0	-30.4	Horizontal
6420.205	-42.3	-13.0	-29.3	Horizontal
8880.433	-40.3	-13.0	-27.3	Horizontal

**9.2.1.2 Test Mode = UMTS/TM2****HSDPA Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
39.528	-69.6	-13.0	-56.6	Vertical
97.830	-68.7	-13.0	-55.7	Vertical
211.628	-70.8	-13.0	-57.8	Vertical
326.438	-65.5	-13.0	-52.5	Vertical
479.335	-63.1	-13.0	-50.1	Vertical
589.488	-61.0	-13.0	-48.0	Vertical
40.982	-69.9	-13.0	-56.9	Horizontal
103.106	-71.1	-13.0	-58.1	Horizontal
173.786	-72.6	-13.0	-59.6	Horizontal
281.600	-68.5	-13.0	-55.5	Horizontal
473.080	-63.5	-13.0	-50.5	Horizontal
589.488	-61.4	-13.0	-48.4	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1554.251	-55.2	-13.0	-42.2	Vertical
2504.410	-51.5	-13.0	-38.5	Vertical
3486.206	-48.3	-13.0	-35.3	Vertical
4811.910	-46.1	-13.0	-33.1	Vertical
6856.370	-41.0	-13.0	-28.0	Vertical
9089.985	-40.0	-13.0	-27.0	Vertical
1440.030	-55.8	-13.0	-42.8	Horizontal
2305.650	-52.0	-13.0	-39.0	Horizontal
3076.272	-47.6	-13.0	-34.6	Horizontal
4130.652	-46.1	-13.0	-33.1	Horizontal
5713.521	-44.1	-13.0	-31.1	Horizontal
8620.703	-40.6	-13.0	-27.6	Horizontal

**9.2.1.3 Test Mode = UMTS/TM3****HSUPA Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
33.324	-71.9	-13.0	-58.9	Vertical
97.830	-68.7	-13.0	-55.7	Vertical
220.133	-71.3	-13.0	-58.3	Vertical
350.891	-65.9	-13.0	-52.9	Vertical
456.299	-63.8	-13.0	-50.8	Vertical
621.284	-60.2	-13.0	-47.2	Vertical
44.196	-68.8	-13.0	-55.8	Horizontal
92.823	-70.6	-13.0	-57.6	Horizontal
186.804	-70.5	-13.0	-57.5	Horizontal
302.694	-66.8	-13.0	-53.8	Horizontal
416.219	-64.1	-13.0	-51.1	Horizontal
574.205	-61.4	-13.0	-48.4	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1638.859	-54.7	-13.0	-41.7	Vertical
2335.169	-52.3	-13.0	-39.3	Vertical
3362.785	-47.9	-13.0	-34.9	Vertical
5041.683	-43.1	-13.0	-30.1	Vertical
6698.310	-42.5	-13.0	-29.5	Vertical
8994.128	-39.8	-13.0	-26.8	Vertical
1750.197	-54.1	-13.0	-41.1	Horizontal
2596.326	-50.6	-13.0	-37.6	Horizontal
3405.839	-47.8	-13.0	-34.8	Horizontal
4700.981	-44.6	-13.0	-31.6	Horizontal
6769.699	-42.8	-13.0	-29.8	Horizontal
8731.073	-39.7	-13.0	-26.7	Horizontal

**9.2.2 Test Band = WCDMA1900****9.2.2.1 Test Mode = UMTS/TM1****WCDMA Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
36.532	-72.8	-13.0	-59.8	Vertical
83.291	-71.3	-13.0	-58.3	Vertical
154.919	-71.4	-13.0	-58.4	Vertical
232.006	-71.0	-13.0	-58.0	Vertical
354.364	-65.7	-13.0	-52.7	Vertical
627.434	-60.4	-13.0	-47.4	Vertical
40.982	-69.9	-13.0	-56.9	Horizontal
90.416	-69.9	-13.0	-56.9	Horizontal
155.429	-74.7	-13.0	-61.7	Horizontal
266.312	-66.9	-13.0	-53.9	Horizontal
408.100	-63.8	-13.0	-50.8	Horizontal
552.021	-62.0	-13.0	-49.0	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3189.178	-47.3	-13.0	-34.3	Vertical
4355.510	-46.3	-13.0	-33.3	Vertical
5641.297	-43.6	-13.0	-30.6	Vertical
6900.121	-42.1	-13.0	-29.1	Vertical
8280.320	-40.2	-13.0	-27.2	Vertical
9810.985	-38.4	-13.0	-25.4	Vertical
2674.550	-51.3	-13.0	-38.3	Horizontal
3486.206	-47.8	-13.0	-34.8	Horizontal
4651.408	-46.0	-13.0	-33.0	Horizontal
6206.057	-41.3	-13.0	-28.3	Horizontal
7753.571	-40.5	-13.0	-27.5	Horizontal
9423.605	-37.8	-13.0	-24.8	Horizontal

**9.2.2.2 Test Mode = UMTS/TM2****HSDPA Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
42.072	-71.0	-13.0	-58.0	Vertical
113.780	-69.7	-13.0	-56.7	Vertical
200.139	-70.2	-13.0	-57.2	Vertical
290.045	-66.8	-13.0	-53.8	Vertical
428.702	-64.2	-13.0	-51.2	Vertical
621.284	-60.2	-13.0	-47.2	Vertical
45.522	-67.4	-13.0	-54.4	Horizontal
122.303	-74.8	-13.0	-61.8	Horizontal
188.035	-70.8	-13.0	-57.8	Horizontal
281.600	-68.5	-13.0	-55.5	Horizontal
454.803	-64.0	-13.0	-51.0	Horizontal
581.796	-61.6	-13.0	-48.6	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2525.740	-49.4	-13.0	-36.4	Vertical
3859.690	-45.4	-13.0	-32.4	Vertical
4999.105	-42.1	-13.0	-29.1	Vertical
6433.832	-42.1	-13.0	-29.1	Vertical
7590.905	-40.0	-13.0	-27.0	Vertical
9707.525	-38.4	-13.0	-25.4	Vertical
2488.530	-51.3	-13.0	-38.3	Horizontal
3486.206	-47.8	-13.0	-34.8	Horizontal
4355.510	-45.3	-13.0	-32.3	Horizontal
5511.248	-42.8	-13.0	-29.8	Horizontal
7306.659	-41.0	-13.0	-28.0	Horizontal
9483.738	-38.2	-13.0	-25.2	Horizontal

**9.2.2.3 Test Mode = UMTS/TM3****HSUPA Below 1GHz**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
34.891	-71.2	-13.0	-58.2	Vertical
143.180	-72.7	-13.0	-59.7	Vertical
221.583	-69.9	-13.0	-56.9	Vertical
302.694	-67.1	-13.0	-54.1	Vertical
416.219	-64.9	-13.0	-51.9	Vertical
589.488	-61.0	-13.0	-48.0	Vertical
41.934	-68.4	-13.0	-55.4	Horizontal
102.432	-70.4	-13.0	-57.4	Horizontal
178.411	-72.4	-13.0	-59.4	Horizontal
280.676	-67.2	-13.0	-54.2	Horizontal
406.762	-63.9	-13.0	-50.9	Horizontal
564.855	-62.1	-13.0	-49.1	Horizontal

Above 1GHz

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
2868.387	-51.1	-13.0	-38.1	Vertical
3851.515	-46.6	-13.0	-33.6	Vertical
5073.854	-43.1	-13.0	-30.1	Vertical
6232.430	-42.4	-13.0	-29.4	Vertical
7852.838	-41.0	-13.0	-28.0	Vertical
9707.525	-38.4	-13.0	-25.4	Vertical
2755.131	-50.3	-13.0	-37.3	Horizontal
3715.161	-46.7	-13.0	-33.7	Horizontal
4811.910	-46.2	-13.0	-33.2	Horizontal
6352.502	-42.1	-13.0	-29.1	Horizontal
7803.047	-40.9	-13.0	-27.9	Horizontal
9748.778	-39.6	-13.0	-26.6	Horizontal

NOTE:

- 1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) Pretest was performed at the EUT in low, middle, high channel, but only the worst test channel(Channel 192 for GSM850 and Channel 661 for GSM1900)and only the data of the worst case show in the test report.



10 Appendix_H: Frequency Stability

10.1 For GSM

10.1.1 Frequency Error VS. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	TN	VL	-3.09	-0.00375	PASS
				VN	-7.99	-0.00969	PASS
				VH	0.53	0.00064	PASS
		MCH	TN	VL	-7.73	-0.00924	PASS
				VN	-6.51	-0.00778	PASS
				VH	-5.15	-0.00616	PASS
		HCH	TN	VL	-0.79	-0.00093	PASS
				VN	-5.51	-0.00649	PASS
				VH	-8.93	-0.01052	PASS
GSM1900	GSM/TM1	LCH	TN	VL	-12.75	-0.00689	PASS
				VN	-10.10	-0.00546	PASS
				VH	-8.55	-0.00462	PASS
		MCH	TN	VL	-2.41	-0.00128	PASS
				VN	-1.70	-0.00090	PASS
				VH	-7.39	-0.00393	PASS
		HCH	TN	VL	-1.06	-0.00056	PASS
				VN	-8.29	-0.00434	PASS
				VH	-18.94	-0.00992	PASS

10.1.2 Frequency Error VS. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	VN	-30	-2.00	-0.00243	PASS
				-20	-1.29	-0.00157	PASS
				-10	-1.61	-0.00195	PASS
				0	-3.55	-0.00431	PASS
				10	1.23	0.00149	PASS
				20	2.46	0.00298	PASS
				30	2.55	0.00309	PASS
				40	1.07	0.00130	PASS
				50	6.17	0.00749	PASS
		MCH	VN	-30	0.23	0.00027	PASS
				-20	2.94	0.00351	PASS
				-10	-0.63	-0.00075	PASS
				0	-1.98	-0.00237	PASS
				10	0.41	0.00049	PASS
				20	-1.14	-0.00136	PASS
				30	0.92	0.00110	PASS
				40	1.50	0.00179	PASS
				50	2.34	0.00280	PASS
		HCH	VN	-30	0.30	0.00035	PASS
				-20	4.95	0.00583	PASS
				-10	-0.67	-0.00079	PASS
				0	-1.12	-0.00132	PASS
				10	-0.86	-0.00101	PASS
				20	-1.12	-0.00132	PASS
				30	-1.32	-0.00156	PASS
				40	-2.22	-0.00262	PASS
				50	-0.15	-0.00018	PASS





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GSM1900	GSM/TM1	LCH	VN	-30	-15.95	-0.00862	PASS
				-20	-9.88	-0.00534	PASS
				-10	-15.05	-0.00813	PASS
				0	-3.23	-0.00175	PASS
				10	0.64	0.00035	PASS
				20	-6.07	-0.00328	PASS
				30	-14.85	-0.00803	PASS
				40	-11.43	-0.00618	PASS
				50	0.32	0.00017	PASS
		MCH	VN	-30	-6.78	-0.00361	PASS
				-20	-8.40	-0.00447	PASS
				-10	-14.14	-0.00752	PASS
				0	-1.68	-0.00089	PASS
				10	-16.34	-0.00869	PASS
				20	-8.65	-0.00460	PASS
				30	1.42	0.00076	PASS
				40	-9.88	-0.00526	PASS
				50	-12.92	-0.00687	PASS
		HCH	VN	-30	-15.69	-0.00822	PASS
				-20	-6.20	-0.00325	PASS
				-10	-7.75	-0.00406	PASS
				0	-12.72	-0.00666	PASS
				10	0.06	0.00003	PASS
				20	1.61	0.00084	PASS
				30	-7.30	-0.00382	PASS
				40	-14.60	-0.00764	PASS
				50	-3.17	-0.00166	PASS

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**10.2 For UMTS****10.2.1 Frequency 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	0.62	0.00075	PASS
				VN	3.35	0.00405	PASS
				VH	1.08	0.00131	PASS
		MCH	TN	VL	-0.78	-0.00093	PASS
				VN	0.64	0.00077	PASS
				VH	1.36	0.00163	PASS
		HCH	TN	VL	-0.93	-0.00110	PASS
				VN	-2.02	-0.00239	PASS
				VH	-0.37	-0.00044	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-7.07	-0.00382	PASS
				VN	-3.99	-0.00215	PASS
				VH	-7.69	-0.00415	PASS
		MCH	TN	VL	-6.32	-0.00336	PASS
				VN	-9.28	-0.00494	PASS
				VH	-5.57	-0.00296	PASS
		HCH	TN	VL	-5.51	-0.00289	PASS
				VN	-10.21	-0.00535	PASS
				VH	-2.08	-0.00109	PASS



10.2.2 Frequency 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	2.94	0.00356	PASS
				-20	1.71	0.00207	PASS
				-10	0.85	0.00103	PASS
				0	-2.46	-0.00298	PASS
				10	0.79	0.00096	PASS
				20	-1.62	-0.00196	PASS
				30	1.86	0.00225	PASS
				40	0.17	0.00021	PASS
				50	-0.84	-0.00102	PASS
		MCH	VN	-30	-1.59	-0.00190	PASS
				-20	-0.86	-0.00103	PASS
				-10	-0.12	-0.00014	PASS
				0	-1.13	-0.00135	PASS
				10	2.55	0.00305	PASS
				20	1.97	0.00236	PASS
				30	1.86	0.00222	PASS
				40	0.32	0.00038	PASS
				50	-0.14	-0.00017	PASS
		HCH	VN	-30	0.06	0.00007	PASS
				-20	0.88	0.00104	PASS
				-10	0.79	0.00093	PASS
				0	-1.31	-0.00155	PASS
				10	1.78	0.00210	PASS
				20	-2.60	-0.00307	PASS
				30	2.88	0.00340	PASS
				40	-0.35	-0.00041	PASS
				50	-2.38	-0.00281	PASS



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WCDMA1900	UMTS/TM1	LCH	VN	-30	-5.21	-0.00281	PASS
				-20	-8.68	-0.00469	PASS
				-10	-5.69	-0.00307	PASS
				0	-7.22	-0.00390	PASS
				10	-5.37	-0.00290	PASS
				20	-3.83	-0.00207	PASS
				30	-9.68	-0.00523	PASS
				40	-5.43	-0.00293	PASS
				50	-4.46	-0.00241	PASS
		MCH	VN	-30	-6.66	-0.00354	PASS
				-20	-8.01	-0.00426	PASS
				-10	-4.23	-0.00225	PASS
				0	-7.65	-0.00407	PASS
				10	-4.99	-0.00265	PASS
				20	-6.32	-0.00336	PASS
				30	-9.02	-0.00480	PASS
				40	-7.89	-0.00420	PASS
				50	-5.89	-0.00313	PASS
		HCH	VN	-30	-6.14	-0.00322	PASS
				-20	-6.43	-0.00337	PASS
				-10	-7.66	-0.00402	PASS
				0	-7.19	-0.00377	PASS
				10	-6.96	-0.00365	PASS
				20	-3.92	-0.00205	PASS
				30	-7.11	-0.00373	PASS
				40	-2.73	-0.00143	PASS
				50	-4.96	-0.00260	PASS

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11 Appendix_H: Setup



The End