FCC/IC TEST REPORT (15.247)

REPORT NO.:	RF130906C26-1
MODEL NO. FOR PAD:	MG101C1T*****(*=0~9, A~Z, - or blank)
MODEL NO. FOR DOCKING:	MG101C1D*****(*=0~9, A~Z, - or blank)
FCC ID:	PPD-QCWB335
RECEIVED:	Sep. 06, 2013
TESTED:	Sep. 17, 2013 ~ Nov. 28, 2013
ISSUED:	Dec. 02, 2013

APPLICANT:	Qualcomm Atheros, Inc.
ADDRESS:	1700 Technology Dr San Jose, CA 95110

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130906C26-1	Original release	Dec. 02, 2013

1. CERTIFICATION

PRODUCT:	Tablet and Docking
MODEL NO. FOR PAD:	MG101C1T*****(*=0~9, A~Z, - or blank)
MODEL NO. FOR DOCKING:	MG101C1D*****(*=0~9, A~Z, - or blank)
BRAND:	JP Sa Couto, SA
APPLICANT:	Qualcomm Atheros, Inc.
TESTED:	Sep. 17, 2013 ~ Nov. 28, 2013
TEST SAMPLE:	Identical Prototype
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009 **Canada RSS-210 Issue 8 (2010-12)** **Canada RSS-Gen Issue 3 (2010-12)**

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

PREPARED BY : Vera Huang , **DATE :** Dec. 02, 2013

Vera Huang / Specialist

APPROVED BY : Sam chen , **DATE :** Dec. 02, 2013

Sam Chen / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)				
STANDARD SECTION		**TEST TYPE**	**RESULT**	**REMARK**
FCC PART 15, SUBPART C	**RSS-210; RSS-Gen**			
15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.73dB at 0.18906MHz.
15.247(d) 15.209	RSS-210 A8.5	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1dB at 7311MHz.
15.247(d)	RSS-210 A8.5	Band Edge Measurement	N/A	Refer to NOTE as below.
15.247(a)(2)	RSS-210 A8.2 (a)	6dB bandwidth	N/A	Refer to NOTE as below.
15.247(b)	RSS-210 A8.4 (4)	Conducted power	N/A	Refer to NOTE as below.
15.247(e)	RSS-210 A8.2 (b)	Power Spectral Density	N/A	Refer to NOTE as below.
15.203	-	Antenna Requirement	N/A	Refer to NOTE as below.

NOTE: Test items for radiated emission and conducted emission were performed for this report. Other testing data please refer to module (Brand: Qualcomm Atheros, Model: QCWB335, FCC ID: PPD- QCWB335, IC: 4104A- QCWB335) Report No.: FR240322B

2.1 MEASUREMENT UNCERTAINTY

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

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Tablet and Docking
MODEL NO. FOR PAD	MG101C1T*****(*=0~9, A~Z, - or blank)
MODEL NO. FOR DOCKING	MG101C1D*****(*=0~9, A~Z, - or blank)
MODULE P/N	WCBN612AH-Q2(1A)
POWER SUPPLY	12Vdc (adapter or host equipment) 7.4Vdc (battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
ANTENNA TYPE	PIFA antenna with 1.25dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. This report is prepared for FCC class II change permissive change. The transmitter module is authorized for use in specific End-product (Tablet and Docking / Brand: JP Sa Couto, SA / Model No. for Pad: MG101C1T*****(*=0~9, A~Z, - or blank) / Model No. for Docking: MG101C1D*****(*=0~9, A~Z, - or blank)). Thus, we re-test conducted emission and radiated emission tests.
2. The power table is listed as below.

Mode	**802.11b**		
Channel / Frequency (MHz)	**1 (2412)**	**6 (2437)**	**11 (2462)**
Peak Power	18.93	18.71	17.93
Average Power	16.70	**16.47**	15.73
Mode	**802.11g**		
Channel / Frequency (MHz)	**1 (2412)**	**6 (2437)**	**11 (2462)**
Peak Power	16.23	20.71	17.61
Average Power	10.82	15.54	12.24
Mode	**802.11n (HT20)**		
Channel / Frequency (MHz)	**1 (2412)**	**6 (2437)**	**11 (2462)**
Peak Power	16.15	20.62	16.66
Average Power	10.52	15.38	11.02
Mode	**802.11n (HT40)**		
Channel / Frequency (MHz)	**3 (2422)**	**6 (2437)**	**9 (2452)**
Peak Power	13.63	13.76	13.68
Average Power	7.94	8.07	8.06

3. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter	DELTA	ADP-18TB A	Input: 100-240Vac, 0.6A, 50-60Hz Output: 12Vdc, 1.5A
Battery 1	Welltech	J01	Rating: 7.4 Vdc, 4000mAh Type: Li-ion
Battery 2	SIMPLO	SQU-1310	Rating: 7.4 Vdc, 4000mAh Type: Li-ion
Docking	JP Sa Couto, SA	MG101C1D*****(*=0~9, A~Z, - or blank)	--
Battery for Docking	SIMPLO	SQU-1311	Rating: 7.4 Vdc, 2260mAh Type: Li-ion
WLAN+BT Combo Module	Qualcomm Atheros	QCWB335	1T1R b/g/n + BT combo

* Only Battery 1 was verified in this report.

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

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

5. The above EUT information is 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

FOR 2.4GHz:

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

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

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

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

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
2. The configurations of tablet only and tablet with docking had been pre-tested, and the test mode for tablet only was the worst case to perform the radiated emission test.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	6.0
802.11n (20MHz)	1 to 11	1, 2, 6, 10, 11	OFDM	BPSK	MCS0
802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (40MHz)	3 to 9	3	OFDM	BPSK	MCS0

POWER LINE CONDUCTED EMISSION TEST:

The EUT was tested with the following mode.

TEST CONDITION
BT Link + WLAN (2.4G) Link + Adapter + Earphone

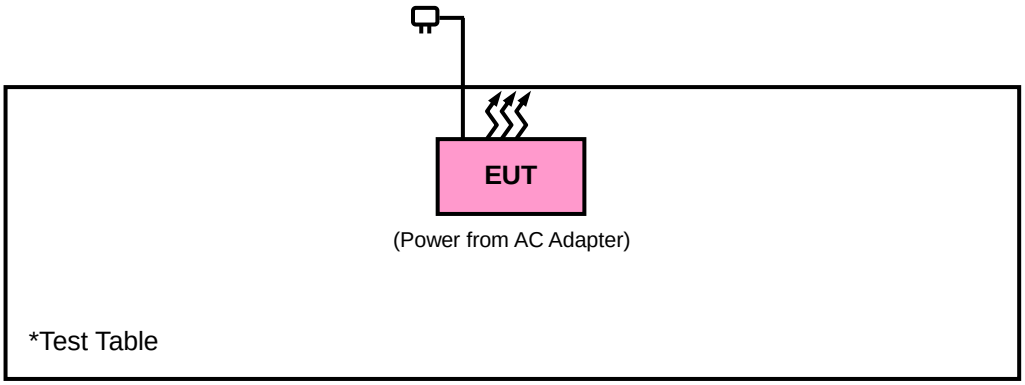
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Anson Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Anson Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2009
KDB 558074 D01 DTS Meas Guidance v03r01

Canada RSS-210 Issue 8 (2010-12)
Canada RSS-Gen Issue 3 (2010-12)

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2012	Dec. 16, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 07, 2013	Jan. 06, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 25, 2012	Dec. 24, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 184045	980116	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2012	Dec. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct.18.2013	Oct.17.2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct.18.2013	Oct.17.2014
RF signal cable Worken	RG-213	NA	Nov.17.2013	Nov.16.2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Power Meter	ML2488B	1141007	Jan. 09, 2013	Jan. 08, 2014
Power Sensor	E9321A	MY51200002	May 22, 2013	May 21, 2014

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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.

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. Height of receiving antenna 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:

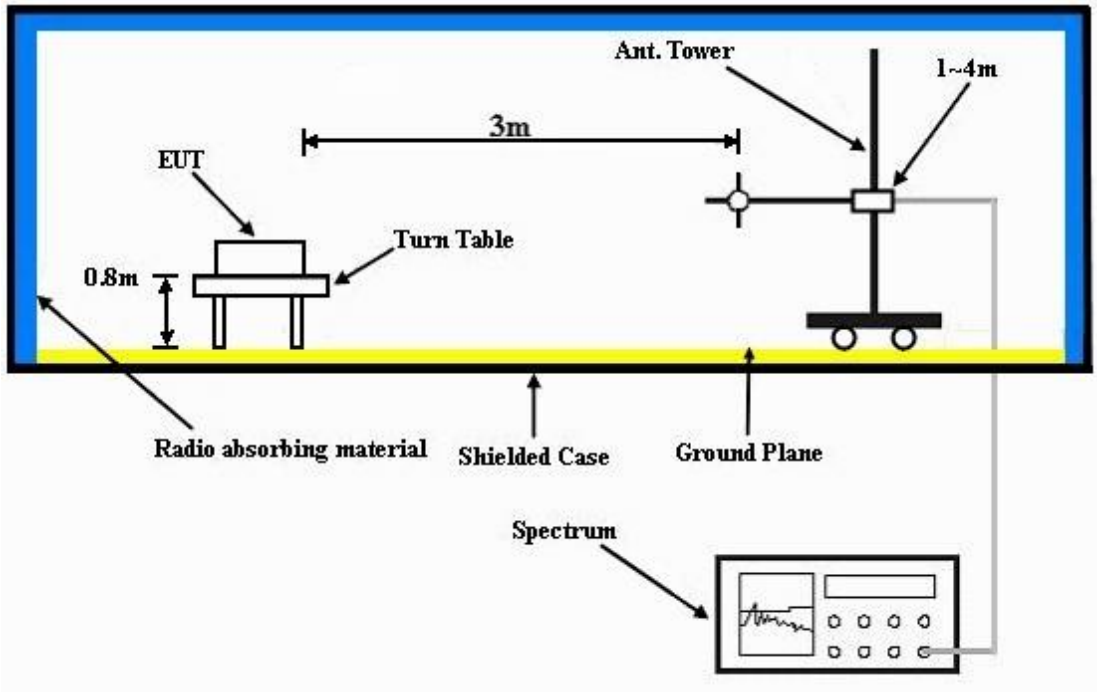
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.4 DEVIATION FROM TEST STANDARD

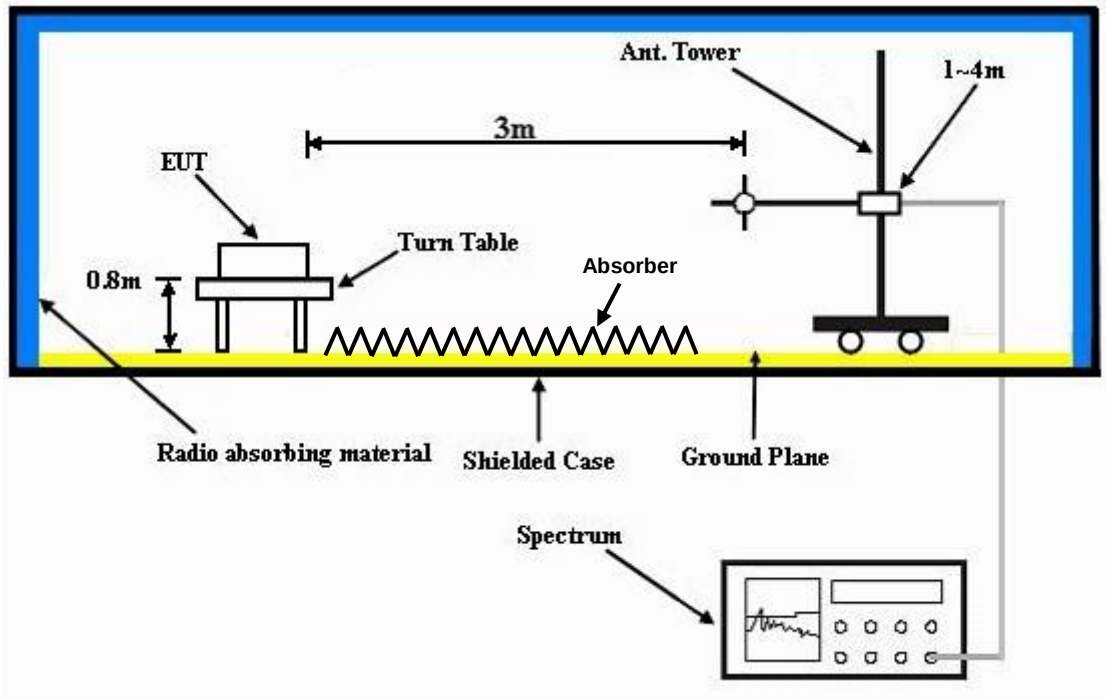
No deviation.

4.1.5 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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

4.1.6 EUT OPERATING CONDITIONS

a. Placed the EUT on a testing table.

b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	51.09	58.14	54	-2.91	26.91	3.54	37.5	104	229	Average
2388	58.23	65.28	74	-15.77	26.91	3.54	37.5	104	229	Peak
2412	106.69	113.71			26.96	3.54	37.52	104	229	Average
2412	111.19	118.21			26.96	3.54	37.52	104	229	Peak
2500	46.14	52.57	54	-7.86	27.2	3.62	37.25	104	229	Average
2500	55.57	62	74	-18.43	27.2	3.62	37.25	104	229	Peak
4824	47.26	63.58	54	-6.74	30.99	5.77	53.08	100	238	Average
4824	48.95	65.27	74	-25.05	30.99	5.77	53.08	100	238	Peak
7236	45.01	54.69	54	-8.99	35.68	6.65	52.01	100	133	Average
7236	51.9	61.58	74	-22.1	35.68	6.65	52.01	100	133	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	44.34	51.41	54	-9.66	26.91	3.52	37.5	105	273	Average
2386	55.12	62.19	74	-18.88	26.91	3.52	37.5	105	273	Peak
2412	99.87	106.89			26.96	3.54	37.52	105	273	Average
2412	104.01	111.03			26.96	3.54	37.52	105	273	Peak
2483.5	36.71	43.28	54	-17.29	27.15	3.6	37.32	105	273	Average
2483.5	51.64	58.21	74	-22.36	27.15	3.6	37.32	105	273	Peak
4824	45.21	61.53	54	-8.79	30.99	5.77	53.08	100	284	Average
4824	47.21	63.53	74	-26.79	30.99	5.77	53.08	100	284	Peak
7236	52.64	62.32	54	-1.36	35.68	6.65	52.01	100	202	Average
7236	57.25	66.93	74	-16.75	35.68	6.65	52.01	100	202	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2348	49.94	57.16	54	-4.06	26.77	3.5	37.49	104	226	Average
2348	57.04	64.26	74	-16.96	26.77	3.5	37.49	104	226	Peak
2437	107.28	114.12			27.06	3.56	37.46	104	226	Average
2437	111.15	117.99			27.06	3.56	37.46	104	226	Peak
2484	37.6	44.17	54	-16.4	27.15	3.6	37.32	104	226	Average
2484	53.88	60.45	74	-20.12	27.15	3.6	37.32	104	226	Peak
4874	45.09	61.28	54	-8.91	31.06	5.8	53.05	100	184	Average
4874	47.01	63.2	74	-26.99	31.06	5.8	53.05	100	184	Peak
7311	45.24	54.57	54	-8.76	35.84	6.68	51.85	123	135	Average
7311	51.73	61.06	74	-22.27	35.84	6.68	51.85	123	135	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	42.41	49.46	54	-11.59	26.91	3.54	37.5	105	273	Average
2388	53.58	60.63	74	-20.42	26.91	3.54	37.5	105	273	Peak
2437	99.48	106.32			27.06	3.56	37.46	105	273	Average
2437	103.87	110.71			27.06	3.56	37.46	105	273	Peak
2484	35.34	41.91	54	-18.66	27.15	3.6	37.32	105	273	Average
2484	51.96	58.53	74	-22.04	27.15	3.6	37.32	105	273	Peak
4874	42.73	58.92	54	-11.27	31.06	5.8	53.05	100	17	Average
4874	44.8	60.99	74	-29.2	31.06	5.8	53.05	100	17	Peak
7311	53	62.33	54	-1	35.84	6.68	51.85	118	280	Average
7311	56.25	65.58	74	-17.75	35.84	6.68	51.85	118	280	Peak
2388	42.41	49.46	54	-11.59	26.91	3.54	37.5	105	273	Average

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	50.46	57.58	54	-3.54	26.86	3.52	37.5	105	227	Average
2376	58.31	65.43	74	-15.69	26.86	3.52	37.5	105	227	Peak
2462	106.16	112.87			27.1	3.58	37.39	105	227	Average
2462	110.27	116.98			27.1	3.58	37.39	105	227	Peak
2488	51.8	58.3	54	-2.2	27.2	3.62	37.32	105	227	Average
2488	58.95	65.45	74	-15.05	27.2	3.62	37.32	105	227	Peak
4924	41.62	57.7	54	-12.38	31.12	5.83	53.03	100	184	Average
4924	44.53	60.61	74	-29.47	31.12	5.83	53.03	100	184	Peak
7386	40.79	49.63	54	-13.21	36.05	6.71	51.6	100	183	Average
7386	49.73	58.57	74	-24.27	36.05	6.71	51.6	100	183	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2378	43	50.12	54	-11	26.86	3.52	37.5	101	274	Average
2378	53.22	60.34	74	-20.78	26.86	3.52	37.5	101	274	Peak
2462	99.7	106.41			27.1	3.58	37.39	101	274	Average
2462	103.98	110.69			27.1	3.58	37.39	101	274	Peak
2488	44.67	51.17	54	-9.33	27.2	3.62	37.32	101	274	Average
2488	53.97	60.47	74	-20.03	27.2	3.62	37.32	101	274	Peak
7386	52.59	61.43	54	-1.41	36.05	6.71	51.6	103	183	Average
7386	60.88	69.72	74	-13.12	36.05	6.71	51.6	103	183	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462MHz: Fundamental frequency.

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.2	59.27	54	-1.8	26.91	3.54	37.52	104	225	Average
2390	64.6	71.67	74	-9.4	26.91	3.54	37.52	104	225	Peak
2412	97.65	104.67			26.96	3.54	37.52	104	225	Average
2412	107.78	114.8			26.96	3.54	37.52	104	225	Peak
2484	35.38	41.95	54	-18.62	27.15	3.6	37.32	104	225	Average
2484	51.26	57.83	74	-22.74	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	42.34	49.41	54	-11.66	26.91	3.54	37.52	100	274	Average
2390	58.78	65.85	74	-15.22	26.91	3.54	37.52	100	274	Peak
2412	90.51	97.53			26.96	3.54	37.52	100	274	Average
2412	100.89	107.91			26.96	3.54	37.52	100	274	Peak
2484	34.27	40.84	54	-19.73	27.15	3.6	37.32	100	274	Average
2484	51.1	57.67	74	-22.9	27.15	3.6	37.32	100	274	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2326	45.6	52.87	54	-8.4	26.72	3.48	37.47	108	225	Average
2326	57.25	64.52	74	-16.75	26.72	3.48	37.47	108	225	Peak
2390	51.4	58.47	54	-2.6	26.91	3.54	37.52	108	225	Average
2390	63.68	70.75	74	-10.32	26.91	3.54	37.52	108	225	Peak
2417	102.35	109.29			26.96	3.56	37.46	108	225	Average
2417	111.94	118.88			26.96	3.56	37.46	108	225	Peak
2500	44.05	50.48	54	-9.95	27.2	3.62	37.25	108	225	Average
2500	54.45	60.88	74	-19.55	27.2	3.62	37.25	108	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2330	38.76	46.03	54	-15.24	26.72	3.48	37.47	103	277	Average
2330	52.69	59.96	74	-21.31	26.72	3.48	37.47	103	277	Peak
2390	44.28	51.35	54	-9.72	26.91	3.54	37.52	103	277	Average
2390	58.96	66.03	74	-15.04	26.91	3.54	37.52	103	277	Peak
2417	96.04	102.98			26.96	3.56	37.46	103	277	Average
2417	106.26	113.2			26.96	3.56	37.46	103	277	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2417MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2354	51.05	58.23	54	-2.95	26.81	3.5	37.49	104	225	Average
2354	59.56	66.74	74	-14.44	26.81	3.5	37.49	104	225	Peak
2437	101.67	108.51			27.06	3.56	37.46	104	225	Average
2437	112.47	119.31			27.06	3.56	37.46	104	225	Peak
2483.5	42.6	49.17	54	-11.4	27.15	3.6	37.32	104	225	Average
2483.5	55.78	62.35	74	-18.22	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	41.52	48.59	54	-12.48	26.91	3.54	37.52	100	275	Average
2390	54.5	61.57	74	-19.5	26.91	3.54	37.52	100	275	Peak
2437	95.46	102.3			27.06	3.56	37.46	100	275	Average
2437	105.26	112.1			27.06	3.56	37.46	100	275	Peak
2484	37.18	43.75	54	-16.82	27.15	3.6	37.32	100	275	Average
2484	52.52	59.09	74	-21.48	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 10	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	49.47	56.59	54	-4.53	26.86	3.52	37.5	130	238	Average
2376	60.19	67.31	74	-13.81	26.86	3.52	37.5	130	238	Peak
2457	101.94	108.65			27.1	3.58	37.39	130	238	Average
2457	111.47	118.18			27.1	3.58	37.39	130	238	Peak
2484	46.94	53.51	54	-7.06	27.15	3.6	37.32	130	238	Average
2484	61.34	67.91	74	-12.66	27.15	3.6	37.32	130	238	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2374	40.91	48.03	54	-13.09	26.86	3.52	37.5	100	276	Average
2374	53.92	61.04	74	-20.08	26.86	3.52	37.5	100	276	Peak
2457	95.02	101.73			27.1	3.58	37.39	100	276	Average
2457	105.38	112.09			27.1	3.58	37.39	100	276	Peak
2484	41.28	47.85	54	-12.72	27.15	3.6	37.32	100	276	Average
2484	56.82	63.39	74	-17.18	27.15	3.6	37.32	100	276	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2457MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2380	47.35	54.47	54	-6.65	26.86	3.52	37.5	103	225	Average
2380	58.97	66.09	74	-15.03	26.86	3.52	37.5	103	225	Peak
2462	98.28	104.99			27.1	3.58	37.39	103	225	Average
2462	108.23	114.94			27.1	3.58	37.39	103	225	Peak
2484	52.48	59.05	54	-1.52	27.15	3.6	37.32	103	225	Average
2484	65.59	72.16	74	-8.41	27.15	3.6	37.32	103	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2380	40.25	47.37	54	-13.75	26.86	3.52	37.5	100	275	Average
2380	53.99	61.11	74	-20.01	26.86	3.52	37.5	100	275	Peak
2462	91.81	98.52			27.1	3.58	37.39	100	275	Average
2462	101.61	108.32			27.1	3.58	37.39	100	275	Peak
2484	43.21	49.78	54	-10.79	27.15	3.6	37.32	100	275	Average
2484	59.56	66.13	74	-14.44	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462MHz: Fundamental frequency.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.43	59.5	54	-1.57	26.91	3.54	37.52	104	225	Average
2390	63.8	70.87	74	-10.2	26.91	3.54	37.52	104	225	Peak
2412	96.91	103.93			26.96	3.54	37.52	104	225	Average
2412	107.93	114.95			26.96	3.54	37.52	104	225	Peak
2484	35.33	41.9	54	-18.67	27.15	3.6	37.32	104	225	Average
2484	51.47	58.04	74	-22.53	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	44.23	51.3	54	-9.77	26.91	3.54	37.52	100	275	Average
2390	57.84	64.91	74	-16.16	26.91	3.54	37.52	100	275	Peak
2412	89.88	96.9			26.96	3.54	37.52	100	275	Average
2412	99.8	106.82			26.96	3.54	37.52	100	275	Peak
2484	34.27	40.84	54	-19.73	27.15	3.6	37.32	100	275	Average
2484	49.87	56.44	74	-24.13	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2326	43.69	50.96	54	-10.31	26.72	3.48	37.47	106	230	Average
2326	55.99	63.26	74	-18.01	26.72	3.48	37.47	106	230	Peak
2390	50.51	57.58	54	-3.49	26.91	3.54	37.52	106	230	Average
2390	64.81	71.88	74	-9.19	26.91	3.54	37.52	106	230	Peak
2417	101.41	108.35			26.96	3.56	37.46	106	230	Average
2417	111.53	118.47			26.96	3.56	37.46	106	230	Peak
2500	42.8	49.23	54	-11.2	27.2	3.62	37.25	106	230	Average
2500	53.79	60.22	74	-20.21	27.2	3.62	37.25	106	230	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2348	39.19	46.41	54	-14.81	26.77	3.5	37.49	134	276	Average
2348	52.08	59.3	74	-21.92	26.77	3.5	37.49	134	276	Peak
2390	44.15	51.22	54	-9.85	26.91	3.54	37.52	134	276	Average
2390	58.42	65.49	74	-15.58	26.91	3.54	37.52	134	276	Peak
2417	95.2	102.14			26.96	3.56	37.46	134	276	Average
2417	105.3	112.24			26.96	3.56	37.46	134	276	Peak
2500	35.78	42.21	54	-18.22	27.2	3.62	37.25	134	276	Average
2500	51.64	58.07	74	-22.36	27.2	3.62	37.25	134	276	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2417MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2354	47.67	54.85	54	-6.33	26.81	3.5	37.49	104	225	Average
2354	59.28	66.46	74	-14.72	26.81	3.5	37.49	104	225	Peak
2437	101.98	108.82			27.06	3.56	37.46	104	225	Average
2437	112.11	118.95			27.06	3.56	37.46	104	225	Peak
2484	42.07	48.64	54	-11.93	27.15	3.6	37.32	104	225	Average
2484	54.75	61.32	74	-19.25	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2356	40.07	47.25	54	-13.93	26.81	3.5	37.49	100	275	Average
2356	53.8	60.98	74	-20.2	26.81	3.5	37.49	100	275	Peak
2437	95.09	101.93			27.06	3.56	37.46	100	275	Average
2437	105.14	111.98			27.06	3.56	37.46	100	275	Peak
2484	36.99	43.56	54	-17.01	27.15	3.6	37.32	100	275	Average
2484	51.95	58.52	74	-22.05	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 10	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2368	49.3	56.47	54	-4.7	26.81	3.52	37.5	103	229	Average
2368	58.72	65.89	74	-15.28	26.81	3.52	37.5	103	229	Peak
2457	100.96	107.67			27.1	3.58	37.39	103	229	Average
2457	110.61	117.32			27.1	3.58	37.39	103	229	Peak
2484	48.32	54.89	54	-5.68	27.15	3.6	37.32	103	229	Average
2484	63.61	70.18	74	-10.39	27.15	3.6	37.32	103	229	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	39.34	46.46	54	-14.66	26.86	3.52	37.5	100	275	Average
2376	55.16	62.28	74	-18.84	26.86	3.52	37.5	100	275	Peak
2457	94.47	101.18			27.1	3.58	37.39	100	275	Average
2457	105.03	111.74			27.1	3.58	37.39	100	275	Peak
2484	42.79	49.36	54	-11.21	27.15	3.6	37.32	100	275	Average
2484	59.96	66.53	74	-14.04	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2457MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2380	42.94	50.06	54	-11.06	26.86	3.52	37.5	102	225	Average
2380	58.57	65.69	74	-15.43	26.86	3.52	37.5	102	225	Peak
2462	97.77	104.48			27.1	3.58	37.39	102	225	Average
2462	107.91	114.62			27.1	3.58	37.39	102	225	Peak
2484	52.49	59.06	54	-1.51	27.15	3.6	37.32	102	225	Average
2484	65.61	72.18	74	-8.39	27.15	3.6	37.32	102	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	38.34	45.46	54	-15.66	26.86	3.52	37.5	100	275	Average
2376	52.77	59.89	74	-21.23	26.86	3.52	37.5	100	275	Peak
2462	91.29	98			27.1	3.58	37.39	100	275	Average
2462	101.26	107.97			27.1	3.58	37.39	100	275	Peak
2484	45.48	52.05	54	-8.52	27.15	3.6	37.32	100	275	Average
2484	58.97	65.54	74	-15.03	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462MHz: Fundamental frequency.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	44.8	51.87	54	-9.2	26.91	3.54	37.52	100	275	Average
2390	57.14	64.21	74	-16.86	26.91	3.54	37.52	100	275	Peak
2422	85.71	92.6			27.01	3.56	37.46	100	275	Average
2422	95.91	102.8			27.01	3.56	37.46	100	275	Peak
2484	34.17	40.74	54	-19.83	27.15	3.6	37.32	100	275	Average
2484	50.5	57.07	74	-23.5	27.15	3.6	37.32	100	275	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.08	59.15	54	-1.92	26.91	3.54	37.52	100	225	Average
2390	62.01	69.08	74	-11.99	26.91	3.54	37.52	100	225	Peak
2422	92.42	99.36			26.96	3.56	37.46	100	225	Average
2422	102.23	109.17			26.96	3.56	37.46	100	225	Peak
2484	35.27	41.84	54	-18.73	27.15	3.6	37.32	100	225	Average
2484	51.16	57.73	74	-22.84	27.15	3.6	37.32	100	225	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2422MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	40.08	47.15	54	-13.92	26.91	3.54	37.52	104	225	Average
2390	52.69	59.76	74	-21.31	26.91	3.54	37.52	104	225	Peak
2437	92.63	99.47			27.06	3.56	37.46	104	225	Average
2437	102.38	109.22			27.06	3.56	37.46	104	225	Peak
2484	38.99	45.56	54	-15.01	27.15	3.6	37.32	104	225	Average
2484	53.48	60.05	74	-20.52	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	34.14	41.21	54	-19.86	26.91	3.54	37.52	100	275	Average
2390	50.92	57.99	74	-23.08	26.91	3.54	37.52	100	275	Peak
2437	85.88	92.72			27.06	3.56	37.46	100	275	Average
2437	95.6	102.44			27.06	3.56	37.46	100	275	Peak
2484	34.85	41.42	54	-19.15	27.15	3.6	37.32	100	275	Average
2484	51.66	58.23	74	-22.34	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	David Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2374	40.06	47.18	54	-13.94	26.86	3.52	37.5	104	225	Average
2374	55.01	62.13	74	-18.99	26.86	3.52	37.5	104	225	Peak
2452	92.65	99.4			27.06	3.58	37.39	104	225	Average
2452	102.5	109.25			27.06	3.58	37.39	104	225	Peak
2484	50.93	57.5	54	-3.07	27.15	3.6	37.32	104	225	Average
2484	60.84	67.41	74	-13.16	27.15	3.6	37.32	104	225	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	34.04	41.11	54	-19.96	26.91	3.54	37.52	100	275	Average
2390	52.47	59.54	74	-21.53	26.91	3.54	37.52	100	275	Peak
2452	86.01	92.76			27.06	3.58	37.39	100	275	Average
2452	96.7	103.45			27.06	3.58	37.39	100	275	Peak
2484	43.17	49.74	54	-10.83	27.15	3.6	37.32	100	275	Average
2484	57.26	63.83	74	-16.74	27.15	3.6	37.32	100	275	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2452MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA: 802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
42.42	32.82	49.62	40	-7.18	13.58	0.7	31.08	100	249	Peak
73.74	31.35	52.32	40	-8.65	9.81	0.93	31.71	100	248	Peak
224.94	32	51.64	46	-14	10.42	1.72	31.78	100	117	Peak
380.5	36.09	50.82	46	-9.91	14.87	2.35	31.95	100	168	Peak
600.3	33.53	43.08	46	-12.47	19.61	3.09	32.25	100	222	Peak
750.1	37.42	43.63	46	-8.58	21.52	3.57	31.3	100	102	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
42.42	33.68	50.48	40	-6.32	13.58	0.7	31.08	110	128	Peak
139.89	25.74	43.75	43.5	-17.76	12.34	1.29	31.64	100	174	Peak
234.93	28.5	47.73	46	-17.5	10.83	1.76	31.82	100	286	Peak
446.3	33.49	46.63	46	-12.51	16.25	2.6	31.99	100	154	Peak
538	31.5	42.12	46	-14.5	18.19	2.91	31.72	100	137	Peak
799.1	29.76	35.28	46	-16.24	22.22	3.69	31.43	100	282	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 09, 2012	Nov. 08, 2013
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 02, 2013	Jul. 01, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

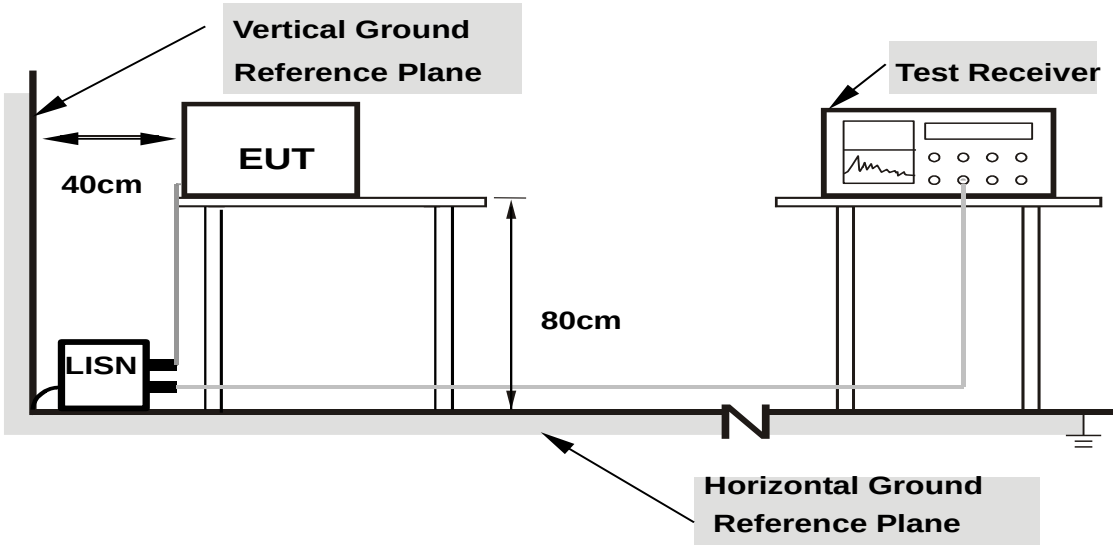
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

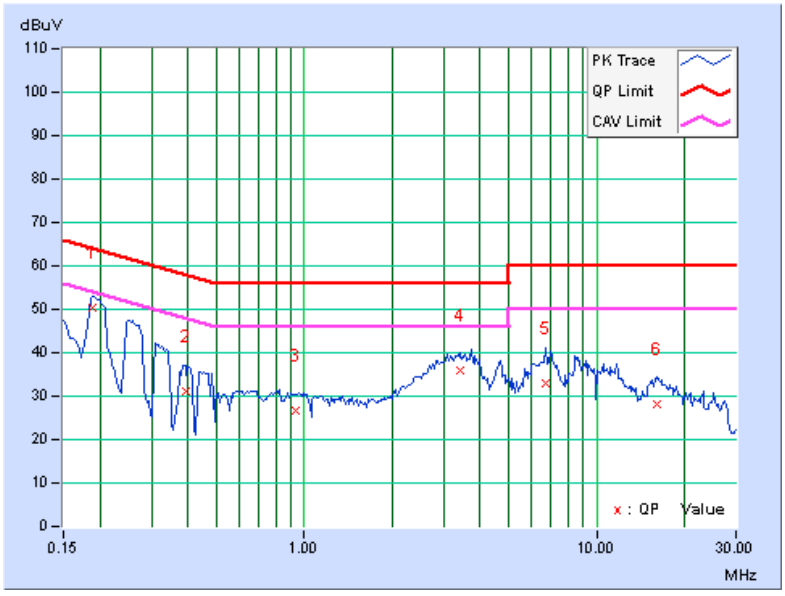
CONDUCTED WORST-CASE DATA：

PHASE	Line 1	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.17	50.18	34.98	50.35	35.15	64.08	54.08	-13.73	-18.93
2	0.39219	0.21	30.86	17.87	31.07	18.08	58.02	48.02	-26.95	-29.94
3	0.93125	0.26	26.44	13.38	26.70	13.64	56.00	46.00	-29.30	-32.36
4	3.43750	0.34	35.50	26.05	35.84	26.39	56.00	46.00	-20.16	-19.61
5	6.67578	0.40	32.52	26.10	32.92	26.50	60.00	50.00	-27.08	-23.50
6	16.02734	0.56	27.63	19.49	28.19	20.05	60.00	50.00	-31.81	-29.95

REMARKS:

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

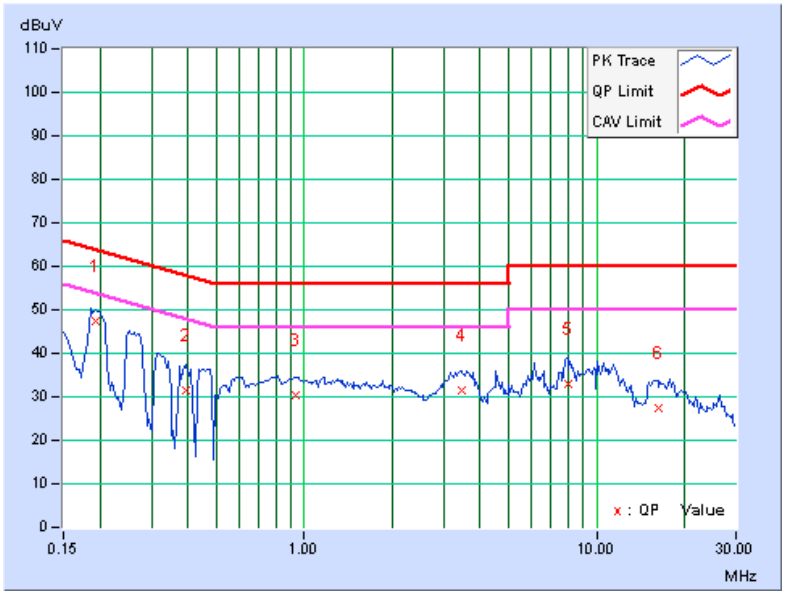


PHASE	Line 2	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.18	47.08	35.07	47.26	35.25	63.91	53.91	-16.65	-18.66
2	0.39219	0.25	31.38	20.81	31.63	21.06	58.02	48.02	-26.39	-26.96
3	0.93125	0.23	30.15	16.56	30.38	16.79	56.00	46.00	-25.62	-29.21
4	3.46094	0.36	31.20	21.48	31.56	21.84	56.00	46.00	-24.44	-24.16
5	7.97656	0.45	32.67	26.11	33.12	26.56	60.00	50.00	-26.88	-23.44
6	16.29297	0.64	26.90	18.16	27.54	18.80	60.00	50.00	-32.46	-31.20

REMARKS:

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



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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:
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Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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.

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