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FCC TEST REPORT (15.247)

REPORT NO.: RF130131C17

MODEL NO.: PT133

FCC ID: CJ6UPDW07PC1

RECEIVED: Jan. 31, 2013

TESTED: Feb. 06 ~ Feb. 09, 2013

ISSUED: Mar. 07, 2013

APPLICANT: Toshiba Corporation

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ISSUED BY: Bureau Veritas Consumer Products Services
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TABLE OF CONTENTS

RELEASE CONTROL RECORD.....	5
1. CERTIFICATION.....	6
2. SUMMARY OF TEST RESULTS	7
2.1 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF TEST MODES	10
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	11
3.3 DESCRIPTION OF SUPPORT UNITS	15
3.3.1 CONFIGURATION OF SYSTEM UNDER TEST	15
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS	15
4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)	16
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	16
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	16
4.1.2 TEST INSTRUMENTS	17
4.1.3 TEST PROCEDURES	18
4.1.4 DEVIATION FROM TEST STANDARD.....	18
4.1.5 TEST SETUP.....	19
4.1.6 EUT OPERATING CONDITIONS	19
4.1.7 TEST RESULTS	20
4.2 CONDUCTED EMISSION MEASUREMENT	33
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	33
4.2.2 TEST INSTRUMENTS.....	33
4.2.3 TEST PROCEDURES	34
4.2.4 DEVIATION FROM TEST STANDARD.....	34
4.2.5 TEST SETUP.....	34
4.2.6 EUT OPERATING CONDITIONS	34
4.2.7 TEST RESULTS	35
4.3 6dB BANDWIDTH MEASUREMENT.....	37
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	37
4.3.2 TEST SETUP.....	37
4.3.3 TEST INSTRUMENTS.....	37
4.3.4 TEST PROCEDURE.....	37
4.3.5 DEVIATION FROM TEST STANDARD.....	37
4.3.6 EUT OPERATING CONDITIONS	37
4.3.7 TEST RESULTS	38
4.4 CONDUCTED OUTPUT POWER.....	39
4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	39
4.4.2 TEST SETUP.....	39
4.4.3 TEST INSTRUMENTS.....	39
4.4.4 TEST PROCEDURES	39
4.4.5 DEVIATION FROM TEST STANDARD.....	40
4.4.6 EUT OPERATING CONDITIONS	40
4.4.7 TEST RESULTS	41
4.5 POWER SPECTRAL DENSITY MEASUREMENT	43
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	43
4.5.2 TEST SETUP.....	43
4.5.3 TEST INSTRUMENTS.....	43
4.5.4 TEST PROCEDURE.....	43



4.5.5	DEVIATION FROM TEST STANDARD.....	43
4.5.6	EUT OPERATING CONDITION.....	43
4.5.7	TEST RESULTS	44
4.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT.....	45
4.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	45
4.6.2	TEST SETUP.....	45
4.6.3	TEST INSTRUMENTS.....	45
4.6.4	TEST PROCEDURE.....	45
4.6.5	DEVIATION FROM TEST STANDARD.....	46
4.6.6	EUT OPERATING CONDITION.....	46
4.6.7	TEST RESULTS	46
5.	TEST TYPES AND RESULTS (FOR 5.0GHz BAND)	53
5.1	RADIATED EMISSION MEASUREMENT	53
5.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	53
5.1.2	TEST INSTRUMENTS.....	54
5.1.3	TEST PROCEDURES	54
5.1.4	DEVIATION FROM TEST STANDARD.....	54
5.1.5	TEST SETUP.....	54
5.1.6	EUT OPERATING CONDITIONS	54
5.1.7	TEST RESULTS	55
5.2	CONDUCTED EMISSION MEASUREMENT	64
5.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	64
5.2.2	TEST INSTRUMENTS.....	64
5.2.3	TEST PROCEDURES	64
5.2.4	DEVIATION FROM TEST STANDARD.....	64
5.2.5	TEST SETUP.....	64
5.2.6	EUT OPERATING CONDITIONS	64
5.2.7	TEST RESULTS	65
5.3	6dB BANDWIDTH MEASUREMENT.....	67
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	67
5.3.2	TEST SETUP.....	67
5.3.3	TEST INSTRUMENTS.....	67
5.3.4	TEST PROCEDURE.....	67
5.3.5	DEVIATION FROM TEST STANDARD.....	67
5.3.6	EUT OPERATING CONDITIONS	67
5.3.7	TEST RESULTS	68
5.4	CONDUCTED OUTPUT POWER.....	69
5.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	69
5.4.2	TEST SETUP.....	69
5.4.3	INSTRUMENTS.....	69
5.4.4	TEST PROCEDURES	69
5.4.5	DEVIATION FROM TEST STANDARD.....	69
5.4.6	EUT OPERATING CONDITIONS	69
5.4.7	TEST RESULTS	70
5.5	POWER SPECTRAL DENSITY MEASUREMENT	72
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	72
5.5.2	TEST SETUP.....	72
5.5.3	TEST INSTRUMENTS.....	72
5.5.4	TEST PROCEDURE.....	72
5.5.5	DEVIATION FROM TEST STANDARD.....	72
5.5.6	EUT OPERATING CONDITION.....	72
5.5.7	TEST RESULTS	73
5.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT.....	74



A D T

5.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	74
5.6.2	TEST SETUP	74
5.6.3	TEST INSTRUMENTS	74
5.6.4	TEST PROCEDURE	74
5.6.5	DEVIATION FROM TEST STANDARD	74
5.6.6	EUT OPERATING CONDITION	74
5.6.7	TEST RESULTS	74
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION	80
7.	INFORMATION ON THE TESTING LABORATORIES	81
8.	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	82



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130131C17	Original release	Mar. 07, 2013

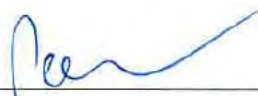


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1. CERTIFICATION

PRODUCT: Tablet PC
MODEL NO.: PT133
BRAND: Toshiba
APPLICANT: Toshiba Corporation
TESTED: Feb. 06 ~ Feb. 09, 2013
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (model: PT133) 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 :  , **DATE** : Mar. 07, 2013
Pettie Chen / Senior Specialist

APPROVED BY :  , **DATE** : Mar. 07, 2013
Ken Liu / Senior Manager



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.02dB at 0.19425MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.2dB at 5725.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

2.1 MEASUREMENT UNCERTAINTY

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

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

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



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Tablet PC
MODEL NO.	PT133
POWER SUPPLY	19Vdc (Adapter)
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	261.480mW for 2412 ~ 2462MHz 314.636mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to Note as below
ANTENNA CONNECTOR	NA
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT provides two completed transmitters and two receivers.

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

*802.11b/g: ant 0 was for the final test; 802.11a: ant 1 was for the final test.



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2. The EUT consumes power from the following adapter:

ADAPTER	
BRAND:	TOSHIBA
MODEL:	PA5072U-1ACA
INPUT:	100-240Vac, 1.3A
OUTPUT:	19Vdc, 2.37A
POWER LINE:	1.8m non-shielded cable without core

3. The following antennas for the EUT.

Antenna Part Number	Manufacture	Antenna Type	Antenna Connector	Cable Assembly Part Number and Information	Peak Gain W/ Cable loss (dBi)
Tx1: APP6P-700781 (Ant 0)	ACON	PIFA	NA	P/N: APP6P-700781 50 ohm Coaxial length: 100mm length diameter: 1.13mm	2400-2500MHz: -0.63dBi (peak)
					5150-5350MHz: -0.71dBi (peak)
					5470-5725MHz: -1.43dBi (peak)
					5725-5850MHz: -1.19dBi (peak)
Tx2: APP6P-700782 (Ant 1)	ACON	PIFA	NA	P/N: APP6P-700782 50 ohm Coaxial length: 100mm length diameter: 1.13mm	2400-2500MHz: -3.39dBi (peak)
					5150-5350MHz: 0.12dBi (peak)
					5470-5725MHz: -1.51dBi (peak)
					5725-5850MHz: -1.74dBi (peak)

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



3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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

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

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

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

FOR 5.0GHz (5745 ~ 5825MHz):

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

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

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

NOTE:

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

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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



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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
RE $<$ 1G	21deg. C, 71%RH	120Vac, 60Hz	Sun Lin
PLC	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
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	
-	√	√	√	√	-

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

NOTE:
The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane** (for 802.11a), **Y-plane** (for 802.11n(20MHz) & 802.11n(40MHz)).

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)
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	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)
-	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)
-	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)
-	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
-	802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
-	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)
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
-	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

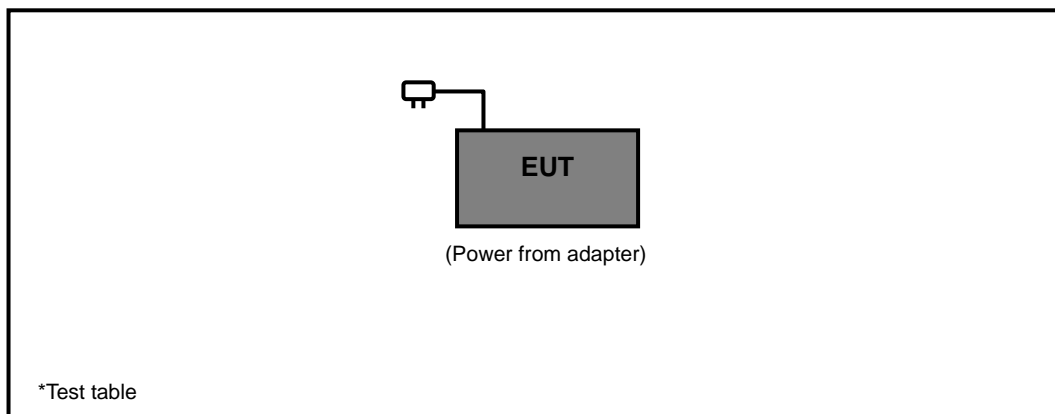
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
RE<1G	21deg. C, 71%RH	120Vac, 60Hz	Sun Lin
PLC	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v02

662911 D01 Multiple Transmitter Output v01 r02

ANSI C63.10-2009

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

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



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

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

NOTE:

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



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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2012	Aug. 10, 2013
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 25, 2012	Oct. 24, 2013
High Speed Peak Power Meter	ML2495A	0842014	Apr. 28, 2012	Apr. 27, 2013
Power Sensor	MA2411B	0738404	Apr. 28, 2012	Apr. 27, 2013

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. The test was performed in HwaYa Chamber 9.
 4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 5. The FCC Site Registration No. is 215374.
 6. The IC Site Registration No. is IC 7450F-9.



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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.

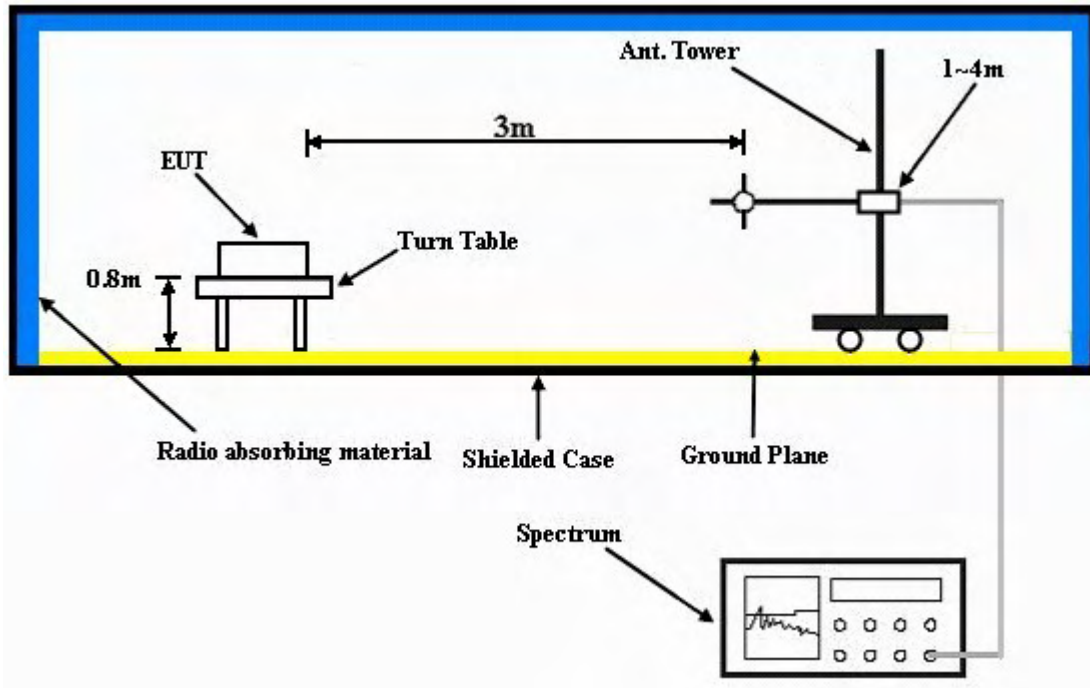
NOTE:

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 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

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



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4.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 71%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	2390.00	58.4 PK	74.0	-15.6	1.30 H	276	26.40	32.00
2	2390.00	48.2 AV	54.0	-5.8	1.30 H	276	16.20	32.00
3	*2412.00	99.6 PK			1.30 H	276	67.60	32.00
4	*2412.00	95.4 AV			1.30 H	276	63.40	32.00
5	4824.00	46.3 PK	74.0	-27.7	1.27 H	241	7.50	38.80
6	4824.00	34.7 AV	54.0	-19.3	1.27 H	241	-4.10	38.80

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	2390.00	56.2 PK	74.0	-17.8	1.04 V	126	24.20	32.00
2	2390.00	46.0 AV	54.0	-8.0	1.04 V	126	14.00	32.00
3	*2412.00	91.1 PK			1.04 V	126	59.10	32.00
4	*2412.00	86.9 AV			1.04 V	126	54.90	32.00
5	4824.00	46.5 PK	74.0	-27.5	1.13 V	347	7.70	38.80
6	4824.00	34.6 AV	54.0	-19.4	1.13 V	347	-4.20	38.80

REMARKS:

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



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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	21deg. C, 71%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	*2437.00	101.8 PK			1.32 H	279	69.70	32.10
2	*2437.00	97.4 AV			1.32 H	279	65.30	32.10
3	4874.00	50.8 PK	74.0	-23.2	1.23 H	240	11.90	38.90
4	4874.00	46.1 AV	54.0	-7.9	1.23 H	240	7.20	38.90
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	*2437.00	93.2 PK			1.02 V	126	61.10	32.10
2	*2437.00	89.0 AV			1.02 V	126	56.90	32.10
3	4874.00	51.6 PK	74.0	-22.4	2.20 V	171	12.70	38.90
4	4874.00	46.9 AV	54.0	-7.1	2.20 V	171	8.00	38.90

REMARKS:

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



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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	21deg. C, 71%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	*2462.00	103.5 PK			1.30 H	278	71.40	32.10
2	*2462.00	99.2 AV			1.30 H	278	67.10	32.10
3	2483.50	57.0 PK	74.0	-17.0	1.30 H	278	24.80	32.20
4	2483.50	44.9 AV	54.0	-9.1	1.30 H	278	12.70	32.20
5	4924.00	52.1 PK	74.0	-21.9	1.12 H	241	13.10	39.00
6	4924.00	48.0 AV	54.0	-6.0	1.12 H	241	9.00	39.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	95.4 PK			1.00 V	122	63.30	32.10
2	*2462.00	91.2 AV			1.00 V	122	59.10	32.10
3	2483.50	54.7 PK	74.0	-19.3	1.00 V	122	22.50	32.20
4	2483.50	44.3 AV	54.0	-9.7	1.00 V	122	12.10	32.20
5	4924.00	51.0 PK	74.0	-23.0	1.58 V	170	12.00	39.00
6	4924.00	46.7 AV	54.0	-7.3	1.58 V	170	7.70	39.00

REMARKS:

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



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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	21deg. C, 71%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	2390.00	57.0 PK	74.0	-17.0	1.30 H	279	25.00	32.00
2	2390.00	45.2 AV	54.0	-8.8	1.30 H	279	13.20	32.00
3	*2412.00	100.3 PK			1.30 H	279	68.30	32.00
4	*2412.00	89.8 AV			1.30 H	279	57.80	32.00
5	4824.00	46.2 PK	74.0	-27.8	1.26 H	221	7.40	38.80
6	4824.00	33.1 AV	54.0	-20.9	1.26 H	221	-5.70	38.80
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	2390.00	54.1 PK	74.0	-19.9	1.05 V	138	22.10	32.00
2	2390.00	44.8 AV	54.0	-9.2	1.05 V	138	12.80	32.00
3	*2412.00	90.8 PK			1.05 V	138	58.80	32.00
4	*2412.00	80.7 AV			1.05 V	138	48.70	32.00
5	4824.00	43.8 PK	74.0	-30.2	1.56 V	152	5.00	38.80
6	4824.00	32.3 AV	54.0	-21.7	1.56 V	152	-6.50	38.80

REMARKS:

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



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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	21deg. C, 71%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	*2437.00	104.5 PK			1.29 H	278	72.40	32.10
2	*2437.00	94.2 AV			1.29 H	278	62.10	32.10
3	4874.00	45.3 PK	74.0	-28.7	1.32 H	245	6.40	38.90
4	4874.00	33.6 AV	54.0	-20.4	1.32 H	245	-5.30	38.90
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	*2437.00	94.2 PK			1.09 V	148	62.10	32.10
2	*2437.00	84.1 AV			1.09 V	148	52.00	32.10
3	4874.00	44.4 PK	74.0	-29.6	1.41 V	169	5.50	38.90
4	4874.00	32.8 AV	54.0	-21.2	1.41 V	169	-6.10	38.90

REMARKS:

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



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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	21deg. C, 71%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	*2462.00	102.0 PK			1.28 H	278	69.90	32.10
2	*2462.00	91.6 AV			1.28 H	278	59.50	32.10
3	2483.50	60.8 PK	74.0	-13.2	1.28 H	278	28.60	32.20
4	2483.50	47.7 AV	54.0	-6.3	1.28 H	278	15.50	32.20
5	4924.00	46.0 PK	74.0	-28.0	1.32 H	207	7.00	39.00
6	4924.00	33.8 AV	54.0	-20.2	1.32 H	207	-5.20	39.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	92.2 PK			1.00 V	122	60.10	32.10
2	*2462.00	82.0 AV			1.00 V	122	49.90	32.10
3	2483.50	53.8 PK	74.0	-20.2	1.00 V	122	21.60	32.20
4	2483.50	45.0 AV	54.0	-9.0	1.00 V	122	12.80	32.20
5	4924.00	43.7 PK	74.0	-30.3	1.39 V	148	4.70	39.00
6	4924.00	32.2 AV	54.0	-21.8	1.39 V	148	-6.80	39.00

REMARKS:

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



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	21deg. C, 71%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	2390.00	59.8 PK	74.0	-14.2	1.31 H	285	27.80	32.00
2	2390.00	46.7 AV	54.0	-7.3	1.31 H	285	14.70	32.00
3	*2412.00	103.2 PK			1.31 H	288	71.20	32.00
4	*2412.00	90.4 AV			1.31 H	288	58.40	32.00
5	4824.00	45.8 PK	74.0	-28.2	1.22 H	217	7.00	38.80
6	4824.00	35.1 AV	54.0	-18.9	1.22 H	217	-3.70	38.80
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	2390.00	56.6 PK	74.0	-17.4	1.13 V	7	24.60	32.00
2	2390.00	45.2 AV	54.0	-8.8	1.13 V	7	13.20	32.00
3	*2412.00	99.1 PK			1.13 V	7	67.10	32.00
4	*2412.00	87.3 AV			1.13 V	7	55.30	32.00
5	4824.00	44.0 PK	74.0	-30.0	1.16 V	308	5.20	38.80
6	4824.00	33.8 AV	54.0	-20.2	1.16 V	308	-5.00	38.80

REMARKS:

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



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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	21deg. C, 71%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	*2437.00	107.4 PK			1.31 H	287	75.30	32.10
2	*2437.00	94.4 AV			1.31 H	287	62.30	32.10
3	4874.00	45.4 PK	74.0	-28.6	1.18 H	225	6.50	38.90
4	4874.00	34.7 AV	54.0	-19.3	1.18 H	225	-4.20	38.90
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	*2437.00	103.4 PK			1.22 V	12	71.30	32.10
2	*2437.00	91.5 AV			1.22 V	12	59.40	32.10
3	4874.00	43.5 PK	74.0	-30.5	1.08 V	298	4.60	38.90
4	4874.00	33.4 AV	54.0	-20.6	1.08 V	298	-5.50	38.90

REMARKS:

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



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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	21deg. C, 71%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	*2462.00	102.3 PK			1.27 H	286	70.20	32.10
2	*2462.00	89.8 AV			1.27 H	286	57.70	32.10
3	2483.50	57.8 PK	74.0	-16.2	1.27 H	286	25.60	32.20
4	2483.50	46.3 AV	54.0	-7.7	1.27 H	286	14.10	32.20
5	4924.00	45.5 PK	74.0	-28.5	1.14 H	228	6.50	39.00
6	4924.00	34.7 AV	54.0	-19.3	1.14 H	228	-4.30	39.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	97.8 PK			1.18 V	12	65.70	32.10
2	*2462.00	85.9 AV			1.18 V	12	53.80	32.10
3	2483.50	56.1 PK	74.0	-17.9	1.18 V	12	23.90	32.20
4	2483.50	44.8 AV	54.0	-9.2	1.18 V	12	12.60	32.20
5	4924.00	43.8 PK	74.0	-30.2	1.21 V	299	4.80	39.00
6	4924.00	33.4 AV	54.0	-20.6	1.21 V	299	-5.60	39.00

REMARKS:

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



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	21deg. C, 71%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	2390.00	59.2 PK	74.0	-14.8	1.29 H	284	27.20	32.00
2	2390.00	46.2 AV	54.0	-7.8	1.29 H	284	14.20	32.00
3	*2422.00	96.5 PK			1.29 H	284	64.40	32.10
4	*2422.00	85.5 AV			1.29 H	284	53.40	32.10
5	4844.00	44.2 PK	74.0	-29.8	1.29 H	224	5.40	38.80
6	4844.00	34.3 AV	54.0	-19.7	1.29 H	224	-4.50	38.80
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	2390.00	55.8 PK	74.0	-18.2	1.21 V	8	23.80	32.00
2	2390.00	44.5 AV	54.0	-9.5	1.21 V	8	12.50	32.00
3	*2422.00	92.2 PK			1.21 V	8	60.10	32.10
4	*2422.00	80.4 AV			1.21 V	8	48.30	32.10
5	4844.00	43.4 PK	74.0	-30.6	1.25 V	296	4.60	38.80
6	4844.00	33.2 AV	54.0	-20.8	1.25 V	296	-5.60	38.80

REMARKS:

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



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	21deg. C, 71%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	*2437.00	99.6 PK			1.30 H	285	67.50	32.10
2	*2437.00	89.3 AV			1.30 H	285	57.20	32.10
3	4874.00	46.3 PK	74.0	-27.7	1.32 H	252	7.40	38.90
4	4874.00	35.8 AV	54.0	-18.2	1.32 H	252	-3.10	38.90
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	*2437.00	95.4 PK			1.18 V	5	63.30	32.10
2	*2437.00	83.2 AV			1.18 V	5	51.10	32.10
3	4874.00	44.2 PK	74.0	-29.8	1.27 V	308	5.30	38.90
4	4874.00	33.5 AV	54.0	-20.5	1.27 V	308	-5.40	38.90

REMARKS:

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



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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	21deg. C, 71%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	*2452.00	97.1 PK			1.30 H	285	65.00	32.10
2	*2452.00	85.8 AV			1.30 H	285	53.70	32.10
3	2483.50	62.4 PK	74.0	-11.6	1.30 H	285	30.20	32.20
4	2483.50	48.3 AV	54.0	-5.7	1.30 H	285	16.10	32.20
5	4904.00	46.5 PK	74.0	-27.5	1.32 H	208	7.60	38.90
6	4904.00	35.8 AV	54.0	-18.2	1.32 H	208	-3.10	38.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	92.8 PK			1.16 V	2	60.70	32.10
2	*2452.00	80.8 AV			1.16 V	2	48.70	32.10
3	2483.50	55.6 PK	74.0	-18.4	1.16 V	2	23.40	32.20
4	2483.50	44.2 AV	54.0	-9.8	1.16 V	2	12.00	32.20
5	4904.00	43.8 PK	74.0	-30.2	1.34 V	305	4.90	38.90
6	4904.00	33.7 AV	54.0	-20.3	1.34 V	305	-5.20	38.90

REMARKS:

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



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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	24deg. C, 64%RH	TESTED BY	Match Tsui

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	115.36	31.3 QP	43.5	-12.2	1.49 H	277	20.50	10.80
2	181.32	27.7 QP	43.5	-15.8	1.49 H	6	15.40	12.30
3	873.90	34.9 QP	46.0	-11.1	1.00 H	57	8.80	26.10
4	895.24	30.3 QP	46.0	-15.7	1.49 H	75	3.90	26.40
5	930.16	30.5 QP	46.0	-15.5	1.00 H	256	3.70	26.80
6	959.26	33.3 QP	46.0	-12.7	1.00 H	4	6.20	27.10

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	107.60	27.6 QP	43.5	-15.9	1.50 V	230	17.70	9.90
2	161.92	29.4 QP	43.5	-14.1	1.00 V	263	15.70	13.70
3	660.50	31.0 QP	46.0	-15.0	1.00 V	6	8.10	22.90
4	873.90	36.8 QP	46.0	-9.2	1.50 V	181	10.70	26.10
5	935.98	30.7 QP	46.0	-15.3	1.00 V	337	3.90	26.80
6	959.26	34.1 QP	46.0	-11.9	1.50 V	9	7.00	27.10

REMARKS:

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



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4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 09, 2012	Nov. 08, 2013
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 21, 2012	Dec. 20, 2013
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 06, 2012	Jul. 05, 2013
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

4.2.3 TEST PROCEDURES

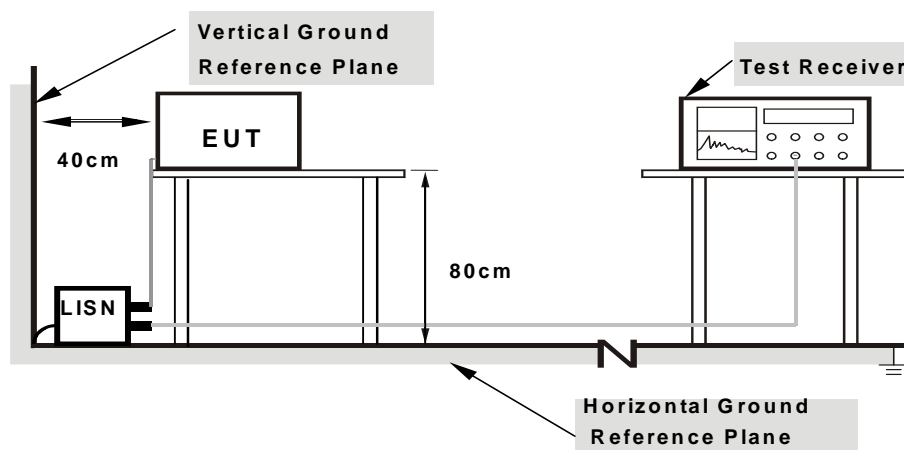
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

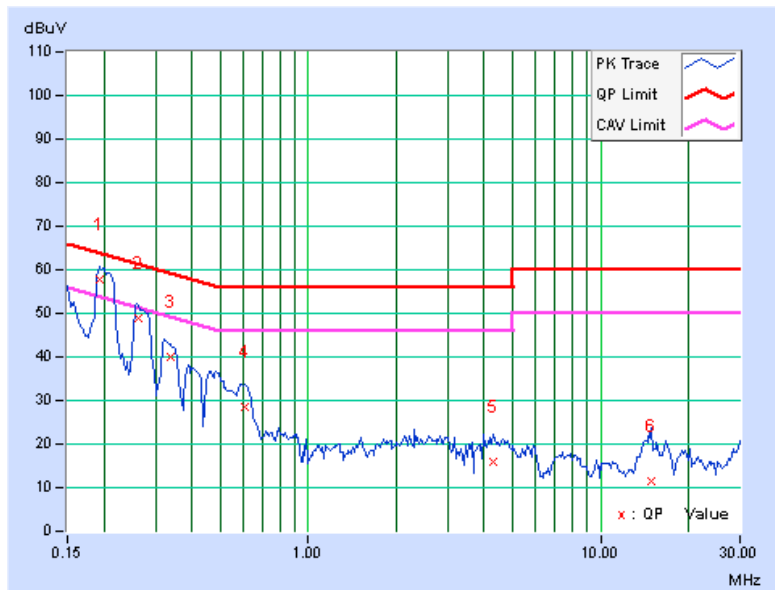
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n(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	0.19425	0.12	57.71	39.61	57.83	39.73	63.85	53.85	-6.02	-14.12
2	0.26328	0.13	48.77	31.03	48.90	31.16	61.33	51.33	-12.43	-20.17
3	0.33750	0.14	39.85	21.79	39.99	21.93	59.26	49.26	-19.27	-27.33
4	0.60313	0.17	28.27	13.33	28.44	13.50	56.00	46.00	-27.56	-32.50
5	4.30078	0.37	15.49	3.20	15.86	3.57	56.00	46.00	-40.14	-42.43
6	14.94922	0.94	10.72	2.37	11.66	3.31	60.00	50.00	-48.34	-46.69

- 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.



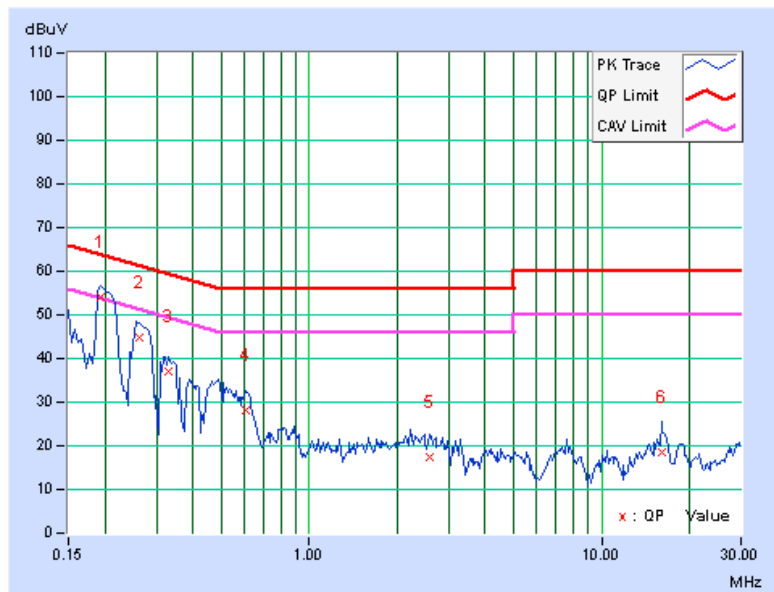


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PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.17	53.90	34.47	54.07	34.64	63.91	53.91	-9.84	-19.27
2	0.26328	0.18	44.79	27.51	44.97	27.69	61.33	51.33	-16.35	-23.63
3	0.32969	0.20	36.73	18.80	36.93	19.00	59.46	49.46	-22.53	-30.46
4	0.60703	0.22	28.10	14.40	28.32	14.62	56.00	46.00	-27.68	-31.38
5	2.57422	0.31	17.13	8.94	17.44	9.25	56.00	46.00	-38.56	-36.75
6	16.08984	0.80	17.60	7.69	18.40	8.49	60.00	50.00	-41.60	-41.51

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

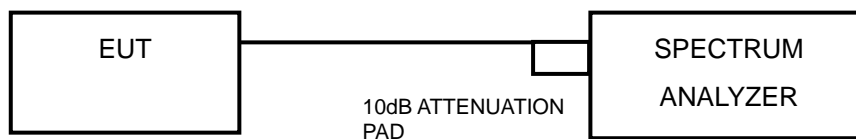


4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.3.4 TEST PROCEDURE

- a. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
- b. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

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



4.3.7 TEST RESULTS

802.11b

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

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	13.92	0.5	PASS
6	2437	13.94	0.5	PASS
11	2462	12.82	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.14	12.67	0.5	PASS
6	2437	15.14	12.65	0.5	PASS
11	2462	15.19	12.69	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.41	36.43	0.5	PASS
6	2437	36.44	36.42	0.5	PASS
9	2452	36.43	36.43	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

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

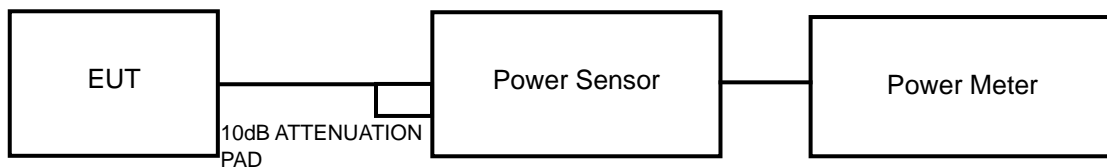
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

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

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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



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4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.



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4.4.7 TEST RESULTS

FOR PEAK POWER

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	80.724	19.07	30	PASS
6	2437	89.331	19.51	30	PASS
11	2462	87.700	19.43	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	101.158	20.05	30	PASS
6	2437	144.544	21.60	30	PASS
11	2462	109.648	20.40	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	19.50	18.70	163.256	22.13	30	PASS
6	2437	21.50	20.80	261.480	24.17	30	PASS
11	2462	18.80	18.10	140.423	21.47	30	PASS

802.11n (40MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	17.40	15.90	93.859	19.72	30	PASS
6	2437	19.60	18.70	165.332	22.18	30	PASS
9	2452	17.00	17.10	101.405	20.06	30	PASS



FOR AVERAGE POWER

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	46.77	16.70
6	2437	48.98	16.90
11	2462	47.86	16.80

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	19.50	12.90
6	2437	38.02	15.80
11	2462	20.42	13.10

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
1	2412	12.00	10.70	27.60	14.41
6	2437	15.50	15.20	68.59	18.36
11	2462	11.60	10.80	26.48	14.23

802.11n (40MHz)

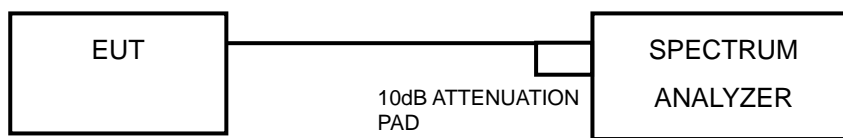
CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
3	2422	9.30	8.00	14.82	11.71
6	2437	12.30	11.50	31.11	14.93
9	2452	8.70	8.80	15.00	11.76

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



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4.5.7 TEST RESULTS

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-8.61	8	PASS
6	2437	-8.96	8	PASS
11	2462	-9.36	8	PASS

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.68	8	PASS
6	2437	-11.34	8	PASS
11	2462	-13.73	8	PASS

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-13.74	3.01	-10.73	8	PASS
	6	2437	-10.41	3.01	-7.40	8	PASS
	11	2462	-14.69	3.01	-11.68	8	PASS
1	1	2412	-15.93	3.01	-12.92	8	PASS
	6	2437	-12.09	3.01	-9.08	8	PASS
	11	2462	-16.21	3.01	-13.20	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 1.11 \text{dBi} < 6 \text{dBi}$, so the limit no need to reduced.

802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-19.49	3.01	-16.48	8	PASS
	6	2437	-16.73	3.01	-13.72	8	PASS
	9	2452	-20.58	3.01	-17.57	8	PASS
1	3	2422	-21.36	3.01	-18.35	8	PASS
	6	2437	-17.75	3.01	-14.74	8	PASS
	9	2452	-20.25	3.01	-17.24	8	PASS

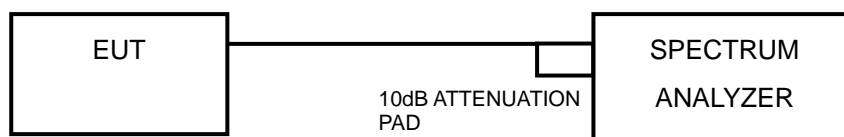
NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 1.11 \text{dBi} < 6 \text{dBi}$, so the limit no need to reduced.

4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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



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MEASUREMENT PROCEDURE OOB

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

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

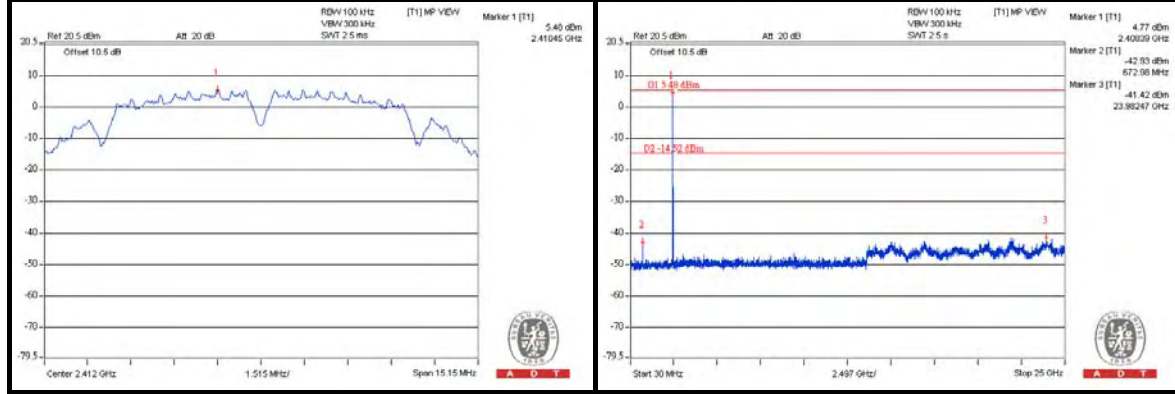
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



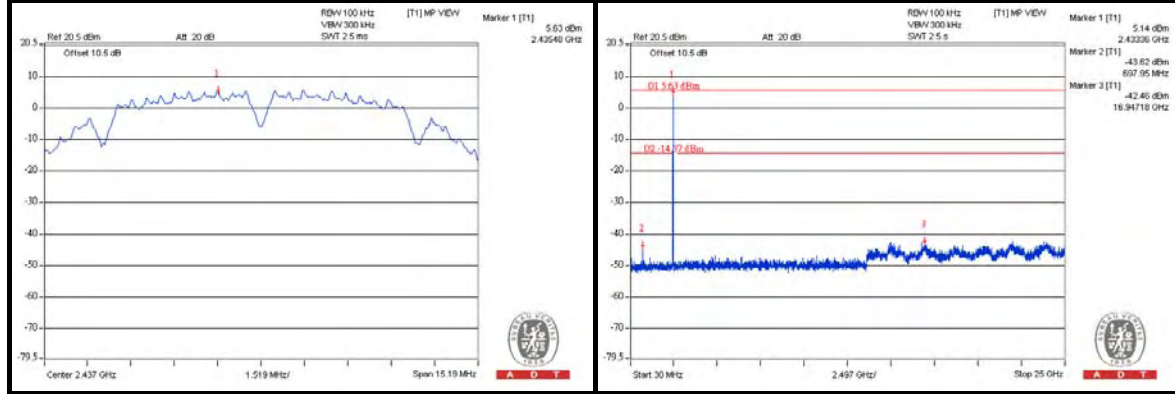
A D T

802.11b

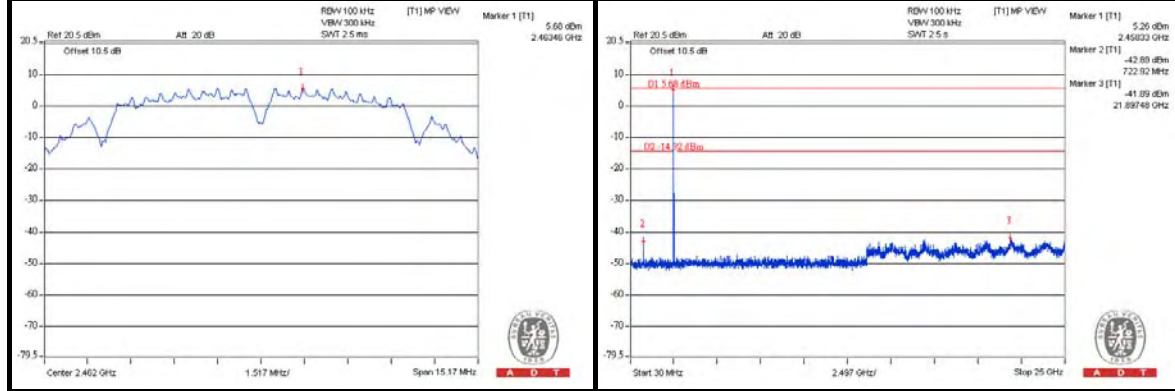
CH 1



CH 6

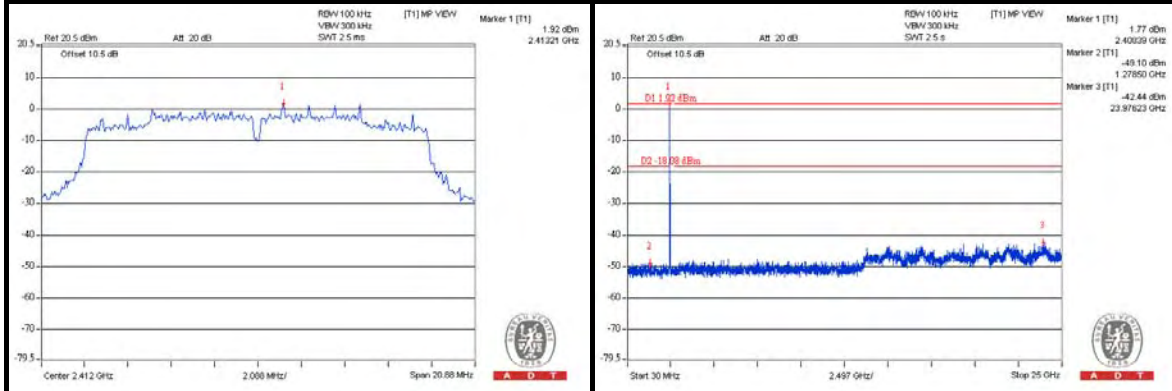


CH 11

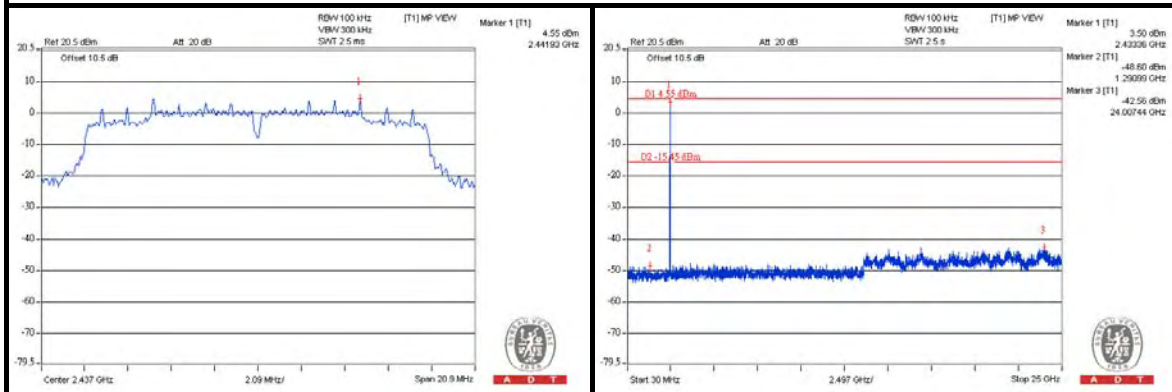


802.11g

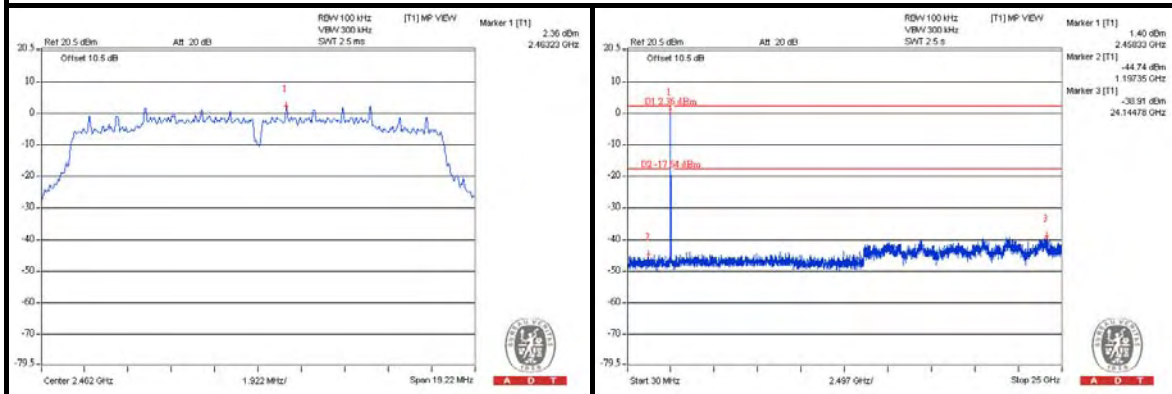
CH 1



CH 6

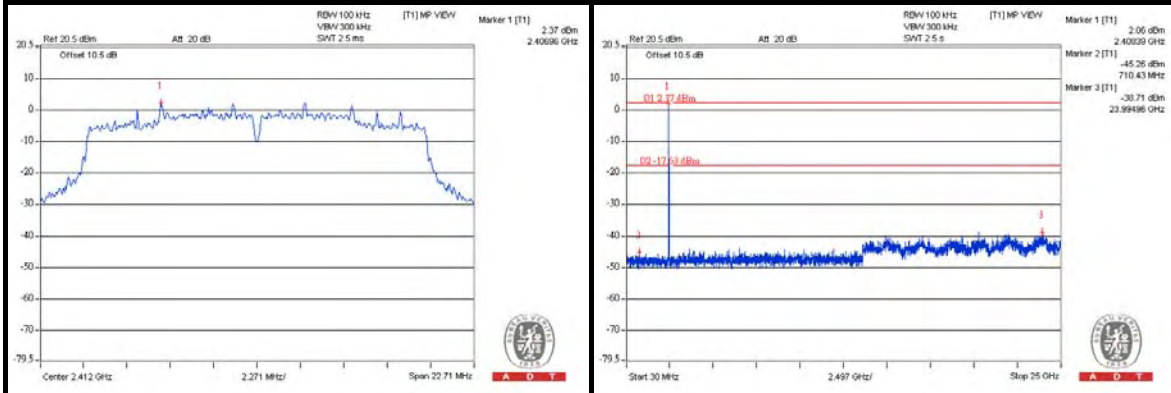


CH 11

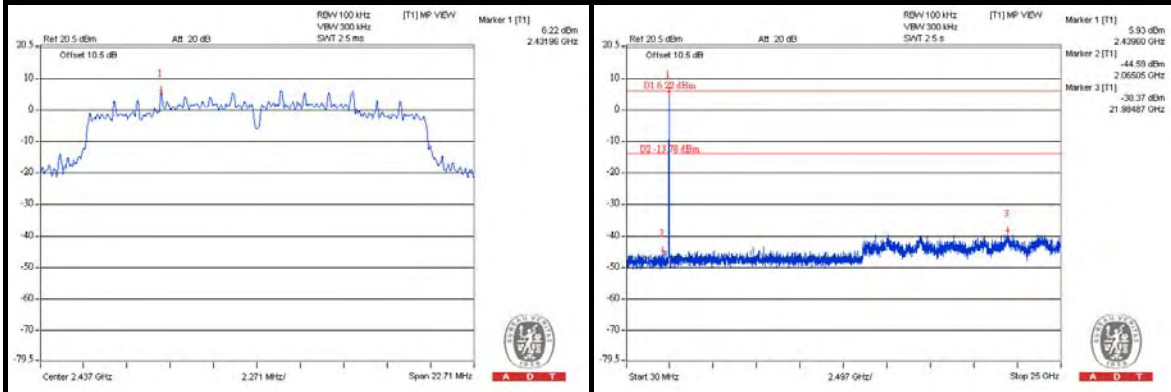


802.11n (20MHz)
CHAIN 0

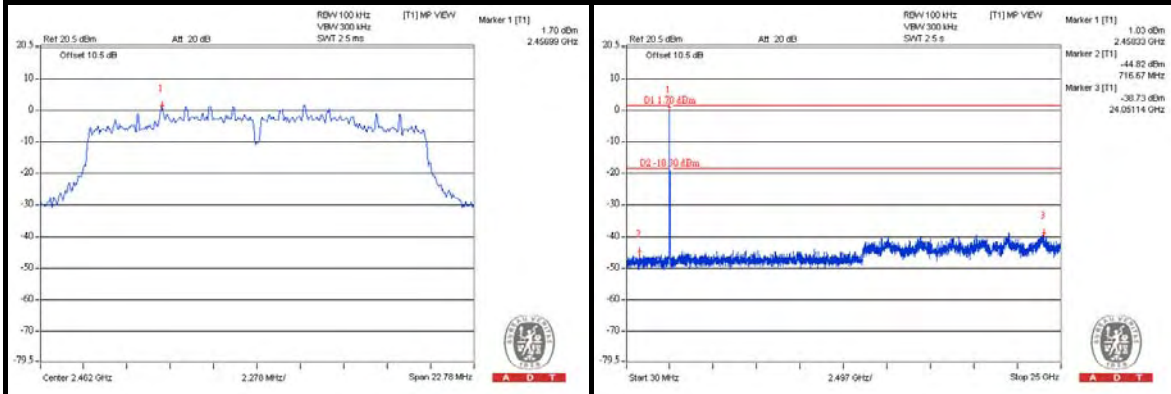
CH 1



CH 6



CH 11

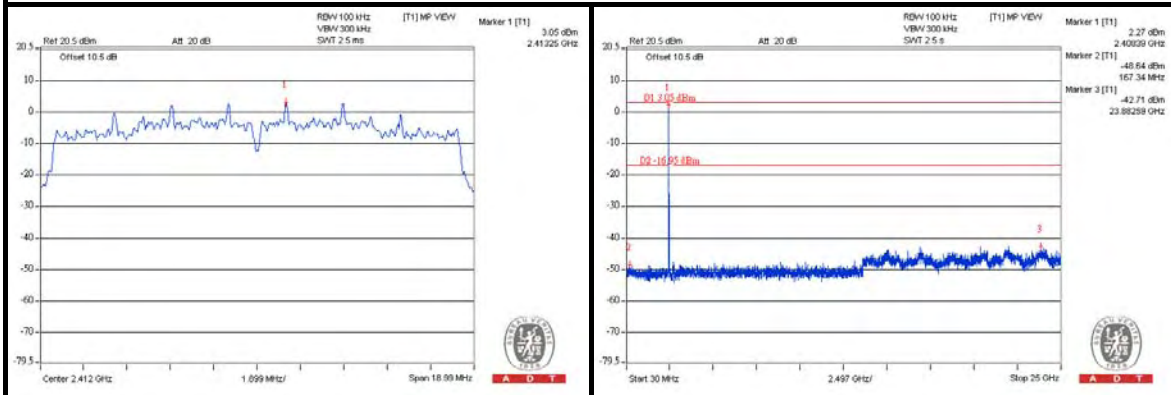




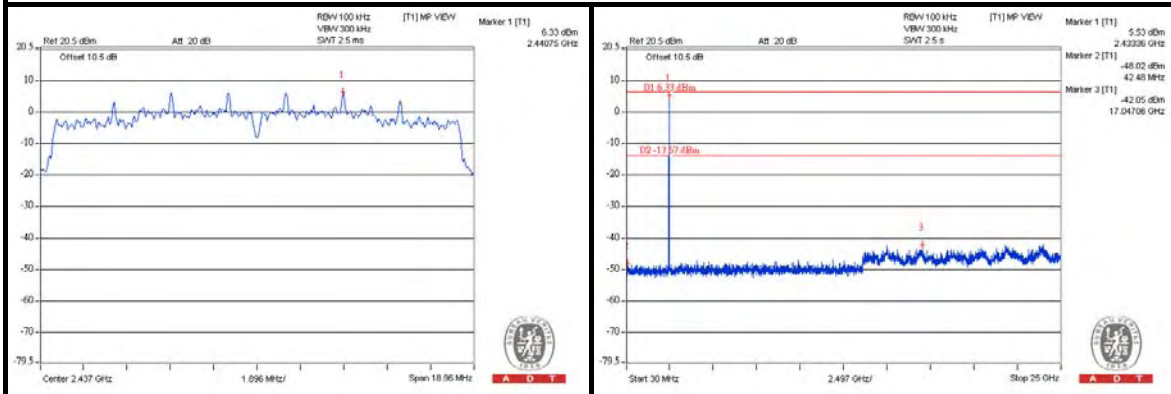
A D T

CHAIN 1

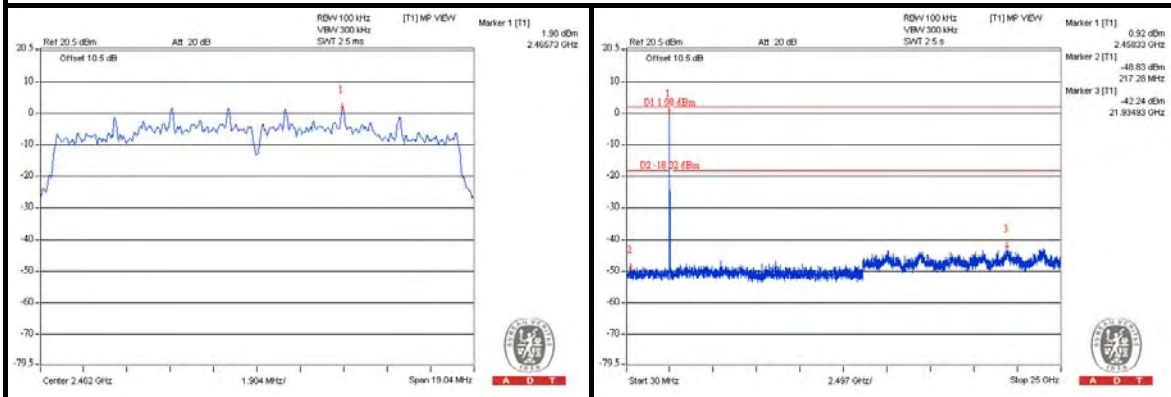
CH 1



CH 6

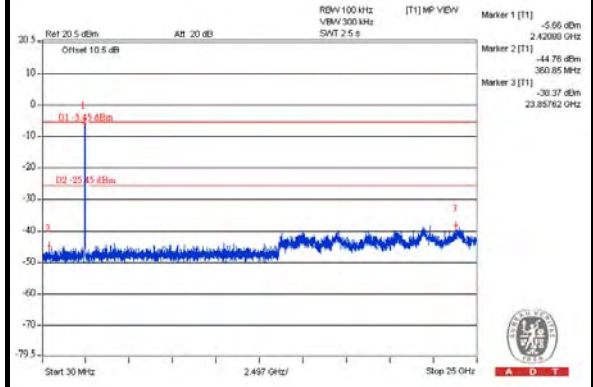
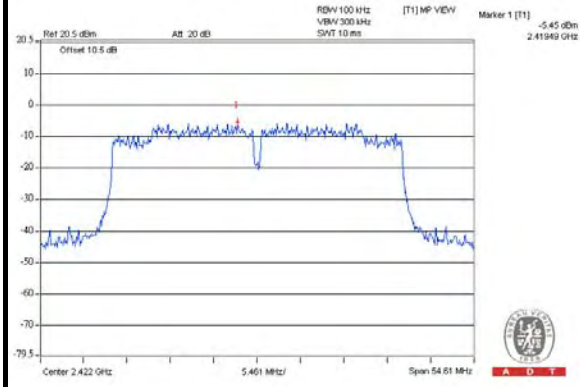


CH 11

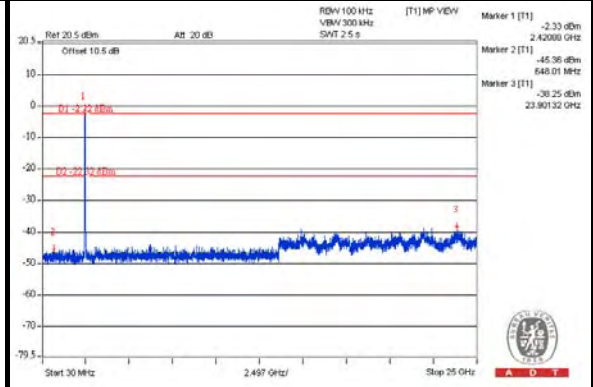
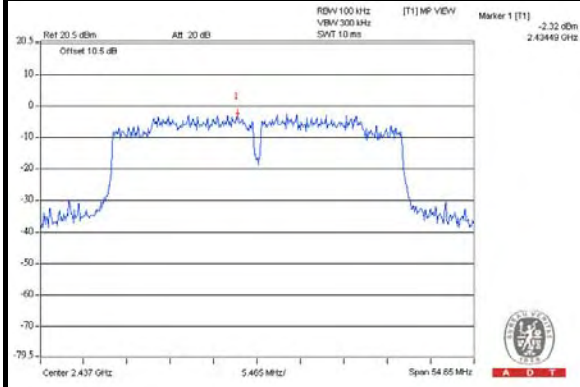


802.11n (40MHz)
CHAIN 0

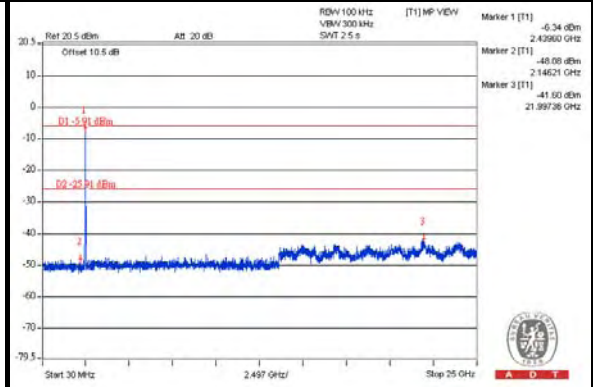
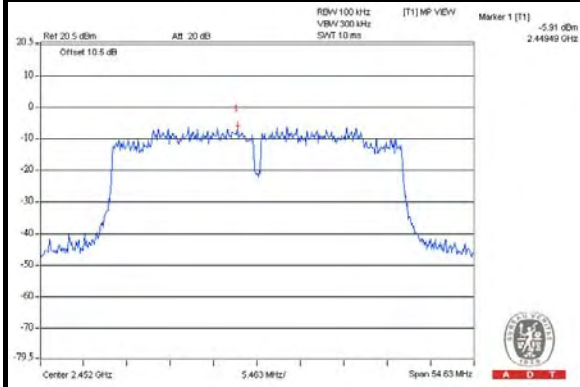
CH 3



CH 6



CH 9

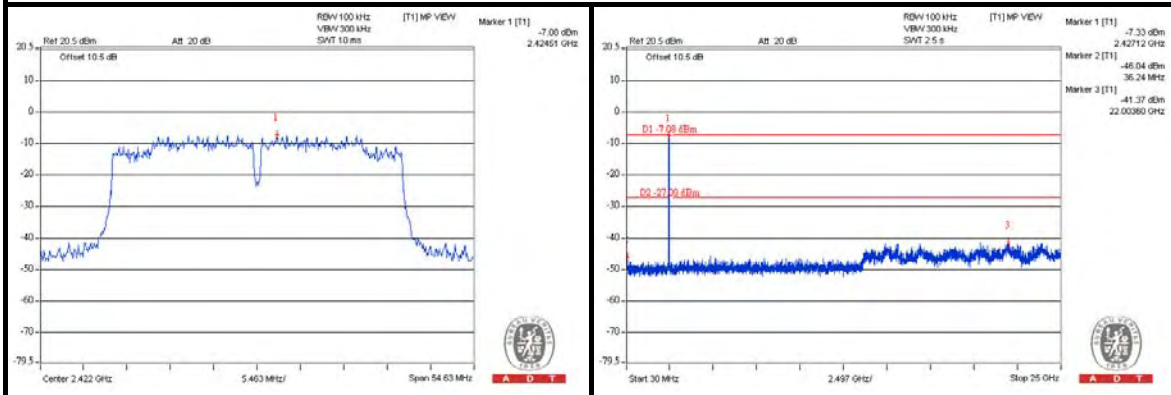




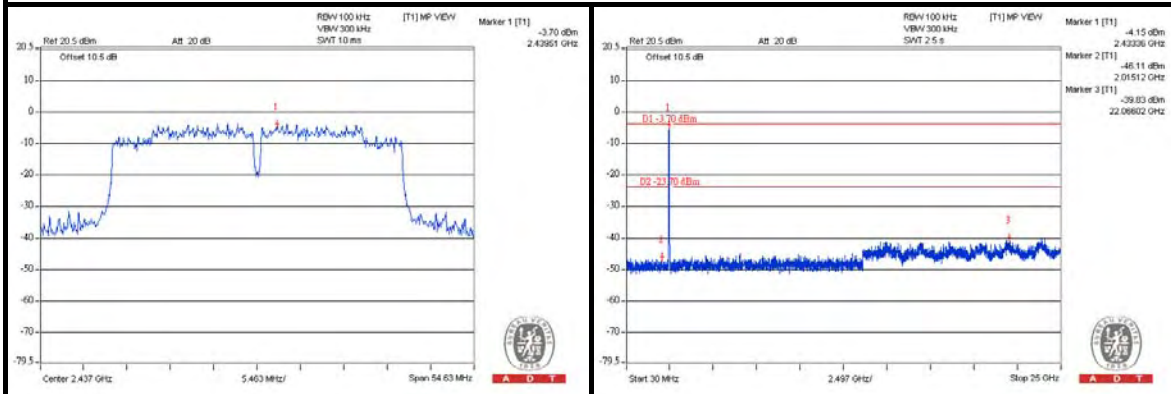
A D T

CHAIN 1

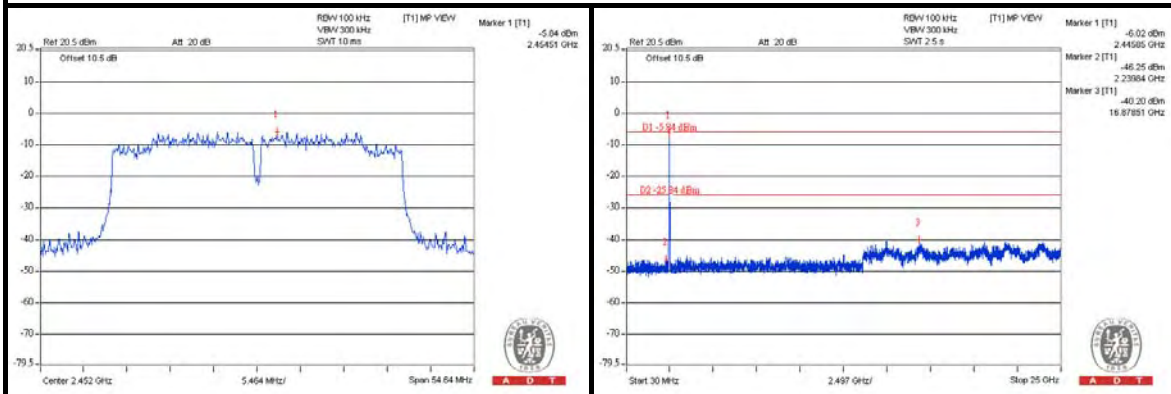
CH 3



CH 6



CH 9





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

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



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5.1.2 TEST INSTRUMENTS

Same as item 4.1.2.

5.1.3 TEST PROCEDURES

Same as item 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as item 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as item 4.1.6.



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5.1.7 TEST RESULTS

ABOVE 1GHz DATA :

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 62%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	62.3 PK	80.2	-17.9	1.25 H	83	22.00	40.30
2	#5725.00	51.8 AV	69.7	-17.9	1.25 H	83	11.50	40.30
3	*5745.00	100.2 PK			1.25 H	83	59.90	40.30
4	*5745.00	89.7 AV			1.25 H	83	49.40	40.30
5	11490.00	53.2 PK	74.0	-20.8	1.20 H	22	4.80	48.40
6	11490.00	42.2 AV	54.0	-11.8	1.20 H	22	-6.20	48.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	58.5 PK	76.8	-18.3	1.03 V	192	18.20	40.30
2	#5725.00	48.2 AV	66.5	-18.3	1.03 V	192	7.90	40.30
3	*5745.00	96.8 PK			1.03 V	192	56.50	40.30
4	*5745.00	86.5 AV			1.03 V	192	46.20	40.30
5	11490.00	50.4 PK	74.0	-23.6	1.08 V	152	2.00	48.40
6	11490.00	40.1 AV	54.0	-13.9	1.08 V	152	-8.30	48.40

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 62%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	*5785.00	100.1 PK			1.29 H	117	59.80	40.30
2	*5785.00	89.8 AV			1.29 H	117	49.50	40.30
3	11570.00	52.8 PK	74.0	-21.2	1.12 H	41	4.40	48.40
4	11570.00	41.6 AV	54.0	-12.4	1.12 H	41	-6.80	48.40
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	*5785.00	96.4 PK			1.07 V	202	56.10	40.30
2	*5785.00	86.2 AV			1.07 V	202	45.90	40.30
3	11570.00	48.9 PK	74.0	-25.1	1.15 V	178	0.50	48.40
4	11570.00	38.9 AV	54.0	-15.1	1.15 V	178	-9.50	48.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
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	22deg. C, 62%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	*5825.00	100.3 PK			1.23 H	82	59.90	40.40
2	*5825.00	90.3 AV			1.23 H	82	49.90	40.40
3	#5850.00	52.1 PK	80.3	-28.2	1.23 H	82	11.70	40.40
4	#5850.00	42.2 AV	70.3	-28.1	1.23 H	82	1.80	40.40
5	11650.00	53.2 PK	74.0	-20.8	1.27 H	52	4.70	48.50
6	11650.00	42.5 AV	54.0	-11.5	1.27 H	52	-6.00	48.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	96.4 PK			1.09 V	204	56.00	40.40
2	*5825.00	86.1 AV			1.09 V	204	45.70	40.40
3	#5850.00	47.6 PK	76.4	-28.8	1.09 V	204	7.20	40.40
4	#5850.00	37.3 AV	66.1	-28.8	1.09 V	204	-3.10	40.40
5	11650.00	50.4 PK	74.0	-23.6	1.02 V	158	1.90	48.50
6	11650.00	40.8 AV	54.0	-13.2	1.02 V	158	-7.70	48.50

REMARKS:

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



A D T

802.11n (20MHz)

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	22deg. C, 62%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	61.4 PK	80.6	-19.2	1.09 H	289	21.10	40.30
2	#5725.00	48.8 AV	68.0	-19.2	1.09 H	289	8.50	40.30
3	*5745.00	100.6 PK			1.09 H	289	60.30	40.30
4	*5745.00	88.0 AV			1.09 H	289	47.70	40.30
5	11490.00	51.6 PK	74.0	-22.4	1.36 H	172	3.20	48.40
6	11490.00	40.0 AV	54.0	-14.0	1.36 H	172	-8.40	48.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	63.5 PK	82.1	-18.6	1.38 V	120	23.20	40.30
2	#5725.00	50.8 AV	69.4	-18.6	1.38 V	120	10.50	40.30
3	*5745.00	102.1 PK			1.38 V	120	61.80	40.30
4	*5745.00	89.4 AV			1.38 V	120	49.10	40.30
5	11490.00	54.4 PK	74.0	-19.6	1.42 V	188	6.00	48.40
6	11490.00	43.6 AV	54.0	-10.4	1.42 V	188	-4.80	48.40

REMARKS:

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 62%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	*5785.00	101.6 PK			1.06 H	285	61.30	40.30
2	*5785.00	89.6 AV			1.06 H	285	49.30	40.30
3	11570.00	51.6 PK	74.0	-22.4	1.34 H	178	3.20	48.40
4	11570.00	40.2 AV	54.0	-13.8	1.34 H	178	-8.20	48.40
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	*5785.00	102.8 PK			1.22 V	114	62.50	40.30
2	*5785.00	90.4 AV			1.22 V	114	50.10	40.30
3	11570.00	54.2 PK	74.0	-19.8	1.32 V	152	5.80	48.40
4	11570.00	43.8 AV	54.0	-10.2	1.32 V	152	-4.60	48.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
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	22deg. C, 62%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	*5825.00	102.2 PK			1.15 H	296	61.80	40.40
2	*5825.00	92.0 AV			1.15 H	296	51.60	40.40
3	#5850.00	57.1 PK	82.2	-25.1	1.15 H	296	16.70	40.40
4	#5850.00	46.9 AV	72.0	-25.1	1.15 H	296	6.50	40.40
5	11650.00	51.8 PK	74.0	-22.2	1.29 H	178	3.30	48.50
6	11650.00	40.2 AV	54.0	-13.8	1.29 H	178	-8.30	48.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	103.9 PK			1.25 V	112	63.50	40.40
2	*5825.00	91.3 AV			1.25 V	112	50.90	40.40
3	#5850.00	60.2 PK	83.9	-23.7	1.25 V	111	19.80	40.40
4	#5850.00	47.6 AV	71.3	-23.7	1.25 V	111	7.20	40.40
5	11650.00	54.6 PK	74.0	-19.4	1.38 V	172	6.10	48.50
6	11650.00	43.5 AV	54.0	-10.5	1.38 V	172	-5.00	48.50

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	22deg. C, 62%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	77.2 PK	79.0	-1.8	1.01 H	320	36.90	40.30
2	#5725.00	65.8 AV	67.6	-1.8	1.01 H	320	25.50	40.30
3	*5755.00	99.0 PK			1.01 H	320	58.70	40.30
4	*5755.00	87.6 AV			1.01 H	320	47.30	40.30
5	11510.00	52.8 PK	74.0	-21.2	1.35 H	120	4.40	48.40
6	11510.00	43.2 AV	54.0	-10.8	1.35 H	120	-5.20	48.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	79.1 PK	80.3	-1.2	1.35 V	112	38.80	40.30
2	#5725.00	68.0 AV	69.2	-1.2	1.35 V	112	27.70	40.30
3	*5755.00	100.3 PK			1.35 V	112	60.00	40.30
4	*5755.00	89.2 AV			1.35 V	112	48.90	40.30
5	11510.00	53.1 PK	74.0	-20.9	1.06 V	258	4.70	48.40
6	11510.00	42.2 AV	54.0	-11.8	1.06 V	258	-6.20	48.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
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	22deg. C, 62%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	99.5 PK			1.16 H	321	59.10	40.40
2	*5795.00	88.5 AV			1.16 H	321	48.10	40.40
3	#5850.00	69.3 PK	79.5	-10.2	1.16 H	321	28.90	40.40
4	#5850.00	58.3 AV	68.5	-10.2	1.16 H	321	17.90	40.40
5	11590.00	52.5 PK	74.0	-21.5	1.28 H	125	4.10	48.40
6	11590.00	42.6 AV	54.0	-11.4	1.28 H	125	-5.80	48.40
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	*5795.00	103.8 PK			1.27 V	112	63.40	40.40
2	*5795.00	92.0 AV			1.27 V	112	51.60	40.40
3	#5850.00	75.3 PK	83.8	-8.5	1.27 V	112	34.90	40.40
4	#5850.00	63.5 AV	72.0	-8.5	1.27 V	112	23.10	40.40
5	11590.00	53.8 PK	74.0	-20.2	1.05 V	248	5.40	48.40
6	11590.00	42.8 AV	54.0	-11.2	1.05 V	248	-5.60	48.40

REMARKS:

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



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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	24deg. C, 64%RH	TESTED BY	Match Tsui

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	107.60	33.1 QP	43.5	-10.4	1.50 H	261	23.20	9.90
2	842.86	30.2 QP	46.0	-15.8	1.50 H	15	4.50	25.70
3	873.90	37.9 QP	46.0	-8.1	1.00 H	325	11.80	26.10
4	879.72	31.6 QP	46.0	-14.4	1.00 H	305	5.40	26.20
5	920.46	30.6 QP	46.0	-15.4	1.00 H	66	3.90	26.70
6	959.26	36.2 QP	46.0	-9.8	1.50 H	180	9.10	27.10

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	30.00	26.7 QP	40.0	-13.3	1.00 V	238	14.50	12.20
2	107.60	27.6 QP	43.5	-15.9	1.00 V	304	17.70	9.90
3	161.92	29.3 QP	43.5	-14.2	1.00 V	161	15.60	13.70
4	873.90	37.5 QP	46.0	-8.5	1.00 V	32	11.40	26.10
5	904.94	30.7 QP	46.0	-15.3	1.00 V	315	4.20	26.50
6	959.26	37.5 QP	46.0	-8.5	1.49 V	288	10.40	27.10

REMARKS:

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.2.2 TEST INSTRUMENTS

Same as item 4.2.2.

5.2.3 TEST PROCEDURES

Same as item 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as item 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as item 4.1.6.

5.2.7 TEST RESULTS

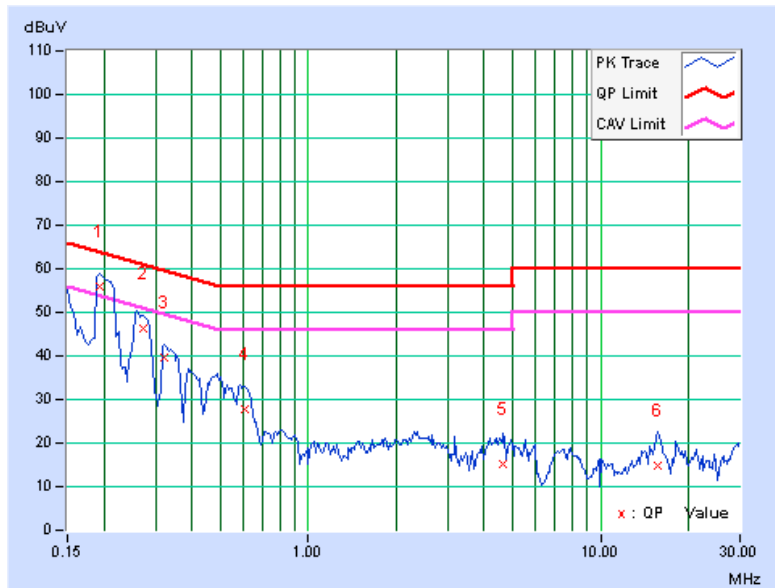
CONDUCTED WORST-CASE DATA : 802.11n(20MHz)

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	0.19297	0.12	55.99	36.40	56.11	36.52	63.91	53.91	-7.80	-17.39
2	0.27109	0.13	46.17	28.80	46.30	28.93	61.08	51.08	-14.78	-22.15
3	0.32188	0.14	39.36	19.03	39.50	19.17	59.66	49.66	-20.16	-30.49
4	0.60313	0.17	27.67	13.74	27.84	13.91	56.00	46.00	-28.16	-32.09
5	4.65234	0.38	14.88	4.57	15.26	4.95	56.00	46.00	-40.74	-41.05
6	15.60547	0.98	14.01	3.76	14.99	4.74	60.00	50.00	-45.01	-45.26

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.

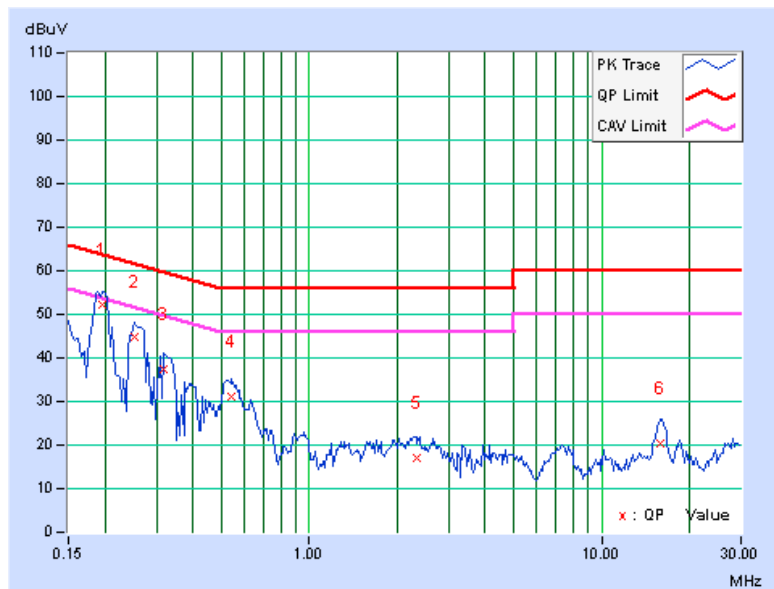


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	0.17	51.97	36.66	52.14	36.83	63.74	53.74	-11.60	-16.91
2	0.25156	0.18	44.60	25.32	44.78	25.50	61.71	51.71	-16.93	-26.21
3	0.31797	0.19	37.21	20.28	37.40	20.47	59.76	49.76	-22.36	-29.29
4	0.54453	0.22	30.81	16.25	31.03	16.47	56.00	46.00	-24.97	-29.53
5	2.32422	0.30	16.64	8.20	16.94	8.50	56.00	46.00	-39.06	-37.50
6	15.98438	0.79	19.62	11.01	20.41	11.80	60.00	50.00	-39.59	-38.20

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.





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5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST SETUP

Same as item 4.3.2.

5.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.3.4 TEST PROCEDURE

Same as item 4.3.4.

5.3.5 DEVIATION FROM TEST STANDARD

No deviation.

5.3.6 EUT OPERATING CONDITIONS

Same as item 4.3.6.



5.3.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.37	0.5	PASS
157	5785	16.37	0.5	PASS
165	5825	16.36	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.64	17.64	0.5	PASS
157	5785	17.64	17.64	0.5	PASS
165	5825	17.64	17.62	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.04	35.23	0.5	PASS
159	5795	35.50	35.78	0.5	PASS



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5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

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

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

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 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

Same as Item 4.3.6.



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5.4.7 TEST RESULTS

FOR PEAK POWER

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	136.458	21.35	30	PASS
157	5785	166.725	22.22	30	PASS
165	5825	158.125	21.99	30	PASS

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	19.63	21.35	183.244	22.63	30	PASS
157	5785	19.44	22.22	174.399	22.42	30	PASS
165	5825	19.27	21.99	177.425	22.49	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	21.60	21.35	281.002	24.49	30	PASS
159	5795	21.70	22.22	314.636	24.98	30	PASS



FOR AVERAGE POWER

802.11a

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
149	5745	39.81	16.00
157	5785	38.90	15.90
165	5825	38.90	15.90

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
149	5745	14.70	16.00	69.32	18.41
157	5785	14.40	15.90	66.45	18.22
165	5825	14.40	15.90	66.45	18.22

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
151	5755	19.10	19.00	160.72	22.06
159	5795	19.00	19.50	168.56	22.27



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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

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	-12.94	8	PASS
157	5785	-13.72	8	PASS
165	5825	-12.55	8	PASS

802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	149	5745	-12.41	3.01	-9.40	8	PASS
	157	5785	-13.07	3.01	-10.06	8	PASS
	165	5825	-14.83	3.01	-11.82	8	PASS
1	149	5745	-13.36	3.01	-10.35	8	PASS
	157	5785	-14.11	3.01	-11.10	8	PASS
	165	5825	-12.80	3.01	-9.79	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 1.54\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.

802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	151	5755	-15.26	3.01	-12.25	8	PASS
	159	5795	-15.11	3.01	-12.10	8	PASS
1	151	5755	-14.64	3.01	-11.63	8	PASS
	159	5795	-15.81	3.01	-12.80	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 1.54\text{dBi} < 6\text{dBi}$, so the limit no need to reduced.



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5.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

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

5.6.2 TEST SETUP

Same as Item 4.6.2

5.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

5.6.4 TEST PROCEDURE

Same as Item 4.6.4

5.6.5 DEVIATION FROM TEST STANDARD

No deviation.

5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

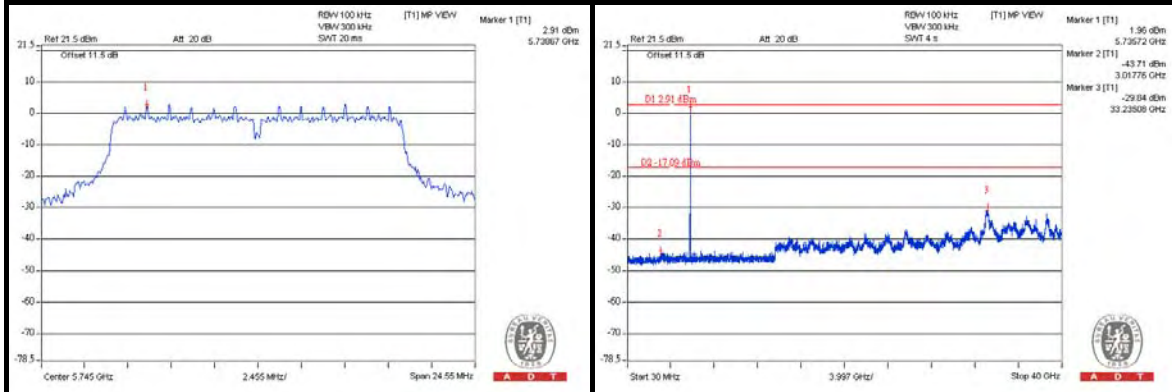
5.6.7 TEST RESULTS

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

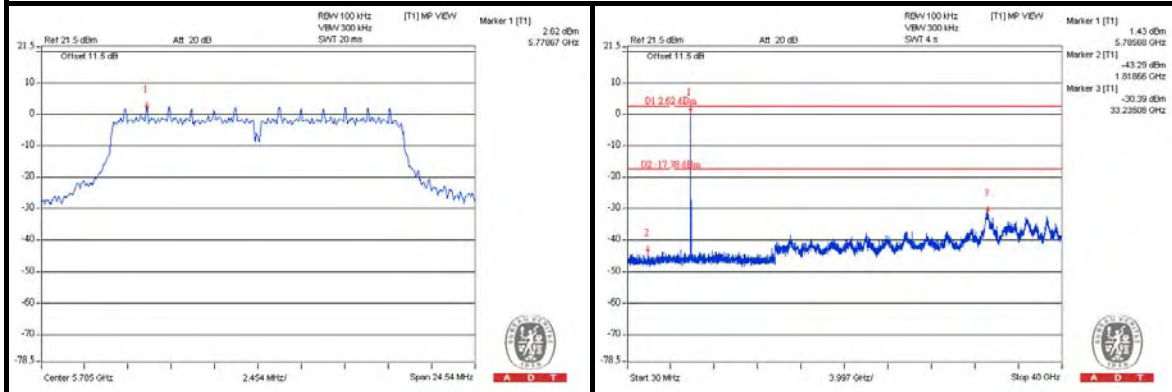
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11a

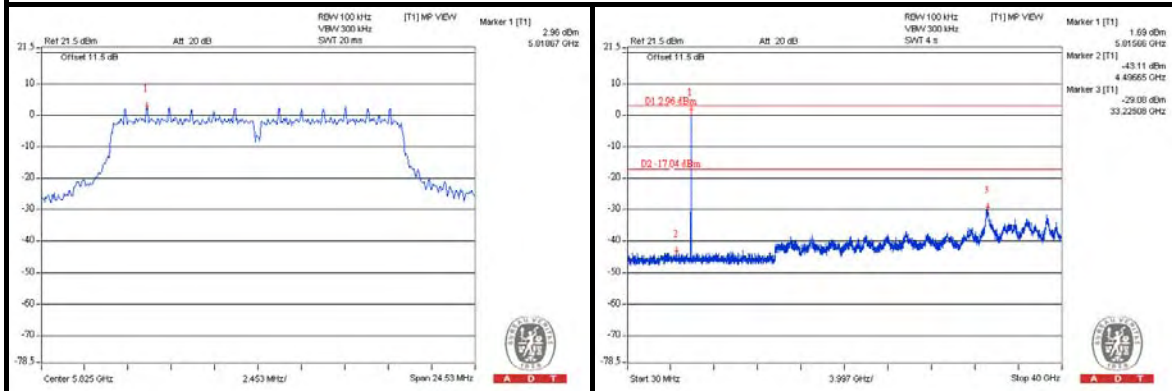
CH 149



CH 157



CH 165



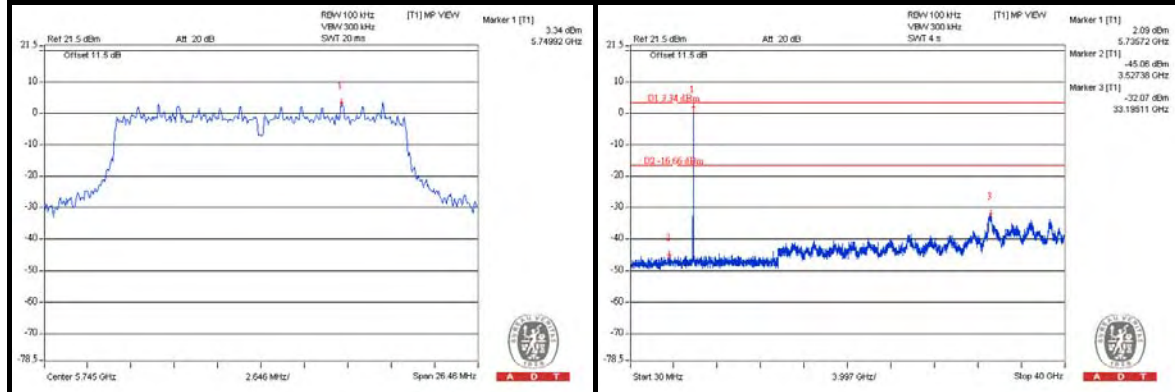


A D T

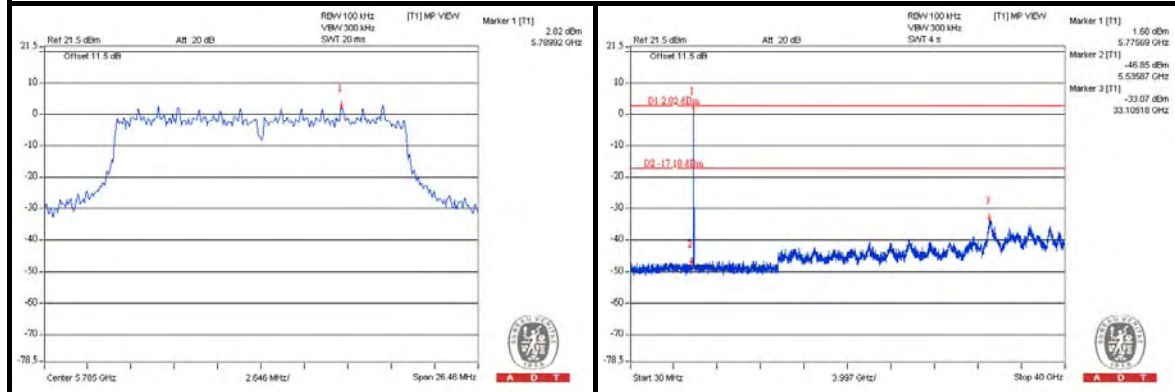
802.11n (20MHz)

CHAIN 0

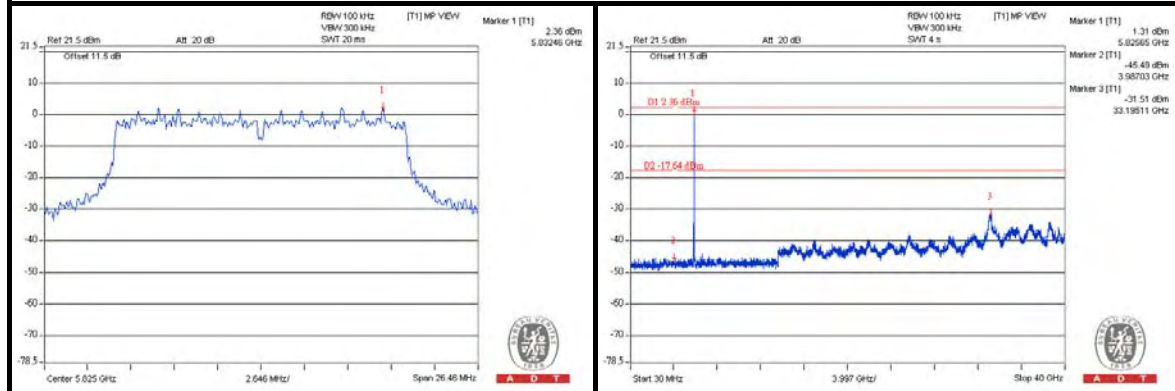
CH 149



CH 157

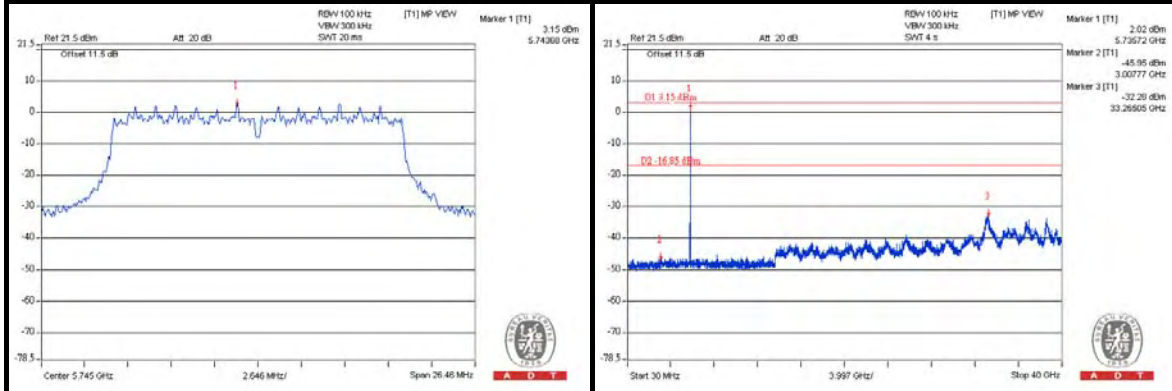


CH 165

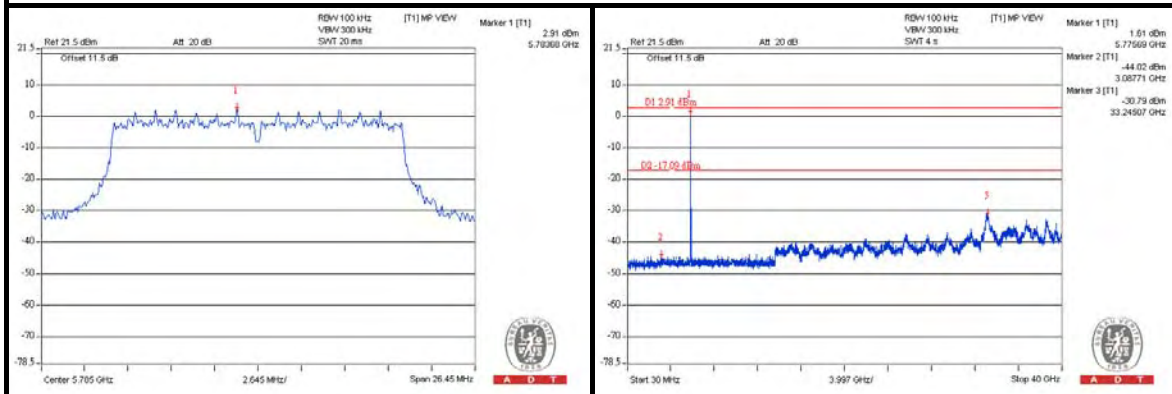


CHAIN 1

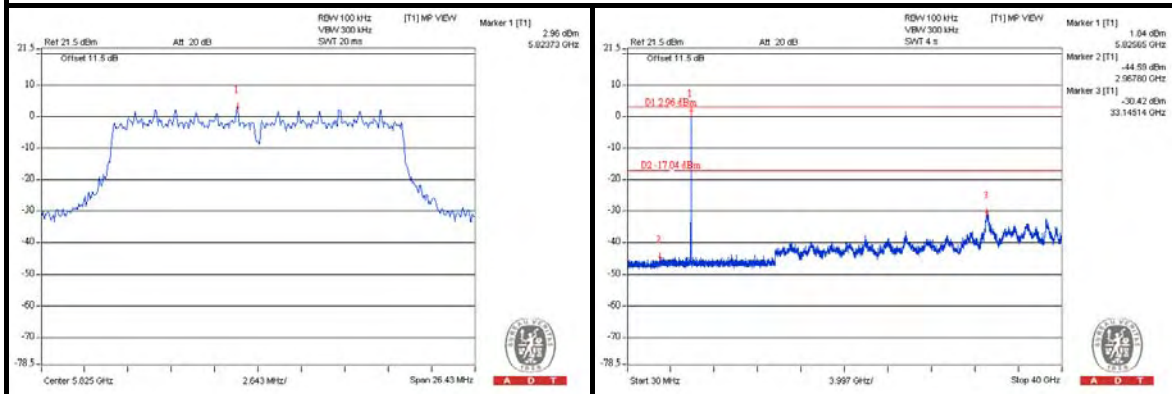
CH 149



CH 157



CH 165



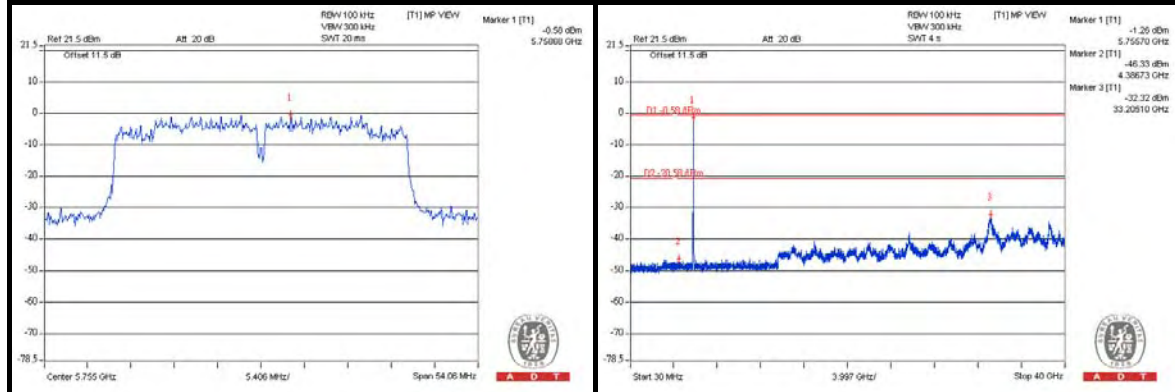


A D T

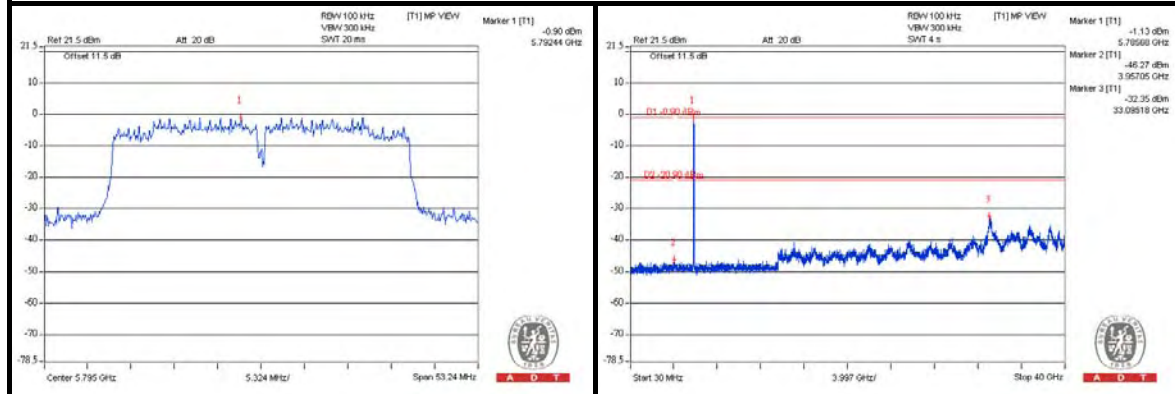
802.11n (40MHz)

CHAIN 0

CH 151

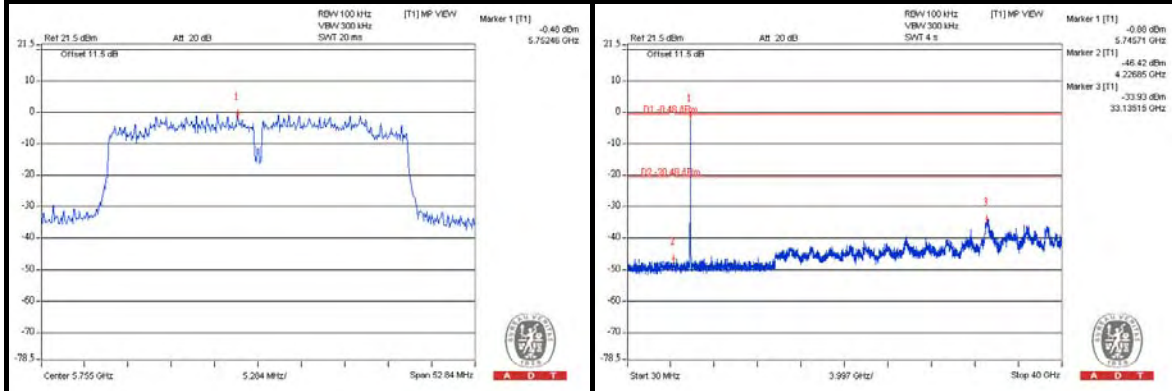


CH 159

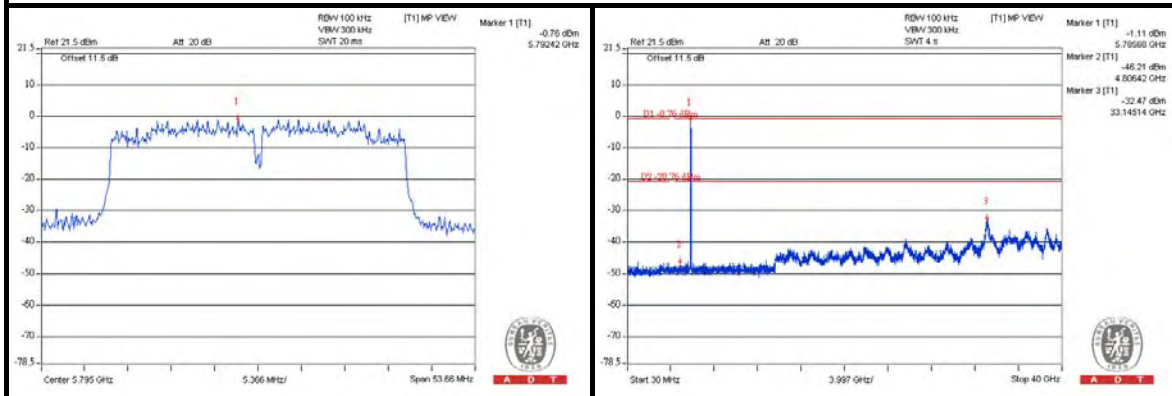


CHAIN 1

CH 151



CH 159





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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

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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---