FCC TEST REPORT (Part 24)

REPORT NO.: RF121207E06-2

MODEL NO.: FD-400GT(MC8090)

FCC ID: MQT-FD400GTMC

RECEIVED: Dec. 07, 2012

TESTED: Jan. 08, 2013

ISSUED: Jan. 11, 2013

APPLICANT: XAC AUTOMATION CORP.

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

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.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF121207E06-2	Original release	Jan. 11, 2013

1 CERTIFICATION

PRODUCT :	Portable Terminal
BRAND NAME :	XAC
MODEL NO.:	FD-400GT(MC8090)
TEST SAMPLE :	ENGINEERING SAMPLE
APPLICANT :	XAC AUTOMATION CORP.
TESTED :	Jan. 08, 2013
STANDARDS :	**FCC Part 24, Subpart E**

The above equipment (model: FD-400GT(MC8090)) 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:** *Jan. 11, 2013*
(Midoli Peng, Specialist)

APPROVED BY : _____ , **DATE:** *Jan. 11, 2013*
(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.
2.1055 24.235	Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature Limit: max. ±2.5ppm	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 -42.74dB at 3704.8MHz.

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(MC8090)
POWER SUPPLY	DC 12V from adapter or DC7.4V from battery
MODULATION TYPE	GMSK, 8PSK (for GPRS / EDGE) BPSK (for WCDMA/ HSDPA/ HSUPA)
OPERATING FREQUENCY	1850.2MHz ~ 1909.8MHz (for GPRS / EDGE) 1852.4MHz ~ 1907.6MHz (for WCDMA/ HSDPA/ HSUPA)
NUMBER OF CHANNEL	299 (for GPRS / EDGE) 277 (for WCDMA/ HSDPA/ HSUPA)
MAX. EIRP POWER	GPRS Mode: 32.6dBm (1819.7mW) EDGE Mode: 32.2dBm (1659.6mW) WCDMA Mode: 22.9dBm (195.0mW)
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	RF121207E06
2G & 3G (Part 22)	RF121207E06-1
2G & 3G (Part 24)	RF121207E06-2

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, EDGE, WCDMA, HSDPA and HSUPA Antenna Spec.					
Brand	Model No.	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
Ethertronics Inc.	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:

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 pre-tested in chamber. The channel 512 was chosen for final test.
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 class 10 device, which provide 2 up-link and 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.
6. The EUT has GPRS, EDGE functions. After pre-testing, GPRS 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 pre-tested in chamber. The channel 9262 was chosen for final test.
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, HSPDA-Subtest 1 ~ 4, & HSUPA-Subtest 1 ~ 5 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	
-	√	√	√	√	√	√	√	-

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	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
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	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
512 to 810	512	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, 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	GPRS

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
FS	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
OB	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
EM	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
BE	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
CE	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
RE < 1G	26deg. C, 69%RH	7.4Vdc from battery	Robert Cheng
RE ³ 1G	25deg. C, 66%RH	7.4Vdc from battery	Robert Cheng

FOR WCDMA:

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	OB	BE	CE	RE<1G	RE≥1G	
-	√	√	√	√	√	√	√	-

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	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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
FS	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
OB	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
EM	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
BE	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
CE	25deg. C, 63%RH	7.4Vdc from battery	Evan Huang
RE < 1G	26deg. C, 69%RH	7.4Vdc from battery	Robert Cheng
RE ³ 1G	25deg. C, 66%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 24

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

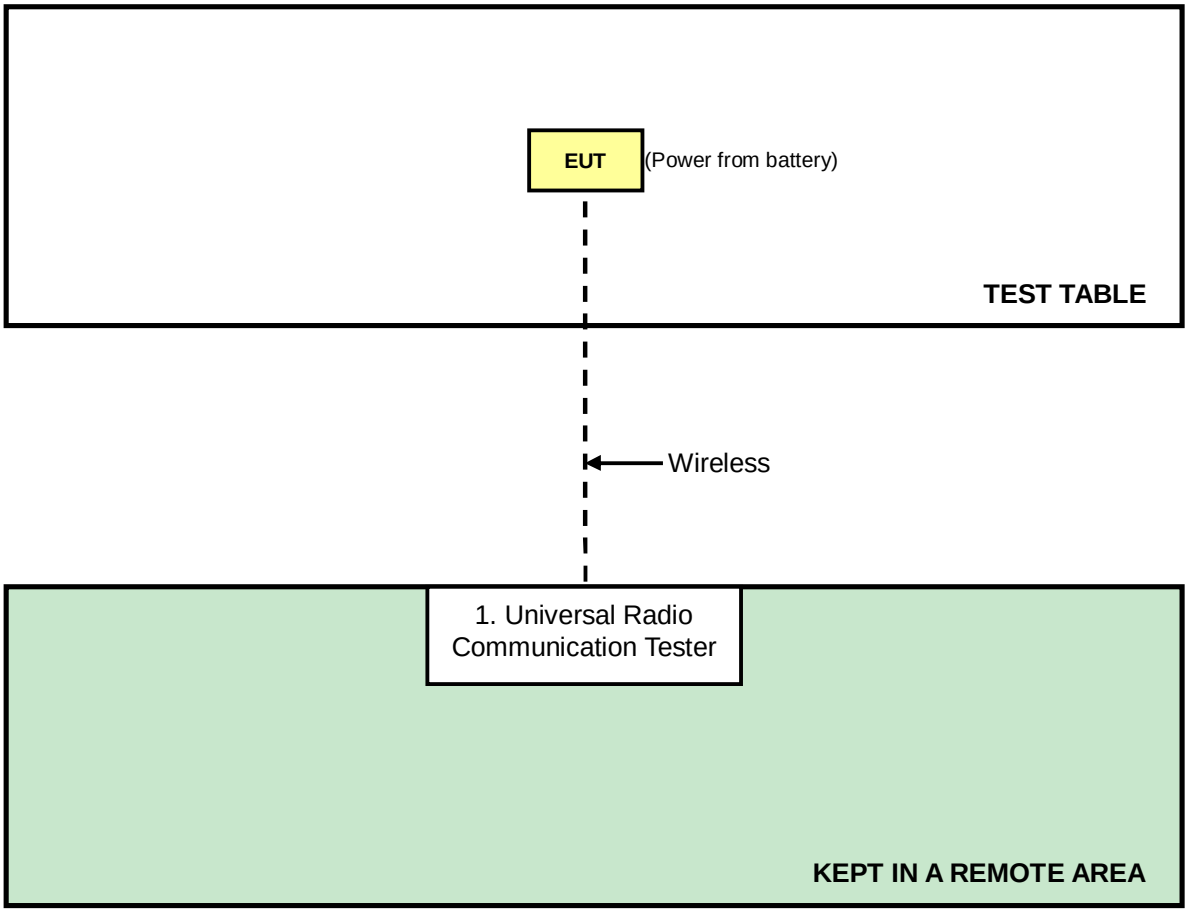
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Universal Radio Communication Tester	R&S	CMU200	121040	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP

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-1000VH2B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 22, 2012	Nov. 21, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2012	Dec. 25, 2013
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: Jan. 08, 2013

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. 11, 2012	Dec. 10, 2013
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: Jan. 08, 2013

4.1.3 TEST PROCEDURES

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 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

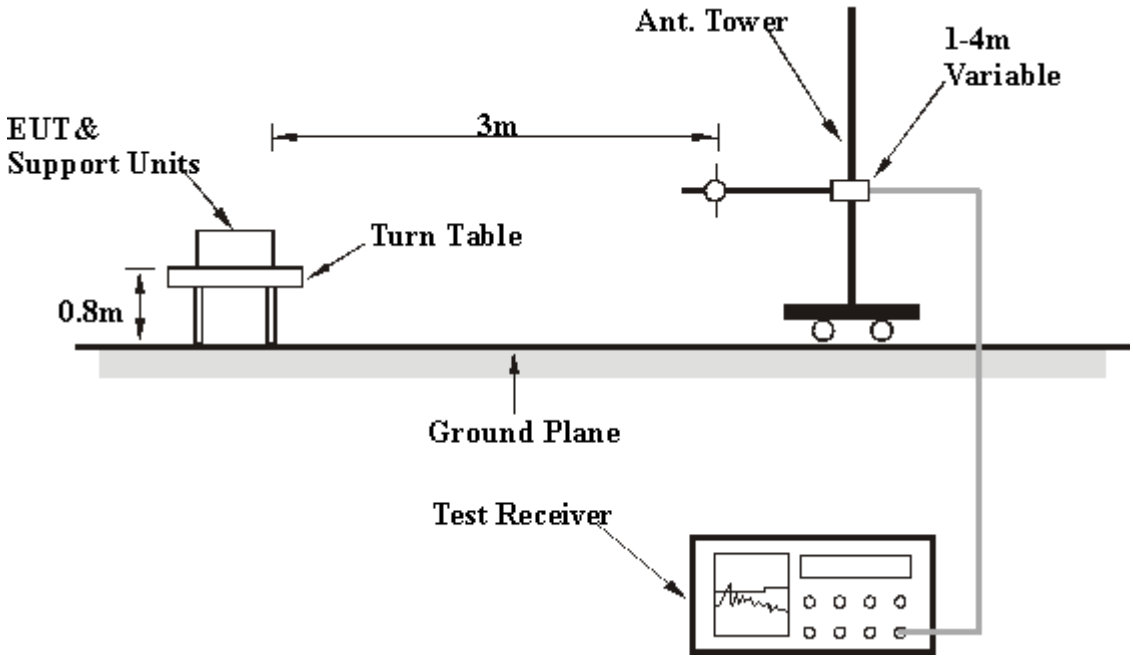
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

CONDUCTED POWER MEASUREMENT:

e. The EUT was set up for the maximum power with 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.

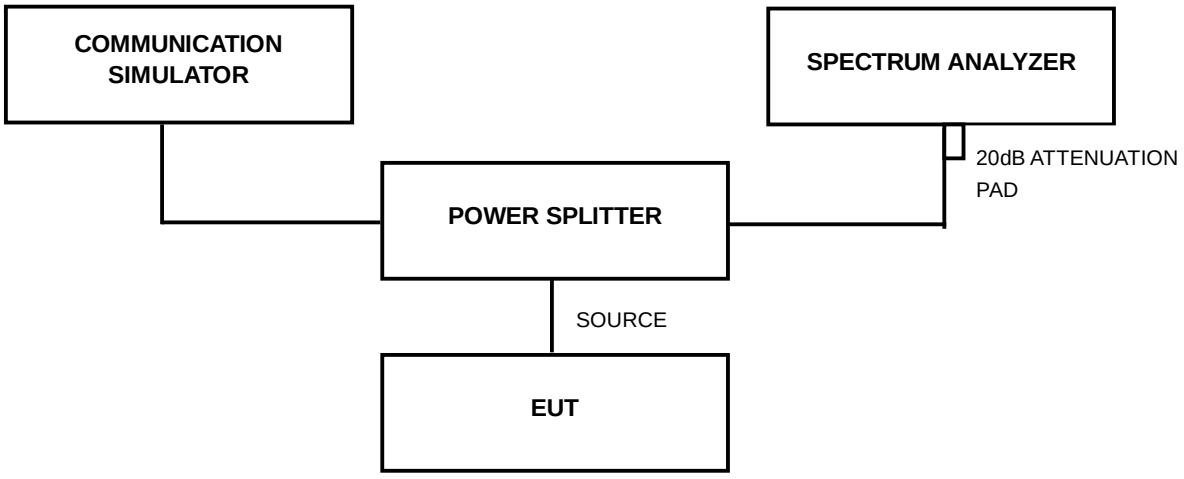
4.1.4 TEST SETUP

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	26.0	2.7	28.7	741.3
661	1880.0	26.1	2.7	28.8	758.6
810	1909.8	25.7	2.7	28.4	691.8

EDGE MODE

CONDUCTED PEAK OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	mW
512	1850.2	26.0	2.7	28.7	741.3
661	1880.0	25.9	2.7	28.6	724.4
810	1909.8	25.6	2.7	28.3	676.1

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

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
512	1850.2	22.9	6.6	29.5	891.3
661	1880.0	25.2	6.7	31.9	1548.8
810	1909.8	25.9	6.7	32.6	1819.7

EDGE MODE

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	Watt
512	1850.2	22.5	6.6	29.1	812.8
661	1880.0	24.7	6.7	31.4	1380.4
810	1909.8	25.5	6.7	32.2	1659.6

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.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	20.1	2.7	22.8	190.5
9400	1880	19.7	2.7	22.4	173.8
9538	1907.6	19.2	2.7	21.9	154.9

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.

HSDPA MODE - SUBTEST 1

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	19.0	2.7	21.7	147.9
9400	1880	19.1	2.7	21.8	151.4
9538	1907.6	18.9	2.7	21.6	144.5

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.

HSDPA MODE - SUBTEST 2

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.9	2.7	21.6	144.5
9400	1880	19.2	2.7	21.9	154.9
9538	1907.6	18.9	2.7	21.6	144.5

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.

HSDPA MODE - SUBTEST 3

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.3	2.7	21.0	125.9
9400	1880	17.5	2.7	20.2	104.7
9538	1907.6	17.2	2.7	19.9	97.7

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.

HSDPA MODE - SUBTEST 4

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.1	2.7	20.8	120.2
9400	1880	17.4	2.7	20.1	102.3
9538	1907.6	16.6	2.7	19.3	85.1

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.

HSUPA MODE-SUBTEST 1

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.4	2.7	21.1	128.8
9400	1880	17.5	2.7	20.2	104.7
9538	1907.6	17.5	2.7	20.2	104.7

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.

HSUPA MODE-SUBTEST 2

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.2	2.7	20.9	123.0
9400	1880	17.4	2.7	20.1	102.3
9538	1907.6	17.4	2.7	20.1	102.3

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.

HSUPA MODE-SUBTEST 3

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.2	2.7	20.9	123.0
9400	1880	17.4	2.7	20.1	102.3
9538	1907.6	17.3	2.7	20.0	100.0

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.

HSUPA MODE-SUBTEST 4

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.1	2.7	20.8	120.2
9400	1880	17.3	2.7	20.0	100.0
9538	1907.6	17.3	2.7	20.0	100.0

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.

HSUPA MODE-SUBTEST 5

CONDUCTED OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	18.1	2.7	20.8	120.2
9400	1880	17.4	2.7	20.1	102.3
9538	1907.6	17.4	2.7	20.1	102.3

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	16.2	6.6	22.8	190.5
9400	1880	16.2	6.7	22.9	195.0
9538	1907.6	14.0	6.7	20.7	117.5

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).

HSDPA MODE-SUBTEST 1

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	15.6	6.6	22.2	166.0
9400	1880	15.6	6.7	22.3	169.8
9538	1907.6	15.4	6.7	22.1	162.2

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).

HSUPA MODE-SUBTEST 1

EIRP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	OUTPUT POWER	
				dBm	mW
9262	1852.4	15.5	6.6	22.1	162.2
9400	1880	15.5	6.7	22.2	166.0
9538	1907.6	15.2	6.7	21.9	154.9

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 STABILIITY MEASUREMENT

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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	Dec. 05, 2012	Dec. 04, 2013
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. 11, 2012	Dec. 10, 2013
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: Jan. 08, 2013

4.2.3 TEST PROCEDURE

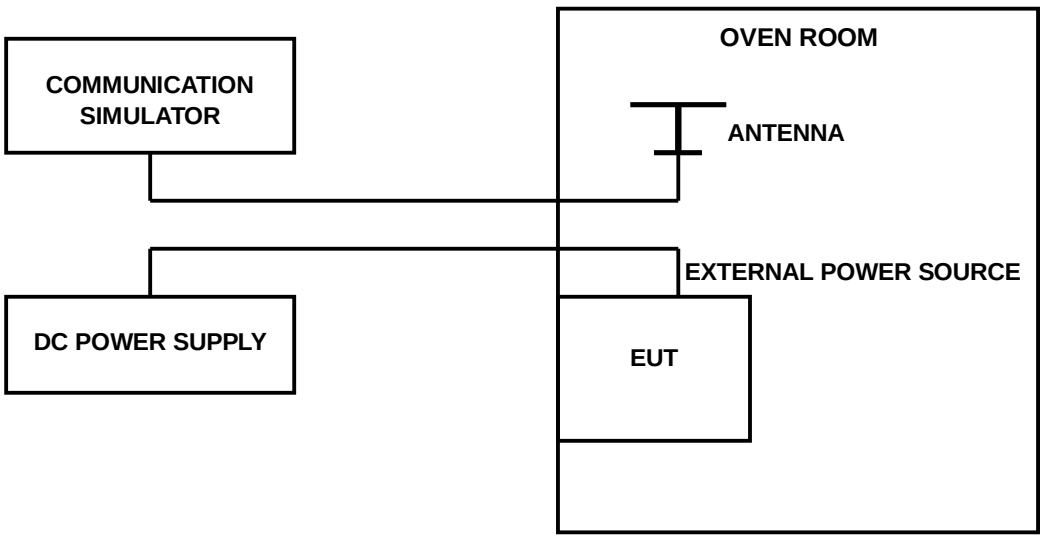
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

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 ±0.5℃ 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.

d. **NOTE:** The frequency error was recorded frequency error from the communication simulator.

4.2.4 TEST SETUP



4.2.5 TEST RESULTS

FOR GPRS:

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
6.29	-22	-0.012	2.5
8.51	-23	-0.012	2.5

AFC FREQUENCY ERROR vs. TEMP.			
TEMP. (℃)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
50	-26	-0.014	2.5
40	-24	-0.013	2.5
30	-21	-0.011	2.5
20	-24	-0.013	2.5
10	-21	-0.011	2.5
0	-20	-0.011	2.5
-10	-28	-0.015	2.5
-20	-23	-0.012	2.5
-30	-22	-0.012	2.5

FOR WCDMA:

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
6.29	-30	-0.016	2.5
8.51	-30	-0.016	2.5

AFC FREQUENCY ERROR vs. TEMP.			
TEMP. (℃)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
50	-31	-0.016	2.5
40	-29	-0.015	2.5
30	-32	-0.017	2.5
20	-29	-0.015	2.5
10	-28	-0.015	2.5
0	-33	-0.018	2.5
-10	-32	-0.017	2.5
-20	-33	-0.018	2.5
-30	-31	-0.016	2.5

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 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.

4.3.2 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. 11, 2012	Dec. 10, 2013
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: Jan. 08, 2013

4.3.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)

4.3.4 EUT OPERATING CONDITION

Same as the 4.1.5

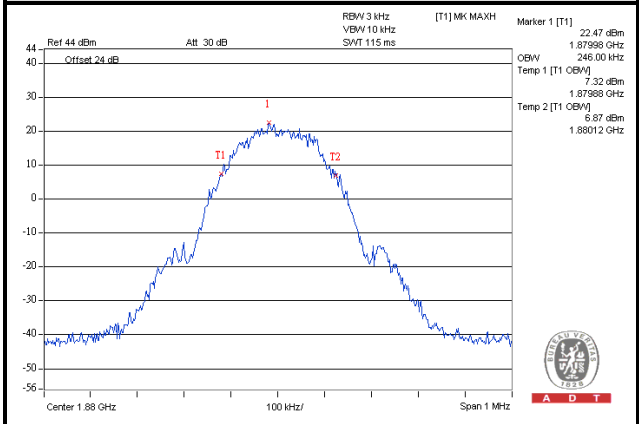
4.3.5 TEST RESULTS

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

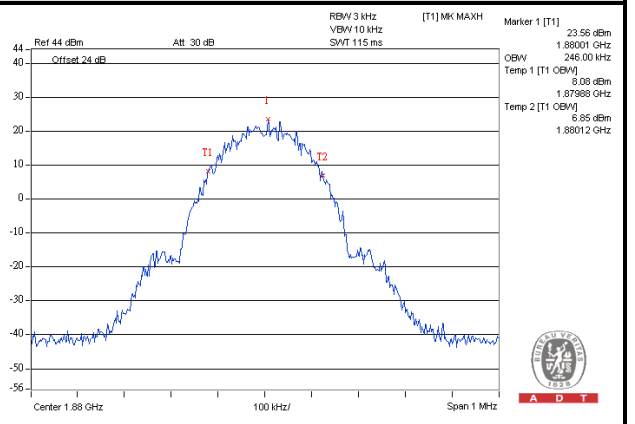
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		
		WCDMA	HSDPA	HSUPA
4132	1852.4	4.16	4.16	4.16
4182	1880	4.16	4.18	4.16
4233	1907.6	4.14	4.16	4.16

SPECTRUM PLOT OF WORST VALUE

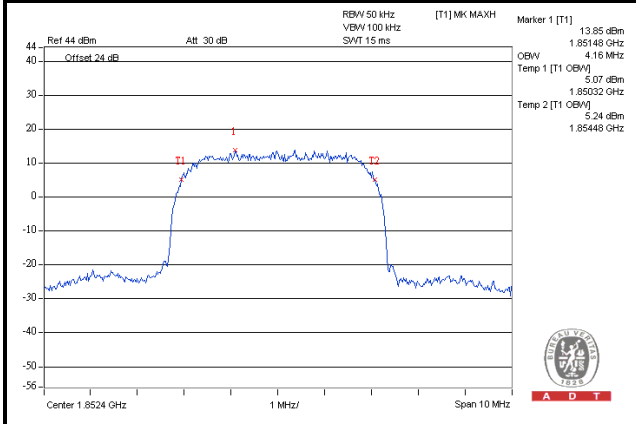
GPRS



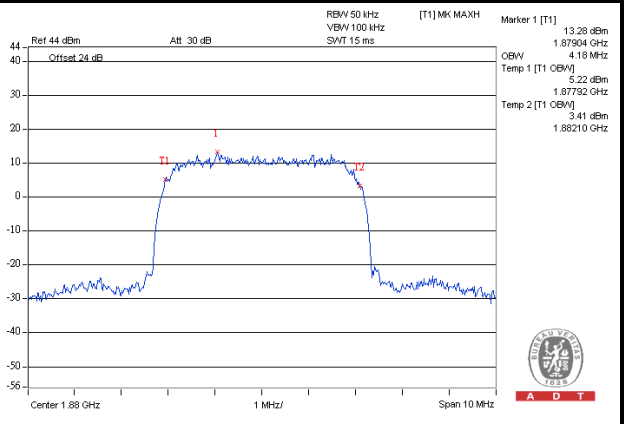
EDGE



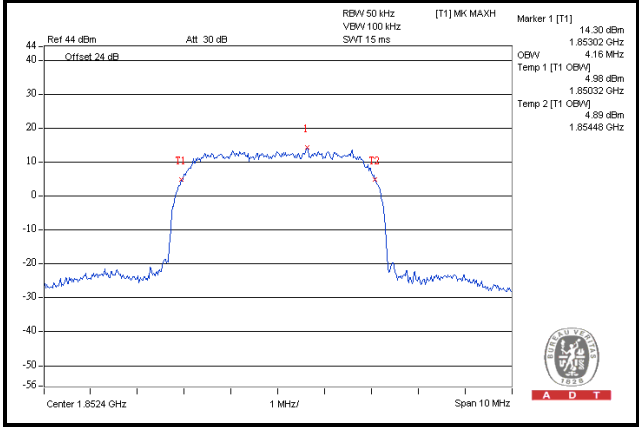
WCDMA



HSDPA



HSUPA



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. 11, 2012	Dec. 10, 2013
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: Jan. 08, 2013

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 (GSM/GPRS/ EDGE).

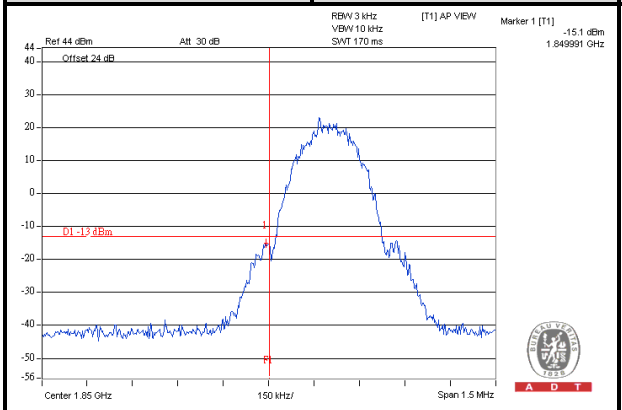
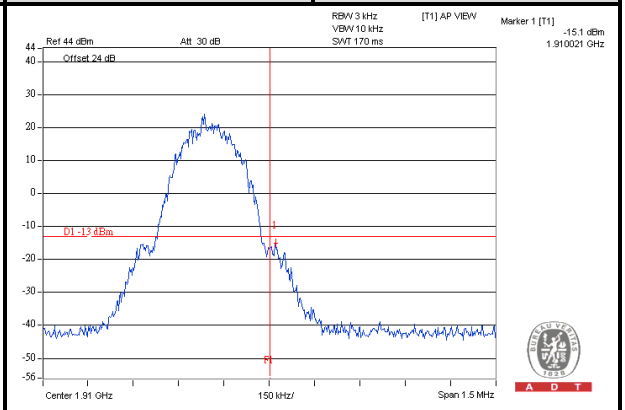
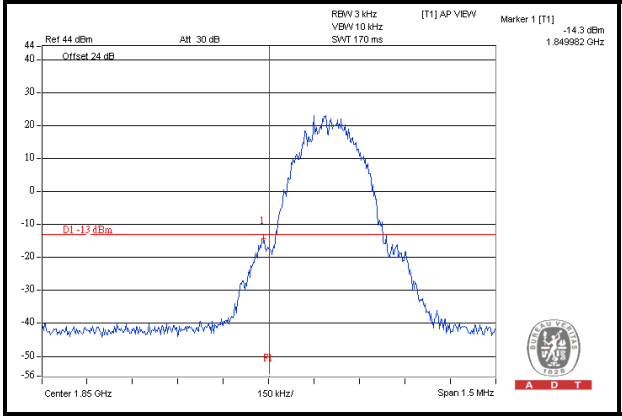
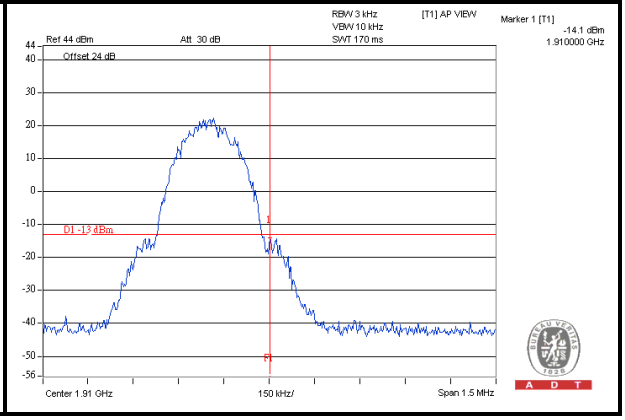
c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).

d. Record the max trace plot into the test report.

4.4.5 EUT OPERATING CONDITION

Same as the 4.1.5

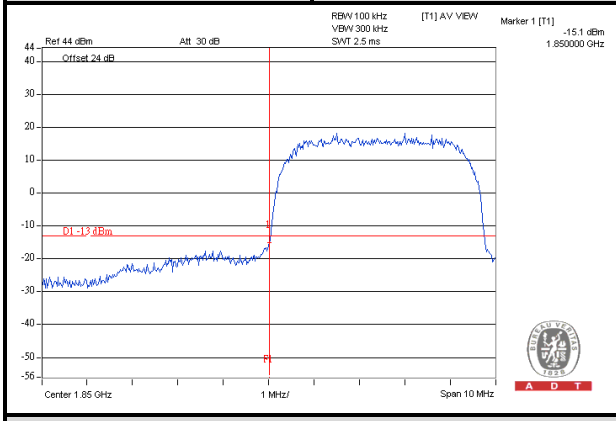
4.4.6 TEST RESULTS

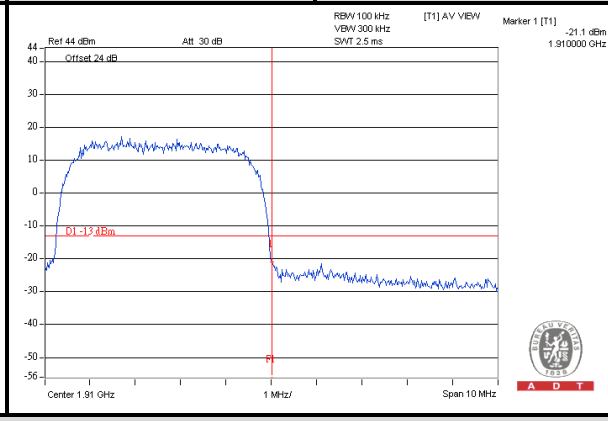
GPRS			
GPRS			
CHANNEL	512	CHANNEL	810
			
EDGE			
CHANNEL	512	CHANNEL	810
			

WCDMA

WCDMA

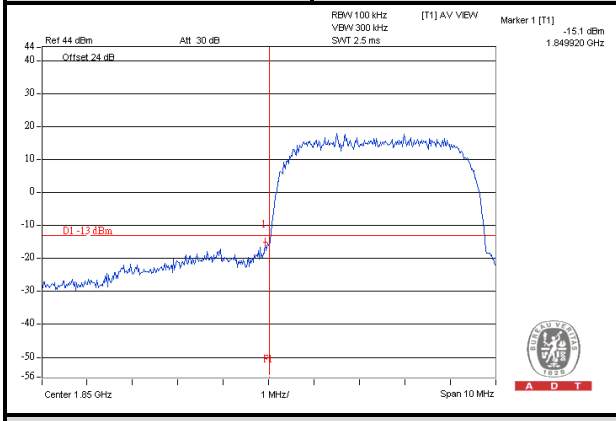
CHANNEL	9262	CHANNEL	9538

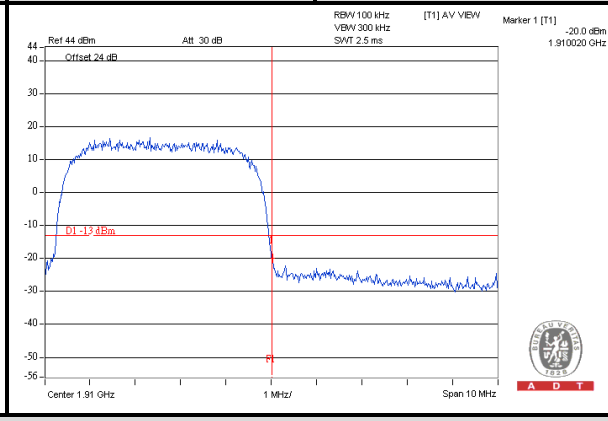




HSDPA

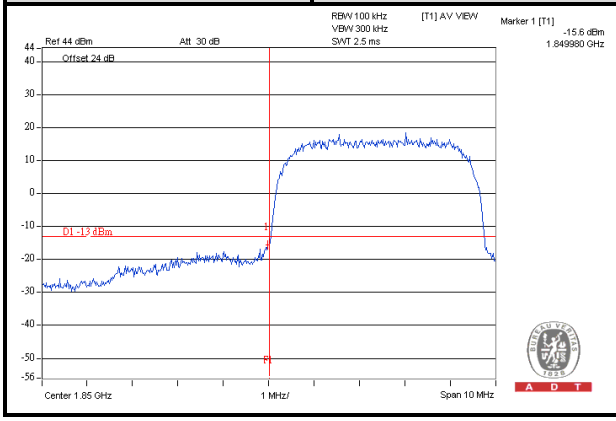
CHANNEL	9262	CHANNEL	9538

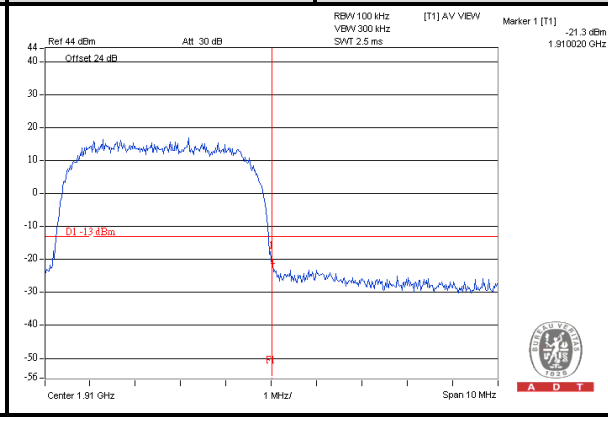




HSUPA

CHANNEL	9262	CHANNEL	9538





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 –13dBm.

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. 11, 2012	Dec. 10, 2013
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

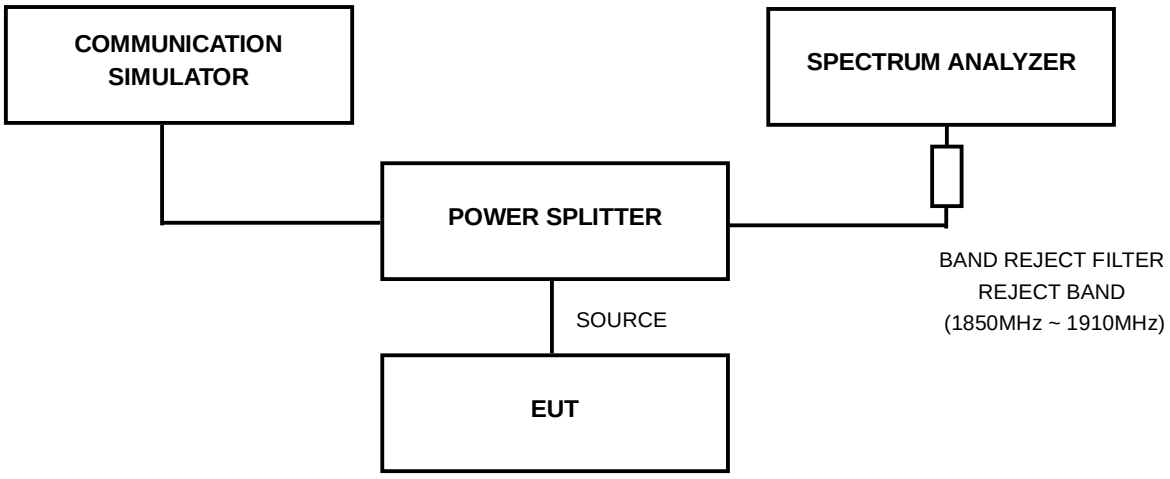
NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date: Jan. 08, 2013

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 19.1GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

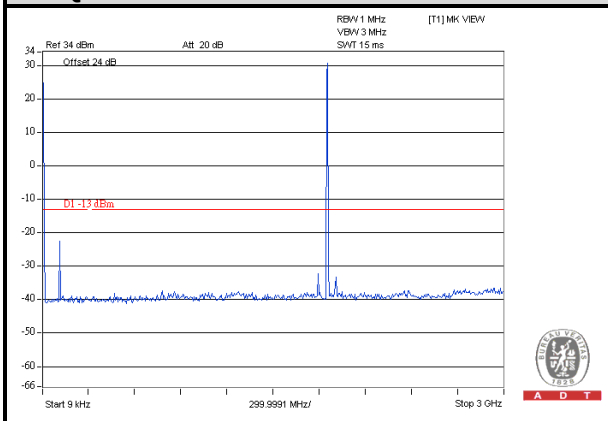
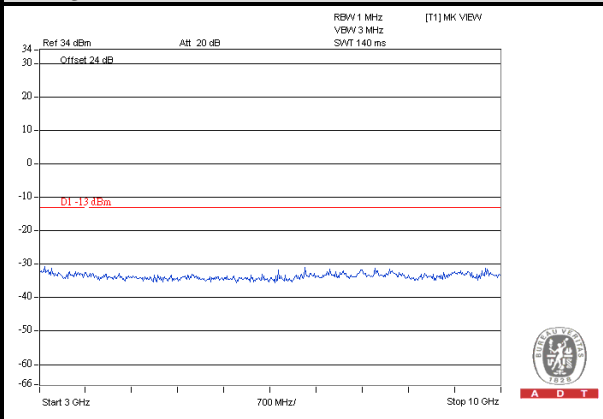
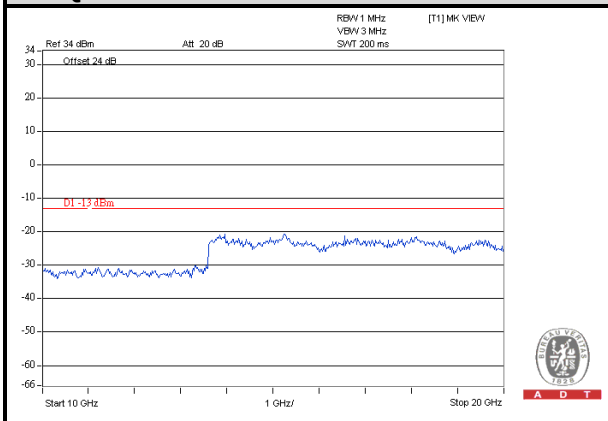
4.5.4 TEST SETUP

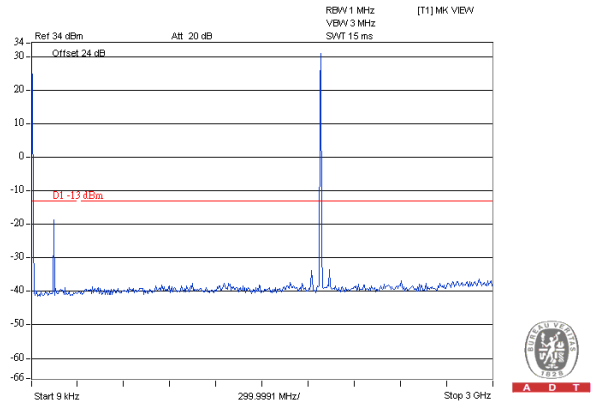
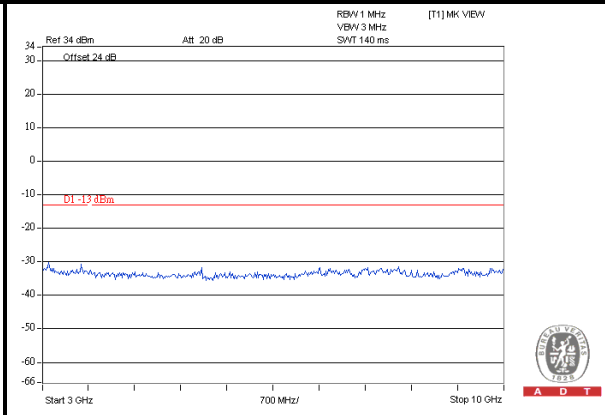
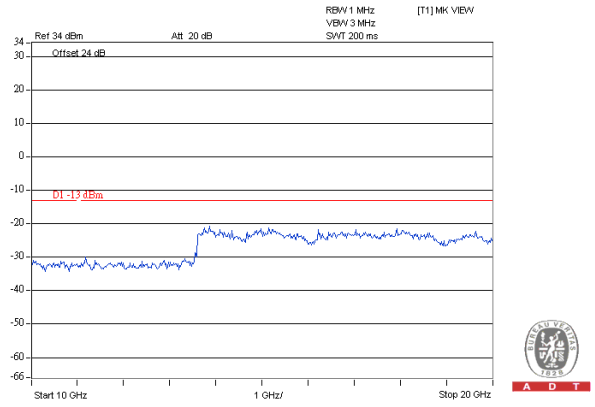


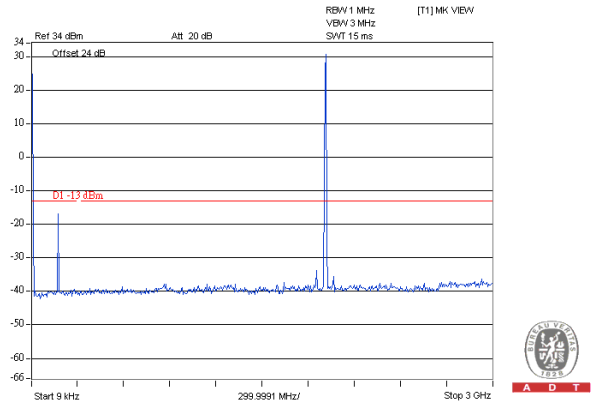
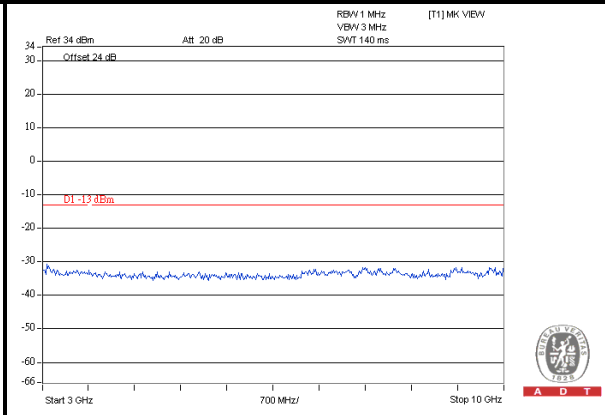
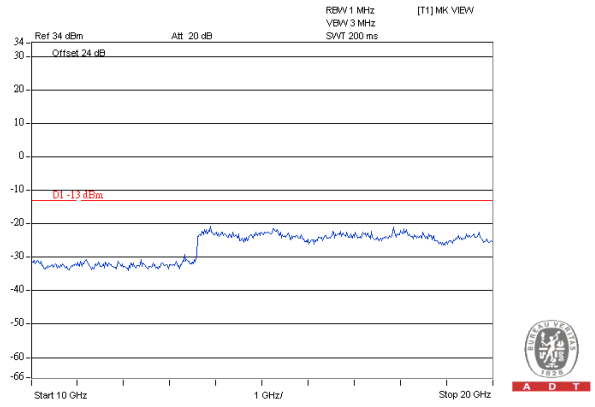
4.5.5 EUT OPERATING CONDITIONS

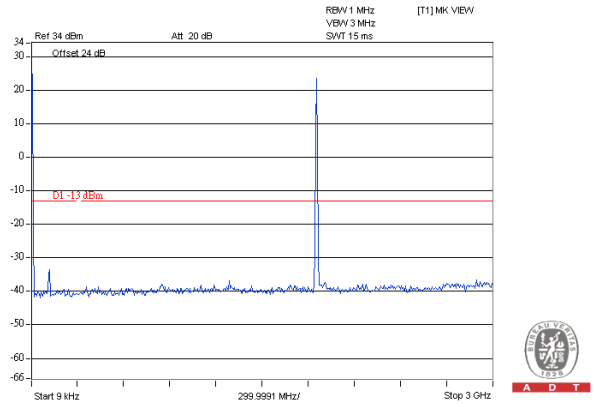
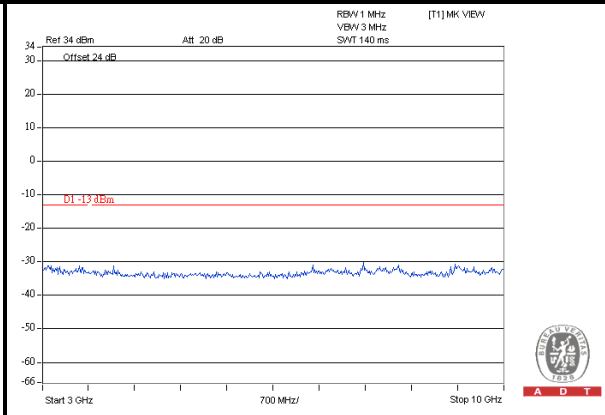
Same as the 4.1.5

4.5.6 TEST RESULTS

GPRS	
CHANNEL 512	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

GPRS	
CHANNEL 661	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

GPRS	
CHANNEL 810	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

WCDMA	
CHANNEL 9262	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
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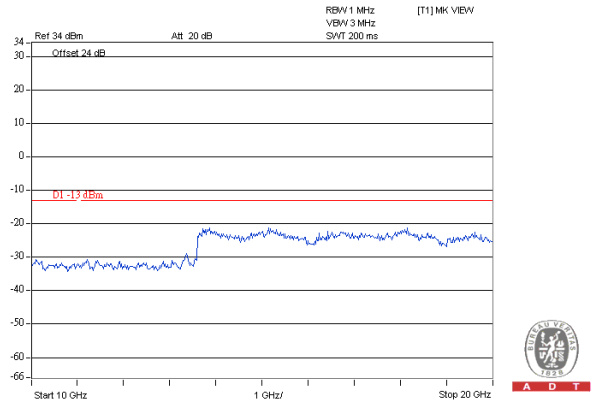
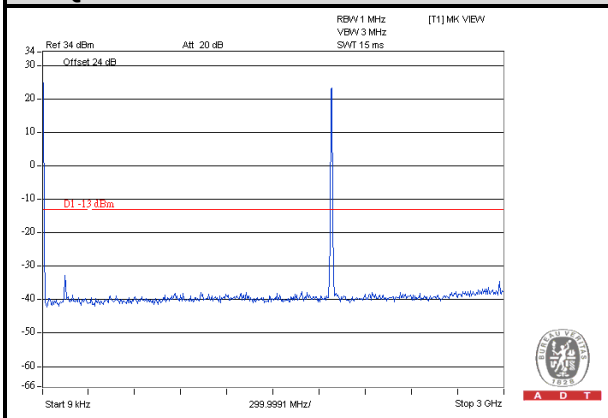
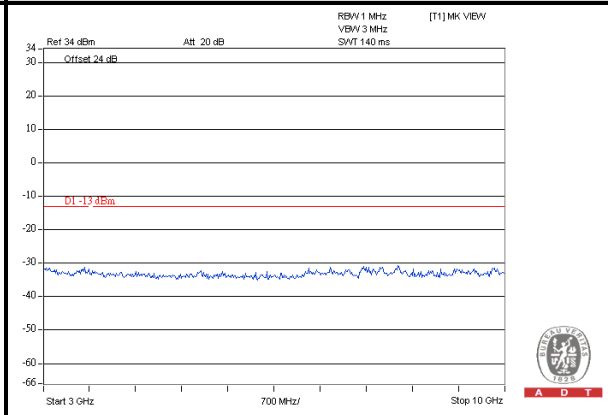
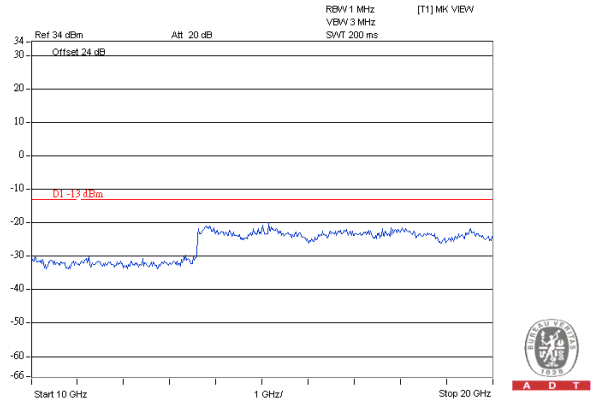
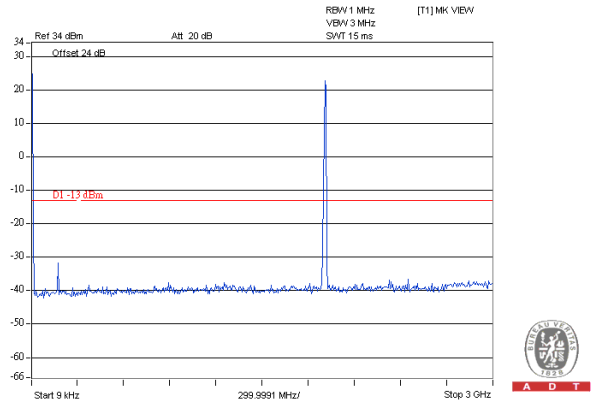
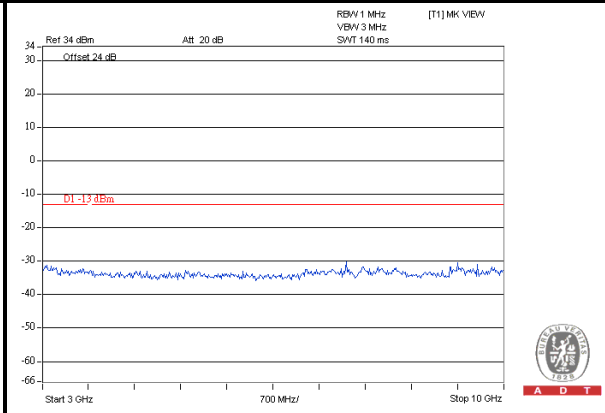
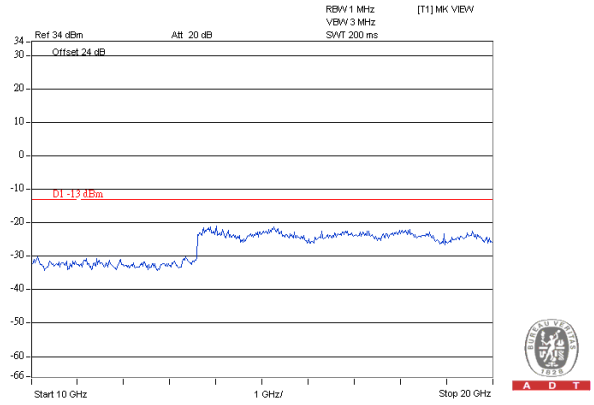
	

WCDMA	
CHANNEL 9400	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

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 –13dBm.

4.6.2 TEST INSTRUMENTS

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. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 22, 2012	Nov. 21, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2012	Dec. 25, 2013
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: Jan. 08, 2013

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 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 a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

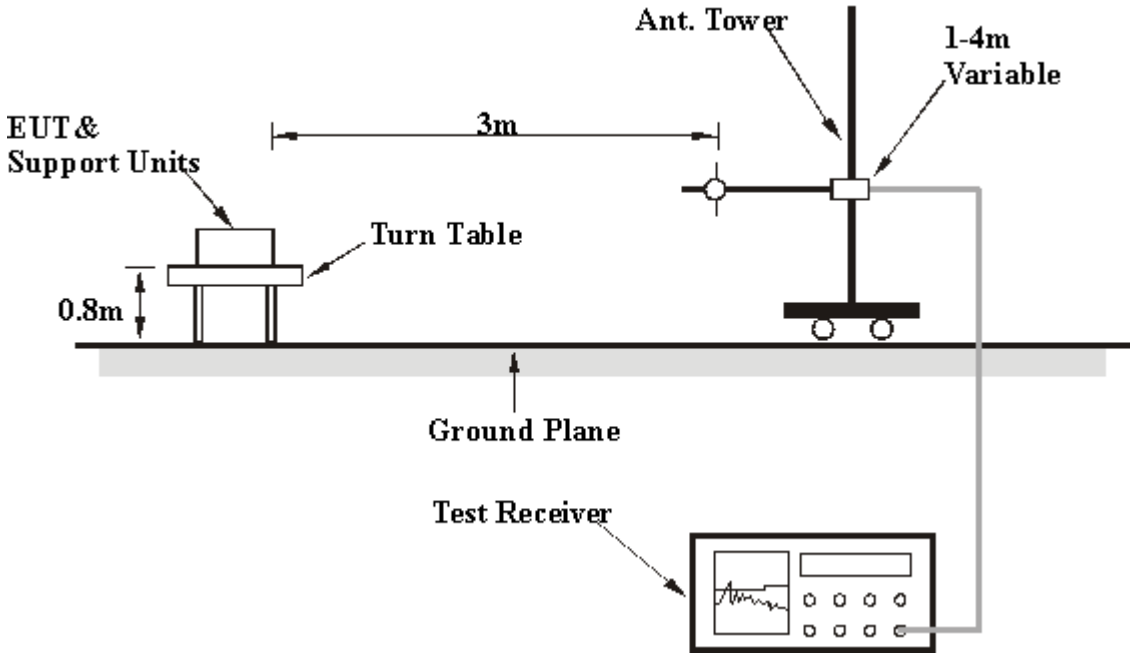
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

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 the 4.1.5

4.6.7 TEST RESULTS

BELOW 1GHz DATA

GPRS

CHANNEL	TX Channel 512	FREQUENCY RANGE	Below 1GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	223.71	34.65	-13	-60.76	4.03	-56.73
2	433.61	31.24	-13	-66.88	2.98	-63.90
3	461.06	31.22	-13	-66.43	2.82	-63.61
4	488.3	32.41	-13	-63.75	2.87	-60.88
5	515.41	37.68	-13	-57.66	2.78	-54.88
6	895.1	33.65	-13	-64.68	0.55	-64.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	147.59	35.47	-13	-56.29	-1.08	-57.37
2	214.27	32.54	-13	-62.90	4.15	-58.75
3	242.92	32.45	-13	-62.79	3.84	-58.95
4	461.36	31.25	-13	-66.38	2.83	-63.56
5	488.18	34.24	-13	-61.93	2.87	-59.06
6	515.41	35.44	-13	-59.90	2.78	-57.12

REMARKS:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

WCDMA

CHANNEL	TX Channel 9262	FREQUENCY RANGE	Below 1GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	223.71	34.51	-13	-60.90	4.03	-56.87
2	433.61	31.42	-13	-66.70	2.98	-63.72
3	461.06	31.54	-13	-66.11	2.82	-63.29
4	488.3	32.54	-13	-63.62	2.87	-60.75
5	515.41	37.58	-13	-57.76	2.78	-54.98
6	895.1	33.27	-13	-65.06	0.55	-64.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	147.59	35.78	-13	-55.98	-1.08	-57.06
2	214.27	32.44	-13	-63.00	4.15	-58.85
3	242.92	32.54	-13	-62.70	3.84	-58.86
4	461.36	31.25	-13	-66.38	2.83	-63.56
5	488.18	34.61	-13	-61.56	2.87	-58.69
6	515.41	35.66	-13	-59.68	2.78	-56.90

REMARKS:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

ABOVE 1GHz DATA

GPRS

CHANNEL	TX Channel 512	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3700	46.10	-13	-57.83	7.72	-50.11
2	5550.6	50.00	-13	-54.89	7.08	-47.81
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3700	47.20	-13	-56.73	7.72	-49.01
2	5550.6	51.00	-13	-53.89	7.08	-46.81

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

CHANNEL	TX Channel 661	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3760	44.80	-13	-59.35	7.68	-51.67
2	5640	49.90	-13	-54.84	7.02	-47.82
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3760	43.80	-13	-60.35	7.68	-52.67
2	5640	51.20	-13	-53.54	7.02	-46.52

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

CHANNEL	TX Channel 810	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3819.6	44.30	-13	-60.07	7.64	-52.43
2	5729.4	50.20	-13	-54.39	6.96	-47.43
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3819.6	41.80	-13	-62.57	7.64	-54.93
2	5729.4	51.10	-13	-53.49	6.96	-46.53

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

WCDMA

CHANNEL	TX Channel 9262	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	**3704.8**	**53.50**	**-13**	**-50.45**	**7.71**	**-42.74**
2	5557.2	48.00	-13	-56.88	7.08	-49.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3704.8	52.30	-13	-51.65	7.71	-43.94
2	5557.2	49.50	-13	-55.38	7.08	-48.30

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

CHANNEL	TX Channel 9400	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3760	51.80	-13	-52.35	7.68	-44.67
2	5640	49.20	-13	-55.54	7.02	-48.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3760	51.90	-13	-52.25	7.68	-44.57
2	5640	49.10	-13	-55.64	7.02	-48.62

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

CHANNEL	TX Channel 9538	FREQUENCY RANGE	1GHz ~ 20GHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3815.2	53.70	-13	-50.65	7.64	-43.01
2	5722.8	49.40	-13	-55.21	6.96	-48.24
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	SPA READING (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)
1	3815.2	52.20	-13	-52.15	7.64	-44.51
2	5722.8	49.40	-13	-55.21	6.96	-48.24

REMARKS:

1. ERP(dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor = gain of substitution antenna + cable loss

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
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Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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---