



FCC TEST REPORT

REPORT NO.: RF980225L09B
MODEL NO.: PB21 (refer to item 3.1 for more details)
RECEIVED: May 07, 2009
TESTED: May 13 ~ May 15, 2009
ISSUED: May 19, 2009

APPLICANT: Intermec Technologies Corporation

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USA

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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TABLE OF CONTENTS

1.	CERTIFICATION	3
2.	SUMMARY OF TEST RESULTS	4
2.1	MEASUREMENT UNCERTAINTY	4
3.	GENERAL INFORMATION	5
3.1	GENERAL DESCRIPTION OF EUT	5
3.2	DESCRIPTION OF TEST MODES	6
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	6
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	8
3.4	DESCRIPTION OF SUPPORT UNITS.....	8
4.	TEST TYPES AND RESULTS	9
4.1	RADIATED EMISSION MEASUREMENT	9
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	9
4.1.2	TEST INSTRUMENTS.....	10
4.1.3	TEST PROCEDURES	11
4.1.4	DEVIATION FROM TEST STANDARD.....	11
4.1.5	TEST SETUP	12
4.1.6	EUT OPERATING CONDITIONS	12
4.1.7	TEST RESULTS	13
4.2	CONDUCTED EMISSION MEASUREMENT	34
4.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	34
4.2.2	TEST INSTRUMENTS.....	34
4.2.3	TEST PROCEDURES	35
4.2.4	DEVIATION FROM TEST STANDARD.....	35
4.2.5	TEST SETUP	36
4.2.6	EUT OPERATING CONDITIONS	36
4.2.7	TEST RESULTS	37
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	41
6.	INFORMATION ON THE TESTING LABORATORIES	42
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	43



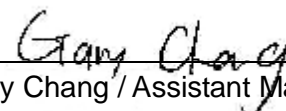
1. CERTIFICATION

PRODUCT: wireless portable printer
MODEL NO.: PB21 (refer to item 3.1 for more details)
BRAND: Intermec
APPLICANT: Intermec Technologies Corporation
TESTED: May 13 ~ May 15, 2009
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.4-2003

This report is issued as a supplementary report of **RF980225L09**. This report shall be used combined together with its original report.

PREPARED BY :  , **DATE** : May 19, 2009
Joanna Wang / Senior Specialist

TECHNICAL ACCEPTANCE :  , **DATE** : May 19, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY :  , **DATE** : May 19, 2009
Gary Chang / Assistant Manager

NOTE: Test items for radiated emission and conducted emission were performed for this addendum. Other testing data refer to original report.

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.91dB at 0.572MHz.
15.247(a)(1)(iii)	Number of Hopping Frequency Used Spec.: At least 15 channels	NA	Refer to NOTE below
15.247(a)(1)(iii)	Dwell Time on Each Channel Spec.: Max. 0.4 second within 31.6 second	NA	Refer to NOTE below
15.247(a)(1)	1. Hopping Channel Separation Spec. : Min. 25 kHz or ' *20 dB bandwidth, whichever is greater 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	NA	Refer to NOTE below
15.247(b)	Maximum Peak Output Power Spec.: max. 21dBm	NA	Refer to NOTE below
15.247(d)	Transmitter Radiated Emissions Spec.: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.00dB at 232.11MHz.
15.247(d)	Band Edge Measurement	NA	Refer to NOTE below

NOTE: Test items for radiated emission and conducted emission were performed for this addendum. Other testing data refer to original report.

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

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

PRODUCT	wireless portable printer
MODEL NO.	PB21 (refer to NOTE 4 for more details)
FCC ID	EHA-RN41B
POWER SUPPLY	12.0Vdc from adapter 7.2Vdc from battery
MODULATION TYPE	GFSK, $\pi/4$ -DQPSK, 8DPSK for FHSS
MODULATION TECHNOLOGY	FHSS
TRANSFER RATE	1/2/3Mbps
OPERATING FREQUENCY	2402MHz ~ 2480MHz
NUMBER OF CHANNEL	79
MAXIMUM OUTPUT POWER	8.790mW
ANTENNA TYPE	Chip antenna with -2.83dBi gain
I/O PORTS	Refer to user's manual
DATA CABLE	1.8m shielded RS232 cable without core
ACCESSORY DEVICES	Adapter, battery

NOTE:

- Bluetooth technology is used in this EUT.
- This is a supplementary report of RF980225L09. This report shall be combined together with its original report.
- This report is prepared for FCC class II permissive change. Differences compared with the original report are changing the model name, plastic top board, removing label taken sensor & back sensor and adding card reader module (SCR and MSR cared reader slot option). Therefore, test items for radiated emission and conducted emission had been re-tested.
- The models as below are identical to each other except for their model designation and size of outer appearance due to marketing requirement.

MODEL	DESCRIPTION
PB21	There are different size of outer appearance
PB31	

- The EUT was powered by the following adapter and battery.

ADAPTER	
BRAND:	Intermec Technologies Corporation
MODEL:	AE19
INPUT:	100-240Vac, 47-63Hz, 1A
OUTPUT:	12Vdc, 4.15A, 50W
POWER LINE:	1.8m non-shielded cable with one core

BATTERY	
BRAND:	Intermec Technologies Corporation
MODEL:	AB27
RATING:	7.2Vdc, 2.25AH

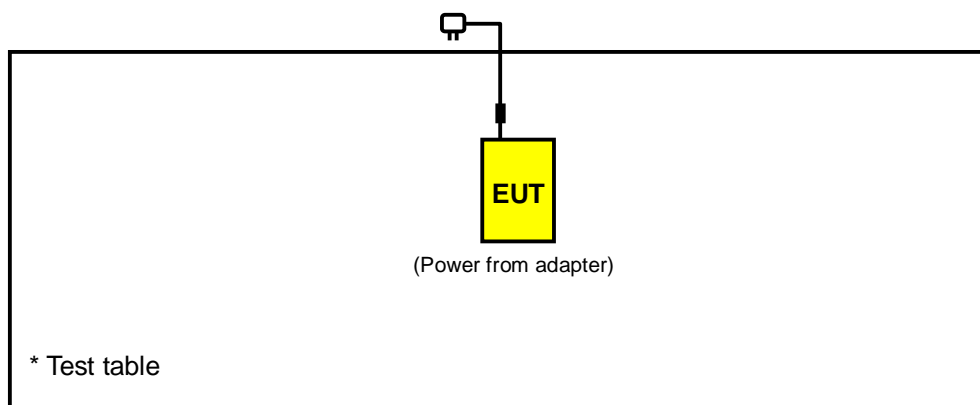
- The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE [≥] 1G	RE<1G	PLC	
A	√	√	√	PB21
B	√	√	√	PB31

Where **RE[≥]1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE	AXIS
A, B	0 to 78	0, 39, 78	FHSS	GFSK	DH5	X
	0 to 78	0, 39, 78	FHSS	8DPSK	DH5	

RADIATED EMISSION TEST (BELOW 1 GHz):

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

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE	AXIS
A	0 to 78	0	FHSS	GFSK	DH5	X
B	0 to 78	39	FHSS	GFSK	DH5	

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	PACKET TYPE
A	0 to 78	0	FHSS	GFSK	DH5
B	0 to 78	39	FHSS	GFSK	DH5

3.3 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 (15.247)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION 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. As shown in 15.35(b), 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 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2009	Apr. 29, 2010
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Aug. 06, 2008	Aug. 05, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10638	Dec. 26, 2008	Dec. 25, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 12, 2010
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC 7450F-4.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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.

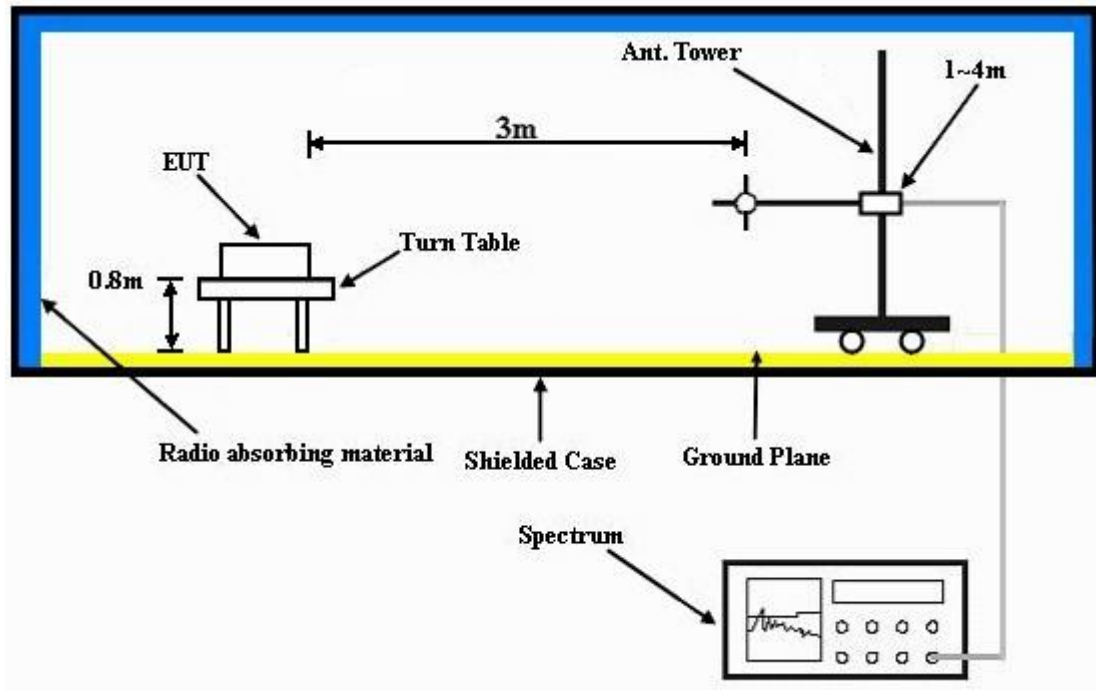
NOTE:

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 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

Placed the EUT on the testing table and set it under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

RADIATED WORST CASE DATA: ABOVE 1GHz:

GFSK MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	2370.00	58.41 PK	74.00	-15.59	1.00 H	305	25.44	32.97
2	2370.00	47.65 AV	54.00	-6.35	1.00 H	305	14.68	32.97
3	#2400.00	60.87 PK	86.52	-25.65	1.00 H	305	27.74	33.13
4	#2400.00	30.77 AV	56.42	-25.65	1.00 H	305	-2.36	33.13
5	*2402.00	106.52 PK			1.00 H	305	73.38	33.14
6	*2402.00	76.42 AV			1.00 H	305	43.28	33.14
7	4804.00	57.76 PK	74.00	-16.24	1.00 H	185	18.61	39.15
8	4804.00	27.66 AV	54.00	-26.34	1.00 H	185	-11.49	39.15
9	#7206.00	62.09 PK	86.52	-24.43	1.02 H	184	16.88	45.21
10	#7206.00	31.99 AV	56.42	-24.43	1.02 H	184	-13.22	45.21
11	#9608.00	65.03 PK	86.52	-21.49	1.10 H	181	15.83	49.20
12	#9608.00	34.93 AV	56.42	-21.49	1.10 H	181	-14.27	49.20

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	2386.00	50.89 PK	74.00	-23.11	1.44 V	282	17.84	33.06
2	2386.00	44.09 AV	54.00	-9.91	1.44 V	282	11.04	33.06
3	#2400.00	58.84 PK	86.02	-27.18	1.42 V	277	25.71	33.13
4	#2400.00	28.74 AV	55.92	-27.18	1.42 V	277	-4.39	33.13
5	*2402.00	106.02 PK			1.45 V	277	72.88	33.14
6	*2402.00	75.92 AV			1.45 V	277	42.78	33.14
7	4804.00	55.90 PK	74.00	-18.10	1.12 V	143	16.75	39.15
8	4804.00	25.80 AV	54.00	-28.20	1.12 V	143	-13.35	39.15
9	#7206.00	58.99 PK	86.02	-27.03	1.60 V	243	13.78	45.21
10	#7206.00	28.89 AV	55.92	-27.03	1.60 V	243	-16.32	45.21
11	#9608.00	61.74 PK	86.02	-24.28	1.00 V	148	12.54	49.20
12	#9608.00	31.64 AV	55.92	-24.28	1.00 V	148	-17.56	49.20

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	*2441.00	103.97 PK			1.01 H	72	70.68	33.29
2	*2441.00	73.87 AV			1.01 H	72	40.58	33.29
3	4882.00	61.86 PK	74.00	-12.14	1.22 H	190	22.72	39.14
4	4882.00	31.76 AV	54.00	-22.24	1.22 H	190	-7.38	39.14
5	7323.00	63.59 PK	74.00	-10.41	1.00 H	201	18.02	45.57
6	7323.00	33.49 AV	54.00	-20.51	1.00 H	201	-12.08	45.57
7	#9764.00	62.88 PK	83.97	-21.09	1.07 H	223	13.40	49.48
8	#9764.00	32.78 AV	53.87	-21.09	1.07 H	223	-16.70	49.48
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	*2441.00	103.76 PK			1.41 V	274	70.47	33.29
2	*2441.00	73.66 AV			1.41 V	274	40.37	33.29
3	4882.00	59.86 PK	74.00	-14.14	1.17 V	145	20.72	39.14
4	4882.00	29.76 AV	54.00	-24.24	1.17 V	145	-9.38	39.14
5	7323.00	58.55 PK	74.00	-15.45	1.42 V	236	12.98	45.57
6	7323.00	28.45 AV	54.00	-25.55	1.42 V	236	-17.12	45.57
7	#9764.00	63.64 PK	83.76	-20.12	1.25 V	167	14.16	49.48
8	#9764.00	33.54 AV	53.66	-20.12	1.25 V	167	-15.94	49.48

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	103.15 PK			1.16 H	299	69.70	33.45
2	*2480.00	73.05 AV			1.16 H	299	39.60	33.45
3	2483.50	50.94 PK	74.00	-23.06	1.16 H	299	17.48	33.46
4	2483.50	20.84 AV	54.00	-33.16	1.16 H	299	-12.62	33.46
5	4960.00	62.83 PK	74.00	-11.17	1.22 H	193	23.16	39.67
6	4960.00	32.73 AV	54.00	-21.27	1.22 H	193	-6.94	39.67
7	7440.00	64.84 PK	74.00	-9.16	1.06 H	196	18.90	45.94
8	7440.00	34.74 AV	54.00	-19.26	1.06 H	196	-11.20	45.94
9	#9920.00	65.23 PK	83.15	-17.92	1.06 H	219	15.42	49.80
10	#9920.00	35.13 AV	53.05	-17.92	1.06 H	219	-14.68	49.80

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	*2480.00	102.84 PK			1.39 V	274	69.39	33.45
2	*2480.00	72.74 AV			1.39 V	274	39.29	33.45
3	2483.50	51.44 PK	74.00	-22.56	1.39 V	274	17.98	33.46
4	2483.50	21.34 AV	54.00	-32.66	1.39 V	274	-12.12	33.46
5	4960.00	62.53 PK	74.00	-11.47	1.18 V	141	22.86	39.67
6	4960.00	32.43 AV	54.00	-21.57	1.18 V	141	-7.24	39.67
7	7440.00	61.30 PK	74.00	-12.70	1.00 V	213	15.36	45.94
8	7440.00	31.20 AV	54.00	-22.80	1.00 V	213	-14.74	45.94
9	#9920.00	67.52 PK	82.84	-15.32	1.01 V	134	17.71	49.80
10	#9920.00	37.42 AV	52.74	-15.32	1.01 V	134	-12.39	49.80

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	2370.00	53.05 PK	74.00	-20.95	1.02 H	231	20.08	32.97
2	2370.00	41.23 AV	54.00	-12.77	1.02 H	231	8.26	32.97
3	#2400.00	69.86 PK	83.77	-13.91	1.01 H	231	36.73	33.13
4	#2400.00	39.76 AV	53.67	-13.91	1.01 H	231	6.63	33.13
5	*2402.00	103.77 PK			1.01 H	231	70.63	33.14
6	*2402.00	73.67 AV			1.01 H	231	40.53	33.14
7	4804.00	63.58 PK	74.00	-10.42	1.32 H	51	24.43	39.15
8	4804.00	33.48 AV	54.00	-20.52	1.32 H	51	-5.67	39.15
9	#7206.00	58.15 PK	83.77	-25.62	1.35 H	332	12.94	45.21
10	#7206.00	28.05 AV	53.67	-25.62	1.35 H	332	-17.16	45.21
11	#9608.00	64.08 PK	83.77	-19.69	1.12 H	263	14.88	49.20
12	#9608.00	33.98 AV	53.67	-19.69	1.12 H	263	-15.22	49.20

- REMARKS:**
- Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 - Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 - The other emission levels were very low against the limit.
 - Margin value = Emission level – Limit value.
 - " * ": Fundamental frequency.
 - The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 - Average value = peak reading + $20\log(\text{duty cycle})$.
 - "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	2370.00	49.62 PK	74.00	-24.38	1.11 V	113	16.65	32.97
2	2370.00	39.50 AV	54.00	-14.50	1.11 V	113	6.53	32.97
3	#2400.00	65.20 PK	79.49	-14.29	1.11 V	113	32.07	33.13
4	#2400.00	35.10 AV	49.39	-14.29	1.11 V	113	1.97	33.13
5	*2402.00	99.49 PK			1.11 V	113	66.35	33.14
6	*2402.00	69.39 AV			1.11 V	113	36.25	33.14
7	4804.00	68.40 PK	74.00	-5.60	1.15 V	339	29.25	39.15
8	4804.00	38.30 AV	54.00	-15.70	1.15 V	339	-0.85	39.15
9	#7206.00	58.04 PK	79.49	-21.45	1.28 V	249	12.83	45.21
10	#7206.00	27.94 AV	49.39	-21.45	1.28 V	249	-17.27	45.21
11	#9608.00	64.34 PK	79.49	-15.15	1.50 V	320	15.14	49.20
12	#9608.00	34.24 AV	49.39	-15.15	1.50 V	320	-14.96	49.20

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	*2441.00	102.73 PK			1.00 H	233	69.44	33.29
2	*2441.00	72.63 AV			1.00 H	233	39.34	33.29
3	4882.00	66.01 PK	74.00	-7.99	1.17 H	247	26.87	39.14
4	4882.00	35.91 AV	54.00	-18.09	1.17 H	247	-3.23	39.14
5	7323.00	58.32 PK	74.00	-15.68	1.39 H	255	12.75	45.57
6	7323.00	28.22 AV	54.00	-25.78	1.39 H	255	-17.35	45.57
7	#9764.00	64.14 PK	82.73	-18.59	1.42 H	258	14.66	49.48
8	#9764.00	34.04 AV	52.63	-18.59	1.42 H	258	-15.44	49.48
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	*2441.00	98.14 PK			1.14 V	138	64.85	33.29
2	*2441.00	68.04 AV			1.14 V	138	34.75	33.29
3	4882.00	69.11 PK	74.00	-4.89	1.33 V	280	29.97	39.14
4	4882.00	39.01 AV	54.00	-14.99	1.33 V	280	-0.13	39.14
5	7323.00	59.04 PK	74.00	-14.96	1.46 V	22	13.47	45.57
6	7323.00	28.94 AV	54.00	-25.06	1.46 V	22	-16.63	45.57
7	#9746.00	64.04 PK	78.14	-14.10	1.00 V	158	14.58	49.46
8	#9746.00	33.94 AV	48.04	-14.10	1.00 V	158	-15.52	49.46

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	101.18 PK			1.00 H	222	67.73	33.45
2	*2480.00	71.08 AV			1.00 H	222	37.63	33.45
3	2483.50	54.07 PK	74.00	-19.93	1.00 H	222	20.61	33.46
4	2483.50	23.97 AV	54.00	-30.03	1.00 H	222	-9.49	33.46
5	4960.00	65.80 PK	74.00	-8.20	1.00 H	249	26.13	39.67
6	4960.00	35.70 AV	54.00	-18.30	1.00 H	249	-3.97	39.67
7	7440.00	59.83 PK	74.00	-14.17	1.37 H	125	13.89	45.94
8	7440.00	29.73 AV	54.00	-24.27	1.37 H	125	-16.21	45.94
9	#9920.00	62.89 PK	81.18	-18.29	1.06 H	49	13.08	49.80
10	#9920.00	32.79 AV	51.08	-18.29	1.06 H	49	-17.02	49.80

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	*2480.00	97.82 PK			1.15 V	100	64.37	33.45
2	*2480.00	67.72 AV			1.15 V	100	34.27	33.45
3	2483.50	48.66 PK	74.00	-25.34	1.15 V	100	15.20	33.46
4	2483.50	18.56 AV	54.00	-35.44	1.15 V	100	-14.90	33.46
5	4960.00	72.15 PK	74.00	-1.85	1.00 V	345	32.48	39.67
6	4960.00	42.05 AV	54.00	-11.95	1.00 V	345	2.38	39.67
7	7440.00	62.90 PK	74.00	-11.10	1.19 V	350	16.96	45.94
8	7440.00	32.80 AV	54.00	-21.20	1.19 V	350	-13.14	45.94
9	#9920.00	65.05 PK	77.82	-12.77	1.11 V	35	15.24	49.80
10	#9920.00	34.95 AV	47.72	-12.77	1.11 V	35	-14.86	49.80

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.

8DPSK MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	2370.00	56.08 PK	74.00	-17.92	1.00 H	305	23.11	32.97
2	2370.00	52.13 AV	54.00	-1.87	1.00 H	305	19.16	32.97
3	#2400.00	62.30 PK	85.59	-23.29	1.00 H	305	29.17	33.13
4	#2400.00	32.20 AV	55.49	-23.29	1.00 H	305	-0.93	33.13
5	*2402.00	105.59 PK			1.00 H	305	72.45	33.14
6	*2402.00	75.49 AV			1.00 H	305	42.35	33.14
7	4804.00	57.95 PK	74.00	-16.05	1.00 H	187	18.80	39.15
8	4804.00	27.85 AV	54.00	-26.15	1.00 H	187	-11.30	39.15
9	#7206.00	61.86 PK	85.59	-23.73	1.02 H	212	16.65	45.21
10	#7206.00	31.76 AV	55.49	-23.73	1.02 H	212	-13.45	45.21
11	#9608.00	62.48 PK	85.59	-23.11	1.11 H	180	13.28	49.20
12	#9608.00	32.38 AV	55.49	-23.11	1.11 H	180	-16.82	49.20

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	2370.00	55.56 PK	74.00	-18.44	1.45 V	272	22.59	32.97
2	2370.00	50.99 AV	54.00	-3.01	1.45 V	272	18.02	32.97
3	#2400.00	59.39 PK	84.84	-25.45	1.51 V	284	26.26	33.13
4	#2400.00	29.29 AV	54.74	-25.45	1.51 V	284	-3.84	33.13
5	*2402.00	104.84 PK			1.51 V	284	71.70	33.14
6	*2402.00	74.74 AV			1.51 V	284	41.60	33.14
7	4804.00	55.69 PK	74.00	-18.31	1.22 V	125	16.54	39.15
8	4804.00	25.59 AV	54.00	-28.41	1.22 V	125	-13.56	39.15
9	#7206.00	58.10 PK	84.84	-26.74	1.00 V	210	12.89	45.21
10	#7206.00	28.00 AV	54.74	-26.74	1.00 V	210	-17.21	45.21
11	#9608.00	80.87 PK	84.84	-3.97	1.51 V	284	31.67	49.20
12	#9608.00	50.77 AV	54.74	-3.97	1.51 V	284	1.57	49.20

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	*2441.00	103.05 PK			1.00 H	73	69.76	33.29
2	*2441.00	72.95 AV			1.00 H	73	39.66	33.29
3	4882.00	60.70 PK	74.00	-13.30	1.22 H	192	21.56	39.14
4	4882.00	30.60 AV	54.00	-23.40	1.22 H	192	-8.54	39.14
5	7323.00	60.66 PK	74.00	-13.34	1.00 H	209	15.09	45.57
6	7323.00	30.56 AV	54.00	-23.44	1.00 H	209	-15.01	45.57
7	#9764.00	60.08 PK	83.05	-22.97	1.36 H	129	10.60	49.48
8	#9764.00	29.98 AV	52.95	-22.97	1.36 H	129	-19.50	49.48
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	*2441.00	102.84 PK			1.40 V	274	69.55	33.29
2	*2441.00	72.74 AV			1.40 V	274	39.45	33.29
3	4882.00	58.81 PK	74.00	-15.19	1.08 V	148	19.67	39.14
4	4882.00	28.71 AV	54.00	-25.29	1.08 V	148	-10.43	39.14
5	7323.00	55.80 PK	74.00	-18.20	1.04 V	240	10.23	45.57
6	7323.00	25.70 AV	54.00	-28.30	1.04 V	240	-19.87	45.57

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	103.13 PK			1.00 H	72	69.68	33.45
2	*2480.00	73.03 AV			1.00 H	72	39.58	33.45
3	2483.50	57.48 PK	74.00	-16.52	1.00 H	72	24.02	33.46
4	2483.50	27.38 AV	54.00	-26.62	1.00 H	72	-6.08	33.46
5	4960.00	60.97 PK	74.00	-13.03	1.22 H	190	21.30	39.67
6	4960.00	30.87 AV	54.00	-23.13	1.22 H	190	-8.80	39.67
7	7440.00	63.03 PK	74.00	-10.97	1.07 H	196	17.09	45.94
8	7440.00	32.93 AV	54.00	-21.07	1.07 H	196	-13.01	45.94
9	#9920.00	64.07 PK	83.13	-19.06	1.23 H	224	14.26	49.80
10	#9920.00	33.97 AV	53.03	-19.06	1.23 H	224	-15.84	49.80

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	*2480.00	102.63 PK			1.34 V	275	69.18	33.45
2	*2480.00	72.53 AV			1.34 V	275	39.08	33.45
3	2483.50	56.53 PK	74.00	-17.47	1.34 V	275	23.07	33.46
4	2483.50	26.43 AV	54.00	-27.57	1.34 V	275	-7.03	33.46
5	4960.00	60.10 PK	74.00	-13.90	1.11 V	144	20.43	39.67
6	4960.00	30.00 AV	54.00	-24.00	1.11 V	144	-9.67	39.67
7	7440.00	59.06 PK	74.00	-14.94	1.00 V	213	13.12	45.94
8	7440.00	28.96 AV	54.00	-25.04	1.00 V	213	-16.98	45.94

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	2370.00	53.14 PK	74.00	-20.86	1.04 H	235	20.17	32.97
2	2370.00	47.04 AV	54.00	-6.96	1.04 H	235	14.07	32.97
3	#2400.00	60.29 PK	82.07	-21.78	1.00 H	227	27.16	33.13
4	#2400.00	30.19 AV	51.97	-21.78	1.00 H	227	-2.94	33.13
5	*2402.00	102.07 PK			1.00 H	227	68.93	33.14
6	*2402.00	71.97 AV			1.00 H	227	38.83	33.14
7	4804.00	58.33 PK	74.00	-15.67	1.32 H	53	19.18	39.15
8	4804.00	28.23 AV	54.00	-25.77	1.32 H	53	-10.92	39.15
9	#7206.00	54.55 PK	82.07	-27.52	1.38 H	332	9.34	45.21
10	#7206.00	24.45 AV	51.97	-27.52	1.38 H	332	-20.76	45.21

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	2370.00	49.15 PK	74.00	-24.85	1.42 V	100	16.18	32.97
2	2370.00	43.33 AV	54.00	-10.67	1.42 V	100	10.36	32.97
3	#2400.00	56.11 PK	78.30	-22.19	1.33 V	115	22.98	33.13
4	#2400.00	26.01 AV	48.20	-22.19	1.33 V	115	-7.12	33.13
5	*2402.00	98.30 PK			1.33 V	115	65.16	33.14
6	*2402.00	68.20 AV			1.33 V	115	35.06	33.14
7	4804.00	61.64 PK	74.00	-12.36	1.00 V	304	22.49	39.15
8	4804.00	31.54 AV	54.00	-22.46	1.00 V	304	-7.61	39.15
9	#7206.00	54.62 PK	78.30	-23.68	1.08 V	1	9.41	45.21
10	#7206.00	24.52 AV	48.20	-23.68	1.08 V	1	-20.69	45.21

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.
 8. "#": The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	*2441.00	101.51 PK			1.00 H	221	68.22	33.29
2	*2441.00	71.41 AV			1.00 H	221	38.12	33.29
3	4882.00	61.53 PK	74.00	-12.47	1.13 H	246	22.39	39.14
4	4882.00	31.43 AV	54.00	-22.57	1.13 H	246	-7.71	39.14
5	7323.00	54.58 PK	74.00	-19.42	1.20 H	127	9.01	45.57
6	7323.00	24.48 AV	54.00	-29.52	1.20 H	127	-21.09	45.57
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	*2441.00	98.39 PK			1.35 V	0	65.10	33.29
2	*2441.00	68.29 AV			1.35 V	0	35.00	33.29
3	4882.00	65.62 PK	74.00	-8.38	1.37 V	292	26.48	39.14
4	4882.00	35.52 AV	54.00	-18.48	1.37 V	292	-3.62	39.14
5	7323.00	54.71 PK	74.00	-19.29	1.05 V	24	9.14	45.57
6	7323.00	24.61 AV	54.00	-29.39	1.05 V	24	-20.96	45.57

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 78	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	100.54 PK			1.00 H	221	67.09	33.45
2	*2480.00	70.44 AV			1.00 H	221	36.99	33.45
3	2483.50	54.60 PK	74.00	-19.40	1.00 H	221	21.14	33.46
4	2483.50	24.50 AV	54.00	-29.50	1.00 H	221	-8.96	33.46
5	4960.00	62.68 PK	74.00	-11.32	1.15 H	248	23.01	39.67
6	4960.00	32.58 AV	54.00	-21.42	1.15 H	248	-7.09	39.67
7	7440.00	55.63 PK	74.00	-18.37	1.08 H	215	9.69	45.94
8	7440.00	25.53 AV	54.00	-28.47	1.08 H	215	-20.41	45.94
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	*2480.00	97.35 PK			1.39 V	132	63.90	33.45
2	*2480.00	67.25 AV			1.39 V	132	33.80	33.45
3	2483.50	50.28 PK	74.00	-23.72	1.39 V	132	16.82	33.46
4	2483.50	20.18 AV	54.00	-33.82	1.39 V	132	-13.28	33.46
5	4960.00	69.50 PK	74.00	-4.50	1.11 V	351	29.83	39.67
6	4960.00	39.40 AV	54.00	-14.60	1.11 V	351	-0.27	39.67
7	7440.00	59.34 PK	74.00	-14.66	1.19 V	349	13.40	45.94
8	7440.00	29.24 AV	54.00	-24.76	1.19 V	349	-16.70	45.94

- REMARKS:**
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.
 5. “ * “: Fundamental frequency.
 6. The DH5 packet was the worse case duty cycle for a transmit dwell time on a channel, based upon bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correlation factor be equal to: $20\log(3.125 / 100) = -30.1$ dB.
 7. Average value = peak reading + $20\log(\text{duty cycle})$.

BELOW 1GHz WORST-CASE DATA : GFSK MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	A		

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	191.28	36.20 QP	43.50	-7.30	1.00 H	106	24.90	11.29
2	232.11	36.70 QP	46.00	-9.30	1.00 H	115	24.67	12.03
3	619.02	36.62 QP	46.00	-9.38	1.00 H	268	14.55	22.06
4	671.52	36.42 QP	46.00	-9.58	1.00 H	310	13.93	22.49
5	749.29	34.58 QP	46.00	-11.42	1.25 H	349	10.65	23.93
6	774.56	34.34 QP	46.00	-11.66	1.25 H	19	9.72	24.62
7	827.06	34.06 QP	46.00	-11.94	1.50 H	289	8.58	25.49
8	877.61	40.64 QP	46.00	-5.36	1.50 H	301	14.74	25.90
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	101.84	30.87 QP	43.50	-12.63	1.25 V	106	21.32	9.55
2	175.72	33.20 QP	43.50	-10.30	1.00 V	28	20.69	12.52
3	527.64	34.50 QP	46.00	-11.50	1.00 V	196	14.42	20.08
4	619.02	37.82 QP	46.00	-8.18	2.00 V	199	15.75	22.06
5	671.52	35.23 QP	46.00	-10.77	2.50 V	205	12.74	22.49
6	749.29	34.81 QP	46.00	-11.19	1.50 V	163	10.89	23.93
7	774.56	33.89 QP	46.00	-12.11	1.25 V	301	9.26	24.62
8	877.61	36.21 QP	46.00	-9.79	1.00 V	142	10.31	25.90
9	945.66	34.92 QP	46.00	-11.08	1.00 V	295	8.46	26.46

- REMARKS:**
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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24.0deg. C, 64.0%RH 1009hPa	TESTED BY	Match Tsui
TEST MODE	B		

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	175.72	35.42 QP	43.50	-8.08	1.25 H	232	22.90	12.52
2	222.38	44.89 QP	46.00	-1.11	1.25 H	226	33.29	11.59
3	232.11	45.00 QP	46.00	-1.00	1.50 H	241	32.97	12.03
4	282.66	39.03 QP	46.00	-6.97	1.00 H	220	25.66	13.37
5	619.02	42.28 QP	46.00	-3.72	1.25 H	316	20.22	22.06
6	671.52	38.65 QP	46.00	-7.35	1.00 H	100	16.16	22.49
7	724.01	40.09 QP	46.00	-5.91	1.00 H	313	16.78	23.31
8	774.56	38.12 QP	46.00	-7.88	1.00 H	103	13.50	24.62
9	813.45	39.92 QP	46.00	-6.08	1.00 H	196	14.52	25.40
10	852.33	36.81 QP	46.00	-9.19	1.00 H	10	11.16	25.65
11	877.61	42.83 QP	46.00	-3.17	1.00 H	337	16.94	25.90
12	930.11	35.86 QP	46.00	-10.14	1.25 H	10	9.52	26.34
13	953.44	36.95 QP	46.00	-9.05	1.50 H	295	10.44	26.51

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	187.39	32.37 QP	43.50	-11.13	1.25 V	232	20.77	11.61
2	619.02	35.95 QP	46.00	-10.05	1.00 V	130	13.89	22.06
3	724.01	34.78 QP	46.00	-11.22	2.00 V	325	11.46	23.31
4	774.56	35.93 QP	46.00	-10.07	1.25 V	157	11.31	24.62
5	799.84	34.25 QP	46.00	-11.75	1.25 V	217	8.93	25.32
6	834.84	43.92 QP	46.00	-2.08	1.00 V	10	18.38	25.54
7	877.61	38.78 QP	46.00	-7.22	1.25 V	214	12.88	25.90
8	947.60	38.06 QP	46.00	-7.94	1.50 V	313	11.59	26.47

- REMARKS:**
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 (dB μ V)	
	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	100291	Nov. 19, 2008	Nov. 18, 2009
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 31, 2008	Dec. 30, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Dec. 04, 2008	Dec. 03, 2009
Software ADT	ADT_Cond_ V7.3.7	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 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

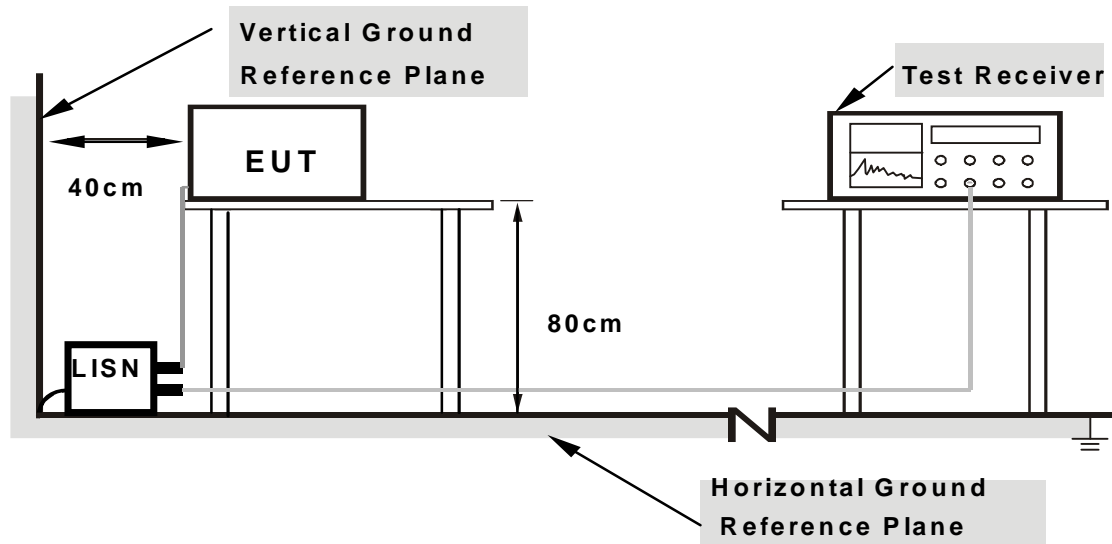
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 cm 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.

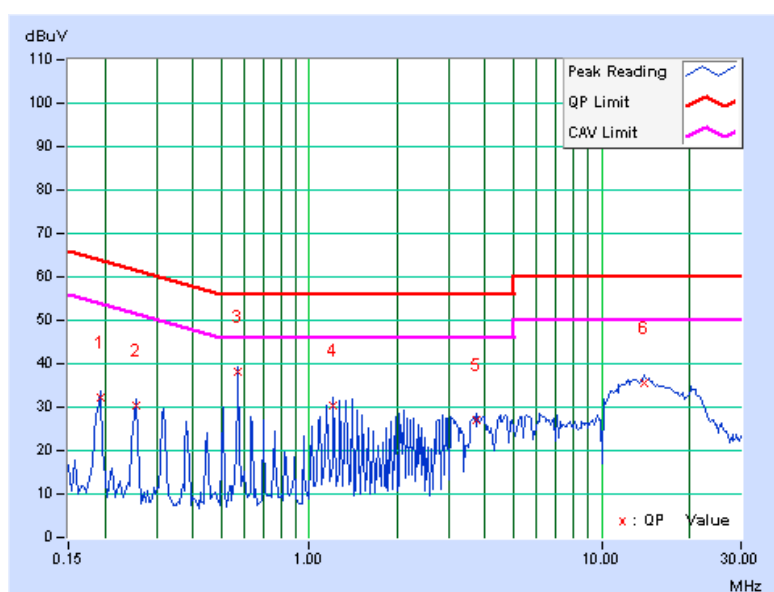
4.2.7 TEST RESULTS

CONDUCTED WORST CASE DATA: GFSK MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	PHASE	Line 1
MODULATION TYPE	GFSK	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1009hPa	INPUT POWER	120Vac, 60 Hz
TEST MODE	A	TESTED BY	Brad Wu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.13	32.02	-	32.15	-	63.91	53.91	-31.76	-
2	0.255	0.13	30.40	-	30.53	-	61.58	51.58	-31.04	-
3	0.572	0.15	37.94	-	38.09	-	56.00	46.00	-17.91	-
4	1.207	0.19	30.23	-	30.42	-	56.00	46.00	-25.58	-
5	3.750	0.35	26.64	-	26.99	-	56.00	46.00	-29.01	-
6	13.918	0.85	34.65	-	35.50	-	60.00	50.00	-24.50	-

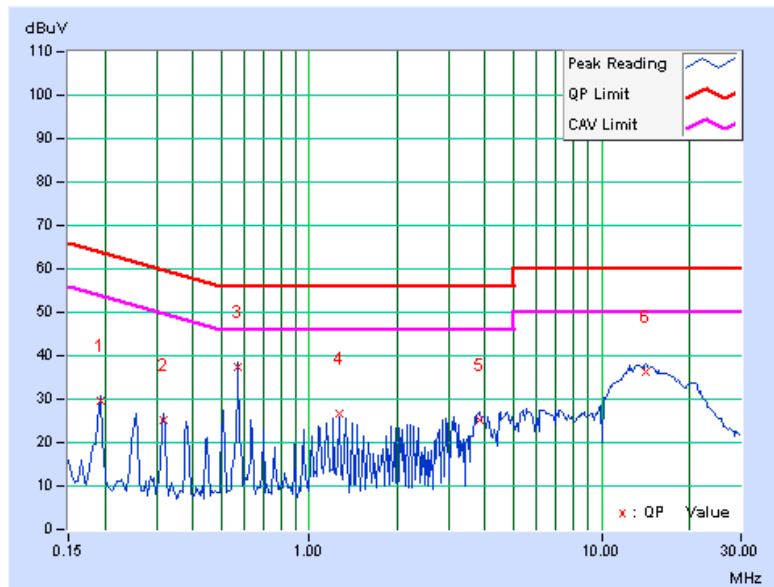
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 0	PHASE	Line 2
MODULATION TYPE	GFSK	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1009hPa	INPUT POWER	120Vac, 60 Hz
TEST MODE	A	TESTED BY	Brad Wu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.15	29.34	-	29.49	-	63.91	53.91	-34.42	-
2	0.318	0.16	25.13	-	25.29	-	59.76	49.76	-34.47	-
3	0.572	0.17	37.24	-	37.41	-	56.00	46.00	-18.59	-
4	1.270	0.21	26.50	-	26.71	-	56.00	46.00	-29.29	-
5	3.813	0.38	24.87	-	25.25	-	56.00	46.00	-30.75	-
6	14.172	0.79	35.38	-	36.17	-	60.00	50.00	-23.83	-

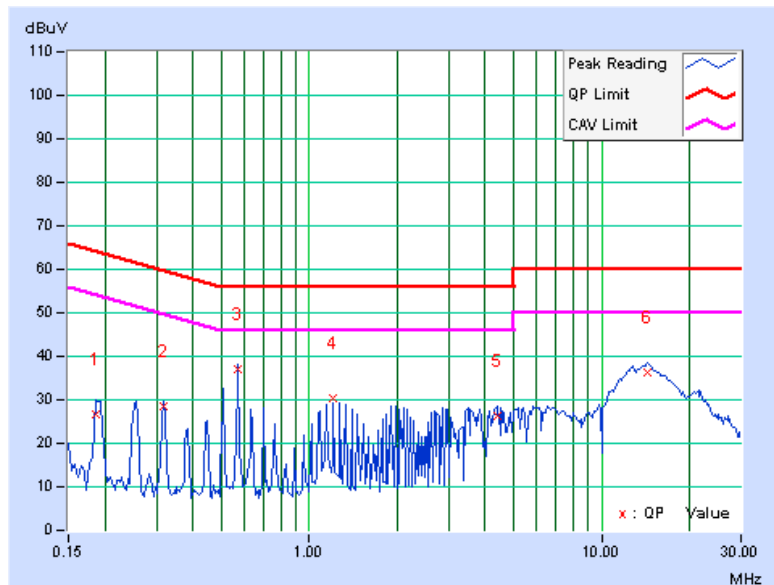
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	PHASE	Line 1
MODULATION TYPE	GFSK	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1009hPa	INPUT POWER	120Vac, 60 Hz
TEST MODE	B	TESTED BY	Brad Wu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.185	0.13	26.61	-	26.74	-	64.25	54.25	-37.51	-
2	0.318	0.14	28.25	-	28.39	-	59.76	49.76	-31.37	-
3	0.572	0.15	37.02	-	37.17	-	56.00	46.00	-18.83	-
4	1.207	0.19	30.09	-	30.28	-	56.00	46.00	-25.72	-
5	4.387	0.39	26.04	-	26.43	-	56.00	46.00	-29.57	-
6	14.363	0.87	35.42	-	36.29	-	60.00	50.00	-23.71	-

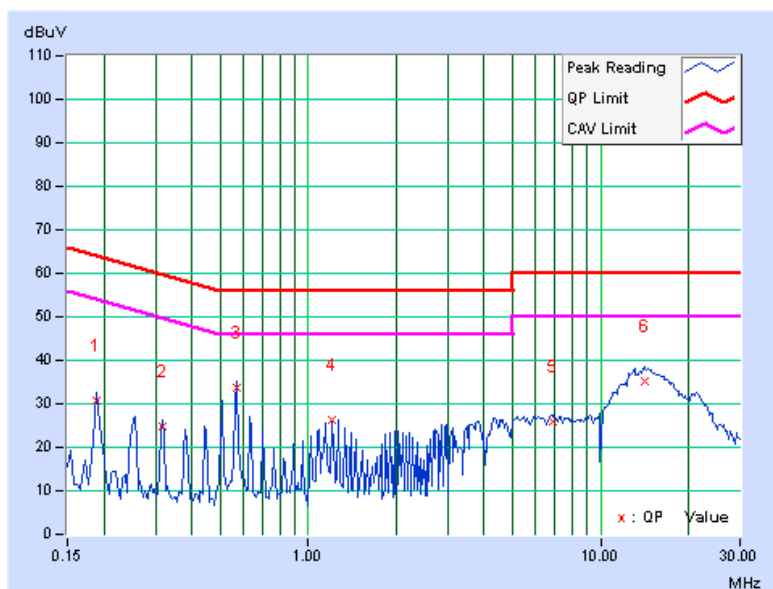
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 39	PHASE	Line 2
MODULATION TYPE	GFSK	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1009hPa	INPUT POWER	120Vac, 60 Hz
TEST MODE	B	TESTED BY	Brad Wu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.15	30.76	-	30.91	-	64.08	54.08	-33.17	-
2	0.318	0.16	24.64	-	24.80	-	59.76	49.76	-34.96	-
3	0.568	0.17	33.43	-	33.60	-	56.00	46.00	-22.40	-
4	1.207	0.21	25.99	-	26.20	-	56.00	46.00	-29.80	-
5	6.863	0.52	25.32	-	25.84	-	60.00	50.00	-34.16	-
6	14.176	0.79	34.23	-	35.02	-	60.00	50.00	-24.98	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. 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 by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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

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

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

--- END ---