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FCC TEST REPORT (15.247)

REPORT NO.: RF111102C24A

MODEL NO.: DIR-825

(Refer to item 3.1 for the more details)

FCC ID: KA2IR825C1

RECEIVED: Nov. 16, 2011

TESTED: Nov. 16 ~ Dec. 21, 2011

ISSUED: Dec. 26, 2011

APPLICANT: D-Link Corporation

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Dec. 26, 2011



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1. CERTIFICATION

PRODUCT: Xtreme N Dual Band Gigabit Router

MODEL: DIR-825 (Refer to item 3.1 for the more details)

BRAND: D-Link

APPLICANT: D-Link Corporation

TESTED: Nov. 16 ~ Dec. 21, 2011

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: DIR-825) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , DATE: Dec. 26, 2011
Pettie Chen / Specialist

APPROVED BY :  , DATE: Dec. 26, 2011
Gary Chang / Technical 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 AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -11.77dB at 0.201MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390MHz, 2483.5 MHz, 4824.0MHz, 5000.0MHz, 5360.0MHz, 5400.0MHz, 11650MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	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	Xtreme N Dual Band Gigabit Router
MODEL NO.	DIR-825 (Refer to NOTE for the more details)
FCC ID	KA2IR825C1
POWER SUPPLY	12Vdc (adapter)
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 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	501.4mW for 2412 ~ 2462MHz 779.9mW for 5745 ~ 5825MHz
ANTENNA TYPE	Dipole antenna with 2dBi gain
ANTENNA CONNECTOR	R-SMA
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. All models are listed as below.

Model	Difference
DIR-825	With USB port & switch, White
DIR-825/N	Without USB port & switch, Black

* Model: DIR-825 was the worst for final test.

2. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

3. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX / 2TX
802.11g	2TX
802.11a	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

4. The EUT uses following adapters.

Adapter 1	
Brand	D-Link
Model	CG2412-B
Input Power	100-120Vac, 0.5A, 50-60Hz
Output Power	+12Vdc, 2A
Power Line	1.8m non-shielded cable w/o core

Adapter 2	
Brand	D-Link
Model	CG2412-B IW
Input Power	100-120Vac, 0.6A, 50-60Hz
Output Power	+12Vdc, 2A
Power Line	1.8m non-shielded cable w/o core

Adapter 3	
Brand	D-Link
Model	CG2412-B
Input Power	100-240Vac, 0.5A, 50-60Hz
Output Power	+12Vdc, 2A
Power Line	1.8m non-shielded cable w/o core

Adapter 4	
Brand	D-Link
Model	CG2412-B IW
Input Power	100-240Vac, 0.6A, 50-60Hz
Output Power	+12Vdc, 2A
Power Line	1.8m non-shielded cable w/o core

* Adapter 3 was the worst for the final test.

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
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

FOR 5.0GHz (5745 ~ 5825MHz):

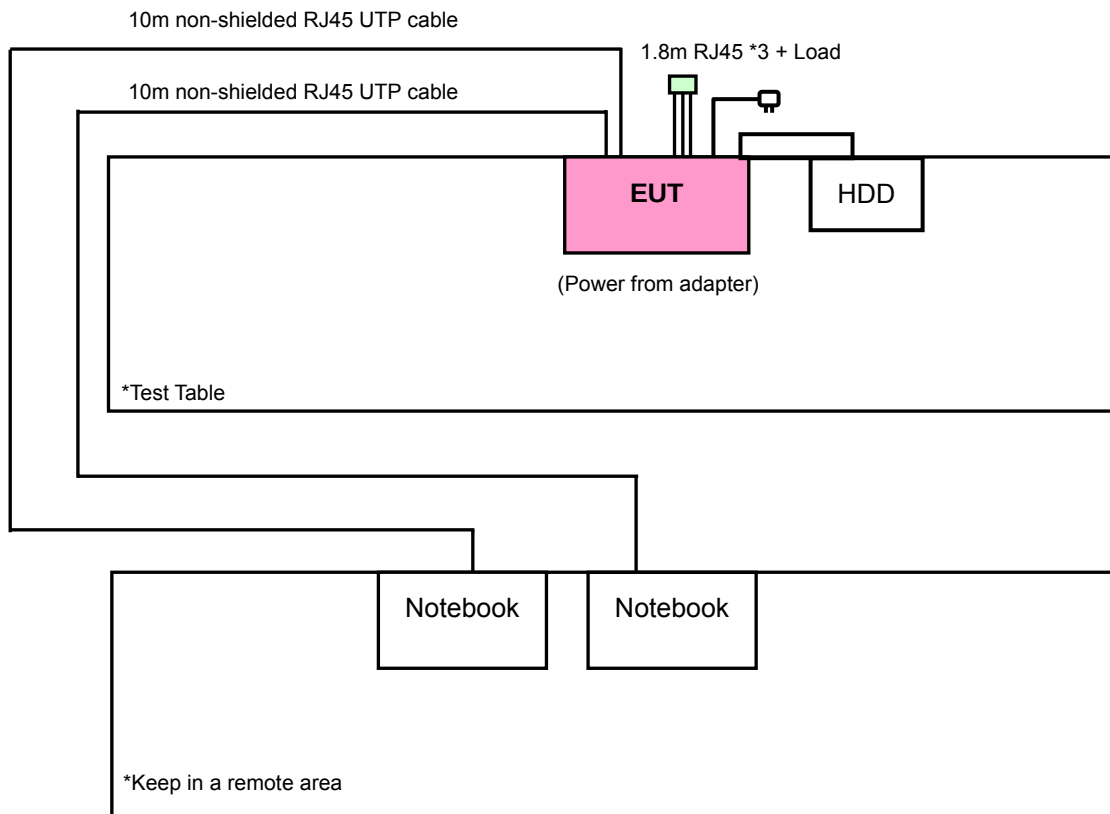
5 channels are provided for 802.11a, 802.11n (20MHz):

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

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

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

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations 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)	TX FUNCTION
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX/2TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	2TX

RADIATED EMISSION TEST (BELOW 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations 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)	TX FUNCTION
-	802.11g	1 to 11	6	OFDM	BPSK	6.0	2TX

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)	TX FUNCTION
-	802.11g	1 to 11	6	OFDM	BPSK	6.0	2TX

BANDEDGE MEASUREMENT:

- ☒ 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)	TX FUNCTION
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	1TX/2TX
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ 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)	TX FUNCTION
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX/2TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	2TX

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Anderson Hong
APCM	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin

FOR 5.745 ~ 5.825GHz:

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

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

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations 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)	TX FUNCTION
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	2TX

RADIATED EMISSION TEST (BELOW 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations 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)	TX FUNCTION
-	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2	2TX

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)	TX FUNCTION
-	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2	2TX

BANDEDGE MEASUREMENT:

- ☒ 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)	TX FUNCTION
-	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ 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)	TX FUNCTION
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	2TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	2TX

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Anderson Hong
APCM	25deg. C, 68%RH	120Vac, 60Hz	Sun Lin

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

ANSI C63.10-2009

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	D531	CN-0XM006-48643-81U-2973	QDS-BRCM1020
2	NOTEBOOK	DELL	D531	CN-0XM006-48643-81U-2786	QDS-BRCM1020
3	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4A50003	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable without core.
2	10m RJ45 UTP cable without core.
3	1.5 m shielded cable, terminated with USB connector, w/o core.

NOTE:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1, 2 acted communication partners to transfer data.

4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

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, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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. 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.

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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. 19, 2011	Apr. 18, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 06, 2011	Jan. 05, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 06, 2011	Sep. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 20, 2011	Jul. 19, 2012
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 13, 2011	Aug. 12, 2012
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Aug. 04, 2011	Aug. 03, 2012
Power Sensor	MA2411B	0738171	Aug. 04, 2011	Aug. 03, 2012

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

4.1.3 TEST PROCEDURES

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

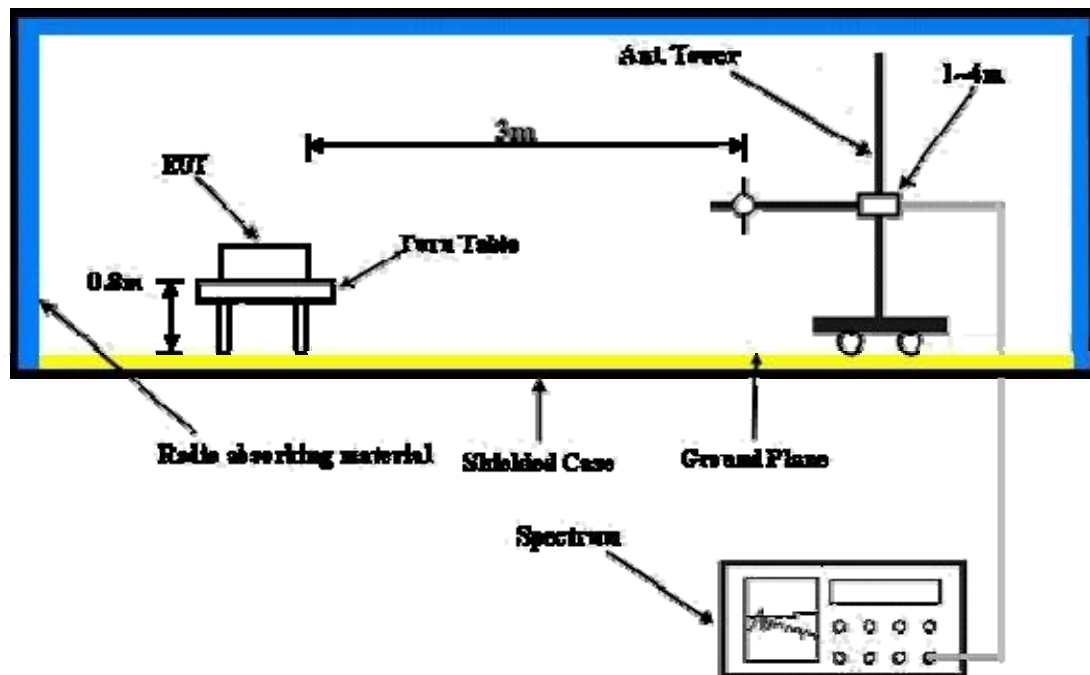
NOTE:

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- Prepared notebooks to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".
- The communication partner read and wrote with the external hard disk via EUT.



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4.1.7 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA : 802.11b: 1TX

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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	1608.00	53.6 PK	74.0	-20.4	1.18 H	255	24.70	28.90
2	1608.00	44.8 AV	54.0	-9.2	1.18 H	255	15.90	28.90
3	2386.00	56.4 PK	74.0	-17.6	1.03 H	234	24.90	31.50
4	2386.00	46.0 AV	54.0	-8.0	1.03 H	234	14.50	31.50
5	*2412.00	101.5 PK			1.03 H	232	69.90	31.60
6	*2412.00	97.5 AV			1.03 H	232	65.90	31.60
7	#3216.00	50.9 PK	81.5	-30.6	1.00 H	225	17.10	33.80
8	#3216.00	48.4 AV	77.5	-29.1	1.00 H	225	14.60	33.80
9	4824.00	49.6 PK	74.0	-24.4	1.61 H	217	11.90	37.70
10	4824.00	44.9 AV	54.0	-9.1	1.61 H	217	7.20	37.70
11	12060.00	56.8 PK	74.0	-17.2	1.28 H	127	7.90	48.90
12	12060.00	45.2 AV	54.0	-8.8	1.28 H	127	-3.70	48.90

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



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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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	1608.00	55.0 PK	74.0	-19.0	1.00 V	109	26.10	28.90
2	1608.00	48.3 AV	54.0	-5.7	1.00 V	109	19.40	28.90
3	2386.00	67.3 PK	74.0	-6.7	1.17 V	192	35.80	31.50
4	2386.00	52.3 AV	54.0	-1.7	1.17 V	192	20.80	31.50
5	*2412.00	107.5 PK			1.15 V	206	75.90	31.60
6	*2412.00	103.6 AV			1.15 V	206	72.00	31.60
7	#3216.00	56.9 PK	87.5	-30.6	1.00 V	307	23.10	33.80
8	#3216.00	55.3 AV	83.6	-28.3	1.00 V	307	21.50	33.80
9	4824.00	56.7 PK	74.0	-17.3	1.06 V	195	19.00	37.70
10	4824.00	53.0 AV	54.0	-1.0	1.06 V	195	15.30	37.70
11	12060.00	59.9 PK	74.0	-14.1	1.78 V	315	11.00	48.90
12	12060.00	51.5 AV	54.0	-2.5	1.78 V	315	2.60	48.90

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



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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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	100.1 PK			1.12 H	225	68.40	31.70
2	*2437.00	96.0 AV			1.12 H	225	64.30	31.70
3	#3249.00	50.7 PK	80.1	-29.4	1.02 H	247	16.80	33.90
4	#3249.00	48.2 AV	76.0	-27.8	1.02 H	247	14.30	33.90
5	4874.00	49.8 PK	74.0	-24.2	1.65 H	227	12.00	37.80
6	4874.00	45.2 AV	54.0	-8.8	1.65 H	227	7.40	37.80
7	7311.00	48.2 PK	74.0	-25.8	1.58 H	128	4.30	43.90
8	7311.00	44.8 AV	54.0	-9.2	1.58 H	128	0.90	43.90
9	12185.00	56.9 PK	74.0	-17.1	1.27 H	125	8.00	48.90
10	12185.00	45.7 AV	54.0	-8.3	1.27 H	125	-3.20	48.90

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



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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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	106.4 PK			1.15 V	216	74.70	31.70
2	*2437.00	102.2 AV			1.15 V	216	70.50	31.70
3	#3249.00	53.6 PK	86.4	-32.8	1.02 V	18	19.70	33.90
4	#3249.00	51.7 AV	82.2	-30.5	1.02 V	18	17.80	33.90
5	4874.00	56.3 PK	74.0	-17.7	1.03 V	56	18.50	37.80
6	4874.00	52.3 AV	54.0	-1.7	1.03 V	56	14.50	37.80
7	7311.00	57.2 PK	74.0	-16.8	1.62 V	294	13.30	43.90
8	7311.00	52.7 AV	54.0	-1.3	1.62 V	294	8.80	43.90
9	12185.00	53.8 PK	74.0	-20.2	1.43 V	309	4.90	48.90
10	12185.00	48.8 AV	54.0	-5.2	1.43 V	309	-0.10	48.90

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



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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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	99.8 PK			1.18 H	245	68.00	31.80
2	*2462.00	95.8 AV			1.18 H	245	64.00	31.80
3	2483.50	56.2 PK	74.0	-17.8	1.17 H	222	24.30	31.90
4	2483.50	45.7 AV	54.0	-8.3	1.17 H	222	13.80	31.90
5	#3282.00	50.8 PK	79.8	-29.0	1.02 H	257	16.90	33.90
6	#3282.00	48.5 AV	75.8	-27.3	1.02 H	257	14.60	33.90
7	4924.00	50.2 PK	74.0	-23.8	1.63 H	234	12.30	37.90
8	4924.00	45.4 AV	54.0	-8.6	1.63 H	234	7.50	37.90
9	7386.00	48.5 PK	74.0	-25.5	1.51 H	132	4.40	44.10
10	7386.00	45.1 AV	54.0	-8.9	1.51 H	132	1.00	44.10
11	12260.00	57.2 PK	74.0	-16.8	1.28 H	135	8.30	48.90
12	12260.00	45.8 AV	54.0	-8.2	1.28 H	135	-3.10	48.90

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.



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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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	106.0 PK			1.06 V	265	74.20	31.80
2	*2462.00	101.8 AV			1.06 V	265	70.00	31.80
3	2483.50	64.2 PK	74.0	-9.8	1.06 V	265	32.30	31.90
4	2483.50	45.6 AV	54.0	-8.4	1.06 V	265	13.70	31.90
5	#3282.00	53.8 PK	86.0	-32.2	1.08 V	52	19.90	33.90
6	#3282.00	52.1 AV	81.8	-29.7	1.08 V	52	18.20	33.90
7	4924.00	58.5 PK	74.0	-15.5	1.91 V	174	20.60	37.90
8	4924.00	52.7 AV	54.0	-1.3	1.91 V	174	14.80	37.90
9	7386.00	58.8 PK	74.0	-15.2	1.54 V	191	14.70	44.10
10	7386.00	52.2 AV	54.0	-1.8	1.54 V	191	8.10	44.10
11	12260.00	57.4 PK	74.0	-16.6	1.84 V	299	8.50	48.90
12	12260.00	44.5 AV	54.0	-9.5	1.84 V	299	-4.40	48.90

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.



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802.11b: 2TX

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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	2386.00	46.2 PK	74.0	-27.8	1.06 H	328	14.70	31.50
2	2386.00	37.7 AV	54.0	-16.3	1.06 H	328	6.20	31.50
3	*2412.00	100.5 PK			1.06 H	328	68.90	31.60
4	*2412.00	96.2 AV			1.06 H	328	64.60	31.60
5	4824.00	53.7 PK	74.0	-20.3	1.11 H	246	16.00	37.70
6	4824.00	50.6 AV	54.0	-3.4	1.11 H	246	12.90	37.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	66.0 PK	74.0	-8.0	1.41 V	58	34.50	31.50
2	2386.00	45.2 AV	54.0	-8.8	1.41 V	58	13.70	31.50
3	*2412.00	108.8 PK			1.41 V	52	77.20	31.60
4	*2412.00	104.9 AV			1.41 V	52	73.30	31.60
5	4824.00	54.9 PK	74.0	-19.1	1.00 V	292	17.20	37.70
6	4824.00	52.5 AV	54.0	-1.5	1.00 V	292	14.80	37.70

- 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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	2360.00	55.7 PK	74.0	-18.3	1.32 H	247	24.30	31.40
2	2360.00	45.6 AV	54.0	-8.4	1.32 H	247	14.20	31.40
3	*2437.00	100.1 PK			1.08 H	258	68.40	31.70
4	*2437.00	96.0 AV			1.08 H	258	64.30	31.70
5	4874.00	53.2 PK	74.0	-20.8	1.04 H	269	15.40	37.80
6	4874.00	49.5 AV	54.0	-4.5	1.04 H	269	11.70	37.80
7	7311.00	53.2 PK	74.0	-20.8	1.62 H	247	9.30	43.90
8	7311.00	42.7 AV	54.0	-11.3	1.62 H	247	-1.20	43.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2360.00	58.5 PK	74.0	-15.5	1.24 V	98	27.10	31.40
2	2360.00	47.1 AV	54.0	-6.9	1.24 V	98	15.70	31.40
3	*2437.00	108.3 PK			1.15 V	201	76.60	31.70
4	*2437.00	104.1 AV			1.15 V	201	72.40	31.70
5	4874.00	54.9 PK	74.0	-19.1	1.29 V	288	17.10	37.80
6	4874.00	52.6 AV	54.0	-1.4	1.29 V	288	14.80	37.80
7	7311.00	56.6 PK	74.0	-17.4	1.50 V	252	12.70	43.90
8	7311.00	50.2 AV	54.0	-3.8	1.50 V	252	6.30	43.90

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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	99.5 PK			1.02 H	335	67.70	31.80
2	*2462.00	96.0 AV			1.02 H	335	64.20	31.80
3	2488.00	49.8 PK	74.0	-24.2	1.05 H	332	17.90	31.90
4	2488.00	39.6 AV	54.0	-14.4	1.05 H	332	7.70	31.90
5	4924.00	53.9 PK	74.0	-20.1	1.10 H	240	16.00	37.90
6	4924.00	49.9 AV	54.0	-4.1	1.10 H	240	12.00	37.90
7	7386.00	53.2 PK	74.0	-20.8	1.55 H	220	9.10	44.10
8	7386.00	43.3 AV	54.0	-10.7	1.55 H	220	-0.80	44.10
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	108.5 PK			1.40 V	4	76.70	31.80
2	*2462.00	104.5 AV			1.40 V	4	72.70	31.80
3	2483.50	67.1 PK	74.0	-6.9	1.40 V	5	35.20	31.90
4	2483.50	47.8 AV	54.0	-6.2	1.40 V	5	15.90	31.90
5	4924.00	54.7 PK	74.0	-19.3	1.26 V	296	16.80	37.90
6	4924.00	52.7 AV	54.0	-1.3	1.26 V	296	14.80	37.90
7	7386.00	58.8 PK	74.0	-15.2	1.48 V	252	14.70	44.10
8	7386.00	51.9 AV	54.0	-2.1	1.48 V	252	7.80	44.10

- 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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802.11g: 2TX

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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	64.0 PK	74.0	-10.0	1.05 H	337	32.50	31.50
2	2390.00	48.0 AV	54.0	-6.0	1.05 H	337	16.50	31.50
3	*2412.00	100.8 PK			1.05 H	337	69.20	31.60
4	*2412.00	90.7 AV			1.05 H	337	59.10	31.60
5	#3216.00	50.7 PK	80.8	-30.1	1.04 H	251	16.90	33.80
6	#3216.00	48.2 AV	70.7	-22.5	1.04 H	251	14.40	33.80
7	4824.00	52.7 PK	74.0	-21.3	1.07 H	295	15.00	37.70
8	4824.00	36.9 AV	54.0	-17.1	1.07 H	295	-0.80	37.70
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	73.0 PK	74.0	-1.0	1.09 V	48	41.50	31.50
2	2390.00	53.0 AV	54.0	-1.0	1.09 V	48	21.50	31.50
3	*2412.00	111.5 PK			1.09 V	49	79.90	31.60
4	*2412.00	100.2 AV			1.09 V	49	68.60	31.60
5	#3216.00	57.5 PK	91.5	-34.0	1.00 V	310	23.70	33.80
6	#3216.00	55.3 AV	80.2	-24.9	1.00 V	310	21.50	33.80
7	4824.00	53.3 PK	74.0	-20.7	1.00 V	265	15.60	37.70
8	4824.00	38.2 AV	54.0	-15.8	1.00 V	265	0.50	37.70

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



A D T

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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	105.7 PK			1.03 H	332	74.00	31.70
2	*2437.00	95.8 AV			1.03 H	332	64.10	31.70
3	#3249.00	52.2 PK	85.7	-33.5	1.07 H	45	18.30	33.90
4	#3249.00	48.7 AV	75.8	-27.1	1.07 H	45	14.80	33.90
5	4874.00	58.2 PK	74.0	-15.8	1.18 H	298	20.40	37.80
6	4874.00	44.0 AV	54.0	-10.0	1.18 H	298	6.20	37.80
7	7311.00	56.1 PK	74.0	-17.9	1.45 H	357	12.20	43.90
8	7311.00	43.0 AV	54.0	-11.0	1.45 H	357	-0.90	43.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.1 PK			1.12 V	15	83.40	31.70
2	*2437.00	103.7 AV			1.12 V	15	72.00	31.70
3	#3249.00	62.6 PK	95.1	-32.5	1.00 V	258	28.70	33.90
4	#3249.00	52.8 AV	83.7	-30.9	1.00 V	258	18.90	33.90
5	4874.00	65.5 PK	74.0	-8.5	1.00 V	272	27.70	37.80
6	4874.00	50.3 AV	54.0	-3.7	1.00 V	272	12.50	37.80
7	7311.00	68.4 PK	74.0	-5.6	1.77 V	322	24.50	43.90
8	7311.00	52.4 AV	54.0	-1.6	1.77 V	322	8.50	43.90

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”: The radiated frequency is out the restricted band.



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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	101.7 PK			1.02 H	333	69.90	31.80
2	*2462.00	91.5 AV			1.02 H	333	59.70	31.80
3	2483.50	62.8 PK	74.0	-11.2	1.01 H	227	30.90	31.90
4	2483.50	45.8 AV	54.0	-8.2	1.01 H	227	13.90	31.90
5	#3282.00	50.1 PK	81.7	-31.6	1.08 H	232	16.20	33.90
6	#3282.00	47.8 AV	71.5	-23.7	1.08 H	232	13.90	33.90
7	4924.00	45.2 PK	74.0	-28.8	1.12 H	300	7.30	37.90
8	4924.00	35.3 AV	54.0	-18.7	1.12 H	300	-2.60	37.90
9	7386.00	56.0 PK	74.0	-18.0	1.47 H	299	11.90	44.10
10	7386.00	42.8 AV	54.0	-11.2	1.47 H	299	-1.30	44.10

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	112.0 PK			1.09 V	47	80.20	31.80
2	*2462.00	102.2 AV			1.09 V	47	70.40	31.80
3	2483.50	72.1 PK	74.0	-1.9	1.08 V	39	40.20	31.90
4	2483.50	53.0 AV	54.0	-1.0	1.08 V	39	21.10	31.90
5	#3282.00	56.5 PK	92.0	-35.5	1.00 V	298	22.60	33.90
6	#3282.00	51.4 AV	82.2	-30.8	1.00 V	298	17.50	33.90
7	4924.00	57.1 PK	74.0	-16.9	1.05 V	195	19.20	37.90
8	4924.00	41.4 AV	54.0	-12.6	1.05 V	195	3.50	37.90
9	7386.00	63.5 PK	74.0	-10.5	1.79 V	192	19.40	44.10
10	7386.00	47.9 AV	54.0	-6.1	1.79 V	192	3.80	44.10

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.



A D T

802.11n (20MHz): 2TX

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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	61.8 PK	74.0	-12.2	1.08 H	213	30.30	31.50
2	2390.00	44.8 AV	54.0	-9.2	1.08 H	213	13.30	31.50
3	*2412.00	100.2 PK			1.03 H	336	68.60	31.60
4	*2412.00	90.1 AV			1.03 H	336	58.50	31.60
5	#3216.00	50.2 PK	80.2	-30.0	1.08 H	277	16.40	33.80
6	#3216.00	47.7 AV	70.1	-22.4	1.08 H	277	13.90	33.80
7	4824.00	45.8 PK	74.0	-28.2	1.02 H	299	8.10	37.70
8	4824.00	35.1 AV	54.0	-18.9	1.02 H	299	-2.60	37.70
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	72.8 PK	74.0	-1.2	1.09 V	48	41.30	31.50
2	2390.00	53.0 AV	54.0	-1.0	1.09 V	48	21.50	31.50
3	*2412.00	111.0 PK			1.11 V	42	79.40	31.60
4	*2412.00	99.6 AV			1.11 V	42	68.00	31.60
5	#3216.00	57.2 PK	91.0	-33.8	1.08 V	299	23.40	33.80
6	#3216.00	55.1 AV	79.6	-24.5	1.08 V	299	21.30	33.80
7	4824.00	50.5 PK	74.0	-23.5	1.22 V	247	12.80	37.70
8	4824.00	39.2 AV	54.0	-14.8	1.22 V	247	1.50	37.70

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”: The radiated frequency is out the restricted band.



A D T

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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	2360.00	54.2 PK	74.0	-19.8	1.05 H	58	22.80	31.40
2	2360.00	46.0 AV	54.0	-8.0	1.05 H	58	14.60	31.40
3	*2437.00	105.1 PK			1.05 H	351	73.40	31.70
4	*2437.00	95.1 AV			1.05 H	351	63.40	31.70
5	#3249.00	50.8 PK	85.1	-34.3	1.02 H	235	16.90	33.90
6	#3249.00	47.5 AV	75.1	-27.6	1.02 H	235	13.60	33.90
7	4874.00	56.8 PK	74.0	-17.2	1.22 H	18	19.00	37.80
8	4874.00	44.2 AV	54.0	-9.8	1.22 H	18	6.40	37.80
9	7311.00	62.8 PK	74.0	-11.2	1.52 H	247	18.90	43.90
10	7311.00	49.0 AV	54.0	-5.0	1.52 H	247	5.10	43.90

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



A D T

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	25deg. C, 65%RH	TESTED BY	Sun Lin

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	2360.00	60.0 PK	74.0	-14.0	1.47 V	45	28.60	31.40
2	2360.00	49.2 AV	54.0	-4.8	1.47 V	45	17.80	31.40
3	*2437.00	114.7 PK			1.12 V	345	83.00	31.70
4	*2437.00	103.0 AV			1.12 V	345	71.30	31.70
5	#3249.00	57.5 PK	94.7	-37.2	1.08 V	305	23.60	33.90
6	#3249.00	54.7 AV	83.0	-28.3	1.08 V	305	20.80	33.90
7	4874.00	64.3 PK	74.0	-9.7	1.61 V	190	26.50	37.80
8	4874.00	50.3 AV	54.0	-3.7	1.61 V	190	12.50	37.80
9	7311.00	64.7 PK	74.0	-9.3	1.62 V	242	20.80	43.90
10	7311.00	51.3 AV	54.0	-2.7	1.62 V	242	7.40	43.90

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.



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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	101.1 PK			1.03 H	332	69.30	31.80
2	*2462.00	90.8 AV			1.03 H	332	59.00	31.80
3	2483.50	67.0 PK	74.0	-7.0	1.00 H	331	35.10	31.90
4	2483.50	48.2 AV	54.0	-5.8	1.00 H	331	16.30	31.90
5	#3282.00	50.2 PK	81.1	-30.9	1.15 H	235	16.30	33.90
6	#3282.00	47.8 AV	70.8	-23.0	1.15 H	235	13.90	33.90
7	4924.00	47.8 PK	74.0	-26.2	1.07 H	302	9.90	37.90
8	4924.00	37.8 AV	54.0	-16.2	1.07 H	302	-0.10	37.90
9	7386.00	56.3 PK	74.0	-17.7	1.48 H	350	12.20	44.10
10	7386.00	43.2 AV	54.0	-10.8	1.48 H	350	-0.90	44.10

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	111.5 PK			1.12 V	41	79.70	31.80
2	*2462.00	101.7 AV			1.12 V	41	69.90	31.80
3	2483.50	73.0 PK	74.0	-1.0	1.09 V	37	41.10	31.90
4	2483.50	52.7 AV	54.0	-1.3	1.09 V	37	20.80	31.90
5	#3282.00	56.7 PK	91.5	-34.8	1.08 V	299	22.80	33.90
6	#3282.00	53.5 AV	81.7	-28.2	1.08 V	299	19.60	33.90
7	4924.00	57.9 PK	74.0	-16.1	1.03 V	195	20.00	37.90
8	4924.00	40.6 AV	54.0	-13.4	1.03 V	195	2.70	37.90
9	7386.00	63.9 PK	74.0	-10.1	1.78 V	229	19.80	44.10
10	7386.00	48.1 AV	54.0	-5.9	1.78 V	229	4.00	44.10

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.

802.11n (40MHz): 2TX

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	25deg. C, 68%RH	TESTED BY	Sun Lin

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	61.5 PK	74.0	-12.5	1.03 H	334	30.00	31.50
2	2390.00	47.6 AV	54.0	-6.4	1.03 H	334	16.10	31.50
3	*2422.00	95.0 PK			1.03 H	334	63.40	31.60
4	*2422.00	85.2 AV			1.03 H	334	53.60	31.60
5	4844.00	46.7 PK	74.0	-27.3	1.05 H	302	9.00	37.70
6	4844.00	36.2 AV	54.0	-17.8	1.05 H	302	-1.50	37.70
7	7266.00	51.5 PK	74.0	-22.5	1.48 H	351	7.70	43.80
8	7266.00	40.4 AV	54.0	-13.6	1.48 H	351	-3.40	43.80
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	67.9 PK	74.0	-6.1	1.12 V	38	36.40	31.50
2	2390.00	53.0 AV	54.0	-1.0	1.12 V	38	21.50	31.50
3	*2422.00	105.5 PK			1.12 V	40	73.90	31.60
4	*2422.00	95.9 AV			1.12 V	40	64.30	31.60
5	4844.00	48.3 PK	74.0	-25.7	1.03 V	196	10.60	37.70
6	4844.00	35.3 AV	54.0	-18.7	1.03 V	196	-2.40	37.70
7	7266.00	54.5 PK	74.0	-19.5	1.80 V	234	10.70	43.80
8	7266.00	41.5 AV	54.0	-12.5	1.80 V	234	-2.30	43.80

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	61.5 PK	74.0	-12.5	1.05 H	335	30.00	31.50
2	2390.00	46.9 AV	54.0	-7.1	1.05 H	335	15.40	31.50
3	*2437.00	99.7 PK			1.05 H	333	68.00	31.70
4	*2437.00	89.0 AV			1.05 H	333	57.30	31.70
5	4874.00	46.8 PK	74.0	-27.2	1.05 H	300	9.00	37.80
6	4874.00	36.2 AV	54.0	-17.8	1.05 H	300	-1.60	37.80
7	7311.00	59.8 PK	74.0	-14.2	1.50 H	350	15.90	43.90
8	7311.00	44.8 AV	54.0	-9.2	1.50 H	350	0.90	43.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.1 PK	74.0	-4.9	1.12 V	15	37.60	31.50
2	2390.00	52.9 AV	54.0	-1.1	1.12 V	15	21.40	31.50
3	*2437.00	110.2 PK			1.10 V	45	78.50	31.70
4	*2437.00	99.7 AV			1.10 V	45	68.00	31.70
5	4874.00	51.9 PK	74.0	-22.1	1.02 V	193	14.10	37.80
6	4874.00	37.0 AV	54.0	-17.0	1.02 V	193	-0.80	37.80
7	7311.00	61.0 PK	74.0	-13.0	1.78 V	233	17.10	43.90
8	7311.00	47.0 AV	54.0	-7.0	1.78 V	233	3.10	43.90

- 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 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	*2452.00	97.2 PK			1.02 H	331	65.40	31.80
2	*2452.00	87.3 AV			1.02 H	331	55.50	31.80
3	2483.50	65.3 PK	74.0	-8.7	1.01 H	330	33.40	31.90
4	2483.50	49.4 AV	54.0	-4.6	1.01 H	330	17.50	31.90
5	4904.00	48.1 PK	74.0	-25.9	1.00 H	305	10.30	37.80
6	4904.00	37.5 AV	54.0	-16.5	1.00 H	305	-0.30	37.80
7	7356.00	50.2 PK	74.0	-23.8	1.45 H	345	6.20	44.00
8	7356.00	41.7 AV	54.0	-12.3	1.45 H	345	-2.30	44.00
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	*2452.00	107.2 PK			1.08 V	45	75.40	31.80
2	*2452.00	97.8 AV			1.08 V	45	66.00	31.80
3	2483.50	73.0 PK	74.0	-1.0	1.09 V	37	41.10	31.90
4	2483.50	52.9 AV	54.0	-1.1	1.09 V	37	21.00	31.90
5	4904.00	49.6 PK	74.0	-24.4	1.03 V	195	11.80	37.80
6	4904.00	35.2 AV	54.0	-18.8	1.03 V	195	-2.60	37.80
7	7356.00	57.2 PK	74.0	-16.8	1.77 V	230	13.20	44.00
8	7356.00	43.0 AV	54.0	-11.0	1.77 V	230	-1.00	44.00

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: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	125.17	32.8 QP	43.5	-10.7	2.00 H	85	20.80	12.00
2	239.88	33.3 QP	46.0	-12.7	1.00 H	322	21.20	12.10
3	374.04	33.3 QP	46.0	-12.7	1.00 H	49	16.90	16.40
4	479.03	35.0 QP	46.0	-11.0	1.50 H	217	15.90	19.10
5	624.85	40.4 QP	46.0	-5.6	1.50 H	25	18.00	22.40
6	720.12	39.4 QP	46.0	-6.6	1.00 H	193	16.00	23.40
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	66.84	34.5 QP	40.0	-5.5	1.00 V	40	22.80	11.70
2	624.85	38.7 QP	46.0	-7.3	1.50 V	172	16.30	22.40
3	720.12	36.5 QP	46.0	-9.5	1.00 V	265	13.10	23.40
4	825.11	40.4 QP	46.0	-5.6	1.50 V	139	15.60	24.80
5	875.67	36.4 QP	46.0	-9.6	1.50 V	355	10.70	25.70
6	961.21	37.6 QP	54.0	-16.4	1.50 V	220	11.00	26.60

- 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 (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	100291	Nov. 23, 2011	Nov. 22, 2012
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	835239/001	Feb. 22, 2011	Feb. 21, 2012
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 30, 2011	Jun. 29, 2012
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 10, 2011	Jun. 09, 2012
Software ADT	ADT_Conc_ 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

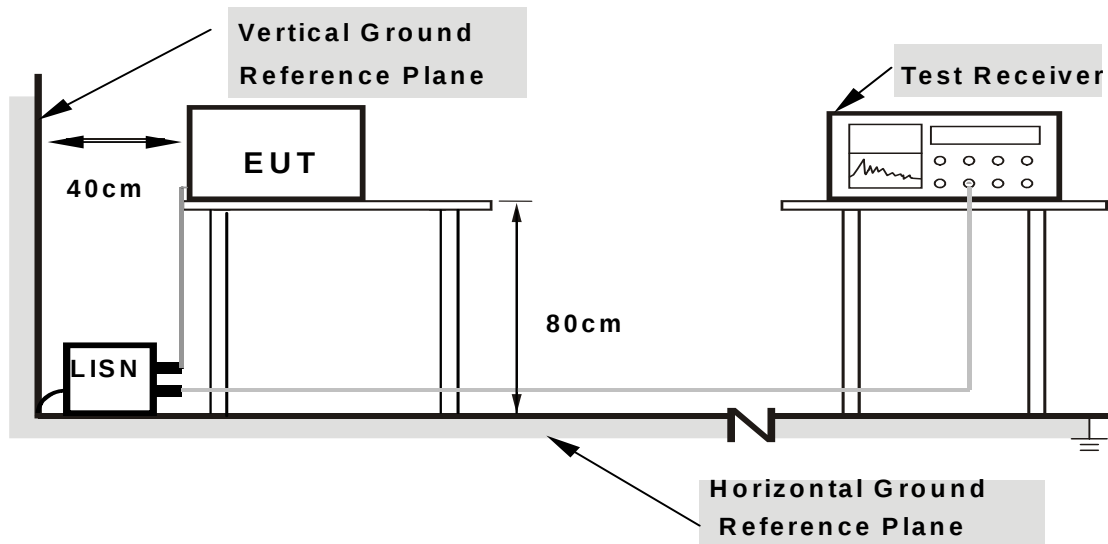
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

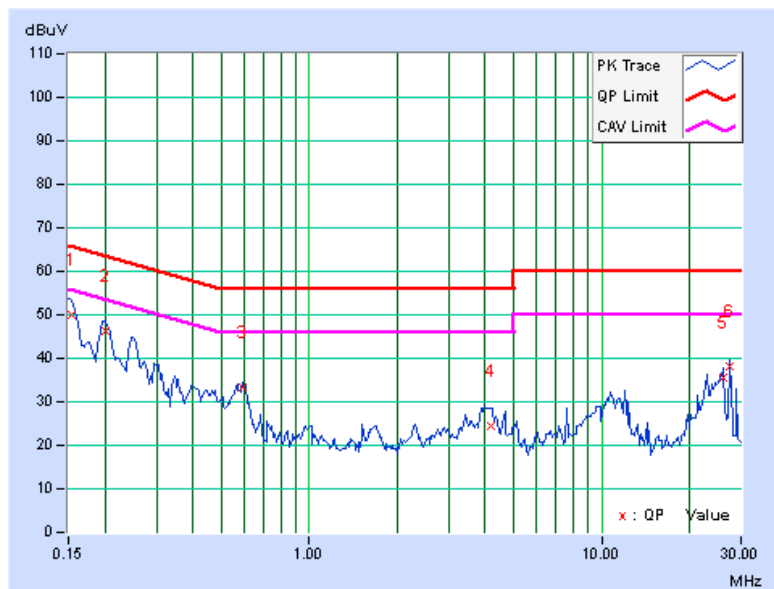
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11g: 2TX

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.154	0.12	49.93	42.46	50.05	42.58	65.79	55.79	-15.74	-13.21
2	0.201	0.12	46.10	41.69	46.22	41.81	63.58	53.58	-17.36	-11.77
3	0.591	0.13	33.21	27.85	33.34	27.98	56.00	46.00	-22.66	-18.02
4	4.160	0.32	24.28	15.30	24.60	15.62	56.00	46.00	-31.40	-30.38
5	25.932	1.40	34.26	33.49	35.66	34.89	60.00	50.00	-24.34	-15.11
6	27.461	1.45	36.75	36.47	38.20	37.92	60.00	50.00	-21.80	-12.08

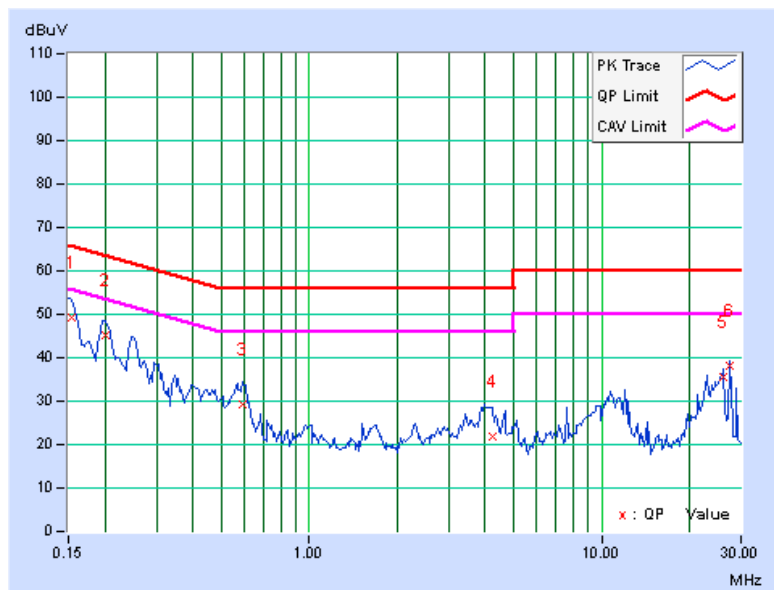
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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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	0.154	0.13	49.02	42.34	49.15	42.47	65.79	55.79	-16.64	-13.32
2	0.201	0.13	44.97	40.72	45.10	40.85	63.58	53.58	-18.48	-12.73
3	0.591	0.15	29.23	22.86	29.38	23.01	56.00	46.00	-26.62	-22.99
4	4.223	0.33	21.63	10.64	21.96	10.97	56.00	46.00	-34.04	-35.03
5	25.931	1.13	34.55	33.53	35.68	34.66	60.00	50.00	-24.32	-15.34
6	27.458	1.16	37.02	36.26	38.18	37.42	60.00	50.00	-21.82	-12.58

- 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.

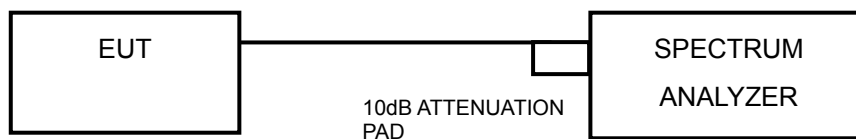


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b: 1TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.28	0.5	PASS
6	2437	10.30	0.5	PASS
11	2462	9.61	0.5	PASS

802.11b: 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	11.23	10.27	0.5	PASS
6	2437	10.40	10.31	0.5	PASS
11	2462	10.36	10.30	0.5	PASS

802.11g: 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.55	16.54	0.5	PASS
6	2437	16.32	16.48	0.5	PASS
11	2462	16.37	16.58	0.5	PASS

802.11n (20MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.40	17.73	0.5	PASS
6	2437	17.35	17.76	0.5	PASS
11	2462	17.64	17.75	0.5	PASS



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802.11n (40MHz): 2TX

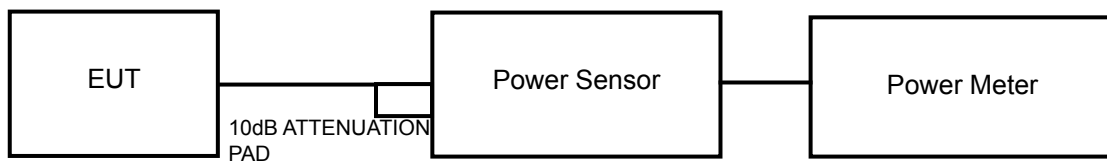
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.39	36.56	0.5	PASS
4	2437	36.78	36.52	0.5	PASS
7	2452	36.62	36.84	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz: 1 Watt (30dBm)

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b: 1TX

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	186.2	22.7	30	PASS
6	2437	131.8	21.2	30	PASS
11	2462	125.9	21.0	30	PASS

802.11b: 2TX

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.8	17.0	88.1	19.5	30	PASS
6	2437	16.1	16.2	82.4	19.2	30	PASS
11	2462	16.7	16.0	86.6	19.4	30	PASS

802.11g: 2TX

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	24.0	22.5	429.0	26.3	30	PASS
6	2437	25.1	22.5	501.4	27.0	30	PASS
11	2462	24.1	22.1	419.2	26.2	30	PASS

802.11n (20MHz): 2TX

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	23.5	21.7	371.8	25.7	30	PASS
6	2437	24.7	22.2	461.1	26.6	30	PASS
11	2462	23.4	22.0	377.3	25.8	30	PASS



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802.11n (40MHz): 2TX

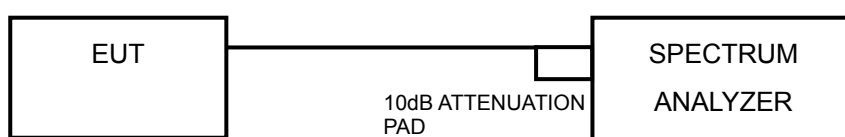
CHAN.	FREQUE NCY. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	19.7	17.6	150.9	21.8	30	PASS
4	2437	23.2	21.6	353.5	25.5	30	PASS
7	2452	21.5	19.3	226.4	23.5	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

1. Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b: 1TX

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	10.29	-4.94	8	PASS
6	2437	8.96	-6.27	8	PASS
11	2462	8.56	-6.67	8	PASS

802.11b: 2TX

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	4.27	-10.96	3.01	-7.95	8	PASS
	6	2437	4.47	-10.76	3.01	-7.75	8	PASS
	11	2462	5.10	-10.13	3.01	-7.12	8	PASS
1	1	2412	5.82	-9.41	3.01	-6.40	8	PASS
	6	2437	5.06	-10.17	3.01	-7.16	8	PASS
	11	2462	4.84	-10.39	3.01	-7.38	8	PASS

802.11g: 2TX

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	3.38	-11.85	3.01	-8.84	8	PASS
	6	2437	4.56	-10.67	3.01	-7.66	8	PASS
	11	2462	3.60	-11.63	3.01	-8.62	8	PASS
1	1	2412	3.46	-11.77	3.01	-8.76	8	PASS
	6	2437	3.44	-11.79	3.01	-8.78	8	PASS
	11	2462	2.93	-12.30	3.01	-9.29	8	PASS

802.11n (20MHz): 2TX

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	3.39	-11.84	3.01	-8.83	8	PASS
	6	2437	4.63	-10.60	3.01	-7.59	8	PASS
	11	2462	3.25	-11.98	3.01	-8.97	8	PASS
1	1	2412	3.71	-11.52	3.01	-8.51	8	PASS
	6	2437	4.75	-10.48	3.01	-7.47	8	PASS
	11	2462	4.67	-10.56	3.01	-7.55	8	PASS



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802.11n (40MHz): 2TX

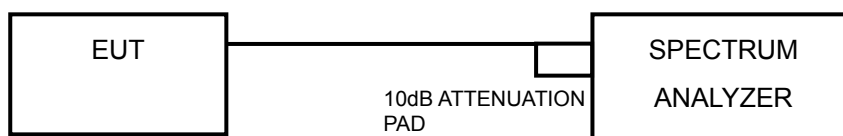
TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2422	-4.04	-19.27	3.01	-16.26	8	PASS
	4	2437	-0.32	-15.55	3.01	-12.54	8	PASS
	7	2452	-2.07	-17.30	3.01	-14.29	8	PASS
1	1	2422	-3.51	-18.74	3.01	-15.73	8	PASS
	4	2437	0.73	-14.50	3.01	-11.49	8	PASS
	7	2452	-1.70	-16.93	3.01	-13.92	8	PASS

4.6 CONDUCTED EMISSION MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz .
2. Set the VBW $\geq 300\text{ kHz}$.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

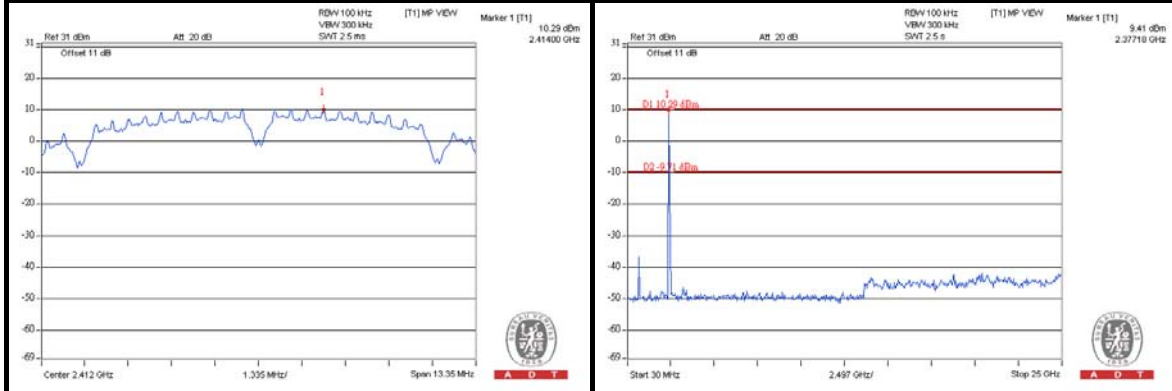
The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

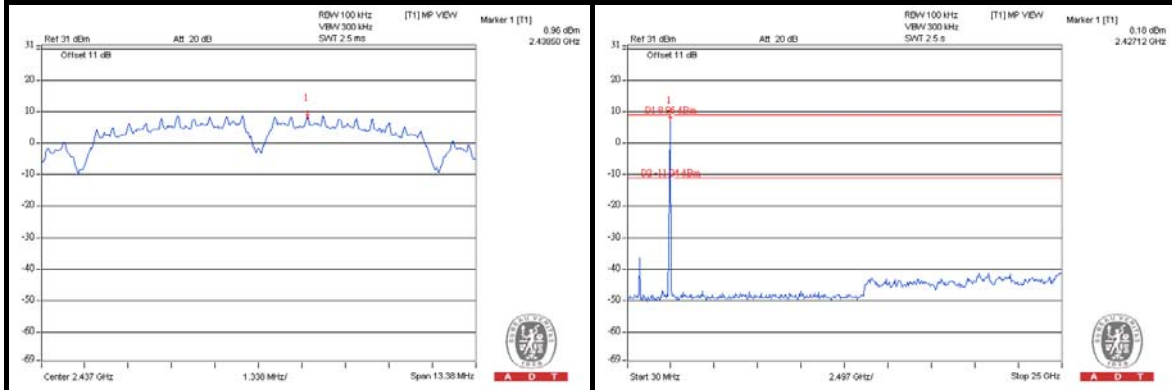
4.6.8 TEST RESULTS

802.11b: 1TX

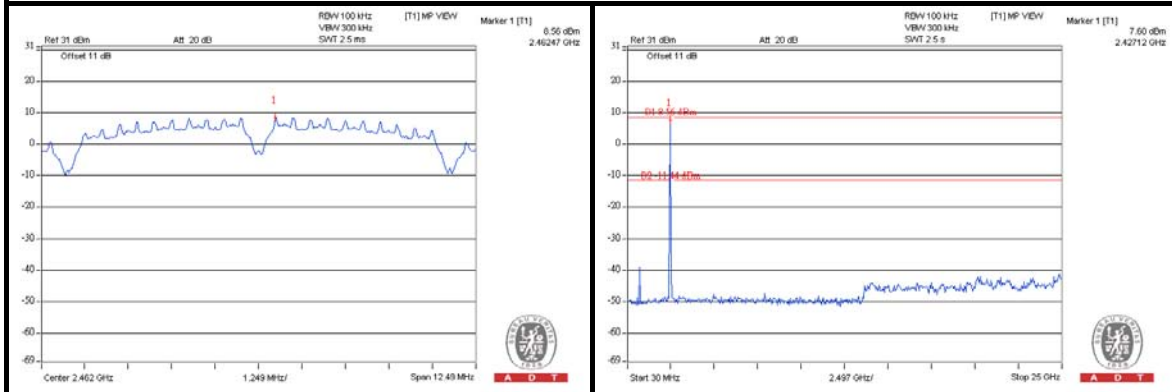
CH 1



CH 6

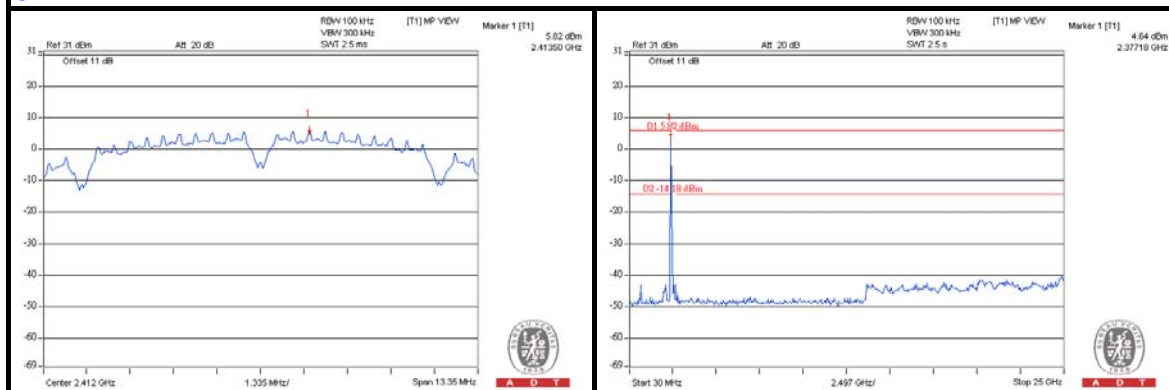


CH 11

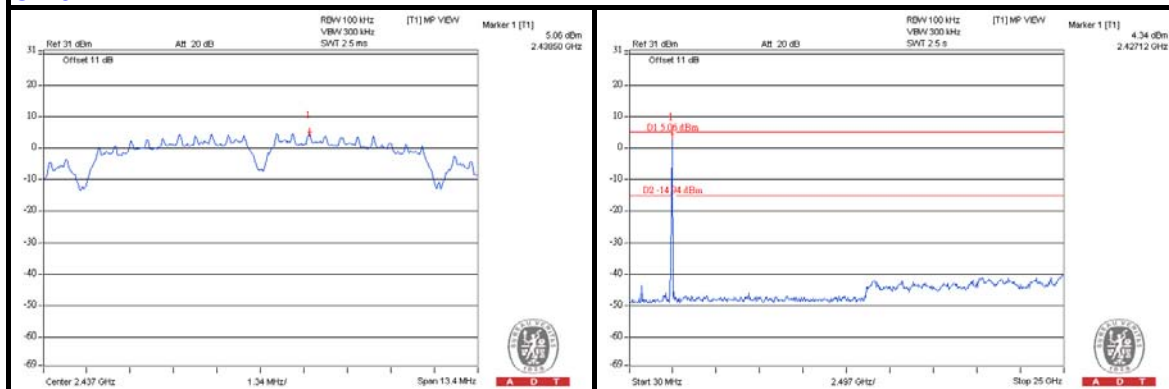


802.11b: 2TX

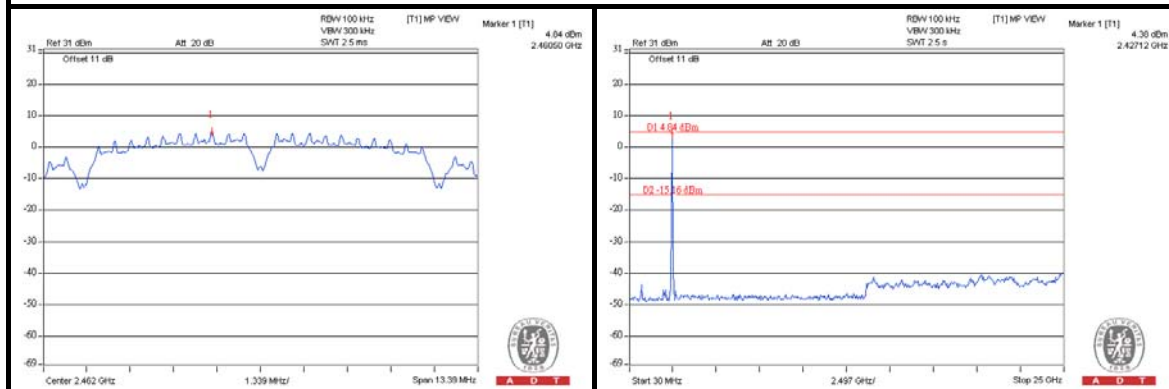
CH 1



CH 6

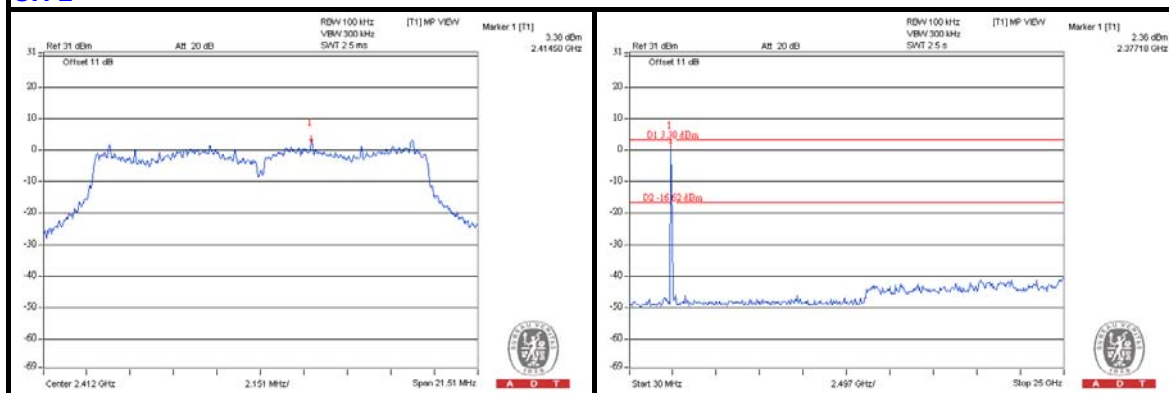


CH 11

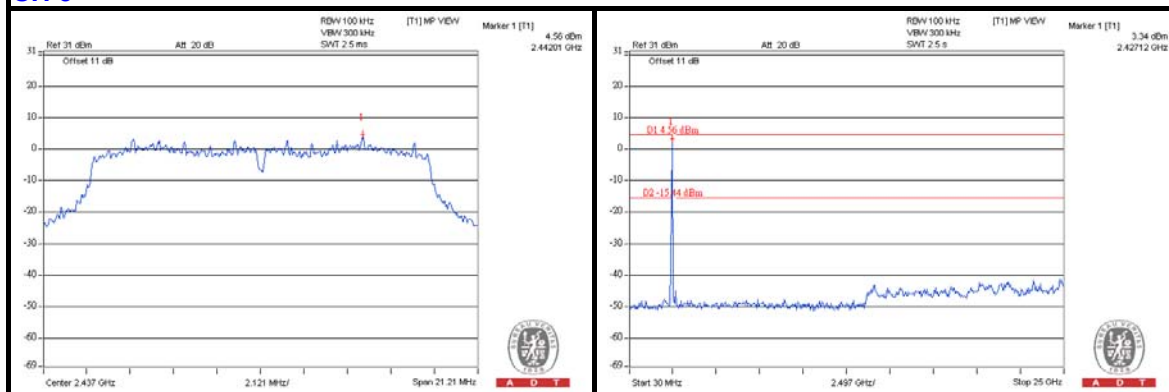


802.11g: 2TX

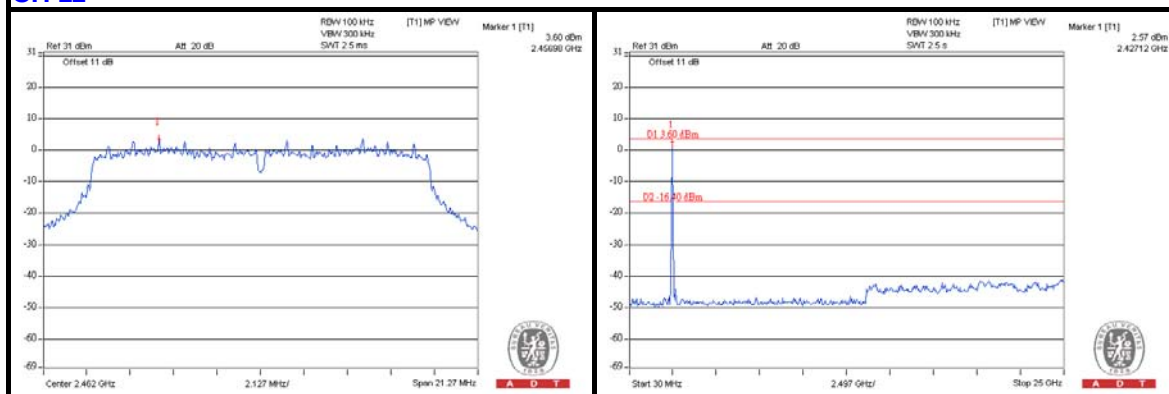
CH 1



CH 6

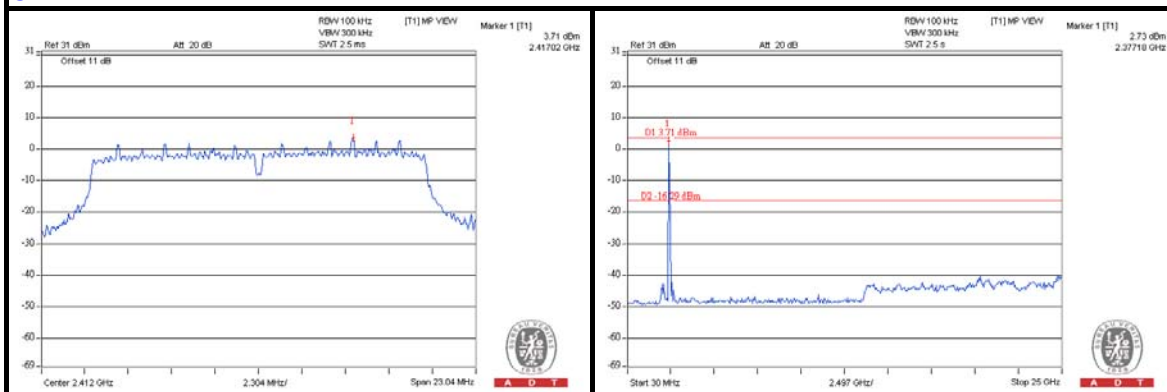


CH 11

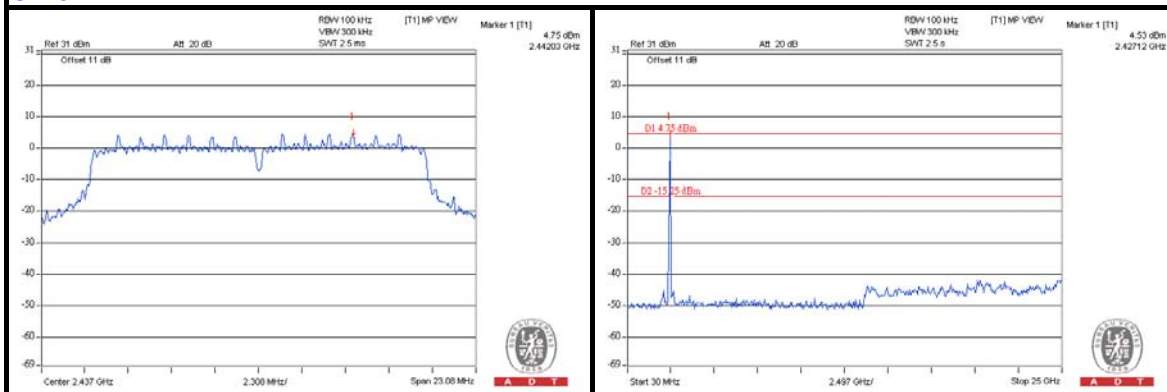


802.11n (20MHz): 2TX

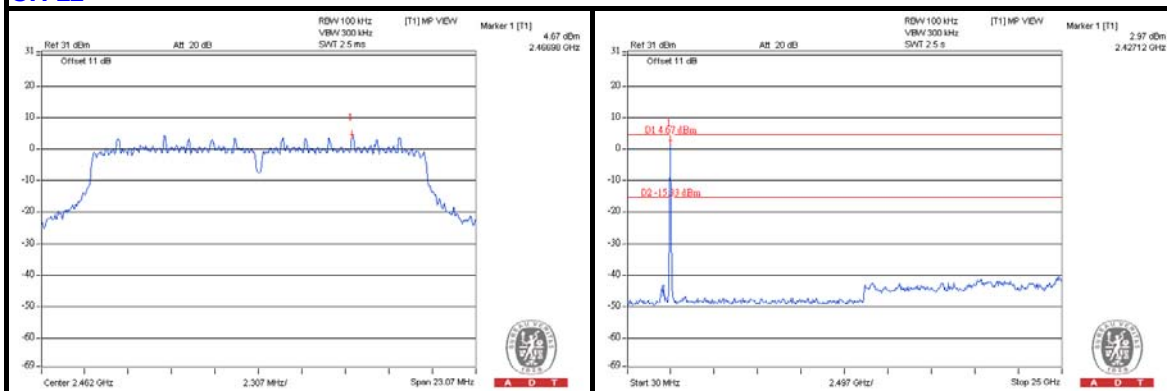
CH 1



CH 6

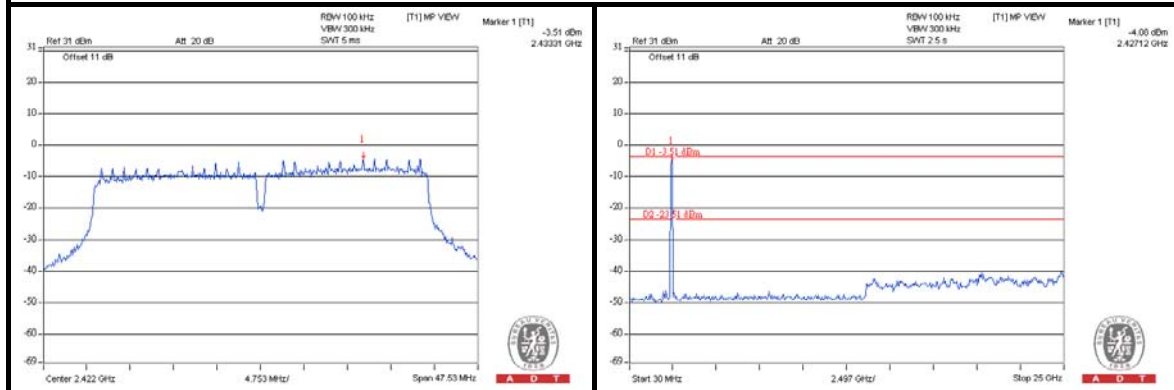


CH 11

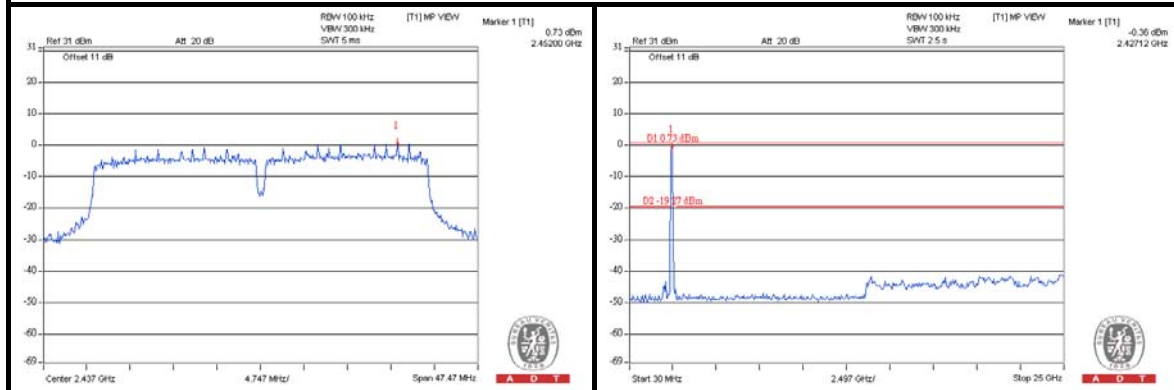


802.11n (40MHz): 2TX

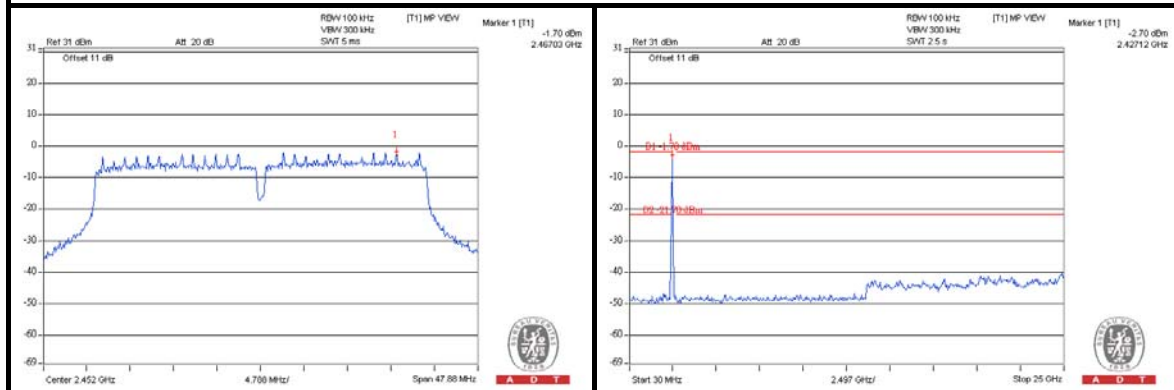
CH 1



CH 4



CH 7



5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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. 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2011	Apr. 18, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 06, 2011	Jan. 05, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 06, 2011	Sep. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 20, 2011	Jul. 19, 2012
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 13, 2011	Aug. 12, 2012
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 29, 2011	Oct. 28, 2012
High Speed Peak Power Meter	ML2495A	0824011	Aug. 04, 2011	Aug. 03, 2012
Power Sensor	MA2411B	0738171	Aug. 04, 2011	Aug. 03, 2012

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

5.1.3 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 or average method as specified and then reported in a data sheet.

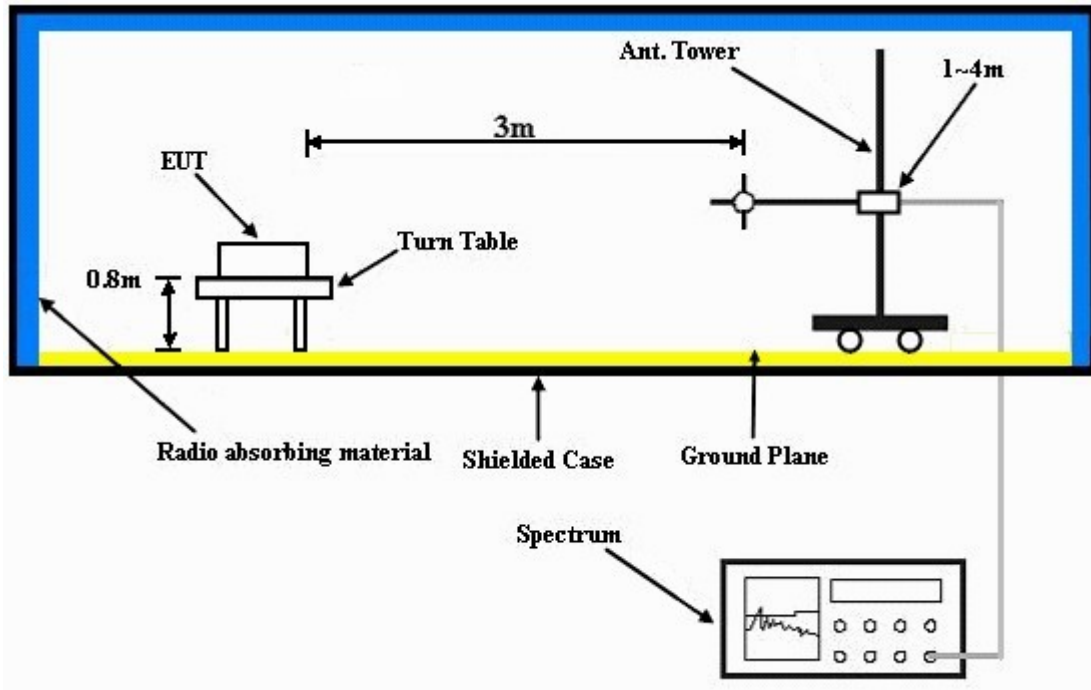
NOTE:

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP



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

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

5.1.7 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA : 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	5400.00	54.8 PK	74.0	-19.2	1.21 H	36	16.00	38.80
2	5400.00	49.1 AV	54.0	-4.9	1.21 H	36	10.30	38.80
3	5440.00	51.5 PK	74.0	-22.5	1.33 H	47	12.60	38.90
4	5440.00	41.6 AV	54.0	-12.4	1.33 H	47	2.70	38.90
5	#5725.00	80.8 PK	82.6	-1.8	1.39 H	197	41.40	39.40
6	#5725.00	65.0 AV	71.3	-6.3	1.39 H	197	25.60	39.40
7	*5745.00	102.6 PK			1.03 H	196	63.10	39.50
8	*5745.00	91.3 AV			1.03 H	196	51.80	39.50
9	11490.00	65.6 PK	74.0	-8.4	1.36 H	238	15.90	49.70
10	11490.00	51.3 AV	54.0	-2.7	1.36 H	238	1.60	49.70

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.247.
 7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	5400.00	62.8 PK	74.0	-11.2	1.09 V	7	24.00	38.80
2	5400.00	53.0 AV	54.0	-1.0	1.09 V	7	14.20	38.80
3	5440.00	59.1 PK	74.0	-14.9	1.00 V	53	20.20	38.90
4	5440.00	50.9 AV	54.0	-3.1	1.00 V	53	12.00	38.90
5	#5725.00	90.7 PK	91.9	-1.2	1.03 V	5	51.30	39.40
6	#5725.00	76.3 AV	80.2	-3.9	1.03 V	5	36.90	39.40
7	*5745.00	111.9 PK			1.00 V	345	72.40	39.50
8	*5745.00	100.2 AV			1.00 V	345	60.70	39.50
9	11490.00	66.1 PK	74.0	-7.9	1.56 V	347	16.40	49.70
10	11490.00	52.7 AV	54.0	-1.3	1.56 V	347	3.00	49.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	3856.00	46.3 PK	74.0	-27.7	1.03 H	17	11.00	35.30
2	3856.00	38.8 AV	54.0	-15.2	1.03 H	17	3.50	35.30
3	5360.00	52.4 PK	74.0	-21.6	1.00 H	17	13.70	38.70
4	5360.00	43.3 AV	54.0	-10.7	1.00 H	17	4.60	38.70
5	*5785.00	102.9 PK			1.00 H	15	63.30	39.60
6	*5785.00	91.3 AV			1.00 H	15	51.70	39.60
7	11570.00	65.6 PK	74.0	-8.4	1.48 H	271	16.10	49.50
8	11570.00	51.3 AV	54.0	-2.7	1.48 H	271	1.80	49.50
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	3856.00	53.0 PK	74.0	-21.0	1.12 V	334	17.70	35.30
2	3856.00	49.8 AV	54.0	-4.2	1.12 V	334	14.50	35.30
3	5360.00	65.2 PK	74.0	-8.8	1.00 V	18	26.50	38.70
4	5360.00	53.0 AV	54.0	-1.0	1.00 V	18	14.30	38.70
5	*5785.00	112.5 PK			1.00 V	353	72.90	39.60
6	*5785.00	102.1 AV			1.00 V	353	62.50	39.60
7	11570.00	68.1 PK	74.0	-5.9	1.59 V	7	18.60	49.50
8	11570.00	52.6 AV	54.0	-1.4	1.59 V	7	3.10	49.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	5000.00	68.7 PK	74.0	-5.3	1.00 H	319	30.60	38.10
2	5000.00	51.7 AV	54.0	-2.3	1.00 H	319	13.60	38.10
3	5360.00	53.4 PK	74.0	-20.6	1.00 H	35	14.70	38.70
4	5360.00	40.9 AV	54.0	-13.1	1.00 H	35	2.20	38.70
5	*5825.00	102.2 PK			1.00 H	186	62.50	39.70
6	*5825.00	91.2 AV			1.00 H	186	51.50	39.70
7	#5850.00	46.9 PK	82.2	-35.3	1.00 H	321	7.20	39.70
8	#5850.00	36.9 AV	71.2	-34.3	1.00 H	321	-2.80	39.70
9	11650.00	66.9 PK	74.0	-7.1	1.34 H	241	17.50	49.40
10	11650.00	51.9 AV	54.0	-2.1	1.34 H	241	2.50	49.40

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	5000.00	61.5 PK	74.0	-12.5	1.00 V	50	23.40	38.10
2	5000.00	53.0 AV	54.0	-1.0	1.00 V	50	14.90	38.10
3	5360.00	65.1 PK	74.0	-8.9	1.12 V	37	26.40	38.70
4	5360.00	52.1 AV	54.0	-1.9	1.12 V	37	13.40	38.70
5	*5825.00	112.1 PK			1.00 V	20	72.40	39.70
6	*5825.00	101.6 AV			1.00 V	20	61.90	39.70
7	#5850.00	86.7 PK	92.1	-5.4	1.00 V	15	47.00	39.70
8	#5850.00	71.9 AV	81.6	-9.7	1.00 V	15	32.20	39.70
9	11650.00	67.8 PK	74.0	-6.2	1.62 V	2	18.40	49.40
10	11650.00	53.0 AV	54.0	-1.0	1.62 V	2	3.60	49.40

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	5360.00	52.1 PK	74.0	-21.9	1.31 H	4	13.40	38.70
2	5360.00	40.5 AV	54.0	-13.5	1.31 H	4	1.80	38.70
3	5400.00	53.2 PK	74.0	-20.8	1.23 H	53	14.40	38.80
4	5400.00	43.2 AV	54.0	-10.8	1.23 H	53	4.40	38.80
5	#5725.00	76.9 PK	83.6	-6.7	1.40 H	194	37.50	39.40
6	#5725.00	63.5 AV	72.5	-9.0	1.40 H	194	24.10	39.40
7	*5745.00	103.6 PK			1.04 H	14	64.10	39.50
8	*5745.00	92.5 AV			1.04 H	14	53.00	39.50
9	11490.00	64.7 PK	74.0	-9.3	1.33 H	238	15.00	49.70
10	11490.00	50.7 AV	54.0	-3.3	1.33 H	238	1.00	49.70

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.247.
 7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin

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	5360.00	61.2 PK	74.0	-12.8	1.12 V	50	22.50	38.70
2	5360.00	53.0 AV	54.0	-1.0	1.12 V	50	14.30	38.70
3	5400.00	62.4 PK	74.0	-11.6	1.00 V	50	23.60	38.80
4	5400.00	52.7 AV	54.0	-1.3	1.00 V	50	13.90	38.80
5	#5725.00	89.0 PK	92.6	-3.6	1.16 V	169	49.60	39.40
6	#5725.00	70.8 AV	81.0	-10.2	1.16 V	169	31.40	39.40
7	*5745.00	112.6 PK			1.16 V	169	73.10	39.50
8	*5745.00	101.0 AV			1.16 V	169	61.50	39.50
9	11490.00	71.8 PK	74.0	-2.2	1.48 V	186	22.10	49.70
10	11490.00	52.8 AV	54.0	-1.2	1.48 V	186	3.10	49.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	3856.00	46.4 PK	74.0	-27.6	1.03 H	13	11.10	35.30
2	3856.00	37.3 AV	54.0	-16.7	1.03 H	13	2.00	35.30
3	5360.00	53.2 PK	74.0	-20.8	1.00 H	35	14.50	38.70
4	5360.00	41.1 AV	54.0	-12.9	1.00 H	35	2.40	38.70
5	*5785.00	103.9 PK			1.00 H	16	64.30	39.60
6	*5785.00	92.6 AV			1.00 H	16	53.00	39.60
7	11570.00	65.6 PK	74.0	-8.4	1.48 H	265	16.10	49.50
8	11570.00	50.7 AV	54.0	-3.3	1.48 H	265	1.20	49.50
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	3856.00	52.2 PK	74.0	-21.8	1.12 V	334	16.90	35.30
2	3856.00	48.9 AV	54.0	-5.1	1.12 V	334	13.60	35.30
3	5360.00	64.4 PK	74.0	-9.6	1.00 V	351	25.70	38.70
4	5360.00	53.0 AV	54.0	-1.0	1.00 V	351	14.30	38.70
5	*5785.00	112.7 PK			1.00 V	349	73.10	39.60
6	*5785.00	101.1 AV			1.00 V	349	61.50	39.60
7	11570.00	67.5 PK	74.0	-6.5	1.60 V	9	18.00	49.50
8	11570.00	52.0 AV	54.0	-2.0	1.60 V	9	2.50	49.50

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	47.1 PK	74.0	-26.9	1.00 H	322	9.20	37.90
2	4920.00	36.3 AV	54.0	-17.7	1.00 H	322	-1.60	37.90
3	5000.00	50.7 PK	74.0	-23.3	1.00 H	320	12.60	38.10
4	5000.00	40.4 AV	54.0	-13.6	1.00 H	320	2.30	38.10
5	5360.00	52.8 PK	74.0	-21.2	1.00 H	36	14.10	38.70
6	5360.00	40.5 AV	54.0	-13.5	1.00 H	36	1.80	38.70
7	*5825.00	103.4 PK			1.59 H	68	63.70	39.70
8	*5825.00	92.2 AV			1.59 H	68	52.50	39.70
9	#5850.00	75.1 PK	83.4	-8.3	1.61 H	78	35.40	39.70
10	#5850.00	60.2 AV	72.2	-12.0	1.61 H	78	20.50	39.70
11	11650.00	68.0 PK	74.0	-6.0	1.33 H	267	18.60	49.40
12	11650.00	52.6 AV	54.0	-1.4	1.33 H	267	3.20	49.40

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	58.6 PK	74.0	-15.4	1.09 V	18	20.70	37.90
2	4920.00	49.7 AV	54.0	-4.3	1.09 V	18	11.80	37.90
3	5000.00	60.8 PK	74.0	-13.2	1.00 V	50	22.70	38.10
4	5000.00	52.4 AV	54.0	-1.6	1.00 V	50	14.30	38.10
5	5360.00	64.6 PK	74.0	-9.4	1.13 V	41	25.90	38.70
6	5360.00	52.2 AV	54.0	-1.8	1.13 V	41	13.50	38.70
7	*5825.00	112.1 PK			1.00 V	0	72.40	39.70
8	*5825.00	100.8 AV			1.00 V	0	61.10	39.70
9	#5850.00	85.5 PK	92.1	-6.6	1.00 V	12	45.80	39.70
10	#5850.00	69.5 AV	80.8	-11.3	1.00 V	12	29.80	39.70
11	11650.00	68.8 PK	74.0	-5.2	1.62 V	6	19.40	49.40
12	11650.00	53.0 AV	54.0	-1.0	1.62 V	6	3.60	49.40

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	47.7 PK	74.0	-26.3	1.00 H	327	9.80	37.90
2	4920.00	39.0 AV	54.0	-15.0	1.00 H	327	1.10	37.90
3	5000.00	47.8 PK	74.0	-26.2	1.28 H	4	9.70	38.10
4	5000.00	37.5 AV	54.0	-16.5	1.28 H	4	-0.60	38.10
5	5360.00	52.2 PK	74.0	-21.8	1.00 H	34	13.50	38.70
6	5360.00	41.0 AV	54.0	-13.0	1.00 H	34	2.30	38.70
7	#5725.00	77.3 PK	80.5	-3.2	1.00 H	68	37.90	39.40
8	#5725.00	65.1 AV	69.7	-4.6	1.00 H	68	25.70	39.40
9	*5755.00	100.5 PK			1.00 H	205	61.00	39.50
10	*5755.00	89.7 AV			1.00 H	205	50.20	39.50
11	11510.00	60.0 PK	74.0	-14.0	1.48 H	264	10.40	49.60
12	11510.00	48.4 AV	54.0	-5.6	1.48 H	264	-1.20	49.60

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	59.9 PK	74.0	-14.1	1.08 V	17	22.00	37.90
2	4920.00	52.7 AV	54.0	-1.3	1.08 V	17	14.80	37.90
3	5000.00	59.3 PK	74.0	-14.7	1.13 V	339	21.20	38.10
4	5000.00	51.0 AV	54.0	-3.0	1.13 V	339	12.90	38.10
5	5360.00	64.7 PK	74.0	-9.3	1.00 V	350	26.00	38.70
6	5360.00	53.0 AV	54.0	-1.0	1.00 V	350	14.30	38.70
7	#5725.00	87.8 PK	89.2	-1.4	1.03 V	6	48.40	39.40
8	#5725.00	76.9 AV	78.8	-1.9	1.03 V	6	37.50	39.40
9	*5755.00	109.2 PK			1.01 V	6	69.70	39.50
10	*5755.00	98.8 AV			1.01 V	6	59.30	39.50
11	11510.00	61.5 PK	74.0	-12.5	1.68 V	4	11.90	49.60
12	11510.00	49.8 AV	54.0	-4.2	1.68 V	4	0.20	49.60

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	48.1 PK	74.0	-25.9	1.00 H	328	10.20	37.90
2	4920.00	38.1 AV	54.0	-15.9	1.00 H	328	0.20	37.90
3	5000.00	49.0 PK	74.0	-25.0	1.29 H	4	10.90	38.10
4	5000.00	39.3 AV	54.0	-14.7	1.29 H	4	1.20	38.10
5	5360.00	52.5 PK	74.0	-21.5	1.00 H	34	13.80	38.70
6	5360.00	40.4 AV	54.0	-13.6	1.00 H	34	1.70	38.70
7	*5795.00	100.1 PK			1.00 H	189	60.50	39.60
8	*5795.00	89.2 AV			1.00 H	189	49.60	39.60
9	#5850.00	69.4 PK	80.1	-10.7	1.00 H	221	29.70	39.70
10	#5850.00	53.9 AV	69.2	-15.3	1.00 H	221	14.20	39.70
11	11590.00	63.6 PK	74.0	-10.4	1.47 H	270	14.10	49.50
12	11590.00	49.2 AV	54.0	-4.8	1.47 H	270	-0.30	49.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.
7. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

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	4920.00	58.5 PK	74.0	-15.5	1.08 V	16	20.60	37.90
2	4920.00	50.2 AV	54.0	-3.8	1.08 V	16	12.30	37.90
3	5000.00	61.0 PK	74.0	-13.0	1.14 V	283	22.90	38.10
4	5000.00	52.4 AV	54.0	-1.6	1.14 V	283	14.30	38.10
5	5360.00	65.8 PK	74.0	-8.2	1.00 V	346	27.10	38.70
6	5360.00	53.0 AV	54.0	-1.0	1.00 V	346	14.30	38.70
7	*5795.00	109.0 PK			1.00 V	3	69.40	39.60
8	*5795.00	98.3 AV			1.00 V	3	58.70	39.60
9	#5850.00	80.6 PK	89.0	-8.4	1.00 V	8	40.90	39.70
10	#5850.00	65.0 AV	78.3	-13.3	1.00 V	8	25.30	39.70
11	11590.00	65.0 PK	74.0	-9.0	1.69 V	1	15.50	49.50
12	11590.00	50.6 AV	54.0	-3.4	1.69 V	1	1.10	49.50

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.247.
 7. “#”:The radiated frequency is out the restricted band.

BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz)

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

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	374.04	34.0 QP	46.0	-12.0	1.25 H	58	17.60	16.40
2	479.03	34.7 QP	46.0	-11.3	1.50 H	214	15.60	19.10
3	599.58	36.9 QP	46.0	-9.1	1.50 H	325	14.80	22.10
4	624.85	39.8 QP	46.0	-6.2	1.75 H	25	17.40	22.40
5	720.12	41.3 QP	46.0	-4.7	2.00 H	187	17.90	23.40
6	825.11	36.9 QP	46.0	-9.1	1.50 H	256	12.10	24.80
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	68.79	34.2 QP	40.0	-5.8	1.00 V	79	22.80	11.40
2	125.17	33.6 QP	43.5	-9.9	1.25 V	175	21.60	12.00
3	189.33	32.1 QP	43.5	-11.4	1.25 V	16	21.30	10.80
4	599.58	34.0 QP	46.0	-12.0	1.75 V	310	11.90	22.10
5	624.85	38.7 QP	46.0	-7.3	1.50 V	151	16.30	22.40
6	825.11	40.4 QP	46.0	-5.6	2.00 V	10	15.60	24.80

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 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.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 23, 2011	Nov. 22, 2012
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	835239/001	Feb. 22, 2011	Feb. 21, 2012
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 30, 2011	Jun. 29, 2012
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 10, 2011	Jun. 09, 2012
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.

5.2.3 TEST PROCEDURES

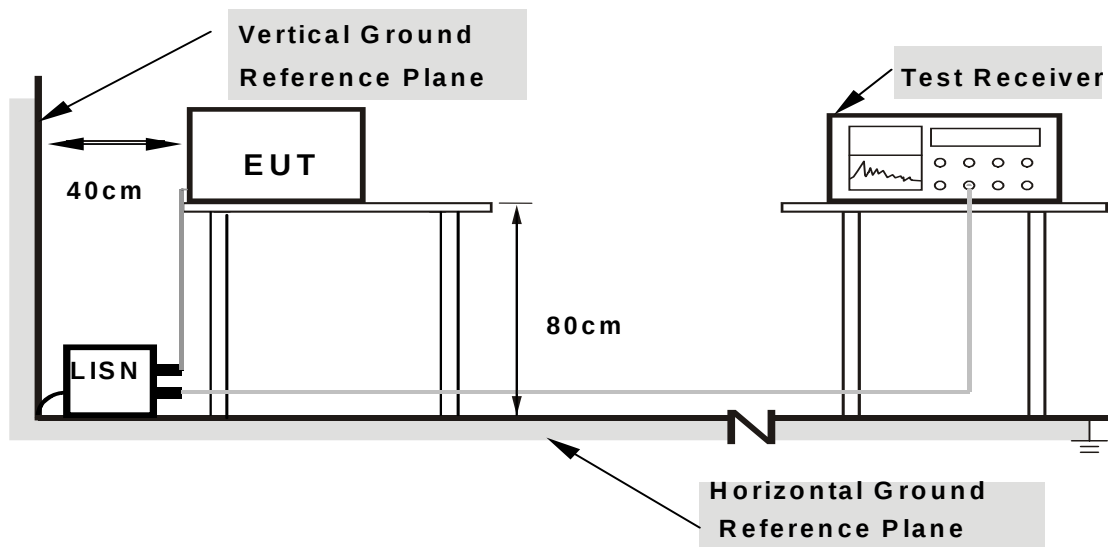
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 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).

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

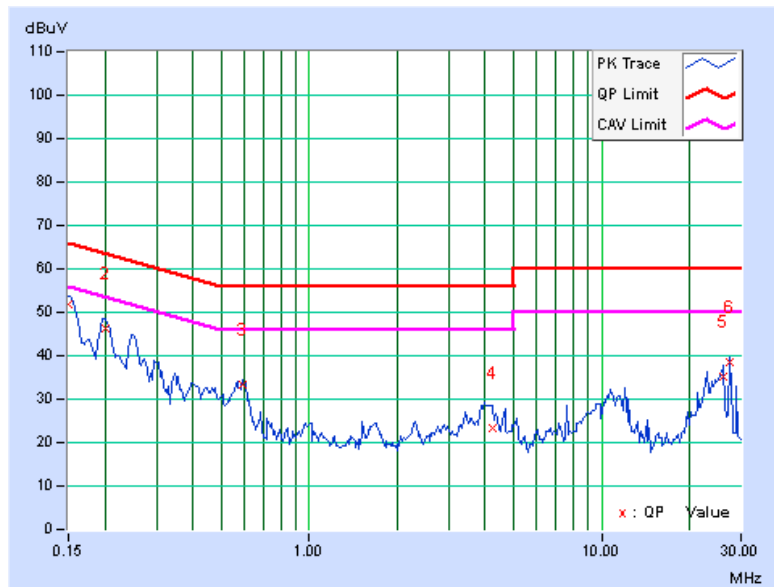
5.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n (20MHz): 2TX

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.150	0.11	51.67	44.61	51.79	44.73	66.00	56.00	-14.21	-11.27
2	0.201	0.12	46.30	41.75	46.42	41.87	63.58	53.58	-17.16	-11.71
3	0.591	0.13	33.37	27.79	33.50	27.92	56.00	46.00	-22.50	-18.08
4	4.223	0.32	22.86	14.70	23.18	15.02	56.00	46.00	-32.82	-30.98
5	25.930	1.40	33.96	30.38	35.36	31.78	60.00	50.00	-24.64	-18.22
6	27.461	1.45	36.91	36.47	38.36	37.92	60.00	50.00	-21.64	-12.08

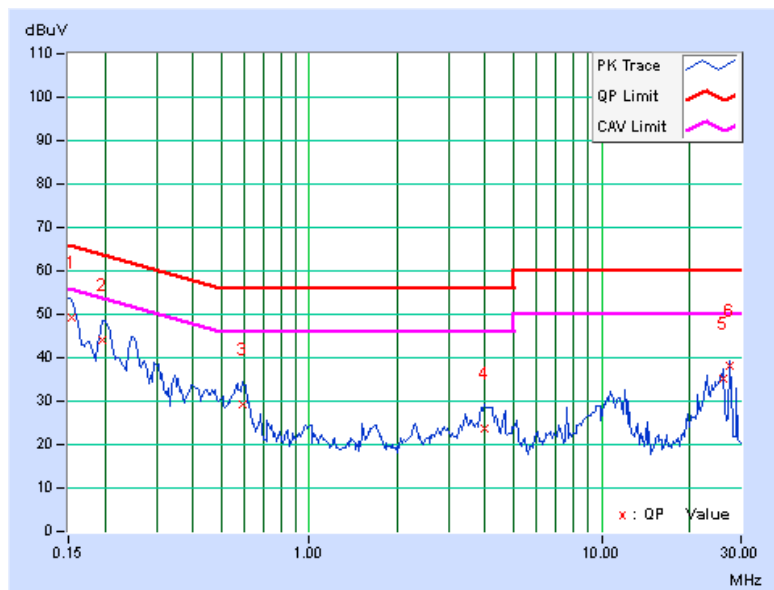
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq.	Corr. Factor	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	0.154	0.13	49.28	42.38	49.41	42.51	65.79	55.79	-16.38	-13.28
2	0.197	0.13	44.00	38.44	44.13	38.57	63.74	53.74	-19.61	-15.17
3	0.591	0.15	29.17	22.60	29.32	22.75	56.00	46.00	-26.68	-23.25
4	3.988	0.32	23.49	11.95	23.81	12.27	56.00	46.00	-32.19	-33.73
5	25.938	1.13	33.96	32.47	35.09	33.60	60.00	50.00	-24.91	-16.40
6	27.461	1.16	37.08	36.79	38.24	37.95	60.00	50.00	-21.76	-12.05

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

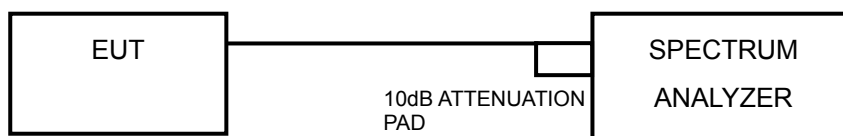


5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST SETUP



5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies

individually.

5.3.7 TEST RESULTS

802.11a: 2TX

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.58	16.47	0.5	PASS
157	5785	16.57	16.51	0.5	PASS
165	5825	16.52	16.57	0.5	PASS

802.11n (20MHz): 2TX

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.90	17.73	0.5	PASS
157	5785	17.80	17.74	0.5	PASS
165	5825	17.80	17.72	0.5	PASS

802.11n (40MHz): 2TX

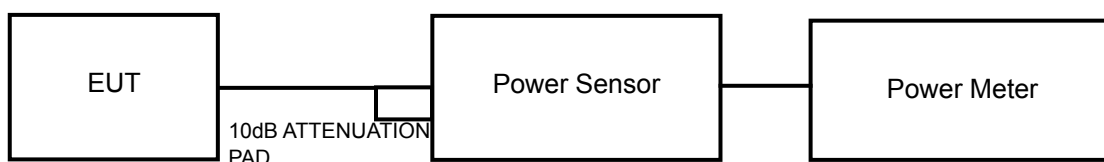
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.94	36.93	0.5	PASS
159	5795	37.01	36.71	0.5	PASS

5.4 MAXIMUM OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz bands: 1 Watt (30dBm)

5.4.2 TEST SETUP



5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

5.4.5 DEVIATION FROM TEST STANDARD

No deviation.

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

5.4.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	25.3	25.8	719.0	28.6	30	PASS
157	5785	24.7	25.3	634.0	28.0	30	PASS
165	5825	25.1	24.4	599.0	27.8	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	25.6	26.2	779.9	28.9	30	PASS
157	5785	25.8	25.2	711.3	28.5	30	PASS
165	5825	25.0	24.2	579.3	27.6	30	PASS

802.11n (40MHz)

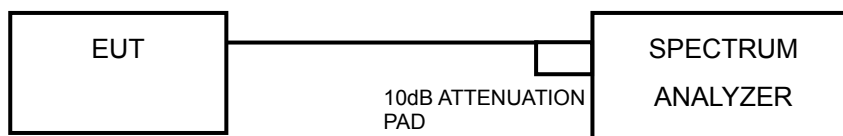
CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	26.3	25.2	757.7	28.8	30	PASS
159	5795	25.5	24.6	643.2	28.1	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST SETUP



5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

1. Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6.

5.5.7 TEST RESULTS

802.11a

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	7.45	-7.78	3.01	-4.77	8	PASS
	157	5785	6.57	-8.66	3.01	-5.65	8	PASS
	165	5825	7.19	-8.04	3.01	-5.03	8	PASS
1	149	5745	6.08	-9.15	3.01	-6.14	8	PASS
	157	5785	5.49	-9.74	3.01	-6.73	8	PASS
	165	5825	4.67	-10.56	3.01	-7.55	8	PASS

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	7.69	-7.54	3.01	-4.53	8	PASS
	157	5785	7.68	-7.55	3.01	-4.54	8	PASS
	165	5825	7.17	-8.06	3.01	-5.05	8	PASS
1	149	5745	6.52	-8.71	3.01	-5.70	8	PASS
	157	5785	5.44	-9.79	3.01	-6.78	8	PASS
	165	5825	4.75	-10.48	3.01	-7.47	8	PASS

802.11n (40MHz)

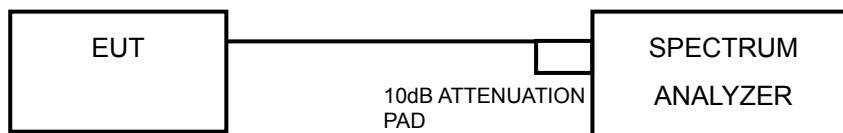
TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	5.56	-9.67	3.01	-6.66	8	PASS
	159	5795	4.57	-10.66	3.01	-7.65	8	PASS
1	151	5755	5.21	-10.02	3.01	-7.01	8	PASS
	159	5795	4.77	-10.46	3.01	-7.45	8	PASS

5.6 CONDUCTED EMISSION MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST SETUP



5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 5.3.6

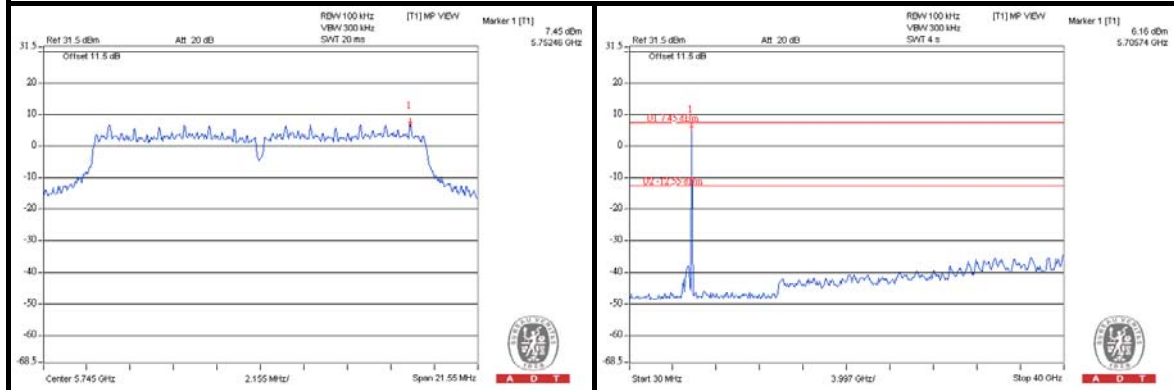
5.6.7 TEST RESULTS

The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

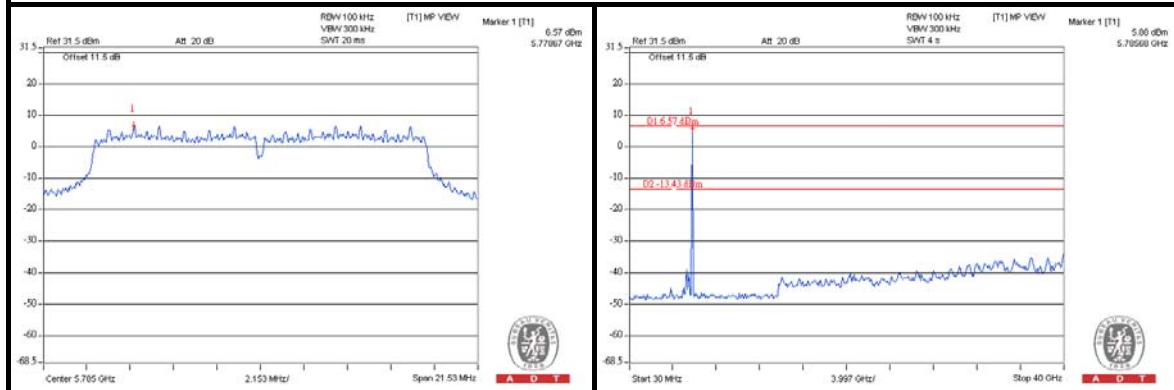
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11a: 2TX

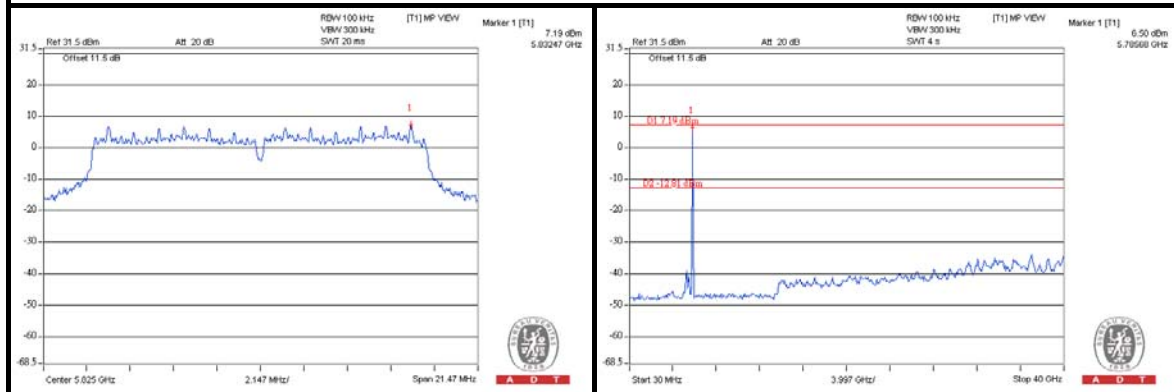
CH 149



CH 157

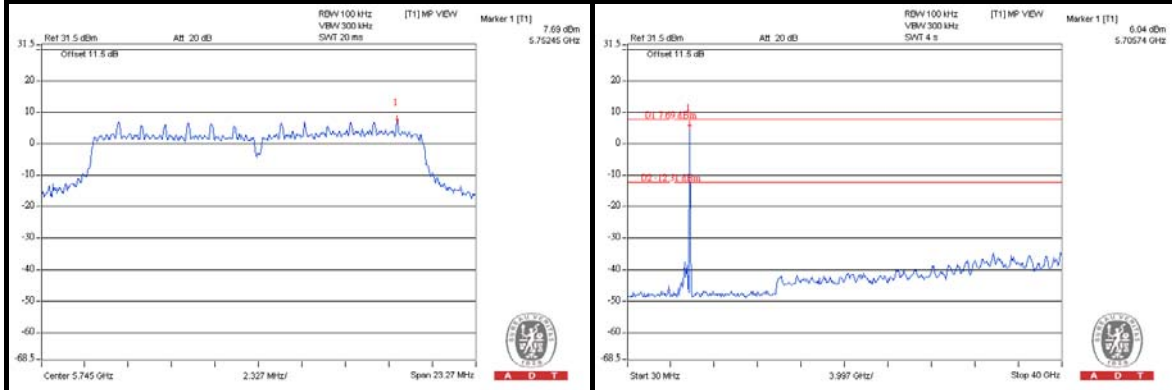


CH 165

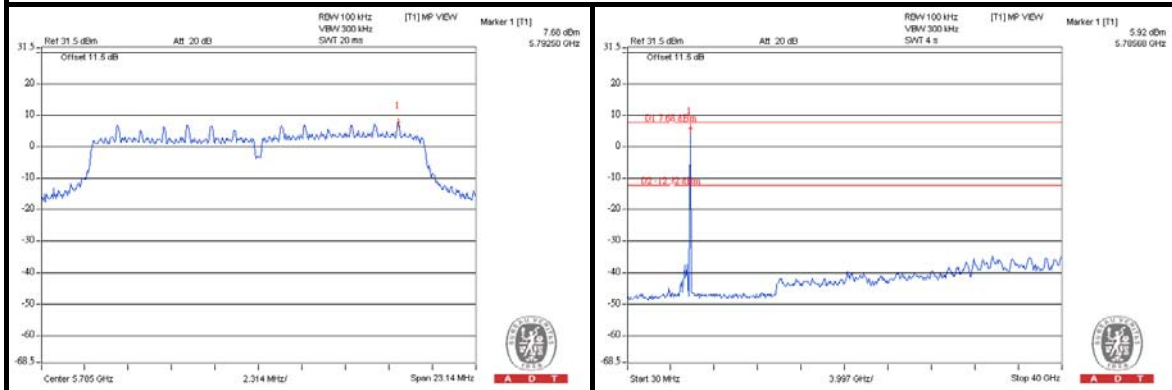


802.11n(20MHz): 2TX

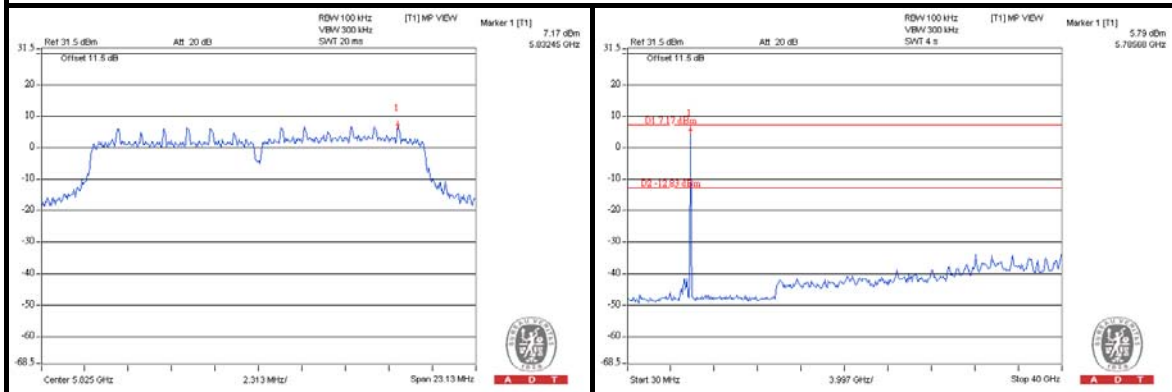
CH 149



CH 157

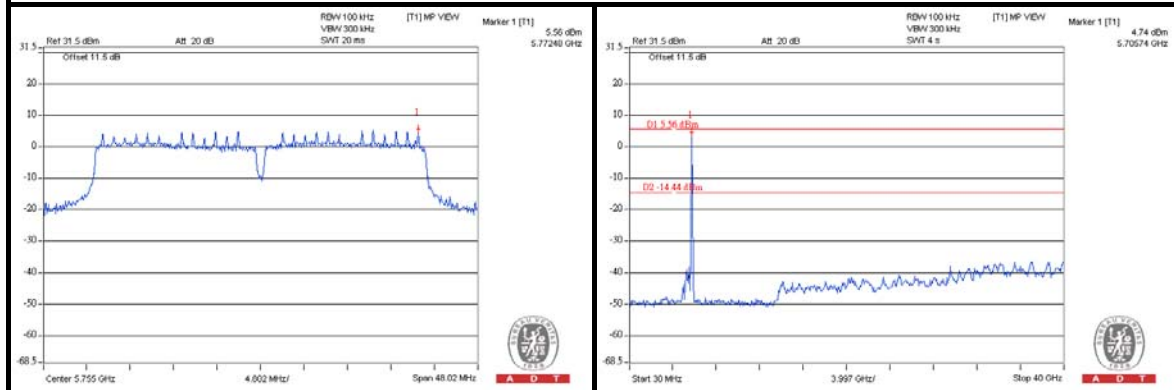


CH 165

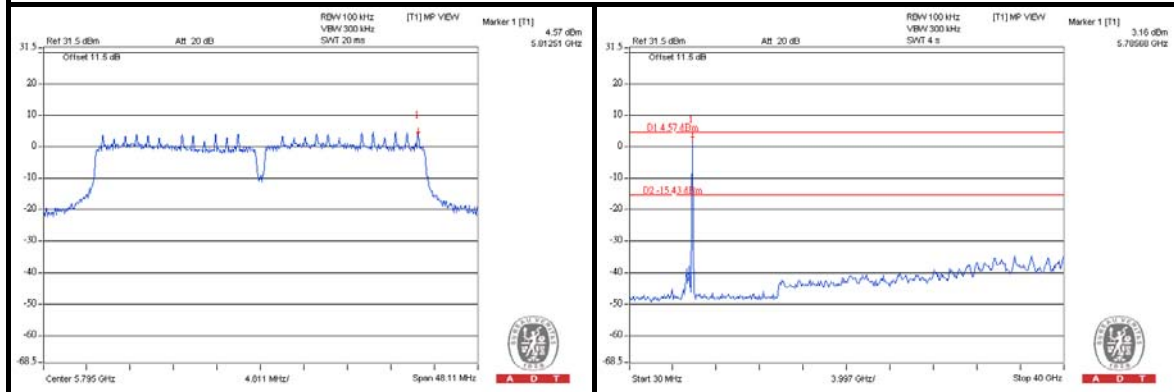


802.11n(40MHz): 2TX

CH 151



CH 159





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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7. 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.

Copies of accreditation and authorization 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

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Web Site: www.adt.com.tw

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



A D T

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

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

---END---