FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

TEST REPORT

For
Mobile Phone
Model: K105, P32D
Trade Name: B-mobile

Issued to

Global Mobile Communication (HK) Ltd.
7/F,Kin On Commercial Building,49-51 Jervois Street,Sheung Wan,Hong Kong,China

Issued by

COMPLIANCE CERTIFICATION SERVICES (KUNSHAN) INC.
10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone
Kunshan city JiangSu, (215300) CHINA
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ACCREDITED
TESTING CERT #2541.01

ilac-MRA

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	April 15, 2011	Initial Issue	ALL	Hadiif Hoo

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1. TEST RESULT CERTIFICATION

Applicant: Global Mobile Communication (HK) Ltd.
7/F,Kin On Commercial Building,49-51 Jervois Street,Sheung Wan,Hong Kong,China

Equipment Under Test: Mobile Phone

Trade Name: B-mobile

Model Number: K105,P32D

Date of Test: April 14,2011

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	No non-compliance noted

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by: **Tested by:**

Hadiif Hoo
RF Manager
Compliance Certification Services Inc.

Star Yao
Test Engineer
Compliance Certification Services Inc

2. EUT DESCRIPTION

Product	Mobile Phone
Trade Name	B-mobile
Model Number	K105, P32D
Model Discrepancy	Differences as the market segmentation model
Power Supply	Powered from an AC/DC power adapter Model Number :UTC-24 Input:100-240V 200mA 50-60Hz Output:5.0V 500mA Battery Model: BL-5B Standard Voltage:3.7V Rating Capacity:600mAh
Frequency Range	GSM:850: 824 ~ 849 MHz GSM:1900: 1850 ~ 1910 MHz
Transmit Power (ERP & EIRP Power)	GSM 850: 31.70 dBm GSM 1900: 29.40 dBm
Modulation Technique	GSM: GMSK
Antenna Gain	1 dBi
Antenna Type	PIFA Antenna

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for **FCC ID: ZFT-K105** filing to comply with Part 22 and Part 24 of the FCC 47 CFR Rules.*

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4: 2009, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2, PART 22 SUBPART H AND PART 24 SUBPART E

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.

3.4 DESCRIPTION OF TEST MODES

The EUT (model: K105) had been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

EUT staying in continuous transmitting mode was programmed.

GSM/GPRS 850:
Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing.

GSM/GPRS 1900:
Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	05/26/2011
DETECTOR NEGATIVE	Agilent	8473B	MY42240176	10/05/2011
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	11/20/2011
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	10/31/2011
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	10/31/2012
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	07/29/2011
DC POWER SUPPLY	GW instek	GPS-3303C	E903131	10/18/2011
Temp. / Humidity Chamber	Kingson	THS-M1	242	11/16/2011

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	05/26/2011
Spectrum Analyzer	Agilent	E4446A	US44300398	05/26/2011
EMI Test Receiver	R&S	ESPI3	101026	05/26/2011
Pre-Amplfier	MINI	ZFL-1000VH2	d041703	04/29/2011
Pre-Amplfier	Miteq	NSP4000-NF	870731	04/29/2011
Bilog Antenna	Sunol	JB1	A110204-2	11/22/2011
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	12/04/2011
PSG Analog Signal Generator	Agilent	E8257C	MY43321570	05/26/2011
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Site NSA	CCS	N/A	N/A	04/06/2012

Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMC Receiver	R&S	ESCI3	100781	05/26/2011
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	05/26/2011
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	05/26/2011
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	05/26/2011
RF Current Probe	FCC	F-65A	147	05/26/2011

Remark: *Each piece of equipment is scheduled for calibration once a year.*

4.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in ETR 028:

Measurement		Frequency	Uncertainty
Conducted emissions		9kHz~30MHz	+/- 3.43dB
Radiated emissions	H	30MHz ~ 200MHz	+/- 4.72dB
		200MHz ~1000MHz	+/- 4.72dB
	V	30MHz ~ 200MHz	+/- 4.83dB
		200MHz ~1000MHz	+/- 4.70dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

☒ No.10Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC,A2LA
Japan	VCCI
Canada	INDUSTRY CANADA,
Taiwan	TAF
China	CNAS

Copies of granted accreditation certificates are available for downloading from our web site, http://www.ccsrf.com.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
N/A							

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

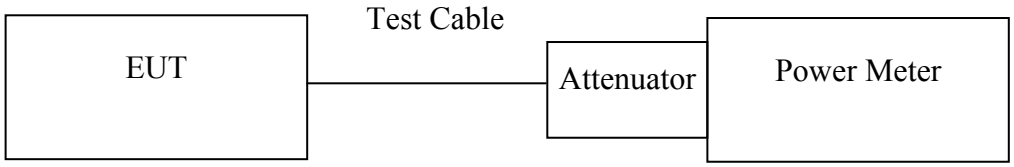
7. FCC PART 22 & 24 REQUIREMENTS

7.1 PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
GSM 850	128	824.20	31.23
	190	836.60	31.41
	251	848.80	31.70

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)
GSM 1900	512	1850.20	29.40
	661	1880.00	29.19
	810	1910.00	29.20

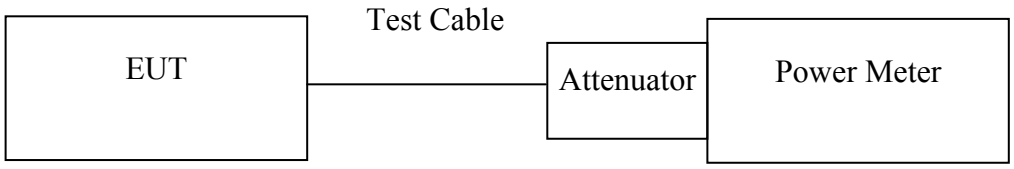
Remark: *The value of factor includes both the loss of cable and external attenuator*

7.2 AVERAGE POWER

LIMIT

For reporting purposes only.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)
GSM 850	128	824.20	31.20
	190	836.60	31.35
	251	848.80	31.51

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)
GSM 1900	512	1850.20	29.37
	661	1880.00	29.11
	810	1910.00	29.09

Remark: *The value of factor includes both the loss of cable and external attenuator*

7.1 ERP & EIRP MEASUREMENT

LIMIT

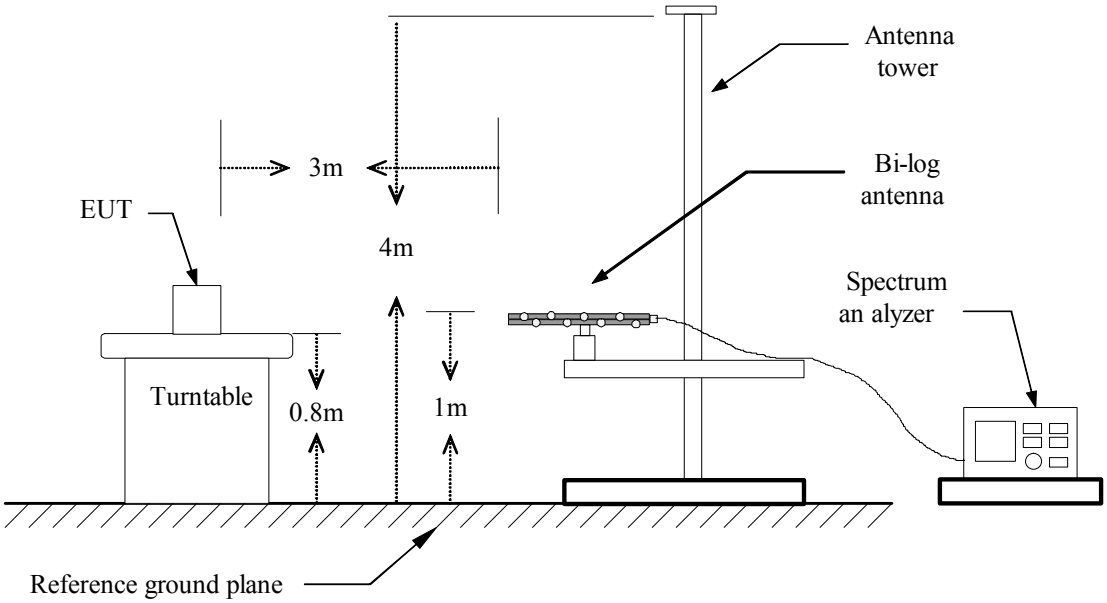
According to FCC §2.1046

FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

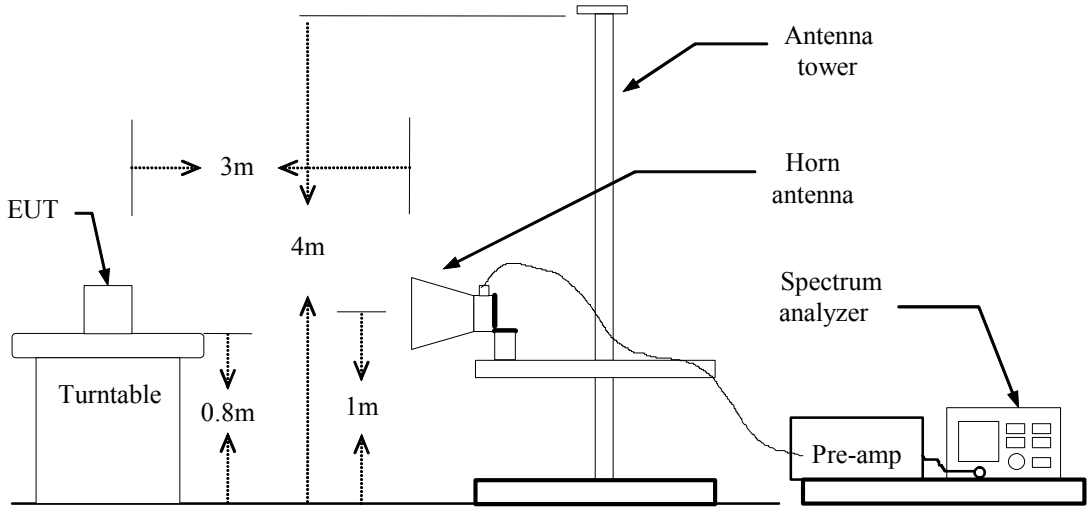
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

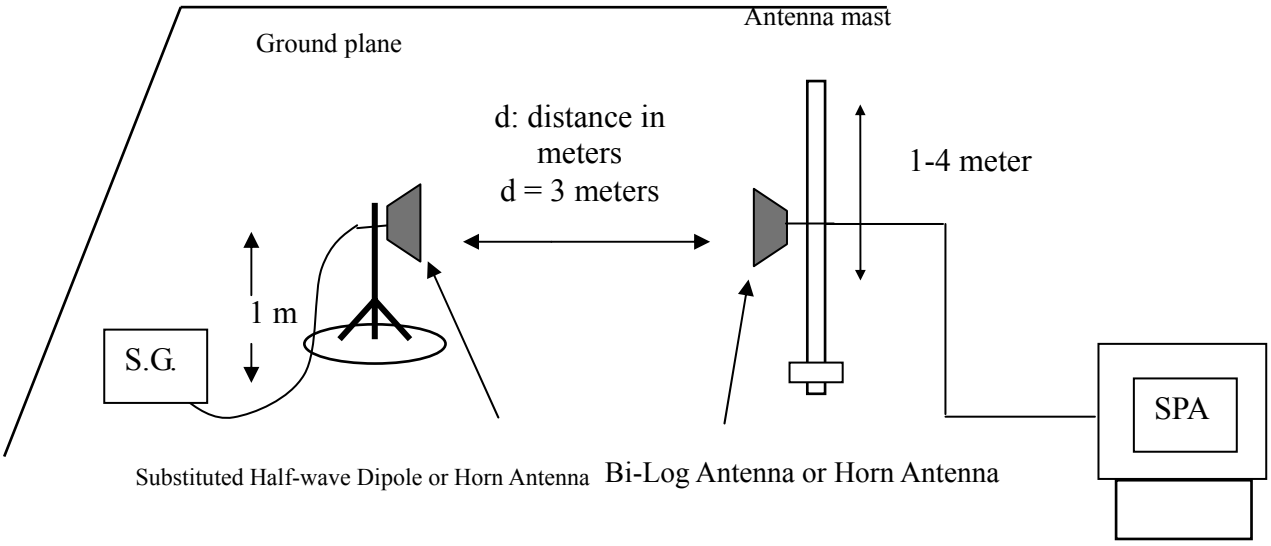
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)
EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

No non-compliance noted.

GSM 850 TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
128	824.18 V		-14.40	34.62	20.22	38.50	-18.28
	824.30 H		-3.22	34.65	***31.43**	38.50	-7.07
190	836.66 V		-17.35	34.53	17.18	38.50	-21.32
	836.78 H		-4.30	34.63	30.33	38.50	-8.17
251	848.84 V		-16.72	34.64	17.92	38.50	-20.58
	848.84 H		-5.51	34.75	29.24	38.50	-9.26

GSM 1900 TEST DATA

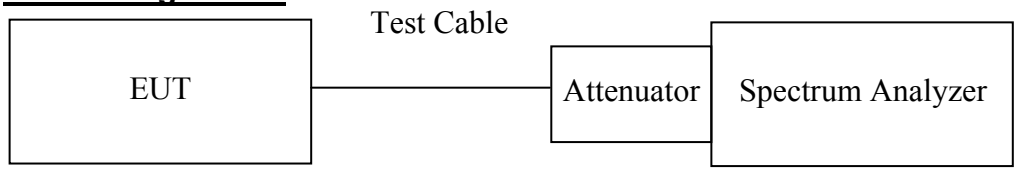
Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
512	1850.10 V		-16.29	40.79	24.50	33.00	-1.71
	1850.00 H		-11.88	41.17	*29.29	33.00	-8.50
661	1880.00 V		-14.99	41.23	26.24	33.00	-1.76
	1879.80 H		-12.02	41.14	29.12	33.00	-9.41
810	1909.90 V		-13.95	41.30	27.35	33.00	-2.64
	1909.90 H		-12.23	41.38	29.15	33.00	-8.85

7.2 OCCUPIED BANDWIDTH MEASUREMENT

LIMIT

According to §FCC 2.1049.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

No non-compliance noted

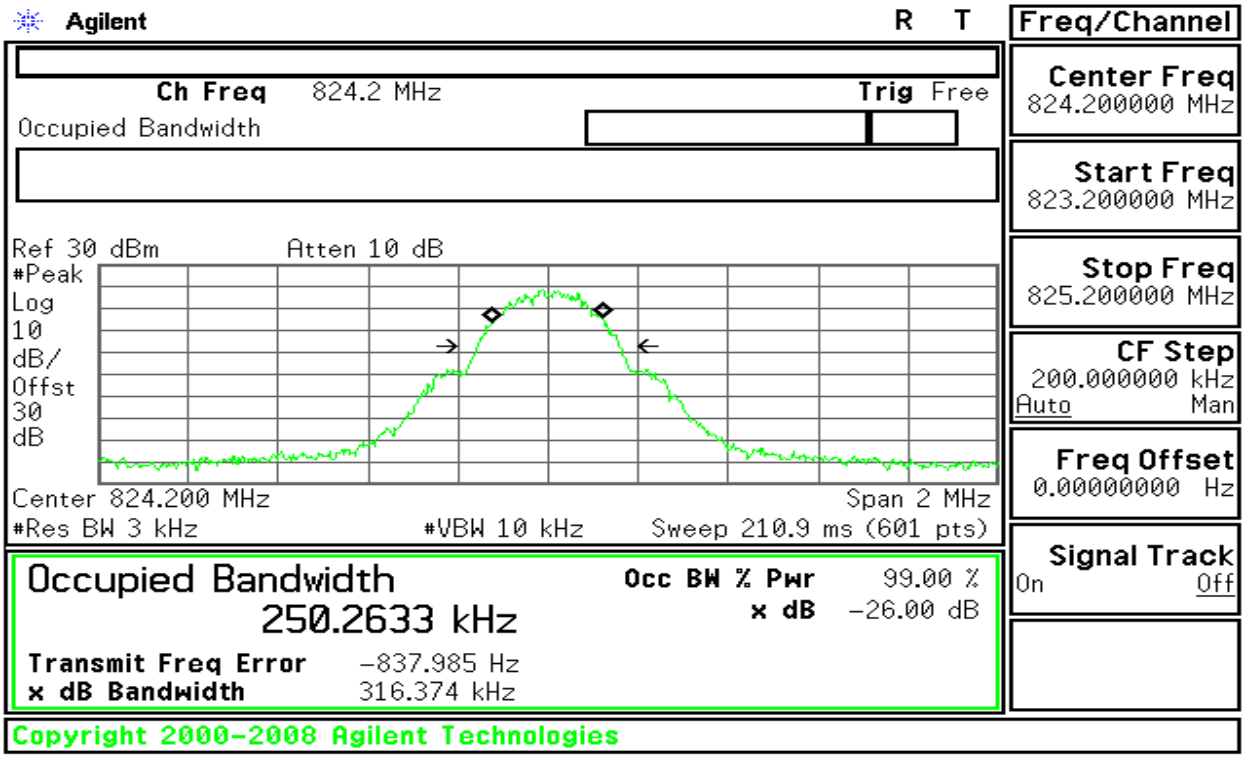
Test Data

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GSM 850	128	824.20	250.2633
	190	836.60	251.1913
	251	848.80	248.1001

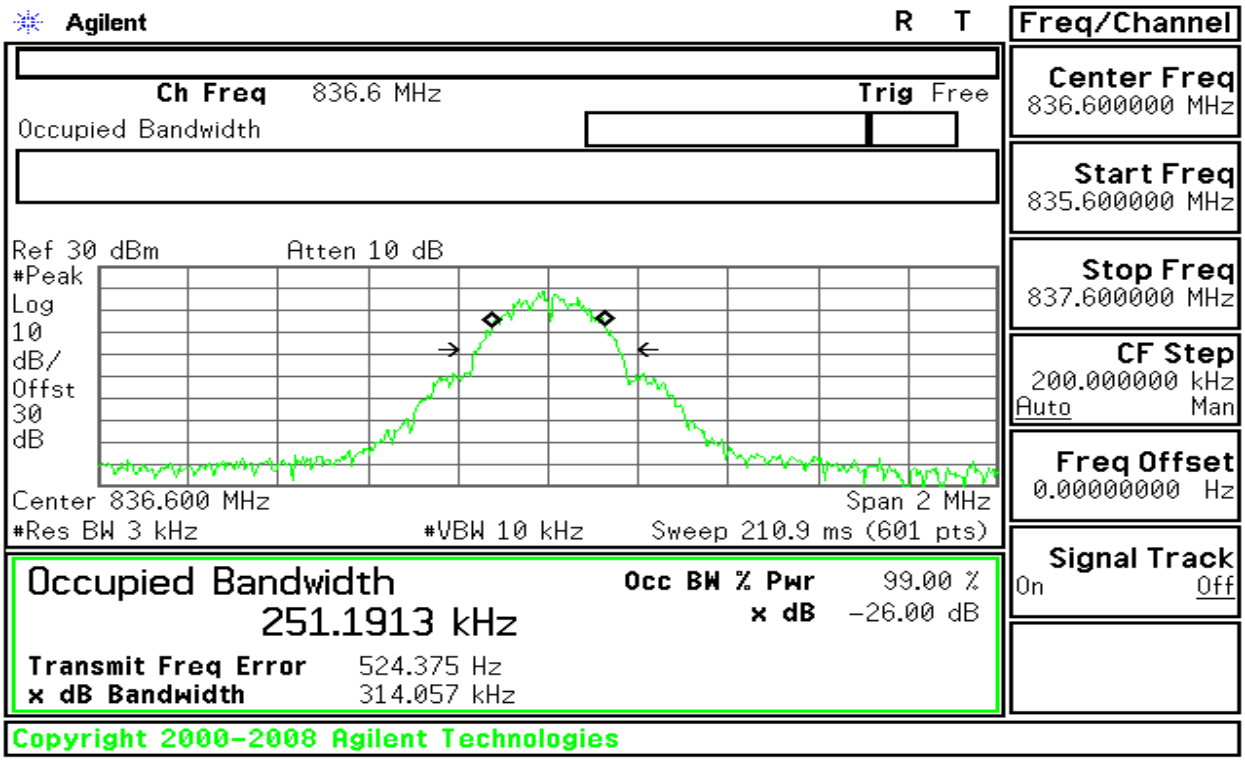
Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GSM 1900	512	1850.20	247.2387
	661	1880.00	250.7300
	810	1909.80	250.3317

Test Plot

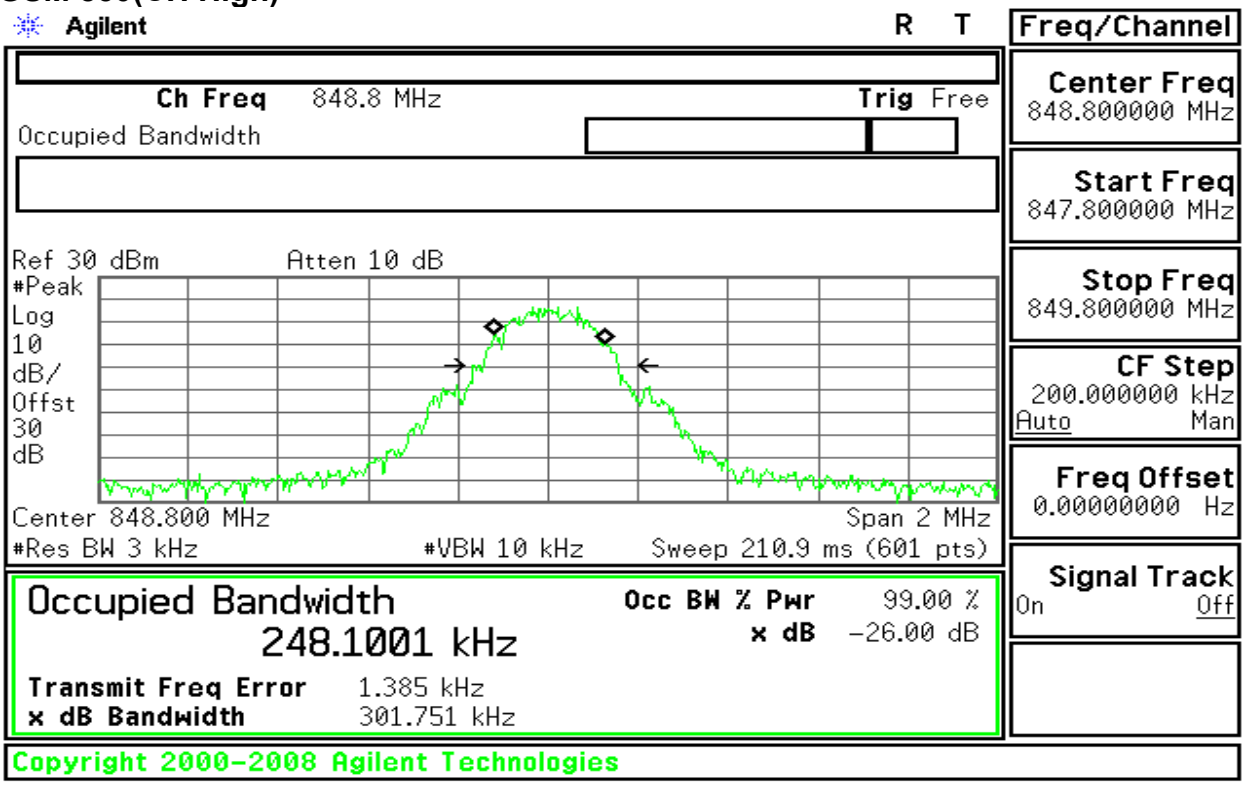
GSM 850 (CH Low)



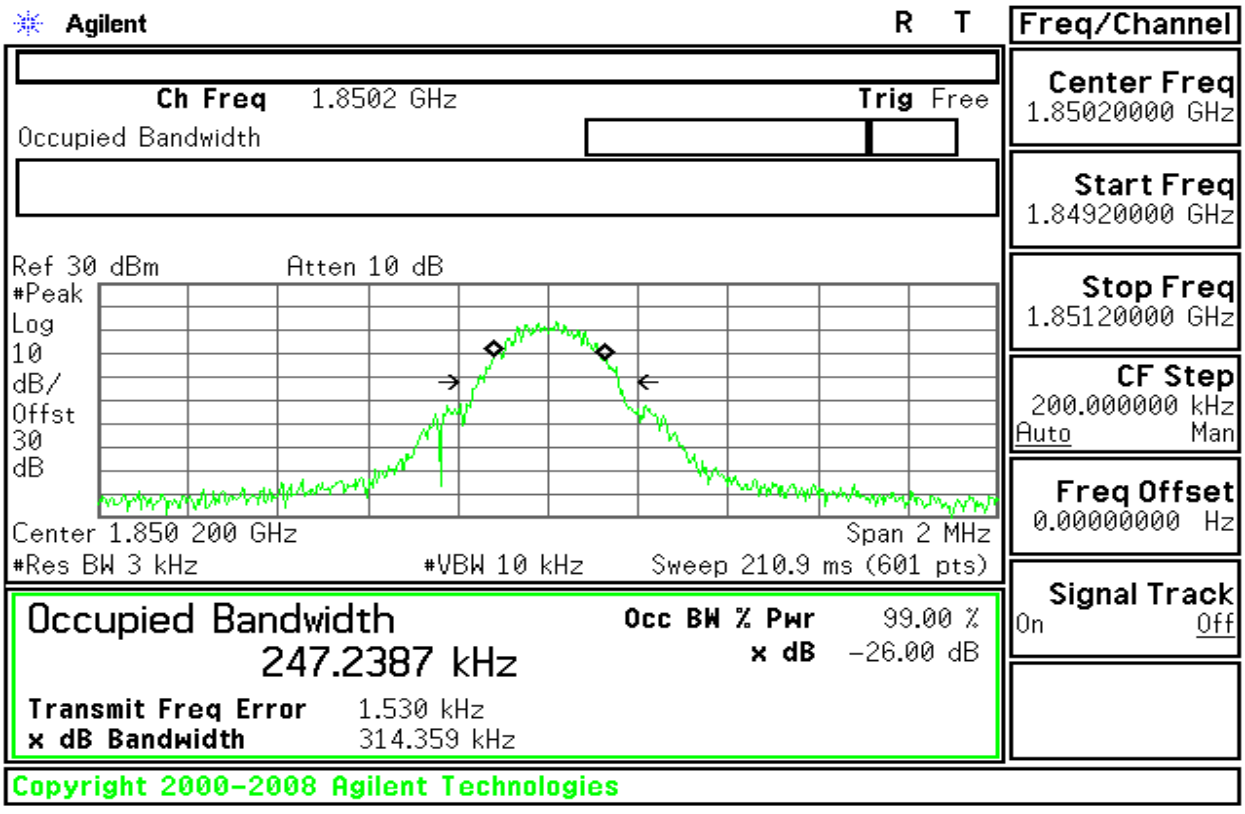
GSM 850 (CH Mid)



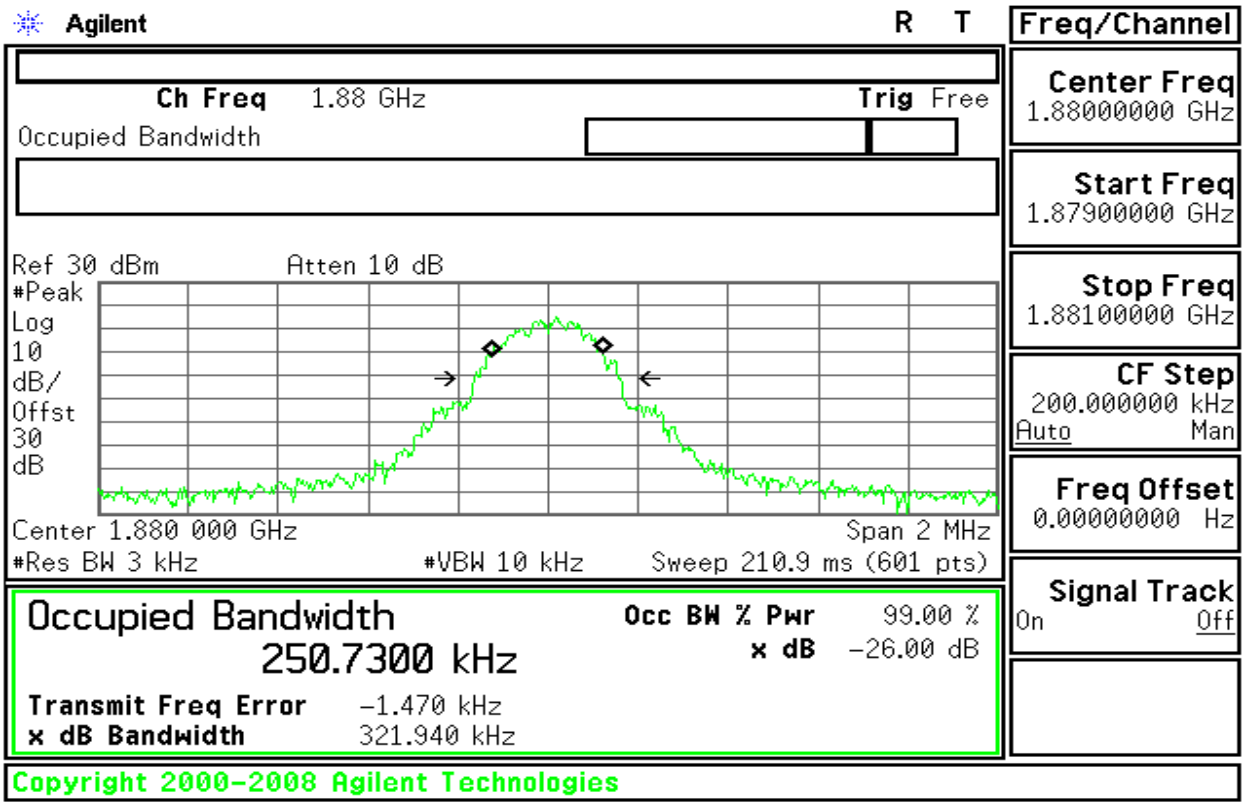
GSM 850(CH High)



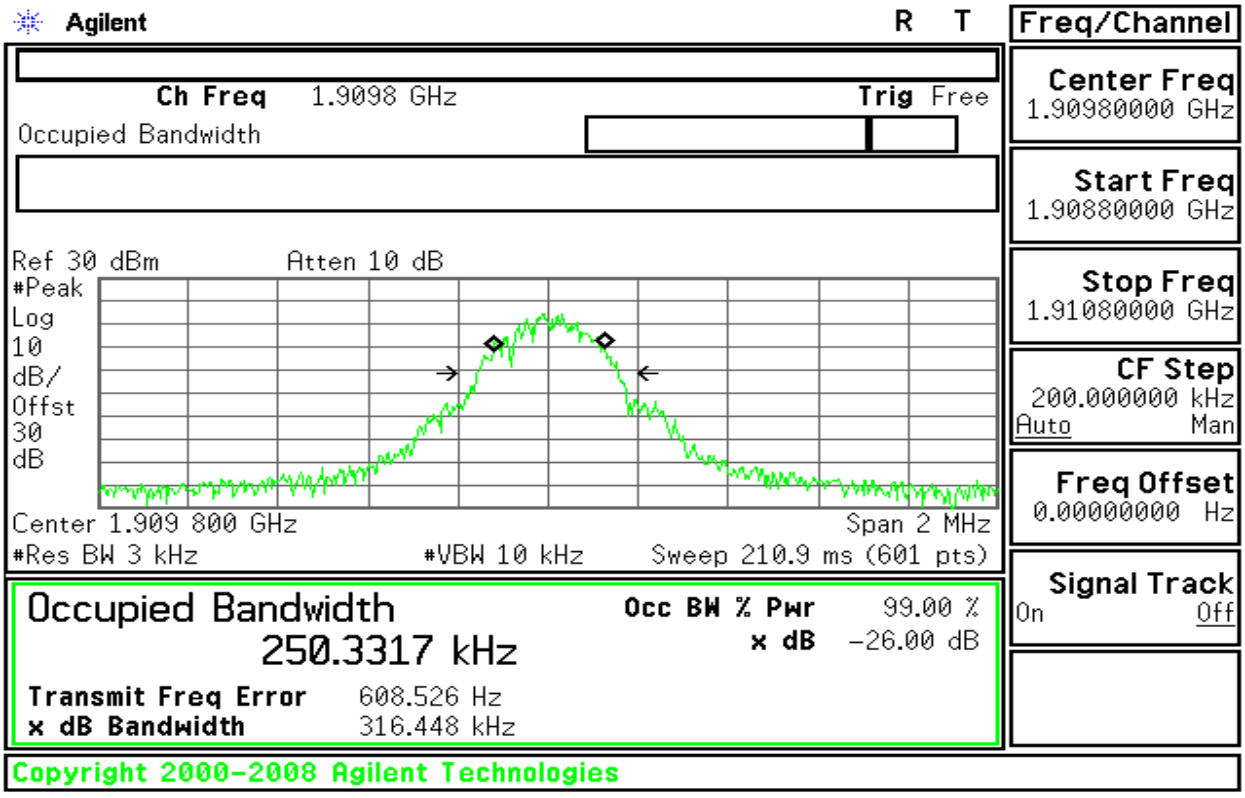
GSM 1900 (CH Low)



GSM 1900 (CH Mid)



GSM 1900 (CH High)



7.3 OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

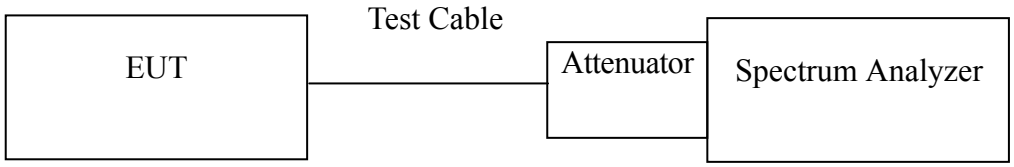
According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at lease 43 + 10 log P dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed –80 dBm at the transmit antenna connector.
Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at lease 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

Test Configuration

Out of band emission at antenna terminals:



TEST PROCEDURE

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

TEST RESULTS

No non-compliance noted.

Test Data

Mode	CH	Location	Description
GSM 850	128	Figure 5-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 5-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 5-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GSM 1900	512	Figure 6-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 6-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 6-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GSM 850	128	Figure 3-1	Band Edge emissions
	251	Figure 3-2	Band Edge emissions

Mode	CH	Location	Description
GSM 1900	512	Figure 4-1	Band Edge emissions
	810	Figure 4-2	Band Edge emissions

Test Plot

GSM 850

Figure 5-1: Out of Band emission at antenna terminals – GSM CH Low

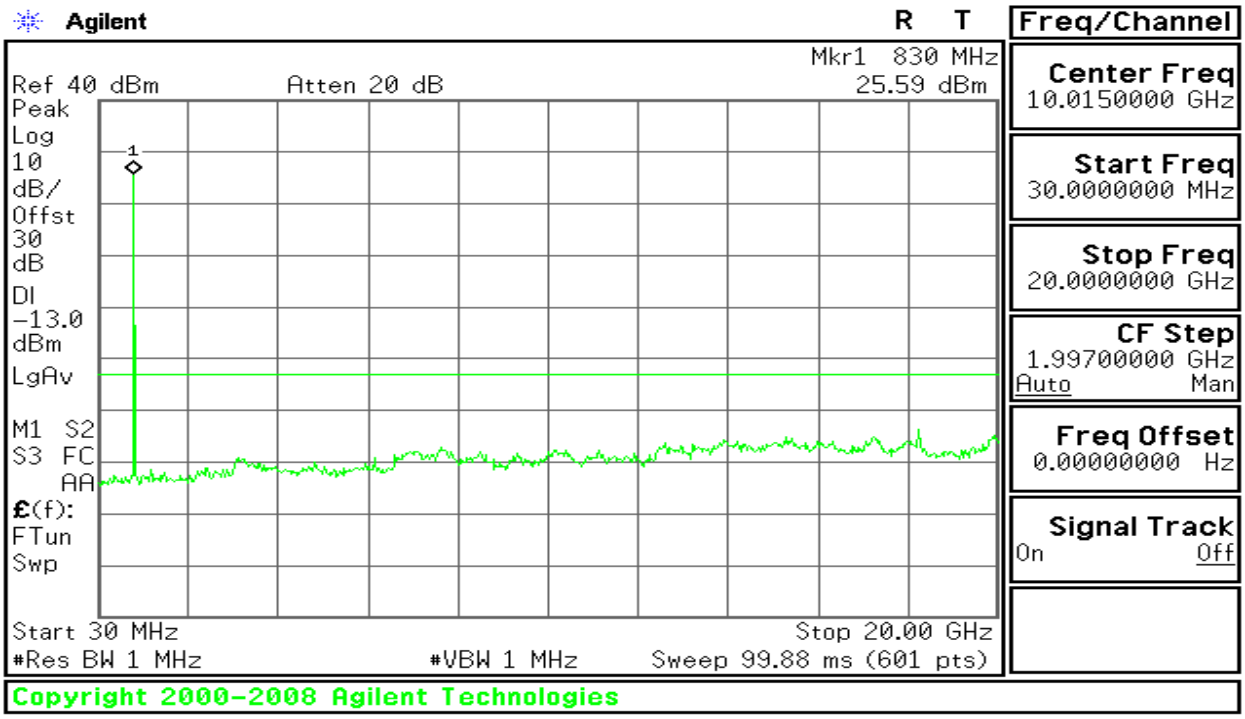


Figure 5-2: Out of Band emission at antenna terminals – GSM CH Mid

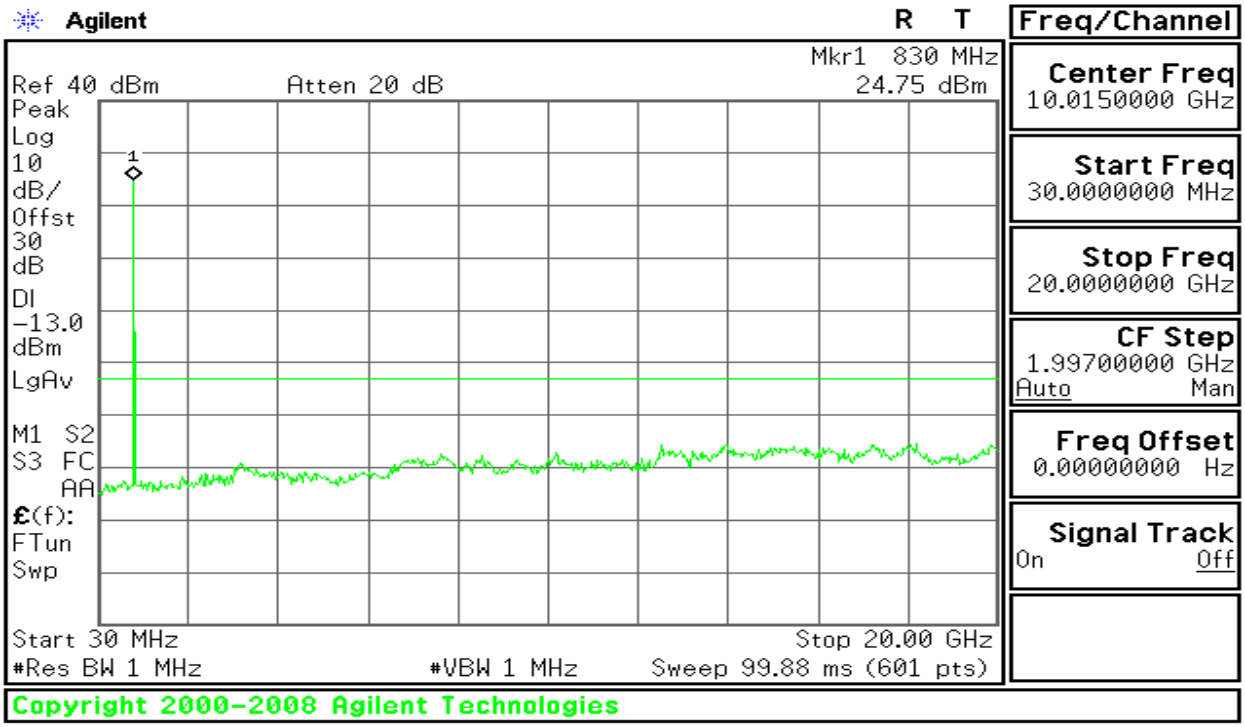
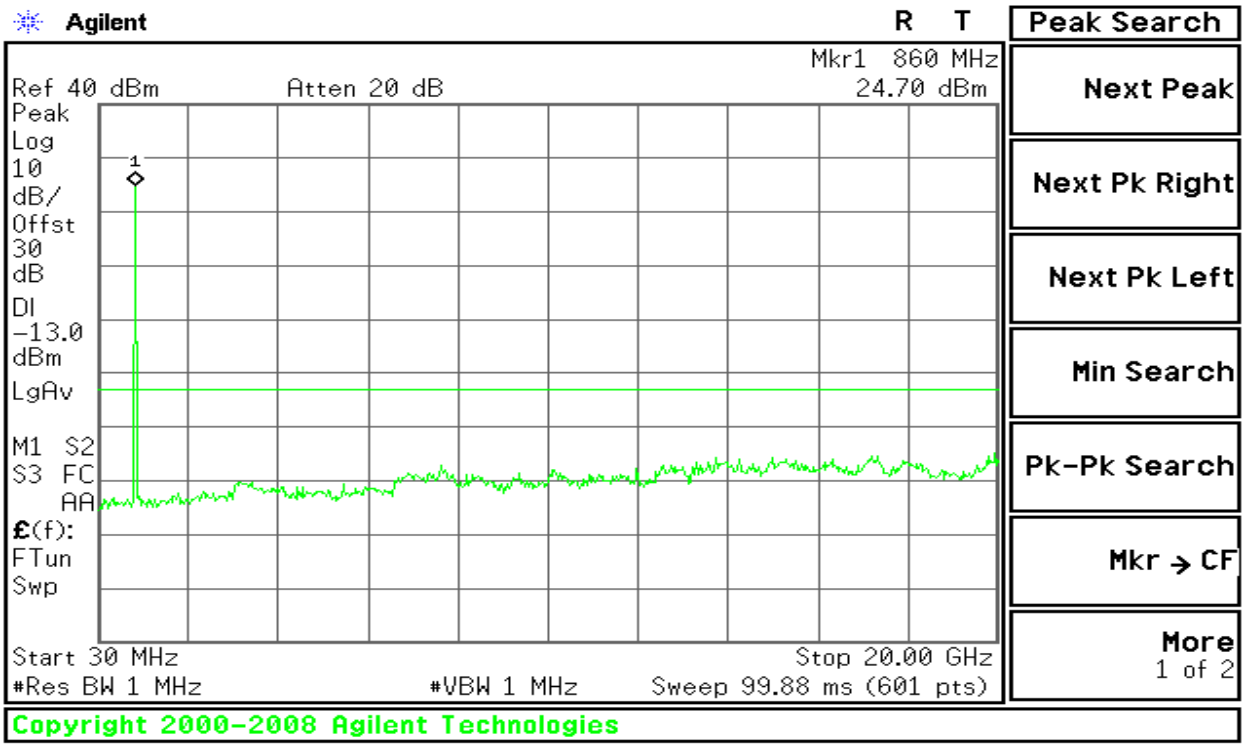


Figure 5-3: Out of Band emission at antenna terminals – GSM CH High



GSM 1900

Figure 6-1: Out of Band emission at antenna terminals – GSM CH Low

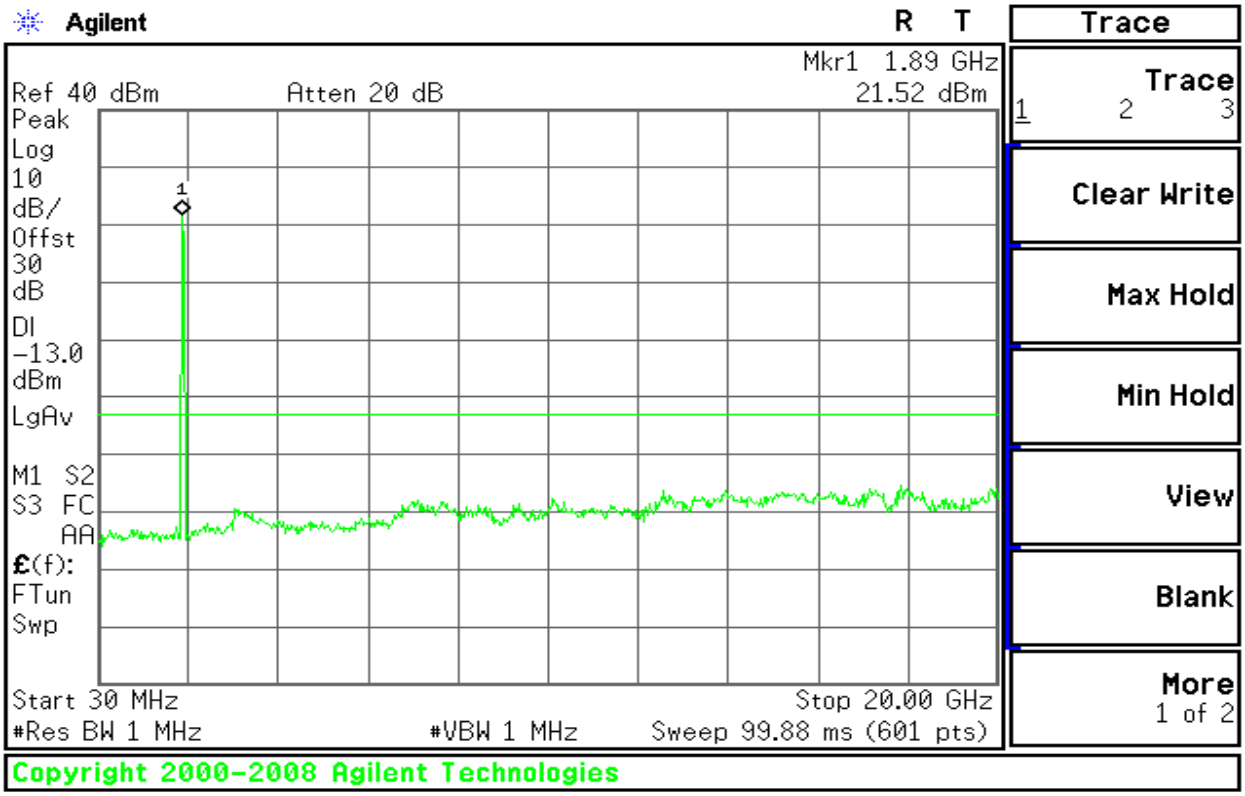


Figure 6-2: Out of Band emission at antenna terminals – GSM CH Mid

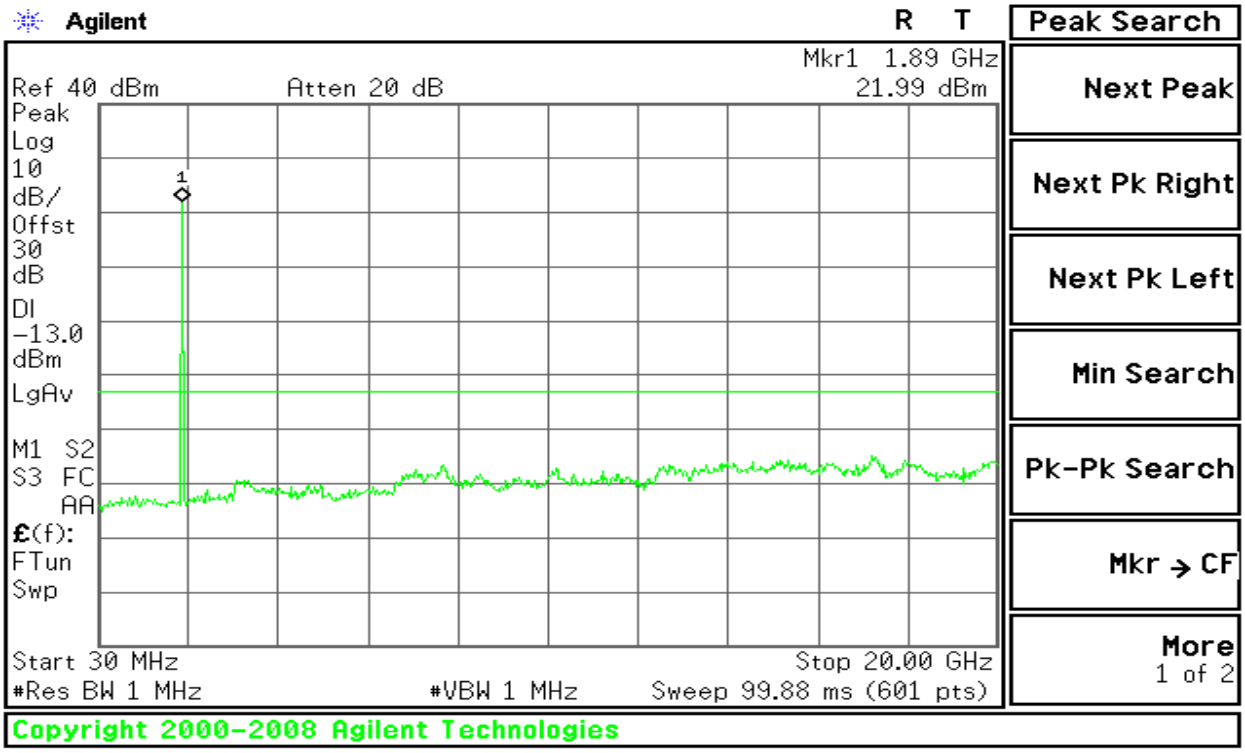
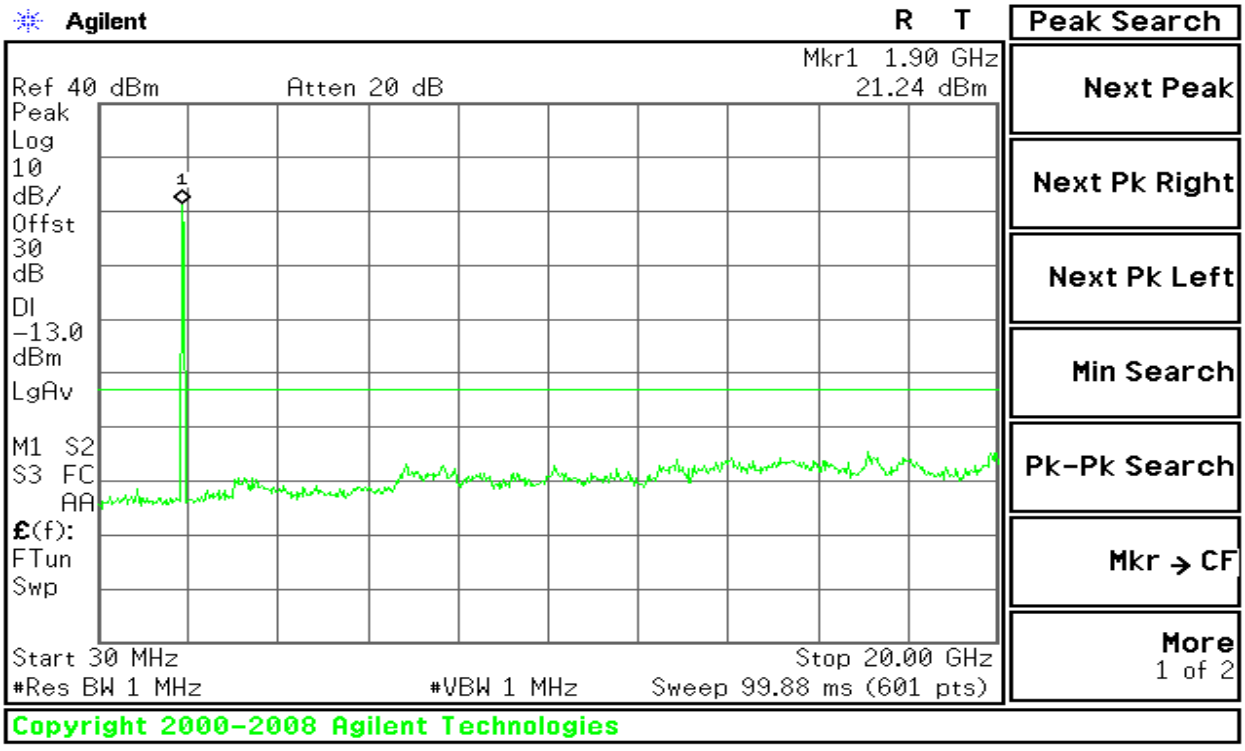


Figure 6-3: Out of Band emission at antenna terminals – GSM CH High



GSM 850

Figure 3-1: Band Edge emissions – GSM CH Low

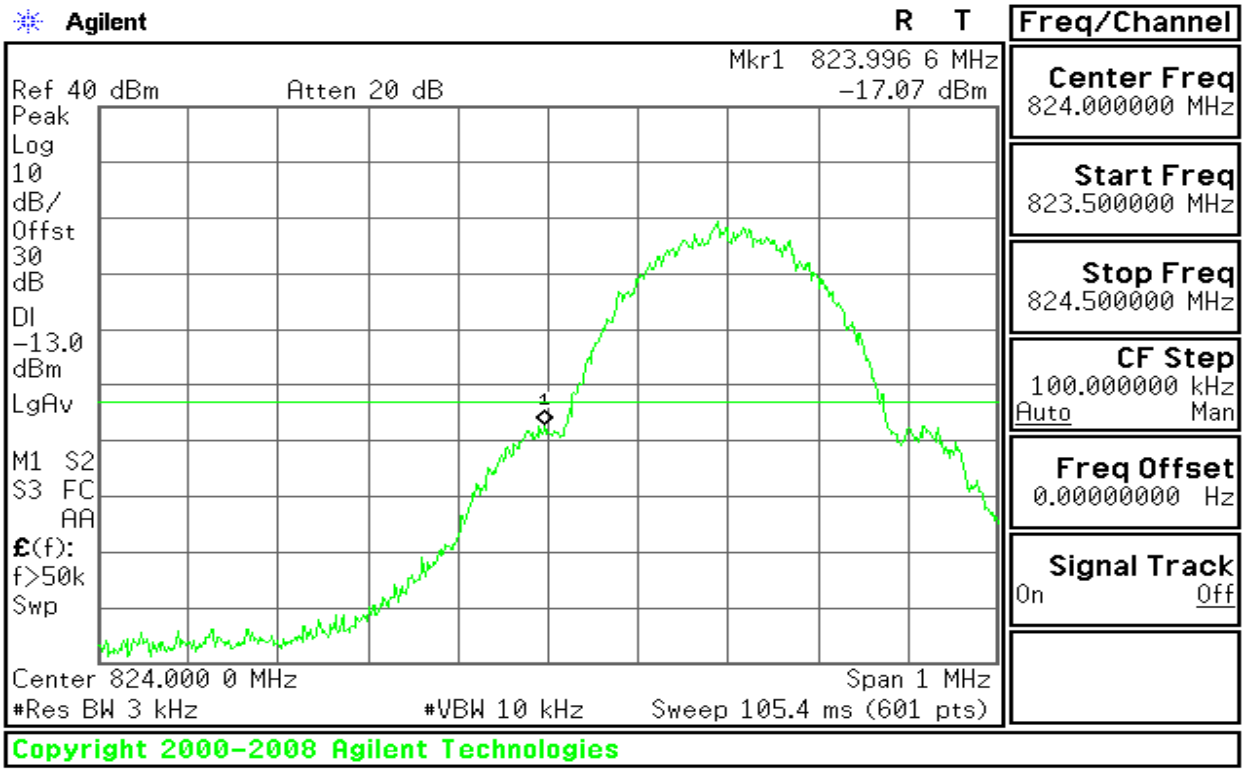
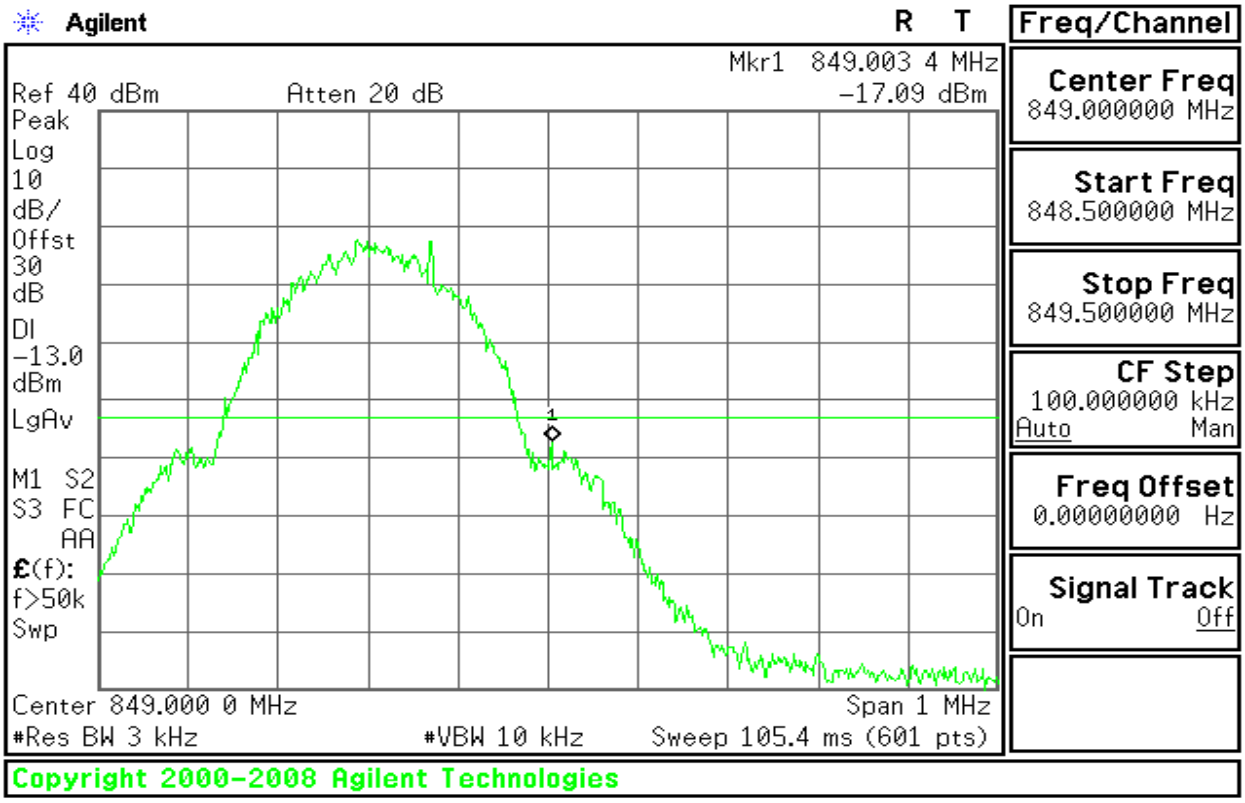


Figure 3-2: Band Edge emissions –GSM CH High



GSM 1900

Figure 4-1: Band Edge emissions – GSM CH Low

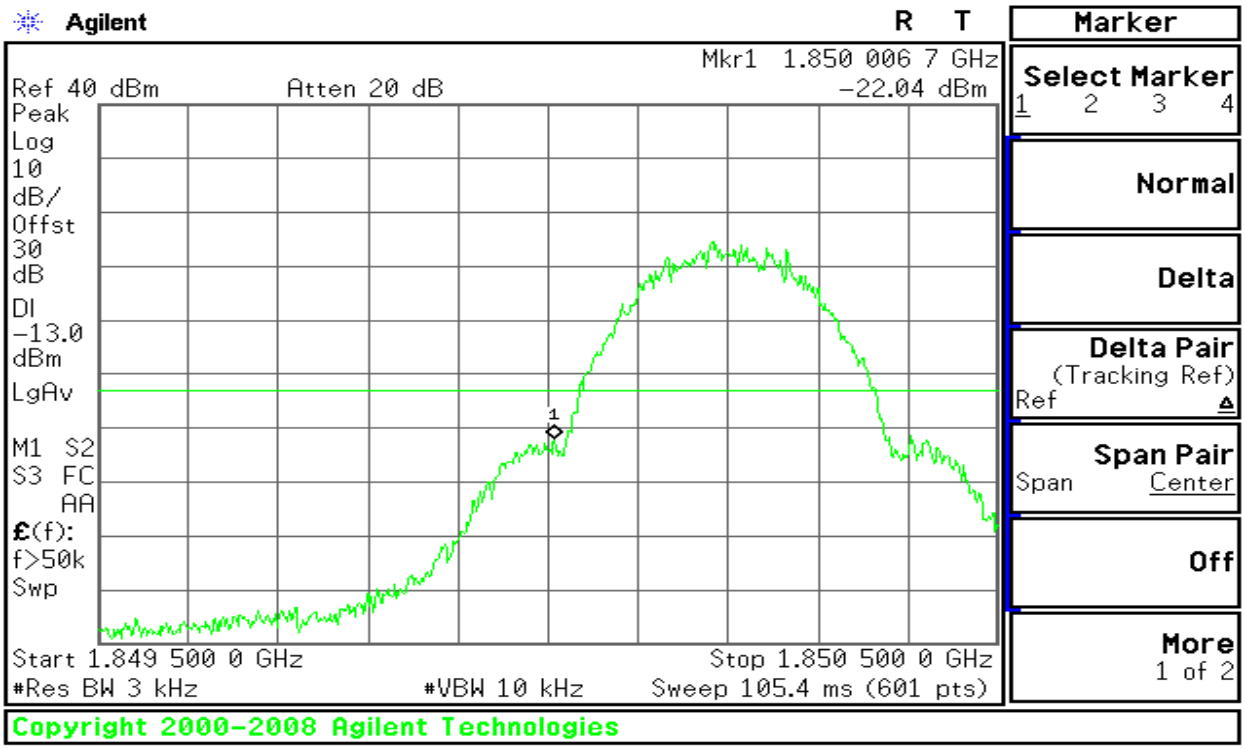
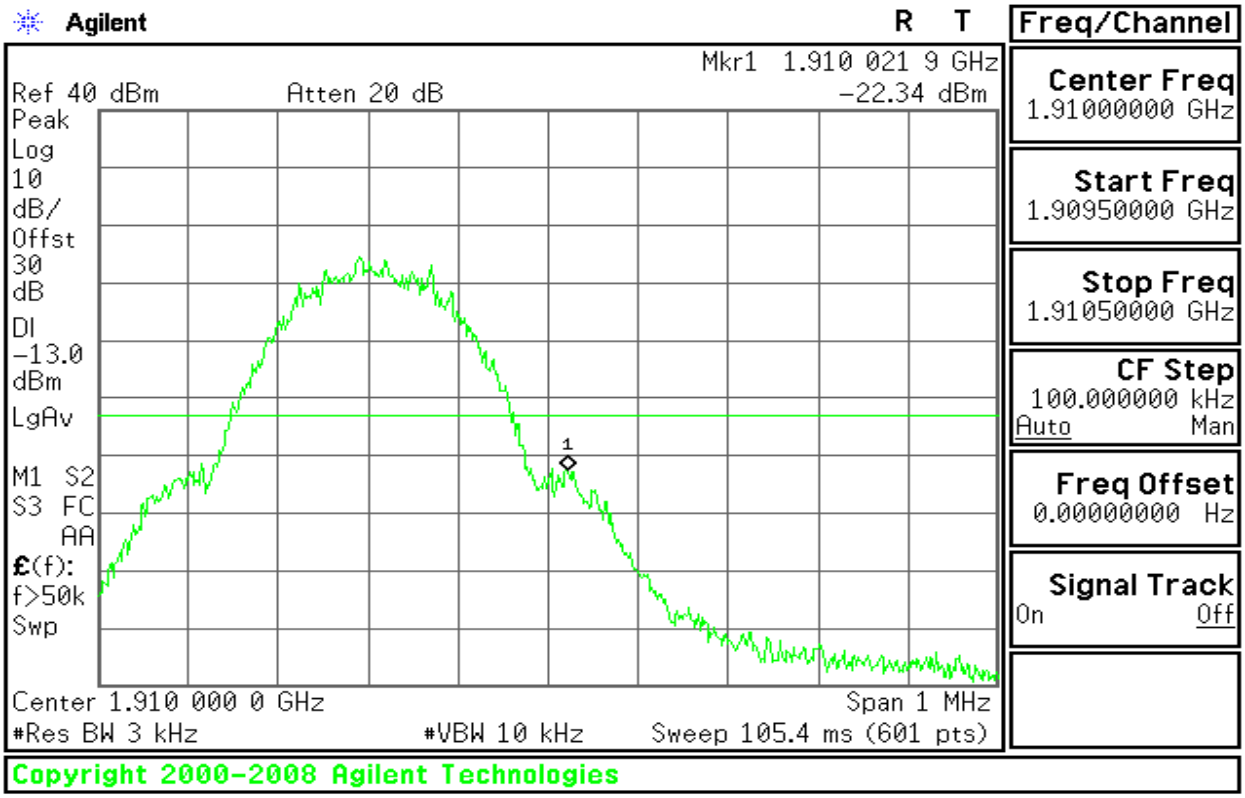


Figure 4-2: Band Edge emissions – GSM CH High



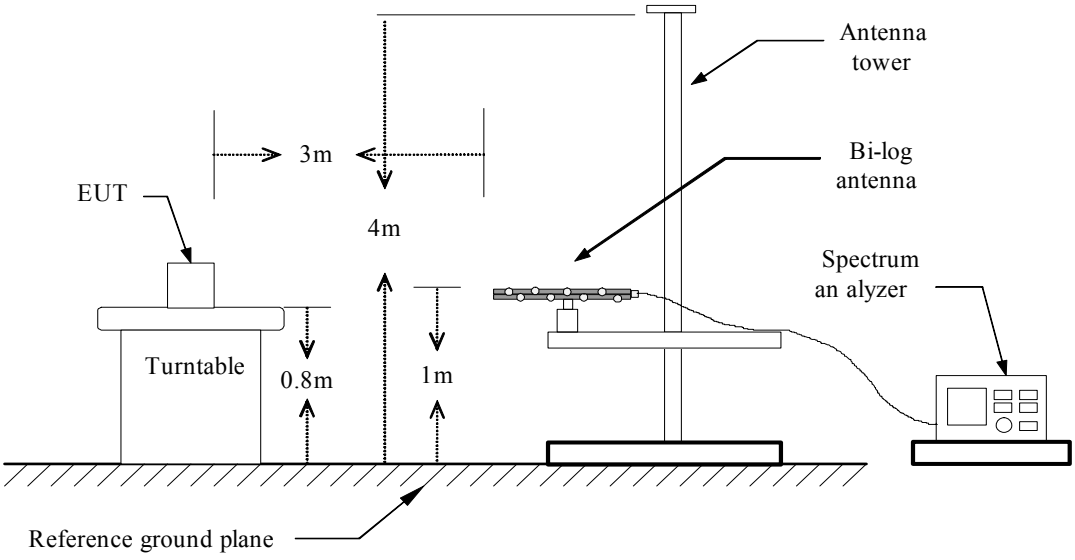
7.4 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

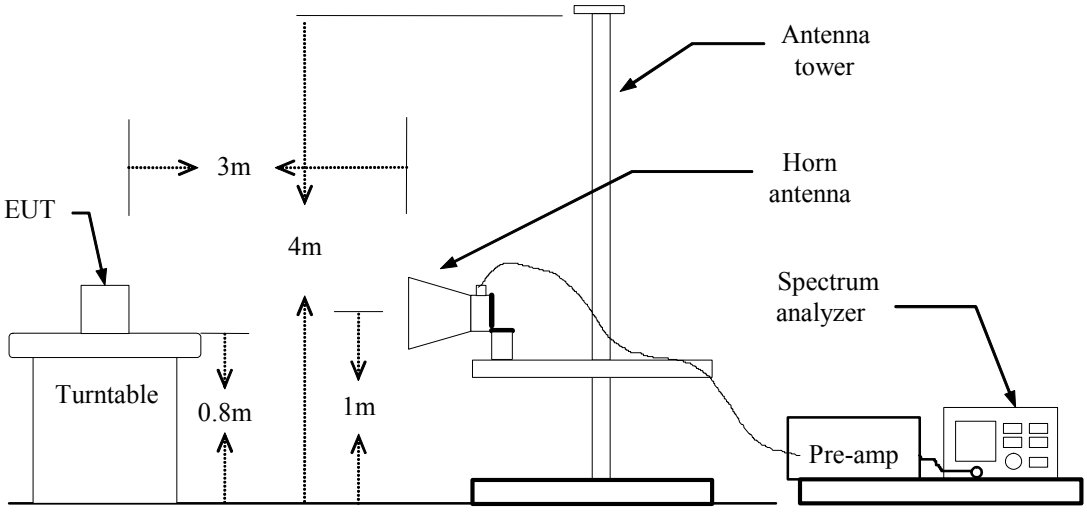
According to FCC §2.1053

Test Configuration

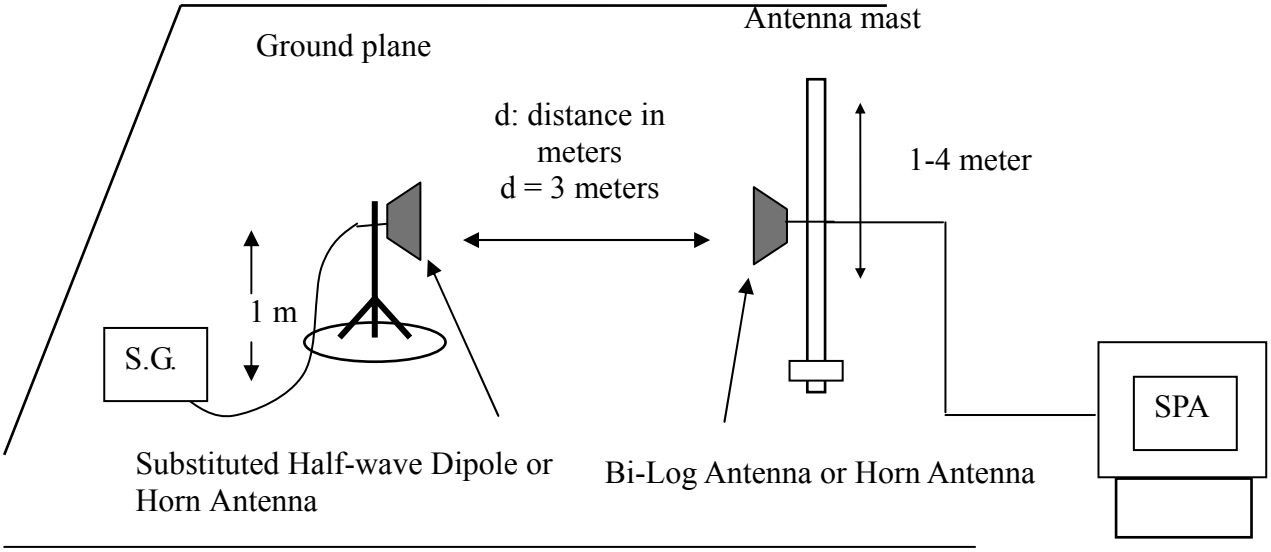
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

Refer to the attached tabular data sheets.

Radiated Spurious Emission Measurement Result / Below 1GHz

Operation Mode: GSM 850 / TX / CH 128 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
100.36	V	-46.58	-17.68	-64.26	-13.00	-51.26
240.58	V	-49.76	-14.01	-63.77	-13.00	-50.77
264.52	V	-47.89	-13.71	-61.60	-13.00	-48.60
399.75	V	-46.95	-11.17	-58.12	-13.00	-45.12
499.21	V	-54.28	-8.38	-62.66	-13.00	-49.66
695.76	V	-58.43	-6.25	-64.68	-13.00	-51.68
100.46	H	-45.98	-17.49	-63.47	-13.00	-50.47
264.59	H	-52.04	-14.06	-66.10	-13.00	-53.10
400.28	H	-52.64	-10.96	-63.60	-13.00	-50.60
511.49	H	-58.73	-8.20	-66.93	-13.00	-53.93
695.73	H	-57.75	-6.18	-63.93	-13.00	-50.93
742.35	H	-62.33	-5.57	-67.90	-13.00	-54.90

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 850 / TX / CH 190 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
131.26	V	-45.88	-12.34	-58.22	-13.00	-45.22
262.58	V	-48.75	-13.71	-62.46	-13.00	-49.46
400.29	V	-46.35	-11.22	-57.57	-13.00	-44.57
498.34	V	-54.39	-8.40	-62.79	-13.00	-49.79
698.76	V	-58.79	-6.25	-65.04	-13.00	-52.04
966.53	V	-60.33	-3.05	-63.38	-13.00	-50.38
131.55	H	-45.83	-13.66	-59.49	-13.00	-46.49
264.91	H	-52.14	-14.06	-66.20	-13.00	-53.20
400.31	H	-51.65	-10.96	-62.61	-13.00	-49.61
451.89	H	-55.73	-9.64	-65.37	-13.00	-52.37
695.67	H	-57.49	-6.18	-63.67	-13.00	-50.67
966.38	H	-61.25	-3.10	-64.35	-13.00	-51.35

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 850 / TX / CH 251 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
262.59	V	-48.37	-13.71	-62.08	-13.00	-49.08
400.36	V	-48.91	-11.22	-60.13	-13.00	-47.13
497.81	V	-54.34	-8.40	-62.74	-13.00	-49.74
533.29	V	-57.46	-8.01	-65.47	-13.00	-52.47
695.74	V	-58.88	-6.25	-65.13	-13.00	-52.13
797.83	V	-60.34	-4.98	-65.32	-13.00	-52.32
115.67	H	-55.43	-14.27	-69.70	-13.00	-56.70
161.34	H	-48.21	-14.15	-62.36	-13.00	-49.36
262.91	H	-51.62	-14.06	-65.68	-13.00	-52.68
400.33	H	-51.37	-10.91	-62.28	-13.00	-49.28
497.82	H	-59.86	-8.28	-68.14	-13.00	-55.14
695.67	H	-58.70	-6.18	-64.88	-13.00	-51.88

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 1900 / TX / CH 512 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
86.59	V	-36.64	-19.92	-56.56	-13.00	-43.56
133.25	V	-43.28	-12.67	-55.95	-13.00	-42.95
215.43	V	-39.75	-15.47	-55.22	-13.00	-42.22
400.58	V	-42.51	-11.22	-53.73	-13.00	-40.73
500.82	V	-49.70	-8.38	-58.08	-13.00	-45.08
800.13	V	-50.82	-4.97	-55.79	-13.00	-42.79
32.64	H	-37.15	-15.23	-52.38	-13.00	-39.38
115.48	H	-38.54	-14.27	-52.81	-13.00	-39.81
400.56	H	-47.90	-10.96	-58.86	-13.00	-45.86
500.23	H	-53.22	-8.27	-61.49	-13.00	-48.49
697.45	H	-54.82	-6.18	-61.00	-13.00	-48.00
800.33	H	-53.64	-4.90	-58.54	-13.00	-45.54

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 1900 / TX / CH 661 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
140.35	V	-41.82	-13.09	-54.91	-13.00	-41.91
241.52	V	-41.33	-14.02	-55.35	-13.00	-42.35
400.82	V	-42.01	-11.22	-53.23	-13.00	-40.23
499.85	V	-49.67	-8.38	-58.05	-13.00	-45.05
695.34	V	-55.34	-6.25	-61.59	-13.00	-48.59
797.34	V	-51.89	-4.98	-56.87	-13.00	-43.87
117.64	H	-36.67	-13.90	-50.57	-13.00	-37.57
191.64	H	-42.56	-13.48	-56.04	-13.00	-43.04
400.35	H	-46.57	-10.87	-57.44	-13.00	-44.44
499.61	H	-53.89	-8.27	-62.16	-13.00	-49.16
695.82	H	-54.61	-6.18	-60.79	-13.00	-47.79
799.31	H	-54.34	-4.90	-59.24	-13.00	-46.24

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 1900 / TX / CH 810 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
137.68	V	-43.25	-13.00	-56.25	-13.00	-43.25
231.56	V	-41.27	-14.43	-55.70	-13.00	-42.70
400.33	V	-42.65	-11.17	-53.82	-13.00	-40.82
452.19	V	-48.97	-9.76	-58.73	-13.00	-45.73
500.49	V	-50.31	-8.38	-58.69	-13.00	-45.69
797.86	V	-50.42	-4.98	-55.40	-13.00	-42.40
117.46	H	-39.88	-13.90	-53.78	-13.00	-40.78
193.26	H	-44.67	-13.20	-57.87	-13.00	-44.87
287.46	H	-42.57	-12.87	-55.44	-13.00	-42.44
400.58	H	-47.61	-10.96	-58.57	-13.00	-45.57
697.85	H	-52.37	-6.18	-58.55	-13.00	-45.55
800.16	H	-55.82	-4.88	-60.70	-13.00	-47.70

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Above 1GHz

Operation Mode:	GSM 850 / TX / CH 128	**Test Date:**	April 14,2011
Temperature:	21°C	**Tested by:**	Star
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
2499.51	V	-59.88	3.61	-56.27	-13.00	-43.27
7796.56	V	-61.52	16.19	-45.33	-13.00	-32.33
N/A						
2498.34	H	-61.47	3.91	-57.56	-13.00	-44.56
7399.12	H	-61.38	15.48	-45.90	-13.00	-32.90
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 850 / TX / CH 190 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1671.53	V	-55.61	0.73	-54.88	-13.00	-41.88
2514.34	V	-56.72	3.66	-53.06	-13.00	-40.06
N/A						
4954.67	H	-60.89	10.14	-50.75	-13.00	-37.75
7377.48	H	-61.27	15.41	-45.86	-13.00	-32.86
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode: GSM 850 / TX / CH 251 **Test Date:** April 14,2011

Temperature: 21°C **Tested by:** Star

Humidity: 53 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna R Polarization	eading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1699.67	V	-54.61	0.79	-53.82	-13.00	-40.82
2546.33	V	-55.38	3.77	-51.61	-13.00	-38.61
N/A						
1700.25	H	-56.72	0.90	-55.82	-13.00	-42.82
4597.89	H	-61.89	9.69	-52.20	-13.00	-39.20
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode:	GSM 1900 / TX / CH 512	**Test Date:**	April 14,2011
Temperature:	21°C	**Tested by:**	Star
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Antenna Re Polarization	ading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
5395.33	V	-60.35	9.86	-50.49	-13.00	-37.49
7133.76	V	-62.33	14.34	-47.99	-13.00	-34.99
5437.37	H	-61.54	10.24	-51.30	-13.00	-38.30
7621.31	H	-62.21	16.14	-46.07	-13.00	-33.07

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode:	GSM 1900 / TX / CH 661	**Test Date:**	April 14,2011
Temperature:	21°C	**Tested by:**	Star
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Antenna Re Polarization	ading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
5640.37	V	-58.77	9.94	-48.83	-13.00	-35.83
7348.54	V	-62.34	14.97	-47.37	-13.00	-34.37
5640.57	H	-59.74	10.28	-49.46	-13.00	-36.46
6807.48	H	-61.33	13.34	-47.99	-13.00	-34.99

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

Operation Mode:	GSM 1900 / TX / CH 810	**Test Date:**	April 14,2011
Temperature:	21°C	**Tested by:**	Star
Humidity:	53 % RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Antenna Re Polarization	ading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4761.32	V	-61.33	8.99	-52.34	-13.00	-39.34
7075.23	V	-61.22	14.17	-47.05	-13.00	-34.05
5192.43	H	-60.44	10.22	-50.22	-13.00	-37.22
7033.28	H	-61.21	14.23	-46.98	-13.00	-33.98

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*

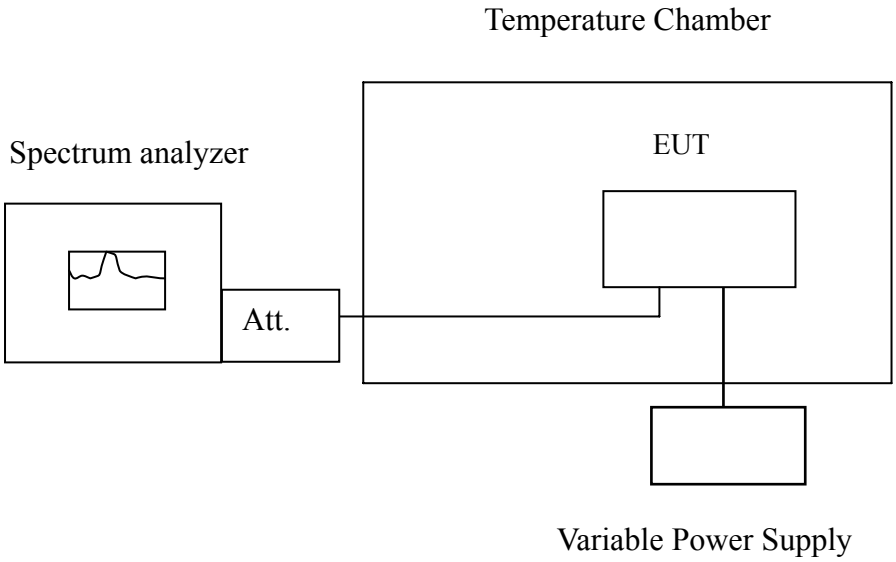
7.5 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091.5 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	45	836600027	27	2091.5
	40	836600031	31	
	30	836600023	23	
	20	836599985	0	
	10	836600026	26	
	0	836600027	27	
	-5	836600036	36	
	-10	836600038	38	

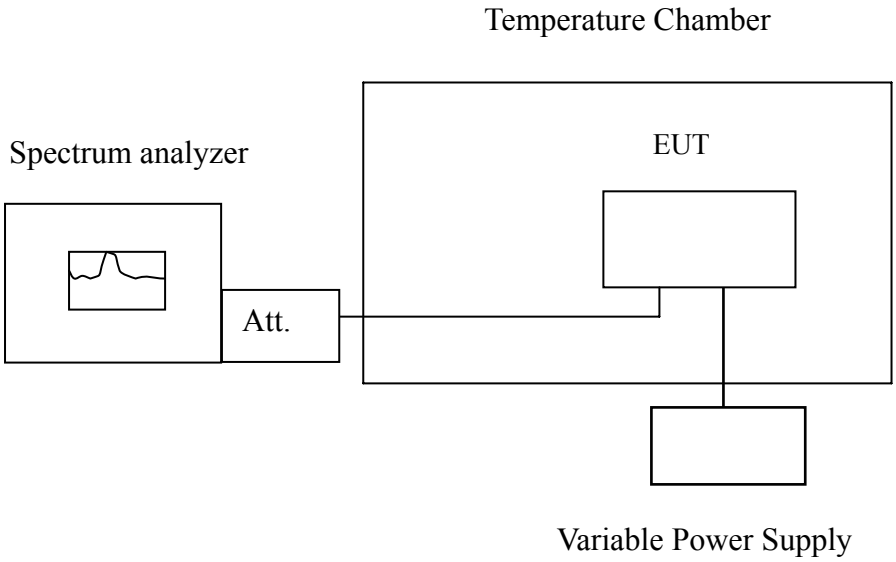
Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	45	1879999983	-17	4700
	40	1879999983	-17	
	30	1879999979	-21	
	20	1880000015	0	
	10	1879999991	-9	
	0	1879999977	-23	
	-5	1879999982	-18	
	-10	1879999986	-14	

7.6 REQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235,

Test Configuration



Remark: *Measurement setup for testing on Antenna connector.*

TEST PROCEDURE

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (± 10%) and endpoint, record the maximum frequency change.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.2	20	83599999	10	2090
3.7		83599989	0	
3.6 end		83599993	4	

Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.2	20	1879999974	8	4700
3.7		1879999966	0	
3.6 end		1879999973	7	

7.7 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

TEST PROCEDURE

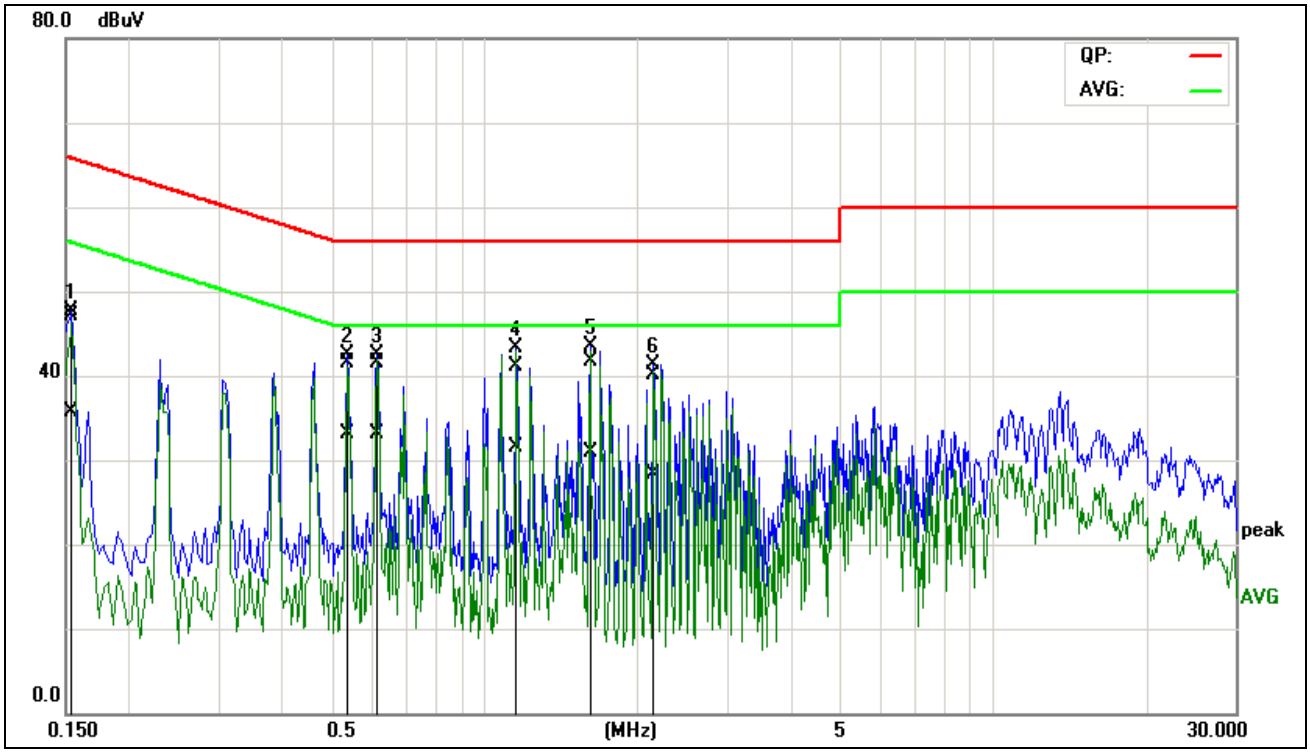
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

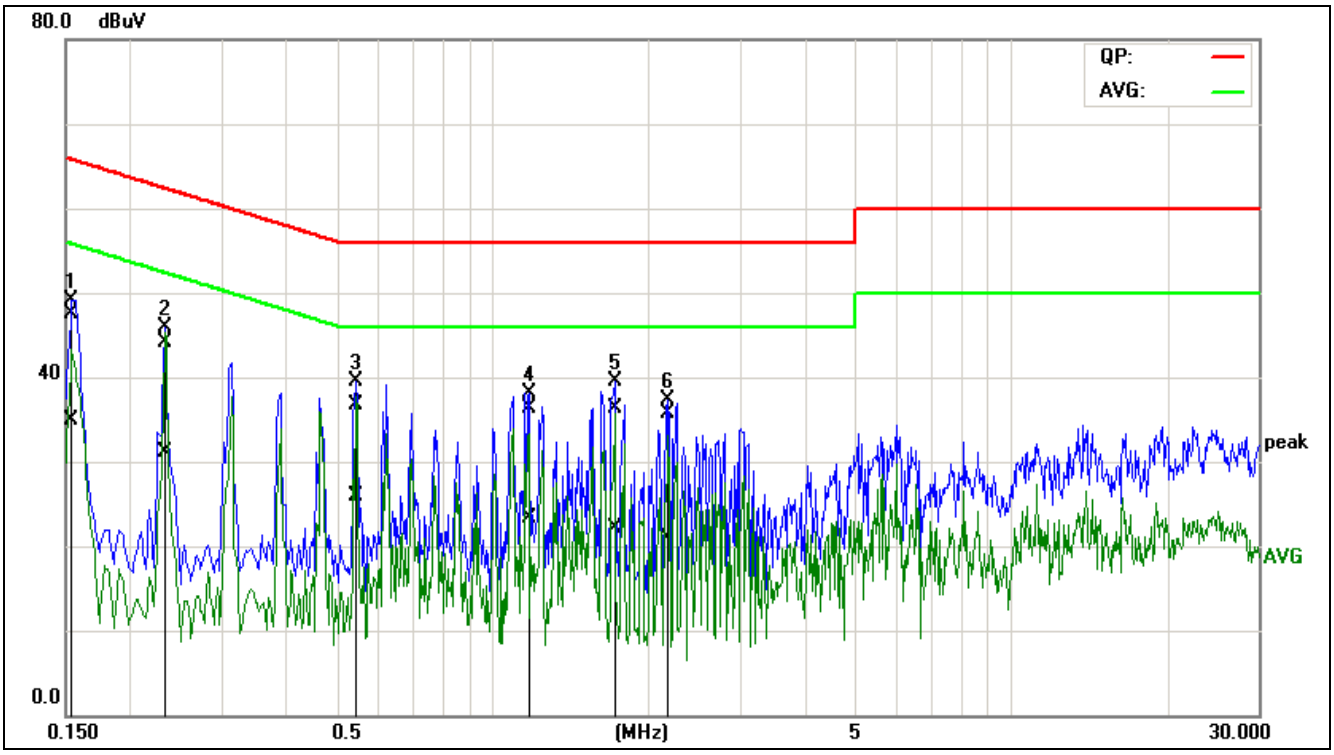
Operation Mode:	Normal Link	**Test Date:**	April 14,2011
Temperature:	23°C	**Tested by:**	Star
Humidity:	50% RH		

Conducted emissions (L1)



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1546	36.99 25.	65	10.05	47.04 35.	70	65.75 55.	75	-18.71	-20.05	Pass
2*	0.5398	30.62 22.	25	10.84	41.46 33.	09	56.00 46.	00	-14.54	-12.91	Pass
3	0.6170	30.71 22.	15	10.89	41.60 33.	04	56.00 46.	00	-14.40	-12.96	Pass
4	1.1596	30.03 20.	46	11.03	41.06 31.	49	56.00 46.	00	-14.94	-14.51	Pass
5	1.6212	30.70 19.	85	11.06	41.76 30.	91	56.00 46.	00	-14.24	-15.09	Pass
6	2.1604	29.04 17.	16	11.10	40.14 28.	26	56.00 46.	00	-15.86	-17.74	Pass

Conducted emissions (L2)



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1544	37.30 24.	66	10.15	47.45 34.	81	65.76 55.	76	-18.31	-20.95	Pass
2	0.2329	33.84 20.	88	10.17	44.01 31.	05	62.35 52.	35	-18.34	-21.30	Pass
3	0.5478	26.47 15.	81	10.14	36.61 25.	95	56.00 46.	00	-19.39	-20.05	Pass
4	1.1722	26.07 13.	06	10.27	36.34 23.	33	56.00 46.	00	-19.66	-22.67	Pass
5	1.7193	25.88	11.62	10.47	36.35 22.	09	56.00 46.	00	-19.65	-23.91	Pass
6	2.1881	25.00 10.	31	10.61	35.61 20.	92	56.00 46.	00	-20.39	-25.08	Pass

Remark:

1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*
5. *"-" means Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessa*