

FCC TEST REPORT (15.247)

REPORT NO.: RF140402C09
MODEL NO.: CNUS0x (where "x" can be
numerical 0-9 or alpha a-z)
FCC ID: 2AA9C900-00001
RECEIVED: Apr. 02, 2014
TESTED: Apr. 15, 2014 ~ Apr. 19, 2014
ISSUED: Apr. 23, 2014

APPLICANT: Morse Project Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140402C09	Original release	Apr. 23, 2014

1. CERTIFICATION

PRODUCT: Cone

MODEL NO.: CNUS0x (where "x" can be numerical 0-9 or alpha a-z)

BRAND: Aether

APPLICANT: Morse Project Inc.

TESTED: Apr. 15, 2014 ~ Apr. 19, 2014

TEST SAMPLE: PRODUCTION UNIT

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

ANSI C63.10-2009

The above equipment 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 : Gina Liu , **DATE** : Apr. 23, 2014

Gina Liu / Specialist

APPROVED BY : Sam chen , **DATE** : Apr. 23, 2014

Sam Chen / Senior Project Engineer

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 -31.17dB at 3.84766MHz.
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.67dB at 2484MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(d)	Antenna Port Emission	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	Cone
MODEL NO.	CNUS0x (where "x" can be numerical 0-9 or alpha a-z)
POWER SUPPLY	12Vdc (adapter) 7.2Vdc (Li-ion battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11a: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	167.88mW for 2412 ~ 2462MHz 149.467mW for 5745 ~ 5825MHz
ANTENNA TYPE	2.4GHz: PIFA antenna with 1.35dBi gain 5.0GHz: PIFA antenna with 1.62dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

- The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter 1	Chicony	ADUS0x (x can be 1-9)	I/P: 100-240Vac, 50/60Hz, 1A O/P: 12Vdc, 3A
Battery	Getac	NU1	7.2Vdc, 5200mAh
WLAN Chip	Marvell	8797	--

2. The following models are provided to this EUT.

MODEL	DESCRIPTION
CNUS0x (where "x" can be numerical 0-9 or alpha a-z)	For marketing purpose.

3. The EUT provides one completed transmitter and one receiver.

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

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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

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

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

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

FOR 5.0GHz (5745 ~ 5825MHz):

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

WLAN 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	1TX
B	√	-	-	√	2TX

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

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

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

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

POWER LINE CONDUCTED EMISSION TEST:

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

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
B	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
APCM	25deg. C, 65%RH	120Vac, 60Hz	David Huang

WLAN 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	1TX
B	√	-	-	√	2TX

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

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

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 161	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
B	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	149 to 161	149	OFDM	BPSK	MCS0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	149 to 161	149	OFDM	BPSK	MCS0

BANDEDGE MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 161	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
B	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 161	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
B	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0

Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
APCM	25deg. C, 65%RH	120Vac, 60Hz	David Huang

3.3 DESCRIPTION OF SUPPORT UNITS

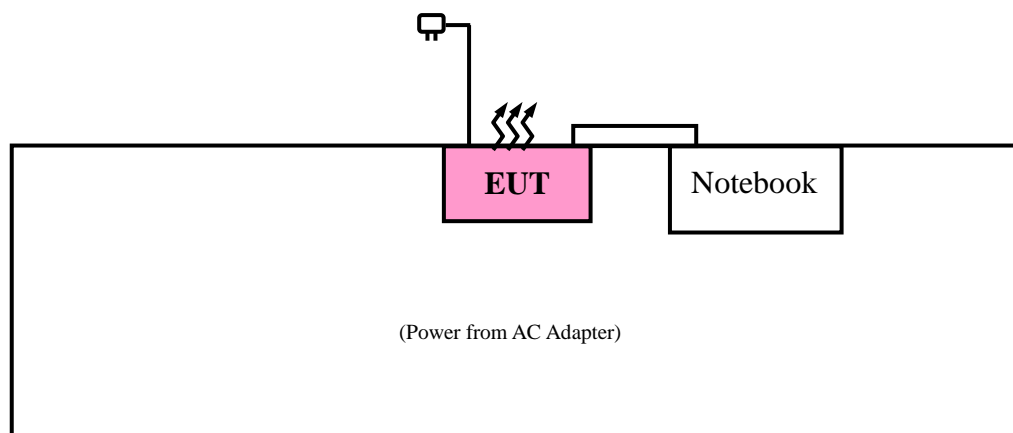
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	Inspiron 14R	7LRKKW1	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE: 1. All power cords of the above support units are non shielded (1.8m).

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



*Test Table

3.4 DUTY CYCLE TEST SIGNAL

MODE A

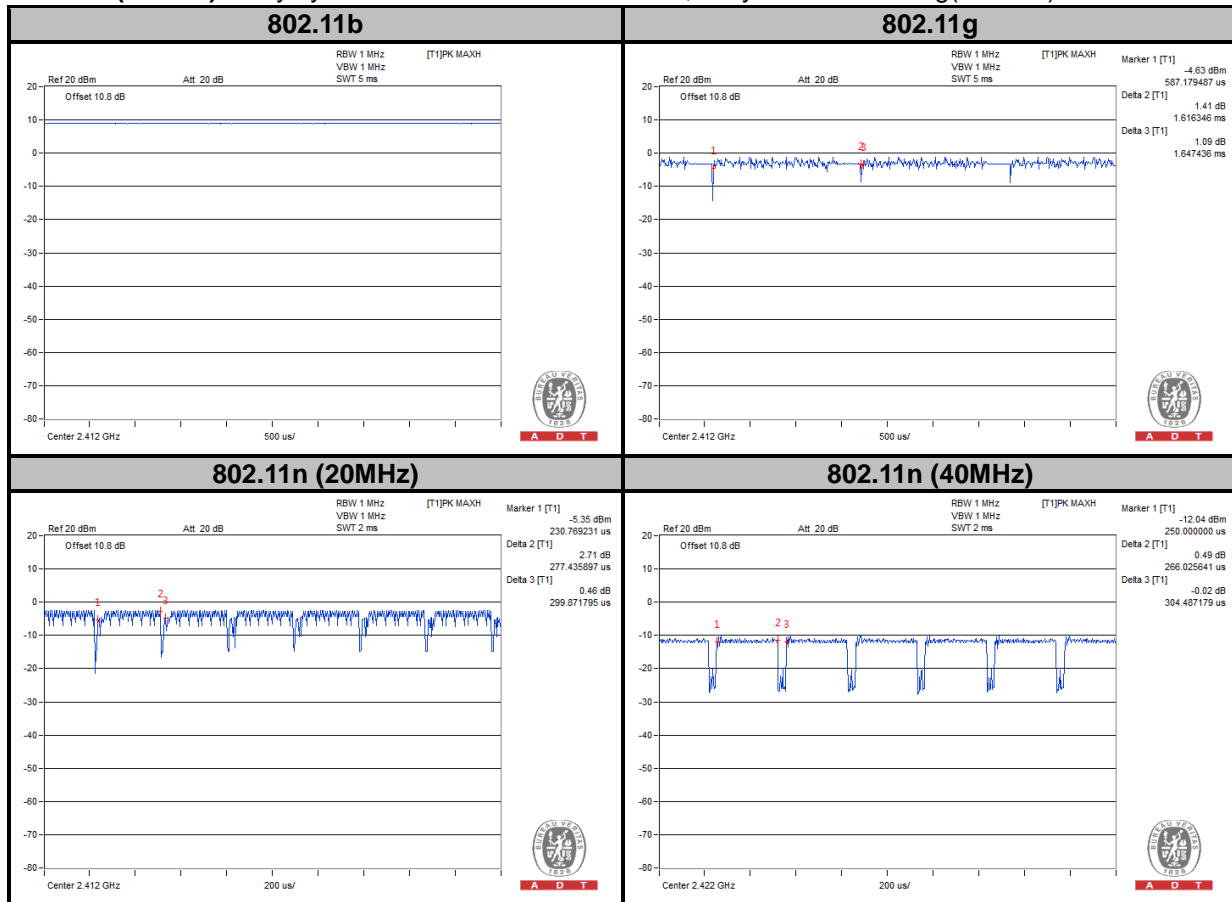
WLAN 2.4GHz

802.11b: Duty cycle of test signal is 100 %, duty factor is not required.

802.11g: Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (20MHz): Duty cycle = $277.435/299.871 = 0.925$, Duty factor = $10 * \log(1/0.925) = 0.34$

802.11n (40MHz): Duty cycle = $266.025/304.487 = 0.874$, Duty factor = $10 * \log(1/0.874) = 0.59$

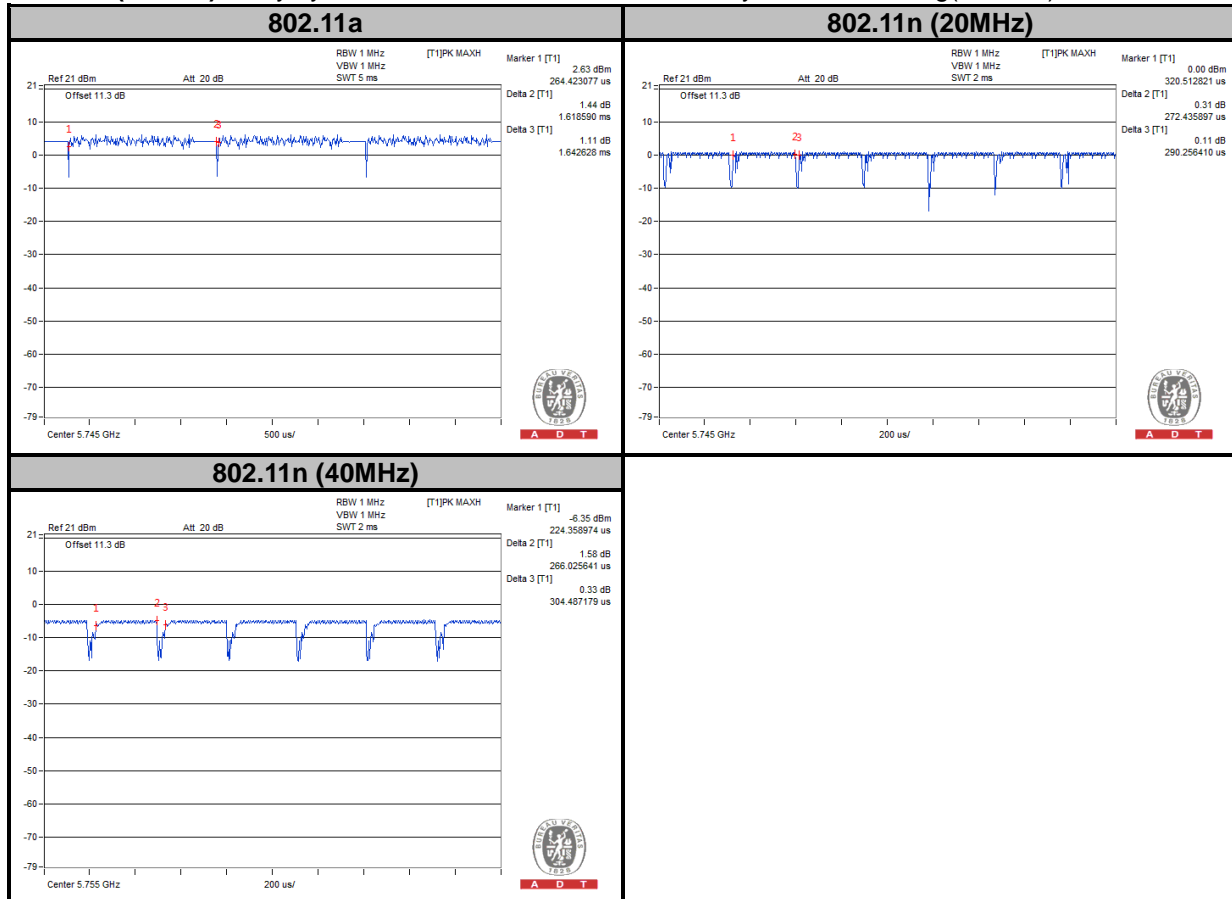


5725MHz ~ 5850MHz

802.11a: Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (20MHz): Duty cycle = $272.435/290.256 = 0.939$, Duty factor = $10 * \log(1/0.939) = 0.28$

802.11n (40MHz): Duty cycle = $266.025/304.487 = 0.874$, Duty factor = $10 * \log(1/0.874) = 0.59$

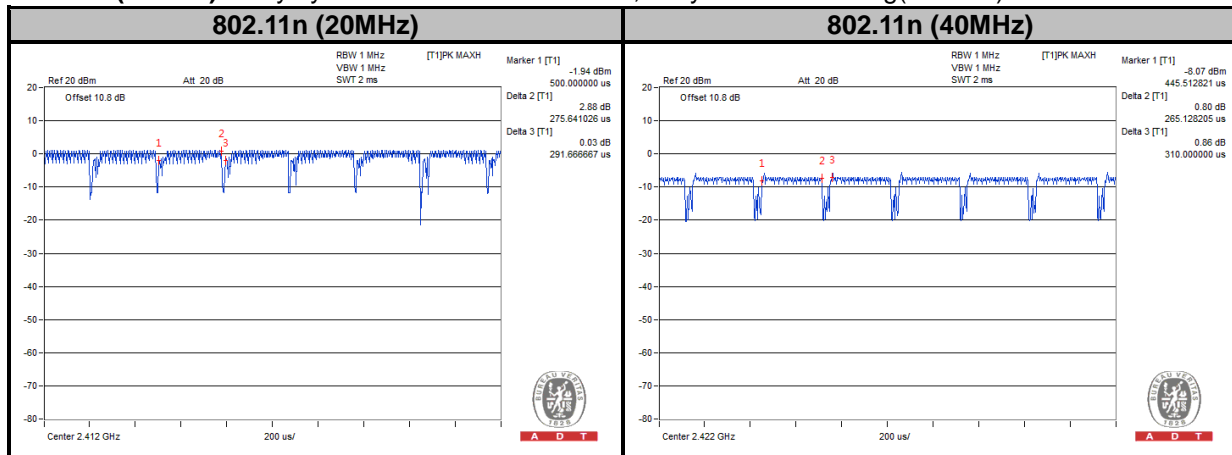


MODE B

WLAN 2.4GHz

802.11n (20MHz): Duty cycle = $275.641/291.666 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

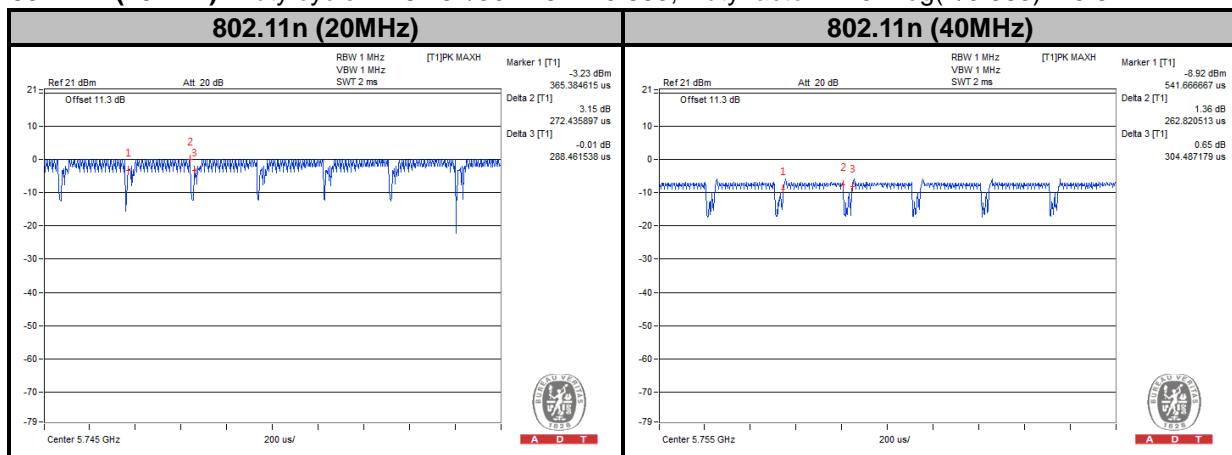
802.11n (40MHz): Duty cycle = $265.128/310 = 0.855$, Duty factor = $10 * \log(1/0.855) = 0.68$



5725MHz ~ 5850MHz

802.11n (20MHz): Duty cycle = $272.435/288.461 = 0.944$, Duty factor = $10 * \log(1/0.944) = 0.25$

802.11n (40MHz): Duty cycle = $262.82/304.487 = 0.863$, Duty factor = $10 * \log(1/0.863) = 0.64$





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3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2009

558074 D01 DTS Meas Guidance v03r01

662911 D01 Multiple Transmitter Output v02r01

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

NOTE:

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2014	Apr. 14, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27, 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2013	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Loop Antenna	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2015
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.

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. Height of receiving antenna 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:

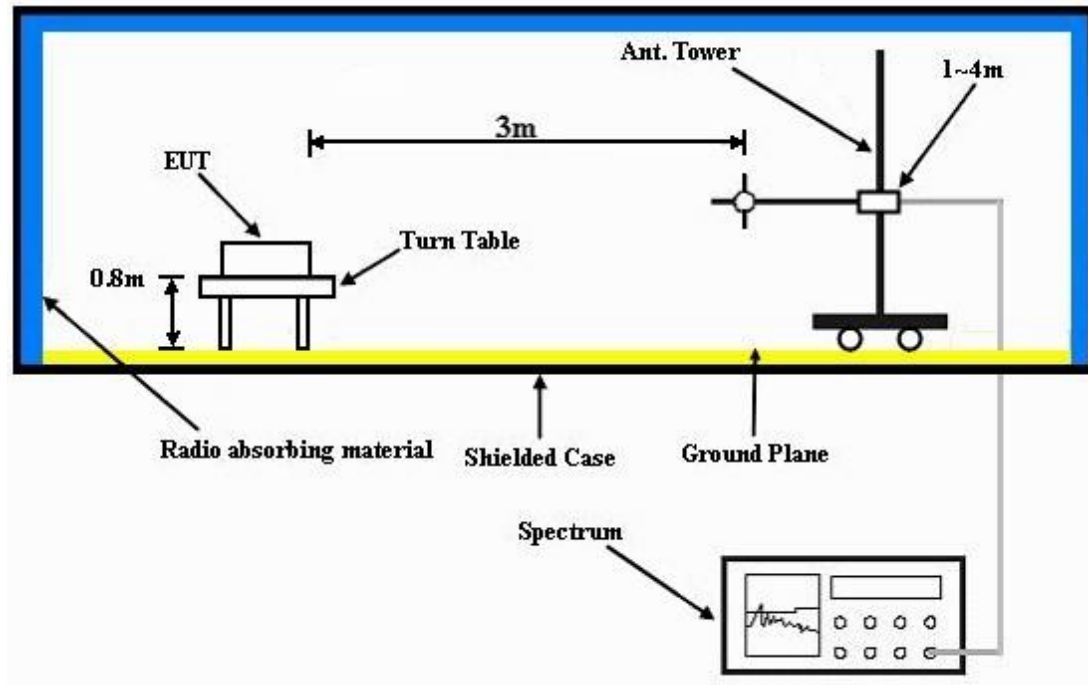
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution 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

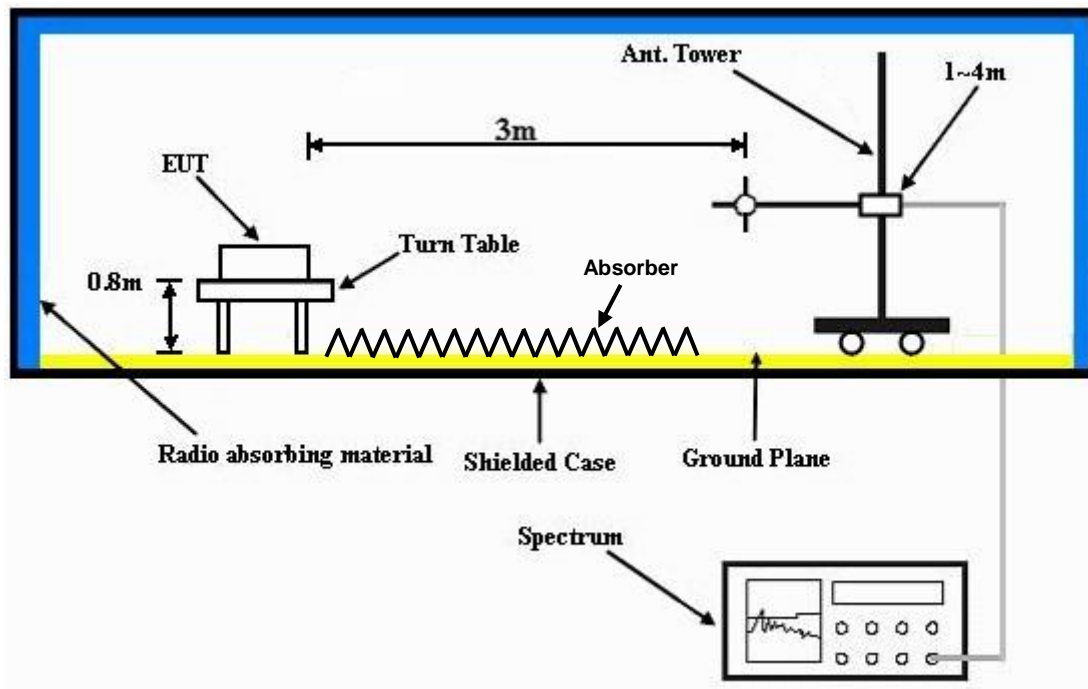
No deviation.

4.1.5 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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



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4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

MODE A

ABOVE 1GHz WORST-CASE DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	38.72	37.01	54	-15.28	31.8	5.4	35.49	157	77	Average
2388	56.41	54.7	74	-17.59	31.8	5.4	35.49	157	77	Peak
2412	109.1	107.33			31.81	5.43	35.47	157	77	Average
2412	111.69	109.92			31.81	5.43	35.47	157	77	Peak
2484	39.8	37.84	54	-14.2	31.88	5.5	35.42	157	77	Average
2484	56.23	54.27	74	-17.77	31.88	5.5	35.42	157	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2380	39.67	38.01	54	-14.33	31.78	5.37	35.49	102	57	Average
2380	55.23	53.57	74	-18.77	31.78	5.37	35.49	102	57	Peak
2412	102.23	100.46			31.81	5.43	35.47	102	57	Average
2412	104.87	103.1			31.81	5.43	35.47	102	57	Peak
2486	38.94	36.95	54	-15.06	31.88	5.53	35.42	102	57	Average
2486	55.78	53.79	74	-18.22	31.88	5.53	35.42	102	57	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2316	39.54	38.05	54	-14.46	31.71	5.3	35.52	157	76	Average
2316	57.12	55.63	74	-16.88	31.71	5.3	35.52	157	76	Peak
2437	109.88	108.03			31.85	5.46	35.46	157	76	Average
2437	112.51	110.66			31.85	5.46	35.46	157	76	Peak
2492	38.96	36.94	54	-15.04	31.9	5.53	35.41	157	76	Average
2492	56.88	54.86	74	-17.12	31.9	5.53	35.41	157	76	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	38.72	37.01	54	-15.28	31.8	5.4	35.49	106	85	Average
2386	54.98	53.27	74	-19.02	31.8	5.4	35.49	106	85	Peak
2437	102.51	100.66			31.85	5.46	35.46	106	85	Average
2437	105.59	103.74			31.85	5.46	35.46	106	85	Peak
2484	39.8	37.84	54	-14.2	31.88	5.5	35.42	106	85	Average
2484	55.79	53.83	74	-18.21	31.88	5.5	35.42	106	85	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2374	39.67	38.01	54	-14.33	31.78	5.37	35.49	157	77	Average
2374	56.55	54.89	74	-17.45	31.78	5.37	35.49	157	77	Peak
2462	108.35	106.42			31.87	5.5	35.44	157	77	Average
2462	111.42	109.49			31.87	5.5	35.44	157	77	Peak
2486	43.94	41.95	54	-10.06	31.88	5.53	35.42	157	77	Average
2486	56.7	54.71	74	-17.3	31.88	5.53	35.42	157	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2346	38.61	37.04	54	-15.39	31.74	5.33	35.5	106	85	Average
2346	54.86	53.29	74	-19.14	31.74	5.33	35.5	106	85	Peak
2462	103.22	101.29			31.87	5.5	35.44	106	85	Average
2462	105.69	103.76			31.87	5.5	35.44	106	85	Peak
2486	39.94	37.95	54	-14.06	31.88	5.53	35.42	106	85	Average
2486	55.49	53.5	74	-18.51	31.88	5.53	35.42	106	85	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	42.85	41.12	54	-11.15	31.8	5.4	35.47	184	297	Average
2390	57.77	56.04	74	-16.23	31.8	5.4	35.47	184	297	Peak
2412	100.88	99.11			31.81	5.43	35.47	184	297	Average
2412	108.06	106.29			31.81	5.43	35.47	184	297	Peak
2500	38.99	36.97	54	-15.01	31.9	5.53	35.41	184	297	Average
2500	57.52	55.5	74	-16.48	31.9	5.53	35.41	184	297	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2352	38.62	37.03	54	-15.38	31.76	5.33	35.5	103	170	Average
2352	56.27	54.68	74	-17.73	31.76	5.33	35.5	103	170	Peak
2412	94.7	92.93			31.81	5.43	35.47	103	170	Average
2412	101.86	100.09			31.81	5.43	35.47	103	170	Peak
2492	39.85	37.83	54	-14.15	31.9	5.53	35.41	103	170	Average
2492	56.27	54.25	74	-17.73	31.9	5.53	35.41	103	170	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2370	38.67	37.01	54	-15.33	31.78	5.37	35.49	184	297	Average
2370	55.72	54.06	74	-18.28	31.78	5.37	35.49	184	297	Peak
2437	101.65	99.8			31.85	5.46	35.46	184	297	Average
2437	109.3	107.45			31.85	5.46	35.46	184	297	Peak
2484	39.8	37.84	54	-14.2	31.88	5.5	35.42	184	297	Average
2484	56.7	54.74	74	-17.3	31.88	5.5	35.42	184	297	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	39.72	37.99	54	-14.28	31.8	5.4	35.47	103	169	Average
2390	55.36	53.63	74	-18.64	31.8	5.4	35.47	103	169	Peak
2437	95.1	93.25			31.85	5.46	35.46	103	169	Average
2437	102.96	101.11			31.85	5.46	35.46	103	169	Peak
2494	38.96	36.94	54	-15.04	31.9	5.53	35.41	103	169	Average
2494	55.61	53.59	74	-18.39	31.9	5.53	35.41	103	169	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2376	39.66	38	54	-14.34	31.78	5.37	35.49	180	299	Average
2376	55.31	53.65	74	-18.69	31.78	5.37	35.49	180	299	Peak
2462	101.35	99.42			31.87	5.5	35.44	180	299	Average
2462	108.34	106.41			31.87	5.5	35.44	180	299	Peak
2483.5	47.28	45.32	54	-6.72	31.88	5.5	35.42	180	299	Average
2483.5	60.78	58.82	74	-13.22	31.88	5.5	35.42	180	299	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	38.72	36.99	54	-15.28	31.8	5.4	35.47	100	169	Average
2390	55.63	53.9	74	-18.37	31.8	5.4	35.47	100	169	Peak
2462	95.35	93.42			31.87	5.5	35.44	100	169	Average
2462	102.45	100.52			31.87	5.5	35.44	100	169	Peak
2483.5	43.05	41.09	54	-10.95	31.88	5.5	35.42	100	169	Average
2483.5	57.09	55.13	74	-16.91	31.88	5.5	35.42	100	169	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	40.76	39.03	54	-13.24	31.8	5.4	35.47	184	297	Average
2390	56.62	54.89	74	-17.38	31.8	5.4	35.47	184	297	Peak
2412	98.81	97.04			31.81	5.43	35.47	184	297	Average
2412	106.13	104.36			31.81	5.43	35.47	184	297	Peak
2486	39.57	37.58	54	-14.43	31.88	5.53	35.42	184	297	Average
2486	57.46	55.47	74	-16.54	31.88	5.53	35.42	184	297	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2372	39.56	37.9	54	-14.44	31.78	5.37	35.49	103	170	Average
2372	54.95	53.29	74	-19.05	31.78	5.37	35.49	103	170	Peak
2412	93.1	91.33			31.81	5.43	35.47	103	170	Average
2412	100.6	98.83			31.81	5.43	35.47	103	170	Peak
2486	40.94	38.95	54	-13.06	31.88	5.53	35.42	103	170	Average
2486	55.48	53.49	74	-18.52	31.88	5.53	35.42	103	170	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2374	38.67	37.01	54	-15.33	31.78	5.37	35.49	179	297	Average
2374	54.77	53.11	74	-19.23	31.78	5.37	35.49	179	297	Peak
2437	100.83	98.98			31.85	5.46	35.46	179	297	Average
2437	107.01	105.16			31.85	5.46	35.46	179	297	Peak
2490	38.96	36.95	54	-15.04	31.9	5.53	35.42	179	297	Average
2490	56.59	54.58	74	-17.41	31.9	5.53	35.42	179	297	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	38.7	37.01	54	-15.3	31.78	5.4	35.49	103	170	Average
2384	55.24	53.55	74	-18.76	31.78	5.4	35.49	103	170	Peak
2437	93.88	92.03			31.85	5.46	35.46	103	170	Average
2437	100.07	98.22			31.85	5.46	35.46	103	170	Peak
2496	39.96	37.94	54	-14.04	31.9	5.53	35.41	103	170	Average
2496	56.52	54.5	74	-17.48	31.9	5.53	35.41	103	170	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	38.7	37.01	54	-15.3	31.78	5.4	35.49	184	297	Average
2384	55.52	53.83	74	-18.48	31.78	5.4	35.49	184	297	Peak
2462	100.72	98.79			31.87	5.5	35.44	184	297	Average
2462	106.99	105.06			31.87	5.5	35.44	184	297	Peak
2483.5	47.95	45.99	54	-6.05	31.88	5.5	35.42	184	297	Average
2483.5	62.25	60.29	74	-11.75	31.88	5.5	35.42	184	297	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2354	39.62	38.03	54	-14.38	31.76	5.33	35.5	103	170	Average
2354	54.85	53.26	74	-19.15	31.76	5.33	35.5	103	170	Peak
2462	94.22	92.29			31.87	5.5	35.44	103	170	Average
2462	100.45	98.52			31.87	5.5	35.44	103	170	Peak
2483.5	43.95	41.99	54	-10.05	31.88	5.5	35.42	103	170	Average
2483.5	57.56	55.6	74	-16.44	31.88	5.5	35.42	103	170	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	49.86	48.13	54	-4.14	31.8	5.4	35.47	151	66	Average
2390	66.46	64.73	74	-7.54	31.8	5.4	35.47	151	66	Peak
2422	99.52	97.72			31.83	5.43	35.46	151	66	Average
2422	107.45	105.65			31.83	5.43	35.46	151	66	Peak
2490	45.08	43.07	54	-8.92	31.9	5.53	35.42	151	66	Average
2490	57.91	55.9	74	-16.09	31.9	5.53	35.42	151	66	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	45.38	43.65	54	-8.62	31.8	5.4	35.47	102	62	Average
2390	60.77	59.04	74	-13.23	31.8	5.4	35.47	102	62	Peak
2422	92.08	90.28			31.83	5.43	35.46	102	62	Average
2422	100.56	98.76			31.83	5.43	35.46	102	62	Peak
2490	39.87	37.86	54	-14.13	31.9	5.53	35.42	102	62	Average
2490	55.39	53.38	74	-18.61	31.9	5.53	35.42	102	62	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	45.24	43.53	54	-8.76	31.8	5.4	35.49	154	79	Average
2388	57.35	55.64	74	-16.65	31.8	5.4	35.49	154	79	Peak
2437	100.13	98.28			31.85	5.46	35.46	154	79	Average
2437	107.73	105.88			31.85	5.46	35.46	154	79	Peak
2484	50.09	48.13	54	-3.91	31.88	5.5	35.42	154	79	Average
2484	63.18	61.22	74	-10.82	31.88	5.5	35.42	154	79	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2384	39.71	38.02	54	-14.29	31.78	5.4	35.49	100	278	Average
2384	55.45	53.76	74	-18.55	31.78	5.4	35.49	100	278	Peak
2437	91.98	90.13			31.85	5.46	35.46	100	278	Average
2437	100.66	98.81			31.85	5.46	35.46	100	278	Peak
2484	44.16	42.2	54	-9.84	31.88	5.5	35.42	100	278	Average
2484	58.2	56.24	74	-15.8	31.88	5.5	35.42	100	278	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2342	41.24	39.67	54	-12.76	31.74	5.33	35.5	150	77	Average
2342	55.96	54.39	74	-18.04	31.74	5.33	35.5	150	77	Peak
2452	98.36	96.49			31.85	5.46	35.44	150	77	Average
2452	106.23	104.36			31.85	5.46	35.44	150	77	Peak
2484	53.33	51.37	54	-0.67	31.88	5.5	35.42	150	77	Average
2484	66.65	64.69	74	-7.35	31.88	5.5	35.42	150	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2382	39.6	37.91	54	-14.4	31.78	5.4	35.49	100	343	Average
2382	55.63	53.94	74	-18.37	31.78	5.4	35.49	100	343	Peak
2452	90.6	88.73			31.85	5.46	35.44	100	343	Average
2452	98.32	96.45			31.85	5.46	35.44	100	343	Peak
2490	42.32	40.31	54	-11.68	31.9	5.53	35.42	100	343	Average
2490	57.26	55.25	74	-16.74	31.9	5.53	35.42	100	343	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2452MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA:

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
117.21	31.1	53.19	43.5	-12.4	8.88	1.28	32.25	102	123	Peak
210.36	37.78	57.08	43.5	-5.72	11.31	1.65	32.26	152	132	Peak
297.03	39.53	55.74	46	-6.47	13.89	2.03	32.13	188	57	Peak
494.6	36.4	46.89	46	-9.6	18.98	2.63	32.1	100	187	Peak
594	34.85	43.32	46	-11.15	20.85	2.87	32.19	174	54	Peak
693.4	29.91	35.71	46	-16.09	23.19	3.11	32.1	142	57	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
48.09	25.39	48.31	40	-14.61	8.4	0.9	32.22	108	66	Peak
210.63	31.29	50.59	43.5	-12.21	11.31	1.65	32.26	152	21	Peak
297.03	34.71	50.92	46	-11.29	13.89	2.03	32.13	105	332	Peak
494.6	38.97	49.46	46	-7.03	18.98	2.63	32.1	100	152	Peak
594	38.6	47.07	46	-7.4	20.85	2.87	32.19	100	331	Peak
792.1	31.07	35.64	46	-14.93	24.23	3.27	32.07	100	45	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

MODE B

ABOVE 1GHz WORST-CASE DATA

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	43.47	41.74	54	-10.53	31.8	5.4	35.47	156	78	Average
2390	57.11	55.38	74	-16.89	31.8	5.4	35.47	156	78	Peak
2412	101.67	99.9			31.81	5.43	35.47	156	78	Average
2412	108.27	106.5			31.81	5.43	35.47	156	78	Peak
2484	43.43	41.47	54	-10.57	31.88	5.5	35.42	156	78	Average
2484	57.16	55.2	74	-16.84	31.88	5.5	35.42	156	78	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2312	40.44	38.96	54	-13.56	31.71	5.3	35.53	102	270	Average
2312	55.69	54.21	74	-18.31	31.71	5.3	35.53	102	270	Peak
2412	96.9	95.13			31.81	5.43	35.47	102	270	Average
2412	103.39	101.62			31.81	5.43	35.47	102	270	Peak
2490	40.6	38.59	54	-13.4	31.9	5.53	35.42	102	270	Average
2490	55.58	53.57	74	-18.42	31.9	5.53	35.42	102	270	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	41.31	39.6	54	-12.69	31.8	5.4	35.49	153	77	Average
2386	55.12	53.41	74	-18.88	31.8	5.4	35.49	153	77	Peak
2437	101.13	99.28			31.85	5.46	35.46	153	77	Average
2437	107.63	105.78			31.85	5.46	35.46	153	77	Peak
2484	43.76	41.8	54	-10.24	31.88	5.5	35.42	153	77	Average
2484	56.67	54.71	74	-17.33	31.88	5.5	35.42	153	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2344	39.28	37.71	54	-14.72	31.74	5.33	35.5	100	266	Average
2344	55.4	53.83	74	-18.6	31.74	5.33	35.5	100	266	Peak
2437	96.2	94.35			31.85	5.46	35.46	100	266	Average
2437	102.94	101.09			31.85	5.46	35.46	100	266	Peak
2494	40.17	38.15	54	-13.83	31.9	5.53	35.41	100	266	Average
2494	55.9	53.88	74	-18.1	31.9	5.53	35.41	100	266	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2386	39.71	38	54	-14.29	31.8	5.4	35.49	153	77	Average
2386	55.45	53.74	74	-18.55	31.8	5.4	35.49	153	77	Peak
2462	102.13	100.2			31.87	5.5	35.44	153	77	Average
2462	108.68	106.75			31.87	5.5	35.44	153	77	Peak
2483.5	48.17	46.21	54	-5.83	31.88	5.5	35.42	153	77	Average
2483.5	64.72	62.76	74	-9.28	31.88	5.5	35.42	153	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	38.72	36.99	54	-15.28	31.8	5.4	35.47	122	265	Average
2390	54.54	52.81	74	-19.46	31.8	5.4	35.47	122	265	Peak
2462	96.35	94.42			31.87	5.5	35.44	122	265	Average
2462	102.01	100.08			31.87	5.5	35.44	122	265	Peak
2483.5	39.92	37.96	54	-14.08	31.88	5.5	35.42	122	265	Average
2483.5	56.75	54.79	74	-17.25	31.88	5.5	35.42	122	265	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462MHz: Fundamental frequency.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	48.57	46.84	54	-5.43	31.8	5.4	35.47	154	81	Average
2390	63.52	61.79	74	-10.48	31.8	5.4	35.47	154	81	Peak
2422	97.84	96.04			31.83	5.43	35.46	154	81	Average
2422	104.89	103.09			31.83	5.43	35.46	154	81	Peak
2488	43.94	41.93	54	-10.06	31.9	5.53	35.42	154	81	Average
2488	57.52	55.51	74	-16.48	31.9	5.53	35.42	154	81	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	48.57	46.84	54	-5.43	31.8	5.4	35.47	154	81	Average
2390	63.52	61.79	74	-10.48	31.8	5.4	35.47	154	81	Peak
2422	97.84	96.04			31.83	5.43	35.46	154	81	Average
2422	104.89	103.09			31.83	5.43	35.46	154	81	Peak
2488	43.94	41.93	54	-10.06	31.9	5.53	35.42	154	81	Average
2488	57.52	55.51	74	-16.48	31.9	5.53	35.42	154	81	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	38.72	36.99	54	-15.28	31.8	5.4	35.47	153	77	Average
2390	56.22	54.49	74	-17.78	31.8	5.4	35.47	153	77	Peak
2437	99.3	97.45			31.85	5.46	35.46	153	77	Average
2437	105.11	103.26			31.85	5.46	35.46	153	77	Peak
2483.5	44.24	42.28	54	-9.76	31.88	5.5	35.42	153	77	Average
2483.5	61.1	59.14	74	-12.9	31.88	5.5	35.42	153	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2372	39.66	38	54	-14.34	31.78	5.37	35.49	100	266	Average
2372	56.38	54.72	74	-17.62	31.78	5.37	35.49	100	266	Peak
2437	93.07	91.22			31.85	5.46	35.46	100	266	Average
2437	99.46	97.61			31.85	5.46	35.46	100	266	Peak
2484	39.8	37.84	54	-14.2	31.88	5.5	35.42	100	266	Average
2484	57.17	55.21	74	-16.83	31.88	5.5	35.42	100	266	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	39.72	37.99	54	-14.28	31.8	5.4	35.47	153	77	Average
2390	55.02	53.29	74	-18.98	31.8	5.4	35.47	153	77	Peak
2452	98.86	96.99			31.85	5.46	35.44	153	77	Average
2452	106	104.13			31.85	5.46	35.44	153	77	Peak
2483.5	52.75	50.79	54	-1.25	31.88	5.5	35.42	153	77	Average
2483.5	66.89	64.93	74	-7.11	31.88	5.5	35.42	153	77	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2388	39.61	37.9	54	-14.39	31.8	5.4	35.49	100	267	Average
2388	55.71	54	74	-18.29	31.8	5.4	35.49	100	267	Peak
2452	92.65	90.78			31.85	5.46	35.44	100	267	Average
2452	99.2	97.33			31.85	5.46	35.44	100	267	Peak
2490	45	42.99	54	-9	31.9	5.53	35.42	100	267	Average
2490	59.74	57.73	74	-14.26	31.9	5.53	35.42	100	267	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2452MHz: Fundamental frequency.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 13, 2014	Feb. 12, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 17, 2013	Jul. 16, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

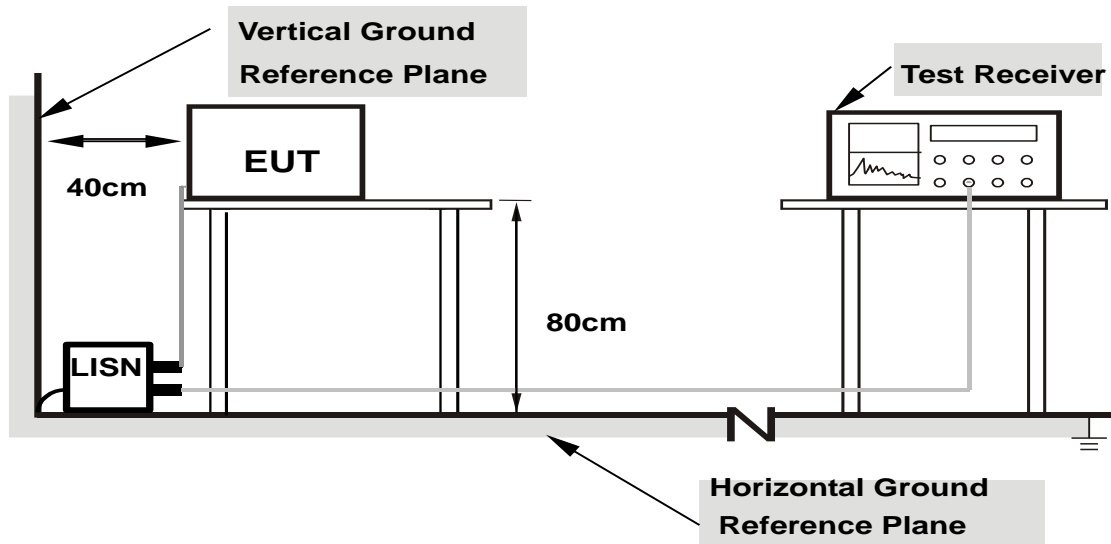
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

4.2.7 TEST RESULTS

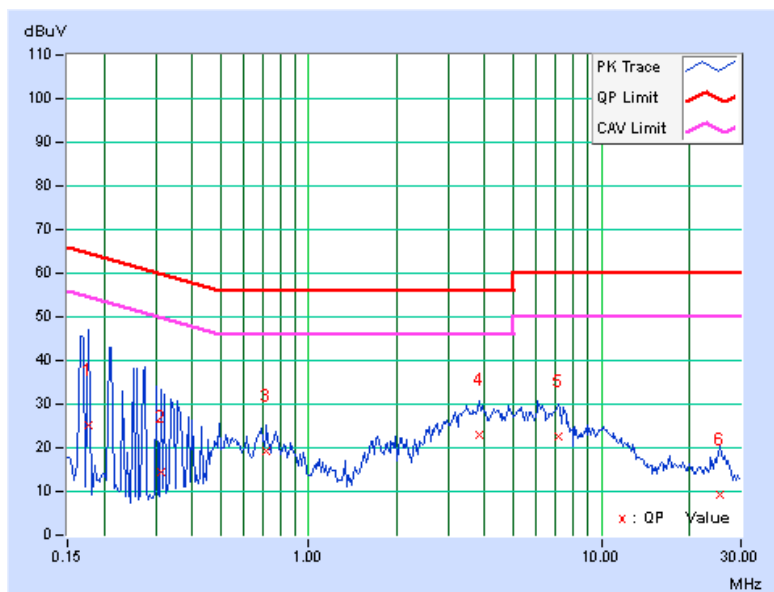
CONDUCTED WORST-CASE DATA :

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	0.17734	0.27	25.01	-5.87	25.28	-5.60	64.61	54.61	-39.33	-60.21
2	0.31406	0.29	14.13	-6.19	14.42	-5.90	59.86	49.86	-45.44	-55.76
3	0.72031	0.32	19.09	3.64	19.41	3.96	56.00	46.00	-36.59	-42.04
4	3.84766	0.42	22.55	14.41	22.97	14.83	56.00	46.00	-33.03	-31.17
5	7.13281	0.47	22.22	12.75	22.69	13.22	60.00	50.00	-37.31	-36.78
6	25.58594	0.52	8.83	-4.13	9.35	-3.61	60.00	50.00	-50.65	-53.61

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

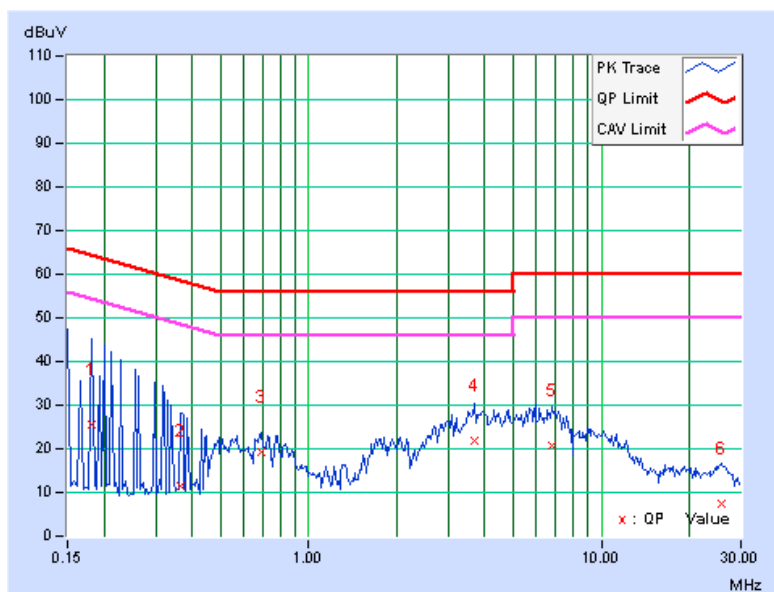


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.27	25.45	-5.55	25.72	-5.28	64.43	54.43	-38.70	-59.70
2	0.36484	0.30	11.15	-5.89	11.45	-5.59	58.62	48.62	-47.17	-54.21
3	0.68906	0.32	19.03	1.65	19.35	1.97	56.00	46.00	-36.65	-44.03
4	3.69922	0.43	21.48	13.64	21.91	14.07	56.00	46.00	-34.09	-31.93
5	6.74219	0.48	20.44	12.56	20.92	13.04	60.00	50.00	-39.08	-36.96
6	25.86719	0.55	7.02	-4.93	7.57	-4.38	60.00	50.00	-52.43	-54.38

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

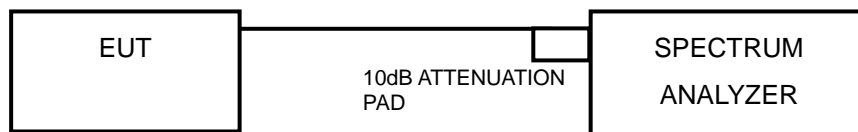


4.3 6dB BANDWIDTH MEASUREMENT

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

MODE A

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.80	0.5	PASS
6	2437	10.07	0.5	PASS
11	2462	10.08	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.39	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.38	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.28	0.5	PASS
6	2437	16.46	0.5	PASS
11	2462	17.45	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.84	0.5	PASS
6	2437	36.05	0.5	PASS
6	2452	35.84	0.5	PASS

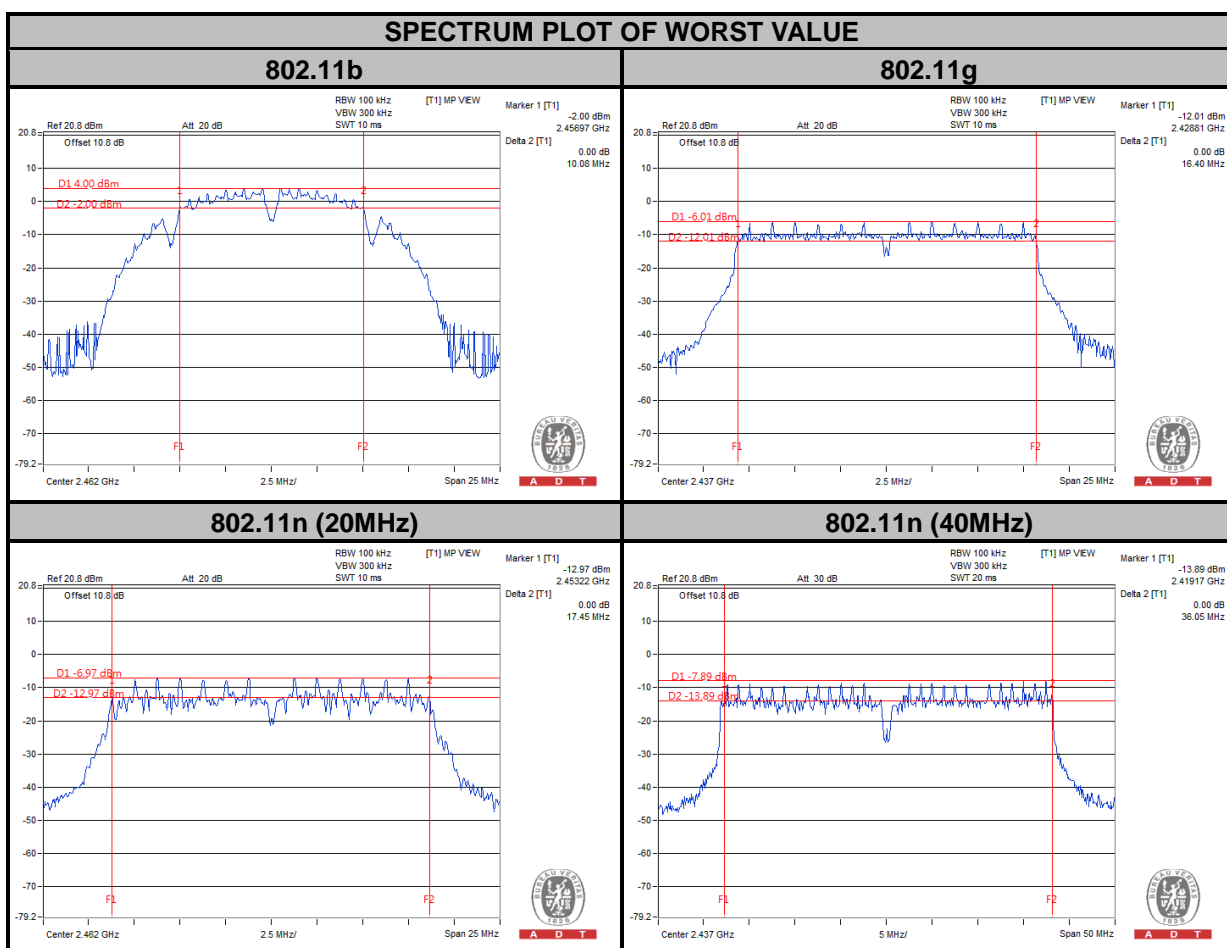
MODE B

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.02	0.5	PASS
6	2437	16.97	0.5	PASS
11	2462	16.98	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.84	0.5	PASS
6	2437	35.87	0.5	PASS
6	2452	35.86	0.5	PASS

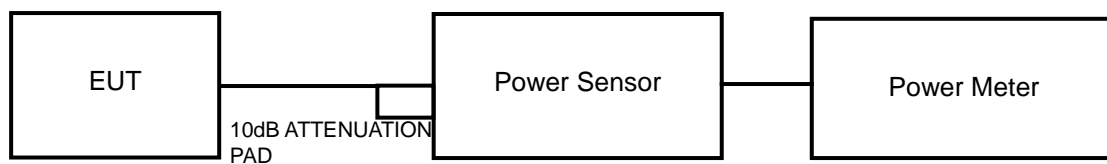


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as section 4.3.6.

4.4.7 TEST RESULTS

MODE A

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	64.42	18.09	30	PASS
6	2437	61.80	17.91	30	PASS
11	2462	61.24	17.87	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	167.88	22.25	30	PASS
6	2437	161.81	22.09	30	PASS
11	2462	157.04	21.96	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	138.36	21.41	30	PASS
6	2437	126.47	21.02	30	PASS
11	2462	122.74	20.89	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
3	2422	121.06	20.83	30	PASS
6	2437	127.64	21.06	30	PASS
9	2452	64.42	18.09	30	PASS

**A D T****MODE B****802.11n (20MHz)**

CHANNEL	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	18.22	18.33	134.451	21.29	30	PASS
6	2437	18.16	18.22	131.838	21.20	30	PASS
11	2462	18.00	17.92	125.040	20.97	30	PASS

802.11n (40MHz)

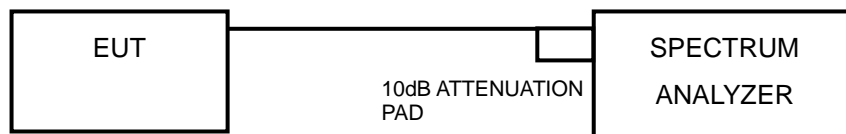
CHANNEL	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	18.65	18.41	142.625	21.54	30	PASS
6	2437	18.55	18.62	144.392	21.60	30	PASS
9	2452	17.98	17.82	123.340	20.91	30	PASS

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 section 4.3.6.

4.5.7 TEST RESULTS

MODE A

802.11b

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-9.96	8	PASS
6	2437	-12.83	8	PASS
11	2462	-13.03	8	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-12.13	8	PASS
6	2437	-12.02	8	PASS
11	2462	-11.17	8	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-12.27	8	PASS
6	2437	-12.43	8	PASS
11	2462	-12.58	8	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
3	2422	-13.97	8	PASS
6	2437	-13.34	8	PASS
9	2452	-11.63	8	PASS

MODE B

802.11n (20MHz)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
0	1	2412	-8.52	3.01	-5.51	8	PASS
	6	2437	-8.67	3.01	-5.66	8	PASS
	11	2462	-9.05	3.01	-6.04	8	PASS
1	1	2412	-14.64	3.01	-11.63	8	PASS
	6	2437	-14.27	3.01	-11.26	8	PASS
	11	2462	-14.44	3.01	-11.43	8	PASS

NOTE: Directional gain = 1.35dBi + 10log(2) = 4.36dBi < 6dBi, so the limit no need to reduced.

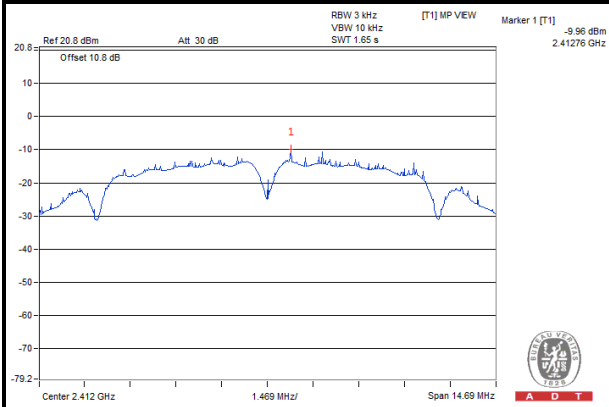
802.11n (40MHz)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
0	1	2412	-10.94	3.01	-7.93	8	PASS
	6	2437	-10.83	3.01	-7.82	8	PASS
	11	2462	-11.65	3.01	-8.64	8	PASS
1	1	2412	-16.49	3.01	-13.48	8	PASS
	6	2437	-16.20	3.01	-13.19	8	PASS
	11	2462	-16.56	3.01	-13.55	8	PASS

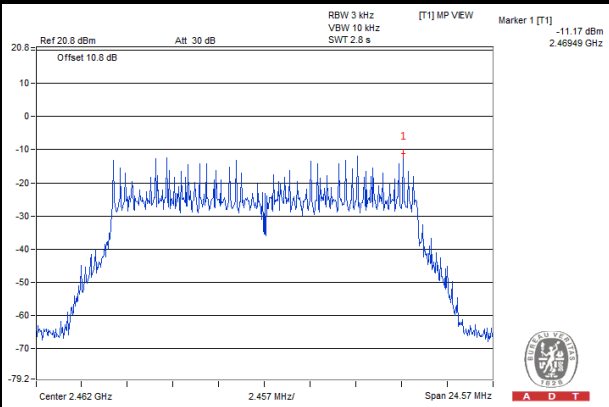
NOTE: Directional gain = 1.35dBi + 10log(2) = 4.36dBi < 6dBi, so the limit no need to reduced.

SPECTRUM PLOT OF WORST VALUE

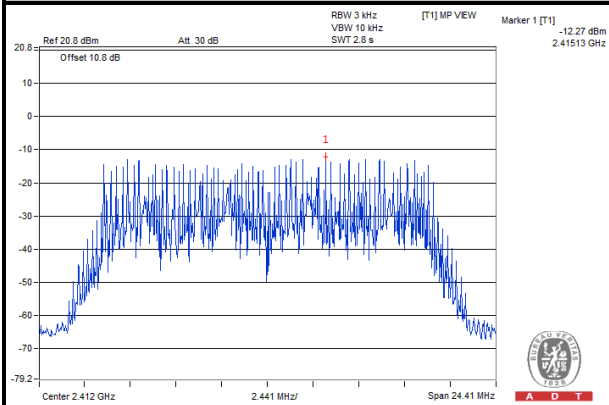
802.11b



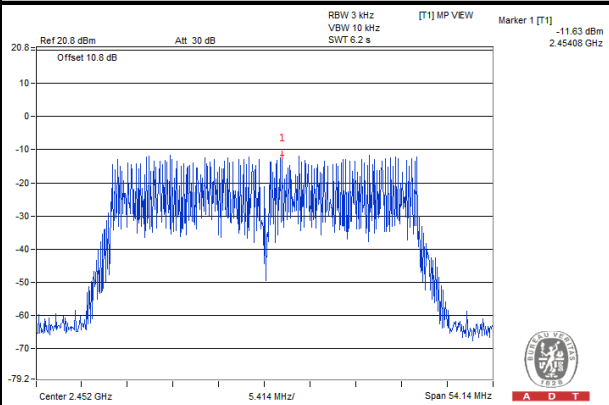
802.11g



802.11n (20MHz)



802.11n (40MHz)

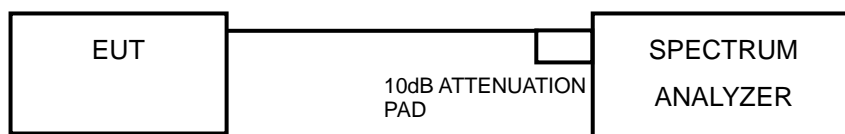


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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. Ensure that the number of measurement points \geq span/RBW
4. According to measurement points to set differ measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

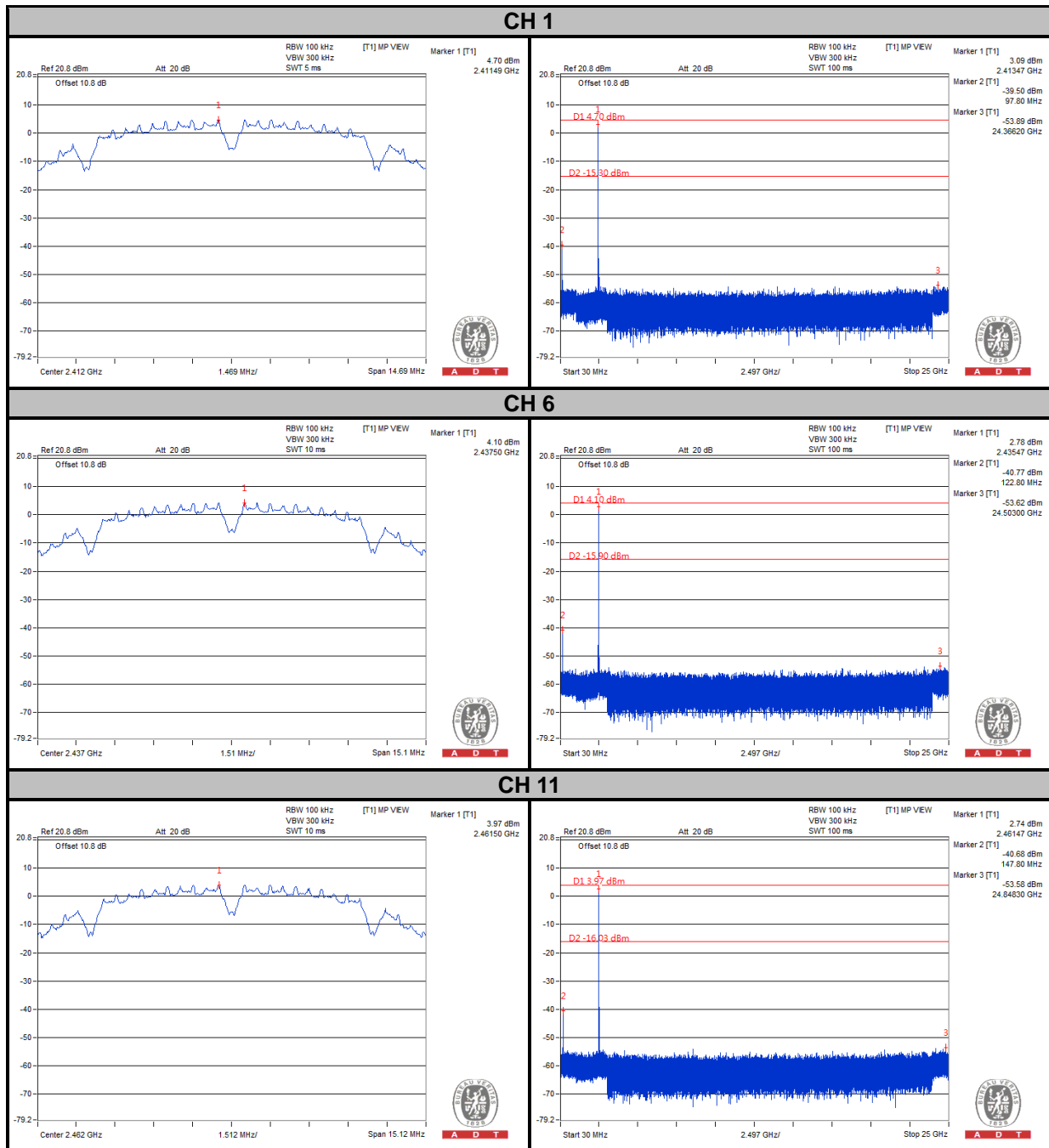
Same as section 4.3.6.

4.6.7 TEST RESULTS

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

MODE A

802.11b

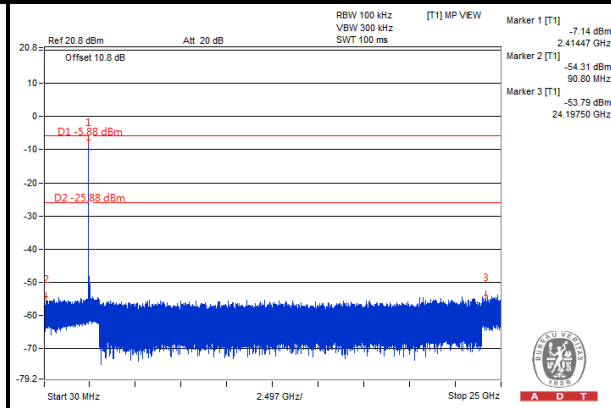
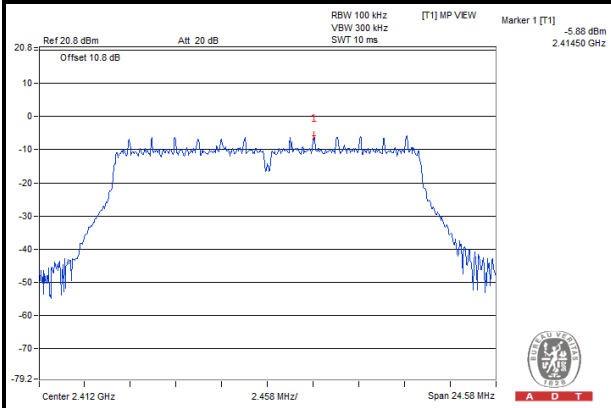




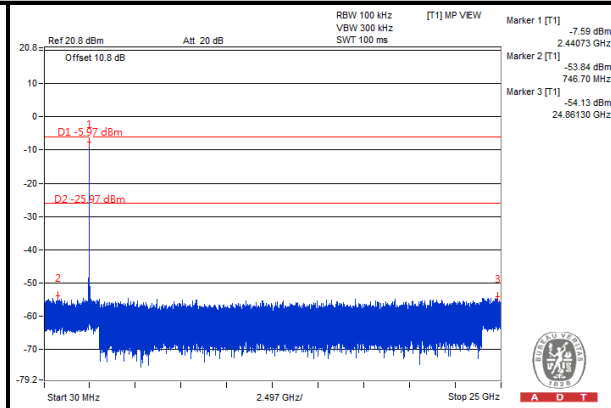
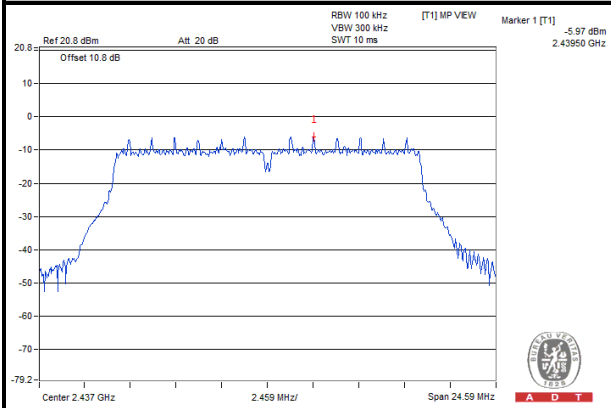
A D T

802.11g

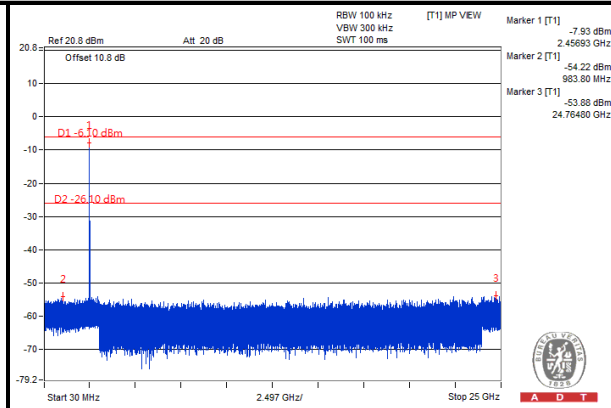
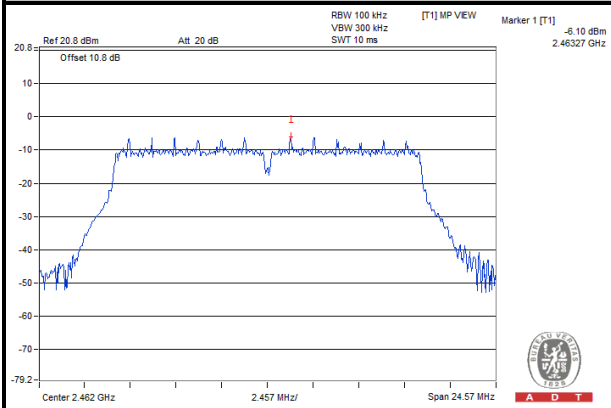
CH 1



CH 6



CH 11

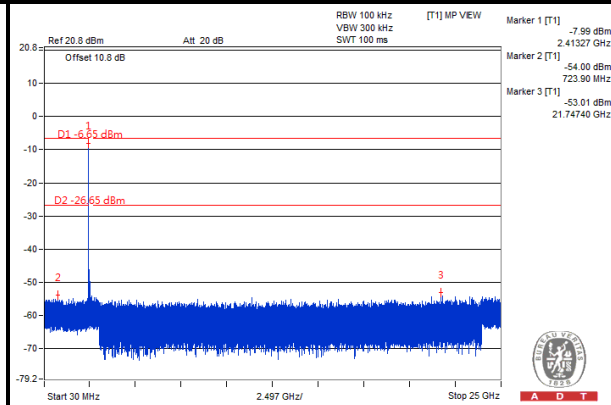
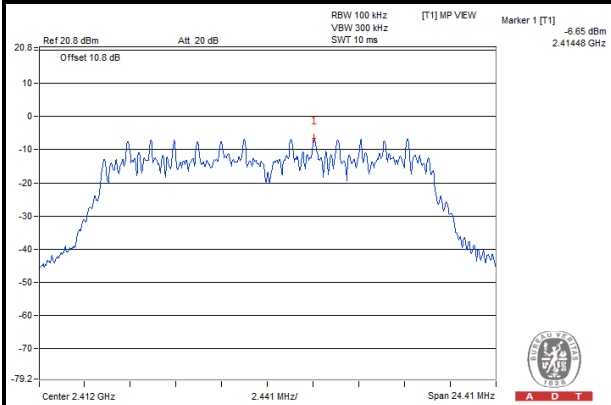




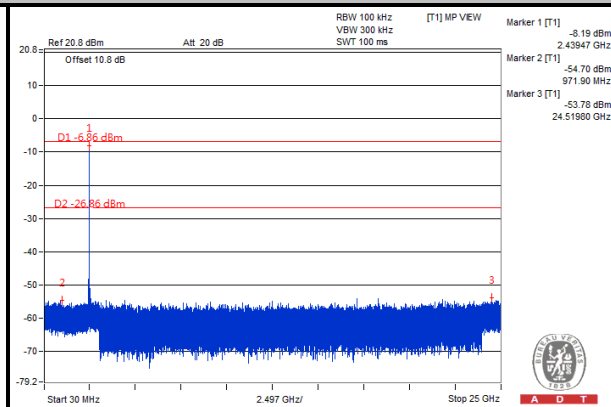
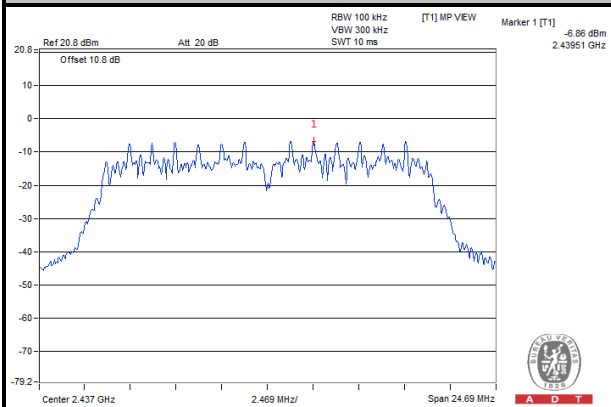
A D T

802.11n (20MHz)

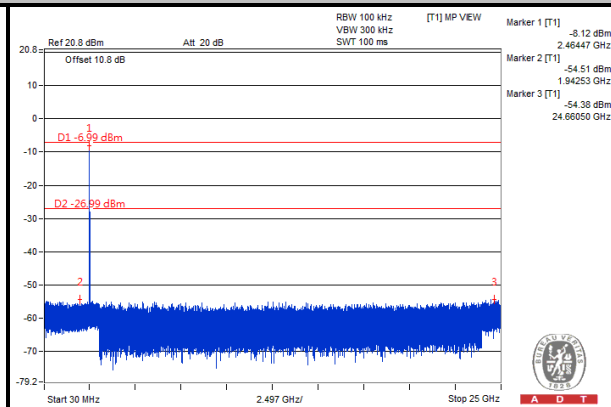
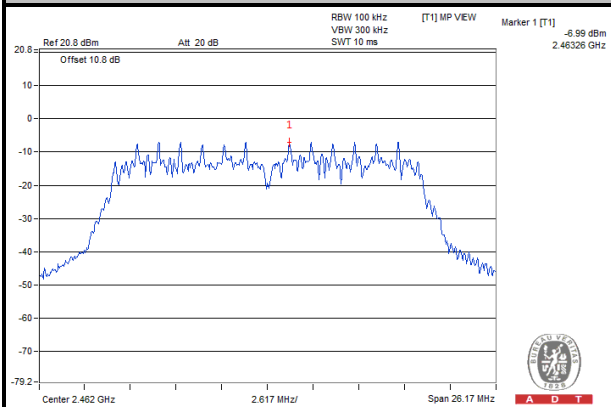
CH 1



CH 6



CH 11

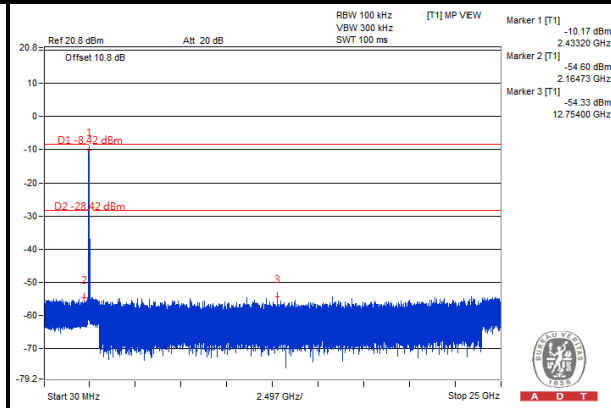
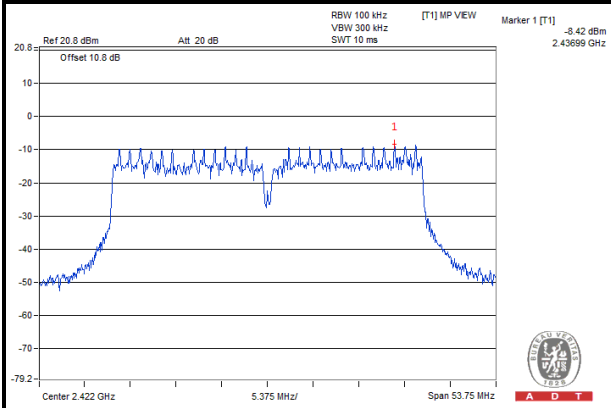




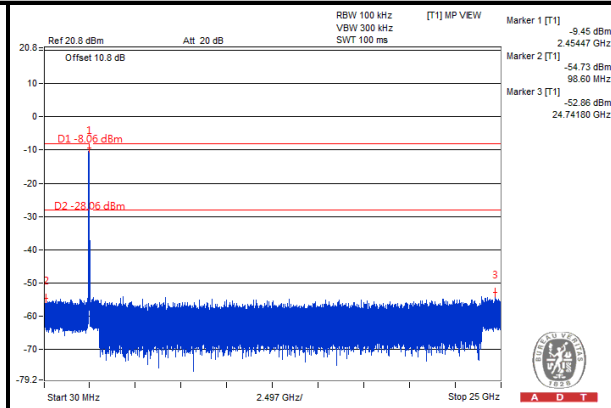
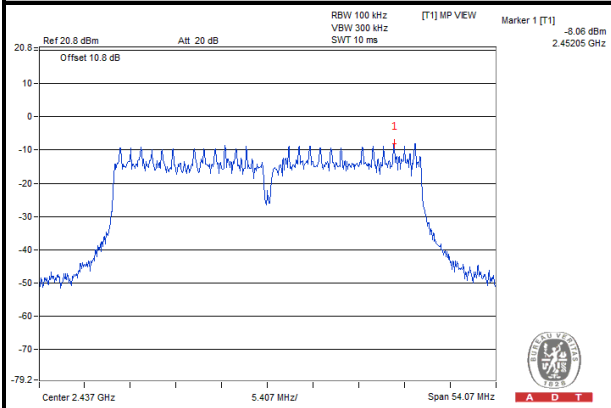
A D T

802.11n (40MHz)

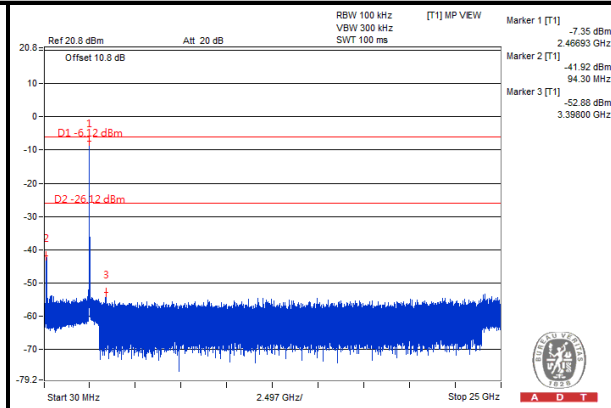
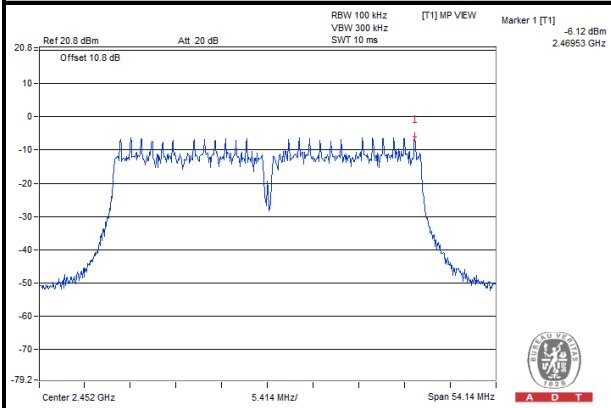
CH 3



CH 6



CH 9





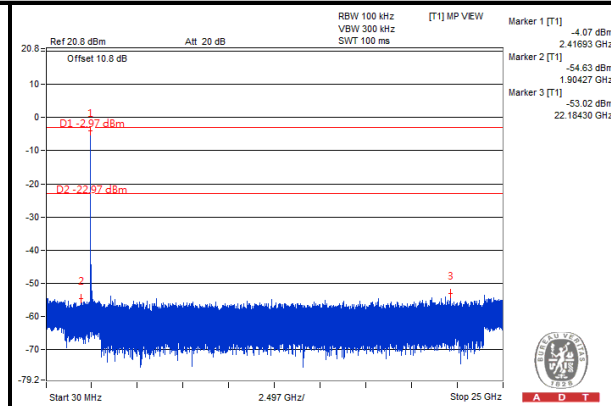
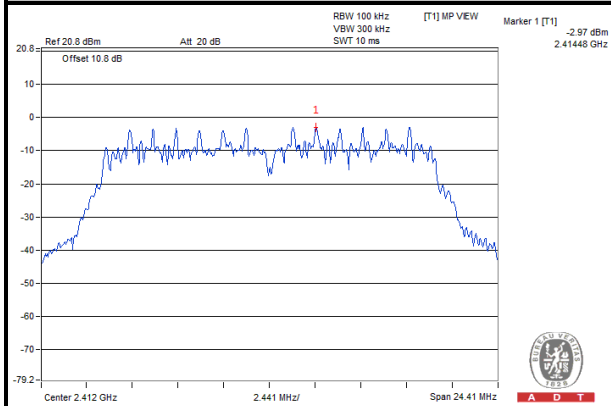
A D T

MODE B

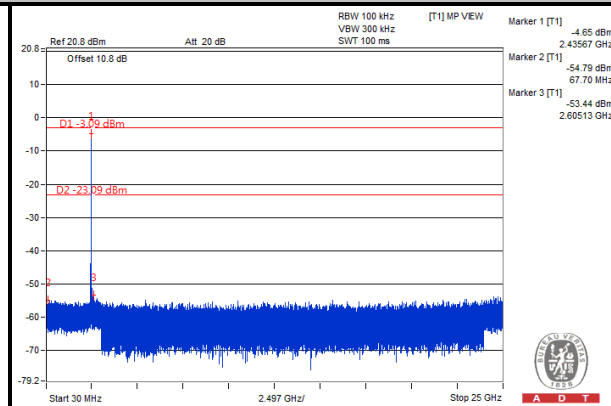
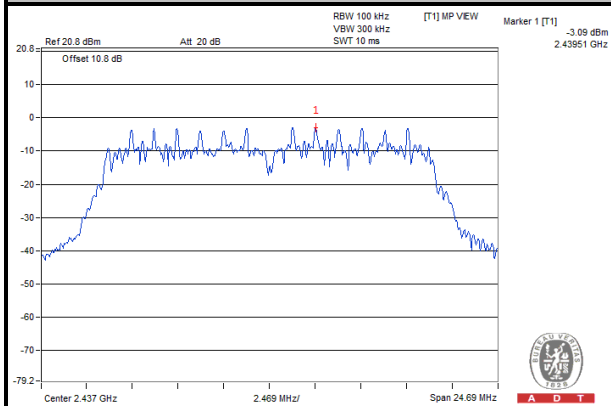
CHAIN 0

802.11n (20MHz)

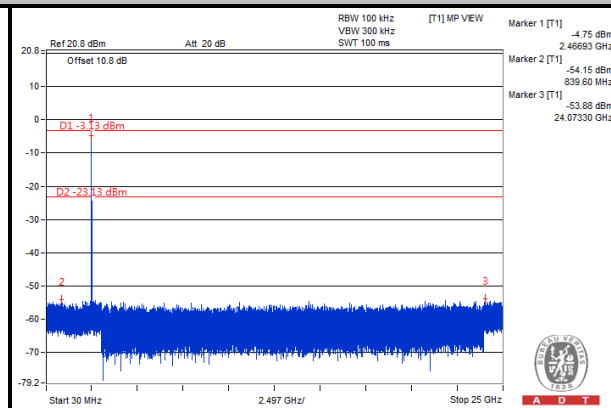
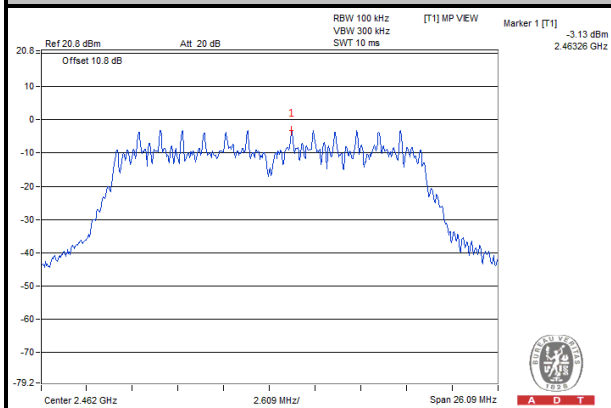
CH 1



CH 6



CH 11

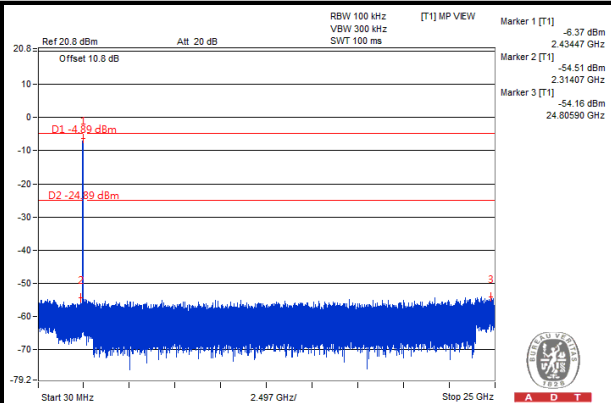
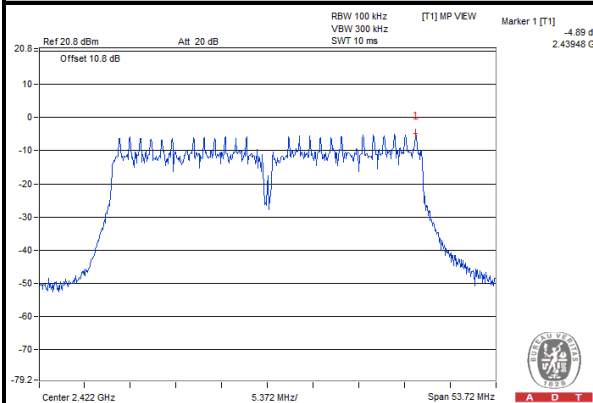




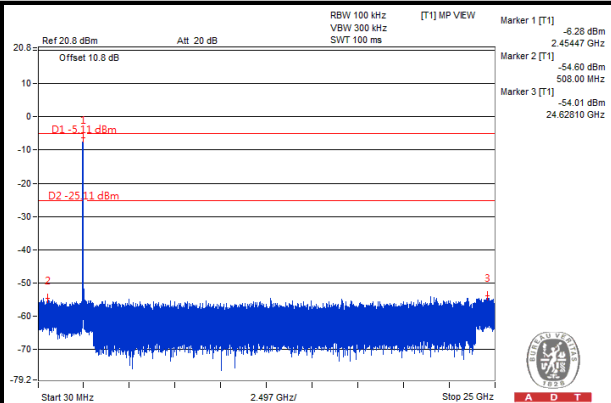
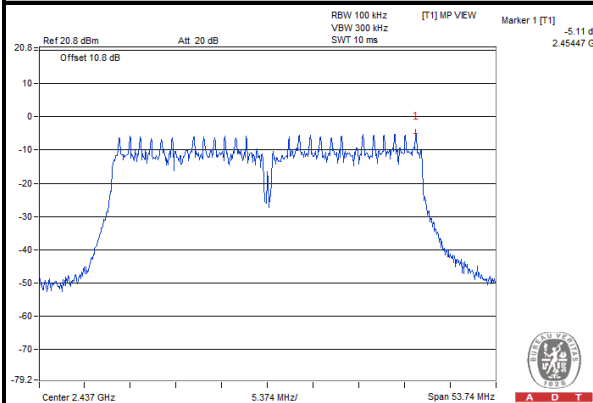
A D T

802.11n (40MHz)

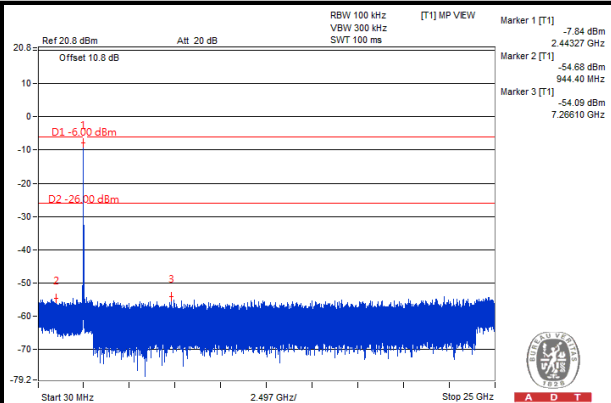
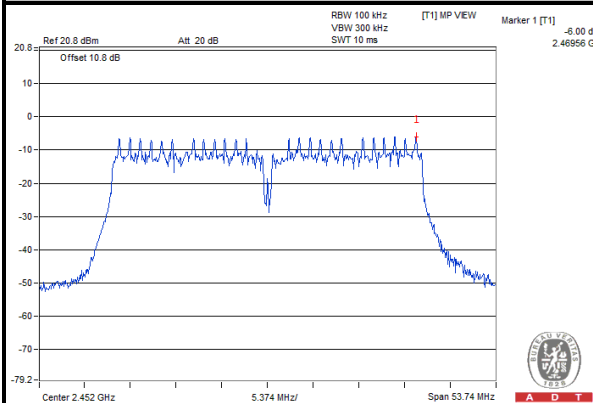
CH 3



CH 6



CH 9



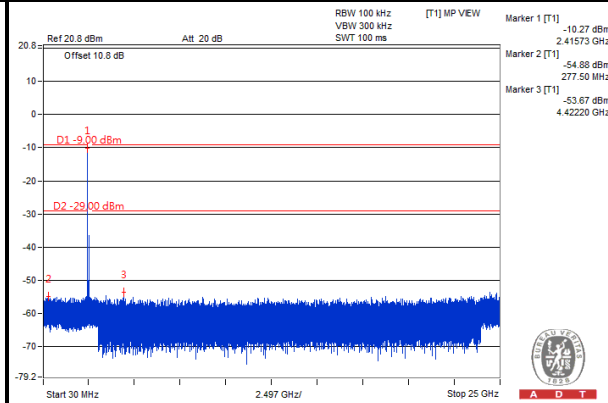
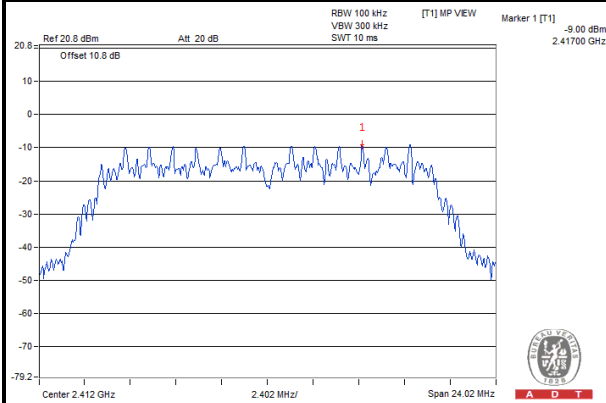


A D T

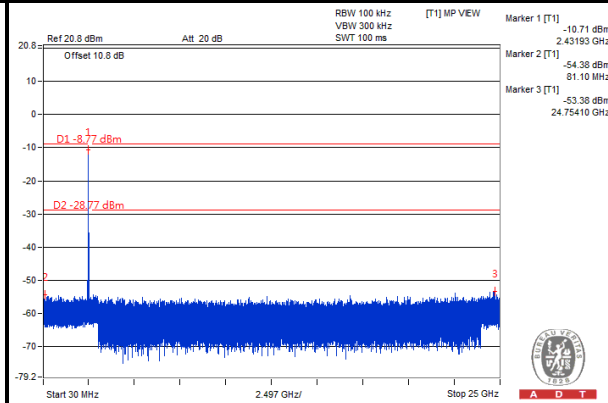
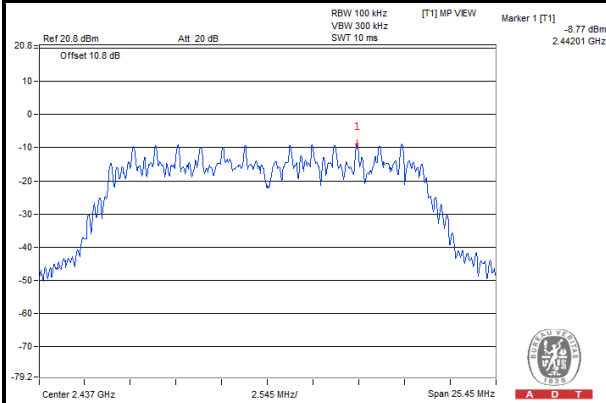
CHAIN 1

802.11n (20MHz)

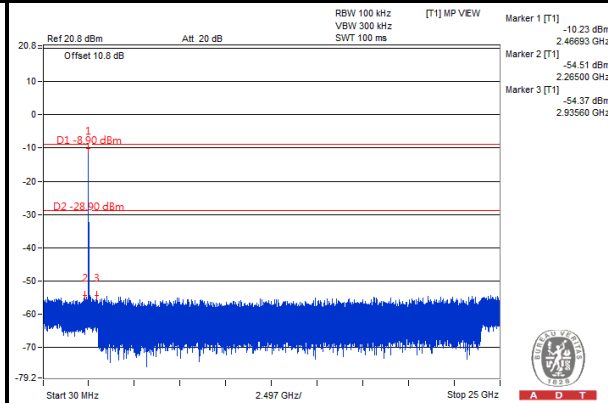
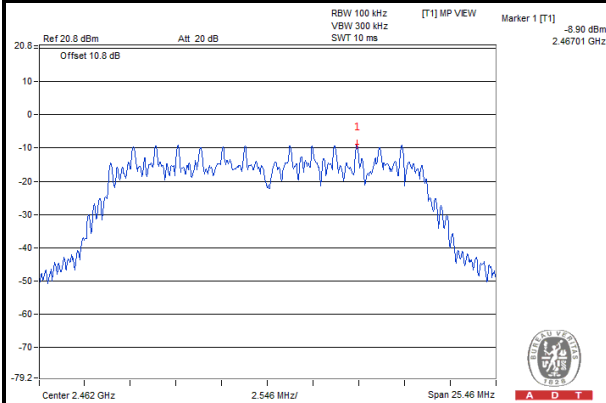
CH 1



CH 6



CH 11

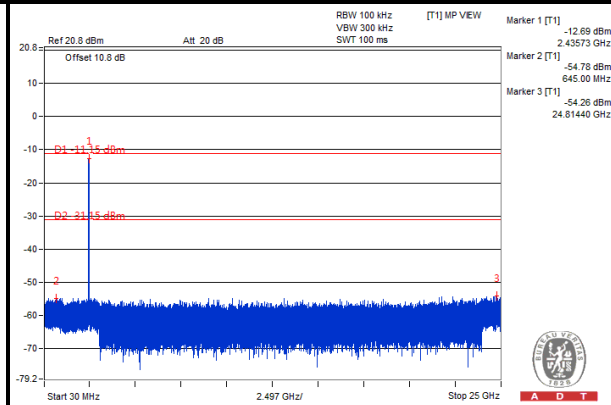
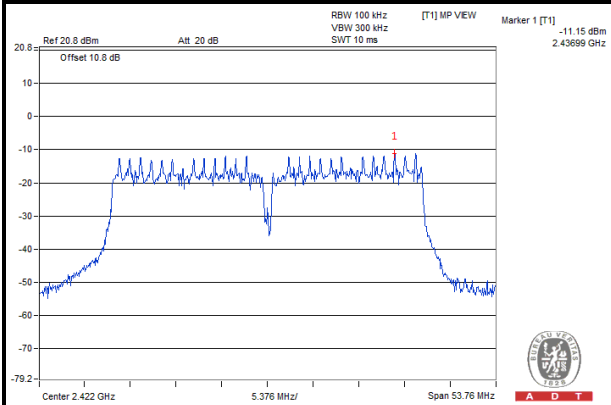




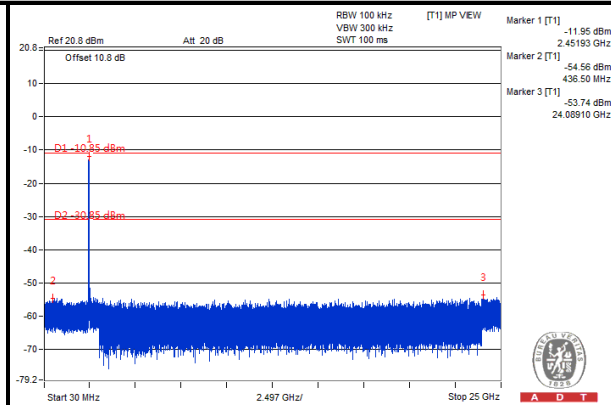
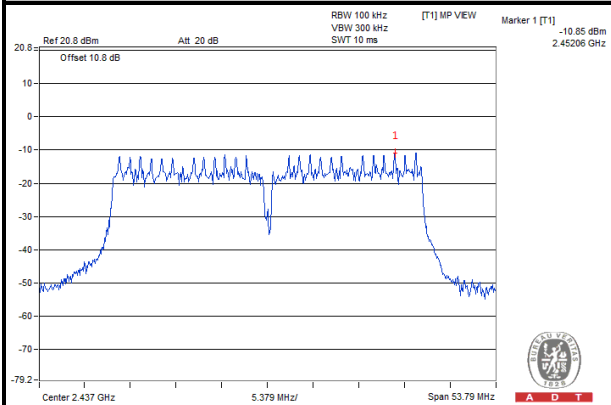
A D T

802.11n (40MHz)

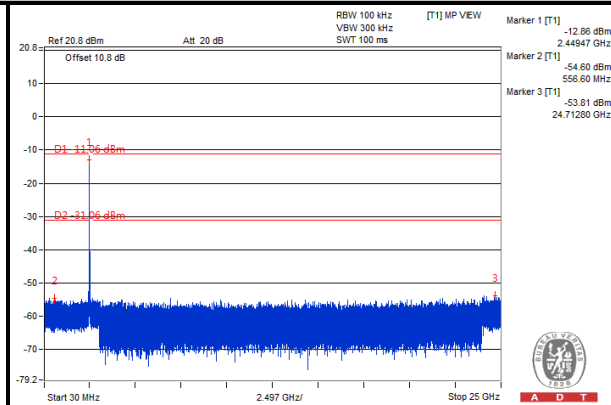
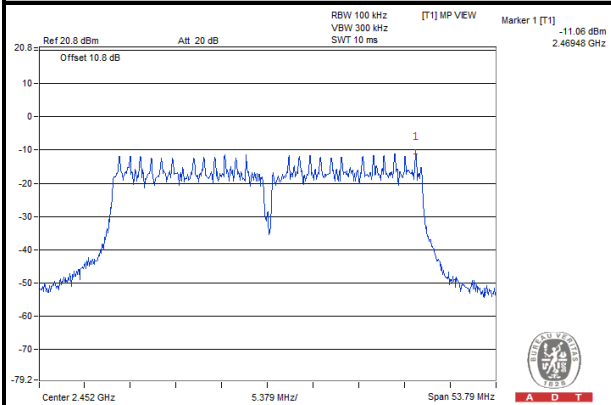
CH 3



CH 6



CH 9



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

5.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

NOTE:

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

5.1.2 TEST INSTRUMENTS

Same as section 4.1.2.

5.1.3 TEST PROCEDURES

Same as section 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as section 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

5.1.7 TEST RESULTS

MODE A

ABOVE 1GHz WORST-CASE DATA :

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	58.45	49.29	80.11	-21.66	34.62	8.65	34.11	160	279	Average
5725	70.06	60.9	87.49	-17.43	34.62	8.65	34.11	160	279	Peak
5745	100.11	90.92			34.64	8.66	34.11	160	279	Average
5745	107.49	98.3			34.64	8.66	34.11	160	279	Peak
5850	42.72	33.42	80.11	-37.39	34.74	8.7	34.14	160	279	Average
5850	56.66	47.36	87.49	-30.83	34.74	8.7	34.14	160	279	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	52.25	43.09	73.7	-21.45	34.62	8.65	34.11	101	252	Average
5725	65.55	56.39	81.55	-16	34.62	8.65	34.11	101	252	Peak
5745	93.7	84.51			34.64	8.66	34.11	101	252	Average
5745	101.55	92.36			34.64	8.66	34.11	101	252	Peak
5850	42.31	33.01	73.7	-31.39	34.74	8.7	34.14	101	252	Average
5850	55.82	46.52	81.55	-25.73	34.74	8.7	34.14	101	252	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.79	33.63	80.05	-37.26	34.62	8.65	34.11	171	279	Average
5725	57.1	47.94	87.02	-29.92	34.62	8.65	34.11	171	279	Peak
5785	100.05	90.82			34.68	8.68	34.13	171	279	Average
5785	107.02	97.79			34.68	8.68	34.13	171	279	Peak
5850	42.87	33.57	80.05	-37.18	34.74	8.7	34.14	171	279	Average
5850	56.36	47.06	87.02	-30.66	34.74	8.7	34.14	171	279	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.34	33.18	75.42	-33.08	34.62	8.65	34.11	115	286	Average
5725	56.29	47.13	82.66	-26.37	34.62	8.65	34.11	115	286	Peak
5785	95.42	86.19			34.68	8.68	34.13	115	286	Average
5785	102.66	93.43			34.68	8.68	34.13	115	286	Peak
5850	42.33	33.03	75.42	-33.09	34.74	8.7	34.14	115	286	Average
5850	56.86	47.56	82.66	-25.8	34.74	8.7	34.14	115	286	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.58	33.42	80.09	-37.51	34.62	8.65	34.11	153	281	Average
5725	55.47	46.31	86.95	-31.48	34.62	8.65	34.11	153	281	Peak
5825	100.09	90.8			34.73	8.69	34.13	153	281	Average
5825	106.95	97.66			34.73	8.69	34.13	153	281	Peak
5850	47.26	37.96	80.09	-32.83	34.74	8.7	34.14	153	281	Average
5850	57.78	48.48	86.95	-29.17	34.74	8.7	34.14	153	281	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.1	32.94	76.43	-34.33	34.62	8.65	34.11	100	287	Average
5725	54.13	44.97	83.34	-29.21	34.62	8.65	34.11	100	287	Peak
5825	96.43	87.14			34.73	8.69	34.13	100	287	Average
5825	103.34	94.05			34.73	8.69	34.13	100	287	Peak
5850	44.79	35.49	76.43	-31.64	34.74	8.7	34.14	100	287	Average
5850	56.6	47.3	83.34	-26.74	34.74	8.7	34.14	100	287	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	56.4	47.24	78.63	-22.23	34.62	8.65	34.11	158	276	Average
5725	67.04	57.88	84.39	-17.35	34.62	8.65	34.11	158	276	Peak
5745	98.63	89.44			34.64	8.66	34.11	158	276	Average
5745	104.39	95.2			34.64	8.66	34.11	158	276	Peak
5850	42.77	33.47	78.63	-35.86	34.74	8.7	34.14	158	276	Average
5850	57.51	48.21	84.39	-26.88	34.74	8.7	34.14	158	276	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	52.63	43.47	73.8	-21.17	34.62	8.65	34.11	122	234	Average
5725	64	54.84	79.76	-15.76	34.62	8.65	34.11	122	234	Peak
5745	93.8	84.61			34.64	8.66	34.11	122	234	Average
5745	99.76	90.57			34.64	8.66	34.11	122	234	Peak
5850	42.39	33.09	73.8	-31.41	34.74	8.7	34.14	122	234	Average
5850	55.8	46.5	79.76	-23.96	34.74	8.7	34.14	122	234	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	43.29	34.13	80.24	-36.95	34.62	8.65	34.11	171	280	Average
5725	56.75	47.59	85.8	-29.05	34.62	8.65	34.11	171	280	Peak
5785	100.24	91.01			34.68	8.68	34.13	171	280	Average
5785	105.8	96.57			34.68	8.68	34.13	171	280	Peak
5850	43.51	34.21	80.24	-36.73	34.74	8.7	34.14	171	280	Average
5850	56.06	46.76	85.8	-29.74	34.74	8.7	34.14	171	280	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.26	33.1	74.87	-32.61	34.62	8.65	34.11	119	235	Average
5725	56.59	47.43	80.71	-24.12	34.62	8.65	34.11	119	235	Peak
5785	94.87	85.64			34.68	8.68	34.13	119	235	Average
5785	100.71	91.48			34.68	8.68	34.13	119	235	Peak
5850	44.48	35.18	74.87	-30.39	34.74	8.7	34.14	119	235	Average
5850	55.41	46.11	80.71	-25.3	34.74	8.7	34.14	119	235	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.55	33.39	80.54	-37.99	34.62	8.65	34.11	154	280	Average
5725	56.53	47.37	86.05	-29.52	34.62	8.65	34.11	154	280	Peak
5825	100.54	91.25			34.73	8.69	34.13	154	280	Average
5825	106.05	96.76			34.73	8.69	34.13	154	280	Peak
5850	46.71	37.41	80.54	-33.83	34.74	8.7	34.14	154	280	Average
5850	60.09	50.79	86.05	-25.96	34.74	8.7	34.14	154	280	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.3	33.14	76.01	-33.71	34.62	8.65	34.11	126	285	Average
5725	56.77	47.61	81.52	-24.75	34.62	8.65	34.11	126	285	Peak
5825	96.01	86.72			34.73	8.69	34.13	126	285	Average
5825	101.52	92.23			34.73	8.69	34.13	126	285	Peak
5850	44.26	34.96	76.01	-31.75	34.74	8.7	34.14	126	285	Average
5850	57.29	47.99	81.52	-24.23	34.74	8.7	34.14	126	285	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	60.63	51.47	75.88	-15.25	34.62	8.65	34.11	159	276	Average
5725	69.53	60.37	83.45	-13.92	34.62	8.65	34.11	159	276	Peak
5755	95.88	86.67			34.66	8.66	34.11	159	276	Average
5755	103.45	94.24			34.66	8.66	34.11	159	276	Peak
5850	42.89	33.59	75.88	-32.99	34.74	8.7	34.14	159	276	Average
5850	55.74	46.44	83.45	-27.71	34.74	8.7	34.14	159	276	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	56.55	47.39	71.08	-14.53	34.62	8.65	34.11	122	234	Average
5725	65.46	56.3	78.2	-12.74	34.62	8.65	34.11	122	234	Peak
5755	91.08	81.87			34.66	8.66	34.11	122	234	Average
5755	98.2	88.99			34.66	8.66	34.11	122	234	Peak
5850	42.51	33.21	71.08	-28.57	34.74	8.7	34.14	122	234	Average
5850	56.2	46.9	78.2	-22	34.74	8.7	34.14	122	234	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	43.52	34.36	76.08	-32.56	34.62	8.65	34.11	171	280	Average
5725	56.16	47	83.69	-27.53	34.62	8.65	34.11	171	280	Peak
5795	96.08	86.84			34.69	8.68	34.13	171	280	Average
5795	103.69	94.45			34.69	8.68	34.13	171	280	Peak
5850	45.22	35.92	76.08	-30.86	34.74	8.7	34.14	171	280	Average
5850	57.76	48.46	83.69	-25.93	34.74	8.7	34.14	171	280	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	42.5	33.34	71.31	-28.81	34.62	8.65	34.11	114	285	Average
5725	56.22	47.06	78.74	-22.52	34.62	8.65	34.11	114	285	Peak
5795	91.31	82.07			34.69	8.68	34.13	114	285	Average
5795	98.74	89.5			34.69	8.68	34.13	114	285	Peak
5850	43.56	34.26	71.31	-27.75	34.74	8.7	34.14	114	285	Average
5850	56.5	47.2	78.74	-22.24	34.74	8.7	34.14	114	285	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5795MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
58.35	11.06	35.44	40	-28.94	6.95	0.9	32.23	156	210	Peak
110.46	19.21	40.82	43.5	-24.29	9.36	1.28	32.25	155	210	Peak
174.45	19.92	40.37	43.5	-23.58	10.18	1.61	32.24	102	148	Peak
342.7	28.49	42.32	46	-17.51	16.06	2.19	32.08	102	145	Peak
527.5	22.3	31.09	46	-23.7	20.66	2.7	32.15	118	235	Peak
703.2	26.03	31.87	46	-19.97	23.14	3.11	32.09	102	156	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
47.55	18.77	41.52	40	-21.23	8.57	0.9	32.22	165	210	Peak
111.54	19.52	41.22	43.5	-23.98	9.27	1.28	32.25	155	201	Peak
175.53	18.27	38.68	43.5	-25.23	10.22	1.61	32.24	165	220	Peak
349	23.06	36.63	46	-22.94	16.31	2.19	32.07	166	210	Peak
533.8	24.26	33.16	46	-21.74	20.57	2.7	32.17	158	145	Peak
690.6	25.39	31.25	46	-20.61	23.19	3.05	32.1	104	125	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

MODE B

ABOVE 1GHz WORST-CASE DATA :

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	51.8	42.64	78.45	-26.65	34.62	8.65	34.11	133	87	Average
5725	67.67	58.51	84.58	-16.91	34.62	8.65	34.11	133	87	Peak
5745	98.45	89.26			34.64	8.66	34.11	133	87	Average
5745	104.58	95.39			34.64	8.66	34.11	133	87	Peak
5850	45.94	36.64	78.45	-32.51	34.74	8.7	34.14	133	87	Average
5850	55.96	46.66	84.58	-28.62	34.74	8.7	34.14	133	87	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	52.17	43.01	76.69	-24.52	34.62	8.65	34.11	102	112	Average
5725	63.93	54.77	82.49	-18.56	34.62	8.65	34.11	102	112	Peak
5745	96.69	87.5			34.64	8.66	34.11	102	112	Average
5745	102.49	93.3			34.64	8.66	34.11	102	112	Peak
5850	45.86	36.56	76.69	-30.83	34.74	8.7	34.14	102	112	Average
5850	54.32	45.02	82.49	-28.17	34.74	8.7	34.14	102	112	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	44.8	35.64	77.81	-33.01	34.62	8.65	34.11	132	252	Average
5725	56.68	47.52	84.71	-28.03	34.62	8.65	34.11	132	252	Peak
5785	97.81	88.58			34.68	8.68	34.13	132	252	Average
5785	104.71	95.48			34.68	8.68	34.13	132	252	Peak
5850	44.97	35.67	77.81	-32.84	34.74	8.7	34.14	132	252	Average
5850	57.52	48.22	84.71	-27.19	34.74	8.7	34.14	132	252	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	45.43	36.27	76.92	-31.49	34.62	8.65	34.11	102	112	Average
5725	55.41	46.25	83.23	-27.82	34.62	8.65	34.11	102	112	Peak
5785	96.92	87.69			34.68	8.68	34.13	102	112	Average
5785	103.23	94			34.68	8.68	34.13	102	112	Peak
5850	44.97	35.67	76.92	-31.95	34.74	8.7	34.14	102	112	Average
5850	57.14	47.84	83.23	-26.09	34.74	8.7	34.14	102	112	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	45.79	36.63	79.19	-33.4	34.62	8.65	34.11	156	278	Average
5725	55.9	46.74	84.99	-29.09	34.62	8.65	34.11	156	278	Peak
5825	99.19	89.9			34.73	8.69	34.13	156	278	Average
5825	104.99	95.7			34.73	8.69	34.13	156	278	Peak
5850	48.97	39.67	79.19	-30.22	34.74	8.7	34.14	156	278	Average
5850	58.8	49.5	84.99	-26.19	34.74	8.7	34.14	156	278	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	45.69	36.53	77.28	-31.59	34.62	8.65	34.11	110	111	Average
5725	54.4	45.24	83.8	-29.4	34.62	8.65	34.11	110	111	Peak
5825	97.28	87.99			34.73	8.69	34.13	110	111	Average
5825	103.8	94.51			34.73	8.69	34.13	110	111	Peak
5850	46.97	37.67	77.28	-30.31	34.74	8.7	34.14	110	111	Average
5850	57.03	47.73	83.8	-26.77	34.74	8.7	34.14	110	111	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	56.8	47.64	75.84	-19.04	34.62	8.65	34.11	120	89	Average
5725	66.26	57.1	81.74	-15.48	34.62	8.65	34.11	120	89	Peak
5755	95.84	86.63			34.66	8.66	34.11	120	89	Average
5755	101.74	92.53			34.66	8.66	34.11	120	89	Peak
5850	44.97	35.67	75.84	-30.87	34.74	8.7	34.14	120	89	Average
5850	56.88	47.58	81.74	-24.86	34.74	8.7	34.14	120	89	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	55.8	46.64	73.78	-17.98	34.62	8.65	34.11	125	95	Average
5725	66.17	57.01	80.69	-14.52	34.62	8.65	34.11	125	95	Peak
5755	93.78	84.57			34.66	8.66	34.11	125	95	Average
5755	100.69	91.48			34.66	8.66	34.11	125	95	Peak
5850	45.86	36.56	73.78	-27.92	34.74	8.7	34.14	125	95	Average
5850	56.25	46.95	80.69	-24.44	34.74	8.7	34.14	125	95	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Kay Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	46.84	37.68	75.27	-28.43	34.62	8.65	34.11	120	89	Average
5725	56.98	47.82	81.98	-25	34.62	8.65	34.11	120	89	Peak
5795	95.27	86.03			34.69	8.68	34.13	120	89	Average
5795	101.98	92.74			34.69	8.68	34.13	120	89	Peak
5850	49	39.7	75.27	-26.27	34.74	8.7	34.14	120	89	Average
5850	57.39	48.09	81.98	-24.59	34.74	8.7	34.14	120	89	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5725	45.73	36.57	74.64	-28.91	34.62	8.65	34.11	121	104	Average
5725	57.24	48.08	80.3	-23.06	34.62	8.65	34.11	121	104	Peak
5795	94.64	85.4			34.69	8.68	34.13	121	104	Average
5795	100.3	91.06			34.69	8.68	34.13	121	104	Peak
5850	46.01	36.71	74.64	-28.63	34.74	8.7	34.14	121	104	Average
5850	55.24	45.94	80.3	-25.06	34.74	8.7	34.14	121	104	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5795MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

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 section 4.2.2.

5.2.3 TEST PROCEDURES

Same as section 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as section 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

5.2.7 TEST RESULTS

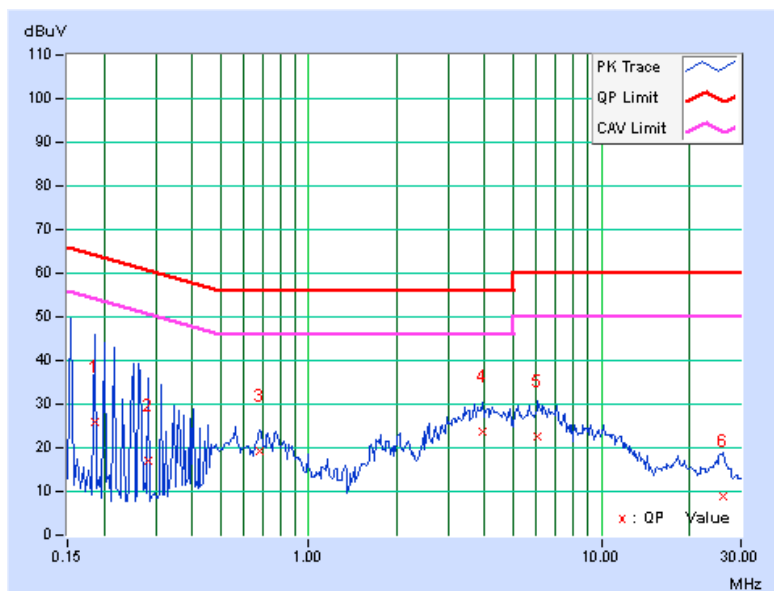
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.28	25.70	-5.02	25.98	-4.74	64.25	54.25	-38.28	-59.00
2	0.28281	0.29	16.69	-6.59	16.98	-6.30	60.73	50.73	-43.75	-57.03
3	0.68125	0.32	18.95	1.79	19.27	2.11	56.00	46.00	-36.73	-43.89
4	3.92969	0.43	23.12	13.86	23.55	14.29	56.00	46.00	-32.45	-31.71
5	6.07031	0.45	22.14	14.33	22.59	14.78	60.00	50.00	-37.41	-35.22
6	26.08594	0.51	8.43	-4.67	8.94	-4.16	60.00	50.00	-51.06	-54.16

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

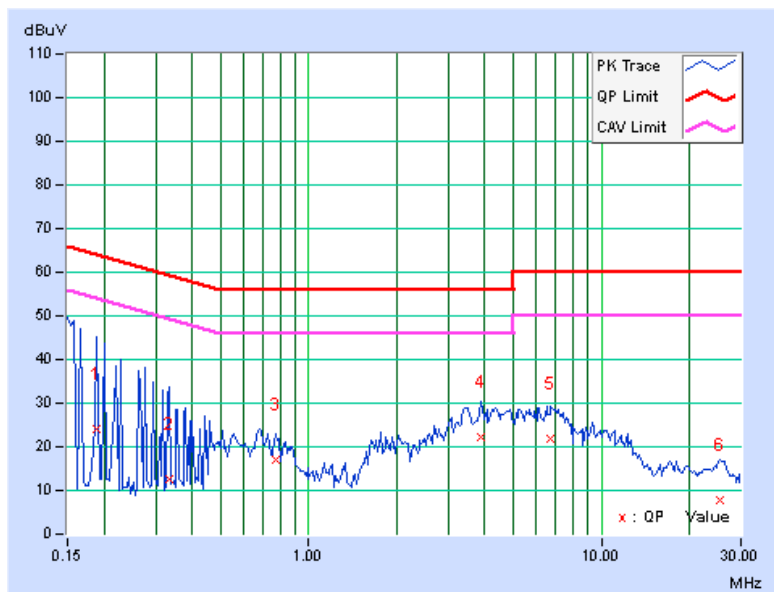


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.28	23.90	0.12	24.18	0.40	64.08	54.08	-39.90	-53.68
2	0.33359	0.29	12.14	-6.71	12.43	-6.42	59.36	49.36	-46.93	-55.78
3	0.77500	0.33	16.83	1.59	17.16	1.92	56.00	46.00	-38.84	-44.08
4	3.87109	0.44	21.89	13.38	22.33	13.82	56.00	46.00	-33.67	-32.18
5	6.73047	0.48	21.41	13.19	21.89	13.67	60.00	50.00	-38.11	-36.33
6	25.52734	0.55	7.32	-4.68	7.87	-4.13	60.00	50.00	-52.13	-54.13

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 section 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 section 4.3.4.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

Same as section 4.3.6.

5.3.7 TEST RESULTS

MODE A

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.39	0.5	PASS
157	5785	16.40	0.5	PASS
165	5825	16.39	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.98	0.5	PASS
157	5785	17.43	0.5	PASS
165	5825	16.98	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.11	0.5	PASS
159	5795	36.04	0.5	PASS

5.4 MAXIMUM OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

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

5.4.2 TEST SETUP

Same as section 4.4.2.

5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

Same as section 4.4.4.

5.4.5 DEVIATION FROM TEST STANDARD

No deviation.

5.4.6 EUT OPERATING CONDITIONS

Same as section 4.3.6.

5.4.7 TEST RESULTS

MODE A

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
149	5745	136.77	21.36	30	PASS
157	5785	132.74	21.23	30	PASS
165	5825	126.47	21.02	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
149	5745	109.14	20.38	30	PASS
157	5785	121.90	20.86	30	PASS
165	5825	119.95	20.79	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
151	5755	122.46	20.88	30	PASS
159	5795	119.95	20.79	30	PASS

MODE B

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	18.70	18.77	149.467	21.75	30	PASS
157	5785	18.07	18.43	133.784	21.26	30	PASS
165	5825	18.16	18.07	129.585	21.13	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	18.18	18.13	130.779	21.17	30	PASS
159	5795	18.45	18.37	138.691	21.42	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 section 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 section 4.5.4.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as section 4.3.6.

5.5.7 TEST RESULTS

MODE A

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
149	5745	-4.99	8	PASS
157	5785	-3.87	8	PASS
165	5825	-4.67	8	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
149	5745	-6.96	8	PASS
157	5785	-5.63	8	PASS
165	5825	-5.60	8	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
151	5755	-9.31	8	PASS
159	5795	-9.00	8	PASS

MODE B

802.11n (20MHz)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
0	149	5745	-9.64	3.01	-6.63	8	PASS
	157	5785	-8.63	3.01	-5.62	8	PASS
	165	5825	-9.27	3.01	-6.26	8	PASS
1	149	5745	-12.14	3.01	-9.13	8	PASS
	157	5785	-11.95	3.01	-8.94	8	PASS
	165	5825	-11.01	3.01	-8.00	8	PASS

NOTE: Directional gain = 1.62dBi + 10log(2) = 4.63dBi < 6dBi, so the limit no need to reduced.

802.11n (40MHz)

TX CHAIN	CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
0	151	5755	-11.34	3.01	-8.33	8	PASS
	159	5795	-10.42	3.01	-7.41	8	PASS
1	151	5755	-15.96	3.01	-12.95	8	PASS
	159	5795	-15.20	3.01	-12.19	8	PASS

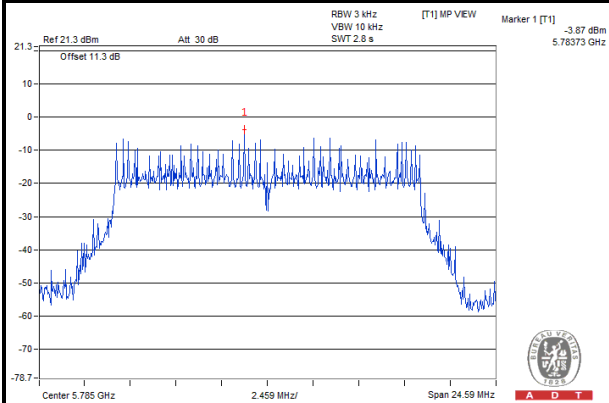
NOTE: Directional gain = 1.62dBi + 10log(2) = 4.63dBi < 6dBi, so the limit no need to reduced.



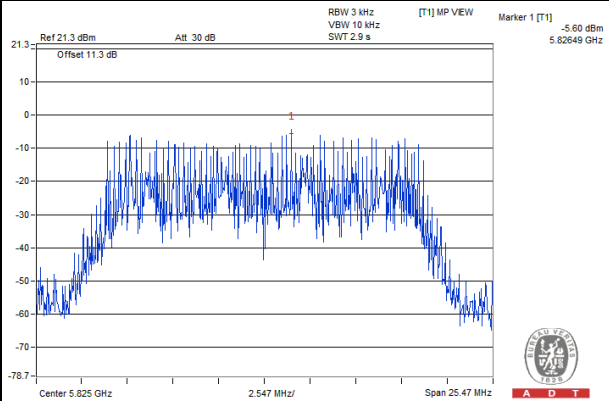
A D T

SPECTRUM PLOT OF WORST VALUE

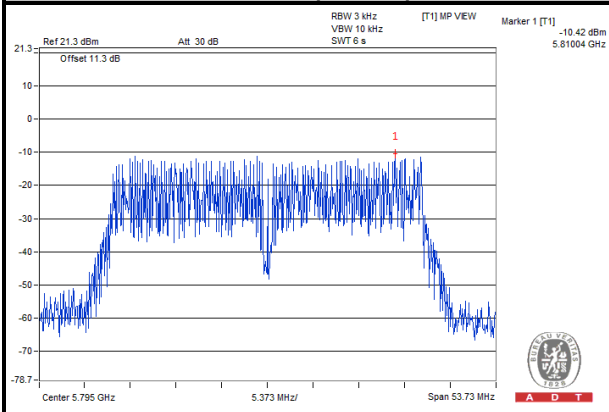
802.11a



802.11n (20MHz)



802.11n (40MHz)





A D T

5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF 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 section 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 section 4.6.4

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as section 4.3.6

5.6.7 TEST RESULTS

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.

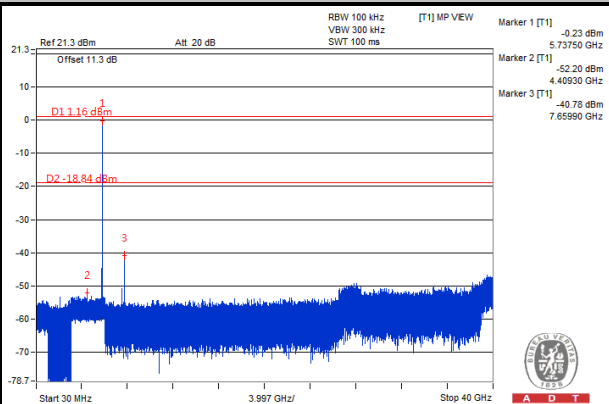
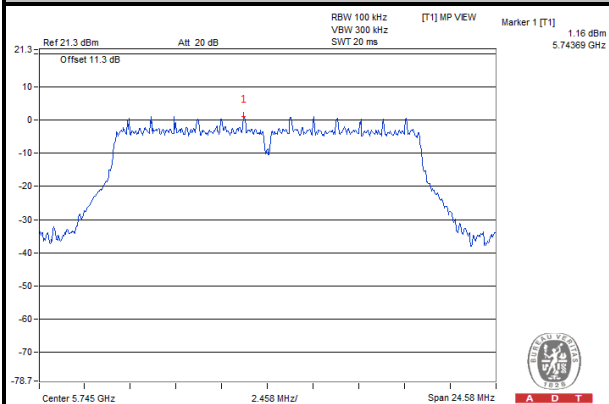


A D T

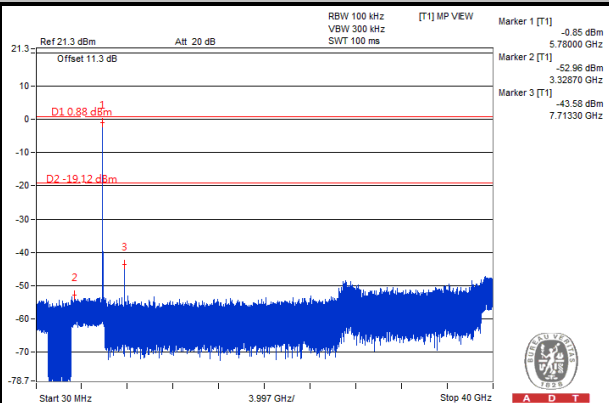
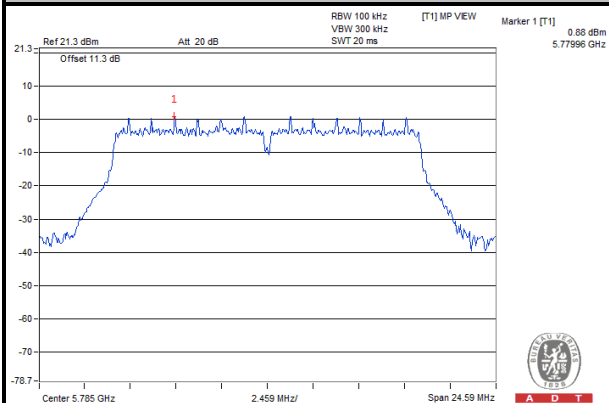
MODE A

802.11a

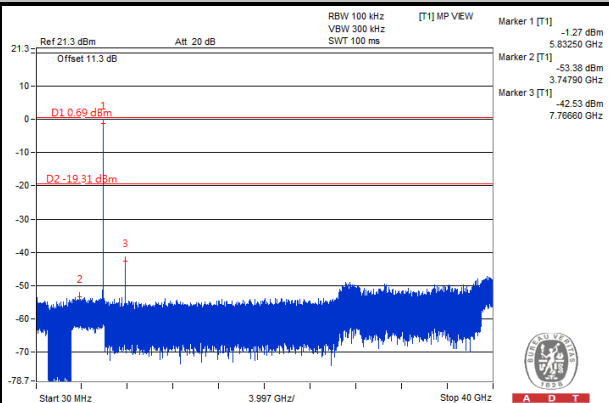
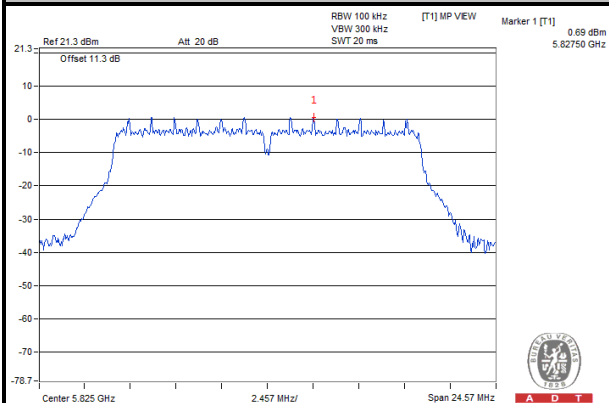
CH 149



CH 157



CH 165

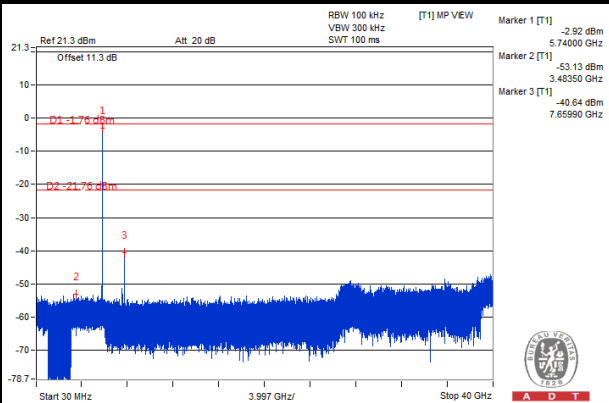
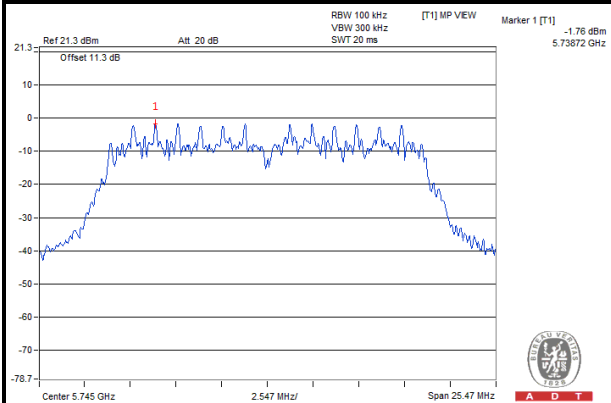




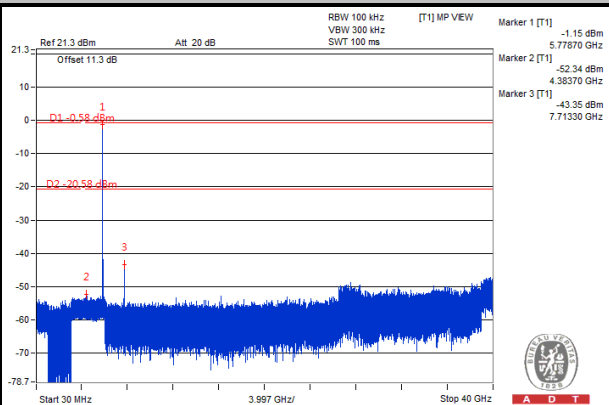
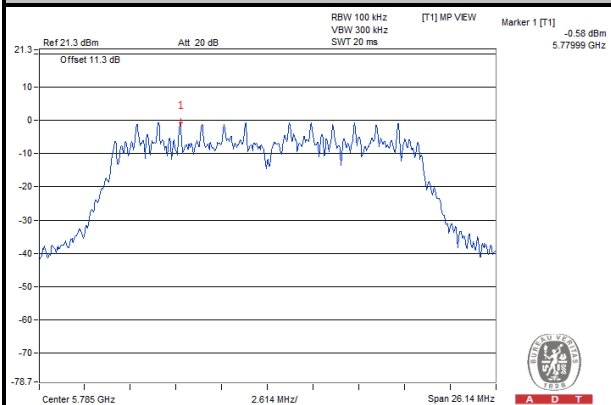
A D T

802.11n (20MHz)

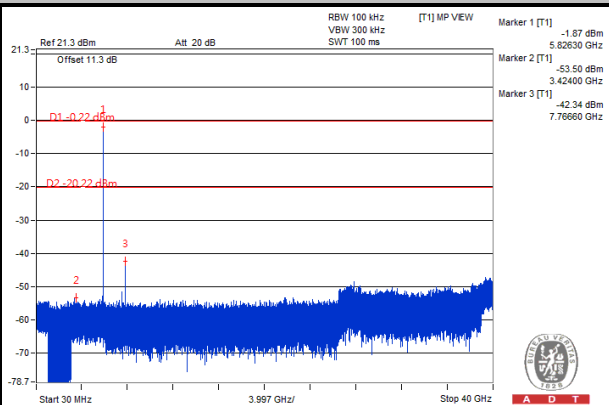
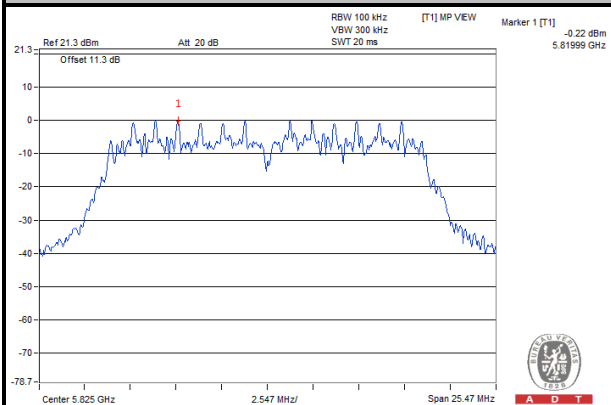
CH 149



CH 157



CH 165

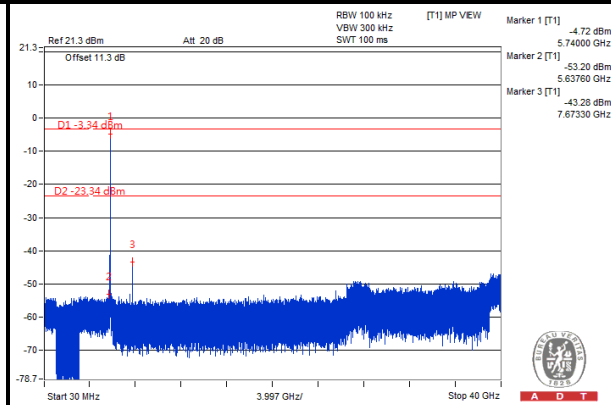
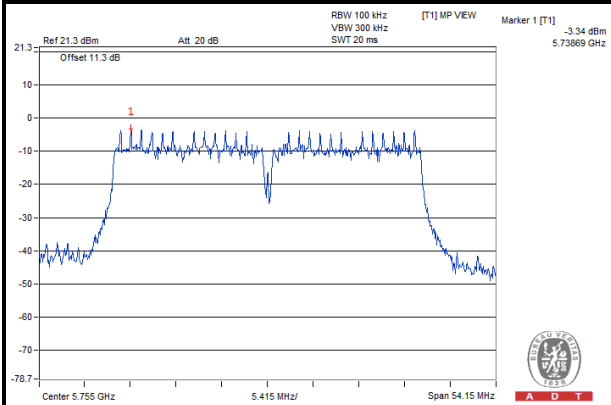




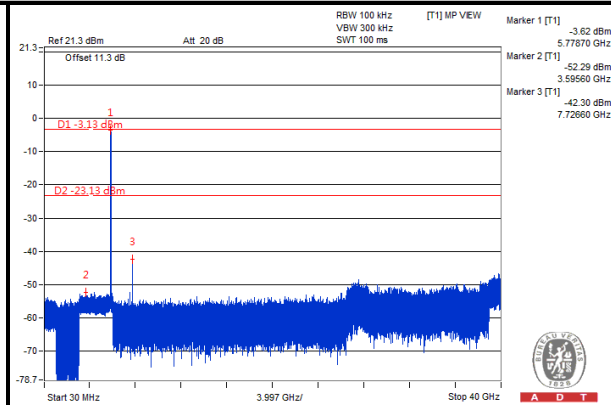
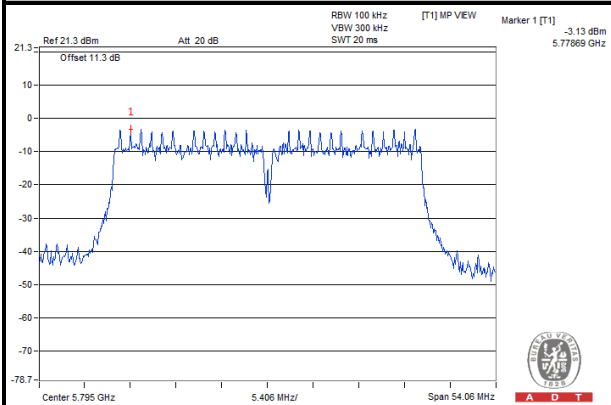
A D T

802.11n (40MHz)

CH 151



CH 159





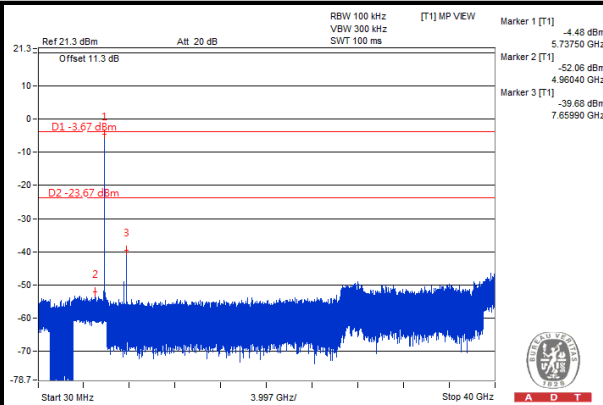
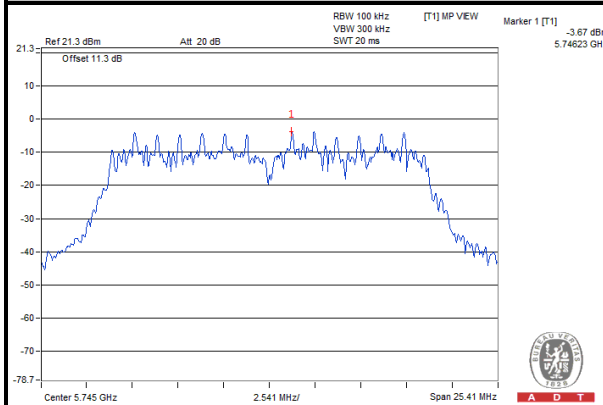
A D T

MODE B

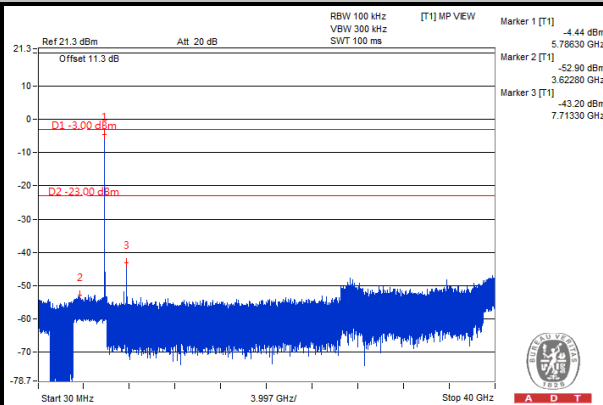
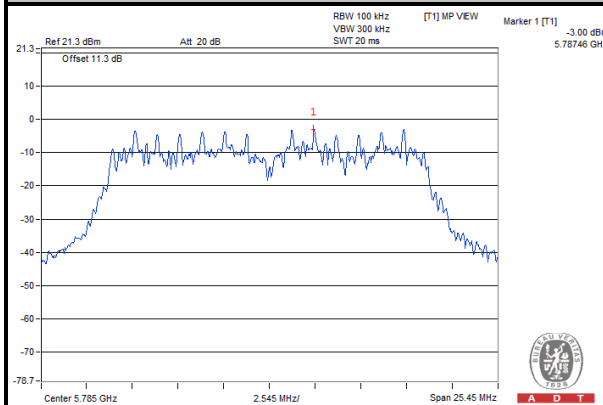
CHAIN 0

802.11n (20MHz)

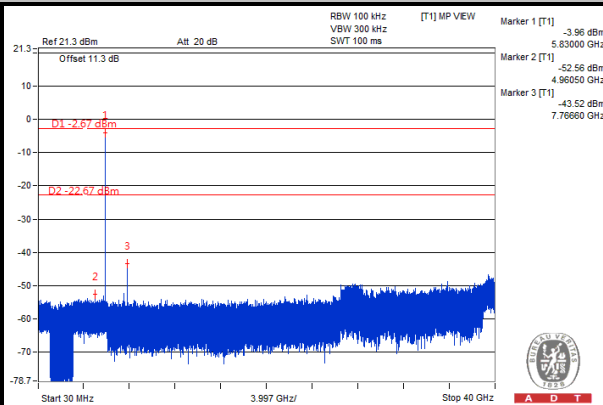
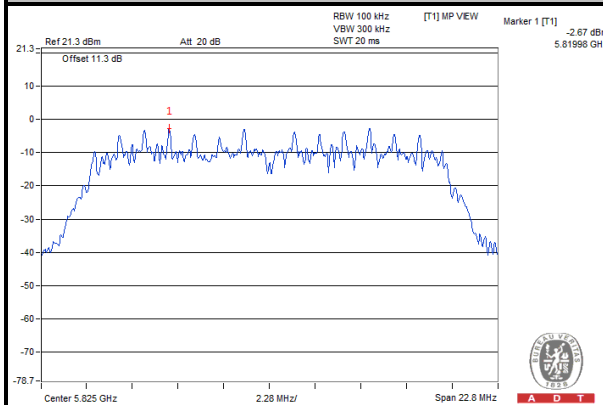
CH 149



CH 157



CH 165

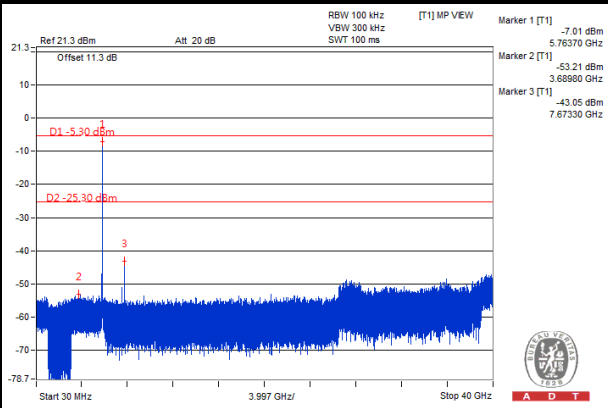
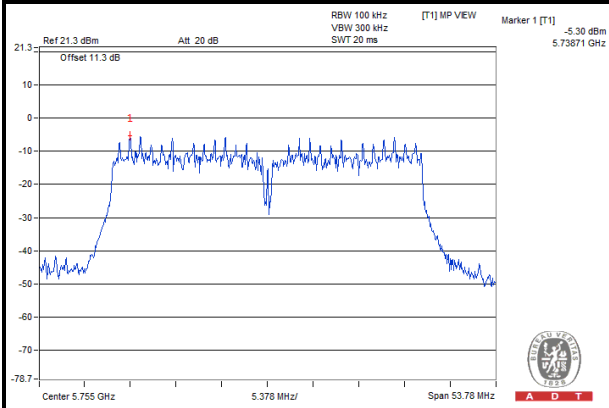




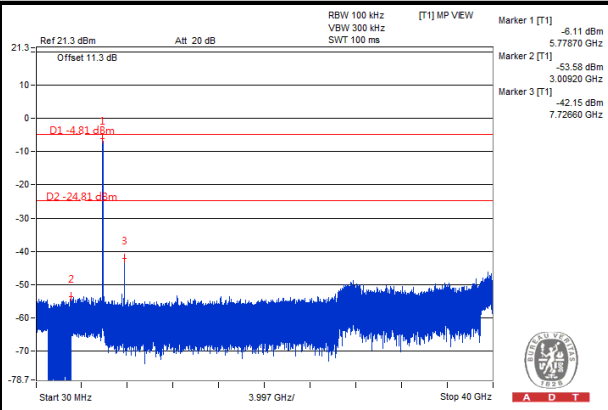
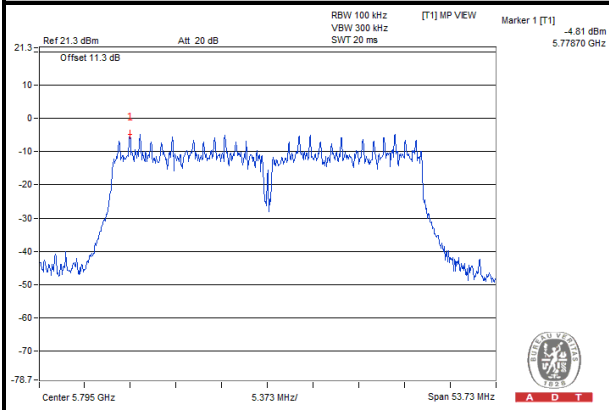
A D T

802.11n (40MHz)

CH 151



CH 159



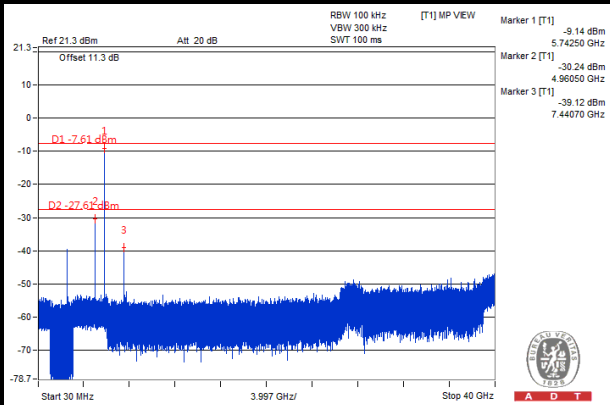
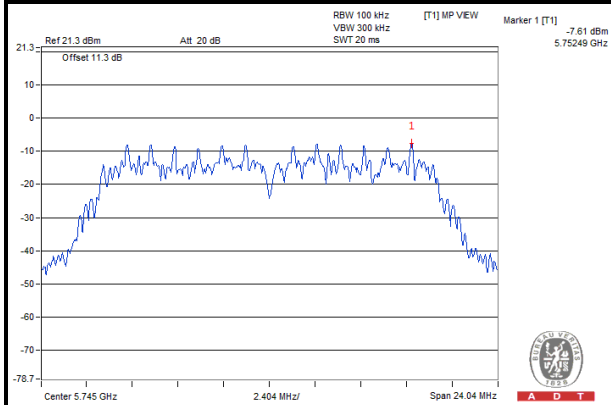


A D T

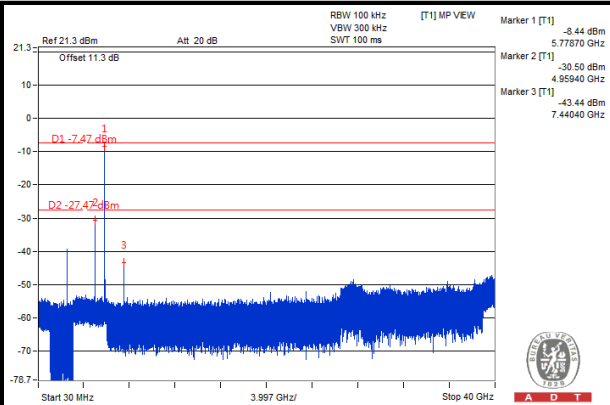
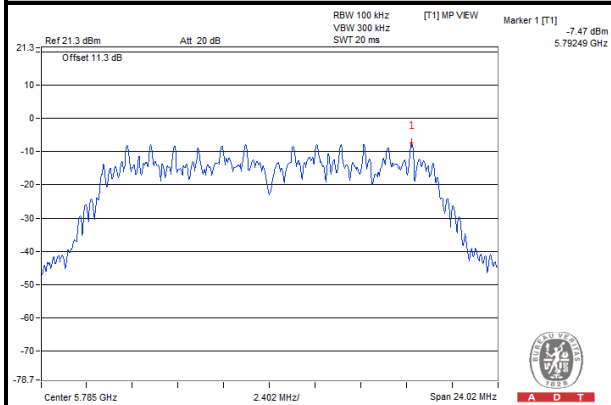
CHAIN 1

802.11n (20MHz)

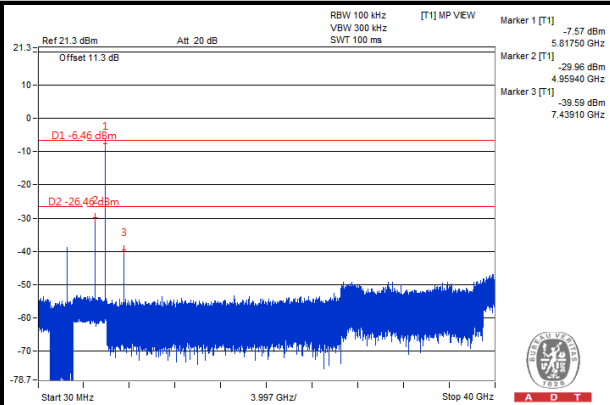
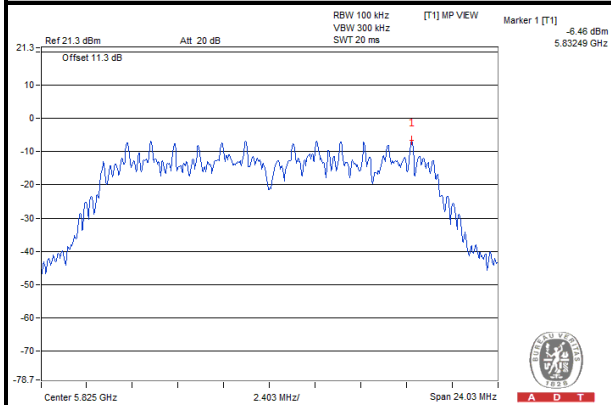
CH 149



CH 157



CH 165

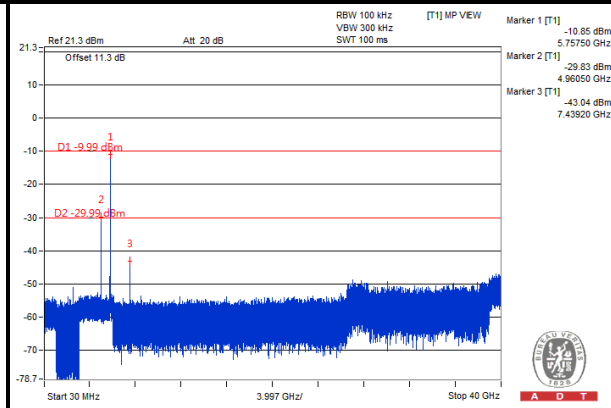
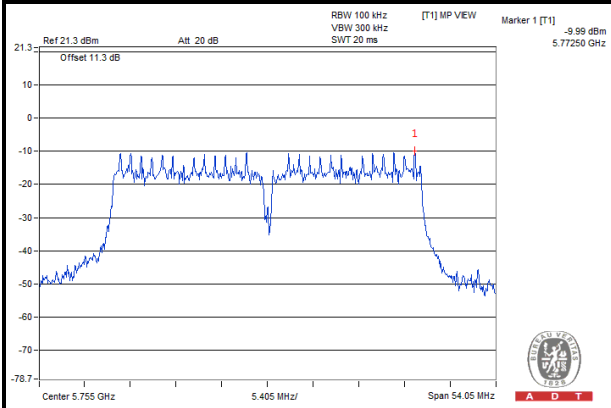




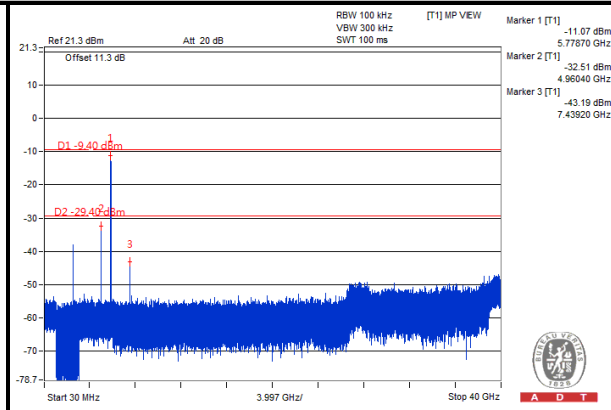
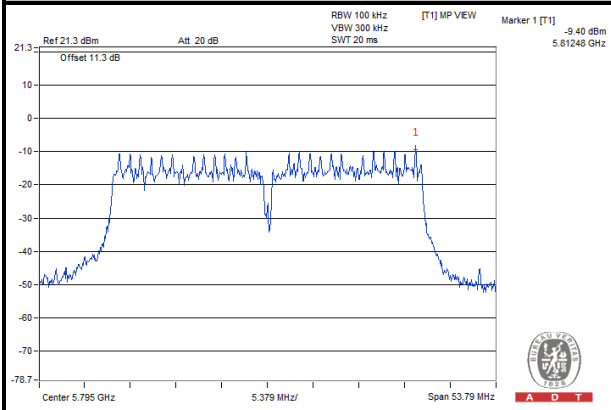
A D T

802.11n (40MHz)

CH 151



CH 159





A D T

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

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Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

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Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



A D T

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

No any modifications are made to the EUT by the lab during the test.

---END---