



A D T

FCC TEST REPORT (PART 22)

REPORT NO.: RF120829C03-3 R1

MODEL NO.: ME370TG

FCC ID: MSQME370TG

RECEIVED: Aug. 29, 2012

TESTED: Sep. 08 ~ Sep. 13, 2012

ISSUED: Sep. 28, 2012

APPLICANT: ASUSTek COMPUTER INC.

ADDRESS: 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan,
R.O.C.

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New
Taipei City, Taiwan (R.O.C.)

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, 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



A D T

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1 CERTIFICATION	4
2 SUMMARY OF TEST RESULTS.....	5
2.1 MEASUREMENT UNCERTAINTY	5
2.2 TEST SITE AND INSTRUMENTS.....	6
3 GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 CONFIGURATION OF SYSTEM UNDER TEST	9
3.3 DESCRIPTION OF SUPPORT UNITS.....	9
3.4 TEST ITEM AND TEST CONFIGURATION	10
3.5 EUT OPERATING CONDITIONS.....	11
3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS	11
4 TEST TYPES AND RESULTS.....	12
4.1 OUTPUT POWER MEASUREMENT	12
4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	12
4.1.2 TEST PROCEDURES	12
4.1.3 TEST SETUP	13
4.1.4 TEST RESULTS	14
4.2 FREQUENCY STABILITY MEASUREMENT	18
4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	18
4.2.2 TEST PROCEDURE.....	18
4.2.3 TEST SETUP	18
4.2.4 TEST RESULTS	19
4.3 OCCUPIED BANDWIDTH MEASUREMENT	20
4.3.1 TEST PROCEDURES	20
4.3.2 TEST SETUP	20
4.3.3 TEST RESULTS	21
4.4 BAND EDGE MEASUREMENT	22
4.4.1 LIMITS OF BAND EDGE MEASUREMENT	22
4.4.2 TEST SETUP	22
4.4.3 TEST PROCEDURES	22
4.4.4 TEST RESULTS	23
4.5 CONDUCTED SPURIOUS EMISSIONS.....	24
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	24
4.5.2 TEST PROCEDURE.....	24
4.5.3 TEST SETUP	24
4.5.4 TEST RESULTS	25
4.6 RADIATED EMISSION MEASUREMENT	34
4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	34
4.6.2 TEST PROCEDURES	34
4.6.3 DEVIATION FROM TEST STANDARD	34
4.6.4 TEST SETUP	35
4.6.5 TEST RESULTS	36
5 PHOTOGRAPHS OF THE TEST CONFIGURATION.....	44
6 INFORMATION ON THE TESTING LABORATORIES	45
7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	46



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120829C03-3	Original release	Sep. 14, 2012
RF120829C03-3	Revised the product name and accessories list	Sep. 28, 2012



1 CERTIFICATION

PRODUCT: ASUS Pad

MODEL: ME370TG

BRAND: ASUS

APPLICANT: ASUSTek COMPUTER INC.

TESTED: Sep. 08 ~ Sep. 13, 2012

TEST SAMPLE: Production Unit

STANDARDS: FCC PART 22, Subpart H

The above equipment (model: ME370TG) 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 : Ivonne Wu , **DATE** : Sep. 28, 2012
Ivonne Wu / Senior Specialist

APPROVED BY : Gary Chang , **DATE** : Sep. 28, 2012
Gary Chang / Technical Manager

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	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	PASS	Meet the requirement of limit. Minimum passing margin is -32.38dB at 998.06MHz.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



A D T

2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Jan. 03, 2012	Jan. 02, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP 40	100039	Feb. 03, 2012	Feb. 02, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2012	Jan. 04, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10738	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Nov. 03, 2011	Nov. 02, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Nov. 03, 2011	Nov. 02, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Nov. 03, 2011	Nov. 02, 2012
Software ADT	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT	TT100.	TT93021704	NA	NA
Turn Table Controller ADT	SC100.	SC93021704	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 test was performed in HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC 7450F-4.



A D T

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	ASUS Pad	
MODEL NO.	ME370TG	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.75Vdc (battery)	
MODULATION TYPE	GPRS	GMSK
	EDGE	8PSK
	WCDMA	BPSK
FREQUENCY RANGE	GPRS/EDGE	824.2MHz ~ 848.8MHz
	WCDMA	826.4MHz ~ 846.6MHz
MAX. ERP POWER	GPRS	849.180mW (29.29dBm)
	EDGE	657.658mW (28.18dBm)
	WCDMA	85.507mW (19.32dBm)
EMISSION DESIGNATOR	GPRS	246KGXW
	EDGE	244KG7W
	WCDMA	4M08F9W
MULTI-SLOTS CLASS	10	
WCDMA RELEASE VERSION	7	
ANTENNA TYPE	GPRS	Fixed Internal antenna with -1.06dBi gain
	EDGE	
	WCDMA	
I/O PORTS	Refer to users' manual	
DATA CABLE	Refer to NOTE as below	
ACCESSORY DEVICES	Refer to NOTE as below	



A D T

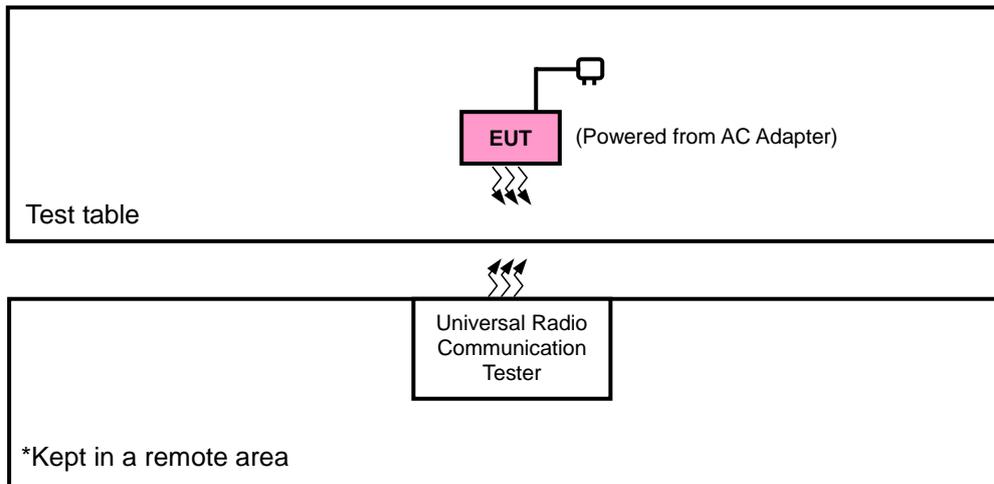
NOTE:

1. The EUT contains following accessories.

AC Adapter	Brand Name	ASUS
	Model Name	AD83531
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.3A; O/P: 5Vdc, 2A
Battery	Brand Name	ASUS
	Model Name	C11-ME370TG
	Power Rating	3.75Vdc, 4270mAh
	Type	Li-ion
USB Cable	Brand Name	DAEC
	Model Name	CABLE USB A TO MICRO USB B AA704700 900MM
	Signal Line Type	0.98 meter non-shielded cable without ferrite core
LCD Panel	Brand Name	Hydis
	Model Name	HYDIS/HV070WX2-1E0
Video Camera	Brand Name	LITEON
	Model Name	LITE-ON/10P2SF130J
3G Module	Brand Name	IMC
	Model Name	XMM6260 platform
WLAN Module	Brand Name	Azurewave
	Model Name	NH665
NFC Module	Brand Name	NXP
	Model Name	PN65N

2. 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 CONFIGURATION OF SYSTEM UNDER TEST



3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.



3.4 TEST ITEM AND TEST CONFIGURATION

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. The worst case was found when positioned on X-plane for ERP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

GPRS MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	ERP	128 to 251	128, 189, 251	GPRS, EDGE
-	FREQUENCY STABILITY	128 to 251	189	GPRS
-	OCCUPIED BANDWIDTH	128 to 251	128, 189, 251	GPRS, EDGE
-	BAND EDGE	128 to 251	128, 251	GPRS, EDGE
-	CONDCUDED EMISSION	128 to 251	128, 189, 251	GPRS, EDGE
-	RADIATED EMISSION	128 to 251	128, 189, 251	GPRS

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
-	FREQUENCY STABILITY	4132 to 4233	4182	WCDMA
-	OCCUPIED BANDWIDTH	4132 to 4233	4132, 4182, 4233	WCDMA
-	BAND EDGE	4132 to 4233	4132, 4233	WCDMA
-	CONDCUDED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
-	RADIATED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	24deg. C, 66%RH	120Vac, 60Hz	Alan Wu
FREQUENCY STABILITY	26deg. C, 58%RH	3.75Vdc	Brad Wu
OCCUPIED BANDWIDTH	26deg. C, 58%RH	3.75Vdc	Brad Wu
BAND EDGE	26deg. C, 58%RH	3.75Vdc	Brad Wu
CONDCUDED EMISSION	26deg. C, 58%RH	3.75Vdc	Brad Wu
RADIATED EMISSION	24deg. C, 65%RH	120Vac, 60Hz	Alan Wu



3.5 EUT OPERATING CONDITIONS

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

3.6 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

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

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 PROCEDURES

EIRP / ERP MEASUREMENT:

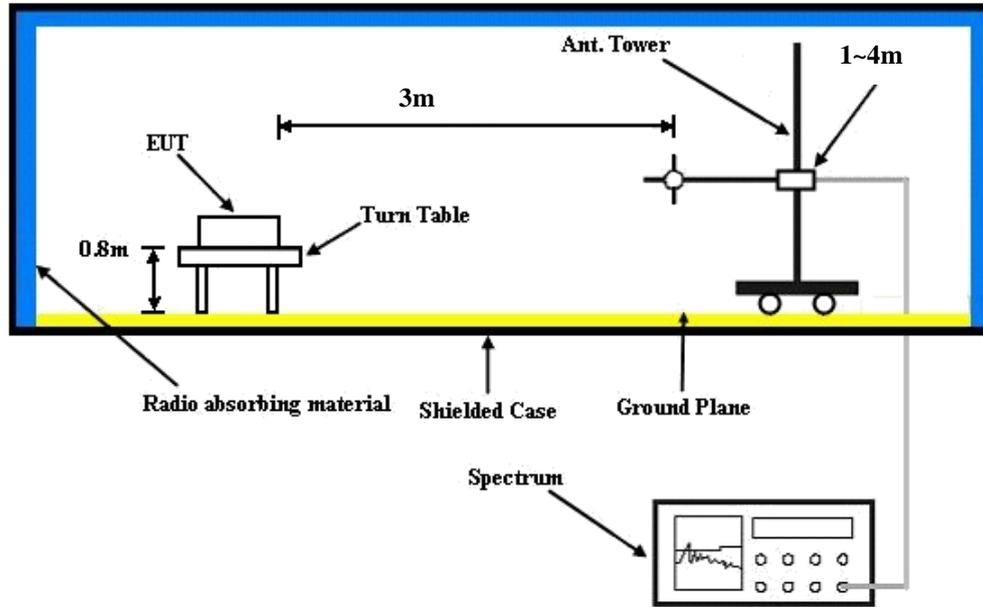
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GPRS & EDGE and 5MHz for WCDMA mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 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. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$ E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi.}$

CONDUCTED POWER MEASUREMENT:

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.

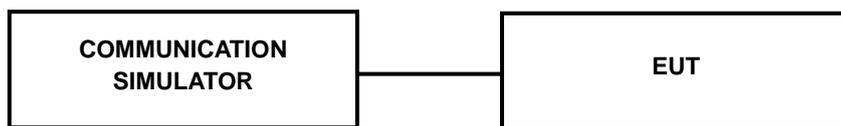
4.1.3 TEST SETUP

EIRP / ERP 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 attached file (Test Setup Photo).



A D T

4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GPRS850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GPRS 8 (GMSK, 1 Uplink)	32.01	32.03	32.05
GPRS 10 (GMSK, 2 Uplink)	31.98	32.00	32.02
EDGE 8 (GMSK, 1 Uplink)	32.00	32.02	32.03
EDGE 10 (GMSK, 2 Uplink)	31.98	32.00	32.01
EDGE 8 (8PSK, 1 Uplink)	26.50	26.53	26.54
EDGE 10 (8PSK, 2 Uplink)	26.46	26.49	26.53

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.49	23.47	23.46
HSDPA Subtest-1	23.26	23.27	23.25
HSDPA Subtest-2	23.25	22.26	22.25
HSDPA Subtest-3	22.00	22.03	22.02
HSDPA Subtest-4	21.77	21.76	21.76
HSUPA Subtest-1	22.22	22.23	22.24
HSUPA Subtest-2	20.24	20.29	20.26
HSUPA Subtest-3	20.98	21.02	21.01
HSUPA Subtest-4	20.55	20.54	20.53
HSUPA Subtest-5	22.36	22.40	22.35



A D T

ERP POWER (dBm)

FOR GPRS MODE:

MODE		TX channel 128					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-1.12	31.44	0.0	29.29	38.5	-9.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-5.61	25.57	0.0	23.42	38.5	-15.08

MODE		TX channel 189					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-2.48	29.27	0.0	27.12	38.5	-11.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-6.62	25.27	0.0	23.12	38.5	-15.38

MODE		TX channel 251					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.8	-1.08	30.21	0.51	28.57	38.5	-9.93
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.8	-5.02	26.55	0.51	24.91	38.5	-13.59

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB)-2.15dB.



A D T

FOR EDGE MODE:

MODE		TX channel 128					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-2.23	30.33	0.0	28.18	38.5	-10.32
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-6.71	24.47	0.0	22.32	38.5	-16.18

MODE		TX channel 189					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-3.62	28.13	0.0	25.98	38.5	-12.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-7.82	24.07	0.0	21.92	38.5	-16.58

MODE		TX channel 251					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.8	-2.18	29.11	0.51	27.47	38.5	-11.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.8	-6.52	25.05	0.51	23.41	38.5	-15.09

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB)-2.15dB.



A D T

FOR WCDMA MODE:

MODE		TX channel 4132					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.4	-11.23	21.18	0.0	19.03	38.5	-19.47
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.4	-13.35	17.96	0.0	15.81	38.5	-22.69

MODE		TX channel 4182					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-10.28	21.47	0.0	19.32	38.5	-19.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.4	-13.20	18.69	0.0	16.54	38.5	-21.96

MODE		TX channel 4233					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.6	-11.20	20.59	0.0	18.44	38.5	-20.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.6	-13.95	18.10	0.0	15.95	38.5	-22.55

NOTE: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB)-2.15dB.

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

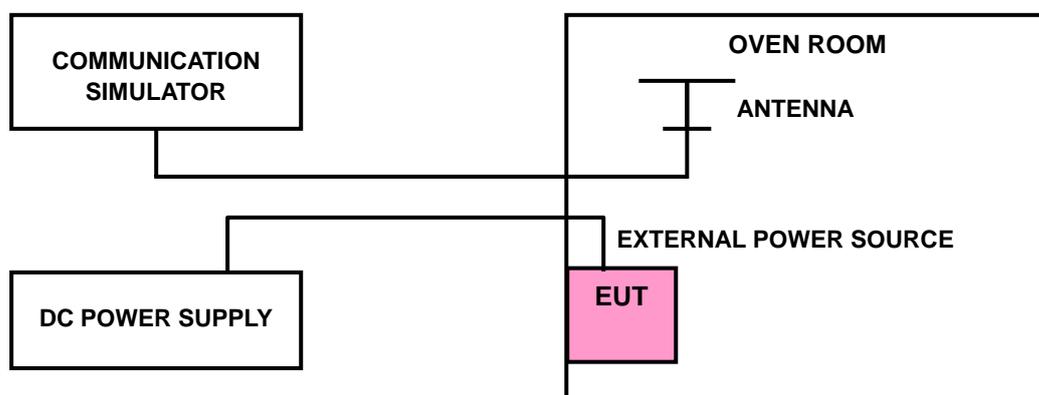
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.2 TEST PROCEDURE

- 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.
- 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.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

4.2.3 TEST SETUP





4.2.4 TEST RESULTS

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	GPRS	WCDMA	
4.2	-0.048	-0.043	2.5
3.6	-0.037	-0.032	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

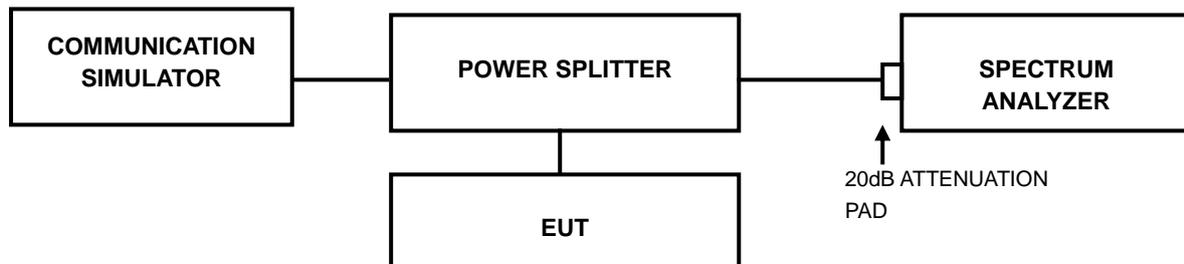
TEMP. (°C)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	GPRS	WCDMA	
55	-0.053	-0.039	2.5
50	-0.047	-0.037	2.5
40	-0.042	-0.032	2.5
30	-0.036	-0.029	2.5
20	-0.031	-0.026	2.5
10	-0.026	-0.031	2.5
0	-0.029	-0.035	2.5
-10	-0.032	-0.036	2.5
-20	-0.031	-0.038	2.5
-30	-0.035	-0.037	2.5

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 SETUP

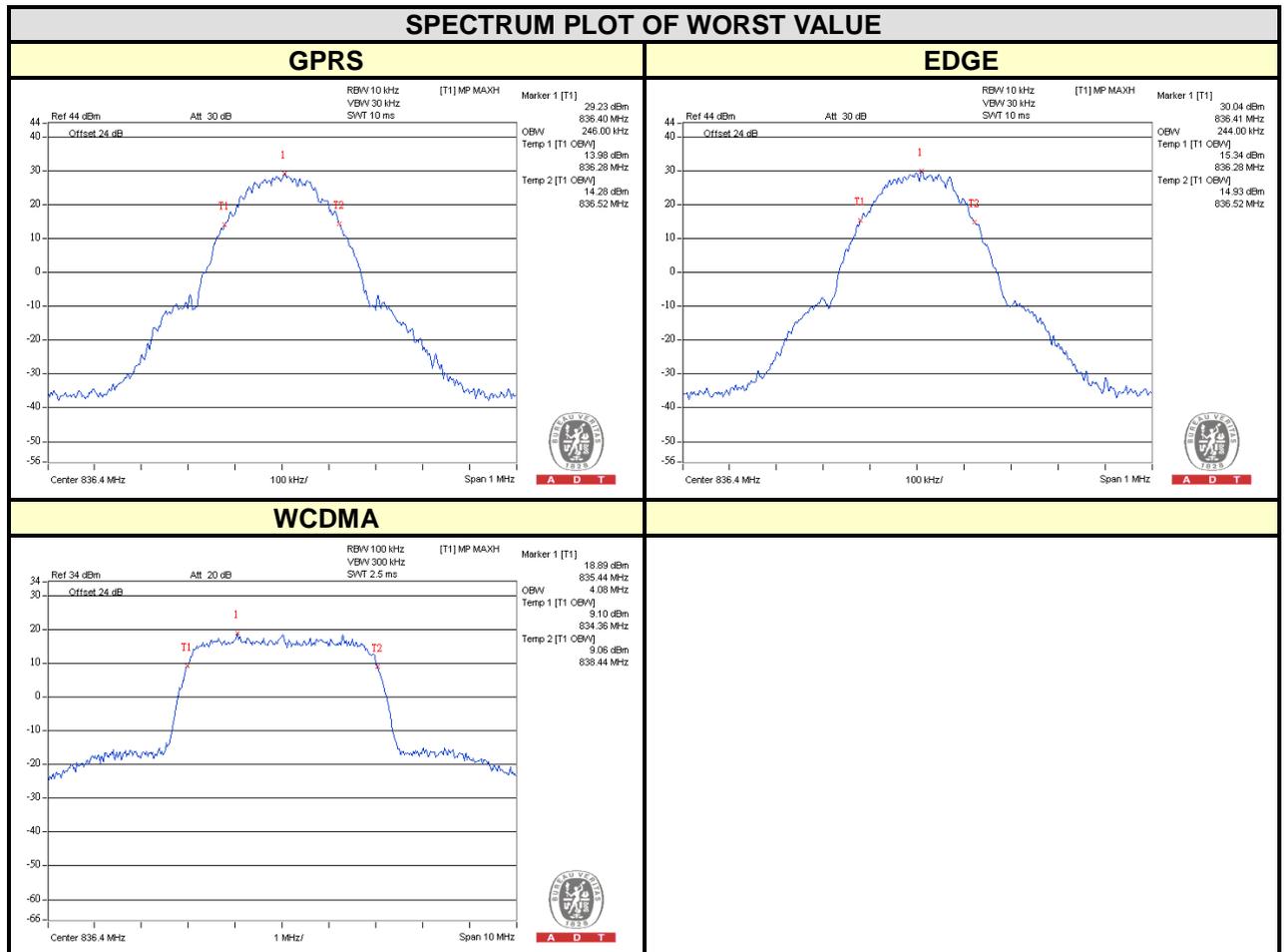




A D T

4.3.3 TEST RESULTS

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)
		GPRS	EDGE			WCDMA
128	824.2	242.0	242.0	4132	826.4	4.08
189	836.4	246.0	244.0	4182	836.4	4.08
251	848.8	242.0	242.0	4233	846.6	4.08

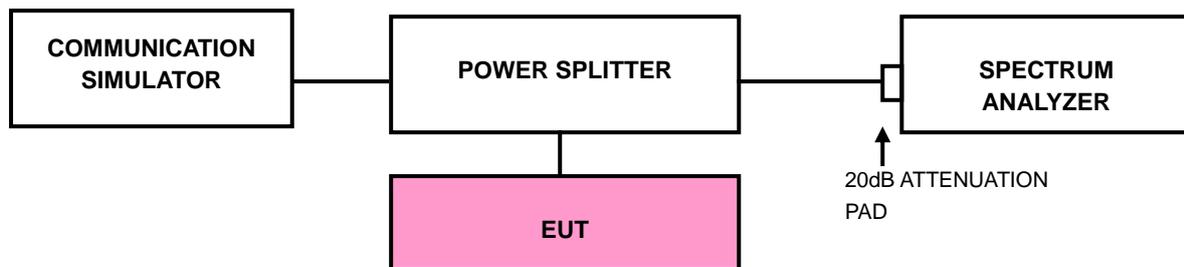


4.4 BAND EDGE MEASUREMENT

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 SETUP



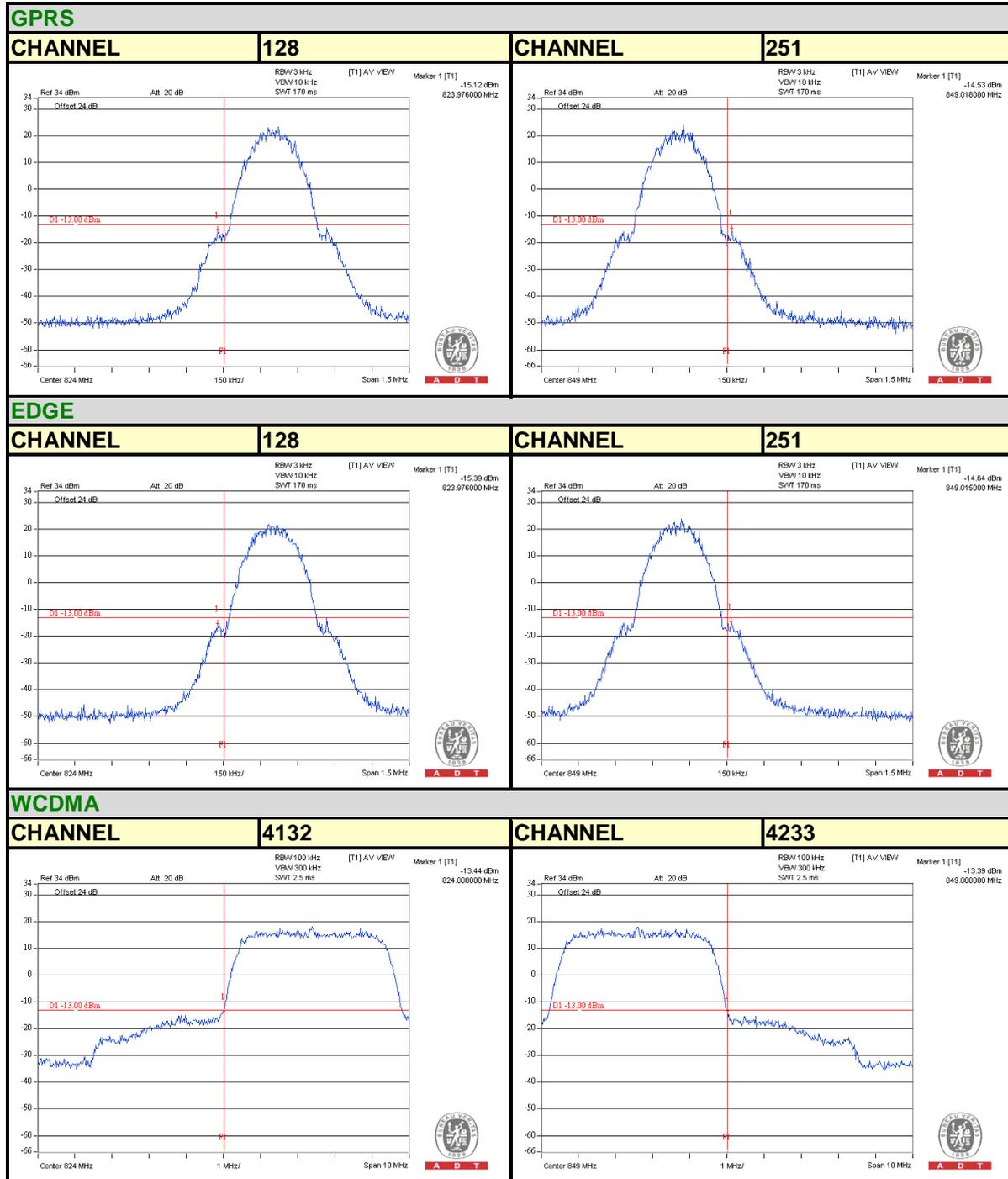
4.4.3 TEST PROCEDURES

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GPRS/EDGE).
- The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- Record the max trace plot into the test report.



A D T

4.4.4 TEST RESULTS



4.5 CONDUCTED SPURIOUS EMISSIONS

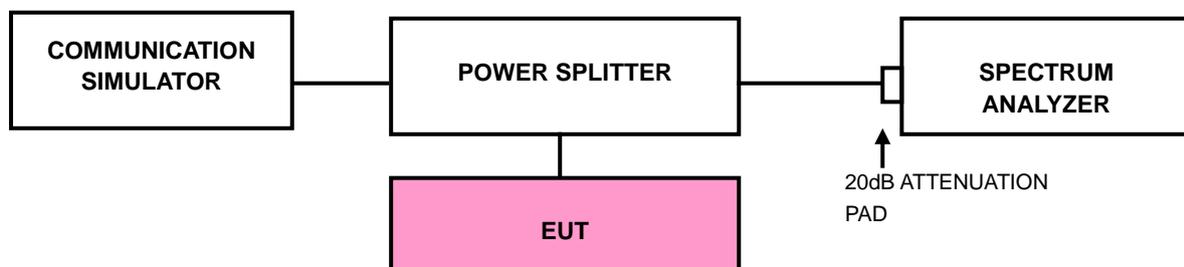
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 -13dBm .

4.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 9GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

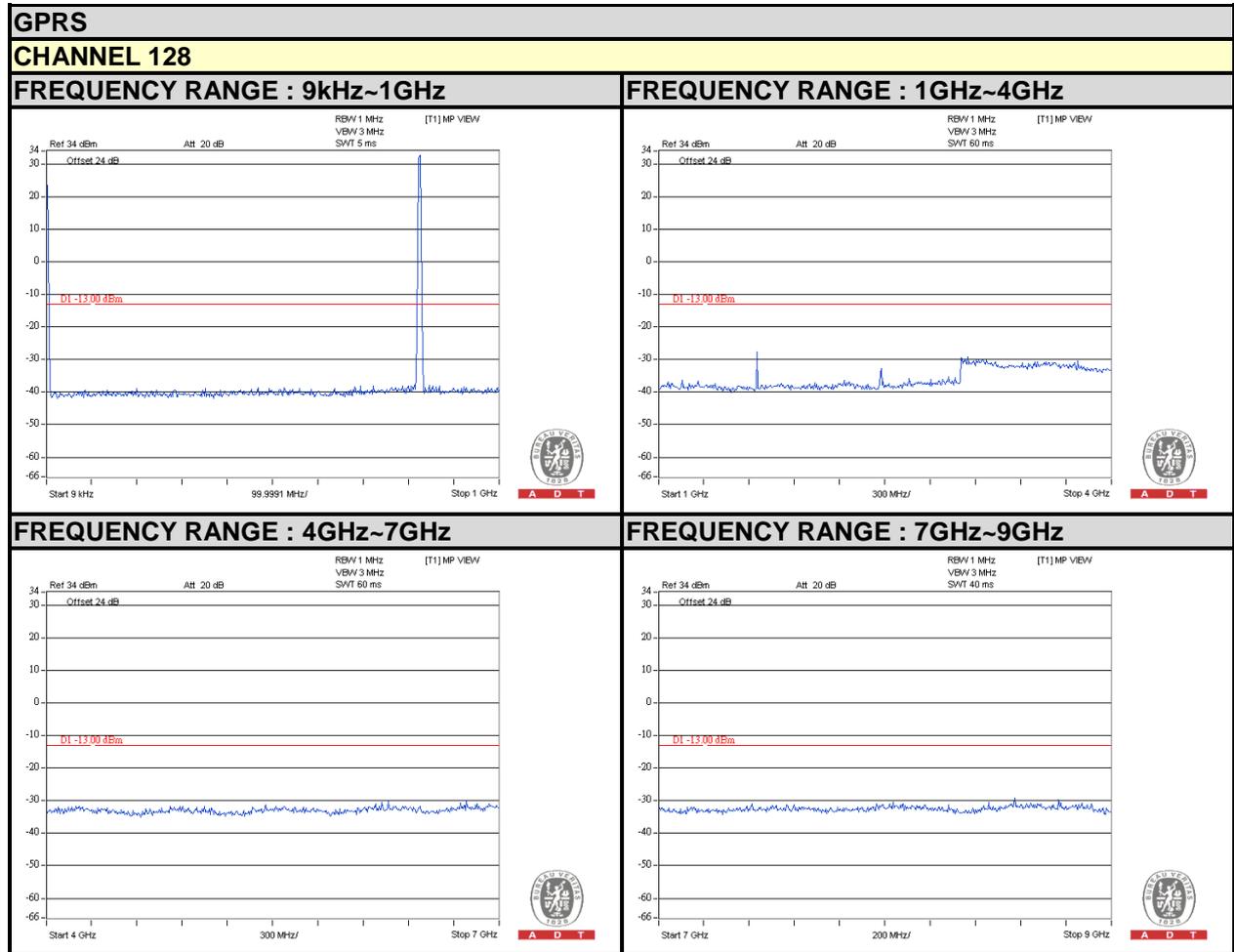
4.5.3 TEST SETUP





A D T

4.5.4 TEST RESULTS



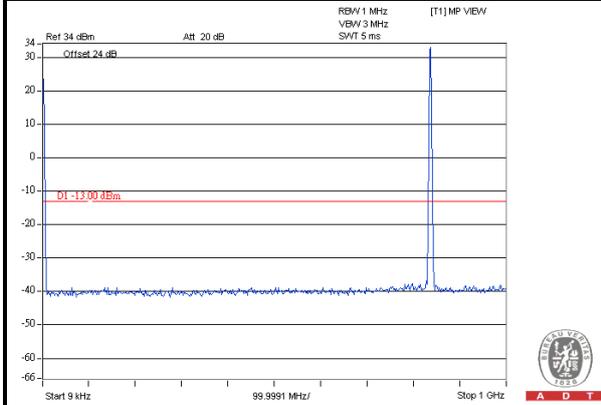


A D T

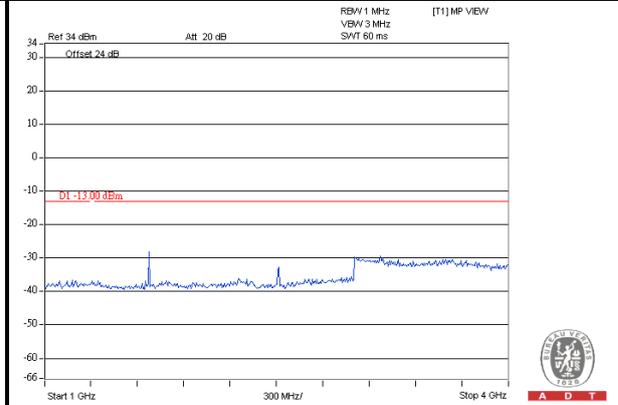
GPRS

CHANNEL 189

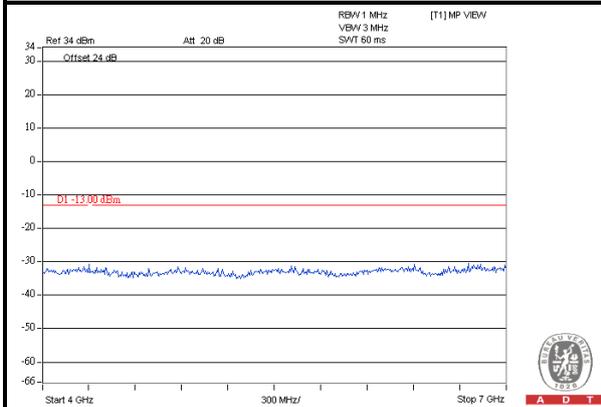
FREQUENCY RANGE : 9kHz~1GHz



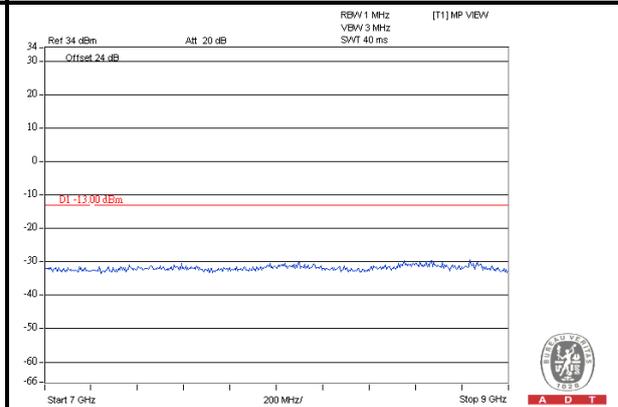
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



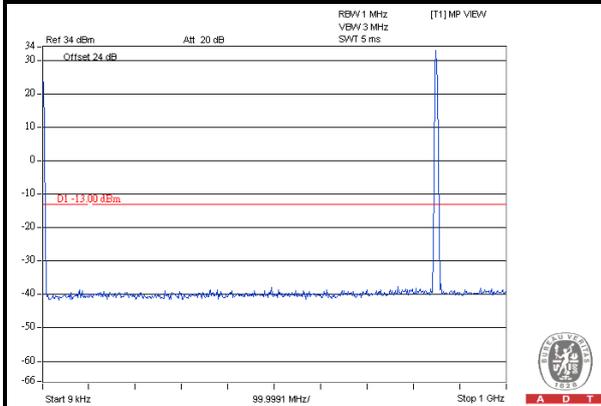


A D T

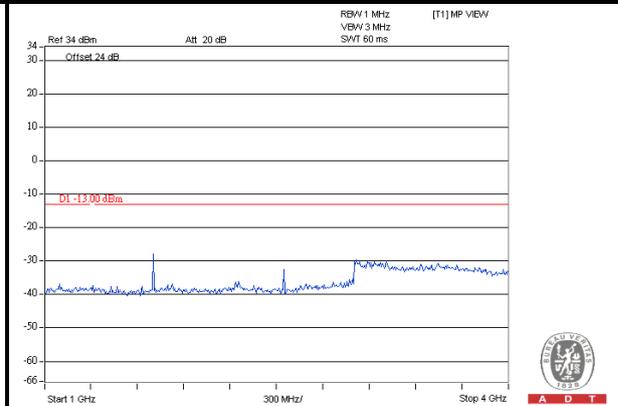
GPRS

CHANNEL 251

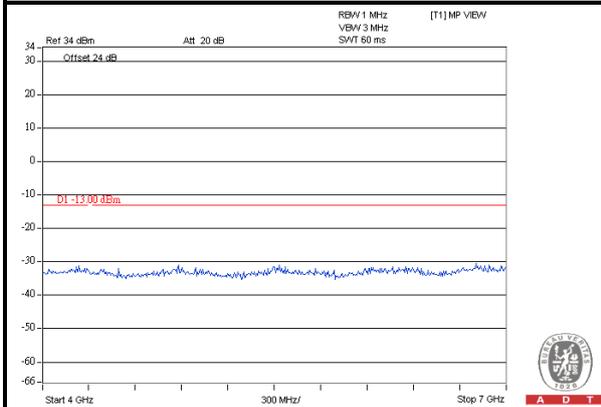
FREQUENCY RANGE : 9kHz~1GHz



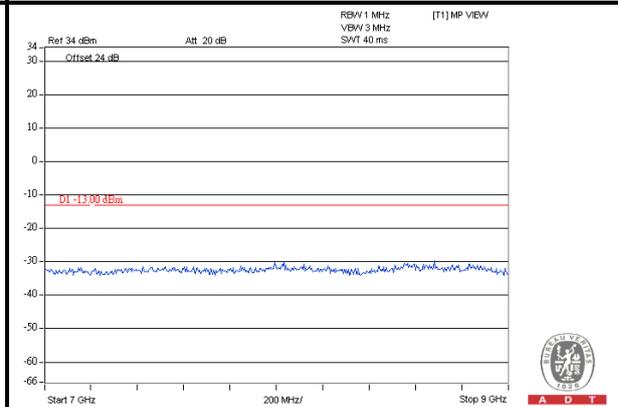
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



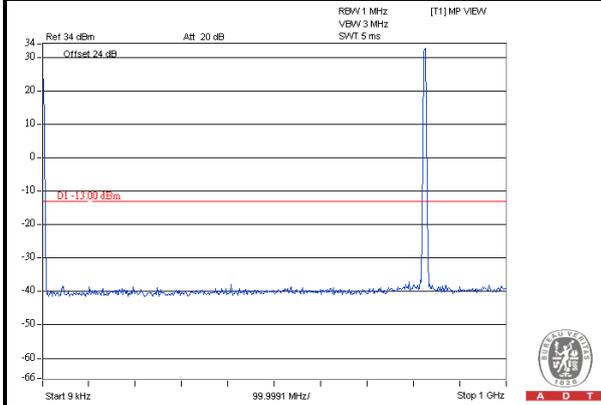


A D T

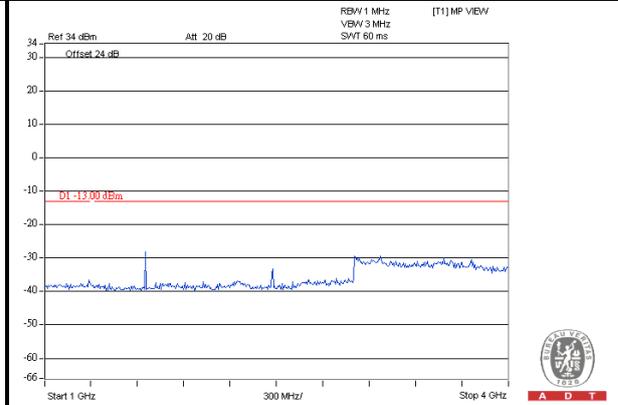
EDGE

CHANNEL 128

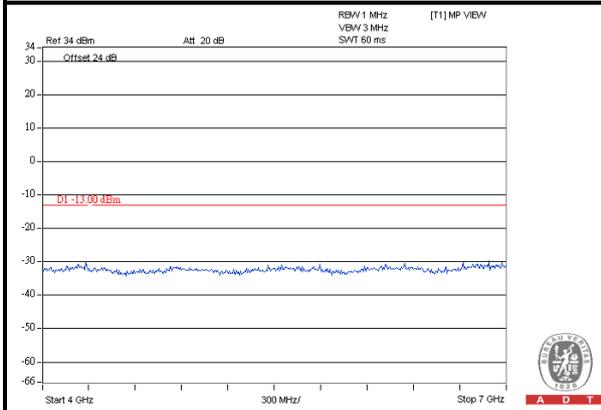
FREQUENCY RANGE : 9kHz~1GHz



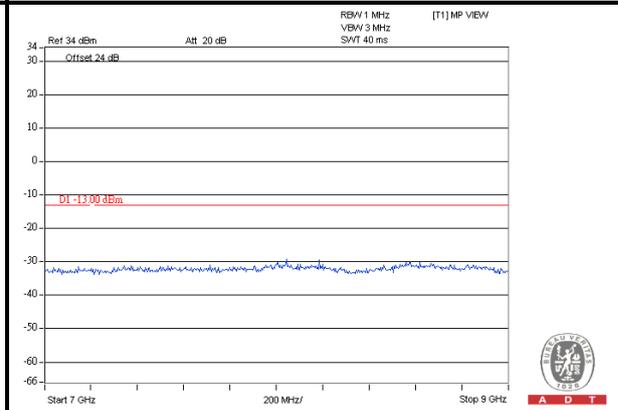
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



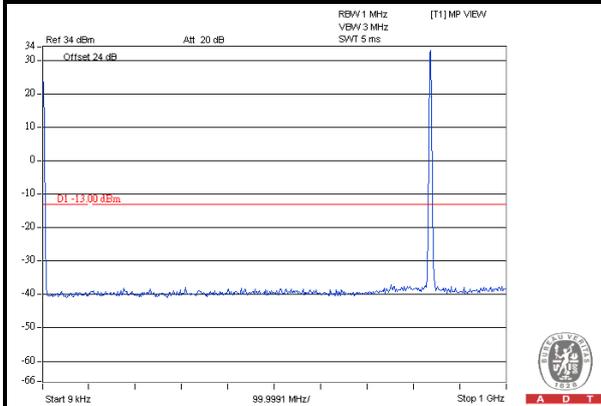


A D T

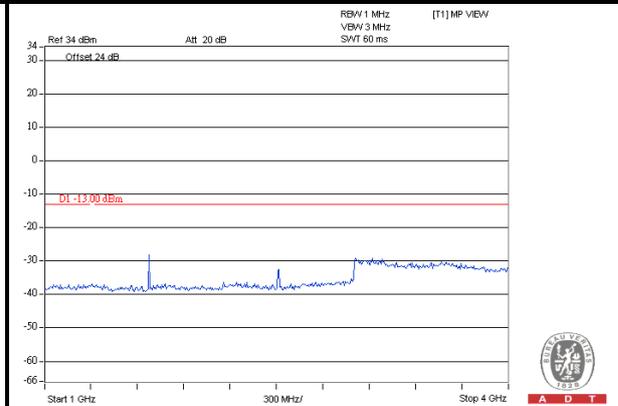
EDGE

CHANNEL 189

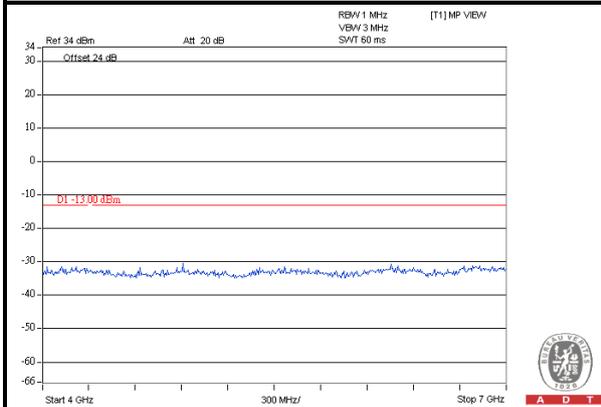
FREQUENCY RANGE : 9kHz~1GHz



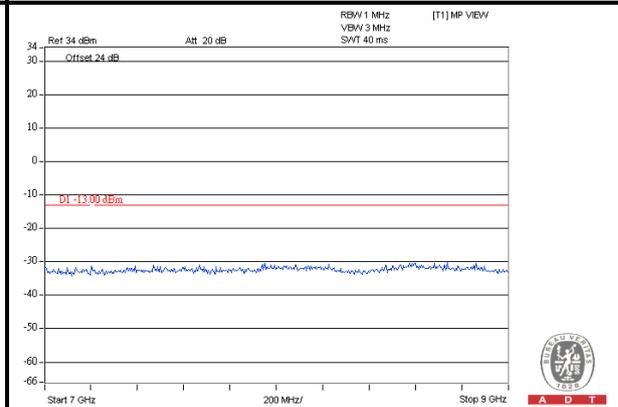
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



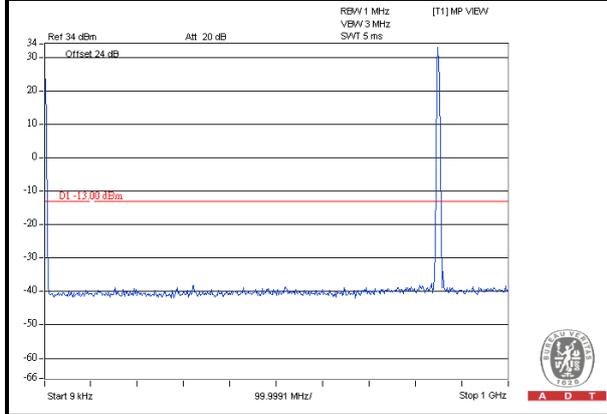


A D T

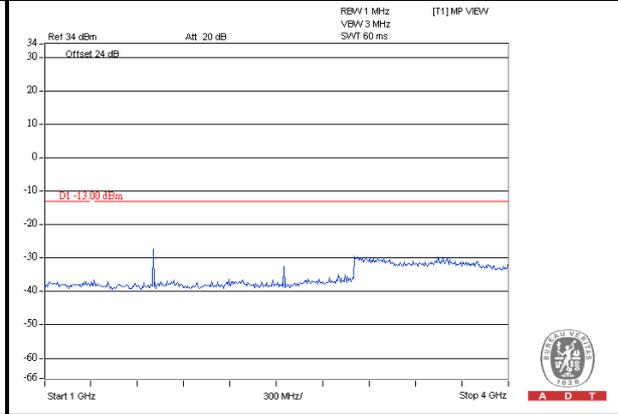
EDGE

CHANNEL 251

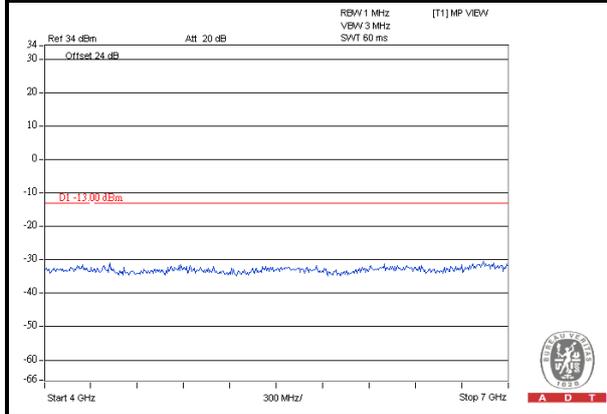
FREQUENCY RANGE : 9kHz~1GHz



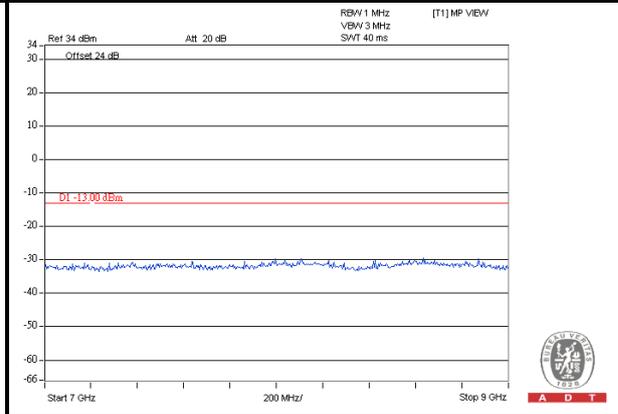
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



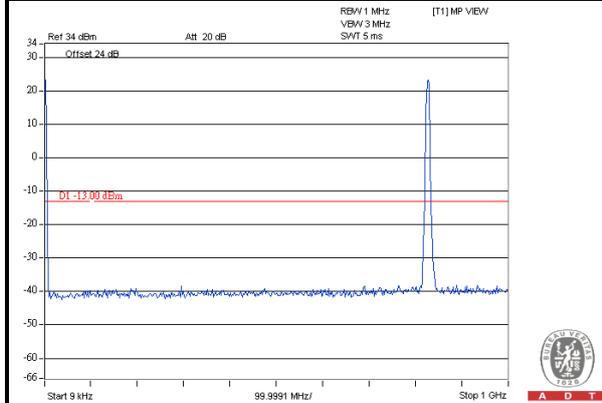


A D T

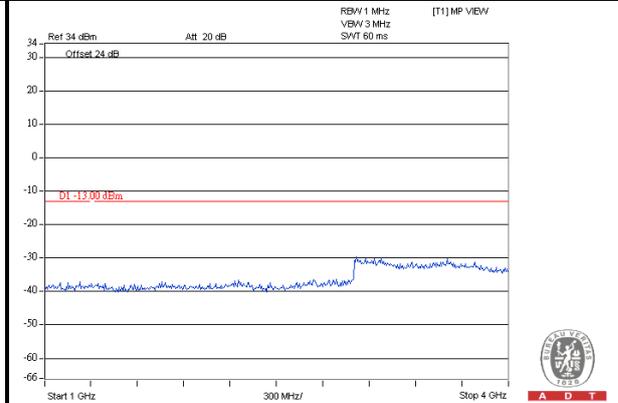
WCDMA

CHANNEL 4132

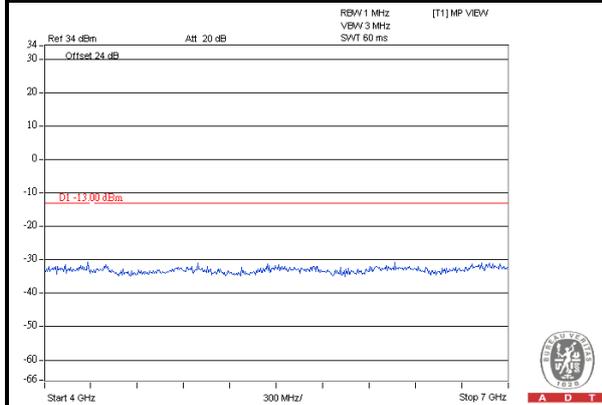
FREQUENCY RANGE : 9kHz~1GHz



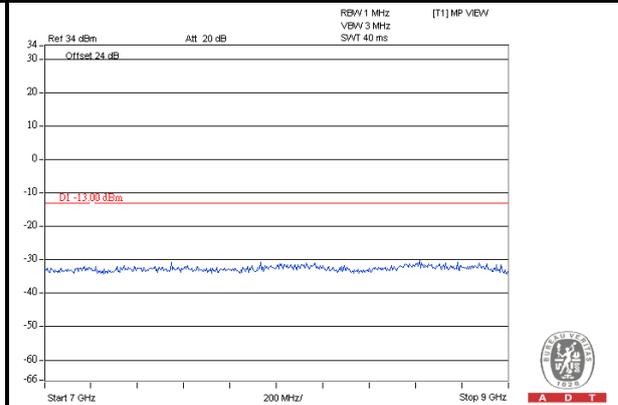
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz



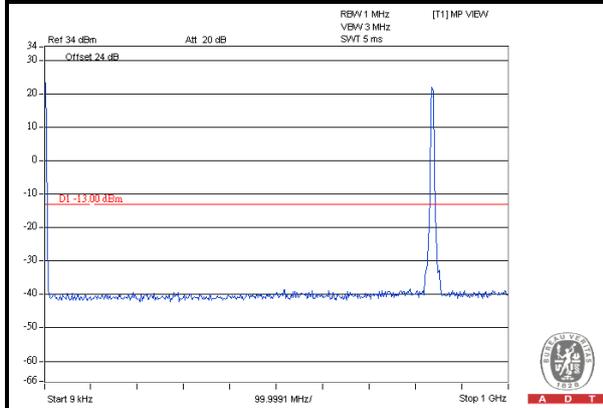


A D T

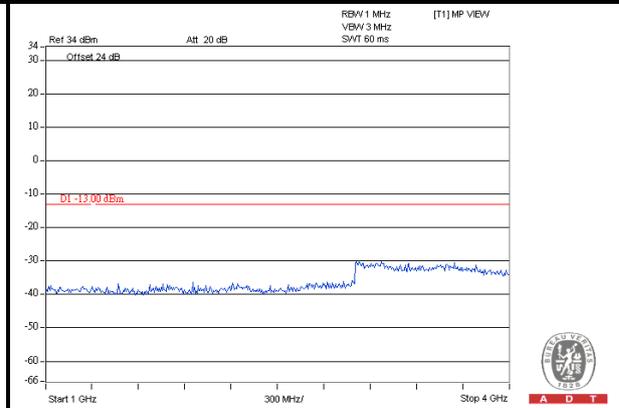
WCDMA

CHANNEL 4182

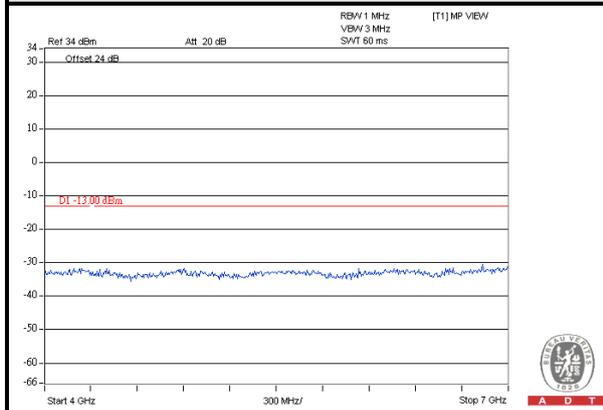
FREQUENCY RANGE : 9kHz~1GHz



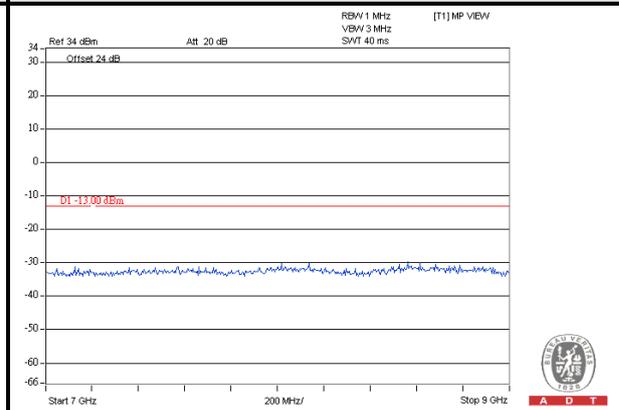
FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz



FREQUENCY RANGE : 7GHz~9GHz





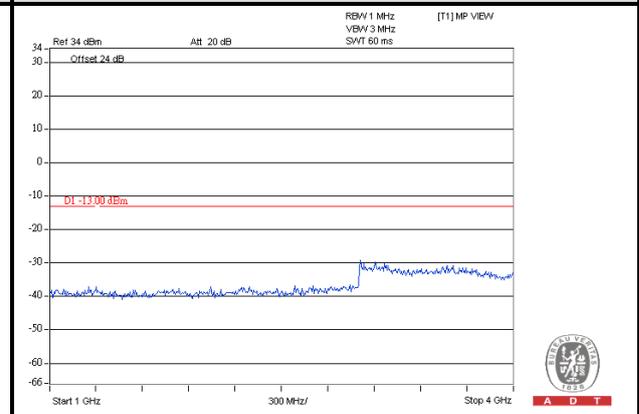
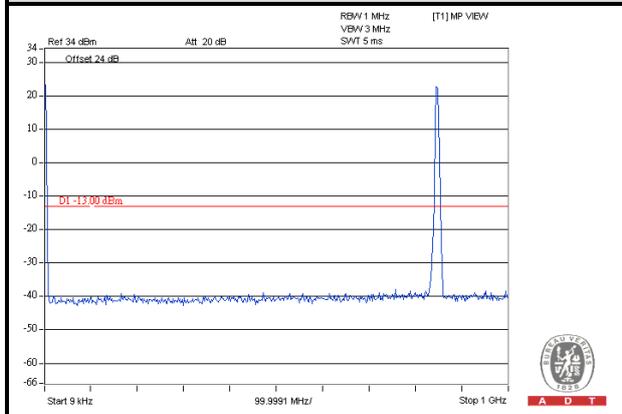
A D T

WCDMA

CHANNEL 4233

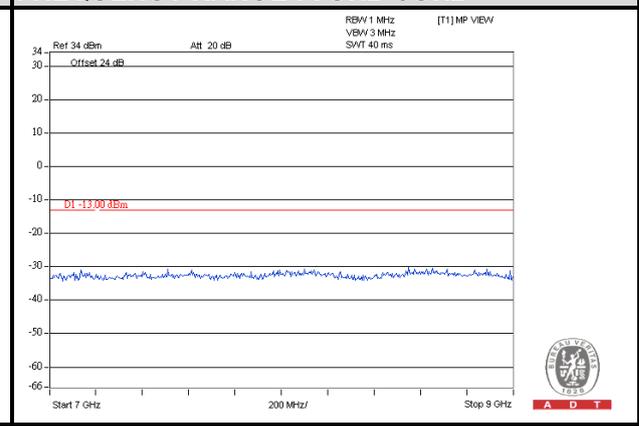
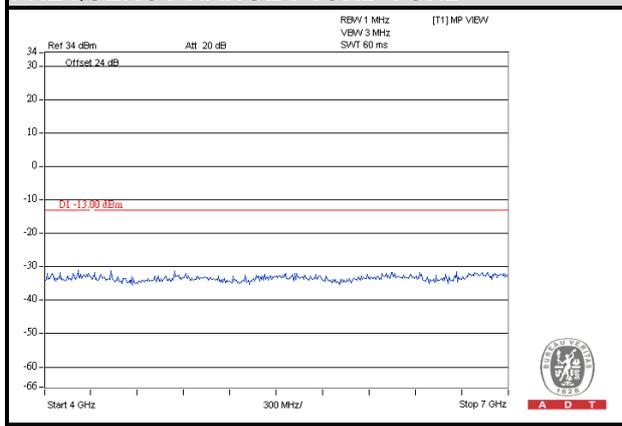
FREQUENCY RANGE : 9kHz~1GHz

FREQUENCY RANGE : 1GHz~4GHz



FREQUENCY RANGE : 4GHz~7GHz

FREQUENCY RANGE : 7GHz~9GHz



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 PROCEDURES

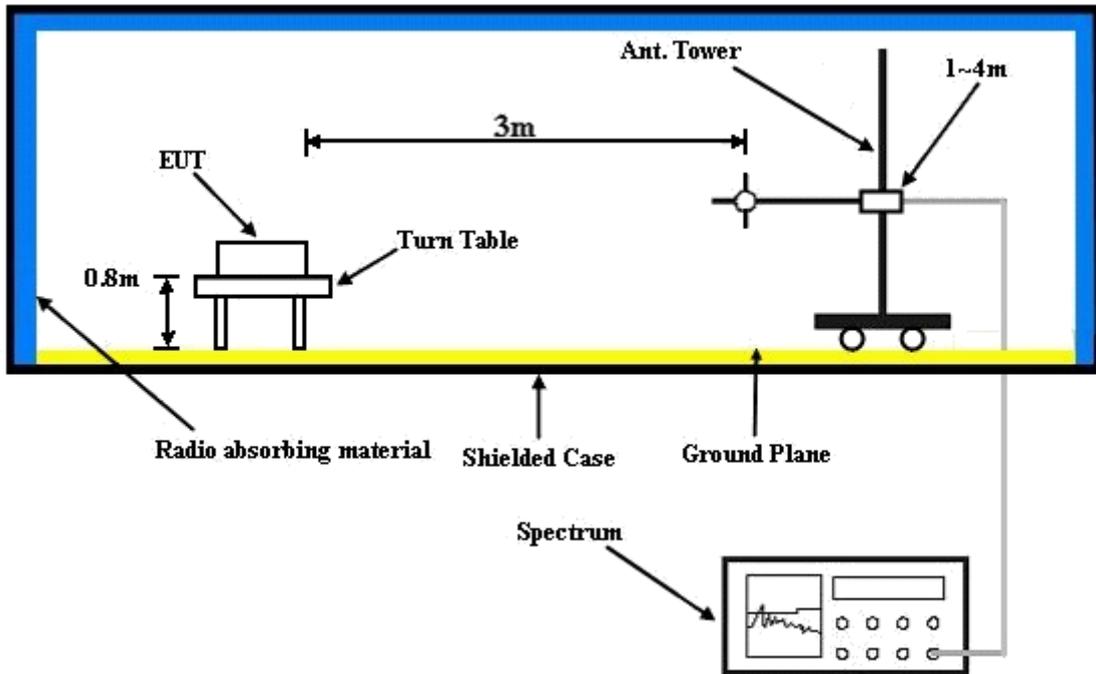
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.6.3 DEVIATION FROM TEST STANDARD

No deviation

4.6.4 TEST SETUP



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



A D T

4.6.5 TEST RESULTS

BELOW 1GHz

GPRS

MODE	TX channel 251	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	142.52	-62.17	-66.48	0	-68.63	-13	-55.63
2	340.4	-65.1	-72.7	5.19	-69.66	-13	-56.66
3	786.6	-50.03	-48.06	4.2	-46.01	-13	-33.01
4	846.74	-51.31	-48.04	3.97	-46.22	-13	-33.22
5	877.78	-51.68	-47.96	3.93	-46.18	-13	-33.18
6	990.3	-53.47	-47.52	3.9	-45.77	-13	-32.77

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	76.56	-62.08	-64.41	-2.8	-69.36	-13	-56.36
2	136.7	-70.25	-72.03	0	-74.18	-13	-61.18
3	794.36	-54.86	-49.81	4.1	-47.86	-13	-34.86
4	891.36	-55.54	-48.46	3.92	-46.69	-13	-33.69
5	949.56	-56.41	-48.09	3.9	-46.34	-13	-33.34
6	984.48	-56.74	-47.96	3.91	-46.2	-13	-33.2

REMARKS:

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



A D T

MODE	TX channel 4132	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	142.52	-59.01	-63.32	0	-65.47	-13	-52.47
2	340.4	-63.84	-71.44	5.19	-68.4	-13	-55.4
3	780.78	-49.75	-47.88	4.27	-45.76	-13	-32.76
4	823.46	-50.51	-47.75	3.98	-45.92	-13	-32.92
5	873.9	-51.5	-47.84	3.94	-46.05	-13	-33.05
6	998.06	-53.22	-47.15	3.92	-45.38	-13	-32.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	76.56	-61.57	-63.9	-2.8	-68.85	-13	-55.85
2	142.52	-68.44	-69.23	0	-71.38	-13	-58.38
3	804.06	-54.44	-49.22	4.02	-47.35	-13	-34.35
4	856.44	-54.54	-48.23	3.96	-46.42	-13	-33.42
5	937.92	-55.93	-47.87	3.92	-46.1	-13	-33.1
6	978.66	-56.69	-48	3.92	-46.23	-13	-33.23

REMARKS:

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



A D T

ABOVE 1GHz

GPRS

MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1648.40	-58.36	-57.18	5.48	-53.85	-13	-40.85
2	2472.60	-52.76	-50.07	6.43	-45.79	-13	-32.79
3	3296.80	-61.15	-55.68	6.87	-50.96	-13	-37.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1648.40	-56.78	-58.76	5.48	-55.43	-13	-42.43
2	2472.60	-59.03	-55.95	6.43	-51.67	-13	-38.67
3	3296.80	-63.54	-58.82	6.87	-54.1	-13	-41.1

REMARKS:

- 1. $ERP(dBm) = S.G \text{ Power Value (dBm)} + \text{Correction Factor (dB)}$.
- 2. Correction Factor = gain of substitution antenna + cable loss



A D T

MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-55.7	-54.59	5.54	-51.2	-13	-38.2
2	2509.20	-53.27	-50.71	6.45	-46.41	-13	-33.41
3	3345.60	-62.4	-56.89	6.94	-52.1	-13	-39.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-55.94	-57.86	5.54	-54.47	-13	-41.47
2	2509.20	-56.68	-53.5	6.45	-49.2	-13	-36.2
3	3345.60	-65.14	-60.25	6.94	-55.46	-13	-42.46

REMARKS:

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



A D T

MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1697.60	-56.93	-55.88	5.59	-52.44	-13	-39.44
2	2546.40	-53.49	-50.7	6.44	-46.41	-13	-33.41
3	3395.20	-63.88	-58.33	7.02	-53.46	-13	-40.46
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1697.60	-57.42	-59.27	5.59	-55.83	-13	-42.83
2	2546.40	-56.78	-53.49	6.44	-49.2	-13	-36.2
3	3395.20	-66.78	-61.72	7.02	-56.85	-13	-43.85

REMARKS:

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



A D T

WCDMA

MODE	TX channel 4132	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	28deg. C, 69%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1652.80	-54.72	-53.55	5.49	-50.21	-13	-37.21
2	2479.20	-59.69	-57.05	6.44	-52.76	-13	-39.76
3	3305.60	-62.06	-56.58	6.88	-51.85	-13	-38.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1652.80	-58.96	-60.93	5.49	-57.59	-13	-44.59
2	2479.20	-60.55	-57.46	6.44	-53.17	-13	-40.17
3	3305.60	-63.26	-58.51	6.88	-53.78	-13	-40.78

REMARKS:

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



A D T

MODE	TX channel 4182	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	28deg. C, 69%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-54.42	-53.31	5.54	-49.92	-13	-36.92
2	2509.20	-59.55	-56.99	6.45	-52.69	-13	-39.69
3	3345.60	-61.26	-55.75	6.94	-50.96	-13	-37.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-58.75	-60.67	5.54	-57.28	-13	-44.28
2	2509.20	-60.4	-57.22	6.45	-52.92	-13	-39.92
3	3345.60	-62.38	-57.49	6.94	-52.7	-13	-39.7

REMARKS:

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



A D T

MODE	TX channel 4233	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	28deg. C, 69%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.20	-54.99	-53.93	5.58	-50.5	-13	-37.5
2	2539.80	-60.04	-57.29	6.44	-53	-13	-40
3	3386.40	-61.83	-56.29	7.01	-51.43	-13	-38.43
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.20	-58.52	-60.38	5.58	-56.95	-13	-43.95
2	2539.40	-61.4	-58.13	6.44	-53.84	-13	-40.84
3	3386.40	-61.91	-56.88	7.01	-52.02	-13	-39.02

REMARKS:

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



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

Fax: 886-2-26051924

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: 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.



A D T

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

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

---END---