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## FCC TEST REPORT (Part 24)

**REPORT NO.:** RF110615E06-3 R1

**MODEL NO.:** 60012, 2258, IdeaTab S2110A-XXXX (X can be 0-9, A-Z, a-z or blank)

**FCC ID:** O57WESTLAKE3G

**RECEIVED:** Apr. 27, 2012

**TESTED:** May 15 to 17, 2012

**ISSUED:** June 22, 2012

**APPLICANT:** Lenovo (Shanghai) Electronics Technology Co., Ltd.

**ADDRESS:** No. 68 Building, 199 Fenju Road, Wei Gao Qiao FTZ, Shanghai, China

**ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.) Ltd.,  
Taoyuan Branch Hsin Chu Laboratory

**LAB ADDRESS:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

**TEST LOCATION (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, Taiwan, R.O.C.

**TEST LOCATION (2):** No.49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120427C12-3	Original release	June 15, 2012
RF120427C12-3 R1	Modified the product name.	June 22, 2012



## 1 CERTIFICATION

**PRODUCT :** Tablet PC  
**BRAND NAME :** Lenovo  
**MODEL NO.:** 60012, 2258, IdeaTab S2110A-XXXX (X can be 0-9, A-Z, a-z or blank)  
**TEST SAMPLE :** Production Unit  
**APPLICANT :** Lenovo (Shanghai) Electronics Technology Co., Ltd.  
**TESTED :** May 15 to 17, 2012  
**STANDARDS :** **FCC Part 24, Subpart E**

The above equipment (model: 60012) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** Phoenix Huang , **DATE:** June 22, 2012  
(Phoenix Huang, Specialist)

**APPROVED BY :** May Chen , **DATE:** June 22, 2012  
( May Chen, Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
2.1046 24.232	Maximum Peak Output Power Limit: max. 2 watts e.i.r.p peak power	PASS	Meet the requirement of limit. Max. e.i.r.p is 36.9dBm at 1880.0 & 1909.8MHz.
2.1055 24.235	Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature Limit: max. $\pm 2.5$ ppm	PASS	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -9.1dB at 3819.58MHz.

## 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

Measurement	Value
Radiated emissions (30MHz-1GHz)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.56 dB
Radiated emissions (6GHz -18GHz)	4.10 dB
Radiated emissions (18GHz -40GHz)	4.24 dB

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Tablet PC
<b>MODEL NO.</b>	60012, 2258, IdeaTab S2110A-XXXX (X can be 0-9, A-Z, a-z or blank)
<b>POWER SUPPLY</b>	DC 5.2V from adapter or DC 3.7V from battery
<b>MODULATION TYPE</b>	GMSK, 8PSK (for GPRS / EDGE) BPSK (for WCDMA/ HSDPA/ HSUPA)
<b>OPERATING FREQUENCY</b>	1850.2MHz ~ 1909.8MHz (for GPRS / EDGE) 1852.4MHz ~ 1907.6MHz (for WCDMA/ HSDPA/ HSUPA)
<b>NUMBER OF CHANNEL</b>	299 (for GPRS / EDGE) 277 (for WCDMA/ HSDPA/ HSUPA)
<b>MAX. EIRP POWER</b>	GPRS Mode: 36.7dBm (4677.4mW) EDGE Mode: 36.9dBm (4897.8mW) WCDMA Mode: 30.1dBm (1023.3mW)
<b>ANTENNA TYPE</b>	Please see NOTE
<b>MAX. ANTENNA GAIN</b>	Please see NOTE
<b>DATA CABLE</b>	USB cable (shielded, 1.0 m)
<b>I/O PORTS</b>	Refer to users' manual
<b>ACCESSORY DEVICES</b>	Adapter x 1, Battery x 1

#### NOTE:

1. There are WLAN, Bluetooth, GPRS, EDGE and WCDMA technology used for the EUT. and the functions of EUT listed as below table:

Function	Report No.
WLAN	RF120427C12 R1
Bluetooth	RF120427C12-1 R1
2G & 3G (Part 22)	RF120427C12-2 R1
2G & 3G (Part 24)	RF120427C12-3 R1



2. The EUT has three model names which are identical to each other in all aspects except for the following:

Brand	Model No.	Description
Lenovo	60012	1. For marketing requirement
	2258	
	S2110A-XXXX	1. For marketing requirement 2. The "X" in the model could be defined as 0-9, A-Z, a-z or blank for marketing differentiation.
From the above model names, Model No.60012 was selected for testing.		

3. There are antennas provided to this EUT, please refer to the following table:

<b>WLAN / Bluetooth Antenna Spec.</b>		
Antenna Type	Gain(dBi)	Frequency range (GHz)
Chip	3.16	2.4 ~ 2.4835
<b>2G / 3G Antenna Spec.</b>		
Antenna Type	Gain(dBi)	Frequency range (MHz)
Fixed Internal	3.6	824 ~ 849
	2.5	880 ~ 915
	2.85	1710 ~ 1785
	2.85	1850 ~ 1910
	1.67	1920 ~ 1980
	2.85	1710 ~ 1755

4. Radiated spurious emissions of the simultaneous operation has been evaluated and no non-compliance was found, please refer below table.

MODE	WLAN	BT	GSM (850&1900MHz)	WCDMA (850&1900MHz)
1	√	-	√	-
2	√	-	-	√
3	-	√	√	-
4	-	√	-	√

5. WLAN technology and Bluetooth technology cannot transmit at same time.

6. The communicated functions of EUT listed as below:

		GSM (850&1900MHz)	WCDMA (850&1900MHz)
2G	GPRS	√	
	EDGE	√	
3G	WCDMA		√
	Release 5 HSDPA		√
	Release 6 HSUPA		√

7. The EUT could be supplied with a power adapter and a battery, following five different adapter models could be chosen as following table:

Adapter			
No	Brand	Model No.	Spec.
1	lenovo	AD83650	Input: 100-240V, 50/60Hz, 0.3A Output: 5.2V, 2A
2	lenovo	ADP-10AW B	Input: 100-240V, 50/60Hz, 0.4A Output: 5.2V, 2A
3	lenovo	ADP-10AW C	Input: 100-240V, 50/60Hz, 0.4A Output: 5.2V, 2A
4	lenovo	ADP-10AW D	Input: 100-240V, 50/60Hz, 0.4A Output: 5.2V, 2A
5	lenovo	ADP-10AW H	Input: 100-240V, 50/60Hz, 0.4A Output: 5.2V, 2A
The adapters 3, 4, 5 are as same as Adapter 2; except for plug shape is different. From the above adapters, adapter 1, 2 were selected for testing.			
Battery			
No	Brand	Model No.	Spec.
1	lenovo	L11C2P32	Power Rating: 3.7V,6340mAh Type: Li-ion

8. The EUT was pre-tested under following test modes:

Mode	Description
Mode A	Headset + Adapter 1 + EUT on X-plane
<b>Mode B</b>	<b>Headset + Adapter 2 + EUT on X-plane</b>
Mode C	Headset + Adapter 2 + EUT on Y-plane
Mode D	Headset + Adapter 2 + EUT on Z-plane

For the above modes, the worse radiated emission was found in **Mode B**. Therefore only the test data of the modes were recorded in this report.

9. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 DESCRIPTION OF TEST MODES

#### FOR GPRS & EDGE:

299 channels are provided to this EUT. Therefore, the low, middle and high channels are chosen for testing.

	CHANNEL	FREQUENCY	TX MODE
LOW	512	1850.2 MHz	GPRS, EDGE
MIDDLE	661	1880.0 MHz	GPRS, EDGE
HIGH	810	1909.8 MHz	GPRS, EDGE

**NOTE:**

1. Below 1 GHz, the channel 512, 661, and 810 were tested individually.
2. Above 1 GHz, the channel 512, 661, and 810 were tested individually.
3. The worst case for final test is chosen when the power control level set 5.
4. The channel space is 0.2MHz.
5. The EUT is a GPRS/EDGE class 10 device, which provide 2 up-link. After pre-tested both functions, found up-link with 1 time slot is worse, therefore, test results of output power, frequency stability, occupied bandwidth and band edge tests came out from this.
6. The EUT has GPRS, EDGE functions. After pre-testing, EDGE function is the worst case for all the emission tests.

### FOR WCDMA:

277 channels are provided to this EUT. Therefore, the low, middle and high channels are chosen for testing.

	CHANNEL	FREQUENCY	TX MODE
LOW	9262	1852.4 MHz	WCDMA, HSDPA, HSUPA
MIDDLE	9400	1880.0 MHz	WCDMA, HSDPA, HSUPA
HIGH	9538	1907.6 MHz	WCDMA, HSDPA, HSUPA

#### NOTE:

1. Below 1 GHz, the channel 9262, 9400 and 9538 were tested individually.
2. Above 1 GHz, the channel 9262, 9400 and 9538 were tested individually.
3. The channel space is 0.2MHz.
4. The EUT has WCDMA-RMC, HSDPA-RMC, HSDPA & HSUPA functions. After pre-testing, WCDMA-RMC function is the worst case for all the emission tests.

### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

#### FOR GPRS EDGE:

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	OB	BE	CE	RE<1G	RE≥1G	
1	√	√	√	√	√	√	√	With Adapter 2
2	-	-	-	-	-	√	-	With Adapter 2 + Docking

Where **OP**: Output power **FS**: Frequency stability  
**OB**: Occupied bandwidth **BE**: Band edge  
**CE**: Conducted spurious emissions **RE<1G**: Radiated emission below 1GHz  
**RE≥1G**: Radiated emission above 1GHz

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

#### OUTPUT POWER MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 661, 810	GPRS, EDGE

#### FREQUENCY STABILITY MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	661	EDGE

**OCCUPIED BANDWIDTH MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 661, 810	GPRS, EDGE

**BAND EDGE MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 810	GPRS, EDGE

**CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 661, 810	EDGE

**RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 661, 810	EDGE

**RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
512 to 810	512, 661, 810	EDGE

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
FS	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
OB	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
EM	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
BE	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
CE	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
RE < 1G	22deg. C, 70%RH	120Vac, 60Hz	Evan Huang
	22deg. C, 70%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
RE ≥ 1G	22deg. C, 69%RH	120Vac, 60Hz	Evan Huang



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**FOR WCDMA:**

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	OB	BE	CE	RE<1G	RE≥1G	
1	√	√	√	√	√	√	√	With Adapter 2
2	-	-	-	-	-	√	-	With Adapter 2 + Docking

Where **OP**: Output power **FS**: Frequency stability  
**OB**: Occupied bandwidth **BE**: Band edge  
**CE**: Conducted spurious emissions **RE<1G**: Radiated emission below 1GHz  
**RE≥1G**: Radiated emission above 1GHz

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

**OUTPUT POWER MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA

**FREQUENCY STABILITY MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9400	WCDMA

**OCCUPIED BANDWIDTH MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA



**BAND EDGE MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9538	WCDMA, HSDPA, HSUPA

**CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9400, 9538	WCDMA

**RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9400, 9538	WCDMA

**RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
9262 to 9538	9262, 9400, 9538	WCDMA



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**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
FS	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
OB	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
EM	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
BE	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
CE	25deg. C, 63%RH	120Vac, 60Hz	Wen Yu
RE < 1G	22deg. C, 70%RH	120Vac, 60Hz	Evan Huang
	22deg. C, 70%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
RE ≥ 1G	22deg. C, 69%RH	120Vac, 60Hz	Evan Huang



### **3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**ANSI/TIA/EIA-603-C 2004**

All test items have been performed and recorded as per the above standards.

**NOTE:** The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

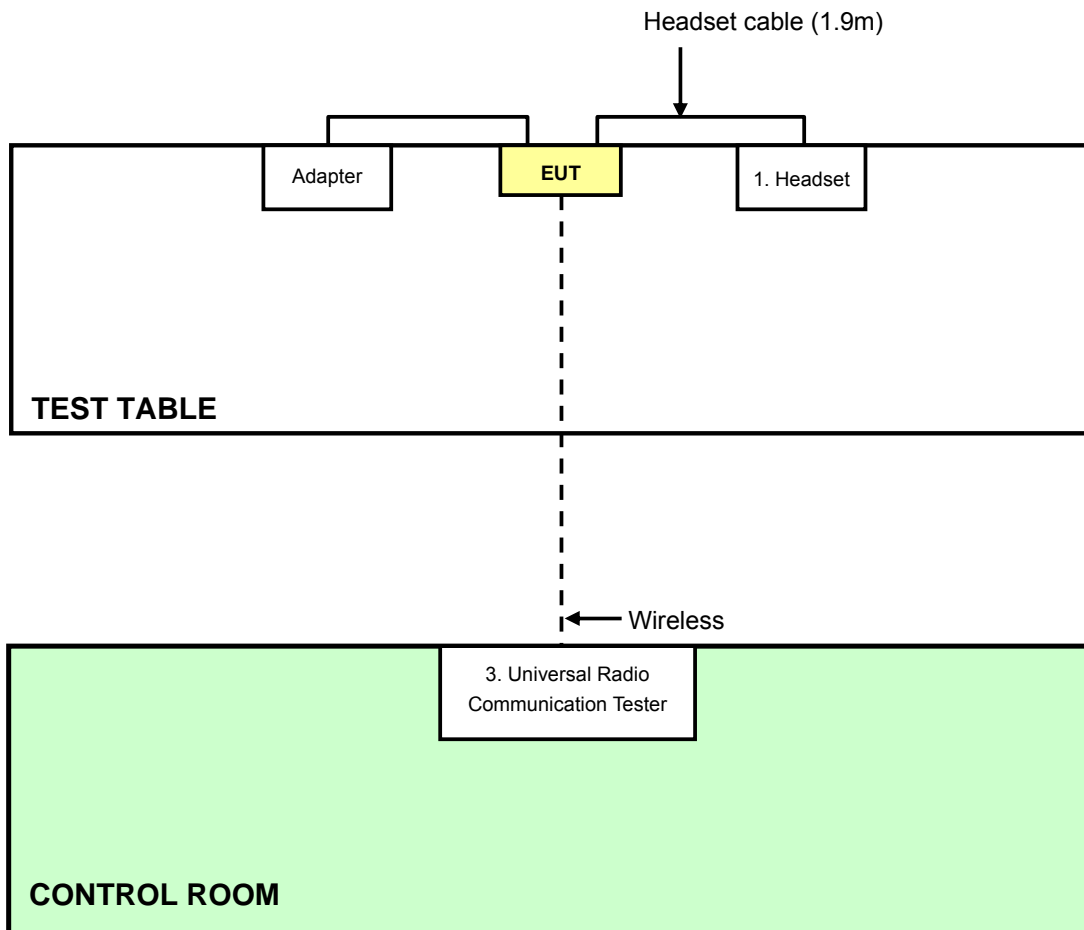
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Headset	Hawk	HKC920	H003	FCC DoC
2	Docking	lenovo	S2DK10	NA	NA
3	Universal Radio Communication Tester	R&S	CMU200	121040	NA

No.	Signal cable description
1	Headset cable (1.9m)
2	NA
3	NA

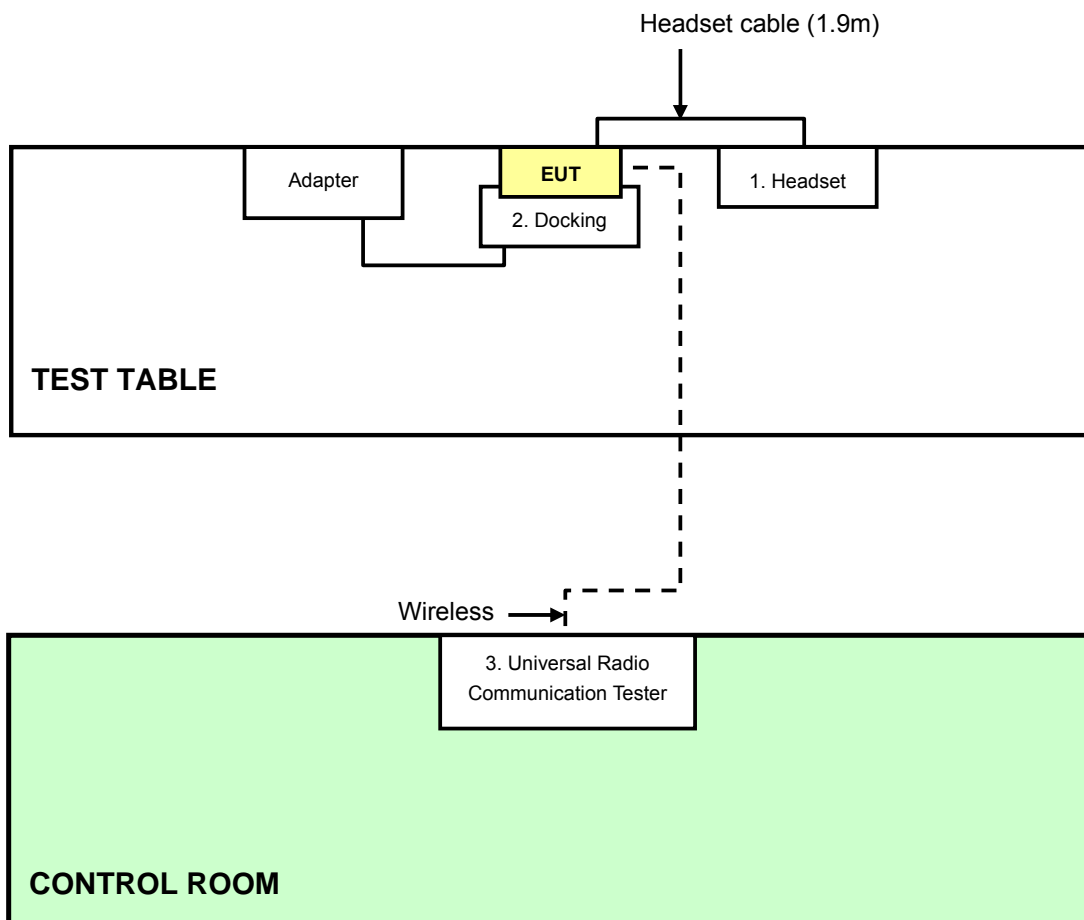
**NOTE:** All power cords of the above support units are non shielded (1.8m).

### 3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Mode 1:



**For Mode 2:**





## **4 TEST TYPES AND RESULTS**

### **4.1 OUTPUT POWER MEASUREMENT**

#### **4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT**

The radiated peak output power shall be according to the specific rule Part 24.232(b) that “Mobile / Portable station are limited to 2 watts EIRP” and 24.232(c) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”



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#### 4.1.2 TEST INSTRUMENTS

##### EIRP POWER MEASUREMENT:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

##### Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: May 17, 2012





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**CONDUCTED POWER MEASUREMENT:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100060	May 09, 2012	May 08, 2013
OVEN	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
AC POWER SOURCE	6205	1140503	NA	NA

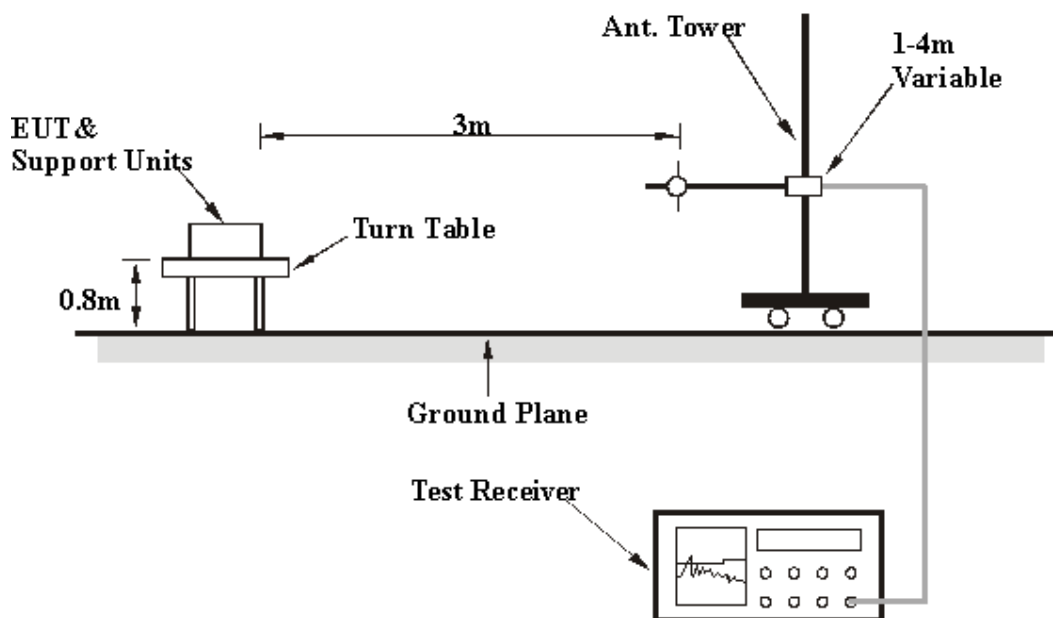
- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. Tested date: May 15, 2012

#### 4.1.3 TEST PROCEDURES

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512, 661 and 810 (GPRS & EDGE) / 9262, 9400 and 9538 (WCDMA) (low, middle and high operational frequency range.)
- b. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 1MHz (GPRS & EDGE), and 5MHz (WCDMA), then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data.)
- c. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- d. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable . Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step c. Record the power level of S.G
- e.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$

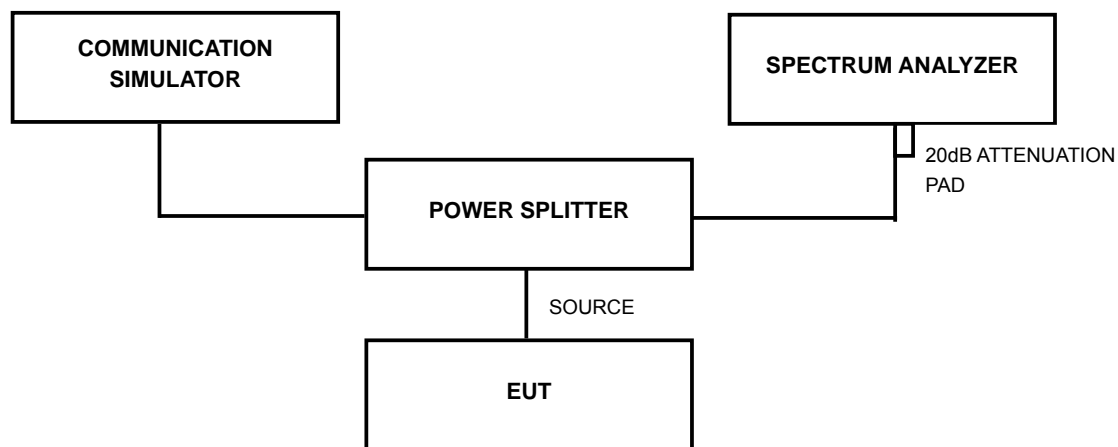
#### 4.1.4 TEST SETUP

##### EIRP POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

##### CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.5 EUT OPERATING CONDITIONS

- a. The EUT makes a call to the communication simulator.
- b. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

#### 4.1.6 TEST RESULTS

#### FOR GPRS & EDGE:

##### GPRS MODE

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	26.53	2.7	29.23	837.5
661	1880.0	26.37	2.7	29.07	807.2
810	1909.8	26.32	2.7	29.02	798.0

##### EDGE MODE

CONDUCTED PEAK OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	mW
512	1850.2	26.40	2.7	29.10	812.8
661	1880.0	26.48	2.7	29.18	827.9
810	1909.8	26.37	2.7	29.07	807.2

**REMARKS:** 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).  
 2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Pad.



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### GPRS MODE

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	29.7	6.6	36.3	4265.8
661	1880.0	29.6	6.7	36.3	4265.8
810	1909.8	30.0	6.7	36.7	4677.4

### EDGE MODE

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	Watt
512	1850.2	29.9	6.6	36.5	4466.8
661	1880.0	30.2	6.7	36.9	4897.8
810	1909.8	30.2	6.7	36.9	4897.8

- REMARKS:** 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).  
2. Correction Factor (dB) = substitution Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).



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## FOR WCDMA:

### WCDMA-RMC MODE

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	20.7	2.7	23.40	218.8
9400	1880	21.06	2.7	23.76	237.7
9538	1907.6	20.3	2.7	23.00	199.5

**REMARKS:** 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).  
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Pad.

### WCDMA-RMC MODE

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	23.4	6.6	30.0	1000.0
9400	1880	23.4	6.7	30.1	1023.3
9538	1907.6	23.4	6.7	30.1	1023.3

**REMARKS:** 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).  
2. Correction Factor (dB) = substitution Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).



## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 24.235 shall be tested the frequency stability. The rule is defined that” The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.” The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 2.5ppm of the received frequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1)  $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$ .

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 09, 2012	May 08, 2013
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012
Anritsu Power meter	ML2487B	0930006	Sep. 06, 2011	Sep. 05, 2012
Anritsu Power sensor	MA2491A	0845370	Sep. 06, 2011	Sep. 05, 2012
Electronics AC Power Source	6502	1140503	NA	NA
OVEN	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
DC Power Supply	GPC - 3030D	7700087	NA	NA
ESG Vector signal generator	E4438C	MY47271330 506 602 UNJ	May 08, 2012	May 07, 2013

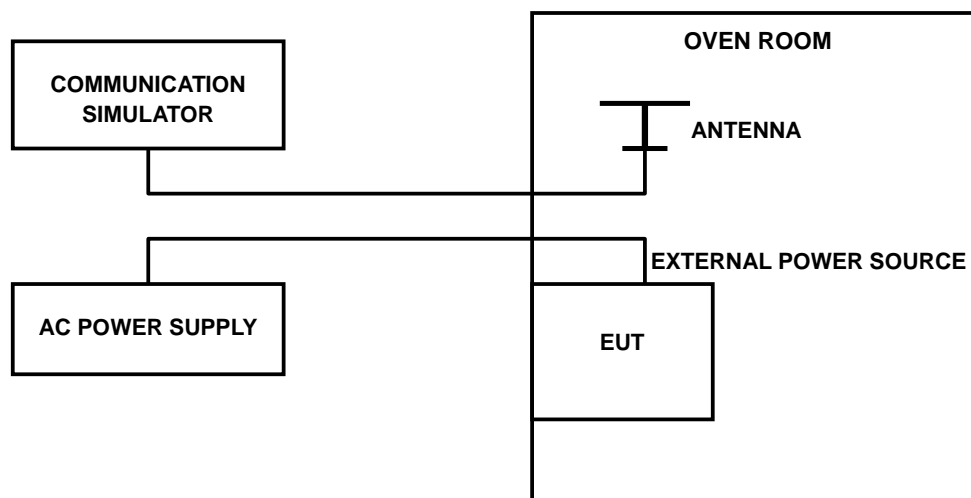
- NOTE:**
1. The test was performed in Oven room A.
  2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  3. Tested date: May 15, 2012



#### 4.2.3 TEST PROCEDURE

- a. Because of the measure the carrier frequency under the condition of the AFC lock, it shall be used the mobile station in the GSM / WCDMA link mode. This is accomplished with the use of the R&S CMU200 / JRC NJZ-2000 simulator station. The oven room could control the temperatures and humidity. The GSM link channel is the 661 and the WCDMA link channel is the 9400.
- b. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- c. EUT is connected the external power supply to control the AC input power. The various Volts from the minimum 138 Volts to 102 Volts. Each step shall be record the frequency error rate.
- d. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing.
- e. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

#### 4.2.4 TEST SETUP



#### 4.2.5 TEST RESULTS

##### FOR EDGE:

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
102	28	0.015	2.5
138	22	0.012	2.5

AFC FREQUENCY ERROR vs. TEMP.			
TEMP. (°C)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
50	37	0.020	2.5
40	35	0.019	2.5
30	33	0.018	2.5
20	31	0.016	2.5
10	26	0.014	2.5
0	24	0.013	2.5
-10	29	0.015	2.5
-20	30	0.016	2.5
-30	36	0.019	2.5



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**FOR WCDMA:**

<b>AFC FREQUENCY ERROR vs. VOLTAGE</b>			
<b>VOLTAGE (Volts)</b>	<b>FREQUENCY ERROR (Hz)</b>	<b>FREQUENCY ERROR (ppm)</b>	<b>LIMIT (ppm)</b>
102	30	0.016	2.5
138	32	0.017	2.5

<b>AFC FREQUENCY ERROR vs. TEMP.</b>			
<b>TEMP. (°C)</b>	<b>FREQUENCY ERROR (Hz)</b>	<b>FREQUENCY ERROR (ppm)</b>	<b>LIMIT (ppm)</b>
50	35	0.019	2.5
40	32	0.017	2.5
30	32	0.017	2.5
20	30	0.016	2.5
10	29	0.015	2.5
0	26	0.014	2.5
-10	25	0.013	2.5
-20	29	0.015	2.5
-30	31	0.016	2.5



### 4.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100060	May 09, 2012	May 08, 2013
OVEN	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
AC POWER SOURCE	6205	1140503	NA	NA

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. Tested date: May 15, 2012

#### 4.3.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)

#### 4.3.4 TEST PROCEDURES

- a. The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512, 661 and 810 (GPRS & EDGE) / 9262, 9400 and 9538 (WCDMA) (low, middle and high operational frequency range.)
- b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 4.3.5 EUT OPERATING CONDITION

Same as the 4.1.5

#### 4.3.6 TEST RESULTS

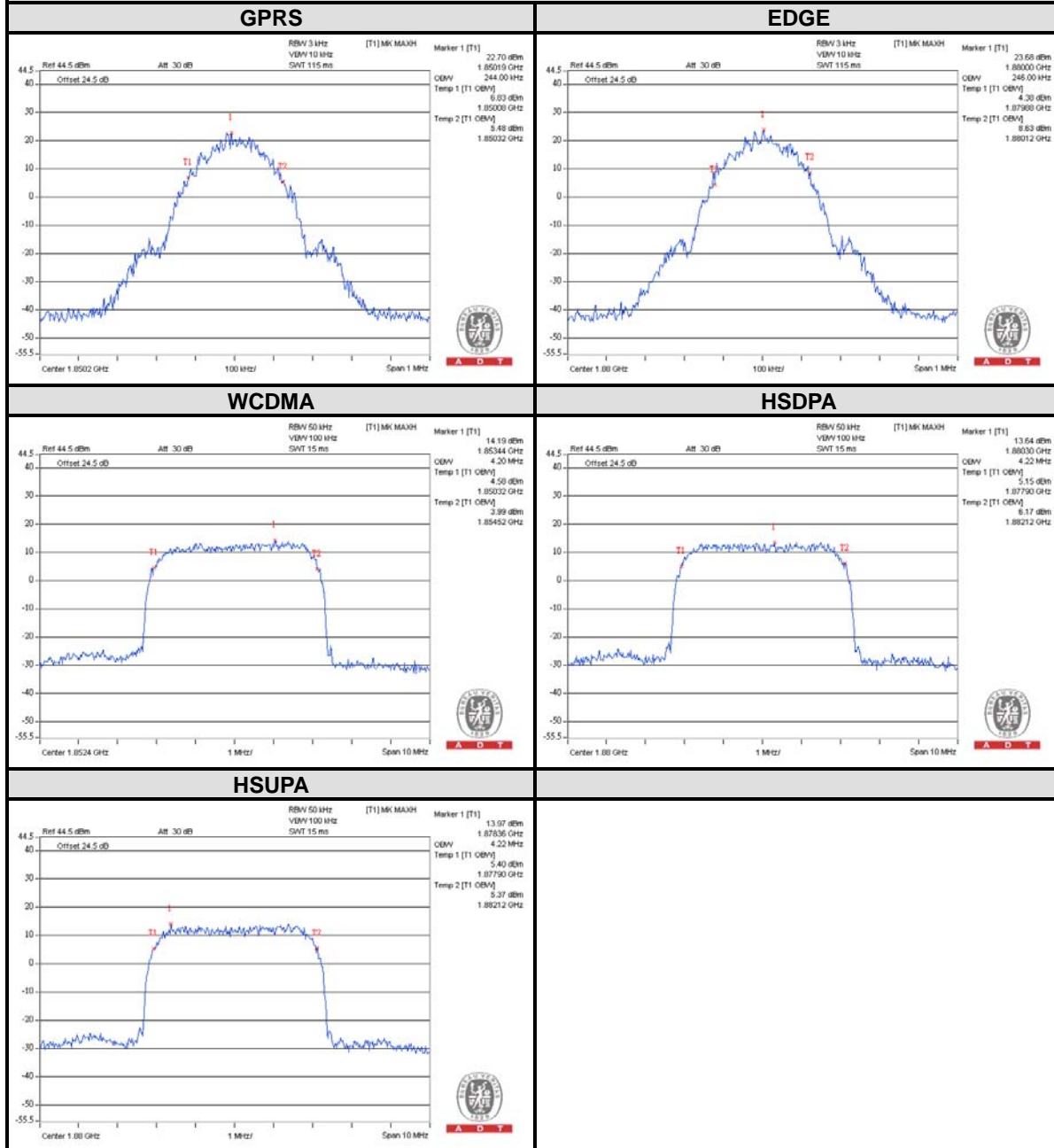
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)	
		GPRS	EDGE
128	1850.2	244	244
190	1880	242	246
251	1909.8	242	240

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		
		WCDMA	HSDPA	HSUPA
4132	1852.4	4.20	4.20	4.18
4182	1880	4.18	4.22	4.22
4233	1907.6	4.20	4.20	4.20



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### SPECTRUM PLOT OF WORST VALUE





## 4.4 BAND EDGE MEASUREMENT

### 4.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100060	May 09, 2012	May 08, 2013
OVEN	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
AC POWER SOURCE	6205	1140503	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. Tested date: May 15, 2012

### 4.4.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)



#### 4.4.4 TEST PROCEDURES

- a. The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 512 and 810 (GPRS & EDGE) / 9262 and 9538 (WCDMA) (low and high operational frequency range.)
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GPRS/ EDGE).
- d. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- e. Record the max trace plot into the test report.

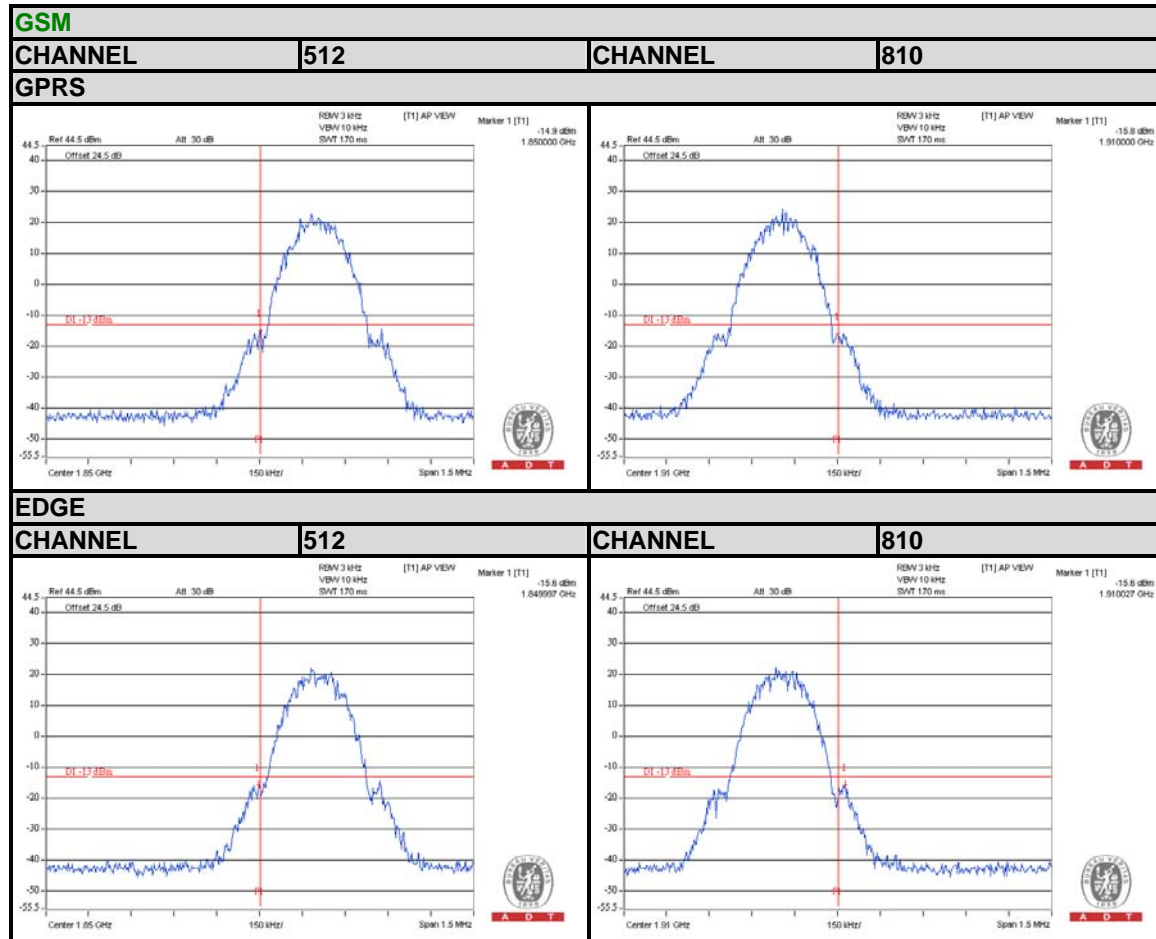
#### 4.4.5 EUT OPERATING CONDITION

Same as the 4.1.5



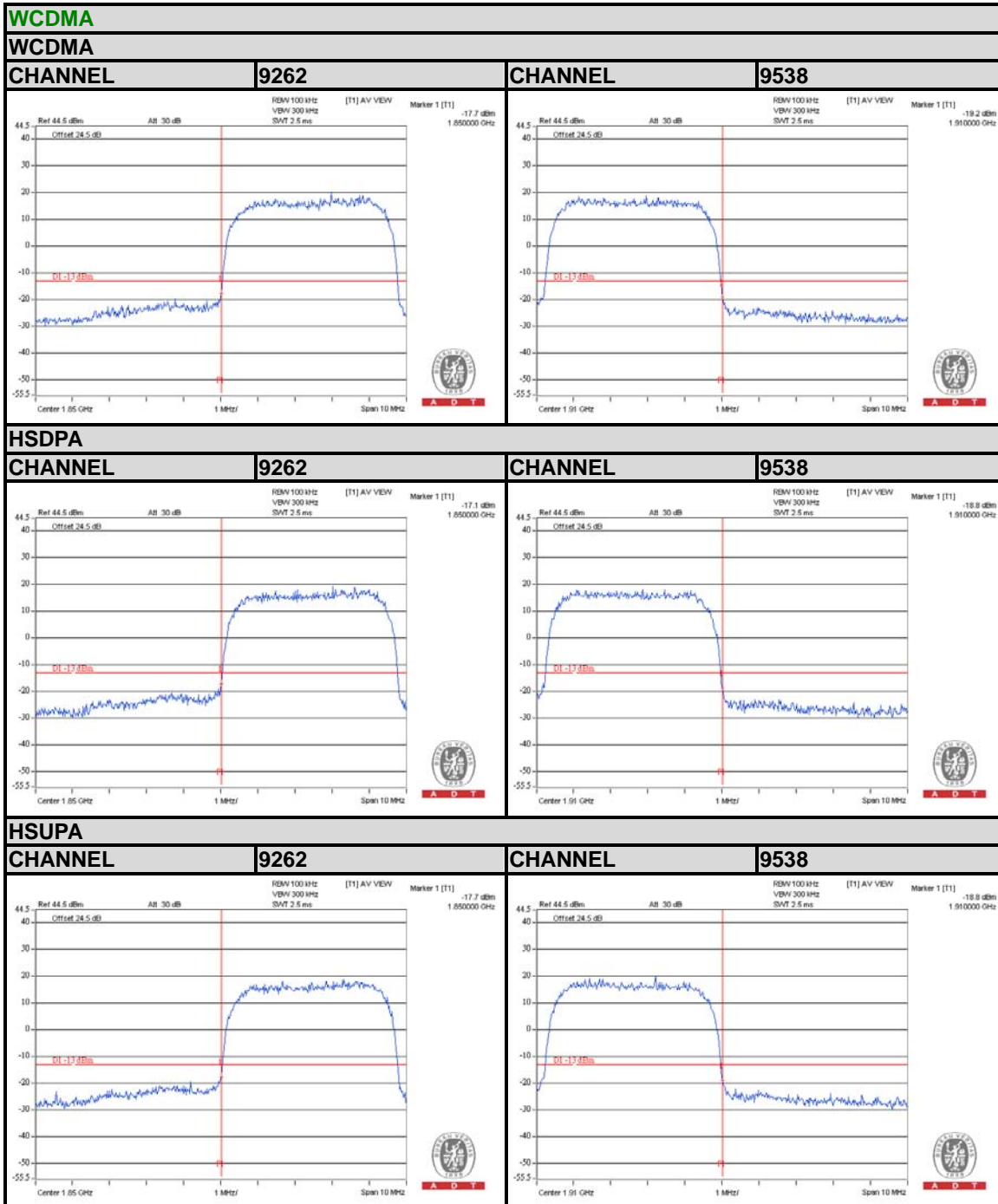
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### 4.4.6 TEST RESULTS





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## 4.5 CONDUCTED SPURIOUS EMISSIONS

### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.5.2 TEST INSTRUMENTS

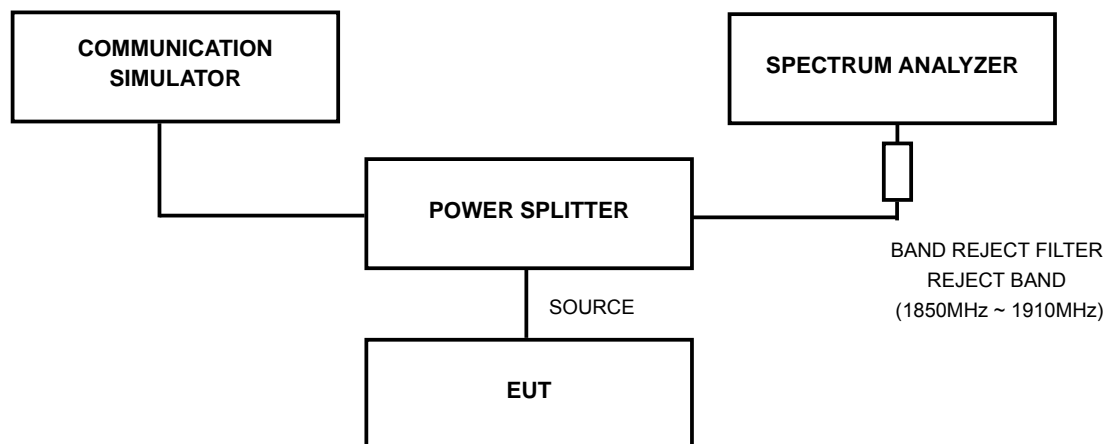
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100060	May 09, 2012	May 08, 2013
OVEN	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
AC POWER SOURCE	6205	1140503	NA	NA
Wainwright Instruments Band Reject Filter	WRCG1850/1910-1830/1930-60/10SS	SN1	NA	NA
* Wainwright Instruments High Pass Filter	WHK3.1/18G-10SS	SN1	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. Tested date: May 15, 2012

#### 4.5.3 TEST PROCEDURE

- a. The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 512 and 810 (GSM) / 9262 and 9538 (WCDMA) (low and high operational frequency range.)
- b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. When the spectrum scanned from 9kHz to 3GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.
- d. When the spectrum scanned from 3GHz to 20GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.

#### 4.5.4 TEST SETUP



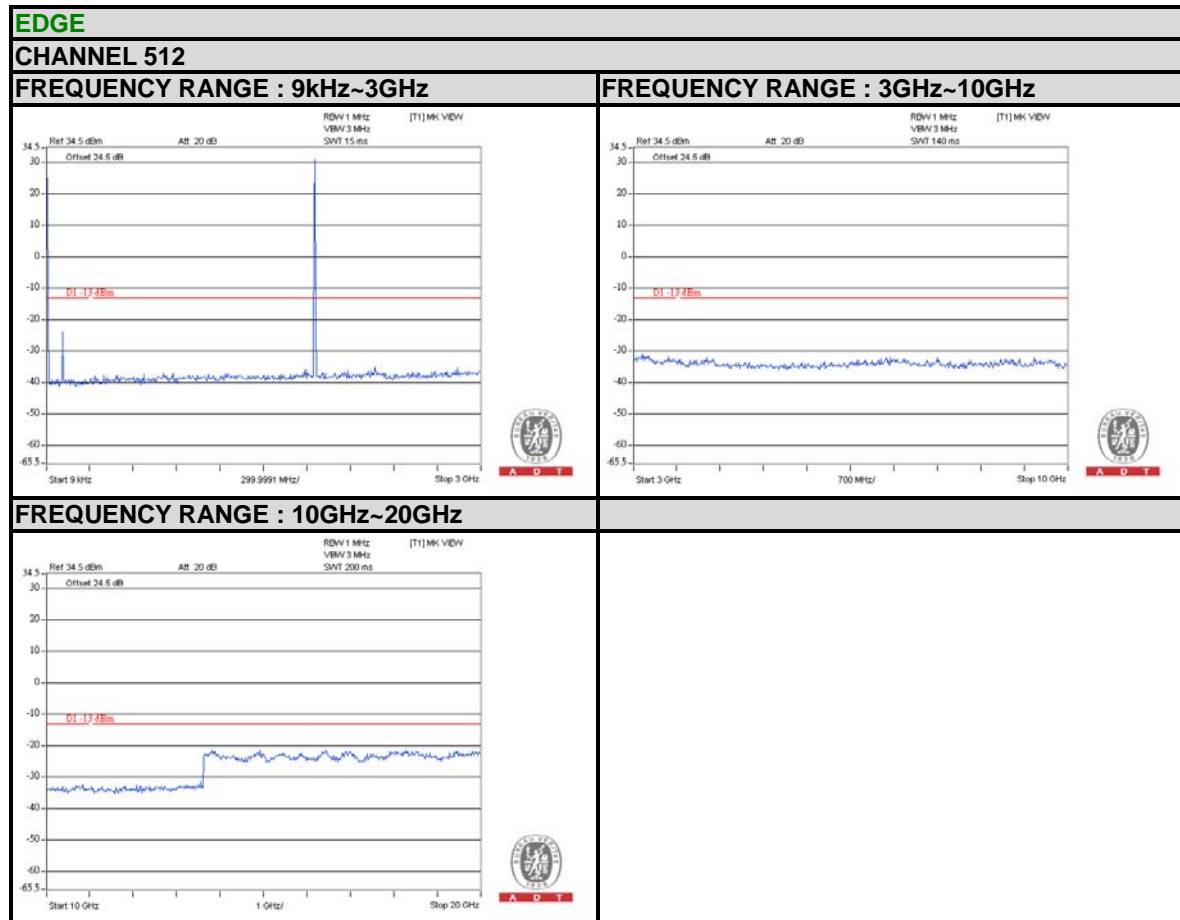
#### 4.5.5 EUT OPERATING CONDITIONS

Same as the 4.1.5



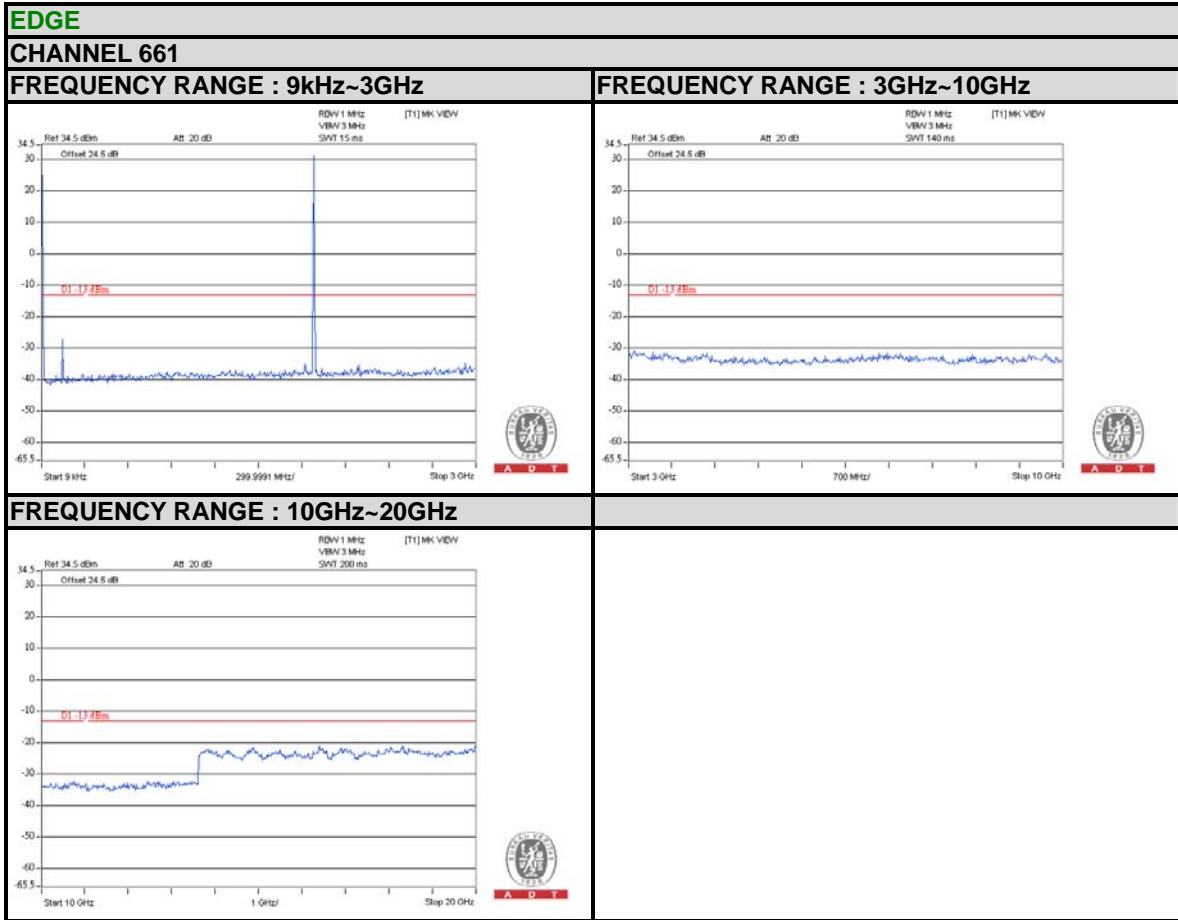
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## 4.5.6 TEST RESULTS



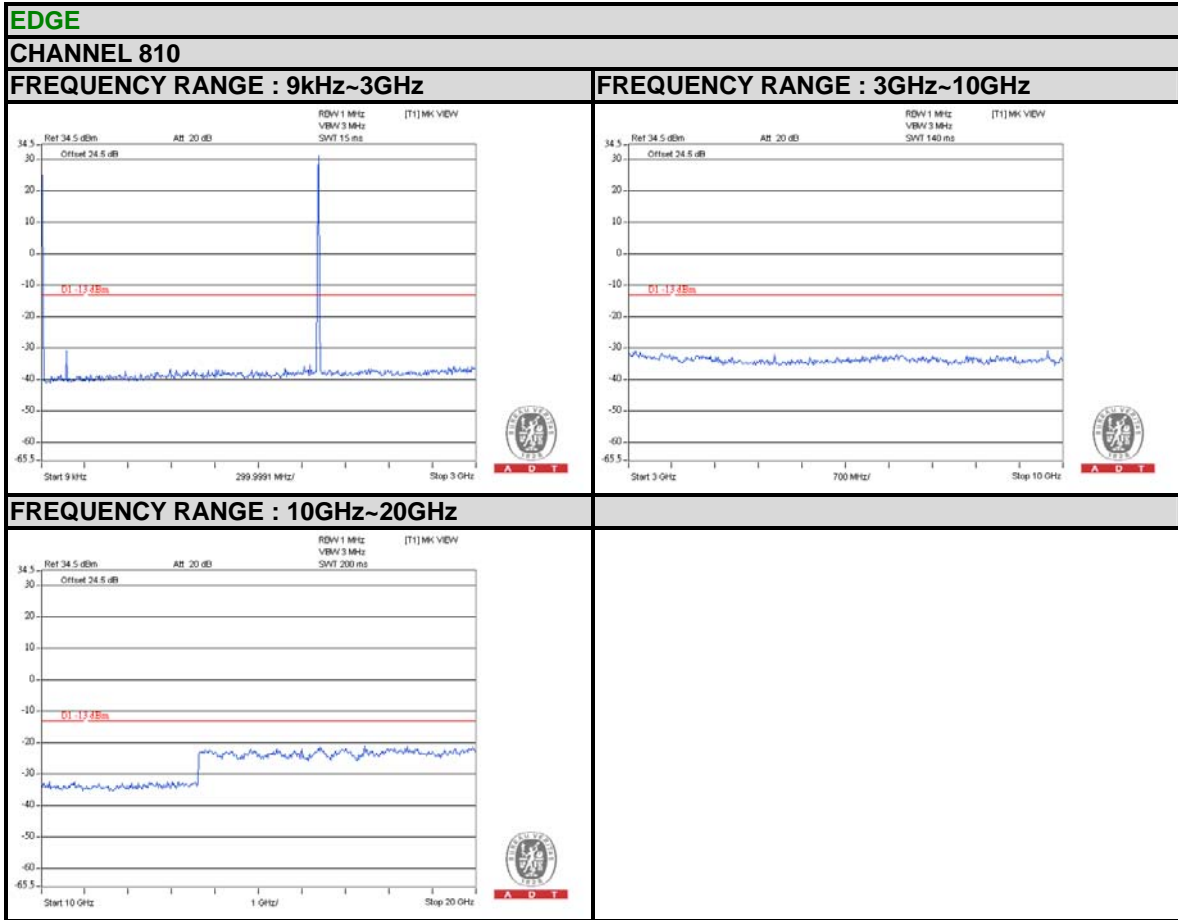


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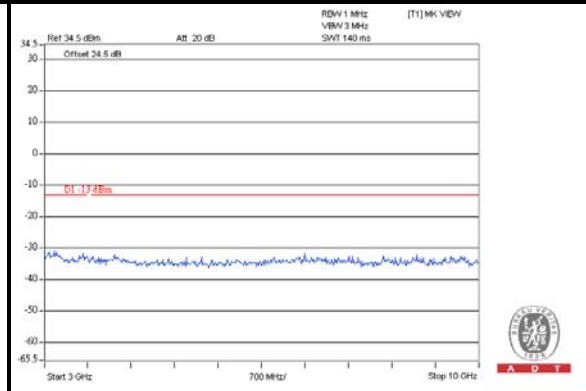
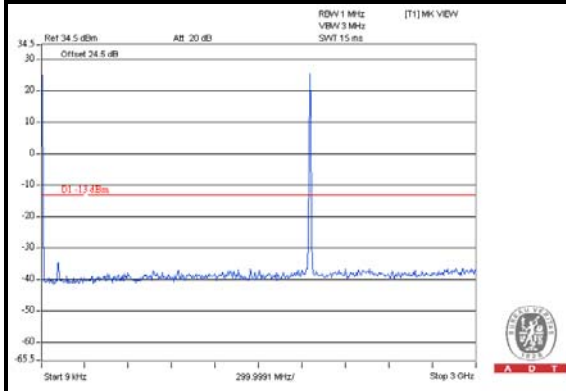
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**WCDMA**

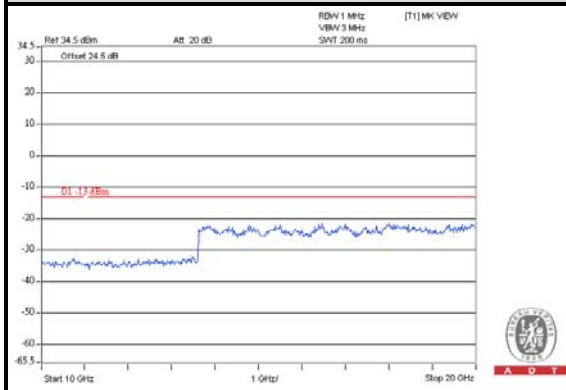
**CHANNEL 9262**

**FREQUENCY RANGE : 9kHz~3GHz**

**FREQUENCY RANGE : 3GHz~10GHz**



**FREQUENCY RANGE : 10GHz~20GHz**



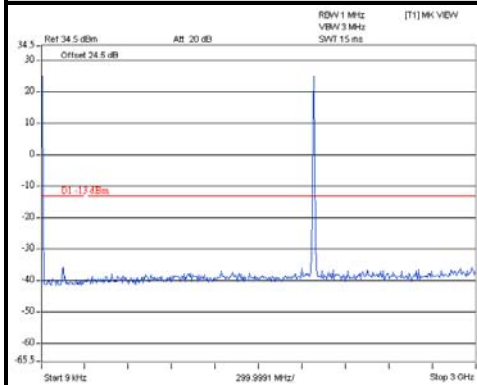


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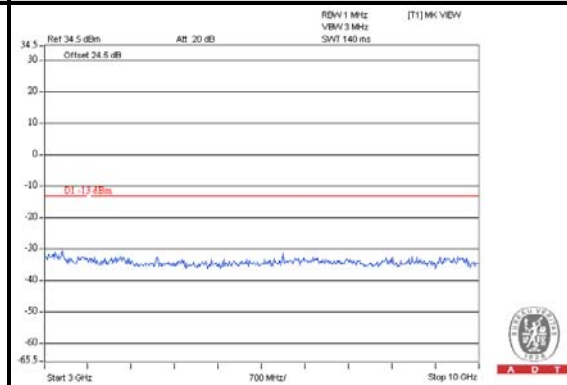
### WCDMA

#### CHANNEL 9400

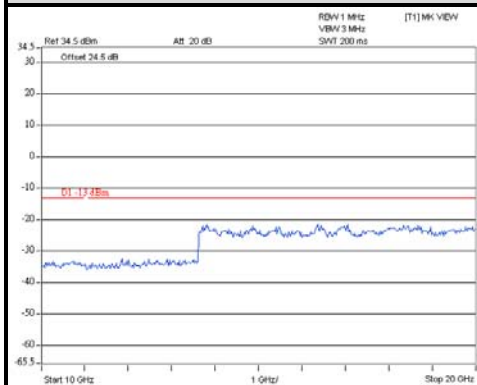
##### FREQUENCY RANGE : 9kHz~3GHz



##### FREQUENCY RANGE : 3GHz~10GHz



##### FREQUENCY RANGE : 10GHz~20GHz



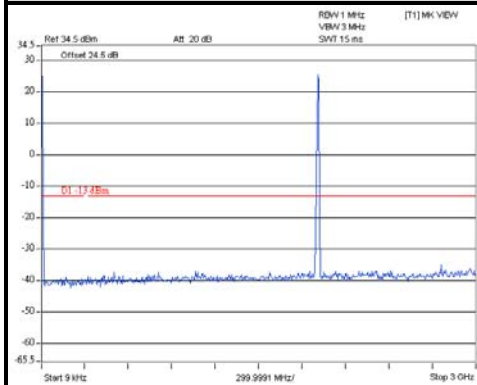


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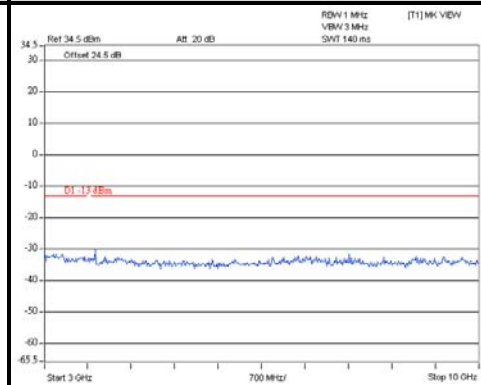
### WCDMA

### CHANNEL 9538

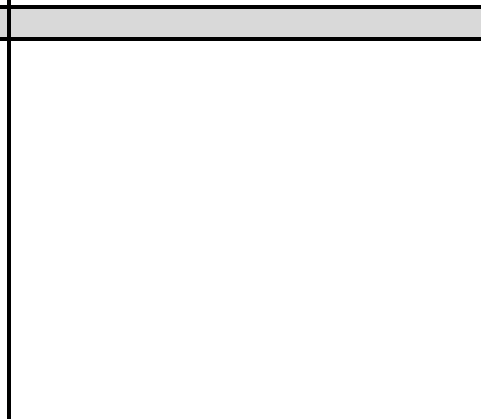
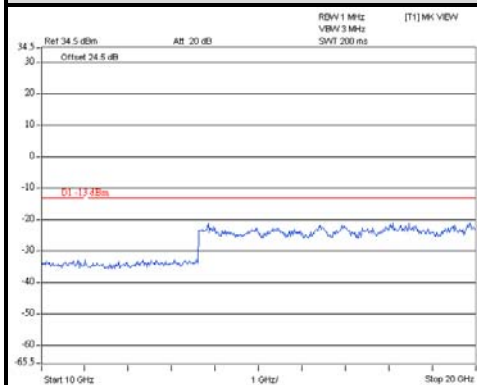
#### FREQUENCY RANGE : 9kHz~3GHz



#### FREQUENCY RANGE : 3GHz~10GHz



#### FREQUENCY RANGE : 10GHz~20GHz



## 4.6 RADIATED EMISSION MEASUREMENT

### 4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13$ dBm.

LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE)
-13	82.22

**NOTE:** The following formula is used to convert the equipment radiated power to field strength.

$$E = [1000000 \sqrt{(30P)}] / 3 \text{ uV/m, where P is Watts.}$$



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#### 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: May 17, 2012



#### 4.6.3 TEST PROCEDURES

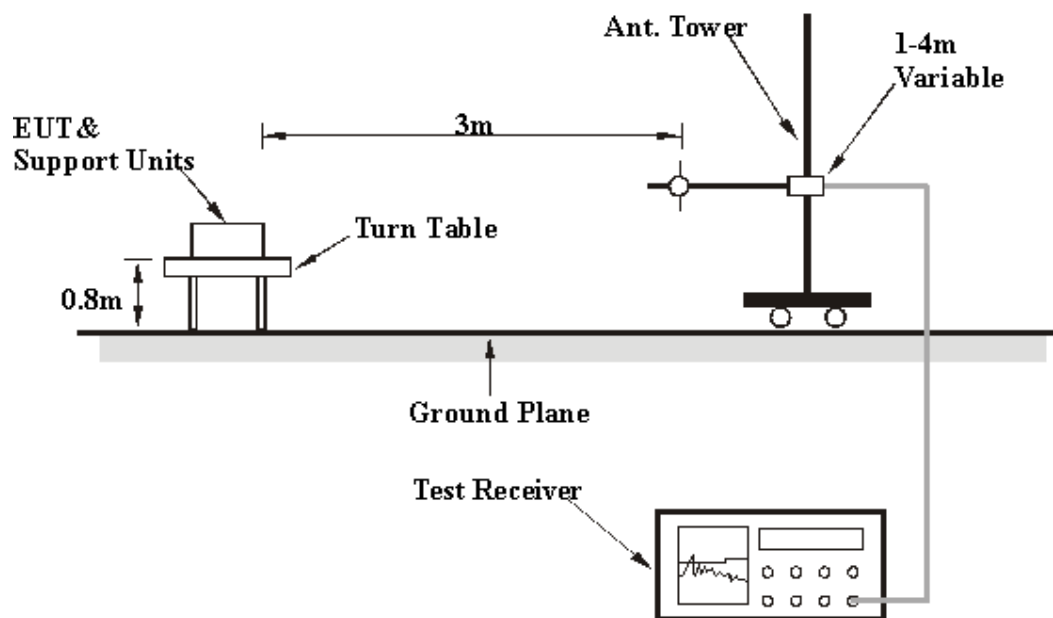
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.6.6 EUT OPERATING CONDITIONS

Same as the 4.1.5



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#### 4.6.7 TEST RESULTS (MODE 1)

#### BELOW 1GHz DATA

#### EDGE

<b>CHANNEL</b>	TX Channel 512	<b>FREQUENCY RANGE</b>	Below 1GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	134.09	37.1	82.2	-45.1	1.54 H	24	23.55	13.53
2	178.50	43.9	82.2	-38.3	1.32 H	254	30.77	13.09
3	221.02	42.6	82.2	-39.6	1.42 H	254	30.53	12.08
4	310.19	38.9	82.2	-43.3	1.24 H	52	23.37	15.55
5	621.17	32.1	82.2	-50.1	4.00 H	25	9.13	22.93
6	653.02	30.9	82.2	-51.3	1.33 H	355	7.61	23.33
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.50	35.3	82.2	-47.0	1.25 V	360	22.49	12.76
2	75.36	34.9	82.2	-47.3	1.12 V	286	23.84	11.06
3	127.23	36.3	82.2	-45.9	1.25 V	52	23.25	13.06
4	230.37	34.7	82.2	-47.6	1.55 V	190	22.16	12.49
5	586.47	31.8	82.2	-50.4	1.32 V	254	9.45	22.36
6	767.89	33.0	82.2	-49.3	1.05 V	24	7.68	25.27

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





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<b>CHANNEL</b>	TX Channel 661	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	135.24	36.5	82.2	-45.8	1.22 H	277	22.84	13.61
2	179.24	44.5	82.2	-37.7	1.32 H	254	31.51	13.03
3	218.54	42.6	82.2	-39.6	1.25 H	325	30.64	11.97
4	310.13	37.4	82.2	-44.8	1.03 H	254	21.89	15.55
5	622.50	31.8	82.2	-50.4	1.54 H	265	8.86	22.94
6	656.00	31.9	82.2	-50.3	1.00 H	54	8.51	23.37
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.25	35.6	82.2	-46.6	1.24 V	254	22.82	12.81
2	77.21	35.1	82.2	-47.1	1.35 V	254	24.56	10.52
3	128.54	36.2	82.2	-46.1	1.25 V	235	23.00	13.15
4	235.20	35.2	82.2	-47.0	1.35 V	245	22.54	12.70
5	584.15	32.2	82.2	-50.0	1.03 V	254	9.90	22.31
6	765.20	33.6	82.2	-48.6	1.03 V	254	8.38	25.21

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 810	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	96.88	34.6	82.2	-47.7	1.12 H	24	25.07	9.48
2	177.80	42.1	82.2	-40.1	1.32 H	254	28.98	13.15
3	224.58	40.6	82.2	-41.6	1.25 H	54	28.36	12.24
4	287.54	39.2	82.2	-43.0	1.32 H	254	24.40	14.80
5	319.85	37.8	82.2	-44.4	1.33 H	65	21.99	15.80
6	714.00	32.6	82.2	-49.6	1.05 H	58	8.35	24.23
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.50	36.2	82.2	-46.0	1.05 V	245	23.41	12.83
2	76.58	34.9	82.2	-47.3	1.32 V	254	24.16	10.70
3	129.88	36.4	82.2	-45.8	1.11 V	360	23.14	13.24
4	234.58	35.2	82.2	-47.1	1.54 V	12	22.48	12.67
5	584.11	32.5	82.2	-49.7	1.35 V	265	10.15	22.31
6	766.85	33.8	82.2	-48.4	1.05 V	5	8.57	25.25

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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### WCDMA Band II

<b>CHANNEL</b>	TX Channel 9262	<b>FREQUENCY RANGE</b>	Below 1GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	91.94	38.8	82.2	-43.5	1.25 H	25	29.90	8.85
2	108.87	37.6	82.2	-44.6	1.35 H	220	26.51	11.07
3	174.83	44.6	82.2	-37.6	1.50 H	100	31.21	13.41
4	222.67	42.3	82.2	-39.9	1.54 H	100	30.13	12.15
5	287.92	40.4	82.2	-41.8	1.35 H	255	25.58	14.82
6	831.25	39.8	82.2	-42.4	1.56 H	300	13.39	26.44

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.24	36.7	82.2	-45.5	1.21 V	300	23.98	12.75
2	47.53	36.4	82.2	-45.8	1.50 V	128	22.30	14.14
3	69.08	36.0	82.2	-46.2	1.25 V	359	23.32	12.72
4	92.53	36.1	82.2	-46.1	1.50 V	360	27.18	8.92
5	175.19	42.2	82.2	-40.0	1.52 V	200	28.85	13.39
6	190.11	40.2	82.2	-42.1	1.52 V	228	28.10	12.05

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 9400	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	92.15	38.6	82.2	-43.6	1.00 H	157	29.71	8.88
2	108.60	38.5	82.2	-43.7	1.32 H	220	27.50	11.04
3	174.60	45.5	82.2	-36.8	1.24 H	152	32.02	13.43
4	223.24	42.2	82.2	-40.0	1.22 H	87	30.02	12.18
5	287.70	41.3	82.2	-41.0	1.35 H	200	26.44	14.81
6	831.20	40.5	82.2	-41.7	1.82 H	36	14.11	26.43
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.58	36.5	82.2	-45.7	1.25 V	292	23.71	12.77
2	47.30	37.3	82.2	-44.9	1.50 V	200	23.20	14.14
3	70.10	36.9	82.2	-45.3	1.24 V	100	24.27	12.60
4	93.15	37.5	82.2	-44.8	1.65 V	300	28.45	9.00
5	176.54	43.6	82.2	-38.6	1.52 V	300	30.31	13.27
6	191.54	41.5	82.2	-40.7	1.24 V	256	29.62	11.92

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 9538	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	93.24	37.5	82.2	-44.7	1.25 H	200	28.53	9.01
2	109.54	37.6	82.2	-44.6	1.11 H	220	26.42	11.16
3	175.54	44.3	82.2	-38.0	1.25 H	50	30.90	13.35
4	224.54	43.2	82.2	-39.0	1.50 H	250	31.01	12.23
5	287.20	42.5	82.2	-39.7	1.25 H	244	27.75	14.79
6	832.25	41.2	82.2	-41.0	1.52 H	300	14.79	26.45
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.54	35.5	82.2	-46.8	1.25 V	292	22.62	12.83
2	48.24	38.5	82.2	-43.7	1.35 V	128	24.41	14.13
3	71.24	35.5	82.2	-46.8	1.45 V	360	23.18	12.27
4	93.11	36.1	82.2	-46.1	1.00 V	333	27.14	9.00
5	176.40	42.2	82.2	-40.1	1.25 V	245	28.87	13.28
6	191.20	40.2	82.2	-42.0	1.25 V	200	28.29	11.95

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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## ABOVE 1GHz DATA

### EDGE

<b>CHANNEL</b>	TX Channel 512	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3700.43	69.2	82.2	-13.0	1.00 H	111	33.87	35.33
2	5550.74	64.8	82.2	-17.4	1.00 H	110	23.00	41.83
3	7400.93	61.2	82.2	-21.0	1.00 H	110	13.71	47.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3700.28	69.1	82.2	-13.1	1.05 V	153	33.73	35.33
2	5550.72	64.3	82.2	-17.9	1.39 V	81	22.47	41.83
3	7400.66	68.1	82.2	-14.1	1.28 V	247	20.60	47.51

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 661	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3760.08	72.0	82.2	-10.2	1.00 H	109	36.32	35.65
2	5639.83	62.4	82.2	-19.8	1.14 H	78	20.33	42.10
3	7519.93	61.8	82.2	-20.5	1.14 H	69	14.51	47.24
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3759.83	72.3	82.2	-9.9	1.03 V	138	36.64	35.65
2	5639.85	62.9	82.2	-19.3	1.50 V	88	20.81	42.10
3	7519.98	67.1	82.2	-15.1	1.27 V	247	19.89	47.24

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 810	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3819.72	72.8	82.2	-9.4	1.00 H	108	36.86	35.91
2	5729.55	63.7	82.2	-18.5	1.08 H	86	21.32	42.35
3	7639.14	62.5	82.2	-19.7	1.00 H	113	15.23	47.24
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3819.58	73.1	82.2	-9.1	1.04 V	128	37.16	35.91
2	5729.26	62.7	82.2	-19.6	1.08 V	70	20.30	42.35
3	7638.90	69.3	82.2	-12.9	1.21 V	247	22.07	47.24

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





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### WCDMA Band II

<b>CHANNEL</b>	TX Channel 9262	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3703.30	53.7	82.2	-28.5	1.00 H	250	18.35	35.35
2	5560.59	54.7	82.2	-27.5	1.00 H	70	12.88	41.86
3	7412.63	48.2	82.2	-34.0	1.00 H	70	0.73	47.47

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3703.07	46.8	82.2	-35.4	1.00 V	109	11.48	35.35
2	5560.88	62.1	82.2	-20.1	1.00 V	82	20.28	41.86
3	7412.18	55.9	82.2	-26.3	1.00 V	247	8.43	47.48

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 9400	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3759.24	54.5	82.2	-27.7	1.00 H	251	18.86	35.64
2	5652.10	56.4	82.2	-25.9	1.00 H	71	14.21	42.14
3	7514.24	49.2	82.2	-33.0	1.00 H	71	1.96	47.24
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3759.57	47.9	82.2	-34.3	1.00 V	120	12.24	35.65
2	5651.20	64.7	82.2	-17.6	1.00 V	90	22.52	42.13
3	7512.63	57.1	82.2	-25.1	1.00 V	250	9.87	47.24

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 9538	<b>FREQUENCY RANGE</b>	1GHz ~ 20GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3808.90	55.2	82.2	-27.0	1.00 H	125	19.36	35.88
2	5724.10	57.2	82.2	-25.0	1.00 H	109	14.88	42.34
3	7639.20	49.9	82.2	-32.3	1.00 H	70	2.66	47.24
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3808.90	49.3	82.2	-32.9	1.00 V	121	13.42	35.88
2	5723.00	66.0	82.2	-16.2	1.00 V	102	23.65	42.34
3	7638.70	59.3	82.2	-22.9	1.00 V	255	12.08	47.24

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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#### 4.6.8 TEST RESULTS (MODE 2)

##### BELOW 1GHz DATA

##### EDGE

<b>CHANNEL</b>	TX Channel 512	<b>FREQUENCY RANGE</b>	Below 1GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	129.95	35.1	82.2	-47.1	1.24 H	25	21.81	13.25
2	175.54	39.8	82.2	-42.4	1.35 H	35	26.43	13.35
3	228.36	41.9	82.2	-40.3	1.16 H	40	29.52	12.40
4	365.85	33.3	82.2	-48.9	1.19 H	285	16.34	16.99
5	567.40	34.1	82.2	-48.2	1.48 H	39	12.11	21.94
6	598.19	33.0	82.2	-49.2	1.50 H	68	10.35	22.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.18	33.5	82.2	-48.7	1.35 V	24	20.66	12.81
2	69.32	30.8	82.2	-51.4	1.88 V	0	18.08	12.70
3	132.91	34.0	82.2	-48.2	1.35 V	245	20.55	13.45
4	177.20	38.0	82.2	-44.2	1.15 V	245	24.83	13.21
5	239.02	37.9	82.2	-44.3	1.32 V	254	25.03	12.87
6	709.75	32.5	82.2	-49.7	1.33 V	316	8.38	24.15

##### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 661	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	130.00	36.1	82.2	-46.1	1.25 H	300	22.87	13.25
2	175.57	40.2	82.2	-42.0	1.35 H	245	26.85	13.35
3	228.31	42.2	82.2	-40.1	1.22 H	245	29.75	12.40
4	365.89	33.2	82.2	-49.0	1.05 H	285	16.19	16.99
5	567.40	34.2	82.2	-48.0	1.65 H	54	12.22	21.94
6	598.19	32.8	82.2	-49.4	1.68 H	25	10.20	22.62
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.40	33.4	82.2	-48.8	1.32 V	325	20.54	12.82
2	69.40	30.6	82.2	-51.7	1.54 V	24	17.86	12.69
3	132.99	34.5	82.2	-47.7	1.33 V	325	21.05	13.45
4	186.00	39.5	82.2	-42.7	1.06 V	254	27.08	12.42
5	241.00	37.7	82.2	-44.5	1.65 V	99	24.76	12.96
6	708.00	32.8	82.2	-49.4	1.55 V	24	8.65	24.12

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 810	<b>FREQUENCY RANGE</b>	Below 1GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	129.60	36.3	82.2	-45.9	1.02 H	300	23.06	13.22
2	177.98	40.1	82.2	-42.1	1.54 H	24	26.92	13.14
3	228.54	42.0	82.2	-40.2	1.32 H	54	29.63	12.41
4	368.57	33.3	82.2	-48.9	1.15 H	284	16.26	17.06
5	572.35	35.7	82.2	-46.5	1.32 H	39	13.64	22.05
6	598.10	33.0	82.2	-49.2	1.25 H	0	10.36	22.62
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.45	33.2	82.2	-49.0	1.32 V	25	20.37	12.82
2	72.10	30.4	82.2	-51.8	1.25 V	54	18.43	12.01
3	132.80	35.3	82.2	-46.9	1.33 V	65	21.82	13.44
4	187.58	39.4	82.2	-42.8	1.03 V	24	27.08	12.28
5	251.24	37.6	82.2	-44.6	1.62 V	235	24.17	13.40
6	704.25	32.6	82.2	-49.6	1.62 V	325	8.57	24.05

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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### WCDMA Band II

<b>CHANNEL</b>	TX Channel 9262	<b>FREQUENCY RANGE</b>	Below 1GHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	88.38	36.9	82.2	-45.3	1.24 H	254	28.10	8.78
2	111.24	37.7	82.2	-44.5	1.24 H	25	26.31	11.39
3	177.32	46.4	82.2	-35.8	1.50 H	214	33.21	13.20
4	225.75	46.9	82.2	-35.4	1.32 H	139	34.56	12.29
5	617.14	37.6	82.2	-44.6	1.42 H	35	14.70	22.88
6	830.54	36.9	82.2	-45.3	1.50 H	358	10.48	26.42

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	47.88	37.2	82.2	-45.1	1.12 V	241	23.02	14.13
2	132.44	37.3	82.2	-44.9	1.25 V	254	23.88	13.42
3	176.96	42.4	82.2	-39.8	1.45 V	56	29.21	13.23
4	236.06	43.8	82.2	-38.4	1.50 V	154	31.06	12.74
5	830.77	43.7	82.2	-38.5	1.50 V	354	17.29	26.43
6	895.55	45.2	82.2	-37.0	2.00 V	248	17.73	27.43

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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<b>CHANNEL</b>	TX Channel 9400	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	89.54	37.5	82.2	-44.7	1.50 H	205	28.89	8.65
2	112.54	38.2	82.2	-44.1	1.00 H	0	26.58	11.57
3	174.57	47.2	82.2	-35.0	1.50 H	254	33.77	13.43
4	226.57	47.5	82.2	-34.7	1.24 H	360	35.16	12.32
5	618.74	35.5	82.2	-46.7	1.50 H	145	12.64	22.90
6	830.10	36.3	82.2	-45.9	1.50 H	65	9.90	26.42
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	49.54	38.5	82.2	-43.7	1.21 V	52	24.37	14.10
2	133.85	38.2	82.2	-44.0	1.00 V	258	24.69	13.51
3	176.70	41.9	82.2	-40.3	1.00 V	360	28.62	13.25
4	237.55	44.3	82.2	-38.0	1.50 V	157	31.45	12.80
5	830.20	44.9	82.2	-37.4	1.00 V	298	18.43	26.42
6	895.30	46.9	82.2	-35.3	2.00 V	265	19.45	27.43

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





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<b>CHANNEL</b>	TX Channel 9538	<b>FREQUENCY RANGE</b>	Below 1GHz
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<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	89.45	36.8	82.2	-45.4	1.24 H	205	28.11	8.66
2	111.00	37.3	82.2	-44.9	1.50 H	0	25.93	11.36
3	174.00	45.9	82.2	-36.3	1.32 H	25	32.41	13.46
4	225.40	47.8	82.2	-34.4	1.00 H	360	35.57	12.27
5	617.00	37.9	82.2	-44.3	1.00 H	347	15.04	22.87
6	830.30	37.5	82.2	-44.7	1.50 H	302	11.06	26.42
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	49.30	39.9	82.2	-42.3	1.21 V	142	25.77	14.10
2	133.50	37.5	82.2	-44.7	1.50 V	341	23.98	13.49
3	177.87	42.9	82.2	-39.3	1.25 V	338	29.74	13.15
4	237.40	45.6	82.2	-36.7	1.24 V	96	32.75	12.80
5	828.00	42.6	82.2	-39.6	1.50 V	254	16.19	26.38
6	891.00	47.0	82.2	-35.2	2.00 V	128	19.63	27.36

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



## 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.



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## **7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No modifications were made to the EUT by the lab during the test.

**---END---**