

# FCC TEST REPORT (CO-LOCATED)

**REPORT NO.:** RF130403C25-5

MODEL NO.: XT85

FCC ID: UTWXT85WA

**RECEIVED:** Apr. 03, 2013

**TESTED:** Apr. 13 ~ May 15, 2013

**ISSUED:** May 16, 2013

**APPLICANT:** Janam Technologies LLC

**ADDRESS:** 100 Crossways Park West, Suite 105, Woodbury,

NY 11797

**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.

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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130403C25-5	Original release	May 16, 2013

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# 1. CERTIFICATION

**PRODUCT:** Portable Data Terminal

**MODEL NO.:** XT85

**BRAND**: JANAM

**APPLICANT:** Janam Technologies LLC

**TESTED:** Apr. 13 ~ May 15, 2013

**TEST SAMPLE:** ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

FCC Part 15, Subpart E (Section 15.407)

FCC Part 22, Subpart H FCC Part 24, Subpart E

ANSI C63.10-2009

The above equipment (model: XT85) 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 : May 16, 2013

Pettie Chen / Senior Specialist

**APPROVED BY**: \_\_\_\_\_, **DATE**: \_\_\_\_\_ May 16, 2013

Anderson Chiu / Senior Engineer



# 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) FCC PART 15, SUBPART E (SECTION 15.407)

FCC Part 22, Subpart H FCC Part 24, Subpart E

STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207 15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -19.23dB at 0.38047MHz.
15.247(d) 15.407(b/1/2/3) (b)(6) 2.1053 22.917 24.238	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.9dB at 4824.00MHz.

#### 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
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

EUT	Portable Data Terminal		
MODEL NO.	XT85		
POWER SUPPLY	3.7Vdc (Battery) 5.0Vdc (Adapter or host equipment)		
	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM	
	вт	GFSK, π/4-DQPSK, 8DPSK	
MODULATION TYPE	GSM, GPRS, EDGE	GMSK	
	WCDMA, HSDPA, HSUPA	BPSK	
TRANSFER RATE	WLAN	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 72.2Mbps	
	ВТ	1/2/3Mbps	
	WLAN	<b>2.4GHz</b> : 2412 ~ 2462MHz <b>5.0GHz</b> : 5180 ~ 5240MHz, 5745 ~ 5825MHz	
	ВТ	2402 ~ 2480MHz	
OPERATING FREQUENCY	GSM, GPRS, EDGE	824.2MHz ~ 848.8MHz 1850.2MHz ~ 1909.8MHz	
	WCDMA, HSDPA, HSUPA	826.4MHz ~ 846.6MHz 1852.4MHz ~ 1907.6MHz	
OUTPUT POWER	WLAN	69.984mW for 2412 ~ 2462MHz 5.728mW for 5180 ~ 5240MHz 43.451mW for 5745 ~ 5825MHz	
	ВТ	1.368mW	
	GSM	727.78mW (28.62dBm)	
	GPRS	711.21mW (28.52dBm)	
MAX. ERP POWER	EDGE	695.02mW (28.42dBm)	
IVIAA. ERP PUVVER	WCDMA	110.92mW (20.45dBm)	
	HSDPA	87.50mW (19.42dBm)	
	HSUPA	98.86mW (19.95dBm)	



	GSM	514.04mW (27.11dBm)	
	GPRS	490.91mW (26.91dBm)	
MAY FIRE DOWER	EDGE	479.73mW (26.81dBm)	
MAX. EIRP POWER	WCDMA	155.96mW (21.93dBm)	
	HSDPA	147.91mW (21.70dBm)	
	HSUPA	153.11mW (21.85dBm)	
ANTENNA TYPE	2.4GHz: PIFA antenna with 1.68dBi gain 5.0GHz: PIFA antenna with 2.64dBi gain GSM 800, WCDMA Band V: PIFA antenna with -4dBi gain GSM 1900, WCDMA Band II: PIFA antenna with -2dBi gain		
ANTENNA CONNECTOR	NA		
DATA CABLE	NA		
I/O PORTS	Refer to user's manual		
ACCESSORY DEVICES	Refer to Note as below		

#### NOTE:

1. The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX

- 2. There are two types of barcode scanners for the EUT: 1D & 2D. After pretesting, 2D is the worst for the final test.
- 3. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter	Sunny		I/P: 100-240Vac, 1.0A, 50-60Hz O/P: 5.0Vdc, 2.0A
Battery 1	JANAM	BAT-T1-001	Rating: 3.7Vdc, 2400mAh
Battery 2	JANAM	BAT-T21-001	Rating: 3.7Vdc, 3600mAh
USB cable	JANAM	NA	1.2m non-shielded cable without core

<sup>\*</sup>After pretesting, Battery 1 was the worst case for the final test.

4. The following support units provided by client.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter	EDAC	EA10302	I/P: 100-240Vac, 1.0A, 50-60Hz O/P: 9.0Vdc, 3.0A 1.2m non-shielded cable with one core
USB Host Cable	JANAM	NA	1.2m non-shielded cable with one core
USB Client Cable	JANAM	NA	1.2m non-shielded cable with one core
Power cord	JANAM	NA	2.0m non-shielded cable without core

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.



# 3.2 DESCRIPTION OF TEST MODES

# FOR 2.4GHz

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

# FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

# FOR 5745 ~ 5825MHz

5 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		



# **Bluetooth EDR:**

79 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		



#### 850 Band:

# **GSM**, **GPRS**, **EDGE**:

	CHANNEL FREQUENCY (MF	
LOW	128	824.2
MIDDLE	189	836.4
HIGH	251	848.8

# WCDMA, HSDPA, HSUPA:

	CHANNEL	FREQUENCY (MHz)
LOW	4132	826.4
MIDDLE	4182	836.4
HIGH	4233	846.6

#### 1900 Band:

# **GSM**, **GPRS**, **EDGE**:

	CHANNEL	FREQUENCY (MHz)
LOW	512	1850.2
MIDDLE	661	1880.0
HIGH	810	1909.8

# WCDMA, HSDPA, HSUPA:

	CHANNEL	FREQUENCY (MHz)
LOW	9262	1852.4
MIDDLE	9400	1880.0
HIGH	9538	1907.6



# 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE		APPLICABLE TO		DESCRIPTION		
MODE	RE≥1G	RE<1G	PLC	DESCRIPTION		
-	V	V	V	-		

Where

**RE≥1G:** Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

#### NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned as below.

#### **RADIATED EMISSION TEST (ABOVE 1GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	EUT POSITION
	GSM 850	824.2~848.8	128 to 251	251 + 1	GSM	Y
	+802.11b	2412~2462	1 to 11	231 + 1	DSSS	ı
	GSM 850	824.2~848.8	128 to 251	251 + 48	GSM	Y
_	+802.11n(20MHz)	5180~5240	36 to 48	201 + 40	OFDM	Ī
	GSM 850	824.2~848.8	128 to 251	251 + 149	GSM	Y
-	+802.11a	5745~5825	149 to 165	251 + 149	OFDM	
	GSM 850	824.2~848.8	128 to 251	251 + 78	GSM	Y
-	+Bluetooth	2402 ~ 2480	0 to 78	201 + 70	GFSK	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	661 + 1	GSM	Х
-	+802.11b	2412~2462	1 to 11		DSSS	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 + 40	GSM	V
-	+802.11n(20MHz)	5180~5240	36 to 48	661 + 48	OFDM	Х
	GSM 1900	1850.2 ~ 1909.8	512 to 810	661 + 149	GSM	V
-	+802.11a	5745~5825	149 to 165	001 + 149	OFDM	Х
	GSM 1900	1850.2 ~ 1909.8	512 to 810	664 + 70	GSM	
_	+Bluetooth	2402 ~ 2480	0 to 78	661 + 78	GFSK	Х

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# **RADIATED EMISSION TEST (BELOW 1GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	EUT POSITION
	GSM 850	824.2~848.8	128 to 251	251 + 1	GSM	Y
-	+802.11b	2412~2462	1 to 11	201 + 1	DSSS	T
	GSM 850	824.2~848.8	128 to 251	251 + 48	GSM	Y
-	+802.11n(20MHz)	5180~5240	36 to 48	201 + 40	OFDM	Ť
	GSM 850	824.2~848.8	128 to 251	251 + 149	GSM	Υ
-	- +802.11a		149 to 165	251 + 149	OFDM	T .
	GSM 850	824.2~848.8	128 to 251	251 + 78	GSM	Y
-	+Bluetooth	2402 ~ 2480	0 to 78	201 + 70	GFSK	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	661 + 1	GSM	Х
-	+802.11b	2412~2462	1 to 11	001+1	DSSS	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 : 40	GSM	Х
-	+802.11n(20MHz)	5180~5240	36 to 48	661 + 48	OFDM	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 : 440	GSM	V
-	+802.11a	5745~5825	149 to 165	661 + 149	OFDM	Х
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 + 70	GSM	Х
-	+Bluetooth	2402 ~ 2480	0 to 78	661 + 78	GFSK	



# **CONDUCTED EMISSION TEST:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	EUT POSITION
	GSM 850	824.2~848.8	128 to 251	251 + 1	GSM	Υ
-	+802.11b	2412~2462	1 to 11	251 + 1	DSSS	Ť
	GSM 850	824.2~848.8	128 to 251	054 + 40	GSM	Y
-	+802.11n(20MHz)	5180~5240	36 to 48	251 + 48	OFDM	Y
	GSM 850	824.2~848.8	128 to 251	054 : 440	GSM	Y
_	+802.11a	5745~5825	149 to 165	251 + 149	OFDM	
	GSM 850	824.2~848.8	128 to 251	054 + 70	GSM	Υ
-	+Bluetooth	2402 ~ 2480	0 to 78	251 + 78	GFSK	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 : 4	GSM	Х
-	+802.11b	2412~2462	1 to 11	661 + 1	DSSS	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	664 + 40	GSM	Х
_	+802.11n(20MHz)	5180~5240	36 to 48	661 + 48	OFDM	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	661   140	GSM	Х
-	+802.11a	5745~5825	149 to 165	661 + 149	OFDM	
	GSM 1900	1850.2 ~ 1909.8	512 to 810	004 + 70	GSM	Х
-	+Bluetooth	2402 ~ 2480	0 to 78	661 + 78	GFSK	

# **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 68%RH	120Vac, 60Hz	Cedric Wu
RE<1G	25deg. C, 68%RH	120Vac, 60Hz	Cedric Wu
PLC	26deg. C, 67%RH	120Vac, 60Hz	Cedric Wu



#### 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.

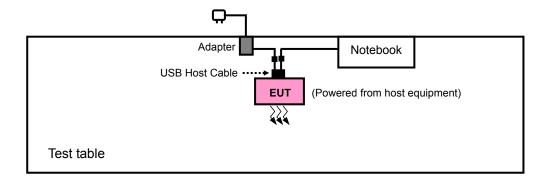
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5420	33MLMQ1	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.2m USB host cable with one core (Provided by client)

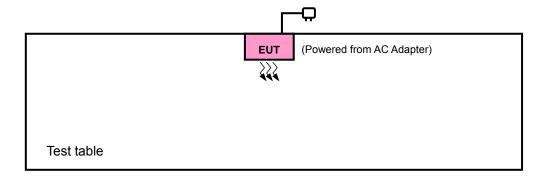
**NOTE:** All power cords of the above support units are non shielded (1.8m).

#### 3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

#### **Test Mode A**



## **Test Mode B**



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# 3.4 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 Part 15, Subpart C (Section 15.247)
FCC Part 15, Subpart E (Section 15.407)
FCC Part 22, Subpart H
FCC Part 24, Subpart E
ANSI C63.10-2009

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



# 4. TEST TYPES AND RESULTS

#### 4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

#### NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level  $(dBuV/m) = 20 \log Emission level (uV/m)$ .
- 3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT				
	FIELD STRENGTH AT 3m (dBμV/m)				
$\sqrt{}$	PK	AV			
	74 54				
	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m)			
	PK	PK			
	-27	68.3			

**NOTE:** The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

E = 
$$\frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts).



# 4.1.3 TEST INSTRUMENTS

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_ V7.6.15.9.2	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
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 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.



#### 4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE

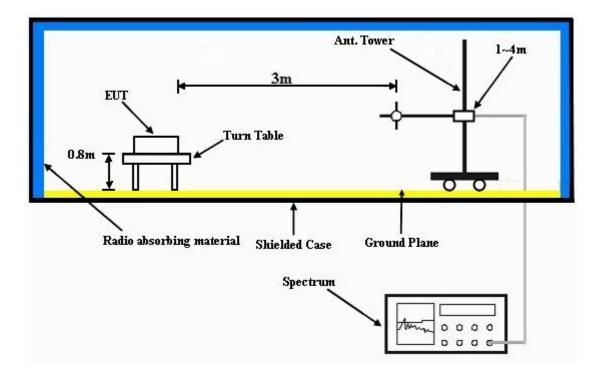
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.5 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.6 TEST SETUP



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

# 4.1.7 EUT OPERATING CONDITIONS

- a. Connected EUT with a notebook system via USB cable and placed on a testing table.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.



# 4.1.8 TEST RESULTS

#### Above 1GHz data

#### GSM 850+802.11b

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	CHANNEL CH 251 + CH 1		1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.9 PK	74.0	-22.1	1.33 H	304	21.10	30.80
2	2390.00	44.1 AV	54.0	-9.9	1.33 H	304	13.30	30.80
3	*2412.00	107.1 PK			1.33 H	304	76.20	30.90
4	*2412.00	103.2 AV			1.33 H	304	72.30	30.90
5	4824.00	57.0 PK	74.0	-17.0	1.19 H	266	20.00	37.00
6	4824.00	53.0 AV	54.0	-1.0	1.19 H	266	16.00	37.00
		ANTENNA	POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.16 V	283	26.00	30.80
2	2390.00	50.4 AV	54.0	-3.6	1.16 V	283	19.60	30.80
3	*2412.00	104.8 PK			1.16 V	283	73.90	30.90
4	*2412.00	101.0 AV			1.16 V	283	70.10	30.90
5	4824.00	52.1 PK	74.0	-21.9	1.00 V	167	15.10	37.00
6	4824.00	49.0 AV	54.0	-5.0	1.00 V	167	12.00	37.00

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
1	1697.60	-37.64	-40.57	5.59	-34.98	-13.00	-21.98		
2	2546.40	-42.90	-42.44	6.44	-36.00	-13.00	-23.00		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
	•	IN I EININA PU	LAKIII & IE	SIDISTANC	E. VERTICAL	- AI J WI			
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
<b>No.</b>		Reading	S.G Power	Correction			Margin (dB) -21.47		

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



#### **GSM** 850+802.11n(20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 48	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.0 PK			1.15 H	296	65.20	37.80
2	*5240.00	93.1 AV			1.15 H	296	55.30	37.80
3	#5400.00	54.7 PK	74.0	-19.3	1.08 H	299	16.60	38.10
4	#5400.00	45.2 AV	54.0	-8.8	1.08 H	299	7.10	38.10
5	#10480.00	57.6 PK	74.0	-16.4	1.02 H	248	8.40	49.20
6	#10480.00	46.5 AV	54.0	-7.5	1.02 H	248	-2.70	49.20
		ANTENNA	A POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	113.5 PK			1.13 V	41	75.70	37.80
2	*5240.00	103.1 AV			1.13 V	41	65.30	37.80
3	#5400.00	60.7 PK	74.0	-13.3	1.28 V	69	22.60	38.10
4	#5400.00	51.9 AV	54.0	-2.1	1.28 V	69	13.80	38.10
5	#10480.00	58.7 PK	74.0	-15.3	1.32 V	57	9.50	49.20

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 48	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
1	1697.60	-37.38	-40.31	5.59	-34.72	-13.00	-21.72		
2	2546.40	-42.67	-42.21	6.44	-35.77	-13.00	-22.77		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
	F	INTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	_ AT 3 M			
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	E: VERTICAL	Limit (dBm)	Margin (dB)		
<b>No.</b>		Reading	S.G Power	Correction			Margin (dB) -21.21		

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



#### **GSM 850+802.11a**

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 149	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	#5725.00	66.4 PK	86.8	-20.4	1.32 H	47	27.70	38.70	
2	#5725.00	56.4 AV	76.8	-20.4	1.32 H	47	17.70	38.70	
3	*5745.00	106.8 PK			1.34 H	52	68.10	38.70	
4	*5745.00	96.8 AV			1.34 H	52	58.10	38.70	
5	11490.00	58.4 PK	74.0	-15.6	1.08 H	302	8.90	49.50	
6	11490.00	47.7 AV	54.0	-6.3	1.08 H	302	-1.80	49.50	
		ANTENNA	A POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	#5725.00	81.1 PK	93.2	-12.1	1.12 V	48	42.40	38.70	
2	#5725.00	71.1 AV	83.2	-12.1	1.12 V	48	32.40	38.70	
3	*5745.00	113.2 PK			1.13 V	40	74.50	38.70	
4	*5745.00	103.2 AV			1.13 V	40	64.50	38.70	
5	11490.00	58.9 PK	74.0	-15.1	1.28 V	241	9.40	49.50	

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
<b>CHANNEL</b> CH 251 + CH 149		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
1	1697.60	-37.73	-40.66	5.59	-35.07	-13.00	-22.07		
2	2546.40	-43.02	-42.56	6.44	-36.12	-13.00	-23.12		
	F	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) ERP (dBm) Limit (dBm) Margin (dB)								
No.	Freq. (MHz)	Reading (dBm)		Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
<b>No.</b>	<b>Freq. (MHz)</b> 1697.60	J			ERP (dBm) -34.57	Limit (dBm) -13.00	Margin (dB) -21.57		

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



#### **GSM 850+ Bluetooth**

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL CH 251 + CH 78		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	102.3 PK			1.30 H	303	71.10	31.20
2	*2480.00	72.2 AV			1.30 H	303	41.00	31.20
3	2483.50	50.4 PK	74.0	-23.6	1.30 H	303	19.20	31.20
4	2483.50	20.3 AV	54.0	-33.7	1.30 H	303	-10.90	31.20
5	4960.00	51.5 PK	74.0	-22.5	1.24 H	233	14.20	37.30
6	4960.00	21.4 AV	54.0	-32.6	1.24 H	233	-15.90	37.30
		ANTENNA	POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	96.0 PK			1.00 V	85	64.80	31.20
2	*2480.00	65.9 AV			1.00 V	85	34.70	31.20
3	2483.50	44.0 PK	74.0	-30.0	1.00 V	85	12.80	31.20
4	2483.50	13.9 AV	54.0	-40.1	1.00 V	85	-17.30	31.20
5	4960.00	49.9 PK	74.0	-24.1	1.39 V	195	12.60	37.30
6	4960.00	19.8 AV	54.0	-34.2	1.39 V	195	-17.50	37.30

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL CH 251 + CH 78		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)		
1	1697.60	-36.72	-39.65	5.59	-34.06	-13.00	-21.06		
2	2546.40	-41.96	-41.5	6.44	-35.06	-13.00	-22.06		
	A	ANTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	- AT 3 M			
No.	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) ERP (dBm) Limit (dBm) Margin (dB)								
1	1697.60	-34.54	-39.13	5.59	-33.54	-13.00	-20.54		
2	2546.40	-40.28	-40.13	6.44	-33.69	-13.00	-20.69		

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



#### GSM 1900+ 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL CH 661 + CH 1		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.6 PK	74.0	-22.4	1.33 H	304	20.80	30.80
2	2390.00	44.0 AV	54.0	-10.0	1.33 H	304	13.20	30.80
3	*2412.00	107.0 PK			1.33 H	304	76.10	30.90
4	*2412.00	103.0 AV			1.33 H	304	72.10	30.90
5	4824.00	57.1 PK	74.0	-16.9	1.19 H	266	20.10	37.00
6	4824.00	53.1 AV	54.0	-0.9	1.19 H	266	16.10	37.00
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.0 PK	74.0	-17.0	1.16 V	283	26.20	30.80
2	2390.00	50.3 AV	54.0	-3.7	1.16 V	283	19.50	30.80
3	*2412.00	104.9 PK			1.16 V	283	74.00	30.90
4	*2412.00	101.1 AV			1.16 V	283	70.20	30.90
5	4824.00	52.0 PK	74.0	-22.0	1.00 V	167	15.00	37.00
6	4824.00	48.9 AV	54.0	-5.1	1.00 V	167	11.90	37.00

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL CH 661 + CH 1		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric 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	-46.73	-42.38	7.10	-35.28	-13.00	-22.28			
2	5640.00	-56.7	-45.7	6.77	-38.93	-13.00	-25.93			
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	AT 3 M				
No.	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) EIRP (dBm) Limit (dBm) Margin (dB)									
1	3760.00	-46.24	-42.23	7.10	-35.13	-13.00	-22.13			
2	5640.00	-51.34	-41.57	6.77	-34.8	-13.00	-21.80			

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



## GSM 1900+ 802.11n(20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL CH 661 + CH 48		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*5240.00	102.8 PK			1.15 H	296	65.00	37.80	
2	*5240.00	93.0 AV			1.15 H	296	55.20	37.80	
3	#5400.00	54.6 PK	74.0	-19.4	1.08 H	299	16.50	38.10	
4	#5400.00	45.0 AV	54.0	-9.0	1.08 H	299	6.90	38.10	
5	#10480.00	57.7 PK	74.0	-16.3	1.02 H	248	8.50	49.20	
6	#10480.00	46.4 AV	54.0	-7.6	1.02 H	248	-2.80	49.20	
		ANTENNA	A POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*5240.00	113.3 PK			1.13 V	41	75.50	37.80	
2	*5240.00	102.8 AV			1.13 V	41	65.00	37.80	
3	#5400.00	60.5 PK	74.0	-13.5	1.28 V	69	22.40	38.10	
4	#5400.00	51.9 AV	54.0	-2.1	1.28 V	69	13.80	38.10	
5	#10480.00	58.7 PK	74.0	-15.3	1.32 V	57	9.50	49.20	

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 48	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric 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	-46.46	-42.11	7.10	-35.01	-13.00	-22.01		
2	5640.00	-56.43	-45.43	6.77	-38.66	-13.00	-25.66		
	P	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	AT 3 M			
No.	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) EIRP (dBm) Limit (dBm) Margin (dB)								
1	3760.00	-46.00	-41.99	7.10	-34.89	-13.00	-21.89		
2	5640.00	-51.08	-41.31	6.77	-34.54	-13.00	-21.54		

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



#### **GSM 1900+ 802.11a**

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 149	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	66.3 PK	86.9	-20.6	1.32 H	47	27.60	38.70
2	#5725.00	56.1 AV	76.7	-20.6	1.32 H	47	17.40	38.70
3	*5745.00	106.9 PK			1.34 H	52	68.20	38.70
4	*5745.00	96.7 AV			1.34 H	52	58.00	38.70
5	11490.00	58.5 PK	74.0	-15.5	1.08 H	302	9.00	49.50
6	11490.00	47.8 AV	54.0	-6.2	1.08 H	302	-1.70	49.50
		ANTENNA	POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	81.1 PK	93.3	-12.2	1.12 V	48	42.40	38.70
2	#5725.00	70.9 AV	83.1	-12.2	1.12 V	48	32.20	38.70
3	*5745.00	113.3 PK			1.13 V	40	74.60	38.70
4	*5745.00	103.1 AV			1.13 V	40	64.40	38.70
5	11490.00	59.0 PK	74.0	-15.0	1.28 V	241	9.50	49.50

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 149	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric 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	-46.66	-42.31	7.10	-35.21	-13.00	-22.21		
2	5640.00	-56.63	-45.63	6.77	-38.86	-13.00	-25.86		
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	AT 3 M			
No.	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) EIRP (dBm) Limit (dBm) Margin (dB)								
1	3760.00	-46.20	-42.19	7.10	-35.09	-13.00	-22.09		
2	5640.00	-51.29	-41.52	6.77	-34.75	-13.00	-21.75		

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



#### GSM 1900+ Bluetooth

EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	CH 661 + CH 78	FREQUENCY RANGE	1 ~ 25GHz		
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*2480.00	102.5 PK			1.30 H	303	71.30	31.20		
2	*2480.00	72.4 AV			1.30 H	303	41.20	31.20		
3	2483.50	50.5 PK	74.0	-23.5	1.30 H	303	19.30	31.20		
4	2483.50	20.4 AV	54.0	-33.6	1.30 H	303	-10.80	31.20		
5	4960.00	51.4 PK	74.0	-22.6	1.24 H	233	14.10	37.30		
6	4960.00	21.3 AV	54.0	-32.7	1.24 H	233	-16.00	37.30		
		ANTENNA	A POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M  EMISSION LEVEL (dBuV/m)  MARGIN (dB) ANTENNA HEIGHT (m)  FACTOR (dB/m)  CORRECTION FACTOR (dB/m)								
		(======================================				(209.00)		` '		
1	*2480.00	95.9 PK			1.00 V	85	64.70	31.20		
1	*2480.00 *2480.00	,			1.00 V 1.00 V	, , ,	64.70 34.60			
•		95.9 PK	74.0	-30.1		85		31.20		
2	*2480.00	95.9 PK 65.8 AV	74.0 54.0	-30.1 -40.2	1.00 V	85 85	34.60	31.20 31.20		
2	*2480.00 2483.50	95.9 PK 65.8 AV 43.9 PK			1.00 V 1.00 V	85 85 85	34.60 12.70	31.20 31.20 31.20		

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 78	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric 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	-46.78	-42.43	7.10	-35.33	-13.00	-22.33		
2	5640.00	-56.76	-45.76	6.77	-38.99	-13.00	-25.99		
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICAL	AT 3 M			
No.	No. Freq. (MHz) Reading (dBm) S.G Power Value (dBm) Factor (dB) EIRP (dBm) Limit (dBm) Margin (dB)								
1	3760.00	-46.32	-42.31	7.10	-35.21	-13.00	-22.21		
2	5640.00	-51.41	-41.64	6.77	-34.87	-13.00	-21.87		

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



#### **Below 1GHz data**

#### **GSM 850 + 802.11b**

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 1	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	38.0 QP	40.0	-2.0	1.49 H	164	29.00	9.00
2	109.46	39.8 QP	43.5	-3.7	1.00 H	354	29.00	10.80
3	299.62	42.0 QP	46.0	-4.0	1.00 H	35	27.70	14.30
4	359.77	39.3 QP	46.0	-6.7	1.00 H	51	23.40	15.90
5	540.23	36.3 QP	46.0	-9.7	1.49 H	1	16.10	20.20
6	637.25	38.8 QP	46.0	-7.2	1.00 H	337	16.60	22.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.66	37.5 QP	40.0	-2.5	1.00 V	71	23.80	13.70
2	86.17							
	80.17	32.5 QP	40.0	-7.5	1.00 V	237	23.50	9.00
3	140.50	32.5 QP 32.0 QP	40.0 43.5	-7.5 -11.5	1.00 V 1.00 V	237 288	23.50 18.70	9.00
								7.00
3	140.50	32.0 QP	43.5	-11.5	1.00 V	288	18.70	13.30

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



# **GSM 850 + 802.11n(20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAI	AIL .		
CHANNEL	CH 251 + CH 48	FREQUENCY RANGE	Below 1000MHz		
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	37.8 QP	40.0	-2.2	1.00 H	3	28.80	9.00
2	154.09	32.8 QP	43.5	-10.7	1.24 H	357	19.20	13.60
3	247.23	33.1 QP	46.0	-12.9	1.24 H	77	20.50	12.60
4	480.07	30.5 QP	46.0	-15.5	1.24 H	198	11.80	18.70
5	720.68	33.3 QP	46.0	-12.7	1.50 H	196	9.90	23.40
6	916.66	40.8 QP	46.0	-5.2	1.75 H	3	14.60	26.20
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.66	36.8 QP	40.0	-3.2	1.00 V	105	23.10	13.70
2	86.17	32.7 QP	40.0	-7.3	1.50 V	81	23.70	9.00
3	154.09	26.5 QP	43.5	-17.0	1.25 V	129	12.90	13.60
4	480.07	32.3 QP	46.0	-13.7	1.50 V	83	13.60	18.70
5	544.11	21.1 QP	46.0	-24.9	1.75 V	114	0.80	20.30
6	916.66	36.0 QP	46.0	-10.0	1.50 V	5	9.80	26.20

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



## **GSM** 850 + 802.11a

<b>EUT TEST CONDITION</b>	EUT TEST CONDITION		T DETAIL		
CHANNEL	CH 251 + CH 149	FREQUENCY RANGE	Below 1000MHz		
INPUT POWER (SYSTEM)	120Vac 60Hz	DETECTOR FUNCTION	Quasi-Peak		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	38.6 QP	40.0	-1.4	1.24 H	172	29.60	9.00
2	136.62	33.4 QP	43.5	-10.1	1.50 H	163	20.40	13.00
3	299.62	39.9 QP	46.0	-6.1	1.00 H	33	25.60	14.30
4	359.77	35.4 QP	46.0	-10.6	1.24 H	50	19.50	15.90
5	720.68	34.2 QP	46.0	-11.8	1.24 H	193	10.80	23.40
6	916.66	40.7 QP	46.0	-5.3	1.75 H	325	14.50	26.20
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION	LIMIT		ANTENNA	TABLE	RAW VALUE	CORRECTION
	· · · · _ · · · · · · · · · · · · · · ·	LEVEL (dBuV/m)	(dBuV/m)	MARGIN (dB)	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	37.66		(dBuV/m) 40.0	MARGIN (dB) -2.4	7			
1 2	, ,	(dBuV/m)	,	,	HEIGHT (m)	(Degree)	(dBuV)	(dB/m)
	37.66	(dBuV/m) 37.6 QP	40.0	-2.4	<b>HEIGHT (m)</b>	(Degree)	(dBuV) 23.90	(dB/m) 13.70
2	37.66 90.05	(dBuV/m) 37.6 QP 32.9 QP	40.0 43.5	-2.4 -10.6	1.24 V 1.24 V	(Degree) 14 111	(dBuV) 23.90 23.80	(dB/m) 13.70 9.10
3	37.66 90.05 140.50	(dBuV/m) 37.6 QP 32.9 QP 31.9 QP	40.0 43.5 43.5	-2.4 -10.6 -11.6	1.24 V 1.24 V 1.00 V	(Degree) 14 111 299	(dBuV) 23.90 23.80 18.60	(dB/m) 13.70 9.10 13.30

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



## GSM 850 + Bluetooth

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 251 + CH 78	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	37.5 QP	40.0	-2.5	1.00 H	163	28.50	9.00
2	138.56	32.2 QP	43.5	-11.3	1.25 H	155	19.00	13.20
3	299.62	42.0 QP	46.0	-4.0	1.00 H	30	27.70	14.30
4	359.77	39.3 QP	46.0	-6.7	1.50 H	49	23.40	15.90
5	419.92	35.0 QP	46.0	-11.0	1.00 H	42	17.60	17.40
6	720.68	34.3 QP	46.0	-11.7	1.75 H	199	10.90	23.40
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	ANTENNA EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	/ & TEST DI	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	T 3 M RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
<b>NO</b> .	FREQ. (MHz)	EMISSION LEVEL	LIMIT		ANTENNA	TABLE ANGLE	RAW VALUE	FACTOR
	` ,	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m)
1	51.24	EMISSION LEVEL (dBuV/m) 35.4 QP	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m) 13.50
1 2	51.24 179.31	EMISSION LEVEL (dBuV/m) 35.4 QP 24.1 QP	LIMIT (dBuV/m) 40.0 43.5	<b>MARGIN (dB)</b> -4.6 -19.4	ANTENNA HEIGHT (m) 1.25 V 1.00 V	TABLE ANGLE (Degree) 100 334	RAW VALUE (dBuV) 21.90 12.20	FACTOR (dB/m) 13.50 11.90
1 2 3	51.24 179.31 247.23	EMISSION LEVEL (dBuV/m) 35.4 QP 24.1 QP 26.5 QP	LIMIT (dBuV/m) 40.0 43.5 46.0	-4.6 -19.4 -19.5	ANTENNA HEIGHT (m) 1.25 V 1.00 V 1.00 V	TABLE ANGLE (Degree) 100 334 160	RAW VALUE (dBuV) 21.90 12.20 13.90	FACTOR (dB/m)  13.50  11.90  12.60

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



# **GSM 1900 + 802.11b**

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 1	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	247.23	33.6 QP	46.0	-12.4	1.00 H	359	21.00	12.60
2	299.62	43.4 QP	46.0	-2.6	1.00 H	36	29.10	14.30
3	359.77	41.0 QP	46.0	-5.0	1.25 H	46	25.10	15.90
4	419.92	37.2 QP	46.0	-8.8	1.00 H	46	19.80	17.40
5	600.38	32.1 QP	46.0	-13.9	1.50 H	15	10.50	21.60
6	720.68	36.0 QP	46.0	-10.0	1.00 H	189	12.60	23.40
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION	LIMIT			TABLE	D AM WALLE	CORRECTION
	FREQ. (WITZ)	LEVEL (dBuV/m)	(dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)
1	37.66			MARGIN (dB) -3.3	7	7		
1 2	,	(dBuV/m)	(dBuV/m)	,	HEIGHT (m)	(Degree)	(dBuV)	(dB/m)
	37.66	(dBuV/m) 36.7 QP	(dBuV/m) 40.0	-3.3	<b>HEIGHT (m)</b>	( <b>Degree</b> ) 226	(dBuV) 23.00	(dB/m) 13.70
2	37.66 59.01	(dBuV/m) 36.7 QP 31.9 QP	(dBuV/m) 40.0 40.0	-3.3 -8.1	1.25 V 1.00 V	(Degree) 226 298	(dBuV) 23.00 19.20	(dB/m) 13.70 12.70
3	37.66 59.01 90.05	(dBuV/m) 36.7 QP 31.9 QP 30.7 QP	(dBuV/m)  40.0  40.0  43.5	-3.3 -8.1 -12.8	1.25 V 1.00 V 1.50 V	(Degree)  226  298  317	(dBuV) 23.00 19.20 21.60	(dB/m) 13.70 12.70 9.10
3 4	37.66 59.01 90.05 359.77	(dBuV/m) 36.7 QP 31.9 QP 30.7 QP 32.3 QP	(dBuV/m)  40.0  40.0  43.5  46.0	-3.3 -8.1 -12.8 -13.7	1.25 V 1.00 V 1.50 V 1.00 V	(Degree)  226  298  317  108	(dBuV) 23.00 19.20 21.60 16.40	(dB/m) 13.70 12.70 9.10 15.90

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



# **GSM 1900 + 802.11n(20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 48	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	38.2 QP	40.0	-1.8	1.25 H	1	29.20	9.00
2	105.58	31.2 QP	43.5	-12.3	1.50 H	1	20.80	10.40
3	247.23	32.9 QP	46.0	-13.1	1.00 H	16	20.30	12.60
4	299.62	38.5 QP	46.0	-7.5	1.50 H	39	24.20	14.30
5	419.92	33.5 QP	46.0	-12.5	1.00 H	51	16.10	17.40
6	600.38	37.7 QP	46.0	-8.3	1.50 H	11	16.10	21.60
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	/ & TEST DI	STANCE: V ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
<b>NO.</b>	FREQ. (MHz) 37.66	EMISSION LEVEL	LIMIT		ANTENNA	TABLE ANGLE	RAW VALUE	FACTOR
	` ,	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m)
1	37.66	EMISSION LEVEL (dBuV/m) 37.9 QP	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m) 13.70
1 2	37.66 93.93	EMISSION LEVEL (dBuV/m) 37.9 QP 31.0 QP	LIMIT (dBuV/m) 40.0 43.5	-2.1 -12.5	ANTENNA HEIGHT (m) 1.00 V 1.75 V	TABLE ANGLE (Degree) 171 160	RAW VALUE (dBuV) 24.20 21.60	FACTOR (dB/m) 13.70 9.40
1 2 3	37.66 93.93 359.77	EMISSION LEVEL (dBuV/m) 37.9 QP 31.0 QP 28.9 QP	LIMIT (dBuV/m) 40.0 43.5 46.0	-2.1 -12.5 -17.1	ANTENNA HEIGHT (m) 1.00 V 1.75 V 1.50 V	TABLE ANGLE (Degree) 171 160 282	RAW VALUE (dBuV)  24.20 21.60 13.00	FACTOR (dB/m) 13.70 9.40 15.90

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



## **GSM 1900 + 802.11a**

EUT TEST CONDITION	EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 661 + CH 149	FREQUENCY RANGE	Below 1000MHz		
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	37.7 QP	40.0	-2.3	1.74 H	46	28.70	9.00
2	97.81	39.7 QP	43.5	-3.8	1.50 H	136	30.00	9.70
3	299.62	34.2 QP	46.0	-11.8	1.74 H	36	19.90	14.30
4	419.92	38.8 QP	46.0	-7.2	1.25 H	47	21.40	17.40
5	480.07	38.0 QP	46.0	-8.0	1.74 H	6	19.30	18.70
6	540.23	35.5 QP	46.0	-10.5	1.00 H	223	15.30	20.20
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL	LIMIT	MARGIN (dB)	ANTENNA	TABLE ANGLE	RAW VALUE	CORRECTION
		(dBuV/m)	(dBuV/m)	,	HEIGHT (m)	(Degree)	(dBuV)	(dB/m)
1	37.66	(dBuV/m) 36.5 QP	(dBuV/m) 40.0	-3.5	1.74 V	(Degree)	(dBuV) 22.80	(dB/m) 13.70
1 2	37.66 86.17	,	, ,	` ′	` ,	` • ,	, ,	, ,
		36.5 QP	40.0	-3.5	1.74 V	38	22.80	13.70
2	86.17	36.5 QP 34.1 QP	40.0	-3.5 -5.9	1.74 V 1.74 V	38 76	22.80 25.10	13.70 9.00
3	86.17 138.56	36.5 QP 34.1 QP 26.4 QP	40.0 40.0 43.5	-3.5 -5.9 -17.1	1.74 V 1.74 V 1.00 V	38 76 73	22.80 25.10 13.20	13.70 9.00 13.20

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



## GSM 1900 + Bluetooth

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL			
CHANNEL CH 661 + CH 78		FREQUENCY RANGE	Below 1000MHz		
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak		
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Cedric Wu		

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.17	37.1 QP	40.0	-2.9	1.00 H	20	28.10	9.00
2	299.62	43.4 QP	46.0	-2.6	1.25 H	36	29.10	14.30
3	359.77	41.3 QP	46.0	-4.7	1.50 H	51	25.40	15.90
4	419.92	37.8 QP	46.0	-8.2	1.00 H	53	20.40	17.40
5	600.38	32.3 QP	46.0	-13.7	1.75 H	14	10.70	21.60
6	720.68	35.9 QP	46.0	-10.1	1.00 H	187	12.50	23.40
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.66	36.5 QP	40.0	-3.5	1.00 V	78	22.80	13.70
2	90.05	37.0 QP	43.5	-6.5	1.00 V	123	27.90	9.10
3	299.62	31.8 QP	46.0	-14.2	1.50 V	94	17.50	14.30
4	419.92	32.1 QP	46.0	-13.9	1.00 V	94	14.70	17.40
5	540.23	31.9 QP	46.0	-14.1	1.25 V	333	11.70	20.20
6	600.38	30.1 QP	46.0	-15.9	1.00 V	193	8.50	21.60

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.



# 4.2 CONDUCTED EMISSION MEASUREMENT

## 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED	LIMIT (dBμV)		
	Quasi-peak	Average		
0.15-0.5	66 to 56	56 to 46		
0.5-5	56	46		
5-30	60	50		

**NOTE**: 1. The lower limit shall apply at the transition frequencies.

- 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

# 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION	
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 09, 2012	Nov. 08, 2013	
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013	
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013	
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013	
Software ADT	BV ADT_Cond_ V7.3.7.3	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 Shielded Room 2.
- 3. The VCCI Site Registration No. is C-2047.



## 4.2.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit 20dB) was not recorded.

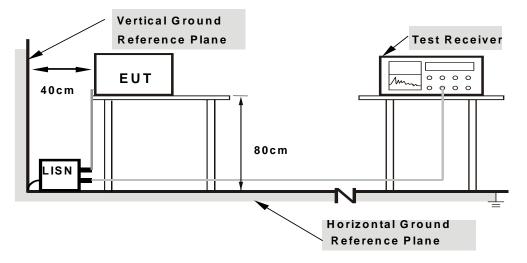
**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

## 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



# 4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

# 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



# 4.2.7 TEST RESULTS

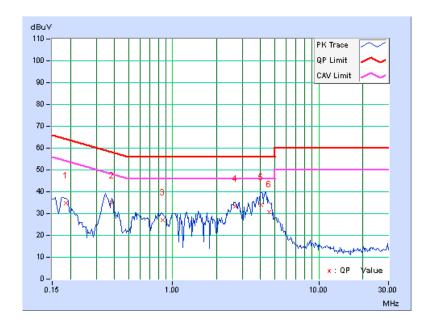
## **CONDUCTED WORST-CASE DATA:**

#### GSM 850+802.11b

CHANNEL	CH 251 + CH 1	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		<b>Emission Level</b>		Limit		Margin	
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.20	34.50	24.95	34.70	25.15	64.25	54.25	-29.56	-29.11
2	0.38438	0.22	34.65	22.49	34.87	22.71	58.18	48.18	-23.32	-25.48
3	0.85313	0.27	26.82	13.26	27.09	13.53	56.00	46.00	-28.91	-32.47
4	2.66797	0.35	33.15	19.21	33.50	19.56	56.00	46.00	-22.50	-26.44
5	4.01953	0.40	33.62	19.56	34.02	19.96	56.00	46.00	-21.98	-26.04
6	4.57422	0.41	30.41	16.27	30.82	16.68	56.00	46.00	-25.18	-29.32

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

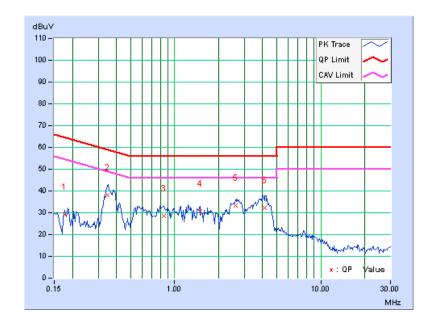




CHANNEL	CH 251 + CH 1	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Readin	Reading Value		Emission Level		nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17734	0.19	28.96	20.97	29.15	21.16	64.61	54.61	-35.46	-33.45	
2	0.34531	0.25	37.78	28.21	38.03	28.46	59.07	49.07	-21.05	-20.62	
3	0.84141	0.26	28.44	16.00	28.70	16.26	56.00	46.00	-27.30	-29.74	
4	1.49609	0.29	30.36	20.21	30.65	20.50	56.00	46.00	-25.35	-25.50	
5	2.61328	0.36	32.92	21.32	33.28	21.68	56.00	46.00	-22.72	-24.32	
6	4.11328	0.45	31.73	19.01	32.18	19.46	56.00	46.00	-23.82	-26.54	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



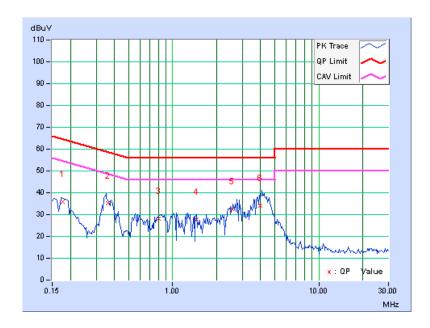


## GSM 850+802.11n(20MHz)

CHANNEL	CH 251 + CH 48	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		Emissio	Emission Level		nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17734	0.19	35.59	25.16	35.78	25.35	64.61	54.61	-28.83	-29.26	
2	0.36094	0.22	34.80	20.66	35.02	20.88	58.71	48.71	-23.69	-27.83	
3	0.79844	0.27	27.81	13.21	28.08	13.48	56.00	46.00	-27.92	-32.52	
4	1.44922	0.30	27.40	9.92	27.70	10.22	56.00	46.00	-28.30	-35.78	
5	2.54688	0.34	32.22	17.95	32.56	18.29	56.00	46.00	-23.44	-27.71	
6	3.96875	0.40	33.77	18.37	34.17	18.77	56.00	46.00	-21.83	-27.23	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

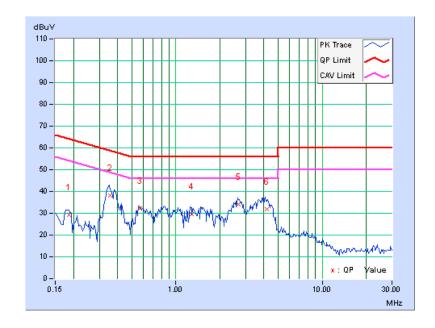




CHANNEL	CH 251 + CH 48	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Readin	Reading Value		Emission Level		nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18516	0.19	29.12	19.56	29.31	19.75	64.25	54.25	-34.94	-34.50	
2	0.35703	0.25	37.99	28.72	38.24	28.97	58.80	48.80	-20.55	-19.82	
3	0.56797	0.27	31.81	21.49	32.08	21.76	56.00	46.00	-23.92	-24.24	
4	1.27734	0.28	29.19	19.47	29.47	19.75	56.00	46.00	-26.53	-26.25	
5	2.68359	0.36	33.71	22.83	34.07	23.19	56.00	46.00	-21.93	-22.81	
6	4.17578	0.45	31.49	18.91	31.94	19.36	56.00	46.00	-24.06	-26.64	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



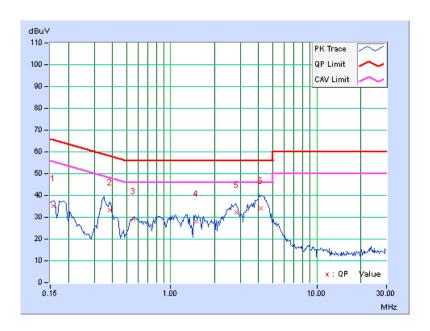


## GSM 850+802.11a

CHANNEL	CH 251 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.15781	0.19	34.97	22.05	35.16	22.24	65.58	55.58	-30.42	-33.34	
2	0.38438	0.22	33.13	23.81	33.35	24.03	58.18	48.18	-24.84	-24.16	
3	0.55625	0.24	28.95	16.22	29.19	16.46	56.00	46.00	-26.81	-29.54	
4	1.48828	0.30	27.85	12.83	28.15	13.13	56.00	46.00	-27.85	-32.87	
5	2.83594	0.35	31.88	18.14	32.23	18.49	56.00	46.00	-23.77	-27.51	
6	4.14844	0.40	33.70	19.46	34.10	19.86	56.00	46.00	-21.90	-26.14	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

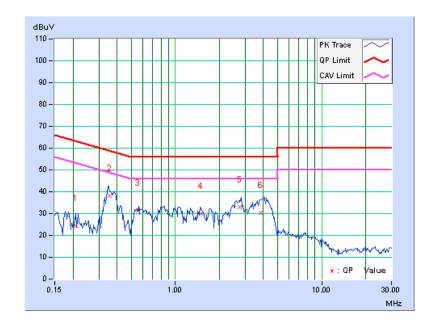




CHANNEL	CH 251 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.20859	0.19	24.38	16.80	24.57	16.99	63.26	53.26	-38.69	-36.27	
2	0.35703	0.25	38.06	29.07	38.31	29.32	58.80	48.80	-20.48	-19.47	
3	0.55234	0.27	31.31	18.87	31.58	19.14	56.00	46.00	-24.42	-26.86	
4	1.50000	0.29	29.66	18.21	29.95	18.50	56.00	46.00	-26.05	-27.50	
5	2.75000	0.37	32.57	20.80	32.94	21.17	56.00	46.00	-23.06	-24.83	
6	3.82031	0.44	29.94	19.53	30.38	19.97	56.00	46.00	-25.62	-26.03	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



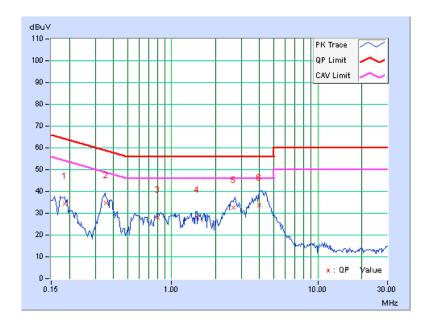


## **GSM 850+Bluetooth**

CHANNEL	CH 251 + CH 78	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		Emissio	<b>Emission Level</b>		nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18516	0.20	34.40	24.63	34.60	24.83	64.25	54.25	-29.66	-29.43	
2	0.35703	0.22	34.51	22.25	34.73	22.47	58.80	48.80	-24.07	-26.33	
3	0.79844	0.27	27.77	15.25	28.04	15.52	56.00	46.00	-27.96	-30.48	
4	1.49219	0.30	27.85	14.22	28.15	14.52	56.00	46.00	-27.85	-31.48	
5	2.65625	0.35	32.16	18.99	32.51	19.34	56.00	46.00	-23.49	-26.66	
6	3.96484	0.40	33.29	18.21	33.69	18.61	56.00	46.00	-22.31	-27.39	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

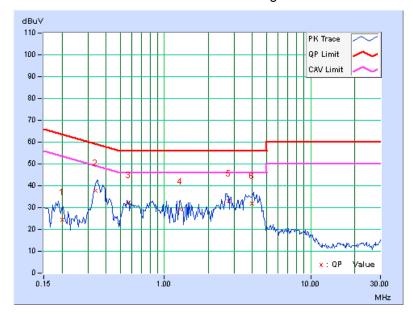




CHANNEL	CH 251 + CH 78	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Reading Value		Emissio	n Level	Limit		Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.20078	0.19	24.39	11.29	24.58	11.48	63.58	53.58	-39.00	-42.10	
2	0.33750	0.24	37.49	26.36	37.73	26.60	59.26	49.26	-21.53	-22.66	
3	0.56797	0.27	31.93	21.25	32.20	21.52	56.00	46.00	-23.80	-24.48	
4	1.28516	0.28	28.91	18.13	29.19	18.41	56.00	46.00	-26.81	-27.59	
5	2.73828	0.37	32.47	21.38	32.84	21.75	56.00	46.00	-23.16	-24.25	
6	3.99609	0.45	31.41	19.87	31.86	20.32	56.00	46.00	-24.14	-25.68	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



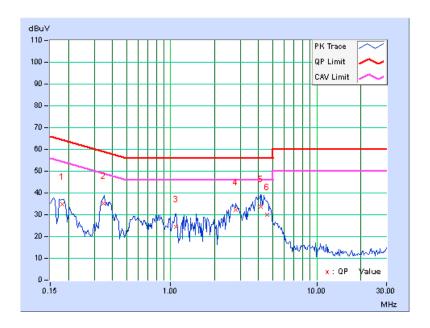


## GSM 1900+802.11b

CHANNEL	CH 661 + CH 1	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		<b>Emissic</b>	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18125	0.19	34.65	25.65	34.84	25.84	64.43	54.43	-29.58	-28.58	
2	0.34531	0.21	35.00	22.36	35.21	22.57	59.07	49.07	-23.86	-26.50	
3	1.08984	0.29	24.13	10.91	24.42	11.20	56.00	46.00	-31.58	-34.80	
4	2.80078	0.35	32.04	18.95	32.39	19.30	56.00	46.00	-23.61	-26.70	
5	4.11328	0.40	33.23	18.89	33.63	19.29	56.00	46.00	-22.37	-26.71	
6	4.59375	0.41	29.72	15.46	30.13	15.87	56.00	46.00	-25.87	-30.13	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

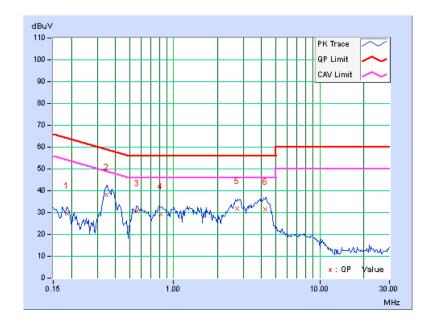




CHANNEL	NNEL CH 661 + CH 1		9kHz	
PHASE	Line 2			

	Freq.	Corr.	Reading Value		<b>Emission Level</b>		Limit		Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18516	0.19	29.45	20.40	29.64	20.59	64.25	54.25	-34.61	-33.66	
2	0.34531	0.25	37.99	27.36	38.24	27.61	59.07	49.07	-20.84	-21.47	
3	0.56406	0.27	30.42	20.83	30.69	21.10	56.00	46.00	-25.31	-24.90	
4	0.81016	0.26	29.08	17.46	29.34	17.72	56.00	46.00	-26.66	-28.28	
5	2.72656	0.37	31.66	20.14	32.03	20.51	56.00	46.00	-23.97	-25.49	
6	4.24609	0.45	30.93	18.59	31.38	19.04	56.00	46.00	-24.62	-26.96	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



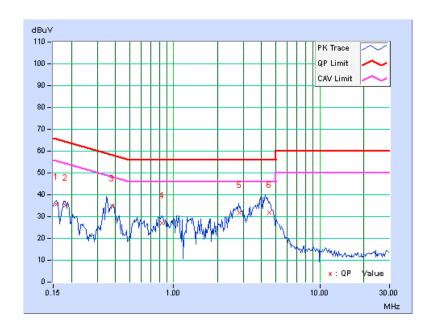


# **GSM** 1900+802.11n(20MHz)

CHANNEL	CH 661 + CH 48	6dB BANDWIDTH	9kHz	
PHASE	Line 1			

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.15781	0.19	35.47	22.90	35.66	23.09	65.58	55.58	-29.92	-32.49	
2	0.18125	0.19	35.00	26.53	35.19	26.72	64.43	54.43	-29.23	-27.70	
3	0.38047	0.22	34.67	23.79	34.89	24.01	58.27	48.27	-23.38	-24.26	
4	0.83359	0.27	26.72	12.74	26.99	13.01	56.00	46.00	-29.01	-32.99	
5	2.83203	0.35	31.64	18.14	31.99	18.49	56.00	46.00	-24.01	-27.51	
6	4.51953	0.41	31.61	16.88	32.02	17.29	56.00	46.00	-23.98	-28.71	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

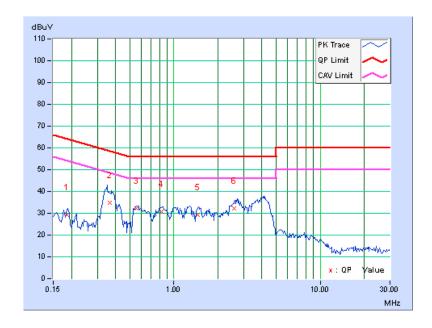




CHANNEL	CH 661 + CH 48	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18516	0.19	29.04	21.52	29.23	21.71	64.25	54.25	-35.02	-32.54	
2	0.36484	0.26	34.55	25.25	34.81	25.51	58.62	48.62	-23.81	-23.11	
3	0.55625	0.27	32.12	20.67	32.39	20.94	56.00	46.00	-23.61	-25.06	
4	0.82578	0.26	30.39	20.46	30.65	20.72	56.00	46.00	-25.35	-25.28	
5	1.44922	0.29	29.07	15.20	29.36	15.49	56.00	46.00	-26.64	-30.51	
6	2.58203	0.36	31.88	21.64	32.24	22.00	56.00	46.00	-23.76	-24.00	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



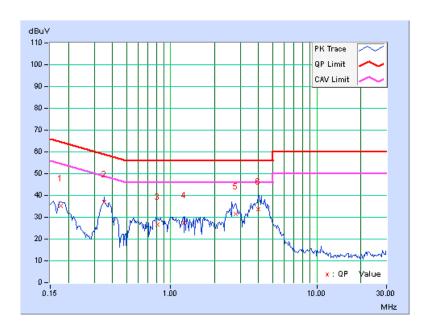


## GSM 1900+802.11a

CHANNEL	CH 661 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17734	0.19	35.18	25.90	35.37	26.09	64.61	54.61	-29.24	-28.52	
2	0.34922	0.21	36.95	25.73	37.16	25.94	58.98	48.98	-21.82	-23.04	
3	0.81016	0.27	26.26	12.97	26.53	13.24	56.00	46.00	-29.47	-32.76	
4	1.23047	0.30	27.08	12.09	27.38	12.39	56.00	46.00	-28.62	-33.61	
5	2.78516	0.35	31.07	17.29	31.42	17.64	56.00	46.00	-24.58	-28.36	
6	3.98047	0.40	33.15	18.63	33.55	19.03	56.00	46.00	-22.45	-26.97	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

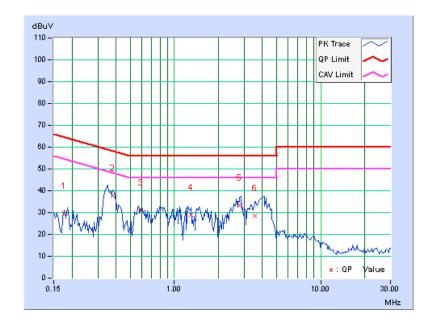




CHANNEL	CH 661 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Reading Value		<b>Emissic</b>	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17734	0.19	29.55	21.05	29.74	21.24	64.61	54.61	-34.87	-33.37	
2	0.38047	0.26	37.49	28.78	37.75	29.04	58.27	48.27	-20.52	-19.23	
3	0.59141	0.27	30.83	19.37	31.10	19.64	56.00	46.00	-24.90	-26.36	
4	1.29688	0.28	28.67	17.78	28.95	18.06	56.00	46.00	-27.05	-27.94	
5	2.80078	0.37	33.11	21.82	33.48	22.19	56.00	46.00	-22.52	-23.81	
6	3.53125	0.42	28.02	16.95	28.44	17.37	56.00	46.00	-27.56	-28.63	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



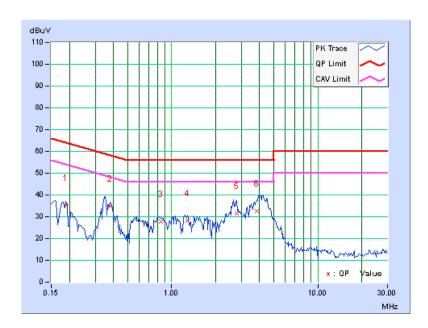


## GSM 1900+Bluetooth

CHANNEL	CH 661 + CH 78	6dB BANDWIDTH	9kHz
PHASE	Line 1		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18906	0.20	35.11	21.34	35.31	21.54	64.08	54.08	-28.77	-32.54	
2	0.38047	0.22	34.75	22.21	34.97	22.43	58.27	48.27	-23.30	-25.84	
3	0.84141	0.27	27.66	11.52	27.93	11.79	56.00	46.00	-28.07	-34.21	
4	1.28906	0.30	27.99	12.75	28.29	13.05	56.00	46.00	-27.71	-32.95	
5	2.79297	0.35	31.19	16.42	31.54	16.77	56.00	46.00	-24.46	-29.23	
6	3.83594	0.39	32.28	16.16	32.67	16.55	56.00	46.00	-23.33	-29.45	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.

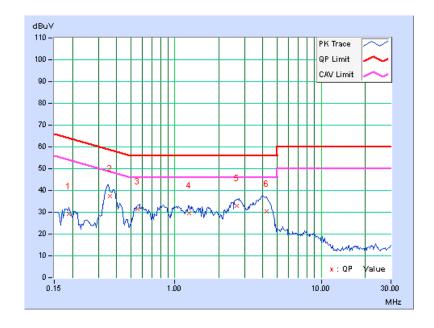




CHANNEL	CH 661 + CH 78	6dB BANDWIDTH	9kHz
PHASE	Line 2		

	Freq.	Corr.	Reading Value		Emissio	n Level	Lir	nit	Margin		
No		Factor	[dB	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18906	0.19	28.98	18.10	29.17	18.29	64.08	54.08	-34.91	-35.79	
2	0.36094	0.25	37.03	26.47	37.28	26.72	58.71	48.71	-21.42	-21.98	
3	0.55234	0.27	31.31	18.97	31.58	19.24	56.00	46.00	-24.42	-26.76	
4	1.25391	0.28	29.37	17.20	29.65	17.48	56.00	46.00	-26.35	-28.52	
5	2.64063	0.36	32.60	21.11	32.96	21.47	56.00	46.00	-23.04	-24.53	
6	4.25000	0.46	29.74	18.95	30.20	19.41	56.00	46.00	-25.80	-26.59	

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.





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.

Hsin Chu EMC/RF Lab

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

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Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>
Web Site: <a href="mailto:www.bureauveritas-adt.com">www.bureauveritas-adt.com</a>

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



# 7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

---END---