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# FCC TEST REPORT

## (PART 24)

**REPORT NO.:** RF130517C12A-1

**MODEL NO.:** F-09E

**FCC ID:** VQK-F09E

**RECEIVED:** May 17, 2013

**TESTED:** Jun. 01 ~ Jul. 10, 2013

**ISSUED:** Jul. 19, 2013

**APPLICANT:** FUJITSU LIMITED

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

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

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130517C12A-1	Original release	Jul. 19, 2013



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## 1 CERTIFICATION

**PRODUCT:** Mobile Phone

**MODEL:** F-09E

**BRAND:** FUJITSU

**APPLICANT:** FUJITSU LIMITED

**TESTED:** Jun. 01 ~ Jul. 10, 2013

**TEST SAMPLE:** Engineering Sample

**STANDARDS:** FCC Part 24, Subpart E

The above equipment (model: F-09E) 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** : Ivy Lin , **DATE** : Jul. 19, 2013  
Ivy Lin / Specialist

**APPROVED BY** : Ken Lin , **DATE** : Jul. 19, 2013  
James Lee / Manager

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	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 -9.58 dB at 3819.60MHz.

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	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

Tested date: Jun. 01 ~ Jun. 13, 2013 (All tests except for radiated emission below 1GHz test)

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	Aug. 06, 2012	Aug. 05, 2013
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	9120D	209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8447D	2944A10633	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8449B	3008A01964	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.3	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
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Jul. 18, 2012	Jul. 17, 2013
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY50266653	Oct. 08, 2012	Oct. 09, 2013

- 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.



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Tested date: Jul. 10, 2013 (Radiated emission below 1GHz test)

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Oct. 25, 2012	Oct. 24, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Dec. 22, 2012	Dec. 21, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 23, 2012	Oct. 22, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in HwaYa Chamber 4.  
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
4. The FCC Site Registration No. is 460141.  
5. The IC Site Registration No. is IC7450F-4.



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Mobile Phone
<b>MODEL NO.</b>	F-09E
<b>POWER SUPPLY</b>	3.8Vdc (Battery) 5.0Vdc (Adapter or cradle or host equipment)
<b>MODULATION TYPE</b>	<b>GSM, GPRS:</b> GMSK
<b>FREQUENCY RANGE</b>	1850.2MHz ~ 1909.8MHz
<b>MAX. EIRP POWER</b>	<b>GSM:</b> 948.418mW (29.77dBm)
<b>MULTI-SLOTS CLASS</b>	33
<b>ANTENNA TYPE</b>	$\lambda/4$ Monopole antenna with 1.0dBi gain
<b>I/O PORTS</b>	Refer to users' manual
<b>DATA CABLE</b>	N/A
<b>ACCESSORY DEVICES</b>	Refer to Note as below

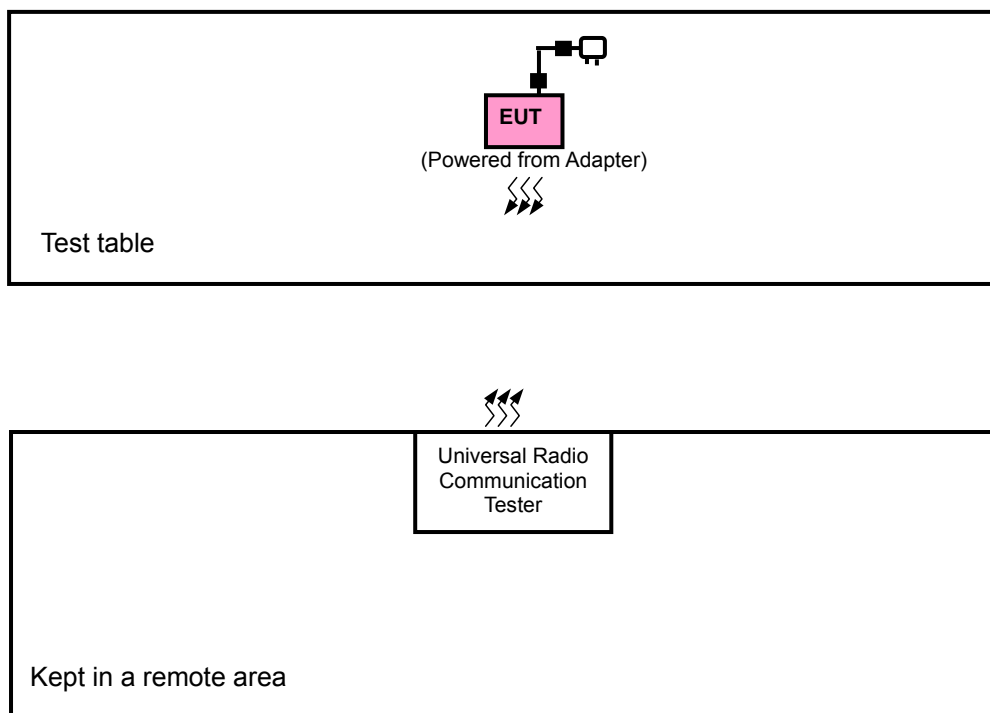
#### NOTE:

1. This report is issued as a supplementary report to the original BV ADT report no.: RF130517C12-1 (FCC ID: VQK-F08E). The differences compared with the original report are changing model, FCC ID, enclosure dimension and updating versions of SW and HW. Therefore, only radiated emission below 1GHz had been re-tested and the other original test data are kept in this report.
2. The EUT contains the following accessories.

No.	Product	Brand	Model	Description
1	Battery	Fujitsu limited	CA54310-0047	Rating: 3.8V, 2100mA Type: Li-ion
2	Cradle	Fujitsu Limited	CA50601-1821	Input: 5.0Vdc, 1.5A Output: 5.0Vdc, 1.5A

3. SW version is R03.2e.
4. HW version is V2.1.0.
5. IMEI Code: 355755050013730 & 357598050000159
6. 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	123112	NA
2	ADAPTER	NTT docomo	AC Adaptor 04	NA	NA

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

#### NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.
3. 1.05m DC cable with 2 cores.

### 3.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below:

Test results are presented in the report as below.

Test Mode	Test Condition
A	Power from adapter
B	Power from battery

#### GSM MODE

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

#### TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	27deg. C, 72%RH	120Vac, 60Hz	Alan Wu
FREQUENCY STABILITY	24deg. C, 64%RH	3.8Vdc	Match Tsui
OCCUPIED BANDWIDTH	26deg. C, 65%RH	120Vac, 60Hz	Match Tsui
BAND EDGE	26deg. C, 65%RH	120Vac, 60Hz	Match Tsui
CONDCUDED EMISSION	26deg. C, 65%RH	120Vac, 60Hz	Match Tsui
RADIATED EMISSION	25deg. C, 68%RH, 27deg. C, 72%RH	120Vac, 60Hz	Alan Wu

### 3.5 EUT OPERATING CONDITIONS

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

### 3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**ANSI/TIA/EIA-603-C 2004**

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

## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP

#### 4.1.2 TEST PROCEDURES

##### **EIRP MEASUREMENT:**

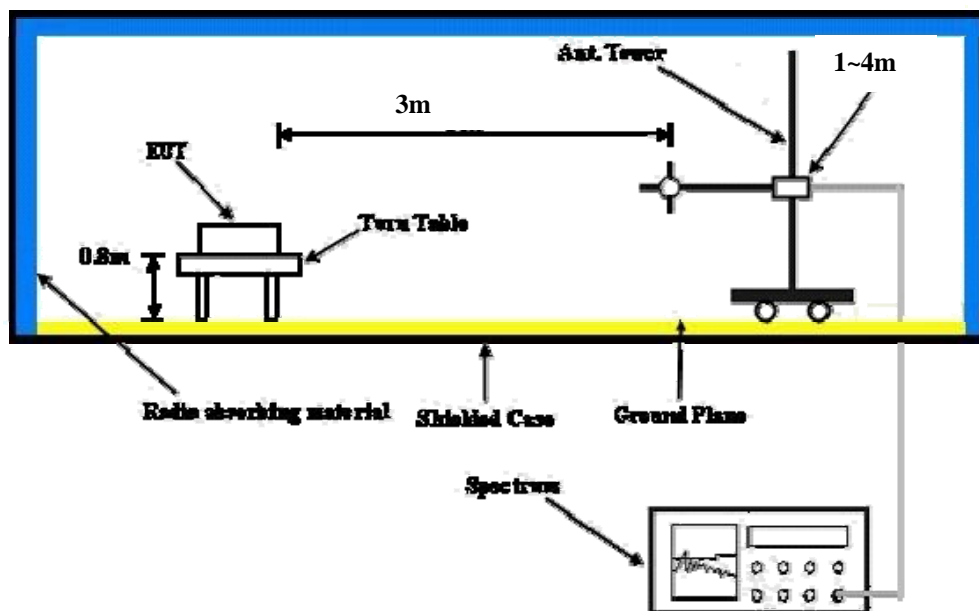
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

##### **CONDUCTED POWER MEASUREMENT:**

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

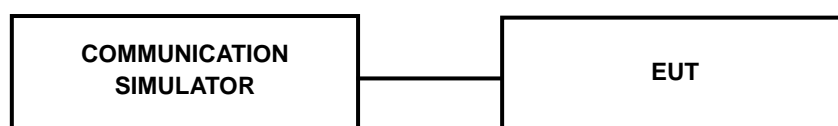
### 4.1.3 TEST SETUP

#### EIRP 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	1880.0	1909.8
GSM	29.20	29.34	<b>29.50</b>
GPRS 8	29.18	29.32	29.40
GPRS 10	25.62	25.76	25.93
GPRS 11	23.70	23.84	24.00
GPRS 12	22.57	22.71	22.88
DTM 9 (GPRS)	25.66	25.80	25.97
DTM 11 (GPRS)	23.73	23.87	24.00

### EIRP POWER (dBm)

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	-7.76	28.34	1.07	29.41	33.00	-3.59
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	-14.66	20.31	1.07	21.38	33.00	-11.62

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	-6.85	28.65	1.12	29.77	33.00	-3.23
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	-13.32	21.05	1.12	22.17	33.00	-10.83

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	-7.36	28.06	1.11	29.17	33.00	-3.83
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	-15.04	20.30	1.11	21.41	33.00	-11.59

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



## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

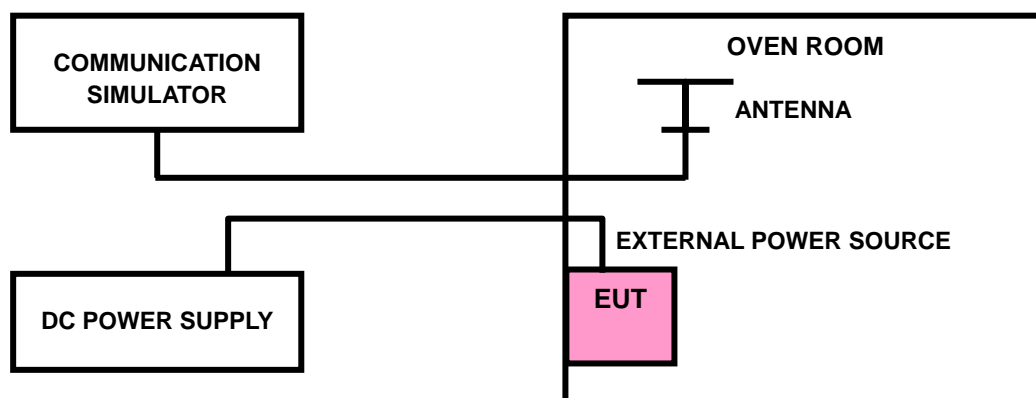
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 4.2.2 TEST PROCEDURE

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

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

### 4.2.3 TEST SETUP



## 4.2.4 TEST RESULTS

### FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
	GSM	
4.29	-0.013	2.5
3.9	-0.007	2.5
3.51	-0.010	2.5

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.51Vdc to 4.29Vdc.

### FREQUENCY ERROR vs. TEMPERATURE.

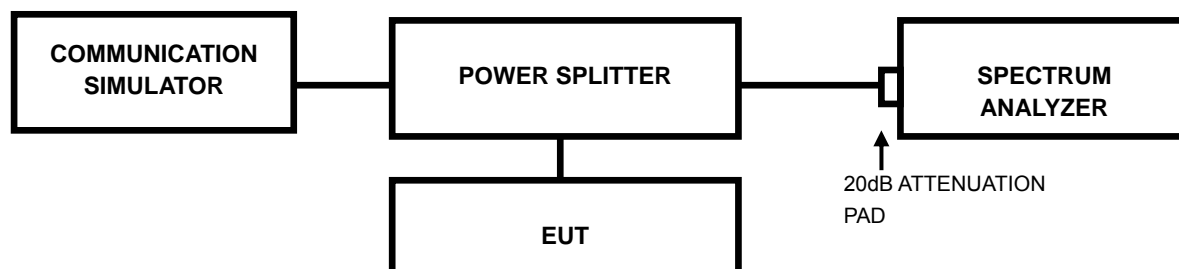
TEMP. (°C)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
	GSM	
50	-0.018	2.5
40	-0.012	2.5
30	-0.010	2.5
20	-0.007	2.5
10	-0.014	2.5
0	-0.015	2.5
-10	-0.022	2.5
-20	-0.020	2.5

## 4.3 OCCUPIED BANDWIDTH MEASUREMENT

### 4.3.1 TEST PROCEDURES

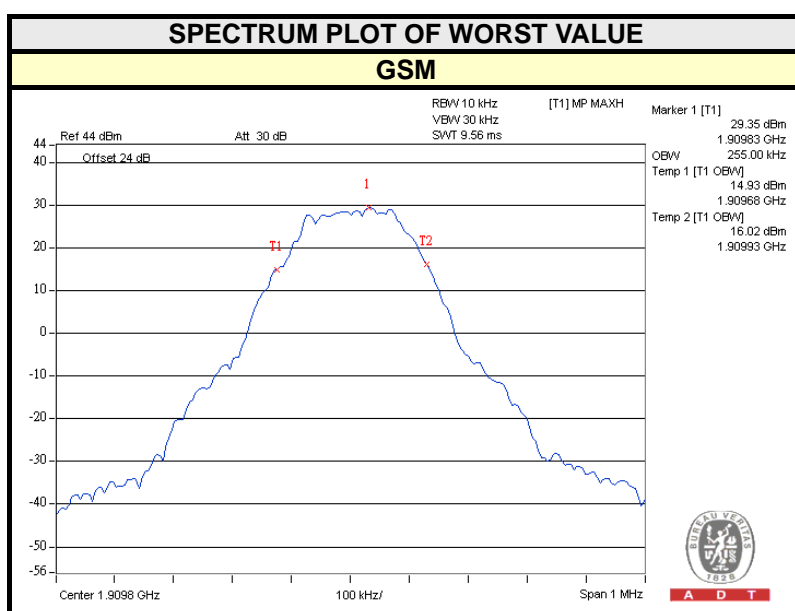
The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

### 4.3.2 TEST SETUP



### 4.3.3 TEST RESULTS

CHANNEL	FREQ. (MHz)	99% OCCUPIED BANDWIDTH (kHz)
		GSM
512	1850.2	255.0
661	1880.0	255.0
810	1909.8	255.0

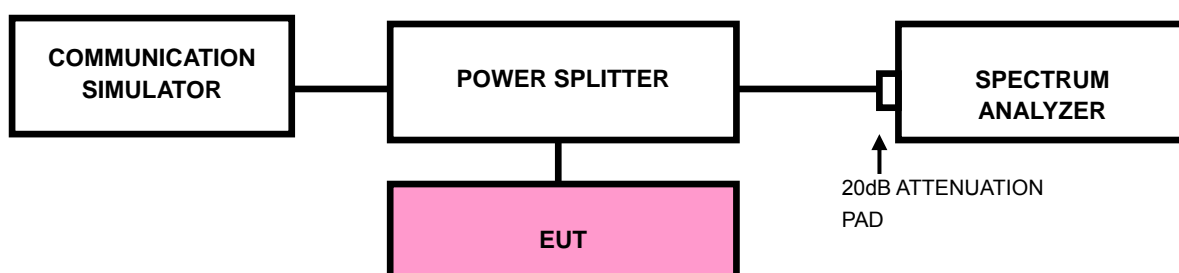


## 4.4 BAND EDGE MEASUREMENT

### 4.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

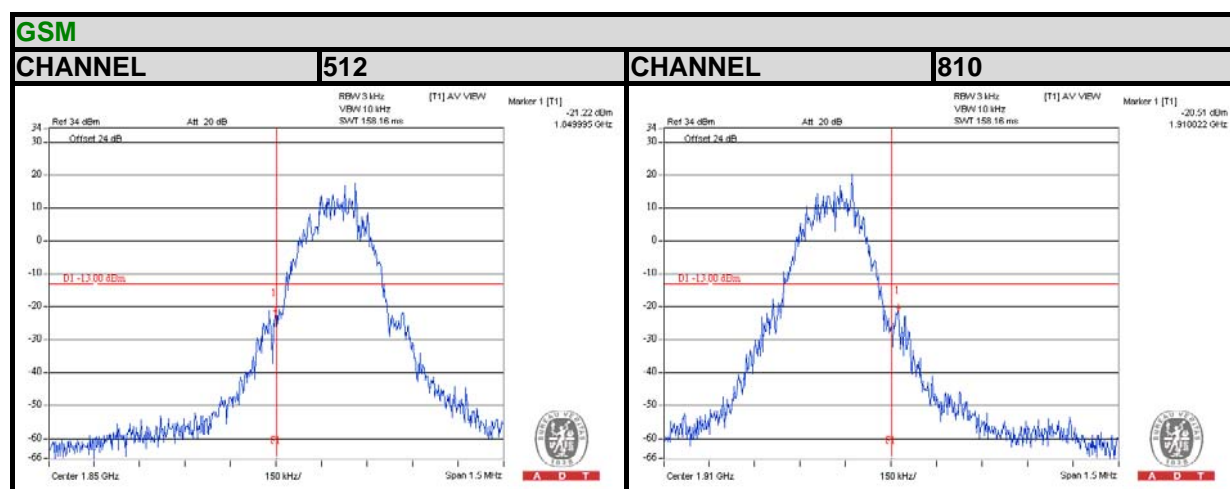
### 4.4.2 TEST SETUP



### 4.4.3 TEST PROCEDURES

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM).
- Record the max trace plot into the test report.

## 4.4.4 TEST RESULTS



## 4.5 CONDUCTED SPURIOUS EMISSIONS

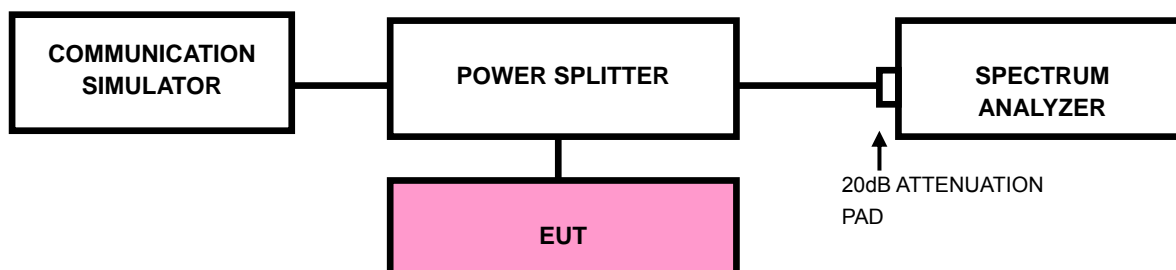
### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

### 4.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz 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





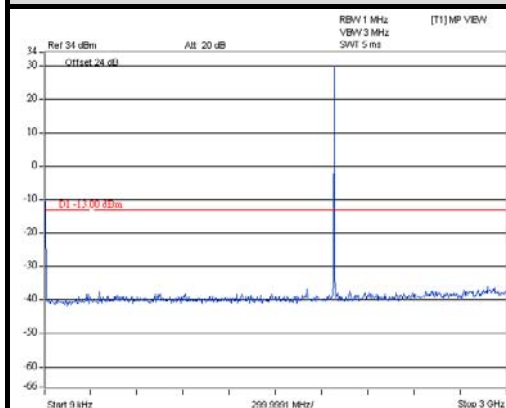


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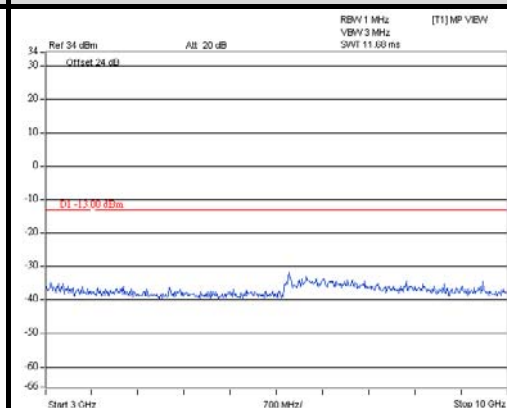
## GSM

### CHANNEL 661

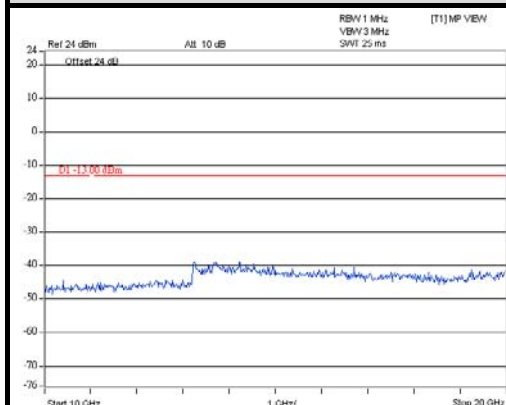
#### FREQUENCY RANGE : 9kHz~3GHz



#### FREQUENCY RANGE : 3GHz~10GHz



#### FREQUENCY RANGE : 10GHz~20GHz



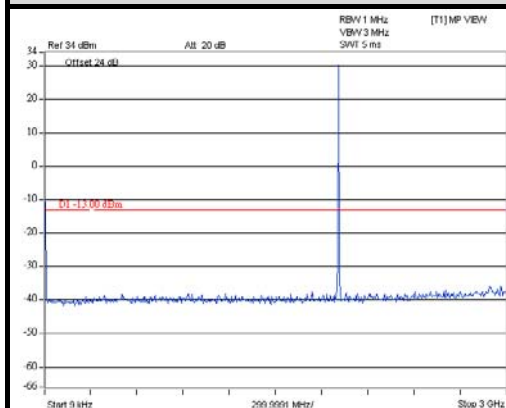


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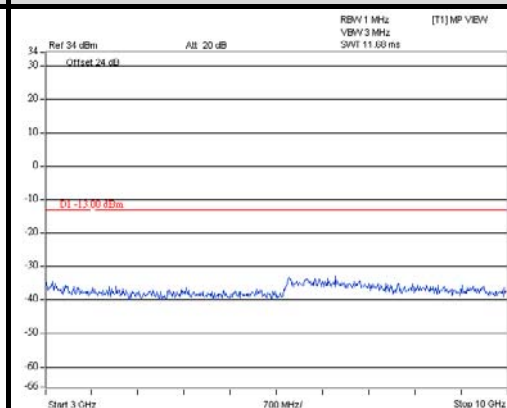
## GSM

### CHANNEL 810

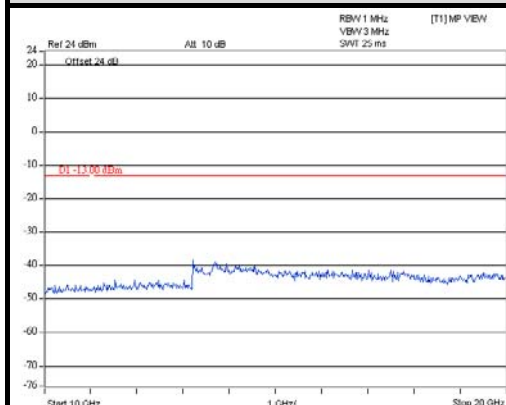
#### FREQUENCY RANGE : 9kHz~3GHz



#### 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  $-13\text{dBm}$ .

### 4.6.2 TEST PROCEDURES

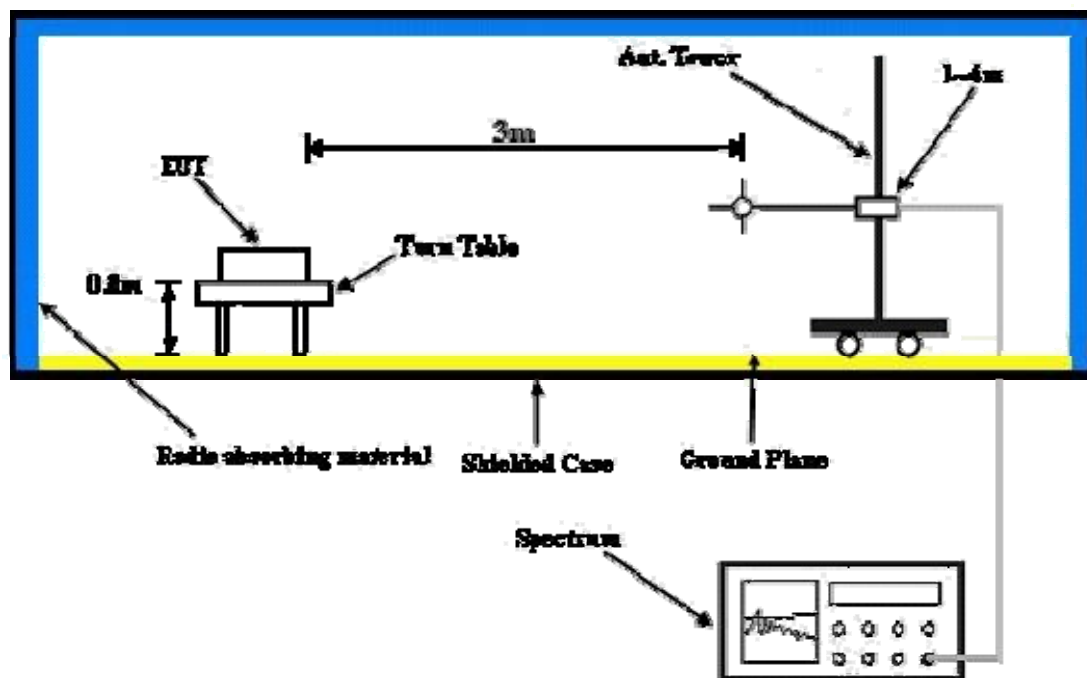
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  
 $\text{E.R.P power} = \text{E.I.R.P power} - 2.15\text{dBi}$ .

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

### 4.6.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.4 TEST SETUP



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



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#### 4.6.5 TEST RESULTS

##### Below 1GHz

MODE	TX channel 661	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	39.70	-56.10	-41.20	-10.90	-52.10	-13.00	-39.10
2	53.28	-59.40	-50.60	-8.50	-59.10	-13.00	-46.10
3	99.84	-59.00	-65.50	0.90	-64.60	-13.00	-51.60
4	169.68	-58.00	-64.20	1.60	-62.60	-13.00	-49.60
5	544.10	-62.90	-67.00	4.70	-62.30	-13.00	-49.30
6	759.44	-64.20	-62.80	4.60	-58.20	-13.00	-45.20
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	35.82	-43.10	-37.70	-11.40	-49.10	-13.00	-36.10
2	84.32	-51.90	-55.90	-0.50	-56.40	-13.00	-43.40
3	115.36	-51.30	-55.30	0.30	-55.00	-13.00	-42.00
4	173.56	-62.70	-63.60	2.10	-61.50	-13.00	-48.50
5	485.90	-63.10	-65.70	5.00	-60.70	-13.00	-47.70
6	755.56	-63.90	-59.40	4.60	-54.80	-13.00	-41.80

##### REMARKS:

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



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## Above 1GHz

MODE	TX channel 512	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-39.15	-35.06	7.16	-27.90	-13.00	-14.90
2	5550.60	-49.97	-39.02	6.78	-32.24	-13.00	-19.24
3	7400.80	-57.34	-40.18	4.31	-35.87	-13.00	-22.87
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	-33.76	-29.89	7.16	-22.73	-13.00	-9.73
2	5550.60	-42.91	-33.46	6.78	-26.68	-13.00	-13.68
3	7400.80	-51.69	-35.2	4.31	-30.89	-13.00	-17.89

## REMARKS:

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



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MODE	TX channel 661	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-39.30	-34.95	7.10	-27.85	-13.00	-14.85
2	5640.00	-49.77	-38.77	6.77	-32.00	-13.00	-19.00
3	7520.00	-57.25	-39.71	4.23	-35.48	-13.00	-22.48
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	-33.80	-29.79	7.10	-22.69	-13.00	-9.69
2	5640.00	-43.00	-33.23	6.77	-26.46	-13.00	-13.46
3	7520.00	-52.33	-35.58	4.23	-31.35	-13.00	-18.35

**REMARKS:**

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



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MODE	TX channel 810	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH
TESTED BY	Alan Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3819.60	-39.44	-34.84	7.06	-27.78	-13.00	-14.78
2	5729.40	-49.81	-38.73	6.74	-31.99	-13.00	-18.99
3	7639.20	-57.35	-39.58	4.20	-35.38	-13.00	-22.38
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	-33.77	-29.64	7.06	-22.58	-13.00	-9.58
2	5729.40	-42.94	-32.82	6.74	-26.08	-13.00	-13.08
3	7639.20	-51.93	-35.01	4.20	-30.81	-13.00	-17.81

**REMARKS:**

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





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## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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## 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.

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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



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## **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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