

Appendix B

Test Report for SZEM151200808701

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1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Part 1 – 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	
T _{nom} / V _{nom}		Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
GSM/TM1 (GPRS)		33.17	38.5	33.46	38.5	33.45	38.5
GSM/TM2 (EGPRS)		27.43	38.5	27.45	38.5	27.44	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 (GPRS)	824.2	32.24	Dipole	37.71	-4.90	0.6	32.21	38.5	Pass
GSM/TM1 (GPRS)	836.6	32.53	Dipole	38.14	-5.02	0.6	32.52	38.5	Pass
GSM/TM1 (GPRS)	848.8	32.52	Dipole	38.10	-5.00	0.6	32.50	38.5	Pass
GSM/TM2 (EGPRS)	824.2	26.5	Dipole	32.01	-4.90	0.6	26.51	38.5	Pass
GSM/TM2 (EGPRS)	836.6	26.52	Dipole	32.15	-5.02	0.6	26.53	38.5	Pass
GSM/TM2 (EGPRS)	848.8	26.51	Dipole	32.12	-5.00	0.6	26.52	38.5	Pass

Note:

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

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

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS

d: Meas. Level is the value that is read on the spectrum.

Part 3 – RF Conducted Power of Transmitter for GSM1900

		RF Output Power(Conducted)				
TEST CONDITIONS	Channel512(L)		Channel661(M)		Channel810(H)	
	1850.2MHz		1880.0 MHz		1909.8 MHz	
T _{nom} / V _{nom}	Measured (dBm)	Limit (dBm)	Measured (dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
GSM/TM1 (GPRS)	30.12	38.5	30.08	38.5	30.03	38.5
GSM/TM2 (EGPRS)	26.21	38.5	26.18	38.5	26.15	38.5

Part 4– Effective Isotropic Radiated Power of Transmitter (EIRP) for GSM1900

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 (GPRS)	1850.2	31.93	Horn Ant.	28.42	4.5	1	31.92	38.5	Pass
GSM/TM1 (GPRS)	1880.0	31.89	Horn Ant.	28.36	4.5	1	31.86	38.5	Pass
GSM/TM1 (GPRS)	1909.8	31.84	Horn Ant.	28.35	4.5	1	31.85	38.5	Pass
GSM/TM2 (EGPRS)	1850.2	28.02	Horn Ant.	24.51	4.5	1	28.01	38.5	Pass
GSM/TM2 (EGPRS)	1880.0	27.99	Horn Ant.	24.46	4.5	1	27.96	38.5	Pass
GSM/TM2 (EGPRS)	1909.8	27.96	Horn Ant.	24.47	4.5	1	27.97	38.5	Pass

Note:

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

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

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS

d: Meas. Level is the value that is read on the spectrum.





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Part 5 – RF Conducted Power of Transmitter for WCDMA BAND 5

		RF Output Power(Conducted)				
TEST CONDITIONS	Channel 4132(L)		Channel 4182 (M)		Channel 4233(H)	
	826.4MHz		836.4MHz		846.6MHz	
Tnom/ Vnom	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)	Measured(dBm)	Limit (dBm)
HSDPA	23.21	38.5	23.09	38.5	23.03	38.5
HSUPA	22.83	38.5	22.43	38.5	22.41	38.5

Part 6– Effective Radiated Power of Transmitter (ERP) for WCDMA BAND 5

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
HSDPA	826.4	22.28	Dipole	27.75	-4.90	0.6	22.25	38.5	Pass
HSDPA	836.4	22.16	Dipole	27.75	-5.02	0.6	22.13	38.5	Pass
HSDPA	846.6	22.1	Dipole	27.71	-5.00	0.6	22.11	38.5	Pass
HSUPA	826.4	21.9	Dipole	27.39	-4.90	0.6	21.89	38.5	Pass
HSUPA	836.4	21.5	Dipole	27.15	-5.02	0.6	21.53	38.5	Pass
HSUPA	846.6	21.48	Dipole	27.06	-5.00	0.6	21.46	38.5	Pass

Note:

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

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

b: SGP=Signal Generator Level

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS

d: Meas. Level is the value that is read on the spectrum.

2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM1900	GSM/TM1	LCH	9.58	13	PASS
		MCH	9.7	13	PASS
		HCH	9.83	13	PASS
	GSM/TM2	LCH	12.56	13	PASS
		MCH	12.68	13	PASS
		HCH	12.68	13	PASS

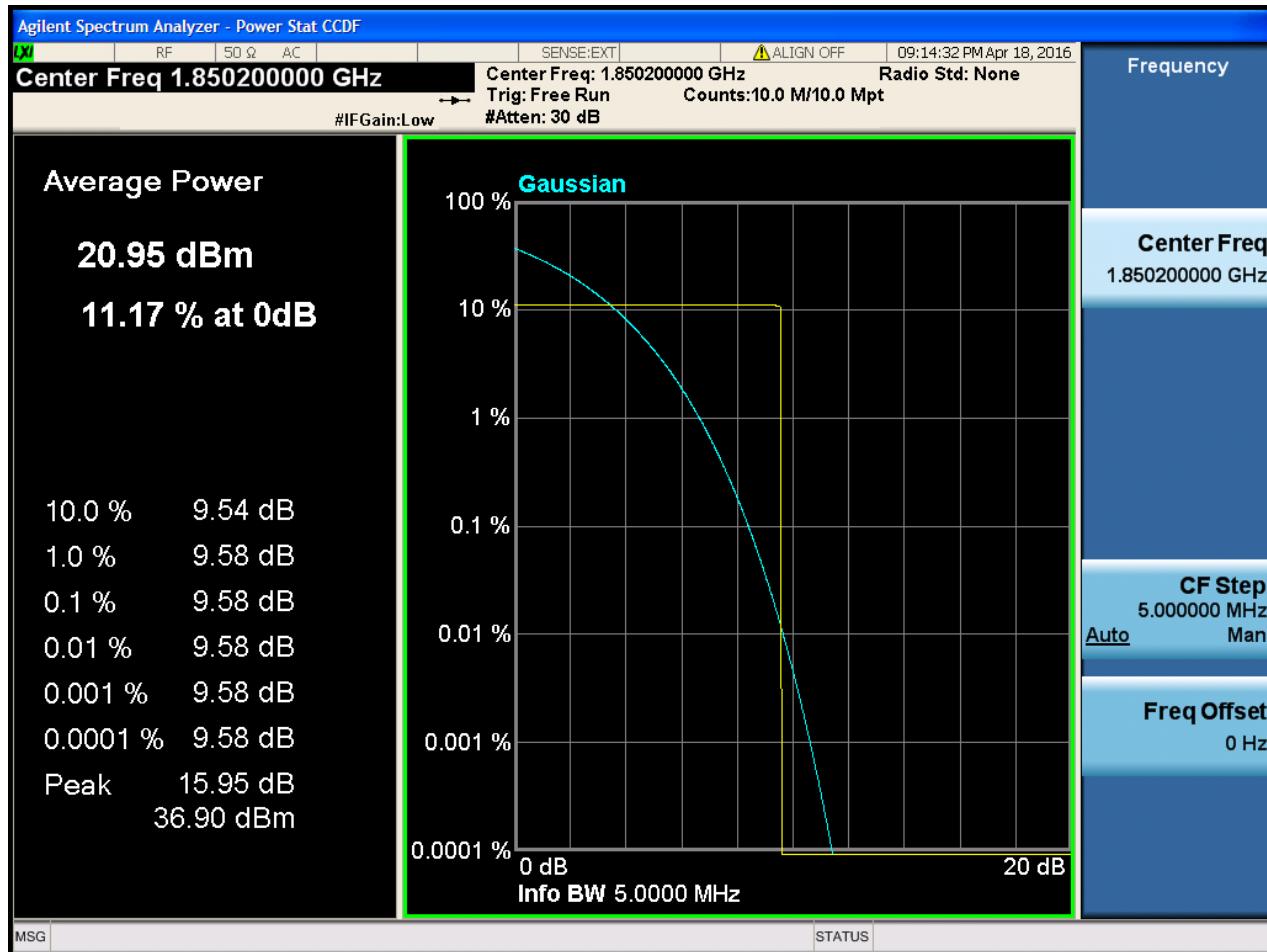
Part II - Test Plots

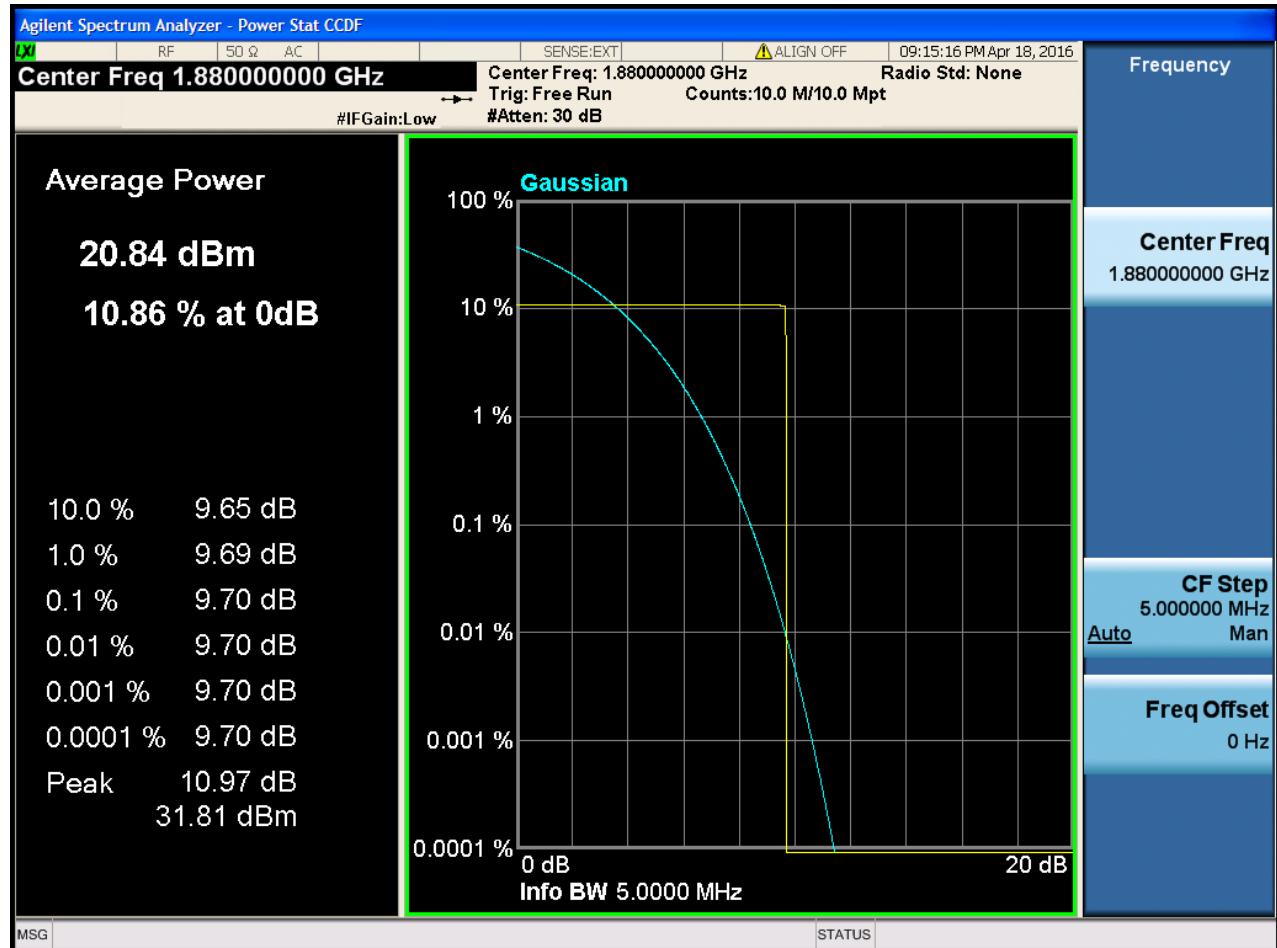
2.1 For GSM

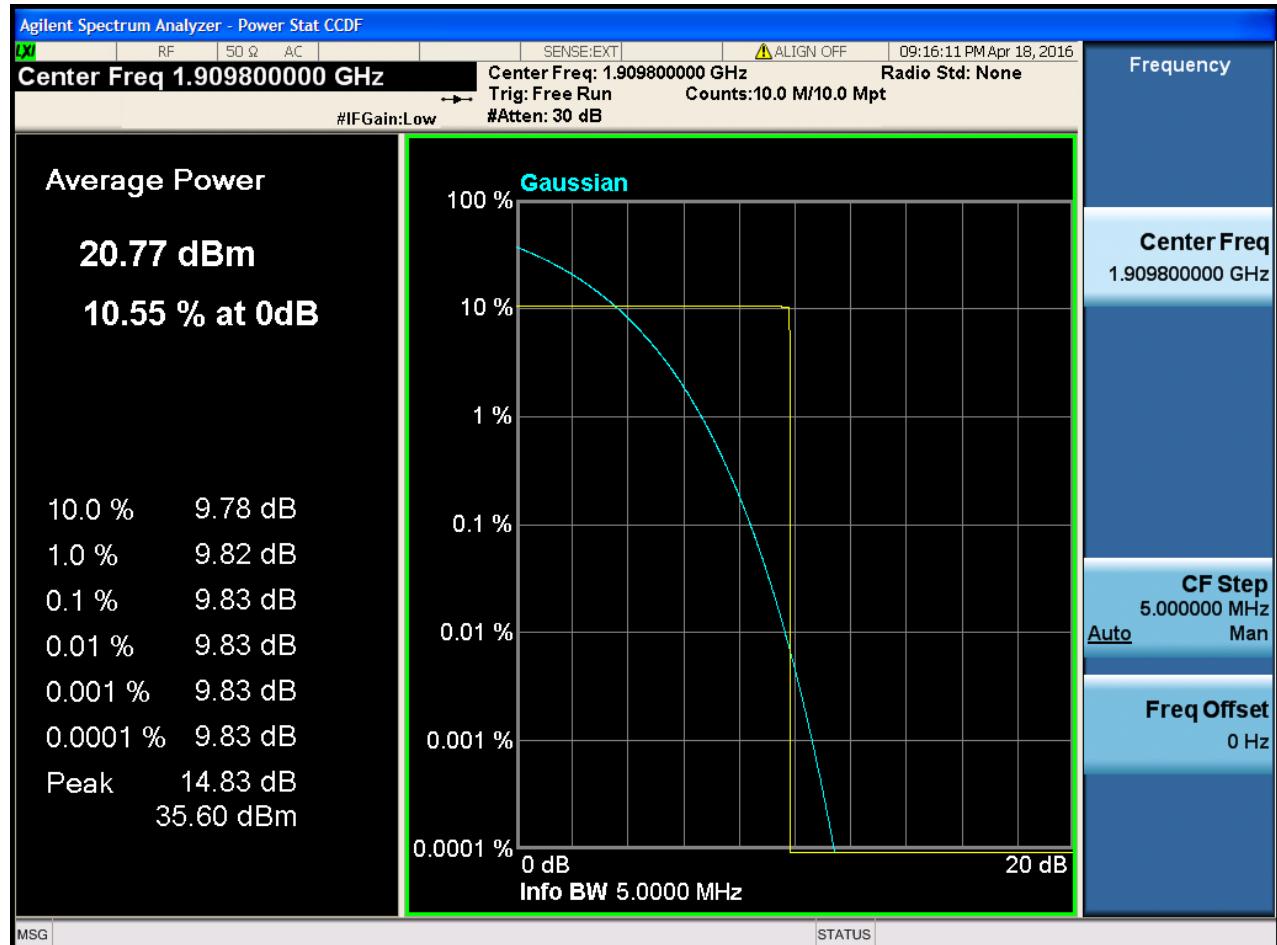
2.1.1 Test Band = GSM1900

2.1.1.1 Test Mode = GSM/TM1

2.1.1.1.1 Test Channel = LCH

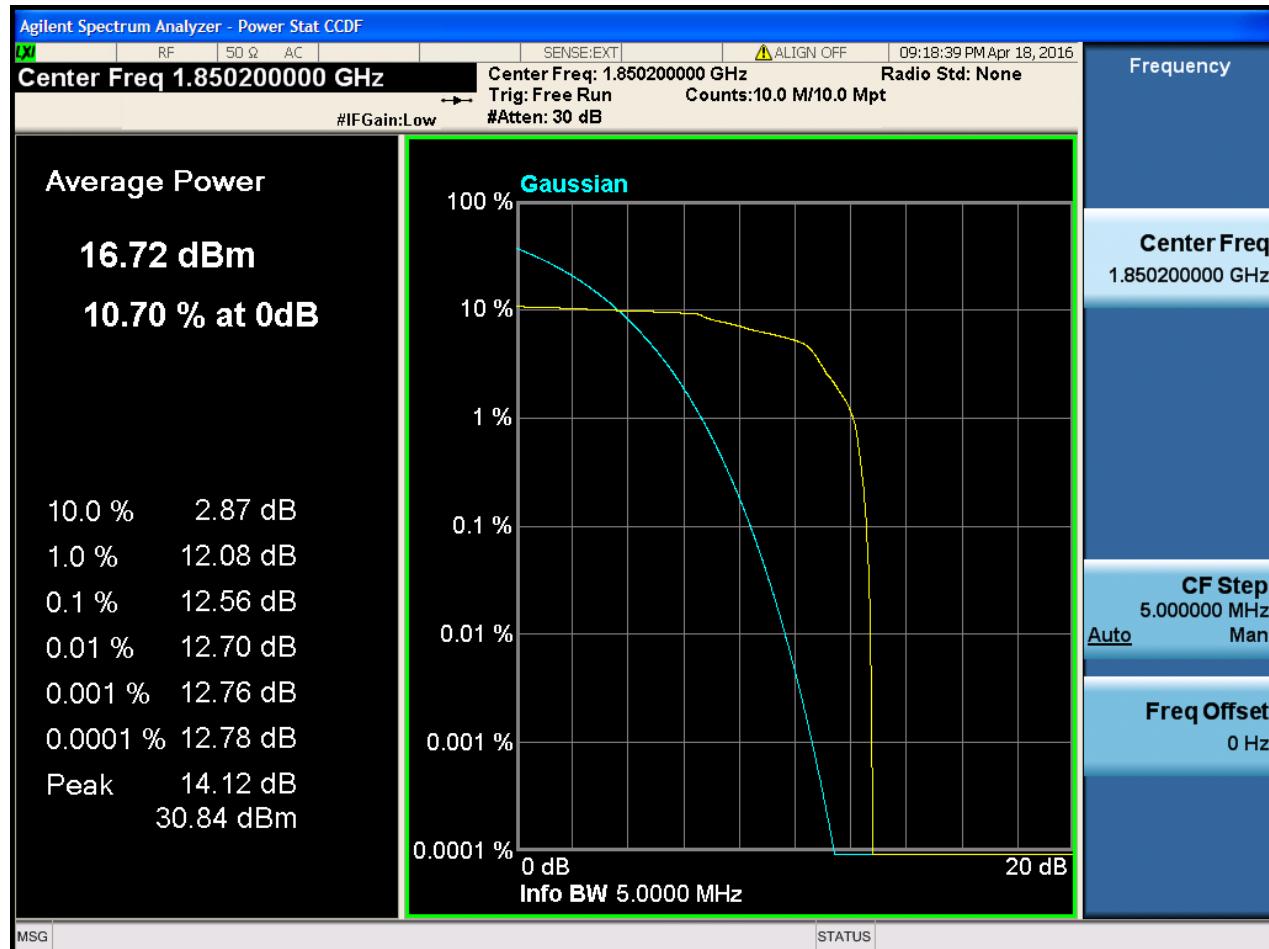


2.1.1.1.2 Test Channel = MCH

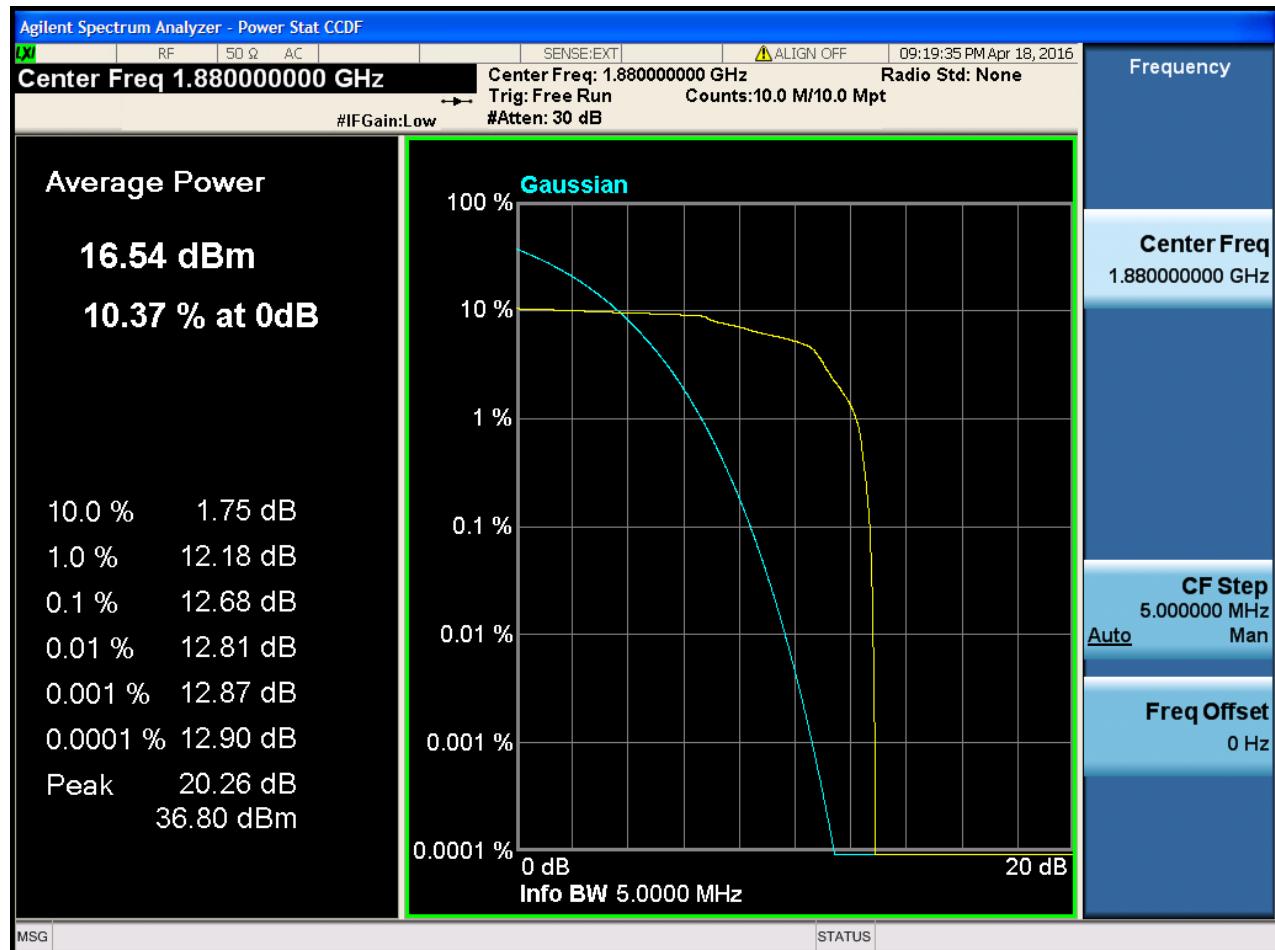
2.1.1.1.3 Test Channel = HCH

2.1.1.2 Test Mode = GSM/TM2

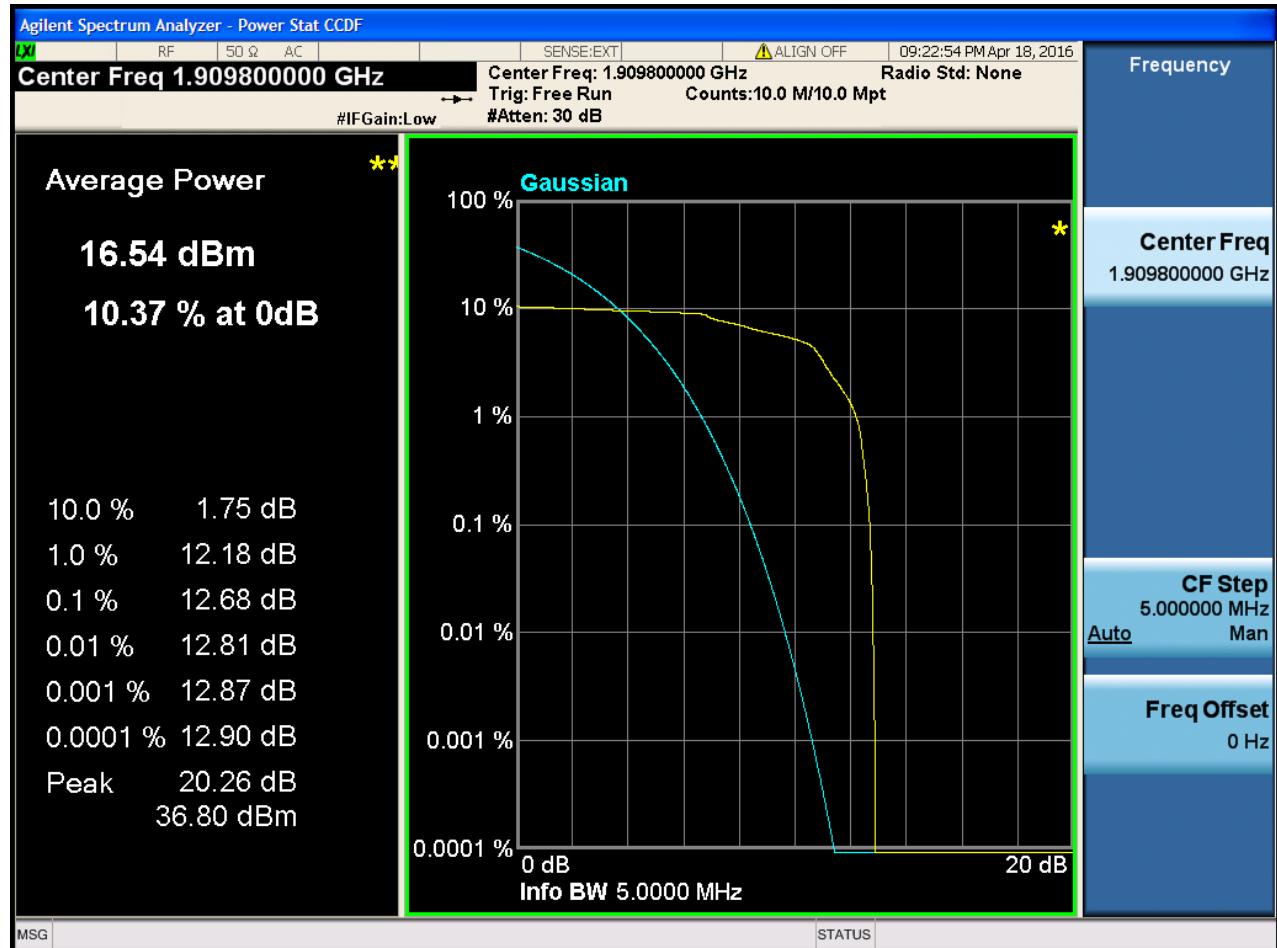
2.1.1.2.1 Test Channel = LCH



2.1.1.2.2 Test Channel = MCH



2.1.1.2.3 Test Channel = HCH



3 Modulation Characteristics

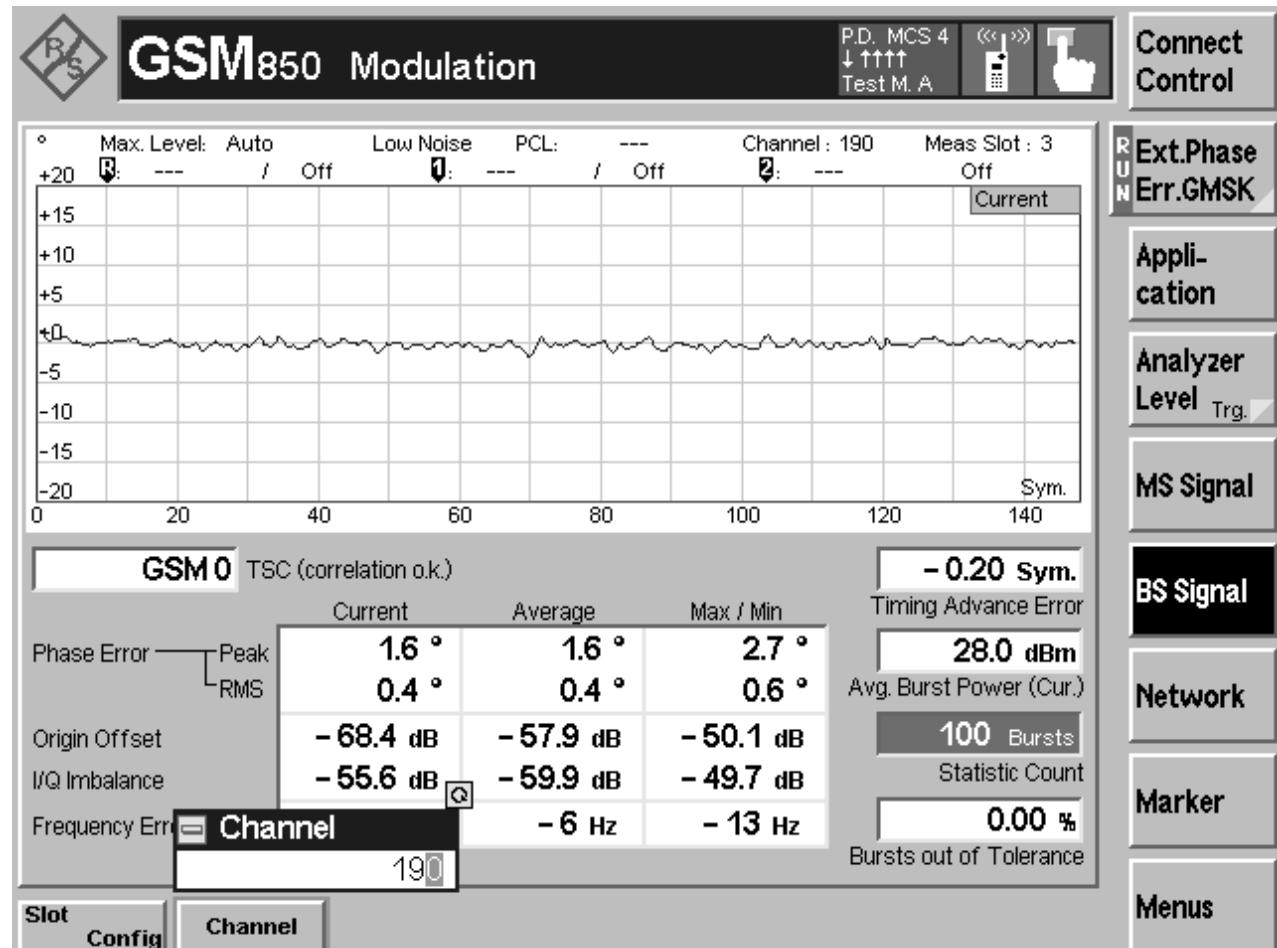
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

3.1.1.1 Test Mode = GSM/TM1

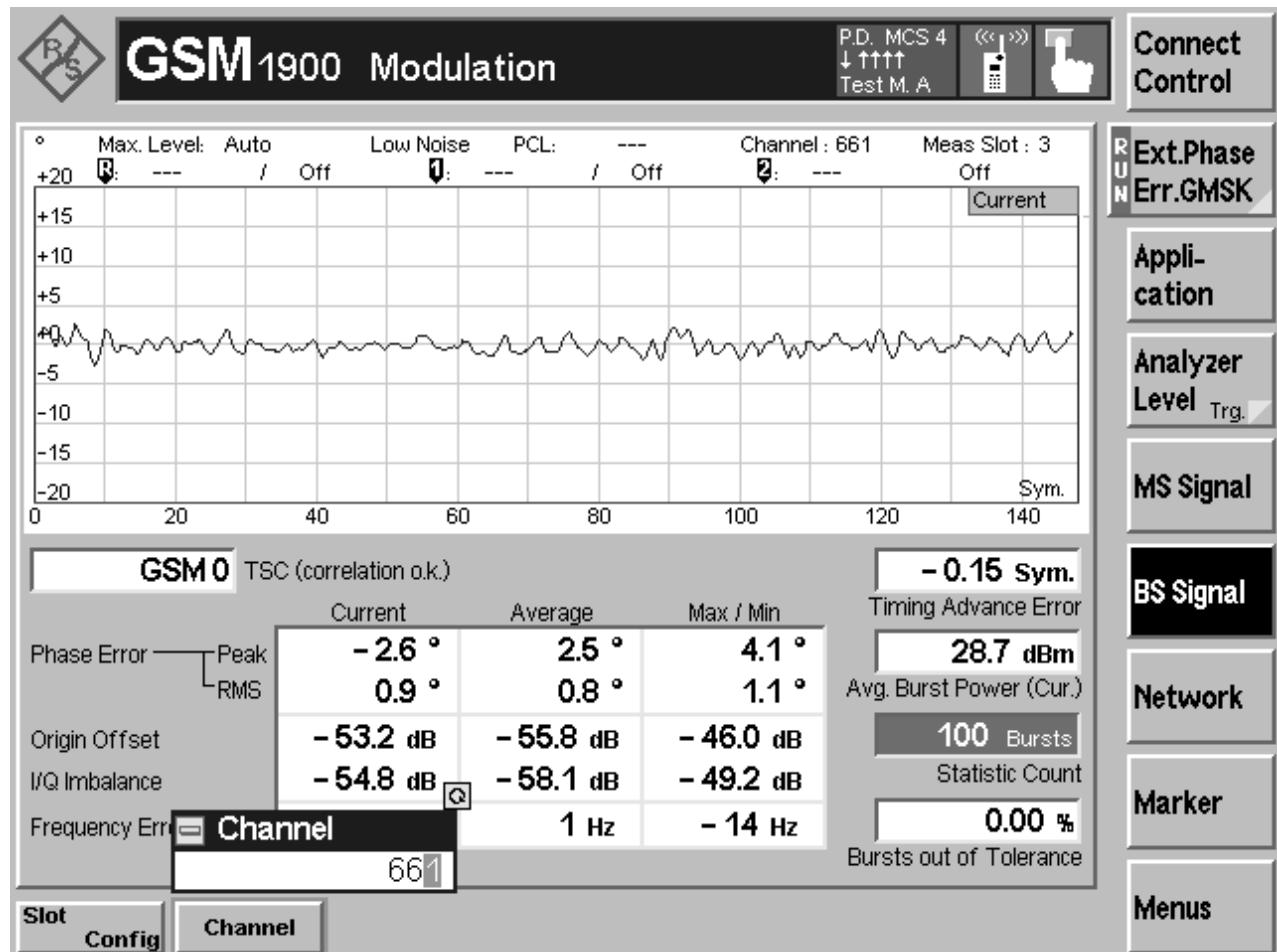
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH

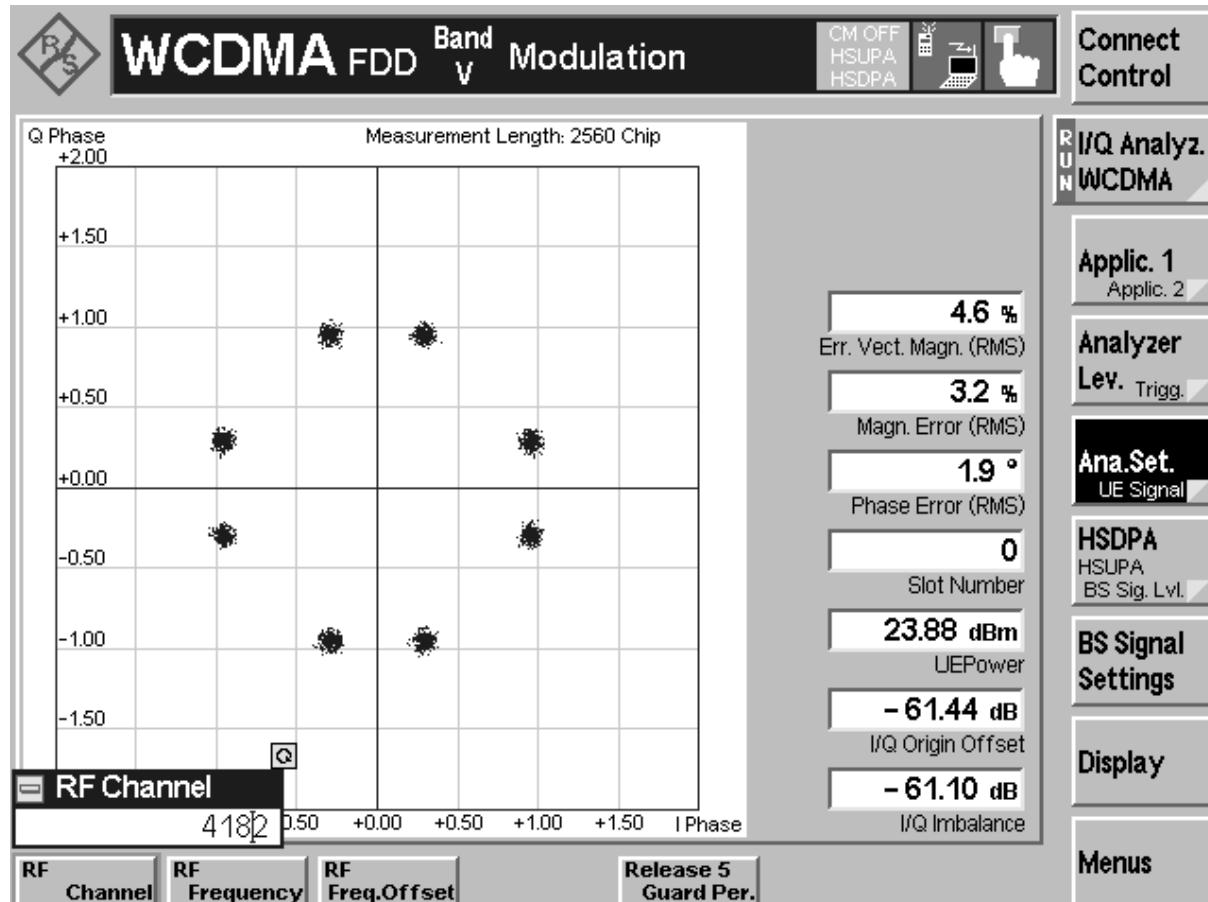


3.2 For WCDMA

3.2.1 Test Band = WCDMA 850

3.2.1.1 Test Mode = WCDMA BAND 5/TM1

3.2.1.1.1 Test Channel = MCH



4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850	GSM/TM1	LCH	243.5	319.2	PASS
		MCH	246.3	312.5	PASS
		HCH	247	319.8	PASS
	GSM/TM2	LCH	249	318.6	PASS
		MCH	247.6	317.4	PASS
		HCH	248.4	317.5	PASS

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM1900	GSM/TM1	LCH	244.8	318.6	PASS
		MCH	247.7	317.2	PASS
		HCH	245.1	314.6	PASS
	GSM/TM2	LCH	258	328.7	PASS
		MCH	256.3	337.4	PASS
		HCH	256.2	326.8	PASS

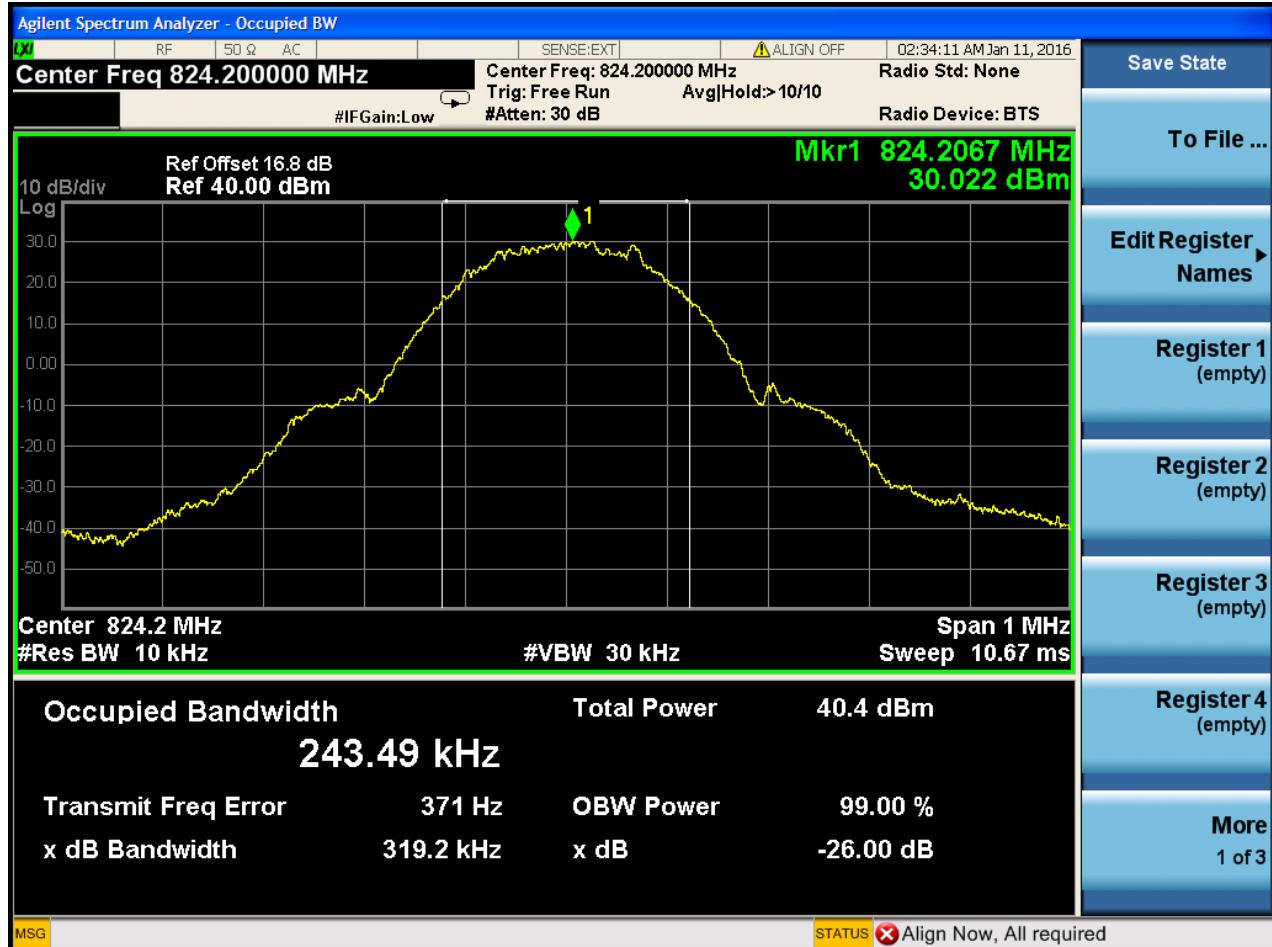
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.109	4.667	PASS
		MCH	4.0970	4.666	PASS
		HCH	4.1036	4.654	PASS

4.1 For GSM

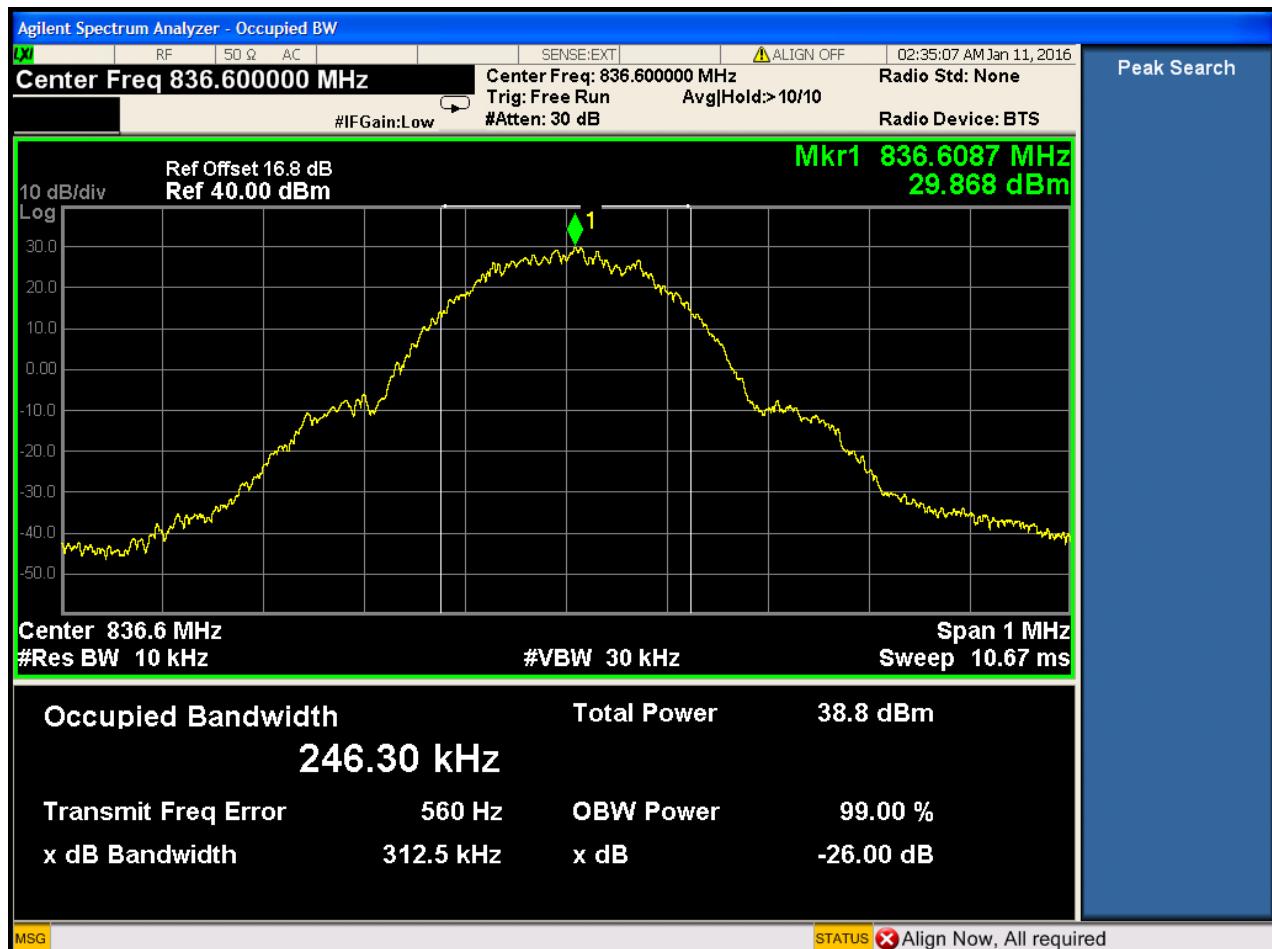
4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

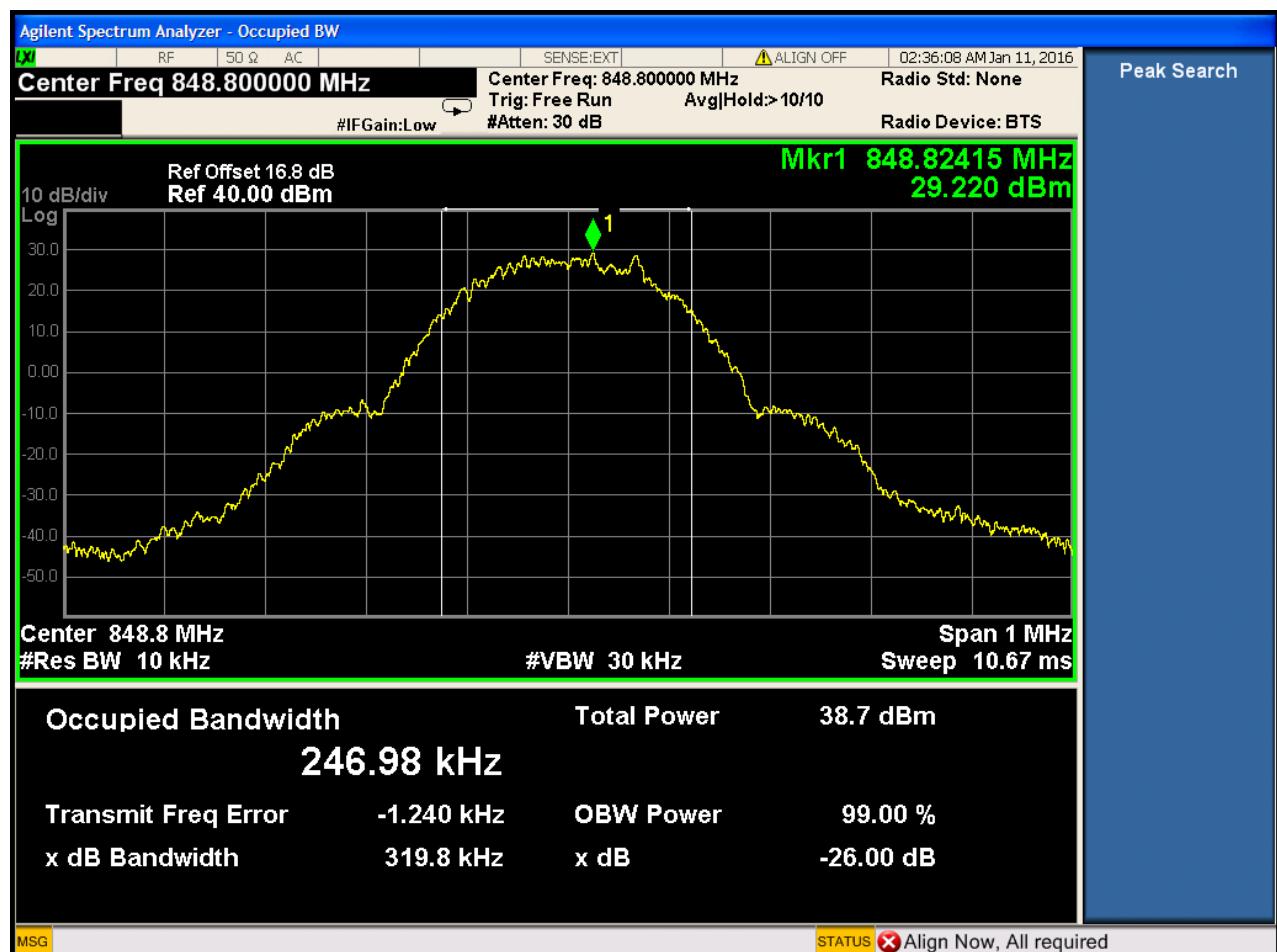
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH

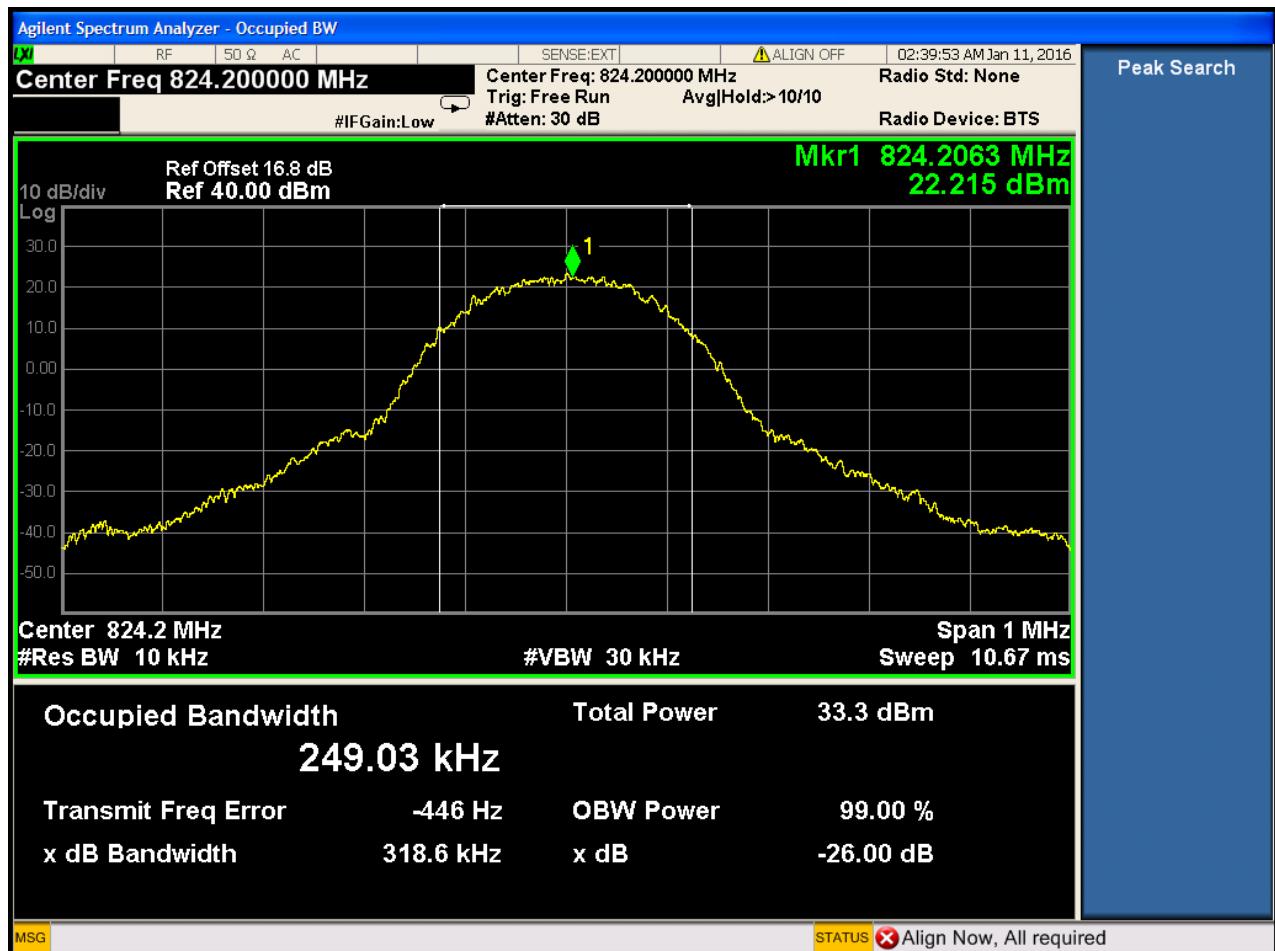


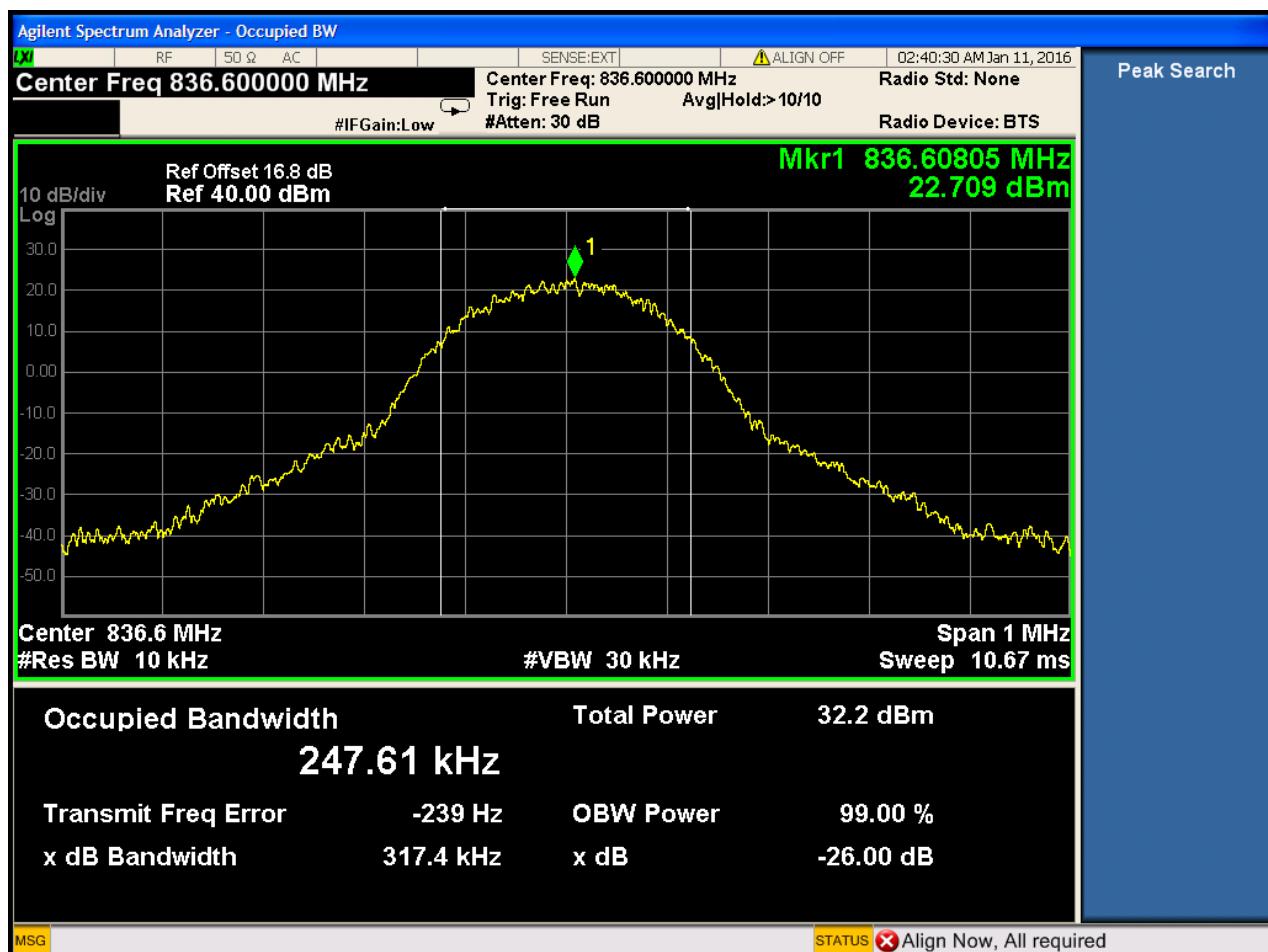
4.1.1.1.3 Test Channel = HCH

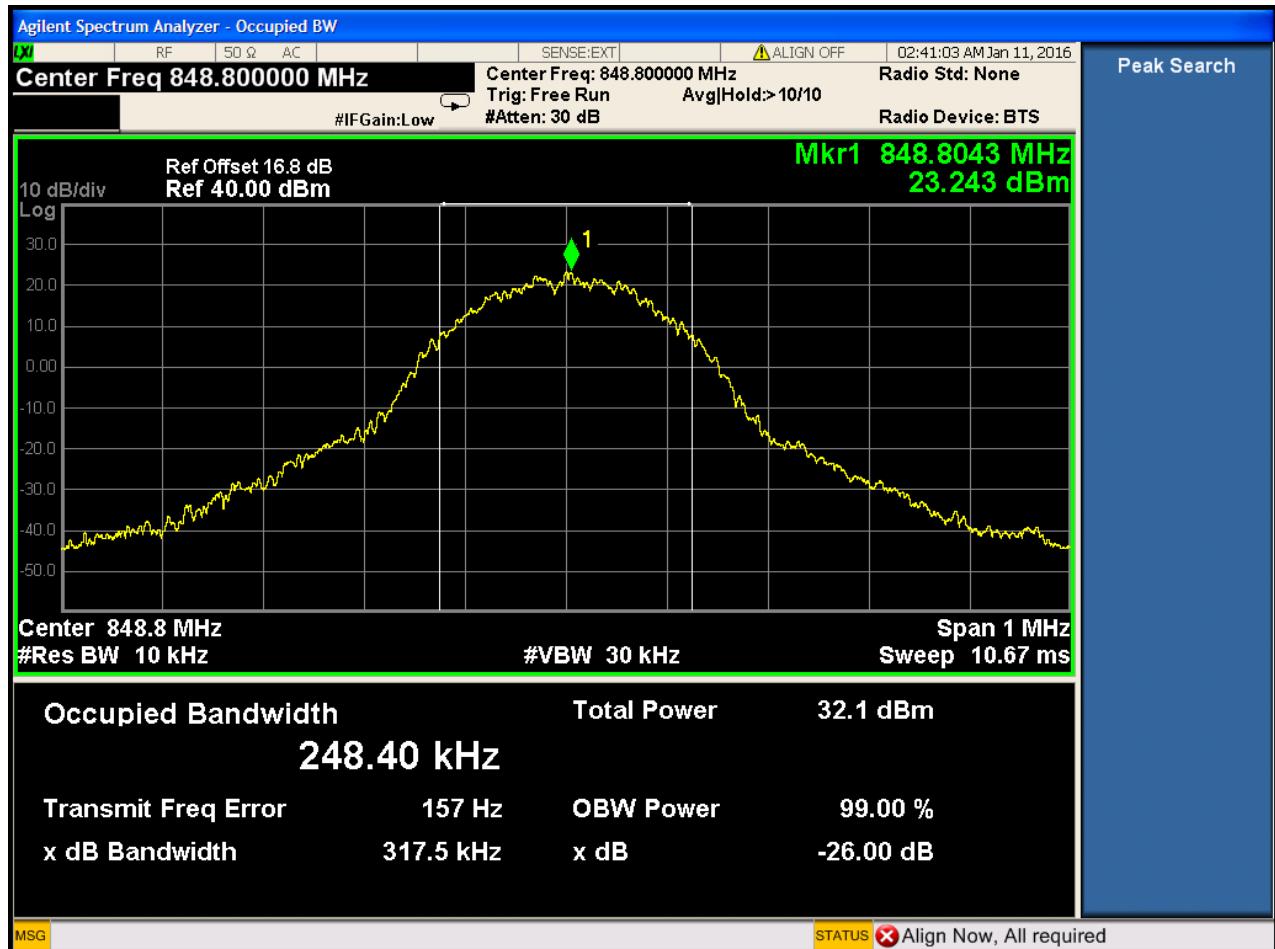


4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



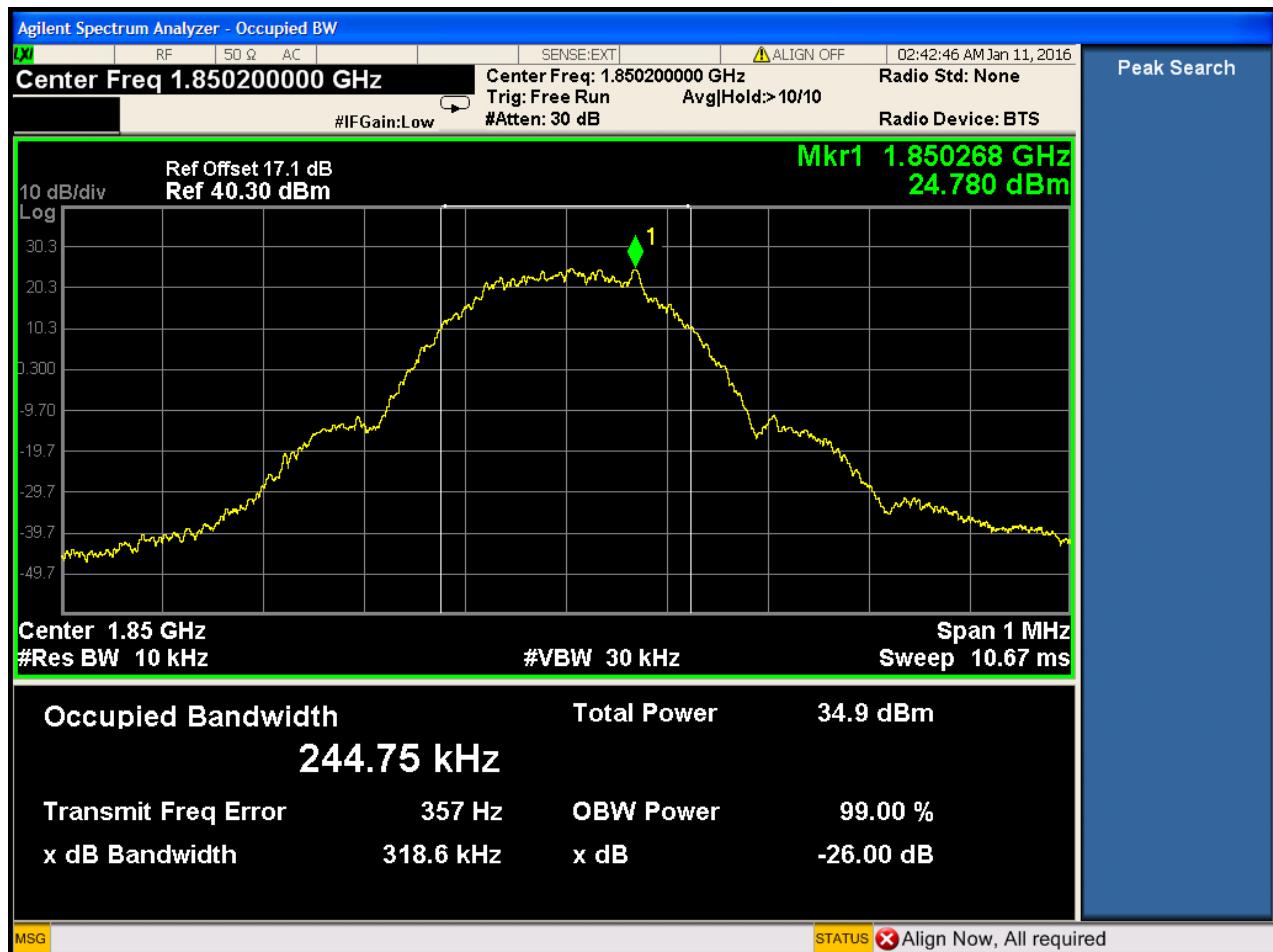
4.1.1.2.2 Test Channel = MCH


4.1.1.2.3 Test Channel = HCH

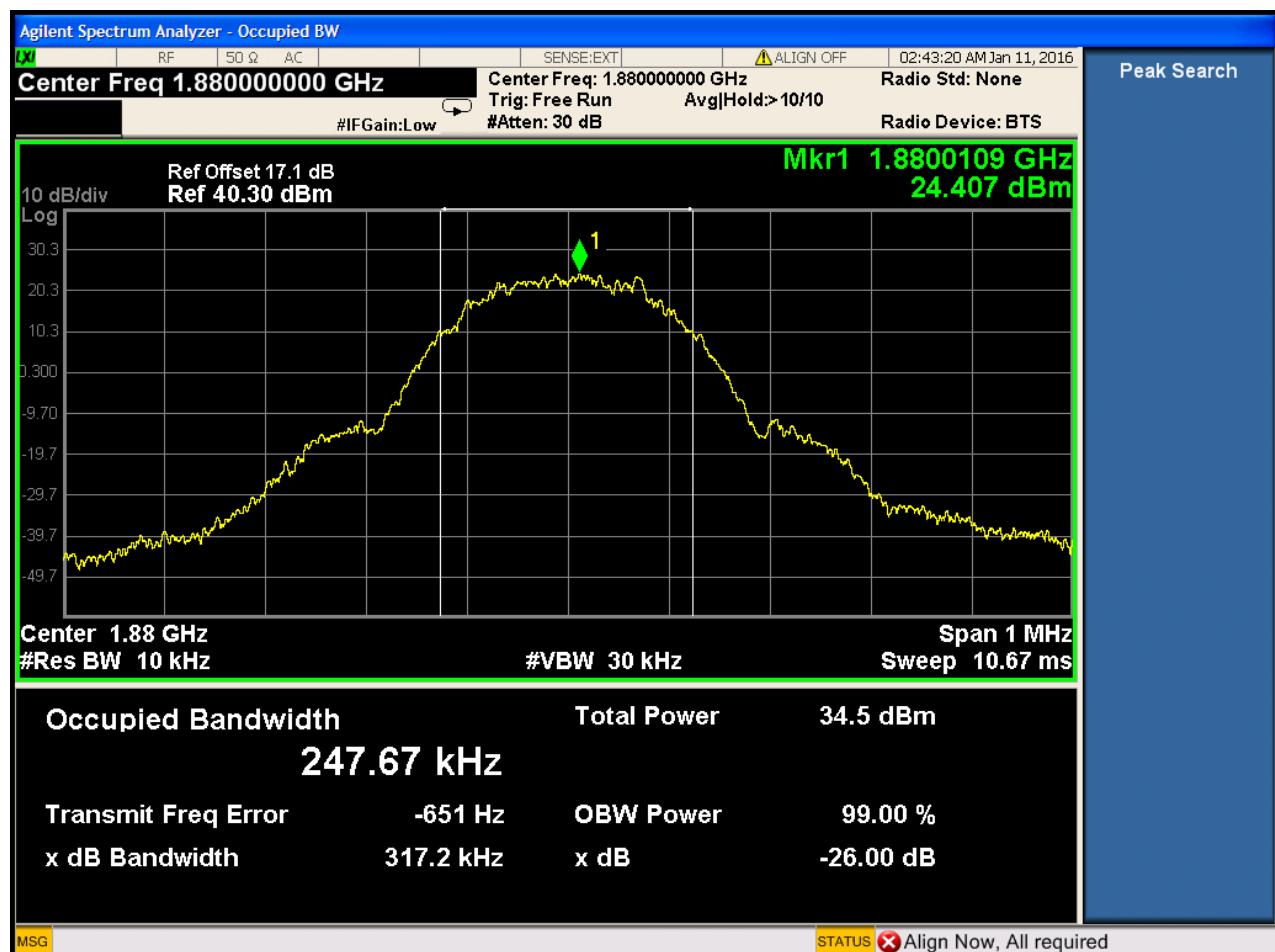
4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

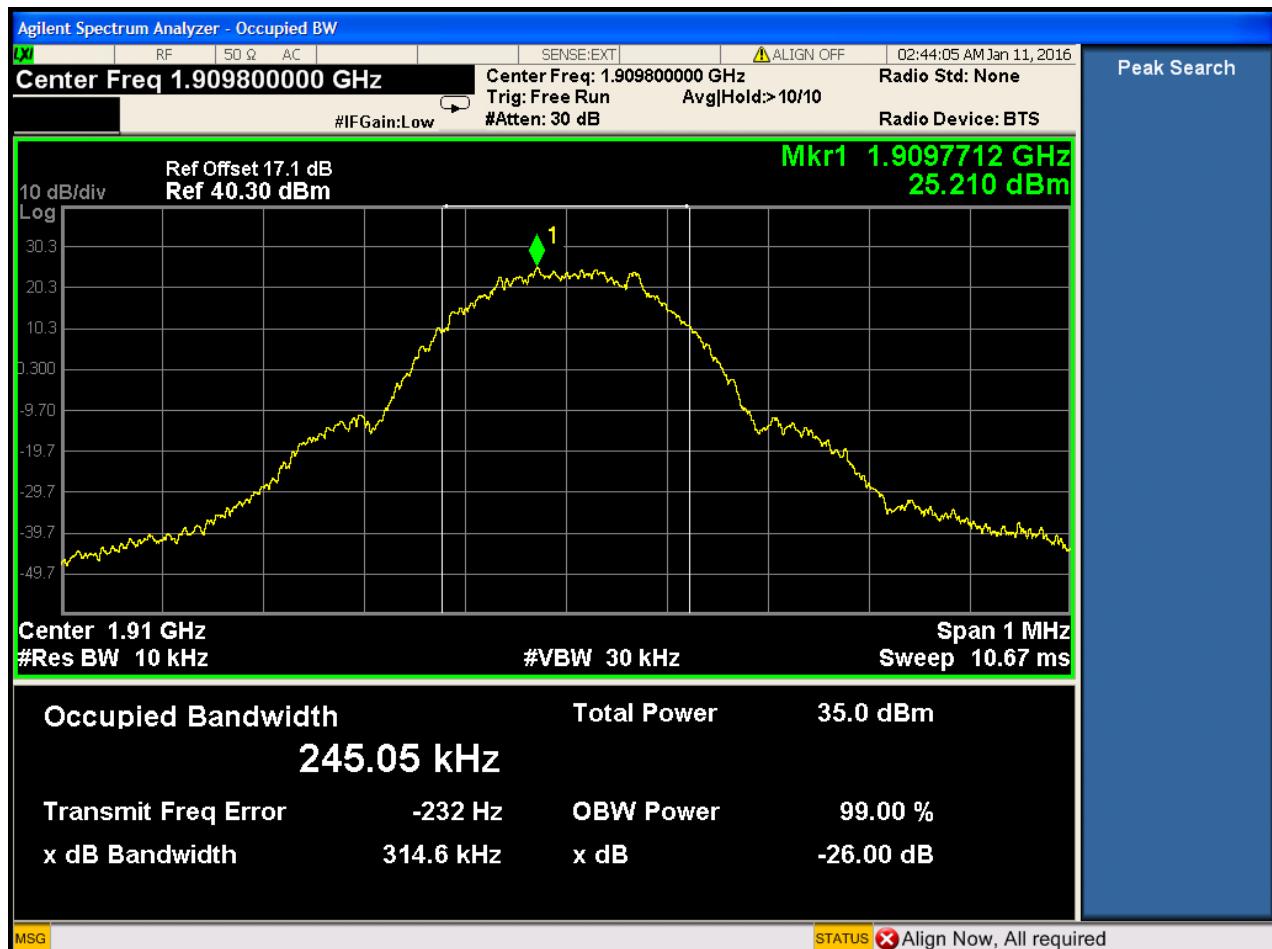
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH

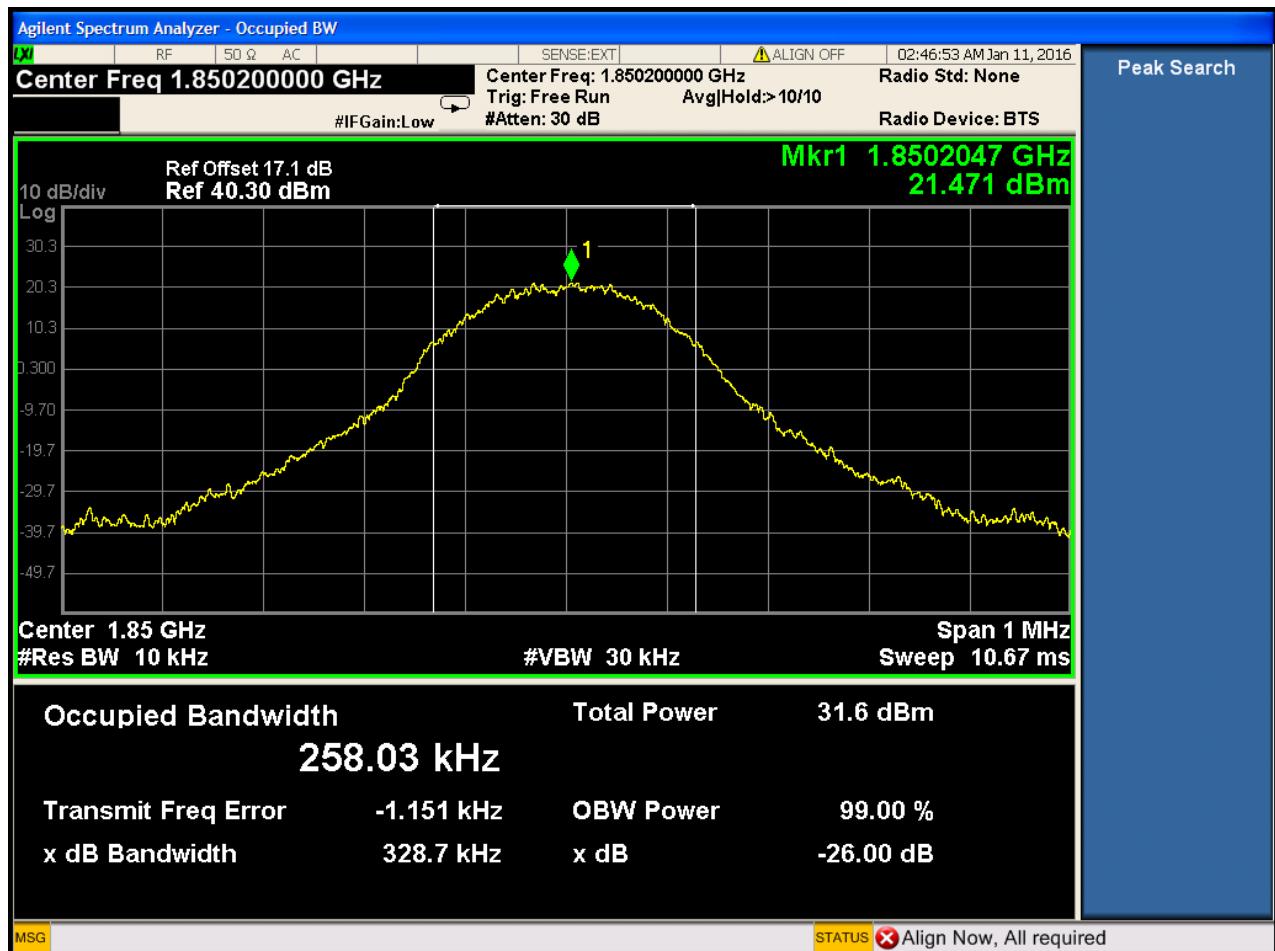


4.1.2.1.3 Test Channel = HCH

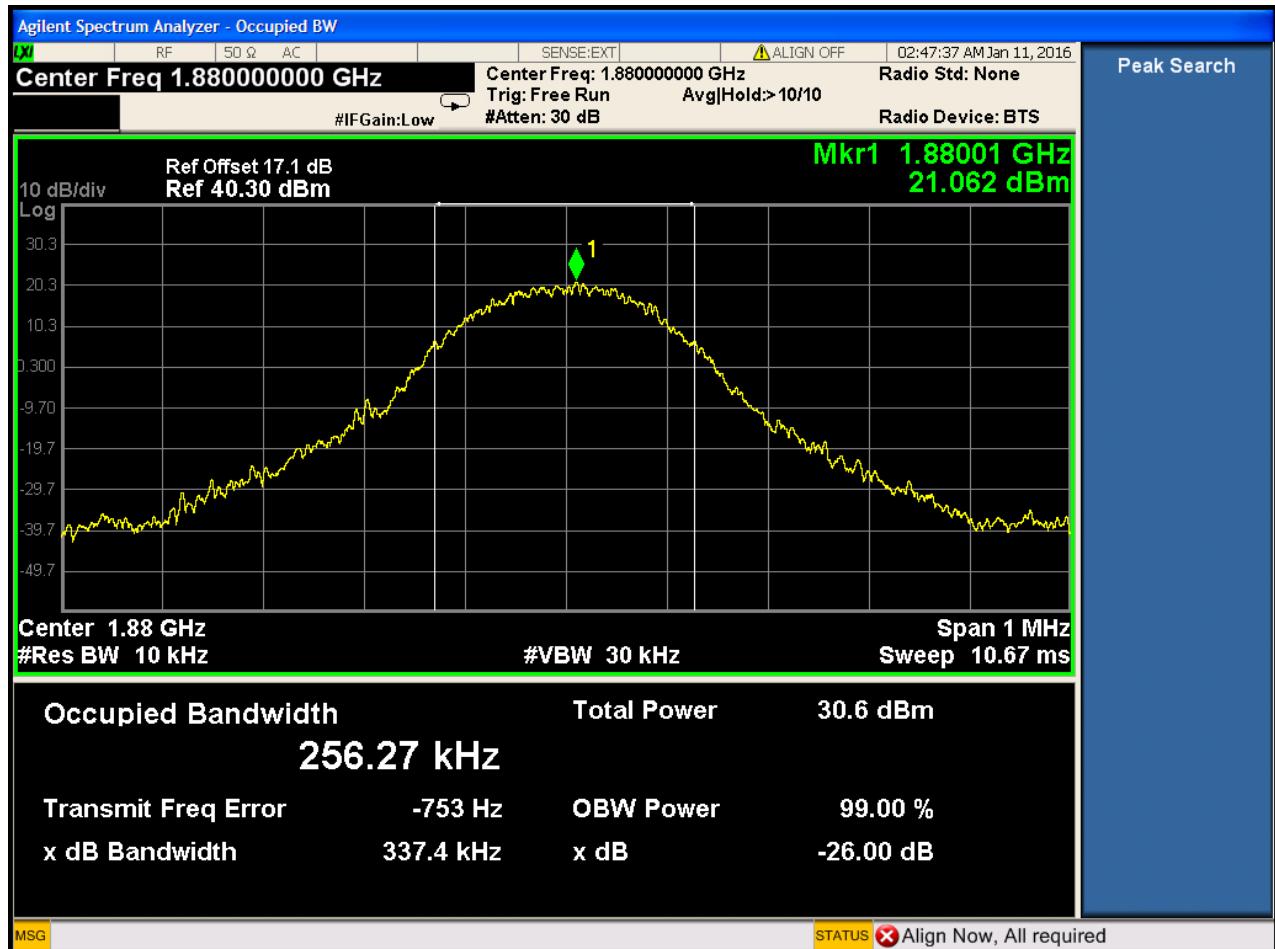


4.1.2.2 Test Mode = GSM/TM2

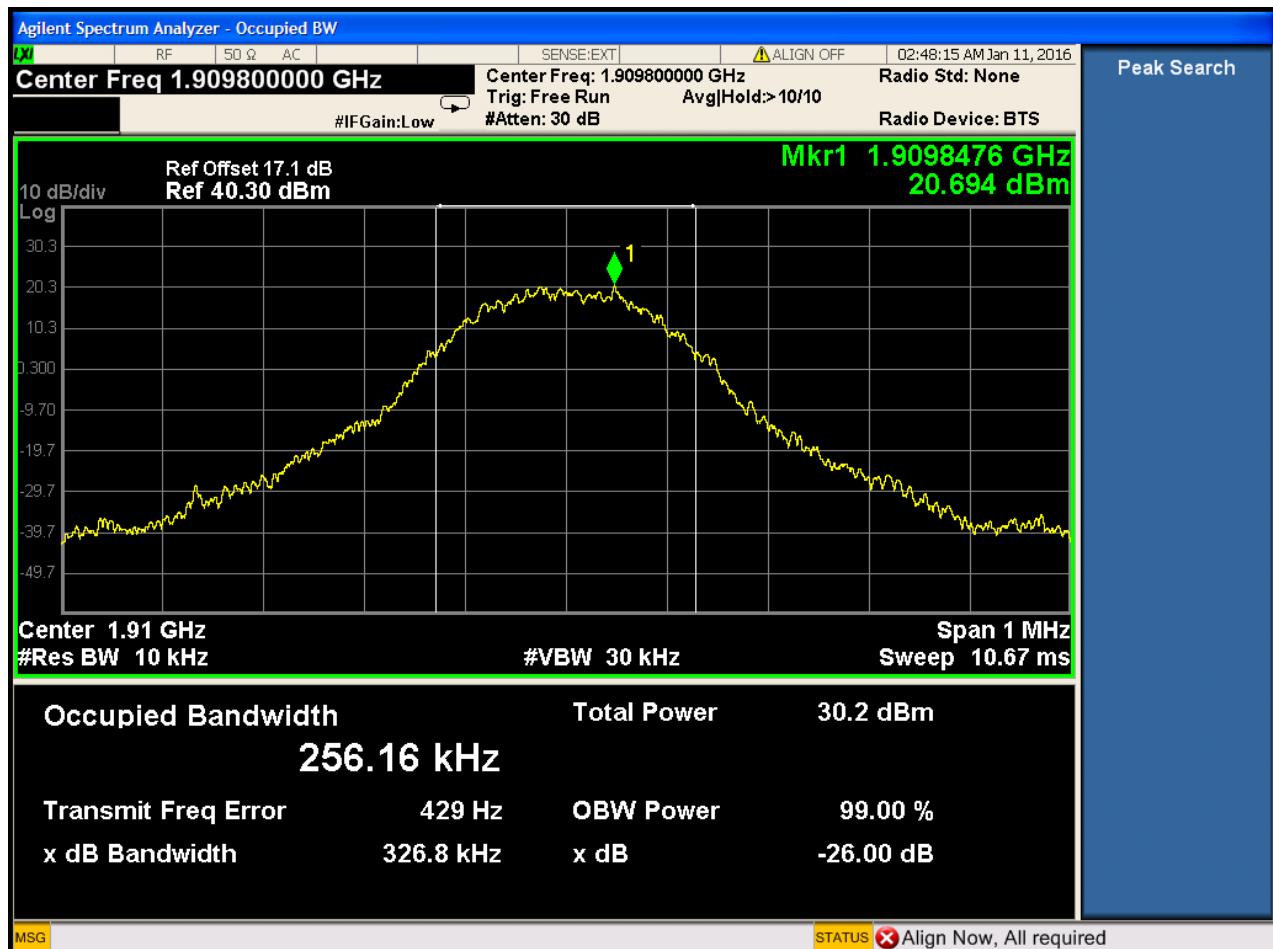
4.1.2.2.1 Test Channel = LCH



4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH

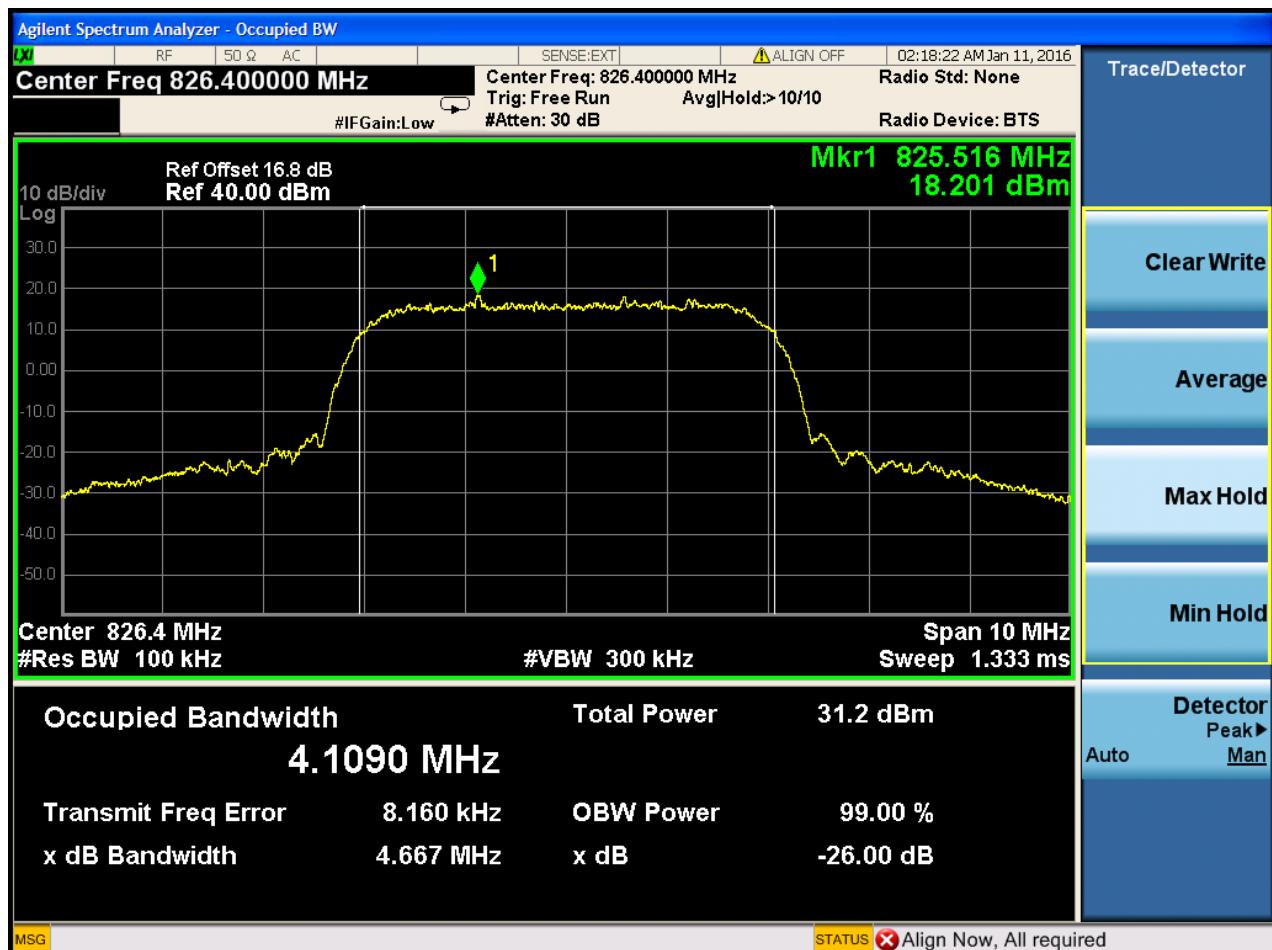


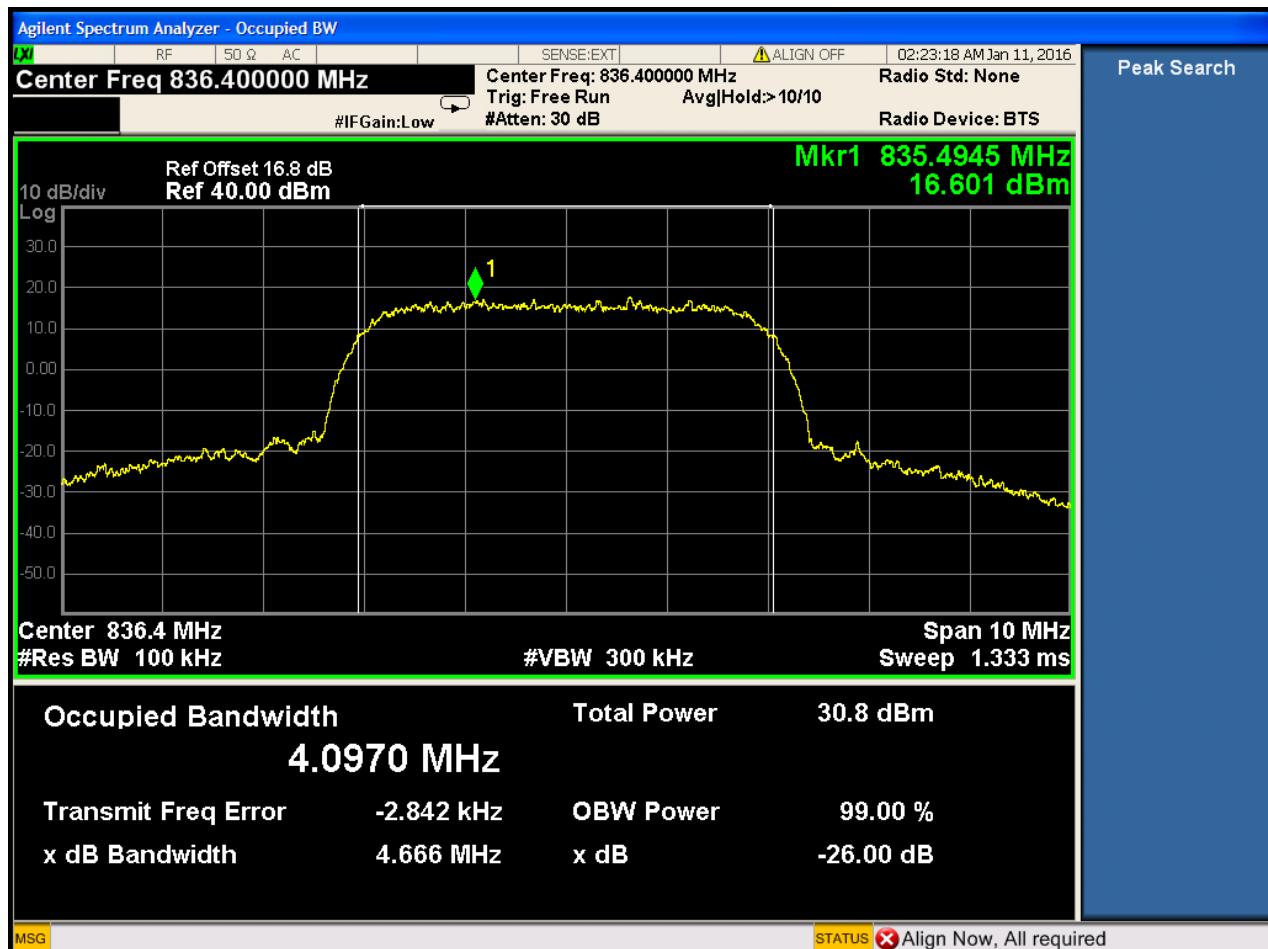
4.2 For WCDMA

4.2.1 Test Band = WCDMA850

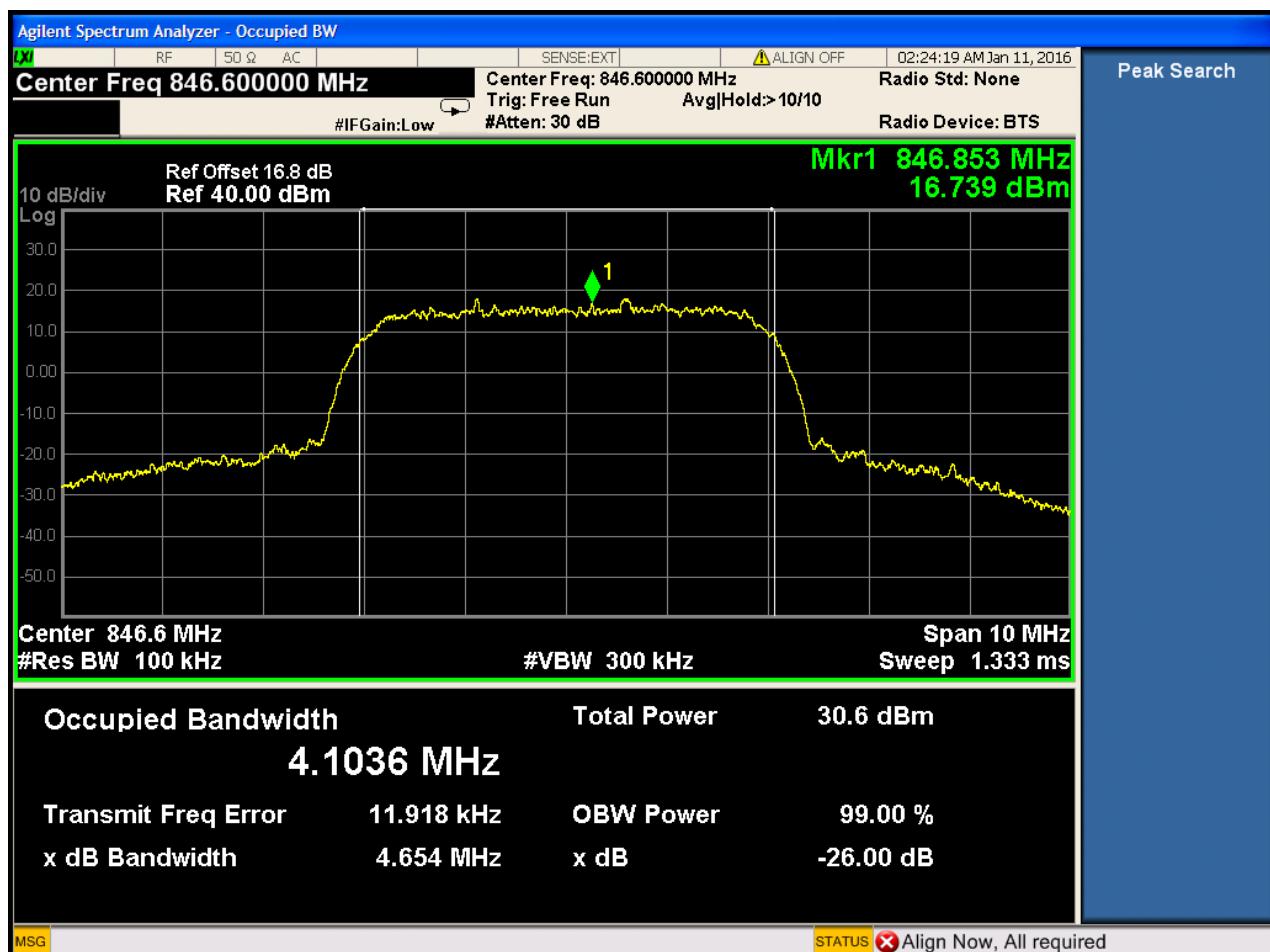
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



4.2.1.1.2 Test Channel = MCH


4.2.1.1.3 Test Channel = HCH



5 Band Edges Compliance

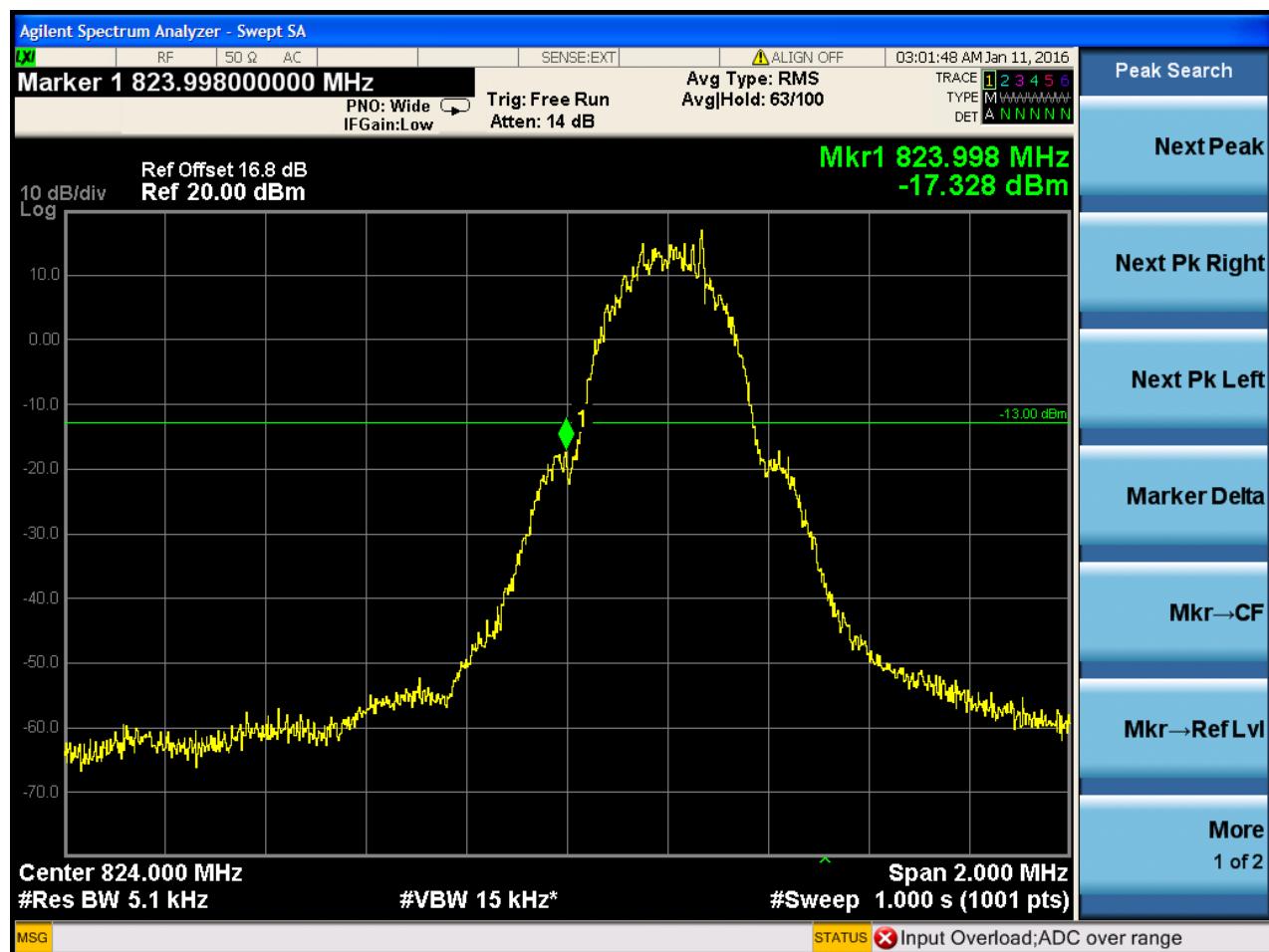
Part I - Test Plots

5.1 For GSM

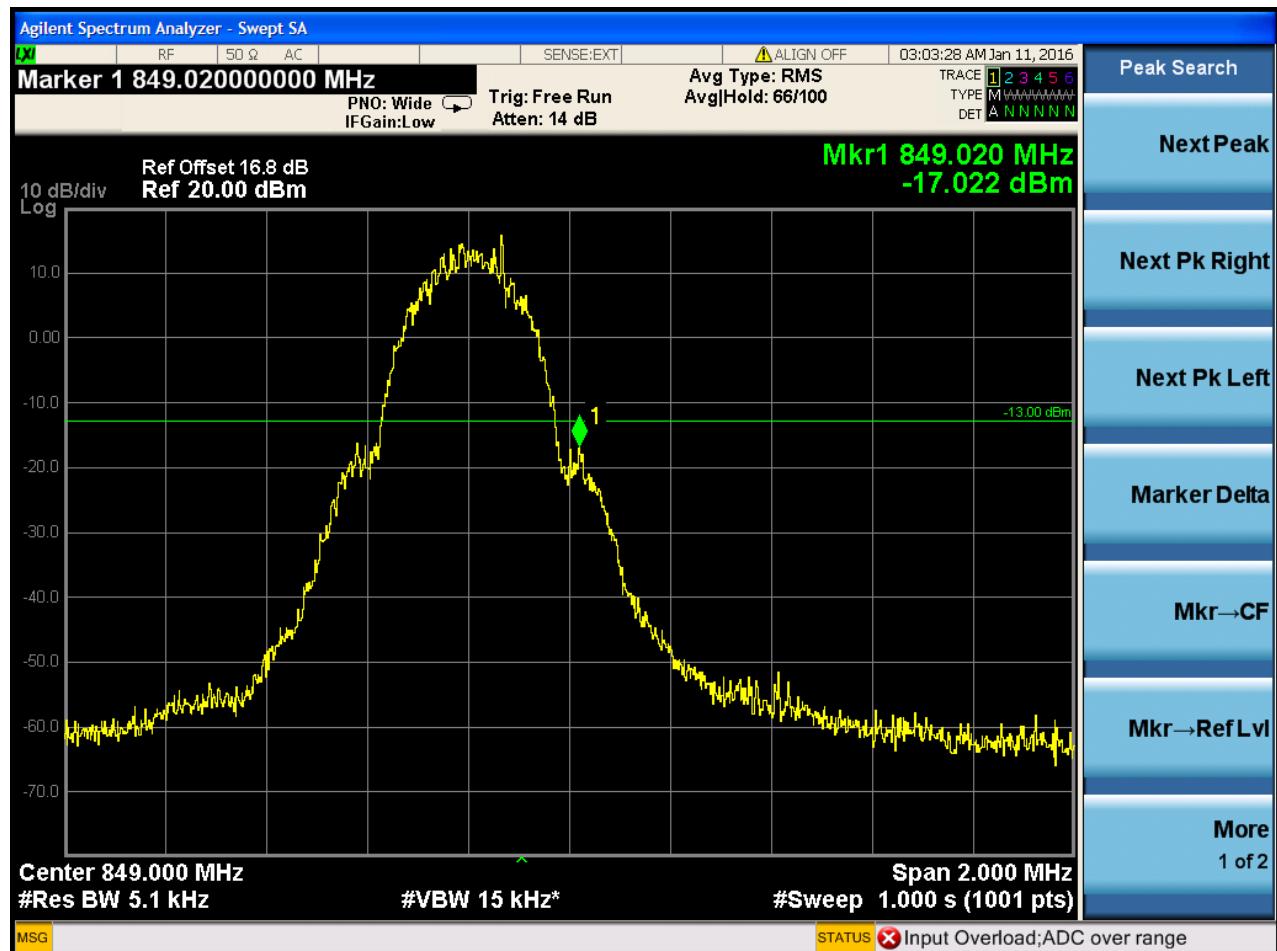
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

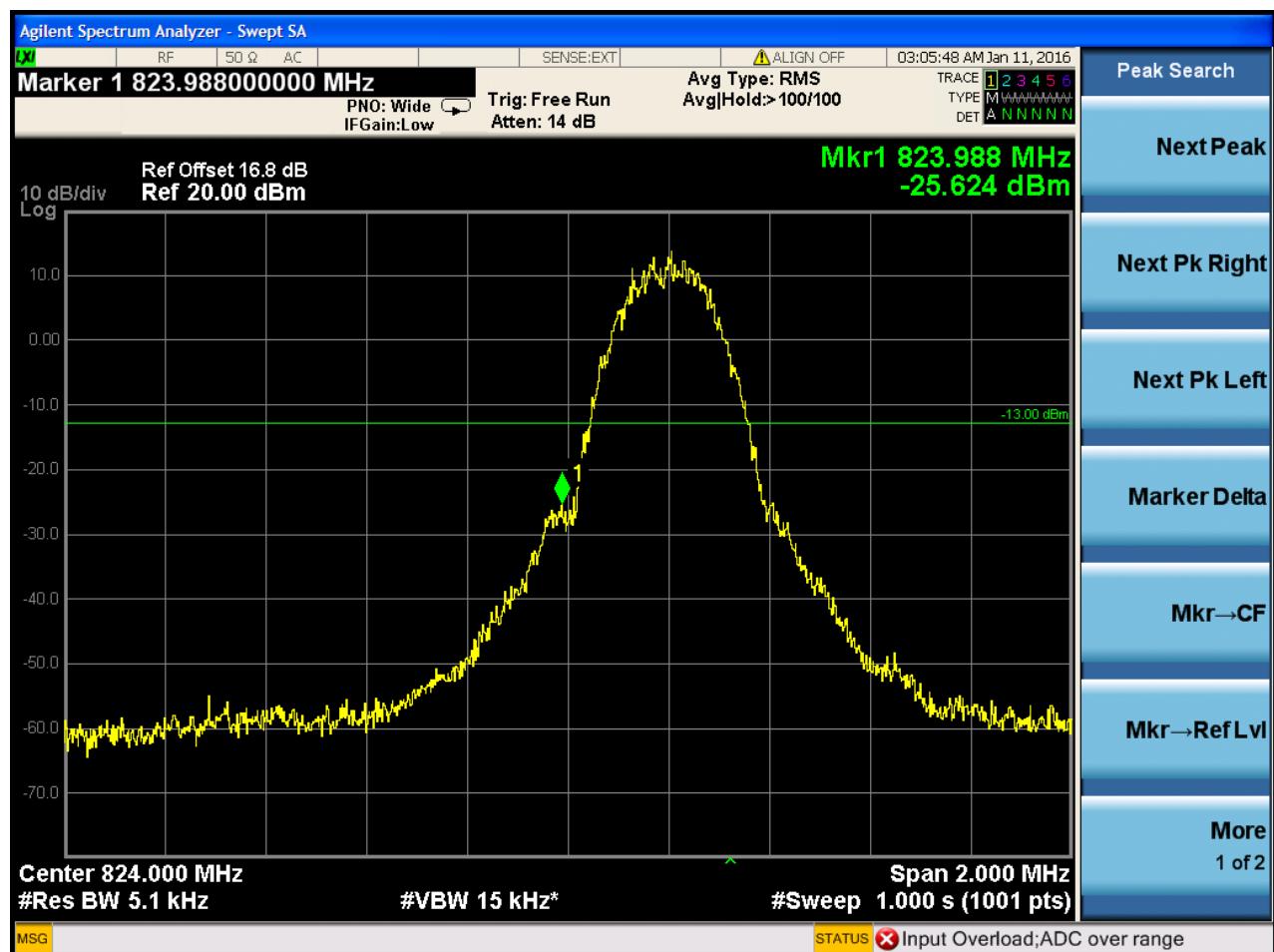


5.1.1.1.2 Test Channel = HCH

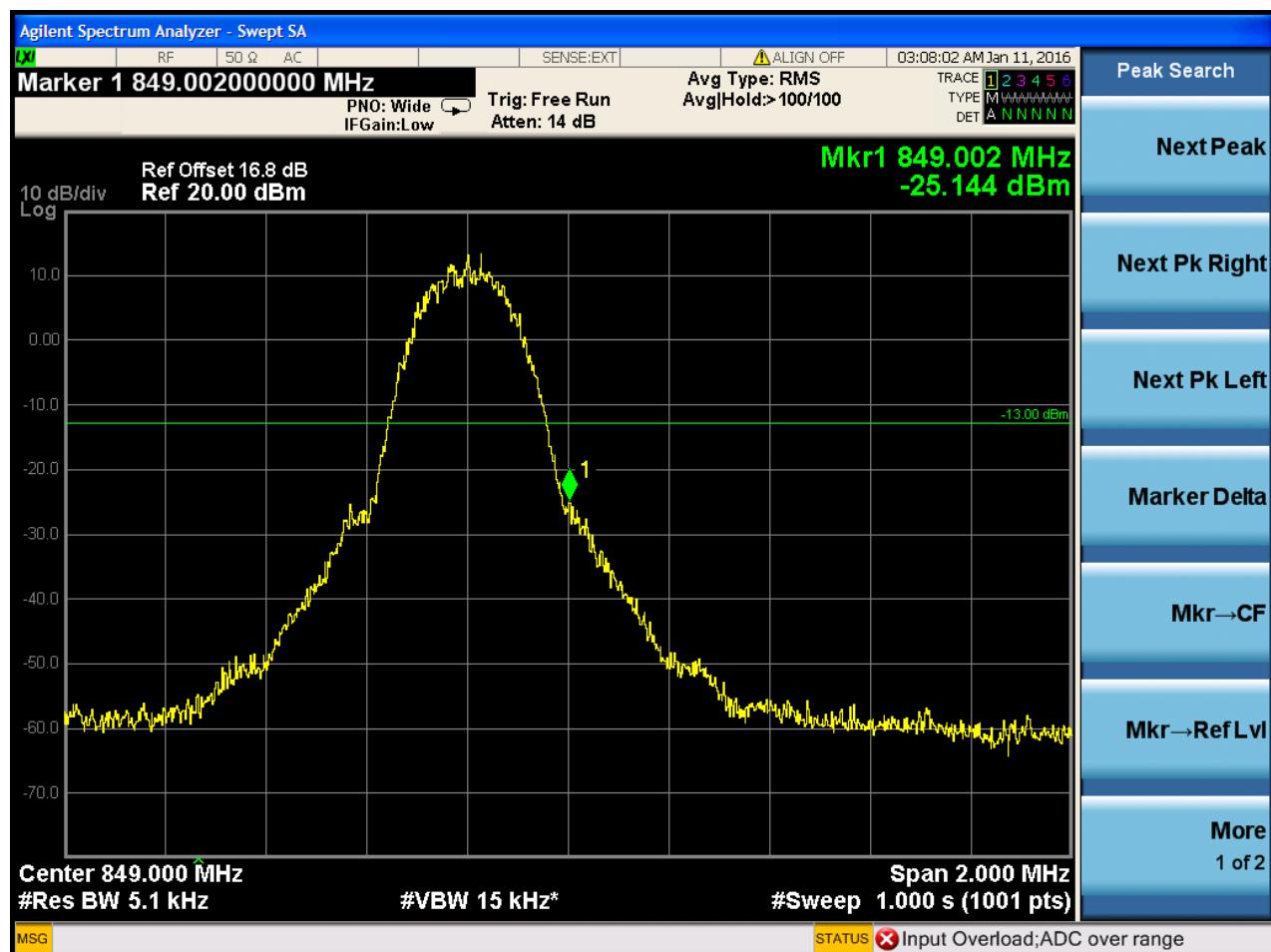


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



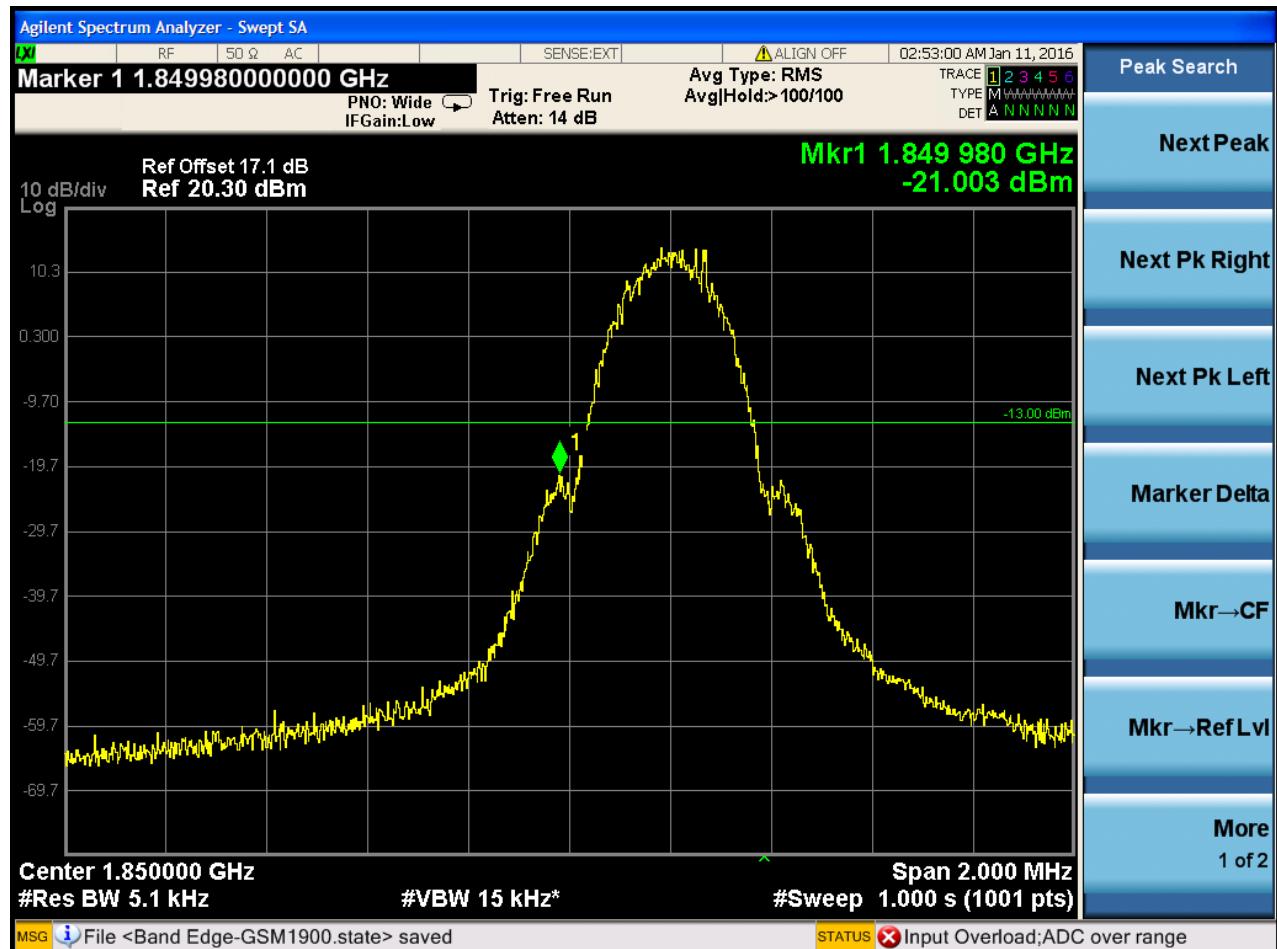
5.1.1.2.2 Test Channel = HCH



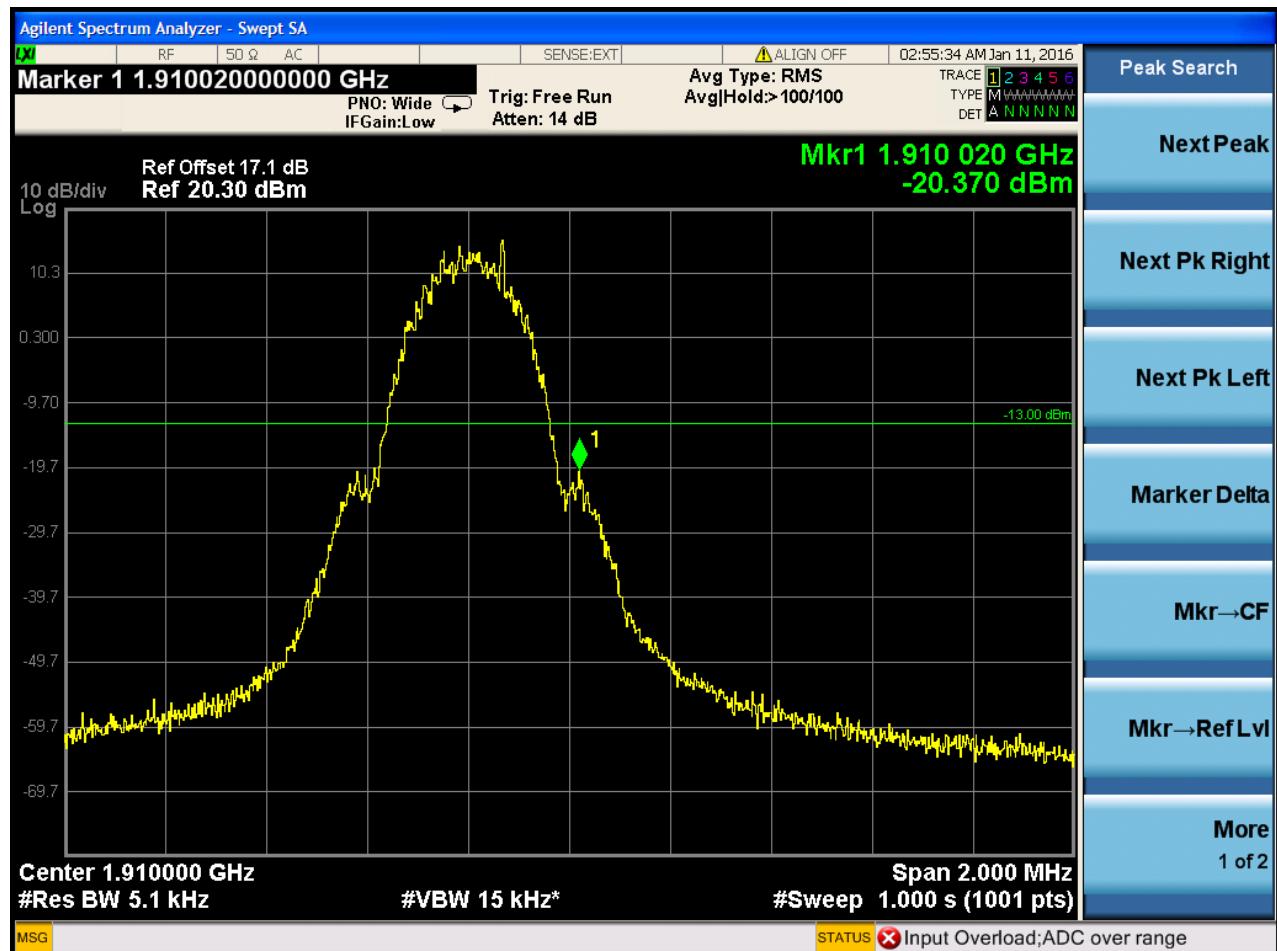
5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

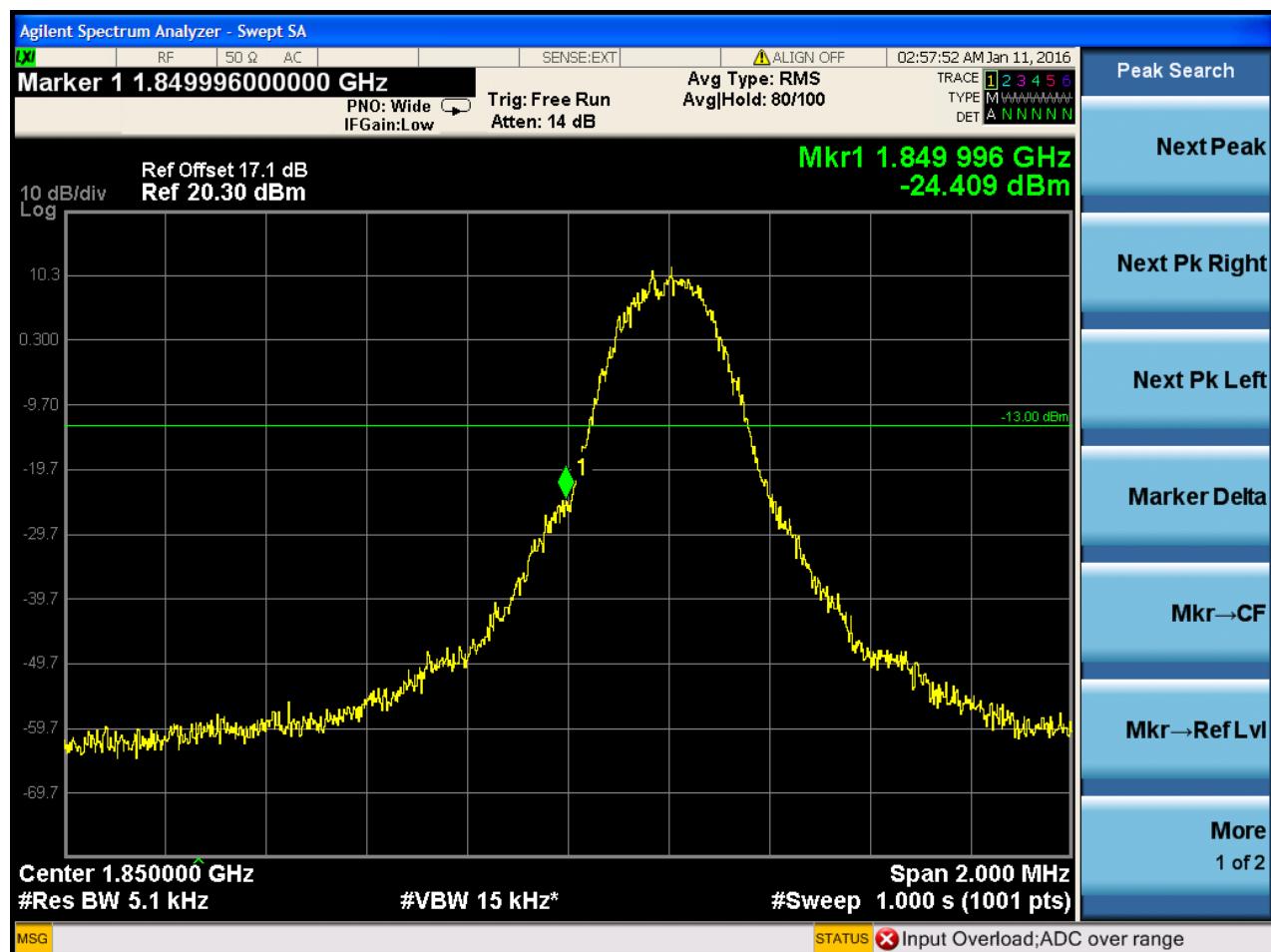


5.1.2.1.2 Test Channel = HCH

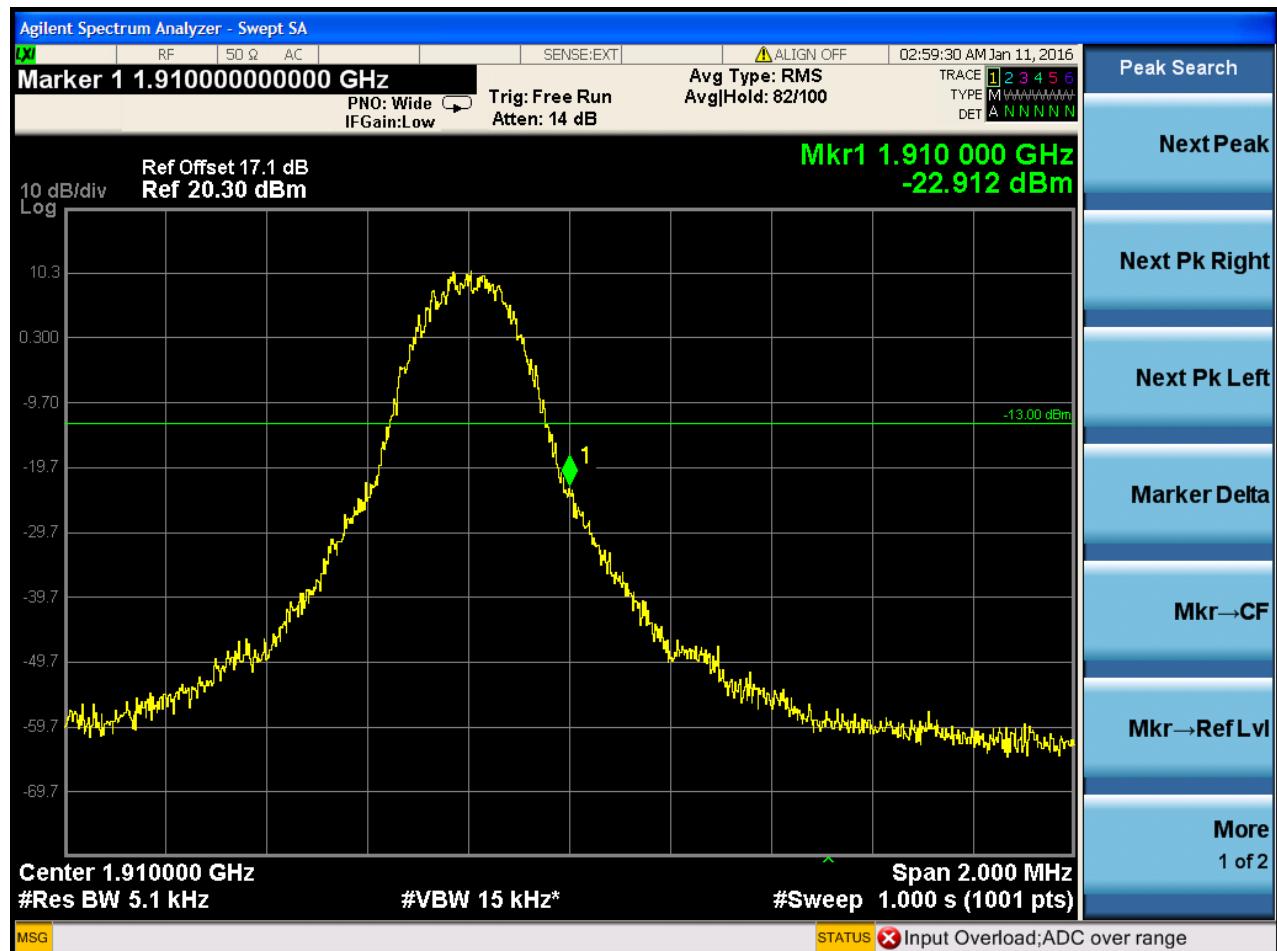


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 Test Channel = HCH



5.2 For WCDMA

5.2.1 Test Band= WCDMA 850

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH



5.2.1.1.2 Test Channel = HCH



6 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.

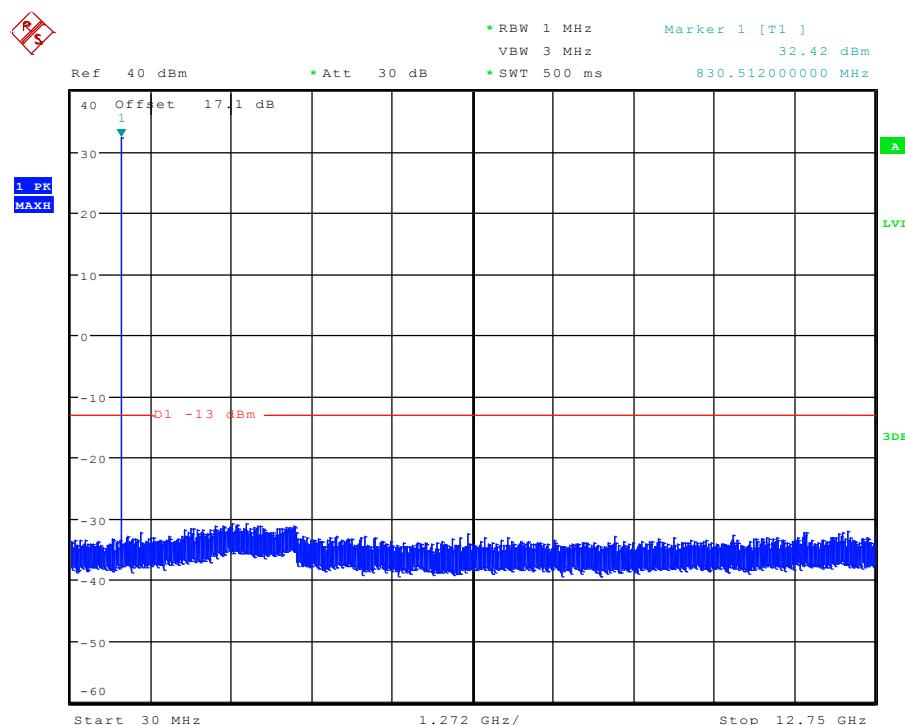
Part I - Test Plots

6.1 For GSM

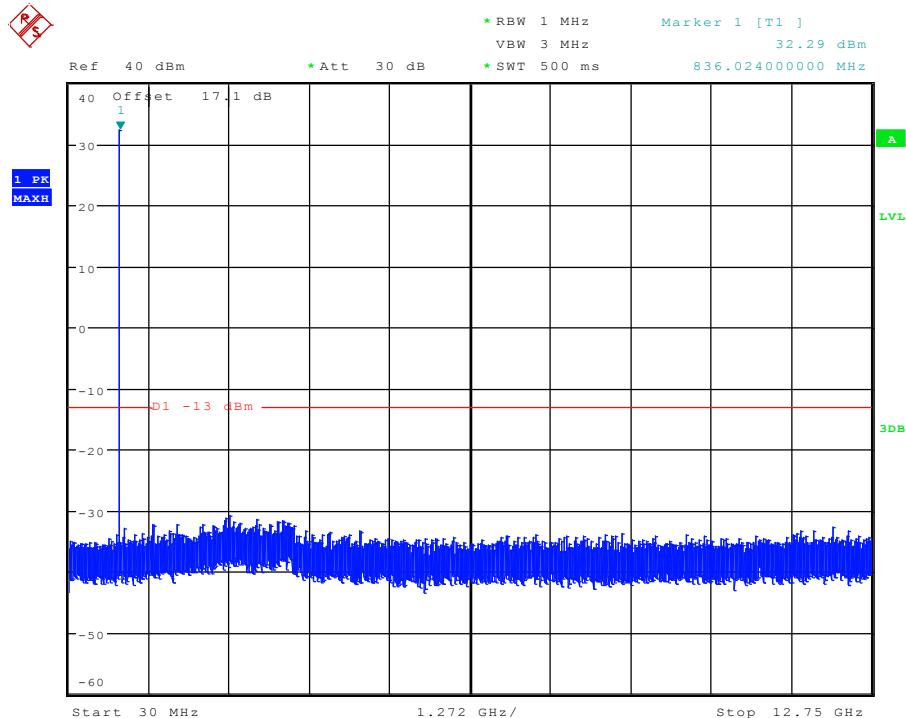
6.1.1 Test Band = GSM850

6.1.1.1 Test Mode = GSM/TM1

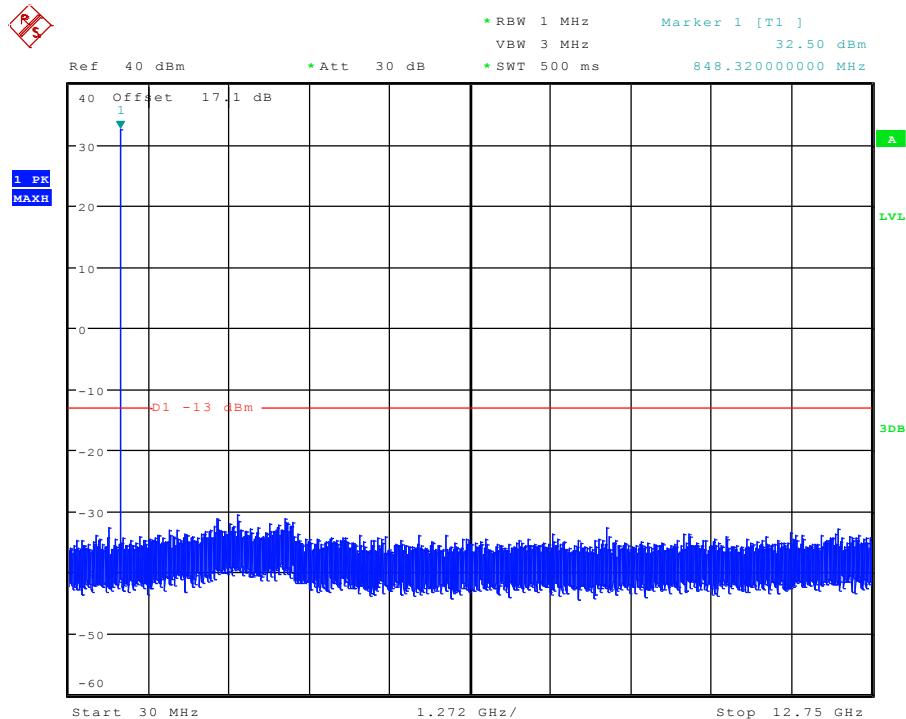
6.1.1.1.1 Test Channel = LCH



6.1.1.1.2 Test Channel = MCH



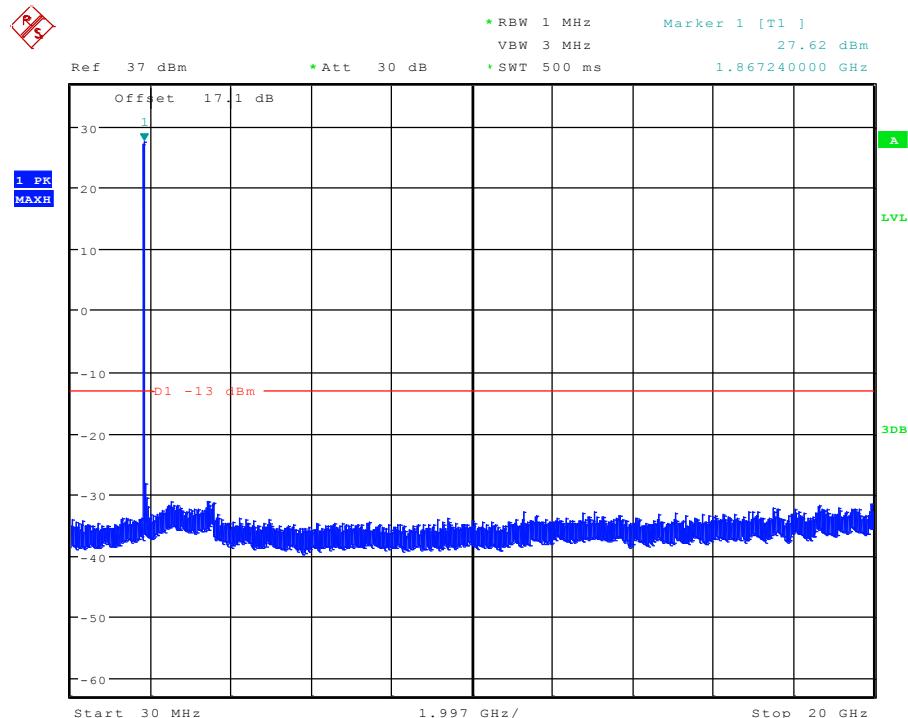
6.1.1.1.3 Test Channel = HCH



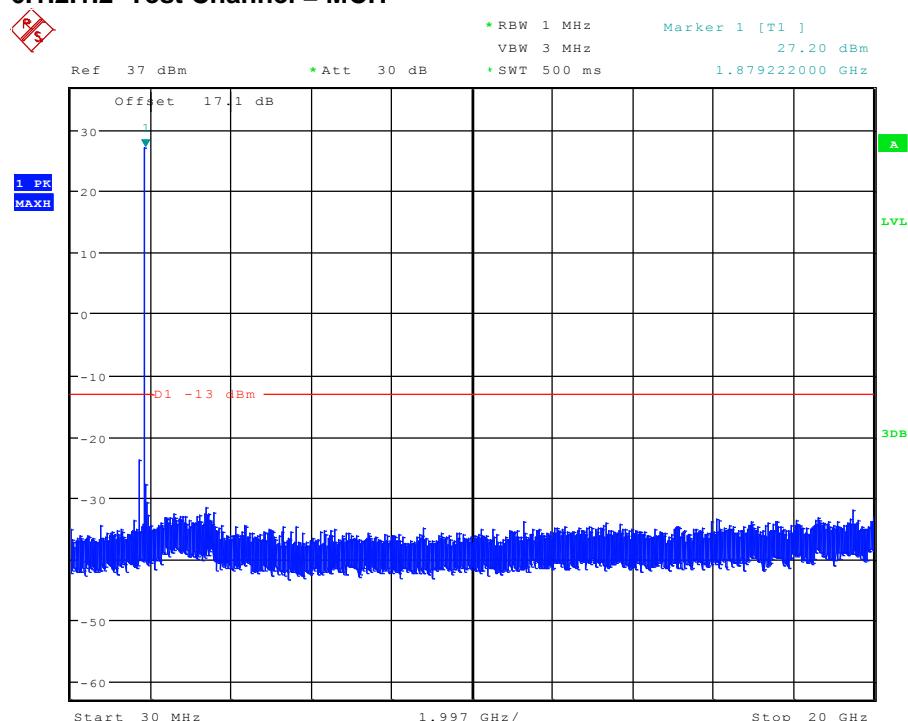
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

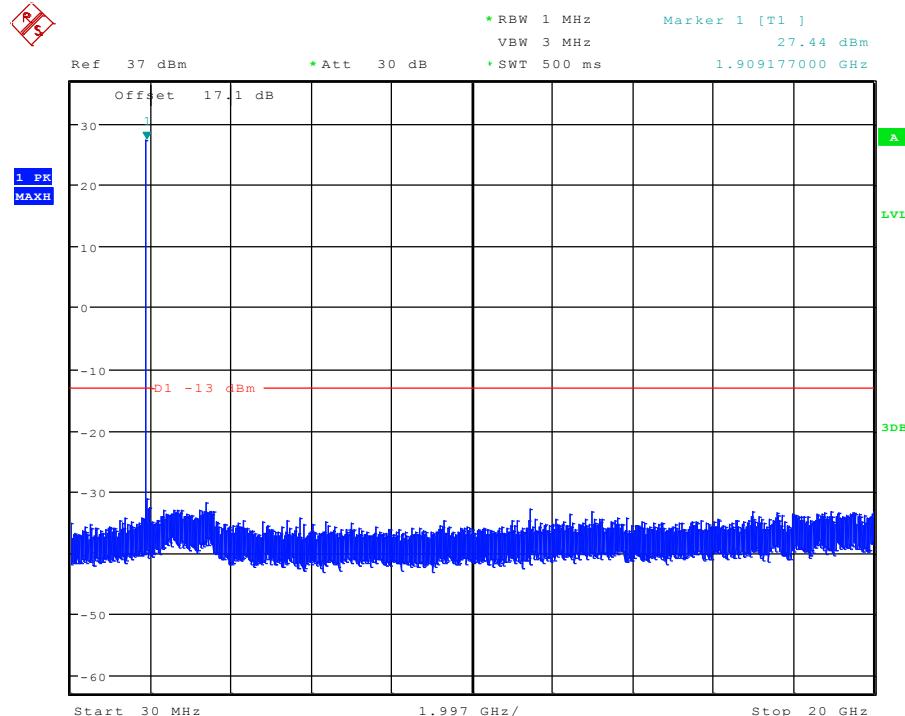
6.1.2.1.1 Test Channel = LCH



6.1.2.1.2 Test Channel = MCH



6.1.2.1.3 Test Channel = HCH

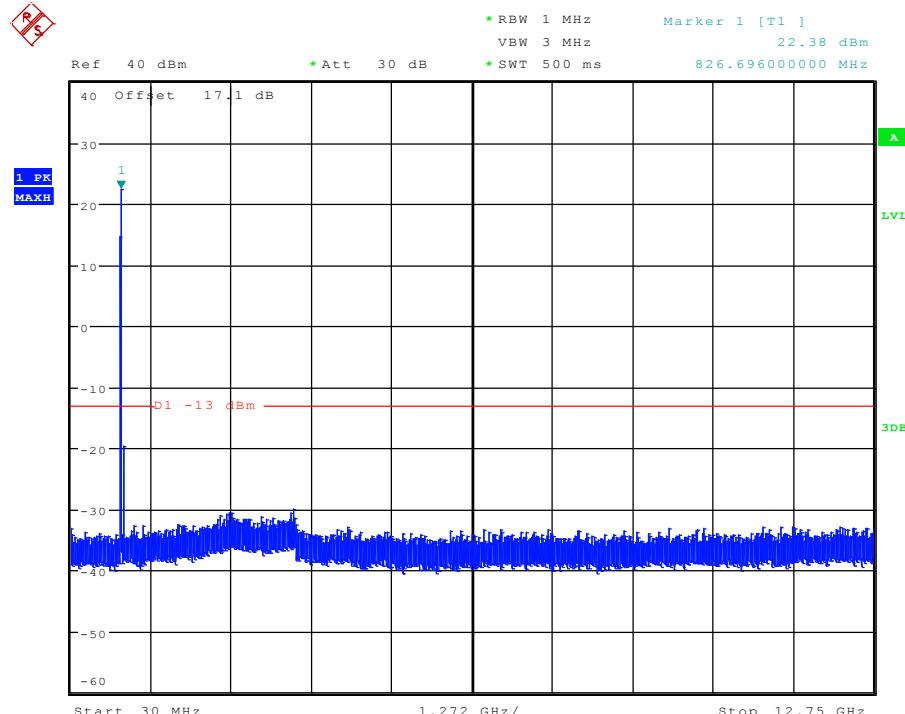


6.2 For WCDMA

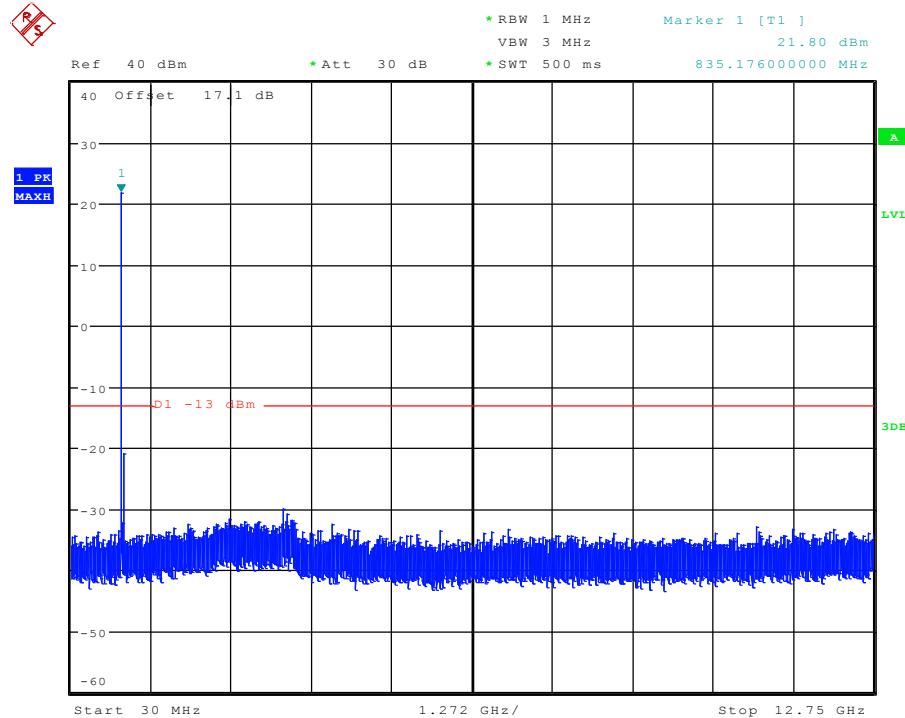
6.2.1 Test Band= WCDMA 850

8.1.1.2 Test Mode = UMTS/TM1

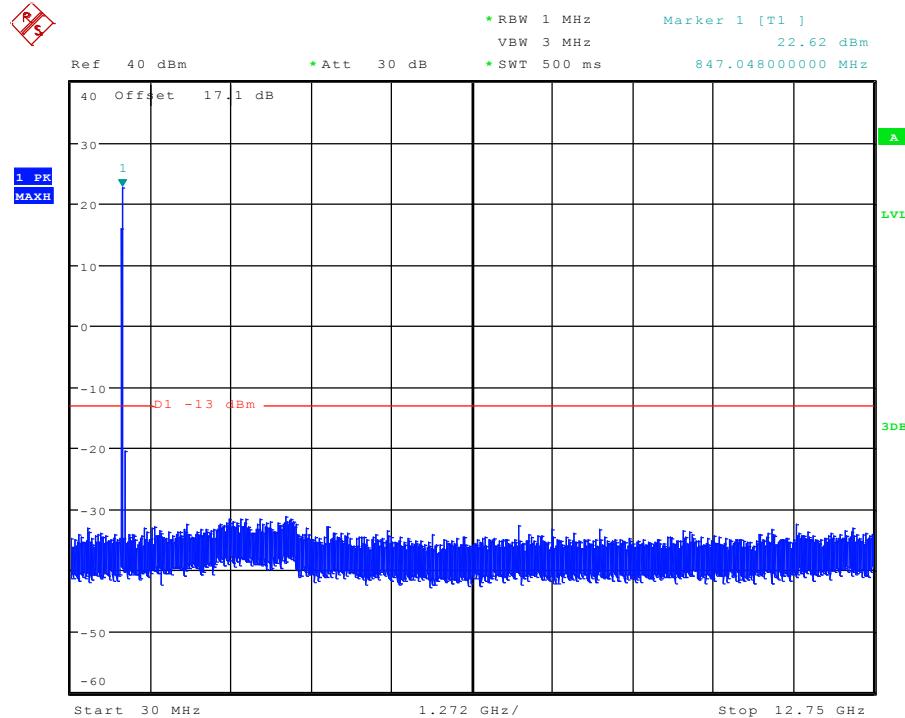
6.2.1.1.1 Test Channel = LCH



6.2.1.1.2 Test Channel = MCH



6.2.1.1.3 Test Channel = HCH



7 Field Strength of Spurious Radiation

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

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
114.196	-74.47	-13.00	-61.47	Vertical
140.677	-77.72	-13.00	-64.72	Vertical
363.195	-72.85	-13.00	-59.85	Vertical
490.217	-72.58	-13.00	-59.58	Vertical
556.080	-64.30	-13.00	-51.30	Vertical
683.926	-62.38	-13.00	-49.38	Vertical
1648.275	-42.63	-13.00	-29.63	Vertical
2461.350	-42.96	-13.00	-29.96	Vertical
3296.800	-53.59	-13.00	-40.59	Vertical
4121.050	-48.40	-13.00	-35.40	Vertical
4945.650	-48.61	-13.00	-35.61	Vertical
8243.000	-50.95	-13.00	-37.95	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
112.693	-75.65	-13.00	-62.65	Horizontal
139.950	-78.83	-13.00	-65.83	Horizontal
211.099	-71.95	-13.00	-58.95	Horizontal
363.341	-67.06	-13.00	-54.06	Horizontal
481.487	-64.63	-13.00	-51.63	Horizontal
613.989	-38.57	-13.00	-25.57	Horizontal
1648.275	-44.15	-13.00	-31.15	Horizontal
2472.900	-38.05	-13.00	-25.05	Horizontal
3296.450	-50.46	-13.00	-37.46	Horizontal
4121.050	-51.93	-13.00	-38.93	Horizontal
4944.950	-51.38	-13.00	-38.38	Horizontal
6593.800	-52.75	-13.00	-39.75	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
75.833	-74.37	-13.00	-61.37	Vertical
112.256	-74.68	-13.00	-61.68	Vertical
145.624	-78.45	-13.00	-65.45	Vertical
221.818	-80.79	-13.00	-67.79	Vertical
364.214	-69.54	-13.00	-56.54	Vertical
619.227	-51.65	-13.00	-38.65	Vertical
1673.850	-42.83	-13.00	-29.83	Vertical
2510.850	-43.80	-13.00	-30.80	Vertical
3348.250	-42.97	-13.00	-29.97	Vertical
4185.100	-49.59	-13.00	-36.59	Vertical
5022.300	-46.36	-13.00	-33.36	Vertical
6695.650	-46.07	-13.00	-33.07	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
72.098	-74.82	-13.00	-61.82	Horizontal
112.402	-75.07	-13.00	-62.07	Horizontal
198.198	-72.94	-13.00	-59.94	Horizontal
361.595	-67.72	-13.00	-54.72	Horizontal
619.081	-48.06	-13.00	-35.06	Horizontal
1673.925	-37.66	-13.00	-24.66	Horizontal
2510.700	-36.80	-13.00	-23.80	Horizontal
3348.250	-42.91	-13.00	-29.91	Horizontal
4185.100	-48.03	-13.00	-35.03	Horizontal
5021.950	-50.67	-13.00	-37.67	Horizontal
6696.000	-44.59	-13.00	-31.59	Horizontal
7532.500	-47.44	-13.00	-34.44	Horizontal

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
73.650	-77.69	-13.00	-64.69	Vertical
130.735	-68.70	-13.00	-55.70	Vertical
252.324	-78.17	-13.00	-65.17	Vertical
363.971	-71.76	-13.00	-58.76	Vertical
556.322	-65.53	-13.00	-52.53	Vertical
693.917	-62.01	-13.00	-49.01	Vertical
1697.700	-36.35	-13.00	-23.35	Vertical
2546.325	-40.41	-13.00	-27.41	Vertical
3395.150	-40.65	-13.00	-27.65	Vertical
4244.250	-46.51	-13.00	-33.51	Vertical
5092.300	-48.01	-13.00	-35.01	Vertical
6789.800	-41.76	-13.00	-28.76	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
76.706	-78.69	-13.00	-65.69	Horizontal
136.652	-79.66	-13.00	-66.66	Horizontal
199.362	-73.56	-13.00	-60.56	Horizontal
355.678	-69.28	-13.00	-56.28	Horizontal
470.332	-69.34	-13.00	-56.34	Horizontal
619.421	-62.11	-13.00	-49.11	Horizontal
1697.475	-37.02	-13.00	-24.02	Horizontal
2546.250	-33.01	-13.00	-20.01	Horizontal
3395.150	-38.62	-13.00	-25.62	Horizontal
4243.900	-42.91	-13.00	-29.91	Horizontal
6790.850	-43.15	-13.00	-30.15	Horizontal
7639.950	-49.78	-13.00	-36.78	Horizontal

7.1.2 Test Band = EGPRS850**7.1.2.1 Test Mode = GSM/TM2****7.1.2.1.1 Test Channel = LCH**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
75.299	-74.40	-13.00	-61.40	Vertical
119.871	-71.52	-13.00	-58.52	Vertical
175.937	-79.47	-13.00	-66.47	Vertical
255.525	-76.47	-13.00	-63.47	Vertical
364.020	-70.60	-13.00	-57.60	Vertical
613.746	-54.67	-13.00	-41.67	Vertical
1794.075	-51.62	-13.00	-38.62	Vertical
2668.125	-45.59	-13.00	-32.59	Vertical
3657.650	-57.05	-13.00	-44.05	Vertical
4806.700	-55.79	-13.00	-42.79	Vertical
6278.450	-52.85	-13.00	-39.85	Vertical
8693.100	-52.42	-13.00	-39.42	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
74.863	-79.82	-13.00	-66.82	Horizontal
130.638	-75.46	-13.00	-62.46	Horizontal
203.194	-75.30	-13.00	-62.30	Horizontal
363.244	-72.82	-13.00	-59.82	Horizontal
482.505	-77.55	-13.00	-64.55	Horizontal
613.601	-49.72	-13.00	-36.72	Horizontal
1648.275	-52.18	-13.00	-39.18	Horizontal
2526.525	-47.58	-13.00	-34.58	Horizontal
3745.850	-56.69	-13.00	-43.69	Horizontal
5339.750	-56.35	-13.00	-43.35	Horizontal
7341.400	-54.22	-13.00	-41.22	Horizontal
9237.700	-52.72	-13.00	-39.72	Horizontal

7.1.2.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
78.840	-83.47	-13.00	-70.47	Vertical
124.963	-72.88	-13.00	-59.88	Vertical
222.157	-80.09	-13.00	-67.09	Vertical
327.208	-67.65	-13.00	-54.65	Vertical
424.499	-73.75	-13.00	-60.75	Vertical
619.033	-51.40	-13.00	-38.40	Vertical
1711.875	-52.29	-13.00	-39.29	Vertical
2661.150	-45.82	-13.00	-32.82	Vertical
3705.600	-57.20	-13.00	-44.20	Vertical
5223.200	-55.49	-13.00	-42.49	Vertical
6928.750	-53.83	-13.00	-40.83	Vertical
9141.800	-52.46	-13.00	-39.46	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
71.613	-80.51	-13.00	-67.51	Horizontal
109.783	-78.65	-13.00	-65.65	Horizontal
144.024	-80.24	-13.00	-67.24	Horizontal
201.836	-74.78	-13.00	-61.78	Horizontal
365.038	-73.39	-13.00	-60.39	Horizontal
619.178	-44.94	-13.00	-31.94	Horizontal
1763.175	-52.84	-13.00	-39.84	Horizontal
2458.350	-46.03	-13.00	-33.03	Horizontal
3763.350	-57.16	-13.00	-44.16	Horizontal
5205.700	-54.60	-13.00	-41.60	Horizontal
6961.300	-53.22	-13.00	-40.22	Horizontal
8969.950	-51.90	-13.00	-38.90	Horizontal

7.1.2.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
119.725	-71.92	-13.00	-58.92	Vertical
176.470	-80.53	-13.00	-67.53	Vertical
223.370	-81.17	-13.00	-68.17	Vertical
331.573	-70.26	-13.00	-57.26	Vertical
408.203	-72.56	-13.00	-59.56	Vertical
709.097	-60.78	-13.00	-47.78	Vertical
1713.000	-45.25	-13.00	-32.25	Vertical
2526.300	-46.42	-13.00	-33.42	Vertical
3778.750	-56.85	-13.00	-43.85	Vertical
5138.500	-55.13	-13.00	-42.13	Vertical
7034.100	-53.75	-13.00	-40.75	Vertical
9191.850	-51.97	-13.00	-38.97	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
70.110	-79.82	-13.00	-66.82	Horizontal
111.238	-78.86	-13.00	-65.86	Horizontal
203.145	-73.76	-13.00	-60.76	Horizontal
274.877	-75.22	-13.00	-62.22	Horizontal
408.155	-72.02	-13.00	-59.02	Horizontal
618.984	-48.37	-13.00	-35.37	Horizontal
1782.750	-52.69	-13.00	-39.69	Horizontal
2624.025	-46.60	-13.00	-33.60	Horizontal
4243.900	-52.64	-13.00	-39.64	Horizontal
5550.100	-56.28	-13.00	-43.28	Horizontal
7331.950	-53.49	-13.00	-40.49	Horizontal
9265.700	-52.77	-13.00	-39.77	Horizontal



7.1.3 Test Band = GSM1900**7.1.3.1 Test Mode = GSM/TM1****7.1.3.1.1 Test Channel = LCH**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
78.103	-82.01	-13.00	-69.01	Vertical
121.356	-77.22	-13.00	-64.22	Vertical
205.305	-78.29	-13.00	-65.29	Vertical
353.275	-68.92	-13.00	-55.92	Vertical
687.263	-57.16	-13.00	-44.16	Vertical
1249.527	-55.43	-13.00	-42.43	Vertical
2463.609	-27.82	-13.00	-14.82	Vertical
3699.125	-46.00	-13.00	-33.00	Vertical
4648.500	-50.48	-13.00	-37.48	Vertical
5550.625	-46.03	-13.00	-33.03	Vertical
7400.375	-44.00	-13.00	-31.00	Vertical
9251.000	-44.14	-13.00	-31.14	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
107.512	-76.19	-13.00	-63.19	Horizontal
136.215	-79.68	-13.00	-66.68	Horizontal
203.939	-75.96	-13.00	-62.96	Horizontal
262.315	-77.57	-13.00	-64.57	Horizontal
549.964	-76.27	-13.00	-63.27	Horizontal
781.970	-71.80	-13.00	-58.80	Horizontal
2460.824	-46.52	-13.00	-33.52	Horizontal
2834.571	-45.00	-13.00	-32.00	Horizontal
3700.000	-46.67	-13.00	-33.67	Horizontal
5549.750	-46.94	-13.00	-33.94	Horizontal
7400.375	-46.06	-13.00	-33.06	Horizontal
9251.875	-44.97	-13.00	-31.97	Horizontal

7.1.3.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
144.945	-69.71	-13.00	-56.71	Vertical
205.614	-77.04	-13.00	-64.04	Vertical
358.389	-67.72	-13.00	-54.72	Vertical
478.316	-67.51	-13.00	-54.51	Vertical
693.392	-57.79	-13.00	-44.79	Vertical
1424.327	-50.34	-13.00	-37.34	Vertical
2455.811	-35.22	-13.00	-22.22	Vertical
3759.500	-45.79	-13.00	-32.79	Vertical
4668.625	-51.02	-13.00	-38.02	Vertical
5639.875	-47.25	-13.00	-34.25	Vertical
7521.125	-44.57	-13.00	-31.57	Vertical
9401.500	-47.65	-13.00	-34.65	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
107.468	-78.41	-13.00	-65.41	Horizontal
147.061	-81.83	-13.00	-68.83	Horizontal
197.457	-75.11	-13.00	-62.11	Horizontal
290.665	-73.91	-13.00	-60.91	Horizontal
626.374	-73.02	-13.00	-60.02	Horizontal
1423.890	-43.11	-13.00	-30.11	Horizontal
2465.280	-45.72	-13.00	-32.72	Horizontal
2808.949	-45.97	-13.00	-32.97	Horizontal
3760.375	-46.97	-13.00	-33.97	Horizontal
5639.875	-47.17	-13.00	-34.17	Horizontal
7518.500	-46.98	-13.00	-33.98	Horizontal
9399.750	-46.20	-13.00	-33.20	Horizontal

7.1.3.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
137.935	-73.43	-13.00	-60.43	Vertical
205.570	-76.88	-13.00	-63.88	Vertical
325.321	-68.72	-13.00	-55.72	Vertical
474.877	-65.92	-13.00	-52.92	Vertical
686.778	-54.84	-13.00	-41.84	Vertical
1423.453	-49.28	-13.00	-36.28	Vertical
2465.837	-45.86	-13.00	-32.86	Vertical
3819.875	-44.00	-13.00	-31.00	Vertical
4514.625	-50.23	-13.00	-37.23	Vertical
5730.000	-48.36	-13.00	-35.36	Vertical
7639.250	-44.11	-13.00	-31.11	Vertical
9209.875	-47.65	-13.00	-34.65	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
197.942	-73.37	-13.00	-60.37	Horizontal
356.008	-73.43	-13.00	-60.43	Horizontal
475.627	-68.07	-13.00	-55.07	Horizontal
599.787	-63.57	-13.00	-50.57	Horizontal
738.409	-64.08	-13.00	-51.08	Horizontal
1424.327	-45.28	-13.00	-32.28	Horizontal
2463.052	-33.94	-13.00	-20.94	Horizontal
2973.264	-45.35	-13.00	-32.35	Horizontal
5730.000	-47.81	-13.00	-34.81	Horizontal
6554.250	-47.79	-13.00	-34.79	Horizontal
8012.875	-47.84	-13.00	-34.84	Horizontal
9549.375	-45.65	-13.00	-32.65	Horizontal

7.1.4 Test Band = EGPRS1900**7.1.4.1 Test Mode = GSM/TM2****7.1.4.1.1 Test Channel = LCH**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
129.998	-75.34	-13.00	-62.34	Vertical
199.309	-75.92	-13.00	-62.92	Vertical
360.241	-72.06	-13.00	-59.06	Vertical
597.230	-58.00	-13.00	-45.00	Vertical
789.863	-64.98	-13.00	-51.98	Vertical
1225.929	-55.73	-13.00	-42.73	Vertical
2462.495	-31.20	-13.00	-18.20	Vertical
3700.875	-46.18	-13.00	-33.18	Vertical
4552.250	-50.61	-13.00	-37.61	Vertical
5550.625	-45.30	-13.00	-32.30	Vertical
7401.250	-44.16	-13.00	-31.16	Vertical
9251.875	-43.97	-13.00	-30.97	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
98.209	-85.25	-13.00	-72.25	Horizontal
147.061	-80.23	-13.00	-67.23	Horizontal
265.137	-79.92	-13.00	-66.92	Horizontal
465.927	-77.57	-13.00	-64.57	Horizontal
799.827	-73.08	-13.00	-60.08	Horizontal
1307.211	-55.76	-13.00	-42.76	Horizontal
2454.140	-31.58	-13.00	-18.58	Horizontal
3700.000	-43.33	-13.00	-30.33	Horizontal
4656.375	-52.53	-13.00	-39.53	Horizontal
5550.625	-46.99	-13.00	-33.99	Horizontal
7402.125	-46.12	-13.00	-33.12	Horizontal
9252.750	-45.68	-13.00	-32.68	Horizontal

7.1.4.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
77.971	-72.86	-13.00	-59.86	Vertical
128.279	-71.70	-13.00	-58.70	Vertical
166.814	-79.59	-13.00	-66.59	Vertical
278.011	-76.64	-13.00	-63.64	Vertical
802.781	-70.66	-13.00	-57.66	Vertical
1423.890	-41.51	-13.00	-28.51	Vertical
2465.280	-22.46	-13.00	-9.46	Vertical
2989.417	-45.41	-13.00	-32.41	Vertical
3760.375	-46.49	-13.00	-33.49	Vertical
5639.875	-46.16	-13.00	-33.16	Vertical
7520.250	-44.05	-13.00	-31.05	Vertical
9401.500	-47.13	-13.00	-34.13	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
69.902	-79.77	-13.00	-66.77	Horizontal
129.778	-84.29	-13.00	-71.29	Horizontal
272.280	-77.13	-13.00	-64.13	Horizontal
549.964	-73.84	-13.00	-60.84	Horizontal
778.135	-72.11	-13.00	-59.11	Horizontal
1423.890	-38.49	-13.00	-25.49	Horizontal
2458.039	-27.54	-13.00	-14.54	Horizontal
3759.500	-43.98	-13.00	-30.98	Horizontal
4648.500	-51.52	-13.00	-38.52	Horizontal
5639.875	-47.20	-13.00	-34.20	Horizontal
7520.250	-45.99	-13.00	-32.99	Horizontal
9400.625	-44.07	-13.00	-31.07	Horizontal

7.1.4.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
102.000	-70.92	-13.00	-57.92	Vertical
124.046	-74.70	-13.00	-61.70	Vertical
359.227	-78.39	-13.00	-65.39	Vertical
550.008	-74.93	-13.00	-61.93	Vertical
943.916	-69.37	-13.00	-56.37	Vertical
1423.890	-41.72	-13.00	-28.72	Vertical
2463.052	-29.78	-13.00	-16.78	Vertical
3819.875	-44.20	-13.00	-31.20	Vertical
5045.750	-49.85	-13.00	-36.85	Vertical
5730.000	-48.31	-13.00	-35.31	Vertical
7640.125	-44.68	-13.00	-31.68	Vertical
9256.250	-47.79	-13.00	-34.79	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
124.575	-80.42	-13.00	-67.42	Horizontal
187.272	-77.90	-13.00	-64.90	Horizontal
255.128	-75.73	-13.00	-62.73	Horizontal
434.931	-76.05	-13.00	-63.05	Horizontal
772.094	-71.71	-13.00	-58.71	Horizontal
1423.890	-32.64	-13.00	-19.64	Horizontal
2469.179	-28.16	-13.00	-15.16	Horizontal
2800.037	-45.74	-13.00	-32.74	Horizontal
3819.875	-43.90	-13.00	-30.90	Horizontal
5729.125	-47.08	-13.00	-34.08	Horizontal
7640.125	-46.42	-13.00	-33.42	Horizontal
9548.500	-46.27	-13.00	-33.27	Horizontal

NOTE:

- 1) The disturbance above 10GHz 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.

7.2 For WCDMA

7.2.1 Test Band = WCDMA850 (HSDPA)

7.2.1.1 Test Mode = UMTS/TM1

7.2.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
78.050	-86.20	-13.00	-73.20	Vertical
132.250	-86.19	-13.00	-73.19	Vertical
237.500	-89.77	-13.00	-76.77	Vertical
366.450	-85.67	-13.00	-72.67	Vertical
531.492	-86.76	-13.00	-73.76	Vertical
738.750	-82.89	-13.00	-69.89	Vertical
1651.000	-49.80	-13.00	-36.80	Vertical
2465.000	-52.44	-13.00	-39.44	Vertical
3301.275	-60.88	-13.00	-47.88	Vertical
4126.613	-62.40	-13.00	-49.40	Vertical
6290.625	-65.47	-13.00	-52.47	Vertical
10659.600	-62.93	-13.00	-49.93	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
130.850	-91.60	-13.00	-78.60	Horizontal
192.400	-91.37	-13.00	-78.37	Horizontal
237.500	-88.72	-13.00	-75.72	Horizontal
266.750	-87.49	-13.00	-74.49	Horizontal
444.700	-85.33	-13.00	-72.33	Horizontal
621.371	-83.43	-13.00	-70.43	Horizontal
1654.000	-57.29	-13.00	-44.29	Horizontal
2463.500	-57.33	-13.00	-44.33	Horizontal
3305.663	-66.09	-13.00	-53.09	Horizontal
4127.100	-55.73	-13.00	-42.73	Horizontal
4952.925	-64.65	-13.00	-51.65	Horizontal
10634.250	-63.30	-13.00	-50.30	Horizontal

7.2.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
69.050	-82.56	-13.00	-69.56	Vertical
125.000	-86.08	-13.00	-73.08	Vertical
210.500	-93.54	-13.00	-80.54	Vertical
339.450	-86.32	-13.00	-73.32	Vertical
535.388	-86.41	-13.00	-73.41	Vertical
750.071	-82.33	-13.00	-69.33	Vertical
1684.500	-52.17	-13.00	-39.17	Vertical
2465.000	-52.61	-13.00	-39.61	Vertical
3371.963	-63.96	-13.00	-50.96	Vertical
4209.488	-64.09	-13.00	-51.09	Vertical
6607.500	-65.14	-13.00	-52.14	Vertical
10618.650	-63.09	-13.00	-50.09	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
111.150	-92.19	-13.00	-79.19	Horizontal
124.050	-88.36	-13.00	-75.36	Horizontal
190.800	-90.92	-13.00	-77.92	Horizontal
265.650	-87.28	-13.00	-74.28	Horizontal
450.000	-85.27	-13.00	-72.27	Horizontal
622.700	-83.34	-13.00	-70.34	Horizontal
1684.500	-56.95	-13.00	-43.95	Horizontal
2800.500	-56.59	-13.00	-43.59	Horizontal
3367.575	-64.99	-13.00	-51.99	Horizontal
4209.488	-59.12	-13.00	-46.12	Horizontal
5051.888	-64.71	-13.00	-51.71	Horizontal
9261.938	-62.88	-13.00	-49.88	Horizontal

7.2.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
129.350	-83.13	-13.00	-70.13	Vertical
153.700	-90.89	-13.00	-77.89	Vertical
175.000	-90.00	-13.00	-77.00	Vertical
353.350	-85.69	-13.00	-72.69	Vertical
442.100	-86.05	-13.00	-73.05	Vertical
614.404	-84.06	-13.00	-71.06	Vertical
1691.500	-53.63	-13.00	-40.63	Vertical
2465.000	-55.35	-13.00	-42.35	Vertical
3383.175	-65.24	-13.00	-52.24	Vertical
4227.525	-64.86	-13.00	-51.86	Vertical
7988.588	-64.09	-13.00	-51.09	Vertical
10609.388	-63.11	-13.00	-50.11	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
73.450	-88.64	-13.00	-75.64	Horizontal
125.950	-89.99	-13.00	-76.99	Horizontal
196.000	-91.94	-13.00	-78.94	Horizontal
307.150	-88.42	-13.00	-75.42	Horizontal
481.029	-85.92	-13.00	-72.92	Horizontal
738.796	-83.74	-13.00	-70.74	Horizontal
1695.000	-58.75	-13.00	-45.75	Horizontal
2457.000	-57.53	-13.00	-44.53	Horizontal
3381.225	-67.54	-13.00	-54.54	Horizontal
4227.525	-60.55	-13.00	-47.55	Horizontal
7027.238	-65.36	-13.00	-52.36	Horizontal
10647.900	-63.12	-13.00	-50.12	Horizontal

NOTE:

- 1) The disturbance above 11GHz 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 4182 for WCDMA Band 5) and only the data of the worst case show in the test report.

8 Frequency Stability

8.1 For GSM

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
GSM850	GSM/TM1	LCH	TN	VL	-3.20	-0.00388	PASS
				VN	-8.10	-0.00983	PASS
				VH	0.42	0.00051	PASS
		MCH	TN	VL	-7.84	-0.00937	PASS
				VN	-6.62	-0.00791	PASS
				VH	-5.26	-0.00629	PASS
		HCH	TN	VL	-0.90	-0.00106	PASS
				VN	-5.62	-0.00662	PASS
				VH	-9.04	-0.01065	PASS
GSM850	GSM/TM2	LCH	TN	VL	-5.52	-0.00670	PASS
				VN	-10.98	-0.01332	PASS
				VH	-4.25	-0.00516	PASS
		MCH	TN	VL	-7.31	-0.00874	PASS
				VN	-15.58	-0.01862	PASS
				VH	-8.02	-0.00959	PASS
		HCH	TN	VL	-8.15	-0.00960	PASS
				VN	-3.57	-0.00421	PASS
				VH	-10.83	-0.01276	PASS



Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM1900	GSM/TM1	LCH	TN	VL	-12.85	-0.00695	PASS
				VN	-10.20	-0.00551	PASS
				VH	-8.65	-0.00468	PASS
		MCH	TN	VL	-2.51	-0.00134	PASS
				VN	-1.80	-0.00096	PASS
				VH	-7.49	-0.00398	PASS
		HCH	TN	VL	-1.16	-0.00061	PASS
				VN	-8.39	-0.00439	PASS
				VH	-19.04	-0.00997	PASS
GSM1900	GSM/TM2	LCH	TN	VL	3.51	0.00190	PASS
				VN	-5.79	-0.00313	PASS
				VH	-8.05	-0.00435	PASS
		MCH	TN	VL	-19.03	-0.01012	PASS
				VN	-2.06	-0.00110	PASS
				VH	-14.49	-0.00771	PASS
		HCH	TN	VL	-7.00	-0.00367	PASS
				VN	-10.81	-0.00566	PASS
				VH	-9.55	-0.00500	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
GSM850	GSM/TM1	LCH	VN	-30	-2.10	-0.00255	PASS
				-20	-1.39	-0.00169	PASS
				-10	-1.71	-0.00207	PASS
				0	-3.65	-0.00443	PASS
				10	1.13	0.00137	PASS
				20	2.36	0.00286	PASS
				30	2.45	0.00297	PASS
				40	0.97	0.00118	PASS
				50	6.07	0.00736	PASS
		MCH	VN	-30	0.13	0.00016	PASS
				-20	2.84	0.00339	PASS
				-10	-0.73	-0.00087	PASS
				0	-2.08	-0.00249	PASS
				10	0.31	0.00037	PASS
				20	-1.24	-0.00148	PASS
				30	0.82	0.00098	PASS
				40	1.40	0.00167	PASS
				50	2.24	0.00268	PASS
		HCH	VN	-30	0.20	0.00024	PASS
				-20	4.85	0.00571	PASS
				-10	-0.77	-0.00091	PASS
				0	-1.22	-0.00144	PASS
				10	-0.96	-0.00113	PASS
				20	-1.22	-0.00144	PASS
				30	-1.42	-0.00167	PASS
				40	-2.32	-0.00273	PASS
				50	-0.25	-0.00029	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM1900	GSM/TM1	LCH	VN	-30	-14.71	-0.00795	PASS
				-20	-8.64	-0.00467	PASS
				-10	-13.81	-0.00746	PASS
				0	-1.99	-0.00108	PASS
				10	1.88	0.00102	PASS
				20	-4.83	-0.00261	PASS
				30	-13.61	-0.00736	PASS
				40	-10.19	-0.00551	PASS
				50	1.56	0.00084	PASS
		MCH	VN	-30	-5.54	-0.00295	PASS
				-20	-7.16	-0.00381	PASS
				-10	-12.90	-0.00686	PASS
				0	-0.44	-0.00023	PASS
				10	-15.10	-0.00803	PASS
				20	-7.41	-0.00394	PASS
				30	2.66	0.00141	PASS
				40	-8.64	-0.00460	PASS
				50	-11.68	-0.00621	PASS
		HCH	VN	-30	-14.45	-0.00757	PASS
				-20	-4.96	-0.00260	PASS
				-10	-6.51	-0.00341	PASS
				0	-11.48	-0.00601	PASS
				10	1.30	0.00068	PASS
				20	2.85	0.00149	PASS
				30	-6.06	-0.00317	PASS
				40	-13.36	-0.00700	PASS
				50	-1.93	-0.00101	PASS

8.2 For WCDMA

8.2.1 Frequency Error VS. Voltage

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA	UMTS/TM1	LCH	TN	VL	-0.04	-0.00005	PASS
				VN	-0.50	-0.00061	PASS
				VH	-0.30	-0.00036	PASS
		MCH	TN	VL	0.52	0.00062	PASS
				VN	0.72	0.00086	PASS
				VH	-1.38	-0.00165	PASS
		HCH	TN	VL	1.71	0.00202	PASS
				VN	-2.67	-0.00315	PASS
				VH	2.81	0.00332	PASS

8.2.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA	UMTS/TM1	LCH	VN	-30	2.66	0.00322	PASS
				-20	1.43	0.00173	PASS
				-10	0.57	0.00069	PASS
				0	-2.74	-0.00332	PASS
				10	0.51	0.00062	PASS
				20	-1.90	-0.00230	PASS
				30	1.58	0.00191	PASS
				40	0.06	0.00007	PASS
				50	-0.95	-0.00115	PASS
		MCH	VN	-30	-1.70	-0.00203	PASS
				-20	-0.97	-0.00116	PASS
				-10	-0.23	-0.00027	PASS
				0	-1.24	-0.00148	PASS
				10	2.44	0.00292	PASS
				20	1.86	0.00222	PASS
				30	1.75	0.00209	PASS
				40	0.21	0.00025	PASS
				50	-0.25	-0.00030	PASS
		HCH	VN	-30	-0.05	-0.00006	PASS
				-20	0.77	0.00091	PASS
				-10	0.68	0.00080	PASS
				0	-1.42	-0.00168	PASS
				10	1.67	0.00197	PASS
				20	-2.71	-0.00320	PASS
				30	2.77	0.00327	PASS
				40	-0.46	-0.00054	PASS
				50	-2.49	-0.00294	PASS

The End