

Report No.: EH/2008/80013 **Issue Date: Sep. 03, 2008**

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H and PART 24 SUBPART E

OF

Product Name: PDA Phone

Brand Name: HTC

Model Name: BLAC100

FCC ID: **NM8BKNV**

Report No.: EH/2008/80013

Issue Date: Sep. 03, 2008

FCC Rule Part: 2,22H & 24E

Prepared for: HTC Corporation

No. 23 Xinghua Rd., Taoyuan City, Taoyuan

County 330, Taiwan, ROC

Prepared by: SGS Taiwan Ltd.

Electronics & Communication Laboratory

No. 134, Wu Kung Rd., Wuku Industrial

Zone, Taipei County, Taiwan.

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VERIFICATION OF COMPLIANCE

Applicant: HTC Corporation

No. 23 Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan, ROC

Product Name: PDA Phone

Brand Name: HTC

FCC ID: NM8BKNV

BLAC100 **Model No.:**

Model Difference: N/A

File Number: EH/2008/80013

Date of test: Aug. 09, 2008 ~ Sep. 01, 2008

Date of EUT Received: Aug. 08, 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 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 FCC PART 24 subpart E.

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

Test By:	Bondi Jin	Date:	Sep. 03, 2008	
Prepared By:	Bondi Liu / Engineer	Date:	Sep. 03, 2008	
Approved By	Eva Kao / Asst. Supervisor Vincent Su / Manager	Date:	Sep. 03, 2008	

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Version

Version No.	Date	Description
00	Sep. 03, 2008	Initial creation of document

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GENERAL INFORMATION

General:

Product Name	PDA Phone		
Brand Name	HTC		
Model Name	BLAC100		
Model Difference	N/A		
Data Cable (USB)	2 provided		
Simple Hands-free (SHF)	1 provided,		
Cigar Lighter Adaptor (CLA)	A) 1 provided		
	3.8 Vdc re-ch	nargeable battery or 5Vdc by AC/DC power adapter	
Power Supply	Battery:	2 provided	
	Adapter	2 provided	

GSM and WCDMA:

	E-GSM/GPRS 850 Class 12	824 MHz– 849MHz	33 dBm
	E-GSM/GPRS 900 Class 12	880MHz – 915MHz	33 dBm
Cellular Phone Standards	E-GSM/GPRS 1800 Class 12	1710MHz-1785MHz	30 dBm
Frequency Range and Power	E-GSM/GPRS 1900 Class 12	1850MHz – 1910MHz	30 dBm
	WCDMA/HSUPA/HSDPA Band I	1920MHz – 1980MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band VIII	880MHz – 915MHz 23dB	
IMEI	353969020014519		

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WLAN:

Frequency Range:	2412 – 2462 MHz
Channel number:	11 channels
Max. Output Power:	802.11 b: 17.58 dBm peak 802.11 g: 13.86dBm peak
Modulation Technology:	DSSS, OFDM
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM
Transition Rate:	802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps
Antenna Designation:	PIFA Antenna / 2dBi.
Type of Emission	16M6M7D

The EUT is compliance with IEEE 802.11 b/g Standard.

Bluetooth:

Bluetooth Version	 V1.1 (GFSK) V1.2 (GFSK) V2.0 (GFSK) V2.0 + EDR (GFSK + π/4DQPSK + 8DPSK) V2.1 + EDR (GFSK + π/4DQPSK + 8DPSK)
Frequency Range	2402 – 2480MHz
Channel number	79 channels max.
Rated Power	0.89 dBm (Peak)
Modulation type	Frequency Hopping Spread Spectrum
Antenna Designation	PIFA Antenna / 2dBi.
Type of Emission 1M32F1D	

The EUT is compliance with Bluetooth 2.0 Standard.

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GPS:

Receiver Frequency	L1 Band, 1575.42MHz
Frequency Conversion oscillator	19.2kHz
Antenna Designation	mono pole

This test report applies for GSM/EDGE 850, GSM/EDGE 1900

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1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: NM8BKNV filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4 (2003) and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

1.3 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).

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

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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 63.4-2003. 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, 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):

The EUT is a placed on as turn table which is 0.8 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 relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna. according to the requirements in Section 8 and 13 and Subclause 8.3.1.2 of ANSI C63.4-2003.

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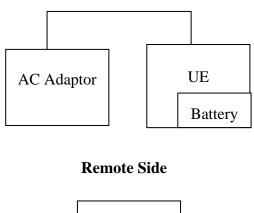


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2.4 Configuration of Tested System

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



CMU200

Table 2-1 Equipment Used in Tested System

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

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3. SUMMARY OF TEST RESULTS

FCC Rules	FCC Rules Description Of Test	
§2.1046(a)		
§22.913(a)	RF Power Output	Compliant
§24.232(a)		
§2.1046(a)		
§22.913(a)	ERP/ EIRP measurement	Compliant
§24.232(a)		
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051	Out of Band Emissions at Antenna	
§22.917(a)	Terminals and	Compliant
§24.238(a)	Band Edge	
§2.1053		
§22.917(a)	Field Strength of Spurious Radiation	Compliant
§24.238(a)		
§2.1055(a)(1)(b)	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(1)(2)	Frequency Stability vs. Voltage	Compliant
§15.107;§15.207	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 GSM with power adaptor. The worst-case of E2 position for GSM 850 band, E2 position for PCS 1900 band were reported.

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RF POWER OUTPUT MEASUREMENT

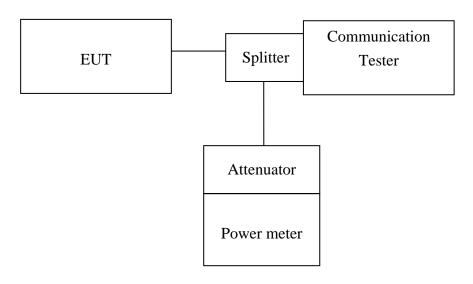
5.1 Standard Applicable

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

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

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 attenu- ator to the power meter reading. was used for EUT and Base station setting.

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5.4 Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010	
Spectrum Analyzer	Agilent	E7405A	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	
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	

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5.5 Measurement Result

EUT Mode	Frequency (MHz)	СН	Power meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	824.20	128	32.40	0.00	32.40
GSM 850	836.60	190	32.50	0.00	32.50
	848.80	251	32.60	0.00	32.60

EUT Mode	Frequency (MHz)	СН	Power Meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	1850.20	512	29.20	0.00	29.20
PCS 1900	1880.00	661	29.10	0.00	29.10
	1909.80	810	29.00	0.00	29.00

EUT Mode	Frequency (MHz)	СН	Power meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	824.20	128	26.40	0.00	26.40
EDGE 850	836.60	190	26.60	0.00	26.60
	848.80	251	26.60	0.00	26.60

EUT Mode	Frequency (MHz)	СН	Power Meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	1850.20	512	25.60	0.00	25.60
EDGE 1900	1880.00	661	25.30	0.00	25.30
	1909.80	810	25.20	0.00	25.20

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ERP, EIRP MEASUREMENT

6.1 **Standard Applicable**

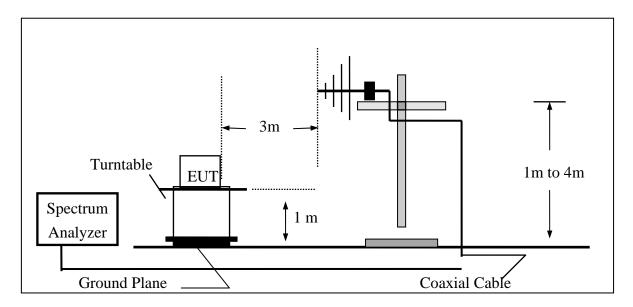
According to FCC §2.1046

FCC 22.913(a) Mobile station are limited to 7W ERP.

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

6.2 Test SET-UP (Block Diagram of Configuration)

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



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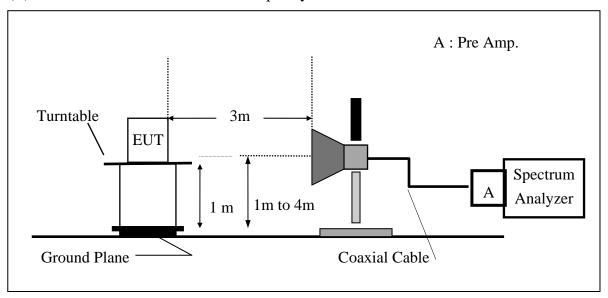
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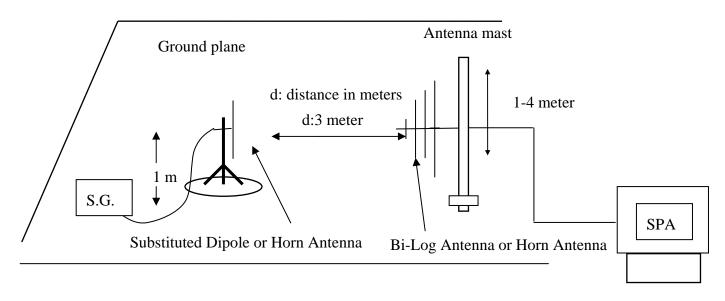
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



Substituted Method Test Set-UP



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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)

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6.4 Measurement Equipment Used:

EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	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	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	01/05/2008	01/04/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2008	01/04/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	01/05/2008	01/04/2009
Attenuator	Mini-Circult	BW-S10W5	N/A	07/05/2008	07/04/2009
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/10/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/10/2010

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6.5 Measurement Result

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	117.97	30.65	-7.87	3.64	19.13	38.45
			п	Н	130.32	42.66	-7.87	3.64	31.15	38.45
	824.20	128	E1	V	116.23	28.91	-7.87	3.64	17.39	38.45
	024.20	120	EI	Н	129.53	41.87	-7.87	3.64	30.36	38.45
			E2	V	115.60	28.28	-7.87	3.64	16.76	38.45
			EZ	Н	128.51	40.85	-7.87	3.64	29.34	38.45
			Н	V	125.37	38.34	-7.88	3.70	26.77	38.45
			П	Н	127.37	40.03	-7.88	3.70	28.46	38.45
GSM 850	836.60	190	E1	V	128.67	41.64	-7.88	3.70	30.07	38.45
GSM 830	830.00			Н	122.87	35.53	-7.88	3.70	23.96	38.45
			E2	V	127.75	40.72	-7.88	3.70	29.15	38.45
			EZ	Н	120.93	33.59	-7.88	3.70	22.02	38.45
			Н	V	121.78	35.04	-7.88	3.75	23.41	38.45
			П	Н	131.10	44.08	-7.88	3.75	32.45	38.45
	848.80	251	E1	V	121.63	34.89	-7.88	3.75	23.26	38.45
	848.80	251	EI	Н	130.32	43.30	-7.88	3.75	31.67	38.45
			E2	V	120.18	33.44	-7.88	3.75	21.81	38.45
			EZ	Н	129.16	42.14	-7.88	3.75	30.51	38.45

Remark:

(1) The RBW, VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

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

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	117.57	10.61	9.90	5.41	15.10	33.00
				Н	127.95	21.06	9.90	5.41	25.55	33.00
	1850.20	512	E1	V	117.12	10.16	9.90	5.41	14.65	33.00
	1830.20	312	EI	Н	127.98	21.09	9.90	5.41	25.58	33.00
			E2	V	117.16	10.20	9.90	5.41	14.69	33.00
			EZ	Н	127.76	20.87	9.90	5.84	24.93	33.00
		80.00 661	H 61 E1	V	121.13	14.18	9.99	5.46	18.71	33.00
				Н	117.80	10.93	9.99	5.46	15.46	33.00
PCS 1900	1880.00			V	120.37	13.42	9.99	5.46	17.95	33.00
PCS 1900	1000.00			Н	116.54	9.67	9.99	5.46	14.20	33.00
			E2	V	120.72	13.77	9.99	5.46	18.30	33.00
			EZ	Н	115.78	8.91	9.99	5.46	13.44	33.00
			Н	V	123.14	16.20	10.08	5.51	20.77	33.00
			П	Н	128.84	21.99	10.08	5.51	26.55	33.00
	1909.80	810	E1	V	122.32	15.38	10.08	5.51	19.95	33.00
	1909.00	810	EI	Н	128.28	21.43	10.08	5.51	25.99	33.00
			E2	V	122.29	15.35	10.08	5.51	19.92	33.00
			E2	Н	128.13	21.28	10.08	5.51	25.84	33.00

Remark:

(1) The RBW, VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

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

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	115.02	27.70	-7.87	3.64	16.18	38.45
				Н	124.42	36.76	-7.87	3.64	25.25	38.45
	824.20	128	E1	V	113.94	26.62	-7.87	3.64	15.10	38.45
	624.20	120	151	Н	124.06	36.40	-7.87	3.64	24.89	38.45
			E2	V	111.76	24.44	-7.87	3.64	12.92	38.45
			E2	Н	123.80	36.14	-7.87	3.64	24.63	38.45
			Н	V	122.86	35.83	-7.88	3.70	24.26	38.45
		190	11	Н	120.99	33.65	-7.88	3.70	22.08	38.45
EDGE 850	836.60		E1	V	122.59	35.56	-7.88	3.70	23.99	38.45
EDGE 830	830.00			Н	119.35	32.01	-7.88	3.70	20.44	38.45
			E2	V	121.82	34.79	-7.88	3.70	23.22	38.45
			E2	Н	118.57	31.23	-7.88	3.70	19.66	38.45
			Н	V	115.47	28.73	-7.88	3.75	17.10	38.45
			11	Н	123.36	36.34	-7.88	3.75	24.71	38.45
	848.80	251	E1	V	113.93	27.19	-7.88	3.75	15.56	38.45
	040.00	251	151	Н	123.34	36.32	-7.88	3.75	24.69	38.45
			E2	V	112.35	25.61	-7.88	3.75	13.98	38.45
			EZ	Н	123.11	36.09	-7.88	3.75	24.46	38.45

Remark:

The RBW, VBW of SPA for frequency (1)

Below 1GHz was RBW=100 KHz, VBW=300KHz,

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

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	126.62	19.66	9.90	5.41	24.15	33.00
				Н	123.84	16.95	9.90	5.41	21.44	33.00
	1850.20	512	E1	V	111.75	4.79	9.90	5.41	9.28	33.00
	1830.20	312	EI	Н	123.22	16.33	9.90	5.41	20.82	33.00
			E2	V	111.73	4.77	9.90	5.41	9.26	33.00
			E2	Н	122.74	15.85	9.90	5.84	19.91	33.00
			661 E1	V	116.34	9.39	9.99	5.46	13.92	33.00
		661		Н	113.61	6.74	9.99	5.46	11.27	33.00
EDGE	1880.00			V	115.50	8.55	9.99	5.46	13.08	33.00
1900	1880.00			Н	112.59	5.72	9.99	5.46	10.25	33.00
			E2	V	115.79	8.84	9.99	5.46	13.37	33.00
			E2	Н	112.27	5.40	9.99	5.46	9.93	33.00
			Н	V	117.59	10.65	10.08	5.51	15.22	33.00
			11	Н	123.64	16.79	10.08	5.51	21.35	33.00
	1909.80	810	E1	V	116.92	9.98	10.08	5.51	14.55	33.00
	1707.00	810	EI	Н	123.31	16.46	10.08	5.51	21.02	33.00
			E2	V	116.35	9.41	10.08	5.51	13.98	33.00
				Н	123.16	16.31	10.08	5.51	20.87	33.00

Remark:

(1) The RBW, VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

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

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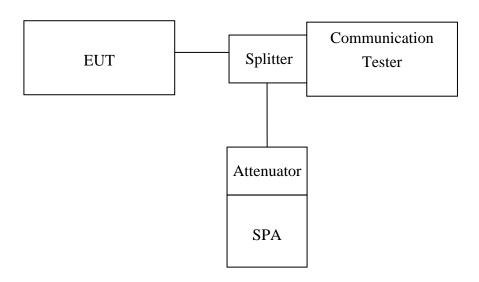
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99% OCCUPIED BANDWIDTH MEASUREMENT 7.

Standard Applicable

According to §FCC 2.1049.

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 (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -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.

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Measurement Equipment Used:

	Conducte	ed Emission T	est Site		
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	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
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

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Measurement Result:

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	824.20	128	0.2425
GSM 850	836.60	190	0.2444
	848.80	251	0.2415

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	1850.20	512	0.2453
PCS 1900	1880.00	661	0.2455
	1909.80	810	0.2479

EUT Mode	Frequency (MHz)	CH 99% Bandwidth (MHz)	
EDGE 850	824.20	128	0.2425
	836.60	190	0.2438
	848.80	251	0.2456

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
EDGE 1900	1850.20	512	0.2445
	1880.00	661	0.2432
	1909.80	810	0.2443

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Figure 7-1: GSM 850 Channel Low

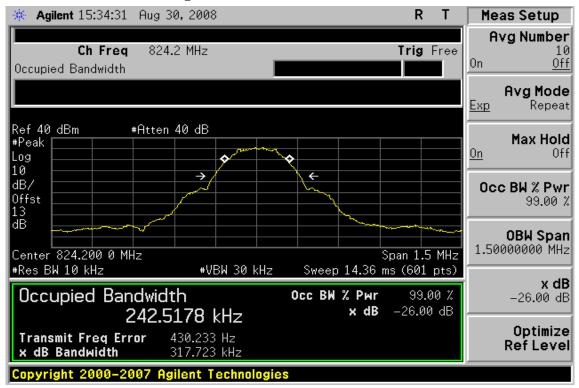


Figure 7-2 GSM 850 Channel Mid



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Figure 7-3: GSM 850 Channel High

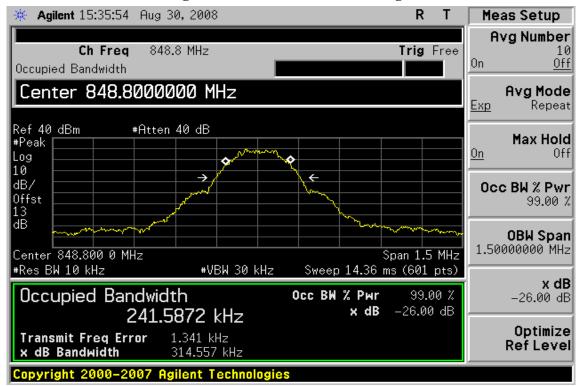
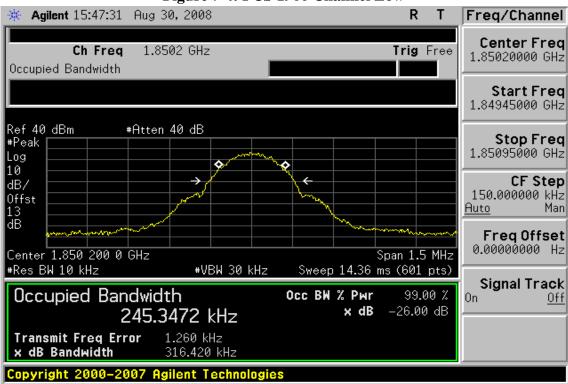


Figure 7-4: PCS 1900 Channel Low



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Figure 7-5 PCS 1900 Channel Mid

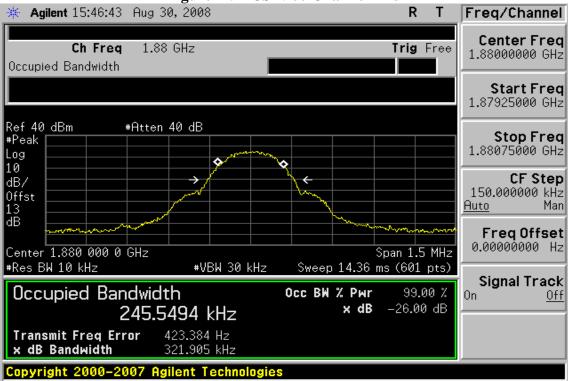
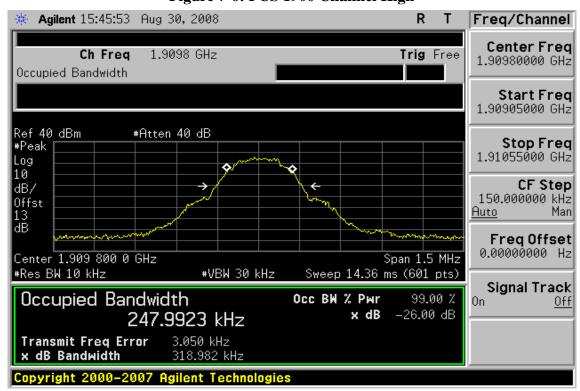


Figure 7-6: PCS 1900 Channel High



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Figure 7-7: EDGE 850 Channel Low

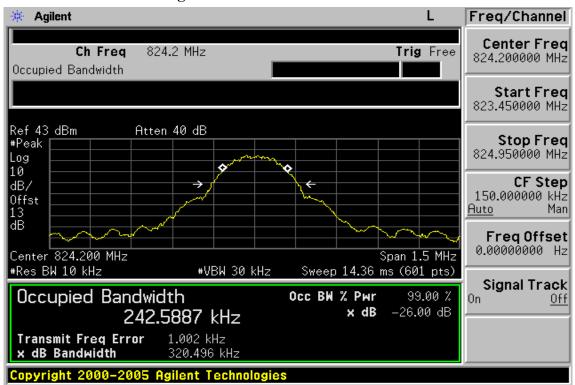
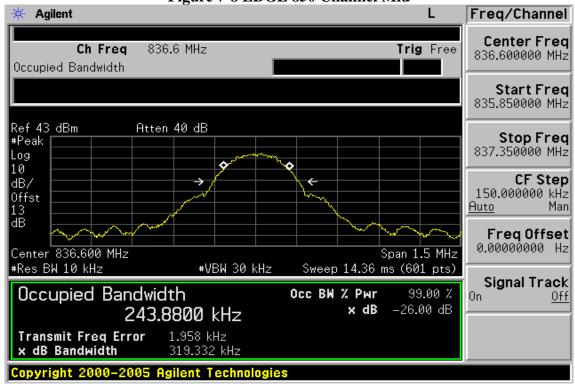


Figure 7-8 EDGE 850 Channel Mid



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Figure 7-9: EDGE 850 Channel High

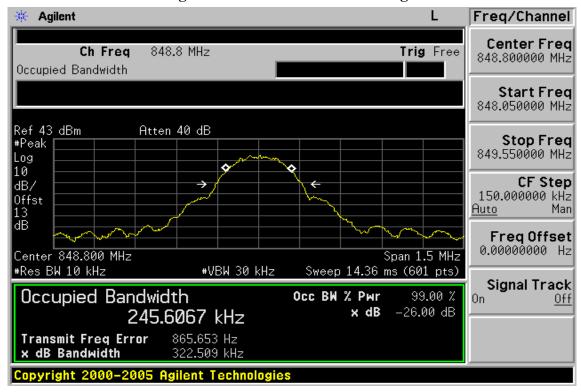
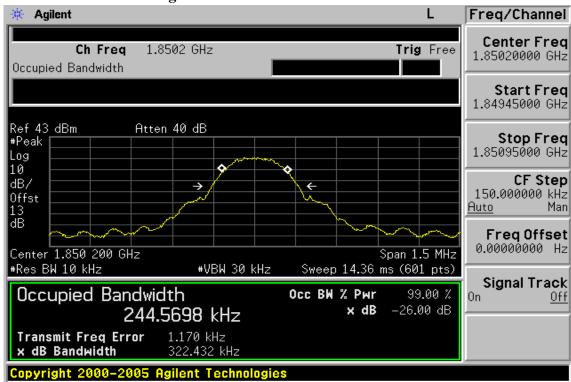


Figure 7-10: EDGE 1900 Channel Low



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Figure 7-11: EDGE 1900 Channel Mid

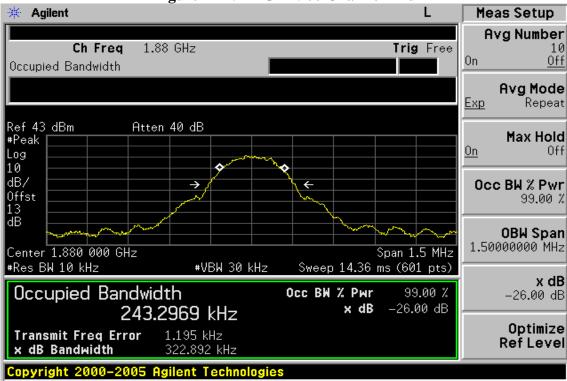
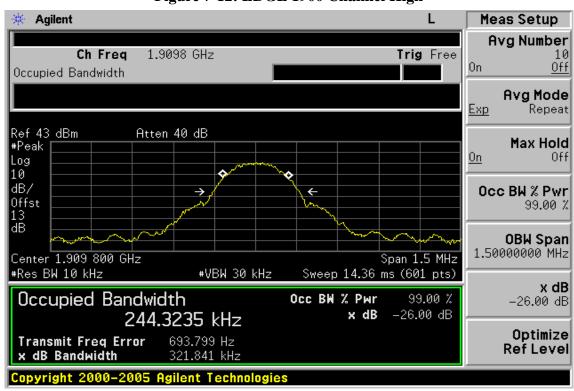


Figure 7-12: EDGE 1900 Channel High



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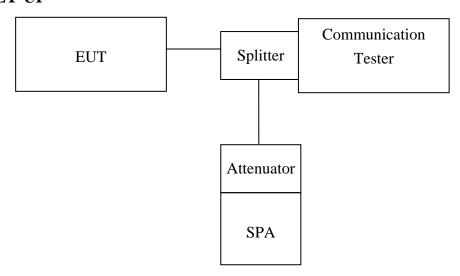
OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1 **Standard Applicable**

According to FCC §2.1051.

FCC §22.917(a), §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)

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= 10th harmonic. Limit = -13dBm

Band Edge Requirements: 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.

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Measurement Equipment Used:

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010			
Spectrum Analyzer	Agilent	E7405A	US41160416	07/04/2007	07/03/2008			
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			
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	01/05/2008	01/04/2009			
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			

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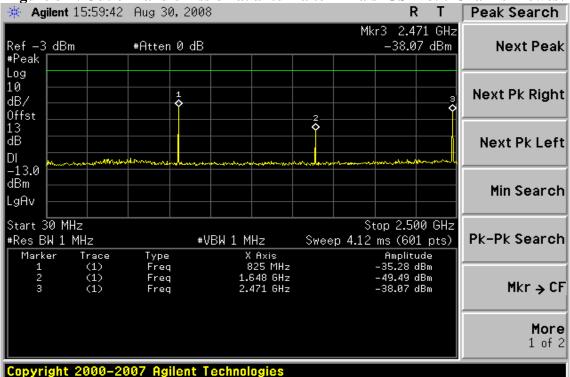


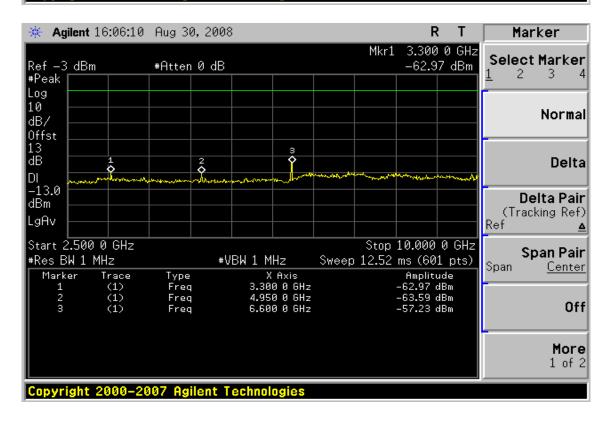
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8.5 **Measurement Result**

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





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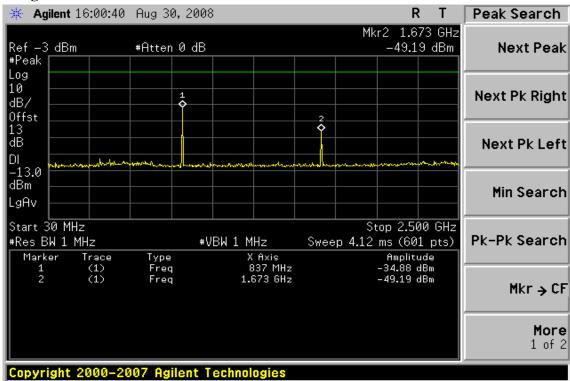
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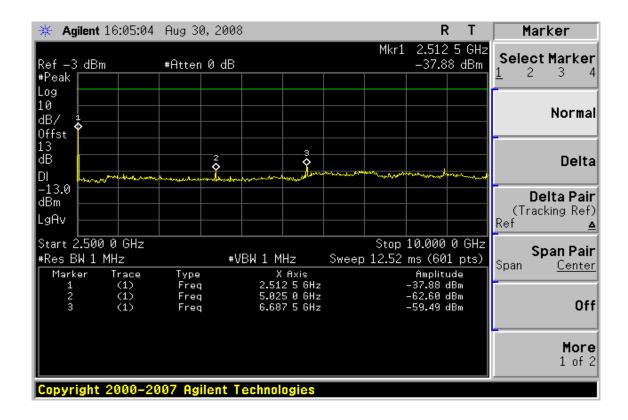


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Figure 8-2: Out of Band emission at antenna terminals –GSM 850 Channel Mid





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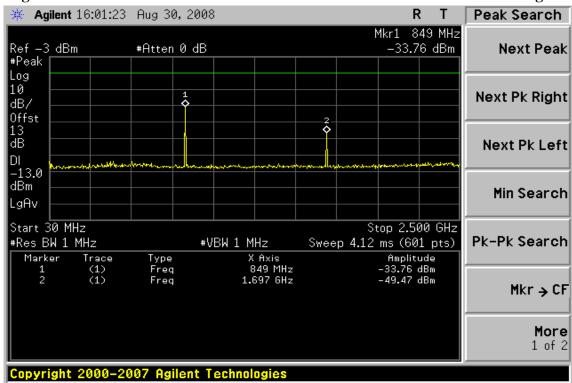
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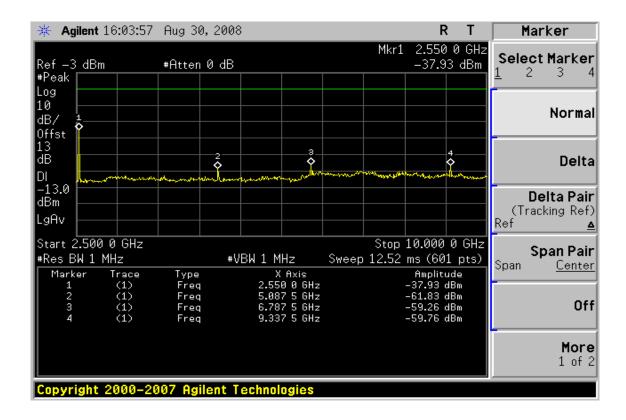


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Figure 8-3: Out of Band emission at antenna terminals-GSM 850 Channel Highest





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

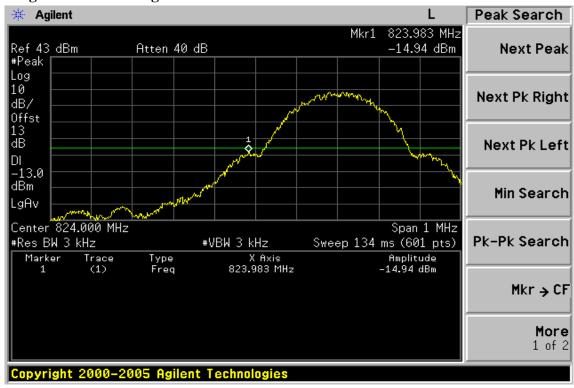
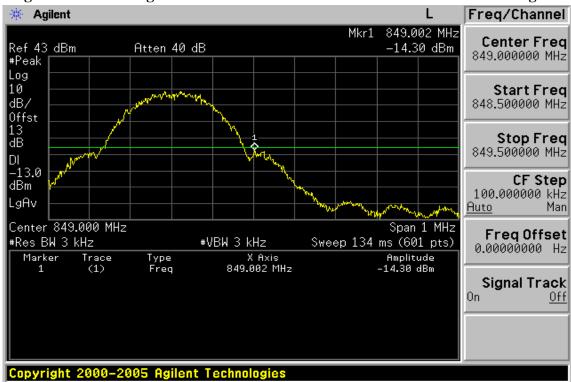


Figure 8-5: Band edge emission at antenna terminals –GSM 850 Channel Highest



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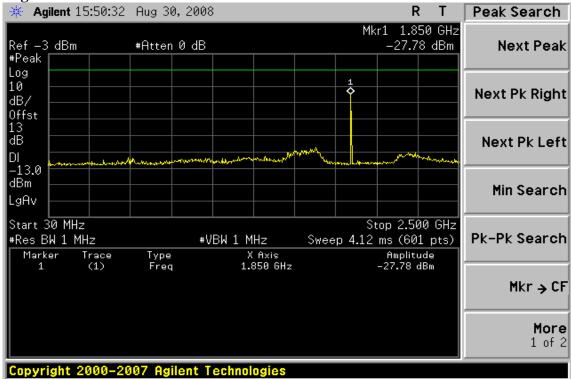
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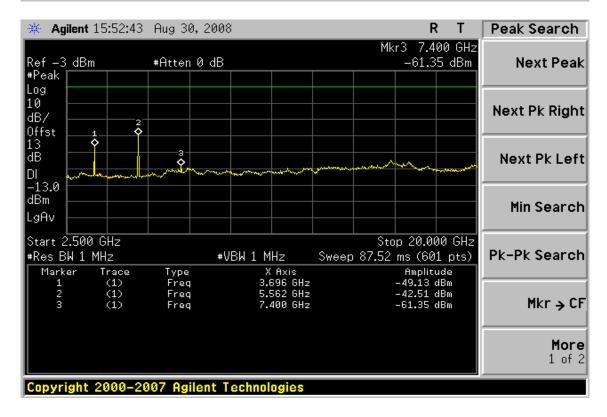


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Figure 8-6: Out of Band emission at antenna terminals-PCS 1900 Channel Lowest





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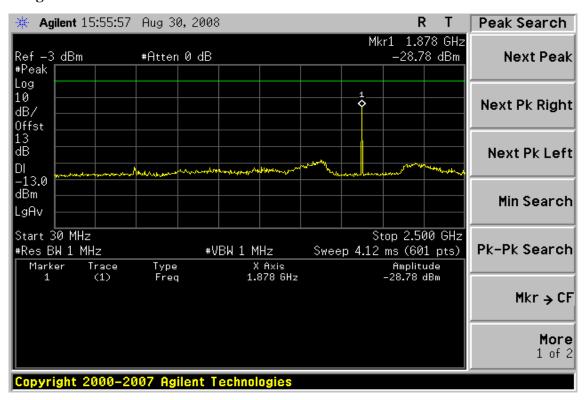
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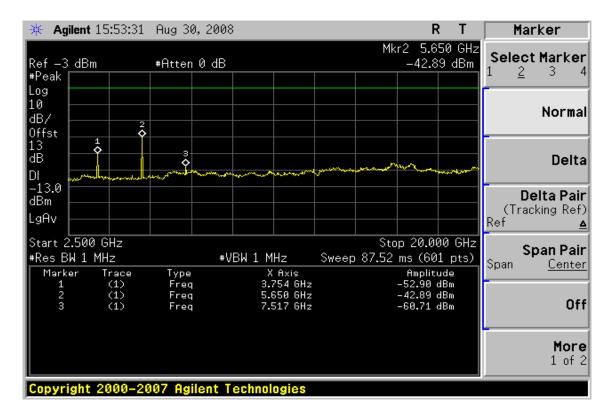


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Figure 8-7: Out of Band emission at antenna terminals -PCS 1900 Channel Mid





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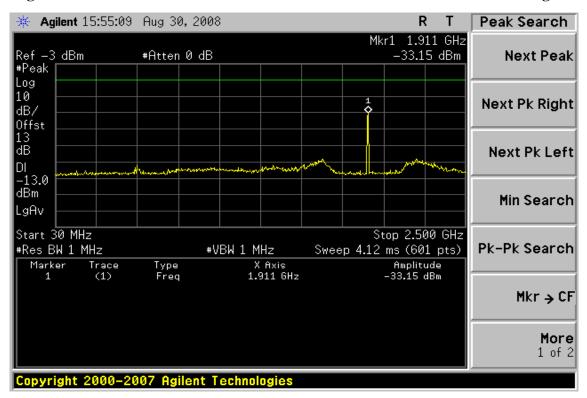
f (886-2) 2298-0488 www.sas.com.tw

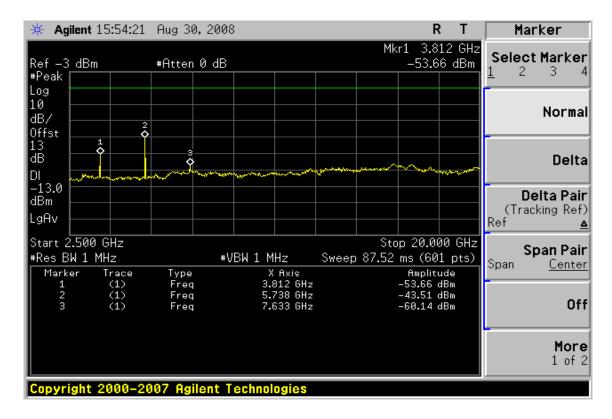


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Figure 8-8: Out of Band emission at antenna terminals-PCS 1900 Channel Highest





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Figure 8-9: Bad edge emission at antenna terminals -PCS 1900 Channel Lowest

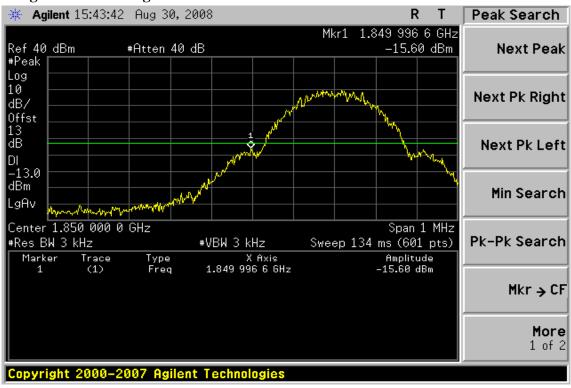
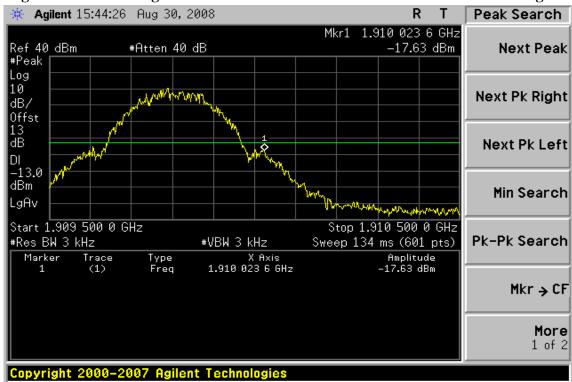


Figure 8-10: Band edge emission at antenna terminals –PCS 1900 Channel Highest



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FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT 9.

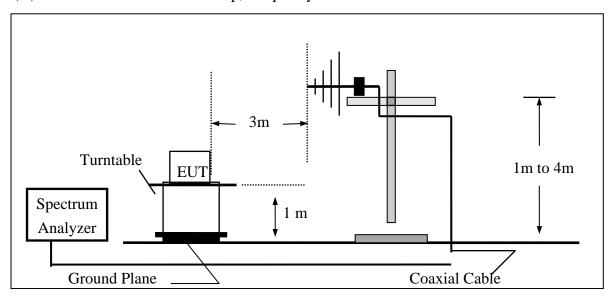
9.1 **Standard Applicable**

According to FCC §2.1053,

FCC §22.917(a),§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)

EUT Setup (Block Diagram of Configuration) 9.2

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



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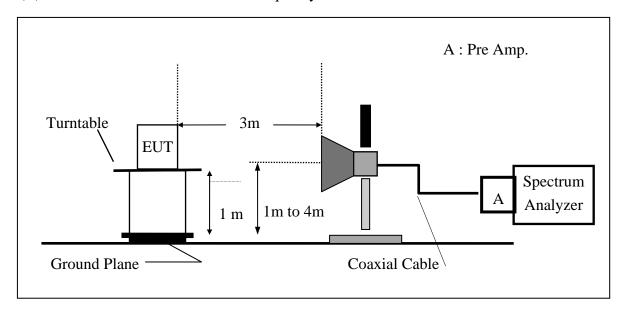
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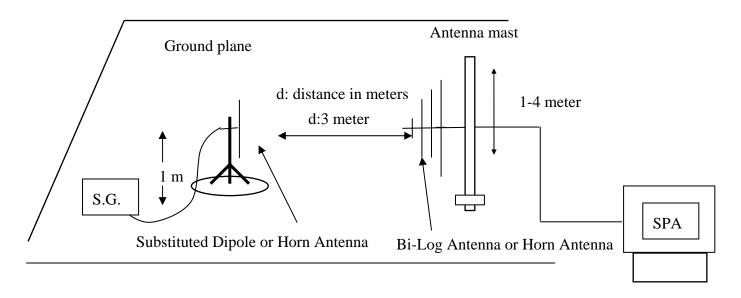
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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Measurement Procedure 9.3

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 Loss (dB)

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

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Measurement Equipment Used:

EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	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	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	01/05/2008	01/04/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2008	01/04/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	01/05/2008	01/04/2009
Attenuator	Mini-Circult	BW-S10W5	N/A	07/05/2008	07/04/2009
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.

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode : TX CH Low H Mode Test Date: Aug. 30, 2008

Fundamental Frequency : 824.20 MHz Test By: Bondi Temperature Pol: Ver : 25°C

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)
824.00	73.15	V	-14.18	-7.87	3.64	-25.70	-13.00	-12.70
1648.40	51.13	V	-55.91	9.29	5.06	-51.68	-13.00	-38.68
2472.60	50.19	V	-53.87	10.08	6.30	-50.10	-13.00	-37.10
3296.80		V		12.17	7.26		-13.00	
4121.00		V		12.61	8.33		-13.00	
4945.20		V		12.65	9.19		-13.00	
5769.40		V		13.55	9.80		-13.00	
6593.60		V		12.05	10.61		-13.00	
7417.80		V		11.49	11.28		-13.00	
8242.00		V		11.48	12.26		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode : TX CH Low H Mode Test Date: Aug. 30, 2008

Fundamental Frequency : 824.20 MHz Test By: Bondi Temperature Pol: Hor : 25°C

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
824.00	82.55	Н	-5.11	-7.87	3.64	-16.63	-13.00	-3.63
1648.40	55.47	Н	-51.54	9.29	5.06	-47.31	-13.00	-34.31
2472.60	49.08	Н	-54.98	10.08	6.30	-51.20	-13.00	-38.20
3296.80		Н		12.17	7.26		-13.00	
4121.00		Н		12.61	8.33		-13.00	
4945.20		Н		12.65	9.19		-13.00	
5769.40		Н		13.55	9.80		-13.00	
6593.60		Н		12.05	10.61		-13.00	
7417.80		Н		11.49	11.28		-13.00	
8242.00		Н		11.48	12.26		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

: TX CH Mid H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 836.60 MHz Test By: Bondi Temperature : 25°C Pol: Ver

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1673.20	49.32	V	-57.71	9.36	5.10	-53.45	-13.00	-40.45
2509.80	54.23	V	-49.65	10.09	6.35	-45.91	-13.00	-32.91
3346.40		V		12.28	7.29		-13.00	
4183.00		V		12.62	8.40		-13.00	
5019.60		V		12.67	9.26		-13.00	
5856.20		V		13.68	9.85		-13.00	
6692.80		V		11.95	10.74		-13.00	
7529.40		V		11.45	11.35		-13.00	
8366.00		V		11.59	12.43		-13.00	

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

Remark:

- 1 The emission behaviors belongs 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)

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

: TX CH Mid H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 836.60 MHz Test By: Bondi Temperature : 25°C Pol: Hor

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1673.20	53.31	Н	-53.69	9.36	5.10	-49.42	-13.00	-36.42
2509.80	48.82	Н	-55.05	10.09	6.35	-51.31	-13.00	-38.31
3346.40		Н		12.28	7.29		-13.00	
4183.00		Н		12.62	8.40		-13.00	
5019.60		Н		12.67	9.26		-13.00	
5856.20		Н		13.68	9.85		-13.00	
6692.80		Н		11.95	10.74		-13.00	
7529.40		Н		11.45	11.35		-13.00	
8366.00		Н		11.59	12.43		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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)

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

: TX CH High H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 848.80 MHz Test By: Bondi Ver Temperature : 25°C Pol:

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
850.00	70.58	Н	-16.41	-7.88	3.75	-28.04	-13.00	-15.04
1697.60	47.39	V	-59.63	9.44	5.14	-55.34	-13.00	-42.34
2546.40	50.57	V	-53.22	10.20	6.40	-49.42	-13.00	-36.42
3395.20		V		12.38	7.33		-13.00	
4244.00		V		12.63	8.46		-13.00	
5092.80		V		12.74	9.32		-13.00	
5941.60		V		13.81	9.89		-13.00	
6790.40		V		11.86	10.87		-13.00	
7639.20		V		11.40	11.48	_	-13.00	_
8488.00		V		11.70	12.59		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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)

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

: TX CH High H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 848.80 MHz Test By: Bondi Temperature : 25°C Pol: Hor

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
850.00	76.80	Н	-10.19	-7.88	3.75	-21.82	-13.00	-8.82
1697.60	56.54	Н	-50.44	9.44	5.14	-46.15	-13.00	-33.15
2546.40	47.56	Н	-56.22	10.20	6.40	-52.42	-13.00	-39.42
3395.20		Н		12.38	7.33		-13.00	
4244.00		Н		12.63	8.46		-13.00	
5092.80		Н		12.74	9.32		-13.00	
5941.60		Н		13.81	9.89		-13.00	
6790.40		Н		11.86	10.87		-13.00	
7639.20		Н		11.40	11.48	_	-13.00	
8488.00		Н		11.70	12.59		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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)

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

: TX CH Low H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1850.20MHz Test By: Bondi Temperature : 25°C Pol: Ver

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1850.00	76.50	V	-30.46	9.90	5.41	-25.97	-13.00	-12.97
3700.40	50.77	V	-50.81	12.61	7.73	-45.93	-13.00	-32.93
5550.60	43.13	V	-52.08	13.23	9.68	-48.54	-13.00	-35.54
7400.80	42.02	V	-43.98	11.50	11.28	-43.75	-13.00	-30.75
9251.00		V		11.92	13.10		-13.00	
11101.20		V		11.66	14.33		-13.00	
12951.40		V		13.63	15.98		-13.00	
14801.60		V		12.76	17.27		-13.00	
16651.80		V		15.92	19.04		-13.00	
18502.00		V		18.75	21.21		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

: TX CH Low H Mode Operation Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1850.20MHz Test By: Bondi Temperature : 25°C Pol: Hor

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1850.00	81.07	Н	-25.82	9.90	5.41	-21.33	-13.00	-8.33
3700.40	42.89	Н	-58.47	12.61	7.73	-53.59	-13.00	-40.59
5550.60	42.30	Н	-52.83	13.23	9.68	-49.28	-13.00	-36.28
7400.80	39.66	Н	-46.40	11.50	11.28	-46.18	-13.00	-33.18
9251.00		Н		11.92	13.10		-13.00	
11101.20		Н		11.66	14.33		-13.00	
12951.40		Н		13.63	15.98		-13.00	
14801.60		Н		12.76	17.27		-13.00	
16651.80		Н		15.92	19.04		-13.00	
18502.00		Н		18.75	21.21		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode : TX CH Mid H Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1880MHz Test By: Bondi Temperature Pol: Ver : 25°C

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
3760.00	51.31	V	-49.99	12.60	7.82	-45.21	-13.00	-32.21
5640.00	44.54	V	-50.42	13.36	9.73	-46.79	-13.00	-33.79
7520.00	45.95	V	-39.66	11.45	11.33	-39.55	-13.00	-26.55
9400.00		V		11.93	13.15		-13.00	
11280.00		V		11.92	14.56		-13.00	
13160.00		V		13.33	16.11		-13.00	
15040.00		V		13.76	17.57		-13.00	
16920.00		V		15.27	19.66		-13.00	
18800.00		V		18.68	21.34		-13.00	

	30MHz - 80MHz: 5.04dB					
Measurement uncertainty	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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode : TX CH Mid H Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1880MHz Test By: Bondi Temperature Pol: Hor : 25°C

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
3760.00	39.74	Н	-61.37	12.60	7.82	-56.58	-13.00	-43.58
5640.00	44.81	Н	-50.08	13.36	9.73	-46.45	-13.00	-33.45
7520.00	44.51	Н	-41.18	11.45	11.33	-41.06	-13.00	-28.06
9400.00		Н		11.93	13.15		-13.00	
11280.00		Н		11.92	14.56		-13.00	
13160.00		Н		13.33	16.11		-13.00	
15040.00		Н		13.76	17.57		-13.00	
16920.00		Н		15.27	19.66		-13.00	
18800.00		Н		18.68	21.34		-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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode : TX CH High H Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1909.8 MHz Bondi Test By: Temperature Pol: Ver : 25°℃

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1910.00	73.34	V	-33.60	10.08	5.51	-29.03	-13.00	-16.03
3821.00	45.00	V	-56.02	12.60	7.92	-51.34	-13.00	-38.34
3981.60	5.00	V	-95.28	12.60	8.17	-90.86	-13.00	-77.86
5972.40	46.13	V	-47.89	13.86	9.91	-43.94	-13.00	-30.94
7963.20	42.51	V	-41.44	11.27	11.88	-42.05	-13.00	-29.05
9954.00		V		12.08	13.43		-13.00	
11944.80		V		13.08	15.21		-13.00	
13935.60		V		11.82	16.86		-13.00	
15926.40		V		17.08	18.33		-13.00	
17917.20		V		9.63	20.12		-13.00	
19908.00		V		18.88	20.85		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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)

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Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode : TX CH High H Mode Test Date: Aug. 30, 2008

Fundamental Frequency: 1909.8 MHz Test By: Bondi Temperature Pol: Hor : 25°℃

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
1910.00	80.51	Н	-26.34	10.08	5.51	-21.78	-13.00	-8.78
3821.00	44.59	Н	-56.26	12.60	7.92	-51.58	-13.00	-38.58
3981.60	45.54	Н	-54.64	12.60	8.17	-50.21	-13.00	-37.21
5972.40	41.64	Н	-52.37	13.86	9.91	-48.42	-13.00	-35.42
7963.20		Н		11.27	11.88		-13.00	
9954.00		Н		12.08	13.43		-13.00	
11944.80		Н		13.08	15.21		-13.00	
13935.60		Н		11.82	16.86		-13.00	
15926.40		Н		17.08	18.33		-13.00	
17917.20		Н		9.63	20.12		-13.00	
19908.00		Н		18.88	20.85		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	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)

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FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT **10.**

10.1 **Standard Applicable**

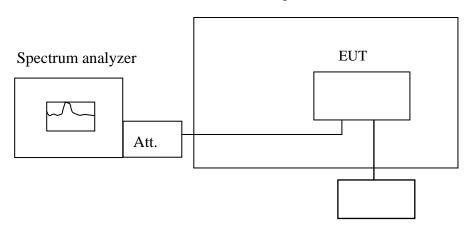
According to FCC §2.1055(d)(1)(2)

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

+/-2.5ppm for 1900MHz band

Test Set-up: 10.2

Temperature Chamber



Variable Power Supply

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.

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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	E7405A	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				
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				

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10.5 **Measurement Result**

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25°C									
	Limit: +/- 2.5 ppm = 2091 Hz								
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)					
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)					
3.8	-30	836.599977	7.00	2091					
3.8	-20	836.599975	836.599975 9.00						
3.8	-10	836.599982	2.00	2091					
3.8	0	836.599987	-3.00	2091					
3.8	10	836.599981	3.00	2091					
3.8	20	836.599984	0.00	2091					
3.8	30	836.599994	-10.00	2091					
3.8	40	836.599988 -4.00		2091					
3.8	50	836.599972	12.00	2091					

Reference Frequency: PCS Mid Channel 1880 MHz @ 25℃									
	Limit: +/- 2.5 ppm = 4700 Hz								
Power Supply	Limit (Hz)								
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Lillit (112)					
3.8	-30	1879.999966	16.00	4700					
3.8	-20	1879.999972	10.00	4700					
3.8	-10	1879.999969	13.00	4700					
3.8	0	1879.999973	9.00	4700					
3.8	10	1879.999983	-1.00	4700					
3.8	20	1879.999982	0.00	4700					
3.8	30	1879.999970	12.00	4700					
3.8	40	1879.999965	17.00	4700					
3.8	50	1879.999954	28.00	4700					

Note: The battery is rated 3.8V dc.

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11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

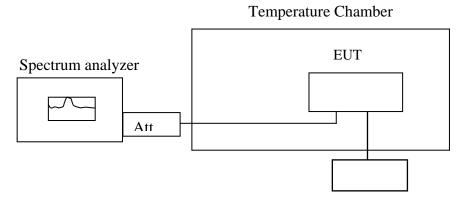
11.1 Standard Applicable

According to FCC §2.1055(d)(1)(2)

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

+/-2.5ppm for 1900MHz band

11.2 Test Set-up:



Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

11.3 Measurement Procedure

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

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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	E7405A	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				
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				

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11.5 Measurement Result

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25°C							
Limit: +/- 2.5 ppm = 2091 Hz							
Power Supply	Environment Frequency D. L. C. L. C.						
Vdc	Temperature ($^{\circ}$ C)	(MHz)	Delta (Hz)	Limit (Hz)			
4.20	25.00	836.599981	0.00	2091.00			
3.80	25.00	836.599984	-3.00	2091.00			
3.20 (End Point)	25.00	836.599988	-7.00	2091.00			

Reference Frequency: PCS Mid Channel 1880 MHz @ 25°C							
	Limit	: +/- 2.5 ppm = 470	00 Hz				
Power Supply	y Environment Frequency						
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)			
4.20	25	1879.999969	0.00	4700			
3.80	25	1879.999982	-13.00	4700			
3.20 (Endpoint) 25		1879.999912	57.00	4700			

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AC POWER LINE CONDUCTED EMISSION TEST 12.

12.1 Standard Applicable

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

Eraguanay ranga	Lim					
Frequency range	dB(uV)					
MHz	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

12.2 EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2001.
- 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.

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^{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.



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12.4 Measurement Equipment Used:

Conducted Emission Test Site									
EQUIPMENT	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESCS30	828985/004	09/15/2007	09/14/2008				
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.

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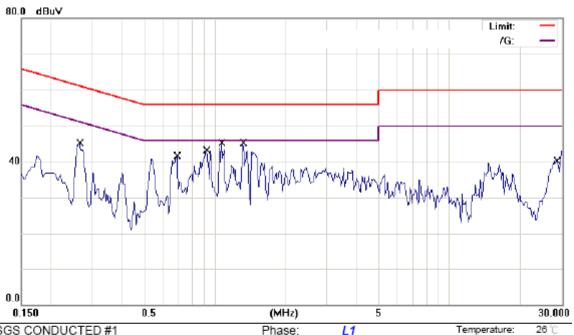


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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 850 LINK		Test Date:	Aug. 26, 2008	
Temperature:	26 ℃	Humidity:	61 %	Test By:	Bondi



Power:

Distance:

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: PDA Phone

M/N: BLAC100 Note: GSM 850 link

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.2650	45.24	0.14	45.38	61.27	-15.89	QP		
2	0.6900	41.73	0.05	41.78	56.00	-14.22	QP		
3	0.9200	43.29	0.04	43.33	56.00	-12.67	QP		
4	1.0700	45.33	0.04	45.37	56.00	-10.63	QP		
5 *	1.3200	45.36	0.04	45.40	56.00	-10.60	QP		
6	30.0000	43.06	0.23	43.29	60.00	-16.71	QP		

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f (886-2) 2298-0488

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Humidity:

Air Pressure:

hpa

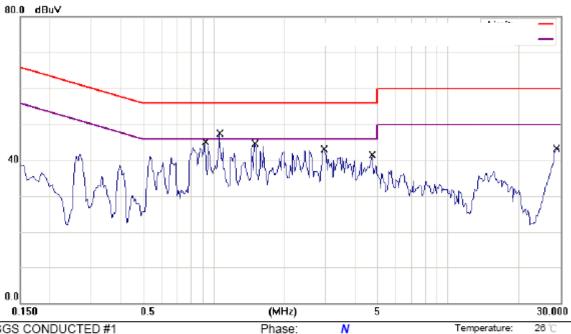


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Humidity:

Air Pressure:

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Power:

Distance:

Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

Reading

EUT: PDA Phone M/N: BLAC100 Note: GSM 850 link

;-	Limit	Over			
	dBuV	dB	Detector	Comment	
	56.00	-10.94	QP		
	56.00	-17.47	QP		

AC 120V/60Hz

No. Mk	. Freq.	Level	Factor	ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1 *	0.9200	45.03	0.03	45.06	56.00	-10.94	QP		
2	1.0600	38.50	0.03	38.53	56.00	-17.47	QP		
3	1.0600	24.10	0.03	24.13	46.00	-21.87	AVG		
4	1.5000	44.63	0.03	44.66	56.00	-11.34	QP		
5	2.9600	43.15	0.03	43.18	56.00	-12.82	QP		
6	4.7700	41.48	0.06	41.54	56.00	-14.46	QP		
7	29.0200	43.11	0.24	43.35	60.00	-16.65	QP		

Measure

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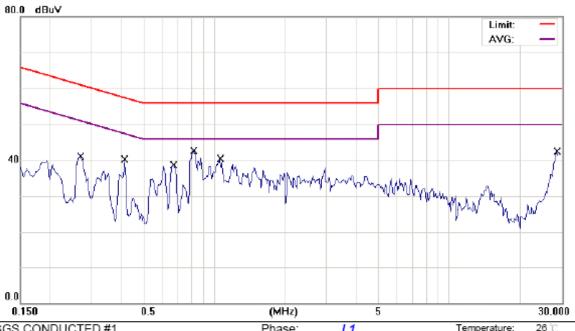


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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	PCS 1900 Link		Test Date:	Aug. 26, 2008	
Temperature:	26 ℃	Humidity:	58 %	Test By:	Bondi



Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: PDA Phone M/N: BLAC100

Note: GSM 1900 link

i ilaso.	LI		
Power:	AC 120V/60Hz	Humidity:	61 %
Distance:		Air Pressure:	hpa

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.2700	40.87	0.14	41.01	61.12	-20.11	QP		
2	0.4150	40.26	0.09	40.35	57.55	-17.20	QP		
3	0.6700	38.72	0.05	38.77	56.00	-17.23	QP		
4 *	0.8200	42.60	0.05	42.65	56.00	-13.35	QP		
5	1.0600	40.53	0.04	40.57	56.00	-15.43	QP		
6	28.6400	42.25	0.24	42.49	60.00	-17.51	QP		

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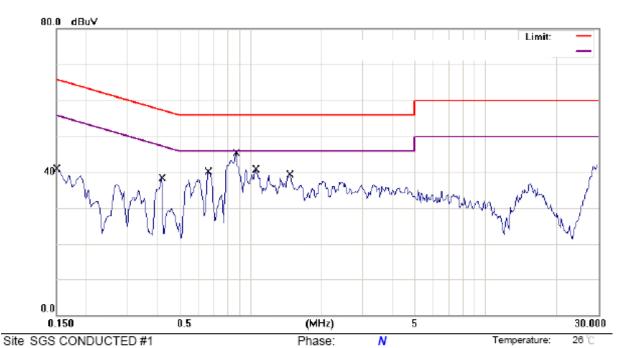


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Humidity:

Air Pressure:

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Power:

Distance:

AC 120V/60Hz

Limit: CISPR22/11 Class B Conduction(QP)

EUT: PDA Phone

M/N: BLAC100 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	40.77	0.40	41.17	66.00	-24.83	QP		
2	0.4200	38.45	0.07	38.52	57.45	-18.93	QP		
3	0.6600	40.26	0.04	40.30	56.00	-15.70	QP		
4	0.8700	38.70	0.04	38.74	56.00	-17.26	QP		
5	0.8700	26.90	0.04	26.94	46.00	-19.06	AVG		
6 *	1.0500	40.97	0.03	41.00	56.00	-15.00	QP		
7	1.4700	39.47	0.03	39.50	56.00	-16.50	QP		

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