FCC Test Report
(Part 24: CDMA BC01 & GSM/GPRS 1900)

Report No.: RF160621C08-8

FCC ID: H8N-PCT5230

Test Model: ADR1776

Received Date: Jun. 21, 2016

Test Date: Aug. 22 ~ Aug. 25, 2016

Issued Date: Aug. 25, 2016

Applicant: ASKEY COMPUTER CORP.

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Release Control Record

Issue No.	Description	Date Issued
RF160621C08-8	Original release.	Aug. 25, 2016

1 Certificate of Conformity

Product: Smart Phone

Brand: Turbonet

Test Model: ADR1776

Sample Status: Engineering sample

Applicant: ASKEY COMPUTER CORP.

Test Date: Aug. 22 ~ Aug. 25, 2016

Standards: FCC Part 24, Subpart E

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

Prepared by : _____ , **Date:** Aug. 25, 2016

Pettie Chen / Senior Specialist

Approved by : _____ , **Date:** Aug. 25, 2016

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective radiated power	PASS	Meet the requirement of limit.
2.1046 24.232(d)	Peak To Average Ratio	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 -26.5dB at 887.48MHz.

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	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Apr. 19, 2016	Apr. 18, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Jan. 18, 2016	Jan. 17, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8449B	3008A01911	Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10638	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-02(309222 +248780)	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-03(274092)	Aug. 09, 2016	Aug. 08, 2017
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2016	Jun. 07, 2017
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Oct. 16, 2015	Oct. 15, 2016
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 215374.
5. The IC Site Registration No. is IC 7450F-9.

3 General Information

3.1 General Description of EUT

Product	Smart Phone
Brand	Turbonet
Test Model	ADR1776
Sample Status	Engineering sample
Power Supply Rating	3.8Vdc (Battery) 5Vdc or 9Vdc (Adapter or host equipment)
Modulation Type	GPRS: GMSK EDGE: 8PSK CDMA: QPSK, OQPSK, HPSK
Operating Frequency	GSM/GPRS/EDGE: 1850.2MHz ~ 1909.8MHz CDMA: 1851.25MHz ~ 1908.75MHz
Max. EIRP Power	GPRS: 912.011mW (29.6dBm) EDGE: 363.078mW (25.6dBm) CDMA: 151.356mW (21.8dBm)
Antenna Type	Refer to Note for more details
Antenna Connector	Refer to Note for more details
Accessory Device	Refer to Note for more details
Data Cable Supplied	Refer to Note for more details

Note:

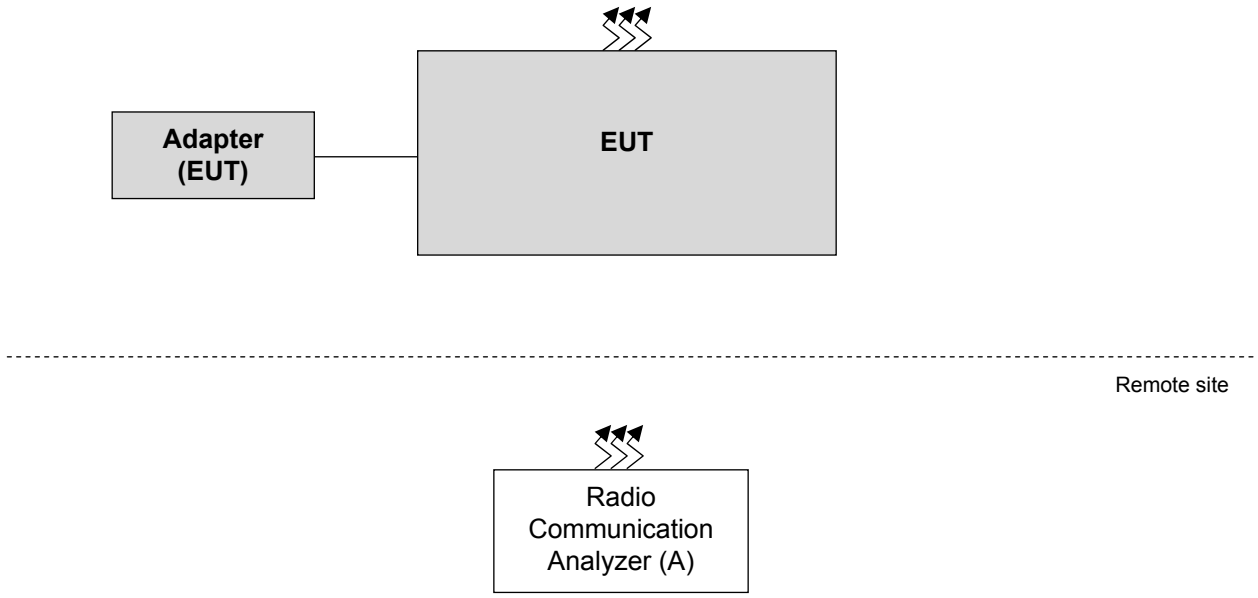
1. The EUT contains following accessory devices and data cable.

Item	Brand	Model	Specification
Battery	FUJI	492005	3.8V, 11.21Wh or 2950mAh
USB cable	N/A	N/A	0.95m shielded cable without core
Adapter	DELTA Electronics, INC.	ADP-18GW B	I/P: 100-240Vac, 0.5A, 50-60Hz O/P: 5Vdc, 2A charger 9Vdc, 2A fast charger

2. The EUT uses following antennas.

Antenna	Frequency Range (MHz)	Antenna Gain (dBi)	Antenna Type	Antenna Connector
WWAN	1850-1910	0.52	Embedded	Spring

3.2 Configuration of System under Test



3.2.1 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.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

3.3 Test Mode Applicability and Tested Channel Detail

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. 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(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, EDGE
-	Frequency Stability	512 to 810	661(1880.0MHz)	GSM
-	Occupied Bandwidth	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, GPRS, EDGE
-	Band Edge	512 to 810	512(1850.2MHz), 810(1909.8MHz)	GSM, GPRS, EDGE
-	Peak To Average Ratio	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, GPRS, EDGE
-	Conducted Emission	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, GPRS, EDGE
-	Radiated Emission Below 1GHz	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, EDGE
-	Radiated Emission Above 1GHz	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM, EDGE

CDMA Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA
-	Frequency Stability	25 to 1175	600(1880.0MHz)	CDMA
-	Occupied Bandwidth	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA
-	Band Edge	25 to 1175	25(1851.25MHz), 1175(1908.75MHz)	CDMA
-	Peak To Average Ratio	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA
-	Conducted Emission	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA
-	Radiated Emission Below 1GHz	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA
-	Radiated Emission Above 1GHz	25 to 1175	25(1851.25MHz), 600(1880.0MHz), 1175(1908.75MHz)	CDMA

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	25deg. C, 69%RH	120Vac, 60Hz	Tank Wu
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
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Radiated Emission	20deg. C, 69%RH 25deg. C, 69%RH	120Vac, 60Hz	Bond Tseng Tank Wu

3.4 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

3.5 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
KDB 971168 D01 Power Meas License Digital Systems v02r02
ANSI/TIA/EIA-603-C 2004

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

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 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 CDMA mode.

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

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

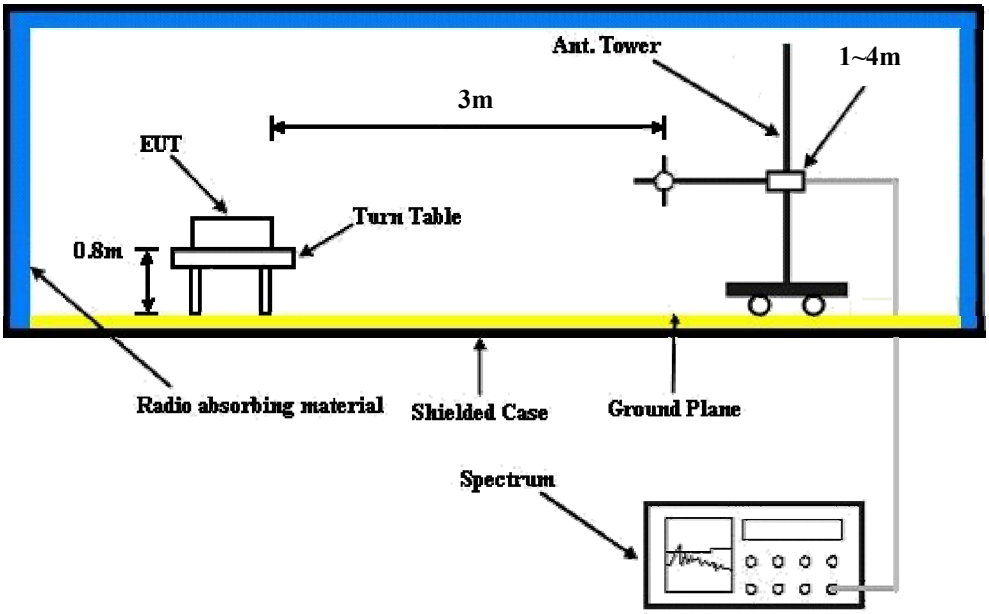
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

Conducted Power Measurement:

The EUT was set up for the maximum power with GPRS, EDGE, CDMA 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).

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880	1909.8
GSM	**31.92**	31.45	31.36
GPRS 8	31.88	31.37	31.24
GPRS 10	30.92	30.57	30.44
GPRS 11	28.60	28.08	27.95
GPRS 12	27.26	26.74	26.61
GPRS 30	31.85	31.33	31.20
GPRS 31	30.89	30.50	30.37
GPRS 32	28.55	28.03	27.90
GPRS 33	27.19	26.67	26.54
DTM 9 (GPRS)	30.79	30.27	30.14
DTM 11 (GPRS)	28.50	27.98	27.85
EDGE 8 (MCS9)	27.01	26.72	26.53
EDGE 10 (MCS9)	26.23	25.96	26.13
EDGE 11 (MCS9)	24.95	24.68	24.85
EDGE 12 (MCS9)	23.64	23.37	23.54
EDGE 30 (MCS9)	26.87	26.60	26.77
EDGE 31 (MCS9)	26.11	25.84	26.01
EDGE 32 (MCS9)	24.85	24.58	24.75
EDGE 33 (MCS9)	23.49	23.23	23.40
DTM 9 (EDGE)	26.91	26.64	26.81
DTM 11 (EDGE)	26.78	26.51	26.68

Band	CDMA2000 BC1		
Channel	25	600	1175
Frequency (MHz)	1851.25	1880	1908.75
RC1+SO55	23.39	23.73	23.61
RC3+SO55	23.43	23.79	23.67
RC3+SO32(+ F-SCH)	23.36	23.71	23.57
RC3+SO32(+SCH)	23.41	23.78	23.60
RC1+SO3, 1/8 Rate	23.38	23.76	23.56
1xEVDO Rev.0 RTAP 153.6	24.06	**24.30**	24.02
1xEVDO Rev.A RETAP 4096	24.02	24.23	24.01

EIRP Power (dBm)

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	-10.7	29.5	0.1	**29.6**	33.0	-3.4
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	-13.6	26.8	0.1	26.9	33.0	-6.1

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	-11.1	29.4	0.0	29.4	33.0	-3.6
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	-14.8	25.8	0.0	25.8	33.0	-7.2

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	-11.4	29.2	-0.1	29.1	33.0	-3.9
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	-14.1	26.7	-0.1	26.6	33.0	-6.4

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

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	-14.7	25.5	0.1	**25.6**	33.0	-7.4
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	-17.2	23.2	0.1	23.3	33.0	-9.7

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	-15.3	25.2	0.0	25.2	33.0	-7.8
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	-17.8	22.8	0.0	22.8	33.0	-10.2

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	-15.4	25.2	-0.1	25.1	33.0	-7.9
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	-18.2	22.6	-0.1	22.5	33.0	-10.5

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

CDMA Mode

MODE		TX channel 25					
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	1851.25	-19.2	21.0	0.1	21.1	33.0	-11.9
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	1851.25	-23.1	17.3	0.1	17.4	33.0	-15.6

MODE		TX channel 600					
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	-18.7	21.8	0.0	**21.8**	33.0	-11.2
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	-22.4	18.2	0.0	18.2	33.0	-14.8

MODE		TX channel 1175					
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	1908.75	-19.1	21.6	-0.1	21.5	33.0	-11.5
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	1908.75	-22.8	18.0	-0.1	17.9	33.0	-15.1

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

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

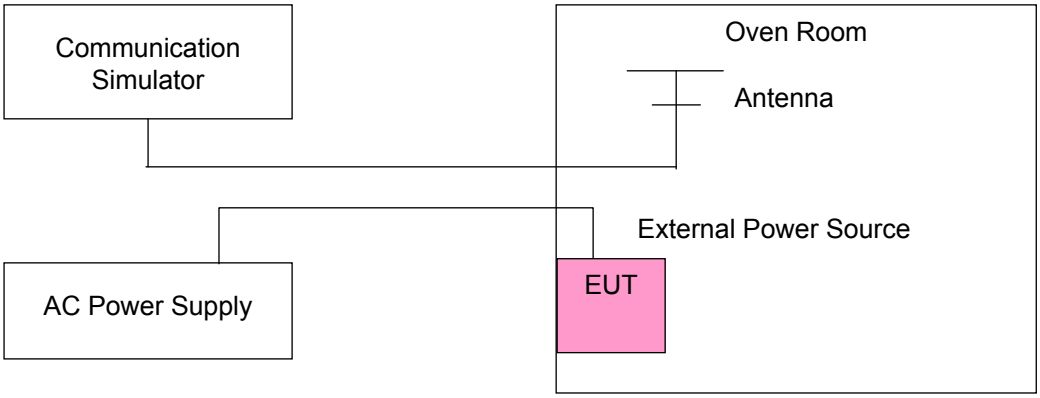
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.2 Test 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 AC 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 Ch 661(1880.0MHz)	CDMA Ch 600 (1880.0MHz)	
132	-0.007	-0.007	2.5
120	-0.005	-0.005	2.5
108	-0.006	-0.006	2.5

NOTE: The applicant defined the normal working voltage is from 108Vac to 132Vac.

Frequency Error vs. Temperature.

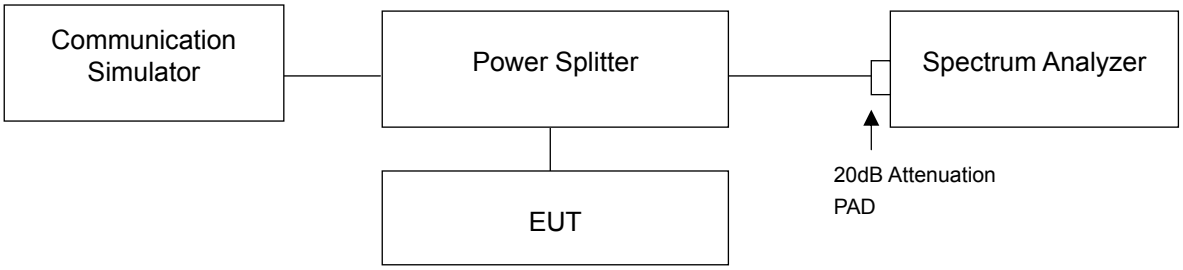
TEMP. (℃)	Frequency Error (ppm)		Limit (ppm)
	GSM Ch 661(1880.0MHz)	CDMA Ch 600 (1880.0MHz)	
70	-0.011	-0.011	2.5
60	-0.010	-0.011	2.5
50	-0.008	-0.008	2.5
40	-0.008	-0.008	2.5
30	-0.007	-0.007	2.5
20	-0.005	-0.005	2.5
10	-0.008	-0.008	2.5
0	-0.009	-0.009	2.5
-10	-0.011	-0.010	2.5
-20	-0.013	-0.013	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Test Procedure

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

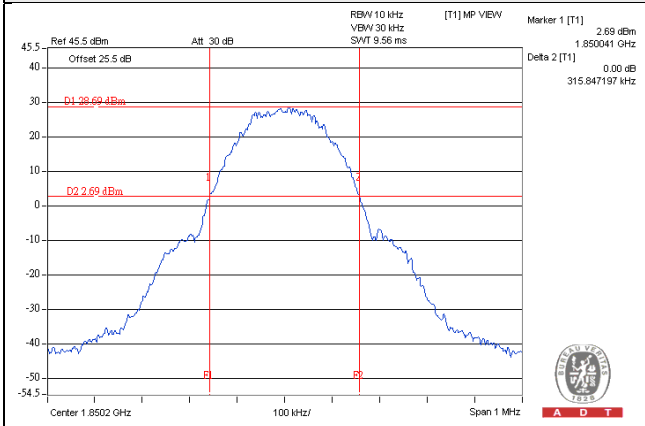


4.3.3 Test Result

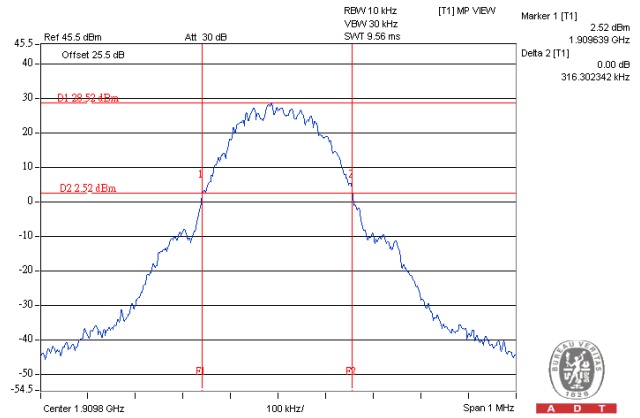
Channel	Frequency (MHz)	26dBc Bandwidth (kHz)		
		GSM	GPRS	EDGE
512	1850.2	315.847	316.012	312.481
661	1880.0	312.017	314.210	310.729
810	1909.8	214.763	316.302	313.276

Spectrum Plot Of Worst Value

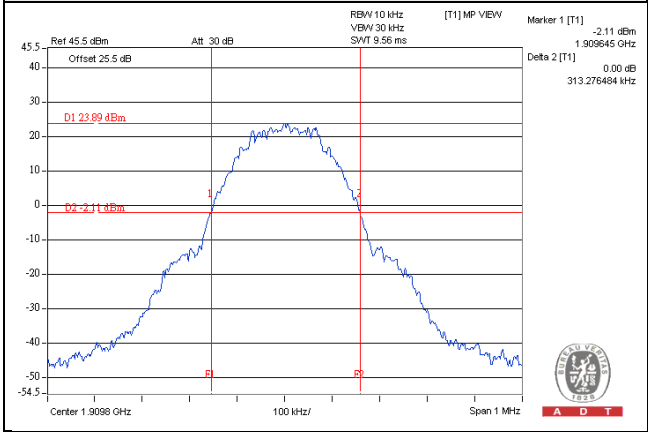
GSM



GPRS

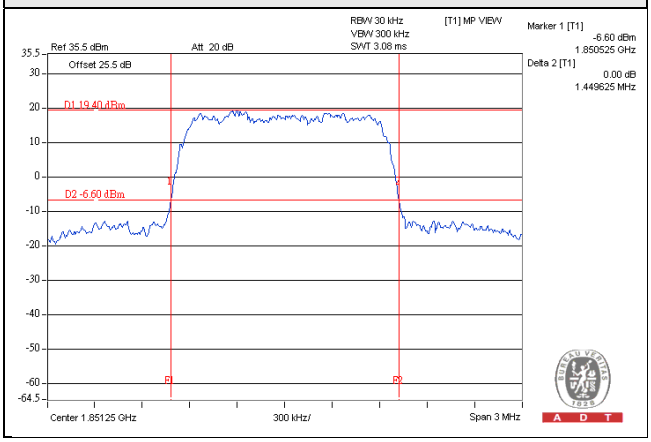


EDGE



Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
		CDMA
25	1851.25	1.4496
600	1880.00	1.4450
1175	1908.75	1.4467

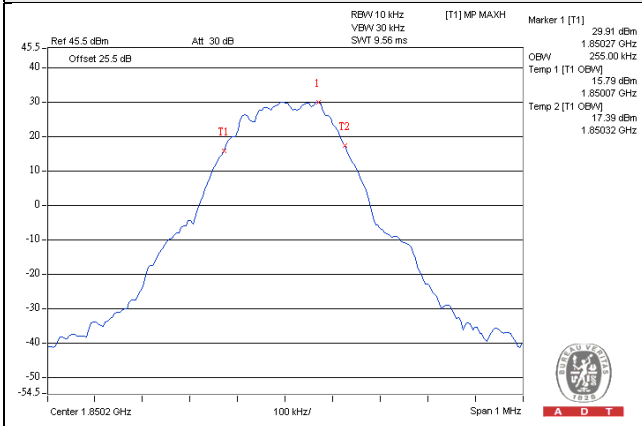
Spectrum Plot Of Worst Value
CDMA



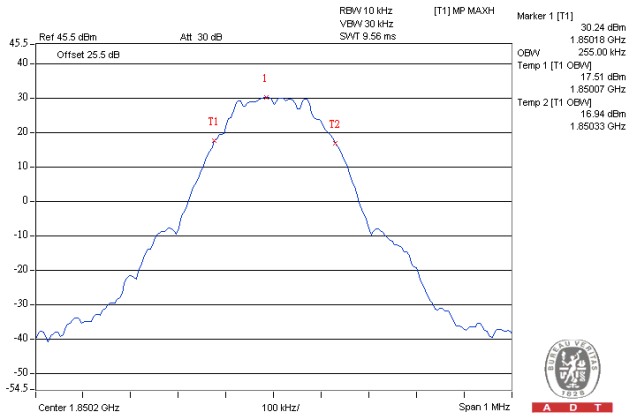
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		GSM	GPRS	EDGE
512	1850.2	0.255	0.255	0.250
661	1880.0	0.255	0.250	0.250
810	1909.8	0.255	0.255	0.260

Spectrum Plot Of Worst Value

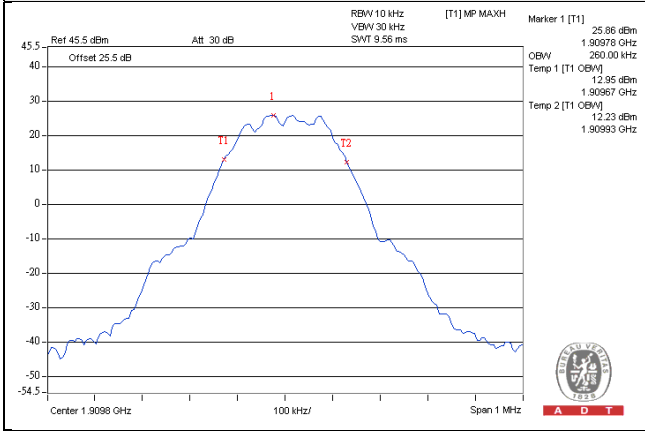
GSM



GPRS

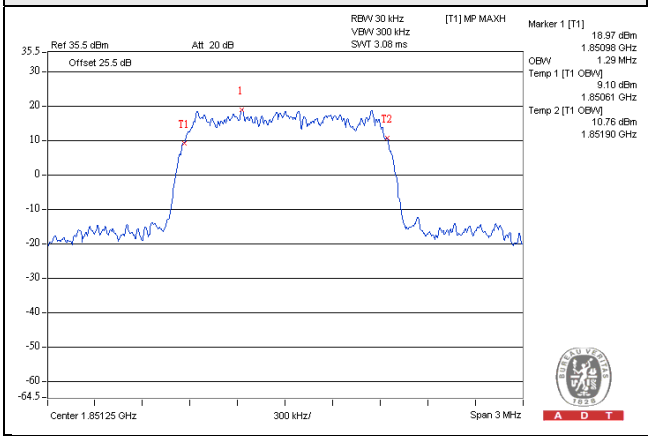


EDGE



Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		CDMA
25	1851.25	1.29
600	1880.00	1.28
1175	1908.75	1.29

Spectrum Plot Of Worst Value
CDMA

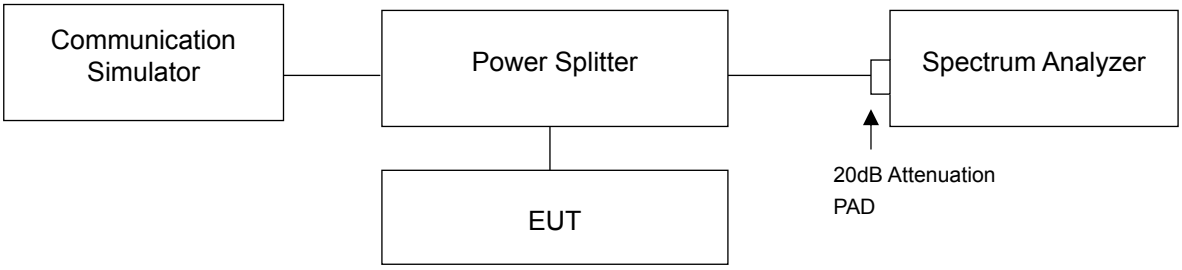


4.4 Band Edge Measurement

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

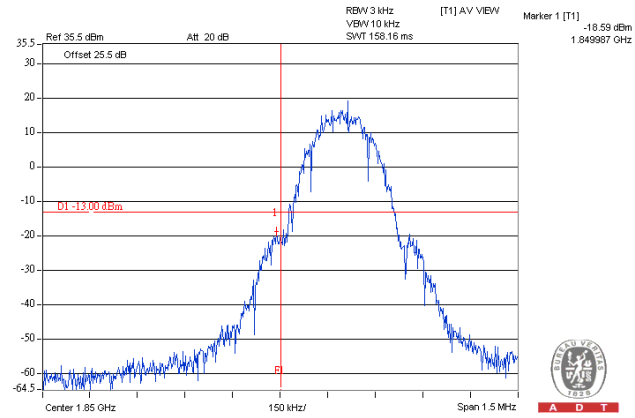


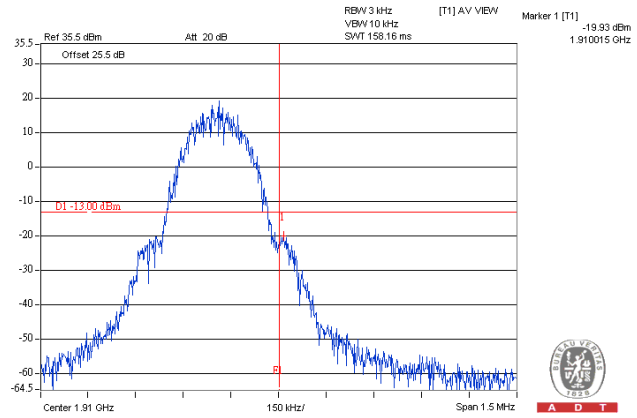
4.4.3 Test Procedures

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 1.5MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GPRS / EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA / HSDPA / HSUPA).
d. The center frequency of spectrum is the band edge frequency and span is 3MHz. RB of the spectrum is 15kHz and VB of the spectrum is 47kHz (CDMA).
e. Record the max trace plot into the test report.

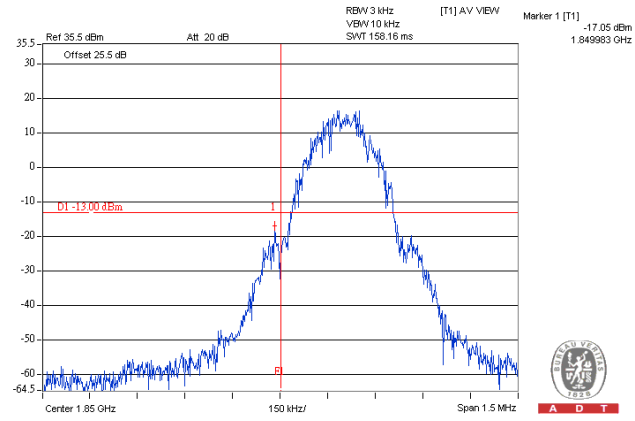
4.4.4 Test Results

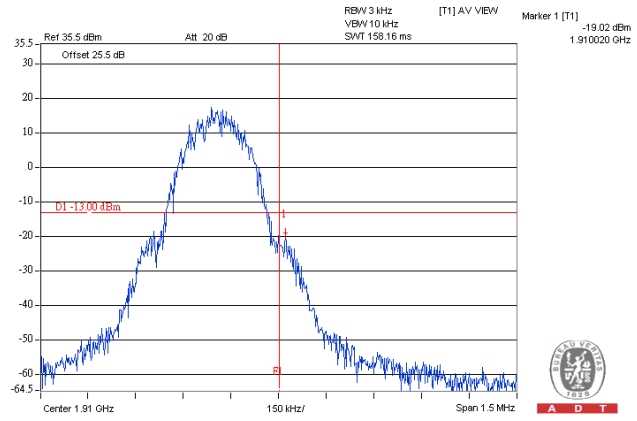
GSM			
Channel	512(1850.2MHz)	Channel	810(1909.8MHz)



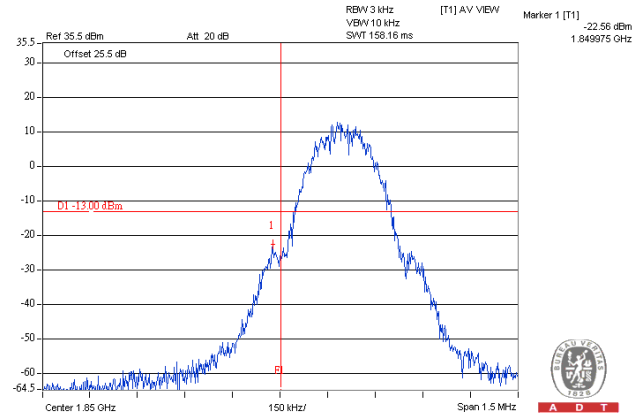


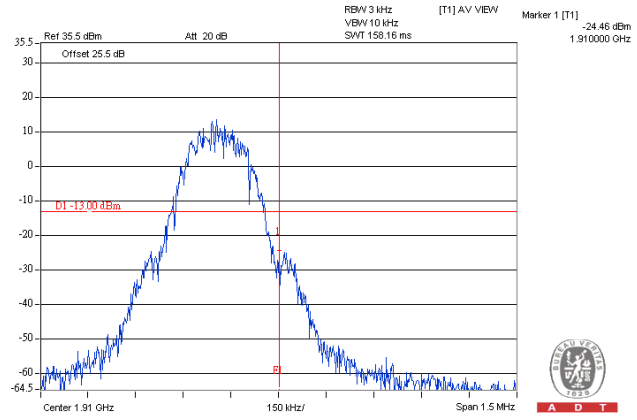
GPRS			
Channel	512(1850.2MHz)	Channel	810(1909.8MHz)

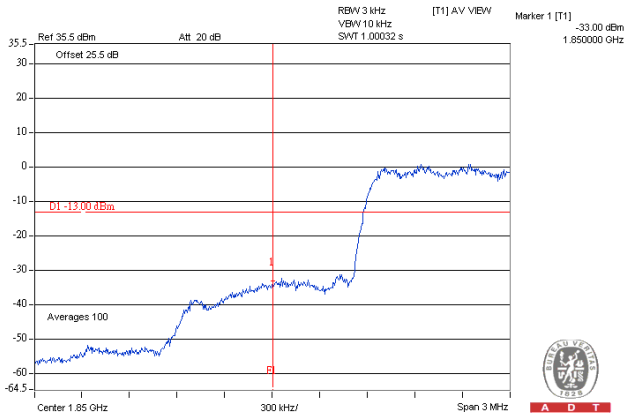
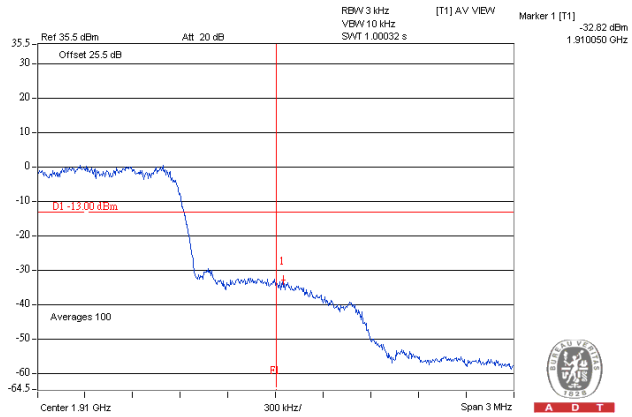




EDGE			
Channel	512(1850.2MHz)	Channel	810(1909.8MHz)





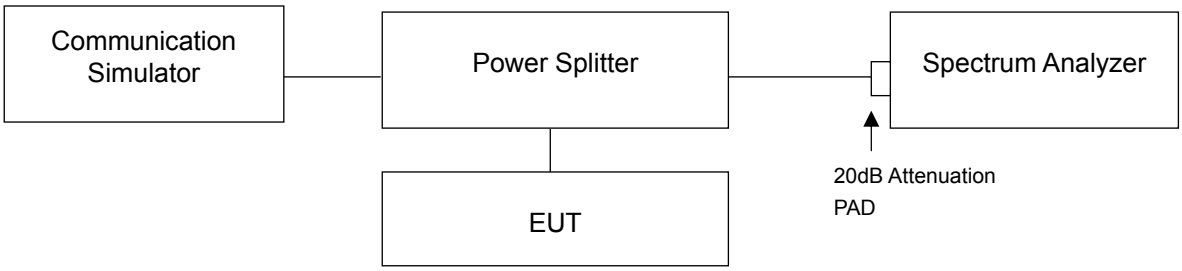
CDMA			
Channel	25(1851.25MHz)	Channel	1175(1908.75MHz)
			

4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.5.2 Test Setup



4.5.3 Test Procedures

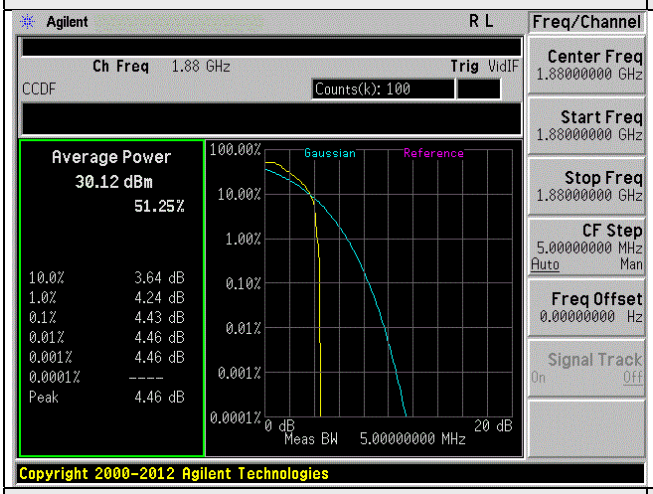
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

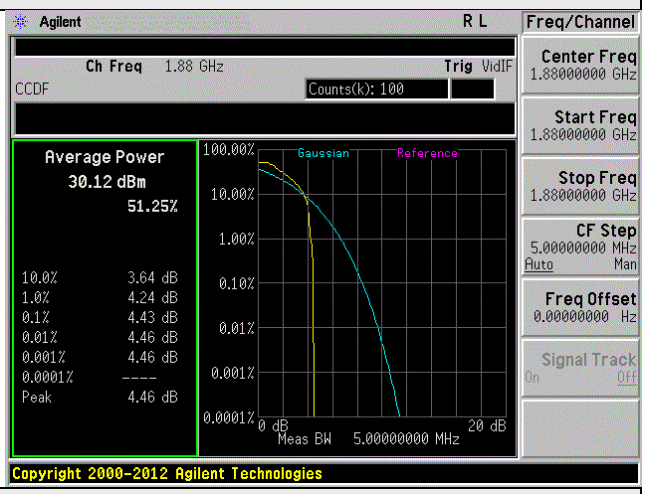
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		GSM	GPRS	EDGE
512	1850.2	3.92	3.93	3.31
661	1880.0	4.43	4.43	3.29
810	1909.8	3.69	3.65	2.37

Spectrum Plot Of Worst Value

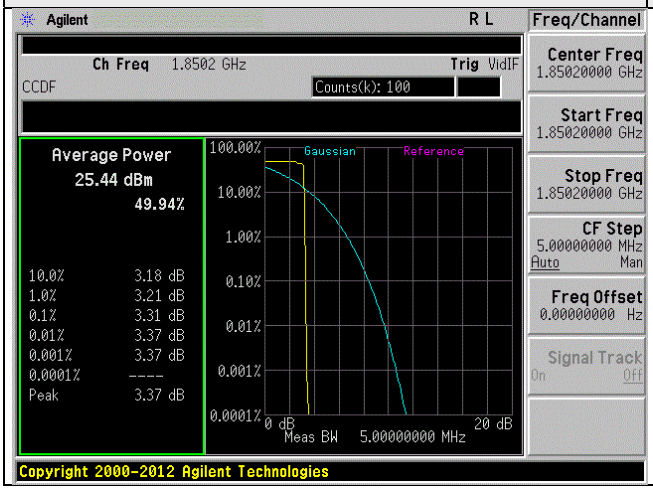
GSM



GPRS



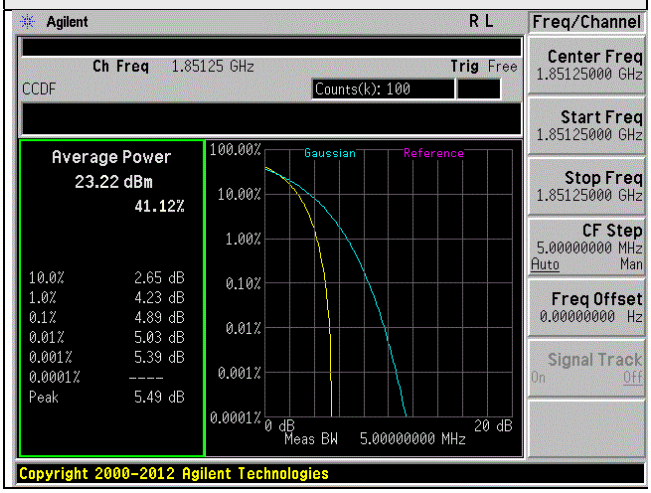
EDGE



Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		CDMA
25	1851.25	4.89
600	1880.00	3.84
1175	1908.75	3.82

Spectrum Plot Of Worst Value

CDMA

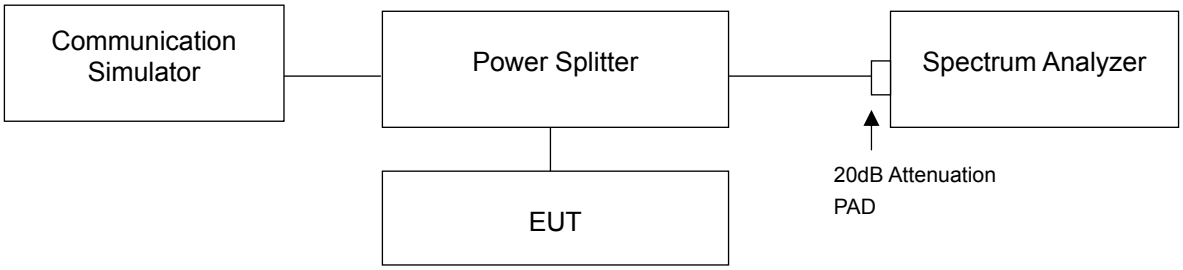


4.6 Conducted Spurious Emissions

4.6.1 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.

4.6.2 Test Setup



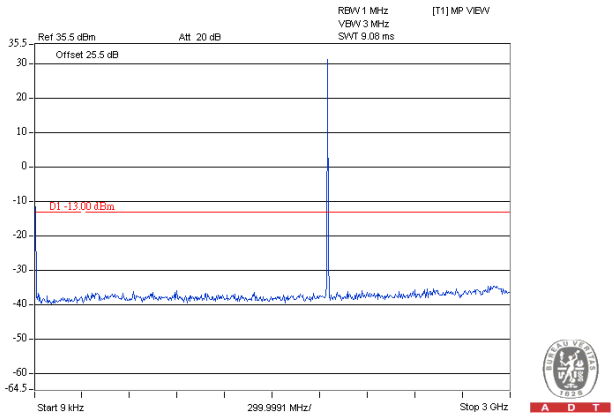
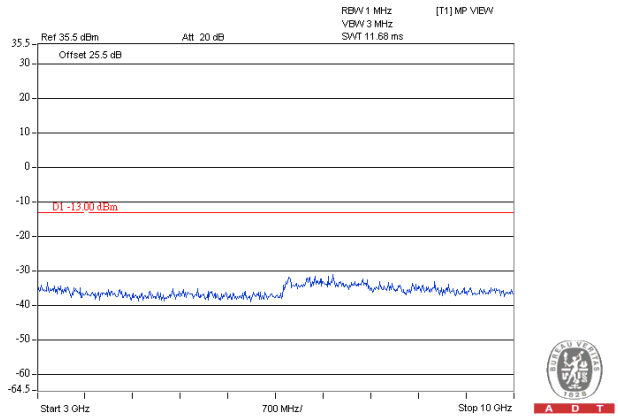
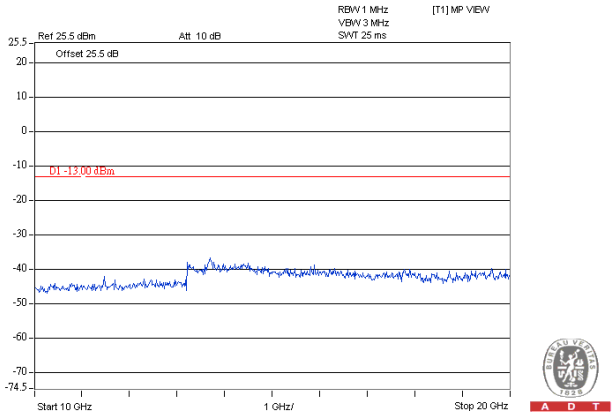
4.6.3 Test Procedure

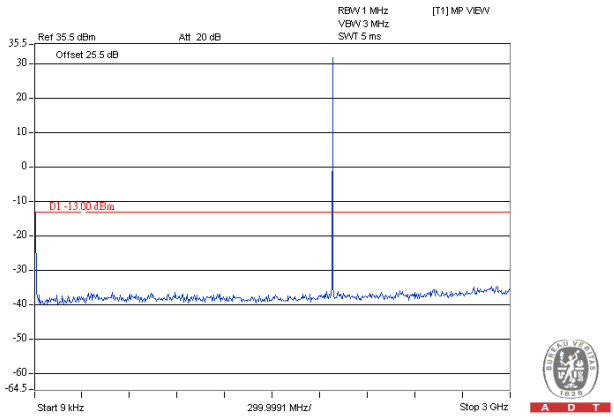
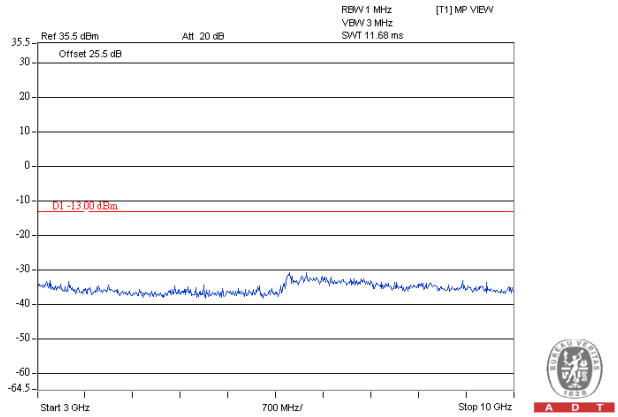
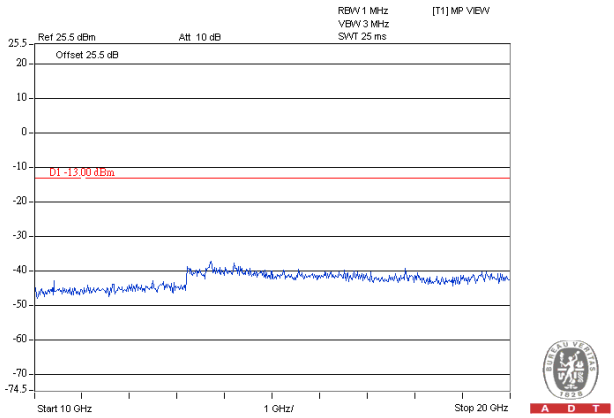
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

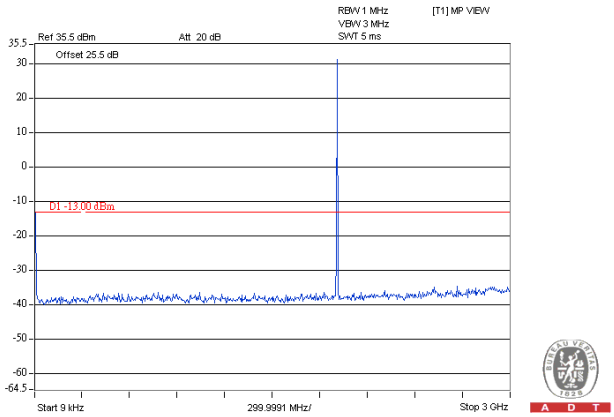
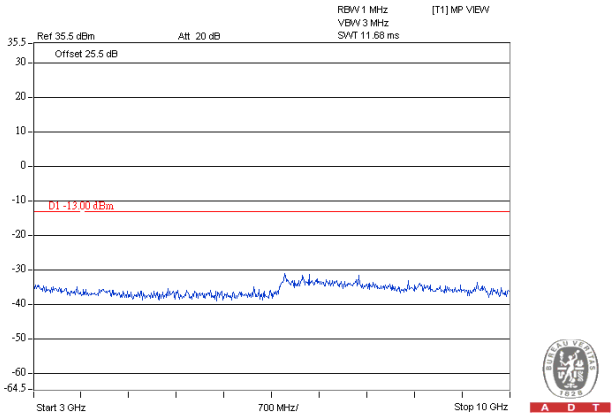
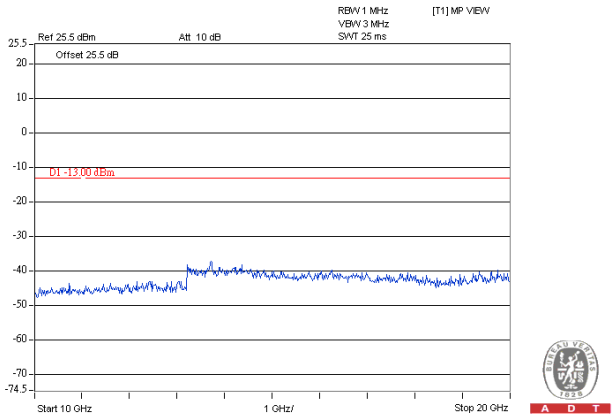
b. Measuring frequency range is from 9 kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

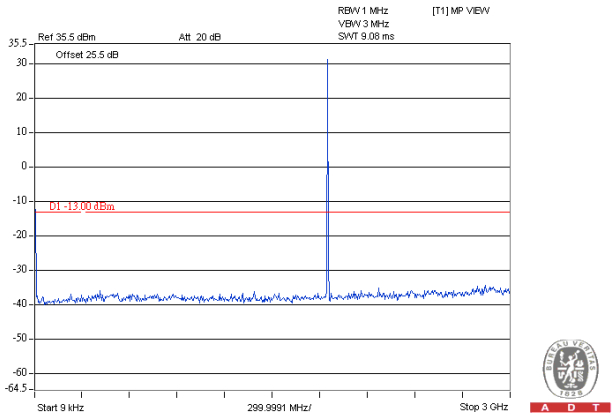
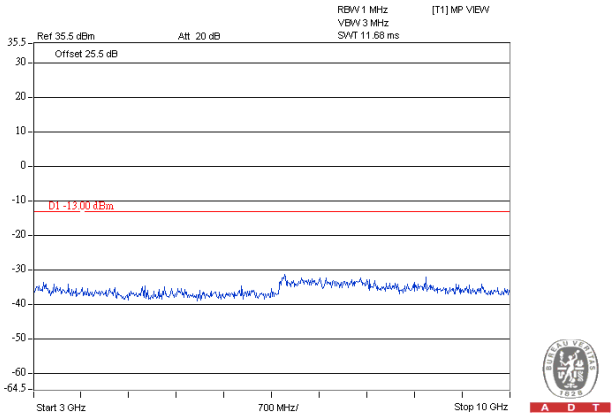
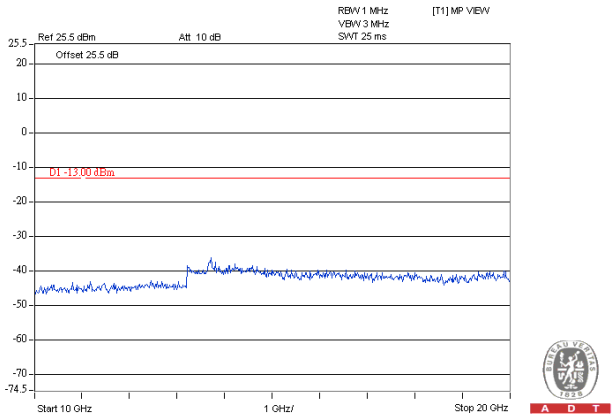
4.6.4 Test Results

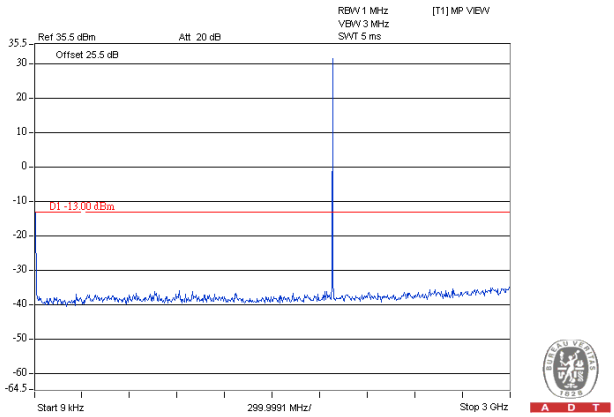
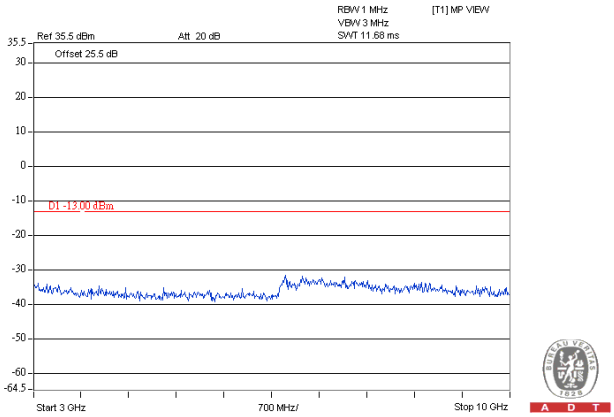
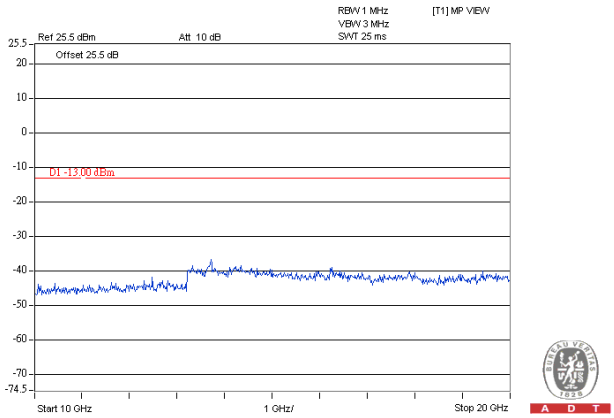
GPRS Mode

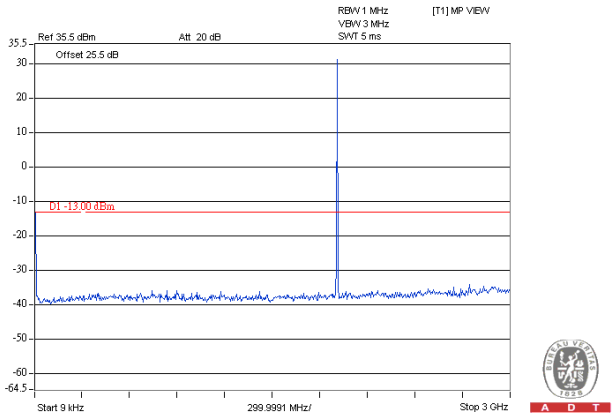
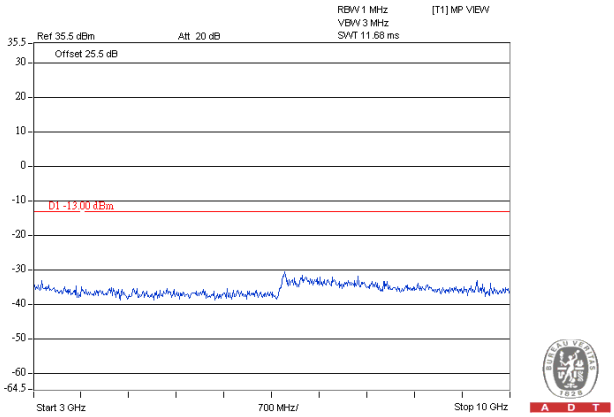
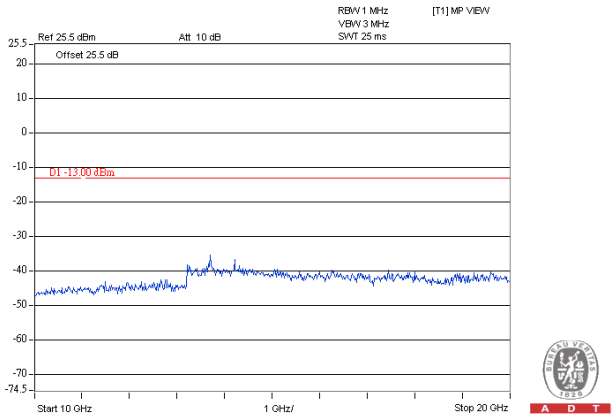
GSM	
Channel 512(1850.2MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

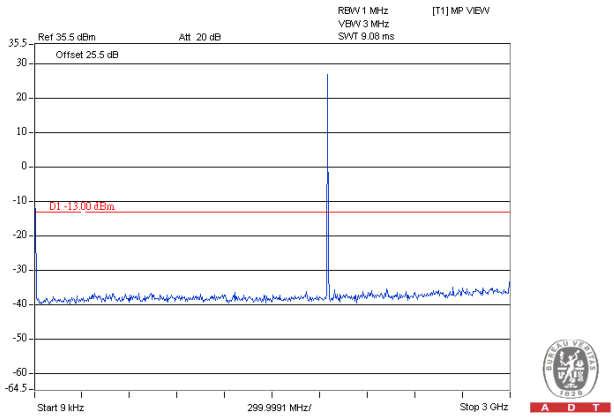
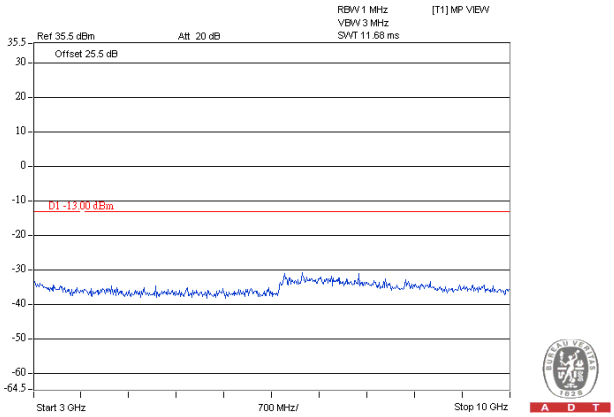
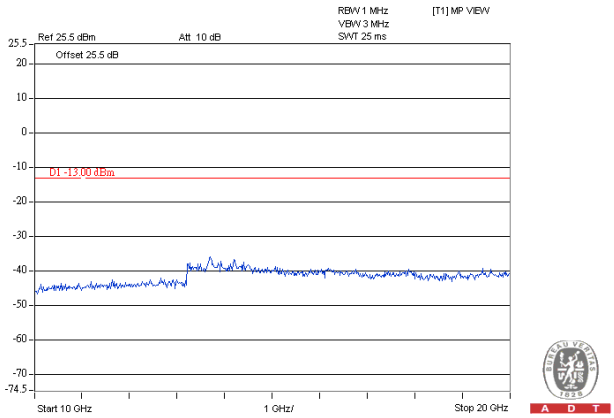
GSM	
Channel 661(1880.0MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

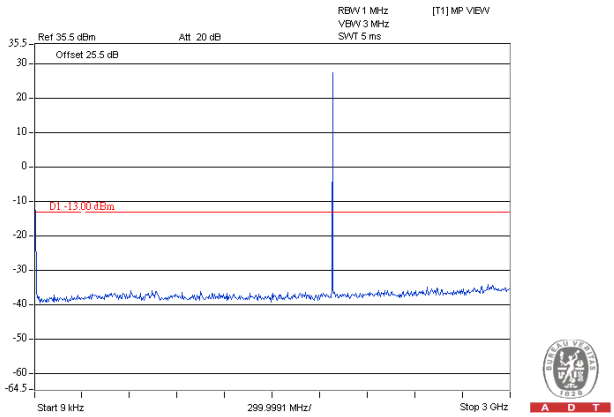
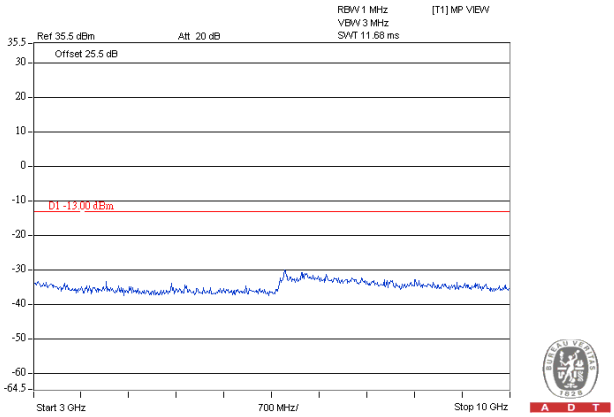
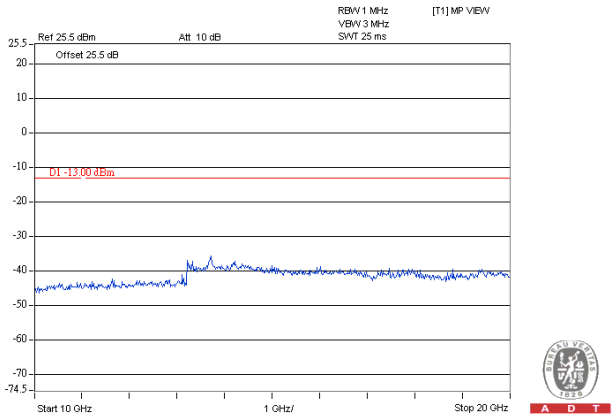
GSM	
Channel 810(1909.8MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

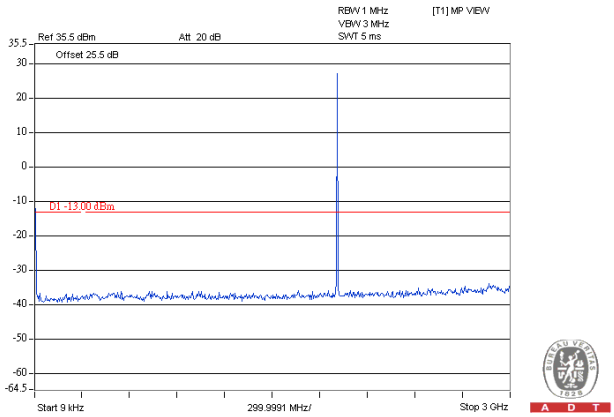
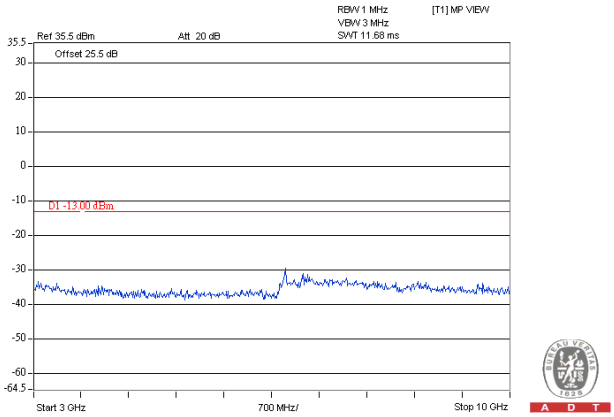
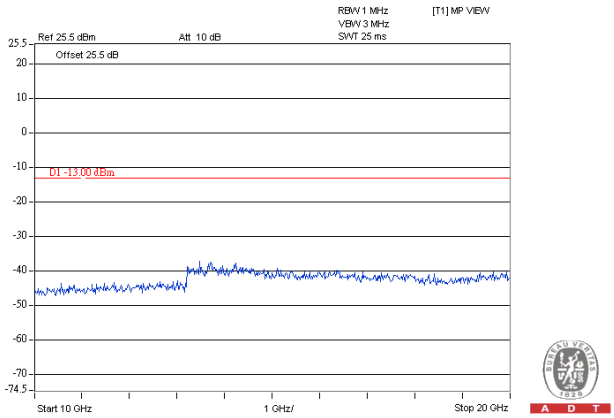
GPRS	
Channel 512(1850.2MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

GPRS	
Channel 661(1880.0MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

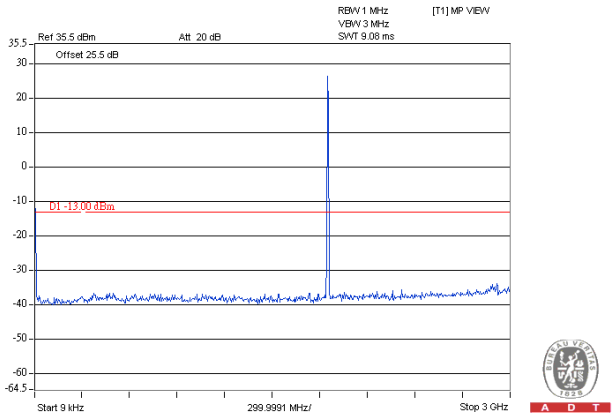
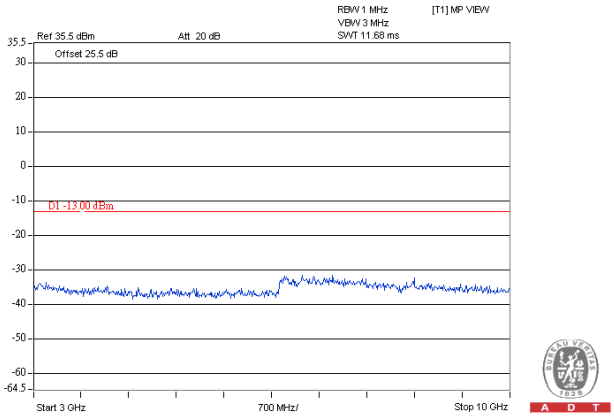
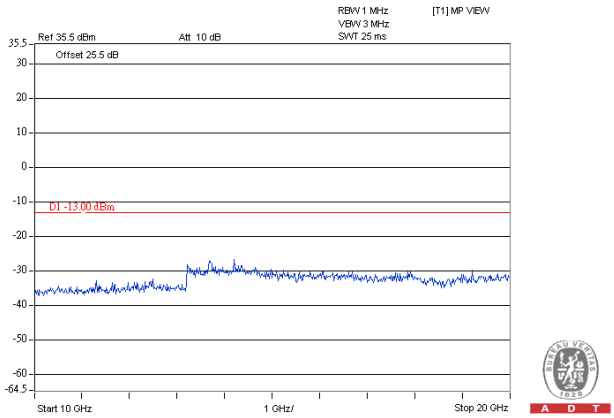
GPRS	
Channel 810(1909.8MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

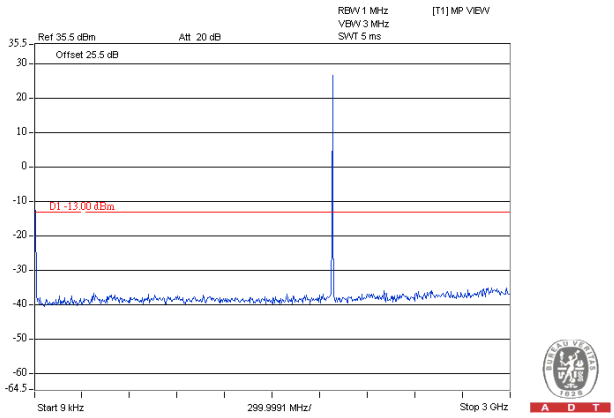
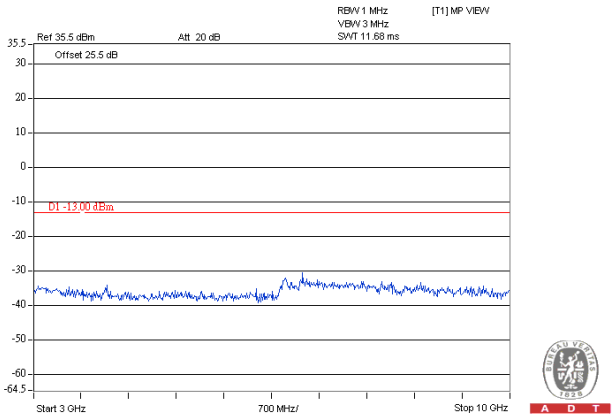
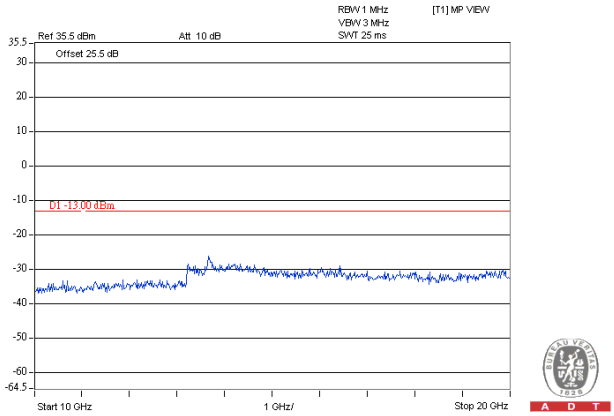
EDGE	
Channel 512(1850.2MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

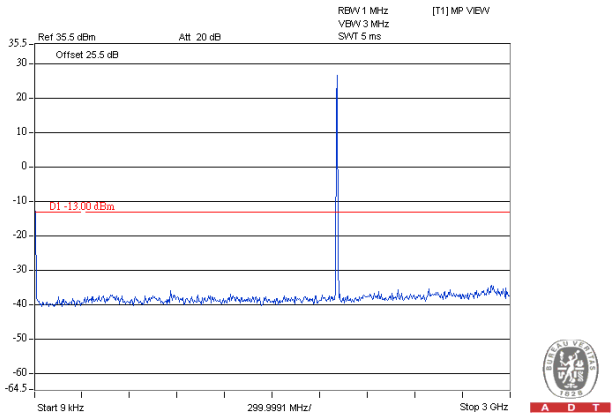
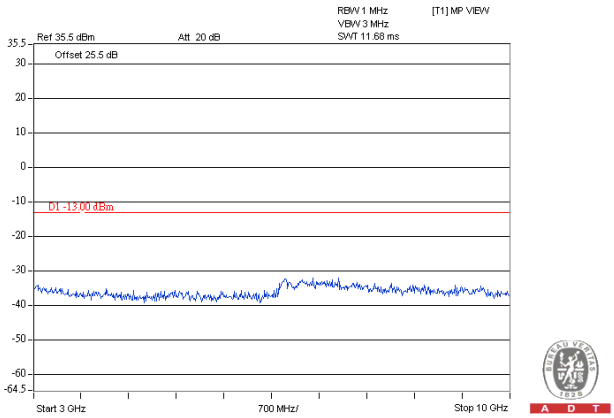
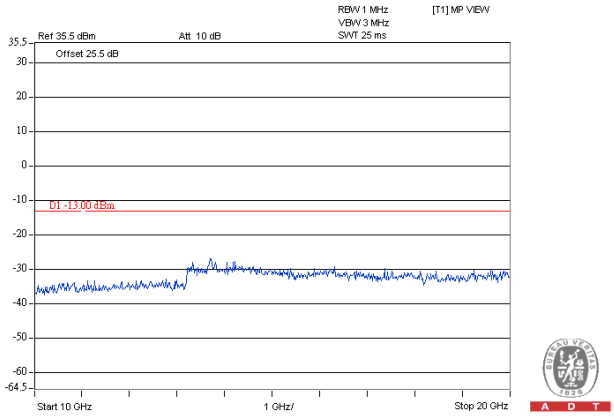
EDGE	
Channel 661(1880.0MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

EDGE	
Channel 810(1909.8MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

CDMA Mode

CDMA	
Channel 25(1851.25MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

CDMA	
Channel 600(1880.0MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

CDMA	
Channel 1175(1908.75MHz)	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

4.7 Radiated Emission Measurement

4.7.1 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.

4.7.2 Test Procedure

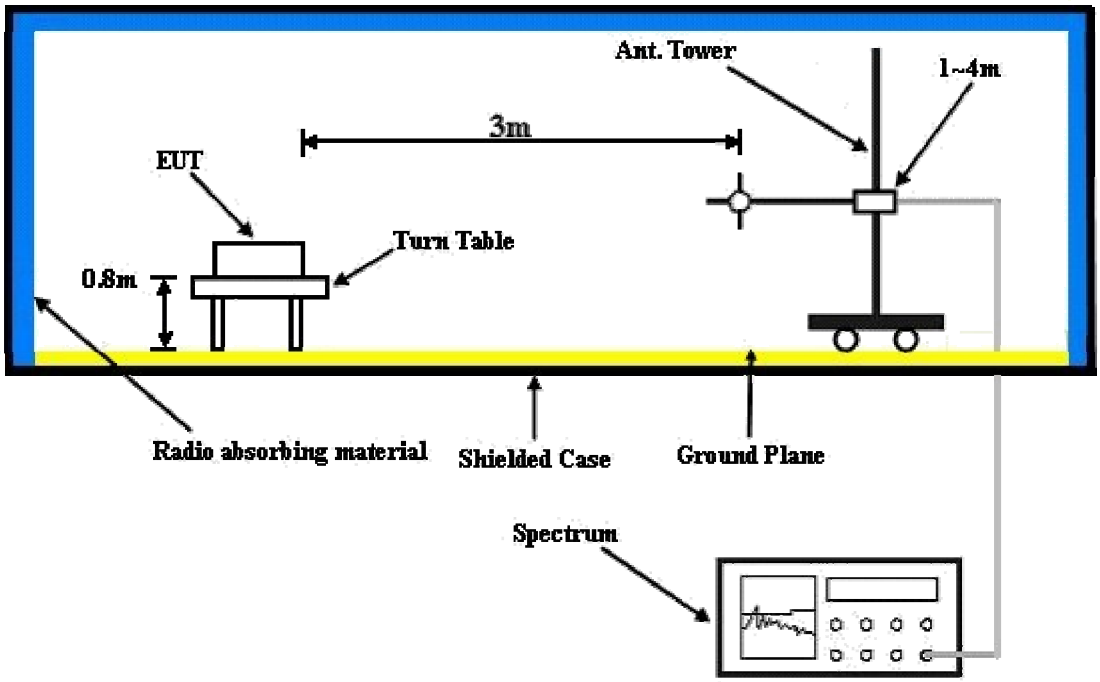
a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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.

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup



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

4.7.5 Test Results

Below 1GHz

GSM Mode

Mode	TX channel 512 (1850.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	33.88	-50.4	-30.4	-17.1	-47.5	-13.0	-34.5
2	57.16	-49.3	-48.2	-4.7	-52.9	-13.0	-39.9
3	78.50	-49.7	-55.4	0.6	-54.8	-13.0	-41.8
4	142.52	-49.2	-51.3	-3.1	-54.4	-13.0	-41.4
5	187.14	-48.8	-54.3	-2.7	-57.0	-13.0	-44.0
6	338.46	-59.3	-66.9	4.1	-62.8	-13.0	-49.8
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	31.94	-39.0	-31.2	-18.3	-49.5	-13.0	-36.5
2	57.16	-36.8	-39.0	-4.7	-43.7	-13.0	-30.7
3	86.26	-38.4	-44.4	0.1	-44.3	-13.0	-31.3
4	150.28	-49.7	-48.8	-3.0	-51.8	-13.0	-38.8
5	187.14	-51.9	-51.6	-2.7	-54.3	-13.0	-41.3
6	476.20	-56.9	-60.8	3.6	-57.2	-13.0	-44.2

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

Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	33.88	-49.3	-29.3	-17.1	-46.4	-13.0	-33.4
2	57.16	-48.2	-47.1	-4.7	-51.8	-13.0	-38.8
3	82.38	-49.1	-54.9	0.4	-54.5	-13.0	-41.5
4	154.16	-49.9	-51.3	-2.9	-54.2	-13.0	-41.2
5	185.20	-49.1	-54.6	-2.8	-57.4	-13.0	-44.4
6	458.74	-63.2	-66.7	3.5	-63.2	-13.0	-50.2
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	31.94	-41.3	-33.5	-18.3	-51.8	-13.0	-38.8
2	57.16	-39.4	-41.6	-4.7	-46.3	-13.0	-33.3
3	84.32	-40.0	-45.4	0.4	-45.0	-13.0	-32.0
4	150.28	-50.5	-49.6	-3.0	-52.6	-13.0	-39.6
5	189.08	-52.6	-52.0	-2.8	-54.8	-13.0	-41.8
6	353.98	-57.5	-61.8	3.9	-57.9	-13.0	-44.9

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

Mode	TX channel 810 (1909.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	39.70	-50.2	-34.2	-13.7	-47.9	-13.0	-34.9
2	59.10	-48.1	-48.8	-3.8	-52.6	-13.0	-39.6
3	80.44	-50.6	-56.0	0.5	-55.5	-13.0	-42.5
4	150.28	-48.4	-50.1	-3.0	-53.1	-13.0	-40.1
5	187.14	-48.8	-54.3	-2.7	-57.0	-13.0	-44.0
6	363.68	-60.3	-66.7	3.9	-62.8	-13.0	-49.8
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	31.94	-38.2	-30.4	-18.3	-48.7	-13.0	-35.7
2	59.10	-39.1	-42.1	-3.8	-45.9	-13.0	-32.9
3	86.26	-38.5	-44.5	0.1	-44.4	-13.0	-31.4
4	148.34	-49.8	-48.9	-3.0	-51.9	-13.0	-38.9
5	194.90	-54.3	-52.8	-2.6	-55.4	-13.0	-42.4
6	472.32	-57.3	-61.1	3.6	-57.5	-13.0	-44.5

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

EDGE Mode

Mode	TX channel 512 (1850.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	30.00	-49.8	-26.4	-19.4	-45.8	-13.0	-32.8
2	45.52	-47.7	-36.5	-10.4	-46.9	-13.0	-33.9
3	82.38	-39.9	-45.7	0.4	-45.3	-13.0	-32.3
4	130.88	-49.1	-52.1	-3.3	-55.4	-13.0	-42.4
5	175.50	-48.5	-53.3	-2.8	-56.1	-13.0	-43.1
6	895.24	-52.1	-48.2	3.5	-44.7	-13.0	-31.7
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	30.00	-36.2	-26.7	-19.4	-46.1	-13.0	-33.1
2	84.32	-37.2	-42.6	0.4	-42.2	-13.0	-29.2
3	146.40	-49.2	-48.2	-3.0	-51.2	-13.0	-38.2
4	198.78	-53.8	-52.4	-2.4	-54.8	-13.0	-41.8
5	270.56	-49.0	-45.6	-1.4	-47.0	-13.0	-34.0
6	887.48	-49.0	-44.5	3.5	-41.0	-13.0	-28.0

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

Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	30.00	-45.0	-21.6	-19.4	-41.0	-13.0	-28.0
2	51.34	-48.0	-41.9	-7.3	-49.2	-13.0	-36.2
3	78.50	-38.2	-43.9	0.6	-43.3	-13.0	-30.3
4	138.64	-48.7	-51.5	-3.2	-54.7	-13.0	-41.7
5	175.50	-49.6	-54.4	-2.8	-57.2	-13.0	-44.2
6	206.54	-53.0	-59.2	-2.0	-61.2	-13.0	-48.2
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	30.00	-39.8	-30.3	-19.4	-49.7	-13.0	-36.7
2	57.16	-40.4	-42.6	-4.7	-47.3	-13.0	-34.3
3	82.38	-38.1	-43.0	0.4	-42.6	-13.0	-29.6
4	148.34	-53.3	-52.4	-3.0	-55.4	-13.0	-42.4
5	423.82	-56.0	-59.7	3.4	-56.3	-13.0	-43.3
6	**887.48**	**-47.5**	**-43.0**	**3.5**	**-39.5**	**-13.0**	**-26.5**

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

Mode	TX channel 810 (1909.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	30.00	-44.8	-21.4	-19.4	-40.8	-13.0	-27.8
2	55.22	-48.8	-46.0	-5.4	-51.4	-13.0	-38.4
3	80.44	-44.8	-50.2	0.5	-49.7	-13.0	-36.7
4	140.58	-49.9	-52.5	-3.0	-55.5	-13.0	-42.5
5	181.32	-50.3	-55.5	-3.0	-58.5	-13.0	-45.5
6	547.98	-62.0	-65.4	3.8	-61.6	-13.0	-48.6
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	31.94	-42.2	-34.4	-18.3	-52.7	-13.0	-39.7
2	57.16	-39.8	-42.0	-4.7	-46.7	-13.0	-33.7
3	84.32	-38.8	-44.2	0.4	-43.8	-13.0	-30.8
4	148.34	-54.5	-53.6	-3.0	-56.6	-13.0	-43.6
5	431.58	-56.3	-60.1	3.5	-56.6	-13.0	-43.6
6	582.90	-56.9	-58.4	3.8	-54.6	-13.0	-41.6

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

CDMA Mode

Mode	TX channel 25 (1851.25MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	20deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Bond Tseng		

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	30.00	-45.1	-21.7	-19.4	-41.1	-13.0	-28.1
2	53.28	-57.0	-52.5	-6.2	-58.7	-13.0	-45.7
3	82.38	-46.1	-51.9	0.4	-51.5	-13.0	-38.5
4	161.92	-54.0	-56.6	-2.9	-59.5	-13.0	-46.5
5	208.48	-53.3	-59.7	-2.0	-61.7	-13.0	-48.7
6	315.18	-58.4	-66.4	4.0	-62.4	-13.0	-49.4
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	30.00	-40.0	-30.5	-19.4	-49.9	-13.0	-36.9
2	53.28	-39.7	-40.4	-6.2	-46.6	-13.0	-33.6
3	82.38	-37.8	-42.7	0.4	-42.3	-13.0	-29.3
4	150.28	-56.1	-55.2	-3.0	-58.2	-13.0	-45.2
5	206.54	-60.0	-60.5	-2.0	-62.5	-13.0	-49.5
6	429.64	-55.6	-59.5	3.5	-56.0	-13.0	-43.0

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

Mode	TX channel 600 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	20deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Bond Tseng		

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	33.88	-50.3	-30.3	-17.1	-47.4	-13.0	-34.4
2	51.34	-57.5	-51.4	-7.3	-58.7	-13.0	-45.7
3	80.44	-45.2	-50.6	0.5	-50.1	-13.0	-37.1
4	138.64	-54.6	-57.4	-3.2	-60.6	-13.0	-47.6
5	206.54	-53.4	-59.6	-2.0	-61.6	-13.0	-48.6
6	315.18	-59.0	-67.0	4.0	-63.0	-13.0	-50.0
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	30.00	-36.4	-26.9	-19.4	-46.3	-13.0	-33.3
2	57.16	-40.5	-42.7	-4.7	-47.4	-13.0	-34.4
3	82.38	-36.8	-41.7	0.4	-41.3	-13.0	-28.3
4	150.28	-51.9	-51.0	-3.0	-54.0	-13.0	-41.0
5	427.70	-56.6	-60.5	3.5	-57.0	-13.0	-44.0
6	549.92	-62.4	-64.5	3.8	-60.7	-13.0	-47.7

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

Mode	TX channel 1175 (1908.75MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	20deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Bond Tseng		

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	30.00	-44.8	-21.4	-19.4	-40.8	-13.0	-27.8
2	55.22	-48.9	-46.1	-5.4	-51.5	-13.0	-38.5
3	82.38	-43.6	-49.4	0.4	-49.0	-13.0	-36.0
4	140.58	-52.2	-54.8	-3.0	-57.8	-13.0	-44.8
5	208.48	-52.4	-58.8	-2.0	-60.8	-13.0	-47.8
6	336.52	-59.1	-66.8	4.0	-62.8	-13.0	-49.8
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	30.00	-45.7	-36.2	-19.4	-55.6	-13.0	-42.6
2	57.16	-40.3	-42.5	-4.7	-47.2	-13.0	-34.2
3	82.38	-36.8	-41.7	0.4	-41.3	-13.0	-28.3
4	148.34	-57.6	-56.7	-3.0	-59.7	-13.0	-46.7
5	352.04	-61.0	-65.3	3.9	-61.4	-13.0	-48.4
6	423.82	-57.2	-60.9	3.4	-57.5	-13.0	-44.5

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

Above 1GHz

GSM Mode

Mode	TX channel 512 (1850.2MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-55.0	-46.5	1.4	-45.1	-13.0	-32.1
2	5550.60	-60.0	-47.2	1.4	-45.8	-13.0	-32.8
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	-55.8	-47.6	1.4	-46.2	-13.0	-33.2
2	5550.60	-60.1	-48.1	1.4	-46.7	-13.0	-33.7

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

Mode	TX channel 661 (1880.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-53.3	-44.8	1.3	-43.5	-13.0	-30.5
2	5640.00	-60.2	-47.2	1.3	-45.9	-13.0	-32.9
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	-54.0	-45.7	1.3	-44.4	-13.0	-31.4
2	5640.00	-60.5	-48.6	1.3	-47.3	-13.0	-34.3

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

Mode	TX channel 810 (1909.8MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-52.3	-44.0	1.4	-42.6	-13.0	-29.6
2	5729.40	-60.1	-47.0	1.2	-45.8	-13.0	-32.8
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	-54.0	-45.8	1.4	-44.4	-13.0	-31.4
2	5729.40	-60.7	-48.5	1.2	-47.3	-13.0	-34.3

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

EDGE Mode

Mode	TX channel 512 (1850.2MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-54.5	-48.2	1.4	-46.8	-13.0	-33.8
2	5550.60	-59.5	-48.9	1.4	-47.5	-13.0	-34.5
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	-55.3	-49.3	1.4	-47.9	-13.0	-34.9
2	5550.60	-59.5	-49.7	1.4	-48.3	-13.0	-35.3

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

Mode	TX channel 661 (1880.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-52.8	-46.4	1.3	-45.1	-13.0	-32.1
2	5640.00	-59.6	-48.8	1.3	-47.5	-13.0	-34.5
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	-54.2	-48.0	1.3	-46.7	-13.0	-33.7
2	5640.00	-60.1	-50.4	1.3	-49.1	-13.0	-36.1

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

Mode	TX channel 810 (1909.8MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-52.2	-46.1	1.4	-44.7	-13.0	-31.7
2	5729.40	-59.6	-48.7	1.2	-47.5	-13.0	-34.5
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	-54.2	-48.1	1.4	-46.7	-13.0	-33.7
2	5729.40	-60.4	-50.3	1.2	-49.1	-13.0	-36.1

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

CDMA Mode

Mode	TX channel 25 (1851.25MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	3702.50	-58.4	-49.9	1.4	-48.5	-13.0	-35.5
2	5553.75	-59.7	-46.9	1.4	-45.5	-13.0	-32.5
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	3702.50	-59.9	-51.7	1.4	-50.3	-13.0	-37.3
2	5553.75	-60.0	-48.0	1.4	-46.6	-13.0	-33.6

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

Mode	TX channel 600 (1880.0MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	-57.9	-49.4	1.3	-48.1	-13.0	-35.1
2	5640.00	-59.0	-46.0	1.3	-44.7	-13.0	-31.7
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	-59.1	-50.8	1.3	-49.5	-13.0	-36.5
2	5640.00	-59.5	-47.6	1.3	-46.3	-13.0	-33.3

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

Mode	TX channel 1175 (1908.75MHz)	Frequency Range	Above 1000MHz
Environmental Conditions	25deg. C, 69%RH	Input Power	120Vac, 60Hz
Tested By	Tank Wu		

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	3817.50	-58.6	-50.3	1.4	-48.9	-13.0	-35.9
2	5726.25	-59.1	-46.0	1.2	-44.8	-13.0	-31.8
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	3817.50	-59.9	-51.7	1.4	-50.3	-13.0	-37.3
2	5726.25	-59.3	-47.1	1.2	-45.9	-13.0	-32.9

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

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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