

FCC TEST REPORT (15.247)

REPORT NO.: RF131210C32

MODEL NO.: W7, W7R, W7C

FCC ID: SLY-W7XRC

RECEIVED: Dec. 10, 2013

TESTED: Feb. 14 ~ Mar. 18, 2014

ISSUED: Mar. 26, 2014

APPLICANT: Pakedge Device and Software Inc.

ADDRESS: 1163 Triton Drive, Foster City, California, United States, 94404

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

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131210C32	Original release	Mar. 26, 2014



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1. CERTIFICATION

PRODUCT: 802.11 abgn device

MODEL NO.: W7, W7R, W7C

BRAND: Packedge

APPLICANT: Pakedge Device and Software Inc.

TESTED: Feb. 14 ~ Mar. 18, 2014

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: W7, W7R, W7C) 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 : Ivy Lin , **DATE :** Mar. 26, 2014
Ivy Lin / Specialist

APPROVED BY : Ken Liu , **DATE :** Mar. 26, 2014
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -5.91dB at 0.15802MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2498.00MHz, 2350.00MHz, 2483.50MHz, 2390.00MHz, 2495.00MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Dipole antenna: Antenna connector is RSMA not a standard connector. PIFA antenna: Antenna connector is I-PEX not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	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	802.11 abgn device
MODEL NO.	W7, W7R, W7C
POWER SUPPLY	12Vdc (Adapter) 55Vdc (POE)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	434.680mW for 2412 ~ 2462MHz 296.846mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to NOTE
ANTENNA CONNECTOR	Refer to NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

- The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

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

2. The models as below are electrically identical, different models are for antenna type and shape difference.

BRAND	MODEL	DIFFERENCE
Pakedge	W7	Antenna type: Dipole
	W7R	Antenna type: Dipole
	W7C	Antenna type: PIFA

3. The EUT uses the following antennas:

Model: W7, W7R				
Antenna Type	Gain (dBi)			Antenna Connector
	2.4GHz	5.18 ~ 5.25 GHz	5.745 ~ 5.825GHz	
Dipole	3.58	4.0	4.83	RSMA

Model: W7C					
CHAIN	Antenna Type	Gain (dBi)			Antenna Connector
		2.4GHz	5.18 ~ 5.25 GHz	5.745 ~ 5.825GHz	
Chain 0	PIFA	4.4	-	-	I-PEX
Chain 1	PIFA	4.5	-	-	
Chain 0	PIFA	-	3.6	3.8	
Chain 1	PIFA	-	3.3	3.9	

4. The EUT consumes power from the following adapter and POE.

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

POE (Support unit only)	
BRAND	PowerDsine
MODEL	PD-9001GR/AC
INPUT POWER	100-240Vac, 50/60Hz, 0.8A
OUTPUT POWER	55Vdc, 0.62A

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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

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

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

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

FOR 5.0GHz (5745 ~ 5825MHz):

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A1	-	√	√	-	Model: W7 + adapter
A2	-	√	√	-	Model: W7 + POE
B1	√	√	√	-	Model: W7R + adapter
B2	-	√	√	-	Model: W7R + POE
C1	√	√	√	√	Model: W7C + adapter
C2	-	√	√	-	Model: W7C + POE

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:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B1, C1	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B1, C1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B1, C1	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
B1, C1	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A1, A2, B1, B2, C1, C2	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A1, A2, B1, B2, C1, C2	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
C1	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
C1	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
C1	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
C1	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
C1	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
C1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
C1	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
C1	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang, Sun Lin
RE<1G	25deg. C, 68%RH	120Vac, 60Hz, 55Vdc (SYSTEM)	Sun Lin
PLC	25deg. C, 68%RH	120Vac, 60Hz, 55Vdc (SYSTEM)	Chris Lin
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

FOR 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A1	-	√	√	-	Model: W7 + adapter
A2	-	√	√	-	Model: W7 + POE
B1	√	√	√	√	Model: W7R + adapter
B2	-	√	√	-	Model: W7R + POE
C1	√	√	√	-	Model: W7C + adapter
C2	-	√	√	-	Model: W7C + POE

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

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B1, C1	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
B1, C1	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
B1, C1	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A1, A2, B1, B2, C1, C2	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A1, A2, B1, B2, C1, C2	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2

BANDEDGE MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B1	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
B1	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
B1	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B1	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
B1	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
B1	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
RE<1G	25deg. C, 68%RH	120Vac, 60Hz, 55Vdc (SYSTEM)	Sun Lin
PLC	25deg. C, 68%RH	120Vac, 60Hz, 55Vdc (SYSTEM)	Chris Lin
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DUTY CYCLE OF TEST SIGNAL

2.4GHz Band:

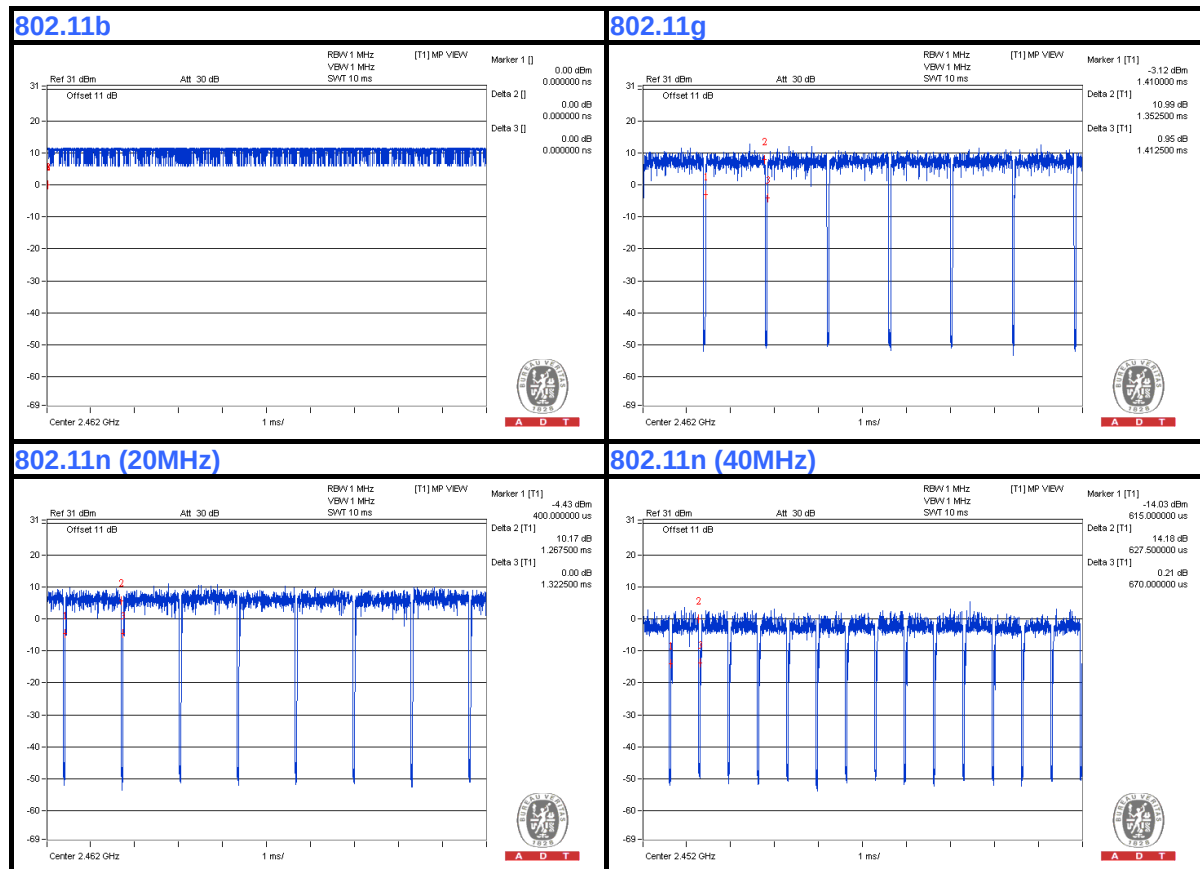
802.11b: Duty cycle of test signal is > 98 %, duty factor is not required.

Duty cycle of test signal is < 98 %, duty factor is required

802.11g: Duty cycle = $1.3525/1.4125 = 0.958$, Duty factor = $10 * \log(1/0.958) = 0.19$

802.11n (20MHz): Duty cycle = $1.2675/1.3225 = 0.958$, Duty factor = $10 * \log(1/0.958) = 0.19$

802.11n (40MHz): Duty cycle = $627.5/670.0 = 0.937$, Duty factor = $10 * \log(1/0.937) = 0.28$



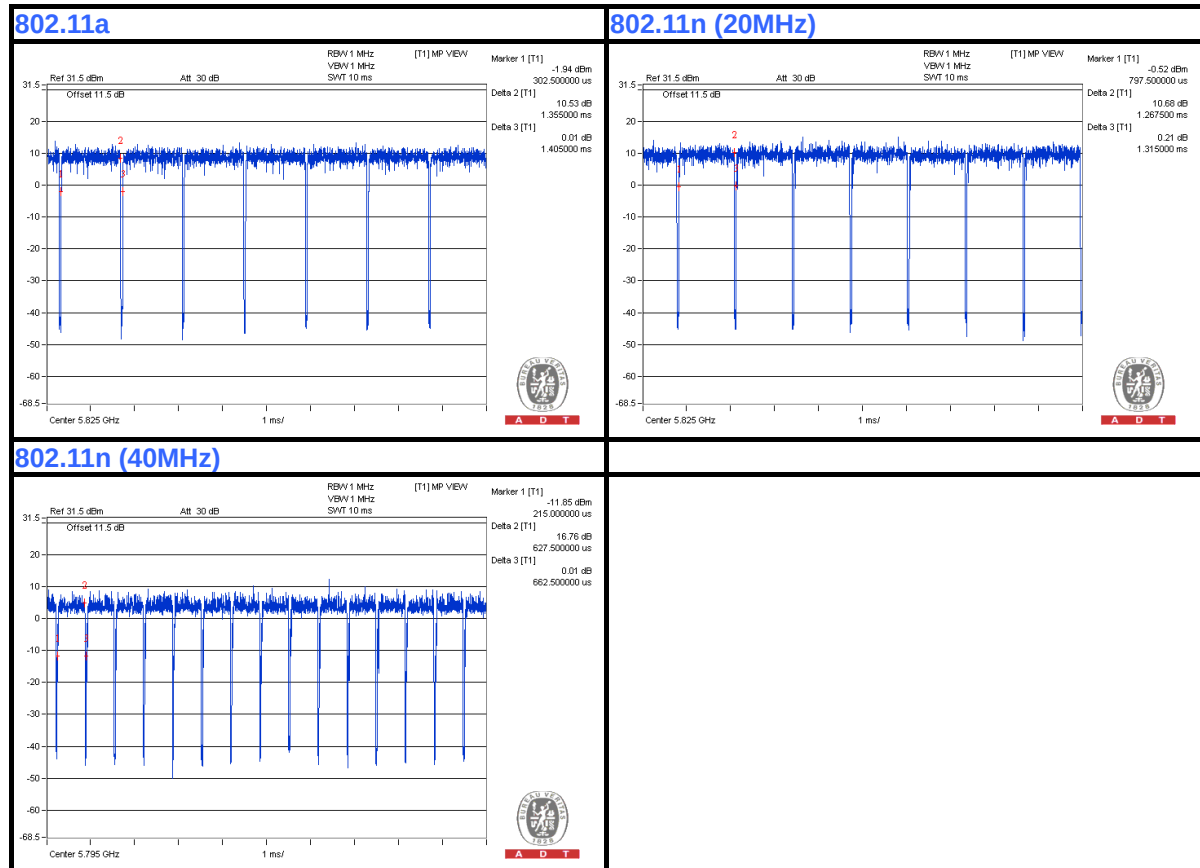
5.0GHz Band:

Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = $1.355/1.405 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11n (20MHz): Duty cycle = $1.2675/1.3150 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11n (40MHz): Duty cycle = $627.5/662.5 = 0.947$, Duty factor = $10 * \log(1/0.947) = 0.24$



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3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	D531	CN-0XM006-48643-8 1U-2610	QDS-BRCM1020

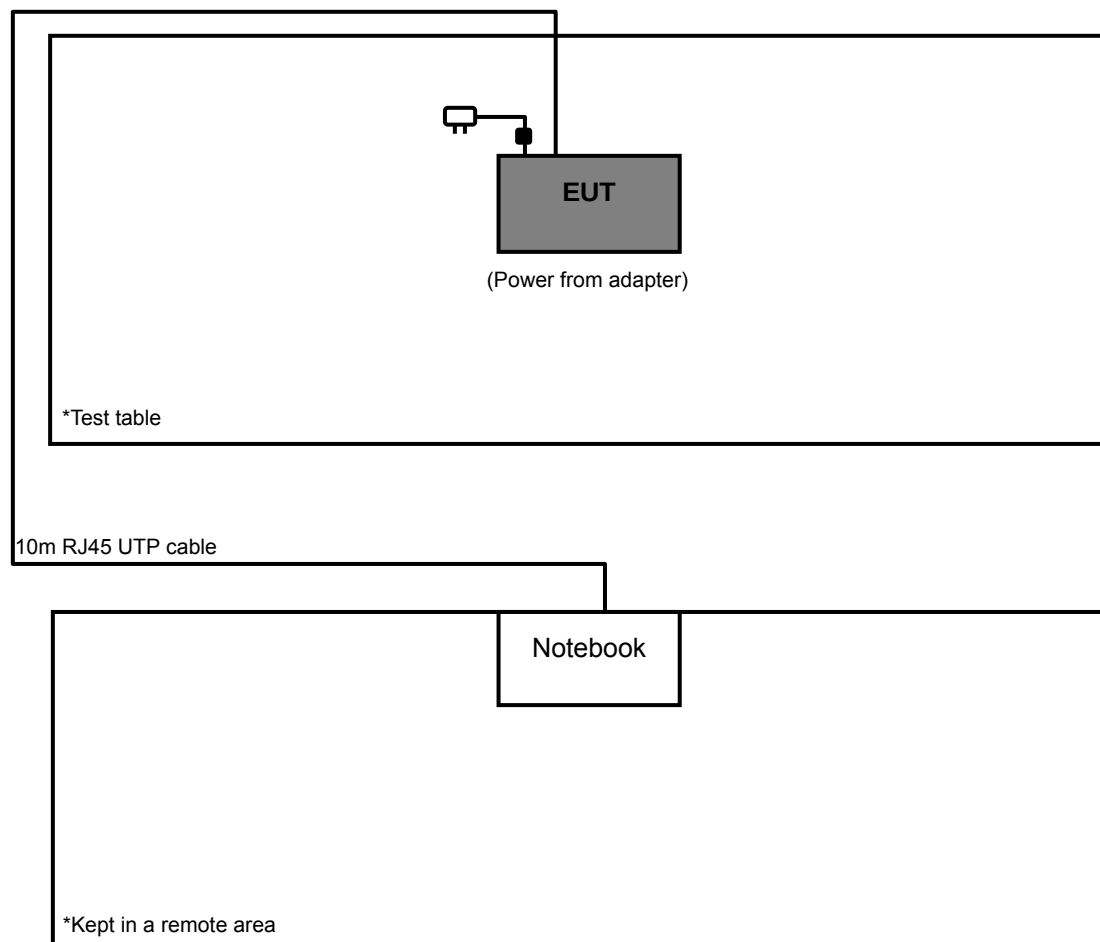
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable, 1.8m RJ45 UTP cable

NOTE:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.

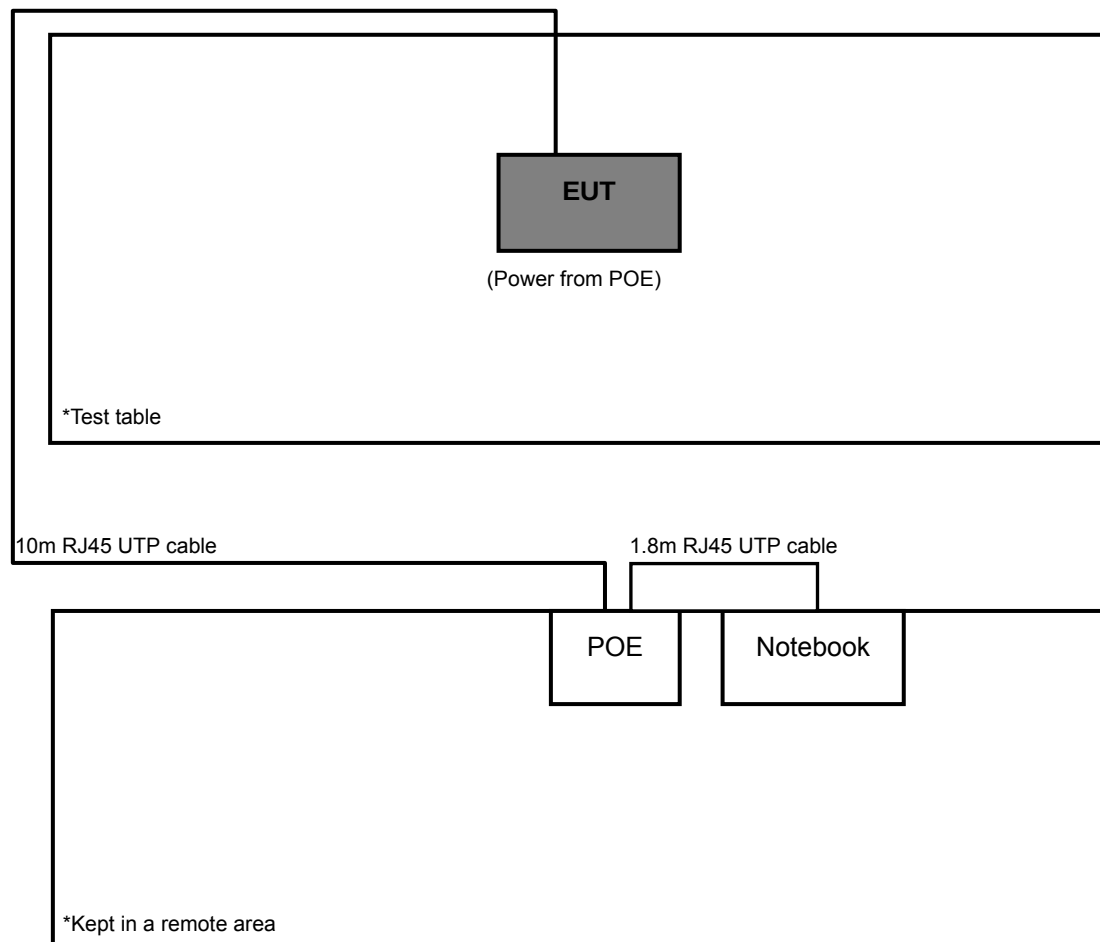
3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

Adapter Mode





POE Mode





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3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r01

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2009

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

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

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

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB 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 30dB under any condition of modulation.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 29, 2013	Nov. 28, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Feb. 11, 2014	Feb. 10, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 12, 2013	Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01911	Aug. 22, 2013	Aug. 21, 2014
Preamplifier Agilent	8447D	2944A10638	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	248780/4 309222/4 274092/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable Worken	5D-FB	Cable-HYCH9-01	Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2013	Oct. 17, 2014
High Speed Power Meter	ML2495A	0824011	Jul. 29, 2013	Jul. 28, 2014
Power Sensor	MA2411B	0738171	Aug. 01, 2013	Jul. 31, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 215374.
5. The IC Site Registration No. is IC 7450F-9.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

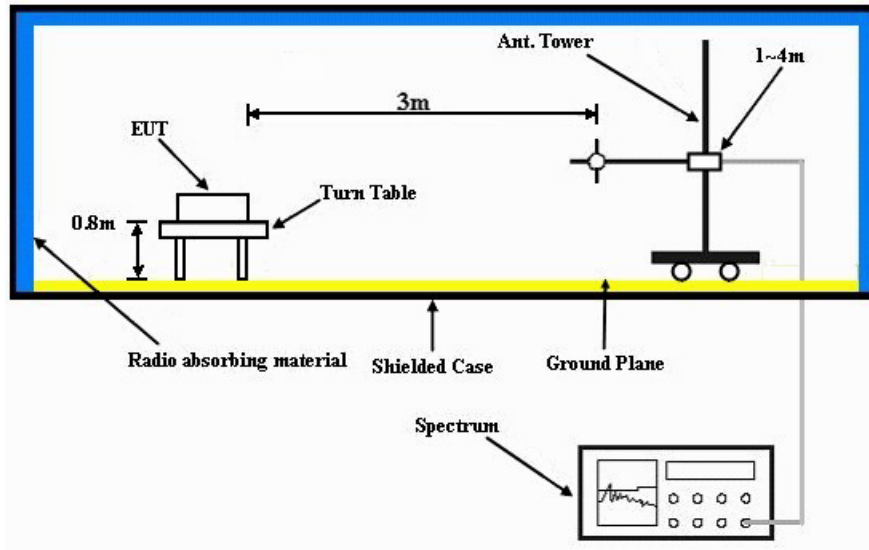
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

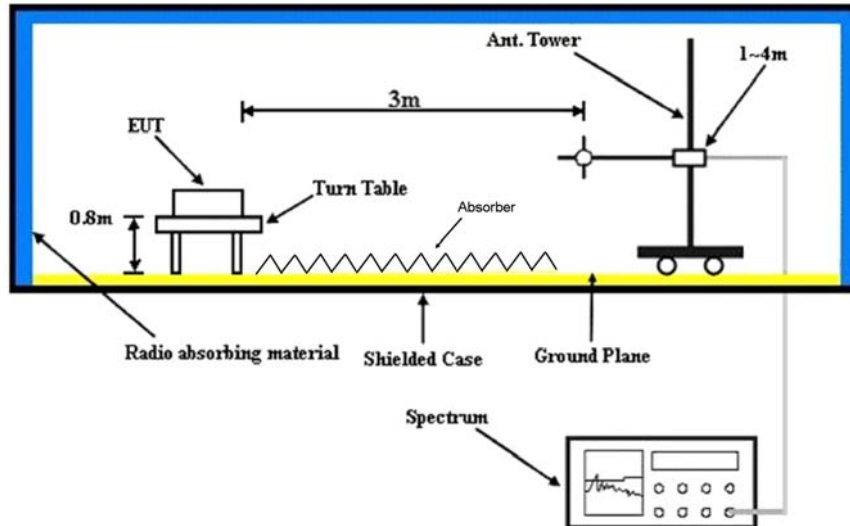
No deviation.

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).

4.1.6 EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS (A1)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.55	35.1 QP	40.0	-4.9	2.00 H	271	50.90	-15.80
2	101.51	29.9 QP	43.5	-13.6	1.00 H	179	48.10	-18.20
3	140.37	29.5 QP	43.5	-14.0	1.25 H	248	43.80	-14.30
4	224.31	31.1 QP	46.0	-14.9	1.25 H	100	47.50	-16.40
5	274.05	32.6 QP	46.0	-13.4	1.00 H	97	45.60	-13.00
6	625.37	30.8 QP	46.0	-15.2	1.50 H	110	36.40	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.58	35.8 QP	40.0	-4.2	1.08 V	152	51.60	-15.80
2	56.43	31.1 QP	40.0	-8.9	1.00 V	49	45.20	-14.10
3	199.44	28.0 QP	43.5	-15.5	1.00 V	5	44.40	-16.40
4	294.26	33.4 QP	46.0	-12.6	1.50 V	9	45.70	-12.30
5	375.10	32.5 QP	46.0	-13.5	1.24 V	9	43.10	-10.60
6	625.37	29.4 QP	46.0	-16.6	2.00 V	167	35.00	-5.60

REMARKS:

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

4.1.8 TEST RESULTS (A2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	34.8 QP	40.0	-5.2	1.49 H	121	50.60	-15.80
2	98.40	33.4 QP	43.5	-10.1	1.24 H	236	52.30	-18.90
3	205.66	32.0 QP	43.5	-11.5	1.00 H	104	48.40	-16.40
4	275.61	28.8 QP	46.0	-17.2	1.00 H	120	41.80	-13.00
5	499.46	30.2 QP	46.0	-15.8	1.24 H	216	38.60	-8.40
6	625.37	35.0 QP	46.0	-11.0	1.00 H	144	40.60	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.25	35.8 QP	40.0	-4.2	1.64 V	187	51.60	-15.80
2	98.40	30.6 QP	43.5	-12.9	1.24 V	302	49.50	-18.90
3	205.66	33.2 QP	43.5	-10.3	1.24 V	11	49.60	-16.40
4	275.61	32.5 QP	46.0	-13.5	1.49 V	174	45.50	-13.00
5	625.37	35.5 QP	46.0	-10.5	1.24 V	172	41.10	-5.60
6	875.64	32.8 QP	46.0	-13.2	1.24 V	175	34.40	-1.60

REMARKS:

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

4.1.9 TEST RESULTS (B1)

ABOVE 1GHz DATA :

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2327.00	58.6 PK	74.0	-15.4	1.05 H	62	26.50	32.10
2	2327.00	47.0 AV	54.0	-7.0	1.05 H	62	14.90	32.10
3	2390.00	59.6 PK	74.0	-14.4	1.06 H	332	27.30	32.30
4	2390.00	47.4 AV	54.0	-6.6	1.06 H	332	15.10	32.30
5	*2412.00	97.0 PK			1.03 H	211	64.50	32.50
6	*2412.00	93.3 AV			1.03 H	211	60.80	32.50
7	2498.00	59.3 PK	74.0	-14.7	1.00 H	315	26.50	32.80
8	2498.00	48.4 AV	54.0	-5.6	1.00 H	315	15.60	32.80
9	4824.00	46.6 PK	74.0	-27.4	1.05 H	63	44.60	2.00
10	4824.00	32.5 AV	54.0	-21.5	1.05 H	63	30.50	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2327.00	61.2 PK	74.0	-12.8	1.00 V	14	29.10	32.10
2	2327.00	49.1 AV	54.0	-4.9	1.00 V	14	17.00	32.10
3	2390.00	57.5 PK	74.0	-16.5	1.05 V	62	25.20	32.30
4	2390.00	45.9 AV	54.0	-8.1	1.05 V	62	13.60	32.30
5	*2412.00	110.8 PK			1.17 V	148	78.30	32.50
6	*2412.00	107.0 AV			1.17 V	148	74.50	32.50
7	2498.00	64.1 PK	74.0	-9.9	1.33 V	45	31.30	32.80
8	2498.00	53.0 AV	54.0	-1.0	1.33 V	45	20.20	32.80
9	4824.00	47.7 PK	74.0	-26.3	1.05 V	62	45.70	2.00
10	4824.00	37.4 AV	54.0	-16.6	1.05 V	62	35.40	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2350.00	59.7 PK	74.0	-14.3	1.63 H	120	27.50	32.20
2	2350.00	47.4 AV	54.0	-6.6	1.63 H	120	15.20	32.20
3	*2437.00	104.8 PK			1.02 H	210	72.30	32.50
4	*2437.00	101.0 AV			1.02 H	210	68.50	32.50
5	4874.00	45.6 PK	74.0	-28.4	1.63 H	220	43.60	2.00
6	4874.00	37.2 AV	54.0	-16.8	1.63 H	220	35.20	2.00
7	7311.00	51.7 PK	74.0	-22.3	1.89 H	62	43.70	8.00
8	7311.00	39.3 AV	54.0	-14.7	1.89 H	62	31.30	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2350.00	62.6 PK	74.0	-11.4	1.00 V	192	30.40	32.20
2	2350.00	53.0 AV	54.0	-1.0	1.00 V	192	20.80	32.20
3	*2437.00	116.2 PK			1.31 V	336	83.70	32.50
4	*2437.00	112.3 AV			1.31 V	336	79.80	32.50
5	4874.00	50.2 PK	74.0	-23.8	1.01 V	340	48.20	2.00
6	4874.00	42.0 AV	54.0	-12.0	1.01 V	340	40.00	2.00
7	7311.00	55.5 PK	74.0	-18.5	1.02 V	55	47.50	8.00
8	7311.00	42.6 AV	54.0	-11.4	1.02 V	55	34.60	8.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2377.00	58.6 PK	74.0	-15.4	1.00 H	165	26.30	32.30
2	2377.00	47.9 AV	54.0	-6.1	1.00 H	165	15.60	32.30
3	*2462.00	101.2 PK			1.03 H	4	68.60	32.60
4	*2462.00	97.4 AV			1.03 H	4	64.80	32.60
5	2483.50	59.4 PK	74.0	-14.6	1.00 H	52	26.60	32.80
6	2483.50	47.7 AV	54.0	-6.3	1.00 H	52	14.90	32.80
7	4924.00	45.3 PK	74.0	-28.7	1.14 H	52	43.20	2.10
8	4924.00	33.3 AV	54.0	-20.7	1.14 H	52	31.20	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2377.00	63.2 PK	74.0	-10.8	1.00 V	20	30.90	32.30
2	2377.00	52.8 AV	54.0	-1.2	1.00 V	20	20.50	32.30
3	*2462.00	114.9 PK			1.36 V	20	82.30	32.60
4	*2462.00	111.2 AV			1.36 V	20	78.60	32.60
5	2483.50	68.8 PK	74.0	-5.2	1.13 V	10	36.00	32.80
6	2483.50	50.7 AV	54.0	-3.3	1.13 V	10	17.90	32.80
7	4924.00	46.6 PK	74.0	-27.4	1.19 V	283	44.50	2.10
8	4924.00	35.0 AV	54.0	-19.0	1.19 V	283	32.90	2.10

REMARKS:

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



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802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	1.00 H	296	27.40	32.30
2	2390.00	47.1 AV	54.0	-6.9	1.00 H	296	14.80	32.30
3	*2412.00	99.3 PK			1.02 H	212	66.80	32.50
4	*2412.00	89.0 AV			1.02 H	212	56.50	32.50
5	2495.00	60.5 PK	74.0	-13.5	1.00 H	65	27.70	32.80
6	2495.00	47.7 AV	54.0	-6.3	1.00 H	65	14.90	32.80
7	4824.00	46.6 PK	74.0	-27.4	1.52 H	63	44.60	2.00
8	4824.00	33.6 AV	54.0	-20.4	1.52 H	63	31.60	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.00 V	6	30.00	32.30
2	2390.00	49.4 AV	54.0	-4.6	1.00 V	6	17.10	32.30
3	*2412.00	112.3 PK			1.42 V	9	79.80	32.50
4	*2412.00	102.3 AV			1.42 V	9	69.80	32.50
5	2495.00	66.3 PK	74.0	-7.7	1.36 V	0	33.50	32.80
6	2495.00	53.0 AV	54.0	-1.0	1.36 V	0	20.20	32.80
7	4824.00	47.7 PK	74.0	-26.3	1.52 V	126	45.70	2.00
8	4824.00	34.6 AV	54.0	-19.4	1.52 V	126	32.60	2.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2354.00	58.8 PK	74.0	-15.2	1.00 H	154	26.60	32.20
2	2354.00	47.2 AV	54.0	-6.8	1.00 H	154	15.00	32.20
3	*2437.00	108.5 PK			1.05 H	2	76.00	32.50
4	*2437.00	98.2 AV			1.05 H	2	65.70	32.50
5	2483.50	60.5 PK	74.0	-13.5	1.21 H	22	27.70	32.80
6	2483.50	48.5 AV	54.0	-5.5	1.21 H	22	15.70	32.80
7	4874.00	45.6 PK	74.0	-28.4	1.63 H	47	43.60	2.00
8	4874.00	34.5 AV	54.0	-19.5	1.63 H	47	32.50	2.00
9	7311.00	52.6 PK	74.0	-21.4	1.08 H	59	44.60	8.00
10	7311.00	39.3 AV	54.0	-14.7	1.08 H	59	31.30	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2354.00	62.4 PK	74.0	-11.6	1.00 V	188	30.20	32.20
2	2354.00	51.4 AV	54.0	-2.6	1.00 V	188	19.20	32.20
3	*2437.00	119.8 PK			1.15 V	190	87.30	32.50
4	*2437.00	109.9 AV			1.15 V	190	77.40	32.50
5	2483.50	67.0 PK	74.0	-7.0	1.13 V	11	34.20	32.80
6	2483.50	53.0 AV	54.0	-1.0	1.13 V	11	20.20	32.80
7	4874.00	48.9 PK	74.0	-25.1	1.51 V	289	46.90	2.00
8	4874.00	37.6 AV	54.0	-16.4	1.51 V	289	35.60	2.00
9	7311.00	55.7 PK	74.0	-18.3	1.00 V	225	47.70	8.00
10	7311.00	42.3 AV	54.0	-11.7	1.00 V	225	34.30	8.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	57.6 PK	74.0	-16.4	1.06 H	95	25.30	32.30
2	2380.00	46.5 AV	54.0	-7.5	1.06 H	95	14.20	32.30
3	*2462.00	102.7 PK			1.00 H	211	70.10	32.60
4	*2462.00	92.8 AV			1.00 H	211	60.20	32.60
5	2483.50	63.0 PK	74.0	-11.0	1.69 H	55	30.20	32.80
6	2483.50	48.0 AV	54.0	-6.0	1.69 H	55	15.20	32.80
7	4924.00	45.6 PK	74.0	-28.4	1.87 H	4	43.50	2.10
8	4924.00	33.8 AV	54.0	-20.2	1.87 H	4	31.70	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	63.2 PK	74.0	-10.8	1.00 V	10	30.90	32.30
2	2380.00	50.5 AV	54.0	-3.5	1.00 V	10	18.20	32.30
3	*2462.00	115.3 PK			1.11 V	334	82.70	32.60
4	*2462.00	105.6 AV			1.11 V	334	73.00	32.60
5	2483.50	68.9 PK	74.0	-5.1	1.11 V	10	36.10	32.80
6	2483.50	52.8 AV	54.0	-1.2	1.11 V	10	20.00	32.80
7	4924.00	48.7 PK	74.0	-25.3	1.63 V	347	46.60	2.10
8	4924.00	37.7 AV	54.0	-16.3	1.63 V	347	35.60	2.10

REMARKS:

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



A D T

802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.4 PK	74.0	-13.6	1.05 H	211	28.10	32.30
2	2390.00	47.9 AV	54.0	-6.1	1.05 H	211	15.60	32.30
3	*2412.00	100.1 PK			1.03 H	215	67.60	32.50
4	*2412.00	90.1 AV			1.03 H	215	57.60	32.50
5	2498.00	61.0 PK	74.0	-13.0	1.77 H	48	28.20	32.80
6	2498.00	48.0 AV	54.0	-6.0	1.77 H	48	15.20	32.80
7	4824.00	46.7 PK	74.0	-27.3	1.53 H	327	44.70	2.00
8	4824.00	34.5 AV	54.0	-19.5	1.53 H	327	32.50	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.3 PK	74.0	-4.7	1.00 V	17	37.00	32.30
2	2390.00	51.7 AV	54.0	-2.3	1.00 V	17	19.40	32.30
3	*2412.00	113.9 PK			1.00 V	8	81.40	32.50
4	*2412.00	103.3 AV			1.00 V	8	70.80	32.50
5	2498.00	66.6 PK	74.0	-7.4	1.34 V	7	33.80	32.80
6	2498.00	53.0 AV	54.0	-1.0	1.34 V	7	20.20	32.80
7	4824.00	48.6 PK	74.0	-25.4	1.52 V	337	46.60	2.00
8	4824.00	35.6 AV	54.0	-18.4	1.52 V	337	33.60	2.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.9 PK	74.0	-13.1	1.69 H	95	28.60	32.30
2	2390.00	47.9 AV	54.0	-6.1	1.69 H	95	15.60	32.30
3	*2437.00	110.9 PK			1.01 H	209	78.40	32.50
4	*2437.00	100.7 AV			1.01 H	209	68.20	32.50
5	2483.50	61.3 PK	74.0	-12.7	1.52 H	302	28.50	32.80
6	2483.50	48.0 AV	54.0	-6.0	1.52 H	302	15.20	32.80
7	4874.00	47.2 PK	74.0	-26.8	1.42 H	188	45.20	2.00
8	4874.00	33.5 AV	54.0	-20.5	1.42 H	188	31.50	2.00
9	7311.00	54.9 PK	74.0	-19.1	1.23 H	328	46.90	8.00
10	7311.00	40.6 AV	54.0	-13.4	1.23 H	328	32.60	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.6 PK	74.0	-3.4	1.42 V	7	38.30	32.30
2	2390.00	52.6 AV	54.0	-1.4	1.42 V	7	20.30	32.30
3	*2437.00	122.3 PK			1.15 V	8	89.80	32.50
4	*2437.00	111.7 AV			1.15 V	8	79.20	32.50
5	2483.50	69.6 PK	74.0	-4.4	1.13 V	9	36.80	32.80
6	2483.50	52.8 AV	54.0	-1.2	1.13 V	9	20.00	32.80
7	4874.00	49.3 PK	74.0	-24.7	1.21 V	232	47.30	2.00
8	4874.00	36.5 AV	54.0	-17.5	1.21 V	232	34.50	2.00
9	7311.00	61.2 PK	74.0	-12.8	1.00 V	224	53.20	8.00
10	7311.00	46.0 AV	54.0	-8.0	1.00 V	224	38.00	8.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.2 PK			1.01 H	209	69.60	32.60
2	*2462.00	92.0 AV			1.01 H	209	59.40	32.60
3	2483.50	63.4 PK	74.0	-10.6	1.57 H	18	30.60	32.80
4	2483.50	49.0 AV	54.0	-5.0	1.57 H	18	16.20	32.80
5	4924.00	45.8 PK	74.0	-28.2	1.96 H	66	43.70	2.10
6	4924.00	33.6 AV	54.0	-20.4	1.96 H	66	31.50	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.4 PK			1.13 V	9	81.80	32.60
2	*2462.00	103.9 AV			1.13 V	9	71.30	32.60
3	2483.50	70.2 PK	74.0	-3.8	1.11 V	220	37.40	32.80
4	2483.50	52.8 AV	54.0	-1.2	1.11 V	220	20.00	32.80
5	4924.00	48.7 PK	74.0	-25.3	1.52 V	66	46.60	2.10
6	4924.00	36.7 AV	54.0	-17.3	1.52 V	66	34.60	2.10

REMARKS:

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

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	1.05 H	211	27.90	32.30
2	2390.00	47.5 AV	54.0	-6.5	1.05 H	211	15.20	32.30
3	*2422.00	95.0 PK			1.01 H	210	62.50	32.50
4	*2422.00	83.0 AV			1.01 H	210	50.50	32.50
5	4844.00	47.2 PK	74.0	-26.8	1.52 H	320	45.20	2.00
6	4844.00	33.6 AV	54.0	-20.4	1.52 H	320	31.60	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.6 PK	74.0	-4.4	1.00 V	11	37.30	32.30
2	2390.00	52.6 AV	54.0	-1.4	1.00 V	11	20.30	32.30
3	*2422.00	108.0 PK			1.40 V	5	75.50	32.50
4	*2422.00	97.3 AV			1.40 V	5	64.80	32.50
5	4844.00	47.2 PK	74.0	-26.8	1.52 V	117	45.20	2.00
6	4844.00	35.6 AV	54.0	-18.4	1.52 V	117	33.60	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	1.52 H	64	28.20	32.30
2	2390.00	47.5 AV	54.0	-6.5	1.52 H	64	15.20	32.30
3	*2437.00	101.8 PK			1.01 H	209	69.30	32.50
4	*2437.00	90.9 AV			1.01 H	209	58.40	32.50
5	2483.50	60.7 PK	74.0	-13.3	1.01 H	221	27.90	32.80
6	2483.50	47.9 AV	54.0	-6.1	1.01 H	221	15.10	32.80
7	4874.00	45.6 PK	74.0	-28.4	1.85 H	164	43.60	2.00
8	4874.00	33.5 AV	54.0	-20.5	1.85 H	164	31.50	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	1.00 V	191	36.40	32.30
2	2390.00	53.0 AV	54.0	-1.0	1.00 V	191	20.70	32.30
3	*2437.00	114.4 PK			1.13 V	192	81.90	32.50
4	*2437.00	104.2 AV			1.13 V	192	71.70	32.50
5	2483.50	69.8 PK	74.0	-4.2	1.05 V	222	37.00	32.80
6	2483.50	51.1 AV	54.0	-2.9	1.05 V	222	18.30	32.80
7	4874.00	48.8 PK	74.0	-25.2	1.05 V	41	46.80	2.00
8	4874.00	35.6 AV	54.0	-18.4	1.05 V	41	33.60	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.1 PK	74.0	-14.9	1.05 H	214	26.80	32.30
2	2390.00	47.4 AV	54.0	-6.6	1.05 H	214	15.10	32.30
3	*2452.00	86.2 PK			1.01 H	211	53.60	32.60
4	*2452.00	85.9 AV			1.01 H	211	53.30	32.60
5	4904.00	47.4 PK	74.0	-26.6	1.54 H	62	45.30	2.10
6	4904.00	33.6 AV	54.0	-20.4	1.54 H	62	31.50	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.8 PK			1.12 V	333	75.20	32.60
2	*2452.00	97.6 AV			1.12 V	333	65.00	32.60
3	2483.50	72.7 PK	74.0	-1.3	1.12 V	220	39.90	32.80
4	2483.50	52.4 AV	54.0	-1.6	1.12 V	220	19.60	32.80
5	4904.00	48.7 PK	74.0	-25.3	1.52 V	99	46.60	2.10
6	4904.00	36.7 AV	54.0	-17.3	1.52 V	99	34.60	2.10

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	35.1 QP	40.0	-4.9	1.50 H	253	50.90	-15.80
2	99.95	32.0 QP	43.5	-11.5	1.50 H	263	50.60	-18.60
3	148.14	28.3 QP	43.5	-15.2	2.00 H	300	42.20	-13.90
4	224.31	29.7 QP	46.0	-16.3	1.50 H	280	46.10	-16.40
5	278.72	28.0 QP	46.0	-18.0	1.50 H	167	40.80	-12.80
6	499.46	30.8 QP	46.0	-15.2	1.50 H	223	39.20	-8.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.47	36.4 QP	40.0	-3.6	1.28 V	112	52.20	-15.80
2	99.95	32.1 QP	43.5	-11.4	1.00 V	304	50.70	-18.60
3	275.61	29.7 QP	46.0	-16.3	1.24 V	219	42.70	-13.00
4	375.10	29.6 QP	46.0	-16.4	1.24 V	37	40.20	-10.60
5	499.46	32.3 QP	46.0	-13.7	1.00 V	283	40.70	-8.40
6	675.11	30.1 QP	46.0	-15.9	1.00 V	289	35.30	-5.20

REMARKS:

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

4.1.10 TEST RESULTS (B2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	36.8 QP	40.0	-3.2	1.00 H	262	52.60	-15.80
2	98.40	29.2 QP	43.5	-14.3	1.99 H	107	48.10	-18.90
3	159.02	28.1 QP	43.5	-15.4	1.49 H	247	41.80	-13.70
4	224.31	31.7 QP	46.0	-14.3	1.49 H	267	48.10	-16.40
5	275.61	33.9 QP	46.0	-12.1	1.00 H	151	46.90	-13.00
6	833.67	34.6 QP	46.0	-11.4	1.00 H	13	36.80	-2.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.02	36.2 QP	40.0	-3.8	1.48 V	52	52.00	-15.80
2	48.48	34.6 QP	40.0	-5.4	1.47 V	107	48.70	-14.10
3	99.95	27.8 QP	43.5	-15.7	1.25 V	175	46.40	-18.60
4	216.54	28.5 QP	46.0	-17.5	1.25 V	212	44.70	-16.20
5	275.61	34.6 QP	46.0	-11.4	1.51 V	174	47.60	-13.00
6	625.37	33.6 QP	46.0	-12.4	1.25 V	188	39.20	-5.60

REMARKS:

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



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4.1.11 TEST RESULTS (C1)

ABOVE 1GHz DATA :

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.6 PK	74.0	-14.4	1.01 H	204	27.30	32.30
2	2390.00	47.0 AV	54.0	-7.0	1.01 H	204	14.70	32.30
3	*2412.00	94.2 PK			1.01 H	204	61.70	32.50
4	*2412.00	90.5 AV			1.01 H	204	58.00	32.50
5	4824.00	48.8 PK	74.0	-25.2	1.05 H	64	46.80	2.00
6	4824.00	36.5 AV	54.0	-17.5	1.05 H	64	34.50	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.4 PK	74.0	-14.6	1.63 V	178	27.10	32.30
2	2390.00	47.1 AV	54.0	-6.9	1.63 V	178	14.80	32.30
3	*2412.00	94.1 PK			1.64 V	178	61.60	32.50
4	*2412.00	90.3 AV			1.64 V	178	57.80	32.50
5	4824.00	47.6 PK	74.0	-26.4	1.52 V	71	45.60	2.00
6	4824.00	34.5 AV	54.0	-19.5	1.52 V	71	32.50	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.7 PK			1.02 H	208	67.20	32.50
2	*2437.00	95.7 AV			1.02 H	208	63.20	32.50
3	4874.00	47.8 PK	74.0	-26.2	1.54 H	188	45.80	2.00
4	4874.00	35.6 AV	54.0	-18.4	1.54 H	188	33.60	2.00
5	7311.00	54.5 PK	74.0	-19.5	1.02 H	51	46.50	8.00
6	7311.00	41.5 AV	54.0	-12.5	1.02 H	51	33.50	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	100.9 PK			1.14 V	178	68.40	32.50
2	*2437.00	96.9 AV			1.14 V	178	64.40	32.50
3	4874.00	49.5 PK	74.0	-24.5	1.52 V	91	47.50	2.00
4	4874.00	37.6 AV	54.0	-16.4	1.52 V	91	35.60	2.00
5	7311.00	54.2 PK	74.0	-19.8	1.62 V	334	46.20	8.00
6	7311.00	42.5 AV	54.0	-11.5	1.62 V	334	34.50	8.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.8 PK			1.01 H	207	66.20	32.60
2	*2462.00	94.9 AV			1.01 H	207	62.30	32.60
3	2483.50	60.2 PK	74.0	-13.8	1.02 H	51	27.40	32.80
4	2483.50	47.7 AV	54.0	-6.3	1.02 H	51	14.90	32.80
5	4924.00	47.4 PK	74.0	-26.6	1.52 H	177	45.30	2.10
6	4924.00	35.7 AV	54.0	-18.3	1.52 H	177	33.60	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.4 PK			1.64 V	178	66.80	32.60
2	*2462.00	95.6 AV			1.64 V	178	63.00	32.60
3	2483.50	60.2 PK	74.0	-13.8	1.64 V	175	27.40	32.80
4	2483.50	47.6 AV	54.0	-6.4	1.64 V	175	14.80	32.80
5	4924.00	47.1 PK	74.0	-26.9	1.02 V	356	45.00	2.10
6	4924.00	36.1 AV	54.0	-17.9	1.02 V	356	34.00	2.10

REMARKS:

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



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802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.2 PK	74.0	-14.8	1.02 H	341	26.90	32.30
2	2390.00	47.9 AV	54.0	-6.1	1.02 H	341	15.60	32.30
3	*2412.00	98.2 PK			1.03 H	204	65.70	32.50
4	*2412.00	86.5 AV			1.03 H	204	54.00	32.50
5	4824.00	47.2 PK	74.0	-26.8	1.30 H	204	45.20	2.00
6	4824.00	35.6 AV	54.0	-18.4	1.30 H	204	33.60	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	1.67 V	174	27.50	32.30
2	2390.00	47.0 AV	54.0	-7.0	1.67 V	174	14.70	32.30
3	*2412.00	97.9 PK			1.67 V	176	65.40	32.50
4	*2412.00	87.2 AV			1.67 V	176	54.70	32.50
5	4824.00	47.8 PK	74.0	-26.2	1.00 V	141	45.80	2.00
6	4824.00	35.5 AV	54.0	-18.5	1.00 V	141	33.50	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.2 PK			1.01 H	207	72.70	32.50
2	*2437.00	94.1 AV			1.01 H	207	61.60	32.50
3	4874.00	50.6 PK	74.0	-23.4	1.63 H	269	48.60	2.00
4	4874.00	36.5 AV	54.0	-17.5	1.63 H	269	34.50	2.00
5	7311.00	60.6 PK	74.0	-13.4	1.40 H	173	52.60	8.00
6	7311.00	44.6 AV	54.0	-9.4	1.40 H	173	36.60	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.2 PK			2.00 V	175	72.70	32.50
2	*2437.00	94.4 AV			2.00 V	175	61.90	32.50
3	4874.00	47.2 PK	74.0	-26.8	1.84 V	66	45.20	2.00
4	4874.00	35.6 AV	54.0	-18.4	1.84 V	66	33.60	2.00
5	7311.00	62.0 PK	74.0	-12.0	1.54 V	66	54.00	8.00
6	7311.00	47.3 AV	54.0	-6.7	1.54 V	66	39.30	8.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.8 PK			1.01 H	200	67.20	32.60
2	*2462.00	88.6 AV			1.01 H	200	56.00	32.60
3	2483.50	59.9 PK	74.0	-14.1	1.03 H	341	27.10	32.80
4	2483.50	48.4 AV	54.0	-5.6	1.03 H	341	15.60	32.80
5	4924.00	49.0 PK	74.0	-25.0	1.95 H	357	46.90	2.10
6	4924.00	35.7 AV	54.0	-18.3	1.95 H	357	33.60	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.6 PK			1.08 V	68	66.00	32.60
2	*2462.00	88.5 AV			1.08 V	68	55.90	32.60
3	2483.50	60.3 PK	74.0	-13.7	1.06 V	96	27.50	32.80
4	2483.50	48.0 AV	54.0	-6.0	1.06 V	96	15.20	32.80
5	4924.00	48.6 PK	74.0	-25.4	1.74 V	99	46.50	2.10
6	4924.00	35.6 AV	54.0	-18.4	1.74 V	99	33.50	2.10

REMARKS:

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



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802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.4 PK	74.0	-15.6	1.01 H	207	26.10	32.30
2	2390.00	47.0 AV	54.0	-7.0	1.01 H	207	14.70	32.30
3	*2412.00	96.2 PK			1.00 H	194	63.70	32.50
4	*2412.00	84.9 AV			1.00 H	194	52.40	32.50
5	4824.00	47.2 PK	74.0	-26.8	1.34 H	228	45.20	2.00
6	4824.00	36.5 AV	54.0	-17.5	1.34 H	228	34.50	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.65 V	177	34.10	32.30
2	2390.00	47.1 AV	54.0	-6.9	1.65 V	177	14.80	32.30
3	*2412.00	98.2 PK			1.65 V	172	65.70	32.50
4	*2412.00	86.9 AV			1.65 V	172	54.40	32.50
5	4824.00	46.8 PK	74.0	-27.2	1.08 V	158	44.80	2.00
6	4824.00	34.6 AV	54.0	-19.4	1.08 V	158	32.60	2.00

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.2 PK			1.00 H	207	72.70	32.50
2	*2437.00	92.9 AV			1.00 H	207	60.40	32.50
3	4874.00	47.9 PK	74.0	-26.1	1.18 H	208	45.90	2.00
4	4874.00	37.2 AV	54.0	-16.8	1.18 H	208	35.20	2.00
5	7311.00	65.6 PK	74.0	-8.4	1.35 H	174	57.60	8.00
6	7311.00	50.6 AV	54.0	-3.4	1.35 H	174	42.60	8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.6 PK			1.12 V	174	75.10	32.50
2	*2437.00	95.0 AV			1.12 V	174	62.50	32.50
3	4874.00	44.8 PK	74.0	-29.2	1.22 V	227	42.80	2.00
4	4874.00	34.9 AV	54.0	-19.1	1.22 V	227	32.90	2.00
5	7311.00	67.1 PK	74.0	-6.9	1.36 V	70	59.10	8.00
6	7311.00	52.3 AV	54.0	-1.7	1.36 V	70	44.30	8.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	96.5 PK			1.04 H	208	63.90	32.60
2	*2462.00	85.0 AV			1.04 H	208	52.40	32.60
3	2483.50	61.5 PK	74.0	-12.5	1.02 H	208	28.70	32.80
4	2483.50	48.6 AV	54.0	-5.4	1.02 H	208	15.80	32.80
5	4924.00	47.3 PK	74.0	-26.7	1.29 H	241	45.20	2.10
6	4924.00	36.9 AV	54.0	-17.1	1.29 H	241	34.80	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.8 PK			1.64 V	175	66.20	32.60
2	*2462.00	86.8 AV			1.64 V	175	54.20	32.60
3	2483.50	65.0 PK	74.0	-9.0	1.58 V	177	32.20	32.80
4	2483.50	50.6 AV	54.0	-3.4	1.58 V	177	17.80	32.80
5	4924.00	44.6 PK	74.0	-29.4	1.09 V	168	42.50	2.10
6	4924.00	34.8 AV	54.0	-19.2	1.09 V	168	32.70	2.10

REMARKS:

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



A D T

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.8 PK	74.0	-15.2	1.00 H	204	26.50	32.30
2	2390.00	47.2 AV	54.0	-6.8	1.00 H	204	14.90	32.30
3	*2422.00	89.6 PK			1.00 H	209	57.10	32.50
4	*2422.00	79.6 AV			1.00 H	209	47.10	32.50
5	4844.00	47.2 PK	74.0	-26.8	1.29 H	248	45.20	2.00
6	4844.00	36.3 AV	54.0	-17.7	1.29 H	248	34.30	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	1.38 V	202	28.20	32.30
2	2390.00	48.2 AV	54.0	-5.8	1.38 V	202	15.90	32.30
3	*2422.00	92.7 PK			1.38 V	202	60.20	32.50
4	*2422.00	83.2 AV			1.38 V	202	50.70	32.50
5	4844.00	44.6 PK	74.0	-29.4	1.12 V	162	42.60	2.00
6	4844.00	34.9 AV	54.0	-19.1	1.12 V	162	32.90	2.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	1.00 H	204	28.70	32.30
2	2390.00	47.8 AV	54.0	-6.2	1.00 H	204	15.50	32.30
3	*2437.00	98.4 PK			1.00 H	205	65.90	32.50
4	*2437.00	87.1 AV			1.00 H	205	54.60	32.50
5	2483.50	60.4 PK	74.0	-13.6	1.02 H	206	27.60	32.80
6	2483.50	49.8 AV	54.0	-4.2	1.02 H	206	17.00	32.80
7	4874.00	47.6 PK	74.0	-26.4	1.22 H	258	45.60	2.00
8	4874.00	36.8 AV	54.0	-17.2	1.22 H	258	34.80	2.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.1 PK	74.0	-12.9	1.18 V	208	28.80	32.30
2	2390.00	48.5 AV	54.0	-5.5	1.18 V	208	16.20	32.30
3	*2437.00	99.2 PK			1.12 V	204	66.70	32.50
4	*2437.00	90.2 AV			1.12 V	204	57.70	32.50
5	2483.50	59.6 PK	74.0	-14.4	1.12 V	208	26.80	32.80
6	2483.50	48.2 AV	54.0	-5.8	1.12 V	208	15.40	32.80
7	4874.00	44.6 PK	74.0	-29.4	1.08 V	177	42.60	2.00
8	4874.00	34.5 AV	54.0	-19.5	1.08 V	177	32.50	2.00

REMARKS:

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



A D T

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	92.5 PK			1.00 H	204	59.90	32.60
2	*2452.00	83.4 AV			1.00 H	204	50.80	32.60
3	2483.50	60.5 PK	74.0	-13.5	1.02 H	208	27.70	32.80
4	2483.50	48.8 AV	54.0	-5.2	1.02 H	208	16.00	32.80
5	4904.00	46.9 PK	74.0	-27.1	1.24 H	242	44.80	2.10
6	4904.00	36.2 AV	54.0	-17.8	1.24 H	242	34.10	2.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	93.2 PK			1.37 V	177	60.60	32.60
2	*2452.00	84.8 AV			1.37 V	177	52.20	32.60
3	2483.50	61.6 PK	74.0	-12.4	1.39 V	177	28.80	32.80
4	2483.50	49.6 AV	54.0	-4.4	1.39 V	177	16.80	32.80
5	4904.00	44.8 PK	74.0	-29.2	1.17 V	158	42.70	2.10
6	4904.00	34.8 AV	54.0	-19.2	1.17 V	158	32.70	2.10

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	35.6 QP	40.0	-4.4	1.25 H	224	51.40	-15.80
2	199.44	36.5 QP	43.5	-7.0	1.50 H	251	52.90	-16.40
3	280.27	36.8 QP	46.0	-9.2	1.50 H	267	49.50	-12.70
4	375.10	34.0 QP	46.0	-12.0	1.50 H	243	44.60	-10.60
5	625.37	34.8 QP	46.0	-11.2	1.00 H	313	40.40	-5.60
6	675.11	35.2 QP	46.0	-10.8	1.25 H	336	40.40	-5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.28	36.2 QP	40.0	-3.8	1.41 V	269	52.00	-15.80
2	54.87	36.0 QP	40.0	-4.0	1.25 V	22	50.00	-14.00
3	98.40	32.6 QP	43.5	-10.9	1.25 V	261	51.50	-18.90
4	143.48	34.1 QP	43.5	-9.4	1.50 V	258	48.20	-14.10
5	255.40	34.2 QP	46.0	-11.8	1.50 V	200	48.10	-13.90
6	375.10	34.5 QP	46.0	-11.5	1.00 V	247	45.10	-10.60

REMARKS:

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

4.1.12 TEST RESULTS (C2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.55	35.2 QP	40.0	-4.8	1.25 H	255	51.00	-15.80
2	151.25	34.4 QP	43.5	-9.1	1.50 H	265	48.00	-13.60
3	294.26	35.6 QP	46.0	-10.4	1.50 H	143	47.90	-12.30
4	375.10	34.8 QP	46.0	-11.2	1.25 H	117	45.40	-10.60
5	625.37	35.2 QP	46.0	-10.8	1.25 H	150	40.80	-5.60
6	675.11	38.8 QP	46.0	-7.2	1.50 H	344	44.00	-5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.48	36.8 QP	40.0	-3.2	1.25 V	208	52.60	-15.80
2	104.62	31.5 QP	43.5	-12.0	1.50 V	5	49.30	-17.80
3	260.06	34.2 QP	46.0	-11.8	1.50 V	193	47.90	-13.70
4	375.10	32.2 QP	46.0	-13.8	2.00 V	143	42.80	-10.60
5	625.37	32.6 QP	46.0	-13.4	1.50 V	64	38.20	-5.60
6	675.11	32.4 QP	46.0	-13.6	1.50 V	191	37.60	-5.20

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

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

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

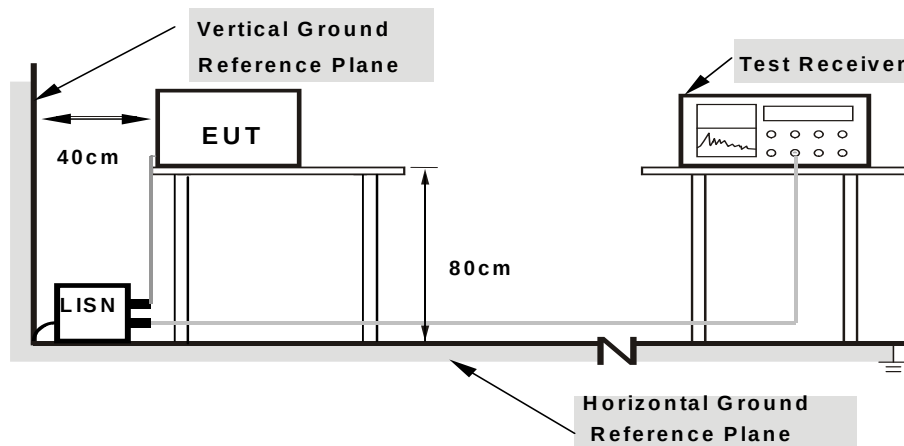
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

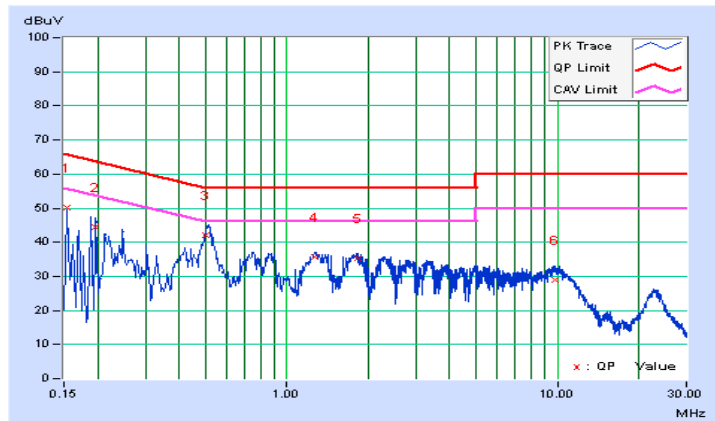
4.2.7 TEST RESULTS (A1)

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

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	0.15391	0.11	49.91	33.19	50.02	33.30	65.79	55.79	-15.77	-22.49
2	0.19692	0.12	44.17	29.21	44.29	29.33	63.74	53.74	-19.45	-24.41
3	0.50000	0.12	41.99	36.28	42.11	36.40	56.00	46.00	-13.89	-9.60
4	1.27608	0.15	35.53	29.71	35.68	29.86	56.00	46.00	-20.32	-16.14
5	1.83201	0.16	35.24	29.32	35.40	29.48	56.00	46.00	-20.60	-16.52
6	9.78424	0.49	28.62	22.42	29.11	22.91	60.00	50.00	-30.89	-27.09

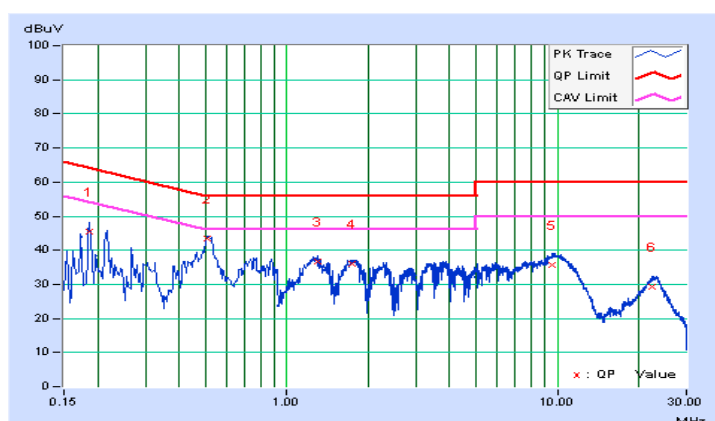
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor +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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18519	0.08	45.46	30.14	45.54	30.22	64.25	54.25	-18.71	-24.03
2	0.50908	0.09	43.19	36.50	43.28	36.59	56.00	46.00	-12.72	-9.41
3	1.29563	0.11	36.62	30.63	36.73	30.74	56.00	46.00	-19.27	-15.26
4	1.73796	0.12	35.88	30.25	36.00	30.37	56.00	46.00	-20.00	-15.63
5	9.60047	0.33	35.49	29.99	35.82	30.32	60.00	50.00	-24.18	-19.68
6	22.41745	0.61	28.52	22.98	29.13	23.59	60.00	50.00	-30.87	-26.41

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.



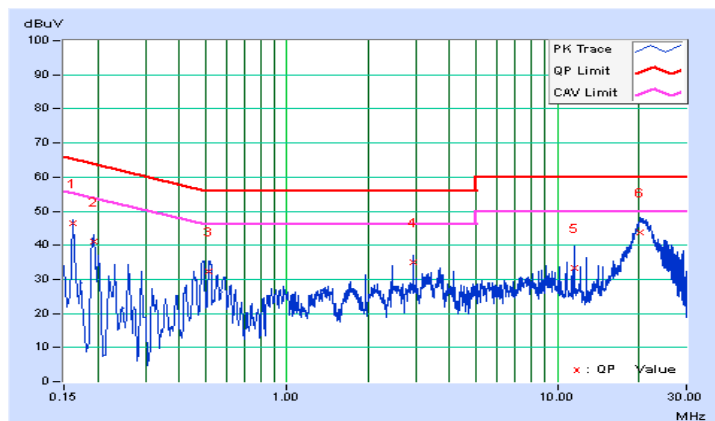
4.2.8 TEST RESULTS (A2)

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

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	0.16173	0.11	46.33	36.96	46.44	37.07	65.37	55.37	-18.93	-18.30
2	0.19305	0.12	41.10	32.17	41.22	32.29	63.90	53.90	-22.69	-21.62
3	0.51363	0.12	32.37	28.22	32.49	28.34	56.00	46.00	-23.51	-17.66
4	2.93392	0.19	34.69	32.75	34.88	32.94	56.00	46.00	-21.12	-13.06
5	11.54374	0.58	32.82	19.43	33.40	20.01	60.00	50.00	-26.60	-29.99
6	20.30605	1.04	42.62	36.78	43.66	37.82	60.00	50.00	-16.34	-12.18

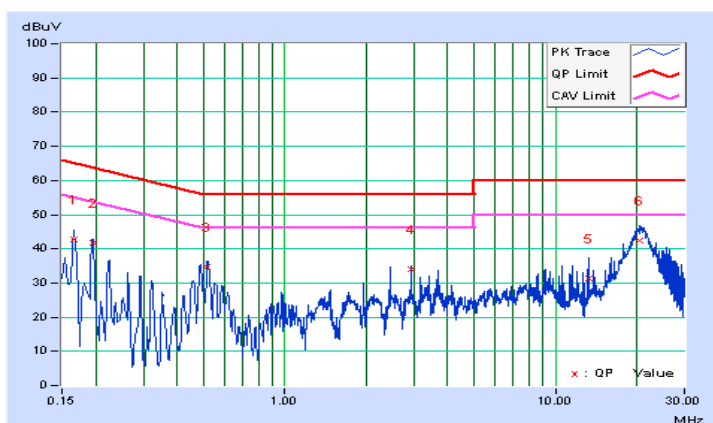
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16569	0.08	42.75	32.62	42.83	32.70	65.17	55.17	-22.34	-22.47
2	0.19510	0.08	41.53	32.26	41.61	32.34	63.82	53.82	-22.21	-21.48
3	0.51754	0.09	34.55	33.03	34.64	33.12	56.00	46.00	-21.36	-12.88
4	2.93392	0.15	33.93	32.43	34.08	32.58	56.00	46.00	-21.92	-13.42
5	13.31106	0.42	30.92	18.48	31.34	18.90	60.00	50.00	-28.66	-31.10
6	20.45854	0.59	41.92	35.91	42.51	36.50	60.00	50.00	-17.49	-13.50

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.



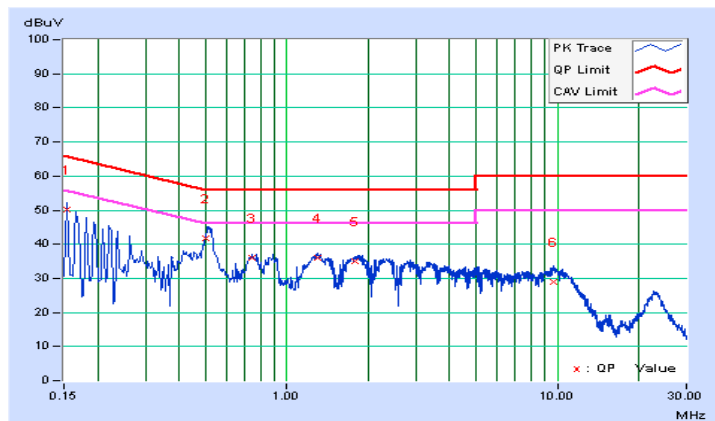
4.2.9 TEST RESULTS (B1)

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

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	0.15391	0.11	50.15	33.32	50.26	33.43	65.79	55.79	-15.53	-22.36
2	0.50000	0.12	41.50	35.84	41.62	35.96	56.00	46.00	-14.38	-10.04
3	0.74792	0.13	35.75	29.14	35.88	29.27	56.00	46.00	-20.12	-16.73
4	1.30754	0.15	36.04	29.75	36.19	29.90	56.00	46.00	-19.81	-16.10
5	1.79611	0.16	34.85	29.45	35.01	29.61	56.00	46.00	-20.99	-16.39
6	9.72950	0.49	28.62	22.18	29.11	22.67	60.00	50.00	-30.89	-27.33

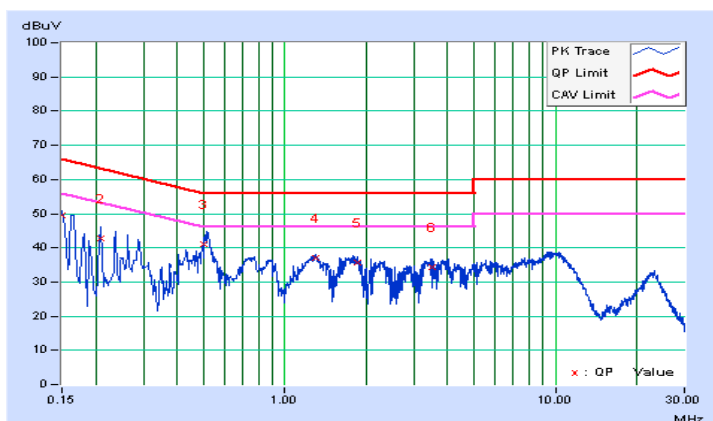
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.08	49.47	32.33	49.55	32.41	66.00	56.00	-16.45	-23.59
2	0.20865	0.08	42.66	27.81	42.74	27.89	63.26	53.26	-20.52	-25.37
3	0.50000	0.09	41.05	35.24	41.14	35.33	56.00	46.00	-14.86	-10.67
4	1.29724	0.11	36.81	30.73	36.92	30.84	56.00	46.00	-19.08	-15.16
5	1.85476	0.13	35.52	29.08	35.65	29.21	56.00	46.00	-20.35	-16.79
6	3.50478	0.16	34.23	27.31	34.39	27.47	56.00	46.00	-21.61	-18.53

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.



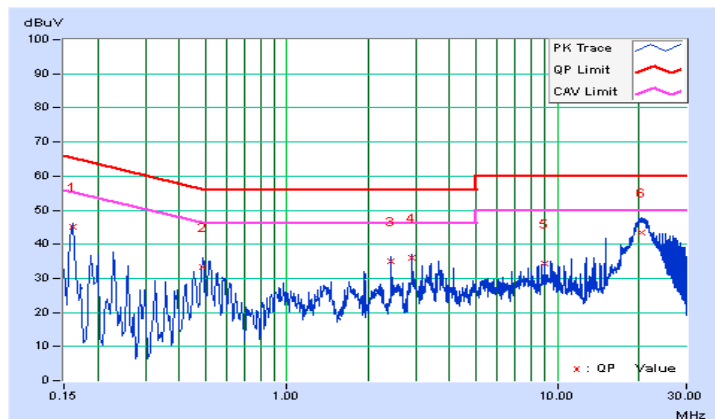
4.2.10 TEST RESULTS (B2)

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

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	0.16173	0.11	44.88	35.64	44.99	35.75	65.37	55.37	-20.38	-19.62
2	0.49064	0.12	33.10	28.38	33.22	28.50	56.16	46.16	-22.93	-17.65
3	2.42562	0.17	34.73	33.96	34.90	34.13	56.00	46.00	-21.10	-11.87
4	2.91046	0.19	35.70	34.19	35.89	34.38	56.00	46.00	-20.11	-11.62
5	8.97096	0.45	33.86	31.86	34.31	32.31	60.00	50.00	-25.69	-17.69
6	20.45854	1.04	42.32	36.46	43.36	37.50	60.00	50.00	-16.64	-12.50

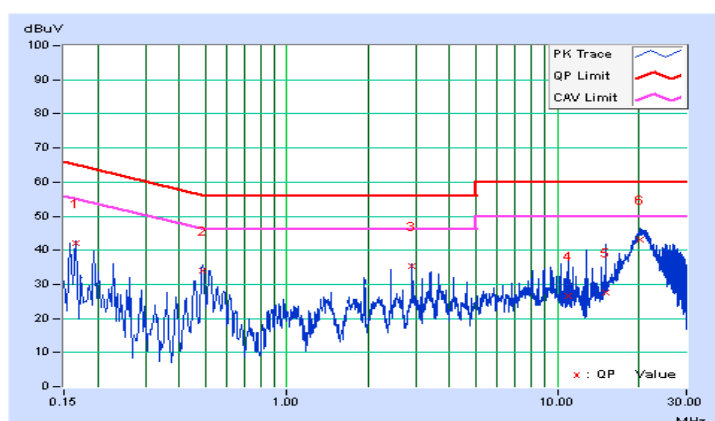
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16564	0.08	41.97	31.94	42.05	32.02	65.18	55.18	-23.13	-23.16
2	0.49017	0.09	33.85	30.10	33.94	30.19	56.16	46.16	-22.22	-15.97
3	2.91046	0.15	35.14	34.07	35.29	34.22	56.00	46.00	-20.71	-11.78
4	10.92987	0.36	26.30	21.47	26.66	21.83	60.00	50.00	-33.34	-28.17
5	15.08229	0.47	27.23	22.15	27.70	22.62	60.00	50.00	-32.30	-27.38
6	20.18484	0.59	42.41	36.25	43.00	36.84	60.00	50.00	-17.00	-13.16

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



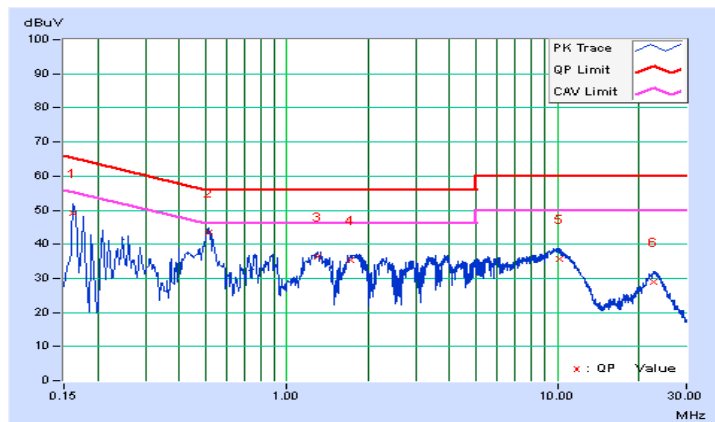
4.2.11 TEST RESULTS (C1)

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

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	0.16181	0.11	48.93	33.24	49.04	33.35	65.37	55.37	-16.33	-22.02
2	0.51177	0.12	43.24	36.25	43.36	36.37	56.00	46.00	-12.64	-9.63
3	1.29383	0.15	36.35	30.52	36.50	30.67	56.00	46.00	-19.50	-15.33
4	1.71974	0.15	35.20	29.38	35.35	29.53	56.00	46.00	-20.65	-16.47
5	10.12441	0.51	35.09	30.12	35.60	30.63	60.00	50.00	-24.40	-19.37
6	22.66378	1.08	27.99	22.43	29.07	23.51	60.00	50.00	-30.93	-26.49

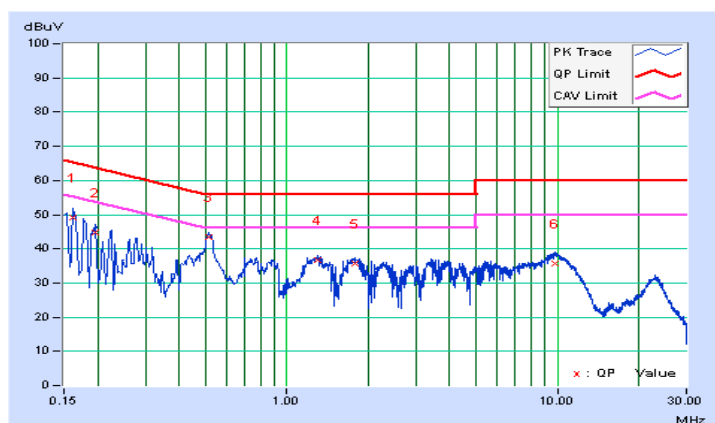
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor +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



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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	0.08	49.13	33.47	49.21	33.55	65.37	55.37	-16.16	-21.82
2	0.19665	0.08	44.54	29.85	44.62	29.93	63.75	53.75	-19.13	-23.82
3	0.51448	0.09	43.39	36.30	43.48	36.39	56.00	46.00	-12.52	-9.61
4	1.30754	0.11	36.57	30.45	36.68	30.56	56.00	46.00	-19.32	-15.44
5	1.77656	0.12	35.59	29.77	35.71	29.89	56.00	46.00	-20.29	-16.11
6	9.75296	0.33	35.28	29.87	35.61	30.20	60.00	50.00	-24.39	-19.80

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.



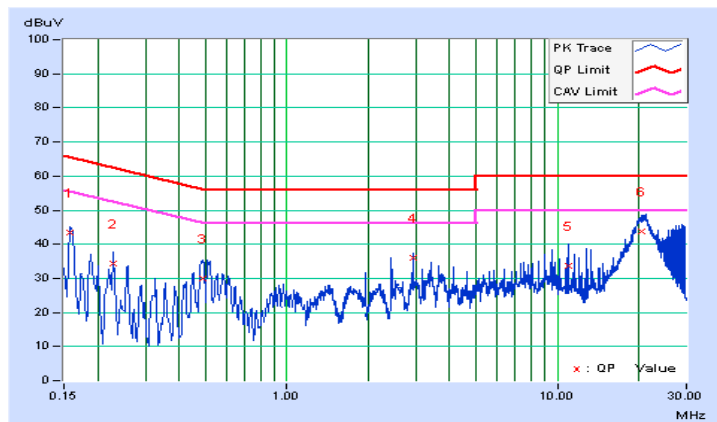
4.2.12 TEST RESULTS (C2)

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

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	0.15782	0.11	43.38	33.90	43.49	34.01	65.58	55.58	-22.09	-21.57
2	0.22820	0.12	34.34	26.15	34.46	26.27	62.51	52.51	-28.05	-26.24
3	0.48935	0.12	29.74	24.04	29.86	24.16	56.18	46.18	-26.32	-22.02
4	2.92219	0.19	35.88	34.46	36.07	34.65	56.00	46.00	-19.93	-11.35
5	10.92987	0.55	33.09	19.11	33.64	19.66	60.00	50.00	-26.36	-30.34
6	20.52501	1.04	42.81	36.94	43.85	37.98	60.00	50.00	-16.15	-12.02

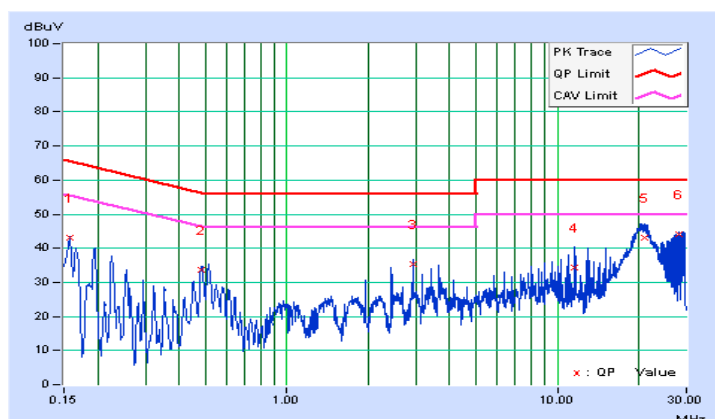
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15782	0.08	43.17	33.17	43.25	33.25	65.58	55.58	-22.33	-22.33
2	0.48550	0.09	33.48	30.35	33.57	30.44	56.24	46.24	-22.67	-15.80
3	2.92219	0.15	35.29	34.27	35.44	34.42	56.00	46.00	-20.56	-11.58
4	11.54374	0.38	33.97	19.07	34.35	19.45	60.00	50.00	-25.65	-30.55
5	20.95120	0.60	42.36	36.46	42.96	37.06	60.00	50.00	-17.04	-12.94
6	28.01657	0.65	43.45	43.36	44.10	44.01	60.00	50.00	-15.90	-5.99

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

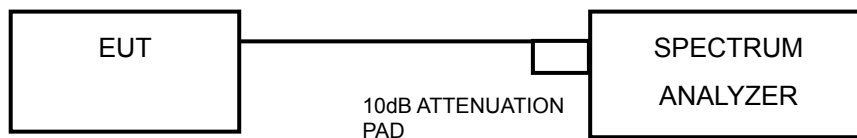


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

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

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	10.12	10.13	0.5	PASS
6	2437	10.10	10.11	0.5	PASS
11	2462	10.12	10.12	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.44	16.41	0.5	PASS
6	2437	16.37	16.40	0.5	PASS
11	2462	16.38	16.39	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.38	17.26	0.5	PASS
6	2437	17.36	17.19	0.5	PASS
11	2462	17.60	17.59	0.5	PASS

802.11n (40MHz)

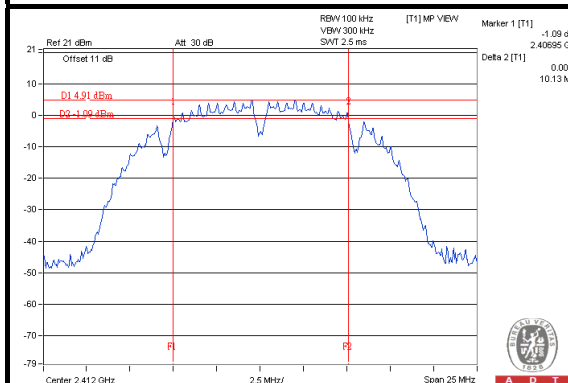
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.87	35.86	0.5	PASS
6	2437	36.17	36.19	0.5	PASS
9	2452	36.47	36.50	0.5	PASS



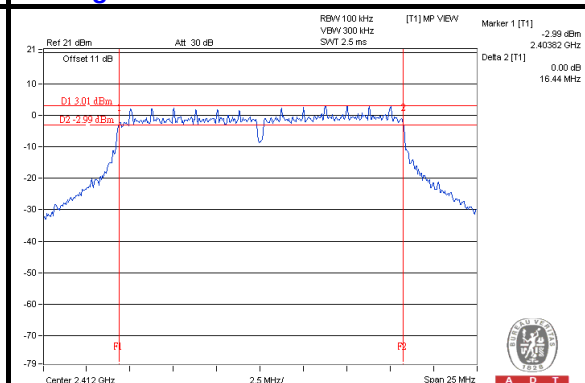
A D T

SPECTRUM PLOT OF WORST VALUE

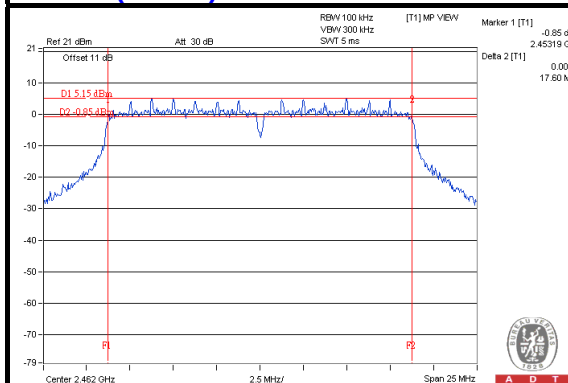
802.11b



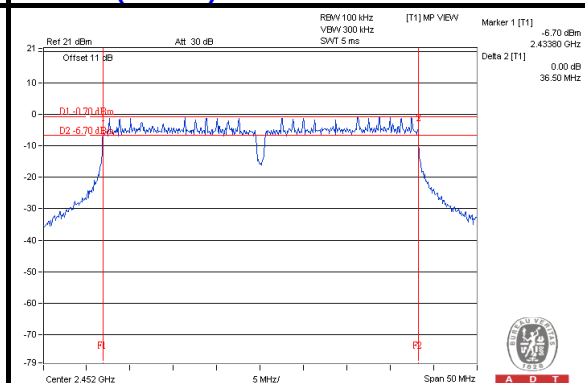
802.11g



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,

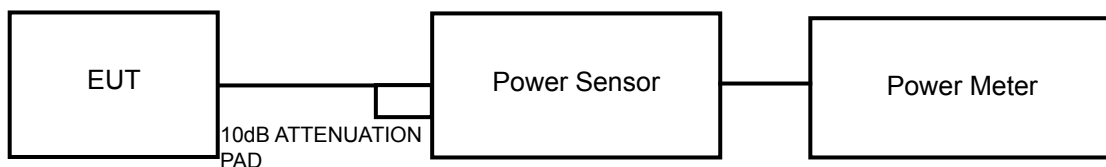
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

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



A D T

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

FOR AVERAGE POWER

802.11b

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	14.43	14.31	54.710	17.38	30	PASS
6	2437	20.76	20.19	223.596	23.49	30	PASS
11	2462	18.73	18.52	145.766	21.64	30	PASS

802.11g

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	14.43	14.37	55.086	17.41	30	PASS
6	2437	21.71	20.60	263.067	24.20	30	PASS
11	2462	17.21	16.61	98.416	19.93	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.78	15.46	73.000	18.63	30	PASS
6	2437	23.48	23.26	434.680	26.38	30	PASS
11	2462	16.52	16.27	87.239	19.41	30	PASS

802.11n (40MHz)

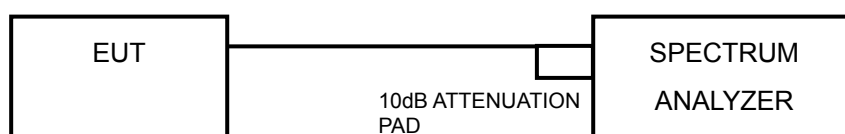
CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	12.86	12.30	36.302	15.60	30	PASS
6	2437	19.18	18.71	157.096	21.96	30	PASS
9	2452	14.48	13.49	50.390	17.02	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

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	-16.54	3.01	-13.53	6.54	PASS
	6	2437	-10.63	3.01	-7.62	6.54	PASS
	11	2462	-12.93	3.01	-9.92	6.54	PASS
1	1	2412	-17.18	3.01	-14.17	6.54	PASS
	6	2437	-10.39	3.01	-7.38	6.54	PASS
	11	2462	-11.75	3.01	-8.74	6.54	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.46\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (7.46 - 6) = 6.54\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-17.25	3.01	-14.24	0.19	-14.05	6.54	PASS
	6	2437	-11.72	3.01	-8.71	0.19	-8.52	6.54	PASS
	11	2462	-16.57	3.01	-13.56	0.19	-13.37	6.54	PASS
1	1	2412	-18.72	3.01	-15.71	0.19	-15.52	6.54	PASS
	6	2437	-11.93	3.01	-8.92	0.19	-8.73	6.54	PASS
	11	2462	-16.64	3.01	-13.63	0.19	-13.44	6.54	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.46\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (7.46 - 6) = 6.54\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (20MHz)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-16.75	3.01	-13.74	0.19	-13.55	6.54	PASS
	6	2437	-10.07	3.01	-7.06	0.19	-6.87	6.54	PASS
	11	2462	-17.13	3.01	-14.12	0.19	-13.93	6.54	PASS
1	1	2412	-17.18	3.01	-14.17	0.19	-13.98	6.54	PASS
	6	2437	-9.74	3.01	-6.73	0.19	-6.54	6.54	PASS
	11	2462	-17.69	3.01	-14.68	0.19	-14.49	6.54	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.46\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (7.46 - 6) = 6.54\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-22.84	3.01	-19.83	0.28	-19.55	6.54	PASS
	6	2437	-15.95	3.01	-12.94	0.28	-12.66	6.54	PASS
	9	2452	-21.83	3.01	-18.82	0.28	-18.54	6.54	PASS
1	3	2422	-22.16	3.01	-19.15	0.28	-18.87	6.54	PASS
	6	2437	-16.45	3.01	-13.44	0.28	-13.16	6.54	PASS
	9	2452	-22.17	3.01	-19.16	0.28	-18.88	6.54	PASS

NOTE:

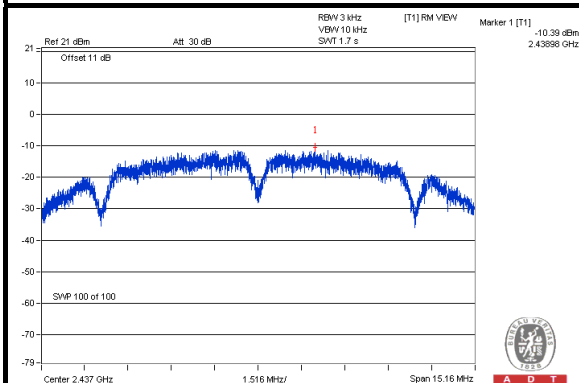
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.46\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (7.46 - 6) = 6.54\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.



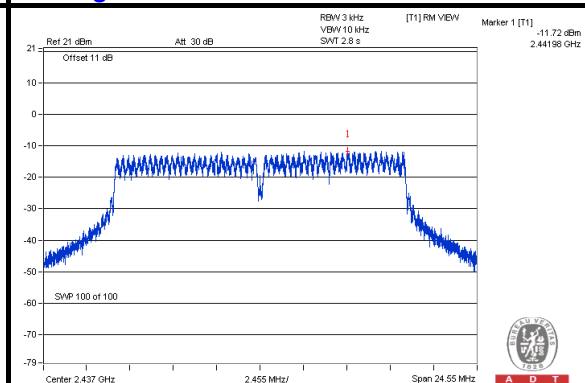
A D T

SPECTRUM PLOT OF WORST VALUE

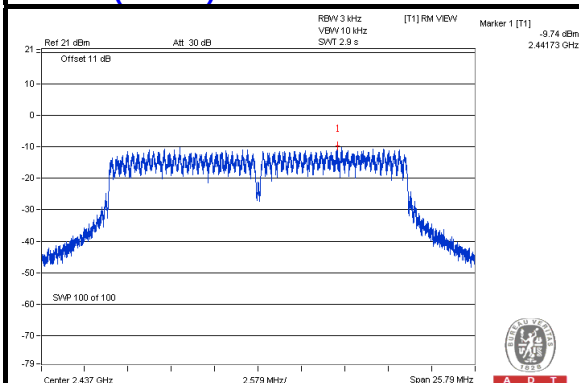
802.11b



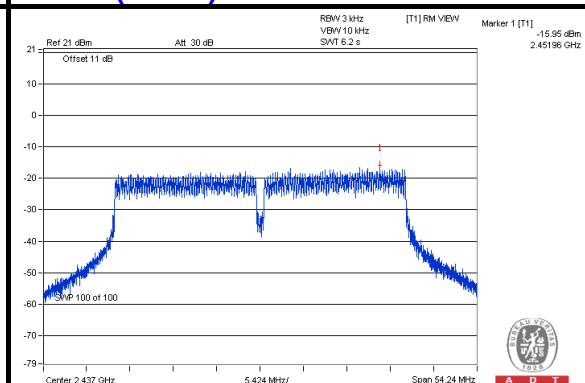
802.11g



802.11n (20MHz)



802.11n (40MHz)

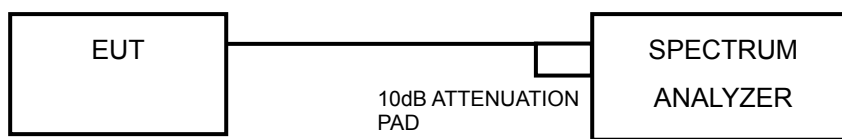


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Ensure that the number of measurement points $\geq$ span/RBW
4. According to measurement points to set differ measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

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

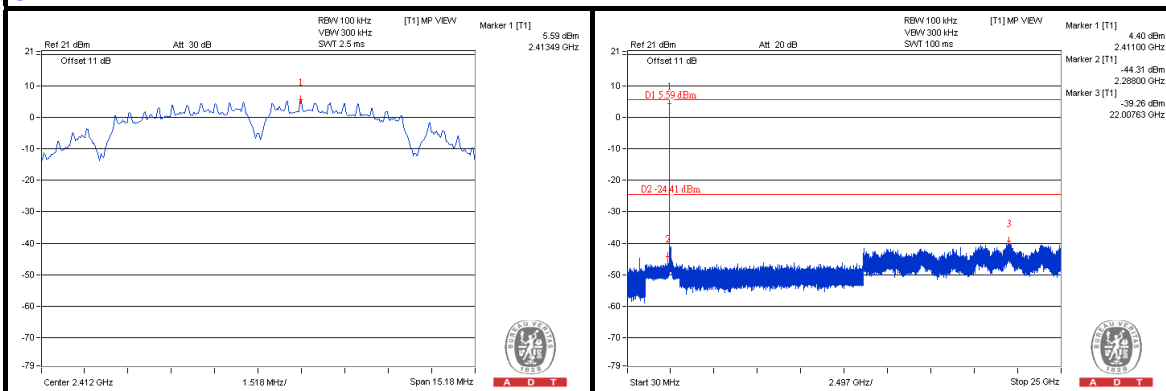
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.



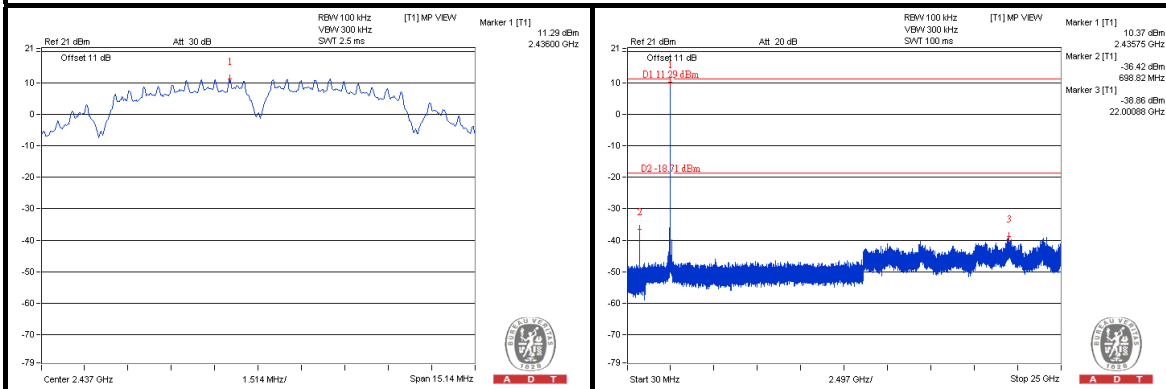
A D T

802.11b: CHAIN 0

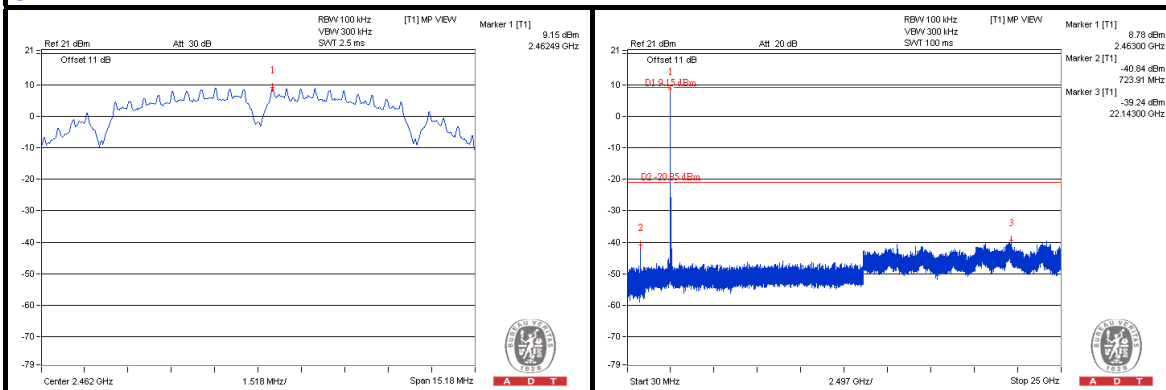
CH 1



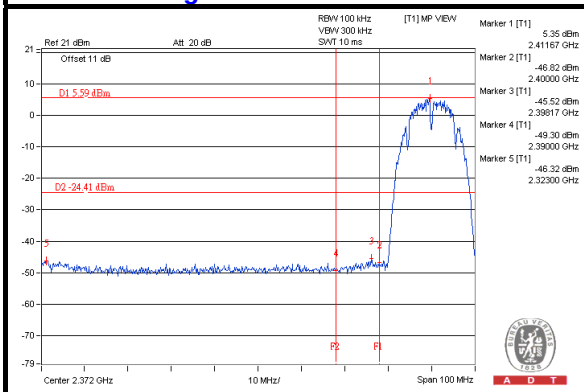
CH 6



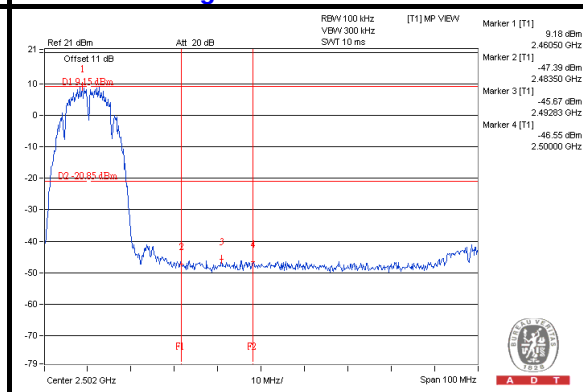
CH 11



CH 1 Band edge



CH 11 Band edge

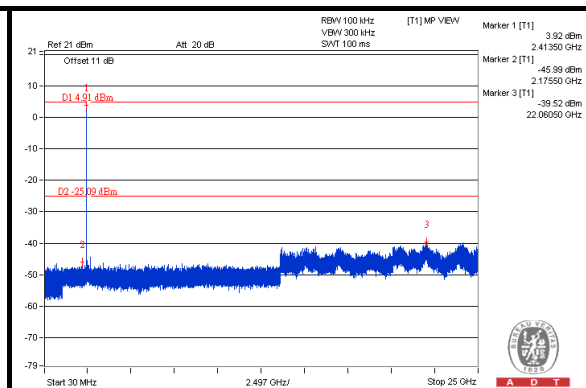
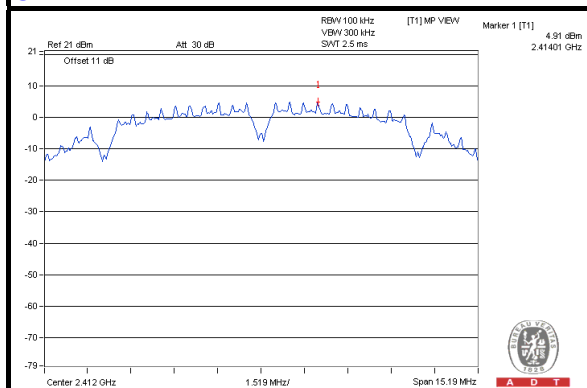




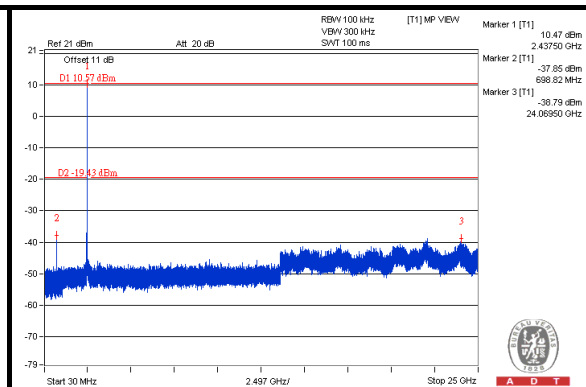
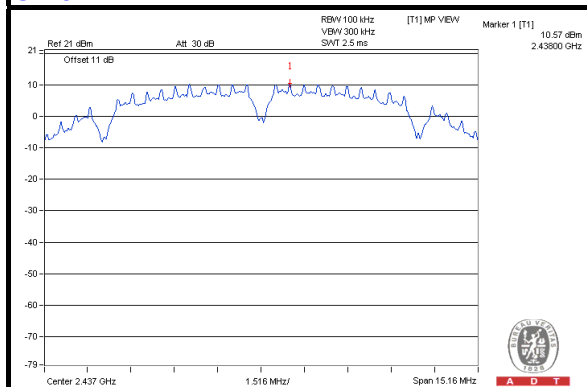
A D T

CHAIN 1

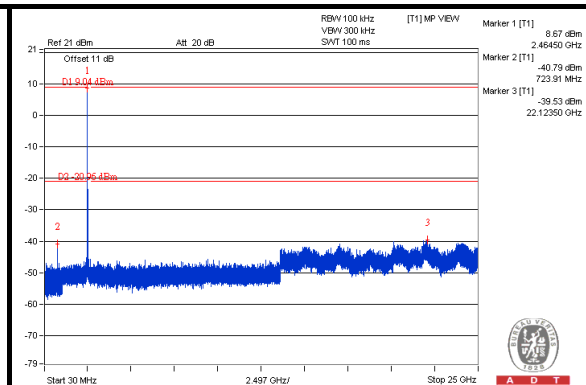
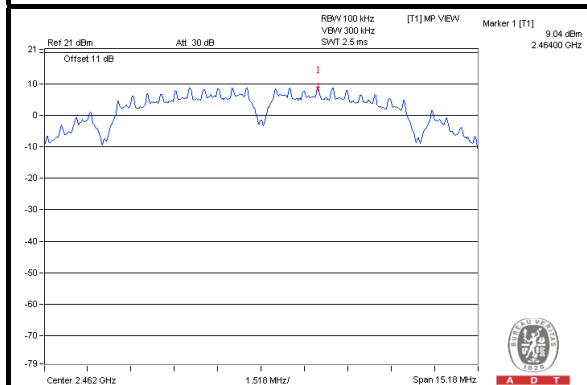
CH 1



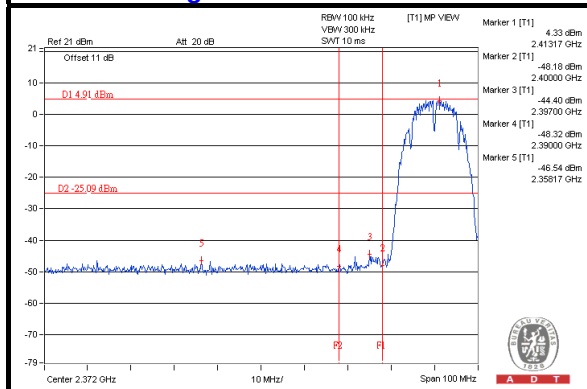
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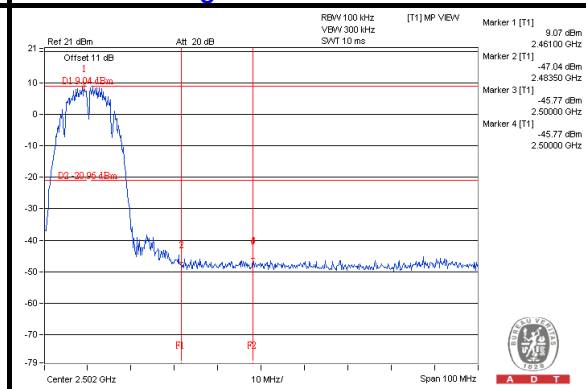
CH 11



CH 1 Band edge



CH 11 Band edge

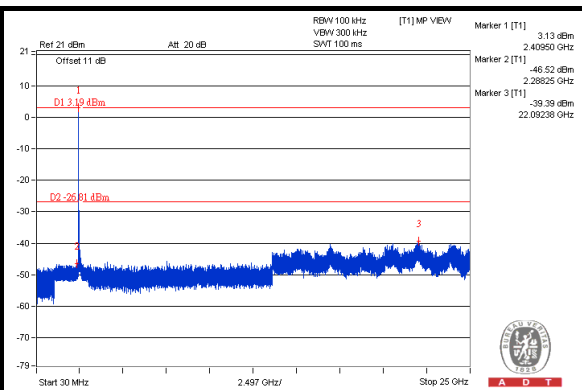
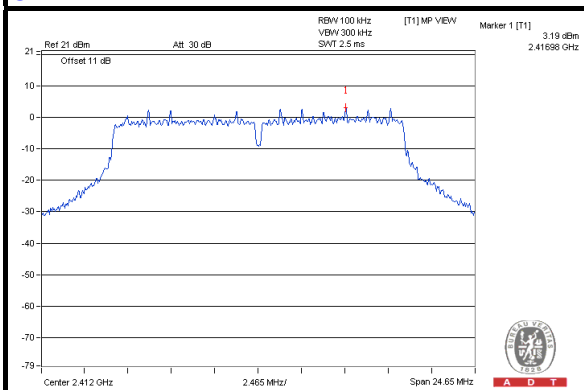




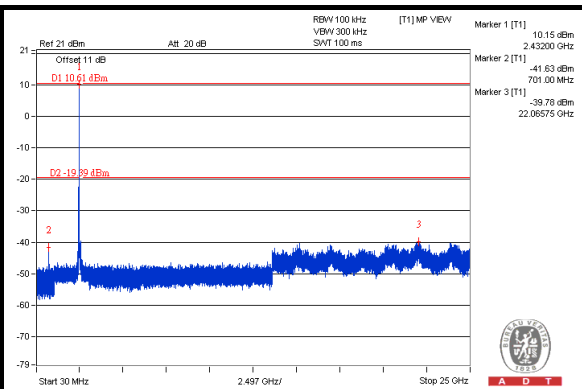
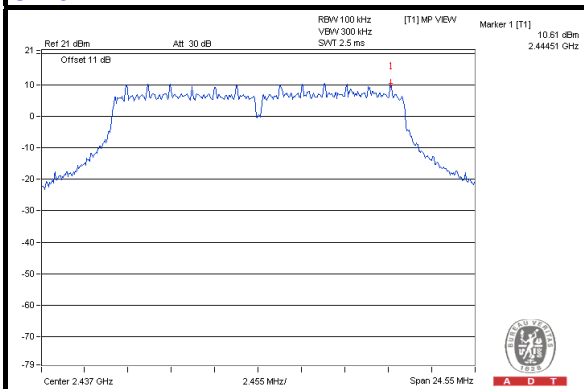
A D T

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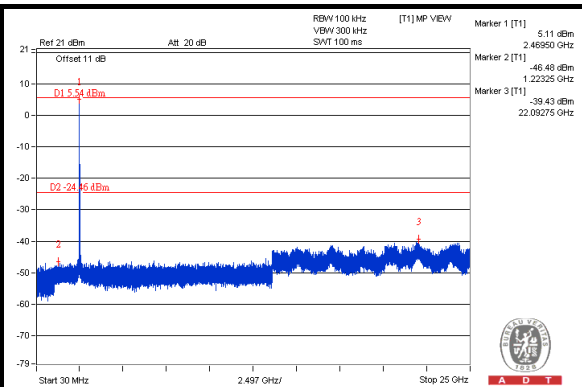
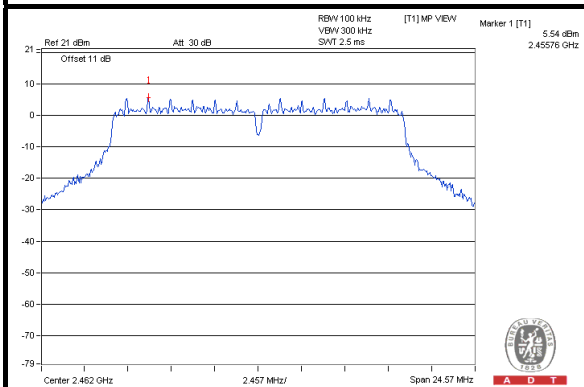
CH 1



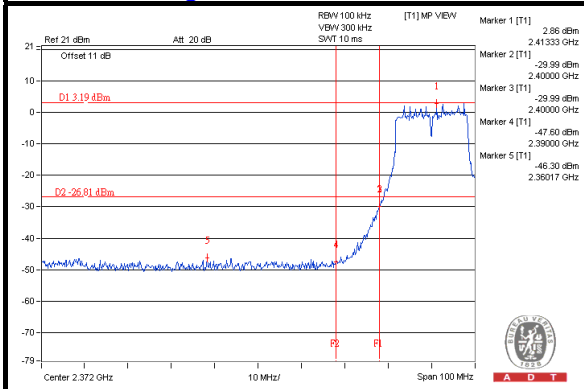
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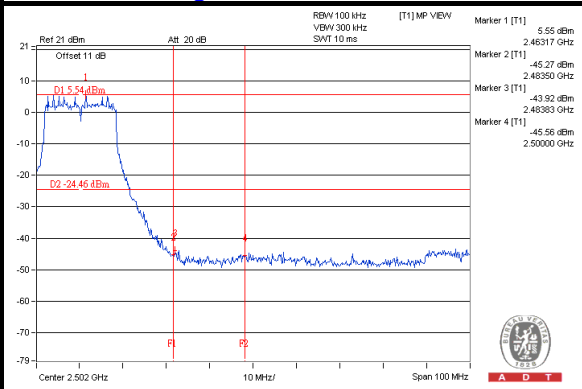
CH 11



CH 1 Band edge



CH 11 Band edge

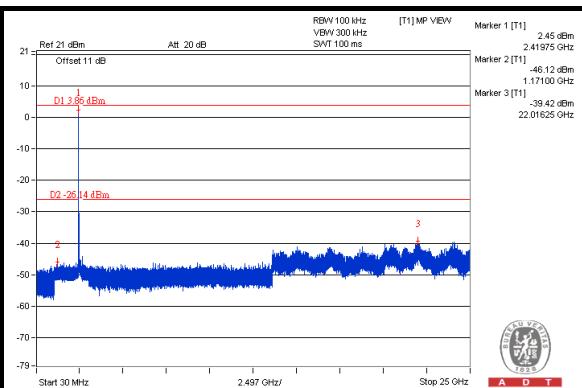
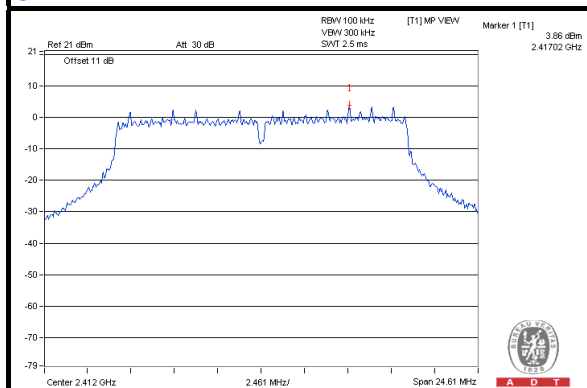




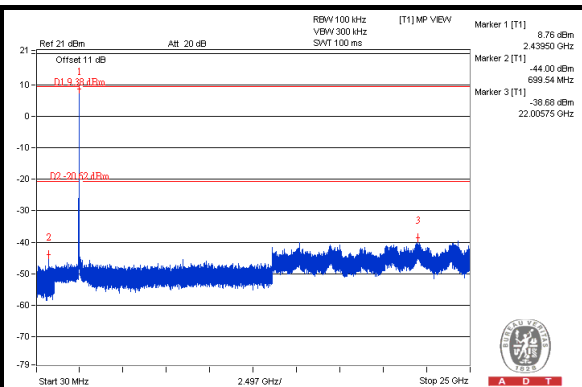
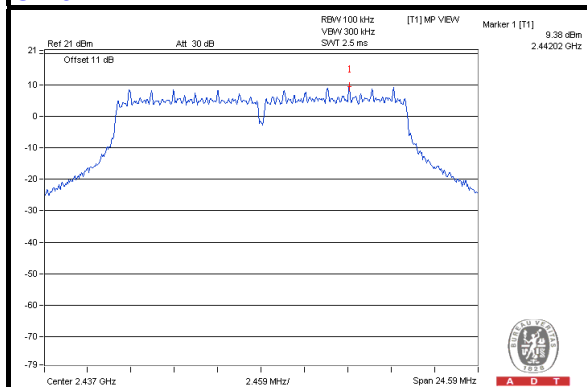
A D T

CHAIN 1

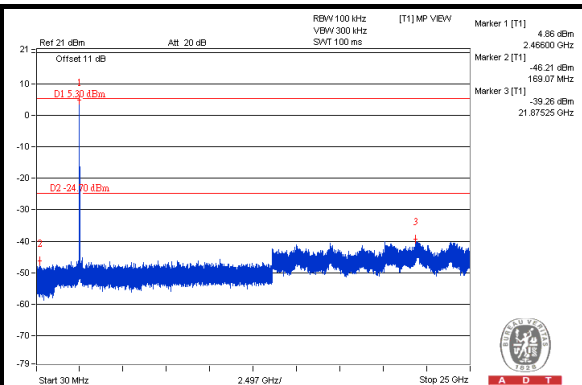
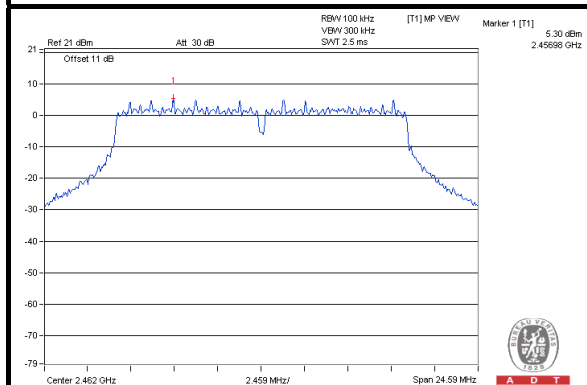
CH 1



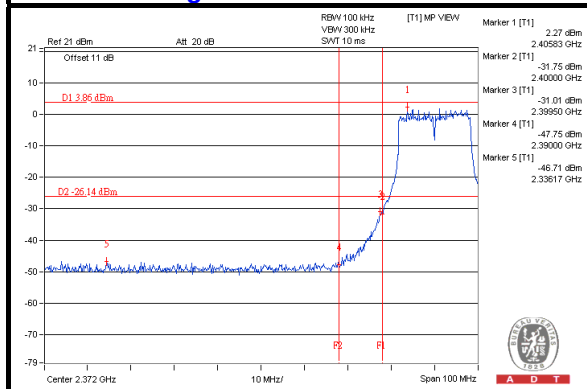
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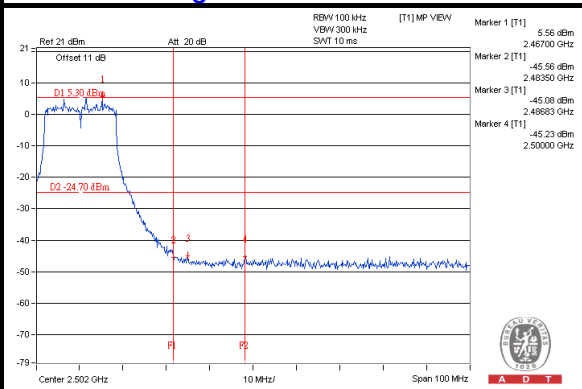
CH 11



CH 1 Band edge



CH 11 Band edge

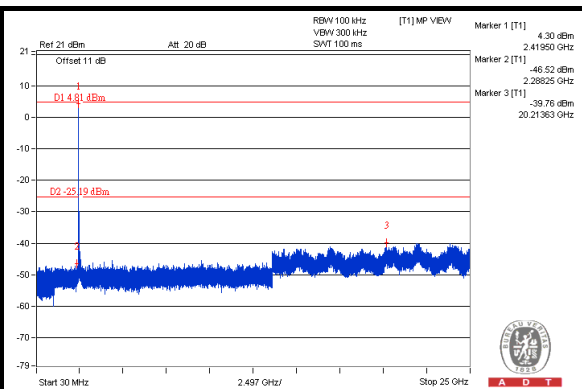
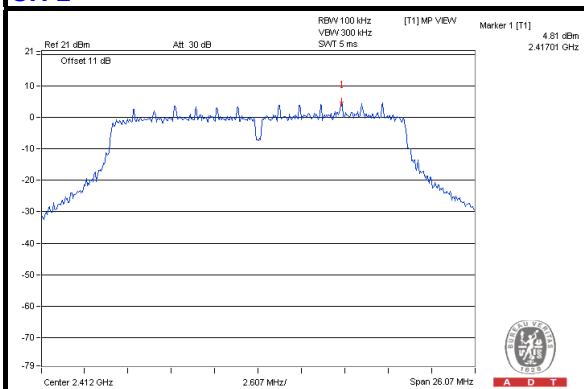




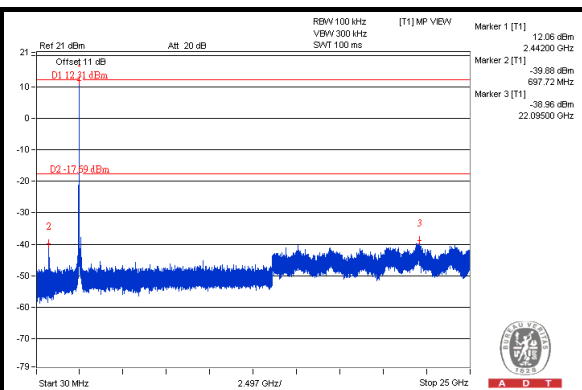
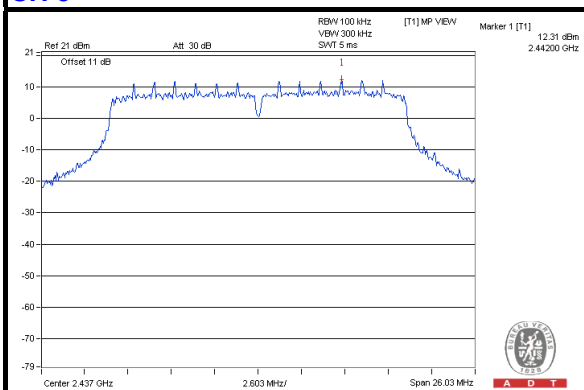
A D T

802.11n (20MHz): CHAIN 0

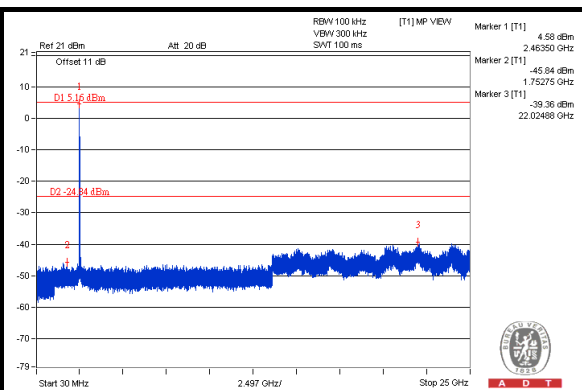
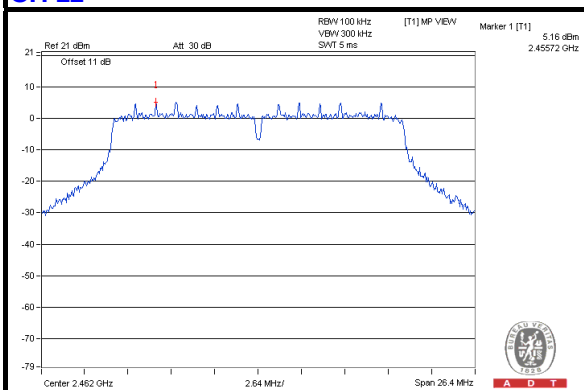
CH 1



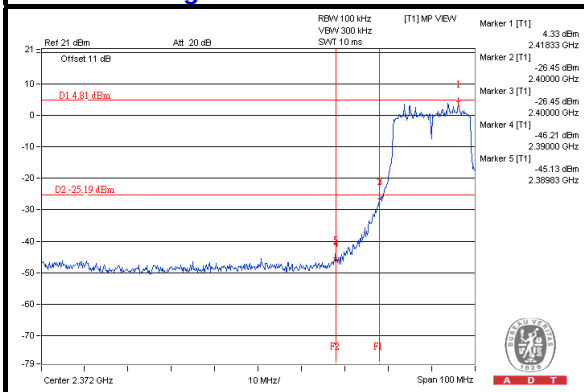
CH 6



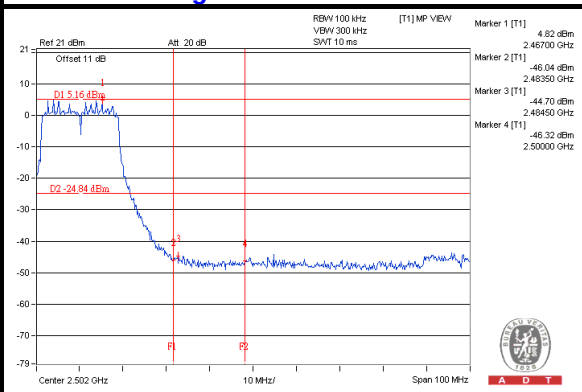
CH 11



CH 1 Band edge



CH 11 Band edge

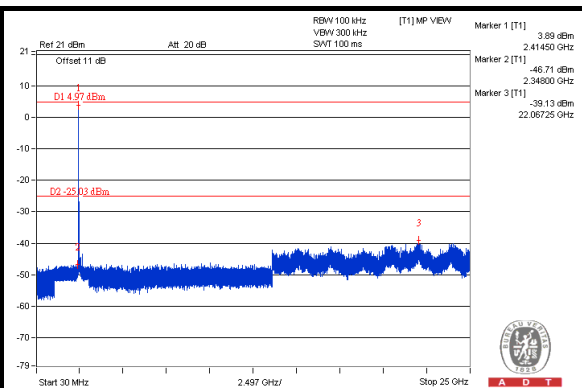
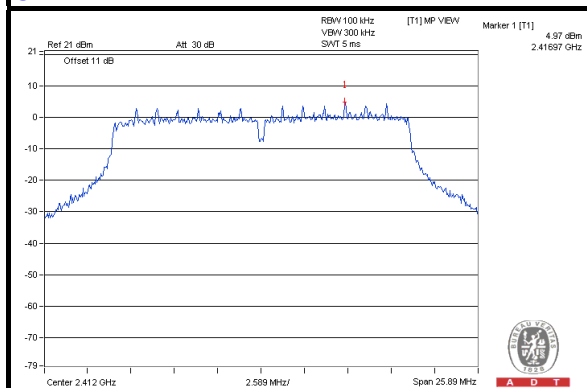




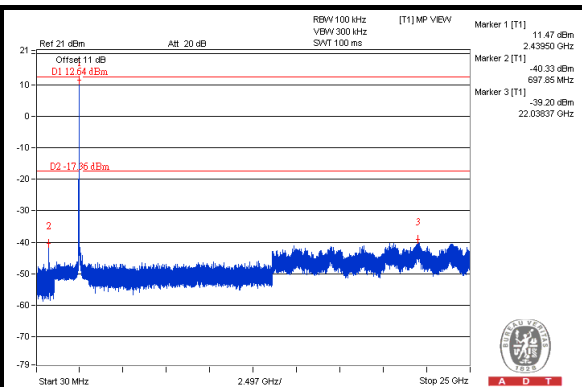
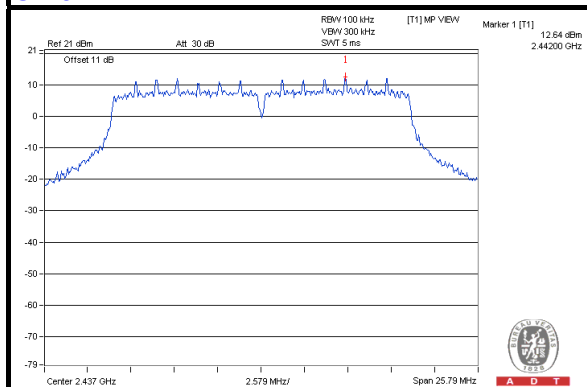
A D T

CHAIN 1

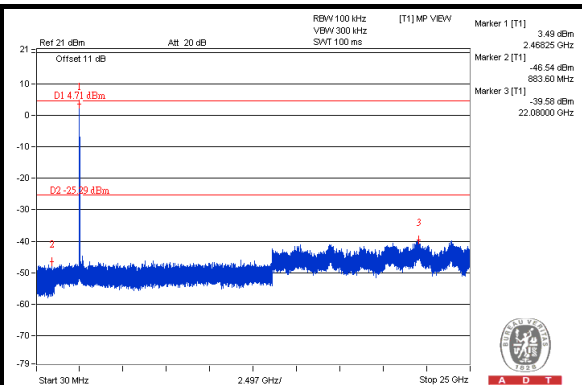
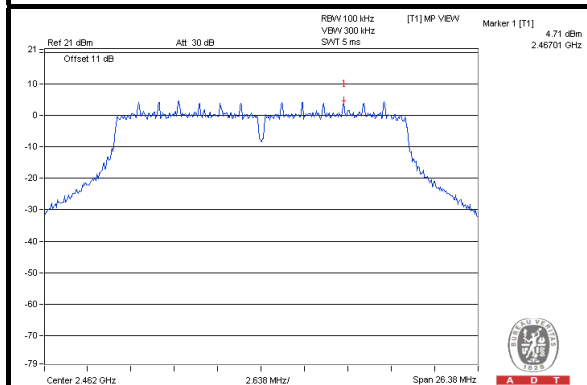
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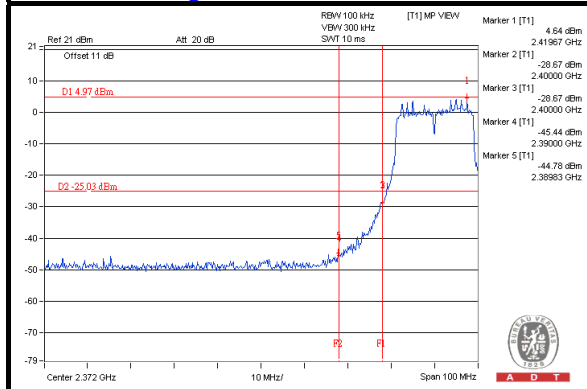
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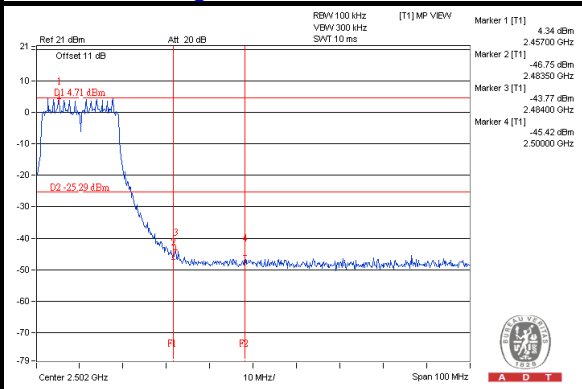
CH 11



CH 1 Band edge



CH 11 Band edge

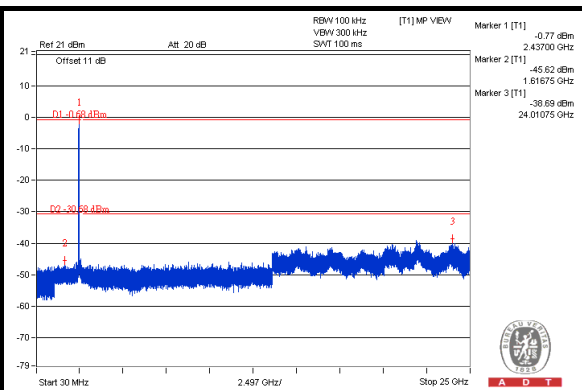
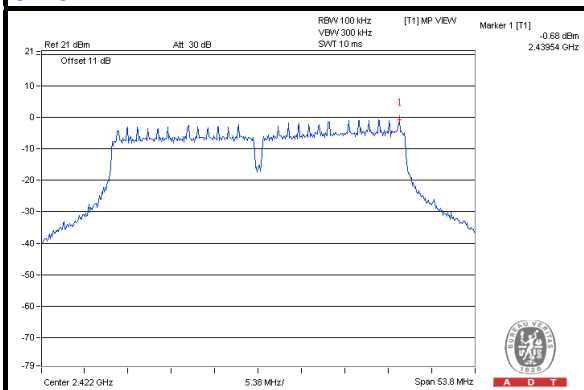




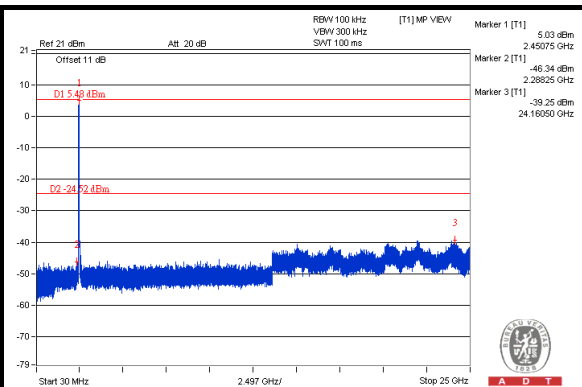
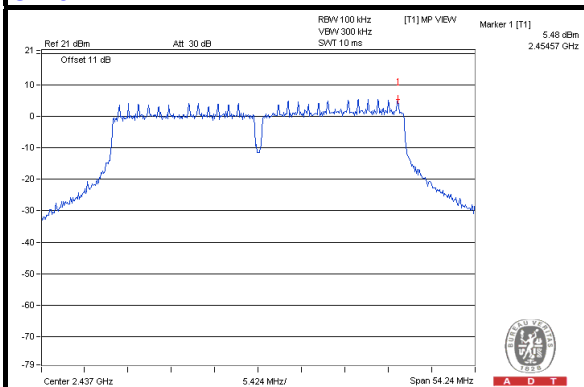
A D T

802.11n (40MHz): CHAIN 0

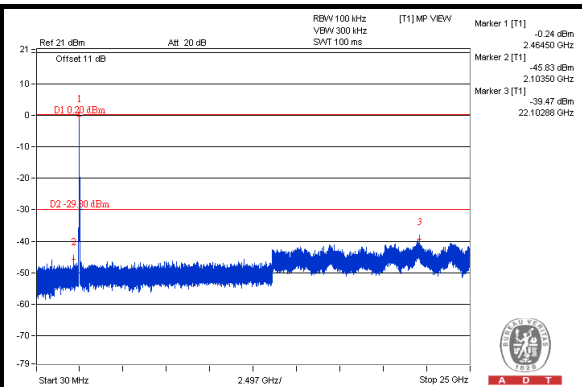
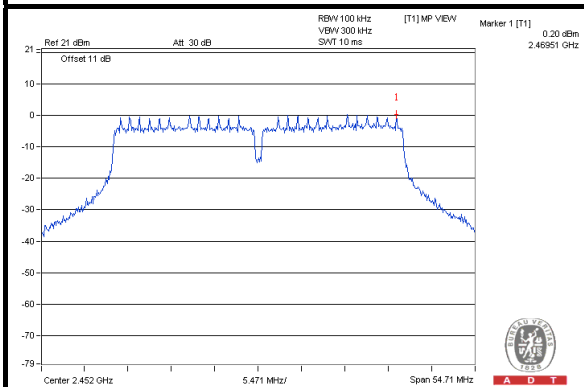
CH 3



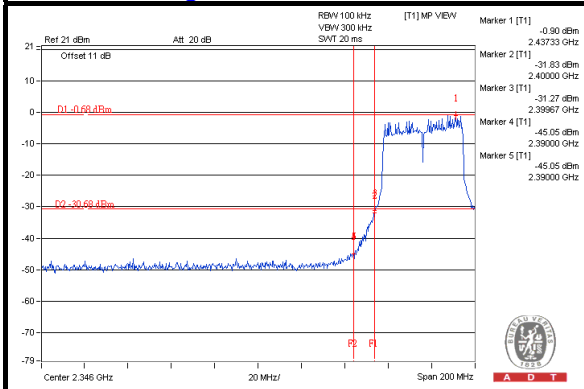
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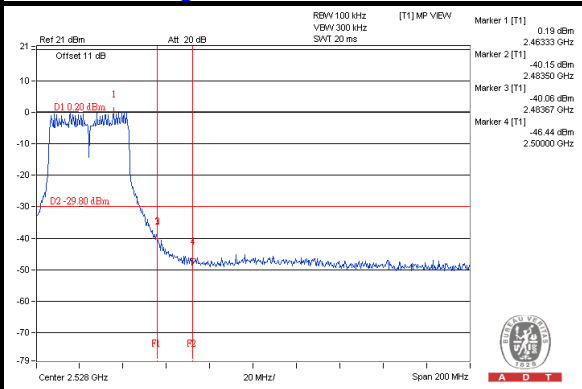
CH 9



CH 3 Band edge



CH 9 Band edge

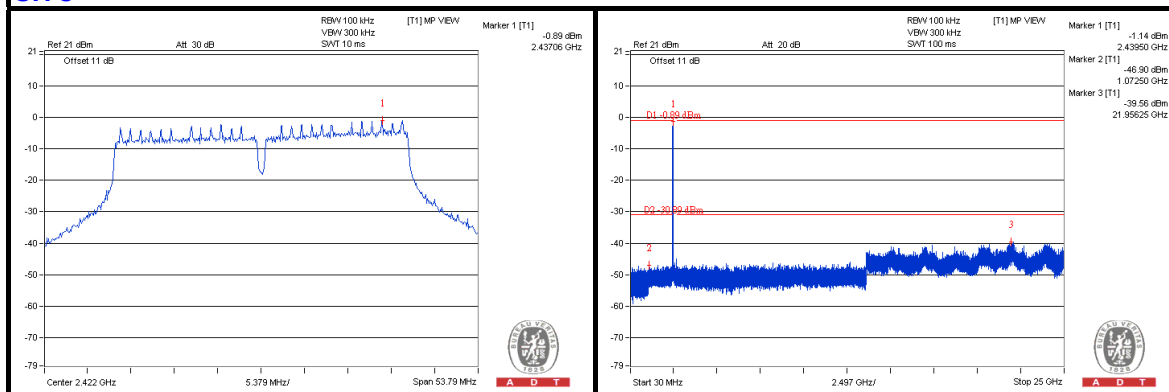




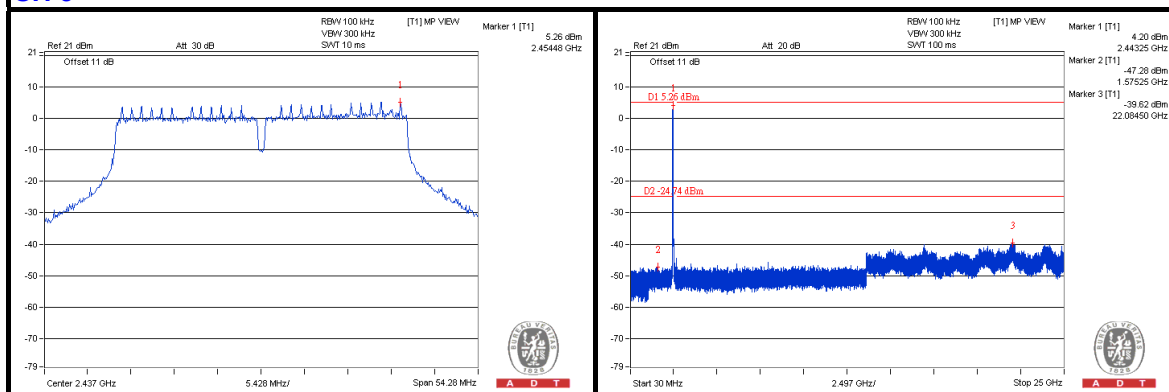
A D T

CHAIN 1

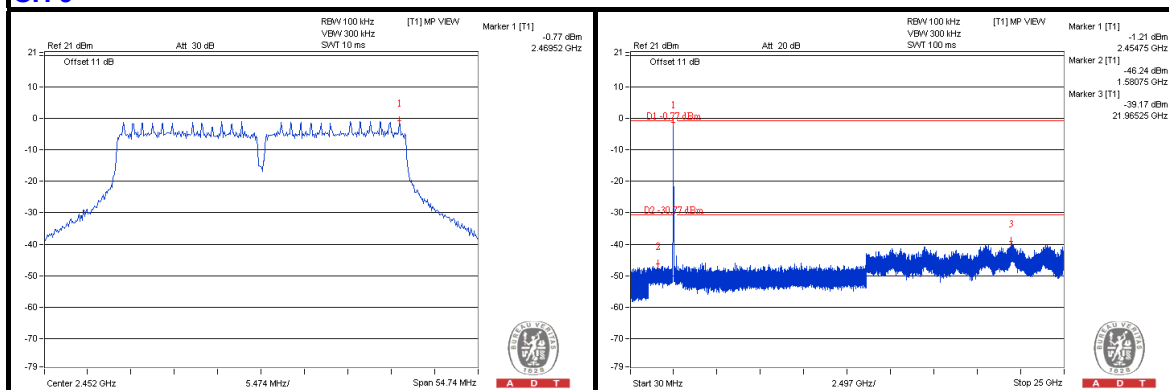
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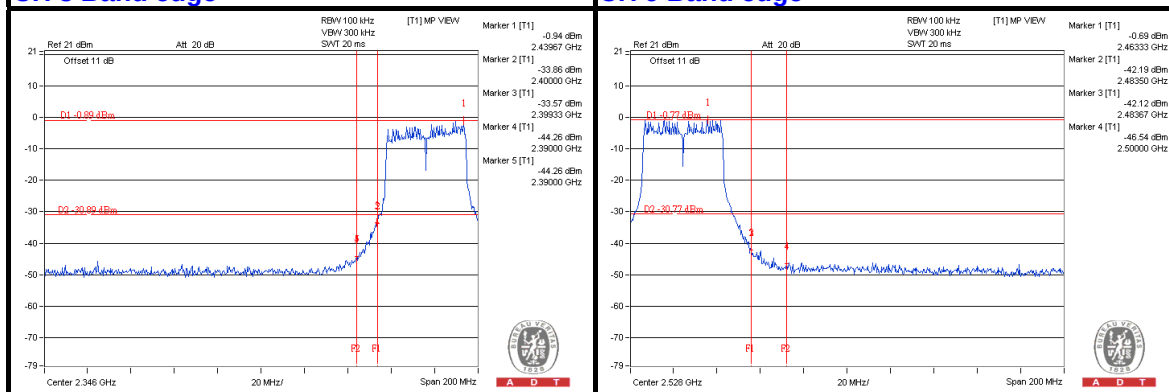
CH 6



CH 9



CH 3 Band edge



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

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB 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 30dB under any condition of modulation.



A D T

5.1.2 TEST INSTRUMENTS

Same as item 4.1.2.

5.1.3 TEST PROCEDURES

Same as item 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as item 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as item 4.1.6.

5.1.7 TEST RESULTS (A1)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.55	36.1 QP	40.0	-3.9	2.00 H	116	51.90	-15.80
2	101.51	30.7 QP	43.5	-12.8	2.00 H	230	48.90	-18.20
3	224.31	31.8 QP	46.0	-14.2	1.51 H	110	48.20	-16.40
4	274.05	32.6 QP	46.0	-13.4	1.01 H	106	45.60	-13.00
5	375.10	28.8 QP	46.0	-17.2	1.01 H	140	39.40	-10.60
6	625.37	30.9 QP	46.0	-15.1	1.01 H	207	36.50	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.69	35.6 QP	40.0	-4.4	1.27 V	228	51.40	-15.80
2	57.98	32.0 QP	40.0	-8.0	1.01 V	8	46.40	-14.40
3	140.37	35.8 QP	43.5	-7.7	1.26 V	129	50.10	-14.30
4	295.82	35.1 QP	46.0	-10.9	1.51 V	15	47.40	-12.30
5	375.10	31.9 QP	46.0	-14.1	1.26 V	18	42.50	-10.60
6	625.37	30.9 QP	46.0	-15.1	1.26 V	173	36.50	-5.60

REMARKS:

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

5.1.8 TEST RESULTS (A2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.52	35.8 QP	40.0	-4.2	1.04 H	185	51.60	-15.80
2	98.40	31.1 QP	43.5	-12.4	1.24 H	235	50.00	-18.90
3	205.66	33.8 QP	43.5	-9.7	1.00 H	15	50.20	-16.40
4	275.61	32.4 QP	46.0	-13.6	1.49 H	150	45.40	-13.00
5	499.46	30.8 QP	46.0	-15.2	1.00 H	267	39.20	-8.40
6	625.37	36.2 QP	46.0	-9.8	1.24 H	176	41.80	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.69	35.9 QP	40.0	-4.1	1.06 V	185	51.70	-15.80
2	124.82	34.4 QP	43.5	-9.1	1.25 V	145	50.30	-15.90
3	204.10	36.5 QP	43.5	-7.0	1.50 V	15	53.00	-16.50
4	297.37	34.8 QP	46.0	-11.2	2.00 V	350	47.10	-12.30
5	499.46	35.0 QP	46.0	-11.0	1.25 V	268	43.40	-8.40
6	625.37	36.8 QP	46.0	-9.2	1.00 V	182	42.40	-5.60

REMARKS:

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



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5.1.9 TEST RESULTS (B1)

ABOVE 1GHz DATA :

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5455.00	61.9 PK	74.0	-12.1	1.49 H	252	59.20	2.70
2	5455.00	49.5 AV	54.0	-4.5	1.49 H	252	46.80	2.70
3	#5725.00	70.8 PK	75.5	-4.7	1.52 H	208	30.50	40.30
4	#5725.00	59.1 AV	63.8	-4.7	1.52 H	208	18.80	40.30
5	*5745.00	105.5 PK			1.49 H	206	65.20	40.30
6	*5745.00	93.8 AV			1.49 H	206	53.50	40.30
7	11490.00	61.6 PK	74.0	-12.4	1.25 H	144	45.70	15.90
8	11490.00	50.8 AV	54.0	-3.2	1.25 H	144	34.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5455.00	63.9 PK	74.0	-10.1	1.21 V	208	61.20	2.70
2	5455.00	52.9 AV	54.0	-1.1	1.21 V	208	50.20	2.70
3	#5725.00	86.8 PK	90.9	-4.1	1.18 V	298	46.50	40.30
4	#5725.00	74.7 AV	78.8	-4.1	1.18 V	298	34.40	40.30
5	*5745.00	120.9 PK			1.18 V	304	80.60	40.30
6	*5745.00	108.8 AV			1.18 V	304	68.50	40.30
7	11490.00	62.8 PK	74.0	-11.2	1.34 V	262	46.90	15.90
8	11490.00	49.9 AV	54.0	-4.1	1.34 V	262	34.00	15.90

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5455.00	59.8 PK	74.0	-14.2	1.52 H	267	57.10	2.70
2	5455.00	48.9 AV	54.0	-5.1	1.52 H	267	46.20	2.70
3	*5785.00	104.4 PK			1.48 H	221	64.10	40.30
4	*5785.00	92.7 AV			1.48 H	221	52.40	40.30
5	11570.00	61.5 PK	74.0	-12.5	1.28 H	159	45.60	15.90
6	11570.00	51.1 AV	54.0	-2.9	1.28 H	159	35.20	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5455.00	66.1 PK	74.0	-7.9	1.12 V	336	63.40	2.70
2	5455.00	52.9 AV	54.0	-1.1	1.12 V	336	50.20	2.70
3	*5785.00	119.8 PK			1.22 V	201	79.50	40.30
4	*5785.00	107.2 AV			1.22 V	201	66.90	40.30
5	11570.00	63.8 PK	74.0	-10.2	1.70 V	305	47.90	15.90
6	11570.00	49.9 AV	54.0	-4.1	1.70 V	305	34.00	15.90

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5440.00	59.9 PK	74.0	-14.1	1.47 H	258	57.20	2.70
2	5440.00	48.6 AV	54.0	-5.4	1.47 H	258	45.90	2.70
3	*5825.00	104.4 PK			1.28 H	217	63.90	40.50
4	*5825.00	92.4 AV			1.28 H	217	51.90	40.50
5	#5850.00	59.2 PK	74.4	-15.2	1.27 H	228	18.70	40.50
6	#5850.00	47.2 AV	62.4	-15.2	1.27 H	228	6.70	40.50
7	11650.00	61.1 PK	74.0	-12.9	1.24 H	162	45.20	15.90
8	11650.00	50.5 AV	54.0	-3.5	1.24 H	162	34.60	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5440.00	65.3 PK	74.0	-8.7	1.29 V	336	62.60	2.70
2	5440.00	52.9 AV	54.0	-1.1	1.29 V	336	50.20	2.70
3	*5825.00	119.4 PK			1.35 V	306	78.90	40.50
4	*5825.00	107.6 AV			1.35 V	306	67.10	40.50
5	#5850.00	75.9 PK	89.4	-13.5	1.34 V	308	35.40	40.50
6	#5850.00	64.1 AV	77.6	-13.5	1.34 V	308	23.60	40.50
7	11650.00	64.3 PK	74.0	-9.7	1.52 V	189	48.40	15.90
8	11650.00	50.4 AV	54.0	-3.6	1.52 V	189	34.50	15.90

REMARKS:

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



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802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5440.00	62.5 PK	74.0	-11.5	1.52 H	247	59.80	2.70
2	5440.00	49.5 AV	54.0	-4.5	1.52 H	247	46.80	2.70
3	#5725.00	68.8 PK	74.9	-6.1	1.49 H	224	28.50	40.30
4	#5725.00	56.9 AV	63.0	-6.1	1.49 H	224	16.60	40.30
5	*5745.00	104.9 PK			1.52 H	218	64.60	40.30
6	*5745.00	93.0 AV			1.52 H	218	52.70	40.30
7	11490.00	61.9 PK	74.0	-12.1	1.22 H	158	46.00	15.90
8	11490.00	50.8 AV	54.0	-3.2	1.22 H	158	34.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5455.00	64.5 PK	74.0	-9.5	1.15 V	301	61.80	2.70
2	5455.00	52.9 AV	54.0	-1.1	1.15 V	301	50.20	2.70
3	#5725.00	84.6 PK	89.8	-5.2	1.14 V	201	44.30	40.30
4	#5725.00	74.2 AV	79.4	-5.2	1.14 V	201	33.90	40.30
5	*5745.00	119.8 PK			1.32 V	200	79.50	40.30
6	*5745.00	109.4 AV			1.32 V	200	69.10	40.30
7	11490.00	63.1 PK	74.0	-10.9	1.28 V	292	47.20	15.90
8	11490.00	50.6 AV	54.0	-3.4	1.28 V	292	34.70	15.90

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	58.2 PK	74.0	-15.8	1.05 H	6	55.60	2.60
2	5400.00	48.8 AV	54.0	-5.2	1.05 H	6	46.20	2.60
3	*5785.00	105.8 PK			1.00 H	37	65.50	40.30
4	*5785.00	95.0 AV			1.00 H	37	54.70	40.30
5	11570.00	61.5 PK	74.0	-12.5	1.05 H	81	45.60	15.90
6	11570.00	48.6 AV	54.0	-5.4	1.05 H	81	32.70	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	63.5 PK	74.0	-10.5	1.00 V	330	60.90	2.60
2	5400.00	52.6 AV	54.0	-1.4	1.00 V	330	50.00	2.60
3	*5785.00	119.6 PK			1.23 V	272	79.30	40.30
4	*5785.00	108.7 AV			1.23 V	272	68.40	40.30
5	11570.00	62.7 PK	74.0	-11.3	1.05 V	84	46.80	15.90
6	11570.00	49.5 AV	54.0	-4.5	1.05 V	84	33.60	15.90

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	60.2 PK	74.0	-13.8	1.05 H	92	57.60	2.60
2	5400.00	47.8 AV	54.0	-6.2	1.05 H	92	45.20	2.60
3	*5825.00	102.9 PK			1.00 H	2	62.40	40.50
4	*5825.00	93.0 AV			1.00 H	2	52.50	40.50
5	#5850.00	58.1 PK	72.9	-14.8	1.42 H	273	17.60	40.50
6	#5850.00	48.2 AV	63.0	-14.8	1.42 H	273	7.70	40.50
7	11650.00	60.6 PK	74.0	-13.4	1.20 H	352	44.70	15.90
8	11650.00	47.5 AV	54.0	-6.5	1.20 H	352	31.60	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	64.7 PK	74.0	-9.3	1.20 V	333	62.10	2.60
2	5400.00	52.8 AV	54.0	-1.2	1.20 V	333	50.20	2.60
3	*5825.00	116.7 PK			1.06 V	280	76.20	40.50
4	*5825.00	106.2 AV			1.06 V	280	65.70	40.50
5	#5850.00	71.9 PK	86.7	-14.8	1.42 V	273	31.40	40.50
6	#5850.00	61.4 AV	76.2	-14.8	1.42 V	273	20.90	40.50
7	11650.00	62.8 PK	74.0	-11.2	1.63 V	360	46.90	15.90
8	11650.00	49.5 AV	54.0	-4.5	1.63 V	360	33.60	15.90

REMARKS:

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



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802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	68.3 PK	70.3	-2.0	1.17 H	275	28.00	40.30
2	#5725.00	58.0 AV	60.0	-2.0	1.17 H	275	17.70	40.30
3	*5755.00	100.3 PK			1.00 H	0	60.00	40.30
4	*5755.00	90.0 AV			1.00 H	0	49.70	40.30
5	11510.00	61.1 PK	74.0	-12.9	1.00 H	185	45.20	15.90
6	11510.00	47.1 AV	54.0	-6.9	1.00 H	185	31.20	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	81.1 PK	83.1	-2.0	1.17 V	275	40.80	40.30
2	#5725.00	70.8 AV	72.8	-2.0	1.17 V	275	30.50	40.30
3	*5755.00	113.1 PK			1.00 V	270	72.80	40.30
4	*5755.00	102.8 AV			1.00 V	270	62.50	40.30
5	11510.00	62.9 PK	74.0	-11.1	1.62 V	74	47.00	15.90
6	11510.00	49.5 AV	54.0	-4.5	1.62 V	74	33.60	15.90

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5440.00	60.2 PK	74.0	-13.8	1.62 H	85	57.50	2.70
2	5440.00	48.0 AV	54.0	-6.0	1.62 H	85	45.30	2.70
3	*5795.00	102.1 PK			1.00 H	4	61.70	40.40
4	*5795.00	91.7 AV			1.00 H	4	51.30	40.40
5	#5850.00	55.6 PK	72.1	-16.5	1.00 H	332	15.10	40.50
6	#5850.00	45.2 AV	61.7	-16.5	1.00 H	332	4.70	40.50
7	11590.00	62.4 PK	74.0	-11.6	1.52 H	58	46.60	15.80
8	11590.00	48.3 AV	54.0	-5.7	1.52 H	58	32.50	15.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5440.00	64.8 PK	74.0	-9.2	1.00 V	333	62.10	2.70
2	5440.00	52.9 AV	54.0	-1.1	1.00 V	333	50.20	2.70
3	*5795.00	115.1 PK			1.16 V	284	74.70	40.40
4	*5795.00	104.6 AV			1.16 V	284	64.20	40.40
5	#5850.00	68.6 PK	85.1	-16.5	1.00 V	332	28.10	40.50
6	#5850.00	58.2 AV	74.6	-16.4	1.00 V	332	17.70	40.50
7	11590.00	62.7 PK	74.0	-11.3	1.62 V	74	46.90	15.80
8	11590.00	49.5 AV	54.0	-4.5	1.62 V	74	33.70	15.80

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.55	35.1 QP	40.0	-4.9	2.00 H	0	50.90	-15.80
2	99.95	32.3 QP	43.5	-11.2	2.00 H	280	50.90	-18.60
3	141.92	32.7 QP	43.5	-10.8	1.51 H	7	46.80	-14.10
4	249.18	32.3 QP	46.0	-13.7	1.01 H	127	46.50	-14.20
5	499.46	31.1 QP	46.0	-14.9	1.51 H	241	39.50	-8.40
6	675.11	33.8 QP	46.0	-12.2	1.26 H	216	39.00	-5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.28	35.8 QP	40.0	-4.2	1.04 V	228	51.60	-15.80
2	99.95	31.7 QP	43.5	-11.8	1.24 V	242	50.30	-18.60
3	249.18	28.8 QP	46.0	-17.2	1.49 V	208	43.00	-14.20
4	292.71	29.5 QP	46.0	-16.5	1.00 V	73	41.90	-12.40
5	375.10	29.5 QP	46.0	-16.5	1.24 V	39	40.10	-10.60
6	499.46	32.9 QP	46.0	-13.1	1.00 V	275	41.30	-8.40

REMARKS:

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

5.1.10 TEST RESULTS (B2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.22	35.6 QP	40.0	-4.4	1.28 H	22	51.40	-15.80
2	99.95	27.3 QP	43.5	-16.2	1.00 H	280	45.90	-18.60
3	159.02	27.7 QP	43.5	-15.8	1.24 H	271	41.40	-13.70
4	224.31	31.9 QP	46.0	-14.1	1.24 H	267	48.30	-16.40
5	275.61	34.4 QP	46.0	-11.6	1.00 H	142	47.40	-13.00
6	675.11	32.5 QP	46.0	-13.5	1.00 H	217	37.70	-5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.48	35.6 QP	40.0	-4.4	1.04 V	277	51.40	-15.80
2	98.40	27.8 QP	43.5	-15.7	1.00 V	276	46.70	-18.90
3	208.77	30.9 QP	43.5	-12.6	1.00 V	5	47.10	-16.20
4	286.49	32.5 QP	46.0	-13.5	1.00 V	201	45.10	-12.60
5	499.46	31.0 QP	46.0	-15.0	1.00 V	211	39.40	-8.40
6	625.37	33.2 QP	46.0	-12.8	1.00 V	196	38.80	-5.60

REMARKS:

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

5.1.11 TEST RESULTS (C1)

ABOVE 1GHz DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	58.8 PK	74.0	-15.2	1.14 H	175	56.20	2.60
2	5400.00	47.5 AV	54.0	-6.5	1.14 H	175	44.90	2.60
3	#5725.00	70.9 PK	78.9	-8.0	1.12 H	178	30.60	40.30
4	#5725.00	61.4 AV	69.4	-8.0	1.12 H	178	21.10	40.30
5	*5745.00	108.9 PK			1.15 H	161	68.60	40.30
6	*5745.00	99.4 AV			1.15 H	161	59.10	40.30
7	11490.00	65.0 PK	74.0	-9.0	1.44 H	147	49.10	15.90
8	11490.00	52.4 AV	54.0	-1.6	1.44 H	147	36.50	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5400.00	59.4 PK	74.0	-14.6	1.16 V	227	56.80	2.60
2	5400.00	47.8 AV	54.0	-6.2	1.16 V	227	45.20	2.60
3	#5725.00	73.4 PK	80.6	-7.2	1.08 V	228	33.10	40.30
4	#5725.00	63.9 AV	71.1	-7.2	1.08 V	228	23.60	40.30
5	*5745.00	110.6 PK			1.06 V	219	70.30	40.30
6	*5745.00	101.1 AV			1.06 V	219	60.80	40.30
7	11490.00	62.3 PK	74.0	-11.7	1.28 V	228	46.40	15.90
8	11490.00	49.9 AV	54.0	-4.1	1.28 V	228	34.00	15.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	58.4 PK	74.0	-15.6	1.24 H	171	55.80	2.60
2	5360.00	47.5 AV	54.0	-6.5	1.24 H	171	44.90	2.60
3	*5785.00	107.4 PK			1.14 H	161	67.10	40.30
4	*5785.00	97.4 AV			1.14 H	161	57.10	40.30
5	11570.00	65.8 PK	74.0	-8.2	1.47 H	148	49.90	15.90
6	11570.00	52.8 AV	54.0	-1.2	1.47 H	148	36.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.2 PK	74.0	-14.8	1.04 V	224	56.40	2.80
2	5460.00	47.8 AV	54.0	-6.2	1.04 V	224	45.00	2.80
3	*5785.00	106.9 PK			1.14 V	241	66.60	40.30
4	*5785.00	96.7 AV			1.14 V	241	56.40	40.30
5	11570.00	62.8 PK	74.0	-11.2	1.26 V	212	46.90	15.90
6	11570.00	49.5 AV	54.0	-4.5	1.26 V	212	33.60	15.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	58.4 PK	74.0	-15.6	1.12 H	182	55.80	2.60
2	5360.00	47.8 AV	54.0	-6.2	1.12 H	182	45.20	2.60
3	*5825.00	106.4 PK			1.14 H	162	65.90	40.50
4	*5825.00	96.6 AV			1.14 H	162	56.10	40.50
5	#5850.00	57.6 PK	76.4	-18.8	1.12 H	172	17.10	40.50
6	#5850.00	47.8 AV	66.6	-18.8	1.12 H	172	7.30	40.50
7	11650.00	66.6 PK	74.0	-7.4	1.41 H	147	50.70	15.90
8	11650.00	52.9 AV	54.0	-1.1	1.41 H	147	37.00	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	59.8 PK	74.0	-14.2	1.12 V	251	57.20	2.60
2	5360.00	47.4 AV	54.0	-6.6	1.12 V	251	44.80	2.60
3	*5825.00	105.7 PK			1.04 V	235	65.20	40.50
4	*5825.00	96.0 AV			1.04 V	235	55.50	40.50
5	#5850.00	57.4 PK	75.7	-18.3	1.08 V	214	16.90	40.50
6	#5850.00	47.6 AV	66.0	-18.4	1.08 V	214	7.10	40.50
7	11650.00	63.8 PK	74.0	-10.2	1.22 V	229	47.90	15.90
8	11650.00	50.1 AV	54.0	-3.9	1.22 V	229	34.20	15.90

REMARKS:

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



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802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	59.4 PK	74.0	-14.6	1.14 H	178	56.80	2.60
2	5360.00	49.3 AV	54.0	-4.7	1.14 H	178	46.70	2.60
3	#5725.00	70.4 PK	80.1	-14.3	1.15 H	160	30.10	40.30
4	#5725.00	60.4 AV	70.1	-10.3	1.15 H	160	20.10	40.30
5	*5745.00	110.1 PK			1.16 H	162	69.80	40.30
6	*5745.00	100.1 AV			1.16 H	162	59.80	40.30
7	11490.00	66.3 PK	74.0	-7.7	1.42 H	144	50.40	15.90
8	11490.00	52.8 AV	54.0	-1.2	1.42 H	144	36.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	59.8 PK	74.0	-14.2	1.17 V	222	57.20	2.60
2	5360.00	49.3 AV	54.0	-4.7	1.17 V	222	46.70	2.60
3	#5725.00	76.9 PK	81.5	-4.6	1.12 V	221	36.60	40.30
4	#5725.00	64.8 AV	69.4	-4.6	1.12 V	221	24.50	40.30
5	*5745.00	111.5 PK			1.06 V	219	71.20	40.30
6	*5745.00	99.4 AV			1.06 V	219	59.10	40.30
7	11490.00	63.9 PK	74.0	-10.1	1.22 V	228	48.00	15.90
8	11490.00	50.6 AV	54.0	-3.4	1.22 V	228	34.70	15.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	59.2 PK	74.0	-14.8	1.14 H	182	56.60	2.60
2	5360.00	48.5 AV	54.0	-5.5	1.14 H	182	45.90	2.60
3	*5785.00	108.5 PK			1.04 H	159	68.20	40.30
4	*5785.00	98.2 AV			1.04 H	159	57.90	40.30
5	11570.00	66.0 PK	74.0	-8.0	1.41 H	142	50.10	15.90
6	11570.00	52.8 AV	54.0	-1.2	1.41 H	142	36.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	59.1 PK	74.0	-14.9	1.16 V	225	56.50	2.60
2	5360.00	48.0 AV	54.0	-6.0	1.16 V	225	45.40	2.60
3	*5785.00	110.2 PK			1.05 V	216	69.90	40.30
4	*5785.00	100.4 AV			1.05 V	216	60.10	40.30
5	11570.00	64.1 PK	74.0	-9.9	1.28 V	246	48.20	15.90
6	11570.00	50.5 AV	54.0	-3.5	1.28 V	246	34.60	15.90

REMARKS:

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	58.8 PK	74.0	-15.2	1.12 H	179	56.20	2.60
2	5360.00	47.8 AV	54.0	-6.2	1.12 H	179	45.20	2.60
3	*5825.00	107.1 PK			1.12 H	159	66.60	40.50
4	*5825.00	96.8 AV			1.12 H	159	56.30	40.50
5	#5850.00	57.5 PK	77.1	-19.6	1.12 H	159	17.00	40.50
6	#5850.00	47.2 AV	66.8	-19.6	1.12 H	159	6.70	40.50
7	11650.00	67.1 PK	74.0	-6.9	1.40 H	146	51.20	15.90
8	11650.00	52.6 AV	54.0	-1.4	1.40 H	146	36.70	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5360.00	60.2 PK	74.0	-13.8	1.12 V	254	57.60	2.60
2	5360.00	47.1 AV	54.0	-6.9	1.12 V	254	44.50	2.60
3	*5825.00	106.5 PK			1.16 V	214	66.00	40.50
4	*5825.00	97.4 AV			1.16 V	214	56.90	40.50
5	#5850.00	55.6 PK	76.5	-20.9	1.12 V	221	15.10	40.50
6	#5850.00	46.5 AV	67.4	-20.9	1.12 V	221	6.00	40.50
7	11650.00	61.8 PK	74.0	-12.2	1.28 V	165	45.90	15.90
8	11650.00	50.1 AV	54.0	-3.9	1.28 V	165	34.20	15.90

REMARKS:

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



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	69.2 PK	73.5	-4.3	1.15 H	164	28.90	40.30
2	#5725.00	60.2 AV	64.5	-4.3	1.15 H	164	19.90	40.30
3	*5755.00	103.5 PK			1.15 H	158	63.20	40.30
4	*5755.00	94.5 AV			1.15 H	158	54.20	40.30
5	11510.00	58.9 PK	74.0	-15.1	1.46 H	301	43.00	15.90
6	11510.00	48.8 AV	54.0	-5.2	1.46 H	301	32.90	15.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	74.4 PK	75.6	-1.2	1.08 V	215	34.10	40.30
2	#5725.00	65.9 AV	67.1	-1.2	1.08 V	215	25.60	40.30
3	*5755.00	105.6 PK			1.07 V	215	65.30	40.30
4	*5755.00	97.1 AV			1.07 V	215	56.80	40.30
5	11510.00	60.5 PK	74.0	-13.5	1.22 V	115	44.60	15.90
6	11510.00	50.1 AV	54.0	-3.9	1.22 V	115	34.20	15.90

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	107.5 PK			1.04 H	159	67.10	40.40
2	*5795.00	98.0 AV			1.04 H	159	57.60	40.40
3	#5850.00	60.6 PK	77.5	-16.9	1.04 H	162	20.10	40.50
4	#5850.00	51.1 AV	68.0	-16.9	1.04 H	162	10.60	40.50
5	11590.00	64.6 PK	74.0	-9.4	1.49 H	145	48.80	15.80
6	11590.00	51.9 AV	54.0	-2.1	1.49 H	145	36.10	15.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	109.1 PK			1.07 V	214	68.70	40.40
2	*5795.00	99.9 AV			1.07 V	214	59.50	40.40
3	#5850.00	61.1 PK	79.1	-18.0	1.02 V	221	20.60	40.50
4	#5850.00	51.9 AV	69.9	-18.0	1.02 V	221	11.40	40.50
5	11590.00	62.5 PK	74.0	-11.5	1.45 V	164	46.70	15.80
6	11590.00	50.6 AV	54.0	-3.4	1.45 V	164	34.80	15.80

REMARKS:

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



A D T

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.55	36.0 QP	40.0	-4.0	1.49 H	285	51.80	-15.80
2	98.40	31.0 QP	43.5	-12.5	1.99 H	298	49.90	-18.90
3	284.94	35.3 QP	46.0	-10.7	1.00 H	263	47.90	-12.60
4	375.10	34.4 QP	46.0	-11.6	1.00 H	239	45.00	-10.60
5	499.46	33.4 QP	46.0	-12.6	1.49 H	234	41.80	-8.40
6	625.37	33.7 QP	46.0	-12.3	1.00 H	216	39.30	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.26	36.2 QP	40.0	-3.8	1.52 V	258	52.00	-15.80
2	68.86	36.7 QP	40.0	-3.3	1.24 V	312	52.80	-16.10
3	101.51	32.6 QP	43.5	-10.9	1.00 V	303	50.80	-18.20
4	280.27	33.3 QP	46.0	-12.7	1.49 V	220	46.00	-12.70
5	375.10	31.5 QP	46.0	-14.5	1.24 V	193	42.10	-10.60
6	626.92	30.8 QP	46.0	-15.2	1.24 V	205	36.40	-5.60

REMARKS:

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

5.1.12 TEST RESULTS (C2)

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH	TESTED BY	Sun Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	35.8 QP	40.0	-4.2	1.22 H	199	51.60	-15.80
2	151.25	34.8 QP	43.5	-8.7	1.50 H	97	48.40	-13.60
3	292.71	35.6 QP	46.0	-10.4	1.50 H	146	48.00	-12.40
4	375.10	34.8 QP	46.0	-11.2	1.25 H	146	45.40	-10.60
5	625.37	36.8 QP	46.0	-9.2	1.25 H	221	42.40	-5.60
6	675.11	36.1 QP	46.0	-9.9	1.00 H	5	41.30	-5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.47	36.2 QP	40.0	-3.8	1.28 V	196	52.00	-15.80
2	98.40	32.4 QP	43.5	-11.1	1.50 V	209	51.30	-18.90
3	148.14	29.3 QP	43.5	-14.2	1.25 V	279	43.20	-13.90
4	260.06	31.9 QP	46.0	-14.1	1.50 V	177	45.60	-13.70
5	375.10	30.6 QP	46.0	-15.4	1.25 V	242	41.20	-10.60
6	675.11	32.8 QP	46.0	-13.2	1.25 V	231	38.00	-5.20

REMARKS:

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.2.2 TEST INSTRUMENTS

Same as item 4.2.2.

5.2.3 TEST PROCEDURES

Same as item 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as item 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6.

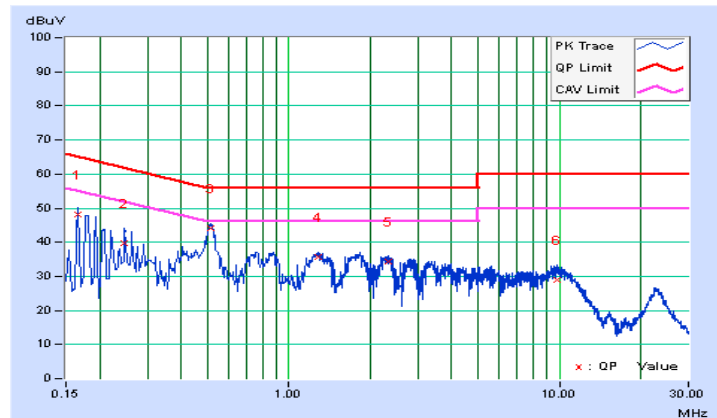
5.2.7 TEST RESULTS (A1)

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

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	0.16564	0.11	47.98	31.37	48.09	31.48	65.18	55.18	-17.08	-23.69
2	0.24775	0.12	39.67	27.47	39.79	27.59	61.83	51.83	-22.04	-24.24
3	0.51719	0.12	43.97	37.27	44.09	37.39	56.00	46.00	-11.91	-8.61
4	1.29172	0.15	35.57	29.39	35.72	29.54	56.00	46.00	-20.28	-16.46
5	2.32005	0.17	34.16	28.50	34.33	28.67	56.00	46.00	-21.67	-17.33
6	9.79206	0.49	28.53	22.51	29.02	23.00	60.00	50.00	-30.98	-27.00

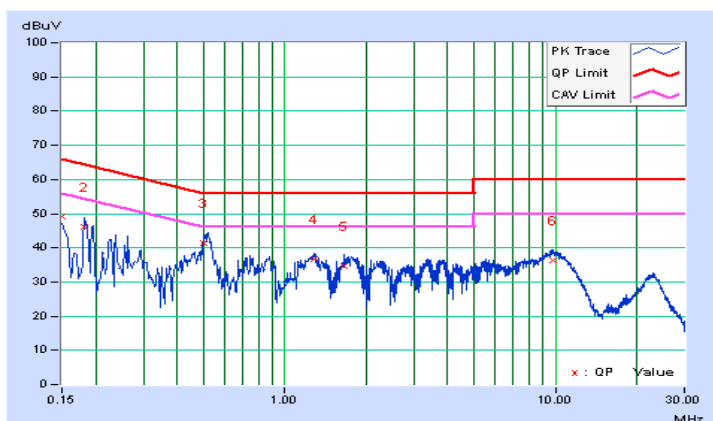
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.08	49.17	32.07	49.25	32.15	66.00	56.00	-16.75	-23.85
2	0.18128	0.08	45.92	30.63	46.00	30.71	64.43	54.43	-18.43	-23.72
3	0.50000	0.09	41.41	35.60	41.50	35.69	56.00	46.00	-14.50	-10.31
4	1.28026	0.11	36.64	30.49	36.75	30.60	56.00	46.00	-19.25	-15.40
5	1.65535	0.12	34.72	28.82	34.84	28.94	56.00	46.00	-21.16	-17.06
6	9.85071	0.34	36.05	30.92	36.39	31.26	60.00	50.00	-23.61	-18.74

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.



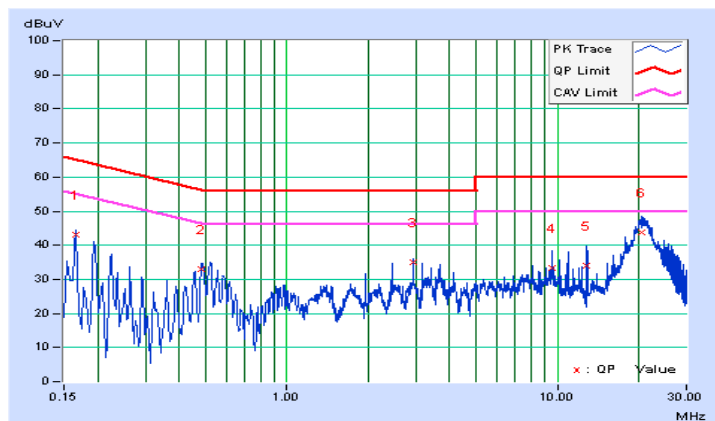
5.2.8 TEST RESULTS (A2)

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

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	0.16564	0.11	42.94	33.17	43.05	33.28	65.18	55.18	-22.12	-21.89
2	0.48422	0.12	32.73	27.87	32.85	27.99	56.27	46.27	-23.41	-18.27
3	2.93392	0.19	34.67	32.92	34.86	33.11	56.00	46.00	-21.14	-12.89
4	9.58874	0.48	32.93	21.55	33.41	22.03	60.00	50.00	-26.59	-27.97
5	12.88487	0.65	33.48	18.18	34.13	18.83	60.00	50.00	-25.87	-31.17
6	20.56802	1.04	42.79	36.99	43.83	38.03	60.00	50.00	-16.17	-11.97

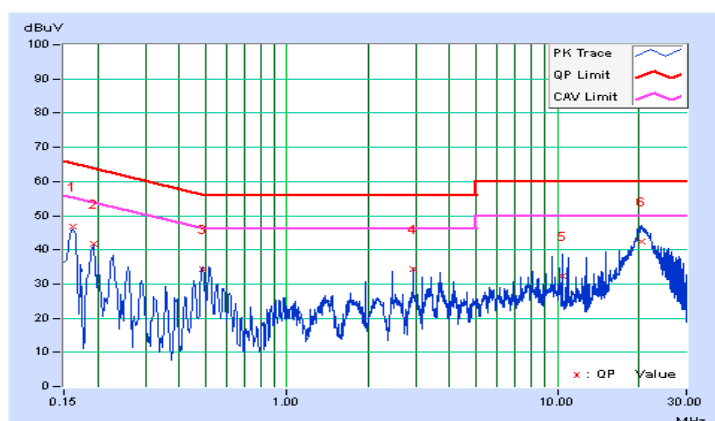
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16139	0.08	46.59	36.73	46.67	36.81	65.39	55.39	-18.72	-18.58
2	0.19301	0.08	41.83	32.26	41.91	32.34	63.91	53.91	-22.00	-21.57
3	0.48678	0.09	34.13	32.59	34.22	32.68	56.22	46.22	-22.00	-13.54
4	2.93392	0.15	34.07	32.58	34.22	32.73	56.00	46.00	-21.78	-13.27
5	10.44112	0.35	31.95	18.22	32.30	18.57	60.00	50.00	-27.70	-31.43
6	20.57584	0.59	41.83	35.91	42.42	36.50	60.00	50.00	-17.58	-13.50

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.



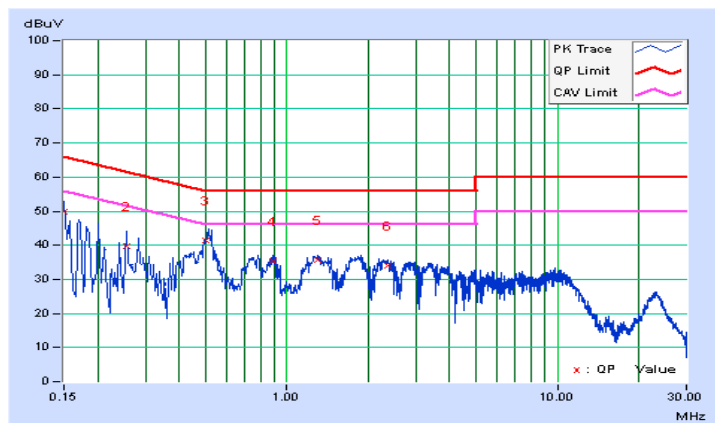
5.2.9 TEST RESULTS (B1)

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

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	0.15000	0.11	49.63	31.80	49.74	31.91	66.00	56.00	-16.26	-24.09
2	0.25557	0.12	39.57	28.01	39.69	28.13	61.57	51.57	-21.88	-23.44
3	0.50000	0.12	41.39	35.72	41.51	35.84	56.00	46.00	-14.49	-10.16
4	0.89290	0.14	35.15	28.46	35.29	28.60	56.00	46.00	-20.71	-17.40
5	1.29954	0.15	35.47	29.45	35.62	29.60	56.00	46.00	-20.38	-16.40
6	2.35133	0.17	33.93	28.24	34.10	28.41	56.00	46.00	-21.90	-17.59

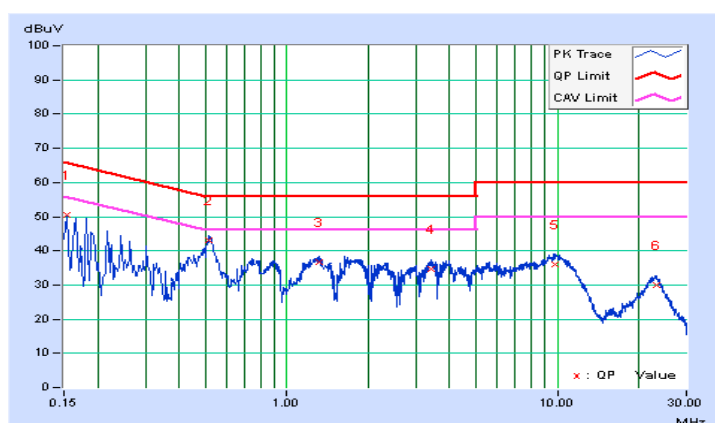
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.08	50.45	34.18	50.53	34.26	65.79	55.79	-15.26	-21.53
2	0.51583	0.09	43.13	36.42	43.22	36.51	56.00	46.00	-12.78	-9.49
3	1.31791	0.11	36.74	30.39	36.85	30.50	56.00	46.00	-19.15	-15.50
4	3.39921	0.16	34.55	29.69	34.71	29.85	56.00	46.00	-21.29	-16.15
5	9.75296	0.33	35.63	30.26	35.96	30.59	60.00	50.00	-24.04	-19.41
6	23.12516	0.62	29.27	23.58	29.89	24.20	60.00	50.00	-30.11	-25.80

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.



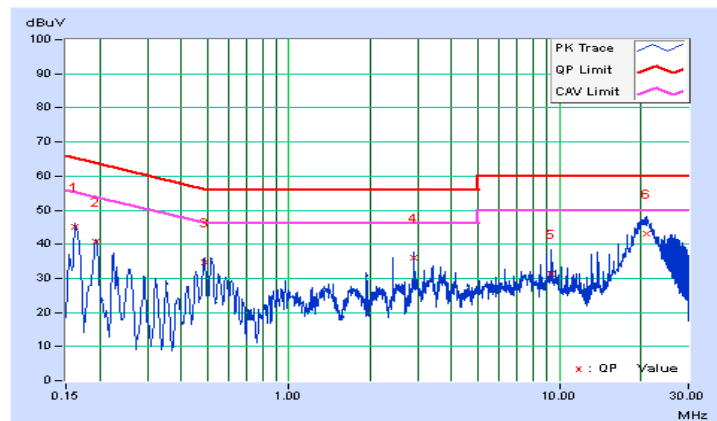
5.2.10 TEST RESULTS (B2)

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

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	0.16181	0.11	45.10	35.99	45.21	36.10	65.37	55.37	-20.16	-19.27
2	0.19305	0.12	40.58	32.07	40.70	32.19	63.90	53.90	-23.21	-21.72
3	0.48678	0.12	34.66	32.56	34.78	32.68	56.22	46.22	-21.44	-13.54
4	2.91046	0.19	35.67	34.20	35.86	34.39	56.00	46.00	-20.14	-11.61
5	9.34241	0.47	30.68	21.82	31.15	22.29	60.00	50.00	-28.85	-27.71
6	20.97075	1.05	42.01	35.98	43.06	37.03	60.00	50.00	-16.94	-12.97

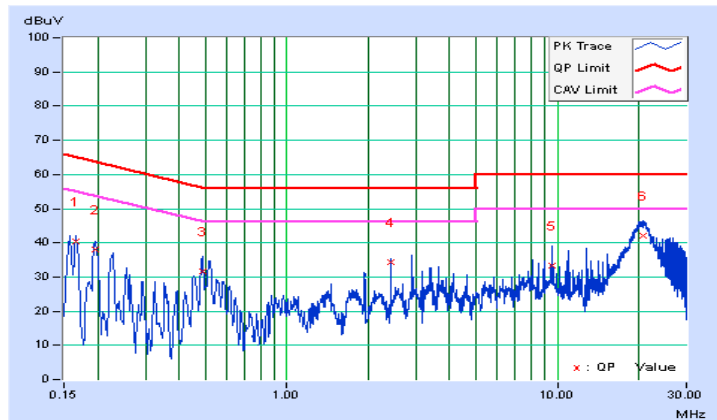
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16569	0.08	40.39	30.32	40.47	30.40	65.17	55.17	-24.70	-24.77
2	0.19692	0.08	38.03	28.62	38.11	28.70	63.74	53.74	-25.63	-25.04
3	0.49017	0.09	31.63	26.38	31.72	26.47	56.16	46.16	-24.44	-19.69
4	2.42562	0.14	34.36	33.84	34.50	33.98	56.00	46.00	-21.50	-12.02
5	9.58874	0.33	33.10	19.91	33.43	20.24	60.00	50.00	-26.57	-29.76
6	20.62667	0.60	41.45	35.45	42.05	36.05	60.00	50.00	-17.95	-13.95

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.



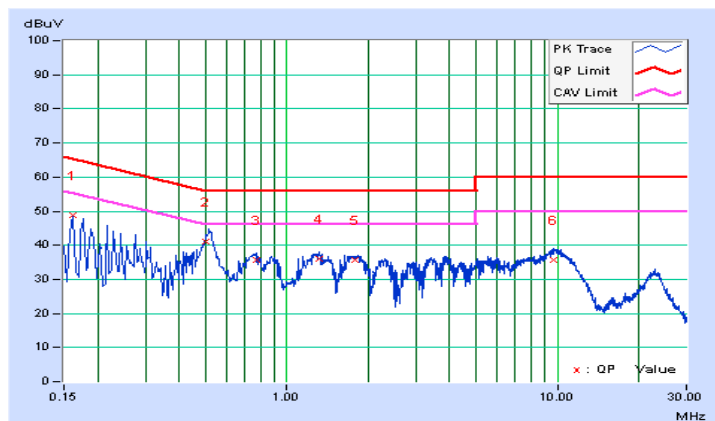
5.2.11 TEST RESULTS (C1)

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

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	0.16173	0.11	48.80	33.07	48.91	33.18	65.37	55.37	-16.46	-22.19
2	0.50000	0.12	41.04	35.31	41.16	35.43	56.00	46.00	-14.84	-10.57
3	0.76789	0.13	35.54	28.98	35.67	29.11	56.00	46.00	-20.33	-16.89
4	1.31518	0.15	35.93	29.83	36.08	29.98	56.00	46.00	-19.92	-16.02
5	1.77656	0.16	35.59	29.83	35.75	29.99	56.00	46.00	-20.25	-16.01
6	9.72168	0.49	35.34	29.75	35.83	30.24	60.00	50.00	-24.17	-19.76

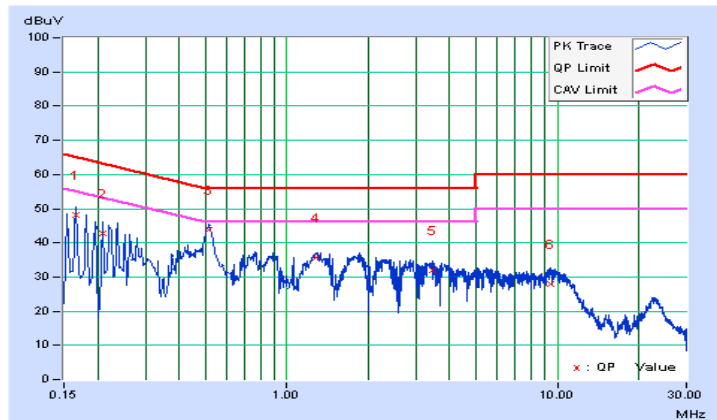
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



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

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	0.16564	0.08	48.14	31.59	48.22	31.67	65.18	55.18	-16.96	-23.51
2	0.20865	0.08	42.54	27.48	42.62	27.56	63.26	53.26	-20.64	-25.70
3	0.51719	0.09	43.83	37.14	43.92	37.23	56.00	46.00	-12.08	-8.77
4	1.28026	0.11	35.70	29.65	35.81	29.76	56.00	46.00	-20.19	-16.24
5	3.43831	0.16	31.93	26.30	32.09	26.46	56.00	46.00	-23.91	-19.54
6	9.45971	0.32	27.60	21.29	27.92	21.61	60.00	50.00	-32.08	-28.39

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.



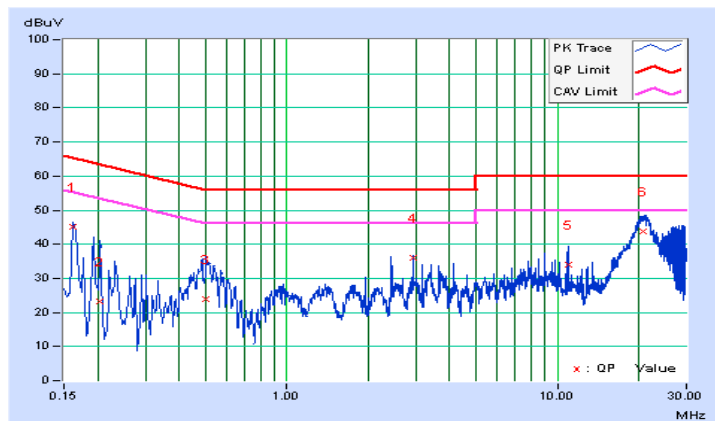
5.2.12 TEST RESULTS (C2)

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

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	0.16181	0.11	44.99	35.58	45.10	35.69	65.37	55.37	-20.27	-19.68
2	0.20474	0.12	23.28	17.01	23.40	17.13	63.42	53.42	-40.02	-36.29
3	0.50190	0.12	23.91	19.74	24.03	19.86	56.00	46.00	-31.97	-26.14
4	2.92219	0.19	35.87	34.48	36.06	34.67	56.00	46.00	-19.94	-11.33
5	10.92987	0.55	33.47	19.31	34.02	19.86	60.00	50.00	-25.98	-30.14
6	20.73615	1.04	42.86	36.84	43.90	37.88	60.00	50.00	-16.10	-12.12

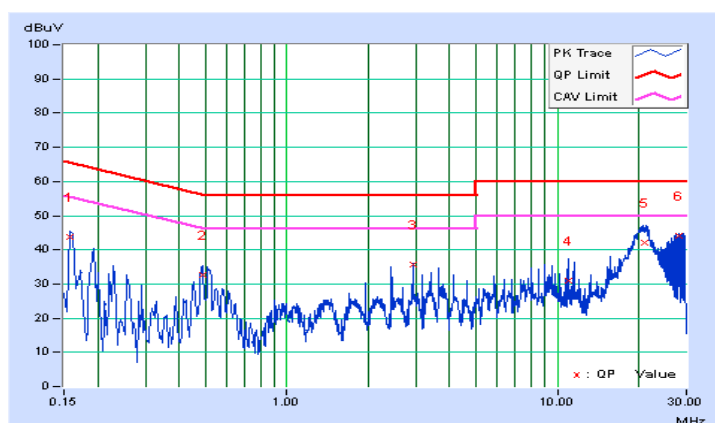
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor +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



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

No	Freq. [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	0.15802	0.08	43.75	33.69	43.83	33.77	65.57	55.57	-21.74	-21.80
2	0.48626	0.09	32.63	28.45	32.72	28.54	56.23	46.23	-23.51	-17.69
3	2.92219	0.15	35.40	34.37	35.55	34.52	56.00	46.00	-20.45	-11.48
4	10.93390	0.36	30.60	17.76	30.96	18.12	60.00	50.00	-29.04	-31.88
5	21.13888	0.60	41.64	35.56	42.24	36.16	60.00	50.00	-17.76	-13.84
6	28.01657	0.65	43.53	43.44	44.18	44.09	60.00	50.00	-15.82	-5.91

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 item 4.3.2.

5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

Same as item 4.3.4.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

Same as item 4.3.6.



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5.3.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.39	16.43	0.5	PASS
157	5785	16.36	16.42	0.5	PASS
165	5825	16.45	16.37	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.36	17.66	0.5	PASS
157	5785	17.36	17.34	0.5	PASS
165	5825	17.65	17.34	0.5	PASS

802.11n (40MHz)

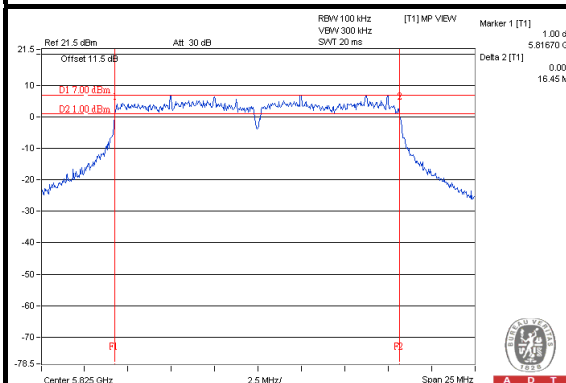
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.14	36.42	0.5	PASS
159	5795	36.45	36.43	0.5	PASS



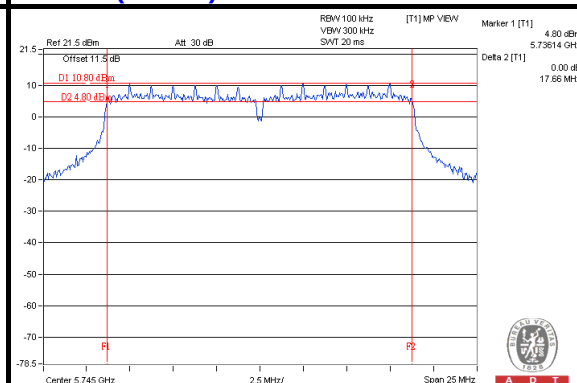
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SPECTRUM PLOT OF WORST VALUE

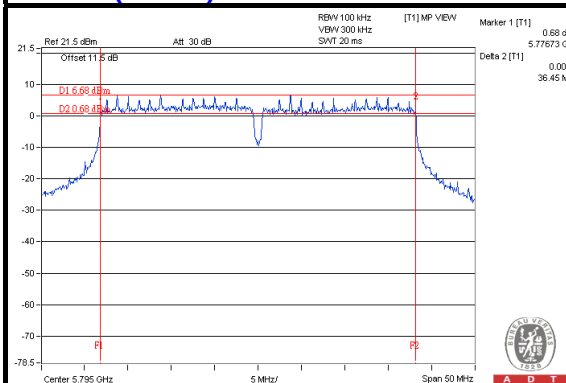
802.11a



802.11n (20MHz)



802.11n (40MHz)



5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

Per KDB 662911 D01 Multiple Transmitter Output 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 Item 4.4.2.

5.4.3 INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.4.4 TEST PROCEDURES

Same as Item 4.4.4.

5.4.5 DEVIATION FROM TEST STANDARD

No deviation.

5.4.6 EUT OPERATING CONDITIONS

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

5.4.7 TEST RESULTS

802.11a

CHAN.	FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	20.08	20.28	208.519	23.19	30	PASS
157	5785	18.82	19.17	158.812	22.01	30	PASS
165	5825	19.28	19.19	167.708	22.25	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	21.71	21.72	296.846	24.73	30	PASS
157	5785	20.35	21.25	241.745	23.83	30	PASS
165	5825	20.08	20.15	205.373	23.13	30	PASS

802.11n (40MHz)

CHAN.	FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	17.27	17.68	111.947	20.49	30	PASS
159	5795	20.64	21.81	267.583	24.27	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 item 4.5.2.

5.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.5.4 TEST PROCEDURE.

Same as item 4.5.4.

5.5.5 DEVIATION FROM TEST STANDARD

No deviation.

5.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

5.5.7 TEST RESULTS

802.11a

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-13.31	3.01	-10.30	0.16	-10.14	6.16	PASS
	157	5785	-14.17	3.01	-11.16	0.16	-11.00	6.16	PASS
	165	5825	-13.71	3.01	-10.70	0.16	-10.54	6.16	PASS
1	149	5745	-13.49	3.01	-10.48	0.16	-10.32	6.16	PASS
	157	5785	-14.15	3.01	-11.14	0.16	-10.98	6.16	PASS
	165	5825	-13.78	3.01	-10.77	0.16	-10.61	6.16	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $4.83\text{dBi} + 10\log(2) = 7.84\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.84-6) = 6.16\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (20MHz)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-10.93	3.01	-7.92	0.16	-7.76	6.16	PASS
	157	5785	-11.86	3.01	-8.85	0.16	-8.69	6.16	PASS
	165	5825	-12.48	3.01	-9.47	0.16	-9.31	6.16	PASS
1	149	5745	-10.56	3.01	-7.55	0.16	-7.39	6.16	PASS
	157	5785	-10.69	3.01	-7.68	0.16	-7.52	6.16	PASS
	165	5825	-13.28	3.01	-10.27	0.16	-10.11	6.16	PASS

NOTE:

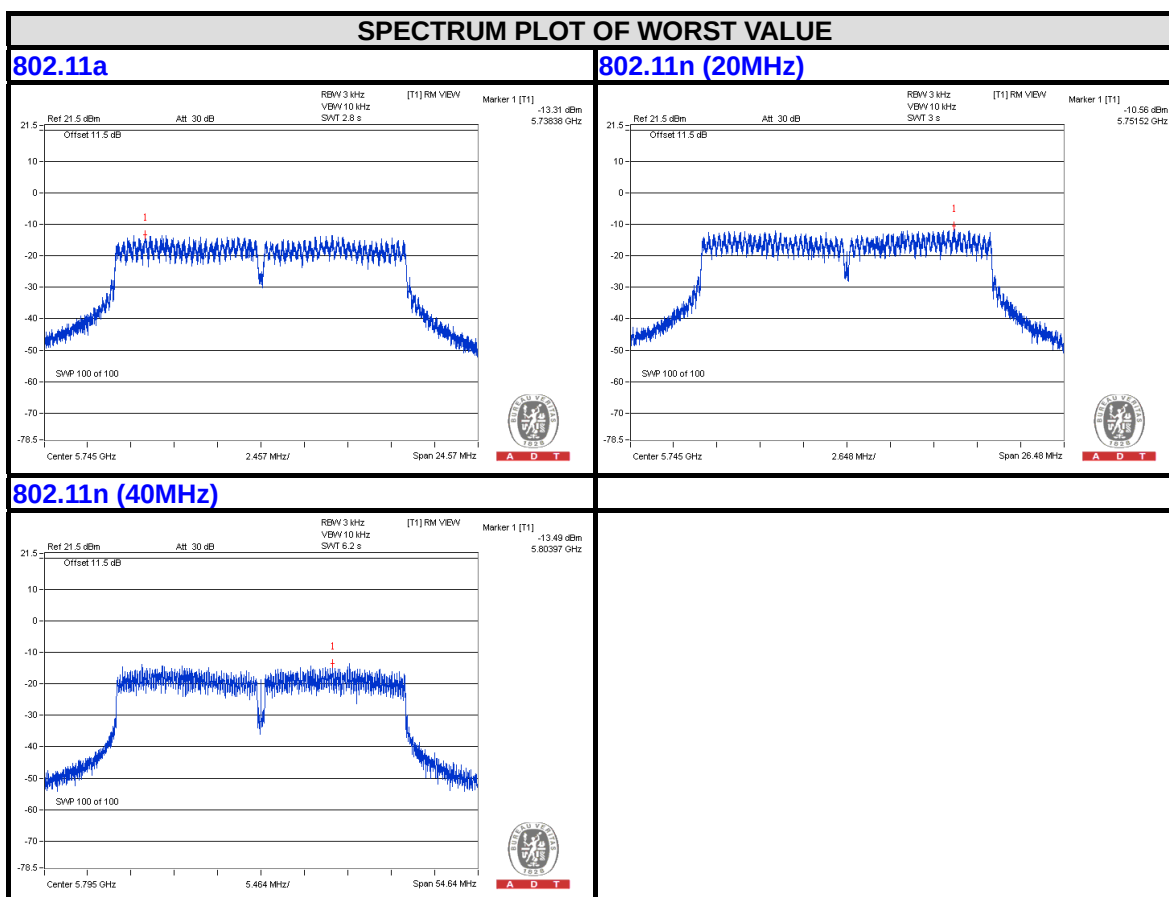
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $4.83\text{dBi} + 10\log(2) = 7.84\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(7.84-6) = 6.16\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD without Duty Factor (dBm/3kHz)	Duty Factor	Total PSD with Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-18.12	3.01	-15.11	0.24	-14.87	6.16	PASS
	159	5795	-15.76	3.01	-12.75	0.24	-12.51	6.16	PASS
1	151	5755	-18.11	3.01	-15.10	0.24	-14.86	6.16	PASS
	159	5795	-13.49	3.01	-10.48	0.24	-10.24	6.16	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = 4.83dBi + 10log(2) = 7.84dBi > 6dBi , so the power density limit shall be reduced to 8-(7.84-6) = 6.16dBm.
- Refer to section 3.3 for duty cycle spectrum plot.



5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST SETUP

Same as Item 4.6.2

5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

Same as Item 4.6.4

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.7 TEST RESULTS

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

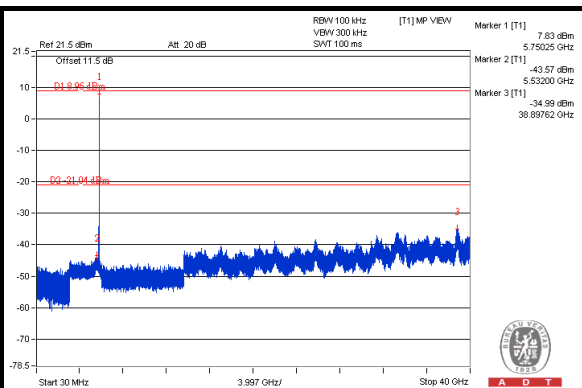
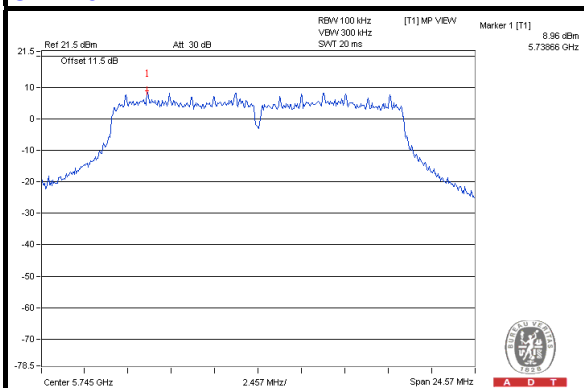
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.



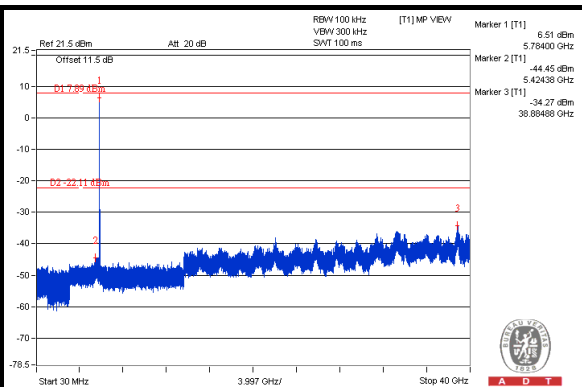
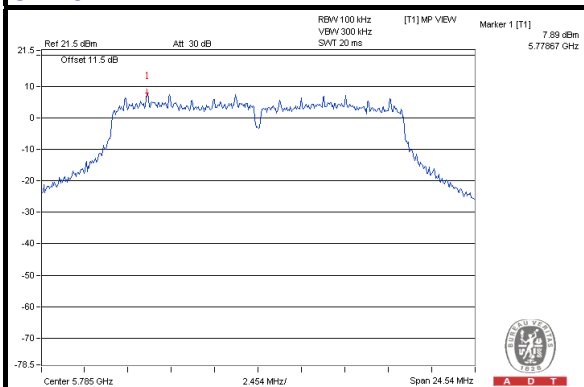
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802.11a: CHAIN 0

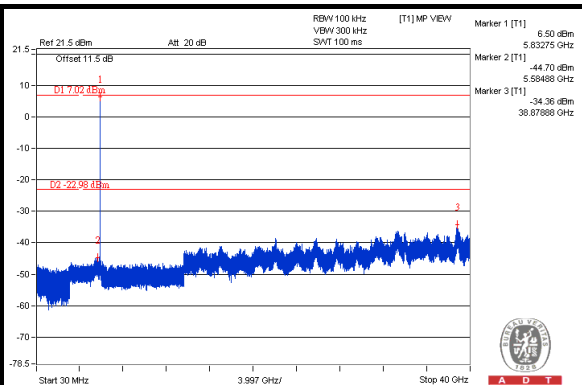
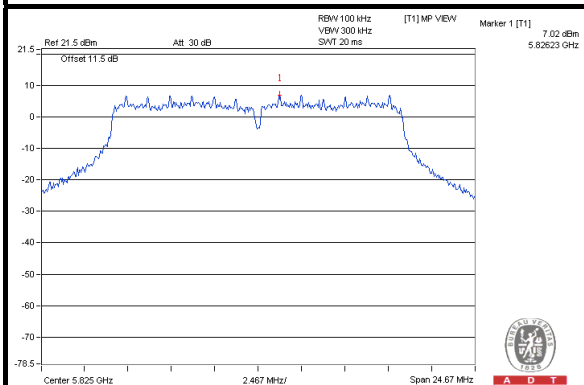
CH 149



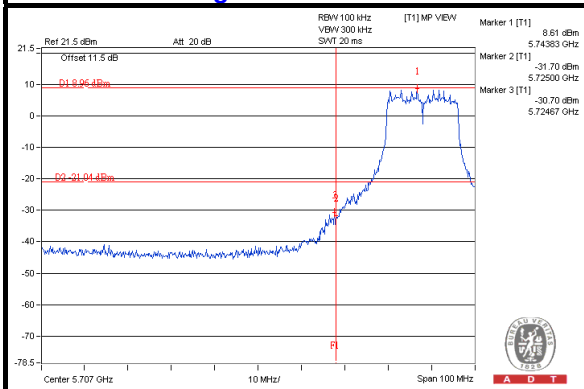
CH 157



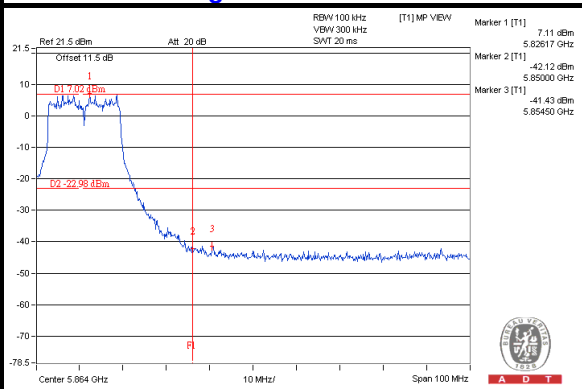
CH 165



CH 149 Band edge



CH 165 Band edge

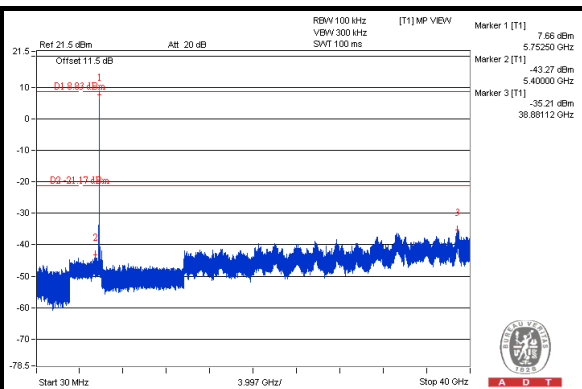
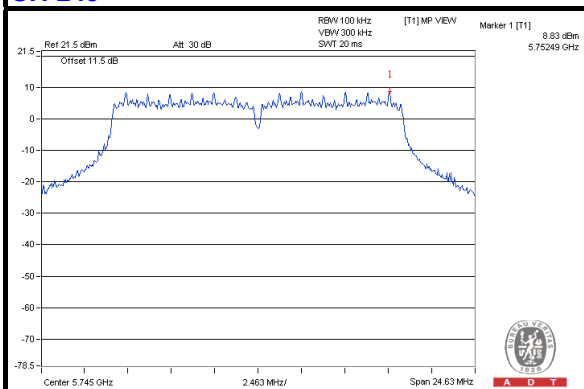




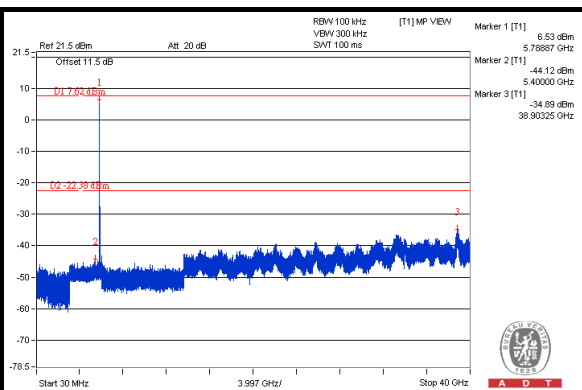
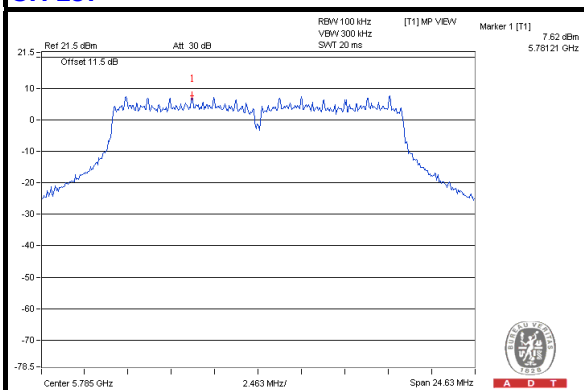
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CHAIN 1

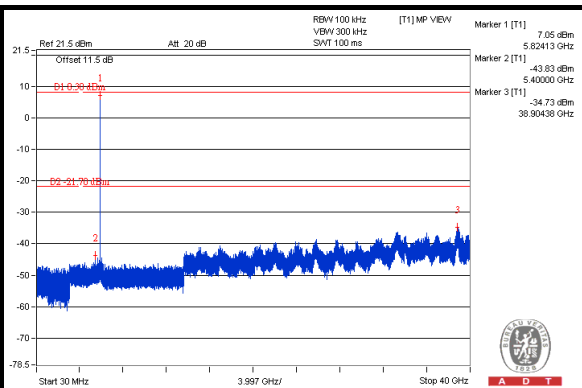
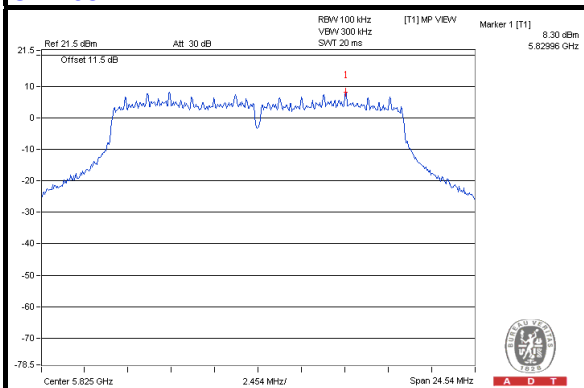
CH 149



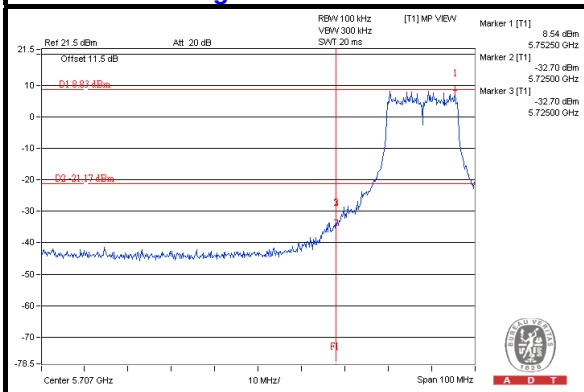
CH 157



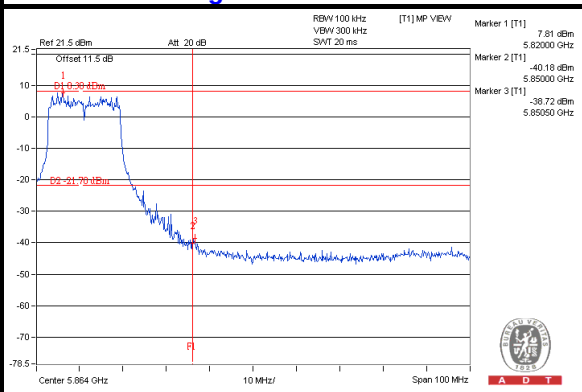
CH 165



CH 149 Band edge



CH 165 Band edge

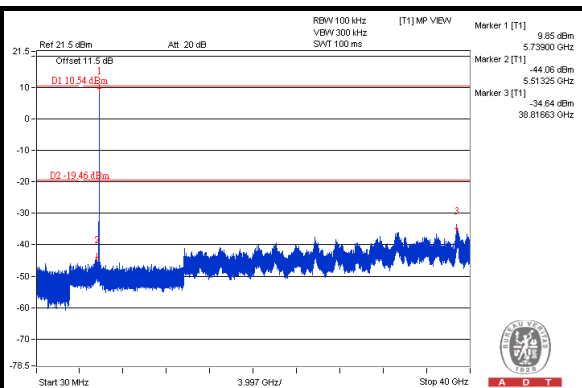
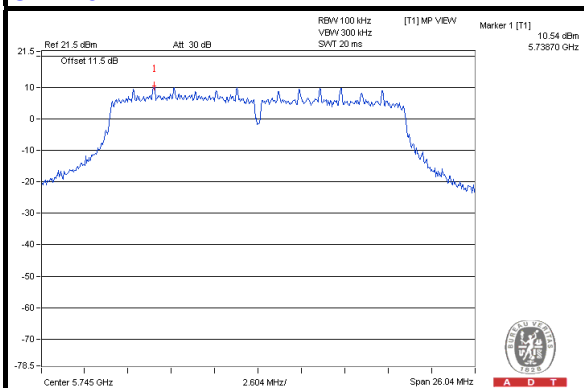




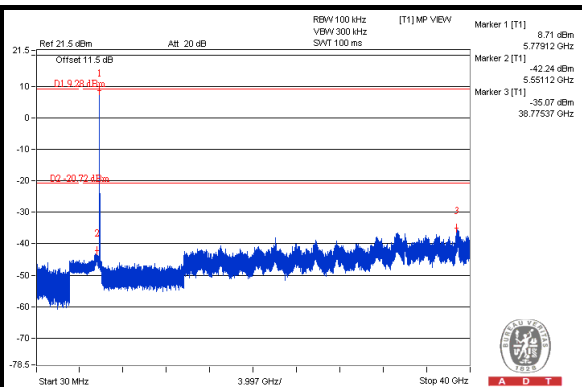
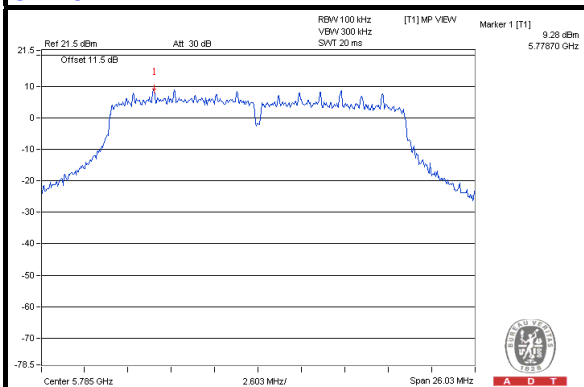
A D T

802.11n (20MHz): CHAIN 0

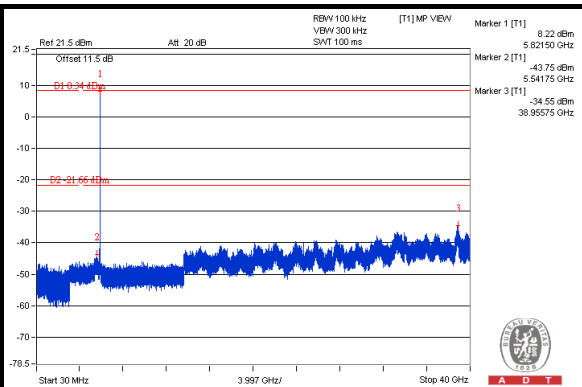
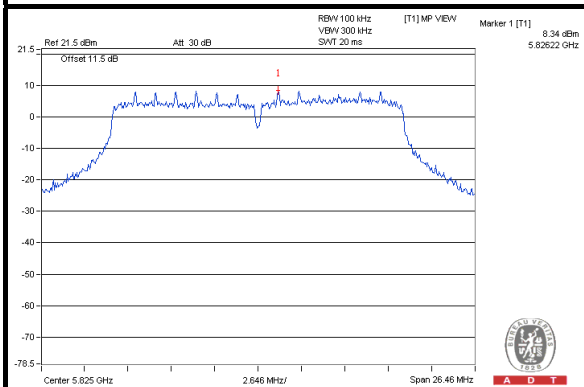
CH 149



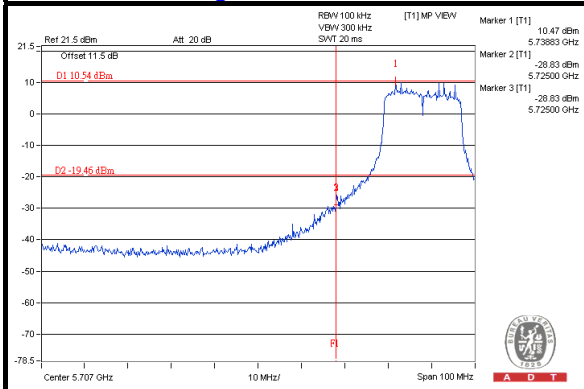
CH 157



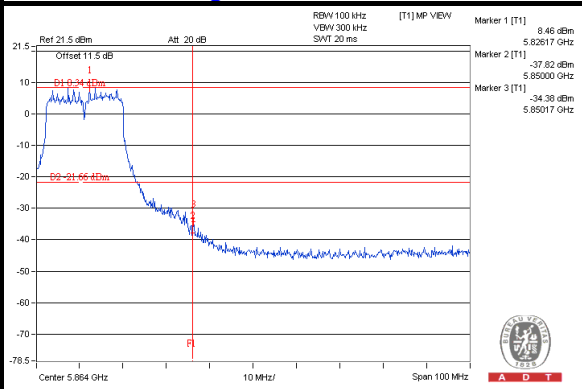
CH 165



CH 149 Band edge



CH 165 Band edge

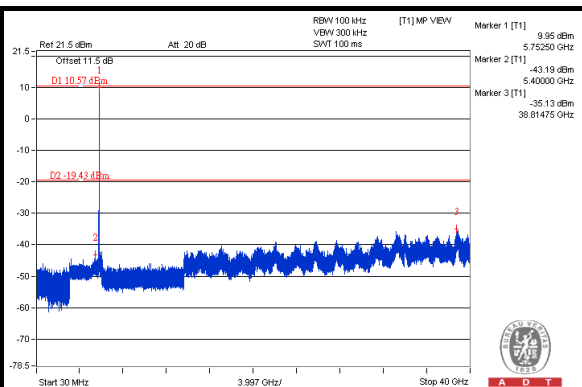
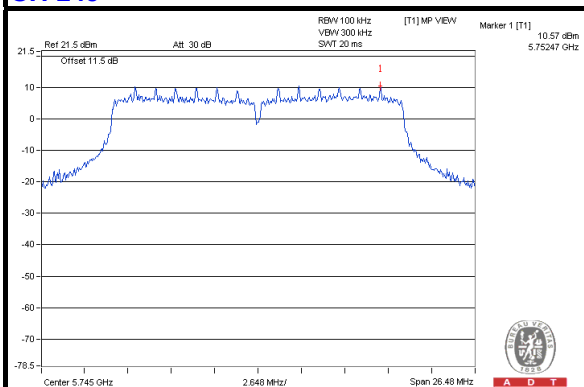




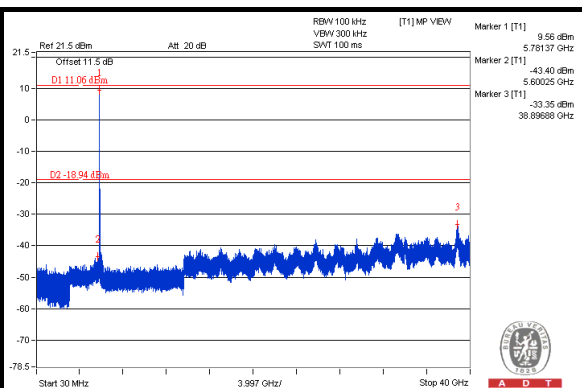
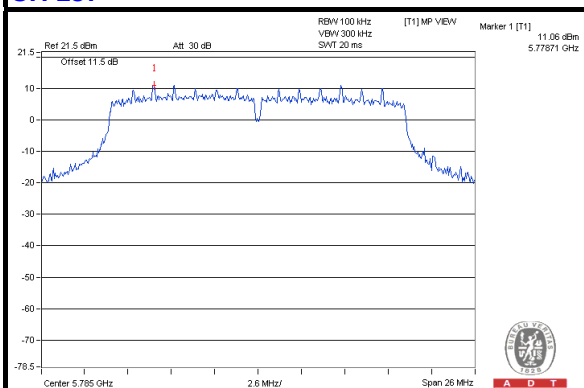
A D T

CHAIN 1

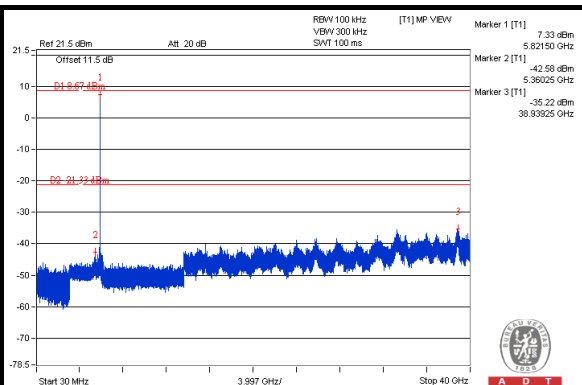
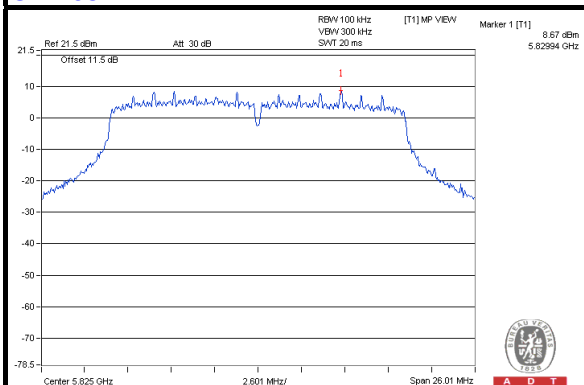
CH 149



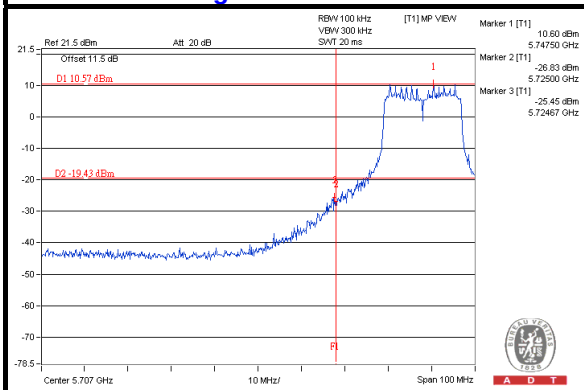
CH 157



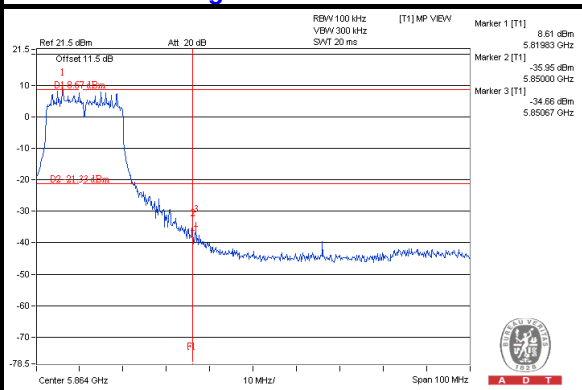
CH 165



CH 149 Band edge



CH 165 Band edge

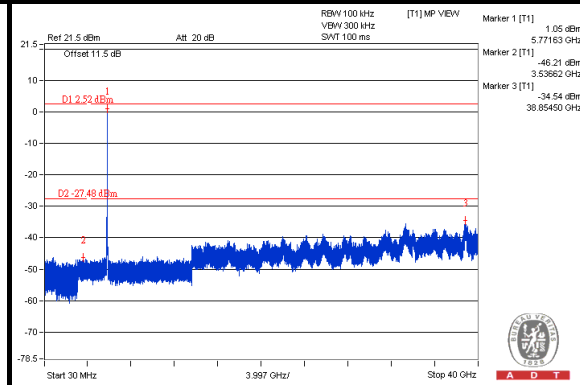
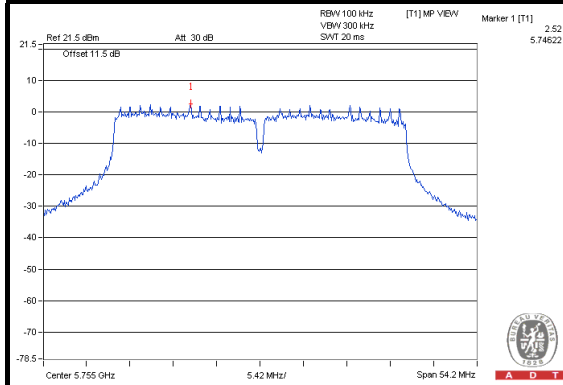




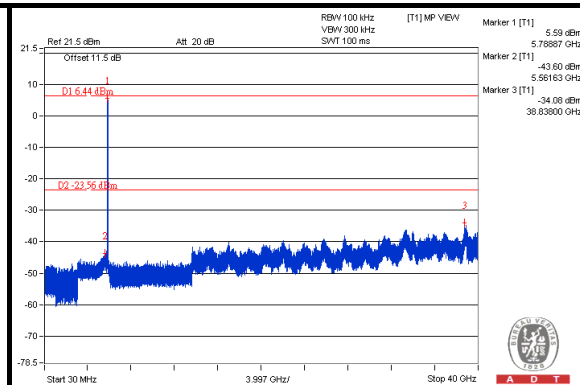
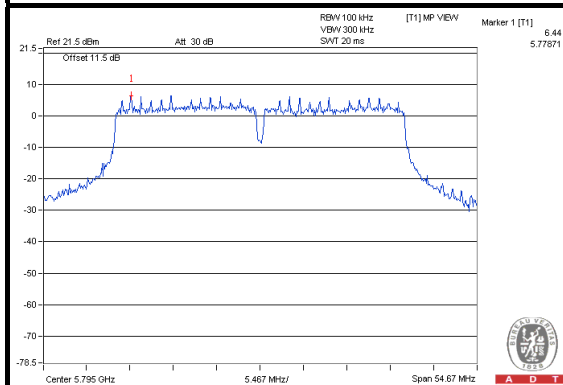
A D T

802.11n (40MHz): CHAIN 0

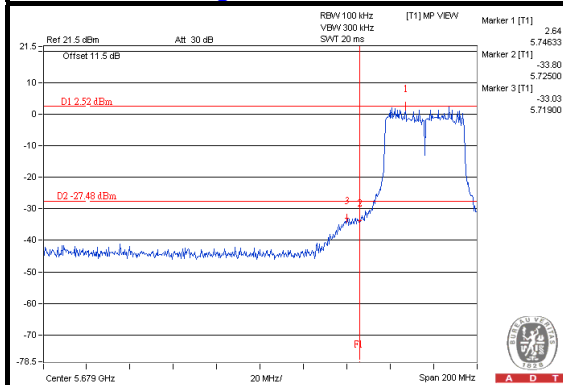
CH 151



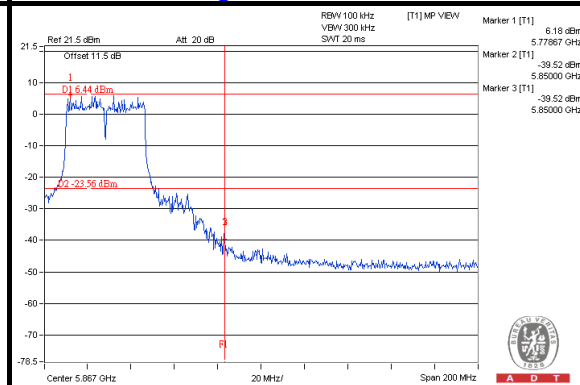
CH 159



CH 151 Band edge



CH 159 Band edge

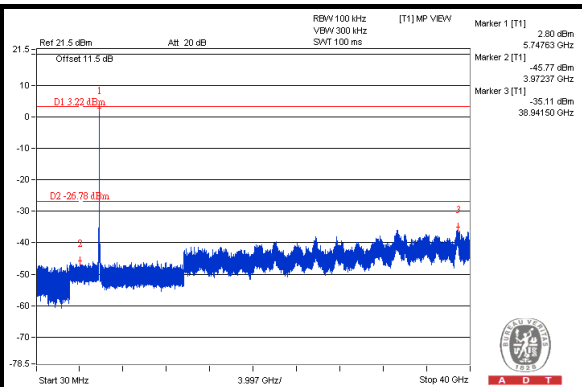
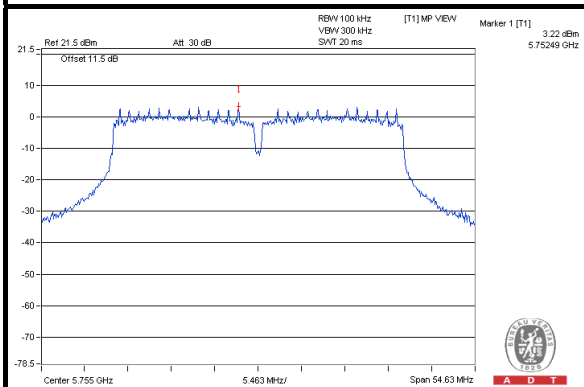




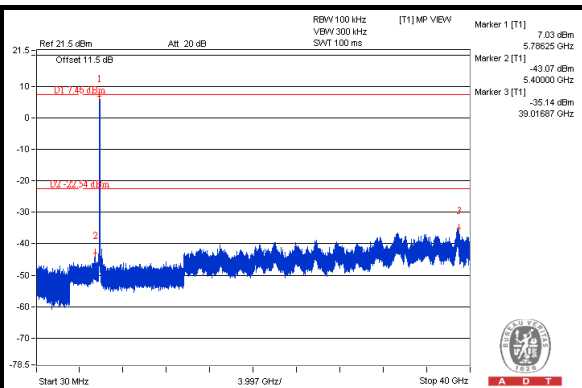
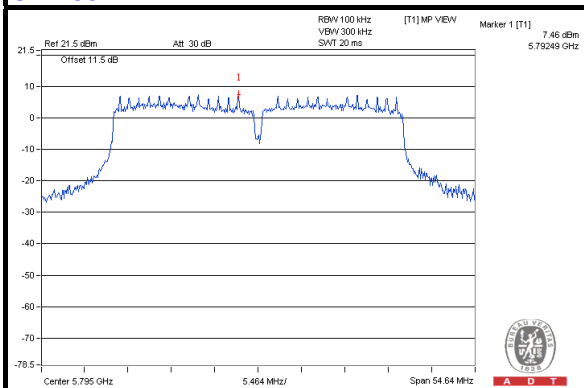
A D T

CHAIN 1

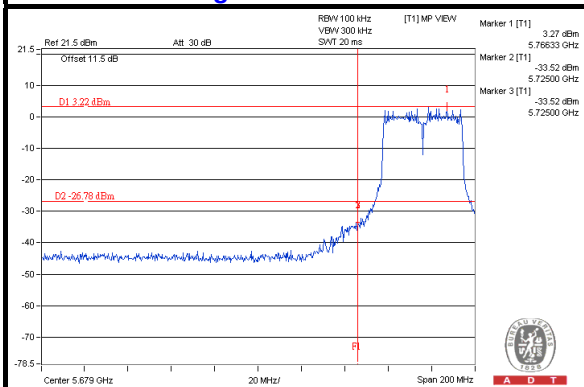
CH 151



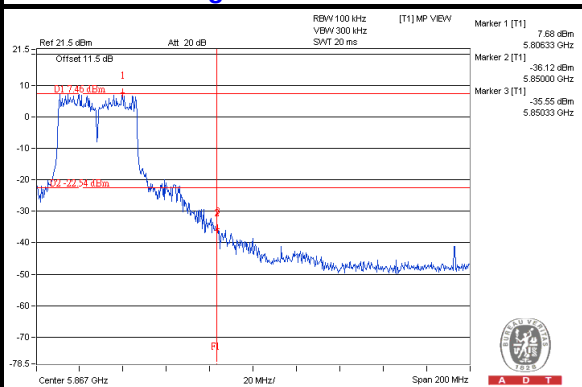
CH 159



CH 151 Band edge



CH 159 Band edge





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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7. INFORMATION ON THE TESTING LABORATORIES

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

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

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.



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

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

---END---