

FCC TEST REPORT (15.247)

REPORT NO.: RF140416C17A
MODEL NO.: 0P82100
FCC ID: NM80P82100
RECEIVED: Apr. 16, 2014
TESTED: Apr. 30, 2014 ~ Jun. 16, 2014
ISSUED: Jun. 18, 2014

APPLICANT: HTC Corporation

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

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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140416C17A	Original release	Jun. 18, 2014

1. CERTIFICATION

PRODUCT: Tablet
MODEL NO.: 0P82100
BRAND: HTC
APPLICANT: HTC Corporation
TESTED: Apr. 30, 2014 ~ Jun. 16, 2014
TEST SAMPLE: Identical Prototype
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10-2009

The above equipment (model: 0P82100) 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 : Ivonne Wu , **DATE** : Jun. 18, 2014
Ivonne Wu / Supervisor

APPROVED BY : Sam Chen , **DATE** : Jun. 18, 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 -3.10dB at 13.56250MHz.
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.04dB at 2390.00MHz.
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	Tablet
MODEL NO.	0P82100
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (Li-ion battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0 / 5.5 / 2.0 / 1.0 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 802.11ac: up to V9
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) 1 for 802.11ac (80MHz)
OUTPUT POWER	144.21mW for 2412 ~ 2462MHz 209.454mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to Note as below
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:

1. The EUT's accessories list refers to Ext. Pho.
2. There're 2 configurations for the EUT listed as below.
Main sample (A): Battery 1 + eMMC 16G
2nd sample (B): Battery 2 + eMMC 32G
✧ Only the worst test data was presented in the report.

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

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX / 2TX
802.11n (40MHz)	1TX / 2TX
802.11ac (80MHz)	1TX / 2TX

4. The antenna information is listed as below.

	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
WLAN	2412~2462	PCB	Ant-1: -3.25 Ant-2: -4.65
	5180~5240		Ant-1: -5.35 Ant-2: -5.11
	5260~5320		Ant-1: -5.65 Ant-2: -5.42
	5500~5700		Ant-1: -8.9 Ant-2: -4.7
	5745~5825		Ant-1: -11.8 Ant-2: -4.21
Bluetooth EDR	2402~2480	PCB	-3.25
Bluetooth LE 4.0	2402~2480	PCB	-3.25

5. 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

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

CHANNEL	FREQUENCY
155	5775MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

WLAN 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	-	-	√	Main sample with Chain 0
B	√	√	√	√	Main sample with Chain 0+1
C	√	√	√	-	2 nd sample with Chain 0+1

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** for mode A and **Y-plane** for mode B / C.

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
C	802.11n (40MHz)	3 to 9	3	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)
B, C	802.11n (40MHz)	3 to 9	3	OFDM	BPSK	MCS0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B, C	802.11n (40MHz)	3 to 9	3	OFDM	BPSK	MCS0

***Note:** Test mode B was the worst case and only this mode was presented in this report.

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



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Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
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	√	√	√	√	Main sample with Chain 0
B	√	-	-	-	Main sample with Chain 1
C	√	-	-	√	Main sample with Chain 0+1
D	√	√	-	-	2 nd sample with Chain 1

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 **Y-plane** for mode A and **Z-plane** for mode B & C.

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	802.11ac (80MHz)	155	155	OFDM	BPSK	V0
C	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)	155	155	OFDM	BPSK	V0
D	802.11ac (80MHz)	155	155	OFDM	BPSK	V0

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, D	802.11ac (80MHz)	155	155	OFDM	BPSK	V0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11ac (80MHz)	155	155	OFDM	BPSK	V0

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
	802.11ac (80MHz)	155	155	OFDM	BPSK	V0
C	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)	155	155	OFDM	BPSK	V0

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
	802.11ac (80MHz)	155	155	OFDM	BPSK	V0
C	802.11n (20MHz)	149 to 161	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)	155	155	OFDM	BPSK	V0



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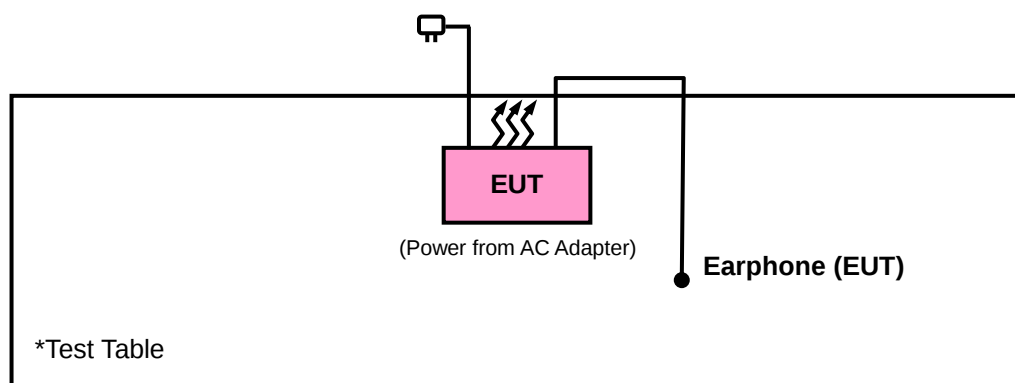
Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
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.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 DUTY CYCLE TEST SIGNAL

MODE A

WLAN 2.4GHz

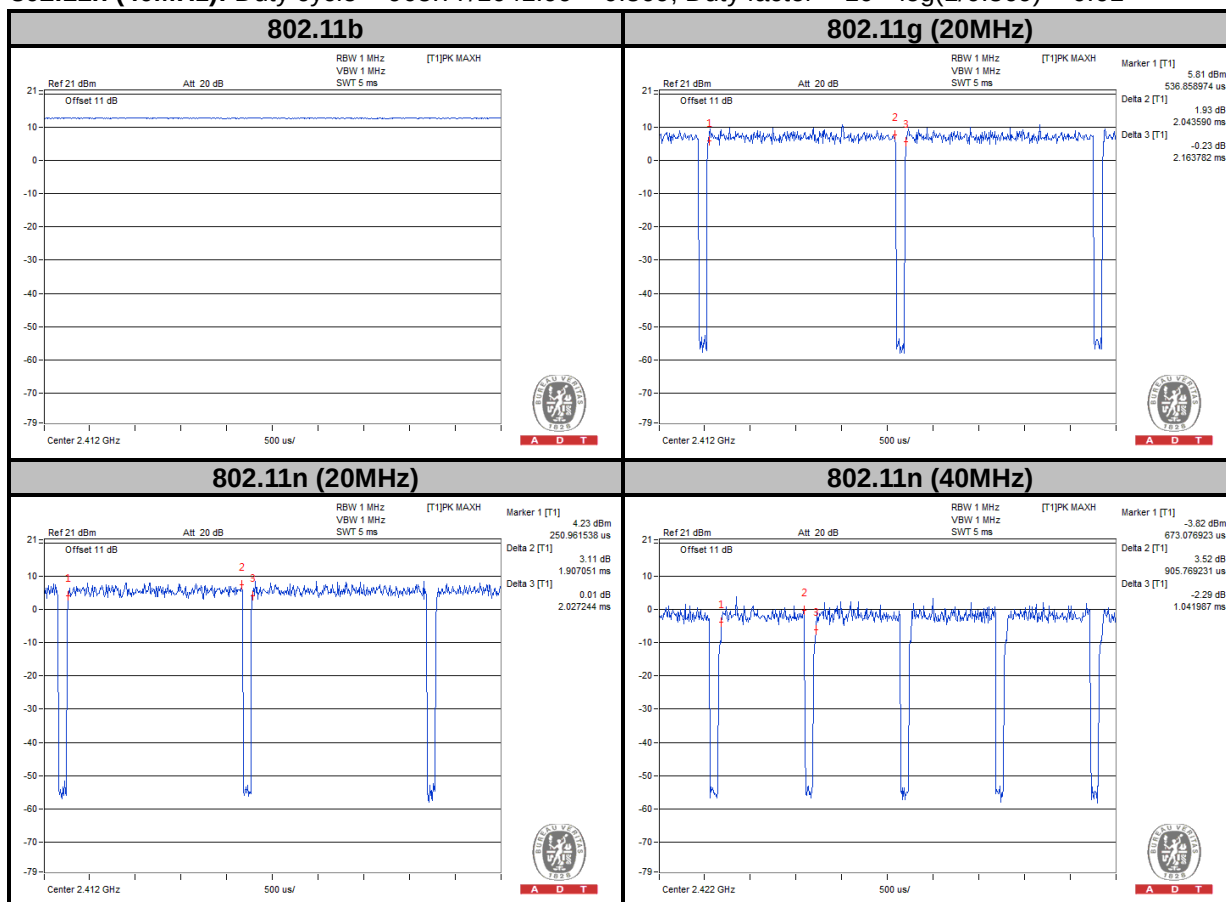
802.11b: Duty cycle of test signal is 100 %, duty factor is not required.

If duty cycle is < 98%

802.11g: Duty cycle = $2.043/2.164 = 0.944$, Duty factor = $10 * \log(1/0.944) = 0.25$

802.11n (20MHz): Duty cycle = $1.907/2.027 = 0.941$, Duty factor = $10 * \log(1/0.941) = 0.26$

802.11n (40MHz): Duty cycle = $905.77/1041.99 = 0.869$, Duty factor = $10 * \log(1/0.869) = 0.61$



5725MHz ~ 5850MHz

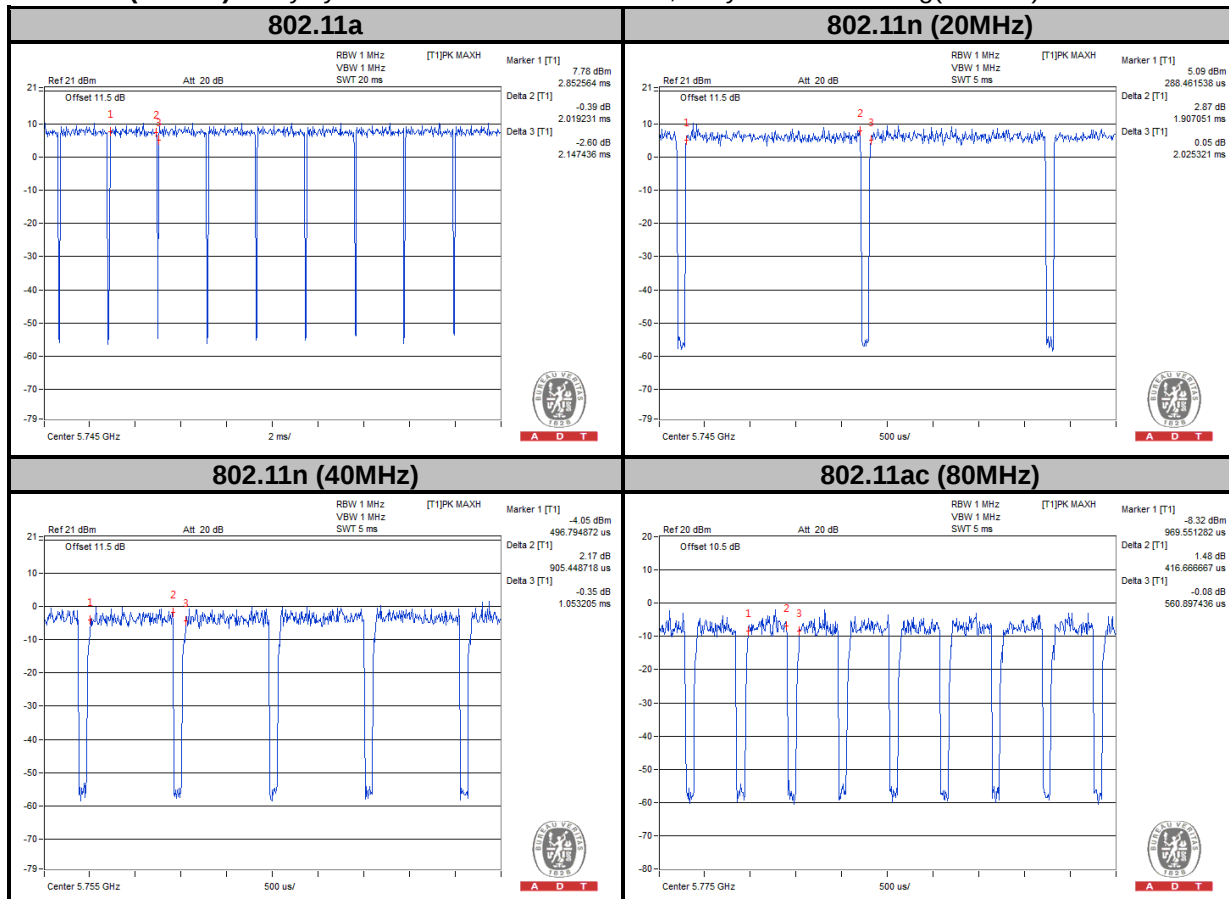
If duty cycle is < 98%

802.11a: Duty cycle = $2.019/2.147 = 0.940$, Duty factor = $10 * \log(1/0.940) = 0.27$

802.11n (20MHz): Duty cycle = $1.907/2.025 = 0.942$, Duty factor = $10 * \log(1/0.942) = 0.26$

802.11n (40MHz): Duty cycle = $905.45/1053.20 = 0.860$, Duty factor = $10 * \log(1/0.860) = 0.65$

802.11ac (80MHz): Duty cycle = $416.67/560.90 = 0.743$, Duty factor = $10 * \log(1/0.743) = 1.29$



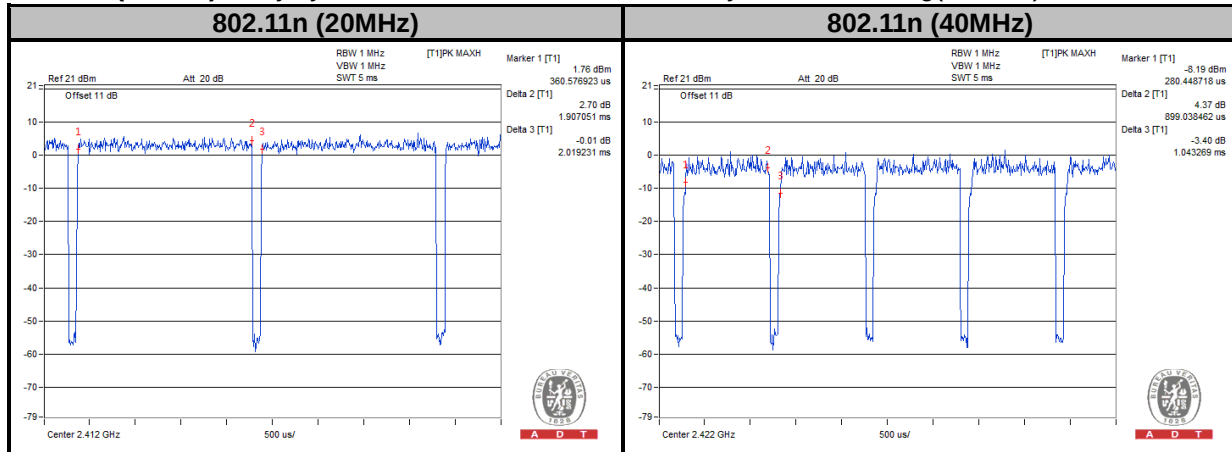
MODE C

WLAN 2.4GHz

If duty cycle is < 98%

802.11n (20MHz): Duty cycle = $1.907/2.019 = 0.944$, Duty factor = $10 * \log(1/0.944) = 0.25$

802.11n (40MHz): Duty cycle = $899.04/1043.27 = 0.862$, Duty factor = $10 * \log(1/0.862) = 0.64$



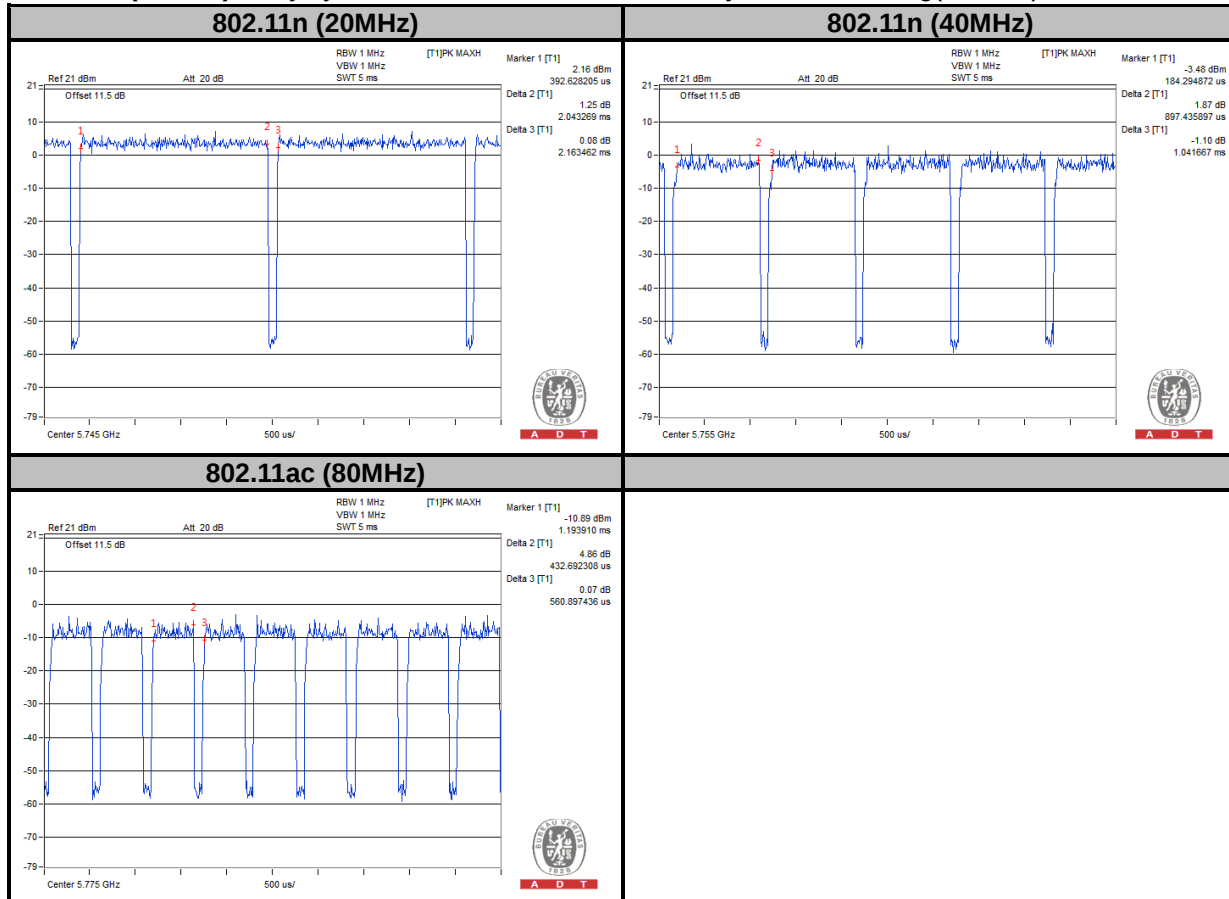
5725MHz ~ 5850MHz

If duty cycle is < 98%

802.11n (20MHz): Duty cycle = $2.043/2.163 = 0.944$, Duty factor = $10 * \log(1/0.944) = 0.25$

802.11n (40MHz): Duty cycle = $897.43/1041.67 = 0.861$, Duty factor = $10 * \log(1/0.861) = 0.65$

802.11ac (80MHz): Duty cycle = $432.69/560.90 = 0.771$, Duty factor = $10 * \log(1/0.771) = 1.13$



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 AGILENT	N9038A	MY51210203	Jan. 17, 2014	Jan. 16, 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, 2014	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, 2016
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
Power Sensor	MA2411B	1207325	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:

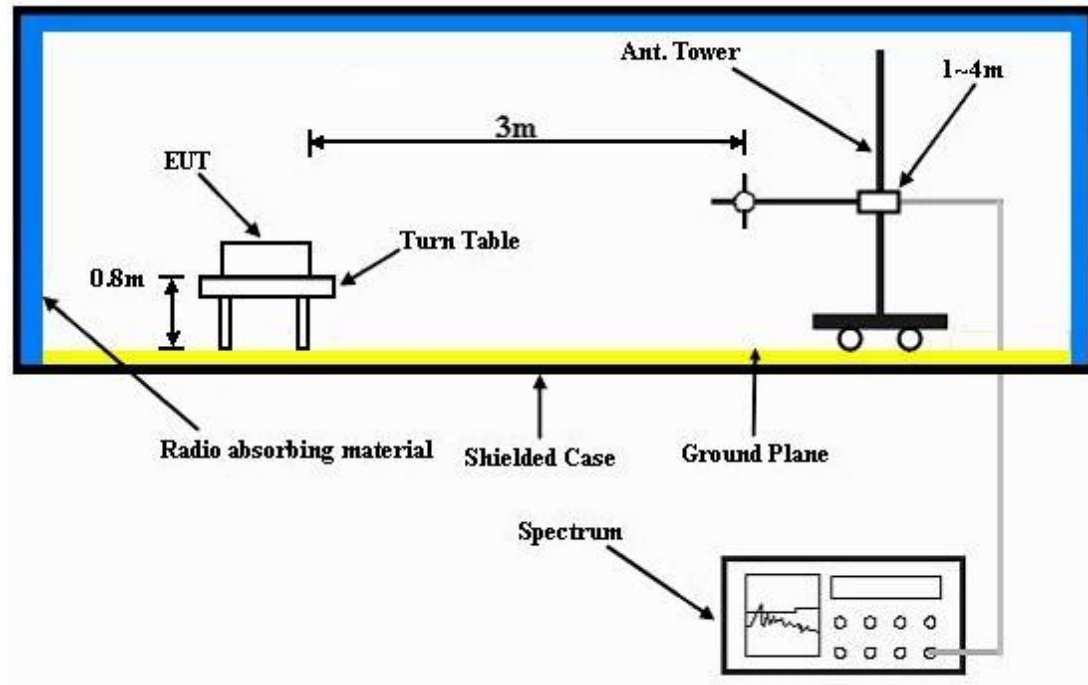
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

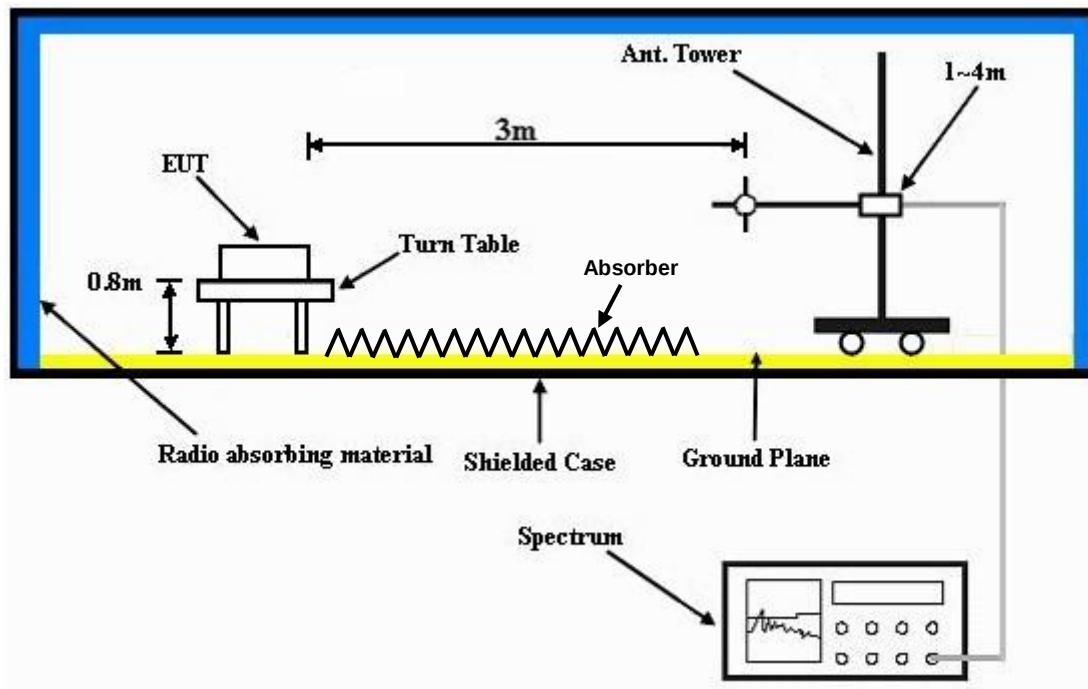
No deviation.

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).



A D T

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

ABOVE 1GHz WORST-CASE DATA

MODE A

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	Johnson Liao

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	48.48	55.55	54	-5.52	26.91	3.52	37.5	106	154	Average
2386	61.09	68.16	74	-12.91	26.91	3.52	37.5	106	154	Peak
2412	101.07	108.09			26.96	3.54	37.52	106	154	Average
2412	105.13	112.15			26.96	3.54	37.52	106	154	Peak
2486	35.5	42.07	54	-18.5	27.15	3.6	37.32	106	154	Average
2486	59.7	66.27	74	-14.3	27.15	3.6	37.32	106	154	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	42.76	49.94	54	-11.24	26.81	3.5	37.49	138	47	Average
2354	59.87	67.05	74	-14.13	26.81	3.5	37.49	138	47	Peak
2412	96.14	103.16			26.96	3.54	37.52	138	47	Average
2412	100.42	107.44			26.96	3.54	37.52	138	47	Peak
2496	34.51	40.94	54	-19.49	27.2	3.62	37.25	138	47	Average
2496	60.25	66.68	74	-13.75	27.2	3.62	37.25	138	47	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	Johnson Liao

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
2368	36.87	44.04	54	-17.13	26.81	3.52	37.5	102	153	Average
2368	59.71	66.88	74	-14.29	26.81	3.52	37.5	102	153	Peak
2437	101.72	108.56			27.06	3.56	37.46	102	153	Average
2437	105.8	112.64			27.06	3.56	37.46	102	153	Peak
2500	36.51	42.94	54	-17.49	27.2	3.62	37.25	102	153	Average
2500	59.79	66.22	74	-14.21	27.2	3.62	37.25	102	153	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
2364	35.37	59.12	54	-18.63	26.81	3.52	54.08	106	45	Average
2364	60.96	84.71	74	-13.04	26.81	3.52	54.08	106	45	Peak
2437	95.76	119.55			27.06	3.56	54.41	106	45	Average
2437	99.6	123.39			27.06	3.56	54.41	106	45	Peak
2500	35.42	58.82	54	-18.58	27.2	3.62	54.22	106	45	Average
2500	60.5	83.9	74	-13.5	27.2	3.62	54.22	106	45	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	Johnson Liao

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
2334	36.03	43.3	54	-17.97	26.72	3.48	37.47	103	151	Average
2334	60.89	68.16	74	-13.11	26.72	3.48	37.47	103	151	Peak
2462	101.84	108.55			27.1	3.58	37.39	103	151	Average
2462	105.15	111.86			27.1	3.58	37.39	103	151	Peak
2496	43.24	49.67	54	-10.76	27.2	3.62	37.25	103	151	Average
2496	60.82	67.25	74	-13.18	27.2	3.62	37.25	103	151	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	35.14	42.26	54	-18.86	26.86	3.52	37.5	135	47	Average
2380	59.83	66.95	74	-14.17	26.86	3.52	37.5	135	47	Peak
2462	95.58	102.29			27.1	3.58	37.39	135	47	Average
2462	99.13	105.84			27.1	3.58	37.39	135	47	Peak
2492	37.29	43.72	54	-16.71	27.2	3.62	37.25	135	47	Average
2492	59.75	66.18	74	-14.25	27.2	3.62	37.25	135	47	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	Johnson Liao

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	46.73	53.8	54	-7.27	26.91	3.54	37.52	105	153	Average
2390	62.3	69.37	74	-11.7	26.91	3.54	37.52	105	153	Peak
2412	94.67	101.69			26.96	3.54	37.52	105	153	Average
2412	104.28	111.3			26.96	3.54	37.52	105	153	Peak
2492	36.28	42.71	54	-17.72	27.2	3.62	37.25	105	153	Average
2492	60.15	66.58	74	-13.85	27.2	3.62	37.25	105	153	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	40.84	47.91	54	-13.16	26.91	3.54	37.52	102	47	Average
2390	60.39	67.46	74	-13.61	26.91	3.54	37.52	102	47	Peak
2412	88.78	95.8			26.96	3.54	37.52	102	47	Average
2412	98.78	105.8			26.96	3.54	37.52	102	47	Peak
2490	35.62	42.12	54	-18.38	27.2	3.62	37.32	102	47	Average
2490	60.21	66.71	74	-13.79	27.2	3.62	37.32	102	47	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	Johnson Liao

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
2354	38.04	45.22	54	-15.96	26.81	3.5	37.49	104	164	Average
2354	56.52	63.7	74	-17.48	26.81	3.5	37.49	104	164	Peak
2437	94.02	100.86			27.06	3.56	37.46	104	164	Average
2437	104.09	110.93			27.06	3.56	37.46	104	164	Peak
2496	36.85	43.28	54	-17.15	27.2	3.62	37.25	104	164	Average
2496	56.39	62.82	74	-17.61	27.2	3.62	37.25	104	164	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
2376	36.29	43.41	54	-17.71	26.86	3.52	37.5	164	53	Average
2376	55.77	62.89	74	-18.23	26.86	3.52	37.5	164	53	Peak
2437	89.53	96.37			27.06	3.56	37.46	164	53	Average
2437	98.94	105.78			27.06	3.56	37.46	164	53	Peak
2500	34.51	40.94	54	-19.49	27.2	3.62	37.25	164	53	Average
2500	55.99	62.42	74	-18.01	27.2	3.62	37.25	164	53	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	Johnson Liao

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
2334	35.75	43.02	54	-18.25	26.72	3.48	37.47	102	149	Average
2334	60.05	67.32	74	-13.95	26.72	3.48	37.47	102	149	Peak
2462	94	100.71			27.1	3.58	37.39	102	149	Average
2462	103.82	110.53			27.1	3.58	37.39	102	149	Peak
2484	49.21	55.78	54	-4.79	27.15	3.6	37.32	102	149	Average
2484	65.14	71.71	74	-8.86	27.15	3.6	37.32	102	149	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
2324	35.08	42.35	54	-18.92	26.72	3.48	37.47	166	48	Average
2324	59.68	66.95	74	-14.32	26.72	3.48	37.47	166	48	Peak
2462	88.21	94.92			27.1	3.58	37.39	166	48	Average
2462	98.02	104.73			27.1	3.58	37.39	166	48	Peak
2486	42.99	49.56	54	-11.01	27.15	3.6	37.32	166	48	Average
2486	62.01	68.58	74	-11.99	27.15	3.6	37.32	166	48	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	Johnson Liao

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	43.48	50.55	54	-10.52	26.91	3.52	37.5	104	150	Average
2386	60.87	67.94	74	-13.13	26.91	3.52	37.5	104	150	Peak
2412	93.23	100.25			26.96	3.54	37.52	104	150	Average
2412	103.22	110.24			26.96	3.54	37.52	104	150	Peak
2500	36.1	42.53	54	-17.9	27.2	3.62	37.25	104	150	Average
2500	59.22	65.65	74	-14.78	27.2	3.62	37.25	104	150	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	36.87	44.05	54	-17.13	26.81	3.5	37.49	163	61	Average
2352	60.06	67.24	74	-13.94	26.81	3.5	37.49	163	61	Peak
2412	84.5	91.52			26.96	3.54	37.52	163	61	Average
2412	94.55	101.57			26.96	3.54	37.52	163	61	Peak
2500	35.18	41.61	54	-18.82	27.2	3.62	37.25	163	61	Average
2500	59.55	65.98	74	-14.45	27.2	3.62	37.25	163	61	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	Johnson Liao

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	37.26	44.33	54	-16.74	26.91	3.54	37.52	104	165	Average
2390	56.79	63.86	74	-17.21	26.91	3.54	37.52	104	165	Peak
2437	93.33	100.17			27.06	3.56	37.46	104	165	Average
2437	103.22	110.06			27.06	3.56	37.46	104	165	Peak
2484	36.37	42.94	54	-17.63	27.15	3.6	37.32	104	165	Average
2484	55.27	61.84	74	-18.73	27.15	3.6	37.32	104	165	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	35.78	42.9	54	-18.22	26.86	3.52	37.5	164	54	Average
2384	57.16	64.28	74	-16.84	26.86	3.52	37.5	164	54	Peak
2437	85.99	92.83			27.06	3.56	37.46	164	54	Average
2437	94.92	101.76			27.06	3.56	37.46	164	54	Peak
2484	34.3	40.87	54	-19.7	27.15	3.6	37.32	164	54	Average
2484	56.23	62.8	74	-17.77	27.15	3.6	37.32	164	54	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	Johnson Liao

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
2368	36.07	43.24	54	-17.93	26.81	3.52	37.5	104	148	Average
2368	59.17	66.34	74	-14.83	26.81	3.52	37.5	104	148	Peak
2462	92.85	99.56			27.1	3.58	37.39	104	148	Average
2462	102.33	109.04			27.1	3.58	37.39	104	148	Peak
2484	48.43	55	54	-5.57	27.15	3.6	37.32	104	148	Average
2484	66.09	72.66	74	-7.91	27.15	3.6	37.32	104	148	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	34.69	41.91	54	-19.31	26.77	3.5	37.49	104	60	Average
2346	59.97	67.19	74	-14.03	26.77	3.5	37.49	104	60	Peak
2462	83.98	90.69			27.1	3.58	37.39	104	60	Average
2462	93.36	100.07			27.1	3.58	37.39	104	60	Peak
2484	40.71	47.28	54	-13.29	27.15	3.6	37.32	104	60	Average
2484	60.6	67.17	74	-13.4	27.15	3.6	37.32	104	60	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	Johnson Liao

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	44.52	51.59	54	-9.48	26.91	3.54	37.52	106	149	Average
2390	60.02	67.09	74	-13.98	26.91	3.54	37.52	106	149	Peak
2422	90.86	97.75			27.01	3.56	37.46	106	149	Average
2422	99.93	106.82			27.01	3.56	37.46	106	149	Peak
2484	36.98	43.55	54	-17.02	27.15	3.6	37.32	106	149	Average
2484	59.42	65.99	74	-14.58	27.15	3.6	37.32	106	149	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
2376	37.67	44.79	54	-16.33	26.86	3.52	37.5	103	61	Average
2376	59.55	66.67	74	-14.45	26.86	3.52	37.5	103	61	Peak
2422	82.67	89.56			27.01	3.56	37.46	103	61	Average
2422	92.52	99.41			27.01	3.56	37.46	103	61	Peak
2486	35.68	42.25	54	-18.32	27.15	3.6	37.32	103	61	Average
2486	60.19	66.76	74	-13.81	27.15	3.6	37.32	103	61	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422MHz: 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	Johnson Liao

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	45.6	52.67	54	-8.4	26.91	3.54	37.52	104	212	Average
2390	59.91	66.98	74	-14.09	26.91	3.54	37.52	104	212	Peak
2437	89.3	96.14			27.06	3.56	37.46	104	212	Average
2437	99.81	106.65			27.06	3.56	37.46	104	212	Peak
2484	41.95	48.52	54	-12.05	27.15	3.6	37.32	104	212	Average
2484	58.58	65.15	74	-15.42	27.15	3.6	37.32	104	212	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	42.3	49.35	54	-11.7	26.91	3.54	37.5	164	52	Average
2388	57.17	64.22	74	-16.83	26.91	3.54	37.5	164	52	Peak
2437	83.56	90.4			27.06	3.56	37.46	164	52	Average
2437	92.64	99.48			27.06	3.56	37.46	164	52	Peak
2486	37.01	43.58	54	-16.99	27.15	3.6	37.32	164	52	Average
2486	56.51	63.08	74	-17.49	27.15	3.6	37.32	164	52	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	Johnson Liao

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	39.76	46.83	54	-14.24	26.91	3.52	37.5	103	148	Average
2386	60.28	67.35	74	-13.72	26.91	3.52	37.5	103	148	Peak
2452	89.8	96.55			27.06	3.58	37.39	103	148	Average
2452	99.8	106.55			27.06	3.58	37.39	103	148	Peak
2484	49.41	55.98	54	-4.59	27.15	3.6	37.32	103	148	Average
2484	63.02	69.59	74	-10.98	27.15	3.6	37.32	103	148	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
2326	35.62	42.89	54	-18.38	26.72	3.48	37.47	103	60	Average
2326	59.65	66.92	74	-14.35	26.72	3.48	37.47	103	60	Peak
2452	81.2	87.95			27.06	3.58	37.39	103	60	Average
2452	91.55	98.3			27.06	3.58	37.39	103	60	Peak
2484	41.53	48.1	54	-12.47	27.15	3.6	37.32	103	60	Average
2484	59.83	66.4	74	-14.17	27.15	3.6	37.32	103	60	Peak

REMARKS:

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

MODE B

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	Johnson Liao

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	47.26	54.33	54	-6.74	26.91	3.54	37.52	159	310	Average
2390	65.02	72.09	74	-8.98	26.91	3.54	37.52	159	310	Peak
2412	97	104.02			26.96	3.54	37.52	159	310	Average
2412	107.68	114.7			26.96	3.54	37.52	159	310	Peak
2484	36.55	43.12	54	-17.45	27.15	3.6	37.32	159	310	Average
2484	56.36	62.93	74	-17.64	27.15	3.6	37.32	159	310	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	44.74	51.81	54	-9.26	26.91	3.54	37.52	100	270	Average
2390	59.3	66.37	74	-14.7	26.91	3.54	37.52	100	270	Peak
2412	92.85	99.87			26.96	3.54	37.52	100	270	Average
2412	102.69	109.71			26.96	3.54	37.52	100	270	Peak
2484	34.66	41.23	54	-19.34	27.15	3.6	37.32	100	270	Average
2484	56.31	62.88	74	-17.69	27.15	3.6	37.32	100	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	Johnson Liao

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	41.32	48.37	54	-12.68	26.91	3.54	37.5	158	311	Average
2388	56.59	63.64	74	-17.41	26.91	3.54	37.5	158	311	Peak
2437	97.31	104.15			27.06	3.56	37.46	158	311	Average
2437	107.67	114.51			27.06	3.56	37.46	158	311	Peak
2486	38.42	44.99	54	-15.58	27.15	3.6	37.32	158	311	Average
2486	57.3	63.87	74	-16.7	27.15	3.6	37.32	158	311	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	37.18	44.25	54	-16.82	26.91	3.54	37.52	100	270	Average
2390	55.93	63	74	-18.07	26.91	3.54	37.52	100	270	Peak
2437	92.57	99.41			27.06	3.56	37.46	100	270	Average
2437	102.56	109.4			27.06	3.56	37.46	100	270	Peak
2490	35.35	41.85	54	-18.65	27.2	3.62	37.32	100	270	Average
2490	56.73	63.23	74	-17.27	27.2	3.62	37.32	100	270	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	Johnson Liao

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
2358	37.03	44.21	54	-16.97	26.81	3.5	37.49	153	311	Average
2358	56.3	63.48	74	-17.7	26.81	3.5	37.49	153	311	Peak
2462	97.01	103.72			27.1	3.58	37.39	153	311	Average
2462	107.08	113.79			27.1	3.58	37.39	153	311	Peak
2484	43.7	50.27	54	-10.3	27.15	3.6	37.32	153	311	Average
2484	58.26	64.83	74	-15.74	27.15	3.6	37.32	153	311	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	34.98	42.1	54	-19.02	26.86	3.52	37.5	100	270	Average
2380	56.42	63.54	74	-17.58	26.86	3.52	37.5	100	270	Peak
2462	92.06	98.77			27.1	3.58	37.39	100	270	Average
2462	101.36	108.07			27.1	3.58	37.39	100	270	Peak
2484	39.57	46.14	54	-14.43	27.15	3.6	37.32	100	270	Average
2484	57.4	63.97	74	-16.6	27.15	3.6	37.32	100	270	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	Johnson Liao

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	50.96	58.03	54	-3.04	26.91	3.54	37.52	157	308	Average
2390	63.82	70.89	74	-10.18	26.91	3.54	37.52	157	308	Peak
2422	93.57	100.46			27.01	3.56	37.46	157	308	Average
2422	103.94	110.83			27.01	3.56	37.46	157	308	Peak
2484	36.72	43.29	54	-17.28	27.15	3.6	37.32	157	308	Average
2484	54.92	61.49	74	-19.08	27.15	3.6	37.32	157	308	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	47.55	54.62	54	-6.45	26.91	3.54	37.52	100	270	Average
2390	60.88	67.95	74	-13.12	26.91	3.54	37.52	100	270	Peak
2422	89.22	96.11			27.01	3.56	37.46	100	270	Average
2422	99.08	105.97			27.01	3.56	37.46	100	270	Peak
2484	34.9	41.47	54	-19.1	27.15	3.6	37.32	100	270	Average
2484	56.49	63.06	74	-17.51	27.15	3.6	37.32	100	270	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422MHz: 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	Johnson Liao

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	46.15	53.22	54	-7.85	26.91	3.54	37.52	157	311	Average
2390	61.11	68.18	74	-12.89	26.91	3.54	37.52	157	311	Peak
2437	94.83	101.67			27.06	3.56	37.46	157	311	Average
2437	104.05	110.89			27.06	3.56	37.46	157	311	Peak
2484	40.34	46.91	54	-13.66	27.15	3.6	37.32	157	311	Average
2484	57.14	63.71	74	-16.86	27.15	3.6	37.32	157	311	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	43.59	50.66	54	-10.41	26.91	3.54	37.52	101	270	Average
2390	58.98	66.05	74	-15.02	26.91	3.54	37.52	101	270	Peak
2437	89.7	96.54			27.06	3.56	37.46	101	270	Average
2437	98.58	105.42			27.06	3.56	37.46	101	270	Peak
2488	36.5	43	54	-17.5	27.2	3.62	37.32	101	270	Average
2488	56.95	63.45	74	-17.05	27.2	3.62	37.32	101	270	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	Johnson Liao

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	39.69	46.74	54	-14.31	26.91	3.54	37.5	152	310	Average
2388	57.43	64.48	74	-16.57	26.91	3.54	37.5	152	310	Peak
2452	94.45	101.2			27.06	3.58	37.39	152	310	Average
2452	104.07	110.82			27.06	3.58	37.39	152	310	Peak
2484	45.13	51.7	54	-8.87	27.15	3.6	37.32	152	310	Average
2484	59.37	65.94	74	-14.63	27.15	3.6	37.32	152	310	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	35.59	42.71	54	-18.41	26.86	3.52	37.5	120	270	Average
2380	56.64	63.76	74	-17.36	26.86	3.52	37.5	120	270	Peak
2452	88.83	95.58			27.06	3.58	37.39	120	270	Average
2452	98.91	105.66			27.06	3.58	37.39	120	270	Peak
2484	41.07	47.64	54	-12.93	27.15	3.6	37.32	120	270	Average
2484	56.83	63.4	74	-17.17	27.15	3.6	37.32	120	270	Peak

REMARKS:

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

MODE C

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	Johnson Liao

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	49.13	56.2	54	-4.87	26.91	3.54	37.52	147	283	Average
2390	61.74	68.81	74	-12.26	26.91	3.54	37.52	147	283	Peak
2422	92.34	99.23			27.01	3.56	37.46	147	283	Average
2422	102.57	109.46			27.01	3.56	37.46	147	283	Peak
2496	37.16	43.59	54	-16.84	27.2	3.62	37.25	147	283	Average
2496	56.72	63.15	74	-17.28	27.2	3.62	37.25	147	283	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	47.31	54.38	54	-6.69	26.91	3.54	37.52	101	239	Average
2390	59.72	66.79	74	-14.28	26.91	3.54	37.52	101	239	Peak
2422	88.5	95.39			27.01	3.56	37.46	101	239	Average
2422	98.39	105.28			27.01	3.56	37.46	101	239	Peak
2498	35.13	41.56	54	-18.87	27.2	3.62	37.25	101	239	Average
2498	56.34	62.77	74	-17.66	27.2	3.62	37.25	101	239	Peak

REMARKS:

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

BELOW 1GHz WORST-CASE DATA:

MODE B

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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
43.5	24.8	41.61	40	-15.2	13.59	0.71	31.11	100	141	Peak
160.14	28.2	45.96	43.5	-15.3	12.73	1.39	31.88	100	249	Peak
203.61	29.13	49.7	43.5	-14.37	9.52	1.61	31.7	100	95	Peak
454	19.03	31.97	46	-26.97	16.41	2.63	31.98	100	46	Peak
714.4	24.9	32.1	46	-21.1	21.03	3.47	31.7	100	118	Peak
904.8	26.83	31.34	46	-19.17	23.54	3.98	32.03	100	143	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
42.15	27.24	44.04	40	-12.76	13.58	0.7	31.08	100	134	Peak
66.45	26.43	46.11	40	-13.57	11.12	0.88	31.68	100	111	Peak
180.12	19.67	39.27	43.5	-23.83	10.74	1.5	31.84	100	225	Peak
535.9	20.64	31.31	46	-25.36	18.15	2.9	31.72	100	254	Peak
740.3	25.77	32.32	46	-20.23	21.38	3.55	31.48	100	84	Peak
920.2	26.83	31.2	46	-19.17	23.62	4.01	32	100	192	Peak

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

Margin value = Emission level – Limit value

MODE C

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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
56.46	28.52	46.71	40	-11.48	12.35	0.8	31.34	129	317	Peak
153.66	29.61	47.22	43.5	-13.89	12.72	1.36	31.69	131	54	Peak
187.41	35.7	55.63	43.5	-7.8	10.26	1.53	31.72	108	239	Peak
302.8	21.18	37.98	46	-24.82	13.01	2.06	31.87	138	66	Peak
552	23	33.52	46	-23	18.5	2.95	31.97	133	59	Peak
680.1	25.22	33.13	46	-20.78	20.57	3.36	31.84	100	257	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
30.54	35.74	54.15	40	-4.26	12.14	0.57	31.12	131	242	Peak
148.8	27.99	45.64	43.5	-15.51	12.64	1.33	31.62	104	295	Peak
186.87	31.51	51.44	43.5	-11.99	10.26	1.53	31.72	118	120	Peak
356.7	17.73	33.1	46	-28.27	14.31	2.25	31.93	105	335	Peak
540.1	22.34	32.91	46	-23.66	18.24	2.92	31.73	127	233	Peak
659.1	24.78	33.12	46	-21.22	20.33	3.28	31.95	124	261	Peak

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

Margin value = Emission level – Limit value

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 24, 2014	Apr. 23, 2015
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 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

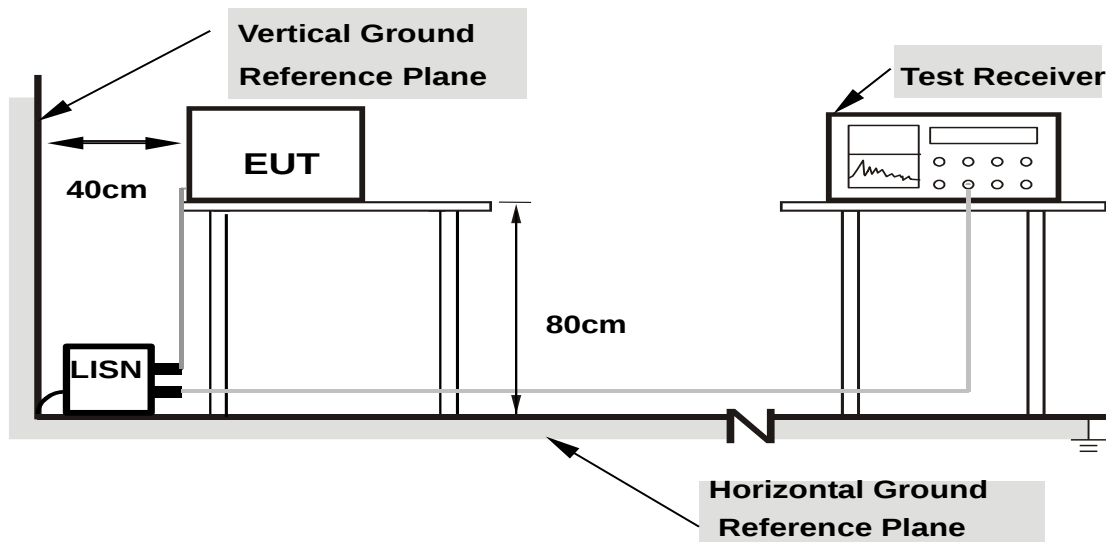
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

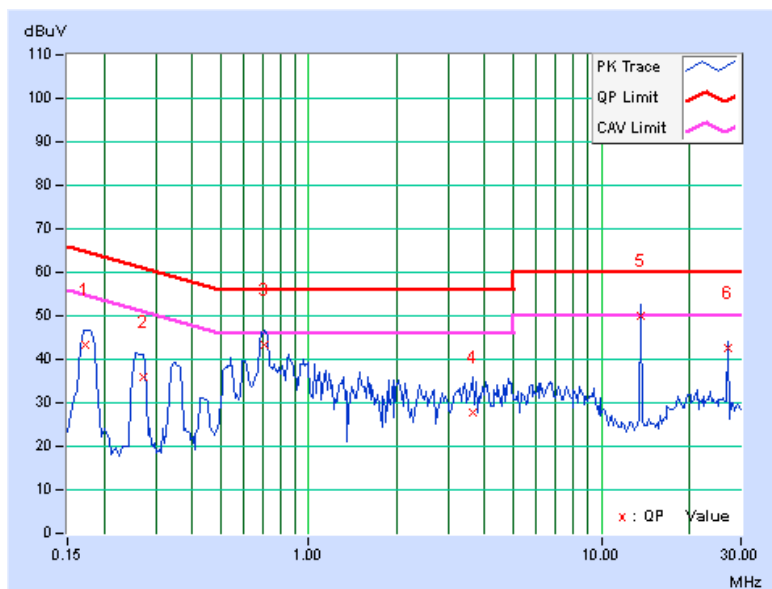
MODE A

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	0.17344	0.27	43.20	33.90	43.47	34.17	64.79	54.79	-21.32	-20.62
2	0.27109	0.29	35.81	22.63	36.10	22.92	61.08	51.08	-24.99	-28.17
3	0.70859	0.32	42.89	31.21	43.21	31.53	56.00	46.00	-12.79	-14.47
4	3.63672	0.42	27.50	17.19	27.92	17.61	56.00	46.00	-28.08	-28.39
5	13.56250	0.52	49.39	46.38	49.91	46.90	60.00	50.00	-10.09	-3.10
6	27.12109	0.49	42.11	39.02	42.60	39.51	60.00	50.00	-17.40	-10.49

REMARKS:

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

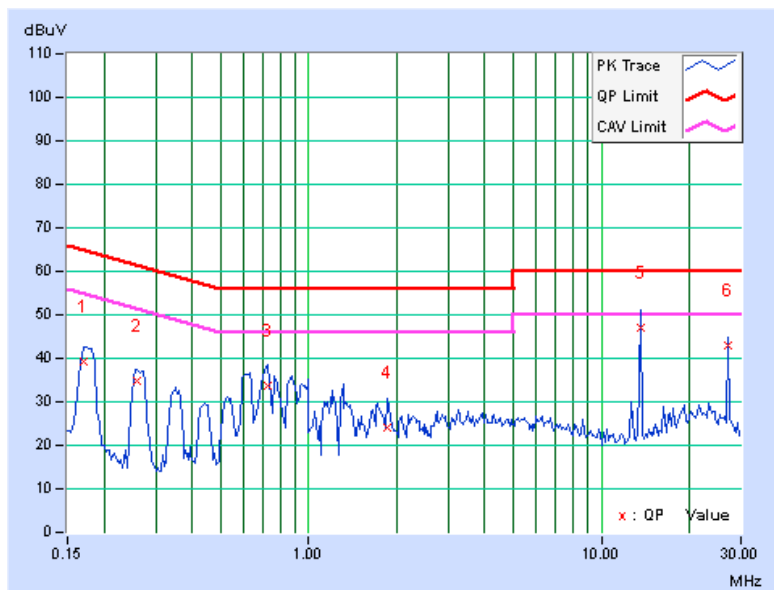


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.27	39.01	25.58	39.28	25.85	64.98	54.98	-25.70	-29.13
2	0.25938	0.29	34.55	23.73	34.84	24.02	61.45	51.45	-26.62	-27.44
3	0.72422	0.32	33.54	19.62	33.86	19.94	56.00	46.00	-22.14	-26.06
4	1.86328	0.37	23.70	14.48	24.07	14.85	56.00	46.00	-31.93	-31.15
5	13.56250	0.55	46.67	42.33	47.22	42.88	60.00	50.00	-12.78	-7.12
6	27.12109	0.52	42.37	39.55	42.89	40.07	60.00	50.00	-17.11	-9.93

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

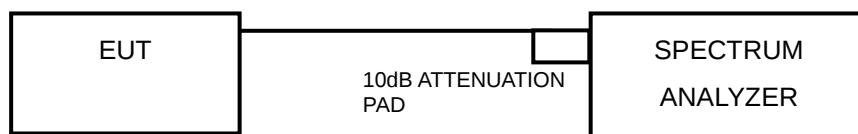


4.3 6dB BANDWIDTH MEASUREMENT

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	7.60	0.5	PASS
6	2437	8.05	0.5	PASS
11	2462	7.59	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.38	0.5	PASS
6	2437	16.39	0.5	PASS
11	2462	16.36	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.63	0.5	PASS
6	2437	17.64	0.5	PASS
11	2462	17.61	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.18	0.5	PASS
6	2437	35.90	0.5	PASS
9	2452	35.84	0.5	PASS

MODE B
802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.64	17.63	0.5	PASS
6	2437	16.40	17.63	0.5	PASS
11	2462	16.38	17.66	0.5	PASS

802.11n (40MHz)

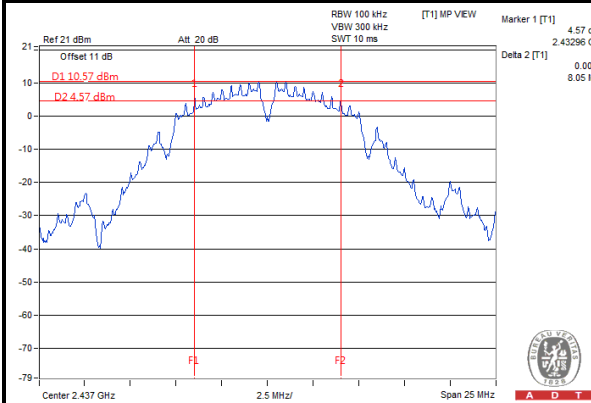
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.45	36.43	0.5	PASS
6	2437	36.34	36.40	0.5	PASS
9	2452	35.83	36.00	0.5	PASS



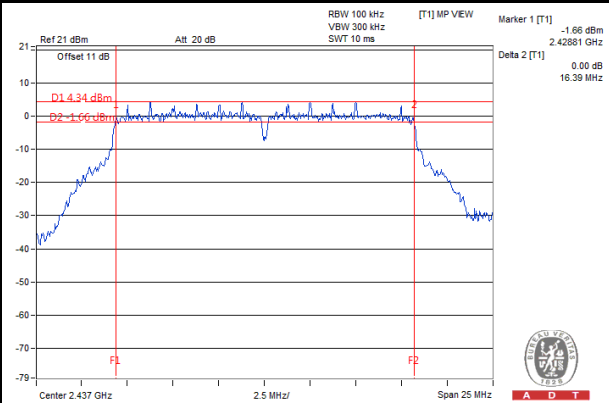
A D T

SPECTRUM PLOT OF WORST VALUE

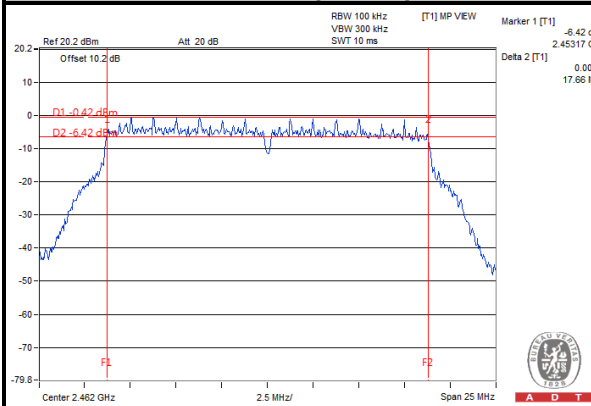
802.11b



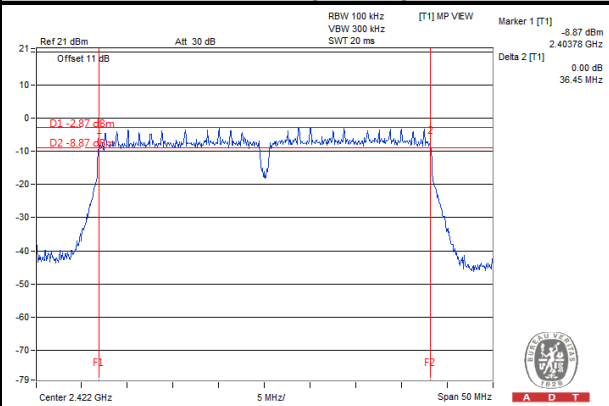
802.11g



802.11n (20MHz)



802.11n (40MHz)



4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

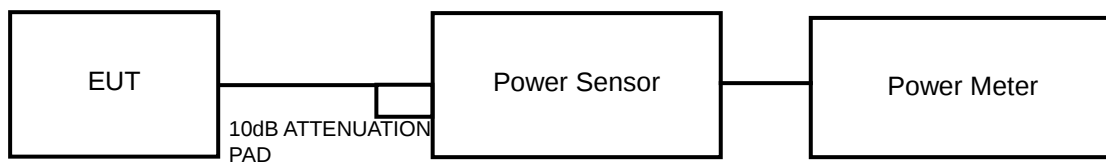
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

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

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

A 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	135.52	21.32	30	PASS
6	2437	133.66	21.26	30	PASS
11	2462	141.58	21.51	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	144.21	21.59	30	PASS
6	2437	139.64	21.45	30	PASS
11	2462	140.28	21.47	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
1	2412	135.21	21.31	30	PASS
6	2437	128.23	21.08	30	PASS
11	2462	127.94	21.07	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
3	2422	110.41	20.43	30	PASS
6	2437	107.40	20.31	30	PASS
9	2452	106.17	20.26	30	PASS

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

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	18.62	17.63	130.721	21.16	30	PASS
6	2437	19.03	17.61	137.660	21.39	30	PASS
11	2462	18.19	17.71	124.937	20.97	30	PASS

802.11n (40MHz)

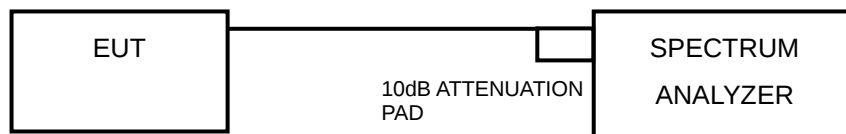
CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	17.84	16.02	100.808	20.03	30	PASS
6	2437	18.21	16.94	115.653	20.63	30	PASS
9	2452	18.40	16.93	118.500	20.74	30	PASS

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	-4.22	8	PASS
6	2437	-4.06	8	PASS
11	2462	-2.83	8	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-10.04	8	PASS
6	2437	-9.43	8	PASS
11	2462	-10.48	8	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
1	2412	-11.89	8	PASS
6	2437	-12.34	8	PASS
11	2462	-11.80	8	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
3	2422	-15.37	8	PASS
6	2437	-15.67	8	PASS
9	2452	-15.62	8	PASS

MODE B

802.11n (20MHz)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-13.48	3.01	-10.47	8	PASS
	6	2437	-12.70	3.01	-9.69	8	PASS
	11	2462	-13.61	3.01	-10.60	8	PASS
1	1	2412	-14.76	3.01	-11.75	8	PASS
	6	2437	-15.69	3.01	-12.68	8	PASS
	11	2462	-15.10	3.01	-12.09	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.91 < 6\text{dBi}$, so the limit no need to reduced.

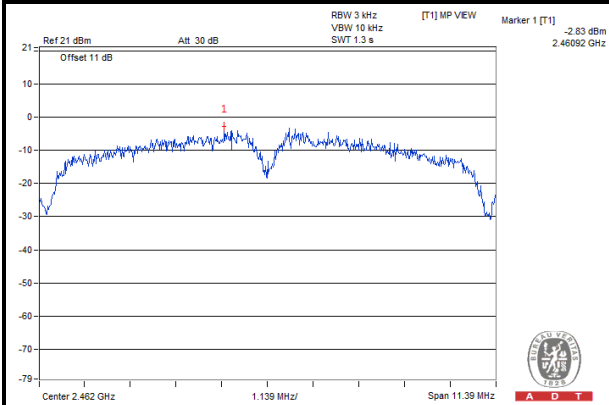
802.11n (40MHz)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-16.56	3.01	-13.55	8	PASS
	6	2437	-17.14	3.01	-14.13	8	PASS
	9	2452	-16.62	3.01	-13.61	8	PASS
1	3	2422	-18.29	3.01	-15.28	8	PASS
	6	2437	-19.76	3.01	-16.75	8	PASS
	9	2452	-18.29	3.01	-15.28	8	PASS

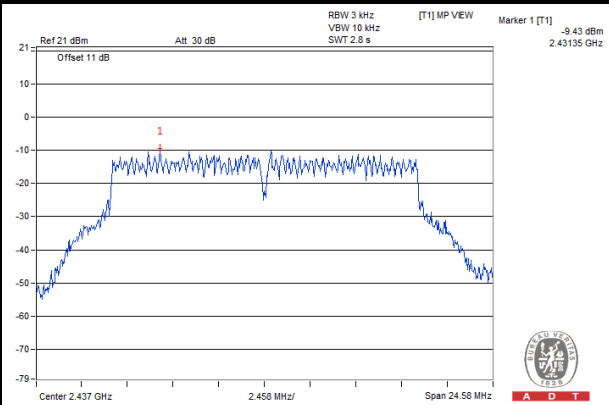
NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -0.91 < 6\text{dBi}$, so the limit no need to reduced.

SPECTRUM PLOT OF WORST VALUE

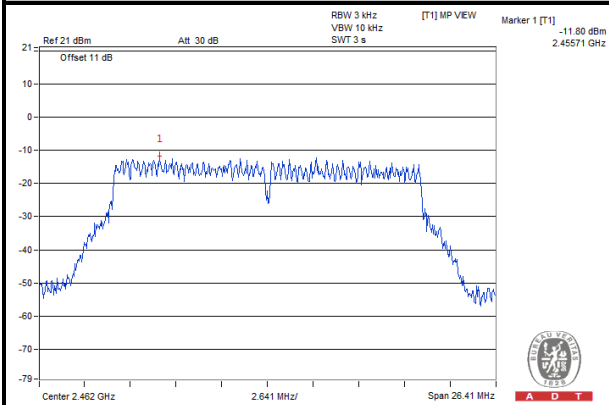
802.11b



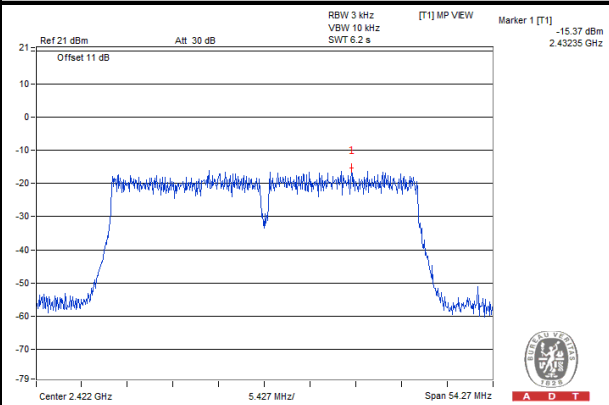
802.11g



802.11n (20MHz)



802.11n (40MHz)

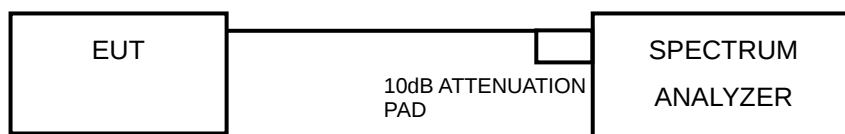


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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 OOBE

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.

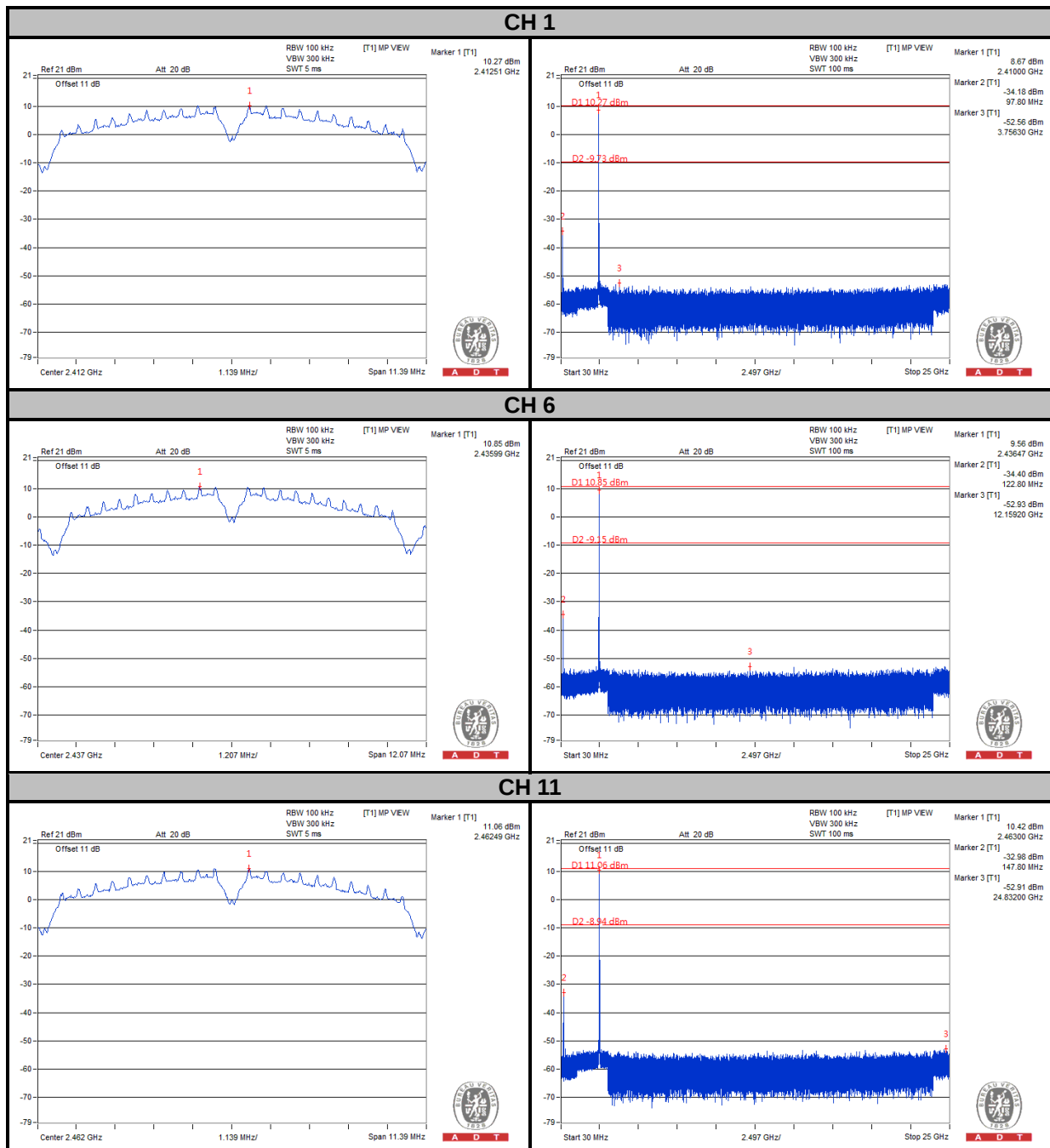
4.6.7 TEST RESULTS

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

The spectrum plots are attached on the following 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

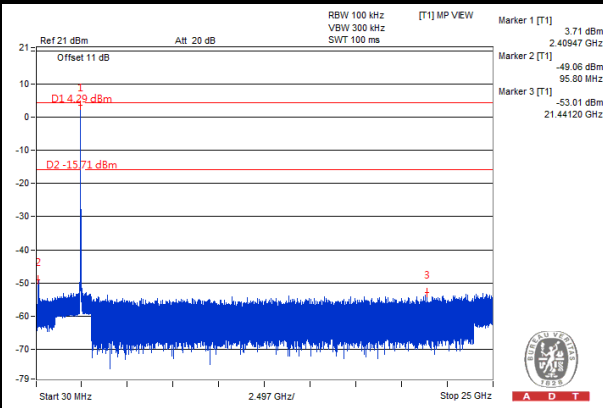
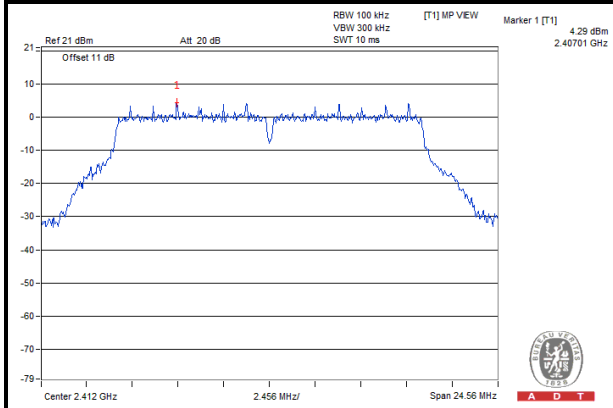




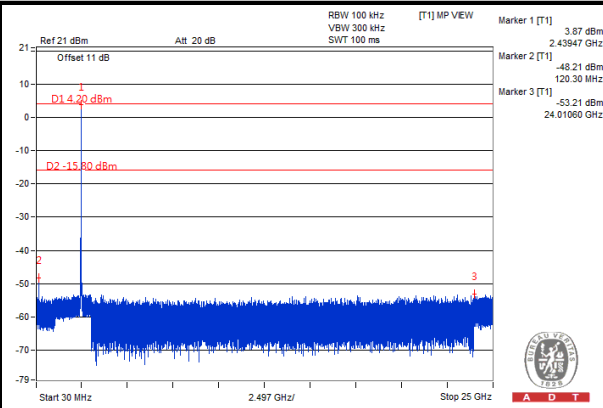
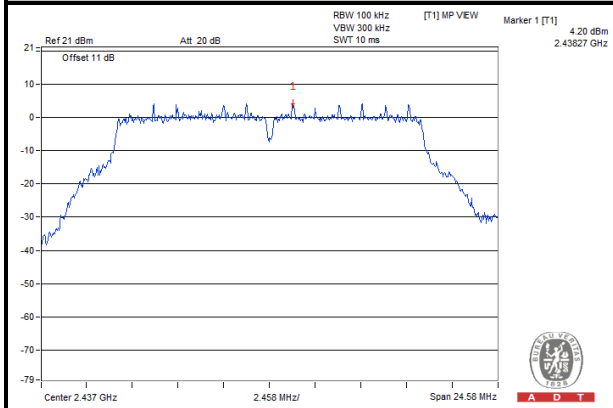
A D T

802.11g

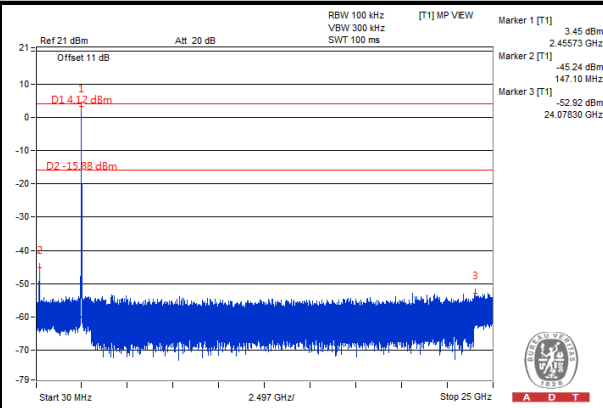
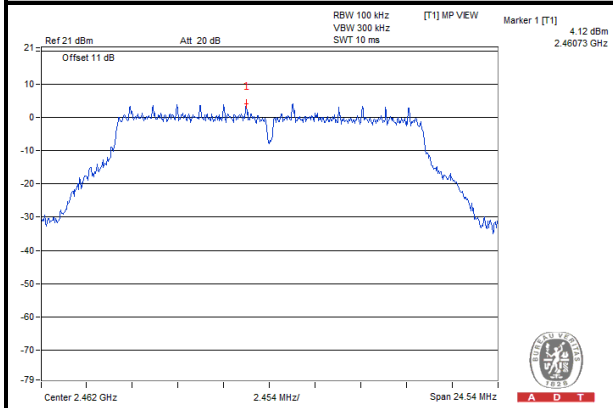
CH 1



CH 6



CH 11

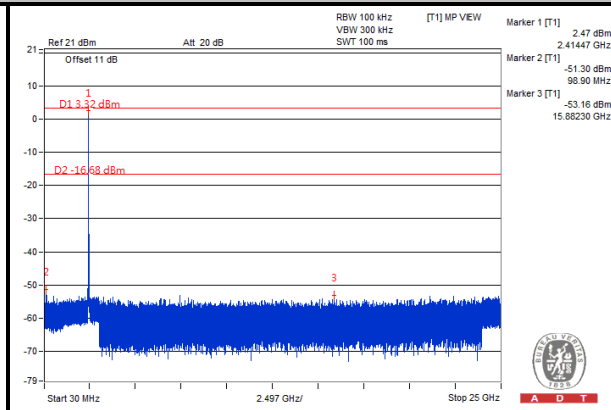
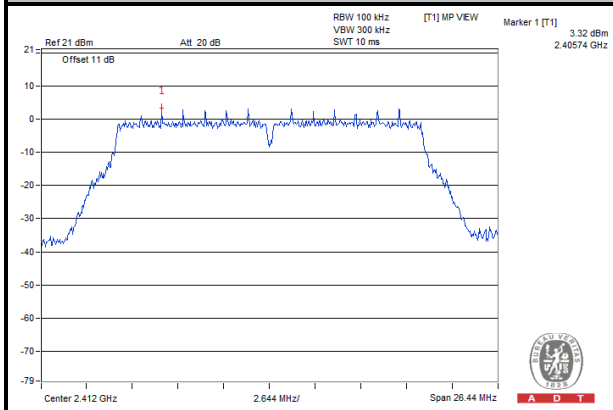




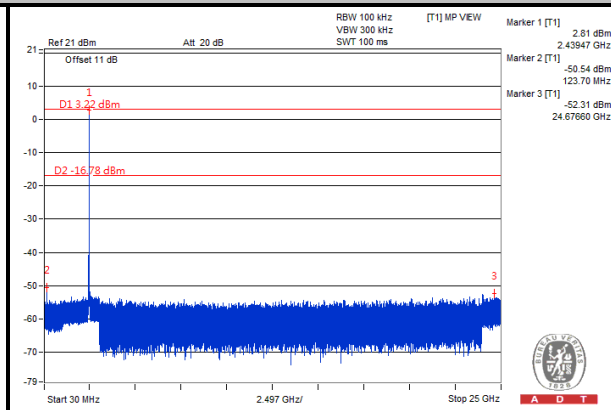
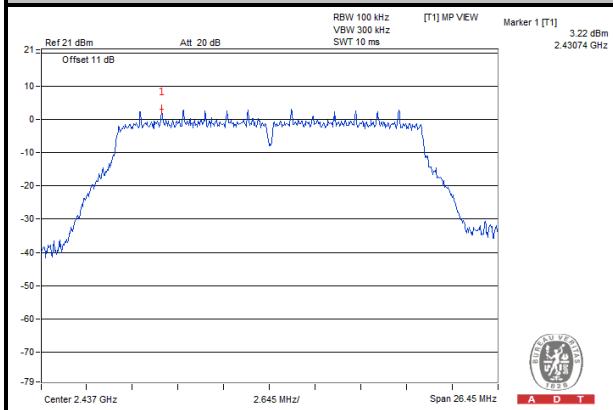
A D T

802.11n (20MHz)

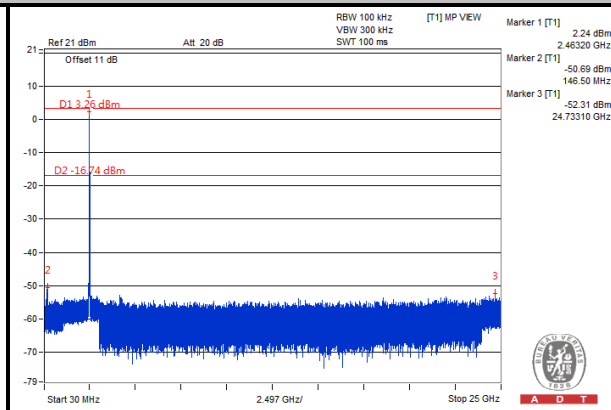
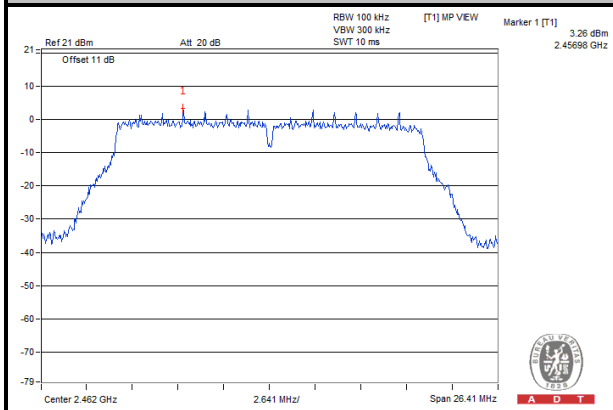
CH 1



CH 6



CH 11

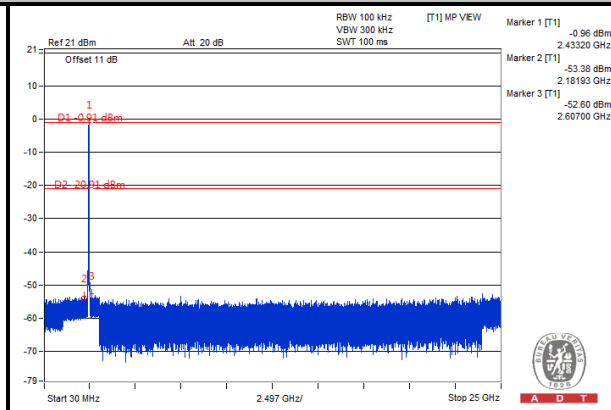
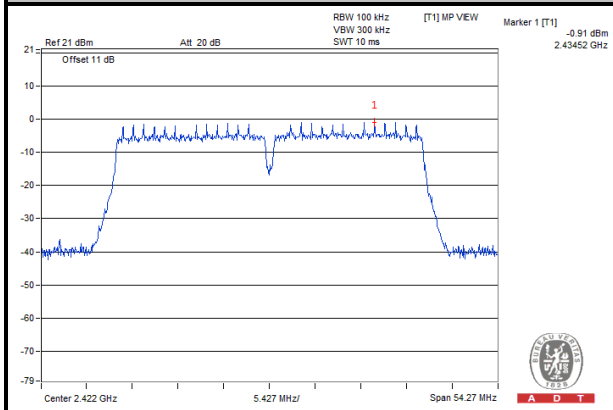




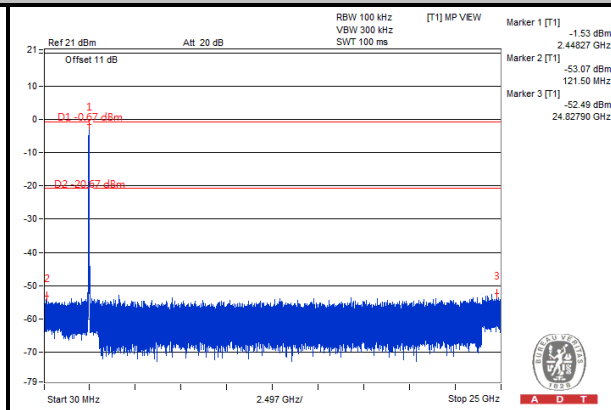
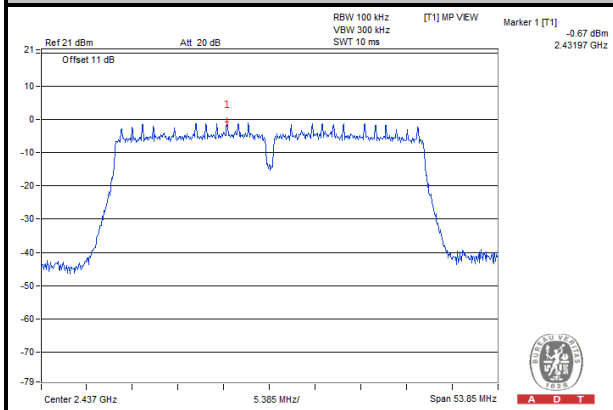
A D T

802.11n (40MHz)

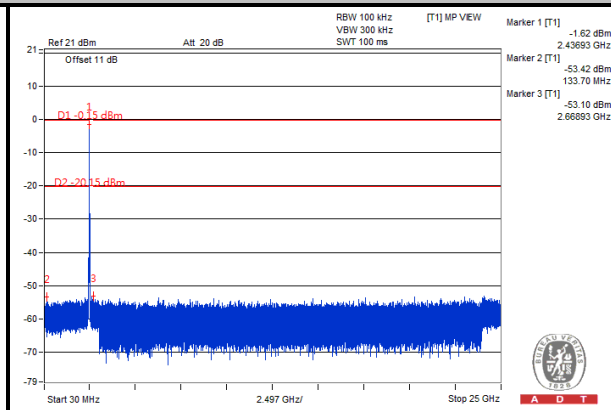
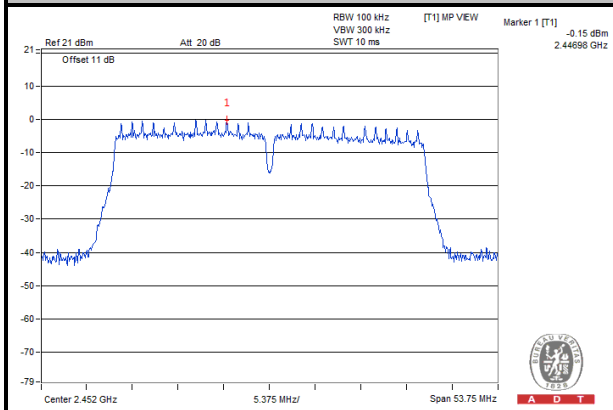
CH 3



CH 6



CH 9





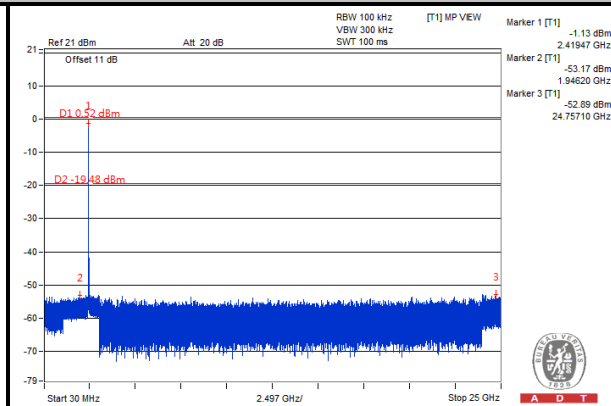
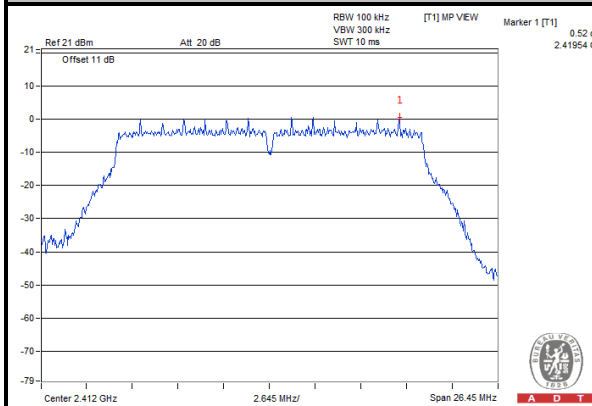
A D T

MODE B

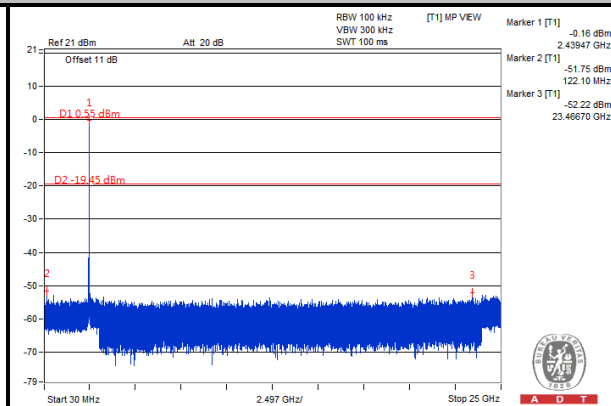
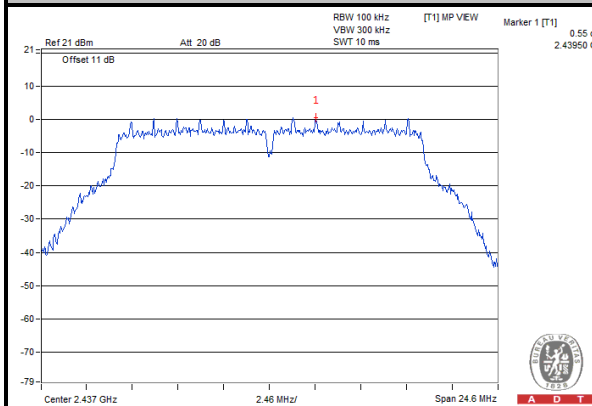
802.11n (20MHz)

CHAIN 0

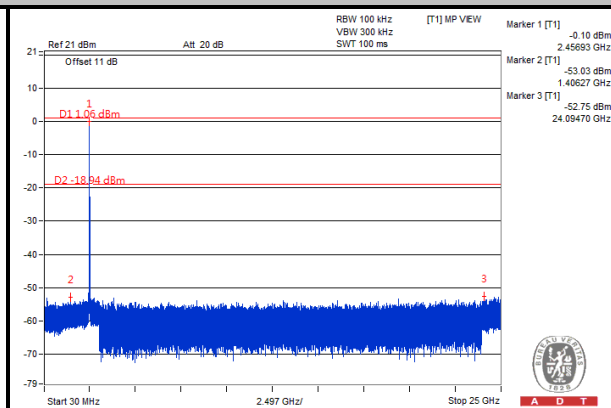
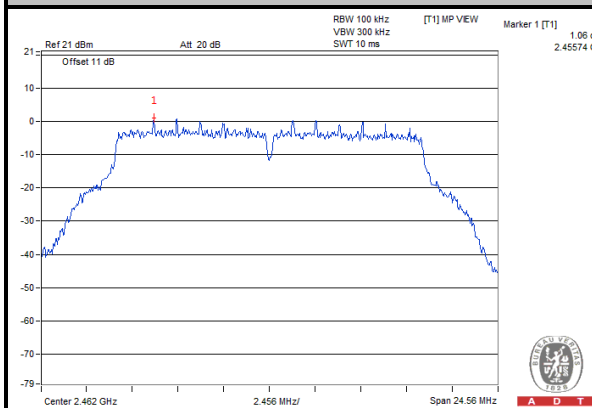
CH 1



CH 6



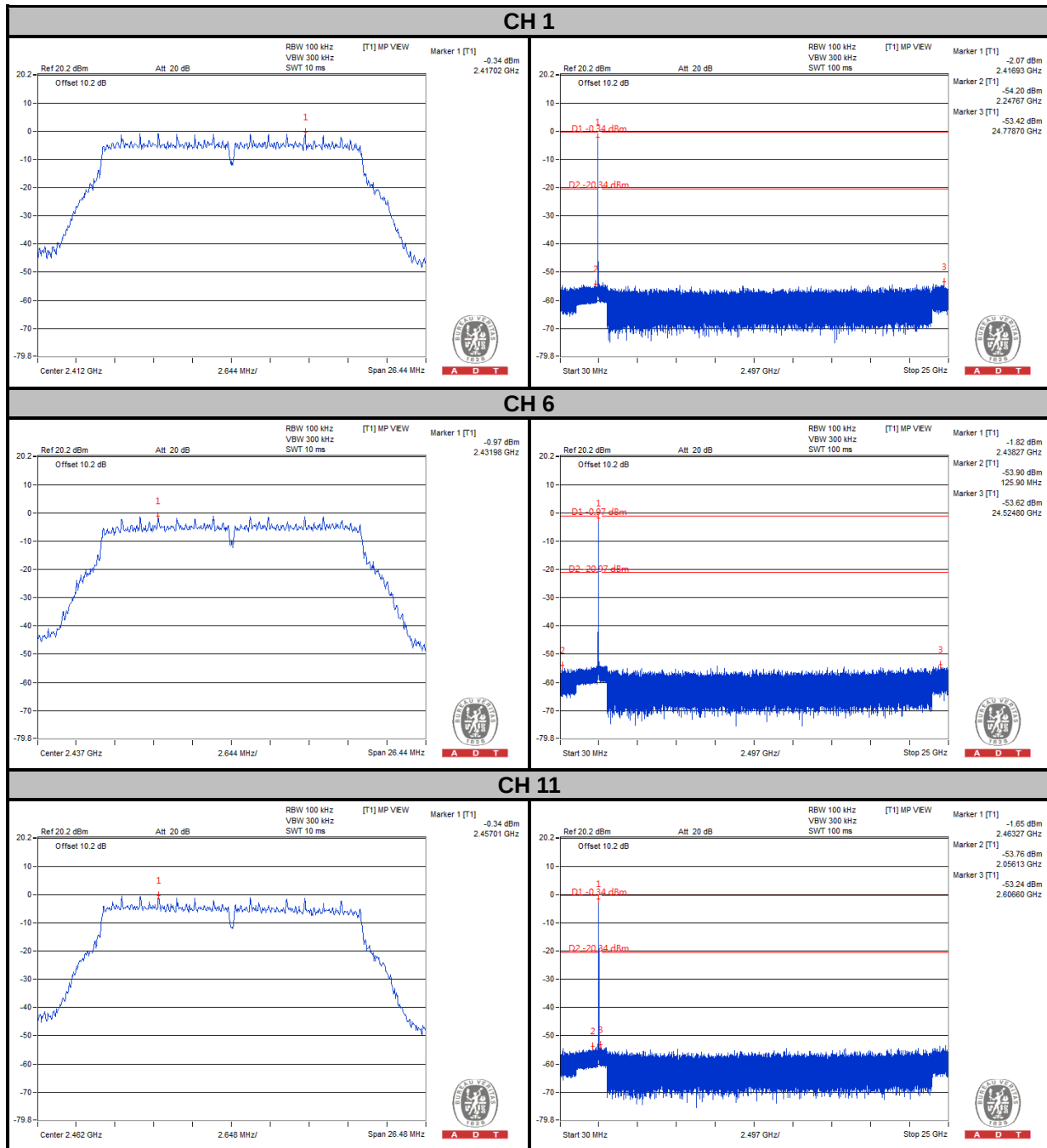
CH 11





A D T

CHAIN 1



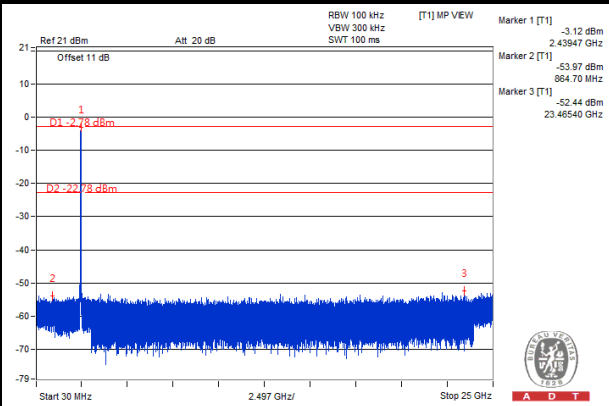
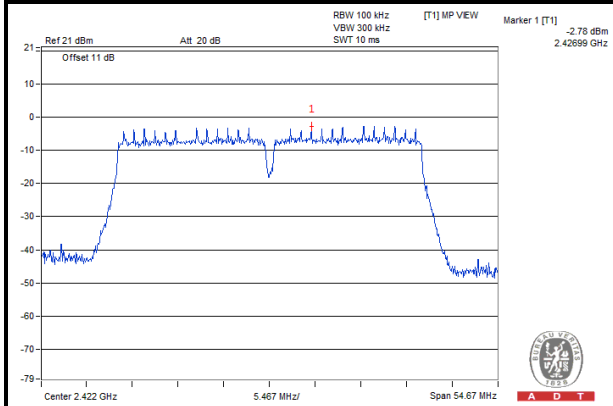


A D T

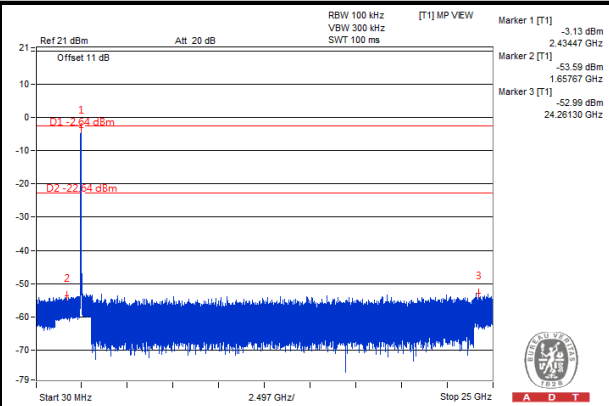
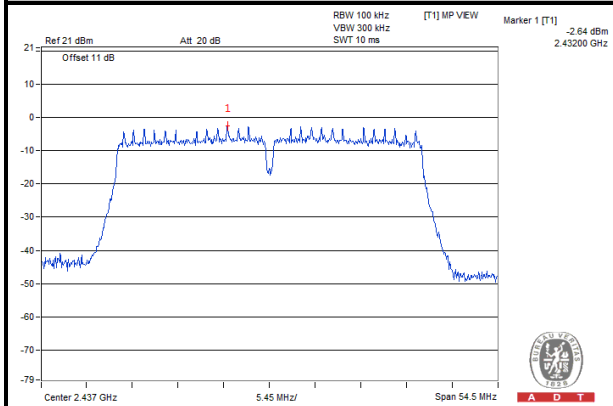
802.11n (40MHz)

CHAIN 0

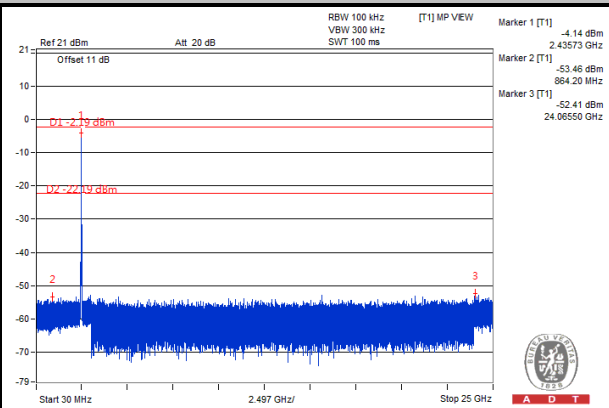
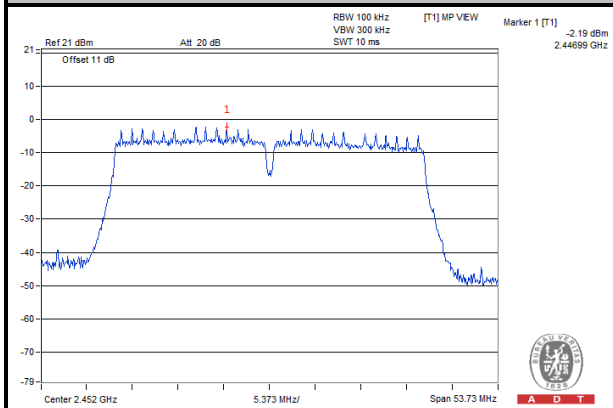
CH 3



CH 6



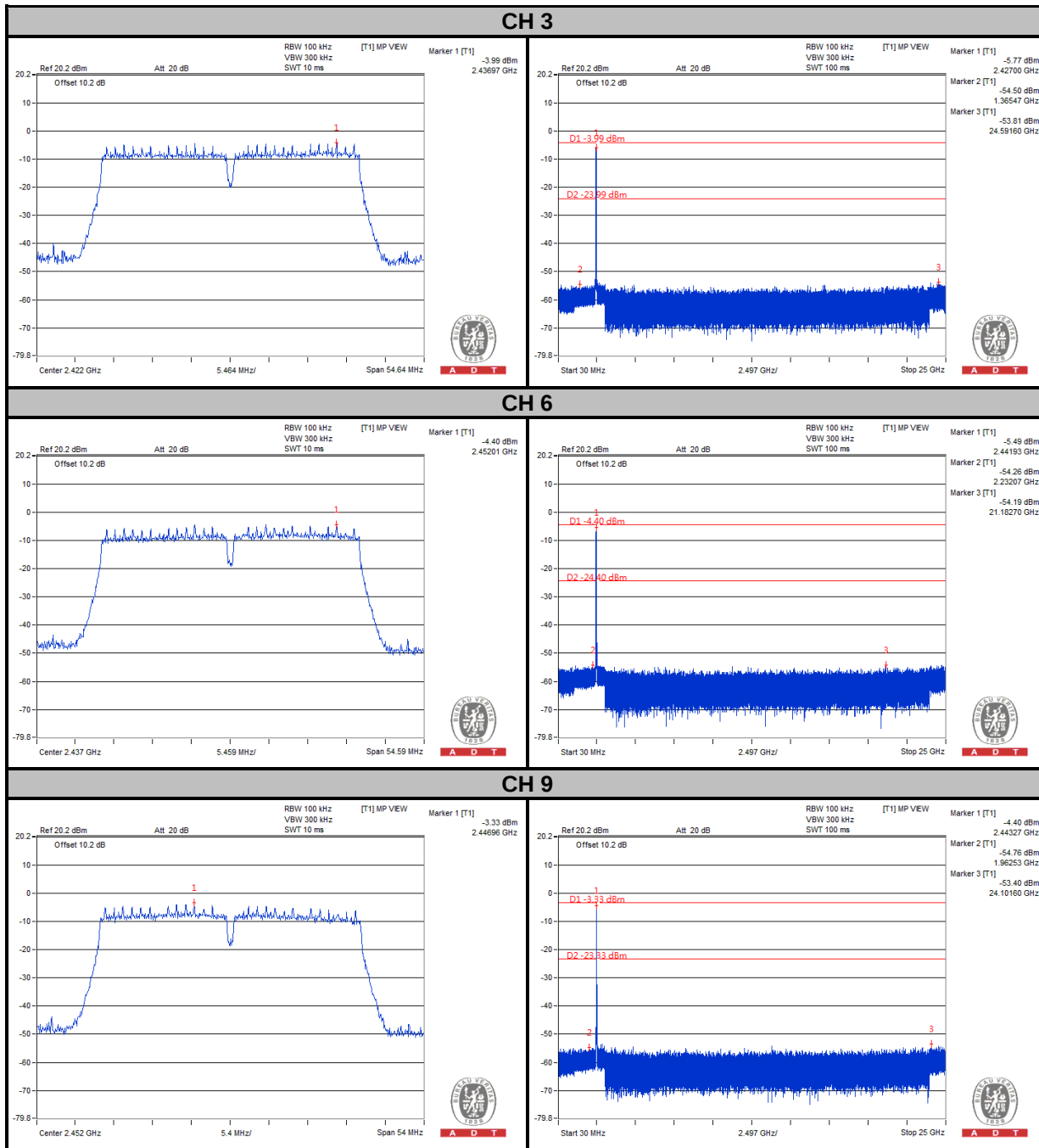
CH 9





A D T

CHAIN 1



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.



A D T

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

ABOVE 1GHz WORST-CASE DATA :

MODE A

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	Johnson Liao

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	45.44	45.32	71.63	-26.19	31.96	5.59	37.43	132	157	Average
5725	60.61	60.49	81.31	-20.7	31.96	5.59	37.43	132	157	Peak
5745	91.63	91.51			31.99	5.6	37.47	132	157	Average
5745	101.31	101.19			31.99	5.6	37.47	132	157	Peak
5850	37.91	37.61	71.63	-33.72	32.15	5.66	37.51	132	157	Average
5850	58.13	57.83	81.31	-23.18	32.15	5.66	37.51	132	157	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	43.61	43.49	68.73	-25.12	31.96	5.59	37.43	102	80	Average
5725	60.58	60.46	78.05	-17.47	31.96	5.59	37.43	102	80	Peak
5745	88.73	88.61			31.99	5.6	37.47	102	80	Average
5745	98.05	97.93			31.99	5.6	37.47	102	80	Peak
5850	38.21	37.91	68.73	-30.52	32.15	5.66	37.51	102	80	Average
5850	57.46	57.16	78.05	-20.59	32.15	5.66	37.51	102	80	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	Johnson Liao

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	37.88	37.76	71.12	-33.24	31.96	5.59	37.43	103	150	Average
5725	58.14	58.02	80.99	-22.85	31.96	5.59	37.43	103	150	Peak
5785	91.12	91			32.04	5.62	37.54	103	150	Average
5785	100.99	100.87			32.04	5.62	37.54	103	150	Peak
5850	37.88	37.58	71.12	-33.24	32.15	5.66	37.51	103	150	Average
5850	58.78	58.48	80.99	-22.21	32.15	5.66	37.51	103	150	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	37.58	37.46	68.82	-31.24	31.96	5.59	37.43	100	80	Average
5725	57.75	57.63	78.56	-20.81	31.96	5.59	37.43	100	80	Peak
5785	88.82	88.7			32.04	5.62	37.54	100	80	Average
5785	98.56	98.44			32.04	5.62	37.54	100	80	Peak
5850	37.98	37.68	68.82	-30.84	32.15	5.66	37.51	100	80	Average
5850	56.69	56.39	78.56	-21.87	32.15	5.66	37.51	100	80	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



A D T

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	Johnson Liao

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	37.86	37.74	70.36	-32.5	31.96	5.59	37.43	101	147	Average
5725	58.24	58.12	80.31	-22.07	31.96	5.59	37.43	101	147	Peak
5825	90.36	90.13			32.12	5.64	37.53	101	147	Average
5825	100.31	100.08			32.12	5.64	37.53	101	147	Peak
5850	40.36	40.06	70.36	-30	32.15	5.66	37.51	101	147	Average
5850	57.34	57.04	80.31	-22.97	32.15	5.66	37.51	101	147	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	38.17	38.05	68.66	-30.49	31.96	5.59	37.43	100	79	Average
5725	57.34	57.22	78.16	-20.82	31.96	5.59	37.43	100	79	Peak
5825	88.66	88.43			32.12	5.64	37.53	100	79	Average
5825	98.16	97.93			32.12	5.64	37.53	100	79	Peak
5850	39.64	39.34	68.66	-29.02	32.15	5.66	37.51	100	79	Average
5850	58.28	57.98	78.16	-19.88	32.15	5.66	37.51	100	79	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	Johnson Liao

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	46.98	46.86	71.95	-24.97	31.96	5.59	37.43	106	207	Average
5725	60.09	59.97	81.43	-21.34	31.96	5.59	37.43	106	207	Peak
5745	91.95	91.83			31.99	5.6	37.47	106	207	Average
5745	101.43	101.31			31.99	5.6	37.47	106	207	Peak
5850	38.01	37.71	71.95	-33.94	32.15	5.66	37.51	106	207	Average
5850	57.58	57.28	81.43	-23.85	32.15	5.66	37.51	106	207	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	44.95	44.83	69.19	-24.24	31.96	5.59	37.43	102	80	Average
5725	60.48	60.36	78.89	-18.41	31.96	5.59	37.43	102	80	Peak
5745	89.19	89.07			31.99	5.6	37.47	102	80	Average
5745	98.89	98.77			31.99	5.6	37.47	102	80	Peak
5850	38.41	38.11	69.19	-30.78	32.15	5.66	37.51	102	80	Average
5850	57.82	57.52	78.89	-21.07	32.15	5.66	37.51	102	80	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



A D T

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	Johnson Liao

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	38.09	37.97	71.51	-33.42	31.96	5.59	37.43	128	207	Average
5725	58.42	58.3	80.97	-22.55	31.96	5.59	37.43	128	207	Peak
5785	91.51	91.39			32.04	5.62	37.54	128	207	Average
5785	100.97	100.85			32.04	5.62	37.54	128	207	Peak
5850	37.88	37.58	71.51	-33.63	32.15	5.66	37.51	128	207	Average
5850	57.53	57.23	80.97	-23.44	32.15	5.66	37.51	128	207	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	37.64	37.52	68.77	-31.13	31.96	5.59	37.43	100	78	Average
5725	58.66	58.54	78.94	-20.28	31.96	5.59	37.43	100	78	Peak
5785	88.77	88.65			32.04	5.62	37.54	100	78	Average
5785	98.94	98.82			32.04	5.62	37.54	100	78	Peak
5850	38.2	37.9	68.77	-30.57	32.15	5.66	37.51	100	78	Average
5850	57.73	57.43	78.94	-21.21	32.15	5.66	37.51	100	78	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	Johnson Liao

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	37.91	37.79	70.62	-32.71	31.96	5.59	37.43	142	206	Average
5725	57.94	57.82	80.03	-22.09	31.96	5.59	37.43	142	206	Peak
5825	90.62	90.39			32.12	5.64	37.53	142	206	Average
5825	100.03	99.8			32.12	5.64	37.53	142	206	Peak
5850	42.37	42.07	70.62	-28.25	32.15	5.66	37.51	142	206	Average
5850	58.98	58.68	80.03	-21.05	32.15	5.66	37.51	142	206	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	38.05	37.93	68.32	-30.27	31.96	5.59	37.43	100	80	Average
5725	57.84	57.72	78.11	-20.27	31.96	5.59	37.43	100	80	Peak
5825	88.32	88.09			32.12	5.64	37.53	100	80	Average
5825	98.11	97.88			32.12	5.64	37.53	100	80	Peak
5850	40.04	39.74	68.32	-28.28	32.15	5.66	37.51	100	80	Average
5850	57.8	57.5	78.11	-20.31	32.15	5.66	37.51	100	80	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	Johnson Liao

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	46.13	46.01	66.24	-20.11	31.96	5.59	37.43	138	208	Average
5725	60.41	60.29	75.51	-15.1	31.96	5.59	37.43	138	208	Peak
5755	86.24	86.1			32.01	5.6	37.47	138	208	Average
5755	95.51	95.37			32.01	5.6	37.47	138	208	Peak
5850	37.9	37.6	66.24	-28.34	32.15	5.66	37.51	138	208	Average
5850	57.37	57.07	75.51	-18.14	32.15	5.66	37.51	138	208	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	43.69	43.57	63.38	-19.69	31.96	5.59	37.43	101	79	Average
5725	58.81	58.69	72.56	-13.75	31.96	5.59	37.43	101	79	Peak
5755	83.38	83.24			32.01	5.6	37.47	101	79	Average
5755	92.56	92.42			32.01	5.6	37.47	101	79	Peak
5850	38.1	37.8	63.38	-25.28	32.15	5.66	37.51	101	79	Average
5850	58	57.7	72.56	-14.56	32.15	5.66	37.51	101	79	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	Johnson Liao

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	38.18	38.06	65.82	-27.64	31.96	5.59	37.43	139	212	Average
5725	58.24	58.12	75.38	-17.14	31.96	5.59	37.43	139	212	Peak
5795	85.82	85.66			32.07	5.63	37.54	139	212	Average
5795	95.38	95.22			32.07	5.63	37.54	139	212	Peak
5850	38.14	37.84	65.82	-27.68	32.15	5.66	37.51	139	212	Average
5850	57.8	57.5	75.38	-17.58	32.15	5.66	37.51	139	212	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	37.87	37.75	63.5	-25.63	31.96	5.59	37.43	100	80	Average
5725	57.87	57.75	72.31	-14.44	31.96	5.59	37.43	100	80	Peak
5795	83.5	83.34			32.07	5.63	37.54	100	80	Average
5795	92.31	92.15			32.07	5.63	37.54	100	80	Peak
5850	38.06	37.76	63.5	-25.44	32.15	5.66	37.51	100	80	Average
5850	58.55	58.25	72.31	-13.76	32.15	5.66	37.51	100	80	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

MODE B

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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	42.15	42.03	61.88	-19.73	31.96	5.59	37.43	115	49	Average
5725	58.32	58.2	70.64	-12.32	31.96	5.59	37.43	115	49	Peak
5775	81.88	81.72			32.04	5.62	37.5	115	49	Average
5775	90.64	90.48			32.04	5.62	37.5	115	49	Peak
5850	41.24	40.94	61.88	-20.64	32.15	5.66	37.51	115	49	Average
5850	59.62	59.32	70.64	-11.02	32.15	5.66	37.51	115	49	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	41.49	41.37	58.51	-17.02	31.96	5.59	37.43	100	322	Average
5725	58.2	58.08	67.73	-9.53	31.96	5.59	37.43	100	322	Peak
5775	78.51	78.35			32.04	5.62	37.5	100	322	Average
5775	87.73	87.57			32.04	5.62	37.5	100	322	Peak
5850	38.43	38.13	58.51	-20.08	32.15	5.66	37.51	100	322	Average
5850	57.24	56.94	67.73	-10.49	32.15	5.66	37.51	100	322	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

MODE C

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	Johnson Liao

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	48.79	48.67	70.87	-22.08	31.96	5.59	37.43	118	218	Average
5725	60.85	60.73	79.64	-18.79	31.96	5.59	37.43	118	218	Peak
5745	90.87	90.75			31.99	5.6	37.47	118	218	Average
5745	99.64	99.52			31.99	5.6	37.47	118	218	Peak
5850	38.13	37.83	70.87	-32.74	32.15	5.66	37.51	118	218	Average
5850	58.94	58.64	79.64	-20.7	32.15	5.66	37.51	118	218	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	42.48	42.36	67.98	-25.5	31.96	5.59	37.43	101	325	Average
5725	59.83	59.71	77.06	-17.23	31.96	5.59	37.43	101	325	Peak
5745	87.98	87.86			31.99	5.6	37.47	101	325	Average
5745	97.06	96.94			31.99	5.6	37.47	101	325	Peak
5850	38.27	37.97	67.98	-29.71	32.15	5.66	37.51	101	325	Average
5850	57.4	57.1	77.06	-19.66	32.15	5.66	37.51	101	325	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	Johnson Liao

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	37.73	37.61	70.58	-32.85	31.96	5.59	37.43	145	290	Average
5725	57.73	57.61	79.72	-21.99	31.96	5.59	37.43	145	290	Peak
5785	90.58	90.46			32.04	5.62	37.54	145	290	Average
5785	99.72	99.6			32.04	5.62	37.54	145	290	Peak
5850	37.91	37.61	70.58	-32.67	32.15	5.66	37.51	145	290	Average
5850	56.79	56.49	79.72	-22.93	32.15	5.66	37.51	145	290	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	37.64	37.52	68.23	-30.59	31.96	5.59	37.43	102	205	Average
5725	58.92	58.8	77.53	-18.61	31.96	5.59	37.43	102	205	Peak
5785	88.23	88.11			32.04	5.62	37.54	102	205	Average
5785	97.53	97.41			32.04	5.62	37.54	102	205	Peak
5850	38.15	37.85	68.23	-30.08	32.15	5.66	37.51	102	205	Average
5850	57.66	57.36	77.53	-19.87	32.15	5.66	37.51	102	205	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	Johnson Liao

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	37.95	37.83	70.51	-32.56	31.96	5.59	37.43	142	293	Average
5725	57.68	57.56	79.77	-22.09	31.96	5.59	37.43	142	293	Peak
5825	90.51	90.28			32.12	5.64	37.53	142	293	Average
5825	99.77	99.54			32.12	5.64	37.53	142	293	Peak
5850	46.02	45.72	70.51	-24.49	32.15	5.66	37.51	142	293	Average
5850	61.69	61.39	79.77	-18.08	32.15	5.66	37.51	142	293	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	38.08	37.96	68.24	-30.16	31.96	5.59	37.43	101	206	Average
5725	57.68	57.56	77.3	-19.62	31.96	5.59	37.43	101	206	Peak
5825	88.24	88.01			32.12	5.64	37.53	101	206	Average
5825	97.3	97.07			32.12	5.64	37.53	101	206	Peak
5850	40.35	40.05	68.24	-27.89	32.15	5.66	37.51	101	206	Average
5850	58.35	58.05	77.3	-18.95	32.15	5.66	37.51	101	206	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	Johnson Liao

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	53.29	53.17	68.39	-15.1	31.96	5.59	37.43	140	292	Average
5725	64.77	64.65	77.12	-12.35	31.96	5.59	37.43	140	292	Peak
5755	88.39	88.25			32.01	5.6	37.47	140	292	Average
5755	97.12	96.98			32.01	5.6	37.47	140	292	Peak
5850	38.79	38.49	68.39	-29.6	32.15	5.66	37.51	140	292	Average
5850	58.44	58.14	77.12	-18.68	32.15	5.66	37.51	140	292	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	44.19	44.07	65.31	-21.12	31.96	5.59	37.43	100	325	Average
5725	59.99	59.87	74.02	-14.03	31.96	5.59	37.43	100	325	Peak
5755	85.31	85.17			32.01	5.6	37.47	100	325	Average
5755	94.02	93.88			32.01	5.6	37.47	100	325	Peak
5850	37.96	37.66	65.31	-27.35	32.15	5.66	37.51	100	325	Average
5850	59.11	58.81	74.02	-14.91	32.15	5.66	37.51	100	325	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	Johnson Liao

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	42.46	68.62	-26.04	31.96	5.59	37.43	144	292	Average
5725	58.2	58.08	77.76	-19.56	31.96	5.59	37.43	144	292	Peak
5795	88.62	88.46			32.07	5.63	37.54	144	292	Average
5795	97.76	97.6			32.07	5.63	37.54	144	292	Peak
5850	46.22	45.92	68.62	-22.4	32.15	5.66	37.51	144	292	Average
5850	60.59	60.29	77.76	-17.17	32.15	5.66	37.51	144	292	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	39.53	39.41	65.75	-26.22	31.96	5.59	37.43	102	209	Average
5725	58.62	58.5	74.99	-16.37	31.96	5.59	37.43	102	209	Peak
5795	85.75	85.59			32.07	5.63	37.54	102	209	Average
5795	94.99	94.83			32.07	5.63	37.54	102	209	Peak
5850	41.93	41.63	65.75	-23.82	32.15	5.66	37.51	102	209	Average
5850	59.72	59.42	74.99	-15.27	32.15	5.66	37.51	102	209	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

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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	44.83	44.71	63.18	-18.35	31.96	5.59	37.43	117	32	Average
5725	58.48	58.36	72.32	-13.84	31.96	5.59	37.43	117	32	Peak
5775	83.18	83.02			32.04	5.62	37.5	117	32	Average
5775	92.32	92.16			32.04	5.62	37.5	117	32	Peak
5850	40.65	40.35	63.18	-22.53	32.15	5.66	37.51	117	32	Average
5850	58.45	58.15	72.32	-13.87	32.15	5.66	37.51	117	32	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	42.67	42.55	59.37	-16.7	31.96	5.59	37.43	109	332	Average
5725	57.58	57.46	68.62	-11.04	31.96	5.59	37.43	109	332	Peak
5775	79.37	79.21			32.04	5.62	37.5	109	332	Average
5775	88.62	88.46			32.04	5.62	37.5	109	332	Peak
5850	38.79	38.49	59.37	-20.58	32.15	5.66	37.51	109	332	Average
5850	58.07	57.77	68.62	-10.55	32.15	5.66	37.51	109	332	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

MODE D

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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	42.57	42.45	57.46	-14.89	31.96	5.59	37.43	100	198	Average
5725	58.34	58.22	67	-8.66	31.96	5.59	37.43	100	198	Peak
5775	77.46	77.3			32.04	5.62	37.5	100	198	Average
5775	87	86.84			32.04	5.62	37.5	100	198	Peak
5850	39.03	38.73	57.46	-18.43	32.15	5.66	37.51	100	198	Average
5850	58.41	58.11	67	-8.59	32.15	5.66	37.51	100	198	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	45.58	45.46	61.35	-15.77	31.96	5.59	37.43	100	360	Average
5725	60.27	60.15	70.57	-10.3	31.96	5.59	37.43	100	360	Peak
5775	81.35	81.19			32.04	5.62	37.5	100	360	Average
5775	90.57	90.41			32.04	5.62	37.5	100	360	Peak
5850	40.78	40.48	61.35	-20.57	32.15	5.66	37.51	100	360	Average
5850	59.03	58.73	70.57	-11.54	32.15	5.66	37.51	100	360	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

BELOW 1GHz WORST-CASE DATA :

MODE A

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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
70.23	18.3	38.45	40	-21.7	10.77	0.9	31.82	100	108	Peak
146.64	24.73	42.44	43.5	-18.77	12.58	1.33	31.62	100	115	Peak
214.68	25	45.01	43.5	-18.5	9.97	1.66	31.64	100	74	Peak
407.1	19.05	33.15	46	-26.95	15.48	2.45	32.03	100	204	Peak
553.4	21.61	32.09	46	-24.39	18.55	2.96	31.99	100	305	Peak
739.6	25.75	32.3	46	-20.25	21.38	3.55	31.48	100	117	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
38.64	25.41	42.38	40	-14.59	13.39	0.64	31	100	224	Peak
64.56	24.3	43.68	40	-15.7	11.35	0.86	31.59	100	85	Peak
167.7	17.03	35.4	43.5	-26.47	11.96	1.43	31.76	100	73	Peak
669.6	24.29	32.36	46	-21.71	20.44	3.31	31.82	100	165	Peak
825.7	26.37	31.73	46	-19.63	22.55	3.76	31.67	100	148	Peak
967.1	28.19	32.08	54	-25.81	23.89	4.11	31.89	100	55	Peak

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

Margin value = Emission level – Limit value

MODE D

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao

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
56.46	28.37	46.56	40	-11.63	12.35	0.8	31.34	121	124	Peak
153.93	29.32	46.96	43.5	-14.18	12.72	1.36	31.72	135	173	Peak
194.43	35.92	56.37	43.5	-7.58	9.7	1.57	31.72	114	218	Peak
301.4	20.68	37.49	46	-25.32	12.99	2.06	31.86	109	166	Peak
493.2	20.77	32.53	46	-25.23	17.2	2.76	31.72	127	122	Peak
706.7	26.79	34.18	46	-19.21	20.92	3.45	31.76	100	171	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
30.54	36.28	54.69	40	-3.72	12.14	0.57	31.12	114	94	Peak
57.54	32.96	51.25	40	-7.04	12.25	0.81	31.35	101	108	Peak
153.12	28.76	46.37	43.5	-14.74	12.72	1.36	31.69	127	218	Peak
359.5	18.22	33.54	46	-27.78	14.38	2.27	31.97	100	246	Peak
531	21.06	31.85	46	-24.94	18.02	2.88	31.69	110	227	Peak
701.8	24.97	32.46	46	-21.03	20.85	3.44	31.78	108	214	Peak

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

Margin value = Emission level – Limit value

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.2.2 TEST INSTRUMENTS

Same as 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 :

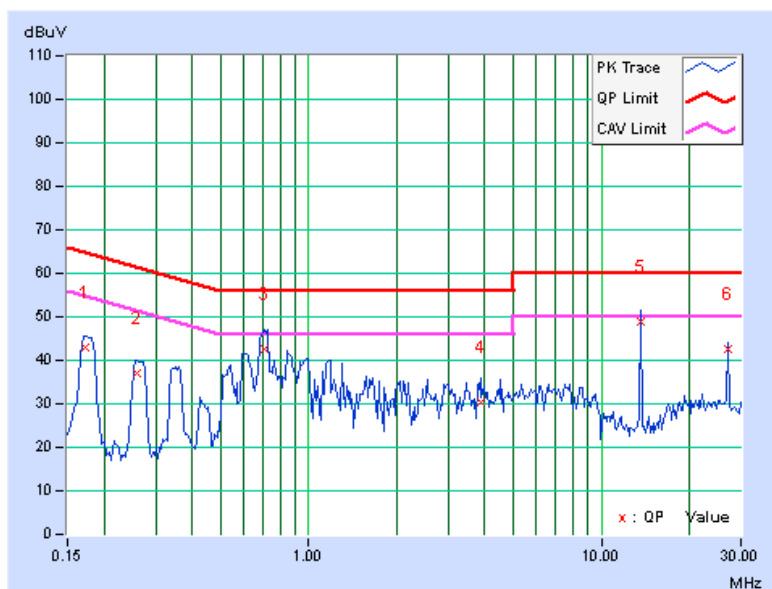
MODE A

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	0.17344	0.27	42.52	33.12	42.79	33.39	64.79	54.79	-22.00	-21.40
2	0.25938	0.29	36.80	27.43	37.09	27.72	61.45	51.45	-24.37	-23.74
3	0.70469	0.32	42.14	30.93	42.46	31.25	56.00	46.00	-13.54	-14.75
4	3.89453	0.43	29.78	17.38	30.21	17.81	56.00	46.00	-25.79	-28.19
5	13.56250	0.52	48.55	45.32	49.07	45.84	60.00	50.00	-10.93	-4.16
6	27.12109	0.49	42.07	39.96	42.56	40.45	60.00	50.00	-17.44	-9.55

REMARKS:

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

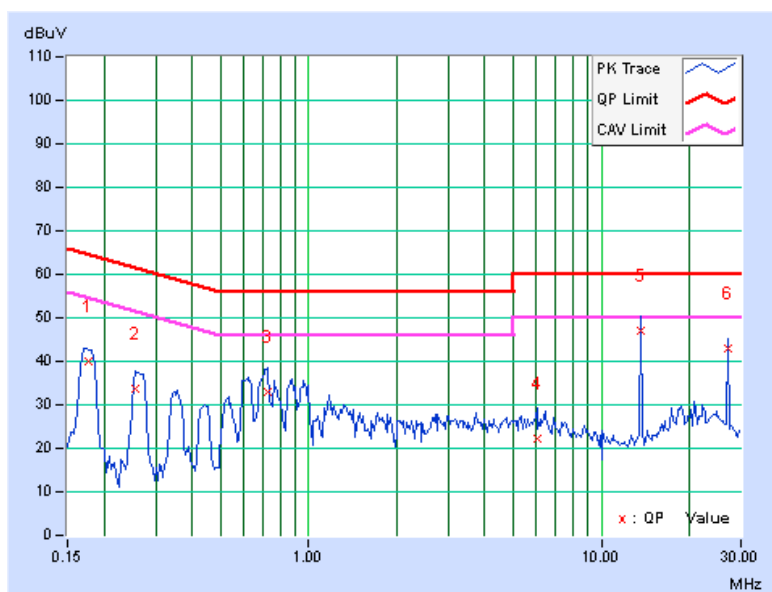


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.27	39.88	30.69	40.15	30.96	64.61	54.61	-24.46	-23.65
2	0.25547	0.29	33.43	19.23	33.72	19.52	61.58	51.58	-27.86	-32.06
3	0.72813	0.32	32.57	18.23	32.89	18.55	56.00	46.00	-23.11	-27.45
4	6.02344	0.47	21.63	12.49	22.10	12.96	60.00	50.00	-37.90	-37.04
5	13.56250	0.55	46.52	42.37	47.07	42.92	60.00	50.00	-12.93	-7.08
6	27.12109	0.52	42.45	39.57	42.97	40.09	60.00	50.00	-17.03	-9.91

REMARKS:

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



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	16.38	0.5	PASS
157	5785	16.39	0.5	PASS
165	5825	16.38	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.64	0.5	PASS
157	5785	17.62	0.5	PASS
165	5825	17.63	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.42	0.5	PASS
159	5795	36.38	0.5	PASS

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
155	5775	76.17	0.5	PASS

MODE C

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.39	17.63	0.5	PASS
157	5785	16.38	17.63	0.5	PASS
165	5825	16.39	17.66	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.41	36.44	0.5	PASS
159	5795	36.39	36.39	0.5	PASS

802.11ac (80MHz)

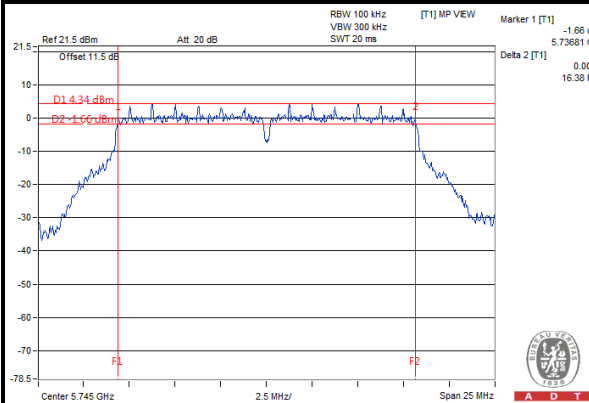
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
155	5775	75.81	76.61	0.5	PASS



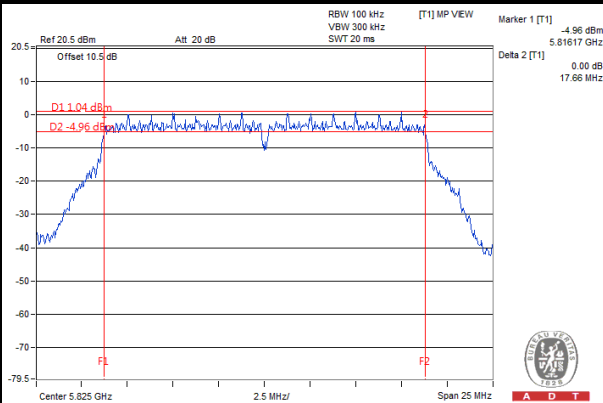
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SPECTRUM PLOT OF WORST VALUE

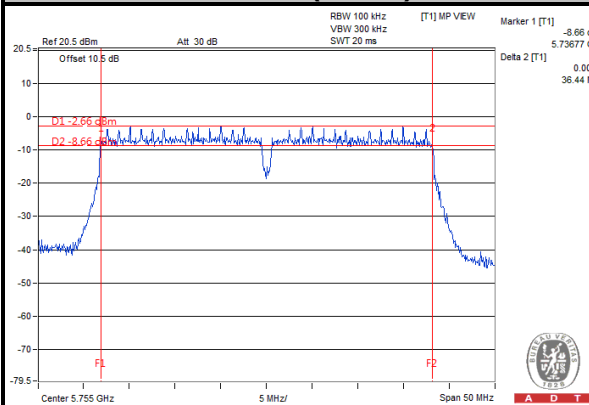
802.11a



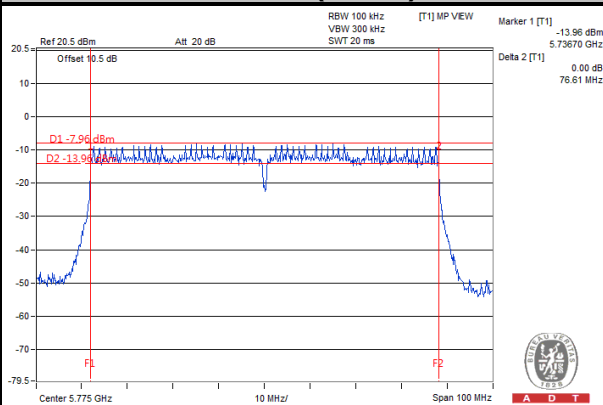
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



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)

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

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

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

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

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

5.4.2 TEST SETUP

Same as 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	171.79	22.35	30	PASS
157	5785	168.66	22.27	30	PASS
165	5825	167.49	22.24	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
149	5745	170.22	22.31	30	PASS
157	5785	160.32	22.05	30	PASS
165	5825	168.66	22.27	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
151	5755	102.57	20.11	30	PASS
159	5795	94.84	19.77	30	PASS

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS / FAIL
155	5775	143.22	21.56	30	PASS



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MODE C**802.11n (20MHz)**

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	20.11	19.10	183.848	22.64	30	PASS
157	5785	19.99	18.78	175.279	22.44	30	PASS
165	5825	20.02	18.64	173.575	22.39	30	PASS

802.11n (40MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	20.98	19.25	209.454	23.21	30	PASS
159	5795	20.66	18.98	195.480	22.91	30	PASS

802.11ac (80MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
155	5775	19.61	18.93	169.574	22.29	30	PASS



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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	-9.05	8	PASS
157	5785	-8.86	8	PASS
165	5825	-9.06	8	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
149	5745	-10.70	8	PASS
157	5785	-10.29	8	PASS
165	5825	-9.68	8	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
151	5755	-15.66	8	PASS
159	5795	-15.86	8	PASS

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS / FAIL
155	5775	-20.31	8	PASS

MODE C

802.11n (20MHz)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-13.08	3.01	-10.07	8	PASS
	157	5785	-12.18	3.01	-9.17	8	PASS
	165	5825	-12.70	3.01	-9.69	8	PASS
1	149	5745	-15.12	3.01	-12.11	8	PASS
	157	5785	-14.71	3.01	-11.70	8	PASS
	165	5825	-14.23	3.01	-11.22	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -4.19 < 6\text{dBi}$, so the limit no need to reduced.

802.11n (40MHz)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-13.78	3.01	-10.77	8	PASS
	159	5795	-15.48	3.01	-12.47	8	PASS
1	151	5755	-18.25	3.01	-15.24	8	PASS
	159	5795	-17.14	3.01	-14.13	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -4.19 < 6\text{dBi}$, so the limit no need to reduced.

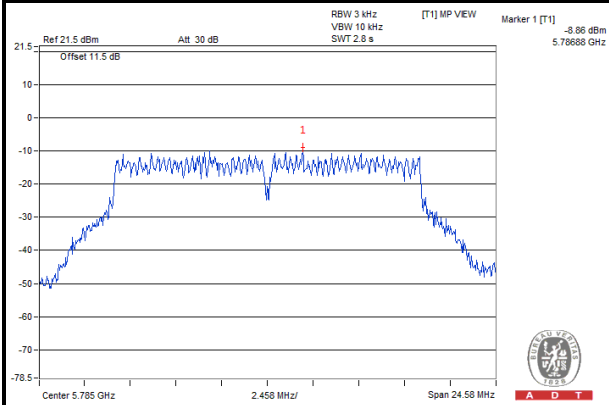
802.11ac (80MHz)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	155	5775	-21.93	3.01	-18.92	8	PASS
1	155	5775	-23.15	3.01	-20.14	8	PASS

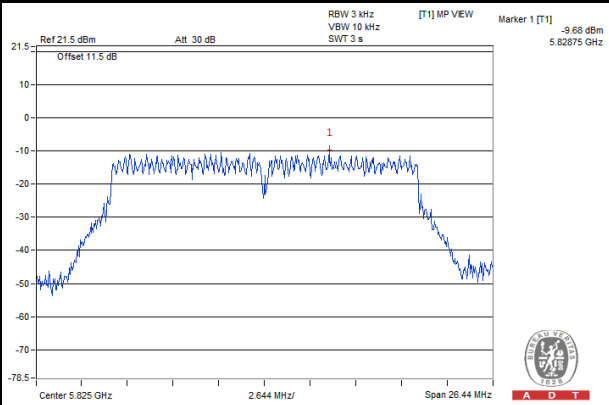
NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -4.19 < 6\text{dBi}$, so the limit no need to reduced.

SPECTRUM PLOT OF WORST VALUE

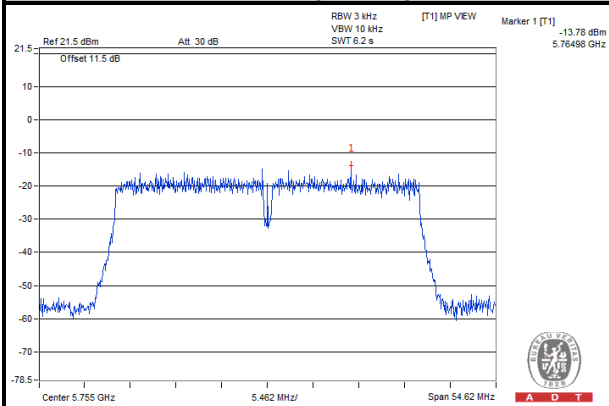
802.11a



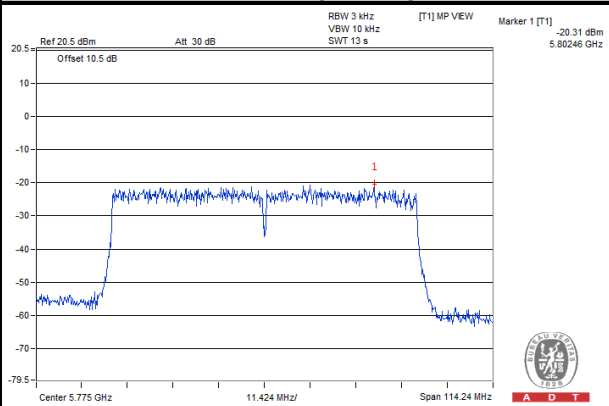
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



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.

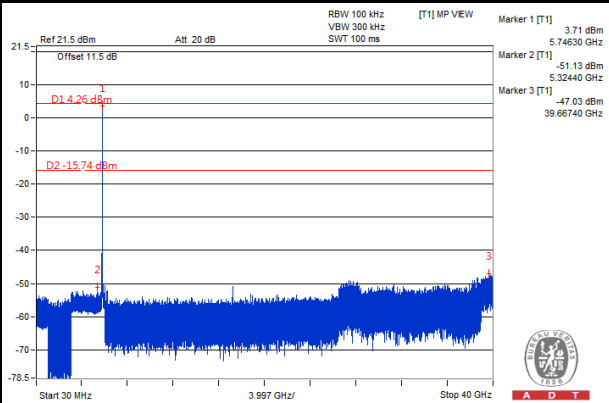
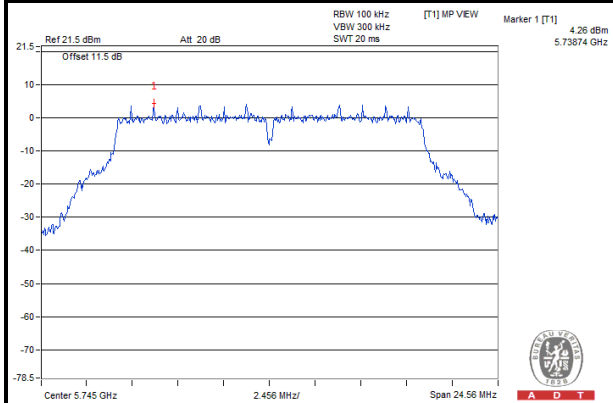


A D T

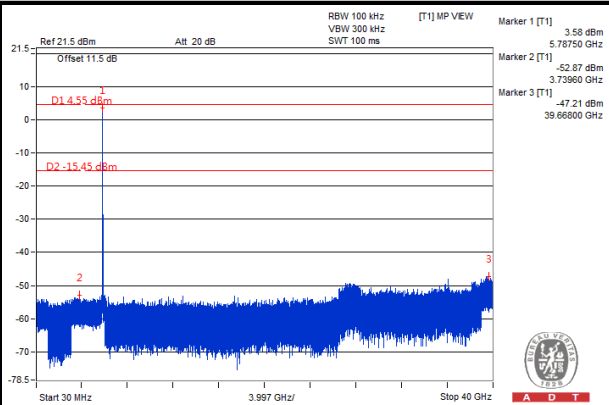
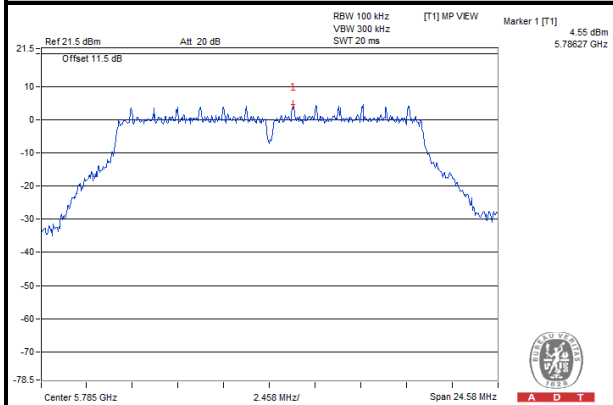
MODE A

802.11a

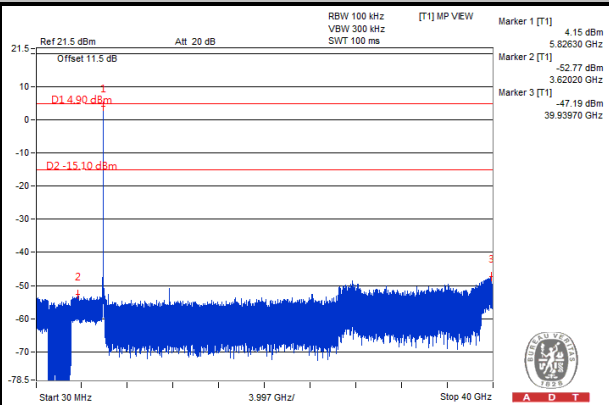
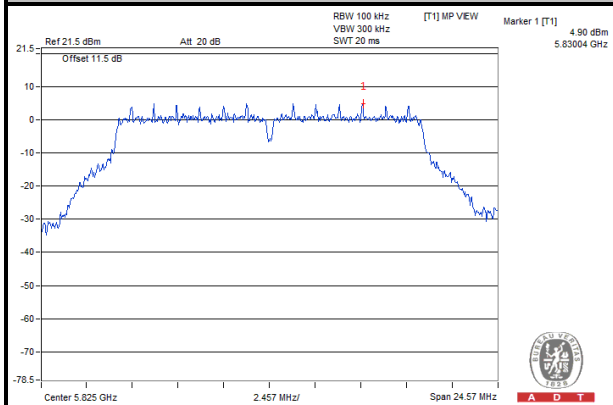
CH 149



CH 157



CH 165

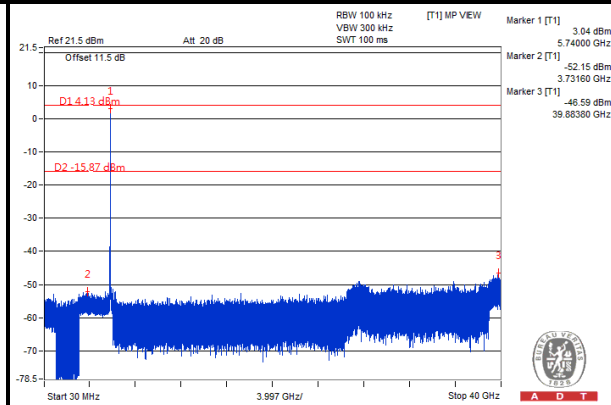
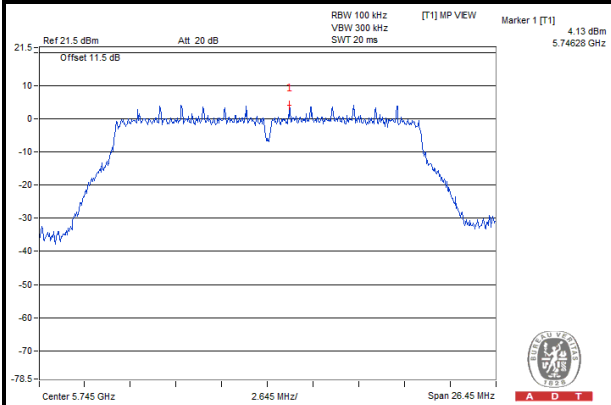




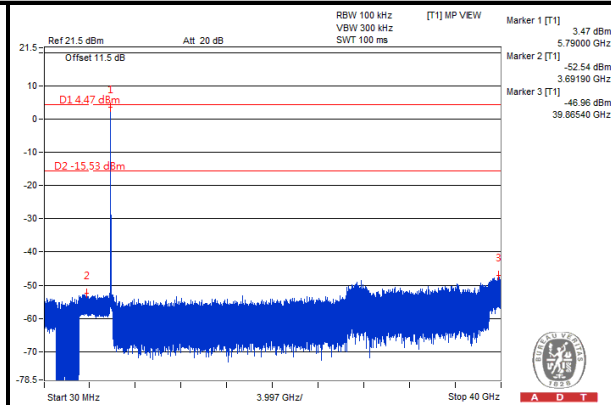
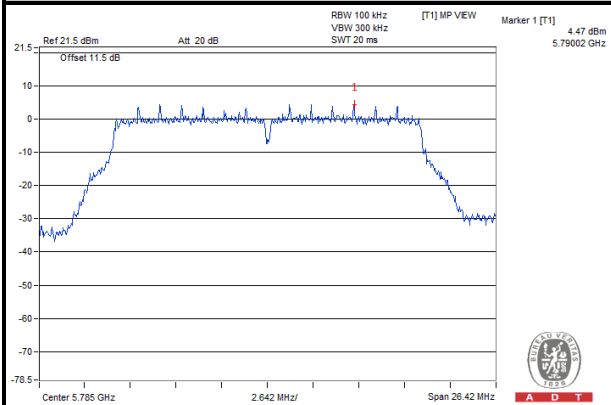
A D T

802.11n (20MHz)

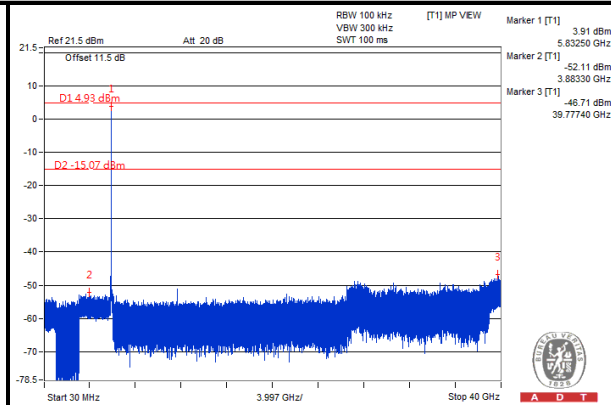
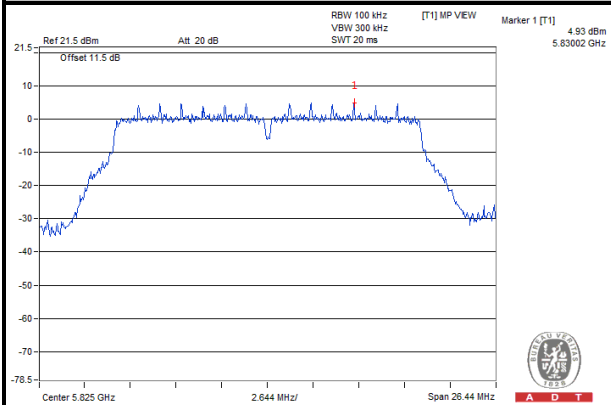
CH 149



CH 157



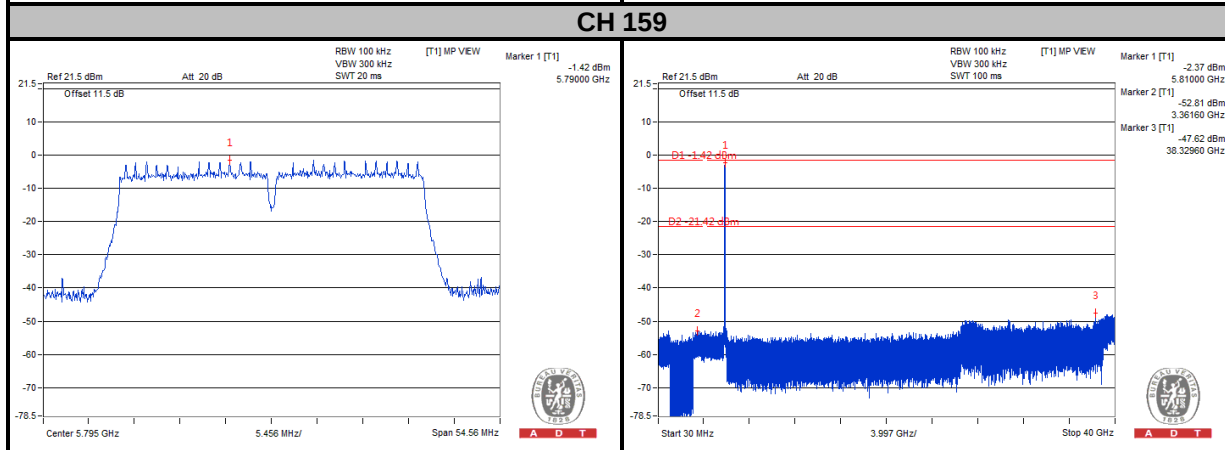
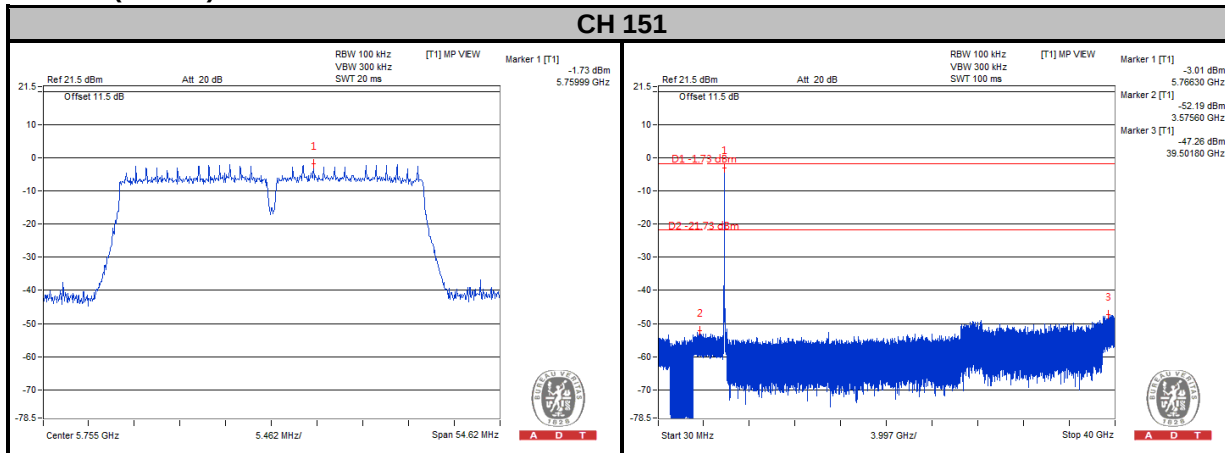
CH 165



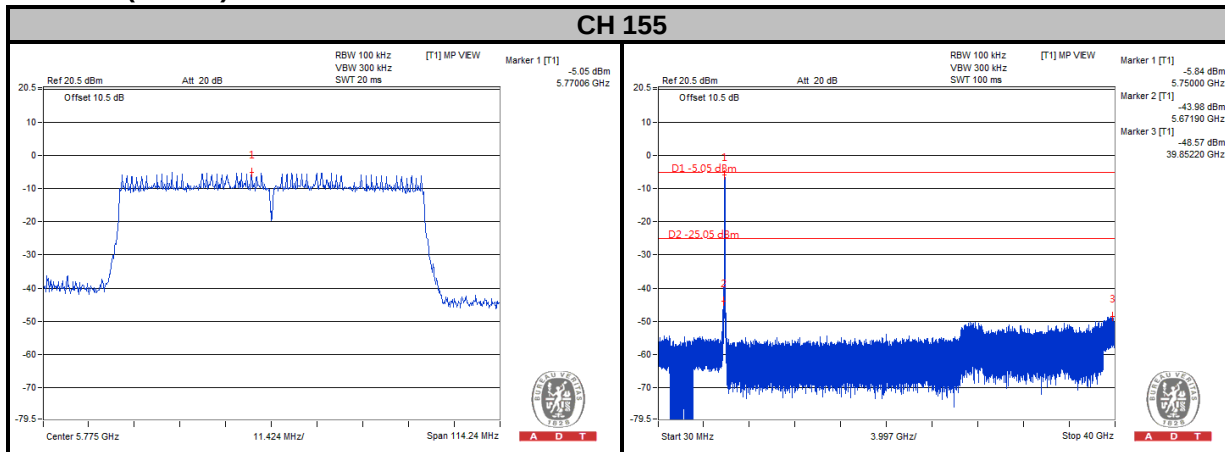


A D T

802.11n (40MHz)



802.11ac (80MHz)





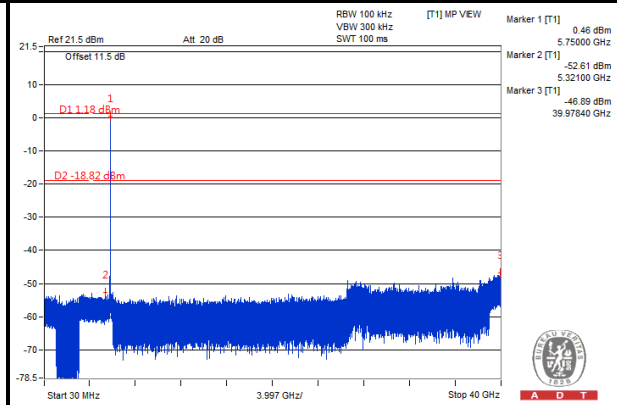
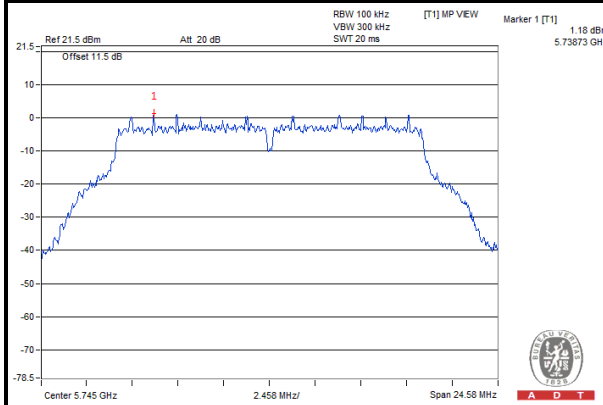
A D T

MODE C

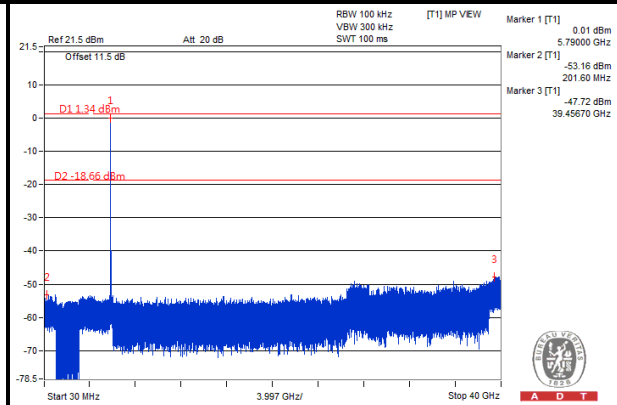
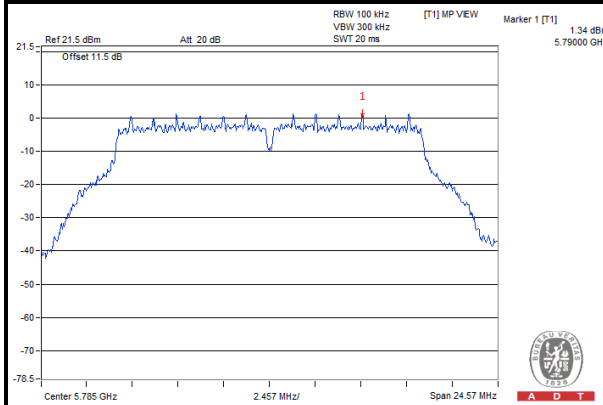
802.11n (20MHz)

CHAIN 0

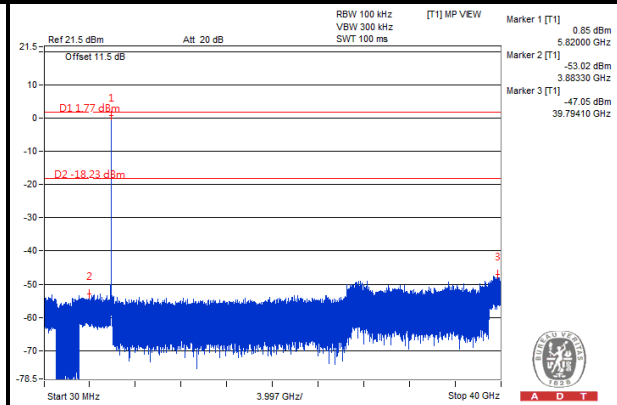
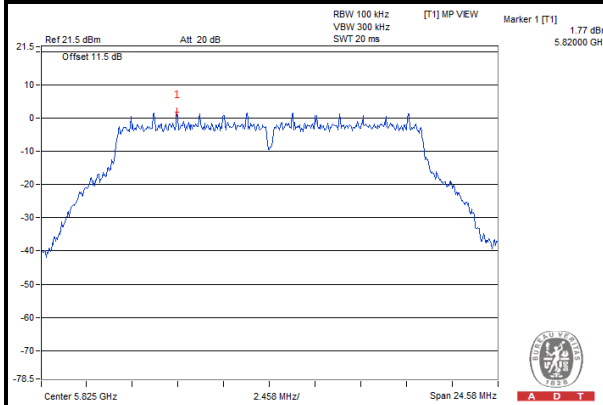
CH 149



CH 157



CH 165

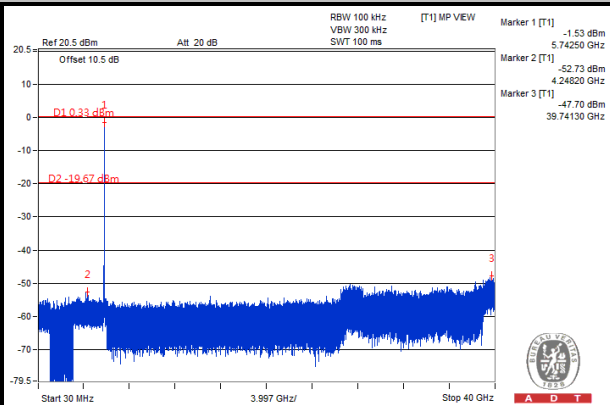
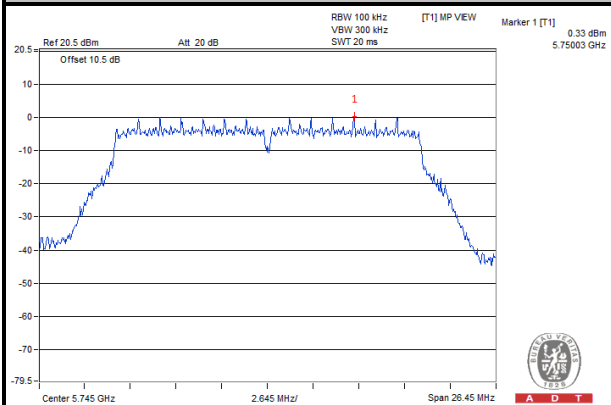




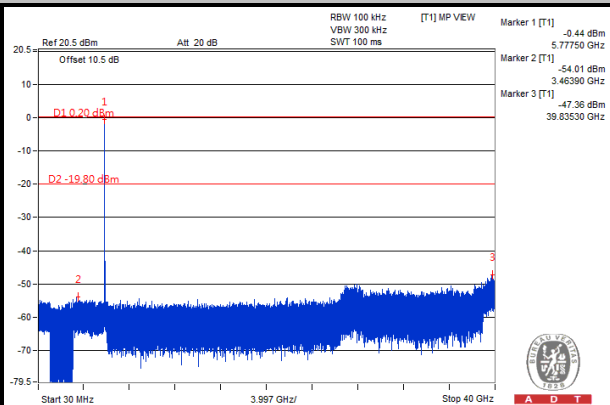
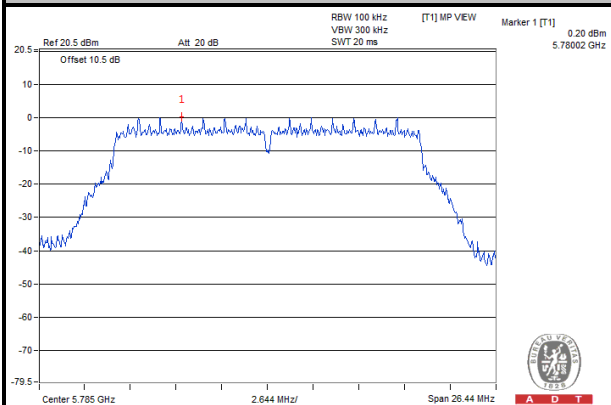
A D T

CHAIN 1

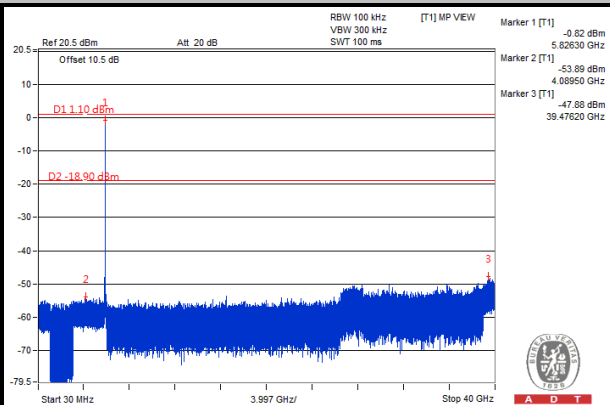
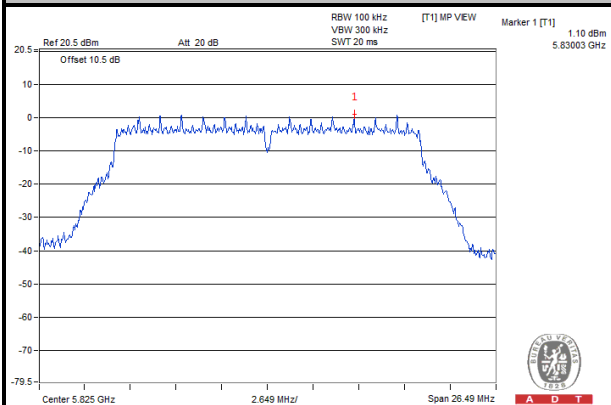
CH 149



CH 157



CH 165

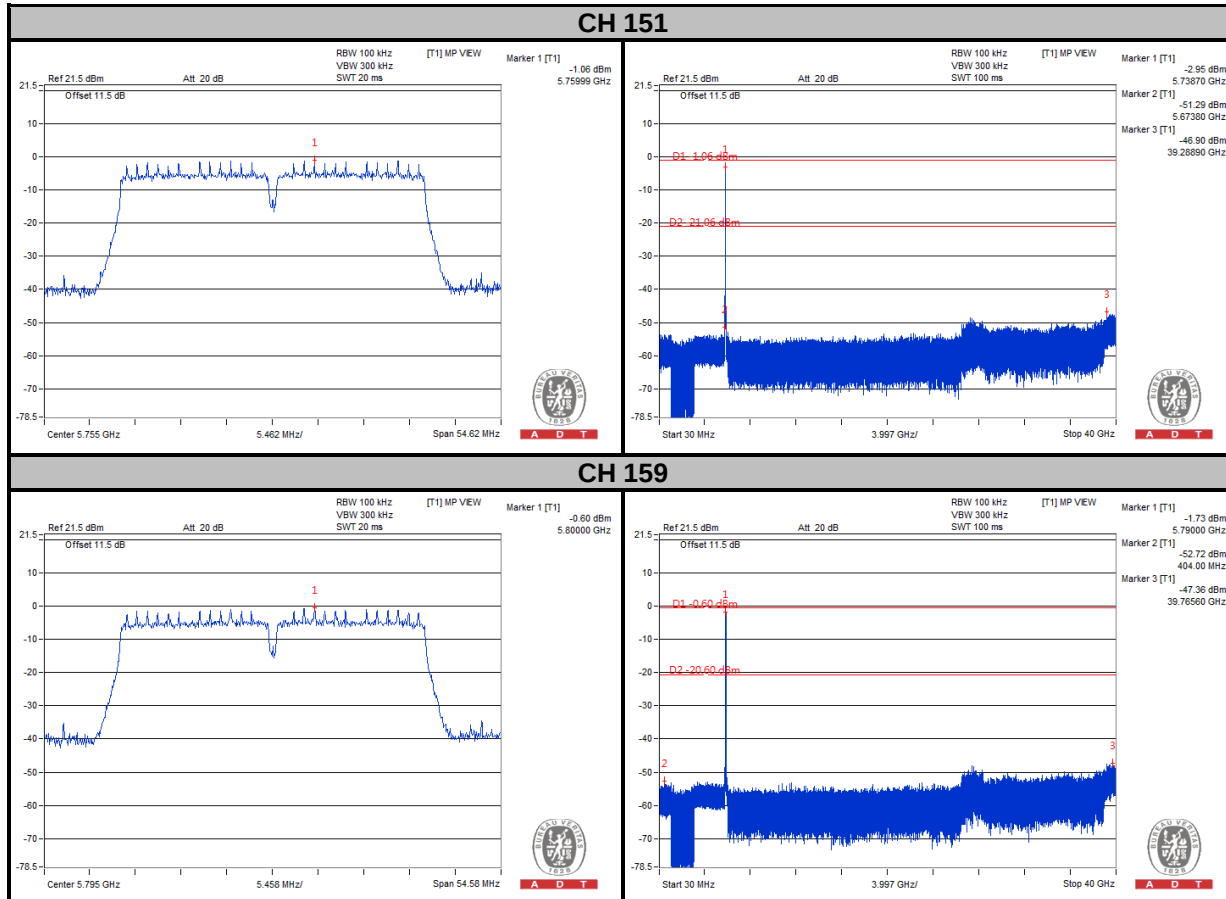




A D T

802.11n (40MHz)

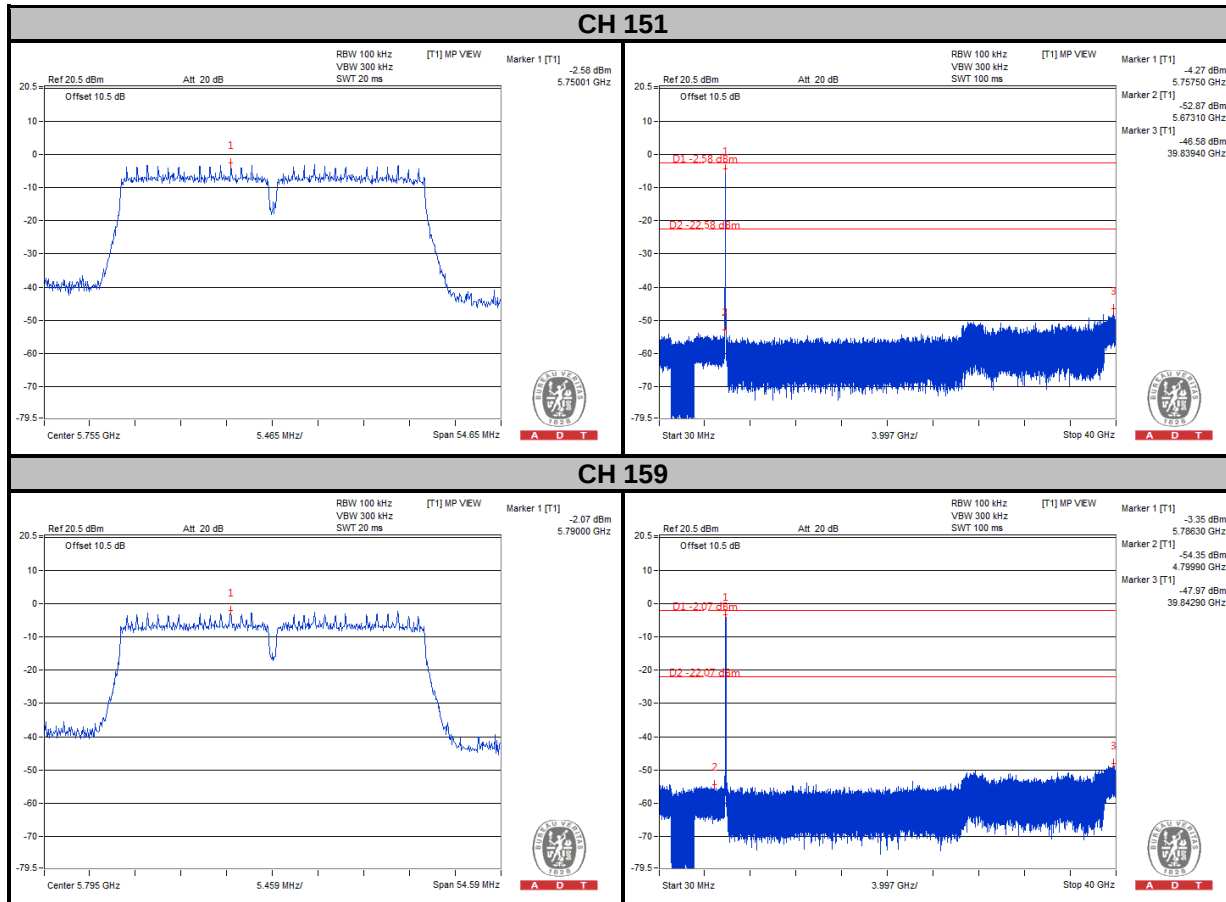
CHAIN 0





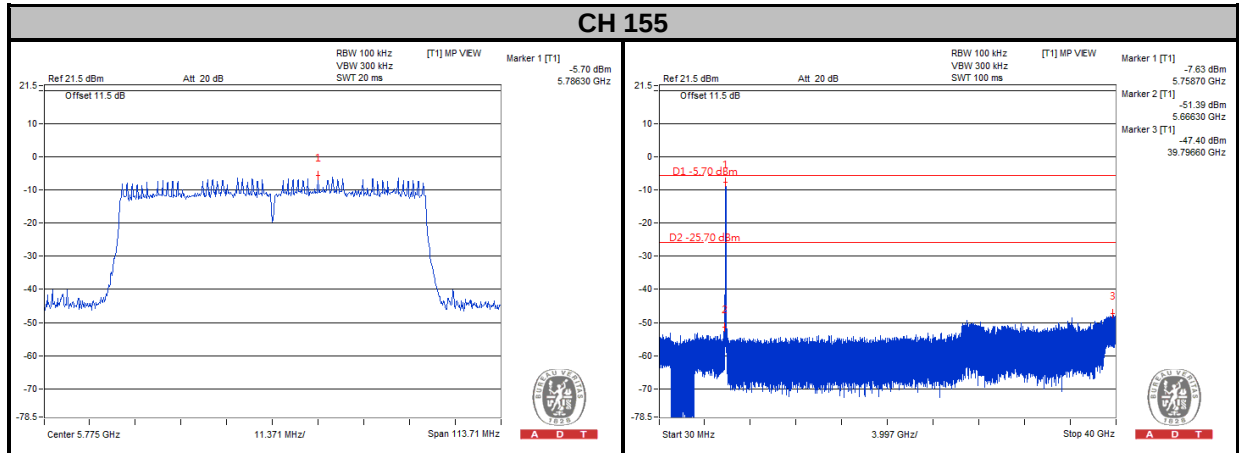
A D T

CHAIN 1

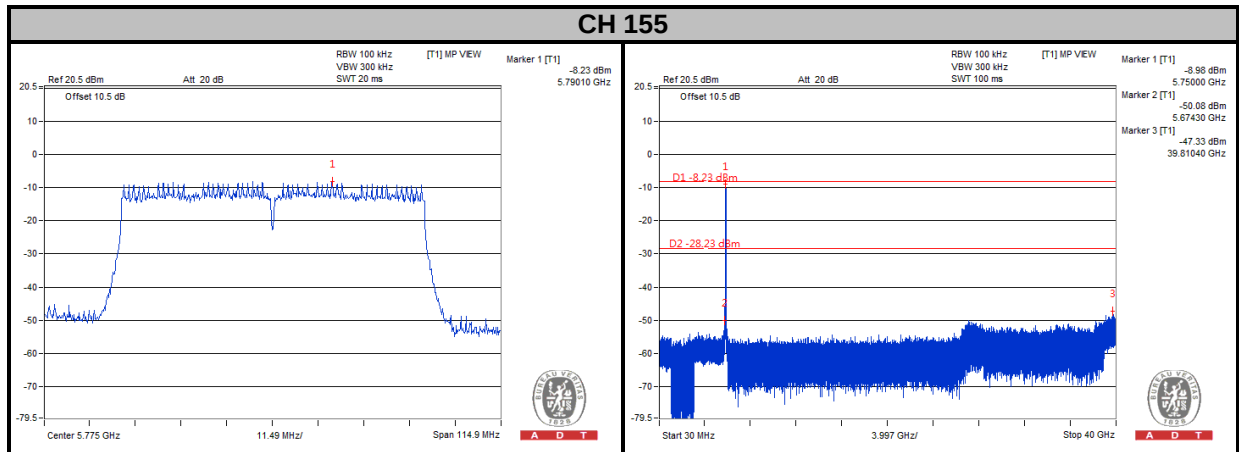


802.11ac (80MHz)

CHAIN 0



CHAIN 1



6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



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---