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

TEST REPORT

For

TERMINAL

Model: 9600

Trade Name: CIPHERLAB

Issued to

Cipherlab Co., Ltd.
12F, 333 Dunhua S. Rd., Sec.2,
Taipei, Taiwan R.O.C.

Issued by

Compliance Certification Services Inc.
No. 11, Wu-Gong 6th Rd., Wugu Industrial Park,
Taipei Hsien 248, Taiwan (R.O.C.)
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Testing Laboratory
1309

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1. TEST RESULT CERTIFICATION

Applicant: Cipherlab Co., Ltd.
12F, 333 Dunhua S. Rd., Sec.2,
Taipei, Taiwan R.O.C.

Equipment Under Test: TERMINAL

Trade Name: CIPHERLAB

Model Number: 9600

Date of Test: August 26 ~ September 21, 2009

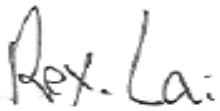
APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	No non-compliance noted

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 TIA/EIA-603-C: 2004 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.

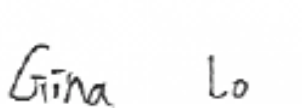
The test results of this report relate only to the tested sample identified in this report.

Approved by:



Rex Lai
Section Manager
Compliance Certification Services Inc.

Reviewed by:



Gina Lo
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	TERMINAL
Trade Name	CIPHERLAB
Model Number	9600
Model Discrepancy	N/A
Power Supply	1. Powered from Power Adapter ADAPTER TECH / STD-05030V I/P: 100-240V, 47-63Hz, 0.48A MAX O/P: 5V, 3A, 15W MAX 2. Powered from Battery Rating: 3.7V, 2700mAh
Frequency Range	EGPRS 850: 824 ~ 849 MHz EGPRS 1900: 1850 ~ 1910 MHz
Transmit Power (ERP & EIRP Power)	EGPRS 850 MHz: 20.21 dBm EGPRS 1900 MHz: 19.50 dBm
Conducted Output Power	EGPRS 850 MHz: 27.20 dBm EGPRS 1900 MHz: 26.30 dBm
Modulation Technique	8PSK
Type of Emission	EGPRS 850MHz: 244KG7W--- EGPRS 1900MHz: 248KG7W---
Antenna Gain	EGPRS 850 MHz: -3.75 dBi EGPRS 1900 MHz: -2.08 dBi
Antenna Type	Monopole 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: **Q3N-9600** 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: 2003, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2, PART 22 SUBPART H AND PART 24 SUBPART E

3.1EUT 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.

3.2EUT EXERCISE

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

3.3GENERAL 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: 2003.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: 2003.

3.4DESCRIPTION OF TEST MODES

The EUT (model: 9600) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

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

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

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.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

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.

4.2MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY43360131	02/23/2010
Power Meter	Agilent	E4416A	GB41291611	04/05/2010
Power Sensor	Agilent	E9327A	US40441097	06/18/2010
Temp. / Humidity Chamber	Terchy	MHG-150LF	930619	08/05/2010
DC Power Source	Agilent	E3640A	MY40001774	01/09/2010

3M Semi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510252	10/26/2009
Test Receiver	Rohde & Schwarz	ESCI	100064	11/30/2009
Switch Controller	TRC	Switch Controller	SC94050010	05/02/2010
4 Port Switch	TRC	4 Port Switch	SC94050020	05/02/2010
Horn-Antenna	TRC	HA-0502	06	06/03/2010
Horn-Antenna	TRC	HA-0801	04	06/18/2010
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/27/2010
Loop Antenna	EMCO	6502	8905/2356	05/28/2010
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC MRA: TW1039 IC: IC 2324G-1/-2	10/17/2010 11/04/2010
Reject Filter	Micro-Tronics	HPM13194	003	04/23/2010
S.G.	HP	83630B	3844A01022	04/16/2010
Substituted Dipole	Schwazbeck	VHAP/UHAP	998 +999/ 981+982	06/08/2010
Substituted Horn	EMCO	3115	00022257	12/16/2009
Test S/W	LABVIEW (V 6.1)			

Powerline Conducted Emissions Test Site # 3				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCS30	845552/030	05/18/2010
LISN	R&S	ENV216	100074	12/09/2009
LISN	FCC	FCC-LISN-50/250-16 -2-07	06013	10/12/2009
ISN	FCC	FCC-TLISN-T2-02	20587	06/21/2010
ISN	FCC	FCC-TLISN-T8-02	20588	06/21/2010
Current Probe	FCC	F-35	506	06/29/2010
Telecom ISN	FCC	FCC-TLISN-T2-PLC	20491	12/28/2009
Test S/W	LabVIEW 6.1 (CCS Conduction Test SW Version_01)			

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.78
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	+/-3.7046
3M Semi Anechoic Chamber / Above 1GHz	+/-3.0958

***Remark**: 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.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

***Remark**: The powerline conduced emissions test items was tested at Compliance Certification Services Inc. (Linkou Lab.) The test equipments were listed in page 8 and the test data, please refer page 51-52.*

The sites are constructed in conformance with the requirements of ANSI C63.7, 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.”

5.3TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	IC 2324G-1 IC 2324G-2

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6. SETUP OF EQUIPMENT UNDER TEST

6.1SETUP CONFIGURATION OF EUT

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

6.2SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
1.	PC	HP	PL926AV	SGH528048P	FCC DoC	N/A	Unshielded, 1.8m
2.	LCD Monitor	SAMSUNG	959NF	AQ19H2RT706126P	FCC DoC	Shielded, 1.8m with 2 cores	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
3.	Printer	EPSON	B241A	FAPY150357	FCC DoC	Shielded, 1.8m	Unshielded, 1.8m
4.	USB Keyboard	DELL	Sk-8115	N/A	FCC DoC	Shielded, 1.8m	N/A
5.	USB Mouse	HP	MO19UCA	20440964	FCC DoC	Shielded, 1.8m	N/A
6.	Modem	ACEEX	DM-1414	304012269	IFAXDM1414	Shielded, 1.8m	Unshielded, 1.8m
7.	Earphone	LABTEC	980180-0121	N/A	FCC DoC	Unshielded, 1.8m	N/A
8.	SIM Card	N/A	N/A	N/A	N/A	N/A	N/A
9.	SD Card	SANDISK	N/A	AA0312MX	N/A	N/A	N/A
10.	Super a/g 108Mbps Wireless Lan Router (Remote)	PLANEX	BLW-04SAG	40DDA0421	SJ9-BLW54SAG	N/A	Unshielded, 1.8m
11	Universal Radio Communication Tester (Remote)	R&S	CMU200	1100.000.8.02	N/A	N/A	Unshielded, 1.8m
12	GPS Simulator (Remote)	HWAJEAT	GPS-101	EN001	N/A	N/A	N/A
13	Magnetic Card (Remote)	N/A	N/A	N/A	N/A	N/A	N/A
14	Notebook PC (Remote)	DELL	PP10L	50XP51J	FCC DoC	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

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.*

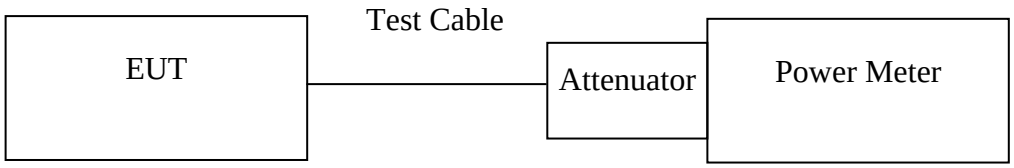
7. FCC PART 22 & 24 REQUIREMENTS

7.1PEAK 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)	Output Power (W)
EGPRS 850 (Class 12)	128	824.20	27.10	0.51286
	190	836.60	27.20	0.52481
	251	848.80	26.90	0.48978

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
EGPRS 1900 (Class 12)	512	1850.20	26.30	0.42658
	661	1880.00	26.10	0.40738
	810	1910.00	26.20	0.41687

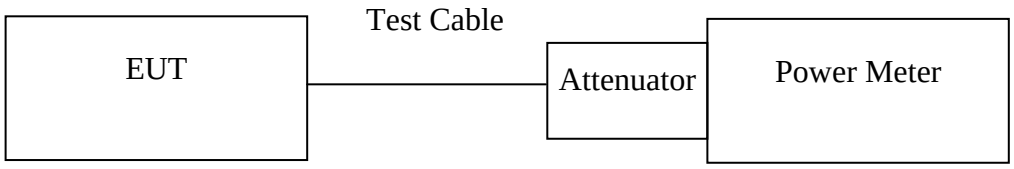
Remark: *The value of factor includes both the loss of cable and external attenuator*

7.2AVERAGE 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)	Output Power (W)
EGPRS 850 (Class 12)	128	824.20	27.00	0.50119
	190	836.60	27.10	0.51286
	251	848.80	26.80	0.47863

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

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power (W)
EGPRS 1900 (Class 12)	512	1850.20	25.90	0.38905
	661	1880.00	26.00	0.39811
	810	1910.00	26.00	0.39811

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

7.1ERP & EIRP MEASUREMENT

LIMIT

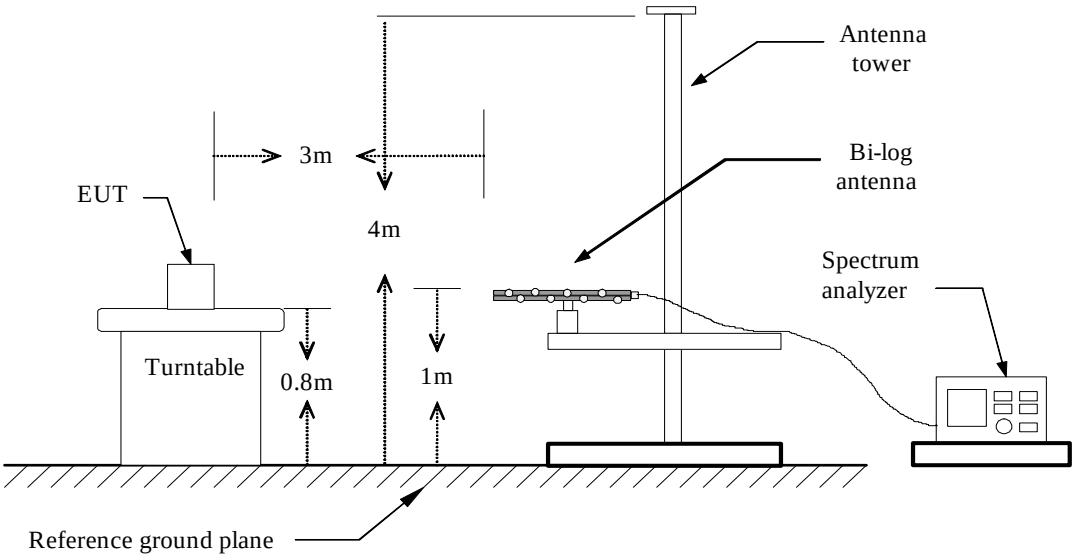
According to FCC §2.1046

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

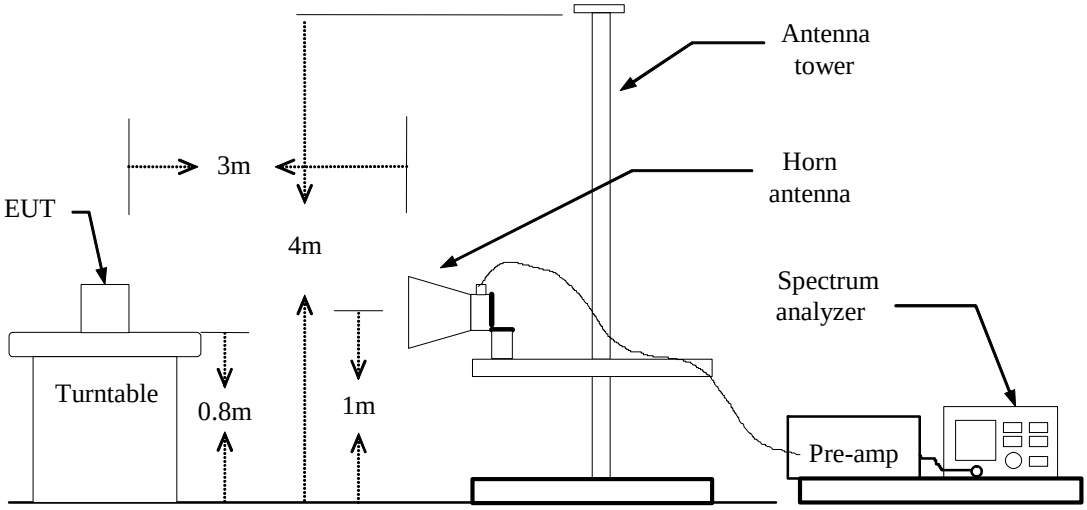
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

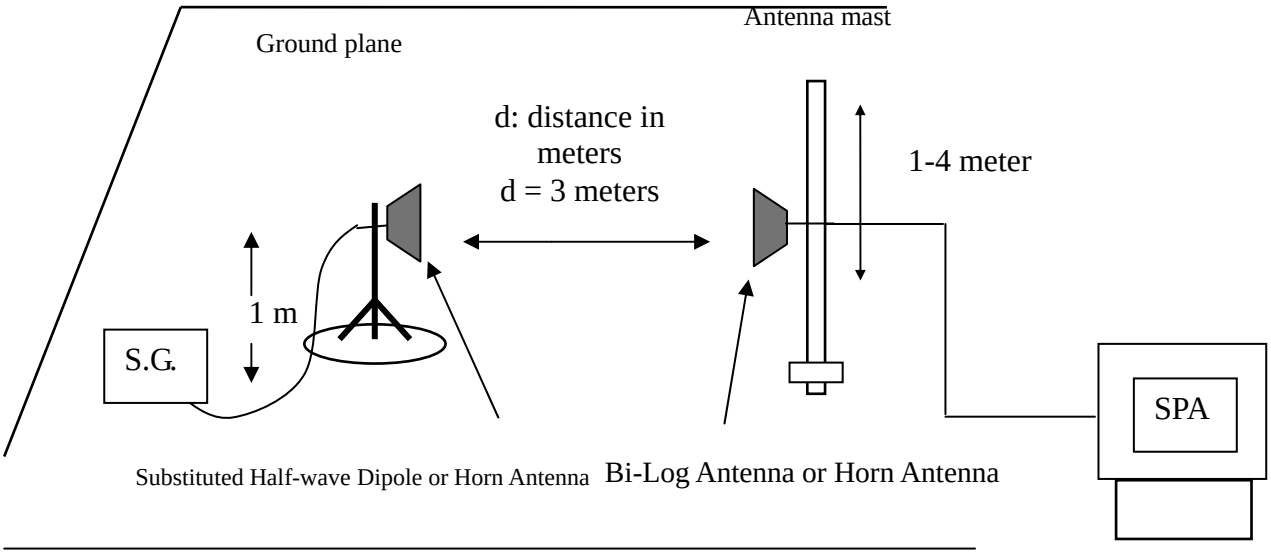
Below 1 GHz



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.

EGPRS 850 TEST DATA (CLASS 12)

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
X	128	824.20	V	-25.87	34.62	8.74	38.50	-29.76
		824.20	H	-22.79	34.65	11.85	38.50	-26.65
	190	836.60	V	-23.79	34.53	10.74	38.50	-27.76
		836.60	H	-16.09	34.63	18.54	38.50	-19.96
	251	848.80	V	-23.23	34.63	11.41	38.50	-27.09
		848.80	H	-15.96	34.75	18.79	38.50	-19.71
Y	128	824.20	V	-19.26	34.62	15.36	38.50	-23.14
		824.20	H	-14.53	34.65	20.12	38.50	-18.38
	190	836.60	V	-18.26	34.53	16.26	38.50	-22.24
		836.60	H	-16.16	34.63	18.48	38.50	-20.02
	251	848.80	V	-17.88	34.64	16.76	38.50	-21.74
		848.80	H	-16.77	34.75	17.98	38.50	-20.52
Z	128	824.20	V	-14.54	34.62	20.08	38.50	-18.42
		824.20	H	-18.26	34.65	16.39	38.50	-22.11
	190	836.60	V	-14.31	34.53	***20.21**	38.50	-18.29
		836.60	H	-18.89	34.63	15.75	38.50	-22.75
	251	848.80	V	-14.66	34.64	19.97	38.50	-18.53
		848.80	H	-19.12	34.75	15.63	38.50	-22.87

EGPRS 1900 TEST DATA (CLASS 12)

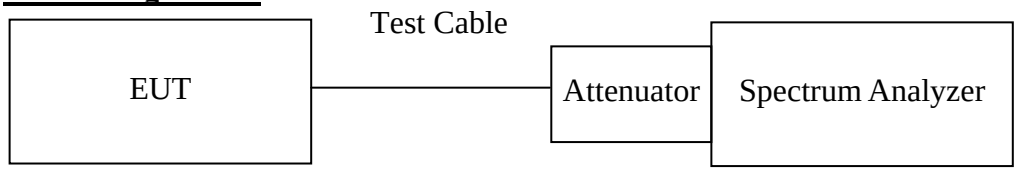
EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
X	512	1850.20	V	-29.88	41.17	11.29	33.00	-21.71
		1850.20	H	-22.43	40.79	18.36	33.00	-14.64
	661	1880.00	V	-29.34	41.23	11.89	33.00	-21.11
		1880.00	H	-22.70	41.14	18.44	33.00	-14.56
	810	1909.80	V	-29.57	41.30	11.73	33.00	-21.27
		1909.80	H	-23.47	41.38	17.90	33.00	-15.10
Y	512	1850.20	V	-22.41	41.17	18.76	33.00	-14.24
		1850.20	H	-26.50	40.79	14.29	33.00	-18.71
	661	1880.00	V	-21.73	41.23	***19.50**	33.00	-13.50
		1880.00	H	-26.30	41.14	14.84	33.00	-18.16
	810	1909.80	V	-22.65	41.30	18.66	33.00	-14.34
		1909.80	H	-26.14	41.38	15.24	33.00	-17.76
Z	512	1850.20	V	-31.12	41.17	10.05	33.00	-22.95
		1850.20	H	-31.42	40.79	9.38	33.00	-23.62
	661	1880.00	V	-32.33	41.23	8.90	33.00	-24.10
		1880.00	H	-33.01	41.14	8.14	33.00	-24.86
	810	1909.80	V	-32.93	41.30	8.37	33.00	-24.63
		1909.80	H	-33.42	41.38	7.95	33.00	-25.05

7.2OCCUPIED 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

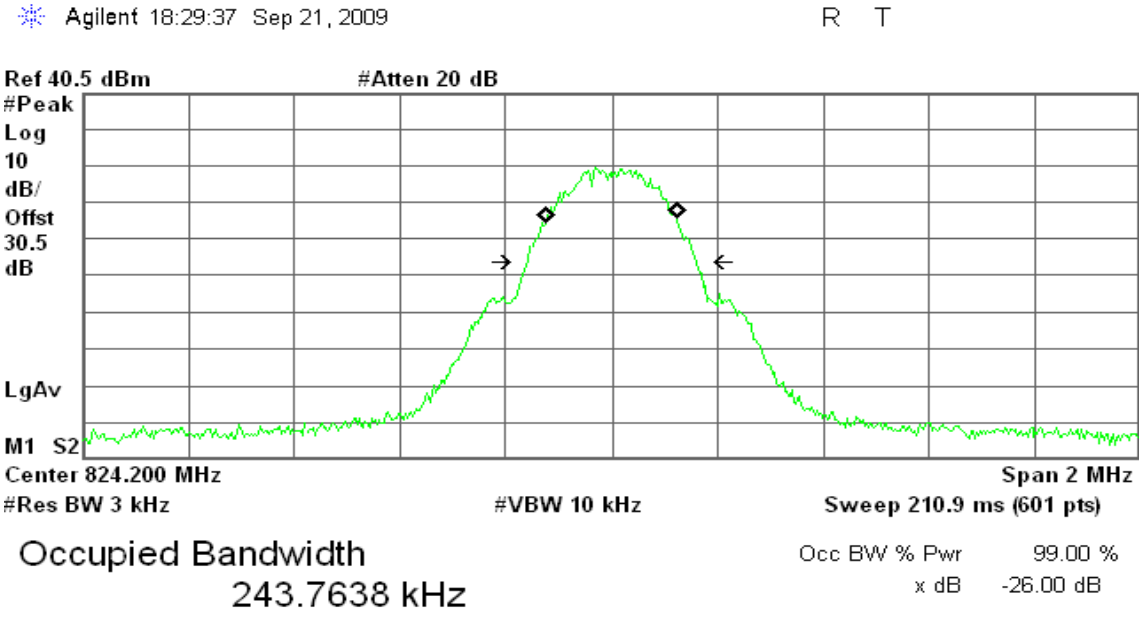
Test Data

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
EGPRS 850 (Class 12)	128	824.20	243.7638
	190	836.60	244.9799
	251	848.80	242.9889

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
EGPRS 1900 (Class 12)	512	1850.20	248.0688
	661	1880.00	247.0238
	810	1909.80	246.4955

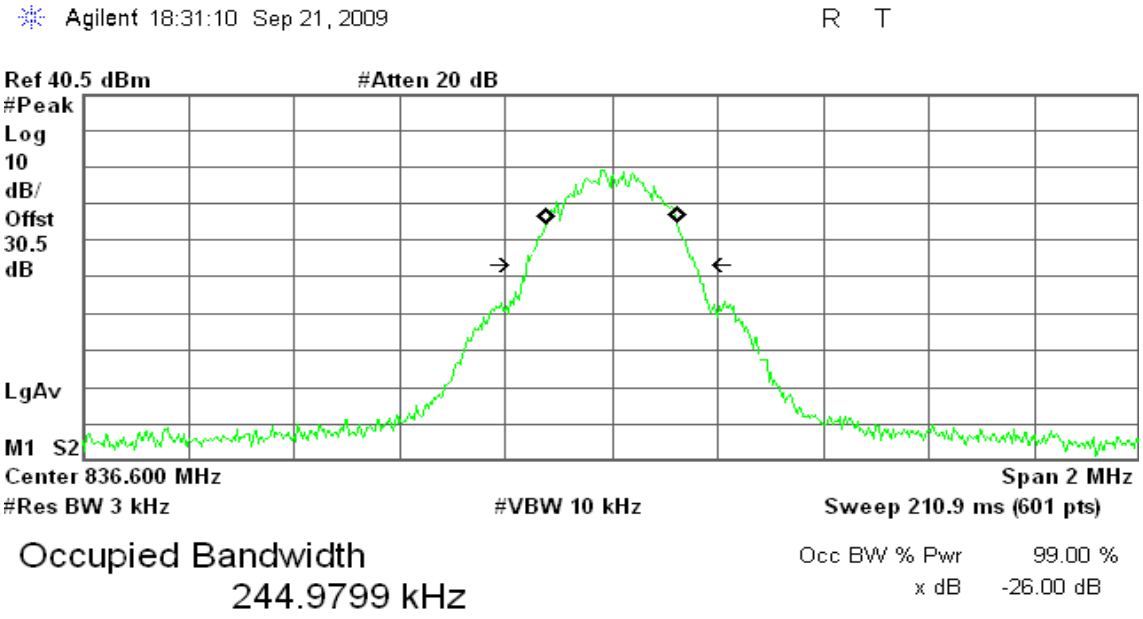
Test Plot

EGPRS 850 (CH Low)



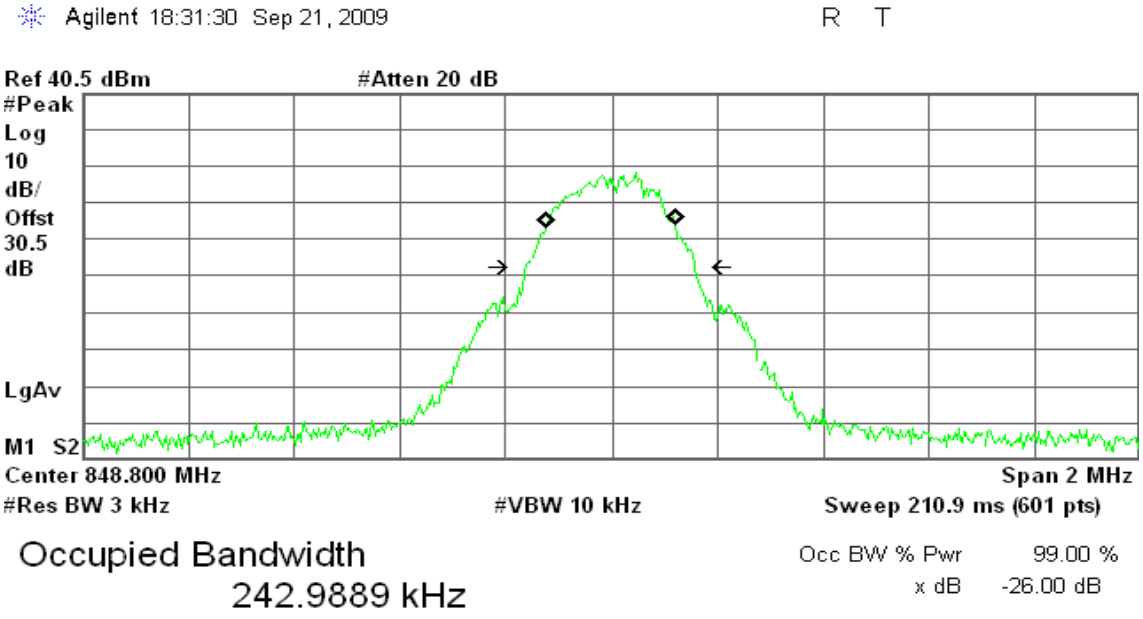
Transmit Freq Error	24.063 Hz
x dB Bandwidth	318.819 kHz

EGPRS 850 (CH Mid)



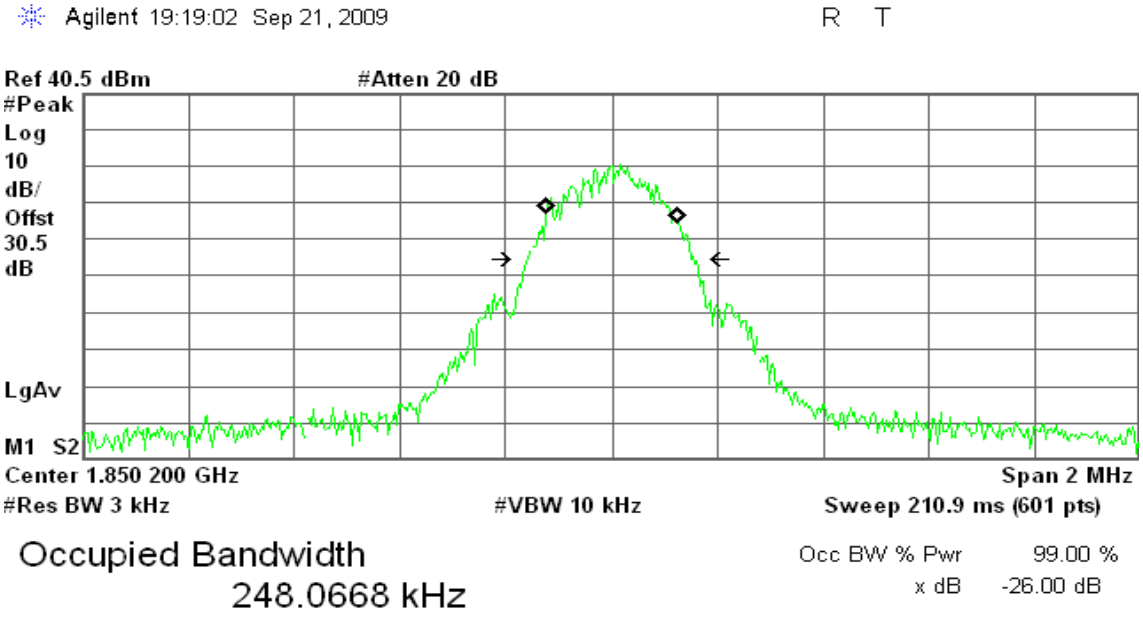
Transmit Freq Error	172.327 Hz
x dB Bandwidth	315.456 kHz

EGPRS 850(CH High)



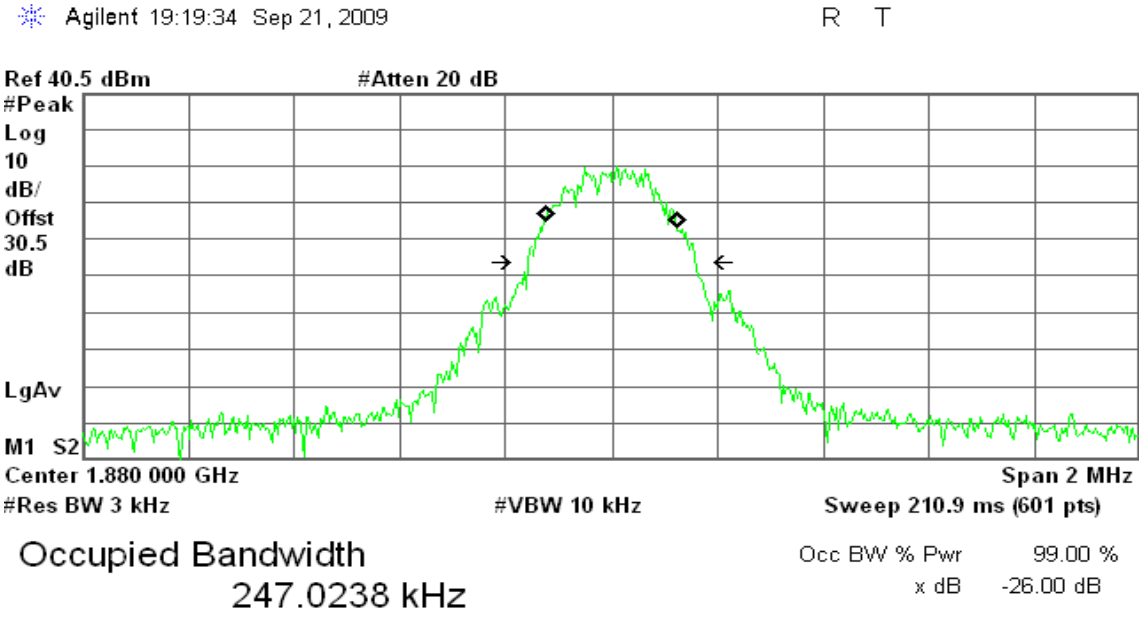
Transmit Freq Error	-844.737 Hz
x dB Bandwidth	319.190 kHz

EGPRS 1900 (CH Low)



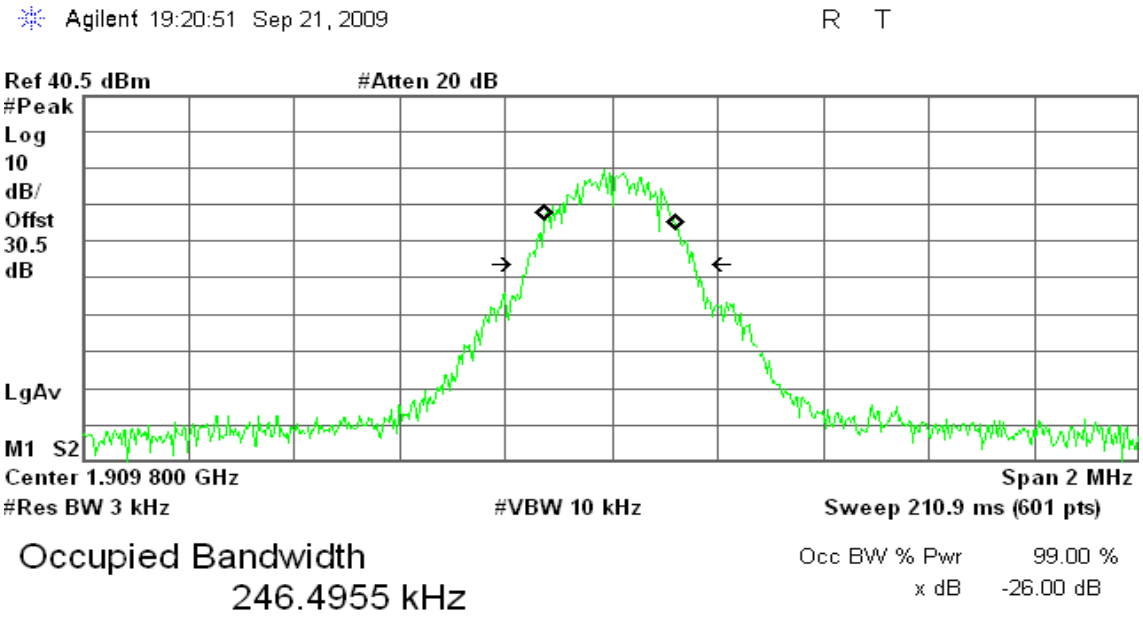
Transmit Freq Error	862.145 Hz
x dB Bandwidth	311.280 kHz

EGPRS 1900 (CH Mid)



Transmit Freq Error	-711.826 Hz
x dB Bandwidth	315.258 kHz

EGPRS 1900 (CH High)



Transmit Freq Error	-2.226 kHz
x dB Bandwidth	313.665 kHz

7.3OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

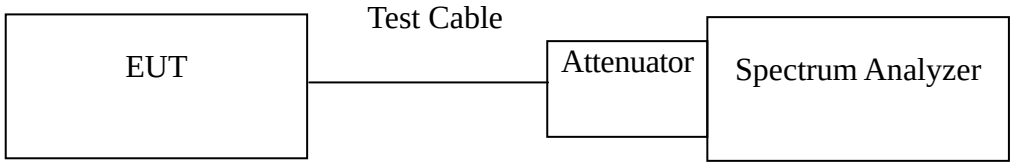
According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

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
EGPRS 850 (Class 12)	128	Figure 7-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 7-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 7-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
EGPRS 1900 (Class 12)	512	Figure 8-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 8-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 8-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
EGPRS 850 (Class 12)	128	Figure 9-1	Band Edge emissions
	251	Figure 9-2	Band Edge emissions

Mode	CH	Location	Description
EGPRS 1900 (Class 12)	512	Figure 10-1	Band Edge emissions
	810	Figure 10-2	Band Edge emissions

Test Plot

EGPRS 850

Figure 7-1: Out of Band emission at antenna terminals – EGPRS CH Low

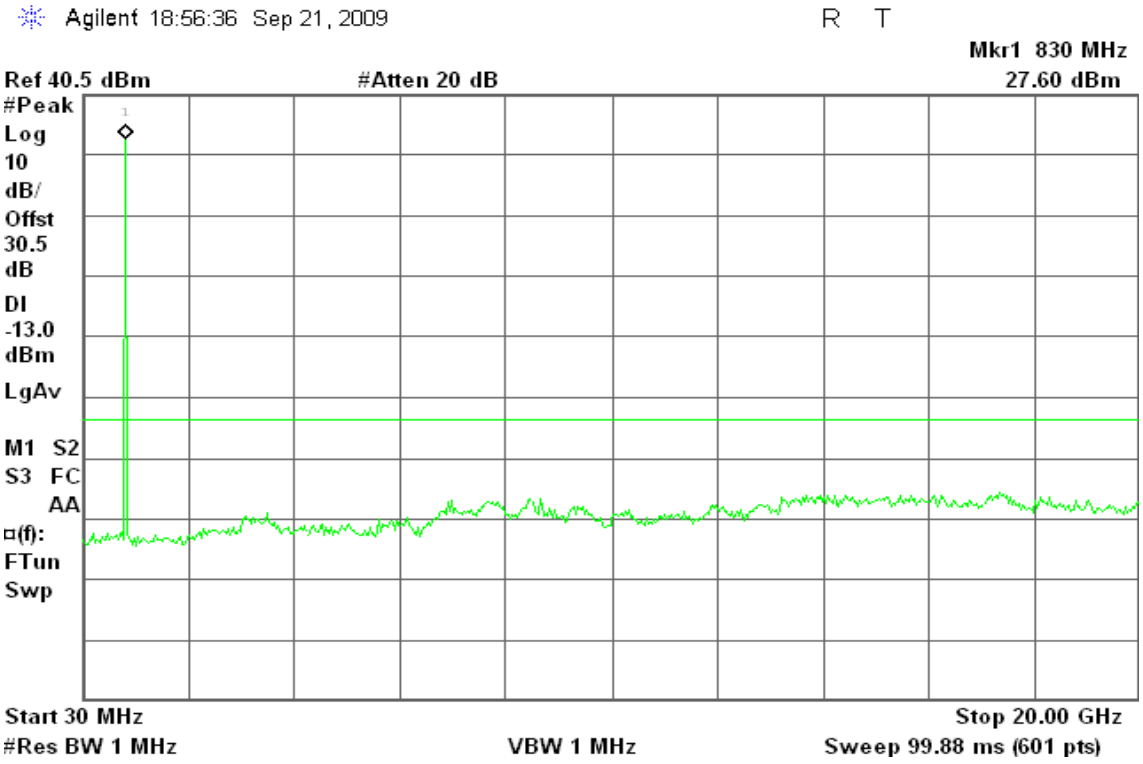


Figure 7-2: Out of Band emission at antenna terminals – EGPRS CH Mid

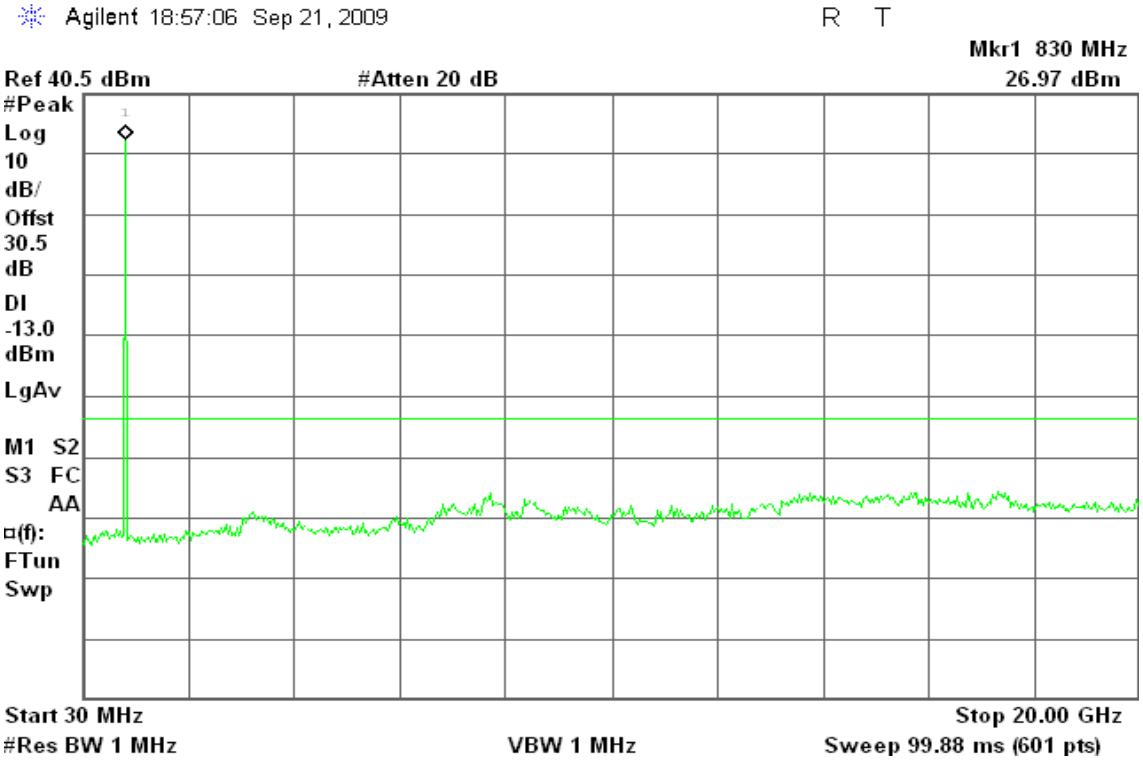
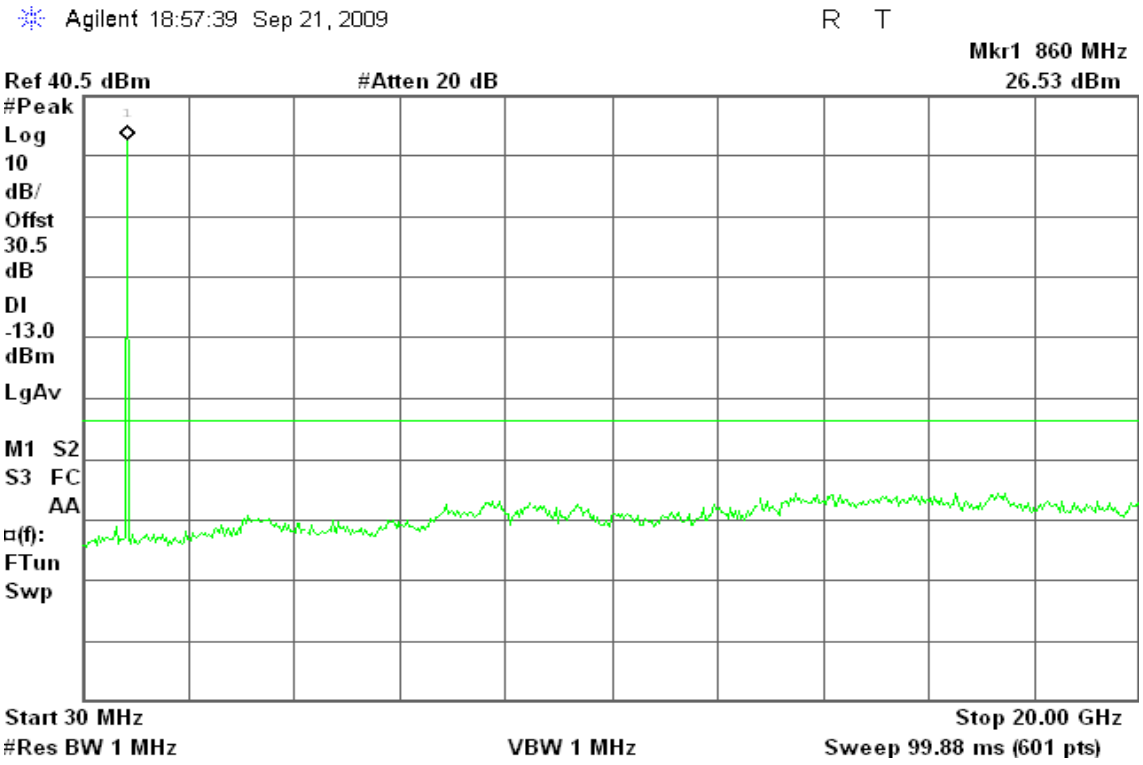


Figure 7-3: Out of Band emission at antenna terminals – EGPRS CH High



EGPRS 1900

Figure 8-1: Out of Band emission at antenna terminals – EGPRS CH Low

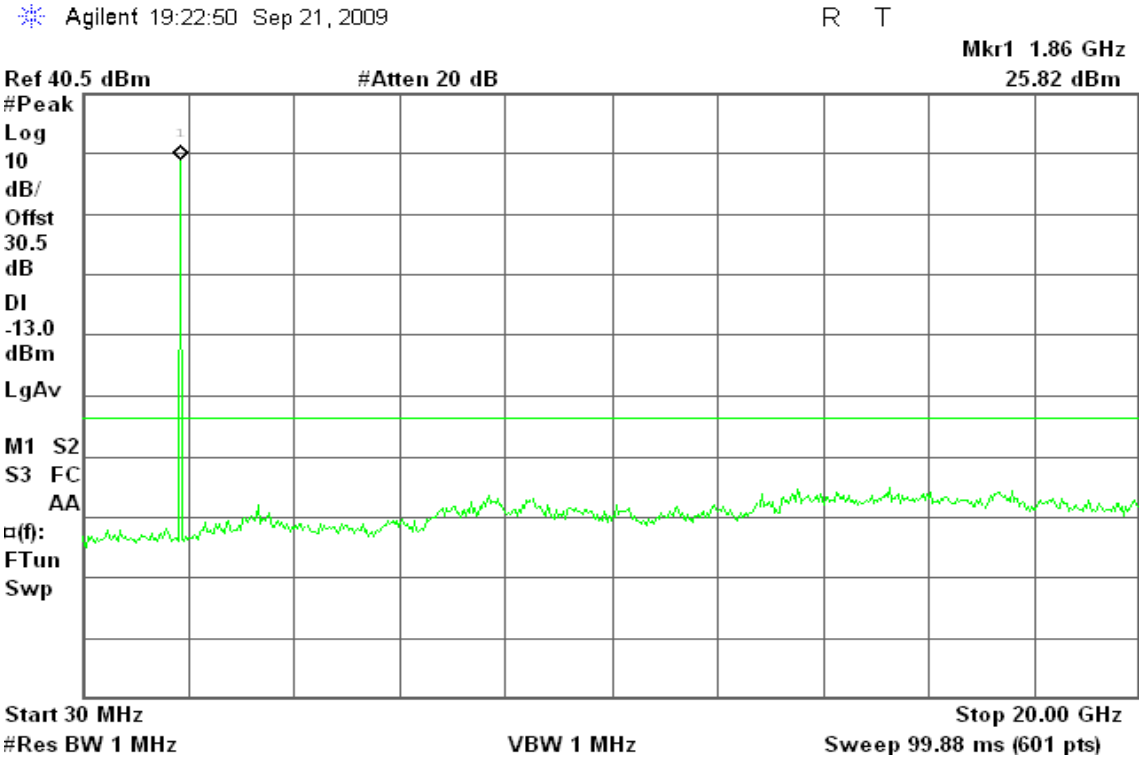


Figure 8-2: Out of Band emission at antenna terminals – EGPRS CH Mid

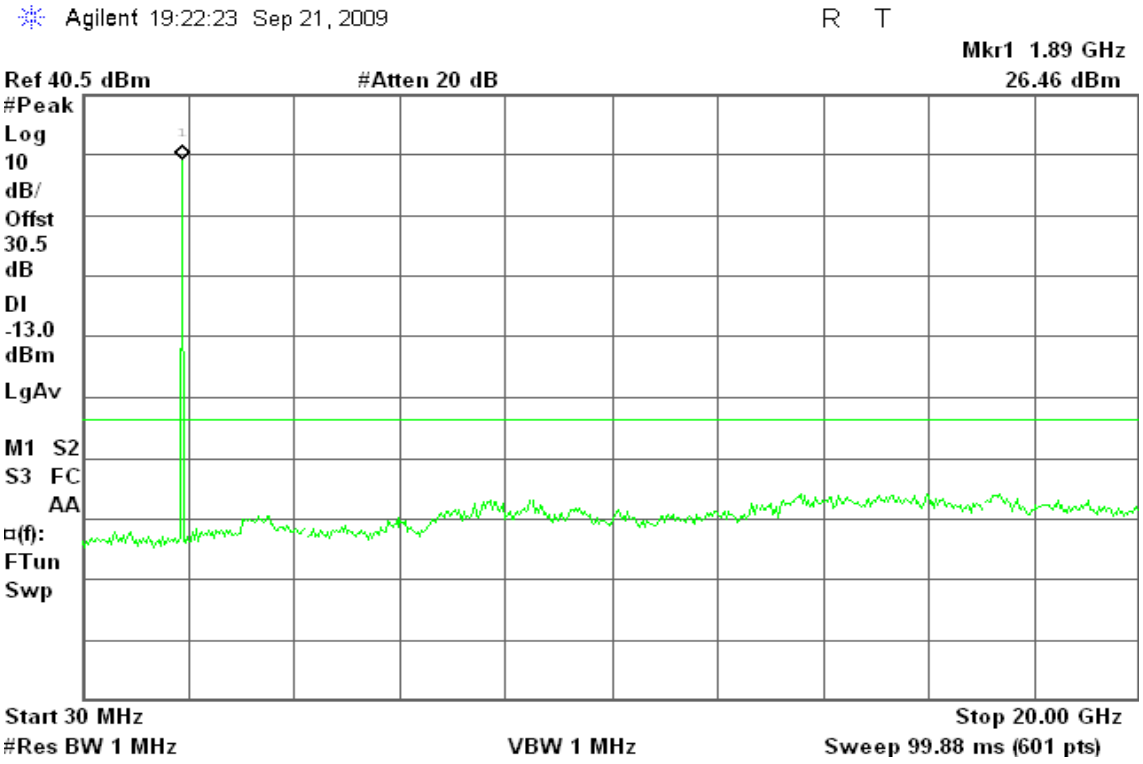
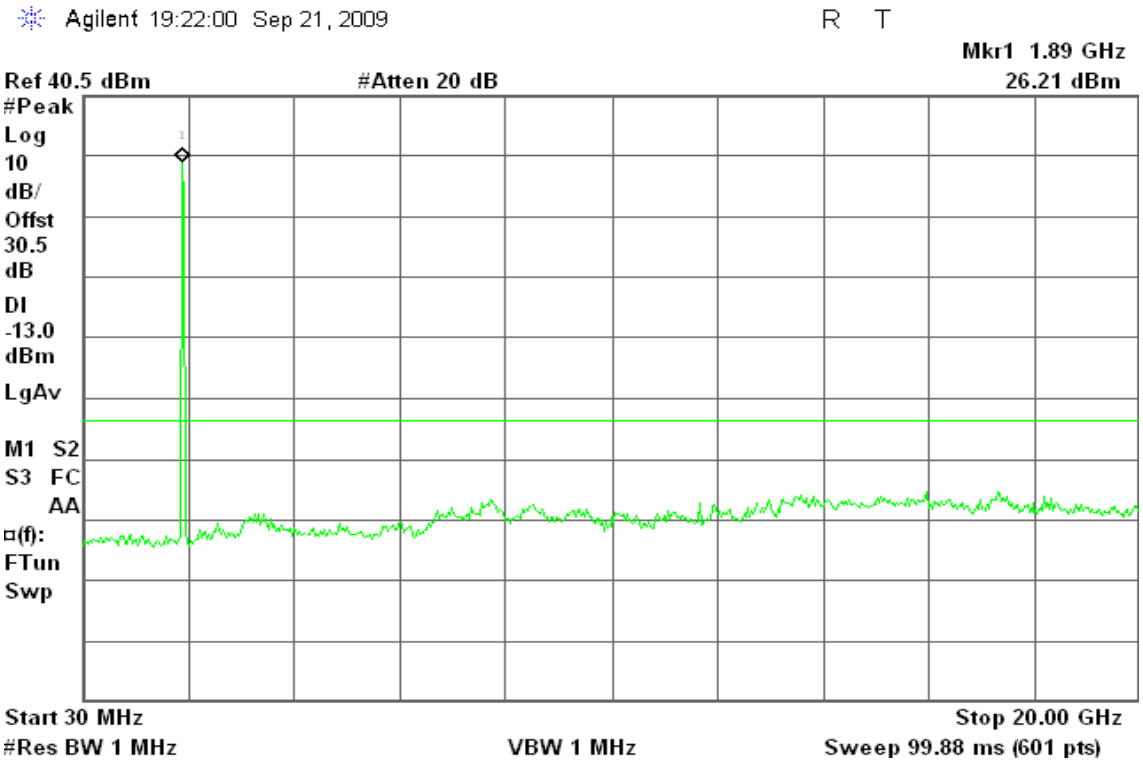


Figure 8-3: Out of Band emission at antenna terminals – EGPRS CH High



EGPRS 850

Figure 9-1: Band Edge emissions – EGPRS CH Low

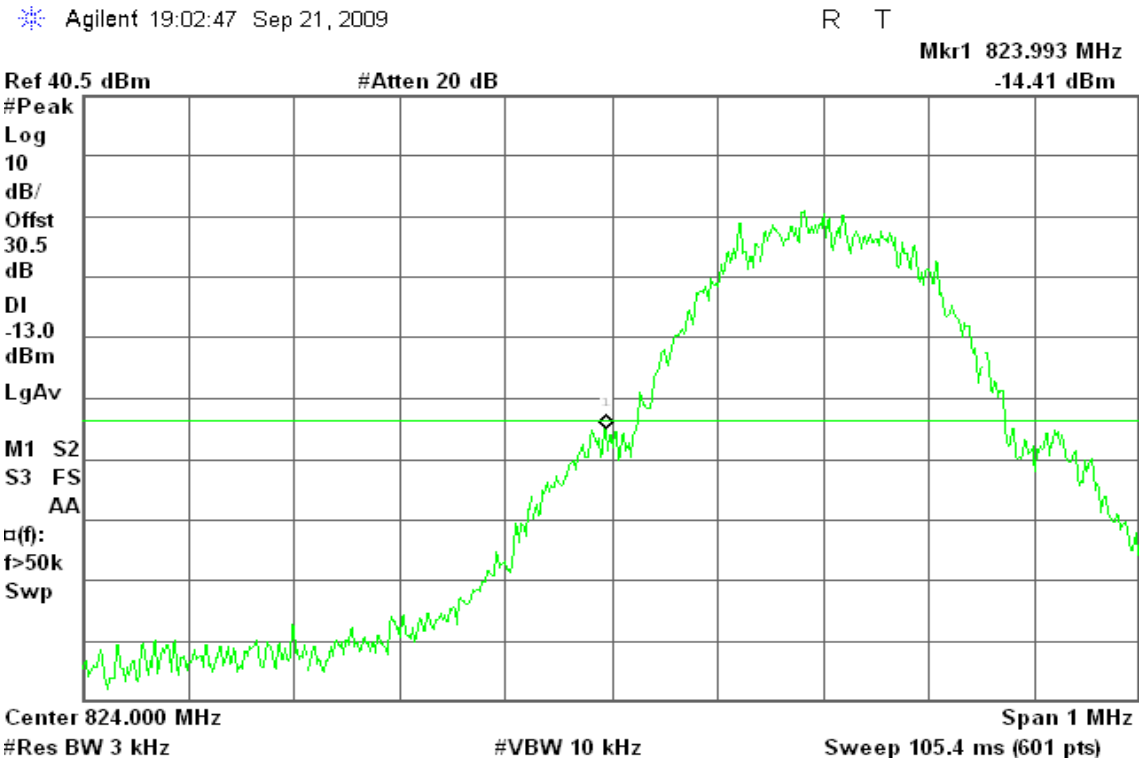
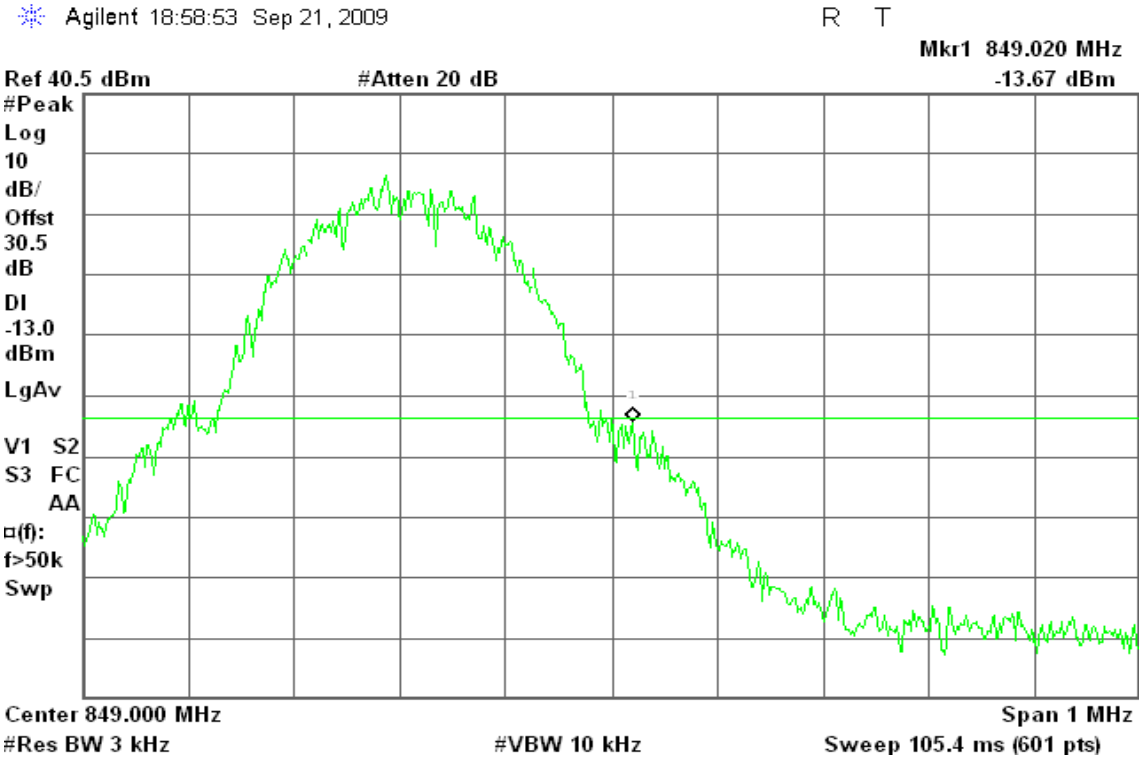


Figure 9-2: Band Edge emissions –EGPRS CH High



EGPRS 1900

Figure 10-1: Band Edge emissions – EGPRS CH Low

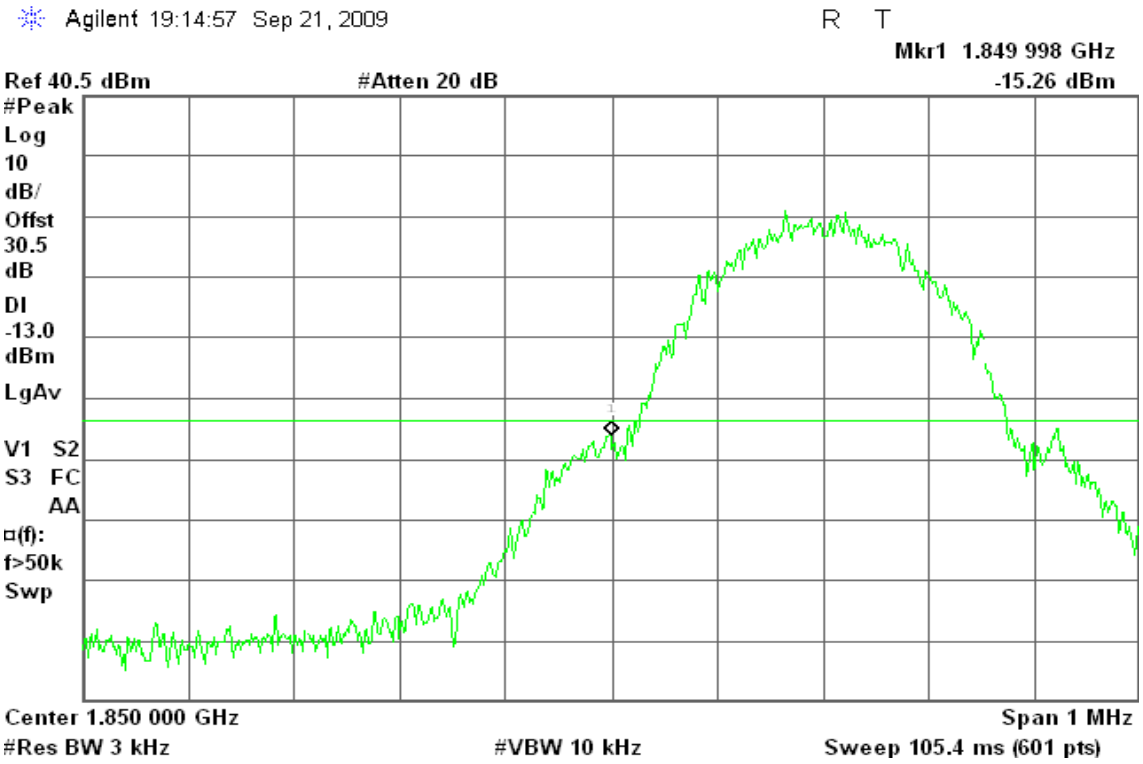
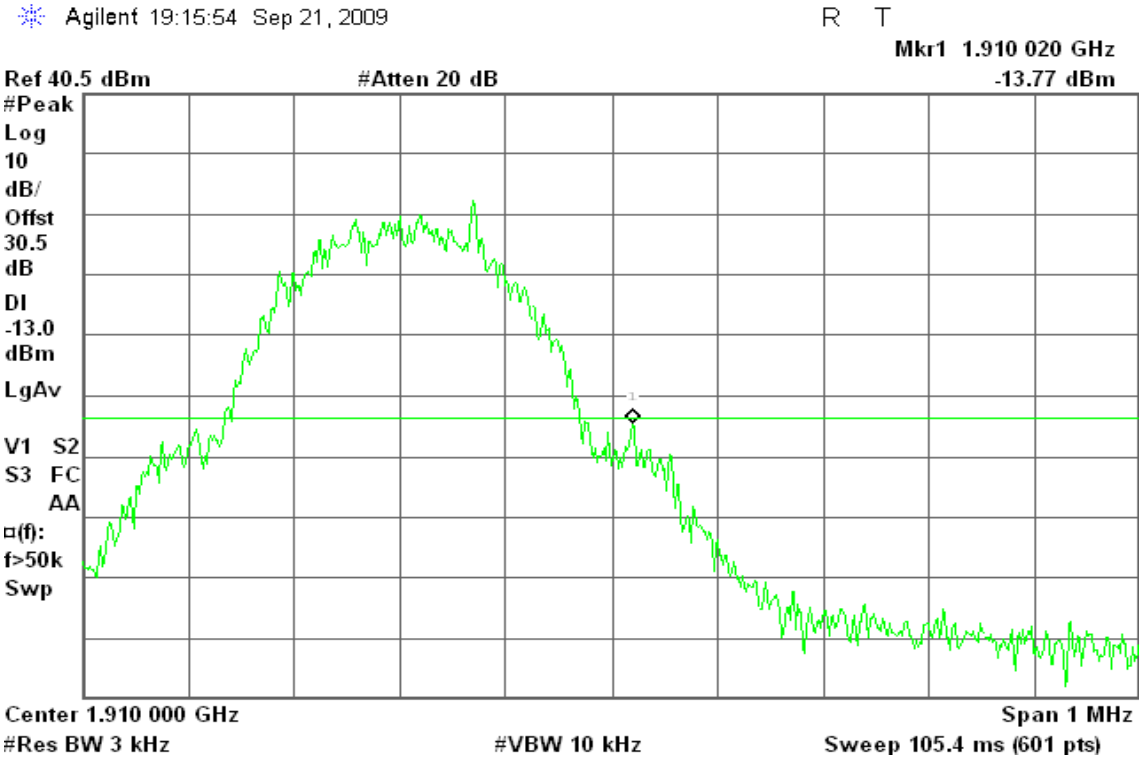


Figure 10-2: Band Edge emissions – EGPRS CH High



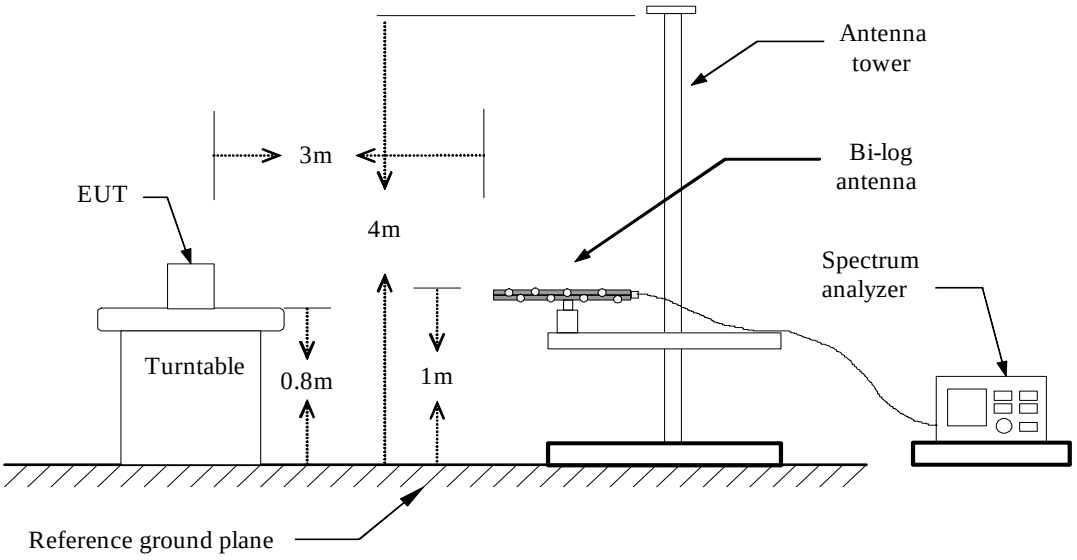
7.4FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

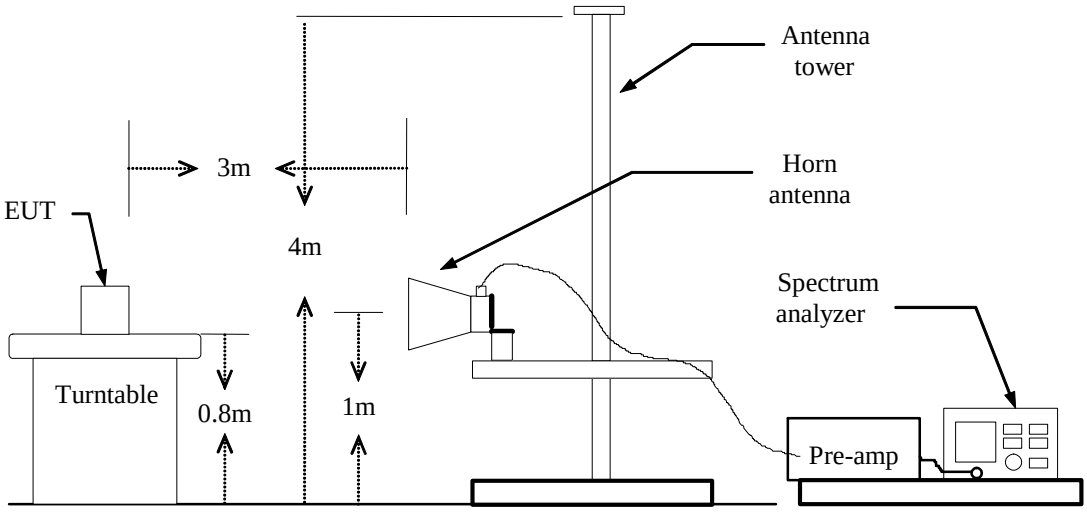
According to FCC §2.1053

Test Configuration

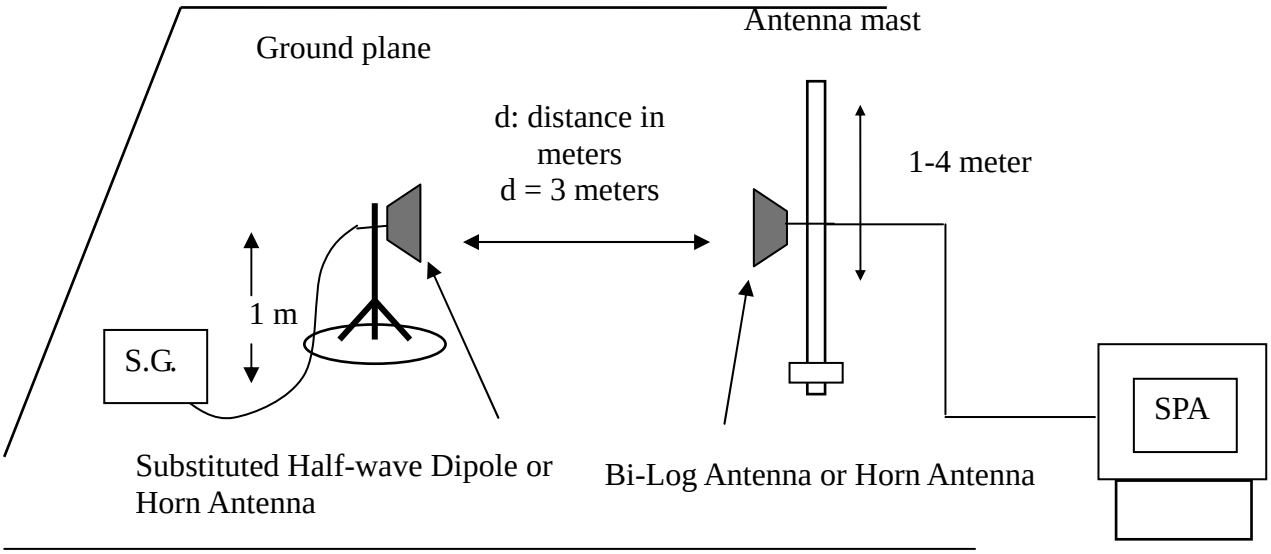
Below 1 GHz



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: EGPRS 850 / TX / CH 128 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
288.02	V	-53.15	-11.80	-64.95	-13.00	-51.95
336.52	V	-48.62	-13.55	-62.16	-13.00	-49.16
458.74	V	-51.49	-9.66	-61.16	-13.00	-48.16
599.39	V	-59.89	-7.49	-67.38	-13.00	-54.38
695.42	V	-58.71	-6.26	-64.97	-13.00	-51.97
747.80	V	-59.84	-5.69	-65.54	-13.00	-52.54
127.00	H	-56.20	-13.61	-69.81	-13.00	-56.81
153.19	H	-53.23	-13.43	-66.67	-13.00	-53.67
288.02	H	-59.18	-12.87	-72.05	-13.00	-59.05
336.52	H	-54.65	-13.51	-68.15	-13.00	-55.15
451.95	H	-56.30	-9.68	-65.98	-13.00	-52.98
588.72	H	-59.52	-7.44	-66.97	-13.00	-53.97

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: EGPRS 850 / TX / CH 190 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
288.02	V	-53.68	-11.80	-65.48	-13.00	-52.48
336.52	V	-48.84	-13.55	-62.39	-13.00	-49.39
445.16	V	-49.99	-9.93	-59.92	-13.00	-46.92
695.42	V	-59.02	-6.26	-65.28	-13.00	-52.28
709.00	V	-58.32	-6.05	-64.36	-13.00	-51.36
760.41	V	-57.56	-5.63	-63.19	-13.00	-50.19
139.61	H	-54.41	-14.00	-68.41	-13.00	-55.41
172.59	H	-54.63	-13.87	-68.50	-13.00	-55.50
336.52	H	-54.84	-13.51	-68.34	-13.00	-55.34
451.95	H	-55.71	-9.68	-65.38	-13.00	-52.38
575.14	H	-59.18	-7.58	-66.77	-13.00	-53.77
695.42	H	-60.66	-6.18	-66.83	-13.00	-53.83

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: EGPRS 850 / TX / CH 251 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
287.05	V	-54.11	-11.83	-65.94	-13.00	-52.94
336.52	V	-48.68	-13.55	-62.23	-13.00	-49.23
451.95	V	-50.34	-9.80	-60.13	-13.00	-47.13
550.89	V	-60.11	-7.96	-68.07	-13.00	-55.07
695.42	V	-56.64	-6.26	-62.90	-13.00	-49.90
773.99	V	-59.92	-5.23	-65.15	-13.00	-52.15
132.82	H	-53.35	-13.74	-67.09	-13.00	-54.09
178.41	H	-53.14	-14.06	-67.20	-13.00	-54.20
336.52	H	-54.50	-13.51	-68.01	-13.00	-55.01
451.95	H	-56.84	-9.68	-66.52	-13.00	-53.52
575.14	H	-59.90	-7.58	-67.48	-13.00	-54.48
695.42	H	-60.74	-6.18	-66.92	-13.00	-53.92

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: EGPRS 1900 / TX / CH 512 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
120.21	V	-54.55	-13.00	-67.55	-13.00	-54.55
288.02	V	-53.23	-11.80	-65.03	-13.00	-52.03
336.52	V	-48.78	-13.55	-62.32	-13.00	-49.32
451.95	V	-50.92	-9.80	-60.71	-13.00	-47.71
669.23	V	-59.15	-6.52	-65.67	-13.00	-52.67
734.22	V	-58.09	-5.76	-63.86	-13.00	-50.86
139.61	H	-53.73	-14.00	-67.73	-13.00	-54.73
172.59	H	-53.53	-13.87	-67.40	-13.00	-54.40
336.52	H	-54.73	-13.51	-68.23	-13.00	-55.23
451.95	H	-57.13	-9.68	-66.80	-13.00	-53.80
575.14	H	-59.64	-7.58	-67.22	-13.00	-54.22
594.54	H	-60.20	-7.36	-67.56	-13.00	-54.56

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: EGPRS 1900 / TX / CH 661 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
336.52	V	-48.42	-13.55	-61.97	-13.00	-48.97
445.16	V	-49.93	-9.93	-59.86	-13.00	-46.86
457.77	V	-50.69	-9.68	-60.38	-13.00	-47.38
497.54	V	-58.16	-8.43	-66.59	-13.00	-53.59
588.72	V	-60.32	-7.70	-68.02	-13.00	-55.02
721.61	V	-57.86	-5.83	-63.69	-13.00	-50.69
153.19	H	-53.13	-13.43	-66.56	-13.00	-53.56
237.58	H	-55.11	-14.23	-69.34	-13.00	-56.34
336.52	H	-54.61	-13.51	-68.12	-13.00	-55.12
451.95	H	-56.73	-9.68	-66.40	-13.00	-53.40
568.35	H	-61.84	-7.62	-69.45	-13.00	-56.45
666.32	H	-60.32	-6.39	-66.71	-13.00	-53.71

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: EGPRS 1900 / TX / CH 810 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
178.41	V	-55.15	-14.29	-69.44	-13.00	-56.44
230.79	V	-54.32	-14.43	-68.76	-13.00	-55.76
288.02	V	-53.47	-11.80	-65.27	-13.00	-52.27
336.52	V	-48.76	-13.55	-62.30	-13.00	-49.30
451.95	V	-48.37	-9.80	-58.17	-13.00	-45.17
708.03	V	-58.62	-6.07	-64.69	-13.00	-51.69
139.61	H	-53.54	-14.00	-67.54	-13.00	-54.54
153.19	H	-53.70	-13.43	-67.13	-13.00	-54.13
243.40	H	-54.84	-14.35	-69.18	-13.00	-56.18
336.52	H	-54.59	-13.51	-68.09	-13.00	-55.09
451.95	H	-54.88	-9.68	-64.56	-13.00	-51.56
588.72	H	-59.62	-7.44	-67.06	-13.00	-54.06

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: EGPRS 850 / TX / CH 128 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1651.00	V	-23.84	0.69	-23.14	-13.00	-10.14
3296.00	V	-32.03	5.57	-26.47	-13.00	-13.47
4122.00	V	-26.96	7.58	-19.38	-13.00	-6.38
4948.00	V	-38.35	9.53	-28.82	-13.00	-15.82
5767.00	V	-46.42	9.97	-36.45	-13.00	-23.45
6593.00	V	-47.93	12.40	-35.53	-13.00	-22.53
1651.00	H	-21.55	0.80	-20.75	-13.00	-7.75
2470.00	H	-38.82	3.78	-35.04	-13.00	-22.04
3296.00	H	-24.66	6.27	-18.39	-13.00	-5.39
4122.00	H	-24.10	9.39	-14.71	-13.00	-1.71
4948.00	H	-38.36	10.13	-28.23	-13.00	-15.23
5767.00	H	-36.34	10.32	-26.02	-13.00	-13.02

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: EGPRS 850 / TX / CH 190 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1672.00	V	-23.45	0.73	-22.72	-13.00	-9.72
2512.00	V	-38.89	3.66	-35.23	-13.00	-22.23
3345.00	V	-35.25	5.63	-29.62	-13.00	-16.62
4185.00	V	-29.69	7.69	-22.01	-13.00	-9.01
5018.00	V	-38.12	9.69	-28.43	-13.00	-15.43
6691.00	V	-44.93	12.78	-32.15	-13.00	-19.15
1672.00	H	-24.23	0.84	-23.39	-13.00	-10.39
2512.00	H	-33.98	3.96	-30.02	-13.00	-17.02
3345.00	H	-25.33	6.41	-18.92	-13.00	-5.92
4185.00	H	-28.69	9.42	-19.27	-13.00	-6.27
5018.00	H	-38.27	10.20	-28.07	-13.00	-15.07
5858.00	H	-35.67	10.35	-25.32	-13.00	-12.32

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: EGPRS 850 / TX / CH 251 **Test Date:** September 10, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1700.00	V	-26.09	0.79	-25.30	-13.00	-12.30
2547.00	V	-36.63	3.77	-32.86	-13.00	-19.86
3394.00	V	-39.62	5.70	-33.93	-13.00	-20.93
4241.00	V	-33.95	7.78	-26.17	-13.00	-13.17
5095.00	V	-43.05	9.72	-33.33	-13.00	-20.33
6789.00	V	-48.37	13.15	-35.22	-13.00	-22.22
1700.00	H	-26.75	0.90	-25.85	-13.00	-12.85
2547.00	H	-30.81	4.06	-26.75	-13.00	-13.75
3394.00	H	-31.60	6.55	-25.05	-13.00	-12.05
4248.00	H	-39.05	9.44	-29.60	-13.00	-16.60
5095.00	H	-41.25	10.21	-31.04	-13.00	-18.04
6789.00	H	-48.62	13.25	-35.37	-13.00	-22.37

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: EGPRS 1900 / TX / CH 512 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3702.00	V	-38.10	6.46	-31.64	-13.00	-18.64
5550.00	V	-31.08	9.92	-21.16	-13.00	-8.16
N/A						
3702.00	H	-29.18	7.85	-21.33	-13.00	-8.33
5550.00	H	-29.61	10.26	-19.35	-13.00	-6.35
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: EGPRS 1900 / TX / CH 661 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3758.00	V	-37.97	6.63	-31.33	-13.00	-18.33
5641.00	V	-35.91	9.94	-25.97	-13.00	-12.97
N/A						
3758.00	H	-30.56	8.12	-22.44	-13.00	-9.44
5641.00	H	-33.57	10.28	-23.29	-13.00	-10.29
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: EGPRS 1900 / TX / CH 810 **Test Date:** August 26, 2009

Temperature: 25°C **Tested by:** Jerry Lin

Humidity: 55 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3821.00	V	-39.58	6.83	-32.75	-13.00	-19.75
5732.00	V	-36.19	9.96	-26.23	-13.00	-13.23
N/A						
3821.00	H	-37.06	8.44	-28.62	-13.00	-15.62
5732.00	H	-34.13	10.31	-23.82	-13.00	-10.82
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.*

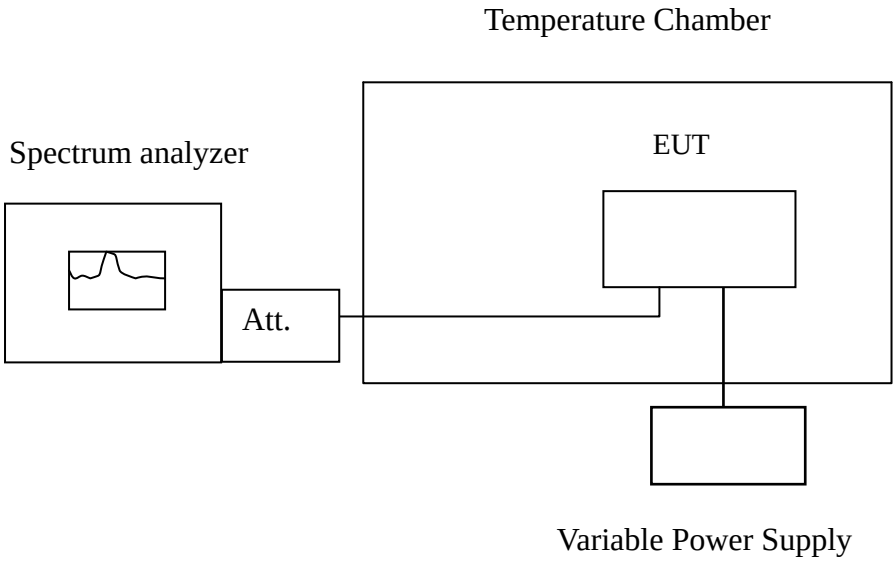
7.5FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

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: EGPRS Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
120	50	836599999	5	2090
	40	836600002	8	
	30	836600003	9	
	20	836599994	0	
	10	836600001	7	
	0	836600000	6	
	-10	836600004	10	
	-20	836600002	8	
	-30	836600003	9	

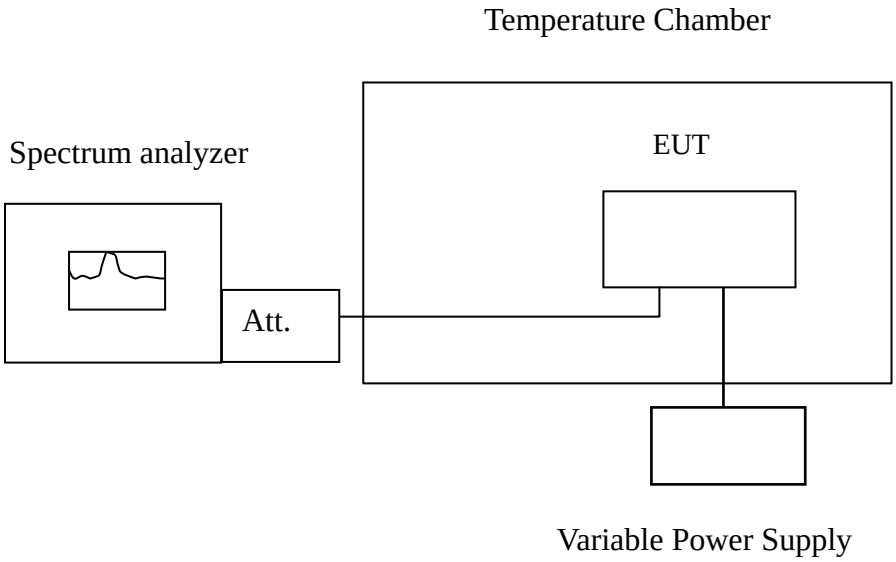
Reference Frequency: EGPRS Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
120	50	1880000010	32	4700
	40	1880000013	35	
	30	1880000011	33	
	20	1879999978	0	
	10	1880000016	38	
	0	1880000007	29	
	-10	1880000010	32	
	-20	1880000008	30	
	-30	1880000013	35	

7.6FREQUENCY 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: EGPRS Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
132	20	836599987	-7	2090
120		836599994	0	
108		836599991	-3	
86END		836600067	73	

Reference Frequency: EGPRS Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vac	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
132	20	1879999986	8	4700
120		1879999978	0	
108		1879999983	5	
86END		1880000078	100	

7.7POWERLINE 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:**	September 13, 2009
Temperature:	22°C	**Tested by:**	Ming Chen
Humidity:	45% RH		

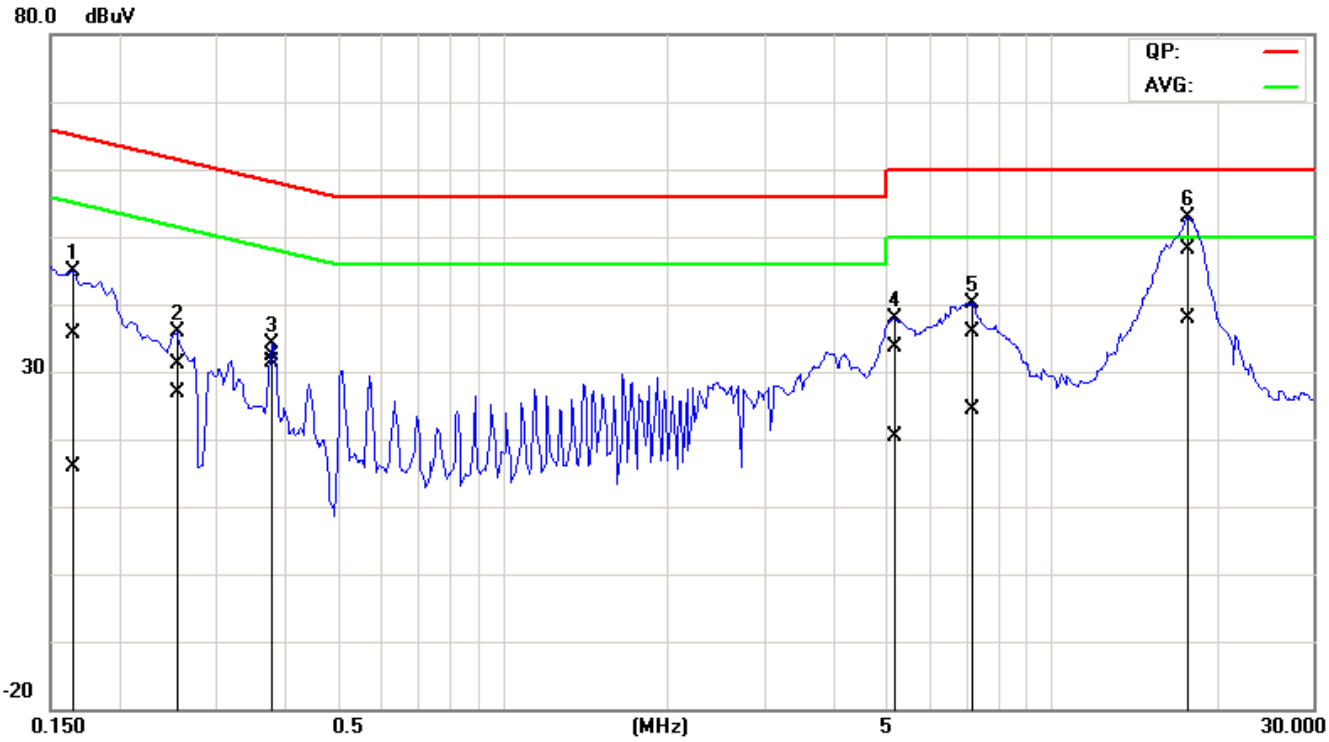
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1650	35.59	15.79	0.11	35.70	15.90	65.21	55.21	-29.51	-39.31	L1
0.2550	31.12	26.92	0.08	31.20	27.00	61.59	51.59	-30.39	-24.59	L1
0.3800	32.23	31.33	0.07	32.30	31.40	58.28	48.28	-25.98	-16.88	L1
5.1700	33.64	20.24	0.06	33.70	20.30	60.00	50.00	-26.30	-29.70	L1
7.2100	35.71	24.31	0.09	35.80	24.40	60.00	50.00	-24.20	-25.60	L1
17.7700	47.72	37.62	0.38	48.10	38.00	60.00	50.00	-11.90	-12.00	L1
0.1850	35.80	28.90	0.10	35.90	29.00	64.26	54.26	-28.36	-25.26	L2
0.2550	33.62	29.62	0.08	33.70	29.70	61.59	51.59	-27.89	-21.89	L2
3.8950	28.94	18.64	0.06	29.00	18.70	56.00	46.00	-27.00	-27.30	L2
5.2400	32.04	25.34	0.06	32.10	25.40	60.00	50.00	-27.90	-24.60	L2
6.9650	33.82	27.22	0.08	33.90	27.30	60.00	50.00	-26.10	-22.70	L2
17.7100	47.03	38.53	0.37	47.40	38.90	60.00	50.00	-12.60	-11.10	L2

Remark:

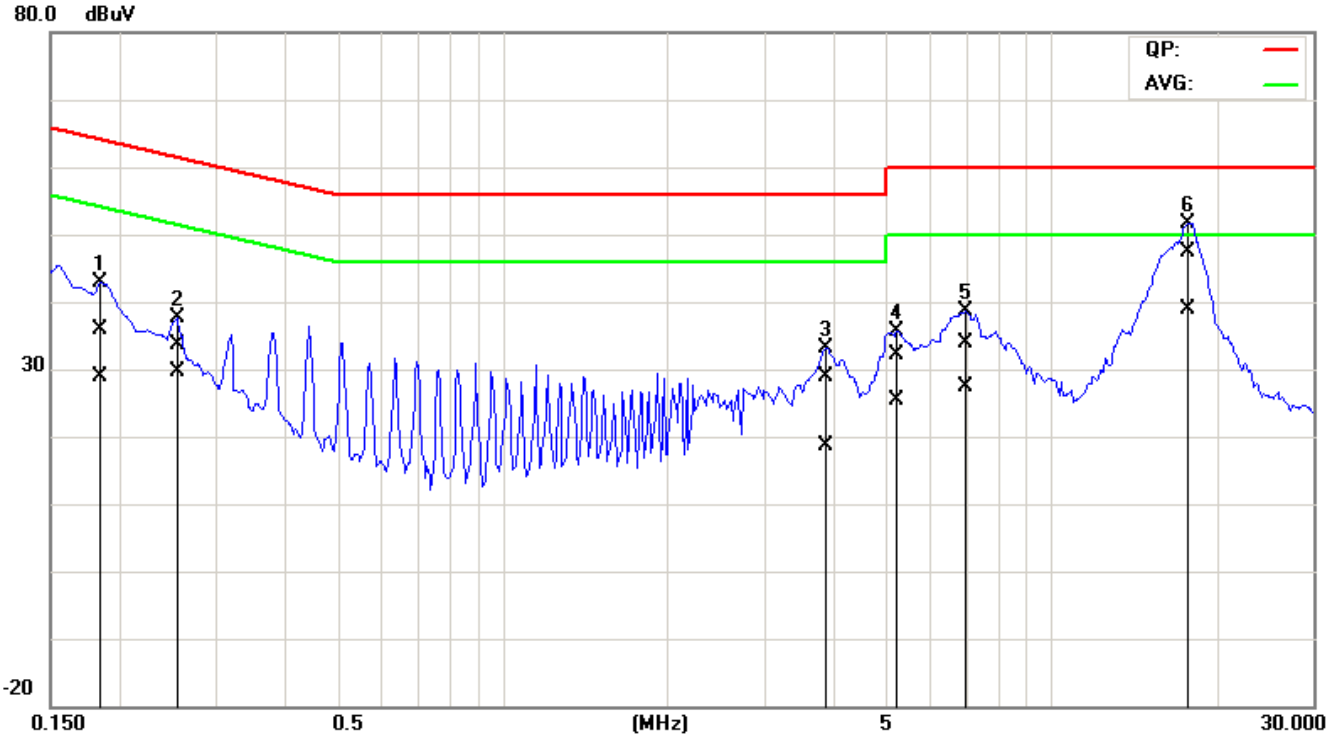
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 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 unnecessary.*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)



APPENDIX I
RADIO FREQUENCY EXPOSURE

LIMIT

EUT Specification

EUT	TERMINAL
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☒ Others: EGPRS 850MHz: 824 ~ 849 MHz
Device category	☒ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	20.21 dBm (104.95 mW)
Antenna gain (Max)	-3.75 dBi (Numeric gain: 0.42)
Evaluation applied	☐ MPE Evaluation ☒ SAR Evaluation* ☐ N/A

Remark:

1. *The maximum output power is 20.21dBm (104.95mW) at 836.60MHz (with 0.42 numeric antenna gain.)*
2. *DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.*
3. *For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*

TEST RESULTS

No non-compliance noted.

Not applicable, Please refers to the SAR test report.

EUT Specification

EUT	TERMINAL
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ WLAN: 5.15GHz ~ 5.35GHz ☒ Others: EGPRS 1900MHz: 1850 ~ 1910 MHz
Device category	☒ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm2) ☒ General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	19.50 dBm (89.12 mW)
Antenna gain (Max)	-2.08 dBi (Numeric gain: 0.61)
Evaluation applied	☐ MPE Evaluation ☒ SAR Evaluation* ☐ N/A

Remark:

1. *The maximum output power is 19.50dBm (89.12mW) at 1880.00MHz (with 0.61 numeric antenna gain.)*
2. *DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.*
3. *For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*

TEST RESULTS

No non-compliance noted.

Remark: Please refer to the separated SAR report.