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FCC TEST REPORT (15.247)

REPORT NO.: RF991103C11

MODEL NO.: WZR-HP-AG300H

FCC ID: FDI-09101889-0

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ISSUED: Nov. 24, 2010

APPLICANT: Buffalo Inc.

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1. CERTIFICATION

PRODUCT: AirStation NFINITI HighPower Wireless Router & Access Point

MODEL NO.: WZR-HP-AG300H

BRAND: Buffalo

APPLICANT: Buffalo Inc.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Sep. 23 ~ Nov. 19, 2010

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

ANSI C63.4-2003

The above equipment (Model: WZR-HP-AG300H) 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 : Pettie Chen , **DATE:** Nov. 24, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Nov. 24, 2010
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Nov. 24, 2010
Gary Chang / Assistant Manager



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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 AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.84dB at 0.396MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 374.04, 375.23, 2386.0, 2390.0 & 2483.5MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX 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	3.19 dB
	200MHz ~1000MHz	3.21 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 $k = 2$.



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	AirStation NFINITI HighPower Wireless Router & Access Point
MODEL NO.	WZR-HP-AG300H
FCC ID	FDI-09101889-0
NOMINAL VOLTAGE	12Vdc (from 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: 2412.0 ~ 2462.0MHz 5.0GHz: 5745.0 ~ 5825.0MHz
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	935.7mW for 2412.0 ~ 2462.0MHz 915.1mW for 5745.0 ~ 5825.0MHz
ANTENNA TYPE	Refer to Note as below
ANTENNA CONNECTER	Refer to Note as below
DATA CABLE	NA
I/O PORTS	RJ45, USB
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT is an AirStation NFINITI HighPower Wireless Router & Access Point. The test data are separated into following test reports.

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF991103C11
WLAN 802.11a, 802.11n (5745~5825 MHz)		
WLAN 802.11a, 802.11n (5180~ 5240MHz)	FCC Part 15, Subpart E (Section 15.407)	RF991103C11-1

2. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	√		
802.11g	√		
802.11a		√	√
802.11n (20MHz)	√	√	√
802.11n (40MHz)	√	√	√

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

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

4. The EUT were powered by the following adapter:

BRAND:	APD
MODEL:	WA-24E12FU
INPUT:	100-240Vac, 50-60Hz, 0.65A
OUTPUT:	12Vdc, 2A
POWER LINE:	1.5m non-shielded cable without core

5. The antenna used in this EUT is listed as below table:

TYPE	GAIN	ANTENNA CONNECTOR
PCB DIPOLE ANTENNA	2.4 G: 3.13 dBi 4.9 G: 3.03 dBi 5.4 G: 2.97 dBi 5.85 G: 3.04 dBi	IPEX

6. The above EUT information was 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
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

FOR 5.0GHz (5725 ~ 5850MHz):

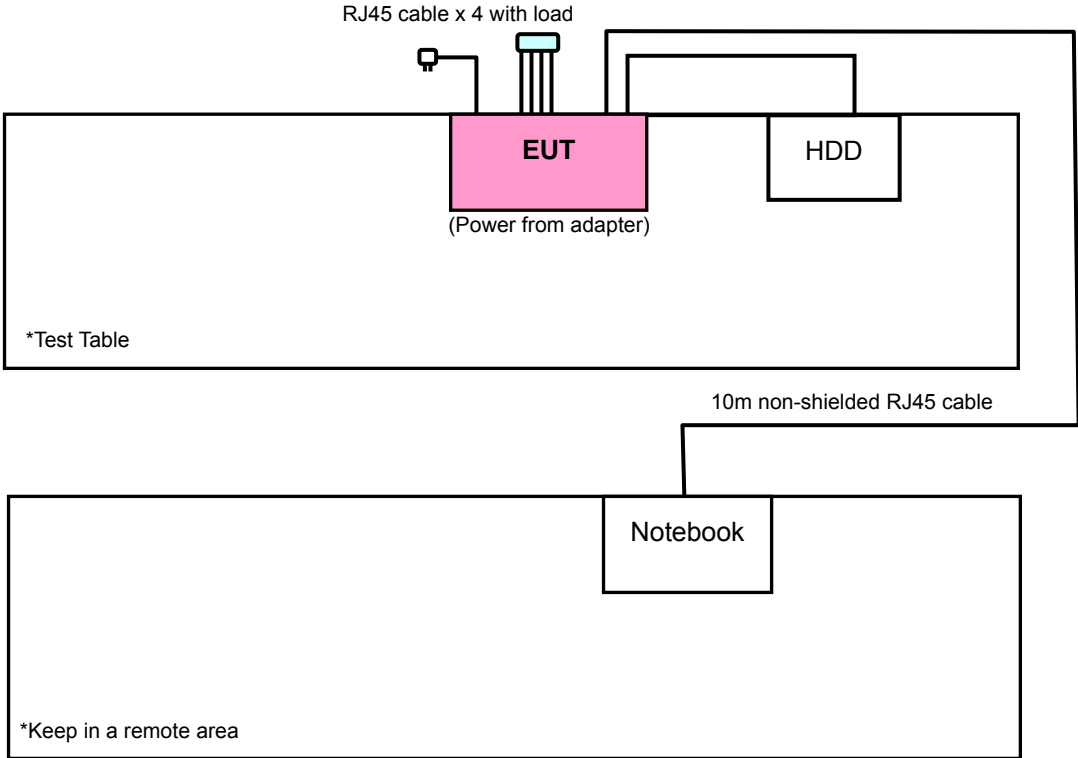
5 channels are provided for 802.11a and 802.11n (20MHz):

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 CONFIGURATION OF SYSTEM UNDER TEST





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3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.400 ~ 2.4835GHz:

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

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, XYZ axis 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)	AXIS
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Z
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Z
	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	Z
	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	Z

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, XYZ axis 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)	AXIS
-	802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	Z

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	6.5

**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	6.5
	802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5

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	6.5
	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen
RE $<$ 1G	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen
PLC	24deg. C, 64%RH, 1019 hPa	120Vac, 60Hz	Frank Wang
APCM	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen



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FOR 5.725 ~ 5.850GHz:

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

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, XYZ axis 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)	AXIS
-	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	Z
	802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	Z
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	Z

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, XYZ axis 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)	AXIS
-	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5	Z

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	6.5

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	6.5
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5

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	6.5
	802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen
RE<1G	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen
PLC	24deg. C, 64%RH, 1019 hPa	120Vac, 60Hz	Frank Wang
APCM	25deg. C, 65%RH, 1020 hPa	120Vac, 60Hz	Long Chen



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

ANSI C63.4-2003

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.

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	HP	n6000	CNU3480WP2	FCC DoC Approved
2	EXTERNAL HARD DISK	Terasys	F12-UF	A0100222-4A60012	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m non-shielded RJ45 cable without core
2	1.5 m shielded cable, terminated with USB connector, w/o core.

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



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

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), 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	ESI7	838496/016	Dec. 29, 2009	Dec. 28, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 28, 2010	Apr. 27, 2011
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2010	Jan. 04, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8449B	3008A01959	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2010	Aug. 20, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2010	Aug. 20, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 Chamber 4.
 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 988962.
 5. The IC Site Registration No. is IC7450F-4.



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.

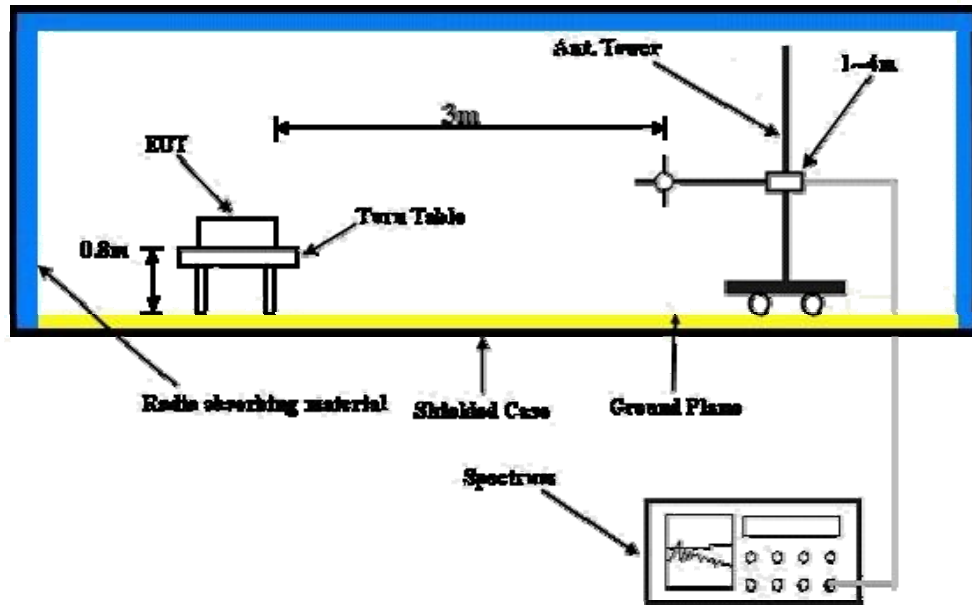
NOTE:

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 10Hz 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 the testing table.
- b. Prepared notebook systems to act as communication partners and placed them outside of testing area.
- c. The communication partners connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The necessary accessories enable the EUT in full functions.



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4.1.7 TEST RESULTS

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	2386.00	65.4 PK	74.0	-8.6	1.40 H	99	31.90	33.50
2	2386.00	53.0 AV	54.0	-1.0	1.40 H	99	19.50	33.50
3	*2412.00	115.5 PK			1.40 H	99	81.90	33.60
4	*2412.00	110.7 AV			1.40 H	99	77.10	33.60
5	4824.00	55.2 PK	74.0	-18.8	1.00 H	307	15.20	40.00
6	4824.00	50.2 AV	54.0	-3.8	1.00 H	307	10.20	40.00
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	64.1 PK	74.0	-9.9	1.00 V	266	30.60	33.50
2	2390.00	51.4 AV	54.0	-2.6	1.00 V	266	17.90	33.50
3	*2412.00	105.7 PK			1.00 V	266	72.10	33.60
4	*2412.00	100.8 AV			1.00 V	266	67.20	33.60
5	4824.00	50.0 PK	74.0	-24.0	1.17 V	360	10.00	40.00
6	4824.00	38.9 AV	54.0	-15.1	1.17 V	360	-1.10	40.00

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	63.3 PK	74.0	-10.7	1.40 H	102	29.80	33.50
2	2390.00	51.6 AV	54.0	-2.4	1.40 H	102	18.10	33.50
3	*2437.00	114.7 PK			1.40 H	100	81.00	33.70
4	*2437.00	109.1 AV			1.40 H	100	75.40	33.70
5	2483.50	64.6 PK	74.0	-9.4	1.40 H	112	30.80	33.80
6	2483.50	52.0 AV	54.0	-2.0	1.40 H	112	18.20	33.80
7	4874.00	56.3 PK	74.0	-17.7	1.12 H	308	16.20	40.10
8	4874.00	52.1 AV	54.0	-1.9	1.12 H	308	12.00	40.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.00 V	280	28.80	33.50
2	2390.00	51.8 AV	54.0	-2.2	1.00 V	280	18.30	33.50
3	*2437.00	105.3 PK			1.00 V	280	71.60	33.70
4	*2437.00	100.0 AV			1.00 V	280	66.30	33.70
5	2483.50	63.6 PK	74.0	-10.4	1.00 V	280	29.80	33.80
6	2483.50	52.2 AV	54.0	-1.8	1.00 V	280	18.40	33.80
7	4874.00	51.9 PK	74.0	-22.1	1.07 V	309	11.80	40.10
8	4874.00	42.6 AV	54.0	-11.4	1.07 V	309	2.50	40.10

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	114.5 PK			1.40 H	99	80.70	33.80
2	*2462.00	109.8 AV			1.40 H	99	76.00	33.80
3	2487.40	65.1 PK	74.0	-8.9	1.37 H	99	31.20	33.90
4	2487.40	52.9 AV	54.0	-1.1	1.37 H	99	19.00	33.90
5	4924.00	56.2 PK	74.0	-17.8	1.00 H	317	16.00	40.20
6	4924.00	52.2 AV	54.0	-1.8	1.00 H	317	12.00	40.20
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	*2462.00	104.6 PK			1.00 V	180	70.80	33.80
2	*2462.00	99.3 AV			1.00 V	180	65.50	33.80
3	2487.40	63.4 PK	74.0	-10.6	1.00 V	143	29.50	33.90
4	2487.40	50.1 AV	54.0	-3.9	1.00 V	143	16.20	33.90
5	4924.00	52.1 PK	74.0	-21.9	1.18 V	305	11.90	40.20
6	4924.00	44.8 AV	54.0	-9.2	1.18 V	305	4.60	40.20

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



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802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	72.6 PK	74.0	-1.4	1.64 H	105	39.10	33.50
2	2390.00	52.4 AV	54.0	-1.6	1.64 H	105	18.90	33.50
3	*2412.00	113.3 PK			1.64 H	105	79.70	33.60
4	*2412.00	101.0 AV			1.64 H	105	67.40	33.60
5	4824.00	57.2 PK	74.0	-16.8	1.23 H	304	17.20	40.00
6	4824.00	41.4 AV	54.0	-12.6	1.23 H	304	1.40	40.00
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	64.9 PK	74.0	-9.1	1.00 V	348	31.40	33.50
2	2390.00	49.3 AV	54.0	-4.7	1.00 V	348	15.80	33.50
3	*2412.00	106.8 PK			1.00 V	348	73.20	33.60
4	*2412.00	94.1 AV			1.00 V	348	60.50	33.60
5	4824.00	49.7 PK	74.0	-24.3	1.00 V	285	9.70	40.00
6	4824.00	39.3 AV	54.0	-14.7	1.00 V	285	-0.70	40.00

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	68.3 PK	74.0	-5.7	1.10 H	108	34.80	33.50
2	2390.00	51.2 AV	54.0	-2.8	1.10 H	108	17.70	33.50
3	*2437.00	118.4 PK			1.10 H	108	84.70	33.70
4	*2437.00	105.7 AV			1.10 H	108	72.00	33.70
5	2483.50	68.1 PK	74.0	-5.9	1.10 H	108	34.30	33.80
6	2483.50	49.0 AV	54.0	-5.0	1.10 H	108	15.20	33.80
7	4874.00	60.8 PK	74.0	-13.2	1.00 H	244	20.70	40.10
8	4874.00	48.4 AV	54.0	-5.6	1.00 H	244	8.30	40.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	1.00 V	292	27.50	33.50
2	2390.00	47.8 AV	54.0	-6.2	1.00 V	292	14.30	33.50
3	*2437.00	111.0 PK			1.00 V	292	77.30	33.70
4	*2437.00	100.4 AV			1.00 V	292	66.70	33.70
5	2483.50	60.4 PK	74.0	-13.6	1.00 V	292	26.60	33.80
6	2483.50	47.0 AV	54.0	-7.0	1.00 V	292	13.20	33.80
7	4874.00	47.6 PK	74.0	-26.4	1.00 V	126	7.50	40.10
8	4874.00	37.0 AV	54.0	-17.0	1.00 V	126	-3.10	40.10

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	113.5 PK			1.58 H	105	79.70	33.80
2	*2462.00	100.7 AV			1.58 H	105	66.90	33.80
3	2483.50	71.4 PK	74.0	-2.6	1.58 H	105	37.60	33.80
4	2483.50	52.9 AV	54.0	-1.1	1.58 H	105	19.10	33.80
5	4924.00	56.8 PK	74.0	-17.2	1.19 H	249	16.60	40.20
6	4924.00	39.8 AV	54.0	-14.2	1.19 H	249	-0.40	40.20
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	*2462.00	106.0 PK			1.00 V	295	72.20	33.80
2	*2462.00	93.0 AV			1.00 V	295	59.20	33.80
3	2483.50	66.5 PK	74.0	-7.5	1.00 V	295	32.70	33.80
4	2483.50	50.2 AV	54.0	-3.8	1.00 V	295	16.40	33.80
5	4924.00	49.3 PK	74.0	-24.7	1.00 V	145	9.10	40.20
6	4924.00	36.6 AV	54.0	-17.4	1.00 V	145	-3.60	40.20

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



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	71.5 PK	74.0	-2.5	1.64 H	116	38.00	33.50
2	2390.00	52.8 AV	54.0	-1.2	1.64 H	116	19.30	33.50
3	*2412.00	111.0 PK			1.64 H	116	77.40	33.60
4	*2412.00	98.4 AV			1.64 H	116	64.80	33.60
5	4824.00	49.4 PK	74.0	-24.6	1.00 H	78	9.40	40.00
6	4824.00	38.9 AV	54.0	-15.1	1.00 H	78	-1.10	40.00
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	63.0 PK	74.0	-11.0	1.00 V	282	29.50	33.50
2	2390.00	48.9 AV	54.0	-5.1	1.00 V	282	15.40	33.50
3	*2412.00	104.3 PK			1.00 V	282	70.70	33.60
4	*2412.00	92.3 AV			1.00 V	282	58.70	33.60
5	4824.00	49.7 PK	74.0	-24.3	1.00 V	273	9.70	40.00
6	4824.00	35.7 AV	54.0	-18.3	1.00 V	273	-4.30	40.00

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	71.5 PK	74.0	-2.5	1.11 H	111	38.00	33.50
2	2390.00	51.9 AV	54.0	-2.1	1.11 H	111	18.40	33.50
3	*2437.00	118.9 PK			1.11 H	111	85.20	33.70
4	*2437.00	105.7 AV			1.11 H	111	72.00	33.70
5	4874.00	62.1 PK	74.0	-11.9	1.21 H	307	22.00	40.10
6	4874.00	47.8 AV	54.0	-6.2	1.21 H	307	7.70	40.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.6 PK	74.0	-13.4	1.00 V	71	27.10	33.50
2	2390.00	47.7 AV	54.0	-6.3	1.00 V	71	14.20	33.50
3	*2437.00	111.3 PK			1.00 V	71	77.60	33.70
4	*2437.00	100.0 AV			1.00 V	71	66.30	33.70
5	4874.00	53.5 PK	74.0	-20.5	1.08 V	313	13.40	40.10
6	4874.00	39.5 AV	54.0	-14.5	1.08 V	313	-0.60	40.10

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	111.3 PK			1.61 H	109	77.50	33.80
2	*2462.00	98.9 AV			1.61 H	109	65.10	33.80
3	2483.50	72.5 PK	74.0	-1.5	1.61 H	109	38.70	33.80
4	2483.50	53.0 AV	54.0	-1.0	1.61 H	109	19.20	33.80
5	4924.00	51.3 PK	74.0	-22.7	1.00 H	125	11.10	40.20
6	4924.00	37.9 AV	54.0	-16.1	1.00 H	125	-2.30	40.20
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	*2462.00	104.1 PK			1.00 V	296	70.30	33.80
2	*2462.00	92.3 AV			1.00 V	296	58.50	33.80
3	2483.50	64.6 PK	74.0	-9.4	1.00 V	296	30.80	33.80
4	2483.50	50.1 AV	54.0	-3.9	1.00 V	296	16.30	33.80
5	4924.00	49.3 PK	74.0	-24.7	1.00 V	125	9.10	40.20
6	4924.00	35.7 AV	54.0	-18.3	1.00 V	125	-4.50	40.20

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



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802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	72.0 PK	74.0	-2.0	1.65 H	113	38.50	33.50
2	2390.00	53.0 AV	54.0	-1.0	1.65 H	113	19.50	33.50
3	*2422.00	106.5 PK			1.65 H	113	72.90	33.60
4	*2422.00	92.6 AV			1.65 H	113	59.00	33.60
5	4844.00	49.5 PK	74.0	-24.5	1.00 H	266	9.50	40.00
6	4844.00	36.6 AV	54.0	-17.4	1.00 H	266	-3.40	40.00
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	65.2 PK	74.0	-8.8	1.00 V	289	31.70	33.50
2	2390.00	49.9 AV	54.0	-4.1	1.00 V	289	16.40	33.50
3	*2422.00	99.2 PK			1.00 V	289	65.60	33.60
4	*2422.00	86.1 AV			1.00 V	289	52.50	33.60
5	4844.00	49.5 PK	74.0	-24.5	1.00 V	135	9.50	40.00
6	4844.00	35.8 AV	54.0	-18.2	1.00 V	135	-4.20	40.00

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	70.6 PK	74.0	-3.4	1.59 H	111	37.10	33.50
2	2390.00	53.0 AV	54.0	-1.0	1.59 H	111	19.50	33.50
3	*2437.00	113.3 PK			1.59 H	111	79.60	33.70
4	*2437.00	99.0 AV			1.59 H	111	65.30	33.70
5	4874.00	50.4 PK	74.0	-23.6	1.00 H	145	10.30	40.10
6	4874.00	39.7 AV	54.0	-14.3	1.00 H	145	-0.40	40.10
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	*2437.00	105.1 PK			1.00 V	291	71.40	33.70
2	*2437.00	92.5 AV			1.00 V	291	58.80	33.70
3	2483.50	62.2 PK	74.0	-11.8	1.00 V	291	28.40	33.80
4	2483.50	49.7 AV	54.0	-4.3	1.00 V	291	15.90	33.80
5	4874.00	50.1 PK	74.0	-23.9	1.00 V	198	10.00	40.10
6	4874.00	36.1 AV	54.0	-17.9	1.00 V	198	-4.00	40.10

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	107.4 PK			1.62 H	113	73.70	33.70
2	*2452.00	93.9 AV			1.62 H	113	60.20	33.70
3	2483.50	70.6 PK	74.0	-3.4	1.62 H	113	36.80	33.80
4	2483.50	53.0 AV	54.0	-1.0	1.62 H	113	19.20	33.80
5	4904.00	49.7 PK	74.0	-24.3	1.00 H	175	9.50	40.20
6	4904.00	36.4 AV	54.0	-17.6	1.00 H	175	-3.80	40.20
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	*2452.00	100.4 PK			1.00 V	295	66.70	33.70
2	*2452.00	87.4 AV			1.00 V	295	53.70	33.70
3	2483.50	64.8 PK	74.0	-9.2	1.00 V	295	31.00	33.80
4	2483.50	50.4 AV	54.0	-3.6	1.00 V	295	16.60	33.80
5	4904.00	49.4 PK	74.0	-24.6	1.00 V	251	9.20	40.20
6	4904.00	36.2 AV	54.0	-17.8	1.00 V	251	-4.00	40.20

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



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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	249.60	41.4 QP	46.0	-4.6	1.00 H	103	26.90	14.50
2	375.23	45.0 QP	46.0	-1.0	1.05 H	177	27.00	18.00
3	500.42	43.2 QP	46.0	-2.8	1.50 H	169	21.50	21.70
4	625.28	44.5 QP	46.0	-1.5	1.27 H	293	19.90	24.60
5	750.37	44.3 QP	46.0	-1.7	1.03 H	156	16.90	27.40
6	875.67	42.2 QP	46.0	-3.8	1.50 H	118	12.30	29.90
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	374.00	44.8 QP	46.0	-1.2	1.25 V	178	26.80	18.00
2	500.42	42.3 QP	46.0	-3.7	1.00 V	190	20.60	21.70
3	624.85	44.3 QP	46.0	-1.7	1.00 V	190	19.70	24.60
4	751.23	41.9 QP	46.0	-4.1	1.50 V	190	14.50	27.40
5	834.84	42.9 QP	46.0	-3.1	2.00 V	316	14.10	28.80
6	875.67	44.7 QP	46.0	-1.3	1.00 V	187	14.80	29.90

- 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.



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. 23, 2009	Nov. 22, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Dec. 25, 2009	Dec. 24, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 08, 2010	Jul. 07, 2011
Software ADT	ADT_Cond_ V7.3.7	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.



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4.2.3 TEST PROCEDURES

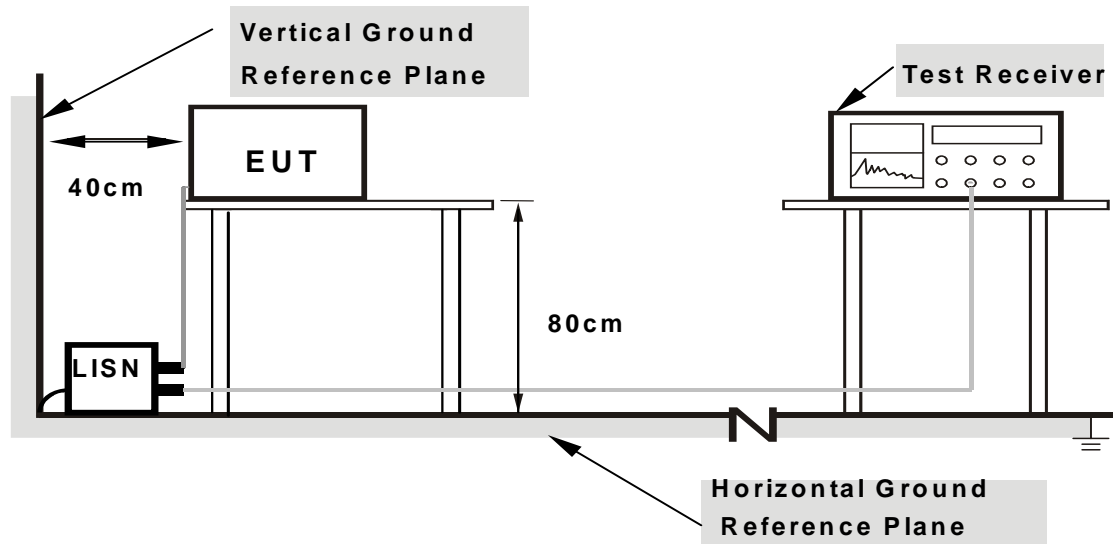
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

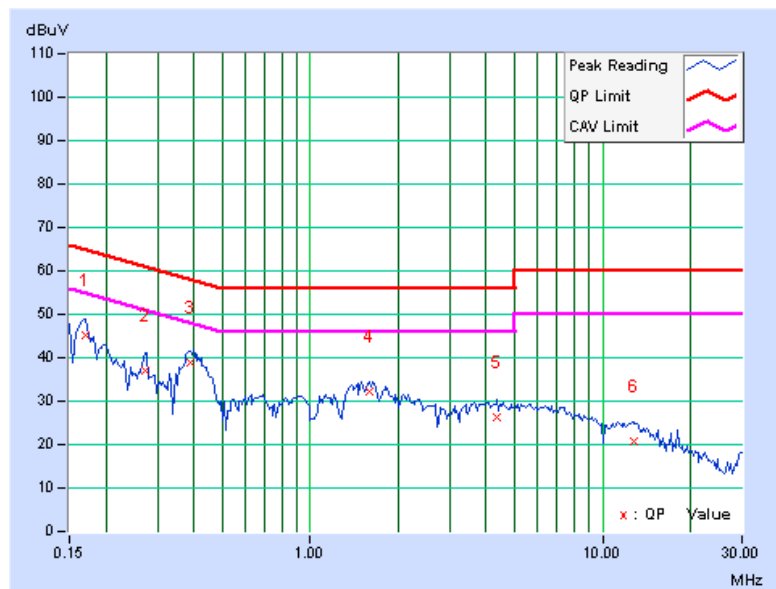
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11b

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	0.170	0.16	44.87	-	45.03	-	64.98	54.98	-19.96	-
2	0.271	0.17	36.94	-	37.11	-	61.08	51.08	-23.98	-
3	0.388	0.18	38.74	-	38.92	-	58.10	48.10	-19.18	-
4	1.602	0.28	31.94	-	32.22	-	56.00	46.00	-23.78	-
5	4.371	0.35	25.94	-	26.29	-	56.00	46.00	-29.71	-
6	12.840	0.44	20.36	-	20.80	-	60.00	50.00	-39.20	-

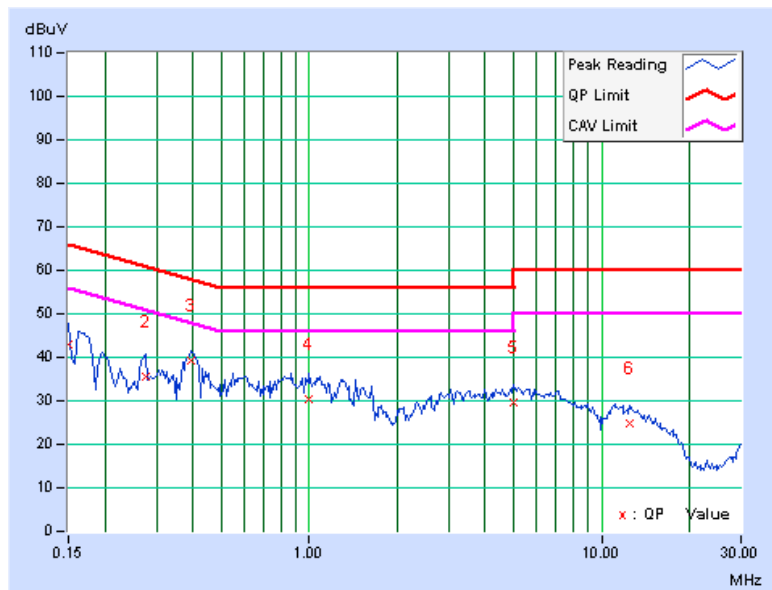
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. 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	0.150	0.12	42.93	-	43.05	-	66.00	56.00	-22.95	-
2	0.275	0.14	35.31	-	35.45	-	60.97	50.97	-25.51	-
3	0.396	0.16	38.94	-	39.10	-	57.93	47.93	-18.84	-
4	0.998	0.22	30.26	-	30.48	-	56.00	46.00	-25.52	-
5	5.004	0.37	29.21	-	29.58	-	60.00	50.00	-30.42	-
6	12.516	0.55	24.16	-	24.71	-	60.00	50.00	-35.29	-

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





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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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

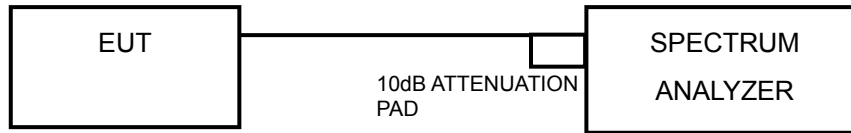
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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.



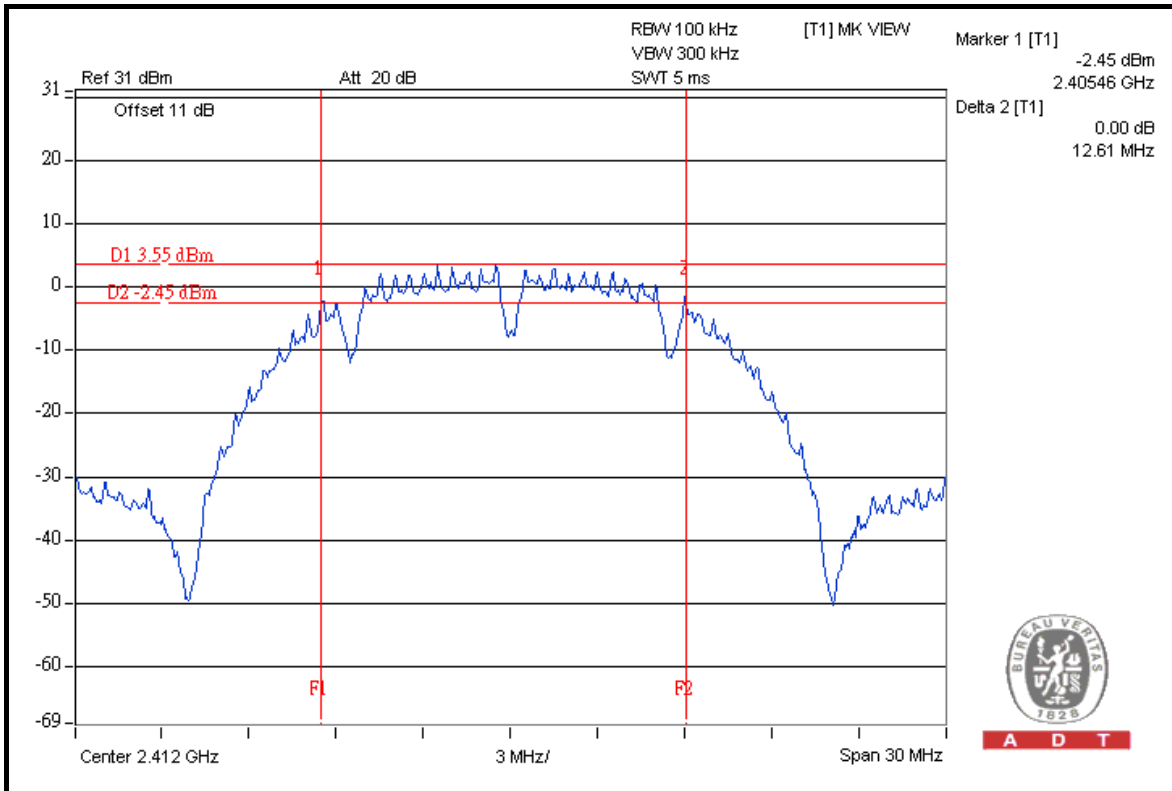
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4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	12.61	12.17	0.5	PASS
6	2437	12.13	12.61	0.5	PASS
11	2462	11.16	12.18	0.5	PASS

CHAIN 0: CH 1



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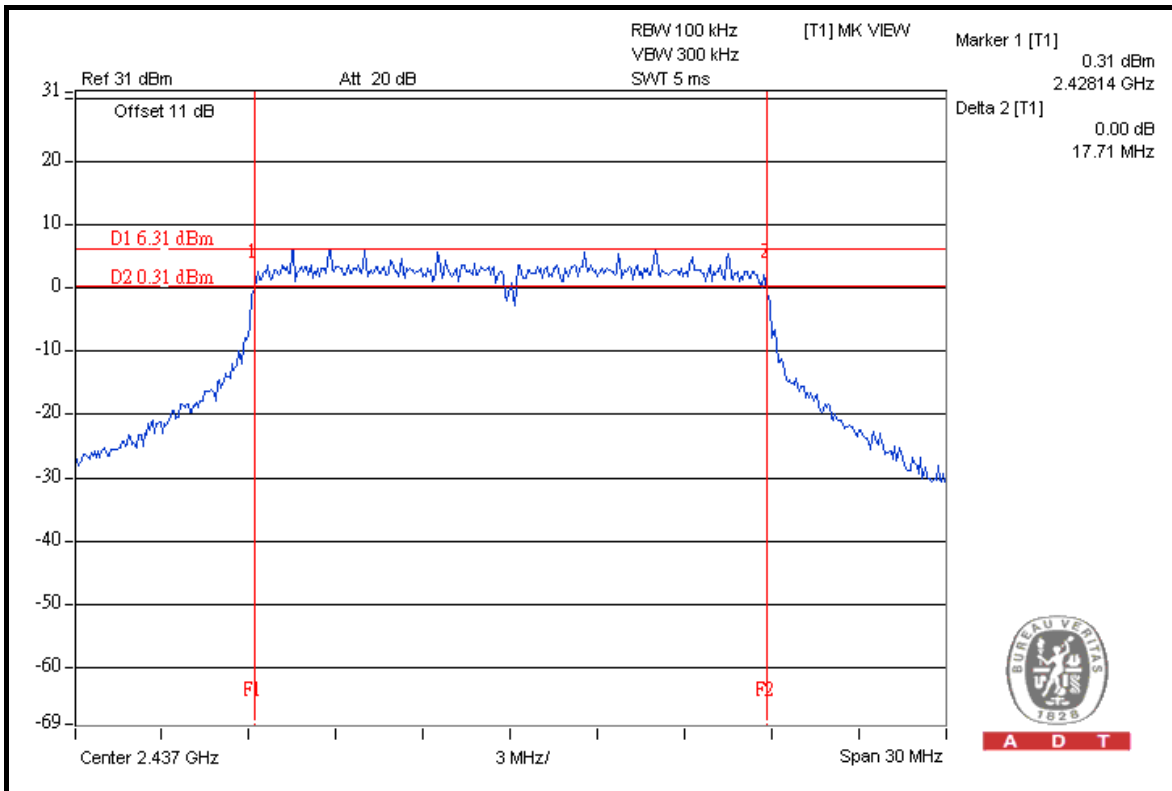


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802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.66	17.68	0.5	PASS
6	2437	17.71	17.69	0.5	PASS
11	2462	17.64	17.64	0.5	PASS

FOR CHAIN 0: CH 6



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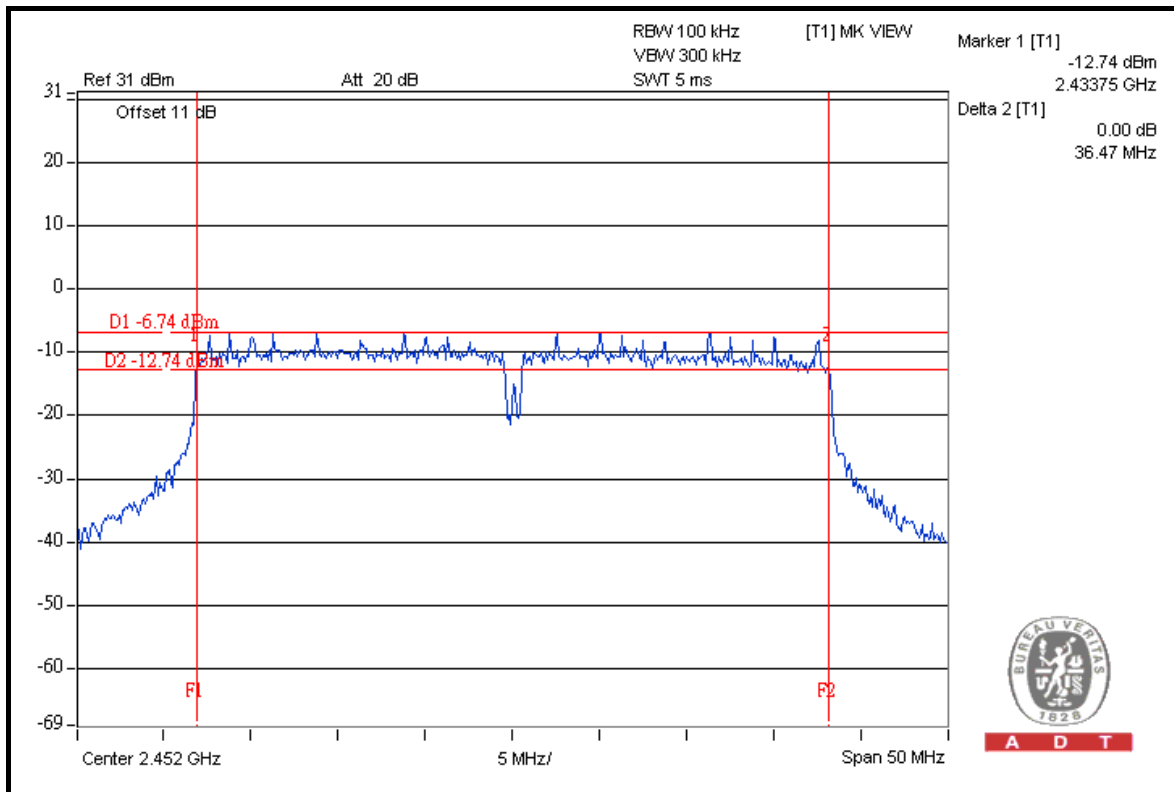


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802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.17	36.46	0.5	PASS
4	2437	36.46	36.46	0.5	PASS
7	2452	36.47	36.46	0.5	PASS

FOR CHAIN 0: CH 7



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4.4 MAXIMUM OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0842014	Apr. 21, 2010	Apr. 20, 2011
Power Sensor	MA2411B	0738404	Apr. 21, 2010	Apr. 20, 2011

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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

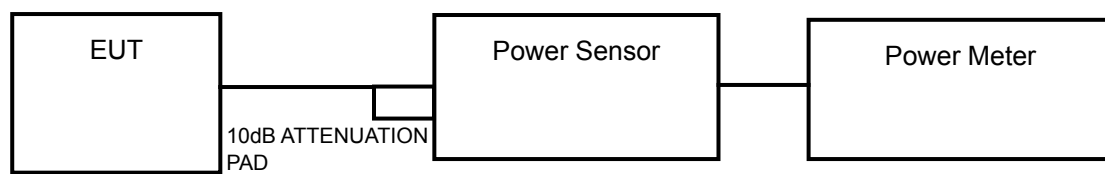
4.4.3 TEST PROCEDURES

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.4.7 TEST RESULTS

802.11b

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	16.9	15.9	87.9	19.4	29.86	PASS
6	2437	16.4	15.6	80.0	19.0	29.86	PASS
11	2462	16.2	15.8	79.7	19.0	29.86	PASS

802.11g

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	21.4	20.8	258.3	24.1	29.86	PASS
6	2437	26.5	26.6	903.8	29.6	29.86	PASS
11	2462	20.8	20.7	237.7	23.8	29.86	PASS

NOTE:

Directional gain = $3.13\text{dBi} + 10\log(2) = 6.14\text{dBi} > 6\text{dBi}$, conducted power limit is reduced from 30dBm down to $30 - (6.14 - 6) = 29.86\text{dBm}$

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	19.0	18.7	153.6	21.9	30	PASS
6	2437	26.8	26.6	935.7	29.7	30	PASS
11	2462	19.1	19.4	168.4	22.3	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	16.3	15.9	81.6	19.1	30	PASS
4	2437	24.8	23.5	525.9	27.2	30	PASS
7	2452	17.1	16.6	97.0	19.9	30	PASS



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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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

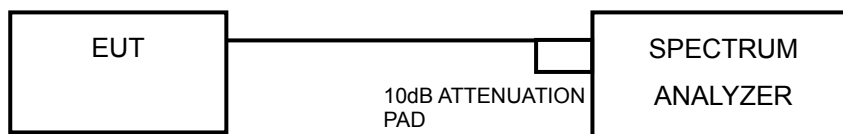
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



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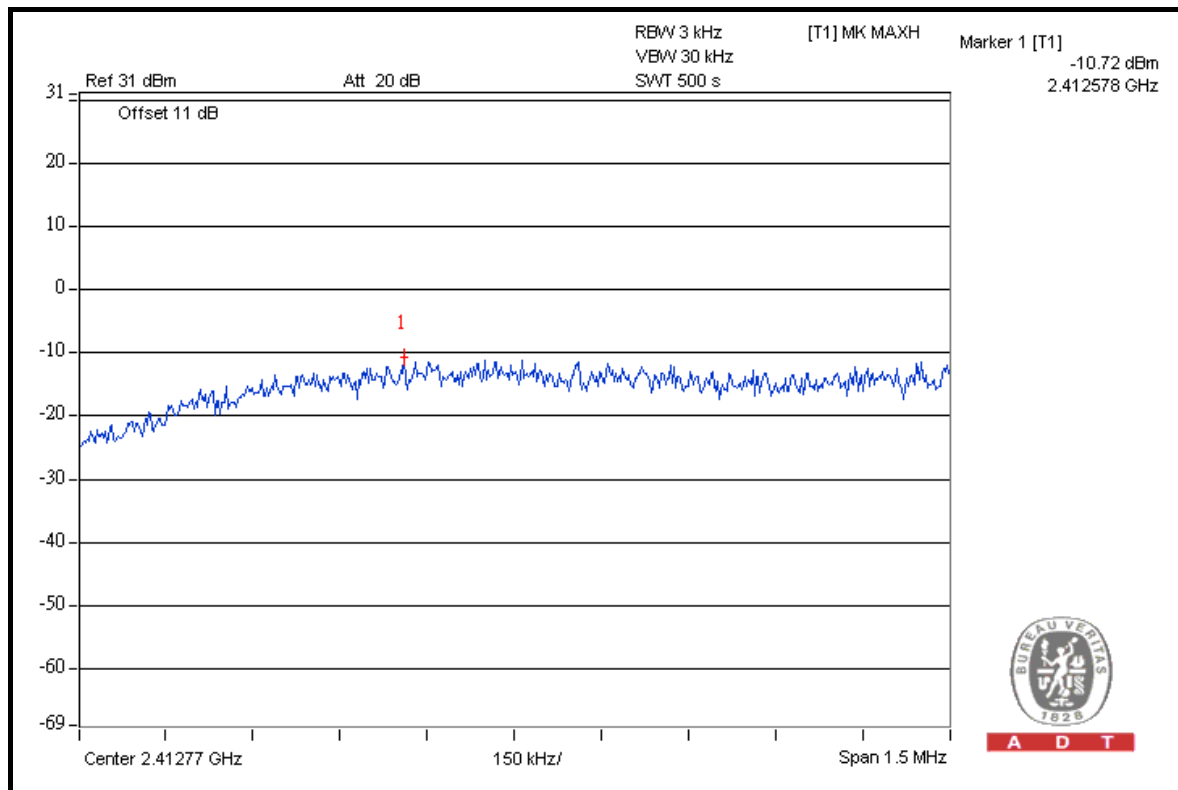
4.5.7 TEST RESULTS

802.11b

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
1	2412	-10.72	-11.56	-8.10	7.86	PASS
6	2437	-11.14	-11.72	-8.42	7.86	PASS
11	2462	-11.33	-11.79	-8.54	7.86	PASS

**Directional gain = $3.13\text{dBi} + 10\log(2) = 6.14\text{dBi} > 6\text{dBi}$, Power Density limit is reduced from 8dBm down to $8-(6.14-6)=7.86\text{dBm}$

FOR CHAIN 0: CH 1





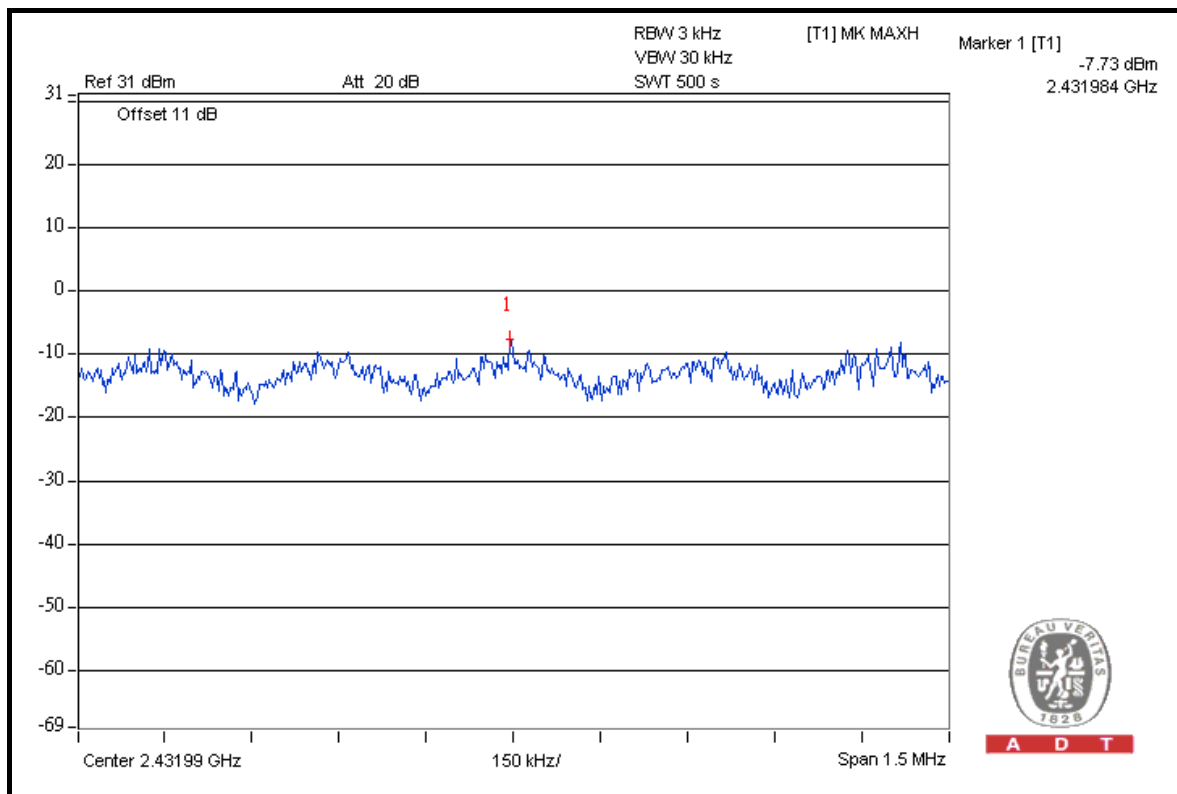
A D T

802.11g

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
1	2412	-14.80	-13.68	-11.19	7.86	PASS
6	2437	-9.55	-7.73	-5.53	7.86	PASS
11	2462	-15.17	-13.78	-11.43	7.86	PASS

**Directional gain = $3.13\text{dBi} + 10\log(2) = 6.14\text{dBi} > 6\text{dBi}$, Power Density limit is reduced from 8dBm down to $8 - (6.14 - 6) = 7.86\text{dBm}$

FOR CHAIN 1: CH 6



A D T

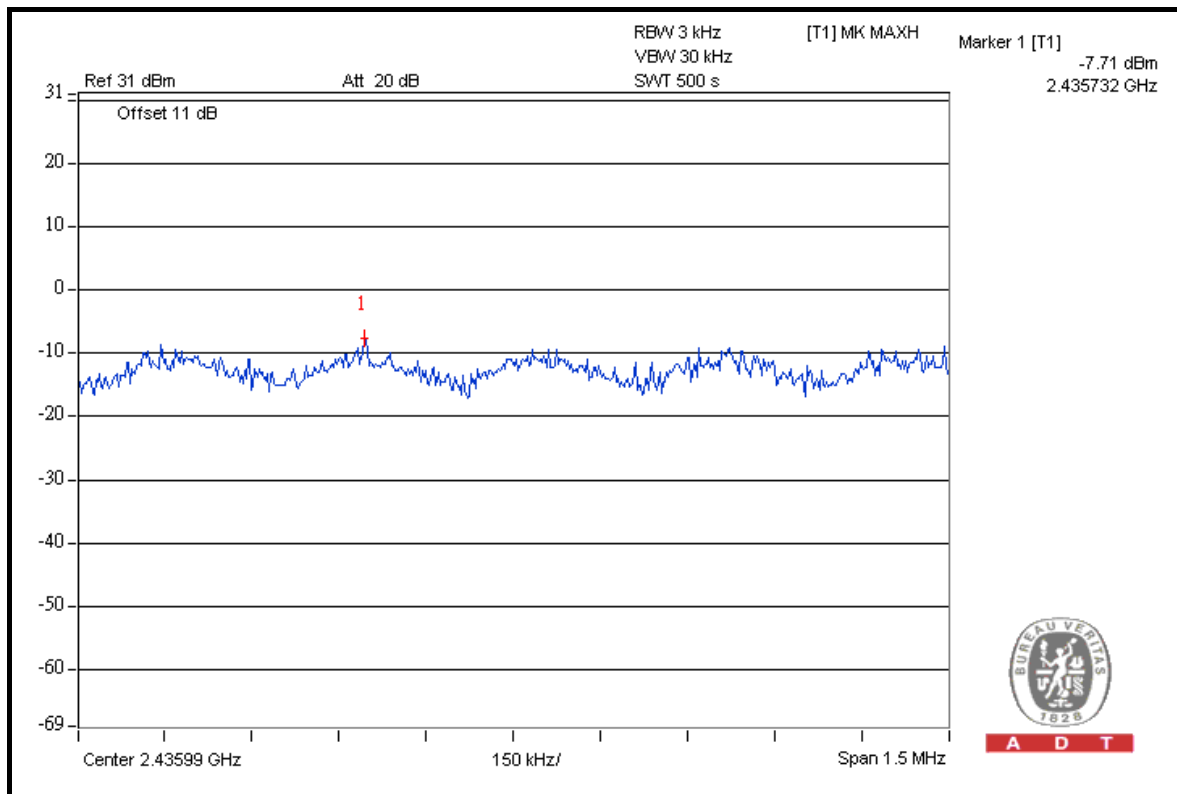


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802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
1	2412	-15.71	-16.21	-12.92	8	PASS
6	2437	-7.71	-8.43	-5.04	8	PASS
11	2462	-15.45	-15.42	-12.44	8	PASS

FOR CHAIN 0: CH 6



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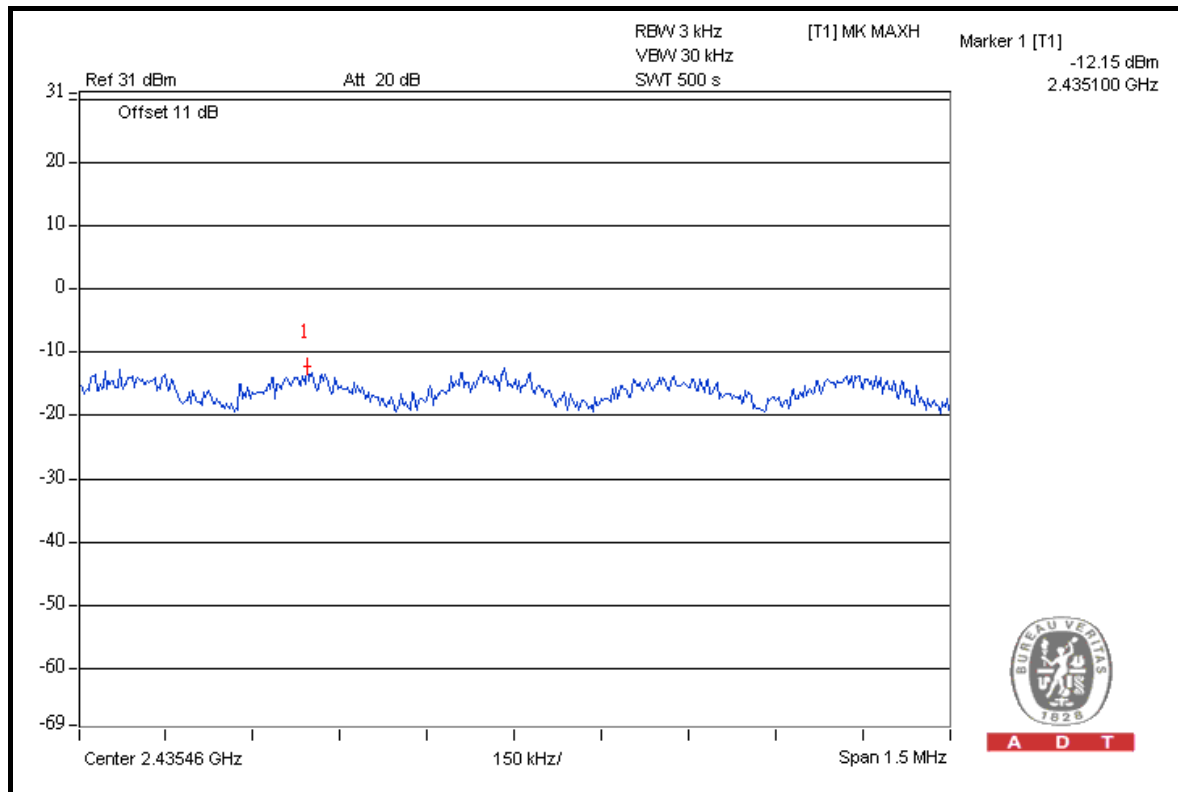


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802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
1	2422	-20.54	-22.68	-18.54	8	PASS
4	2437	-12.15	-15.18	-10.41	8	PASS
7	2452	-19.72	-22.12	-17.70	8	PASS

FOR CHAIN 0: CH 4



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4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2009	Dec. 28, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 28, 2010	Apr. 27, 2011
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2010	Jan. 04, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8449B	3008A01959	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2010	Aug. 20, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2010	Aug. 20, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



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4.6.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



4.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	115.5	54.36	61.14	74.00
2412.00 (AV)	110.7	58.02	52.68	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

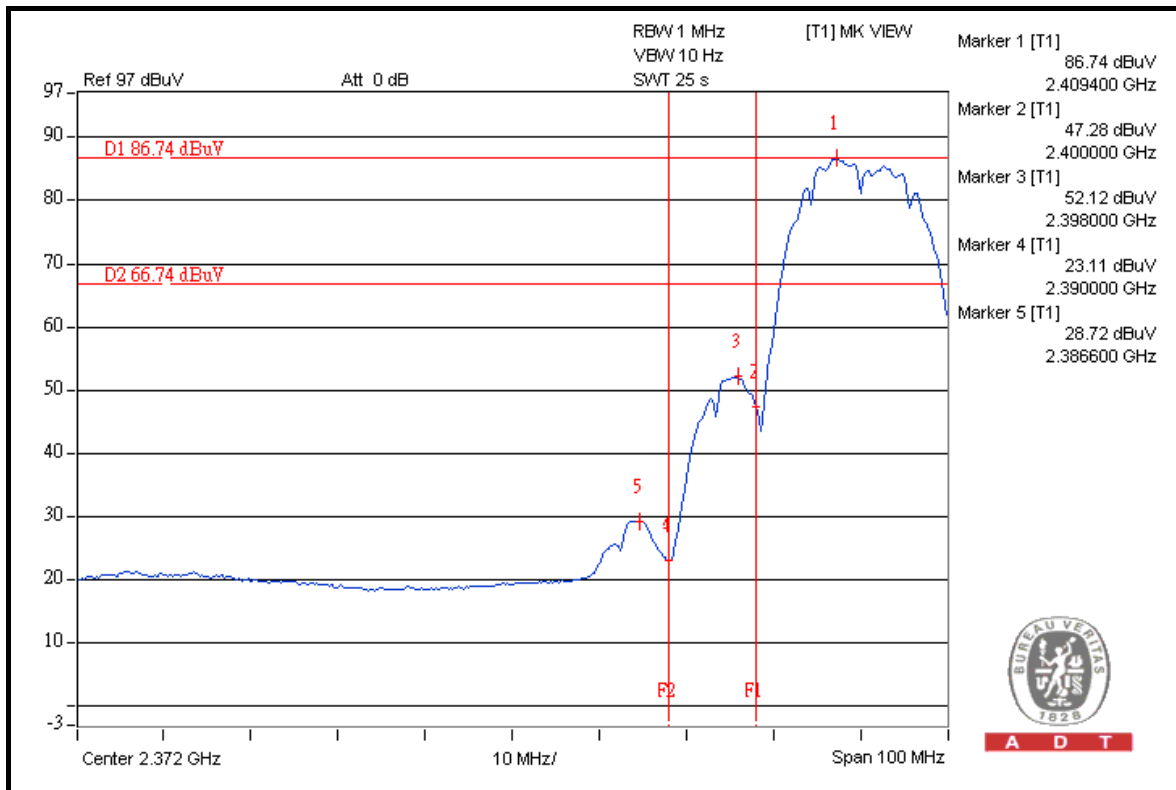
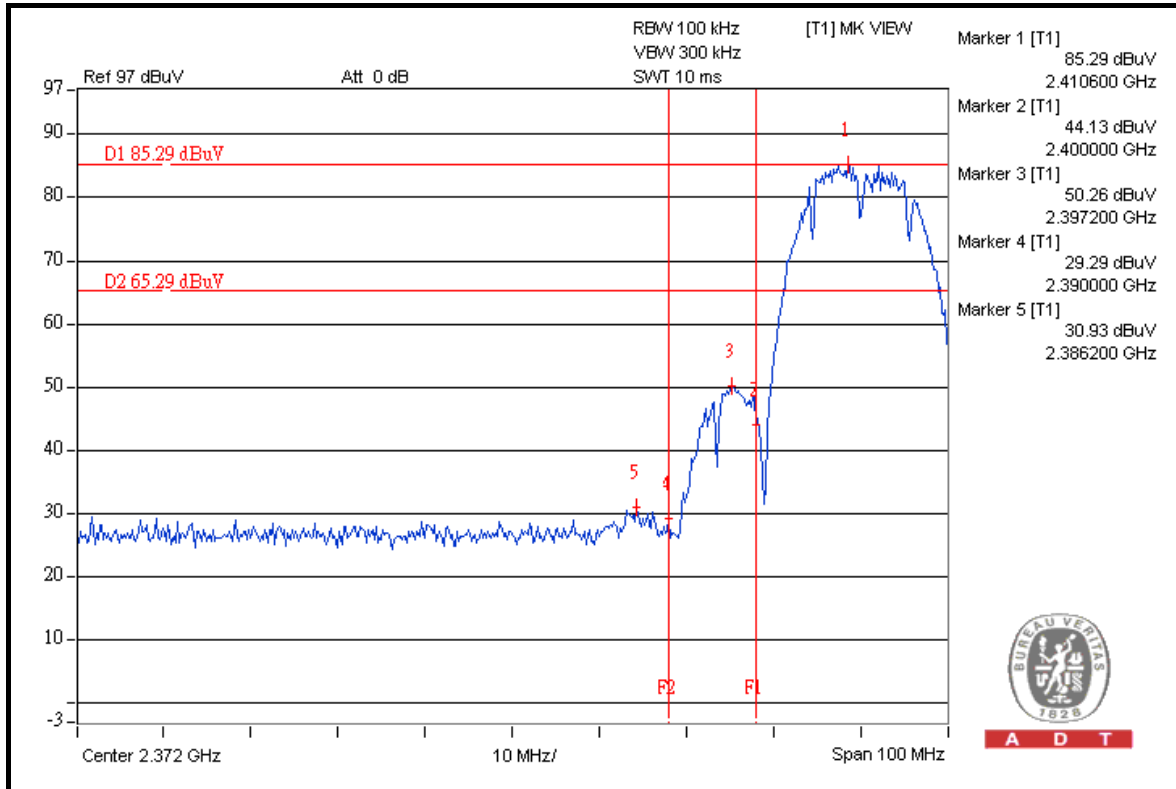
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	114.5	53.57	60.93	74.00
2462.00 (AV)	109.8	56.90	52.90	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

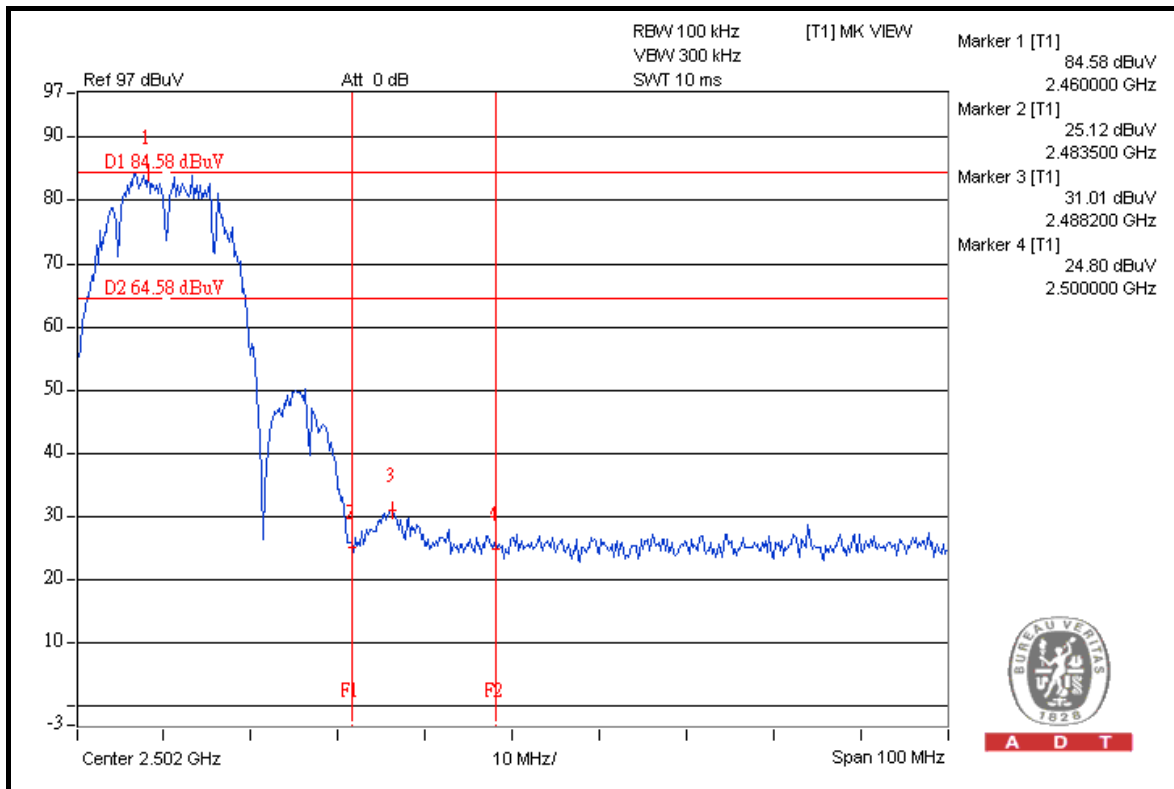
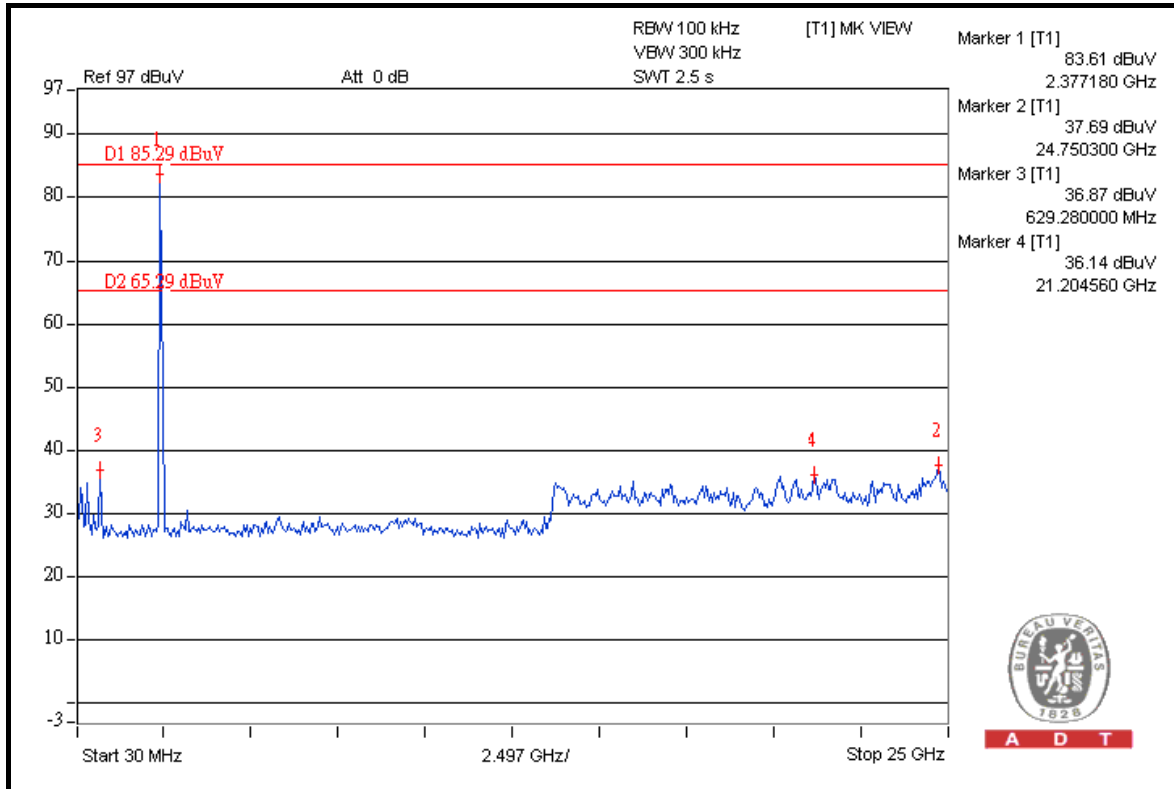


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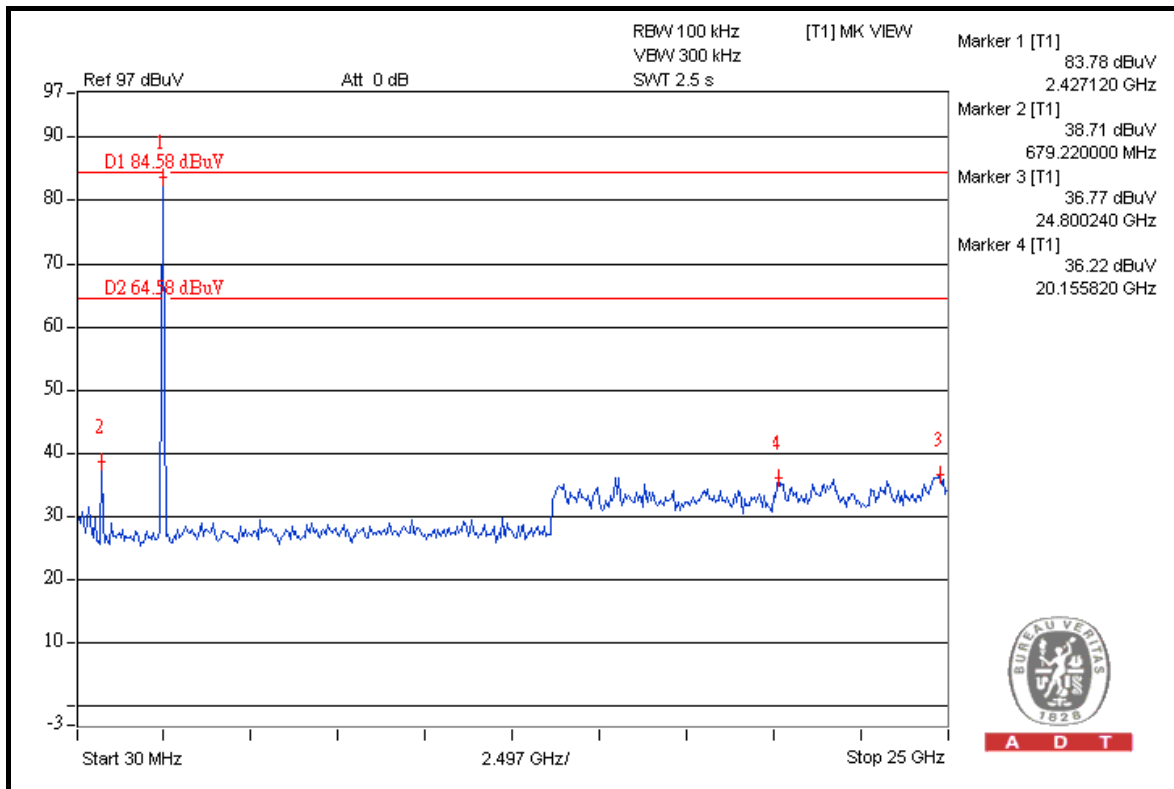
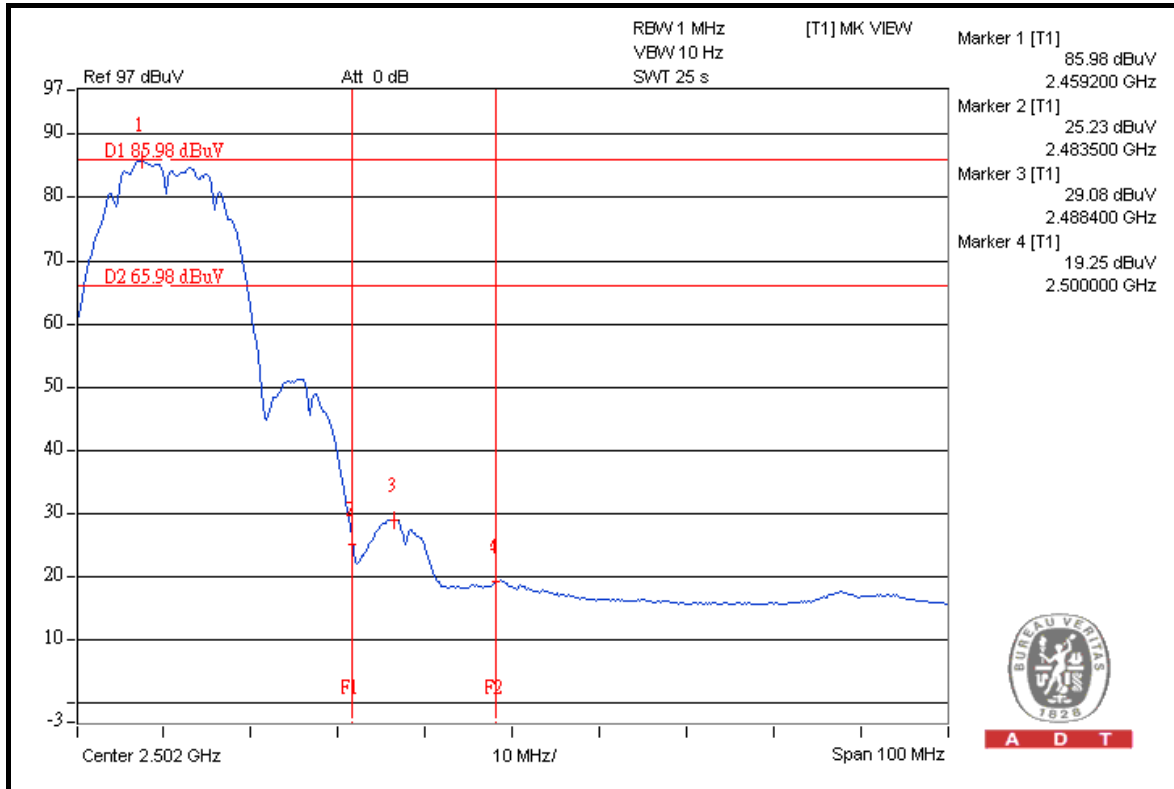


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802.11g

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	113.3	47.57	65.73	74.00
2412.00 (AV)	101.0	49.21	51.79	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

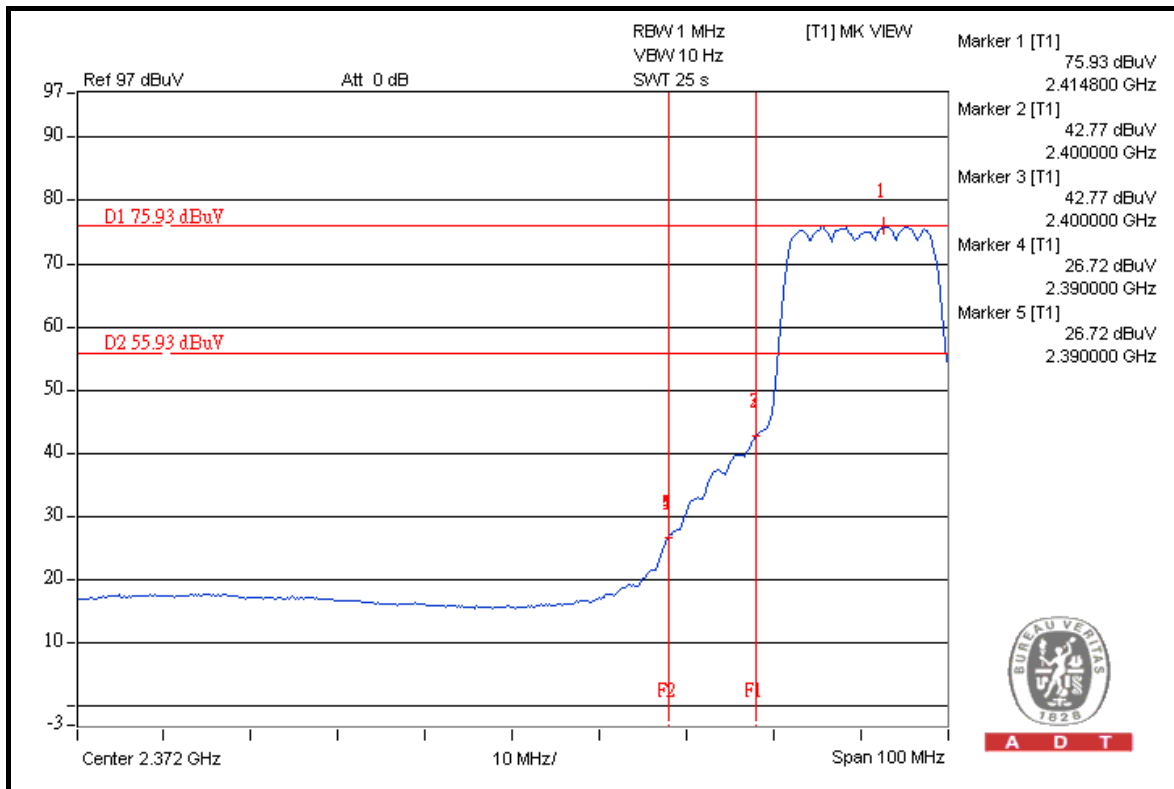
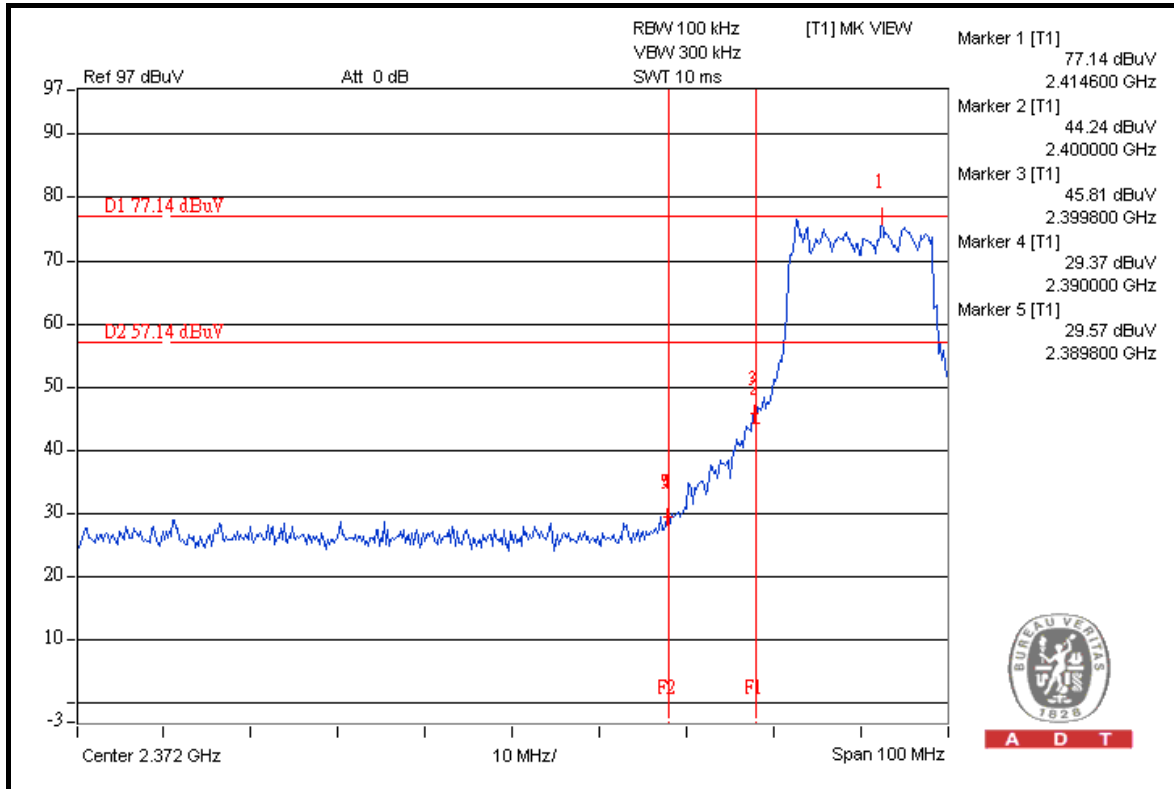
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	113.5	47.13	66.37	74.00
2462.00 (AV)	100.7	49.34	51.36	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

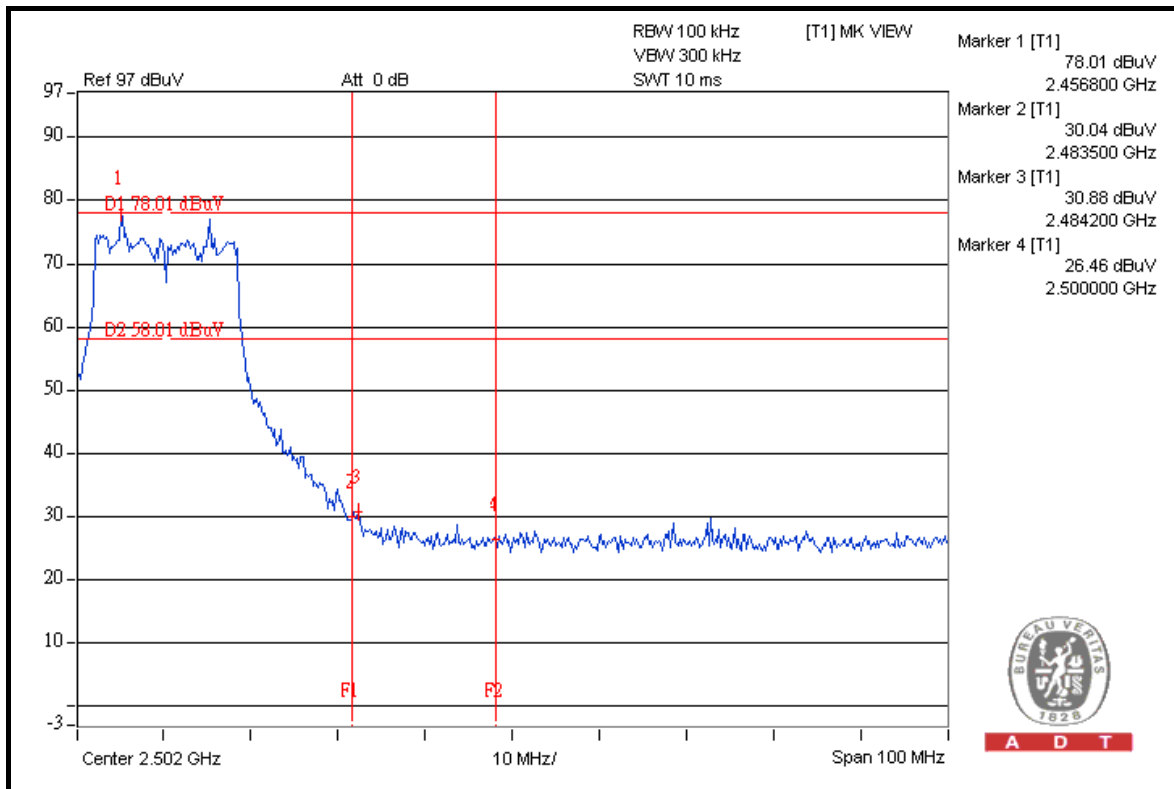
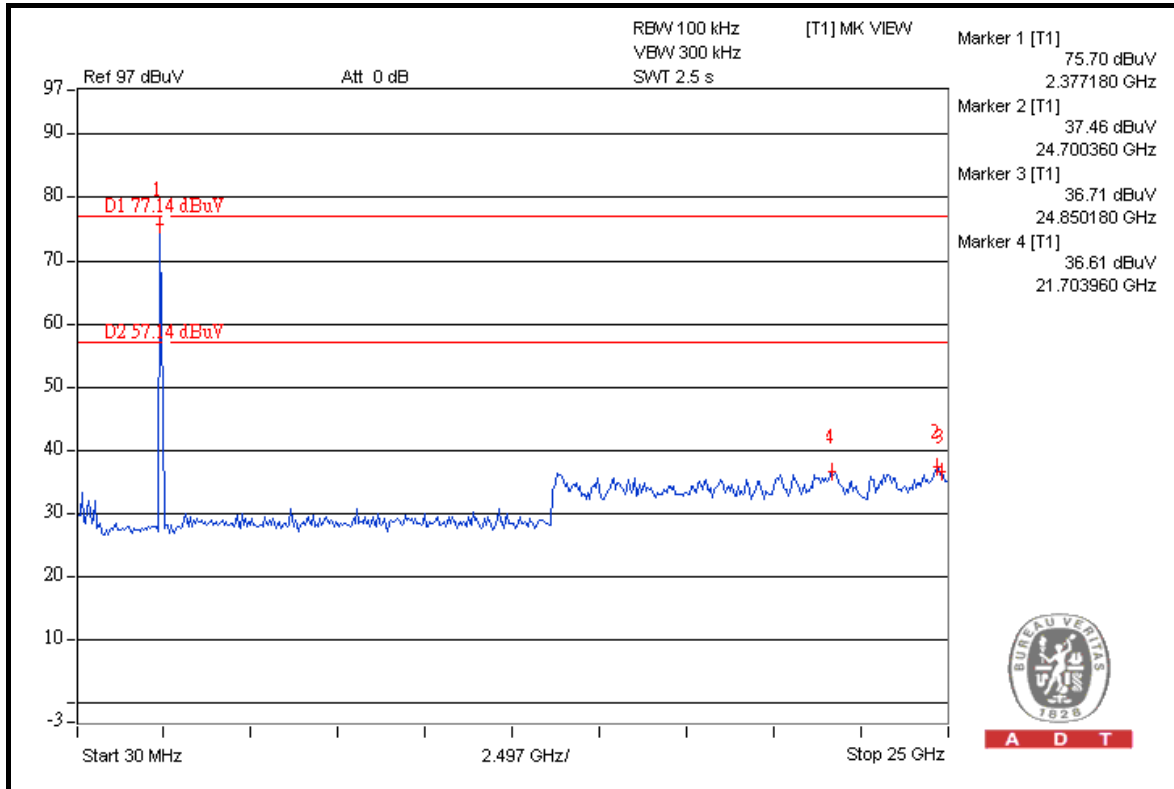


A D T



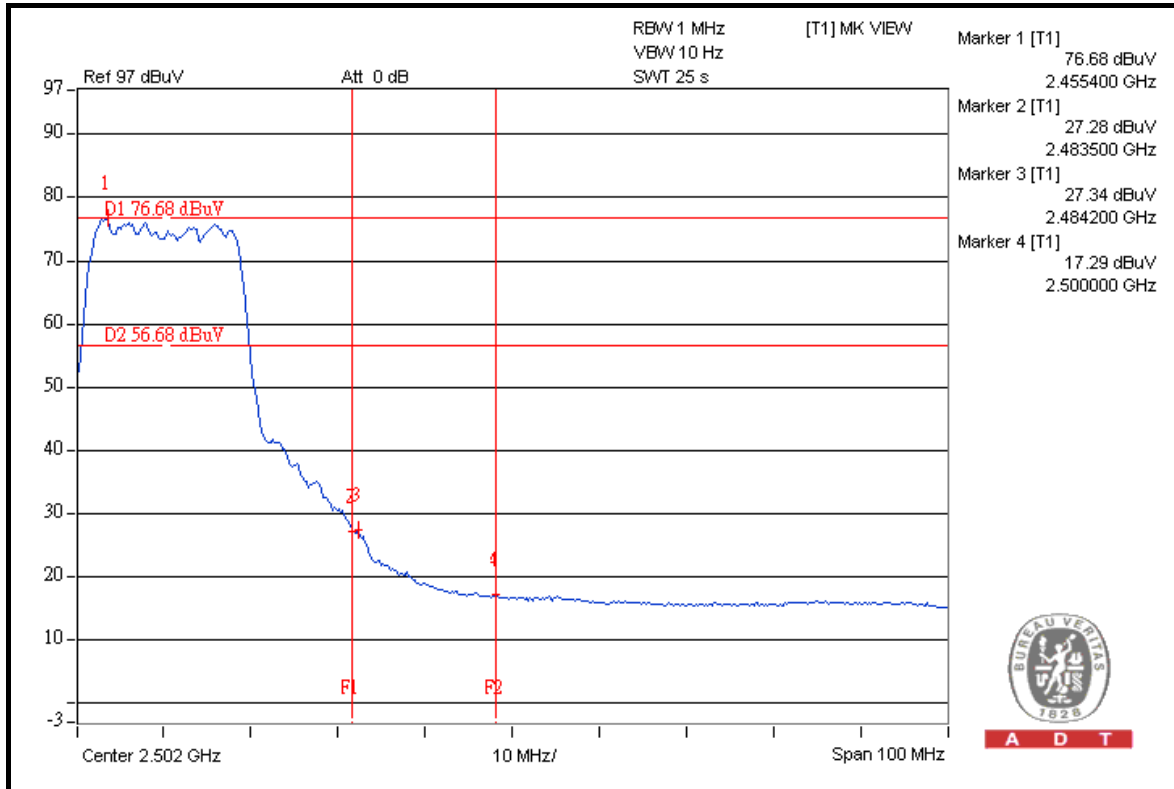


A D T

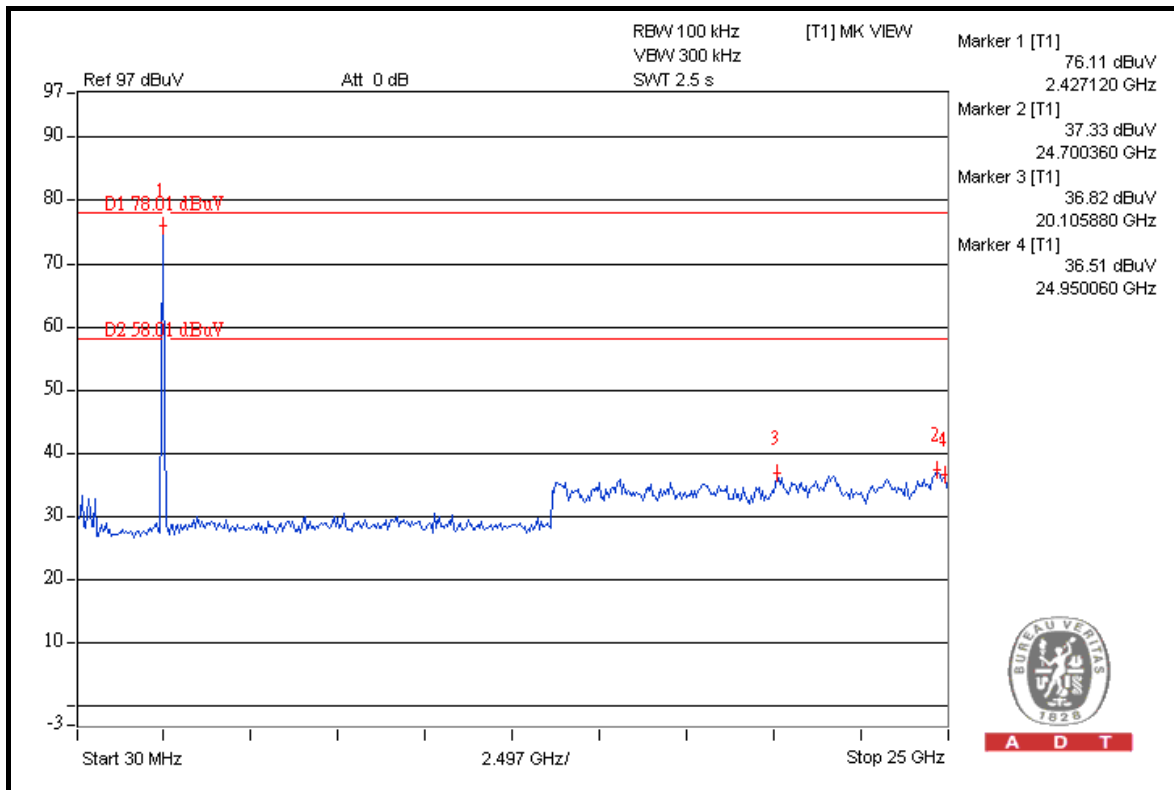




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802.11n (20MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	111.0	43.47	67.53	74.00
2412.00 (AV)	98.4	49.62	48.78	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

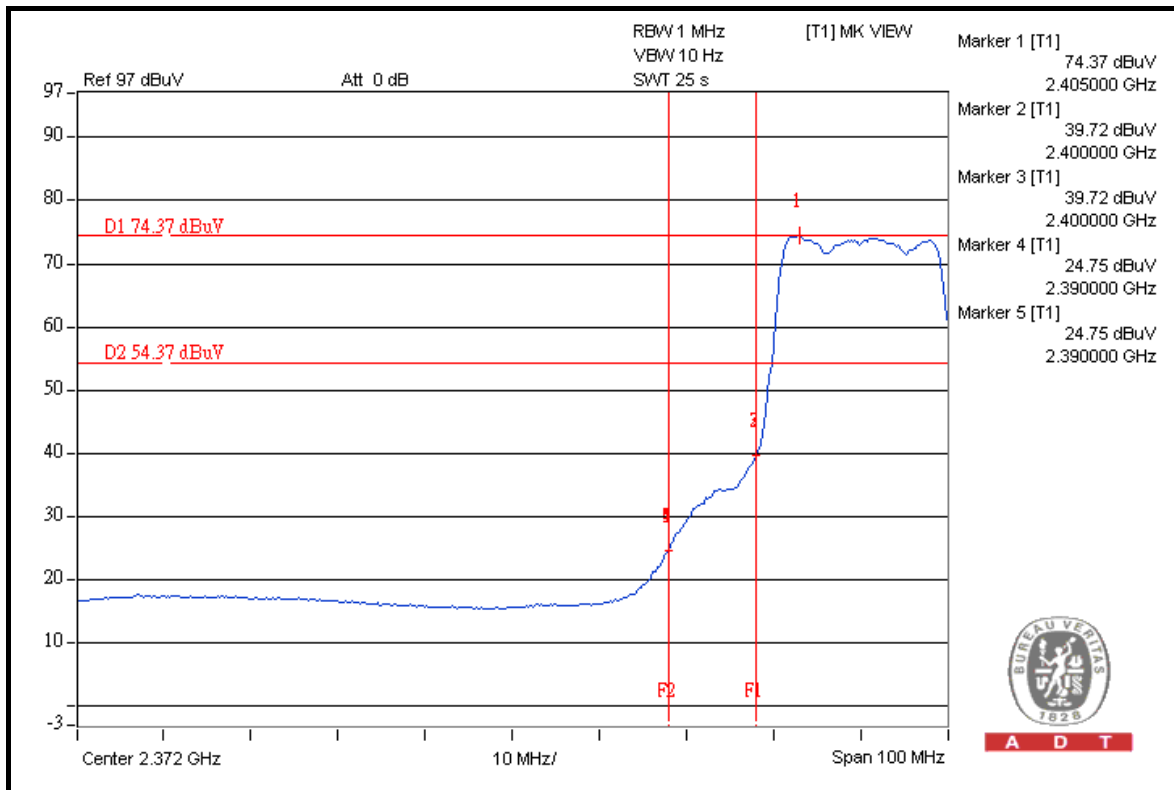
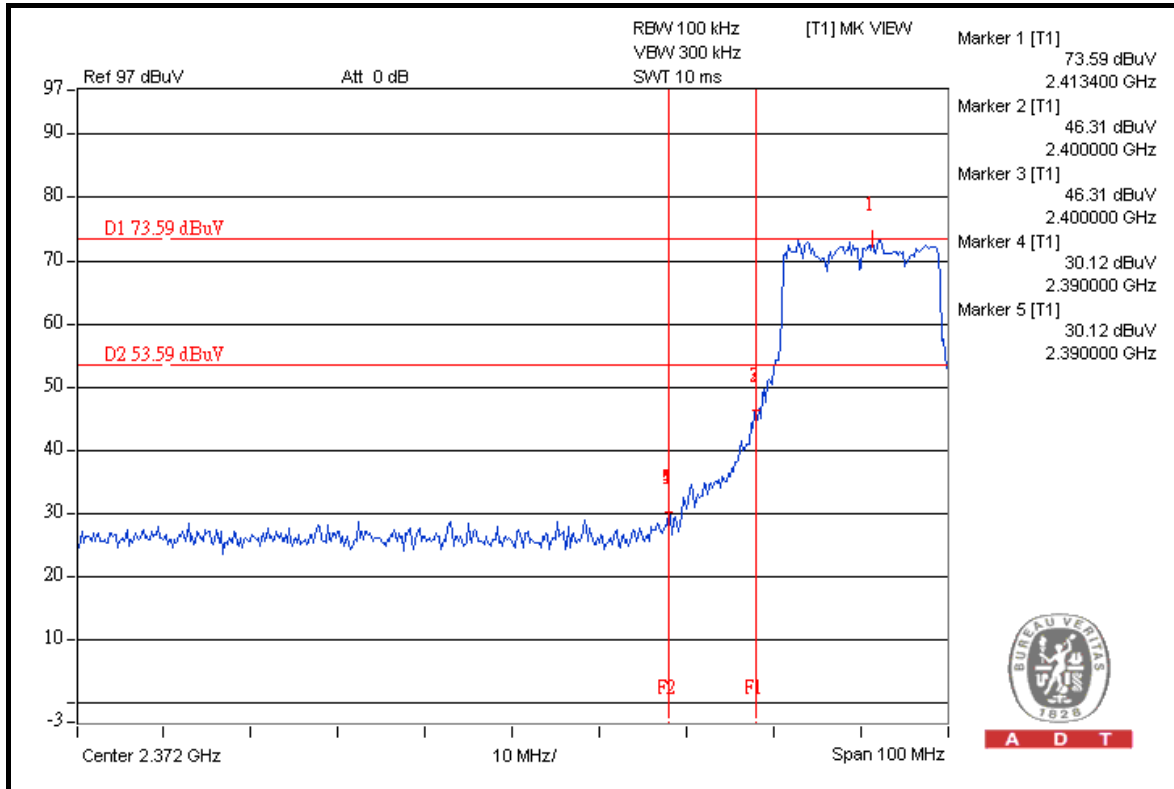
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	111.3	44.15	67.15	74.00
2462.00 (AV)	98.9	47.56	51.34	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

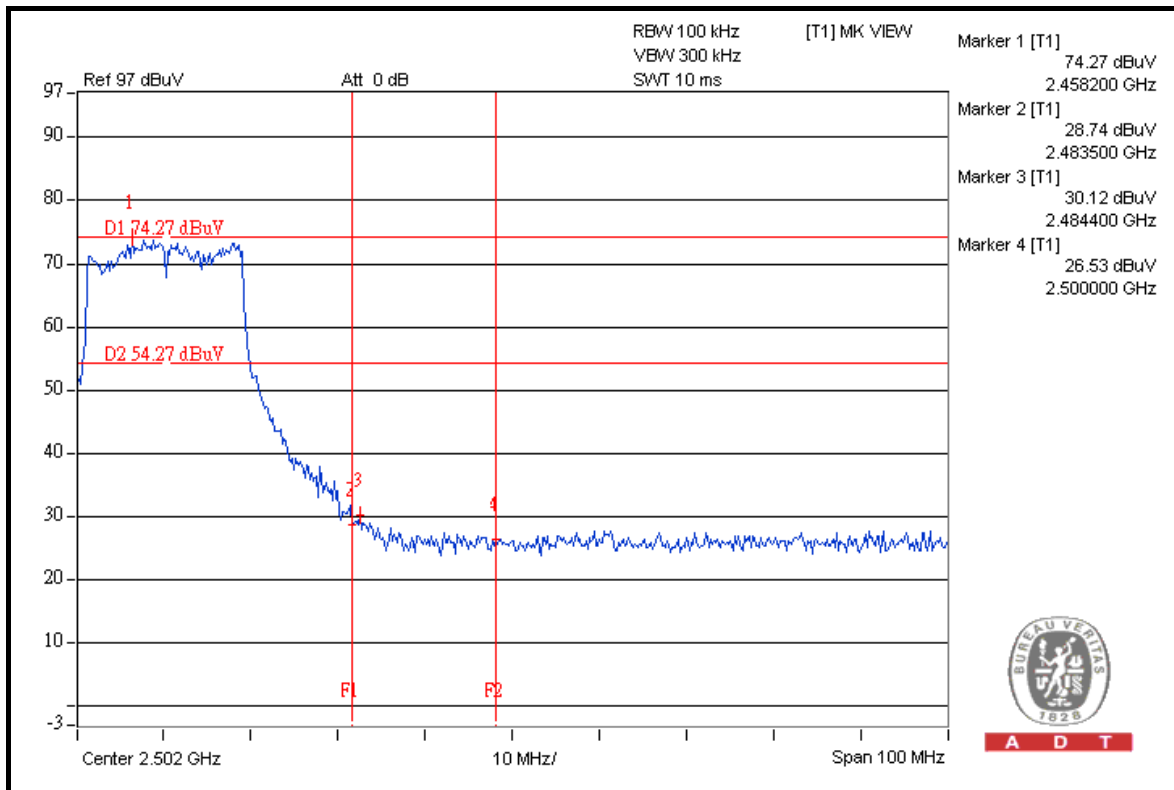
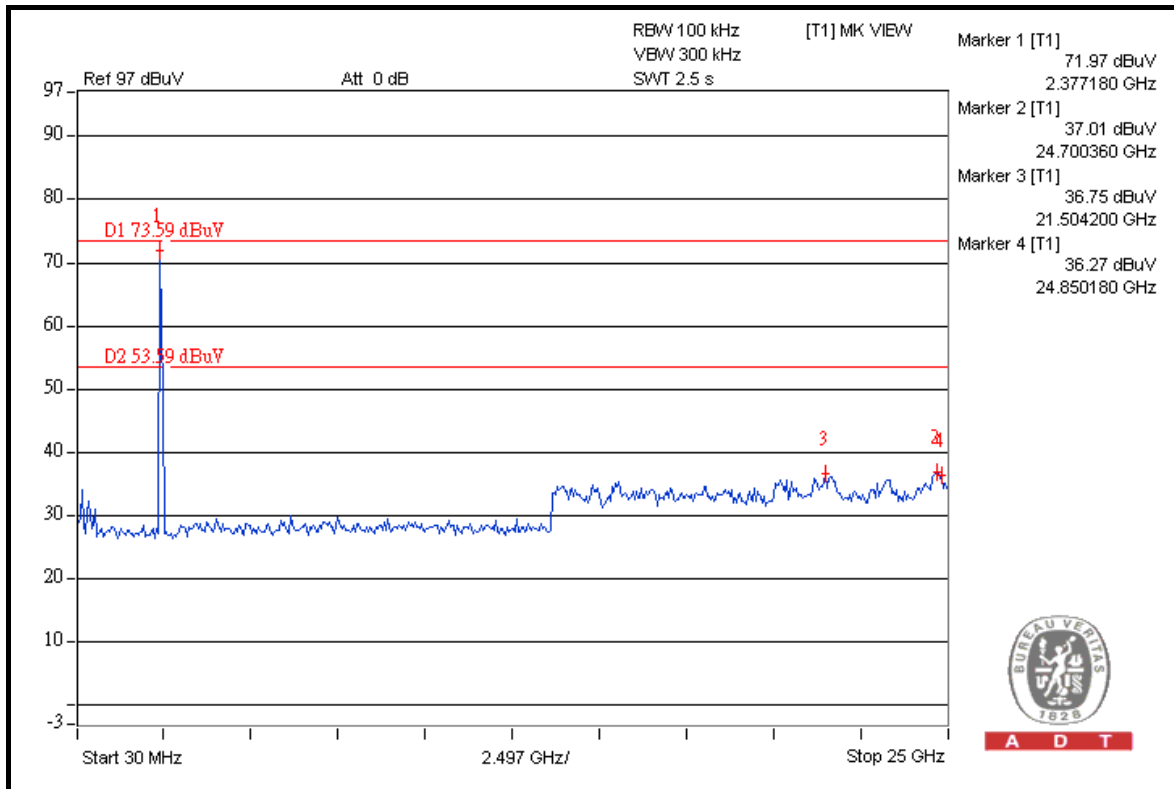


A D T



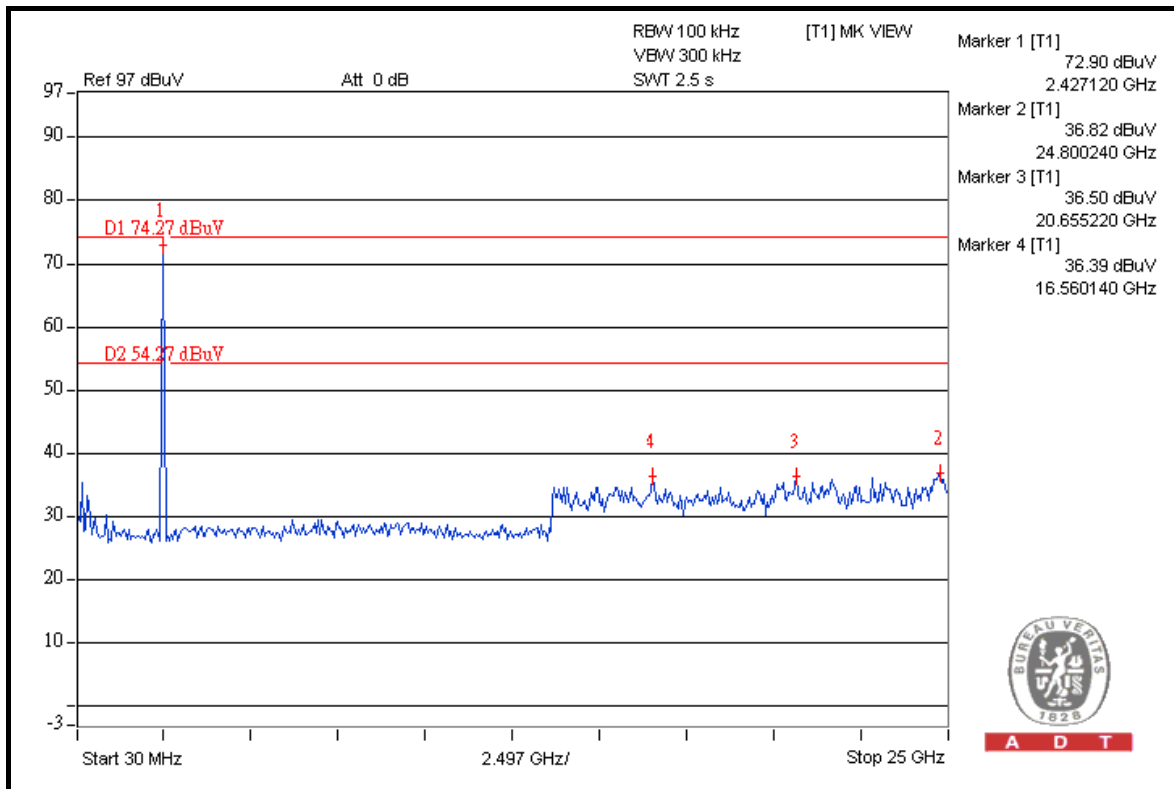
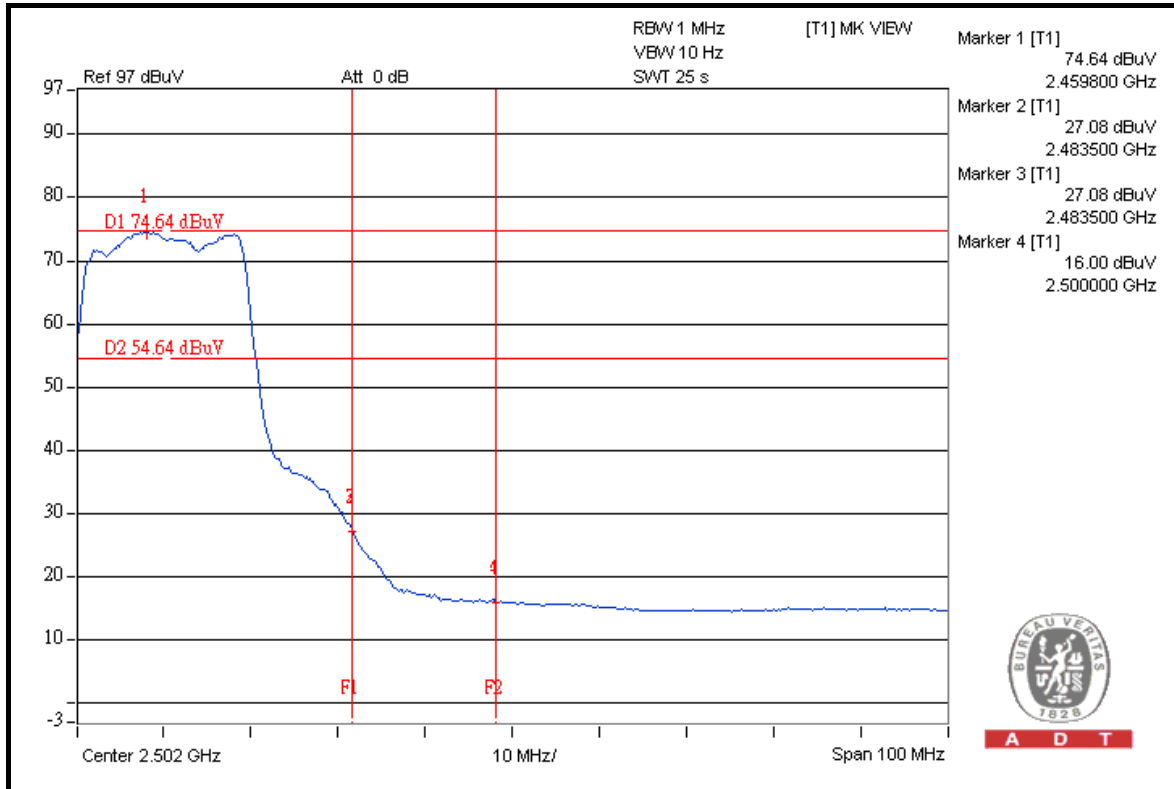


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802.11n (40MHz)

RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2422.00 (PK)	106.5	37.89	68.61	74.00
2422.00 (AV)	92.6	39.92	52.68	54.00

RESTRICT BAND (2483.5 ~ 2500 MHz)

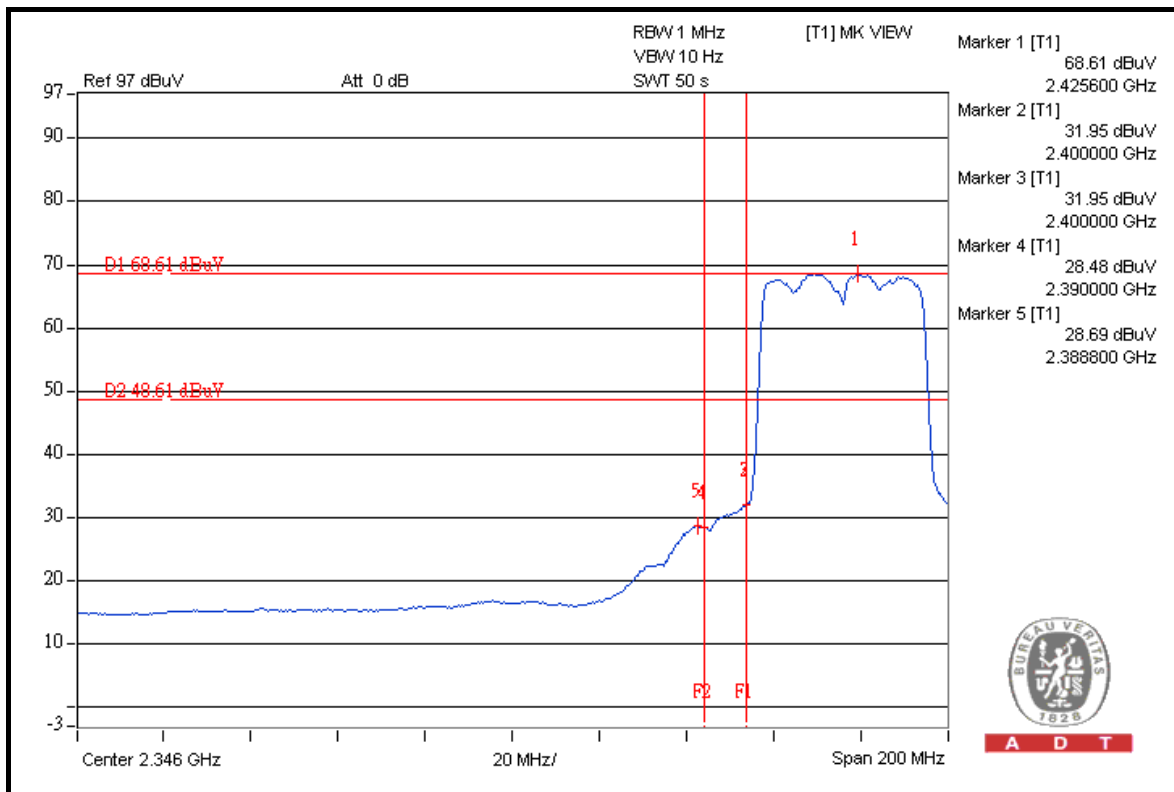
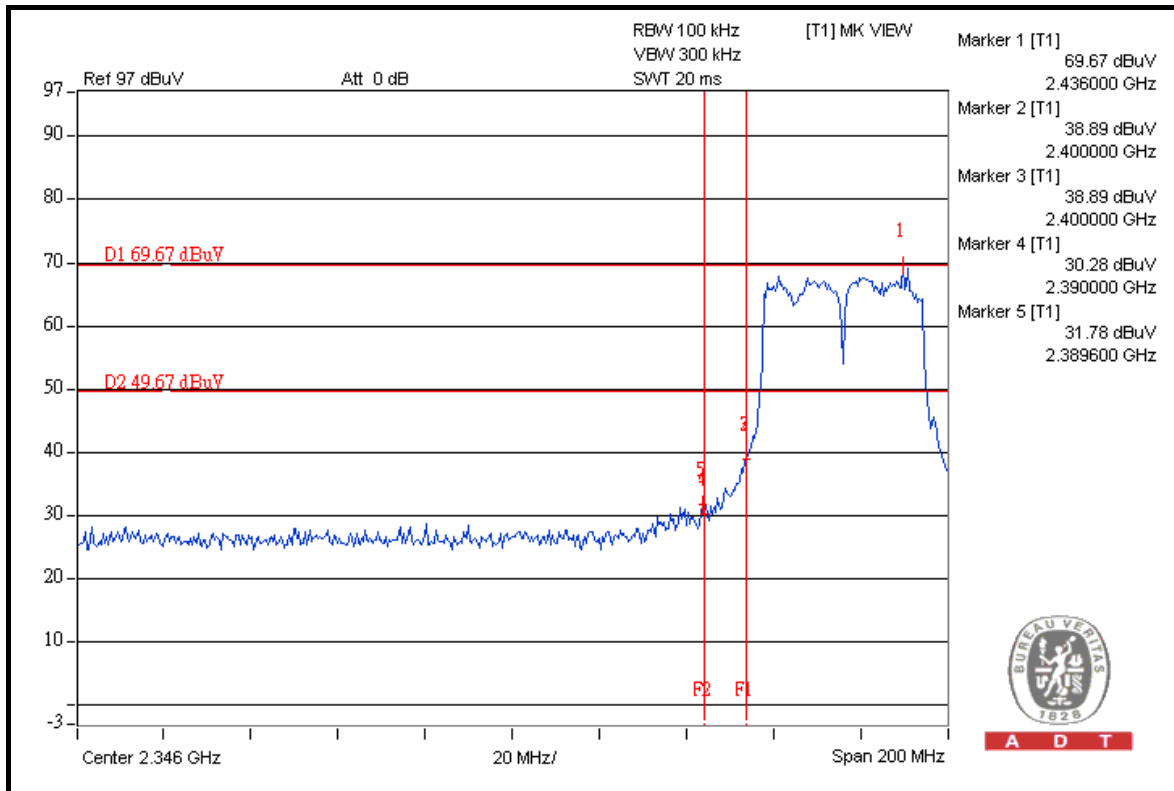
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2452.00 (PK)	107.4	37.13	70.27	74.00
2452.00 (AV)	93.9	42.18	51.72	54.00

NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

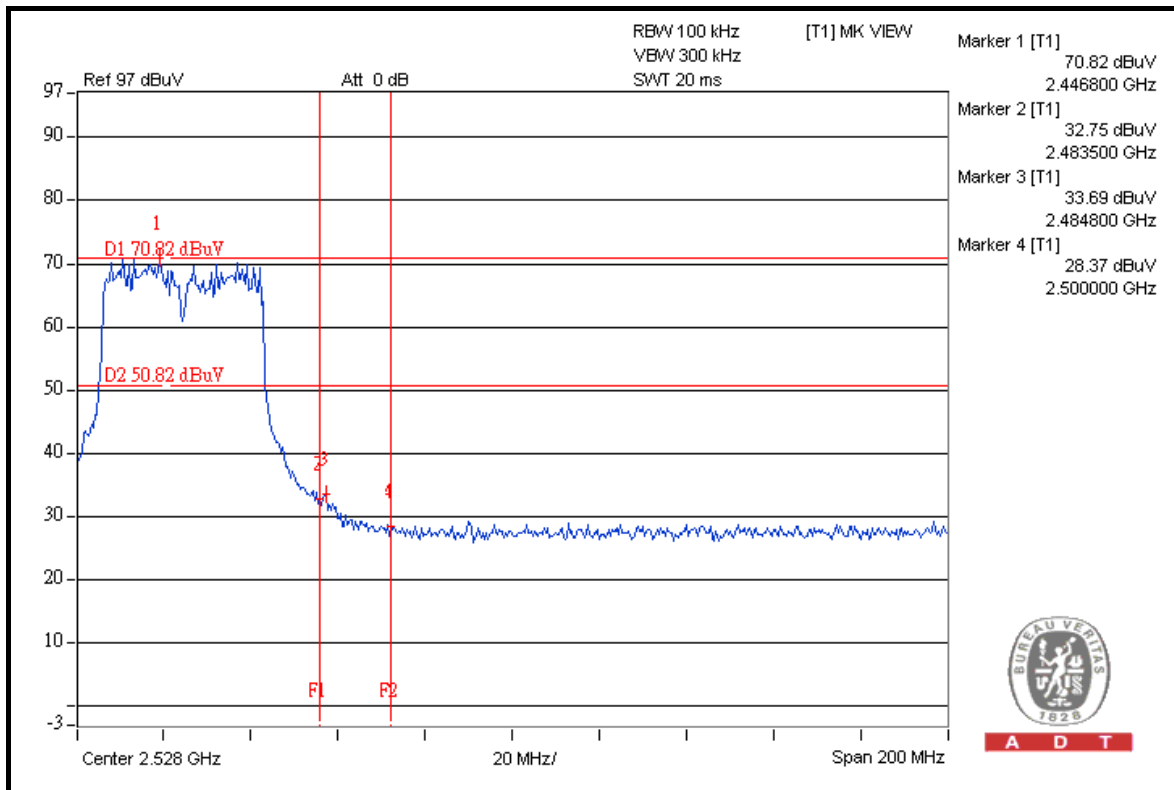
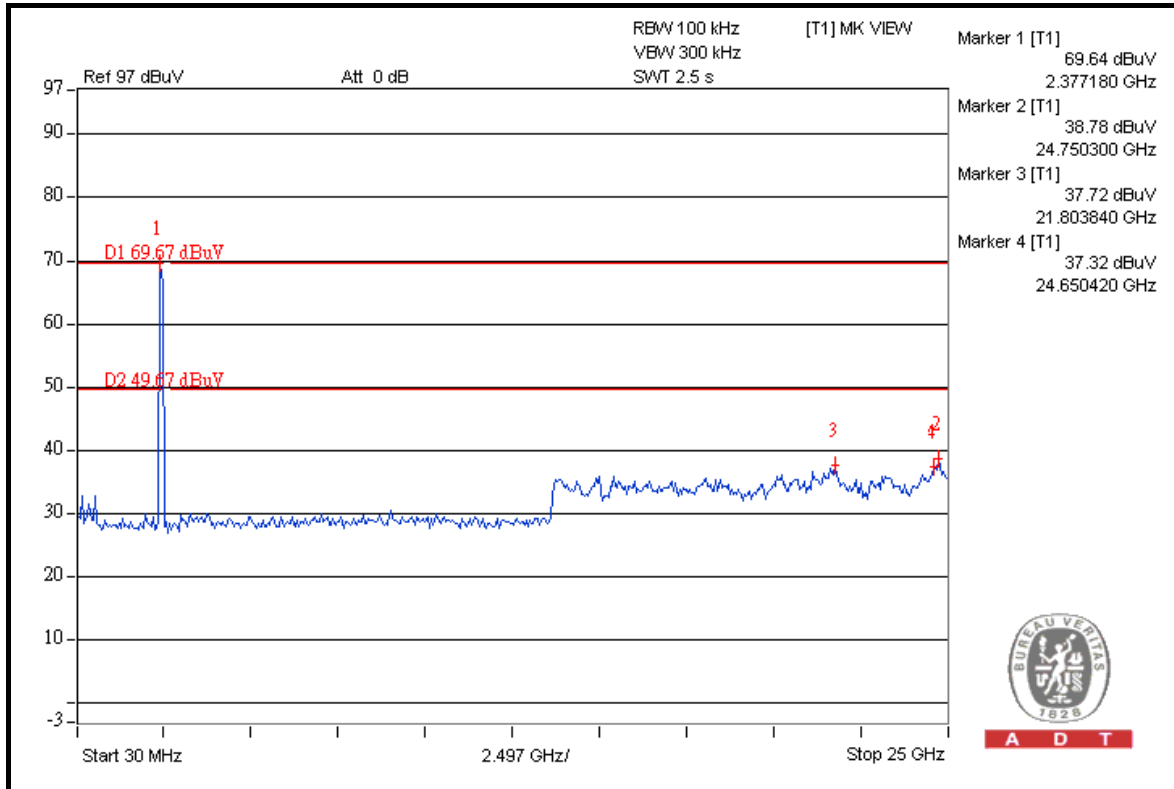


A D T



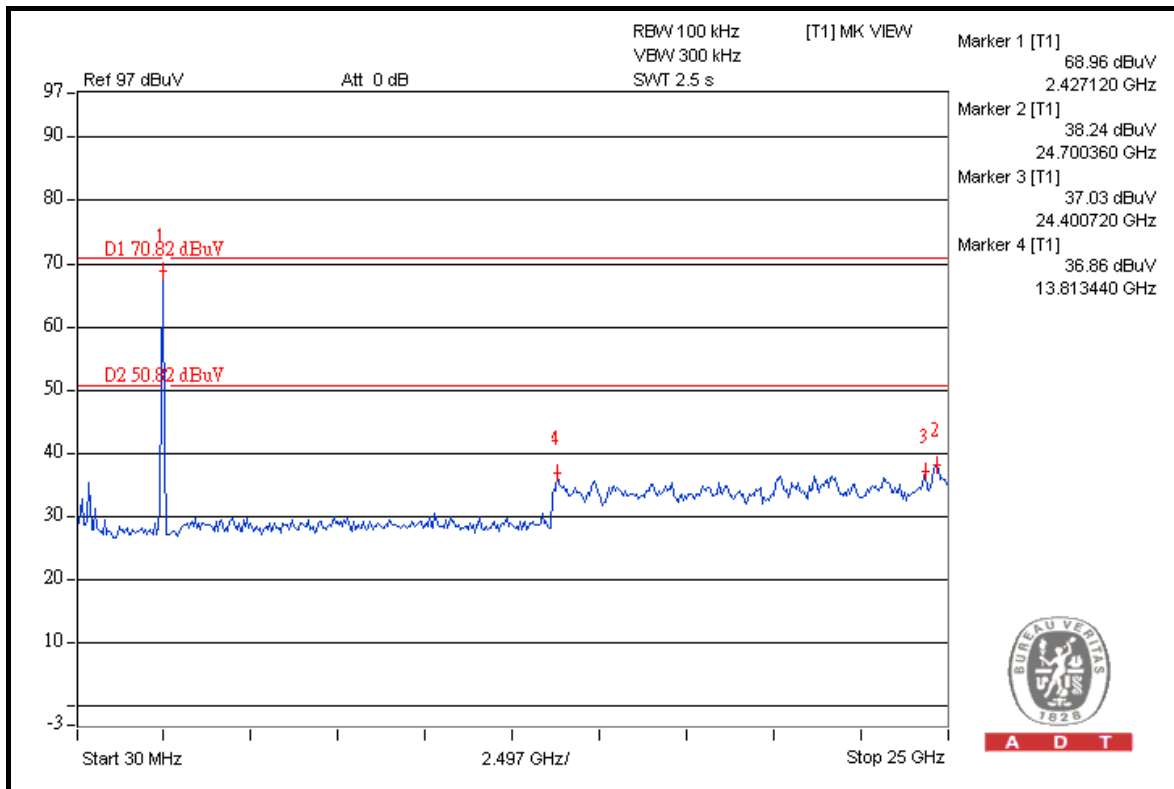
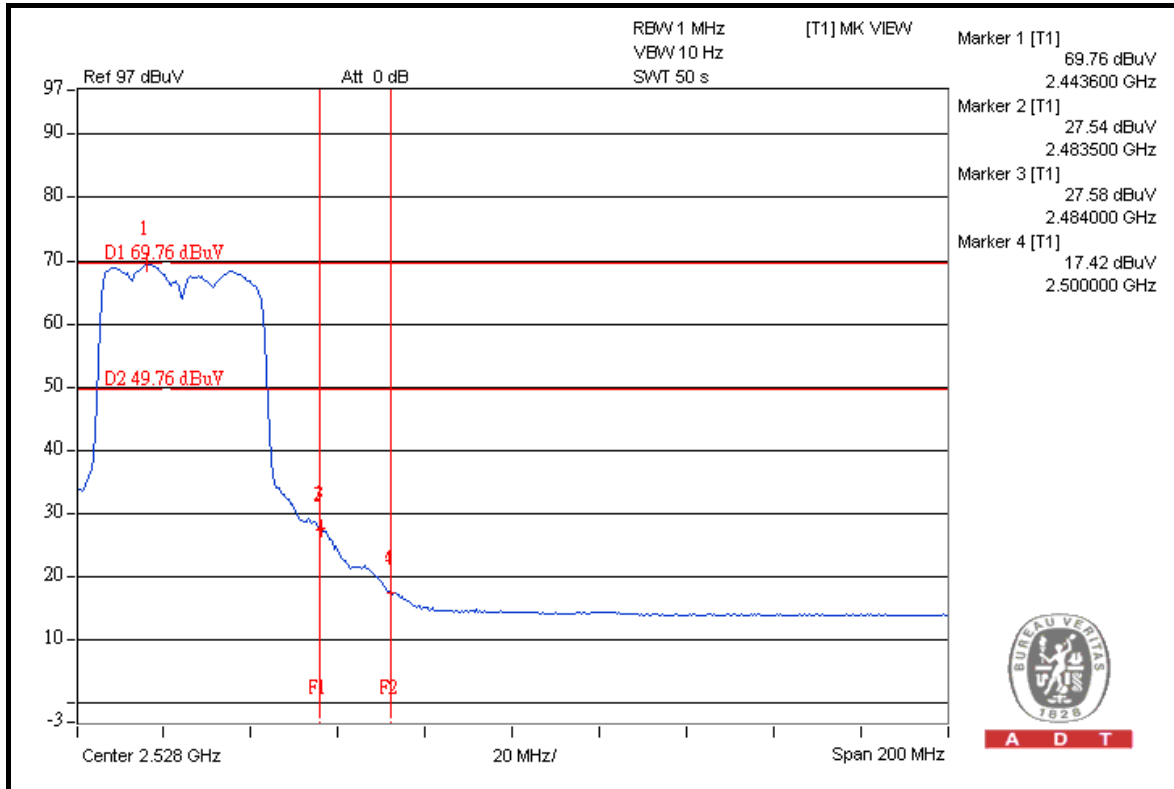


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5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2009	Dec. 28, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 28, 2010	Apr. 27, 2011
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2010	Jan. 04, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8449B	3008A01959	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2010	Aug. 20, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2010	Aug. 20, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 25, 2010	Aug. 24, 2011

- 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 4.
 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 988962.
 5. The IC Site Registration No. is IC7450F-4.



5.1.3 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.

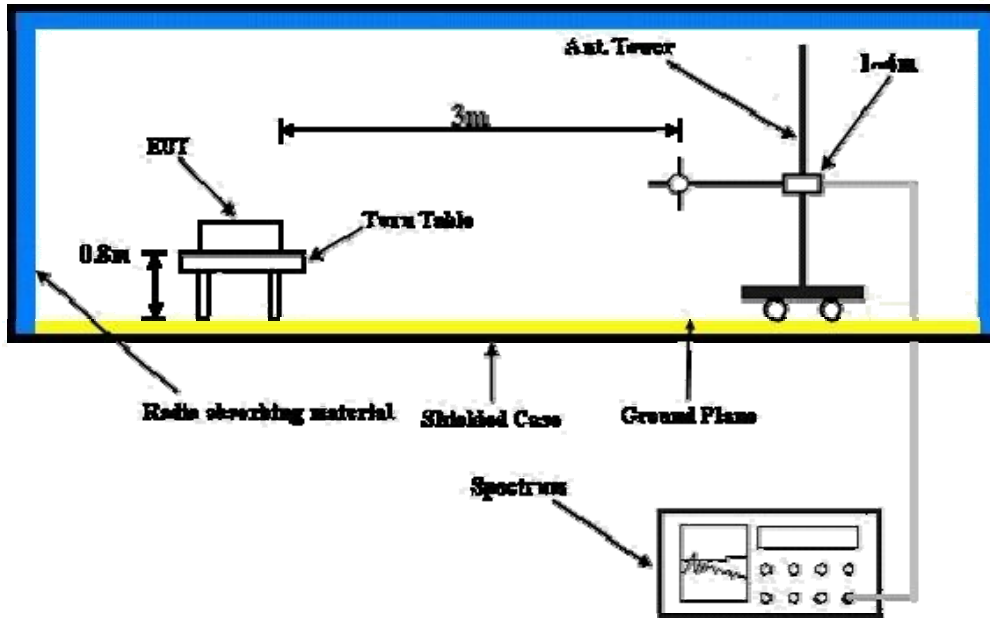
NOTE:

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 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6



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5.1.7 TEST RESULTS

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	88.6 PK	100.1	-11.5	1.17 H	93	47.00	41.60
2	#5725.00	69.1 AV	88.0	-18.9	1.17 H	93	27.50	41.60
3	*5745.00	120.1 PK			1.05 H	98	78.50	41.60
4	*5745.00	108.0 AV			1.05 H	98	66.40	41.60
5	11490.00	64.8 PK	74.0	-9.2	1.19 H	207	11.50	53.30
6	11490.00	51.2 AV	54.0	-2.8	1.19 H	207	-2.10	53.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	76.2 PK	89.1	-12.9	1.00 V	227	34.60	41.60
2	#5725.00	62.1 AV	76.7	-14.6	1.00 V	227	20.50	41.60
3	*5745.00	109.1 PK			1.00 V	227	67.50	41.60
4	*5745.00	96.7 AV			1.00 V	227	55.10	41.60
5	11490.00	63.9 PK	74.0	-10.1	1.00 V	156	10.60	53.30
6	11490.00	50.2 AV	54.0	-3.8	1.00 V	156	-3.10	53.30

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	120.0 PK			1.00 H	270	78.30	41.70
2	*5785.00	108.3 AV			1.00 H	270	66.60	41.70
3	11570.00	63.7 PK	74.0	-10.3	1.00 H	153	10.60	53.10
4	11570.00	50.4 AV	54.0	-3.6	1.00 H	153	-2.70	53.10
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	*5785.00	109.4 PK			1.00 V	257	67.70	41.70
2	*5785.00	96.8 AV			1.00 V	257	55.10	41.70
3	11570.00	61.5 PK	74.0	-12.5	1.00 V	147	8.40	53.10
4	11570.00	48.3 AV	54.0	-5.7	1.00 V	147	-4.80	53.10

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	119.6 PK			1.04 H	117	77.90	41.70
2	*5825.00	107.8 AV			1.04 H	117	66.10	41.70
3	#5850.00	88.4 PK	99.6	-11.2	1.01 H	117	46.70	41.70
4	#5850.00	68.6 AV	87.8	-19.2	1.01 H	117	26.90	41.70
5	11650.00	66.5 PK	74.0	-7.5	1.18 H	204	13.40	53.10
6	11650.00	52.2 AV	54.0	-1.8	1.18 H	204	-0.90	53.10
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	*5825.00	109.2 PK			1.00 V	213	67.50	41.70
2	*5825.00	96.5 AV			1.00 V	213	54.80	41.70
3	#5850.00	77.3 PK	89.2	-11.9	1.00 V	137	35.60	41.70
4	#5850.00	63.2 AV	76.5	-13.3	1.00 V	137	21.50	41.70
5	11650.00	64.1 PK	74.0	-9.9	1.00 V	314	11.00	53.10
6	11650.00	50.6 AV	54.0	-3.4	1.00 V	314	-2.50	53.10

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	91.0 PK	99.2	-8.2	1.00 H	111	49.40	41.60
2	#5725.00	70.1 AV	86.9	-16.8	1.00 H	111	28.50	41.60
3	*5745.00	119.2 PK			1.00 H	112	77.60	41.60
4	*5745.00	106.9 AV			1.00 H	112	65.30	41.60
5	11490.00	65.0 PK	74.0	-9.0	1.24 H	184	11.70	53.30
6	11490.00	52.1 AV	54.0	-1.9	1.24 H	184	-1.20	53.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	76.4 PK	87.8	-11.4	1.02 V	234	34.80	41.60
2	#5725.00	62.9 AV	75.2	-12.3	1.02 V	234	21.30	41.60
3	*5745.00	107.8 PK			1.02 V	234	66.20	41.60
4	*5745.00	95.2 AV			1.02 V	234	53.60	41.60
5	11490.00	62.8 PK	74.0	-11.2	1.00 V	180	9.50	53.30
6	11490.00	49.8 AV	54.0	-4.2	1.00 V	180	-3.50	53.30

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	120.3 PK			1.01 H	130	78.60	41.70
2	*5785.00	107.9 AV			1.01 H	130	66.20	41.70
3	11570.00	63.2 PK	74.0	-10.8	1.01 H	156	10.10	53.10
4	11570.00	50.3 AV	54.0	-3.7	1.01 H	156	-2.80	53.10
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	*5785.00	109.1 PK			1.00 V	130	67.40	41.70
2	*5785.00	96.2 AV			1.00 V	130	54.50	41.70
3	11570.00	61.0 PK	74.0	-13.0	1.01 V	155	7.90	53.10
4	11570.00	48.1 AV	54.0	-5.9	1.01 V	155	-5.00	53.10

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	120.4 PK			1.00 H	117	78.70	41.70
2	*5825.00	108.1 AV			1.00 H	117	66.40	41.70
3	#5850.00	87.1 PK	100.4	-13.3	1.00 H	117	45.40	41.70
4	#5850.00	66.9 AV	88.1	-21.2	1.00 H	117	25.20	41.70
5	11650.00	66.8 PK	74.0	-7.2	1.04 H	164	13.70	53.10
6	11650.00	52.0 AV	54.0	-2.0	1.04 H	164	-1.10	53.10
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	*5825.00	108.9 PK			1.03 V	114	67.20	41.70
2	*5825.00	96.0 AV			1.03 V	114	54.30	41.70
3	#5850.00	76.4 PK	88.9	-12.5	1.03 V	114	34.70	41.70
4	#5850.00	62.1 AV	76.0	-13.9	1.03 V	114	20.40	41.70
5	11650.00	63.8 PK	74.0	-10.2	1.00 V	200	10.70	53.10
6	11650.00	50.1 AV	54.0	-3.9	1.00 V	200	-3.00	53.10

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	84.9 PK	95.3	-10.4	1.00 H	107	43.30	41.60
2	#5725.00	65.9 AV	81.7	-15.8	1.00 H	107	24.30	41.60
3	*5755.00	115.3 PK			1.00 H	112	73.60	41.70
4	*5755.00	101.7 AV			1.00 H	112	60.00	41.70
5	11510.00	63.8 PK	74.0	-10.2	1.12 H	320	10.50	53.30
6	11510.00	50.8 AV	54.0	-3.2	1.12 H	320	-2.50	53.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	74.2 PK	86.4	-12.2	1.00 V	1	32.60	41.60
2	#5725.00	58.2 AV	72.5	-14.3	1.00 V	1	16.60	41.60
3	*5755.00	106.4 PK			1.00 V	0	64.70	41.70
4	*5755.00	92.5 AV			1.00 V	0	50.80	41.70
5	11510.00	63.5 PK	74.0	-10.5	1.04 V	360	10.20	53.30
6	11510.00	50.0 AV	54.0	-4.0	1.04 V	360	-3.30	53.30

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	117.1 PK			1.00 H	99	75.40	41.70
2	*5795.00	103.8 AV			1.00 H	99	62.10	41.70
3	#5850.00	80.8 PK	97.1	-16.3	1.00 H	103	39.10	41.70
4	#5850.00	60.6 AV	83.8	-23.2	1.00 H	103	18.90	41.70
5	11590.00	64.8 PK	74.0	-9.2	1.10 H	333	11.70	53.10
6	11590.00	52.1 AV	54.0	-1.9	1.10 H	333	-1.00	53.10
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	*5795.00	108.9 PK			1.00 V	360	67.20	41.70
2	*5795.00	95.1 AV			1.00 V	360	53.40	41.70
3	#5850.00	69.8 PK	88.9	-19.1	1.00 V	360	28.10	41.70
4	#5850.00	55.7 AV	75.1	-19.4	1.00 V	360	14.00	41.70
5	11590.00	64.5 PK	74.0	-9.5	1.03 V	360	11.40	53.10
6	11590.00	51.0 AV	54.0	-3.0	1.03 V	360	-2.10	53.10

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1020 hPa	TESTED BY	Long Chen

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	249.60	40.8 QP	46.0	-5.2	1.00 H	88	26.30	14.50
2	374.04	45.0 QP	46.0	-1.0	1.00 H	142	27.00	18.00
3	500.42	40.9 QP	46.0	-5.1	1.50 H	166	19.20	21.70
4	624.85	44.1 QP	46.0	-1.9	1.50 H	232	19.50	24.60
5	751.23	44.0 QP	46.0	-2.0	1.00 H	121	16.60	27.40
6	875.67	43.8 QP	46.0	-2.2	1.50 H	85	13.90	29.90
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	249.60	38.9 QP	46.0	-7.1	1.00 V	43	24.40	14.50
2	374.04	44.7 QP	46.0	-1.3	1.25 V	193	26.70	18.00
3	500.42	41.3 QP	46.0	-4.7	1.00 V	184	19.60	21.70
4	625.30	44.3 QP	46.0	-1.7	1.08 V	213	19.70	24.60
5	751.23	40.8 QP	46.0	-5.2	1.50 V	244	13.40	27.40
6	875.67	44.7 QP	46.0	-1.3	1.00 V	196	14.80	29.90

- 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.



5.2 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 23, 2009	Nov. 22, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Dec. 25, 2009	Dec. 24, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 08, 2010	Jul. 07, 2011
Software ADT	ADT_Cond_ V7.3.7	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.



A D T

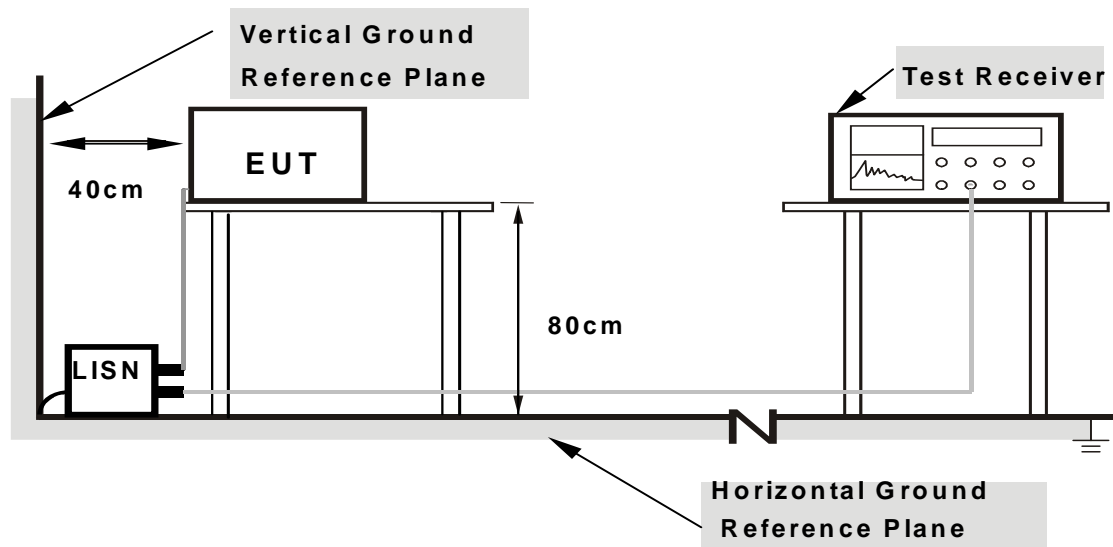
5.2.3 TEST PROCEDURES

- 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.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 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).

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

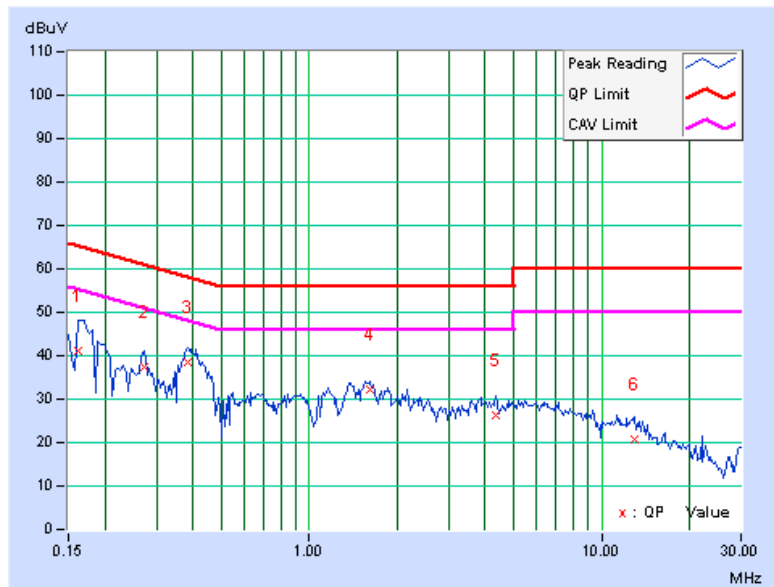
5.2.7 TEST RESULTS

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	0.162	0.16	40.92	-	41.08	-	65.38	55.38	-24.30	-
2	0.271	0.17	37.28	-	37.45	-	61.08	51.08	-23.64	-
3	0.384	0.18	38.38	-	38.56	-	58.18	48.18	-19.63	-
4	1.609	0.28	32.00	-	32.28	-	56.00	46.00	-23.72	-
5	4.352	0.35	26.01	-	26.36	-	56.00	46.00	-29.64	-
6	12.891	0.44	20.37	-	20.81	-	60.00	50.00	-39.19	-

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



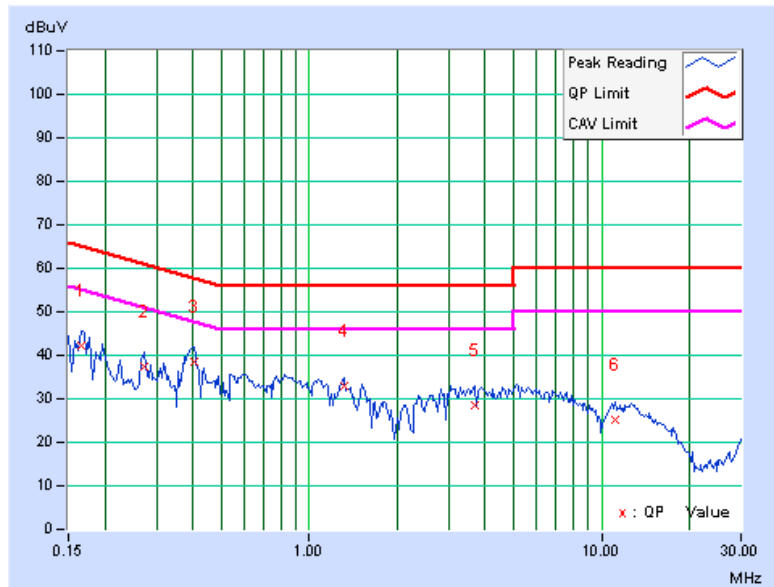


A D T

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	0.166	0.13	41.97	-	42.10	-	65.18	55.18	-23.08	-
2	0.271	0.14	37.20	-	37.34	-	61.08	51.08	-23.74	-
3	0.404	0.16	38.40	-	38.56	-	57.77	47.77	-19.21	-
4	1.313	0.24	32.71	-	32.95	-	56.00	46.00	-23.05	-
5	3.688	0.35	28.19	-	28.54	-	56.00	46.00	-27.46	-
6	11.141	0.49	24.75	-	25.24	-	60.00	50.00	-34.76	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. 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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

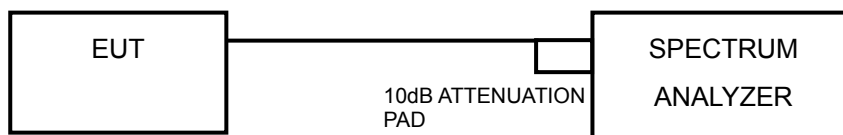
5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

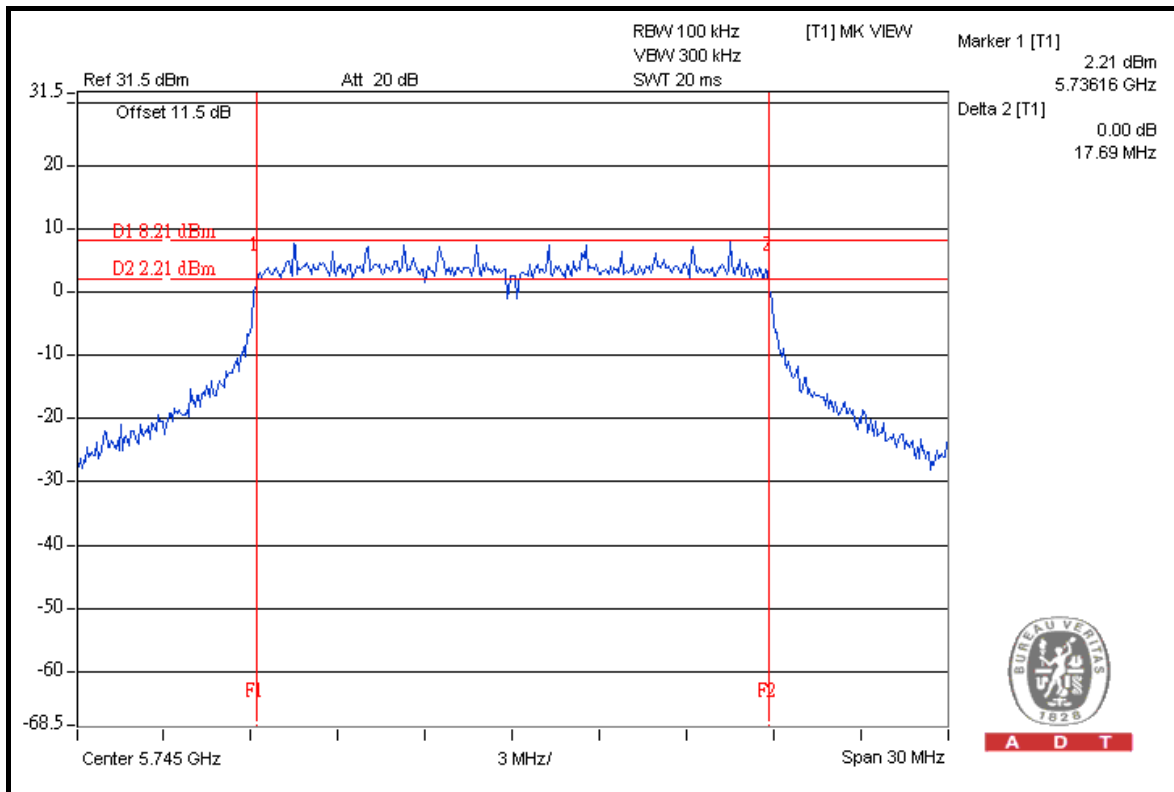


A D T

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.69	17.67	0.5	PASS
157	5785	17.63	17.63	0.5	PASS
165	5825	17.67	17.62	0.5	PASS

FOR CHAIN 0: CH 149



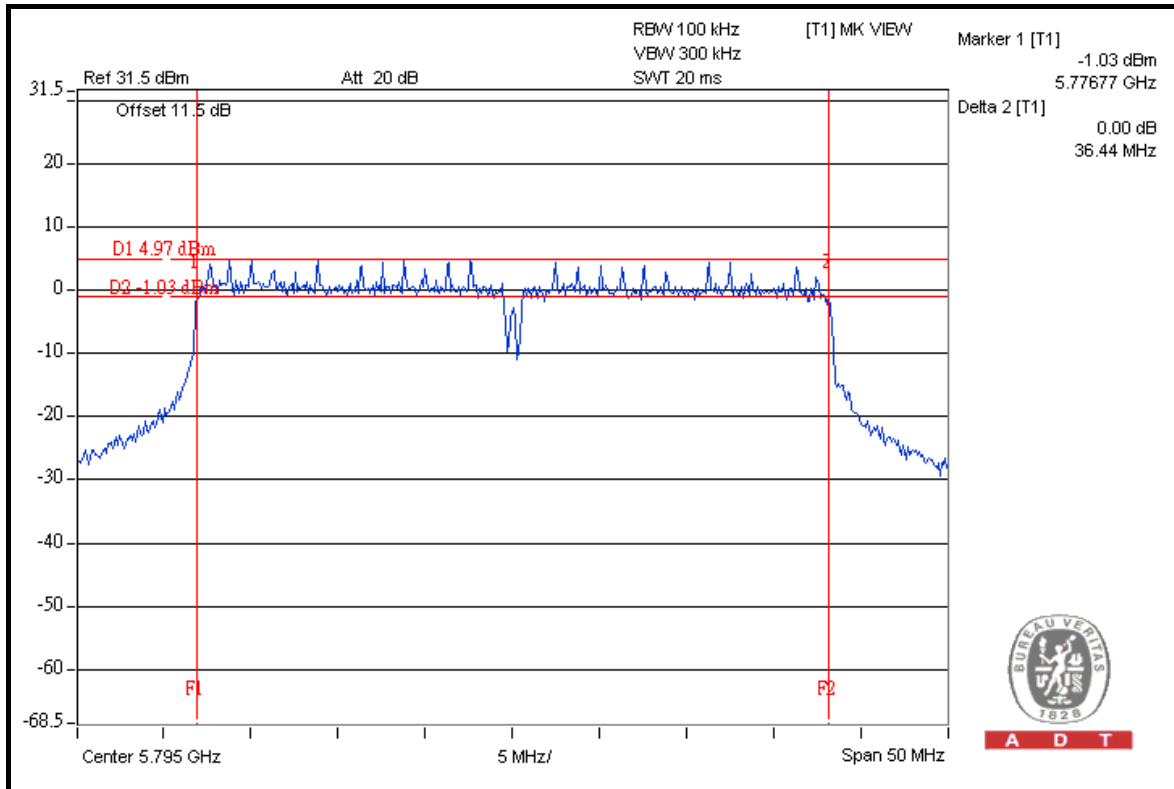


A D T

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.10	36.43	0.5	PASS
159	5795	36.05	36.44	0.5	PASS

FOR CHAIN 1: CH 159





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5.4 MAXIMUM OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0842014	Apr. 21, 2010	Apr. 20, 2011
Power Sensor	MA2411B	0738404	Apr. 21, 2010	Apr. 20, 2011

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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

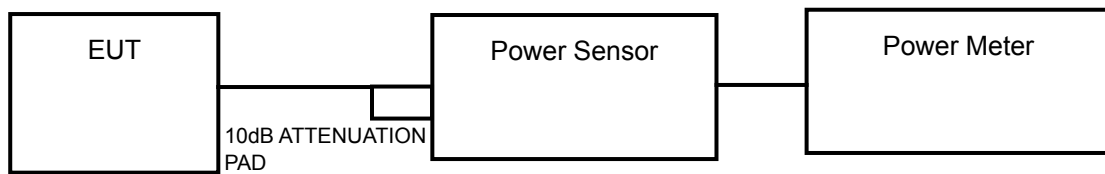
5.4.3 TEST PROCEDURES

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

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	26.5	26.6	903.8	29.6	29.95	PASS
157	5785	26.3	26.6	883.7	29.5	29.95	PASS
165	5825	26.4	26.8	915.1	29.6	29.95	PASS

**Directional gain = $3.04\text{dBi} + 10\log(2) = 6.05\text{dBi} > 6\text{dBi}$, conducted power limit is reduced from 30dBm down to $30 - (6.05 - 6) = 29.95\text{dBm}$

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	26.7	26.4	904.3	29.6	30	PASS
157	5785	26.3	26.4	863.1	29.4	30	PASS
165	5825	26.3	26.7	894.3	29.5	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	25.7	25.3	710.4	28.5	30	PASS
159	5795	26.6	26.4	893.6	29.5	30	PASS



5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.5.3 TEST PROCEDURE

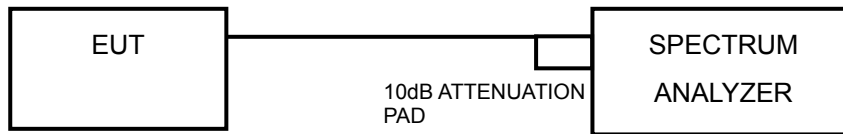
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6



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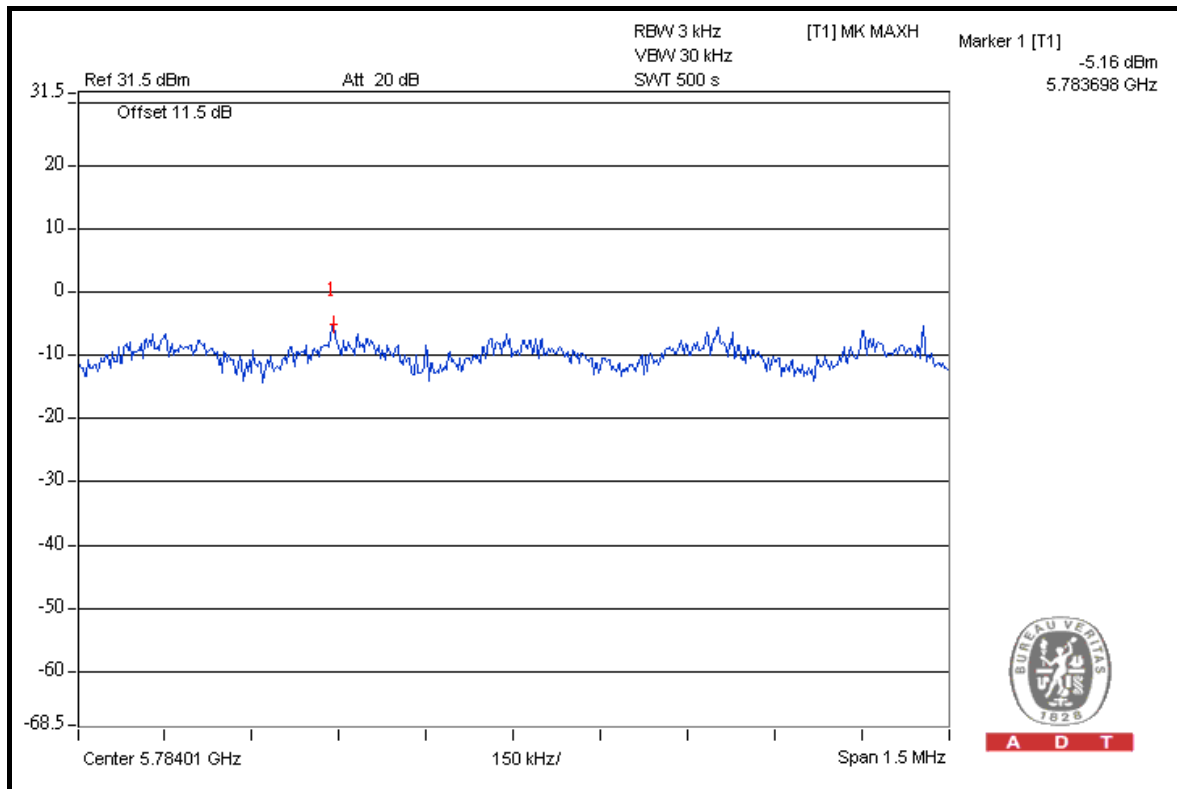
5.5.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
149	5745	-5.65	-5.24	-2.43	7.95	PASS
157	5785	-5.63	-5.16	-2.38	7.95	PASS
165	5825	-5.70	-5.26	-2.46	7.95	PASS

**Directional gain = $3.04\text{dBi} + 10\log(2) = 6.05\text{dBi} > 6\text{dBi}$, Power Density limit is reduced from 8dBm down to $8 - (6.05 - 6) = 7.95\text{dBm}$

FOR CHAIN 1: CH 157



A D T

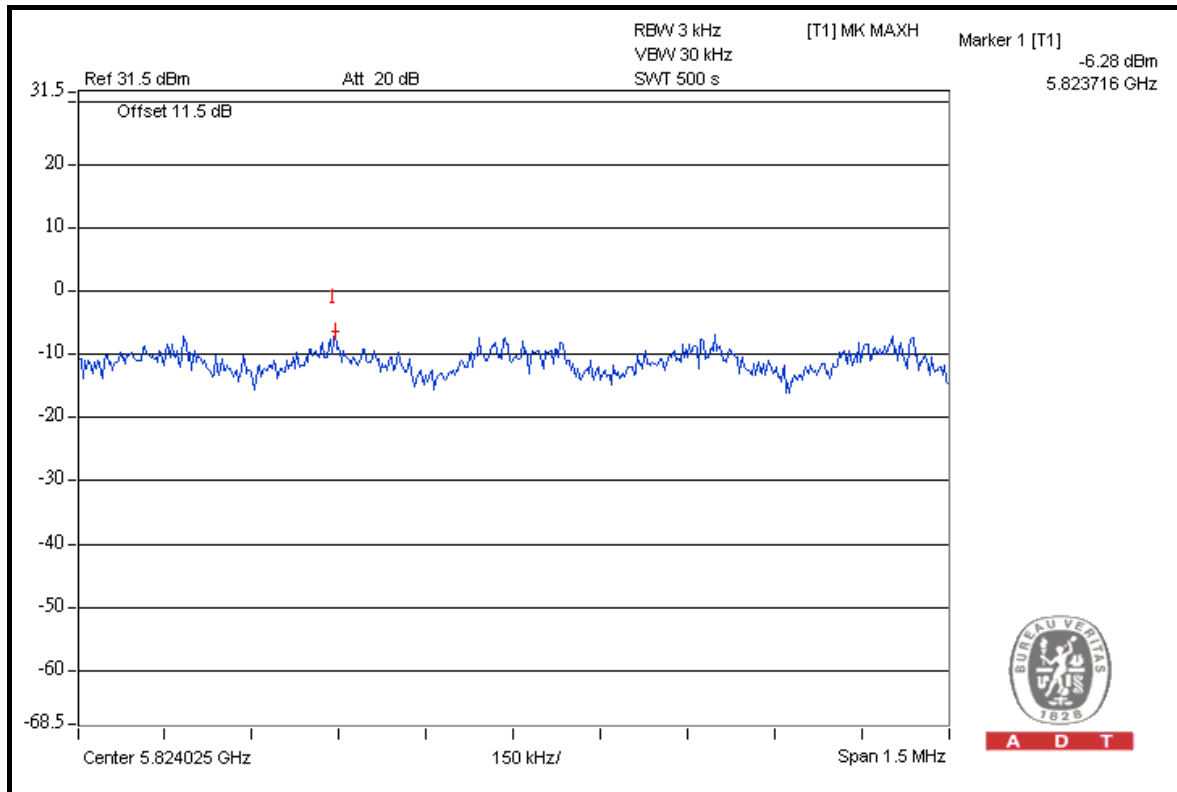


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802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
149	5745	-6.33	-6.83	-3.57	8	PASS
157	5785	-6.70	-6.78	-3.73	8	PASS
165	5825	-6.68	-6.28	-3.47	8	PASS

FOR CHAIN 1: CH 165



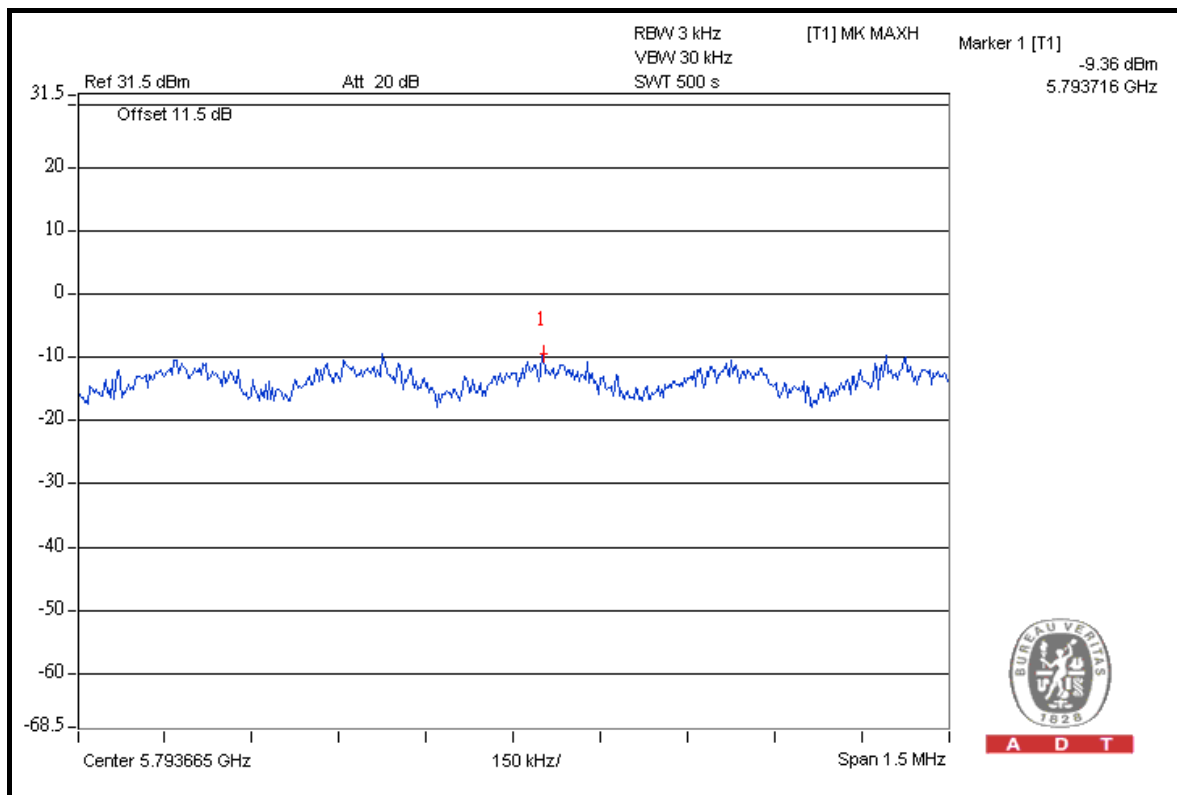


A D T

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
151	5755	-10.16	-10.28	-7.21	8	PASS
159	5795	-9.36	-9.37	-6.36	8	PASS

FOR CHAIN 0: CH 159



5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2009	Dec. 28, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 11, 2010	Jan. 10, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 28, 2010	Apr. 27, 2011
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 05, 2010	Jan. 04, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8449B	3008A01959	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10638	Dec. 21, 2009	Dec. 20, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2010	Aug. 20, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2010	Aug. 20, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 25, 2010	Aug. 24, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



5.6.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.



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5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

Same as Item 5.3.6

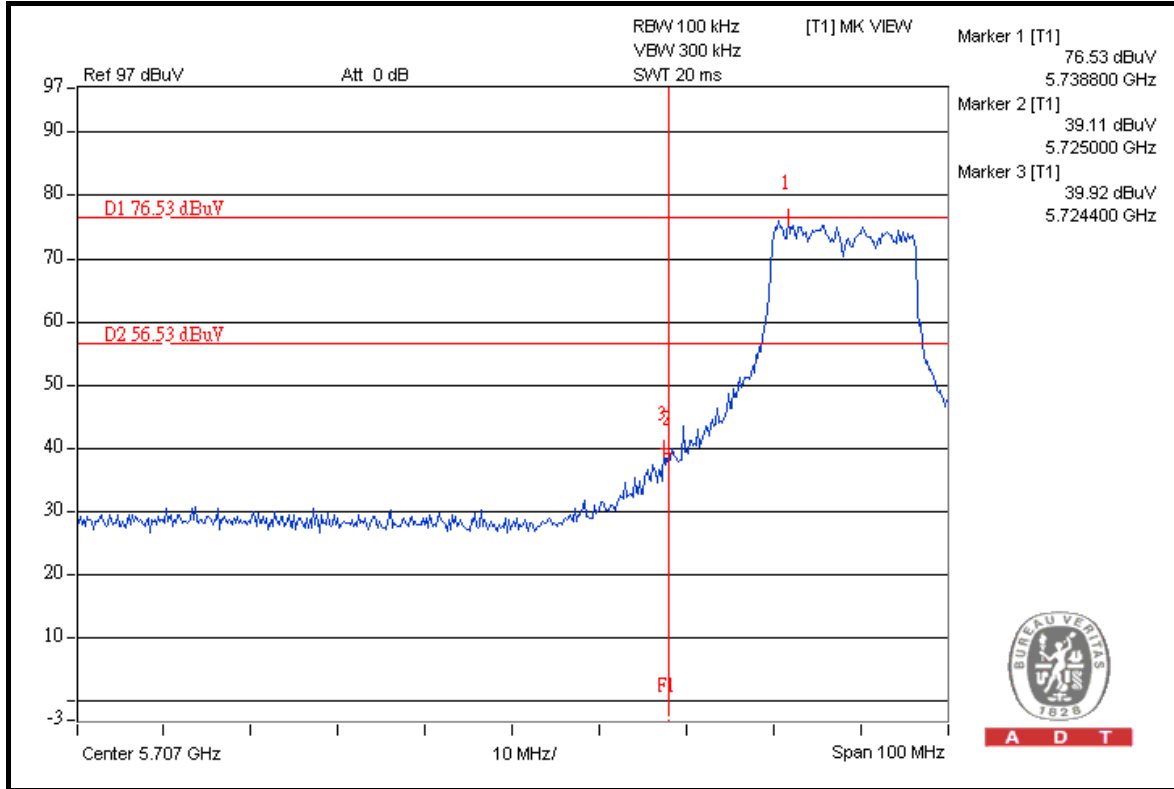
5.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

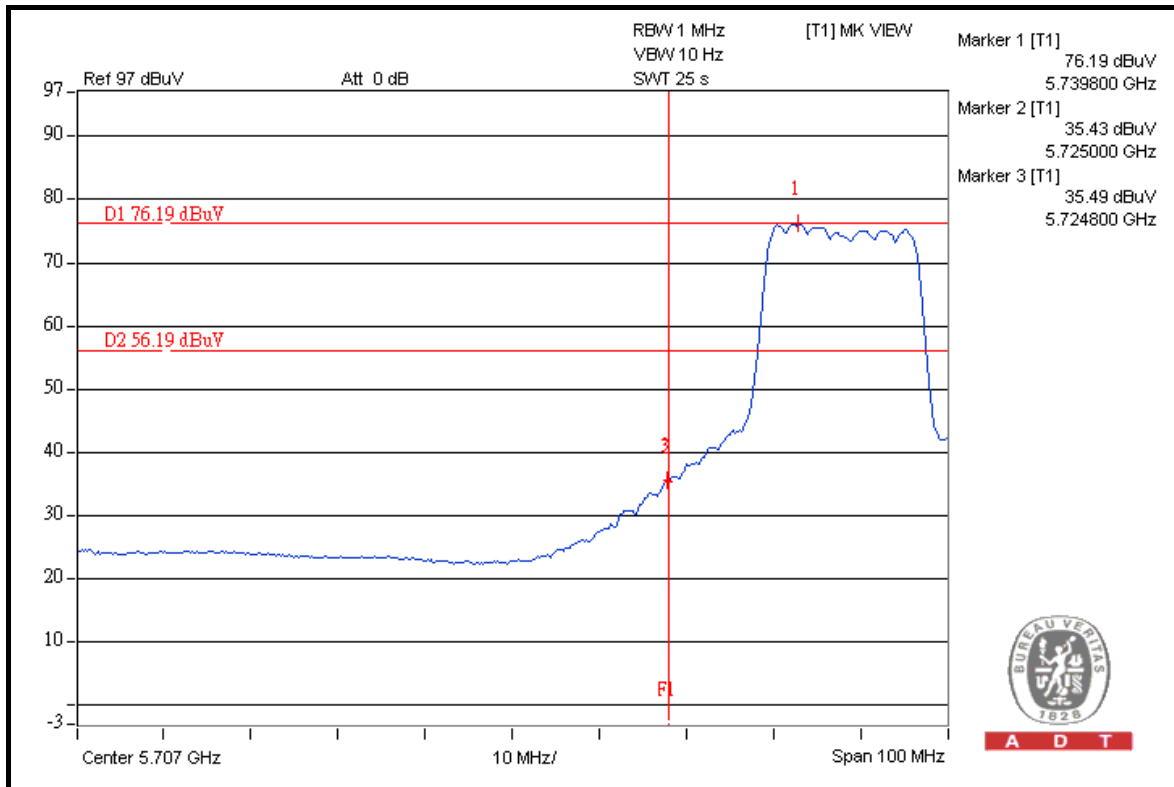


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802.11a



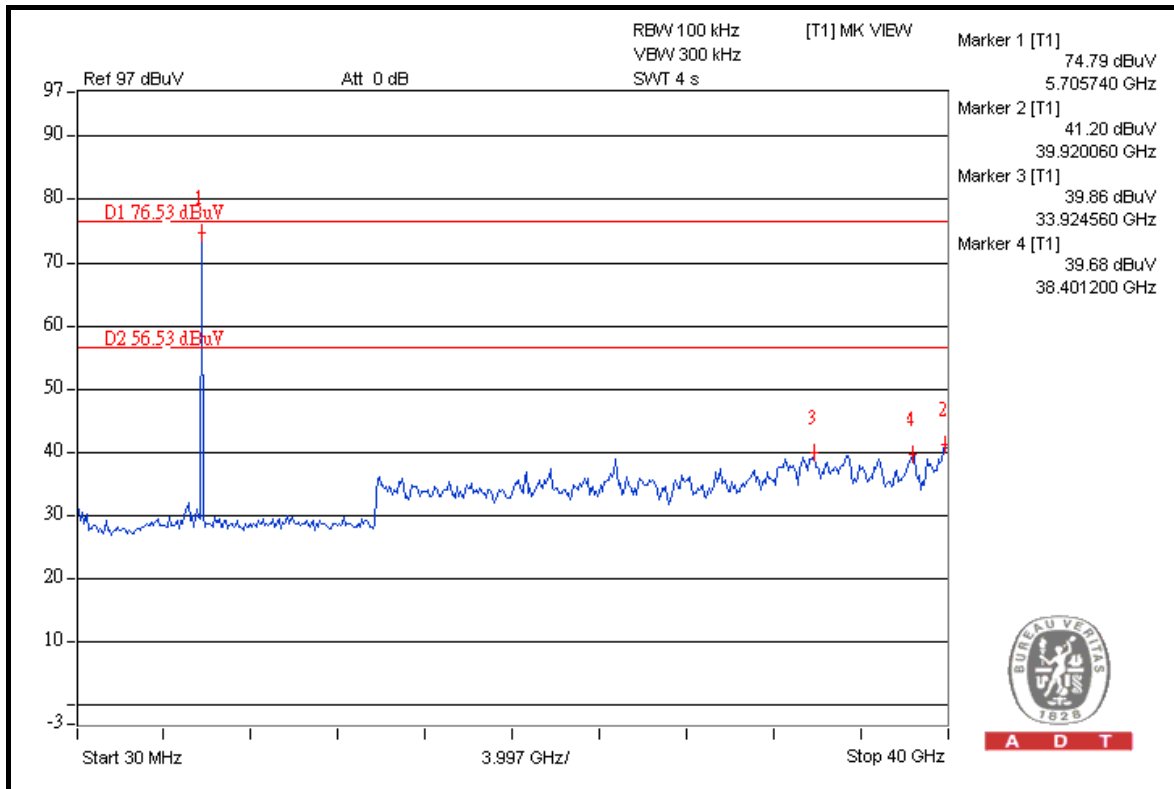
A D T



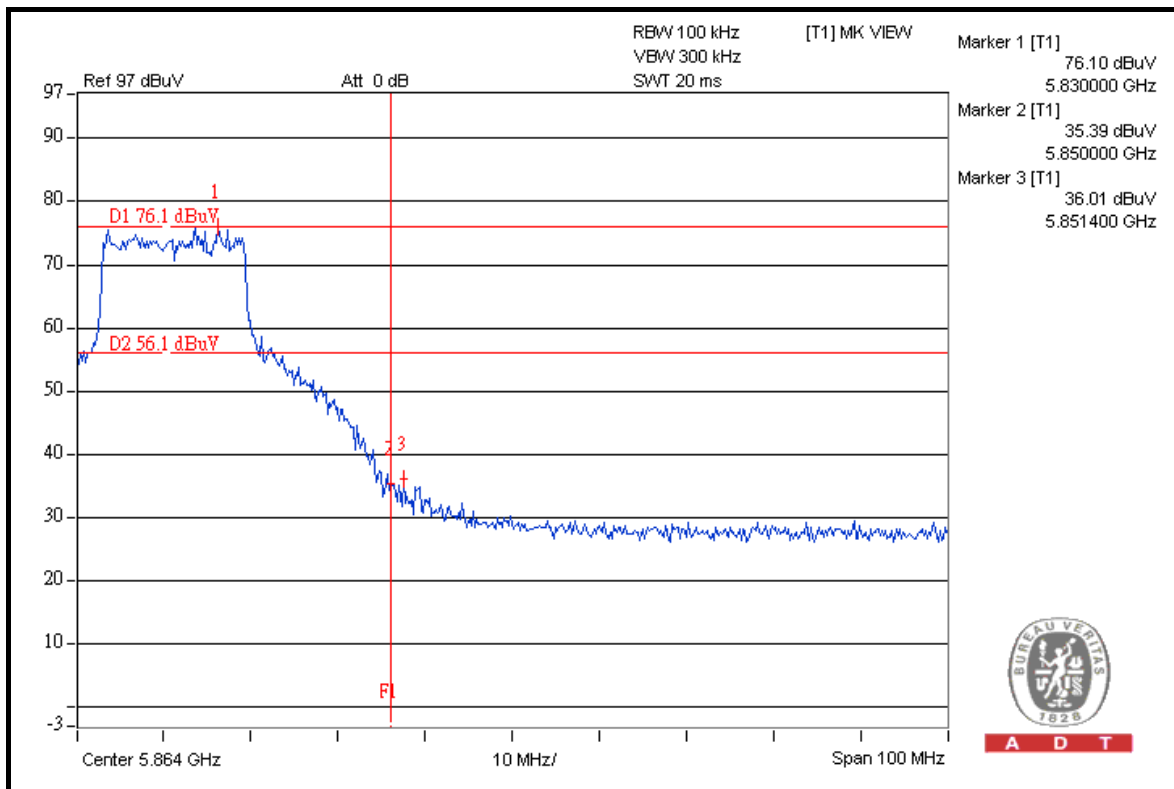
A D T



A D T



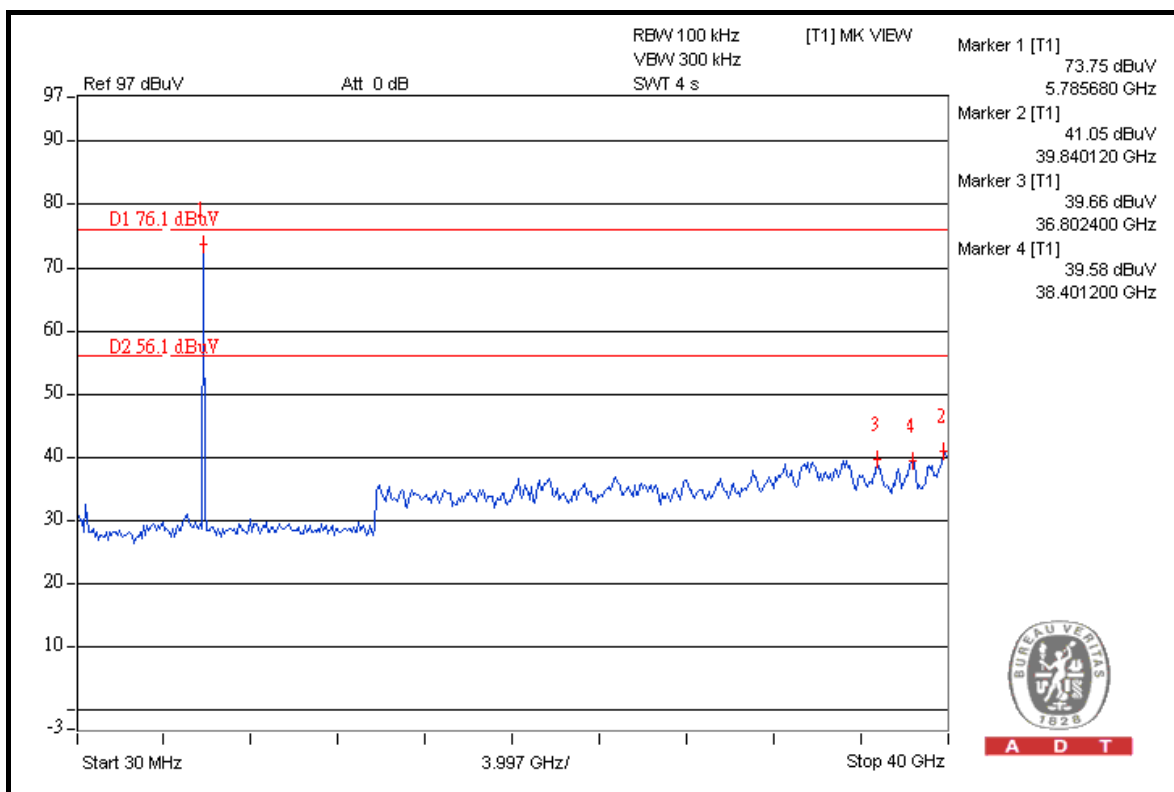
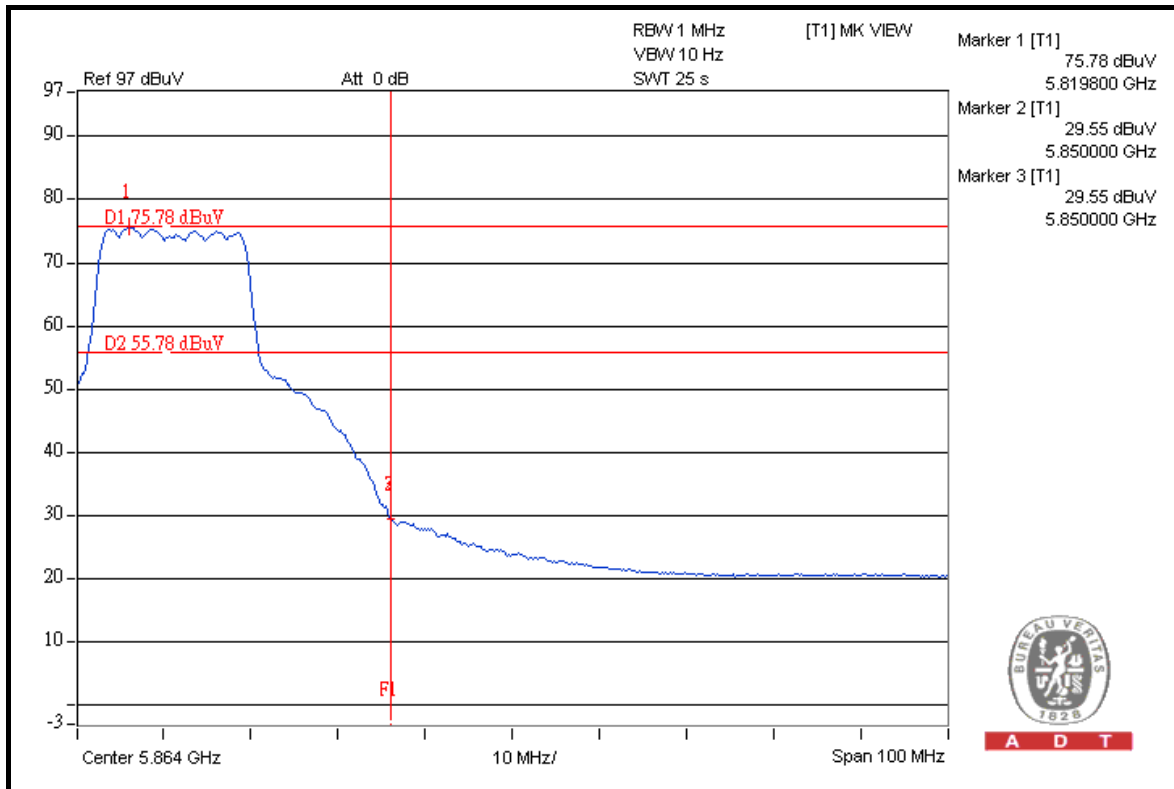
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A D T



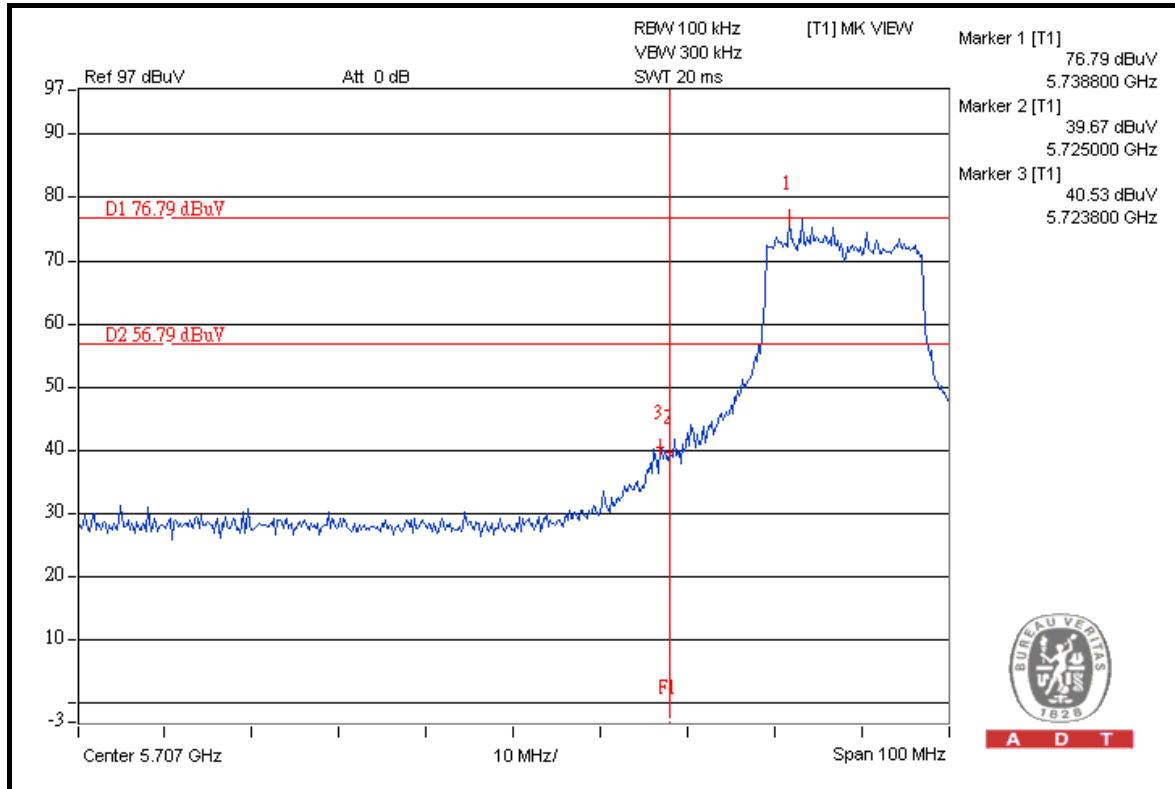
A D T



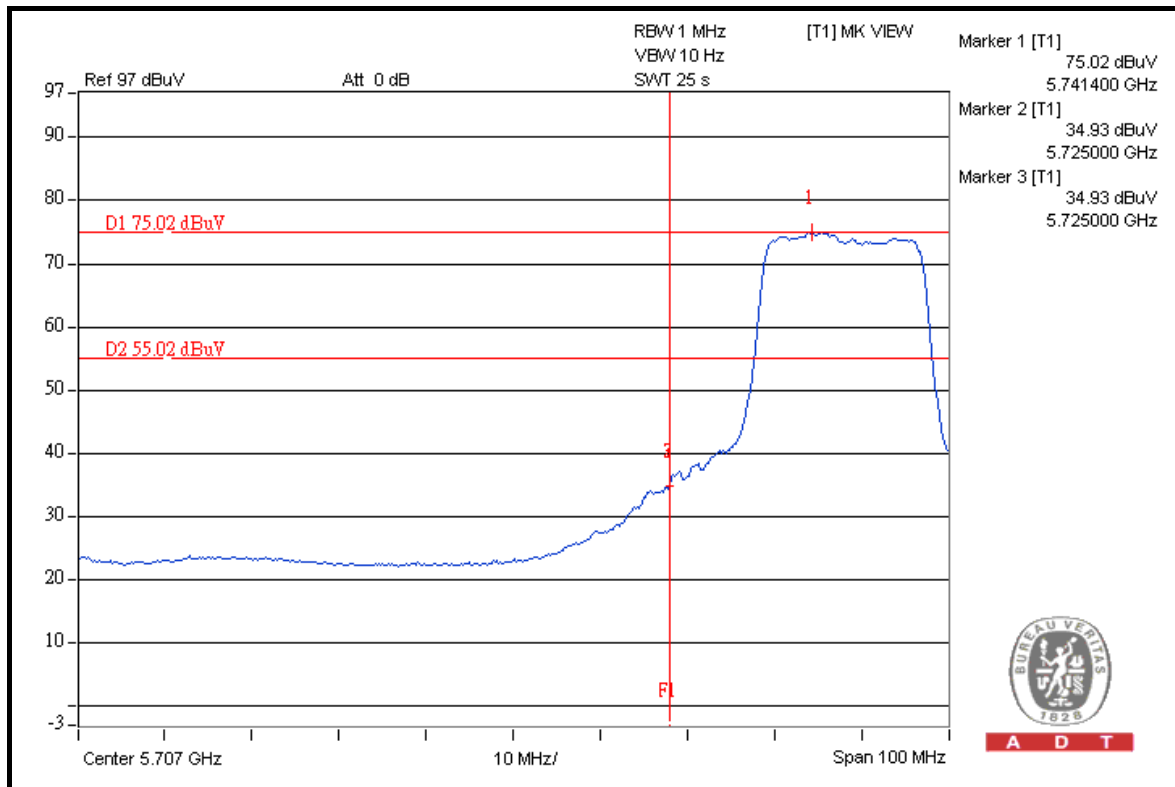


A D T

802.11n (20MHz)



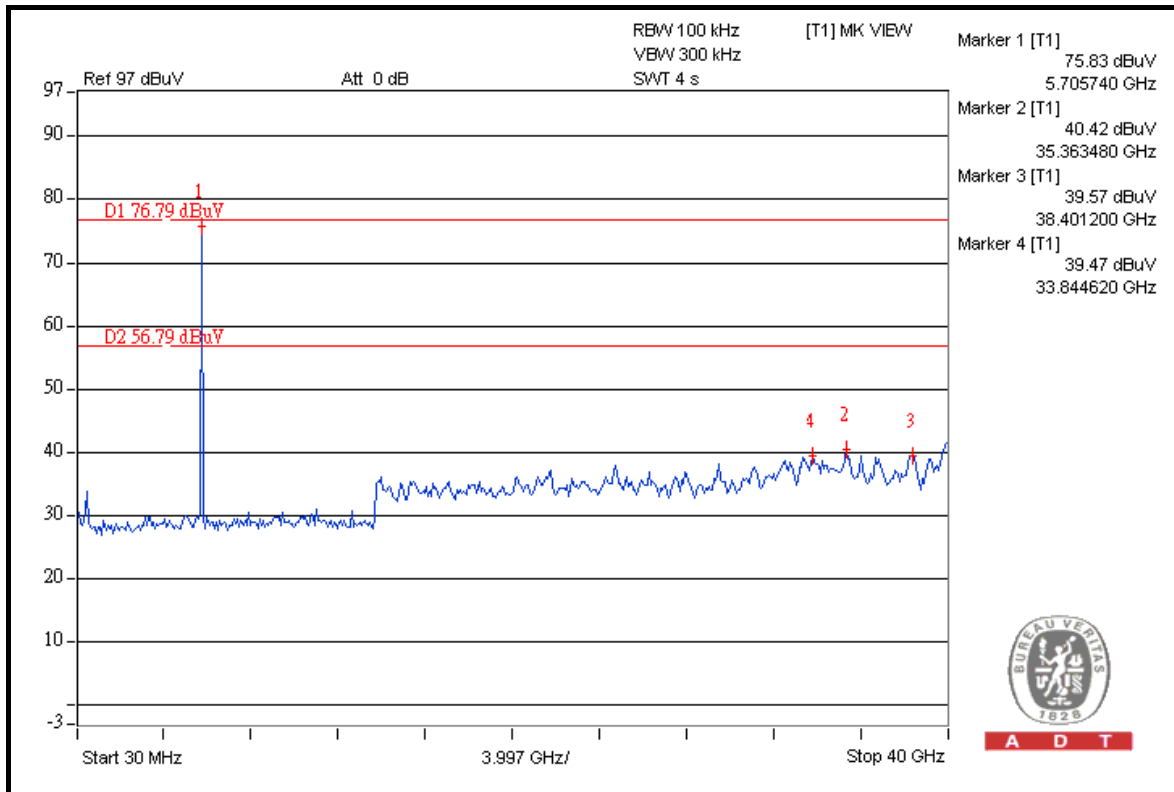
A D T



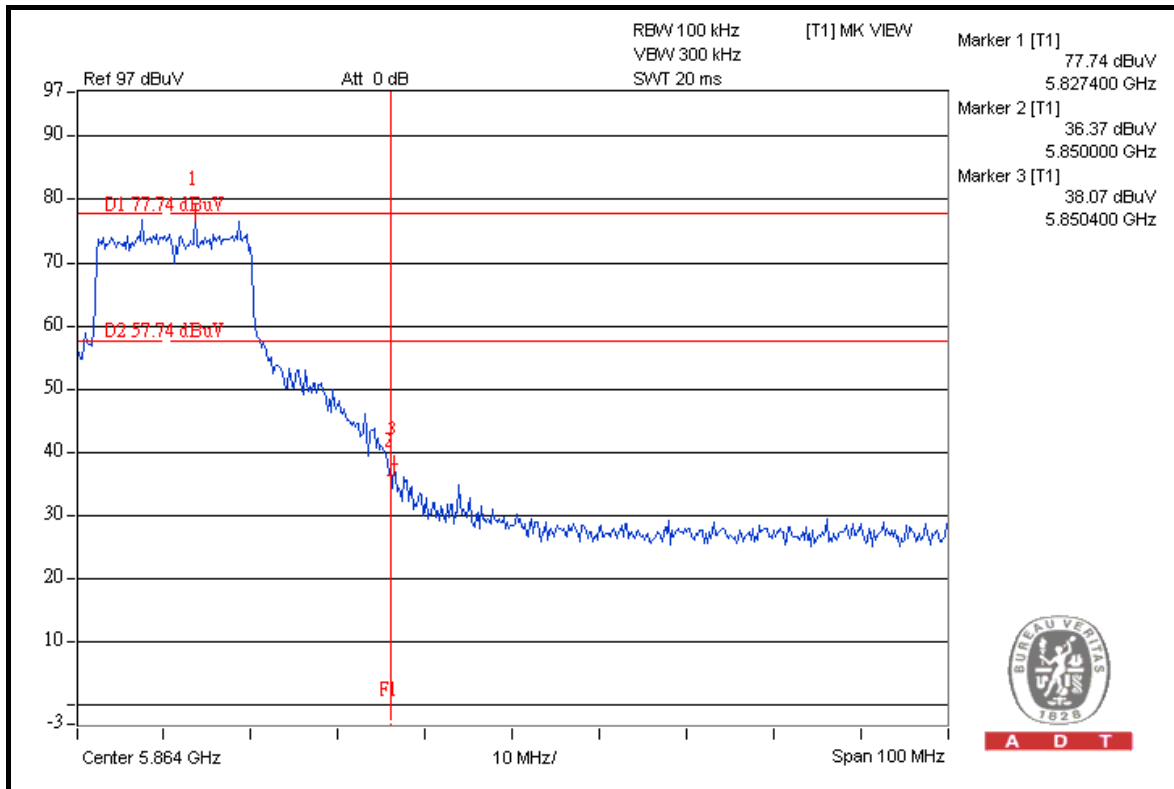
A D T



A D T



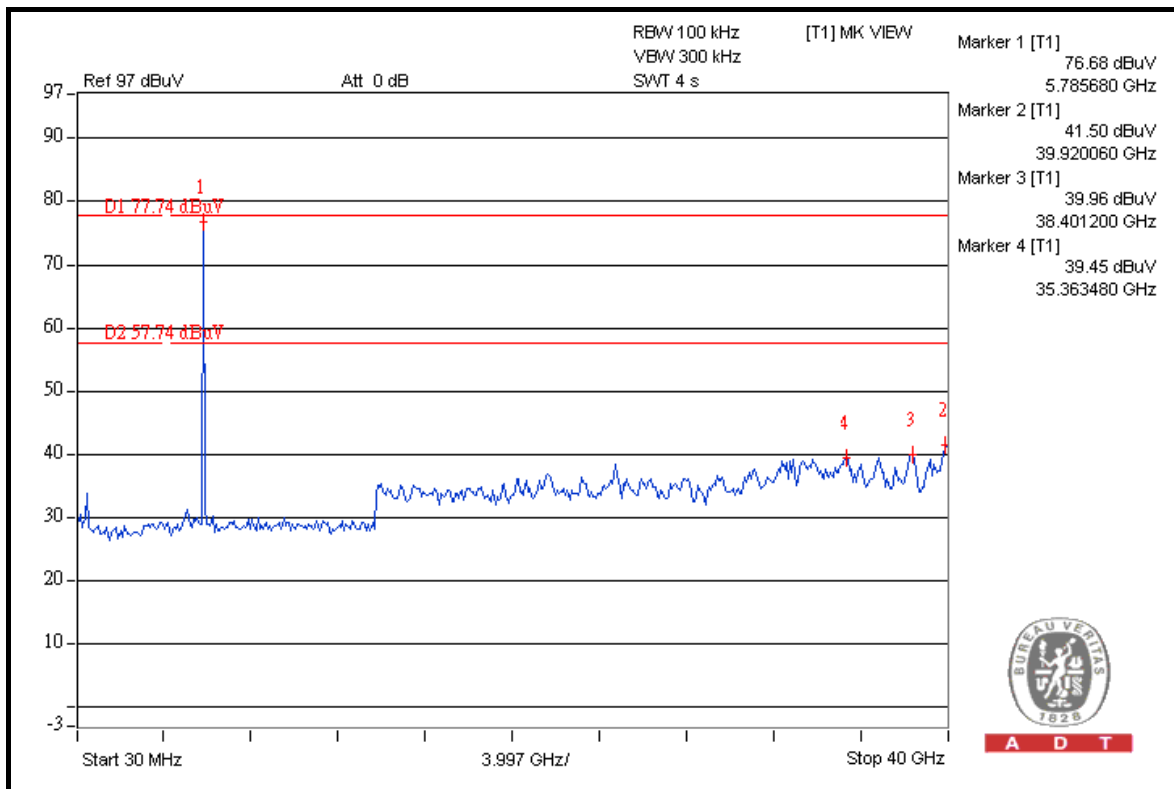
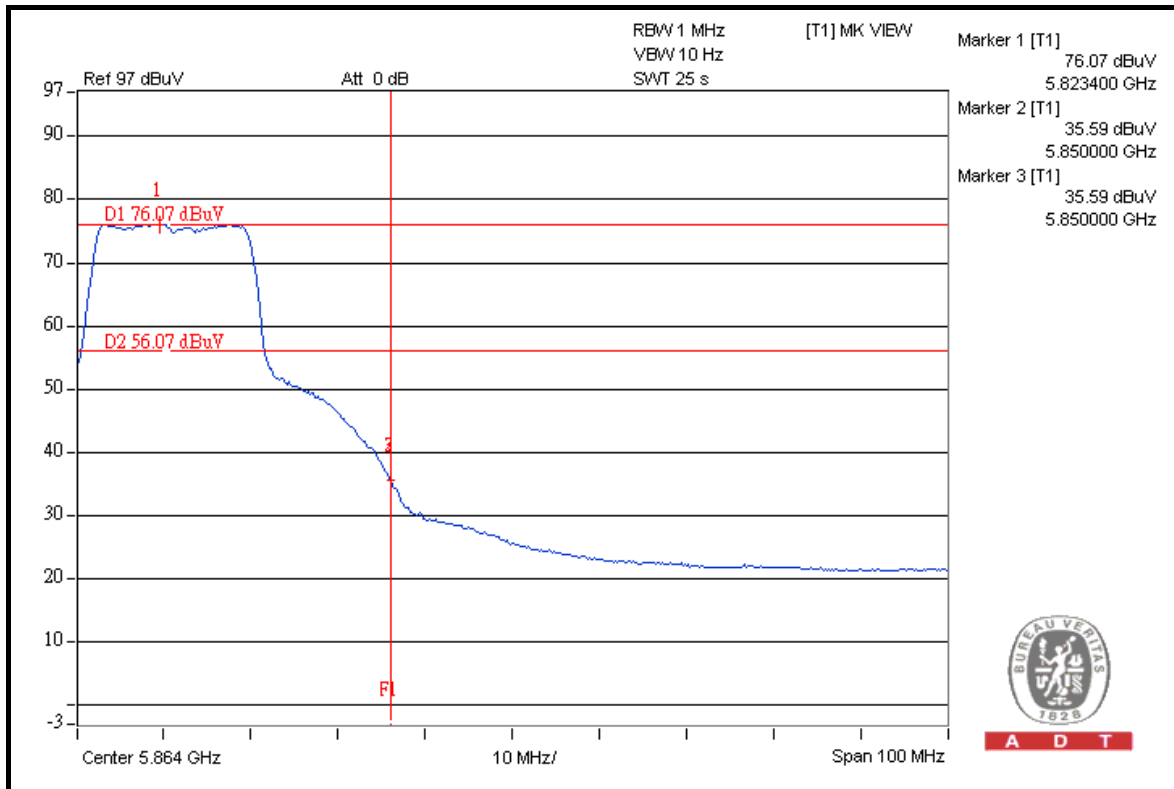
A D T



A D T



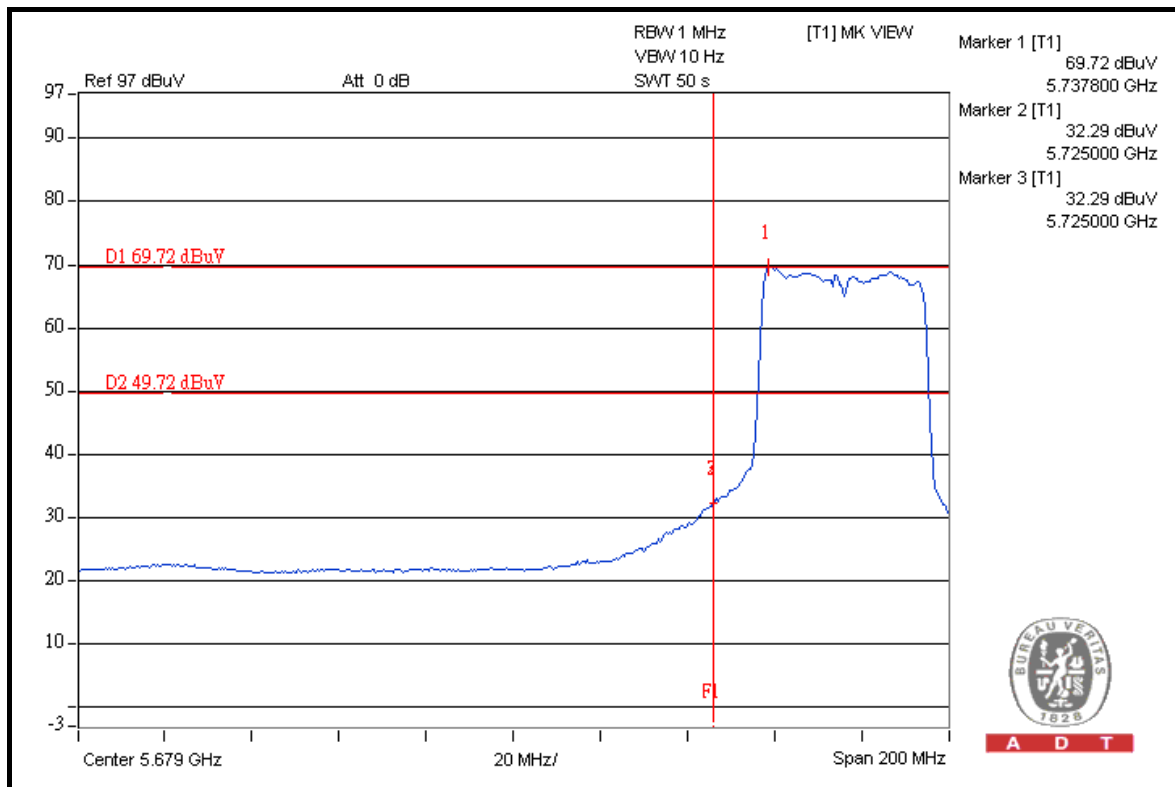
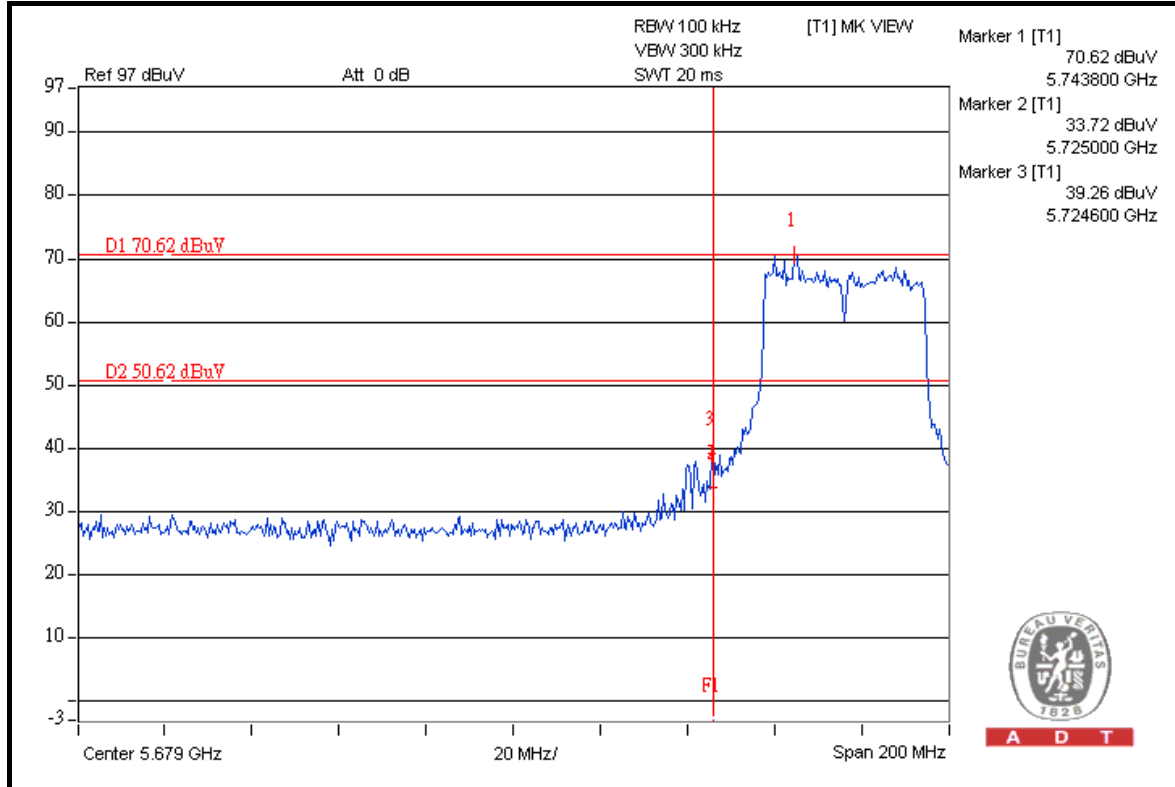
A D T





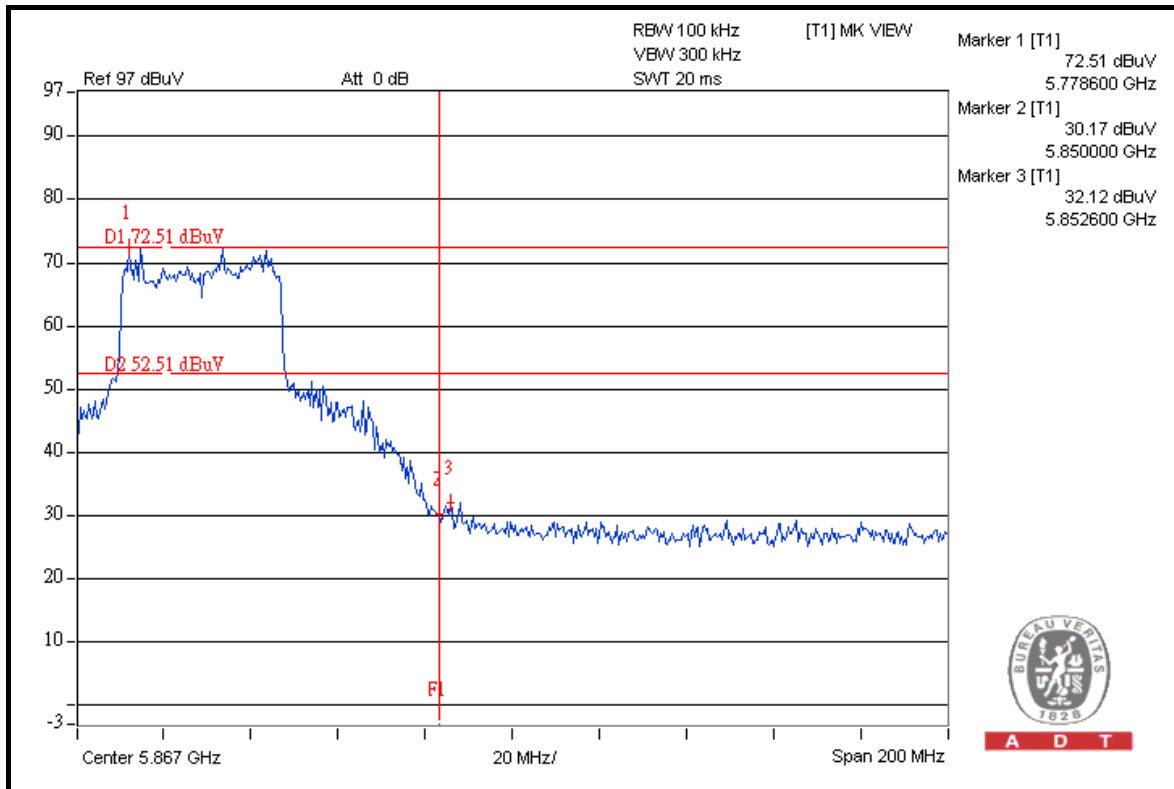
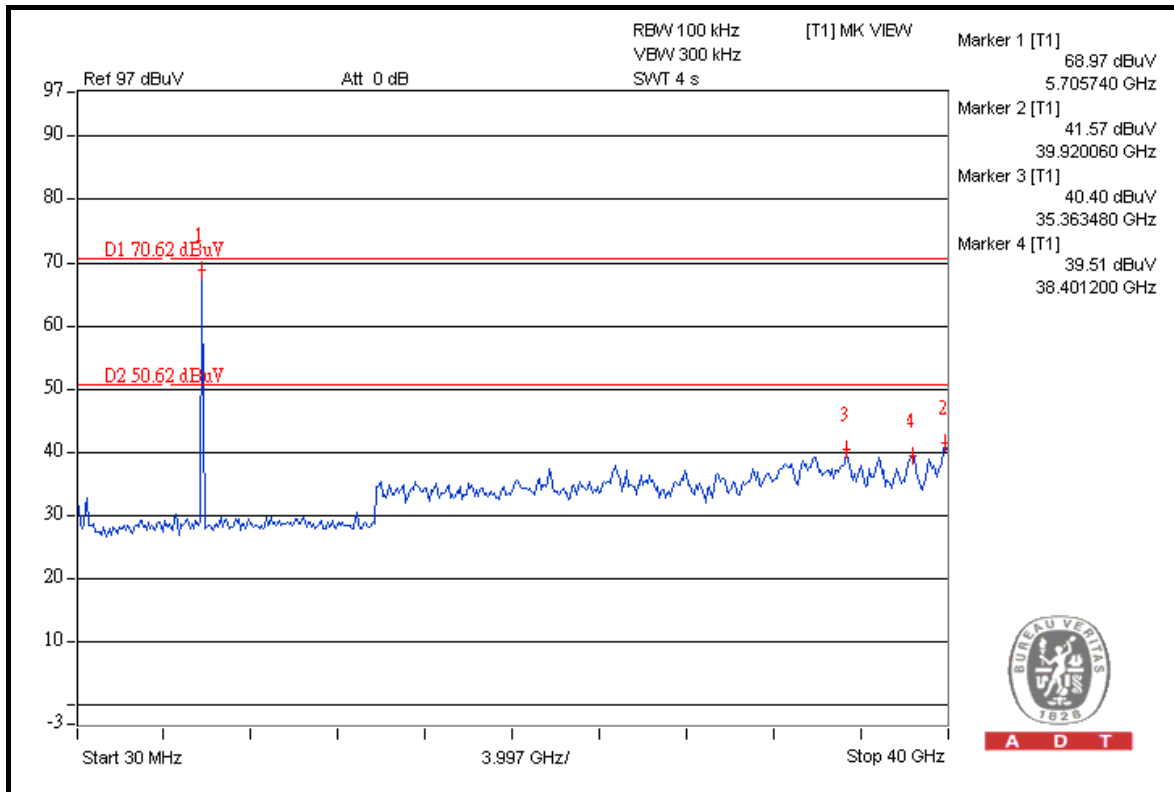
A D T

802.11n (40MHz)



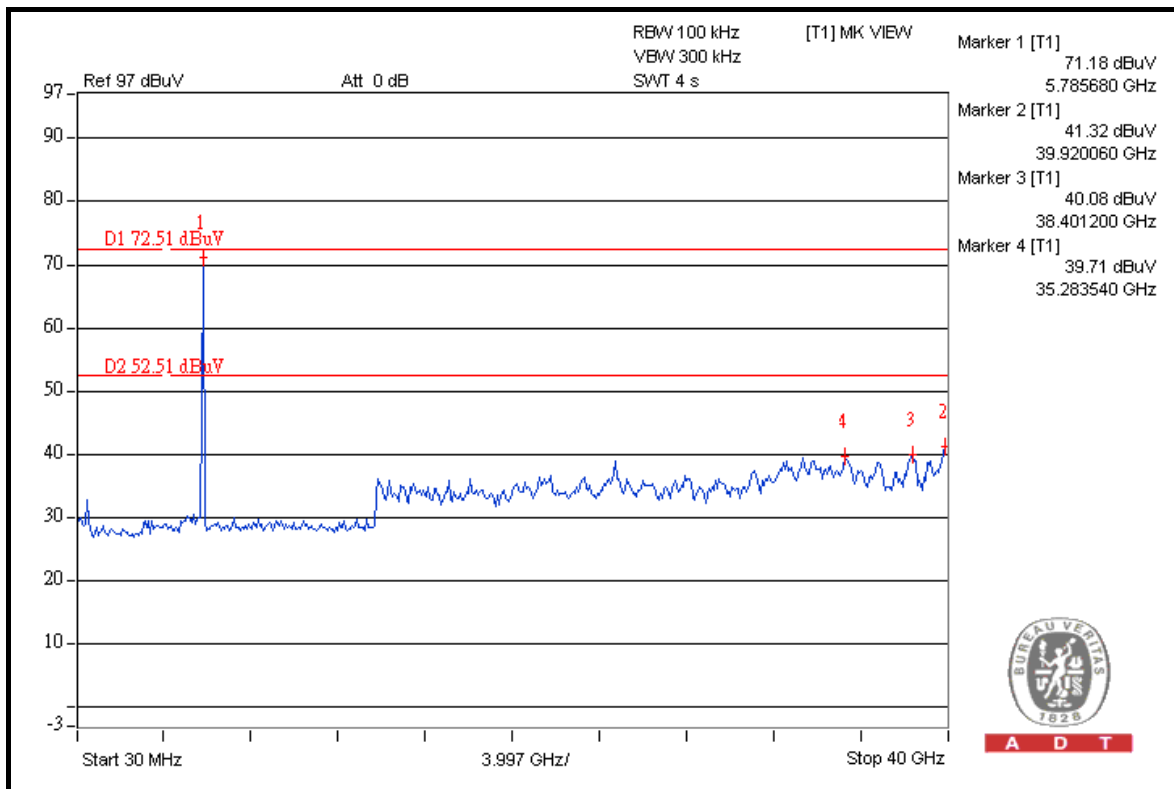
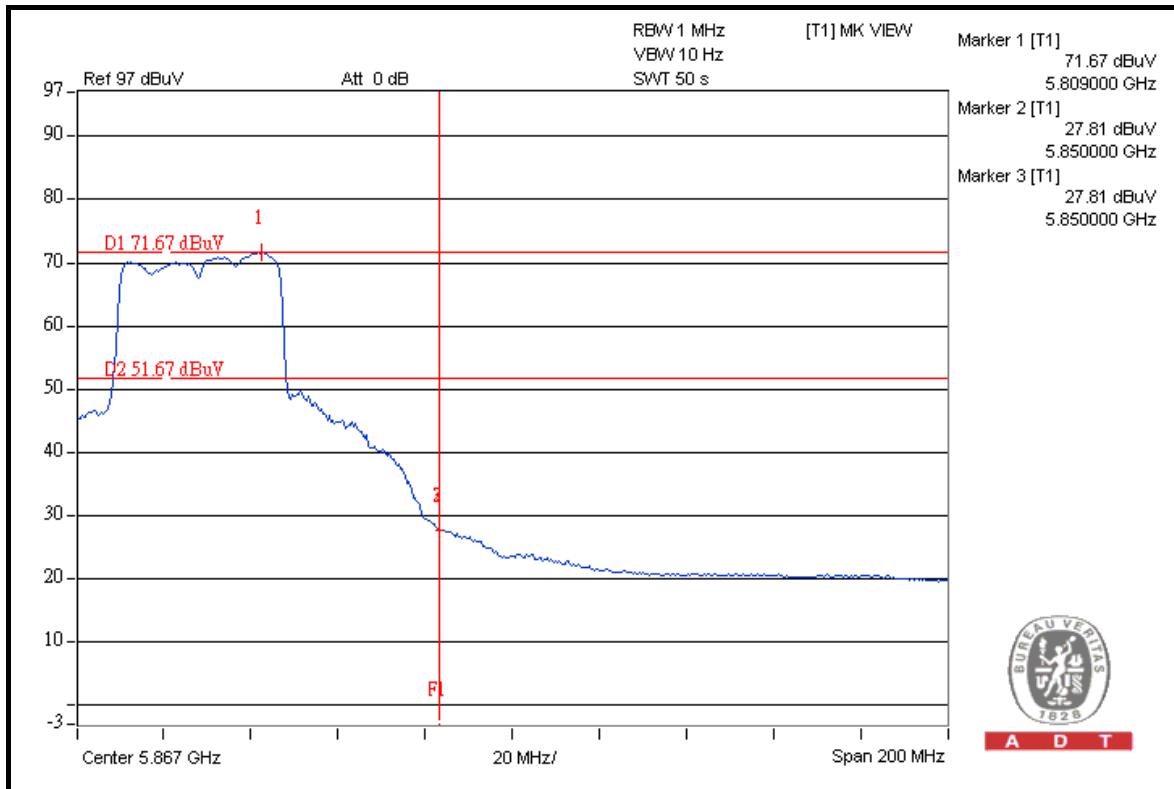


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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. 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: 886-3-3185050

Web Site: www.adt.com.tw

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 any modifications are made to the EUT by the lab during the test.

---END---