

# FCC TEST REPORT (Part 22)

**REPORT NO.:** RF121004E01-1

MODEL NO.: FD-400GT(SL8081)

FCC ID: MQT-FD400GTSL

RECEIVED: Oct. 04, 2012

TESTED: Oct. 19 to 29, 2012

**ISSUED:** Nov. 08, 2012

APPLICANT: XAC AUTOMATION CORP.

ADDRESS: 4F, No. 30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL PARK, HSINCHU, TAIWAN

<b>ISSUED BY:</b>	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.			

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification



## TABLE OF CONTENTS

RELEA	SE CONTROL RECORD	4
1	CERTIFICATION	
2	SUMMARY OF TEST RESULTS	
2.1	MEASUREMENT UNCERTAINTY	
3	GENERAL INFORMATION	-
3.1	GENERAL DESCRIPTION OF EUT	
3.2	DESCRIPTION OF TEST MODES	10
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	12
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	18
3.4	DESCRIPTION OF SUPPORT UNITS	19
3.5	CONFIGURATION OF SYSTEM UNDER TEST	20
4	TEST TYPES AND RESULTS	21
4.1	OUTPUT POWER MEASUREMENT	21
4.1.1	LIMITS OF OUTPUT POWER MEASUREMENT	21
4.1.2	TEST INSTRUMENTS	22
4.1.3	TEST PROCEDURES	24
4.1.4	TEST SETUP	25
4.1.5	EUT OPERATING CONDITIONS	26
4.1.6	TEST RESULTS	27
4.2	FREQUENCY STABILITY MEASUREMENT	31
4.2.1	LIMITS OF FREQUENCY STABILIITY MEASUREMENT	31
4.2.2	TEST INSTRUMENTS	31
4.2.3	TEST PROCEDURE	32
4.2.4	TEST SETUP	32
4.2.5	TEST RESULTS	33
4.3	OCCUPIED BANDWIDTH MEASUREMENT	35
4.3.1	LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT	35
4.3.2	TEST INSTRUMENTS	35
4.3.3	TEST SETUP	35
4.3.4	TEST PROCEDURES	35
4.3.5	EUT OPERATING CONDITION	35
4.3.6	TEST RESULTS	36
4.4	BAND EDGE MEASUREMENT	38
4.4.1	LIMITS OF BAND EDGE MEASUREMENT	38
4.4.2	TEST INSTRUMENTS	38
4.4.3	TEST SETUP	38
4.4.4	TEST PROCEDURES	39
4.4.5	EUT OPERATING CONDITION	39



4.4.6	TEST RESULTS	.40
4.5	CONDUCTED SPURIOUS EMISSIONS	.42
4.5.1	LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	.42
4.5.2	TEST INSTRUMENTS	.42
4.5.3	TEST PROCEDURE	.43
4.5.4	TEST SETUP	.43
4.5.5	EUT OPERATING CONDITIONS	.43
4.5.6	TEST RESULTS	.44
4.6	RADIATED EMISSION MEASUREMENT	.50
4.6.1	LIMITS OF RADIATED EMISSION MEASUREMENT	.50
4.6.2	TEST INSTRUMENTS	.51
4.6.3	TEST PROCEDURES	.52
4.6.4	DEVIATION FROM TEST STANDARD	.52
4.6.5	TEST SETUP	.53
4.6.6	EUT OPERATING CONDITIONS	.53
4.6.7	TEST RESULTS	.54
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	.66
6	INFORMATION ON THE TESTING LABORATORIES	-
7	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	-



## **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF121004E01-1	Original release	Nov. 08, 2012



### **1 CERTIFICATION**

PRODUCT : Portable Terminal BRAND NAME : First Data MODEL NO.: FD-400GT(SL8081) TEST SAMPLE : R&D SAMPLE APPLICANT : XAC AUTOMATION CORP. TESTED : May 15 to 17, 2012 STANDARDS : FCC Part 22, Subpart H

The above equipment (model: FD-400GT(SL8081)) 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	:, DATE:, <i>DATE:</i> , <i>DATE:</i>
APPROVED BY	:, DATE:, <i>Nov. 08, 2012</i>



## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2				
STANDARD SECTION	TEST TYPE	RESULT	REMARK	
2.1046 22.913 (a)	Effective radiated power	PASS	Meet the requirement of limit.	
2.1055 22.355	Frequency Stability PASS M		Meet the requirement of limit.	
2.1049	Occupied Bandwidth	PASS	Meet the requirement of limit.	
22.917	Band Edge Measurements	PASS	Meet the requirement of limit.	
2.1051 22.917	Conducted Spurious Emissions	PASS	Meet the requirement of limit.	
2.1053 22.917	Radiated Spurious Emissions		Meet the requirement of limit. Minimum passing margin is -13.06dB at 2509.8MHz.	



### 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

PRODUCT	Portable Terminal	
MODEL NO.	FD-400GT(SL8081)	
POWER SUPPLY	DC 12V from adapter or DC7.4V from battery	
MODULATION TYPE GMSK, 8PSK (for GPRS / EDGE) BPSK (for WCDMA)		
OPERATING FREQUENCY	824.2MHz ~ 848.8MHz (for GPRS / EDGE)	
	826.4MHz ~ 846.6MHz (for WCDMA)	
NUMBER OF CHANNEL	124 (for GPRS / EDGE)	
	102 (for WCDMA)	
	GPRS Mode: 30.7dBm (1174.9mW)	
MAX. ERP POWER	EDGE Mode: 30.4dBm (1096.5mW)	
	WCDMA Mode: 24.2dBm (263.0mW)	
ANTENNA TYPE	Please see NOTE	
MAX. ANTENNA GAIN	Please see NOTE	
DATA CABLE	NA	
I/O PORTS	Refer to users' manual	
ACCESSORY DEVICES	Adapter x 1, Battery x 1	

#### NOTE:

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

Function	Report No.
RFID	RF121004E01
2G & 3G (Part 22)	RF121004E01-1
2G & 3G (Part 24)	RF121004E01-2

2. The emission of the simultaneous operation (RFID & GPRS, EDGE, WCDMA, HSDPA and HSUPA) has been evaluated and no non-compliance found.



#### 3. The EUT could be supplied with 7.4V battery or power adapter as the following table:

Item	Brand	Model No.	Spec.
Battery	CHENG UEI PRECISION INDUSTRY CO.,LTD	FD400	DC7.4V, 2300mAh(17.02Wh)
Adapter	DELTA	ADP-36JH B	AC I/P: 100-240V, 50-60Hz, 1.0A AC input cable: Unshielded, 1.85m DC O/P: 12V, 3A DC output cable: Unshielded, 1.8m with one core

#### 4. There are two antennas provided to this EUT, please refer to the following table:

RFID Antenna Spec.						
Brand	Model No.		Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
XAC	PCB OSP ANTENNA BOARD FD400 (ROHS)		PCB (2 Layers)	NA	13	13.56
GPRS,	GPRS, EDGE, WCDMA, HSDPA and HSUPA Antenna Spec.					
Bran	Brand Model No. Antenna Type Antenna Connector Gain(dBi) Frequency range (MHz)					
Ethertro Inc.	onics	T-000084-01	FPCB	NA	1.65	824~894 1850~1990

#### 5. The EUT was pre-tested in chamber under the following modes:

Pre-test Mode	Description		
Mode A	Battery mode		
Mode B	Adapter mode		

From the above modes, the radiated test worst case was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

6. 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:

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

	CHANNEL	FREQUENCY	TX MODE
LOW	128	824.2 MHz	GPRS, EDGE
MIDDLE	190	836.6 MHz	GPRS, EDGE
HIGH	251	848.8 MHz	GPRS, EDGE

#### NOTE:

1. Below 1 GHz, the channel 128, 190, and 251 were tested individually.

2. Above 1 GHz, the channel 128, 190, and 251 were tested individually.

- 3. The worst case for final test is chosen when the power control level set 3.
- 4. The channel space is 0.2MHz.
- 5. The EUT is a GPRS 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 is a EDGE class 12 device, which provide 4 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.
- 7. The EUT has GPRS, EDGE functions. After pre-testing, GPRS function is the worst case for all the emission tests.



#### FOR WCDMA:

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

	CHANNEL	FREQUENCY	TX MODE
LOW	4132	826.4 MHz	WCDMA, HSDPA, HSUPA
MIDDLE	4182	836.4 MHz	WCDMA, HSDPA, HSUPA
HIGH	4233	846.6 MHz	WCDMA, HSDPA, HSUPA

NOTE:

- 1. Below 1 GHz, the channel 4132, 4182 and 4233 were tested individually.
- 2. Above 1 GHz, the channel 4132, 4182 and 4233 were tested individually.
- 3. The channel space is 0.2MHz.
- 4. The EUT has WCDMA-RMC, HSPDA-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:

EU		APPLICABLE TO						DESCRIPTION	
CONFIGURE MODE		OP	FS	OB	BE	CE	RE<1G	RE≥1G	DESCRIPTION
-		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	-
Where	Where <b>OP</b> : Output power <b>FS</b> : Frequency stability								
	OB: Occupied bandwidth BE: Band edge								
	CE: Conducted spurious emissions RE<1G: Radiated emission below 1GHz					elow 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 TECHNO	
128 to 251	128, 190, 251	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
128 to 251	190	GPRS



#### 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
128 to 251	128, 190, 251	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
128 to 251	128, 251	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
128 to 251	128, 190, 251	GPRS



#### 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
128 to 251	128, 190, 251	GPRS

#### 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 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	
128 to 251	128, 190, 251	GPRS	

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
FS	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
OB	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
EM	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
BE	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
CE	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
RE < 1G	25deg. C, 63%RH	7.4Vdc from battery	Robert Cheng
RE≥1G	25deg. C, 63%RH	7.4Vdc from battery	Robert Cheng



#### FOR WCDMA:

EUT		APPLICABLE TO					DESCRIPTION			
CONFIGURE MODE OP		OP	FS	OB	BE	CE	RE<1G	RE≥1G	DESCRIPTION	
-		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	-	
Where	nere <b>OP</b> : Output power <b>FS</b> : Frequency stability									
	<b>OB:</b> Occupied bandwidth				BE: Band edge					
	CE:	E: Conducted spurious emissions				RE<1G:	Radiated e	emission be	elow 1GHz	
	RE≥	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 TECHNOL	
4132 to 4233	4132, 4182, 4233	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
4132 to 4233	4182	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
4132 to 4233	4132, 4182, 4233	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
4132 to 4233	4132, 4233	WCDMA

#### 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
4132 to 4233	4132, 4182, 4233	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	
4132 to 4233	4132, 4182, 4233	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
4132 to 4233	4132, 4182, 4233	WCDMA



#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
FS	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
ОВ	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
EM	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
BE	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
CE	25deg. C, 63%RH	7.4Vdc from battery	Amos Chen
RE < 1G	25deg. C, 63%RH	7.4Vdc from battery	Robert Cheng
RE≥1G	25deg. C, 63%RH	7.4Vdc from battery	Robert Cheng



### 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 22 ANSI/TIA/EIA-603-C 2004

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



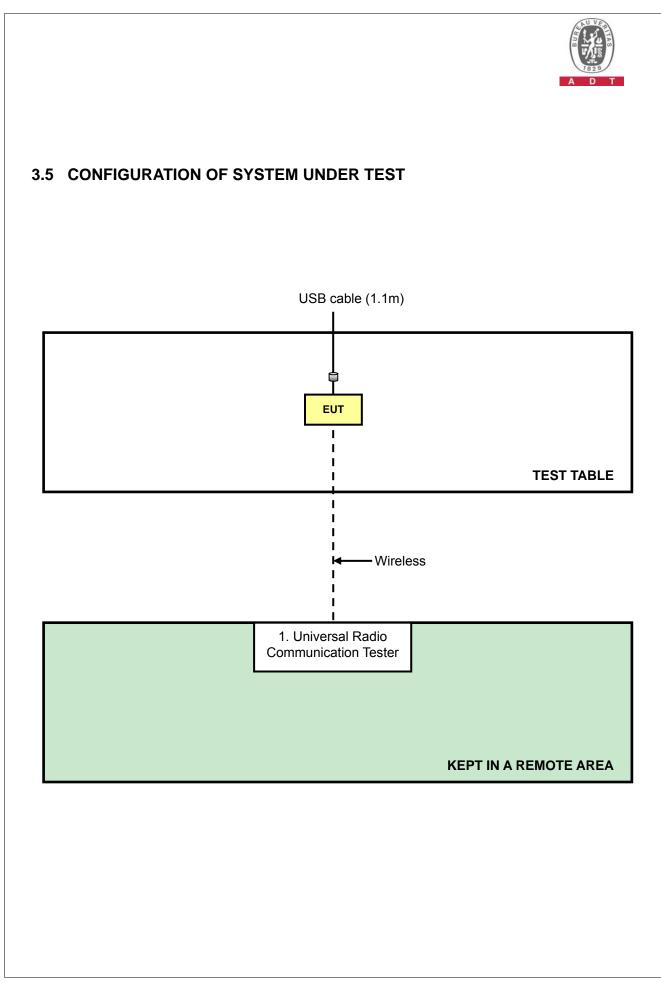
### 3.4 DESCRIPTION OF SUPPORT UNITS

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
	Universal Radio				
1	Communication	R&S	CMU200	121040	NA
	Tester				

No.	Signal cable description
1	NA

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





## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile / Portable station are limited to 7 watts e.r.p.



### 4.1.2 TEST INSTRUMENTS

#### EIRP POWER MEASUREMENT:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 06, 2012	Oct. 05, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	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: Oct. 19, 2012



#### 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: Oct. 19, 2012



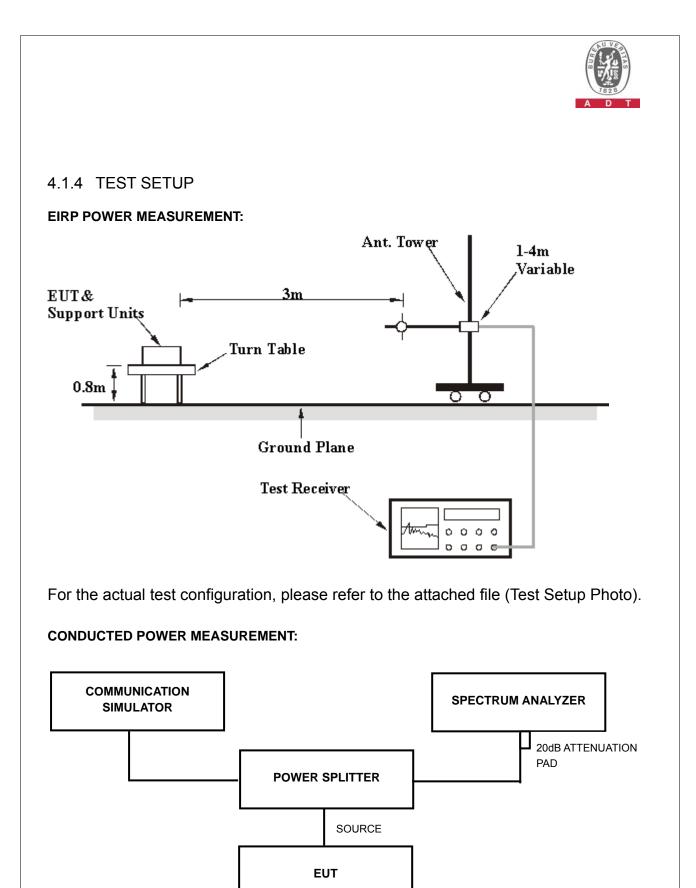
### 4.1.3 TEST PROCEDURES

#### EIRP / ERP MEASUREMENT:

- a. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 1MHz for GPRS & EDGE and 5MHz for WCDMA mode.
- b. Substitution method is used for E.I.R.P 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.
- c. 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 b. Record the power level of S.G
- d. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

#### CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with GSM, GPRS, EDGE & WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



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.	HANNEL NO. FREQUENCY RAW VALUE CORRECTION		OUTPUT	POWER		
	(MHz) (dBm) FACTOR (dB	FACTOR (dB)	dBm	mW		
128	824.2	28.9	2.4	31.3	1349.0	
190	836.6	29.1	2.4	31.5	1412.5	
251	848.8	29.2	2.4	31.6	1445.4	

#### EDGE MODE

CONDUCTED OUTPUT POWER						
CHANNEL NO.	NNEL NO. FREQUENCY RAW VALUE CORRECTION		OUTPUT	POWER		
	(MHz) (dBm)	FACTOR (dB)	dBm	mW		
128	824.2	28.9	2.4	31.3	1349.0	
190	836.6	29.1	2.4	31.5	1412.5	
251	848.8	29.2	2.4	31.6	1445.4	

**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.



#### **GPRS MODE**

ERP POWER						
CHANNEL NO.	EL NO. FREQUENCY S.G VALUE CORRECTION		OUTPUT	POWER		
	(MHz) (dBm) FACTO	FACTOR (dB)	dBm	mW		
128	824.2	28.8	1.3	30.1	1023.3	
190	836.6	28.8	1.2	30.0	1000.0	
251	848.8	29.7	1.0	30.7	1174.9	

#### EDGE MODE

ERP POWER						
CHANNEL NO.	FREQUENCY	S.G VALUE	CORRECTION	PEAK OUT	PUT POWER	
-	(MHz) (dBm)	FACTOR (dB)	dBm	mW		
128	824.2	28.6	1.3	29.9	977.2	
190	836.6	28.6	1.2	29.8	955.0	
251	848.8	29.4	1.0	30.4	1096.5	

**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).



#### FOR WCDMA:

## WCDMA-RMC MODE

CONDUCTED OUTPUT POWER						
CHANNEL NO.	CHANNEL NO. FREQUENCY RAW VALUE CORRECTION		OUTPUT	POWER		
	(MHz)	lz) (dBm) FACTOR (dB)		dBm	mW	
4132	826.4	20.2	2.4	22.6	182.0	
4182	836.4	19.8	2.4	22.2	166.0	
4233	846.6	20.4	2.4	22.8	190.5	

#### HSDPA MODE

CONDUCTED OUTPUT POWER						
CHANNEL NO.	HANNEL NO FREQUENCY RAW VALUE CORRECTION		OUTPUT	POWER		
	(MHz) (dBm)	FACTOR (dB)	dBm	mW		
4132	826.4	20.1	2.4	22.5	177.8	
4182	836.4	19.7	2.4	22.1	162.2	
4233	846.6	20.3	2.4	22.7	186.2	

### HSUPA MODE

CONDUCTED OUTPUT POWER						
CHANNEL NO.	FREQUENCY			OUTPUT	POWER	
••••••	(MHz)	(dBm)	FACTOR (dB)	dBm	mW	
4132	826.4	20.1	2.4	22.5	177.8	
4182	836.4	19.6	2.4	22.0	158.5	
4233	846.6	20.2	2.4	22.6	182.0	

**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

ERP POWER						
CHANNEL NO.	CHANNEL NO. FREQUENCY S.G VALUE (dBm) CORRECTION		OUTPUT	POWER		
	(MHz)	()	FACTOR (dB)	dBm	mW	
4132	826.4	22.9	1.3	24.2	263.0	
4182	836.4	22.1	1.2	23.3	213.8	
4233	846.6	21.9	1.1	23.0	199.5	

#### HSDPA MODE

ERP POWER						
CHANNEL NO.	HANNEL NO. FREQUENCY S.G VALUE (dBm) CORRECTION		OUTPUT	POWER		
	(MHz)	(u,	FACTOR (dB)	dBm	mW	
4132	826.4	22.7	1.3	24.0	251.2	
4182	836.4	21.9	1.2	23.1	204.2	
4233	846.6	21.7	1.1	22.8	190.5	

#### HSUPA MODE

ERP POWER						
CHANNEL NO.	NO. FREQUENCY S.G VALUE (dBm) CORRECTION		OUTPUT	POWER		
	(MHz)	FACTO	FACTOR (dB)	dBm	mW	
4132	826.4	22.6	1.3	23.9	245.5	
4182	836.4	21.7	1.2	22.9	195.0	
4233	846.6	21.6	1.1	22.7	186.2	

**REMARKS:** 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

 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 STABILIITY MEASUREMENT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100060	May 09, 2012	May 08, 2013
Spectrum Analyzer Agilent	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2012	Apr. 27, 2013
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2012	Apr. 27, 2013
AC Power Source EXTECH Electronics	6502	1140503	NA	NA
Temperature & Humidity Chamber TERCHY	MHU-225AU	911033	Dec. 12, 2011	Dec. 11, 2012
DC Power Supply GOOD WILL INSTRUMENT CO., LTD.	GPC - 3030D	7700087	NA	NA
ESG Vector signal generator Agilent	E4438C	MY47271330 506 602 UNJ	May 08, 2012	May 07, 2013

**NOTE:** 1. The test was performed in Oven room A.

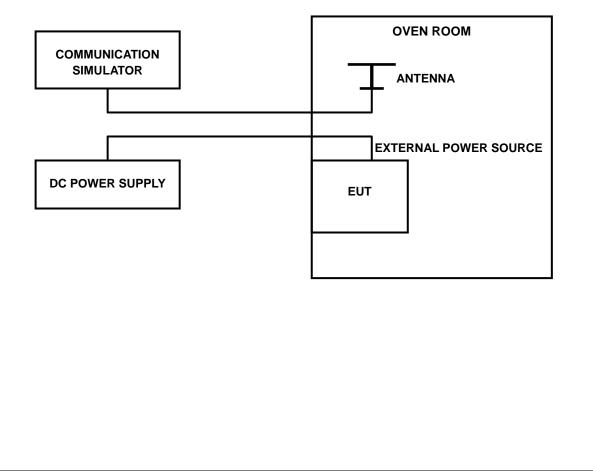
- 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 3. Tested Date: Oct. 19, 2012



### 4.2.3 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}$ C during the measurement testing. 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 GPRS:

AFC FREQUENCY ERROR vs. VOLTAGE					
VOLTAGE (Volts) FREQUENCY ERROR FREQUENC (Hz) (pp		FREQUENCY ERROR (ppm)	LIMIT (ppm)		
102	-28	-0.033	2.5		
138	-30	-0.036	2.5		

AFC FREQUENCY ERROR vs. TEMP.				
TEMP. (℃)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)	
50	-33	-0.039	2.5	
40	-31	-0.037	2.5	
30	-30	-0.036	2.5	
20	-28	-0.033	2.5	
10	-29	-0.035	2.5	
0	-30	-0.036	2.5	
-10	-33	-0.039	2.5	
-20	-31	-0.037	2.5	
-30	-32	-0.038	2.5	



#### FOR WCDMA:

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	VOLTAGE (Volts)         FREQUENCY ERROR (Hz)         FREQUENCY ERROR (ppm)		
102	-28	-0.033	2.5
138	-31	-0.037	2.5

AFC FREQUENCY ERROR vs. TEMP.				
<b>ТЕМР. (</b> ℃)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)	
50	-28	-0.033	2.5	
40	-33	-0.039	2.5	
30	-25	-0.030	2.5	
20	-29	-0.035	2.5	
10	-30	-0.036	2.5	
0	-28	-0.033	2.5	
-10	-33	-0.039	2.5	
-20	-31	-0.037	2.5	
-30	-29	-0.035	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: Oct. 19, 2012

### 4.3.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)

### 4.3.4 TEST PROCEDURES

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.

### 4.3.5 EUT OPERATING CONDITION

Same as Item 4.1.5

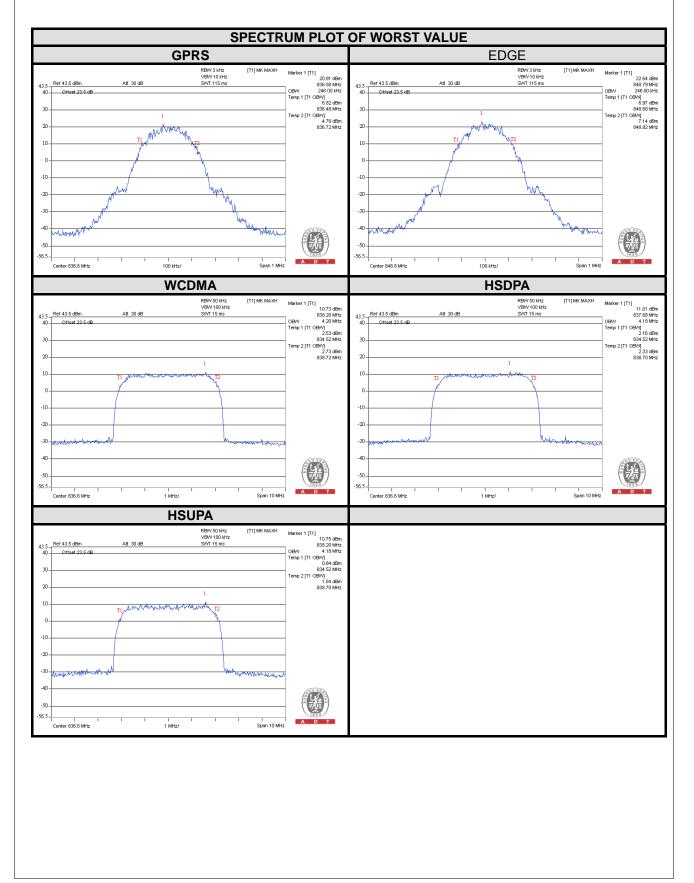


### 4.3.6 TEST RESULTS

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)	
		GPRS	EDGE
128	824.2	246.0	242.0
190	836.6	246.0	244.0
251	848.8	244.0	246.0

	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)		
CHANNEL	(MHz)	WCDMA	HSDPA	HSUPA
4132	826.4	4.18	4.18	4.16
4182	836.4	4.2	4.18	4.18
4233	846.6	4.16	4.16	4.16







## 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: Oct. 19, 2012

### 4.4.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)



## 4.4.4 TEST PROCEDURES

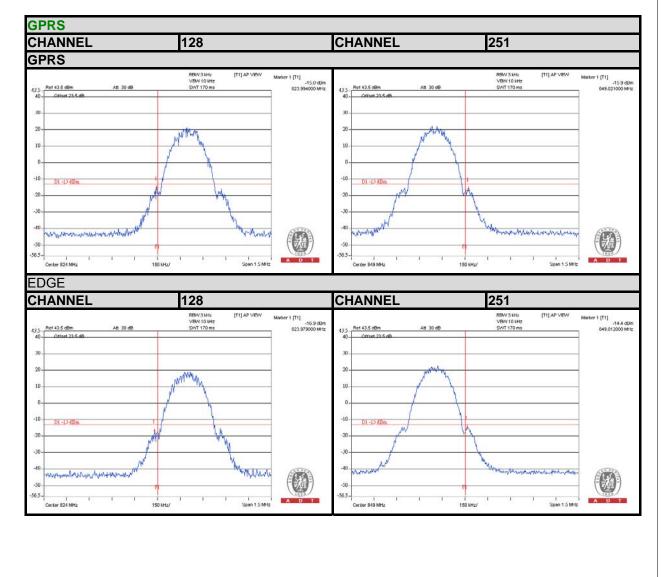
- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GPRS/ EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- d. Record the max trace plot into the test report.

## 4.4.5 EUT OPERATING CONDITION

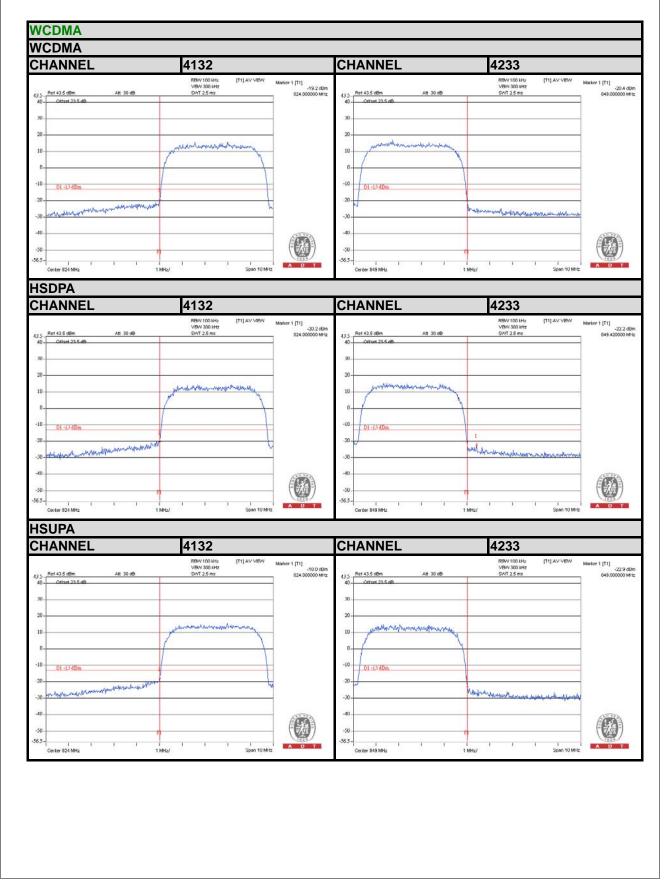
Same as Item 4.1.5



## 4.4.6 TEST RESULTS









## 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 dBm.

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	WRCG1850/191 0-1830/1930-60/ 10SS	SN1	NA	NA
* Wainwright Instruments High Pass Filter	WHK3.1/18G-10 SS	SN1	NA	NA

## 4.5.2 TEST INSTRUMENTS

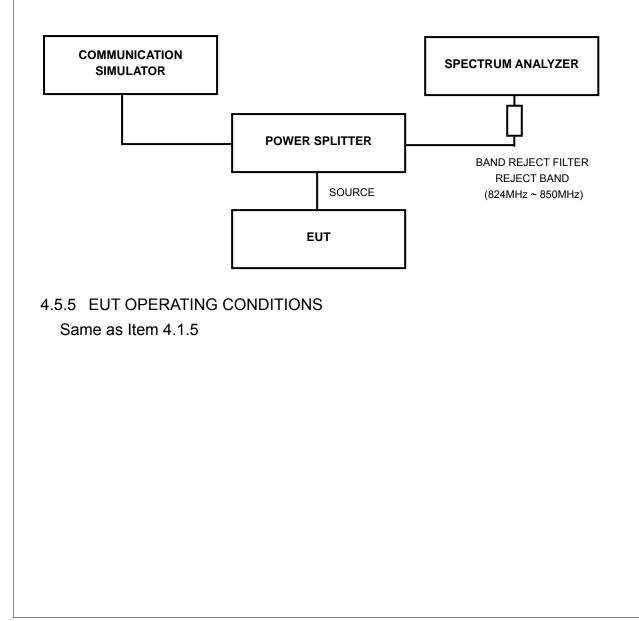
**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. Tested date: Oct. 19, 2012



## 4.5.3 TEST PROCEDURE

- a. The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9 kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.



### 4.5.4 TEST SETUP



## 4.5.6 TEST RESULTS

CHANNEL 128						
REQUENCY RANGE : 9kHz~1GHz		FREQUEN	CY RANGE	: 1GHz~4	GHz	
Ref 33.5 dBm         All 20 dB         SMT 1 M42         [T1] MK VBW           30         Offset 23.5 dD	(5 <sup>1</sup> 7)	33 5 Ref 33 5 dBm 30 Offset 22.5 dD 20 10 -10 -10 -10 -10 -10 -10 -10	АН 20-ФВ	RBW11M4z VBW33M4z SWT60ms	(T1)MK VBW	(1 <sup>1</sup> 7)
600- 500-		-60	I I I 3001	1 I 1842/	Stop 4 GHz	A D T
NI 20 dB         SWT 100 ms           30         Offset 22.5 dU           40         Offset 22.5 dU           50         Offset 22.5 dU	<u>Alia</u> n					



HANNEL 190 REQUENCY RANGE : 9kHz~1GHz SWT 5 MB: - Office 225 d0 - Offi	FREQUENCY RANGE : 1GHz~4GHz
Ref 33.5 dBm         All 20 dB         VBV/3 MHz         [T1] MK VBV/VBV/3 MHz           Offset 32.5 dBm         All 20 dB         SWT 5 ms         SWT 5 ms           O         Offset 22.5 dB         Image: SWT 5 ms         Image: SWT 5 ms           O         Offset 22.5 dB         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms           O         Image: SWT 5 ms         Image: SWT 5 ms         Image: SWT 5 ms	Ref 33.5 dem         Att 20 de         SWT 80 ms           30         Ottest 22.5 db
5 Пет 33.5-dBm All 20 dB SWT 5 mb - Office 22.5-dB	315         Ref 33.5.48m         All 20 dB         SW/F 80 ms           30         Ottest 23.5 dB
	20 10 
	10- 0- -10- -10- -20- -30- -30- -0- -10- -0- -0- -0- -0- -0-
D- D-D-17 dBm D- D- D- D- D- D- D- D- D- D- D- D- D-	0
D- DI-IS dBin D- D- D- D- D- D- D- D- D- D- D- D- D-	-10-01-1738m -20
	-20
2- 	-30-
	40- Martin martin and a star and a
	50
0	
Stort 9 kHz 99 9901 MHz/ Stop 1 GHz	-66.5
REQUENCY RANGE : 4GHz~9GHz	
RBW 1 MHz IT11 MK VIEW	
5 Ref 33.5 dBm All 20 dB SVVT 100 ms	
0.00	
3-	
3-	
01-13/dBm	
3	
Marthander bern her best when a been a been hard a service of the	
Start 6 CHz 500 MHz/ Stop 9 GHz	
Starte done 2003	



EQUENCY RANGE : 9kHz~1GHz     FREQUENCY RANGE : 1GHz~4GHz       Not state     Not state     Not state       Of the 235-00     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state     Image: Not state       Image: Not state     Image: Not state	RBW1 M4: VBW3 M4: VBW3 M4: VBW3 M4:     (T1)MK VBW VBW3 M4: VBW3 M4: VBW3 M4:       Offset 225.d0     0       Offset 225.d0     0       01:01/38m     0       01:01/38m     0       01:01/38m     0       01:01/38m     0       01:01/38m     0       00:01/38m     0       00:000 Metr/     Sup 10Hz       EQUENCY RANGE : 4GHz~9GHz       Ref 33.5.dbm     At 20:08	
Offield 225-00-     0       01-3/38m     0	Officiel 225.db       30       Officiel 225.db         D1:1/3 Elim       10       10         Statistic       10       10<	
	U1-374Bin     U1-374Bin       U1-374Bin	
01-174800       01-174800         01-174800       01-174800         00-000       00-000         00-0000       00-000      <	D1-13/dBm D1-13/dBm wr/w/w/w/w/w/w/w/w/w/w/w/w/w/w/w/w/w/w/	
01-1/3 dem       1         01-1/3 dem       1 <td>DI-1373Em </td> <td></td>	DI-1373Em 	
Dr. 1 y stam	Image: Start 1 CHz     Image: Start	A 9
	and the second s	
Image: Constraint of the second of the se	www.wk.ch.ch.wk.ch.ch.ch.ch.ch.ch.ch.ch.ch.ch.ch.ch.ch.	
Intri 1 witz         00.9601 Metz/         Stop 1 GHz         00.900           Intri 1 witz         00.9601 Metz/         Stop 1 GHz         00.900           EQUENCY RANGE : 4GHz~9GHz         ITI 1 MK VEW         Stop 1 GHz         ITI 1 MK VEW           VEW 3 Mitz         (TI 1) MK VEW         VEW 3 Mitz         (TI 1) MK VEW           VEW 3 Mitz         SWT 100 me         ITI 1 MK VEW         ITI 1 MK VEW           Offset 22:5 d0         Iti 20 dB         SWT 100 me         Iti 20 dB         Iti 20 dB	Inter 9 HHz         60.9001 MHz//         50.001 MHz//<	
Atter 19 HHz 00 0001 MHz/ 10 min 200 001 MHz/ 10 min 200 000 MHz/ 10 min 200 MHz/	And 19 bHz         66 5	A D
Bant 3 HHz         Big 10 Hz         Stap 10 Hz         Stap 10 Hz         Stap 10 Hz         Stap 40 Hz         Stap 40 Hz           EQUENCY RANGE : 4GHz~9GHz         RBW1 MHz         (T1) MK VEW VBW3 MHz         Stap 10 Hz	Start 3 HHz         00 0001 MHz/         Start 1 OHz	AD
RBW11MHz         [T1]MK1VEW           VEW13MHz         VEW13MHz           Offset 235:d0         SW1100 ms	RB/V 1 MHz         [T1] MK / VEV           VBV/3 MHz         VBV/3 MHz           SVH1 00 mis         SVH1 00 mis	
BBW1 1M4:         [T1]MK VEW           VBW3 1M4:         VBW3 1M4:           Ottet 235:d0         SW1 100ms	Ref 33.5 dBm         Att 20 dB         SW1 MHz         [T1] MK VIEW           VBW 31 MHz         SW1 100 mix         SW1 100 mix	
Onree 22.5 d0	Ref 33.5 408m Att 20 48 SAVT 100 ma Offset 22.5 40	
D1-13 dBm		
D1-174Em		
U1-1748m		
D1-174Bm		
	D1-174Bm	
and a weak a	(a,b) = (a,b	
LE13	ort 4 CHz Stop 9 GHz A D T	
nart 4 CH2 500 MH2/ Stop 9 CH2		



BW1 14%2       [T1] MK YEW         WBV 13%2       [T1] MK YEW         WBV 13%2       SWIT 5 me         Ottet 225.00       Ottet 225.00         Image: District 225.00
turt 9 kHz 99 9991 MHz/ Stop 1 GHz A D T Start 1 GHz 300 MHz/ Stop 4 GHz A
EQUENCY RANGE : 4GHz~9GHz
BBW11M4z         [11]MKVBWV           VBV3M4z         VBV3M4z           Offset 225 d0
D1-174Bm
der <sup>en</sup> einen einen der einen der einen einen einen einen der
Stort 4 CHz 500 MHz/ Stop 9 CHz



ANNEL 4182 EQUENCY RANGE : 9kHz~1GHz Bar 35 time All 20 time Other 225 d0 D1 - 27 dBm All 20 time D1 - 27 dBm All 20 time All	
RBW11 M42 VBV/3 M42 VBV/3 M42       (T1)MK VBV/ VBV/3 M42	
Ref 33 5 dBm       All 20 dB       SWIT 50 mB         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225	
Ref 33 5 dBm       All 20 dB       SWIT 50 mB         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225 dD         - Officed 225 dD       - Officed 225 dD       - Officed 225	
Image: Control of the state of the stat	
Image: Control of the state of the stat	
D1-17 dBm       D1         D1-17 dBm       D1         D1-17 dBm       D1         D1       D1-17 dBm         D1       D1-17 dBm         D1       D1	
D1-1/3 dbm         10         D1-1/3 dbm         10	
OD PO dam         OD PO dam           Start 3 kHz         00 S001 kHz/           Start 3 kHz         300 kHz/	C
Start 3 kHz         90 9000 kHz/         300 kHz/	
Image: Control of the contro	
Start 3 kHz         00.0001 kHz/         Stop 1 0Hz         00	
Start 1 Start 2         Start 1 OHz	
Start 1 SkHz         60 5005 Metz/         Start 1 OHz         300 Metz/         Stop 4 OHz         500 4 OHz           EQUENCY RANGE : 4GHz~9GHz         WW 3 MHz         [T1]MK VIEW         VWW 3 MHz         T1]MK VIEW         Stop 4 OHz         T1	
Start 1 SHIZ         00 9991 Metz         Start 1 CHz         300 Metz         Start 4 CHz           EQUENCY RANGE : 4GHz~9GHz         Ref 33.5 dBm         All 20 dB         Start 1 CHz         300 Metz         Start 4 CHz	A D
EQUENCY RANGE : 4GHz~9GHz           Ref 33.5 dBm         All 20 dB	
RBV 1 MHz         [T1] MK VIEV           VBV 3 MHz         VBV 3 MHz           SVM 100 mic         SVM 100 mic	
VEV/3 MH2 Fef 33.5 dBm Ait 20 dB SV/T 100 me	
Offset 23:5 d0m All 22 data SVVT 100 ms	
D1-13-3Bm	
and the group in a growth and the group of the group of the start and a	
Start 4 CHz 500 MHz/ Stop 9 CHz	



VBV/3 Mfz         VBV/3 Mfz         VBV/3 Mfz           Offset 225:d0         315         Ref 33.5 dBm         Att 20 dB         SW160 ms           01:137 dBm         0         0         0         0         0           01:137 dBm         0         0         0         0         0         0           01:137 dBm         0	
0- 0- 0- 0- 0- 0- 0- 0- 0- 0-	
-30-	_
	man and a
	Stop 4 GHz
EQUENCY RANGE : 4GHz~9GHz RBW1 M4z VBW3 M4L VB	
DI-1/2 dBm	
new and a second and	
ant 4 OHz Stop 9 OHz A D T	



## 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.



## 4.6.2 TEST INSTRUMENTS

				• · · · · ·
DESCRIPTION &	MODEL NO.	SERIAL NO.	CALIBRATED	CALIBRATED
MANUFACTURER			DATE	UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 09, 2012	July 08, 2013
Agilent	L4440A	101140230234	July 09, 2012	July 00, 2013
Pre-Selector	N9039A	MY46520311	July 09, 2012	July 08, 2013
Agilent	Neuser	101740320311	501y 03, 2012	301y 00, 2013
Signal Generator	N5181A	MY49060517	July 09, 2012	July 08, 2013
Agilent	NOTOTA	101149000317	501y 03, 2012	301y 00, 2013
Pre-Amplifier	ZFL-1000VH2	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Mini-Circuits	В		100. 10, 2011	1100. 14, 2012
Pre-Amplifier	8449B	3008A02578	June 26, 2012	June 25, 2013
Agilent	01100	0000/ (020/ 0		buile 20, 2010
Pre-Amplifier	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SPACEK LABS	OEI(I(a-+0-0	51(10	100. 10, 2011	1100. 14, 2012
Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
SCHWARZBECK	VOLD STOO	0100-000	Apr. 00, 2012	Apr. 00, 2010
Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
AISI	AII 1.00 TO	0000320031110	1100. 14, 2011	1000. 10, 2012
Horn_Antenna	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
SCHWARZBECK	BBIII(0110		000. 12, 2012	000. 11, 2010
		RF104-201		
RF Cable	NA	RF104-203	Dec. 26, 2011	Dec. 25, 2012
		RF104-204		
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated	NA	NA	NA
	_V8.7.05			
Antenna Tower & Turn Table	NA	NA	NA	NA
СТ	11/1	1.1/1	1.1/1	1 1/7

#### 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: Oct. 29, 2012



## 4.6.3 TEST PROCEDURES

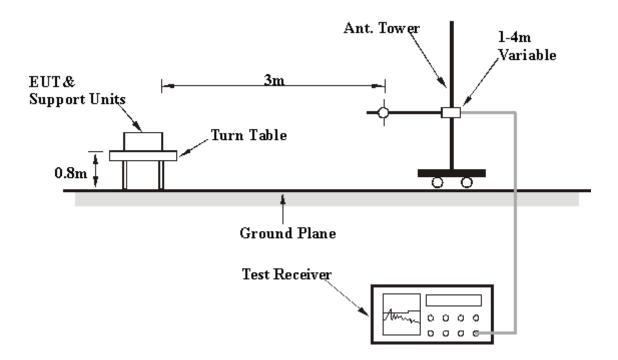
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution 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 a. Record the power level of S.G
- c. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power 2.15dBi.
- **NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 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 Item 4.1.5



## 4.6.7 TEST RESULTS

#### **BELOW 1GHz DATA**

#### **GPRS**

GPRS									
CHAN	INEL	TX Channel	128 <b>F</b> I	REQUENCY RAN	IGE Below 1	GHz			
	AN	TENNA POLARI	TY & TEST DIS	TANCE: HORIZO	NTAL AT 3 M				
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)			
1	129.32	35.11	-13	-56.51	-1.24	-57.75			
2	204.9	43.21	-13	-52.27	4.28	-47.99			
3	223.76	39.46	-13	-55.95	4.03	-51.92			
4	253	36.11	-13	-59.20	3.64	-55.56			
5	596	39.30	-13	-55.35	1.85	-53.50			
6	662.8	41.45	-13	-53.89	1.71	-52.18			
	AI	NTENNA POLAF	RITY & TEST DI	STANCE: VERTI	CAL AT 3 M				
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)			
1	126	35.43	-13	-55.47	-1.22	-56.69			
2	147.3	34.75	-13	-57.10	-1.09	-58.18			

-13

-13

-13

-13

-58.84

-60.30

-59.75

-56.73

4.28

3.92

2.81

2.69

-54.56

-56.39

-56.94

-54.03

#### **REMARKS**:

3

4

5

6

205

252.61

454.5

526.3

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

36.64

34.56

38.26

38.48



CHAI	NNEL	TX Channel	190 I		NGE Below 1GHz			
	AN	TENNA POLARI	TY & TEST DI	STANCE: HORIZO	NTAL	AT 3 M		
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		rection or (dB)	Power Value (dBm)	
1	129.2	35.16	-13	-56.43	-1	1.24	-57.68	
2	204.7	43.25	-13	-52.23	4	.28	-47.95	
3	223.74	39.49	-13	-55.92	4	.03	-51.89	
4	254	36.07	-13	-58.74	3	.93	-54.81	
5	597	39.25	-13	-55.39	1	.83	-53.55	
6	663	41.41	-13	-53.93	1	.71	-52.22	
	A	NTENNA POLAF	RITY & TEST D	ISTANCE: VERTI	CAL A	Т 3 М		
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		rection or (dB)	Power Value (dBm)	
1	127	35.50	-13	-55.62	-1	1.23	-56.84	
2	147.1	34.80	-13	-57.10	-1	1.09	-58.20	
3	203	36.69	-13	-58.79	4	.30	-54.49	
4	252.5	34.60	-13	-60.27	3	.91	-56.35	
5	454.3	38.29	-13	-59.73	2	81	-56.92	
6	527	38.51	-13	-56.69	2	.69	-54.00	

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).



CHAI	NNEL	TX Channel	251 <b>F</b>		NGE Below 1GHz			
	AN	TENNA POLARI	TY & TEST DIS	STANCE: HORIZO	NTAL	AT 3 M		
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		ection or (dB)	Power Value (dBm)	
1	129	35.20	-13	-56.35	-1	.24	-57.59	
2	204.5	43.30	-13	-52.18	4	.28	-47.89	
3	223.72	39.53	-13	-55.88	4	.03	-51.85	
4	255	36.04	-13	-58.73	3	.93	-54.80	
5	596	39.25	-13	-55.40	1	.85	-53.55	
6	662	41.43	-13	-53.89	1	.71	-52.17	
	AI	NTENNA POLAF	RITY & TEST D	ISTANCE: VERTI	CAL A	Т 3 М		
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		ection or (dB)	Power Value (dBm)	
1	126	35.54	-13	-55.36	-1	.22	-56.58	
2	147	34.84	-13	-57.09	-1	.10	-58.19	
3	204	36.66	-13	-58.82	4	.29	-54.53	
4	252.6	34.57	-13	-60.29	3	.92	-56.38	
5	454.4	38.26	-13	-59.76	2	.81	-56.94	
6	529	38.49	-13	-56.69	2	.67	-54.01	

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).



#### WCDMA

CHANNEL     TX Channel 4132     FREQUENCY RANGE     Below 1GHz													
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	No.         Freq. (MHz)         Emission Level (dBuV)         Limit (dBm)         S.G Power Value (dBm)         Correction												
1	128.88	33.16	-13	-58.37	-1.24	-59.60							
2	204.79	41.47	-13	-54.01	4.28	-49.73							
3	223.74	38.20	-13	-57.21	4.03	-53.18							
4	252.52	36.02	-13	-58.85	3.91	-54.93							
5	594.99	39.21	-13	-55.44	1.86	-53.58							
6	662.5	40.14	-13	-55.19	1.71	-53.48							
	A	NTENNA POLAF	RITY & TEST DI	STANCE: VERTI	CAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)							
1	127.11	34.19	-13	-56.95	-1.23	-58.18							
2	147.59	33.59	-13	-58.17	-1.08	-59.25							
3	205.38	35.58	-13	-59.89	4.27	-55.62							
4	252.63	33.50	-13	-61.36	3.92	-57.45							
5	454.66	37.26	-13	-60.74	2.81	-57.93							
6	526.19	37.47	-13	-57.74	2.70	-55.04							

#### **REMARKS**:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).



CHANNEL         TX Channel 4182         FREQUENCY RANGE         Below 1GHz						GHz							
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Freq. (MHz)	Emission Level (dBuV) Limit (dBm) S.G Power Value Correction (dBm) Factor (dB)				Power Value (dBm)							
1	128.84	33.25	-13	-58.27	-1	.24	-59.51						
2	204.76	41.58	-13	-53.90	4	.28	-49.62						
3	223.72	38.29	-13	-57.12	4	.03	-53.09						
4	252.5	36.10	-13	-58.77	3	.91	-54.85						
5	594.97	39.27	-13	-55.38	1	.86	-53.52						
6	662.3	40.21	-13	-55.11	1	.71	-53.40						
	A	NTENNA POLAF	RITY & TEST D	ISTANCE: VERTI		Г 3 М							
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		ection or (dB)	Power Value (dBm)						
1	127.14	34.23	-13	-56.92	-1	.23	-58.15						
2	147.7	33.62	-13	-58.11	-1	.07	-59.19						
3	205.4	35.61	-13	-59.86	4	.27	-55.59						
4	252.65	33.53	-13	-61.33	3	.92	-57.42						
5	454.68	37.29	-13	-60.71	2	.81	-57.90						
6	526.3	37.50	-13	-57.71	2	.69	-55.01						

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).



CHANNEL         TX Channel 4233         FREQUENCY RANGE         Below 1GHz						GHz							
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)				Power Value (dBm)						
1	128.86	33.22	-13	-58.30	-1	.24	-59.54						
2	204.78	41.54	-13	-53.94	4.	.28	-49.66						
3	223.74	38.26	-13	-57.15	4.	.03	-53.12						
4	252.7	36.07	-13	-58.79	3.	.92	-54.87						
5	594.99	39.24	-13	-55.41	1.	.86	-53.55						
6	662.5	40.18	-13	-55.15	1.	.71	-53.44						
	A	NTENNA POLAF	RITY & TEST D	ISTANCE: VERTI		Г З М							
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		ection or (dB)	Power Value (dBm)						
1	127.12	34.27	-13	-56.87	-1	.23	-58.10						
2	147.5	33.65	-13	-58.14	-1	.08	-59.22						
3	205.2	35.64	-13	-59.84	4.	.27	-55.56						
4	252.63	33.56	-13	-61.30	3.	.92	-57.39						
5	454.7	37.26	-13	-60.74	2	.81	-57.92						
6	526.5	37.48	-13	-57.73	2	.69	-55.03						

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).



#### **ABOVE 1GHz DATA**

#### **GPRS**

CHANNEL	TX Channel 128	FREQUENCY RANGE	1GHz ~ 9GHz
---------	----------------	-----------------	-------------

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)								
1	1648.4	80.80	-13	-21.95	6.26	-15.69					
2	2472.6	78.10	-13	-20.48	6.66	-13.82					
	A	NTENNA POLAF		STANCE: VERTI	CAL AT 3 M						
No.	- (111)	Emission Level		S.G Power Value	Correction	Power Value					
NO.	Freq. (MHz)	(dBuV)	Limit (dBm)	(dBm)	Factor (dB)	(dBm)					
1	Freq. (MHz) 1648.4	(dBuV) 79.50	Limit (dBm) -13	(dBm) -23.25	Factor (dB) 6.26	<b>(dBm)</b> -16.99					

#### **REMARKS**:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).



CHAI	NNEL	TX Channel	190	FREQUENCY RAN	IGE	1GHz ~	9GHz				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV)	limit (dBm)			ection or (dB)	Power Value (dBm)				
1	1673.2	79.20	-13	-23.43	6.31		-17.12				
2	2509.8	78.30	-13	-20.22	6	.66	-13.56				
	A	NTENNA POLAF	RITY & TEST [	DISTANCE: VERTI		Т 3 М					
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)		ection or (dB)	Power Value (dBm)				
1	1673.2	78.70	-13	-23.93	6	.31	-17.62				
2	2509.8	78.80	-13	-19.72	6	.66	-13.06				

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).



CHAI	NNEL	TX Channel	251	FREQUENCY RAN	<b>IGE</b> 1GI	1GHz ~ 9GHz					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	(dBm)		Correctio Factor (d							
1	1697.6	79.10	-13	-23.41	6.35	-17.05					
2	2546.4	78.40	-13	-13 -20.43		-13.73					
	AI	NTENNA POLAF	RITY & TEST I	DISTANCE: VERTI	CAL AT 3 M	И					
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	) S.G Power Value Correction (dBm) Factor (dB)							
1	1697.6	77.50	-13	-25.01	6.35	-18.65					
2	2546.4	78.76	-13	-20.07	6.69	-13.37					

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).



#### WCDMA

CHAI	NNEL	TX Channel	4132	FREQUENCY RAN	IGE 1GHz ~	9GHz					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	b. Freq. (MHz) Emission Level (dBuV) Limit (dBm) S.G Power Value Correction (dBm) Factor (dB)			Power Value (dBm)							
1	1652.8	71.90	-13	-30.83	6.27	-24.56					
2	2479.2	64.50	-13	-34.05	6.66	-27.39					
	A	NTENNA POLAF	RITY & TEST I	DISTANCE: VERTI	CAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	nit (dBm) S.G Power Value Corre (dBm) Factor		Power Value (dBm)					
1	1652.8	71.80	-13	-30.93	6.27	-24.66					
2	2479.2	63.80	-13	-34.75	6.66	-28.09					

#### **REMARKS**:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).



CHAI	CHANNELTX Channel 4182FREQUENCY RANGE1GHz ~ 9GHz			Hz							
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBr	Limit (dBm) S.G Power Value (dBm)		-	Correction actor (dB)	Power Value (dBm)			
1	1672.8	72.80	-13		-29.83		6.31	-23.52			
2	2509.2	65.30	-13		-33.22		6.66	-26.56			
	A	NTENNA POLAF	RITY & TES	T DIS	STANCE: VERTI	CAL	AT 3 M				
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBr	Limit (dBm)		-	orrection actor (dB)	Power Value (dBm)			
1	1672.8	72.20	-13		-30.43		6.31	-24.12			
2	2509.2	65.60	-13		-32.92		6.66	-26.26			

#### **REMARKS**:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Т

CHAI	CHANNELTX Channel 4233FREQUENCY RANGE1GHz ~ 9GHz					9GHz					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Freq. (MHz) Emission Level (dBuV) Limit (dBm) S.G Power Value (dBm)		Correction Factor (dB)		Power Value (dBm)					
1	1693.2	68.10	-13	-34.43	6.3	34	-28.08				
2	2539.8	62.10	-13	-13 -36.67 6.6		69	-29.98				
	A	NTENNA POLAF	RITY & TEST D	DISTANCE: VERTI	CAL AT	3 M					
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Corre Factor		Power Value (dBm)				
1	1693.2	69.90	-13	-32.63	6.3	34	-26.28				
2	2539.8	77.80	-13	-20.97	6.6	69	-14.28				

#### **REMARKS**:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).

2. Correction Factor = gain of substitution antenna + cable loss

Т



# 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.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Tel: 886-2-26052180 Fax: 886-2-26052943 Hsin Chu EMC/RF Lab: Tel: 886-3-5935343 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab: Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <u>service.adt@tw.bureauveritas.com</u> Web Site: <u>www.bureauveritas-adt.com</u>

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



# 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----