

FCC TEST REPORT (15.247)

REPORT NO.: RF130610C18

MODEL NO.: EUB1200AC

FCC ID: A8J-EUB1200AC

RECEIVED: Jun. 10, 2013

TESTED: Jun. 18 ~ Jun. 21, 2013

ISSUED: Jul. 10, 2013

APPLICANT: EnGenius Technologies

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130610C18	Original release	Jul. 10, 2013



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1. CERTIFICATION

PRODUCT: Dual Band Wireless-AC USB Adapter
MODEL NO.: EUB1200AC
BRAND: EnGenius
APPLICANT: EnGenius Technologies
TESTED: Jun. 18 ~ Jun. 21, 2013
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10-2009

The above equipment (model: EUB1200AC) 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 :** Jul. 10, 2013
Celine Chou / Specialist

APPROVED BY : Ken Liu , **DATE :** Jul. 10, 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 -8.77dB at 0.61875MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.6dB at 5725.00MHz.
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	No antenna connector is used.

2.1 MEASUREMENT UNCERTAINTY

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

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Dual Band Wireless-AC USB Adapter
MODEL NO.	EUB1200AC
POWER SUPPLY	5Vdc (Host equipment)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 256QAM, 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 300Mbps 802.11ac: up to 867Mbps
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) 802.11ac (80MHz): 1
OUTPUT POWER	7.295mW for 2412 ~ 2462MHz 2.435mW for 5745 ~ 5825MHz
ANTENNA TYPE	2.4GHz: Printed antenna with 1.0dBi gain 5.0GHz: Printed antenna with 4.0dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	NA

NOTE:

1. The EUT incorporates a MIMO function. The EUT provides 2 completed transmitters and 2 receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX, 2RX
802.11g	1TX, 2RX
802.11a	1TX, 2RX
802.11n (20MHz) MCS 0-7	1TX, 2RX
802.11n (20MHz) MCS 8-15	2TX, 2RX
802.11n (40MHz) MCS 0-7	1TX, 2RX
802.11n (40MHz) MCS 8-15	2TX, 2RX
802.11ac (80MHz) MCS 0-9	1TX, 2RX
802.11ac (80MHz) MCS 10-19	2TX, 2RX

2. 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

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
155	5775MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

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

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)	TX FUNCTION
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	30.0	2TX

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11g	1 to 11	1	OFDM	BPSK	6.0	1TX

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11g	1 to 11	1	OFDM	BPSK	6.0	1TX

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)	TX FUNCTION
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	1TX
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	30.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	30.0	2TX



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
PLC	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
APCM	25deg. C, 65%RH	120Vac, 60Hz	Nick Chen

FOR 5.0GHz (5745 ~ 5825MHz):

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

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

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

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)	TX FUNCTION
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	32.5	1TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	65.0	2TX

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11n (40MHz)	151 to 159	151	OFDM	BPSK	15.0	1TX

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11n (40MHz)	151 to 159	151	OFDM	BPSK	15.0	1TX

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)	TX FUNCTION
-	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	32.5	1TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	65.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	14.4	2TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	32.5	1TX
-	802.11ac (80MHz)	155	155	OFDM	BPSK	65.0	2TX

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE _≥ 1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
PLC	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
APCM	25deg. C, 65%RH	120Vac, 60Hz	Nick Chen



3.3 DESCRIPTION OF SUPPORT UNITS

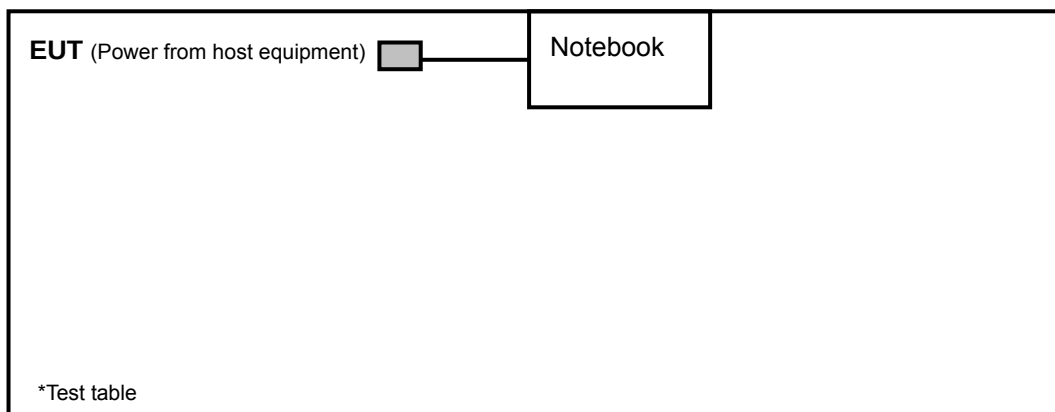
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5520	8Y4DMQ1	FCC Doc approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	0.3m USB Cable without core

NOTE: All power cords of the above support units are non-shielded (1.8m).

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST





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3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r01

662911 D01 Multiple Transmitter Output v02

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.



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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Mar. 22, 2013	Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2012	Aug. 10, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.3	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0824012	Aug. 22, 2012	Aug. 21, 2013
Power Sensor	MA2411B	0738171	Jul. 30, 2013	Jul. 29, 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 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 215374.
5. The IC Site Registration No. is IC 7450F-9.

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.

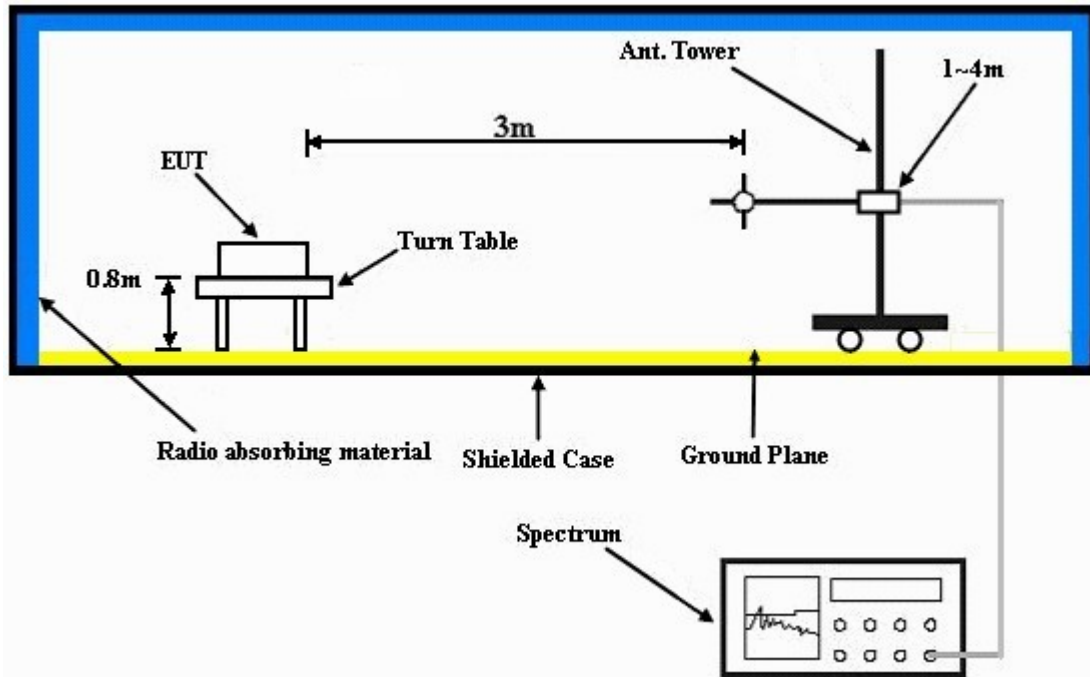
NOTE:

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

- The EUT was connected to the notebook with USB cable and placed them on the testing table.
- The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.



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4.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	60.1 PK	74.0	-13.9	1.12 H	168	24.40	35.70
2	2390.00	48.6 AV	54.0	-5.4	1.12 H	168	12.90	35.70
3	*2412.00	103.5 PK			1.09 H	164	67.70	35.80
4	*2412.00	99.6 AV			1.09 H	164	63.80	35.80
5	4824.00	50.9 PK	74.0	-23.1	1.01 H	170	7.80	43.10
6	4824.00	41.9 AV	54.0	-12.1	1.01 H	170	-1.20	43.10
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	60.2 PK	74.0	-13.8	1.00 V	112	24.50	35.70
2	2390.00	48.7 AV	54.0	-5.3	1.00 V	112	13.00	35.70
3	*2412.00	91.3 PK			1.00 V	109	55.50	35.80
4	*2412.00	87.2 AV			1.00 V	109	51.40	35.80
5	4824.00	50.1 PK	74.0	-23.9	1.58 V	181	7.00	43.10
6	4824.00	39.9 AV	54.0	-14.1	1.58 V	181	-3.20	43.10

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	102.1 PK			1.36 H	164	66.30	35.80
2	*2437.00	98.4 AV			1.36 H	164	62.60	35.80
3	4874.00	51.1 PK	74.0	-22.9	1.00 H	173	7.90	43.20
4	4874.00	41.7 AV	54.0	-12.3	1.00 H	173	-1.50	43.20
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	*2437.00	92.0 PK			1.00 V	112	56.20	35.80
2	*2437.00	88.0 AV			1.00 V	112	52.20	35.80
3	4874.00	50.2 PK	74.0	-23.8	1.00 V	186	7.00	43.20
4	4874.00	39.2 AV	54.0	-14.8	1.00 V	186	-4.00	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	102.0 PK			1.07 H	164	66.10	35.90
2	*2462.00	98.0 AV			1.07 H	164	62.10	35.90
3	2483.50	61.5 PK	74.0	-12.5	1.05 H	166	25.60	35.90
4	2483.50	49.7 AV	54.0	-4.3	1.05 H	166	13.80	35.90
5	4924.00	49.9 PK	74.0	-24.1	1.00 H	173	6.50	43.40
6	4924.00	40.5 AV	54.0	-13.5	1.00 H	173	-2.90	43.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	91.2 PK			1.00 V	62	55.30	35.90
2	*2462.00	87.4 AV			1.00 V	62	51.50	35.90
3	2483.50	61.0 PK	74.0	-13.0	1.00 V	64	25.10	35.90
4	2483.50	48.6 AV	54.0	-5.4	1.00 V	64	12.70	35.90
5	4924.00	50.4 PK	74.0	-23.6	1.15 V	190	7.00	43.40
6	4924.00	38.5 AV	54.0	-15.5	1.15 V	190	-4.90	43.40

REMARKS:

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



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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	60.6 PK	74.0	-13.4	1.05 H	166	24.90	35.70
2	2390.00	49.8 AV	54.0	-4.2	1.05 H	166	14.10	35.70
3	*2412.00	103.9 PK			1.08 H	164	68.10	35.80
4	*2412.00	94.5 AV			1.08 H	164	58.70	35.80
5	4824.00	52.5 PK	74.0	-21.5	1.00 H	157	9.40	43.10
6	4824.00	38.4 AV	54.0	-15.6	1.00 H	157	-4.70	43.10
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	60.7 PK	74.0	-13.3	1.00 V	108	25.00	35.70
2	2390.00	48.7 AV	54.0	-5.3	1.00 V	108	13.00	35.70
3	*2412.00	94.5 PK			1.00 V	110	58.70	35.80
4	*2412.00	85.1 AV			1.00 V	110	49.30	35.80
5	4824.00	48.4 PK	74.0	-25.6	1.32 V	114	5.30	43.10
6	4824.00	36.4 AV	54.0	-17.6	1.32 V	114	-6.70	43.10

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	104.9 PK			1.08 H	165	69.10	35.80
2	*2437.00	95.5 AV			1.08 H	165	59.70	35.80
3	4874.00	52.7 PK	74.0	-21.3	1.04 H	110	9.50	43.20
4	4874.00	39.9 AV	54.0	-14.1	1.04 H	110	-3.30	43.20
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	*2437.00	95.4 PK			1.00 V	112	59.60	35.80
2	*2437.00	86.2 AV			1.00 V	112	50.40	35.80
3	4874.00	48.2 PK	74.0	-25.8	1.54 V	115	5.00	43.20
4	4874.00	36.5 AV	54.0	-17.5	1.54 V	115	-6.70	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	104.5 PK			1.06 H	164	68.60	35.90
2	*2462.00	94.8 AV			1.06 H	164	58.90	35.90
3	2483.50	61.3 PK	74.0	-12.7	1.03 H	166	25.40	35.90
4	2483.50	49.1 AV	54.0	-4.9	1.03 H	166	13.20	35.90
5	4924.00	52.8 PK	74.0	-21.2	1.16 H	174	9.40	43.40
6	4924.00	40.1 AV	54.0	-13.9	1.16 H	174	-3.30	43.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	94.3 PK			1.00 V	110	58.40	35.90
2	*2462.00	84.7 AV			1.00 V	110	48.80	35.90
3	2483.50	60.3 PK	74.0	-13.7	1.00 V	114	24.40	35.90
4	2483.50	48.6 AV	54.0	-5.4	1.00 V	114	12.70	35.90
5	4924.00	48.3 PK	74.0	-25.7	1.32 V	176	4.90	43.40
6	4924.00	37.6 AV	54.0	-16.4	1.32 V	176	-5.80	43.40

REMARKS:

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



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802.11n (20MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	60.5 PK	74.0	-13.5	1.05 H	164	24.80	35.70
2	2390.00	49.3 AV	54.0	-4.7	1.05 H	164	13.60	35.70
3	*2412.00	103.8 PK			1.08 H	165	68.00	35.80
4	*2412.00	94.4 AV			1.08 H	165	58.60	35.80
5	4824.00	52.1 PK	74.0	-21.9	1.24 H	162	9.00	43.10
6	4824.00	39.1 AV	54.0	-14.9	1.24 H	162	-4.00	43.10
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	60.5 PK	74.0	-13.5	1.00 V	110	24.80	35.70
2	2390.00	48.5 AV	54.0	-5.5	1.00 V	110	12.80	35.70
3	*2412.00	94.4 PK			1.00 V	109	58.60	35.80
4	*2412.00	85.0 AV			1.00 V	109	49.20	35.80
5	4824.00	48.4 PK	74.0	-25.6	1.30 V	141	5.30	43.10
6	4824.00	37.7 AV	54.0	-16.3	1.30 V	141	-5.40	43.10

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	104.7 PK			1.08 H	166	68.90	35.80
2	*2437.00	95.3 AV			1.08 H	166	59.50	35.80
3	4874.00	52.4 PK	74.0	-21.6	1.54 H	159	9.20	43.20
4	4874.00	38.5 AV	54.0	-15.5	1.54 H	159	-4.70	43.20
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	*2437.00	95.3 PK			1.00 V	108	59.50	35.80
2	*2437.00	86.0 AV			1.00 V	108	50.20	35.80
3	4874.00	48.8 PK	74.0	-25.2	1.66 V	122	5.60	43.20
4	4874.00	36.5 AV	54.0	-17.5	1.66 V	122	-6.70	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	104.4 PK			1.04 H	166	68.50	35.90
2	*2462.00	94.7 AV			1.04 H	166	58.80	35.90
3	2483.50	61.0 PK	74.0	-13.0	1.00 H	168	25.10	35.90
4	2483.50	48.9 AV	54.0	-5.1	1.00 H	168	13.00	35.90
5	4924.00	53.3 PK	74.0	-20.7	1.63 H	124	9.90	43.40
6	4924.00	40.0 AV	54.0	-14.0	1.63 H	124	-3.40	43.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	94.1 PK			1.00 V	108	58.20	35.90
2	*2462.00	84.5 AV			1.00 V	108	48.60	35.90
3	2483.50	60.2 PK	74.0	-13.8	1.00 V	110	24.30	35.90
4	2483.50	48.5 AV	54.0	-5.5	1.00 V	110	12.60	35.90
5	4924.00	48.7 PK	74.0	-25.3	1.69 V	181	5.30	43.40
6	4924.00	38.1 AV	54.0	-15.9	1.69 V	181	-5.30	43.40

REMARKS:

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



A D T

802.11n (20MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	60.7 PK	74.0	-13.3	1.08 H	227	25.00	35.70
2	2390.00	48.9 AV	54.0	-5.1	1.08 H	227	13.20	35.70
3	*2412.00	98.3 PK			1.08 H	214	62.50	35.80
4	*2412.00	88.7 AV			1.08 H	214	52.90	35.80
5	4824.00	52.5 PK	74.0	-21.5	1.62 H	114	9.40	43.10
6	4824.00	39.1 AV	54.0	-14.9	1.62 H	114	-4.00	43.10
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	59.6 PK	74.0	-14.4	1.00 V	64	23.90	35.70
2	2390.00	48.6 AV	54.0	-5.4	1.00 V	64	12.90	35.70
3	*2412.00	92.4 PK			1.00 V	62	56.60	35.80
4	*2412.00	81.5 AV			1.00 V	62	45.70	35.80
5	4824.00	48.1 PK	74.0	-25.9	1.00 V	142	5.00	43.10
6	4824.00	36.0 AV	54.0	-18.0	1.00 V	142	-7.10	43.10

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	101.1 PK			1.08 H	163	65.30	35.80
2	*2437.00	90.6 AV			1.08 H	163	54.80	35.80
3	4874.00	52.4 PK	74.0	-21.6	1.41 H	114	9.20	43.20
4	4874.00	39.2 AV	54.0	-14.8	1.41 H	114	-4.00	43.20
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	*2437.00	92.8 PK			1.00 V	75	57.00	35.80
2	*2437.00	81.9 AV			1.00 V	75	46.10	35.80
3	4874.00	48.9 PK	74.0	-25.1	1.04 V	218	5.70	43.20
4	4874.00	36.2 AV	54.0	-17.8	1.04 V	218	-7.00	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	100.5 PK			1.07 H	161	64.60	35.90
2	*2462.00	89.6 AV			1.07 H	161	53.70	35.90
3	2483.50	60.6 PK	74.0	-13.4	1.07 H	159	24.70	35.90
4	2483.50	49.8 AV	54.0	-4.2	1.07 H	159	13.90	35.90
5	4924.00	52.7 PK	74.0	-21.3	1.62 H	251	9.30	43.40
6	4924.00	39.7 AV	54.0	-14.3	1.62 H	251	-3.70	43.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	92.7 PK			1.00 V	64	56.80	35.90
2	*2462.00	81.3 AV			1.00 V	64	45.40	35.90
3	2483.50	60.0 PK	74.0	-14.0	1.00 V	68	24.10	35.90
4	2483.50	48.6 AV	54.0	-5.4	1.00 V	68	12.70	35.90
5	4924.00	49.8 PK	74.0	-24.2	1.10 V	254	6.40	43.40
6	4924.00	36.3 AV	54.0	-17.7	1.10 V	254	-7.10	43.40

REMARKS:

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



A D T

802.11n (40MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	61.7 PK	74.0	-12.3	1.08 H	166	26.00	35.70
2	2390.00	49.8 AV	54.0	-4.2	1.08 H	166	14.10	35.70
3	*2422.00	100.9 PK			1.08 H	166	65.10	35.80
4	*2422.00	91.5 AV			1.08 H	166	55.70	35.80
5	4844.00	52.1 PK	74.0	-21.9	1.00 H	224	8.90	43.20
6	4844.00	39.2 AV	54.0	-14.8	1.00 H	224	-4.00	43.20
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	2390.00	60.3 PK	74.0	-13.7	1.00 V	113	24.60	35.70
2	2390.00	48.7 AV	54.0	-5.3	1.00 V	113	13.00	35.70
3	*2422.00	89.6 PK			1.00 V	113	53.80	35.80
4	*2422.00	79.9 AV			1.00 V	113	44.10	35.80
5	4844.00	48.5 PK	74.0	-25.5	1.62 V	117	5.30	43.20
6	4844.00	36.2 AV	54.0	-17.8	1.62 V	117	-7.00	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	100.9 PK			1.08 H	165	65.10	35.80
2	*2437.00	91.4 AV			1.08 H	165	55.60	35.80
3	4874.00	51.2 PK	74.0	-22.8	1.62 H	118	8.00	43.20
4	4874.00	39.9 AV	54.0	-14.1	1.62 H	118	-3.30	43.20
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	*2437.00	90.7 PK			1.00 V	113	54.90	35.80
2	*2437.00	81.3 AV			1.00 V	113	45.50	35.80
3	4874.00	48.9 PK	74.0	-25.1	1.55 V	112	5.70	43.20
4	4874.00	37.5 AV	54.0	-16.5	1.55 V	112	-5.70	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	101.0 PK			1.08 H	164	65.10	35.90
2	*2452.00	91.5 AV			1.08 H	164	55.60	35.90
3	2483.50	61.9 PK	74.0	-12.1	1.08 H	164	26.00	35.90
4	2483.50	50.1 AV	54.0	-3.9	1.08 H	164	14.20	35.90
5	4904.00	52.3 PK	74.0	-21.7	1.51 H	136	9.00	43.30
6	4904.00	39.9 AV	54.0	-14.1	1.51 H	136	-3.40	43.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	91.0 PK			1.00 V	110	55.10	35.90
2	*2452.00	81.3 AV			1.00 V	110	45.40	35.90
3	2483.50	60.6 PK	74.0	-13.4	1.00 V	110	24.70	35.90
4	2483.50	48.8 AV	54.0	-5.2	1.00 V	110	12.90	35.90
5	4904.00	48.7 PK	74.0	-25.3	1.62 V	189	5.40	43.30
6	4904.00	36.6 AV	54.0	-17.4	1.62 V	189	-6.70	43.30

REMARKS:

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



A D T

802.11n (40MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	60.6 PK	74.0	-13.4	1.09 H	162	24.90	35.70
2	2390.00	48.7 AV	54.0	-5.3	1.09 H	162	13.00	35.70
3	*2422.00	97.5 PK			1.09 H	165	61.70	35.80
4	*2422.00	87.5 AV			1.09 H	165	51.70	35.80
5	4844.00	52.3 PK	74.0	-21.7	1.04 H	124	9.10	43.20
6	4844.00	39.2 AV	54.0	-14.8	1.04 H	124	-4.00	43.20
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	2390.00	60.2 PK	74.0	-13.8	1.00 V	74	24.50	35.70
2	2390.00	48.7 AV	54.0	-5.3	1.00 V	74	13.00	35.70
3	*2422.00	89.8 PK			1.00 V	77	54.00	35.80
4	*2422.00	79.2 AV			1.00 V	77	43.40	35.80
5	4844.00	48.6 PK	74.0	-25.4	1.00 V	249	5.40	43.20
6	4844.00	36.5 AV	54.0	-17.5	1.00 V	249	-6.70	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	96.8 PK			1.07 H	163	61.00	35.80
2	*2437.00	86.6 AV			1.07 H	163	50.80	35.80
3	4874.00	52.4 PK	74.0	-21.6	1.51 H	347	9.20	43.20
4	4874.00	38.5 AV	54.0	-15.5	1.51 H	347	-4.70	43.20
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	*2437.00	88.9 PK			1.00 V	65	53.10	35.80
2	*2437.00	78.1 AV			1.00 V	65	42.30	35.80
3	4874.00	50.2 PK	74.0	-23.8	1.05 V	243	7.00	43.20
4	4874.00	36.2 AV	54.0	-17.8	1.05 V	243	-7.00	43.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	97.6 PK			1.07 H	164	61.70	35.90
2	*2452.00	89.0 AV			1.07 H	164	53.10	35.90
3	2483.50	60.2 PK	74.0	-13.8	1.05 H	166	24.30	35.90
4	2483.50	48.8 AV	54.0	-5.2	1.05 H	166	12.90	35.90
5	4904.00	49.2 PK	74.0	-24.8	1.05 H	116	5.90	43.30
6	4904.00	36.3 AV	54.0	-17.7	1.05 H	116	-7.00	43.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	88.6 PK			1.00 V	76	52.70	35.90
2	*2452.00	79.3 AV			1.00 V	76	43.40	35.90
3	2483.50	60.5 PK	74.0	-13.5	1.00 V	77	24.60	35.90
4	2483.50	48.7 AV	54.0	-5.3	1.00 V	77	12.80	35.90
5	4904.00	49.6 PK	74.0	-24.4	1.18 V	248	6.30	43.30
6	4904.00	37.5 AV	54.0	-16.5	1.18 V	248	-5.80	43.30

REMARKS:

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



A D T

BELOW 1GHz WORST-CASE DATA : 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	119.24	41.0 QP	43.5	-2.5	1.50 H	16	29.30	11.70
2	165.80	29.4 QP	43.5	-14.1	1.50 H	203	16.10	13.30
3	231.76	32.2 QP	46.0	-13.8	1.50 H	260	20.20	12.00
4	431.58	30.0 QP	46.0	-16.0	1.50 H	127	11.90	18.10
5	480.08	31.2 QP	46.0	-14.8	1.50 H	50	11.90	19.30
6	782.72	31.6 QP	46.0	-14.4	1.00 H	148	6.50	25.10
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	99.84	28.4 QP	43.5	-15.1	1.24 V	292	18.60	9.80
2	119.24	28.7 QP	43.5	-14.8	1.00 V	260	17.00	11.70
3	165.80	28.6 QP	43.5	-14.9	1.00 V	289	15.30	13.30
4	427.70	26.3 QP	46.0	-19.7	1.49 V	86	8.30	18.00
5	623.64	29.3 QP	46.0	-16.7	1.49 V	15	6.60	22.70
6	804.06	30.3 QP	46.0	-15.7	1.49 V	15	4.90	25.40

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

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	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Conf_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

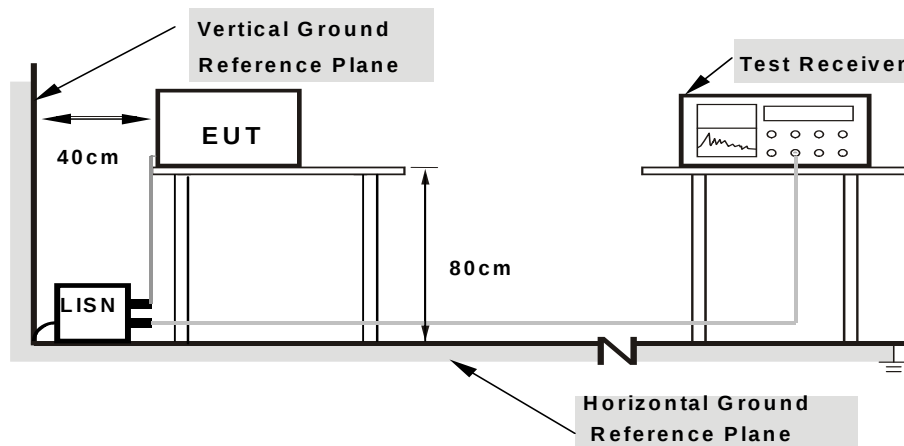
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

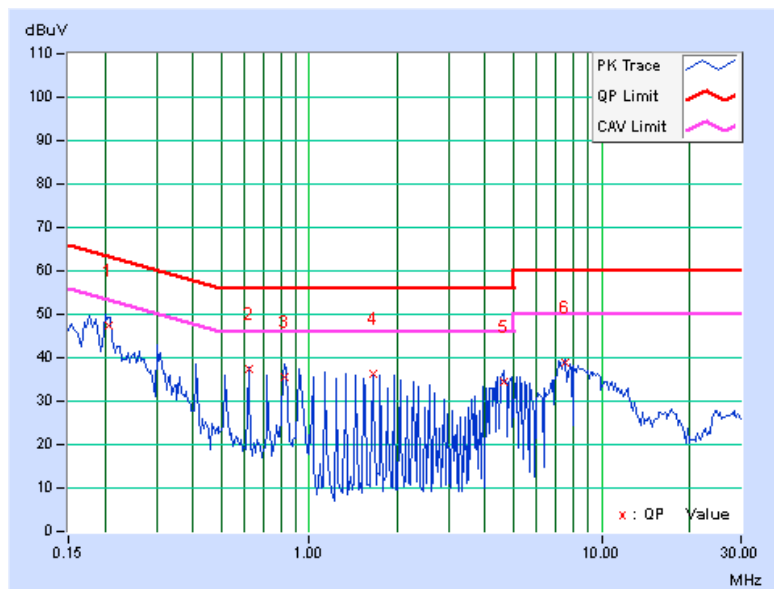
CONDUCTED WORST-CASE DATA : 802.11g

PHASE	Line 1	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20604	0.17	47.28	41.21	47.45	41.38	63.36	53.36	-15.91	-11.98
2	0.61875	0.23	37.11	37.00	37.34	37.23	56.00	46.00	-18.66	-8.77
3	0.82188	0.25	35.34	35.29	35.59	35.54	56.00	46.00	-20.41	-10.46
4	1.64844	0.28	36.01	35.99	36.29	36.27	56.00	46.00	-19.71	-9.73
5	4.63281	0.38	34.20	32.75	34.58	33.13	56.00	46.00	-21.42	-12.87
6	7.51563	0.41	38.53	34.13	38.94	34.54	60.00	50.00	-21.06	-15.46

REMARKS:

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

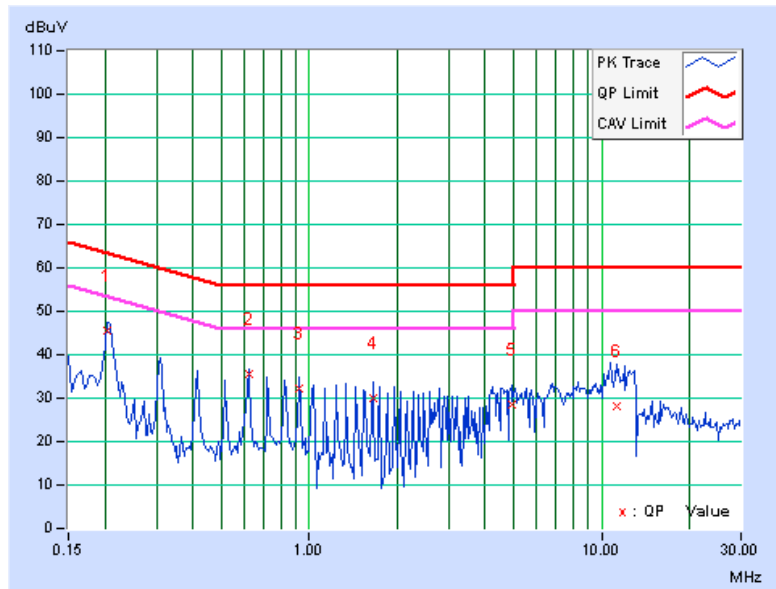


PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20469	0.18	45.29	40.49	45.47	40.67	63.42	53.42	-17.95	-12.75
2	0.61875	0.24	35.41	34.94	35.65	35.18	56.00	46.00	-20.35	-10.82
3	0.92734	0.23	31.86	30.37	32.09	30.60	56.00	46.00	-23.91	-15.40
4	1.65099	0.26	29.85	28.81	30.11	29.07	56.00	46.00	-25.89	-16.93
5	4.94531	0.40	28.14	19.53	28.54	19.93	56.00	46.00	-27.46	-26.07
6	11.23047	0.51	27.58	26.72	28.09	27.23	60.00	50.00	-31.91	-22.77

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

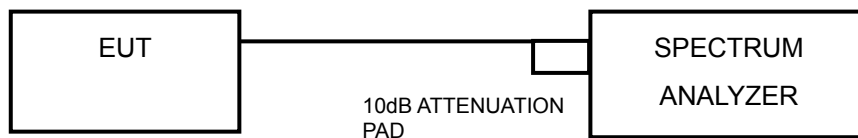


4.3 6dB BANDWIDTH MEASUREMENT

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

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.09	0.5	PASS
6	2437	10.15	0.5	PASS
11	2462	10.13	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.46	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.43	0.5	PASS

802.11n (20MHz): 1TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.59	0.5	PASS
6	2437	17.65	0.5	PASS
11	2462	17.63	0.5	PASS

802.11n (20MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.83	17.81	0.5	PASS
6	2437	17.83	17.77	0.5	PASS
11	2462	17.84	17.76	0.5	PASS

**A D T****802.11n (40MHz): 1TX**

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.86	0.5	PASS
6	2437	35.81	0.5	PASS
9	2452	35.75	0.5	PASS

802.11n (40MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.46	36.53	0.5	PASS
6	2437	36.18	36.55	0.5	PASS
9	2452	36.58	36.48	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,

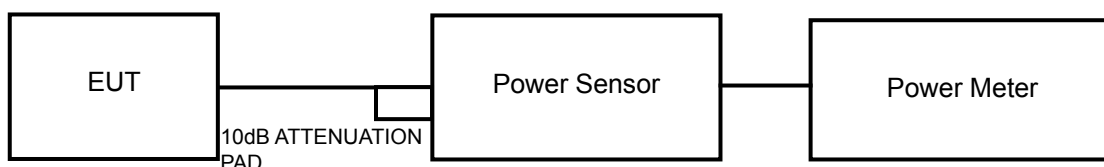
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

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

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

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 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.



A D T

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	7.096	8.51	30	PASS
6	2437	7.129	8.53	30	PASS
11	2462	7.015	8.46	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	6.950	8.42	30	PASS
6	2437	6.918	8.40	30	PASS
11	2462	7.261	8.61	30	PASS

802.11n (20MHz): 1TX

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	6.871	8.37	30	PASS
6	2437	6.792	8.32	30	PASS
11	2462	7.031	8.47	30	PASS

802.11n (20MHz): 2TX

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	5.60	5.53	7.204	8.58	30	PASS
6	2437	5.59	5.64	7.286	8.62	30	PASS
11	2462	5.44	5.56	7.096	8.51	30	PASS

802.11n (40MHz): 1TX

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	6.808	8.33	30	PASS
6	2437	7.031	8.47	30	PASS
9	2452	7.295	8.63	30	PASS

802.11n (40MHz): 2TX

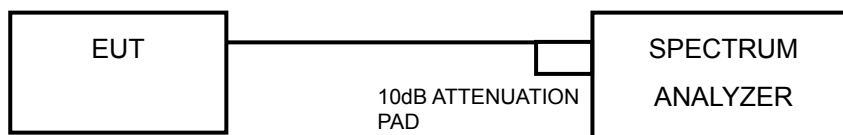
CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	5.64	5.60	7.295	8.63	30	PASS
6	2437	5.39	5.41	6.934	8.41	30	PASS
9	2452	5.34	5.39	6.879	8.38	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



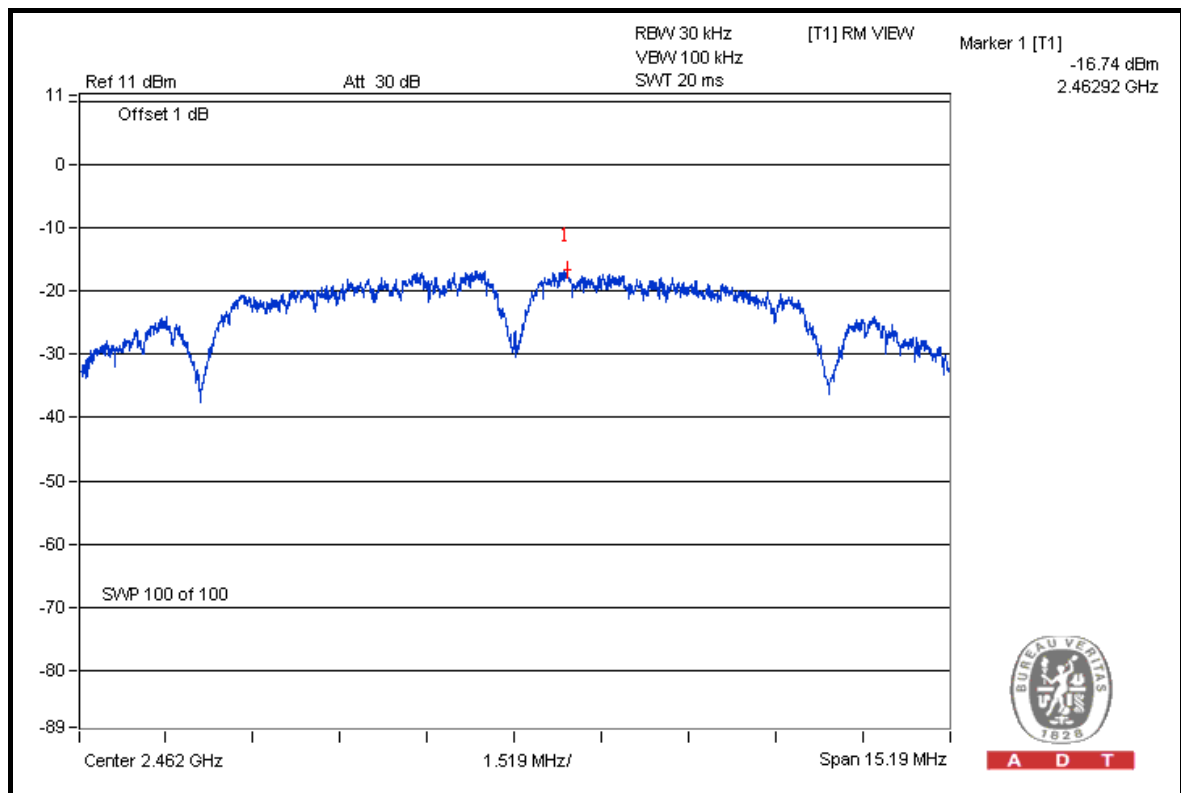
A D T

4.5.7 TEST RESULTS

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-16.87	8	PASS
6	2437	-16.81	8	PASS
11	2462	-16.74	8	PASS

FOR CH 11



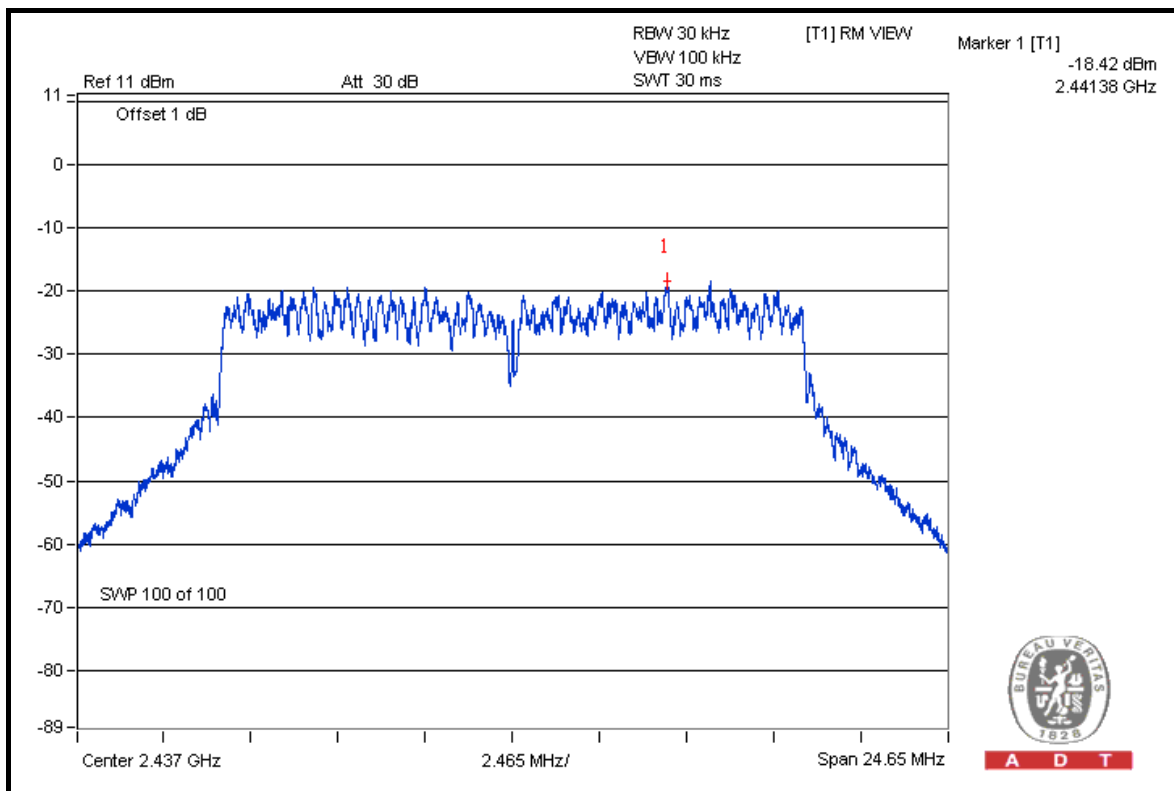


A D T

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-18.69	8	PASS
6	2437	-18.42	8	PASS
11	2462	-18.90	8	PASS

FOR CH 6



A D T

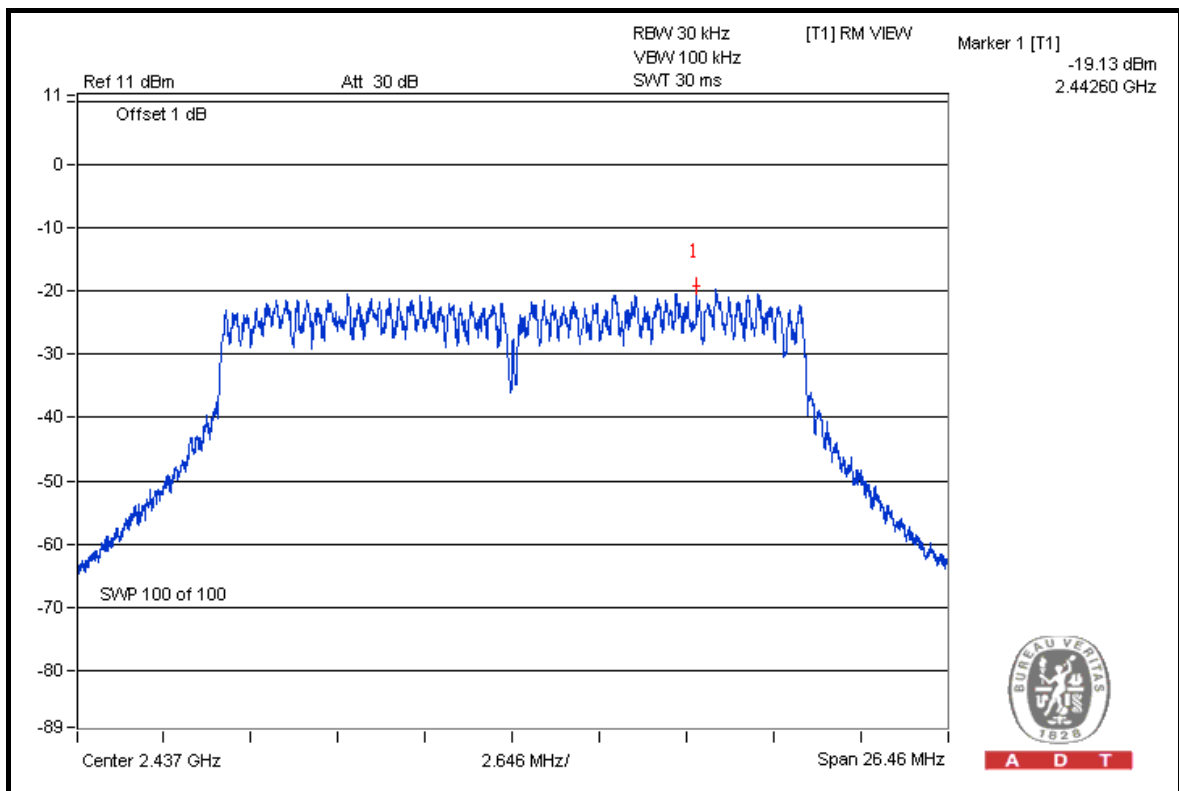


A D T

802.11n (20MHz): 1TX

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-19.56	8	PASS
6	2437	-19.13	8	PASS
11	2462	-19.35	8	PASS

FOR CH 6



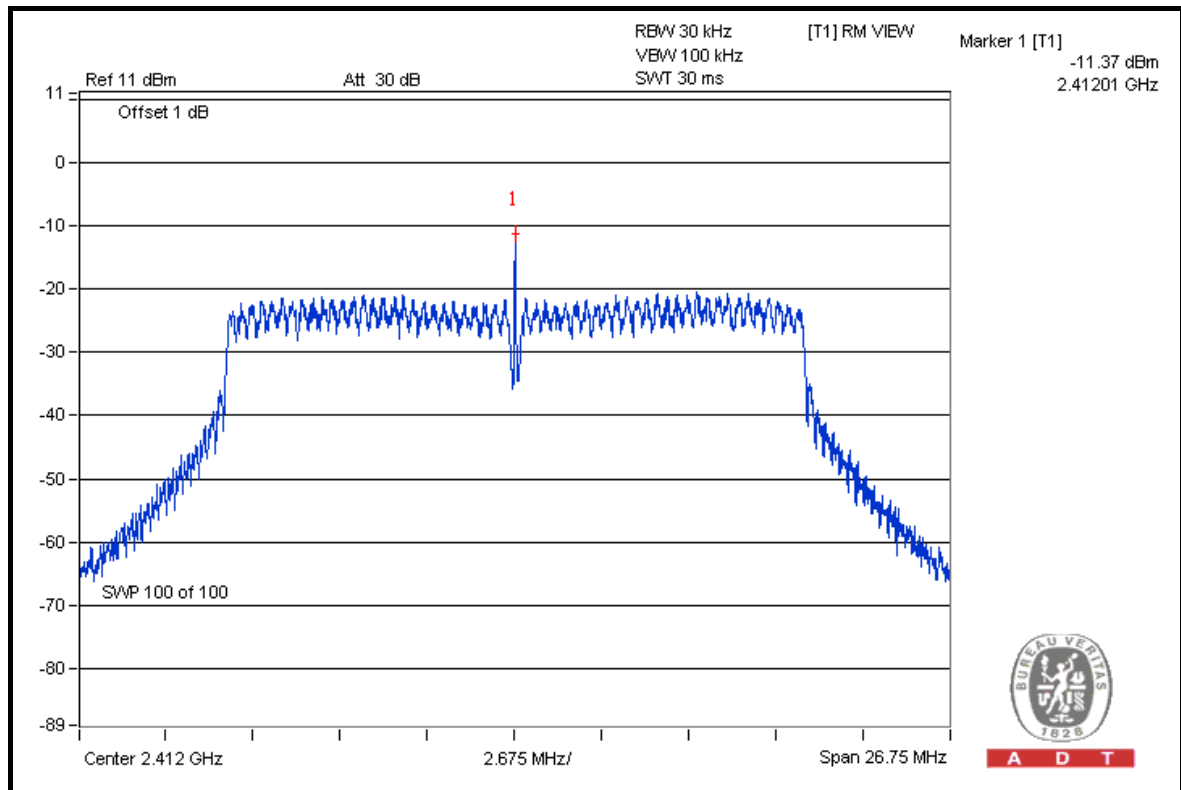
A D T

802.11n (20MHz): 2TX

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-11.37	3.01	-8.36	8	PASS
	6	2437	-20.70	3.01	-17.69	8	PASS
	11	2462	-21.56	3.01	-18.55	8	PASS
1	1	2412	-11.51	3.01	-8.50	8	PASS
	6	2437	-12.17	3.01	-9.16	8	PASS
	11	2462	-11.91	3.01	-8.90	8	PASS

NOTE: Directional gain = $1\text{dBi} + 10\log(2) = 4.01\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.

FOR CHAIN 0: CH 1



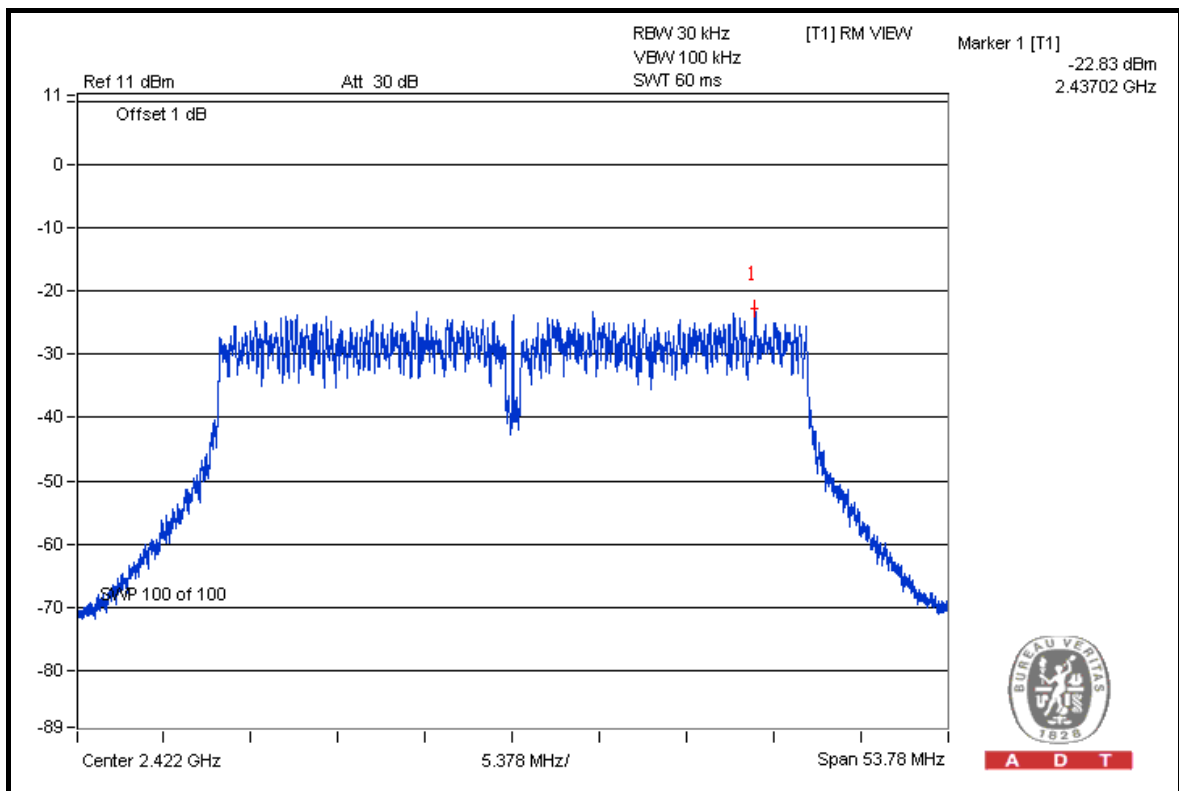


A D T

802.11n (40MHz): 1TX

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-22.83	8	PASS
6	2437	-23.31	8	PASS
9	2452	-23.32	8	PASS

FOR CH 3

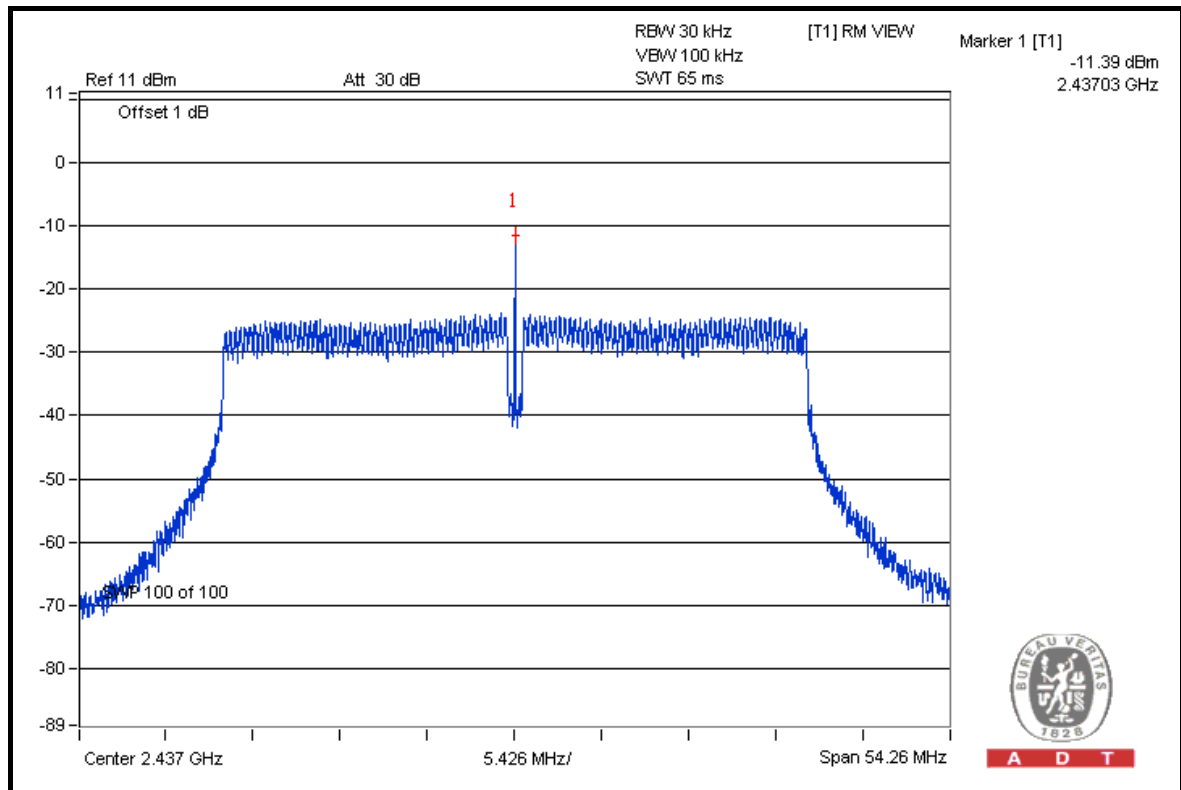


802.11n (40MHz): 2TX

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-11.64	3.01	-8.63	8	PASS
	6	2437	-11.39	3.01	-8.38	8	PASS
	9	2452	-12.27	3.01	-9.26	8	PASS
1	3	2422	-12.51	3.01	-9.50	8	PASS
	6	2437	-12.16	3.01	-9.15	8	PASS
	9	2452	-12.06	3.01	-9.05	8	PASS

NOTE: Directional gain = $1\text{dBi} + 10\log(2) = 4.01\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.

FOR CHAIN 0: CH 6

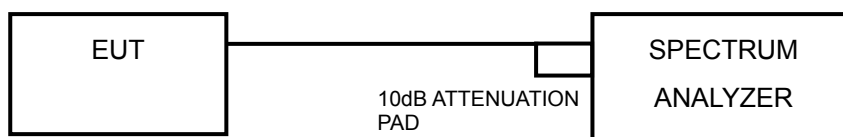


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

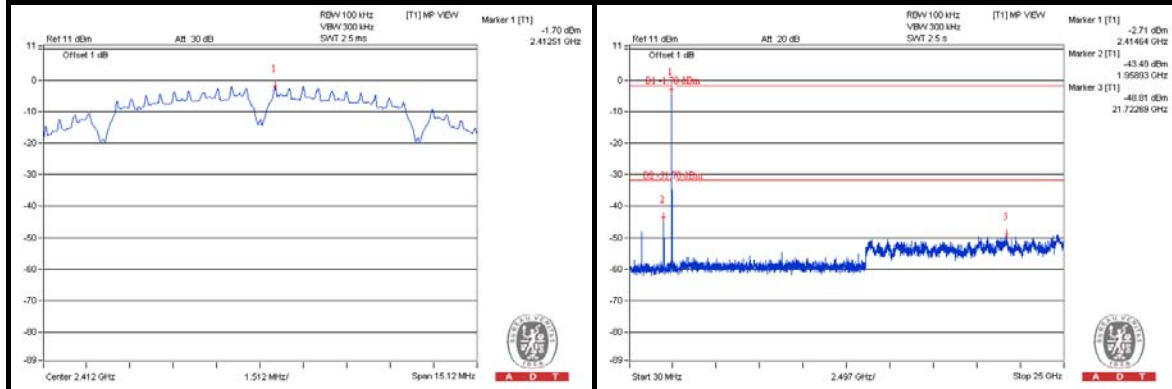
4.6.7 TEST RESULTS

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

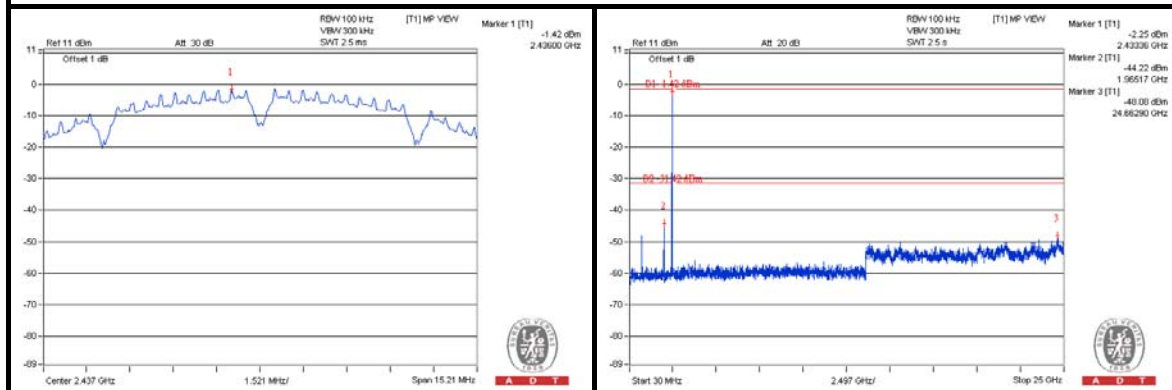
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

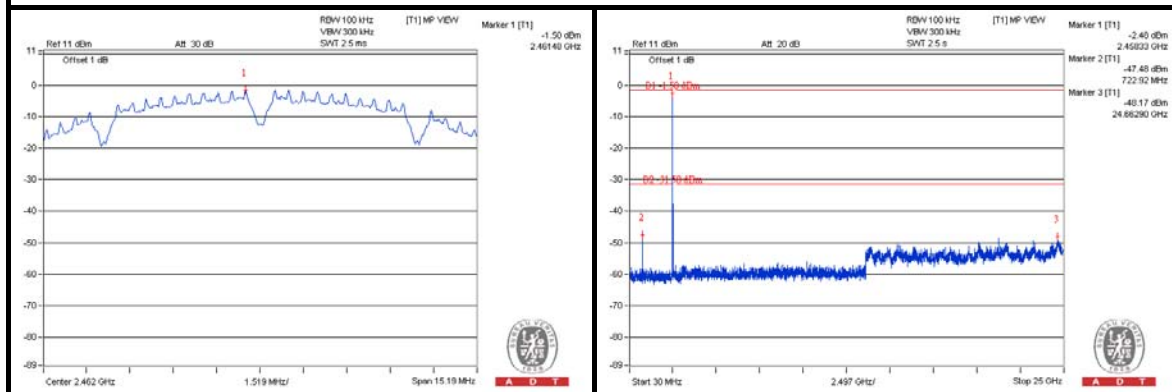
CH 1



CH 6

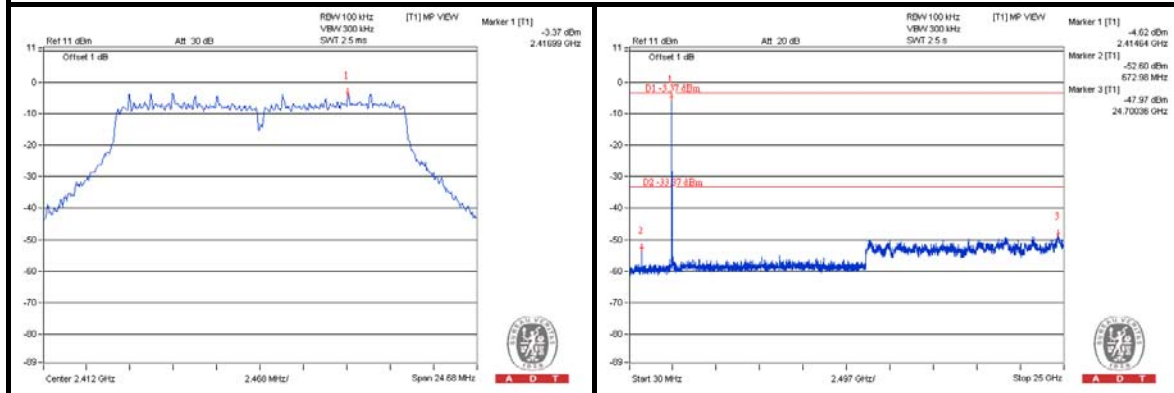


CH 11

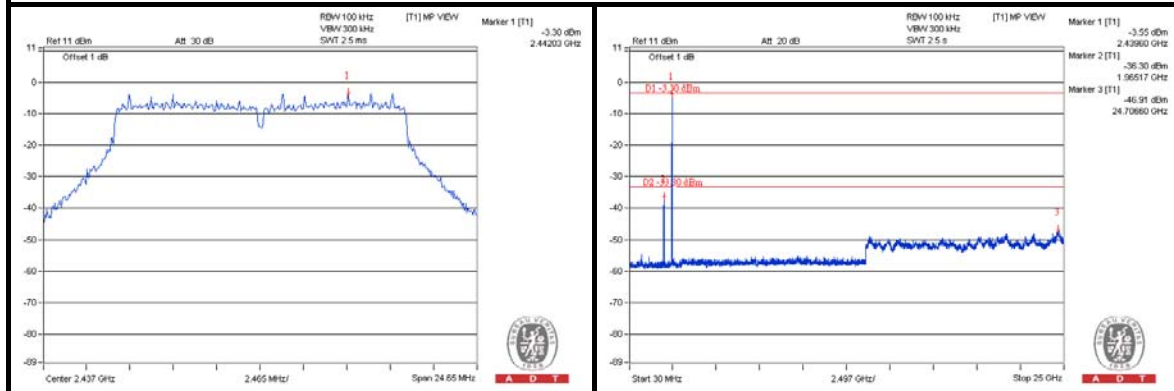


802.11g

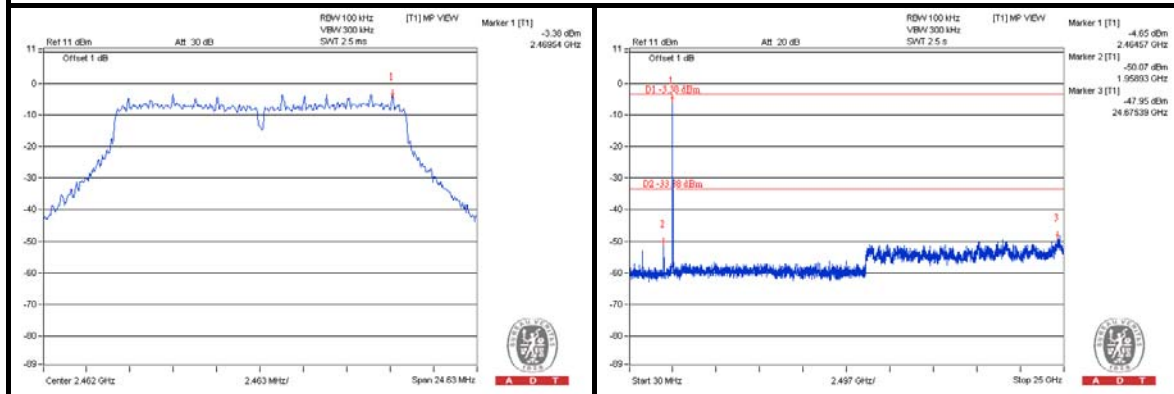
CH 1



CH 6

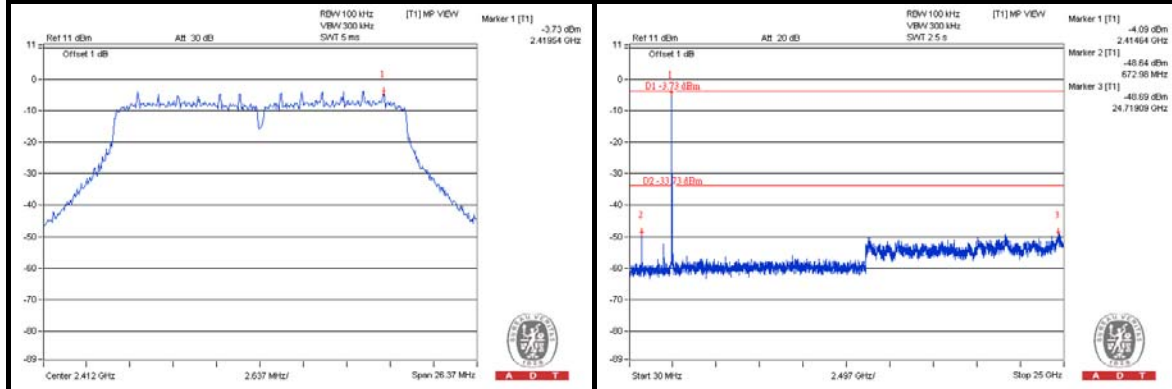


CH 11

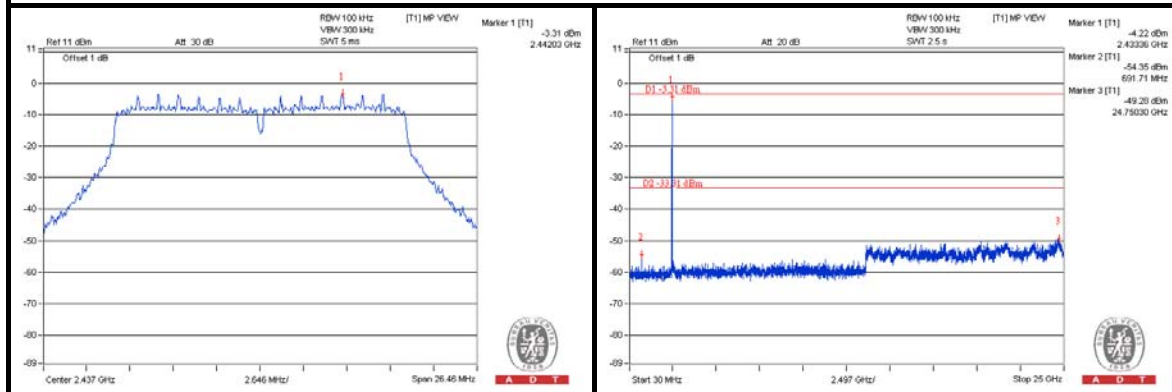


802.11n (20MHz): 1TX

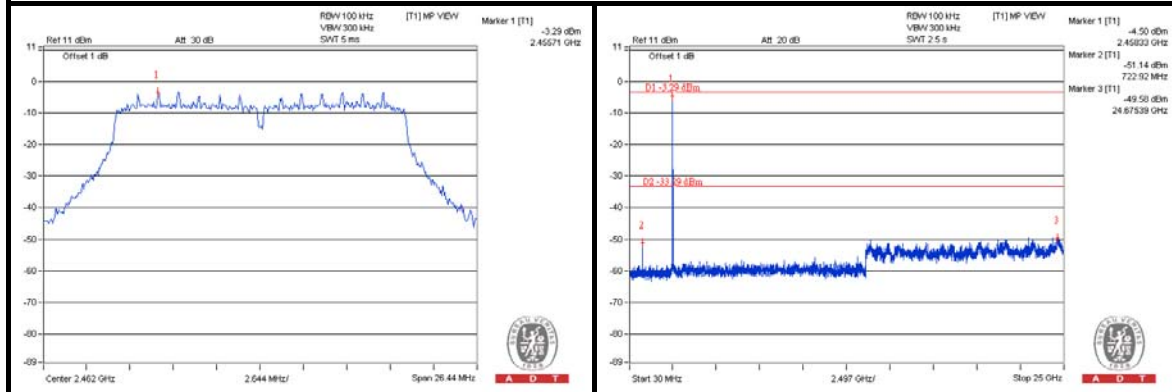
CH 1



CH 6

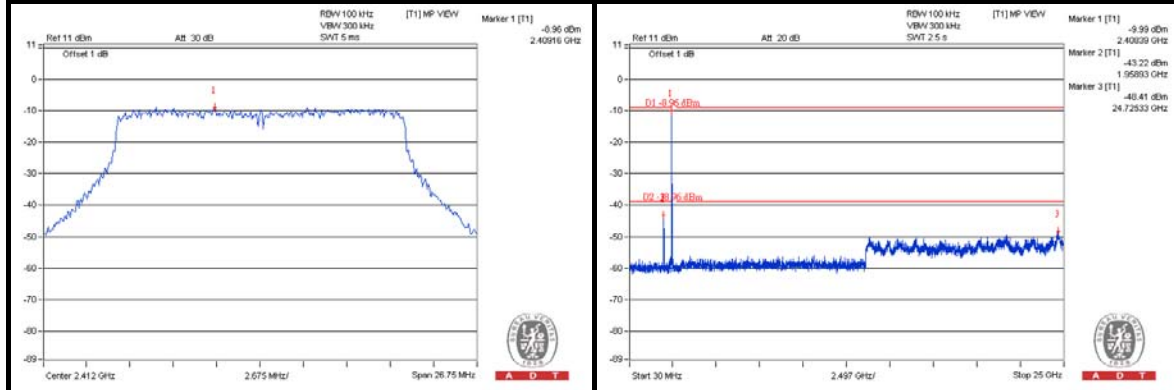


CH 11

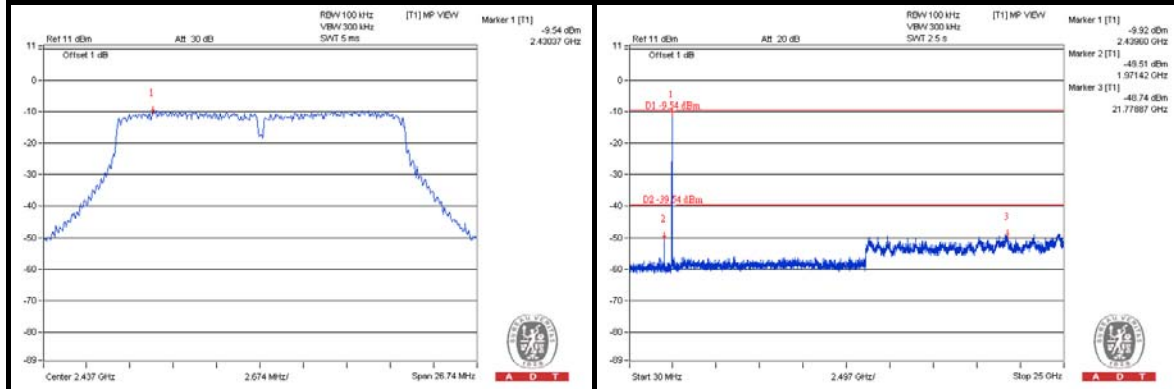


802.11n (20MHz): 2TX CHAIN 0

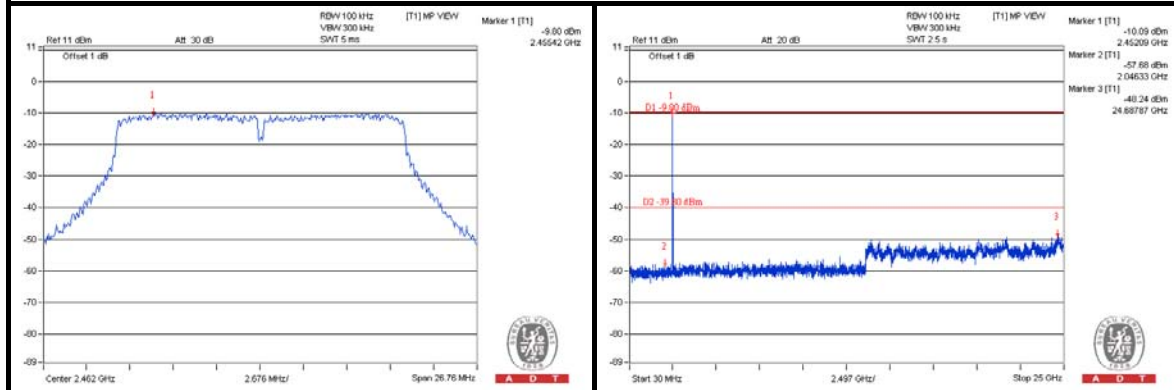
CH 1



CH 6



CH 11

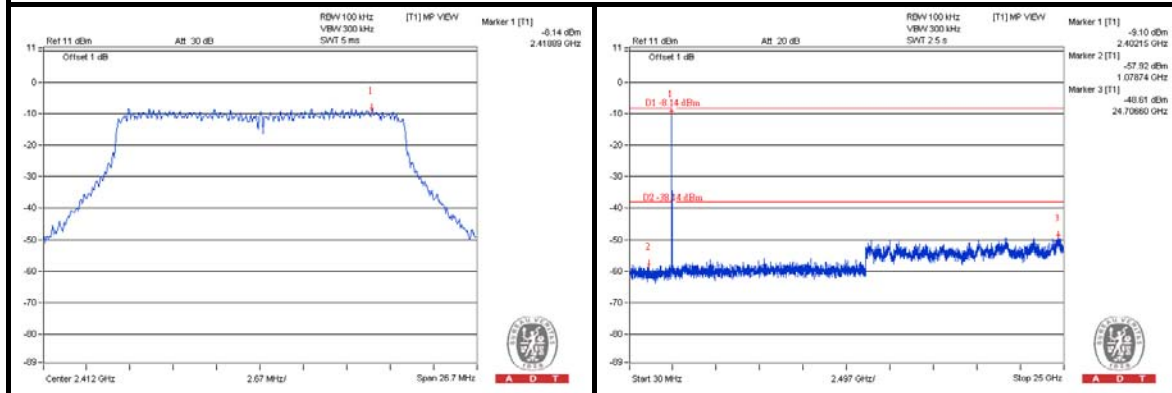




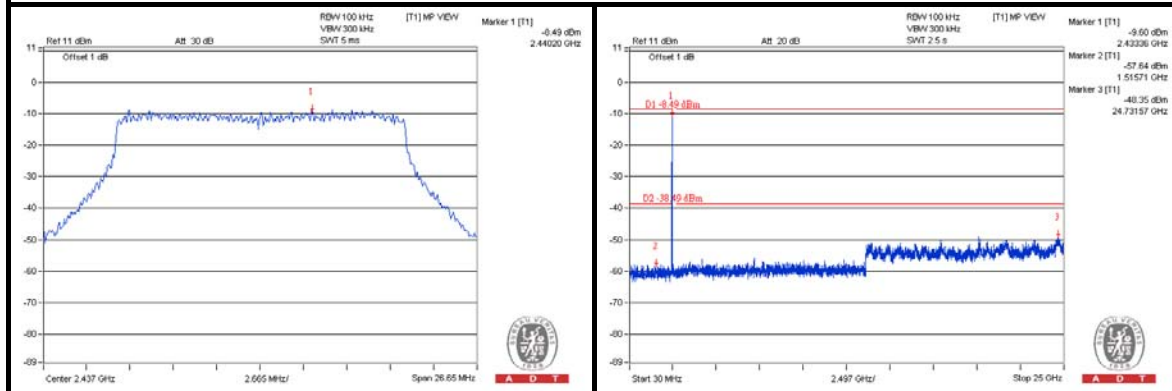
A D T

CHAIN 1

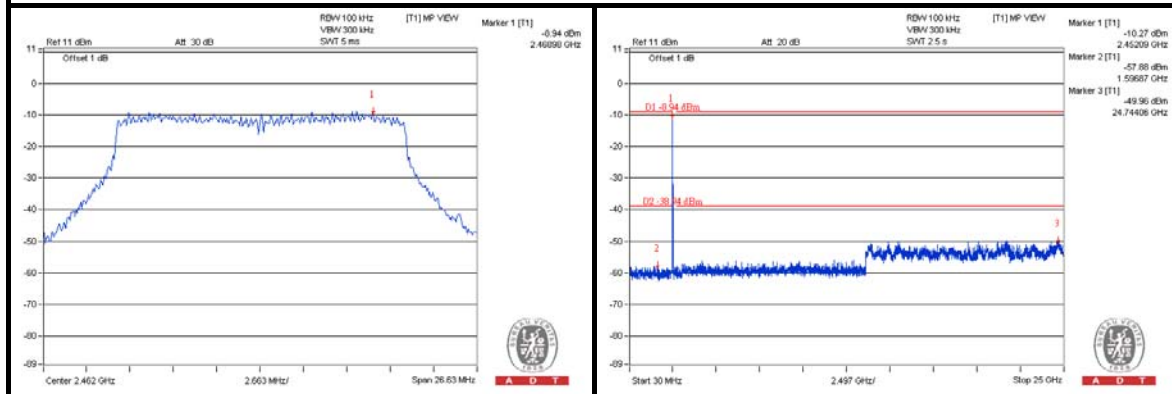
CH 1



CH 6

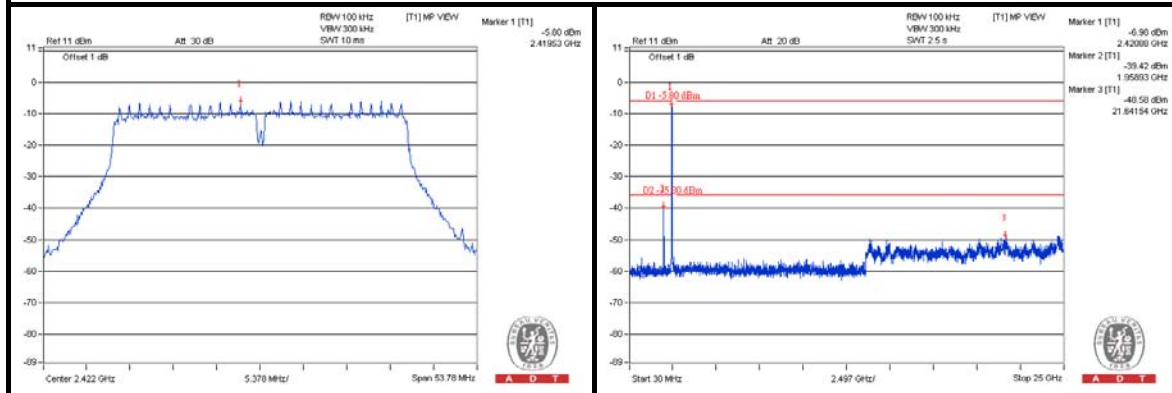


CH 11

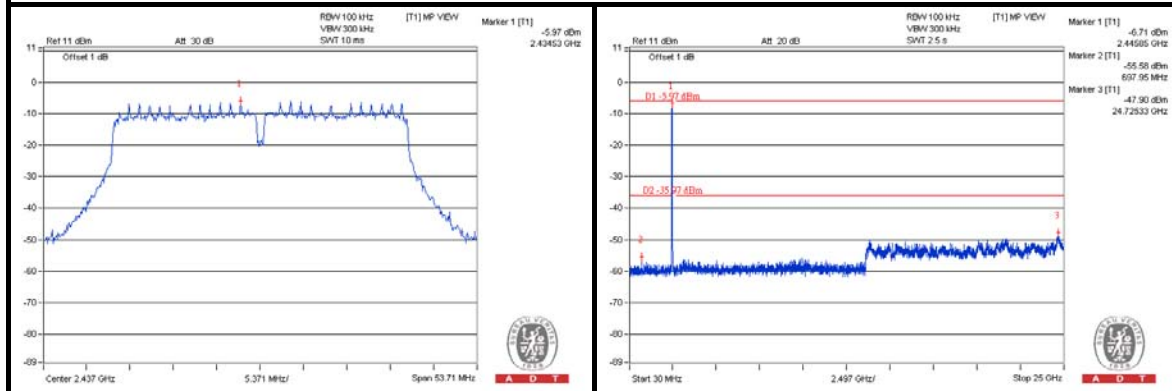


802.11n (40MHz): 1TX

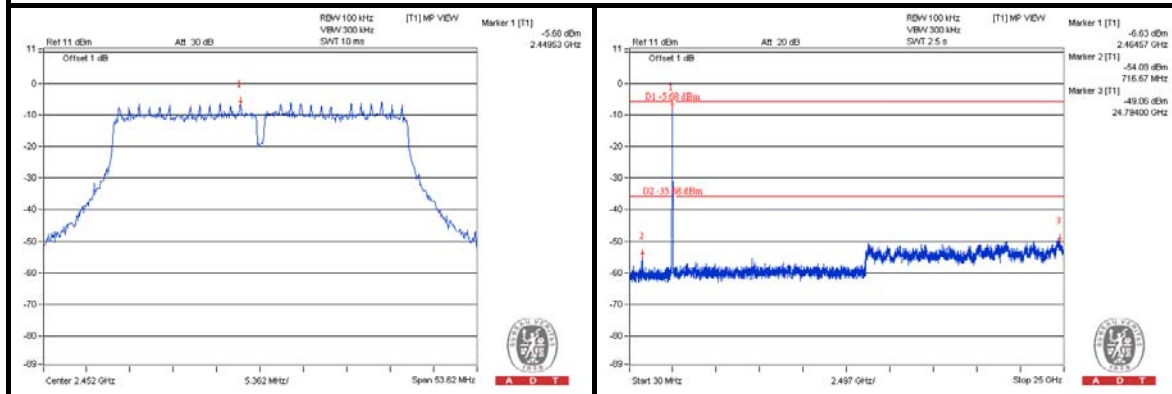
CH 3



CH 6

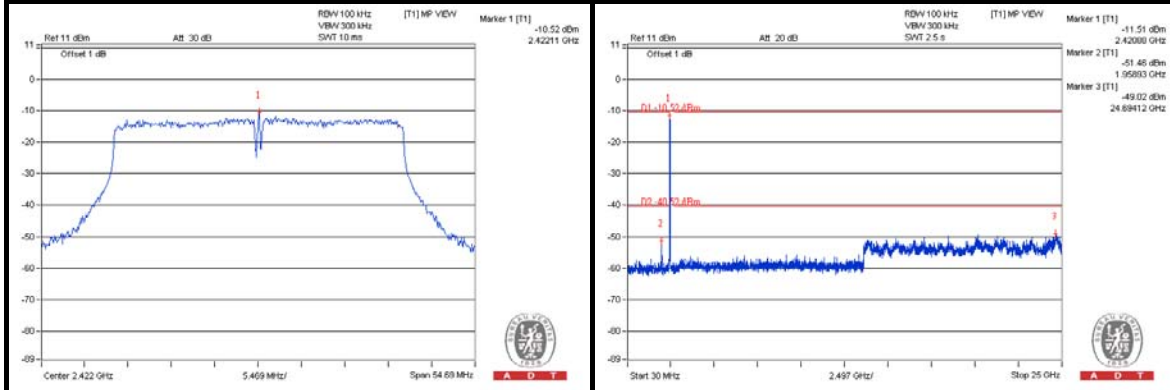


CH 9

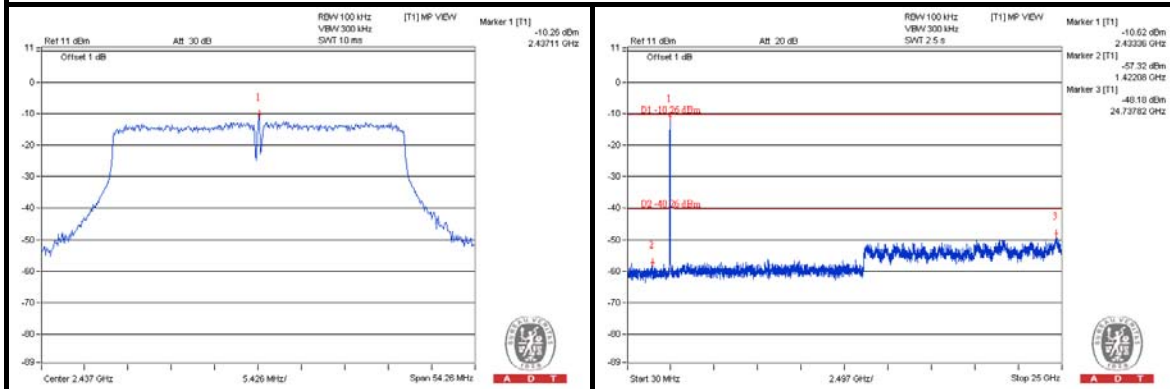


802.11n (40MHz): 2TX CHAIN 0

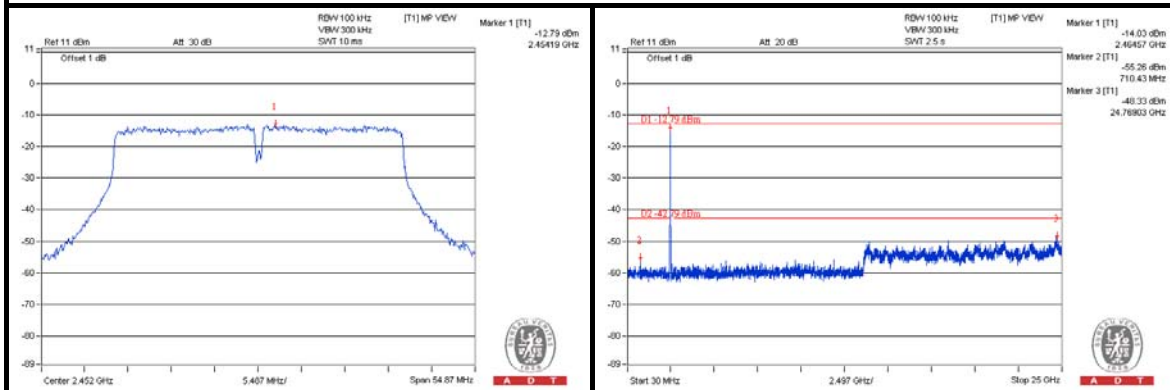
CH 3



CH 6

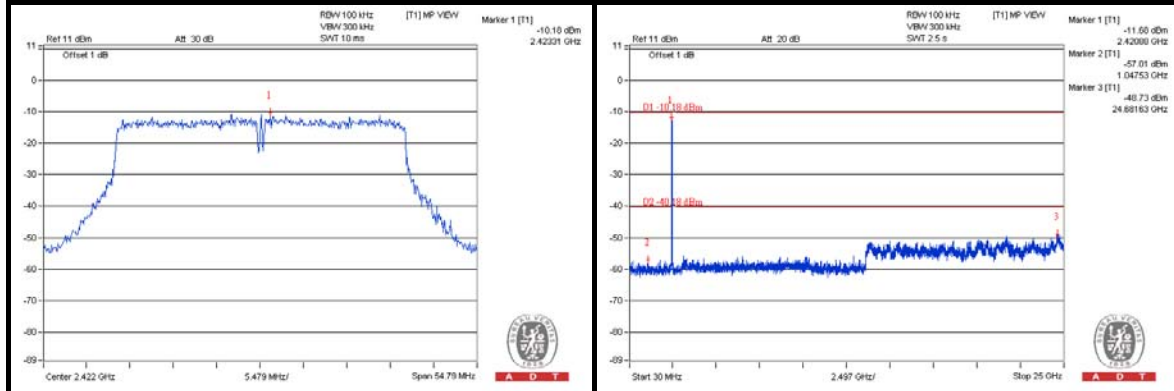


CH 9

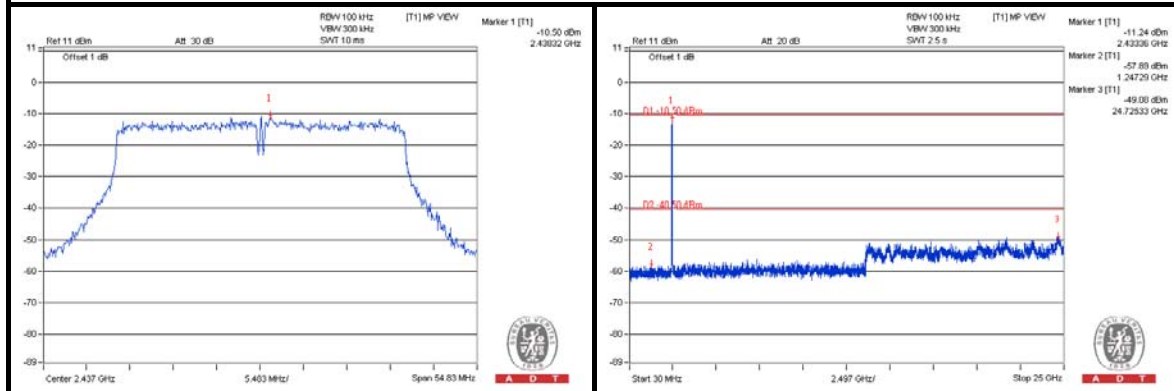


CHAIN 1

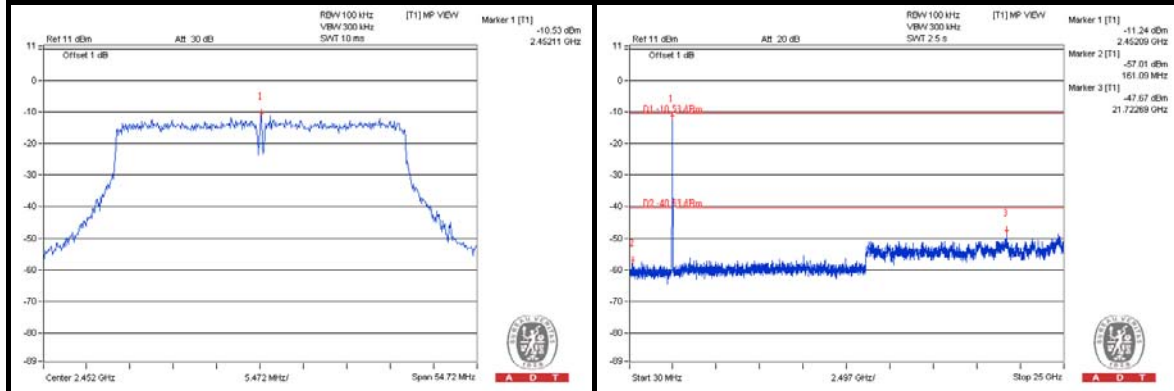
CH 3



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.



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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.



A D T

5.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	67.6 PK	68.6	-1.0	1.08 H	204	23.00	44.60
2	#5725.00	58.3 AV	59.3	-1.0	1.08 H	204	13.70	44.60
3	*5745.00	98.6 PK			1.00 H	176	54.00	44.60
4	*5745.00	89.3 AV			1.00 H	176	44.70	44.60
5	11490.00	62.1 PK	74.0	-11.9	1.47 H	162	9.50	52.60
6	11490.00	49.4 AV	54.0	-4.6	1.47 H	162	-3.20	52.60
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	56.8 PK	57.8	-1.0	1.08 V	204	12.20	44.60
2	#5725.00	47.1 AV	48.1	-1.0	1.08 V	204	2.50	44.60
3	*5745.00	87.8 PK			1.00 V	356	43.20	44.60
4	*5745.00	78.1 AV			1.00 V	356	33.50	44.60
5	11490.00	58.2 PK	74.0	-15.8	1.05 V	224	5.60	52.60
6	11490.00	46.4 AV	54.0	-7.6	1.05 V	224	-6.20	52.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5785.00	98.8 PK			1.00 H	174	54.10	44.70
2	*5785.00	91.5 AV			1.00 H	174	46.80	44.70
3	11570.00	62.9 PK	74.0	-11.1	1.04 H	162	10.10	52.80
4	11570.00	48.6 AV	54.0	-5.4	1.04 H	162	-4.20	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	88.7 PK			1.00 V	352	44.00	44.70
2	*5785.00	81.1 AV			1.00 V	352	36.40	44.70
3	11570.00	57.8 PK	74.0	-16.2	1.04 V	124	5.00	52.80
4	11570.00	46.0 AV	54.0	-8.0	1.04 V	124	-6.80	52.80

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5825.00	97.4 PK			1.00 H	30	52.60	44.80
2	*5825.00	87.7 AV			1.00 H	30	42.90	44.80
3	#5850.00	62.4 PK	67.4	-5.0	1.00 H	103	17.50	44.90
4	#5850.00	52.7 AV	57.7	-5.0	1.00 H	103	7.80	44.90
5	11650.00	61.7 PK	74.0	-12.3	1.42 H	118	8.70	53.00
6	11650.00	49.4 AV	54.0	-4.6	1.42 H	118	-3.60	53.00
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	*5825.00	89.5 PK			1.00 V	197	44.70	44.80
2	*5825.00	81.1 AV			1.00 V	197	36.30	44.80
3	#5850.00	54.5 PK	59.5	-5.0	1.00 V	103	9.60	44.90
4	#5850.00	46.1 AV	51.1	-5.0	1.00 V	103	1.20	44.90
5	11650.00	58.0 PK	74.0	-16.0	1.04 V	141	5.00	53.00
6	11650.00	46.4 AV	54.0	-7.6	1.04 V	141	-6.60	53.00

REMARKS:

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



A D T

802.11n (20MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	60.5 PK	65.3	-4.8	1.00 H	320	15.90	44.60
2	#5725.00	53.4 AV	58.2	-4.8	1.00 H	320	8.80	44.60
3	*5745.00	95.3 PK			1.01 H	337	50.70	44.60
4	*5745.00	88.2 AV			1.01 H	337	43.60	44.60
5	11490.00	60.3 PK	74.0	-13.7	1.23 H	85	7.70	52.60
6	11490.00	48.2 AV	54.0	-5.8	1.23 H	85	-4.40	52.60
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	59.0 PK	63.8	-4.8	1.50 V	130	14.40	44.60
2	#5725.00	51.5 AV	56.3	-4.8	1.50 V	130	6.90	44.60
3	*5745.00	93.8 PK			1.60 V	110	49.20	44.60
4	*5745.00	86.3 AV			1.60 V	110	41.70	44.60
5	11490.00	57.3 PK	74.0	-16.7	1.03 V	229	4.70	52.60
6	11490.00	46.0 AV	54.0	-8.0	1.03 V	229	-6.60	52.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5785.00	94.4 PK			1.00 H	351	49.70	44.70
2	*5785.00	87.6 AV			1.00 H	351	42.90	44.70
3	11570.00	60.4 PK	74.0	-13.6	1.32 H	74	7.60	52.80
4	11570.00	48.1 AV	54.0	-5.9	1.32 H	74	-4.70	52.80
5	#17355.00	64.3 PK	74.0	-9.7	1.32 H	64	4.30	60.00
6	#17355.00	52.7 AV	54.0	-1.3	1.32 H	64	-7.30	60.00
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	*5785.00	87.7 PK			1.00 V	154	43.00	44.70
2	*5785.00	80.1 AV			1.00 V	154	35.40	44.70
3	11570.00	57.3 PK	74.0	-16.7	1.32 V	68	4.50	52.80
4	11570.00	46.1 AV	54.0	-7.9	1.32 V	68	-6.70	52.80
5	#17355.00	63.0 PK	74.0	-11.0	1.13 V	42	3.00	60.00
6	#17355.00	51.9 AV	54.0	-2.1	1.13 V	42	-8.10	60.00

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5825.00	95.8 PK			1.00 H	350	51.00	44.80
2	*5825.00	89.4 AV			1.00 H	350	44.60	44.80
3	#5850.00	57.8 PK	65.8	-8.0	1.10 H	360	12.90	44.90
4	#5850.00	51.4 AV	59.4	-8.0	1.10 H	360	6.50	44.90
5	11610.00	60.4 PK	74.0	-13.6	1.35 H	204	7.50	52.90
6	11610.00	47.8 AV	54.0	-6.2	1.35 H	204	-5.10	52.90
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	88.7 PK			1.95 V	74	43.90	44.80
2	*5825.00	81.4 AV			1.95 V	74	36.60	44.80
3	#5850.00	50.7 PK	58.7	-8.0	1.54 V	64	5.80	44.90
4	#5850.00	43.4 AV	51.4	-8.0	1.54 V	64	-1.50	44.90
5	11610.00	56.9 PK	74.0	-17.1	1.03 V	47	4.00	52.90
6	11610.00	46.3 AV	54.0	-7.7	1.03 V	47	-6.60	52.90

REMARKS:

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



A D T

802.11n (20MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	62.2 PK	66.8	-4.6	1.00 H	186	17.60	44.60
2	#5725.00	52.0 AV	56.8	-4.6	1.00 H	186	7.40	44.60
3	*5745.00	96.8 PK			1.00 H	214	52.20	44.60
4	*5745.00	86.6 AV			1.00 H	214	42.00	44.60
5	11490.00	62.0 PK	74.0	-12.0	1.05 H	26	9.40	52.60
6	11490.00	48.4 AV	54.0	-5.6	1.05 H	26	-4.20	52.60
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	59.1 PK	59.3	-14.9	1.00 V	186	20.10	44.60
2	#5725.00	51.7 AV	49.5	-2.3	1.00 V	186	10.30	44.60
3	*5745.00	89.3 PK			1.00 V	27	44.70	44.60
4	*5745.00	79.5 AV			1.00 V	27	34.90	44.60
5	11490.00	57.9 PK	74.0	-16.1	1.04 V	58	5.30	52.60
6	11490.00	45.9 AV	54.0	-8.1	1.04 V	58	-6.70	52.60

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5785.00	97.0 PK			1.00 H	213	52.30	44.70
2	*5785.00	86.4 AV			1.00 H	213	41.70	44.70
3	11570.00	61.7 PK	74.0	-12.3	1.04 H	156	8.90	52.80
4	11570.00	49.3 AV	54.0	-4.7	1.04 H	156	-3.50	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	88.9 PK			1.01 V	165	44.20	44.70
2	*5785.00	79.4 AV			1.01 V	165	34.70	44.70
3	11570.00	57.8 PK	74.0	-16.2	1.04 V	151	5.00	52.80
4	11570.00	45.9 AV	54.0	-8.1	1.04 V	151	-6.90	52.80

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5825.00	96.8 PK			1.00 H	193	52.00	44.80
2	*5825.00	85.8 AV			1.00 H	193	41.00	44.80
3	#5850.00	56.8 PK	66.8	-10.0	1.00 H	188	11.90	44.90
4	#5850.00	45.8 AV	55.8	-10.0	1.00 H	188	0.90	44.90
5	11650.00	63.1 PK	74.0	-10.9	1.42 H	119	10.10	53.00
6	11650.00	49.0 AV	54.0	-5.0	1.42 H	119	-4.00	53.00
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	*5825.00	89.5 PK			1.48 V	190	44.70	44.80
2	*5825.00	79.3 AV			1.48 V	190	34.50	44.80
3	#5850.00	49.5 PK	59.5	-10.0	1.00 V	188	4.60	44.90
4	#5850.00	39.3 AV	49.3	-10.0	1.00 V	188	-5.60	44.90
5	11650.00	48.8 PK	74.0	-25.2	1.48 V	110	-4.20	53.00
6	11650.00	45.7 AV	54.0	-8.3	1.48 V	110	-7.30	53.00

REMARKS:

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



A D T

802.11n (40MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	59.3 PK	59.9	-0.6	1.10 H	342	14.70	44.60
2	#5725.00	49.9 AV	50.5	-0.6	1.10 H	342	5.30	44.60
3	*5755.00	89.9 PK			1.00 H	332	45.20	44.70
4	*5755.00	80.5 AV			1.00 H	332	35.80	44.70
5	11510.00	60.3 PK	74.0	-13.7	1.35 H	206	7.60	52.70
6	11510.00	48.3 AV	54.0	-5.7	1.35 H	206	-4.40	52.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	58.3 PK	58.9	-0.6	1.48 V	120	13.70	44.60
2	#5725.00	48.6 AV	49.2	-0.6	1.48 V	120	4.00	44.60
3	*5755.00	88.9 PK			1.58 V	110	44.20	44.70
4	*5755.00	79.2 AV			1.58 V	110	34.50	44.70
5	11510.00	57.0 PK	74.0	-17.0	1.39 V	227	4.30	52.70
6	11510.00	46.0 AV	54.0	-8.0	1.39 V	227	-6.70	52.70

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5795.00	89.5 PK			1.01 H	350	44.80	44.70
2	*5795.00	80.5 AV			1.01 H	350	35.80	44.70
3	#5850.00	61.6 PK	74.0	-12.4	1.10 H	340	16.70	44.90
4	#5850.00	52.6 AV	54.0	-1.4	1.10 H	340	7.70	44.90
5	11590.00	60.0 PK	74.0	-14.0	1.03 H	221	7.20	52.80
6	11590.00	48.4 AV	54.0	-5.6	1.03 H	221	-4.40	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	87.8 PK			1.28 V	129	43.10	44.70
2	*5795.00	78.4 AV			1.28 V	129	33.70	44.70
3	#5850.00	59.9 PK	74.0	-14.1	1.28 V	129	15.00	44.90
4	#5850.00	50.5 AV	54.0	-3.5	1.28 V	129	5.60	44.90
5	11590.00	56.0 PK	74.0	-18.0	1.03 V	302	3.20	52.80
6	11590.00	45.6 AV	54.0	-8.4	1.03 V	302	-7.20	52.80

REMARKS:

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



A D T

802.11n (40MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	61.8 PK	64.9	-3.1	1.12 H	166	17.20	44.60
2	#5725.00	51.1 AV	54.2	-3.1	1.12 H	166	6.50	44.60
3	*5755.00	94.9 PK			1.00 H	186	50.20	44.70
4	*5755.00	84.2 AV			1.00 H	186	39.50	44.70
5	11510.00	62.6 PK	74.0	-11.4	1.08 H	247	9.90	52.70
6	11510.00	49.1 AV	54.0	-4.9	1.08 H	247	-3.60	52.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	53.2 PK	56.3	-3.1	1.12 V	166	8.60	44.60
2	#5725.00	42.7 AV	45.8	-3.1	1.12 V	166	-1.90	44.60
3	*5755.00	86.3 PK			1.00 V	173	41.60	44.70
4	*5755.00	75.8 AV			1.00 V	173	31.10	44.70
5	11510.00	58.0 PK	74.0	-16.0	1.36 V	225	5.30	52.70
6	11510.00	46.8 AV	54.0	-7.2	1.36 V	225	-5.90	52.70

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	*5795.00	89.2 PK			1.00 H	179	44.50	44.70
2	*5795.00	78.6 AV			1.00 H	179	33.90	44.70
3	#5850.00	57.5 PK	59.2	-1.7	1.02 H	216	12.60	44.90
4	#5850.00	46.9 AV	48.6	-1.7	1.02 H	216	2.00	44.90
5	11590.00	62.6 PK	74.0	-11.4	1.54 H	163	9.80	52.80
6	11590.00	49.1 AV	54.0	-4.9	1.54 H	163	-3.70	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	83.2 PK			1.11 V	175	38.50	44.70
2	*5795.00	72.8 AV			1.11 V	175	28.10	44.70
3	#5850.00	51.5 PK	53.2	-1.7	1.02 V	216	6.60	44.90
4	#5850.00	41.1 AV	42.8	-1.7	1.02 V	216	-3.80	44.90
5	11590.00	57.9 PK	74.0	-16.1	1.02 V	224	5.10	52.80
6	11590.00	46.0 AV	54.0	-8.0	1.02 V	224	-6.80	52.80

REMARKS:

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



A D T

802.11ac (80MHz): 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	60.2 PK	74.0	-13.8	1.10 H	340	15.60	44.60
2	#5725.00	51.7 AV	54.0	-2.3	1.10 H	340	7.10	44.60
3	*5775.00	88.2 PK			1.00 H	330	43.50	44.70
4	*5775.00	79.7 AV			1.00 H	330	35.00	44.70
5	#5850.00	61.0 PK	74.0	-13.0	1.10 H	340	16.10	44.90
6	#5850.00	52.5 AV	54.0	-1.5	1.10 H	340	7.60	44.90
7	11550.00	60.4 PK	74.0	-13.6	1.23 H	54	7.60	52.80
8	11550.00	48.4 AV	54.0	-5.6	1.23 H	54	-4.40	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	57.8 PK	74.0	-16.2	1.30 V	150	13.20	44.60
2	#5725.00	48.2 AV	54.0	-5.8	1.30 V	150	3.60	44.60
3	*5775.00	85.8 PK			1.24 V	129	41.10	44.70
4	*5775.00	76.2 AV			1.24 V	129	31.50	44.70
5	#5850.00	58.6 PK	74.0	-15.4	1.30 V	150	13.70	44.90
6	#5850.00	49.0 AV	54.0	-5.0	1.30 V	150	4.10	44.90
7	11550.00	57.3 PK	74.0	-16.7	1.20 V	65	4.50	52.80
8	11550.00	45.6 AV	54.0	-8.4	1.20 V	65	-7.20	52.80

REMARKS:

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

802.11ac (80MHz): 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	#5725.00	55.9 PK	74.0	-18.1	1.11 H	106	11.30	44.60
2	#5725.00	46.4 AV	54.0	-7.6	1.11 H	106	1.80	44.60
3	*5775.00	93.7 PK			1.00 H	190	49.00	44.70
4	*5775.00	84.2 AV			1.00 H	190	39.50	44.70
5	#5850.00	56.6 PK	74.0	-17.4	1.24 H	275	11.70	44.90
6	#5850.00	47.1 AV	54.0	-6.9	1.24 H	275	2.20	44.90
7	11550.00	62.6 PK	74.0	-11.4	1.54 H	119	9.80	52.80
8	11550.00	49.2 AV	54.0	-4.8	1.54 H	119	-3.60	52.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	47.4 PK	74.0	-26.6	1.11 V	106	2.80	44.60
2	#5725.00	38.7 AV	54.0	-15.3	1.11 V	106	-5.90	44.60
3	*5775.00	85.2 PK			1.00 V	169	40.50	44.70
4	*5775.00	76.5 AV			1.00 V	169	31.80	44.70
5	#5850.00	48.1 PK	74.0	-25.9	1.24 V	275	3.20	44.90
6	#5850.00	39.3 AV	54.0	-14.7	1.24 V	275	-5.60	44.90
7	11550.00	58.2 PK	74.0	-15.8	1.55 V	130	5.40	52.80
8	11550.00	45.9 AV	54.0	-8.1	1.55 V	130	-6.90	52.80

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%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	99.84	38.4 QP	43.5	-5.1	1.24 H	150	28.60	9.80
2	165.80	40.1 QP	43.5	-3.4	1.00 H	163	26.80	13.30
3	224.00	37.4 QP	46.0	-8.6	1.00 H	156	25.80	11.60
4	293.84	32.6 QP	46.0	-13.4	1.50 H	156	18.30	14.30
5	623.64	28.1 QP	46.0	-17.9	1.00 H	207	5.40	22.70
6	860.32	31.3 QP	46.0	-14.7	1.50 H	281	5.00	26.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	33.88	36.0 QP	40.0	-4.0	1.24 V	16	23.00	13.00
2	99.84	38.2 QP	43.5	-5.3	1.00 V	212	28.40	9.80
3	130.88	38.6 QP	43.5	-4.9	1.50 V	212	26.10	12.50
4	200.72	35.8 QP	43.5	-7.7	1.00 V	114	25.30	10.50
5	299.66	28.5 QP	46.0	-17.5	1.24 V	163	14.00	14.50
6	489.78	28.0 QP	46.0	-18.0	1.50 V	175	8.40	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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:** 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.2.2 TEST INSTRUMENTS

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

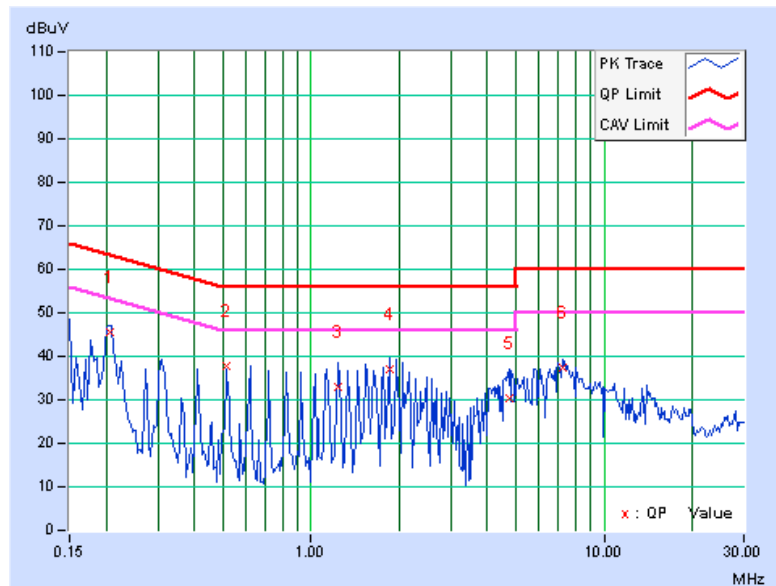
CONDUCTED WORST-CASE DATA : 802.11n (40MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20731	0.17	45.29	40.31	45.46	40.48	63.31	53.31	-17.85	-12.83
2	0.51328	0.22	37.72	36.95	37.94	37.17	56.00	46.00	-18.06	-8.83
3	1.23828	0.27	32.83	32.23	33.10	32.50	56.00	46.00	-22.90	-13.50
4	1.85547	0.28	36.63	30.41	36.91	30.69	56.00	46.00	-19.09	-15.31
5	4.73828	0.38	29.95	27.01	30.33	27.39	56.00	46.00	-25.67	-18.61
6	7.20703	0.40	37.18	31.11	37.58	31.51	60.00	50.00	-22.42	-18.49

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

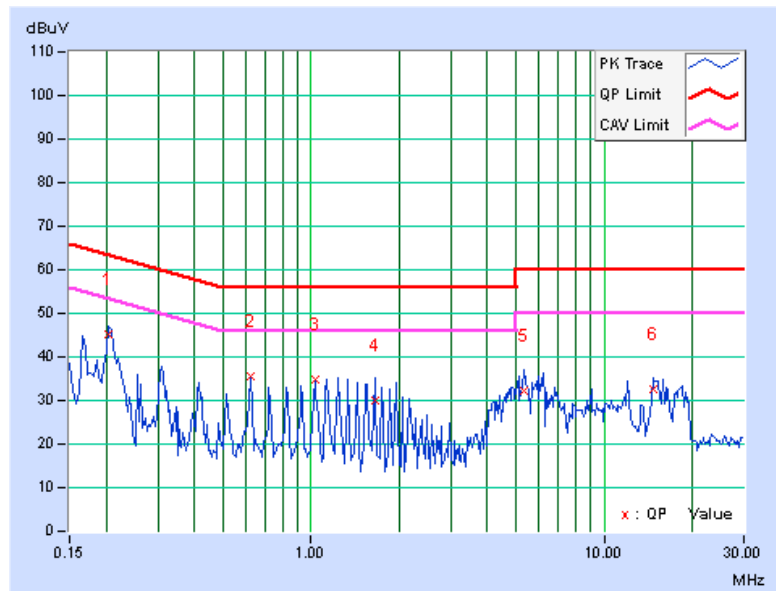


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20469	0.18	44.95	39.37	45.13	39.55	63.42	53.42	-18.29	-13.87
2	0.61875	0.24	35.33	34.46	35.57	34.70	56.00	46.00	-20.43	-11.30
3	1.03125	0.23	34.46	24.77	34.69	25.00	56.00	46.00	-21.31	-21.00
4	1.65480	0.26	29.86	27.08	30.12	27.34	56.00	46.00	-25.88	-18.66
5	5.35938	0.41	31.86	24.39	32.27	24.80	60.00	50.00	-27.73	-25.20
6	14.73438	0.60	31.88	28.78	32.48	29.38	60.00	50.00	-27.52	-20.62

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	16.58	0.5	PASS
157	5785	16.64	0.5	PASS
165	5825	16.60	0.5	PASS

802.11n (20MHz): 1TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.75	0.5	PASS
157	5785	17.73	0.5	PASS
165	5825	17.72	0.5	PASS

802.11n (20MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.79	17.72	0.5	PASS
157	5785	17.75	17.72	0.5	PASS
165	5825	17.81	17.70	0.5	PASS

802.11n (40MHz): 1TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.57	0.5	PASS
159	5795	36.64	0.5	PASS

802.11n (40MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.63	36.43	0.5	PASS
159	5795	36.63	36.58	0.5	PASS

802.11ac (80MHz): 1TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
155	5775	76.72	0.5	PASS

802.11ac (80MHz): 2TX

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
155	5775	76.75	76.72	0.5	PASS

5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

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

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

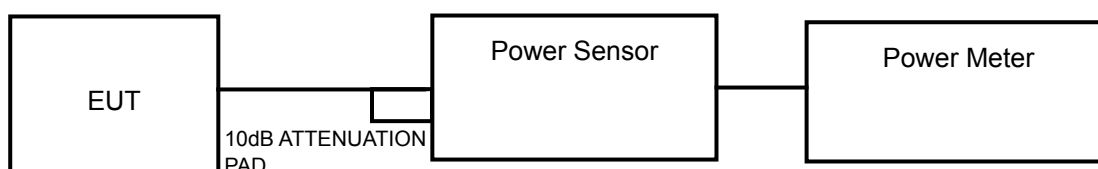
Array Gain = 0 dB (i.e., no array gain) for channel widths $\geq$ 40 MHz for any NANT;

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

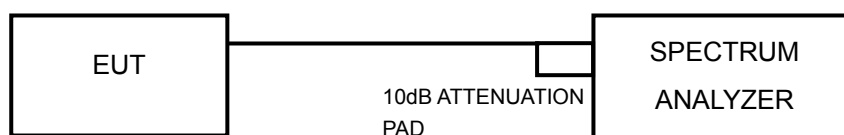
For power measurements on all other devices: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB.

5.4.2 TEST SETUP

For 802.11a, 802.11n (20MHz), 802.11n (40MHz)



For 802.11ac (80MHz)



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

For 802.11a, 802.11n (20MHz), 802.11n (40MHz)

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

For 802.11ac (80MHz)

Method SA-1

Average

- 1) Set the analyzer span to a minimum of 1.5 times the EBW.
- 2) Set the RBW = 1 MHz.
- 3) Set the VBW = 3 MHz.
- 4) Number of measurement points in the sweep . $2 \times (\text{span/RBW})$.
- 5) Sweep time = auto couple.
- 6) Detector = power averaging (RMS) or sample.
- 7) Employ trace averaging in power averaging (RMS) mode over a minimum of 100 traces.
- 8) Use the spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges.

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

5.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	2.415	3.83	30	PASS
157	5785	2.328	3.67	30	PASS
165	5825	2.213	3.45	30	PASS

802.11n (20MHz): 1TX

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	2.388	3.78	30	PASS
157	5785	2.244	3.51	30	PASS
165	5825	2.377	3.76	30	PASS

802.11n (20MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	0.63	0.53	2.286	3.59	30	PASS
157	5785	0.57	0.92	2.376	3.76	30	PASS
165	5825	0.86	0.64	2.378	3.76	30	PASS

802.11n (40MHz): 1TX

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
151	5755	2.344	3.70	30	PASS
159	5795	2.344	3.70	30	PASS

802.11n (40MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	0.87	0.84	2.435	3.86	30	PASS
159	5795	0.77	0.85	2.410	3.82	30	PASS

**A D T****802.11ac (80MHz): 1TX**

CHANNEL	FREQUENCY (MHz)	AVG. POWER (mW)	AVG. POWER (dBm)	LIMIT (dBm)	PASS/FAIL
155	5775	2.208	3.44	30	PASS

802.11ac (80MHz): 2TX

CHAN.	CHAN. FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
155	5775	0.58	0.89	2.370	3.75	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST SETUP

Same as item 4.5.2.

5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

Same as item 4.5.4.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

5.5.7 TEST RESULTS

802.11a

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	-21.19	8	PASS
157	5785	-21.63	8	PASS
165	5825	-21.33	8	PASS

802.11n (20MHz): 1TX

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	-21.59	8	PASS
157	5785	-21.52	8	PASS
165	5825	-21.51	8	PASS

802.11n (20MHz): 2TX

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-24.00	3.01	-20.99	6.99	PASS
	157	5785	-22.53	3.01	-19.52	6.99	PASS
	165	5825	-22.44	3.01	-19.43	6.99	PASS
1	149	5745	-22.18	3.01	-19.17	6.99	PASS
	157	5785	-21.65	3.01	-18.64	6.99	PASS
	165	5825	-21.01	3.01	-18.00	6.99	PASS

NOTE: Directional gain = 4dBi + 10log(2) = 7.01dBi > 6dBi , so the power density limit shall be reduced to 8-(7.01-6) = 6.99dBm.

802.11n (40MHz): 1TX

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
151	5755	-23.79	8	PASS
159	5795	-23.30	8	PASS

802.11n (40MHz): 2TX

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-26.76	3.01	-23.75	6.99	PASS
	159	5795	-26.41	3.01	-23.40	6.99	PASS
1	151	5755	-25.45	3.01	-22.44	6.99	PASS
	159	5795	-24.72	3.01	-21.71	6.99	PASS

NOTE: Directional gain = 4dBi + 10log(2) = 7.01dBi > 6dBi , so the power density limit shall be reduced to 8-(7.01-6) = 6.99dBm.

802.11ac (80MHz): 1TX

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
155	5775	-25.27	8	PASS

802.11ac (80MHz): 2TX

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	155	5775	-27.88	3.01	-24.87	6.99	PASS
1	155	5775	-27.62	3.01	-24.61	6.99	PASS

NOTE: Directional gain = 4dBi + 10log(2) = 7.01dBi > 6dBi , so the power density limit shall be reduced to 8-(7.01-6) = 6.99dBm.

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

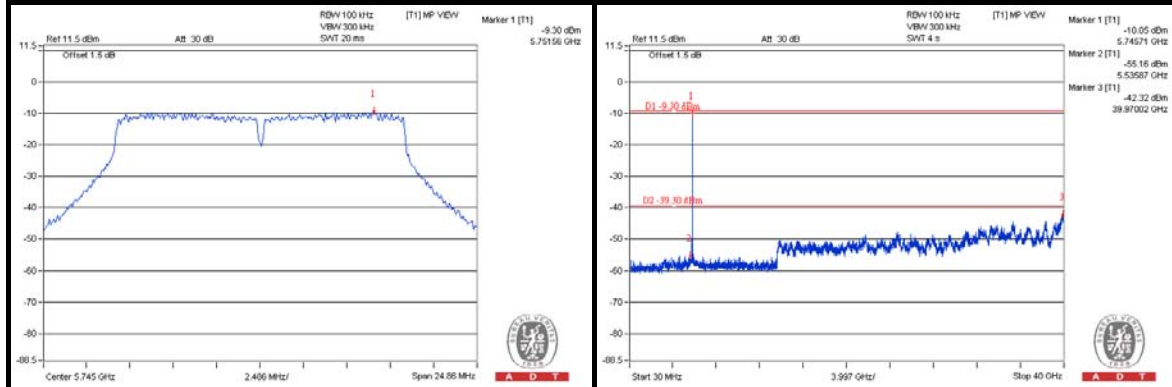
5.6.7 TEST RESULTS

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.

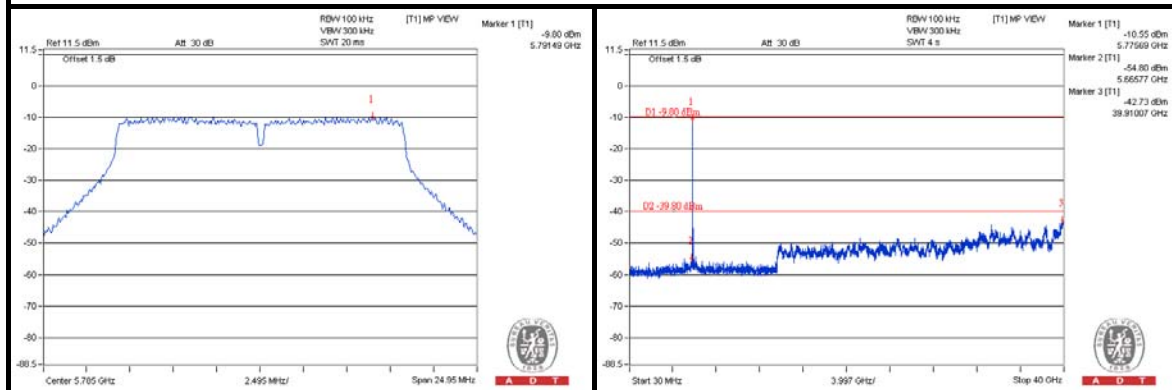
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11a

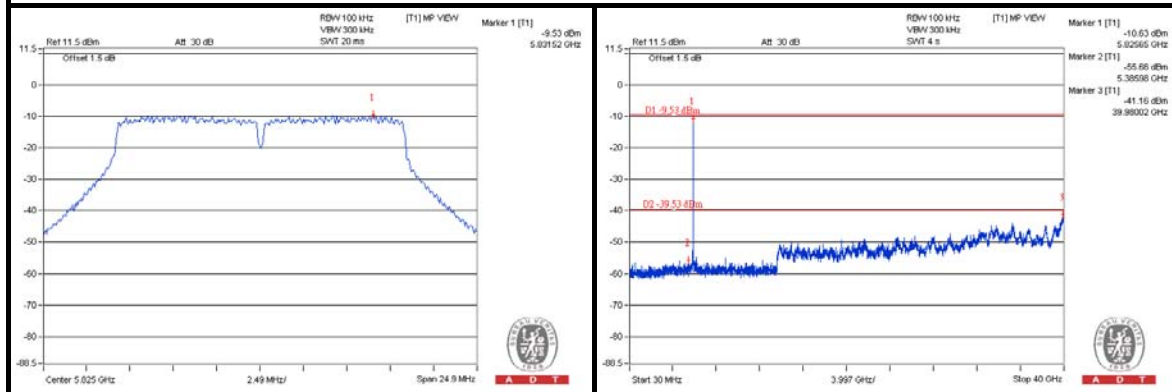
CH 149



CH 157

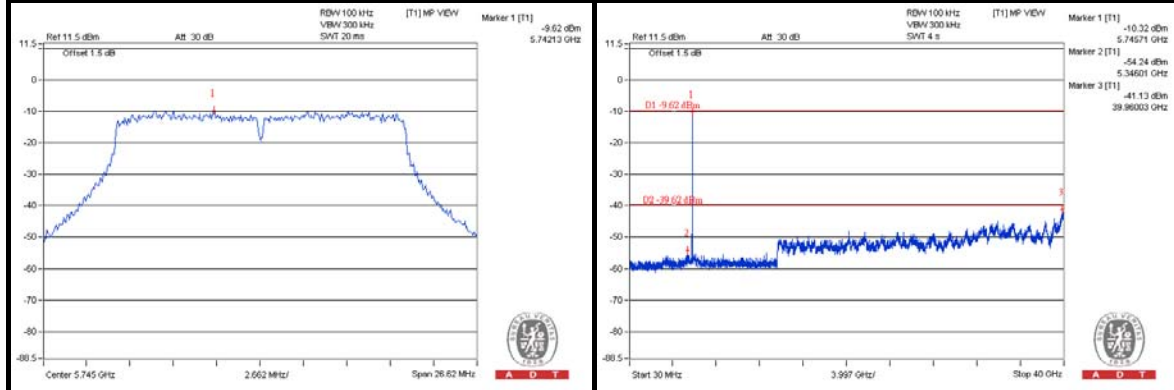


CH 165

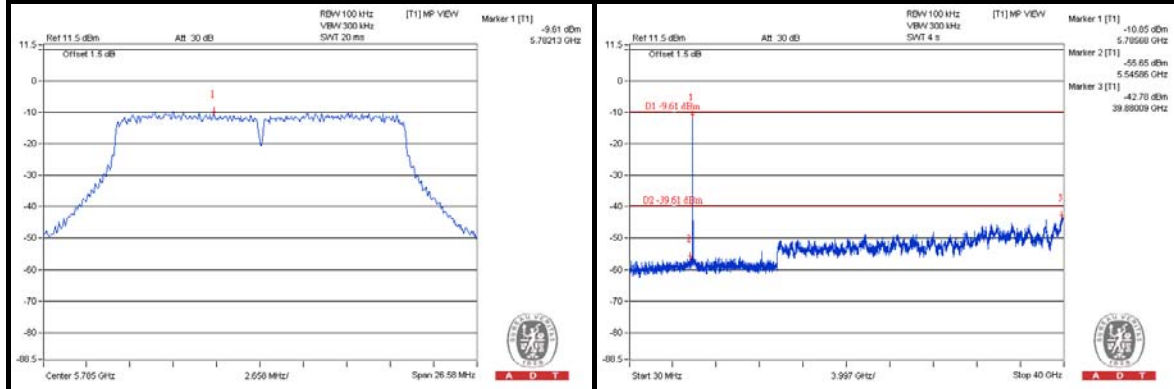


802.11n (20MHz): 1TX

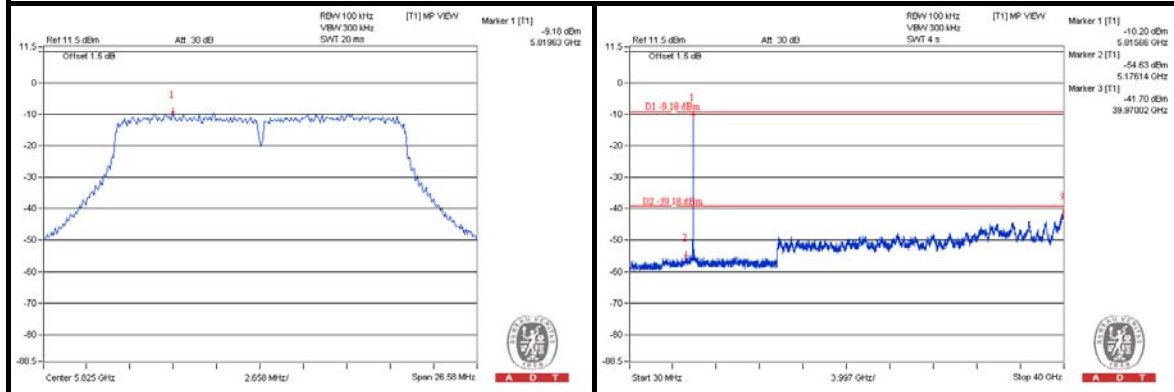
CH 149



CH 157

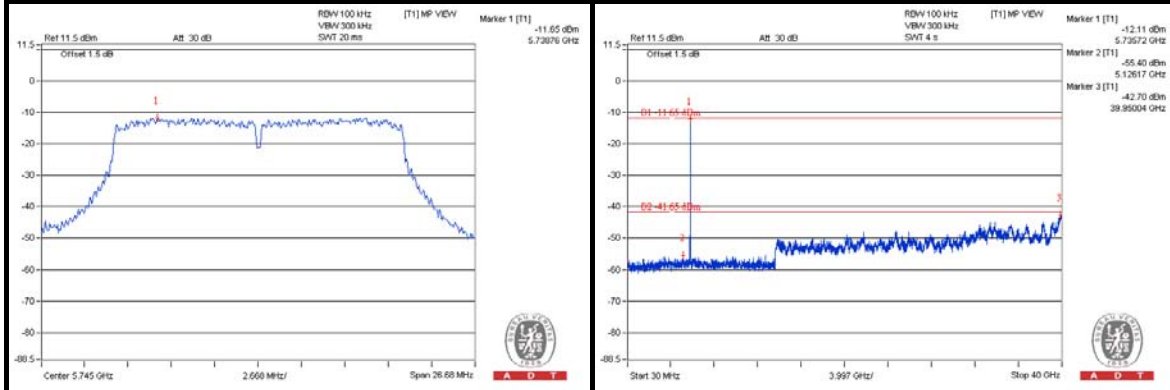


CH 165

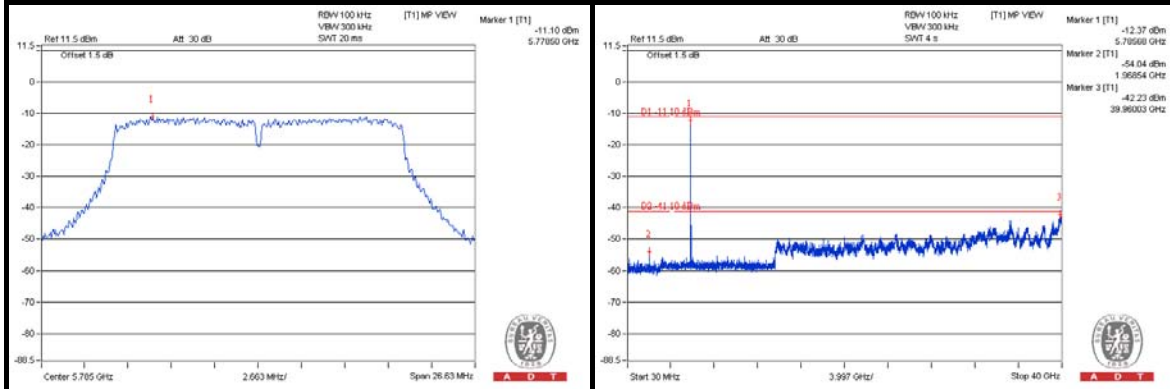


802.11n (20MHz): 2TX CHAIN 0

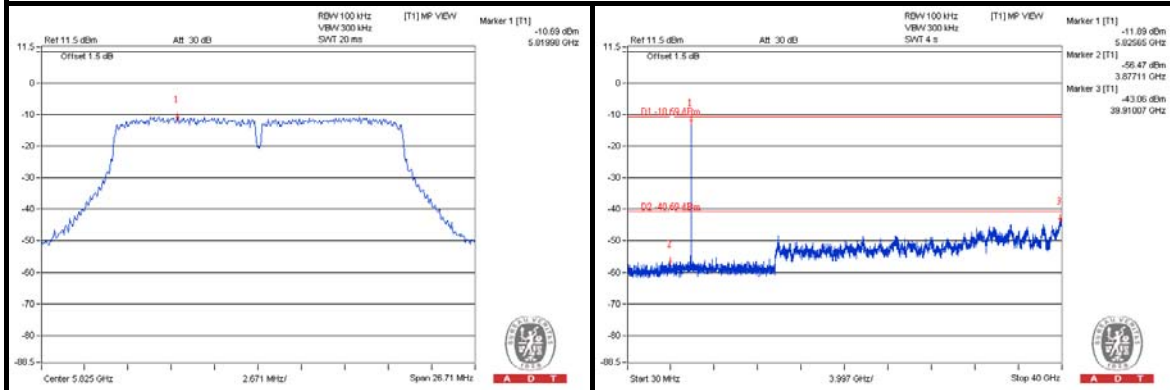
CH 149



CH 157



CH 165

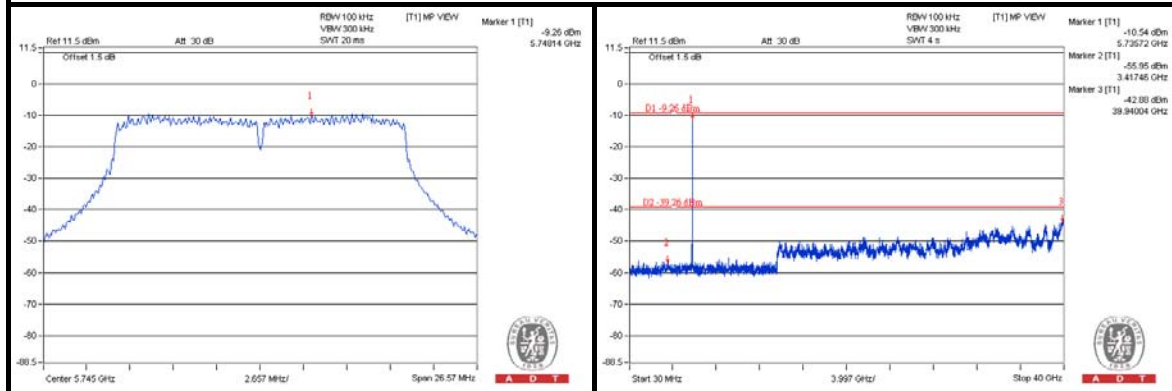




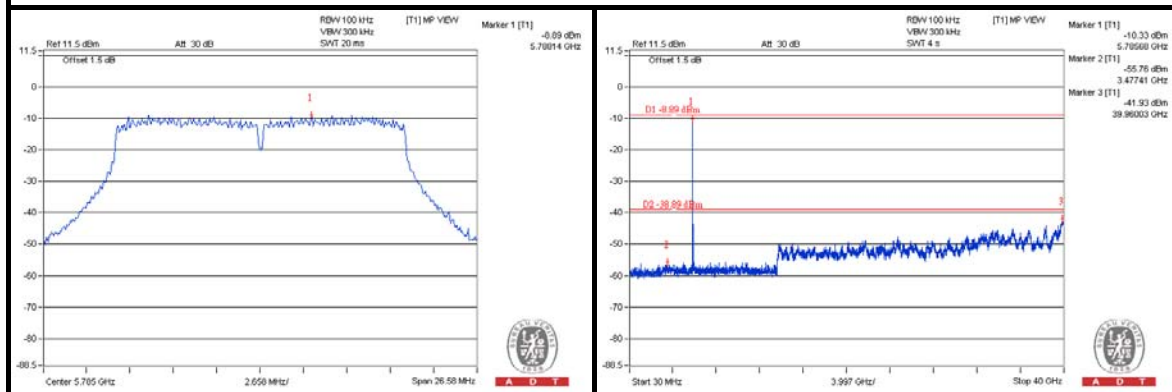
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CHAIN 1

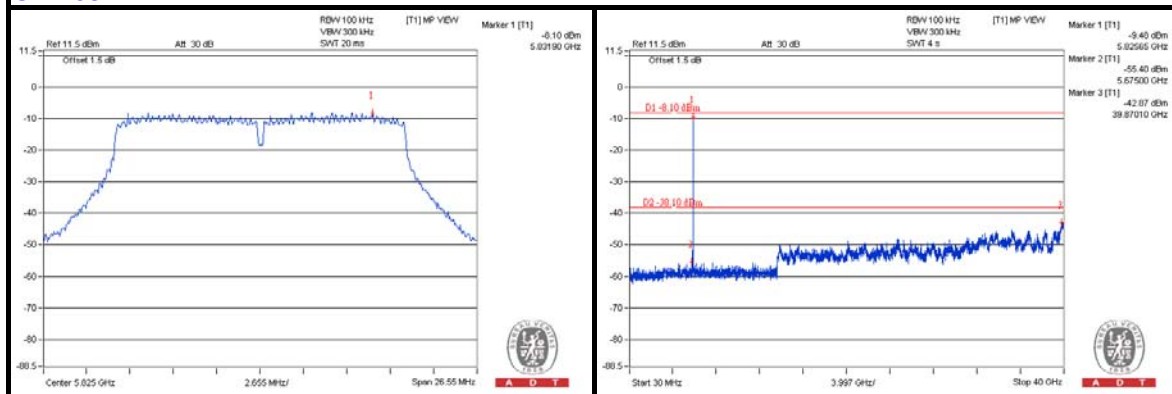
CH 149



CH 157



CH 165

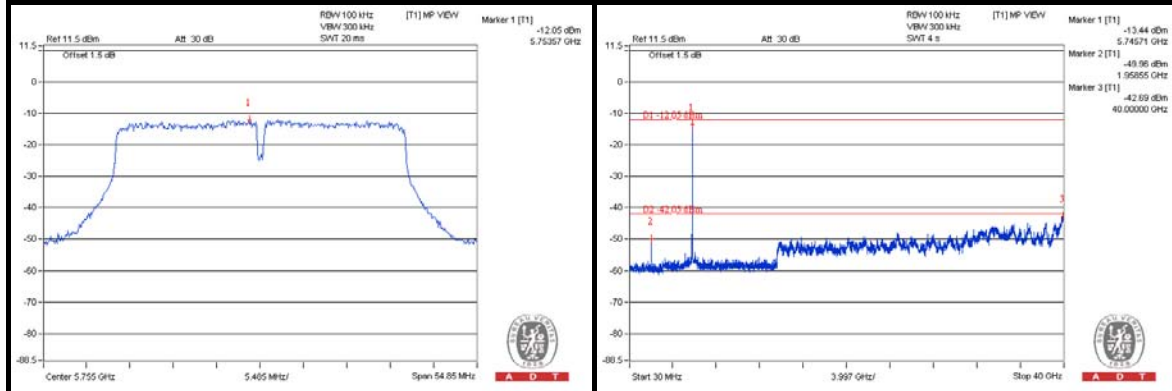




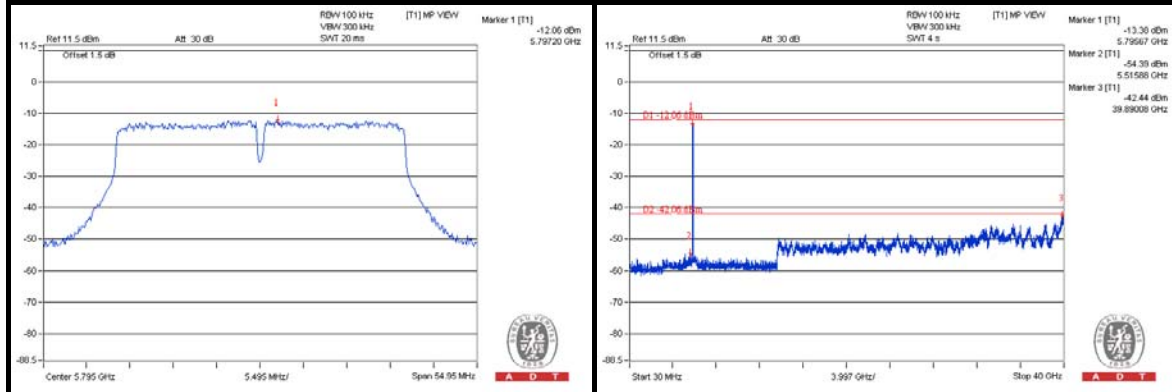
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802.11n (40MHz): 1TX

CH 151

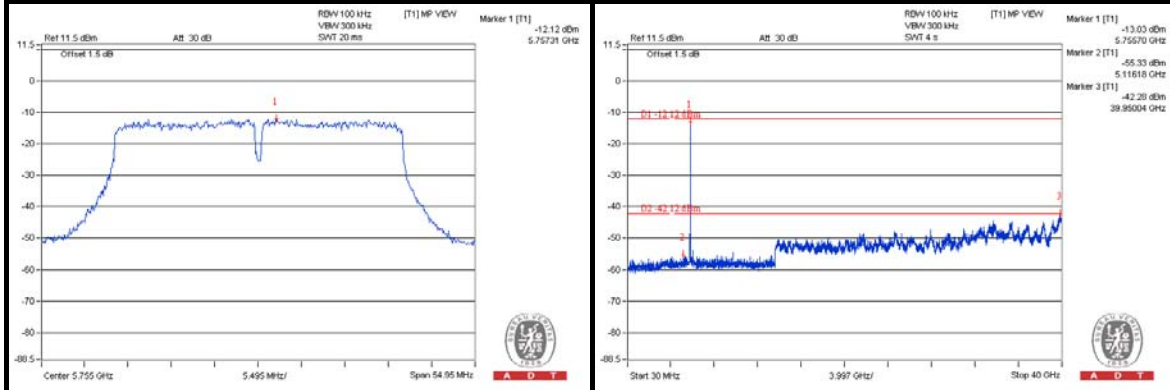


CH 159

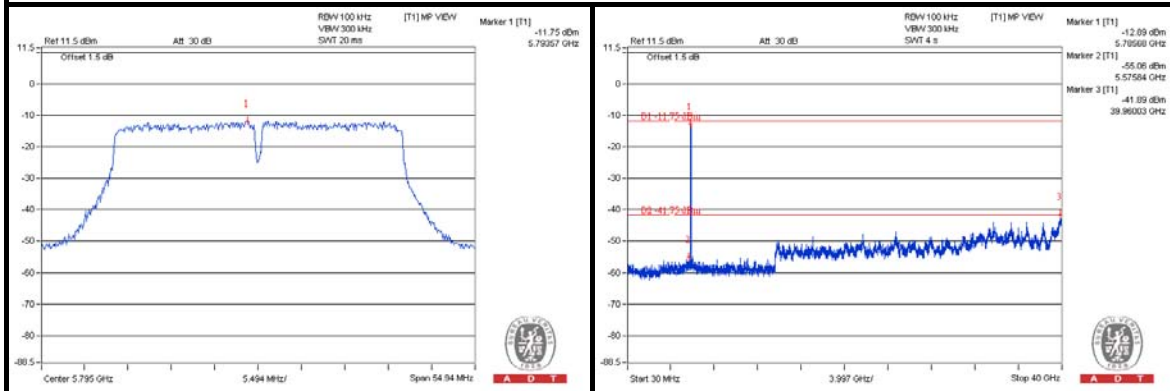


802.11n (40MHz): 2TX
CHAIN 0

CH 151

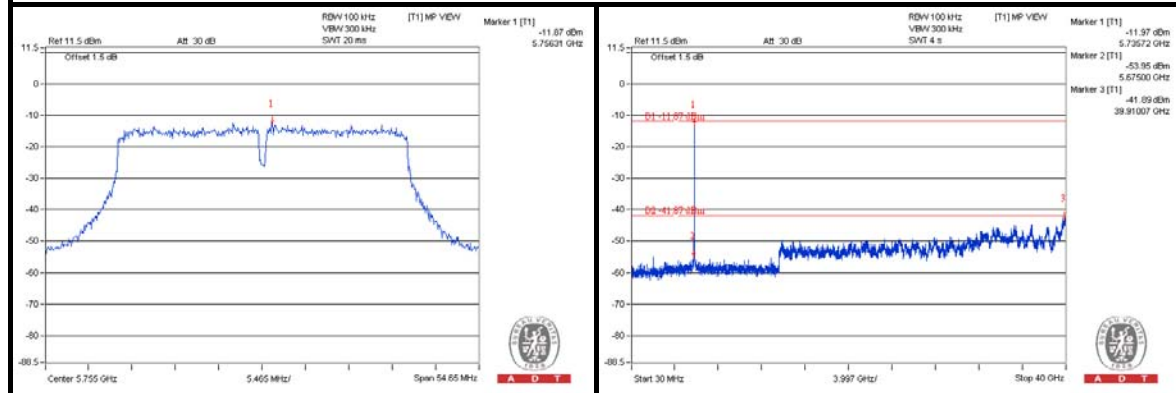


CH 159

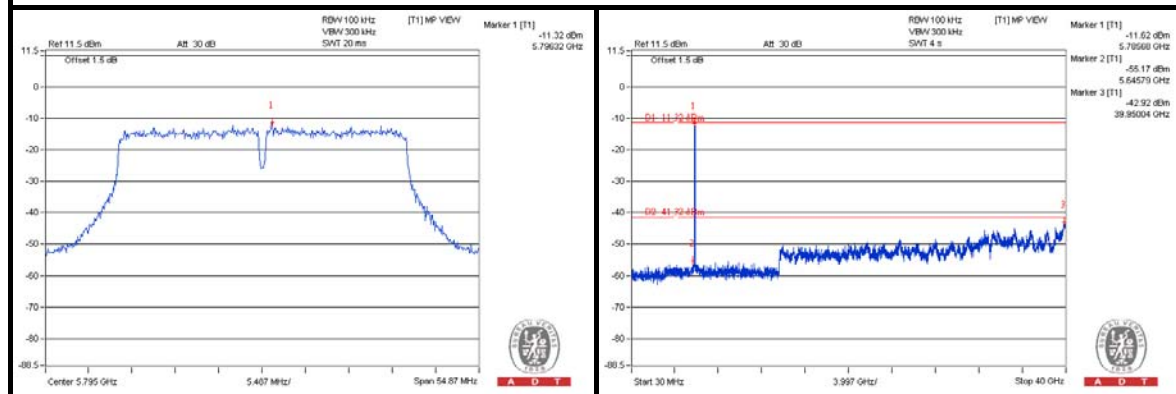


CHAIN 1

CH 151

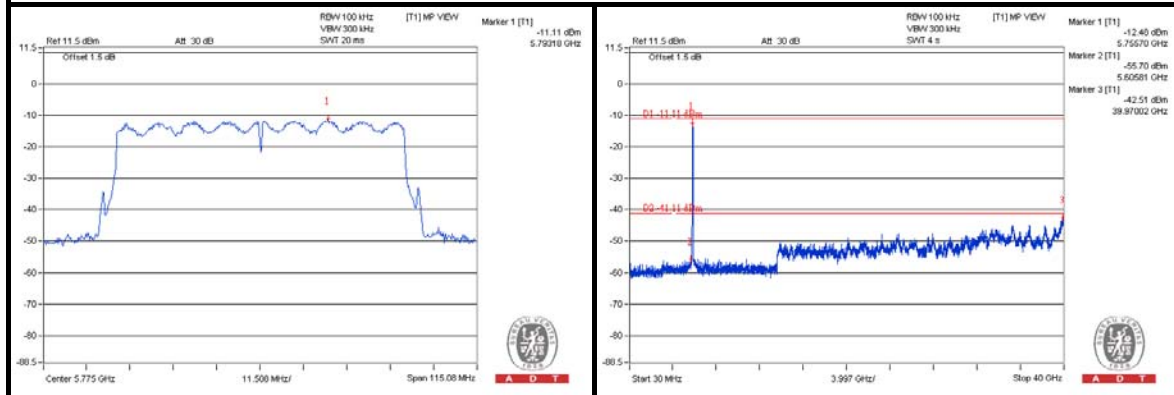


CH 159



802.11ac (80MHz): 1TX

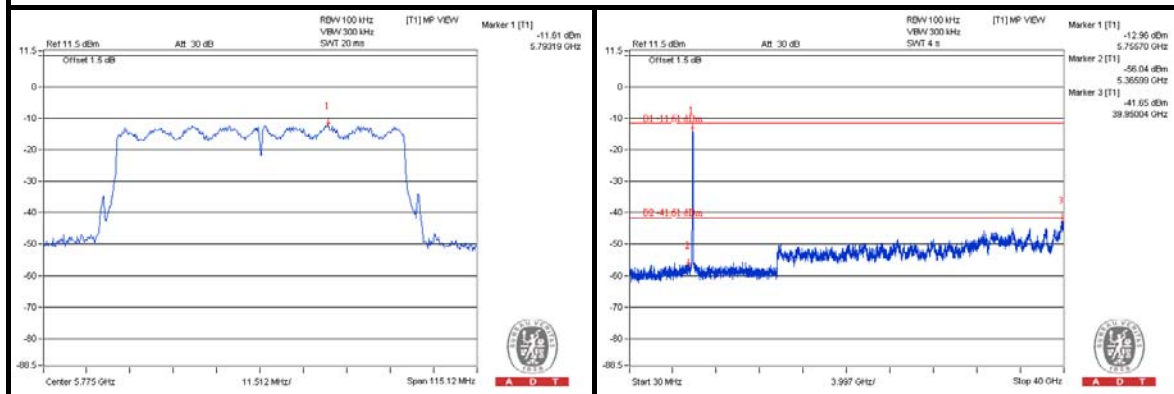
CH 155



802.11ac (80MHz): 2TX

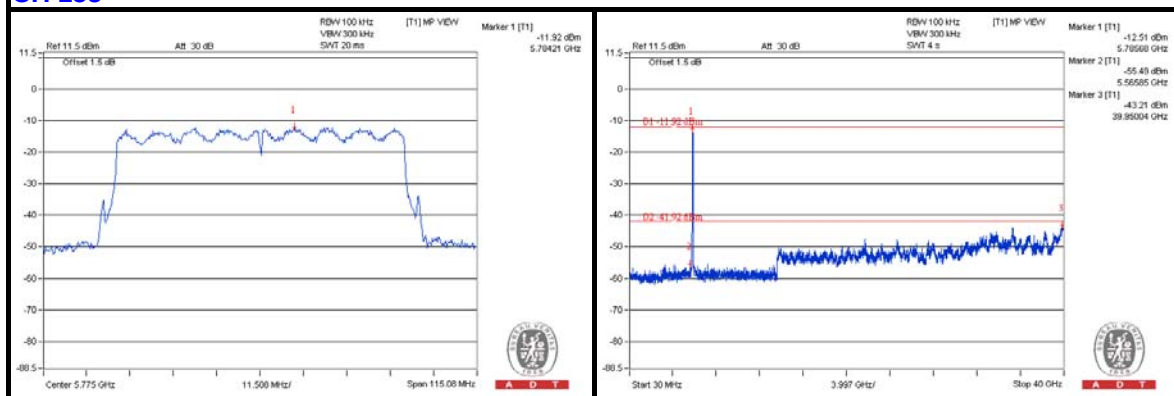
CHAIN 0

CH 155



CHAIN 1

CH 155





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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7. INFORMATION ON THE TESTING LABORATORIES

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

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

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Web Site: www.bureauveritas-adt.com

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



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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---