FCC TEST REPORT (15.247)

REPORT NO.:	RF980806L02C
MODEL NO.:	TEW-670AP
FCC ID:	XU8TEW670AP
RECEIVED:	Aug. 06, 2009
TESTED:	Aug. 12 ~ Aug. 19, 2009 (For original tests except conducted emission and radiation emission test below 1GHz test) Jul. 27 ~ Jul. 30, 2010 (For conducted emission and radiation emission test below 1GHz test)
ISSUED:	Aug. 03, 2010
APPLICANT:	TRENDNET, Inc.
ADDRESS:	20675 Manhattan Place, Torrance, CA 90501
ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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1. CERTIFICATION

PRODUCT: Dual Band Wireless N Router

MODEL: TEW-670AP

BRAND: TRENDnet

APPLICANT: TRENDNET, Inc.

TEST SAMPLE: R & D SAMPLE

TESTED: Aug. 12 ~ Aug. 19, 2009 (For original tests except conducted emission and radiation emission test below 1GHz test)
Jul. 27 ~ Jul. 30, 2010 (For conducted emission and radiation emission test below 1GHz test)

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

The above equipment (Model: TEW-670AP) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Pettie Chen , **DATE :** Aug. 03, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE :** Aug. 03, 2010
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE :** Aug. 03, 2010
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 -14.08dB at 6.832MHz.
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 -1.09dB at 2390.0MHz.
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	150kHz~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	Dual Band Wireless N Router
MODEL NO.	TEW-670AP
FCC ID	XU8TEW670AP
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 270.0Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	374.81mW for 2412 ~ 2462MHz 322.18mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to NOTE below
DATA CABLE	NA
I/O PORTS	RJ45
ACCESSORY DEVICES	Adapter

NOTE:

1. This report is issued as a supplementary report to the original BVADT report no.: RF980806L02. The RF part of EUT is identical to the original application one. The differences are changing the product name, model name, applicant, FCC ID no. and removing 4 LAN ports. Therefore, conducted emission and radiation emission test below 1GHz test had been re-tested and presented in the test report
2. The EUT is a Dual Band Wireless N Router. The test data are separated into following test reports.

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF980806L02C
WLAN 802.11a, 802.11n (5745~5825 MHz)		
WLAN 802.11a, 802.11n (5180~ 5240MHz)	FCC Part 15, Subpart E (Section 15.407)	RF980806L02C-1

3. Spurious emission of the simultaneous operation has been evaluated and no non-compliance found.

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

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

5. The EUT was powered by the following adapter:

BRAND:	AMIGO
MODEL:	AMS6-1201000SU
INPUT:	120Vac, 0.5A, 60Hz
OUTPUT:	12Vdc, 1A
POWER LINE:	DC 1.8m non-shielded cable without core

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

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

7. The following antennas are used in this EUT.

ANTENNA	TYPE	GAIN (dBi)	
		2.4GHz	5.0GHz
Internal	PIFA	4.5	5.0
External	Dipole	4.5	5.0

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

FOR 5.0GHz (5745 ~ 5825MHz):

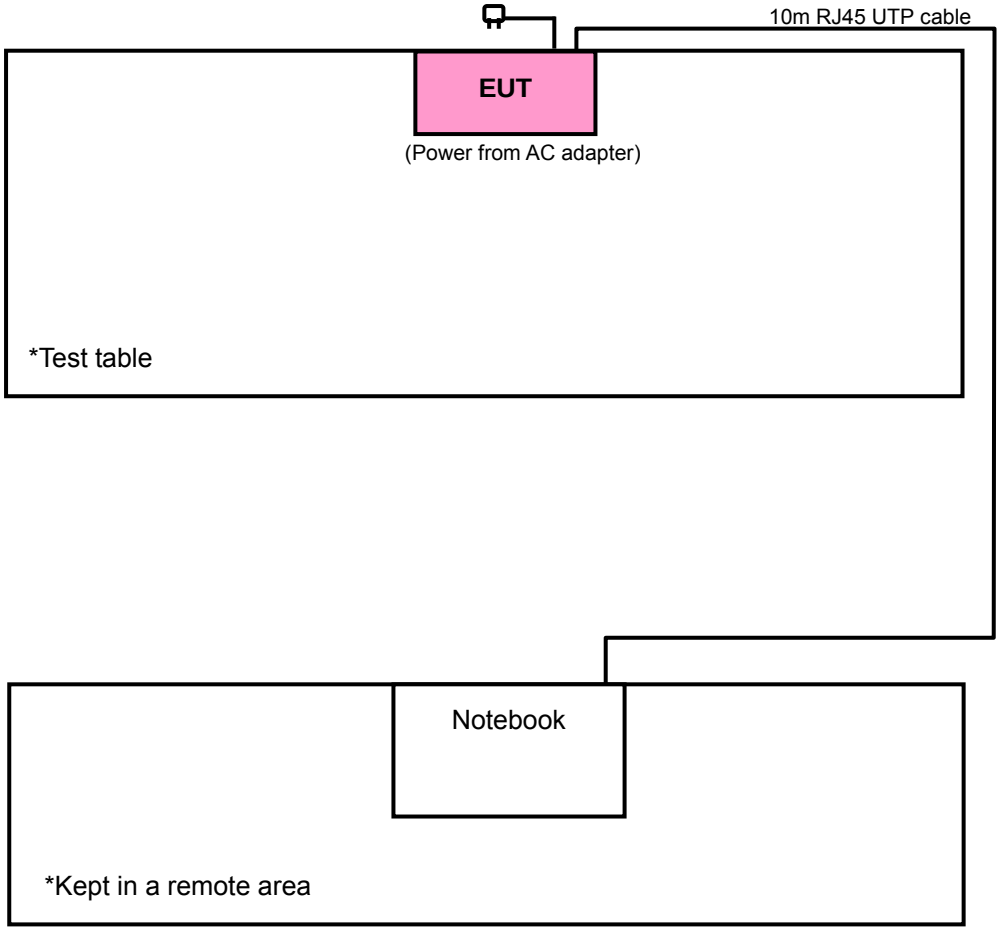
5 channels are provided for 802.11a, 802.11n (20MHz):

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

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

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis 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)	AXIS
802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5	X

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

FOR 5.745 ~ 5.825GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	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, XYZ axis 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)	AXIS
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0	Z
802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	Z
802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	Z

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis 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)	AXIS
802.11n (20MHz)	149 to 165	157	OFDM	BPSK	6.5	Z

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	149 to 165	157	OFDM	BPSK	6.5

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5
802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP05L	25191592336	E2K24CLNS

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

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

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

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 TEST INSTRUMENTS

For frequency above 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May 26, 2009	May 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2008	Dec. 24, 2009
Preamplifier Agilent	8447D	2944A10633	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008	Oct. 22, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC 7450F-3.

For frequency below 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 21, 2009	Dec. 20, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Dec. 31, 2009	Dec. 30, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2010	Apr. 26, 2011
HORN Antenna SCHWARZBECK	9120D	9120D-405	Feb. 03, 2010	Feb. 02, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8447D	2944A10633	Nov. 10, 2009	Nov. 09, 2010
Preamplifier Agilent	8449B	3008A01964	Nov. 09, 2009	Nov. 08, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 14, 2010	May 13, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 14, 2010	May 13, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 3.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

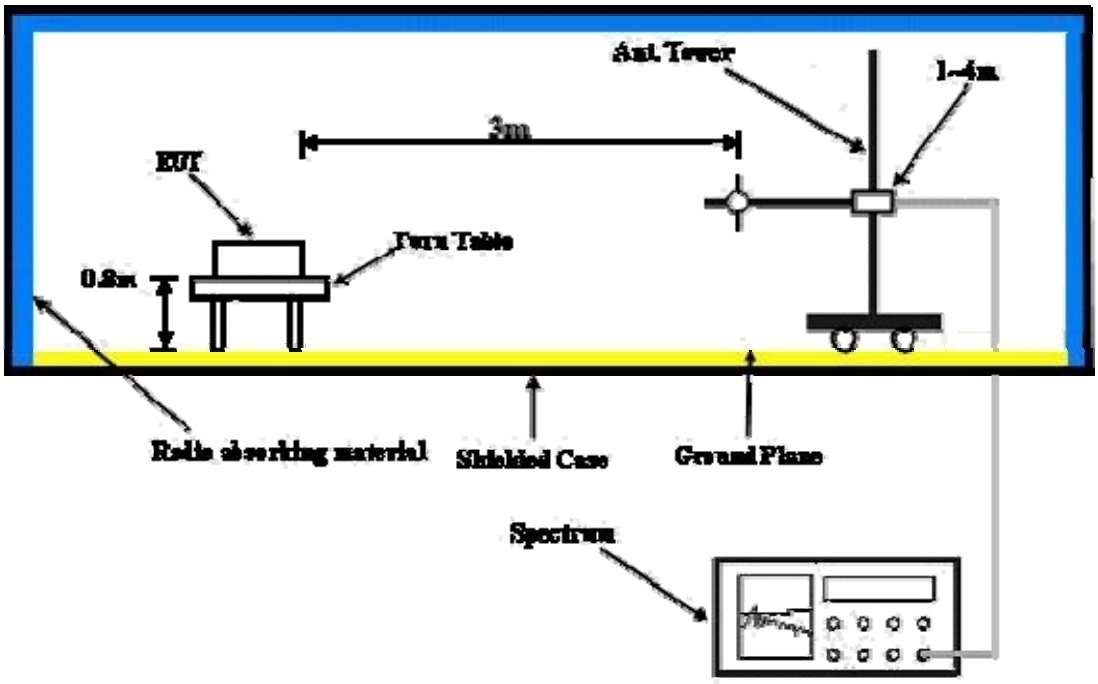
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

a. Placed the EUT on the testing table.
b. Prepared notebook system outside of testing area to act as a communication partners.
c. The communication partner connected with EUT via a RJ45 UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.7 TEST RESULTS

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	**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	2360.00	54.25 PK	74.00	-19.75	1.21 H	155	23.70	30.55
2	2360.00	43.58 AV	54.00	-10.42	1.21 H	155	13.03	30.55
3	2390.00	54.63 PK	74.00	-19.37	1.35 H	126	23.98	30.65
4	2390.00	45.13 AV	54.00	-8.87	1.35 H	126	14.48	30.65
5	*2412.00	104.11 PK			1.35 H	126	73.38	30.73
6	*2412.00	99.63 AV			1.35 H	126	68.90	30.73
7	2493.50	59.34 PK	74.00	-14.66	1.32 H	126	28.35	30.99
8	2493.50	48.63 AV	54.00	-5.37	1.32 H	126	17.64	30.99
9	4824.00	49.63 PK	74.00	-24.37	1.00 H	307	13.21	36.42
10	4824.00	41.15 AV	54.00	-12.85	1.00 H	307	4.73	36.42

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 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Match Tsui

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	2360.00	58.99 PK	74.00	-15.01	1.42 V	320	28.44	30.55
2	2360.00	48.27 AV	54.00	-5.73	1.42 V	320	17.72	30.55
3	2390.00	55.04 PK	74.00	-18.96	1.00 V	140	24.39	30.65
4	2390.00	45.80 AV	54.00	-8.20	1.00 V	140	15.15	30.65
5	*2412.00	108.00 PK			1.16 V	146	77.27	30.73
6	*2412.00	103.52 AV			1.16 V	146	72.79	30.73
7	2494.00	61.03 PK	74.00	-12.97	1.07 V	257	30.04	30.99
8	2494.00	52.02 AV	54.00	-1.98	1.07 V	257	21.03	30.99
9	4824.00	53.20 PK	74.00	-20.80	1.01 V	267	16.78	36.42
10	4824.00	47.84 AV	54.00	-6.16	1.01 V	267	11.42	36.42

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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	104.03 PK			1.36 H	125	73.22	30.81
2	*2437.00	99.52 AV			1.36 H	125	68.71	30.81
3	4874.00	49.66 PK	74.00	-24.34	1.08 H	294	13.19	36.47
4	4874.00	39.98 AV	54.00	-14.02	1.08 H	294	3.51	36.47
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	107.75 PK			1.14 V	206	76.94	30.81
2	*2437.00	103.24 AV			1.14 V	206	72.43	30.81
3	4874.00	52.48 PK	74.00	-21.52	1.63 V	157	16.01	36.47
4	4874.00	46.83 AV	54.00	-7.17	1.63 V	157	10.36	36.47

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	104.36 PK			1.33 H	123	73.47	30.89
2	*2462.00	99.83 AV			1.33 H	123	68.94	30.89
3	2483.50	55.35 PK	74.00	-18.65	1.33 H	123	24.39	30.96
4	2483.50	45.41 AV	54.00	-8.59	1.33 H	123	14.45	30.96
5	4924.00	48.82 PK	74.00	-25.18	1.45 H	283	12.24	36.58
6	4924.00	38.36 AV	54.00	-15.64	1.45 H	283	1.78	36.58
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	108.05 PK			1.14 V	190	77.16	30.89
2	*2462.00	103.57 AV			1.14 V	190	72.68	30.89
3	2500.00	59.04 PK	74.00	-14.96	1.14 V	189	28.03	31.01
4	2500.00	47.62 AV	54.00	-6.38	1.14 V	189	16.61	31.01
5	4924.00	52.49 PK	74.00	-21.51	1.46 V	162	15.91	36.58
6	4924.00	46.79 AV	54.00	-7.21	1.46 V	162	10.21	36.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	2360.00	55.56 PK	74.00	-18.44	1.18 H	132	25.01	30.55
2	2360.00	44.75 AV	54.00	-9.25	1.18 H	132	14.20	30.55
3	2390.00	59.45 PK	74.00	-14.55	1.37 H	129	28.80	30.65
4	2390.00	48.04 AV	54.00	-5.96	1.37 H	129	17.39	30.65
5	*2412.00	109.29 PK			1.35 H	127	78.56	30.73
6	*2412.00	99.13 AV			1.35 H	127	68.40	30.73
7	2491.00	58.89 PK	74.00	-15.11	1.14 H	76	27.91	30.98
8	2491.00	46.15 AV	54.00	-7.85	1.14 H	76	15.17	30.98
9	4824.00	49.79 PK	74.00	-24.21	1.00 H	118	13.37	36.42
10	4824.00	37.58 AV	54.00	-16.42	1.00 H	118	1.16	36.42

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 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Match Tsui

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	2360.00	60.18 PK	74.00	-13.82	1.14 V	341	29.63	30.55
2	2360.00	49.16 AV	54.00	-4.84	1.14 V	341	18.61	30.55
3	2390.00	66.46 PK	74.00	-7.54	1.22 V	133	35.81	30.65
4	2390.00	52.89 AV	54.00	-1.11	1.22 V	133	22.24	30.65
5	*2412.00	111.49 PK			1.16 V	143	80.76	30.73
6	*2412.00	101.42 AV			1.16 V	143	70.69	30.73
7	2491.00	63.14 PK	74.00	-10.86	1.09 V	360	32.16	30.98
8	2491.00	50.74 AV	54.00	-3.26	1.09 V	360	19.76	30.98
9	4824.00	51.49 PK	74.00	-22.51	1.16 V	116	15.07	36.42
10	4824.00	45.45 AV	54.00	-8.55	1.16 V	116	9.03	36.42

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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	109.50 PK			1.38 H	129	78.69	30.81
2	*2437.00	99.42 AV			1.38 H	129	68.61	30.81
3	2489.50	59.61 PK	74.00	-14.39	1.06 H	139	28.63	30.98
4	2489.50	47.94 AV	54.00	-6.06	1.06 H	139	16.96	30.98
5	4874.00	48.50 PK	74.00	-25.50	1.15 H	204	12.03	36.47
6	4874.00	37.29 AV	54.00	-16.71	1.15 H	204	0.82	36.47
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	111.77 PK			1.15 V	139	80.96	30.81
2	*2437.00	101.69 AV			1.15 V	139	70.88	30.81
3	2489.50	63.17 PK	74.00	-10.83	1.13 V	185	32.19	30.98
4	2489.50	52.48 AV	54.00	-1.52	1.13 V	185	21.50	30.98
5	4874.00	51.76 PK	74.00	-22.24	1.17 V	124	15.29	36.47
6	4874.00	45.31 AV	54.00	-8.69	1.17 V	124	8.84	36.47

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	108.79 PK			1.31 H	126	77.90	30.89
2	*2462.00	98.68 AV			1.31 H	126	67.79	30.89
3	2483.50	62.09 PK	74.00	-11.91	1.33 H	129	31.13	30.96
4	2483.50	47.97 AV	54.00	-6.03	1.33 H	129	17.01	30.96
5	4924.00	48.98 PK	74.00	-25.02	1.18 H	201	12.40	36.58
6	4924.00	37.36 AV	54.00	-16.64	1.18 H	201	0.78	36.58
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	111.22 PK			1.13 V	193	80.33	30.89
2	*2462.00	101.13 AV			1.13 V	193	70.24	30.89
3	2483.50	64.64 PK	74.00	-9.36	1.12 V	163	33.68	30.96
4	2483.50	52.88 AV	54.00	-1.12	1.12 V	163	21.92	30.96
5	4924.00	51.68 PK	74.00	-22.32	1.33 V	168	15.10	36.58
6	4924.00	45.15 AV	54.00	-8.85	1.33 V	168	8.57	36.58

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	2360.00	64.12 PK	74.00	-9.88	1.18 H	163	33.57	30.55
2	2360.00	43.89 AV	54.00	-10.11	1.18 H	163	13.34	30.55
3	2390.00	72.55 PK	74.00	-1.45	1.37 H	130	41.90	30.65
4	2390.00	51.90 AV	54.00	-2.10	1.37 H	130	21.25	30.65
5	*2412.00	108.99 PK			1.35 H	127	78.26	30.73
6	*2412.00	98.91 AV			1.35 H	127	68.18	30.73
7	2493.00	57.82 PK	74.00	-16.18	1.25 H	77	26.83	30.99
8	2493.00	44.98 AV	54.00	-9.02	1.25 H	77	13.99	30.99
9	4824.00	49.41 PK	74.00	-24.59	1.08 H	198	12.99	36.42
10	4824.00	37.69 AV	54.00	-16.31	1.08 H	198	1.27	36.42

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 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Match Tsui

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	2360.00	68.75 PK	74.00	-5.25	1.21 V	141	38.20	30.55
2	2360.00	48.23 AV	54.00	-5.77	1.21 V	141	17.68	30.55
3	2390.00	72.61 PK	74.00	-1.39	1.18 V	149	41.96	30.65
4	2390.00	52.86 AV	54.00	-1.14	1.18 V	149	22.21	30.65
5	*2412.00	111.57 PK			1.17 V	143	80.84	30.73
6	*2412.00	101.46 AV			1.17 V	143	70.73	30.73
7	2493.00	62.30 PK	74.00	-11.70	1.41 V	149	31.31	30.99
8	2493.00	50.14 AV	54.00	-3.86	1.41 V	149	19.15	30.99
9	4824.00	51.80 PK	74.00	-22.20	1.22 V	157	15.38	36.42
10	4824.00	44.43 AV	54.00	-9.57	1.22 V	157	8.01	36.42

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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	2385.00	68.12 PK	74.00	-5.88	1.25 H	143	37.48	30.64
2	2385.00	48.06 AV	54.00	-5.94	1.25 H	143	17.42	30.64
3	*2437.00	108.72 PK			1.35 H	126	77.91	30.81
4	*2437.00	98.60 AV			1.35 H	126	67.79	30.81
5	2489.50	61.84 PK	74.00	-12.16	1.03 H	155	30.86	30.98
6	2489.50	44.97 AV	54.00	-9.03	1.03 H	155	13.99	30.98
7	4874.00	49.45 PK	74.00	-24.55	1.00 H	205	12.98	36.47
8	4874.00	37.72 AV	54.00	-16.28	1.00 H	205	1.25	36.47
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	2385.00	72.66 PK	74.00	-1.34	1.15 V	185	42.02	30.64
2	2385.00	52.60 AV	54.00	-1.40	1.15 V	185	21.96	30.64
3	*2437.00	111.98 PK			1.17 V	138	81.17	30.81
4	*2437.00	101.95 AV			1.17 V	138	71.14	30.81
5	2489.50	66.55 PK	74.00	-7.45	1.45 V	146	35.57	30.98
6	2489.50	49.48 AV	54.00	-4.52	1.45 V	146	18.50	30.98
7	4874.00	52.70 PK	74.00	-21.30	1.01 V	118	16.23	36.47
8	4874.00	46.39 AV	54.00	-7.61	1.01 V	118	9.92	36.47

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	108.49 PK			1.30 H	128	77.60	30.89
2	*2462.00	98.42 AV			1.30 H	128	67.53	30.89
3	2483.50	64.65 PK	74.00	-9.35	1.30 H	127	33.69	30.96
4	2483.50	49.05 AV	54.00	-4.95	1.30 H	127	18.09	30.96
5	4924.00	48.75 PK	74.00	-25.25	1.02 H	307	12.17	36.58
6	4924.00	37.79 AV	54.00	-16.21	1.02 H	307	1.21	36.58
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	111.15 PK			1.14 V	140	80.26	30.89
2	*2462.00	101.02 AV			1.14 V	140	70.13	30.89
3	2483.50	72.69 PK	74.00	-1.31	1.11 V	144	41.73	30.96
4	2483.50	52.82 AV	54.00	-1.18	1.11 V	144	21.86	30.96
5	4924.00	51.55 PK	74.00	-22.45	1.31 V	169	14.97	36.58
6	4924.00	45.16 AV	54.00	-8.84	1.31 V	169	8.58	36.58

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	68.99 PK	74.00	-5.01	1.36 H	129	38.34	30.65
2	2390.00	51.83 AV	54.00	-2.17	1.36 H	129	21.18	30.65
3	*2422.00	104.66 PK			1.35 H	128	73.90	30.76
4	*2422.00	94.57 AV			1.35 H	128	63.81	30.76
5	2500.00	62.43 PK	74.00	-11.57	1.19 H	94	31.42	31.01
6	2500.00	45.98 AV	54.00	-8.02	1.19 H	94	14.97	31.01
7	4844.00	49.17 PK	74.00	-24.83	1.16 H	203	12.73	36.44
8	4844.00	37.41 AV	54.00	-16.59	1.16 H	203	0.97	36.44
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	72.81 PK	74.00	-1.19	1.15 V	208	42.16	30.65
2	**2390.00**	**52.91 AV**	**54.00**	**-1.09**	**1.15 V**	**208**	**22.26**	**30.65**
3	*2422.00	107.49 PK			1.17 V	140	76.73	30.76
4	*2422.00	97.42 AV			1.17 V	140	66.66	30.76
5	2500.00	66.69 PK	74.00	-7.31	1.12 V	128	35.68	31.01
6	2500.00	49.68 AV	54.00	-4.32	1.12 V	128	18.67	31.01
7	4844.00	52.01 PK	74.00	-21.99	1.32 V	123	15.57	36.44
8	4844.00	45.27 AV	54.00	-8.73	1.32 V	123	8.83	36.44

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	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	66.12 PK	74.00	-7.88	1.13 H	73	35.47	30.65
2	2390.00	45.26 AV	54.00	-8.74	1.13 H	73	14.61	30.65
3	*2437.00	105.39 PK			1.34 H	128	74.58	30.81
4	*2437.00	95.27 AV			1.34 H	128	64.46	30.81
5	2500.00	64.21 PK	74.00	-9.79	1.20 H	135	33.20	31.01
6	2500.00	43.25 AV	54.00	-10.75	1.20 H	135	12.24	31.01
7	4874.00	49.27 PK	74.00	-24.73	1.15 H	202	12.80	36.47
8	4874.00	38.29 AV	54.00	-15.71	1.15 H	202	1.82	36.47
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	70.78 PK	74.00	-3.22	1.20 V	148	40.13	30.65
2	2390.00	50.38 AV	54.00	-3.62	1.20 V	148	19.73	30.65
3	*2437.00	108.36 PK			1.16 V	139	77.55	30.81
4	*2437.00	98.28 AV			1.16 V	139	67.47	30.81
5	2500.00	68.90 PK	74.00	-5.10	1.45 V	144	37.89	31.01
6	2500.00	48.81 AV	54.00	-5.19	1.45 V	144	17.80	31.01
7	4874.00	52.97 PK	74.00	-21.03	1.02 V	117	16.50	36.47
8	4874.00	46.61 AV	54.00	-7.39	1.02 V	117	10.14	36.47

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	25deg. C, 65%RH 1002 hPa	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	101.85 PK			1.34 H	127	70.99	30.86
2	*2452.00	91.77 AV			1.34 H	127	60.91	30.86
3	2483.50	72.38 PK	74.00	-1.62	1.32 H	124	41.42	30.96
4	2483.50	52.11 AV	54.00	-1.89	1.32 H	124	21.15	30.96
5	4904.00	48.63 PK	74.00	-25.37	1.07 H	21	12.12	36.51
6	4904.00	37.37 AV	54.00	-16.63	1.07 H	21	0.86	36.51
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	105.18 PK			1.15 V	140	74.32	30.86
2	*2452.00	95.05 AV			1.15 V	140	64.19	30.86
3	2483.50	72.83 PK	74.00	-1.17	1.14 V	146	41.87	30.96
4	2483.50	52.88 AV	54.00	-1.12	1.14 V	146	21.92	30.96
5	4904.00	52.39 PK	74.00	-21.61	1.01 V	120	15.88	36.51
6	4904.00	46.47 AV	54.00	-7.53	1.01 V	120	9.96	36.51

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.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH 1000 hPa	TESTED BY	Frank Wang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	249.60	39.9 QP	46.0	-6.1	1.00 H	274	27.10	12.80
2	375.98	38.6 QP	46.0	-7.4	1.00 H	229	22.10	16.50
3	500.42	44.3 QP	46.0	-1.7	1.50 H	214	24.50	19.80
4	640.41	41.6 QP	46.0	-4.4	1.00 H	211	18.90	22.70
5	751.23	39.0 QP	46.0	-7.0	1.00 H	157	14.90	24.10
6	933.99	42.3 QP	46.0	-3.7	1.50 H	193	15.90	26.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.73	34.4 QP	40.0	-5.6	1.00 V	4	21.70	12.70
2	125.17	36.8 QP	43.5	-6.7	1.00 V	172	24.00	12.80
3	375.98	42.1 QP	46.0	-3.9	1.00 V	175	25.60	16.50
4	500.42	44.2 QP	46.0	-1.8	1.00 V	247	24.40	19.80
5	640.41	41.5 QP	46.0	-4.5	1.00 V	157	18.80	22.70
6	933.99	40.6 QP	46.0	-5.4	1.00 V	175	14.20	26.40

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 24, 2009	Sep. 23, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Aug. 24, 2009	Aug. 23, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 08, 2010	Jul. 07, 2011
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

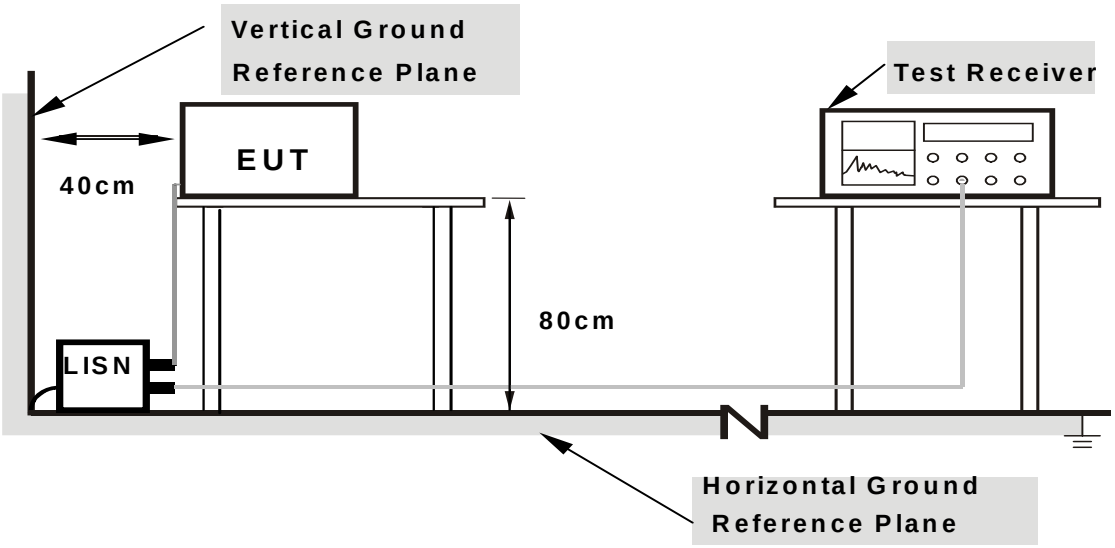
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

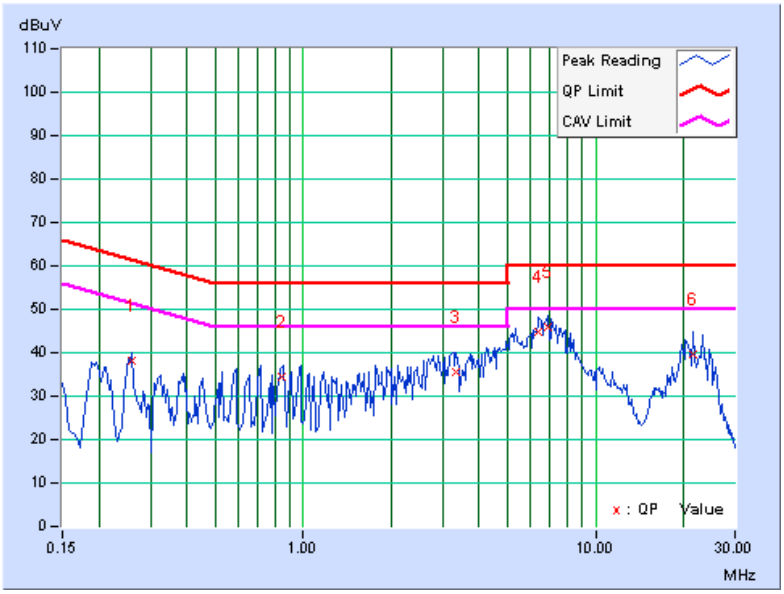
4.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 1021hPa	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.259	0.17	38.06	-	38.23	-	61.45	51.45	-23.23	-
2	0.840	0.22	34.04	-	34.26	-	56.00	46.00	-21.74	-
3	3.352	0.34	35.37	-	35.71	-	56.00	46.00	-20.29	-
4	6.379	0.35	44.51	-	44.86	-	60.00	50.00	-15.14	-
5	**6.832**	**0.35**	**45.57**	**-**	**45.92**	**-**	**60.00**	**50.00**	**-14.08**	**-**
6	21.664	0.66	39.06	-	39.72	-	60.00	50.00	-20.28	-

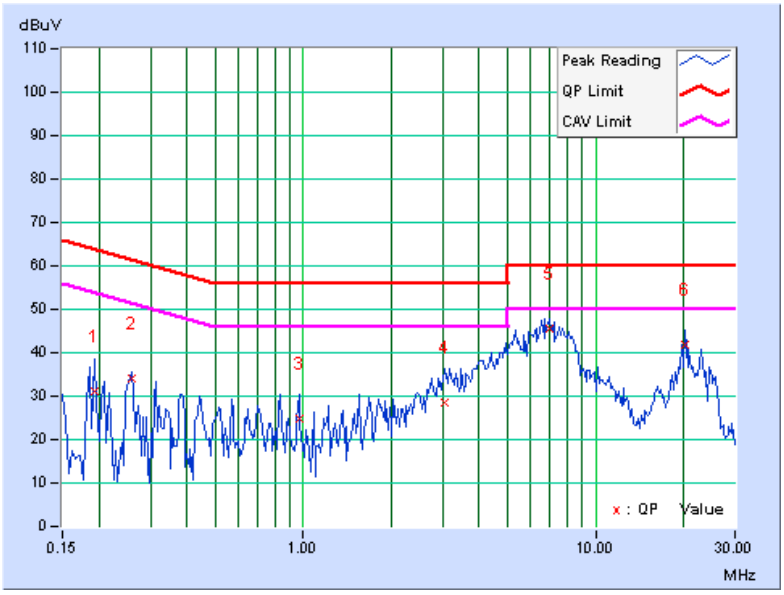
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 1021hPa	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.13	31.15	-	31.28	-	63.91	53.91	-32.63	-
2	0.259	0.14	34.02	-	34.16	-	61.45	51.45	-27.29	-
3	0.970	0.22	24.62	-	24.84	-	56.00	46.00	-31.16	-
4	3.047	0.33	28.01	-	28.34	-	56.00	46.00	-27.66	-
5	6.962	0.40	45.06	-	45.46	-	60.00	50.00	-14.54	-
6	20.258	0.92	40.88	-	41.80	-	60.00	50.00	-18.20	-

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



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	May 13, 2009	May 12, 2010

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

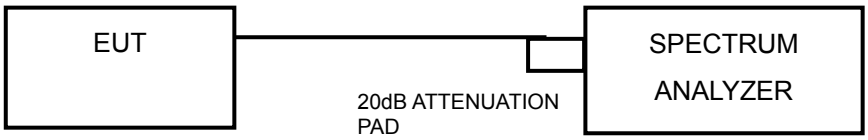
4.3.3 TEST PROCEDURE

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.

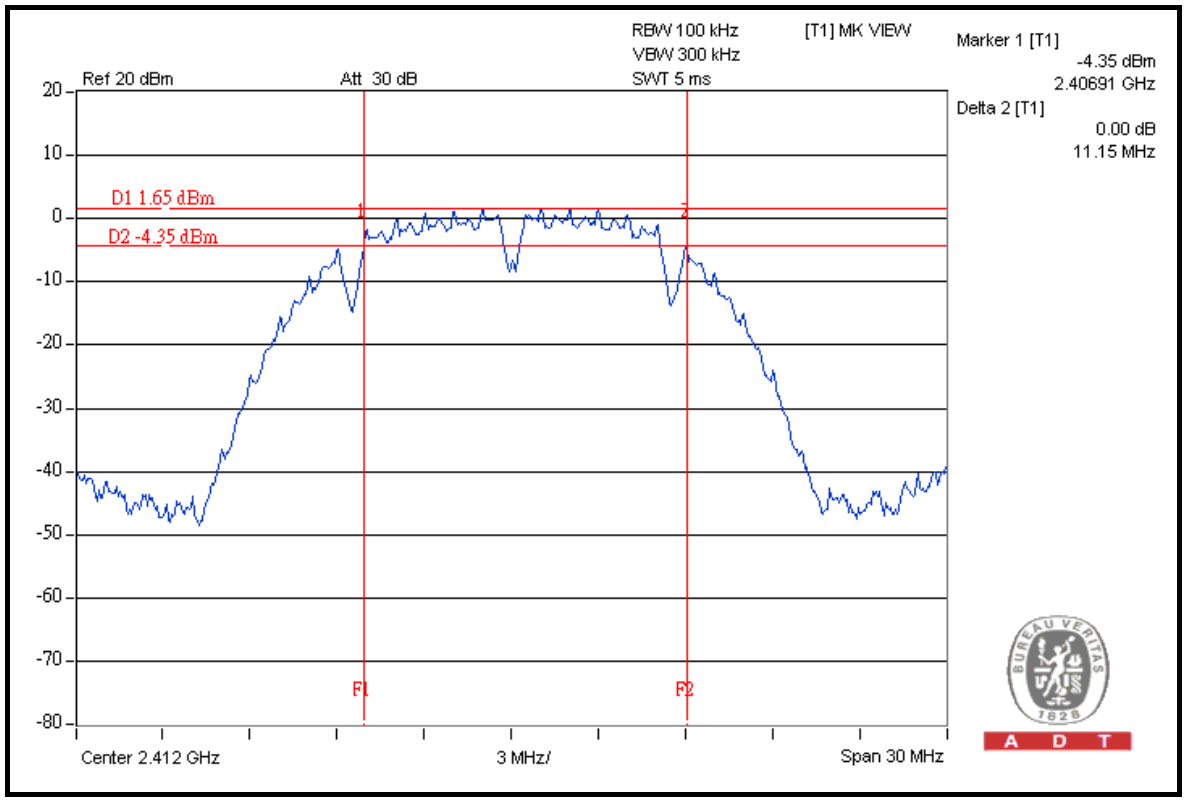
4.3.7 TEST RESULTS

802.11b

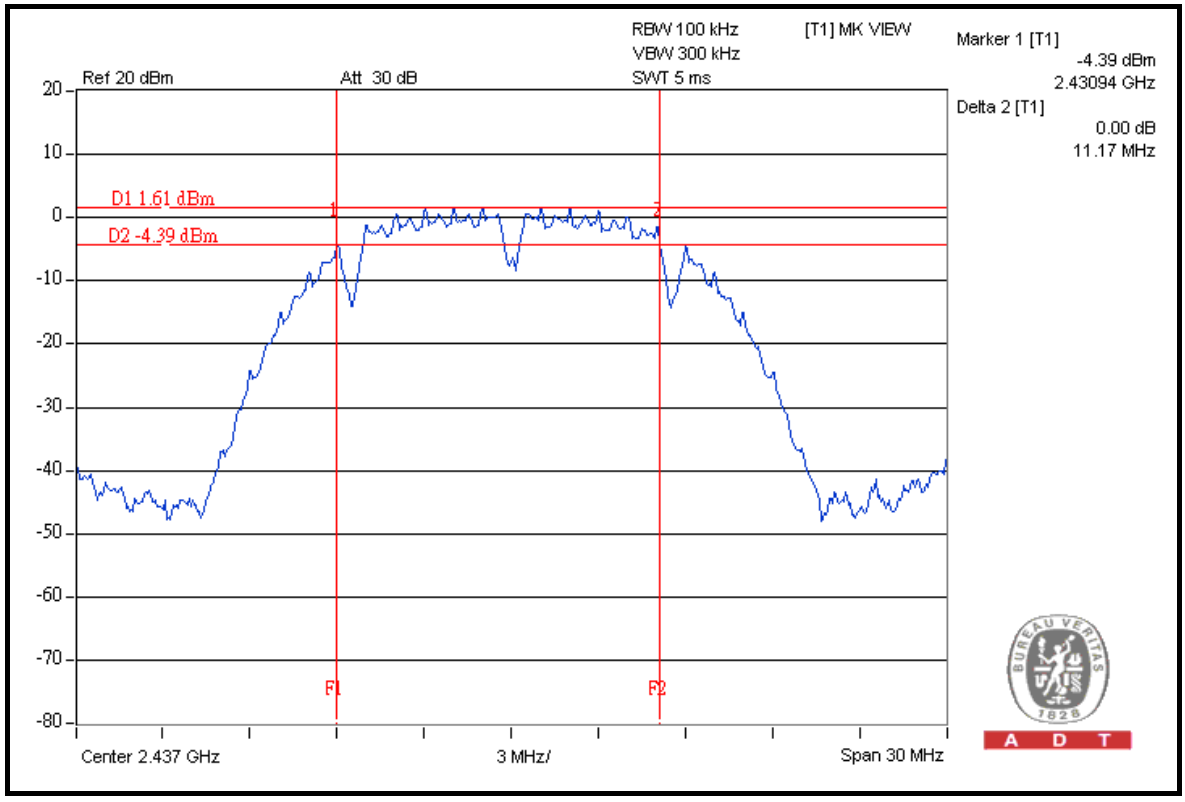
MODULATION TYPE	DBPSK	**TRANSFER RATE**	1.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	11.15	12.14	0.5	PASS
6	2437	11.17	11.18	0.5	PASS
11	2462	11.17	11.16	0.5	PASS

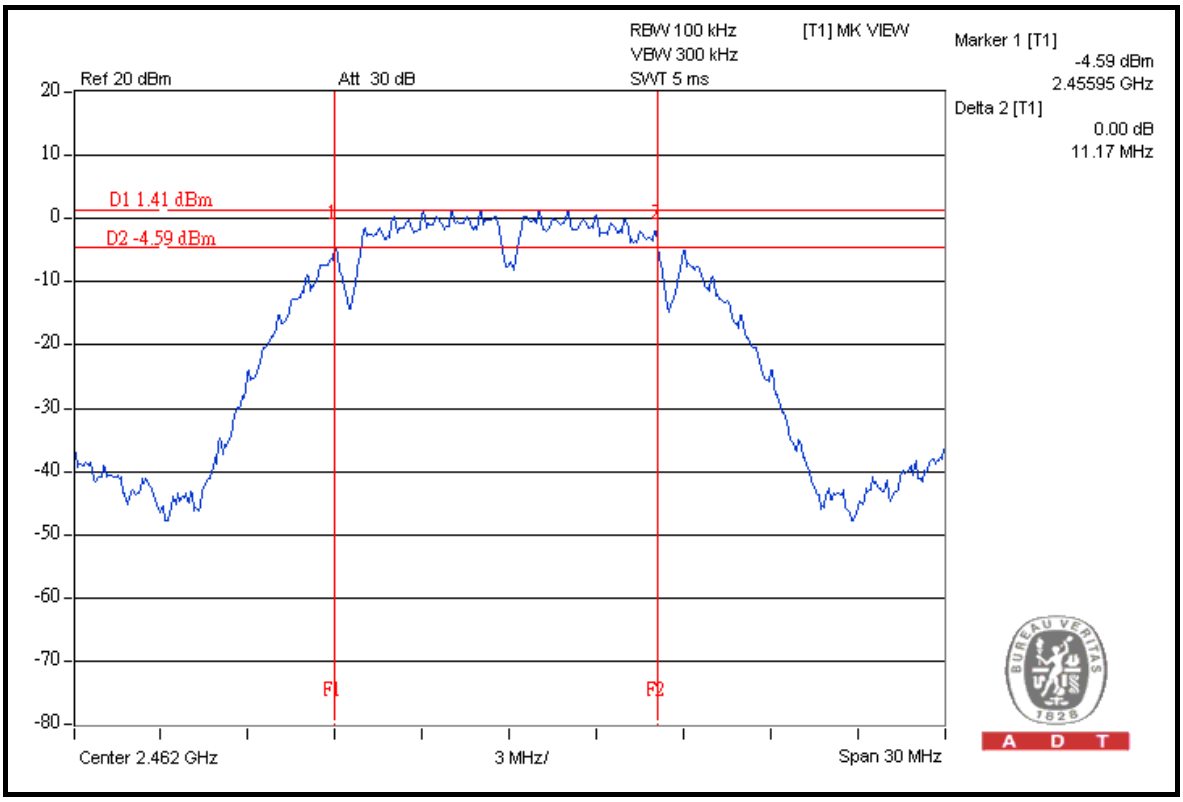
FOR CHAIN 0: CH 1



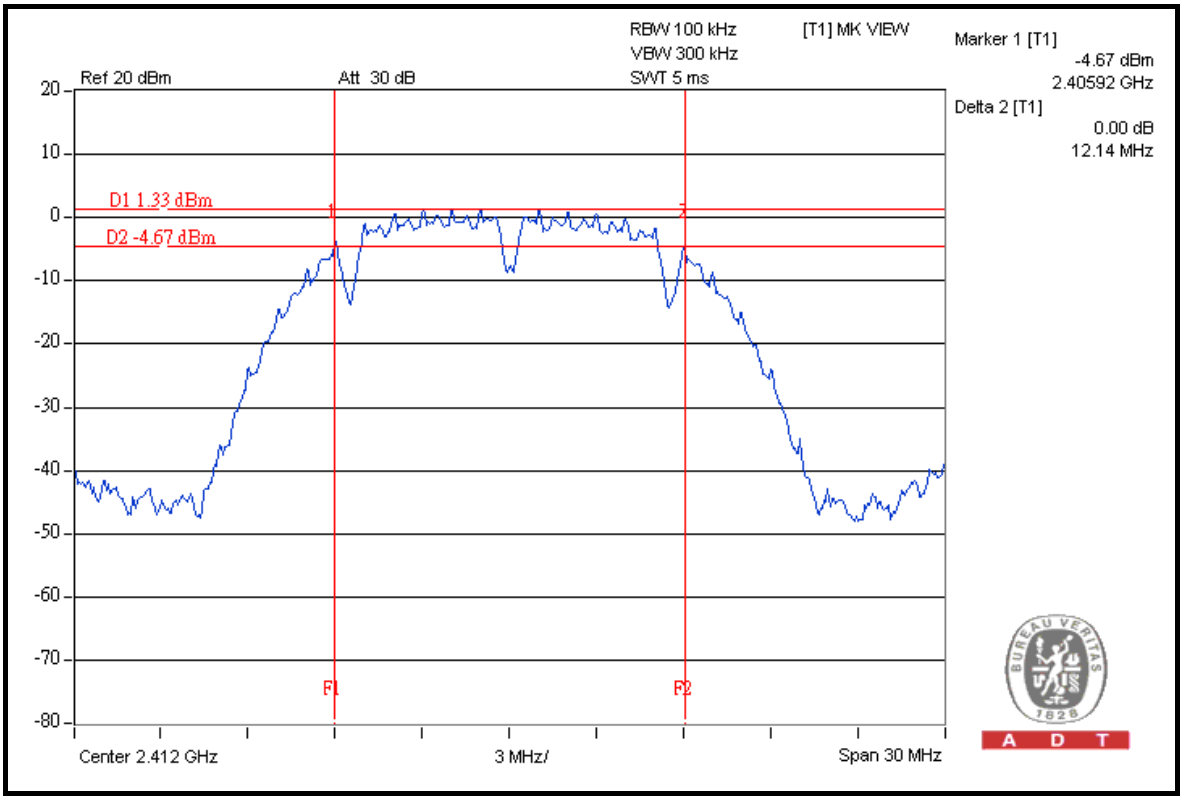
CH 6



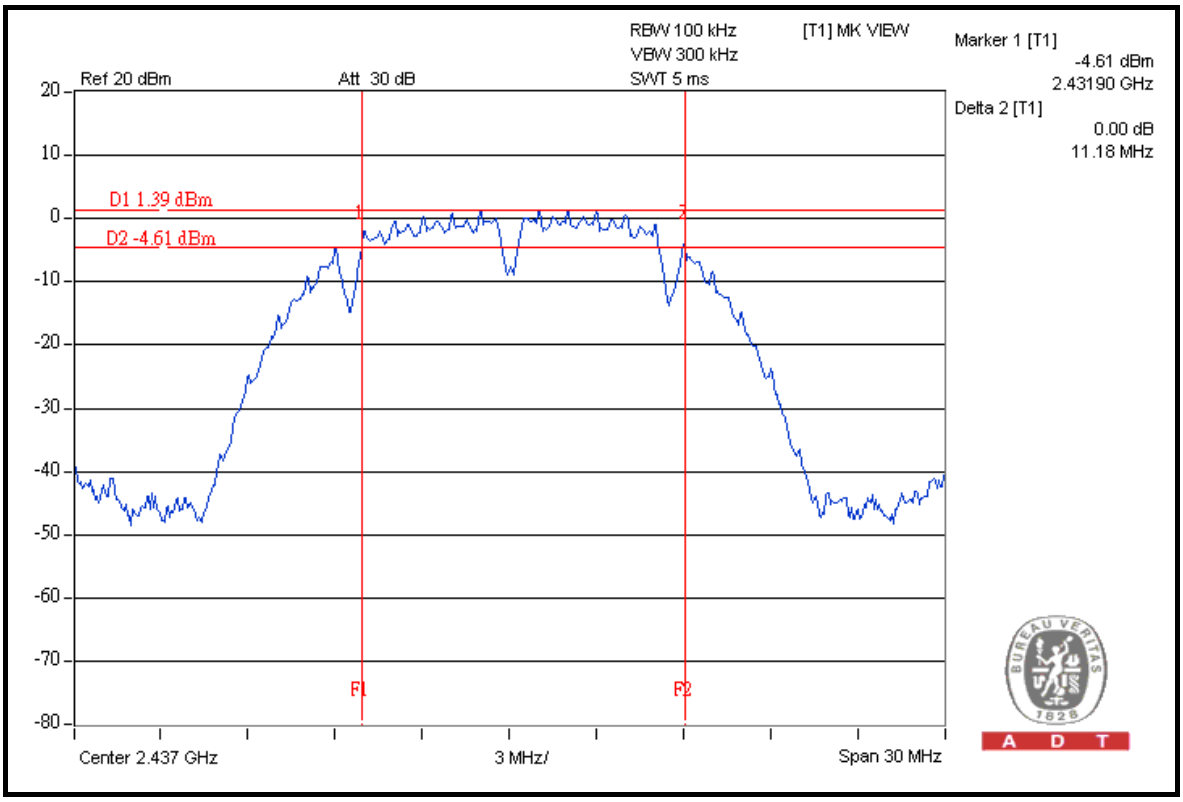
CH 11



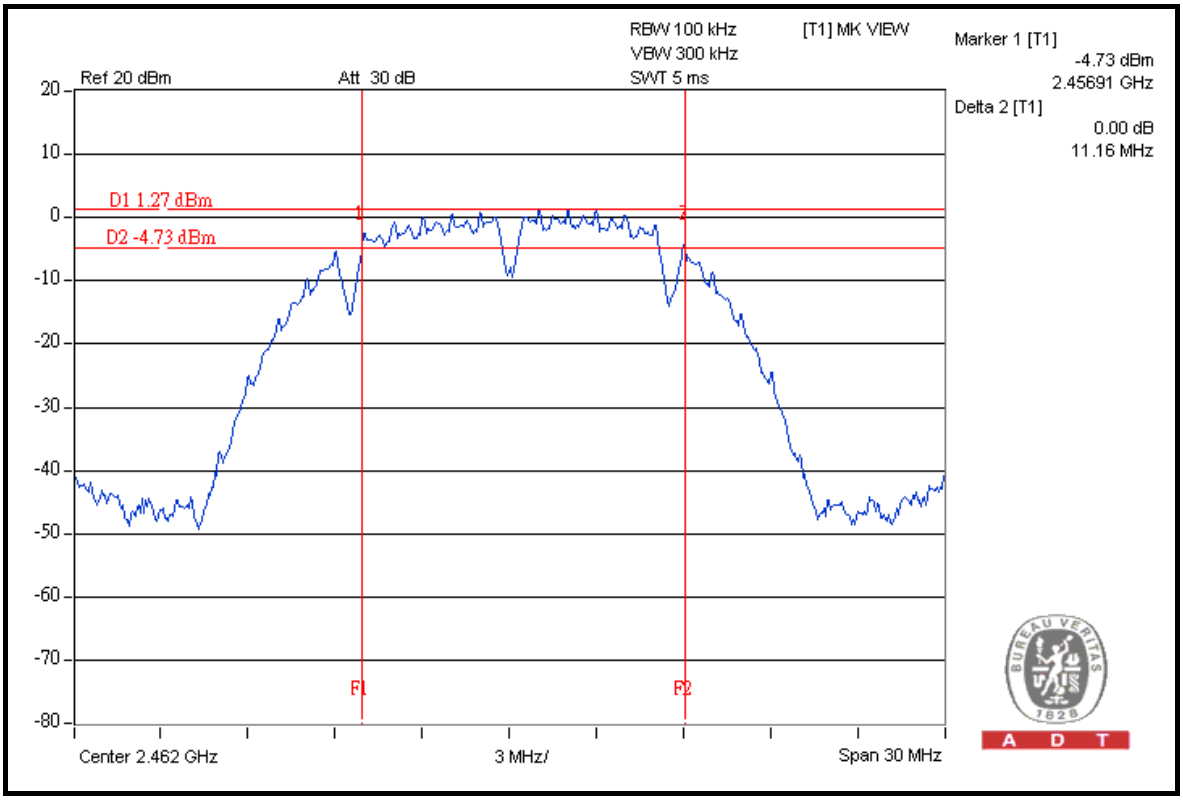
FOR CHAIN 1: CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.61 dBm
2.43190 GHz
Delta 2 [T1]
0.00 dB
11.18 MHz
Ref 20 dBm
Att 30 dB
D1 1.39 dBm
D2 -4.61 dBm
F1
F2
Center 2.437 GHz
3 MHz/
Span 30 MHz

CH 11

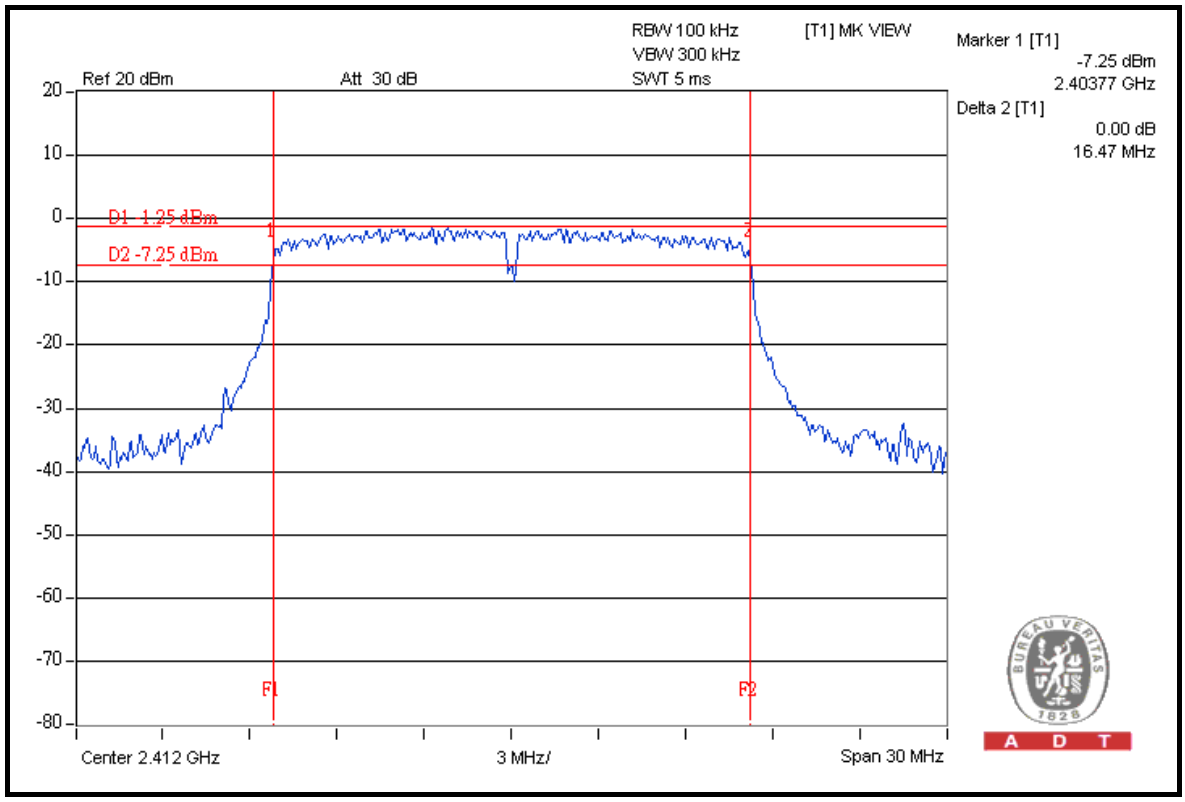

RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.73 dBm
2.45691 GHz
Delta 2 [T1]
0.00 dB
11.16 MHz
Ref 20 dBm
Att 30 dB
D1 1.27 dBm
D2 -4.73 dBm
F1
F2
Center 2.462 GHz
3 MHz/
Span 30 MHz

802.11g

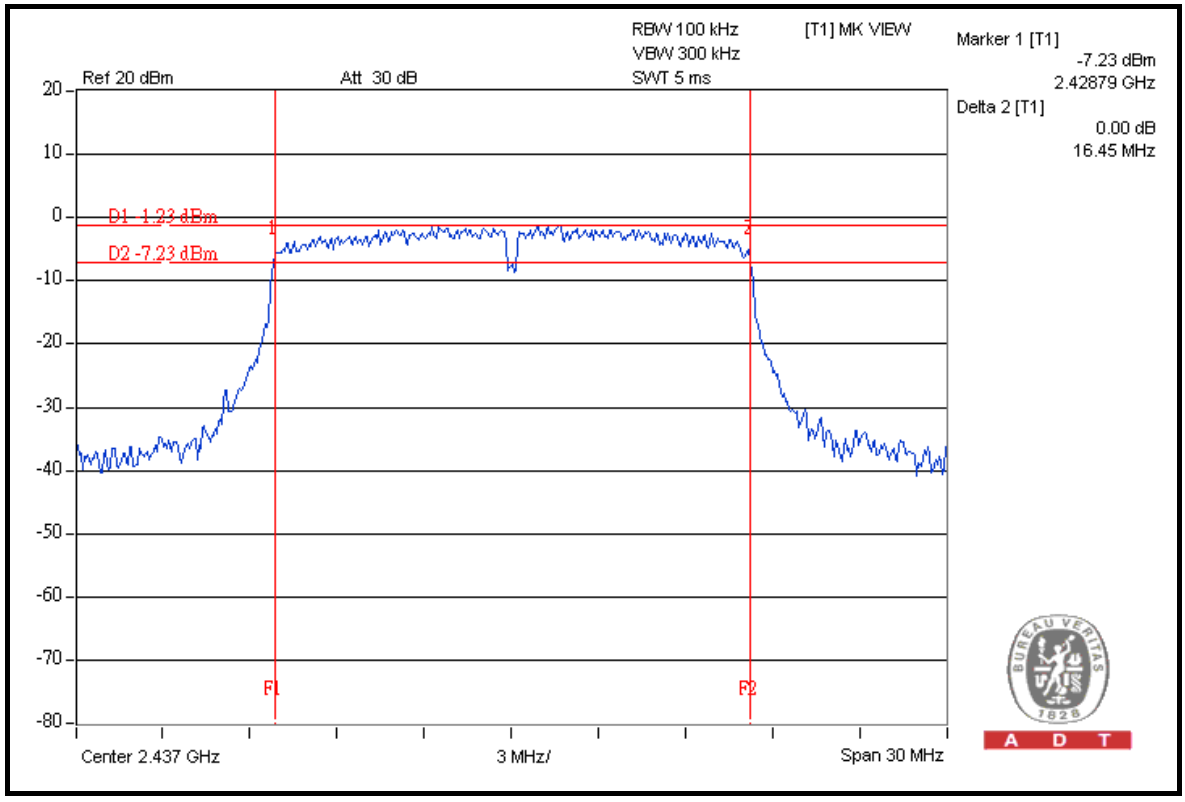
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.47	16.39	0.5	PASS
6	2437	16.45	16.41	0.5	PASS
11	2462	16.52	16.45	10.5	PASS

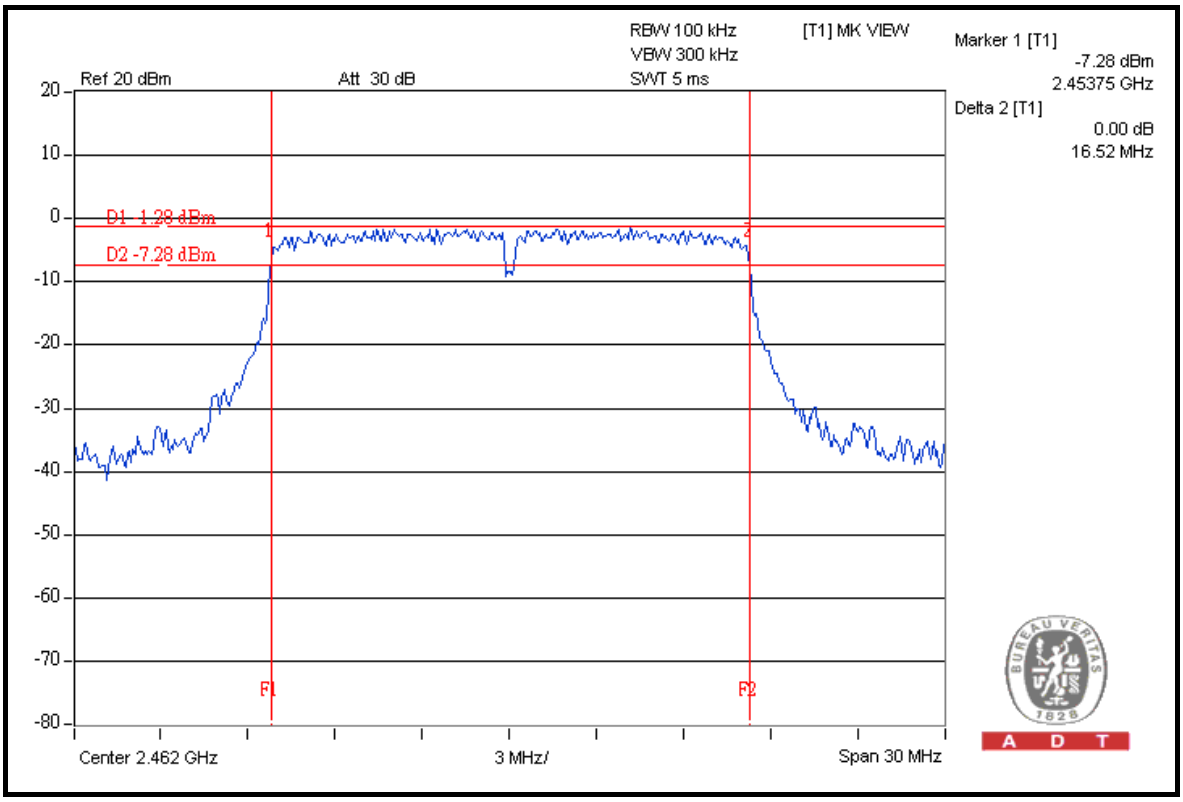
FOR CHAIN 0: CH 1



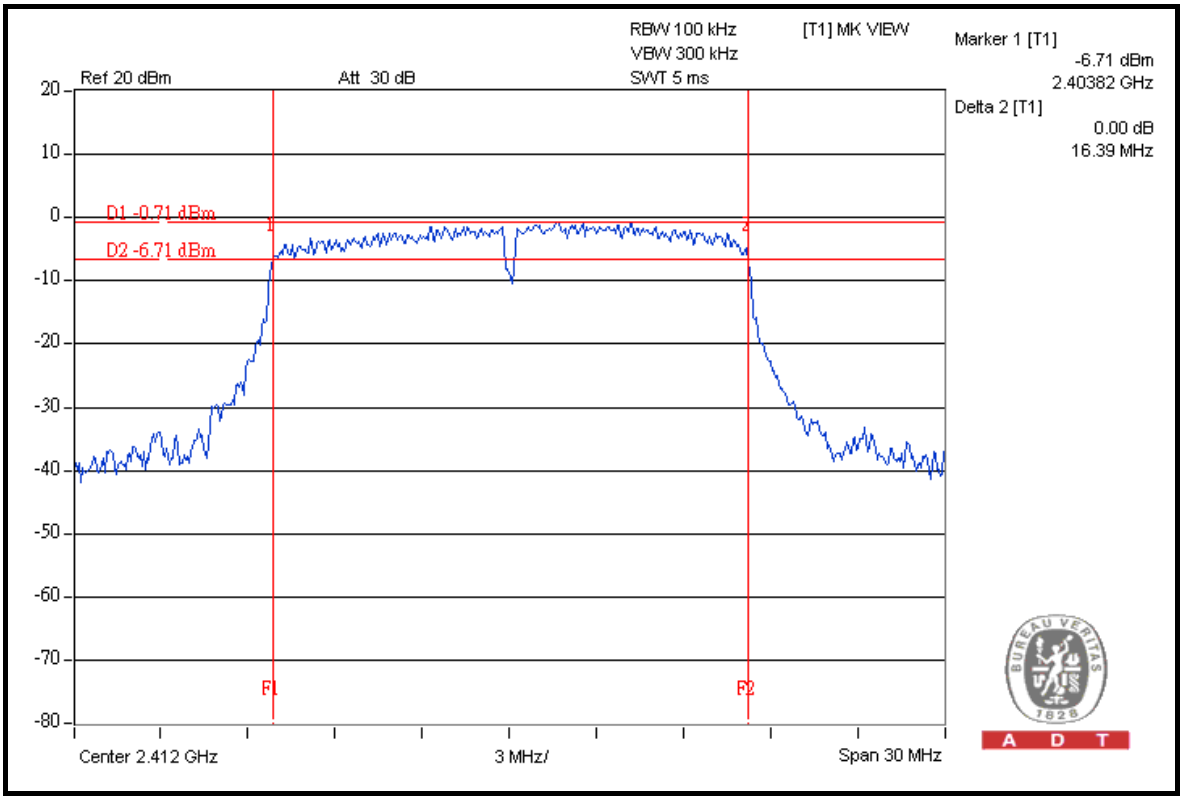
CH 6



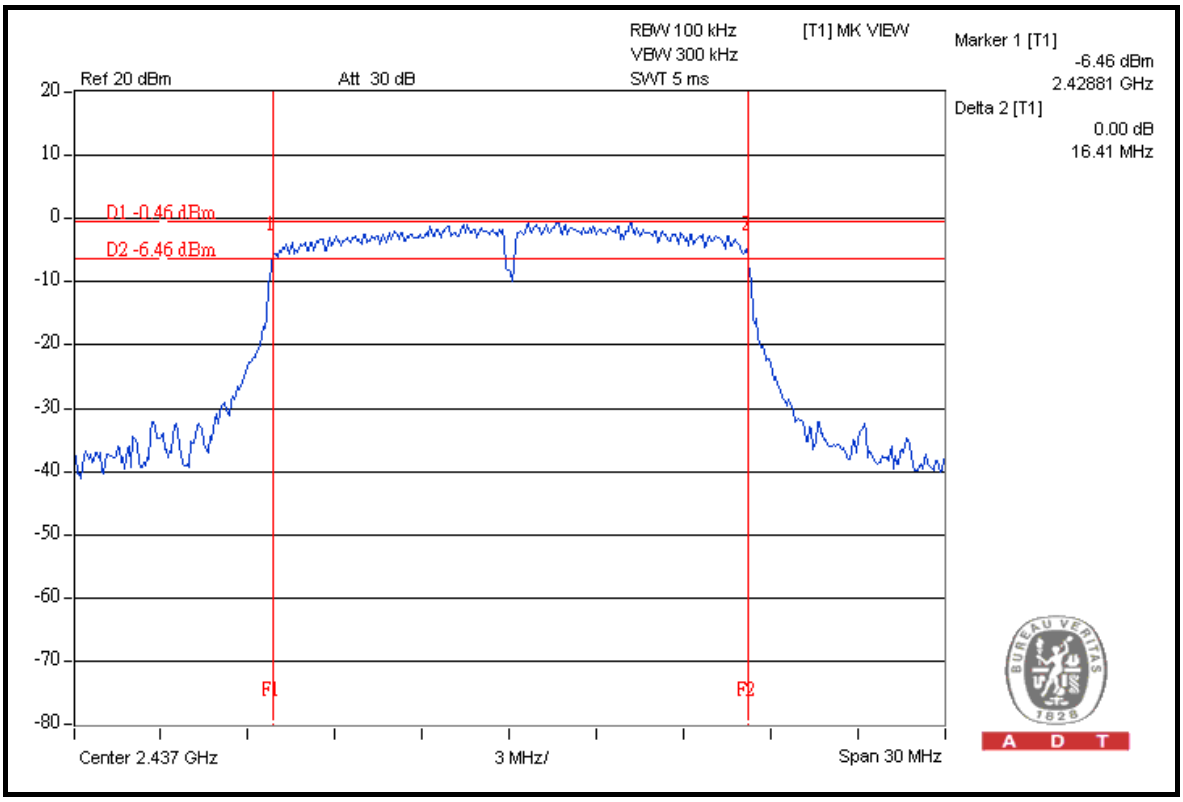
CH 11



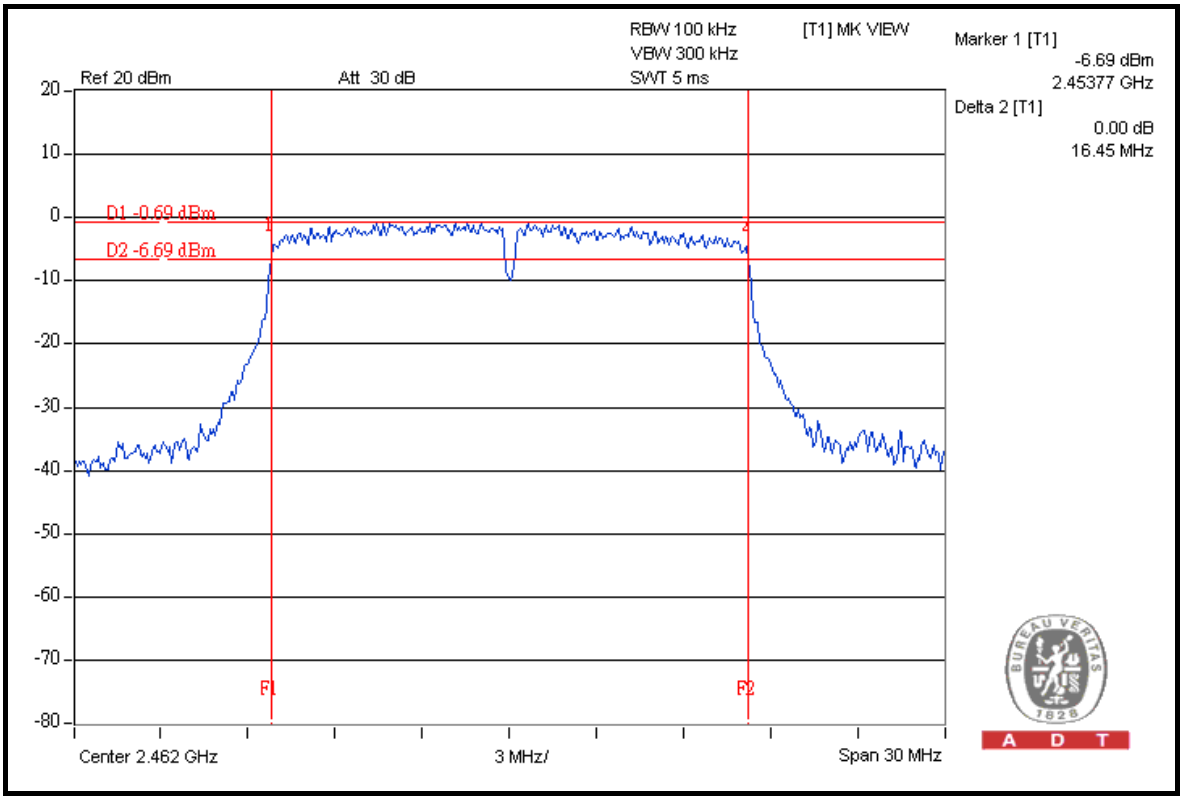
FOR CHAIN 1: CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.46 dBm
2.42881 GHz
Delta 2 [T1]
0.00 dB
16.41 MHz
Ref 20 dBm
Att 30 dB
D1 -0.46 dBm
D2 -6.46 dBm
F1
F2
Center 2.437 GHz
3 MHz/
Span 30 MHz

CH 11

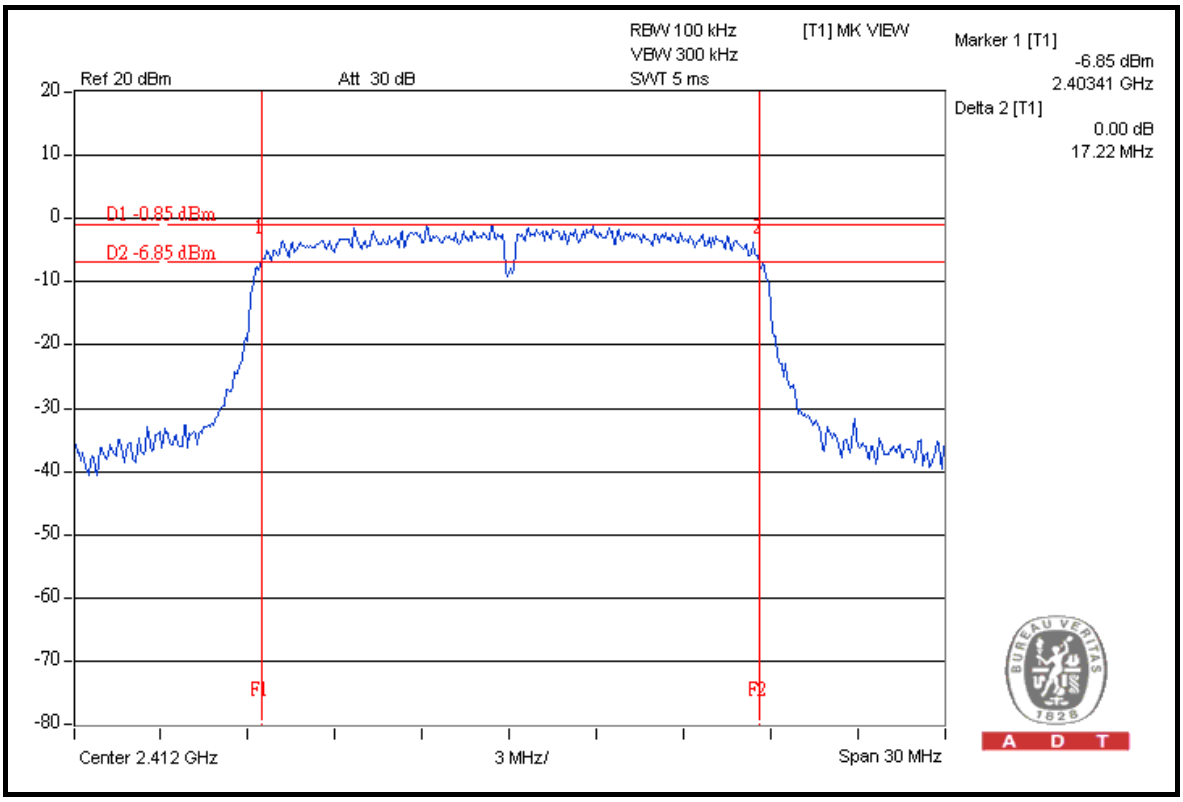

RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.69 dBm
2.45377 GHz
Delta 2 [T1]
0.00 dB
16.45 MHz
Ref 20 dBm
Att 30 dB
D1 -0.69 dBm
D2 -6.69 dBm
F1
F2
Center 2.462 GHz
3 MHz/
Span 30 MHz

802.11n (20MHz)

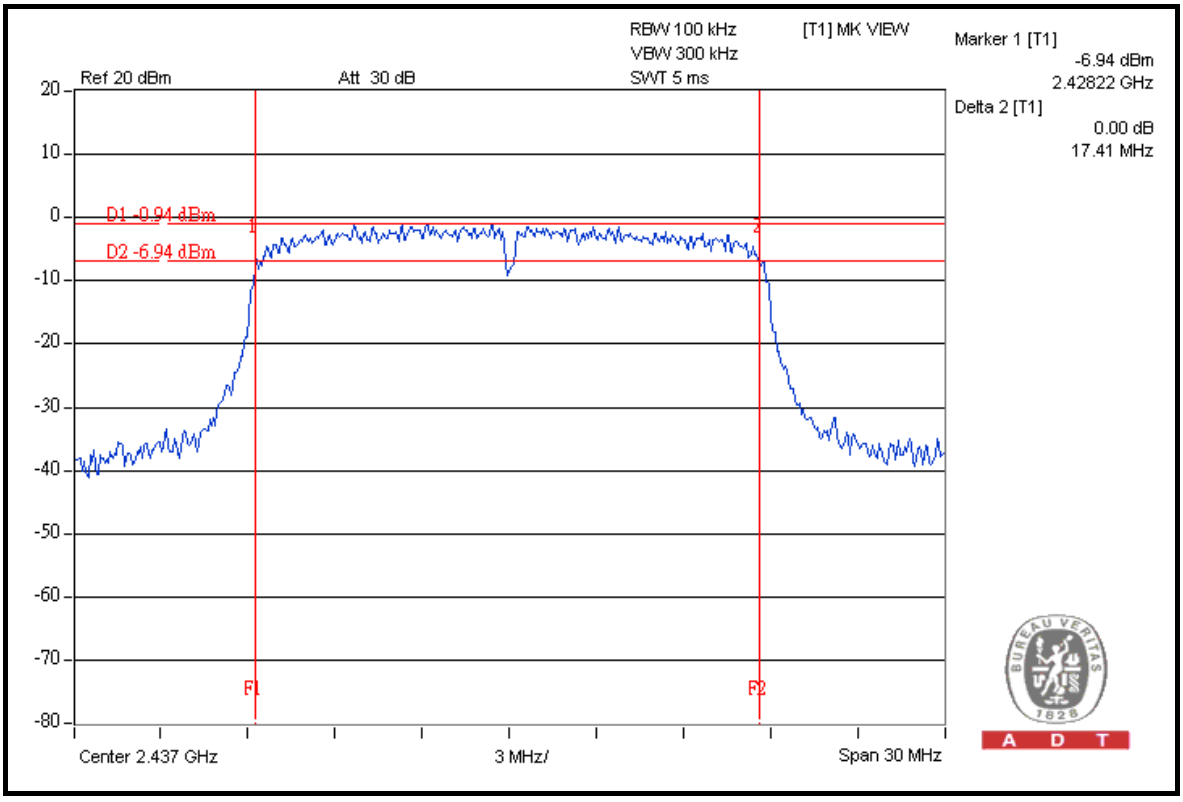
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.22	17.60	0.5	PASS
6	2437	17.41	17.60	0.5	PASS
11	2462	17.21	17.65	0.5	PASS

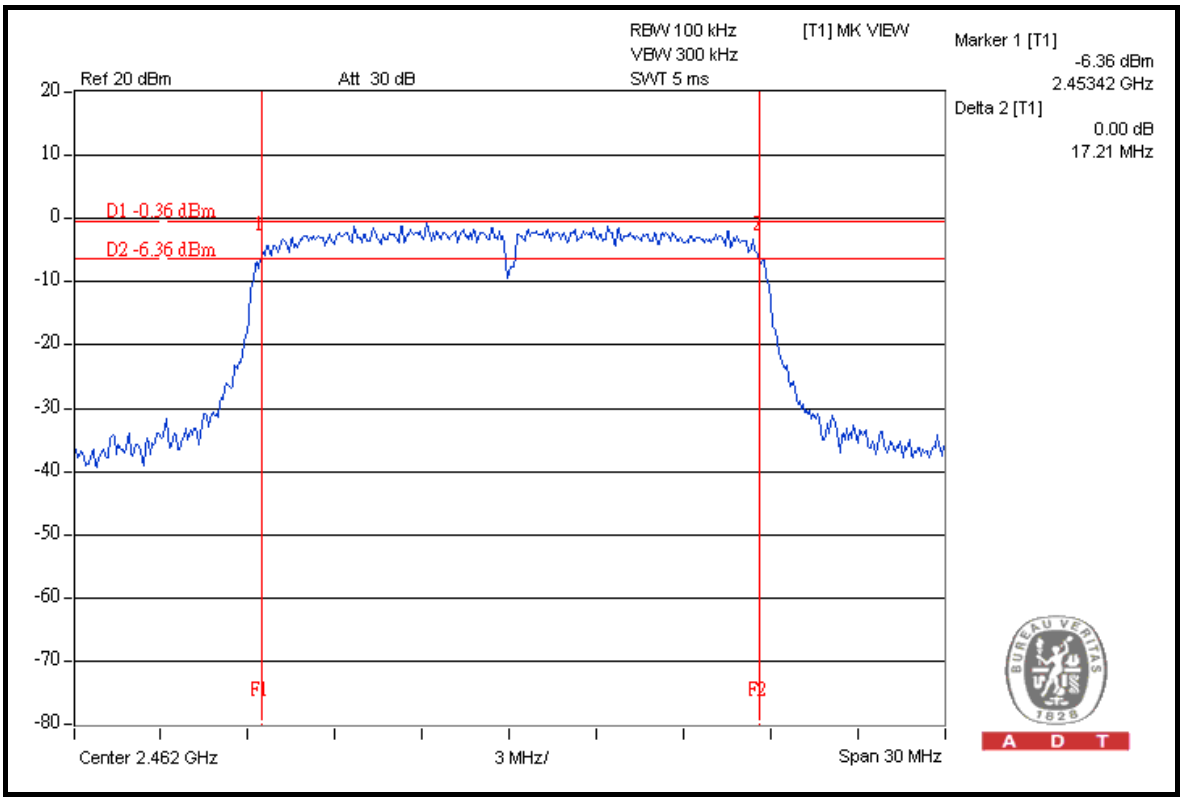
FOR CHAIN 0: CH 1



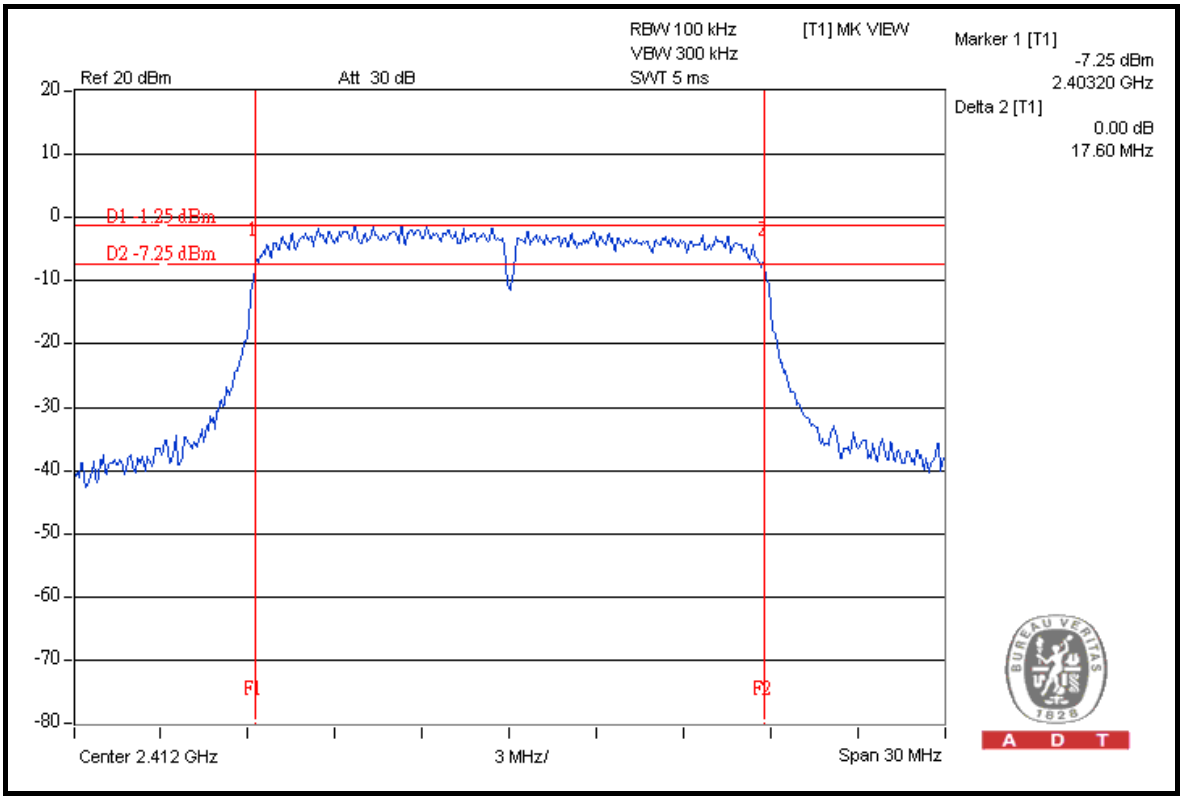
CH 6



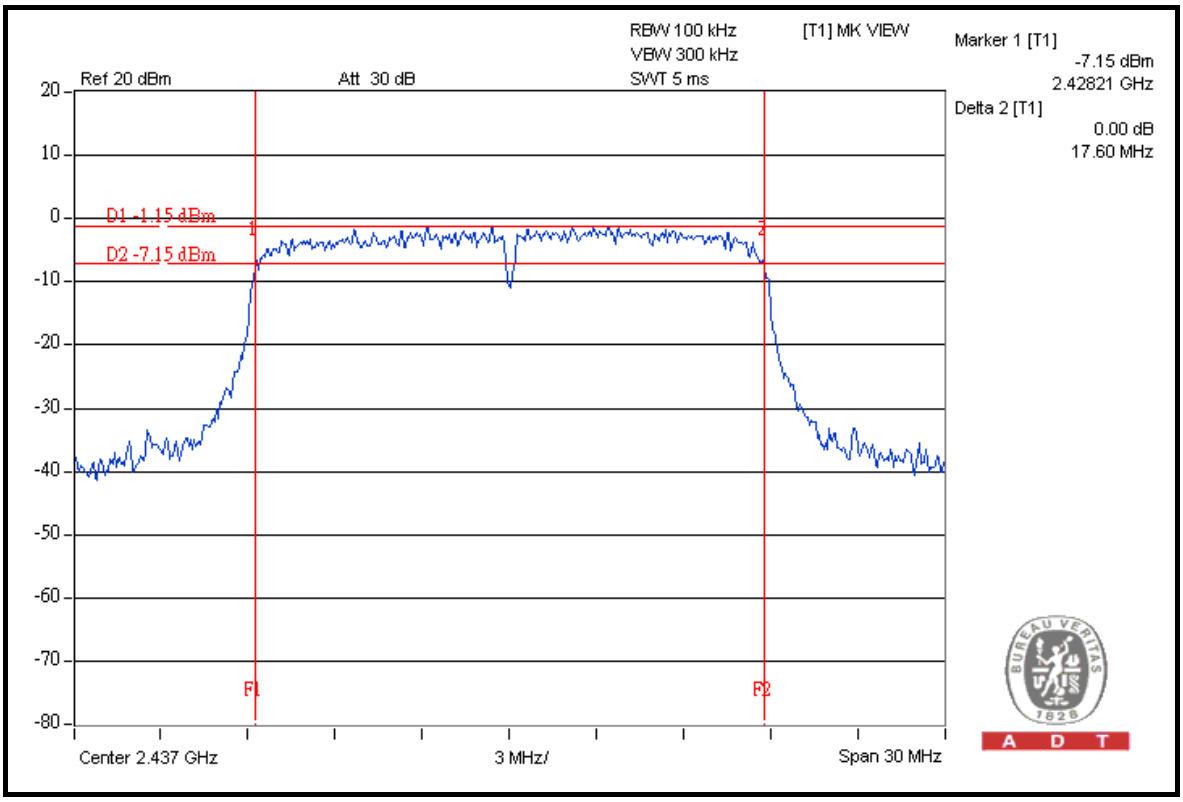
CH 11



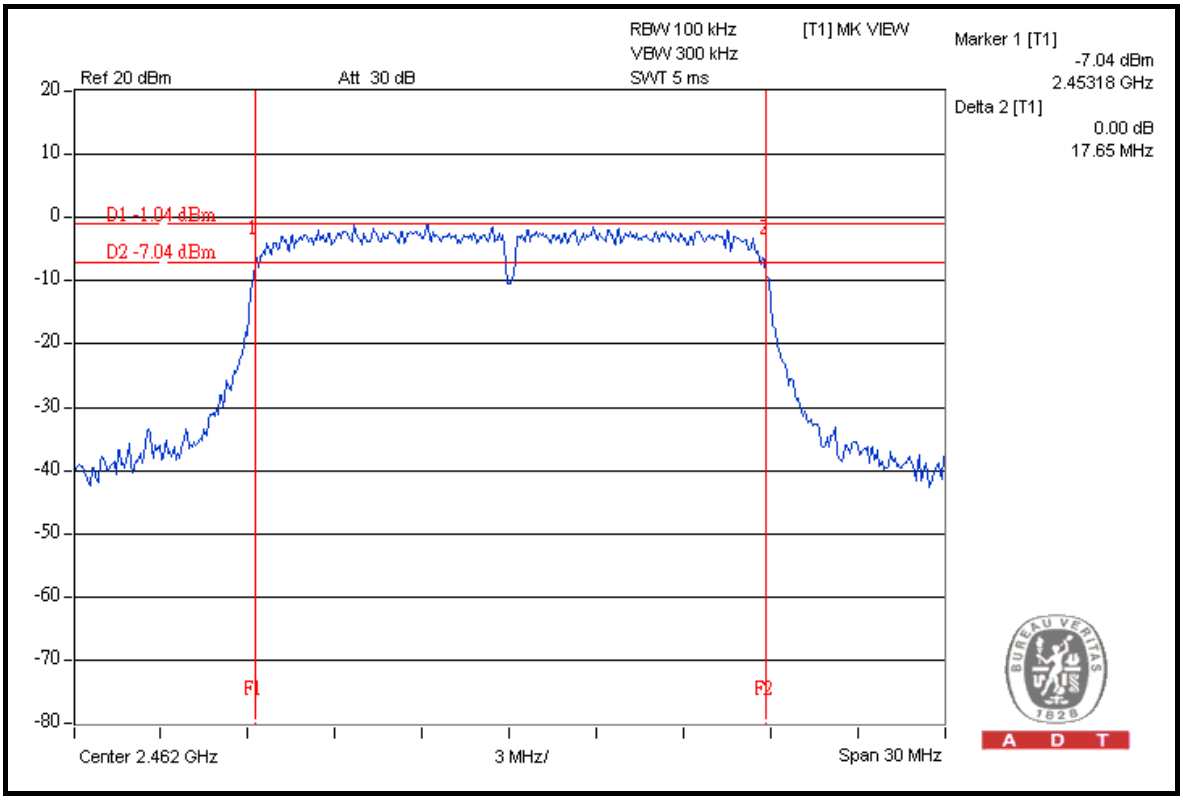
FOR CHAIN 1: CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.15 dBm
2.42821 GHz
Delta 2 [T1]
0.00 dB
17.60 MHz
Ref 20 dBm
Att 30 dB
D1 -1.15 dBm
D2 -7.15 dBm
F1
F2
Center 2.437 GHz
3 MHz/
Span 30 MHz

CH 11

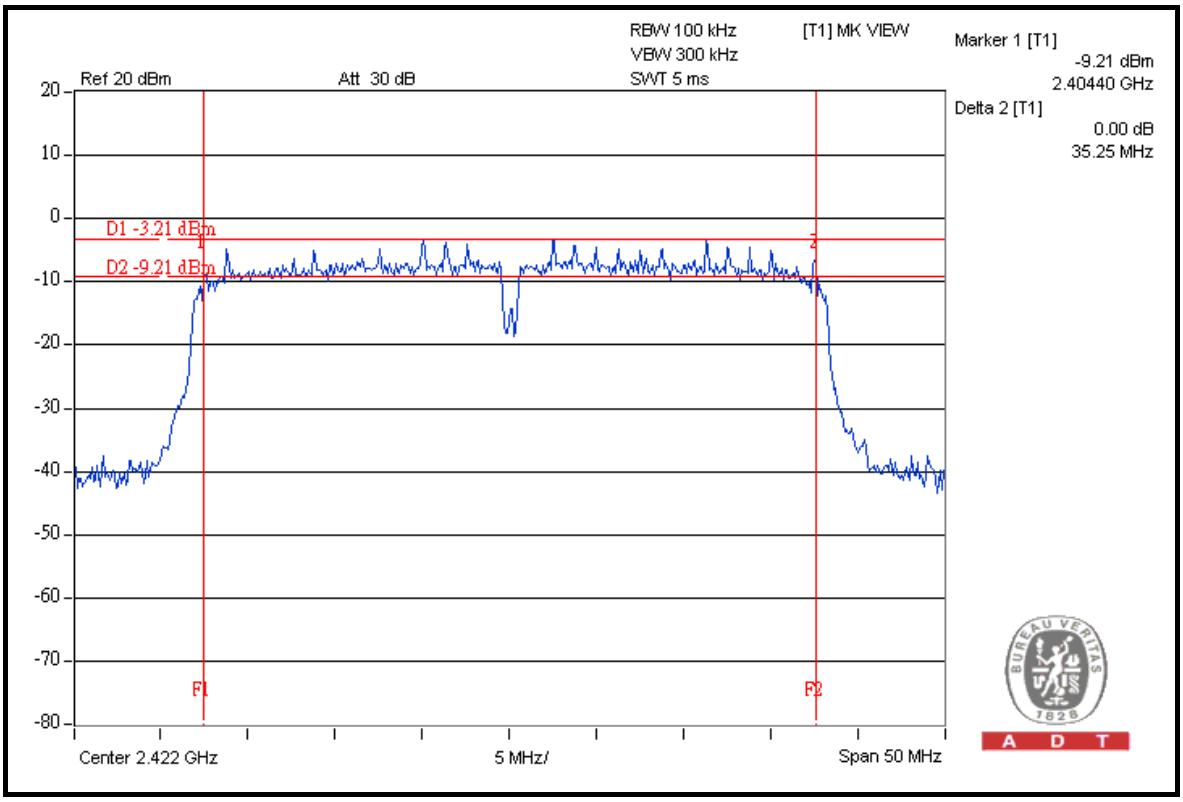

RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.04 dBm
2.45318 GHz
Delta 2 [T1]
0.00 dB
17.65 MHz
Ref 20 dBm
Att 30 dB
D1 -1.04 dBm
D2 -7.04 dBm
F1
F2
Center 2.462 GHz
3 MHz/
Span 30 MHz

802.11n (40MHz)

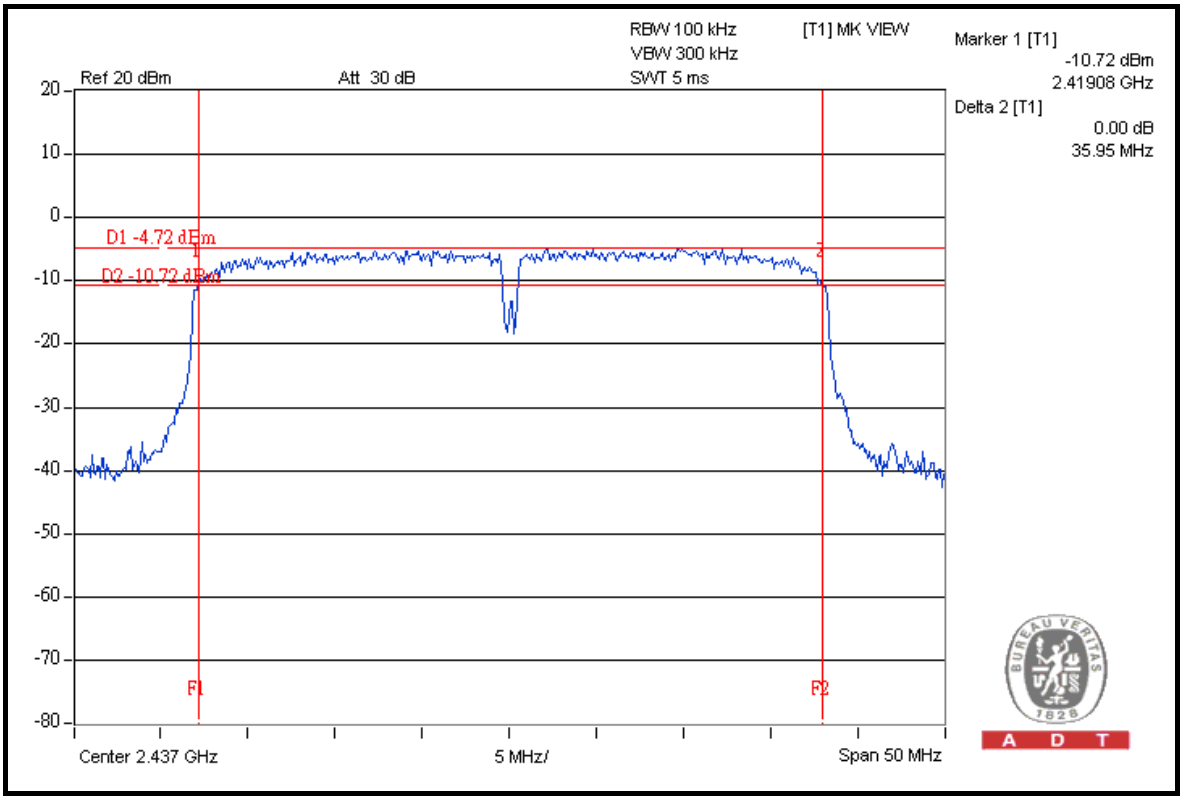
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	35.25	35.22	0.5	PASS
4	2437	35.95	36.08	0.5	PASS
7	2452	34.03	34.18	0.5	PASS

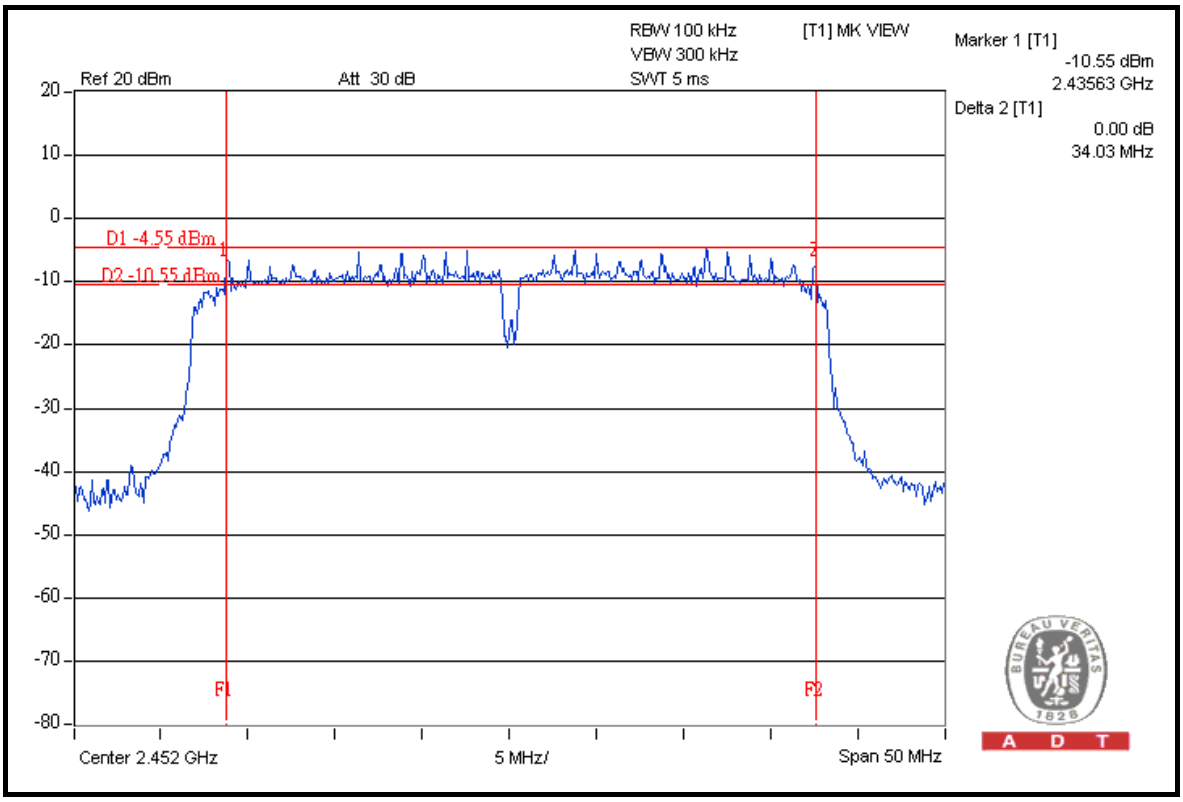
FOR CHAIN 0: CH 1



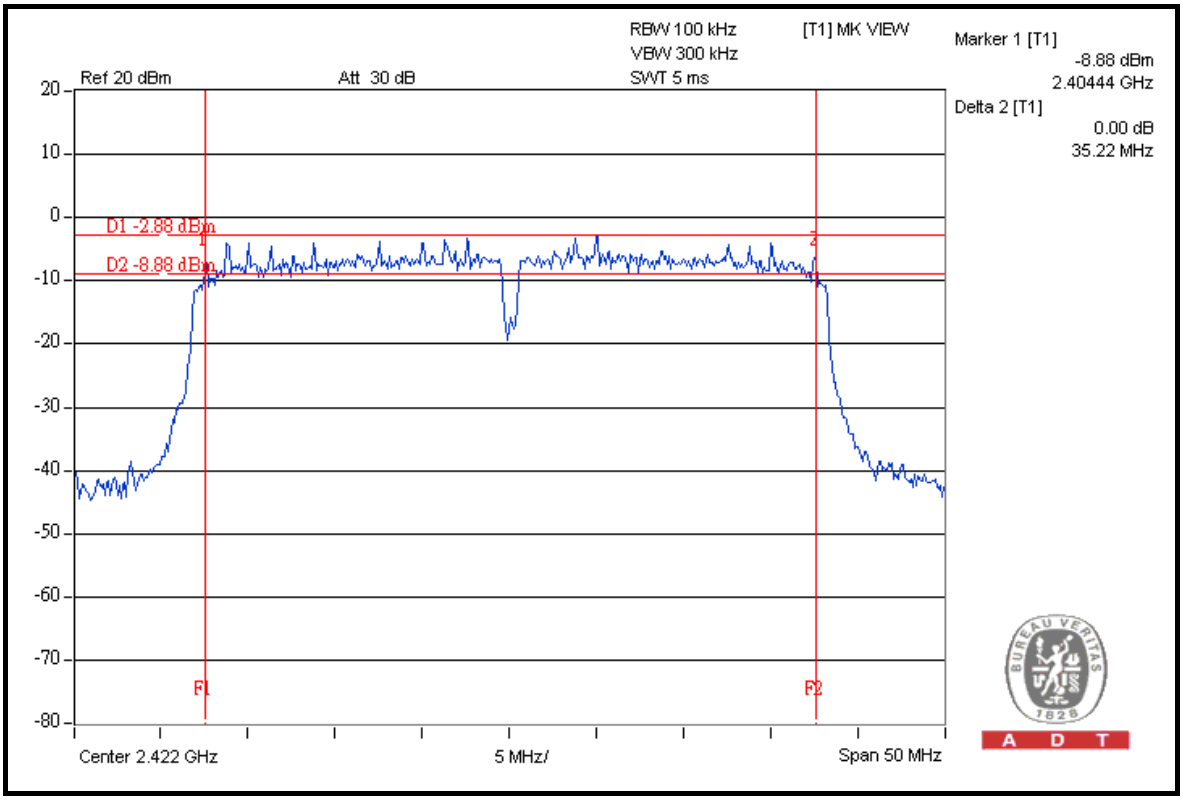
CH 4



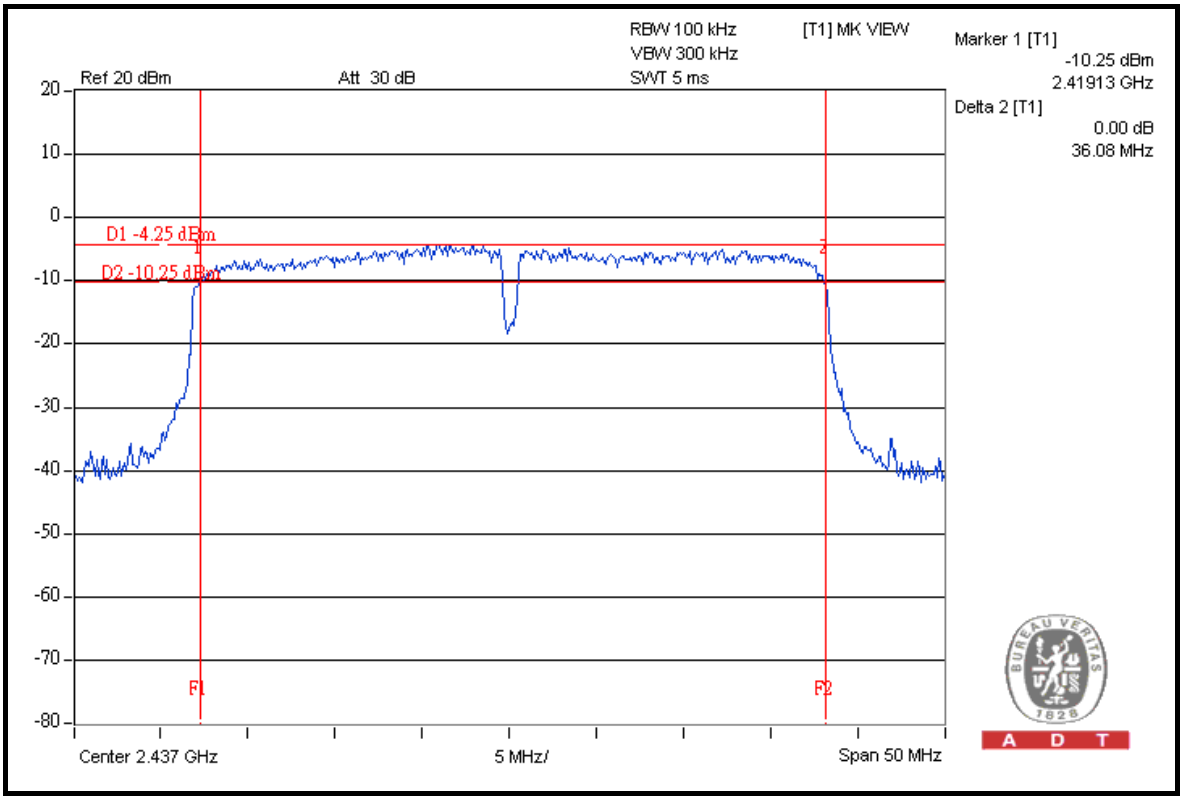
CH 7



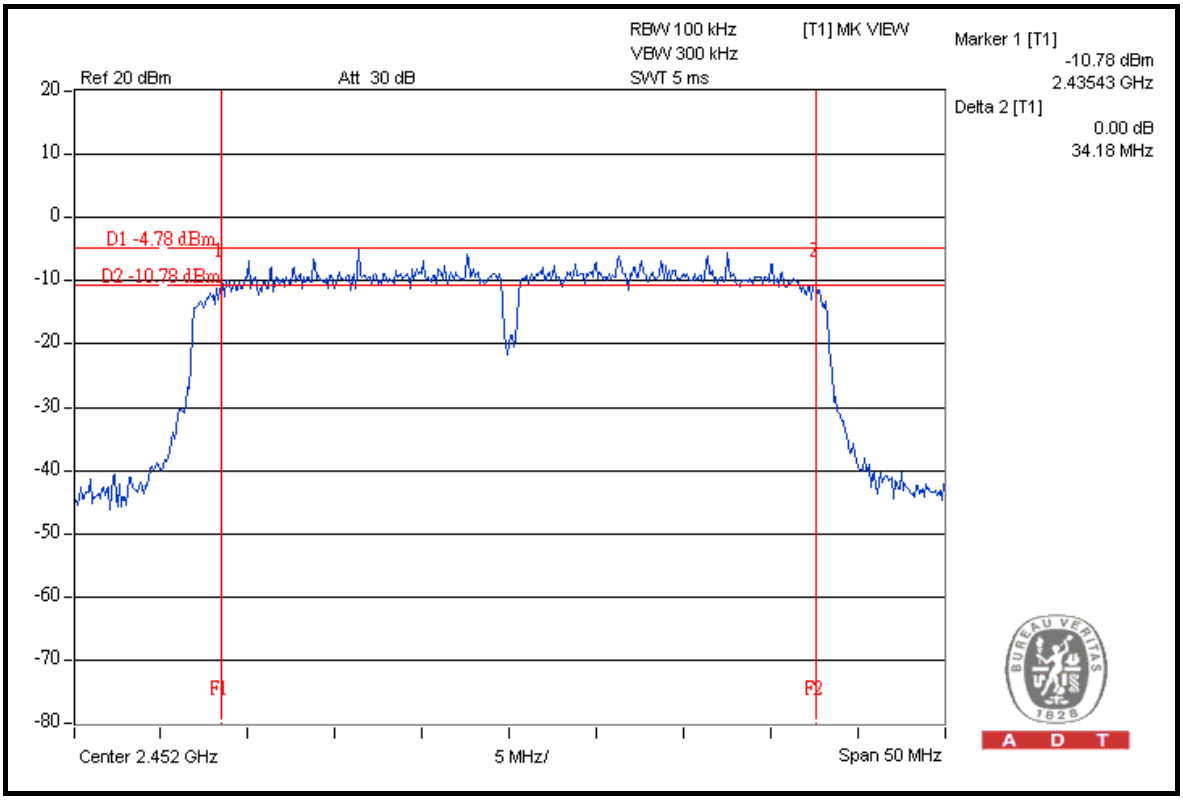
FOR CHAIN 1: CH 1



CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-10.25 dBm
2.41913 GHz
Delta 2 [T1]
0.00 dB
36.08 MHz
Ref 20 dBm
Att 30 dB
D1 -4.25 dBm
D2 -10.25 dBm
F1
F2
Center 2.437 GHz
5 MHz/
Span 50 MHz

CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-10.78 dBm
2.43543 GHz
Delta 2 [T1]
0.00 dB
34.18 MHz
Ref 20 dBm
Att 30 dB
D1 -4.78 dBm
D2 -10.78 dBm
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz

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	0824011	Jul. 30, 2009	Jul. 29, 2010
Power Sensor	MA2411B	0738171	Jul. 30, 2009	Jul. 29, 2010

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.

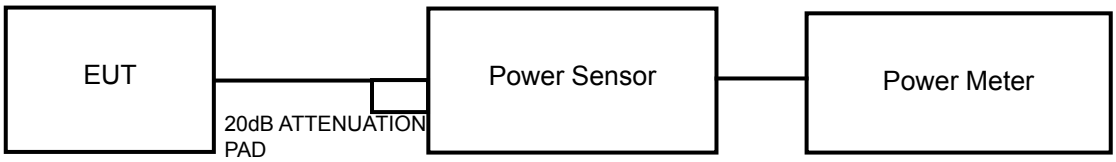
4.4.3 TEST PROCEDURES

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

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

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	16.28	16.19	84.05	19.25	30	PASS
6	2437	16.13	16.22	82.90	19.19	30	PASS
11	2462	16.25	16.26	84.44	19.27	30	PASS

802.11g

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

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	22.43	22.32	345.59	25.39	30	PASS
6	2437	22.54	22.56	359.78	25.56	30	PASS
11	2462	22.55	22.57	360.60	25.57	30	PASS

802.11n (20MHz)

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	22.52	22.53	357.71	25.54	30	PASS
6	2437	22.54	22.51	357.71	25.54	30	PASS
11	2462	22.88	22.57	374.81	25.74	30	PASS

802.11n (40MHz)

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	21.35	21.38	273.86	24.38	30	PASS
4	2437	22.41	22.53	353.24	25.48	30	PASS
7	2452	19.52	19.24	173.48	22.39	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	May 13, 2009	May 12, 2010

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

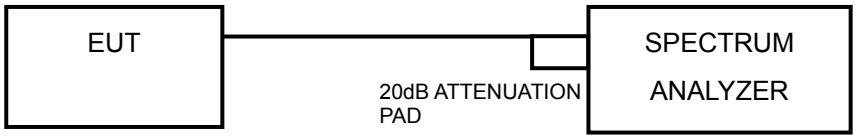
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

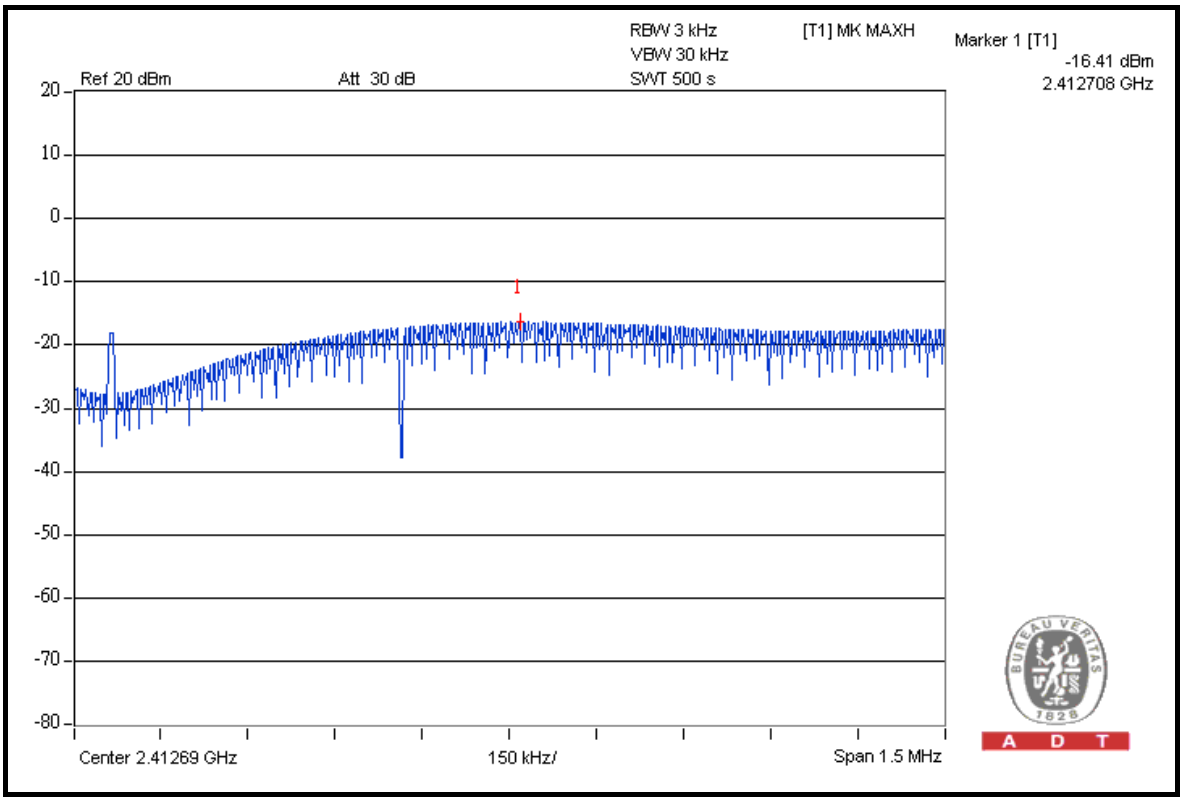
4.5.7 TEST RESULTS

802.11b

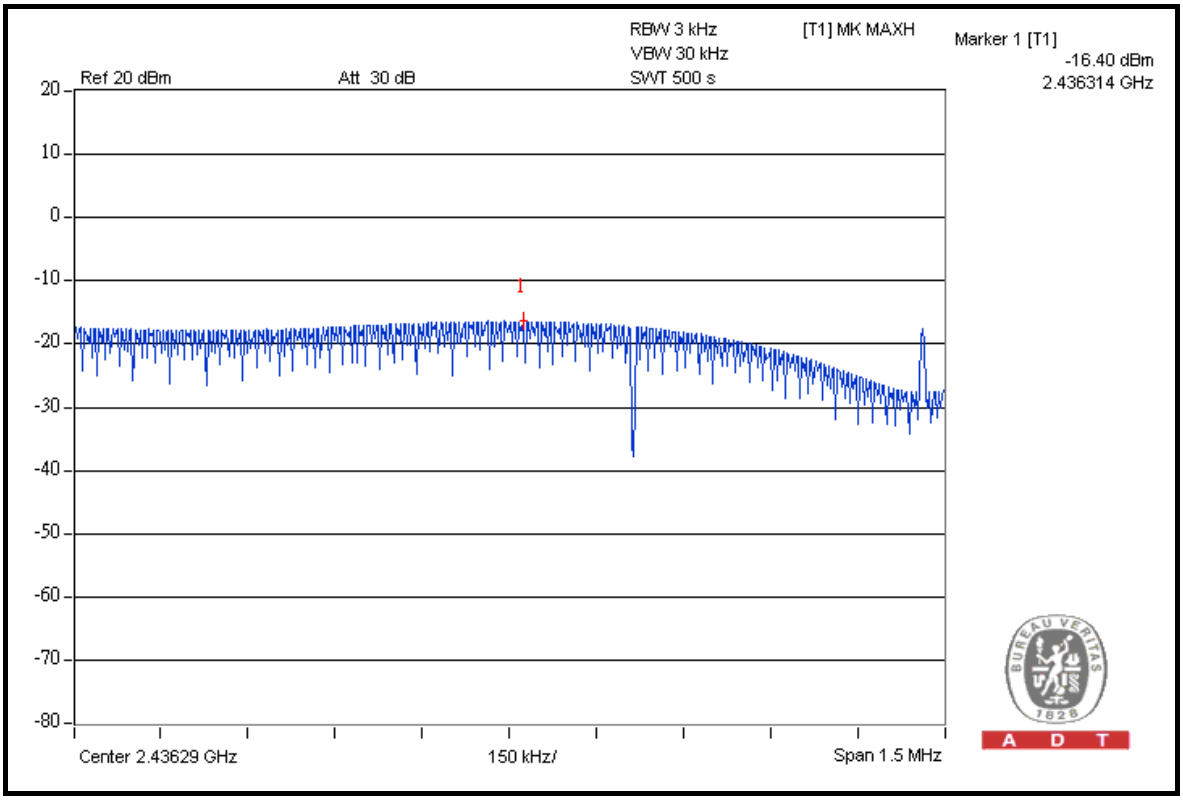
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-16.41	-16.66	0.04	-13.57	8	PASS
6	2437	-16.40	-16.68	0.04	-13.57	8	PASS
11	2462	-16.62	-16.49	0.04	-13.57	8	PASS

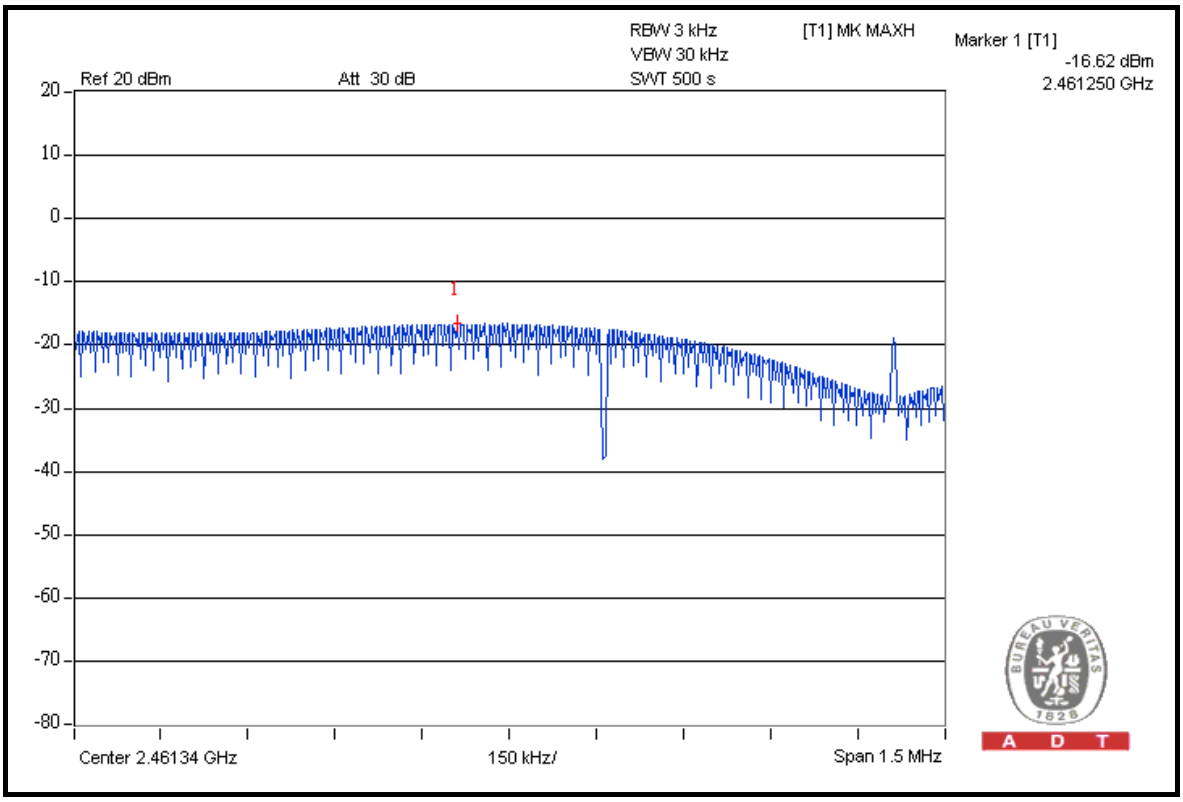
FOR CHAIN 0: CH 1



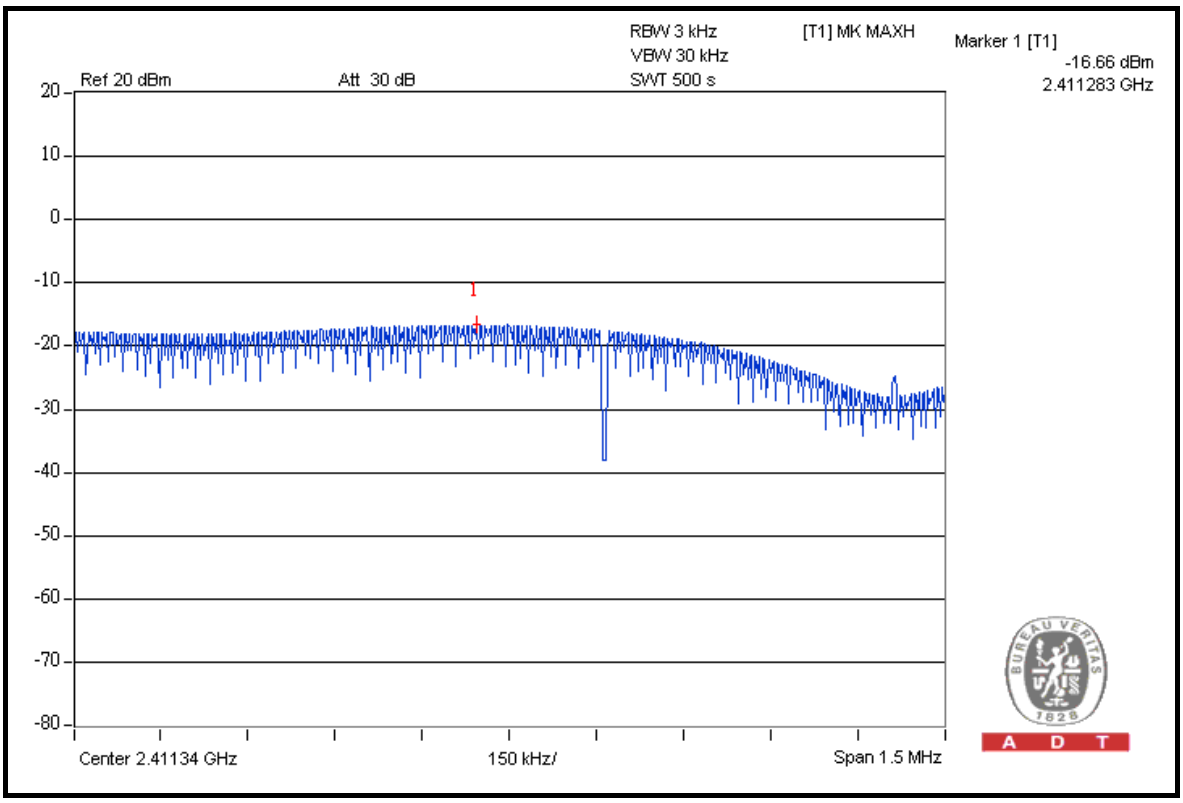
CH 6



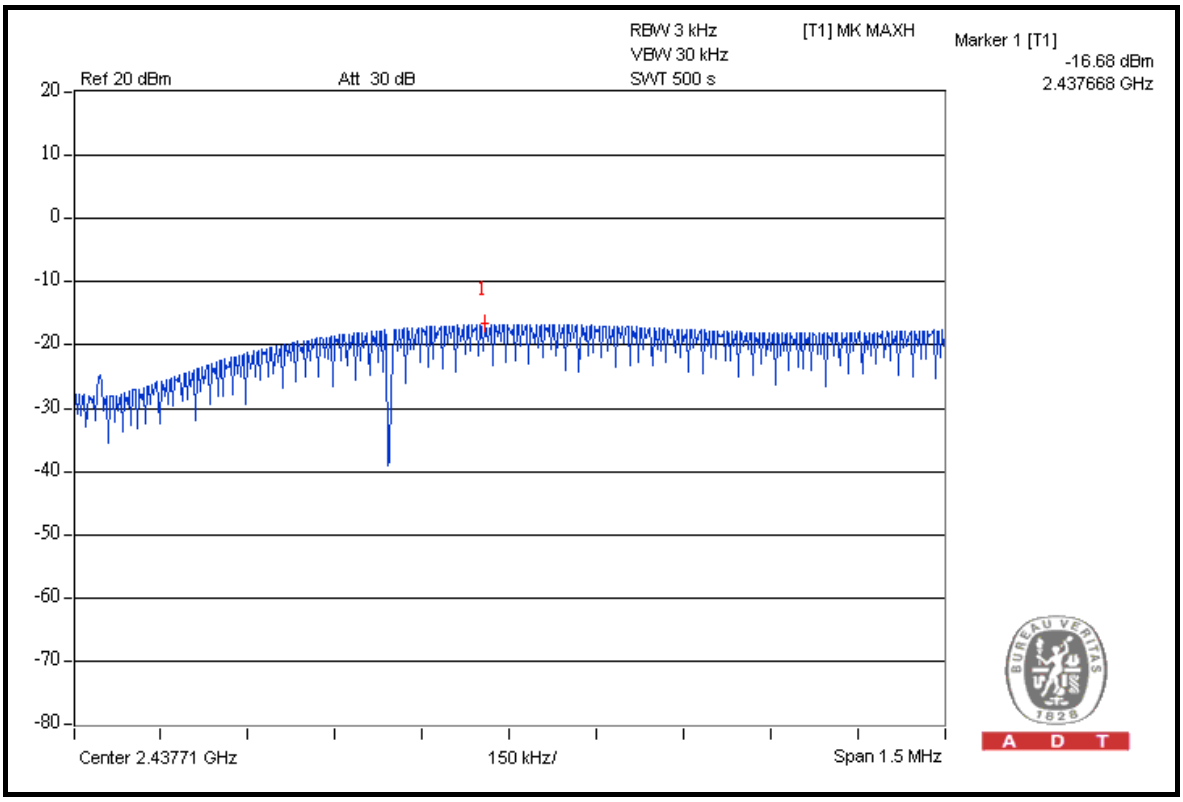
CH 11



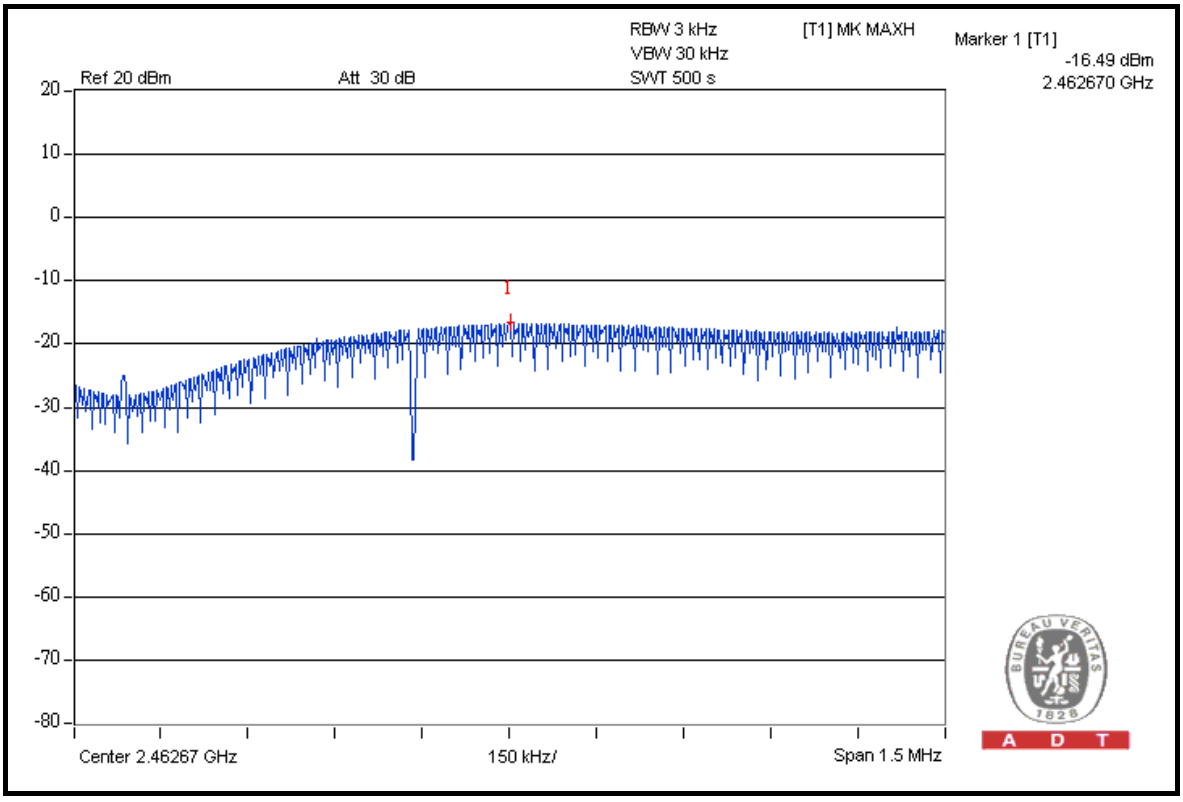
FOR CHAIN 1: CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.68 dBm
2.437668 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43771 GHz
150 kHz/
Span 1.5 MHz

CH 11

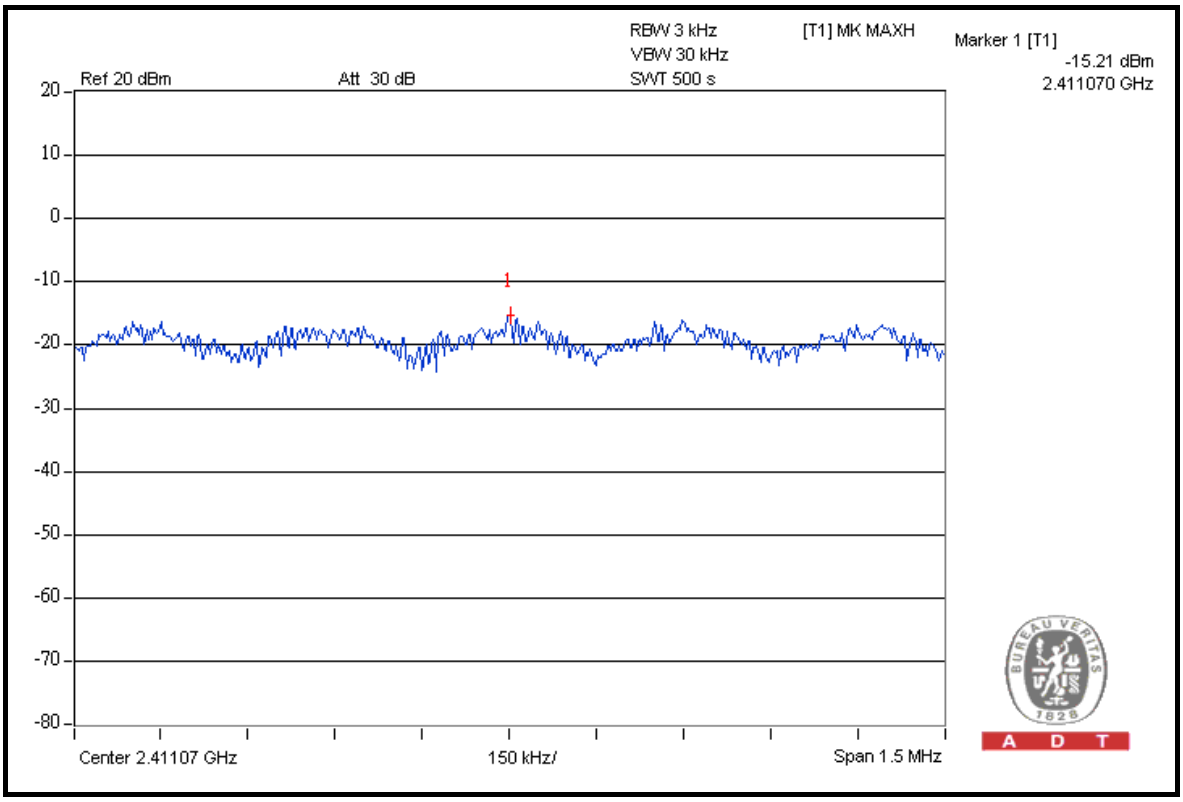

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.49 dBm
2.462670 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46267 GHz
150 kHz/
Span 1.5 MHz

802.11g

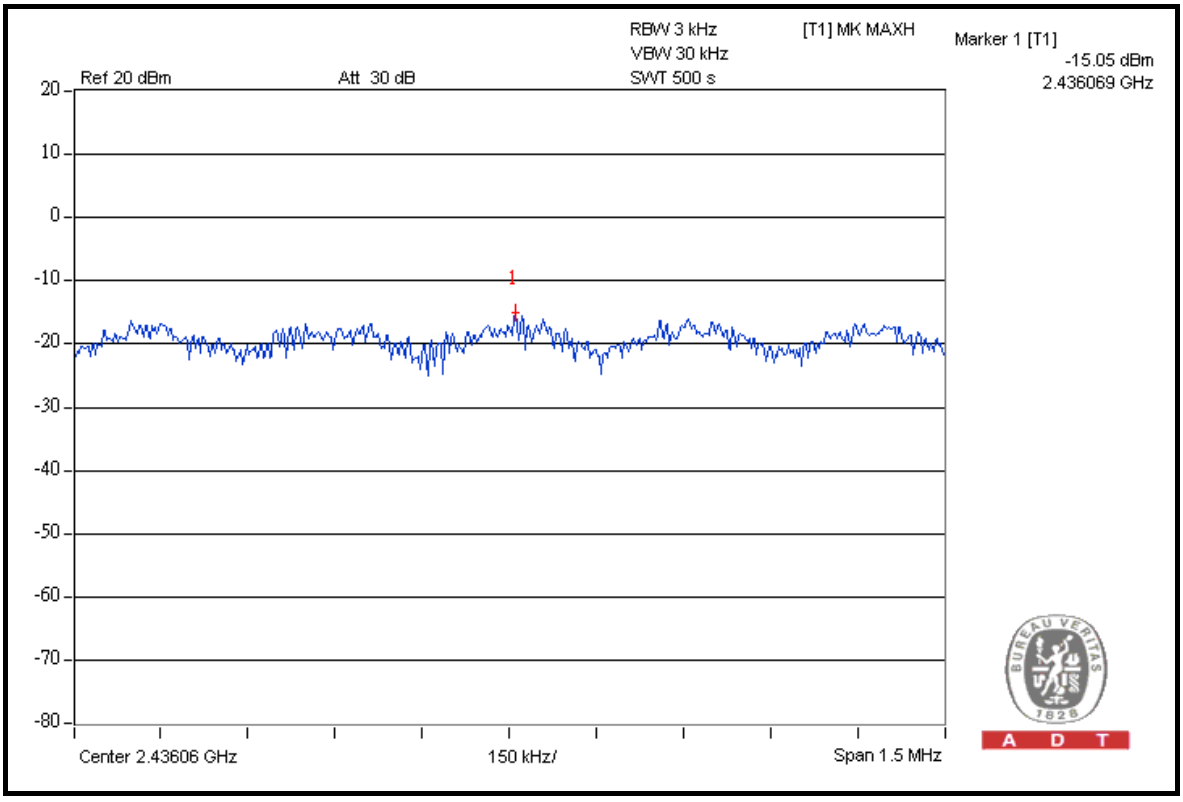
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-15.21	-14.30	0.07	-11.74	8	PASS
6	2437	-15.05	-14.11	0.07	-11.55	8	PASS
11	2462	-15.23	-14.29	0.07	-11.74	8	PASS

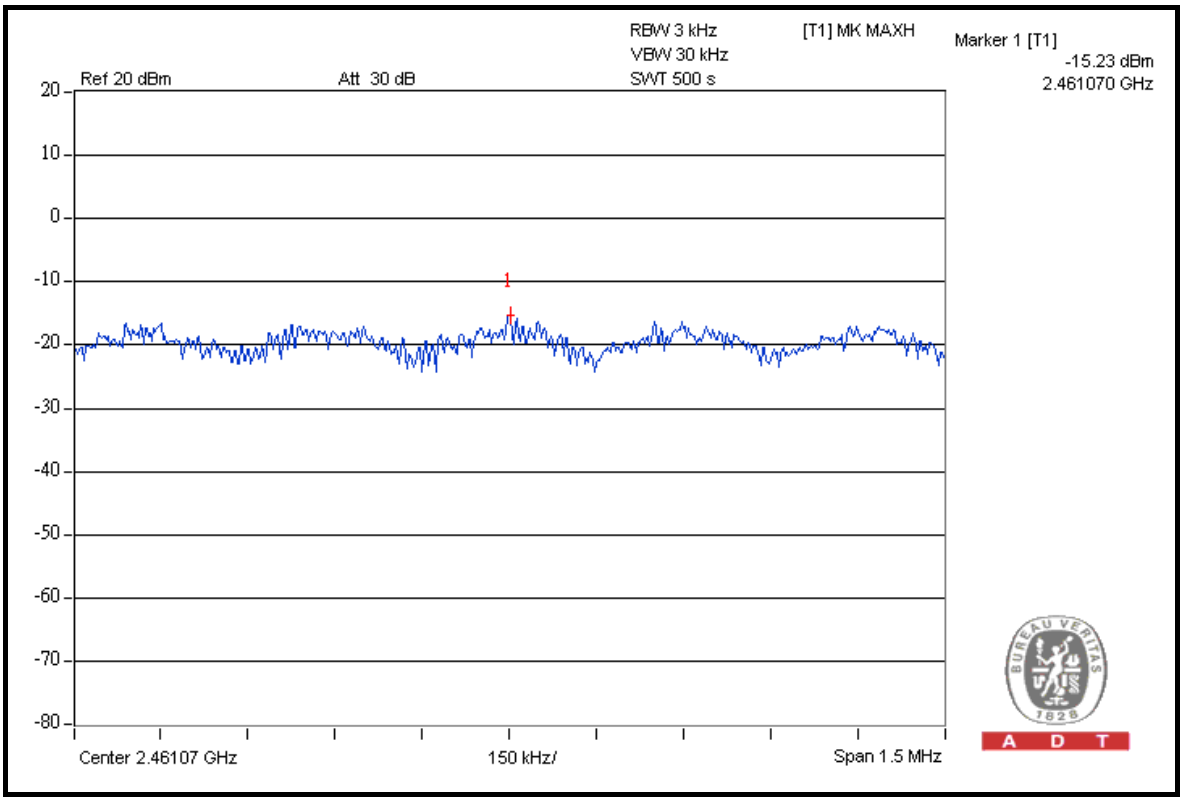
FOR CHAIN 0: CH 1



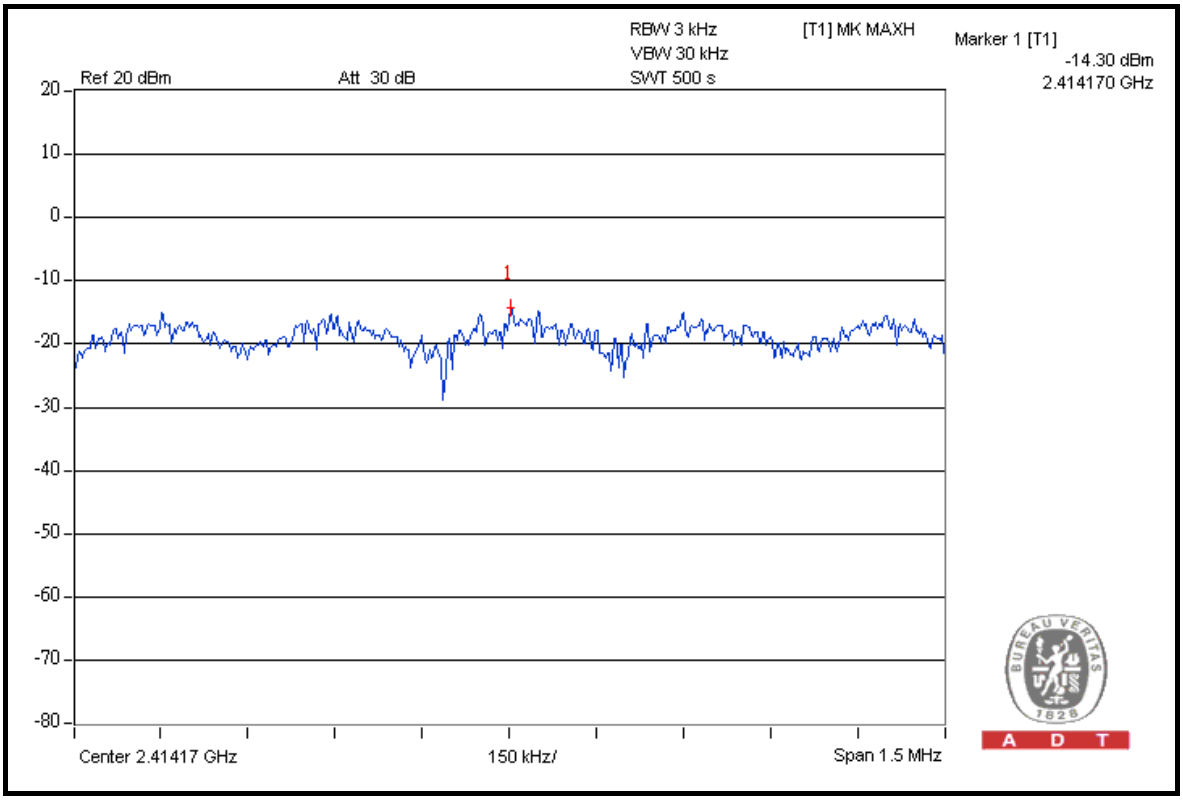
CH 6



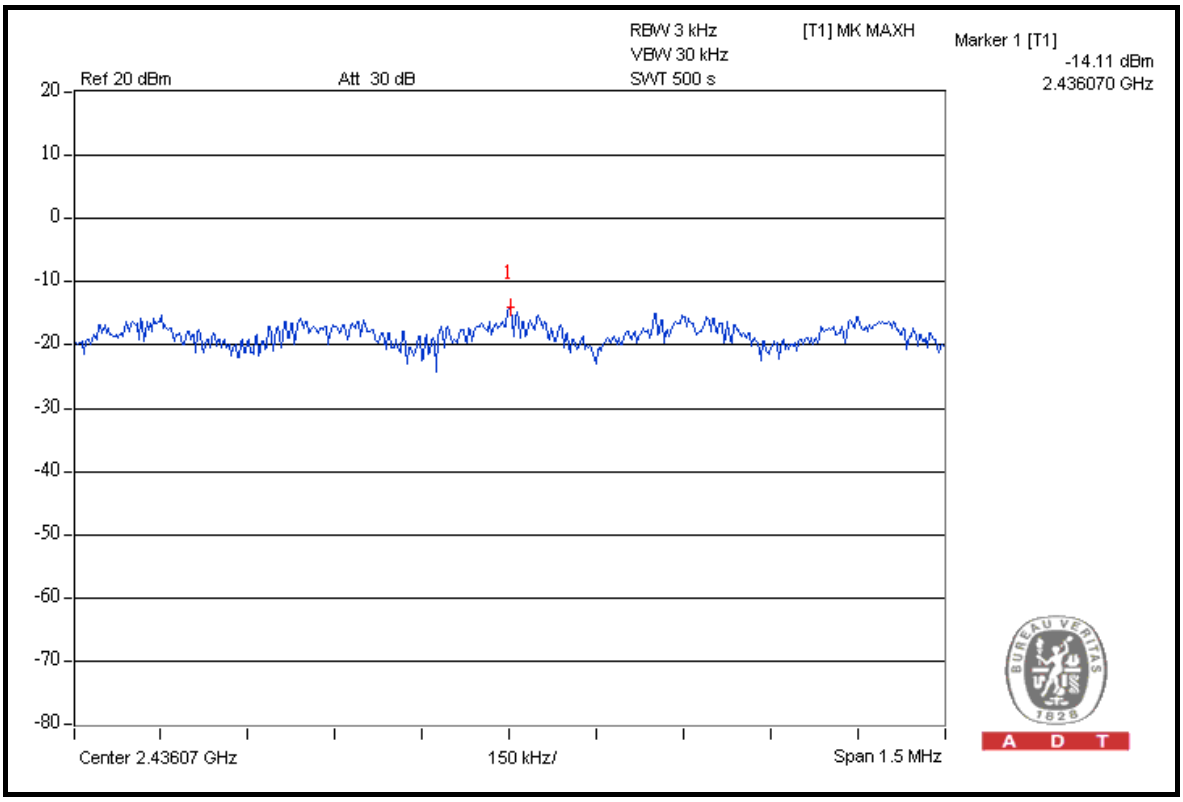
CH 11



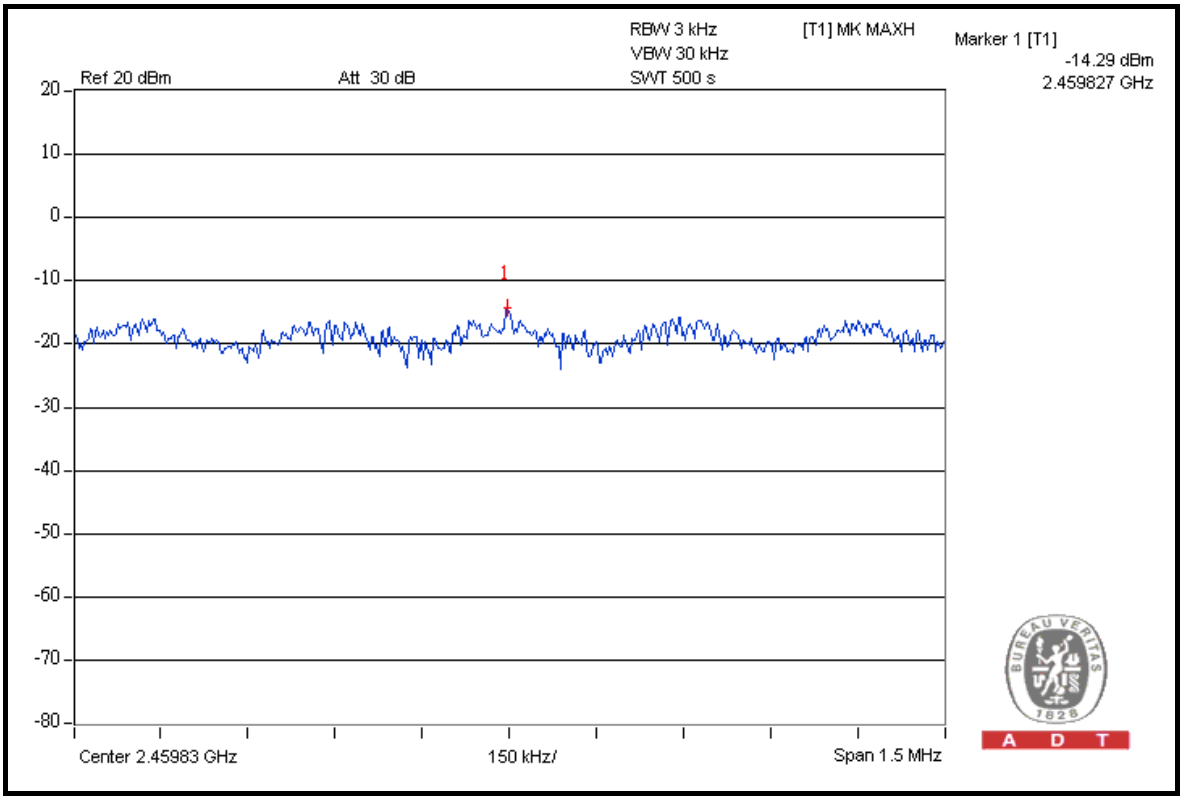
FOR CHAIN 1: CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.11 dBm
2.436070 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43607 GHz
150 kHz/
Span 1.5 MHz

CH 11

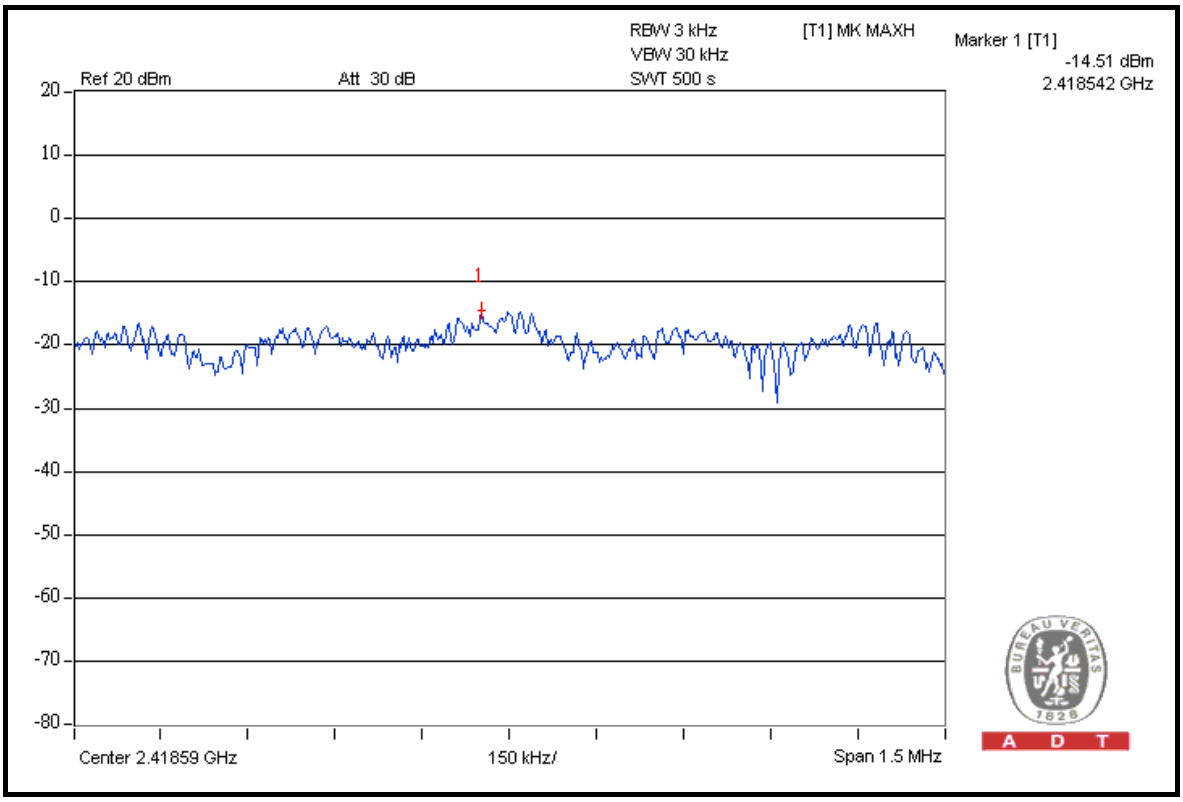

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.29 dBm
2.459827 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45983 GHz
150 kHz/
Span 1.5 MHz

802.11n (20MHz)

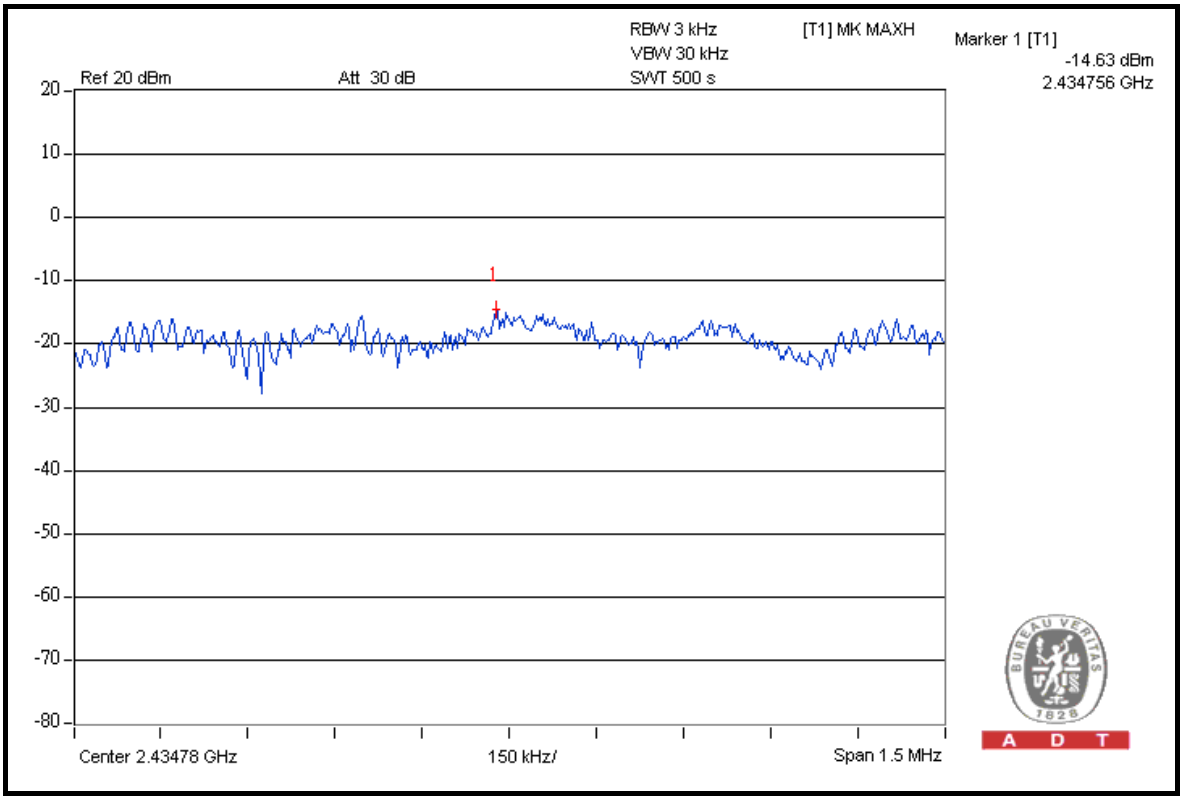
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-14.51	-14.84	0.07	-11.67	8	PASS
6	2437	-14.63	-14.78	0.07	-11.67	8	PASS
11	2462	-14.25	-14.84	0.07	-11.55	8	PASS

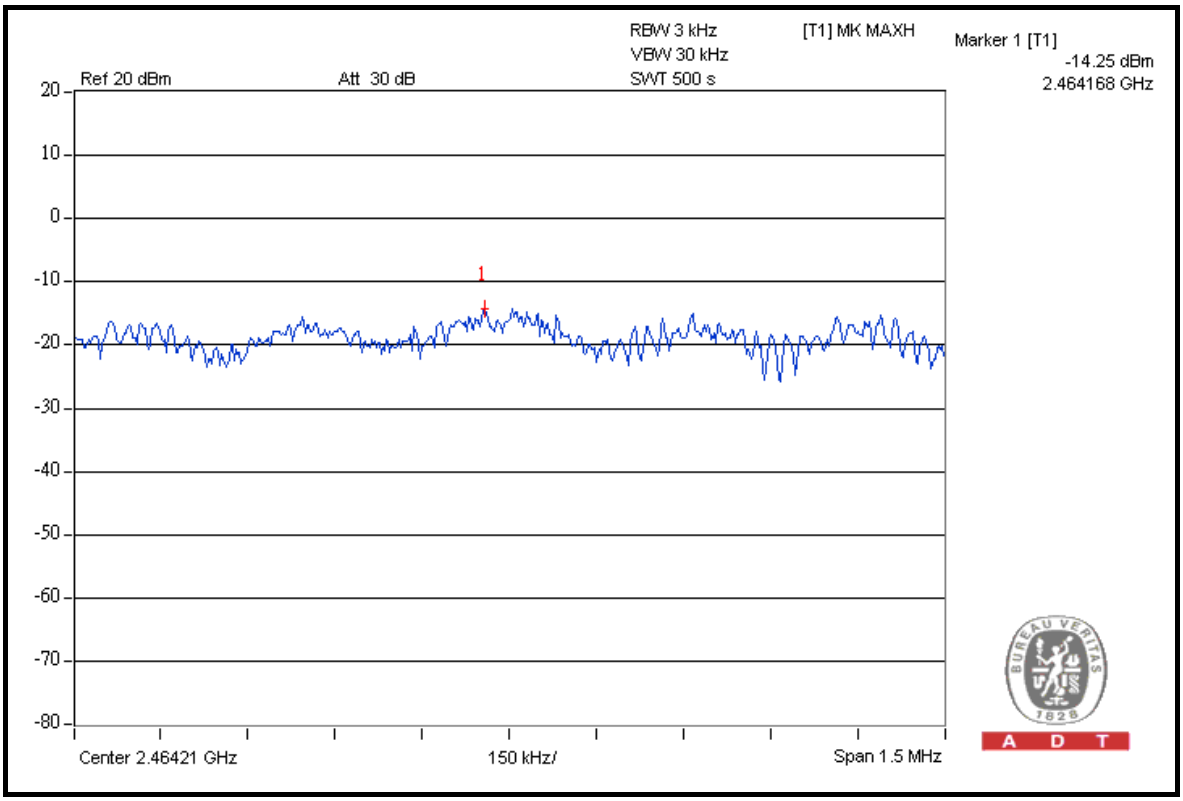
FOR CHAIN 0: CH 1



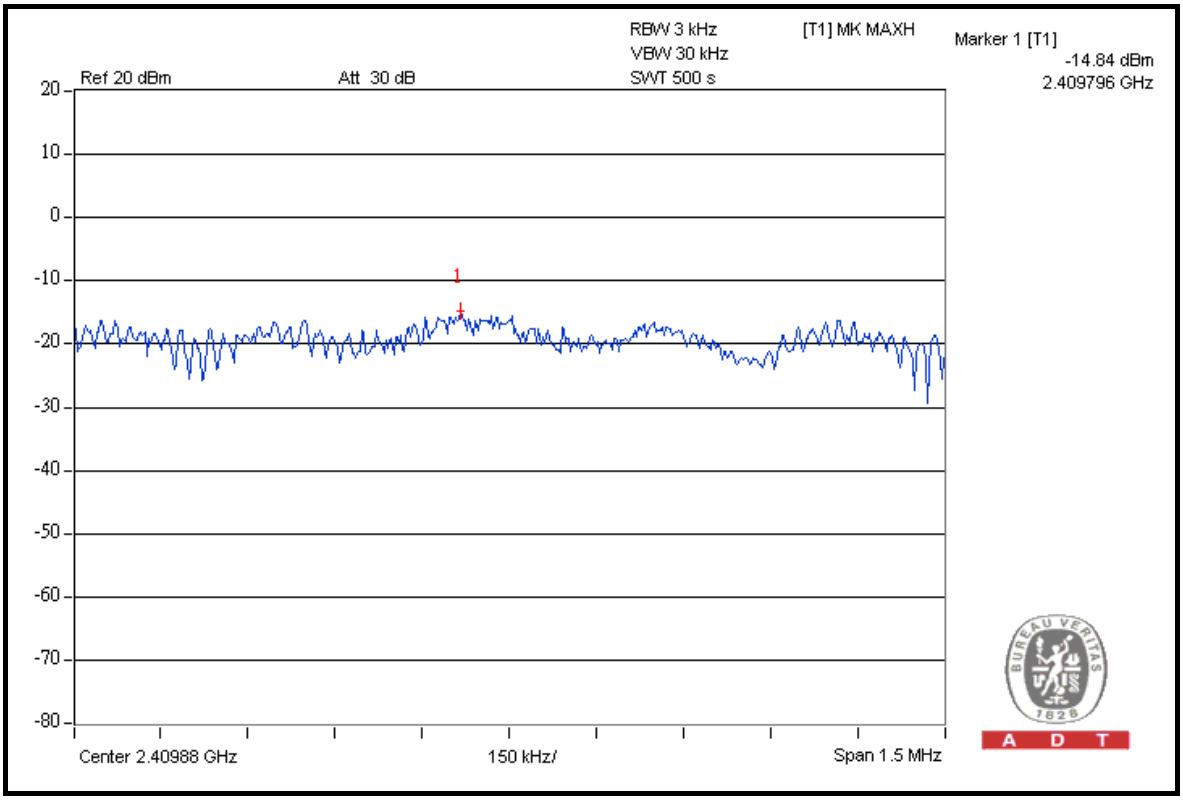
CH 6



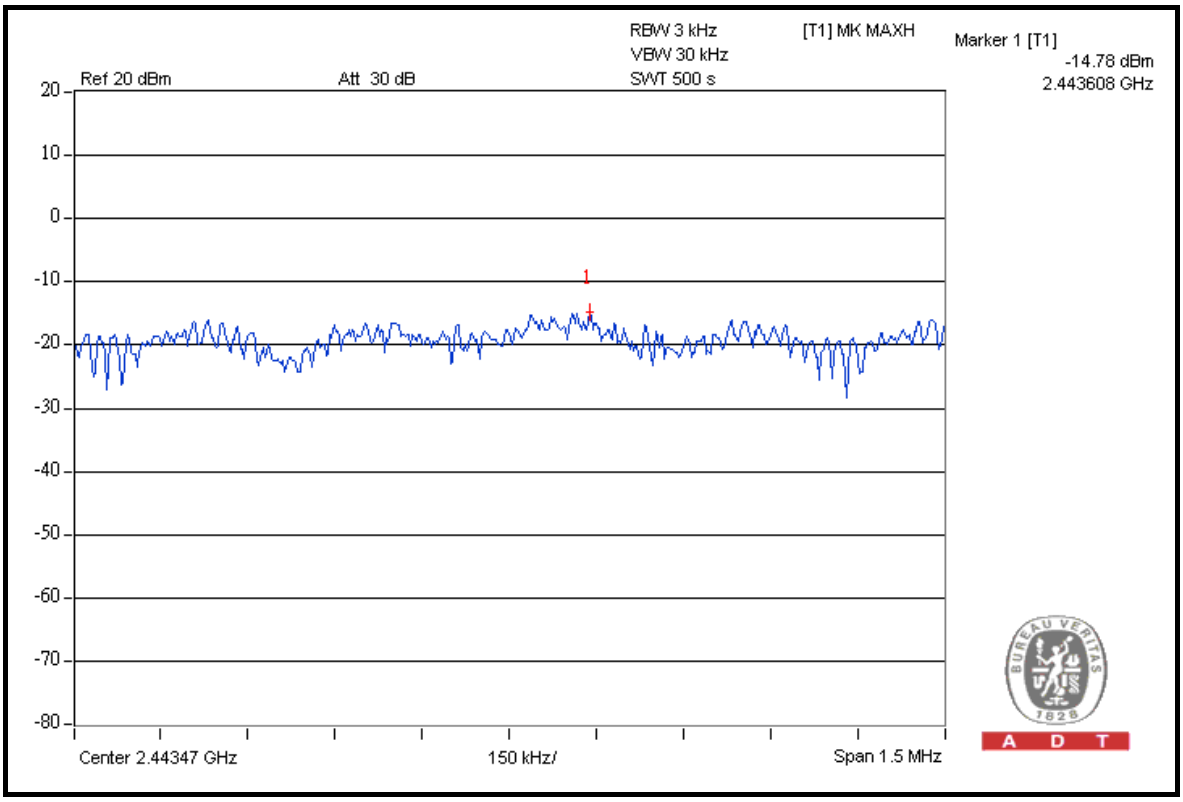
CH 11



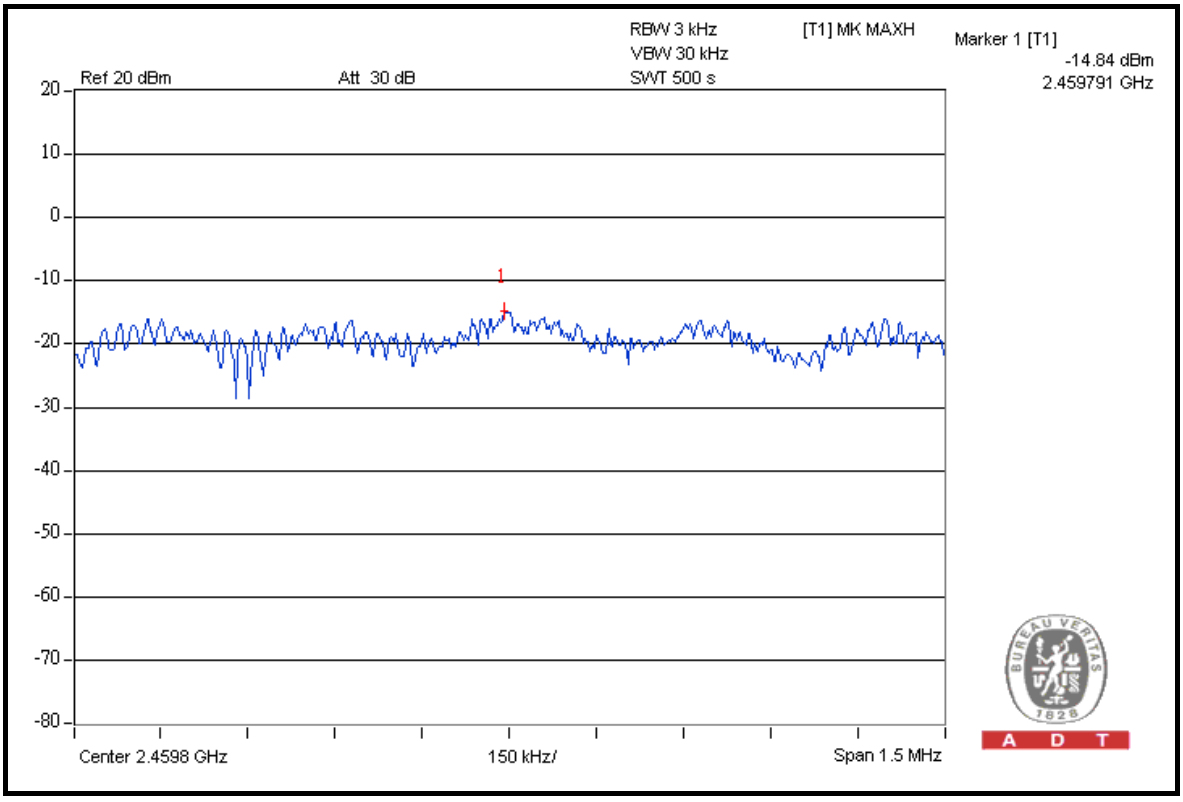
FOR CHAIN 1: CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.78 dBm
2.443608 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44347 GHz
150 kHz/
Span 1.5 MHz

CH 11

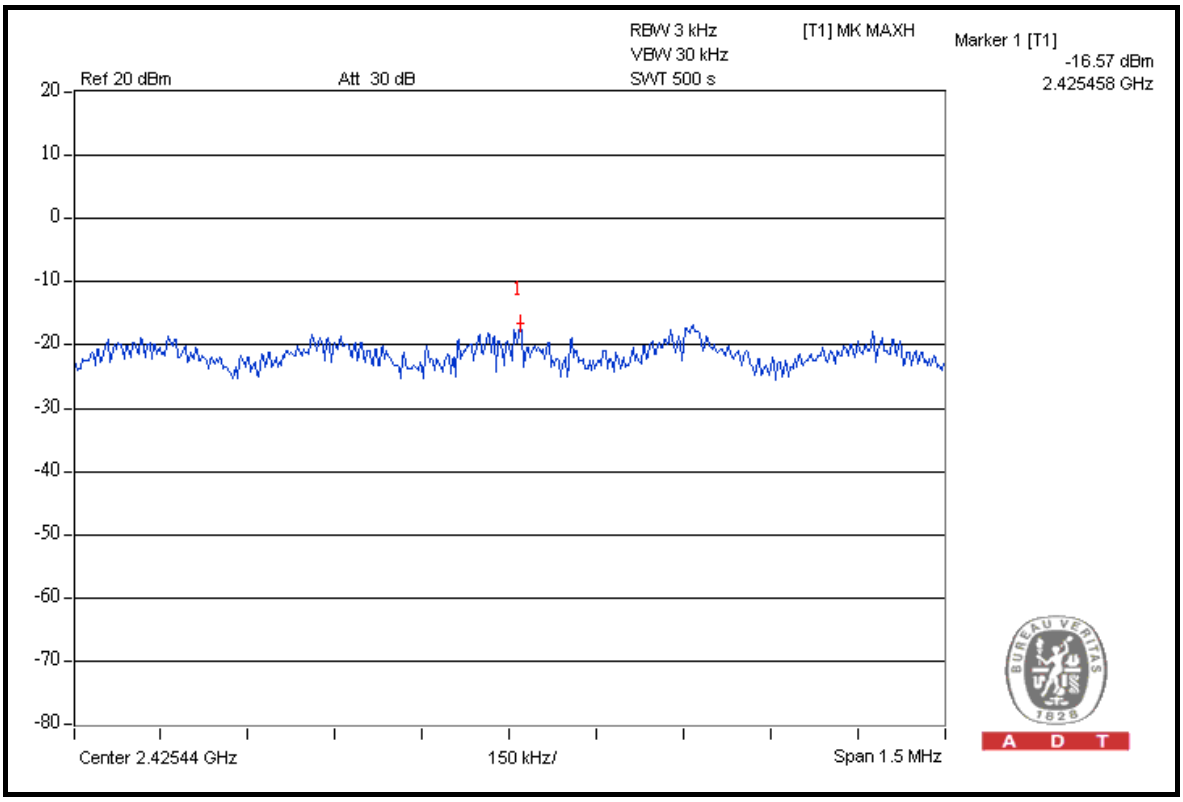

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.84 dBm
2.459791 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.4598 GHz
150 kHz/
Span 1.5 MHz

802.11n (40MHz)

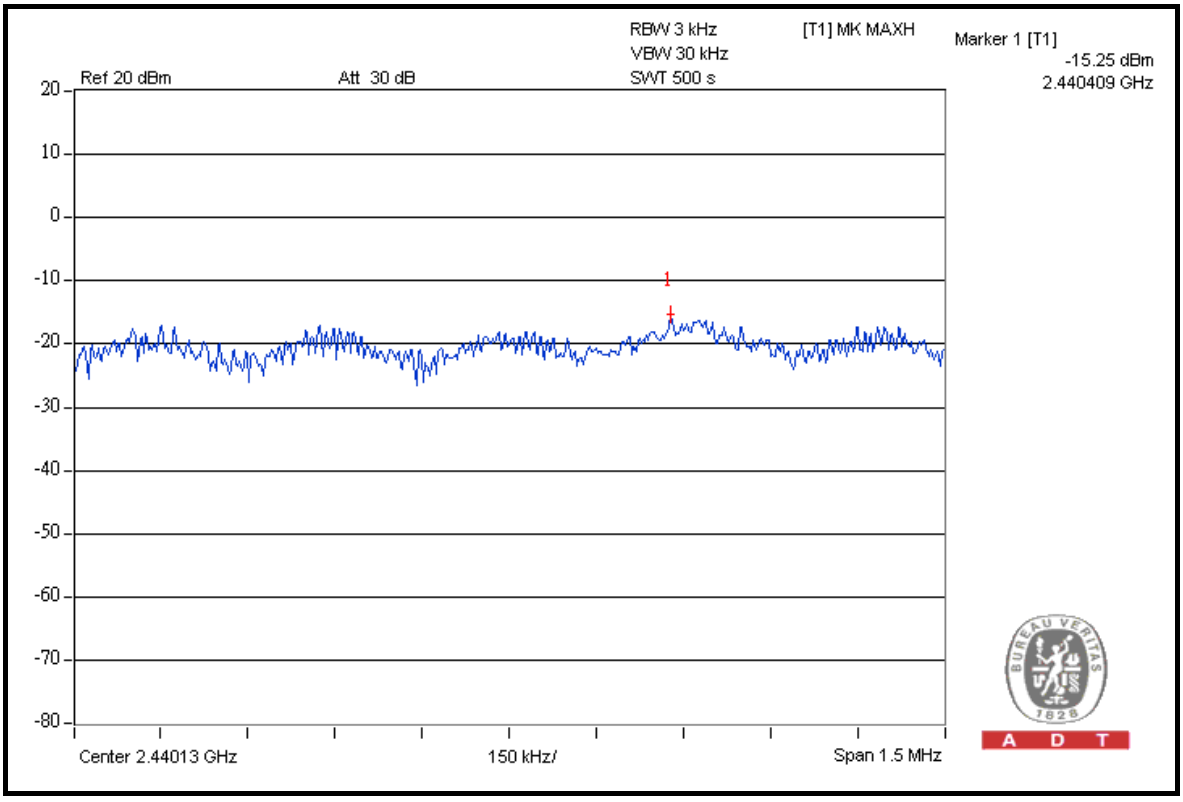
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-16.57	-17.37	0.04	-13.98	8	PASS
4	2437	-15.25	-16.11	0.05	-12.68	8	PASS
7	2452	-18.58	-19.34	0.03	-15.85	8	PASS

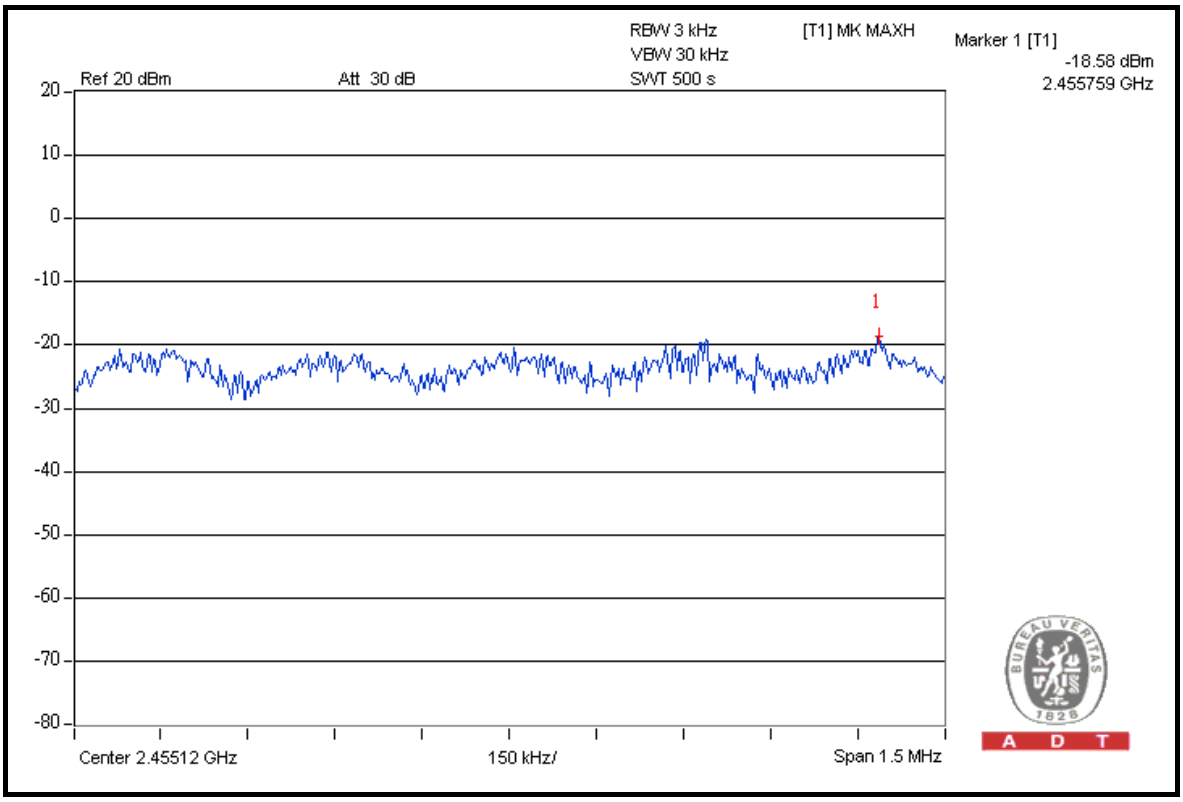
FOR CHAIN 0: CH 1



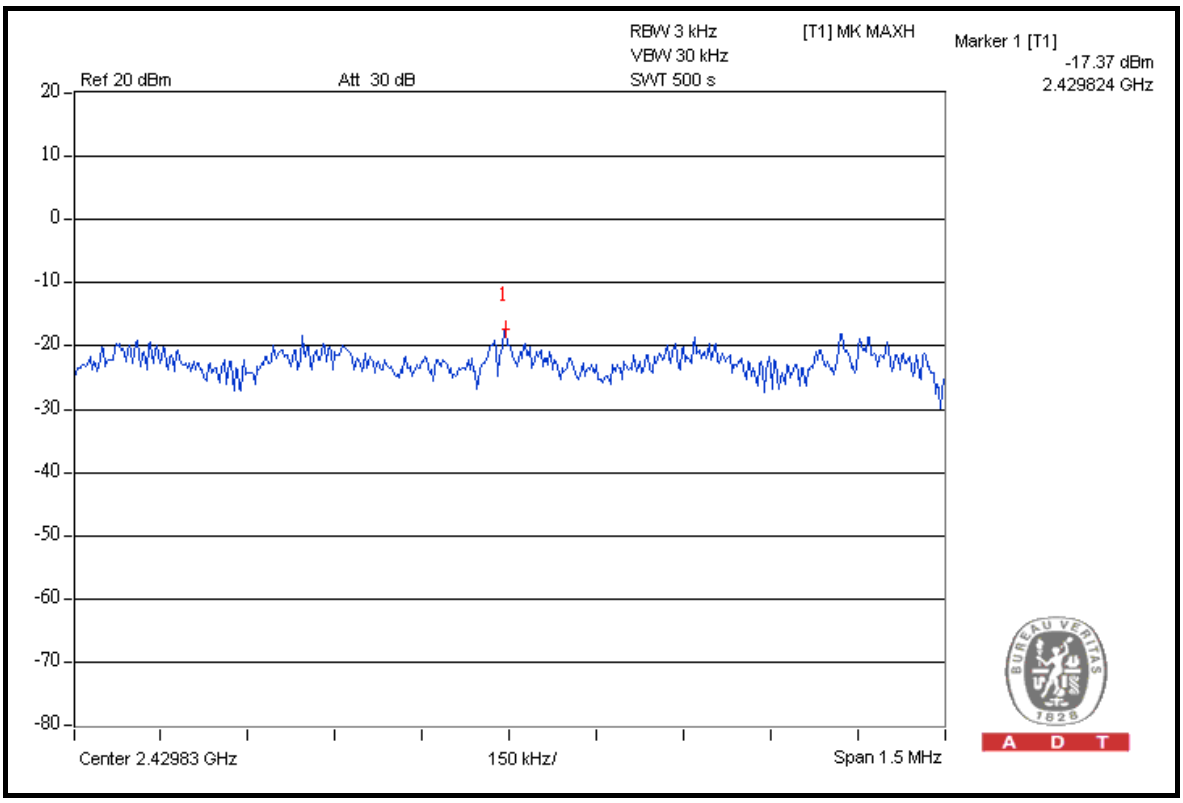
CH 4



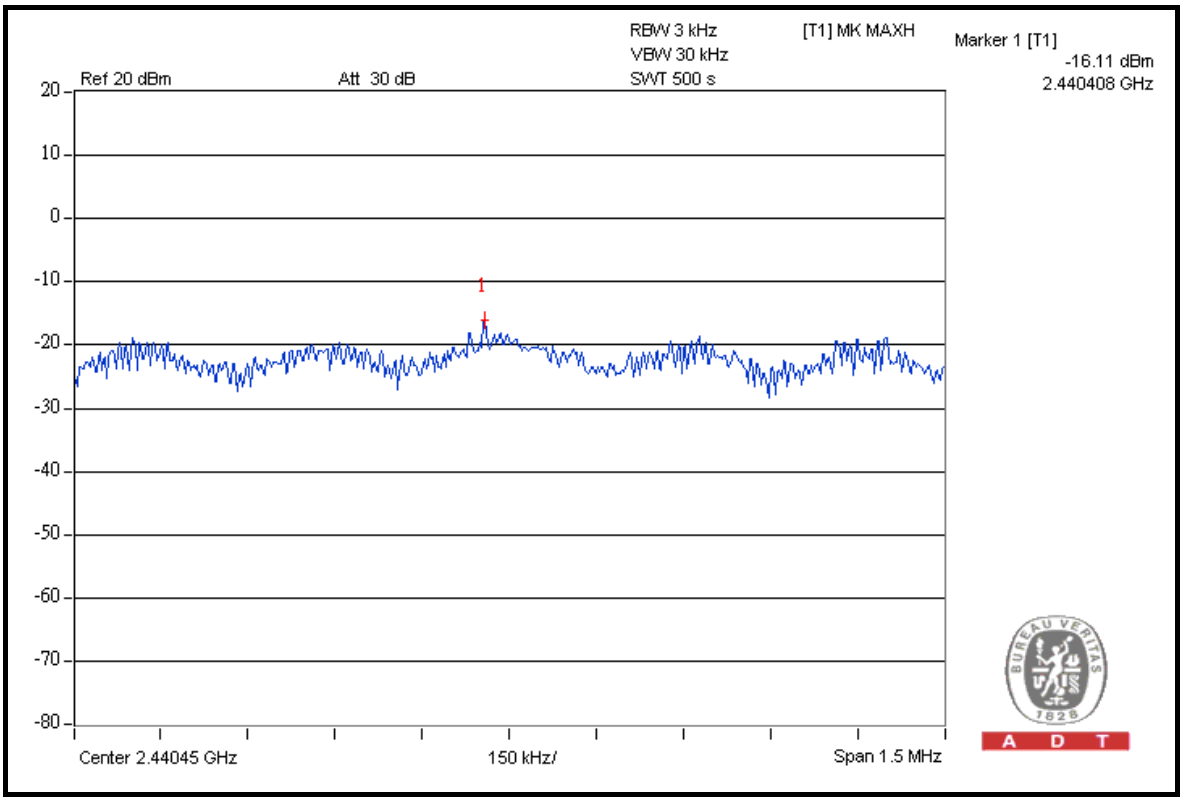
CH 7



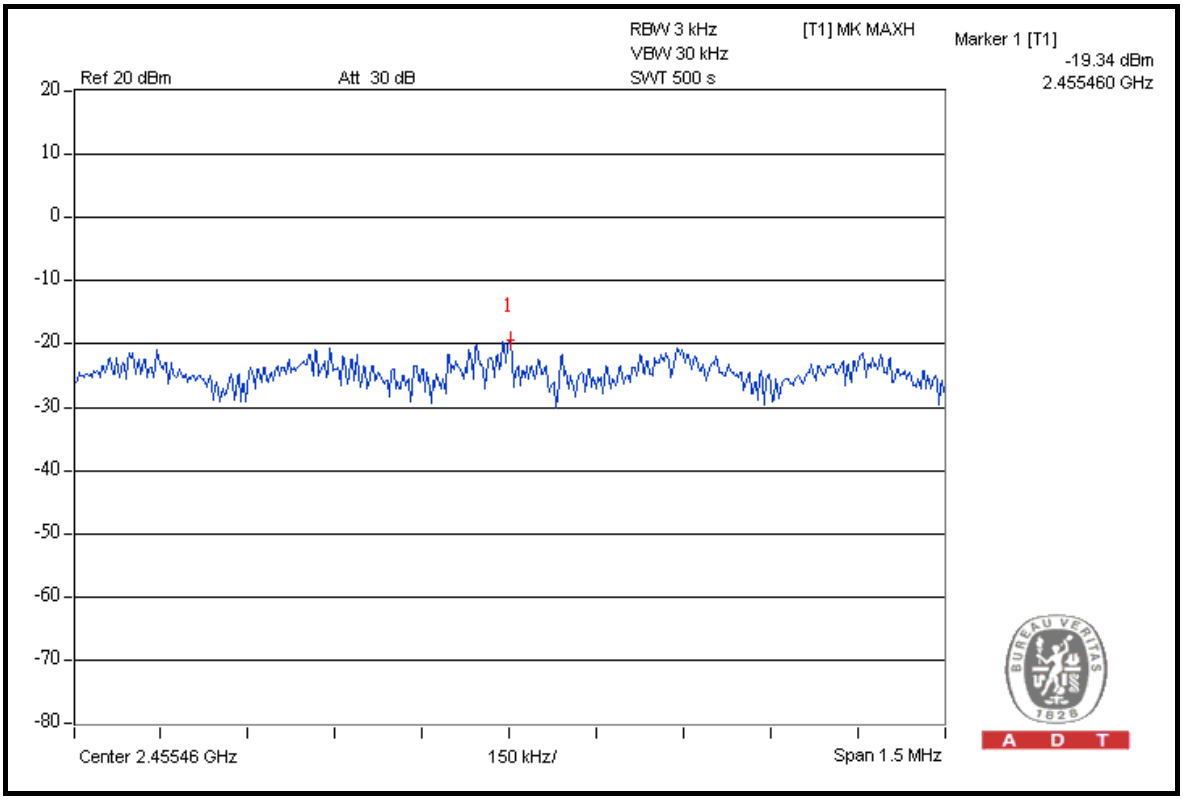
FOR CHAIN 1: CH 1



CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.11 dBm
2.440408 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44045 GHz
150 kHz/
Span 1.5 MHz

CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.34 dBm
2.455460 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.45546 GHz
150 kHz/
Span 1.5 MHz

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May. 26, 2009	May. 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2008	Dec. 24, 2009
Preamplifier Agilent	8447D	2944A10633	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008	Oct. 22, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

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

4.6.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz 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).

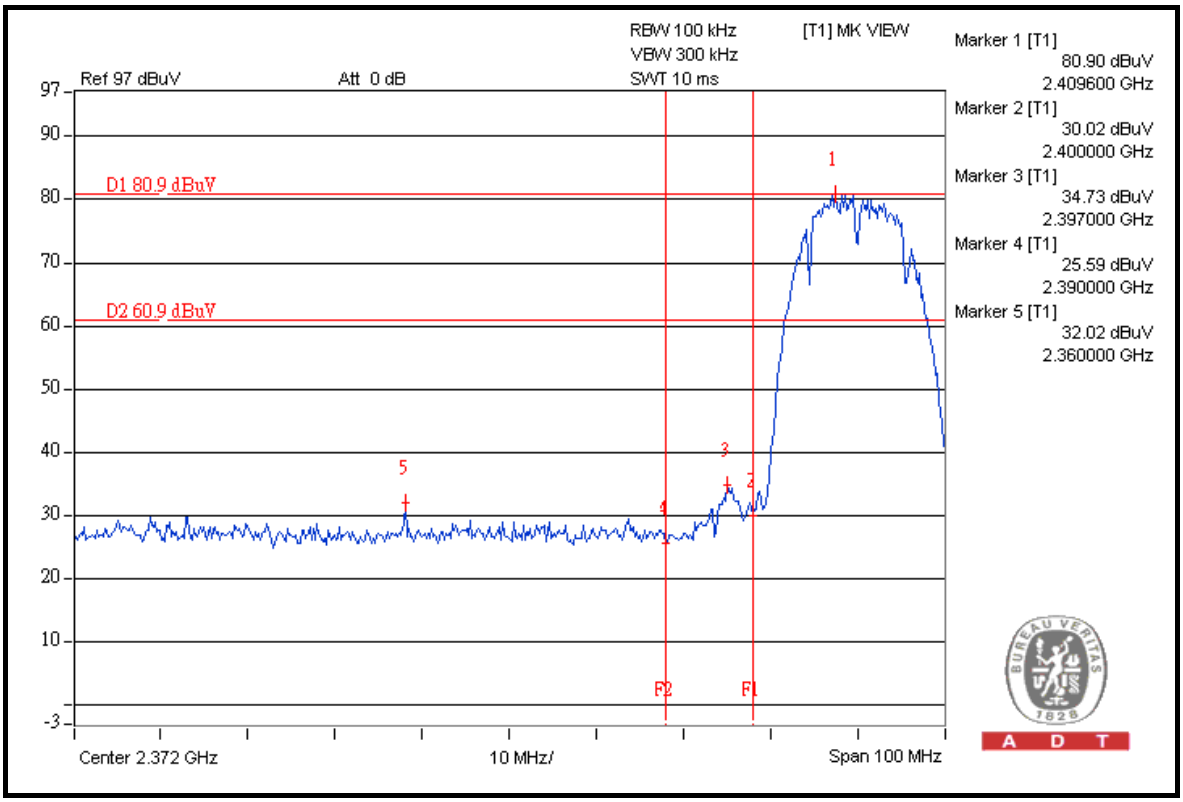
802.11b

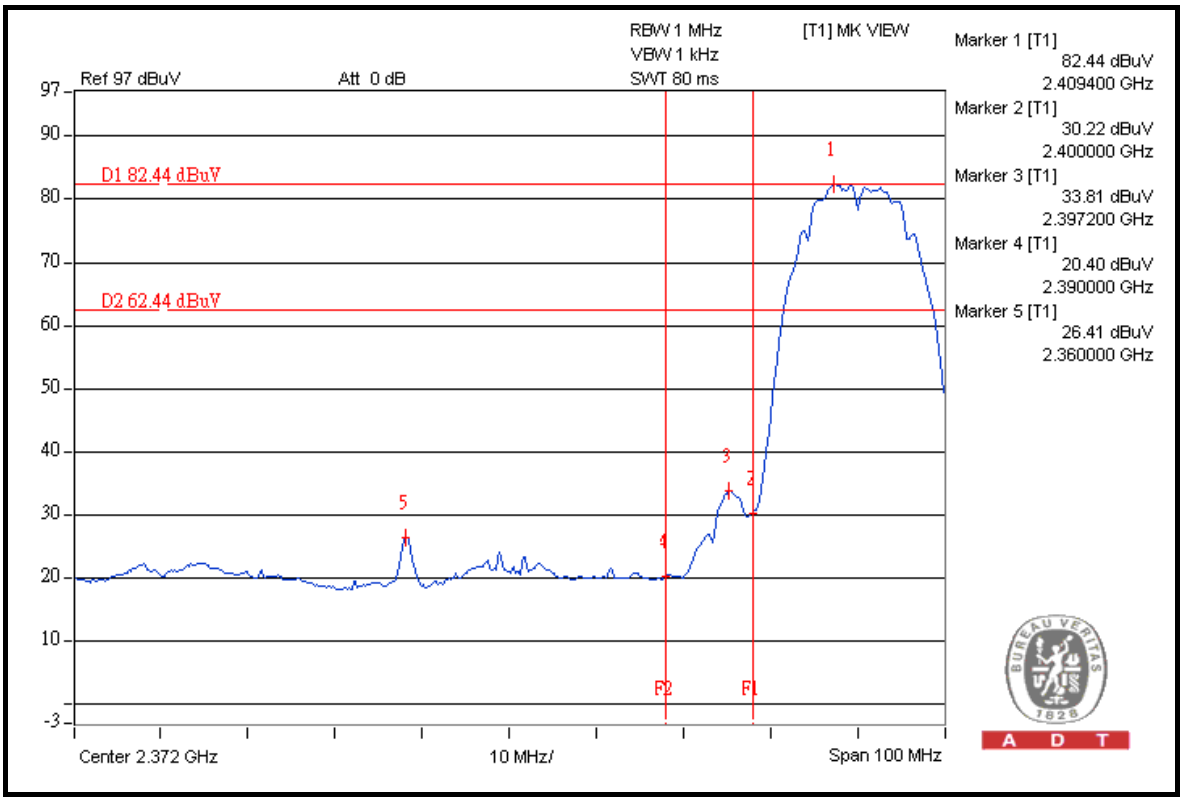
NOTE 1: The band edge emission plot on the next page shows 48.88dBuV between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 108.00dBuV/m (Peak), so the maximum field strength in restrict band is 108.00 – 48.88 = 59.12dBuV/m which is under 74dBuV/m limit.

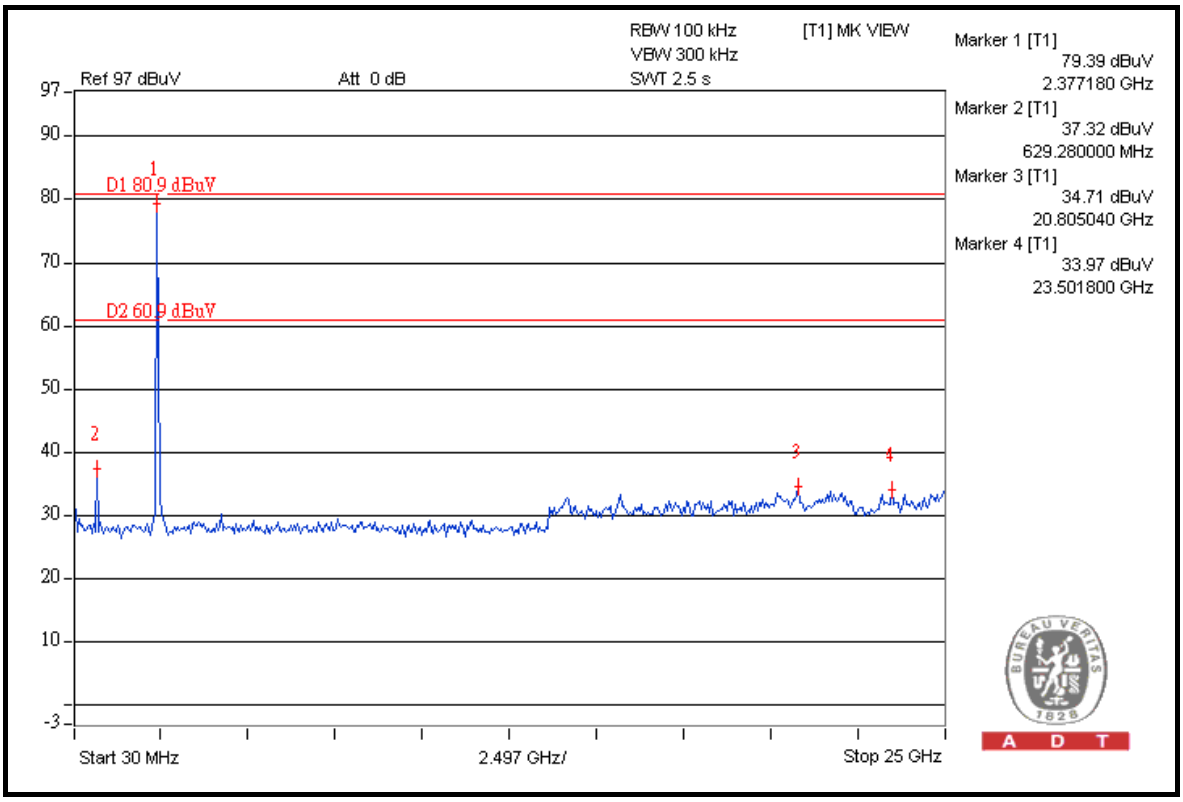
The band edge emission plot of on the next page shows 56.03dBuV between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 103.52dBuV/m (Average), so the maximum field strength in restrict band is 103.52 – 56.03 = 47.49dBuV/m which is under 54dBuV/m limit.

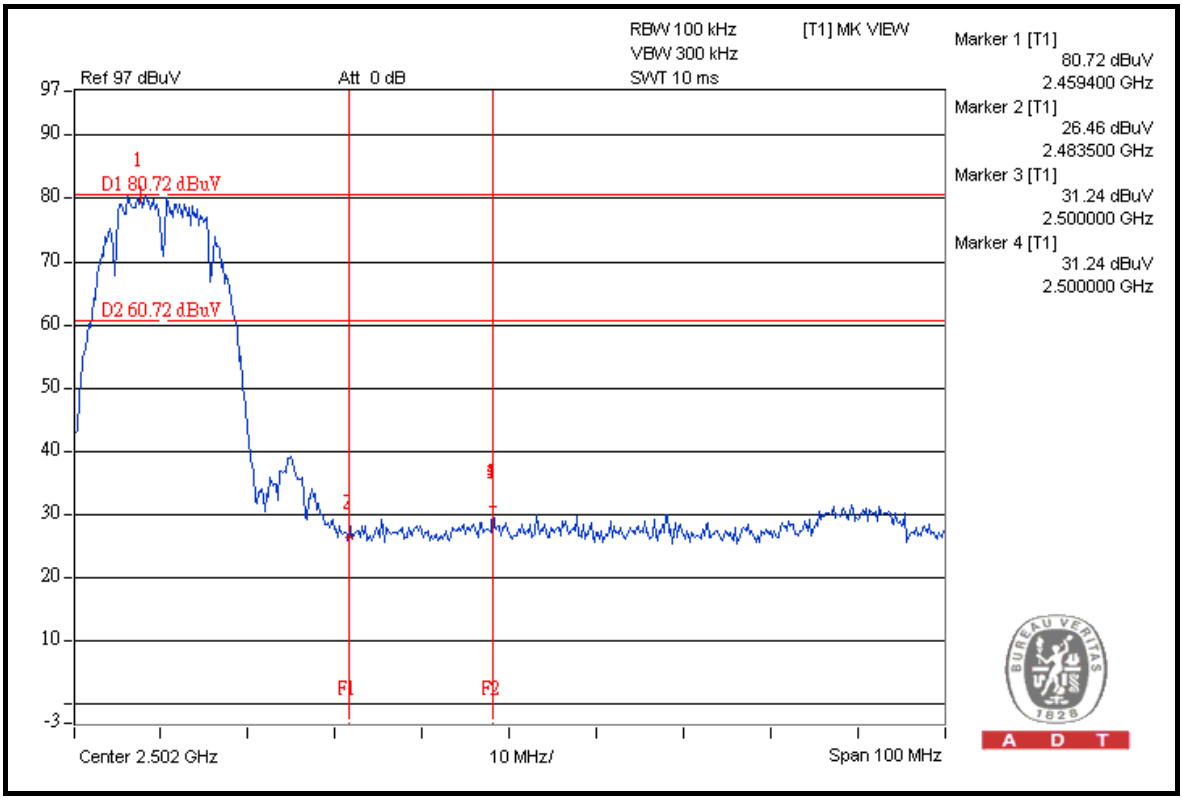
NOTE 2: The band edge emission plot on the next second page shows 49.48dBuV between carrier maximum power and local maximum emission in restrict band (2.5000GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 108.05dBuV/m (Peak), so the maximum field strength in restrict band is 108.05 – 49.48 = 58.57dBuV/m which is under 74dBuV/m limit.

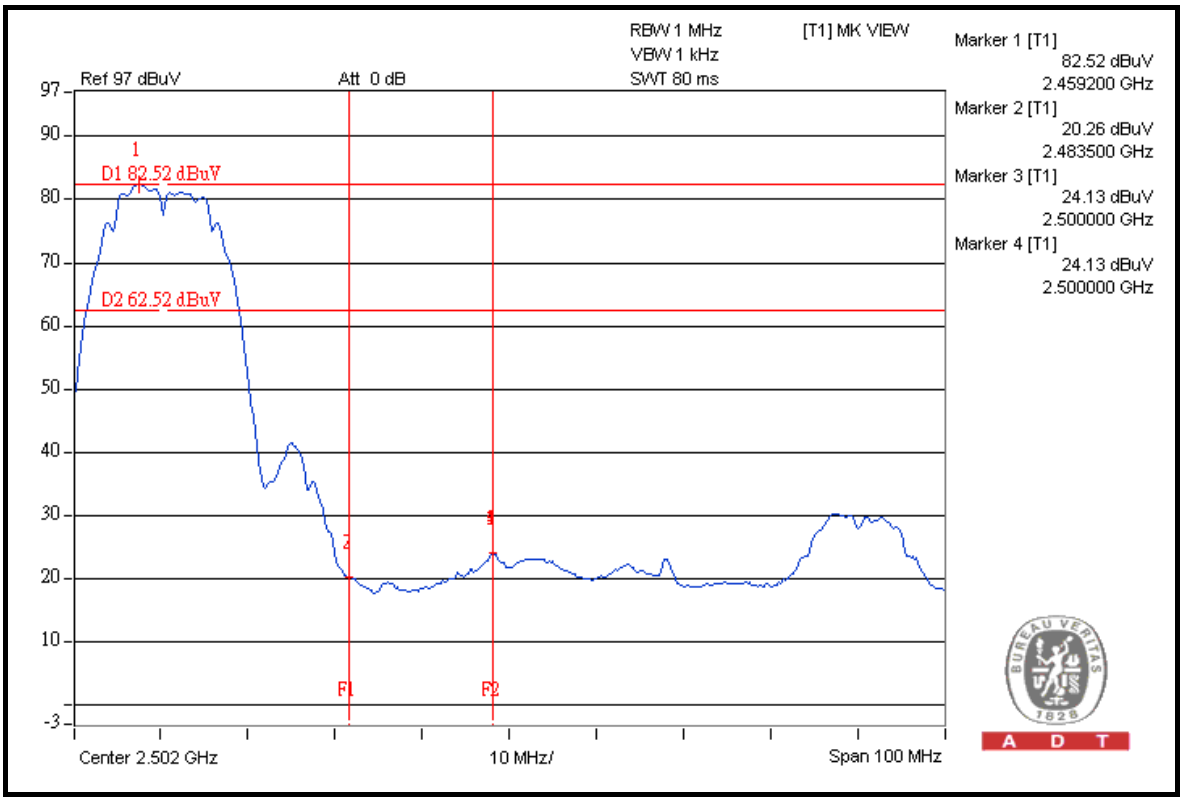
The band edge emission plot on the next third page shows 58.39dBuV between carrier maximum power and local maximum emission in restrict band (2.5000GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 103.57dBuV/m (Average), so the maximum field strength in restrict band is 103.57 – 58.39 = 45.18dBuV/m which is under 54dBuV/m limit.

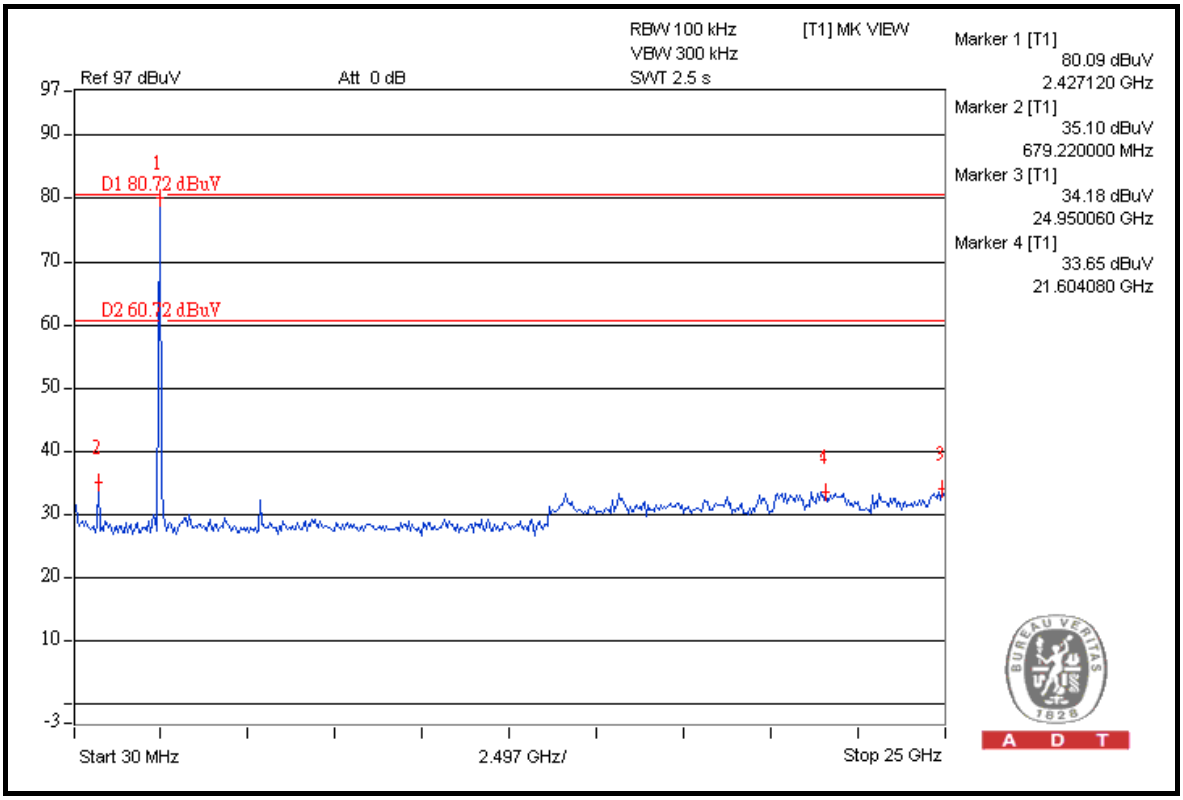

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.9 dBuV
D2 60.9 dBuV
Marker 1 [T1]
80.90 dBuV
2.409600 GHz
Marker 2 [T1]
30.02 dBuV
2.400000 GHz
Marker 3 [T1]
34.73 dBuV
2.397000 GHz
Marker 4 [T1]
25.59 dBuV
2.390000 GHz
Marker 5 [T1]
32.02 dBuV
2.360000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.44 dBuV
D2 62.44 dBuV
Marker 1 [T1]
82.44 dBuV
2.409400 GHz
Marker 2 [T1]
30.22 dBuV
2.400000 GHz
Marker 3 [T1]
33.81 dBuV
2.397200 GHz
Marker 4 [T1]
20.40 dBuV
2.390000 GHz
Marker 5 [T1]
26.41 dBuV
2.360000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.9 dBuV
D2 60.9 dBuV
Marker 1 [T1]
79.39 dBuV
2.377180 GHz
Marker 2 [T1]
37.32 dBuV
629.280000 MHz
Marker 3 [T1]
34.71 dBuV
20.805040 GHz
Marker 4 [T1]
33.97 dBuV
23.501800 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.72 dBuV
D2 60.72 dBuV
Marker 1 [T1]
80.72 dBuV
2.459400 GHz
Marker 2 [T1]
26.46 dBuV
2.483500 GHz
Marker 3 [T1]
31.24 dBuV
2.500000 GHz
Marker 4 [T1]
31.24 dBuV
2.500000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
82.52 dBuV
2.459200 GHz
Marker 2 [T1]
20.26 dBuV
2.483500 GHz
Marker 3 [T1]
24.13 dBuV
2.500000 GHz
Marker 4 [T1]
24.13 dBuV
2.500000 GHz
D1 82.52 dBuV
D2 62.52 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
80.09 dBuV
2.427120 GHz
Marker 2 [T1]
35.10 dBuV
679.220000 MHz
Marker 3 [T1]
34.18 dBuV
24.950060 GHz
Marker 4 [T1]
33.65 dBuV
21.604080 GHz
D1 80.72 dBuV
D2 60.72 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz

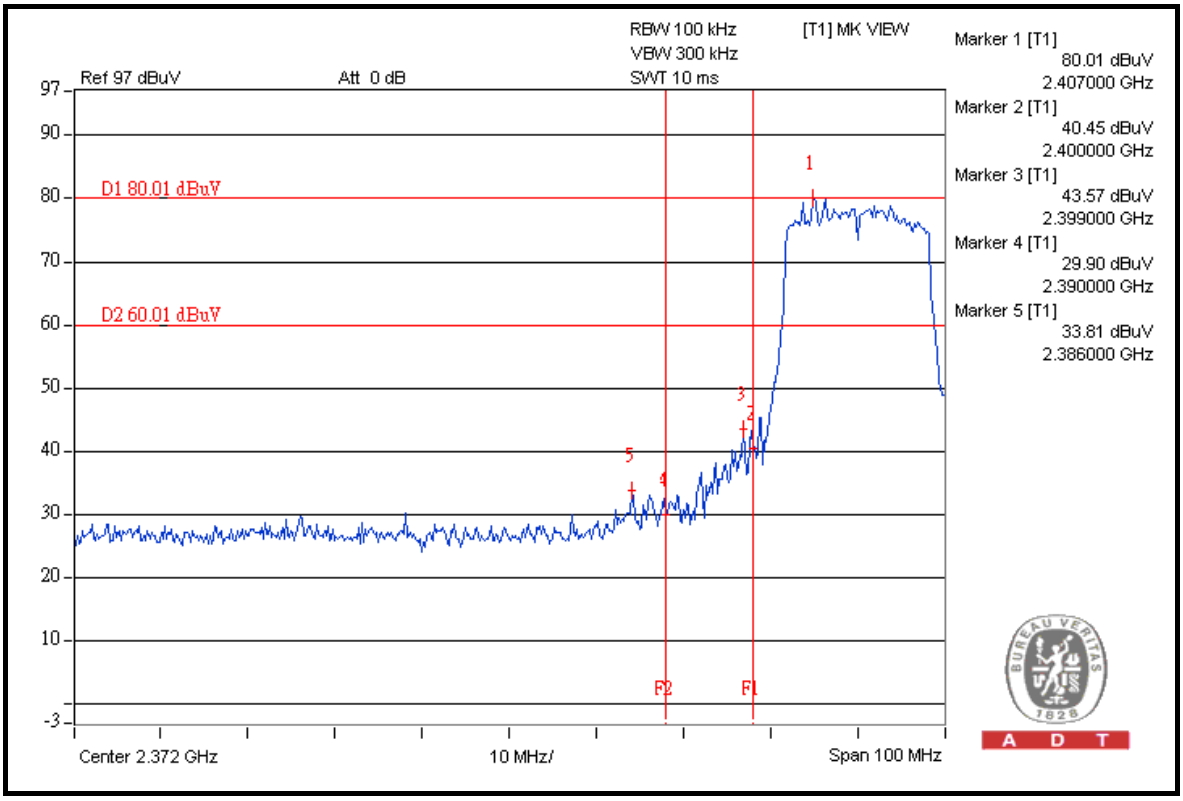
802.11g

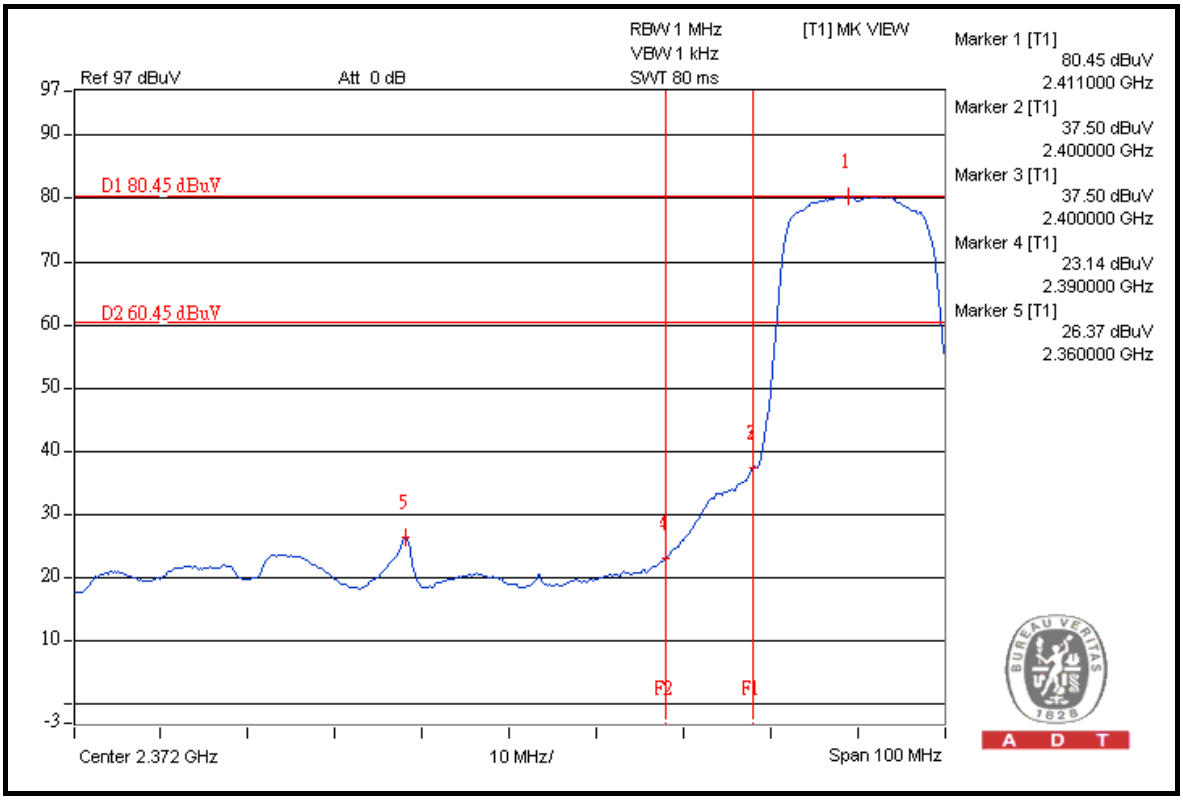
NOTE 1: The band edge emission plot on the next page shows 46.20dBuV between carrier maximum power and local maximum emission in restrict band (2.3860GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.49dBuV/m (Peak), so the maximum field strength in restrict band is 111.49 – 46.20 = 65.29dBuV/m which is under 74dBuV/m limit.

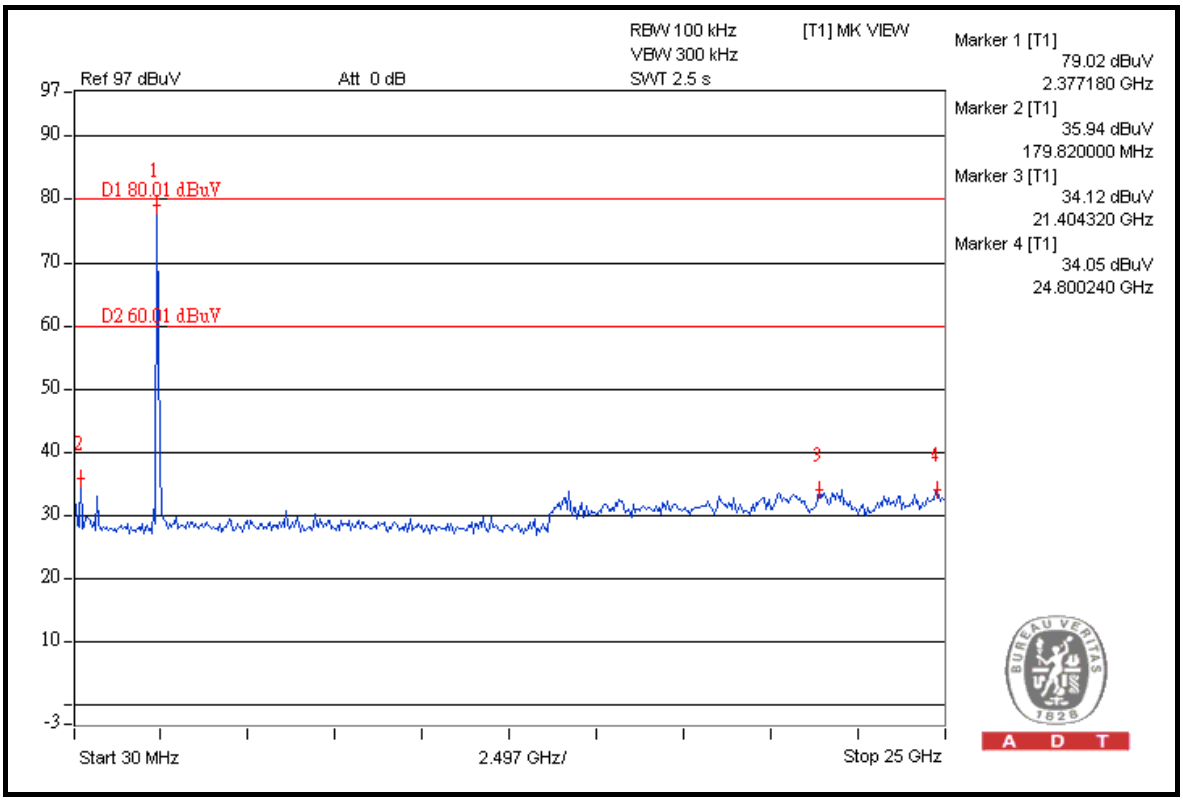
The band edge emission plot of on the next page shows 54.08dBuV between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 101.42dBuV/m (Average), so the maximum field strength in restrict band is 101.42 – 54.08 = 47.34dBuV/m which is under 54dBuV/m limit.

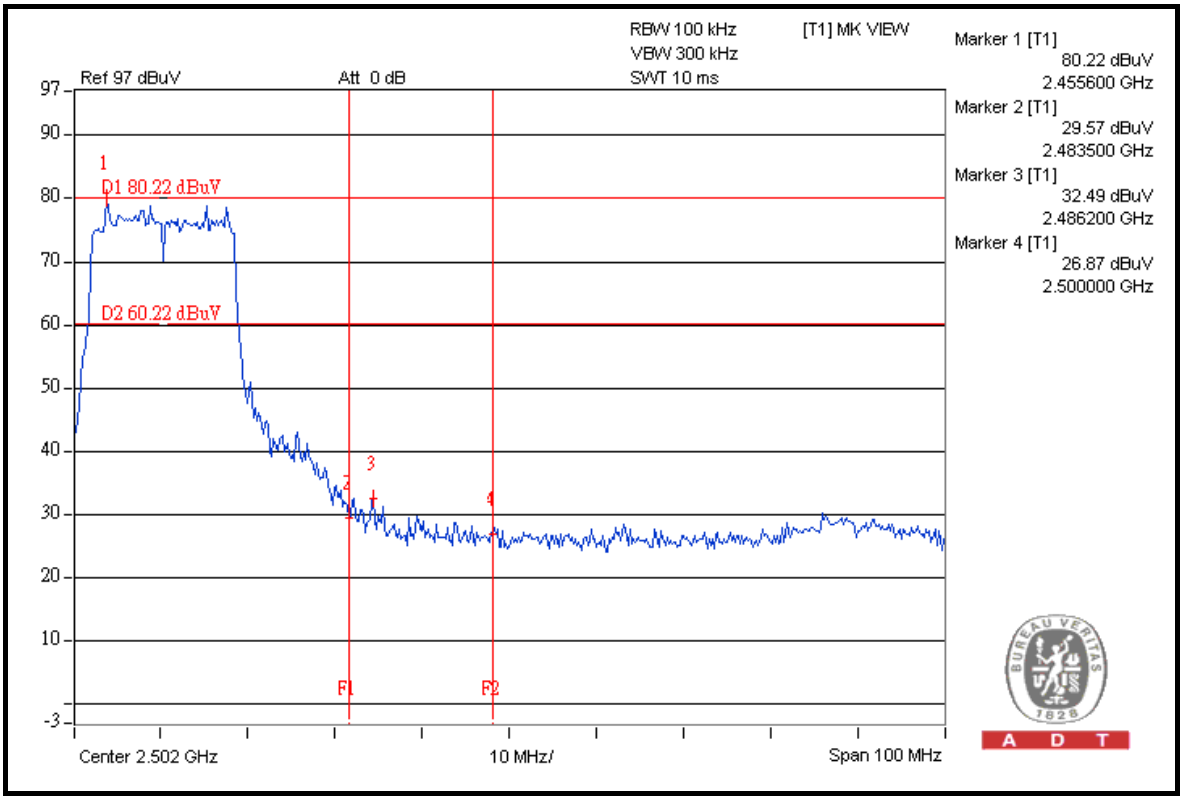
NOTE 2: The band edge emission plot on the next second page shows 47.73dBuV between carrier maximum power and local maximum emission in restrict band (2.4862GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 111.22dBuV/m (Peak), so the maximum field strength in restrict band is 111.22 – 47.73 = 63.49dBuV/m which is under 74dBuV/m limit.

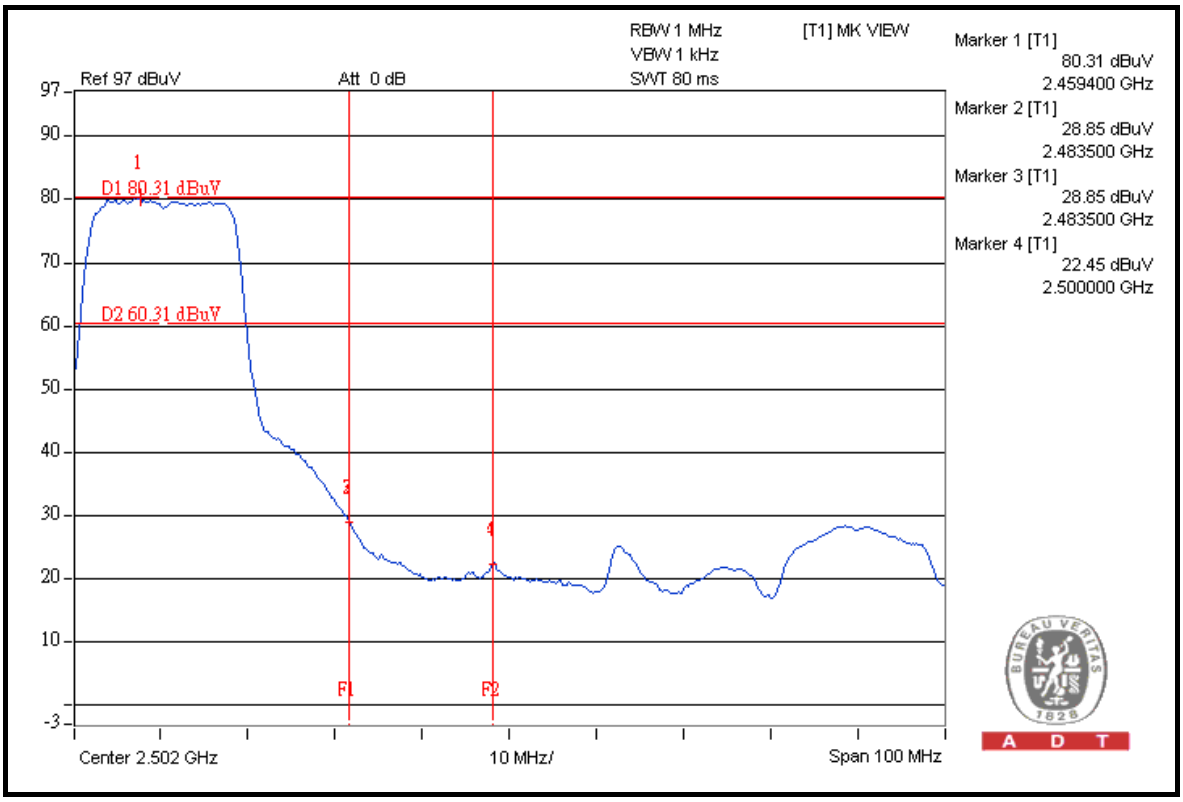
The band edge emission plot on the next third page shows 51.46dBuV between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 101.13dBuV/m (Average), so the maximum field strength in restrict band is 101.13 – 51.46 = 49.67dBuV/m which is under 54dBuV/m limit.

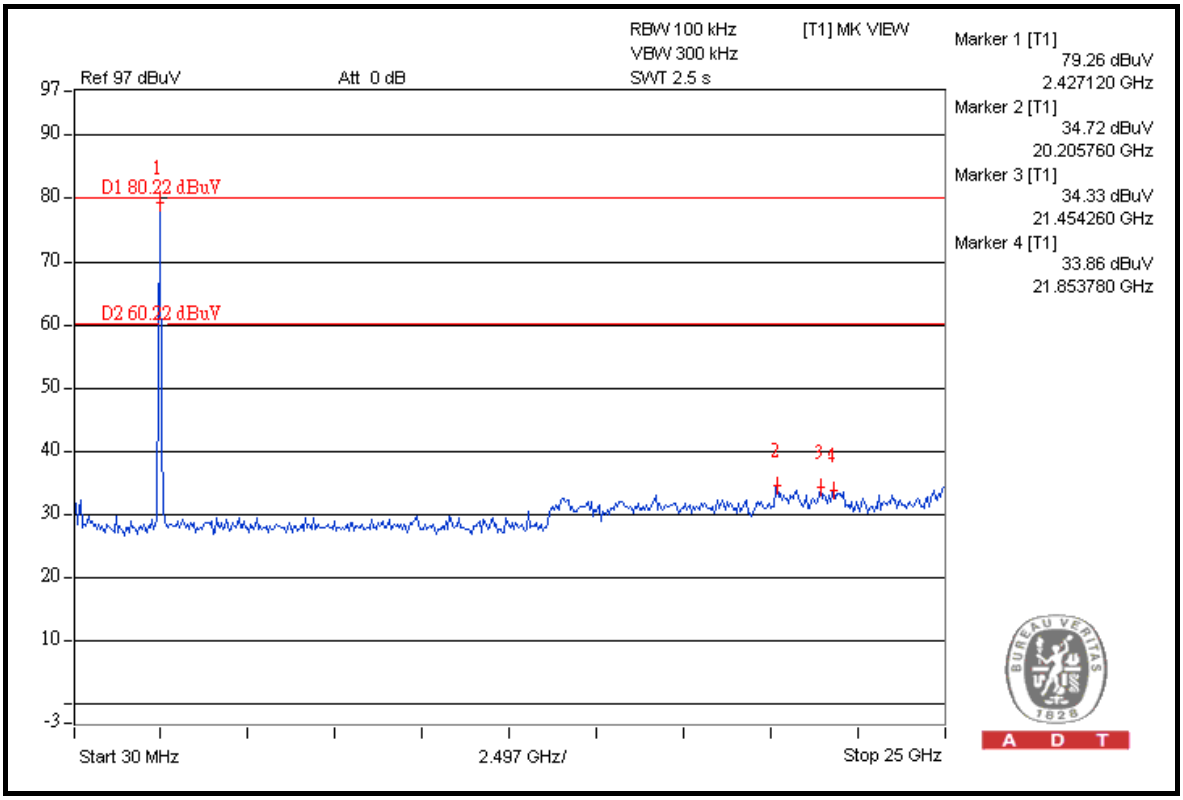

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.01 dBuV
D2 60.01 dBuV
Marker 1 [T1]
80.01 dBuV
2.407000 GHz
Marker 2 [T1]
40.45 dBuV
2.400000 GHz
Marker 3 [T1]
43.57 dBuV
2.399000 GHz
Marker 4 [T1]
29.90 dBuV
2.390000 GHz
Marker 5 [T1]
33.81 dBuV
2.386000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.45 dBuV
D2 60.45 dBuV
Marker 1 [T1]
80.45 dBuV
2.411000 GHz
Marker 2 [T1]
37.50 dBuV
2.400000 GHz
Marker 3 [T1]
37.50 dBuV
2.400000 GHz
Marker 4 [T1]
23.14 dBuV
2.390000 GHz
Marker 5 [T1]
26.37 dBuV
2.360000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
79.02 dBuV
2.377180 GHz
Marker 2 [T1]
35.94 dBuV
179.820000 MHz
Marker 3 [T1]
34.12 dBuV
21.404320 GHz
Marker 4 [T1]
34.05 dBuV
24.800240 GHz
D1 80.01 dBuV
D2 60.01 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
80.22 dBuV
2.455600 GHz
Marker 2 [T1]
29.57 dBuV
2.483500 GHz
Marker 3 [T1]
32.49 dBuV
2.486200 GHz
Marker 4 [T1]
26.87 dBuV
2.500000 GHz
D1 80.22 dBuV
D2 60.22 dBuV
F1
F2
97
90
80
70
60
50
40
30
20
10
-3
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.31 dBuV
D2 60.31 dBuV
Marker 1 [T1]
80.31 dBuV
2.459400 GHz
Marker 2 [T1]
28.85 dBuV
2.483500 GHz
Marker 3 [T1]
28.85 dBuV
2.483500 GHz
Marker 4 [T1]
22.45 dBuV
2.500000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.22 dBuV
D2 60.22 dBuV
Marker 1 [T1]
79.26 dBuV
2.427120 GHz
Marker 2 [T1]
34.72 dBuV
20.205760 GHz
Marker 3 [T1]
34.33 dBuV
21.454260 GHz
Marker 4 [T1]
33.86 dBuV
21.853780 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

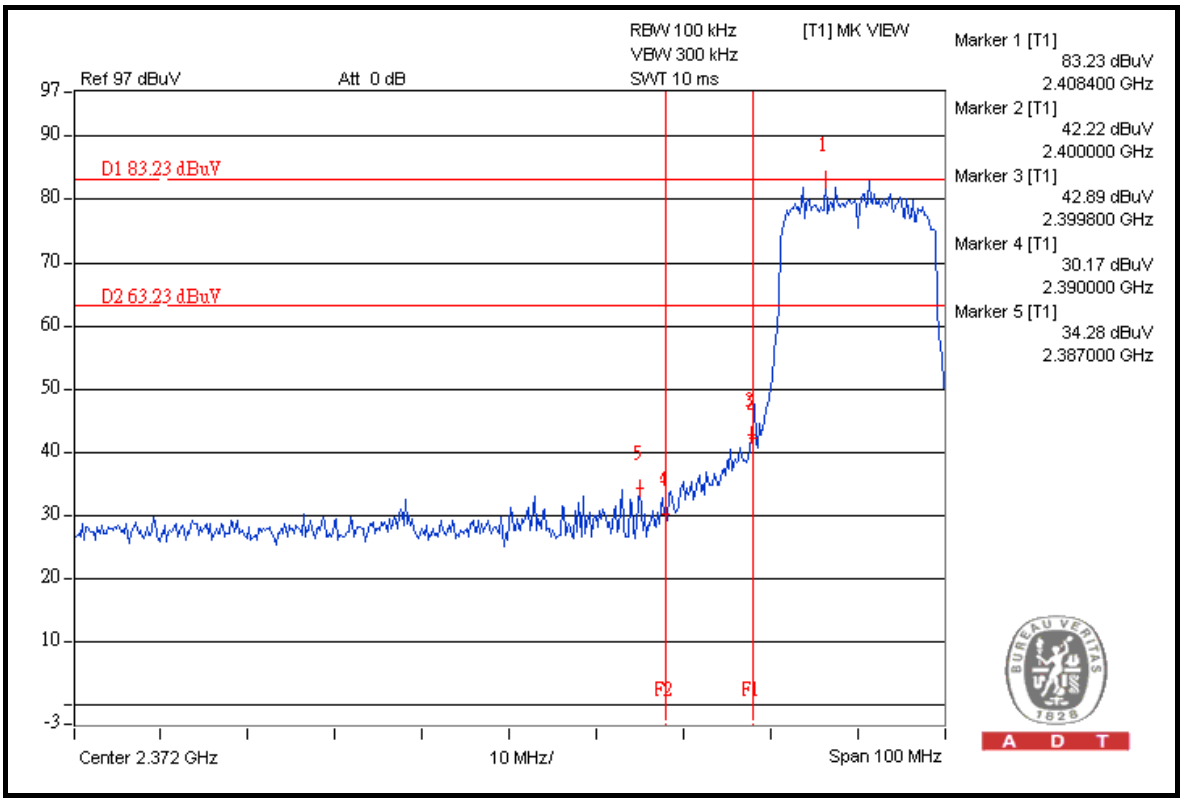
802.11n (20MHz)

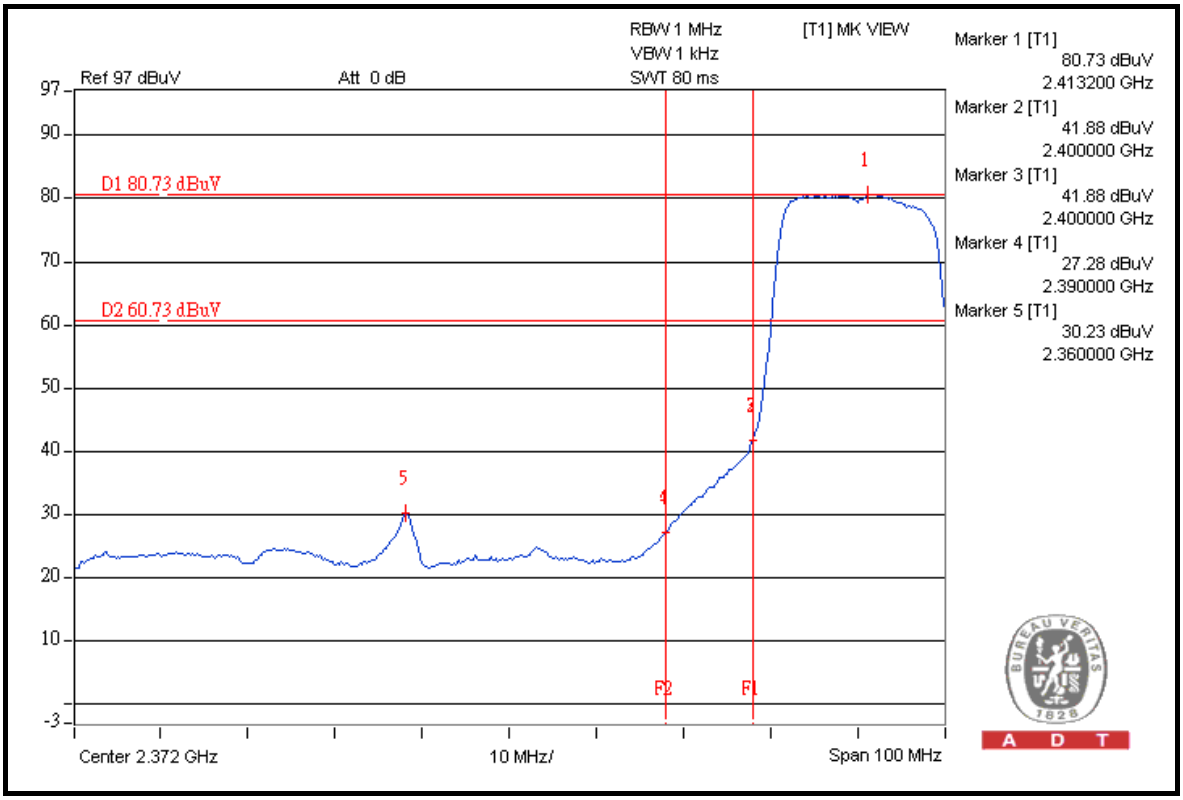
NOTE 1: The band edge emission plot on the next page shows 48.95dBuV between carrier maximum power and local maximum emission in restrict band (2.3870GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.57dBuV/m (Peak), so the maximum field strength in restrict band is 111.57 – 48.95 = 62.62dBuV/m which is under 74dBuV/m limit.

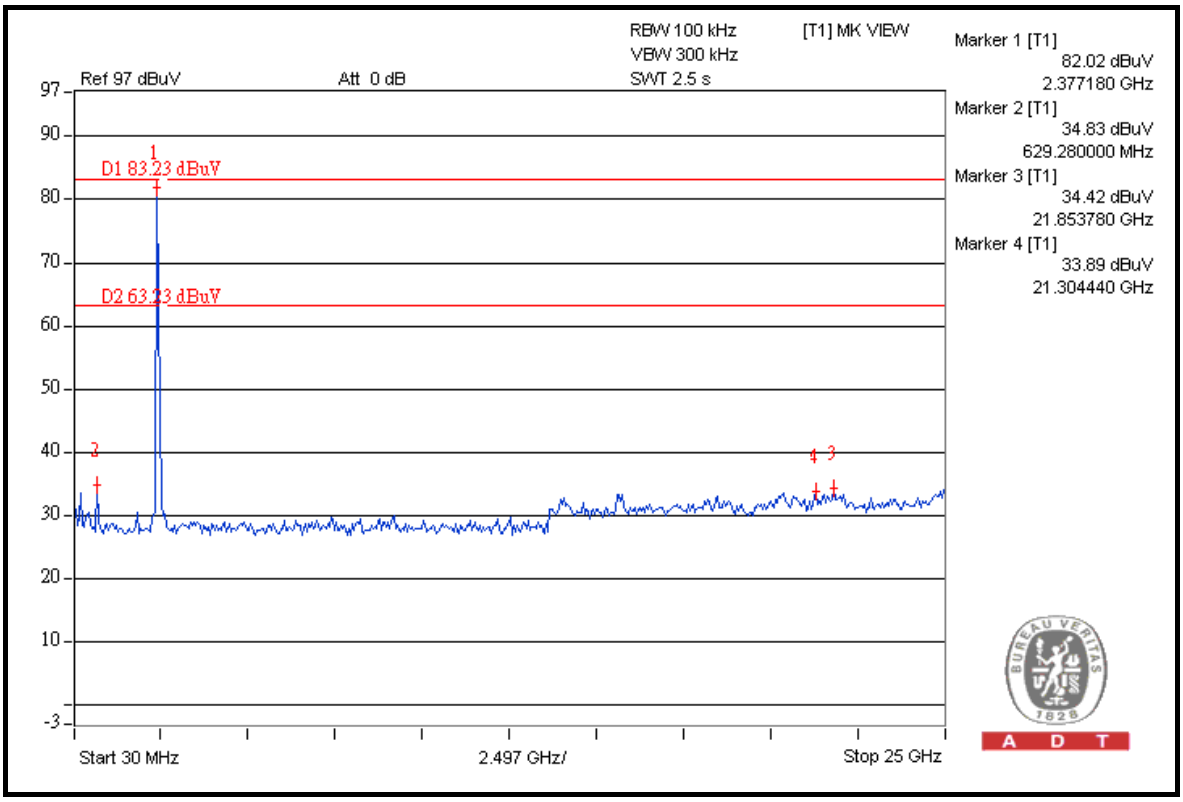
The band edge emission plot of on the next page shows 50.50dBuV between carrier maximum power and local maximum emission in restrict band (2.3600GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 101.46dBuV/m (Average), so the maximum field strength in restrict band is 101.46 – 50.50 = 50.96dBuV/m which is under 54dBuV/m limit.

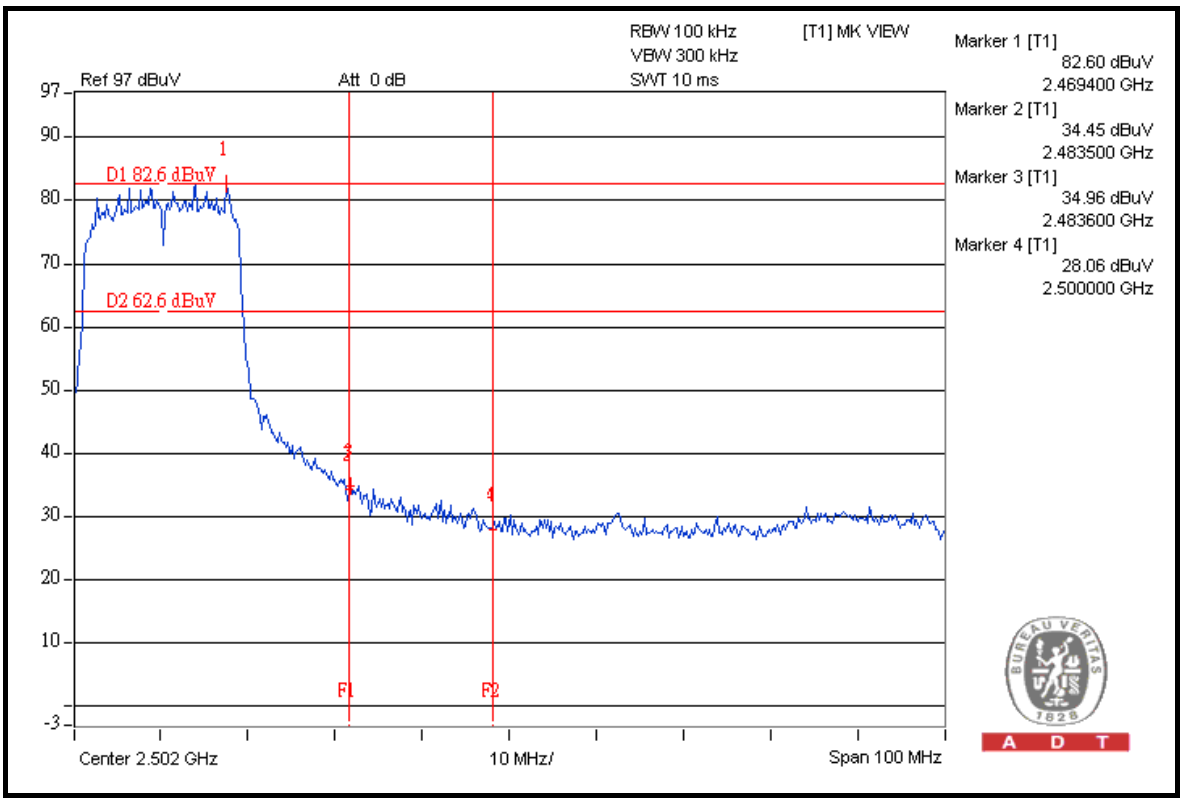
NOTE 2: The band edge emission plot on the next second page shows 47.64dBuV between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 111.15dBuV/m (Peak), so the maximum field strength in restrict band is 111.15 – 47.64 = 63.51dBuV/m which is under 74dBuV/m limit.

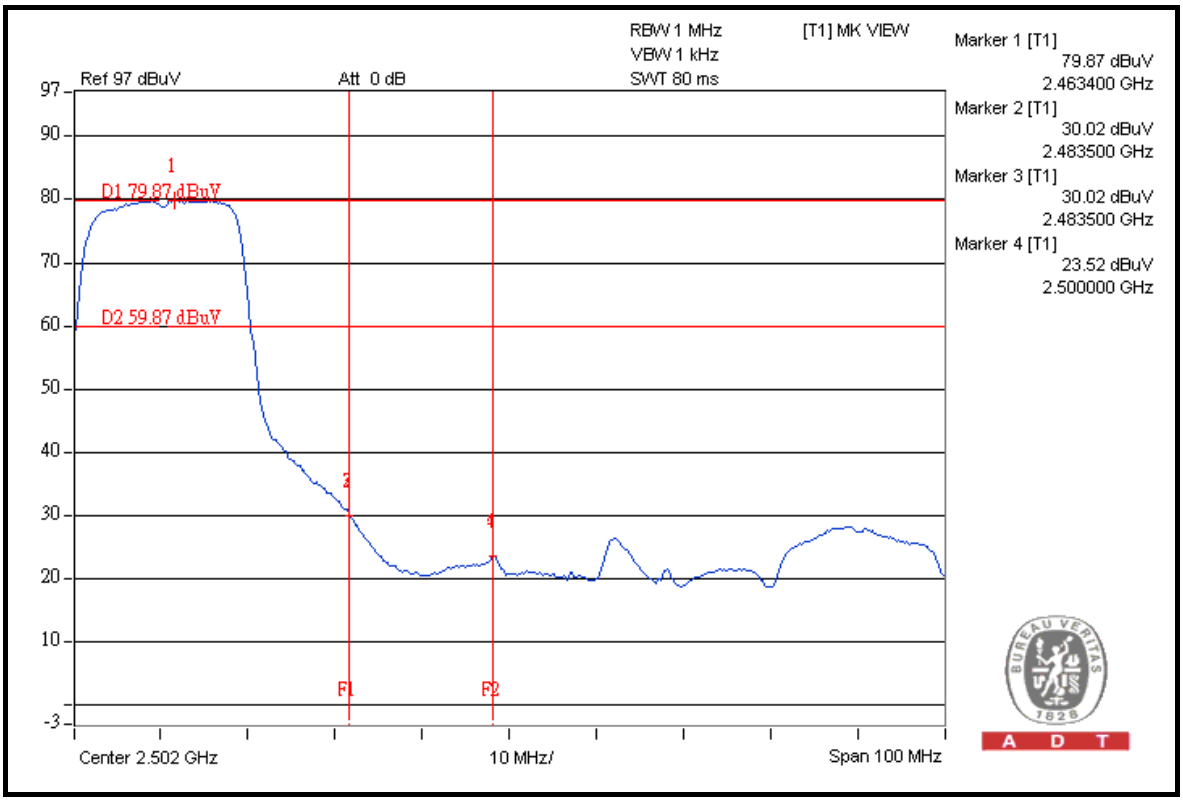
The band edge emission plot on the next third page shows 49.85dBuV between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 101.02dBuV/m (Average), so the maximum field strength in restrict band is 101.02 – 49.85 = 51.17dBuV/m which is under 54dBuV/m limit.

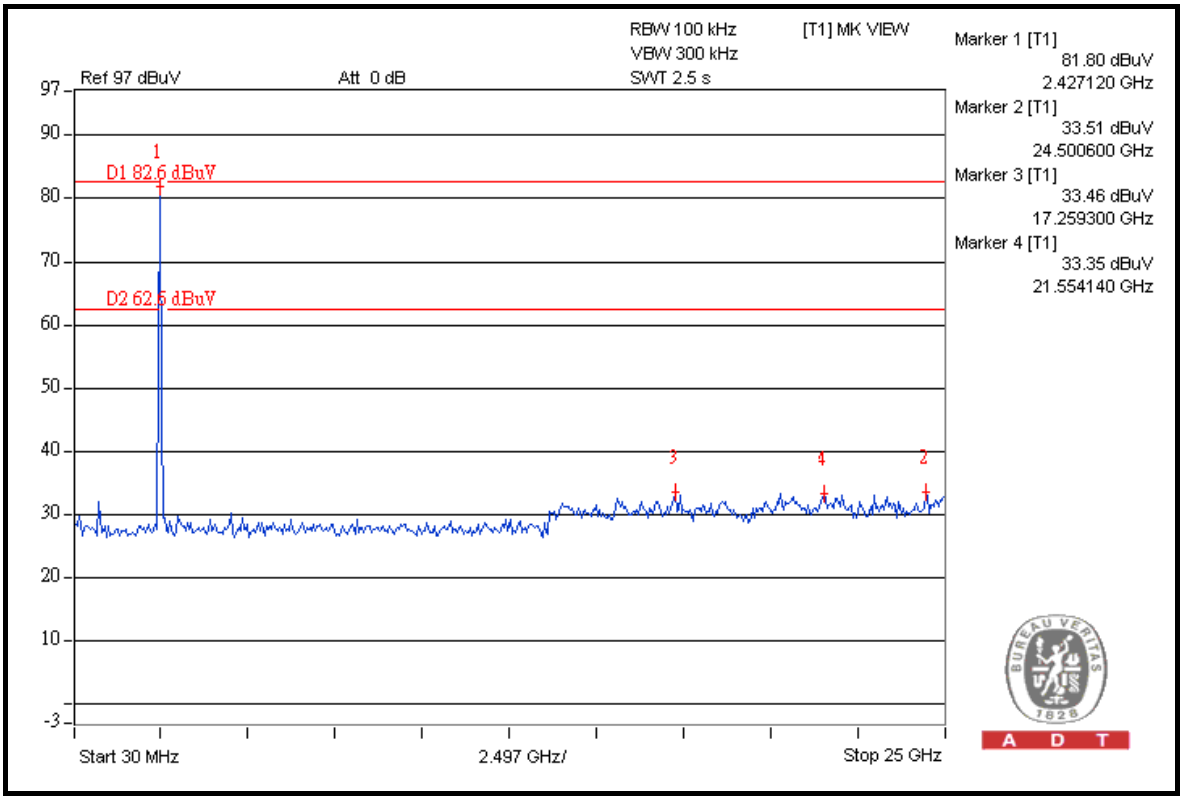

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 83.23 dBuV
D2 63.23 dBuV
Marker 1 [T1]
83.23 dBuV
2.408400 GHz
Marker 2 [T1]
42.22 dBuV
2.400000 GHz
Marker 3 [T1]
42.89 dBuV
2.399800 GHz
Marker 4 [T1]
30.17 dBuV
2.390000 GHz
Marker 5 [T1]
34.28 dBuV
2.387000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.73 dBuV
D2 60.73 dBuV
Marker 1 [T1]
80.73 dBuV
2.413200 GHz
Marker 2 [T1]
41.88 dBuV
2.400000 GHz
Marker 3 [T1]
41.88 dBuV
2.400000 GHz
Marker 4 [T1]
27.28 dBuV
2.390000 GHz
Marker 5 [T1]
30.23 dBuV
2.360000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 83.23 dBuV
D2 63.23 dBuV
Marker 1 [T1]
82.02 dBuV
2.377180 GHz
Marker 2 [T1]
34.83 dBuV
629.280000 MHz
Marker 3 [T1]
34.42 dBuV
21.853780 GHz
Marker 4 [T1]
33.89 dBuV
21.304440 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.6 dBuV
D2 62.6 dBuV
Marker 1 [T1]
82.60 dBuV
2.469400 GHz
Marker 2 [T1]
34.45 dBuV
2.483500 GHz
Marker 3 [T1]
34.96 dBuV
2.483600 GHz
Marker 4 [T1]
28.06 dBuV
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 79.87 dBuV
D2 59.87 dBuV
Marker 1 [T1]
79.87 dBuV
2.463400 GHz
Marker 2 [T1]
30.02 dBuV
2.483500 GHz
Marker 3 [T1]
30.02 dBuV
2.483500 GHz
Marker 4 [T1]
23.52 dBuV
2.500000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.6 dBuV
D2 62.6 dBuV
Marker 1 [T1]
81.80 dBuV
2.427120 GHz
Marker 2 [T1]
33.51 dBuV
24.500600 GHz
Marker 3 [T1]
33.46 dBuV
17.259300 GHz
Marker 4 [T1]
33.35 dBuV
21.554140 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

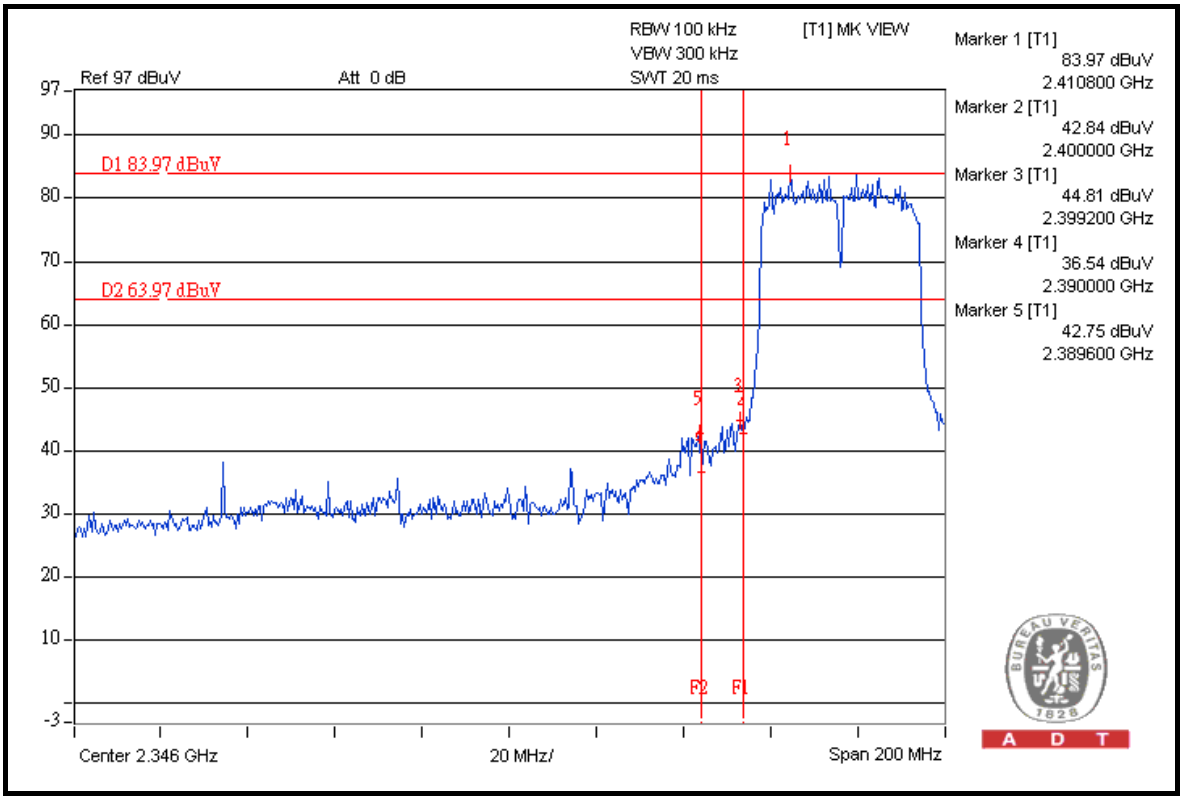
802.11n (40MHz)

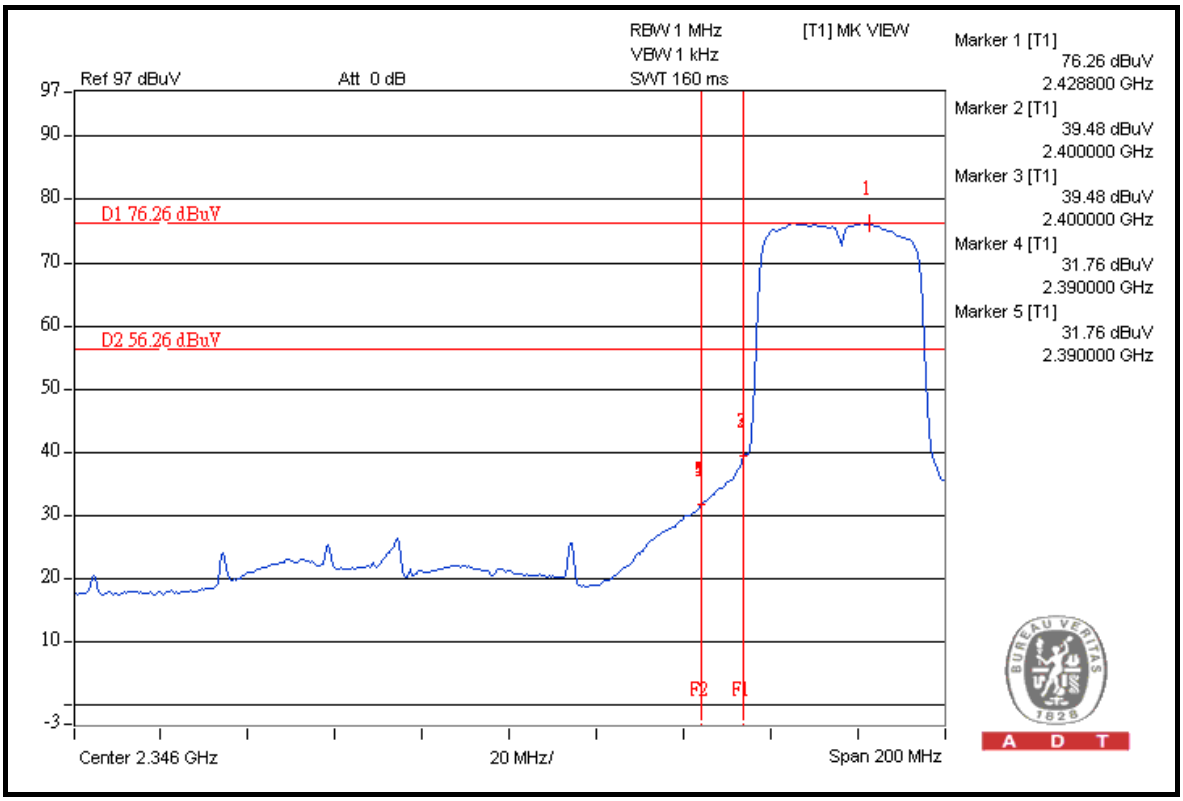
NOTE 1: The band edge emission plot on the next page shows 41.22dBuV between carrier maximum power and local maximum emission in restrict band (2.3896GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 107.49dBuV/m (Peak), so the maximum field strength in restrict band is 107.49 – 41.22 = 66.27dBuV/m which is under 74dBuV/m limit.

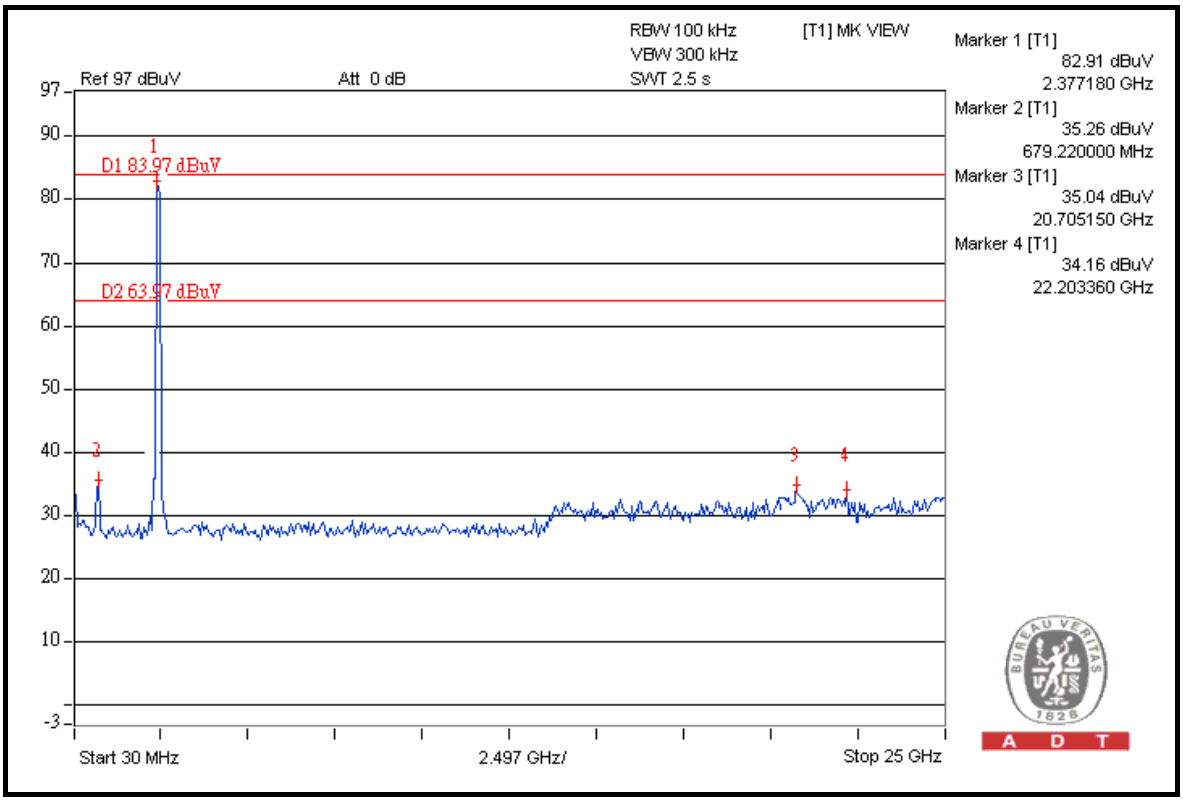
The band edge emission plot of on the next page shows 44.50dBuV between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 97.42dBuV/m (Average), so the maximum field strength in restrict band is 97.42 – 44.50 = 52.92dBuV/m which is under 54dBuV/m limit.

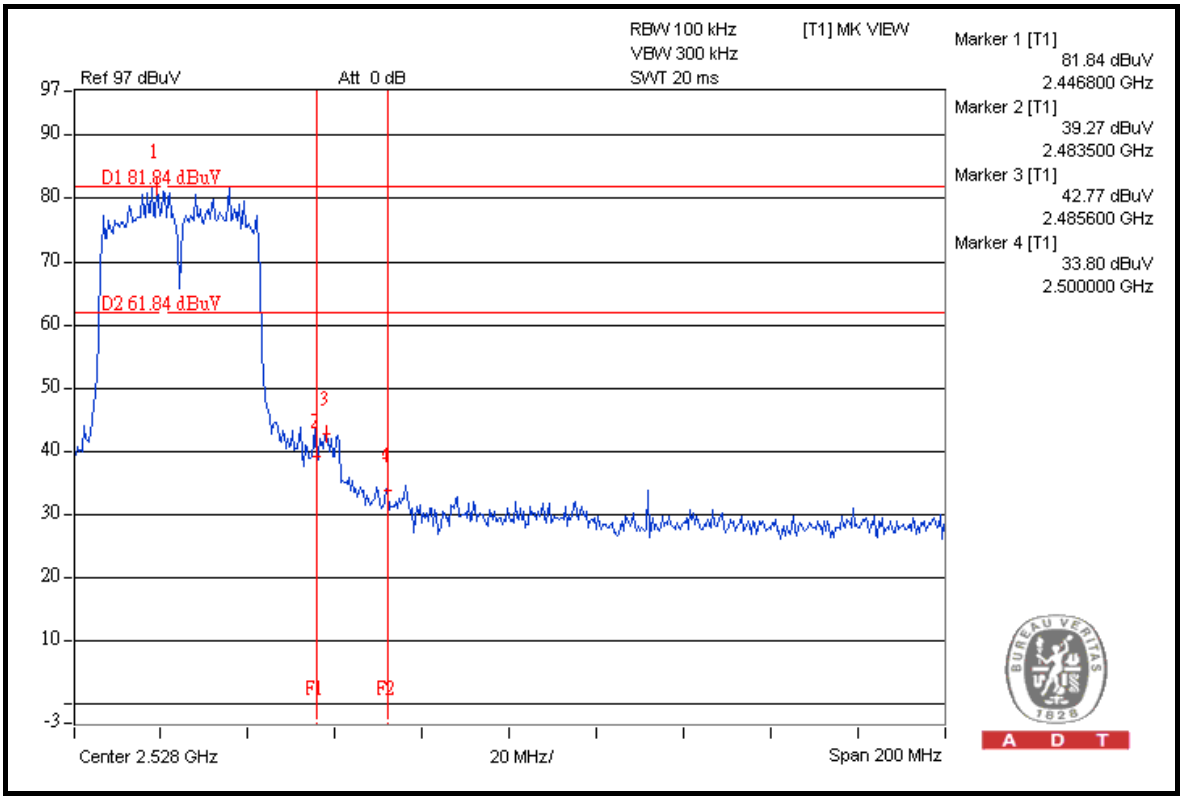
NOTE 2: The band edge emission plot on the next second page shows 39.07dBuV between carrier maximum power and local maximum emission in restrict band (2.4856GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 105.18dBuV/m (Peak), so the maximum field strength in restrict band is 105.18 – 39.07 = 66.11dBuV/m which is under 74dBuV/m limit.

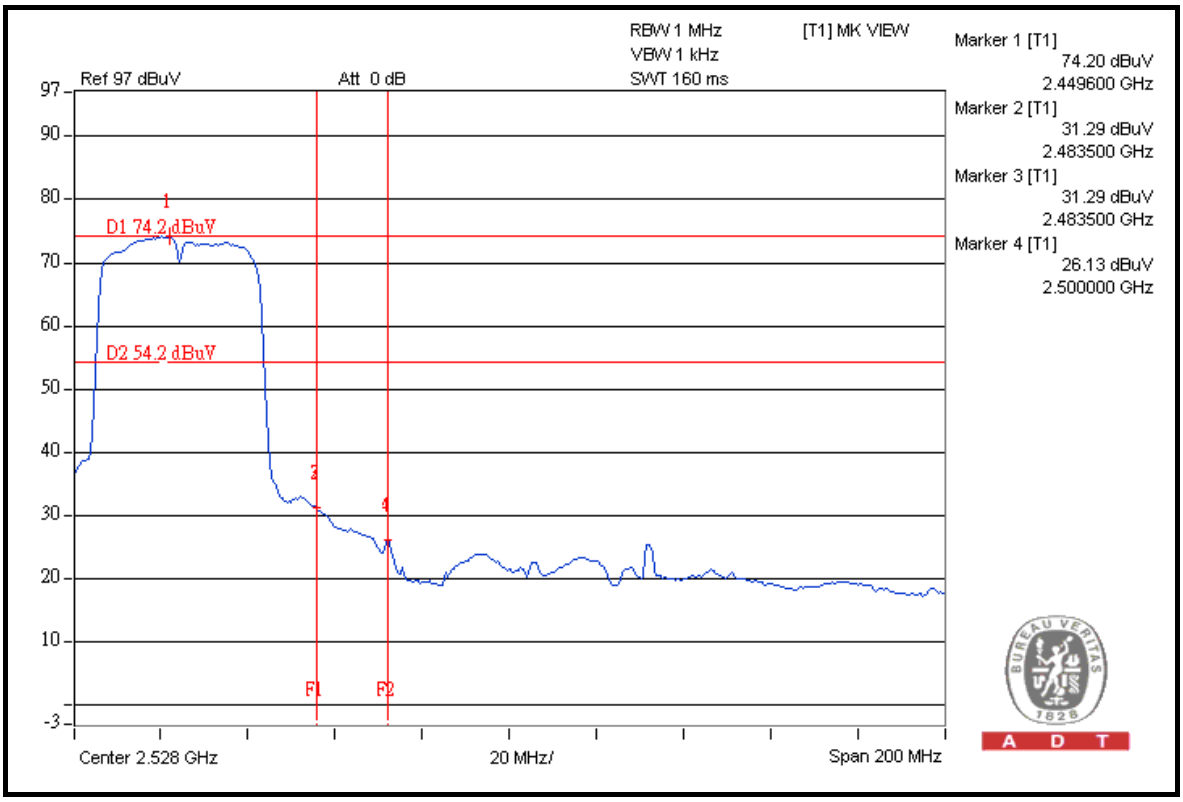
The band edge emission plot on the next third page shows 42.91dBuV between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 95.05dBuV/m (Average), so the maximum field strength in restrict band is 95.05 – 42.91 = 52.14dBuV/m which is under 54dBuV/m limit.

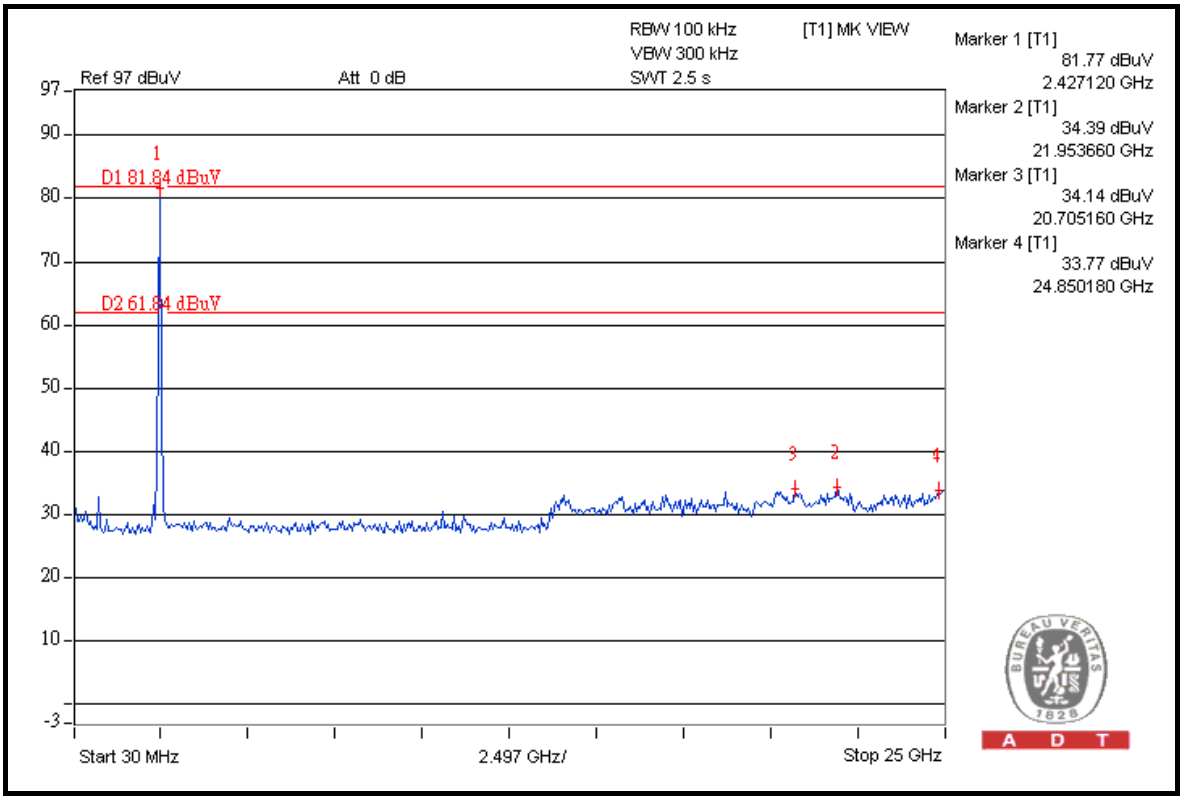

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 83.97 dBuV
D2 63.97 dBuV
Marker 1 [T1]
83.97 dBuV
2.410800 GHz
Marker 2 [T1]
42.84 dBuV
2.400000 GHz
Marker 3 [T1]
44.81 dBuV
2.399200 GHz
Marker 4 [T1]
36.54 dBuV
2.390000 GHz
Marker 5 [T1]
42.75 dBuV
2.389600 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 1 kHz
SWT 160 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 76.26 dBuV
D2 56.26 dBuV
Marker 1 [T1]
76.26 dBuV
2.428800 GHz
Marker 2 [T1]
39.48 dBuV
2.400000 GHz
Marker 3 [T1]
39.48 dBuV
2.400000 GHz
Marker 4 [T1]
31.76 dBuV
2.390000 GHz
Marker 5 [T1]
31.76 dBuV
2.390000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 83.97 dBuV
D2 63.97 dBuV
Marker 1 [T1]
82.91 dBuV
2.377180 GHz
Marker 2 [T1]
35.26 dBuV
679.220000 MHz
Marker 3 [T1]
35.04 dBuV
20.705150 GHz
Marker 4 [T1]
34.16 dBuV
22.203360 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 81.84 dBuV
D2 61.84 dBuV
Marker 1 [T1]
81.84 dBuV
2.446800 GHz
Marker 2 [T1]
39.27 dBuV
2.483500 GHz
Marker 3 [T1]
42.77 dBuV
2.485600 GHz
Marker 4 [T1]
33.80 dBuV
2.500000 GHz
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 1 kHz
SWT 160 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.20 dBuV
2.449600 GHz
Marker 2 [T1]
31.29 dBuV
2.483500 GHz
Marker 3 [T1]
31.29 dBuV
2.483500 GHz
Marker 4 [T1]
26.13 dBuV
2.500000 GHz
D1 74.2 dBuV
D2 54.2 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
81.77 dBuV
2.427120 GHz
Marker 2 [T1]
34.39 dBuV
21.953660 GHz
Marker 3 [T1]
34.14 dBuV
20.705160 GHz
Marker 4 [T1]
33.77 dBuV
24.850180 GHz
D1 81.84 dBuV
D2 61.84 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz

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 PIFA and dipole antenna without connector. The maximum gain of the antenna is 4.5dBi.

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

For frequency above 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May. 26, 2009	May. 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2008	Dec. 24, 2009
Preamplifier Agilent	8447D	2944A10633	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008	Oct. 22, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC 7450F-3.

For frequency below 1GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 21, 2009	Dec. 20, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Dec. 31, 2009	Dec. 30, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2010	Apr. 26, 2011
HORN Antenna SCHWARZBECK	9120D	9120D-405	Feb. 03, 2010	Feb. 02, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2009	Dec. 24, 2010
Preamplifier Agilent	8447D	2944A10633	Nov. 10, 2009	Nov. 09, 2010
Preamplifier Agilent	8449B	3008A01964	Nov. 09, 2009	Nov. 08, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 14, 2010	May 13, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 14, 2010	May 13, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2009	Aug. 26, 2010

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 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC 7450F-3.

5.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

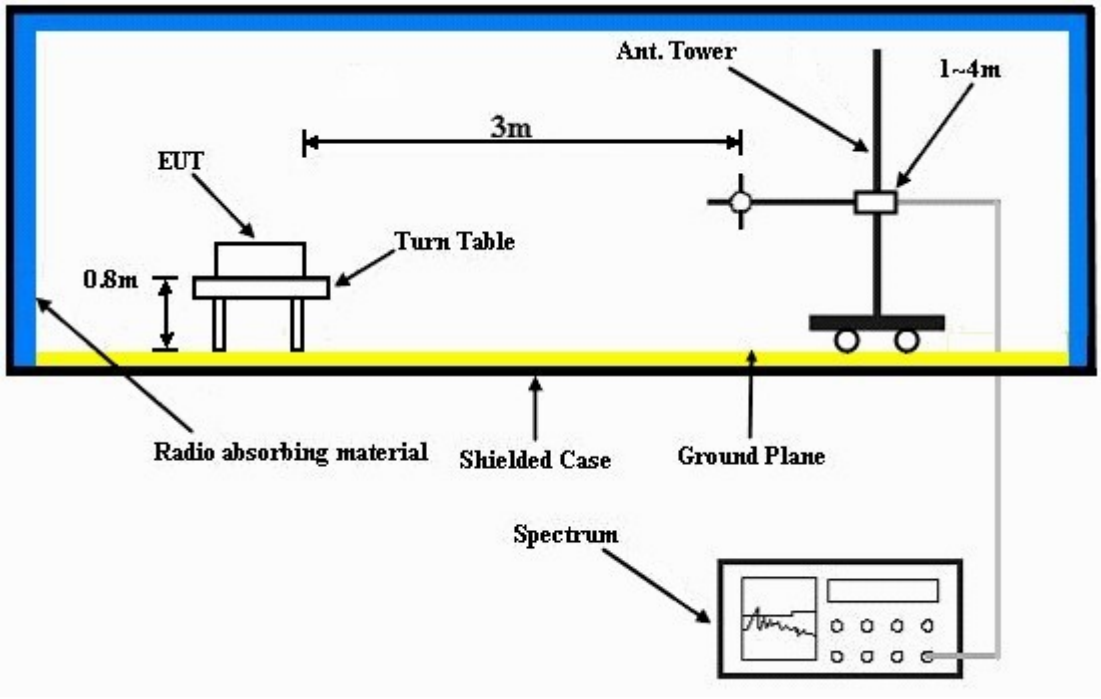
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz 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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4596.00	52.58 PK	74.00	-21.42	1.00 H	295	16.57	36.01
2	4596.00	49.14 AV	54.00	-4.86	1.00 H	295	13.13	36.01
3	#5725.00	74.90 PK	91.69	-16.79	1.18 H	190	36.80	38.10
4	#5725.00	59.50 AV	81.00	-21.50	1.18 H	190	21.40	38.10
5	*5745.00	111.69 PK			1.18 H	196	73.56	38.13
6	*5745.00	101.00 AV			1.18 H	196	62.87	38.13
7	9192.00	58.73 PK	74.00	-15.27	1.21 H	309	13.54	45.19
8	9192.00	46.68 AV	54.00	-7.32	1.21 H	309	1.49	45.19
9	11490.00	68.49 PK	74.00	-5.51	1.42 H	13	20.06	48.43
10	11490.00	52.14 AV	54.00	-1.86	1.42 H	13	3.71	48.43

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 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4596.00	51.34 PK	74.00	-22.66	1.02 V	184	15.33	36.01
2	4596.00	46.79 AV	54.00	-7.21	1.02 V	184	10.78	36.01
3	#5725.00	79.91 PK	95.48	-15.57	1.00 V	154	41.81	38.10
4	#5725.00	62.52 AV	85.51	-22.99	1.00 V	154	24.42	38.10
5	*5745.00	115.48 PK			1.00 V	154	77.35	38.13
6	*5745.00	105.51 AV			1.00 V	154	67.38	38.13
7	9192.00	59.32 PK	74.00	-14.68	1.01 V	345	14.13	45.19
8	9192.00	48.66 AV	54.00	-5.34	1.01 V	345	3.47	45.19
9	11490.00	61.95 PK	74.00	-12.05	1.00 V	9	13.52	48.43
10	11490.00	48.23 AV	54.00	-5.77	1.00 V	9	-0.20	48.43

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 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4628.00	53.54 PK	74.00	-20.46	1.12 H	291	17.46	36.08
2	4628.00	50.57 AV	54.00	-3.43	1.12 H	291	14.49	36.08
3	*5785.00	111.94 PK			1.19 H	201	73.74	38.20
4	*5785.00	101.35 AV			1.19 H	201	63.15	38.20
5	#9256.00	58.79 PK	91.94	-33.15	1.18 H	300	13.37	45.42
6	#9256.00	48.24 AV	81.35	-33.11	1.18 H	300	2.82	45.42
7	11570.00	68.86 PK	74.00	-5.14	1.43 H	332	20.51	48.35
8	11570.00	52.86 AV	54.00	-1.14	1.43 H	332	4.51	48.35
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	4628.00	53.03 PK	74.00	-20.97	1.00 V	183	16.95	36.08
2	4628.00	49.95 AV	54.00	-4.05	1.00 V	183	13.87	36.08
3	*5785.00	115.66 PK			1.11 V	20	77.46	38.20
4	*5785.00	105.65 AV			1.11 V	20	67.45	38.20
5	#9256.00	58.71 PK	95.66	-36.95	1.01 V	343	13.29	45.42
6	#9256.00	47.98 AV	85.65	-37.67	1.01 V	343	2.56	45.42
7	11570.00	62.16 PK	74.00	-11.84	1.02 V	18	13.81	48.35
8	11570.00	48.51 AV	54.00	-5.49	1.02 V	18	0.16	48.35

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.
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 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4660.00	55.26 PK	74.00	-18.74	1.12 H	289	19.12	36.14
2	4660.00	51.48 AV	54.00	-2.52	1.12 H	289	15.34	36.14
3	*5825.00	110.45 PK			1.15 H	192	72.16	38.29
4	*5825.00	99.82 AV			1.15 H	192	61.53	38.29
5	#5850.00	67.54 PK	90.45	-22.91	1.15 H	192	29.19	38.35
6	#5850.00	53.46 AV	79.82	-26.36	1.15 H	192	15.11	38.35
7	9320.00	58.96 PK	74.00	-15.04	1.04 H	212	13.35	45.61
8	9320.00	48.15 AV	54.00	-5.85	1.04 H	212	2.54	45.61
9	11650.00	67.48 PK	74.00	-6.52	1.32 H	0	19.35	48.13
10	11650.00	52.61 AV	54.00	-1.39	1.32 H	0	4.48	48.13

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 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4660.00	57.13 PK	74.00	-16.87	1.00 V	186	20.99	36.14
2	4660.00	52.36 AV	54.00	-1.64	1.00 V	186	16.22	36.14
3	*5825.00	114.55 PK			1.05 V	2	76.26	38.29
4	*5825.00	104.49 AV			1.05 V	2	66.20	38.29
5	#5850.00	72.70 PK	94.55	-21.85	1.05 V	2	34.35	38.35
6	#5850.00	58.80 AV	84.49	-25.69	1.05 V	2	20.45	38.35
7	9320.00	59.62 PK	74.00	-14.38	1.02 V	345	14.01	45.61
8	9320.00	48.86 AV	54.00	-5.14	1.02 V	345	3.25	45.61
9	11650.00	65.64 PK	74.00	-8.36	1.49 V	352	17.51	48.13
10	11650.00	51.41 AV	54.00	-2.59	1.49 V	352	3.28	48.13

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.

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4596.00	51.97 PK	74.00	-22.03	1.14 H	88	15.96	36.01
2	4596.00	47.96 AV	54.00	-6.04	1.14 H	88	11.95	36.01
3	#5725.00	75.13 PK	91.82	-16.69	1.16 H	192	37.03	38.10
4	#5725.00	59.74 AV	81.15	-21.41	1.16 H	192	21.64	38.10
5	*5745.00	111.82 PK			1.19 H	195	73.69	38.13
6	*5745.00	101.15 AV			1.19 H	195	63.02	38.13
7	9192.00	59.11 PK	74.00	-14.89	1.18 H	296	13.92	45.19
8	9192.00	47.04 AV	54.00	-6.96	1.18 H	296	1.85	45.19
9	11490.00	65.85 PK	74.00	-8.15	1.28 H	135	17.42	48.43
10	11490.00	50.37 AV	54.00	-3.63	1.28 H	135	1.94	48.43

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 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4596.00	52.60 PK	74.00	-21.40	1.07 V	214	16.59	36.01
2	4596.00	48.73 AV	54.00	-5.27	1.07 V	214	12.72	36.01
3	#5725.00	78.61 PK	95.70	-17.09	1.02 V	355	40.51	38.10
4	#5725.00	61.25 AV	85.54	-24.29	1.02 V	355	23.15	38.10
5	*5745.00	115.70 PK			1.02 V	355	77.57	38.13
6	*5745.00	105.54 AV			1.02 V	355	67.41	38.13
7	9192.00	59.63 PK	74.00	-14.37	1.40 V	3	14.44	45.19
8	9192.00	50.14 AV	54.00	-3.86	1.40 V	3	4.95	45.19
9	11490.00	61.28 PK	74.00	-12.72	1.00 V	2	12.85	48.43
10	11490.00	47.97 AV	54.00	-6.03	1.00 V	2	-0.46	48.43

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 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4628.00	52.65 PK	74.00	-21.35	1.11 H	92	16.57	36.08
2	4628.00	48.83 AV	54.00	-5.17	1.11 H	92	12.75	36.08
3	*5785.00	111.61 PK			1.14 H	189	73.41	38.20
4	*5785.00	100.93 AV			1.14 H	189	62.73	38.20
5	#9256.00	60.24 PK	91.61	-31.37	1.21 H	304	14.82	45.42
6	#9256.00	48.16 AV	80.93	-32.77	1.21 H	304	2.74	45.42
7	11570.00	69.18 PK	74.00	-4.82	1.34 H	151	20.83	48.35
8	11570.00	52.95 AV	54.00	-1.05	1.34 H	151	4.60	48.35
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	4628.00	53.45 PK	74.00	-20.55	1.01 V	194	17.37	36.08
2	4628.00	50.32 AV	54.00	-3.68	1.01 V	194	14.24	36.08
3	*5785.00	115.94 PK			1.03 V	358	77.74	38.20
4	*5785.00	105.41 AV			1.03 V	358	67.21	38.20
5	#9256.00	58.91 PK	95.94	-37.03	1.54 V	350	13.49	45.42
6	#9256.00	49.07 AV	85.41	-36.34	1.54 V	350	3.65	45.42
7	11570.00	62.68 PK	74.00	-11.32	1.05 V	24	14.33	48.35
8	11570.00	49.12 AV	54.00	-4.88	1.05 V	24	0.77	48.35

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.
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 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4660.00	53.84 PK	74.00	-20.16	1.09 H	88	17.70	36.14
2	4660.00	50.11 AV	54.00	-3.89	1.09 H	88	13.97	36.14
3	*5825.00	110.45 PK			1.15 H	191	72.16	38.29
4	*5825.00	99.82 AV			1.15 H	191	61.53	38.29
5	#5850.00	69.05 PK	90.45	-21.40	1.15 H	191	30.70	38.35
6	#5850.00	55.13 AV	79.82	-24.69	1.15 H	191	16.78	38.35
7	9320.00	60.59 PK	74.00	-13.41	1.16 H	303	14.98	45.61
8	9320.00	48.51 AV	54.00	-5.49	1.16 H	303	2.90	45.61
9	11650.00	67.20 PK	74.00	-6.80	1.34 H	180	19.07	48.13
10	11650.00	52.18 AV	54.00	-1.82	1.34 H	180	4.05	48.13

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 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4660.00	56.35 PK	74.00	-17.65	1.20 V	5	20.21	36.14
2	4660.00	51.57 AV	54.00	-2.43	1.20 V	5	15.43	36.14
3	*5825.00	114.82 PK			1.05 V	356	76.53	38.29
4	*5825.00	104.29 AV			1.05 V	356	66.00	38.29
5	#5850.00	72.31 PK	94.82	-22.51	1.05 V	356	33.96	38.35
6	#5850.00	58.44 AV	84.29	-25.85	1.05 V	356	20.09	38.35
7	9320.00	58.12 PK	74.00	-15.88	1.05 V	352	12.51	45.61
8	9320.00	49.16 AV	54.00	-4.84	1.05 V	352	3.55	45.61
9	11650.00	64.33 PK	74.00	-9.67	1.59 V	81	16.20	48.13
10	11650.00	49.63 AV	54.00	-4.37	1.59 V	81	1.50	48.13

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.

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4604.00	51.62 PK	74.00	-22.38	1.11 H	92	15.59	36.03
2	4604.00	47.59 AV	54.00	-6.41	1.11 H	92	11.56	36.03
3	#5725.00	83.11 PK	89.36	-6.25	1.21 H	201	45.01	38.10
4	#5725.00	63.45 AV	78.66	-15.21	1.21 H	201	25.35	38.10
5	*5755.00	109.36 PK			1.21 H	201	71.21	38.15
6	*5755.00	98.66 AV			1.21 H	201	60.51	38.15
7	#9208.00	59.04 PK	89.36	-30.32	1.15 H	301	13.80	45.24
8	#9208.00	46.94 AV	78.66	-31.72	1.15 H	301	1.70	45.24
9	11510.00	65.96 PK	74.00	-8.04	1.09 H	134	17.53	48.43
10	11510.00	50.48 AV	54.00	-3.52	1.09 H	134	2.05	48.43

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 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4604.00	52.26 PK	74.00	-21.74	1.07 V	215	16.23	36.03
2	4604.00	47.54 AV	54.00	-6.46	1.07 V	215	11.51	36.03
3	#5725.00	87.30 PK	93.41	-6.11	1.03 V	333	49.20	38.10
4	#5725.00	67.61 AV	82.60	-14.99	1.03 V	333	29.51	38.10
5	*5755.00	113.41 PK			1.02 V	325	75.26	38.15
6	*5755.00	102.60 AV			1.02 V	325	64.45	38.15
7	#9208.00	59.82 PK	93.41	-33.59	1.16 V	0	14.58	45.24
8	#9208.00	48.99 AV	82.60	-33.61	1.16 V	0	3.75	45.24
9	11510.00	60.74 PK	74.00	-13.26	1.02 V	4	12.32	48.43
10	11510.00	47.72 AV	54.00	-6.28	1.02 V	4	-0.70	48.43

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	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4636.00	55.02 PK	74.00	-18.98	1.10 H	96	18.93	36.09
2	4636.00	51.94 AV	54.00	-2.06	1.10 H	96	15.85	36.09
3	*5795.00	108.85 PK			1.18 H	206	70.64	38.21
4	*5795.00	98.14 AV			1.18 H	206	59.93	38.21
5	#5850.00	66.82 PK	88.85	-22.03	1.18 H	206	28.47	38.35
6	#5850.00	53.65 AV	78.14	-24.49	1.18 H	206	15.30	38.35
7	#9272.00	59.03 PK	88.85	-29.82	1.10 H	5	13.55	45.48
8	#9272.00	48.21 AV	78.14	-29.93	1.10 H	5	2.73	45.48
9	11590.00	66.14 PK	74.00	-7.86	1.02 H	147	17.82	48.32
10	11590.00	50.65 AV	54.00	-3.35	1.02 H	147	2.33	48.32

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	25deg. C, 65%RH 1002 hPa	TESTED BY	Brad Wu

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	4636.00	55.42 PK	74.00	-18.58	1.08 V	5	19.33	36.09
2	4636.00	52.35 AV	54.00	-1.65	1.08 V	5	16.26	36.09
3	*5795.00	112.91 PK			1.03 V	326	74.70	38.21
4	*5795.00	102.06 AV			1.03 V	326	63.85	38.21
5	#5850.00	70.91 PK	92.91	-22.00	1.03 V	326	32.56	38.35
6	#5850.00	57.81 AV	82.06	-24.25	1.03 V	326	19.46	38.35
7	#9272.00	60.14 PK	92.91	-32.77	1.13 V	14	14.66	45.48
8	#9272.00	49.32 AV	82.06	-32.74	1.13 V	14	3.84	45.48
9	11590.00	60.95 PK	74.00	-13.05	1.03 V	5	12.63	48.32
10	11590.00	47.93 AV	54.00	-6.07	1.03 V	5	-0.39	48.32

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：802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 65%RH 1000 hPa	TESTED BY	Frank Wang

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	127.11	33.1 QP	43.5	-10.4	1.50 H	265	20.20	12.90
2	249.60	38.7 QP	46.0	-7.3	1.00 H	100	25.90	12.80
3	500.42	42.0 QP	46.0	-4.0	1.50 H	235	22.20	19.80
4	640.41	44.1 QP	46.0	-1.9	1.00 H	244	21.40	22.70
5	667.63	41.5 QP	46.0	-4.5	1.00 H	148	18.40	23.10
6	933.99	41.9 QP	46.0	-4.1	1.00 H	61	15.50	26.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	68.79	34.0 QP	40.0	-6.0	1.00 V	94	21.90	12.10
2	375.98	42.0 QP	46.0	-4.0	1.00 V	193	25.50	16.50
3	500.42	44.2 QP	46.0	-1.8	2.00 V	343	24.40	19.80
4	640.41	42.7 QP	46.0	-3.3	1.50 V	103	20.00	22.70
5	751.23	37.8 QP	46.0	-8.2	1.50 V	157	13.70	24.10
6	933.99	39.2 QP	46.0	-6.8	1.00 V	91	12.80	26.40

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.2.2 T EST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 24, 2009	Sep. 23, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Aug. 24, 2009	Aug. 23, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 08, 2010	Jul. 07, 2011
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

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.

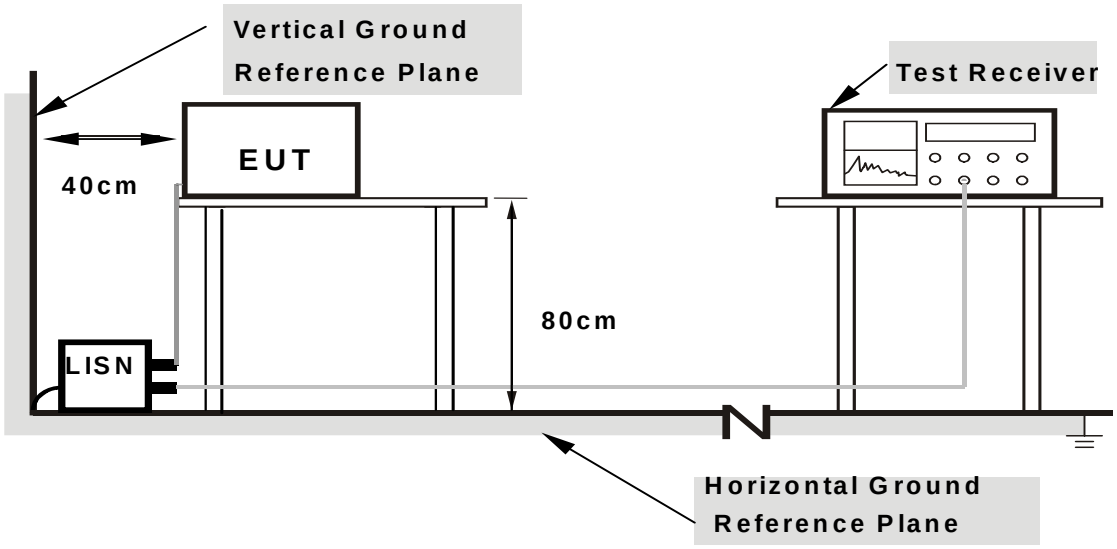
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

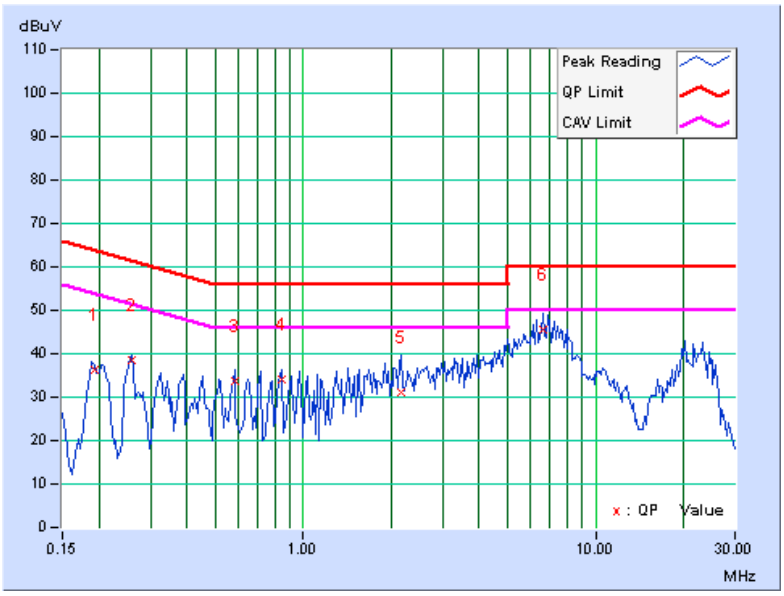
5.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 1021hPa	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.194	0.16	36.03	-	36.19	-	63.86	53.86	-27.67	-
2	0.259	0.17	38.27	-	38.44	-	61.45	51.45	-23.02	-
3	0.584	0.20	33.61	-	33.81	-	56.00	46.00	-22.19	-
4	0.841	0.22	34.02	-	34.24	-	56.00	46.00	-21.76	-
5	2.176	0.31	30.79	-	31.10	-	56.00	46.00	-24.90	-
6	6.606	0.35	45.38	-	45.73	-	60.00	50.00	-14.27	-

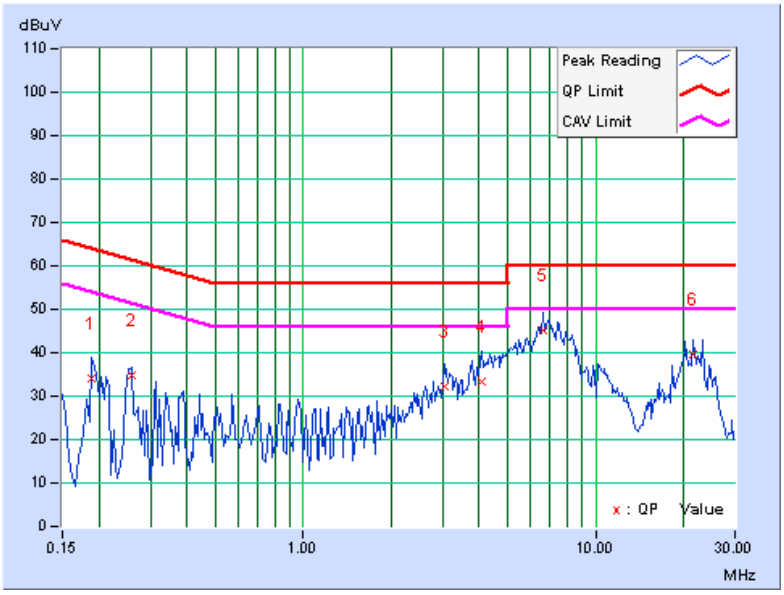
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 1021hPa	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.13	33.87	-	34.00	-	64.08	54.08	-30.08	-
2	0.259	0.14	34.50	-	34.64	-	61.45	51.45	-26.81	-
3	3.051	0.33	31.88	-	32.21	-	56.00	46.00	-23.79	-
4	4.094	0.36	33.05	-	33.41	-	56.00	46.00	-22.59	-
5	6.620	0.39	44.63	-	45.02	-	60.00	50.00	-14.98	-
6	21.664	0.90	38.86	-	39.76	-	60.00	50.00	-20.24	-

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	May 13, 2009	May 12, 2010

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

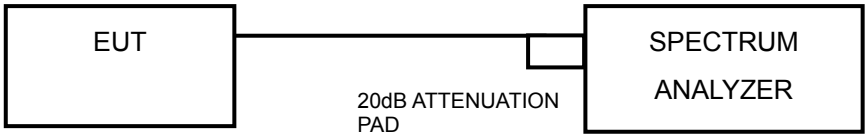
5.3.3 TEST PROCEDURE

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.

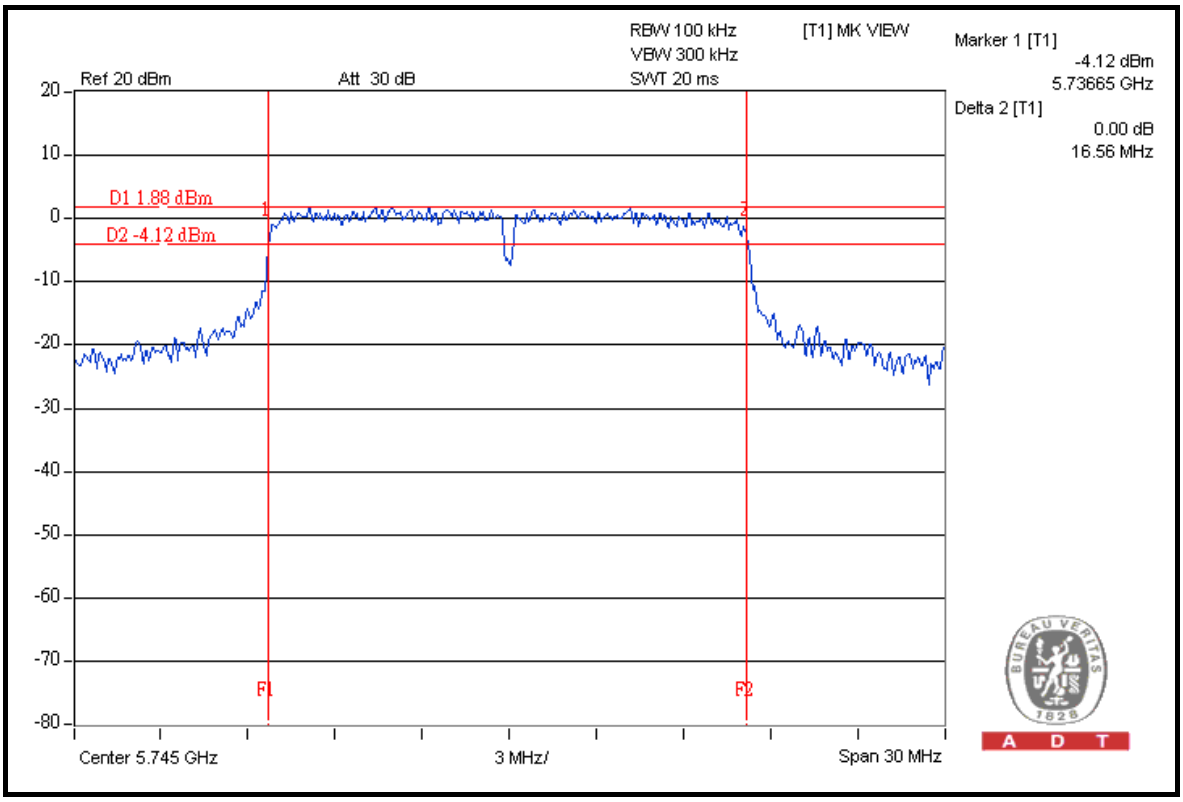
5.3.7 TEST RESULTS

802.11a

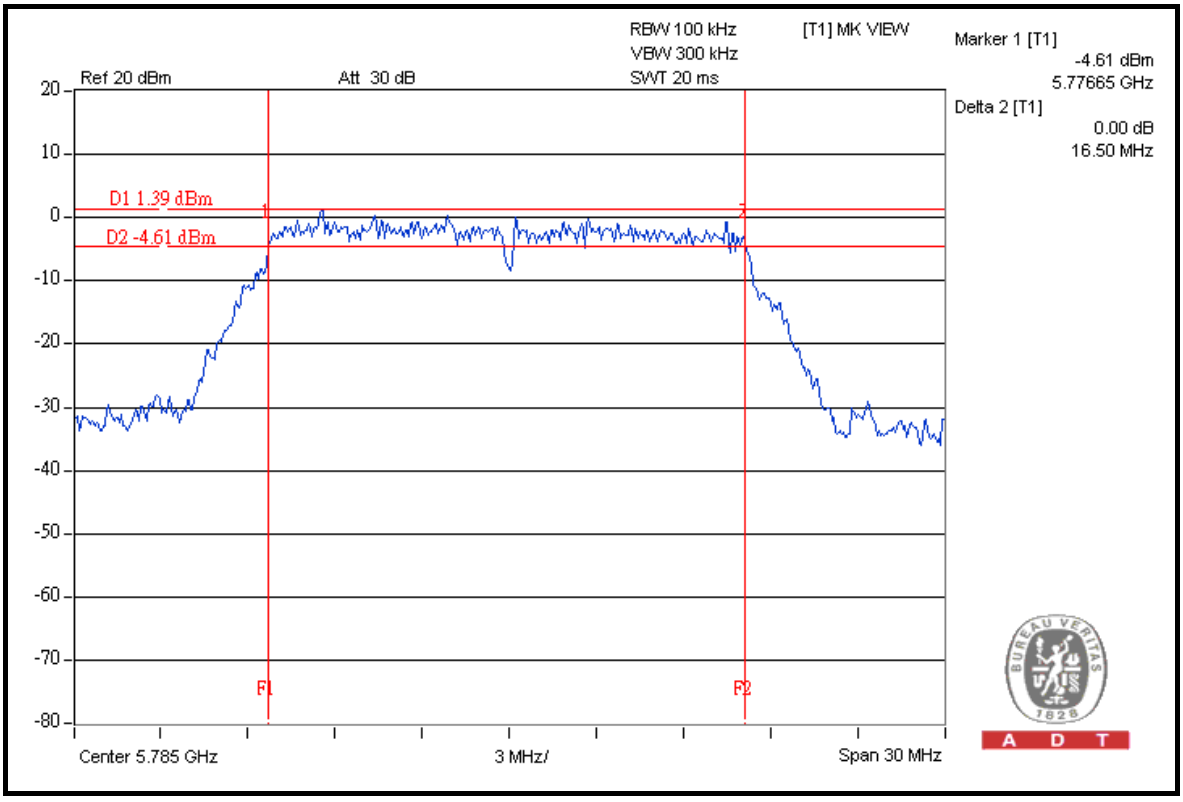
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.56	16.52	0.5	PASS
157	5785	16.50	16.57	0.5	PASS
165	5825	16.57	16.57	0.5	PASS

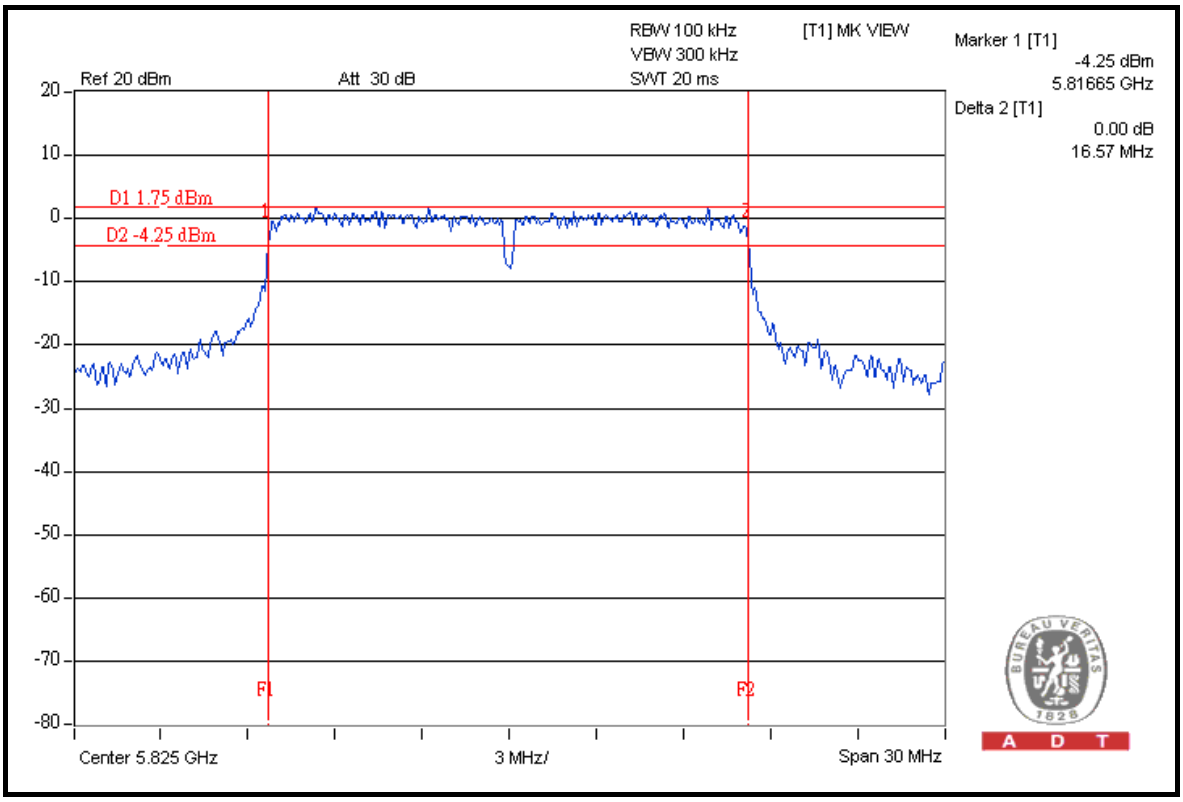
FOR CHAIN 0: CH 149



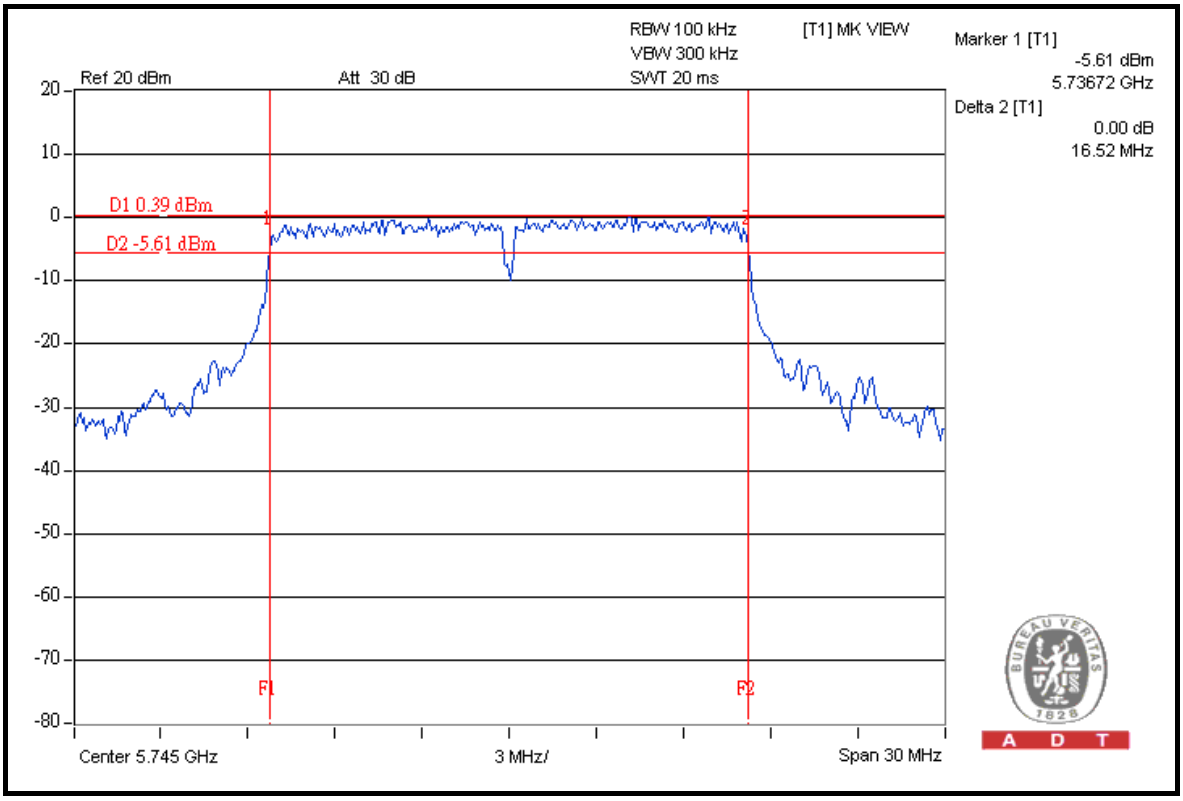
CH 157



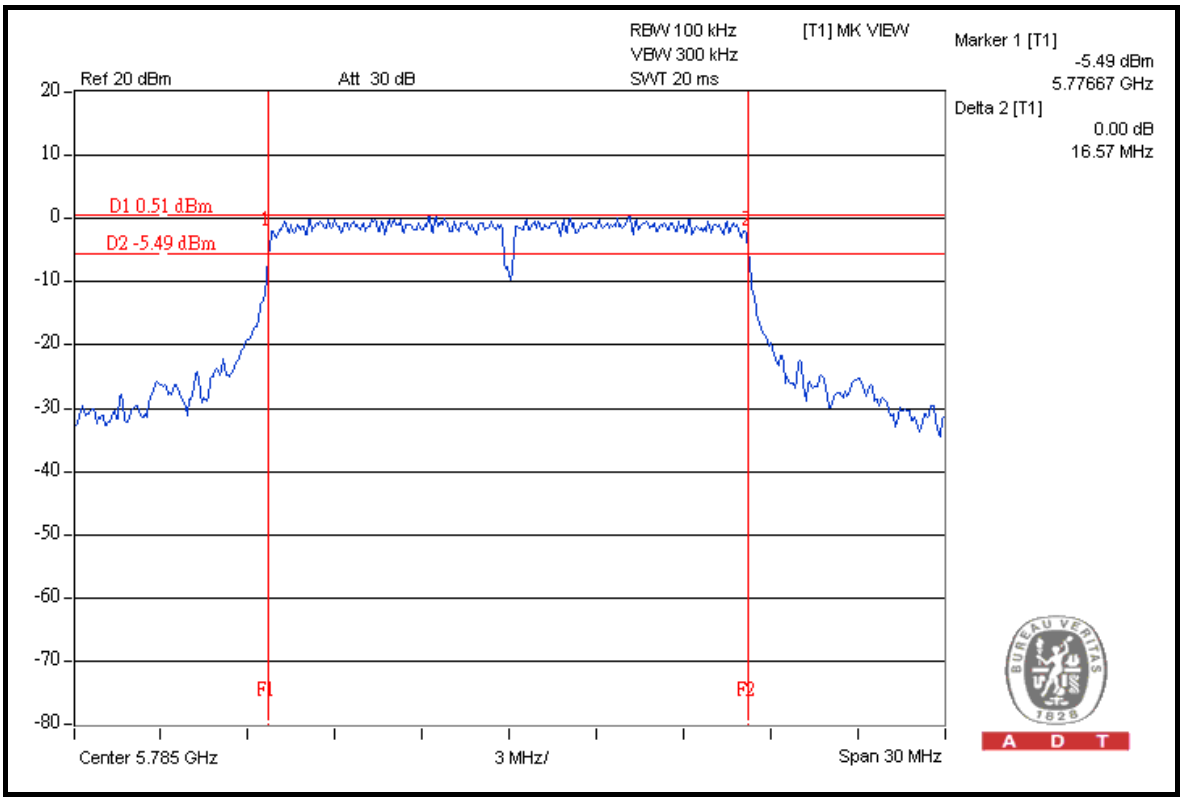
CH 165



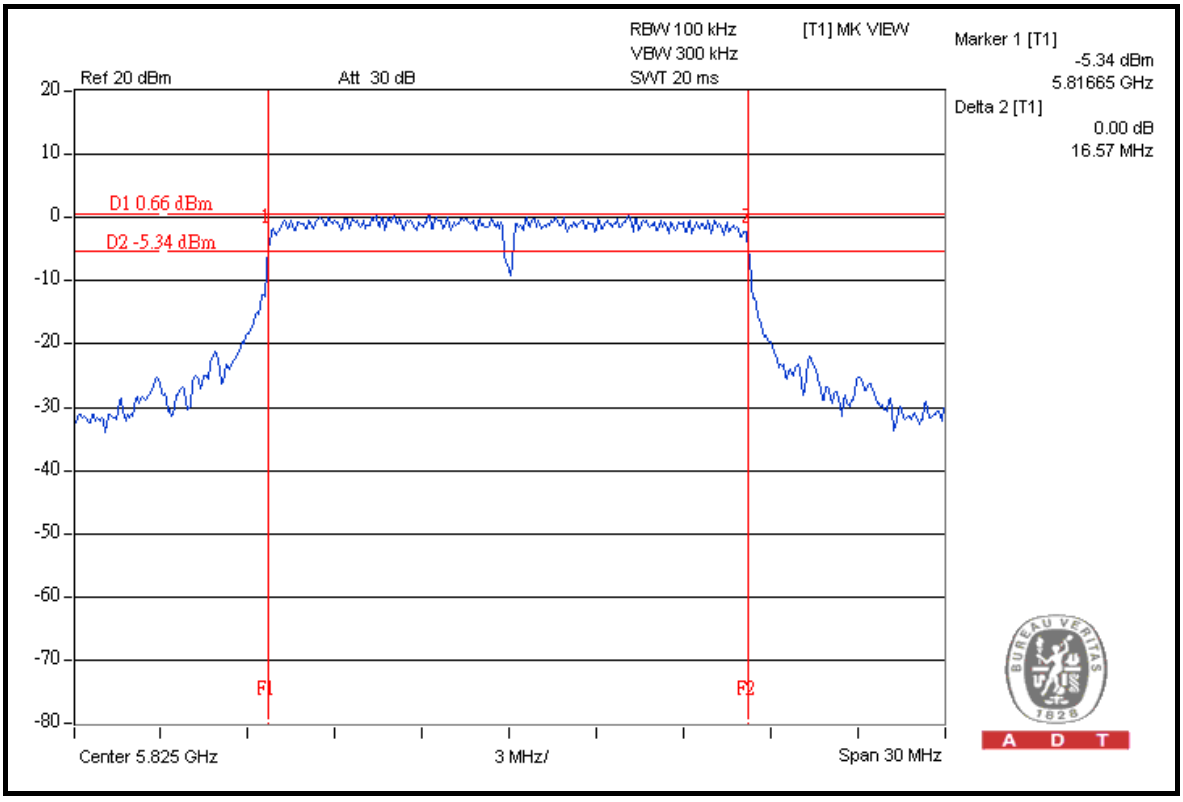
FOR CHAIN 1: CH 149



CH 157


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-5.49 dBm
5.77667 GHz
Delta 2 [T1]
0.00 dB
16.57 MHz
Ref 20 dBm
Att 30 dB
D1 0.51 dBm
D2 -5.49 dBm
F1
F2
Center 5.785 GHz
3 MHz/
Span 30 MHz

CH 165

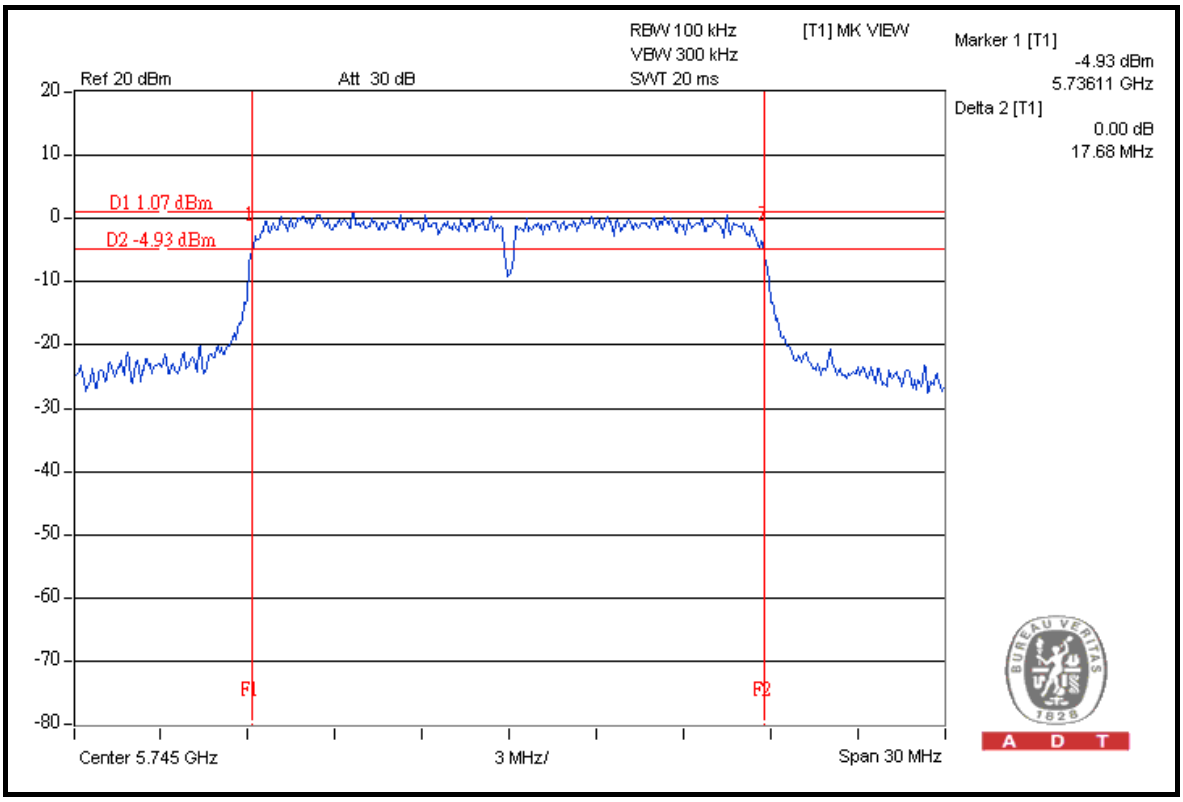

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-5.34 dBm
5.81665 GHz
Delta 2 [T1]
0.00 dB
16.57 MHz
Ref 20 dBm
Att 30 dB
D1 0.66 dBm
D2 -5.34 dBm
F1
F2
Center 5.825 GHz
3 MHz/
Span 30 MHz

802.11n (20MHz)

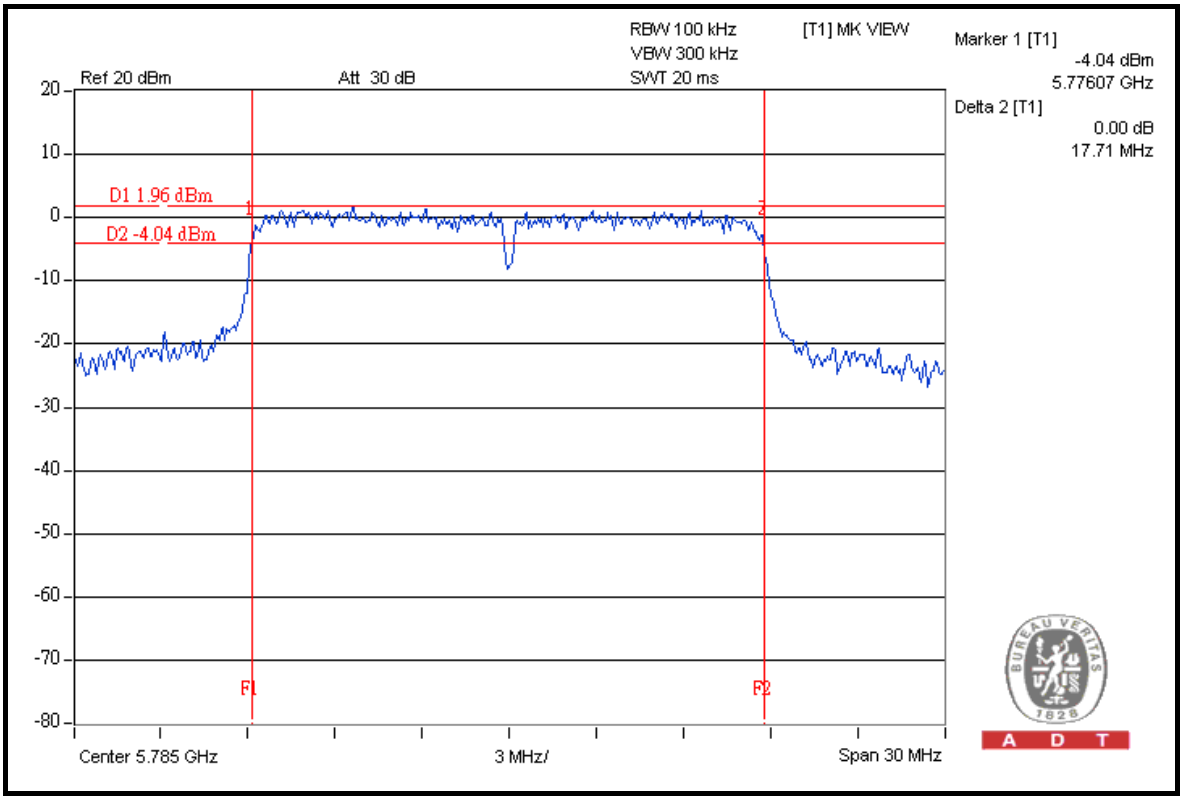
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65%RH, 1021hPa
TESTED BY	Mark Liao		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.68	17.67	0.5	PASS
157	5785	17.71	17.69	0.5	PASS
165	5825	17.62	17.66	0.5	PASS

FOR CHAIN 0: CH 149



CH 157



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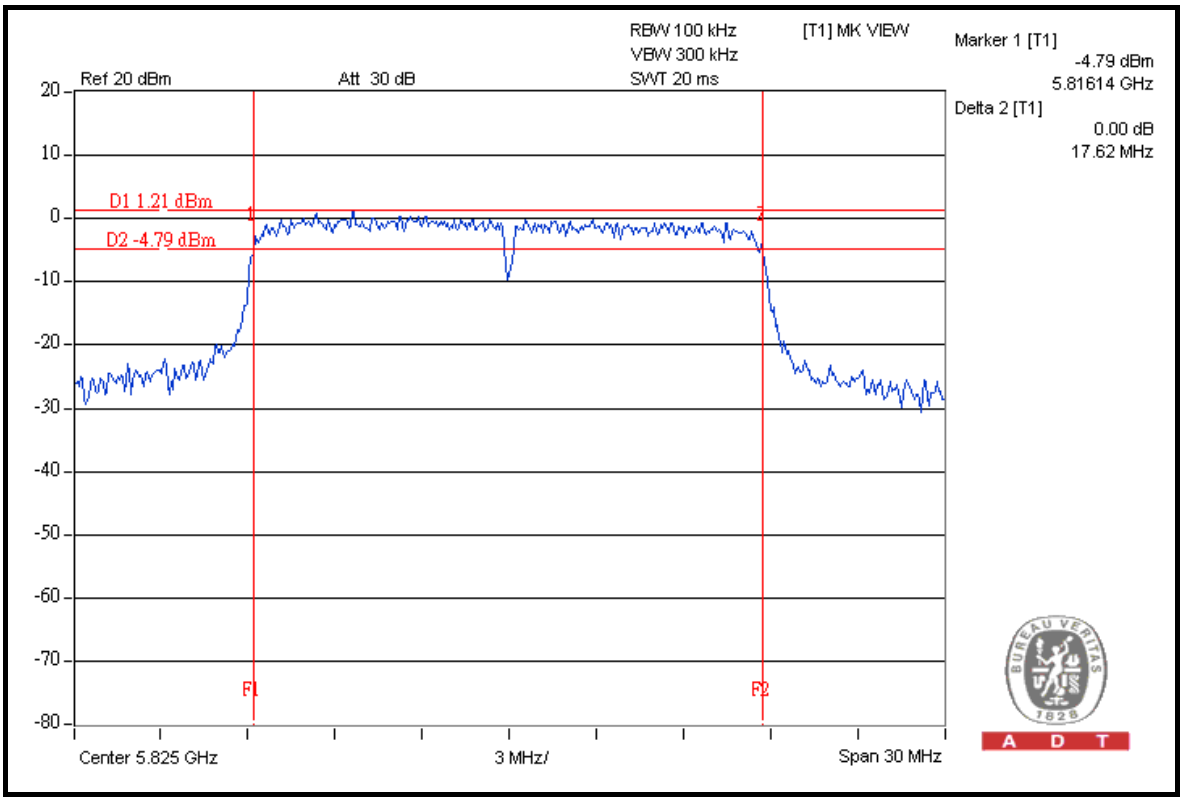
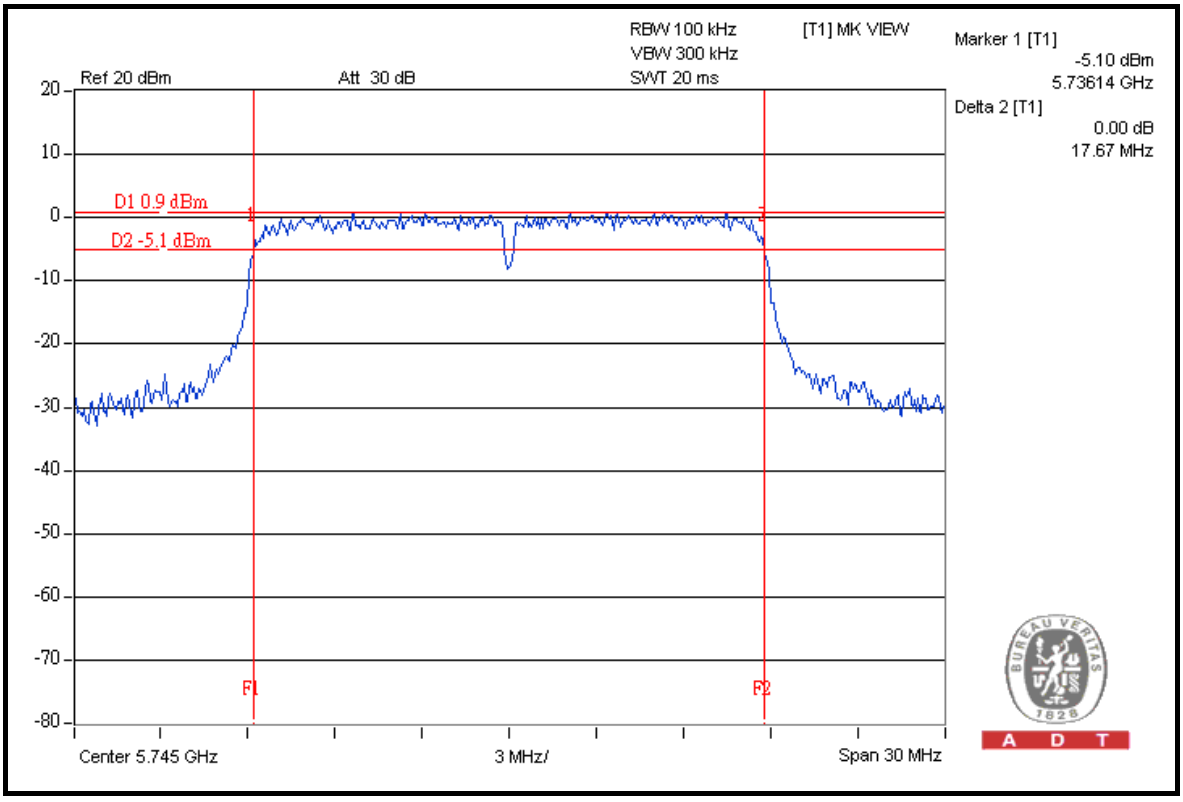
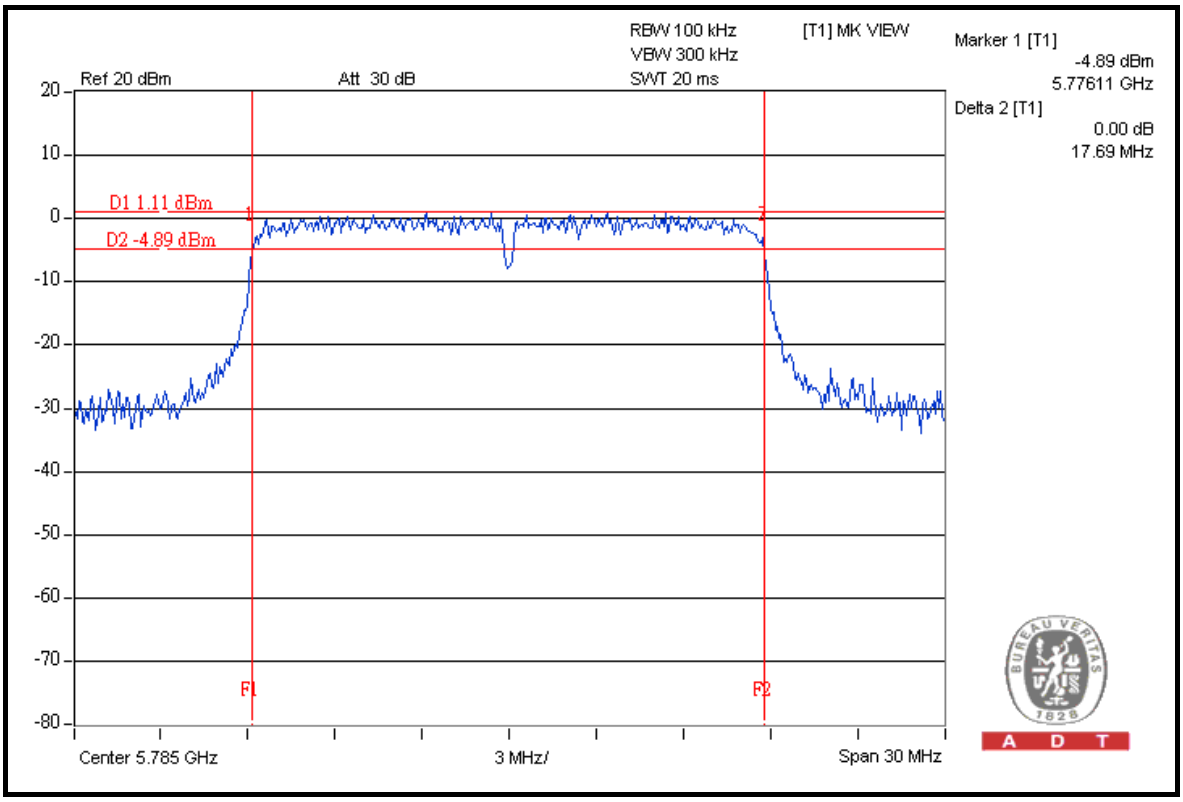


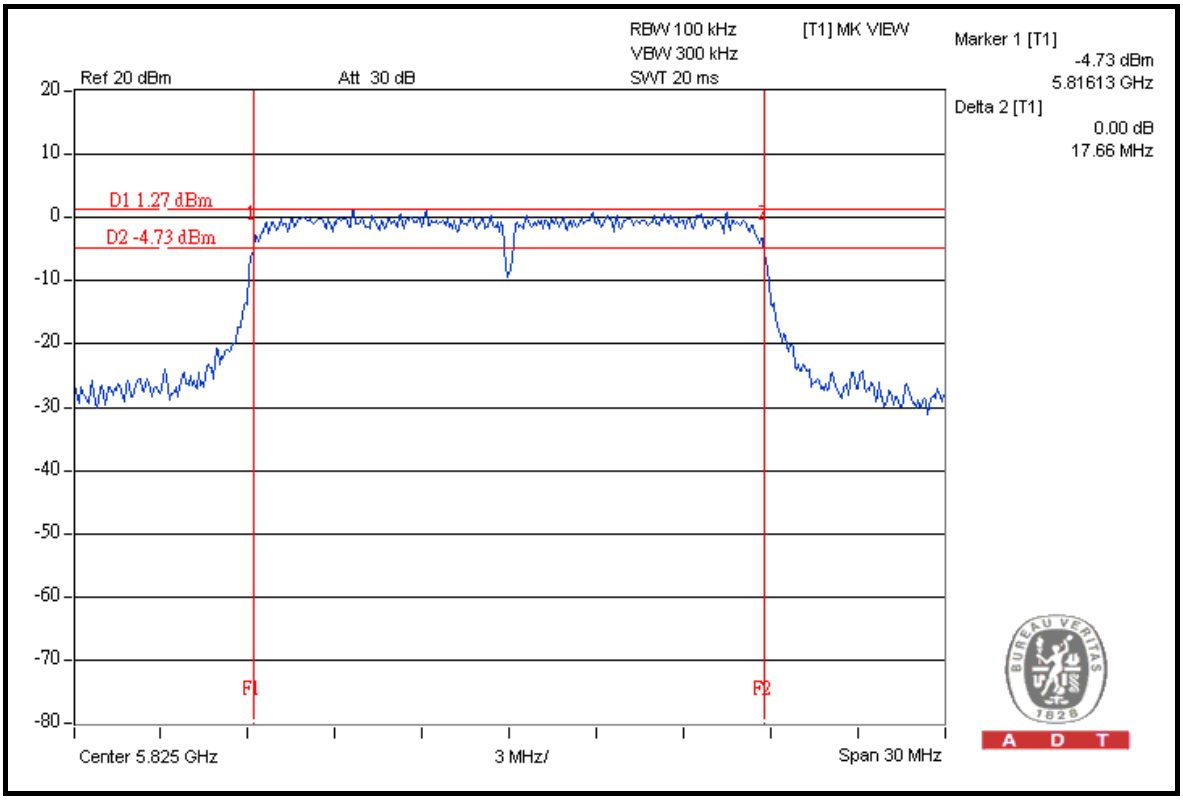
FOR CHAIN 1: CH 149



CH 157


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-4.89 dBm
5.77611 GHz
Delta 2 [T1]
0.00 dB
17.69 MHz
Ref 20 dBm
Att 30 dB
D1 1.11 dBm
D2 -4.89 dBm
F1
F2
Center 5.785 GHz
3 MHz/
Span 30 MHz

CH 165

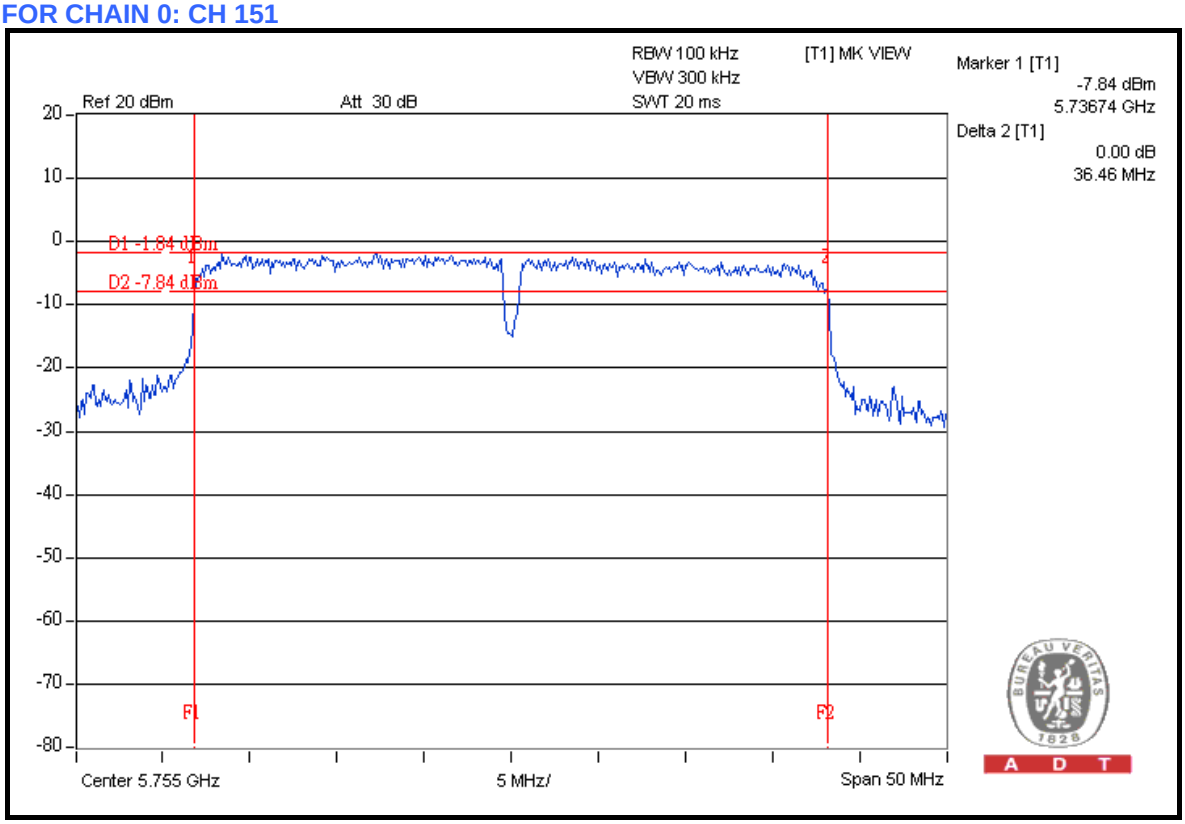

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-4.73 dBm
5.81613 GHz
Delta 2 [T1]
0.00 dB
17.66 MHz
Ref 20 dBm
Att 30 dB
D1 1.27 dBm
D2 -4.73 dBm
F1
F2
Center 5.825 GHz
3 MHz/
Span 30 MHz

802.11n (40MHz)

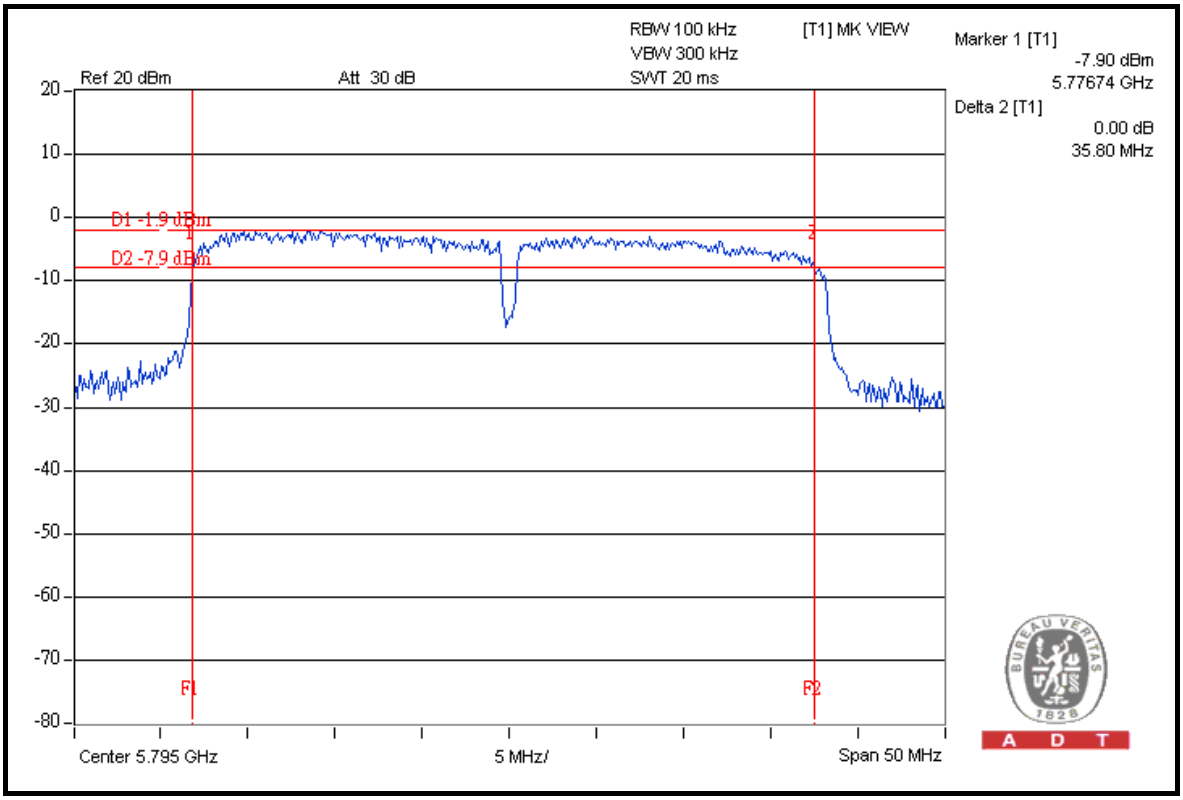
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.46	36.45	0.5	PASS
159	5795	35.80	36.44	0.5	PASS

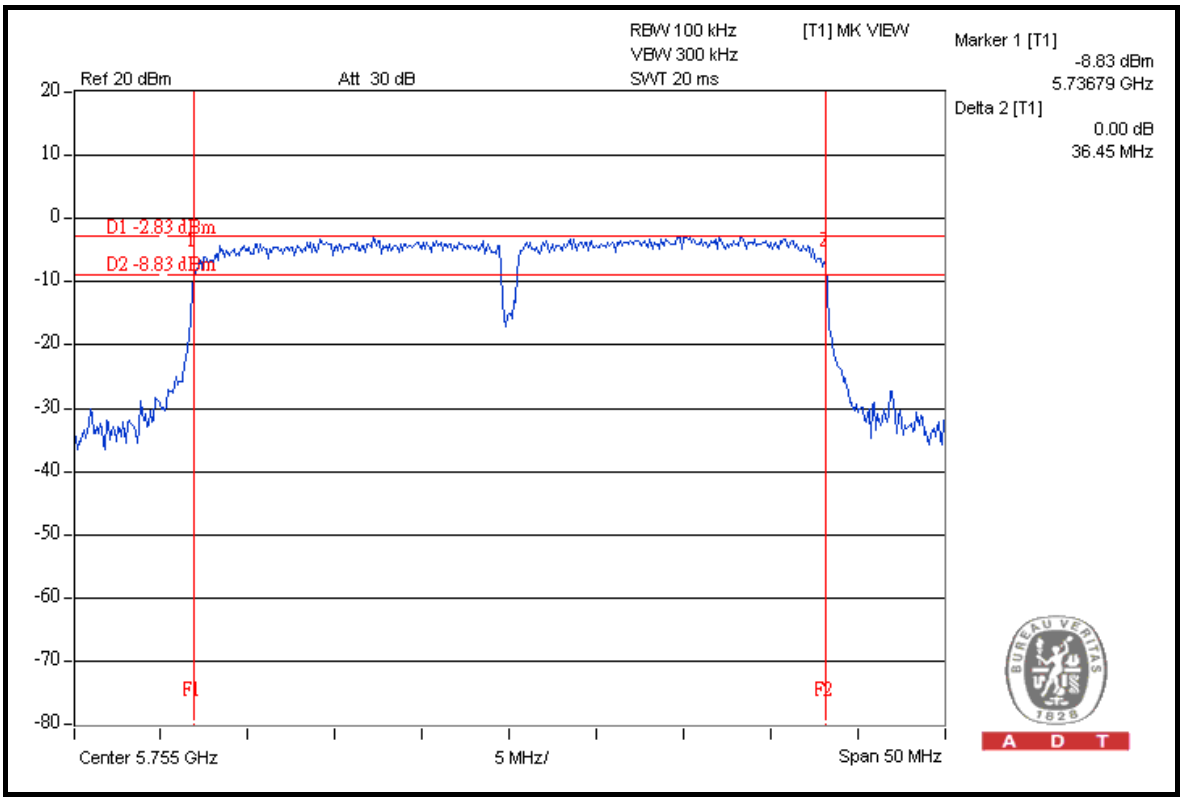
FOR CHAIN 0: CH 151



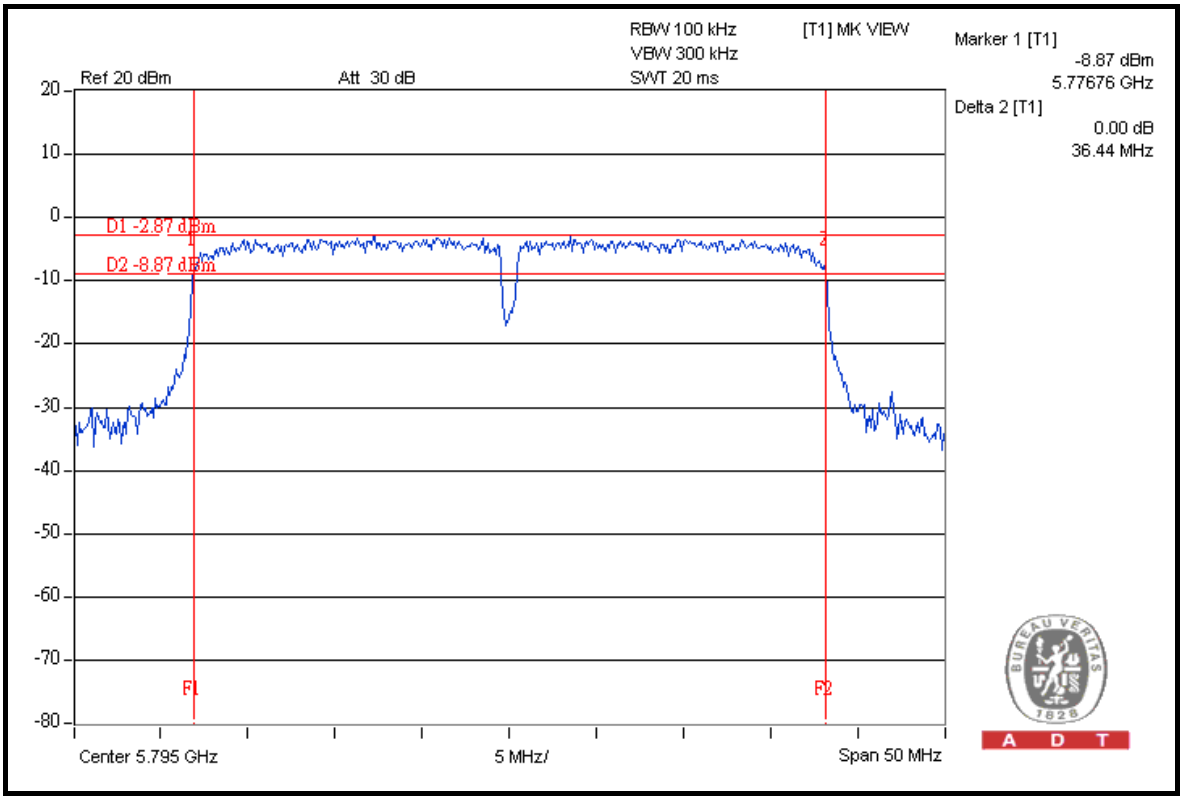
CH 159



FOR CHAIN 1: CH 151



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	0824011	Jul. 30, 2009	Jul. 29, 2010
Power Sensor	MA2411B	0738171	Jul. 30, 2009	Jul. 29, 2010

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

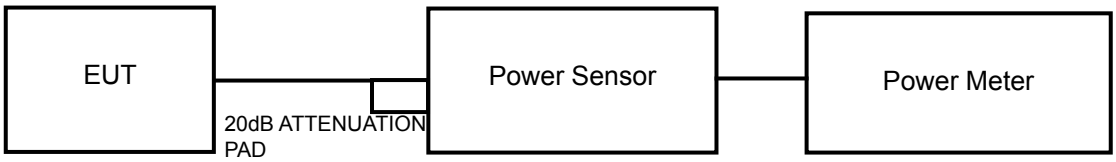
5.4.3 TEST PROCEDURES

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

5.4.4 DEVIATION FROM TEST STANDARD

No deviation.

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a

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

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	21.52	21.38	279.31	24.46	30	PASS
157	5785	20.81	21.47	260.79	24.16	30	PASS
165	5825	21.24	21.43	272.04	24.35	30	PASS

802.11n (20MHz)

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65%RH, 1021hPa
TESTED BY	Mark Liao		

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	21.18	22.09	293.03	24.67	30	PASS
157	5785	21.99	22.15	**322.18**	25.08	30	PASS
165	5825	21.42	22.24	306.17	24.86	30	PASS

802.11n (40MHz)

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	21.51	21.56	284.80	24.55	30	PASS
159	5795	21.35	21.61	281.34	24.49	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	May 13, 2009	May 12, 2010

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

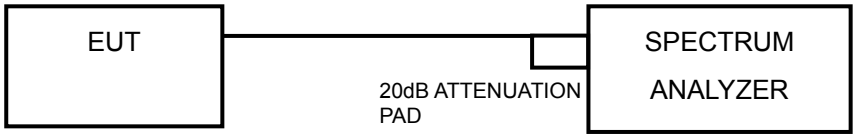
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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.

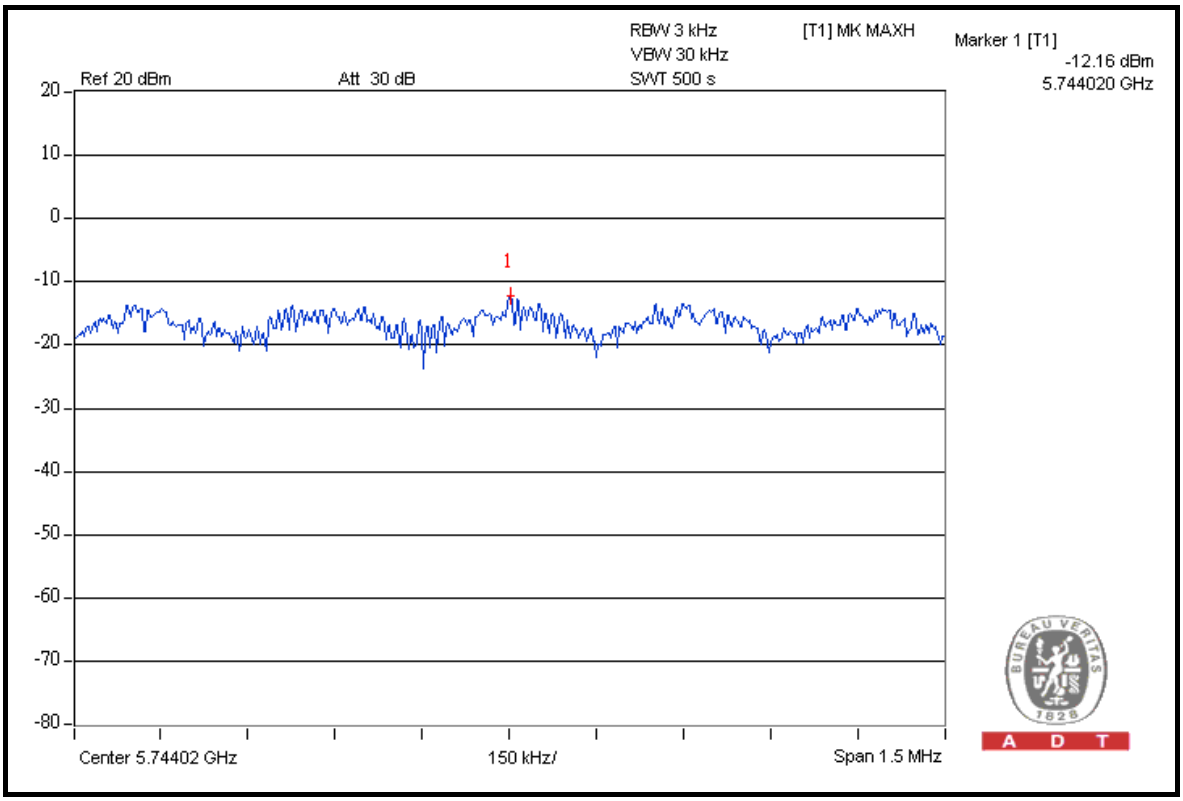
5.5.7 TEST RESULTS

802.11a

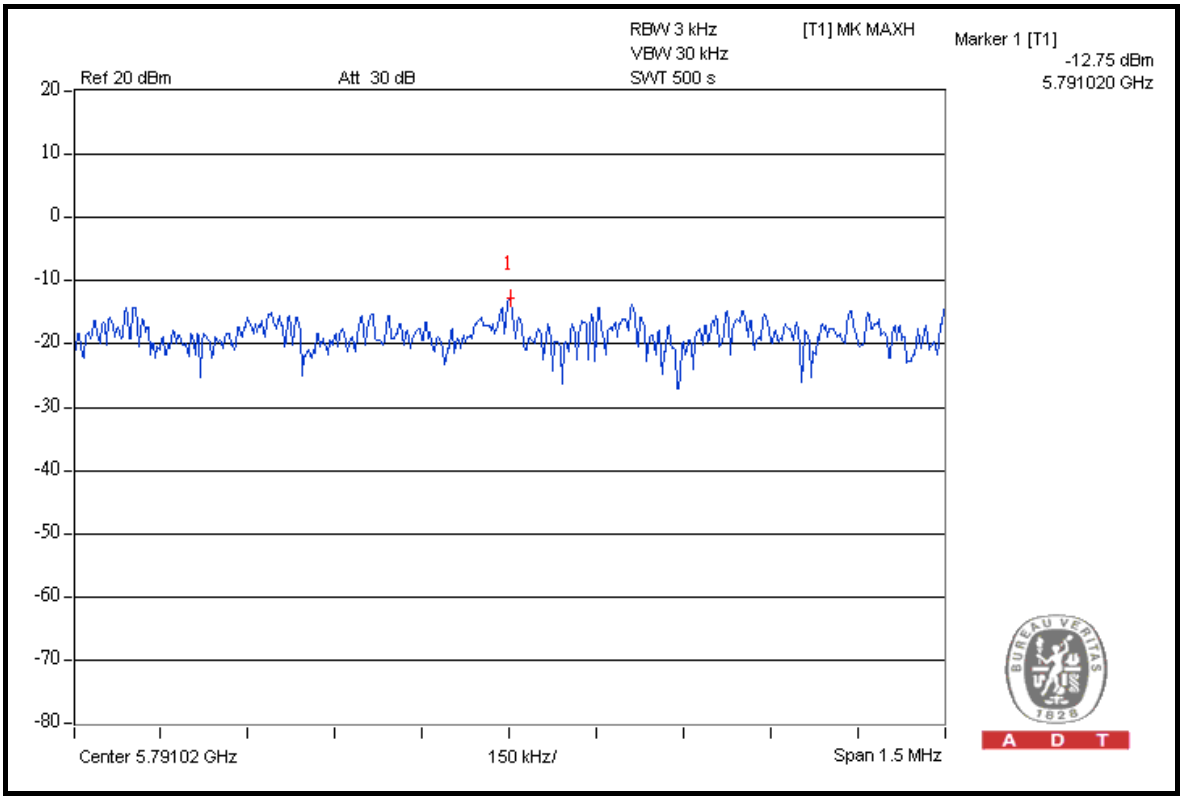
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-12.16	-14.13	0.10	-10.04	8	PASS
157	5785	-12.75	-13.87	0.09	-10.27	8	PASS
165	5825	-12.39	-13.98	0.10	-10.09	8	PASS

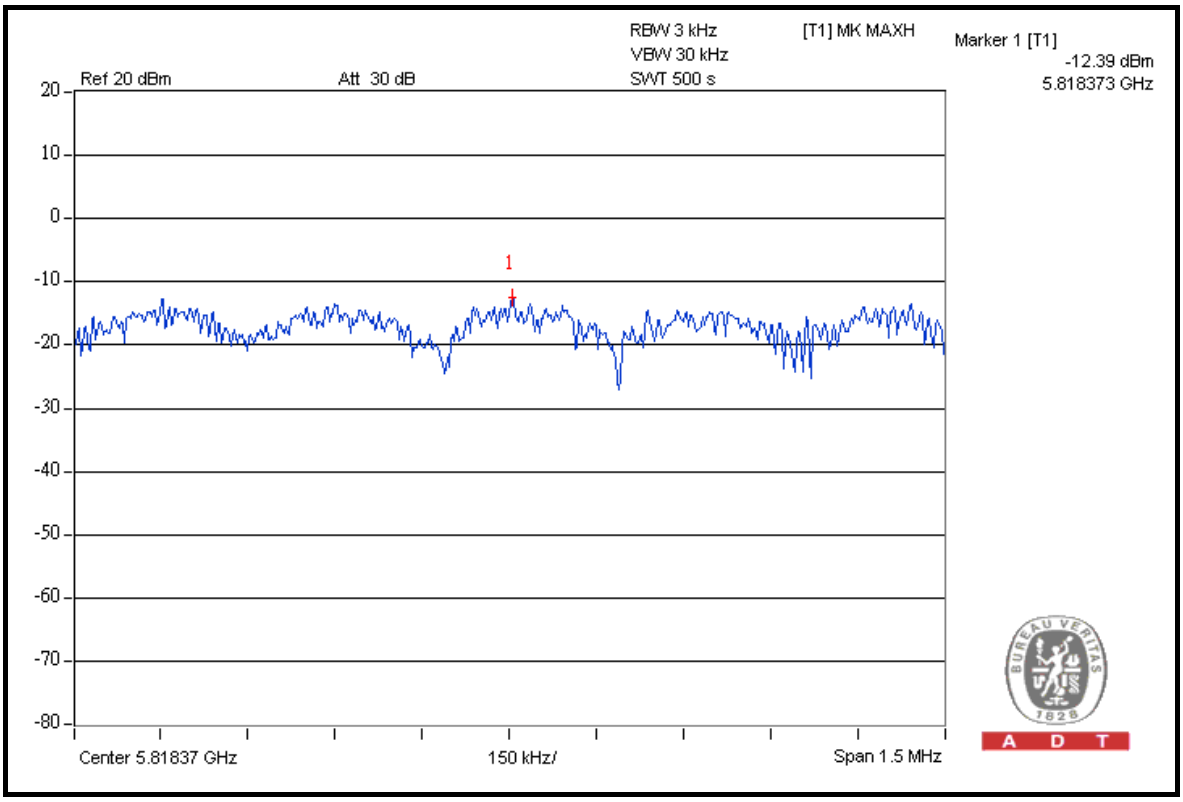
FOR CHAIN 0: CH 149



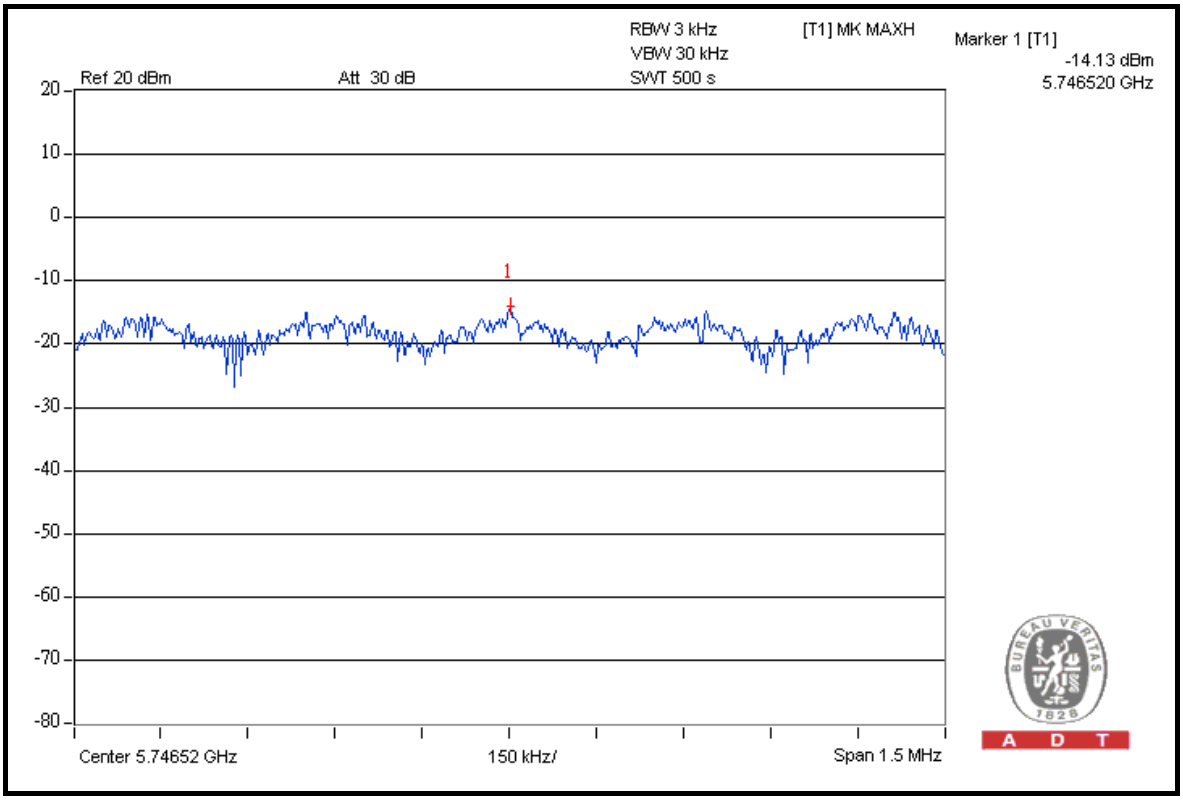
CH 157



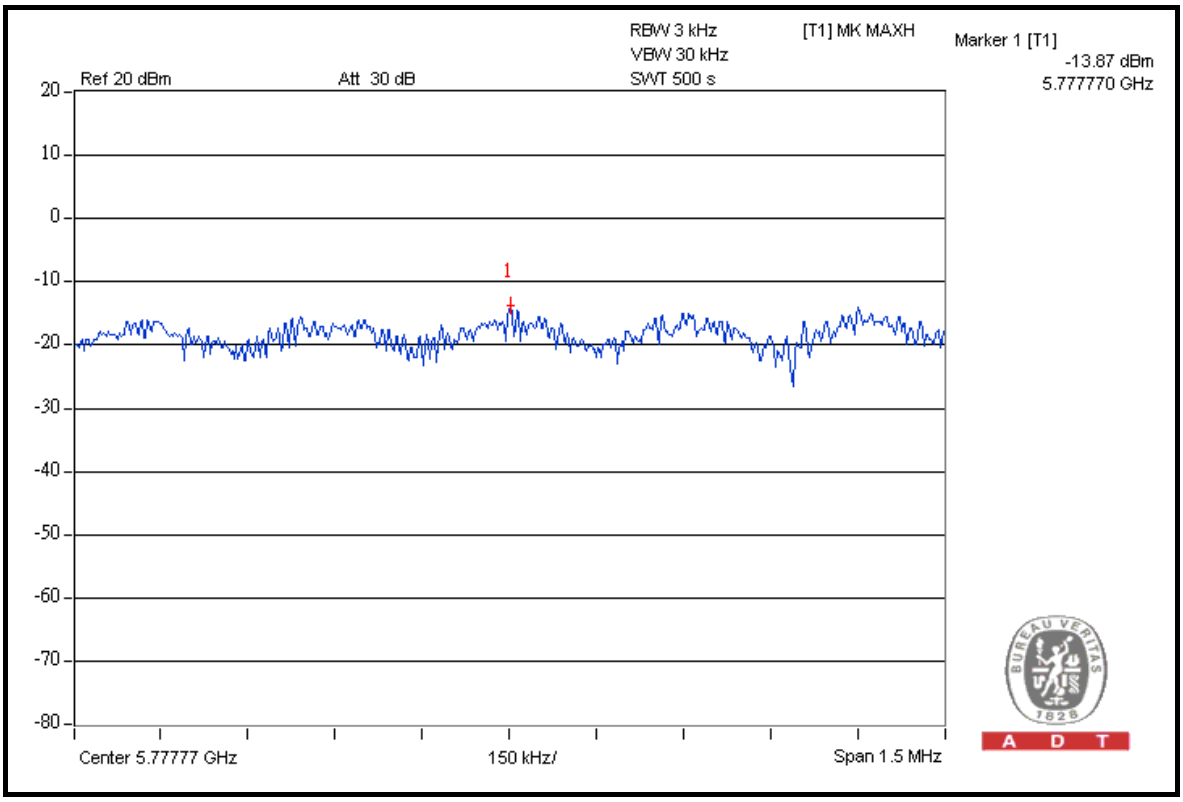
CH 165



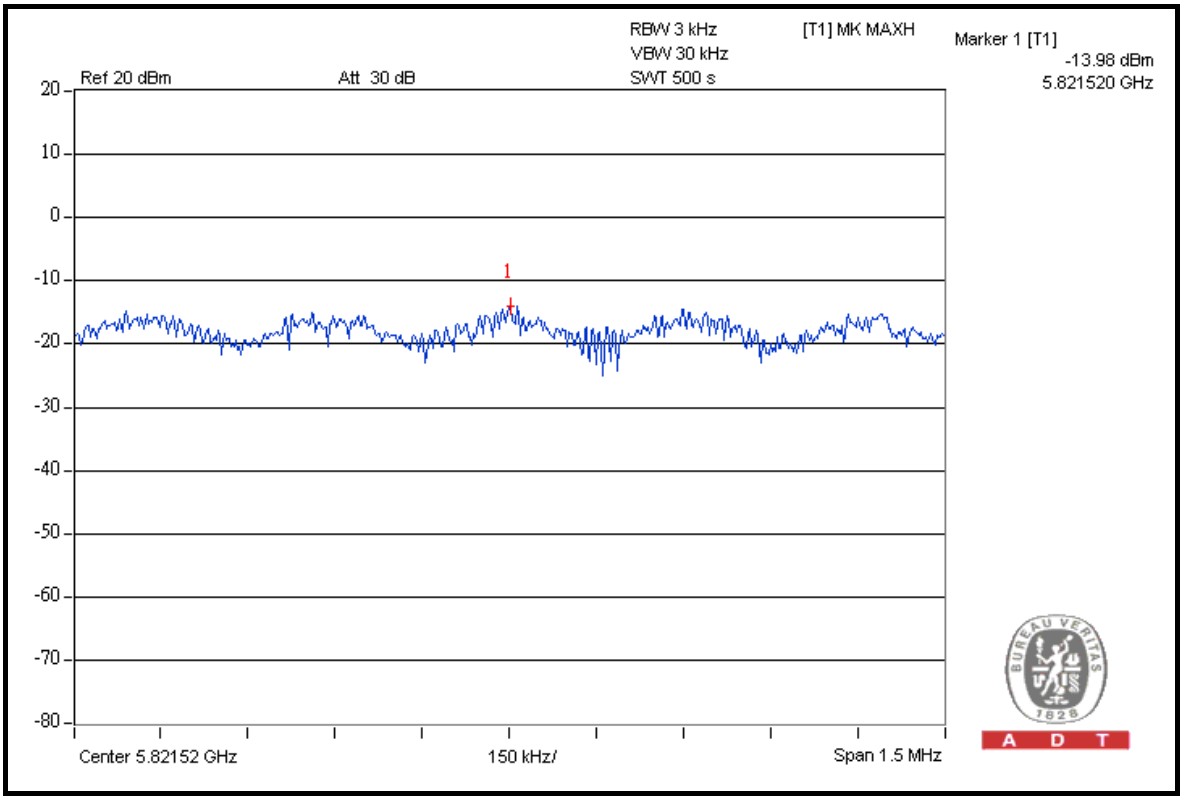
FOR CHAIN 1: CH 149



CH 157


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.87 dBm
5.777770 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.77777 GHz
150 kHz/
Span 1.5 MHz

CH 165

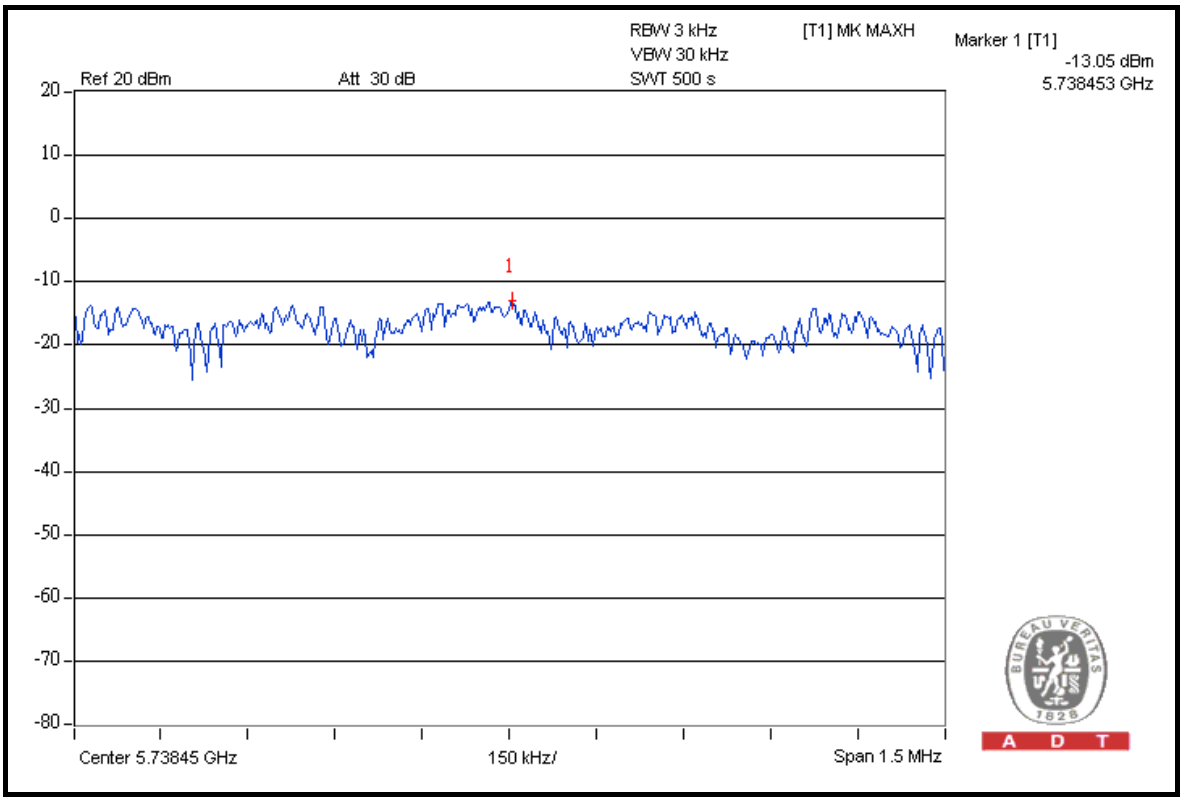

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.98 dBm
5.821520 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.82152 GHz
150 kHz/
Span 1.5 MHz

802.11n (20MHz)

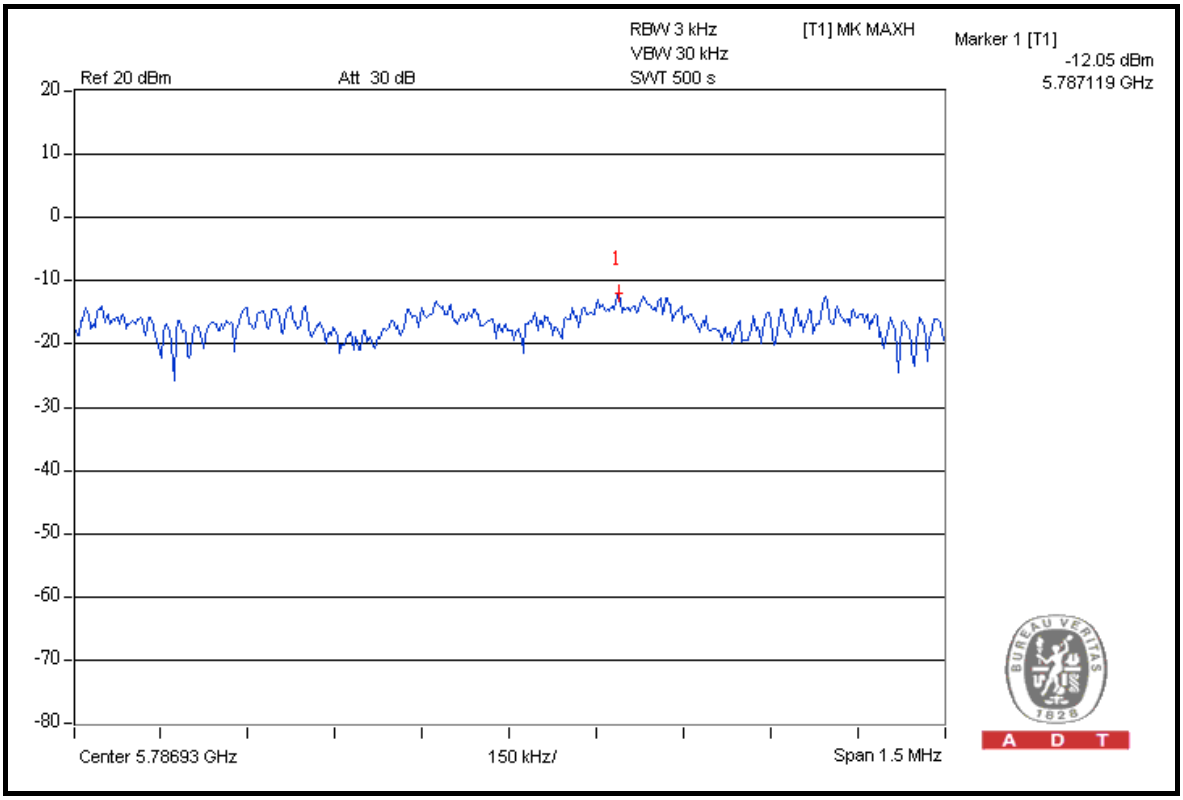
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

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	-13.05	-11.90	0.11	-9.43	8	PASS
157	5785	-12.05	-11.61	0.13	-8.83	8	PASS
165	5825	-12.63	-11.68	0.12	-9.14	8	PASS

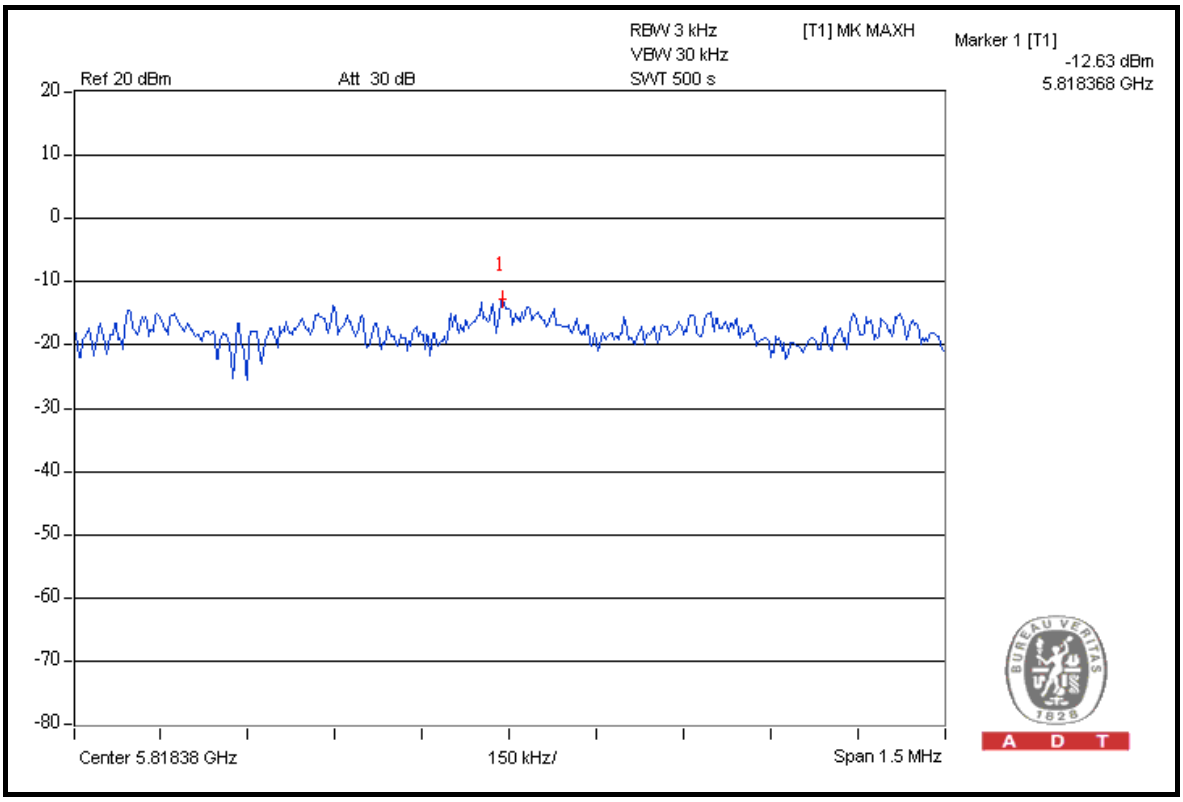
FOR CHAIN 0: CH 149



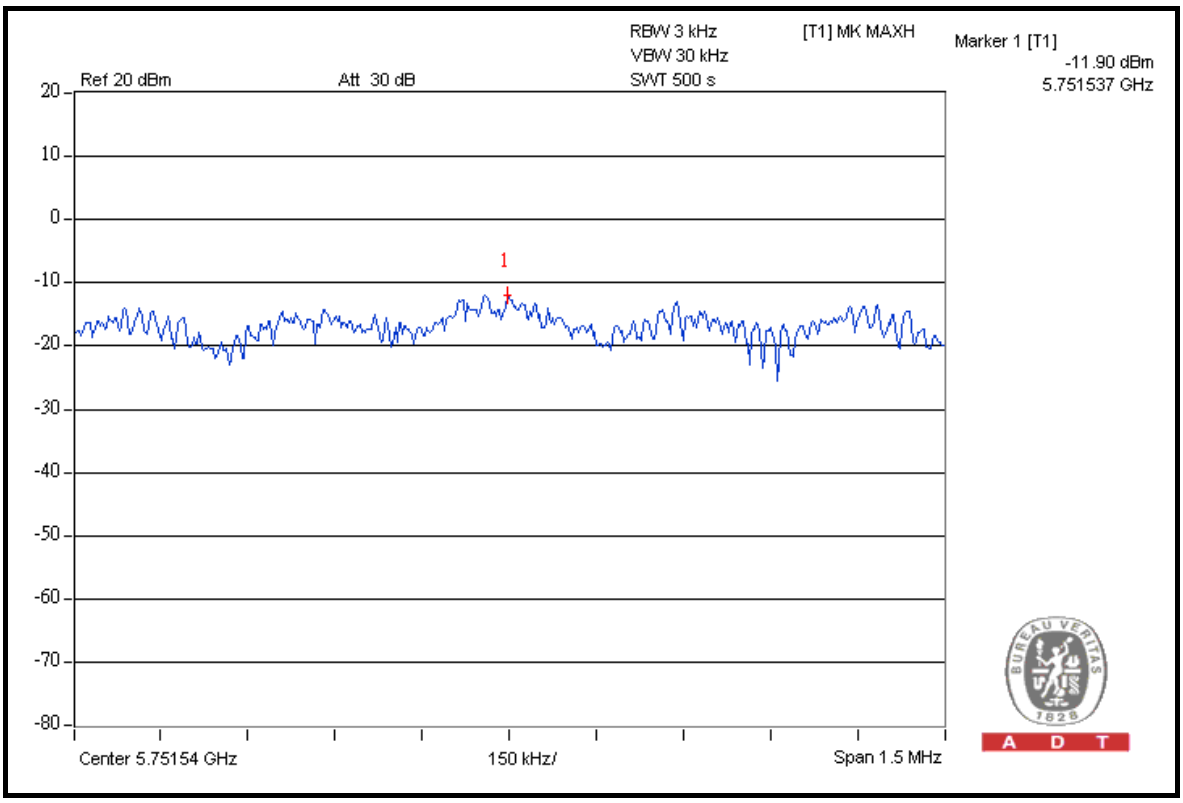
CH 157



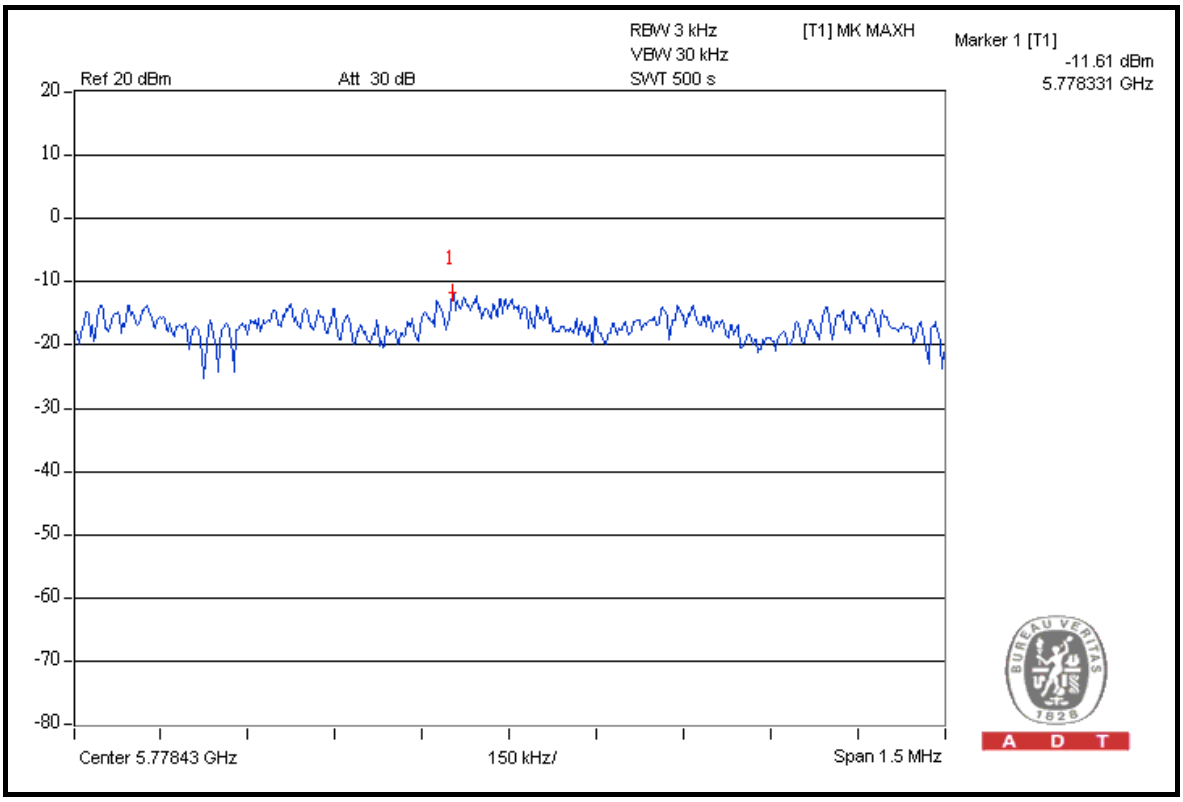
CH 165



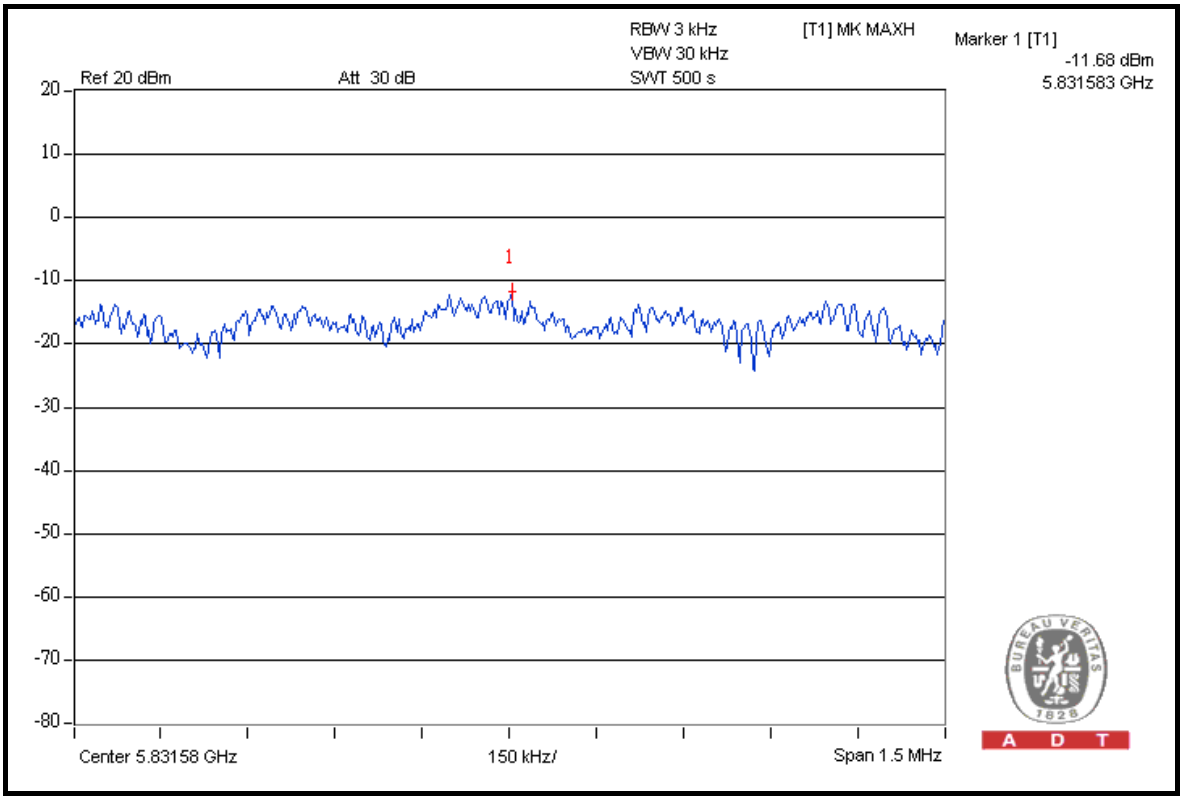
FOR CHAIN 1: CH 149



CH 157


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.61 dBm
5.778331 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.77843 GHz
150 kHz/
Span 1.5 MHz

CH 165

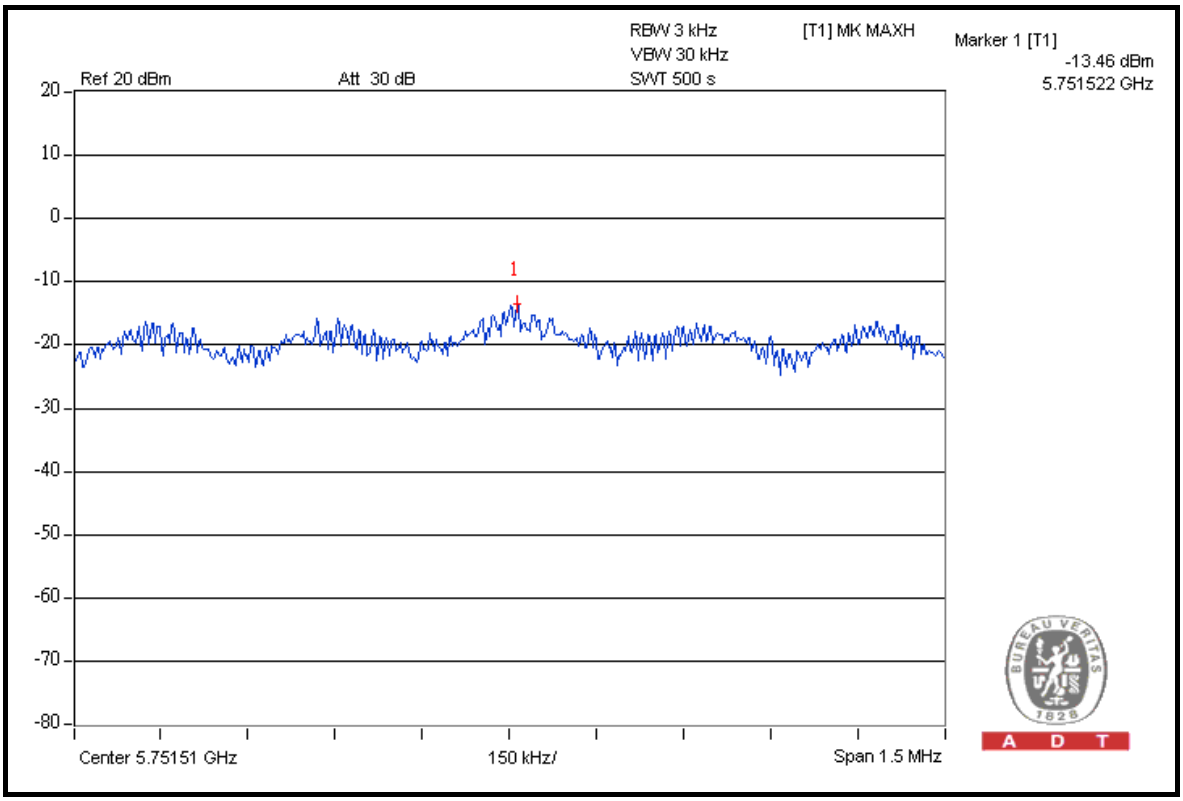

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.68 dBm
5.831583 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.83158 GHz
150 kHz/
Span 1.5 MHz

802.11n (40MHz)

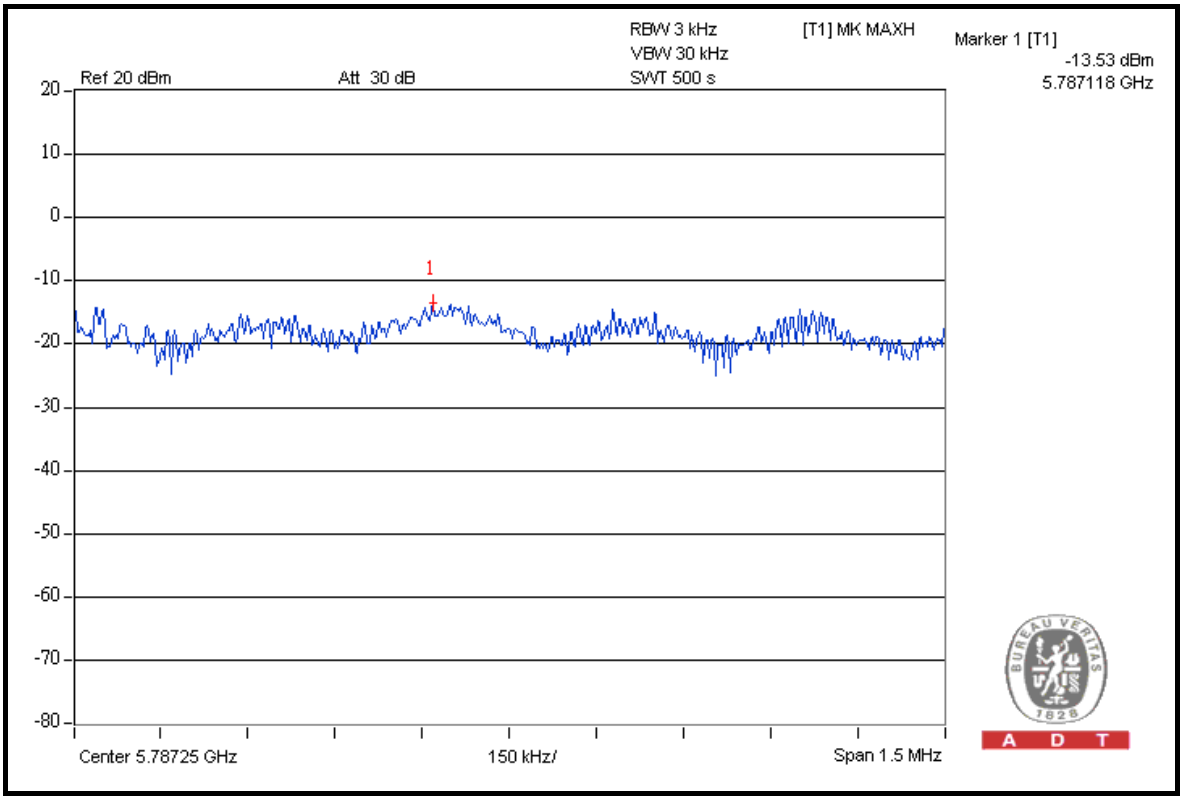
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65%RH, 1021hPa
TESTED BY	Brad Wu		

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	-13.46	-14.74	0.08	-11.02	8	PASS
159	5795	-13.53	-14.59	0.08	-11.02	8	PASS

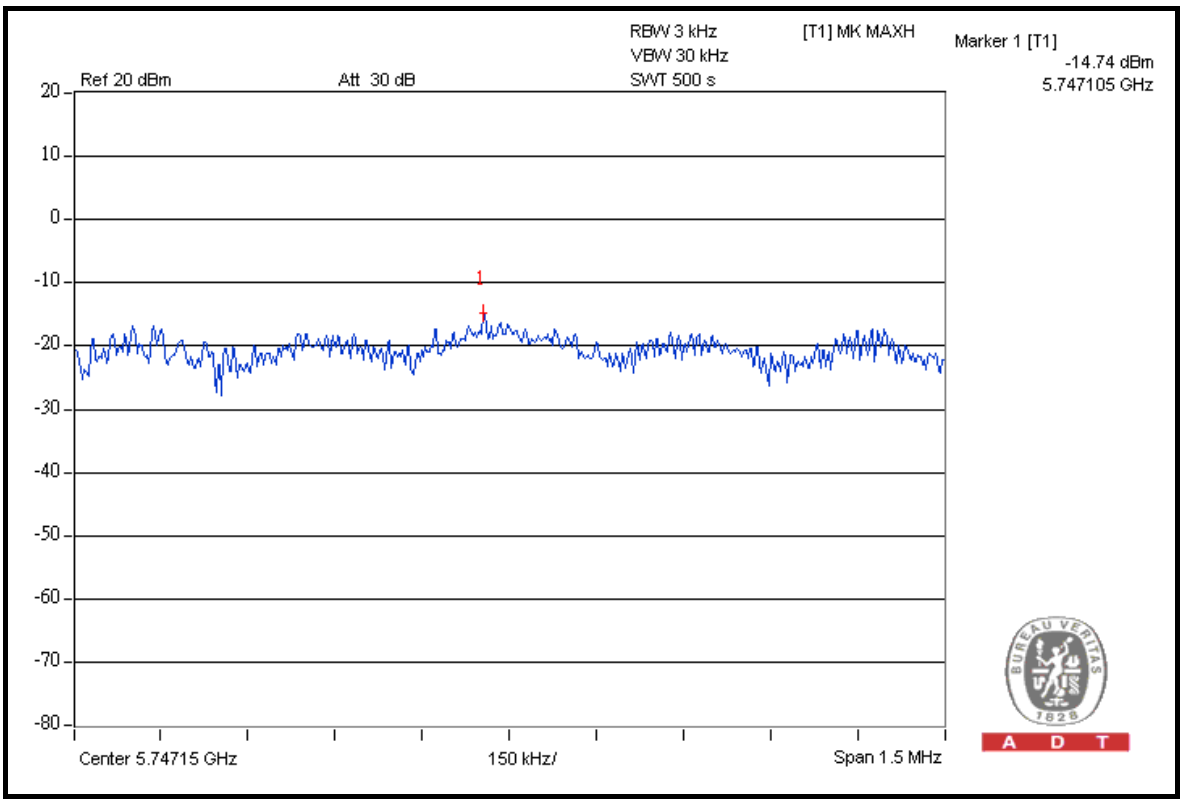
FOR CHAIN 0: CH 151



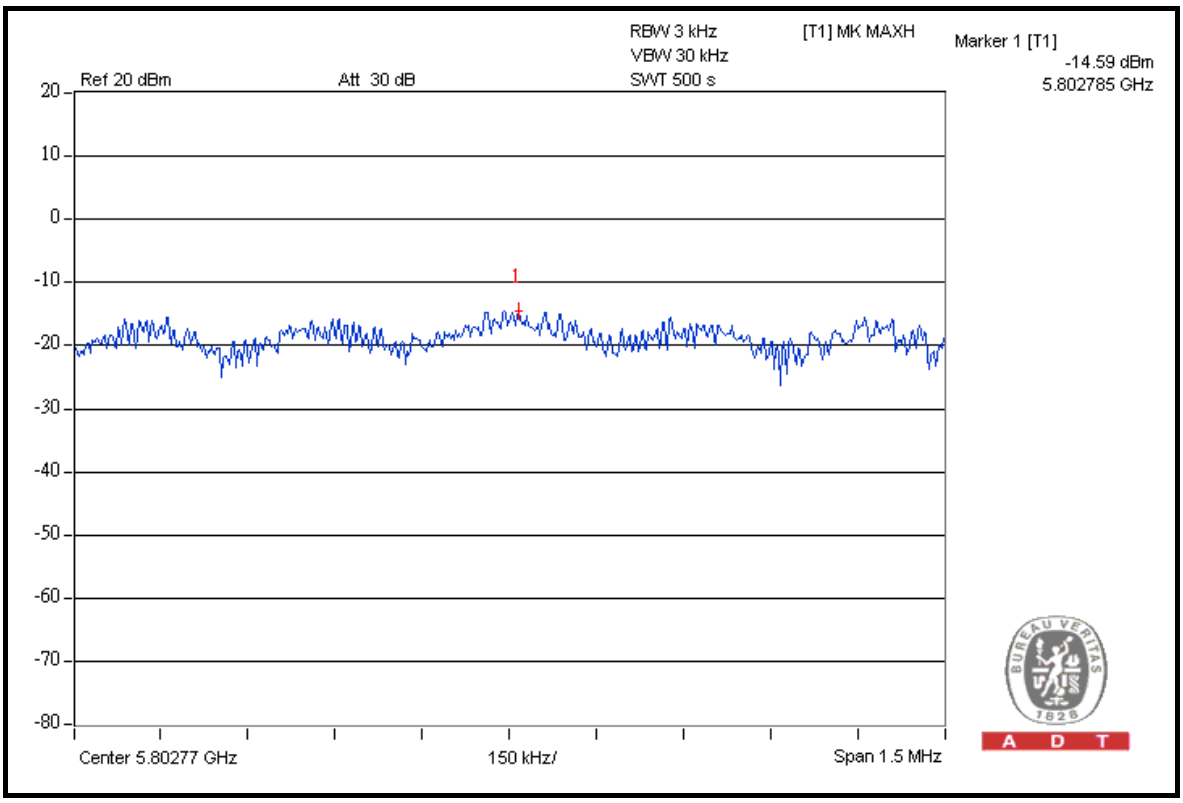
CH 159



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
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May. 26, 2009	May. 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2008	Dec. 24, 2009
Preamplifier Agilent	8447D	2944A10633	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008	Oct. 22, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009

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

5.6.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation.

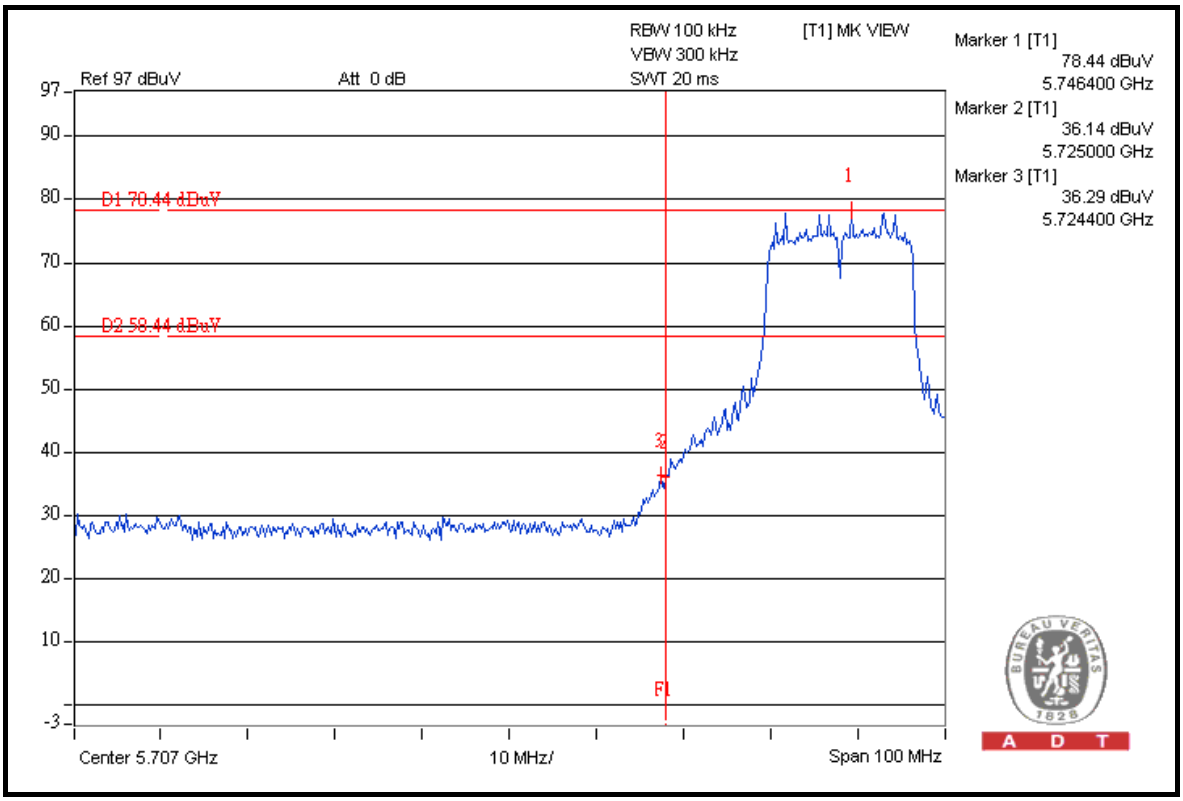
5.6.5 EUT OPERATING CONDITION

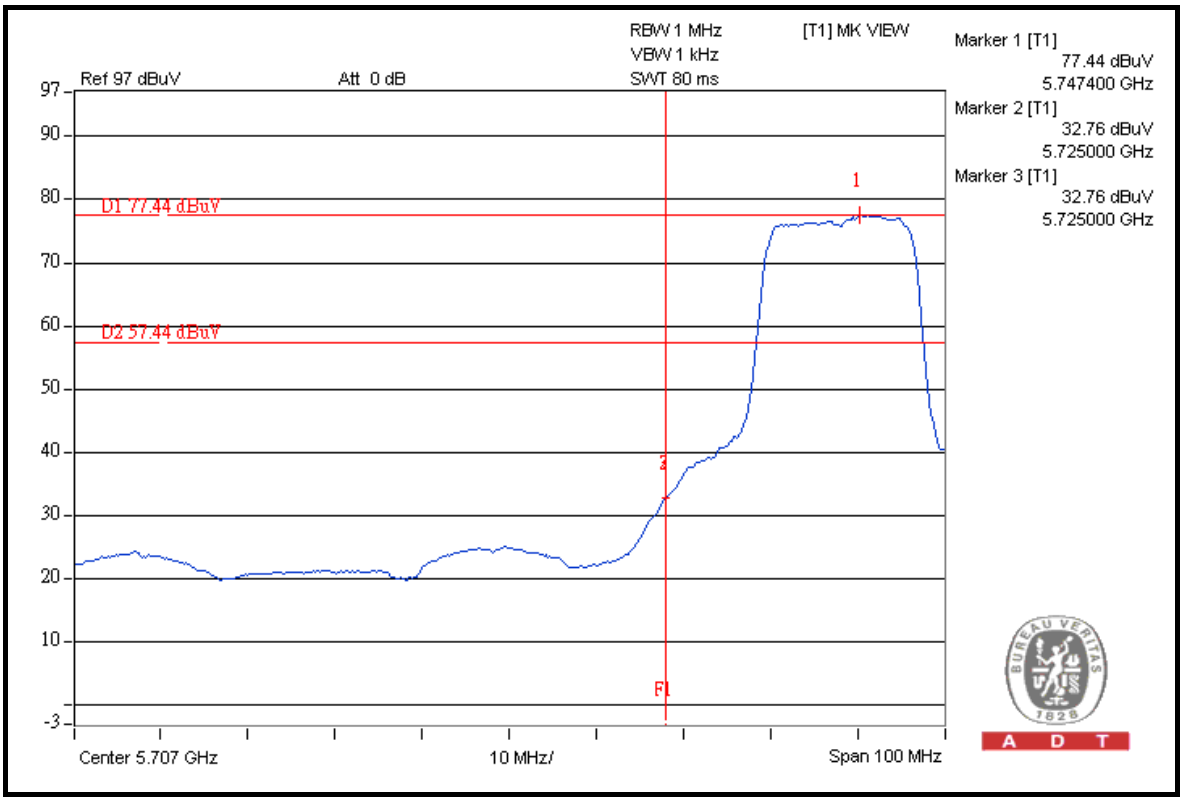
Same as Item 5.3.6.

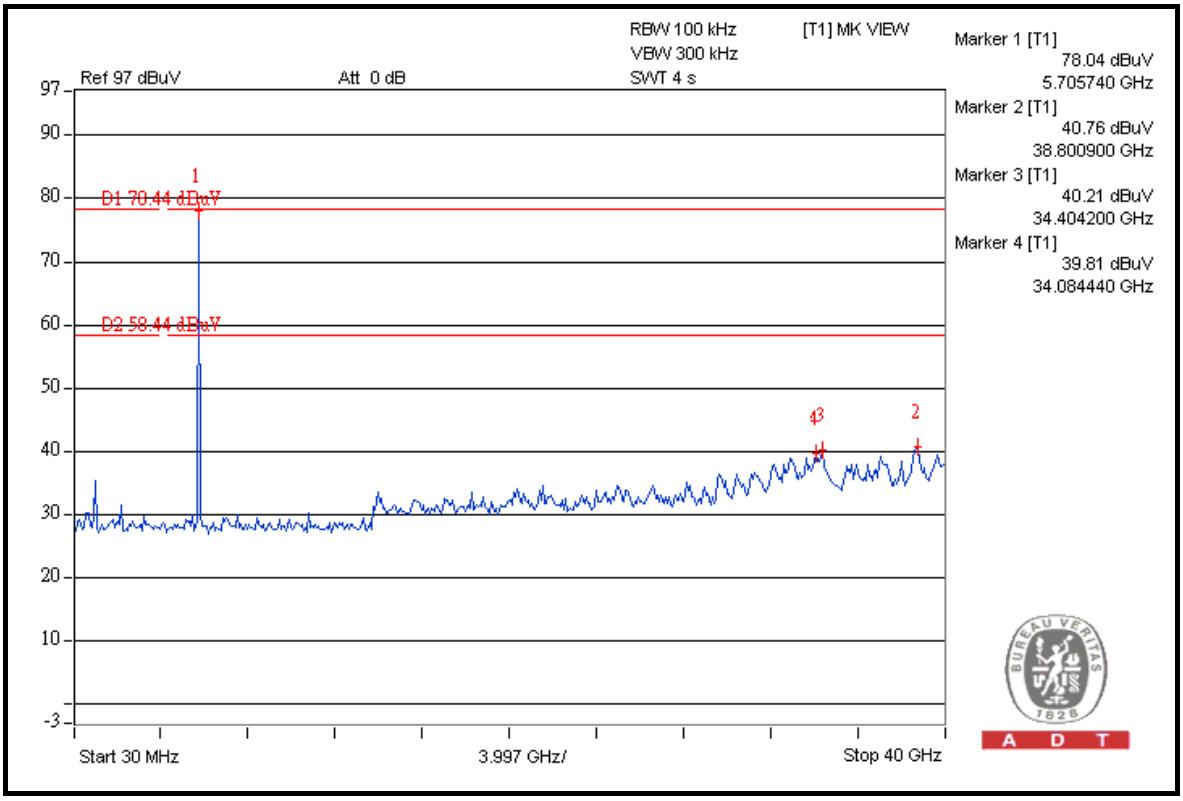
5.6.6 TEST RESULTS

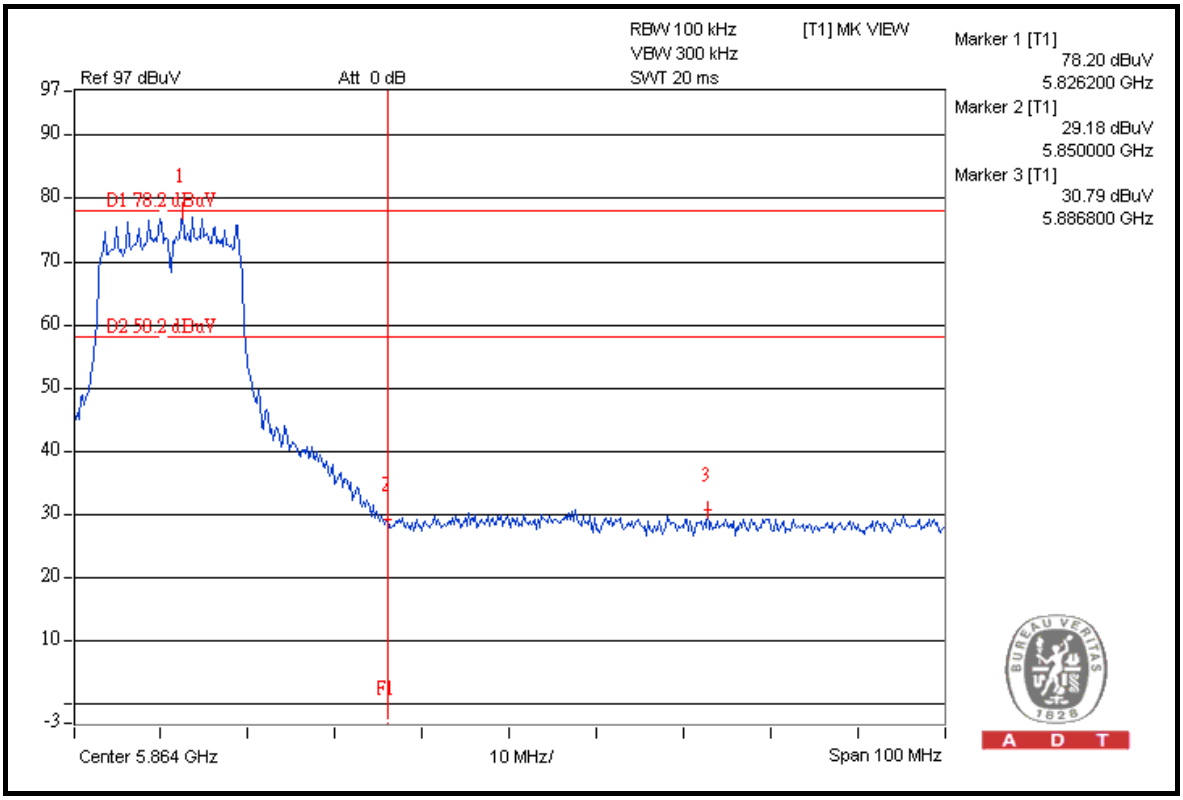
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

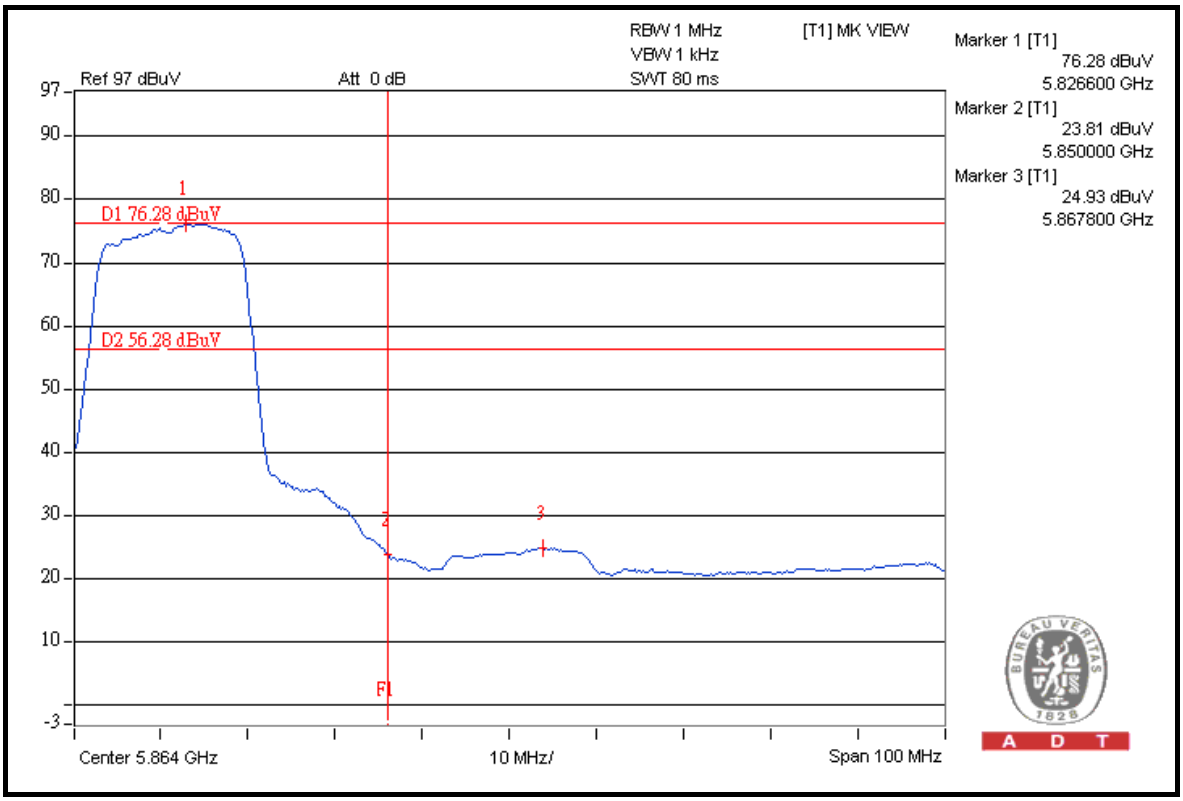
802.11a

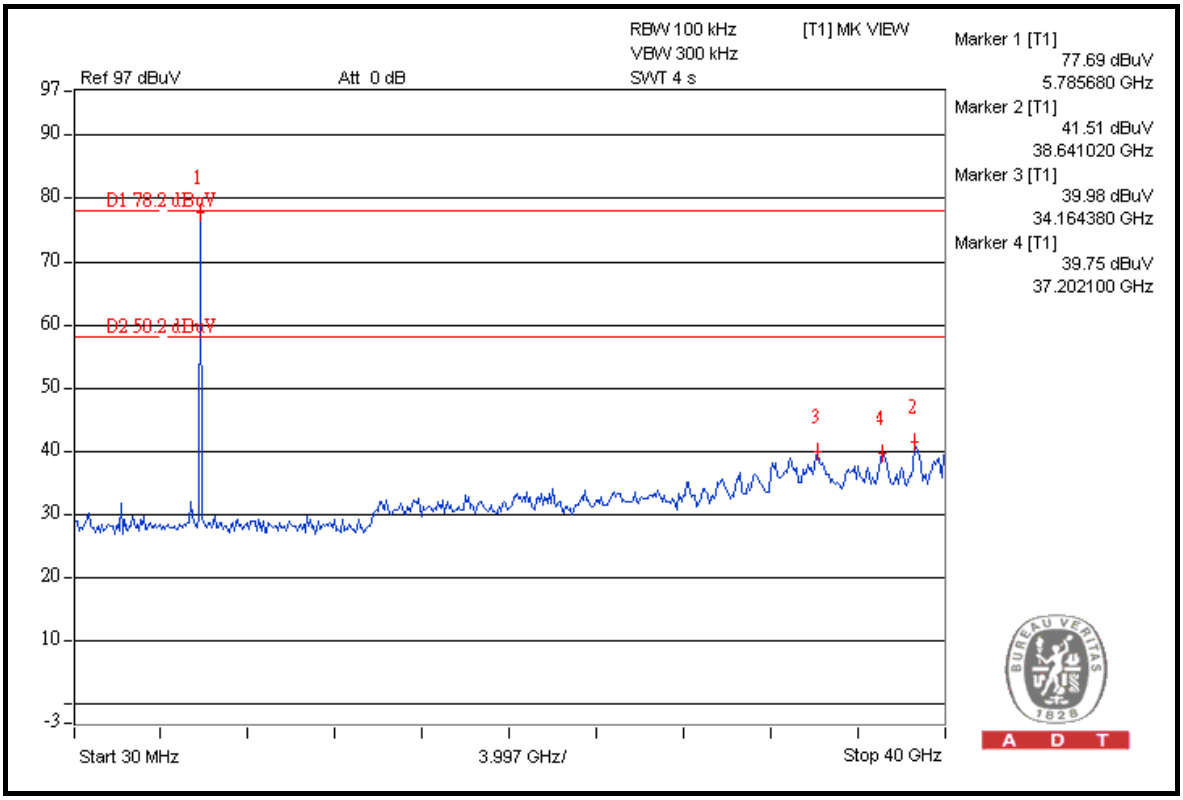

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
78.44 dBuV
5.746400 GHz
Marker 2 [T1]
36.14 dBuV
5.725000 GHz
Marker 3 [T1]
36.29 dBuV
5.724400 GHz
D1 70.44 dBuV
D2 58.44 dBuV
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
77.44 dBuV
5.747400 GHz
Marker 2 [T1]
32.76 dBuV
5.725000 GHz
Marker 3 [T1]
32.76 dBuV
5.725000 GHz
D1 77.44 dBuV
D2 57.44 dBuV
Center 5.707 GHz
10 MHz/
Span 100 MHz

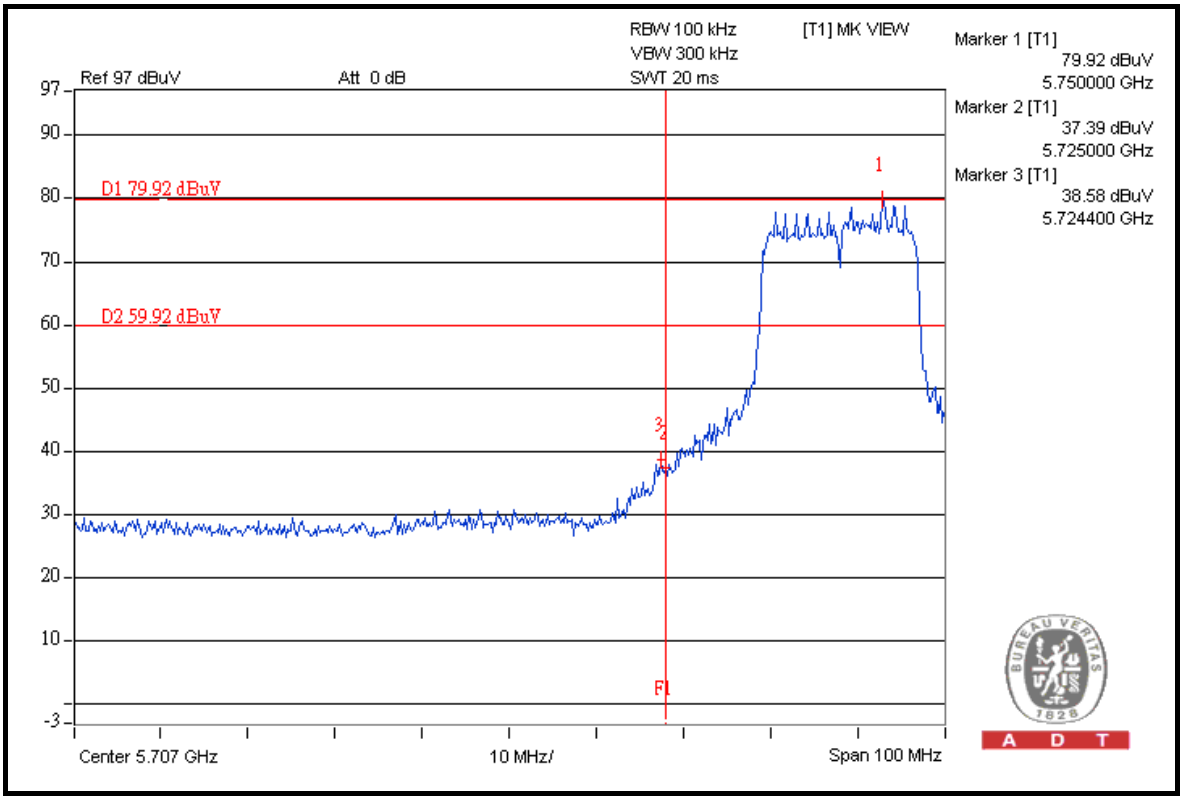

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 70.44 dBuV
D2 58.44 dBuV
Marker 1 [T1]
78.04 dBuV
5.705740 GHz
Marker 2 [T1]
40.76 dBuV
38.800900 GHz
Marker 3 [T1]
40.21 dBuV
34.404200 GHz
Marker 4 [T1]
39.81 dBuV
34.084440 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

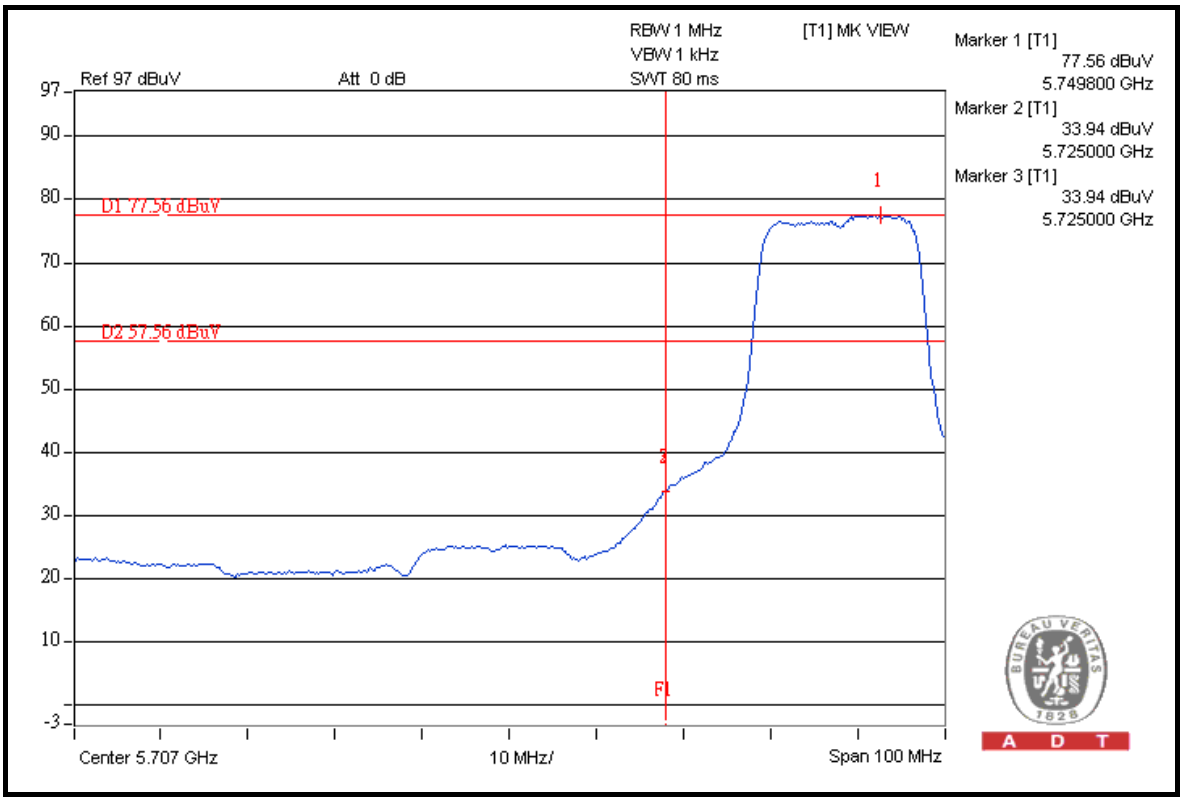

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 78.2 dBuV
D2 50.2 dBuV
Marker 1 [T1]
78.20 dBuV
5.826200 GHz
Marker 2 [T1]
29.18 dBuV
5.850000 GHz
Marker 3 [T1]
30.79 dBuV
5.886800 GHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

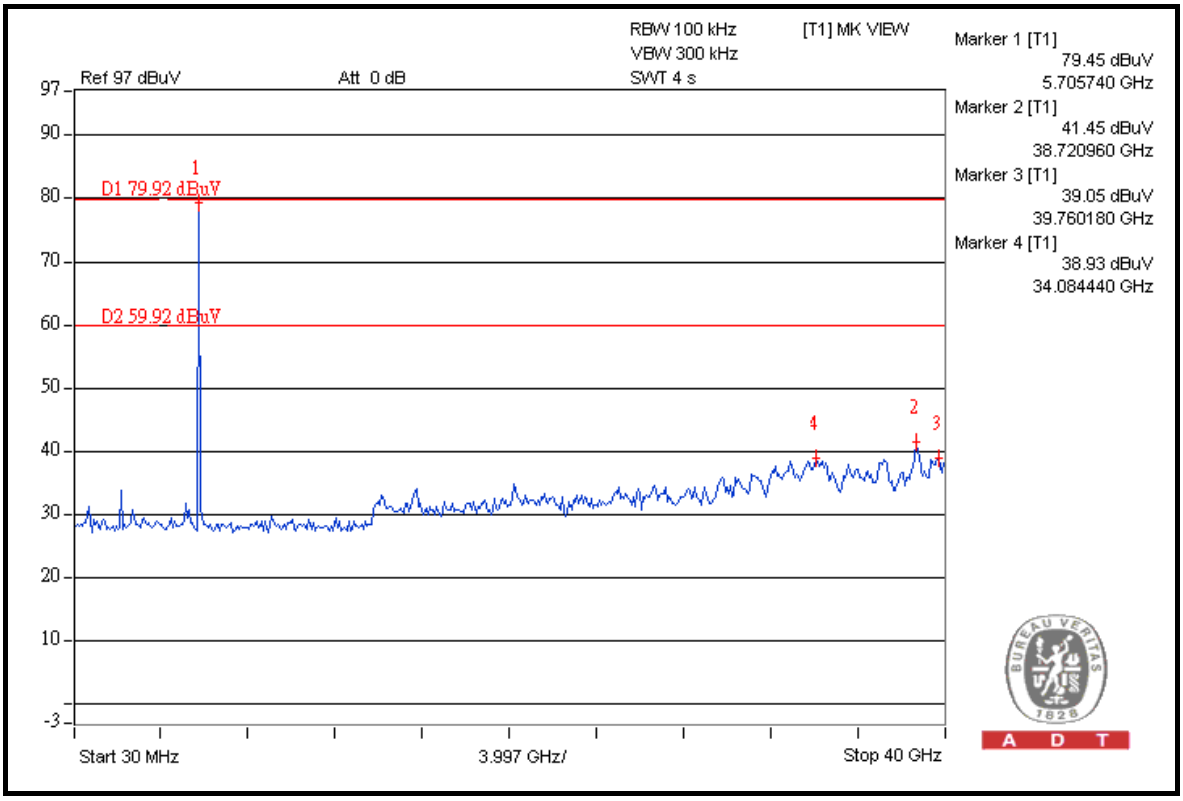

RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.28 dBuV
5.826600 GHz
Marker 2 [T1]
23.81 dBuV
5.850000 GHz
Marker 3 [T1]
24.93 dBuV
5.867800 GHz
D1 76.28 dBuV
D2 56.28 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

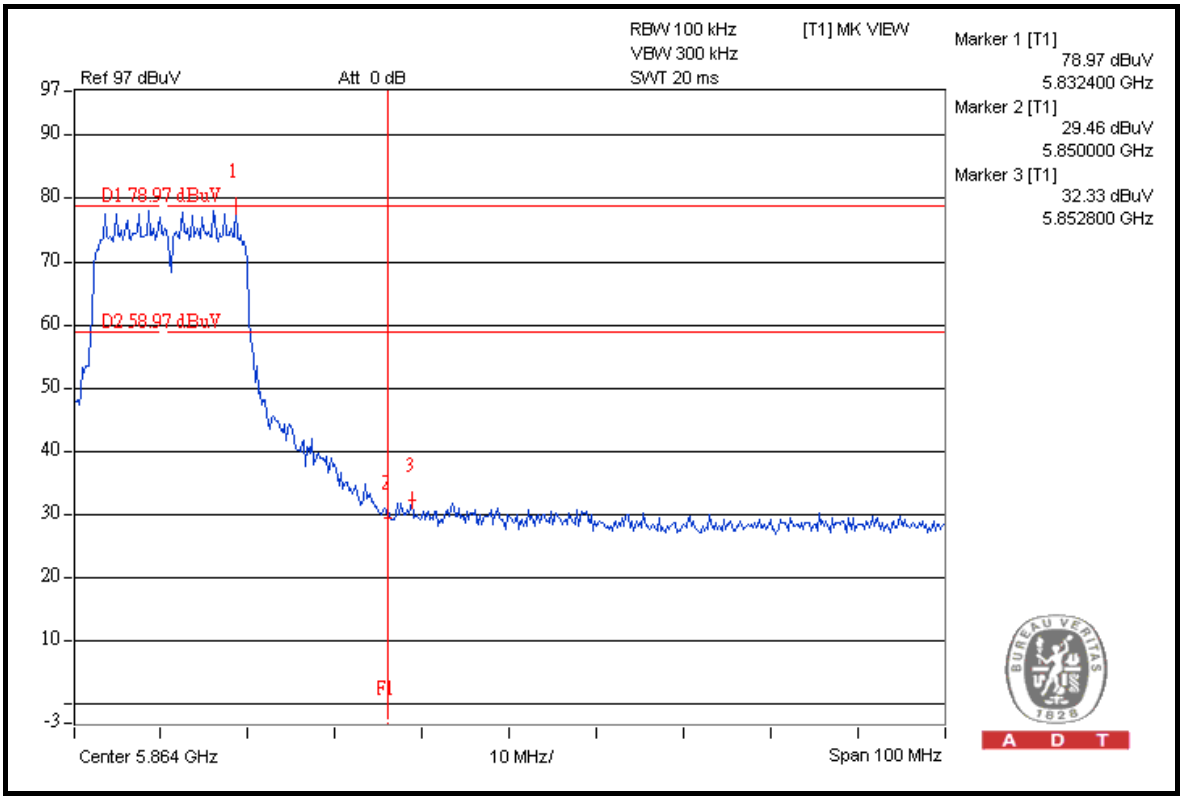

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
77.69 dBuV
5.785680 GHz
Marker 2 [T1]
41.51 dBuV
38.641020 GHz
Marker 3 [T1]
39.98 dBuV
34.164380 GHz
Marker 4 [T1]
39.75 dBuV
37.202100 GHz
D1 78.2 dBuV
D2 50.2 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

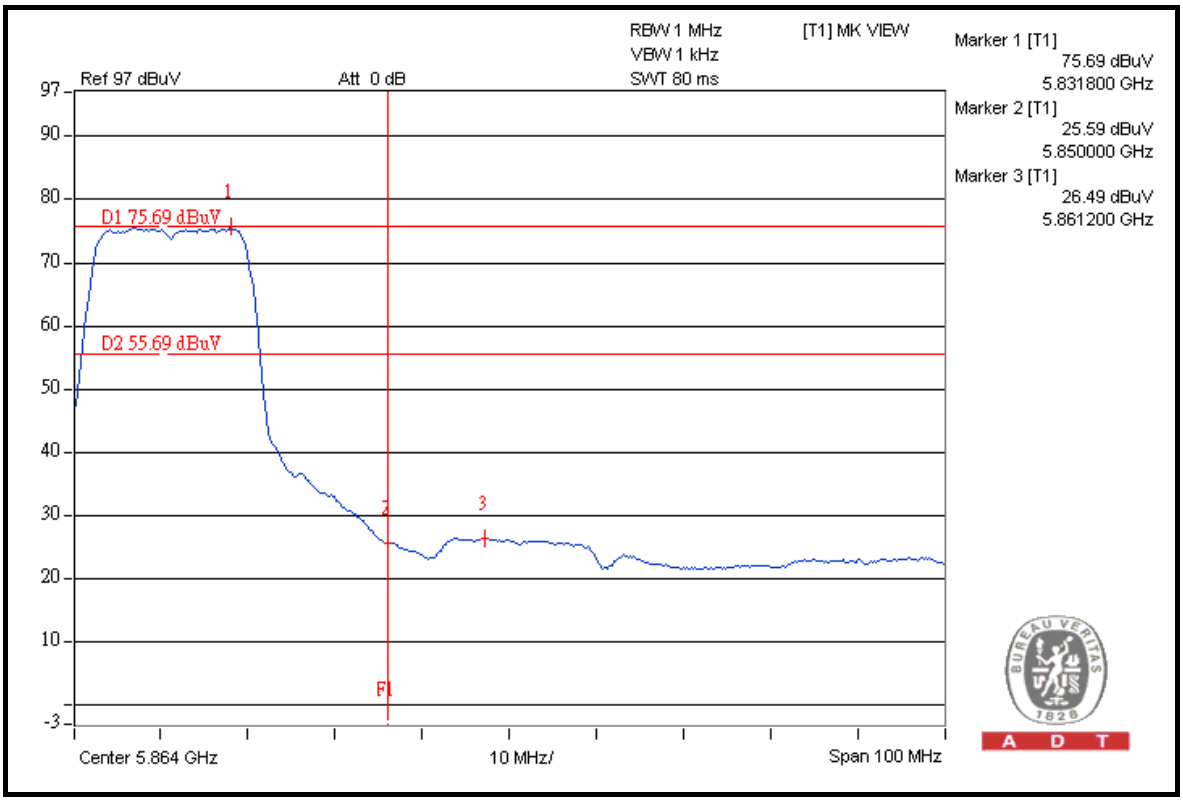
802.11n (20MHz)

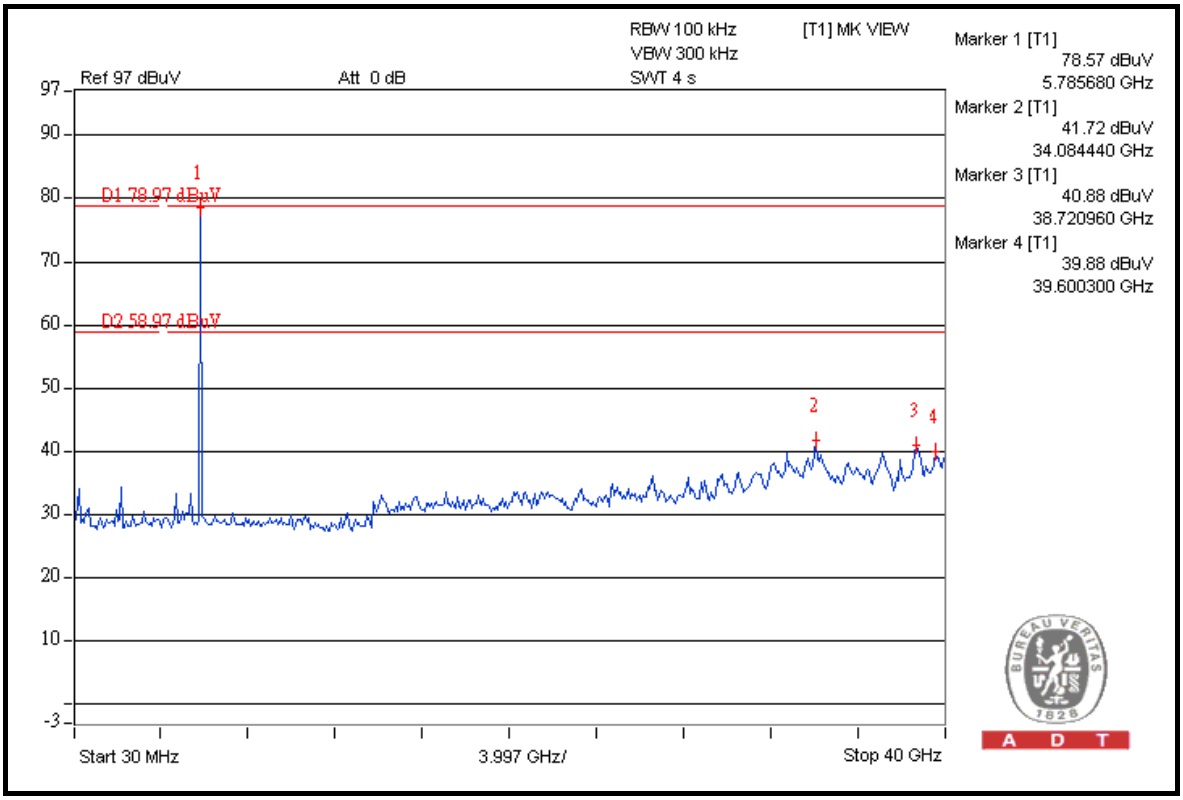




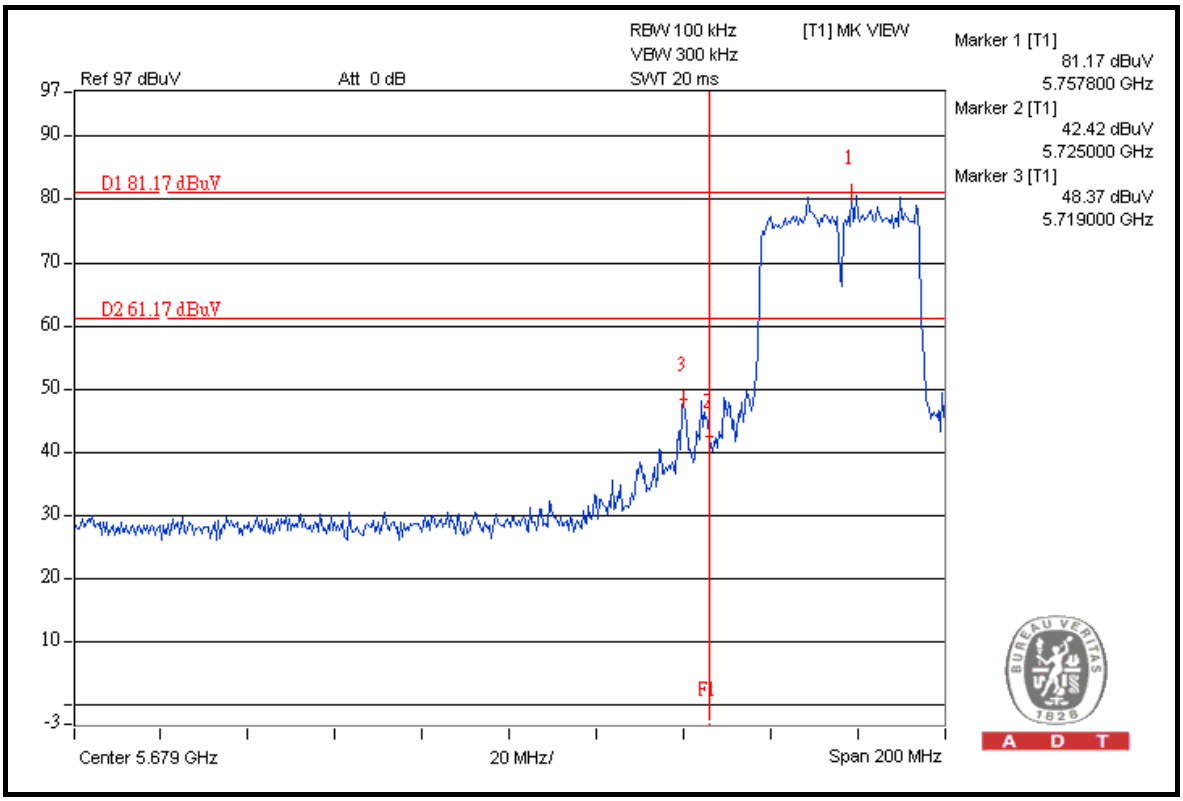

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
79.45 dBuV
5.705740 GHz
Marker 2 [T1]
41.45 dBuV
38.720960 GHz
Marker 3 [T1]
39.05 dBuV
39.760180 GHz
Marker 4 [T1]
38.93 dBuV
34.084440 GHz
D1 79.92 dBuV
D2 59.92 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
3.997 GHz/
Stop 40 GHz

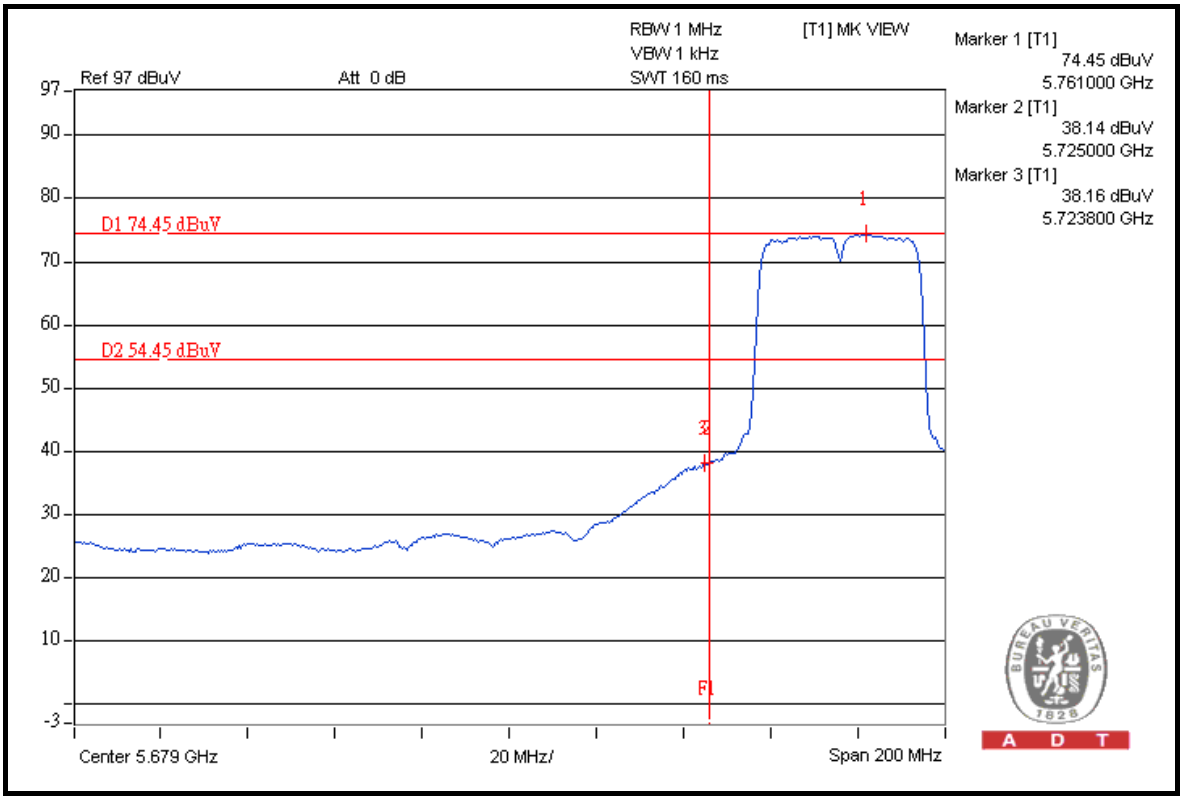

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
78.97 dBuV
5.832400 GHz
Marker 2 [T1]
29.46 dBuV
5.850000 GHz
Marker 3 [T1]
32.33 dBuV
5.852800 GHz
D1 78.97 dBuV
D2 58.97 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.864 GHz
10 MHz/
Span 100 MHz

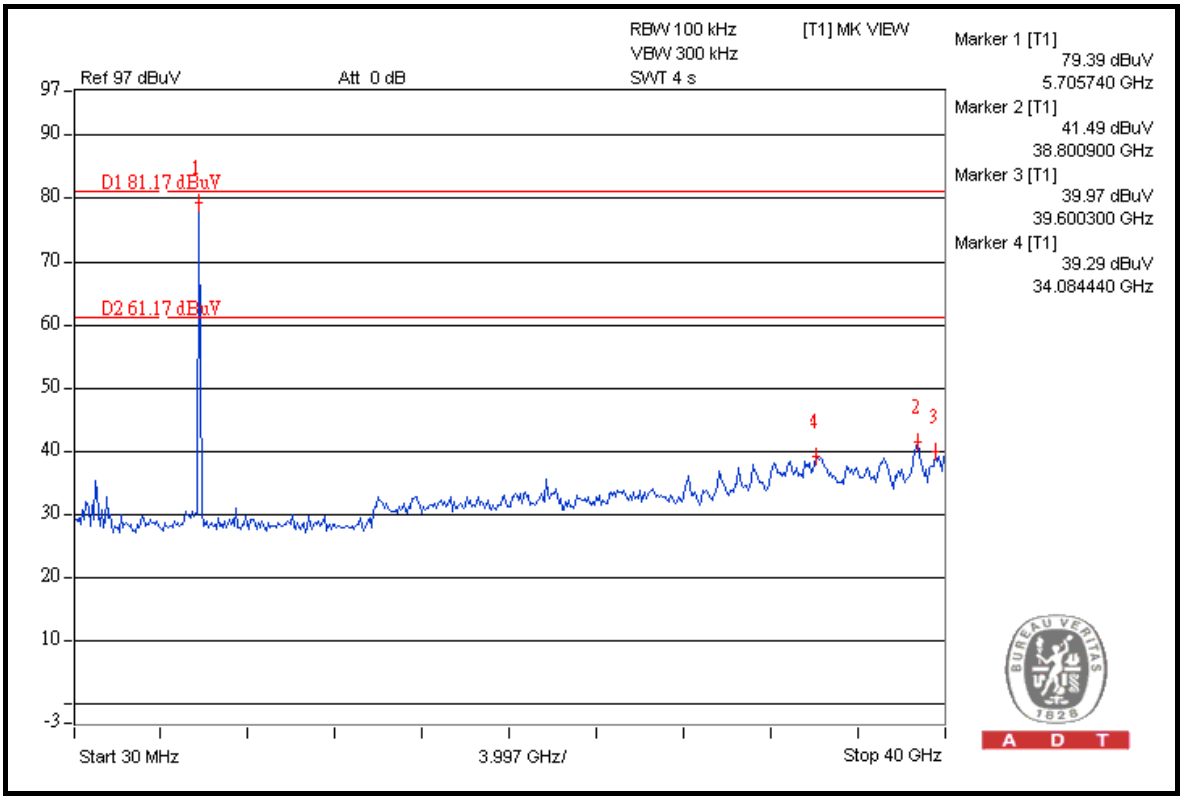

RBW 1 MHz
VBW 1 kHz
SWT 80 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.69 dBuV
5.831800 GHz
Marker 2 [T1]
25.59 dBuV
5.850000 GHz
Marker 3 [T1]
26.49 dBuV
5.861200 GHz
D1 75.69 dBuV
D2 55.69 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

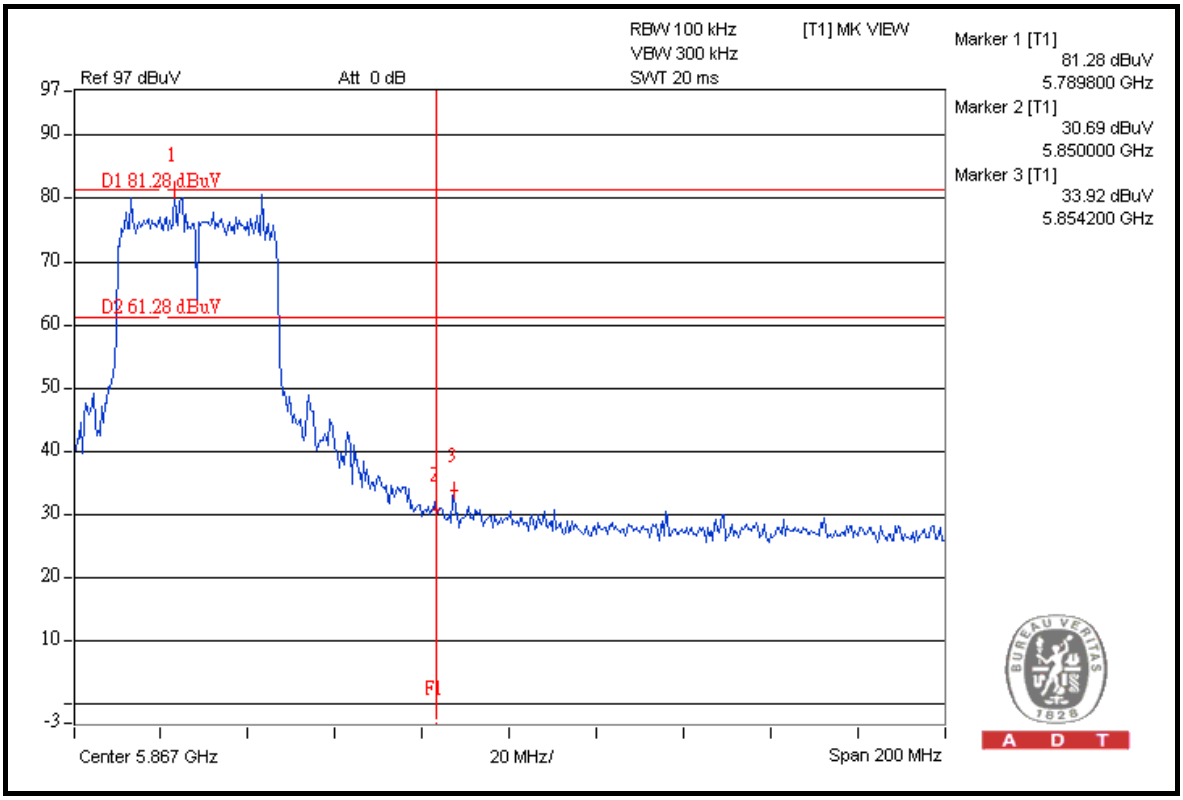

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
78.57 dBuV
5.785680 GHz
Marker 2 [T1]
41.72 dBuV
34.084440 GHz
Marker 3 [T1]
40.88 dBuV
38.720960 GHz
Marker 4 [T1]
39.88 dBuV
39.600300 GHz
D1 78.97 dBuV
D2 58.97 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

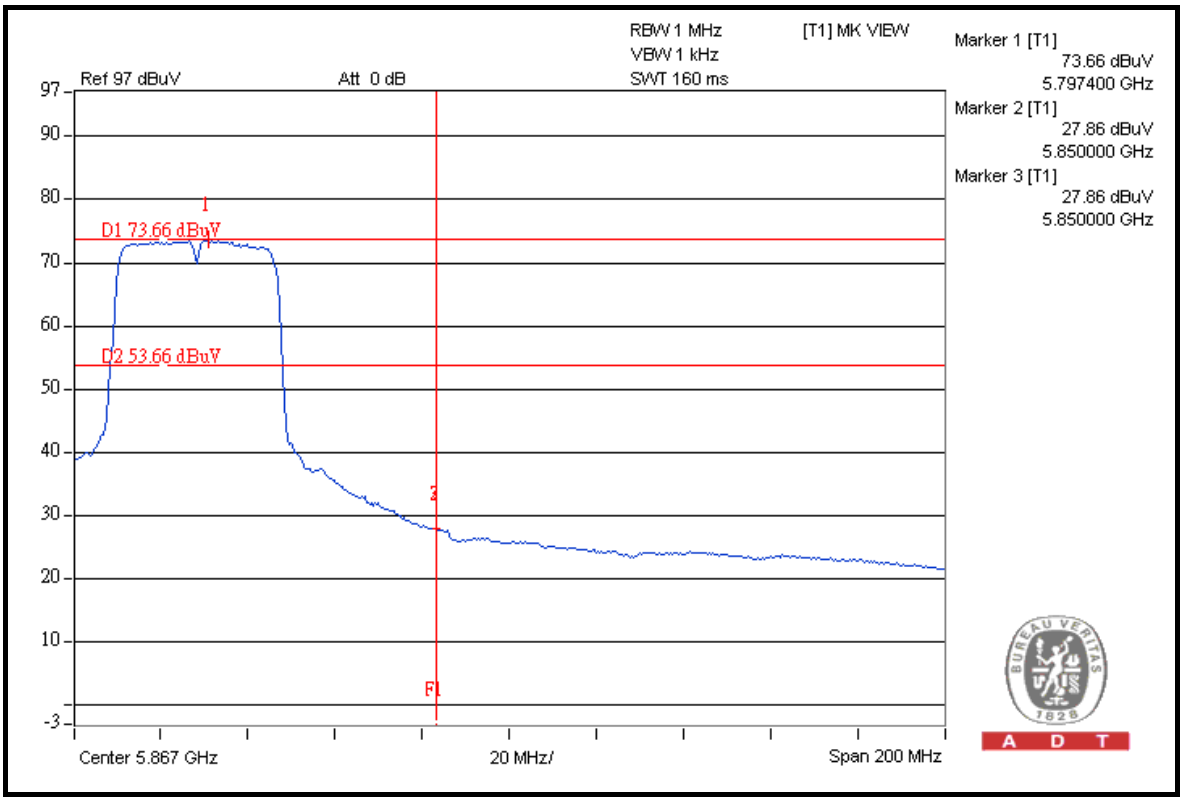
802.11n (40MHz)

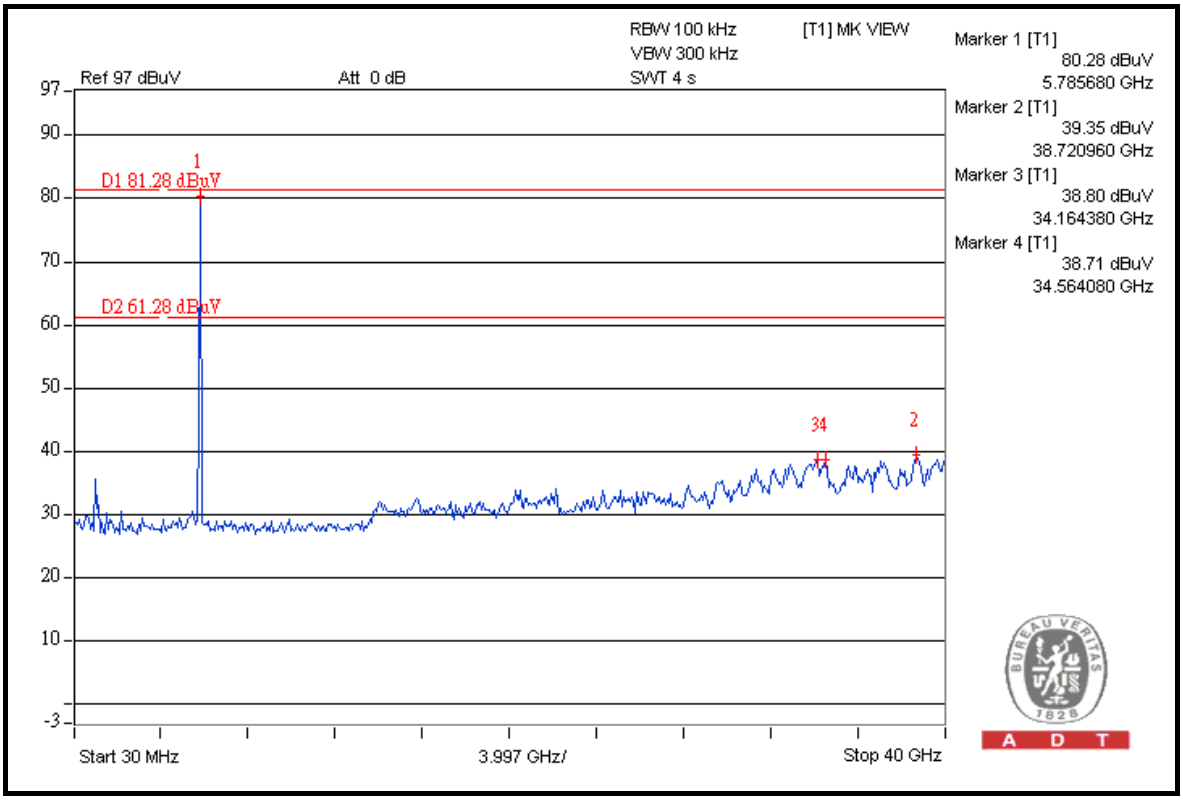





RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 81.17 dBuV
D2 61.17 dBuV
Marker 1 [T1]
79.39 dBuV
5.705740 GHz
Marker 2 [T1]
41.49 dBuV
38.800900 GHz
Marker 3 [T1]
39.97 dBuV
39.600300 GHz
Marker 4 [T1]
39.29 dBuV
34.084440 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 81.28 dBuV
D2 61.28 dBuV
Marker 1 [T1]
81.28 dBuV
5.789800 GHz
Marker 2 [T1]
30.69 dBuV
5.850000 GHz
Marker 3 [T1]
33.92 dBuV
5.854200 GHz
Center 5.867 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 1 kHz
SWT 160 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.66 dBuV
5.797400 GHz
Marker 2 [T1]
27.86 dBuV
5.850000 GHz
Marker 3 [T1]
27.86 dBuV
5.850000 GHz
D1 73.66 dBuV
D2 53.66 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.867 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
80.28 dBuV
5.785680 GHz
Marker 2 [T1]
39.35 dBuV
38.720960 GHz
Marker 3 [T1]
38.80 dBuV
34.164380 GHz
Marker 4 [T1]
38.71 dBuV
34.564080 GHz
D1 81.28 dBuV
D2 61.28 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
3.997 GHz/
Stop 40 GHz

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 PIFA & dipole antenna without 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 according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

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

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---