ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H and PART 24 SUBPART E AND INDUSTRY CANADA RSS-132 and RSS-133 REQUIREMENT

OF

Product Name:	**Offender Tracking Device (OTD)**
Brand Name:	**SecureAlert TrackerPAL-II**
Marketing Name:	**TrackerPAL-II**
Model Name:	**34D**
Model Difference:	**N/A**
FCC ID:	**TPO-OTD34**
IC Number:	**6512A-OTD34**
Report No.:	**EH/2008/70011~12**
Issue Date:	**Oct. 16, 2008**
FCC Rule Part:	**2 , 22H & 24E**
IC Rule Part:	**RSS 132, Issue 2 and RSS 133, Issue 4**
Prepared for:	**RemoteMDx Inc** **150 West Civic Center Drive, Sandy, Utah 84070, USA**
Prepared by:	**SGS Taiwan Ltd.** **Electronics & Communication Laboratory** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

VERIFICATION OF COMPLIANCE

Applicant:	RemoteMDx Inc
	150 West Civic Center Drive, Sandy, Utah 84070, USA
Product Name:	Offender Tracking Device (OTD)
FCC ID:	TPO-OTD34
IC Number:	6512A-OTD34
Brand Name:	SecureAlert TrackerPAL-II
Marketing Name:	TrackerPAL-II
Model No.:	34D
Model Difference:	N/A
File Number:	EH/2008/70011~12
Date of test:	Sep. 20, 2008 ~ Oct. 16, 2008
Date of EUT Received:	Sep. 20, 2008

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004, Issue 2 of RSS-Gen 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 PART 22 subpart H, PART 24 subpart E and IC standards Issue 2 of RSS-129, Issue 4 of RSS-133.

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

Test By:	Jazz Huang	***Date***	Oct. 16, 2008
	Jazz Huang/Engineer		
Prepared By:	Elisa Chen	***Date***	Oct. 16, 2008
	Elisa Chen/Asst. Supervisor		
Approved By:	Vincent Su	***Date***	Oct. 16, 2008
	Vincent Su/Manager		

Version

Version No.	Date	Description
00	Oct. 16, 2008	Initial creation of document

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1. GENERAL INFORMATION

Product Name:	Offender Tracking Device (OTD)	
Brand Name:	SecureAlert TrackerPAL-II	
Marketing Name:	TrackerPAL-II	
Model Name:	34D	
Model Difference:	N/A	
Power Supply	3.7 Vdc re-chargeable battery or 12Vdc by AC/DC power adapter	
	Battery:	Model: N/A, Supplier: EXCELL
	Adapter:	Model: HK-H1-A12

GPRS:

Cellular Phone Standards Frequency Range and Power	Operation Band	Frequency Range	Rated Power
	GPRS 850, class12	824 MHz– 849MHz	33dBm
	GPRS 1900, class12	1850MHz – 1910MHz	30dBm
Final Amplifier Voltage and Current Information		DC voltage (V)	DC current (mA)
	GPRS 850, class12	12Vdc	356
	GPRS 1900, class12	12Vdc	364
Type of Emission	300KGXW		
IMEI	010652000870910		

This test report applies for GPRS 850, GPRS 1900.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: TPO-OTD34** filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.
And **IC: 6512A-OTD34** filing to comply with issue 2 of RSS-129, issue 4 of RSS-133.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4 (2003) and FCC 47 CFR 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, issue 2 of RSS-132 and issue 3 of RSS-133.

1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-1

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

All equipment is calibrated externally and traceable to SI (International System of Unit).

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C and RSS-Gen, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to con- nect the antenna port of EUT to measurement equipment.

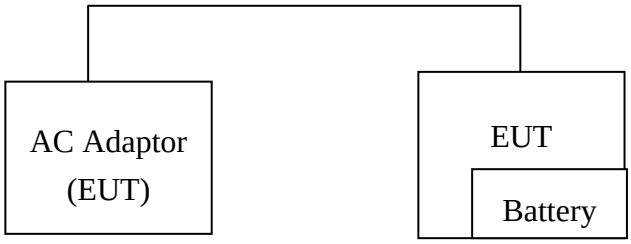
2.3.3 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C and RSS-Gen. The EUT is placed on a turn table which is 1.0 m above ground plane. The turn table 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 max. emission, the rela- tive positions of this hand-held transmitter (EUT) was rotated through three or- thogonal axes according to the requirements.

A standard antenna was used to replace the EUT and connect to the SG. Adjust the SG output level to reach the max emission level which were measured above.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel)



Remote Side

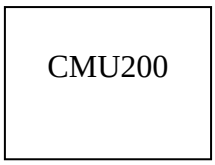


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1	Universal Radio Communication Tester	R&S	CMU200	102189	N/A	Un-shielded

3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a) §22.913(a)(2) §24.232(c)	N/A	RF Conducted Power Output	Compliant
§2.1046(a) §22.913(a)(2) §24.232(c)	§4.8 (RSS-Gen) §4.4 (RSS-132) §6.4 (RSS-133)	ERP/EIRP measurement	Compliant
§2.1049(h)	§4.6.1 (RSS-Gen) §2.3 (RSS-133)	99% Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a)	§4.9 (RSS-Gen) §4.5 (RSS-132) §6.5 (RSS-133)	Out of Band Emissions at Antenna Terminals	Compliant
§2.1053 §22.917(a) §24.238(a)	§4.9 (RSS-Gen) §4.5 (RSS-132) §6.5 (RSS-133)	Field Strength of Spurious Radiation (TX)	Compliant
§2.1055(a)(1) §22.355 §24.235	§4.7 (RSS-Gen) §4.3 (RSS-132) §6.3 (RSS-133)	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(2) §22.355 §24.235	§4.7 (RSS-Gen) §4.3 (RSS-132) §6.3 (RSS-133)	Frequency Stability vs. Voltage	Compliant
N/A	§4.10 (RSS-Gen) §4.6 (RSS-132) §6.6 (RSS-133)	Receiver Spurious Emissions	Compliant
§15.207(a)	§7.2.2 (RSS-Gen)	AC Power Line Conducted Emission	Compliant

4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

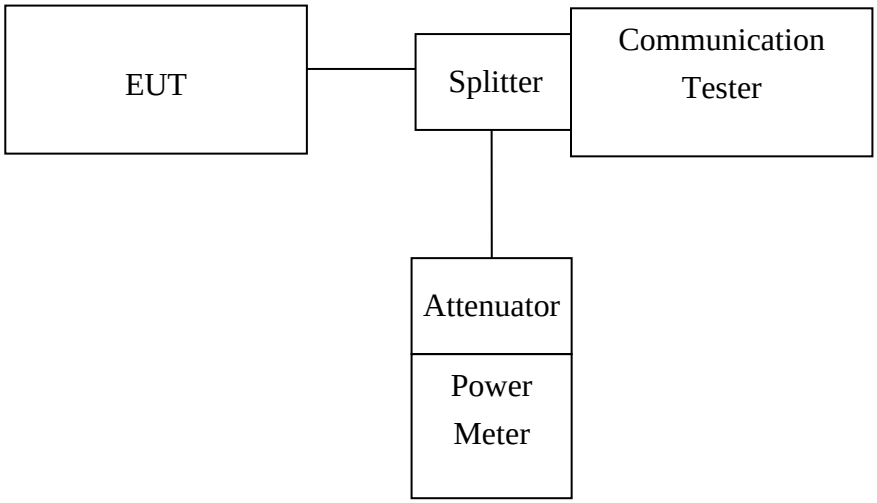
The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for GPRS with power adaptor. The worst-case of H position for GPRS 850 band, E2 position for GPRS 1900 band were reported.

5. RF POWER OUTPUT MEASUREMENT

5.1 Standard Applicable

According to FCC §2.1046(a), §22.913(a)(2) and §24.232(c).

5.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

5.3 Measurement 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.

5.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Communication Test	R&S	SMU200	102189	05/13/2008	05/12/2010
Power Sensor	Anritsu	MA2490A	31431	07/07/2007	07/06/2009
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2008	02/12/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2008	07/04/2009
Splitter	Agilent	11636B	51818 / 51820	07/05/2008	07/04/2009
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2007	06/26/2009

5.5 Measurement Result

EUT Mode	Frequency (MHz)	CH	Power meter Reading (dBm)	Path Loss (dB)	Power (dBm)
GPRS 850	824.20	128	32.20	0.00	32.20
	836.60	190	32.30	0.00	32.30
	848.80	251	32.30	0.00	32.30

EUT Mode	Frequency (MHz)	CH	Power Meter Reading (dBm)	Path Loss (dB)	Power (dBm)
GPRS 1900	1850.20	512	28.70	0.00	28.70
	1880.00	661	29.10	0.00	29.10
	1909.80	810	29.30	0.00	29.30

6. ERP, EIRP MEASUREMENT

6.1 Standard Applicable

According to FCC §2.1046(a)

FCC 24.232(c) Mobile station are limited to 2W EIRP.

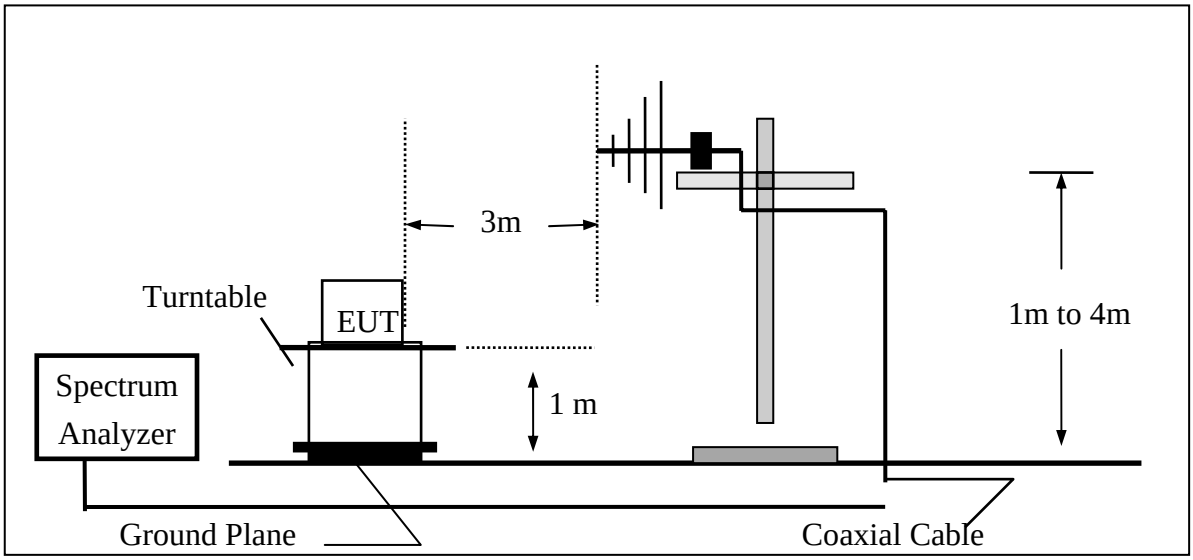
According to IC RSS-133 §6.4

The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits 2W which given in SRSP-510.

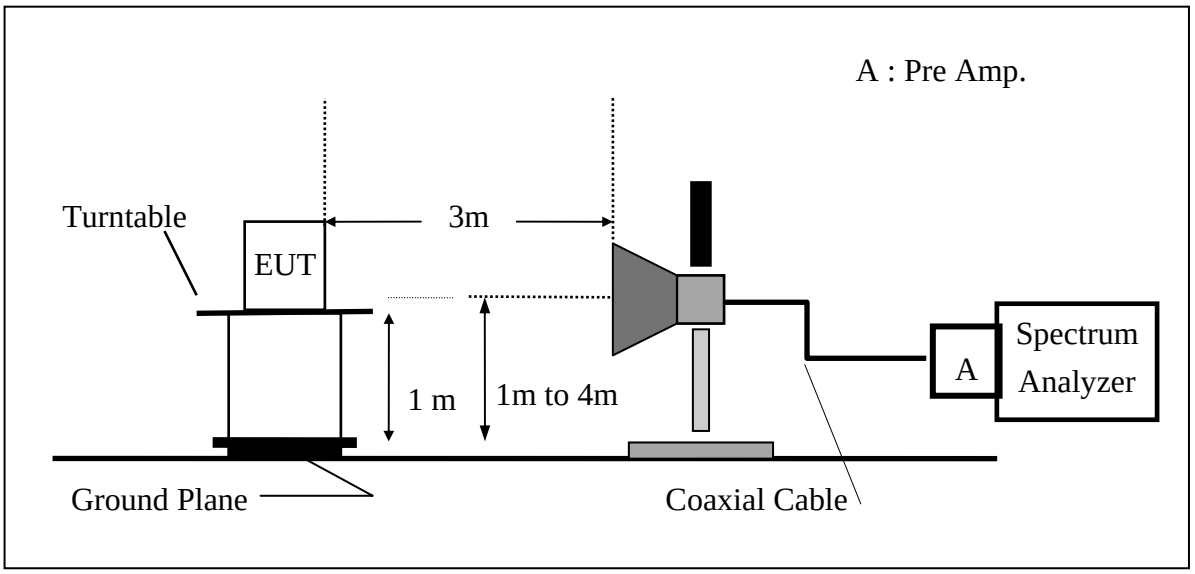
According to issue 2 of RSS 132, section 4.4. The transmitter output power shall not exceed the limits given in SRSP-503.

6.2 Test SET-UP (Block Diagram of Configuration)

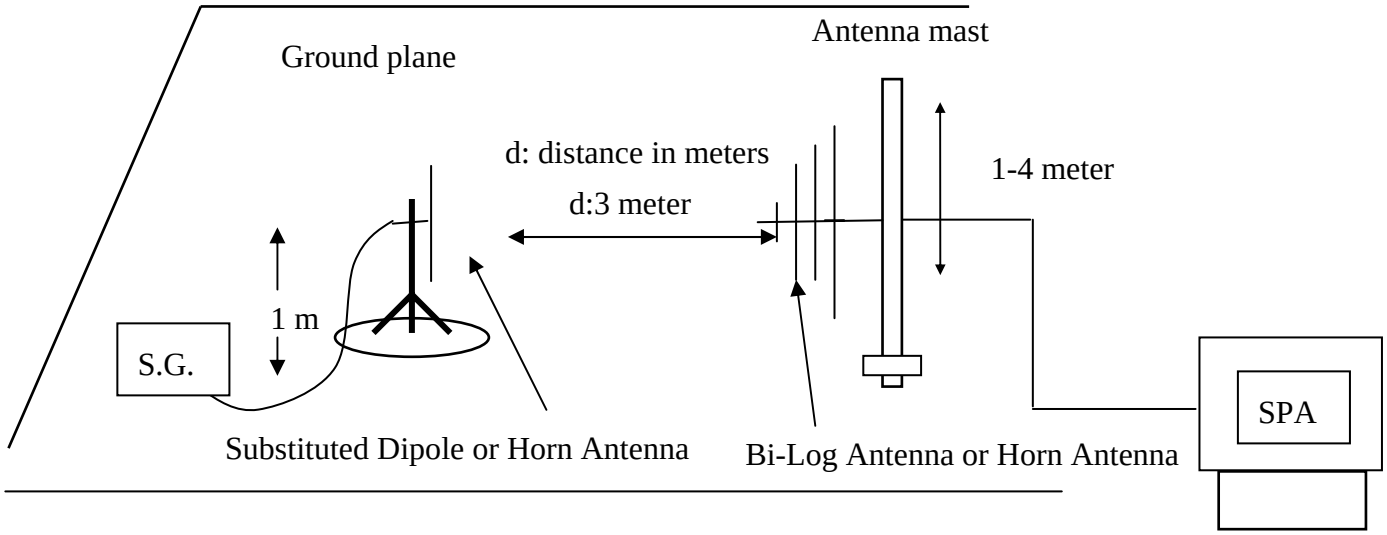
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



6.3 Measurement 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, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

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

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

6.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Spectrum Analyzer	R&S	FSP 40	100034	02/22/2008	02/21/2009
Communication Test	R&S	CMU200	102189	05/13/2008	05/12/2009
Bi-log Antenna	SCHWAZBECK	VULB9163	152	06/03/2008	06/02/2009
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	08/16/2008	08/15/2009
Pre-Amplifier	HP	8447D	2944A09469	07/19/2008	07/18/2009
Pre-Amplifier	HP	8494B	3008A00578	02/26/2008	02/25/2009
Signal Generator	R&S	SMR40	100210	02/09/2008	02/10/2009
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2007	10/08/2008
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008
Attenuator	Mini-Circuit	BW-S10W5	N/A	09/23/2008	09/22/2009
Dipole Antenna	SCHWAZBECK	VHAP	908/909	06/10/2008	06/11/2009
Dipole Antenna	SCHWAZBECK	UHAP	891/892	06/10/2008	06/11/2009
Horn antenna	SCHWAZBECK	BBHA 9120D	N/A	08/16/2008	08/15/2009

6.5 Measurement Result

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	128	H	V	116.18	29.79	-7.87	3.62	18.29	38.45
				H	124.86	38.59	-7.87	3.62	27.09	38.45
			E1	V	111.25	24.86	-7.87	3.62	13.36	38.45
				H	125.31	39.04	-7.87	3.62	27.54	38.45
			E2	V	124.52	38.13	-7.87	3.62	26.63	38.45
				H	114.74	28.47	-7.87	3.62	16.97	38.45
	836.60	190	H	V	116.68	30.43	-7.88	3.65	18.90	38.45
				H	125.37	39.14	-7.88	3.65	27.61	38.45
			E1	V	112.24	25.99	-7.88	3.65	14.46	38.45
				H	125.28	39.05	-7.88	3.65	27.52	38.45
			E2	V	124.97	38.72	-7.88	3.65	27.19	38.45
				H	115.54	29.31	-7.88	3.65	17.78	38.45
	848.80	251	H	V	117.00	30.88	-7.88	3.68	19.32	38.45
				H	124.62	38.43	-7.88	3.68	26.87	38.45
			E1	V	111.76	25.64	-7.88	3.68	14.08	38.45
				H	125.38	39.19	-7.88	3.68	27.63	38.45
			E2	V	124.93	38.81	-7.88	3.68	27.25	38.45
				H	117.53	31.34	-7.88	3.68	19.78	38.45

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=300 KHz, VBW=1000KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
GPRS 1900	1850.20	512	H	V	122.69	18.30	9.90	5.56	22.64	33.00
				H	125.53	21.35	9.90	5.56	25.69	33.00
			E1	V	122.99	18.60	9.90	5.56	22.94	33.00
				H	123.57	19.39	9.90	5.56	23.73	33.00
			E2	V	125.69	21.30	9.90	5.56	25.64	33.00
				H	124.86	20.68	9.90	5.84	24.74	33.00
	1880.00	661	H	V	122.39	18.03	9.99	5.61	22.41	33.00
				H	124.71	20.57	9.99	5.61	24.94	33.00
			E1	V	123.70	19.34	9.99	5.61	23.72	33.00
				H	122.28	18.14	9.99	5.61	22.51	33.00
			E2	V	124.33	19.97	9.99	5.61	24.35	33.00
				H	125.32	21.18	9.99	5.61	25.55	33.00
	1909.80	810	H	V	122.84	18.51	10.08	5.66	22.93	33.00
				H	124.73	20.62	10.08	5.66	25.04	33.00
			E1	V	124.45	20.12	10.08	5.66	24.54	33.00
				H	121.80	17.69	10.08	5.66	22.11	33.00
			E2	V	125.66	21.33	10.08	5.66	25.75	33.00
				H	124.88	20.77	10.08	5.66	25.19	33.00

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=300 KHz, VBW=1000KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

7. 99% OCCUPIED BANDWIDTH MEASUREMENT

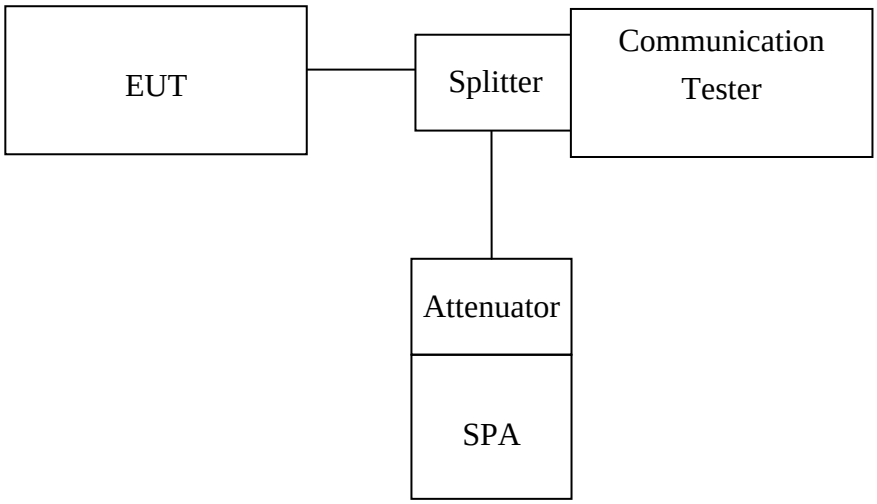
7.1 Standard Applicable

According to FCC§2.1049(h).

According to IC RSS-Gen §4.6.1

According to IC RSS-133 §2.3

7.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

7.3 Measurement Procedure

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10KHz) was set to about 1% of emission BW, VBW= 30KHz, -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.

7.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Power Sensor	Anritsu	MA2490A	31431	07/07/2007	07/06/2009
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2008	02/12/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2008	07/04/2009
Splitter	Agilent	11636B	51818 / 51820	07/05/2008	07/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2007	06/26/2009

7.5 Measurement Result:

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GPRS 850	824.20	128	0.2418
	836.60	190	0.2413
	848.80	251	0.2422

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GPRS 1900	1850.20	512	0.2440
	1880.00	661	0.2436
	1909.80	810	0.2389

Figure 7-1: GPRS 850 Channel Low

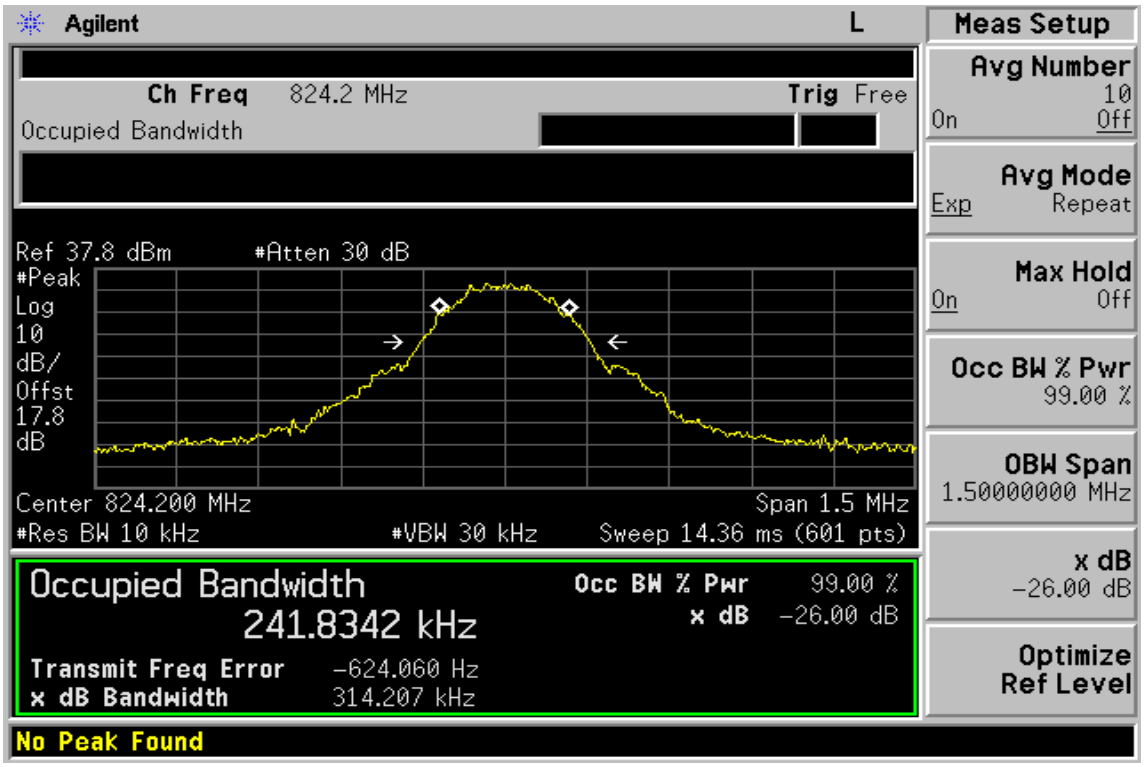


Figure 7-2 GPRS 850 Channel Mid

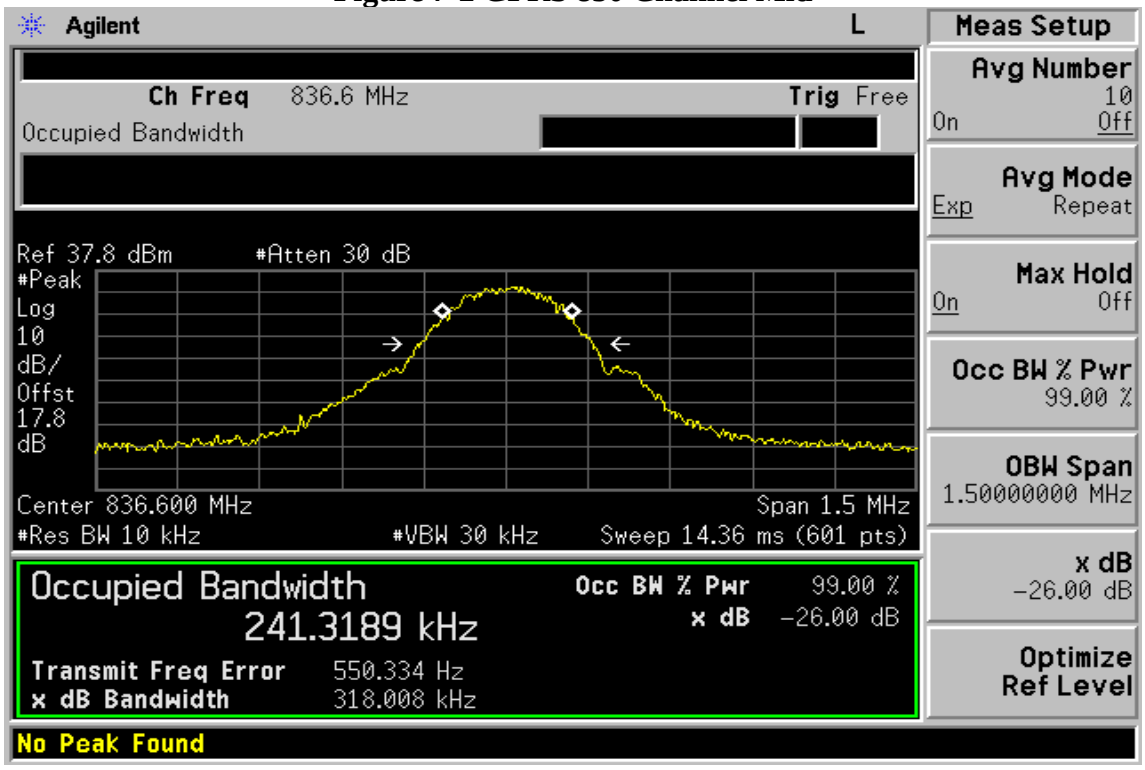


Figure 7-3: GPRS 850 Channel High

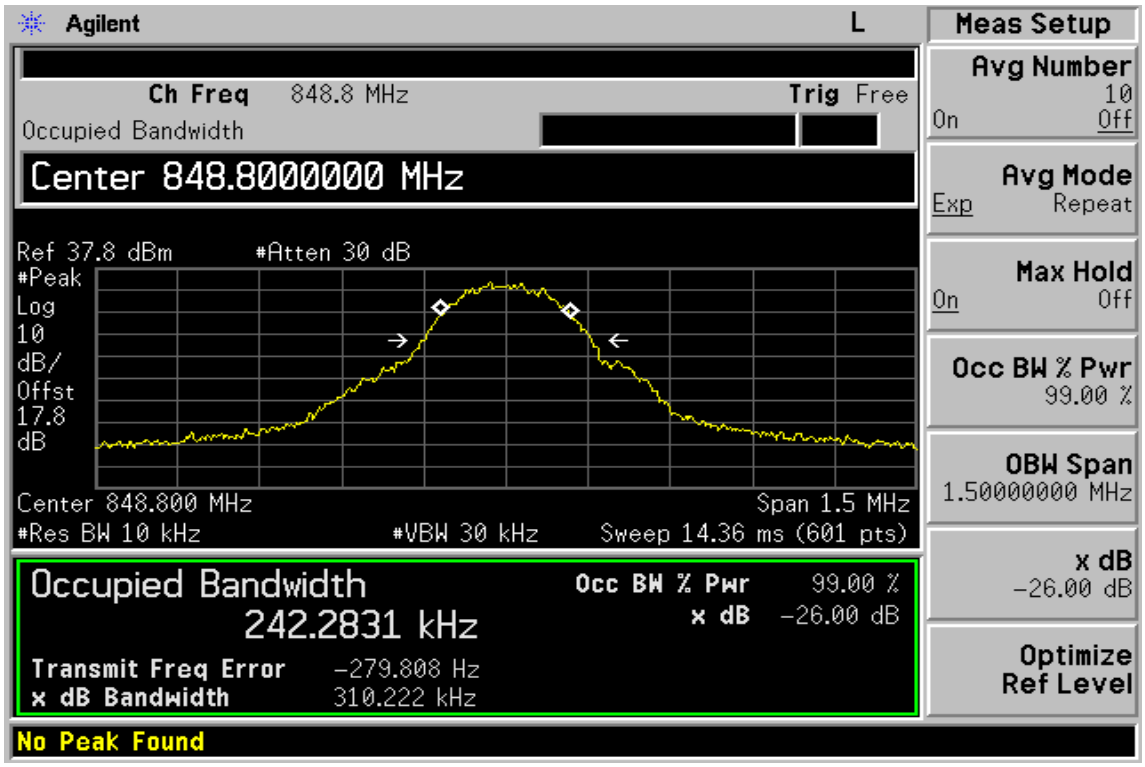


Figure 7-4: GPRS 1900 Channel Low

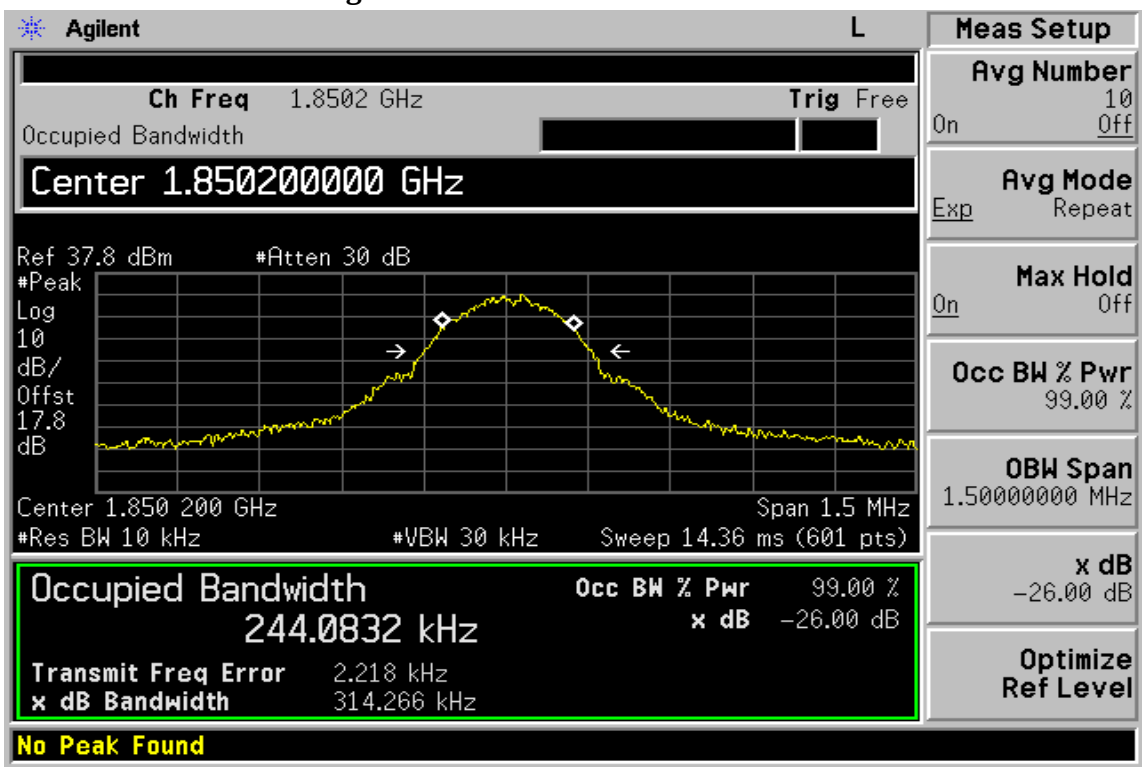


Figure 7-5 GPRS 1900 Channel Mid

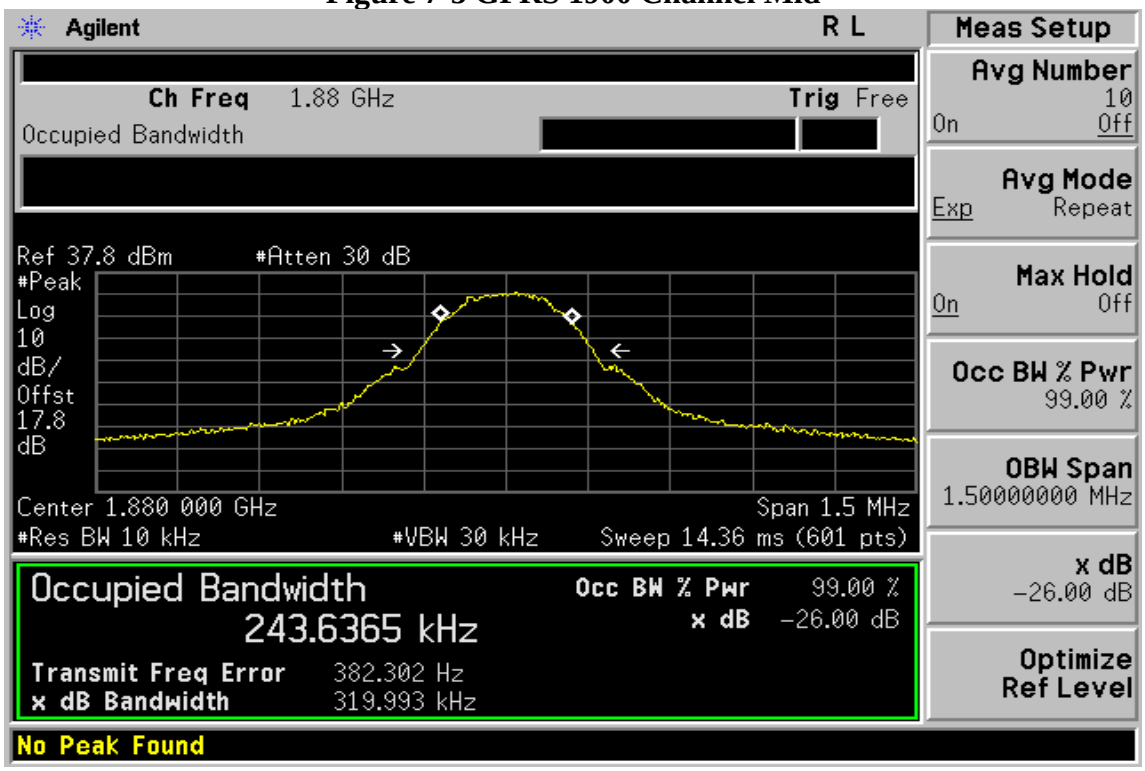
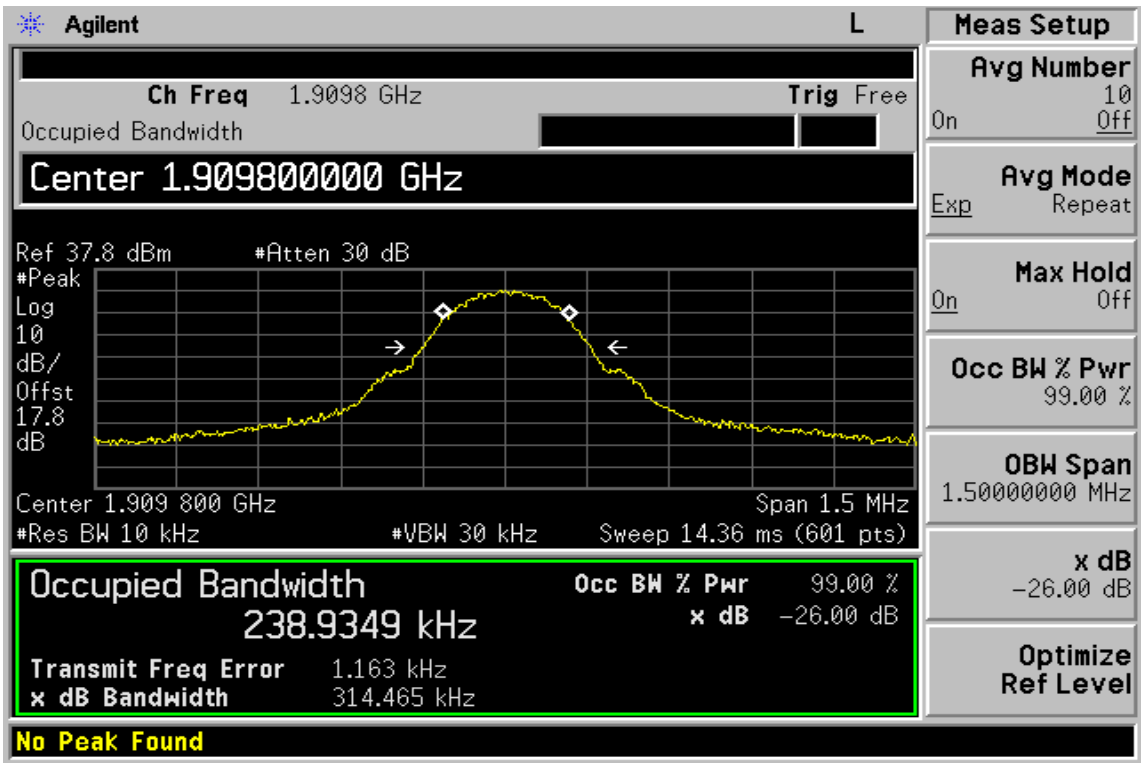


Figure 7-6: GPRS 1900 Channel High



8. OUT OF BAND EMISSION AT ANTENNA TERMINALS (TX)

8.1 Standard Applicable

According to FCC §2.1051.

FCC §24.238(a), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

According to RSS-132 §4.5

4.5.1 Out-of-block Emissions

Mobile and base station equipment with emission bandwidth less than or equal to 4 MHz shall comply with 4.5.1.1. Mobile station equipment with emission bandwidth greater than 4 MHz shall comply with 4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either 4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P), dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

43 + 10 log (P), dB, in any 100 kHz bandwidth.

4.5.1.2 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P), dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

43 + 10 log (P), dB, in any 1 MHz bandwidth

According to RSS-133 §6.5

6.5.1 Out-of-Block Emissions

a. Mobile stations must comply with subsection i. below.

In the first 1.0MHz band immediately outside and adjacent to the licensee's frequency block. the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P) dB.

b. After the first 1.0 MHz (for equipment that complies with a.i. of this subsection) or 1.5 MHz (for equipment that complies with all of this subsection), the power of emissions shall be attenuated below the transmitter output power by at least 43 + 10 log (P), dB, per any MHz of bandwidth.

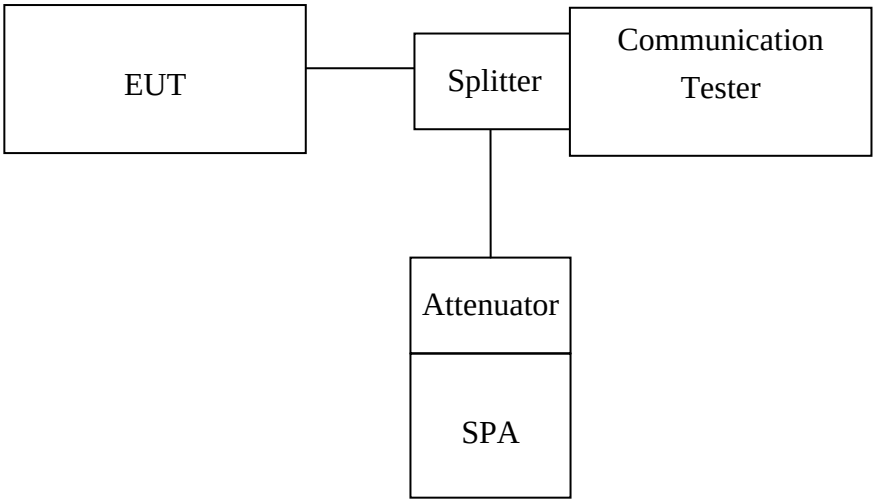
(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0

MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

6.5.2 Out-of-Sub-band Emissions

Outside the sub-bands 1850-1910 MHz and 1930-1990 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

8.2 Test SET-UP



Note: *Measurement setup for testing on Antenna connector*

8.3 Measurement 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

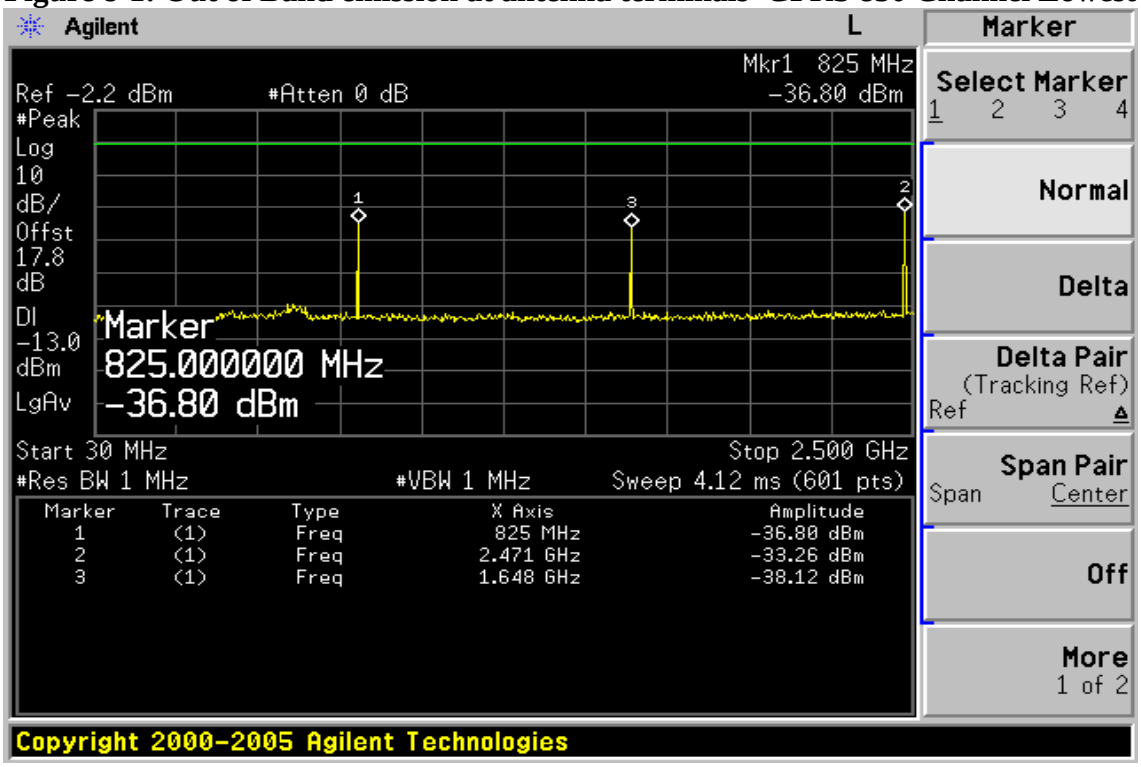
Band Edge Requirements(1850MHz and 1910MHz) : In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit,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

8.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Power Sensor	Anritsu	MA2490A	31431	07/07/2007	07/06/2009
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2008	02/12/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2008	07/04/2009
Splitter	Agilent	11636B	51818 / 51820	07/05/2008	07/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2007	06/26/2009

8.5 Measurement Result

Figure 8-1: Out of Band emission at antenna terminals–GPRS 850 Channel Lowest



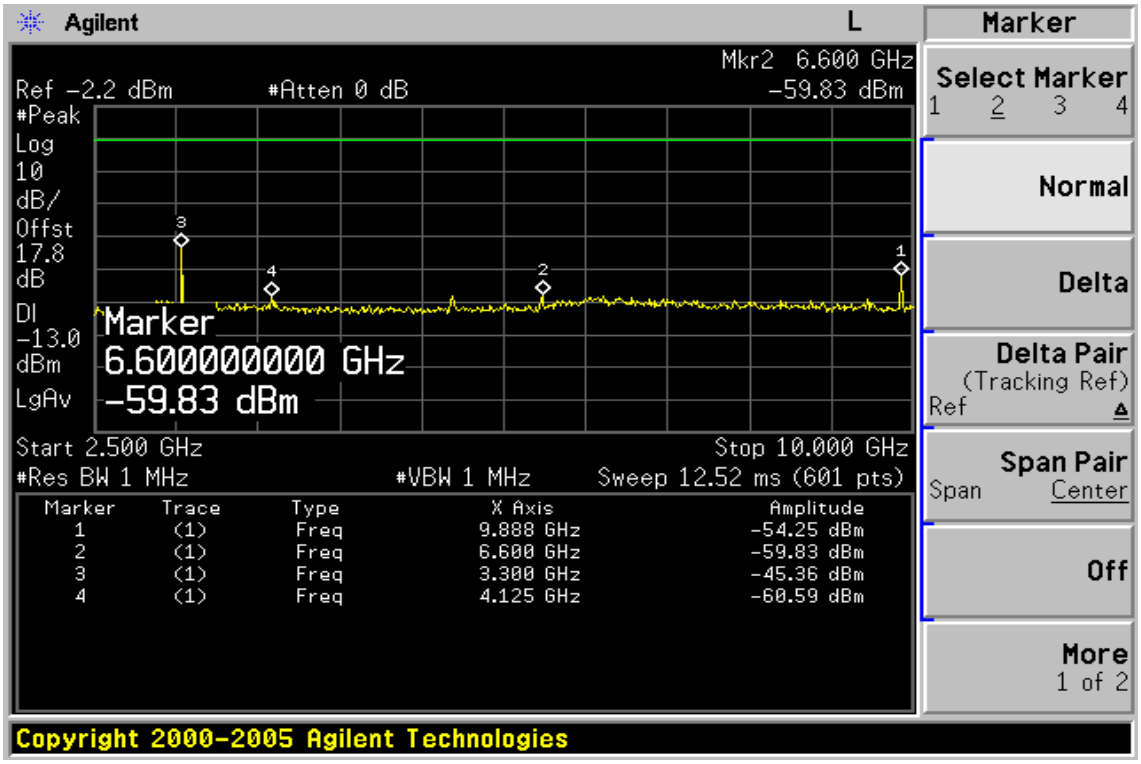
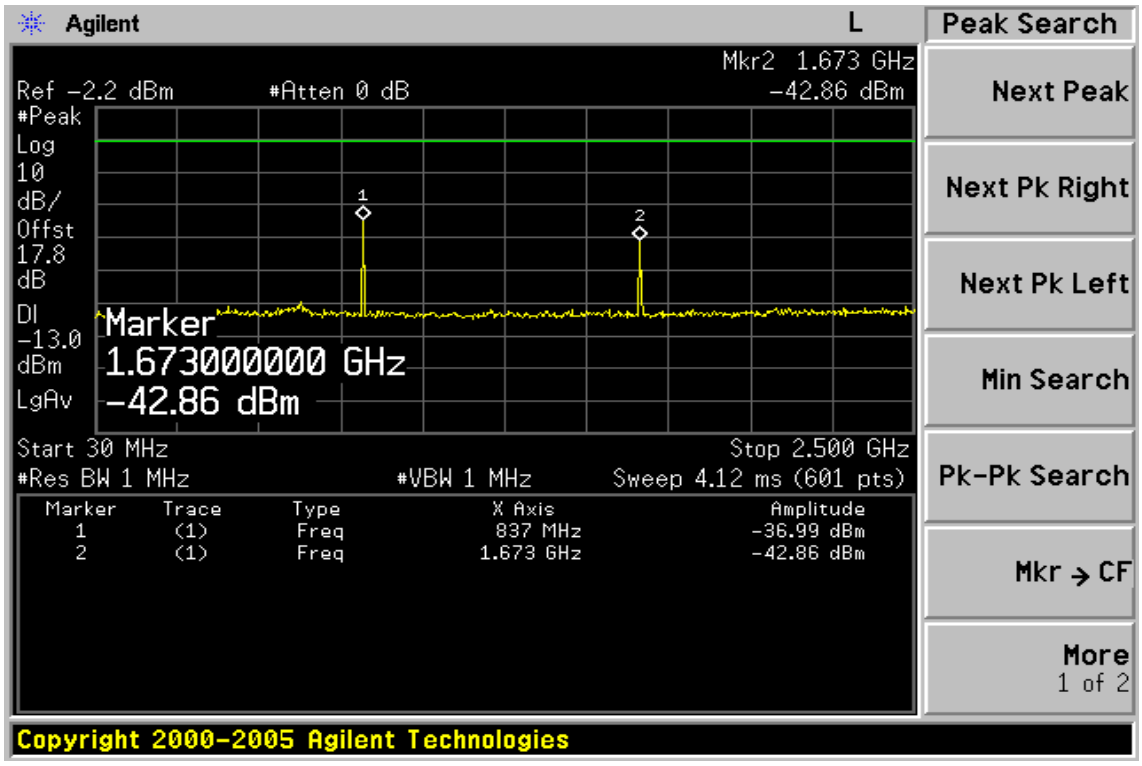


Figure 8-2: Out of Band emission at antenna terminals –GPRS 850 Channel Mid



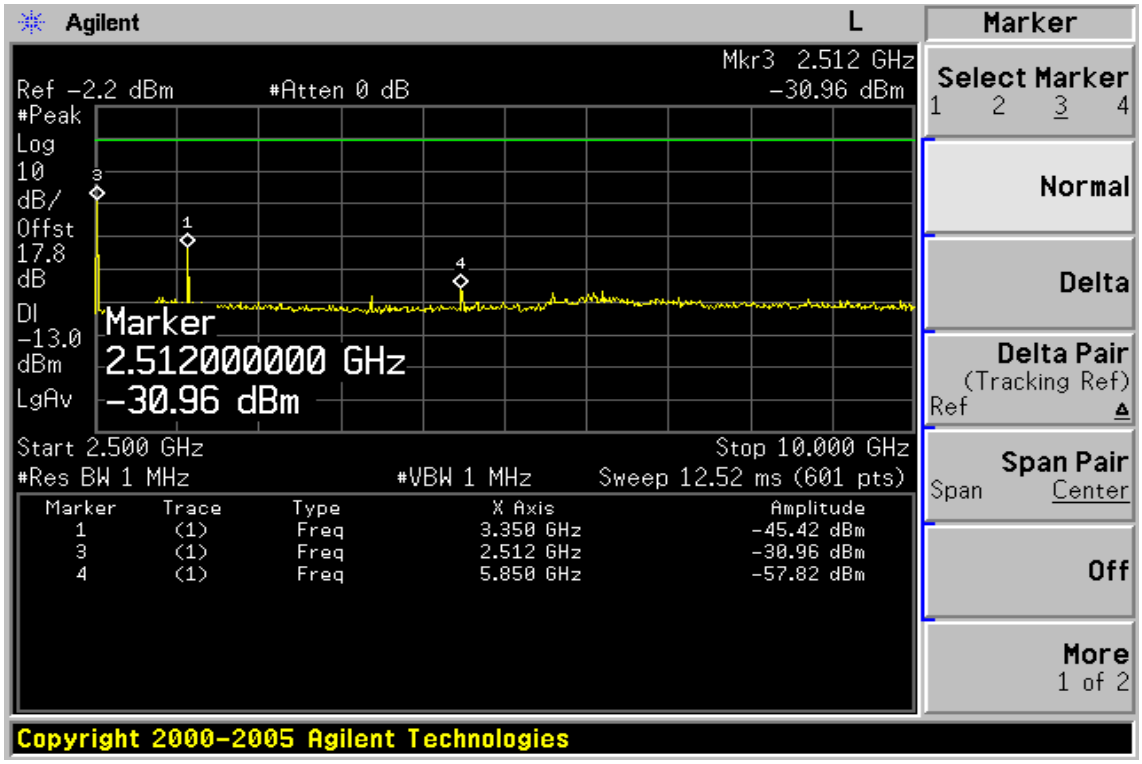
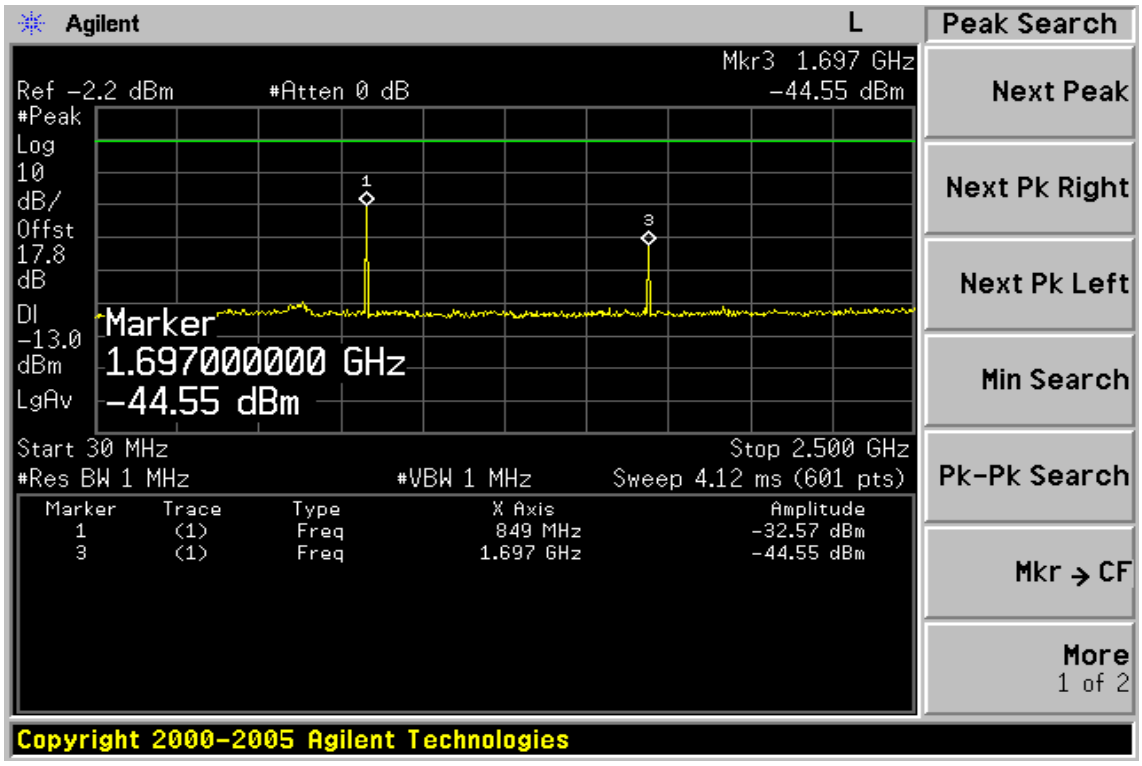


Figure 8-3: Out of Band emission at antenna terminals–GPRS 850 Channel Highest



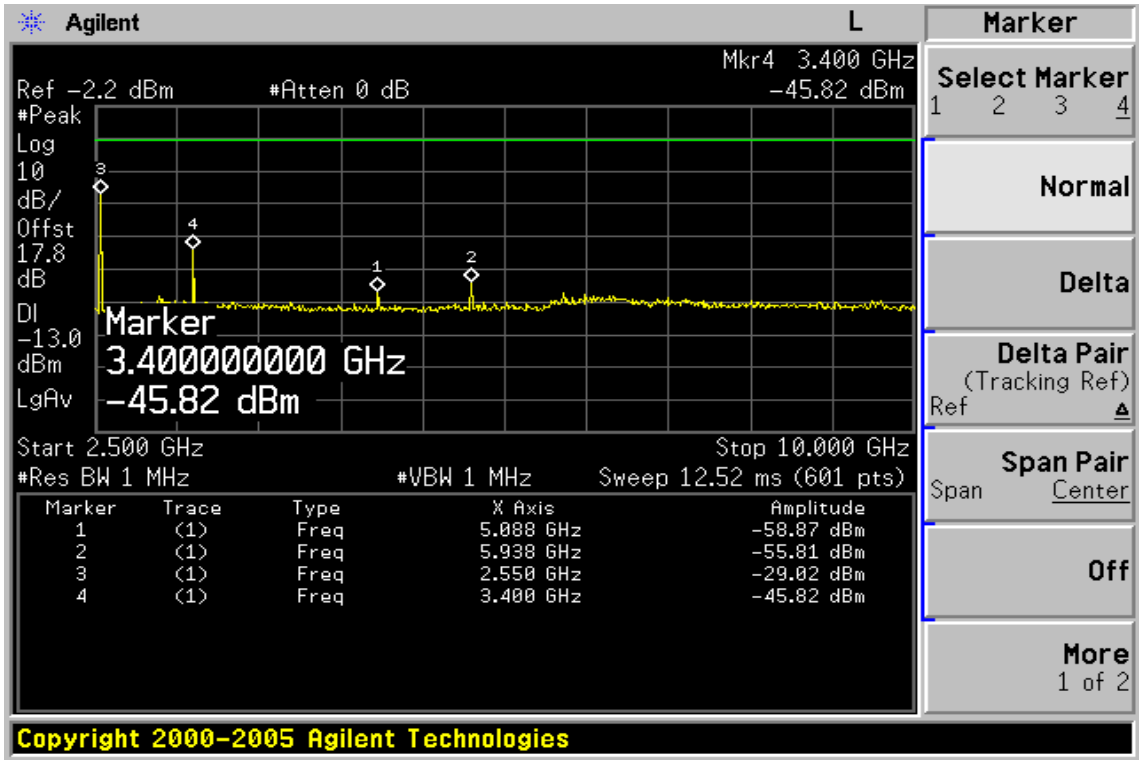


Figure 8-4: Band edge emission at antenna terminals –GPRS 850 Channel Lowest

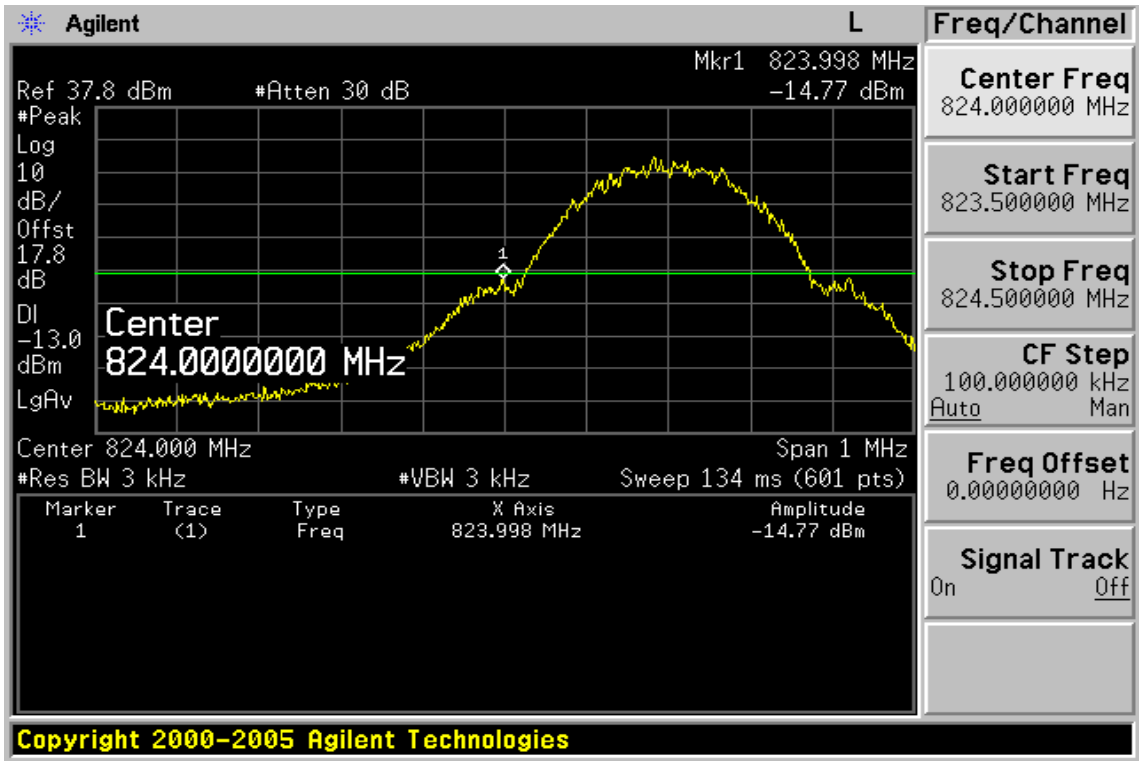


Figure 8-5: Band edge emission at antenna terminals –GPRS 850 Channel Highest

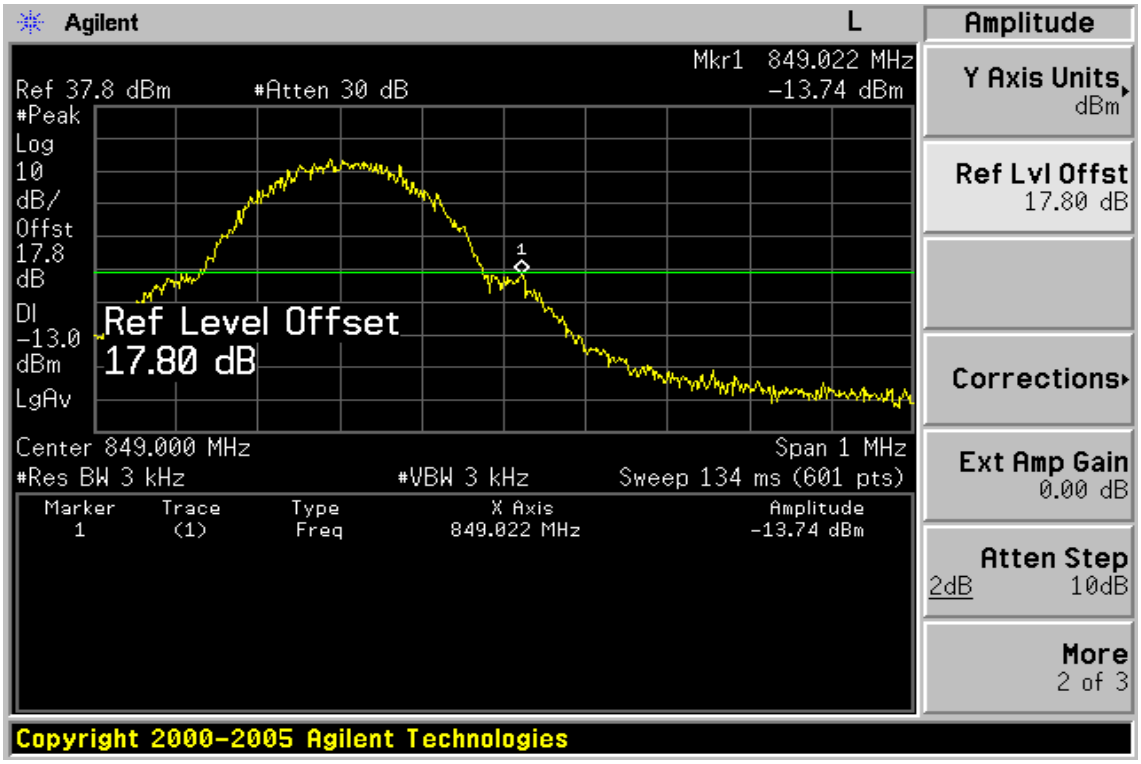
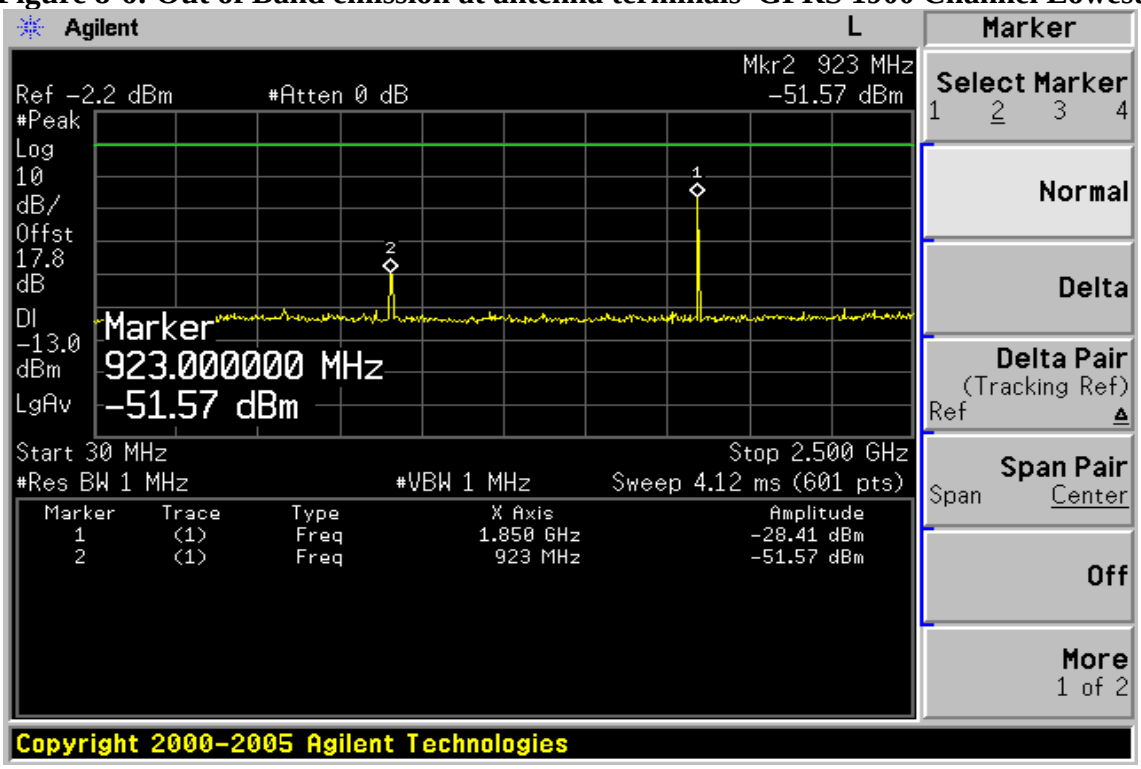


Figure 8-6: Out of Band emission at antenna terminals–GPRS 1900 Channel Lowest



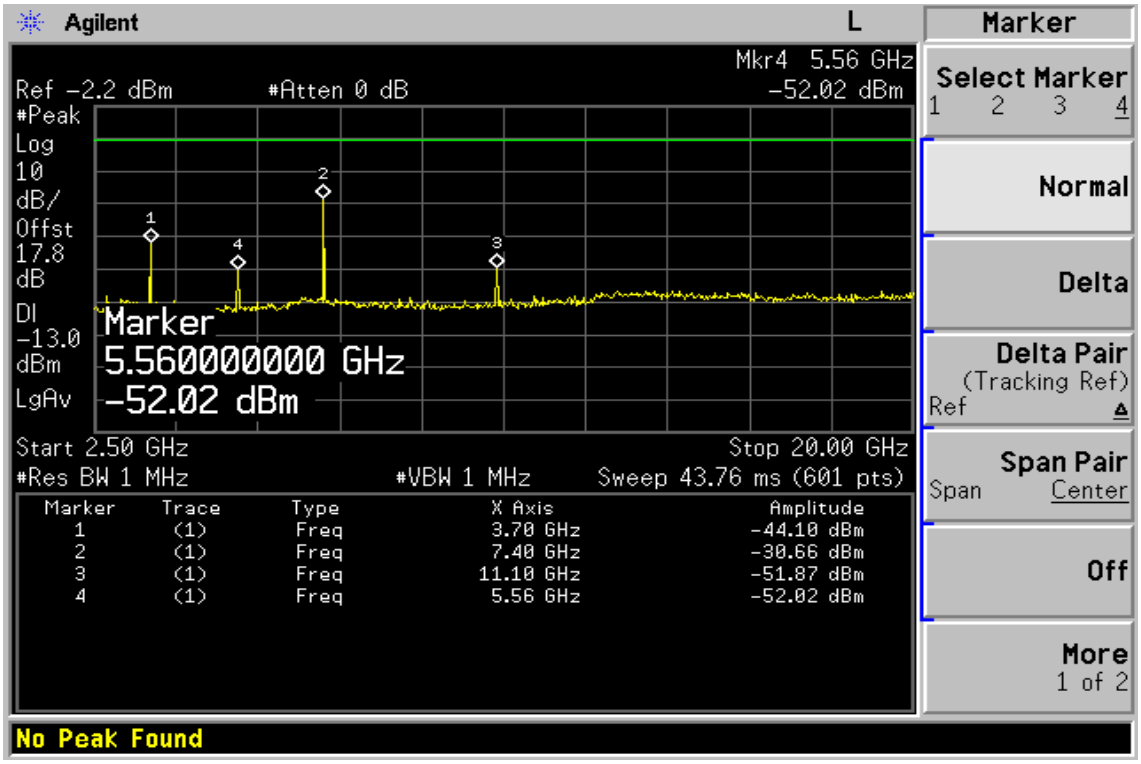
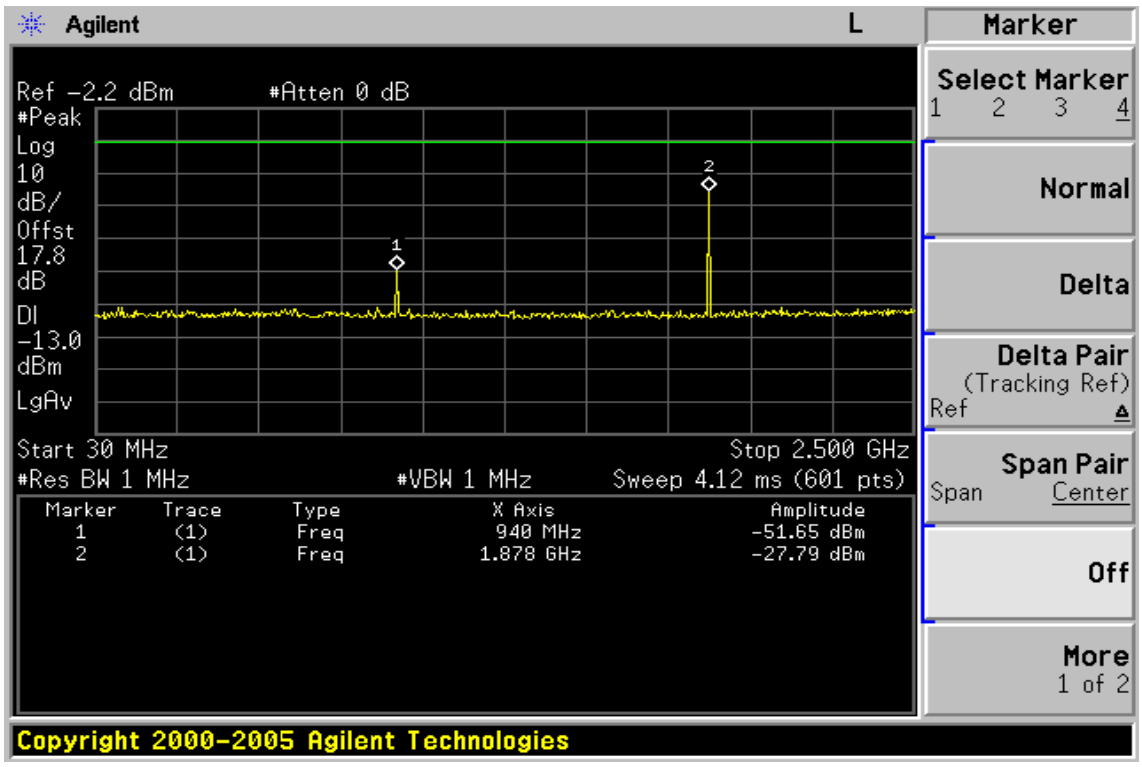


Figure 8-7: Out of Band emission at antenna terminals –GPRS 1900 Channel Mid



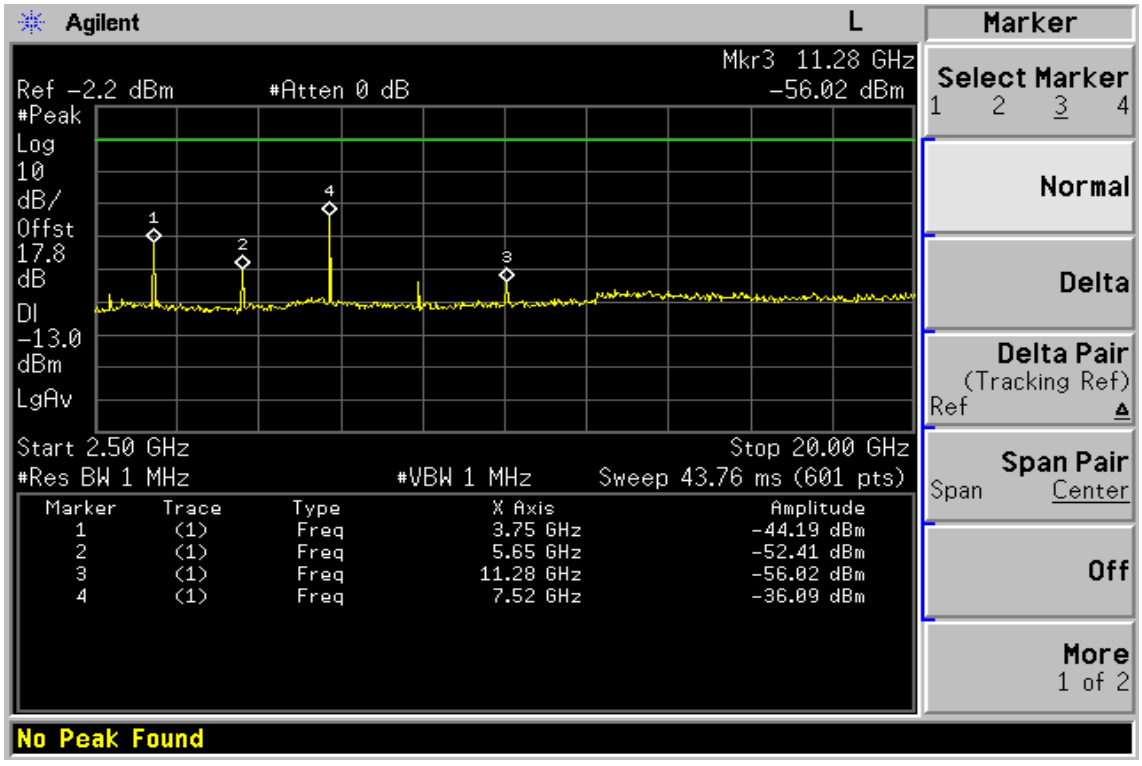
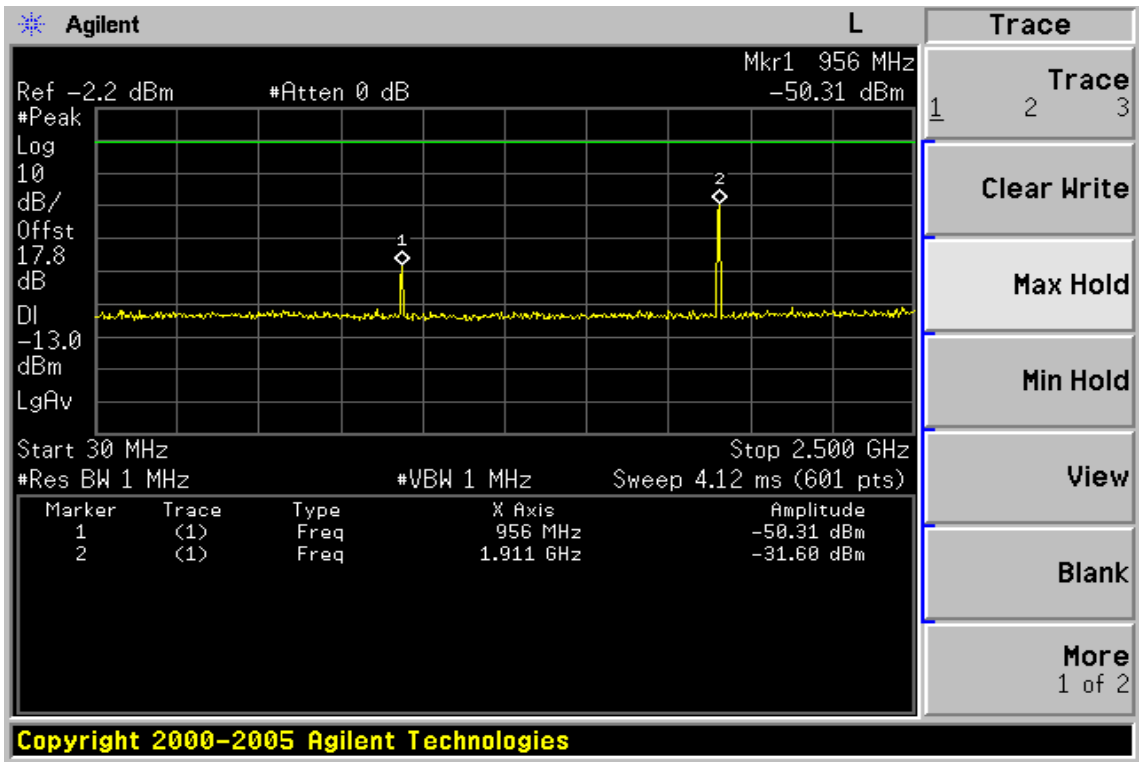


Figure 8-8: Out of Band emission at antenna terminals–GPRS 1900 Channel Highest



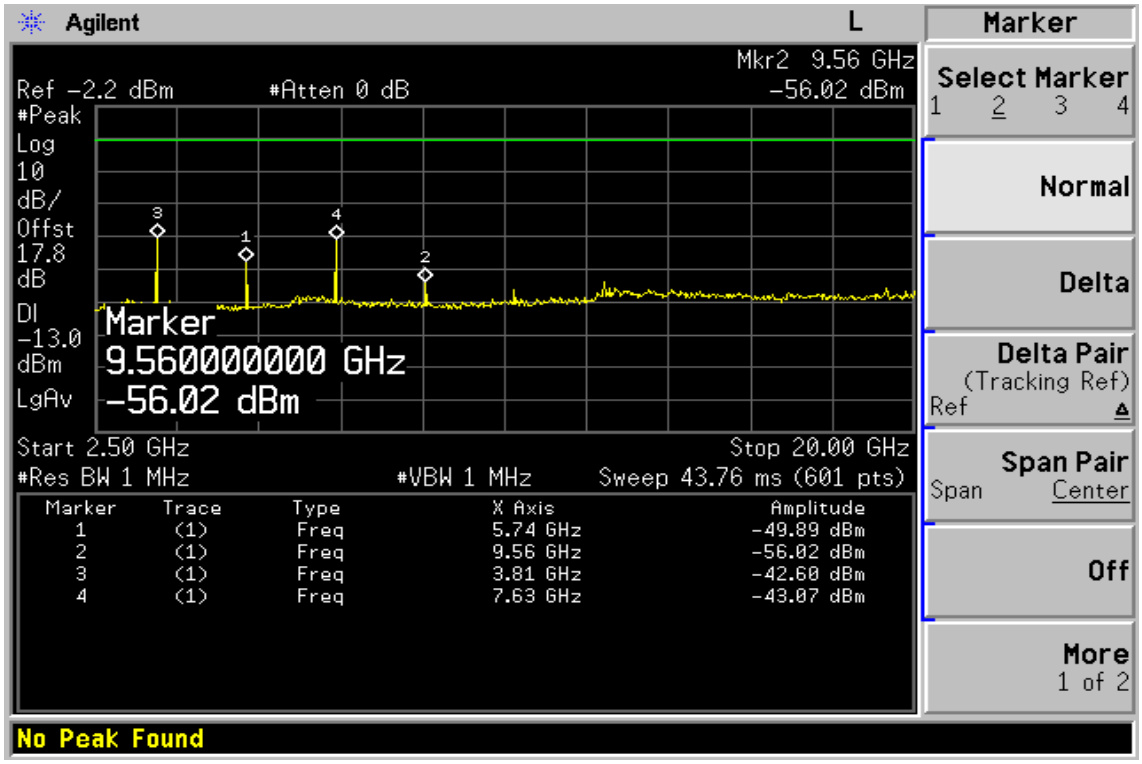


Figure 8-9: Band edge emission at antenna terminals –GPRS 1900 Channel Lowest

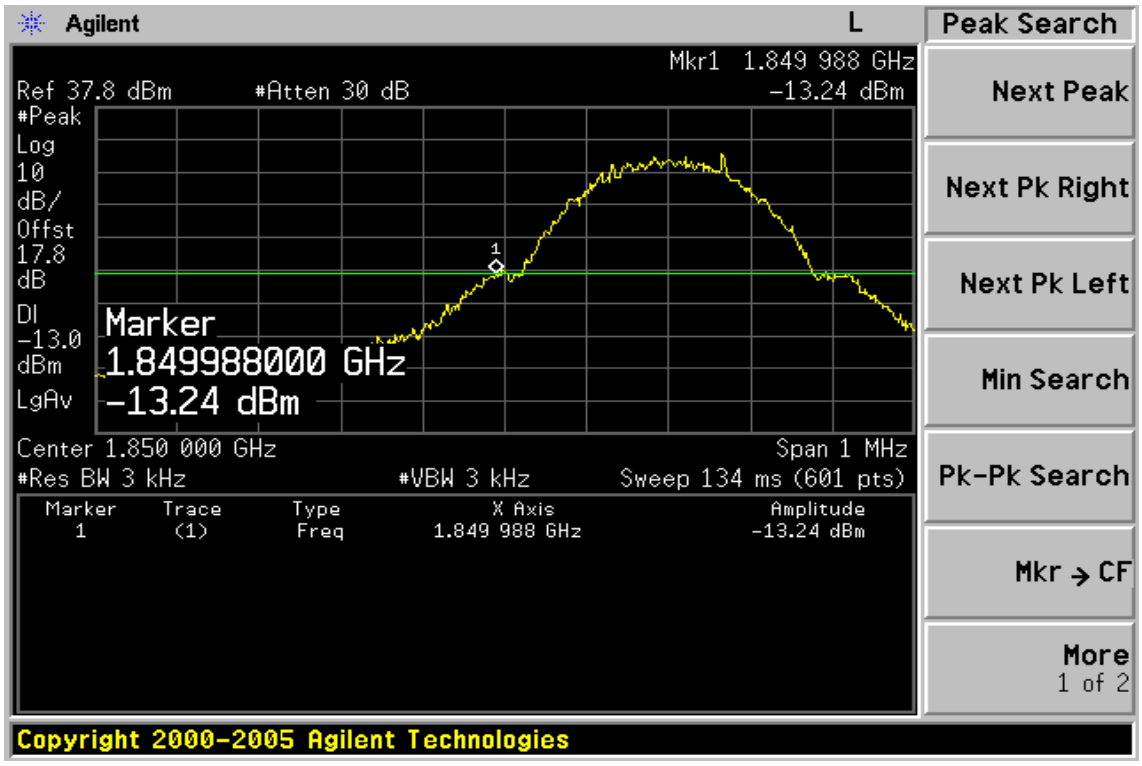
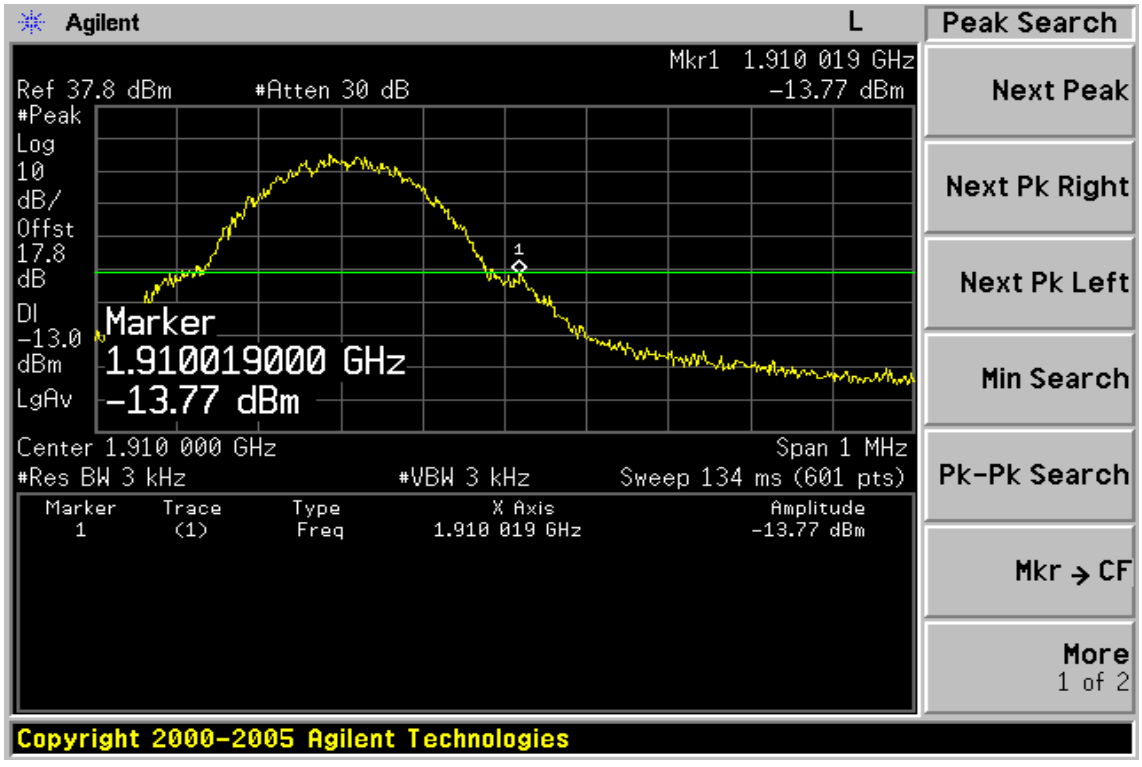


Figure 8-10: Band edge emission at antenna terminals –GPRS 1900 Channel Highest



9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT (TX)

9.1 Standard Applicable

According to FCC §2.1053,

FCC §24.238(a), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

According to RSS-132 §4.5

4.5.1 Out-of-block Emissions

Mobile and base station equipment with emission bandwidth less than or equal to 4 MHz shall comply with 4.5.1.1. Mobile station equipment with emission bandwidth greater than 4 MHz shall comply with 4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either 4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P), dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

43 + 10 log (P), dB, in any 100 kHz bandwidth.

4.5.1.2 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P), dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

43 + 10 log (P), dB, in any 1 MHz bandwidth

According to RSS-133 §6.5

6.5.1 Out-of-Block Emissions

a. Mobile stations must comply with subsection i. below.

In the first 1.0MHz band immediately outside and adjacent to the licensee's frequency block. the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log (P) dB.

b. After the first 1.0 MHz (for equipment that complies with a.i. of this subsection) or 1.5 MHz (for equipment that complies with all of this subsection), the power of emissions shall be attenuated below the transmitter output power by at least 43 + 10 log (P), dB, per any MHz of bandwidth.

(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0

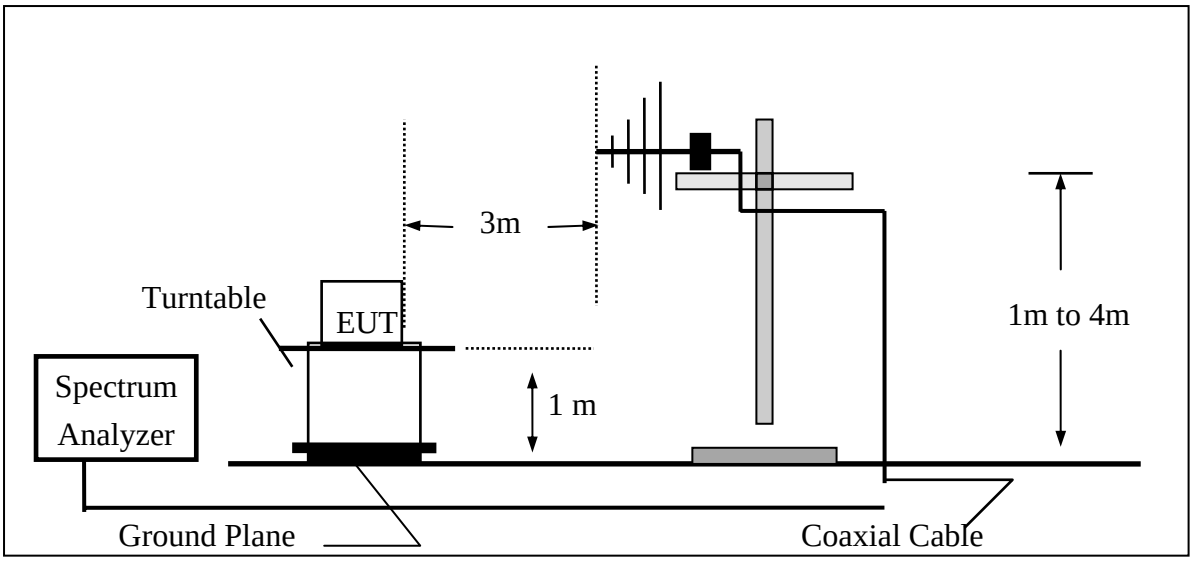
MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

6.5.2 Out-of-Sub-band Emissions

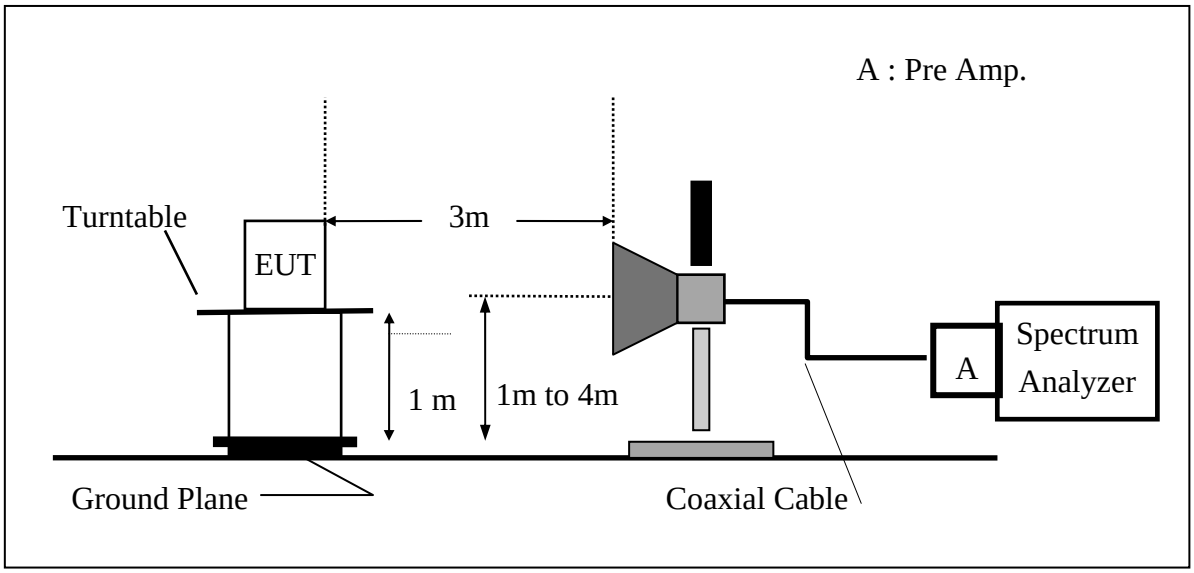
Outside the sub-bands 1850-1910 MHz and 1930-1990 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

9.2 EUT Setup (Block Diagram of Configuration)

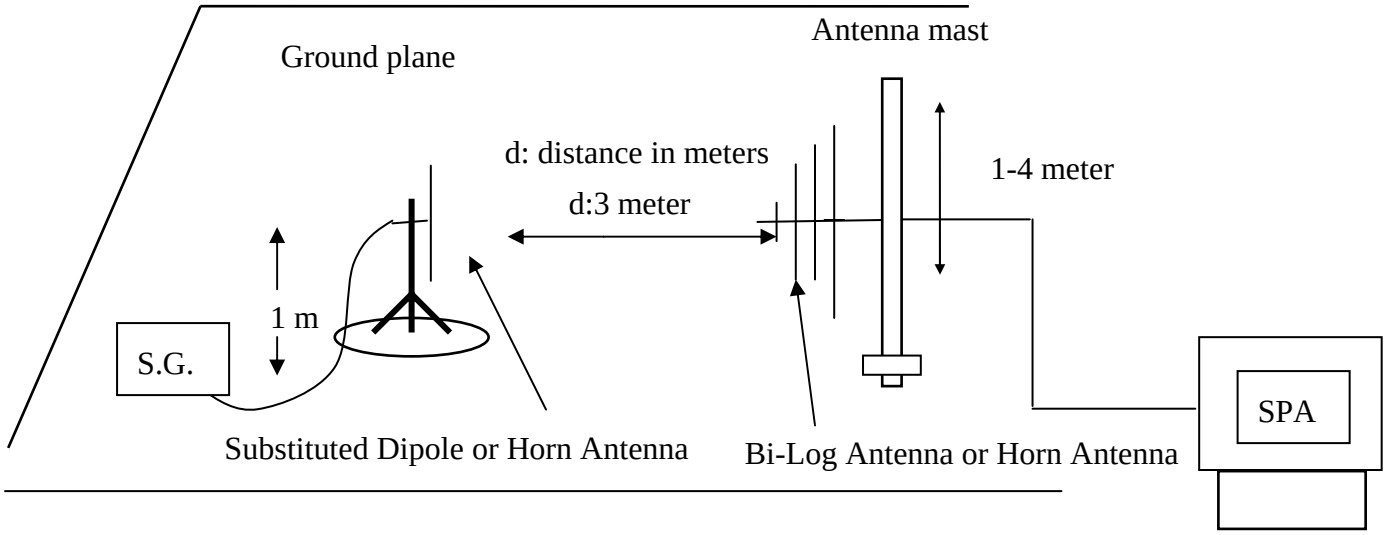
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



9.3 Measurement 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, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

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

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

9.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	US41160416	07/04/2007	07/03/2009
Bi-log Antenna	SCHWAZBECK	VULB9160	3224	11/29/2007	11/28/2008
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	03/14/2008	03/13/2009
Pre-Amplifier	HP	8447F	3113A06892	01/05/2008	01/04/2009
Pre-Amplifier	HP	8449B	3008A01973	01/05/2008	01/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	02/13/2008	02/12/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	02/13/2008	02/12/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	02/13/2008	02/12/2009
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008
Site NSA	SGS	10m Open-Site	N/A	10/02/2007	10/01/2008
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/10/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/10/2010

9.5 Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Low H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 824.20 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
87.23	66.81	V	-52.07	-7.75	0.60	-60.42	-13.00	-47.42
128.94	60.59	V	-56.12	-7.78	0.96	-64.87	-13.00	-51.87
824.00	63.96	V	-22.43	-7.87	3.62	-33.93	-13.00	-20.93
1648.40	82.57	V	-33.06	9.29	3.56	-27.34	-13.00	-14.34
2472.60	77.77	V	-35.80	10.08	4.42	-30.15	-13.00	-17.15
3296.80	59.87	V	-53.34	12.17	5.15	-46.33	-13.00	-33.33
4121.00	---	V		12.61	5.77		-13.00	
4945.20	---	V		12.65	6.40		-13.00	
5769.40	---	V		13.55	7.12		-13.00	
6593.60	---	V		12.05	7.73		-13.00	
7417.80	---	V		11.49	8.21		-13.00	
8242.00	---	V		11.48	8.84		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Low H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 824.20 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
111.48	64.35	H	-53.91	-7.77	0.91	-62.59	-13.00	-49.59
211.39	53.06	H	-60.46	-7.85	1.34	-69.66	-13.00	-56.66
824.00	75.95	H	-10.32	-7.87	3.62	-21.82	-13.00	-8.82
1648.40	89.35	H	-26.12	9.29	3.56	-20.40	-13.00	-7.40
2472.60	79.50	H	-33.68	10.08	4.42	-28.03	-13.00	-15.03
3296.80	58.75	H	-54.44	12.17	5.15	-47.42	-13.00	-34.42
4121.00	---	H		12.61	5.77		-13.00	
4945.20	---	H		12.65	6.40		-13.00	
5769.40	---	H		13.55	7.12		-13.00	
6593.60	---	H		12.05	7.73		-13.00	
7417.80	---	H		11.49	8.21		-13.00	
8242.00	---	H		11.48	8.84		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Mid H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 836.60 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
87.23	66.16	V	-52.72	-7.75	0.60	-61.07	-13.00	-48.07
110.51	63.68	V	-55.13	-7.77	0.91	-63.80	-13.00	-50.80
130.88	59.87	V	-56.62	-7.78	0.97	-65.37	-13.00	-52.37
1673.20	83.84	V	-31.81	9.36	3.59	-26.04	-13.00	-13.04
2509.80	77.01	V	-36.43	10.09	4.46	-30.80	-13.00	-17.80
3346.40	59.39	V	-53.78	12.28	5.19	-46.69	-13.00	-33.69
4183.00	---	V		12.62	5.82		-13.00	
5019.60	---	V		12.67	6.46		-13.00	
5856.20	---	V		13.68	7.21		-13.00	
6692.80	---	V		11.95	7.80		-13.00	
7529.40	---	V		11.45	8.27		-13.00	
8366.00	---	V		11.59	8.93		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Mid H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 836.60 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
114.39	64.61	H	-53.56	-7.77	0.92	-62.26	-13.00	-49.26
130.88	60.41	H	-57.28	-7.78	0.97	-66.03	-13.00	-53.03
1673.20	89.33	H	-26.15	9.36	3.59	-20.38	-13.00	-7.38
2509.80	76.42	H	-36.62	10.09	4.46	-30.99	-13.00	-17.99
3346.40	59.74	H	-53.44	12.28	5.19	-46.35	-13.00	-33.35
4183.00	---	H		12.62	5.82		-13.00	
5019.60	---	H		12.67	6.46		-13.00	
5856.20	---	H		13.68	7.21		-13.00	
6692.80	---	H		11.95	7.80		-13.00	
7529.40	---	H		11.45	8.27		-13.00	
8366.00	---	H		11.59	8.93		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH High H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 848.80 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
90.14	65.36	V	-53.89	-7.75	0.84	-62.48	-13.00	-49.48
130.88	60.05	V	-56.44	-7.78	0.97	-65.19	-13.00	-52.19
850.00	66.06	V	-20.05	-7.88	3.68	-31.61	-13.00	-18.61
1697.60	85.06	V	-30.61	9.44	3.61	-24.78	-13.00	-11.78
2546.40	74.23	V	-39.21	10.20	4.49	-33.51	-13.00	-20.51
3395.20	61.79	V	-51.34	12.38	5.23	-44.18	-13.00	-31.18
4244.00	---	V		12.63	5.87		-13.00	
5092.80	---	V		12.74	6.51		-13.00	
5941.60	---	V		13.81	7.31		-13.00	
6790.40	---	V		11.86	7.87		-13.00	
7639.20	---	V		11.40	8.36		-13.00	
8488.00	---	V		11.70	9.02		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH High H Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 848.80 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
114.39	64.47	H	-53.70	-7.77	0.92	-62.40	-13.00	-49.40
218.18	54.09	H	-59.54	-7.86	1.36	-68.76	-13.00	-55.76
850.00	77.04	H	-9.15	-7.88	3.68	-20.71	-13.00	-7.71
1697.60	88.63	H	-26.86	9.44	3.61	-21.04	-13.00	-8.04
2546.40	73.35	H	-39.71	10.20	4.49	-34.01	-13.00	-21.01
3395.20	59.02	H	-54.15	12.38	5.23	-46.99	-13.00	-33.99
4244.00	---	H		12.63	5.87		-13.00	
5092.80	---	H		12.74	6.51		-13.00	
5941.60	---	H		13.81	7.31		-13.00	
6790.40	---	H		11.86	7.87		-13.00	
7639.20	---	H		11.40	8.36		-13.00	
8488.00	---	H		11.70	9.02		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Low E2 Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 1850.20MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
121.18	62.26	V	-55.33	-7.78	0.94	-64.05	-13.00	-51.05
877.78	48.96	V	-53.72	-7.92	2.56	-64.21	-13.00	-51.21
940.83	50.02	V	-52.21	-7.99	2.67	-62.87	-13.00	-49.87
950.53	56.70	V	-45.61	-8.00	2.69	-56.31	-13.00	-43.31
1850.00	82.86	V	-21.53	9.90	5.56	-17.19	-13.00	-4.19
3700.40	81.46	V	-31.07	12.61	5.46	-23.92	-13.00	-10.92
5550.60	64.86	V	-42.89	13.23	6.88	-36.55	-13.00	-23.55
7400.80	54.09	V	-43.53	11.50	8.20	-40.23	-13.00	-27.23
9251.00	---	V		11.92	9.53		-13.00	
11101.20	---	V		11.66	10.53		-13.00	
12951.40	---	V		13.63	11.38		-13.00	
14801.60	---	V		12.76	12.26		-13.00	
16651.80	---	V		15.92	13.03		-13.00	
18502.00	---	V		18.75	7.03		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Low E2 Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 1850.20MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
116.33	66.51	H	-51.61	-7.77	0.93	-60.31	-13.00	-47.31
286.08	58.25	H	-56.32	-7.91	1.44	-65.68	-13.00	-52.68
877.78	53.15	H	-50.03	-7.92	2.56	-60.52	-13.00	-47.52
953.44	59.37	H	-42.43	-8.00	2.70	-53.13	-13.00	-40.13
1850.00	77.54	H	-26.64	9.90	5.56	-22.30	-13.00	-9.30
3700.40	76.70	H	-35.85	12.61	5.46	-28.70	-13.00	-15.70
5550.60	62.99	H	-44.57	13.23	6.88	-38.23	-13.00	-25.23
7400.80	60.84	H	-36.54	11.50	8.20	-33.24	-13.00	-20.24
9251.00	---	H		11.92	9.53		-13.00	
11101.20	---	H		11.66	10.53		-13.00	
12951.40	---	H		13.63	11.38		-13.00	
14801.60	---	H		12.76	12.26		-13.00	
16651.80	---	H		15.92	13.03		-13.00	
18502.00	---	H		18.75	7.03		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Mid E2 Mode
Fundamental Frequency : 1880MHz
Temperature : 25℃
Humidity : 65%

Test Date: Oct. 05, 2008
Test By: Jazz
Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
92.08	67.11	V	-52.29	-7.75	0.85	-60.89	-13.00	-47.89
111.48	64.17	V	-54.53	-7.77	0.91	-63.21	-13.00	-50.21
877.78	51.24	V	-51.44	-7.92	2.56	-61.93	-13.00	-48.93
950.53	57.99	V	-44.32	-8.00	2.69	-55.02	-13.00	-42.02
3760.00	77.71	V	-34.66	12.60	5.50	-27.56	-13.00	-14.56
4808.00	56.52	V	-52.48	12.65	6.30	-46.13	-13.00	-33.13
5640.00	63.02	V	-44.40	13.36	6.98	-38.03	-13.00	-25.03
7520.00	55.17	V	-41.80	11.45	8.26	-38.61	-13.00	-25.61
9400.00	---	V		11.93	9.61		-13.00	
11280.00	---	V		11.92	10.57		-13.00	
13160.00	---	V		13.33	11.53		-13.00	
15040.00	---	V		13.76	12.32		-13.00	
16920.00	---	V		15.27	13.14		-13.00	
18800.00	---	V		18.68	11.20		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Mid E2 Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 1880MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
116.33	66.72	H	-51.40	-7.77	0.93	-60.10	-13.00	-47.10
877.78	52.79	H	-50.39	-7.92	2.56	-60.88	-13.00	-47.88
950.53	57.47	H	-44.35	-8.00	2.69	-55.04	-13.00	-42.04
3760.00	78.81	H	-33.56	12.60	5.50	-26.46	-13.00	-13.46
5640.00	63.56	H	-43.69	13.36	6.98	-37.31	-13.00	-24.31
7520.00	56.12	H	-40.65	11.45	8.26	-37.45	-13.00	-24.45
9400.00	---	H		11.93	9.61		-13.00	
11280.00	---	H		11.92	10.57		-13.00	
13160.00	---	H		13.33	11.53		-13.00	
15040.00	---	H		13.76	12.32		-13.00	
16920.00	---	H		15.27	13.14		-13.00	
18800.00	---	H		18.68	11.20		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH High E2 Mode	Test Date:	Oct. 05, 2008
Fundamental Frequency	: 1909.8 MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
87.23	63.16	V	-55.72	-7.75	0.60	-64.07	-13.00	-51.07
128.94	61.66	V	-55.05	-7.78	0.96	-63.80	-13.00	-50.80
950.53	54.53	V	-47.78	-8.00	2.69	-58.48	-13.00	-45.48
1910.00	77.41	V	-26.92	10.08	5.66	-22.50	-13.00	-9.50
3981.60	79.85	V	-31.96	12.60	5.67	-25.02	-13.00	-12.02
4808.00	56.78	V	-52.22	12.65	6.30	-45.87	-13.00	-32.87
5972.40	65.56	V	-40.64	13.86	7.34	-34.12	-13.00	-21.12
7963.20	54.54	V	-40.91	11.27	8.64	-38.27	-13.00	-25.27
9954.00	---	V		12.08	9.85		-13.00	
11944.80	---	V		13.08	10.94		-13.00	
13935.60	---	V		11.82	11.94		-13.00	
15926.40	---	V		17.08	12.51		-13.00	
17917.20	---	V		9.63	13.58		-13.00	
19908.00	---	V		18.88	14.32		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH High E2 Mode
Fundamental Frequency : 1909.8 MHz
Temperature : 25℃
Humidity : 65%

Test Date: Oct. 05, 2008
Test By: Jazz
Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
109.54	64.27	H	-54.05	-7.77	0.91	-62.72	-13.00	-49.72
128.94	58.54	H	-59.20	-7.78	0.96	-67.95	-13.00	-54.95
938.89	50.30	H	-51.72	-7.99	2.67	-62.38	-13.00	-49.38
1910.00	77.36	H	-26.75	10.08	5.66	-22.33	-13.00	-9.33
3814.00	79.50	H	-32.71	12.60	5.54	-25.65	-13.00	-12.65
3981.60	---	H		12.60	5.67		-13.00	
5718.00	65.14	H	-41.84	13.48	7.07	-35.43	-13.00	-22.43
5972.40	---	H		13.86	7.34		-13.00	
7629.00	58.74	H	-37.63	11.41	8.35	-34.57	-13.00	-21.57
7963.20	---	H		11.27	8.64		-13.00	
9954.00	---	H		12.08	9.85		-13.00	
11944.80	---	H		13.08	10.94		-13.00	
13935.60	---	H		11.82	11.94		-13.00	
15926.40	---	H		17.08	12.51		-13.00	
17917.20	---	H		9.63	13.58		-13.00	
19908.00	---	H		18.88	14.32		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

10. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

10.1 Standard Applicable

According to FCC §2.1055(a)(1).

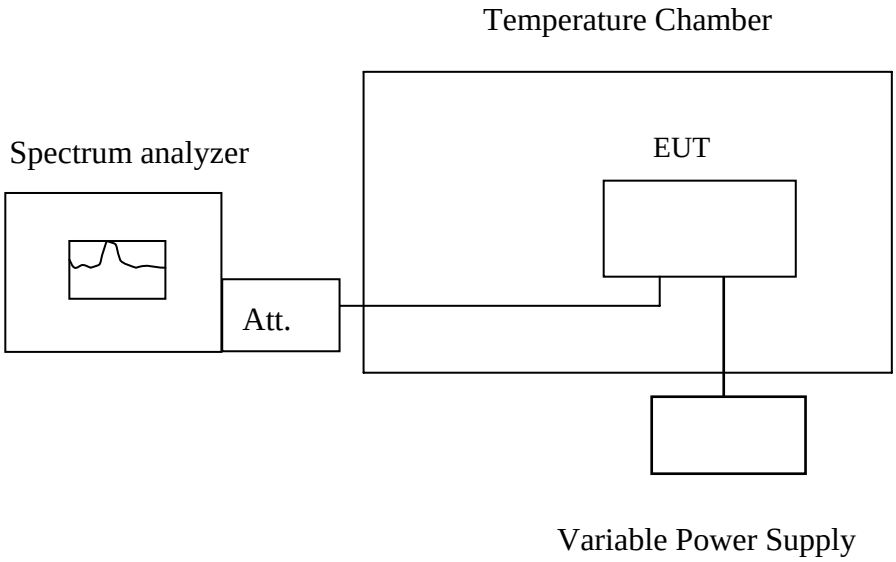
Frequency Tolerance: +/-2.5 ppm for 850MHz band

+/-2.5 ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

10.2 Test Set-up:



Note : Measurement setup for testing on Antenna connector

10.3 Measurement 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 25°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.

10.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Power Sensor	Anritsu	MA2490A	31431	07/07/2007	07/06/2009
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2008	02/12/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2008	07/04/2009
Splitter	Agilent	11636B	51818 / 51820	07/05/2008	07/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2007	06/26/2009

10.5 Measurement Result

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	-30	836.599981	10.00	2091
3.7	-20	836.599972	19.00	2091
3.7	-10	836.599997	-6.00	2091
3.7	0	836.600001	-10.00	2091
3.7	10	836.599994	-3.00	2091
3.7	20	836.599991	0.00	2091
3.7	30	836.600002	-11.00	2091
3.7	40	836.599994	-3.00	2091
3.7	50	836.599997	-6.00	2091

Reference Frequency: GPRS Mid Channel 1880 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	-30	1879.999991	-6.00	4700
3.7	-20	1879.999988	-3.00	4700
3.7	-10	1879.999996	-11.00	4700
3.7	0	1879.999994	-9.00	4700
3.7	10	1879.999993	-8.00	4700
3.7	20	1879.999985	0.00	4700
3.7	30	1879.999983	2.00	4700
3.7	40	1879.999989	-3.80	4700
3.7	50	1879.999982	3.00	4700

Note: The battery is rated 3.7V dc.

11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

11.1 Standard Applicable

According to FCC §2.1055(d)(1)

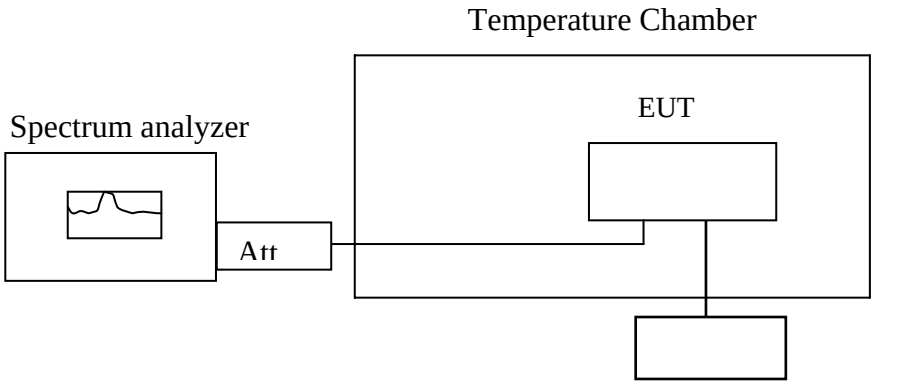
Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

11.2 Test Set-up:



Note: *Measurement setup for t*

11.3 Measurement Procedure

Set chamber temperature to 25℃. 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 specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

11.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2007	07/03/2009
Power Sensor	Anritsu	MA2490A	31431	07/07/2007	07/06/2009
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2008	02/12/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2008	07/04/2009
Splitter	Agilent	11636B	51818 / 51820	07/05/2008	07/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2007	06/26/2009

11.5 Measurement Result

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.70	25.00	836.599991	0.00	2091.00
4.10	25.00	836.599986	5.00	2091.00
3.60	25.00	836.599987	4.00	2091.00
3.60 (End Point)	25.00	836.599995	-4.00	2091.00

Reference Frequency: GPRS Mid Channel 1880 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.70	25	1879.999985	0.00	4700
4.10	25	1879.999988	-3.00	4700
3.60	25	1879.999994	-9.00	4700
3.60 (Endpoint)	25	1879.999990	-5.00	4700

12. AC POWER LINE CONDUCTED EMISSION TEST

12.1 Standard Applicable

According to §15.207. The emission value for frequency within 150KHz to 30MHz shall not exceed criteria of below chart.

Frequency range MHz	Limits dB(uV)	
	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
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

12.2 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
2. The EUT was plug-in DC power adaptort and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 110Vac/60Hz power source.

12.3 Measurement 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.

12.4 Measurement Equipment Used:

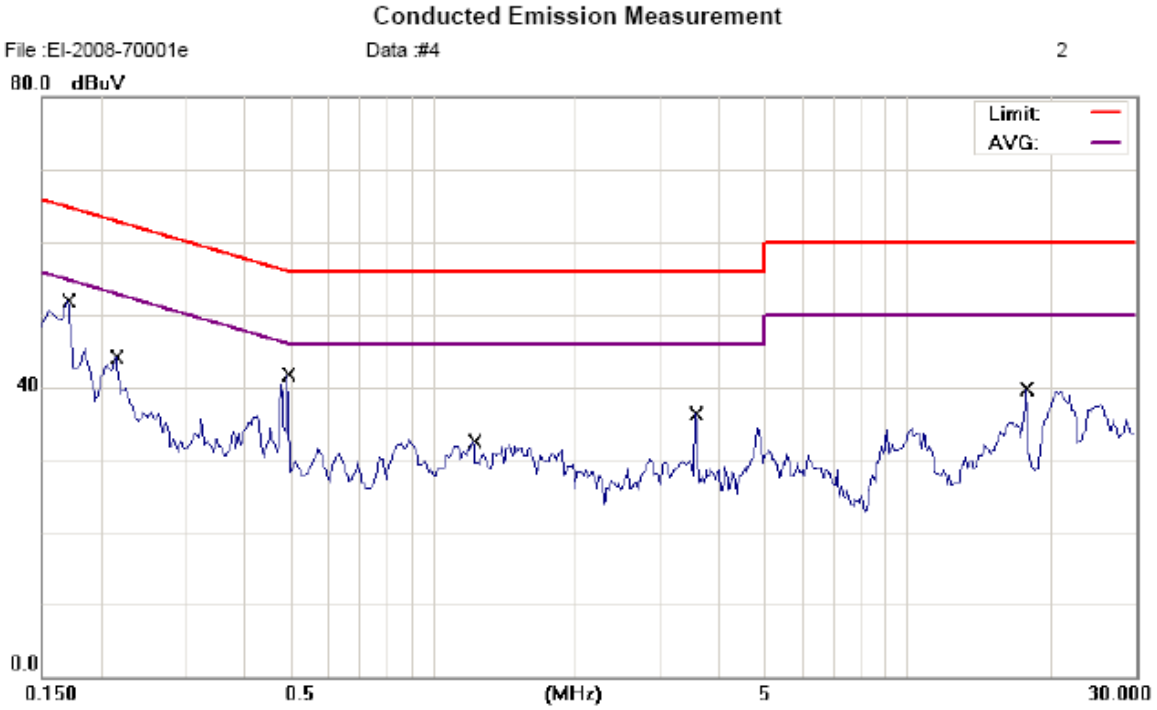
Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	828985/004	09/15/2008	09/14/2009
LISN	Rolf-Heine	NNB-2/16Z	99012	02/18/2008	02/17/2009
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/18/2008	02/17/2009
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2007	10/29/2008

12.5 Measurement Result

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.

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GPRS 850 LINK			Test Date:	Sep. 20, 2008
Temperature:	25 ℃	Humidity:	59 %	Test By:	Jazz



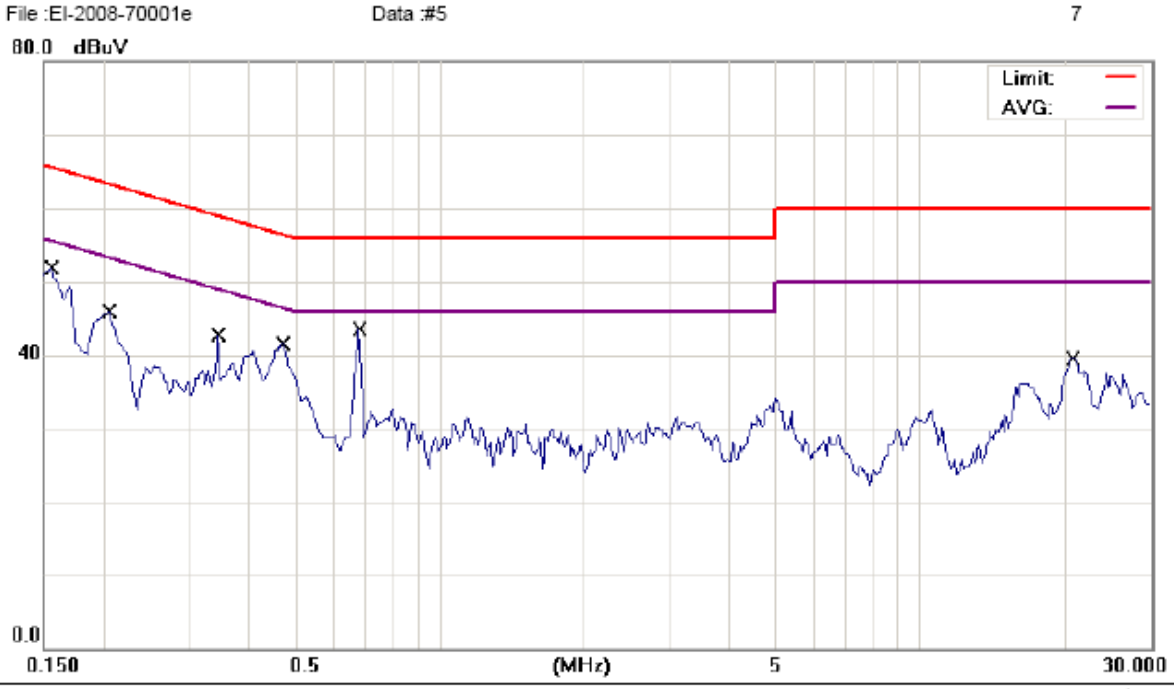
Site SGS CONDUCTED #1
Limit: CISPR22/11 Class B Conduction(QP)
EUT: OTD
M/N:
Note: GSM 850 LINK

Phase: *L1*
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 59 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1700	51.64	0.29	51.93	64.96	-13.03	QP	
2		0.2150	43.99	0.14	44.13	63.01	-18.88	QP	
3		0.4950	41.71	0.05	41.76	56.08	-14.32	QP	
4		1.2200	32.52	0.03	32.55	56.00	-23.45	QP	
5		3.5750	36.35	0.04	36.39	56.00	-19.61	QP	
6		17.7600	39.45	0.19	39.64	60.00	-20.36	QP	

Conducted Emission Measurement



Site SGS CONDUCTED #1
Limit: CISPR22/11 Class B Conduction(QP)
EUT: OTD
M/N:
Note: GSM 850 LINK

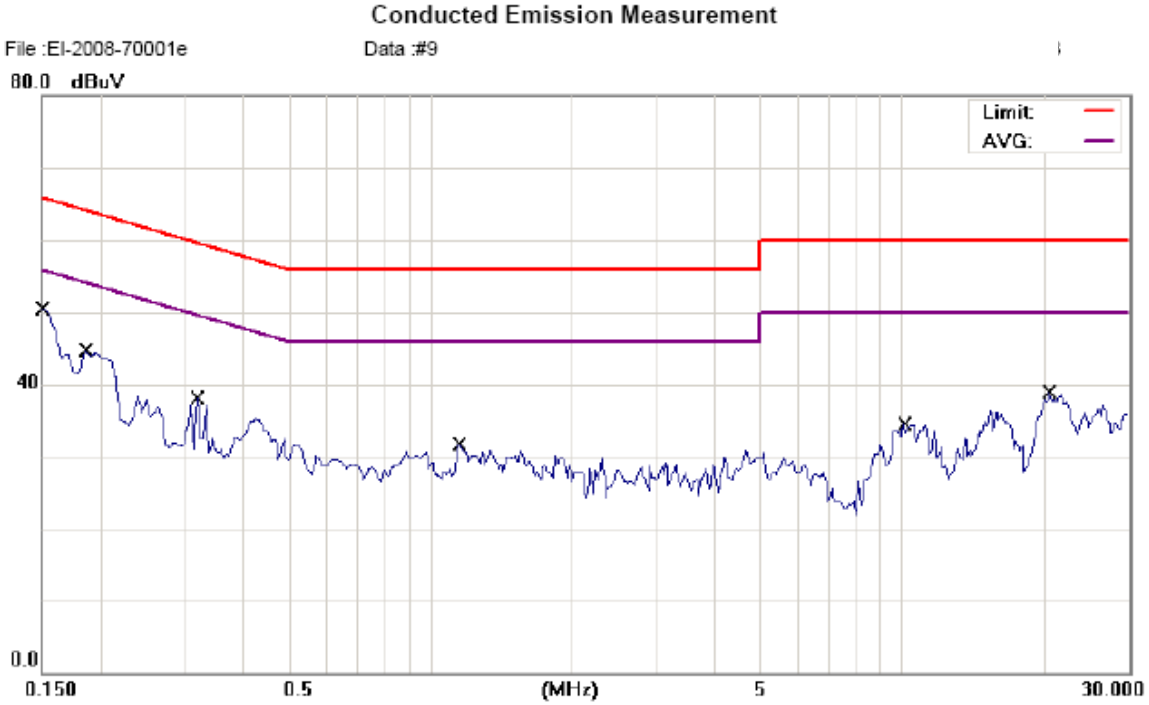
Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 59 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1550	51.45	0.37	51.82	65.73	-13.91	QP	
2		0.2050	45.81	0.14	45.95	63.41	-17.46	QP	
3		0.3450	42.59	0.10	42.69	59.08	-16.39	QP	
4		0.4700	41.44	0.06	41.50	56.51	-15.01	QP	
5	*	0.6800	43.49	0.04	43.53	56.00	-12.47	QP	
6		20.7200	39.42	0.17	39.59	60.00	-20.41	QP	

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GPRS 1900 Link			Test Date:	Sep. 20, 2008
Temperature:	25 ℃	Humidity:	59 %	Test By:	Jazz



Site SGS CONDUCTED #1
Limit: CISPR22/11 Class B Conduction(QP)
EUT: OTD
M/N:
Note: GSM 1900 LINK

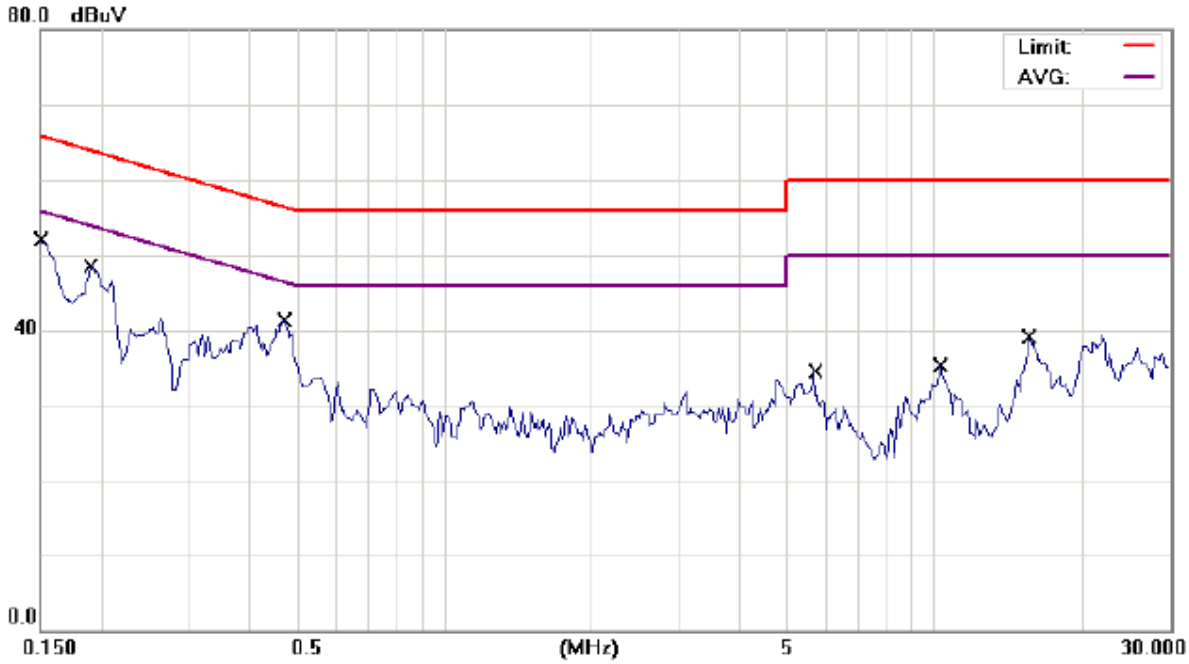
Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 59 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	50.16	0.41	50.57	66.00	-15.43	QP	
2		0.1850	44.42	0.24	44.66	64.26	-19.60	QP	
3		0.3200	38.04	0.12	38.16	59.71	-21.55	QP	
4		1.1450	31.69	0.04	31.73	56.00	-24.27	QP	
5		10.1200	34.33	0.10	34.43	60.00	-25.57	QP	
6		20.5400	38.69	0.16	38.85	60.00	-21.15	QP	

Conducted Emission Measurement

File :EI-2008-70001e Data :#8



Site SGS CONDUCTED #1 Phase: N Temperature: 25 ℃
Limit: CISPR22/11 Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 59 %
EUT: OTD Distance: Air Pressure: hpa
M/N:
Note: GSM 1900 LINK

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	51.65	0.40	52.05	66.00	-13.95	QP	
2		0.1900	48.22	0.19	48.41	64.04	-15.63	QP	
3		0.4700	41.30	0.06	41.36	56.51	-15.15	QP	
4		5.7000	34.40	0.09	34.49	60.00	-25.51	QP	
5		10.2800	35.21	0.19	35.40	60.00	-24.60	QP	
6		15.6200	38.81	0.23	39.04	60.00	-20.96	QP	

13. SPURIOUS RADIATED EMISSION TEST (RX)

13.1 Standard Applicable

According to RSS 132 §4.6, all spurious emissions shall comply with the limits of Table 2. The resolution bandwidth of the spectrum analyzer shall be 100 kHz for spurious emissions measurements below 1.0 GHz, and 1.0 MHz for measurements above 1.0 GHz.

Frequency (MHz)	Field strength μV/m	Distance (m)	Field strength at 3m dBμV/m
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

According to RSS 133 §6.6, Receiver spurious emissions shall comply with the limits specified in RSS-Gen.

13.2 EUT Setup

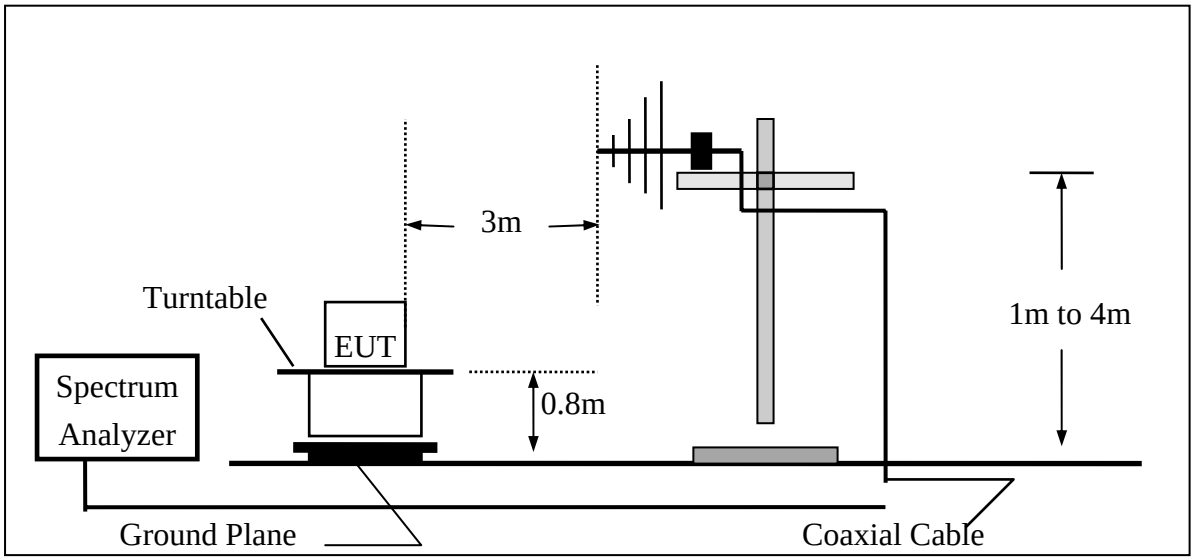
1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4-2003.
2. The EUT was put in the front of the test table. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The spacing between the peripherals was 10 centimeters.
4. External I/O cables were draped along the edge of the test table and bundle when necessary.
5. The host was connected with 110Vac/60Hz power source.

13.3 Measurement Procedure

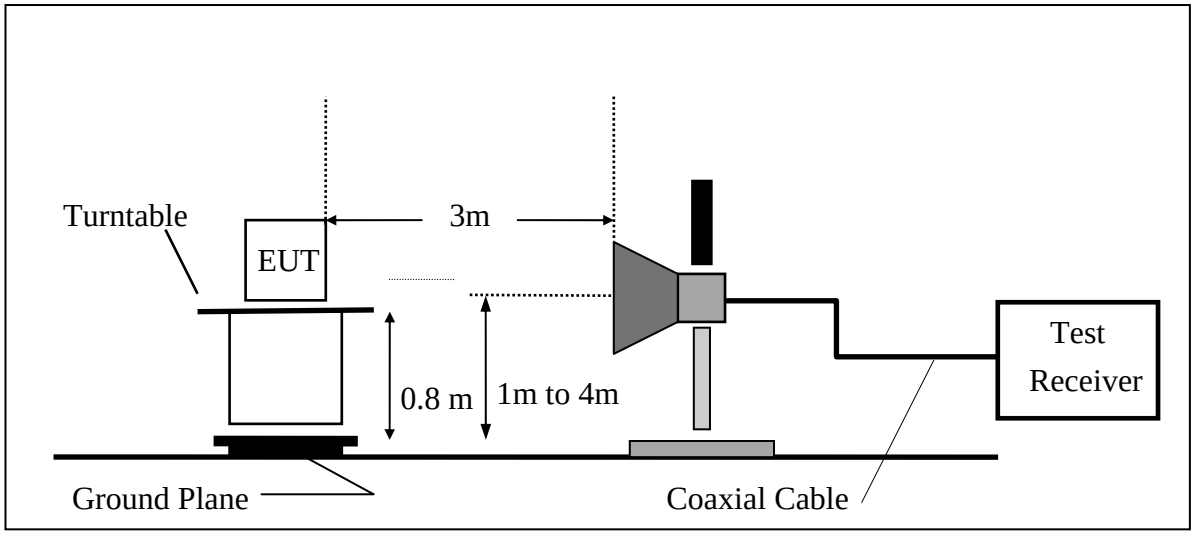
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

13.4 Test SET-UP (Block Diagram of Configuration)

Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



13.5 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	US41160416	07/04/2007	07/03/2009
Bi-log Antenna	SCHWAZBECK	VULB9160	3224	11/29/2007	11/28/2008
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	03/14/2008	03/13/2009
Pre-Amplifier	HP	8447F	3113A06892	01/05/2008	01/04/2009
Pre-Amplifier	HP	8449B	3008A01973	01/05/2008	01/04/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2009
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	02/13/2008	02/12/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	02/13/2008	02/12/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	02/13/2008	02/12/2009
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008

13.6 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

13.7 Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	58.11	-26.67	31.44	40.00	-8.56
85.29	V	Peak	58.54	-30.75	27.79	40.00	-12.21
159.98	V	Peak	45.80	-26.99	18.81	43.50	-24.69
36.79	H	Peak	50.02	-25.94	24.08	40.00	-15.92
133.79	H	Peak	46.45	-28.02	18.43	43.50	-25.07

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz.

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	58.15	-26.67	31.48	40.00	-8.52
85.29	V	Peak	58.36	-30.75	27.61	40.00	-12.39
322.94	V	Peak	45.80	-27.76	18.04	46.00	-27.96
31.94	H	Peak	50.44	-26.05	24.39	40.00	-15.61
133.79	H	Peak	46.69	-28.02	18.67	43.50	-24.83
308.39	H	Peak	44.02	-28.10	15.92	46.00	-30.08

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 850 E1 Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	58.21	-26.67	31.54	40.00	-8.46
85.29	V	Peak	58.17	-30.75	27.42	40.00	-12.58
237.58	V	Peak	47.25	-29.94	17.31	46.00	-28.69
36.79	H	Peak	50.46	-25.94	24.52	40.00	-15.48
153.19	H	Peak	45.37	-26.97	18.40	43.50	-25.10
381.14	H	Peak	43.57	-26.48	17.09	46.00	-28.91

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1648.4	42.35	---	-13.76	28.59	---	74.00	54.00	-25.41	Peak
2472.6	--								
3296.8	--								
4121.0	--								
4817.5	46.88	---	-5.98	40.90	---	74.00	54.00	-13.10	Peak
4945.2	--								
5769.4	--								
6593.6	--								
7417.8	--								
8242.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1648.4	42.44	---	-13.76	28.68	---	74.00	54.00	-25.32	Peak
2472.6	--								
3296.8	49.13	---	-10.37	38.76	---	74.00	54.00	-15.24	Peak
4121.0	--								
4817.5	51.82	---	-5.98	45.84	---	74.00	54.00	-8.16	Peak
4945.2	--								
5769.4	--								
6593.6	--								
7417.8	--								
8242.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1673.2	42.44	---	-13.72	28.72	---	74.00	54.00	-25.28	Peak
2509.8	--								
3346.4	--								
4183.0	--								
4817.5	46.68	---	-5.98	40.70	---	74.00	54.00	-13.30	Peak
5019.6	--								
5856.2	--								
6692.8	--								
7529.4	--								
8366.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1673.2	43.28	---	-13.72	29.56	---	74.00	54.00	-24.44	Peak
2509.8	--								
3346.4	--								
4183.0	--								
4817.5	51.34	---	-5.98	45.36	---	74.00	54.00	-8.64	Peak
5019.6	--								
5856.2	--								
6692.8	--								
7529.4	--								
8366.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1697.6	42.89	---	-13.63	29.26	---	74.00	54.00	-24.74	Peak
2546.4	--								
3395.2	--								
4244.0	--								
4817.5	46.53	---	-5.98	40.55	---	74.00	54.00	-13.45	Peak
5092.8	--								
5941.6	--								
6790.4	--								
7639.2	--								
8488.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 850 E1 Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
1697.6	42.82	---	-13.63	29.19	---	74.00	54.00	-24.81	Peak
2546.4	--								
3395.2	--								
4244.0	--								
4817.5	52.18	---	-5.98	46.20	---	74.00	54.00	-7.80	Peak
5092.8	--								
5941.6	--								
6790.4	--								
7639.2	--								
8488.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 1900 H Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	57.83	-26.67	31.16	40.00	-8.84
85.29	V	Peak	58.42	-30.75	27.67	40.00	-12.33
30.00	H	Peak	50.43	-26.11	24.32	40.00	-15.68
85.29	H	Peak	51.61	-30.75	20.86	40.00	-19.14
150.28	H	Peak	45.04	-26.97	18.07	43.50	-25.43

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 1900 H Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	58.56	-26.67	31.89	40.00	-8.11
85.29	V	Peak	58.48	-30.75	27.73	40.00	-12.27
153.19	V	Peak	46.89	-26.97	19.92	43.50	-23.58
36.79	H	Peak	49.14	-25.94	23.20	40.00	-16.80
159.98	H	Peak	46.07	-26.99	19.08	43.50	-24.42

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	GPRS 1900 H Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
58.13	V	Peak	58.52	-26.67	31.85	40.00	-8.15
85.29	V	Peak	58.70	-30.75	27.95	40.00	-12.05
36.79	H	Peak	49.94	-25.94	24.00	40.00	-16.00
85.29	H	Peak	51.26	-30.75	20.51	40.00	-19.49
155.13	H	Peak	46.07	-26.98	19.09	43.50	-24.41

Remark：

(1) Measuring frequencies from 30 MHz to the 1GHz。

(2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/AV detector mode.

(3) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
3700.4	43.43	---	-8.82	34.61	---	74.00	54.00	-19.39	Peak
4817.5	47.01	---	-5.98	41.03	---	74.00	54.00	-12.97	Peak
5550.6	--								
7400.8	--								
9251.0	--								
11101.2	--								
12951.4	--								
14801.6	--								
16651.8	--								
18502.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH Low	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
3700.4	42.96	---	-8.82	34.14	---	74.00	54.00	-19.86	Peak
5550.6	--								
7400.8	--								
9251.0	--								
11101.2	--								
12951.4	--								
14801.6	--								
16651.8	--								
18502.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
3130.0	48.37	---	-10.37	38.00	---	74.00	54.00	-16.00	Peak
3760.0	42.91	---	-8.53	34.38	---	74.00	54.00	-19.62	Peak
5640.0	--								
7520.0	--								
9400.0	--								
11280.0	--								
13160.0	--								
15040.0	--								
16920.0	--								
18800.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH Mid	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
3130.0	46.77	---	-10.37	36.40	---	74.00	54.00	-17.60	Peak
3760.0	43.56	---	-8.53	35.03	---	74.00	54.00	-18.97	Peak
5640.0	--								
7520.0	--								
9400.0	--								
11280.0	--								
13160.0	--								
15040.0	--								
16920.0	--								
18800.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	
3819.6	43.13	---	-8.59	34.54	---	74.00	54.00	-19.46	Peak
5729.4	--								
7639.2	--								
9549.0	--								
11458.8	--								
13368.6	--								
15278.4	--								
17188.2	--								
19098.0	--								

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	GPRS 1900 H Plan CH High	Test Date	Oct. 05, 2008
Fundamental Frequency	N/A	Test By	Jazz
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

	Peak	AV		Actual FS		Peak	AV	
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)
3819.6	44.05	---	-8.59	35.46	---	74.00	54.00	-18.54
5729.4	--							
7639.2	--							
9549.0	--							
11458.8	--							
13368.6	--							
15278.4	--							
17188.2	--							
19098.0	--							

Remark：

(1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency。

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column。

(4) Spectrum Peak Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 1MHz, Sweep time= 200 ms.

(5) Spectrum AV Setting : 1GHz- 13GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.