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FCC TEST REPORT

REPORT NO.: RF980225L08B

MODEL NO.: PB21 (refer to item 3.1 for more details)

RECEIVED: May 07, 2009

TESTED: May 14 ~ May 15, 2009

ISSUED: May 19, 2009

APPLICANT: Intermec Technologies Corporation

ADDRESS: 550 Second Street SE Cedar Rapids, IA 52401,
USA

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
Hsiang, Taipei Hsien 244, 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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1 CERTIFICATION

PRODUCT: 802.11g portable printer
MODEL NO.: PB21 (refer to item 3.1 for more details)
BRAND: Intermec
APPLICANT: Intermec Technologies Corporation
TESTED: May 14 ~ 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 **RF980225L08**. This report shall be used combined together with its original report.

PREPARED BY : Polly Chien , **DATE** : May 19, 2009
Polly Chien / Specialist

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

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

NOTE: Test items for conducted emission and radiated 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 -20.77dB at 0.572MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	NA	Refer to Note below
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	NA	Refer to Note below
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.79dB at 2483.50MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	NA	Refer to Note below
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	NA	Refer to Note below

NOTE: Test items for conducted emission and radiated 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	2.44 dB
	30MHz ~ 200MHz	3.19 dB
Radiated emissions	200MHz ~1000MHz	3.21 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

PRODUCT	802.11g portable printer
MODEL NO.	PB21 (refer to item NOTE 3 for more details)
FCC ID	EHA-WUBBA
POWER SUPPLY	12Vdc from AC adapter 7.2Vdc from battery
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
OPERATING FREQUENCY	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	161.065mW
ANTENNA TYPE	Printed antenna with 1dBi gain
DATA CABLE	1.8m shielded RS-232 cable without core
I/O PORTS	Please refer to user's manual
ACCESSORY DEVICES	Adapter, battery

NOTE:

1. This is a supplementary report of RF980225L08 and shall be combined together with its original report.
2. This report is prepared for FCC class II permissive change. The differences compared with original report are changing the model name, plastic top board and removing back sensor. Therefore, test items for conducted emission and radiated emission were performed for this addendum.
3. 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	

4. 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

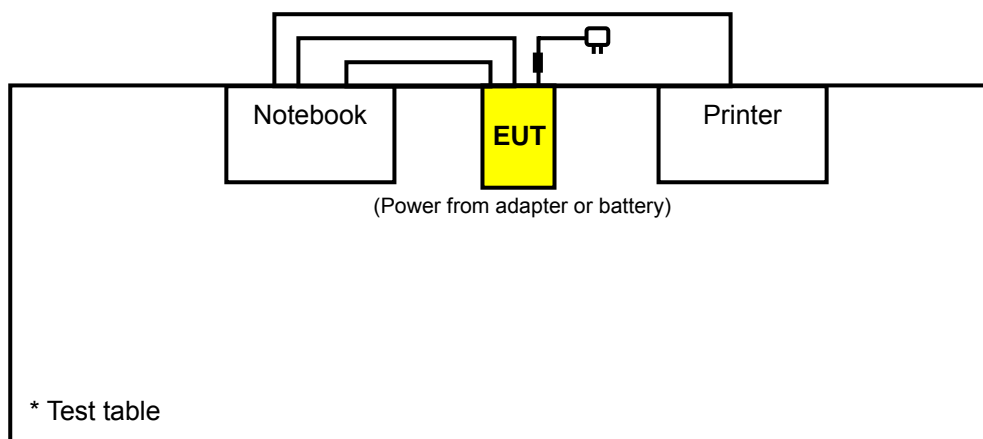
5. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b devices to the network. With its high-speed data transmissions of up to 54Mbps.
6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

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

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

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	X
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	

RADIATED EMISSION TEST (BELOW 1 GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A, B	802.11g	1 to 11	6	OFDM	BPSK	6	X

POWER LINE 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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11g	1 to 11	6	OFDM	BPSK	6

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 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	PP05L	12130898320	E2K24CLNS
2	PRINTER	EPSON	LQ-300+	DCGY047265	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.8m USB cable.
2	1.8m braid shielded wire, DB25 connector, w/o core.

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

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	ESI7	838496/016	Dec. 29, 2008	Dec. 28, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 08, 2008	Dec. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 28, 2010
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Dec. 29, 2008	Dec. 28, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009	Jan. 05, 2010
Preamplifier Agilent	8449B	3008A01960	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8447D	2944A10631	Nov. 03, 2008	Nov. 02, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2008	Aug. 20, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2008	Aug. 20, 2009
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 4.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 988962.
 5. The IC Site Registration No. is IC7450F-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 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 method or average method as specified and then reported in data sheet.

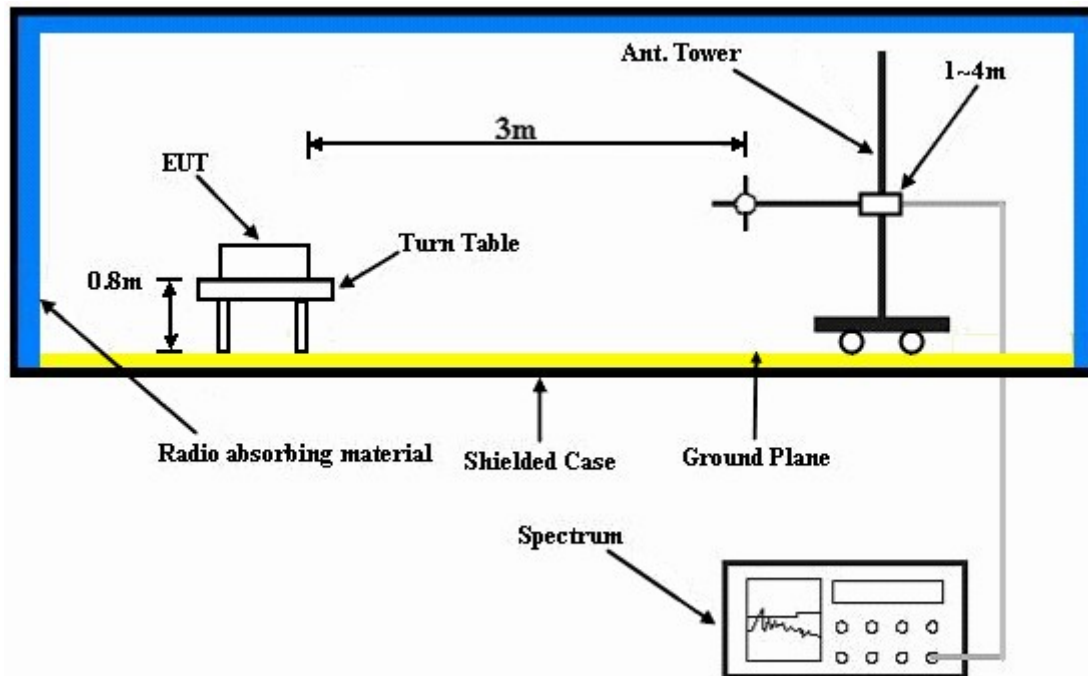
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) 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. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. 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

- The EUT placed on the testing table.
- The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

4.1.7 TEST RESULTS

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	2390.00	61.42 PK	74.00	-12.58	1.24 H	235	29.13	32.29
2	2390.00	51.31 AV	54.00	-2.69	1.24 H	235	19.02	32.29
3	*2412.00	105.38 PK			1.24 H	235	73.00	32.38
4	*2412.00	101.33 AV			1.24 H	235	68.95	32.38
5	4824.00	52.96 PK	74.00	-21.04	1.10 H	34	14.40	38.56
6	4824.00	43.91 AV	54.00	-10.09	1.10 H	34	5.35	38.56
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	2390.00	59.95 PK	74.00	-14.05	1.09 V	236	27.66	32.29
2	2390.00	49.81 AV	54.00	-4.19	1.09 V	236	17.52	32.29
3	*2412.00	102.15 PK			1.09 V	236	69.77	32.38
4	*2412.00	98.18 AV			1.09 V	236	65.80	32.38
5	4824.00	56.45 PK	74.00	-17.55	1.03 V	224	17.89	38.56
6	4824.00	46.81 AV	54.00	-7.19	1.03 V	224	8.25	38.56

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2437.00	106.13 PK			1.15 H	231	73.65	32.48
2	*2437.00	102.04 AV			1.15 H	231	69.56	32.48
3	4874.00	51.65 PK	74.00	-22.35	1.14 H	29	12.98	38.67
4	4874.00	41.58 AV	54.00	-12.42	1.14 H	29	2.91	38.67
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	*2437.00	102.62 PK			1.10 V	239	70.14	32.48
2	*2437.00	98.56 AV			1.10 V	239	66.08	32.48
3	4874.00	54.35 PK	74.00	-19.65	1.02 V	265	15.68	38.67
4	4874.00	44.34 AV	54.00	-9.66	1.02 V	265	5.67	38.67

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2462.00	106.45 PK			1.20 H	242	73.87	32.58
2	*2462.00	102.41 AV			1.20 H	242	69.83	32.58
3	2483.50	62.02 PK	74.00	-11.98	1.20 H	242	29.36	32.66
4	2483.50	52.04 AV	54.00	-1.96	1.20 H	242	19.38	32.66
5	4924.00	51.46 PK	74.00	-22.54	1.10 H	198	12.67	38.79
6	4924.00	41.39 AV	54.00	-12.61	1.10 H	198	2.60	38.79
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	*2462.00	102.95 PK			1.08 V	245	70.37	32.58
2	*2462.00	98.84 AV			1.08 V	245	66.26	32.58
3	2483.50	60.13 PK	74.00	-13.87	1.08 V	245	27.47	32.66
4	2483.50	50.04 AV	54.00	-3.96	1.08 V	245	17.38	32.66
5	4924.00	54.26 PK	74.00	-19.74	1.03 V	217	15.47	38.79
6	4924.00	44.39 AV	54.00	-9.61	1.03 V	217	5.60	38.79

- 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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	2390.00	61.03 PK	74.00	-12.97	1.02 H	154	28.74	32.29
2	2390.00	51.04 AV	54.00	-2.96	1.02 H	154	18.75	32.29
3	*2412.00	104.86 PK			1.02 H	154	72.48	32.38
4	*2412.00	100.80 AV			1.02 H	154	68.42	32.38
5	4824.00	50.19 PK	74.00	-23.81	1.27 H	100	11.62	38.56
6	4824.00	40.26 AV	54.00	-13.74	1.27 H	100	1.69	38.56

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	2390.00	59.68 PK	74.00	-14.32	1.15 V	26	27.39	32.29
2	2390.00	49.51 AV	54.00	-4.49	1.15 V	26	17.22	32.29
3	*2412.00	102.45 PK			1.15 V	26	70.07	32.38
4	*2412.00	98.38 AV			1.15 V	26	66.00	32.38
5	4824.00	49.66 PK	74.00	-24.34	1.14 V	262	11.10	38.56
6	4824.00	39.74 AV	54.00	-14.26	1.14 V	262	1.18	38.56

- 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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2437.00	105.08 PK			1.01 H	151	72.60	32.48
2	*2437.00	100.96 AV			1.01 H	151	68.48	32.48
3	4874.00	50.82 PK	74.00	-23.18	1.24 H	93	12.15	38.67
4	4874.00	40.35 AV	54.00	-13.65	1.24 H	93	1.68	38.67
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	*2437.00	102.69 PK			1.16 V	29	70.21	32.48
2	*2437.00	98.56 AV			1.16 V	29	66.08	32.48
3	4874.00	50.21 PK	74.00	-23.79	1.01 V	249	11.54	38.67
4	4874.00	40.08 AV	54.00	-13.92	1.01 V	249	1.41	38.67

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2462.00	105.32 PK			1.02 H	156	72.74	32.58
2	*2462.00	101.25 AV			1.02 H	156	68.67	32.58
3	2483.50	61.09 PK	74.00	-12.91	1.02 H	156	28.43	32.66
4	2483.50	50.94 AV	54.00	-3.06	1.02 H	156	18.28	32.66
5	4924.00	50.68 PK	74.00	-23.32	1.23 H	95	11.89	38.79
6	4924.00	40.71 AV	54.00	-13.29	1.23 H	95	1.92	38.79
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	*2462.00	102.81 PK			1.13 V	34	70.23	32.58
2	*2462.00	98.74 AV			1.13 V	34	66.16	32.58
3	2483.50	59.93 PK	74.00	-14.07	1.13 V	34	27.27	32.66
4	2483.50	49.81 AV	54.00	-4.19	1.13 V	34	17.15	32.66
5	4924.00	50.04 PK	74.00	-23.96	1.18 V	239	11.25	38.79
6	4924.00	40.23 AV	54.00	-13.77	1.18 V	239	1.44	38.79

- 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.



A D T

802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	2390.00	62.15 PK	74.00	-11.85	1.23 H	224	29.86	32.29
2	2390.00	51.98 AV	54.00	-2.02	1.23 H	224	19.69	32.29
3	*2412.00	106.04 PK			1.23 H	224	73.66	32.38
4	*2412.00	95.68 AV			1.23 H	224	63.30	32.38
5	4824.00	49.61 PK	74.00	-24.39	1.09 H	58	11.05	38.56
6	4824.00	39.15 AV	54.00	-14.85	1.09 H	58	0.59	38.56
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	2390.00	60.24 PK	74.00	-13.76	1.09 V	246	27.95	32.29
2	2390.00	49.92 AV	54.00	-4.08	1.09 V	246	17.63	32.29
3	*2412.00	101.06 PK			1.09 V	246	68.68	32.38
4	*2412.00	91.83 AV			1.09 V	246	59.45	32.38
5	4824.00	50.61 PK	74.00	-23.39	1.19 V	232	12.05	38.56
6	4824.00	40.14 AV	54.00	-13.86	1.19 V	232	1.58	38.56

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2437.00	106.38 PK			1.20 H	219	73.90	32.48
2	*2437.00	96.02 AV			1.20 H	219	63.54	32.48
3	4874.00	49.31 PK	74.00	-24.69	1.06 H	255	10.64	38.67
4	4874.00	38.95 AV	54.00	-15.05	1.06 H	255	0.28	38.67
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	*2437.00	102.49 PK			1.05 V	243	70.01	32.48
2	*2437.00	92.28 AV			1.05 V	243	59.80	32.48
3	4874.00	50.41 PK	74.00	-23.59	1.02 V	27	11.74	38.67
4	4874.00	40.03 AV	54.00	-13.97	1.02 V	27	1.36	38.67

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2462.00	106.85 PK			1.15 H	224	74.27	32.58
2	*2462.00	96.61 AV			1.15 H	224	64.03	32.58
3	2483.50	62.65 PK	74.00	-11.35	1.15 H	224	29.99	32.66
4	2483.50	52.21 AV	54.00	-1.79	1.15 H	224	19.55	32.66
5	4924.00	49.65 PK	74.00	-24.35	1.10 H	265	10.86	38.79
6	4924.00	39.18 AV	54.00	-14.82	1.10 H	265	0.39	38.79

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	*2462.00	103.04 PK			1.08 V	236	70.46	32.58
2	*2462.00	92.84 AV			1.08 V	236	60.26	32.58
3	2483.50	60.48 PK	74.00	-13.52	1.08 V	236	27.82	32.66
4	2483.50	50.36 AV	54.00	-3.64	1.08 V	236	17.70	32.66
5	4924.00	51.26 PK	74.00	-22.74	1.02 V	245	12.47	38.79
6	4924.00	40.89 AV	54.00	-13.11	1.02 V	245	2.10	38.79

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	2390.00	61.24 PK	74.00	-12.76	1.05 H	340	28.95	32.29
2	2390.00	51.08 AV	54.00	-2.92	1.05 H	340	18.79	32.29
3	*2412.00	105.19 PK			1.05 H	340	72.81	32.38
4	*2412.00	95.03 AV			1.05 H	340	62.65	32.38
5	4824.00	49.03 PK	74.00	-24.97	1.14 H	219	10.47	38.56
6	4824.00	38.81 AV	54.00	-15.19	1.14 H	219	0.25	38.56
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	2390.00	60.49 PK	74.00	-13.51	1.15 V	33	28.20	32.29
2	2390.00	50.28 AV	54.00	-3.72	1.15 V	33	17.99	32.29
3	*2412.00	102.25 PK			1.15 V	33	69.87	32.38
4	*2412.00	92.18 AV			1.15 V	33	59.80	32.38
5	4824.00	50.06 PK	74.00	-23.94	1.11 V	245	11.50	38.56
6	4824.00	39.82 AV	54.00	-14.18	1.11 V	245	1.26	38.56

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2437.00	105.23 PK			1.02 H	338	72.75	32.48
2	*2437.00	95.06 AV			1.02 H	338	62.58	32.48
3	4874.00	49.65 PK	74.00	-24.35	1.16 H	58	10.98	38.67
4	4874.00	39.24 AV	54.00	-14.76	1.16 H	58	0.57	38.67
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	*2437.00	102.49 PK			1.16 V	42	70.01	32.48
2	*2437.00	92.41 AV			1.16 V	42	59.93	32.48
3	4874.00	50.18 PK	74.00	-23.82	1.17 V	259	11.51	38.67
4	4874.00	40.05 AV	54.00	-13.95	1.17 V	259	1.38	38.67

- 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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 1000hPa	TESTED BY	Brad Wu
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	*2462.00	105.36 PK			1.03 H	336	72.78	32.58
2	*2462.00	95.19 AV			1.03 H	336	62.61	32.58
3	2483.50	62.42 PK	74.00	-11.58	1.03 H	336	29.76	32.66
4	2483.50	52.13 AV	54.00	-1.87	1.03 H	336	19.47	32.66
5	4924.00	49.85 PK	74.00	-24.15	1.13 H	245	11.06	38.79
6	4924.00	39.48 AV	54.00	-14.52	1.13 H	245	0.69	38.79

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	*2462.00	102.55 PK			1.18 V	45	69.97	32.58
2	*2462.00	92.51 AV			1.18 V	45	59.93	32.58
3	2483.50	61.25 PK	74.00	-12.75	1.18 V	45	28.59	32.66
4	2483.50	50.94 AV	54.00	-3.06	1.18 V	45	18.28	32.66
5	4924.00	50.48 PK	74.00	-23.52	1.01 V	58	11.69	38.79
6	4924.00	39.92 AV	54.00	-14.08	1.01 V	58	1.13	38.79

- 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.



BELOW 1GHz WORST-CASE DATA : 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 999hPa	TESTED BY	Brad Wu
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	154.33	36.55 QP	43.50	-6.95	1.50 H	112	22.08	14.47
2	204.89	36.68 QP	43.50	-6.82	1.50 H	10	25.00	11.68
3	309.88	34.35 QP	46.00	-11.65	1.25 H	37	18.58	15.78
4	696.79	34.23 QP	46.00	-11.77	1.25 H	328	9.82	24.41
5	749.29	36.16 QP	46.00	-9.84	1.00 H	163	10.71	25.45
6	943.72	39.21 QP	46.00	-6.79	1.50 H	31	10.60	28.61
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	204.89	33.24 QP	43.50	-10.26	1.00 V	127	21.56	11.68
2	374.04	32.92 QP	46.00	-13.08	2.00 V	64	15.59	17.33
3	515.97	29.53 QP	46.00	-16.47	1.00 V	142	8.39	21.14
4	619.02	28.92 QP	46.00	-17.08	1.00 V	64	5.55	23.37
5	749.29	32.12 QP	46.00	-13.88	1.25 V	142	6.67	25.45
6	953.44	42.30 QP	46.00	-3.70	1.00 V	226	13.58	28.72

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23.0deg. C, 63.0%RH 999hPa	TESTED BY	Brad Wu
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	206.83	38.84 QP	43.50	-4.66	1.50 H	25	27.09	11.75
2	257.38	35.77 QP	46.00	-10.23	1.00 H	52	22.23	13.54
3	568.47	35.51 QP	46.00	-10.49	1.25 H	124	13.09	22.42
4	619.02	39.53 QP	46.00	-6.47	1.25 H	121	16.16	23.37
5	671.52	34.88 QP	46.00	-11.12	1.00 H	124	10.81	24.07
6	949.55	39.73 QP	46.00	-6.27	1.25 H	10	11.07	28.66
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	125.17	34.05 QP	43.50	-9.45	1.00 V	58	22.03	12.03
2	204.89	33.61 QP	43.50	-9.89	1.25 V	124	21.93	11.68
3	432.37	32.27 QP	46.00	-13.73	1.25 V	34	13.37	18.91
4	619.02	37.70 QP	46.00	-8.30	1.00 V	85	14.33	23.37
5	799.84	40.49 QP	46.00	-5.51	1.25 V	214	14.12	26.37
6	951.49	42.58 QP	46.00	-3.42	1.50 V	151	13.89	28.69

- 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

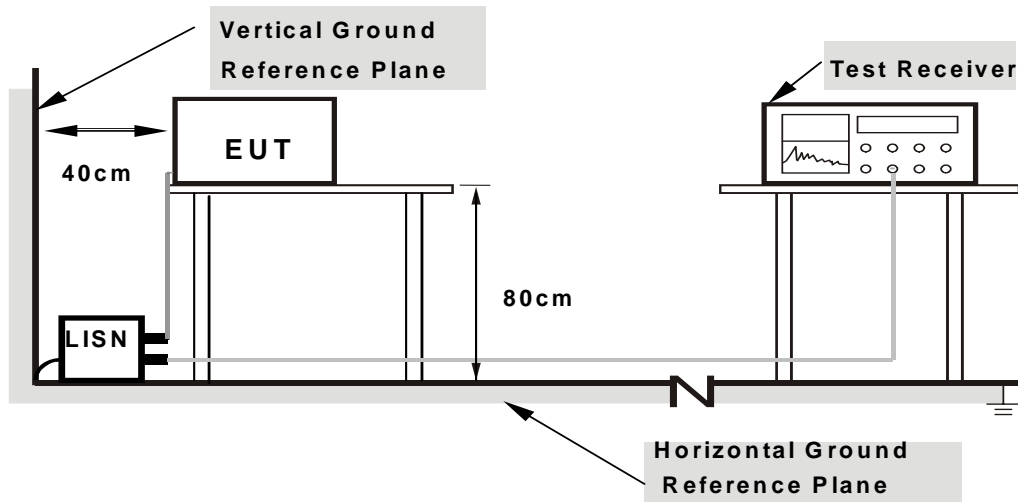
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

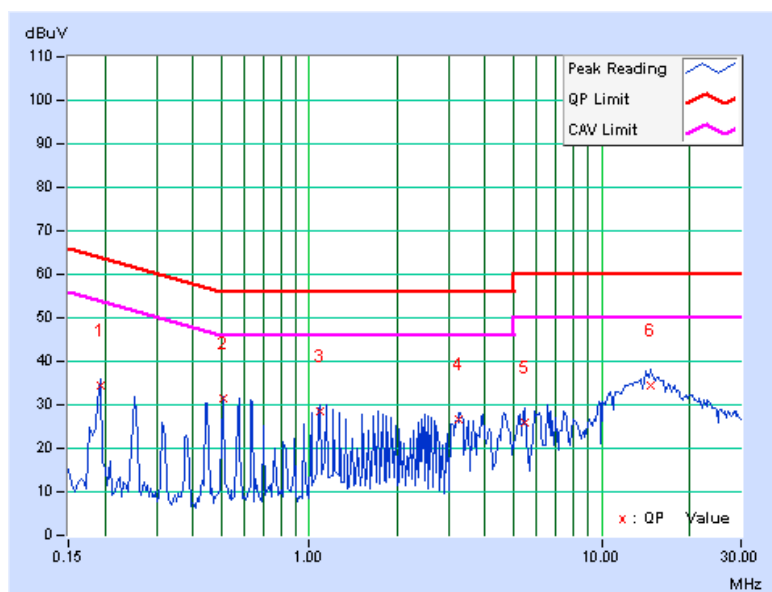
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1013hPa
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	34.45	-	34.58	-	63.91
2	0.509	0.15	31.44	-	31.59	-	56.00	46.00	-24.41	-
3	1.082	0.18	28.44	-	28.62	-	56.00	46.00	-27.38	-
4	3.242	0.32	26.52	-	26.84	-	56.00	46.00	-29.16	-
5	5.469	0.44	25.37	-	25.81	-	60.00	50.00	-34.19	-
6	14.684	0.89	33.66	-	34.55	-	60.00	50.00	-25.45	-

- 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.



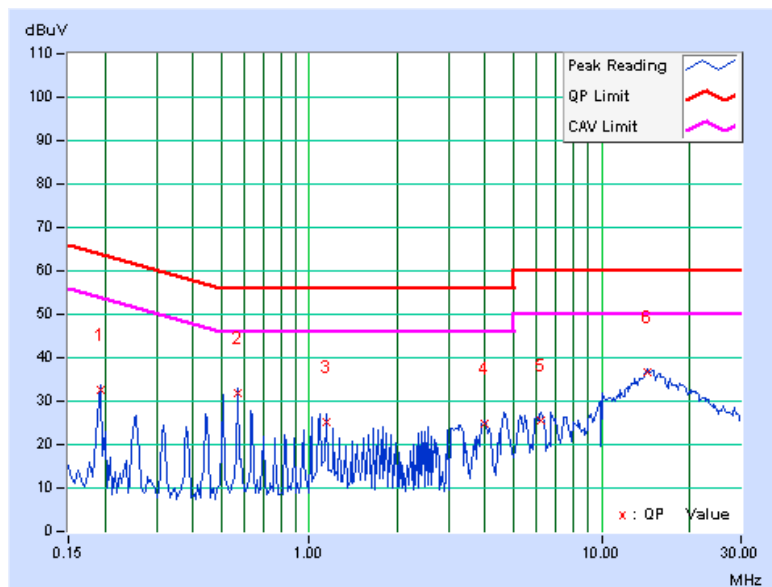


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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1013hPa
INPUT POWER	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Brad Wu		

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	32.32	-	32.47	-	63.91
2	0.572	0.17	31.53	-	31.70	-	56.00	46.00	-24.30	-
3	1.145	0.21	24.96	-	25.17	-	56.00	46.00	-30.83	-
4	4.004	0.39	24.29	-	24.68	-	56.00	46.00	-31.32	-
5	6.230	0.49	25.10	-	25.59	-	60.00	50.00	-34.41	-
6	14.430	0.80	35.73	-	36.53	-	60.00	50.00	-23.47	-

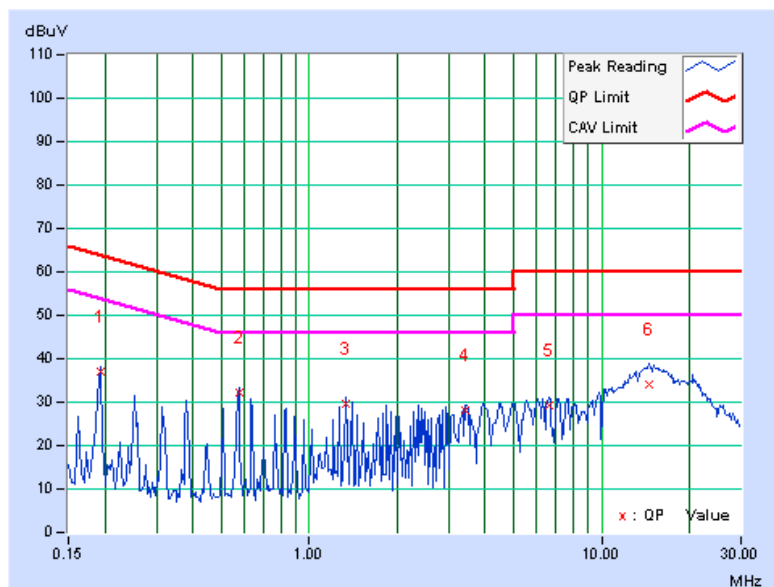
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1013hPa
INPUT POWER	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Brad Wu		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.13	36.98	-	37.11	-	63.91	53.91	-26.80	-
2	0.576	0.15	31.96	-	32.11	-	56.00	46.00	-23.89	-
3	1.336	0.20	29.38	-	29.58	-	56.00	46.00	-26.42	-
4	3.434	0.33	27.83	-	28.16	-	56.00	46.00	-27.84	-
5	6.613	0.50	28.90	-	29.40	-	60.00	50.00	-30.60	-
6	14.625	0.89	33.24	-	34.13	-	60.00	50.00	-25.87	-

- 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.



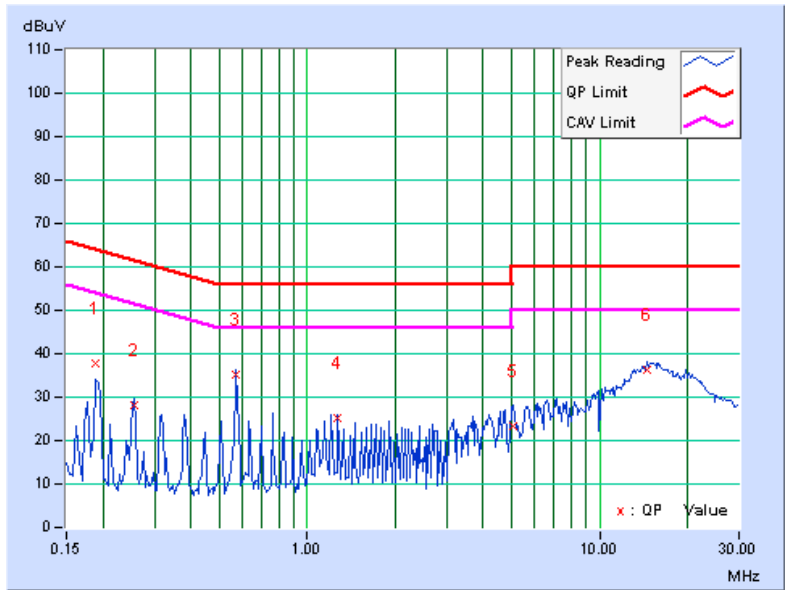


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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1013hPa
INPUT POWER	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Brad Wu		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.15	37.67	-	37.82	-	64.08	54.08	-26.26	-
2	0.255	0.15	28.12	-	28.27	-	61.58	51.58	-33.30	-
3	0.572	0.17	35.06	-	35.23	-	56.00	46.00	-20.77	-
4	1.270	0.21	25.04	-	25.25	-	56.00	46.00	-30.75	-
5	5.086	0.44	23.05	-	23.49	-	60.00	50.00	-36.51	-
6	14.625	0.81	35.53	-	36.34	-	60.00	50.00	-23.66	-

- 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.





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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.



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

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

---END---