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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

**Product Name:** Notebook

**Brand Name:** CLEVO

Model Name: M72XT (X=0~9)

Model Difference: Models are variant in exterior colors

**FCC ID: U9M-M72XT** 

GSM Module ID: N7NMC8775

Report No.: ER/2008/20016

**Issue Date:** Mar. 14, 2008

FCC Rule Part: 2 & 24E& 22H

Prepared for: CLEVO CO.

No. 129, Hsing-Te Road, Sun Chung City

241, Taipei Hsien, Taiwan, R.O.C.

Prepared by: SGS Taiwan Ltd.

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# VERIFICATION OF COMPLIANCE

**Applicant:** CLEVO CO.

No. 129, Hsing-Te Road, Sun Chung City 241, Taipei Hsien,

Taiwan, R.O.C.

**Product Name:** Notebook

**FCC ID Number:** U9M-M72XT

**Brand Name: CLEVO** 

Model No.:  $M72XT (X=0\sim9)$ 

**Model Difference:** Models are variant in exterior colors

File Number: ER/2008/20016

Date of test: Feb. 20, 2008 ~ Mar. 11, 2008

Feb. 20, 2008 **Date of EUT Received:** 

# We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. 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-B-2002 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:	Jason We	Date	Mar. 14, 2008	
_	Jason Wu/Asst. Supervisor			
Prepared By:	Eliser Chen	Date	Mar. 14, 2008	
_	Elisa Chen/Asst. Supervisor			
Approved By	Timent Su	Date	Mar. 14, 2008	
	Vincent Su/Manager			

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# Version

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# **GENERAL INFORMATION**

# 1.1 Product Description

Product Name:	Notebook			
Model Name:	M72XT (X=0~9)			
Model Difference:	Models are variant in exterior colors			
Trade Name:	CLEVO			
	14.4Vdc re-chargeable battery or 19Vdc by AC/DC power adapter			
Power Supply:	Battery Model: M720SBAT-4, Supplier: N/A M720SBAT-8, Supplier: SIMPLO			
	Adapter Model: 0335A1965, Supplier: LI SHIN HP-OK065B13, Supplier: HIPRO			

#### GSM:

	GSM/GPRS(class 12) 850	824 MHz– 849MHz	33 dBm
Cellular Phone Standards Frequency Range	EDGE 850	824 MHz– 849MHz	27 dBm
and Power	GSM/GPRS(class 12) 1900	1850MHz – 1910MHz	30 dBm
	EDGE 1900	1850MHz – 1910MHz	26 dBm
Type of Emission	GSM: 300KGXW EDGE: 300KG7W		

This test report applies for GSM/GPRS class /EDGE 850 and 1900 bands.



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# 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: U9M-M72XT filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

# 1.3 Test Methodology

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

# 1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. 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. 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.

# 1.5 Special Accessories

Not available for this EUT intended for grant.

## 1.6 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 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&13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 1.0 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8&13 of ANSI C63.4-2003.



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# 2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

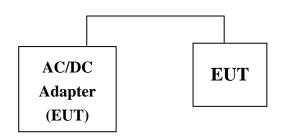


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.
1.	N/A				

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## 3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§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	N/A
§2.1051	Out of Band Emissions at Antenna	
§22.917(a)	Terminals and	N/A
§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	N/A
§2.1055(d)(1)(2)	Frequency Stability vs. Voltage	N/A
§15.107;§15.207	AC Power Line Conducted Emission	Compliant

# 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 and band with rated data rate are chosen for testing.

The GSM module was approved and the FCC ID number is N7NMC8775. Thus, the output power, ERP/EIRP, Field Strength of Spurious Radiation and AC Power Line Conducted Emission were tested at GSM and EDGE modes.

The output power of 850 and 1900 MHz EDGE modes has 3 dB lower than GSM modes. Therefore the worst-case of GSM 850 and GSM 1900 band were reported.



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## RF POWER OUTPUT MEASUREMENT

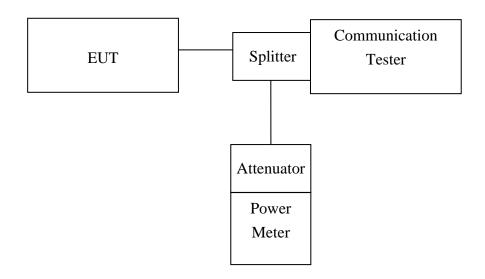
# 5.1 Standard Applicable

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 attenuator to the power meter reading.



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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	03/29/2007	03/28/2008		
Spectrum Analyzer	Agilent	E7405A	US41160416	06/28/2007	06/29/2008		
Spectrum Analyzer	R&S	FSP 40	100034	11/09/2007	11/10/2008		
Communication Test	R&S	SMU200	N/A	N/A	N/A		
Power Sensor	Anritsu	MA2490A	31431	06/28/2007	06/29/2008		
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2007	06/29/2008		
Temperature Chamber	TERCHY	MHG-120LF	911009	10/14/2007	10/13/2008		
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A		
Attenuator	Mini-Circuit	BW-S10W5	N/A	09/23/2007	09/22/2008		
Attenuator	Mini-Circuit	BW-S6W5	N/A	09/23/2007	09/22/2008		
Splitter	Agilent	11636B	51728	09/23/2007	09/22/2008		
DC Power Supply	TOPWARD	3303A	N/A	N/A	N/A		



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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	13.90	17.80	31.70
GSM 850	836.60	190	13.80	17.80	31.60
	848.80	251	13.70	17.80	31.50

EUT Mode	Frequency (MHz)	СН	Power Meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	1850.20	512	10.40	17.80	28.20
PCS 1900	1880.00	661	10.40	17.80	28.20
	1909.80	810	10.60	17.80	28.40

EUT Mode	Frequency (MHz)	СН	Power meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	824.20	128	7.30	17.80	25.10
EDGE 850	836.60	190	7.50	17.80	25.30
	848.80	251	7.50	17.80	25.30

EUT Mode	Frequency (MHz)	СН	Power Meter Reading (dBm)	Path Loss (dB)	Power (dBm)
	1850.20	512	7.00	17.80	24.80
EDGE 1900	1880.00	661	7.40	17.80	25.20
	1909.80	810	7.50	17.80	25.30

Note: Power (dBm) = Reading (dBm) + Path Loss (dB)



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# ERP, EIRP MEASUREMENT

# 6.1 Standard Applicable

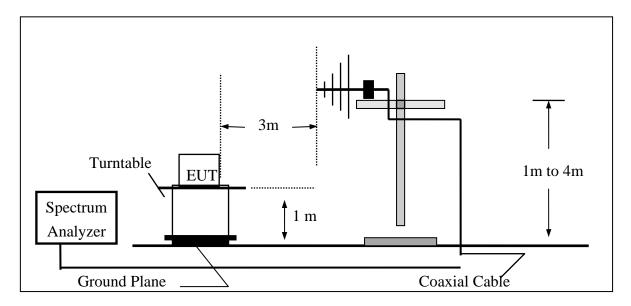
According to FCC §2.1046

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

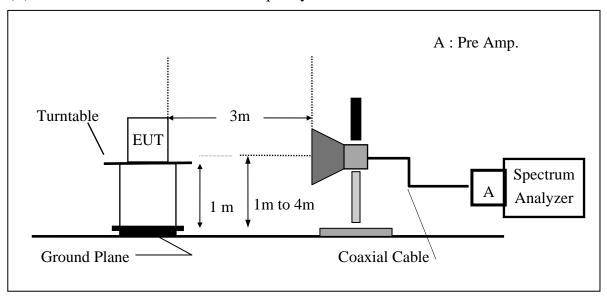




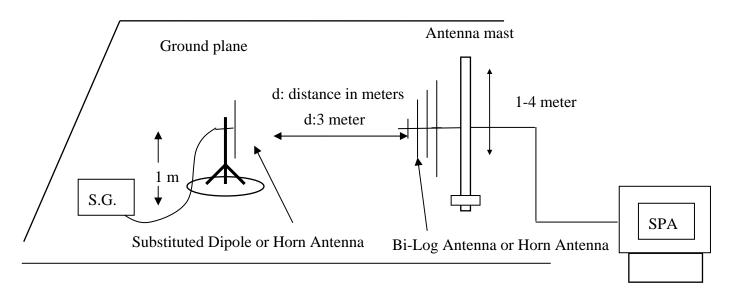
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# (B) Radiated Emission Test Set-UP Frequency Over 1 GHz



## (C) 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	03/29/2007	03/28/2008
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008
Spectrum Analyzer	R&S	FSP 40	100034	11/09/2007	11/10/2008
Communication Test	R&S	SMU200	N/A	N/A	N/A
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2007	06/02/2008
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2007	08/15/2008
Pre-Amplifier	HP	8447D	2944A09469	07/19/2007	07/18/2008
Pre-Amplifier	HP	8494B	3008A00578	02/26/2008	02/25/2009
Signal Generator	R&S	SMR40	100210	02/09/2008	02/10/2009
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2007	10/08/2008
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008
Attenuator	Mini-Circuit	BW-S10W5	N/A	09/23/2007	09/22/2008
Dipole Antenna	Schwarzbeck	VHAP	908/909	06/10/2007	06/11/2008
Dipole Antenna	Schwarzbeck	UHAP	891/892	06/10/2007	06/11/2008
Horn antenna	Schwarzbeck	BBHA 9120D	N/A	08/16/2007	08/15/2008



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# **6.5 Measurement Result**

EUT Mode	Frequency (MHz)	СН	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	824.20	128	V	126.16	38.84	-7.87	3.64	27.32	38.45
			Н	124.05	36.39	-7.87	3.64	24.88	38.45
GSM 850	836.60	190	V	125.99	38.96	-7.88	3.70	27.39	38.45
GSM 650	830.00		Н	122.65	35.31	-7.88	3.70	23.74	38.45
	848.80	251	V	126.31	39.57	-7.88	3.75	27.94	38.45
			Н	121.49	34.47	-7.88	3.75	22.84	38.45

EUT Mode	Frequency (MHz)	СН	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1850.20	512	V	123.44	16.48	9.90	5.41	20.97	33.00
	1630.20		Н	125.41	18.52	9.90	5.41	23.01	33.00
PCS 1900	1880.00	661	V	123.55	16.60	9.99	5.46	21.13	33.00
FCS 1900			Н	125.86	18.99	9.99	5.46	23.52	33.00
	1909.80	810	V	124.41	17.47	10.08	5.51	22.04	33.00
			Н	126.86	20.01	10.08	5.51	24.57	33.00



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EUT Mode	Frequency (MHz)	СН	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	824.20	128	V	122.66	35.34	-7.87	3.64	23.82	38.45
			Н	118.82	31.16	-7.87	3.64	19.65	38.45
EDGE 850	836.60	190	V	122.35	35.32	-7.88	3.70	23.75	38.45
EDGE 630	830.00		Н	116.79	29.45	-7.88	3.70	17.88	38.45
	848.80	251	V	122.33	35.59	-7.88	3.75	23.96	38.45
			Н	115.46	28.44	-7.88	3.75	16.81	38.45

EUT Mode	Frequency (MHz)	СН	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
1850.20	512	V	123.25	16.29	9.90	5.41	20.78	33.00	
	1650.20	312	Н	125.87	18.98	9.90	5.41	23.47	33.00
EDGE	1880.00	661	V	124.05	17.10	9.99	5.46	21.63	33.00
1900	1000.00	001	Н	126.00	19.13	9.99	5.46	23.66	33.00
	1909.80	810	V	125.18	18.24	10.08	5.51	22.81	33.00
	1909.80		Н	125.77	18.92	10.08	5.51	23.48	33.00



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# FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

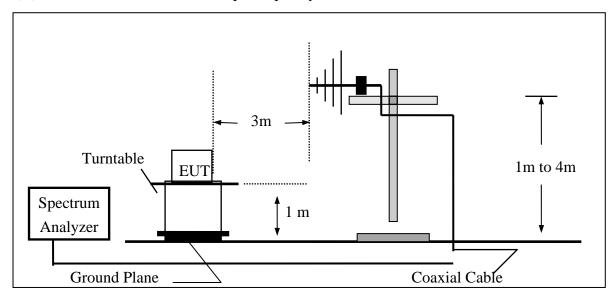
# 7.1 Standard Applicable

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)

# 7.2 EUT Setup (Block Diagram of Configuration)

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

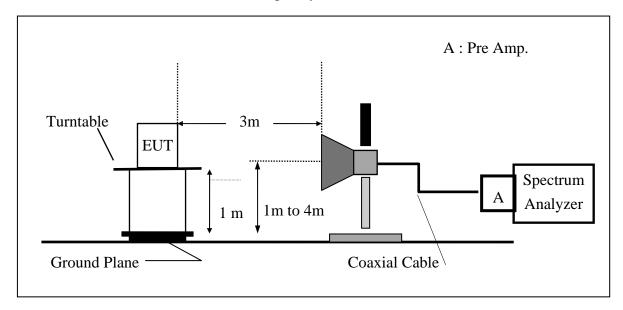




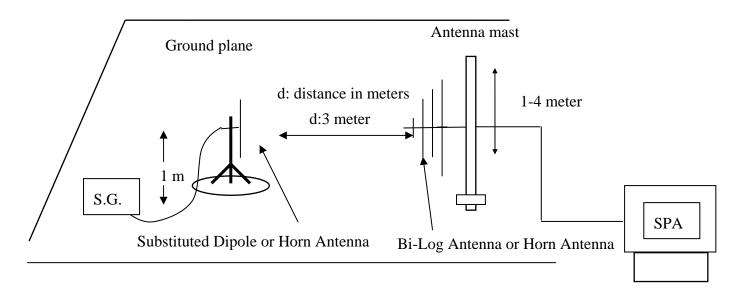
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# (B) Radiated Emission Test Set-UP Frequency Over 1 GHz



## (C) Substituted Method Test Set-UP





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#### 7.3 Measurement 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 Loss <math>(dB)

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



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# 7.4 Measurement Equipment Used:

EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008
Spectrum Analyzer	R&S	FSP 40	100034	11/09/2007	11/10/2008
Communication Test	R&S	SMU200	N/A	N/A	N/A
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2007	06/02/2008
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2007	08/15/2008
Pre-Amplifier	HP	8447D	2944A09469	07/19/2007	07/18/2008
Pre-Amplifier	HP	8494B	3008A00578	02/26/2008	02/25/2009
Signal Generator	R&S	SMR40	100210	02/09/2008	02/10/2009
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2007	10/08/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2007	10/08/2008
Site NSA	SGS	966 chamber	N/A	11/17/2007	11/16/2008
Attenuator	Mini-Circult	BW-S10W5	N/A	09/23/2007	09/22/2008
Dipole Antenna	Schwarzbeck	VHAP	908/909	06/10/2007	06/11/2008
Dipole Antenna	Schwarzbeck	UHAP	891/892	06/10/2007	06/11/2008
Horn antenna	Schwarzbeck	BBHA 9120D	N/A	08/16/2007	08/15/2008

# 7.5 Measurement Result

Refer to attach tabular data sheets.



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## Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode Test Date: Feb. 29, 2008 : TX CH Low

Fundamental Frequency : 824.20 MHz Test By: Jason **Temperature** Pol: Vertical : 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)
36.79	49.30	V	-53.43	-4.16	0.75	-58.34	-13.00	-45.34
276.38	51.03	V	-49.08	-7.91	1.99	-58.97	-13.00	-45.97
824.00	80.49	V	-6.84	-7.87	3.64	-18.36	-13.00	-5.36
1502.50	39.68	V	-67.42	8.85	4.80	-63.37	-13.00	-50.37
1648.40	50.43	V	-56.61	9.29	5.06	-52.38	-13.00	-39.38
2472.60	41.39	V	-62.67	10.08	6.30	-58.90	-13.00	-45.90
3002.50	40.54	V	-62.16	11.53	7.03	-57.67	-13.00	-44.67
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				

- 1 The emission behaviour 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

Operation Mode Test Date: Feb. 29, 2008 : TX CH Low

Fundamental Frequency : 824.20 MHz Test By: Jason Temperature Pol: Horizontal : 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)
36.79	46.98	Н	-56.82	-4.16	0.75	-61.72	-13.00	-48.72
276.38	47.72	Н	-52.50	-7.91	1.99	-62.39	-13.00	-49.39
824.00	76.35	Н	-11.31	-7.87	3.64	-22.83	-13.00	-9.83
904.94	37.16	Н	-48.55	-7.95	3.83	-60.33	-13.00	-47.33
1648.40	43.34	Н	-63.67	9.29	5.06	-59.44	-13.00	-46.44
2472.60	41.57	Н	-62.49	10.08	6.30	-58.71	-13.00	-45.71
3296.80		Н		12.17	7.26		-13.00	
4121.00	39.96	Н	-59.69	12.61	8.33	-55.40	-13.00	-42.40
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					

- 1 The emission behaviour 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

Operation Mode : TX CH Mid Feb. 29, 2008 Test Date:

Fundamental Frequency: 836.60 MHz Test By: Jason Temperature Pol: Vertical : 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)
36.79	49.04	V	-53.69	-4.16	0.75	-58.60	-13.00	-45.60
276.38	50.87	V	-49.24	-7.91	1.99	-59.13	-13.00	-46.13
1202.50	42.49	V	-64.55	7.13	4.22	-61.64	-13.00	-48.64
1330.00	41.75	V	-65.32	7.86	4.46	-61.92	-13.00	-48.92
1673.20	48.62	V	-58.41	9.36	5.10	-54.15	-13.00	-41.15
1855.00	41.17	V	-65.79	9.91	5.41	-61.29	-13.00	-48.29
2509.80		V		10.09	6.35		-13.00	
3346.40		V		12.28	7.29		-13.00	
4183.00	40.90	V	-58.66	12.62	8.40	-54.44	-13.00	-41.44
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

- 1 The emission behaviour 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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$



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# Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode : TX CH Mid Test Date: Feb. 29, 2008

Fundamental Frequency: 836.60 MHz Test By: Jason Temperature Pol: Horizontal : 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)
30.00	47.51	Н	-58.39	-7.34	0.69	-66.42	-13.00	-53.42
276.38	46.73	Н	-53.49	-7.91	1.99	-63.38	-13.00	-50.38
1673.20	45.86	Н	-61.14	9.36	5.10	-56.87	-13.00	-43.87
2509.80		Н		10.09	6.35		-13.00	
3346.40		Н		12.28	7.29		-13.00	
4183.00	42.05	Н	-57.37	12.62	8.40	-53.14	-13.00	-40.14
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	

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

- 1 The emission behaviour 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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$



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# Radiated Spurious Emission Measurement Result: GSM 850 Mode

Feb. 29, 2008 Operation Mode : TX CH High Test Date:

Fundamental Frequency: 848.80 MHz Test By: Jason Temperature Pol: Vertical : 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)
36.79	48.76	V	-53.97	-4.16	0.75	-58.88	-13.00	-45.88
276.38	49.41	V	-50.70	-7.91	1.99	-60.59	-13.00	-47.59
850.00	80.91	V	-5.80	-7.88	3.75	-17.43	-13.00	-4.43
1202.50	43.58	V	-63.46	7.13	4.22	-60.55	-13.00	-47.55
1697.60	53.54	V	-53.48	9.44	5.14	-49.19	-13.00	-36.19
2546.40		V		10.20	6.40		-13.00	
3395.20		V		12.38	7.33		-13.00	
4244.00	42.11	V	-57.24	12.63	8.46	-53.07	-13.00	-40.07
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 behaviour 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

Feb. 29, 2008 Operation Mode : TX CH High Test Date:

Fundamental Frequency: 848.80 MHz Test By: Jason Temperature Pol: Horizontal : 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)
276.38	48.32	Н	-51.90	-7.91	1.99	-61.79	-13.00	-48.79
850.00	75.59	Н	-11.40	-7.88	3.75	-23.03	-13.00	-10.03
1697.60	50.43	Н	-56.55	9.44	5.14	-52.26	-13.00	-39.26
2546.40		Н		10.20	6.40		-13.00	
3395.20		Н		12.38	7.33		-13.00	
4244.00	40.21	Н	-58.98	12.63	8.46	-54.81	-13.00	-41.81
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					

- 1 The emission behaviour 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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$



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## Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode **Test Date** Feb. 29, 2008 : TX CH Low

Fundamental Frequency: 1850.20MHz Test By: Jason Temperature Pol: Vertical : 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)
235.64	46.50	V	-54.60	-7.88	1.86	-64.34	-13.00	-51.34
264.74	47.90	V	-52.47	-7.90	1.99	-62.35	-13.00	-49.35
1105.00	43.09	V	-63.93	6.57	4.02	-61.39	-13.00	-48.39
1850.00	79.81	V	-27.15	9.90	5.41	-22.66	-13.00	-9.66
3700.40	35.01	V	-66.57	12.61	7.73	-61.69	-13.00	-48.69
5550.60		V		13.23	9.68		-13.00	
7400.80		V		11.50	11.28		-13.00	
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

- 1 The emission behaviour 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: PCS 1900 Mode

Operation Mode **Test Date** Feb. 29, 2008 : TX CH Low

Fundamental Frequency: 1850.20MHz Test By: Jason Temperature Pol: Horizontal : 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)
36.79	50.25	Н	-53.55	-4.16	0.75	-58.45	-13.00	-45.45
276.38	45.03	Н	-55.19	-7.91	1.99	-65.08	-13.00	-52.08
1105.00	41.53	Н	-66.84	6.57	4.02	-64.29	-13.00	-51.29
1850.00	80.12	Н	-26.77	9.90	5.41	-22.28	-13.00	-9.28
3700.40	34.60	Н	-66.76	12.61	7.73	-61.88	-13.00	-48.88
5550.60		Н		13.23	9.68		-13.00	
7400.80		Н		11.50	11.28		-13.00	
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

- 1 The emission behaviour 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: PCS 1900 Mode

Operation Mode : TX CH Mid Test Date Feb. 29, 2008

Fundamental Frequency: 1880MHz Test By Jason Temperature Pol Vertical : 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)
41.64	47.28	V	-55.37	-2.31	0.80	-58.49	-13.00	-45.49
266.68	47.70	V	-52.63	-7.90	1.99	-62.51	-13.00	-49.51
1127.50	43.90	V	-63.13	6.70	4.07	-60.50	-13.00	-47.50
1330.00	42.31	V	-64.76	7.86	4.46	-61.36	-13.00	-48.36
3002.50	37.47	V	-65.23	11.53	7.03	-60.74	-13.00	-47.74
3760.00	33.84	V	-67.46	12.60	7.82	-62.68	-13.00	-49.68
5640.00		V		13.36	9.73		-13.00	
7520.00		V		11.45	11.33		-13.00	
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	

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

#### Remark:

- 1 The emission behaviour 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: PCS 1900 Mode

Operation Mode : TX CH Mid Test Date Feb. 29, 2008

Fundamental Frequency: 1880MHz Test By Jason Temperature Pol Horizontal : 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)
36.79	50.61	Н	-53.19	-4.16	0.75	-58.09	-13.00	-45.09
265.71	44.79	Н	-55.70	-7.90	1.99	-65.59	-13.00	-52.59
2252.50	35.77	Н	-69.57	10.20	6.00	-65.37	-13.00	-52.37
3760.00	34.36	Н	-66.75	12.60	7.82	-61.96	-13.00	-48.96
5640.00	38.69	Н	-56.20	13.36	9.73	-52.57	-13.00	-39.57
7520.00		Н		11.45	11.33		-13.00	
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

- 1 The emission behaviour 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: PCS 1900 Mode

Test Date Feb. 29, 2008 Operation Mode : TX CH High

Fundamental Frequency: 1909.8 MHz Test By Jason Vertical Temperature Pol : 25°C

Humidity : 65%

Freq.	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)
38.73	44.82	V	-57.35	-3.25	0.77	-61.37	-13.00	-48.37
1910.00	79.57	V	-27.37	10.08	5.51	-22.80	-13.00	-9.80
3002.50	37.10	V	-65.60	11.53	7.03	-61.11	-13.00	-48.11
3805.00	38.14	V	-62.96	12.60	7.89	-58.25	-13.00	-45.25
3981.60		V		12.60	8.17		-13.00	
5972.40		V		13.86	9.91		-13.00	
7963.20		V		11.27	11.88		-13.00	
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	

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

- 1 The emission behaviour 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: PCS 1900 Mode

Test Date Feb. 29, 2008 Operation Mode : TX CH High

Fundamental Frequency: 1909.8 MHz Test By Jason Temperature Pol Horizontal : 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)
36.79	50.13	Н	-53.67	-4.16	0.75	-58.57	-13.00	-45.57
1910.00	81.16	Н	-25.69	10.08	5.51	-21.13	-13.00	-8.13
3805.00	36.35	Н	-64.57	12.60	7.89	-59.86	-13.00	-46.86
3981.60		Н		12.60	8.17		-13.00	
4577.50	35.38	Н	-62.56	12.66	8.81	-58.71	-13.00	-45.71
5972.40	35.13	Н	-58.88	13.86	9.91	-54.93	-13.00	-41.93
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	

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

- 1 The emission behaviour 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: EDGE 850 Mode

Operation Mode : TX CH Low Test Date: Apr. 10, 2008

Fundamental Frequency : 824.20 MHz Test By: Sky Temperature Pol: Vertical : 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)
276.38	48.61	V	-51.50	-7.91	1.99	-61.39	-13.00	-48.39
347.19	44.98	V	-53.05	-7.66	2.45	-63.16	-13.00	-50.16
415.09	42.12	V	-53.51	-7.67	2.46	-63.64	-13.00	-50.64
824.00	76.25	V	-11.08	-7.87	3.64	-22.60	-13.00	-9.60
1648.40	48.51	V	-58.53	9.29	5.06	-54.30	-13.00	-41.30
2472.60	41.78	V	-62.28	10.08	6.30	-58.51	-13.00	-45.51
3002.50		V		11.53	7.03		-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	

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

- 1 The emission behaviour 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: EDGE 850 Mode

Operation Mode Test Date: Apr. 10, 2008 : TX CH Low

Fundamental Frequency : 824.20 MHz Test By: Sky

Temperature Pol: Horizontal : 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)
250.19	45.40	Н	-55.50	-7.89	1.99	-65.37	-13.00	-52.37
276.38	47.51	Н	-52.71	-7.91	1.99	-62.60	-13.00	-49.60
824.00	76.00	Н	-11.66	-7.87	3.64	-23.18	-13.00	-10.18
1648.40	44.67	Н	-62.34	9.29	5.06	-58.11	-13.00	-45.11
2472.60	41.42	Н	-62.64	10.08	6.30	-58.86	-13.00	-45.86
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

- 1 The emission behaviour 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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$



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### Radiated Spurious Emission Measurement Result: EDGE 850 Mode

Operation Mode : TX CH Mid Test Date: Apr. 10, 2008

Fundamental Frequency: 836.60 MHz Test By: Sky **Temperature** Pol: Vertical : 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)
250.19	46.22	V	-54.48	-7.89	1.99	-64.35	-13.00	-51.35
276.38	47.64	V	-52.47	-7.91	1.99	-62.36	-13.00	-49.36
415.09	41.64	V	-53.99	-7.67	2.46	-64.12	-13.00	-51.12
1673.20	48.82	V	-58.21	9.36	5.10	-53.95	-13.00	-40.95
2509.80	38.10	V	-65.78	10.09	6.35	-62.04	-13.00	-49.04
3002.50	39.69	V	-63.01	11.53	7.03	-58.52	-13.00	-45.52
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

- 1 The emission behaviour 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: EDGE 850 Mode

Operation Mode : TX CH Mid Test Date: Apr. 10, 2008

Fundamental Frequency: 836.60 MHz Test By: Sky

**Temperature** Pol: Horizontal : 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)
240.49	45.02	Н	-56.05	-7.88	1.91	-65.84	-13.00	-52.84
276.38	46.92	Н	-53.30	-7.91	1.99	-63.19	-13.00	-50.19
415.09	40.87	Н	-55.19	-7.67	2.46	-65.32	-13.00	-52.32
1673.20	46.51	Н	-60.49	9.36	5.10	-56.22	-13.00	-43.22
2509.80	37.69	Н	-66.18	10.09	6.35	-62.44	-13.00	-49.44
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

- 1 The emission behaviour 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: EDGE 850 Mode

Operation Mode : TX CH High Test Date: Apr. 10, 2008

Fundamental Frequency: 848.80 MHz Test By: Sky Temperature Pol: Vertical : 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)
250.19	46.88	V	-53.82	-7.89	1.99	-63.69	-13.00	-50.69
276.38	49.00	V	-51.11	-7.91	1.99	-61.00	-13.00	-48.00
850.00	75.22	V	-11.49	-7.88	3.75	-23.12	-13.00	-10.12
1697.60	50.40	V	-56.62	9.44	5.14	-52.33	-13.00	-39.33
2546.40	39.38	V	-64.41	10.20	6.40	-60.61	-13.00	-47.61
3002.50	39.69	V	-63.01	11.53	7.03	-58.52	-13.00	-45.52
3395.20		V		12.38	7.33		-13.00	
4244.00	37.32	V	-62.03	12.63	8.46	-57.86	-13.00	-44.86
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 behaviour 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: EDGE 850 Mode

Apr. 10, 2008 Operation Mode : TX CH High Test Date:

Fundamental Frequency: 848.80 MHz Test By: Sky

Temperature Pol: Horizontal : 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)
276.38	46.55	Н	-53.67	-7.91	1.99	-63.56	-13.00	-50.56
400.54	42.84	Н	-53.49	-7.66	2.41	-63.56	-13.00	-50.56
533.43	45.52	Н	-47.28	-7.75	2.74	-57.76	-13.00	-44.76
850.00	73.96	Н	-13.03	-7.88	3.75	-24.66	-13.00	-11.66
1697.60	47.00	Н	-59.98	9.44	5.14	-55.69	-13.00	-42.69
2546.40	39.92	Н	-63.86	10.20	6.40	-60.06	-13.00	-47.06
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

- 1 The emission behaviour 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:
- $4 \text{ ERP/EIRP } (dBm) = SG \text{ Setting}(dBm) + Antenna Gain } (dB/dBi) Cable loss } (dB)$



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### Radiated Spurious Emission Measurement Result: EDGE 1900 Mode

Test Date Apr. 10, 2008 Operation Mode : TX CH Low

Fundamental Frequency: 1850.20MHz Test By: Sky Temperature Pol: Vertical : 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)
264.74	46.32	V	-54.05	-7.90	1.99	-63.93	-13.00	-50.93
415.09	42.48	V	-53.15	-7.67	2.46	-63.28	-13.00	-50.28
1850.00	76.33	V	-30.63	9.90	5.41	-26.14	-13.00	-13.14
3700.40	34.37	V	-67.21	12.61	7.73	-62.33	-13.00	-49.33
5550.60		V		13.23	9.68		-13.00	
7400.80		V		11.50	11.28		-13.00	
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

- 1 The emission behaviour 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: EDGE 1900 Mode

Test Date Apr. 10, 2008 Operation Mode : TX CH Low

Fundamental Frequency: 1850.20MHz Test By: Sky

Temperature Pol: Horizontal : 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)
276.38	47.75	Н	-52.47	-7.91	1.99	-62.36	-13.00	-49.36
955.38	32.78	Н	-52.16	-8.00	3.96	-64.11	-13.00	-51.11
1850.00	80.71	Н	-26.18	9.90	5.41	-21.69	-13.00	-8.69
3700.40	34.16	Н	-67.20	12.61	7.73	-62.32	-13.00	-49.32
5550.60		Н		13.23	9.68		-13.00	
7400.80		Н		11.50	11.28		-13.00	
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

- 1 The emission behaviour 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: EDGE 1900 Mode

Operation Mode : TX CH Mid Test Date Apr. 10, 2008

Fundamental Frequency: 1880MHz Test By Sky **Temperature** Pol Vertical : 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)
347.19	44.45	V	-53.58	-7.66	2.45	-63.69	-13.00	-50.69
415.09	42.43	V	-53.20	-7.67	2.46	-63.33	-13.00	-50.33
691.54	38.41	V	-51.66	-7.85	3.27	-62.78	-13.00	-49.78
955.38	34.80	V	-50.41	-8.00	3.96	-62.36	-13.00	-49.36
3002.50	39.61	V	-63.09	11.53	7.03	-58.60	-13.00	-45.60
3760.00	33.94	V	-67.36	12.60	7.82	-62.58	-13.00	-49.58
5640.00		V		13.36	9.73		-13.00	
7520.00		V		11.45	11.33		-13.00	
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

- 1 The emission behaviour 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: EDGE 1900 Mode

Operation Mode : TX CH Mid Test Date Apr. 10, 2008

Fundamental Frequency: 1880MHz Test By Sky

Temperature Pol Horizontal : 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)
250.19	44.98	Н	-55.92	-7.89	1.99	-65.79	-13.00	-52.79
347.19	41.45	Н	-55.86	-7.66	2.45	-65.96	-13.00	-52.96
415.09	40.64	Н	-55.42	-7.67	2.46	-65.55	-13.00	-52.55
3760.00	34.41	Н	-66.70	12.60	7.82	-61.91	-13.00	-48.91
5640.00		Н		13.36	9.73		-13.00	
7520.00		Н		11.45	11.33		-13.00	
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				

- 1 The emission behaviour 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: EDGE 1900 Mode

Operation Mode : TX CH High Test Date Apr. 10, 2008

Fundamental Frequency: 1909.8 MHz Test By Sky Temperature Pol Vertical : 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)
237.58	48.16	V	-52.89	-7.88	1.88	-62.65	-13.00	-49.65
276.38	47.00	V	-53.11	-7.91	1.99	-63.00	-13.00	-50.00
1502.50	41.21	V	-65.89	8.85	4.80	-61.84	-13.00	-48.84
1910.00	79.28	V	-27.66	10.08	5.51	-23.09	-13.00	-10.09
3981.60	34.87	V	-65.41	12.60	8.17	-60.99	-13.00	-47.99
5972.40		V		13.86	9.91		-13.00	
7963.20		V		11.27	11.88		-13.00	
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			

- 1 The emission behaviour 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: EDGE 1900 Mode

Apr. 10, 2008 Operation Mode : TX CH High Test Date

Fundamental Frequency: 1909.8 MHz Test By Sky

Temperature Pol Horizontal : 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)
276.38	45.70	Н	-54.52	-7.91	1.99	-64.41	-13.00	-51.41
415.09	41.30	Н	-54.76	-7.67	2.46	-64.89	-13.00	-51.89
1910.00	82.13	Н	-24.72	10.08	5.51	-20.16	-13.00	-7.16
3981.60	34.38	Н	-65.80	12.60	8.17	-61.37	-13.00	-48.37
5972.40		Н		13.86	9.91		-13.00	
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

- 1 The emission behaviour 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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### AC POWER LINE CONDUCTED EMISSION TEST

# 8.1 Standard Applicable

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

Frequency range		mits (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

# 8.2 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.

### 8.3 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.

<sup>1.</sup> The lower limit shall apply at the transition frequencies

<sup>2.</sup> The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.



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# 8.4 Measurement Equipment Used:

Conducted Emission Test Site								
<b>EQUIPMENT</b>	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
EMC Analyzer	НР	8594EM	3624A00203	09/02/2007	09/03/2008			
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2007	06/10/2008			
Transient Limiter	НР	11947A	3107A02062	09/02/2007	09/03/2008			
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2007	12/30/2008			
LISN	Rolf-Heine	NNB-2/16Z	99013	12/24/2007	12/23/2008			
Coaxial Cables	N/A	No. 3, 4	N/A	12/24/2007	12/23/2008			

### 8.5 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.

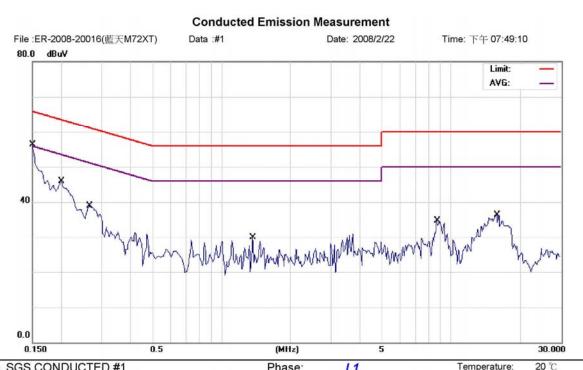


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# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 850 LINK			Test Date:	Feb. 22, 2008
Temperature:	20 °C	Humidity:	56 %	Test By:	Jason



Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: Notebook

M/N: M72XT

Note: GSM 850//Link Mode

Phase:		L1	Temperature:	20 ℃
Power:	AC	120V/60Hz	Humidity:	56 %
Distance			Air Pressure:	hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	53.60	1.18	54.78	66.00	-11.22	QP	
2		0.1500	38.90	1.18	40.08	56.00	-15.92	AVG	
3		0.2000	45.84	0.02	45.86	63.61	-17.75	QP	
4		0.2650	38.91	0.02	38.93	61.27	-22.34	QP	
5		1.3700	29.94	0.02	29.96	56.00	-26.04	QP	
6		8.7200	34.58	0.21	34.79	60.00	-25.21	QP	
7		15.8800	35.92	0.37	36.29	60.00	-23.71	QP	

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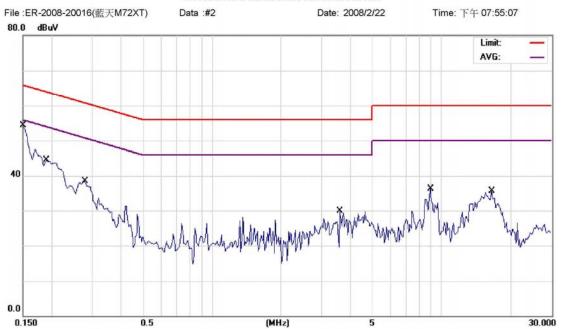
Temperature:

Humidity: Air Pressure: 20 ℃

hpa

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#### **Conducted Emission Measurement**



Phase:

Power:

Distance:

N

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: Notebook

M/N: M72XT

Note: GSM 850//Link Mode

			Reading		Measure-				
No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	54.28	0.00	54.28	66.00	-11.72	QP	
2		0.1904	44.40	0.02	44.42	64.02	-19.60	QP	
3		0.2800	38.41	0.02	38.43	60.82	-22.39	QP	
4		3.6050	29.91	0.07	29.98	56.00	-26.02	QP	
5		8.9600	36.17	0.21	36.38	60.00	-23.62	QP	
6	3	16.5600	35.38	0.30	35.68	60.00	-24.32	QP	



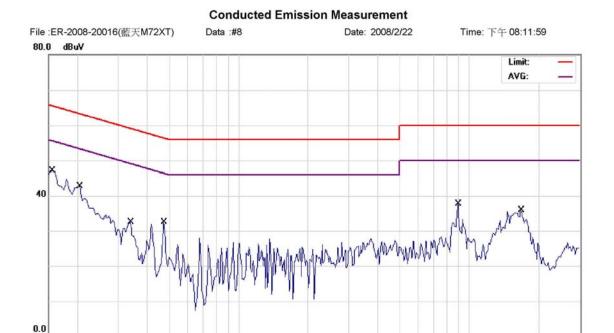
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30.000

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# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 1900 LINK			Test Date:	Feb. 22, 2008
Temperature:	20 °C	Humidity:	56 %	Test By:	Jason



(MHz)

Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B

EUT: Notebook M/N: M72XT

Note: GSM 1900//Link Mode

S.	Phase: L1	Temperature: 20 ℃
Conduction(QP)	Power: AC 120V/60Hz	Humidity: 56 %
	Distance:	Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1550	46.06	1.07	47.13	65.73	-18.60	QP	
2		0.2050	42.75	0.02	42.77	63.41	-20.64	QP	
3		0.3400	32.54	0.02	32.56	59.20	-26.64	QP	
4		0.4750	32.47	0.02	32.49	56.43	-23.94	QP	
5		8.9600	37.44	0.21	37.65	60.00	-22.35	QP	
6		16.7600	35.47	0.37	35.84	60.00	-24.16	QP	

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Temperature:

Air Pressure:

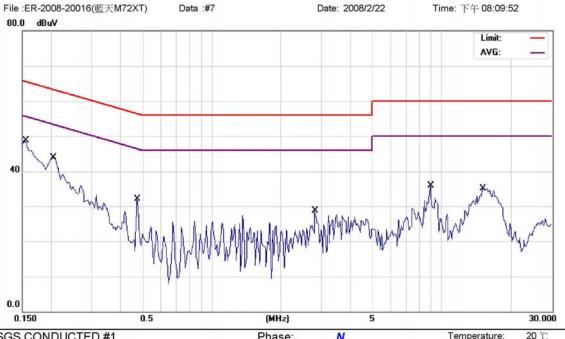
56 %

hpa

Humidity:

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#### Conducted Emission Measurement



Phase:

Power:

Distance:

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: Notebook M/N: M72XT

Note: GSM 1900//Link Mode

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	*	0.1550	48.61	0.00	48.61	65.73	-17.12	QP		
2		0.2050	43.91	0.02	43.93	63.41	-19.48	QP		
3		0.4750	32.18	0.02	32.20	56.43	-24.23	QP		
4		2.8100	28.72	0.05	28.77	56.00	-27.23	QP		
5		8.9600	35.68	0.21	35.89	60.00	-24.11	QP		
6		15.1200	34.91	0.27	35.18	60.00	-24.82	QP		