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FCC TEST REPORT (15.247)

REPORT NO.: RF971031L01

MODEL NO.: 74-4876-04

RECEIVED: Nov. 21, 2008

TESTED: Nov. 23 ~ Nov. 27, 2008

ISSUED: Dec. 12, 2008

APPLICANT: HON HAI Precision IND., CO., LTD.

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

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1. CERTIFICATION

PRODUCT: 802.11 a/b/g/n MiniPCI module

MODEL: 74-4876-04

BRAND: Cisco

APPLICANT: HON HAI Precision IND., CO., LTD.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Nov. 23 ~ Nov. 27, 2008

STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003

The above equipment (Model: 74-4876-04) 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 : Peggy Chen , **DATE:** Dec. 12, 2008
Peggy Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Dec. 12, 2008
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Dec. 12, 2008
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -24.89dB at 9.773MHz.
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 -1.00dB at 2483.50MHz
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.

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	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	802.11 a/b/g/n MiniPCI module
MODEL NO.	74-4876-04
FCC ID	MCL74487604
POWER SUPPLY	5Vdc from host equipment
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 Draft 802.11n: up to 300.0Mbps
FREQUENCY RANGE	2.4GHz: 2400.0 ~ 2483.5MHz 5.0GHz: 5150.0 ~ 5350.0MHz, 5470.0 ~ 5725.0MHz, 5725.0 ~ 5850.0MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) 5.0GHz: 5150 ~ 5350MHz: 8 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz) 5470 ~ 5725MHz: 8 for 802.11a, draft 802.11n (20MHz) 3 for draft 802.11n (40MHz) 5725 ~ 5850MHz: 5 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)
OUTPUT POWER	323.991mW for 2400.0 ~ 2483.5MHz 40.741mW for 5150.0 ~ 5350.0MHz 40.461mW for 5470.0 ~ 5725.0MHz 324.741mW for 5725.0 ~ 5850.0MHz
ANTENNA TYPE	2.4GHz: Dipole antenna with 2.0dBi gain 5.0GHz: Dipole antenna with 5.0dBi gain
DATA CABLE	NA
I/O PORTS	NA
ACCESSORY DEVICES	NA

NOTE:

1. The EUT is an 802.11 a/b/g/n MiniPCI module. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF971031L01
WLAN 802.11a, draft 802.11n (5725~5825 MHz)		
WLAN 802.11a, draft 802.11n (5150~ 5350MHz, 5470 ~ 5725MHz)	FCC Part 15, Subpart E (Section 15.407)	RF971031L01-1
WLAN 802.11a, draft 802.11n (5250~ 5350MHz, 5470 ~ 5725MHz) (For DFS report)	FCC Part 15, Subpart E (Section 15.407)	RF971031L01-2

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

Frequency Band (MHz)	2400~2483.5	5150~5350	5470 ~ 5725	5725~5850
802.11b	√	-	-	-
802.11g	√	-	-	-
802.11a	-	√	√	√
Draft 802.11n (20MHz)	√	√	√	√
Draft 802.11n (40MHz)	√	√	√	√

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

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

4. 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 draft 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 draft 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 ~ 5825MHz):

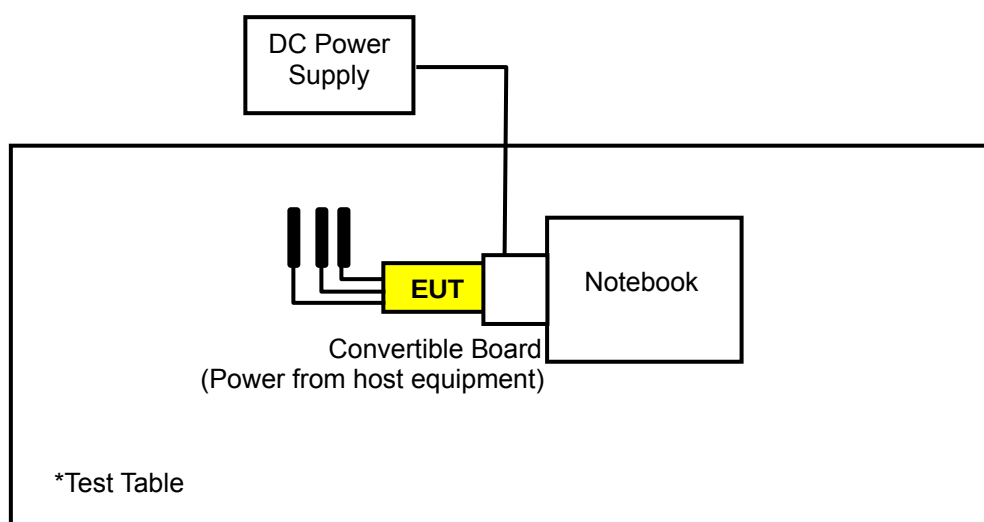
5 channels are provided for 802.11a, draft 802.11n (20MHz):

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	30.0	2TX

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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	14.444	2TX

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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	14.444	2TX

BANDEDGE MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	1TX
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	30.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	30.0	2TX

FOR 5.725 ~ 5.825GHz:

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

Where **PLC**: Power Line Conducted Emission **RE<1G**: Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz **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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX

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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	149 to 165	157	OFDM	BPSK	14.444	2TX

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, TX function and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
Draft 802.11n (20MHz)	149 to 165	157	OFDM	BPSK	14.444	2TX

BANDEDGE MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	149 to 165	149, 165	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX
Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX
Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	14.444	2TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0	1TX
Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	30.0	2TX

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.

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	PC39062AA000	NA	FCC DoC Approved
2	POWER SUPPLY	TOP WARD	6306A	713585	NA

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

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 was placed under testing table.

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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC 7450F-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.

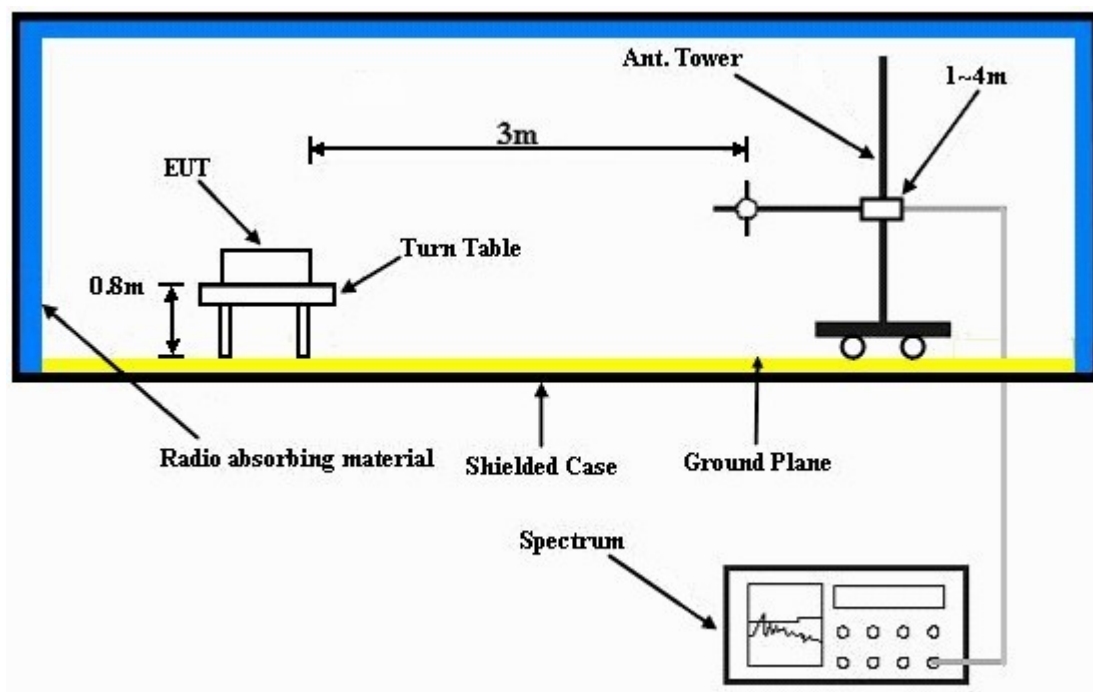
NOTE:

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 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 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

- Plugged the EUT into the notebook system and placed on a testing table
- The notebook ran a test program (provided by manufacturer) to enable all functions under transmission condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	57.66 PK	74.00	-16.34	1.22 H	115	24.60	33.06
2	2386.00	46.97 AV	54.00	-7.03	1.22 H	115	13.91	33.06
3	*2412.00	98.60 PK			1.22 H	115	65.42	33.18
4	*2412.00	94.06 AV			1.22 H	115	60.88	33.18
5	4824.00	47.39 PK	74.00	-26.61	1.19 H	203	8.24	39.15
6	4824.00	36.63 AV	54.00	-17.37	1.19 H	203	-2.52	39.15
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	2386.00	59.72 PK	74.00	-14.28	1.23 V	302	26.66	33.06
2	2386.00	48.90 AV	54.00	-5.10	1.23 V	302	15.84	33.06
3	*2412.00	110.69 PK			1.00 V	302	77.51	33.18
4	*2412.00	106.32 AV			1.00 V	302	73.14	33.18
5	4824.00	48.21 PK	74.00	-25.79	1.00 V	329	9.06	39.15
6	4824.00	39.92 AV	54.00	-14.08	1.00 V	329	0.77	39.15

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.74 PK			1.20 H	100	65.46	33.28
2	*2437.00	94.21 AV			1.20 H	100	60.93	33.28
3	4874.00	48.11 PK	74.00	-25.89	1.20 H	180	8.97	39.14
4	4874.00	36.93 AV	54.00	-17.07	1.20 H	180	-2.21	39.14
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	111.33 PK			1.00 V	208	78.05	33.28
2	*2437.00	106.75 AV			1.00 V	208	73.47	33.28
3	4874.00	49.22 PK	74.00	-24.78	1.08 V	360	10.08	39.14
4	4874.00	41.57 AV	54.00	-12.43	1.08 V	360	2.43	39.14

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.37 PK			1.33 H	95	65.99	33.38
2	*2462.00	94.99 AV			1.33 H	95	61.61	33.38
3	2483.50	59.24 PK	74.00	-14.76	1.33 H	95	25.78	33.46
4	2483.50	47.72 AV	54.00	-6.28	1.33 H	95	14.26	33.46
5	4924.00	47.75 PK	74.00	-26.25	1.13 H	159	8.40	39.35
6	4924.00	37.70 AV	54.00	-16.30	1.13 H	159	-1.65	39.35
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	110.77 PK			1.00 V	193	77.39	33.38
2	*2462.00	106.18 AV			1.00 V	193	72.80	33.38
3	2483.50	60.54 PK	74.00	-13.46	1.00 V	193	27.08	33.46
4	2483.50	51.10 AV	54.00	-2.90	1.00 V	193	17.64	33.46
5	4924.00	51.65 PK	74.00	-22.35	1.07 V	354	12.30	39.35
6	4924.00	46.46 AV	54.00	-7.54	1.07 V	354	7.11	39.35

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.

802.11g OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.59 PK	74.00	-13.41	1.38 H	95	27.51	33.08
2	2390.00	47.49 AV	54.00	-6.51	1.38 H	95	14.41	33.08
3	*2412.00	99.83 PK			1.38 H	95	66.65	33.18
4	*2412.00	89.21 AV			1.38 H	95	56.03	33.18
5	4824.00	46.53 PK	74.00	-27.47	1.38 H	180	7.38	39.15
6	4824.00	32.82 AV	54.00	-21.18	1.38 H	180	-6.33	39.15
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.41 PK	74.00	-3.59	1.00 V	295	37.33	33.08
2	2390.00	52.17 AV	54.00	-1.83	1.00 V	295	19.09	33.08
3	*2412.00	111.06 PK			1.00 V	297	77.88	33.18
4	*2412.00	100.84 AV			1.00 V	297	67.66	33.18
5	4824.00	46.13 PK	74.00	-27.87	1.00 V	180	6.98	39.15
6	4824.00	32.93 AV	54.00	-21.07	1.00 V	180	-6.22	39.15

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.75 PK			1.07 H	211	65.47	33.28
2	*2437.00	88.27 AV			1.07 H	211	54.99	33.28
3	4874.00	45.99 PK	74.00	-28.01	1.00 H	0	6.85	39.14
4	4874.00	32.81 AV	54.00	-21.19	1.00 H	0	-6.33	39.14
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	110.73 PK			1.00 V	213	77.45	33.28
2	*2437.00	100.07 AV			1.00 V	213	66.79	33.28
3	4874.00	46.56 PK	74.00	-27.44	1.00 V	360	7.42	39.14
4	4874.00	33.31 AV	54.00	-20.69	1.00 V	360	-5.83	39.14

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.14 PK			1.04 H	210	66.76	33.38
2	*2462.00	89.91 AV			1.04 H	210	56.53	33.38
3	2483.50	64.26 PK	74.00	-9.74	1.04 H	210	30.80	33.46
4	2483.50	48.82 AV	54.00	-5.18	1.04 H	210	15.36	33.46
5	4924.00	46.42 PK	74.00	-27.58	1.10 H	360	7.07	39.35
6	4924.00	32.99 AV	54.00	-21.01	1.10 H	360	-6.36	39.35
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	111.16 PK			1.19 V	212	77.78	33.38
2	*2462.00	100.14 AV			1.19 V	212	66.76	33.38
3	2483.50	71.99 PK	74.00	-2.01	1.00 V	209	38.53	33.46
4	2483.50	53.00 AV	54.00	-1.00	1.00 V	209	19.54	33.46
5	4924.00	46.66 PK	74.00	-27.34	1.00 V	180	7.31	39.35
6	4924.00	33.84 AV	54.00	-20.16	1.00 V	180	-5.51	39.35

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.

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.19 PK	74.00	-16.81	1.00 H	116	24.11	33.08
2	2390.00	46.92 AV	54.00	-7.08	1.00 H	116	13.84	33.08
3	*2412.00	96.84 PK			1.00 H	116	63.66	33.18
4	*2412.00	86.58 AV			1.00 H	116	53.40	33.18
5	4824.00	46.22 PK	74.00	-27.78	1.00 H	110	7.07	39.15
6	4824.00	33.16 AV	54.00	-20.84	1.00 H	110	-5.99	39.15
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	61.89 PK	74.00	-12.11	1.00 V	304	28.81	33.08
2	2390.00	50.02 AV	54.00	-3.98	1.00 V	304	16.94	33.08
3	*2412.00	108.81 PK			1.00 V	295	75.63	33.18
4	*2412.00	98.08 AV			1.00 V	295	64.90	33.18
5	4824.00	46.62 PK	74.00	-27.38	1.00 V	300	7.47	39.15
6	4824.00	33.34 AV	54.00	-20.66	1.00 V	300	-5.81	39.15

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	96.95 PK			1.09 H	211	63.67	33.28
2	*2437.00	86.51 AV			1.09 H	211	53.23	33.28
3	4874.00	45.73 PK	74.00	-28.27	1.08 H	0	6.59	39.14
4	4874.00	32.61 AV	54.00	-21.39	1.08 H	0	-6.53	39.14
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	108.94 PK			1.00 V	213	75.66	33.28
2	*2437.00	98.28 AV			1.00 V	213	65.00	33.28
3	4874.00	46.37 PK	74.00	-27.63	1.00 V	210	7.23	39.14
4	4874.00	33.15 AV	54.00	-20.85	1.00 V	210	-5.99	39.14

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.18 PK			1.07 H	211	64.80	33.38
2	*2462.00	87.75 AV			1.07 H	211	54.37	33.38
3	2483.50	58.07 PK	74.00	-15.93	1.07 H	211	24.61	33.46
4	2483.50	47.77 AV	54.00	-6.23	1.07 H	211	14.31	33.46
5	4924.00	46.53 PK	74.00	-27.47	1.00 H	100	7.18	39.35
6	4924.00	33.09 AV	54.00	-20.91	1.00 H	100	-6.26	39.35
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	108.95 PK			1.20 V	212	75.57	33.38
2	*2462.00	98.50 AV			1.20 V	212	65.12	33.38
3	2483.50	66.57 PK	74.00	-7.43	1.00 V	208	33.11	33.46
4	2483.50	52.10 AV	54.00	-1.90	1.00 V	208	18.64	33.46
5	4924.00	46.97 PK	74.00	-27.03	1.00 V	300	7.62	39.35
6	4924.00	33.62 AV	54.00	-20.38	1.00 V	300	-5.73	39.35

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.

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.27 PK	74.00	-16.73	1.40 H	210	24.19	33.08
2	2390.00	47.09 AV	54.00	-6.91	1.40 H	210	14.01	33.08
3	*2412.00	99.23 PK			1.40 H	210	66.05	33.18
4	*2412.00	87.44 AV			1.40 H	210	54.26	33.18
5	4824.00	47.55 PK	74.00	-26.45	1.00 H	0	8.40	39.15
6	4824.00	33.77 AV	54.00	-20.23	1.00 H	0	-5.38	39.15
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	65.80 PK	74.00	-8.20	1.00 V	296	32.72	33.08
2	2390.00	51.49 AV	54.00	-2.51	1.00 V	296	18.41	33.08
3	*2412.00	111.24 PK			1.00 V	294	78.06	33.18
4	*2412.00	99.19 AV			1.00 V	294	66.01	33.18
5	4824.00	47.02 PK	74.00	-26.98	1.00 V	180	7.87	39.15
6	4824.00	33.55 AV	54.00	-20.45	1.00 V	180	-5.60	39.15

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.01 PK			1.10 H	24	65.73	33.28
2	*2437.00	87.62 AV			1.10 H	24	54.34	33.28
3	4874.00	46.02 PK	74.00	-27.98	1.10 H	180	6.88	39.14
4	4874.00	33.05 AV	54.00	-20.95	1.10 H	180	-6.09	39.14
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	111.86 PK			1.00 V	223	78.58	33.28
2	*2437.00	99.74 AV			1.00 V	223	66.46	33.28
3	4874.00	46.31 PK	74.00	-27.69	1.10 V	180	7.17	39.14
4	4874.00	33.18 AV	54.00	-20.82	1.10 V	180	-5.96	39.14

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.85 PK			1.09 H	11	65.47	33.38
2	*2462.00	87.24 AV			1.09 H	11	53.86	33.38
3	2483.50	59.64 PK	74.00	-14.36	1.09 H	11	26.18	33.46
4	2483.50	47.72 AV	54.00	-6.28	1.09 H	11	14.26	33.46
5	4924.00	46.66 PK	74.00	-27.34	1.00 H	10	7.31	39.35
6	4924.00	33.29 AV	54.00	-20.71	1.00 H	10	-6.06	39.35
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	111.27 PK			1.00 V	230	77.89	33.38
2	*2462.00	99.23 AV			1.00 V	230	65.85	33.38
3	2483.50	65.10 PK	74.00	-8.90	1.00 V	211	31.64	33.46
4	2483.50	52.03 AV	54.00	-1.97	1.00 V	211	18.57	33.46
5	4924.00	47.20 PK	74.00	-26.80	1.00 V	188	7.85	39.35
6	4924.00	34.00 AV	54.00	-20.00	1.00 V	188	-5.35	39.35

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.

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.86 PK	74.00	-16.14	1.20 H	95	24.78	33.08
2	2390.00	47.48 AV	54.00	-6.52	1.20 H	95	14.40	33.08
3	*2422.00	94.25 PK			1.20 H	95	61.03	33.22
4	*2422.00	84.25 AV			1.20 H	95	51.03	33.22
5	4844.00	46.03 PK	74.00	-27.97	1.00 H	360	6.88	39.15
6	4844.00	32.19 AV	54.00	-21.81	1.00 H	360	-6.96	39.15
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	64.84 PK	74.00	-9.16	1.00 V	182	31.76	33.08
2	2390.00	51.97 AV	54.00	-2.03	1.00 V	182	18.89	33.08
3	*2422.00	104.84 PK			1.00 V	190	71.62	33.22
4	*2422.00	94.50 AV			1.00 V	190	61.28	33.22
5	4844.00	47.00 PK	74.00	-27.00	1.00 V	180	7.85	39.15
6	4844.00	33.22 AV	54.00	-20.78	1.00 V	180	-5.93	39.15

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	94.66 PK			1.18 H	98	61.38	33.28
2	*2437.00	84.71 AV			1.18 H	98	51.43	33.28
3	4874.00	45.99 PK	74.00	-28.01	1.00 H	360	6.85	39.14
4	4874.00	32.82 AV	54.00	-21.18	1.00 H	360	-6.32	39.14
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	105.14 PK			1.00 V	210	71.86	33.28
2	*2437.00	95.08 AV			1.00 V	210	61.80	33.28
3	4874.00	46.94 PK	74.00	-27.06	1.00 V	0	7.80	39.14
4	4874.00	34.26 AV	54.00	-19.74	1.00 V	0	-4.88	39.14

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	94.51 PK			1.19 H	97	61.17	33.34
2	*2452.00	84.06 AV			1.19 H	97	50.72	33.34
3	2483.50	57.76 PK	74.00	-16.24	1.19 H	97	24.30	33.46
4	2483.50	48.04 AV	54.00	-5.96	1.19 H	97	14.58	33.46
5	4904.00	46.81 PK	74.00	-27.19	1.00 H	0	7.63	39.18
6	4904.00	32.46 AV	54.00	-21.54	1.00 H	0	-6.72	39.18
7	#5594.00	56.23 PK	74.51	-18.28	1.05 H	280	15.68	40.54
8	#5594.00	50.99 AV	64.06	-13.07	1.05 H	280	10.44	40.54
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	104.94 PK			1.00 V	196	71.60	33.34
2	*2452.00	94.87 AV			1.00 V	196	61.53	33.34
3	2483.50	66.94 PK	74.00	-7.06	1.00 V	302	33.48	33.46
4	2483.50	52.69 AV	54.00	-1.31	1.00 V	302	19.23	33.46
5	4904.00	46.07 PK	74.00	-27.93	1.00 V	180	6.89	39.18
6	4904.00	33.13 AV	54.00	-20.87	1.00 V	180	-6.05	39.18

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 radiated frequency is out the restricted band.

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.14 PK	74.00	-14.86	1.06 H	355	26.06	33.08
2	2390.00	47.51 AV	54.00	-6.49	1.06 H	355	14.43	33.08
3	*2422.00	94.79 PK			1.06 H	355	61.57	33.22
4	*2422.00	83.78 AV			1.06 H	355	50.56	33.22
5	4844.00	46.03 PK	74.00	-27.97	1.07 H	100	6.88	39.15
6	4844.00	32.59 AV	54.00	-21.41	1.07 H	100	-6.56	39.15
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	*2422.00	106.66 PK			1.00 V	190	73.44	33.22
2	*2422.00	95.83 AV			1.00 V	190	62.61	33.22
3	2483.50	65.38 PK	74.00	-8.62	1.00 V	192	31.92	33.46
4	2483.50	52.96 AV	54.00	-1.04	1.00 V	192	19.50	33.46
5	4844.00	46.90 PK	74.00	-27.10	1.00 V	100	7.75	39.15
6	4844.00	33.27 AV	54.00	-20.73	1.00 V	100	-5.88	39.15

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	94.11 PK			1.10 H	314	60.83	33.28
2	*2437.00	83.04 AV			1.10 H	314	49.76	33.28
3	4874.00	46.26 PK	74.00	-27.74	1.00 H	0	7.12	39.14
4	4874.00	32.71 AV	54.00	-21.29	1.00 H	0	-6.43	39.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.21 PK			1.00 V	211	73.93	33.28
2	*2437.00	95.88 AV			1.00 V	211	62.60	33.28
3	4874.00	46.76 PK	74.00	-27.24	1.10 V	180	7.62	39.14
4	4874.00	33.95 AV	54.00	-20.05	1.10 V	180	-5.19	39.14

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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 66%RH 998hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	93.71 PK			1.45 H	84	60.37	33.34
2	*2452.00	82.84 AV			1.45 H	84	49.50	33.34
3	2483.50	57.40 PK	74.00	-16.60	1.45 H	84	23.94	33.46
4	2483.50	47.58 AV	54.00	-6.42	1.45 H	84	14.12	33.46
5	4904.00	45.65 PK	74.00	-28.35	1.08 H	180	6.47	39.18
6	4904.00	32.64 AV	54.00	-21.36	1.08 H	180	-6.54	39.18
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	106.62 PK			1.00 V	244	73.28	33.34
2	*2452.00	95.91 AV			1.00 V	244	62.57	33.34
3	2483.50	65.87 PK	74.00	-8.13	1.00 V	321	32.41	33.46
4	2483.50	52.62 AV	54.00	-1.38	1.00 V	321	19.16	33.46
5	4904.00	46.03 PK	74.00	-27.97	1.00 V	180	6.85	39.18
6	4904.00	33.13 AV	54.00	-20.87	1.00 V	180	-6.05	39.18

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 : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1023hPa	TESTED BY	Antony Lee

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	97.95	38.74 QP	43.50	-4.76	2.00 H	274	29.44	9.31
2	333.21	32.72 QP	46.00	-13.28	1.00 H	109	18.27	14.45
3	529.58	41.15 QP	46.00	-4.85	2.00 H	70	21.01	20.14
4	667.63	42.08 QP	46.00	-3.92	1.00 H	70	19.62	22.46
5	749.29	37.61 QP	46.00	-8.39	1.00 H	64	13.68	23.93
6	924.27	41.81 QP	46.00	-4.19	1.25 H	85	15.51	26.29
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	214.61	30.45 QP	43.50	-13.05	1.00 V	37	19.20	11.24
2	397.37	36.40 QP	46.00	-9.60	1.00 V	163	20.41	16.00
3	529.58	40.36 QP	46.00	-5.64	1.50 V	130	20.22	20.14
4	659.85	33.56 QP	46.00	-12.44	1.00 V	121	11.17	22.40
5	836.78	36.46 QP	46.00	-9.54	1.00 V	103	10.91	25.55
6	924.27	38.94 QP	46.00	-7.06	1.25 V	118	12.65	26.29

- 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 (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 19, 2008	Nov. 18, 2009
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Dec. 04, 2008	Dec. 03, 2009
Software ADT	ADT_Cond_ V7.3.6	NA	NA	NA

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

4.2.3 TEST PROCEDURES

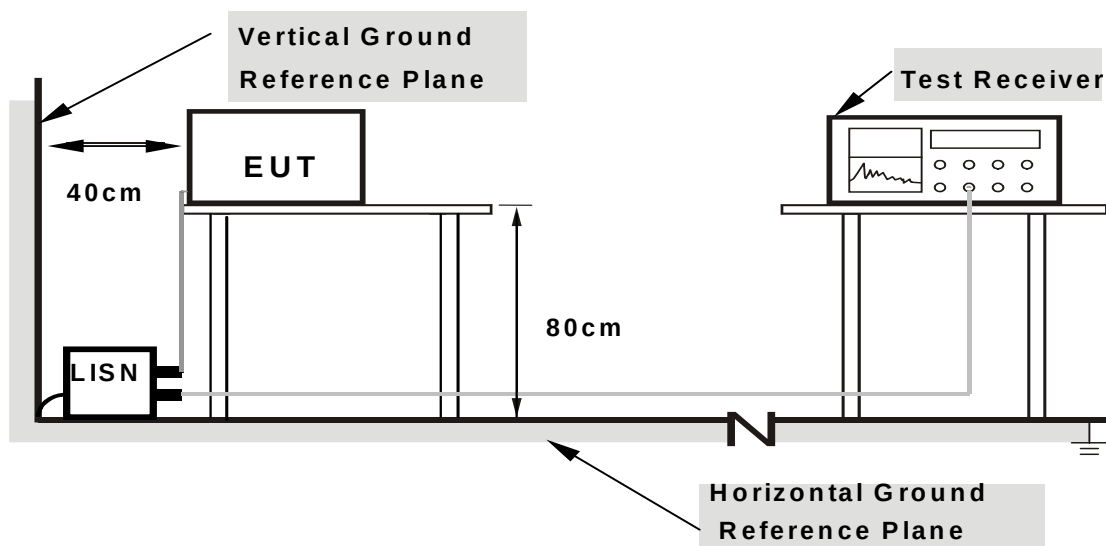
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

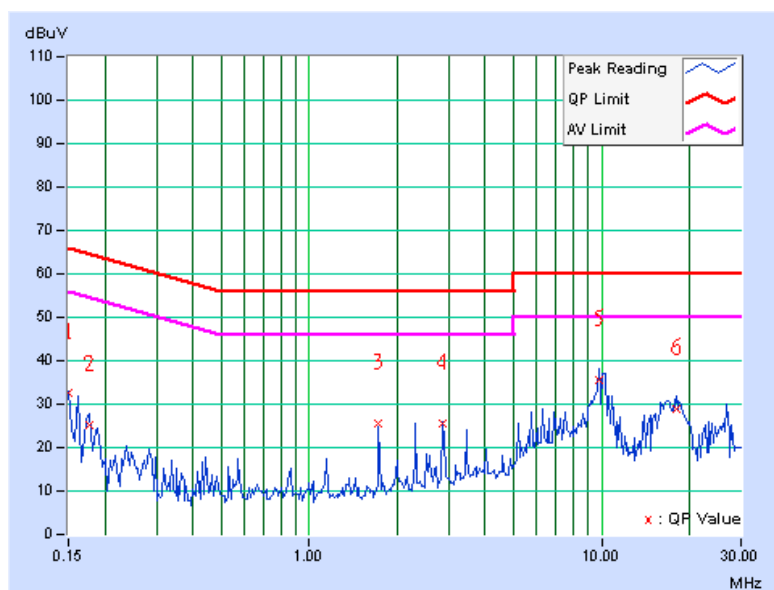
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1021hPa	TESTED BY	Match Tsui

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	0.20	31.73	-	31.93	-	66.00	56.00	-34.07	-
2	0.177	0.20	24.16	-	24.36	-	64.61	54.61	-40.25	-
3	1.727	0.20	24.68	-	24.88	-	56.00	46.00	-31.12	-
4	2.875	0.29	24.55	-	24.84	-	56.00	46.00	-31.16	-
5	9.773	0.53	34.58	-	35.11	-	60.00	50.00	-24.89	-
6	18.109	0.93	27.82	-	28.75	-	60.00	50.00	-31.25	-

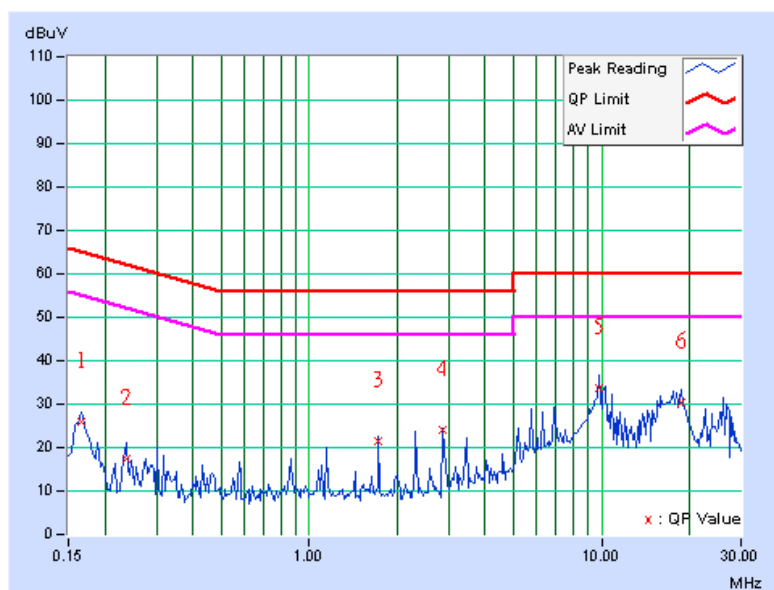
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1021hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.20	25.46	-	25.66	-	65.18	55.18	-39.52	-
2	0.236	0.20	16.82	-	17.02	-	62.24	52.24	-45.22	-
3	1.723	0.20	21.12	-	21.32	-	56.00	46.00	-34.68	-
4	2.875	0.29	23.39	-	23.68	-	56.00	46.00	-32.32	-
5	9.773	0.53	33.28	-	33.81	-	60.00	50.00	-26.19	-
6	18.684	0.51	29.87	-	30.38	-	60.00	50.00	-29.62	-

- 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.



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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

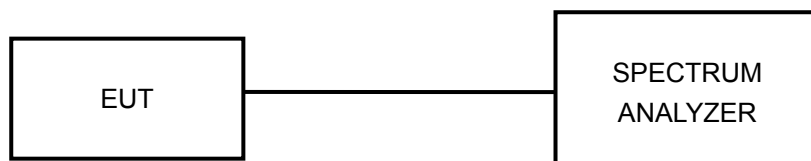
4.3.3 TEST PROCEDURE

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.

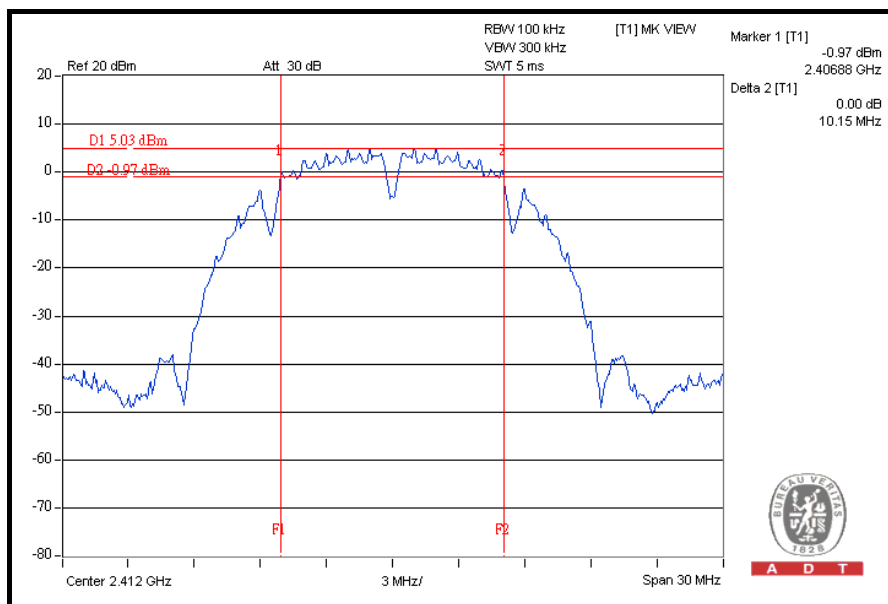
4.3.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

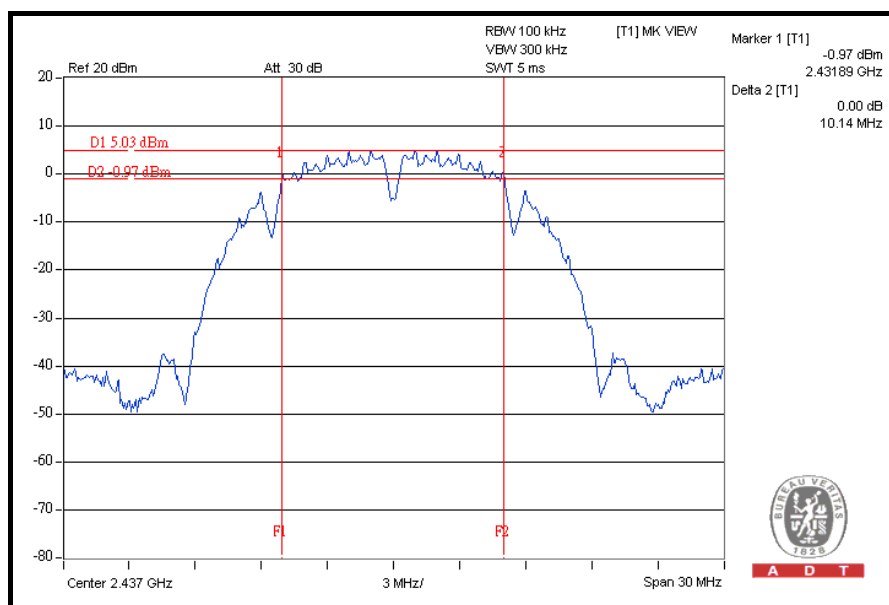
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.15	0.5	PASS
6	2437	10.14	0.5	PASS
11	2462	10.14	0.5	PASS

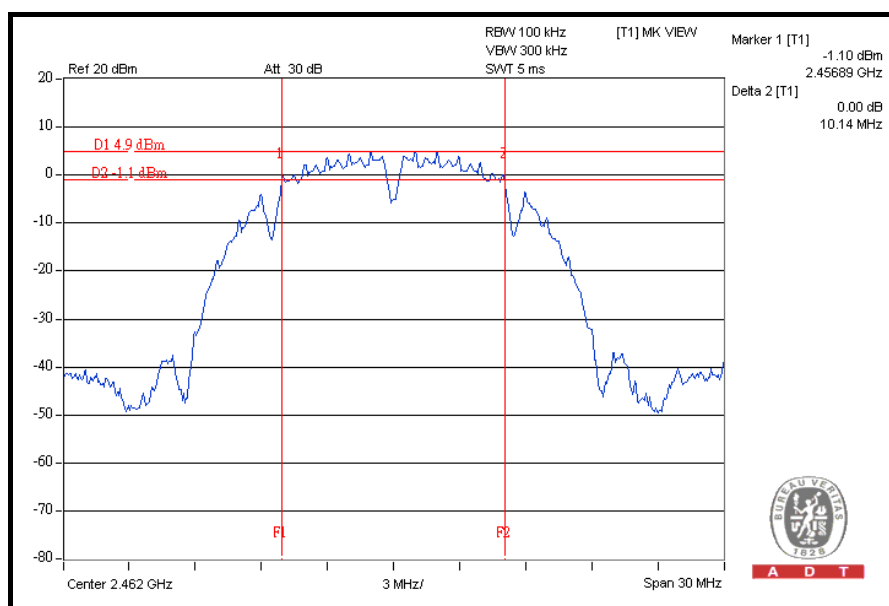
CH 1



CH 6



CH 11

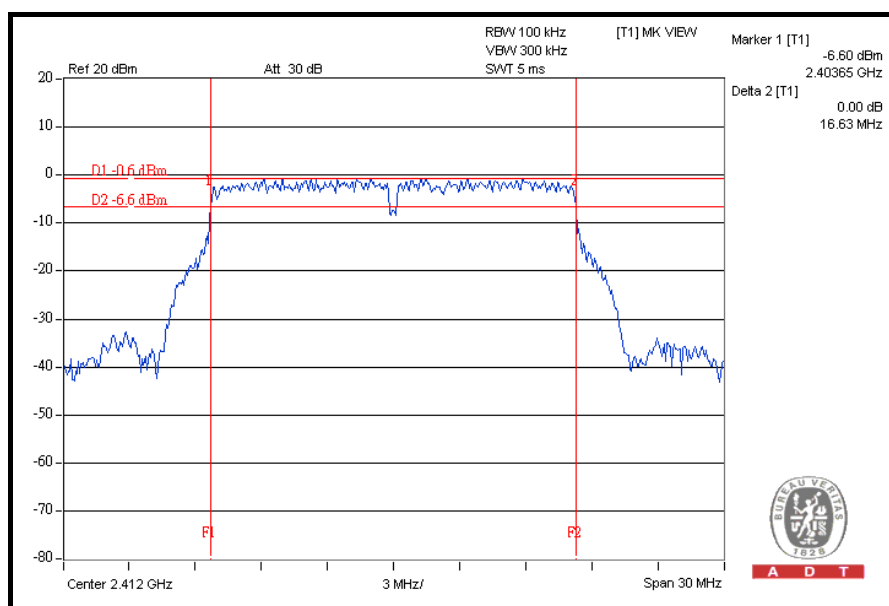


802.11g OFDM MODULATION: 1TX

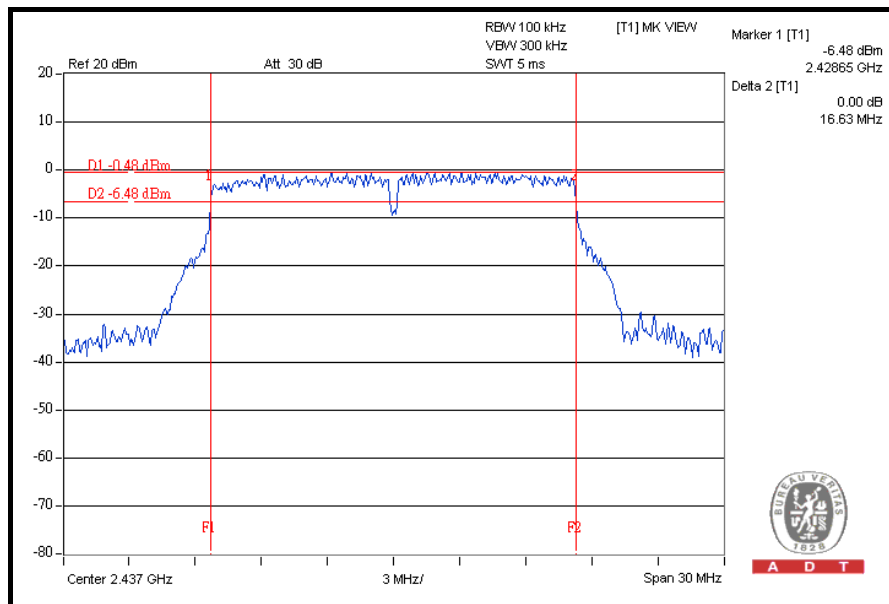
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.63	0.5	PASS
6	2437	16.63	0.5	PASS
11	2462	16.63	0.5	PASS

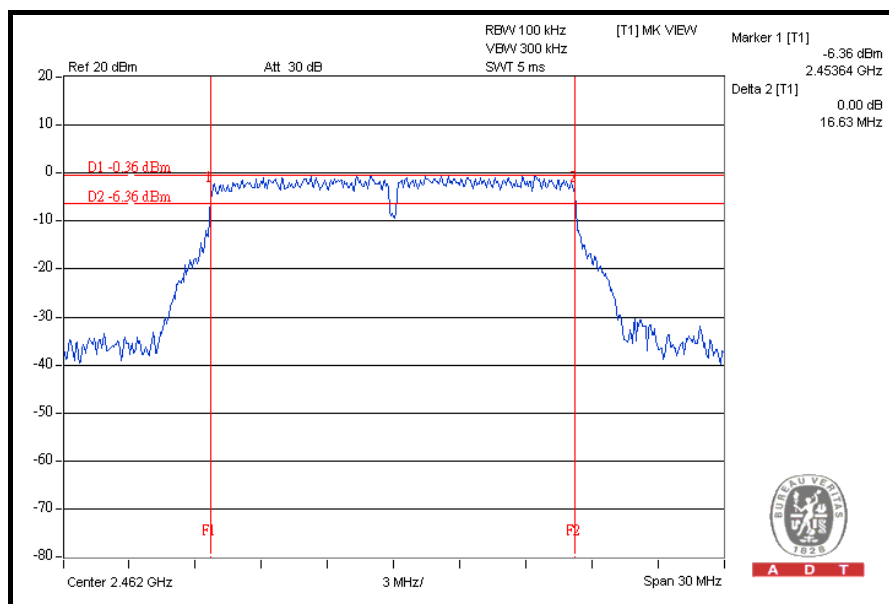
CH 1



CH 6



CH 11

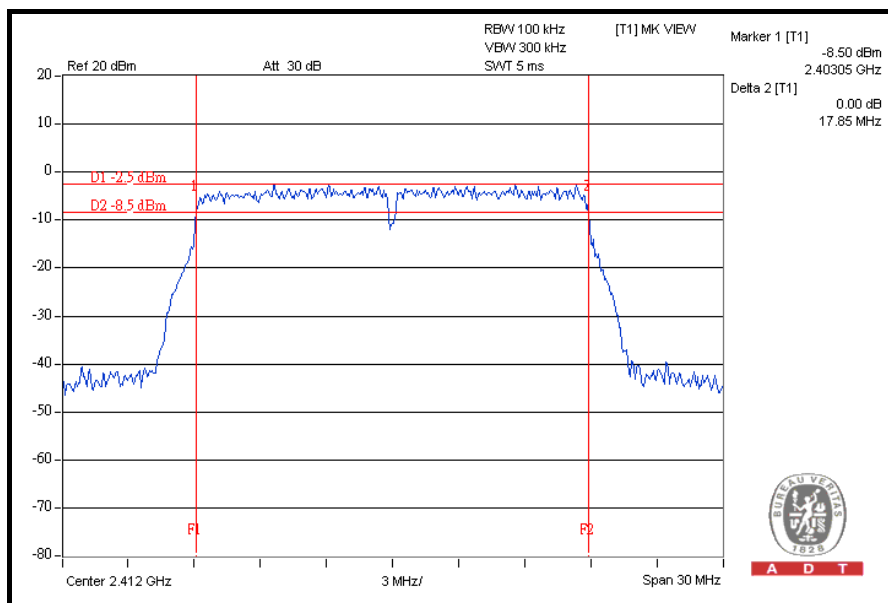


DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

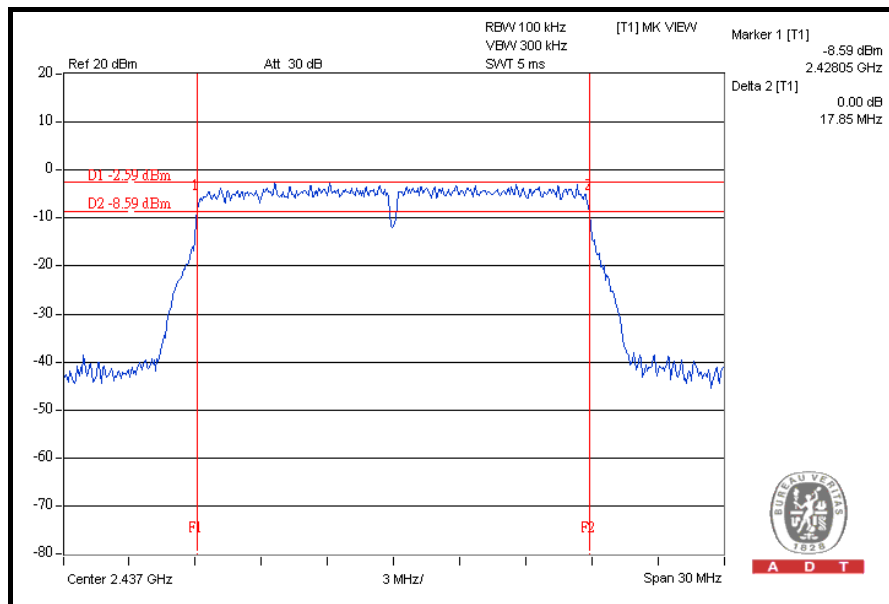
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.85	0.5	PASS
6	2437	17.85	0.5	PASS
11	2462	17.86	0.5	PASS

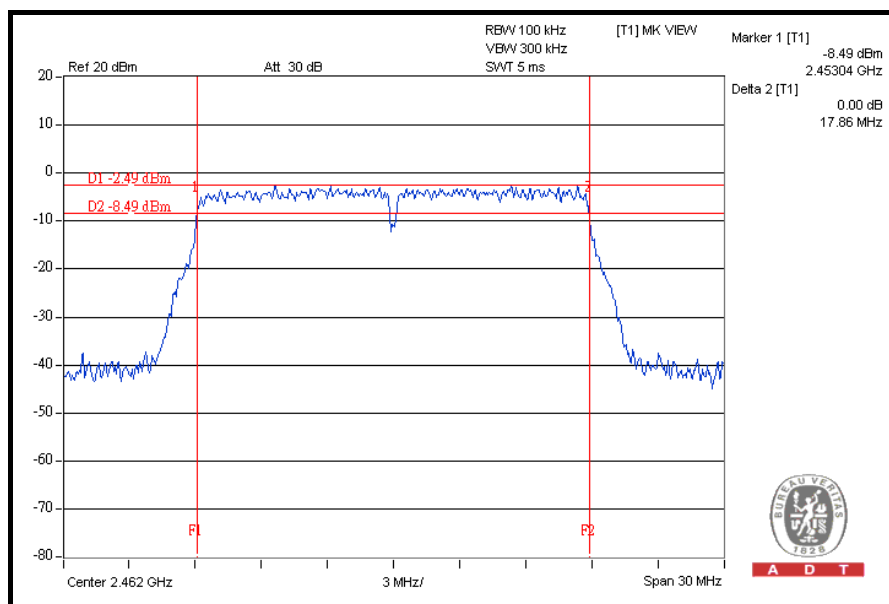
CH 1



CH 6



CH 11

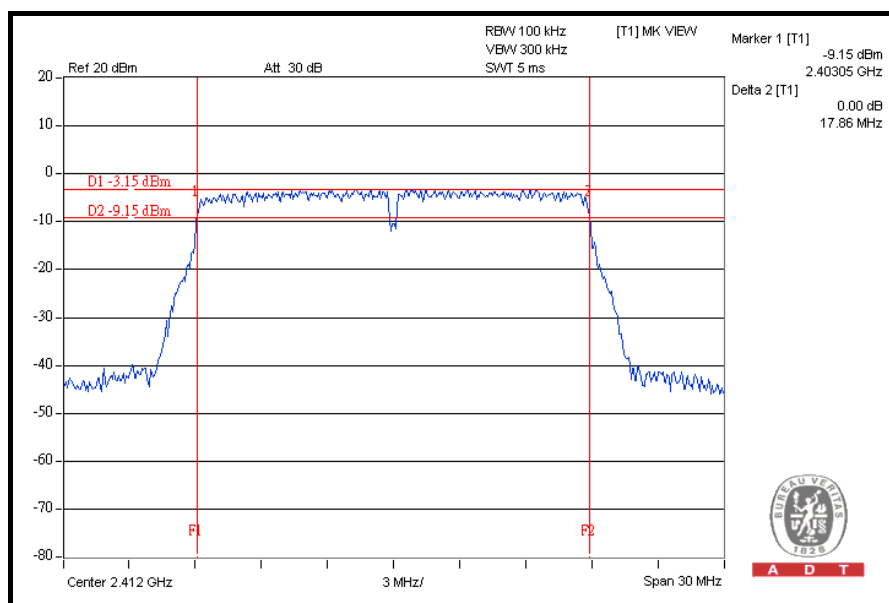


DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

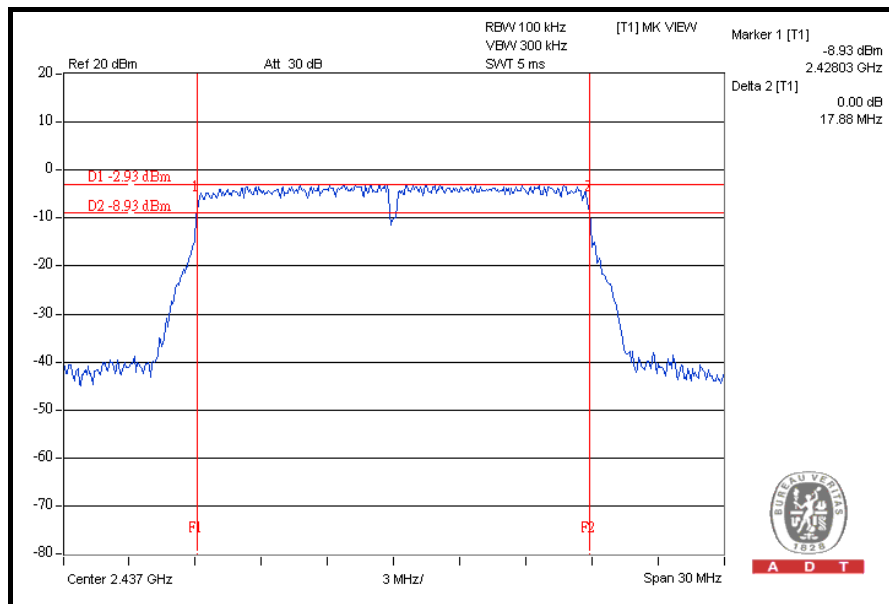
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.86	17.82	0.5	PASS
6	2437	17.88	17.79	0.5	PASS
11	2462	17.84	17.78	0.5	PASS

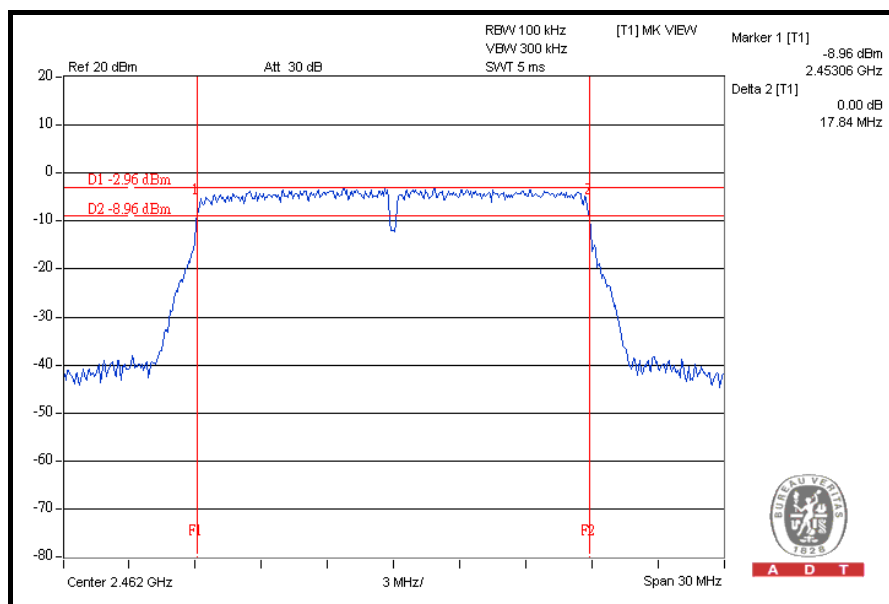
FOR CHAIN 0: CH 1



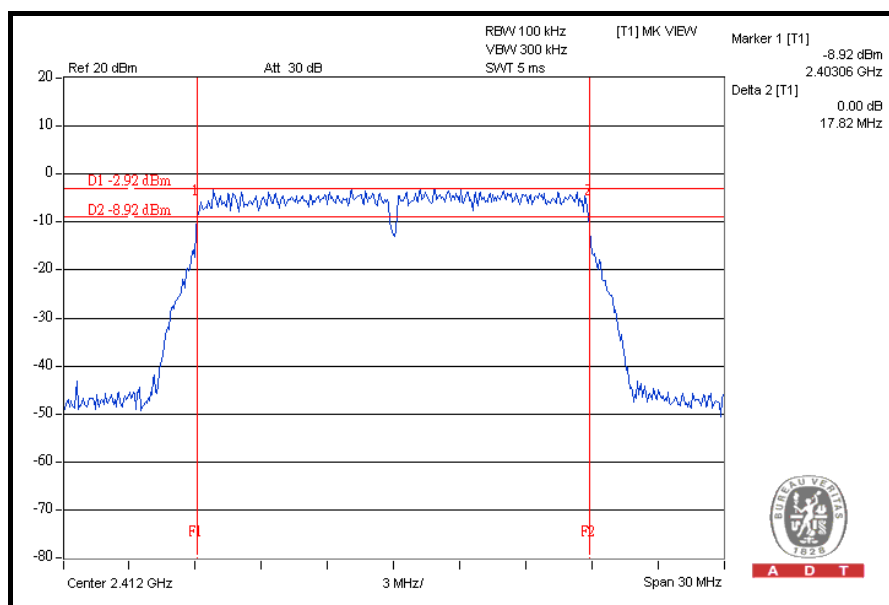
CH 6



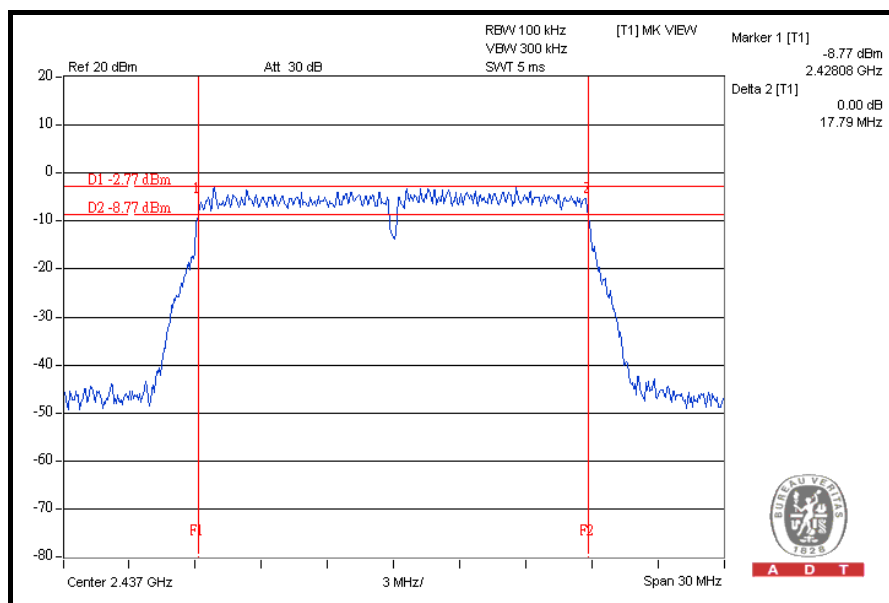
CH 11



FOR CHAIN 1: CH 1



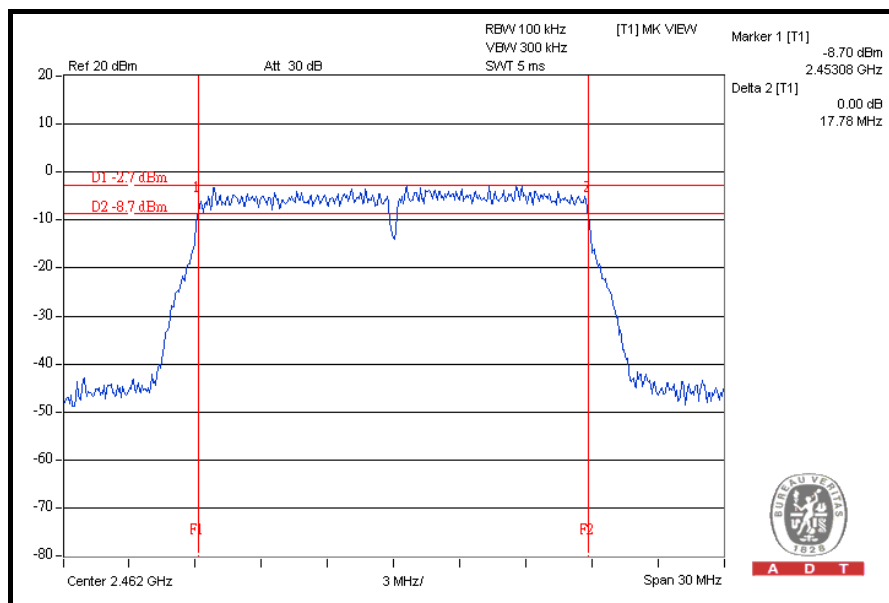
CH 6





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CH 11

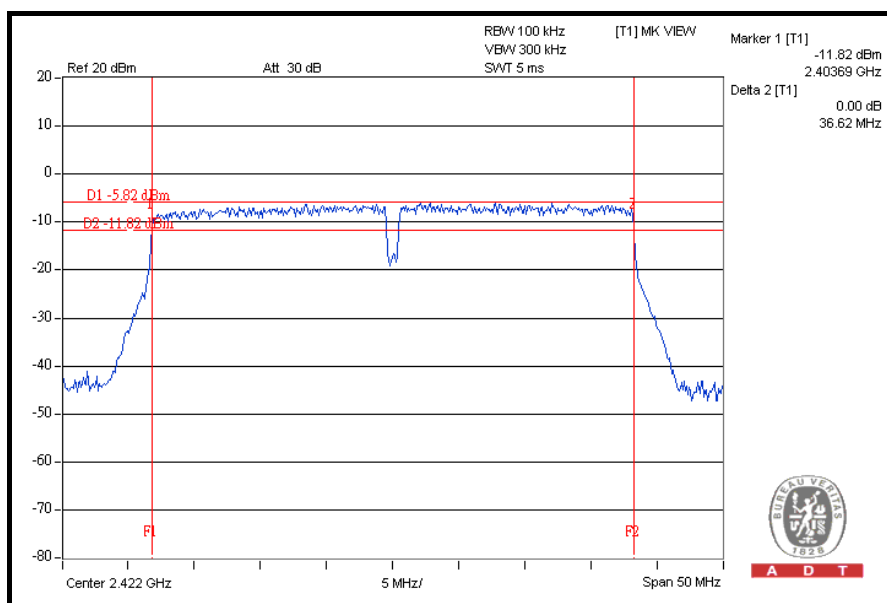


DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

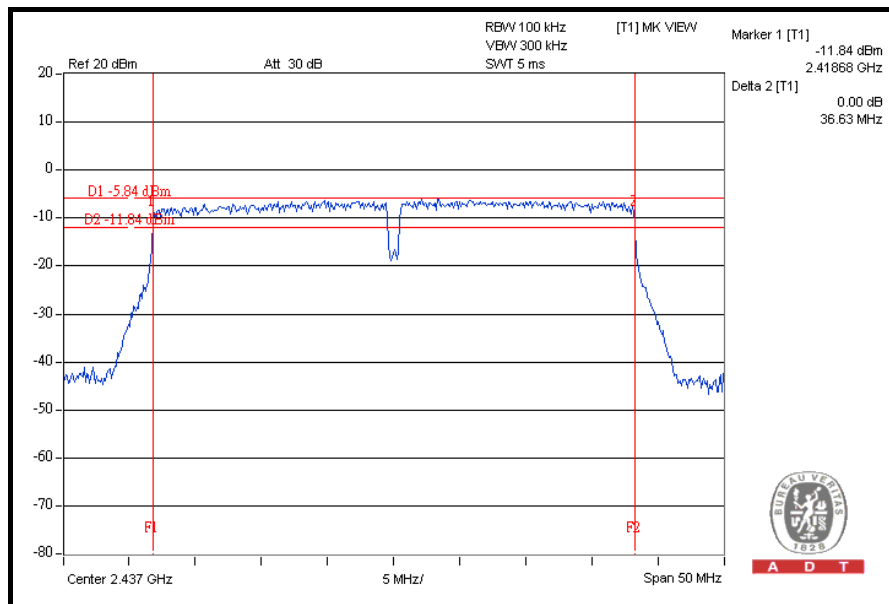
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.62	0.5	PASS
4	2437	36.63	0.5	PASS
7	2452	36.63	0.5	PASS

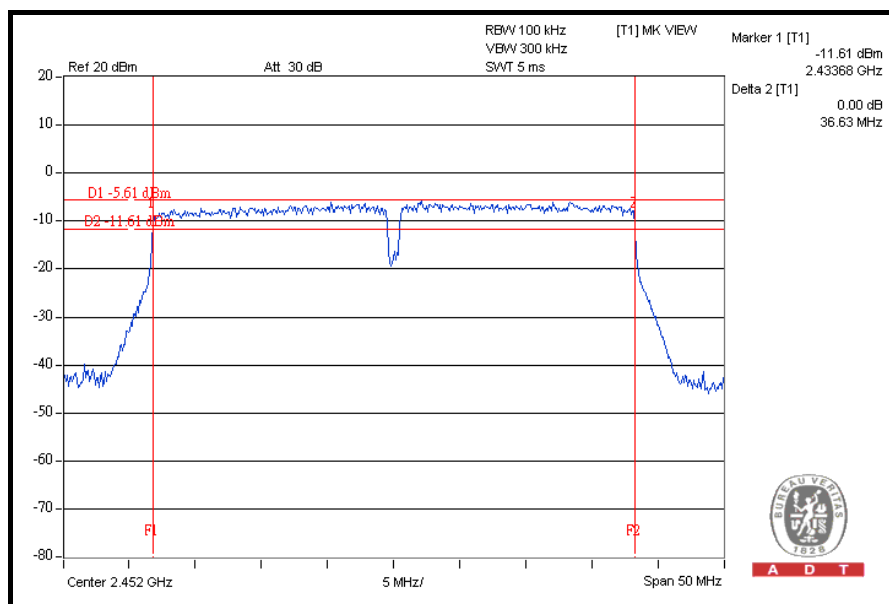
CH 1



CH 4



CH 7





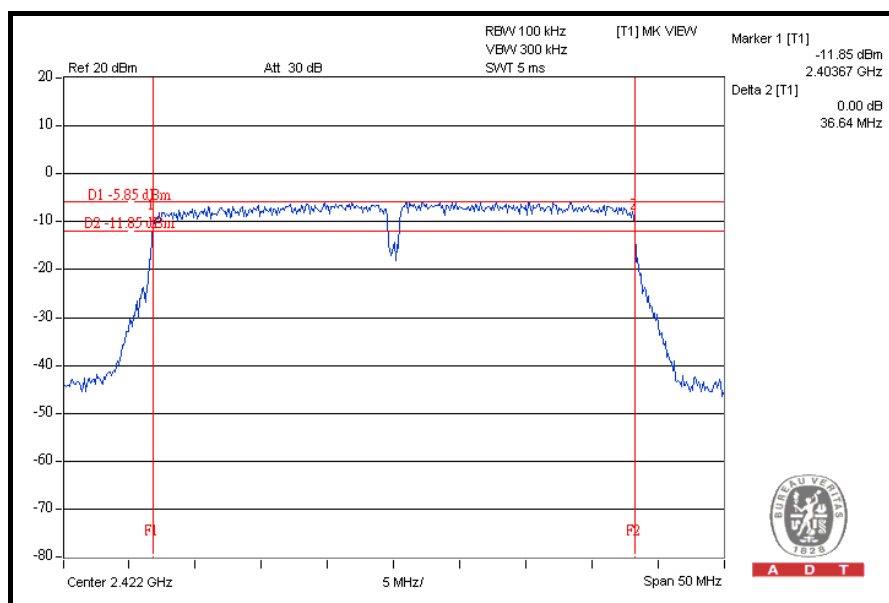
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DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

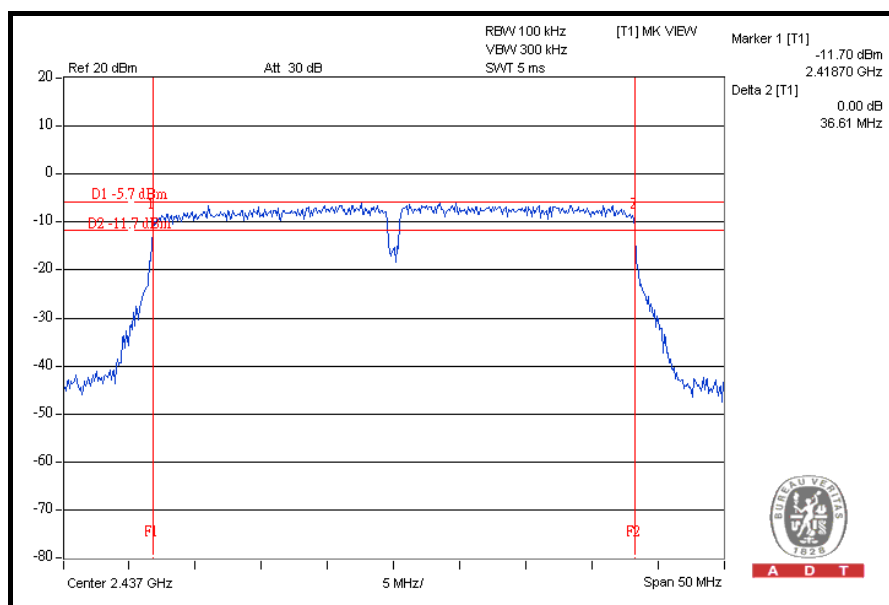
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.64	36.59	0.5	PASS
4	2437	36.61	36.59	0.5	PASS
7	2452	36.64	36.55	0.5	PASS

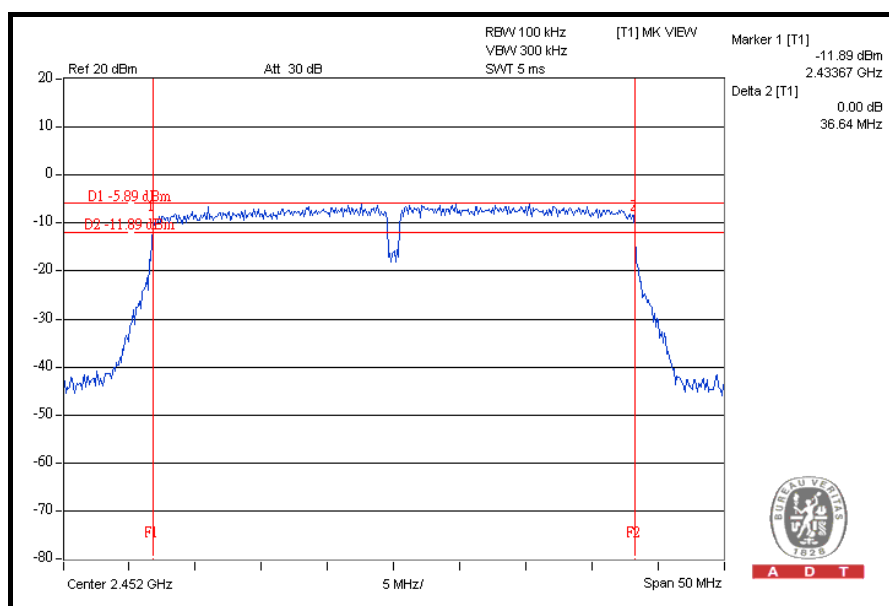
FOR CHAIN 0: CH 1



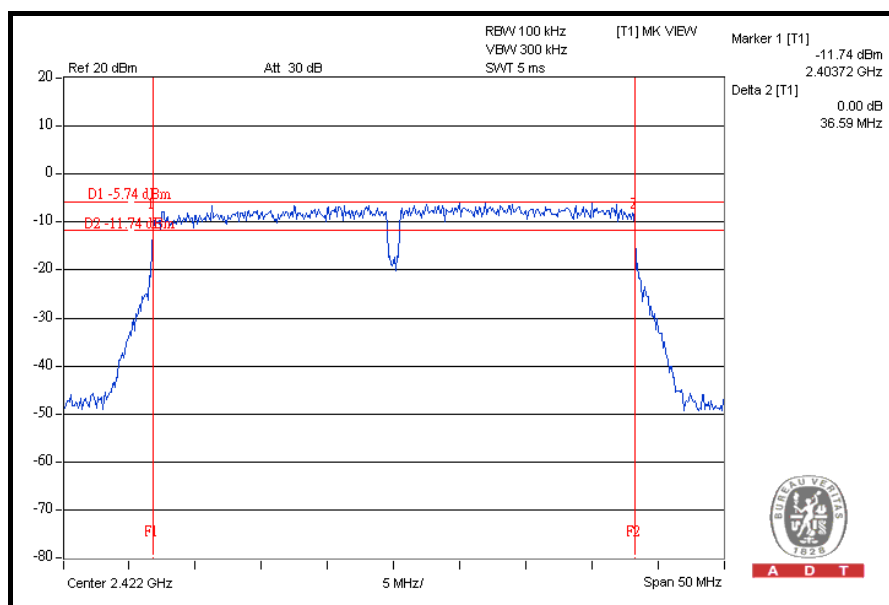
CH 4



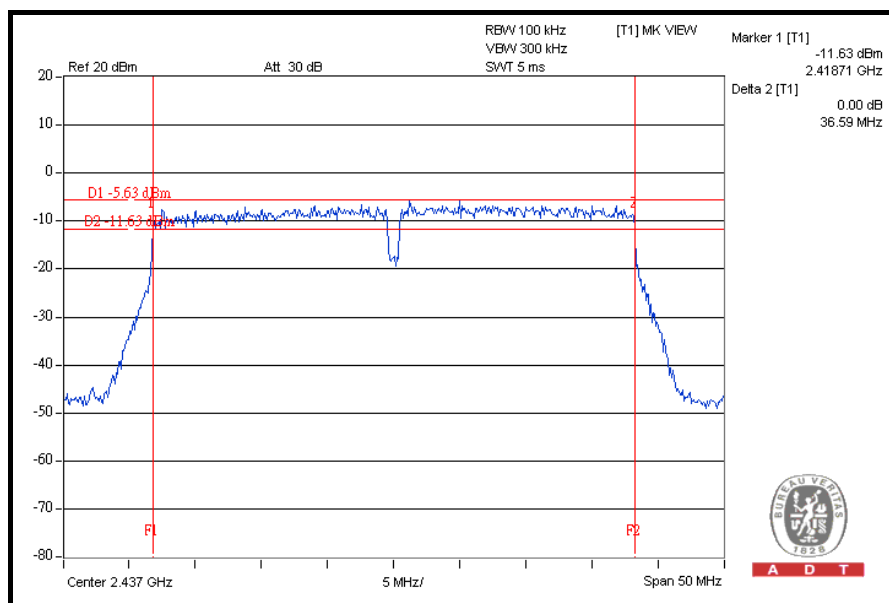
CH 7



FOR CHAIN 1: CH 1



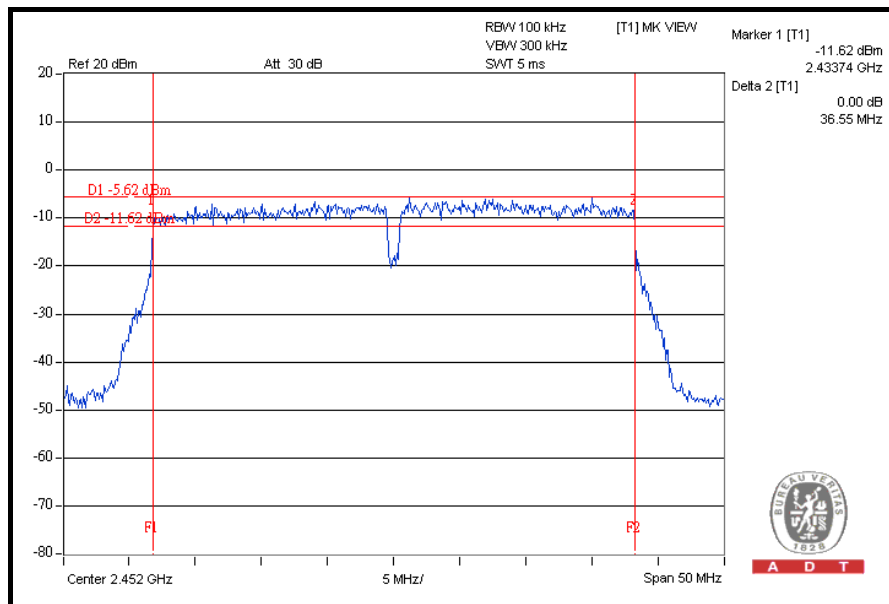
CH 4





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CH 7



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak 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	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

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.

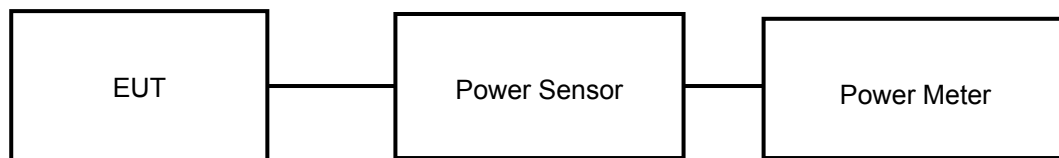
4.4.3 TEST PROCEDURES

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 DSSS MODULATION: 1TX

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	101.625	20.07	30	PASS
6	2437	102.802	20.12	30	PASS
11	2462	101.158	20.05	30	PASS

802.11g OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	226.986	23.56	30	PASS
6	2437	228.560	23.59	30	PASS
11	2462	225.424	23.53	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	160.694	22.06	30	PASS
6	2437	161.436	22.08	30	PASS
11	2462	159.956	22.04	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.05	22.07	321.389	25.07	30	PASS
6	2437	22.08	22.11	323.991	25.11	30	PASS
11	2462	22.02	22.05	319.545	25.05	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	159.956	22.04	30	PASS
4	2437	161.808	22.09	30	PASS
7	2452	159.588	22.03	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	22.03	22.06	320.282	25.06	30	PASS
4	2437	22.07	22.09	322.873	25.09	30	PASS
7	2452	22.04	22.05	320.280	25.06	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

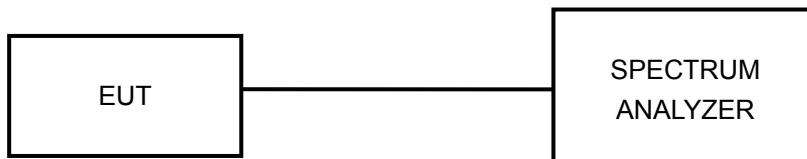
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

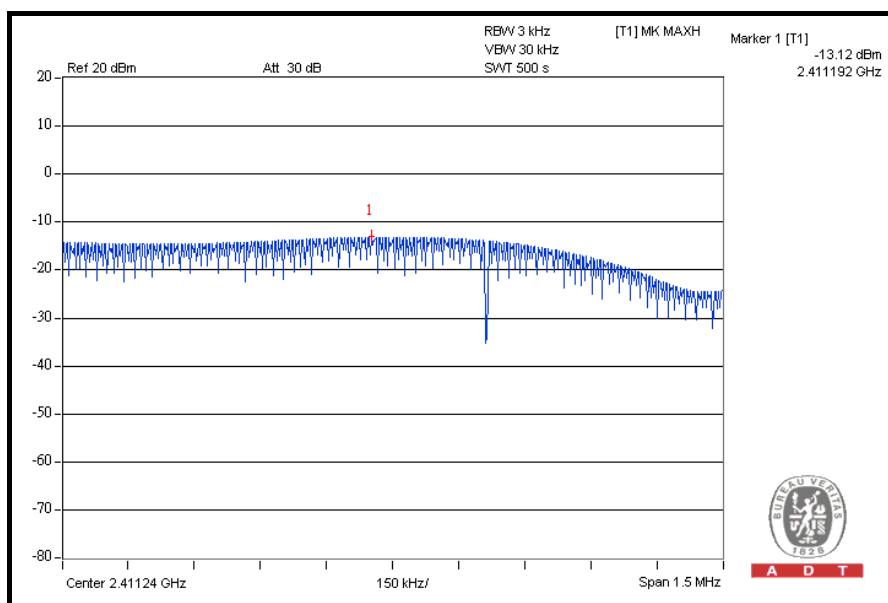
4.5.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

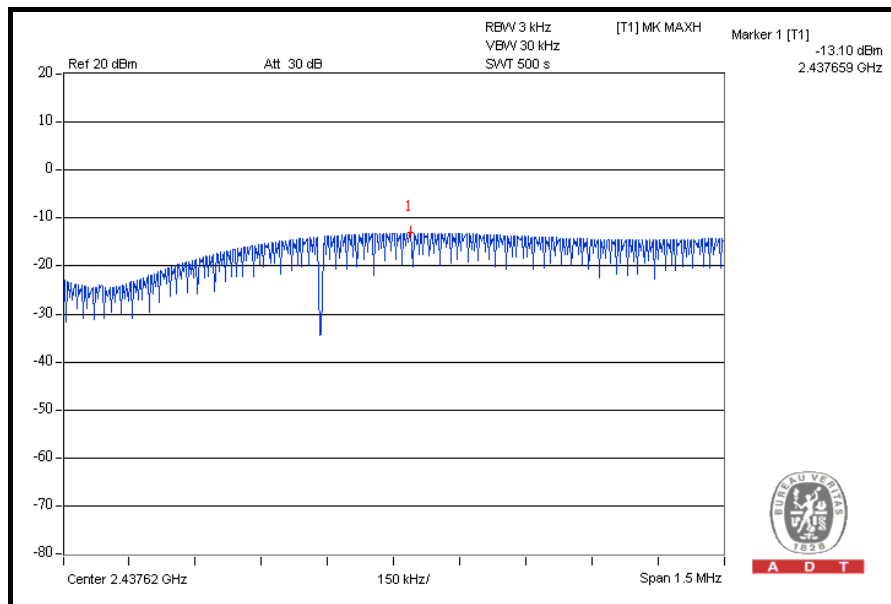
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.12	8	PASS
6	2437	-13.10	8	PASS
11	2462	-13.28	8	PASS

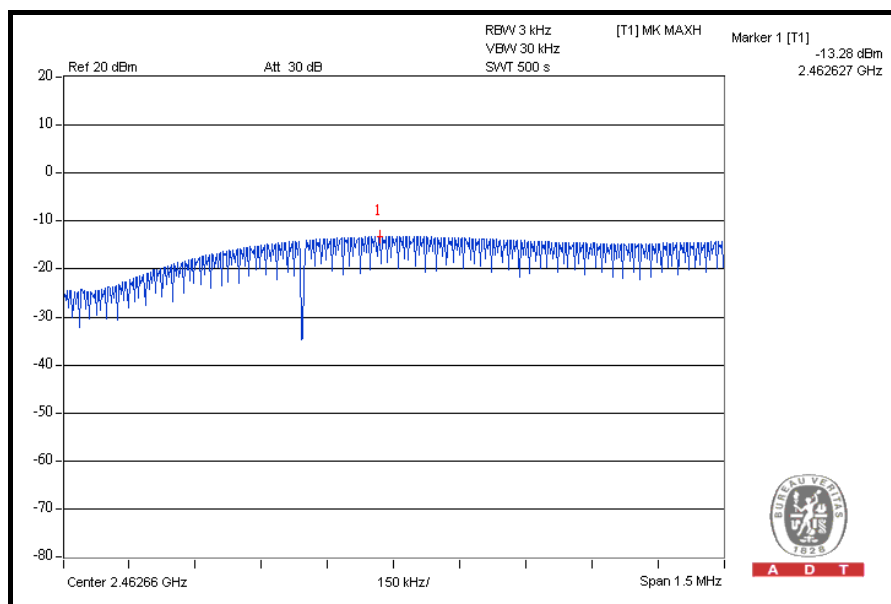
CH 1



CH 6



CH 11

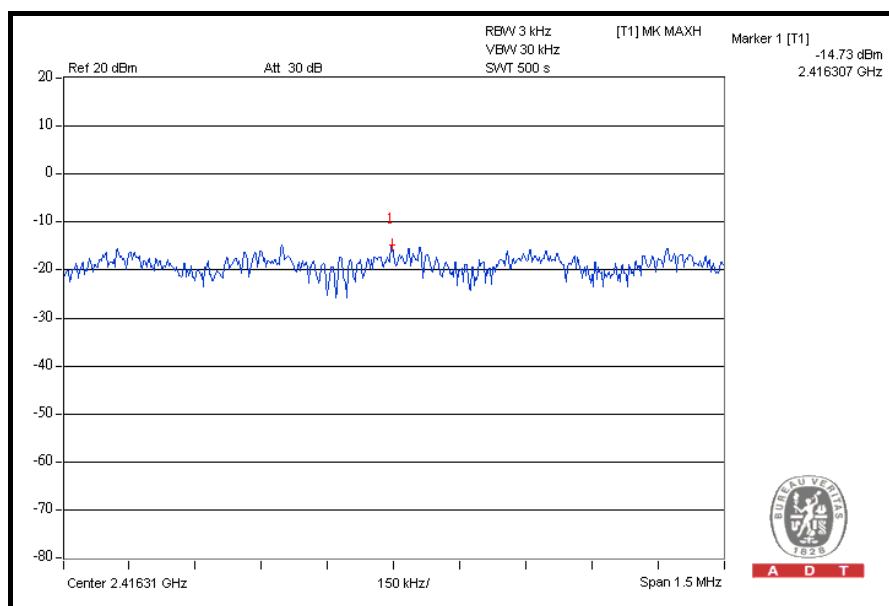


802.11g OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.73	8	PASS
6	2437	-14.57	8	PASS
11	2462	-14.59	8	PASS

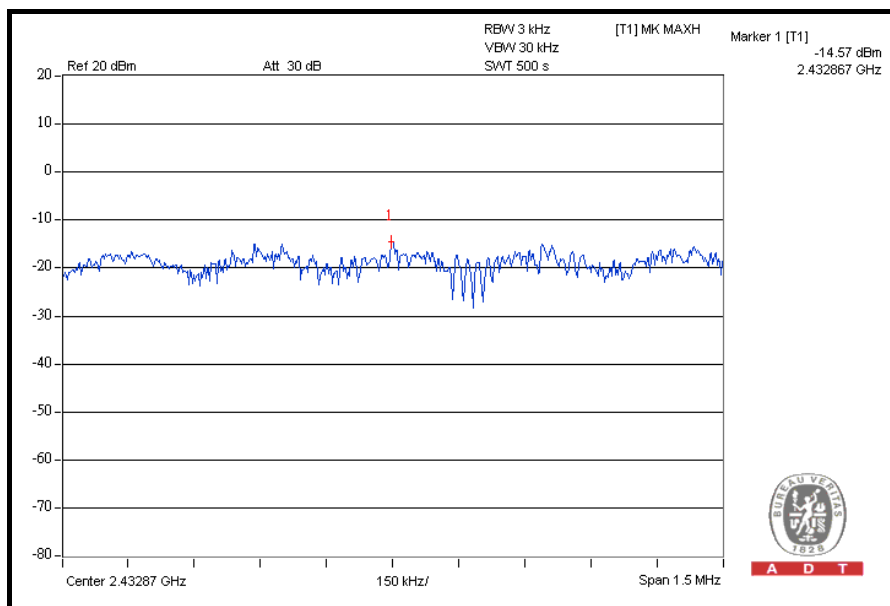
CH 1



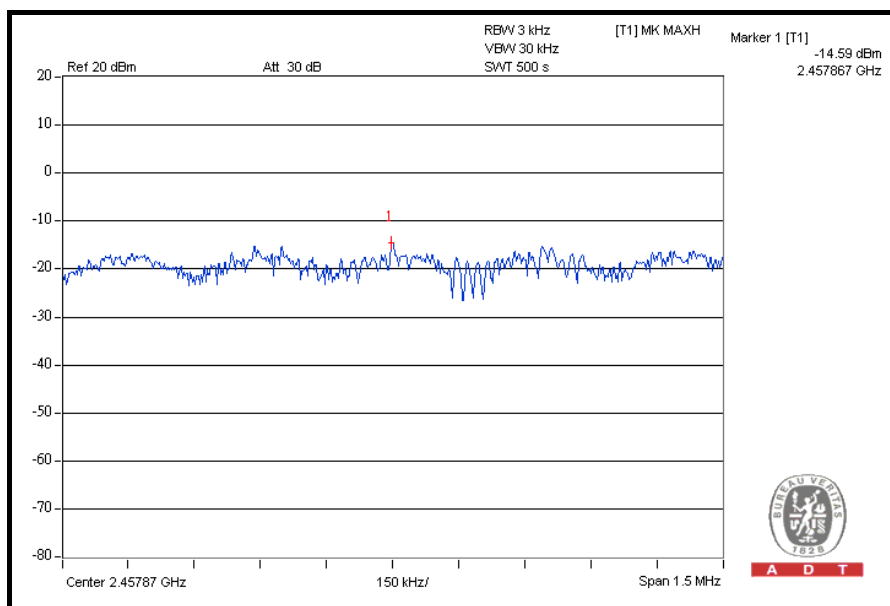


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CH 6



CH 11

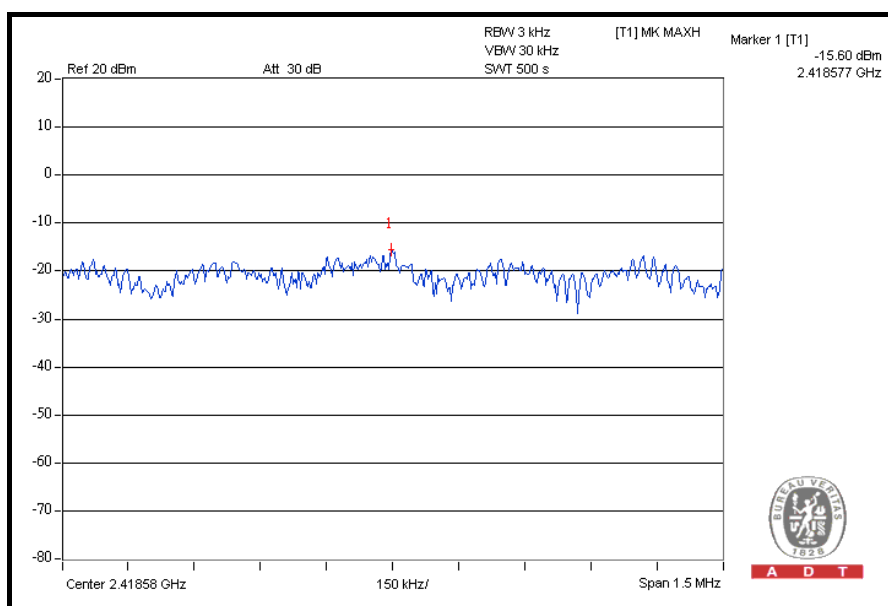


DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

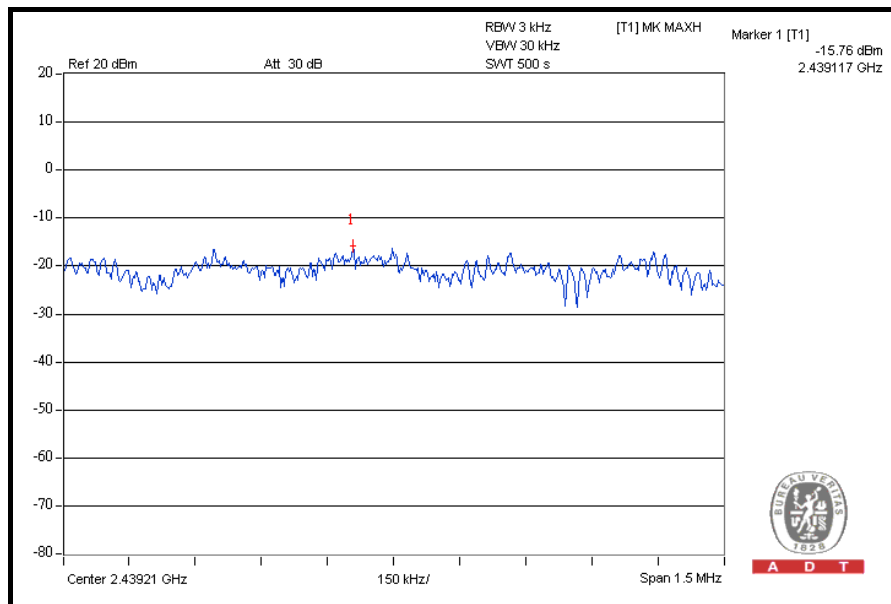
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-15.60	8	PASS
6	2437	-15.76	8	PASS
11	2462	-15.70	8	PASS

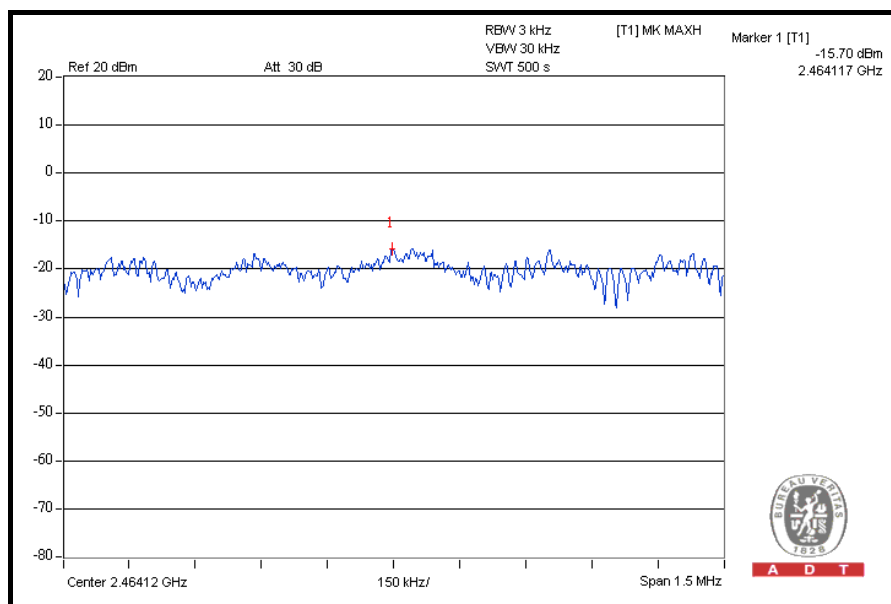
CH 1



CH 6



CH 11





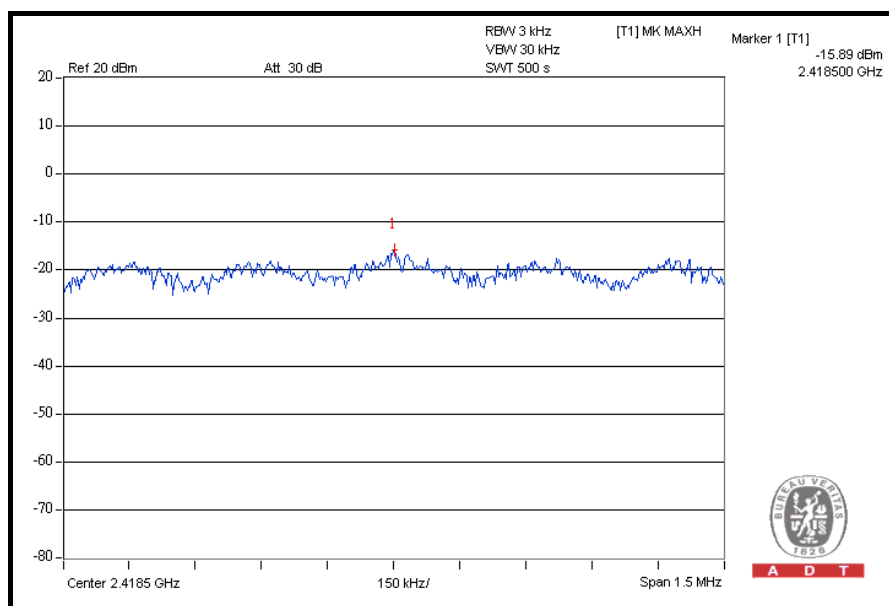
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

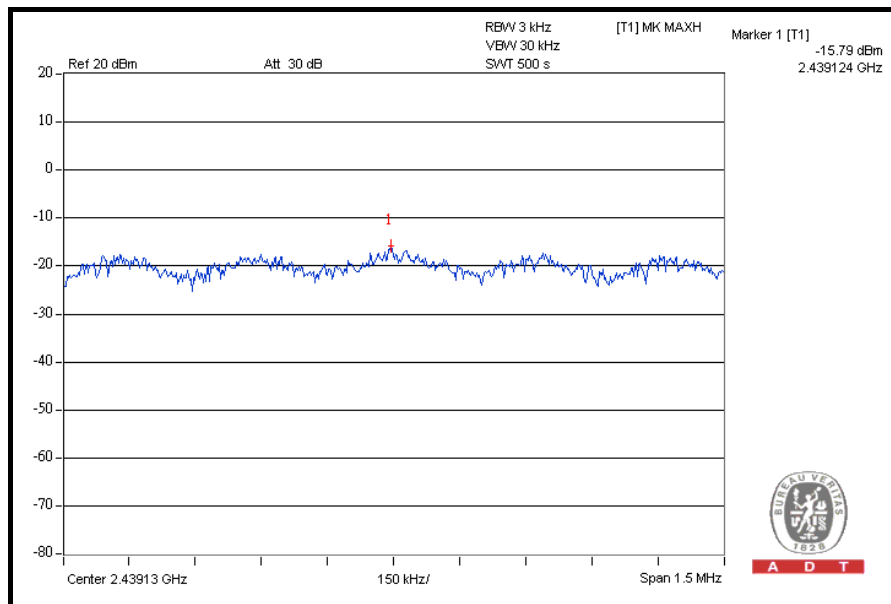
CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	-15.89	-16.72	0.047	-13.27	8	PASS
6	2437	-15.79	-16.52	0.049	-13.13	8	PASS
11	2462	-16.00	-16.50	0.048	-13.23	8	PASS

FOR CHAIN 0: CH 1

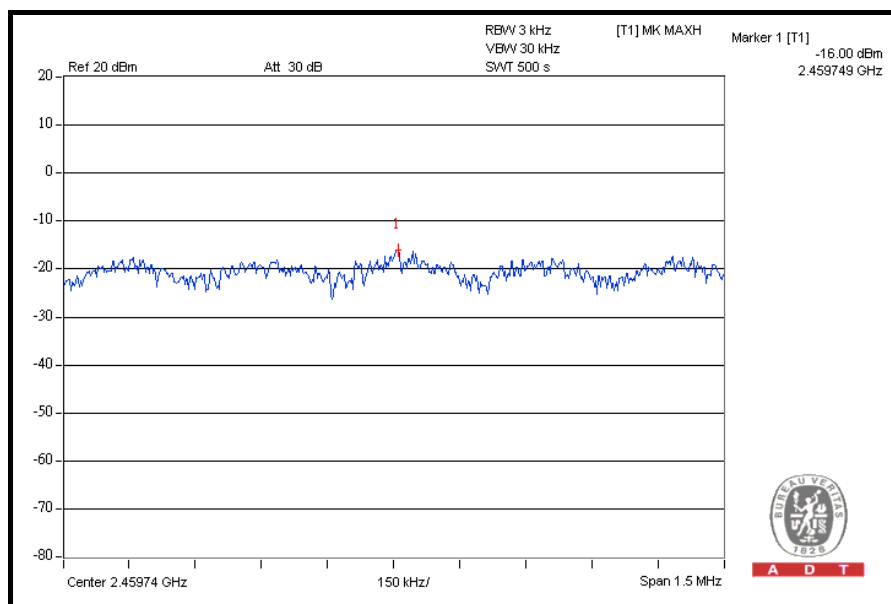


A D T

CH 6



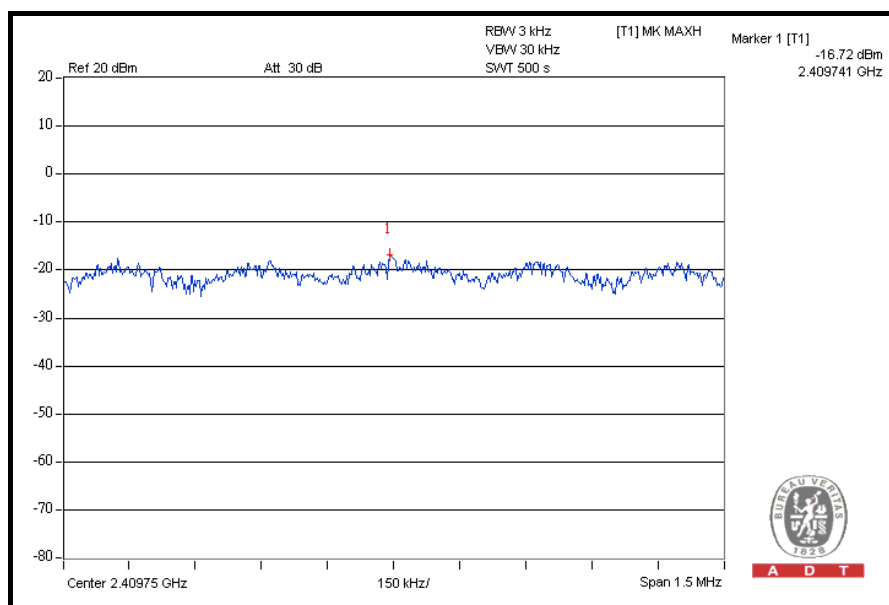
CH 11



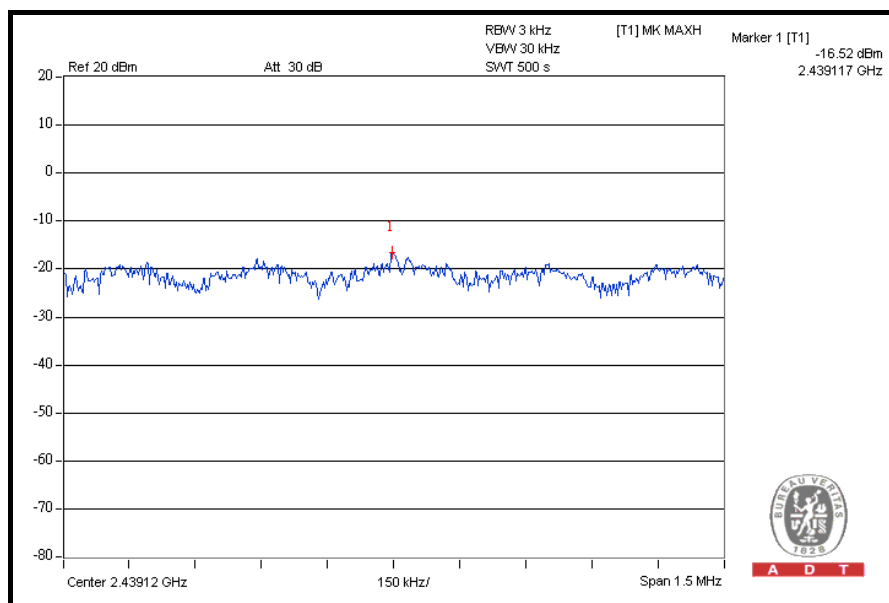


A D T

FOR CHAIN 1: CH 1



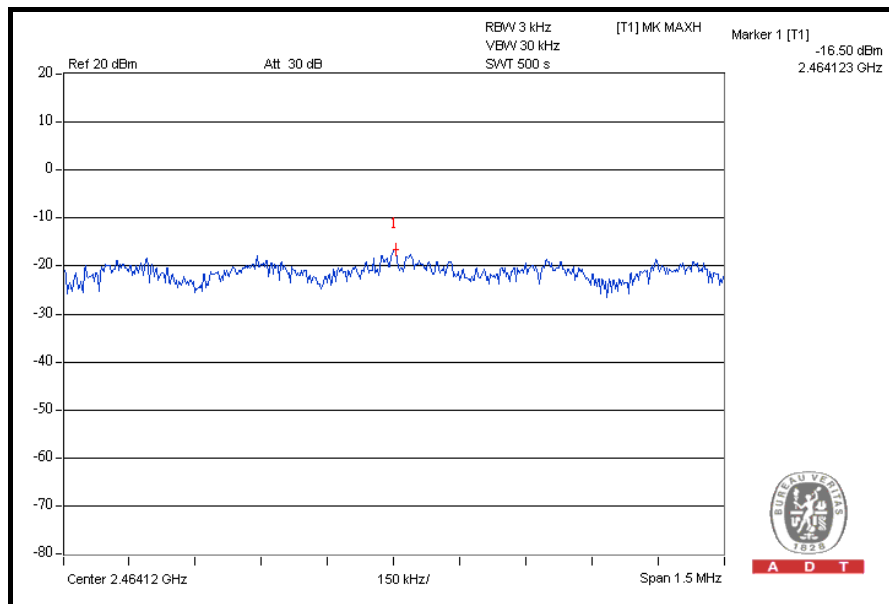
CH 6





A D T

CH 11

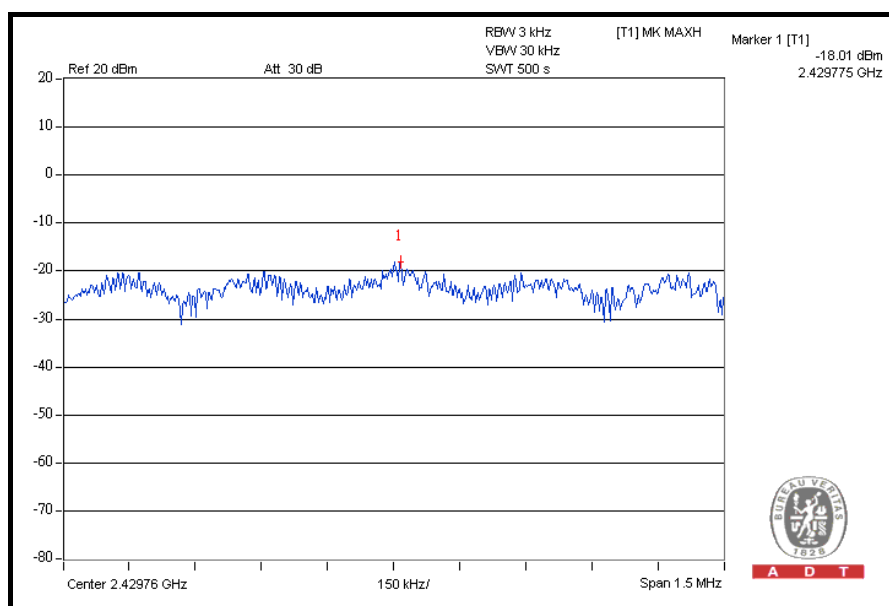


DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2422	-18.01	8	PASS
4	2437	-17.78	8	PASS
7	2452	-17.89	8	PASS

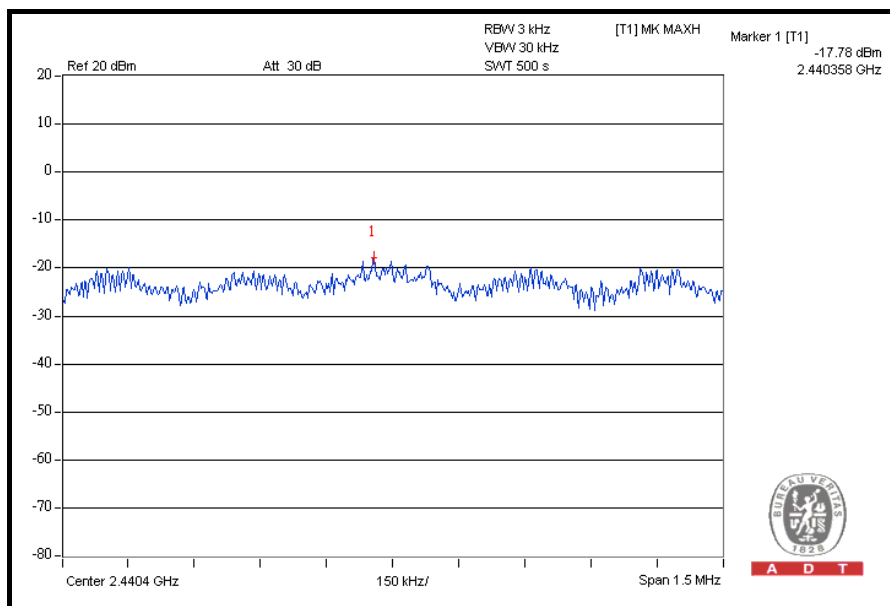
CH 1



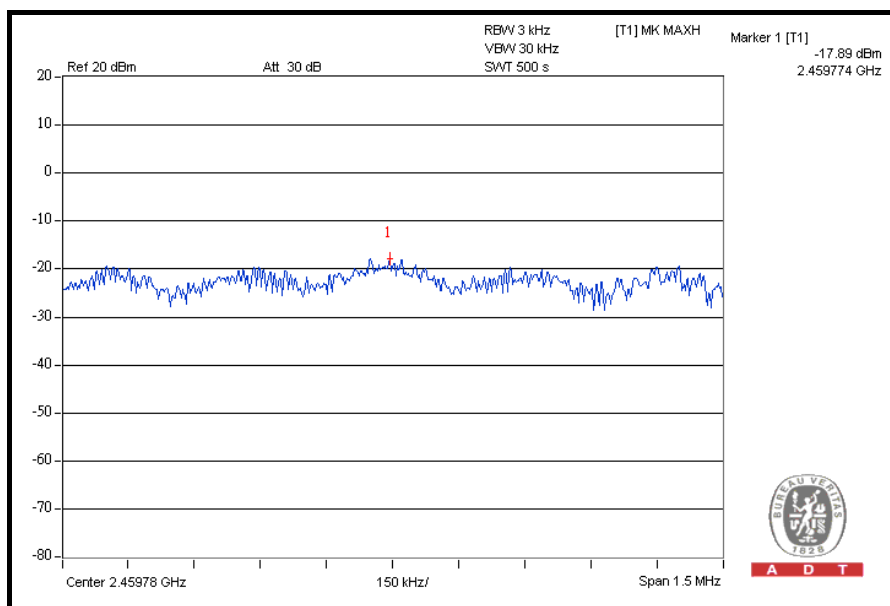


A D T

CH 6



CH 11



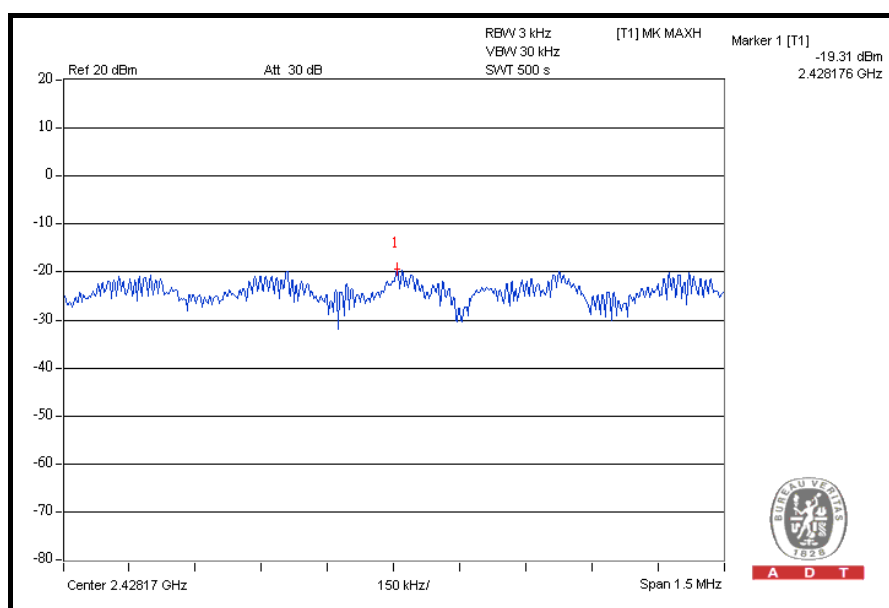


A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

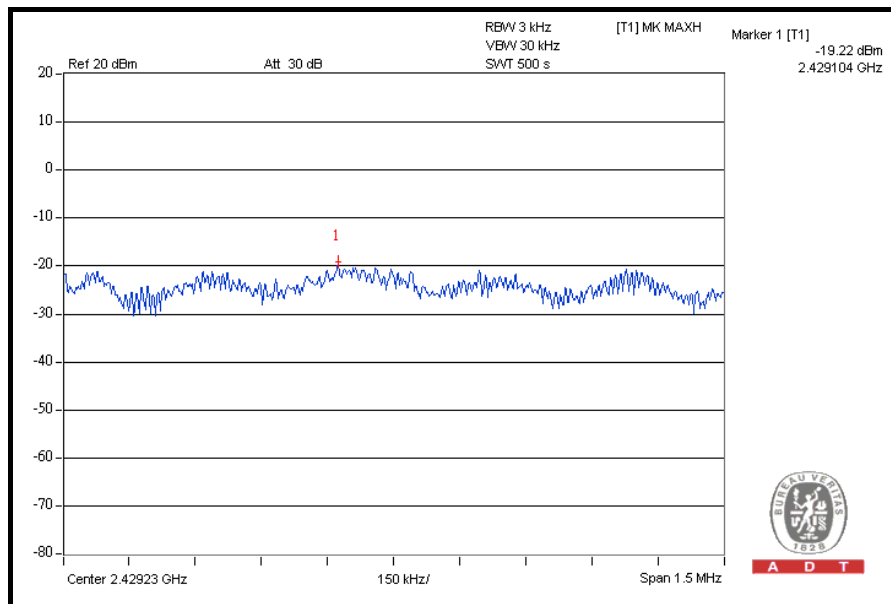
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24 deg.C, 64 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	-19.31	-20.29	0.021	-16.76	8	PASS
4	2437	-19.22	-20.46	0.021	-16.79	8	PASS
7	2452	-19.11	-20.23	0.022	-16.62	8	PASS

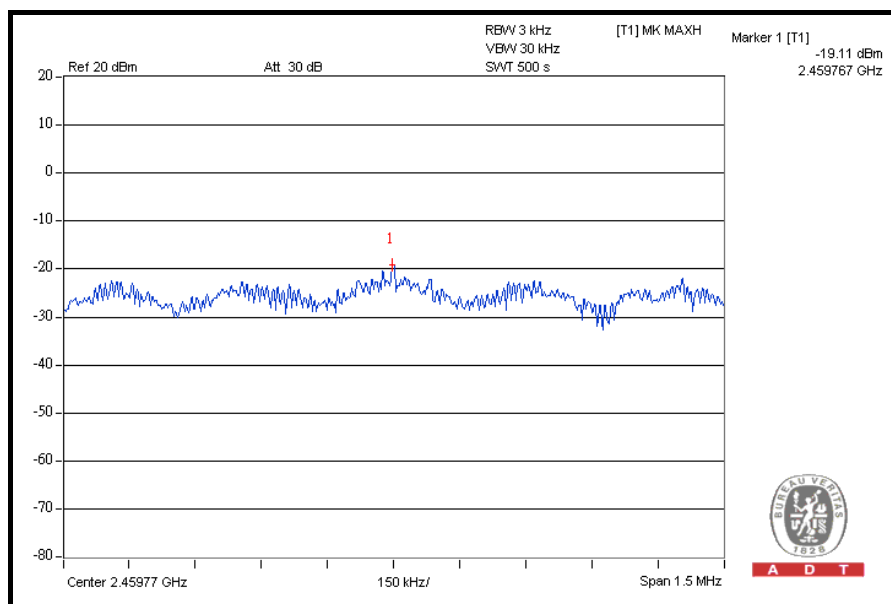
FOR CHAIN 0: CH 1

A D T

CH 6



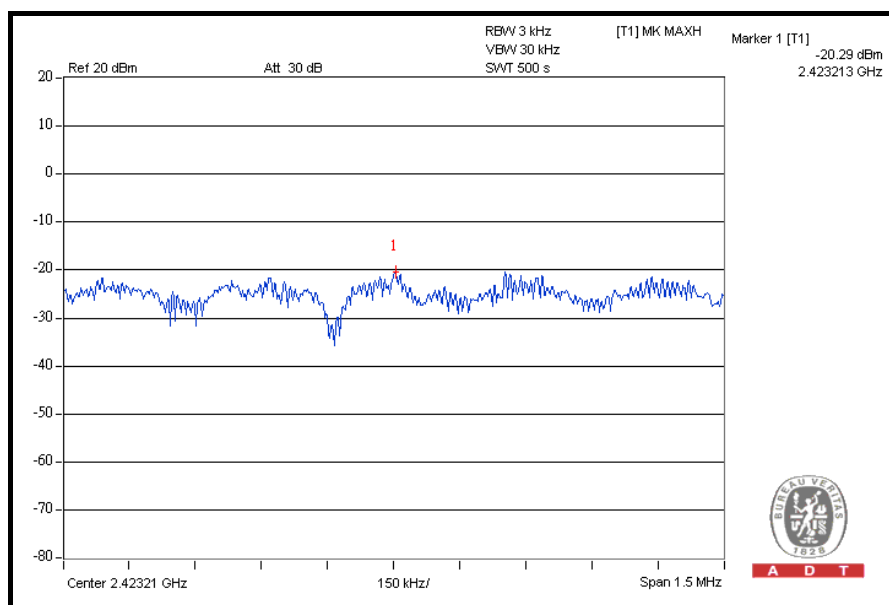
CH 11



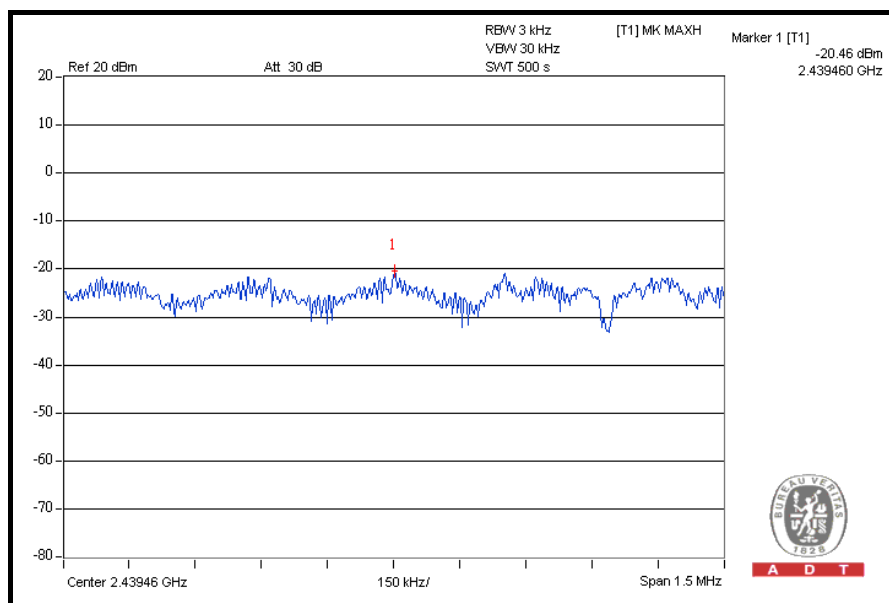


A D T

FOR CHAIN 1: CH 1



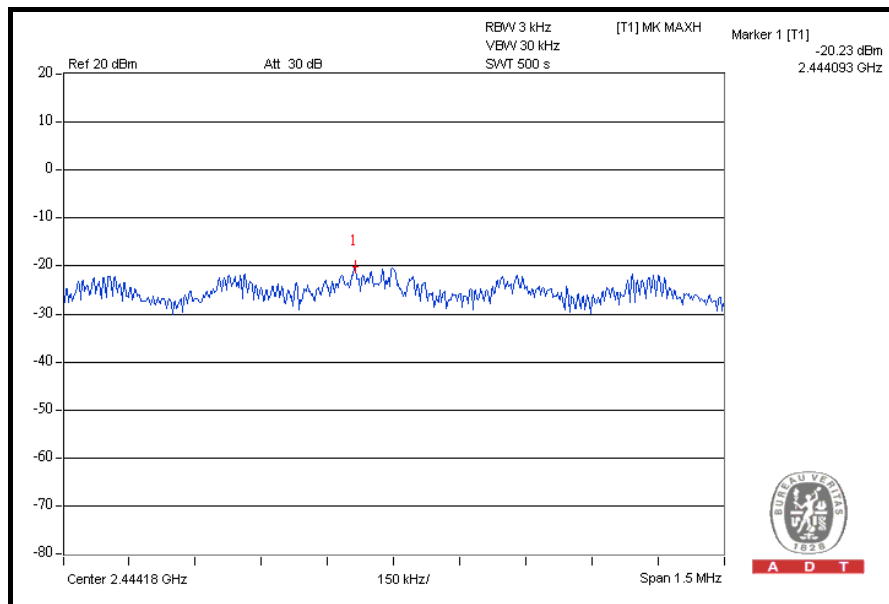
CH 6





A D T

CH 11



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
FOR CONDUCTED MEASUREMENT				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT				
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT

The transmitter output was connected to the spectrum analyzer via a low loss cable. 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 were measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

FOR RADIATED MEASUREMENT

- 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 were 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).

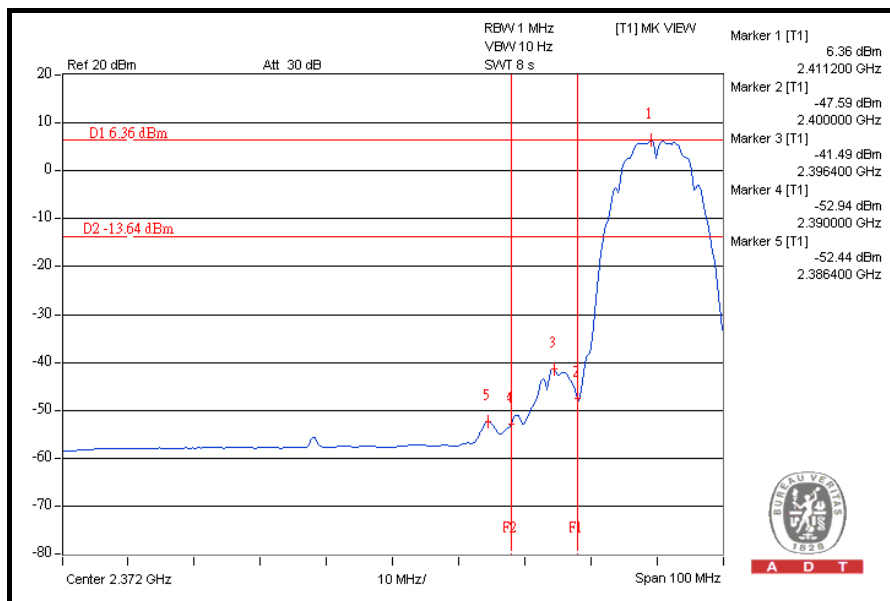
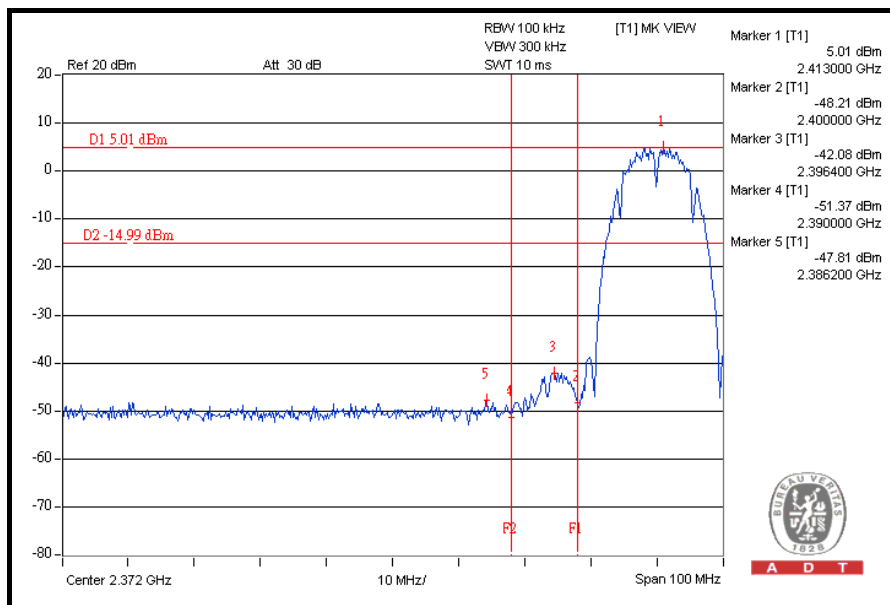
802.11b DSSS MODULATION: 1TX

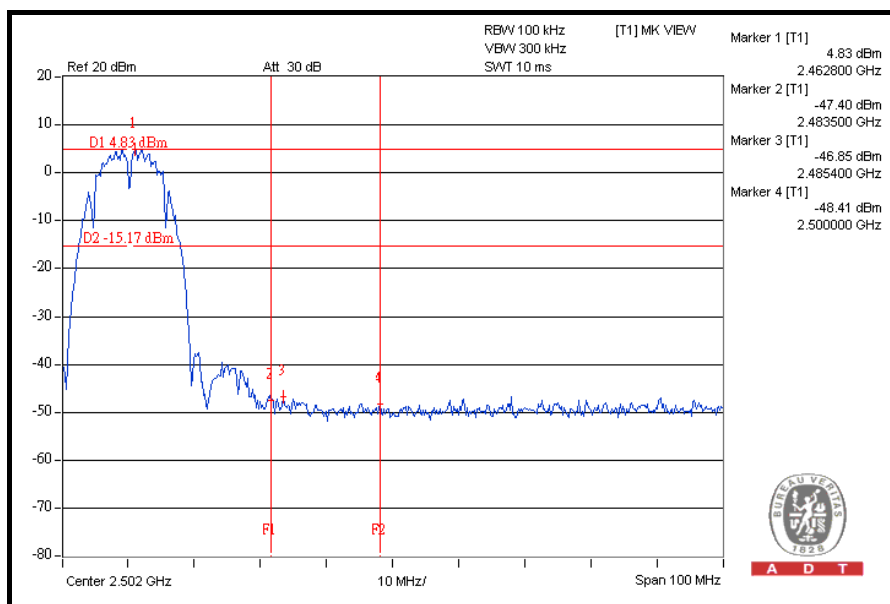
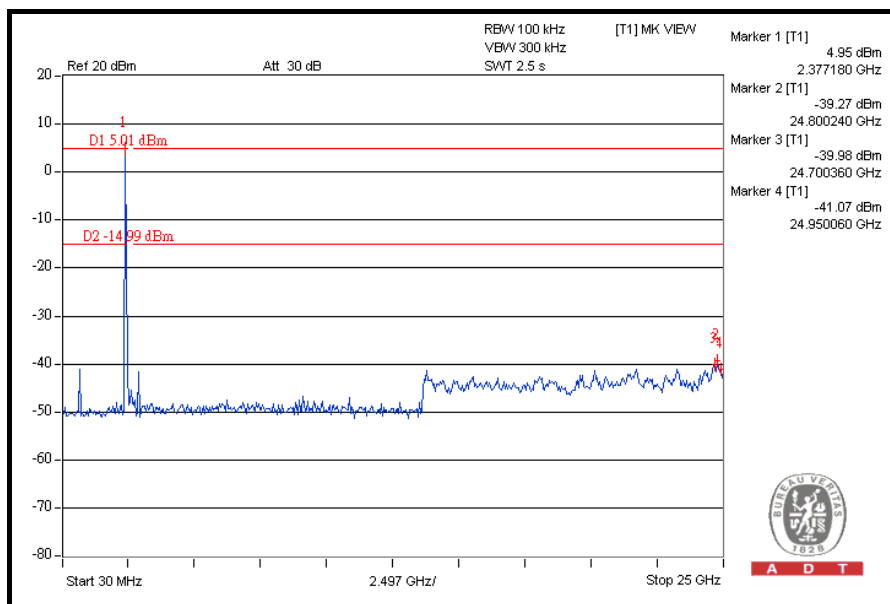
NOTE 1: The band edge emission plot on the next page shows 52.82dBc between carrier maximum power and local maximum emission in restrict band (2.38620GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 110.69dBuV/m (Peak), so the maximum field strength in restrict band is $110.69 - 52.82 = 57.87\text{dBuV/m}$ which is under 74dBuV/m limit.

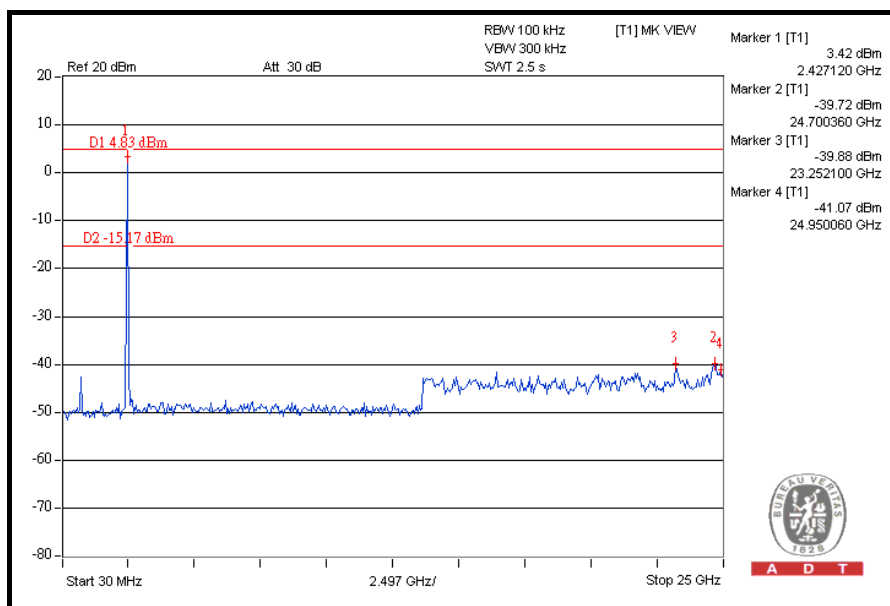
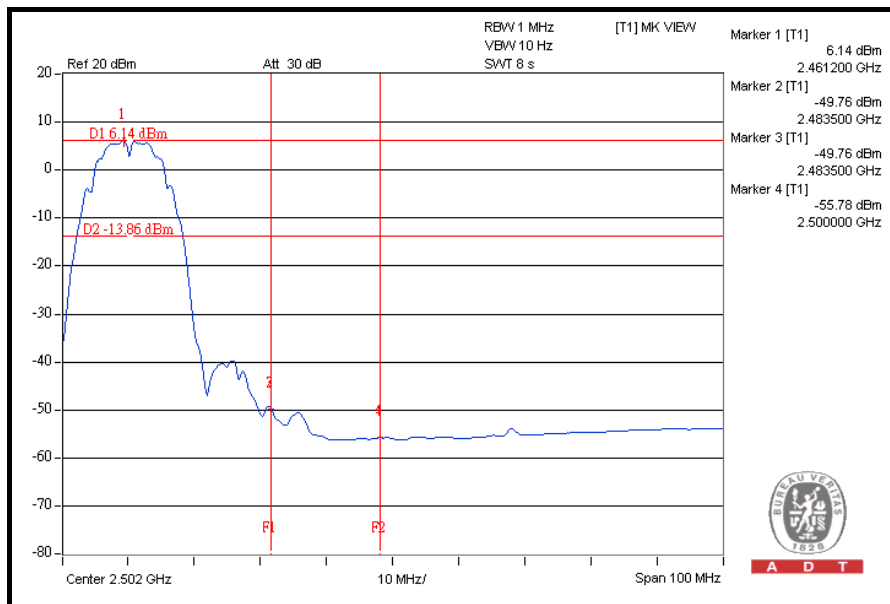
The band edge emission plot of on the next page shows 58.80dBc between carrier maximum power and local maximum emission in restrict band (2.38640GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 106.32dBuV/m (Average), so the maximum field strength in restrict band is $106.32 - 58.80 = 47.52\text{dBuV/m}$ which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 51.68dBc between carrier maximum power and local maximum emission in restrict band (2.48540GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 110.77dBuV/m (Peak), so the maximum field strength in restrict band is $110.77 - 51.68 = 59.09\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 55.90dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 106.18dBuV/m (Average), so the maximum field strength in restrict band is $106.18 - 55.90 = 50.28\text{dBuV/m}$ which is under 54dBuV/m limit.







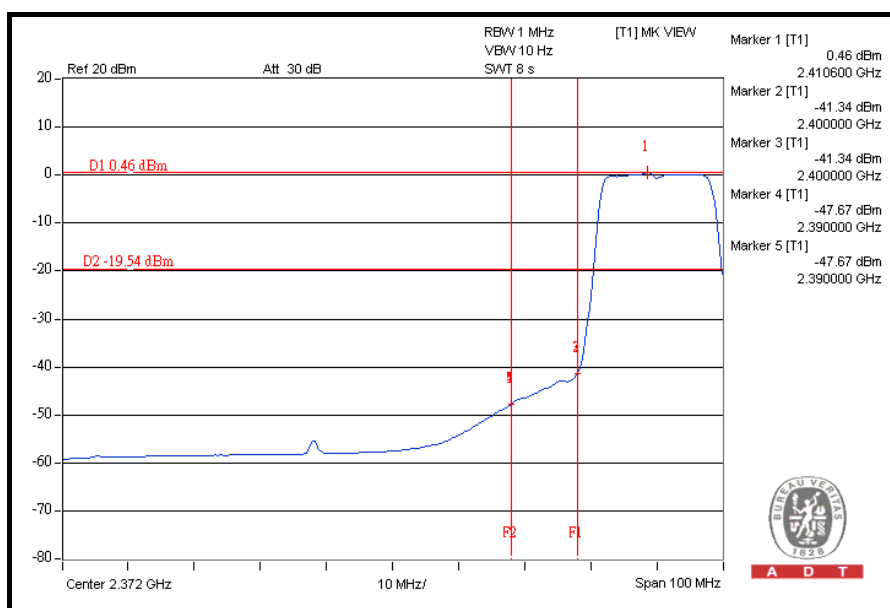
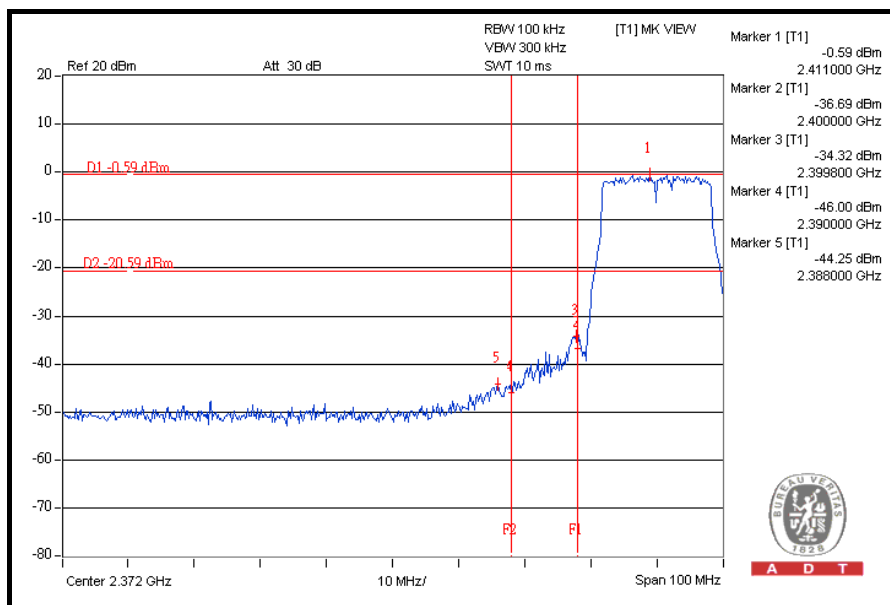
802.11g OFDM MODULATION: 1TX

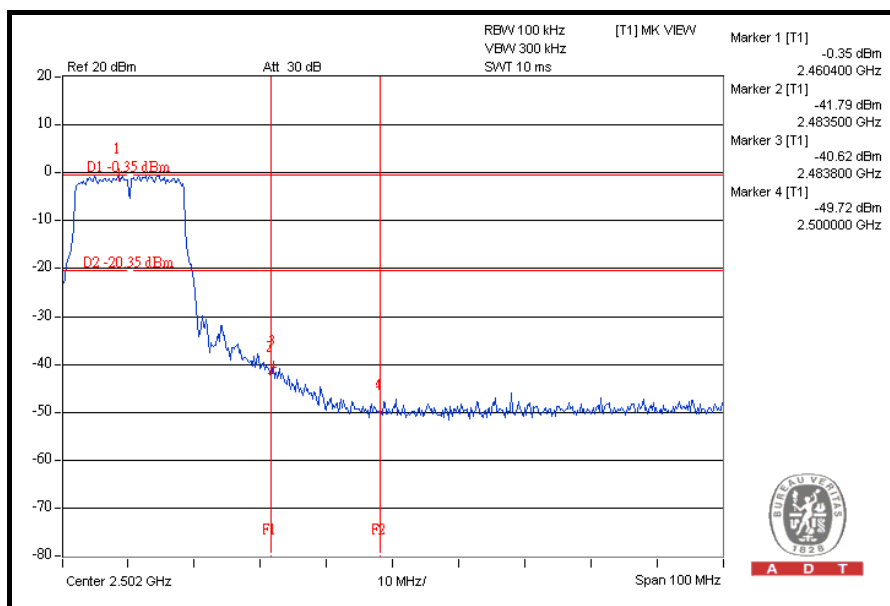
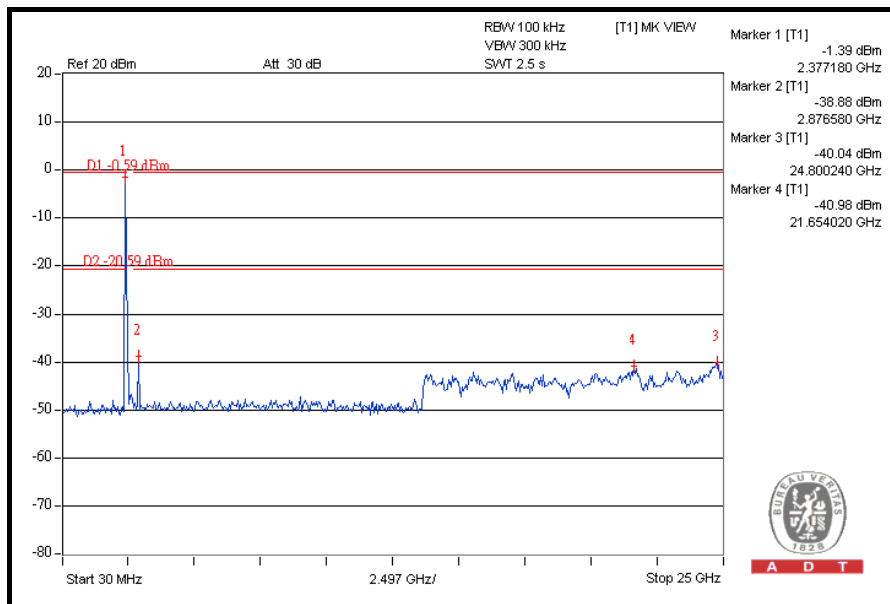
NOTE 1: The band edge emission plot on the next page shows 43.66dBc between carrier maximum power and local maximum emission in restrict band (2.38800GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.06dBuV/m (Peak), so the maximum field strength in restrict band is $111.06 - 43.66 = 67.40$ dBuV/m which is under 74dBuV/m limit.

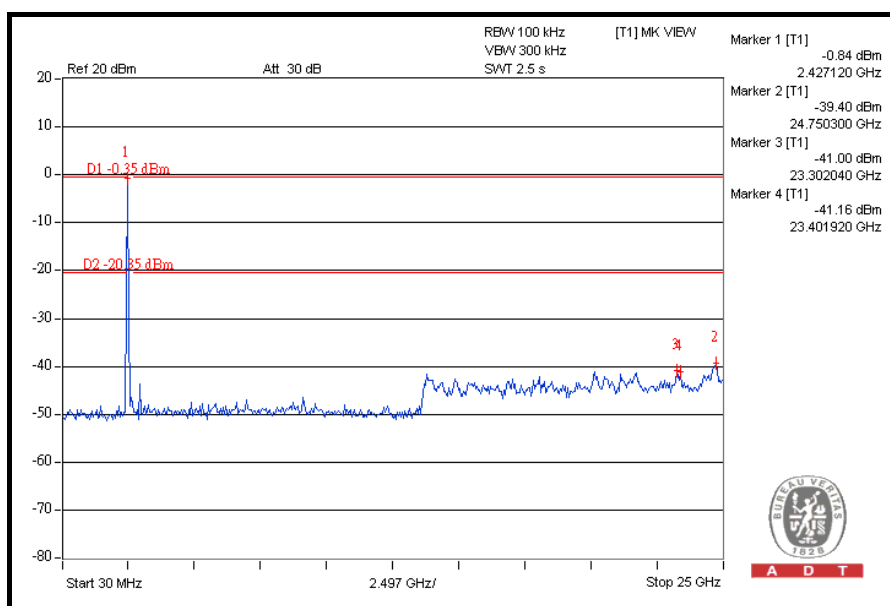
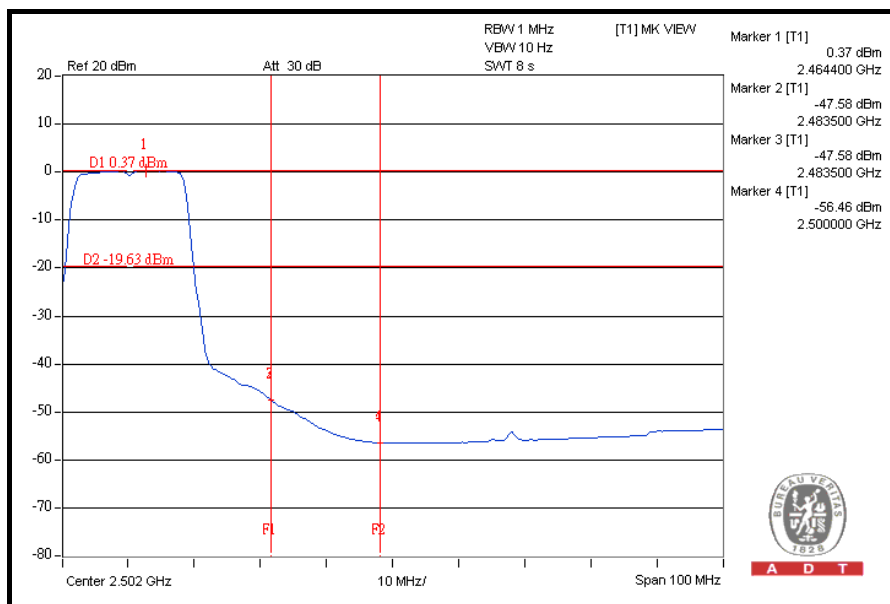
The band edge emission plot of on the next page shows 48.13dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 100.84dBuV/m (Average), so the maximum field strength in restrict band is $100.84 - 48.13 = 52.71$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 40.27dBc between carrier maximum power and local maximum emission in restrict band (2.48380GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 111.16dBuV/m (Peak), so the maximum field strength in restrict band is $111.16 - 40.27 = 70.89$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 47.95dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 100.14dBuV/m (Average), so the maximum field strength in restrict band is $100.14 - 47.95 = 52.19$ dBuV/m which is under 54dBuV/m limit.







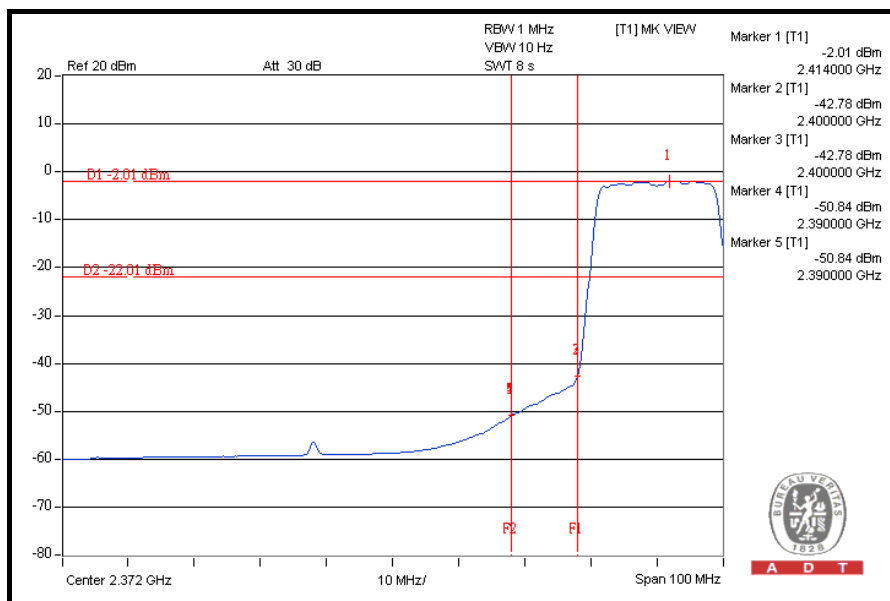
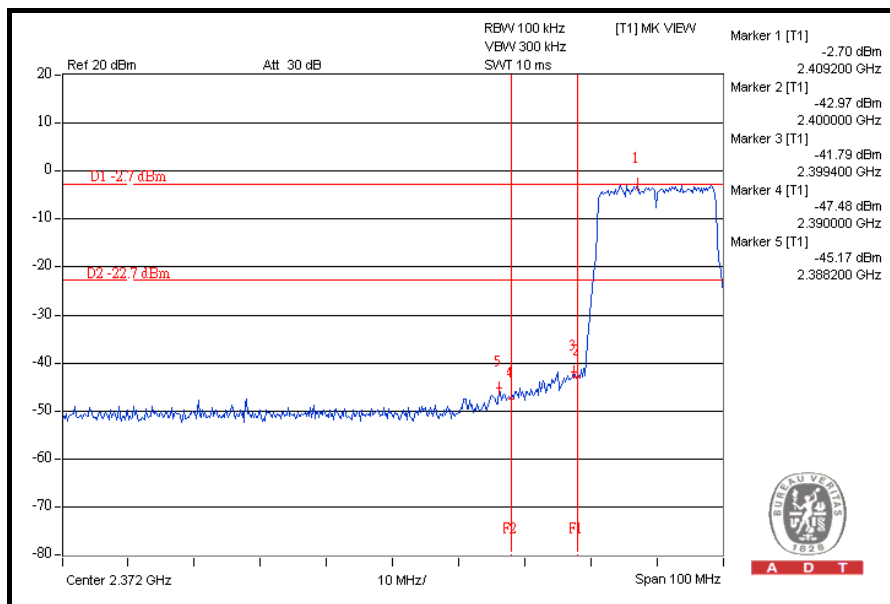
DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

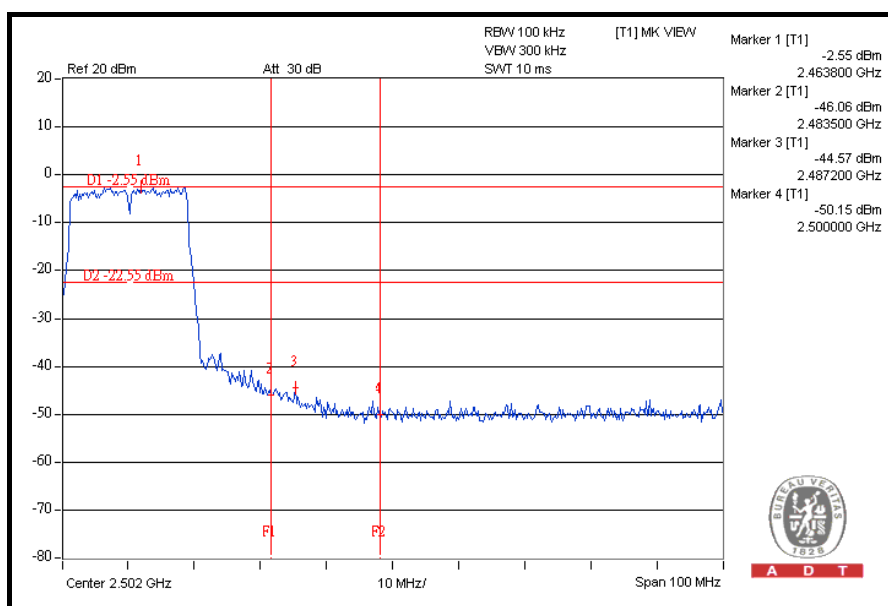
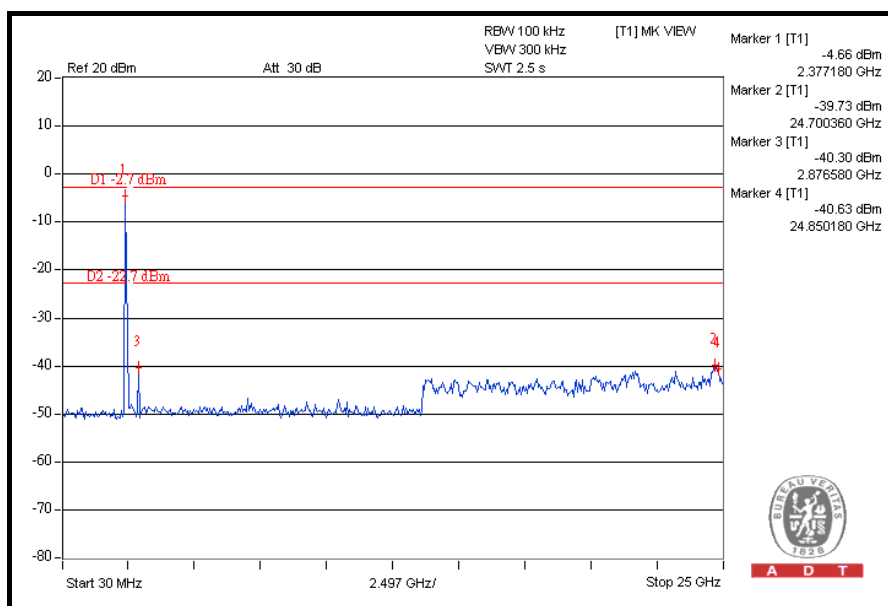
NOTE 1: The band edge emission plot on the next page shows 42.47dBc between carrier maximum power and local maximum emission in restrict band (2.38820GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 108.81dBuV/m (Peak), so the maximum field strength in restrict band is $108.81 - 42.47 = 66.34\text{dBuV/m}$ which is under 74dBuV/m limit.

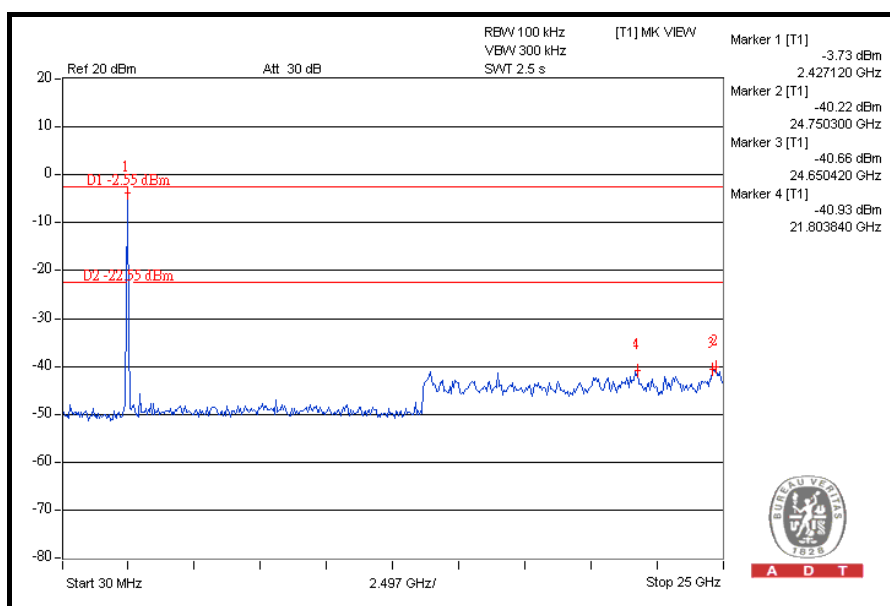
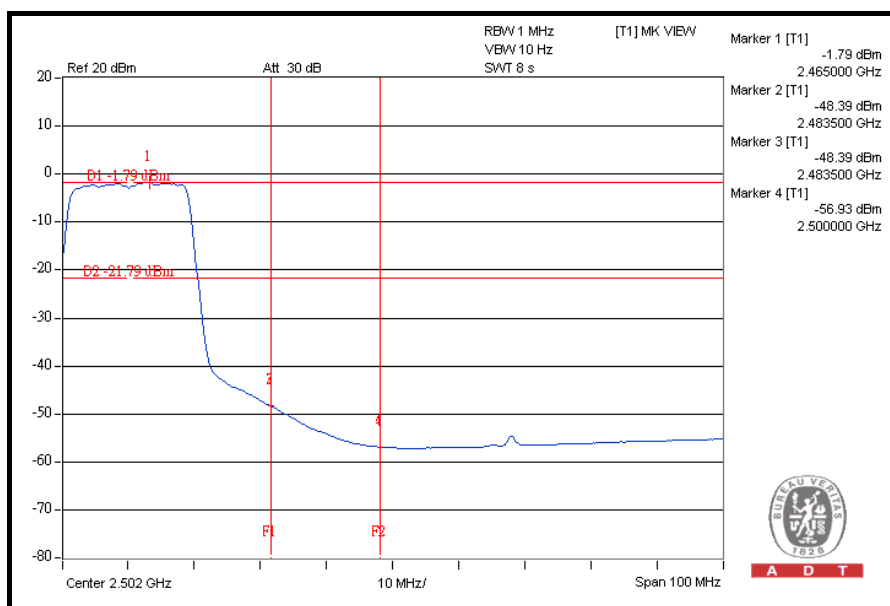
The band edge emission plot of on the next page shows 48.83dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 98.08dBuV/m (Average), so the maximum field strength in restrict band is $98.08 - 48.83 = 49.25\text{dBuV/m}$ which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 42.02dBc between carrier maximum power and local maximum emission in restrict band (2.48720GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 108.95dBuV/m (Peak), so the maximum field strength in restrict band is $108.95 - 42.02 = 66.93\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 46.60dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 98.50dBuV/m (Average), so the maximum field strength in restrict band is $98.50 - 46.60 = 51.90\text{dBuV/m}$ which is under 54dBuV/m limit.







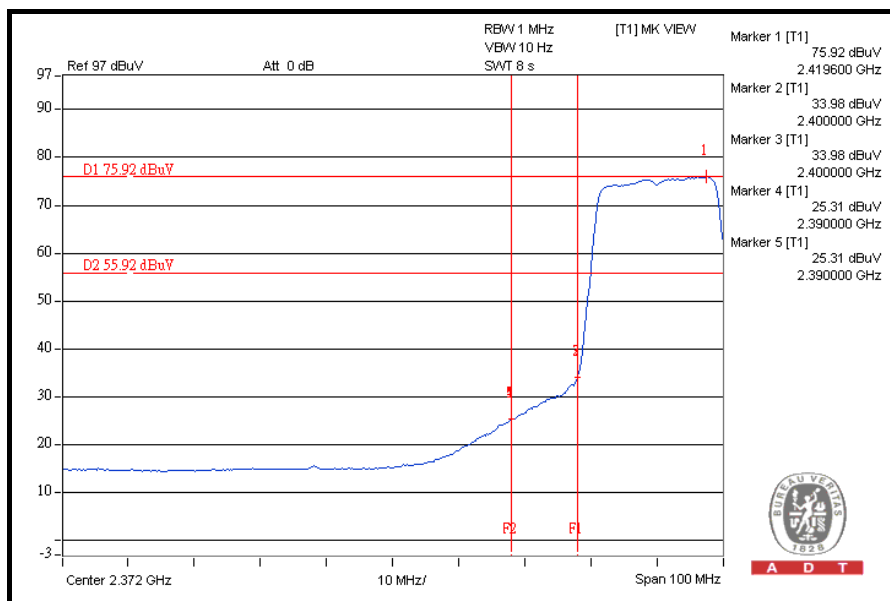
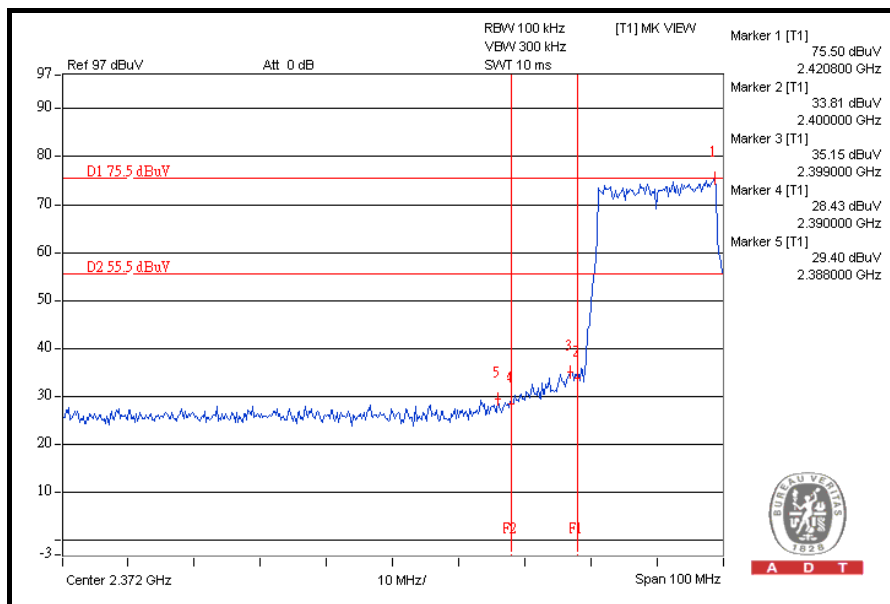
DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

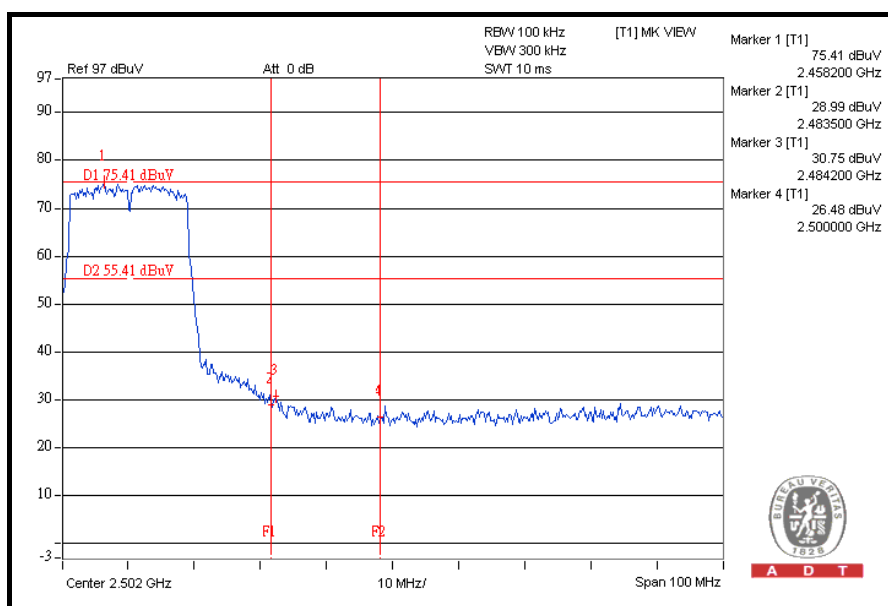
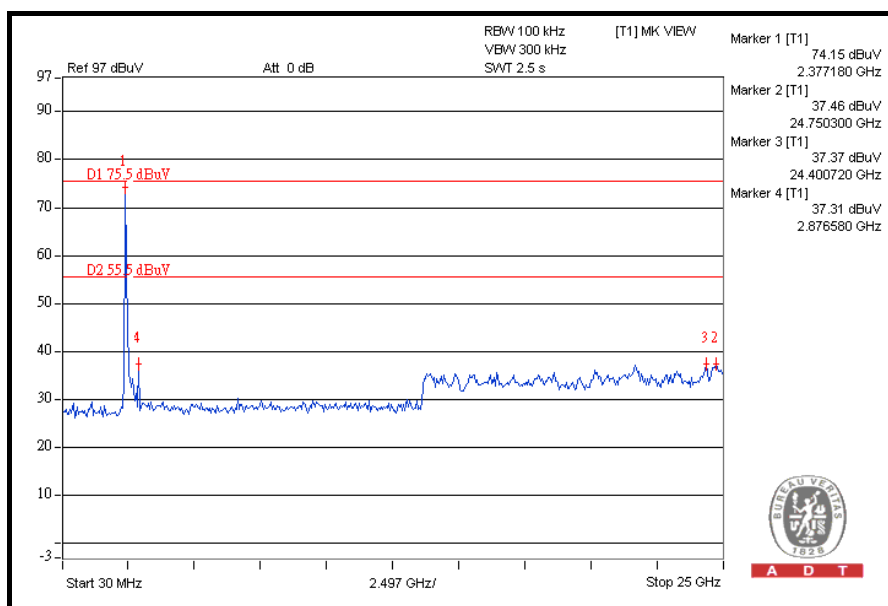
NOTE 1: The band edge emission plot on the next page shows 46.10dBc between carrier maximum power and local maximum emission in restrict band (2.38800GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.24dBuV/m (Peak), so the maximum field strength in restrict band is $111.24 - 46.10 = 65.14$ dBuV/m which is under 74dBuV/m limit.

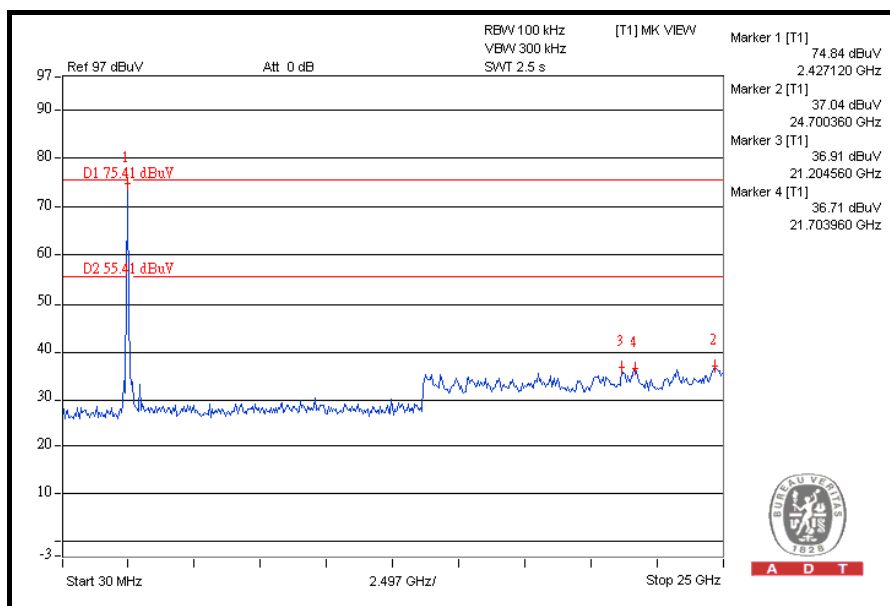
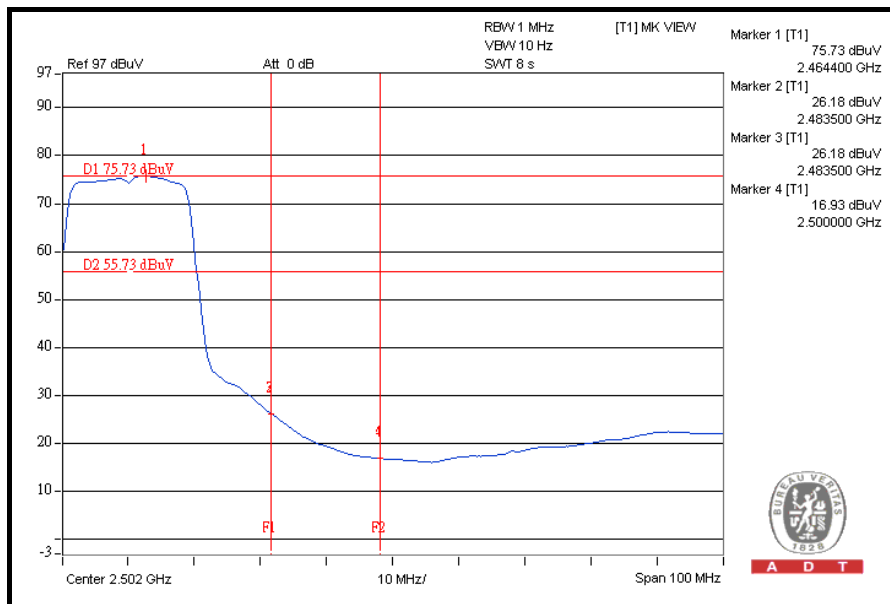
The band edge emission plot of on the next page shows 50.61dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 99.19dBuV/m (Average), so the maximum field strength in restrict band is $99.19 - 50.61 = 48.58$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 44.66dBc between carrier maximum power and local maximum emission in restrict band (2.48420GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 111.27dBuV/m (Peak), so the maximum field strength in restrict band is $111.27 - 44.66 = 66.61$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 49.55dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 99.23dBuV/m (Average), so the maximum field strength in restrict band is $99.23 - 49.55 = 49.68$ dBuV/m which is under 54dBuV/m limit.







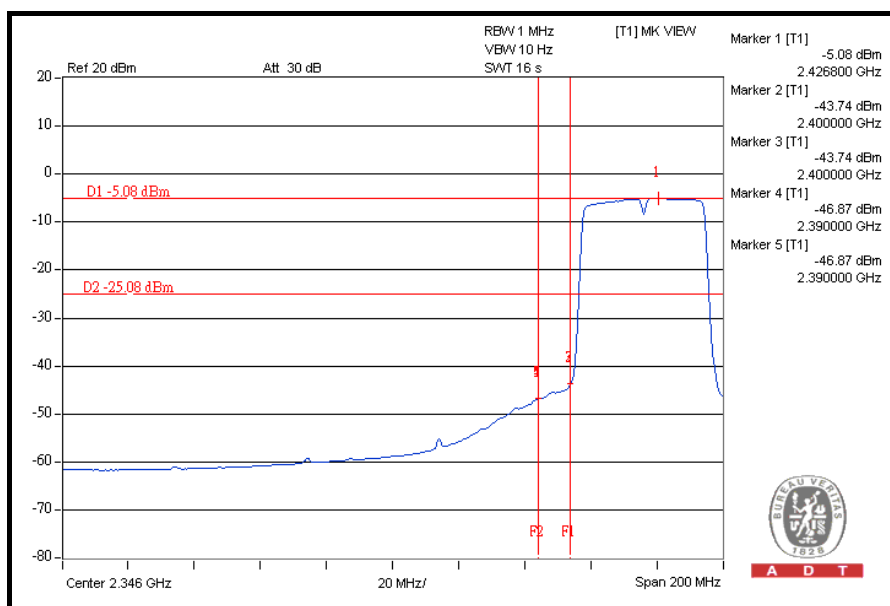
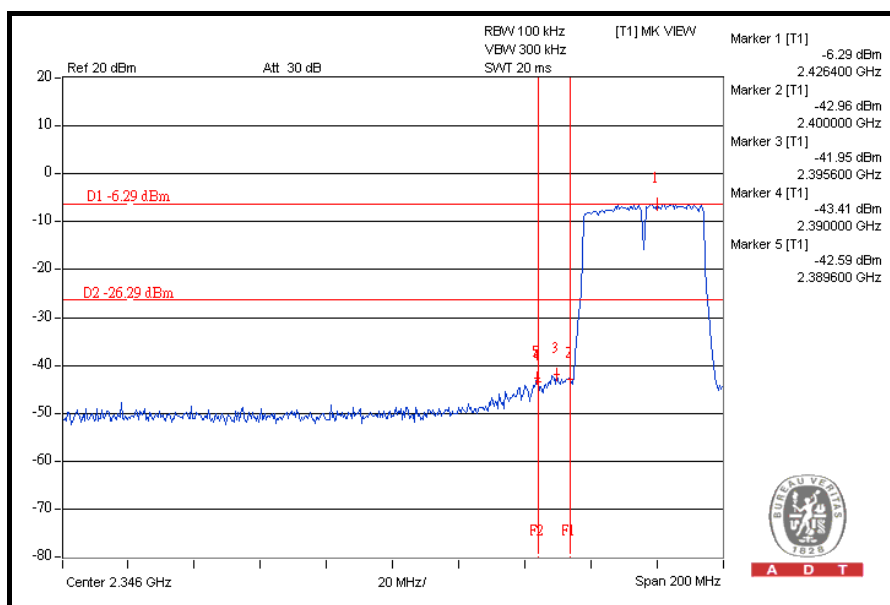
DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

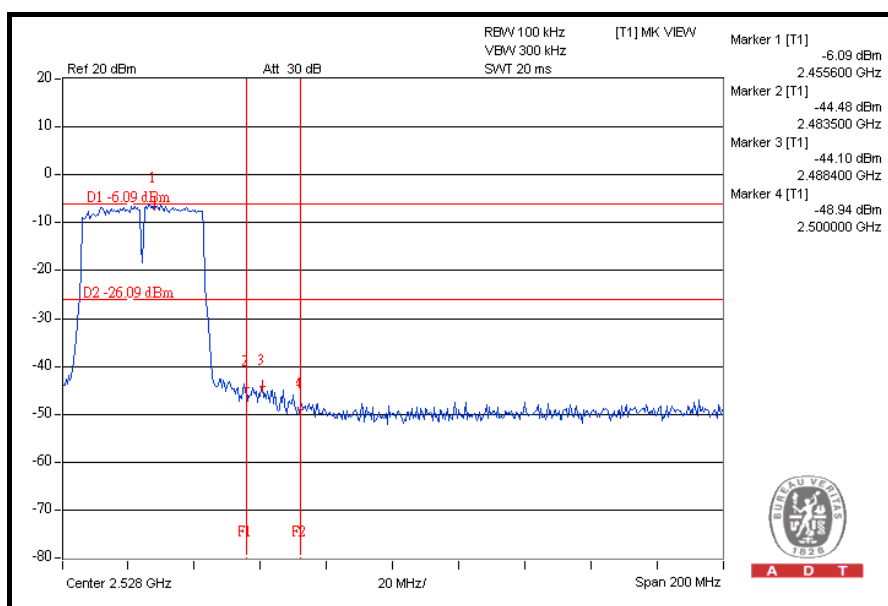
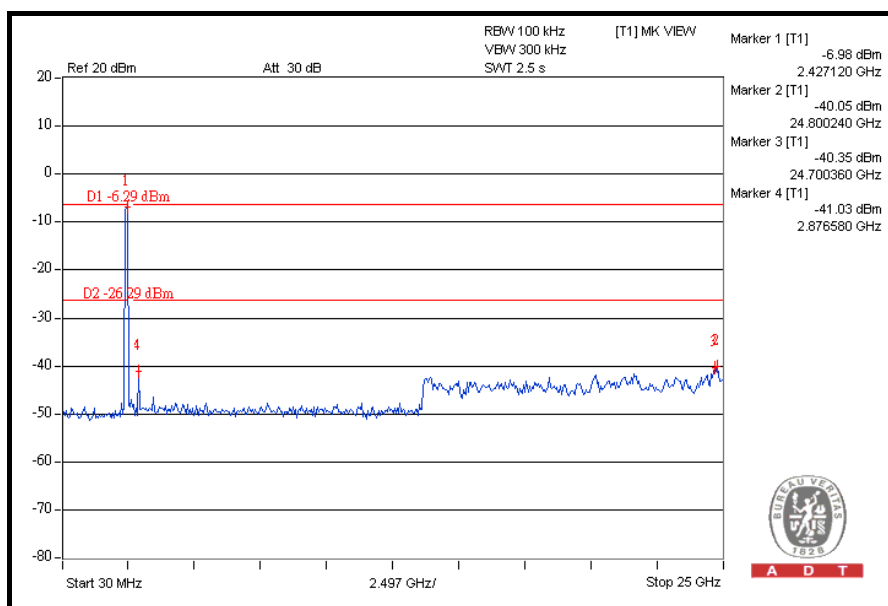
NOTE 1: The band edge emission plot on the next page shows 36.30dBc between carrier maximum power and local maximum emission in restrict band (2.38960GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 104.84dBuV/m (Peak), so the maximum field strength in restrict band is $104.84 - 36.30 = 68.54\text{dBuV/m}$ which is under 74dBuV/m limit.

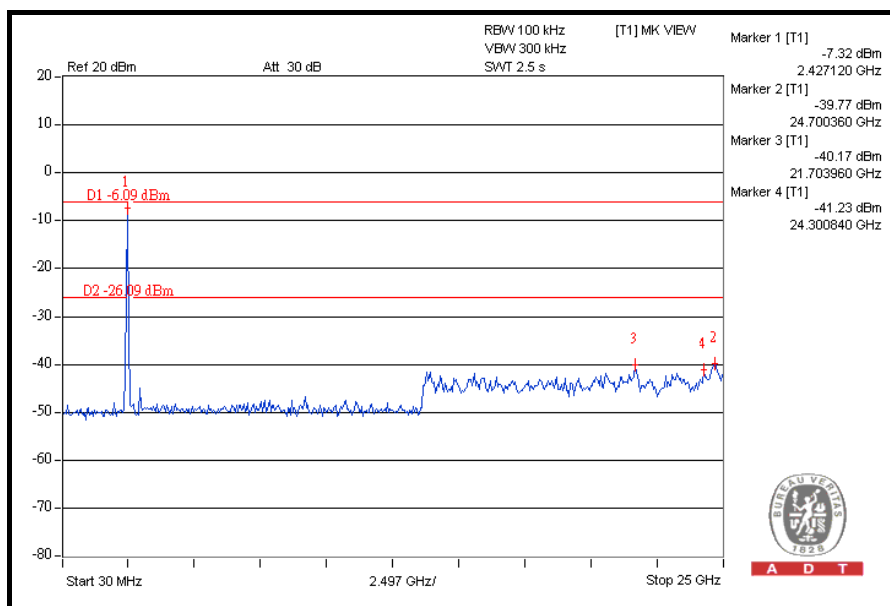
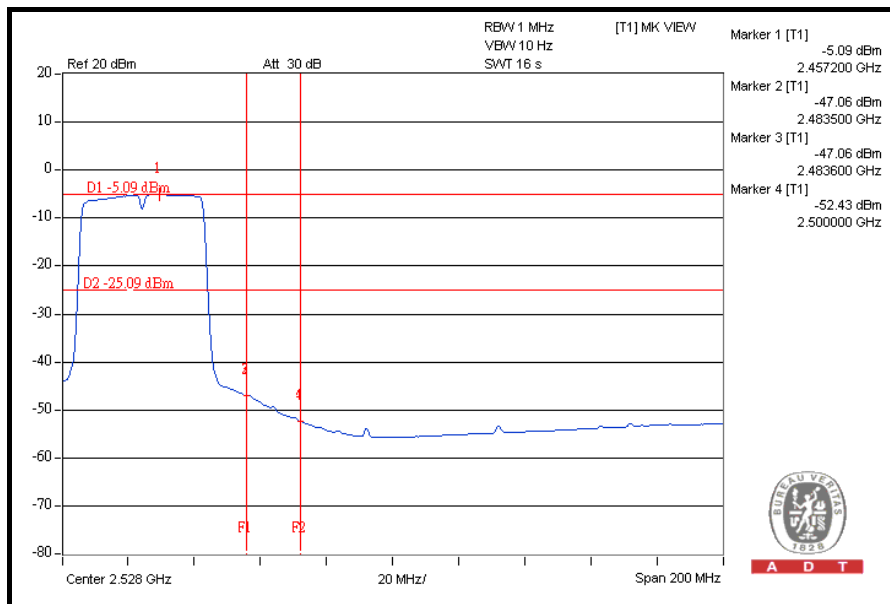
The band edge emission plot of on the next page shows 41.79dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 94.50dBuV/m (Average), so the maximum field strength in restrict band is $94.50 - 41.79 = 52.71\text{dBuV/m}$ which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 38.01dBc between carrier maximum power and local maximum emission in restrict band (2.48840GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 104.94dBuV/m (Peak), so the maximum field strength in restrict band is $104.94 - 38.01 = 66.93\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 41.97dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 94.87dBuV/m (Average), so the maximum field strength in restrict band is $94.87 - 41.97 = 52.90\text{dBuV/m}$ which is under 54dBuV/m limit.







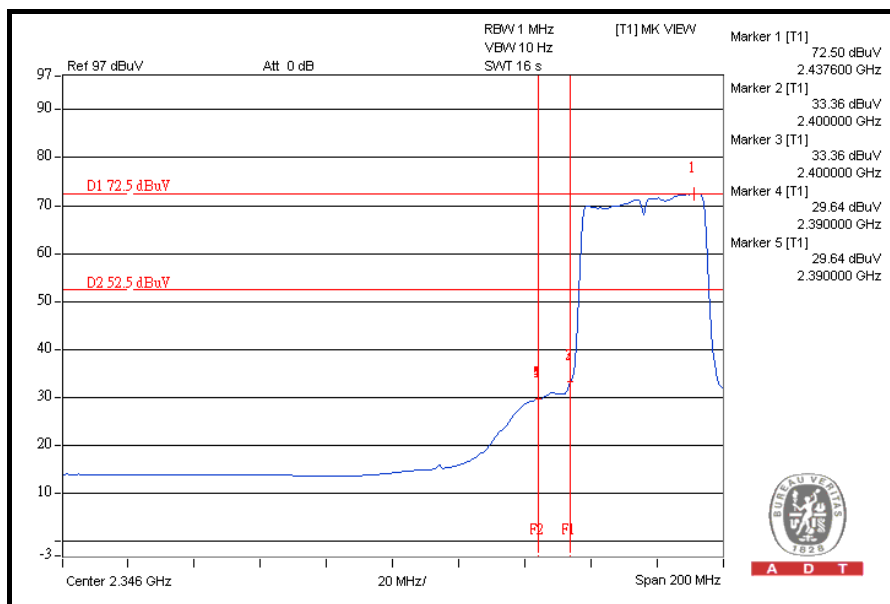
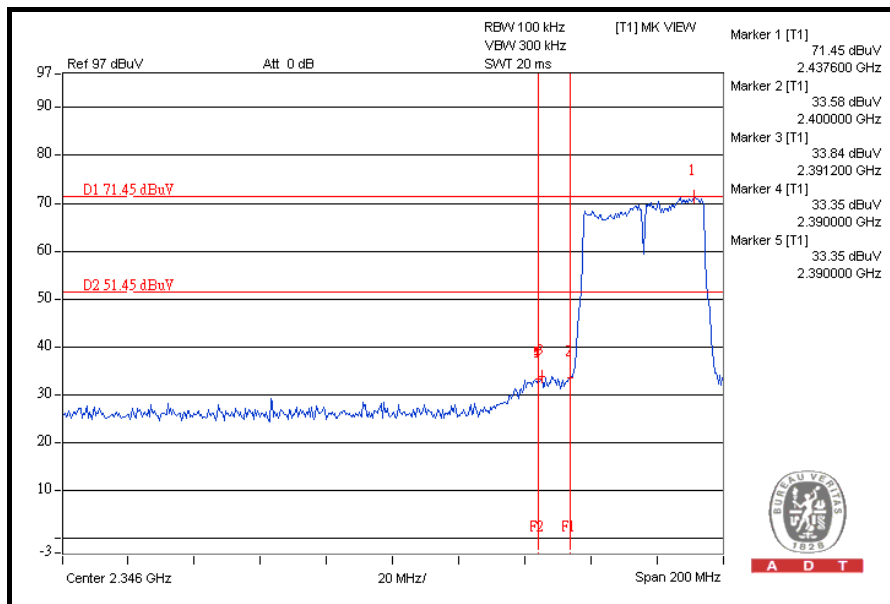
DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

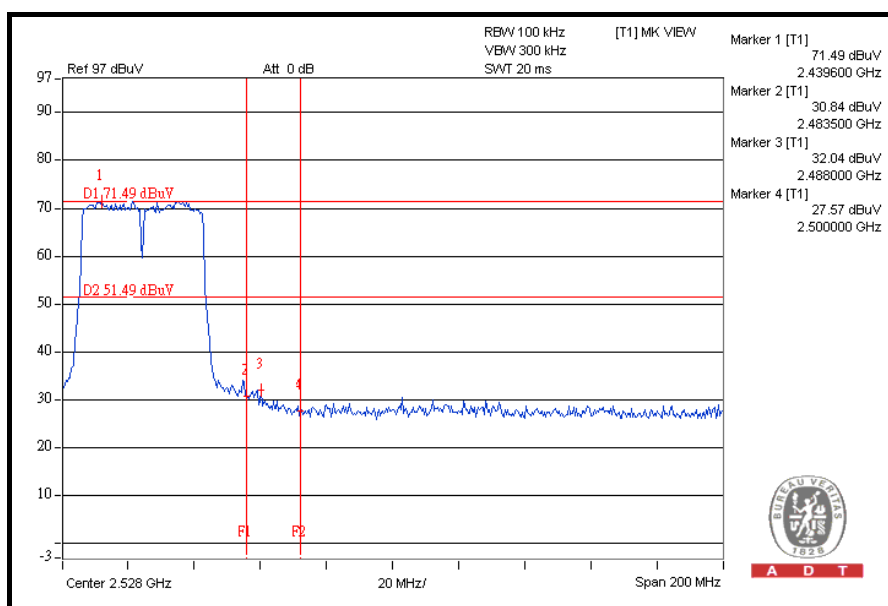
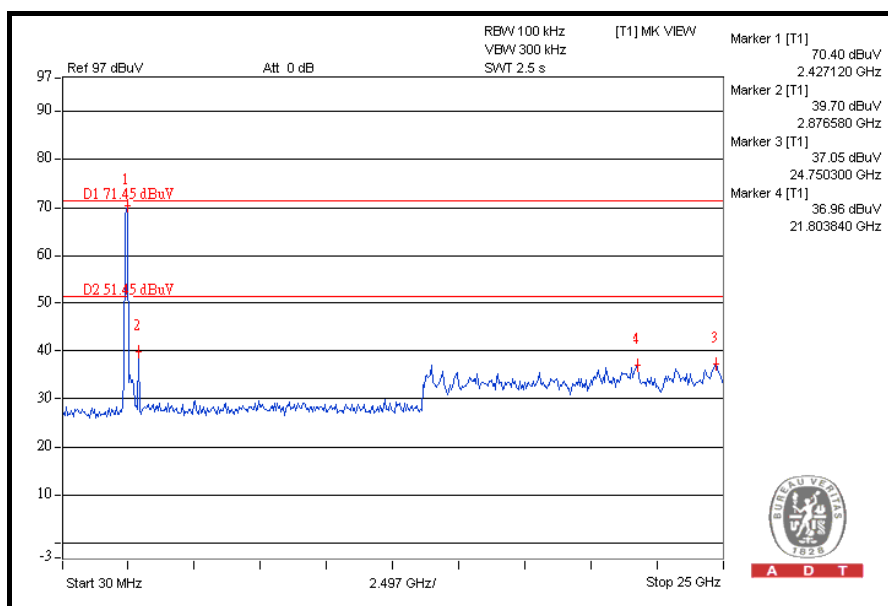
NOTE 1: The band edge emission plot on the next page shows 38.10dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 106.66dBuV/m (Peak), so the maximum field strength in restrict band is $106.66 - 38.10 = 68.56$ dBuV/m which is under 74dBuV/m limit.

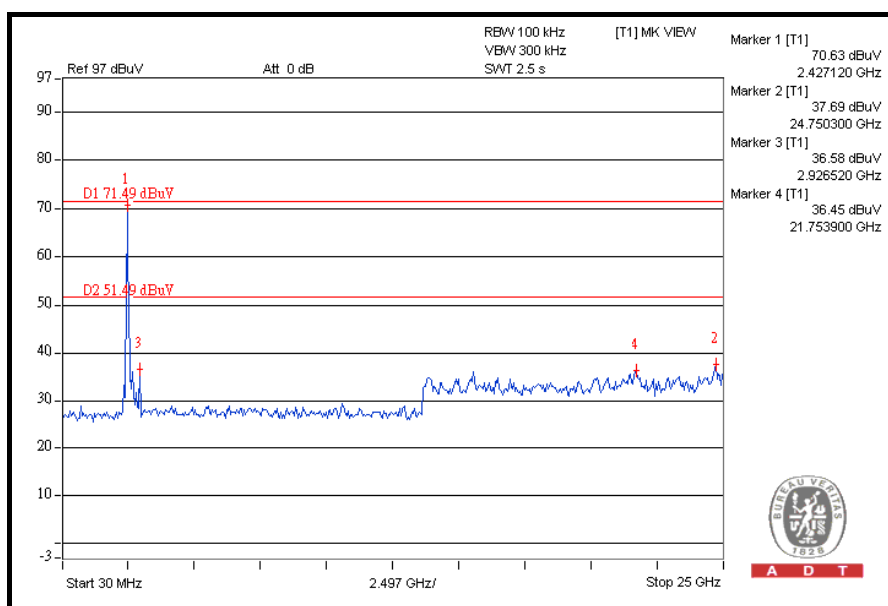
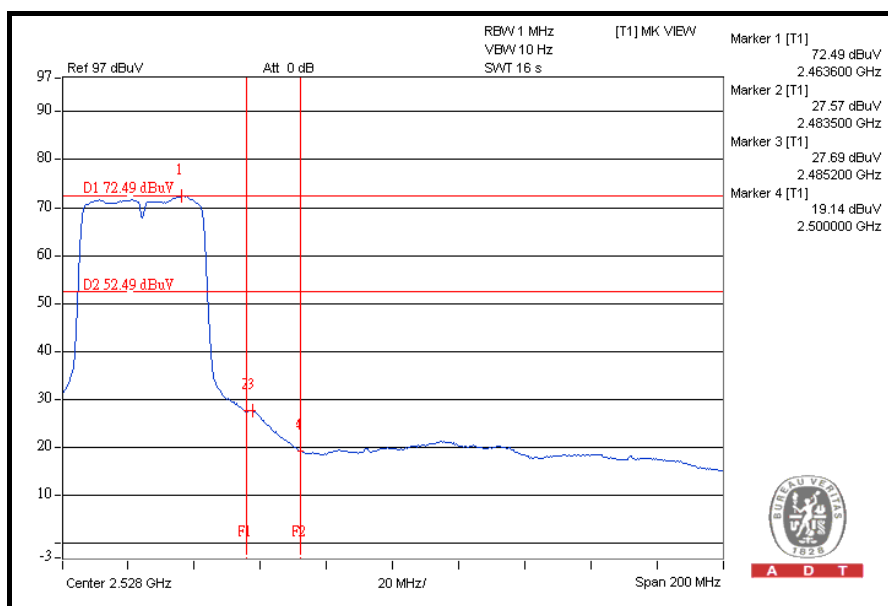
The band edge emission plot of on the next page shows 42.86dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 95.83dBuV/m (Average), so the maximum field strength in restrict band is $95.83 - 42.86 = 52.97$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 39.45dBc between carrier maximum power and local maximum emission in restrict band (2.48800GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 106.62dBuV/m (Peak), so the maximum field strength in restrict band is $106.62 - 39.45 = 67.17$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 44.80dBc between carrier maximum power and local maximum emission in restrict band (2.48520GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 95.91dBuV/m (Average), so the maximum field strength in restrict band is $95.91 - 44.80 = 51.11$ dBuV/m which is under 54dBuV/m limit.







4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna with RP-TNC connector. The maximum gain of the antenna is 2dBi.

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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 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.

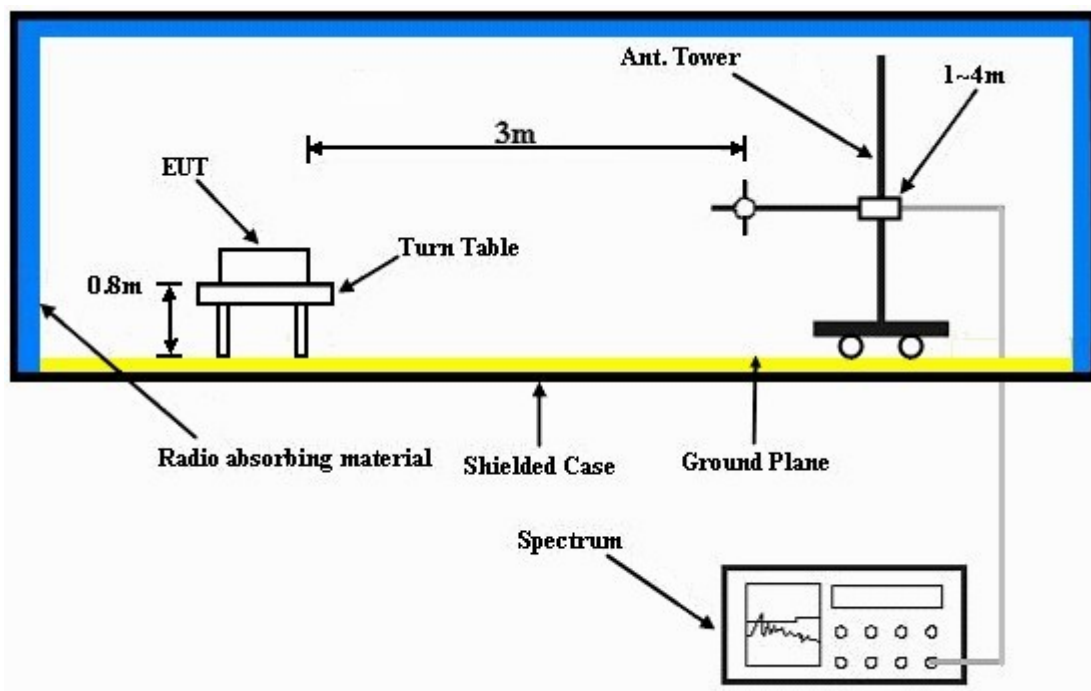
NOTE:

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 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 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.

5.1.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5725.00	61.98 PK	80.30	-18.32	1.02 H	46	21.38	40.60
2	#5725.00	43.76 AV	70.70	-26.94	1.02 H	46	3.16	40.60
3	*5745.00	100.30 PK			1.00 H	222	59.63	40.67
4	*5745.00	90.70 AV			1.00 H	222	50.03	40.67
5	11490.00	61.19 PK	74.00	-12.81	1.00 H	201	9.25	51.94
6	11490.00	46.66 AV	54.00	-7.34	1.00 H	201	-5.28	51.94
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	76.95 PK	90.73	-13.78	1.00 V	189	36.35	40.60
2	#5725.00	56.47 AV	80.35	-23.88	1.00 V	189	15.87	40.60
3	*5745.00	110.73 PK			1.00 V	102	70.06	40.67
4	*5745.00	100.35 AV			1.00 V	102	59.68	40.67
5	11490.00	60.31 PK	74.00	-13.69	1.00 V	215	8.37	51.94
6	11490.00	47.15 AV	54.00	-6.85	1.00 V	215	-4.79	51.94

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	100.41 PK			1.02 H	236	59.59	40.82
2	*5785.00	90.68 AV			1.02 H	236	49.86	40.82
3	11570.00	61.57 PK	74.00	-12.43	1.02 H	206	9.71	51.86
4	11570.00	46.06 AV	54.00	-7.94	1.02 H	206	-5.80	51.86
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	110.68 PK			1.00 V	103	69.86	40.82
2	*5785.00	100.30 AV			1.00 V	103	59.48	40.82
3	11570.00	60.99 PK	74.00	-13.01	1.29 V	306	9.13	51.86
4	11570.00	47.95 AV	54.00	-6.05	1.29 V	306	-3.91	51.86

- 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, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	100.53 PK			1.01 H	261	59.64	40.89
2	*5825.00	90.65 AV			1.01 H	261	49.76	40.89
3	#5850.00	67.95 PK	80.53	-12.58	1.00 H	178	27.04	40.91
4	#5850.00	49.78 AV	70.65	-20.87	1.00 H	178	8.87	40.91
5	11650.00	61.81 PK	74.00	-12.19	1.00 H	20	10.08	51.73
6	11650.00	46.32 AV	54.00	-7.68	1.00 H	20	-5.41	51.73
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	110.55 PK			1.00 V	110	69.66	40.89
2	*5825.00	100.15 AV			1.00 V	110	59.26	40.89
3	#5850.00	75.56 PK	90.55	-14.99	1.00 V	233	34.65	40.91
4	#5850.00	55.20 AV	80.15	-24.95	1.00 V	233	14.29	40.91
5	11650.00	60.88 PK	74.00	-13.12	1.26 V	278	9.15	51.73
6	11650.00	46.23 AV	54.00	-7.77	1.26 V	278	-5.50	51.73

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.

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	57.62 PK	77.28	-19.66	1.01 H	42	17.02	40.60
2	#5725.00	45.92 AV	67.62	-21.70	1.01 H	42	5.32	40.60
3	*5745.00	97.28 PK			1.02 H	45	56.61	40.67
4	*5745.00	87.62 AV			1.02 H	45	46.95	40.67
5	#6894.00	52.36 PK	77.28	-24.92	1.20 H	356	7.87	44.49
6	#6894.00	39.12 AV	67.62	-28.50	1.20 H	356	-5.37	44.49
7	11490.00	61.23 PK	74.00	-12.77	1.19 H	199	9.29	51.94
8	11490.00	47.85 AV	54.00	-6.15	1.19 H	199	-4.09	51.94
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	74.62 PK	88.68	-14.06	1.03 V	45	34.02	40.60
2	#5725.00	59.18 AV	78.59	-19.41	1.03 V	45	18.58	40.60
3	*5745.00	108.68 PK			1.03 V	51	68.01	40.67
4	*5745.00	98.59 AV			1.03 V	51	57.92	40.67
5	#6894.00	52.30 PK	88.68	-36.38	1.12 V	359	7.81	44.49
6	#6894.00	39.01 AV	78.59	-39.58	1.12 V	359	-5.48	44.49
7	11490.00	64.51 PK	74.00	-9.49	1.20 V	265	12.57	51.94
8	11490.00	49.86 AV	54.00	-4.14	1.20 V	265	-2.08	51.94

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	97.23 PK			1.00 H	23	56.41	40.82
2	*5785.00	87.59 AV			1.00 H	23	46.77	40.82
3	#6942.00	52.36 PK	77.23	-24.87	1.12 H	56	7.74	44.62
4	#6942.00	37.95 AV	67.59	-29.64	1.12 H	56	-6.67	44.62
5	11570.00	59.26 PK	74.00	-14.74	1.14 H	188	7.40	51.86
6	11570.00	47.62 AV	54.00	-6.38	1.14 H	188	-4.24	51.86
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	108.54 PK			1.02 V	51	67.72	40.82
2	*5785.00	98.32 AV			1.02 V	51	57.50	40.82
3	#6942.00	52.49 PK	88.54	-36.05	1.00 V	144	7.87	44.62
4	#6942.00	39.62 AV	78.32	-38.70	1.00 V	144	-5.00	44.62
5	11570.00	65.48 PK	74.00	-8.52	1.33 V	269	13.62	51.86
6	11570.00	49.88 AV	54.00	-4.12	1.33 V	269	-1.98	51.86

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	97.48 PK			1.20 H	36	56.59	40.89
2	*5825.00	87.79 AV			1.20 H	36	46.90	40.89
3	#5850.00	56.16 PK	77.48	-21.32	1.20 H	41	15.25	40.91
4	#5850.00	45.92 AV	67.79	-21.87	1.20 H	41	5.01	40.91
5	#6990.00	51.33 PK	77.48	-26.15	1.00 H	120	6.59	44.74
6	#6990.00	39.62 AV	67.79	-28.17	1.00 H	120	-5.12	44.74
7	11650.00	60.32 PK	74.00	-13.68	1.23 H	186	8.59	51.73
8	11650.00	47.21 AV	54.00	-6.79	1.23 H	186	-4.52	51.73
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	108.62 PK			1.08 V	188	67.73	40.89
2	*5825.00	98.71 AV			1.08 V	188	57.82	40.89
3	#5850.00	67.26 PK	88.62	-21.36	1.00 V	186	26.35	40.91
4	#5850.00	56.49 AV	78.71	-22.22	1.00 V	186	15.58	40.91
5	#6990.00	52.63 PK	88.62	-35.99	1.00 V	26	7.89	44.74
6	#6990.00	39.26 AV	78.71	-39.45	1.00 V	26	-5.48	44.74
7	11650.00	61.48 PK	74.00	-12.52	1.23 V	179	9.75	51.73
8	11650.00	49.06 AV	54.00	-4.94	1.23 V	179	-2.67	51.73

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.

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	60.58 PK	78.47	-17.89	1.01 H	39	19.98	40.60
2	#5725.00	48.02 AV	68.53	-20.51	1.01 H	39	7.42	40.60
3	*5745.00	98.47 PK			1.01 H	39	57.80	40.67
4	*5745.00	88.53 AV			1.01 H	39	47.86	40.67
5	#6894.00	52.43 PK	78.47	-26.04	1.18 H	360	7.93	44.49
6	#6894.00	38.41 AV	68.53	-30.12	1.18 H	360	-6.08	44.49
7	11490.00	60.94 PK	74.00	-13.06	1.18 H	195	9.00	51.94
8	11490.00	47.83 AV	54.00	-6.17	1.18 H	195	-4.11	51.94
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	77.59 PK	89.52	-11.93	1.04 V	43	36.99	40.60
2	#5725.00	62.33 AV	79.40	-17.07	1.04 V	43	21.73	40.60
3	*5745.00	109.52 PK			1.04 V	43	68.85	40.67
4	*5745.00	99.40 AV			1.04 V	43	58.73	40.67
5	#6894.00	52.10 PK	89.52	-37.42	1.18 V	360	7.60	44.49
6	#6894.00	38.77 AV	79.40	-40.63	1.18 V	360	-5.72	44.49
7	11490.00	62.52 PK	74.00	-11.48	1.31 V	277	10.58	51.94
8	11490.00	48.94 AV	54.00	-5.06	1.31 V	277	-3.00	51.94

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	98.56 PK			1.00 H	19	57.74	40.82
2	*5785.00	88.67 AV			1.00 H	19	47.85	40.82
3	#6942.00	52.67 PK	78.56	-25.89	1.11 H	50	8.05	44.62
4	#6942.00	38.31 AV	68.67	-30.36	1.11 H	50	-6.31	44.62
5	11570.00	60.99 PK	74.00	-13.01	1.15 H	174	9.13	51.86
6	11570.00	47.11 AV	54.00	-6.89	1.15 H	174	-4.75	51.86
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	109.76 PK			1.03 V	43	68.94	40.82
2	*5785.00	99.59 AV			1.03 V	43	58.77	40.82
3	#6942.00	52.40 PK	89.76	-37.36	1.00 V	150	7.78	44.62
4	#6942.00	38.17 AV	79.59	-41.42	1.00 V	150	-6.45	44.62
5	11570.00	64.57 PK	74.00	-9.43	1.35 V	280	12.71	51.86
6	11570.00	49.00 AV	54.00	-5.00	1.35 V	280	-2.86	51.86

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	98.71 PK			1.18 H	37	57.82	40.89
2	*5825.00	87.18 AV			1.18 H	37	46.29	40.89
3	#5850.00	59.59 PK	78.71	-19.12	1.18 H	37	18.68	40.91
4	#5850.00	48.32 AV	67.18	-18.86	1.18 H	37	7.41	40.91
5	#6990.00	51.26 PK	78.71	-27.45	1.00 H	110	6.52	44.74
6	#6990.00	38.52 AV	67.18	-28.66	1.00 H	110	-6.22	44.74
7	11650.00	62.72 PK	74.00	-11.28	1.22 H	172	10.99	51.73
8	11650.00	48.42 AV	54.00	-5.58	1.22 H	172	-3.31	51.73
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	109.77 PK			1.09 V	189	68.88	40.89
2	*5825.00	99.88 AV			1.09 V	189	58.99	40.89
3	#5850.00	70.40 PK	89.77	-19.37	1.00 V	188	29.49	40.91
4	#5850.00	59.11 AV	79.88	-20.77	1.00 V	188	18.20	40.91
5	#6990.00	52.70 PK	89.77	-37.07	1.00 V	59	7.96	44.74
6	#6990.00	38.82 AV	79.88	-41.06	1.00 V	59	-5.92	44.74
7	11650.00	61.80 PK	74.00	-12.20	1.32 V	180	10.07	51.73
8	11650.00	49.64 AV	54.00	-4.36	1.32 V	180	-2.09	51.73

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.

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	59.22 PK	73.59	-14.37	1.11 H	88	18.62	40.60
2	#5725.00	47.74 AV	62.97	-15.23	1.11 H	88	7.14	40.60
3	*5755.00	93.59 PK			1.11 H	88	52.88	40.71
4	*5755.00	82.97 AV			1.11 H	88	42.26	40.71
5	#6906.00	52.89 PK	73.59	-20.70	1.09 H	144	8.36	44.53
6	#6906.00	38.49 AV	62.97	-24.48	1.09 H	144	-6.04	44.53
7	11510.00	60.93 PK	74.00	-13.07	1.34 H	217	8.99	51.94
8	11510.00	46.27 AV	54.00	-7.73	1.34 H	217	-5.67	51.94
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	71.81 PK	85.30	-13.49	1.20 V	186	31.21	40.60
2	#5725.00	60.69 AV	75.08	-14.39	1.20 V	186	20.09	40.60
3	*5755.00	105.30 PK			1.20 V	186	64.59	40.71
4	*5755.00	95.08 AV			1.20 V	186	54.37	40.71
5	#6906.00	52.49 PK	85.30	-32.81	1.11 V	149	7.96	44.53
6	#6906.00	38.82 AV	75.08	-36.26	1.11 V	149	-5.71	44.53
7	11510.00	61.67 PK	74.00	-12.33	1.04 V	29	9.73	51.94
8	11510.00	48.50 AV	54.00	-5.50	1.04 V	29	-3.44	51.94

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	93.67 PK			1.09 H	99	52.82	40.85
2	*5795.00	83.04 AV			1.09 H	99	42.19	40.85
3	#5850.00	58.14 PK	73.67	-15.53	1.09 H	99	17.23	40.91
4	#5850.00	46.47 AV	63.04	-16.57	1.09 H	99	5.56	40.91
5	#6954.00	51.67 PK	73.67	-22.00	1.10 H	360	7.02	44.65
6	#6954.00	38.50 AV	63.04	-24.54	1.10 H	360	-6.15	44.65
7	11590.00	60.17 PK	74.00	-13.83	1.00 H	360	8.34	51.83
8	11590.00	46.63 AV	54.00	-7.37	1.00 H	360	-5.20	51.83
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	105.14 PK			1.19 V	196	64.29	40.85
2	*5795.00	95.21 AV			1.19 V	196	54.36	40.85
3	#5850.00	70.54 PK	85.14	-14.60	1.19 V	196	29.63	40.91
4	#5850.00	59.87 AV	75.21	-15.34	1.19 V	196	18.96	40.91
5	#6954.00	52.33 PK	85.14	-32.81	1.09 V	154	7.68	44.65
6	#6954.00	38.90 AV	75.21	-36.31	1.09 V	154	-5.75	44.65
7	11590.00	62.10 PK	74.00	-11.90	1.03 V	35	10.27	51.83
8	11590.00	48.96 AV	54.00	-5.04	1.03 V	35	-2.87	51.83

- 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.

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	59.79 PK	75.08	-15.29	1.00 H	40	19.19	40.60
2	#5725.00	47.97 AV	64.21	-16.24	1.00 H	40	7.37	40.60
3	*5755.00	95.08 PK			1.00 H	40	54.37	40.71
4	*5755.00	84.21 AV			1.00 H	40	43.50	40.71
5	#6906.00	51.56 PK	75.08	-23.52	1.00 H	360	7.03	44.53
6	#6906.00	37.52 AV	64.21	-26.69	1.00 H	360	-7.01	44.53
7	11510.00	59.85 PK	74.00	-14.15	1.00 H	360	7.91	51.94
8	11510.00	47.53 AV	54.00	-6.47	1.00 H	360	-4.41	51.94
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	74.46 PK	87.19	-12.73	1.01 V	188	33.86	40.60
2	#5725.00	62.58 AV	76.31	-13.73	1.01 V	188	21.98	40.60
3	*5755.00	107.19 PK			1.01 V	188	66.48	40.71
4	*5755.00	96.31 AV			1.01 V	188	55.60	40.71
5	#6906.00	51.27 PK	87.19	-35.92	1.11 V	12	6.74	44.53
6	#6906.00	38.59 AV	76.31	-37.72	1.11 V	12	-5.94	44.53
7	11510.00	62.47 PK	74.00	-11.53	1.36 V	216	10.53	51.94
8	11510.00	49.21 AV	54.00	-4.79	1.36 V	216	-2.73	51.94

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 998hPa	TESTED BY	Antony Lee

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	95.11 PK			1.00 H	51	54.26	40.85
2	*5795.00	84.23 AV			1.00 H	51	43.38	40.85
3	#5850.00	60.07 PK	75.11	-15.04	1.00 H	51	19.16	40.91
4	#5850.00	48.23 AV	64.23	-16.00	1.00 H	51	7.32	40.91
5	#6954.00	51.23 PK	75.11	-23.88	1.00 H	1	6.58	44.65
6	#6954.00	38.63 AV	64.23	-25.60	1.00 H	1	-6.02	44.65
7	11590.00	60.23 PK	74.00	-13.77	1.10 H	194	8.40	51.83
8	11590.00	47.15 AV	54.00	-6.85	1.10 H	194	-4.68	51.83
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	107.06 PK			1.02 V	191	66.21	40.85
2	*5795.00	96.22 AV			1.02 V	191	55.37	40.85
3	#5850.00	73.56 PK	87.06	-13.50	1.02 V	191	32.65	40.91
4	#5850.00	62.69 AV	76.22	-13.53	1.02 V	191	21.78	40.91
5	#6954.00	51.04 PK	87.06	-36.02	1.02 V	333	6.39	44.65
6	#6954.00	38.41 AV	76.22	-37.81	1.02 V	333	-6.24	44.65
7	11590.00	63.25 PK	74.00	-10.75	1.44 V	223	11.42	51.83
8	11590.00	50.23 AV	54.00	-3.77	1.44 V	223	-1.60	51.83

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.

BELOW 1GHz WORST-CASE DATA : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1023hPa	TESTED BY	Antony Lee

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	99.89	34.92 QP	43.50	-8.58	2.00 H	1	25.59	9.33
2	232.11	38.08 QP	46.00	-7.92	1.25 H	193	26.05	12.03
3	263.21	38.06 QP	46.00	-7.94	1.00 H	124	25.00	13.06
4	529.58	39.76 QP	46.00	-6.24	1.25 H	139	19.62	20.14
5	665.68	40.13 QP	46.00	-5.87	1.00 H	64	17.68	22.45
6	924.27	42.06 QP	46.00	-3.94	1.25 H	79	15.77	26.29
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	99.89	35.00 QP	43.50	-8.50	1.50 V	181	25.67	9.33
2	397.37	36.37 QP	46.00	-9.63	1.25 V	169	20.37	16.00
3	531.53	42.01 QP	46.00	-3.99	1.50 V	115	21.81	20.20
4	665.68	36.93 QP	46.00	-9.07	2.00 V	88	14.49	22.45
5	797.89	37.50 QP	46.00	-8.50	1.25 V	73	12.23	25.26
6	924.27	41.53 QP	46.00	-4.47	1.50 V	112	15.24	26.29

- 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 (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 19, 2008	Nov. 18, 2009
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Dec. 04, 2008	Dec. 03, 2009
Software ADT	ADT_Conc_ V7.3.6	NA	NA	NA

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

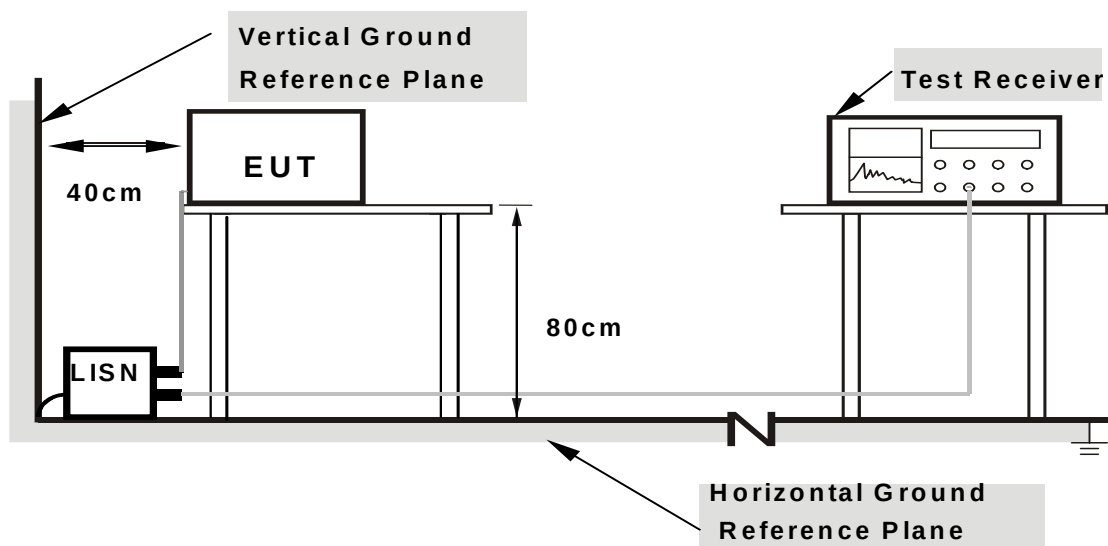
5.2.3 TEST PROCEDURES

- 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 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

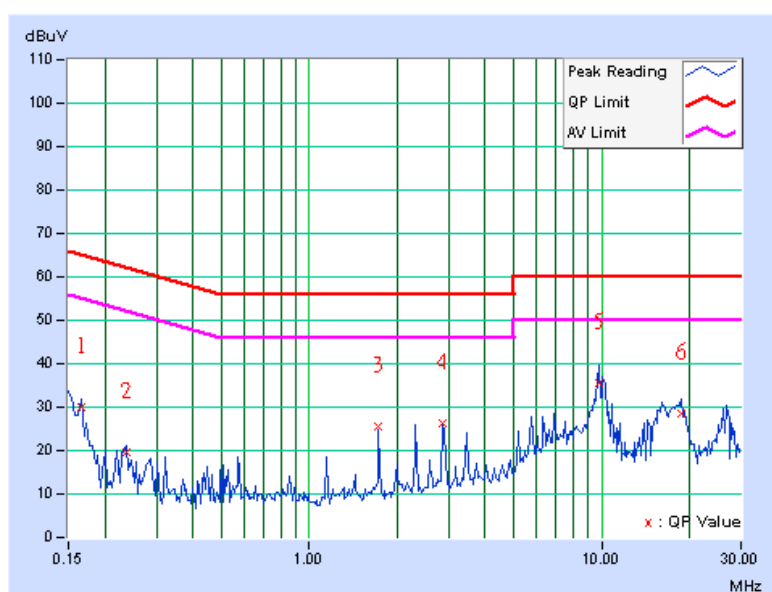
5.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1021hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.20	29.13	-	29.33	-	65.18	55.18	-35.85	-
2	0.236	0.20	18.72	-	18.92	-	62.24	52.24	-43.32	-
3	1.727	0.20	24.72	-	24.92	-	56.00	46.00	-31.08	-
4	2.875	0.29	25.51	-	25.80	-	56.00	46.00	-30.20	-
5	9.773	0.53	34.42	-	34.95	-	60.00	50.00	-25.05	-
6	18.684	0.95	27.42	-	28.37	-	60.00	50.00	-31.63	-

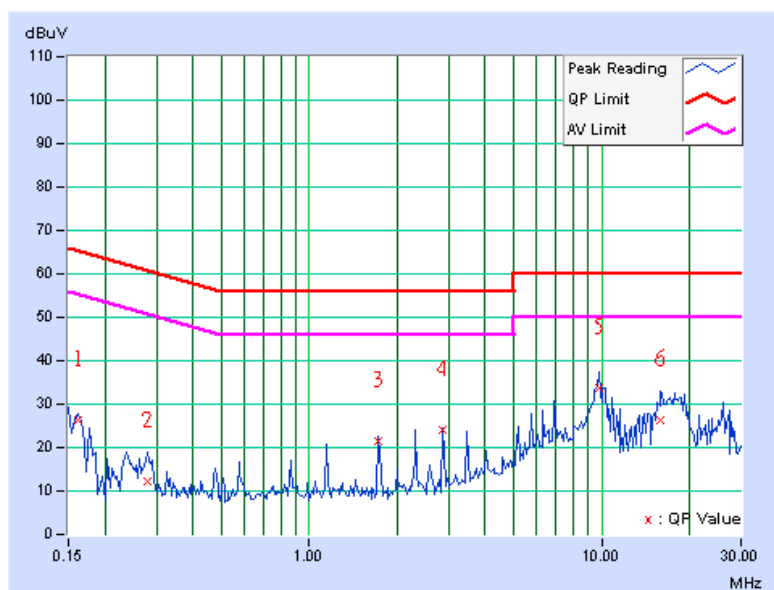
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	14.444Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1021hPa	TESTED BY	Match Tsui

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.20	25.80	-	26.00	-	65.38	55.38	-39.38	-
2	0.279	0.20	11.76	-	11.96	-	60.85	50.85	-48.89	-
3	1.723	0.20	21.16	-	21.36	-	56.00	46.00	-34.64	-
4	2.875	0.29	23.49	-	23.78	-	56.00	46.00	-32.22	-
5	9.773	0.53	33.22	-	33.75	-	60.00	50.00	-26.25	-
6	15.953	0.50	25.70	-	26.20	-	60.00	50.00	-33.80	-

- 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.



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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

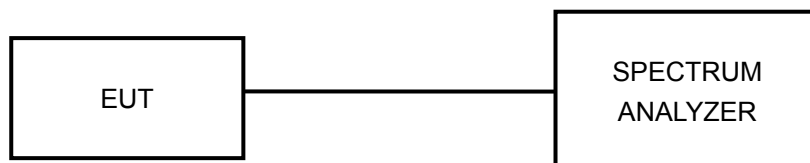
5.3.3 TEST PROCEDURE

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.

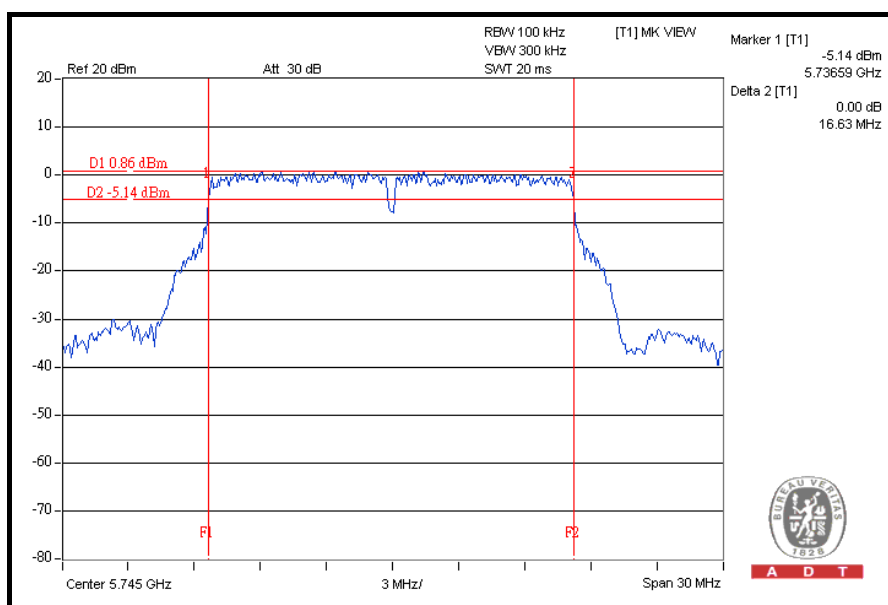
5.3.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

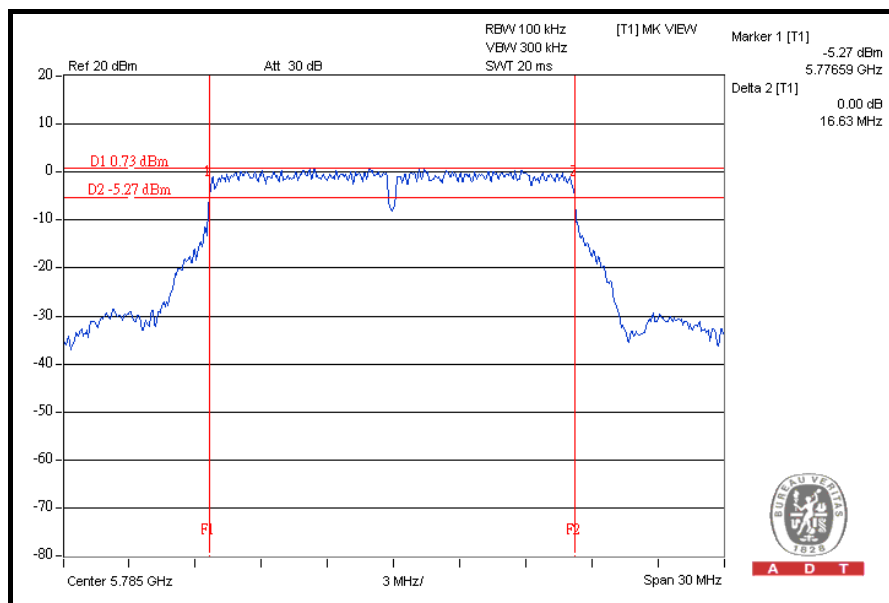
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.63	0.5	PASS
157	5785	16.63	0.5	PASS
165	5825	16.64	0.5	PASS

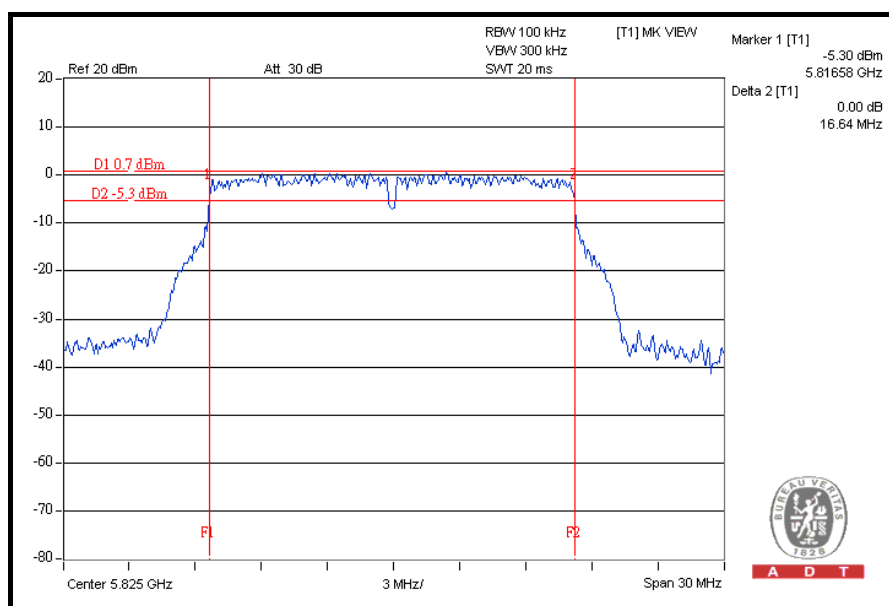
CH 149



CH 157



CH 165

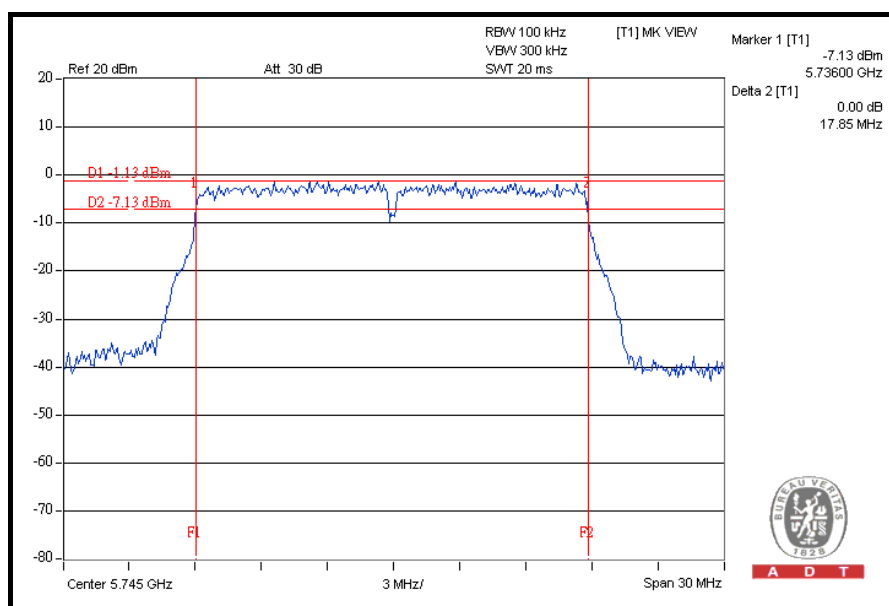


DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

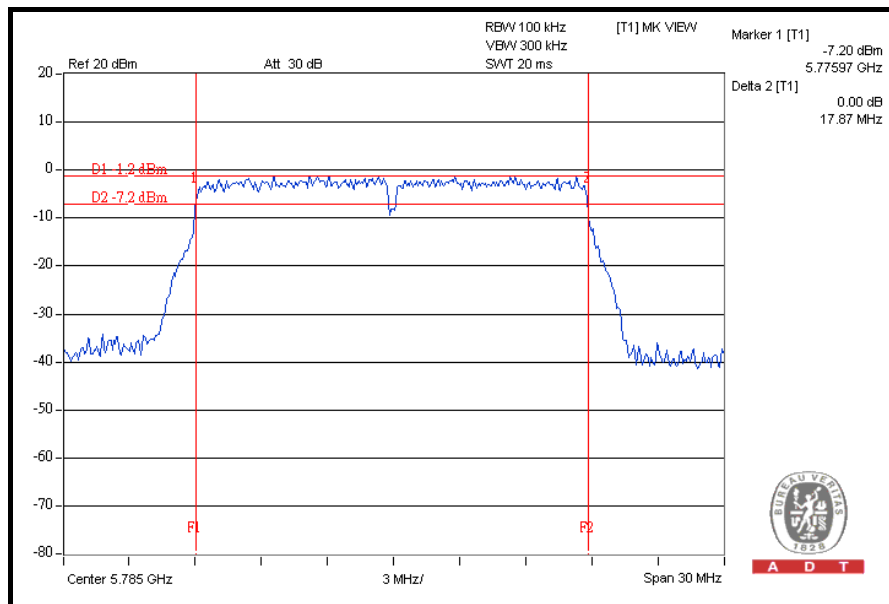
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.85	0.5	PASS
157	5785	17.87	0.5	PASS
165	5825	17.84	0.5	PASS

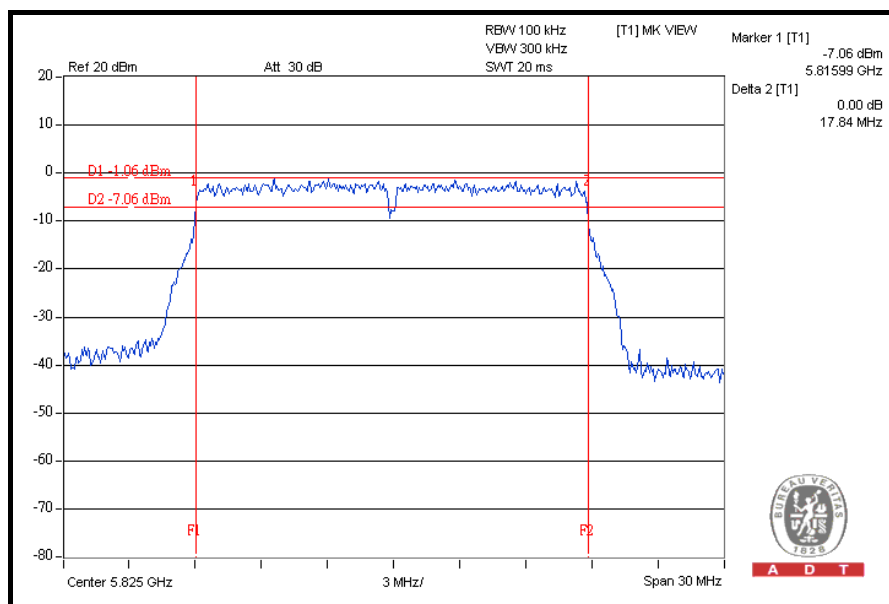
CH 149



CH 157



CH 165





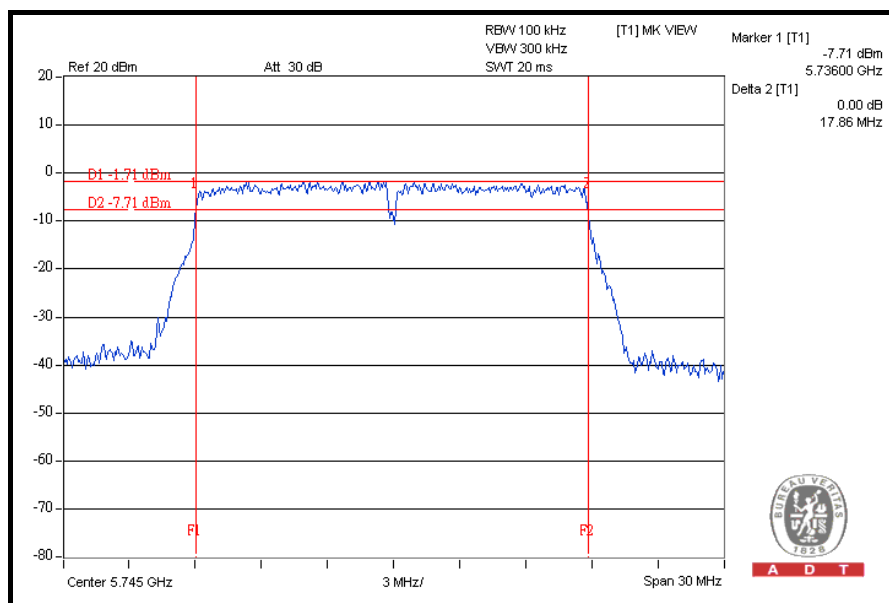
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DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

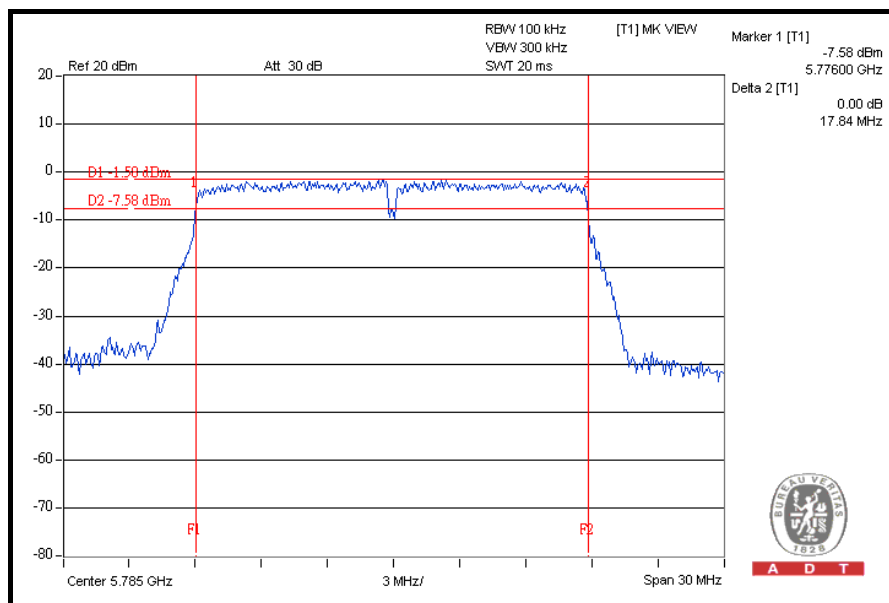
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.86	17.81	0.5	PASS
157	5785	17.84	17.78	0.5	PASS
165	5825	17.84	17.75	0.5	PASS

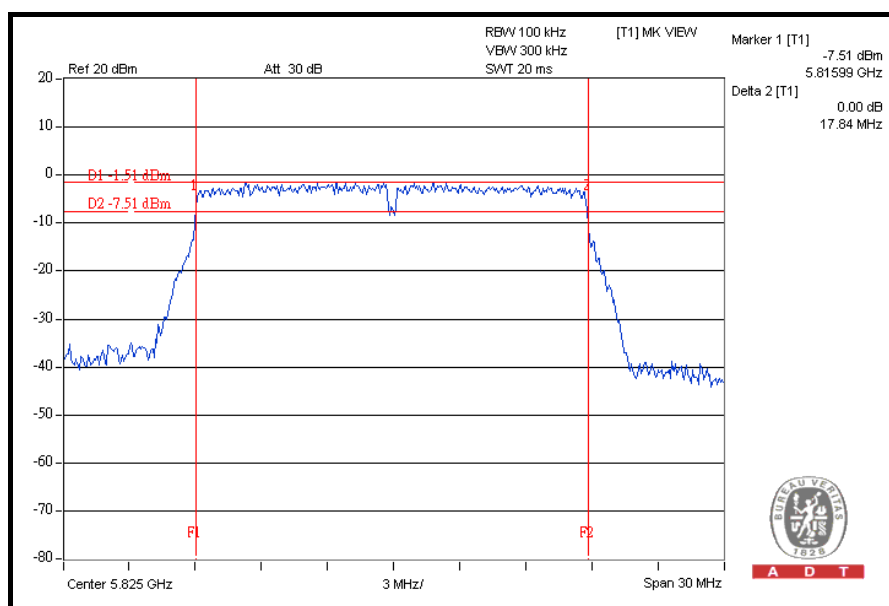
FOR CHAIN 0: CH 149



CH 157



CH 165



RBW 100 kHz
VBW 300 kHz
SWT 20 ms

[T1] MK VIEW

Marker 1 [T1] -7.03 dBm
5.77602 GHz

Delta 2 [T1] 0.00 dB
17.78 MHz

Ref 20 dBm
Att 30 dB

D1 -1.03 dBm
D2 -7.03 dBm

F1 F2

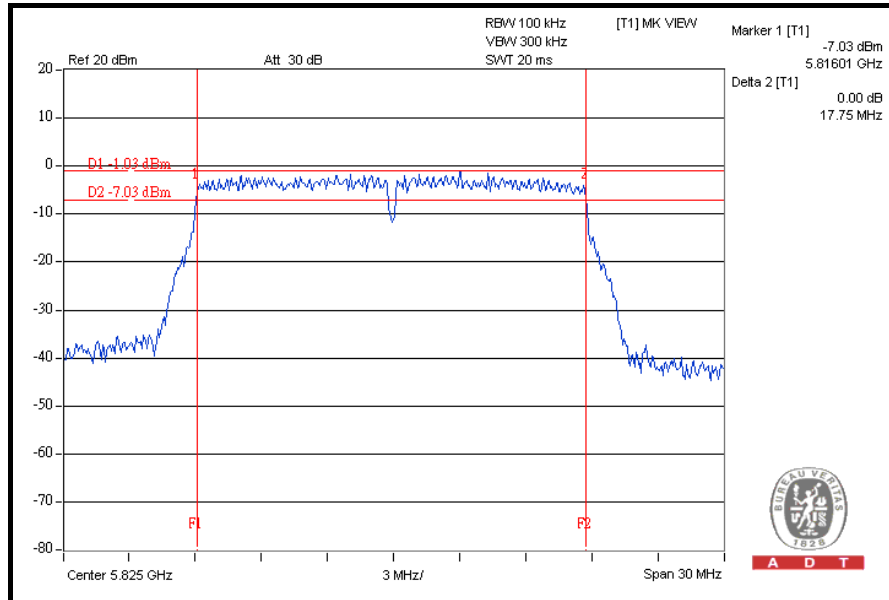
Center 5.785 GHz
3 MHz/
Span 30 MHz

BUREAU VERITAS
1828
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CH 165





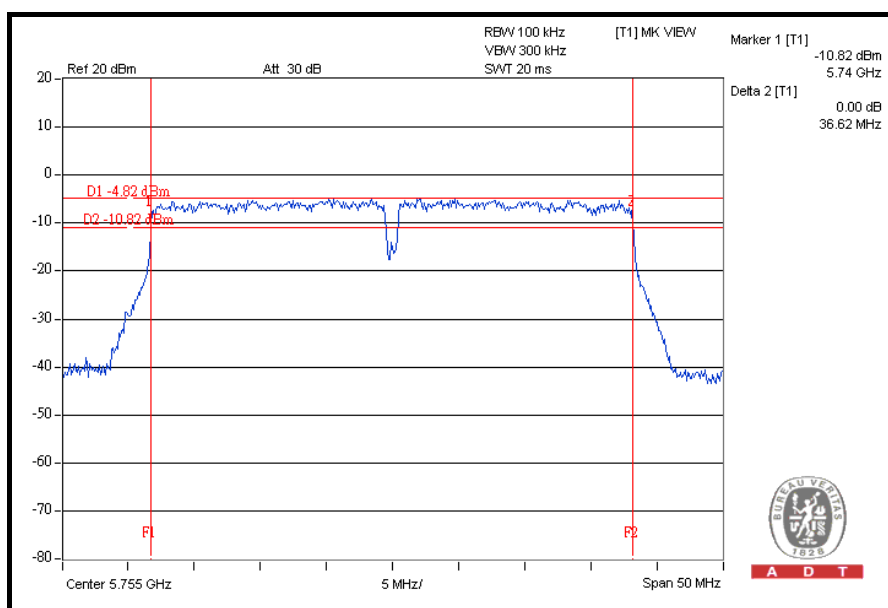
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DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.62	0.5	PASS
159	5795	36.62	0.5	PASS

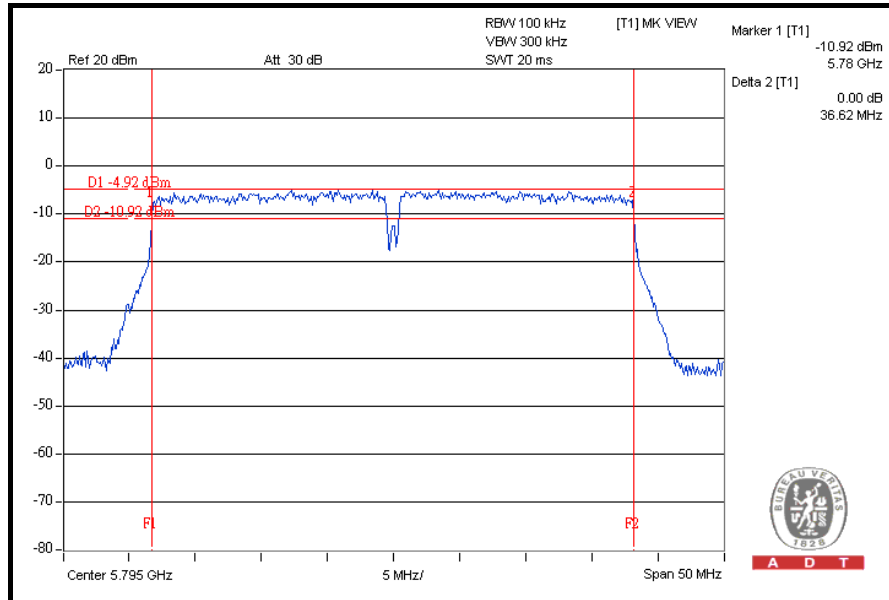
CH 151





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CH 159



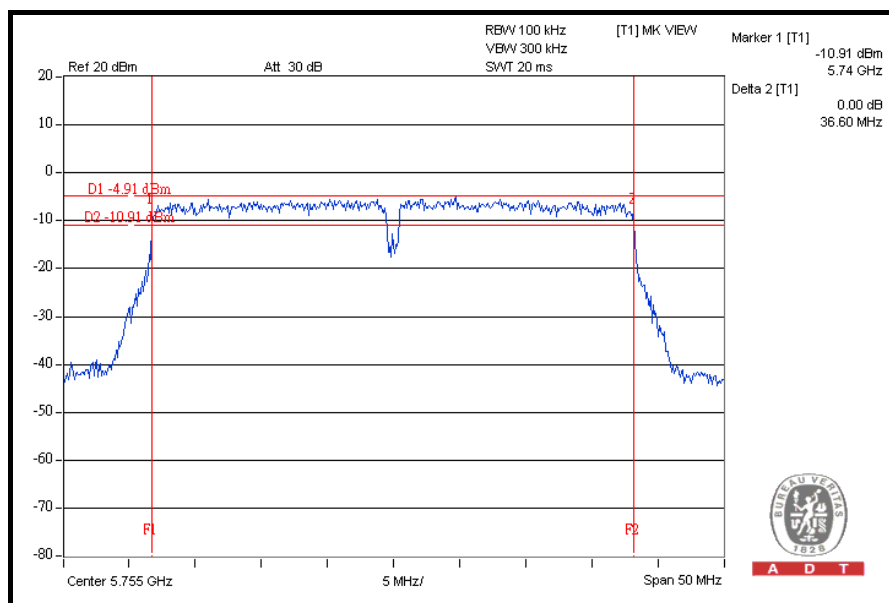
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DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

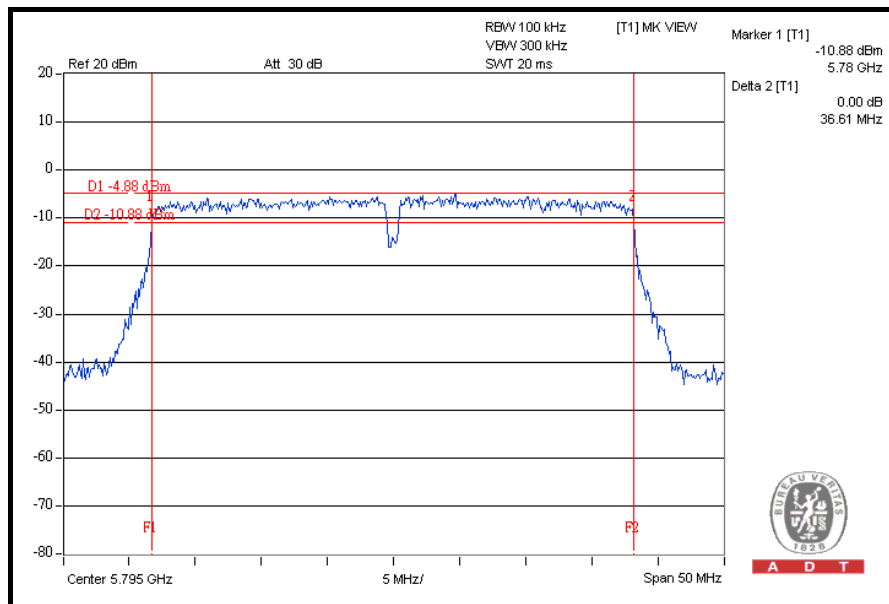
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.60	36.52	0.5	PASS
159	5795	36.61	36.55	0.5	PASS

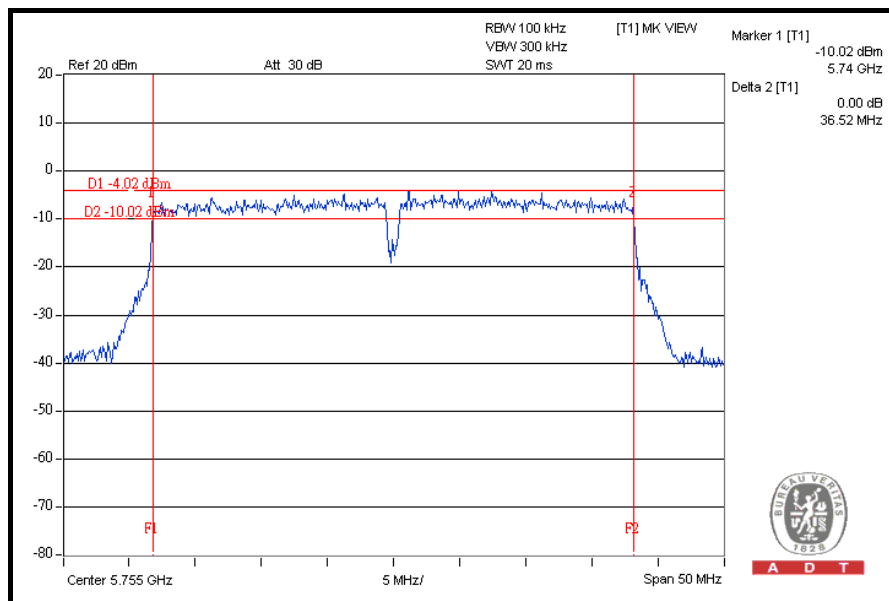
FOR CHAIN 0: CH 151



CH 159



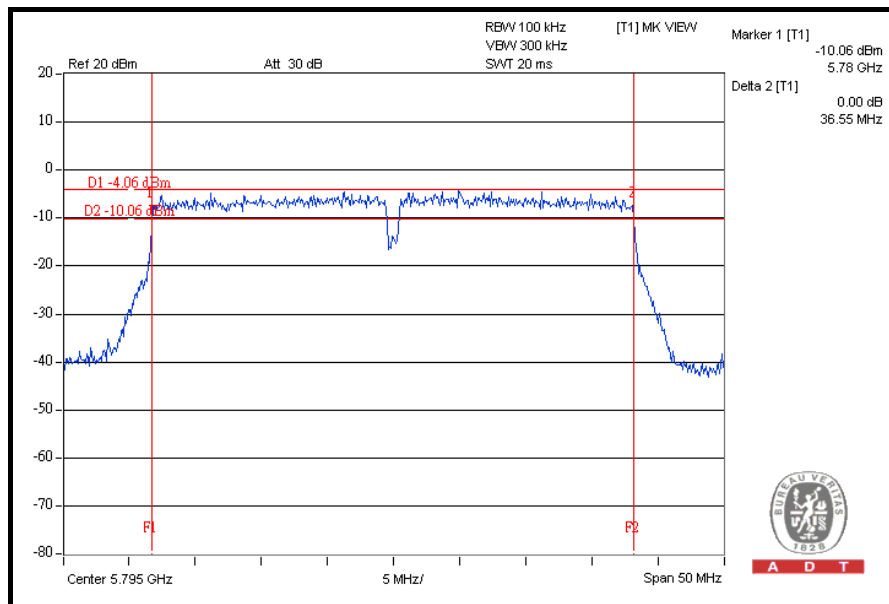
FOR CHAIN 1: CH 151





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CH 159



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK 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	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

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.

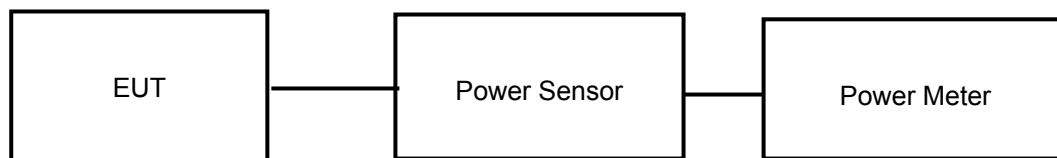
5.4.3 TEST PROCEDURES

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



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5.4.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	24.07	255.270	30	PASS
157	5785	24.11	257.632	30	PASS
165	5825	24.05	254.097	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	22.04	159.956	30	PASS
157	5785	22.11	162.555	30	PASS
165	5825	22.08	161.436	30	PASS



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DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	22.06	22.02	319.915	25.05	30	PASS
157	5785	22.13	22.08	324.741	25.12	30	PASS
165	5825	22.03	22.05	319.912	25.05	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
151	5755	22.03	159.588	30	PASS
159	5795	22.08	161.436	30	PASS



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DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	22.04	22.07	321.020	25.07	30	PASS
159	5795	22.08	22.05	321.760	25.08	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
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

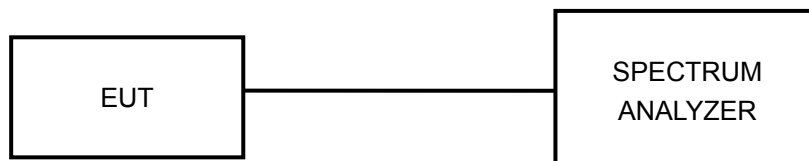
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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.

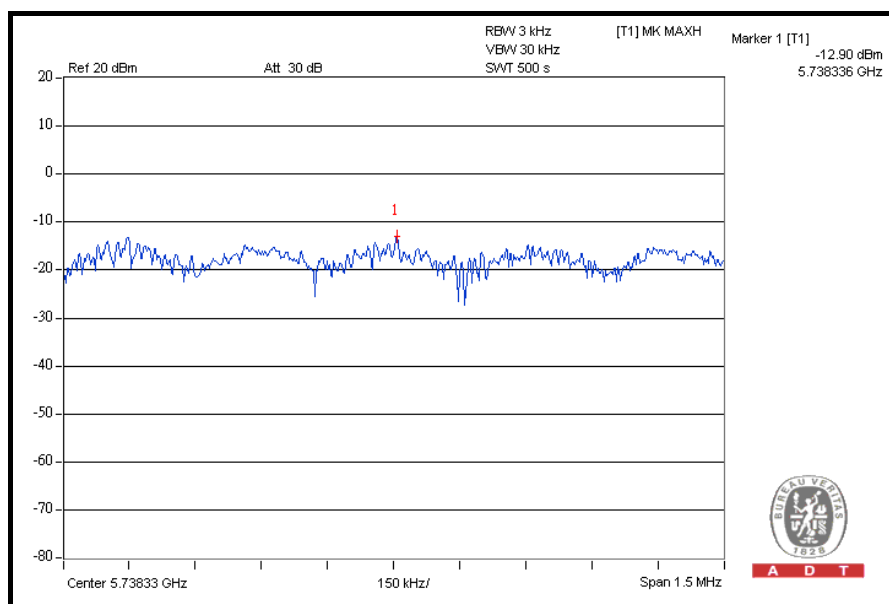
5.5.7 TEST RESULTS

802.11a OFDM MODULATION: 1TX

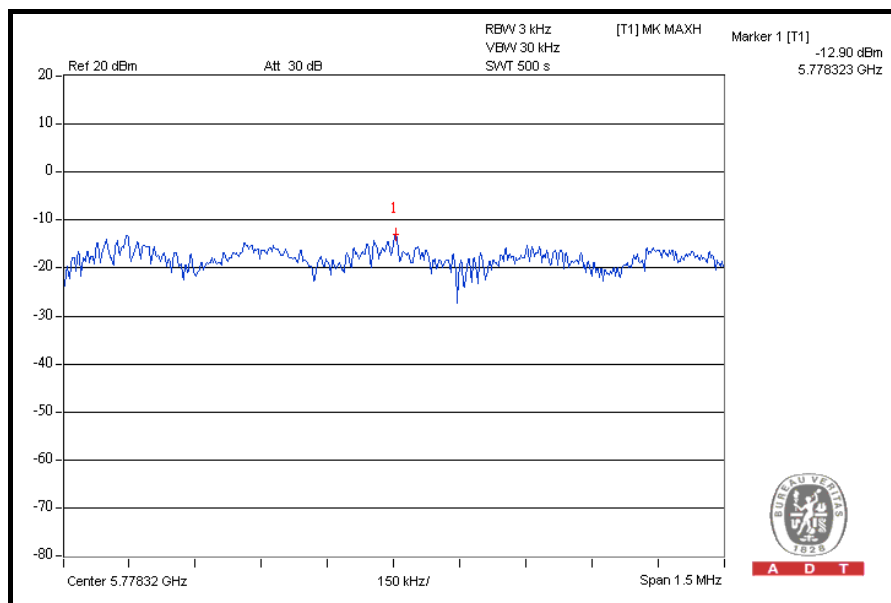
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-12.90	8	PASS
157	5785	-12.90	8	PASS
165	5825	-13.03	8	PASS

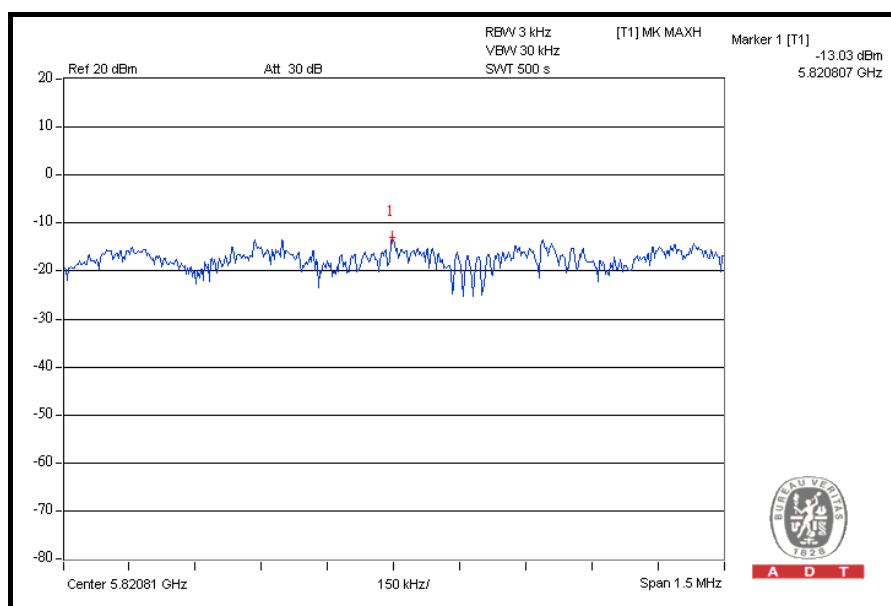
CH 149



CH 157



CH 165

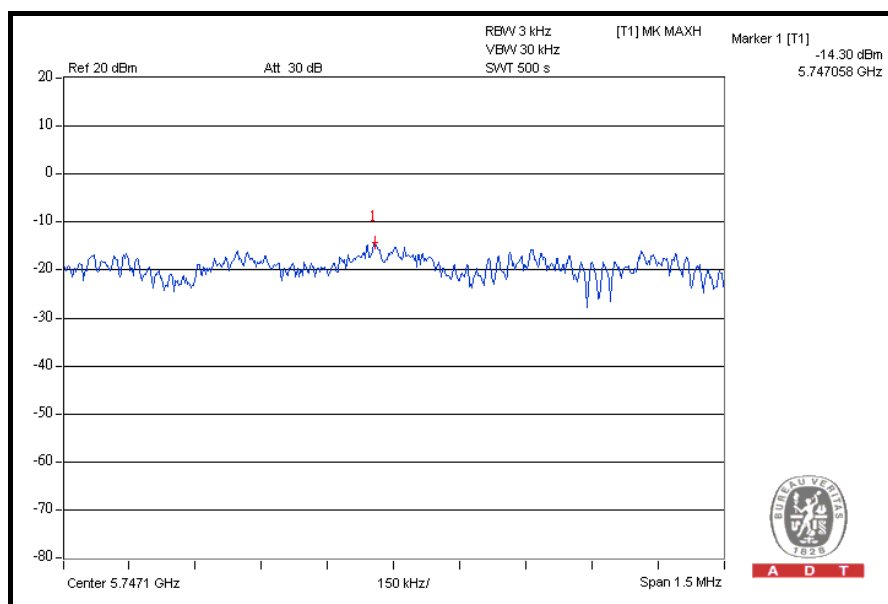


DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-14.30	8	PASS
157	5785	-14.53	8	PASS
165	5825	-14.20	8	PASS

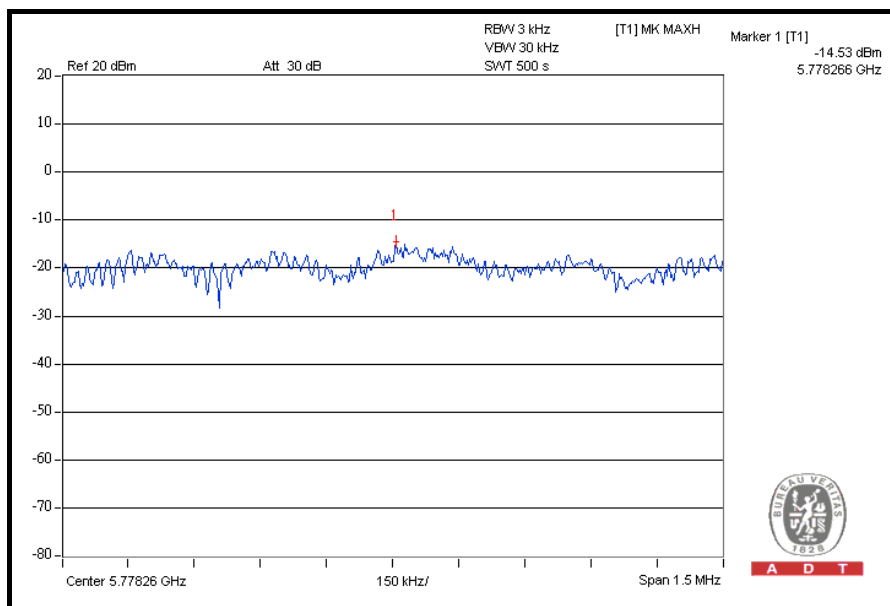
CH 149



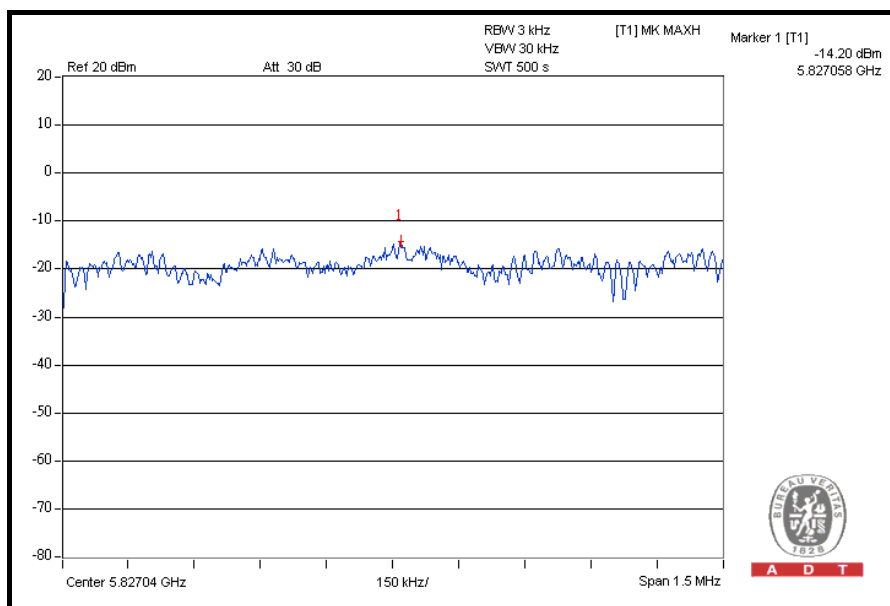


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CH 157



CH 165





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DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

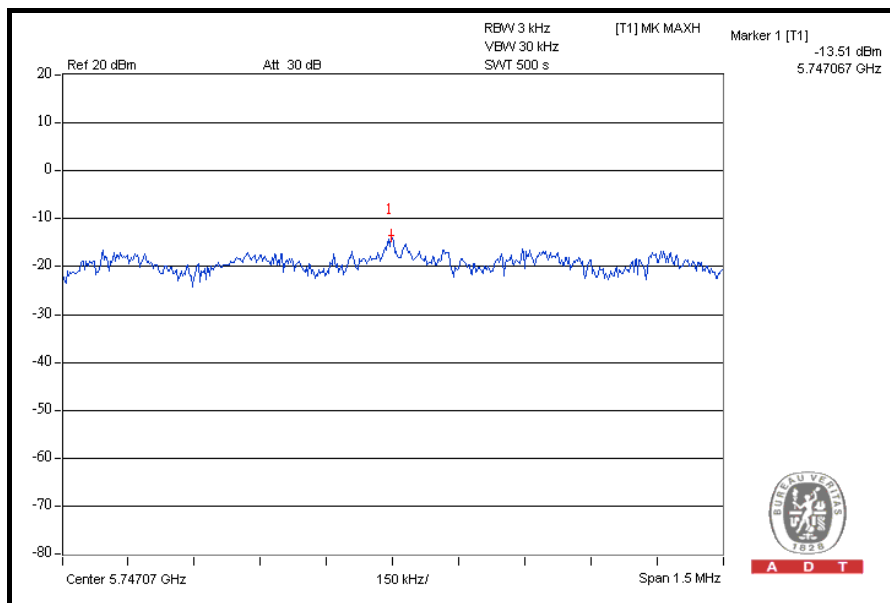
MODULATION TYPE	BPSK	TRANSFER RATE	14.444Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 991hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	-13.51	-14.02	0.084	-10.75	8	PASS
157	5785	-13.56	-13.99	0.084	-10.76	8	PASS
165	5825	-13.52	-14.09	0.083	-10.79	8	PASS

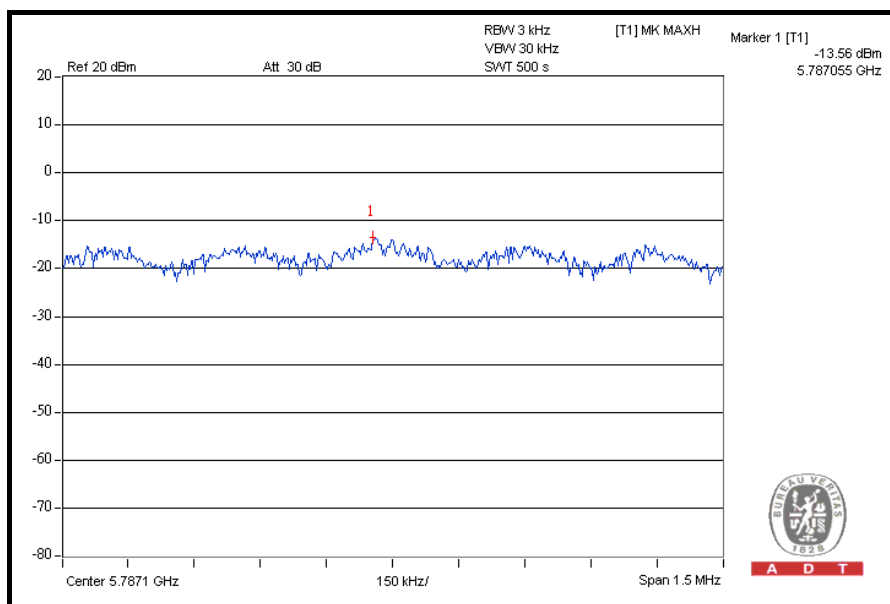


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FOR CHAIN 0: CH 149



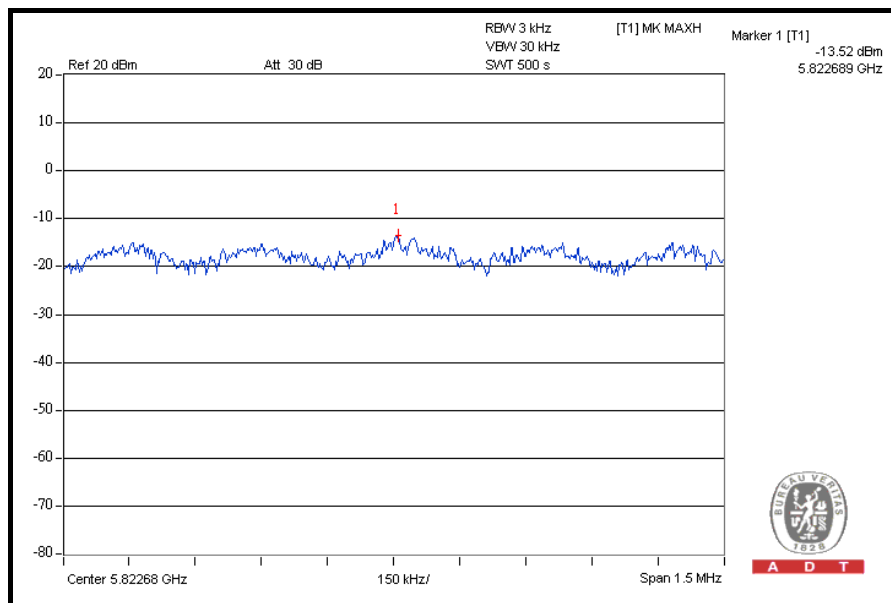
CH 157



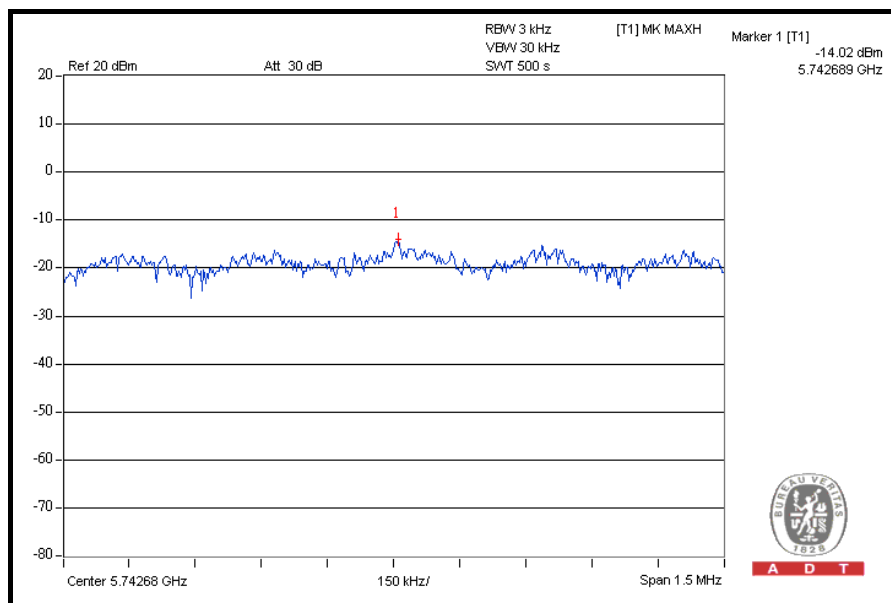


A D T

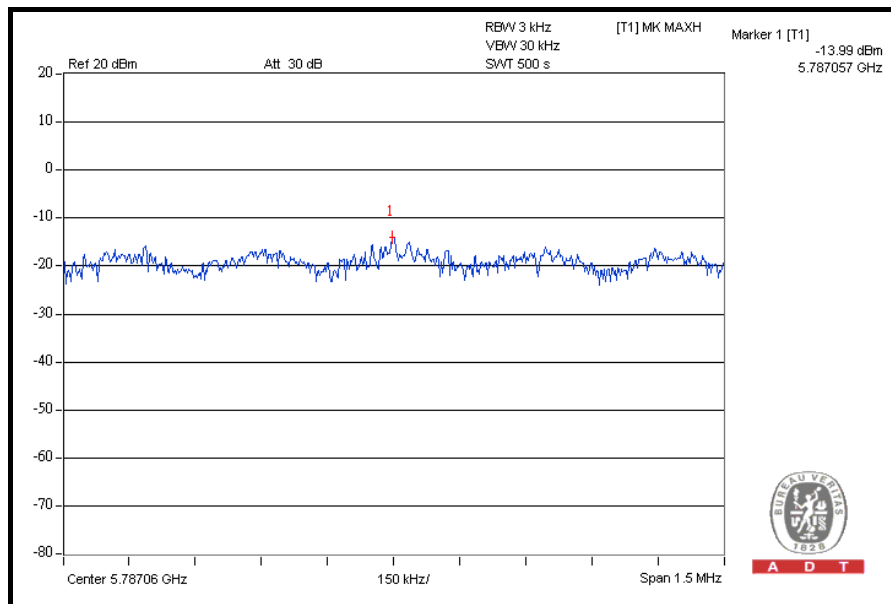
CH 165



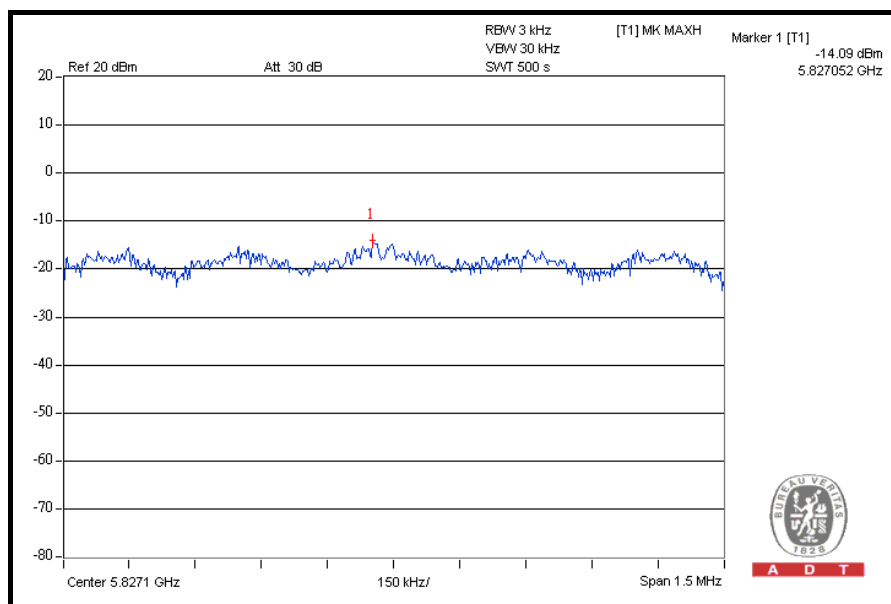
FOR CHAIN 1: CH 149



CH 157



CH 165





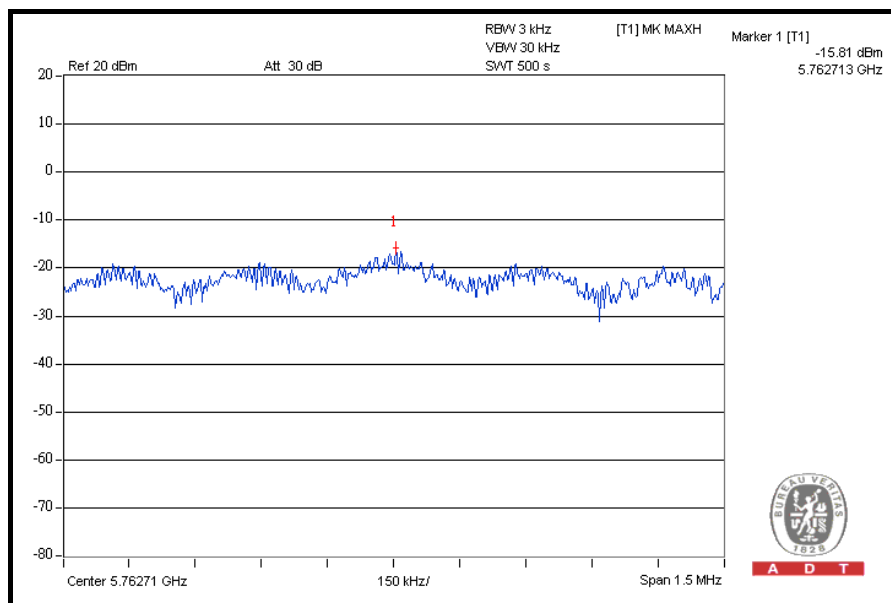
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

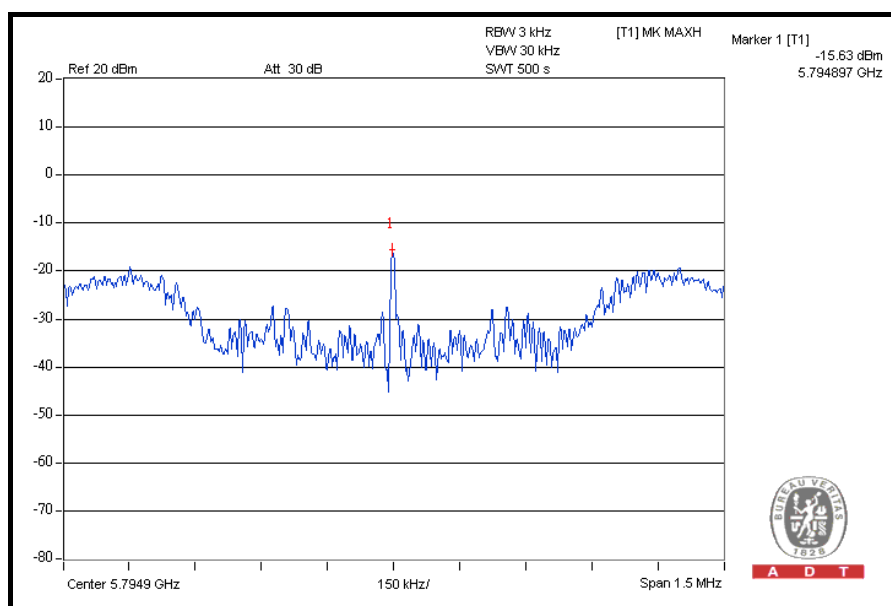
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
151	5755	-15.81	8	PASS
159	5795	-15.63	8	PASS

CH 151



CH 159





A D T

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

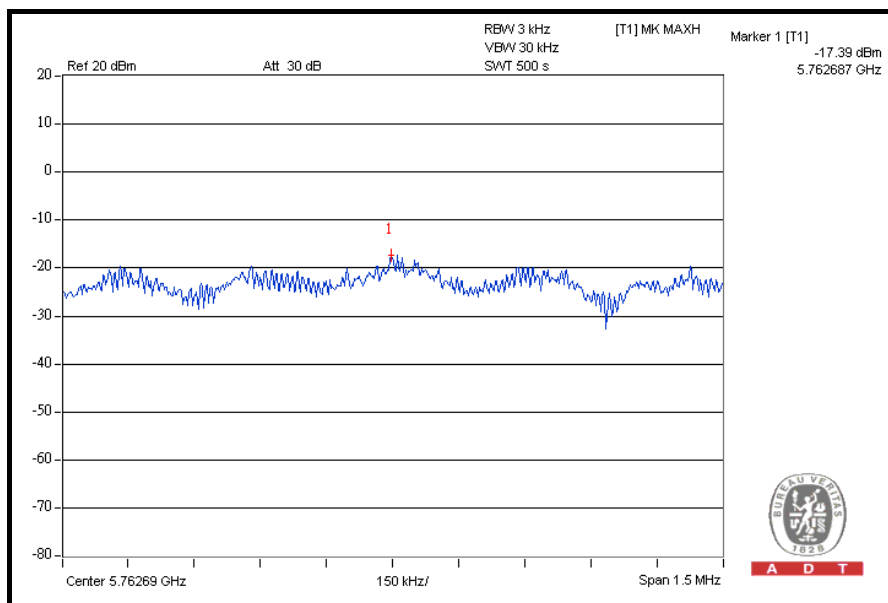
MODULATION TYPE	BPSK	TRANSFER RATE	30.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 1021hPa
TESTED BY	Match Tsui		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	-17.39	-18.99	0.031	-15.11	8	PASS
159	5795	-17.25	-19.11	0.031	-15.07	8	PASS



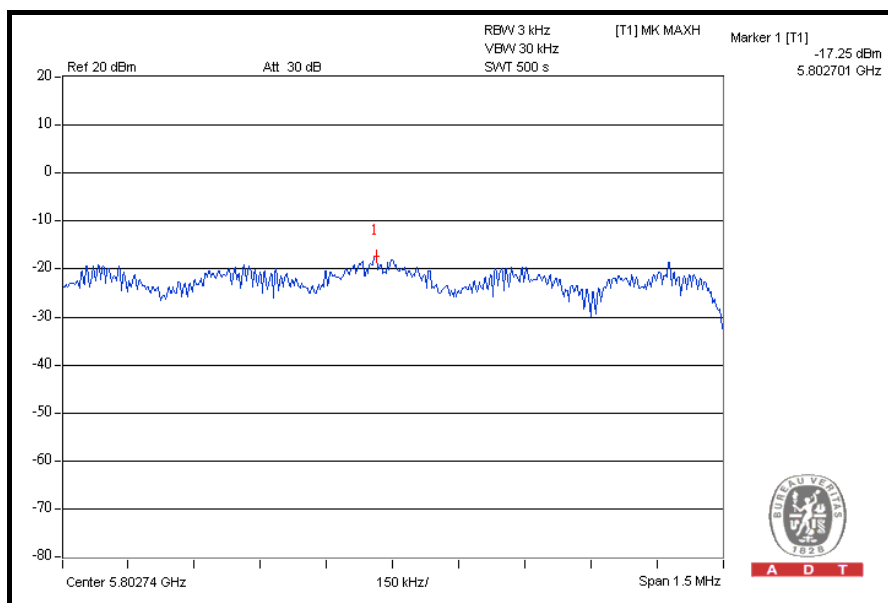
A D T

FOR CHAIN 0: CH 151



A D T

CH 159

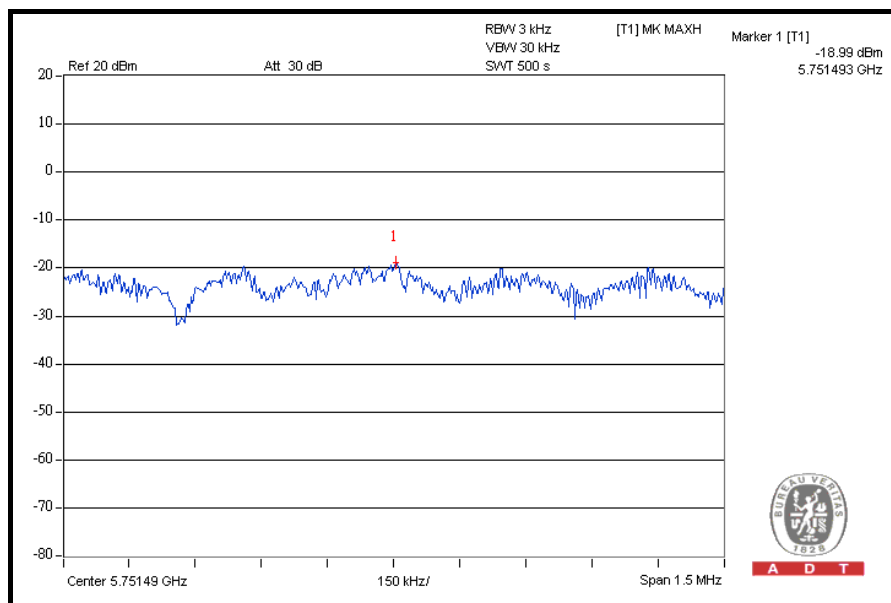


A D T

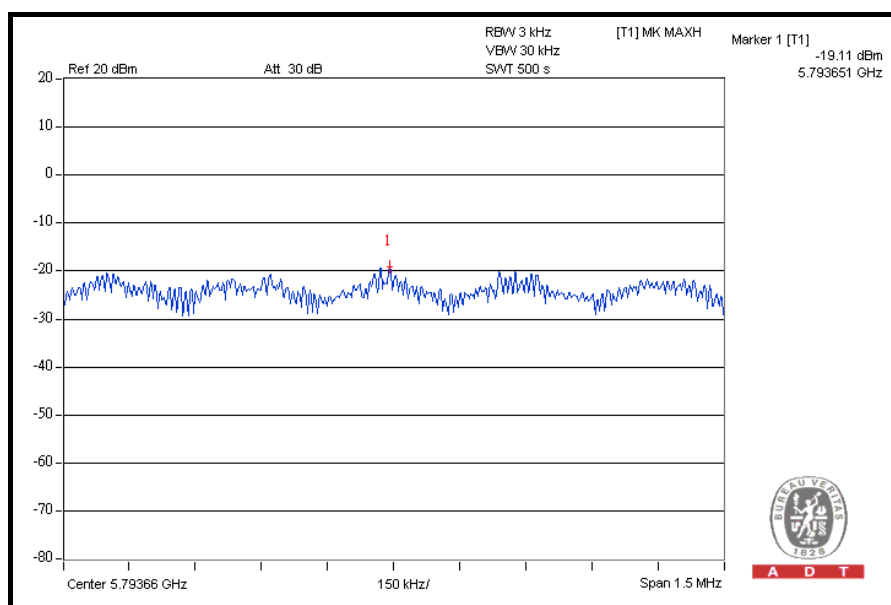


A D T

FOR CHAIN 1: CH 151



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
FOR CONDUCTED MEASUREMENT				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT				
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	May 28, 2008	May 27, 2009
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 08, 2008	Aug. 07, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 25, 2008	Apr. 24, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01911	Sep. 10, 2008	Sep. 09, 2009
Preamplifier Agilent	8447D	2944A10634	Dec. 13, 2007	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 20, 2008	May 19, 2009
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 09, 2008	Aug. 08, 2009
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

5.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT

The transmitter output was connected to the spectrum analyzer via a low loss cable. 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 were measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

FOR RADIATED MEASUREMENT

- 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 were 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.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation.

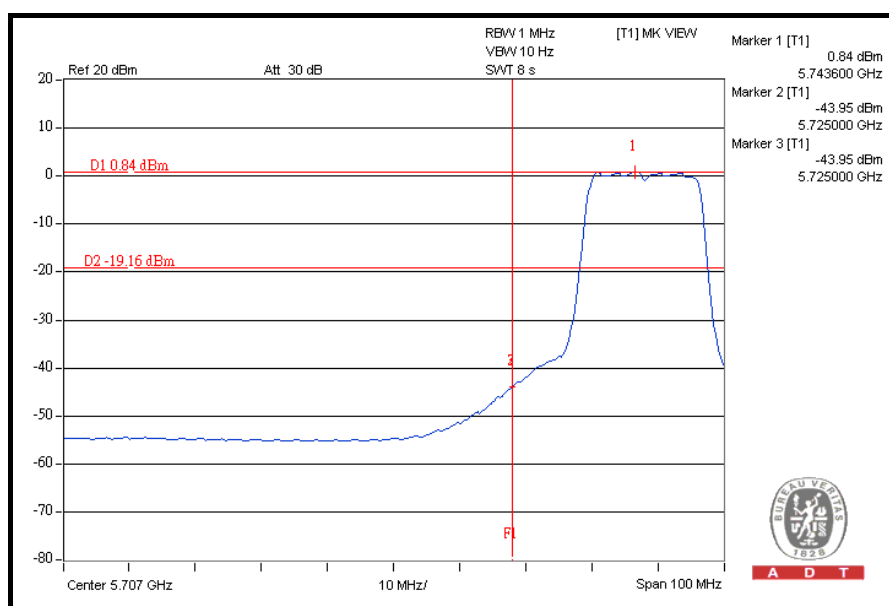
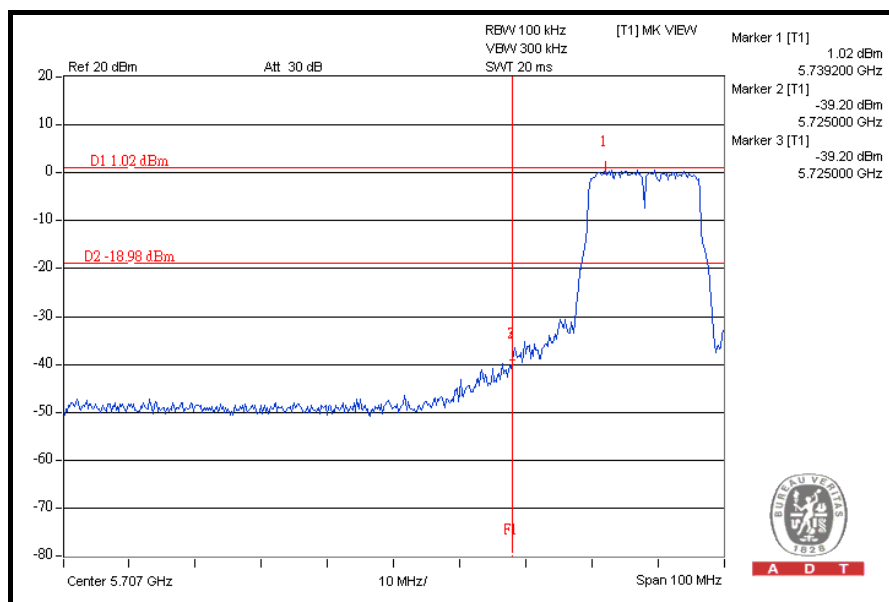
5.6.5 EUT OPERATING CONDITION

Same as Item 5.3.6.

5.6.6 TEST RESULTS

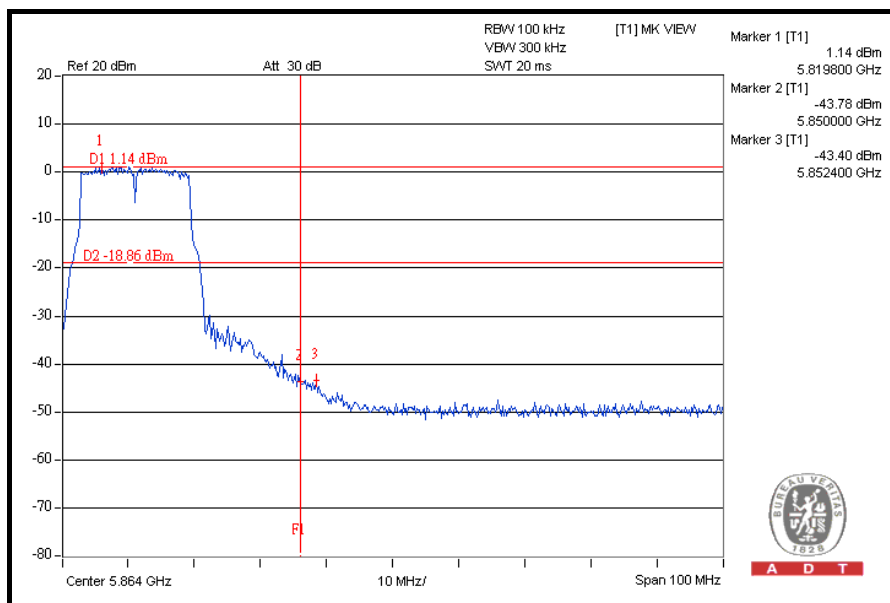
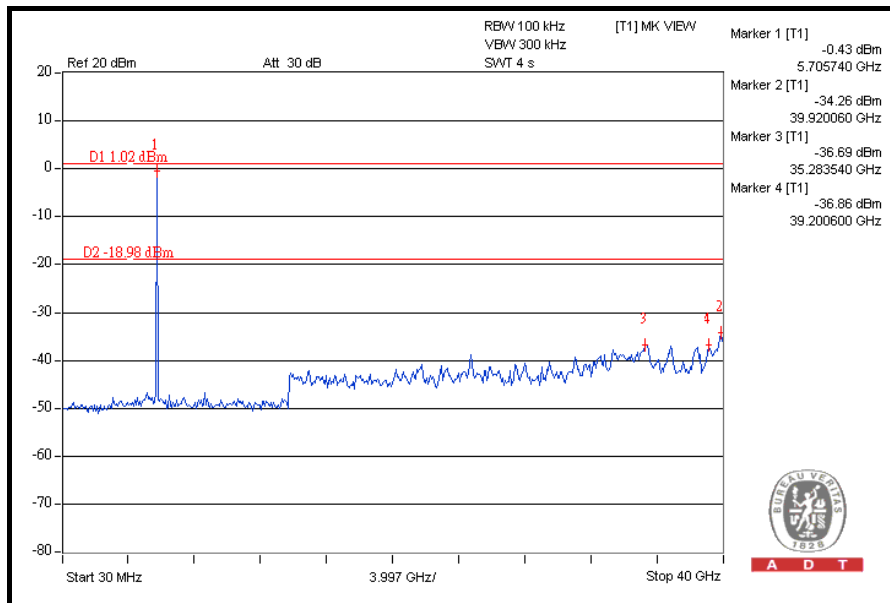
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

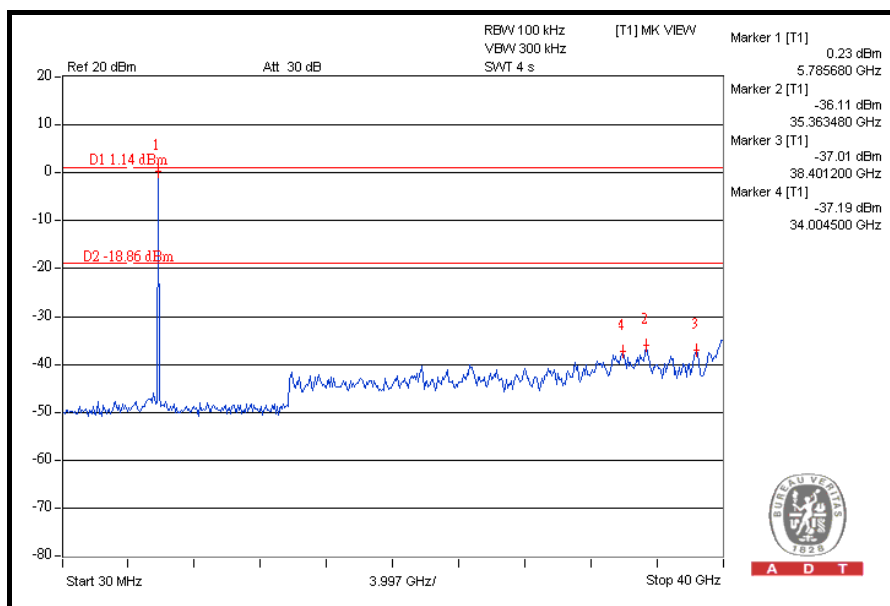
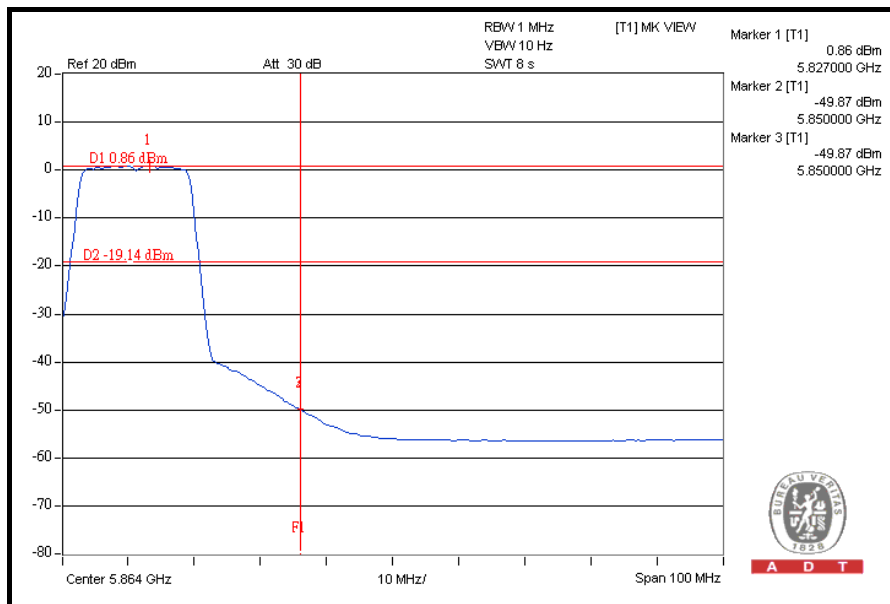
802.11a OFDM MODULATION: 1TX



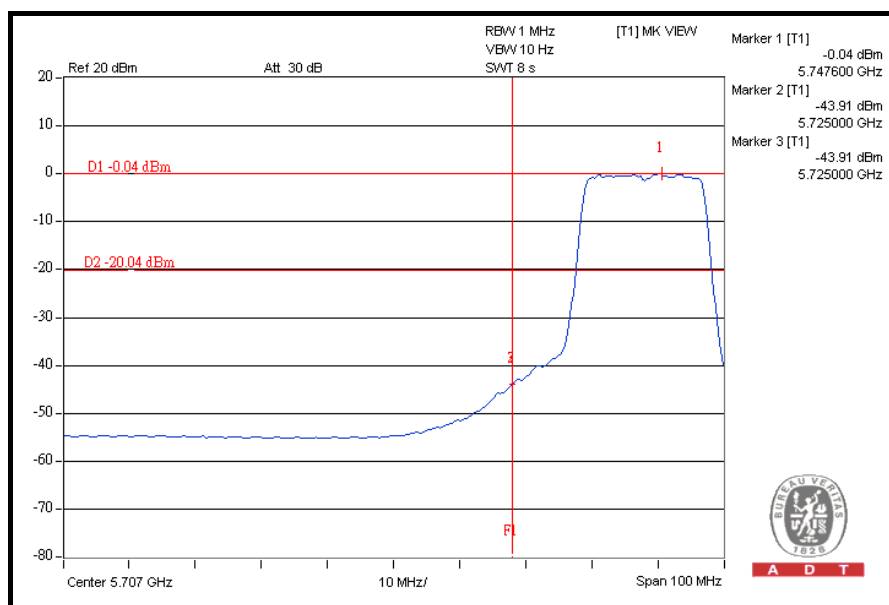
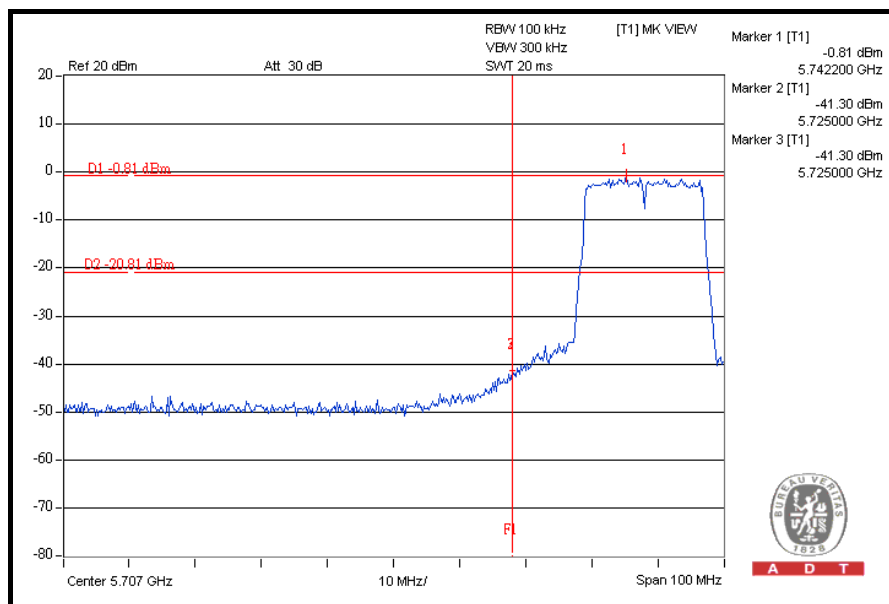


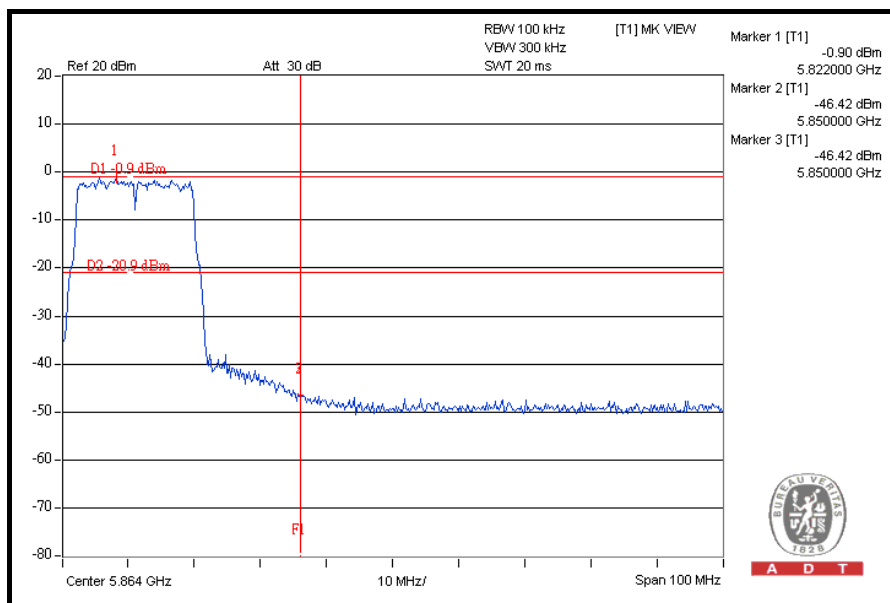
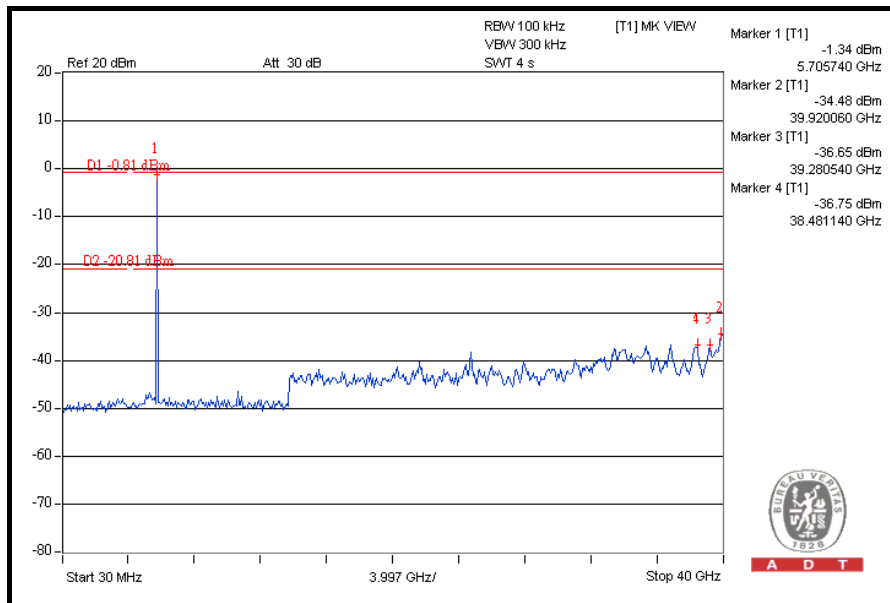
A D T

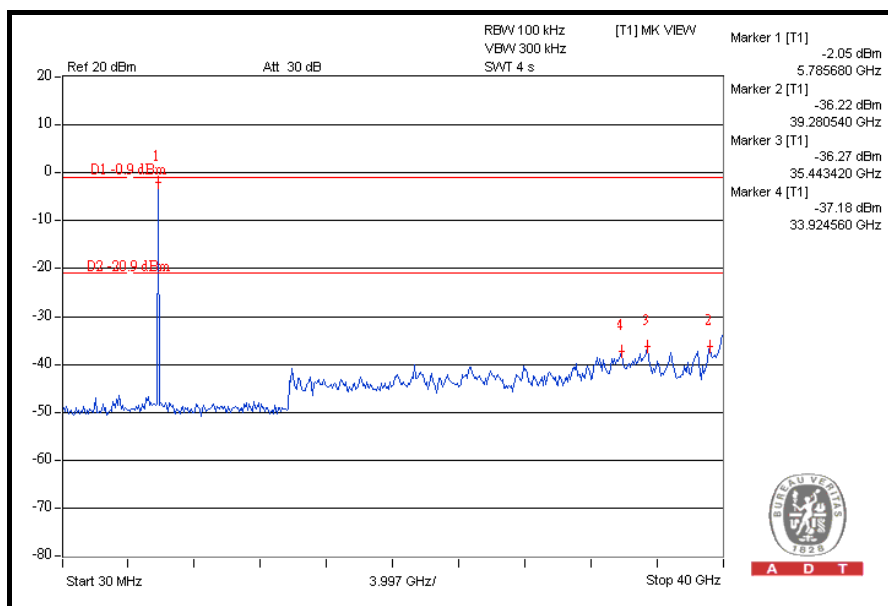
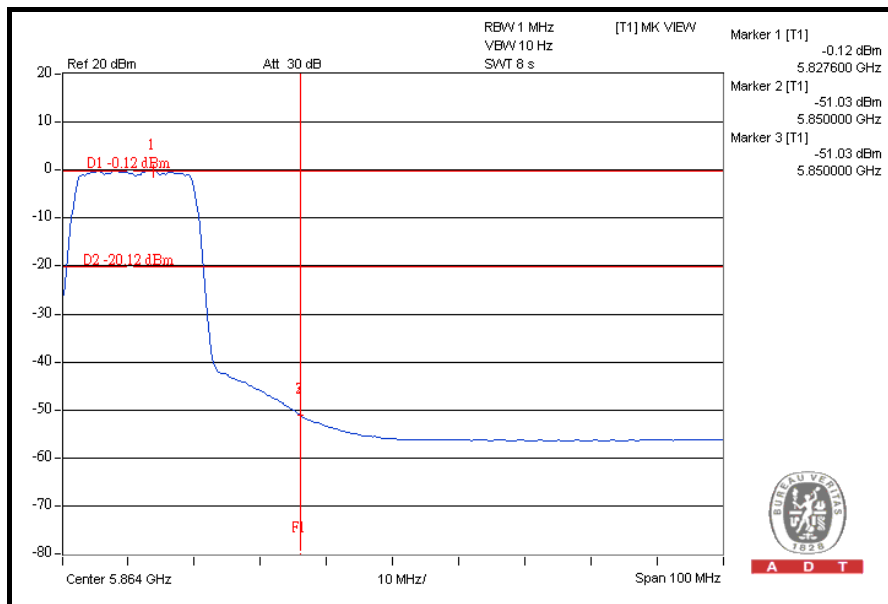




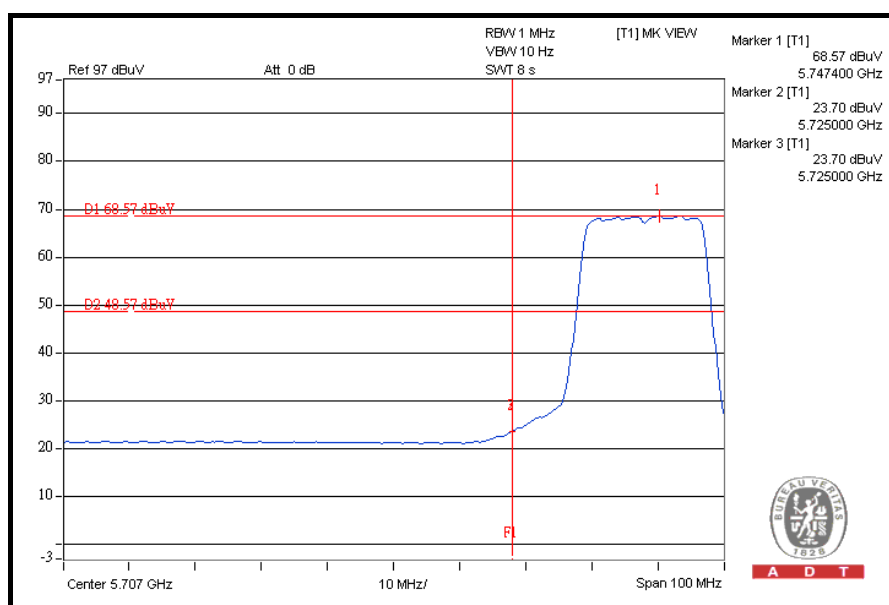
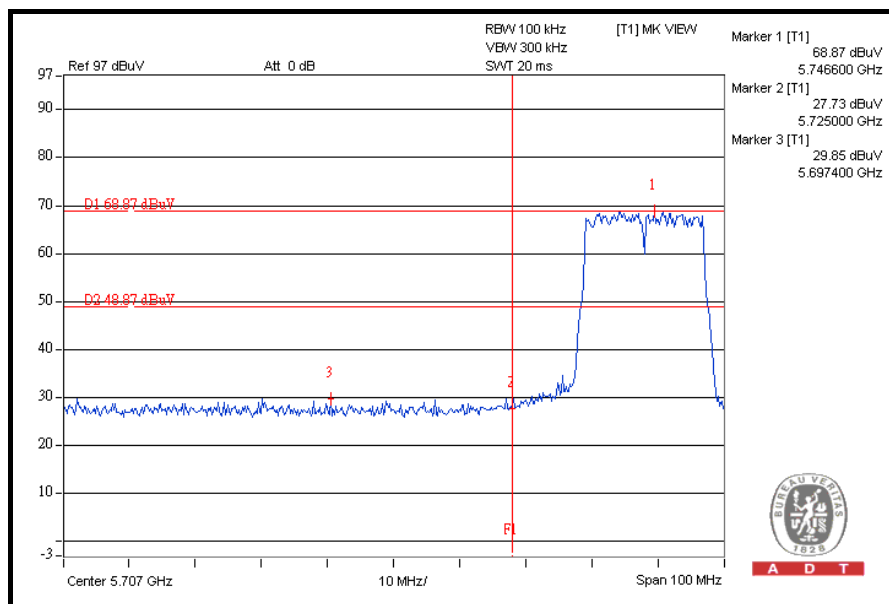
DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX





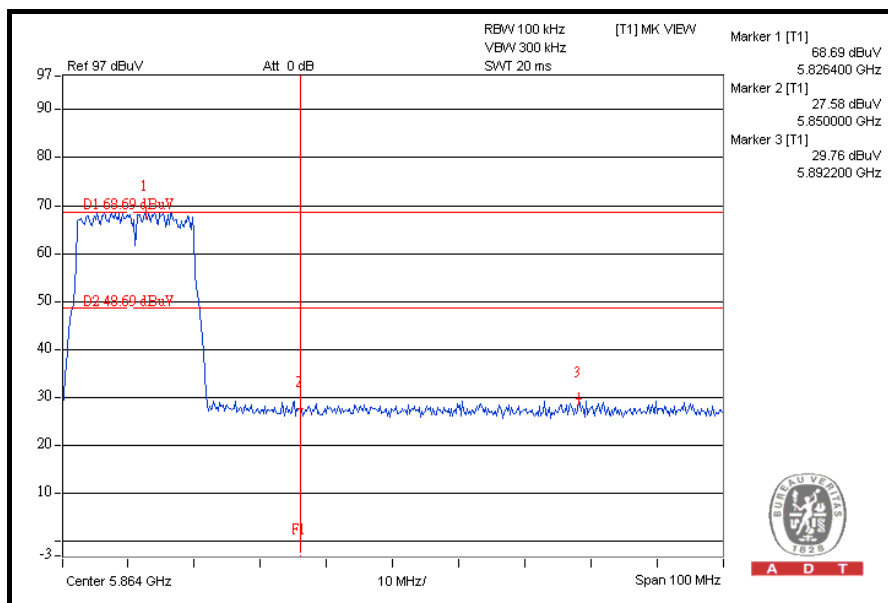
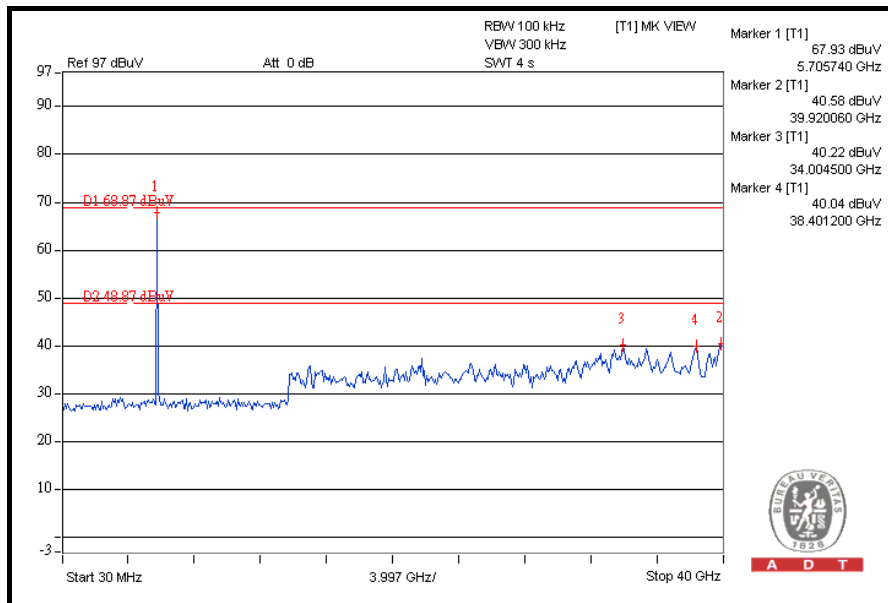


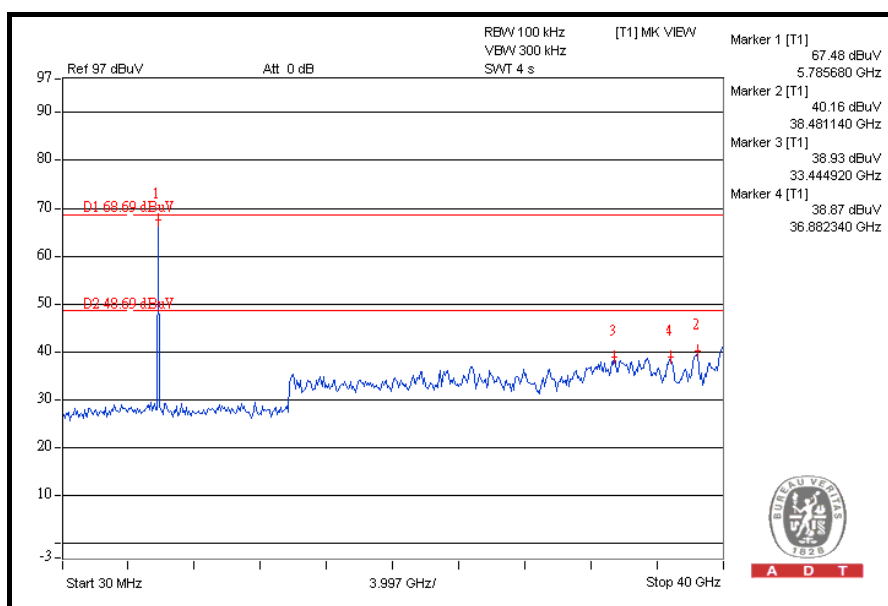
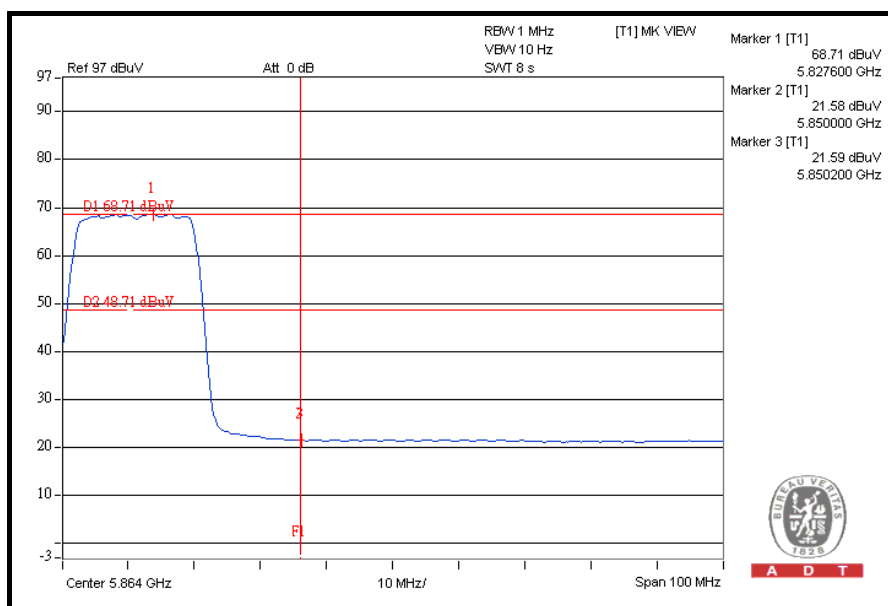
DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX



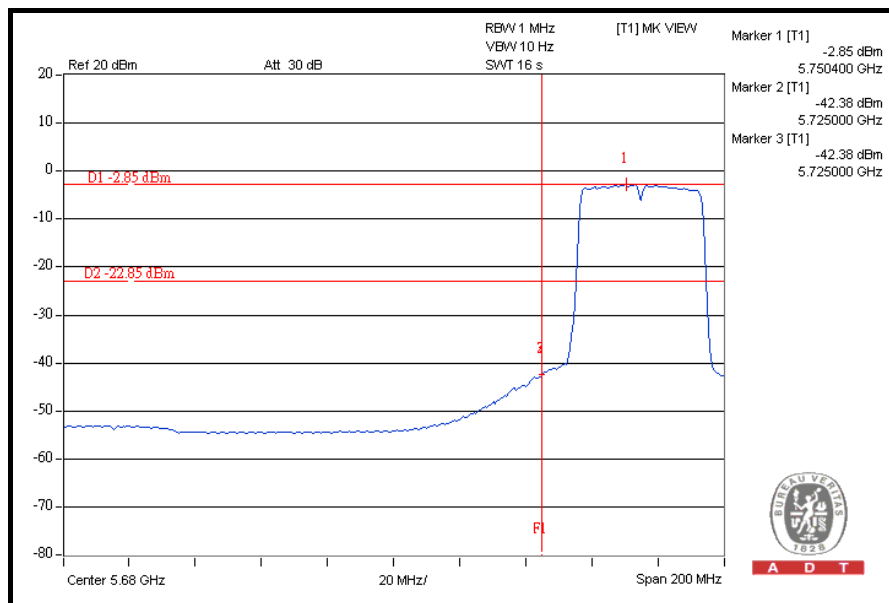
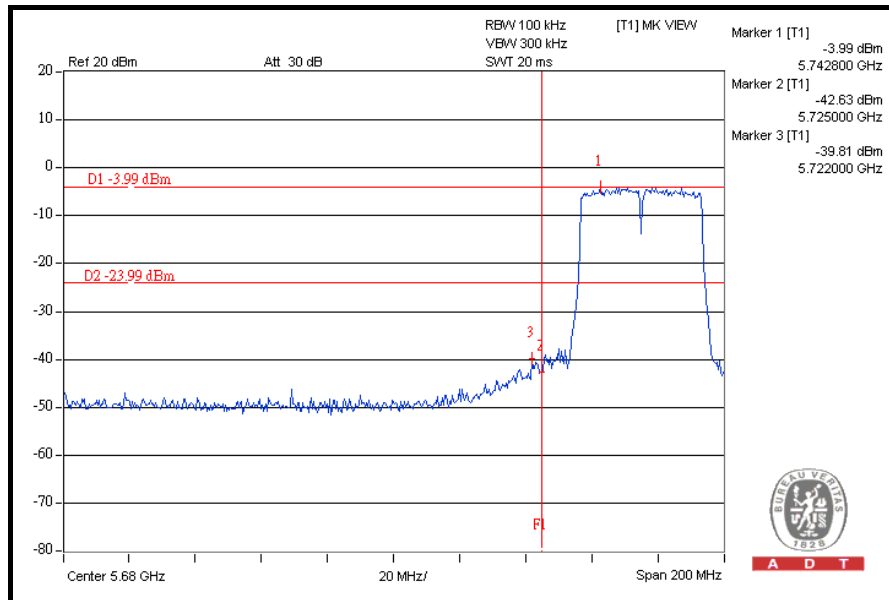


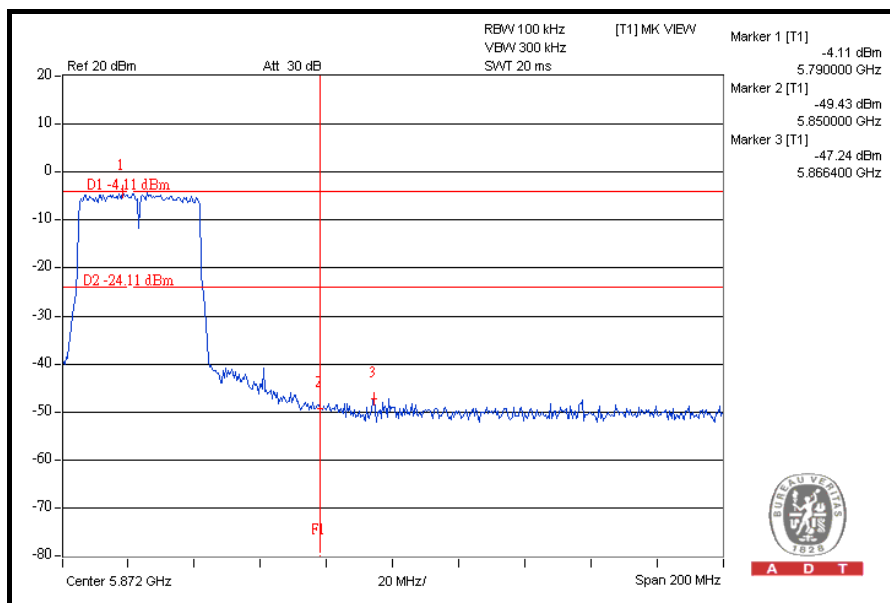
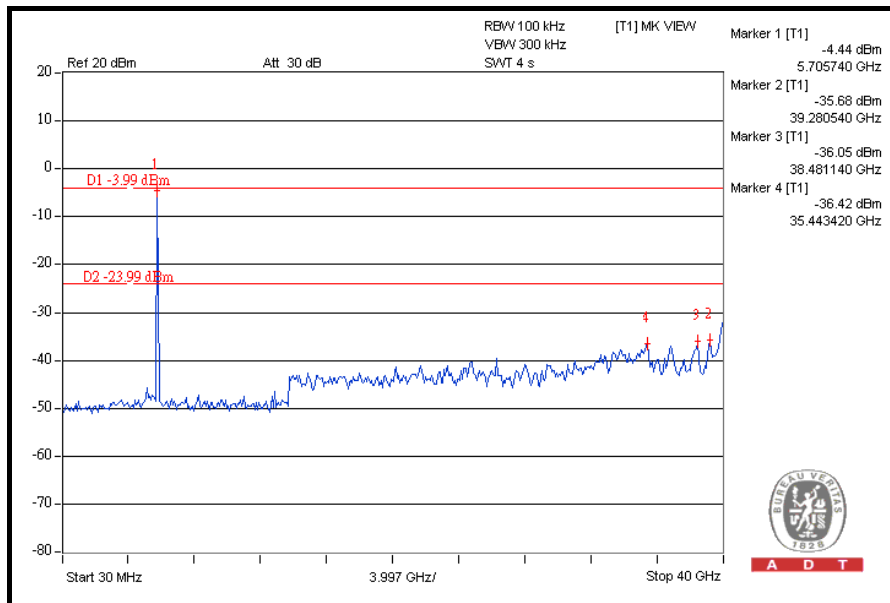
A D T

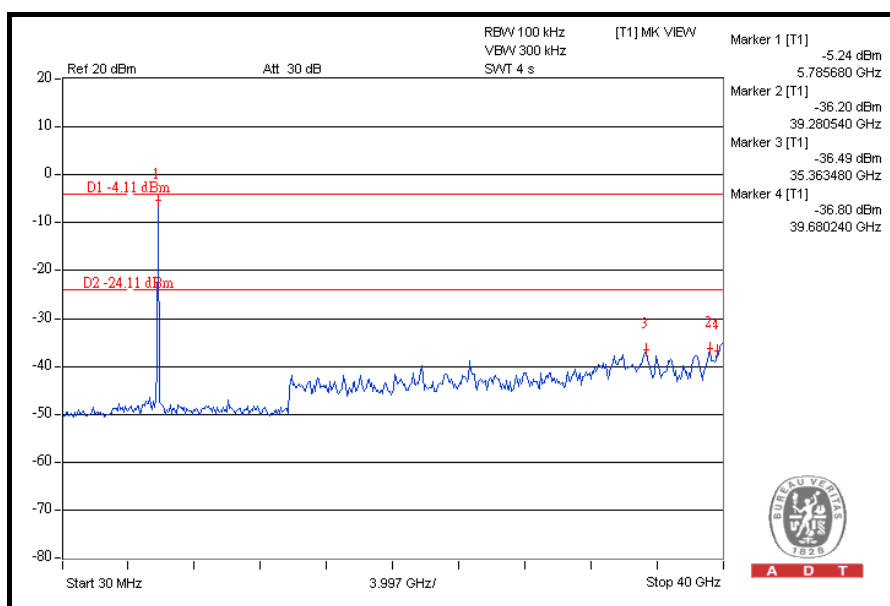
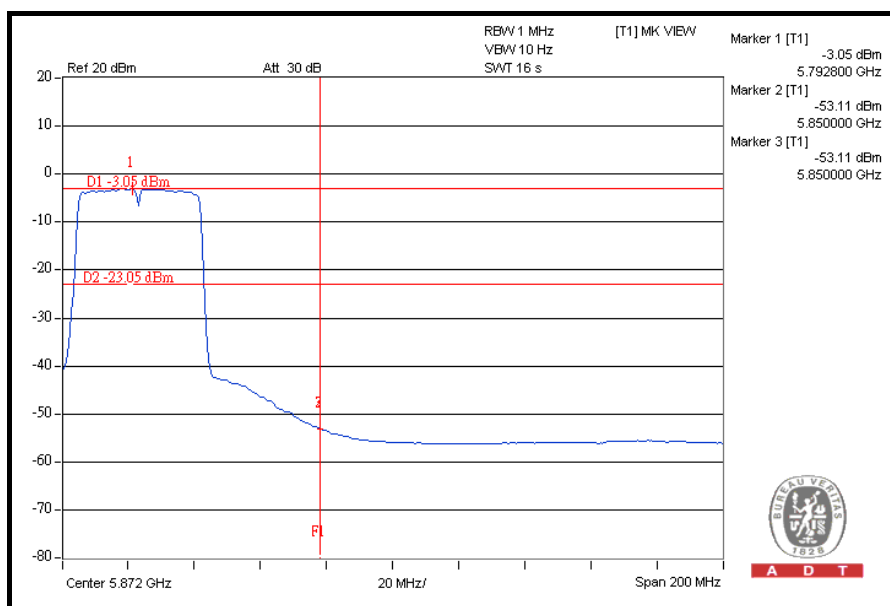




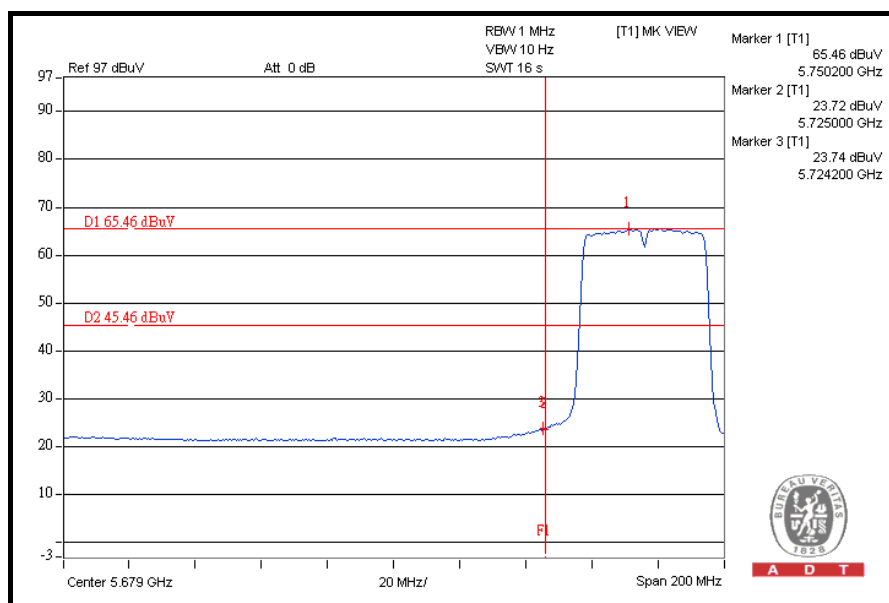
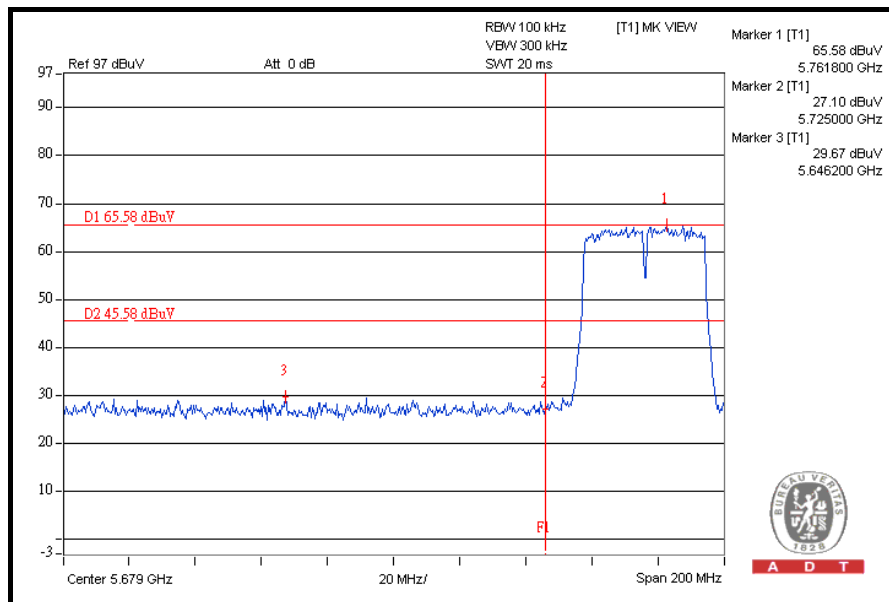
DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX





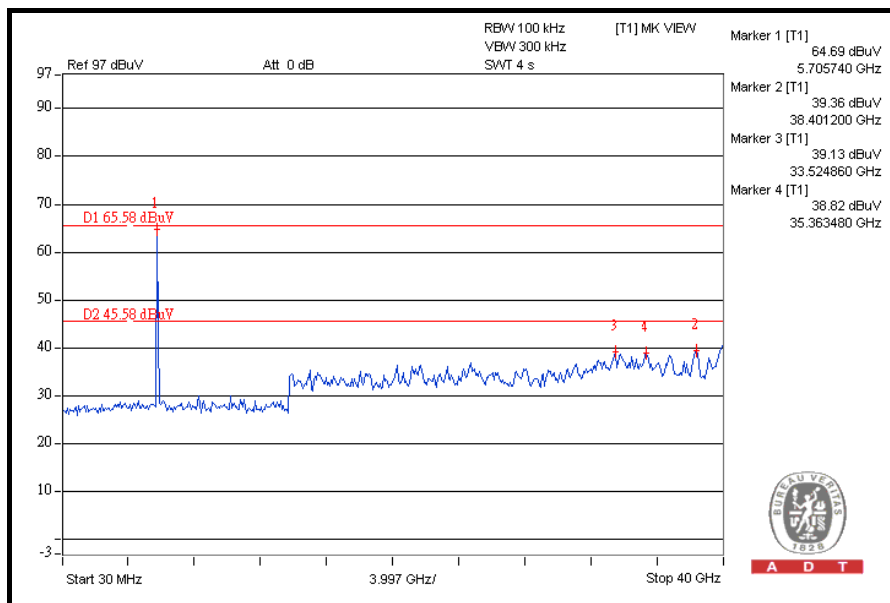


DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

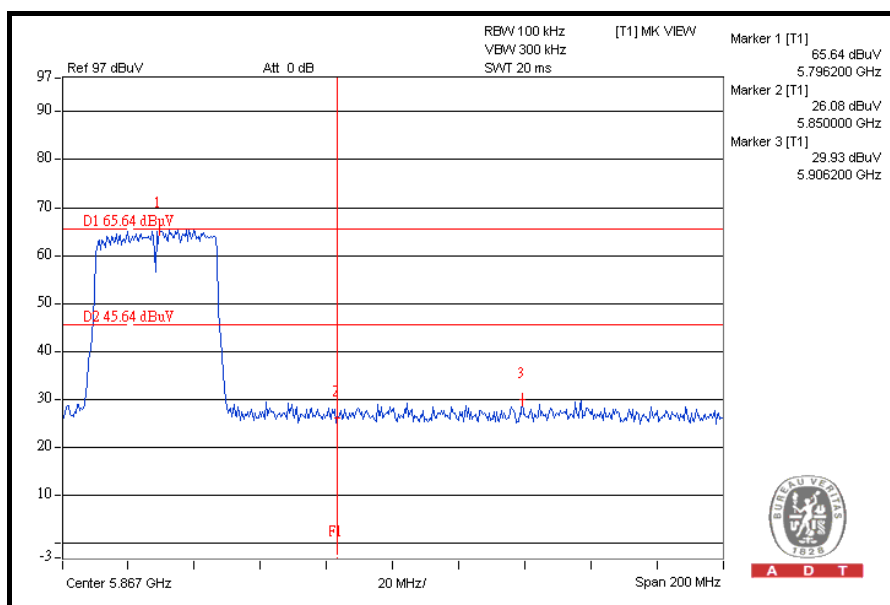




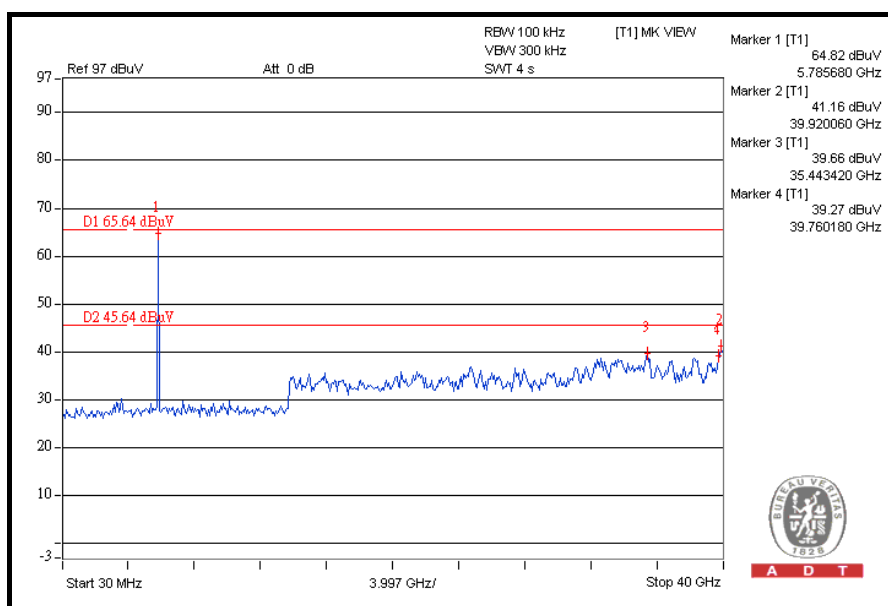
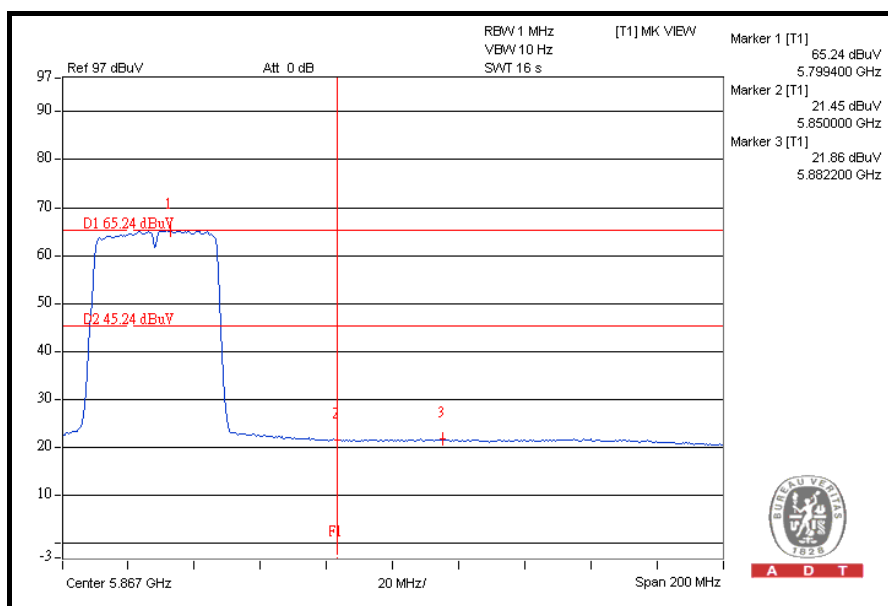
A D T



A D T



A D T



5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna with RP-TNC connector. The maximum gain of the antenna is 5dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

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.

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---