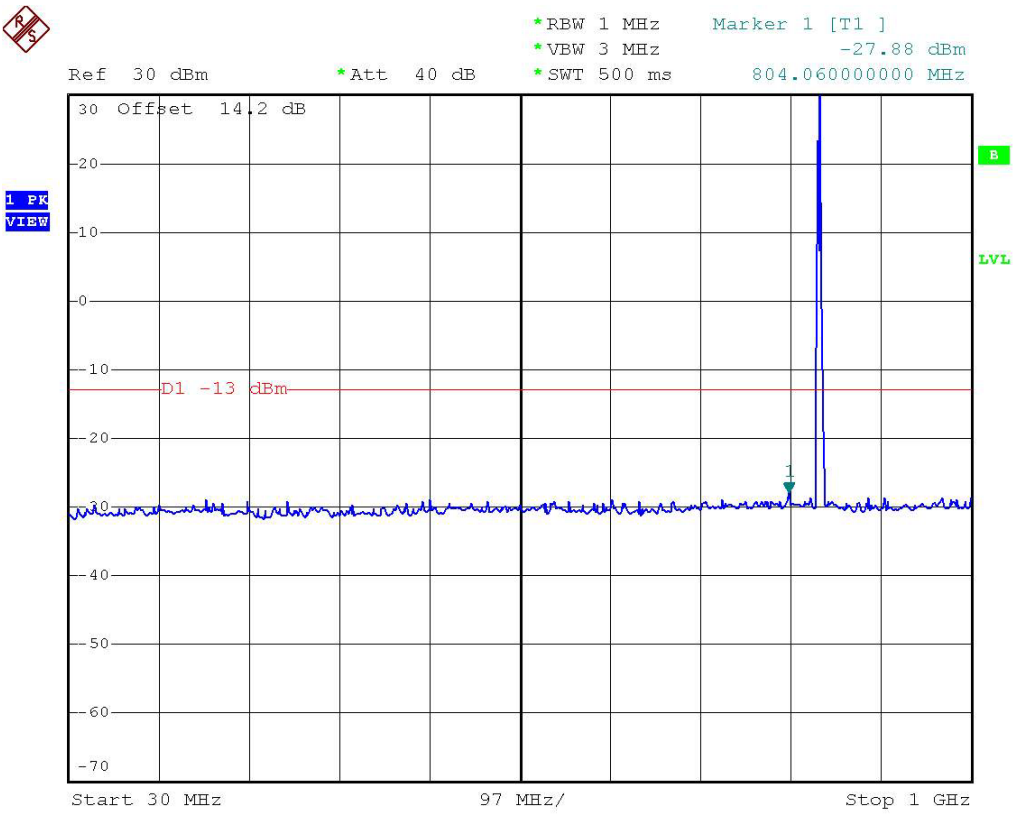
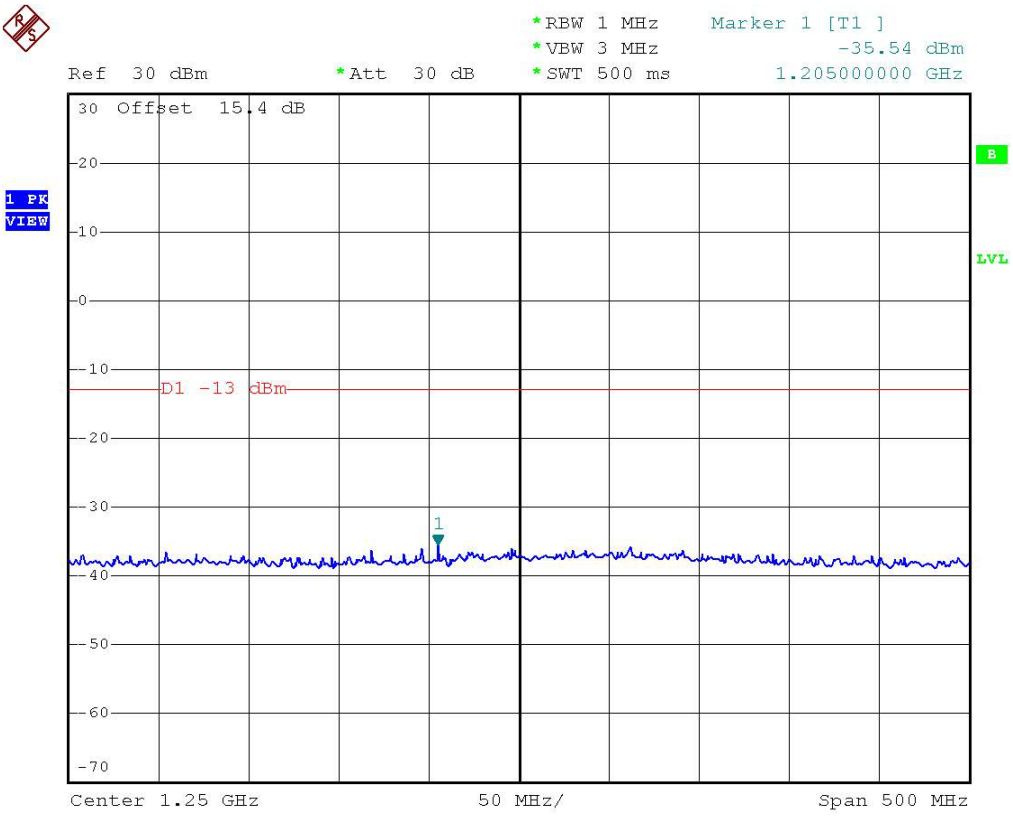
4.5.4 Test Result

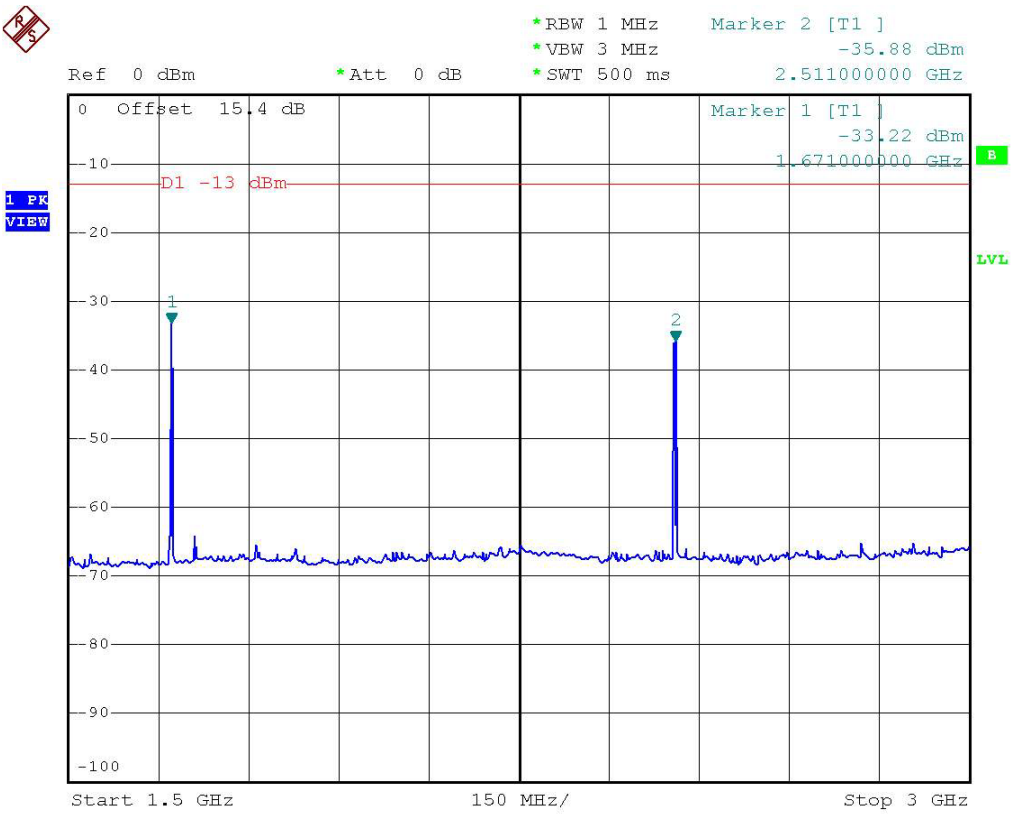
- Test Mode : GSM 850 CH189
- Frequency Range : 30M-1G



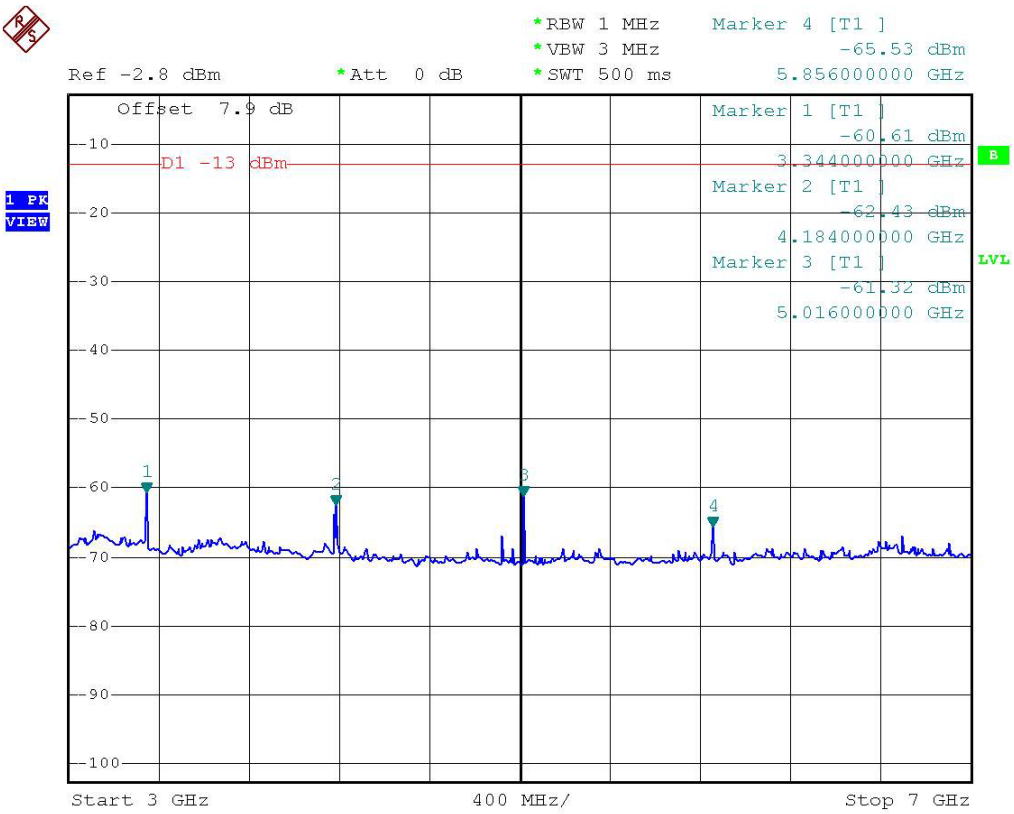
- Test Mode : GSM 850 CH189
- Frequency Range : 1G-1.5G



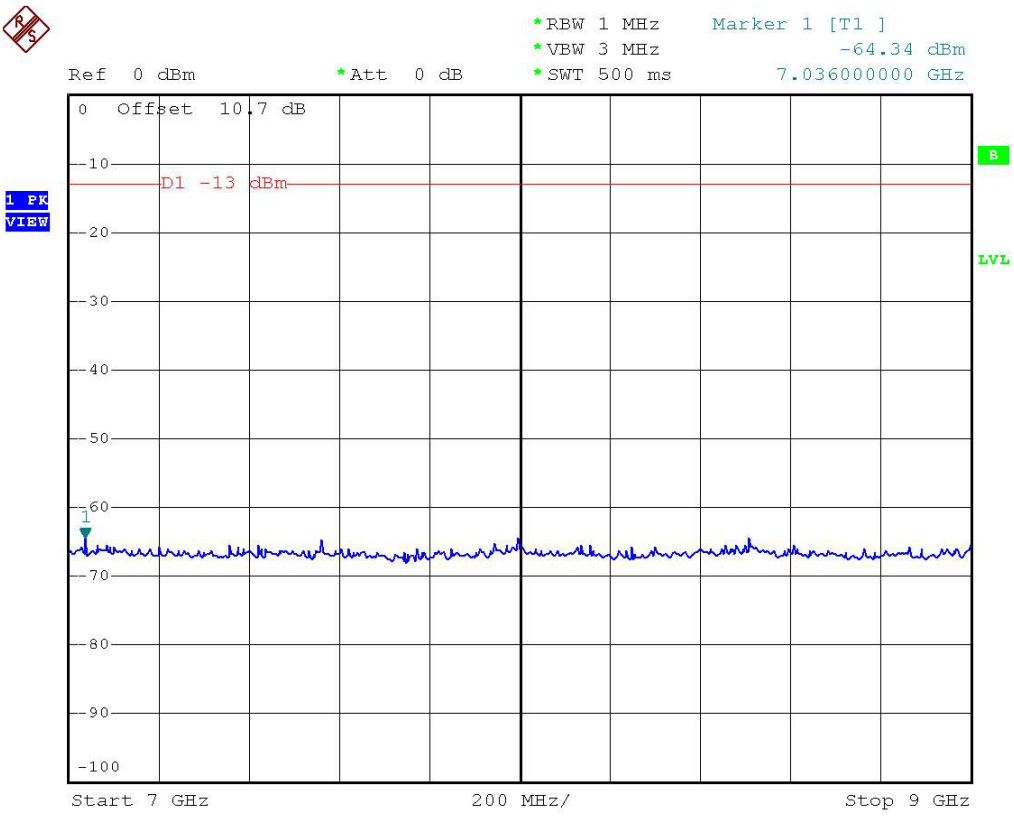
- Test Mode : GSM 850 CH189
- Frequency Range : 1.5G-3G



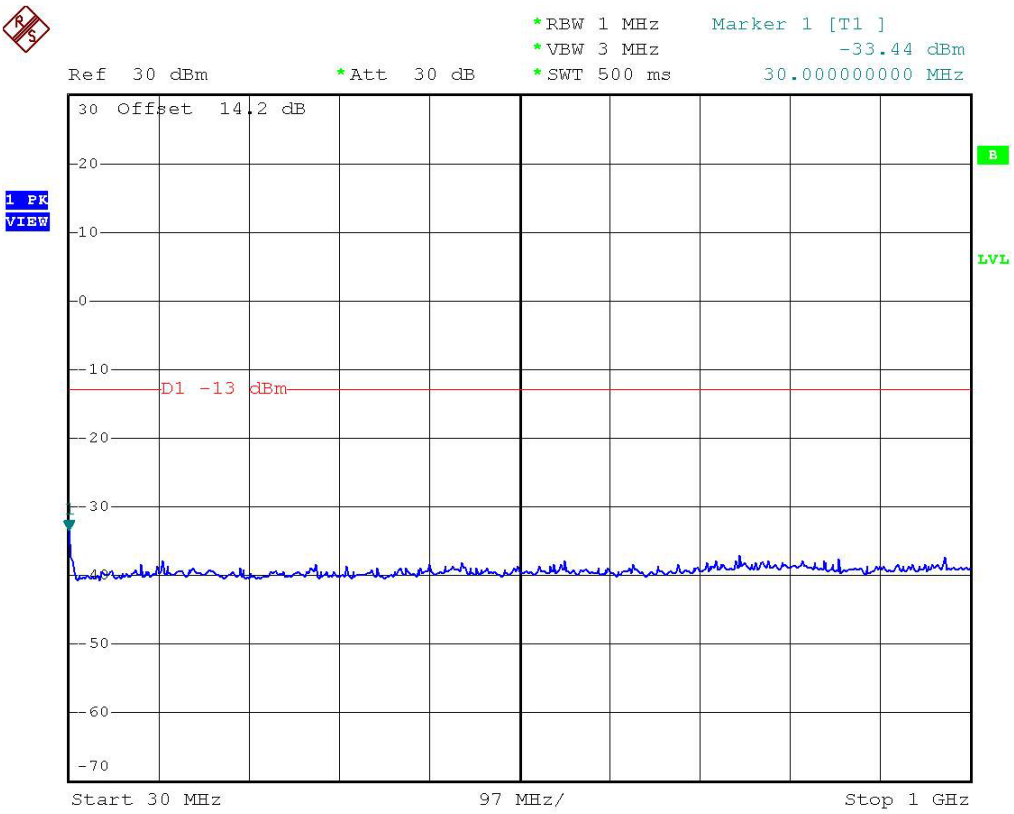
- Test Mode : GSM 850 CH189
- Frequency Range : 3G-7G



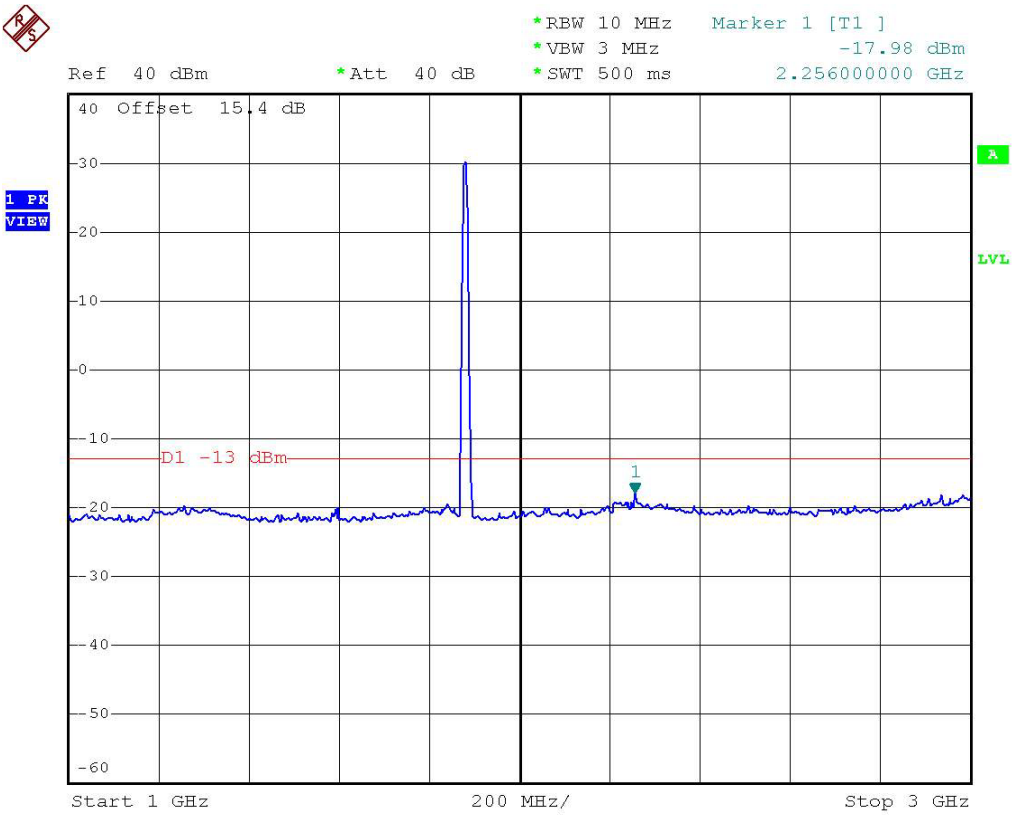
- Test Mode : GSM 850 CH189
- Frequency Range : 7G-9G



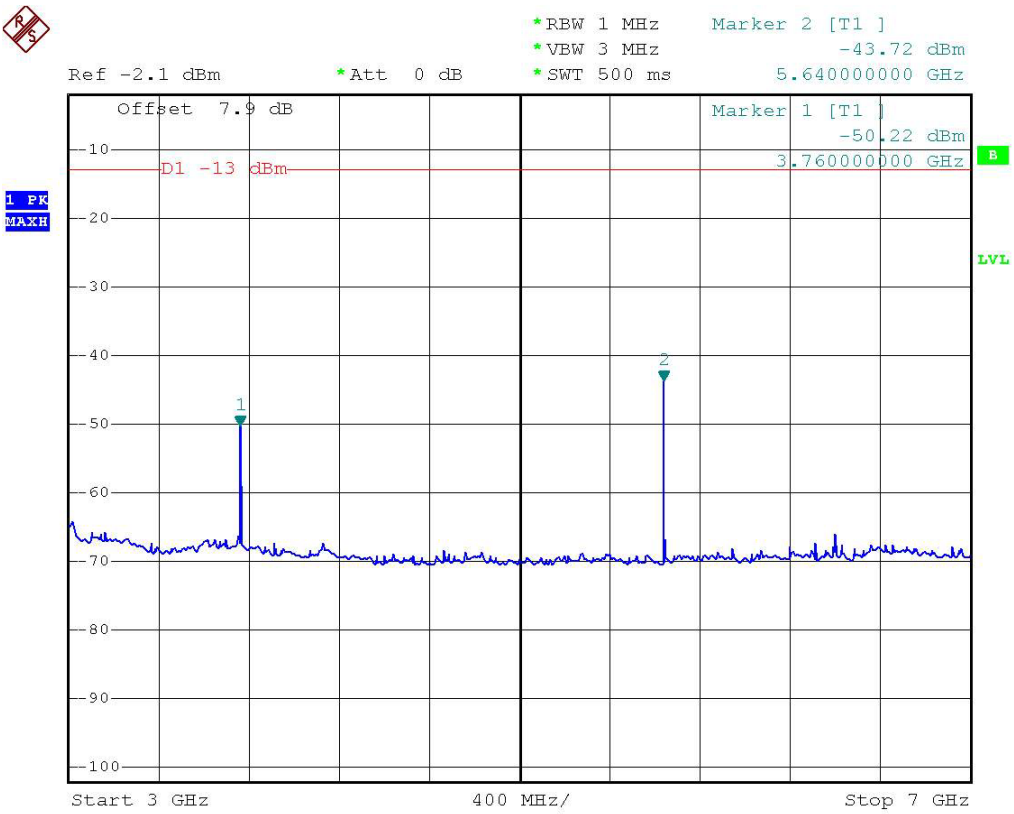
- Test Mode : PCS 1900 CH661
- Frequency Range : 30M-1G



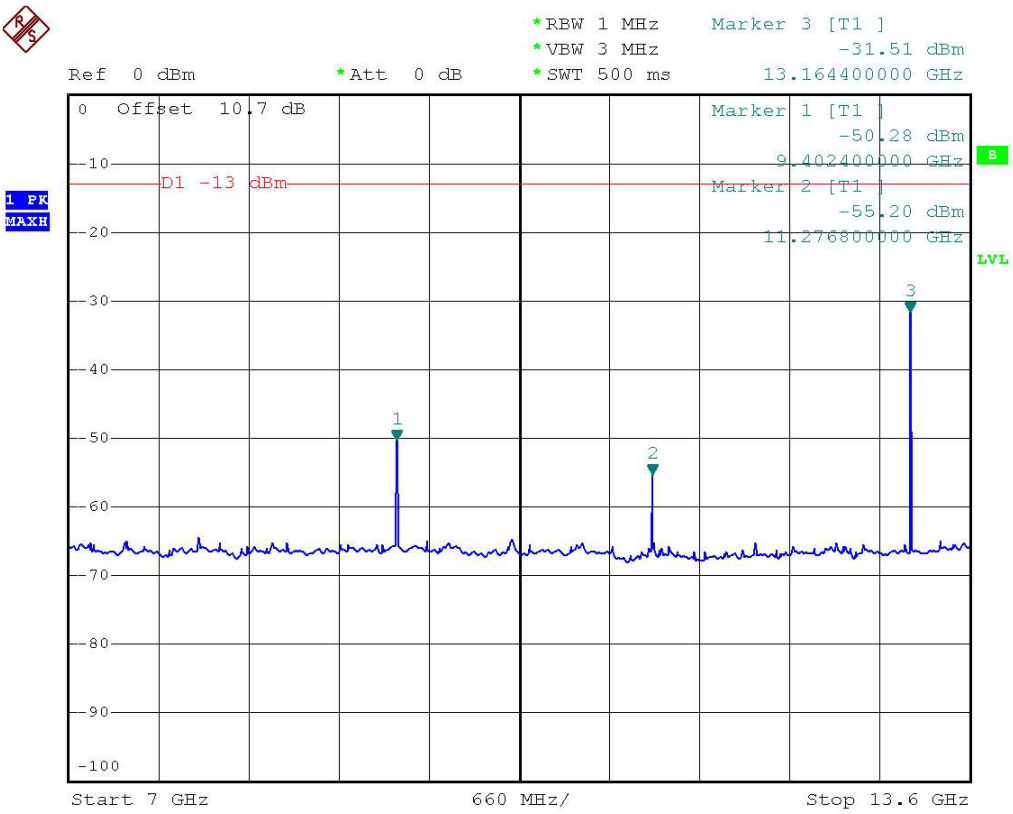
- Test Mode : PCS 1900 CH661
- Frequency Range : 1G-3G



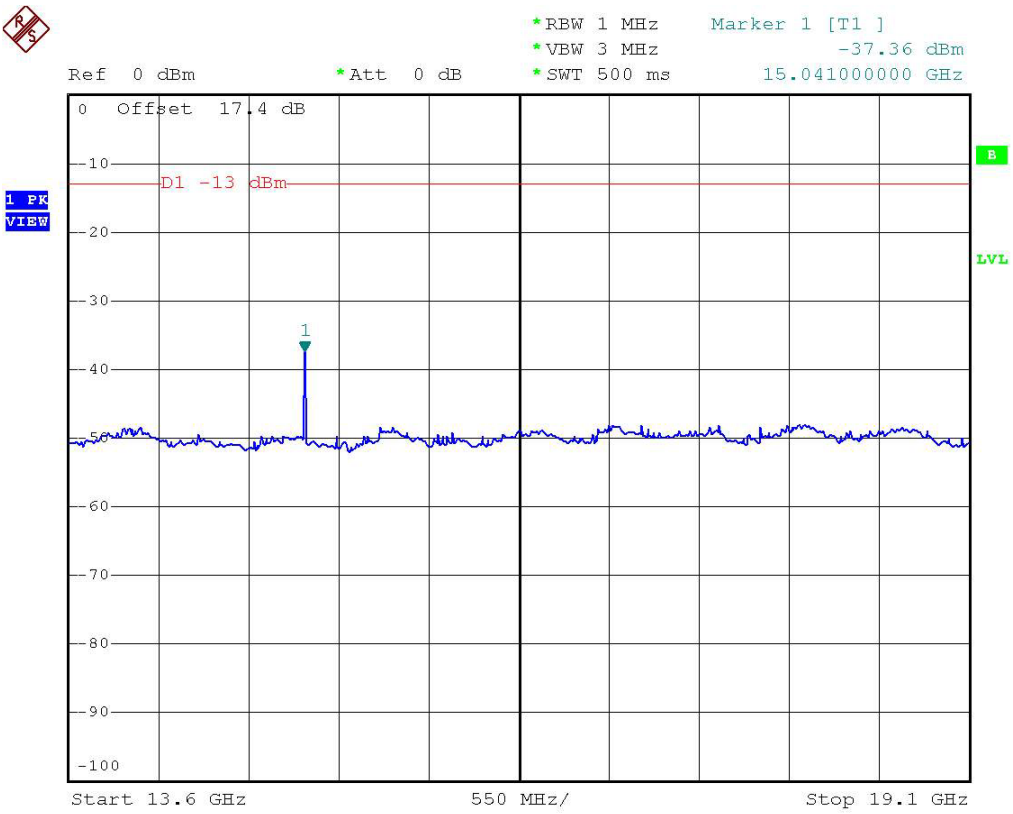
- Test Mode : PCS 1900 CH661
- Frequency Range : 3G-7G



- Test Mode : PCS 1900 CH661
- Frequency Range : 7G-13.6G



- Test Mode : PCS 1900 CH661
- Frequency Range : 13.6G-19.1G



4.6 Field Strength of Spurious Radiation

Equivalent isotropic radiated Power Measurements by substitution method according to ANSI/TIA/EIA-603-A.

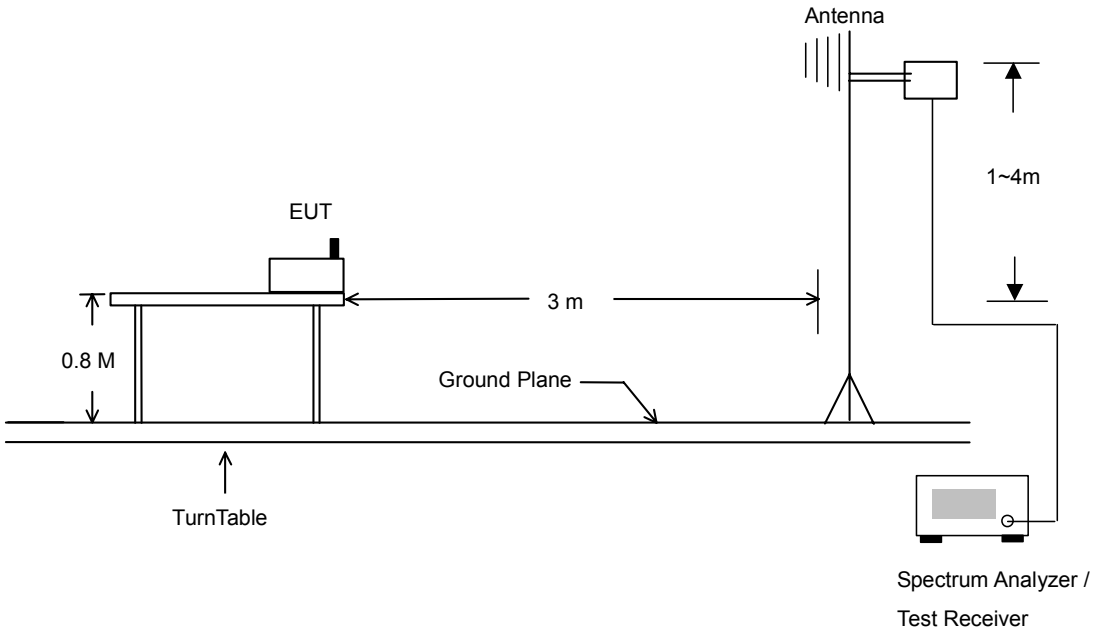
4.6.1 Measurement Instruments

As described in chapter 5 of this test report.

4.6.2 Test Procedure

1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to reach the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission.
6. A Horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. The conducted power at the terminal of the Horn antenna is measured.
8. Repeat step 3 to step 5.

4.6.3 Test Setup Layout



4.6.4 Test Result

- Test Mode : GSM 850 CH 189

➢ **2203**

GSM850 Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
56.730	-52.54	-13	-39.54	57.540	-48.33	-13	-35.33
148.530	-60.46	-13	-47.46	72.390	-52.810	-13	-39.81
165.540	-58.97	-13	-45.97	125.040	-61.470	-13	-48.47
350.400	-64.65	-13	-51.65	346.900	-69.860	-13	-56.86
381.900	-65.40	-13	-52.40	378.400	-72.670	-13	-59.67
931.400	-69.85	-13	-56.85	610.800	-66.770	-13	-53.77
1674.000	-41.30	-13	-28.30	1674.000	-39.640	-13	-26.64
2508.000	-50.24	-13	-37.24	2508.000	-46.540	-13	-33.54
3344.000	-39.98	-13	-26.98	3344.000	-38.790	-13	-25.79
4184.000	-37.74	-13	-24.74	4178.000	-47.060	-13	-34.06
5018.000	-44.44	-13	-31.44	5018.000	-46.230	-13	-33.23
5854.000	**-36.30**	**-13**	**-23.30**	5854.000	-45.680	-13	-32.68
				6688.000	-47.150	-13	-34.15

➢ **2204**

GSM850 Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
122.340	-59.89	-13	-46.89	75.090	-60.27	-13	-47.27
128.280	-57.93	-13	-44.93	91.830	-57.240	-13	-44.24
177.690	-55.98	-13	-42.98	124.230	-57.950	-13	-44.95
308.400	-70.92	-13	-57.92	322.400	-55.500	-13	-42.50
441.400	-67.58	-13	-54.58	385.400	-70.460	-13	-57.46
476.400	-61.21	-13	-48.21	579.300	-69.550	-13	-56.55
1674.000	-39.21	-13	-26.21	1674.000	-39.910	-13	-26.91
2508.000	-38.43	-13	-25.43	2508.000	-41.710	-13	-28.71
3344.000	**-36.64**	**-13**	**-23.64**	3344.000	-37.070	-13	-24.07
4184.000	-41.74	-13	-28.74	4178.000	-40.000	-13	-27.00
5018.000	-43.20	-13	-30.20	5018.000	-45.310	-13	-32.31
5854.000	-40.75	-13	-27.75	5854.000	-38.820	-13	-25.82
6688.000	-41.77	-13	-28.77	6688.000	-42.140	-13	-29.14

➢ **2205**

GSM850 Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
114.780	-66.12	-13	-53.12	47.280	-54.29	-13	-41.29
122.340	-62.99	-13	-49.99	93.990	-58.470	-13	-45.47
171.480	-69.13	-13	-56.13	121.530	-59.170	-13	-46.17
308.400	-76.65	-13	-63.65	378.400	-71.870	-13	-58.87
383.300	-74.12	-13	-61.12	451.900	-67.960	-13	-54.96
504.400	-75.03	-13	-62.03	526.900	-69.520	-13	-56.52
1674.000	-43.07	-13	-30.07	1674.000	-35.490	-13	-22.49
1844.000	-52.54	-13	-39.54	1844.000	-54.240	-13	-41.24
2508.000	-43.84	-13	-30.84	2508.000	-45.630	-13	-32.63
3344.000	**-34.27**	**-13**	**-21.27**	3344.000	-41.990	-13	-28.99
4178.000	-42.49	-13	-29.49	4184.000	-40.870	-13	-27.87
5018.000	-46.02	-13	-33.02	5018.000	-46.340	-13	-33.34
5854.000	-36.49	-13	-23.49	5854.000	-40.440	-13	-27.44
6688.000	-47.87	-13	-34.87	6688.000	-45.790	-13	-32.79

➢ **2207**

GSM850 Radiated Spurious ERP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
91.830	-66.60	-13	-53.60	46.740	-57.47	-13	-44.47
122.340	-61.14	-13	-48.14	143.130	-55.040	-13	-42.04
172.290	-69.28	-13	-56.28	208.740	-62.130	-13	-49.13
376.300	-73.08	-13	-60.08	456.800	-68.070	-13	-55.07
486.900	-69.97	-13	-56.97	486.900	-66.630	-13	-53.63
507.900	-72.23	-13	-59.23	516.300	-65.000	-13	-52.00
1674.000	-39.16	-13	-26.16	1674.000	-36.480	-13	-23.48
2508.000	-42.15	-13	-29.15	2508.000	-36.030	-13	-23.03
3344.000	**-34.98**	**-13**	**-21.98**	3344.000	-47.840	-13	-34.84
4184.000	-42.22	-13	-29.22	4178.000	-42.610	-13	-29.61
5018.000	-46.30	-13	-33.30	5854.000	-43.050	-13	-30.05
5854.000	-39.50	-13	-26.50	6688.000	-47.080	-13	-34.08
6688.000	-45.59	-13	-32.59				

- Test Mode : PCS 1900 CH 661

➢ **2203**

PCS1900 Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
33.240	-52.890	-13	-39.89	105.330	-49.920	-13	-36.92
45.390	-47.650	-13	-34.65	121.530	-56.770	-13	-43.77
104.790	-62.290	-13	-49.29	180.930	-57.610	-13	-44.61
350.400	-68.180	-13	-55.18	330.800	-65.180	-13	-52.18
509.300	-72.510	-13	-59.51	344.800	-65.540	-13	-52.54
591.900	-72.380	-13	-59.38	474.300	-69.960	-13	-56.96
1958.000	-48.810	-13	-35.81	1958.000	-42.470	-13	-29.47
3758.000	**-35.522**	**-13**	**-22.52**	3758.000	-39.141	-13	-26.14
5638.000	-46.728	-13	-33.73	7518.000	-58.613	-13	-45.61

➢ **2204**

PCS1900 Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
106.140	-57.380	-13	-44.38	45.930	-51.740	-13	-38.74
115.590	-60.560	-13	-47.56	105.330	-56.350	-13	-43.35
180.390	-61.920	-13	-48.92	185.790	-58.370	-13	-45.37
395.900	-70.910	-13	-57.91	509.300	-61.490	-13	-48.49
498.800	-68.890	-13	-55.89	565.300	-66.360	-13	-53.36
656.300	-70.760	-13	-57.76	595.400	-68.360	-13	-55.36
1958.000	-48.260	-13	-35.26	1858.000	-49.570	-13	-36.57
3758.000	**-34.416**	**-13**	**-21.42**	3758.000	-40.701	-13	-27.70
5638.000	-47.990	-13	-34.99	5638.000	-60.432	-13	-47.43
7518.000	-40.469	-13	-27.47				
9398.000	-37.775	-13	-24.78				
11278.000	-38.126	-13	-25.13				
13158.000	-37.106	-13	-24.11				

➢ **2205**

PCS1900 Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
105.330	-56.710	-13	-43.71	45.390	-52.550	-13	-39.55
121.530	-61.690	-13	-48.69	105.330	-57.280	-13	-44.28
180.930	-61.280	-13	-48.28	180.390	-58.920	-13	-45.92
344.800	-71.130	-13	-58.13	308.400	-69.030	-13	-56.03
395.900	-71.460	-13	-58.46	421.800	-70.160	-13	-57.16
409.900	-69.160	-13	-56.16	498.800	-69.650	-13	-56.65
1958.000	-46.720	-13	-33.72	1958.000	-45.150	-13	-32.15
3758.000	-34.278	-13	-21.28	**3758.000**	**-30.892**	**-13**	**-17.89**
5638.000	-47.658	-13	-34.66	5638.000	-50.238	-13	-37.24

➢ **2207**

PCS1900 Radiated Spurious EIRP							
H Polarization				V Polarization			
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)
105.330	-57.790	-13	-44.79	45.740	-51.760	-13	-38.76
120.990	-58.480	-13	-45.48	104.790	-56.800	-13	-43.80
179.580	-62.150	-13	-49.15	181.740	-57.620	-13	-44.62
516.300	-63.730	-13	-50.73	509.300	-60.590	-13	-47.59
528.900	-64.800	-13	-51.80	577.900	-64.700	-13	-51.70
558.300	-64.510	-13	-51.51	656.300	-67.810	-13	-54.81
1958.000	-46.110	-13	-33.11	1958.000	-43.740	-13	-30.74
3758.000	-41.100	-13	-28.10	**3758.000**	**-38.552**	**-13**	**-25.55**
5638.000	-59.248	-13	-46.25	5638.000	-57.272	-13	-44.27

4.6.5 Test Data

GSM850 (Model 2205)

Horizontal Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	114.78	-63.97	-50.97	-13.00	-51.56	-12.41	0.00	0.00	Peak	---	---
2 @	122.34	-60.84	-47.84	-13.00	-48.34	-12.50	0.00	0.00	Peak	---	---
3 @	171.48	-66.98	-53.98	-13.00	-53.92	-13.07	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	308.40	-74.50	-61.50	-13.00	-64.85	-9.64	0.00	0.00	Peak	---	---
2 @	383.30	-71.97	-58.97	-13.00	-64.91	-7.07	0.00	0.00	Peak	---	---
3 @	504.40	-72.88	-59.88	-13.00	-67.82	-5.06	0.00	0.00	Peak	---	---
4 @	836.90	-32.72			-31.39	-1.33	0.00	0.00	Peak	---	---
5 @	875.40	-51.09			-50.13	-0.96	0.00	0.00	Peak	---	---

Remark: #4 MS TCH Signal

#5 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1674.00	-40.92	-27.92	-13.00	-41.15	0.22	0.00	0.00	Peak	---	---
2 @	1844.00	-50.39	-37.39	-13.00	-50.05	-0.34	0.00	0.00	Peak	---	---
3 @	2508.00	-41.69	-28.69	-13.00	-42.89	1.20	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3344.00	-32.12	-19.12	-13.00	-37.53	5.41	0.00	0.00	Peak	---	---
2 @	4178.00	-40.34	-27.34	-13.00	-50.12	9.79	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5018.00	-43.87	-30.87	-13.00	-54.11	10.24	0.00	0.00	Peak	---	---
2 @	5854.00	-34.24	-21.24	-13.00	-44.46	10.22	0.00	0.00	Peak	---	---
3 @	6688.00	-45.72	-32.72	-13.00	-58.86	13.14	0.00	0.00	Peak	---	---

Vertical Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	47.28	-52.14	-39.14	-13.00	-38.14	-14.00	0.00	0.00	Peak	---	---
2 @	93.99	-56.32	-43.32	-13.00	-47.79	-8.53	0.00	0.00	Peak	---	---
3 @	121.53	-57.02	-44.02	-13.00	-49.13	-7.88	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	378.40	-69.72	-56.72	-13.00	-64.94	-4.78	0.00	0.00	Peak	---	---
2 @	451.90	-65.81	-52.81	-13.00	-62.10	-3.70	0.00	0.00	Peak	---	---
3 @	526.80	-67.37	-54.37	-13.00	-64.56	-2.81	0.00	0.00	Peak	---	---
4 @	836.90	-29.88			-31.24	1.36	0.00	0.00	Peak	---	---
5 @	875.40	-42.87			-44.54	1.67	0.00	0.00	Peak	---	---

Remark: #4 MS TCH Signal

#5 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1674.00	-33.34	-20.34	-13.00	-32.86	-0.48	0.00	0.00	Peak	---	---
2 @	1844.00	-52.09	-39.09	-13.00	-51.78	-0.30	0.00	0.00	Peak	---	---
3 @	2508.00	-43.48	-30.48	-13.00	-45.75	2.27	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3344.00	-39.84	-26.84	-13.00	-44.30	4.47	0.00	0.00	Peak	---	---
2 @	4184.00	-38.72	-25.72	-13.00	-47.07	8.36	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5018.00	-44.19	-31.19	-13.00	-53.04	8.85	0.00	0.00	Peak	---	---
2 @	5854.00	-38.29	-25.29	-13.00	-47.10	8.81	0.00	0.00	Peak	---	---
3 @	6688.00	-43.64	-30.64	-13.00	-55.17	11.53	0.00	0.00	Peak	---	---

PCS1900 (Model 2205)
Horizontal Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1	105.33	-56.71	-43.71	-13.00	-44.41	-12.31	0.00	0.00	Peak	---	---
2	121.53	-61.69	-48.69	-13.00	-49.20	-12.49	0.00	0.00	Peak	---	---
3	180.93	-61.28	-48.28	-13.00	-48.10	-13.18	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1	344.80	-71.13	-58.13	-13.00	-62.75	-8.37	0.00	0.00	Peak	---	---
2	395.90	-71.46	-58.46	-13.00	-64.83	-6.63	0.00	0.00	Peak	---	---
3	409.90	-69.16	-56.16	-13.00	-62.81	-6.35	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1848.00	-45.88			-45.54	-0.34	0.00	0.00	Peak	---	---
2 @	1958.00	-46.72			-45.61	-1.11	0.00	0.00	Peak	---	---

Remark: #1 MS TCH Signal
#2 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3758.00	-34.28	-21.28	-13.00	-42.20	7.92	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5638.00	-47.66	-34.66	-13.00	-57.63	9.97	0.00	0.00	Peak	---	---

Vertical Polarization

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1	45.39	-52.55	-39.55	-13.00	-39.10	-13.45	0.00	0.00	Peak	---	---
2	105.33	-57.28	-44.28	-13.00	-49.54	-7.74	0.00	0.00	Peak	---	---
3	180.39	-58.93	-45.93	-13.00	-50.51	-8.42	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1	308.40	-69.03	-56.03	-13.00	-62.76	-6.27	0.00	0.00	Peak	---	---
2	421.80	-70.16	-57.16	-13.00	-66.10	-4.06	0.00	0.00	Peak	---	---
3	498.80	-69.65	-56.65	-13.00	-66.50	-3.15	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	1808.00	-46.44			-46.14	-0.31	0.00	0.00	Peak	---	---
2 @	1958.00	-45.15			-44.55	-0.60	0.00	0.00	Peak	---	---

Remark: #1 MS TCH Signal

#2 BS TCH Signal

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	3758.00	-30.89	-17.89	-13.00	-37.53	6.64	0.00	0.00	Peak	---	---

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dBm	dB	dBm	dBm	dB	dB	dB		cm	deg
1 @	5638.00	-50.24	-37.24	-13.00	-58.89	8.65	0.00	0.00	Peak	---	---

4.7 Frequency Stability (Temperature Variation)

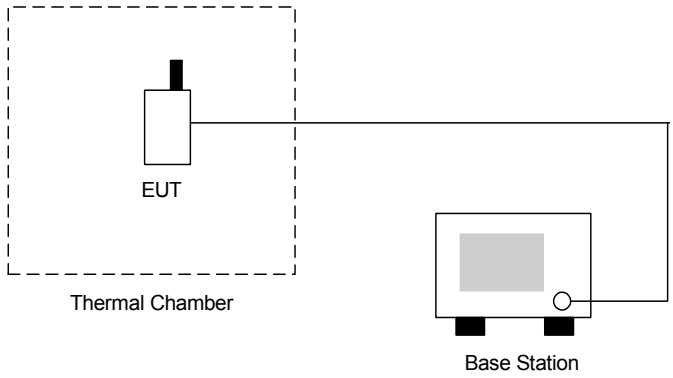
4.7.1 Measurement Instrument

As decribed in chapter 5 of this test report.

4.7.2 Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change ws noted within one minute.
4. The temperature tests were performed for the worst case.
5. Test data was recorded.

4.7.3 Test Setup Layout



4.7.4 Test Result

- Test Mode : GSM 850 CH189

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	46	0.02	2.5	Passed
-20	41	0.02		
-10	34	0.02		
0	30	0.02		
10	26	0.01		
20	37	0.02		
30	29	0.02		
40	25	0.01		
50	31	0.02		

- Test Mode : PCS 1900 CH661

Temperature(°C)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
-30	73	0.04	2.5	Passed
-20	71	0.04		
-10	66	0.03		
0	76	0.04		
10	77	0.04		
20	71	0.04		
30	75	0.04		
40	66	0.03		
50	54	0.03		

4.8 Frequency Stability (Voltage Variation)

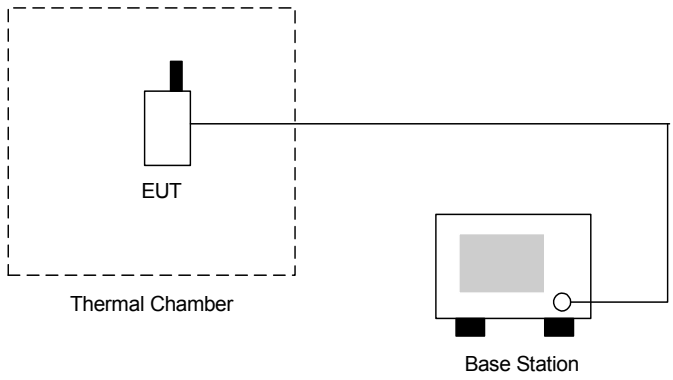
4.8.1 Measurement Instrument

As described in chapter 5 of this test report.

4.8.2 Test Procedure

1. The EUT was placed in a temperature chamber at 25±5 °C and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

4.8.3 Test Setup Layout



4.8.4 Test Result

- Test Mode : GSM 850 CH189

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	29	0.02	2.5	Passed
BEP	37	0.02		
4.3	34	0.02		

Remark:
1. Normal Voltage=3.7V
2. Battery End Point (BEP)=3.25V

- Test Mode : PCS 1900 CH661

Voltage(Volt)	Change (Hz)	Change (ppm)	Limit (ppm)	Result
3.7	75	0.04	2.5	Passed
BEP	38	0.02		
4.3	72	0.04		

Remark:
1. Normal Voltage=3.7V
2. Battery End Point (BEP)=3.25V

5. List of Measurement Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum analyzer	R&S	FSP40	100057	9KHz-40GHz	Feb. 26, 2004	Feb. 26, 2005	Radiation (03CH06-HY)
Controller	CT	SC100	N/A	N/A	N/A	N/A	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 18, 2003	Dec. 18, 2004	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Feb. 11, 2004	Feb. 11, 2005	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Jun. 22, 2004	Jun. 22, 2005	Radiation (03CH06-HY)
PreAmplifier	Com-Power	PA-103	161055	1MHz - 1000MHz	Apr. 26, 2004	Apr. 26, 2005	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	May. 20, 2004	May. 20, 2005	Radiation (03CH06-HY)
Amplifier	MITEQ	AMF-6F	997165	26G - 40G	Jun. 24, 2004	Jun. 24, 2005	Radiation (03CH06-HY)
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	N/A	Radiation (03CH06-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	N/A	Radiation (03CH06-HY)

6. Uncertainty Evaluation

Uncertainty of Conducted Emission Evaluation (30kHz ~ 1000MHz) (03CH03)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch Receiver VSWR Γ1= 0.20 Antenna VSWR Γ2= 0.23 Uncertainty=20log(1-Γ1*Γ2)	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	**1.27**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.54**		

Uncertainty of Radiated Emission Evaluation (1GHz ~ 40GHz) (03CH03)

Contribution	Uncertainty of x_i		$u(x_i)$	Ci	$Ci*u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**4.72**				

END OF TEST REPORT