FCC TEST REPORT

(PART 24)

REPORT NO.:	RF130624C02A-3
MODEL NO.:	TP825Q
FCC ID:	2ABC7TP825Q
RECEIVED:	Jun. 24, 2013
TESTED:	Nov. 02, 2013 ~ Jan. 13, 2014
ISSUED:	Jan. 13, 2014

APPLICANT:	Touchcom Co., Ltd.
ADDRESS:	3F-A1, 216, Nanjing E.Rd., Sec. 3, 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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130624C02A-3	Original release	Jan. 13, 2014

1 CERTIFICATION

PRODUCT:	Embedded Module
MODEL:	TP825Q
BRAND:	Touchcom
APPLICANT:	Touchcom Co., Ltd.
TESTED:	Nov. 02, 2013 ~ Jan. 13, 2014
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 24, Subpart E**

The above equipment (model: TP825Q) 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 : Polly Chien / Specialist , DATE : Jan. 13, 2014

APPROVED BY : Anderson Chiu / Senior Engineer , DATE : Jan. 13, 2014

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**	**RESULT**	**REMARK**
2.1046 24.232	Equivalent isotropically radiated power	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	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 -10.97dB at 3760.00MHz.

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
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 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.

2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	836697/012	Oct. 16, 2013	Oct. 15, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 31, 2013	Jan. 30, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Mar. 20, 2013	Mar. 19, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
			Jan. 05, 2014	Jan. 04, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8447D	2944A10633	Oct. 07, 2013	Oct. 06, 2014
Preamplifier Agilent	8449B	3008A01964	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	214378/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 26, 2013	Aug. 25, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102544	Sep. 05, 2013	Sep. 04, 2014

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 3.

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 988962.

5. The IC Site Registration No. is IC 7450F-3.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Embedded Module	
MODEL NO.	TP825Q	
POWER SUPPLY	3.7Vdc (host equipment)	
MODULATION TYPE	**GSM, GPRS, EDGE**	GMSK
	WCDMA, HSDPA, HSUPA	BPSK
FREQUENCY RANGE	**GSM, GPRS, EDGE**	1850.2MHz ~ 1909.8MHz
	WCDMA, HSDPA, HSUPA	1852.4MHz ~ 1907.6MHz
MAX. EIRP POWER	**GSM**	916.220mW (29.62dBm)
	GPRS	901.571mW (29.55dBm)
	EDGE	760.326mW (28.81dBm)
	WCDMA	118.032mW (20.72dBm)
EMISSION DESIGNATOR	**GSM**	255KGXW
	GPRS	250KG7W
	EDGE	255KG7W
	WCDMA	4M22F9W
MULTI-SLOTS CLASS	10	
WCDMA RELEASE VERSION	6	
ANTENNA TYPE	Refer to Note as below	
I/O PORTS	Refer to users' manual	
DATA CABLE	NA	
ACCESSORY DEVICES	NA	

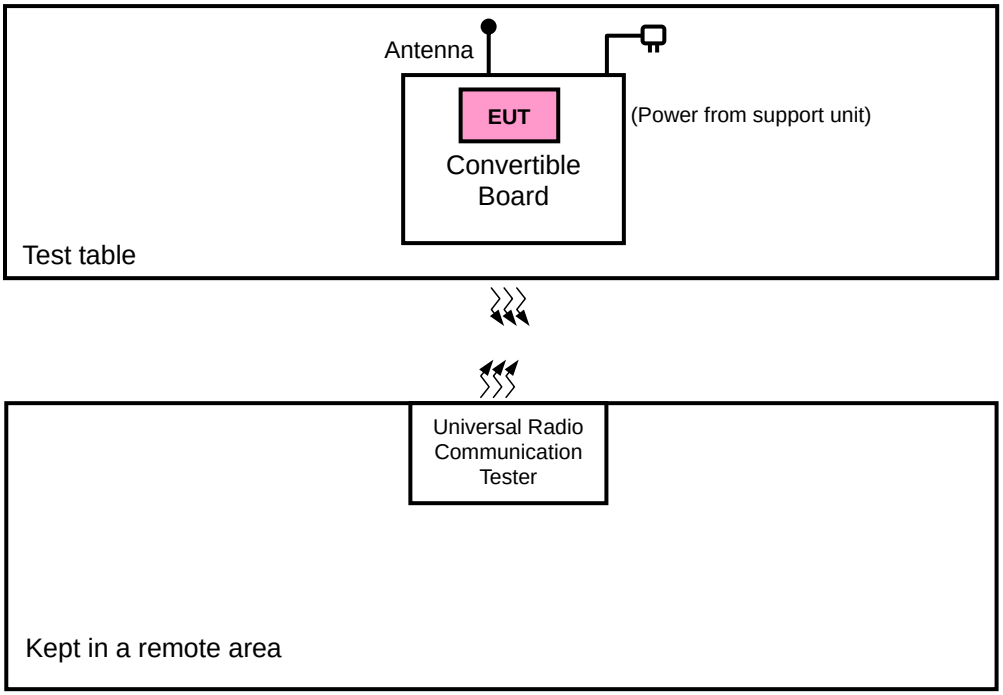
NOTE:

1. The antenna used in this EUT is listed as below table: (support unit only)

TYPE	MANUFACTURER	CONNECTOR	GAIN (dBi)
1/2 λ Dipole External Antenna	BJTEK NAVIGATION,INC.	Soldered Dot	-1.3

2. The above EUT information is declared by manufacturer and for more detailed feature 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. 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	104958	NA
2	Convertible Board	NA	NA	NA	NA
3	Adapter	NA	TC-68	NA	NA

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

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 act as a communication partner to transfer data.
3. Item 2-3 were provided by the manufacturer.

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 Z-plane. Following channel(s) was (were) selected for the final test as listed below:

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	EIRP	512 to 810	512, 661, 810	GSM, GPRS, EDGE
-	FREQUENCY STABILITY	512 to 810	661	GSM, EDGE
-	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM, GPRS, EDGE
-	BAND EDGE	512 to 810	512, 810	GSM, GPRS, EDGE
	CONDUCTED EMISSION	512 to 810	512, 661, 810	GSM, EDGE
-	RADIATED EMISSION BELOW 1 GHz	512 to 810	512	GSM, EDGE
-	RADIATED EMISSION ABOVE 1 GHz	512 to 810	512, 661, 810	GSM, EDGE

*For radiated emission test on GSM & GPRS, the GSM was the worst case and presented in the test report.

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
-	FREQUENCY STABILITY	9262 to 9538	9400	WCDMA
-	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA
-	BAND EDGE	9262 to 9538	9262, 9538	WCDMA, HSDPA, HSUPA
	CONDUCTED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA
-	RADIATED EMISSION BELOW 1 GHz	9262 to 9538	9262	WCDMA
-	RADIATED EMISSION ABOVE 1 GHz	9262 to 9538	9262, 9400, 9538	WCDMA

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
EIRP	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
FREQUENCY STABILITY	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
OCCUPIED BANDWIDTH	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
BAND EDGE	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
CONDUCTED EMISSION	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
RADIATED EMISSION	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang

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 24

ANSI/TIA/EIA-603-C 2004

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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 PROCEDURES

CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with GSM, GPRS & 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.

EIRP MEASUREMENT:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM, GPRS, EDGE and 10MHz for WCDMA mode.

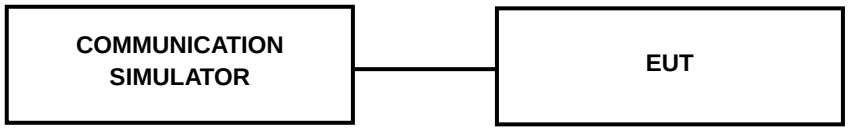
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G

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

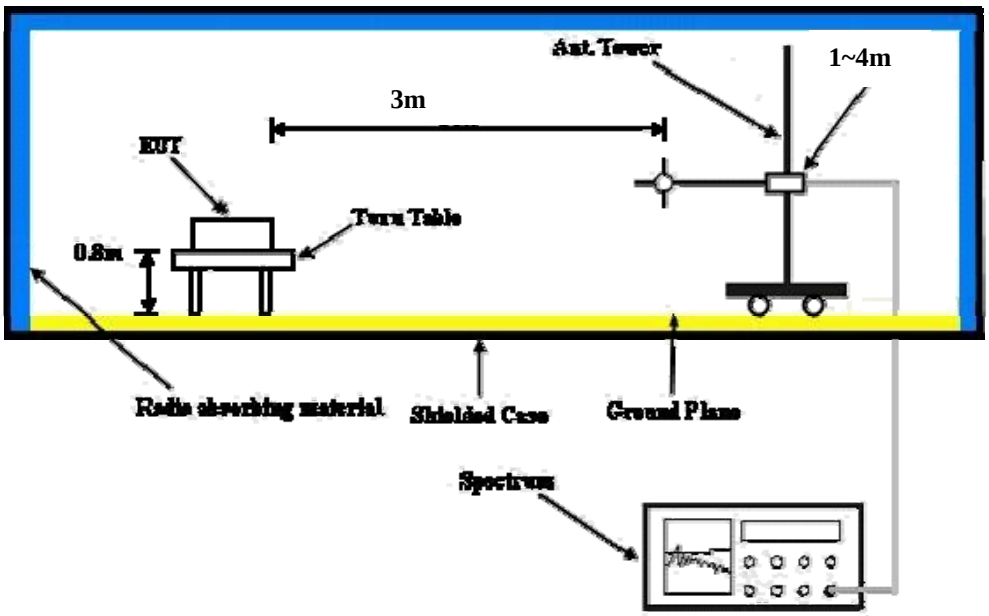
4.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



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

EIRP MEASUREMENT:



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

4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GPRS1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GSM	30.23	29.98	29.33
GPRS 8	30.22	29.98	29.33
GPRS 10	29.16	28.92	28.27
GPRS 11	27.64	27.40	26.75
GPRS 12	26.07	25.83	25.18
DTM 9 (GPRS)	29.13	28.89	28.24
DTM 11 (GPRS)	27.61	27.37	26.72
EDGE 8 (MCS1)	30.20	29.96	29.31
EDGE 10 (MCS1)	29.14	28.90	28.25
EDGE 11 (MCS1)	27.62	27.38	26.73
EDGE 12 (MCS1)	26.70	25.83	25.18

Band	WCDMA II		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	22.23	22.00	21.96
HSDPA Subtest-1	22.08	21.85	21.81
HSDPA Subtest-2	21.94	21.71	21.67
HSDPA Subtest-3	21.71	21.48	21.44
HSDPA Subtest-4	21.53	21.30	21.26
HSUPA Subtest-1	21.44	21.21	21.17
HSUPA Subtest-2	22.17	21.94	21.90
HSUPA Subtest-3	20.62	20.39	20.35
HSUPA Subtest-4	20.86	20.63	20.59
HSUPA Subtest-5	21.27	21.04	21.00

EIRP POWER (dBm)

FOR GSM MODE:

MODE		TX channel 512					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1850.20	-14.01	22.09	1.07	23.16	33.00	-9.84
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1850.20	-6.42	28.55	1.07	**29.62**	33.00	-3.38

MODE		TX channel 661					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-19.23	16.27	1.12	17.39	33.00	-15.61
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1880.00	-8.21	26.16	1.12	27.28	33.00	-5.72

MODE		TX channel 810					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1909.80	-19.75	15.67	1.11	16.78	33.00	-16.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1909.80	-9.10	26.24	1.11	27.35	33.00	-5.65

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

FOR GPRS MODE:

MODE	TX channel 512						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1850.20	-14.07	22.03	1.07	23.10	33.00	-9.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1850.20	-6.49	28.48	1.07	**29.55**	33.00	-3.45

MODE	TX channel 661						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-19.30	16.20	1.12	17.32	33.00	-15.68
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-8.26	26.11	1.12	27.23	33.00	-5.77

MODE	TX channel 810						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	-19.81	15.61	1.11	16.72	33.00	-16.28
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	-9.15	26.19	1.11	27.30	33.00	-5.70

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

FOR EDGE MODE:

MODE	TX channel 512						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1850.20	-14.68	21.42	1.07	22.49	33.00	-10.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1850.20	-7.23	27.74	1.07	**28.81**	33.00	-4.19

MODE	TX channel 661						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-19.88	15.62	1.12	16.74	33.00	-16.26
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-8.37	26.00	1.12	27.12	33.00	-5.88

MODE	TX channel 810						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	-20.47	14.95	1.11	16.06	33.00	-16.94
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	-8.89	26.45	1.11	27.56	33.00	-5.44

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

FOR WCDMA MODE:

MODE	TX channel 9262						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1852.40	-24.14	11.92	1.07	12.59	33.00	-20.01
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1852.40	-15.28	19.65	1.07	**20.72**	33.00	-12.28

MODE	TX channel 9400						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-25.40	10.10	1.12	11.22	33.00	-21.78
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1880.00	-15.18	19.19	1.12	20.31	33.00	-12.69

MODE	TX channel 9538						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1907.60	-26.65	8.78	1.11	9.89	33.00	-23.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1907.60	-16.35	18.92	1.11	20.03	33.00	-12.97

NOTE: Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (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 PROCEDURE

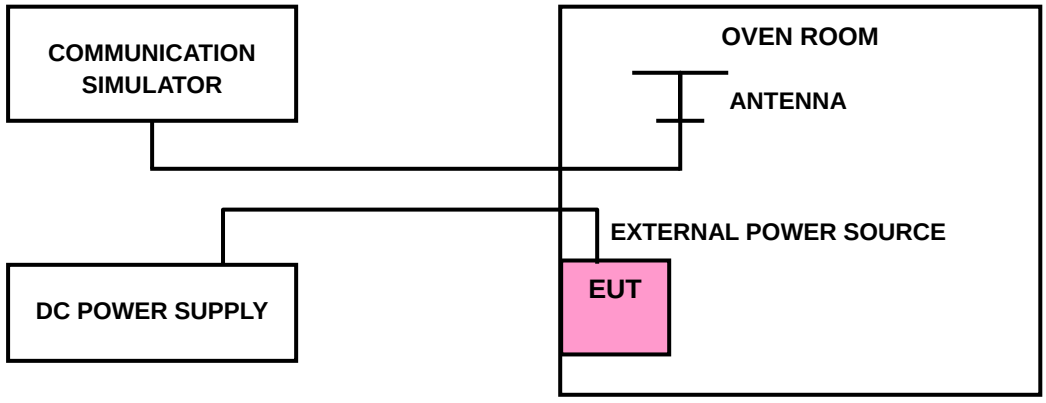
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

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.

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)
	GSM	EDGE	WCDMA	
4.2	-0.010	-0.011	-0.010	2.5
3.7	-0.009	-0.010	-0.008	2.5
3.6	-0.009	-0.007	-0.010	2.5

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

FREQUENCY ERROR vs. TEMPERATURE.

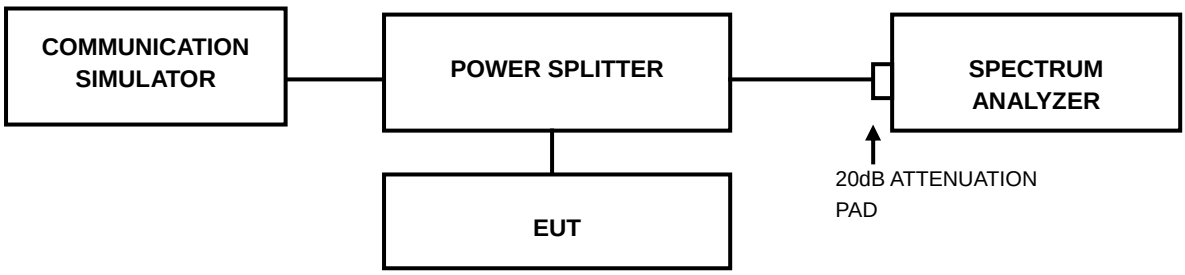
TEMP. (℃)	FREQUENCY ERROR (ppm)			LIMIT (ppm)
	GSM	EDGE	WCDMA	
50	-0.016	-0.015	-0.013	2.5
40	-0.018	-0.020	-0.013	2.5
30	-0.011	-0.013	-0.011	2.5
20	-0.009	-0.010	-0.008	2.5
10	-0.014	-0.015	-0.010	2.5
0	-0.018	-0.016	-0.014	2.5
-10	-0.023	-0.022	-0.016	2.5
-20	-0.021	-0.019	-0.016	2.5

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 SETUP

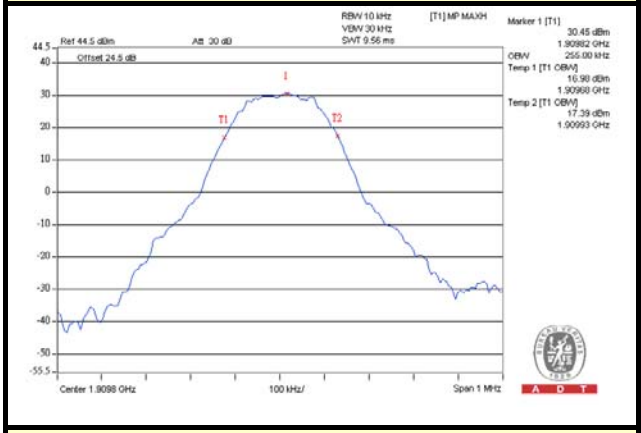


4.3.3 TEST RESULTS

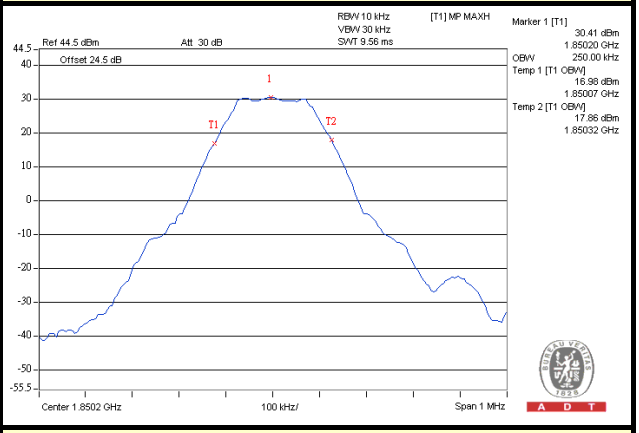
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)			CHANNEL	FREQ. (MHz)	99% OCCUPIED BANDWIDTH (MHz)		
		GSM	GPRS	EDGE			WCDMA	HSDPA	HSUPA
512	1850.2	250.00	250.00	250.00	9262	1852.4	4.17	4.18	4.22
661	1880.0	250.00	250.00	255.00	9400	1880.0	4.20	4.18	4.20
810	1909.8	255.00	250.00	255.00	9538	1907.6	4.22	4.17	4.20

SPECTRUM PLOT OF WORST VALUE

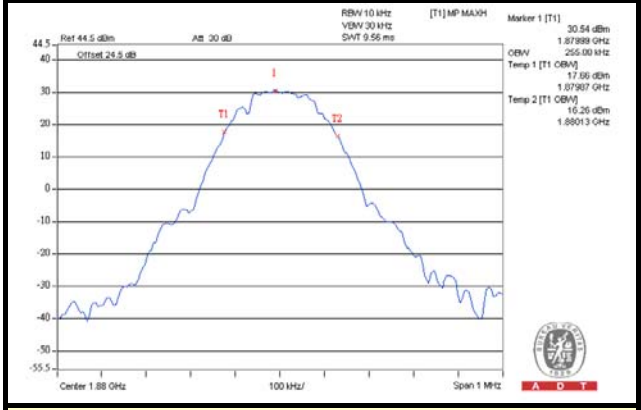
GSM



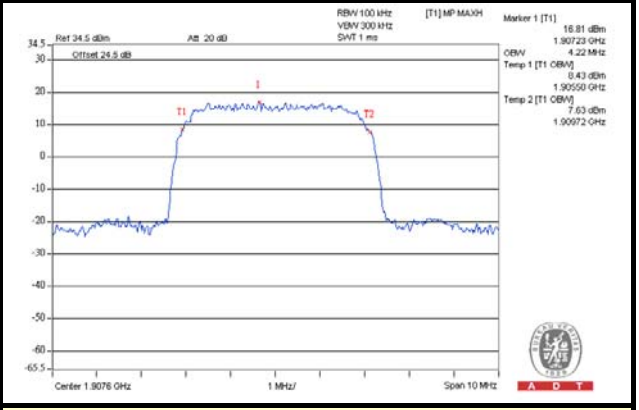
GPRS



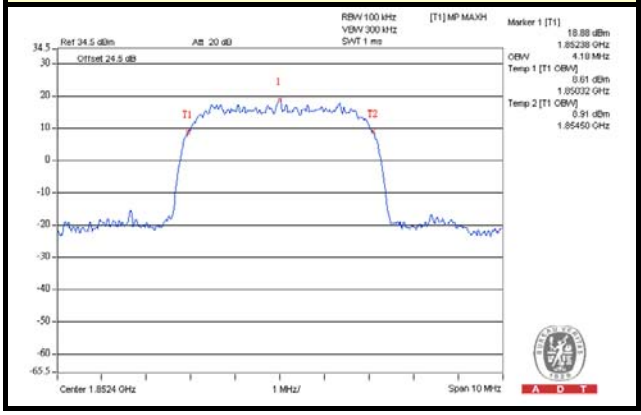
EDGE



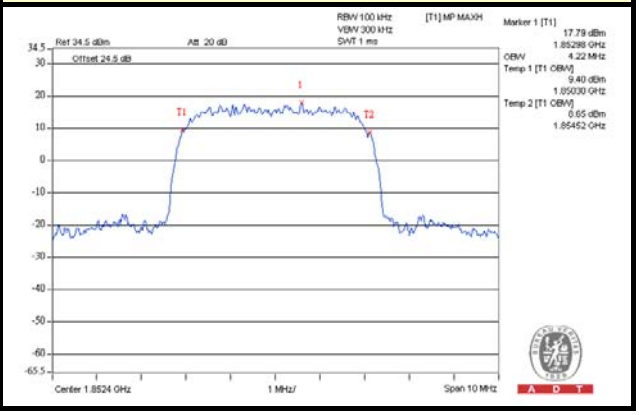
WCDMA



HSDPA



HSUPA

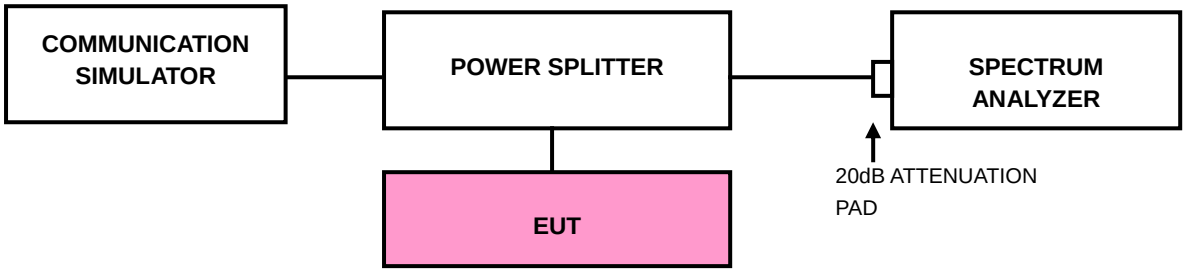


4.4 BAND EDGE MEASUREMENT

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 SETUP



4.4.3 TEST PROCEDURES

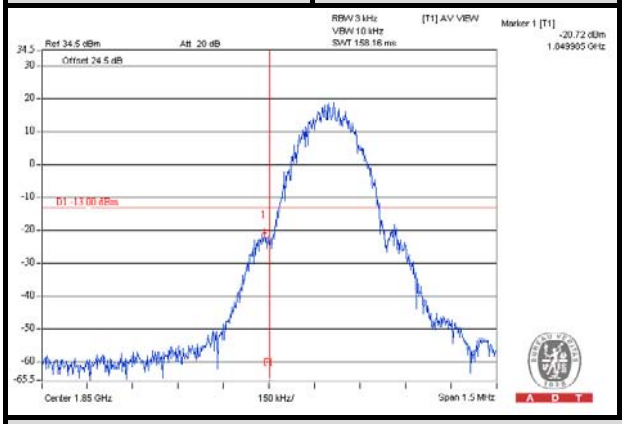
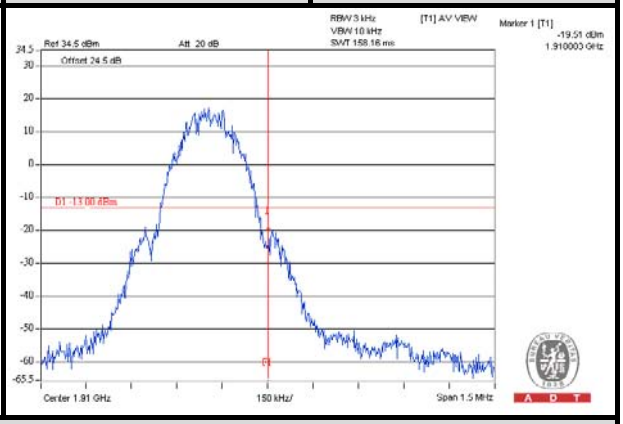
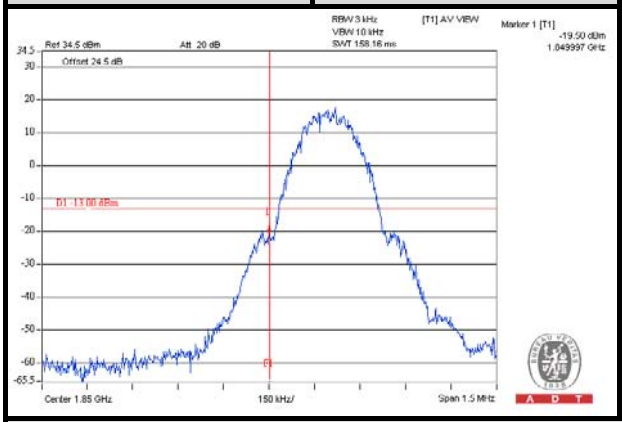
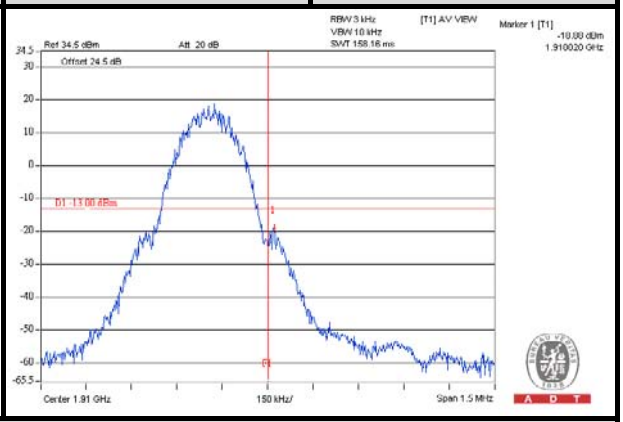
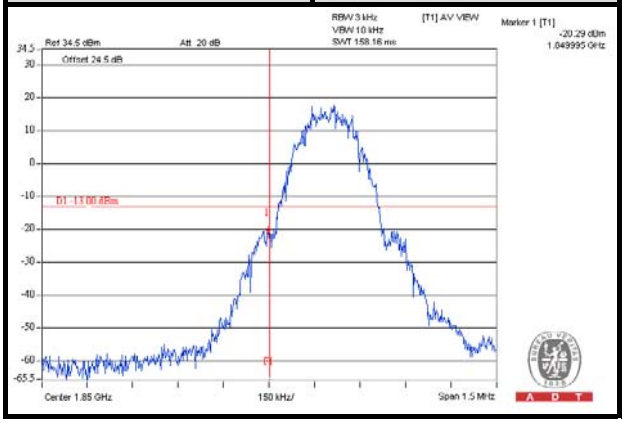
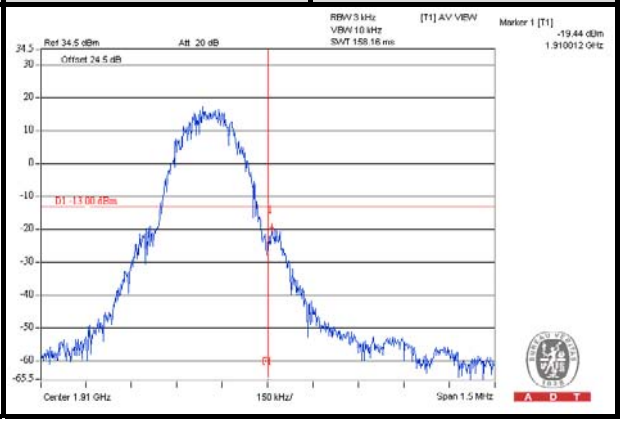
a. All measurements were done at low and high operational frequency range.

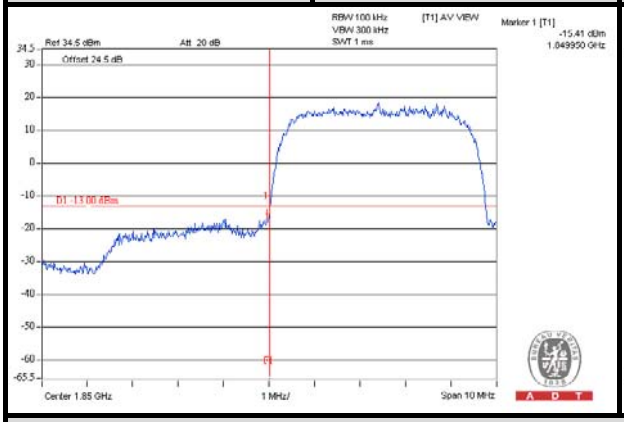
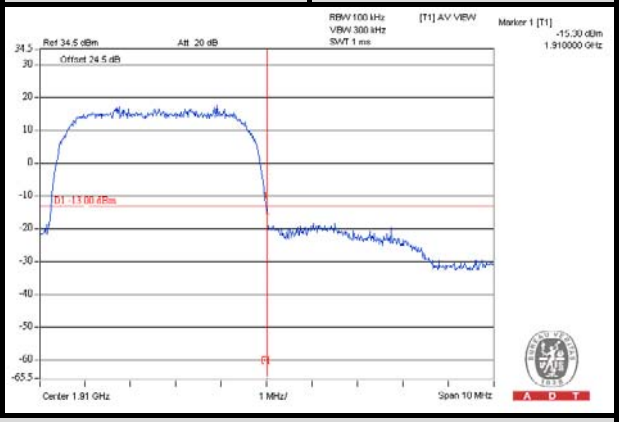
b. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM/GPRS/EDGE).

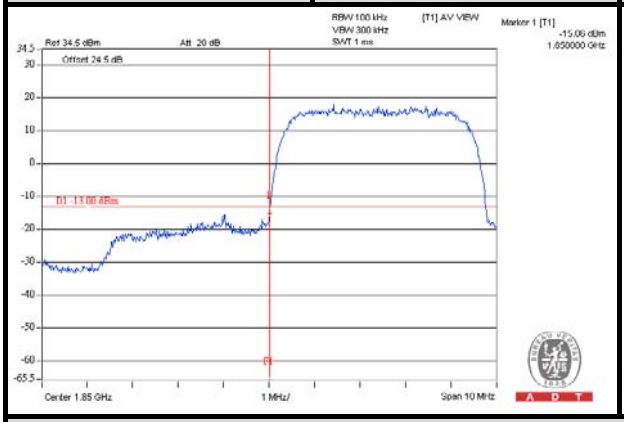
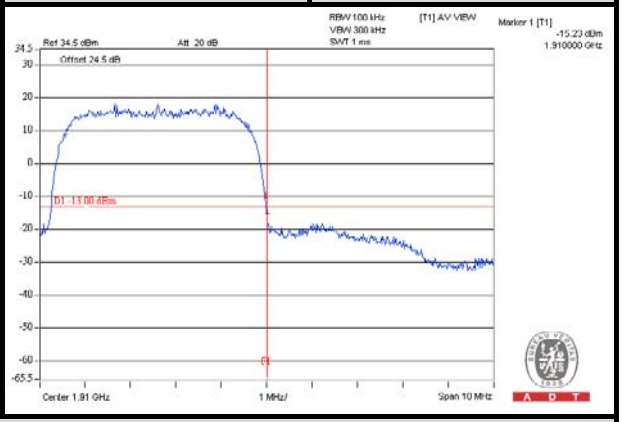
c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA/HSDPA/ HSUPA).

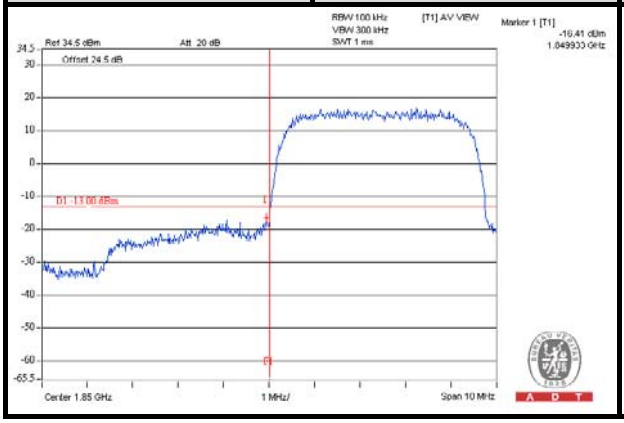
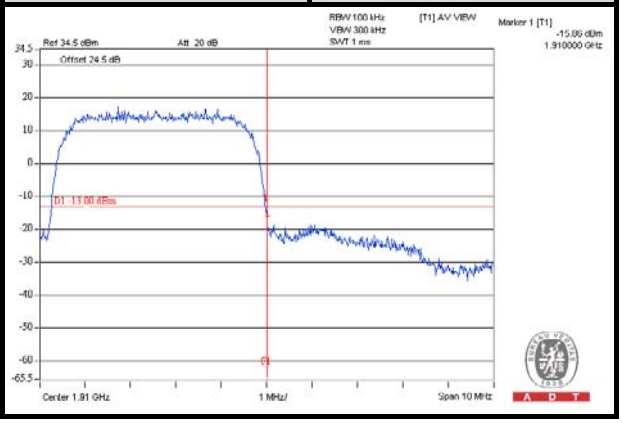
d. Record the max trace plot into the test report.

4.4.4 TEST RESULTS

GSM			
CHANNEL	512	CHANNEL	810
			
GPRS			
CHANNEL	512	CHANNEL	810
			
EDGE			
CHANNEL	512	CHANNEL	810
			

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

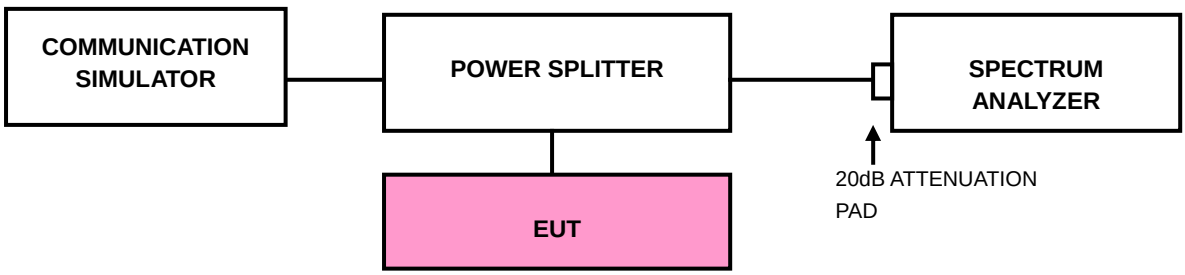
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

4.5.2 TEST PROCEDURE

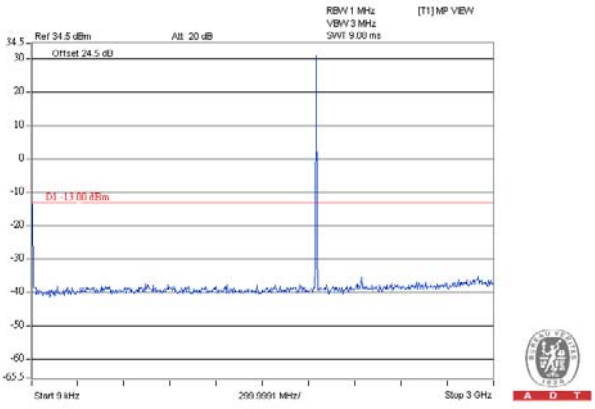
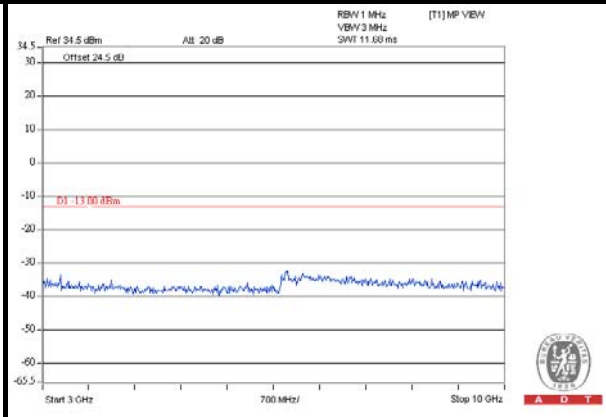
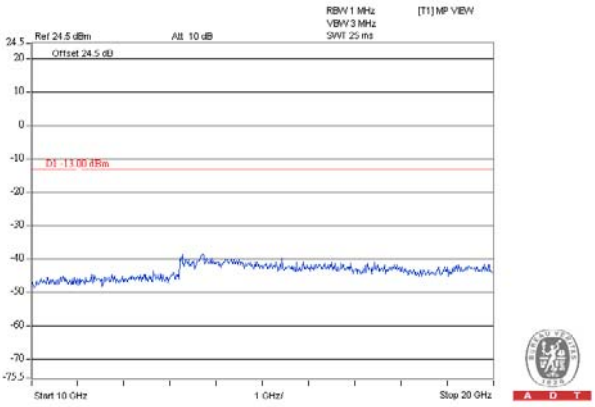
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

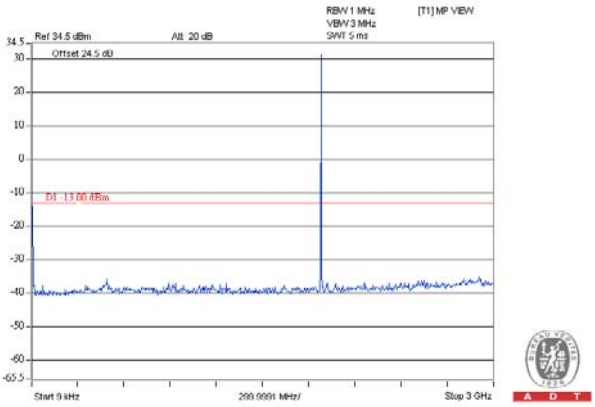
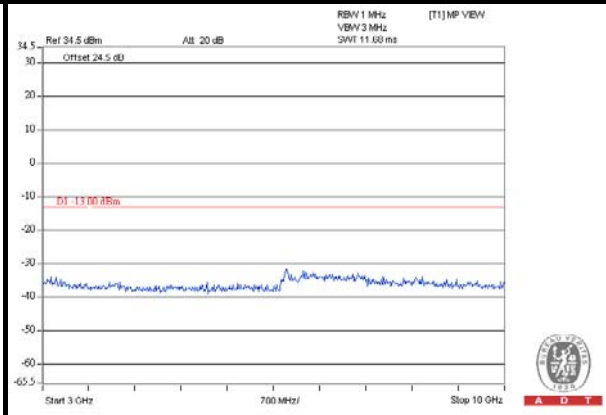
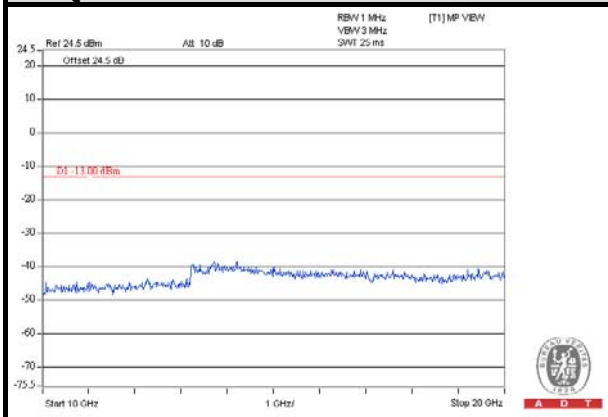
b. Measuring frequency range is from 9kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

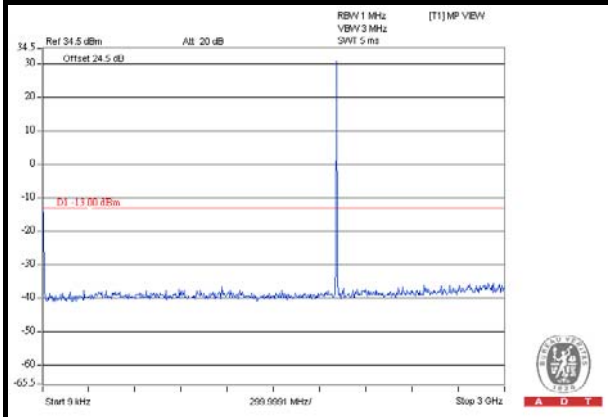
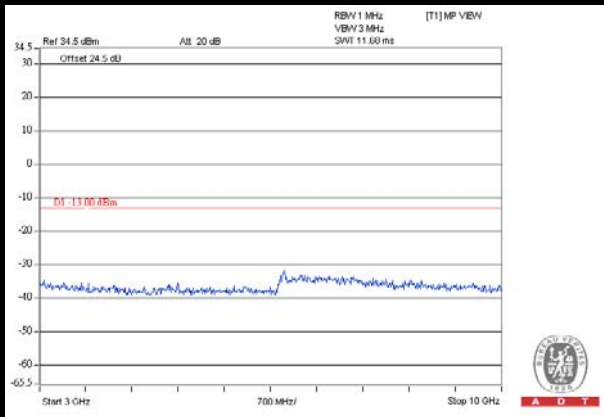
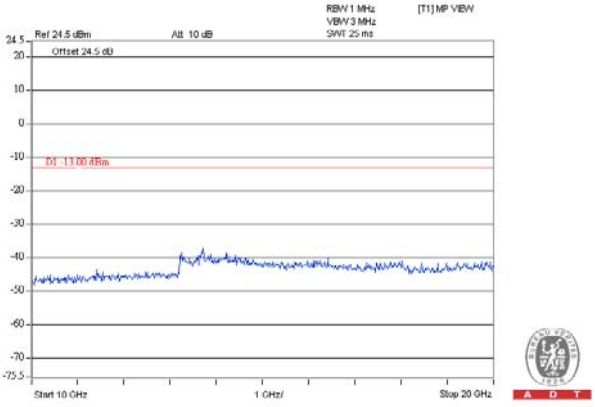
4.5.3 TEST SETUP

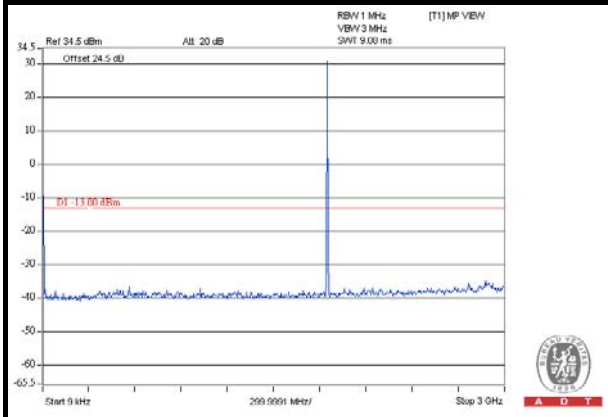
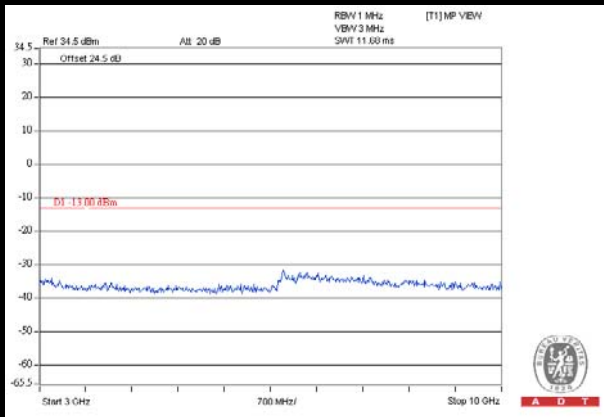
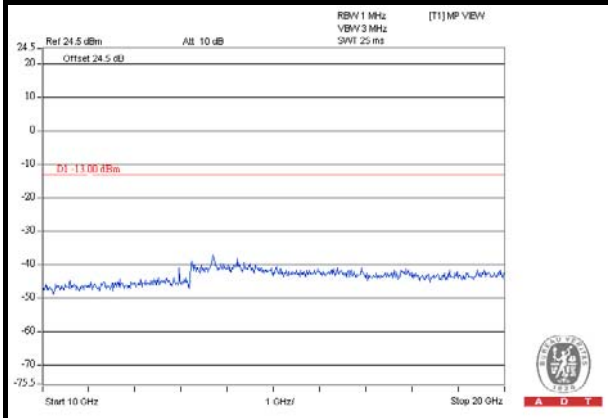


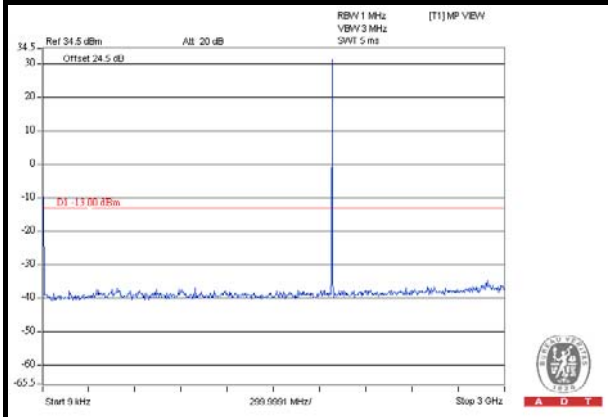
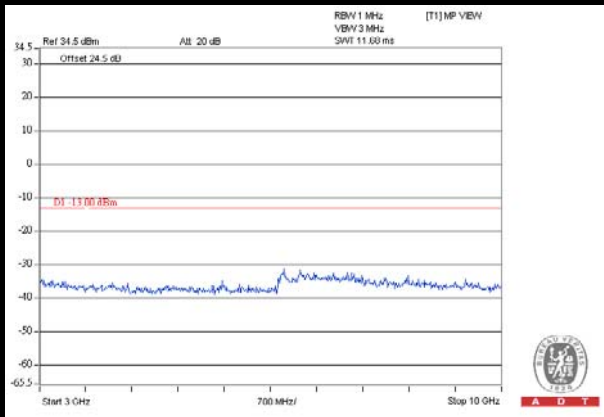
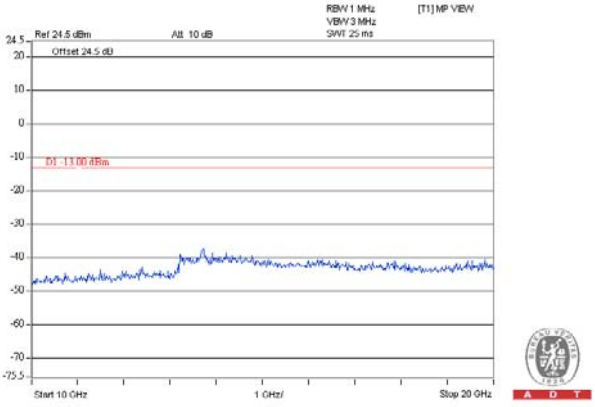
4.5.4 TEST RESULTS

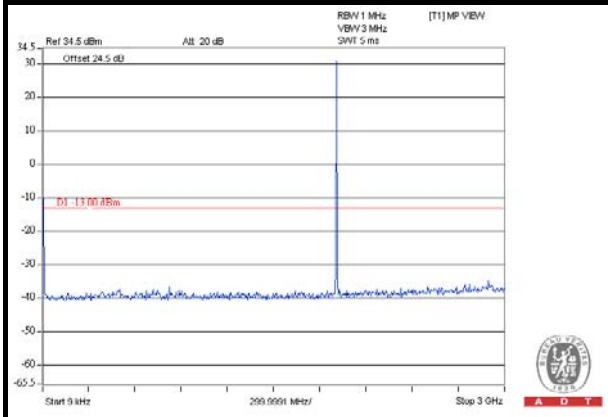
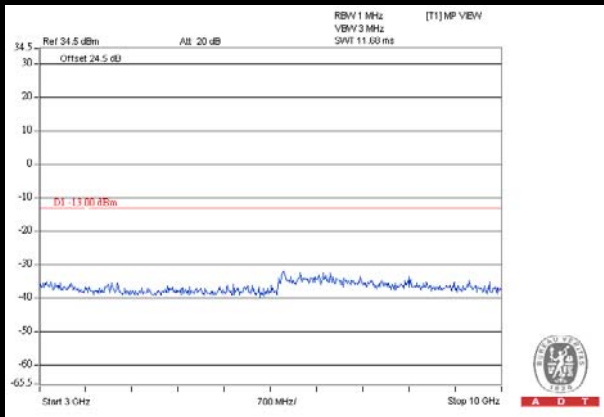
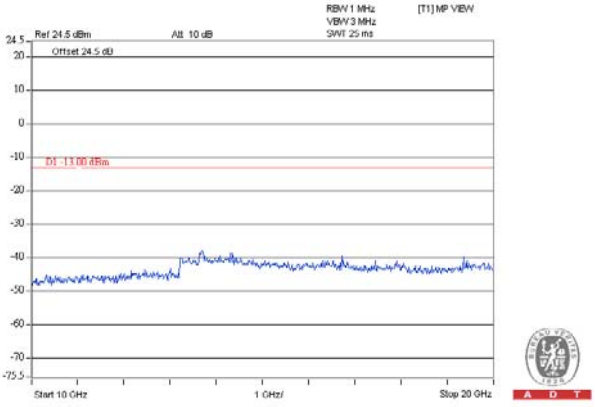
GSM	
CHANNEL 512	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

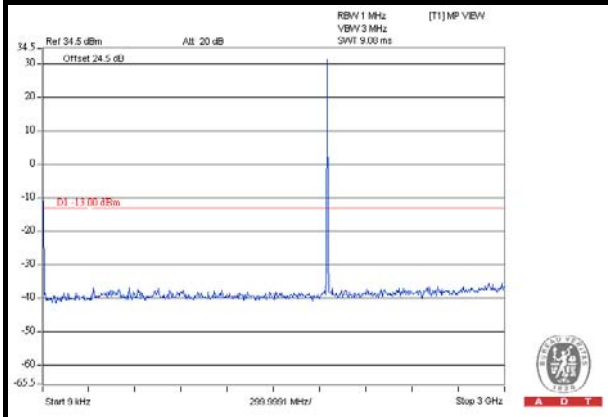
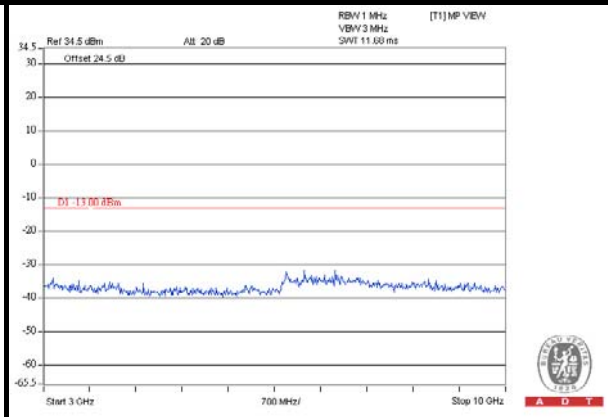
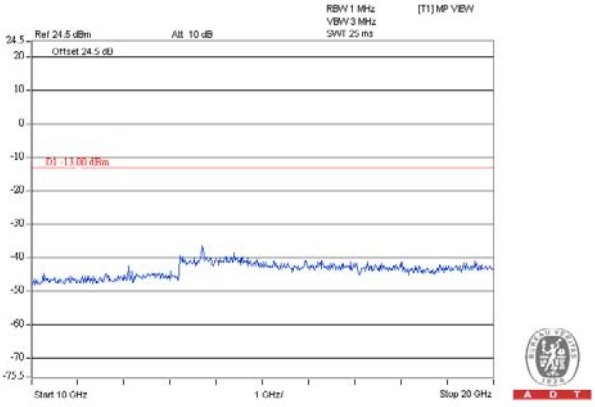
GSM	
CHANNEL 661	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

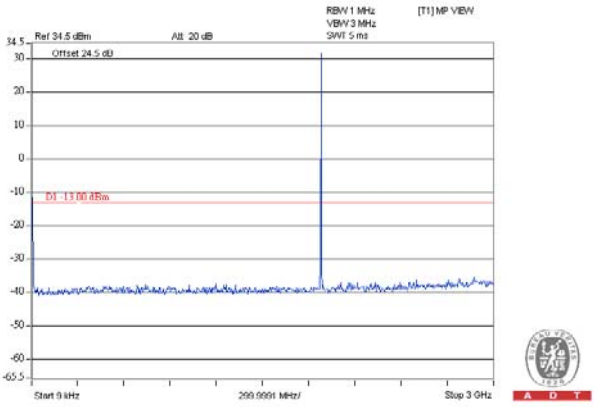
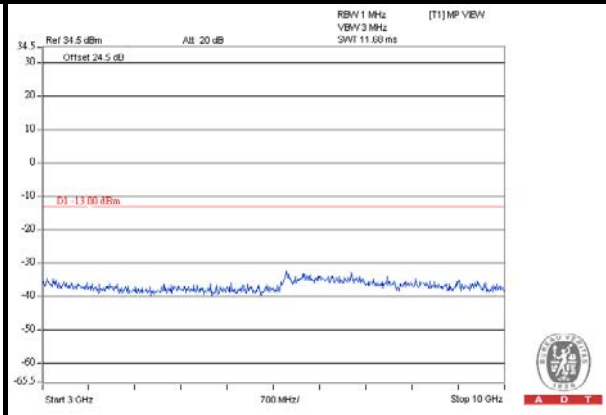
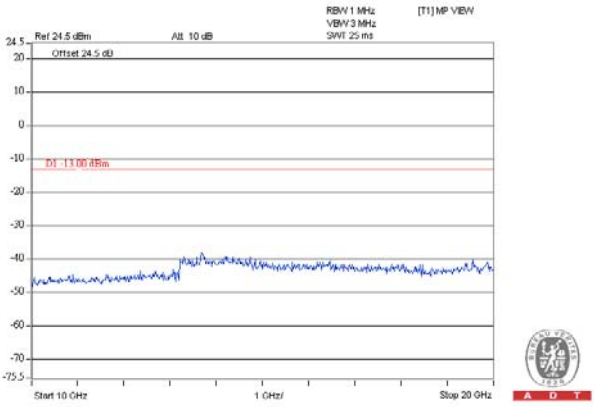
GSM	
CHANNEL 810	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

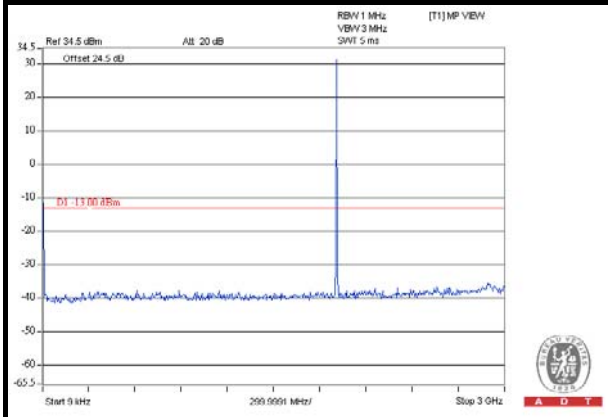
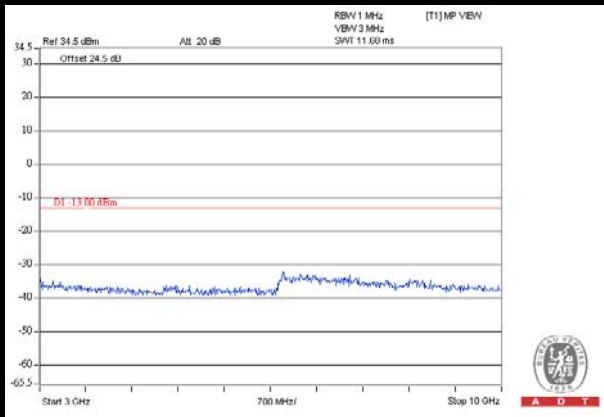
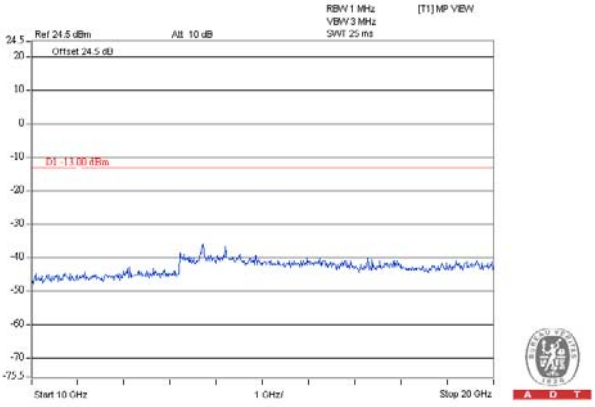
GPRS	
CHANNEL 512	
FREQUENCY RANGE : 9kHz~3GHz	FREQUENCY RANGE : 3GHz~10GHz
	
FREQUENCY RANGE : 10GHz~20GHz	
	

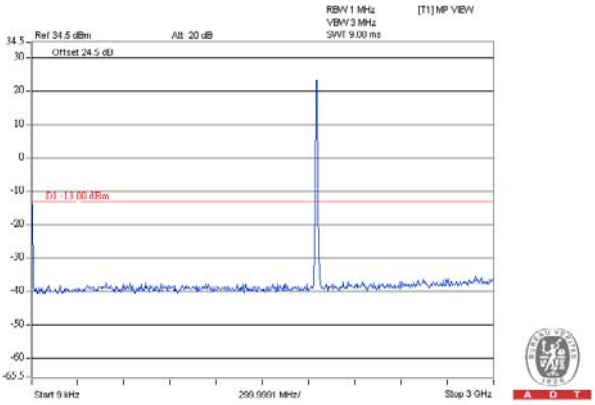
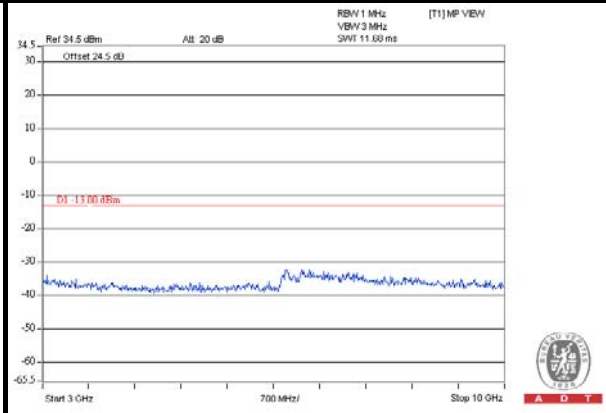
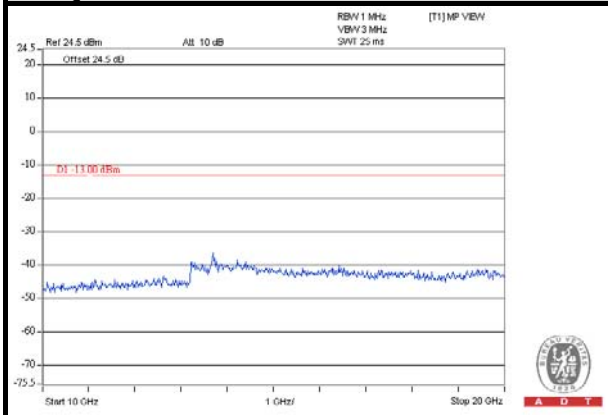
GPRS	
CHANNEL 661	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

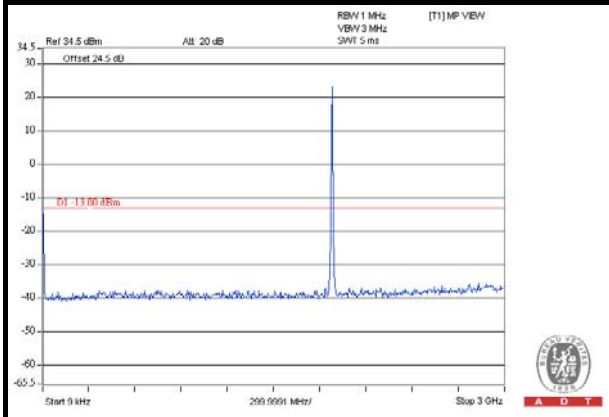
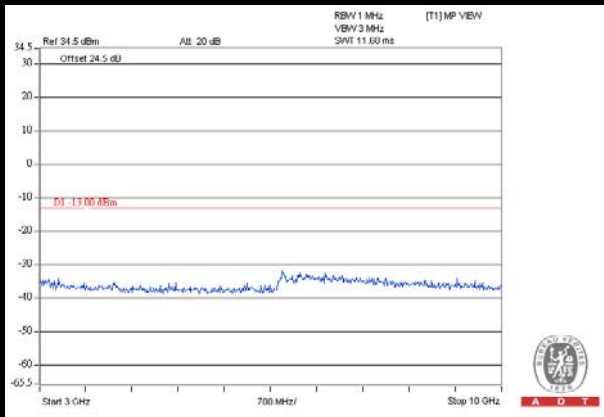
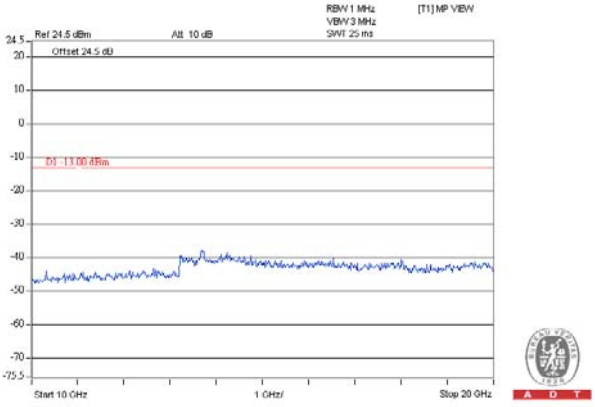
GPRS	
CHANNEL 810	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

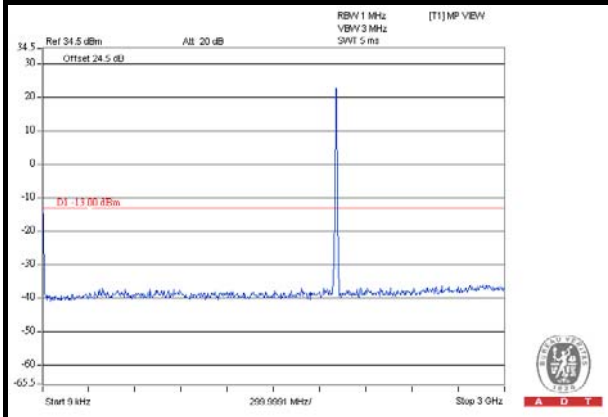
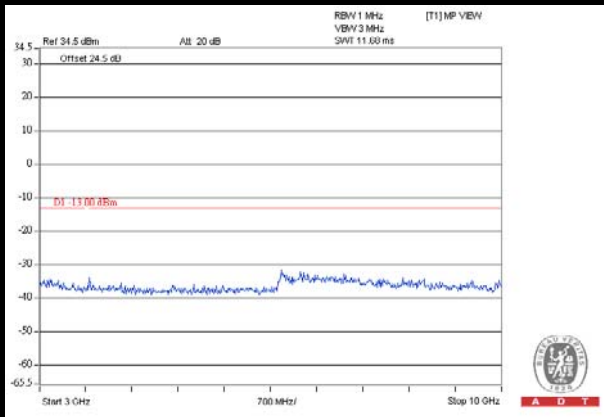
EDGE	
CHANNEL 512	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

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

EDGE	
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
	
FREQUENCY RANGE : 10GHz~20GHz	
	

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
	
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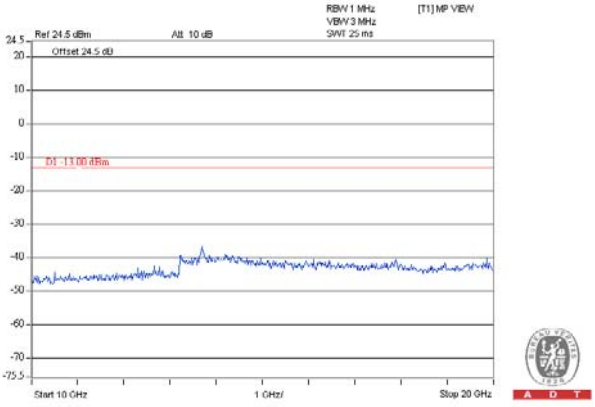
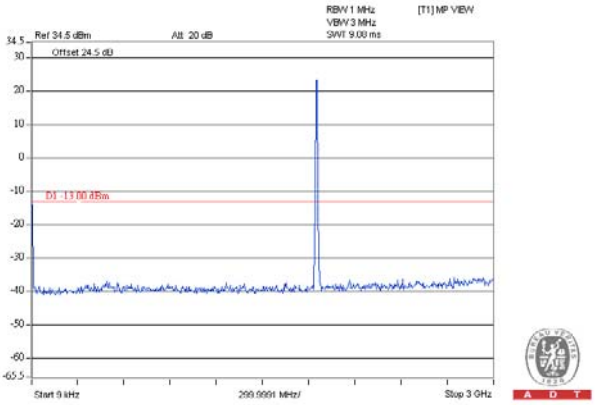
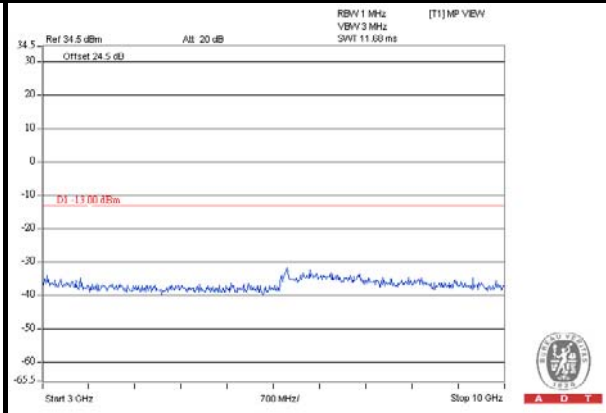
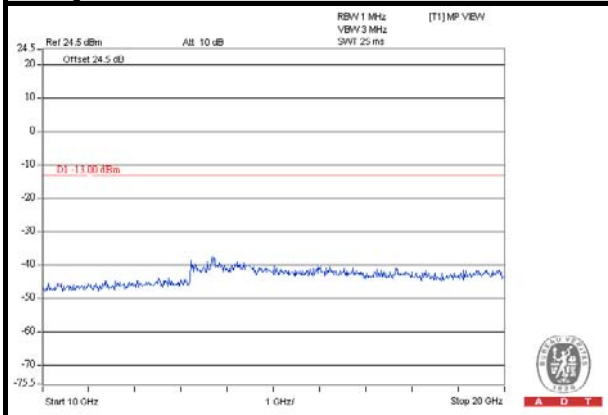
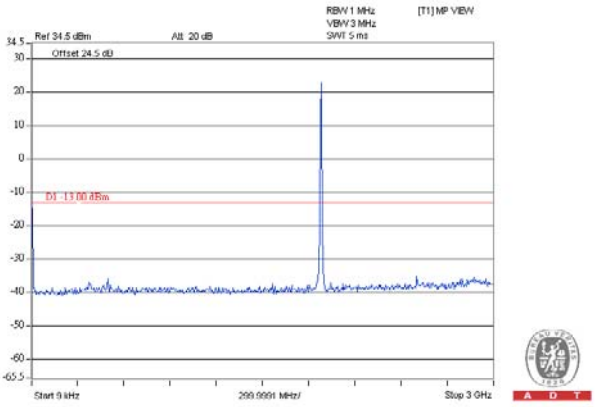
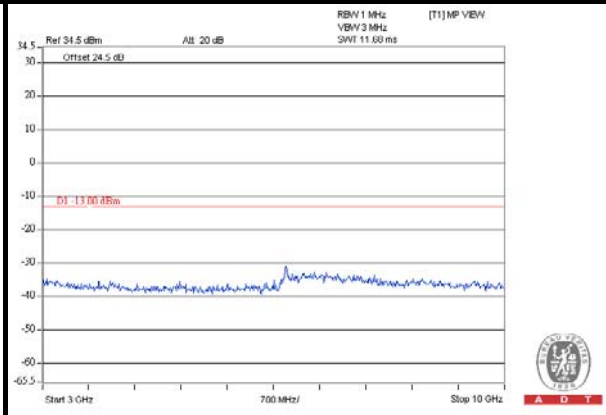
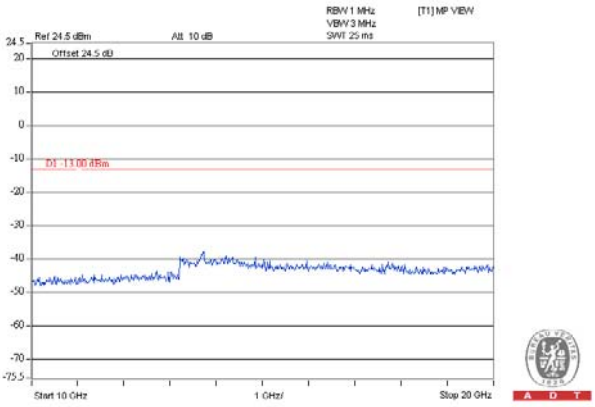
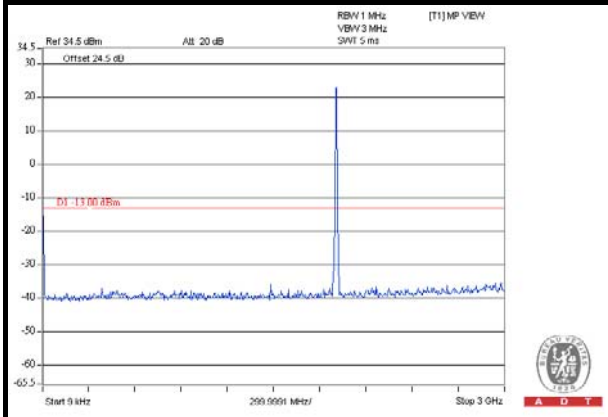
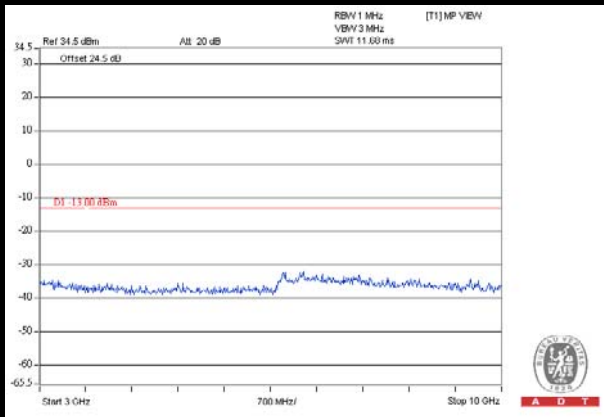
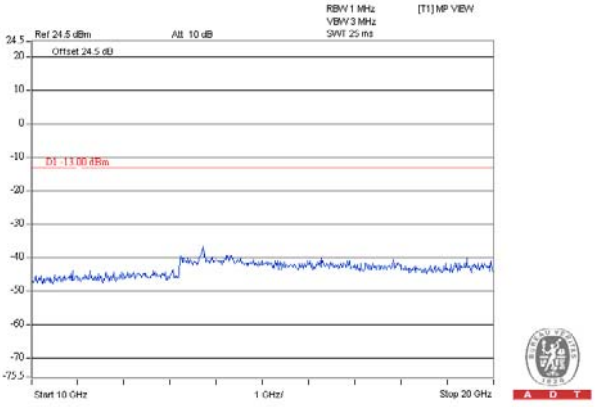
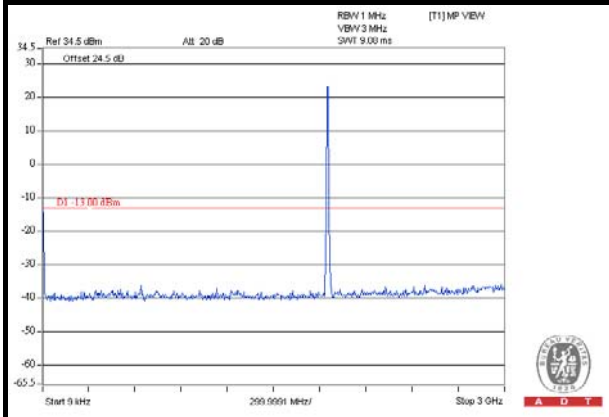
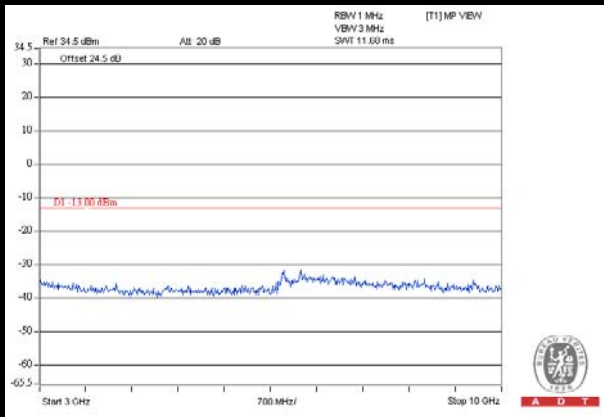
	

HSDPA	
CHANNEL 9262	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

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

HSDPA	
CHANNEL 9538	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

HSUPA	
CHANNEL 9262	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
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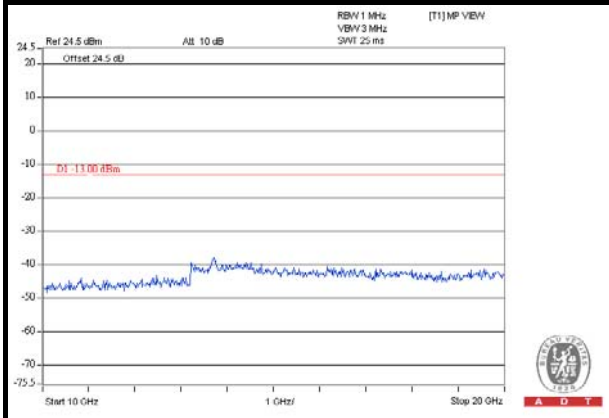
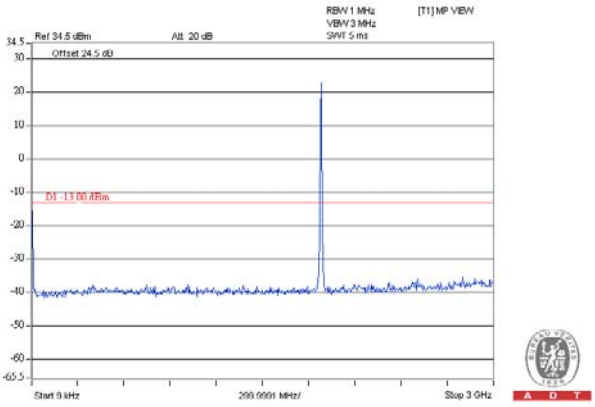
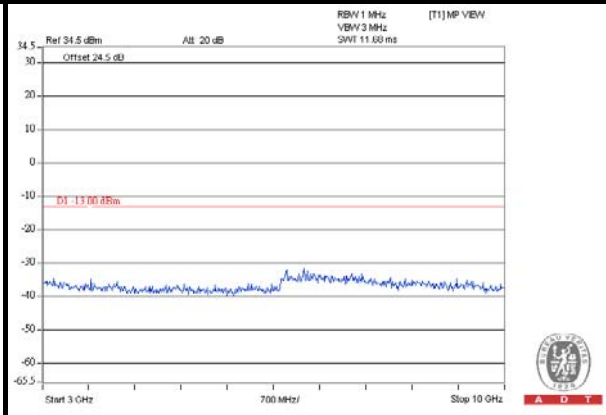
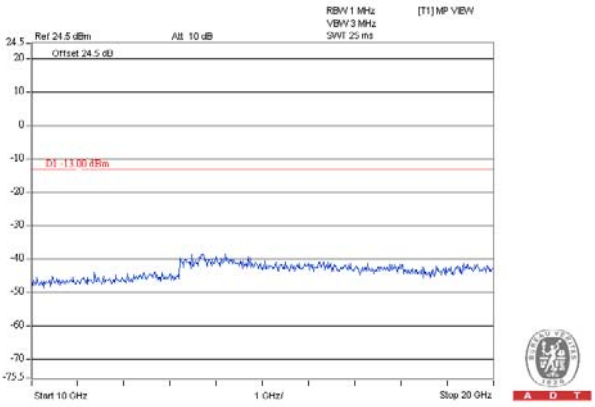
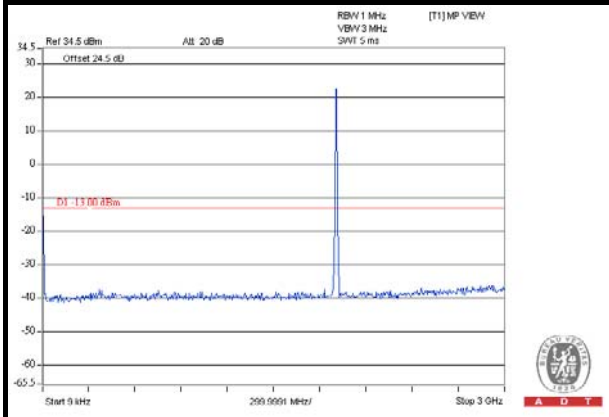
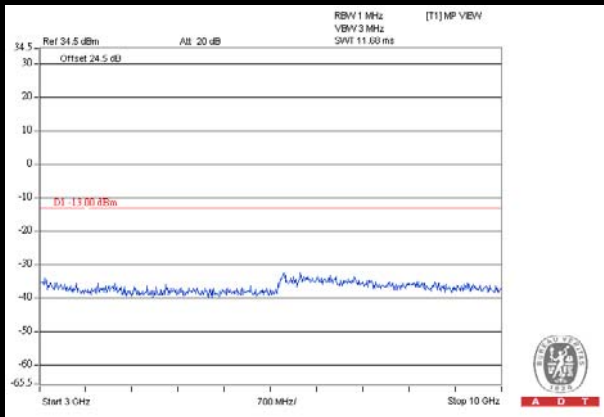
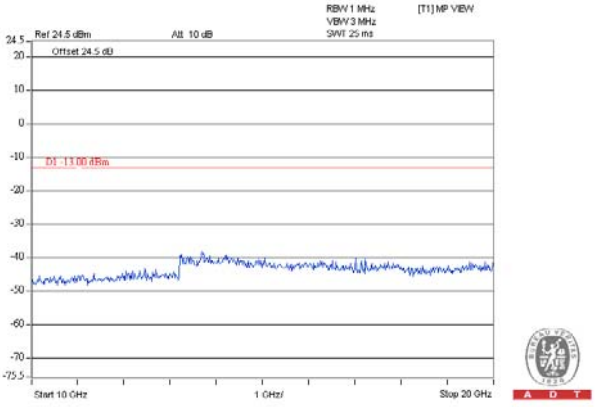
	

HSUPA	
CHANNEL 9400	
FREQUENCY RANGE : 9kHz~3GHz	**FREQUENCY RANGE : 3GHz~10GHz**
	
FREQUENCY RANGE : 10GHz~20GHz	
	

HSUPA	
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 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.

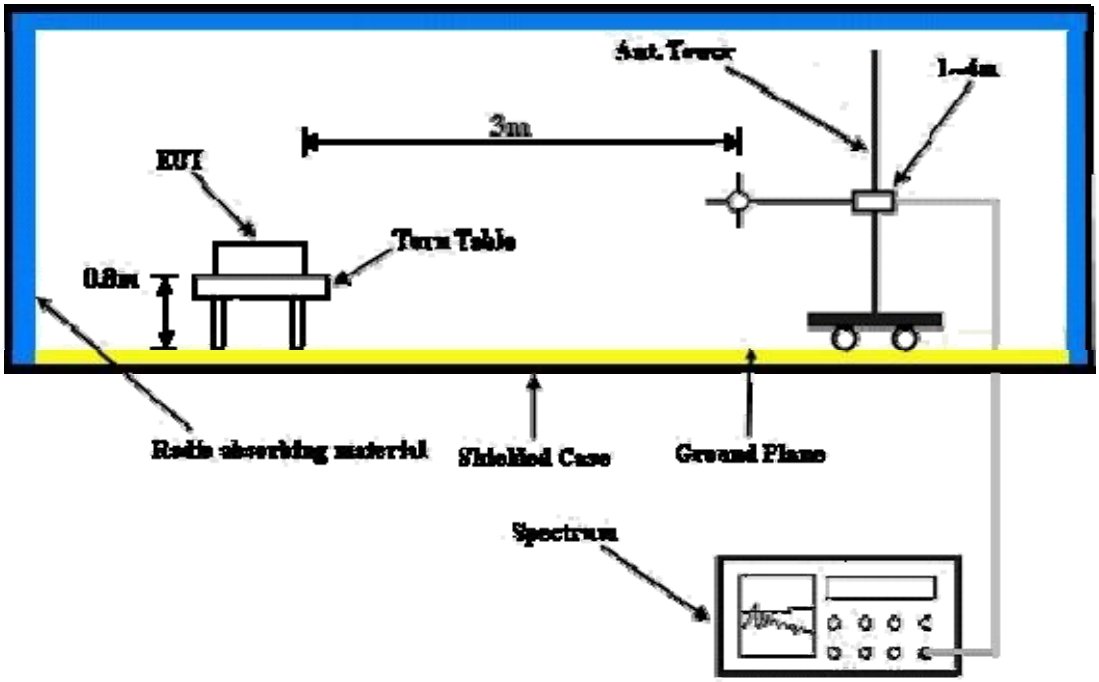
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

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).

4.6.5 TEST RESULTS

Below 1GHz

GSM

MODE	TX channel 512	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	57.16	-57.04	-47.22	-8.21	-55.43	-13.00	-42.43
2	111.48	-55.99	-54.80	0.42	-54.38	-13.00	-41.38
3	210.42	-44.69	-48.54	5.46	-43.08	-13.00	-30.08
4	303.54	-52.72	-56.24	5.13	-51.11	-13.00	-38.11
5	437.40	-50.97	-54.49	5.13	-49.36	-13.00	-36.36
6	536.34	-62.31	-65.41	4.71	-60.70	-13.00	-47.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	55.22	-43.97	-35.34	-8.63	-43.97	-13.00	-30.97
2	127.00	-53.88	-53.82	-0.06	-53.88	-13.00	-40.88
3	210.42	-53.05	-58.51	5.46	-53.05	-13.00	-40.05
4	344.28	-55.25	-60.45	5.20	-55.25	-13.00	-42.25
5	427.70	-48.61	-53.78	5.17	-48.61	-13.00	-35.61
6	547.98	-61.73	-66.38	4.65	-61.73	-13.00	-48.73

REMARKS:

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

EDGE

MODE	TX channel 512	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	57.16	-57.69	-47.87	-8.21	-56.08	-13.00	-43.08
2	111.48	-56.46	-55.27	0.42	-54.85	-13.00	-41.85
3	206.54	-45.57	-49.43	5.47	-43.96	-13.00	-30.96
4	309.36	-53.74	-57.28	5.15	-52.13	-13.00	-39.13
5	439.34	-50.72	-54.23	5.12	-49.11	-13.00	-36.11
6	540.22	-62.68	-65.77	4.70	-61.07	-13.00	-48.07
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	57.16	-45.29	-37.08	-8.21	-45.29	-13.00	-32.29
2	127.00	-53.40	-53.34	-0.06	-53.40	-13.00	-40.40
3	210.42	-52.10	-57.56	5.46	-52.10	-13.00	-39.10
4	346.22	-55.52	-60.72	5.20	-55.52	-13.00	-42.52
5	429.64	-48.92	-54.07	5.15	-48.92	-13.00	-35.92
6	553.80	-61.87	-66.49	4.62	-61.87	-13.00	-48.87

REMARKS:

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

WCDMA

MODE	TX channel 9262	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	57.16	-58.11	-48.29	-8.21	-56.50	-13.00	-43.50
2	103.72	-58.25	-57.37	0.73	-56.64	-13.00	-43.64
3	210.42	-47.83	-51.68	5.46	-46.22	-13.00	-33.22
4	301.60	-55.23	-58.76	5.14	-53.62	-13.00	-40.62
5	435.46	-53.36	-56.88	5.13	-51.75	-13.00	-38.75
6	530.52	-64.40	-67.53	4.74	-62.79	-13.00	-49.79
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	57.16	-48.15	-39.94	-8.21	-48.15	-13.00	-35.15
2	127.00	-56.52	-56.46	-0.06	-56.52	-13.00	-43.52
3	210.42	-55.19	-60.65	5.46	-55.19	-13.00	-42.19
4	344.28	-56.73	-61.93	5.20	-56.73	-13.00	-43.73
5	421.88	-51.43	-56.62	5.19	-51.43	-13.00	-38.43
6	549.92	-62.81	-67.44	4.63	-62.81	-13.00	-49.81

REMARKS:

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

Above 1GHz

GSM

MODE	Channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-50.53	-46.44	7.16	-39.28	-13.00	-26.28
2	5550.60	-53.05	-42.10	6.78	-35.32	-13.00	-22.32
3	7400.80	-49.94	-32.78	4.31	-28.47	-13.00	-15.47
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-36.74	-32.87	7.16	-25.71	-13.00	-12.71
2	5550.60	-50.70	-41.25	6.78	-34.47	-13.00	-21.47
3	7400.80	-46.83	-30.34	4.31	-26.03	-13.00	-13.03

REMARKS:

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

MODE	Channel 661	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	3760.00	-48.31	-43.96	7.10	-36.86	-13.00	-23.86
2	5640.00	-54.15	-43.15	6.77	-36.38	-13.00	-23.38
3	7520.00	-46.23	-28.69	4.23	-24.46	-13.00	-11.46
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	**3760.00**	**-35.08**	**-31.07**	**7.10**	**-23.97**	**-13.00**	**-10.97**
2	5640.00	-52.53	-42.76	6.77	-35.99	-13.00	-22.99
3	7520.00	-46.66	-29.91	4.23	-25.68	-13.00	-12.68

REMARKS:

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

MODE	Channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3819.60	-44.43	-39.82	7.05	-32.77	-13.00	-19.77
2	5729.40	-52.55	-41.47	6.74	-34.73	-13.00	-21.73
3	7639.20	-46.50	-28.73	4.20	-24.53	-13.00	-11.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3819.60	-38.09	-33.95	7.05	-26.90	-13.00	-13.90
2	5729.40	-56.18	-46.06	6.74	-39.32	-13.00	-26.32
3	7639.20	-48.24	-31.32	4.20	-27.12	-13.00	-14.12

REMARKS:

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

EDGE

MODE	Channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-55.36	-51.27	7.16	-44.11	-13.00	-31.11
2	5550.60	-58.63	-47.68	6.78	-40.90	-13.00	-27.90
3	7400.80	-53.51	-36.35	4.31	-32.04	-13.00	-19.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-41.52	-37.65	7.16	-30.49	-13.00	-17.49
2	5550.60	-55.63	-46.18	6.78	-39.40	-13.00	-26.40
3	7400.80	-51.63	-35.14	4.31	-30.83	-13.00	-17.83

REMARKS:

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

MODE	Channel 661	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	3760.00	-53.59	-49.24	7.10	-42.14	-13.00	-29.14
2	5640.00	-59.57	-48.57	6.77	-41.80	-13.00	-28.80
3	7520.00	-51.88	-34.34	4.23	-30.11	-13.00	-17.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	3760.00	-40.18	-36.17	7.10	-29.07	-13.00	-16.07
2	5640.00	-56.40	-46.63	6.77	-39.86	-13.00	-26.86
3	7520.00	-51.88	-35.13	4.23	-30.90	-13.00	-17.90

REMARKS:

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

MODE	Channel 810	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	3819.60	-49.52	-44.91	7.05	-37.86	-13.00	-24.86
2	5729.40	-57.89	-46.81	6.74	-40.07	-13.00	-27.07
3	7639.20	-51.59	-33.82	4.20	-29.62	-13.00	-16.62
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	3819.60	-43.51	-39.37	7.05	-32.32	-13.00	-19.32
2	5729.40	-60.58	-50.46	6.74	-43.72	-13.00	-30.72
3	7639.20	-53.58	-36.66	4.20	-32.46	-13.00	-19.46

REMARKS:

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

WCDMA

MODE	Channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3704.80	-59.27	-55.16	7.15	-48.01	-13.00	-35.01
2	5557.20	-50.33	-39.37	6.78	-32.59	-13.00	-19.59
3	7409.60	-51.71	-34.53	4.31	-30.22	-13.00	-17.22
4	9262.00	-51.79	-31.77	4.30	-27.47	-13.00	-14.47
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3704.80	-58.55	-54.67	7.15	-47.52	-13.00	-34.52
2	5557.20	-56.16	-46.69	6.78	-39.91	-13.00	-26.91
3	7409.60	-45.10	-28.60	4.31	-24.29	-13.00	-11.29
4	9262.00	-50.29	-31.63	4.30	-27.33	-13.00	-14.33

REMARKS:

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

MODE	Channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-56.61	-52.26	7.10	-45.16	-13.00	-32.16
2	5640.00	-51.66	-40.66	6.77	-33.89	-13.00	-20.89
3	7520.00	-50.44	-32.90	4.23	-28.67	-13.00	-15.67
4	9400.00	-51.73	-30.87	4.10	-26.77	-13.00	-13.77
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-57.49	-53.48	7.10	-46.38	-13.00	-33.38
2	5640.00	-57.02	-47.25	6.77	-40.48	-13.00	-27.48
3	7520.00	-45.50	-28.75	4.23	-24.52	-13.00	-11.52
4	9400.00	-52.95	-33.79	4.10	-29.69	-13.00	-16.69

REMARKS:

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

MODE	Channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Ted Chang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.20	-56.98	-52.40	7.06	-45.34	-13.00	-32.34
2	5722.80	-49.15	-38.08	6.74	-31.34	-13.00	-18.34
3	7630.40	-50.29	-32.54	4.20	-28.34	-13.00	-15.34
4	9538.00	-54.51	-33.15	3.99	-29.16	-13.00	-16.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.20	-59.62	-55.50	7.06	-48.44	-13.00	-35.44
2	5722.80	-57.55	-47.46	6.74	-40.72	-13.00	-27.72
3	7630.40	-47.94	-31.03	4.20	-26.83	-13.00	-13.83
4	9538.00	-51.41	-31.93	3.99	-27.94	-13.00	-14.94

REMARKS:

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

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:

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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 any modifications are made to the EUT by the lab during the test.

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