FCC TEST REPORT (15.247)

REPORT NO.:	RF130628C31A
MODEL NO.:	MR900
FCC ID:	WT8-MR900
RECEIVED:	Jun. 28, 2013
TESTED:	Jul. 05 ~ Aug. 30, 2013
ISSUED:	Sep. 06, 2013

APPLICANT:	Open Mesh, Inc.
ADDRESS:	7327 SW Barnes Rd #422, Portland, OR 97225

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

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130628C31A	Original release	Sep. 06, 2013

1. CERTIFICATION

PRODUCT:	Wireless-N 450 + 450Mbps Ceiling Mount Dual Concurrent Access Point
MODEL NO.:	MR900
BRAND:	Open Mesh
APPLICANT:	Open Mesh, Inc.
TESTED:	Jul. 05 ~ Aug. 30, 2013
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)**
	ANSI C63.10-2009

The above equipment (model: MR900) 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 : Celine Chou **, DATE :** Sep. 06, 2013

Celine Chou / Specialist

APPROVED BY : Ken Liu **, DATE :** Sep. 06, 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 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 -2.97dB at 14.12891MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.3dB at 276.33MHz.
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	3.34 dB
	200MHz ~1000MHz	3.35 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-N 450 + 450Mbps Ceiling Mount Dual Concurrent Access Point
MODEL NO.	MR900
POWER SUPPLY	12Vdc (Adapter) 48Vdc (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	985.976mW for 2412 ~ 2462MHz 907.800mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to note
ANTENNA CONNECTOR	Refer to note
DATA CABLE	0.5m shielded RJ45 cable without core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

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	1TX
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)	
			2.4GHz	5GHz
1	Printed	IPEX	3	-
2	PIFA	IPEX	2	-
3	Printed	IPEX	3	-
4	Printed	IPEX	-	5
5	PIFA	IPEX	-	5
6	Printed	IPEX	-	5

3. The EUT consumes power from the following adapter and POE. (POE for support unit only)

ADAPTER 1	
BRAND:	Powertron Electronics Corp.
MODEL:	PA1024-2HUB PA1024-2HU PA1024-120HUB200
INPUT:	100-240Vac, 50-60Hz, 0.6A
OUTPUT:	12Vdc, 2.0A, 24W Max
POWER LINE:	1.5m cable with one core attached on adapter

POE	
BRAND:	SONICWALL
MODEL:	PD-6083G300
INPUT:	100-250Vac, 50/60Hz, 0.5A
OUTPUT:	48Vdc, 0.35A

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≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by Adapter
B	-	√	√	-	Powered by POE

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**.
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	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

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, B	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≥1G	27deg. C, 75%RH 25deg. C, 54%RH	120Vac, 60Hz	Martin Lee Ted Chang
RE<1G	25deg. C, 54%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Frank Liu

FOR 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by Adapter
B	-	√	√	-	Powered by POE

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**.
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	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

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 (40MHz)	151 to 159	159	OFDM	BPSK	15.0

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (40MHz)	151 to 159	159	OFDM	BPSK	15.0

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	25deg. C, 65%RH 25deg. C, 54%RH	120Vac, 60Hz	Chris Lin
RE<1G	25deg. C, 54%RH	120Vac, 60Hz	Chris Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
APCM	25deg. C, 60%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.

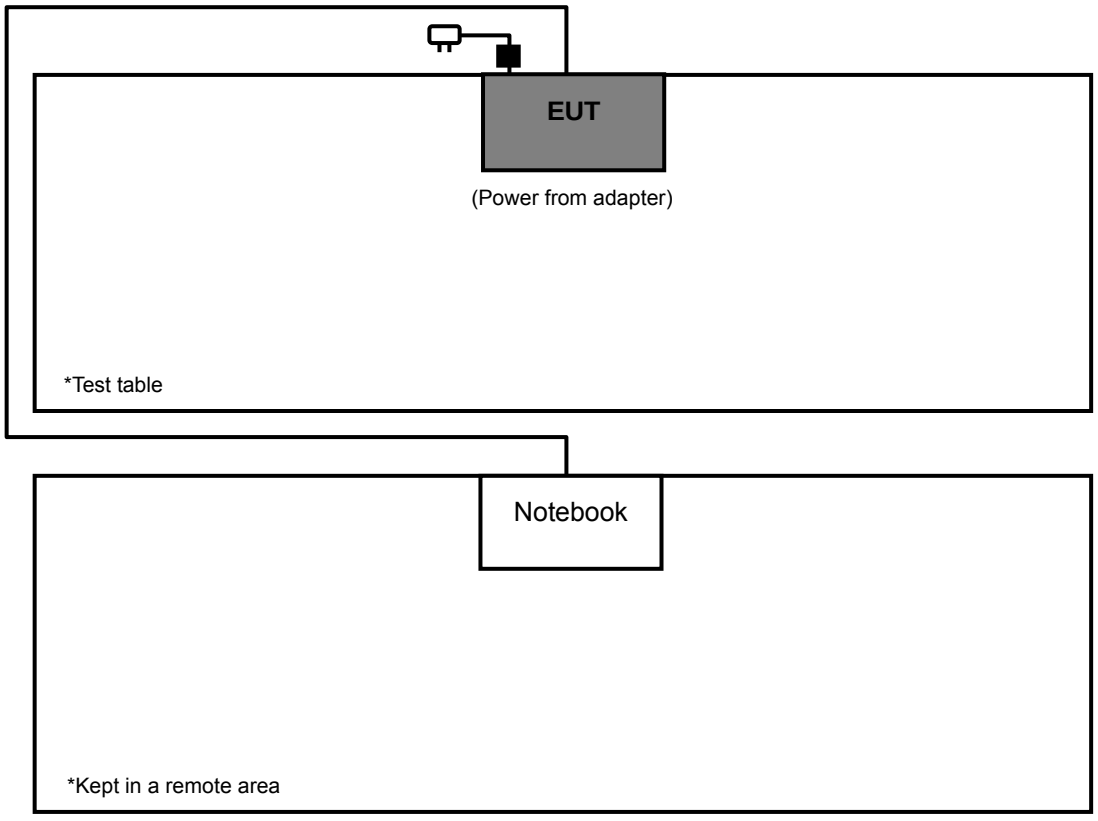
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5420	33MJMQ1	FCC Doc Approved
2	POE	SONICWALL	PD-6083G300	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	3m RJ45 Cable without core
2	3m RJ45 Cable without core for POE mode only.

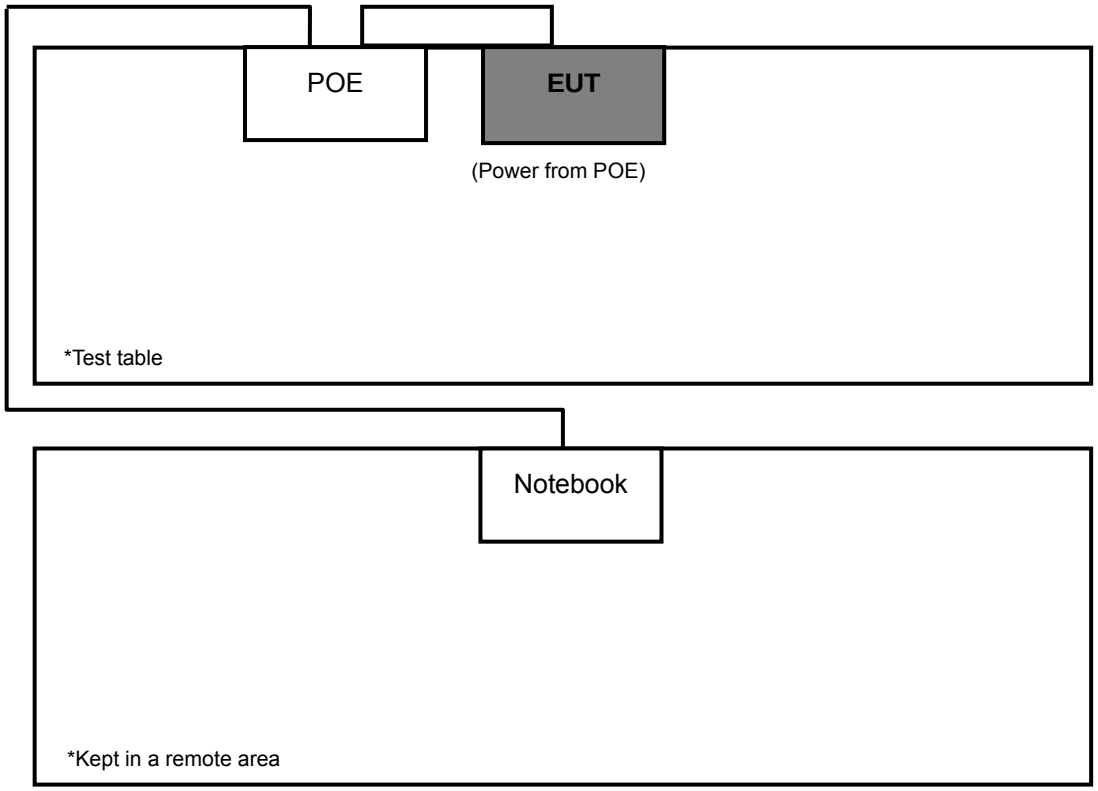
NOTE:
1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1-2 acted as a communication partner to transfer data.
3. Item 2 was provided by client and for POE mode tested only.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

Adapter Mode



POE Mode


POE
EUT
(Power from POE)
*Test table
Notebook
*Kept in a remote area

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 v03r01
662911 D02 Multiple Transmitter Output v01
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	Dec. 25, 2012	Dec. 24, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 31, 2013	Jan. 30, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Mar. 20, 2013	Mar. 19, 2014
HORN Antenna SCHWARZBECK	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	8447D	2944A10633	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8449B	3008A01964	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
			Aug. 30, 2013	Aug. 31, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 28, 2012	Aug. 27, 2013
			Aug. 30, 2013	Aug. 31, 2014
Software BV ADT	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	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
			Aug. 24, 2012	Aug. 25, 2014
Power Sensor	MA2411B	0738171	Jul. 30, 2012	Jul. 29, 2013
			Jul. 31, 2013	Jul. 30, 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 test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC 7450F-3.

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.

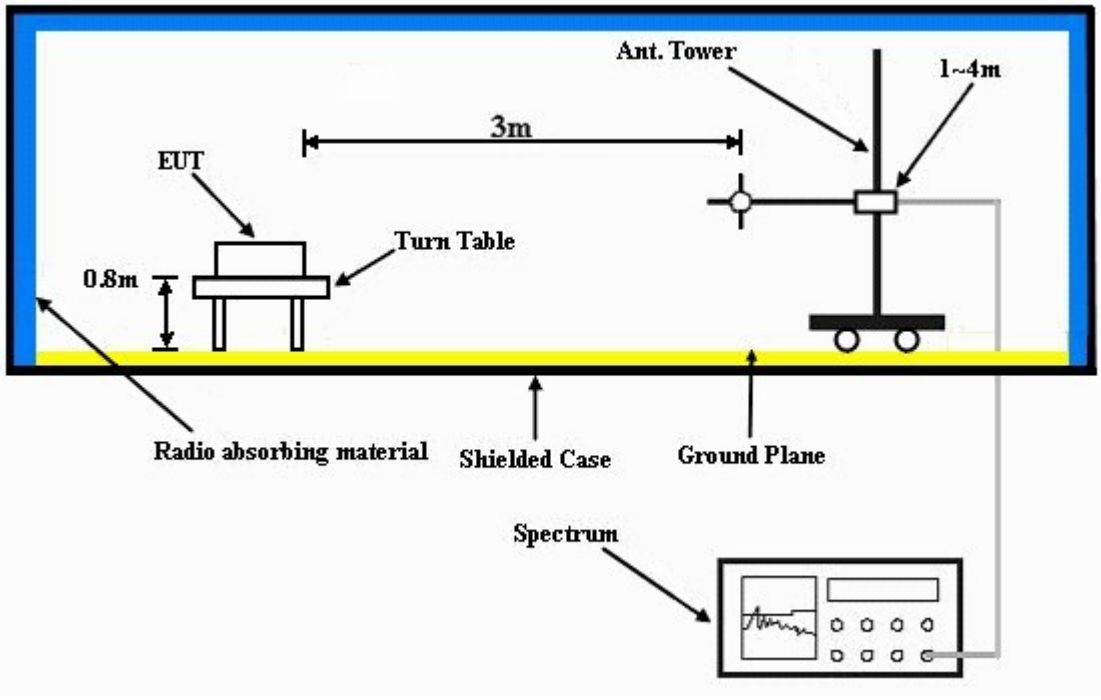
NOTE:

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 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.

4.1.4 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

a. Placed the EUT on the testing table.
b. Prepared notebook to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.7 TEST RESULTS

ABOVE 1GHz DATA：

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	27deg. C, 75%RH	TESTED BY	Martin 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	57.6 PK	74.0	-16.4	1.12 H	22	26.80	30.80
2	2390.00	47.4 AV	54.0	-6.6	1.12 H	22	16.60	30.80
3	*2412.00	111.9 PK			1.12 H	22	81.00	30.90
4	*2412.00	108.2 AV			1.12 H	22	77.30	30.90
5	4824.00	46.1 PK	74.0	-27.9	1.18 H	124	9.10	37.00
6	4824.00	37.5 AV	54.0	-16.5	1.18 H	124	0.50	37.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.4 PK	74.0	-15.6	1.17 V	133	27.60	30.80
2	2390.00	46.7 AV	54.0	-7.3	1.17 V	133	15.90	30.80
3	*2412.00	112.2 PK			1.21 V	132	81.30	30.90
4	*2412.00	109.7 AV			1.21 V	132	78.80	30.90
5	4824.00	49.8 PK	74.0	-24.2	1.04 V	7	12.80	37.00
6	4824.00	45.0 AV	54.0	-9.0	1.04 V	7	8.00	37.00

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 75%RH	TESTED BY	Martin 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	60.0 PK	74.0	-14.0	1.02 H	192	29.20	30.80
2	2390.00	48.3 AV	54.0	-5.7	1.02 H	192	17.50	30.80
3	*2437.00	113.0 PK			1.01 H	187	82.00	31.00
4	*2437.00	109.4 AV			1.01 H	187	78.40	31.00
5	4874.00	47.5 PK	74.0	-26.5	1.25 H	66	10.40	37.10
6	4874.00	38.9 AV	54.0	-15.1	1.25 H	66	1.80	37.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.6 PK	74.0	-15.4	1.19 V	133	27.80	30.80
2	2390.00	47.1 AV	54.0	-6.9	1.19 V	133	16.30	30.80
3	*2437.00	113.2 PK			1.19 V	133	82.20	31.00
4	*2437.00	110.5 AV			1.19 V	133	79.50	31.00
5	4874.00	50.3 PK	74.0	-23.7	1.02 V	11	13.20	37.10
6	4874.00	45.0 AV	54.0	-9.0	1.02 V	11	7.90	37.10

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 75%RH	TESTED BY	Martin 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	111.1 PK			1.36 H	53	80.00	31.10
2	*2462.00	77.9 AV			1.36 H	53	46.80	31.10
3	2483.50	58.9 PK	74.0	-15.1	1.36 H	53	27.70	31.20
4	2483.50	46.8 AV	54.0	-7.2	1.36 H	53	15.60	31.20
5	4924.00	47.5 PK	74.0	-26.5	1.14 H	65	10.30	37.20
6	4924.00	38.7 AV	54.0	-15.3	1.14 H	65	1.50	37.20
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	113.3 PK			1.56 V	155	82.20	31.10
2	*2462.00	109.6 AV			1.56 V	155	78.50	31.10
3	2483.50	59.5 PK	74.0	-14.5	1.56 V	155	28.30	31.20
4	2483.50	48.2 AV	54.0	-5.8	1.56 V	155	17.00	31.20
5	4924.00	50.3 PK	74.0	-23.7	1.05 V	66	13.10	37.20
6	4924.00	46.6 AV	54.0	-7.4	1.05 V	66	9.40	37.20

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.

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	25deg. C, 54%RH	TESTED BY	Ted Chang

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	59.4 PK	74.0	-14.6	1.10 H	359	28.40	31.00
2	2390.00	47.1 AV	54.0	-6.9	1.10 H	359	16.10	31.00
3	*2412.00	111.6 PK			1.98 H	79	80.50	31.10
4	*2412.00	101.1 AV			1.98 H	79	70.00	31.10
5	4824.00	49.2 PK	74.0	-24.8	1.03 H	65	44.60	4.60
6	4824.00	36.8 AV	54.0	-17.2	1.03 H	65	32.20	4.60
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	2390.00	56.5 PK	74.0	-17.5	1.02 V	6	25.50	31.00
2	2390.00	44.3 AV	54.0	-9.7	1.02 V	6	13.30	31.00
3	*2412.00	105.9 PK			1.00 V	6	74.80	31.10
4	*2412.00	95.9 AV			1.00 V	6	64.80	31.10
5	4824.00	48.1 PK	74.0	-25.9	1.03 V	184	43.50	4.60
6	4824.00	35.1 AV	54.0	-18.9	1.03 V	184	30.50	4.60

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	111.7 PK			1.95 H	84	80.40	31.30
2	*2437.00	101.6 AV			1.95 H	84	70.30	31.30
3	4874.00	51.1 PK	74.0	-22.9	1.03 H	97	46.40	4.70
4	4874.00	37.1 AV	54.0	-16.9	1.03 H	97	32.40	4.70
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	*2437.00	107.4 PK			1.72 V	259	76.10	31.30
2	*2437.00	97.4 AV			1.72 V	259	66.10	31.30
3	4874.00	48.2 PK	74.0	-25.8	1.02 V	354	43.50	4.70
4	4874.00	35.2 AV	54.0	-18.8	1.02 V	354	30.50	4.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	111.4 PK			1.98 H	73	80.00	31.40
2	*2462.00	101.5 AV			1.98 H	73	70.10	31.40
3	2483.50	59.0 PK	74.0	-15.0	1.06 H	356	27.60	31.40
4	2483.50	46.4 AV	54.0	-7.6	1.06 H	356	15.00	31.40
5	4924.00	52.1 PK	74.0	-21.9	1.84 H	195	47.10	5.00
6	4924.00	39.6 AV	54.0	-14.4	1.84 H	195	34.60	5.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.8 PK			1.18 V	359	74.40	31.40
2	*2462.00	96.0 AV			1.18 V	359	64.60	31.40
3	2483.50	57.2 PK	74.0	-16.8	1.16 V	357	25.80	31.40
4	2483.50	45.4 AV	54.0	-8.6	1.16 V	357	14.00	31.40
5	4924.00	47.9 PK	74.0	-26.1	1.51 V	206	42.90	5.00
6	4924.00	35.5 AV	54.0	-18.5	1.51 V	206	30.50	5.00

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.

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	25deg. C, 54%RH	TESTED BY	Ted Chang

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	59.3 PK	74.0	-14.7	1.11 H	359	28.30	31.00
2	2390.00	47.0 AV	54.0	-7.0	1.11 H	359	16.00	31.00
3	*2412.00	111.6 PK			1.98 H	80	80.50	31.10
4	*2412.00	101.6 AV			1.98 H	80	70.50	31.10
5	4824.00	50.3 PK	74.0	-23.7	1.00 H	165	45.70	4.60
6	4824.00	37.8 AV	54.0	-16.2	1.00 H	165	33.20	4.60
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	2390.00	56.5 PK	74.0	-17.5	1.02 V	8	25.50	31.00
2	2390.00	44.1 AV	54.0	-9.9	1.02 V	8	13.10	31.00
3	*2412.00	105.8 PK			1.00 V	5	74.70	31.10
4	*2412.00	95.3 AV			1.00 V	5	64.20	31.10
5	4824.00	47.5 PK	74.0	-26.5	1.00 V	241	42.90	4.60
6	4824.00	35.1 AV	54.0	-18.9	1.00 V	241	30.50	4.60

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	111.5 PK			1.95 H	85	80.20	31.30
2	*2437.00	101.1 AV			1.95 H	85	69.80	31.30
3	4874.00	49.9 PK	74.0	-24.1	1.30 H	254	45.20	4.70
4	4874.00	37.3 AV	54.0	-16.7	1.30 H	254	32.60	4.70
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	*2437.00	107.3 PK			1.71 V	258	76.00	31.30
2	*2437.00	97.0 AV			1.71 V	258	65.70	31.30
3	4874.00	48.3 PK	74.0	-25.7	1.84 V	346	43.60	4.70
4	4874.00	36.0 AV	54.0	-18.0	1.84 V	346	31.30	4.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	111.2 PK			1.97 H	75	79.80	31.40
2	*2462.00	101.0 AV			1.97 H	75	69.60	31.40
3	2483.50	58.9 PK	74.0	-15.1	1.04 H	355	27.50	31.40
4	2483.50	45.9 AV	54.0	-8.1	1.04 H	355	14.50	31.40
5	4924.00	51.7 PK	74.0	-22.3	1.00 H	155	46.70	5.00
6	4924.00	38.6 AV	54.0	-15.4	1.00 H	155	33.60	5.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.7 PK			1.17 V	357	74.30	31.40
2	*2462.00	95.6 AV			1.17 V	357	64.20	31.40
3	2483.50	56.9 PK	74.0	-17.1	1.12 V	358	25.50	31.40
4	2483.50	45.2 AV	54.0	-8.8	1.12 V	358	13.80	31.40
5	4924.00	50.2 PK	74.0	-23.8	1.00 V	207	45.20	5.00
6	4924.00	36.5 AV	54.0	-17.5	1.00 V	207	31.50	5.00

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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.

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	25deg. C, 54%RH	TESTED BY	Ted Chang

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	66.3 PK	74.0	-7.7	1.10 H	1	35.30	31.00
2	2390.00	50.4 AV	54.0	-3.6	1.10 H	1	19.40	31.00
3	*2422.00	107.1 PK			1.28 H	94	75.80	31.30
4	*2422.00	97.4 AV			1.28 H	94	66.10	31.30
5	4844.00	51.1 PK	74.0	-22.9	1.39 H	210	46.50	4.60
6	4844.00	38.1 AV	54.0	-15.9	1.39 H	210	33.50	4.60
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	2390.00	61.2 PK	74.0	-12.8	1.25 V	330	30.20	31.00
2	2390.00	46.9 AV	54.0	-7.1	1.25 V	330	15.90	31.00
3	*2422.00	102.8 PK			1.25 V	340	71.50	31.30
4	*2422.00	92.5 AV			1.25 V	340	61.20	31.30
5	4844.00	48.4 PK	74.0	-25.6	1.00 V	165	43.80	4.60
6	4844.00	35.2 AV	54.0	-18.8	1.00 V	165	30.60	4.60

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	108.7 PK			1.28 H	78	77.40	31.30
2	*2437.00	98.6 AV			1.28 H	78	67.30	31.30
3	4874.00	50.9 PK	74.0	-23.1	1.70 H	201	46.20	4.70
4	4874.00	38.2 AV	54.0	-15.8	1.70 H	201	33.50	4.70
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	*2437.00	102.0 PK			1.00 V	317	70.70	31.30
2	*2437.00	92.1 AV			1.00 V	317	60.80	31.30
3	4874.00	48.6 PK	74.0	-25.4	1.65 V	241	43.90	4.70
4	4874.00	34.9 AV	54.0	-19.1	1.65 V	241	30.20	4.70

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Ted Chang

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	107.6 PK			1.96 H	69	76.30	31.30
2	*2452.00	98.1 AV			1.96 H	69	66.80	31.30
3	2483.50	67.3 PK	74.0	-6.7	1.04 H	0	35.90	31.40
4	2483.50	48.5 AV	54.0	-5.5	1.04 H	0	17.10	31.40
5	4904.00	51.5 PK	74.0	-22.5	1.02 H	245	46.60	4.90
6	4904.00	37.0 AV	54.0	-17.0	1.02 H	245	32.10	4.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.0 PK			1.18 V	14	71.70	31.30
2	*2452.00	93.4 AV			1.18 V	14	62.10	31.30
3	2483.50	61.5 PK	74.0	-12.5	1.18 V	14	30.10	31.40
4	2483.50	46.1 AV	54.0	-7.9	1.18 V	14	14.70	31.40
5	4904.00	49.4 PK	74.0	-24.6	1.57 V	185	44.50	4.90
6	4904.00	35.4 AV	54.0	-18.6	1.57 V	185	30.50	4.90

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) – 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.

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	25deg. C, 54%RH	TESTED BY	Chris Lin
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	187.07	34.6 QP	43.5	-8.9	1.25 H	64	50.50	-15.90
2	249.17	37.2 QP	46.0	-8.8	1.00 H	94	51.40	-14.20
3	**276.33**	**44.7 QP**	**46.0**	**-1.3**	**1.50 H**	**125**	**57.50**	**-12.80**
4	350.07	34.8 QP	46.0	-11.2	1.00 H	41	46.10	-11.30
5	703.22	36.7 QP	46.0	-9.3	1.25 H	209	41.20	-4.50
6	901.14	38.1 QP	46.0	-7.9	1.50 H	168	38.50	-0.40
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	51.24	36.0 QP	40.0	-4.0	1.25 V	21	50.00	-14.00
2	276.33	41.2 QP	46.0	-4.8	1.00 V	88	54.00	-12.80
3	375.29	34.5 QP	46.0	-11.5	1.50 V	170	45.30	-10.80
4	625.60	32.7 QP	46.0	-13.3	1.25 V	49	38.10	-5.40
5	782.78	30.7 QP	46.0	-15.3	1.24 V	10	33.00	-2.30
6	901.14	32.9 QP	46.0	-13.1	1.00 V	285	33.30	-0.40

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	31.8 QP	40.0	-8.2	1.24 H	78	47.30	-15.50
2	62.89	37.8 QP	40.0	-2.2	1.00 H	18	52.10	-14.30
3	282.15	40.1 QP	46.0	-5.9	1.49 H	100	52.80	-12.70
4	375.29	32.0 QP	46.0	-14.0	1.99 H	287	42.80	-10.80
5	499.48	35.3 QP	46.0	-10.7	1.00 H	151	43.60	-8.30
6	625.60	31.1 QP	46.0	-14.9	1.00 H	83	36.50	-5.40
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	30.00	34.3 QP	40.0	-5.7	1.24 V	178	49.80	-15.50
2	62.89	38.3 QP	40.0	-1.7	1.00 V	119	52.60	-14.30
3	282.15	40.1 QP	46.0	-5.9	1.99 V	113	52.80	-12.70
4	375.29	30.4 QP	46.0	-15.6	1.00 V	324	41.20	-10.80
5	499.48	35.3 QP	46.0	-10.7	1.00 V	146	43.60	-8.30
6	625.60	31.5 QP	46.0	-14.5	1.50 V	91	36.90	-5.40

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

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

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

4.2.2 TEST INSTRUMENTS

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

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

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

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

4.2.3 TEST PROCEDURES

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

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

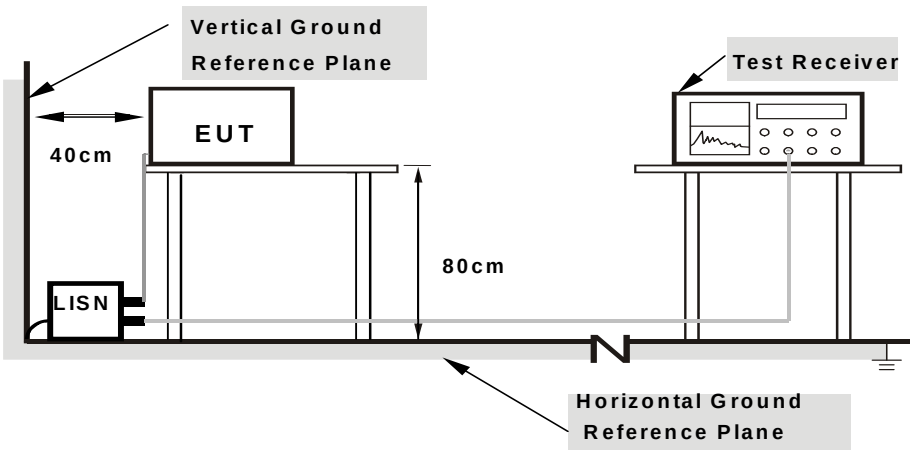
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

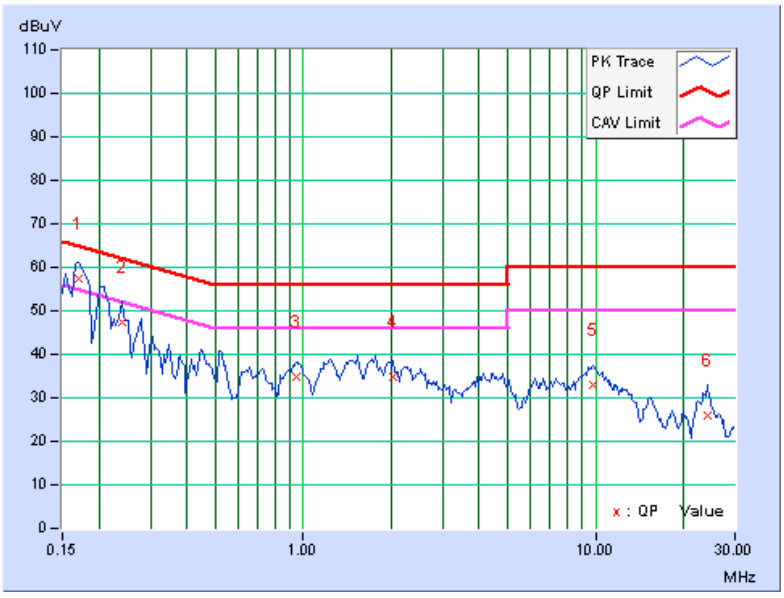
CONDUCTED WORST-CASE DATA：802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.17	57.31	42.01	57.48	42.18	64.98	54.98	-7.50	-12.80
2	0.23984	0.18	47.05	33.14	47.23	33.32	62.10	52.10	-14.87	-18.78
3	0.94297	0.26	34.45	31.02	34.71	31.28	56.00	46.00	-21.29	-14.72
4	2.03125	0.28	34.46	29.59	34.74	29.87	56.00	46.00	-21.26	-16.13
5	9.77344	0.43	32.45	27.44	32.88	27.87	60.00	50.00	-27.12	-22.13
6	24.08203	0.61	25.48	18.63	26.09	19.24	60.00	50.00	-33.91	-30.76

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

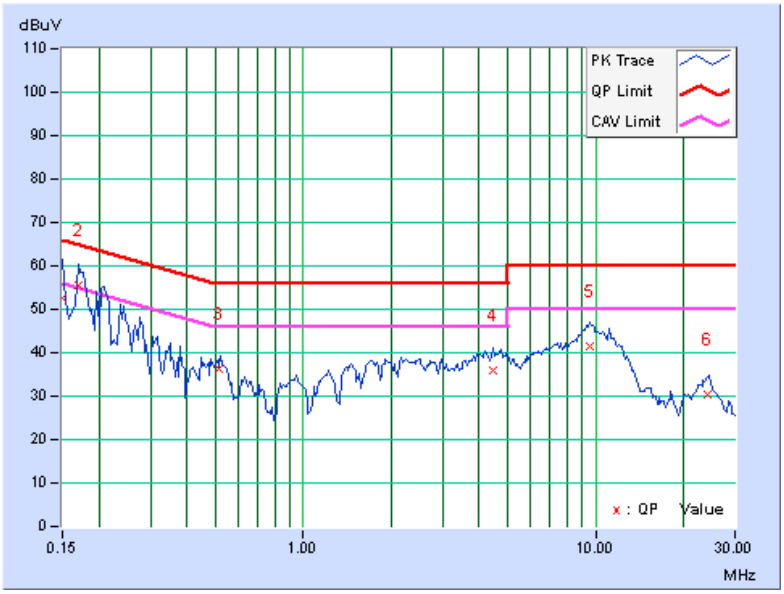


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.19	52.29	34.42	52.48	34.61	66.00	56.00	-13.52	-21.39
2	0.16953	0.18	55.50	39.53	55.68	39.71	64.98	54.98	-9.30	-15.27
3	0.51328	0.25	35.88	28.54	36.13	28.79	56.00	46.00	-19.87	-17.21
4	4.48047	0.40	35.70	29.40	36.10	29.80	56.00	46.00	-19.90	-16.20
5	9.52344	0.47	41.17	36.06	41.64	36.53	60.00	50.00	-18.36	-13.47
6	24.16016	0.70	29.55	24.46	30.25	25.16	60.00	50.00	-29.75	-24.84

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

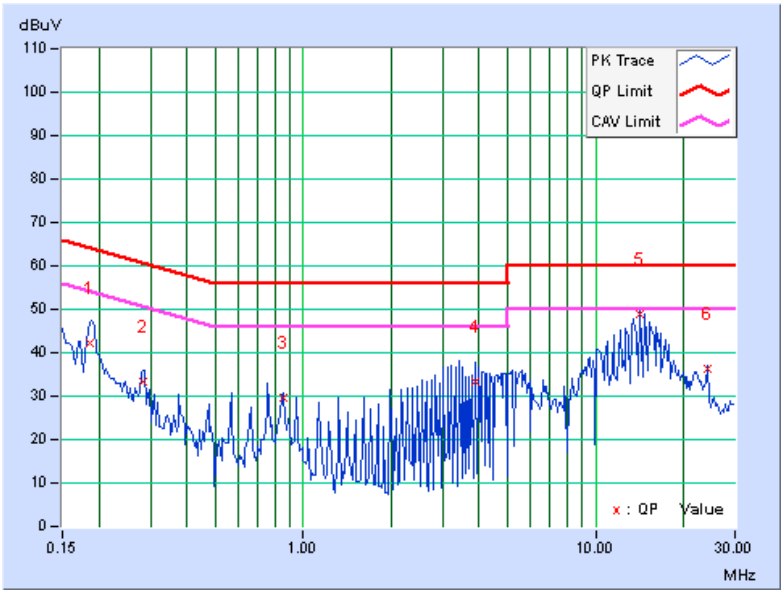


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.17	42.05	32.33	42.22	32.50	64.25	54.25	-22.03	-21.75
2	0.28281	0.19	33.17	30.46	33.36	30.65	60.73	50.73	-27.38	-20.09
3	0.85313	0.26	29.54	23.06	29.80	23.32	56.00	46.00	-26.20	-22.68
4	3.87891	0.36	33.05	27.02	33.41	27.38	56.00	46.00	-22.59	-18.62
5	**14.12891**	**0.52**	**48.23**	**46.51**	**48.75**	**47.03**	**60.00**	**50.00**	**-11.25**	**-2.97**
6	24.08594	0.61	35.52	35.40	36.13	36.01	60.00	50.00	-23.87	-13.99

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

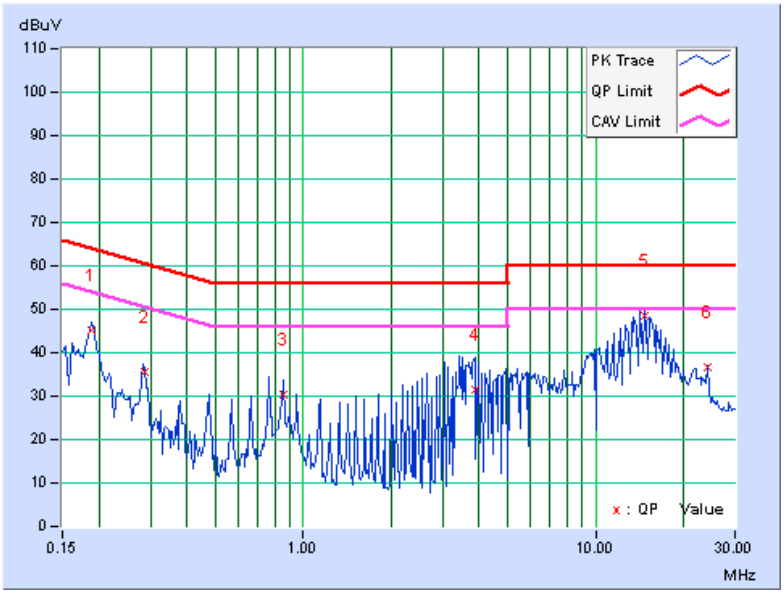


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.18	45.17	34.77	45.35	34.95	64.08	54.08	-18.73	-19.13
2	0.28672	0.21	35.31	28.18	35.52	28.39	60.62	50.62	-25.10	-22.23
3	0.85313	0.23	30.26	23.80	30.49	24.03	56.00	46.00	-25.51	-21.97
4	3.89453	0.38	31.16	25.66	31.54	26.04	56.00	46.00	-24.46	-19.96
5	14.70703	0.60	48.06	46.09	48.66	46.69	60.00	50.00	-11.34	-3.31
6	24.08594	0.70	35.79	35.64	36.49	36.34	60.00	50.00	-23.51	-13.66

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

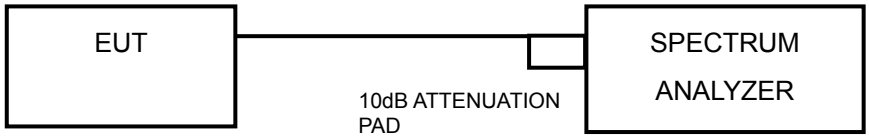


4.3 6dB BANDWIDTH MEASUREMENT

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

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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	6.06	0.5	PASS
6	2437	6.10	0.5	PASS
11	2462	6.08	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	16.62	16.61	16.63	0.5	PASS
6	2437	16.60	16.66	16.65	0.5	PASS
11	2462	16.61	16.64	16.62	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	17.87	17.84	17.87	0.5	PASS
6	2437	17.89	17.85	17.88	0.5	PASS
11	2462	17.86	17.86	17.87	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	36.62	36.61	36.61	0.5	PASS
6	2437	36.63	36.65	36.61	0.5	PASS
9	2452	36.63	36.63	36.59	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

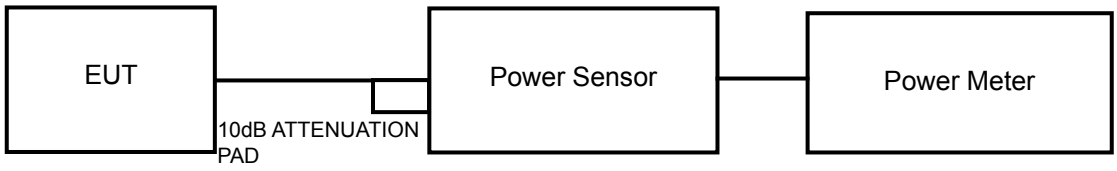
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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 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.

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	417.830	26.21	30	PASS
6	2437	410.204	26.13	30	PASS
11	2462	416.869	26.20	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	24.89	25.30	25.12	972.250	29.88	30	PASS
6	2437	25.17	24.44	25.39	952.762	29.79	30	PASS
11	2462	25.28	24.89	25.02	963.293	29.84	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	24.96	25.27	24.89	958.160	29.81	30	PASS
6	2437	25.05	25.23	25.22	**985.976**	29.94	30	PASS
11	2462	25.32	25.00	25.12	981.723	29.92	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	24.71	25.04	25.08	937.062	29.72	30	PASS
6	2437	25.17	25.23	25.09	985.127	29.93	30	PASS
9	2452	24.64	25.04	25.27	946.738	29.76	30	PASS

FOR AVERAGE POWER

802.11b

CHAN.	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	191.426	22.82
6	2437	189.671	22.78
11	2462	195.434	22.91

802.11g

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	17.12	17.58	17.34	163.003	22.12
6	2437	16.76	16.92	17.46	152.347	21.83
11	2462	17.15	16.88	17.05	151.332	21.80

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	16.78	17.29	16.99	151.226	21.80
6	2437	16.45	16.64	17.16	142.289	21.53
11	2462	16.48	16.36	16.64	133.846	21.27

802.11n (40MHz)

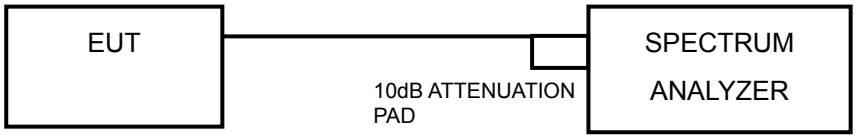
CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	CHAIN 2		
3	2422	16.64	17.23	17.40	153.931	21.87
6	2437	16.72	16.75	17.15	146.184	21.65
9	2452	16.22	16.18	17.41	138.455	21.41

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

a. Set the RBW = 3 kHz, VBW =10 kHz, Detector = peak.
b. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
c. 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	1.60	8	PASS
6	2437	0.00	8	PASS
11	2462	0.18	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	-8.44	4.77	-3.67	6.55	PASS
	6	2437	-9.46	4.77	-4.69	6.55	PASS
	11	2462	-7.00	4.77	-2.23	6.55	PASS
1	1	2412	-7.74	4.77	-2.97	6.55	PASS
	6	2437	-7.36	4.77	-2.59	6.55	PASS
	11	2462	-8.34	4.77	-3.57	6.55	PASS
2	1	2412	-6.55	4.77	-1.78	6.55	PASS
	6	2437	-8.28	4.77	-3.51	6.55	PASS
	11	2462	-8.86	4.77	-4.09	6.55	PASS

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 7.45 > 6dBi , so the power density limit shall be reduced to 8-(7.45-6) = 6.55dBm.

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	-3.40	4.77	1.37	6.55	PASS
	6	2437	-8.23	4.77	-3.46	6.55	PASS
	11	2462	-8.90	4.77	-4.13	6.55	PASS
1	1	2412	-6.14	4.77	-1.37	6.55	PASS
	6	2437	-6.00	4.77	-1.23	6.55	PASS
	11	2462	-8.03	4.77	-3.26	6.55	PASS
2	1	2412	-5.57	4.77	-0.80	6.55	PASS
	6	2437	-8.95	4.77	-4.18	6.55	PASS
	11	2462	-9.91	4.77	-5.14	6.55	PASS

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 7.45 > 6dBi , so the power density limit shall be reduced to 8-(7.45-6) = 6.55dBm.

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	-12.16	4.77	-7.39	6.55	PASS
	6	2437	-9.21	4.77	-4.44	6.55	PASS
	9	2452	-11.49	4.77	-6.72	6.55	PASS
1	3	2422	-10.39	4.77	-5.62	6.55	PASS
	6	2437	-9.09	4.77	-4.32	6.55	PASS
	9	2452	-9.46	4.77	-4.69	6.55	PASS
2	3	2422	-10.41	4.77	-5.64	6.55	PASS
	6	2437	-8.55	4.77	-3.78	6.55	PASS
	9	2452	-9.40	4.77	-4.63	6.55	PASS

NOTE: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}$]= 7.45 > 6dBi , so the power density limit shall be reduced to 8-(7.45-6) = 6.55dBm.

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 ≥ 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 OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 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

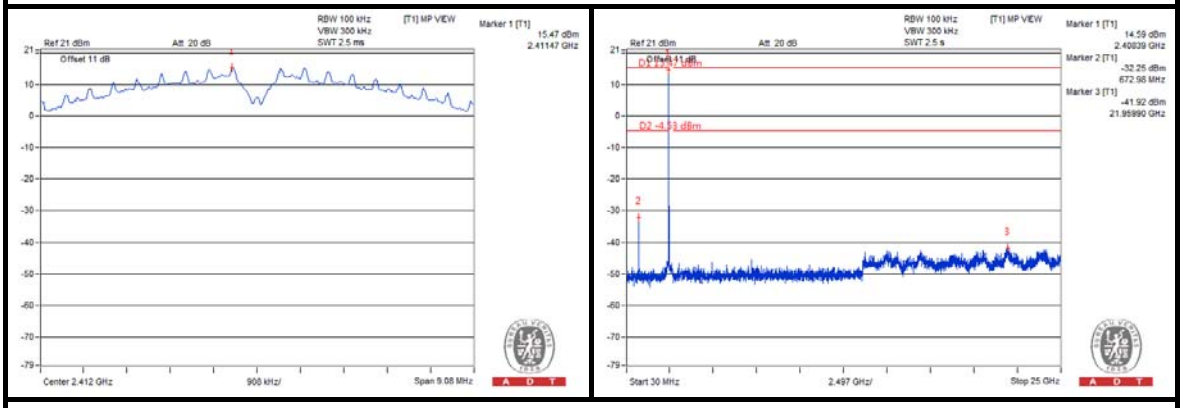
4.6.7 TEST RESULTS

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

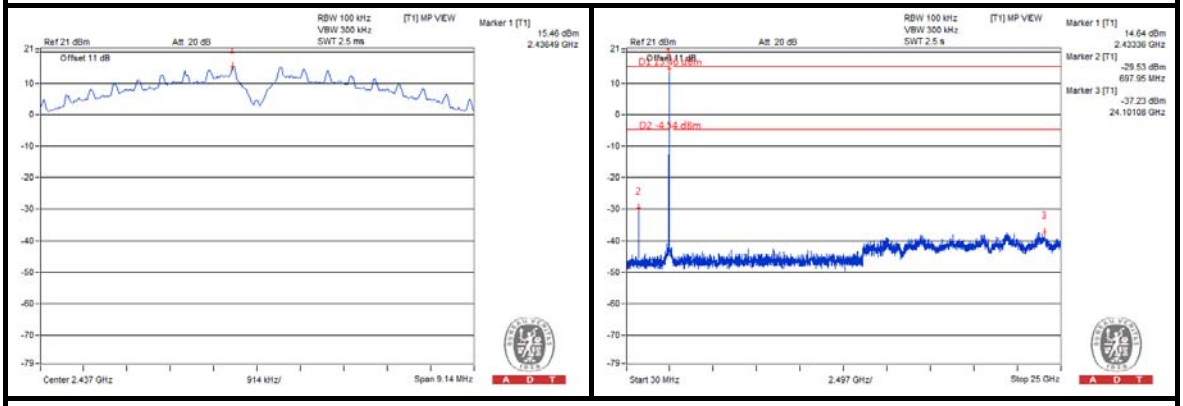
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

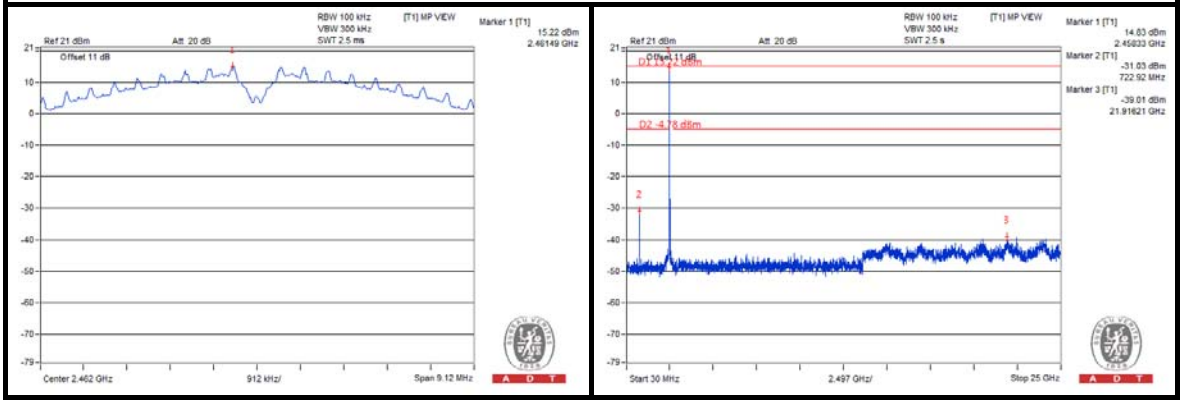
CH 1



CH 6

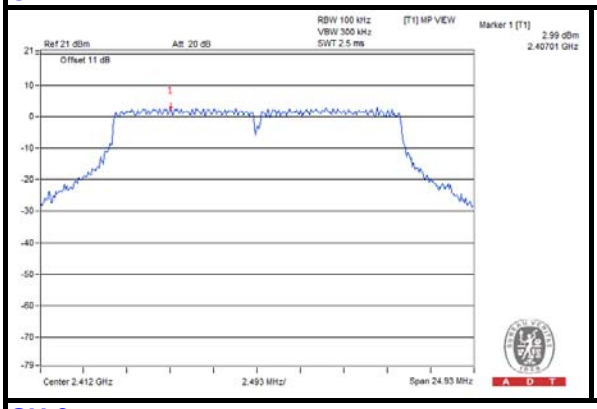


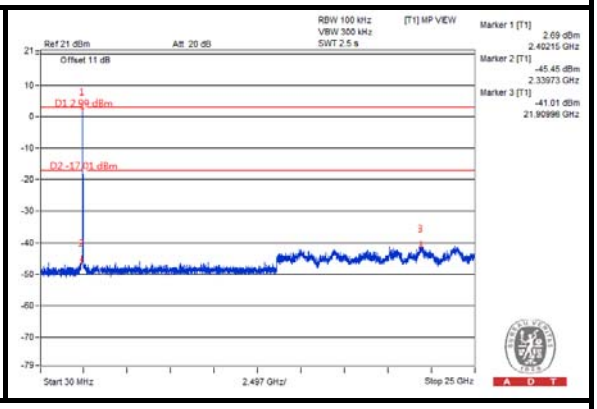
CH 11



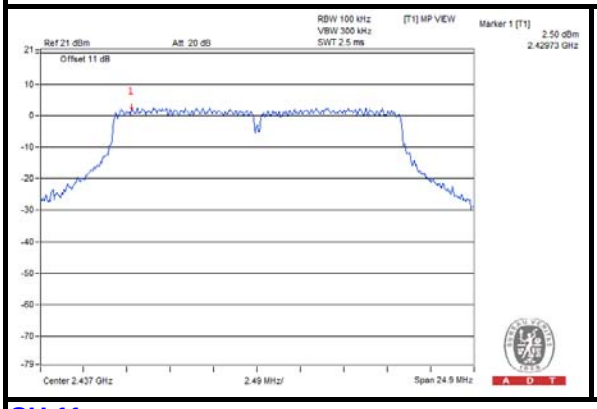
802.11g
CHAIN 0

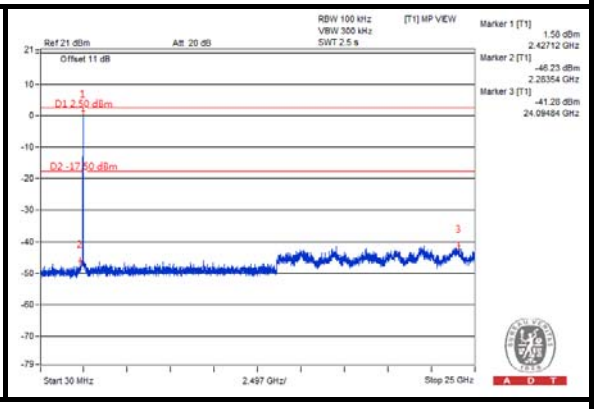
CH 1



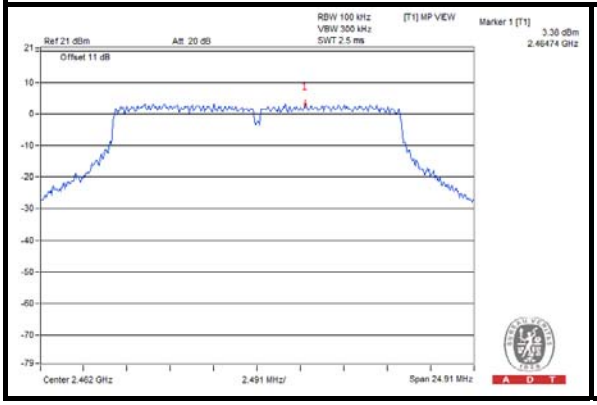


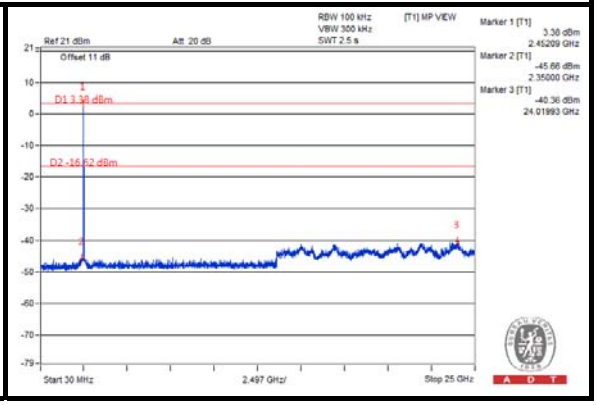
CH 6





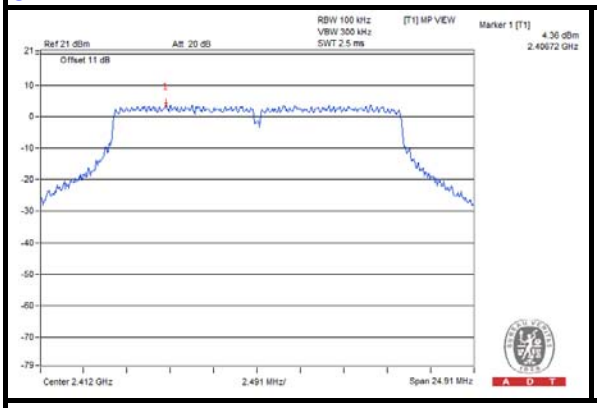
CH 11

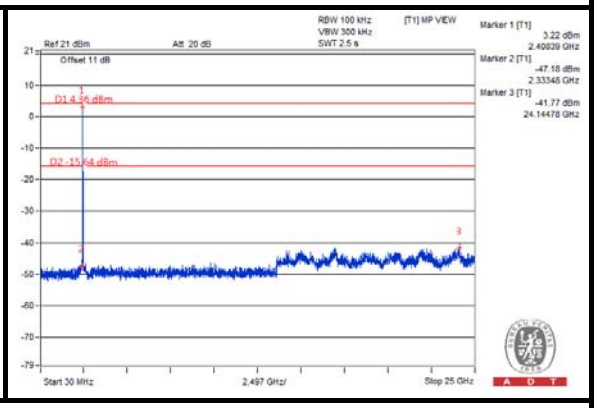




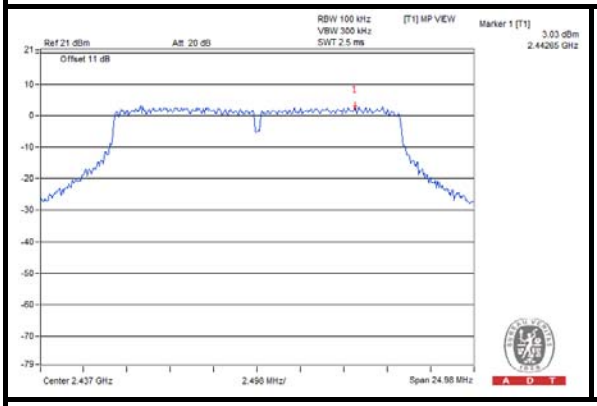
CHAIN 1

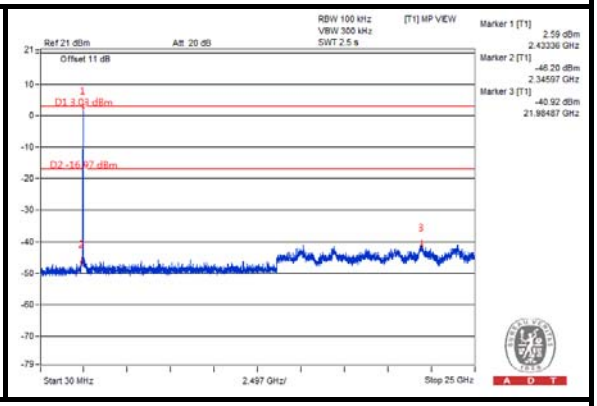
CH 1



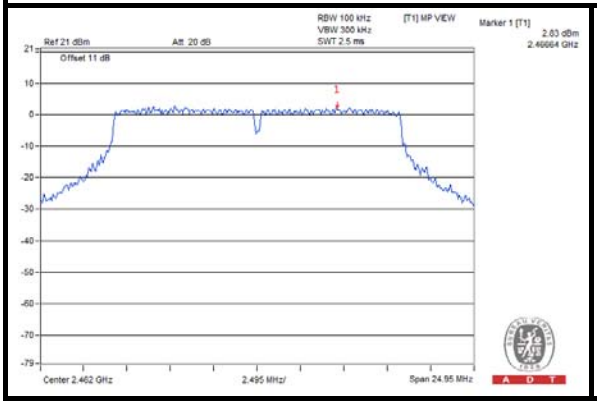


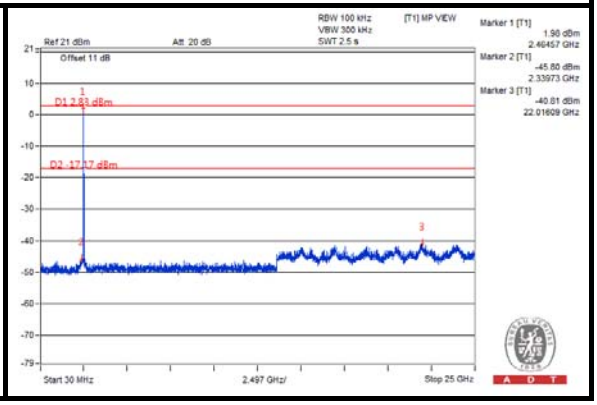
CH 6





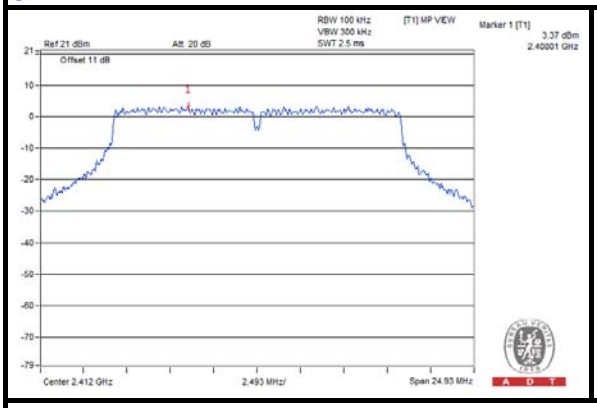
CH 11

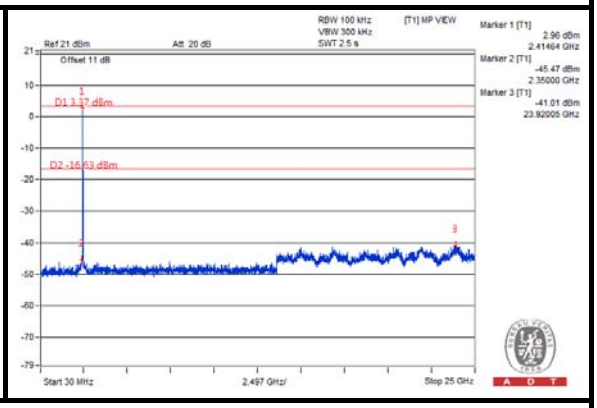




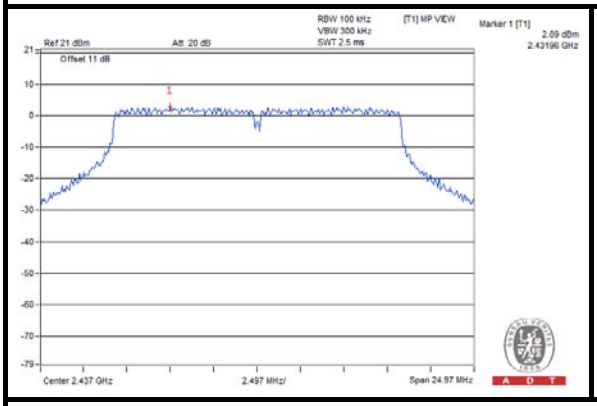
CHAIN 2

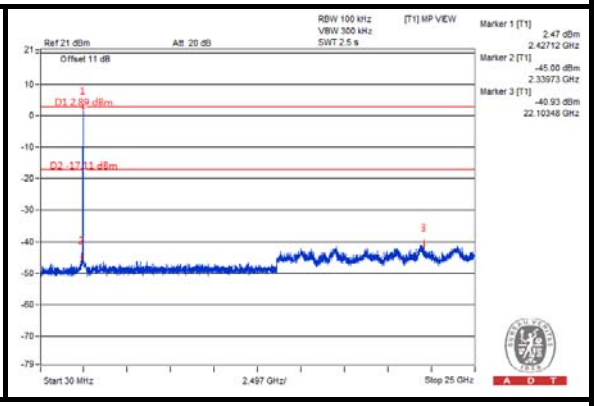
CH 1



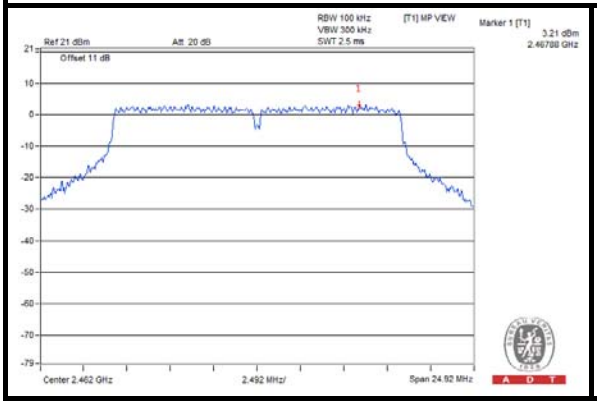


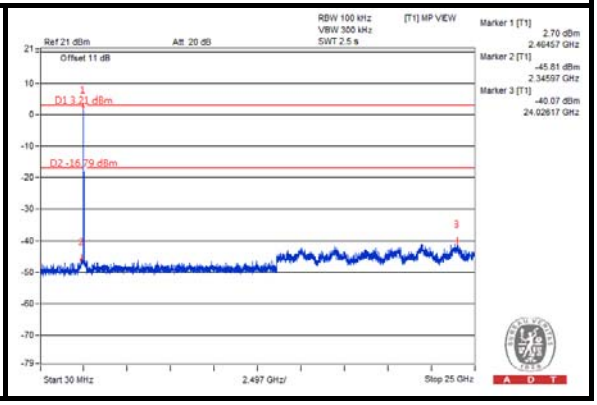
CH 6





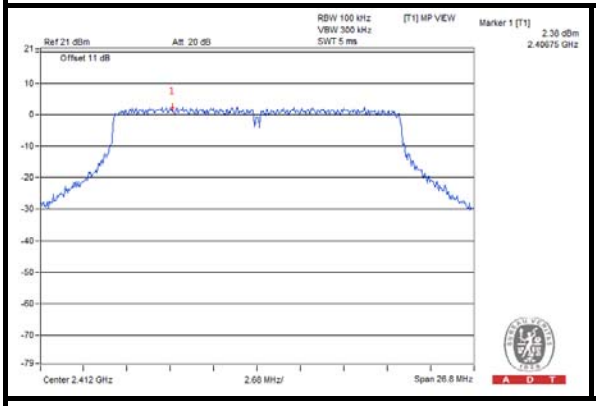
CH 11

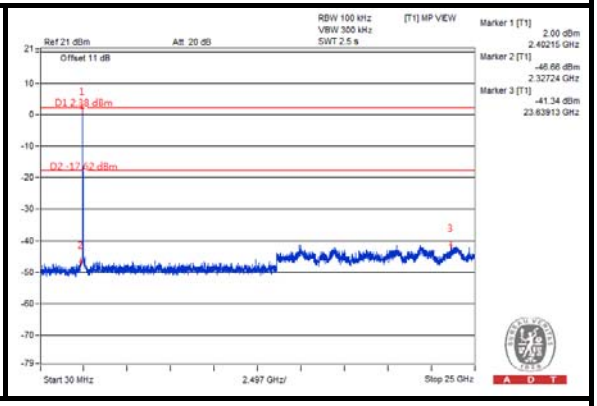




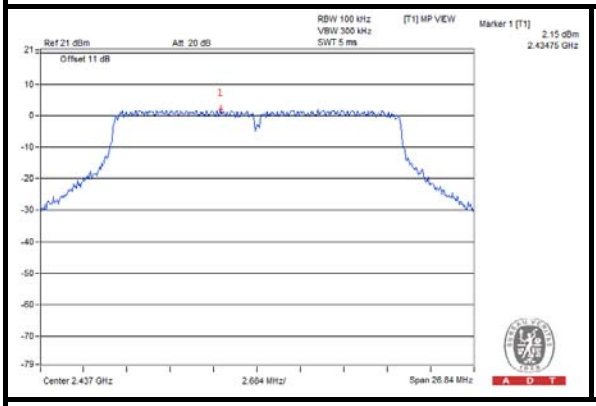
802.11n (20MHz)
CHAIN 0

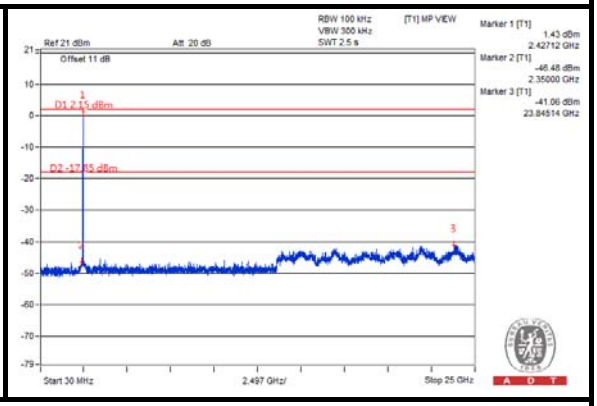
CH 1



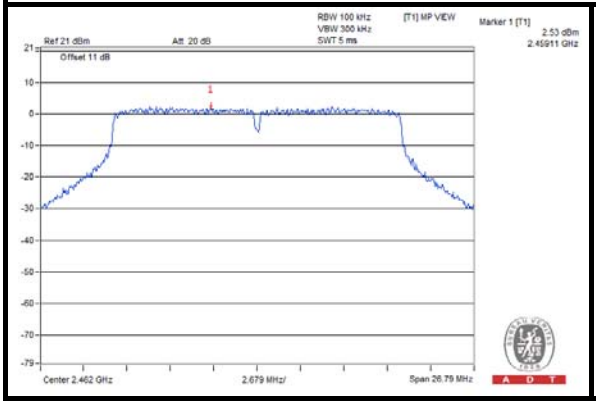


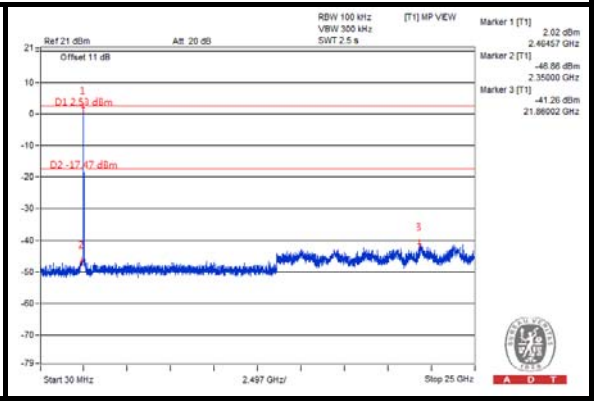
CH 6





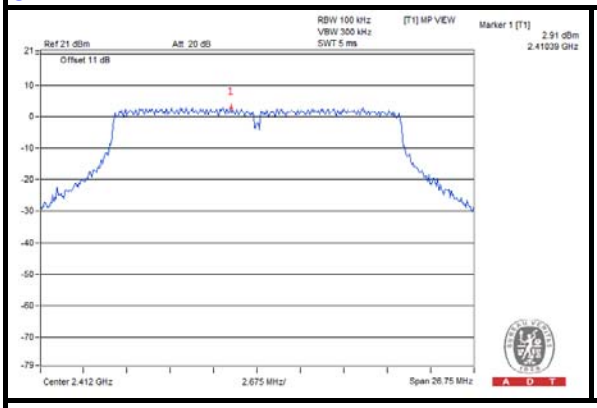
CH 11

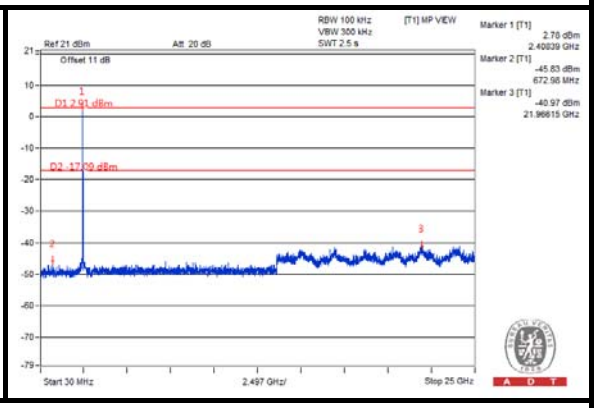




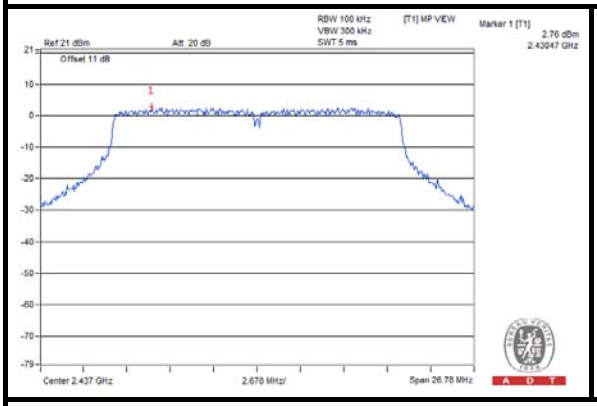
CHAIN 1

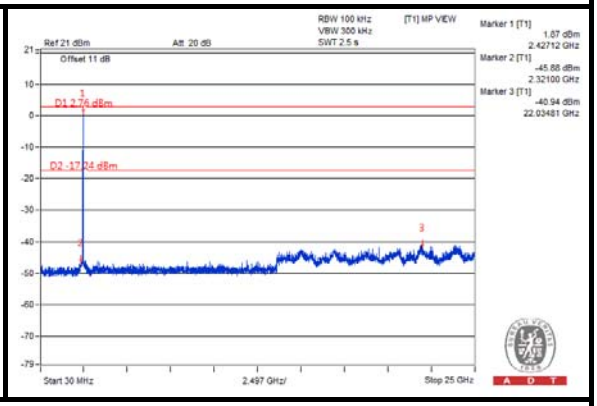
CH 1



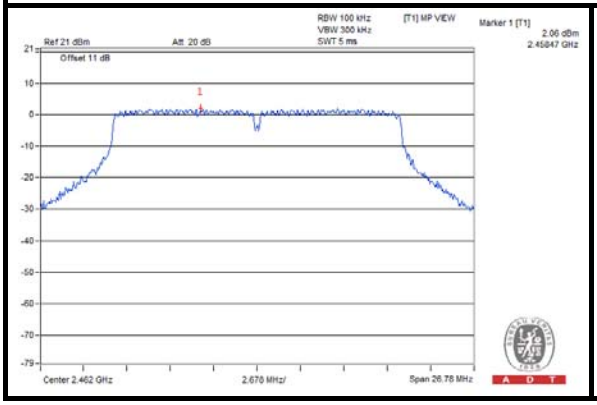


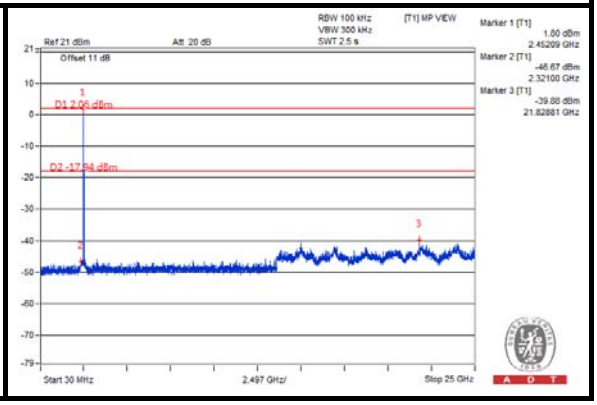
CH 6





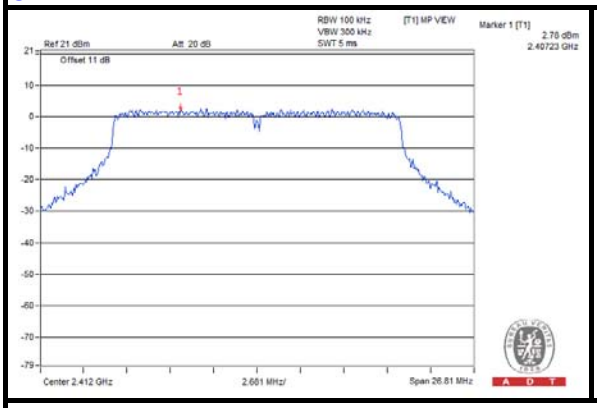
CH 11

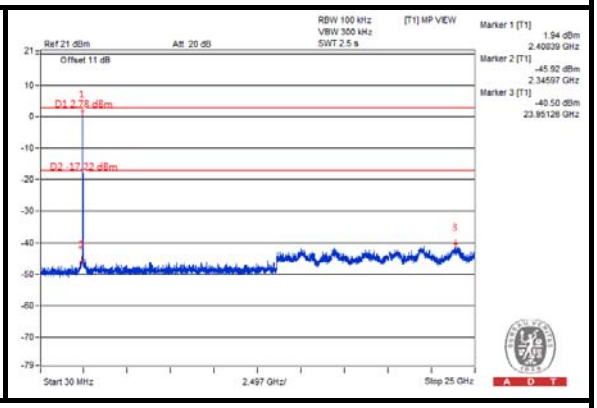




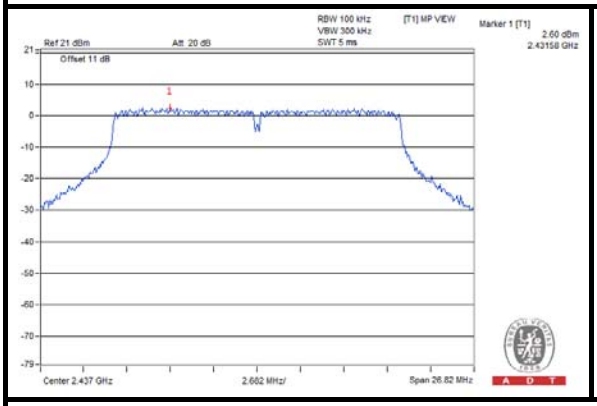
CHAIN 2

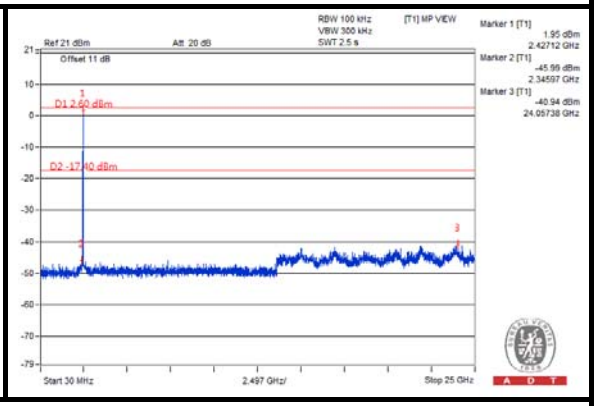
CH 1



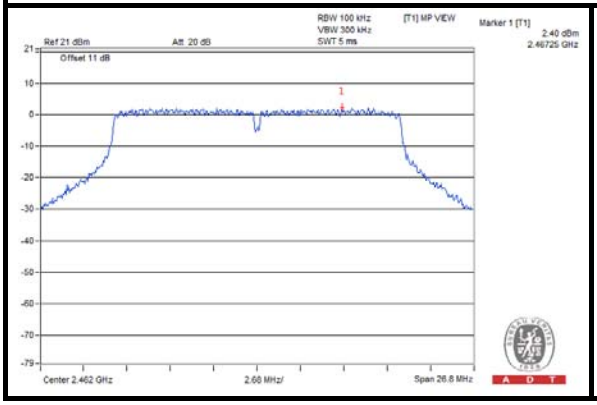


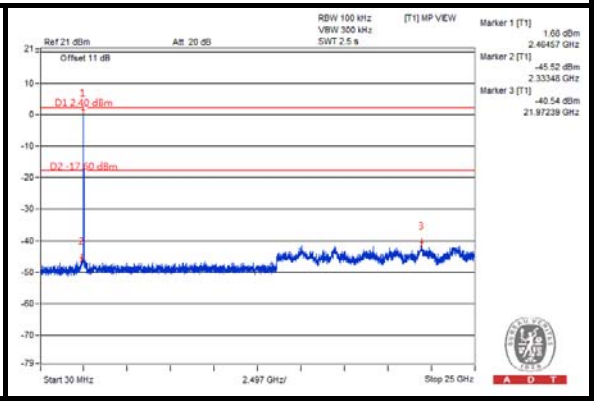
CH 6





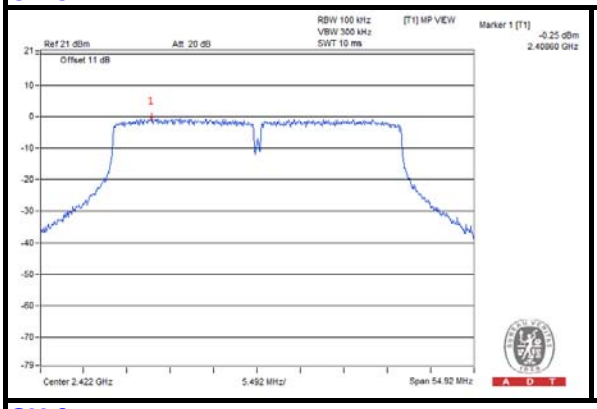
CH 11

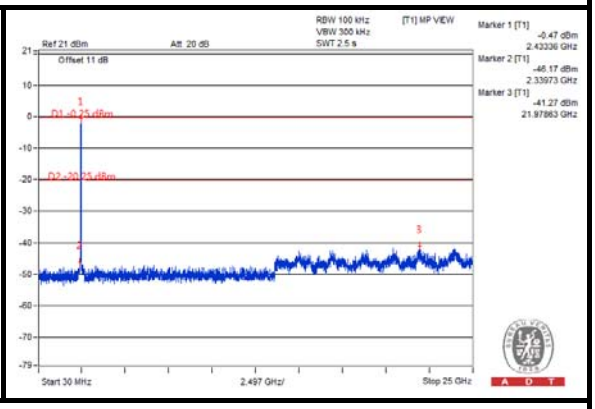




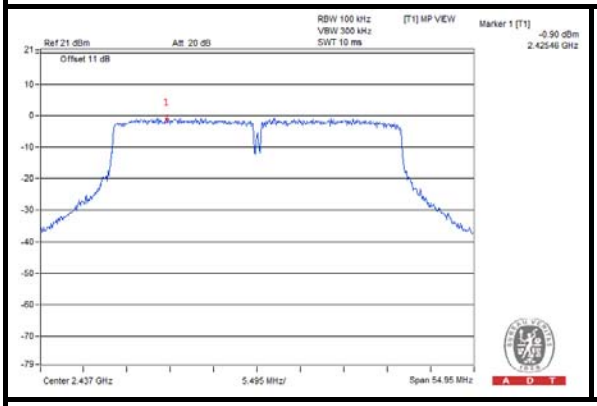
802.11n (40MHz)
CHAIN 0

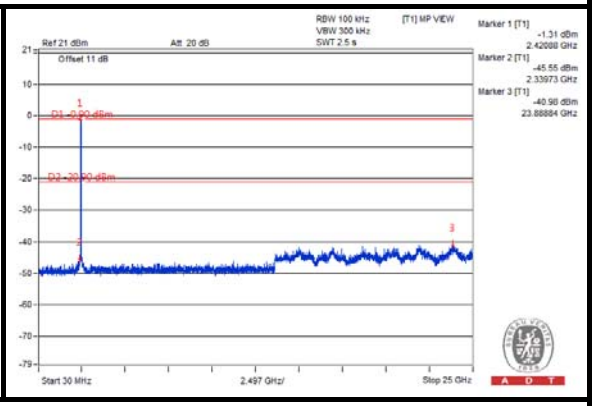
CH 3



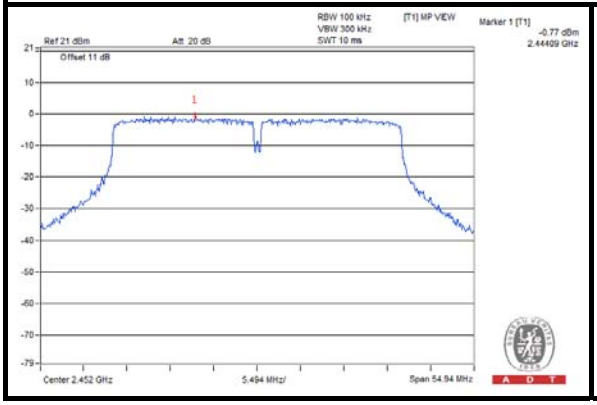


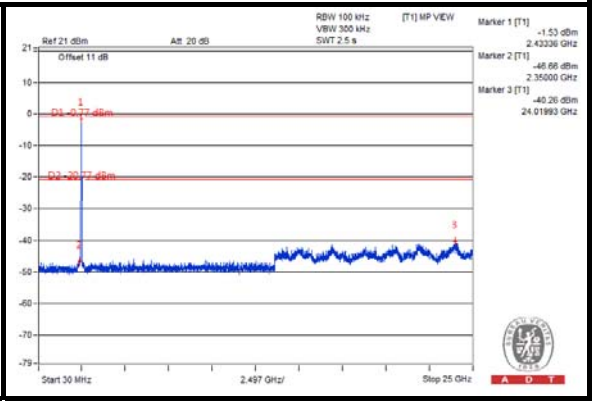
CH 6





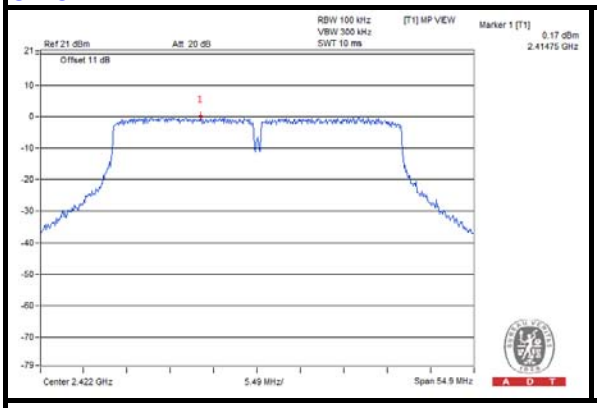
CH 9

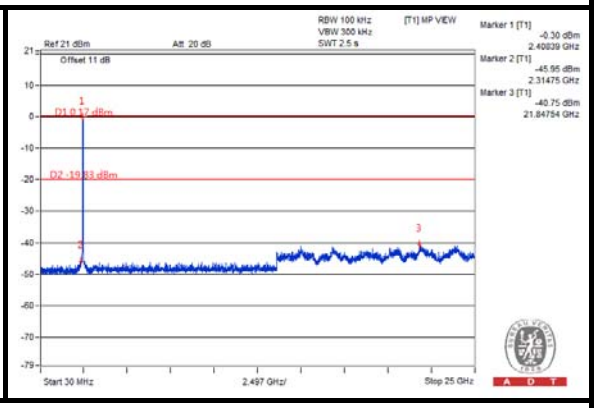




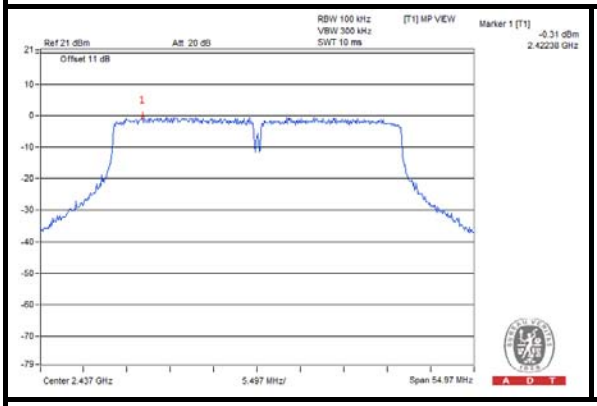
CHAIN 1

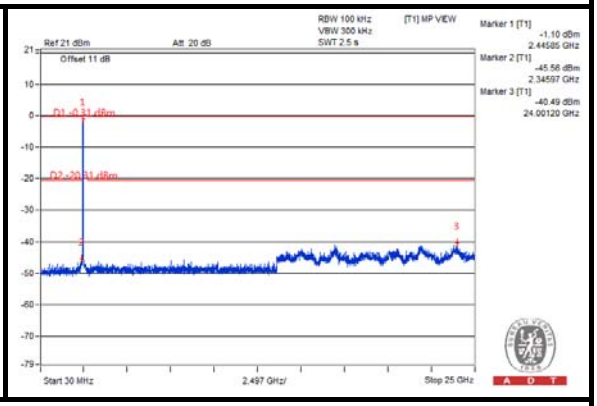
CH 3



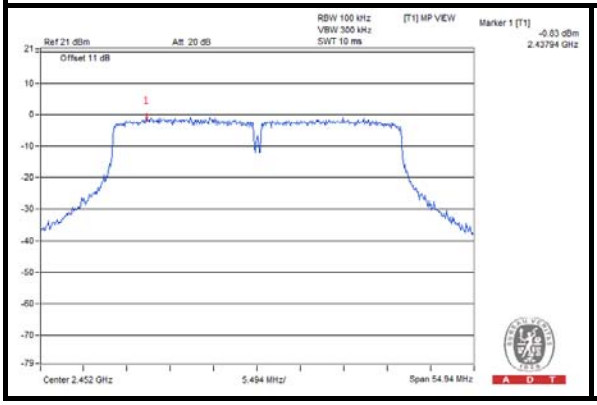


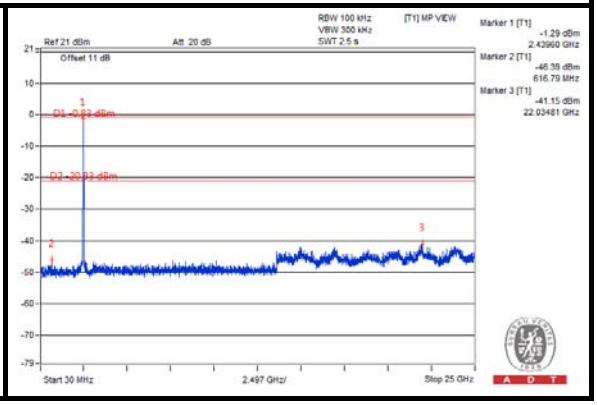
CH 6





CH 9





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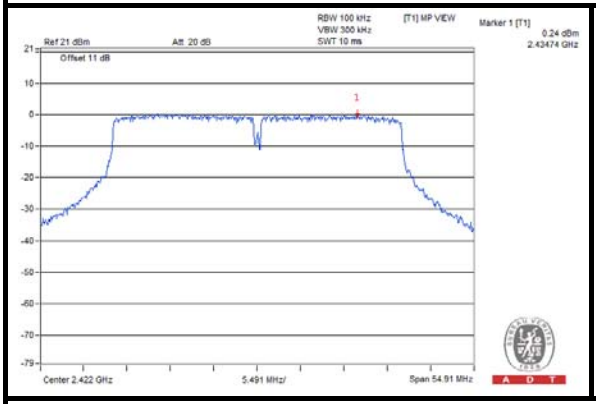
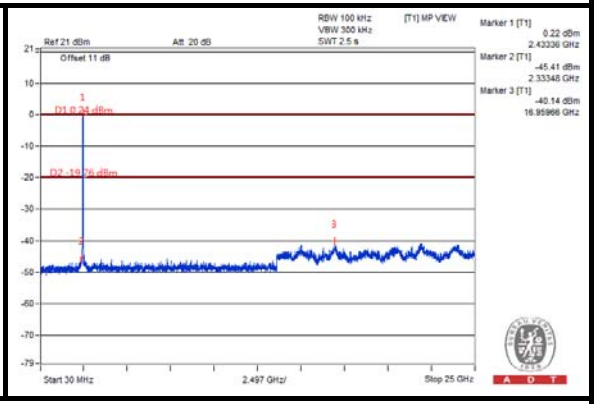
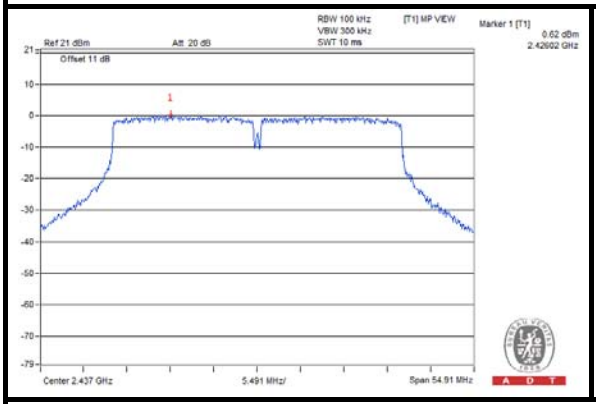
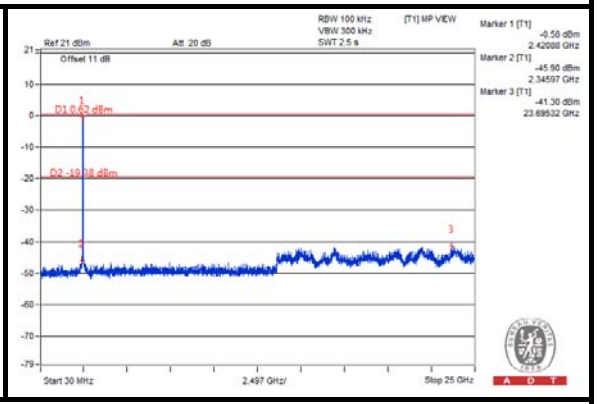
CH 3



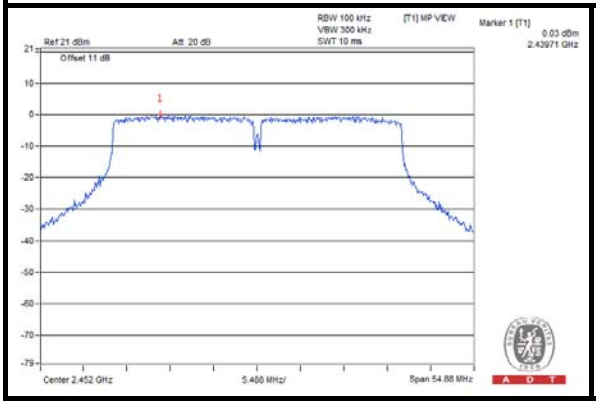


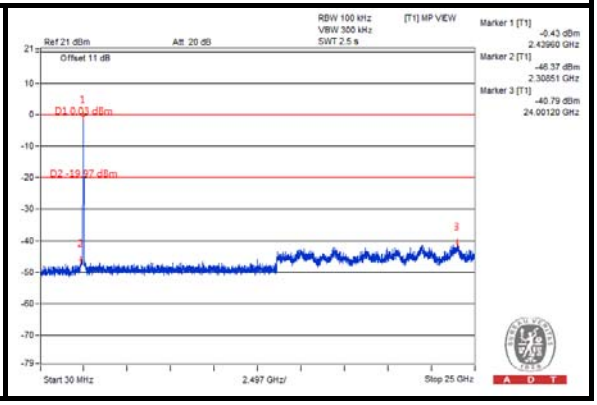
CH 6





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 item 4.1.6.

5.1.7 TEST RESULTS

ABOVE 1GHz DATA：

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	64.7 PK	89.2	-24.5	1.03 H	20	26.04	38.69
2	#5725.00	54.3 AV	78.7	-24.5	1.03 H	20	15.58	38.69
3	*5745.00	109.2 PK			1.05 H	349	70.48	38.72
4	*5745.00	98.7 AV			1.05 H	349	60.02	38.72
5	11490.00	59.4 PK	74.0	-14.6	1.02 H	87	43.98	15.40
6	11490.00	47.8 AV	54.0	-6.2	1.02 H	87	32.41	15.40
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	#5725.00	64.7 PK	93.6	-28.9	1.03 V	20	26.04	38.69
2	#5725.00	54.3 AV	83.2	-28.9	1.03 V	20	15.57	38.69
3	*5745.00	113.6 PK			1.02 V	12	74.88	38.72
4	*5745.00	103.2 AV			1.02 V	12	64.43	38.72
5	11490.00	57.3 PK	74.0	-16.8	1.25 V	86	41.85	15.40
6	11490.00	46.9 AV	54.0	-7.1	1.25 V	86	31.52	15.40

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	109.2 PK			1.36 H	330	70.45	38.78
2	*5785.00	99.4 AV			1.36 H	330	60.57	38.78
3	11570.00	57.8 PK	74.0	-16.2	1.11 H	207	42.65	15.11
4	11570.00	46.6 AV	54.0	-7.4	1.11 H	207	31.47	15.11
5	#17355.00	62.4 PK	89.2	-26.9	1.10 H	235	42.78	19.60
6	#17355.00	50.9 AV	79.4	-28.5	1.10 H	235	31.26	19.60
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	*5785.00	113.4 PK			1.01 V	11	74.57	38.78
2	*5785.00	103.4 AV			1.01 V	11	64.64	38.78
3	11570.00	60.8 PK	74.0	-13.2	1.25 V	301	45.68	15.11
4	11570.00	48.8 AV	54.0	-5.2	1.25 V	301	33.65	15.11
5	#17355.00	62.5 PK	93.4	-30.9	1.03 V	220	42.85	19.60
6	#17355.00	52.0 AV	83.4	-31.4	1.03 V	220	32.41	19.60

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	109.8 PK			1.04 H	331	70.91	38.85
2	*5825.00	99.5 AV			1.04 H	331	60.65	38.85
3	#5850.00	64.6 PK	89.8	-25.2	1.10 H	30	25.66	38.89
4	#5850.00	54.3 AV	79.5	-25.2	1.10 H	30	15.40	38.89
5	11650.00	56.8 PK	74.0	-17.3	1.25 H	98	41.85	14.90
6	11650.00	46.5 AV	54.0	-7.5	1.25 H	98	31.62	14.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	113.0 PK			1.01 V	10	74.14	38.85
2	*5825.00	103.6 AV			1.01 V	10	64.76	38.85
3	#5850.00	67.8 PK	93.0	-25.2	1.10 V	30	28.89	38.89
4	#5850.00	58.4 AV	83.6	-25.2	1.10 V	30	19.51	38.89
5	11650.00	60.5 PK	74.0	-13.5	1.02 V	231	45.63	14.90
6	11650.00	48.6 AV	54.0	-5.5	1.02 V	231	33.65	14.90

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) – 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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

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	25deg. C, 54%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	65.7 PK	90.7	-25.0	1.59 H	22	59.30	6.40
2	#5725.00	56.3 AV	81.3	-25.0	1.59 H	22	49.90	6.40
3	*5745.00	110.7 PK			1.81 H	169	71.80	38.90
4	*5745.00	101.3 AV			1.81 H	169	62.40	38.90
5	11490.00	63.5 PK	74.0	-10.5	1.38 H	147	43.90	19.60
6	11490.00	49.9 AV	54.0	-4.1	1.38 H	147	30.30	19.60
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	#5725.00	65.0 PK	90.0	-25.0	1.59 V	22	58.60	6.40
2	#5725.00	55.0 AV	80.0	-25.0	1.59 V	22	48.60	6.40
3	*5745.00	110.0 PK			1.22 V	133	71.10	38.90
4	*5745.00	100.0 AV			1.22 V	133	61.10	38.90
5	11490.00	65.6 PK	74.0	-8.4	1.39 V	147	46.00	19.60
6	11490.00	51.1 AV	54.0	-2.9	1.39 V	147	31.50	19.60

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	111.3 PK			1.39 H	178	72.40	38.90
2	*5785.00	102.1 AV			1.39 H	178	63.20	38.90
3	11570.00	63.7 PK	74.0	-10.3	1.58 H	96	44.10	19.60
4	11570.00	50.0 AV	54.0	-4.0	1.58 H	96	30.40	19.60
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	*5785.00	111.0 PK			1.10 V	140	72.10	38.90
2	*5785.00	101.1 AV			1.10 V	140	62.20	38.90
3	11570.00	65.5 PK	74.0	-8.5	1.05 V	98	45.90	19.60
4	11570.00	52.0 AV	54.0	-2.0	1.05 V	98	32.40	19.60

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 limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	112.2 PK			1.04 H	141	73.10	39.10
2	*5825.00	102.9 AV			1.04 H	141	63.80	39.10
3	#5850.00	67.2 PK	92.2	-25.0	1.10 H	150	60.60	6.60
4	#5850.00	57.9 AV	82.9	-25.0	1.10 H	150	51.30	6.60
5	11650.00	64.1 PK	74.0	-9.9	1.38 H	94	44.70	19.40
6	11650.00	49.6 AV	54.0	-4.4	1.38 H	94	30.20	19.40
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	*5825.00	109.9 PK			1.21 V	17	70.80	39.10
2	*5825.00	100.1 AV			1.21 V	17	61.00	39.10
3	#5850.00	64.9 PK	89.9	-25.0	1.30 V	30	58.30	6.60
4	#5850.00	55.1 AV	80.1	-25.0	1.30 V	30	48.50	6.60
5	11650.00	65.2 PK	74.0	-8.8	1.02 V	99	45.80	19.40
6	11650.00	50.6 AV	54.0	-3.4	1.02 V	99	31.20	19.40

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

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	25deg. C, 54%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	64.6 PK	88.6	-24.0	1.21 H	134	58.20	6.40
2	#5725.00	54.9 AV	78.9	-24.0	1.21 H	134	48.50	6.40
3	*5755.00	108.6 PK			1.51 H	169	69.70	38.90
4	*5755.00	98.9 AV			1.51 H	169	60.00	38.90
5	11510.00	64.3 PK	74.0	-9.7	1.52 H	98	44.70	19.60
6	11510.00	50.1 AV	54.0	-3.9	1.52 H	98	30.50	19.60
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	#5725.00	65.5 PK	89.5	-24.0	1.21 V	134	59.10	6.40
2	#5725.00	55.1 AV	79.1	-24.0	1.21 V	134	48.70	6.40
3	*5755.00	109.5 PK			1.47 V	133	70.60	38.90
4	*5755.00	99.1 AV			1.47 V	133	60.20	38.90
5	11510.00	65.6 PK	74.0	-8.4	1.08 V	93	46.00	19.60
6	11510.00	52.0 AV	54.0	-2.0	1.08 V	93	32.40	19.60

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	108.0 PK			1.05 H	186	69.00	39.00
2	*5795.00	98.6 AV			1.05 H	186	59.60	39.00
3	#5850.00	63.0 PK	88.0	-25.0	1.10 H	150	56.40	6.60
4	#5850.00	53.6 AV	78.6	-25.0	1.10 H	150	47.00	6.60
5	11590.00	64.0 PK	74.0	-10.0	1.29 H	87	44.50	19.50
6	11590.00	49.9 AV	54.0	-4.1	1.29 H	87	30.40	19.50
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	108.8 PK			1.00 V	136	69.80	39.00
2	*5795.00	98.3 AV			1.00 V	136	59.30	39.00
3	#5850.00	63.8 PK	88.8	-25.0	1.10 V	150	57.20	6.60
4	#5850.00	53.3 AV	78.3	-25.0	1.10 V	150	46.70	6.60
5	11590.00	65.5 PK	74.0	-8.5	1.03 V	85	46.00	19.50
6	11590.00	51.6 AV	54.0	-2.4	1.03 V	85	32.10	19.50

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	187.07	34.3 QP	43.5	-9.2	1.25 H	38	50.20	-15.90
2	280.21	44.1 QP	46.0	-1.9	1.00 H	119	56.80	-12.70
3	299.62	43.3 QP	46.0	-2.7	1.50 H	131	55.50	-12.20
4	352.01	35.6 QP	46.0	-10.4	1.00 H	235	46.80	-11.20
5	699.34	35.8 QP	46.0	-10.2	1.25 H	209	40.30	-4.50
6	901.14	37.4 QP	46.0	-8.6	1.50 H	163	37.80	-0.40
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	51.24	36.2 QP	40.0	-3.8	1.25 V	10	50.20	-14.00
2	93.93	29.3 QP	43.5	-14.2	1.00 V	223	48.50	-19.20
3	276.33	40.7 QP	46.0	-5.3	1.50 V	83	53.50	-12.80
4	375.29	31.5 QP	46.0	-14.5	1.25 V	180	42.30	-10.80
5	625.60	32.4 QP	46.0	-13.6	1.00 V	51	37.80	-5.40
6	901.14	35.0 QP	46.0	-11.0	1.50 V	281	35.40	-0.40

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 54%RH	TESTED BY	Chris Lin
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.07	26.5 QP	40.0	-13.5	1.50 H	16	41.10	-14.60
2	105.58	25.8 QP	43.5	-17.7	1.00 H	221	43.60	-17.80
3	282.15	44.5 QP	46.0	-1.5	1.24 H	126	57.20	-12.70
4	350.07	36.8 QP	46.0	-9.2	1.00 H	167	48.10	-11.30
5	499.48	33.2 QP	46.0	-12.8	1.24 H	210	41.50	-8.30
6	625.60	34.5 QP	46.0	-11.5	1.00 H	132	39.90	-5.40
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	30.00	34.3 QP	40.0	-5.7	1.00 V	78	49.80	-15.50
2	62.89	38.4 QP	40.0	-1.6	1.49 V	121	52.70	-14.30
3	280.21	39.8 QP	46.0	-6.2	1.00 V	93	52.50	-12.70
4	350.07	31.0 QP	46.0	-15.0	1.99 V	104	42.30	-11.30
5	499.48	34.2 QP	46.0	-11.8	1.24 V	115	42.50	-8.30
6	625.60	31.2 QP	46.0	-14.8	1.00 V	91	36.60	-5.40

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

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

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

5.2.2 T EST 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 item 4.1.6.

5.2.7 TEST RESULTS

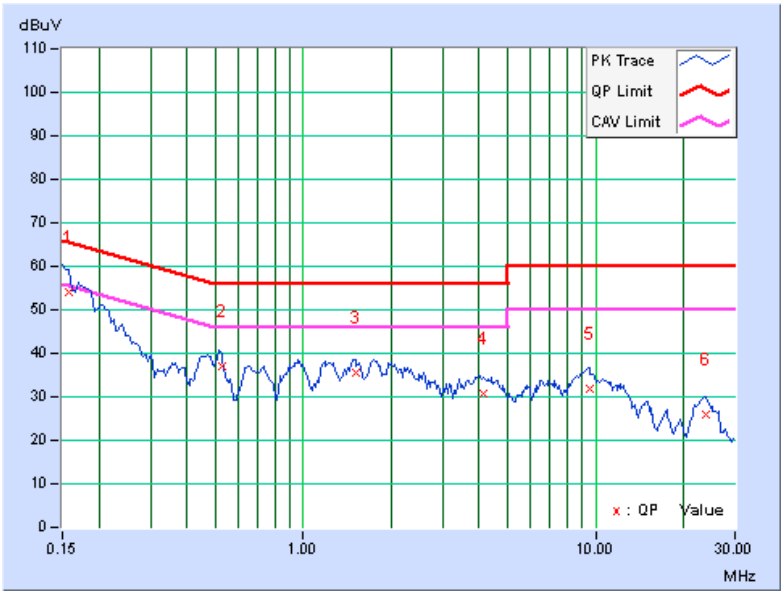
CONDUCTED WORST-CASE DATA：802.11n (40MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.17	53.99	35.32	54.16	35.49	65.58	55.58	-11.41	-20.08
2	0.52500	0.22	36.88	29.04	37.10	29.26	56.00	46.00	-18.90	-16.74
3	1.51953	0.28	35.10	30.39	35.38	30.67	56.00	46.00	-20.62	-15.33
4	4.14844	0.37	30.54	24.63	30.91	25.00	56.00	46.00	-25.09	-21.00
5	9.56250	0.43	31.57	26.44	32.00	26.87	60.00	50.00	-28.00	-23.13
6	23.90625	0.61	25.20	17.84	25.81	18.45	60.00	50.00	-34.19	-31.55

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

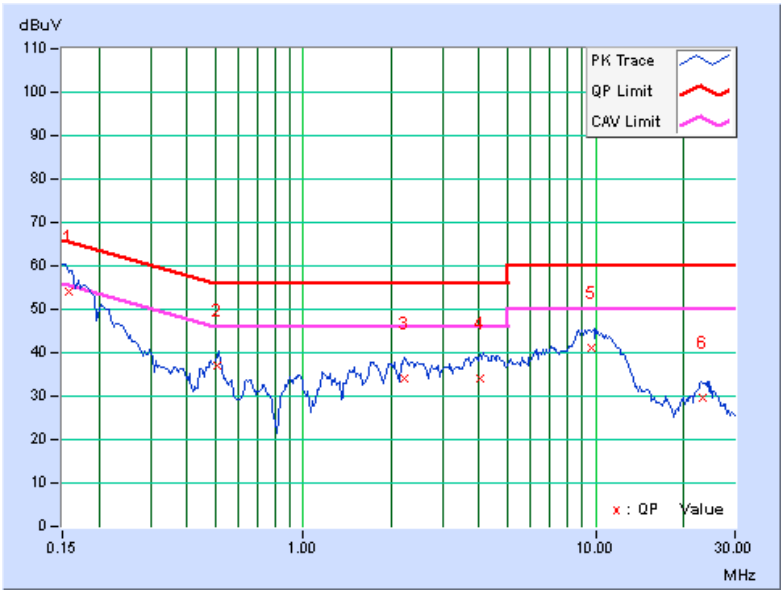


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.18	53.97	36.81	54.15	36.99	65.58	55.58	-11.42	-18.58
2	0.50547	0.25	36.65	31.40	36.90	31.65	56.00	46.00	-19.10	-14.35
3	2.21875	0.29	33.71	27.79	34.00	28.08	56.00	46.00	-22.00	-17.92
4	4.04688	0.39	33.82	27.29	34.21	27.68	56.00	46.00	-21.79	-18.32
5	9.67969	0.48	40.63	35.42	41.11	35.90	60.00	50.00	-18.89	-14.10
6	23.38672	0.70	28.93	23.70	29.63	24.40	60.00	50.00	-30.37	-25.60

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

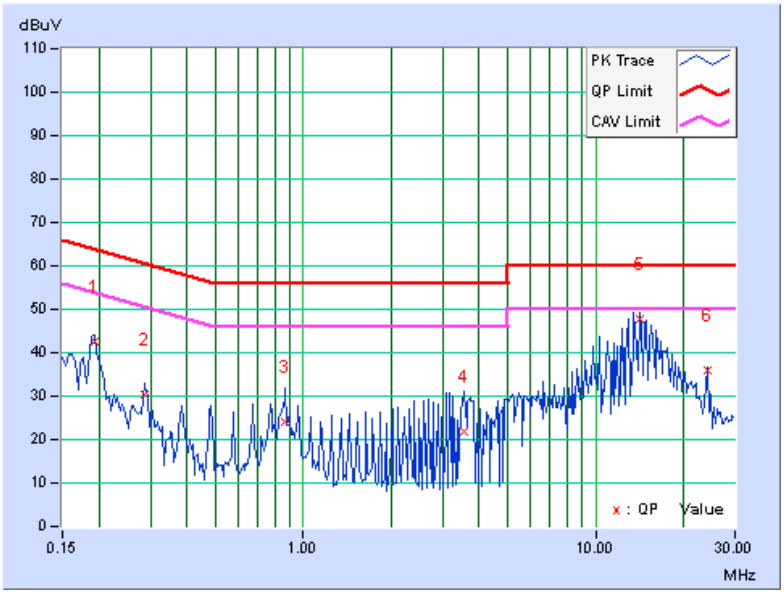


PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.17	42.48	32.83	42.65	33.00	63.91	53.91	-21.26	-20.91
2	0.28672	0.19	30.30	28.64	30.49	28.83	60.62	50.62	-30.13	-21.79
3	0.86094	0.26	23.69	20.01	23.95	20.27	56.00	46.00	-32.05	-25.73
4	3.55469	0.35	21.37	17.47	21.72	17.82	56.00	46.00	-34.28	-28.18
5	14.13281	0.52	47.39	45.79	47.91	46.31	60.00	50.00	-12.09	-3.69
6	24.08594	0.61	35.17	35.14	35.78	35.75	60.00	50.00	-24.22	-14.25

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

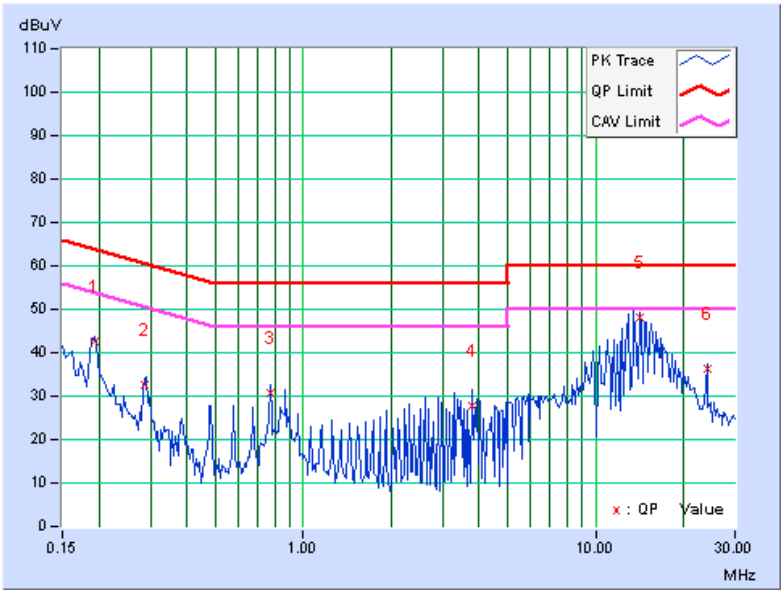


PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.18	42.36	31.86	42.54	32.04	63.91	53.91	-21.37	-21.87
2	0.28672	0.21	32.47	25.93	32.68	26.14	60.62	50.62	-27.94	-24.48
3	0.77109	0.24	30.57	25.70	30.81	25.94	56.00	46.00	-25.19	-20.06
4	3.75781	0.38	27.50	21.78	27.88	22.16	56.00	46.00	-28.12	-23.84
5	14.13281	0.58	47.72	44.14	48.30	44.72	60.00	50.00	-11.70	-5.28
6	24.08594	0.70	35.56	35.46	36.26	36.16	60.00	50.00	-23.74	-13.84

REMARKS:

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



5.3 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	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.43	0.5	PASS
157	5785	16.50	0.5	PASS
165	5825	16.49	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	17.80	17.66	17.70	0.5	PASS
157	5785	17.75	17.74	17.67	0.5	PASS
165	5825	17.70	17.71	17.67	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	36.51	36.50	36.54	0.5	PASS
159	5795	36.32	36.53	36.49	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 ≤ 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.

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

FOR PEAK POWER

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	285.759	24.56	30	PASS
157	5785	264.850	24.23	30	PASS
165	5825	268.534	24.29	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	23.73	24.79	24.55	822.451	29.15	30	PASS
157	5785	24.75	23.99	24.85	854.641	29.32	30	PASS
165	5825	23.44	24.89	23.79	768.451	28.86	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	24.16	24.61	24.89	858.002	29.33	30	PASS
159	5795	24.62	24.92	24.88	**907.800**	29.58	30	PASS

FOR AVERAGE POWER

802.11a

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
149	5745	44.566	16.49
157	5785	42.073	16.24
165	5825	37.497	15.74

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	CHAIN 2		
149	5745	14.99	16.71	16.28	120.893	20.82
157	5785	16.43	16.57	16.46	133.607	21.26
165	5825	14.76	16.49	15.71	111.728	20.48

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1	CHAIN 2		
151	5755	16.71	16.89	16.26	138.013	21.40
159	5795	16.42	16.84	16.61	137.973	21.40

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

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	-9.19	8	PASS
157	5785	-8.01	8	PASS
165	5825	-8.83	8	PASS

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	-11.25	4.77	-6.48	4.23	PASS
	157	5785	-8.11	4.77	-3.34	4.23	PASS
	165	5825	-9.89	4.77	-5.12	4.23	PASS
1	149	5745	-7.88	4.77	-3.11	4.23	PASS
	157	5785	-8.64	4.77	-3.87	4.23	PASS
	165	5825	-8.94	4.77	-4.17	4.23	PASS
2	149	5745	-10.13	4.77	-5.36	4.23	PASS
	157	5785	-8.04	4.77	-3.27	4.23	PASS
	165	5825	-9.17	4.77	-4.40	4.23	PASS

NOTE: Directional gain = 5dBi + 10log(3) = 9.77dBi > 6dBi , so the power density limit shall be reduced to 8-(9.77-6) = 4.23dBm.

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	-11.50	4.77	-6.73	4.23	PASS
	159	5795	-11.79	4.77	-7.02	4.23	PASS
1	151	5755	-11.70	4.77	-6.93	4.23	PASS
	159	5795	-9.65	4.77	-4.88	4.23	PASS
2	151	5755	-11.66	4.77	-6.89	4.23	PASS
	159	5795	-10.78	4.77	-6.01	4.23	PASS

NOTE: Directional gain = 5dBi + 10log(3) = 9.77dBi > 6dBi , so the power density limit shall be reduced to 8-(9.77-6) = 4.23dBm.

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

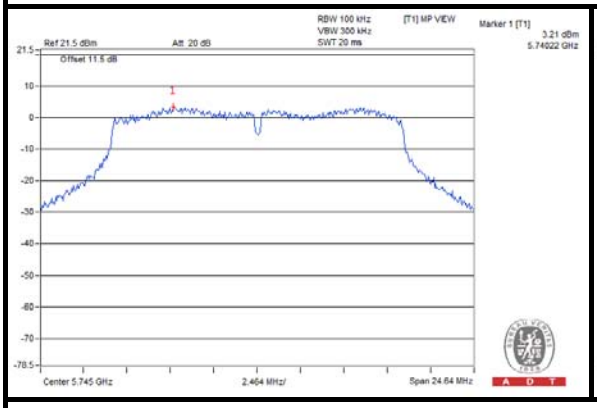
5.6.7 TEST RESULTS

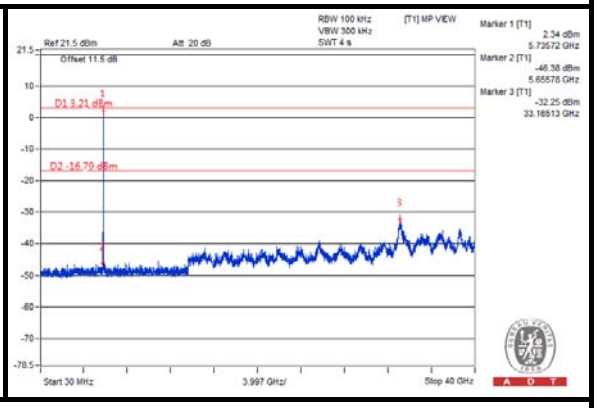
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

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.

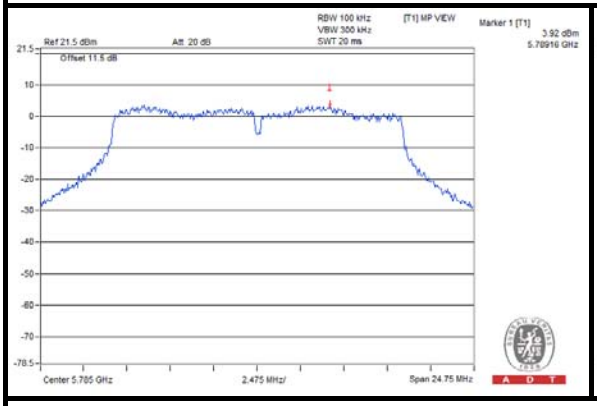
802.11a

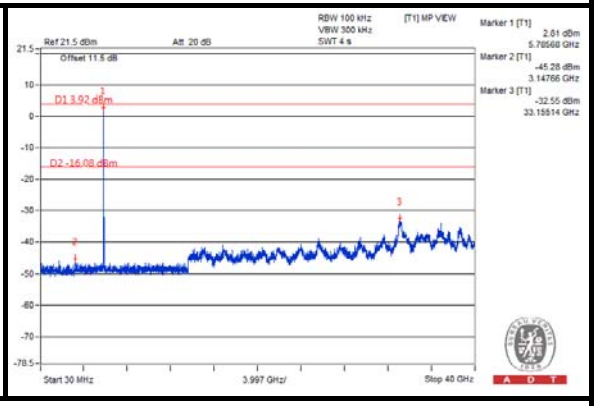
CH 149



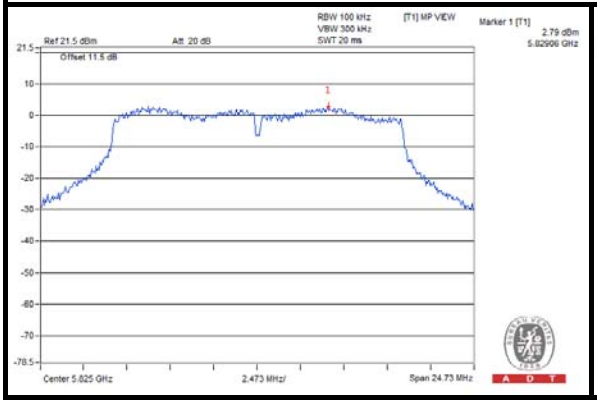


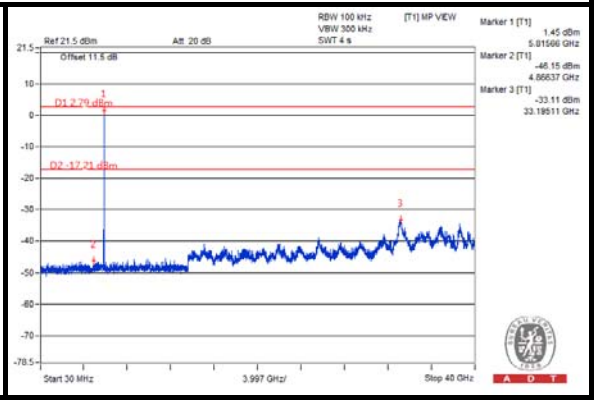
CH 157





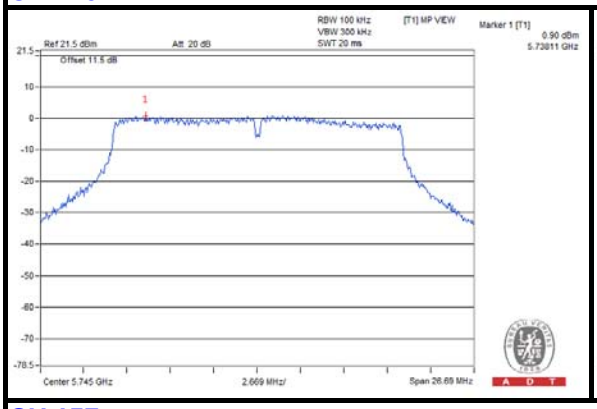
CH 165

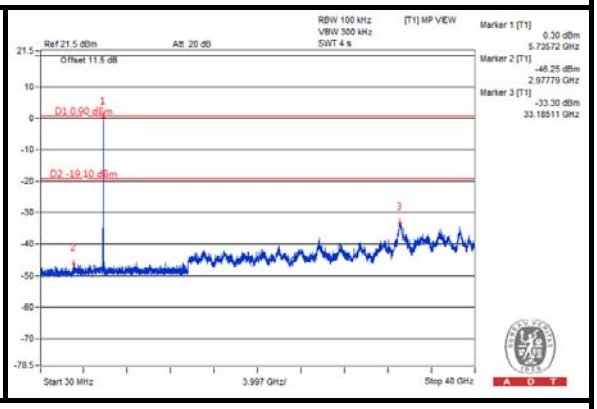




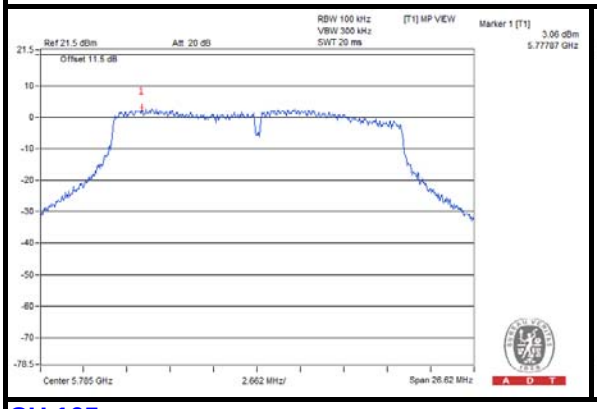
802.11n (20MHz)
CHAIN 0

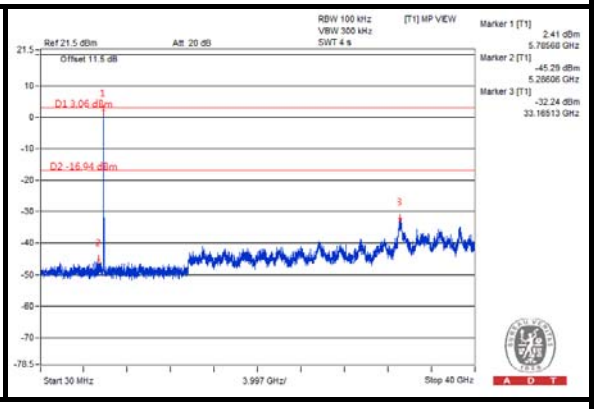
CH 149



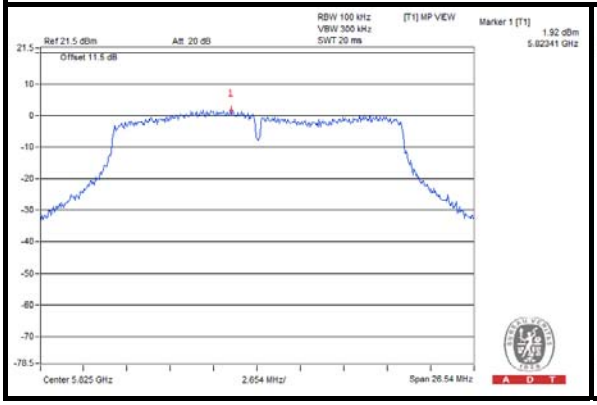


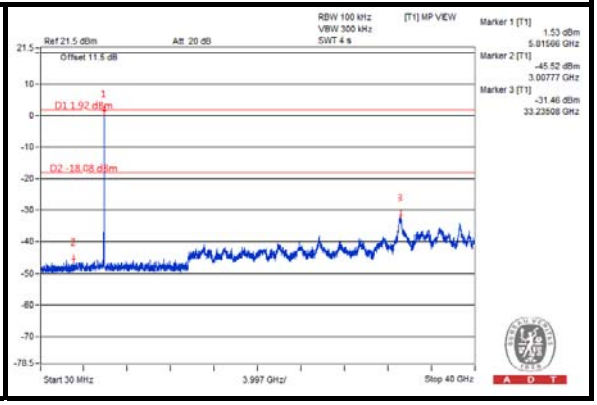
CH 157





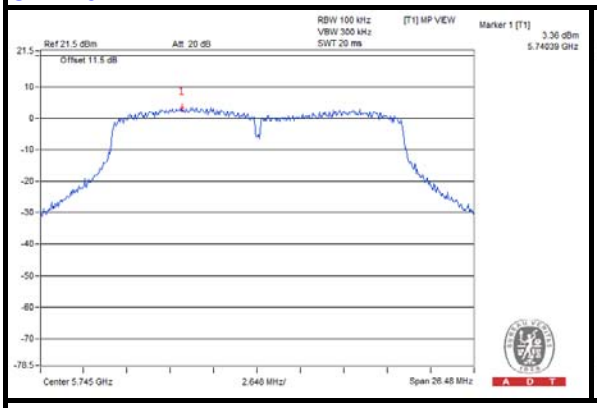
CH 165

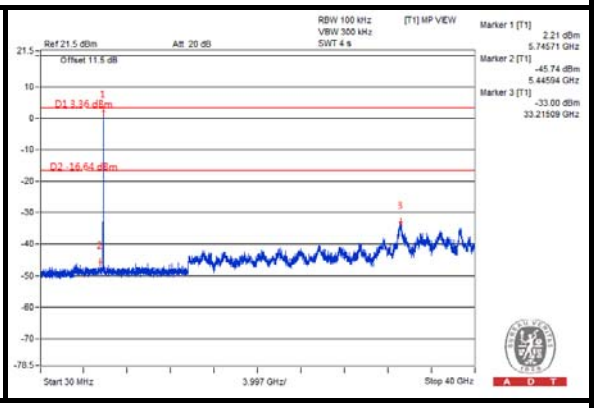




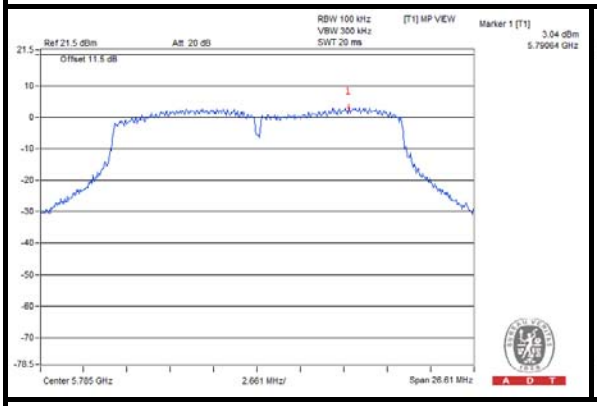
CHAIN 1

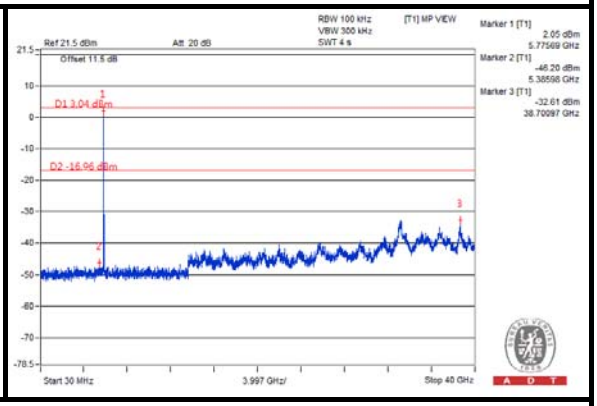
CH 149



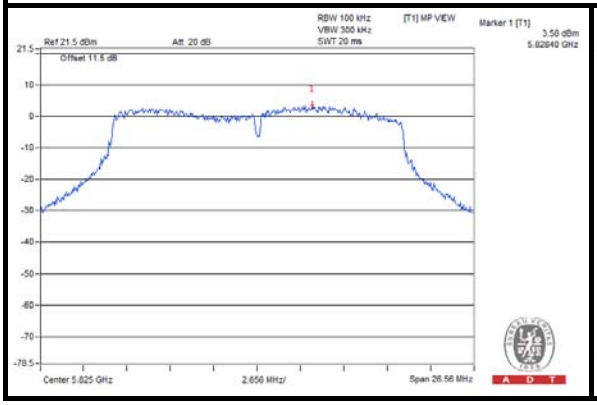


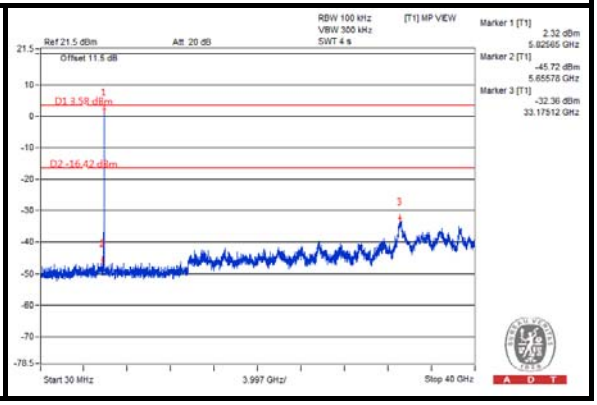
CH 157





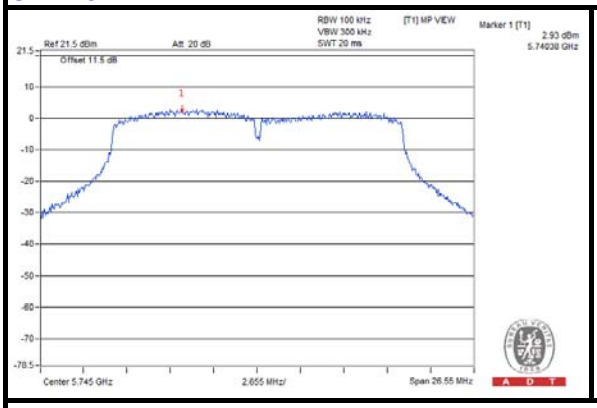
CH 165

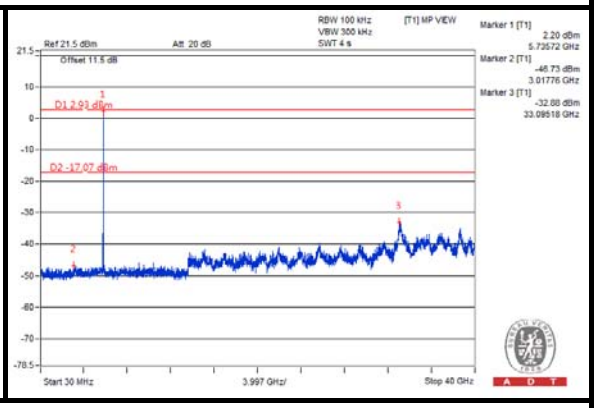




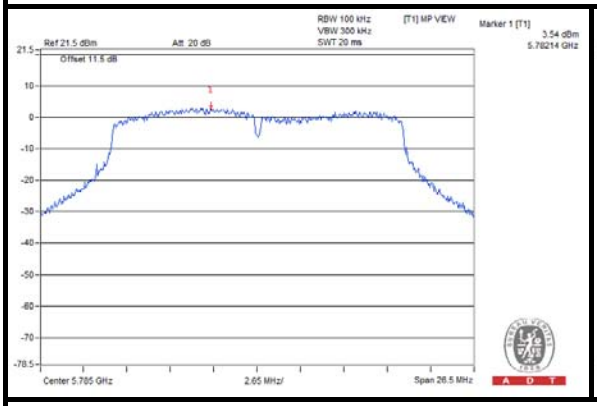
CHAIN 2

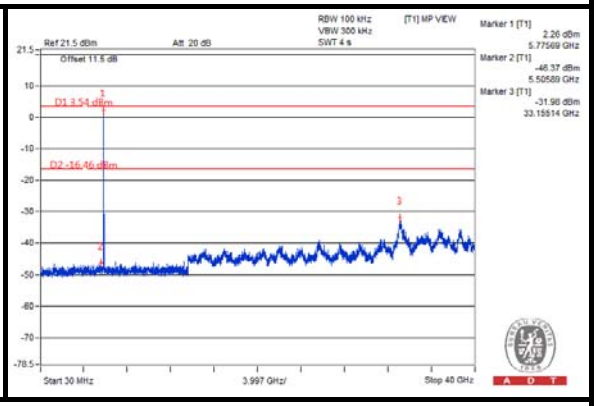
CH 149



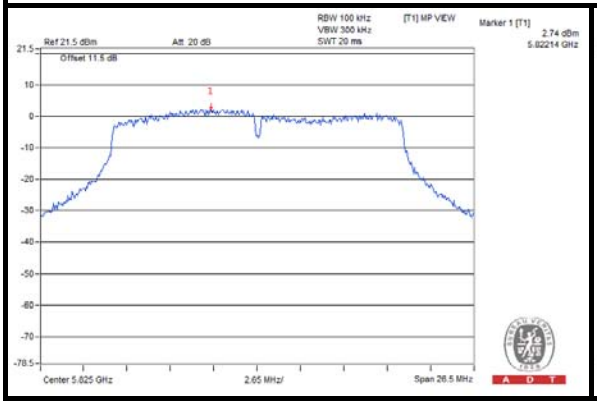


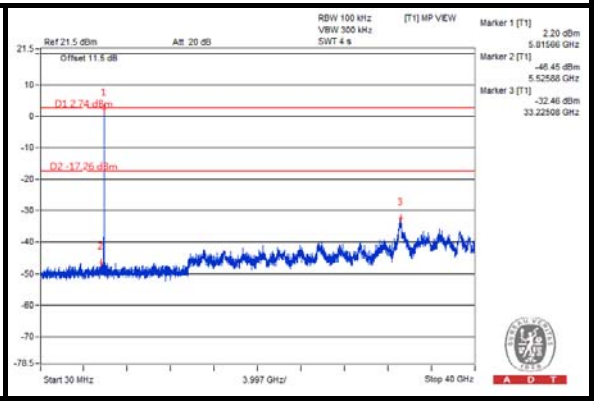
CH 157





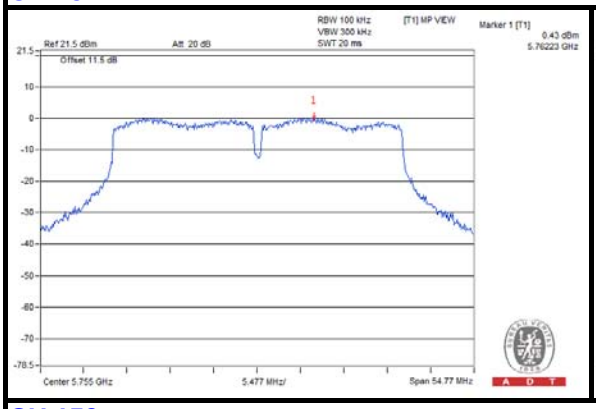
CH 165

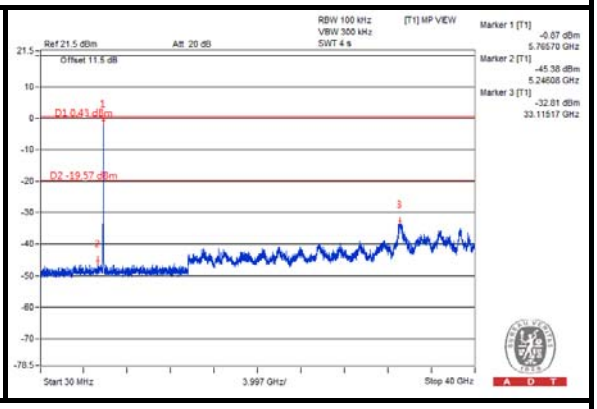




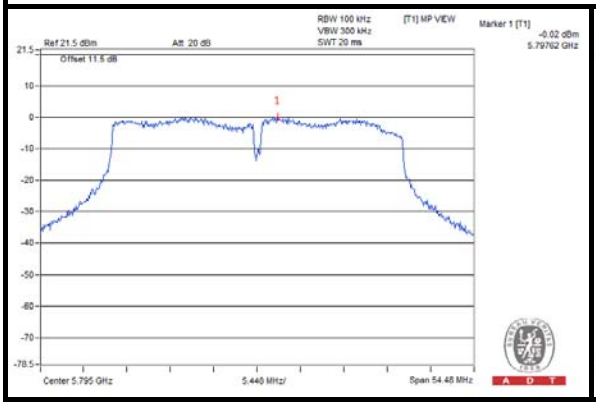
802.11n (40MHz)
CHAIN 0

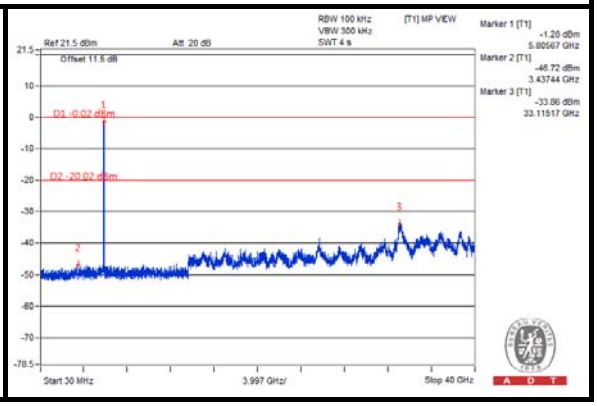
CH 151





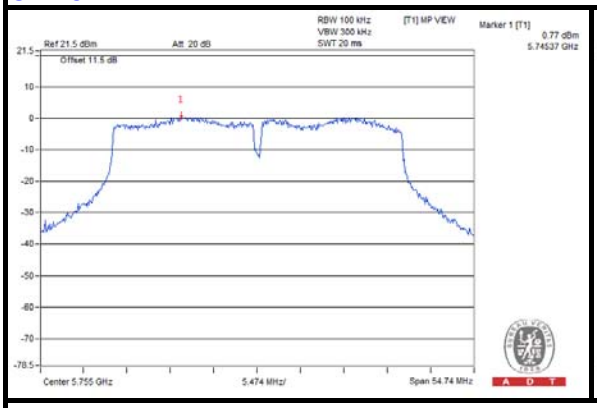
CH 159

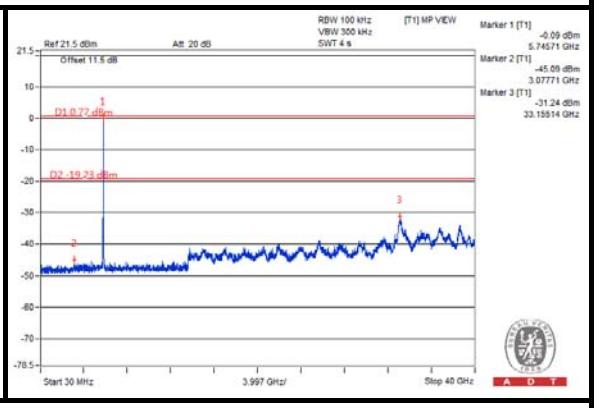




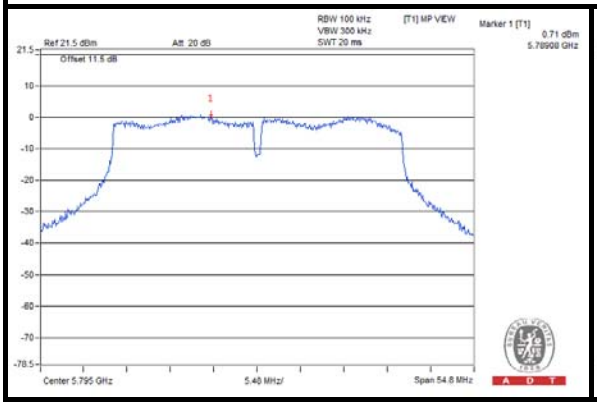
CHAIN 1

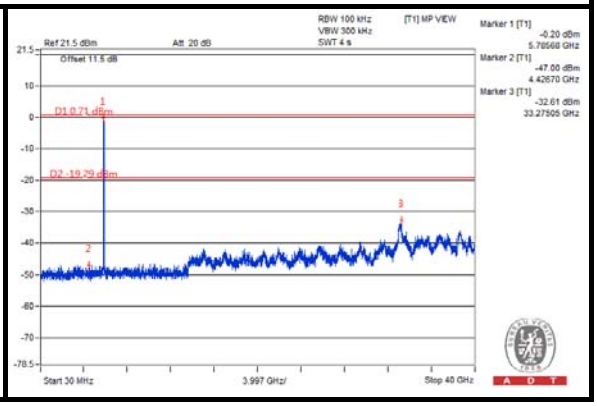
CH 151





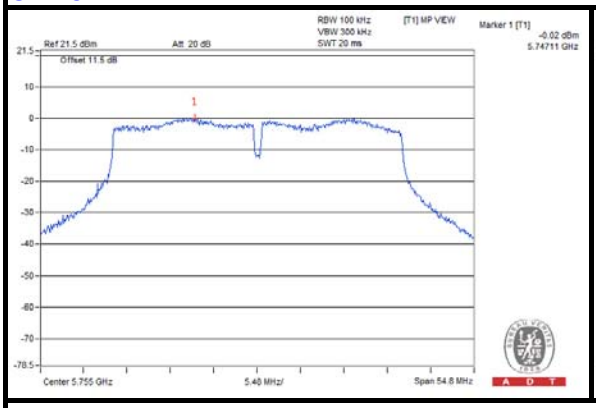
CH 159

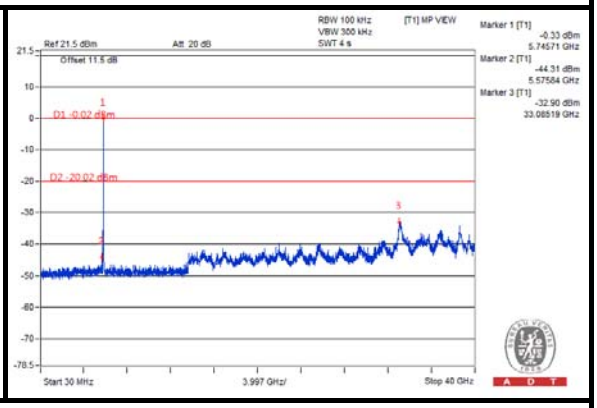




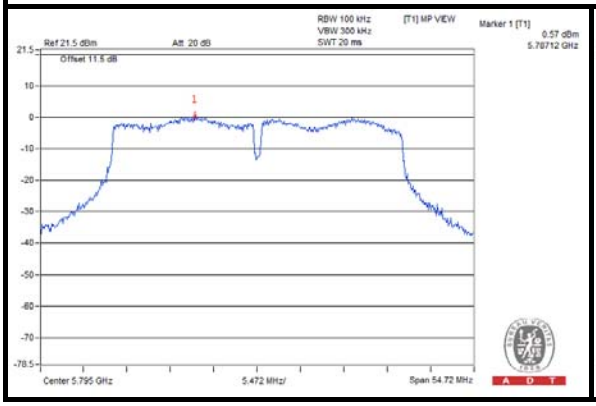
CHAIN 2

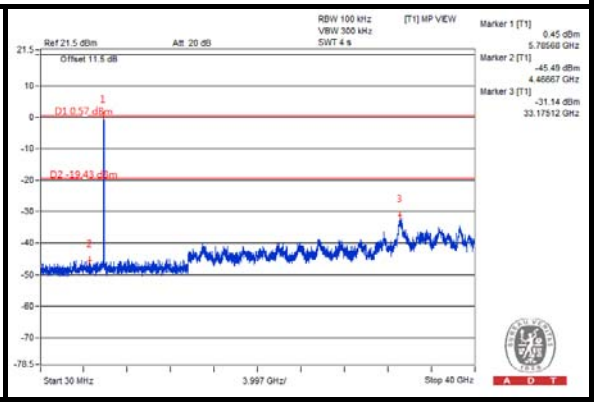
CH 151





CH 159





6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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:

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

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

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---