FCC TEST REPORT (15.407)

REPORT NO.:	RF130715C31-1
MODEL NO.:	I-241W-U
FCC ID:	H8N-RTF3026VWD25
RECEIVED:	Jul. 15, 2013
TESTED:	Aug. 02 ~ Aug. 15, 2013
ISSUED:	Aug. 19, 2013

APPLICANT:	Askey Computer Corp
ADDRESS:	10F, No. 119, Chienkang Rd Chung-Ho, Taipei 235, Taiwan

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

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

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130715C31-1	Original release	Aug. 19, 2013

1. CERTIFICATION

PRODUCT: GPON ONT
MODEL: I-241W-U
BRAND: Alcatel-Lucent
APPLICANT: Askey Computer Corp
TESTED: Aug. 02 ~ Aug. 15, 2013
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.10-2009

The above equipment (model: I-241W-U) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ **, DATE :** Aug. 19, 2013
Maggie Wu / Specialist

APPROVED BY : _____ **, DATE :** Aug. 19, 2013
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -12.29dB at 0.18125MHz.
15.407(b/1/2/3)(b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5150.00MHz.
15.407(a/1/2)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

2.1 MEASUREMENT UNCERTAINTY

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

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	GPON ONT
MODEL NO.	I-241W-U
POWER SUPPLY	12Vdc from adapter
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz
NUMBER OF CHANNEL	4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	48.738mW
ANTENNA TYPE	Refer to NOTE 2 as below
ANTENNA CONNECTOR	NA
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

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

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

2. The information of antenna is presented as below.

ANTENNA	TYPE	GAIN (dBi)	
		2.4G	5G
Ant. 0	Printed	NA	3.29
Ant. 1	Printed	3.35	4.38
Ant. 2	Printed	2.54	NA

3. The EUT consumes power from the following adapter.

BRAND:	Sunny
MODEL:	SYS1462-3012-T3
INPUT:	100-240Vac, 50-60Hz, 1.0A MAX
OUTPUT:	12Vdc, 2.5A, 30W MAX
POWER LINE:	DC 1.5m non-shielded cable w/o core

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190MHz	46	5230MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

NOTE:
The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane.**

RADIATED EMISSIONS 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)	TX Function
-	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	1TX
-	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5	1TX
-	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0	2TX

RADIATED EMISSIONS 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)	TX Function
-	802.11n (40MHz)	38 to 46	46	OFDM	BPSK	15.0	2TX

POWER LINE CONDUCTED EMISSIONS TEST:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX Function
-	802.11n (40MHz)	38 to 46	46	OFDM	BPSK	15.0	2TX

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)	TX Function
-	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	1TX
-	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5	1TX
-	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2	2TX
-	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0	2TX

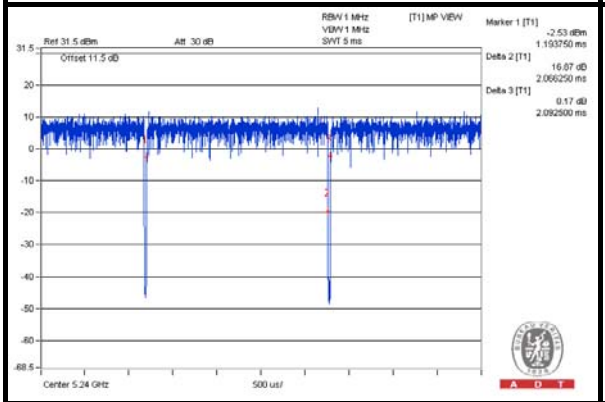
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 64%RH	120Vac, 60Hz	Brad Tung
RE<1G	23deg. C, 64%RH	120Vac, 60Hz	Brad Tung
PLC	23deg. C, 65%RH	120Vac, 60Hz	Brad Tung
APCM	25deg. C, 60%RH	120Vac, 60Hz	Frank Liu

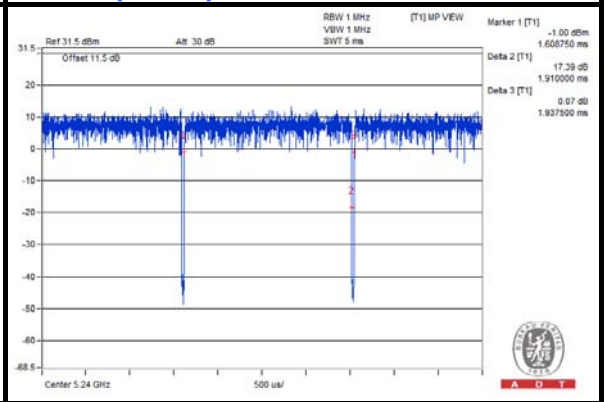
3.3 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is > 98 %, duty factor is not required.

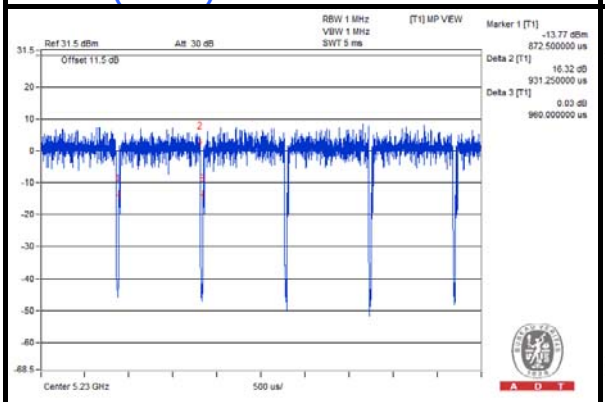
802.11a



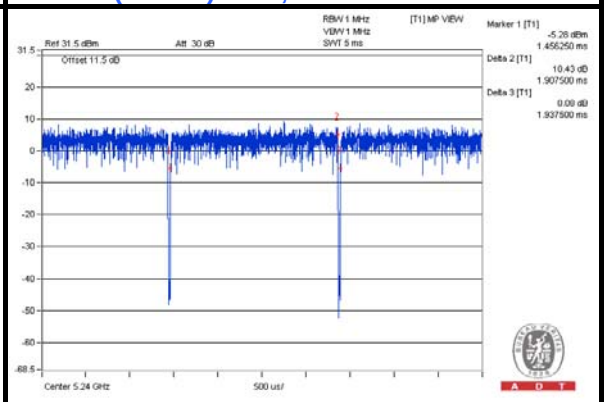
802.11n (20MHz): 1TX



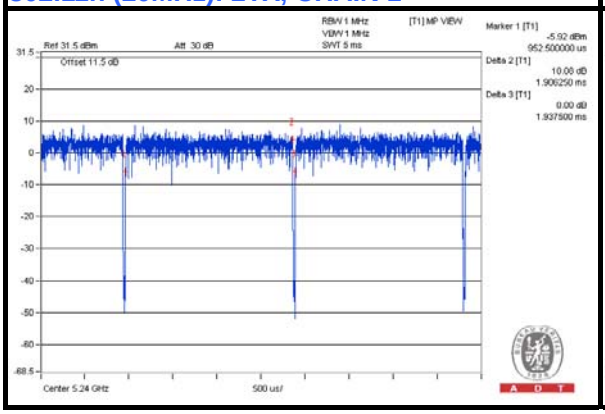
802.11n (40MHz): 1TX



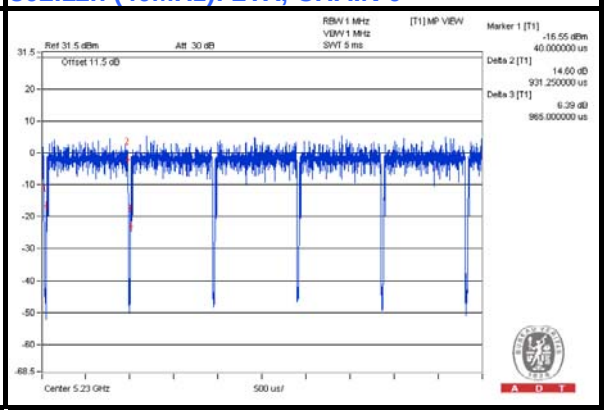
802.11n (20MHz): 2TX, CHAIN 0

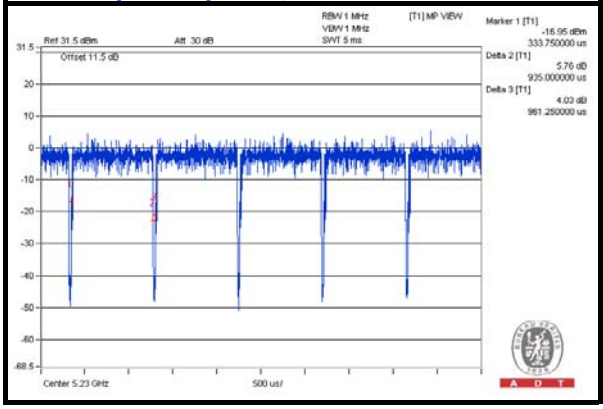


802.11n (20MHz): 2TX, CHAIN 1



802.11n (40MHz): 2TX, CHAIN 0



802.11n (40MHz): 2TX, CHAIN 1	
	

3.4 DESCRIPTION OF SUPPORT UNITS

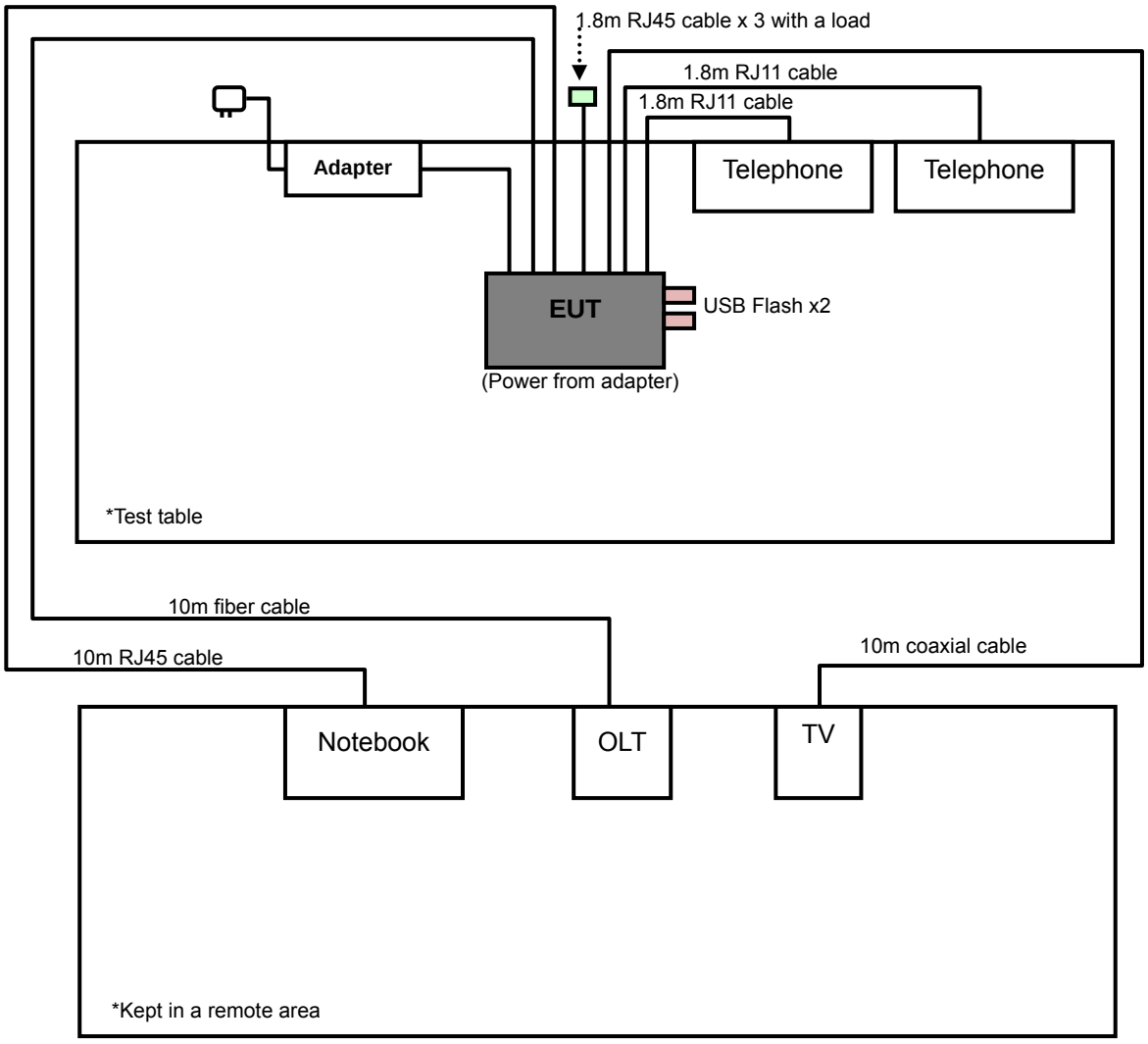
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	JETFLASH V85 4GB	Transcend	V85	569992-8209	FCC DoC Approved
2	JETFLASH V85 4GB	Transcend	V85	569992-8208	FCC DoC Approved
3	TELEPHONE	WONDER	NA	NA	NA
4	TELEPHONE	WONDER	NA	NA	NA
5	NOTEBOOK	DELL	D600	CN-0G5152-48643-47H-7674	FCC DoC Approved
6	TV	SONY	NA	NA	NA
7	OLT	Broad Light	BL4300	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	1.8m non-shielded RJ11 cable
4	1.8m non-shielded RJ11 cable
5	10m non-shielded RJ45 cable
6	10m coaxial cable
7	10m fiber cable

NOTE:
1. All power cords of the above support units are non-shielded (1.8m).
2. Items 5-7 acted as communication partners to transfer data.
3. Item 7 was provided by the manufacturer.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



3.5 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 E (15.407)
789033 D01 General UNII Test Procedures v01 r03
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

4.1 RADIATED EMISSIONS AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSIONS AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
√	FIELD STRENGTH AT 3m (dBμV/m)	
	PK	AV
	74	54
	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m)
	PK	PK
	-27	68.3

NOTE: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Mar. 22, 2013	Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2012	Aug. 10, 2013
			Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0824012	Aug. 22, 2012	Aug. 21, 2013
Power Sensor	MA2411B	0738171	Jul. 29, 2013	Jul. 28, 2014
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 10, 2013	Jun. 09, 2014

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 9.
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 215374.
6. The IC Site Registration No. is IC 7450F-9.

4.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

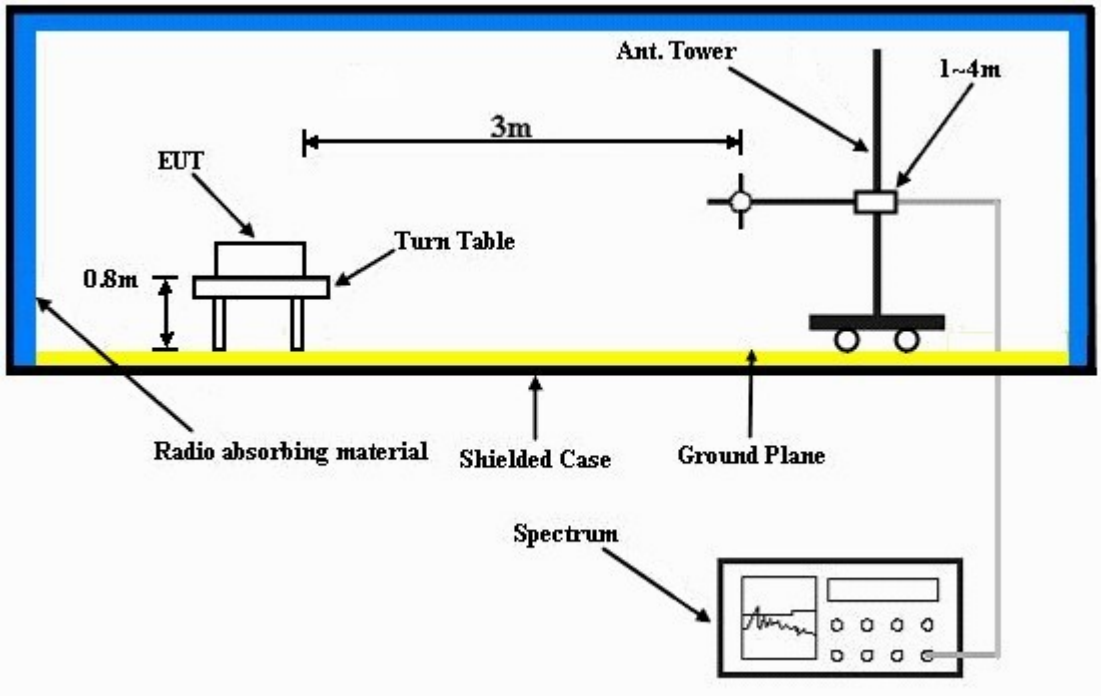
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz(Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

a. Placed the EUT on the test table.
b. Prepared a notebook, OLT and TV to act as communication partners and placed them outside of test area.
c. The EUT linked with the telephones via RJ11 cables.
d. The EUT R/W data with the USB flashes.
e. The communication partner connected with EUT via a RJ45 cable, a fiber cable and a coaxial cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
f. The communication partners sent data to EUT by command "PING".

4.1.8 TEST RESULTS

ABOVE 1GHz DATA：

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	5150.00	70.5 PK	74.0	-3.5	1.09 H	173	64.90	5.60
2	5150.00	52.5 AV	54.0	-1.5	1.09 H	173	46.90	5.60
3	*5180.00	110.6 PK			1.09 H	173	66.70	43.90
4	*5180.00	99.8 AV			1.09 H	173	55.90	43.90
5	#10360.00	62.5 PK	74.0	-11.5	1.00 H	332	50.20	12.30
6	#10360.00	51.0 AV	54.0	-3.0	1.00 H	332	38.70	12.30
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	5150.00	69.5 PK	74.0	-4.5	1.05 V	300	63.90	5.60
2	5150.00	51.0 AV	54.0	-3.0	1.05 V	300	45.40	5.60
3	*5180.00	110.2 PK			1.05 V	300	66.30	43.90
4	*5180.00	99.1 AV			1.05 V	300	55.20	43.90
5	#10360.00	62.0 PK	74.0	-12.0	1.00 V	50	49.70	12.30
6	#10360.00	51.0 AV	54.0	-3.0	1.00 V	50	38.70	12.30

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) – Pre-Amplifier 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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5200.00	112.8 PK			1.07 H	177	68.90	43.90
2	*5200.00	101.2 AV			1.07 H	177	57.30	43.90
3	#10400.00	63.7 PK	74.0	-10.3	1.00 H	323	51.20	12.50
4	#10400.00	51.9 AV	54.0	-2.1	1.00 H	323	39.40	12.50
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	*5200.00	112.3 PK			1.02 V	304	68.40	43.90
2	*5200.00	100.6 AV			1.02 V	304	56.70	43.90
3	#10400.00	64.0 PK	74.0	-10.0	1.00 V	30	51.50	12.50
4	#10400.00	52.0 AV	54.0	-2.0	1.00 V	30	39.50	12.50

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) – Pre-Amplifier 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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5240.00	113.0 PK			1.09 H	169	69.10	43.90
2	*5240.00	101.3 AV			1.09 H	169	57.40	43.90
3	#10480.00	63.8 PK	74.0	-10.2	1.00 H	311	51.10	12.70
4	#10480.00	52.0 AV	54.0	-2.0	1.00 H	311	39.30	12.70
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	*5240.00	112.0 PK			1.00 V	300	68.10	43.90
2	*5240.00	100.7 AV			1.00 V	300	56.80	43.90
3	#10480.00	64.0 PK	74.0	-10.0	1.00 V	34	51.30	12.70
4	#10480.00	52.2 AV	54.0	-1.8	1.00 V	34	39.50	12.70

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) – Pre-Amplifier 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 of the restricted band.

802.11n (20MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	5150.00	68.8 PK	74.0	-5.2	1.00 H	162	63.20	5.60
2	5150.00	52.9 AV	54.0	-1.1	1.00 H	162	47.30	5.60
3	*5180.00	111.4 PK			1.00 H	162	67.50	43.90
4	*5180.00	100.4 AV			1.00 H	162	56.50	43.90
5	#10360.00	61.0 PK	74.0	-13.0	1.40 H	55	48.70	12.30
6	#10360.00	48.4 AV	54.0	-5.6	1.40 H	55	36.10	12.30
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	5150.00	68.6 PK	74.0	-5.4	1.00 V	128	63.00	5.60
2	5150.00	51.5 AV	54.0	-2.5	1.00 V	128	45.90	5.60
3	*5180.00	109.8 PK			1.00 V	128	65.90	43.90
4	*5180.00	98.9 AV			1.00 V	128	55.00	43.90
5	#10360.00	63.1 PK	74.0	-10.9	1.00 V	27	50.80	12.30
6	#10360.00	49.1 AV	54.0	-4.9	1.00 V	27	36.80	12.30

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) – Pre-Amplifier 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5200.00	111.3 PK			1.00 H	170	67.40	43.90
2	*5200.00	100.2 AV			1.00 H	170	56.30	43.90
3	#10400.00	61.1 PK	74.0	-12.9	1.35 H	60	48.60	12.50
4	#10400.00	48.5 AV	54.0	-5.5	1.35 H	60	36.00	12.50
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	*5200.00	109.7 PK			1.00 V	122	65.80	43.90
2	*5200.00	98.7 AV			1.00 V	122	54.80	43.90
3	#10400.00	63.2 PK	74.0	-10.8	1.00 V	25	50.70	12.50
4	#10400.00	49.0 AV	54.0	-5.0	1.00 V	25	36.50	12.50

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) – Pre-Amplifier 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5240.00	111.0 PK			1.00 H	180	67.10	43.90
2	*5240.00	100.0 AV			1.00 H	180	56.10	43.90
3	#10480.00	61.3 PK	74.0	-12.7	1.33 H	71	48.60	12.70
4	#10480.00	49.0 AV	54.0	-5.0	1.33 H	71	36.30	12.70
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	*5240.00	110.0 PK			1.00 V	124	66.10	43.90
2	*5240.00	99.0 AV			1.00 V	124	55.10	43.90
3	#10480.00	63.3 PK	74.0	-10.7	1.00 V	30	50.60	12.70
4	#10480.00	49.1 AV	54.0	-4.9	1.00 V	30	36.40	12.70

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

802.11n (40MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	5150.00	69.6 PK	74.0	-4.4	1.00 H	163	64.00	5.60
2	5150.00	52.9 AV	54.0	-1.1	1.00 H	163	47.30	5.60
3	*5190.00	102.3 PK			1.00 H	163	58.40	43.90
4	*5190.00	91.4 AV			1.00 H	163	47.50	43.90
5	#10380.00	58.3 PK	74.0	-15.7	1.20 H	31	45.90	12.40
6	#10380.00	45.6 AV	54.0	-8.4	1.20 H	31	33.20	12.40
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	5150.00	70.1 PK	74.0	-3.9	1.13 V	73	64.50	5.60
2	5150.00	52.5 AV	54.0	-1.5	1.13 V	73	46.90	5.60
3	*5190.00	102.3 PK			1.13 V	73	58.40	43.90
4	*5190.00	90.9 AV			1.13 V	73	47.00	43.90
5	#10380.00	58.1 PK	74.0	-15.9	1.13 V	60	45.70	12.40
6	#10380.00	45.0 AV	54.0	-9.0	1.13 V	60	32.60	12.40

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) – Pre-Amplifier 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	5150.00	61.9 PK	74.0	-12.1	1.00 H	162	56.30	5.60
2	5150.00	48.7 AV	54.0	-5.3	1.00 H	162	43.10	5.60
3	*5230.00	107.5 PK			1.00 H	162	63.60	43.90
4	*5230.00	96.4 AV			1.00 H	162	52.50	43.90
5	#10460.00	60.2 PK	74.0	-13.8	1.00 H	128	47.60	12.60
6	#10460.00	48.5 AV	54.0	-5.5	1.00 H	128	35.90	12.60
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	*5230.00	107.2 PK			1.12 V	80	63.30	43.90
2	*5230.00	96.2 AV			1.12 V	80	52.30	43.90
3	#10460.00	60.1 PK	74.0	-13.9	1.00 V	13	47.50	12.60
4	#10460.00	48.0 AV	54.0	-6.0	1.00 V	13	35.40	12.60

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

802.11n (20MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	5150.00	71.5 PK	74.0	-2.5	1.00 H	180	65.90	5.60
2	5150.00	52.5 AV	54.0	-1.5	1.00 H	180	46.90	5.60
3	*5180.00	112.3 PK			1.00 H	180	68.40	43.90
4	*5180.00	101.1 AV			1.00 H	180	57.20	43.90
5	#10360.00	62.6 PK	74.0	-11.4	1.33 H	322	50.30	12.30
6	#10360.00	50.5 AV	54.0	-3.5	1.33 H	322	38.20	12.30
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	5150.00	71.8 PK	74.0	-2.2	1.42 V	204	66.20	5.60
2	5150.00	52.7 AV	54.0	-1.3	1.42 V	204	47.10	5.60
3	*5180.00	112.4 PK			1.42 V	204	68.50	43.90
4	*5180.00	101.3 AV			1.42 V	204	57.40	43.90
5	#10360.00	62.5 PK	74.0	-11.5	1.22 V	46	50.20	12.30
6	#10360.00	50.6 AV	54.0	-3.4	1.22 V	46	38.30	12.30

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) – Pre-Amplifier 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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5200.00	110.2 PK			1.00 H	182	66.30	43.90
2	*5200.00	100.7 AV			1.00 H	182	56.80	43.90
3	#10400.00	62.9 PK	74.0	-11.1	1.32 H	322	50.40	12.50
4	#10400.00	50.7 AV	54.0	-3.3	1.32 H	322	38.20	12.50
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	*5200.00	110.4 PK			1.16 V	182	66.50	43.90
2	*5200.00	101.0 AV			1.16 V	182	57.10	43.90
3	#10400.00	62.8 PK	74.0	-11.2	1.20 V	40	50.30	12.50
4	#10400.00	50.5 AV	54.0	-3.5	1.20 V	40	38.00	12.50

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) – Pre-Amplifier 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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5240.00	110.4 PK			1.00 H	178	66.50	43.90
2	*5240.00	100.8 AV			1.00 H	178	56.90	43.90
3	#10480.00	62.8 PK	74.0	-11.2	1.37 H	321	50.10	12.70
4	#10480.00	50.6 AV	54.0	-3.4	1.37 H	321	37.90	12.70
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	*5240.00	110.6 PK			1.12 V	190	66.70	43.90
2	*5240.00	99.9 AV			1.12 V	190	56.00	43.90
3	#10480.00	62.0 PK	74.0	-12.0	1.14 V	32	49.30	12.70
4	#10480.00	50.2 AV	54.0	-3.8	1.14 V	32	37.50	12.70

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) – Pre-Amplifier 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 of the restricted band.

802.11n (40MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH hPa	TESTED BY	Brad Tung

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	5150.00	64.2 PK	74.0	-9.8	1.23 H	171	58.60	5.60
2	5150.00	51.0 AV	54.0	-3.0	1.23 H	171	45.40	5.60
3	*5190.00	103.8 PK			1.23 H	171	59.90	43.90
4	*5190.00	90.9 AV			1.23 H	171	47.00	43.90
5	#10380.00	58.1 PK	74.0	-15.9	1.30 H	329	45.70	12.40
6	#10380.00	45.0 AV	54.0	-9.0	1.30 H	329	32.60	12.40
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	5150.00	67.5 PK	74.0	-6.5	1.14 V	17	61.90	5.60
2	**5150.00**	**53.0 AV**	**54.0**	**-1.0**	**1.14 V**	**17**	**47.40**	**5.60**
3	*5190.00	108.0 PK			1.14 V	17	64.10	43.90
4	*5190.00	95.7 AV			1.14 V	17	51.80	43.90
5	#10380.00	55.6 PK	74.0	-18.4	1.33 V	250	43.20	12.40
6	#10380.00	45.1 AV	54.0	-8.9	1.33 V	250	32.70	12.40

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) – Pre-Amplifier 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 of the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	*5230.00	110.3 PK			1.12 H	177	66.40	43.90
2	*5230.00	97.3 AV			1.12 H	177	53.40	43.90
3	#10460.00	60.5 PK	74.0	-13.5	1.40 H	320	47.90	12.60
4	#10460.00	48.6 AV	54.0	-5.4	1.40 H	320	36.00	12.60
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	*5230.00	114.3 PK			1.14 V	15	70.40	43.90
2	*5230.00	101.1 AV			1.14 V	15	57.20	43.90
3	#10460.00	60.2 PK	74.0	-13.8	1.29 V	247	47.60	12.60
4	#10460.00	48.0 AV	54.0	-6.0	1.29 V	247	35.40	12.60

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) – Pre-Amplifier 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 of the restricted band.

BELOW 1GHz WORST-CASE DATA：802.11n (40MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Brad Tung

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	31.94	33.1 QP	40.0	-6.9	1.50 H	0	49.60	-16.50
2	181.32	28.7 QP	43.5	-14.8	1.50 H	35	44.10	-15.40
3	319.06	28.7 QP	46.0	-17.3	1.00 H	313	40.70	-12.00
4	375.32	32.2 QP	46.0	-13.8	2.00 H	348	43.30	-11.10
5	641.10	38.2 QP	46.0	-7.8	1.25 H	306	43.80	-5.60
6	751.68	37.5 QP	46.0	-8.5	1.00 H	181	41.00	-3.50
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	30.00	32.0 QP	40.0	-8.0	1.25 V	123	47.60	-15.60
2	99.84	30.1 QP	43.5	-13.4	1.25 V	187	48.90	-18.80
3	400.54	30.0 QP	46.0	-16.0	1.00 V	337	40.70	-10.70
4	499.48	31.4 QP	46.0	-14.6	1.00 V	179	39.70	-8.30
5	641.10	35.5 QP	46.0	-10.5	1.50 V	189	41.10	-5.60
6	802.12	34.8 QP	46.0	-11.2	1.25 V	148	37.60	-2.80

REMARKS:

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

4.2 CONDUCTED EMISSIONS MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

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

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

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

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

4.2.2 TEST INSTRUMENTS

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

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

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

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

4.2.3 TEST PROCEDURES

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

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

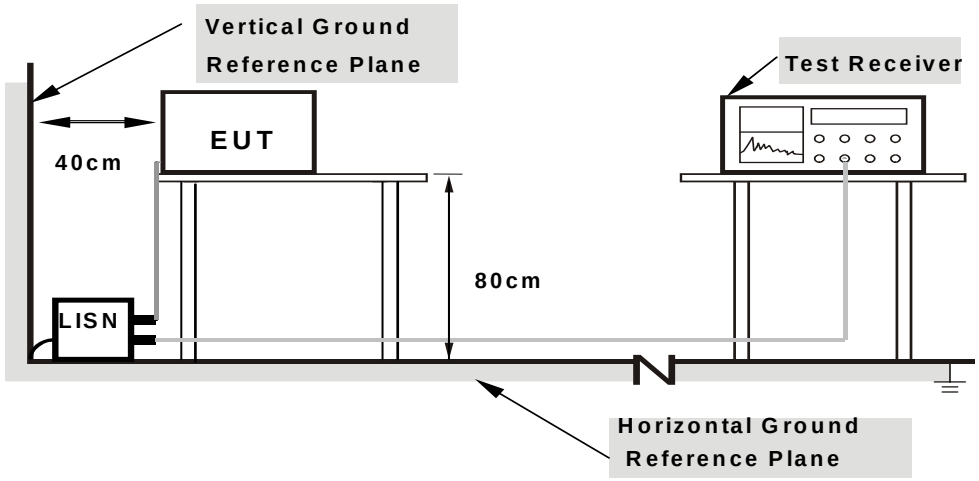
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

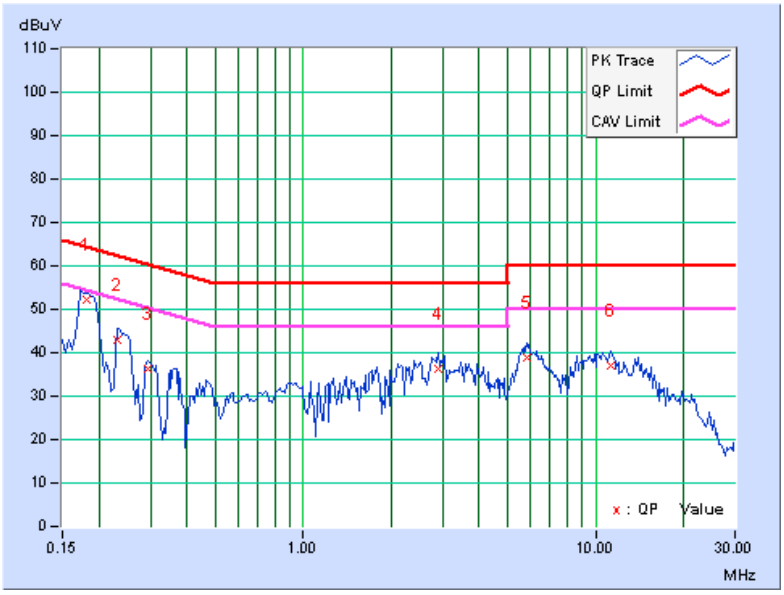
CONDUCTED WORST-CASE DATA：802.11n (40MHz): 2TX

PHASE	Line 1	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18125**	**0.17**	**51.97**	**38.29**	**52.14**	**38.46**	**64.43**	**54.43**	**-12.29**	**-15.97**
2	0.23203	0.18	42.71	25.02	42.89	25.20	62.38	52.38	-19.49	-27.18
3	0.29453	0.19	36.14	21.48	36.33	21.67	60.40	50.40	-24.07	-28.73
4	2.88281	0.32	36.03	29.21	36.35	29.53	56.00	46.00	-19.65	-16.47
5	5.79297	0.39	38.62	34.17	39.01	34.56	60.00	50.00	-20.99	-15.44
6	11.32422	0.46	36.53	31.42	36.99	31.88	60.00	50.00	-23.01	-18.12

REMARKS:

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

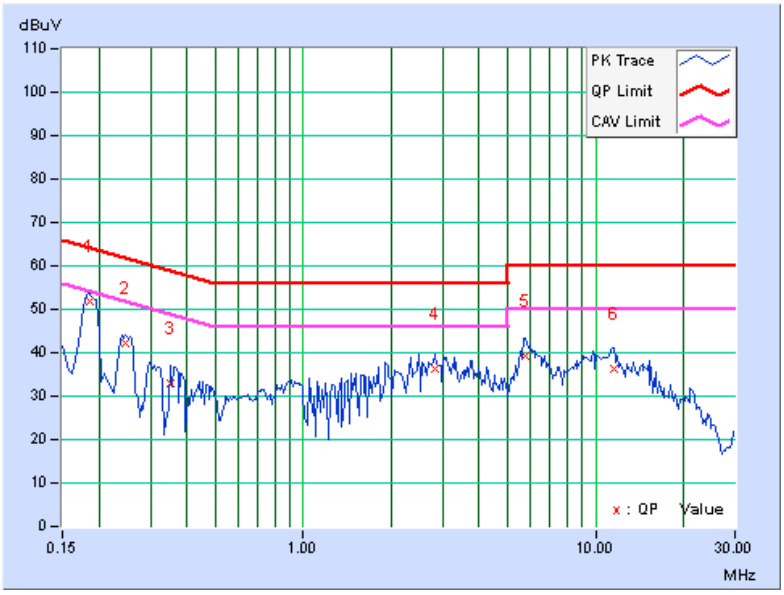


PHASE	Line 2	6dB BANDWIDTH	9kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.18	51.51	36.87	51.69	37.05	64.25	54.25	-12.56	-17.20
2	0.24766	0.20	41.98	28.08	42.18	28.28	61.84	51.84	-19.66	-23.56
3	0.34922	0.23	32.78	15.02	33.01	15.25	58.98	48.98	-25.97	-33.73
4	2.83203	0.33	35.80	29.81	36.13	30.14	56.00	46.00	-19.87	-15.86
5	5.73047	0.42	38.69	33.55	39.11	33.97	60.00	50.00	-20.89	-16.03
6	11.51172	0.52	35.65	30.57	36.17	31.09	60.00	50.00	-23.83	-18.91

REMARKS:

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



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

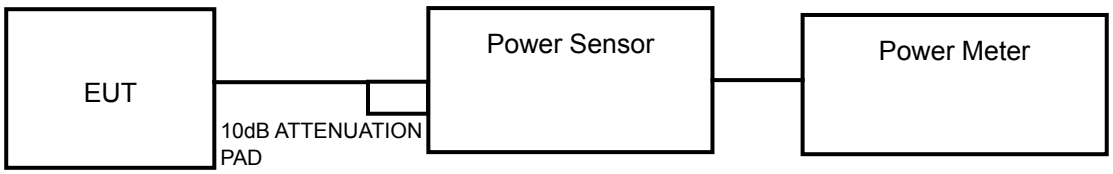
Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 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 ≥ 5.

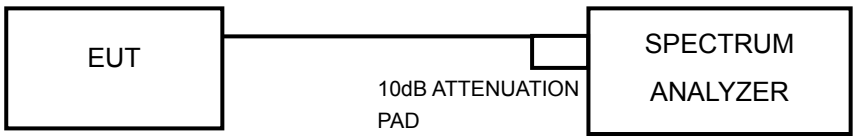
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 26dB BANDWIDTH

1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

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 specific channel frequencies individually.

4.3.7 TEST RESULTS

POWER OUTPUT:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	36.644	15.64	17	PASS
40	5200	36.058	15.57	17	PASS
48	5240	35.156	15.46	17	PASS

802.11n (20MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	41.115	16.14	17	PASS
40	5200	40.179	16.04	17	PASS
48	5240	42.954	16.33	17	PASS

802.11n (40MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	13.002	11.14	17	PASS
46	5230	43.053	16.34	17	PASS

802.11n (20MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.10	12.20	37.013	15.68	17	PASS
40	5200	13.20	12.24	37.642	15.76	17	PASS
48	5240	13.10	12.13	36.748	15.65	17	PASS

802.11n (40MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	7.28	5.39	8.805	9.45	17	PASS
46	5230	14.13	13.59	**48.738**	16.88	17	PASS

26dB BANDWIDTH:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	18.90	PASS
40	5200	18.95	PASS
48	5240	18.89	PASS

802.11n (20MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	19.16	PASS
40	5200	19.27	PASS
48	5240	19.37	PASS

802.11n (40MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	40.41	PASS
46	5230	82.92	PASS

802.11n (20MHz): 2TX

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	19.04	19.11	PASS
40	5200	19.23	19.15	PASS
48	5240	19.02	19.20	PASS

802.11n (40MHz): 2TX

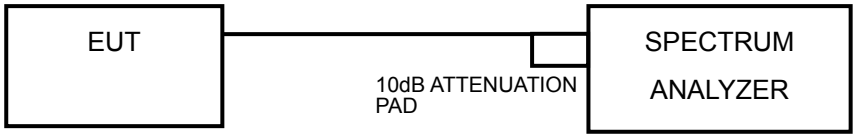
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	19.04	19.11	PASS
46	5230	19.23	19.15	PASS

4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	4dBm

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.4.4 TEST PROCEDURES

Using method SA-1

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 30 KHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.60	4	PASS
40	5200	3.79	4	PASS
48	5240	3.64	4	PASS

802.11n (20MHz): 1TX

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.07	4	PASS
40	5200	3.22	4	PASS
48	5240	3.34	4	PASS

802.11n (40MHz): 1TX

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
38	5190	-5.15	4	PASS
46	5230	0.15	4	PASS

802.11n (20MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.33	-0.75	2.83	3.14	PASS
40	5200	0.35	-0.77	2.84	3.14	PASS
48	5240	0.37	-0.73	2.87	3.14	PASS

NOTE: 1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain= $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}]$= 6.86dBi > 6dBi , so the power density limit shall be reduced to 4-(6.86-6) = 3.14dBm.

802.11n (40MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
38	5190	0.33	-0.75	2.83	3.14	PASS
46	5230	0.35	-0.77	2.84	3.14	PASS

NOTE: 1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

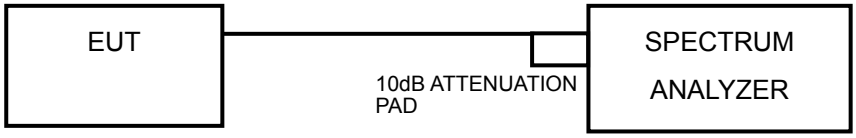
2. Directional gain= 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 6.86dBi > 6dBi , so the power density limit shall be reduced to 4-(6.86-6) = 3.14dBm.

4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

1) Set RBW = 1 MHz, VBW ≥ 3 MHz, Detector = peak.
2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
3) Use the peak search function to find the peak of the spectrum.
4) Measure the PPSD.
5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

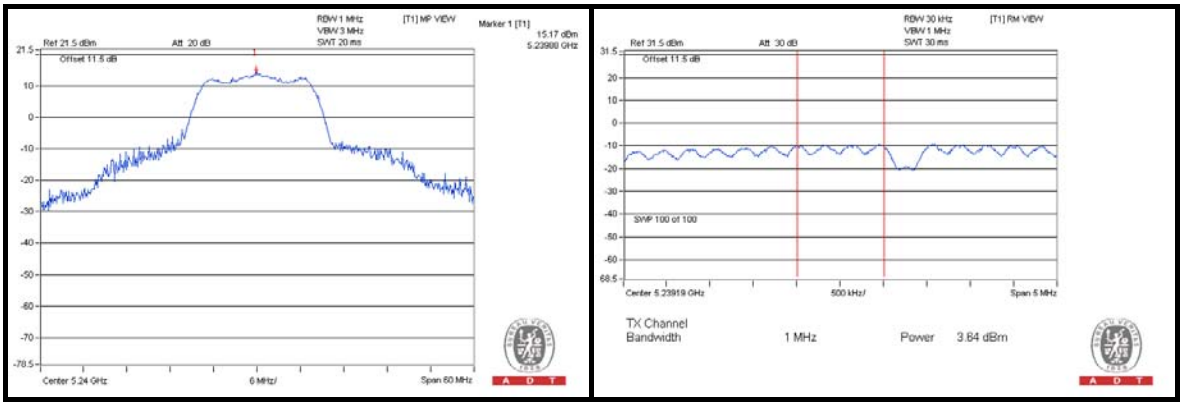
4.5.6 EUT OPERATING CONDITIONS

Same as 4.2.6

4.5.7 TEST RESULTS

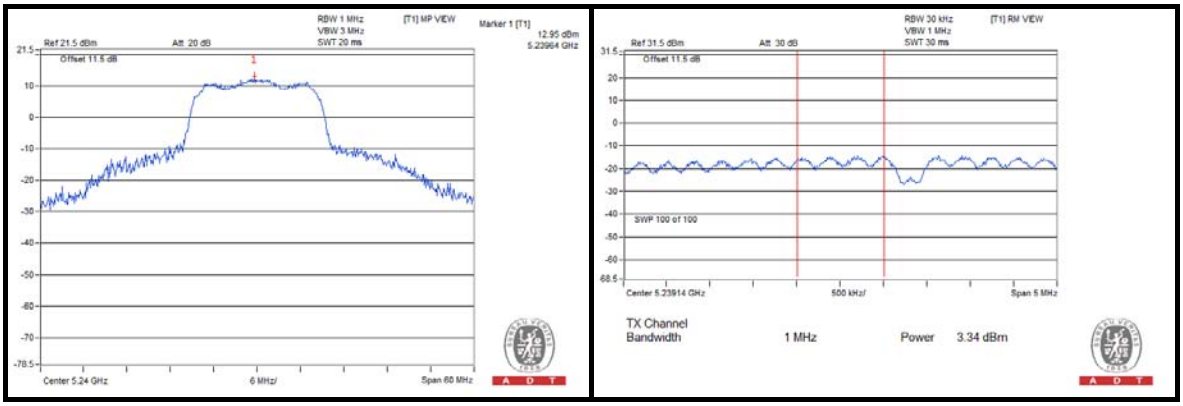
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	14.17	3.60	10.57	13	PASS
40	5200	14.06	3.79	10.27	13	PASS
48	5240	15.17	3.64	11.53	13	PASS



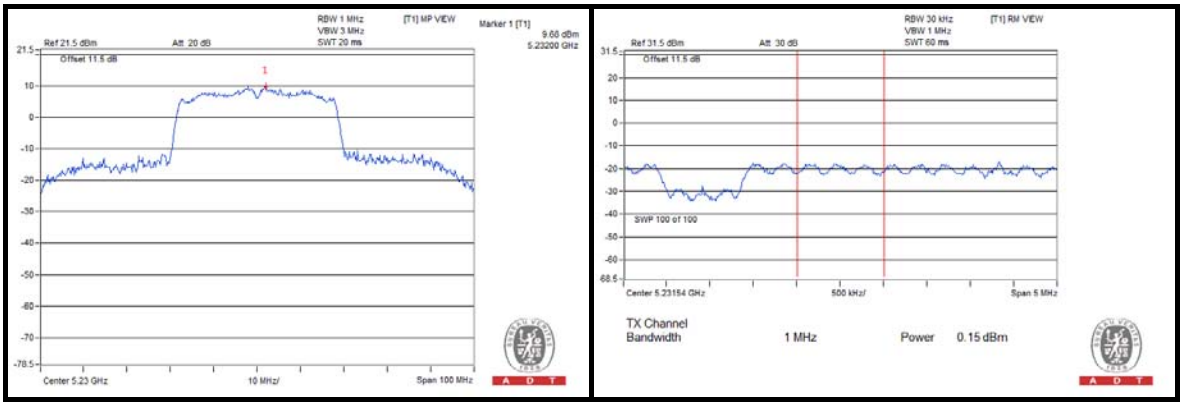
802.11n (20MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	12.36	3.07	9.29	13	PASS
40	5200	12.29	3.22	9.07	13	PASS
48	5240	12.95	3.34	9.61	13	PASS



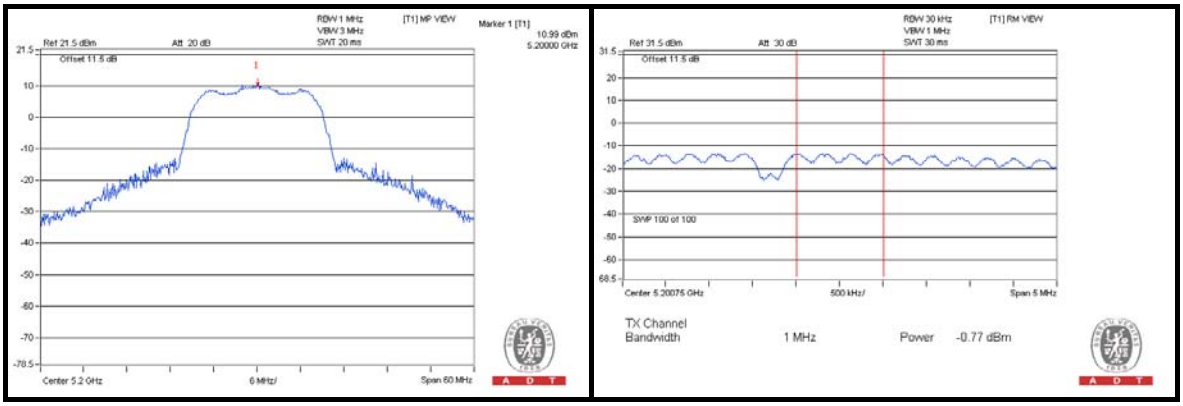
802.11n (40MHz): 1TX

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
38	5190	4.02	-5.15	9.17	13	PASS
46	5230	9.68	0.15	9.53	13	PASS



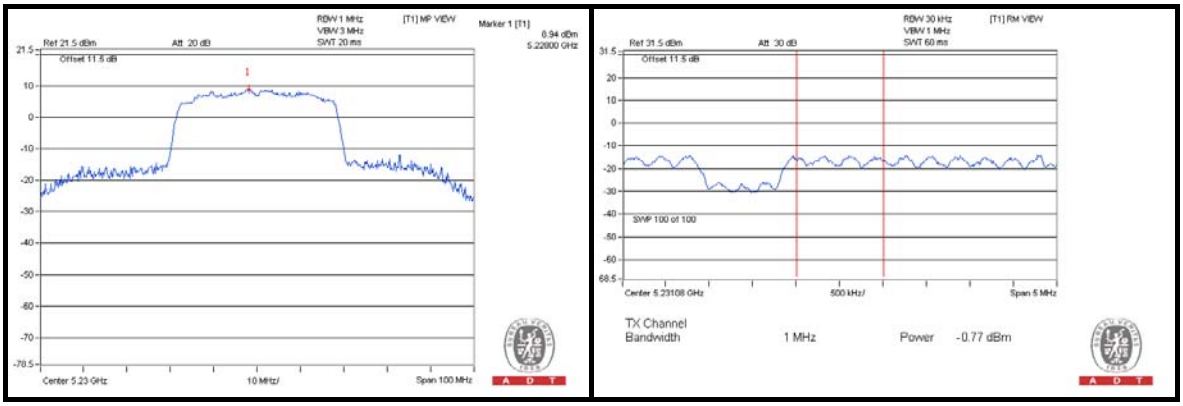
802.11n (20MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	11.17	10.58	0.33	-0.75	10.84	11.33	13	PASS
40	5200	11.83	10.99	0.35	-0.77	11.48	11.76	13	PASS
48	5240	11.78	10.73	0.37	-0.73	11.41	11.46	13	PASS



802.11n (40MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
38	5190	3.17	1.75	0.33	-0.75	2.84	2.50	13	PASS
46	5230	9.93	8.94	0.35	-0.77	9.58	9.71	13	PASS

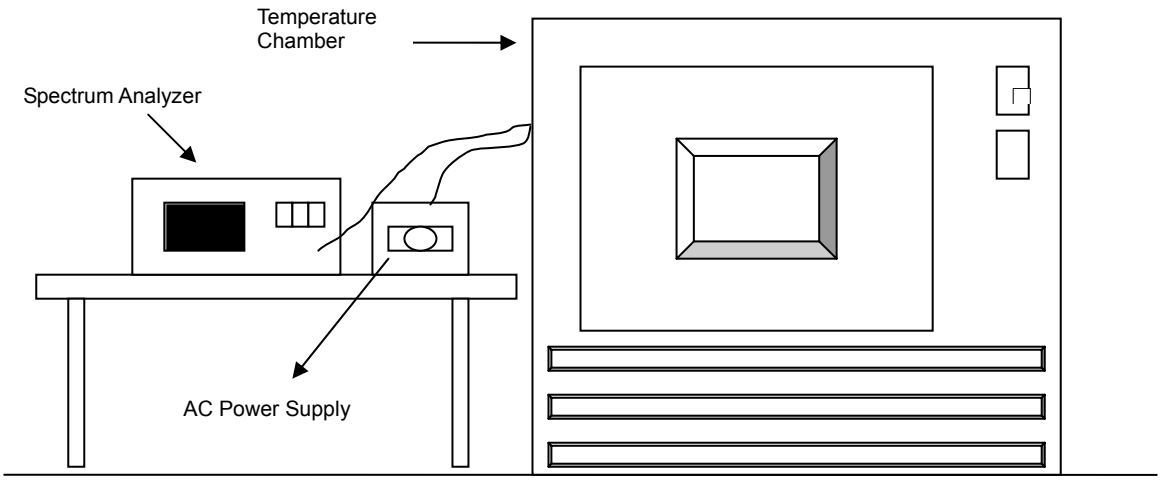


4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.6.4 TEST PROCEDURE

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 TEST RESULTS

802.11a

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5239.9962	-0.00007	5239.9982	-0.00003	5239.994	-0.00011	5239.9908	-0.00018
40	120	5240.0098	0.00019	5240.0017	0.00003	5240.0015	0.00003	5240.0054	0.00010
30	120	5240.0001	0.00000	5240.0013	0.00002	5239.9991	-0.00002	5240.002	0.00004
20	120	5239.9989	-0.00002	5239.9905	-0.00018	5239.9971	-0.00006	5239.9969	-0.00006
10	120	5240.0057	0.00011	5240.003	0.00006	5240.0047	0.00009	5240.0092	0.00018
0	120	5240.0134	0.00026	5240.0141	0.00027	5240.0076	0.00015	5240.0141	0.00027
-10	120	5239.9816	-0.00035	5239.977	-0.00044	5239.9718	-0.00054	5239.9752	-0.00047
-20	120	5240.0124	0.00024	5240.0209	0.00040	5240.0184	0.00035	5240.0145	0.00028
-30	120	5240.0176	0.00034	5240.023	0.00044	5240.0209	0.00040	5240.0268	0.00051

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5239.9994	-0.00001	5239.9906	-0.00018	5239.9969	-0.00006	5239.9972	-0.00005
	120	5239.9989	-0.00002	5239.9905	-0.00018	5239.9971	-0.00006	5239.9969	-0.00006
	102	5239.9983	-0.00003	5239.9911	-0.00017	5239.9976	-0.00005	5239.9959	-0.00008

802.11n (20MHz): 1TX

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5240.0016	0.00003	5240.004	0.00008	5240.0086	0.00016	5240.0034	0.00006
40	120	5239.9787	-0.00041	5239.9795	-0.00039	5239.9759	-0.00046	5239.9764	-0.00045
30	120	5240.03	0.00057	5240.0224	0.00043	5240.0277	0.00053	5240.0215	0.00041
20	120	5239.9776	-0.00043	5239.9735	-0.00051	5239.9728	-0.00052	5239.9754	-0.00047
10	120	5239.9872	-0.00024	5239.9951	-0.00009	5239.9885	-0.00022	5239.988	-0.00023
0	120	5240.0142	0.00027	5240.0179	0.00034	5240.0173	0.00033	5240.0104	0.00020
-10	120	5240.0143	0.00027	5240.0209	0.00040	5240.0133	0.00025	5240.0115	0.00022
-20	120	5239.9787	-0.00041	5239.9772	-0.00044	5239.9797	-0.00039	5239.9756	-0.00047
-30	120	5240.0109	0.00021	5240.0103	0.00020	5240.0073	0.00014	5240.0077	0.00015

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5239.977	-0.00044	5239.9741	-0.00049	5239.9719	-0.00054	5239.9761	-0.00046
	120	5239.9776	-0.00043	5239.9735	-0.00051	5239.9728	-0.00052	5239.9754	-0.00047
	102	5239.9776	-0.00043	5239.9729	-0.00052	5239.9723	-0.00053	5239.9748	-0.00048

802.11n (40MHz): 1TX

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5190MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5190.0166	0.00032	5190.0119	0.00023	5190.0108	0.00021	5190.0161	0.00031
40	120	5190.0143	0.00028	5190.0193	0.00037	5190.0191	0.00037	5190.0147	0.00028
30	120	5190.0011	0.00002	5190.0049	0.00009	5190.0053	0.00010	5189.998	-0.00004
20	120	5189.9801	-0.00038	5189.985	-0.00029	5189.9805	-0.00038	5189.9782	-0.00042
10	120	5189.9963	-0.00007	5189.9942	-0.00011	5189.9994	-0.00001	5189.9937	-0.00012
0	120	5190.0062	0.00012	5190.0145	0.00028	5190.0079	0.00015	5190.0153	0.00029
-10	120	5190.0093	0.00018	5190.0026	0.00005	5190.0043	0.00008	5190.0034	0.00007
-20	120	5190.0233	0.00045	5190.015	0.00029	5190.0225	0.00043	5190.0206	0.00040
-30	120	5189.9952	-0.00009	5189.9931	-0.00013	5189.9967	-0.00006	5189.9945	-0.00011

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5189.9796	-0.00039	5189.9854	-0.00028	5189.9796	-0.00039	5189.9785	-0.00041
	120	5189.9801	-0.00038	5189.985	-0.00029	5189.9805	-0.00038	5189.9782	-0.00042
	102	5189.9808	-0.00037	5189.9855	-0.00028	5189.9802	-0.00038	5189.9786	-0.00041

802.11n (20MHz): 2TX

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5240.0066	0.00013	5240.009	0.00017	5240.0019	0.00004	5240.0055	0.00010
40	120	5239.9999	0.00000	5239.9994	-0.00001	5239.9961	-0.00007	5239.995	-0.00010
30	120	5239.9933	-0.00013	5239.9867	-0.00025	5239.9952	-0.00009	5239.9898	-0.00019
20	120	5240.0083	0.00016	5240.0047	0.00009	5240.012	0.00023	5240.0135	0.00026
10	120	5239.9893	-0.00020	5239.9869	-0.00025	5239.9946	-0.00010	5239.9969	-0.00006
0	120	5239.9725	-0.00052	5239.9773	-0.00043	5239.9774	-0.00043	5239.9806	-0.00037
-10	120	5239.9797	-0.00039	5239.9762	-0.00045	5239.9807	-0.00037	5239.9813	-0.00036
-20	120	5240.0297	0.00057	5240.0211	0.00040	5240.0207	0.00040	5240.0316	0.00060
-30	120	5239.9803	-0.00038	5239.9782	-0.00042	5239.9781	-0.00042	5239.9793	-0.00040

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5240.0075	0.00014	5240.0041	0.00008	5240.012	0.00023	5240.0129	0.00025
	120	5240.0083	0.00016	5240.0047	0.00009	5240.012	0.00023	5240.0135	0.00026
	102	5240.0074	0.00014	5240.0052	0.00010	5240.0128	0.00024	5240.0139	0.00027

802.11n (40MHz): 2TX

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5240.0063	0.00012	5240.0069	0.00013	5240.0069	0.00013	5240.0036	0.00007
40	120	5239.9563	-0.00083	5239.9764	-0.00045	5239.9748	-0.00048	5239.995	-0.00010
30	120	5239.9856	-0.00027	5239.9653	-0.00066	5239.9685	-0.00060	5239.9898	-0.00019
20	120	5240.0114	0.00022	5240.1323	0.00252	5240.0321	0.00061	5240.0354	0.00068
10	120	5239.9683	-0.00060	5239.9686	-0.00060	5239.963	-0.00071	5239.9685	-0.00060
0	120	5239.9587	-0.00079	5239.9747	-0.00048	5239.9745	-0.00049	5239.9856	-0.00027
-10	120	5239.9721	-0.00053	5239.9765	-0.00045	5239.9686	-0.00060	5239.9854	-0.00028
-20	120	5240.0145	0.00028	5240.0231	0.00044	5240.0233	0.00044	5240.0233	0.00044
-30	120	5239.9635	-0.00070	5239.9874	-0.00024	5239.9698	-0.00058	5239.964	-0.00069

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTES		5 MINUTES		10 MINUTES	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5240.003	0.00006	5240.0036	0.00007	5240.032	0.00061	5240.0153	0.00029
	120	5240.0084	0.00016	5240.0055	0.00010	5240.03	0.00057	5240.0099	0.00019
	102	5240.0091	0.00017	5240.0074	0.00014	5240.0102	0.00019	5240.0122	0.00023

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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

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

---END---