

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT****INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART C &  
SUBPART L AND INDUSTRY CANADA RSS-132 and RSS-133  
CLASS II PC REPORT**

OF

**Product Name:** Notebook

**Brand Name:** Google Chromebook

**Model No. for WWAN Module:** E362

**Model Name of Host:** CB001 LTE

**Model Difference of Host:** N/A

**FCC ID:** PKRNVWE362

**IC:** 3229B-E362

**Report No.:** EH/2012/90054

**Issue Date:** Jan. 16, 2012

**FCC Rule Part:** 2, 22H & 24E & 27 C & L

**IC Rule Part:** RSS 132, Issue 2, and RSS 133, Issue 5

**Prepared for:** Google Inc.  
1600 Amphitheatre Parkway Mountain View, CA 94043  
United States of America

**Prepared by:** SGS Taiwan Ltd.  
Electronics & Communication Laboratory  
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## VERIFICATION OF COMPLIANCE

**Applicant:** Google Inc.  
1600 Amphitheatre Parkway Mountain View, CA 94043 United States  
of America

**Product Name:** Notebook

**Brand Name:** Google Chromebook

**Model No. for WWAN  
Module:** E362

**Model Name of Host:** CB001 LTE

**Model Difference of Host:** N/A

**FCC ID:** PKRNVWE362

**IC:** 3229B-E362

**Report No.:** EH/2012/90054

**Date of test:** Dec. 24, 2012 ~ Jan. 11, 2013

**Date of EUT Received:** Dec. 24, 2012

### We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004, Issue 3 of RSS-Gen and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule PART 22 subpart H, PART 24 subpart E, PART 27 and IC standards Issue 2 of RSS-132, Issue 5 of RSS-133.

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

**Test By:**

*Marcus Tseng*

**Date:**

Jan. 16, 2013

*Marcus Tseng / Engineer*

**Prepared By:**

*Violetta Tang*

**Date:**

Jan. 16, 2013

*Violetta Tang / Clerk*

**Approved By:**

*Jim Chang*

**Date:**

Jan. 16, 2013

*Jim Chang / Supervisor*

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## Version

Version No.	Date	Description
00	Jan. 16, 2013	Initial creation of document

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## 1. GENERAL PRODUCT INFORMATION

### General Information of Notebook

Product Name:	Notebook	
Brand Name:	Google Chromebook	
Model No. for WWAN Module:	E362	
Model Name of Host:	CB001 LTE	
Model Difference of Host:	N/A	
Hardware Version:	LA-8651P/Rev 1.0 (EC ver. link_v1.2.120-1137a99)	
Software Version:	Google_Link.2695.1.133	
Power Supply:	7.4Vdc Rechargeable Lithium Ion battery or 12Vdc from AC/DC adapter	
	Battery:	Model No.: Arrow, Supplier: N/A
	Adapter :	Model No.: PA-1650-29, Supplier: LITEON

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**GSM/ GPRS/ EDGE/ WCDMA/ CDMA/ EvDO:**

Cellular Phone Standards Frequency Range:	GSM / GPRS 850, Class 8	824.2 MHz– 848.8 MHz	33dBm
	EDGE 850, Class 8	824.2 MHz– 848.8 MHz	27dBm
	GSM / GPRS 1900, Class 8	1850.2MHz – 1909.8MHz	30dBm
	EDGE 1900, Class 8	1850.2MHz – 1909.8MHz	26dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band II	1852.4MHz – 1907.6MHz	24dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band V	826.4MHz - 846.6MHz	24dBm
	CDMA 2000 Cellular / EvDO Cellular	824.7MHz – 848.31MHz	24dBm
	CDMA 2000 PCS / EvDO PCS	1851.25MHz– 1908.75MHz	24dBm
	5MHz BW LTE-Band 13	779.5MHz – 784.56MHz	23dBm
	10Mhz BW LTE-Band 13	782MHz	23dBm
IMEI:	99000062410282		
WWAN module FCC ID:	PKRNVWE362		
Class II Permissive change:	Notebook PC with Embedded WWAN Module		
WWAN Modular Report:	Test Lab.: PCTEST Engineering Lab., Columbia, MD 21045, USA Applicant: Novatel Wireless Inc. Model: E362 Part 22& 24/ RSS-132/ RSS-133 Report Number: 0Y1009131539.PKR Part 27 Report Number: 0Y1009131540.PKR		

This test report applies for 850/ 1900 GSM/ GPRS/ EDGE/ WCDMA/ CDMA/ EvDO and LTE Band 13. Please be noted that LTE-band 13 that operates with frequency range of 779.5MHz to 784.56MHz is designed to be used in US only, conforming to FCC Part27. LTE band 13 on given radio equipment is not subject to be compliant with any RSS rule, relevantly, and such a band will be disabled while marketing in Canada.

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### 1.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **PKRNVWE362** filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part27 subpart C & subpart L of the FCC CFR 47 Rules. And IC: **3229B-E362** filing to comply with RSS-132 and Issue 5 of RSS-133.

### 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057 and issue 2 of RSS-132, issue 3 of RSS-133 and RSS Gen Issue3.

The Output power Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSPA / LTE) was used for EUT and Base station setting.

971168 D01 Power Meas license Digital System v01 as the supplemental guideline to conduct the measurement, including Peak to Power Average Ratio, and Signal Bandwidth.

### 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 AN-SI/EIA/TIA 603-C-2004. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4.

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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## 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

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

### 2.2. EUT Exercise

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

### 2.3. Test Procedure

#### 2.3.1 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in ANSI/EIA/TIA 603-C-2004. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C and RSS-Gen Issue 3, 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 connect the antenna port of EUT to measurement equipment.

#### 2.3.3 Radiated Emissions (ERP/EIRP/Spurious Emission):

According to measurement procured TIA/EIA 603C and RSS-Gen Issue 3, The EUT is placed on a 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 ANSI/EIA/TIA 603-C-2004.

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## 2.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/15/2011	04/14/2013
Spectrum Analyzer	Agilent	E4440A	US41160416	03/17/2012	03/16/2014
Radio Communication Analyzer	R & S	CMU200	102189	08/12/2012	08/11/2014
Radio Communication Analyzer	Anritsu	MT8820C	6200995019	10/17/2012	10/16/2013
Temperature Chamber	TERCHY	MHG-120LF	911009	04/16/2012	04/15/2014
DC Block	Mini-Circuits	BLK-18-S+	1	02/28/2012	02/27/2013
Attenuator	Mini-Circuit	BW-S10W2+	002	02/28/2012	02/27/2013
Splitter	Agilent	11636B	N/A	02/28/2012	02/27/2013
DC Power Supply	Agilent	E3640A	MY40005907	07/15/2011	07/14/2013

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ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/15/2011	04/14/2013
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	02/15/2011	02/14/2013
Spectrum Analyzer	R&S	FSV-30	101398	10/18/2011	10/17/2013
Bilog Antenna	SCHWAZBECK	VULB9168	378	01/10/2012	01/09/2014
Bilog Antenna	SCHWAZBECK	VULB9160	3158	11/24/2011	11/23/2013
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/17/2010	07/16/2013
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/17/2010	07/16/2013
Horn antenna	ETS.LINDGREN	3117	123995	05/19/2011	05/18/2013
Horn antenna	ETS.LINDGREN	3117	123991	01/22/2011	01/21/2013
Horn Antenna	Schwarzbeck	BBHA9170	184	01/17/2012	01/17/2014
Horn Antenna	Schwarzbeck	BBHA9170	185	07/11/2011	07/10/2013
RF amplifier	Miteq	AMF-6F-2600400-40-8P	971576	12/28/2012	12/27/2013
Signal Generator	R&S	SMR40	100210	02/02/2012	02/01/2014
Signal Generator	Agilent	E4438C	MY45093613	07/15/2011	07/14/2013
Pre-Amplifier	Agilent	8447D	1937A02834	01/04/2013	01/03/2014
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/04/2013	01/03/2014
Attenuator	Mini-Circuit	BW-S10W2+	004	02/28/2012	02/27/2013
Radio Communication Analyzer	R & S	CMU200	102189	08/12/2012	08/11/2014
Radio Communication Analyzer	Anritsu	MT8820C	6200995019	10/17/2012	10/16/2013
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	966_Tx	10m	01/04/2013	01/03/2014
Low Loss Cable	HUBER+SUHNER	966_Rx	3m	01/04/2013	01/03/2014
Filter 800-1000	Micro-Tronics	EWT	M2	02/28/2012	02/28/2013
Filter 1800-2000	Micro-Tronics	EWT	M2	02/28/2012	02/28/2013
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	02/28/2012	02/27/2013
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	02/28/2012	02/27/2013
3m Site NSA	SGS	966 chamber	N/A	07/15/2012	07/14/2013

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## 2.5. Configuration of Tested System

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

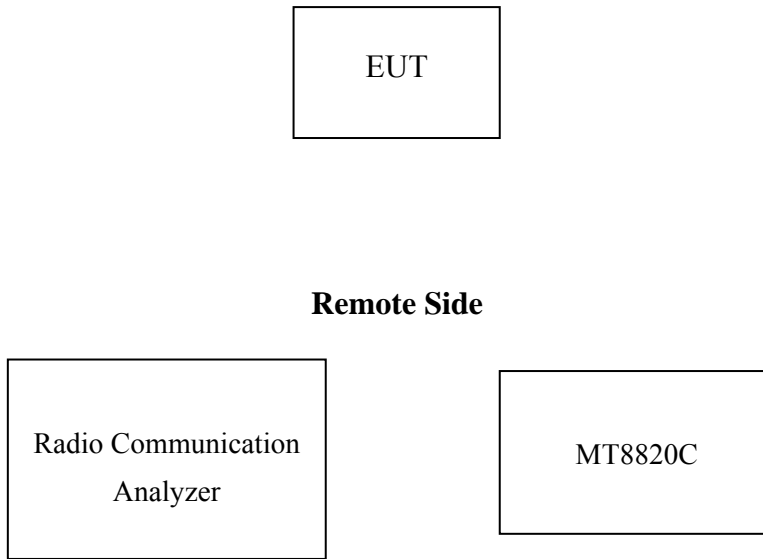


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Radio Communication Analyzer	R&S	CMU200	102189	shielded	Un-shielded
2.	Radio Communication Analyzer	Anritsu	MT8820C	6200995019	shielded	Un-shielded

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### 3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a) §22.913(a)(2) §24.232(c) §27.50(c)(10) §27.50(d)(2)	N/A	RF Power Output	Compliant
§2.1049(h)	§4.6.1 (RSS-Gen Issue 3) §2.3 (RSS-133)	99% Occupied Bandwidth	N/A
§2.1051 §22.917(a) §24.238(a) §27.53(g)	§4.9 (RSS-Gen Issue 3) §4.5 (RSS-132) §6.5 (RSS-133)	Out of Band Emissions at Antenna Terminals and Band Edge	N/A
§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)	§4.9 (RSS-Gen Issue 3) §4.5 (RSS-132) §6.5 (RSS-133)	Field Strength of Spurious Radiation	Compliant
§27.50(i)	§6.4 (RSS-133)	Peak to Average Ratio	N/A
§27.53f	N/A	Spurious emission in 1559 -1610MHz Band	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	§4.7 (RSS-Gen Issue 3) §4.3 (RSS-132) §6.3 (RSS-133)	Frequency Stability vs. Temperature	N/A
§2.1055(d)(2) §22.355 §24.235 §27.54	§4.7 (RSS-Gen Issue 3) §4.3 (RSS-132) §6.3 (RSS-133)	Frequency Stability vs. Voltage	N/A

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**Max Average Conducted Output Power Measurement Result:**

	dBm	W
GPRS 850 Band	31.90	1.549
GPRS 1900 Band	29.00	0.794
EDGE 850 Band	26.20	0.417
EDGE 1900 Band	25.50	0.355
WCDMA Band II	23.98	0.250
WCDMA Band V	24.06	0.255
HSDPA Band II	23.95	0.248
HSDPA Band V	23.97	0.249
HSUPA Band II	23.96	0.249
HSUPA Band V	23.99	0.251
CDMA Cellular	24.47	0.280
CDMA PCS	24.44	0.278
LTE Band 13/5MMz /QPSK RB 1 Offset 24	23.88	0.244
LTE Band 13/5MMz /16QAM RB 1 Offset 24	22.95	0.197
LTE Band 13/5MMz /QPSK RB 1 Offset 0	23.96	0.249
LTE Band 13/5MMz /16QAM RB 1 Offset 0	22.94	0.197
LTE Band 13/5MMz /QPSK RB 12 Offset 6	22.85	0.193
LTE Band 13/5MMz /16QAM RB 12 Offset 6	21.89	0.155
LTE Band 13/5MMz /QPSK RB 25 Offset 0	22.93	0.196
LTE Band 13/5MMz /16QAM RB 25 Offset 0	22.24	0.167
LTE Band 13/10MMz /QPSK RB 1 Offset 49	23.82	0.241
LTE Band 13/10MMz /16QAM RB 1 Offset 49	23.53	0.225
LTE Band 13/10MMz /QPSK RB 1 Offset 0	23.87	0.244
LTE Band 13/10MMz /16QAM RB 1 Offset 0	23.41	0.219
LTE Band 13/10MMz /QPSK RB 25 Offset 12	22.79	0.190
LTE Band 13/10MMz /16QAM RB 25 Offset 12	21.81	0.152
LTE Band 13/10MMz /QPSK RB 50 Offset 0	22.95	0.197
LTE Band 13/10MMz /16QAM RB 50 Offset 0	21.71	0.148

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#### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT was 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 in lying-down position (E2 mode), where UE is opened up with section of keyboard 90 degree with the screen, reflecting the actual simulation of how user operate this give radio equipment of the host.

The measurement of radiated power (EIRP/ERP) is skipped. As specifies on grant note of the certified equipment, the mean to measure the output power is in conducted manner. Therefore, to conduct the power measurement in the manner of conducted one can justifiably ensure the suitability of which class change continue to be applicable while given certified module installs to the platform in association with this filling.

As per KDB 178919, the spurious emission over 1GHz (harmonic of the fundamental frequency) is observed as the benchmark to evaluate whether or not the inclusion of the module occur the degradation on the performance. As the result of measurement, spurious emission yields 3dB higher than the original authorization, resubmission, and reassessment are necessary.

#### **Radiated Spurious Emission Mode Justification:**

Pre-scanned measurement was done in all configurations, such as resource block allocation, size of resource block, and modulation scheme, and resource block = 1 with QPSK is reported to generate the worst-case emission.

#### **Test Mode:**

The combination of test mode, ex. RB allocation, the size of resource block, is based upon the worst-case observation as generates from the test report of the original authorization, FCC ID: PKRNVWE362, PCTEST Engineering Lab., Columbia, MD 21045, USA; WWAN Module Report Part 22& 24/ RSS-132/ RSS-133, Report Number: 0Y1009131539.PKR and Part 27 Report Number: 0Y1009131540.PKR for more detail.

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## 5. MEASUREMENT UNCERTAINTY FOR FIELD STRENGTH OF SPURIOUS RADIATION

Measurement uncertainty (Polarization : <b>Vertical</b> )	30MHz - 180MHz: 3.37dB
	180MHz -417MHz: 3.19dB
	0.417GHz-1GHz: 3.19dB
	1GHz - 18GHz: 4.04dB
	18GHz - 40GHz: 4.04dB

Measurement uncertainty (Polarization : <b>Horizontal</b> )	30MHz - 167MHz: 4.22dB
	167MHz -500MHz: 3.44dB
	0.5GHz-1GHz: 3.39dB
	1GHz - 18GHz: 4.08dB
	18GHz - 40GHz: 4.08dB

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## 6. RF POWER OUTPUT MEASUREMENT

### 6.1. Standard Applicable:

According to FCC §2.1046.

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

FCC 24.232(c) Peak Power Measurement limited to 2W

FCC 24.232(c) Equipment must employ means to limit the power to the minimum necessary for successful communication.

Part 27, 50(c)(10) Portable stations are limited to 3W

3GPP Power limitation for HSDPA and HSUPA

#### Maximum Output Powers for HSDPA

Sub-test in table C.10.1.4	Power Class 3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-3.7	+21	+2.7/-2.7
2	+24	+1.7/-3.7	+21	+2.7/-2.7
3	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7
4	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7

#### Maximum Output Powers for HSUPA

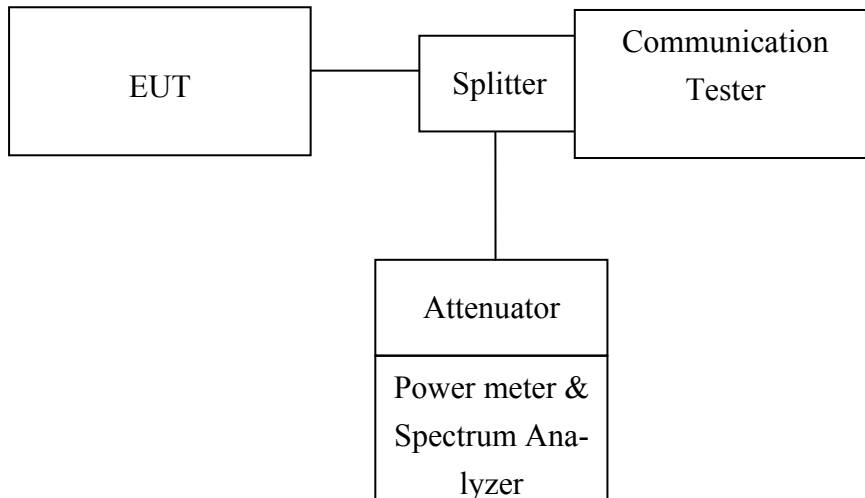
Sub-test in table C.11.1.3	Power Class 3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-6.7	+21	+2.7/-5.7
2	+22	+3.7/-5.2	+19	+4.7/-4.2
3	+23	+2.7/-5.2	+20	+3.7/-4.2
4	+22	+3.7/-5.2	+19	+4.7/-4.2
5	+24	+1.7/-6.7	+21	+2.7/-5.7

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## 6.2. Test Set-up:



*Note: Measurement setup for testing on Antenna connector*

## 6.3. 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. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSPA/LTE) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.

Necessary Communication complying with 24.232 (c)

Set CMU200 (base-station simulator) MS Signal with packet data submenu; SLOT Configuration

Set appropriate level to verify if or not power on mobile station's link with simulator still exists.

## 6.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**6.5. Measurement Result:**

**6.5.1. RF Conducted Output Power**

**6.5.1.1.: GPRS/EDGE (GMSK; 8-PSK)**

**Result:**

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)
GPRS 850 (Class 8)	824.2	128	31.70
	836.6	190	31.70
	848.8	251	31.90

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)
GPRS 1900 (Class 8)	1850.2	512	29.00
	1880.0	661	29.00
	1909.8	810	28.80

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)
EDGE 850 (Class 8)	824.2	128	26.10
	836.6	190	26.20
	848.8	251	26.20

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)
EDGE 1900 (Class 8)	1850.2	512	25.50
	1880.0	661	25.50
	1909.8	810	25.10

Cable loss offset Low Band (GSM Band): 0.8dB

Cable loss offset High Band (PCS Band): 0.7dB

Note: power is measured in the class mode that generates the highest emission with intents to correlate with power being obtained in original test report

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### 6.5.1.2.: WCDMA mode

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

#### Results:

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)
WCDMA Band II	1852.4	9262	23.78
	1880.0	9400	23.98
	1907.6	9538	23.53

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)
WCDMA Band V	826.4	4132	23.94
	836.6	4183	24.06
	846.6	4233	23.85

Offset: Band II: 0.7dbm, Band V: 0.8dbm

Note: The results above reflect max power with all up bits.

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EUT Mode Cellular	Frequency	CDMA	EVDO_Rev 0 (FTAP)	EVDO_Rev 0 (RTAP)	EVDO_Rev A (FETAP)	EVDO_Rev A (RETAP)
	(MHz)	AV(dBm)	AV(dBm)	AV(dBm)	AV(dBm)	AV(dBm)
CH 1013	824.7	24.16	24.24	24.43	24.18	23.97
CH 384	836.52	24.14	24.17	24.33	24.24	24.00
CH 777	848.31	24.47	24.30	24.41	24.22	24.29

EUT Mode US PCS	Frequency	CDMA	EVDO_Rev 0 (FTAP)	EVDO_Rev 0 (RTAP)	EVDO_Rev A (FETAP)	EVDO_Rev A (RETAP)
	(MHz)	AV(dBm)	AV(dBm)	AV(dBm)	AV(dBm)	AV(dBm)
CH 25	1851.25	24.44	24.02	24.10	24.12	24.06
CH 600	1880	24.36	23.97	24.21	23.92	23.99
CH 1175	1908.75	23.96	23.78	23.64	23.65	23.70

Note: The results above reflect max power with all up bits.

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6.5.1.3.: MPR Table  
LTE Band 13

Smaller channel bandwidth of LTE band 13_5 MHz							
channel	Frequency (MHz)	Uplink Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max. Average Power (dBm)
Low	779.5	23205	5	12	6	QPSK	22.83
	779.5	23205	5	25	0	QPSK	22.93
	779.5	23205	5	1	24	QPSK	23.87
	779.5	23205	5	1	0	QPSK	23.63
	779.5	23205	5	12	6	16 QAM	21.89
	779.5	23205	5	25	0	16 QAM	22.24
	779.5	23205	5	1	24	16 QAM	22.95
	779.5	23205	5	1	0	16 QAM	22.81
Middle	782	23230	5	12	6	QPSK	22.85
	782	23230	5	25	0	QPSK	22.81
	782	23230	5	1	24	QPSK	23.88
	782	23230	5	1	0	QPSK	23.96
	782	23230	5	12	6	16 QAM	21.78
	782	23230	5	25	0	16 QAM	22.16
	782	23230	5	1	24	16 QAM	22.85
	782	23230	5	1	0	16 QAM	22.93
High	784.5	23255	5	12	6	QPSK	22.74
	784.5	23255	5	25	0	QPSK	22.85
	784.5	23255	5	1	24	QPSK	23.71
	784.5	23255	5	1	0	QPSK	23.75
	784.5	23255	5	12	6	16 QAM	21.83
	784.5	23255	5	25	0	16 QAM	22.08
	784.5	23255	5	1	24	16 QAM	22.81
	784.5	23255	5	1	0	16 QAM	22.94

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Largest channel bandwidth of LTE band 13_10 MHz							
channel	Frequency (MHz)	Uplink Channel Number	Bandwidth (MHz)	RB Number	RB Offset	Modulation	Max. Average Power (dBm)
Middle	782	23230	10	25	12	QPSK	22.79
	782	23230	10	50	0	QPSK	22.95
	782	23230	10	1	49	QPSK	23.82
	782	23230	10	1	0	QPSK	23.87
	782	23230	10	25	12	16 QAM	21.81
	782	23230	10	50	0	16 QAM	21.71
	782	23230	10	1	49	16 QAM	23.53
	782	23230	10	1	0	16 QAM	23.41

Note: LTE band 13 is subject to be conformed to FCC Part 27.

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#### 6.5.1.4.: HSDPA Release 6 mode

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing.

#### HSDPA SUB-TEST Setting

Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	$\beta_c$	$\beta_a$	$\beta_a$ (SF)	$\beta_c/\beta_a$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

#### Results:

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		9262	9400	9538		
HSDPA (B2)	1	23.95	23.87	23.39	20.3dBm – 25.7dBm	Pass
	2	23.66	23.84	23.38	20.3dBm – 25.7dBm	Pass
	3	23.47	23.42	22.86	19.8dBm – 25.7dBm	Pass
	4	23.54	23.43	22.98	19.8dBm – 25.7dBm	Pass

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		4132	4183	4233		
HSDPA (B5)	1	23.73	23.92	23.97	20.3dBm – 25.7dBm	Pass
	2	23.87	23.95	23.72	20.3dBm – 25.7dBm	Pass
	3	23.27	23.44	23.48	19.8dBm – 25.7dBm	Pass
	4	23.32	23.48	23.54	19.8dBm – 25.7dBm	Pass

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### 6.5.1.5.: HSPA (HSDPA & HSUPA) Release 6 mode

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

### HSPA SUB-TEST Setting

Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

**Note: The recommended HSUPA MPRs are implemented as per following sub-tests.**

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**Results:**

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		9262	9400	9538		
HSUPA(B2)	1	23.70	23.96	23.47	18.8dBm – 25.7dBm	Pass
	2	21.75	22.03	21.51	16.8dBm – 25.7dBm	Pass
	3	22.76	22.98	22.55	17.8dBm – 25.7dBm	Pass
	4	21.88	22.08	21.55	16.8dBm – 25.7dBm	Pass
	5	23.59	23.82	23.38	18.8dBm – 25.7dBm	Pass

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		4132	4183	4233		
HSUPA(B5)	1	23.90	23.99	23.77	18.8dBm – 25.7dBm	Pass
	2	21.96	22.07	21.81	16.8dBm – 25.7dBm	Pass
	3	22.94	23.05	22.85	17.8dBm – 25.7dBm	Pass
	4	22.01	22.13	21.89	16.8dBm – 25.7dBm	Pass
	5	23.76	23.82	23.66	18.8dBm – 25.7dBm	Pass

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## 7. PEAK TO AVERAGE RATIO

### 7.1. Standard Applicable:

FCC 27.50(i)

Peak transmit power shall be measured over any interval of continuous transmission using instrumentation calibrated in terms of rms-equivalent voltage.

The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

To measure transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission shall not exceed 13dB.

According to issue 5 of RSS 133, section 6.4. Transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

### 7.2. Test SET-UP (Block Diagram of Configuration):

Refer to section 2.5 in this report

### 7.3. Measurement Procedure:

KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:

Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth; & internal = 1ms

Set the number of counts to a value that stabilizes the measured CCDF curve.

### 7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 7.5. Measurement Result: N/A

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## 8. 99% OCCUPIED BANDWIDTH MEASUREMENT

### 8.1. Standard Applicable:

According to §FCC 2.1049

According to IC RSS-Gen Issue 3 §4.6.1

According to IC RSS-133 §2.3

### 8.2. Test Set-up:

Refer to section 6.2 in this report

### 8.3. Measurement Procedure:

KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:

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.

### 8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 8.5. Measurement Result: N/A

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## 9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

### 9.1. Standard Applicable:

According to FCC §2.1051

FCC §22.917(a), §24.238(a), §27.53(g) §27.53(h) 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).

FCC §27.53(f) For operations in the 746–763 MHz, 775–793 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70dBW/MHz(-40dBm/MHz) EIRP for wide-band signals, and -80dBW(-50dBm) EIRP for discrete emissions of less than 700 Hz bandwidth.

According to RSS-132 §4.5

#### 4.5.1 Out-of-block Emissions

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

4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either

4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, in any 100 kHz bandwidth. Applicable: GPRS 850

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

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According to RSS-133 §6.5

#### 6.5.1 Out-of-Block Emissions

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

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

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

(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0 MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

#### 6.5.2 Out-of-Sub-band Emissions

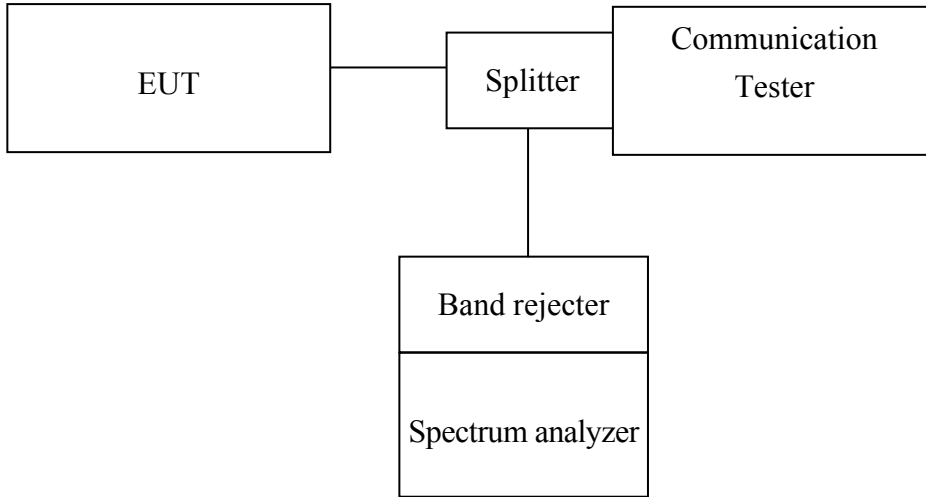
Outside the sub-bands 1850-1915 MHz and 1930-1995 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

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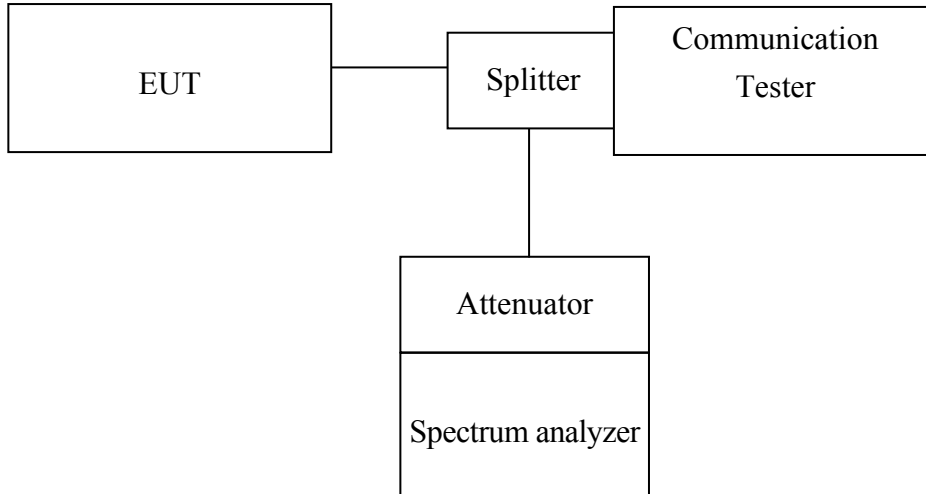
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**9.2. Test SET-UP:  
Out of band emission**



**Band Edge**



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### 9.3. Measurement Procedure:

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

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

Band Edge Requirements: 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.

For operations in the 824.2-848.8 MHz and 779.5-784.5 MHz band, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. Limit, -13dBm.

h) For operations in the 1710–1755 MHz and 1850.2-1909.8 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. Limit, -13dBm

(1) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. Limit, -13dBm

### Conducted Emission:

- 1、 To connect Antenna Port of EUT to Spectrum.
- 2、 Set RBW = 1MHz & VBW = 1MHz on Spectrum.
- 3、 Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 1G, 1G to 2.5G, 2.5G to 7.5G, 7.5G to 10G ,10G to 15G and 15G to 20GHz
- 4、 Via Software, combine 6 spans of frequency range into one plot

### 9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 9.5. Measurement Result: N/A

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## 10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 10.1. Standard Applicable:

According to FCC §2.1053,

FCC §22.917(a), §24.238(a), §27.53(g) 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).

FCC §27.53(f) For operations in the 746–763 MHz, 775–793 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70dBW/MHz(-40dBm/MHz) EIRP for wide-band signals, and -80dBW(-50dBm) EIRP for discrete emissions of less than 700 Hz bandwidth.

According to RSS-132 §4.5

#### 4.5.1 Out-of-block Emissions

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

4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either 4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, in any 100 kHz bandwidth. Applicable: GPRS 850

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

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According to RSS-133 §6.5

#### 6.5.1 Out-of-Block Emissions

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

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

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

(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0 MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

#### 6.5.2 Out-of-Sub-band Emissions

Outside the sub-bands 1850-1915 MHz and 1930-1995 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

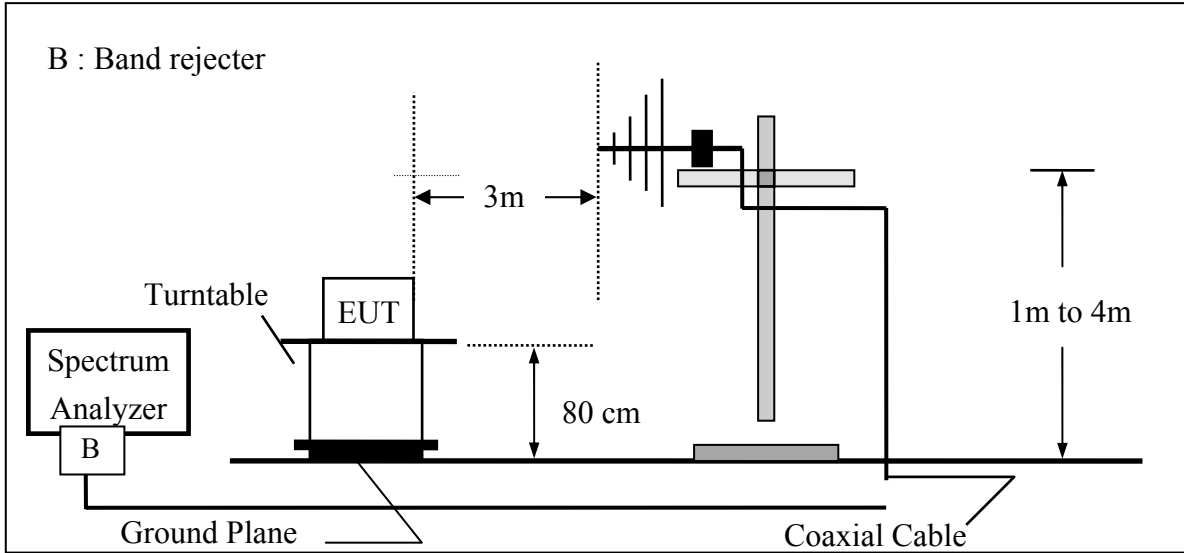
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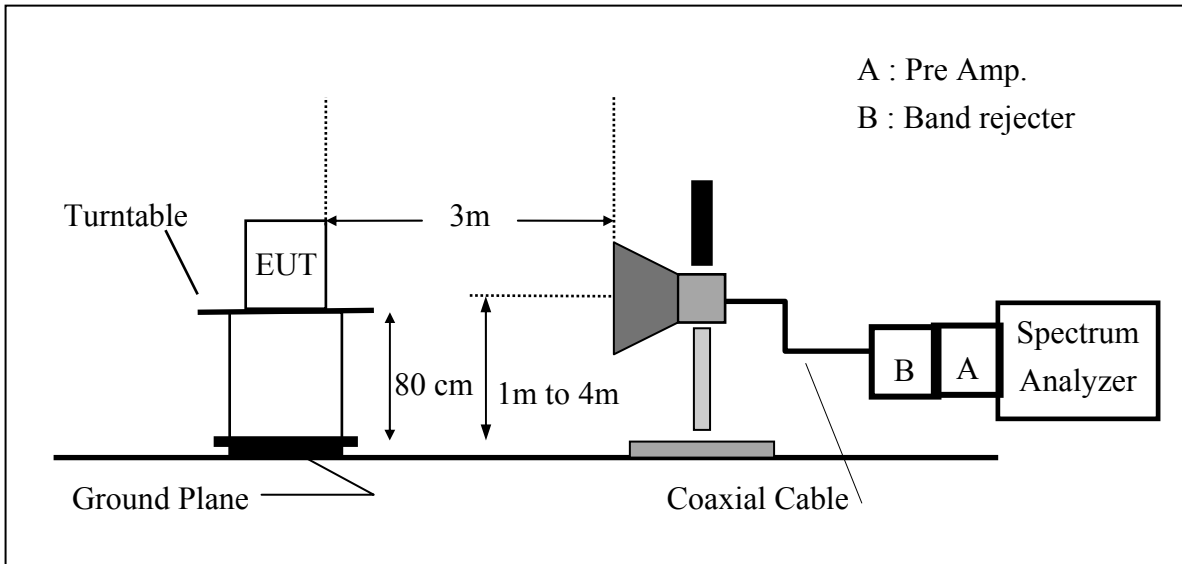
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**10.2. EUT Setup (Block Diagram of Configuration):**

Radiated Emission Test Set-Up, Frequency below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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### 10.3. 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 was 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)

### 10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 10.5. Measurement Result:

Refer to attach tabular data sheets.

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**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Band	:GPRS 850	Test Date	:2013-01-03
ARFCN	:CH 128	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:824.2 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1648.40	H	-58.12	-56.47	2.40	-4.05	-13.00	-45.12
2472.60	H	-41.74	-39.84	3.14	-5.03	-13.00	-28.74
3288.00	H	---					
4121.00	H	---					
4945.20	H	---					
5769.40	H	---					
6593.60	H	---					
7417.80	H	---					
8242.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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Fundamental Frequency	:824.2 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1648.40	H	-58.81	-57.44	2.68	-4.05	-13.00	-45.81
2472.60	H	-42.42	-40.91	3.52	-5.03	-13.00	-29.42
3288.00	H	---					
4121.00	H	---					
4945.20	H	---					
5769.40	H	---					
6593.60	H	---					
7417.80	H	---					
8242.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
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**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Band	:GPRS 850	Test Date	:2013-01-03
ARFCN	:CH 190	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:836.6 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq. MHz	Note F/H/E/S	ERP dBm	SG Output Level dBm	Antenna Gain dBd	Cable Loss dB	Limit dBm	Margin dB
1673.20	H	-58.74	-57.00	2.34	-4.08	-13.00	-45.74
2509.80	H	-42.10	-40.22	3.19	-5.07	-13.00	-29.10
3346.40	H	---					
4183.00	H	---					
5019.60	H	---					
5856.20	H	---					
6692.80	H	---					
7529.40	H	---					
8366.00	H	---					

$ERP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBd) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
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**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Band	:GPRS 850	Test Date	:2013-01-03
ARFCN	:CH 190	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:836.6 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1673.20	H	-56.97	-55.55	2.66	-4.08	-13.00	-43.97
2509.80	H	-44.54	-43.03	3.56	-5.07	-13.00	-31.54
3346.40	H	---					
4183.00	H	---					
5019.60	H	---					
5856.20	H	---					
6692.80	H	---					
7529.40	H	---					
8366.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
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**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Band	:GPRS 850	Test Date	:2013-01-03
ARFCN	:CH 251	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:848.8 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1697.60	H	-55.18	-53.34	2.28	-4.12	-13.00	-42.18
2546.40	H	-48.50	-46.70	3.30	-5.11	-13.00	-35.50
3395.20	H	---					
4244.00	H	---					
5092.80	H	---					
5941.60	H	---					
6790.40	H	---					
7639.20	H	---					
8488.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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Operation Band	:GPRS 850	Test Date	:2013-01-03
ARFCN	:CH 251	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:848.8 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq. MHz	Note F/H/E/S	ERP dBm	SG Output Level dBm	Antenna Gain dBd	Cable Loss dB	Limit dBm	Margin dB
1697.60	H	-55.69	-54.23	2.65	-4.12	-13.00	-42.69
2546.40	H	-47.38	-45.93	3.65	-5.11	-13.00	-34.38
3395.20	H	---					
4244.00	H	---					
5092.80	H	---					
5941.60	H	---					
6790.40	H	---					
7639.20	H	---					
8488.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 512	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1850.2 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq. MHz	Note F/H/E/S	EIRP dBm	SG Output Level dBm	Antenna Gain dBi	Cable Loss dB	Limit dBm	Margin dB
3700.40	H	-43.63	-44.80	7.40	-6.23	-13.00	-30.63
5550.60	H	-47.73	-48.93	8.99	-7.79	-13.00	-34.73
7400.80	H	---					
9251.00	H	---					
11101.20	H	---					
12951.40	H	---					
14801.60	H	---					
16651.80	H	---					
18502.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 512	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1850.2 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3700.40	H	-52.07	-52.75	6.91	-6.23	-13.00	-39.07
5550.60	H	-50.04	-50.52	8.27	-7.80	-13.00	-37.04
7400.80	H	---					
9251.00	H	---					
11101.20	H	---					
12951.40	H	---					
14801.60	H	---					
16651.80	H	---					
18502.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 661	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-46.36	-47.46	7.42	-6.32	-13.00	-33.36
5640.00	H	-45.42	-46.54	9.01	-7.89	-13.00	-32.42
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 661	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-51.60	-52.13	6.85	-6.32	-13.00	-38.60
5640.00	H	-50.19	-50.60	8.30	-7.89	-13.00	-37.19
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---” : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 810	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1909.8 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3819.60	H	-44.59	-45.71	7.51	-6.39	-13.00	-31.59
5729.40	H	-47.46	-48.56	9.03	-7.92	-13.00	-34.46
7639.20	H	---					
9549.00	H	---					
11458.80	H	---					
13368.60	H	---					
15278.40	H	---					
17188.20	H	---					
19098.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: GPRS 1900 Mode**

Operation Band	:GPRS 1900	Test Date	:2013-01-03
ARFCN	:CH 810	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1909.8 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3819.60	H	-49.86	-50.52	7.05	-6.39	-13.00	-36.86
5729.40	H	-49.60	-49.99	8.32	-7.92	-13.00	-36.60
7639.20	H	---					
9549.00	H	---					
11458.80	H	---					
13368.60	H	---					
15278.40	H	---					
17188.20	H	---					
19098.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9262	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1852.4 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3704.80	H	-46.74	-47.90	7.40	-6.24	-13.00	-33.74
5557.20	H	-43.75	-44.94	8.99	-7.80	-13.00	-30.75
7409.60	H	---					
9262.00	H	---					
11114.40	H	---					
12966.80	H	---					
14819.20	H	---					
16671.60	H	---					
18524.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9262	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1852.4 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3704.80	H	-51.45	-52.12	6.90	-6.24	-13.00	-38.45
5557.20	H	-46.21	-46.67	8.28	-7.81	-13.00	-33.21
7409.60	H	---					
9262.00	H	---					
11114.40	H	---					
12966.80	H	---					
14819.20	H	---					
16671.60	H	---					
18524.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9400	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-45.23	-46.33	7.42	-6.32	-13.00	-32.23
5640.00	H	-43.19	-44.31	9.01	-7.89	-13.00	-30.19
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---” : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9400	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-46.80	-47.33	6.85	-6.32	-13.00	-33.80
5640.00	H	-46.09	-46.51	8.30	-7.88	-13.00	-33.09
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9538	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1907.6 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3815.20	H	-35.57	-36.69	7.50	-6.38	-13.00	-22.57
5722.80	H	-43.47	-44.58	9.03	-7.92	-13.00	-30.47
7630.40	H	---					
9538.00	H	---					
11445.60	H	---					
13353.20	H	---					
15260.80	H	---					
17168.40	H	---					
19076.00	H	---					

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---” : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Band	:WCDMA B2	Test Date	:2013-01-03
ARFCN	:CH 9538	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1907.6 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3815.20	H	-38.08	-38.73	7.03	-6.38	-13.00	-25.08
5722.80	H	-50.18	-50.58	8.32	-7.92	-13.00	-37.18
7630.40	H	---					
9538.00	H	---					
11445.60	H	---					
13353.20	H	---					
15260.80	H	---					
17168.40	H	---					
19076.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4132	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:826.4 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1652.80	H	-59.47	-57.79	2.38	-4.06	-13.00	-46.47
2479.20	H	-55.95	-54.06	3.14	-5.04	-13.00	-42.95
3305.60	H	---					
4132.00	H	---					
4958.40	H	---					
5784.80	H	---					
6611.20	H	---					
7437.60	H	---					
8264.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4132	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:826.4 MHz	Engineer	:Aken
Operation Mode	:TX LOW		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1652.80	H	-60.86	-59.48	2.67	-4.06	-13.00	-47.86
2479.20	H	-55.27	-53.75	3.53	-5.05	-13.00	-42.27
3305.60	H	---					
4132.00	H	---					
4958.40	H	---					
5784.80	H	---					
6611.20	H	---					
7437.60	H	---					
8264.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4183	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:836.6 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1673.20	H	-56.00	-54.27	2.35	-4.08	-13.00	-43.00
2509.80	H	-55.52	-53.64	3.19	-5.07	-13.00	-42.52
3346.40	H	---					
4183.00	H	---					
5019.60	H	---					
5856.20	H	---					
6692.80	H	---					
7529.40	H	---					
8366.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4183	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:836.6 MHz	Engineer	:Aken
Operation Mode	:TX MID		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1673.20	H	-58.24	-56.82	2.66	-4.08	-13.00	-45.24
2509.80	H	-55.62	-54.11	3.56	-5.07	-13.00	-42.62
3346.40	H	---					
4183.00	H	---					
5019.60	H	---					
5856.20	H	---					
6692.80	H	---					
7529.40	H	---					
8366.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4233	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:846.6 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1693.20	H	-54.27	-52.45	2.29	-4.11	-13.00	-41.27
2539.80	H	-57.08	-55.27	3.28	-5.10	-13.00	-44.08
3386.40	H	---					
4233.00	H	---					
5079.60	H	---					
5926.20	H	---					
6772.80	H	---					
7619.40	H	---					
8466.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Band	:WCDMA B5	Test Date	:2013-01-03
ARFCN	:CH 4233	Temp./Humi.	:22.6deg_C/49RH
Fundamental Frequency	:846.6 MHz	Engineer	:Aken
Operation Mode	:TX HIGH		
EUT Pol.	:E2 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1693.20	H	-58.03	-56.57	2.65	-4.11	-13.00	-45.03
2539.80	H	-58.62	-57.16	3.64	-5.10	-13.00	-45.62
3386.40	H	---					
4233.00	H	---					
5079.60	H	---					
5926.20	H	---					
6772.80	H	---					
7619.40	H	---					
8466.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 1013	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:824.7 MHz	Engineer	:Nick
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1649.40	H	-57.85	-56.20	2.39	-4.05	-13.00	-44.85
2474.10	H	-48.16	-46.27	3.14	-5.03	-13.00	-35.16
3298.80	H	---					
4123.50	H	---					
4948.20	H	---					
5772.90	H	---					
6597.60	H	---					
7422.30	H	---					
8247.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 1013	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:824.7 MHz	Engineer	:Nick
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1649.40	H	-56.60	-55.22	2.68	-4.05	-13.00	-43.60
2474.10	H	-45.67	-44.16	3.52	-5.03	-13.00	-32.67
3298.80	H	---					
4123.50	H	---					
4948.20	H	---					
5772.90	H	---					
6597.60	H	---					
7422.30	H	---					
8247.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 384	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:836.52 MHz	Engineer	:Nick
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1673.04	H	-57.23	-55.48	2.33	-4.08	-13.00	-44.23
2509.56	H	-46.99	-45.12	3.19	-5.07	-13.00	-33.99
3346.08	H	---					
4182.60	H	---					
5019.12	H	---					
5855.64	H	---					
6692.16	H	---					
7528.68	H	---					
8365.20	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 384	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:836.52 MHz	Engineer	:Nick
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1673.04	H	-56.66	-55.24	2.66	-4.08	-13.00	-43.66
2509.56	H	-46.47	-44.96	3.56	-5.07	-13.00	-33.47
3346.08	H	---					
4182.60	H	---					
5019.12	H	---					
5855.64	H	---					
6692.16	H	---					
7528.68	H	---					
8365.20	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 777	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:848.31 MHz	Engineer	:Nick
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1696.62	H	-48.79	-46.96	2.28	-4.11	-13.00	-35.79
2544.93	H	-45.62	-43.81	3.30	-5.11	-13.00	-32.62
3393.24	H	---					
4241.55	H	---					
5089.86	H	---					
5938.17	H	---					
6786.48	H	---					
7634.79	H	---					
8483.10	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA Cellular Mode**

Operation Band	:CDMA Cell	Test Date	:2013-01-08
ARFCN	:CH 777	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:848.31 MHz	Engineer	:Nick
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1696.62	H	-51.17	-49.71	2.65	-4.11	-13.00	-38.17
2544.93	H	-47.26	-45.81	3.65	-5.11	-13.00	-34.26
3393.24	H	---					
4241.55	H	---					
5089.86	H	---					
5938.17	H	---					
6786.48	H	---					
7634.79	H	---					
8483.10	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 25	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1851.21 MHz	Engineer	:Nick
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3702.42	H	-44.48	-43.50	5.25	-6.24	-13.00	-31.48
5553.63	H	-44.42	-43.45	6.84	-7.80	-13.00	-31.42
7404.84	H	---					
9256.05	H	---					
11107.26	H	---					
12958.47	H	---					
14809.68	H	---					
16660.89	H	---					
18512.10	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 25	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1851.21 MHz	Engineer	:Nick
Operation Mode	:TX LOW		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3702.42	H	-52.22	-50.73	4.75	-6.24	-13.00	-39.22
5553.63	H	-47.45	-45.77	6.13	-7.80	-13.00	-34.45
7404.84	H	---					
9256.05	H	---					
11107.26	H	---					
12958.47	H	---					
14809.68	H	---					
16660.89	H	---					
18512.10	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 600	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Nick
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-44.68	-43.70	5.25	-6.24	-13.00	-31.68
5640.00	H	-43.88	-42.92	6.84	-7.80	-13.00	-30.88
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 600	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1880.0 MHz	Engineer	:Nick
Operation Mode	:TX MID		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3760.00	H	-52.80	-51.32	4.75	-6.24	-13.00	-39.80
5640.00	H	-47.69	-46.01	6.13	-7.80	-13.00	-34.69
7520.00	H	---					
9400.00	H	---					
11280.00	H	---					
13160.00	H	---					
15040.00	H	---					
16920.00	H	---					
18800.00	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---” : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 1175	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1908.75 MHz	Engineer	:Nick
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3817.50	H	-41.51	-40.48	5.35	-6.38	-13.00	-28.51
5726.25	H	-44.02	-42.97	6.88	-7.92	-13.00	-31.02
7635.00	H	---					
9543.75	H	---					
11452.50	H	---					
13361.25	H	---					
15270.00	H	---					
17178.75	H	---					
19087.50	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: CDMA PCS Mode**

Operation Band	:CDMA PCS	Test Date	:2013-01-08
ARFCN	:CH 1175	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:1908.75 MHz	Engineer	:Nick
Operation Mode	:TX HIGH		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
3817.50	H	-44.12	-42.63	4.90	-6.39	-13.00	-31.12
5726.25	H	-50.14	-48.39	6.17	-7.92	-13.00	-37.14
7635.00	H	---					
9543.75	H	---					
11452.50	H	---					
13361.25	H	---					
15270.00	H	---					
17178.75	H	---					
19087.50	H	---					

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 13**

**(QPSK 1 Offset 24) (Worst case)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23205	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:779.5 MHz	Engineer	:Aken
Operation Mode	:5M,QPSK,RB 1:24		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1559.00	H	-59.61	8.53	2.61	-3.92	-40.00	-19.61
2338.50	H	-47.68	12.94	3.00	-4.87	-13.00	-34.68
3118.00	H	---					
3897.50	H	---					
4677.00	H	---					
5456.50	H	---					
6236.00	H	---					
7015.50	H	---					
7795.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 13**

**(QPSK 1 Offset 24)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23205	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:779.5 MHz	Engineer	:Aken
Operation Mode	:5M,QPSK,RB 1:24		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1559.00	H	-58.88	7.28	2.72	-3.92	-40.00	-18.88
2338.50	H	-52.61	11.51	3.46	-4.87	-13.00	-39.61
3118.00	H	---					
3897.50	H	---					
4677.00	H	---					
5456.50	H	---					
6236.00	H	---					
7015.50	H	---					
7795.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 13**

**(QPSK 1 Offset 0)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23255	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:784.5 MHz	Engineer	:Aken
Operation Mode	:5M,QPSK,RB 1:0		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1569.00	H	-60.82	8.63	2.59	-3.93	-40.00	-20.82
2353.50	H	-47.31	12.94	3.00	-4.87	-13.00	-34.31
3138.00	H	---					
3922.50	H	---					
4707.00	H	---					
5491.50	H	---					
6276.00	H	---					
7060.50	H	---					
7845.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 13**

**(QPSK 1 Offset 0)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23255	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:784.5 MHz	Engineer	:Aken
Operation Mode	:5M,QPSK,RB 1:0		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1569.00	H	-58.86	7.28	2.72	-3.92	-40.00	-18.86
2353.50	H	-52.88	11.51	3.46	-4.87	-13.00	-39.88
3138.00	H	---					
3922.50	H	---					
4707.00	H	---					
5491.50	H	---					
6276.00	H	---					
7060.50	H	---					
7845.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 10MHz BW LTE-Band 13**

**(QPSK 1 Offset 0) (Worst case)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23230	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:782.0 MHz	Engineer	:Aken
Operation Mode	:10M,QPSK,RB 1:0		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1564.00	H	-55.19	8.48	2.62	-3.91	-40.00	-15.19
2346.00	H	-42.30	12.95	2.99	-4.86	-13.00	-29.30
3128.00	H	---					
3910.00	H	---					
4692.00	H	---					
5474.00	H	---					
6256.00	H	---					
7038.00	H	---					
7820.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 10MHz BW LTE-Band 13**

**(QPSK 1 Offset 0)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23230	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:782.0 MHz	Engineer	:Aken
Operation Mode	:10M,QPSK,RB 1:0		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1564.00	H	-54.85	7.20	2.73	-3.91	-40.00	-14.85
2346.00	H	-48.94	11.49	3.45	-4.86	-13.00	-35.94
3128.00	H	---					
3910.00	H	---					
4692.00	H	---					
5474.00	H	---					
6256.00	H	---					
7038.00	H	---					
7820.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 10MHz BW LTE-Band 13**

**(QPSK 49 Offset 1)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23230	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:782.0 MHz	Engineer	:Aken
Operation Mode	:10M,QPSK,RB 1:49		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBi	Loss dB	dBm	dB
1564.00	H	-59.78	8.58	2.60	-3.92	-40.00	-19.78
2346.00	H	-52.35	12.94	3.00	-4.87	-13.00	-39.35
3128.00	H	---					
3910.00	H	---					
4692.00	H	---					
5474.00	H	---					
6256.00	H	---					
7038.00	H	---					
7820.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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**Radiated Spurious Emission Measurement Result: 10MHz BW LTE-Band 13**

**(QPSK 1 Offset 49)**

Operation Band	:LTE Band 13	Test Date	:2013-01-03
ARFCN	:CH 23230	Temp./Humi.	:22.6 deg_C / 49 RH
Fundamental Frequency	:782.0 MHz	Engineer	:Aken
Operation Mode	:10M,QPSK,RB 1:49		
EUT Pol.	:E2 PLAN	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	dB
1564.00	H	-58.37	7.24	2.73	-3.92	-40.00	-18.37
2346.00	H	-55.49	11.51	3.46	-4.87	-13.00	-42.49
3128.00	H	---					
3910.00	H	---					
4692.00	H	---					
5474.00	H	---					
6256.00	H	---					
7038.00	H	---					
7820.00	H	---					

$EIRP(dBm) = SG\ Level(dBm) + Antenna\ Gain(dBi) + Cable\ Loss(dB)$

Note : “F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.  
 “E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.  
 “---“ : denotes Noise Floor.

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## 11. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

### 11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

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

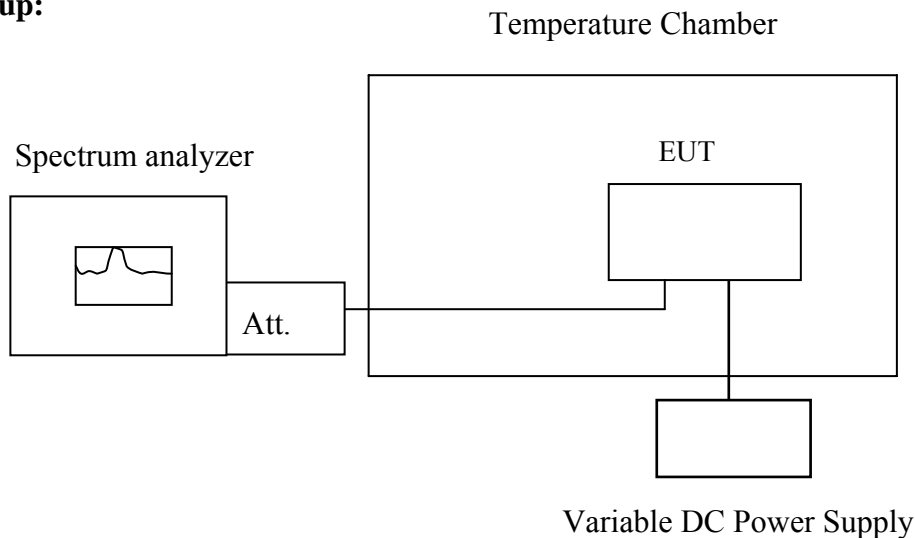
+/-2.5ppm for 1900MHz band

+/-2.5ppm for 700MHz band

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

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations

### 11.2. Test Set-up:



**Note:** Measurement setup for testing on Antenna connector

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### 11.3. 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.

### 11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 11.5. Measurement Result: N/A

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## 12. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### 12.1. Standard Applicable:

According to FCC §2.1055(d) (2)

Frequency Tolerance: +/-2.5ppm for 850MHz band  
+/-2.5ppm for 1900MHz band  
+/-2.5ppm for 1700MHz band  
+/-2.5ppm for 700MHz band

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

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

### 12.2. Test Set-up:

Refer to section 10.2 in this report

### 12.3. Measurement Procedure:

Set chamber temperature to 25 . Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation and endpoint as declared by the manufacturer, record the maximum frequency change.

### 12.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 12.5. Measurement Result: N/A

~ End of Report ~

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