

FCC TEST REPORT (15.247)

REPORT NO.: RF120920C28

MODEL NO.: WAP551

FCC ID: PD5-WAP551

RECEIVED: Sep. 20, 2012

TESTED: Oct. 07 ~ Oct. 20, 2012

ISSUED: Oct. 26, 2012

APPLICANT: Delta Networks, Inc.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120920C28	Original release	Oct. 26, 2012



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1. CERTIFICATION

PRODUCT: Wireless AP with PoE

MODEL NO.: WAP551

BRAND: CISCO

APPLICANT: Delta Networks, Inc.

TESTED: Oct. 07 ~ Oct. 20, 2012

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: WAP551) 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 : Jemma Yang , DATE : Oct. 26, 2012

Jemma Yang / Specialist

APPROVED BY : Ken Liu , DATE : Oct. 26, 2012

Ken Liu / Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.44dB at 0.47663MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2483.50MHz and 2390MHz.
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 IPEX 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	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless AP with PoE
MODEL NO.	WAP551
POWER SUPPLY	55Vdc (from POE)
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 450.0Mbps
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	440.52mW for 2412 ~ 2462MHz 402.32mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to note for more details
ANTENNA CONNECTOR	Refer to note for more details
DATA CABLE	N/A
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	N/A

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	3TX
802.11a	3TX
802.11n (20MHz)	3TX
802.11n (40MHz)	3TX

2. The EUT with follow antennas gain is listed as table below.

Antenna Item	Antenna Type	Connector	Gain(dBi)		X-plane	Z-plane
			2.4GHz	5GHz		
1	Dipole	IPEX	5.2dBi	5.5dBi	√	√
2	PIFA		3.2dBi	4.6dBi	√	
3	Dipole		4.4dBi	4.6dBi		√
4	PIFA		3.9dBi	5.6dBi	√	
5	Dipole		4.5dBi	5.8dBi		√

**For EUT position on X-plane, chosen antenna item 1, 2, 4 for final test.

**For EUT position on Z-plane, chosen antenna item 1, 3, 5 for final test.

3. The EUT consumes power from the following POE.

POE	
BRAND:	PowerDsine
MODEL:	PD-9001G
INPUT:	100-250Vac, 50/60Hz, 0.8A
OUTPUT:	55Vdc, 0.6A

* POE was supplied for optional accessory.

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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

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

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

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

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 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Lying flat
B	√	√	√	-	Standing

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

NOTE: “-” means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A, B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A, B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A, B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

BANDEDGE 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)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	21deg. C, 72%RH	120Vac, 60Hz	Antony Lee
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Cedric Wu
PLC	26deg. C, 65%RH	120Vac, 60Hz	Cedric Wu
APCM	25deg. C, 67%RH	120Vac, 60Hz	Frank Liu

FOR 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Lying flat
B	√	√	√	-	Standing

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

NOTE: "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A, B	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A, B	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2

BANDEDGE 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)
A	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
A	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE _≥ 1G	21deg. C, 72%RH	120Vac, 60Hz	Antony Lee
RE _{<} 1G	23deg. C, 66%RH	120Vac, 60Hz	Cedric Wu
PLC	26deg. C, 65%RH	120Vac, 60Hz	Cedric Wu
APCM	25deg. C, 67%RH	120Vac, 60Hz	Frank Liu

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

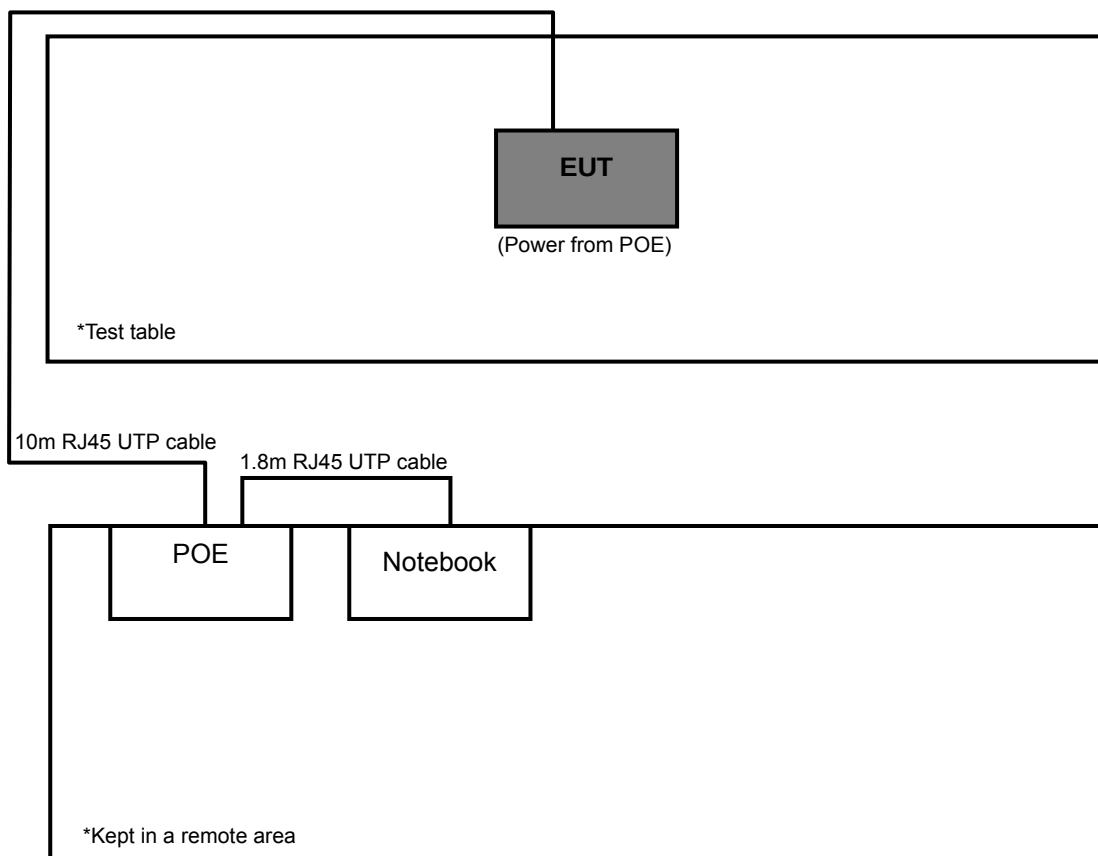
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m non-shielded RJ45 cable.

NOTE:

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

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST





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3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v02

662911 D01 Multiple Transmitter Output v01 r02

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.

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

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

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Jan. 03, 2012	Jan. 02, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP 40	100039	Feb. 03, 2012	Feb. 02, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2012	Jan. 04, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8449B	3008A01961	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10738	Oct. 26, 2012	Oct. 25, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Nov. 03, 2011	Nov. 02, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Nov. 03, 2011	Nov. 02, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Nov. 03, 2011	Nov. 02, 2012
Software ADT	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT	TT100.	TT93021704	NA	NA
Turn Table Controller ADT	SC100.	SC93021704	NA	NA
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 4.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 460141.
6. The IC Site Registration No. is IC7450F-4.

4.1.3 TEST PROCEDURES

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

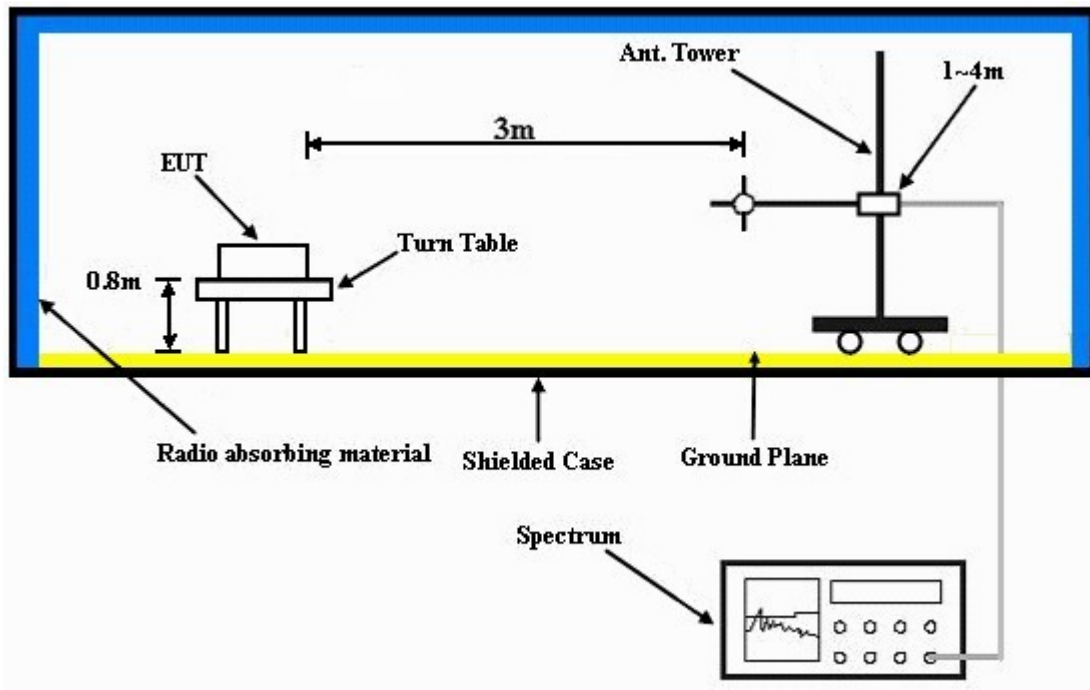
NOTE:

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 notebook 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".



A D T

4.1.7 TEST RESULTS (A)

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.9 PK	74.0	-11.1	1.05 H	206	30.90	32.00
2	2390.00	51.2 AV	54.0	-2.8	1.05 H	206	19.20	32.00
3	*2412.00	109.3 PK			1.05 H	206	77.30	32.00
4	*2412.00	104.2 AV			1.05 H	206	72.20	32.00
5	4824.00	50.8 PK	74.0	-23.2	1.00 H	186	12.40	38.40
6	4824.00	44.2 AV	54.0	-9.8	1.00 H	186	5.80	38.40
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	2390.00	61.4 PK	74.0	-12.6	1.56 V	53	29.40	32.00
2	2390.00	52.4 AV	54.0	-1.6	1.56 V	53	20.40	32.00
3	*2412.00	110.2 PK			1.56 V	53	78.20	32.00
4	*2412.00	105.9 AV			1.56 V	53	73.90	32.00
5	4824.00	52.7 PK	74.0	-21.3	1.00 V	161	14.30	38.40
6	4824.00	45.9 AV	54.0	-8.1	1.00 V	161	7.50	38.40

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	109.5 PK			1.00 H	123	77.40	32.10
2	*2437.00	105.7 AV			1.00 H	123	73.60	32.10
3	#3249.00	44.5 PK	89.5	-45.0	1.00 H	35	10.40	34.10
4	#3249.00	31.6 AV	85.7	-54.1	1.00 H	35	-2.50	34.10
5	4874.00	51.3 PK	74.0	-22.7	1.00 H	96	12.90	38.40
6	4874.00	45.2 AV	54.0	-8.8	1.00 H	96	6.80	38.40
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	*2437.00	109.5 PK			1.00 V	18	77.40	32.10
2	*2437.00	104.1 AV			1.00 V	18	72.00	32.10
3	#3249.00	45.1 PK	89.5	-44.4	1.00 V	66	11.00	34.10
4	#3249.00	31.7 AV	84.1	-52.4	1.00 V	66	-2.40	34.10
5	4874.00	52.6 PK	74.0	-21.4	1.00 V	157	14.20	38.40
6	4874.00	46.2 AV	54.0	-7.8	1.00 V	157	7.80	38.40

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 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	110.0 PK			1.00 H	204	77.80	32.20
2	*2462.00	106.2 AV			1.00 H	204	74.00	32.20
3	2483.50	62.7 PK	74.0	-11.3	1.00 H	204	30.40	32.30
4	2483.50	53.0 AV	54.0	-1.0	1.00 H	204	20.70	32.30
5	4924.00	51.3 PK	74.0	-22.7	1.00 H	187	12.90	38.40
6	4924.00	45.2 AV	54.0	-8.8	1.00 H	187	6.80	38.40
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	*2462.00	108.2 PK			1.00 V	28	76.00	32.20
2	*2462.00	102.6 AV			1.00 V	28	70.40	32.20
3	2483.50	62.8 PK	74.0	-11.2	1.00 V	28	30.50	32.30
4	2483.50	52.5 AV	54.0	-1.5	1.00 V	28	20.20	32.30
5	4924.00	53.3 PK	74.0	-20.7	1.00 V	147	14.90	38.40
6	4924.00	46.2 AV	54.0	-7.8	1.00 V	147	7.80	38.40

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.



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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	64.9 PK	74.0	-9.1	1.05 H	209	32.90	32.00
2	2390.00	52.4 AV	54.0	-1.6	1.05 H	209	20.40	32.00
3	*2412.00	113.1 PK			1.05 H	207	81.10	32.00
4	*2412.00	101.3 AV			1.05 H	207	69.30	32.00
5	4824.00	48.2 PK	74.0	-25.8	1.00 H	59	9.80	38.40
6	4824.00	34.6 AV	54.0	-19.4	1.00 H	59	-3.80	38.40
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	2390.00	66.1 PK	74.0	-7.9	1.00 V	155	34.10	32.00
2	2390.00	50.5 AV	54.0	-3.5	1.00 V	155	18.50	32.00
3	*2412.00	108.9 PK			1.00 V	155	76.90	32.00
4	*2412.00	99.3 AV			1.00 V	155	67.30	32.00
5	4824.00	48.1 PK	74.0	-25.9	1.00 V	26	9.70	38.40
6	4824.00	34.4 AV	54.0	-19.6	1.00 V	26	-4.00	38.40

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	112.8 PK			1.04 H	212	80.70	32.10
2	*2437.00	103.1 AV			1.04 H	212	71.00	32.10
3	#3249.00	46.3 PK	92.8	-46.5	1.00 H	159	12.20	34.10
4	#3249.00	32.4 AV	83.1	-50.7	1.00 H	159	-1.70	34.10
5	4874.00	52.5 PK	74.0	-21.5	1.00 H	155	14.10	38.40
6	4874.00	46.3 AV	54.0	-7.7	1.00 H	155	7.90	38.40
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	*2437.00	112.2 PK			1.27 V	159	80.10	32.10
2	*2437.00	101.2 AV			1.27 V	159	69.10	32.10
3	#3249.00	45.3 PK	92.2	-46.9	1.00 V	69	11.20	34.10
4	#3249.00	32.7 AV	81.2	-48.5	1.00 V	69	-1.40	34.10
5	4874.00	51.6 PK	74.0	-22.4	1.00 V	88	13.20	38.40
6	4874.00	46.7 AV	54.0	-7.3	1.00 V	88	8.30	38.40

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 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	113.0 PK			1.00 H	207	80.80	32.20
2	*2462.00	102.1 AV			1.00 H	207	69.90	32.20
3	2483.50	68.4 PK	74.0	-5.6	1.00 H	207	36.10	32.30
4	2483.50	53.0 AV	54.0	-1.0	1.00 H	207	20.70	32.30
5	4924.00	53.2 PK	74.0	-20.8	1.00 H	152	14.80	38.40
6	4924.00	46.4 AV	54.0	-7.6	1.00 H	152	8.00	38.40
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	*2462.00	109.2 PK			1.24 V	158	77.00	32.20
2	*2462.00	99.2 AV			1.24 V	158	67.00	32.20
3	2483.50	63.3 PK	74.0	-10.7	1.24 V	158	31.00	32.30
4	2483.50	50.0 AV	54.0	-4.0	1.24 V	158	17.70	32.30
5	4924.00	53.6 PK	74.0	-20.4	1.00 V	174	15.20	38.40
6	4924.00	46.8 AV	54.0	-7.2	1.00 V	174	8.40	38.40

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.



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802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	70.2 PK	74.0	-3.8	1.00 H	209	38.20	32.00
2	2390.00	52.6 AV	54.0	-1.4	1.00 H	209	20.60	32.00
3	*2412.00	111.8 PK			1.00 H	209	79.80	32.00
4	*2412.00	101.5 AV			1.00 H	209	69.50	32.00
5	4824.00	48.3 PK	74.0	-25.7	1.00 H	147	9.90	38.40
6	4824.00	34.3 AV	54.0	-19.7	1.00 H	147	-4.10	38.40
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	2390.00	69.2 PK	74.0	-4.8	1.00 V	281	37.20	32.00
2	2390.00	48.5 AV	54.0	-5.5	1.00 V	281	16.50	32.00
3	*2412.00	109.2 PK			1.00 V	281	77.20	32.00
4	*2412.00	99.2 AV			1.00 V	281	67.20	32.00
5	4824.00	47.8 PK	74.0	-26.2	1.00 V	23	9.40	38.40
6	4824.00	34.9 AV	54.0	-19.1	1.00 V	23	-3.50	38.40

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	112.3 PK			1.00 H	157	80.20	32.10
2	*2437.00	102.4 AV			1.00 H	157	70.30	32.10
3	#3249.00	45.3 PK	92.3	-47.0	1.00 H	58	11.20	34.10
4	#3249.00	31.6 AV	82.4	-50.8	1.00 H	58	-2.50	34.10
5	4874.00	48.6 PK	74.0	-25.4	1.00 H	166	10.20	38.40
6	4874.00	35.4 AV	54.0	-18.6	1.00 H	166	-3.00	38.40
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	*2437.00	109.2 PK			1.00 V	293	77.10	32.10
2	*2437.00	99.5 AV			1.00 V	293	67.40	32.10
3	#3249.00	47.3 PK	89.2	-41.9	1.00 V	95	13.20	34.10
4	#3249.00	32.5 AV	79.5	-47.0	1.00 V	95	-1.60	34.10
5	4874.00	47.5 PK	74.0	-26.5	1.00 V	33	9.10	38.40
6	4874.00	34.2 AV	54.0	-19.8	1.00 V	33	-4.20	38.40

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 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	113.5 PK			1.00 H	183	81.30	32.20
2	*2462.00	103.2 AV			1.00 H	183	71.00	32.20
3	2483.50	71.1 PK	74.0	-2.9	1.02 H	183	38.80	32.30
4	2483.50	52.8 AV	54.0	-1.2	1.02 H	183	20.50	32.30
5	4924.00	52.6 PK	74.0	-21.4	1.00 H	39	14.20	38.40
6	4924.00	46.2 AV	54.0	-7.8	1.00 H	39	7.80	38.40
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	*2462.00	108.9 PK			1.60 V	279	76.70	32.20
2	*2462.00	98.8 AV			1.60 V	279	66.60	32.20
3	2483.50	66.7 PK	74.0	-7.3	1.60 V	279	34.40	32.30
4	2483.50	49.9 AV	54.0	-4.1	1.60 V	279	17.60	32.30
5	4924.00	53.6 PK	74.0	-20.4	1.00 V	158	15.20	38.40
6	4924.00	46.4 AV	54.0	-7.6	1.00 V	158	8.00	38.40

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.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	66.2 PK	74.0	-7.8	1.05 H	207	34.20	32.00
2	2390.00	52.5 AV	54.0	-1.5	1.05 H	207	20.50	32.00
3	*2422.00	108.6 PK			1.05 H	207	76.50	32.10
4	*2422.00	97.7 AV			1.05 H	207	65.60	32.10
5	4844.00	46.7 PK	74.0	-27.3	1.00 H	21	8.30	38.40
6	4844.00	34.9 AV	54.0	-19.1	1.00 H	21	-3.50	38.40
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	2390.00	65.3 PK	74.0	-8.7	1.00 V	281	33.30	32.00
2	2390.00	51.1 AV	54.0	-2.9	1.00 V	281	19.10	32.00
3	*2422.00	104.0 PK			1.00 V	281	71.90	32.10
4	*2422.00	94.6 AV			1.00 V	281	62.50	32.10
5	4844.00	47.0 PK	74.0	-27.0	1.00 V	64	8.60	38.40
6	4844.00	34.9 AV	54.0	-19.1	1.00 V	64	-3.50	38.40

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	109.8 PK			1.00 H	206	77.70	32.10
2	*2437.00	99.2 AV			1.00 H	206	67.10	32.10
3	#3249.00	44.7 PK	89.8	-45.1	1.00 H	96	10.60	34.10
4	#3249.00	31.6 AV	79.2	-47.6	1.00 H	96	-2.50	34.10
5	4874.00	47.0 PK	74.0	-27.0	1.00 H	125	8.60	38.40
6	4874.00	35.4 AV	54.0	-18.6	1.00 H	125	-3.00	38.40
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	*2437.00	105.8 PK			1.00 V	283	73.70	32.10
2	*2437.00	96.3 AV			1.00 V	283	64.20	32.10
3	#3249.00	44.9 PK	85.8	-40.9	1.00 V	69	10.80	34.10
4	#3249.00	31.7 AV	76.3	-44.6	1.00 V	69	-2.40	34.10
5	4874.00	48.3 PK	74.0	-25.7	1.00 V	355	9.90	38.40
6	4874.00	35.4 AV	54.0	-18.6	1.00 V	355	-3.00	38.40

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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	107.0 PK			1.00 H	189	74.80	32.20
2	*2452.00	94.9 AV			1.00 H	189	62.70	32.20
3	2483.50	66.0 PK	74.0	-8.0	1.02 H	189	33.70	32.30
4	2483.50	53.0 AV	54.0	-1.0	1.02 H	189	20.70	32.30
5	4904.00	53.6 PK	74.0	-20.4	1.00 H	157	15.10	38.50
6	4904.00	46.8 AV	54.0	-7.2	1.00 H	157	8.30	38.50
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	*2452.00	103.6 PK			1.00 V	159	71.40	32.20
2	*2452.00	93.4 AV			1.00 V	159	61.20	32.20
3	2483.50	62.6 PK	74.0	-11.4	1.00 V	159	30.30	32.30
4	2483.50	50.7 AV	54.0	-3.3	1.00 V	159	18.40	32.30
5	4904.00	53.6 PK	74.0	-20.4	1.25 V	39	15.10	38.50
6	4904.00	47.8 AV	54.0	-6.2	1.25 V	39	9.30	38.50

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.



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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Cedric Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	101.69	22.0 QP	43.5	-21.5	1.24 H	101	12.40	9.60
2	198.71	25.7 QP	43.5	-17.8	1.00 H	19	14.80	10.90
3	249.17	28.0 QP	46.0	-18.0	1.24 H	312	15.20	12.80
4	400.52	30.3 QP	46.0	-15.7	1.00 H	313	13.20	17.10
5	672.17	35.3 QP	46.0	-10.7	1.24 H	335	13.30	22.00
6	800.24	36.0 QP	46.0	-10.0	1.75 H	121	11.40	24.60
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	43.48	31.4 QP	40.0	-8.6	1.00 V	4	17.50	13.90
2	154.09	25.2 QP	43.5	-18.3	1.00 V	10	11.20	14.00
3	249.17	22.9 QP	46.0	-23.1	1.25 V	49	10.10	12.80
4	499.48	25.7 QP	46.0	-20.3	1.00 V	220	6.20	19.50
5	749.79	27.8 QP	46.0	-18.2	1.25 V	176	4.40	23.40
6	800.24	32.8 QP	46.0	-13.2	1.74 V	60	8.20	24.60

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.

4.1.8 TEST RESULTS (B)

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	58.1 PK	74.0	-15.9	1.01 H	232	26.10	32.00
2	2390.00	47.5 AV	54.0	-6.5	1.01 H	232	15.50	32.00
3	*2412.00	104.0 PK			1.00 H	232	72.00	32.00
4	*2412.00	99.9 AV			1.00 H	232	67.90	32.00
5	4824.00	54.8 PK	74.0	-19.2	1.01 H	145	16.40	38.40
6	4824.00	42.5 AV	54.0	-11.5	1.01 H	145	4.10	38.40
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	2390.00	62.2 PK	74.0	-11.8	1.02 V	85	30.20	32.00
2	2390.00	52.6 AV	54.0	-1.4	1.02 V	85	20.60	32.00
3	*2412.00	112.5 PK			1.00 V	85	80.50	32.00
4	*2412.00	108.2 AV			1.00 V	85	76.20	32.00
5	4824.00	51.8 PK	74.0	-22.2	1.00 V	62	13.40	38.40
6	4824.00	45.4 AV	54.0	-8.6	1.00 V	62	7.00	38.40

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	102.8 PK			1.00 H	319	70.70	32.10
2	*2437.00	98.3 AV			1.00 H	319	66.20	32.10
3	#3249.00	45.9 PK	82.8	-36.9	1.00 H	231	11.80	34.10
4	#3249.00	32.3 AV	78.3	-46.0	1.00 H	231	-1.80	34.10
5	4874.00	50.5 PK	74.0	-23.5	1.00 H	115	12.10	38.40
6	4874.00	41.8 AV	54.0	-12.2	1.00 H	115	3.40	38.40
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	*2437.00	113.1 PK			1.02 V	59	81.00	32.10
2	*2437.00	109.4 AV			1.02 V	59	77.30	32.10
3	#3249.00	46.6 PK	93.1	-46.5	1.27 V	17	12.50	34.10
4	#3249.00	38.0 AV	89.4	-51.4	1.27 V	17	3.90	34.10
5	4874.00	51.8 PK	74.0	-22.2	1.02 V	79	13.40	38.40
6	4874.00	45.0 AV	54.0	-9.0	1.02 V	79	6.60	38.40

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 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	100.7 PK			1.00 H	321	68.50	32.20
2	*2462.00	96.5 AV			1.00 H	321	64.30	32.20
3	2483.50	57.7 PK	74.0	-16.3	1.02 H	321	25.40	32.30
4	2483.50	47.0 AV	54.0	-7.0	1.02 H	321	14.70	32.30
5	4924.00	50.2 PK	74.0	-23.8	1.02 H	116	11.80	38.40
6	4924.00	40.1 AV	54.0	-13.9	1.02 H	116	1.70	38.40
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	*2462.00	113.6 PK			1.00 V	60	81.40	32.20
2	*2462.00	109.0 AV			1.00 V	60	76.80	32.20
3	2483.50	62.3 PK	74.0	-11.7	1.00 V	60	30.00	32.30
4	2483.50	52.9 AV	54.0	-1.1	1.00 V	60	20.60	32.30
5	4924.00	51.6 PK	74.0	-22.4	1.02 V	243	13.20	38.40
6	4924.00	44.7 AV	54.0	-9.3	1.02 V	243	6.30	38.40

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.



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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	65.1 PK	74.0	-8.9	1.08 H	20	33.10	32.00
2	2390.00	53.0 AV	54.0	-1.0	1.08 H	20	21.00	32.00
3	*2412.00	112.6 PK			1.08 H	331	80.60	32.00
4	*2412.00	102.2 AV			1.08 H	331	70.20	32.00
5	4824.00	48.0 PK	74.0	-26.0	1.00 H	169	9.60	38.40
6	4824.00	34.5 AV	54.0	-19.5	1.00 H	169	-3.90	38.40
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	2390.00	66.6 PK	74.0	-7.4	1.00 V	89	34.60	32.00
2	2390.00	52.4 AV	54.0	-1.6	1.00 V	89	20.40	32.00
3	*2412.00	111.7 PK			1.00 V	89	79.70	32.00
4	*2412.00	101.8 AV			1.00 V	89	69.80	32.00
5	4824.00	48.7 PK	74.0	-25.3	1.00 V	125	10.30	38.40
6	4824.00	35.5 AV	54.0	-18.5	1.00 V	125	-2.90	38.40

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	112.0 PK			1.07 H	328	79.90	32.10
2	*2437.00	101.5 AV			1.07 H	328	69.40	32.10
3	#3249.00	45.0 PK	92.0	-47.0	1.00 H	112	10.90	34.10
4	#3249.00	33.6 AV	81.5	-47.9	1.00 H	112	-0.50	34.10
5	4874.00	47.6 PK	74.0	-26.4	1.00 H	63	9.20	38.40
6	4874.00	35.3 AV	54.0	-18.7	1.00 H	63	-3.10	38.40
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	*2437.00	110.2 PK			1.02 V	74	78.10	32.10
2	*2437.00	100.7 AV			1.02 V	74	68.60	32.10
3	#3249.00	45.8 PK	90.2	-44.4	1.00 V	4	11.70	34.10
4	#3249.00	35.8 AV	80.7	-44.9	1.00 V	4	1.70	34.10
5	4874.00	49.0 PK	74.0	-25.0	1.00 V	223	10.60	38.40
6	4874.00	35.4 AV	54.0	-18.6	1.00 V	223	-3.00	38.40

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 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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	113.7 PK			1.04 H	5	81.50	32.20
2	*2462.00	102.4 AV			1.04 H	5	70.20	32.20
3	2483.50	70.9 PK	74.0	-3.1	1.04 H	5	38.60	32.30
4	2483.50	52.8 AV	54.0	-1.2	1.04 H	5	20.50	32.30
5	4924.00	49.3 PK	74.0	-24.7	1.00 H	122	10.90	38.40
6	4924.00	36.4 AV	54.0	-17.6	1.00 H	122	-2.00	38.40
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	*2462.00	111.2 PK			1.00 V	39	79.00	32.20
2	*2462.00	101.2 AV			1.00 V	39	69.00	32.20
3	2483.50	65.2 PK	74.0	-8.8	1.00 V	39	32.90	32.30
4	2483.50	51.0 AV	54.0	-3.0	1.00 V	39	18.70	32.30
5	4924.00	50.2 PK	74.0	-23.8	1.00 V	148	11.80	38.40
6	4924.00	36.4 AV	54.0	-17.6	1.00 V	148	-2.00	38.40

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.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	68.0 PK	74.0	-6.0	1.11 H	329	36.00	32.00
2	2390.00	52.7 AV	54.0	-1.3	1.11 H	329	20.70	32.00
3	*2412.00	112.3 PK			1.11 H	329	80.30	32.00
4	*2412.00	99.8 AV			1.11 H	329	67.80	32.00
5	4824.00	48.2 PK	74.0	-25.8	1.00 H	155	9.80	38.40
6	4824.00	35.3 AV	54.0	-18.7	1.00 H	155	-3.10	38.40
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	2390.00	62.3 PK	74.0	-11.7	1.00 V	88	30.30	32.00
2	2390.00	51.2 AV	54.0	-2.8	1.00 V	88	19.20	32.00
3	*2412.00	111.3 PK			1.00 V	88	79.30	32.00
4	*2412.00	101.1 AV			1.00 V	88	69.10	32.00
5	4824.00	48.3 PK	74.0	-25.7	1.00 V	205	9.90	38.40
6	4824.00	35.1 AV	54.0	-18.9	1.00 V	205	-3.30	38.40

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	112.2 PK			1.05 H	36	80.10	32.10
2	*2437.00	101.5 AV			1.05 H	36	69.40	32.10
3	#3249.00	45.3 PK	92.2	-46.9	1.00 H	124	11.20	34.10
4	#3249.00	34.2 AV	81.5	-47.3	1.00 H	124	0.10	34.10
5	4874.00	48.3 PK	74.0	-25.7	1.00 H	144	9.90	38.40
6	4874.00	36.4 AV	54.0	-17.6	1.00 H	144	-2.00	38.40
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	*2437.00	111.3 PK			1.01 V	68	79.20	32.10
2	*2437.00	100.2 AV			1.01 V	68	68.10	32.10
3	#3249.00	45.6 PK	91.3	-45.7	1.00 V	18	11.50	34.10
4	#3249.00	35.1 AV	80.2	-45.1	1.00 V	18	1.00	34.10
5	4874.00	49.3 PK	74.0	-24.7	1.00 V	302	10.90	38.40
6	4874.00	36.4 AV	54.0	-17.6	1.00 V	302	-2.00	38.40

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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	112.1 PK			1.07 H	331	79.90	32.20
2	*2462.00	101.3 AV			1.07 H	331	69.10	32.20
3	2483.50	72.4 PK	74.0	-1.6	1.08 H	332	40.10	32.30
4	2483.50	52.7 AV	54.0	-1.3	1.08 H	332	20.40	32.30
5	4924.00	50.5 PK	74.0	-23.5	1.00 H	124	12.10	38.40
6	4924.00	37.2 AV	54.0	-16.8	1.00 H	124	-1.20	38.40
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	*2462.00	110.0 PK			1.02 V	86	77.80	32.20
2	*2462.00	100.4 AV			1.02 V	86	68.20	32.20
3	2483.50	62.9 PK	74.0	-11.1	1.00 V	86	30.60	32.30
4	2483.50	50.7 AV	54.0	-3.3	1.00 V	86	18.40	32.30
5	4924.00	51.3 PK	74.0	-22.7	1.00 V	152	12.90	38.40
6	4924.00	37.4 AV	54.0	-16.6	1.00 V	152	-1.00	38.40

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.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	65.8 PK	74.0	-8.2	1.11 H	331	33.80	32.00
2	2390.00	53.0 AV	54.0	-1.0	1.11 H	331	21.00	32.00
3	*2422.00	107.8 PK			1.11 H	331	75.70	32.10
4	*2422.00	97.4 AV			1.11 H	331	65.30	32.10
5	4844.00	47.5 PK	74.0	-26.5	1.00 H	1	9.10	38.40
6	4844.00	35.4 AV	54.0	-18.6	1.00 H	1	-3.00	38.40
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	2390.00	69.6 PK	74.0	-4.4	1.00 V	88	37.60	32.00
2	2390.00	51.9 AV	54.0	-2.1	1.00 V	88	19.90	32.00
3	*2422.00	105.7 PK			1.00 V	88	73.60	32.10
4	*2422.00	96.0 AV			1.00 V	88	63.90	32.10
5	4844.00	47.3 PK	74.0	-26.7	1.00 V	26	8.90	38.40
6	4844.00	35.0 AV	54.0	-19.0	1.00 V	26	-3.40	38.40

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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	109.3 PK			1.04 H	333	77.20	32.10
2	*2437.00	99.2 AV			1.04 H	333	67.10	32.10
3	#3249.00	45.6 PK	89.3	-43.7	1.02 H	36	11.50	34.10
4	#3249.00	33.6 AV	79.2	-45.6	1.02 H	36	-0.50	34.10
5	4874.00	48.6 PK	74.0	-25.4	1.00 H	3	10.20	38.40
6	4874.00	36.4 AV	54.0	-17.6	1.00 H	3	-2.00	38.40
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	*2437.00	109.1 PK			1.04 V	246	77.00	32.10
2	*2437.00	99.0 AV			1.04 V	246	66.90	32.10
3	#3249.00	45.4 PK	89.1	-43.7	1.00 V	102	11.30	34.10
4	#3249.00	34.4 AV	79.0	-44.6	1.00 V	102	0.30	34.10
5	4874.00	48.7 PK	74.0	-25.3	1.00 V	125	10.30	38.40
6	4874.00	35.4 AV	54.0	-18.6	1.00 V	125	-3.00	38.40

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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	107.1 PK			1.09 H	331	74.90	32.20
2	*2452.00	96.5 AV			1.09 H	331	64.30	32.20
3	2483.50	64.7 PK	74.0	-9.3	1.09 H	331	32.40	32.30
4	2483.50	52.4 AV	54.0	-1.6	1.09 H	331	20.10	32.30
5	4904.00	47.5 PK	74.0	-26.5	1.00 H	125	9.00	38.50
6	4904.00	35.4 AV	54.0	-18.6	1.00 H	125	-3.10	38.50
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	*2452.00	106.6 PK			1.00 V	78	74.40	32.20
2	*2452.00	96.0 AV			1.00 V	78	63.80	32.20
3	2483.50	60.8 PK	74.0	-13.2	1.01 V	78	28.50	32.30
4	2483.50	51.5 AV	54.0	-2.5	1.01 V	78	19.20	32.30
5	4904.00	47.2 PK	74.0	-26.8	1.00 V	25	8.70	38.50
6	4904.00	34.5 AV	54.0	-19.5	1.00 V	25	-4.00	38.50

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.



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Cedric Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	148.26	23.9 QP	43.5	-19.6	1.00 H	249	10.00	13.90
2	245.28	24.1 QP	46.0	-21.9	1.25 H	247	11.40	12.70
3	400.52	27.1 QP	46.0	-18.9	1.50 H	29	10.00	17.10
4	534.40	37.5 QP	46.0	-8.5	1.50 H	29	17.30	20.20
5	672.17	31.3 QP	46.0	-14.7	1.00 H	14	9.30	22.00
6	722.62	27.8 QP	46.0	-18.2	1.00 H	14	5.10	22.70
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	39.60	32.7 QP	40.0	-7.3	1.25 V	305	19.10	13.60
2	196.77	28.9 QP	43.5	-14.6	1.00 V	90	17.80	11.10
3	524.70	34.5 QP	46.0	-11.5	1.00 V	227	14.50	20.00
4	676.05	32.3 QP	46.0	-13.7	1.00 V	315	10.30	22.00
5	800.24	33.5 QP	46.0	-12.5	1.24 V	1	8.90	24.60
6	895.32	33.5 QP	46.0	-12.5	1.75 V	130	7.80	25.70

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.

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. 29, 2011	Dec. 28, 2012
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 02, 2012	Jul. 01, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 07, 2012	Feb. 06, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

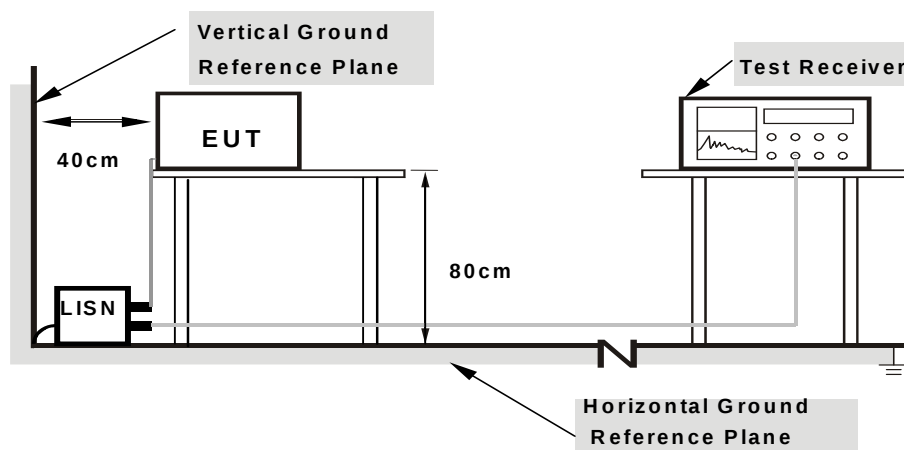
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

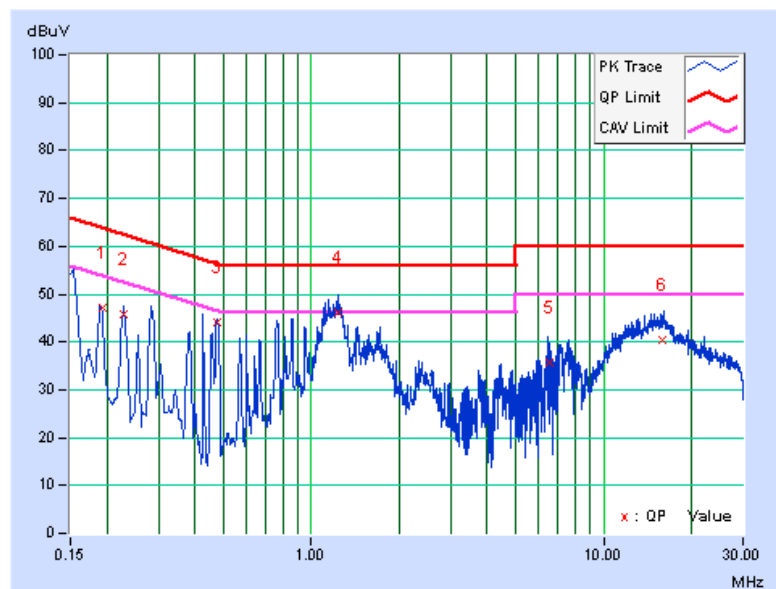
4.2.7 TEST RESULTS (A)

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

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19301	0.22	46.85	43.49	47.07	43.71	63.91	53.91	-16.84	-10.20
2	0.22672	0.22	45.68	44.51	45.90	44.73	62.57	52.57	-16.67	-7.84
3	0.47663	0.25	43.96	43.71	44.21	43.96	56.40	46.40	-12.19	-2.44
4	1.23065	0.32	45.97	39.50	46.29	39.82	56.00	46.00	-9.71	-6.18
5	6.49984	0.47	35.12	24.62	35.59	25.09	60.00	50.00	-24.41	-24.91
6	15.82910	0.68	39.63	34.19	40.31	34.87	60.00	50.00	-19.69	-15.13

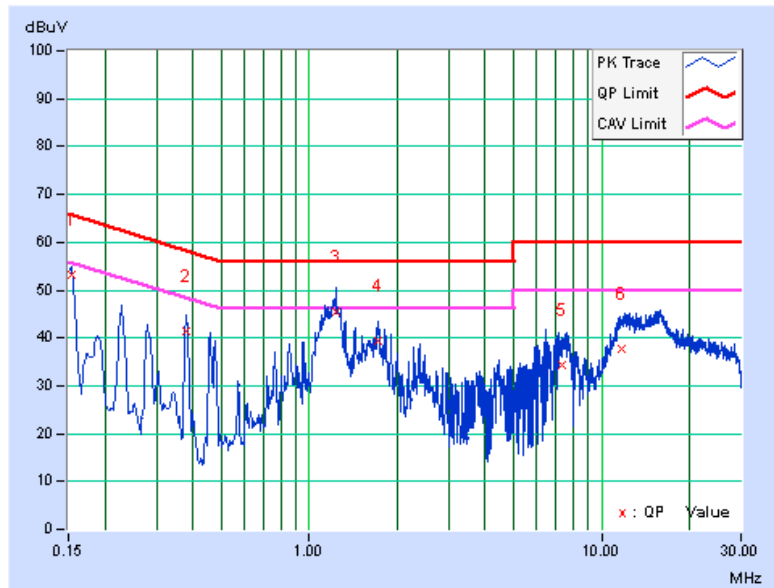
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.20	53.01	50.15	53.21	50.35	65.79	55.79	-12.57	-5.43
2	0.37700	0.22	41.08	38.87	41.30	39.09	58.35	48.35	-17.05	-9.26
3	1.23065	0.28	45.31	38.78	45.59	39.06	56.00	46.00	-10.41	-6.94
4	1.71070	0.30	39.18	34.38	39.48	34.68	56.00	46.00	-16.52	-11.32
5	7.30625	0.53	33.79	19.14	34.32	19.67	60.00	50.00	-25.68	-30.33
6	11.65713	0.65	36.94	31.58	37.59	32.23	60.00	50.00	-22.41	-17.77

- 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.

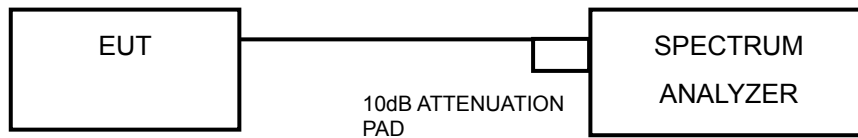


4.3 6dB BANDWIDTH MEASUREMENT

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

- Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.28	0.5	PASS
6	2437	8.30	0.5	PASS
11	2462	8.27	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	16.65	16.67	16.60	0.5	PASS
6	2437	16.52	16.55	16.62	0.5	PASS
11	2462	16.62	16.67	16.65	0.5	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	17.82	17.83	17.87	0.5	PASS
6	2437	17.76	17.79	17.82	0.5	PASS
11	2462	17.86	17.76	17.81	0.5	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
3	2422	36.94	36.69	36.31	0.5	PASS
6	2437	36.47	36.35	36.55	0.5	PASS
9	2452	36.58	36.76	36.42	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 bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

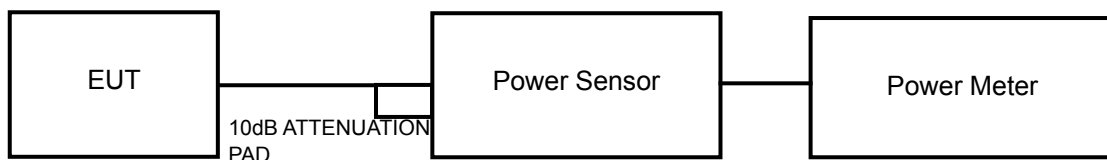
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

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



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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

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	177.83	22.50	30	PASS
6	2437	173.78	22.40	30	PASS
11	2462	177.83	22.50	30	PASS

802.11g

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	21.40	21.00	21.30	398.83	26.01	30	PASS
6	2437	21.20	21.10	21.10	389.48	25.90	30	PASS
11	2462	21.30	20.80	21.00	381.02	25.81	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	22.30	21.60	21.00	440.26	26.44	30	PASS
6	2437	21.80	21.70	21.50	440.52	26.44	30	PASS
11	2462	21.60	21.70	21.50	433.71	26.37	30	PASS

802.11n (40MHz)

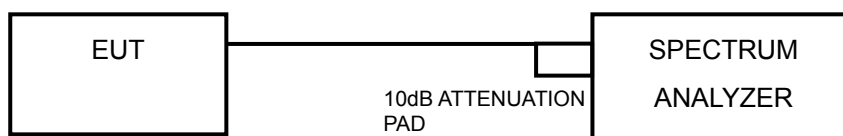
CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
3	2422	19.60	19.80	19.50	275.83	24.41	30	PASS
6	2437	20.80	20.40	19.60	321.08	25.07	30	PASS
9	2452	19.30	19.50	19.20	257.42	24.11	30	PASS

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

- Set the RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
- Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

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

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-5.24	8	PASS
6	2437	-5.34	8	PASS
11	2462	-5.92	8	PASS

802.11g

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-15.11	4.77	-10.34	4.03	PASS
	6	2437	-15.95	4.77	-11.18	4.03	PASS
	11	2462	-15.94	4.77	-11.17	4.03	PASS
1	1	2412	-15.70	4.77	-10.93	4.03	PASS
	6	2437	-15.61	4.77	-10.84	4.03	PASS
	11	2462	-15.25	4.77	-10.48	4.03	PASS
2	1	2412	-15.08	4.77	-10.31	4.03	PASS
	6	2437	-15.30	4.77	-10.53	4.03	PASS
	11	2462	-15.45	4.77	-10.68	4.03	PASS

NOTE: Directional gain = 5.2dBi + 10log(3) = 9.97dBi > 6dBi , so the power density limit shall be reduced to 8-(9.97-6) = 4.03dBm.

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-15.19	4.77	-10.42	4.03	PASS
	6	2437	-15.78	4.77	-11.01	4.03	PASS
	11	2462	-15.74	4.77	-10.97	4.03	PASS
1	1	2412	-15.66	4.77	-10.89	4.03	PASS
	6	2437	-15.55	4.77	-10.78	4.03	PASS
	11	2462	-15.29	4.77	-10.52	4.03	PASS
2	1	2412	-15.38	4.77	-10.61	4.03	PASS
	6	2437	-15.19	4.77	-10.42	4.03	PASS
	11	2462	-15.53	4.77	-10.76	4.03	PASS

NOTE: Directional gain = 5.2dBi + 10log(3) = 9.97dBi > 6dBi , so the power density limit shall be reduced to 8-(9.97-6) = 4.03dBm.

802.11n (40MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-19.94	4.77	-15.17	4.03	PASS
	6	2437	-15.68	4.77	-10.91	4.03	PASS
	9	2452	-12.72	4.77	-7.95	4.03	PASS
1	3	2422	-18.17	4.77	-13.40	4.03	PASS
	6	2437	-15.53	4.77	-10.76	4.03	PASS
	9	2452	-17.95	4.77	-13.18	4.03	PASS
2	3	2422	-16.84	4.77	-12.07	4.03	PASS
	6	2437	-15.19	4.77	-10.42	4.03	PASS
	9	2452	-17.63	4.77	-12.86	4.03	PASS

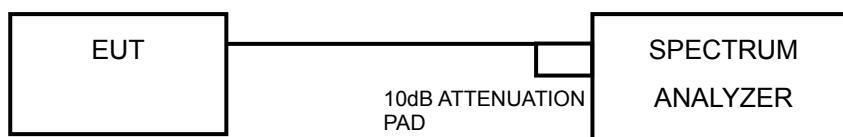
NOTE: Directional gain = 5.2dBi + 10log(3) = 9.97dBi > 6dBi , so the power density limit shall be reduced to 8-(9.97-6) = 4.03dBm.

4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION 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 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

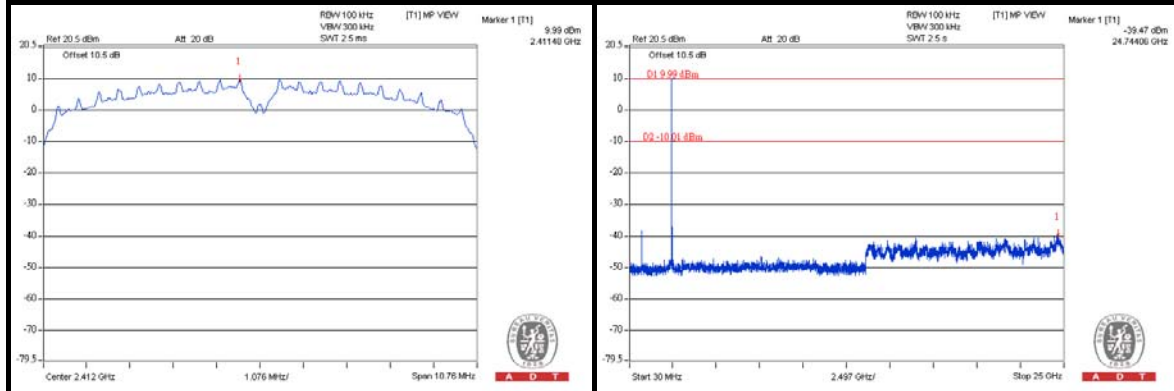
The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

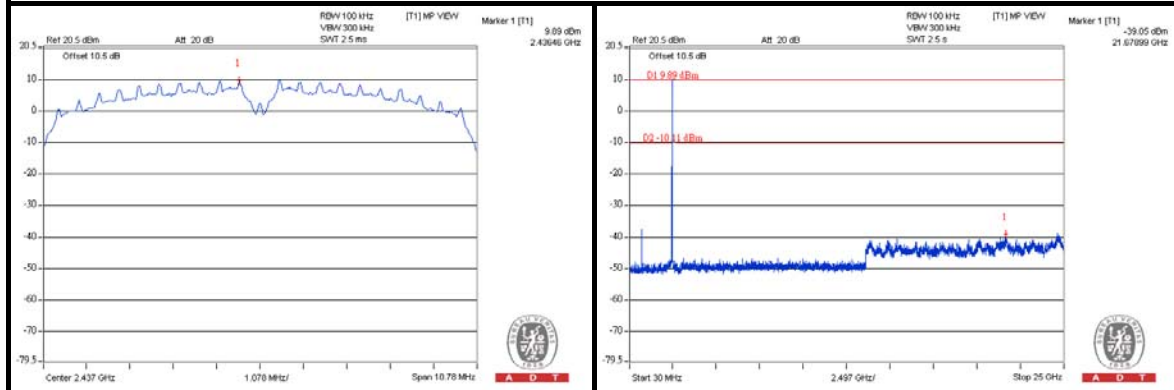
4.6.8 TEST RESULTS

802.11b

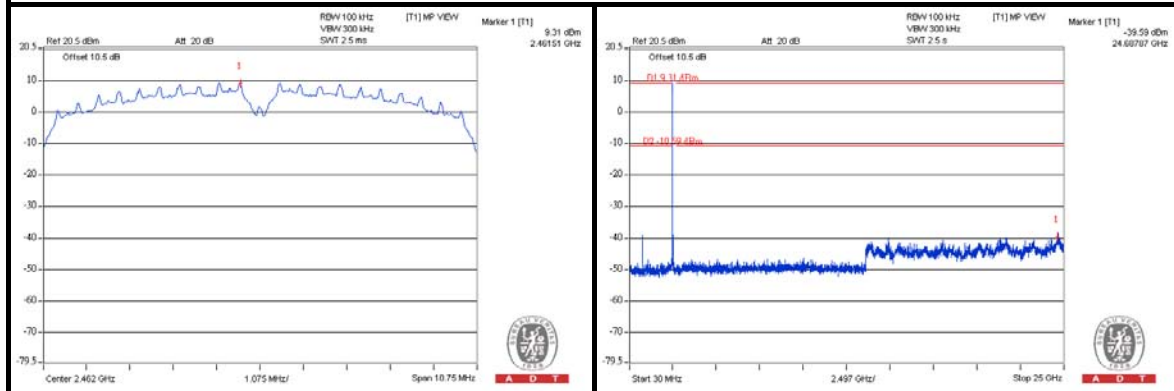
CH 1



CH 6

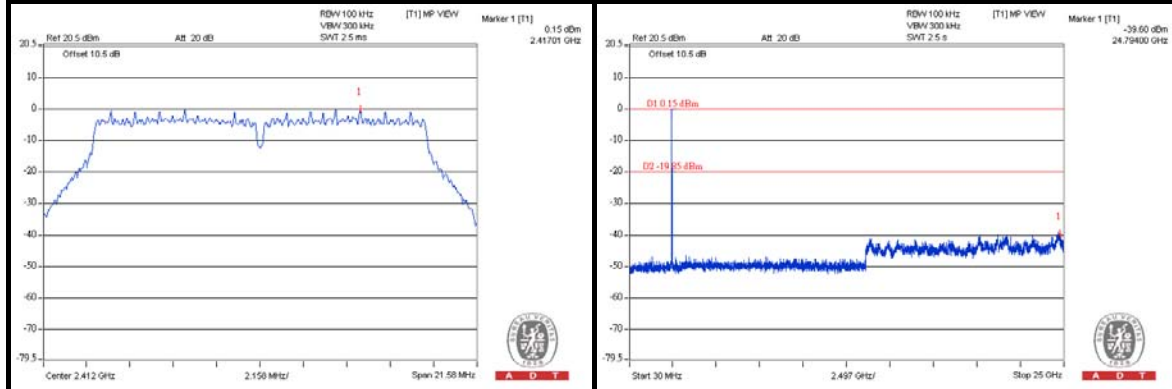


CH 11

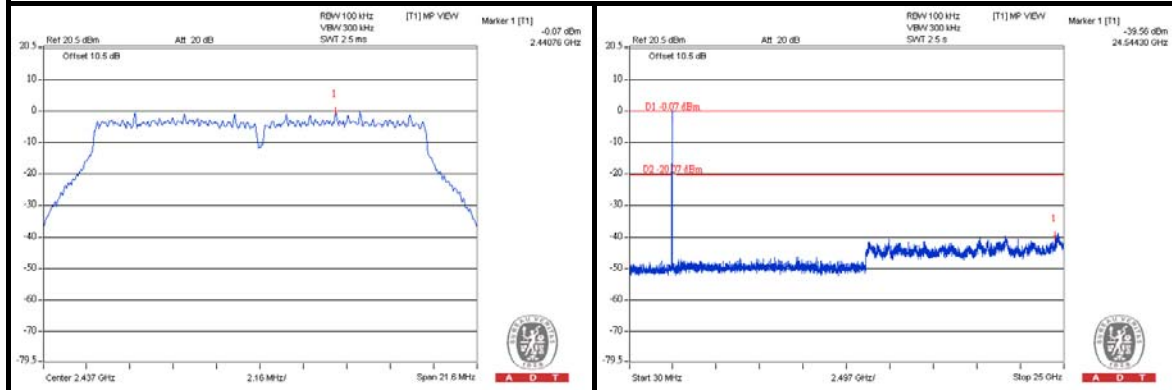


802.11g

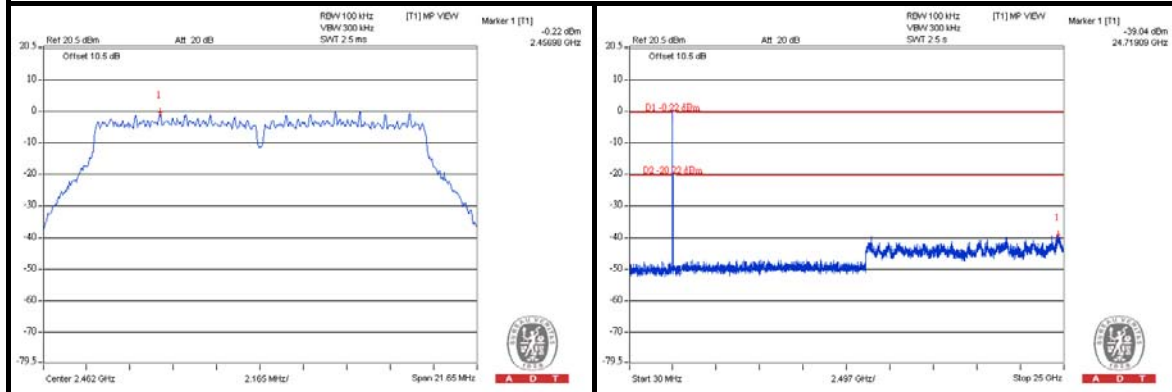
CH 1



CH 6



CH 11

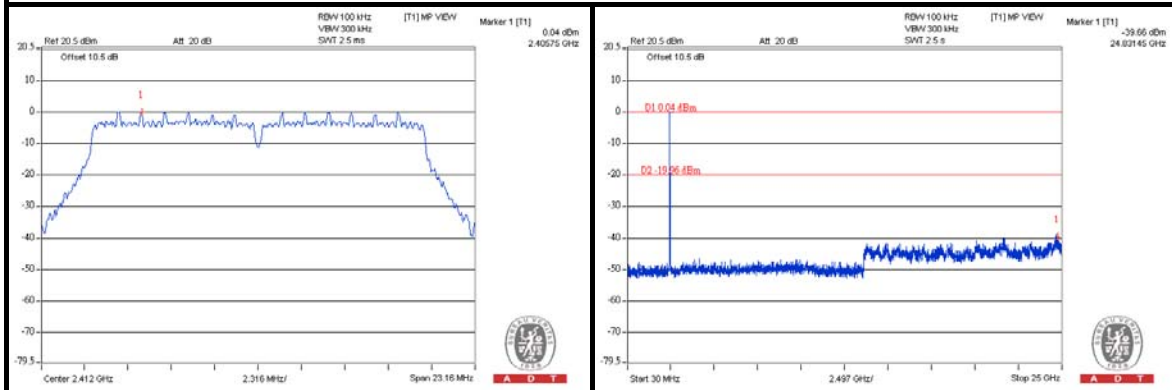




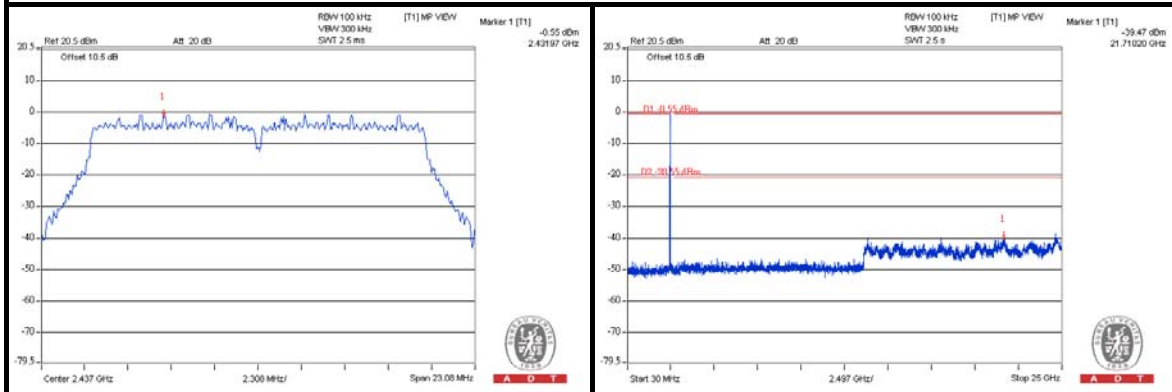
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802.11n (20MHz)

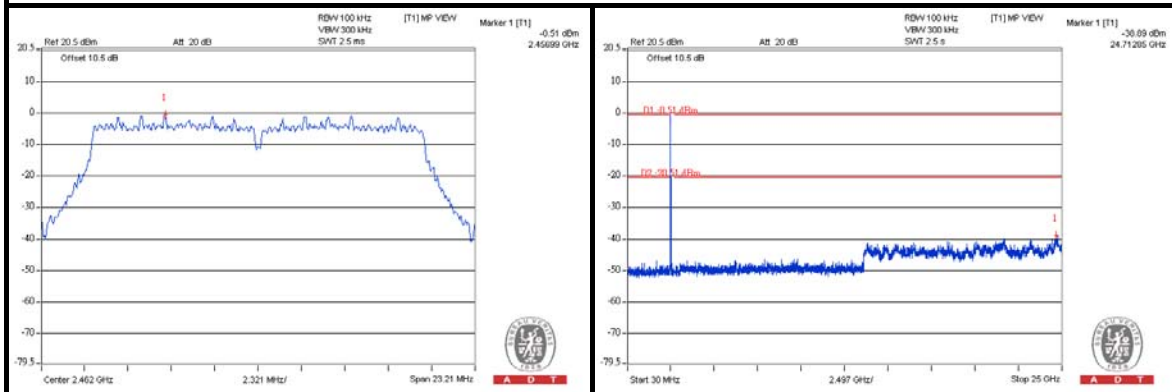
CH 1



CH 6

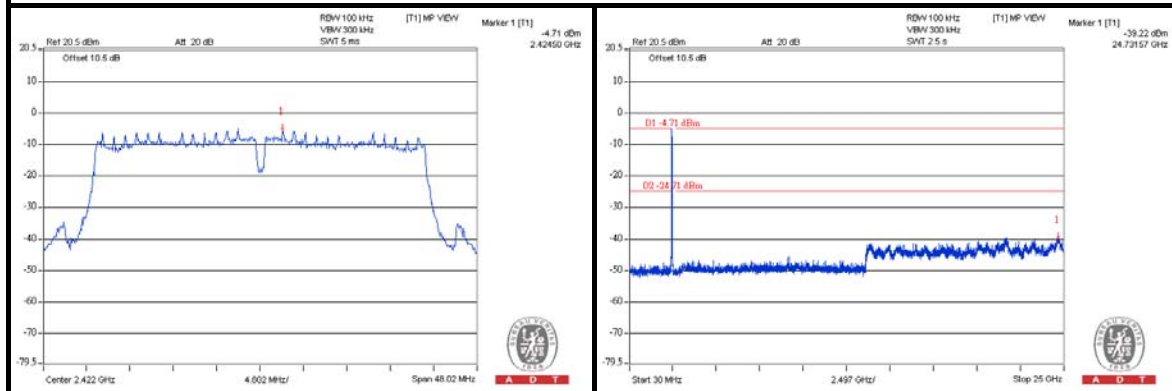


CH 11

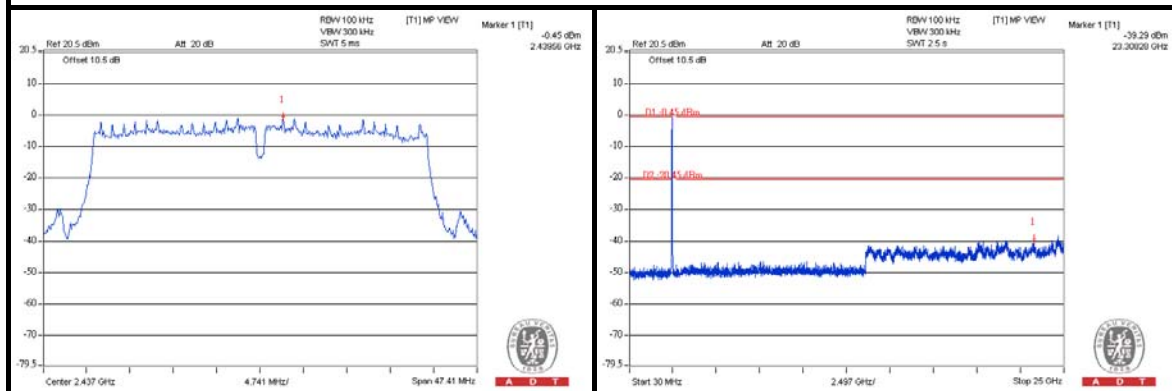


802.11n (40MHz)

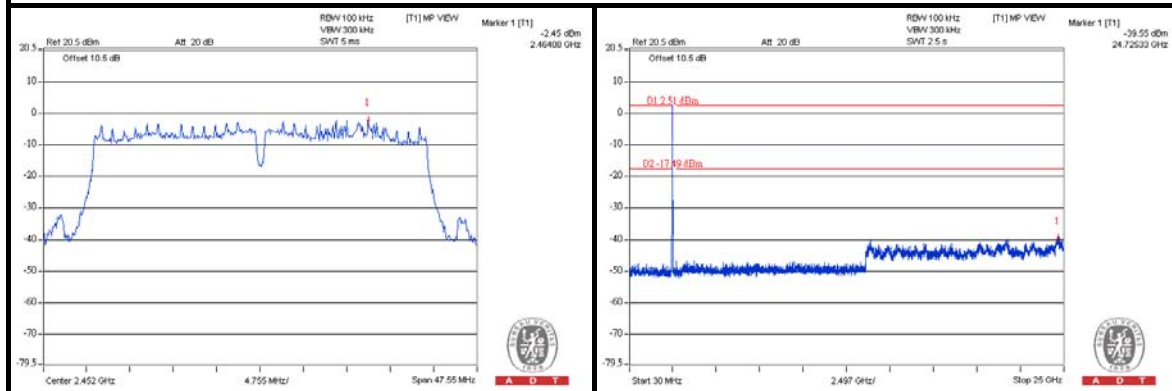
CH 3



CH 6



CH 9



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

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

5.1.2 TEST INSTRUMENTS

Same as item 4.1.2.

5.1.3 TEST PROCEDURES

Same as item 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as item 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

5.1.7 TEST RESULTS (A)

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	65.4 PK	92.7	-27.3	1.03 H	187	25.90	39.50
2	#5725.00	51.8 AV	82.1	-30.3	1.03 H	187	12.30	39.50
3	*5745.00	112.7 PK			1.03 H	187	73.10	39.60
4	*5745.00	102.1 AV			1.03 H	187	62.50	39.60
5	11490.00	62.4 PK	74.0	-11.6	1.00 H	20	10.70	51.70
6	11490.00	50.5 AV	54.0	-3.5	1.00 H	20	-1.20	51.70
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	#5725.00	66.6 PK	89.0	-22.4	1.00 V	174	27.10	39.50
2	#5725.00	48.5 AV	78.8	-30.3	1.00 V	174	9.00	39.50
3	*5745.00	109.0 PK			1.02 V	174	69.40	39.60
4	*5745.00	98.8 AV			1.02 V	174	59.20	39.60
5	11490.00	62.2 PK	74.0	-11.8	1.00 V	25	10.50	51.70
6	11490.00	49.8 AV	54.0	-4.2	1.00 V	25	-1.90	51.70

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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	*5785.00	109.8 PK			1.05 H	162	70.10	39.70
2	*5785.00	99.0 AV			1.05 H	162	59.30	39.70
3	11570.00	61.3 PK	74.0	-12.7	1.00 H	23	9.70	51.60
4	11570.00	49.1 AV	54.0	-4.9	1.00 H	23	-2.50	51.60
5	#17355.00	66.4 PK	89.8	-23.4	1.00 H	22	11.00	55.40
6	#17355.00	52.2 AV	79.0	-26.8	1.00 H	22	-3.20	55.40
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	*5785.00	109.7 PK			1.00 V	175	70.00	39.70
2	*5785.00	99.3 AV			1.00 V	175	59.60	39.70
3	11570.00	60.4 PK	74.0	-13.6	1.00 V	66	8.80	51.60
4	11570.00	48.4 AV	54.0	-5.6	1.00 V	66	-3.20	51.60
5	#17355.00	65.8 PK	89.7	-23.9	1.00 V	36	10.40	55.40
6	#17355.00	52.9 AV	79.3	-26.4	1.00 V	36	-2.50	55.40

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	*5825.00	110.7 PK			1.00 H	182	71.00	39.70
2	*5825.00	99.6 AV			1.00 H	182	59.90	39.70
3	#5850.00	57.8 PK	90.7	-32.9	1.02 H	182	18.00	39.80
4	#5850.00	44.4 AV	79.6	-35.2	1.02 H	182	4.60	39.80
5	11650.00	60.0 PK	74.0	-14.0	1.00 H	30	8.40	51.60
6	11650.00	46.8 AV	54.0	-7.2	1.00 H	30	-4.80	51.60
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	*5825.00	110.0 PK			1.02 V	172	70.30	39.70
2	*5825.00	99.4 AV			1.02 V	172	59.70	39.70
3	#5850.00	59.0 PK	90.0	-31.0	1.00 V	172	19.20	39.80
4	#5850.00	42.9 AV	79.4	-36.5	1.00 V	172	3.10	39.80
5	11650.00	59.8 PK	74.0	-14.2	1.00 V	2	8.20	51.60
6	11650.00	46.7 AV	54.0	-7.3	1.00 V	2	-4.90	51.60

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	67.5 PK	91.7	-24.2	1.00 H	160	28.00	39.50
2	#5725.00	49.4 AV	81.3	-31.9	1.00 H	160	9.90	39.50
3	*5745.00	111.7 PK			1.00 H	160	72.10	39.60
4	*5745.00	101.3 AV			1.00 H	160	61.70	39.60
5	11490.00	63.4 PK	74.0	-10.6	1.00 H	68	11.70	51.70
6	11490.00	51.8 AV	54.0	-2.2	1.00 H	68	0.10	51.70
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	#5725.00	68.3 PK	89.1	-20.8	1.12 V	189	28.80	39.50
2	#5725.00	53.0 AV	78.4	-25.4	1.12 V	189	13.50	39.50
3	*5745.00	109.1 PK			1.12 V	189	69.50	39.60
4	*5745.00	98.4 AV			1.12 V	189	58.80	39.60
5	11490.00	63.5 PK	74.0	-10.5	1.00 V	22	11.80	51.70
6	11490.00	50.2 AV	54.0	-3.8	1.00 V	22	-1.50	51.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	*5785.00	109.6 PK			1.02 H	138	69.90	39.70
2	*5785.00	98.7 AV			1.02 H	138	59.00	39.70
3	11570.00	62.4 PK	74.0	-11.6	1.00 H	34	10.80	51.60
4	11570.00	50.3 AV	54.0	-3.7	1.00 H	34	-1.30	51.60
5	#17355.00	67.5 PK	89.6	-22.1	1.00 H	159	12.10	55.40
6	#17355.00	51.6 AV	78.7	-27.1	1.00 H	159	-3.80	55.40
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	*5785.00	108.4 PK			1.00 V	152	68.70	39.70
2	*5785.00	98.5 AV			1.00 V	152	58.80	39.70
3	11570.00	61.3 PK	74.0	-12.7	1.00 V	35	9.70	51.60
4	11570.00	49.5 AV	54.0	-4.5	1.00 V	35	-2.10	51.60
5	#17355.00	66.8 PK	88.4	-21.6	1.00 V	148	11.40	55.40
6	#17355.00	51.4 AV	78.5	-27.1	1.00 V	148	-4.00	55.40

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	*5825.00	110.2 PK			1.00 H	193	70.50	39.70
2	*5825.00	99.1 AV			1.00 H	193	59.40	39.70
3	#5850.00	58.4 PK	90.2	-31.8	1.00 H	193	18.60	39.80
4	#5850.00	45.3 AV	79.1	-33.8	1.00 H	193	5.50	39.80
5	11650.00	60.3 PK	74.0	-13.7	1.00 H	39	8.70	51.60
6	11650.00	47.2 AV	54.0	-6.8	1.00 H	39	-4.40	51.60
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	*5825.00	109.8 PK			1.00 V	185	70.10	39.70
2	*5825.00	98.4 AV			1.00 V	185	58.70	39.70
3	#5850.00	59.3 PK	89.8	-30.5	1.00 V	185	19.50	39.80
4	#5850.00	43.4 AV	78.4	-35.0	1.00 V	185	3.60	39.80
5	11650.00	60.5 PK	74.0	-13.5	1.00 V	9	8.90	51.60
6	11650.00	47.4 AV	54.0	-6.6	1.00 V	9	-4.20	51.60

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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	70.0 PK	88.7	-18.7	1.04 H	173	30.50	39.50
2	#5725.00	56.3 AV	78.0	-21.7	1.04 H	173	16.80	39.50
3	*5755.00	108.7 PK			1.04 H	173	69.10	39.60
4	*5755.00	98.0 AV			1.04 H	173	58.40	39.60
5	11510.00	60.8 PK	74.0	-13.2	1.00 H	32	9.10	51.70
6	11510.00	49.4 AV	54.0	-4.6	1.00 H	32	-2.30	51.70
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	#5725.00	71.1 PK	86.8	-15.7	1.00 V	204	31.60	39.50
2	#5725.00	56.9 AV	76.2	-19.3	1.00 V	204	17.40	39.50
3	*5755.00	106.8 PK			1.00 V	204	67.20	39.60
4	*5755.00	96.2 AV			1.00 V	204	56.60	39.60
5	11510.00	62.3 PK	74.0	-11.7	1.00 V	32	10.60	51.70
6	11510.00	49.4 AV	54.0	-4.6	1.00 V	32	-2.30	51.70

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 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 75%RH	TESTED BY	Antony Lee

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	*5795.00	108.7 PK			1.04 H	188	69.00	39.70
2	*5795.00	99.0 AV			1.04 H	188	59.30	39.70
3	#5850.00	52.6 PK	88.7	-36.1	1.04 H	188	12.80	39.80
4	#5850.00	41.7 AV	79.0	-37.3	1.04 H	188	1.90	39.80
5	11590.00	62.4 PK	74.0	-11.6	1.00 H	66	10.90	51.50
6	11590.00	50.3 AV	54.0	-3.7	1.00 H	66	-1.20	51.50
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	*5795.00	105.7 PK			1.02 V	177	66.00	39.70
2	*5795.00	96.0 AV			1.02 V	177	56.30	39.70
3	#5850.00	52.3 PK	85.7	-33.4	1.00 V	177	12.50	39.80
4	#5850.00	40.8 AV	76.0	-35.2	1.00 V	177	1.00	39.80
5	11590.00	63.4 PK	74.0	-10.6	1.00 V	42	11.90	51.50
6	11590.00	50.7 AV	54.0	-3.3	1.00 V	42	-0.80	51.50

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Cedric Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	198.71	27.4 QP	43.5	-16.1	1.25 H	7	16.50	10.90
2	284.09	26.7 QP	46.0	-19.3	1.50 H	349	12.50	14.20
3	435.44	25.2 QP	46.0	-20.8	1.75 H	262	7.20	18.00
4	579.03	27.8 QP	46.0	-18.2	1.50 H	349	6.70	21.10
5	800.24	36.5 QP	46.0	-9.5	1.00 H	119	11.90	24.60
6	901.14	27.1 QP	46.0	-18.9	1.50 H	177	1.30	25.80
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	57.07	32.5 QP	40.0	-7.5	1.25 V	278	18.90	13.60
2	284.09	21.5 QP	46.0	-24.5	1.00 V	154	7.30	14.20
3	499.48	25.0 QP	46.0	-21.0	1.00 V	218	5.50	19.50
4	596.50	24.6 QP	46.0	-21.4	1.75 V	238	3.10	21.50
5	800.24	32.6 QP	46.0	-13.4	1.50 V	116	8.00	24.60
6	885.62	26.5 QP	46.0	-19.5	1.00 V	10	0.90	25.60

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.

5.1.8 TEST RESULTS (B)

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	61.5 PK	85.2	-23.7	1.00 H	343	22.00	39.50
2	#5725.00	48.7 AV	74.7	-26.0	1.00 H	343	9.20	39.50
3	*5745.00	105.2 PK			1.02 H	343	65.60	39.60
4	*5745.00	94.7 AV			1.02 H	343	55.10	39.60
5	11490.00	61.5 PK	74.0	-12.5	1.00 H	23	9.80	51.70
6	11490.00	49.4 AV	54.0	-4.6	1.00 H	23	-2.30	51.70
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	#5725.00	72.5 PK	90.7	-18.2	1.00 V	14	33.00	39.50
2	#5725.00	55.3 AV	80.7	-25.4	1.00 V	14	15.80	39.50
3	*5745.00	110.7 PK			1.02 V	14	71.10	39.60
4	*5745.00	100.7 AV			1.02 V	14	61.10	39.60
5	11490.00	63.4 PK	74.0	-10.6	1.00 V	32	11.70	51.70
6	11490.00	49.3 AV	54.0	-4.7	1.00 V	32	-2.40	51.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	*5785.00	106.1 PK			1.55 H	342	66.40	39.70
2	*5785.00	95.7 AV			1.55 H	342	56.00	39.70
3	11570.00	61.0 PK	74.0	-13.0	1.00 H	68	9.40	51.60
4	11570.00	47.4 AV	54.0	-6.6	1.00 H	68	-4.20	51.60
5	#17355.00	65.5 PK	86.1	-20.6	1.00 H	23	10.10	55.40
6	#17355.00	51.6 AV	75.7	-24.1	1.00 H	23	-3.80	55.40
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	*5785.00	109.7 PK			1.02 V	14	70.00	39.70
2	*5785.00	99.2 AV			1.02 V	14	59.50	39.70
3	11570.00	62.0 PK	74.0	-12.0	1.00 V	125	10.40	51.60
4	11570.00	48.0 AV	54.0	-6.0	1.00 V	125	-3.60	51.60
5	#17355.00	66.6 PK	89.7	-23.1	1.00 V	158	11.20	55.40
6	#17355.00	51.9 AV	79.2	-27.3	1.00 V	158	-3.50	55.40

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	*5825.00	105.6 PK			1.29 H	339	65.90	39.70
2	*5825.00	94.4 AV			1.29 H	339	54.70	39.70
3	#5850.00	56.8 PK	85.6	-28.8	1.29 H	341	17.00	39.80
4	#5850.00	39.8 AV	74.4	-34.6	1.29 H	341	0.00	39.80
5	11650.00	65.2 PK	74.0	-8.8	1.00 H	114	13.60	51.60
6	11650.00	51.3 AV	54.0	-2.7	1.00 H	114	-0.30	51.60
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	*5825.00	111.0 PK			1.00 V	270	71.30	39.70
2	*5825.00	99.1 AV			1.00 V	270	59.40	39.70
3	#5850.00	62.1 PK	91.0	-28.9	1.00 V	270	22.30	39.80
4	#5850.00	44.1 AV	79.1	-35.0	1.00 V	270	4.30	39.80
5	11650.00	64.2 PK	74.0	-9.8	1.00 V	38	12.60	51.60
6	11650.00	50.3 AV	54.0	-3.7	1.00 V	38	-1.30	51.60

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

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	69.5 PK	85.9	-16.4	1.56 H	351	30.00	39.50
2	#5725.00	49.9 AV	75.5	-25.6	1.56 H	351	10.40	39.50
3	*5745.00	105.9 PK			1.56 H	351	66.30	39.60
4	*5745.00	95.5 AV			1.56 H	351	55.90	39.60
5	11490.00	61.9 PK	74.0	-12.1	1.00 H	124	10.20	51.70
6	11490.00	50.1 AV	54.0	-3.9	1.00 H	124	-1.60	51.70
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	#5725.00	76.3 PK	89.8	-13.5	1.01 V	3	36.80	39.50
2	#5725.00	55.1 AV	79.7	-24.6	1.01 V	3	15.60	39.50
3	*5745.00	109.8 PK			1.01 V	3	70.20	39.60
4	*5745.00	99.7 AV			1.01 V	3	60.10	39.60
5	11490.00	64.2 PK	74.0	-9.8	1.00 V	36	12.50	51.70
6	11490.00	50.7 AV	54.0	-3.3	1.00 V	36	-1.00	51.70

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	*5785.00	105.4 PK			1.56 H	347	65.70	39.70
2	*5785.00	94.3 AV			1.56 H	347	54.60	39.70
3	11570.00	61.5 PK	74.0	-12.5	1.00 H	352	9.90	51.60
4	11570.00	48.4 AV	54.0	-5.6	1.00 H	352	-3.20	51.60
5	#17355.00	65.6 PK	85.4	-19.8	1.00 H	247	10.20	55.40
6	#17355.00	51.1 AV	74.3	-23.2	1.00 H	247	-4.30	55.40
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	*5785.00	109.3 PK			1.00 V	2	69.60	39.70
2	*5785.00	98.9 AV			1.00 V	2	59.20	39.70
3	11570.00	62.3 PK	74.0	-11.7	1.00 V	124	10.70	51.60
4	11570.00	48.5 AV	54.0	-5.5	1.00 V	124	-3.10	51.60
5	#17355.00	67.3 PK	89.3	-22.0	1.02 V	155	11.90	55.40
6	#17355.00	51.4 AV	78.9	-27.5	1.02 V	155	-4.00	55.40

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	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	*5825.00	104.2 PK			1.57 H	340	64.50	39.70
2	*5825.00	93.0 AV			1.57 H	340	53.30	39.70
3	#5850.00	56.7 PK	84.2	-27.5	1.00 H	353	16.90	39.80
4	#5850.00	40.8 AV	73.0	-32.2	1.00 H	353	1.00	39.80
5	11650.00	66.5 PK	74.0	-7.5	1.00 H	139	14.90	51.60
6	11650.00	51.1 AV	54.0	-2.9	1.00 H	139	-0.50	51.60
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	*5825.00	109.4 PK			1.02 V	3	69.70	39.70
2	*5825.00	98.5 AV			1.02 V	3	58.80	39.70
3	#5850.00	63.2 PK	89.4	-26.2	1.02 V	3	23.40	39.80
4	#5850.00	44.6 AV	78.5	-33.9	1.02 V	3	4.80	39.80
5	11650.00	65.3 PK	74.0	-8.7	1.00 V	33	13.70	51.60
6	11650.00	51.4 AV	54.0	-2.6	1.00 V	33	-0.20	51.60

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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	65.0 PK	83.5	-18.5	1.31 H	342	25.50	39.50
2	#5725.00	50.3 AV	73.1	-22.8	1.31 H	342	10.80	39.50
3	*5755.00	103.5 PK			1.31 H	342	63.90	39.60
4	*5755.00	93.1 AV			1.31 H	342	53.50	39.60
5	11510.00	60.7 PK	74.0	-13.3	1.00 H	360	9.00	51.70
6	11510.00	49.1 AV	54.0	-4.9	1.00 H	360	-2.60	51.70
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	#5725.00	73.6 PK	88.5	-14.9	1.02 V	15	34.10	39.50
2	#5725.00	58.5 AV	78.5	-20.0	1.02 V	15	19.00	39.50
3	*5755.00	108.5 PK			1.00 V	15	68.90	39.60
4	*5755.00	98.5 AV			1.00 V	15	58.90	39.60
5	11510.00	62.5 PK	74.0	-11.5	1.00 V	23	10.80	51.70
6	11510.00	49.7 AV	54.0	-4.3	1.00 V	23	-2.00	51.70

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 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 72%RH	TESTED BY	Antony Lee

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	*5795.00	101.3 PK			1.58 H	343	61.60	39.70
2	*5795.00	90.9 AV			1.58 H	343	51.20	39.70
3	#5850.00	49.1 PK	81.3	-32.2	1.58 H	343	9.30	39.80
4	#5850.00	37.6 AV	70.9	-33.3	1.58 H	343	-2.20	39.80
5	11590.00	60.4 PK	74.0	-13.6	1.23 H	23	8.90	51.50
6	11590.00	47.4 AV	54.0	-6.6	1.23 H	23	-4.10	51.50
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	*5795.00	106.4 PK			1.02 V	23	66.70	39.70
2	*5795.00	96.8 AV			1.02 V	23	57.10	39.70
3	#5850.00	52.6 PK	86.4	-33.8	1.00 V	23	12.80	39.80
4	#5850.00	40.8 AV	76.8	-36.0	1.00 V	23	1.00	39.80
5	11590.00	61.0 PK	74.0	-13.0	1.00 V	254	9.50	51.50
6	11590.00	47.4 AV	54.0	-6.6	1.00 V	254	-4.10	51.50

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 66%RH	TESTED BY	Cedric Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	194.83	32.3 QP	43.5	-11.2	1.24 H	187	21.00	11.30
2	282.15	30.9 QP	46.0	-15.1	1.00 H	11	16.80	14.10
3	400.52	33.2 QP	46.0	-12.8	1.00 H	21	16.10	17.10
4	600.38	38.9 QP	46.0	-7.1	1.24 H	196	17.30	21.60
5	676.05	37.6 QP	46.0	-8.4	1.00 H	184	15.60	22.00
6	800.24	37.9 QP	46.0	-8.1	1.00 H	159	13.30	24.60
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	41.50	33.0 QP	40.0	-7.0	1.25 V	306	19.20	13.80
2	57.07	30.0 QP	40.0	-10.0	1.00 V	148	16.40	13.60
3	154.09	27.3 QP	43.5	-16.2	1.00 V	14	13.30	14.00
4	400.52	33.5 QP	46.0	-12.5	1.74 V	101	16.40	17.10
5	676.05	37.0 QP	46.0	-9.0	1.74 V	70	15.00	22.00
6	800.24	32.6 QP	46.0	-13.4	1.50 V	115	8.00	24.60
7	920.54	34.5 QP	46.0	-11.5	1.50 V	207	8.60	25.90

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.

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
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

Same as item 4.2.2.

5.2.3 TEST PROCEDURES

Same as item 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as item 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

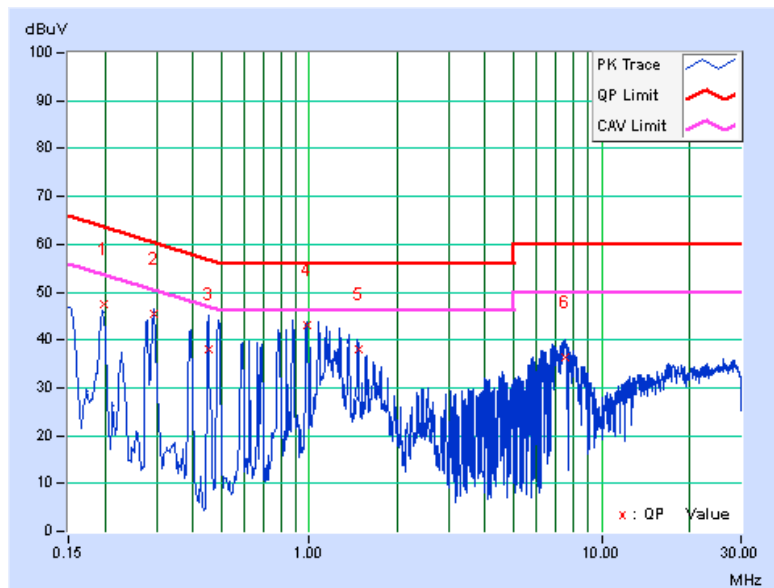
5.2.7 TEST RESULTS (A)

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

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19717	0.22	47.16	44.30	47.38	44.52	63.73	53.73	-16.35	-9.21
2	0.29274	0.23	45.16	44.69	45.39	44.92	60.45	50.45	-15.06	-5.53
3	0.45097	0.25	37.94	18.06	38.19	18.31	56.86	46.86	-18.67	-28.55
4	0.97854	0.31	42.72	41.66	43.03	41.97	56.00	46.00	-12.97	-4.03
5	1.46767	0.32	37.65	35.14	37.97	35.46	56.00	46.00	-18.03	-10.54
6	7.46561	0.49	35.78	16.93	36.27	17.42	60.00	50.00	-23.73	-32.58

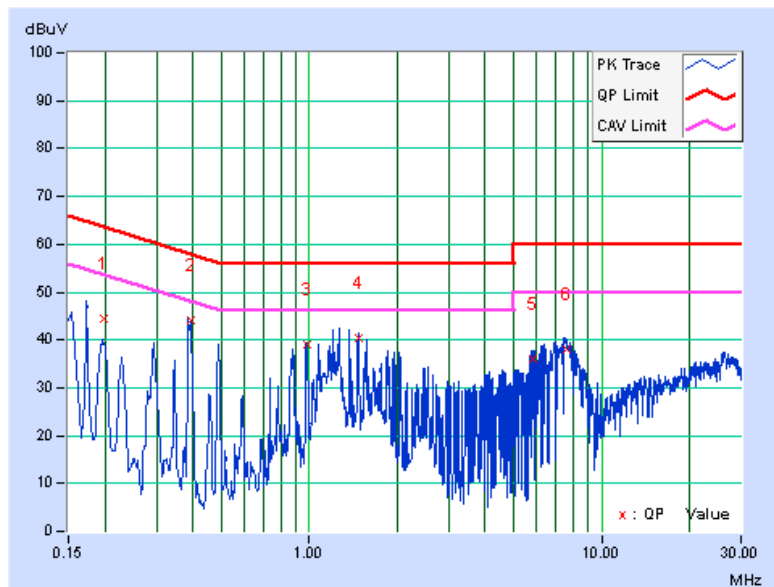
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19750	0.20	44.11	39.60	44.31	39.80	63.72	53.72	-19.40	-13.91
2	0.39219	0.22	43.74	43.17	43.96	43.39	58.02	48.02	-14.06	-4.63
3	0.97854	0.27	38.69	37.57	38.96	37.84	56.00	46.00	-17.04	-8.16
4	1.46826	0.29	39.97	37.00	40.26	37.29	56.00	46.00	-15.74	-8.71
5	5.79213	0.48	35.52	20.08	36.00	20.56	60.00	50.00	-24.00	-29.44
6	7.56336	0.54	37.51	19.50	38.05	20.04	60.00	50.00	-21.95	-29.96

- 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

Same as item 4.3.2.

5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

Same as item 4.3.4.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

Same as item 4.3.6.

5.3.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
149	5745	16.57	16.70	16.69	0.5	PASS
157	5785	16.71	16.60	16.63	0.5	PASS
165	5825	16.67	16.68	16.58	0.5	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
149	5745	17.82	17.80	17.88	0.5	PASS
157	5785	17.83	17.84	17.83	0.5	PASS
165	5825	17.84	17.80	17.83	0.5	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
151	5755	36.74	36.69	36.56	0.5	PASS
159	5795	36.81	36.83	36.52	0.5	PASS

5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

5.4.2 TEST SETUP

Same as Item 4.4.2.

5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

Same as Item 4.4.4.

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)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
149	5745	21.00	20.30	20.10	335.37	25.26	30	PASS
157	5785	20.50	20.00	20.20	316.91	25.01	30	PASS
165	5825	20.70	21.00	20.40	353.03	25.48	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
149	5745	21.70	21.40	20.60	400.76	26.03	30	PASS
157	5785	21.30	21.50	20.80	396.38	25.98	30	PASS
165	5825	21.40	21.50	20.90	402.32	26.05	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
151	5755	21.60	20.80	20.10	367.10	25.65	30	PASS
159	5795	21.70	20.90	20.20	375.65	25.75	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

Same as item 4.5.2.

5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

Same as item 4.5.4.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

5.5.7 TEST RESULTS

802.11a

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-12.45	4.77	-7.68	3.43	PASS
	157	5785	-12.72	4.77	-7.95	3.43	PASS
	165	5825	-12.71	4.77	-7.94	3.43	PASS
1	149	5745	-14.20	4.77	-9.43	3.43	PASS
	157	5785	-14.27	4.77	-9.50	3.43	PASS
	165	5825	-14.29	4.77	-9.52	3.43	PASS
2	149	5745	-13.74	4.77	-8.97	3.43	PASS
	157	5785	-13.66	4.77	-8.89	3.43	PASS
	165	5825	-13.77	4.77	-9.00	3.43	PASS

NOTE: Directional gain = 5.8dBi + 10log(3) = 10.57dBi > 6dBi , so the power density limit shall be reduced to 8-(10.57-6) = 3.43dBm.

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-13.00	4.77	-8.23	3.43	PASS
	157	5785	-12.80	4.77	-8.03	3.43	PASS
	165	5825	-12.79	4.77	-8.02	3.43	PASS
1	149	5745	-14.14	4.77	-9.37	3.43	PASS
	157	5785	-14.30	4.77	-9.53	3.43	PASS
	165	5825	-14.38	4.77	-9.61	3.43	PASS
2	149	5745	-13.76	4.77	-8.99	3.43	PASS
	157	5785	-13.97	4.77	-9.20	3.43	PASS
	165	5825	-13.92	4.77	-9.15	3.43	PASS

NOTE: Directional gain = 5.8dBi + 10log(3) = 10.57dBi > 6dBi , so the power density limit shall be reduced to 8-(10.57-6) = 3.43dBm.

802.11n (40MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=3) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-14.65	4.77	-9.88	3.43	PASS
	159	5795	-14.83	4.77	-10.06	3.43	PASS
1	151	5755	-16.81	4.77	-12.04	3.43	PASS
	159	5795	-16.56	4.77	-11.79	3.43	PASS
2	151	5755	-15.33	4.77	-10.56	3.43	PASS
	159	5795	-15.55	4.77	-10.78	3.43	PASS

NOTE: Directional gain = 5.8dBi + 10log(3) = 10.57dBi > 6dBi , so the power density limit shall be reduced to 8-(10.57-6) = 3.43dBm.

5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

5.6.2 TEST SETUP

Same as Item 4.6.2

5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

Same as Item 4.6.4

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

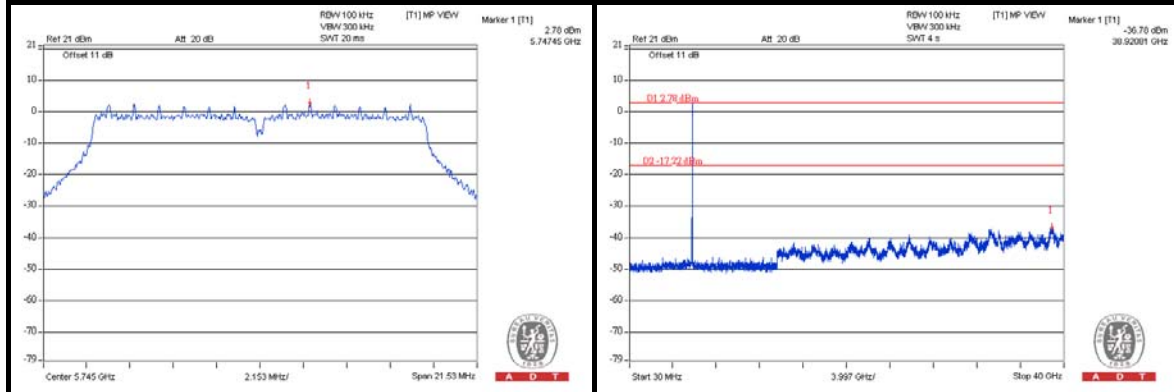
5.6.7 TEST RESULTS

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.

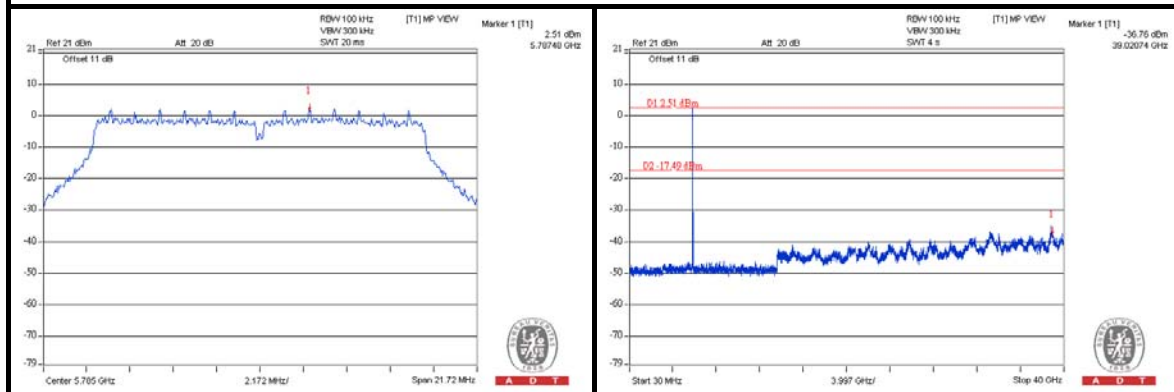
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11a

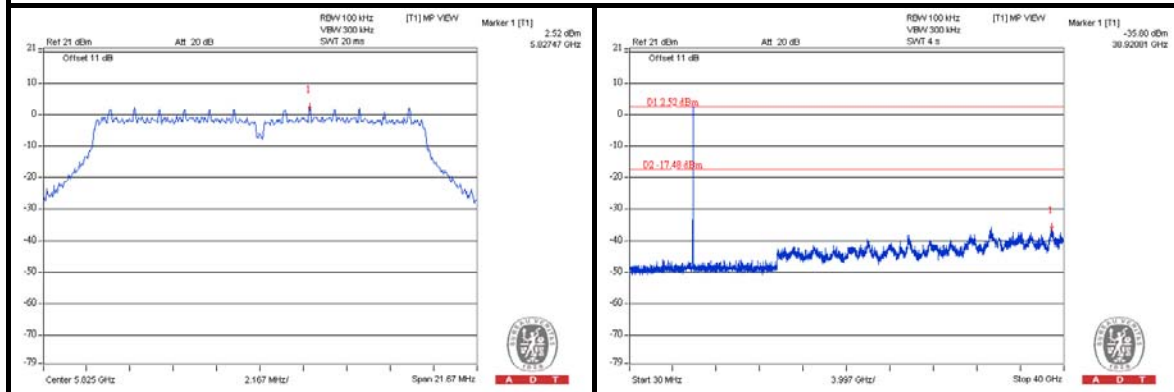
CH 149



CH 157

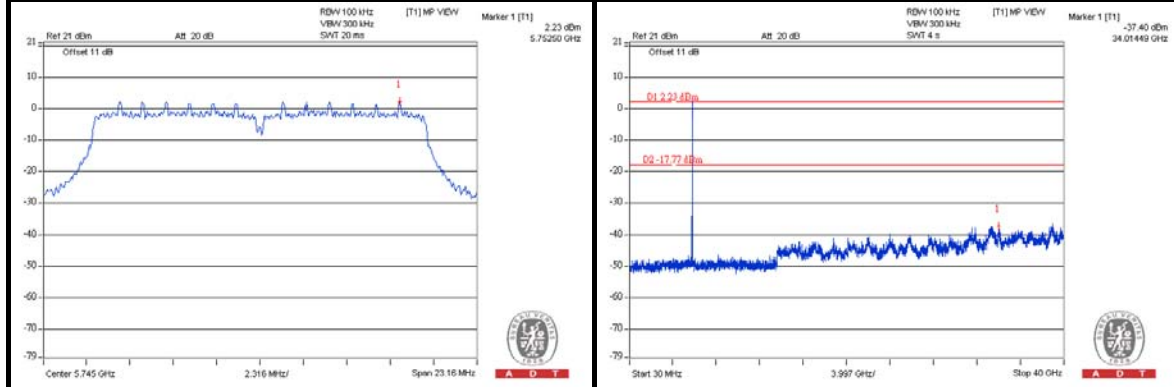


CH 165

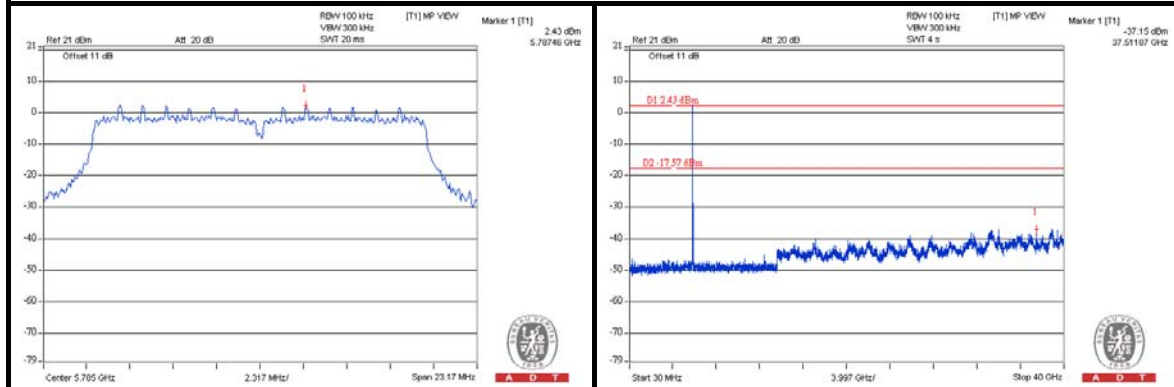


802.11n (20MHz)

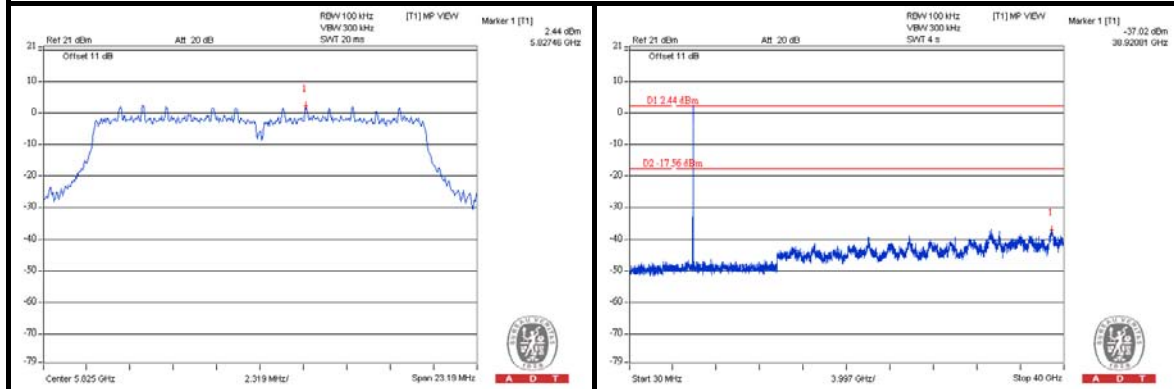
CH 149



CH 157



CH 165

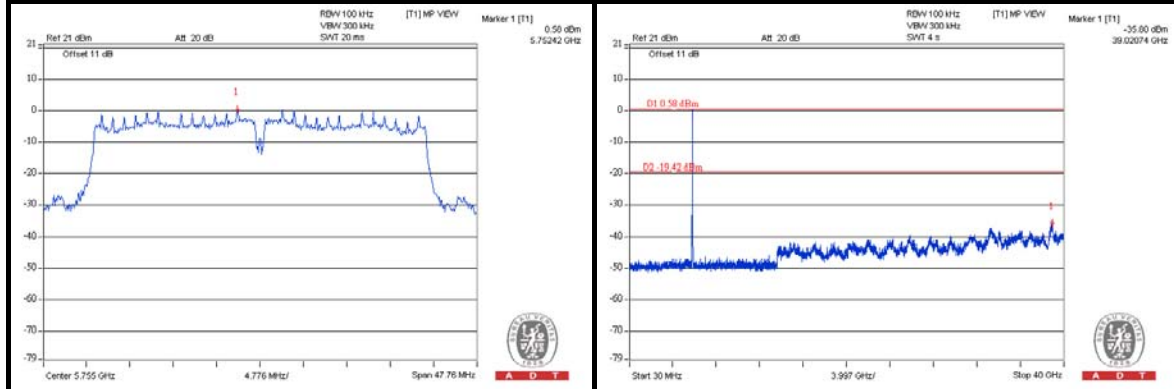




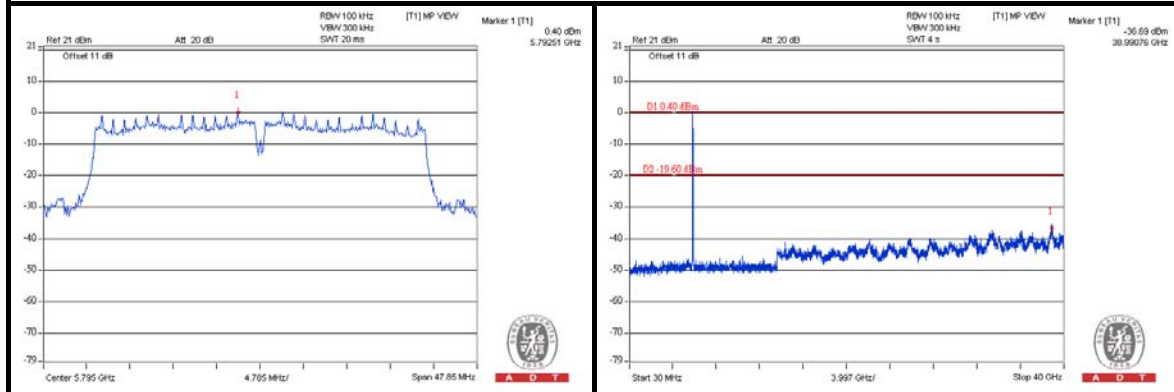
A D T

802.11n (40MHz)

CH 151



CH 159





A D T

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



A D T

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.

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

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Web Site: www.bureauveritas-adt.com

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---