FCC TEST REPORT (15.247)

REPORT NO.:	RF970918H10
MODEL NO.:	DAP-3520
RECEIVED:	Sep. 15, 2008
TESTED:	Sep. 15, 2008 to Jan. 10, 2009
ISSUED:	Feb. 06, 2009

APPLICANT:	D-Link Co.
ADDRESS:	No.289, Shinhu 3rd Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
TEST LOCATION:	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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1. CERTIFICATION

PRODUCT:	D-Link AirPremier N Dual Band Exterior PoE Access Point
BRAND NAME:	D-Link
MODEL NO.:	DAP-3520
TEST SAMPLE:	MASS-PRODUCTION
TESTED:	Sep. 15, 2008 to Jan. 10, 2009
APPLICANT:	D-Link Co.
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: DAP-3520) 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 : Carol Liao , **DATE:** *Feb. 06, 2009*
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : , **DATE:** *Feb. 06, 2009*
Responsible for RF
(Hank Chung, Deputy Manager)

APPROVED BY : , **DATE:** *Feb. 06, 2009*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

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 -15.95dB at 0.178MHz
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 -0.57dB at 2390.00MHz
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.

For 802.11a, 5725~5850MHz Band

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 -15.87dB at 0.711MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.00dB at 11610.00MHz
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:

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

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	D-Link AirPremier N Dual Band Exterior PoE Access Point
MODEL NO.	DAP-3520
FCC ID	KA2AP3520A1
POWER SUPPLY	DC 48V from POE (Power Over Ethernet)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps HT20 MCS0~7 (800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps. HT20 MCS8~15 (800ns GI): 130 / 117 / 104 / 78 / 52 / 39 / 26 / 13Mbps. HT40 MCS0~7 (800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps. HT40 MCS8~15 (800ns GI): 270 / 243 / 216 / 162 / 108 / 81 / 54 / 27Mbps. HT20 MCS0~7 (400ns GI): 72.2 / 65 / 57.8 / 43.3 / 28.9 / 21.7 / 14.4 / 7.2Mbps. HT20 MCS8~15 (400ns GI): 144.444 / 130 / 115.556 / 86.667 / 57.778 / 43.333 / 28.889 / 14.444Mbps. HT40 MCS0~7 (400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15Mbps. HT40 MCS8~15 (400ns GI): 300 / 270 / 240 / 180 / 120 / 90 / 60 / 30Mbps.
FREQUENCY RANGE	802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 2.4GHz** 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) **For 5GHz** 5 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)

MAXIMUM OUTPUT POWER	**For 2.4GHz – with PCB antenna** 802.11b: 495.568mW 802.11g: 433.145mW draft 802.11n (20MHz): 458.725mW draft 802.11n (40MHz): 447.888mW **For 2.4GHz – with Dipole antenna** 802.11b: 302.333mW 802.11g: 508.200mW draft 802.11n (20MHz): 510.650mW draft 802.11n (40MHz): 399.180mW **For 5GHz – with PCB antenna** 802.11a: 381.496mW draft 802.11n (20MHz): 341.902mW draft 802.11n (40MHz): 284.382mW
ANTENNA TYPE	Please see note 4
DATA CABLE	RJ45 Cable (Unshielded, 10m)
I/O PORT	RJ45 Port x 1
ASSOCIATED DEVICES	RJ45 cable x 1 (10 m, Unshielded)

NOTE:

1. The EUT was powered by following POE (Power Over Ethernet):

POE:	
Brand:	Base-Unit
Model No.:	EBU-101G-T2 LF
Output power :	48V, 0.4A

2. The POE can be powered with following power adapter:

Brand:	Bothhand Enterprise Inc.
Model No.:	SA06-20S48-V
Input power :	100-240V, 0.6A, 50~60Hz AC input cable (unshielded, 1.8m, core with pin)
Output power :	DC 48V, 0.4A DC output cable (unshielded, 1.8m, with one core)

3. The EUT was pre-tested in chamber under the following modes:

Test Mode	**Description**
Mode A	Level-set (Put on tabletop)
Mode B	**Tower-set (Wall-mounted)**

From the above modes, worse case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

4. There are two set of antennas provided to this EUT, please refer to the following table:

Antenna Set 1 (Internal antenna):						
Transmitter Circuit	Manufacture	Antenna Model	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)	Antenna Type	Connector
Chain(0)	SmartAnt Telecom Co., Ltd.	DWL08-220190	8	10	PCB	MMCX R/A plug
Chain (1)	SmartAnt Telecom Co., Ltd.	DWL08-220190	8	10	PCB	MMCX R/A plug

Antenna Set 2 (External antenna):						
Transmitter Circuit	Manufacture	Antenna Model	Antenna Gain	Only 2.4GHz	Antenna Type	Connector
Chain(0)	SmartAnt Telecom Co., Ltd.	ANT24-0800 (DWL07-050660)	Gain (dBi)	8	DIPOLE	N-jack
			Cable Loss (dB)	3		
			Net Gain (dBi)	5		
			Cable length (m)	6		
Chain(1)	SmartAnt Telecom Co., Ltd.	ANT24-0800 (DWL07-050660)	Gain (dBi)	8	DIPOLE	N-jack
			Cable Loss (dB)	3		
			Net Gain (dBi)	5		
			Cable length (m)	6		
Note: While EUT connect with antenna set 2, the function of antenna set 1 were lose.						

5. The EUT incorporates a MIMO function with 802.11a, 802.11b, 802.11g, draft 802.11n. Physically, the EUT provides two completed transmit and two completed receivers.

6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Dipole antennas or 2 PCB antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas.

7. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.

8. The EUT complies with draft 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.

9. 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

Operated in 2400 ~ 2483.5MHz band:

Eleven channels are provided for 802.11b, 802.11g, draft 802.11n (20MHz):

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

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

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

Operated in 5725 ~ 5850MHz band:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5745 MHz	4	5805 MHz
2	5765 MHz	5	5825 MHz
3	5785 MHz		

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

CHANNEL	FREQUENCY
1	5755 MHz
2	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	For 2.4GHz: PCB and Dipole antennas were tested For 5GHz: Only PCB antennas were tested

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11a	√	√
B	802.11b	√	√
C	802.11g	√	√
D	DRAFT 802.11n(20MHz)	√	√
E	DRAFT 802.11n(40MHz)	√	√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Antenna 1~2 are Dipole or PCB antennas.

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)	TX COMBINATION
For 2.4 GHz 802.11g	1 to 11	11	OFDM	BPSK	6	C
For 5 GHz 802.11a	1 to 5	5	OFDM	BPSK	6	A

RADIATED EMISSION TEST (BELOW 1 GHz):

☒ 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)	TX COMBINATION
For 2.4 GHz 802.11g	1 to 11	11	OFDM	BPSK	6	C
For 5 GHz 802.11a	1 to 5	5	OFDM	BPSK	6	A

RADIATED EMISSION TEST (ABOVE 1 GHz):

☒ 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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	6.5	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	13.5	E

CONDUCTED OUT-BAND EMISSION 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)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	E
802.11a	1 to 5	1, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 5	OFDM	BPSK	6.5	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	13.5	E

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	6.5	D
For 5 GHz Draft 802.11n (40MHz)	1 to 2	1, 2	OFDM	BPSK	13.5	E

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a D-Link AirPremier N Dual Band Exterior PoE Access Point. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

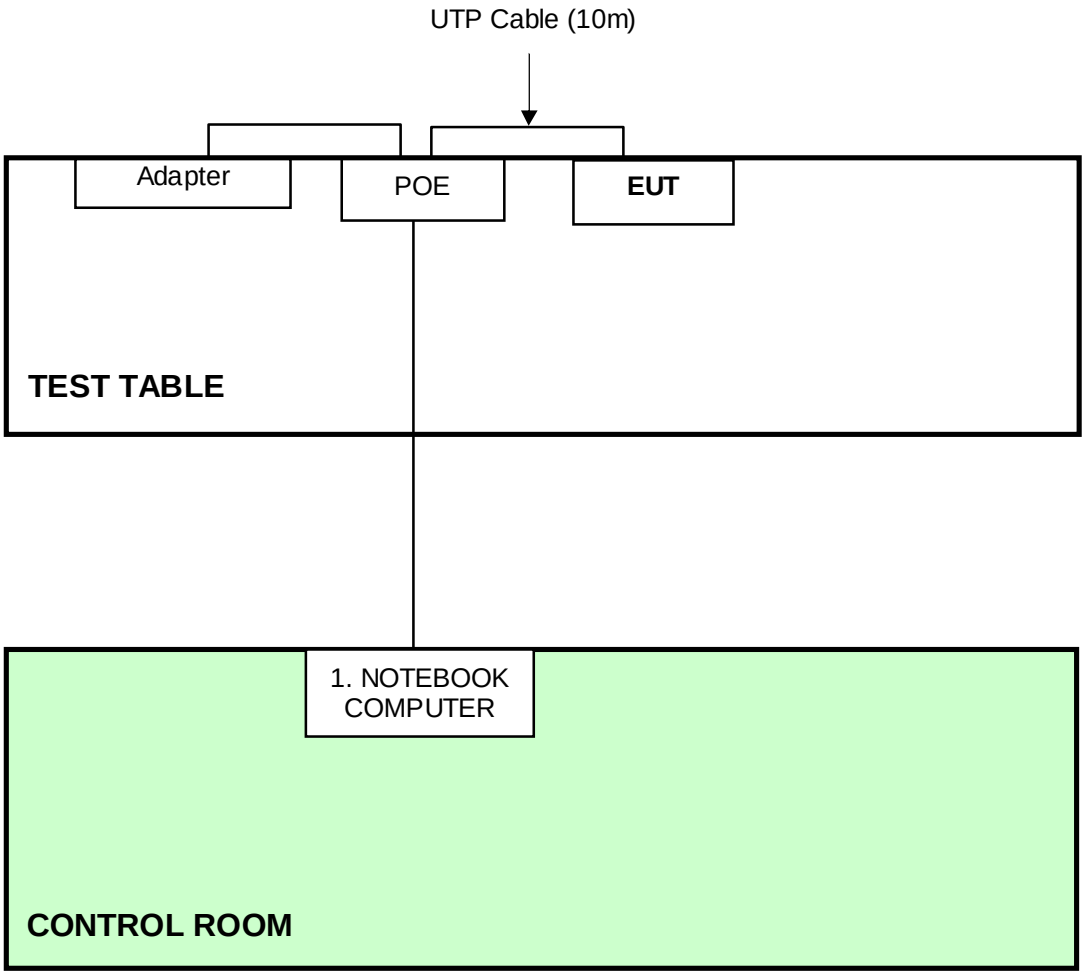
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7AV-0124	FCC DoC

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

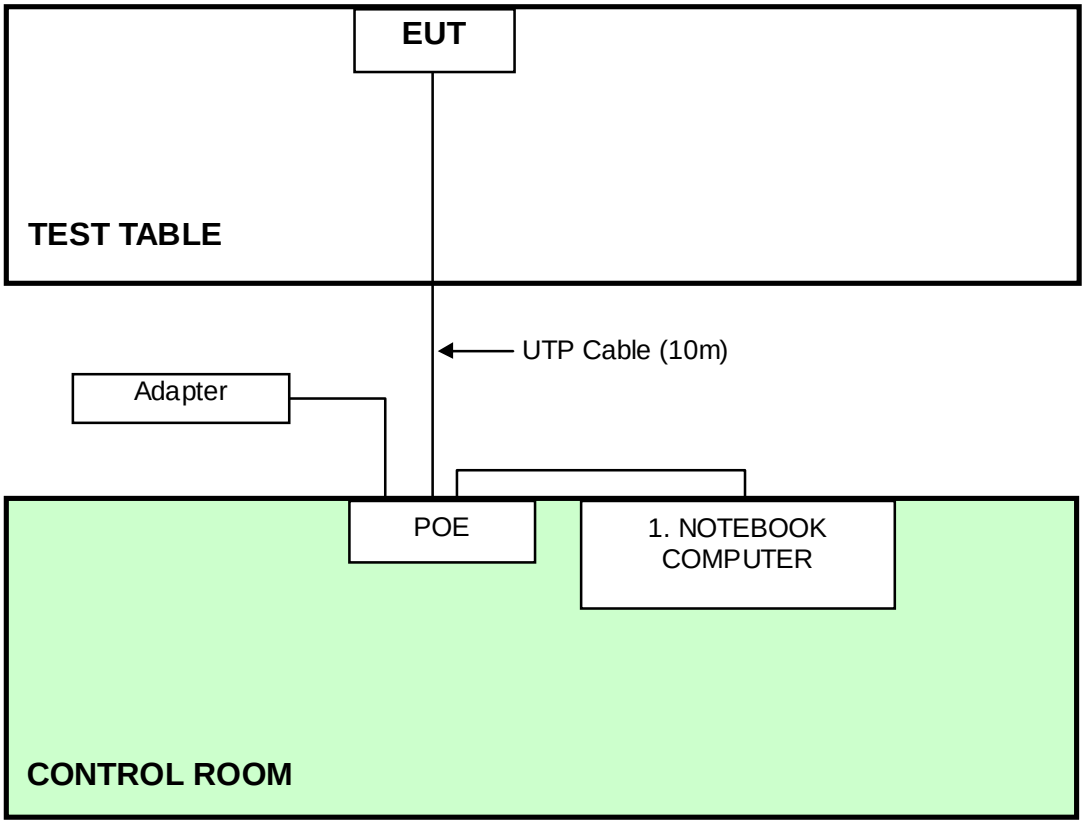
NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted Test:



For Radiated Test:



4. TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 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 0.50 MHz.
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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	March 11, 2008	March 10, 2009
Line-Impedance Stabilization Network(for EUT)	KNW-407	8-1395-12	May 07, 2008	May 06, 2009
Line-Impedance Stabilization Network(for Peripheral)	ENV-216	100072	June 13, 2008	June 12, 2009
RF Cable (JYEBAO)	5DFB	COACAB-001	July 24, 2008	July 23, 2009
50 ohms Terminator	50	3	Nov. 16, 2008	Nov. 15, 2009
Software	ADT_Cond_V7.3.2	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 Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

4.1.3 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.

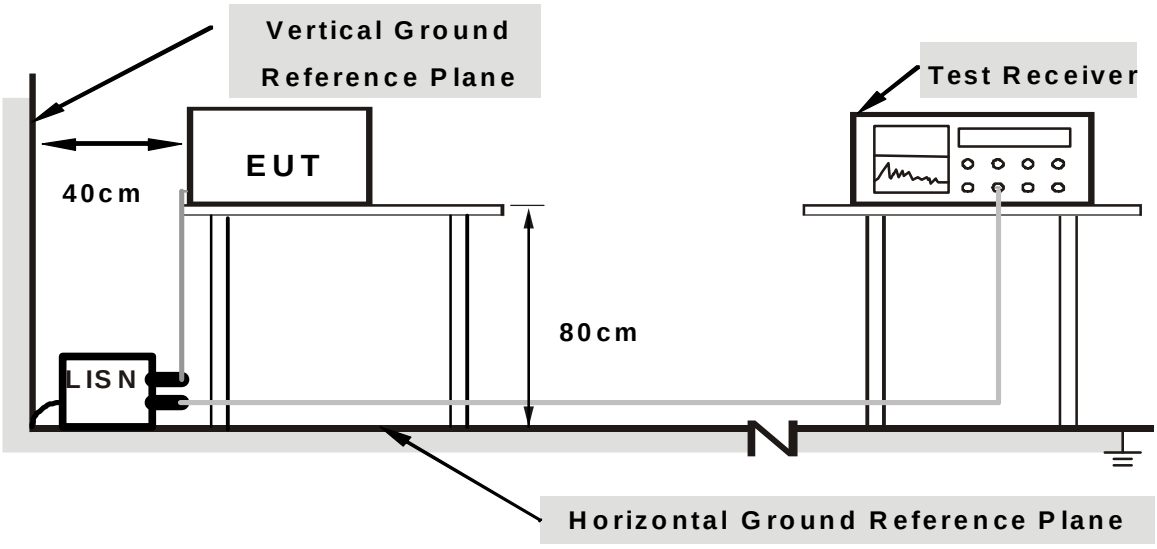
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 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 related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer system (support unit 1) to act as communication partner and placed it outside of testing area.
3. The communication partner runs test program"ART V7_b13" to enable EUT under transmission condition continuously at specific channel frequency via UTP cable.

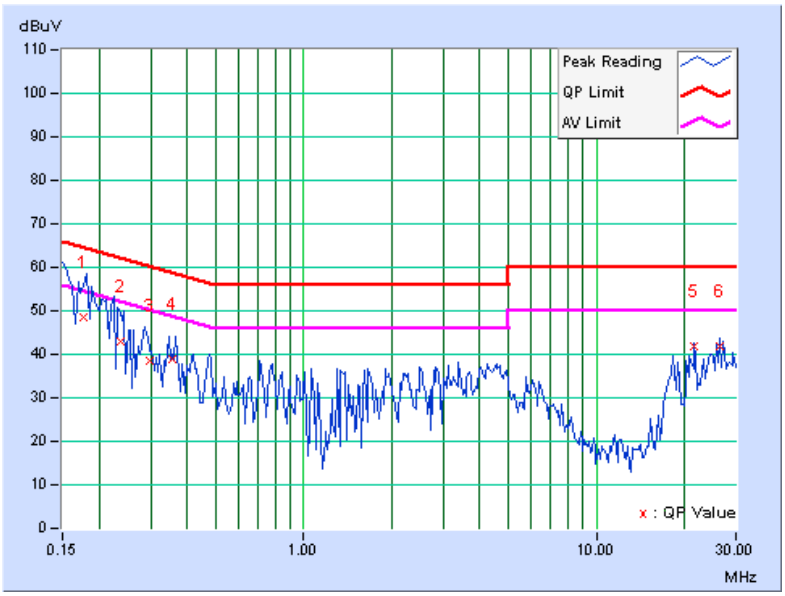
4.1.7 TEST RESULTS

802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23deg. C, 62%RH, 965hPa	TESTED BY	Moris Lin

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.178**	**0.56**	**48.09**	**-**	**48.65**	**-**	**64.60**	**54.60**	**-15.95**	**-**
2	0.237	0.49	42.61	-	43.10	-	62.19	52.19	-19.09	-
3	0.297	0.46	38.16	-	38.62	-	60.32	50.32	-21.70	-
4	0.355	0.43	38.58	-	39.01	-	58.83	48.83	-19.82	-
5	21.664	0.77	41.05	-	41.82	-	60.00	50.00	-18.18	-
6	26.489	0.87	41.12	-	41.99	-	60.00	50.00	-18.01	-

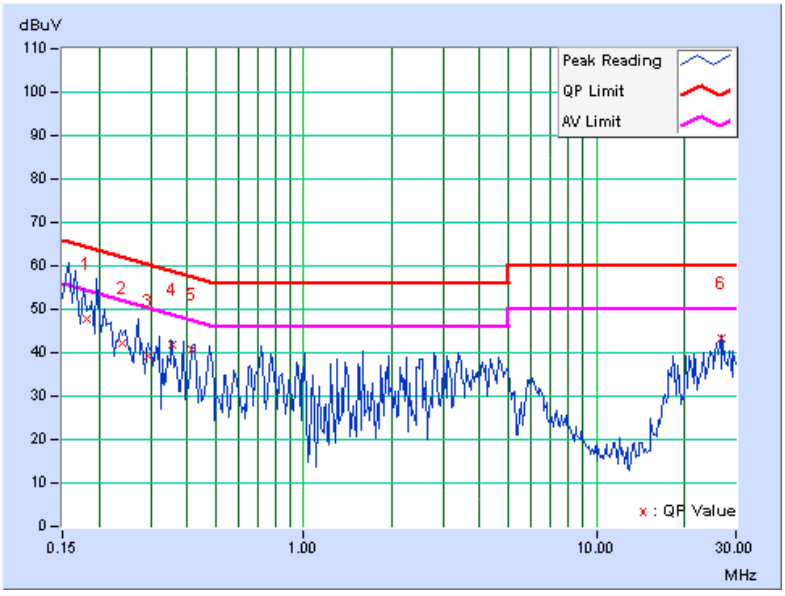
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	23deg. C, 62%RH, 965hPa	TESTED BY	Moris Lin

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.180	0.30	47.52	-	47.82	-	64.47	54.47	-16.64	-
2	0.239	0.24	42.16	-	42.40	-	62.14	52.14	-19.74	-
3	0.296	0.22	39.06	-	39.28	-	60.35	50.35	-21.07	-
4	0.356	0.20	41.83	-	42.03	-	58.81	48.81	-16.79	-
5	0.415	0.18	40.52	-	40.70	-	57.55	47.55	-16.85	-
6	26.609	0.69	42.57	-	43.26	-	60.00	50.00	-16.74	-

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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 06, 2008	Dec. 05, 2009
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

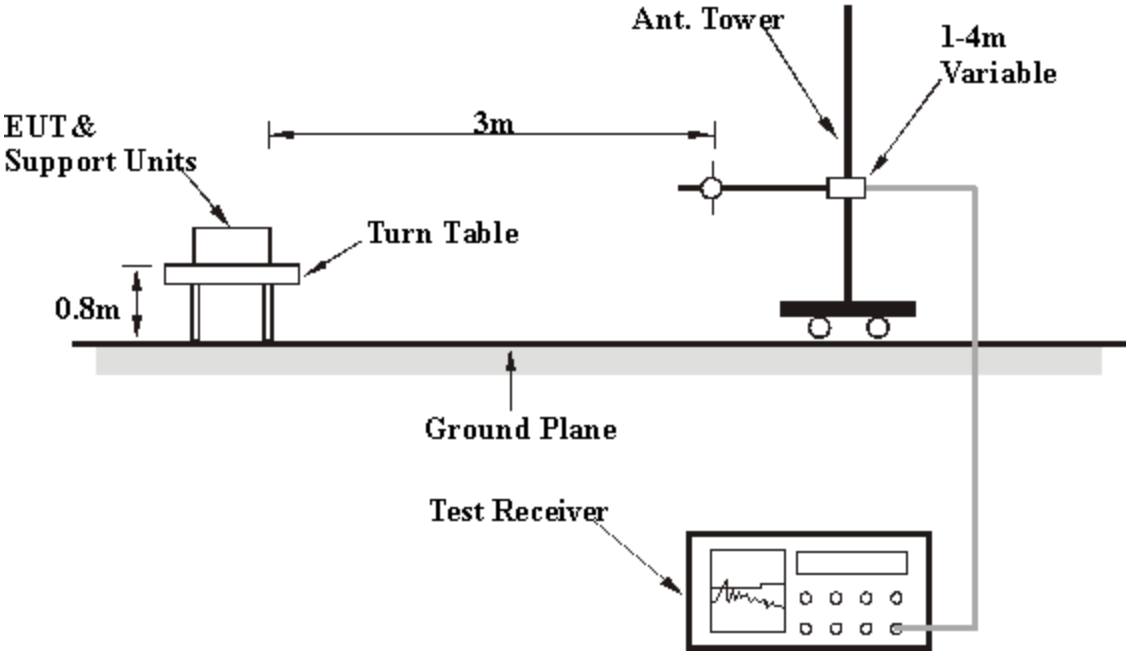
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

Below 1GHz Test Data – with PCB antenna

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH 965hPa	TESTED BY	Rex Huang

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	73.50	19.78 QP	40.00	-20.22	2.18 H	67	7.20	12.58
2	125.00	25.07 QP	43.50	-18.43	1.87 H	259	10.95	14.12
3	200.00	29.71 QP	43.50	-13.79	1.62 H	246	16.73	12.98
4	250.00	40.47 QP	46.00	-5.53	1.16 H	280	25.05	15.42
5	375.00	33.93 QP	46.00	-12.07	1.00 H	38	13.83	20.10
6	500.00	33.53 QP	46.00	-12.47	1.58 H	20	10.87	22.66
7	625.00	42.45 QP	46.00	-3.55	1.35 H	36	17.11	25.34
8	750.00	31.18 QP	46.00	-14.82	1.00 H	278	2.72	28.46
9	875.00	35.72 QP	46.00	-10.28	1.32 H	32	5.00	30.72
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	73.50	28.10 QP	40.00	-11.90	1.00 V	333	15.52	12.58
2	125.00	29.77 QP	43.50	-13.73	1.00 V	177	15.65	14.12
3	200.00	27.87 QP	43.50	-15.63	1.00 V	196	14.89	12.98
4	250.00	33.18 QP	46.00	-12.82	1.00 V	196	17.76	15.42
5	375.00	35.91 QP	46.00	-10.09	1.00 V	358	15.81	20.10
6	500.00	33.23 QP	46.00	-12.77	1.00 V	70	10.57	22.66
7	625.00	40.13 QP	46.00	-5.87	1.20 V	355	14.79	25.34
8	750.00	29.03 QP	46.00	-16.97	1.15 V	20	0.57	28.46
9	875.00	32.36 QP	46.00	-13.64	1.00 V	336	1.64	30.72

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.

Above 1GHz Test Data – with PCB antenna

4.2.8 TEST RESULTS

802.11b DSSS MODULATION

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	2387.28	62.03 PK	74.00	-11.97	1.15 H	11	31.98	30.05
2	2387.28	51.47 AV	54.00	-2.53	1.15 H	11	21.42	30.05
3	*2412.00	118.04 PK			1.05 H	357	87.89	30.15
4	*2412.00	113.03 AV			1.05 H	357	82.88	30.15
5	4824.00	50.50 PK	74.00	-23.50	1.00 H	1	15.04	35.46
6	4824.00	44.80 AV	54.00	-9.20	1.00 H	1	9.34	35.46
7	#7236.00	51.80 PK	98.04	-46.24	1.13 H	16	9.95	41.85
8	#7236.00	38.10 AV	93.03	-54.93	1.13 H	16	-3.75	41.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.32	63.19 PK	74.00	-10.81	1.02 V	11	33.14	30.05
2	2386.32	53.35 AV	54.00	-0.65	1.02 V	11	23.30	30.05
3	*2412.00	116.42 PK			1.01 V	12	86.27	30.15
4	*2412.00	112.15 AV			1.01 V	12	82.00	30.15
5	4824.00	52.50 PK	74.00	-21.50	1.10 V	359	17.04	35.46
6	4824.00	47.40 AV	54.00	-6.60	1.10 V	359	11.94	35.46
7	#7236.00	52.00 PK	96.42	-44.42	1.23 V	20	10.15	41.85
8	#7236.00	38.30 AV	92.15	-53.85	1.23 V	20	-3.55	41.85

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

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	119.00 PK			1.08 H	356	88.76	30.24
2	*2437.00	115.20 AV			1.08 H	356	84.96	30.24
3	2488.10	61.12 PK	74.00	-12.88	1.07 H	3	30.68	30.44
4	2488.10	49.80 AV	54.00	-4.20	1.07 H	3	19.36	30.44
5	4874.00	53.50 PK	74.00	-20.50	1.00 H	1	17.95	35.55
6	4874.00	49.40 AV	54.00	-4.60	1.00 H	1	13.85	35.55
7	7311.00	52.10 PK	74.00	-21.90	1.12 H	11	10.06	42.04
8	7311.00	38.70 AV	54.00	-15.30	1.12 H	11	-3.34	42.04
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	119.70 PK			1.02 V	350	89.46	30.24
2	*2437.00	114.60 AV			1.02 V	350	84.36	30.24
3	2484.60	61.91 PK	74.00	-12.09	1.00 V	3	31.48	30.43
4	2484.60	51.16 AV	54.00	-2.84	1.00 V	3	20.73	30.43
5	4874.00	53.90 PK	74.00	-20.10	1.07 V	359	18.35	35.55
6	4874.00	50.70 AV	54.00	-3.30	1.07 V	359	15.15	35.55
7	7311.00	52.30 PK	74.00	-21.70	1.25 V	13	10.26	42.04
8	7311.00	39.20 AV	54.00	-14.80	1.25 V	13	-2.84	42.04

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	115.77 PK			1.07 H	0	85.43	30.34
2	*2462.00	111.77 AV			1.07 H	0	81.43	30.34
3	2488.12	63.36 PK	74.00	-10.64	1.08 H	1	32.92	30.44
4	2488.12	52.76 AV	54.00	-1.24	1.08 H	1	22.32	30.44
5	4924.00	52.90 PK	74.00	-21.10	1.03 H	358	17.27	35.63
6	4924.00	48.70 AV	54.00	-5.30	1.03 H	358	13.07	35.63
7	7386.00	51.90 PK	74.00	-22.10	1.09 H	9	9.67	42.23
8	7386.00	40.00 AV	54.00	-14.00	1.09 H	9	-2.23	42.23
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	116.65 PK			1.01 V	0	86.31	30.34
2	*2462.00	111.53 AV			1.01 V	0	81.19	30.34
3	2487.03	63.49 PK	74.00	-10.51	1.01 V	2	33.05	30.44
4	2487.03	53.01 AV	54.00	-0.99	1.01 V	2	22.57	30.44
5	4924.00	51.70 PK	74.00	-22.30	1.04 V	1	16.07	35.63
6	4924.00	47.00 AV	54.00	-7.00	1.04 V	1	11.37	35.63
7	7386.00	51.90 PK	74.00	-22.10	1.17 V	11	9.67	42.23
8	7386.00	39.80 AV	54.00	-14.20	1.17 V	11	-2.43	42.23

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

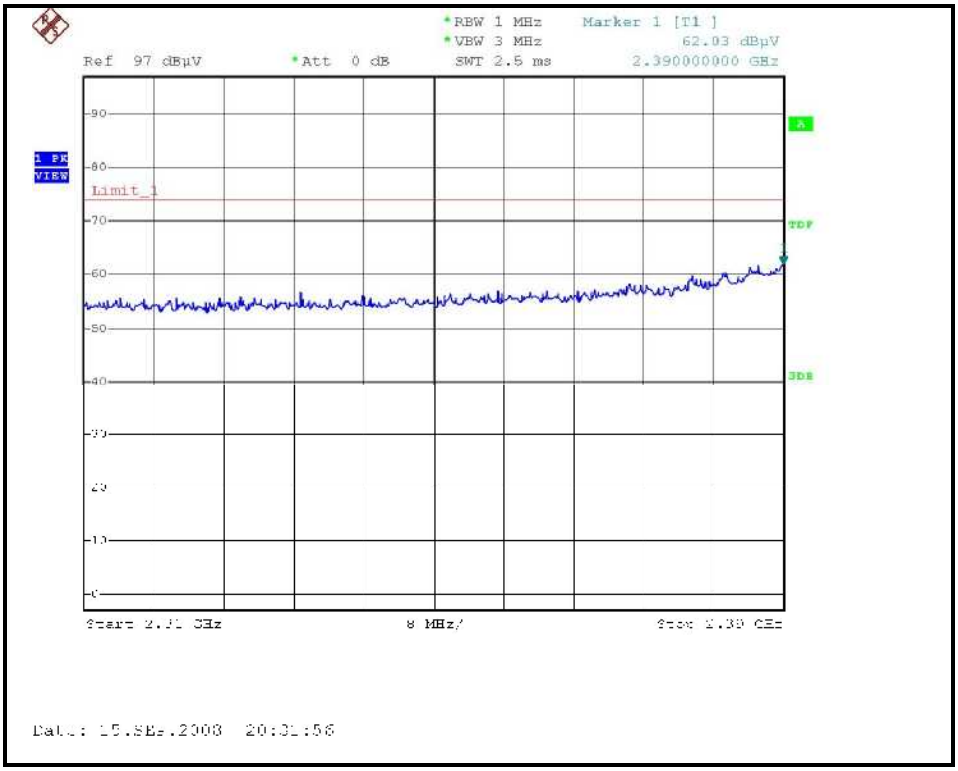
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

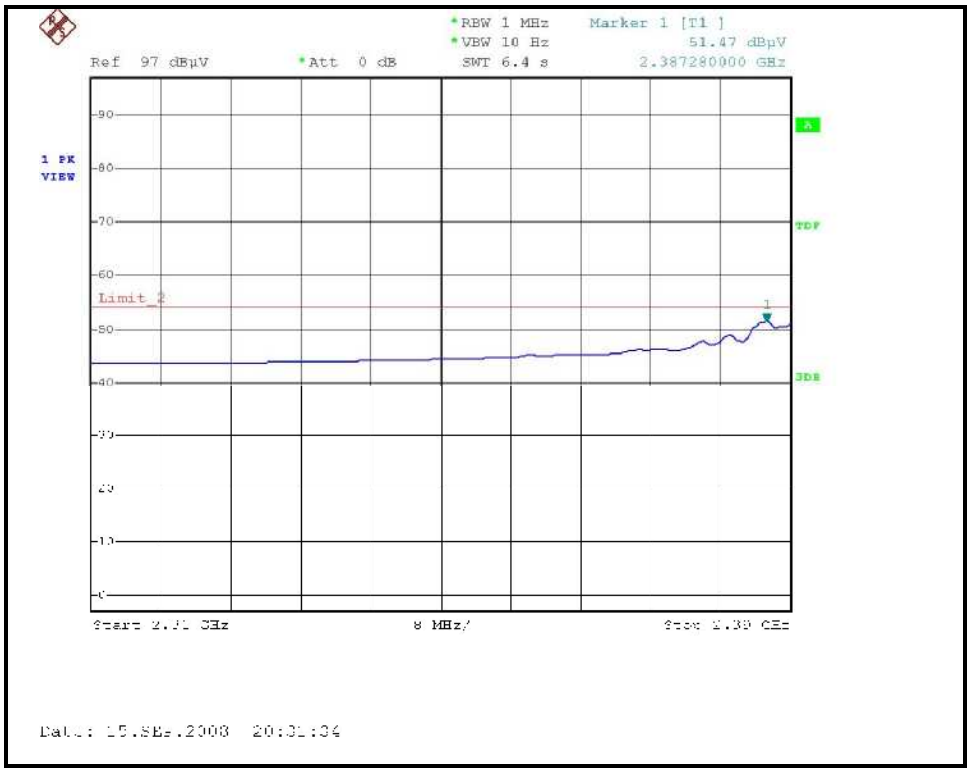
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

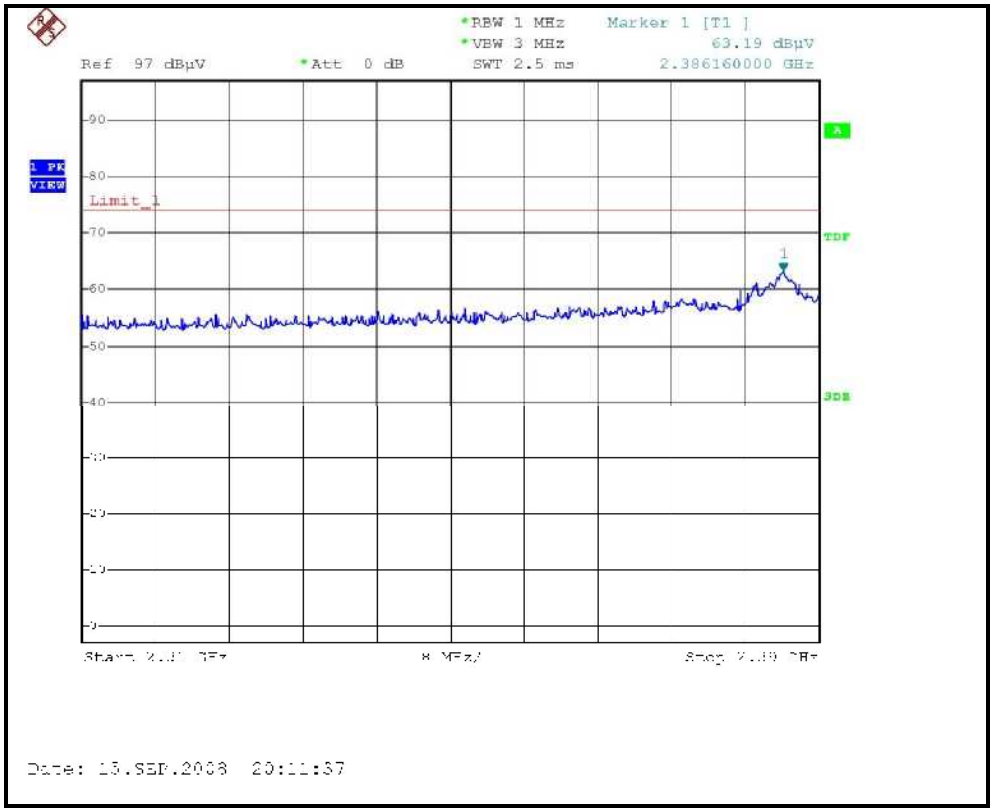
5. " * ": Fundamental frequency.

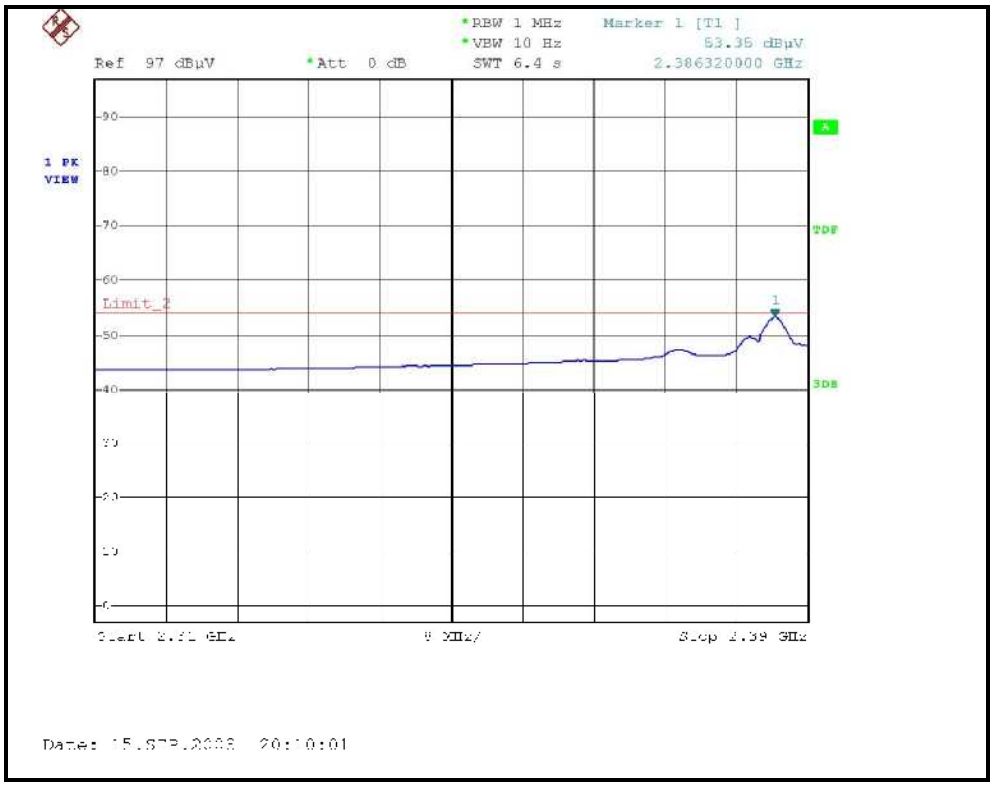
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



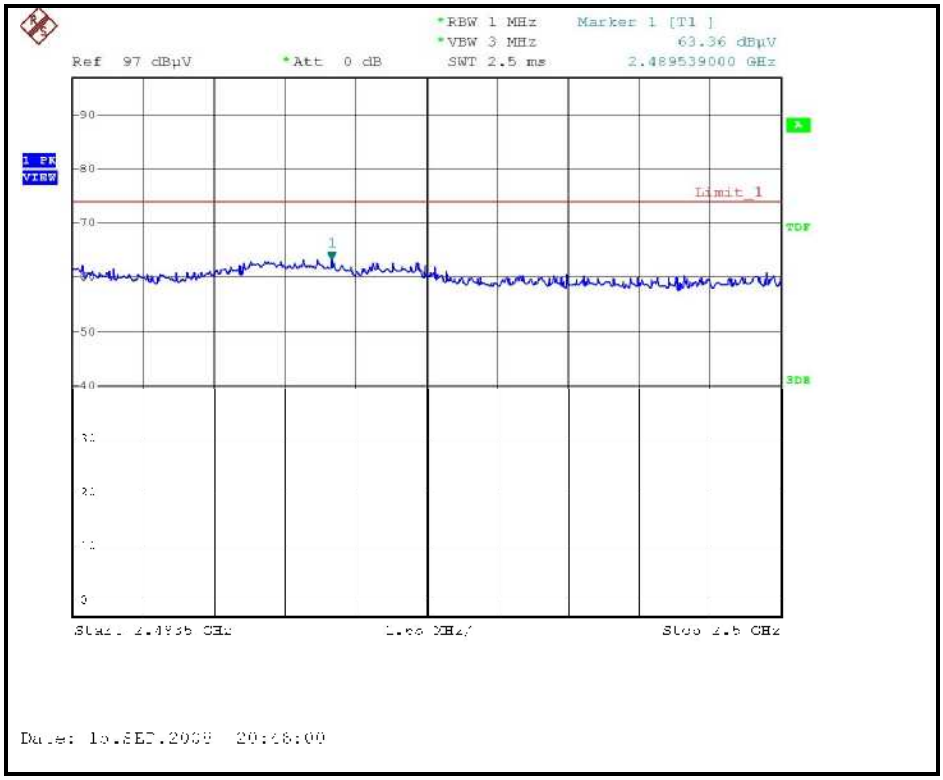


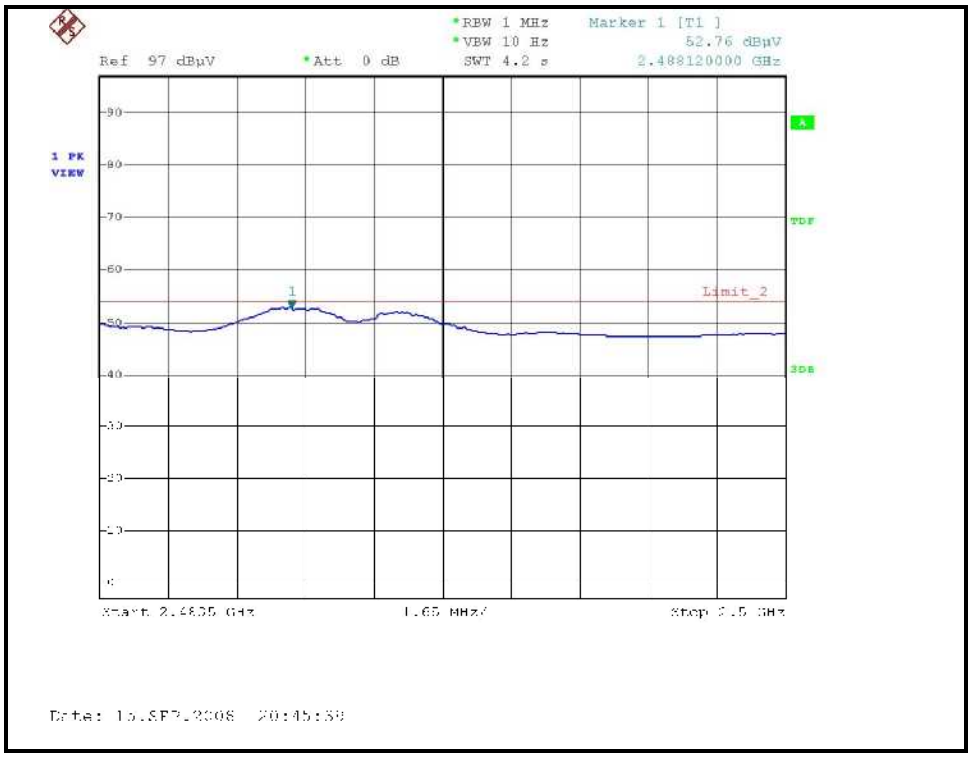
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



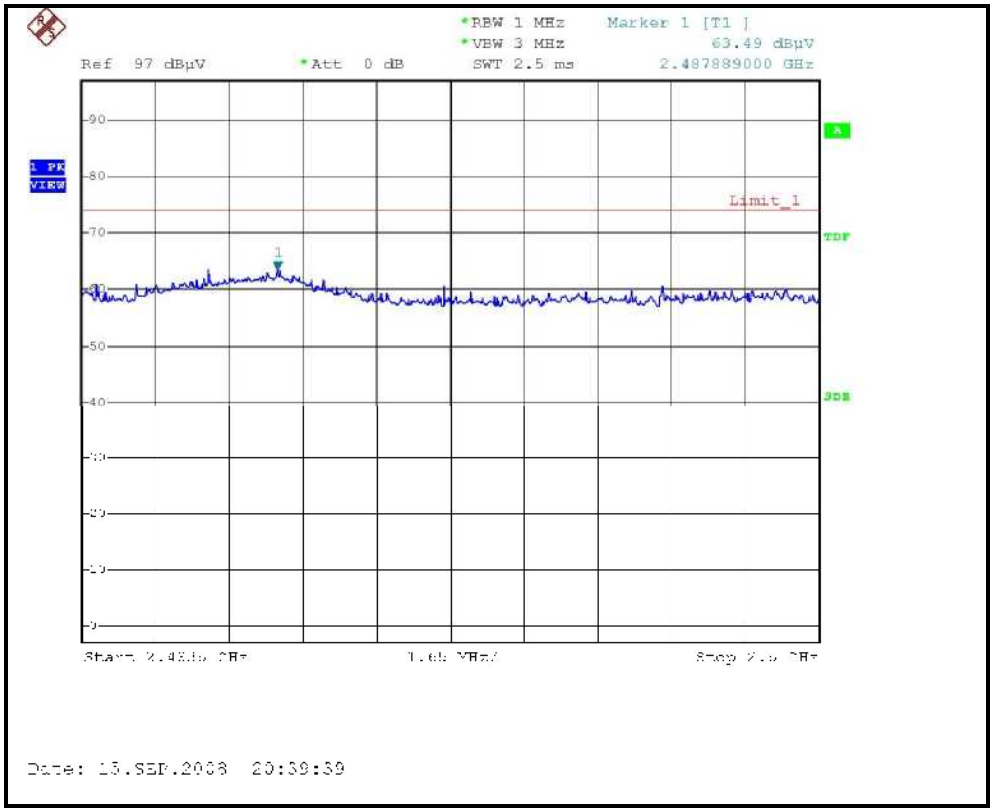


RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM MODULATION

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.07 PK	74.00	-2.93	1.13 H	358	41.01	30.06
2	2390.00	52.55 AV	54.00	-1.45	1.13 H	358	22.49	30.06
3	*2412.00	115.40 PK			1.10 H	357	85.25	30.15
4	*2412.00	104.50 AV			1.10 H	357	74.35	30.15
5	4824.00	46.40 PK	74.00	-27.60	1.00 H	1	10.94	35.46
6	4824.00	32.50 AV	54.00	-21.50	1.00 H	1	-2.96	35.46
7	#7236.00	51.80 PK	95.40	-43.60	1.13 H	9	9.95	41.85
8	#7236.00	38.10 AV	84.50	-46.40	1.13 H	9	-3.75	41.85
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	67.74 PK	74.00	-6.26	1.04 V	346	37.68	30.06
2	2390.00	50.14 AV	54.00	-3.86	1.04 V	346	20.08	30.06
3	*2412.00	113.10 PK			1.02 V	349	82.95	30.15
4	*2412.00	102.90 AV			1.02 V	349	72.75	30.15
5	4824.00	48.00 PK	74.00	-26.00	1.10 V	357	12.54	35.46
6	4824.00	33.80 AV	54.00	-20.20	1.10 V	357	-1.66	35.46
7	#7236.00	52.00 PK	93.10	-41.10	1.22 V	26	10.15	41.85
8	#7236.00	38.20 AV	82.90	-44.70	1.22 V	26	-3.65	41.85

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

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	119.50 PK			1.07 H	356	89.26	30.24
2	*2437.00	108.60 AV			1.07 H	356	78.36	30.24
3	2483.50	70.17 PK	74.00	-3.83	1.08 H	357	39.74	30.43
4	2483.50	52.72 AV	54.00	-1.28	1.08 H	357	22.29	30.43
5	4874.00	49.60 PK	74.00	-24.40	1.00 H	1	14.05	35.55
6	4874.00	36.20 AV	54.00	-17.80	1.00 H	1	0.65	35.55
7	7311.00	51.50 PK	74.00	-22.50	1.15 H	14	9.46	42.04
8	7311.00	37.90 AV	54.00	-16.10	1.15 H	14	-4.14	42.04
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	118.76 PK			1.01 V	10	88.52	30.24
2	*2437.00	108.70 AV			1.01 V	10	78.46	30.24
3	2485.80	65.18 PK	74.00	-8.82	1.00 V	3	34.75	30.43
4	2485.80	51.68 AV	54.00	-2.32	1.00 V	3	21.25	30.43
5	4874.00	50.70 PK	74.00	-23.30	1.06 V	359	15.15	35.55
6	4874.00	37.10 AV	54.00	-16.90	1.06 V	359	1.55	35.55
7	7311.00	51.60 PK	74.00	-22.40	1.24 V	18	9.56	42.04
8	7311.00	38.10 AV	54.00	-15.90	1.24 V	18	-3.94	42.04

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.70 PK			1.08 H	357	83.36	30.34
2	*2462.00	102.80 AV			1.08 H	357	72.46	30.34
3	2483.50	72.78 PK	74.00	-1.22	1.08 H	356	42.35	30.43
4	2483.50	52.43 AV	54.00	-1.57	1.08 H	356	22.00	30.43
5	4924.00	48.30 PK	74.00	-25.70	1.03 H	359	12.67	35.63
6	4924.00	34.20 AV	54.00	-19.80	1.03 H	359	-1.43	35.63
7	7386.00	51.80 PK	74.00	-22.20	1.16 H	4	9.57	42.23
8	7386.00	37.90 AV	54.00	-16.10	1.16 H	4	-4.33	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.40 PK			1.00 V	3	84.06	30.34
2	*2462.00	103.40 AV			1.00 V	3	73.06	30.34
3	2485.50	71.56 PK	74.00	-2.44	1.00 V	356	41.13	30.43
4	2485.50	50.40 AV	54.00	-3.60	1.00 V	356	19.97	30.43
5	4924.00	47.70 PK	74.00	-26.30	1.06 V	359	12.07	35.63
6	4924.00	33.30 AV	54.00	-20.70	1.06 V	359	-2.33	35.63
7	7386.00	51.80 PK	74.00	-22.20	1.17 V	20	9.57	42.23
8	7386.00	37.80 AV	54.00	-16.20	1.17 V	20	-4.43	42.23

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

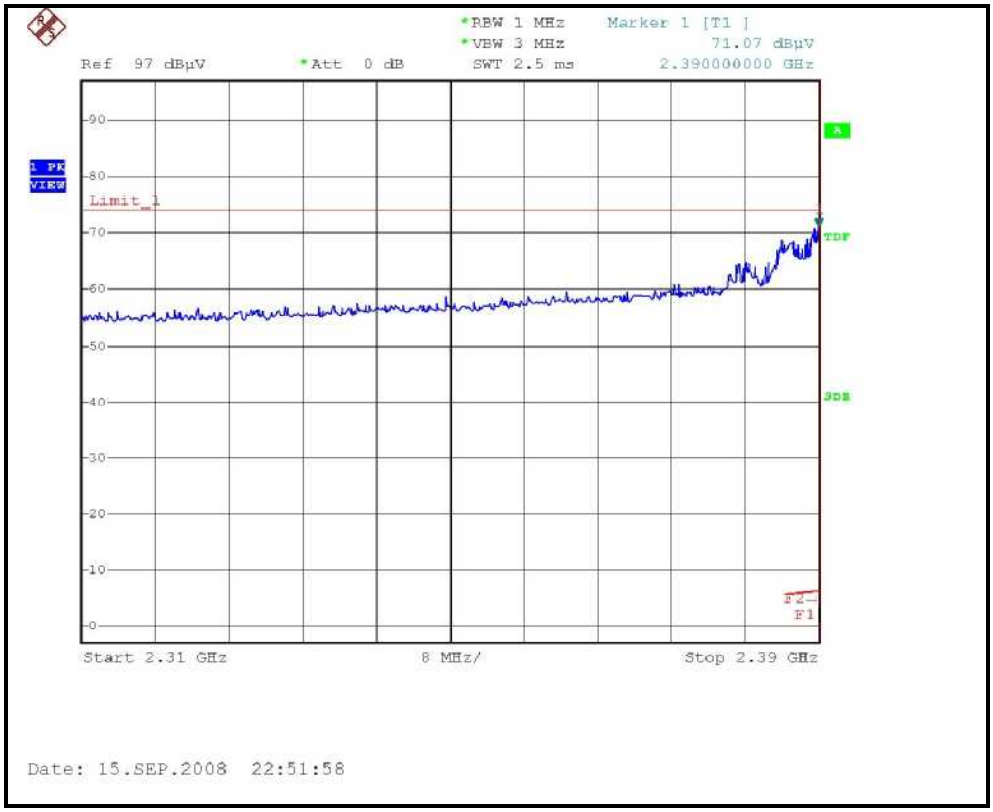
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



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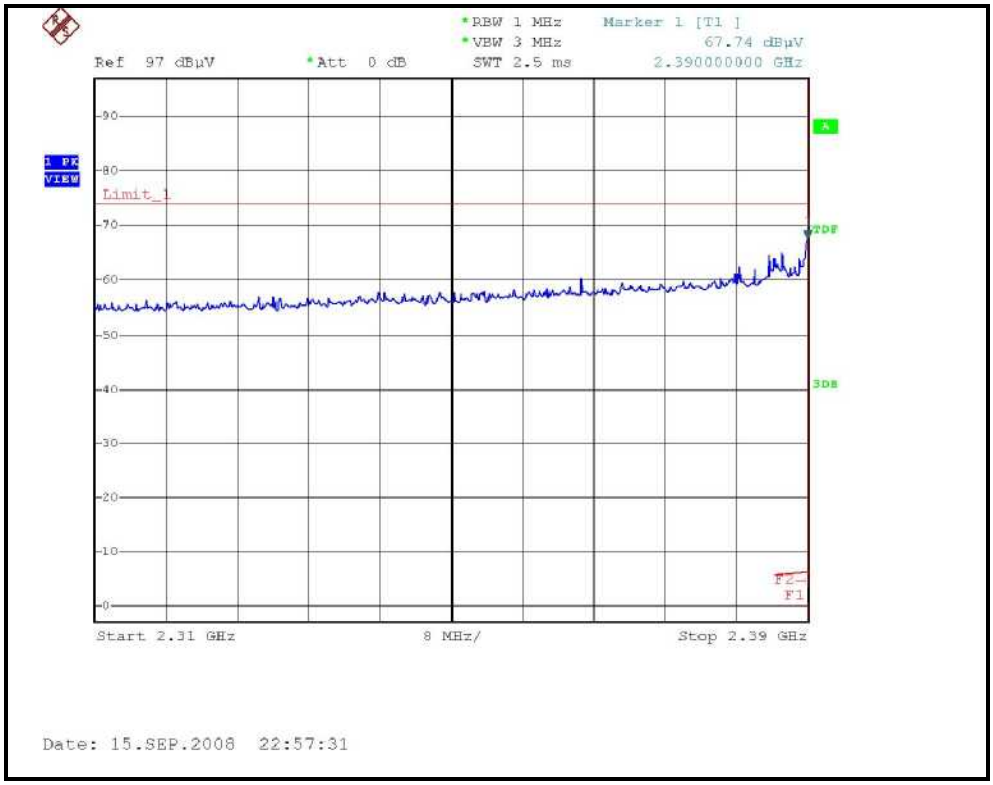

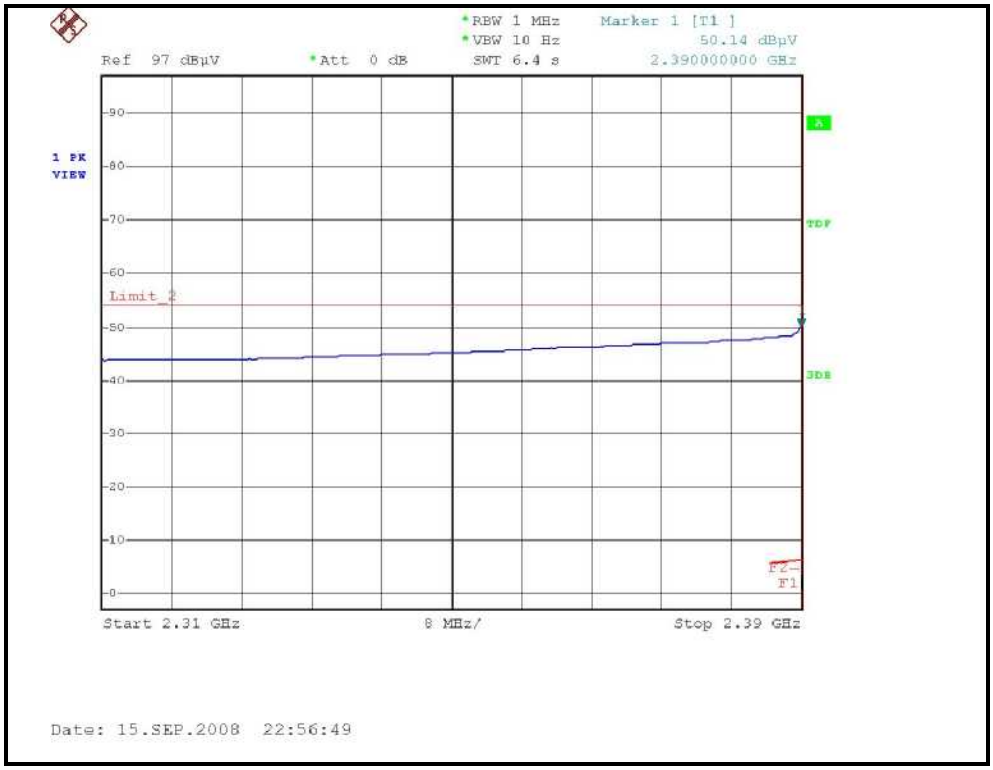

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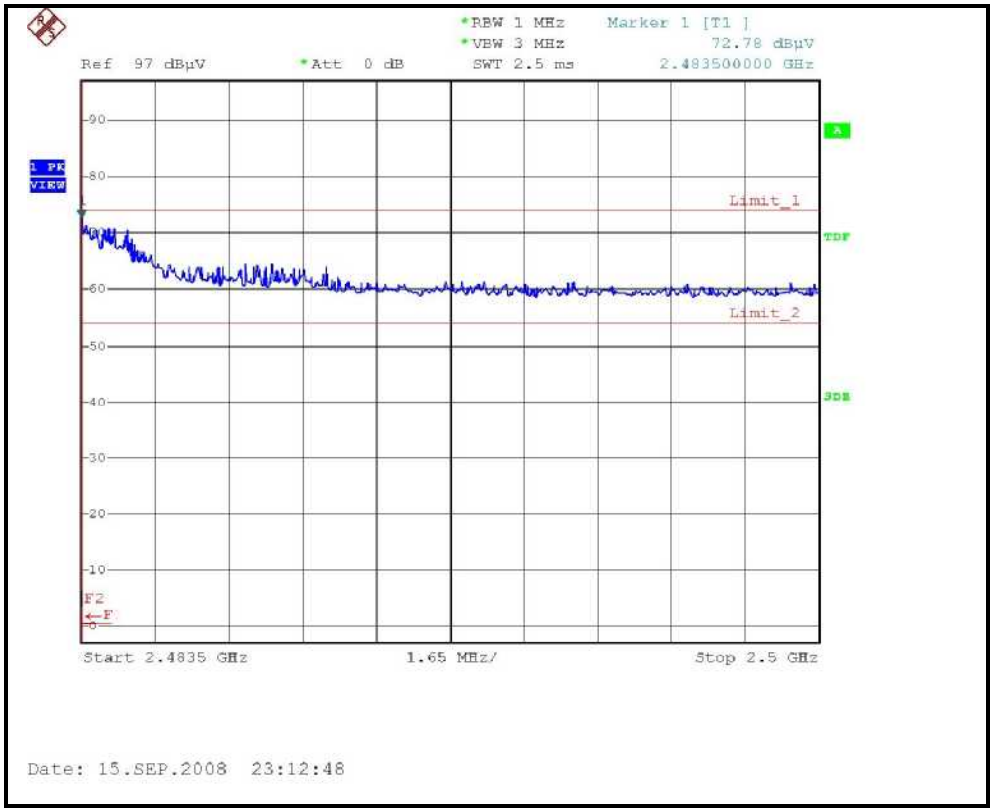

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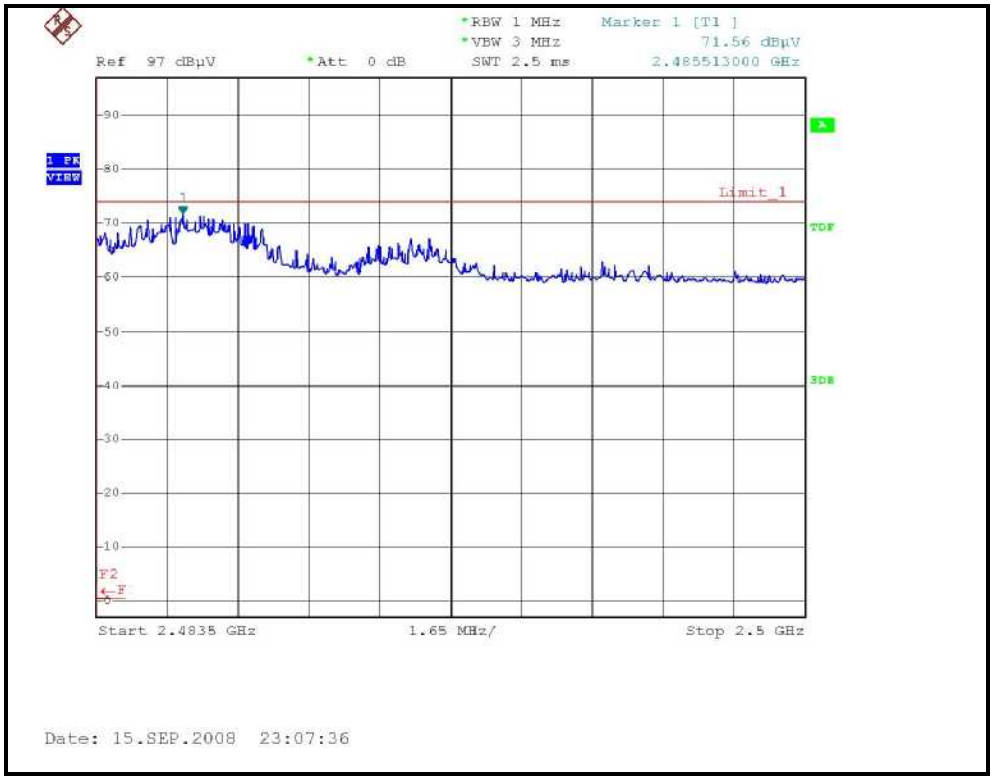
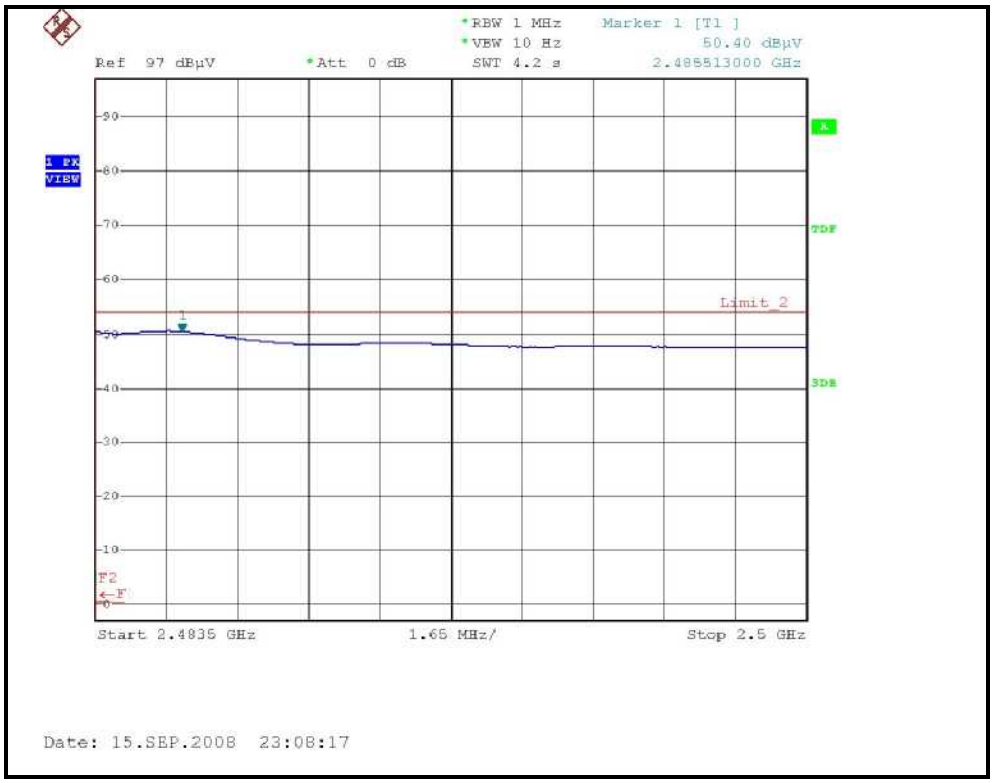




DRAFT 802.11n (20MHz) OFDM MODULATION

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.74 PK	74.00	-3.26	1.14 H	0	40.68	30.06
2	2390.00	53.40 AV	54.00	-0.60	1.14 H	0	23.34	30.06
3	*2412.00	114.70 PK			1.07 H	355	84.55	30.15
4	*2412.00	101.30 AV			1.07 H	355	71.15	30.15
5	4824.00	46.60 PK	74.00	-27.40	1.00 H	2	11.14	35.46
6	4824.00	32.60 AV	54.00	-21.40	1.00 H	2	-2.86	35.46
7	#7236.00	52.00 PK	94.70	-42.70	1.12 H	12	10.15	41.85
8	#7236.00	38.20 AV	81.30	-43.10	1.12 H	12	-3.65	41.85
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	70.96 PK	74.00	-3.04	1.04 V	10	40.90	30.06
2	**2390.00**	**53.43 AV**	**54.00**	**-0.57**	**1.04 V**	**10**	**23.37**	**30.06**
3	*2412.00	114.40 PK			1.02 V	10	84.25	30.15
4	*2412.00	101.30 AV			1.02 V	10	71.15	30.15
5	4824.00	47.50 PK	74.00	-26.50	1.13 V	351	12.04	35.46
6	4824.00	33.90 AV	54.00	-20.10	1.13 V	351	-1.56	35.46
7	#7236.00	51.90 PK	94.40	-42.50	1.19 V	18	10.05	41.85
8	#7236.00	38.10 AV	81.30	-43.20	1.19 V	18	-3.75	41.85

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

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	118.30 PK			1.09 H	354	88.06	30.24
2	*2437.00	104.80 AV			1.09 H	354	74.56	30.24
3	2483.50	66.40 PK	74.00	-7.60	1.08 H	353	35.97	30.43
4	2483.50	52.37 AV	54.00	-1.63	1.08 H	353	21.94	30.43
5	4874.00	49.00 PK	74.00	-25.00	1.00 H	1	13.45	35.55
6	4874.00	35.20 AV	54.00	-18.80	1.00 H	1	-0.35	35.55
7	7311.00	51.60 PK	74.00	-22.40	1.11 H	9	9.56	42.04
8	7311.00	38.00 AV	54.00	-16.00	1.11 H	9	-4.04	42.04
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	117.40 PK			1.03 V	350	87.16	30.24
2	*2437.00	104.30 AV			1.03 V	350	74.06	30.24
3	2483.50	62.20 PK	74.00	-11.80	1.00 V	360	31.77	30.43
4	2483.50	50.71 AV	54.00	-3.29	1.00 V	360	20.28	30.43
5	4874.00	49.10 PK	74.00	-24.90	1.07 V	359	13.55	35.55
6	4874.00	35.50 AV	54.00	-18.50	1.07 V	359	-0.05	35.55
7	7311.00	51.50 PK	74.00	-22.50	1.23 V	17	9.46	42.04
8	7311.00	38.10 AV	54.00	-15.90	1.23 V	17	-3.94	42.04

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	112.60 PK			1.08 H	355	82.26	30.34
2	*2462.00	99.40 AV			1.08 H	355	69.06	30.34
3	2483.50	69.51 PK	74.00	-4.49	1.08 H	0	39.08	30.43
4	2483.50	52.29 AV	54.00	-1.71	1.08 H	0	21.86	30.43
5	4924.00	47.70 PK	74.00	-26.30	1.02 H	359	12.07	35.63
6	4924.00	33.80 AV	54.00	-20.20	1.02 H	359	-1.83	35.63
7	7386.00	51.80 PK	74.00	-22.20	1.10 H	8	9.57	42.23
8	7386.00	38.10 AV	54.00	-15.90	1.10 H	8	-4.13	42.23
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	112.10 PK			1.02 V	351	81.76	30.34
2	*2462.00	99.30 AV			1.02 V	351	68.96	30.34
3	2483.50	67.46 PK	74.00	-6.54	1.00 V	3	37.03	30.43
4	2483.50	51.64 AV	54.00	-2.36	1.00 V	3	21.21	30.43
5	4924.00	46.60 PK	74.00	-27.40	1.05 V	0	10.97	35.63
6	4924.00	32.90 AV	54.00	-21.10	1.05 V	0	-2.73	35.63
7	7386.00	51.70 PK	74.00	-22.30	1.18 V	22	9.47	42.23
8	7386.00	37.60 AV	54.00	-16.40	1.18 V	22	-4.63	42.23

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

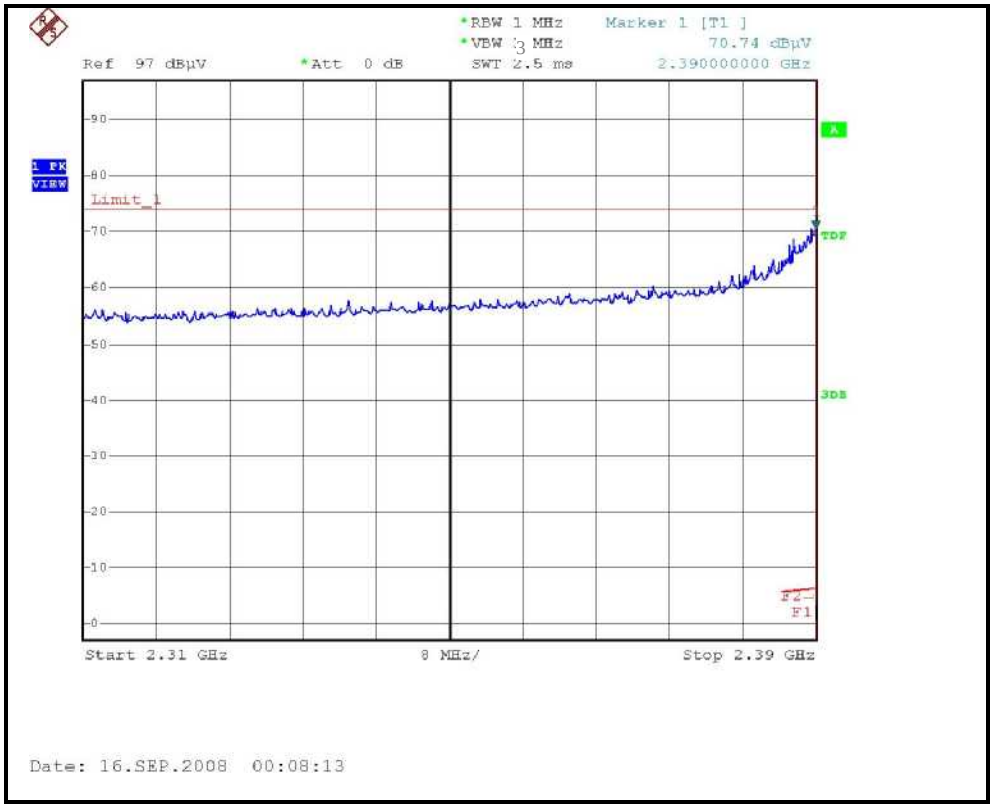
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

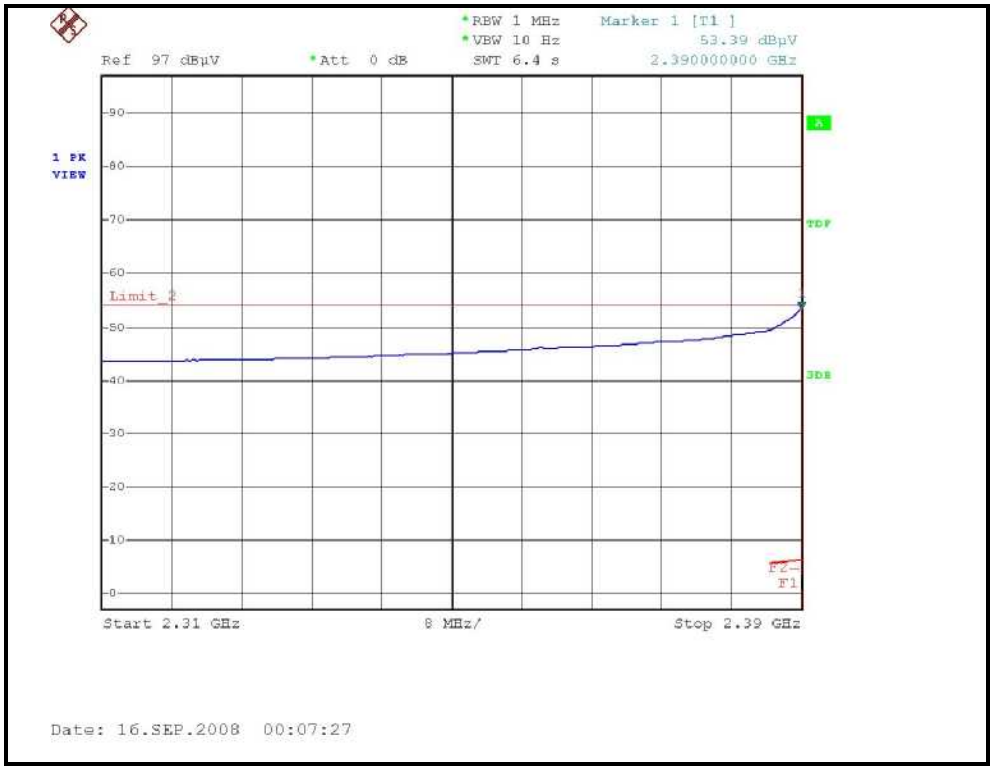
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

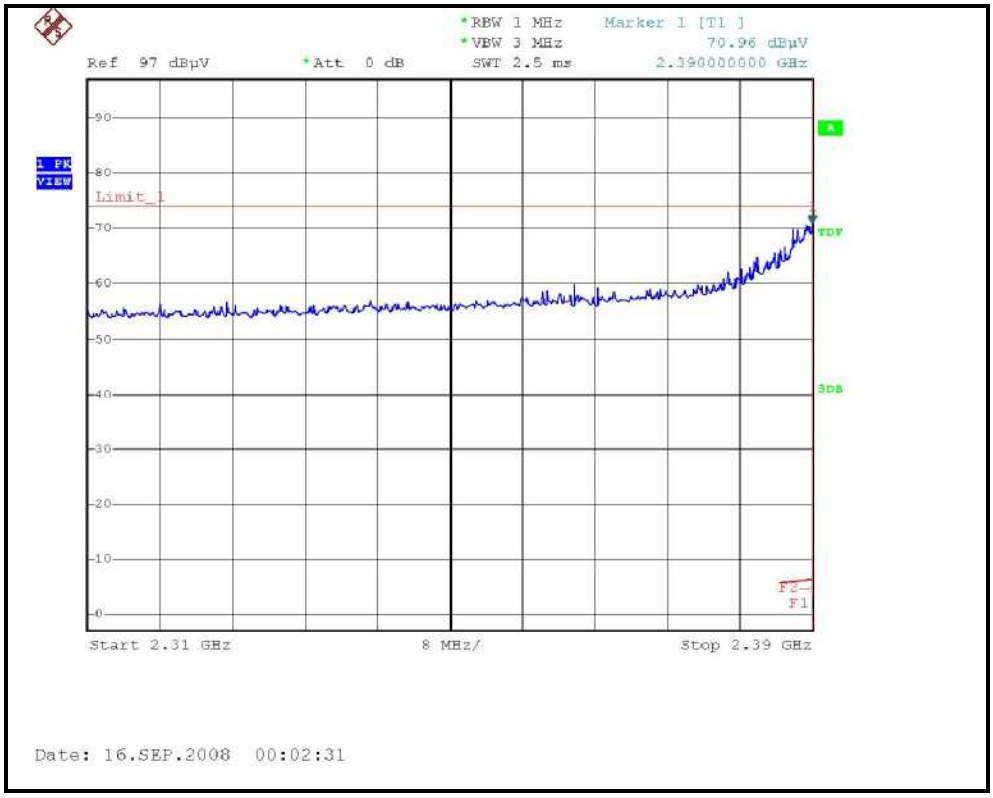
5. " * ": Fundamental frequency.

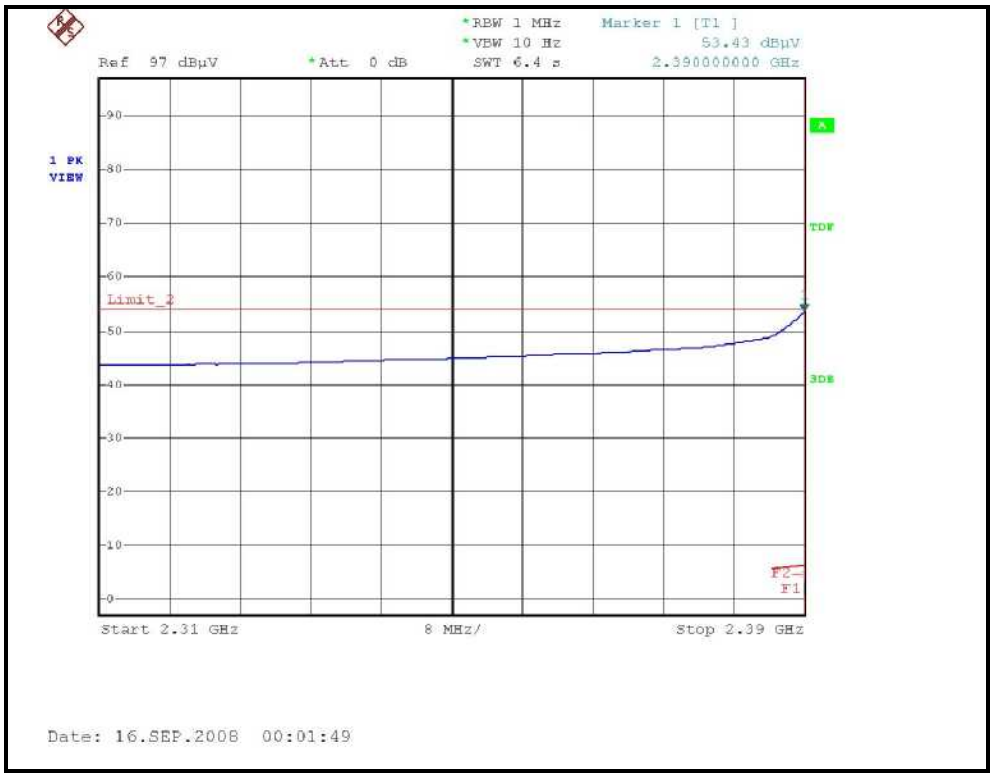
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



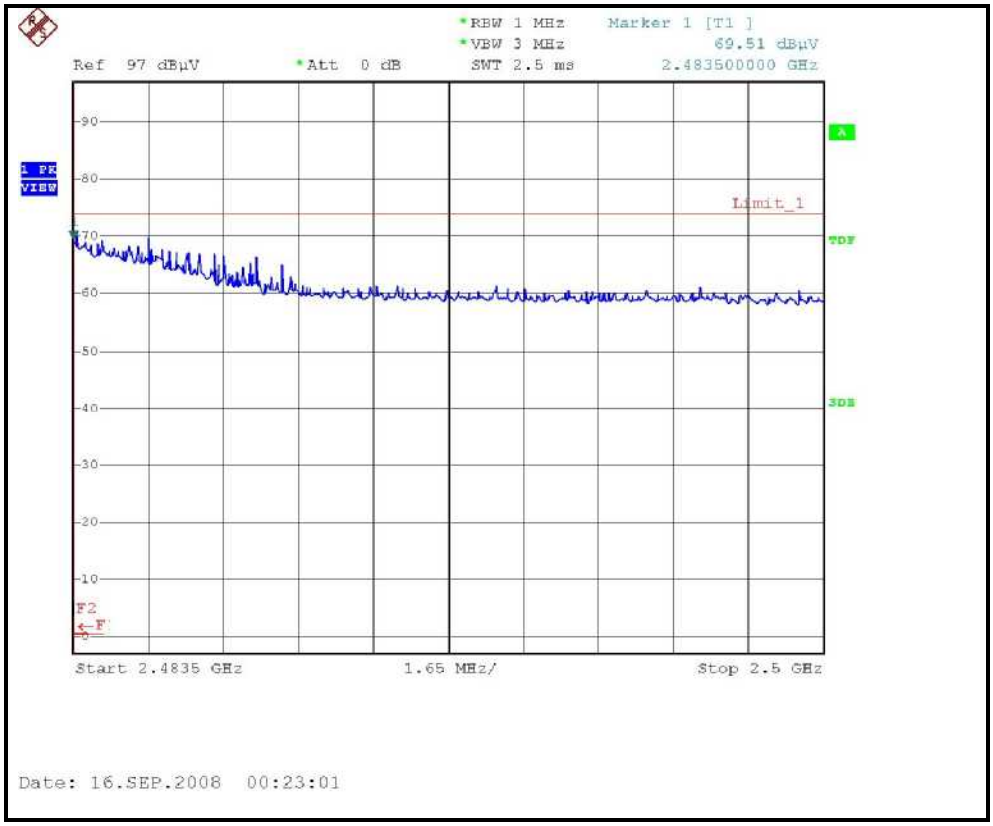


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)

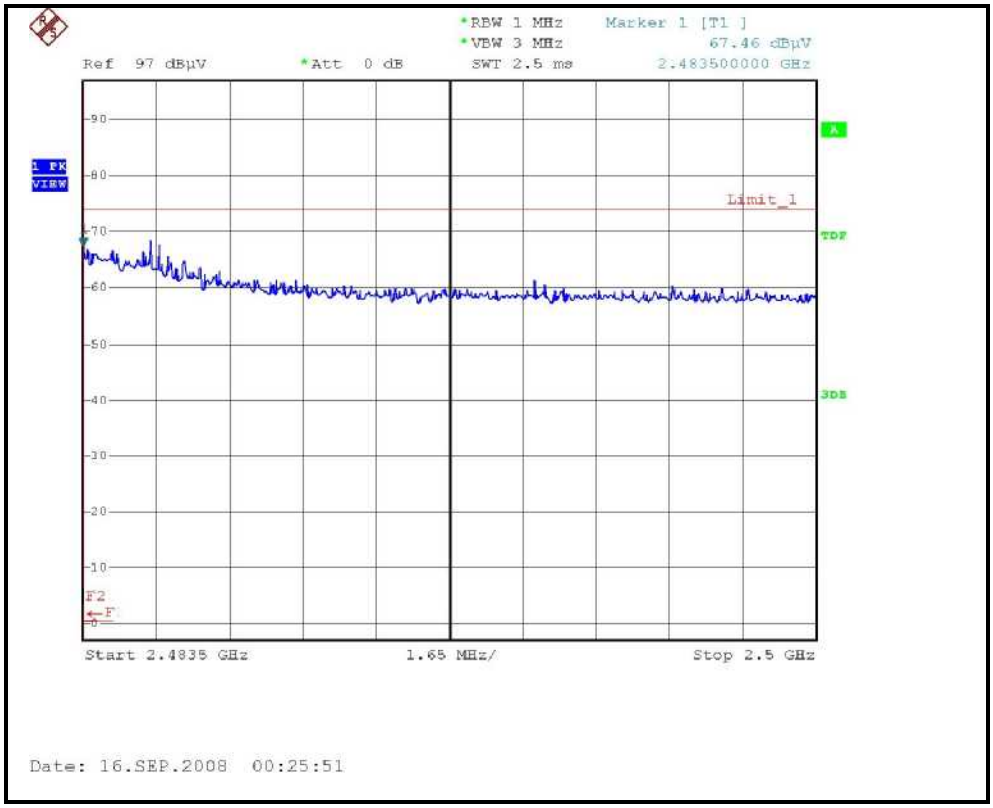




RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, VERTICAL)



DRAFT 802.11n (40MHz) OFDM MODULATION

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.77 PK	74.00	-3.23	1.15 H	0	40.71	30.06
2	2390.00	53.03 AV	54.00	-0.97	1.15 H	0	22.97	30.06
3	*2422.00	107.30 PK			1.09 H	359	77.11	30.19
4	*2422.00	94.40 AV			1.09 H	359	64.21	30.19
5	4844.00	46.50 PK	74.00	-27.50	1.00 H	3	11.00	35.50
6	4844.00	32.30 AV	54.00	-21.70	1.00 H	3	-3.20	35.50
7	7266.00	51.60 PK	74.00	-22.40	1.12 H	8	9.67	41.93
8	7266.00	37.90 AV	54.00	-16.10	1.12 H	8	-4.03	41.93
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	67.68 PK	74.00	-6.32	1.03 V	10	37.62	30.06
2	2390.00	51.92 AV	54.00	-2.08	1.03 V	10	21.86	30.06
3	*2422.00	106.40 PK			1.03 V	298	76.21	30.19
4	*2422.00	93.90 AV			1.03 V	298	63.71	30.19
5	4844.00	45.90 PK	74.00	-28.10	1.10 V	358	10.40	35.50
6	4844.00	32.20 AV	54.00	-21.80	1.10 V	358	-3.30	35.50
7	7266.00	51.70 PK	74.00	-22.30	1.16 V	24	9.77	41.93
8	7266.00	38.00 AV	54.00	-16.00	1.16 V	24	-3.93	41.93

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	67.24 PK	74.00	-6.76	1.12 H	357	37.18	30.06
2	2390.00	53.24 AV	54.00	-0.76	1.12 H	357	23.18	30.06
3	*2437.00	110.10 PK			1.08 H	358	79.86	30.24
4	*2437.00	97.30 AV			1.08 H	358	67.06	30.24
5	2483.50	67.47 PK	74.00	-6.53	1.07 H	355	37.04	30.43
6	2483.50	53.25 AV	54.00	-0.75	1.07 H	355	22.82	30.43
7	4874.00	47.60 PK	74.00	-26.40	1.00 H	2	12.05	35.55
8	4874.00	32.50 AV	54.00	-21.50	1.00 H	2	-3.05	35.55
9	7311.00	51.80 PK	74.00	-22.20	1.14 H	9	9.76	42.04
10	7311.00	38.10 AV	54.00	-15.90	1.14 H	9	-3.94	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.67 PK	74.00	-8.33	1.04 V	10	35.61	30.06
2	2390.00	51.58 AV	54.00	-2.42	1.04 V	10	21.52	30.06
3	*2437.00	109.80 PK			1.02 V	351	79.56	30.24
4	*2437.00	97.20 AV			1.02 V	351	66.96	30.24
5	2483.50	67.93 PK	74.00	-6.07	1.00 V	33	37.50	30.43
6	2483.50	51.66 AV	54.00	-2.34	1.00 V	33	21.23	30.43
7	4874.00	48.60 PK	74.00	-25.40	1.07 V	358	13.05	35.55
8	4874.00	32.80 AV	54.00	-21.20	1.07 V	358	-2.75	35.55
9	7311.00	51.70 PK	74.00	-22.30	1.21 V	21	9.66	42.04
10	7311.00	38.20 AV	54.00	-15.80	1.21 V	21	-3.84	42.04

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	26deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.00 PK			1.07 H	356	76.70	30.30
2	*2452.00	93.80 AV			1.07 H	356	63.50	30.30
3	2483.50	71.55 PK	74.00	-2.45	1.08 H	354	41.12	30.43
4	2483.50	52.91 AV	54.00	-1.09	1.08 H	354	22.49	30.43
5	4904.00	46.70 PK	74.00	-27.30	1.03 H	357	11.10	35.60
6	4904.00	32.70 AV	54.00	-21.30	1.03 H	357	-2.90	35.60
7	7356.00	52.00 PK	74.00	-22.00	1.11 H	11	9.84	42.16
8	7356.00	38.20 AV	54.00	-15.80	1.11 H	11	-3.96	42.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.90 PK			1.04 V	339	76.60	30.30
2	*2452.00	93.20 AV			1.04 V	339	62.90	30.30
3	2483.50	68.28 PK	74.00	-5.72	1.00 V	357	37.85	30.43
4	2483.50	51.37 AV	54.00	-2.63	1.00 V	357	20.94	30.43
5	4904.00	46.50 PK	74.00	-27.50	1.04 V	1	10.90	35.60
6	4904.00	32.80 AV	54.00	-21.20	1.04 V	1	-2.80	35.60
7	7356.00	51.90 PK	74.00	-22.10	1.17 V	11	9.74	42.16
8	7356.00	37.80 AV	54.00	-16.20	1.17 V	11	-4.36	42.16

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

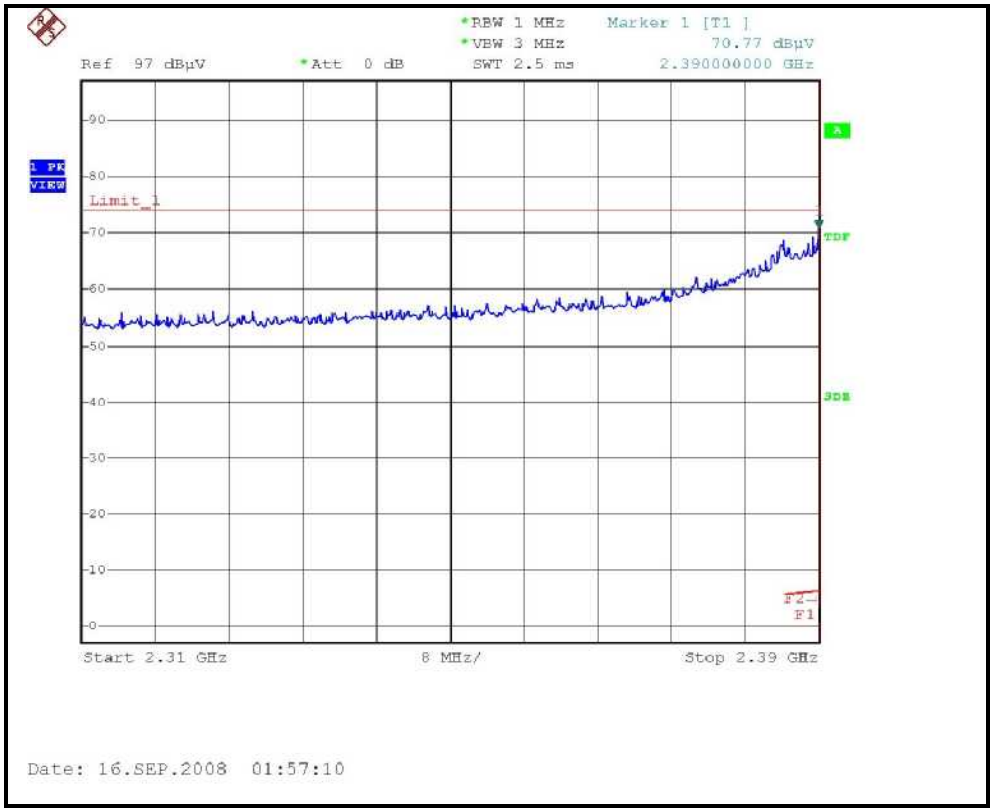
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

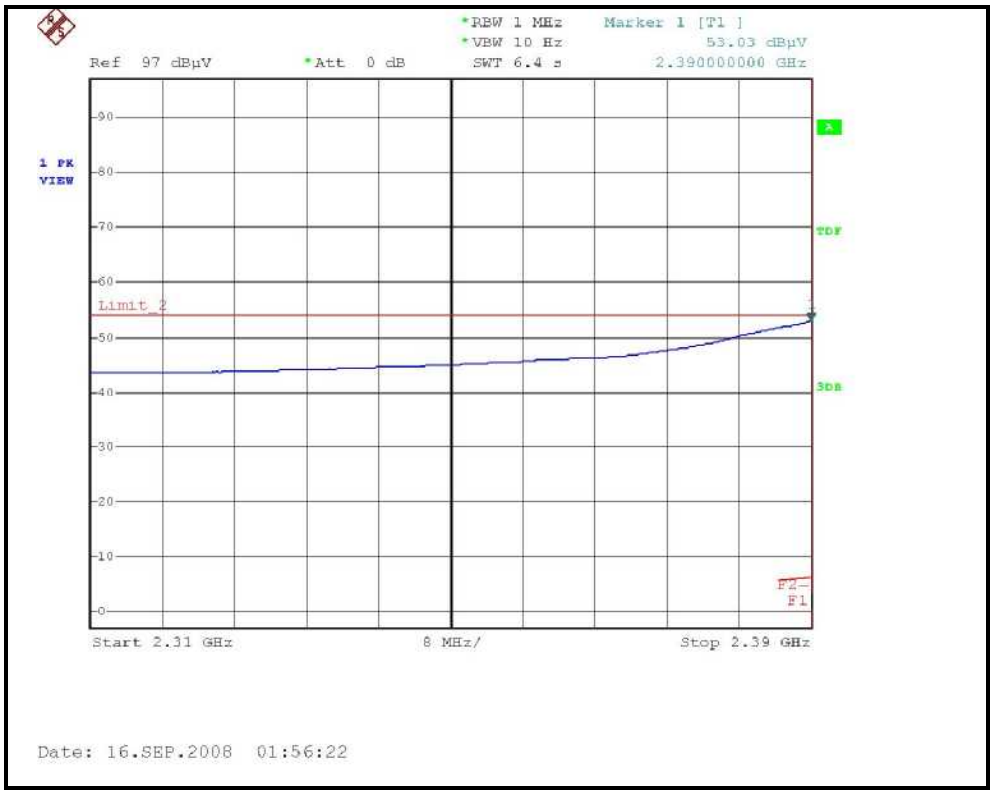
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

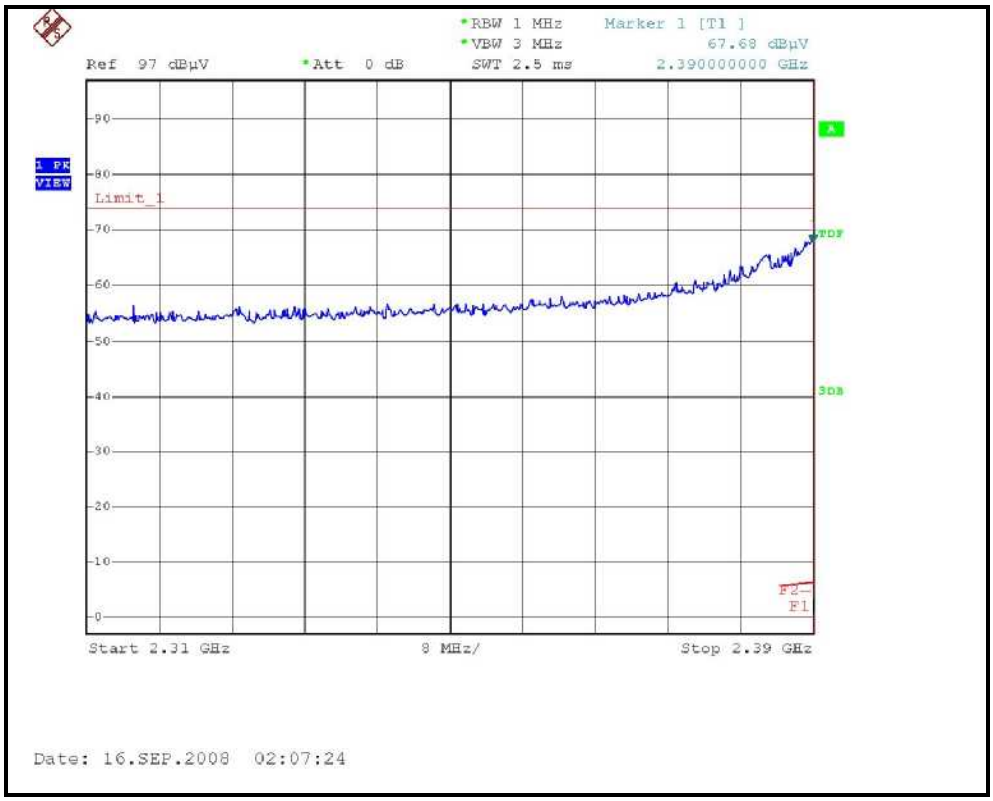
5. " * ": Fundamental frequency.

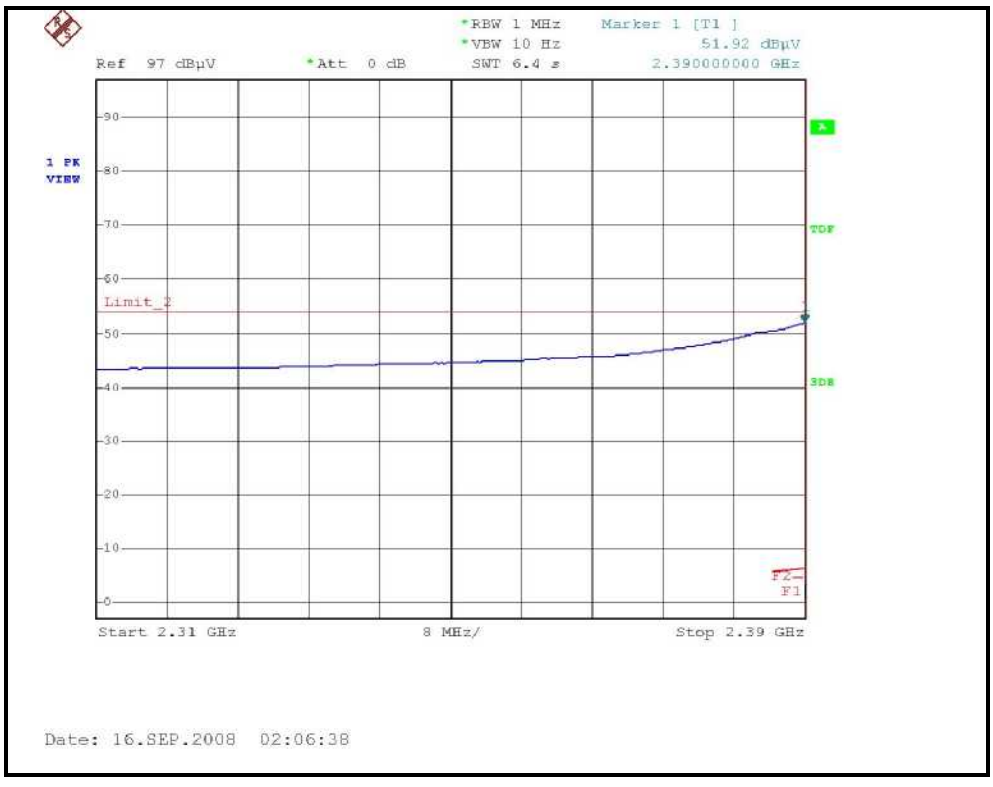
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



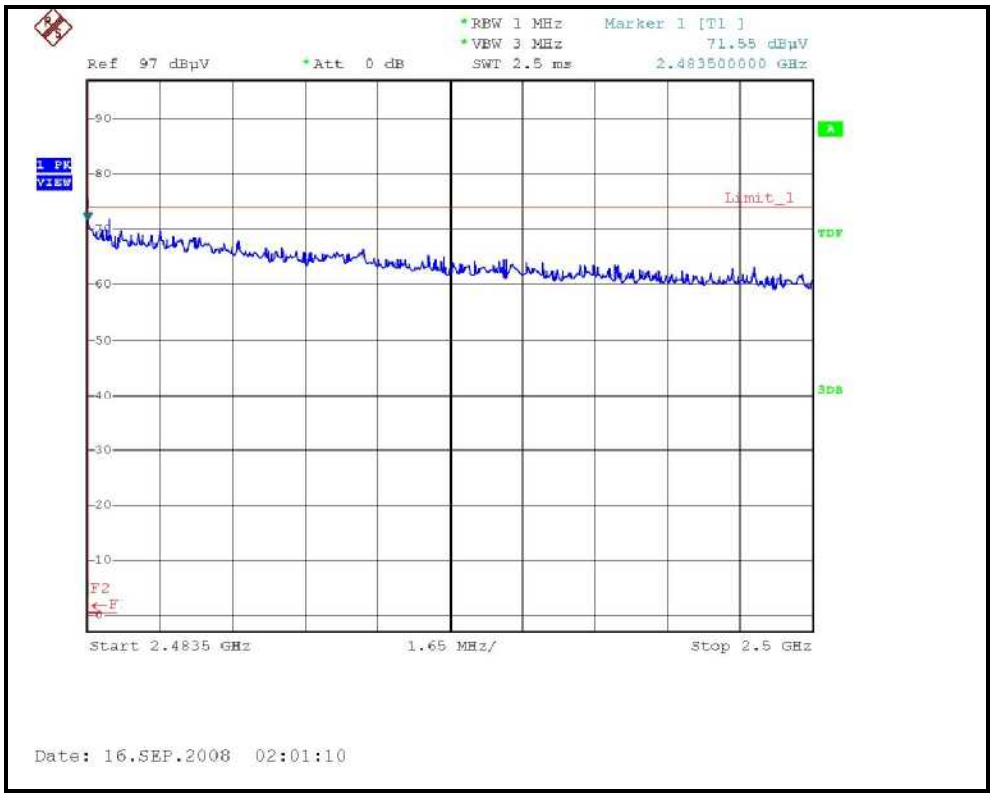


RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)

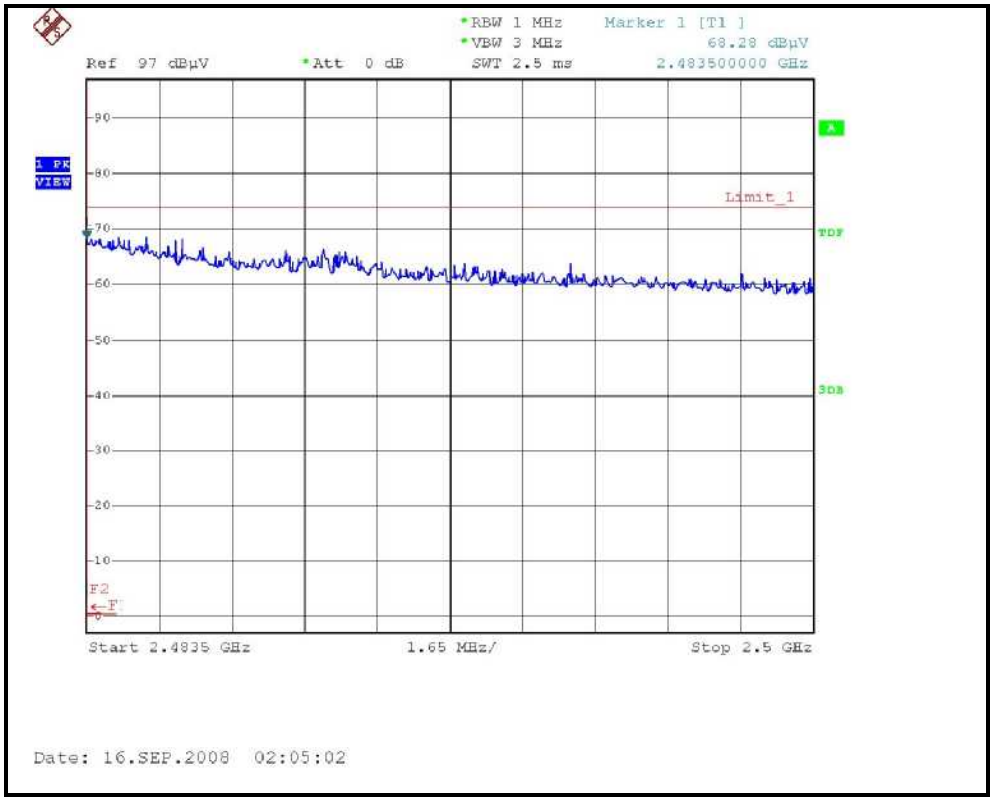


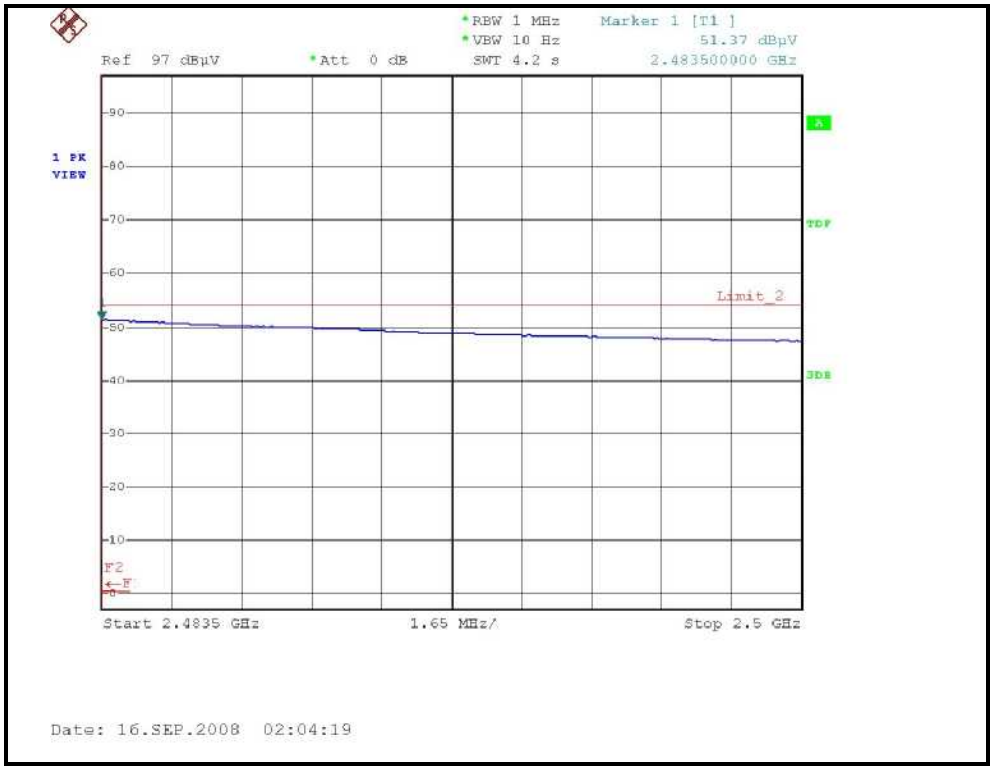


RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, VERTICAL)





Below 1GHz Test Data – with Dipole antenna

4.2.9 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH 965hPa	TESTED BY	Rex Huang

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	73.50	22.11 QP	40.00	-17.89	2.14 H	99	9.53	12.58
2	125.00	25.68 QP	43.50	-17.82	1.57 H	202	11.56	14.12
3	200.00	30.72 QP	43.50	-12.78	1.20 H	82	17.74	12.98
4	250.00	43.23 QP	46.00	-2.77	1.00 H	317	27.81	15.42
5	375.00	37.85 QP	46.00	-8.15	1.00 H	6	17.75	20.10
6	500.00	39.33 QP	46.00	-6.67	1.41 H	283	16.67	22.66
7	625.00	44.29 QP	46.00	-1.71	1.18 H	289	18.95	25.34
8	750.00	29.59 QP	46.00	-16.41	1.16 H	269	1.13	28.46
9	875.00	36.98 QP	46.00	-9.02	1.23 H	316	6.26	30.72
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	73.50	30.03 QP	40.00	-9.97	1.00 V	271	17.45	12.58
2	125.00	30.77 QP	43.50	-12.73	1.00 V	162	16.65	14.12
3	200.00	28.88 QP	43.50	-14.62	1.00 V	169	15.90	12.98
4	250.00	35.89 QP	46.00	-10.11	1.00 V	304	20.47	15.42
5	375.00	35.60 QP	46.00	-10.40	1.00 V	2	15.50	20.10
6	500.00	33.84 QP	46.00	-12.16	1.17 V	95	11.18	22.66
7	625.00	42.27 QP	46.00	-3.73	1.00 V	13	16.93	25.34
8	750.00	29.63 QP	46.00	-16.37	1.01 V	11	1.17	28.46
9	875.00	33.95 QP	46.00	-12.05	1.05 V	211	3.23	30.72

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.

Above 1GHz Test Data – with Dipole antenna

4.2.10 TEST RESULTS

802.11b DSSS MODULATION

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 965hPa	TESTED BY	Rex Huang

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	2387.00	55.76 PK	74.00	-18.24	1.14 H	41	25.49	30.27
2	2387.00	43.52 AV	54.00	-10.48	1.14 H	41	13.25	30.27
3	*2412.00	100.50 PK			1.14 H	41	70.14	30.36
4	*2412.00	96.00 AV			1.14 H	41	65.64	30.36
5	4824.00	46.14 PK	74.00	-27.86	1.44 H	173	9.35	36.79
6	4824.00	32.70 AV	54.00	-21.30	1.44 H	173	-4.09	36.79
7	#7236.00	51.40 PK	80.50	-29.10	1.26 H	251	8.26	43.14
8	#7236.00	37.60 AV	76.00	-38.40	1.26 H	251	-5.54	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.63 PK	74.00	-12.37	1.20 V	130	31.36	30.27
2	2386.00	52.46 AV	54.00	-1.54	1.20 V	130	22.19	30.27
3	*2412.00	113.20 PK			1.19 V	142	82.84	30.36
4	*2412.00	109.10 AV			1.19 V	142	78.74	30.36
5	4824.00	47.40 PK	74.00	-26.60	1.09 V	269	10.61	36.79
6	4824.00	37.10 AV	54.00	-16.90	1.09 V	269	0.31	36.79
7	#7236.00	51.70 PK	93.20	-41.50	1.00 V	3	8.56	43.14
8	#7236.00	37.80 AV	89.10	-51.30	1.00 V	3	-5.34	43.14

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

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 965hPa	TESTED BY	Rex Huang

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	102.50 PK			1.21 H	39	72.04	30.46
2	*2437.00	98.40 AV			1.21 H	39	67.94	30.46
3	2487.00	55.26 PK	74.00	-18.74	1.21 H	39	24.62	30.64
4	2487.00	43.25 AV	54.00	-10.75	1.21 H	39	12.61	30.64
5	4874.00	46.50 PK	74.00	-27.50	1.42 H	177	9.58	36.92
6	4874.00	35.30 AV	54.00	-18.70	1.42 H	177	-1.62	36.92
7	7311.00	51.70 PK	74.00	-22.30	1.24 H	235	8.56	43.14
8	7311.00	37.90 AV	54.00	-16.10	1.24 H	235	-5.24	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.20 PK			1.18 V	142	85.74	30.46
2	*2437.00	112.50 AV			1.18 V	142	82.04	30.46
3	2485.00	63.36 PK	74.00	-10.64	1.15 V	141	32.73	30.63
4	2485.00	52.87 AV	54.00	-1.13	1.15 V	141	22.24	30.63
5	4874.00	49.70 PK	74.00	-24.30	1.10 V	265	12.78	36.92
6	4874.00	43.10 AV	54.00	-10.90	1.10 V	265	6.18	36.92
7	7311.00	52.10 PK	74.00	-21.90	1.00 V	5	8.96	43.14
8	7311.00	38.40 AV	54.00	-15.60	1.00 V	5	-4.74	43.14

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.60 PK			1.11 H	48	70.05	30.55
2	*2462.00	96.20 AV			1.11 H	48	65.65	30.55
3	2488.00	56.33 PK	74.00	-17.67	1.11 H	48	25.68	30.65
4	2488.00	44.26 AV	54.00	-9.74	1.11 H	48	13.61	30.65
5	4924.00	46.70 PK	74.00	-27.30	1.41 H	176	9.64	37.06
6	4924.00	33.40 AV	54.00	-20.60	1.41 H	176	-3.66	37.06
7	7386.00	51.60 PK	74.00	-22.40	1.23 H	244	8.47	43.13
8	7386.00	37.50 AV	54.00	-16.50	1.23 H	244	-5.63	43.13
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	115.20 PK			1.16 V	141	84.65	30.55
2	*2462.00	110.60 AV			1.16 V	141	80.05	30.55
3	2488.00	63.16 PK	74.00	-10.84	1.16 V	140	32.51	30.65
4	2488.00	53.21 AV	54.00	-0.79	1.16 V	140	22.56	30.65
5	4924.00	48.20 PK	74.00	-25.80	1.03 V	277	11.14	37.06
6	4924.00	40.00 AV	54.00	-14.00	1.03 V	277	2.94	37.06
7	7386.00	51.70 PK	74.00	-22.30	1.00 V	9	8.57	43.13
8	7386.00	37.90 AV	54.00	-16.10	1.00 V	9	-5.23	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

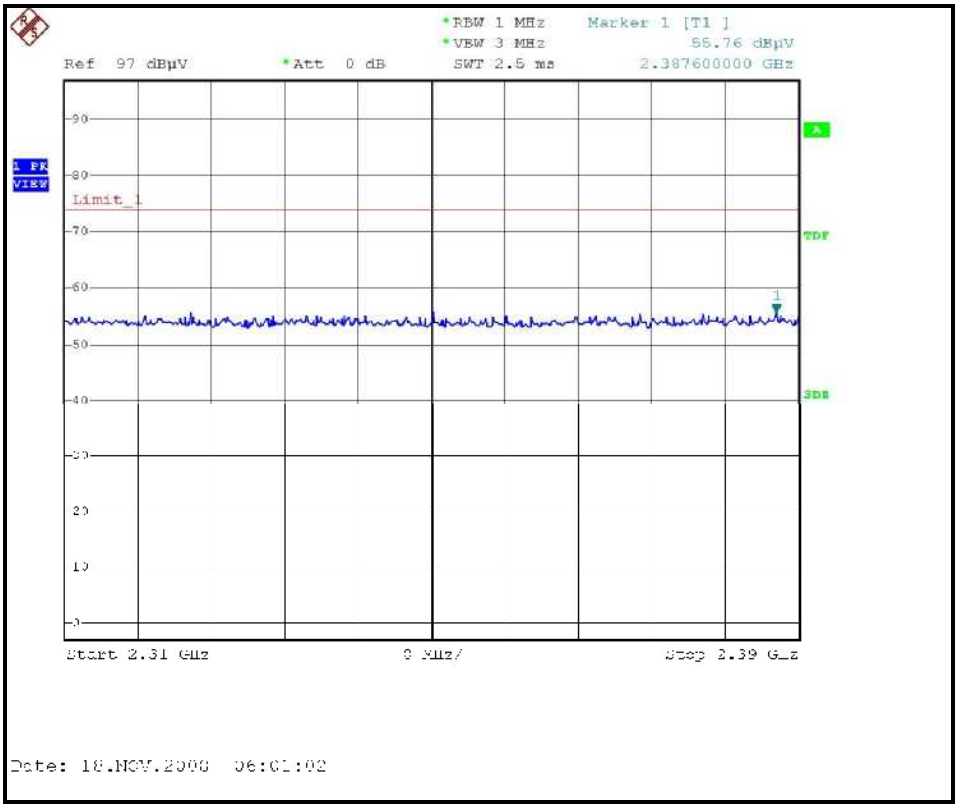
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

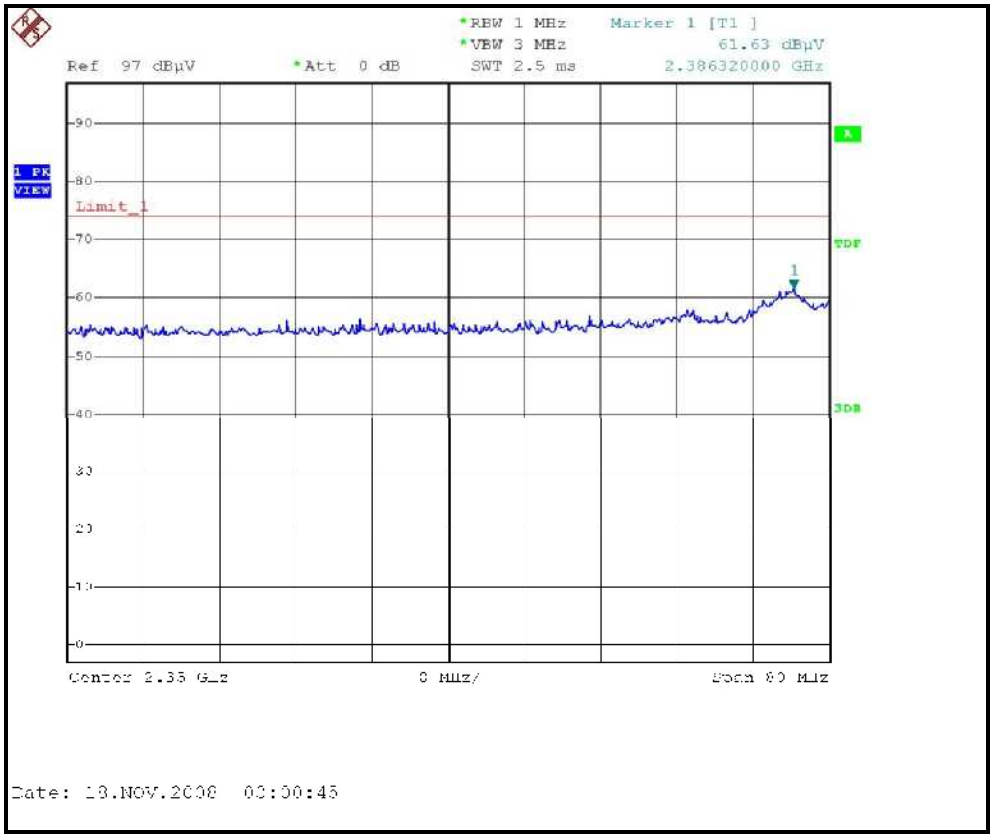
4. Margin value = Emission level – Limit value.

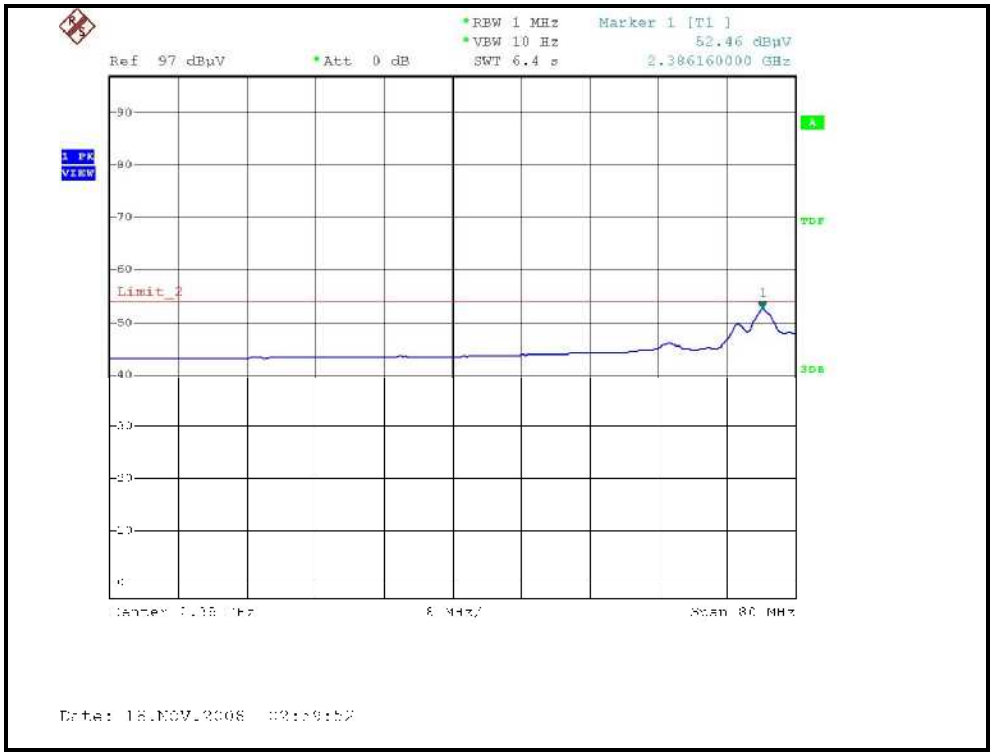
5. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)

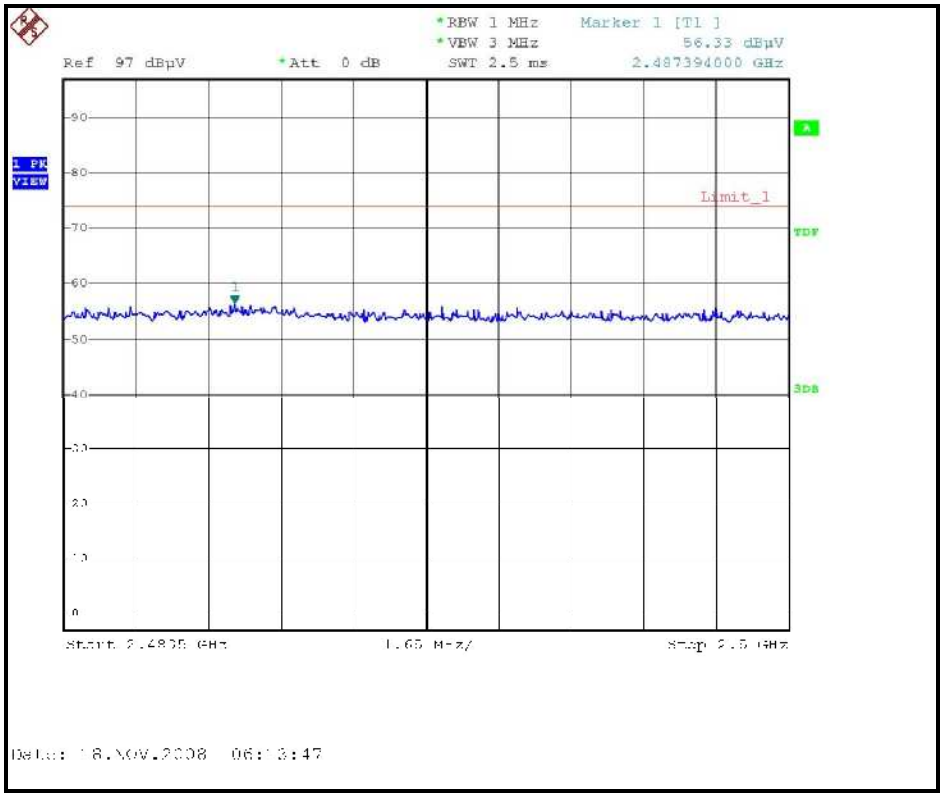


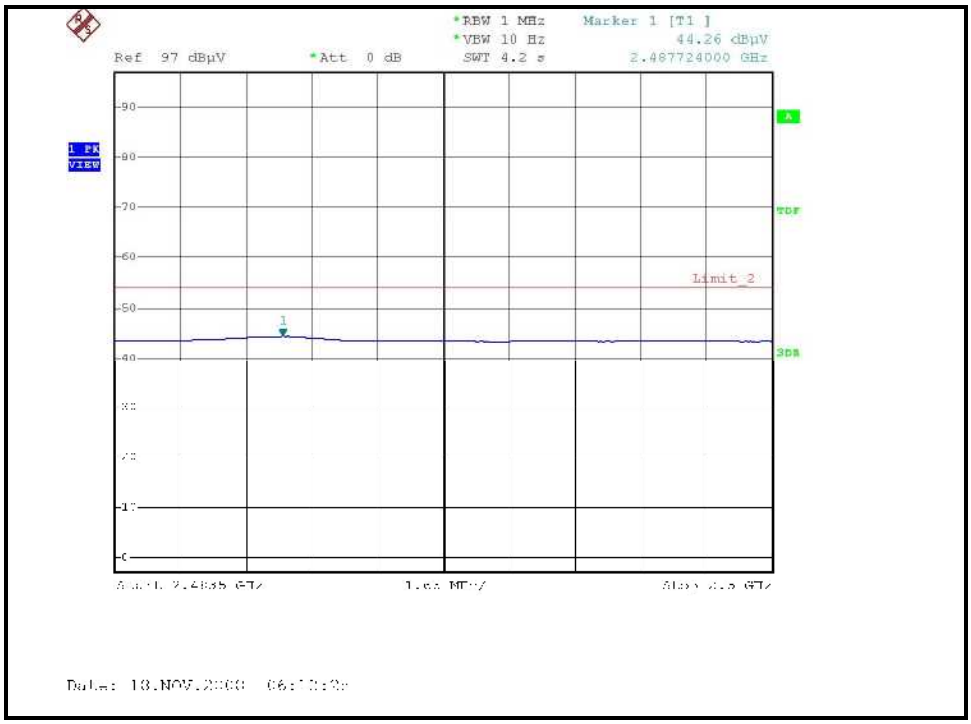
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



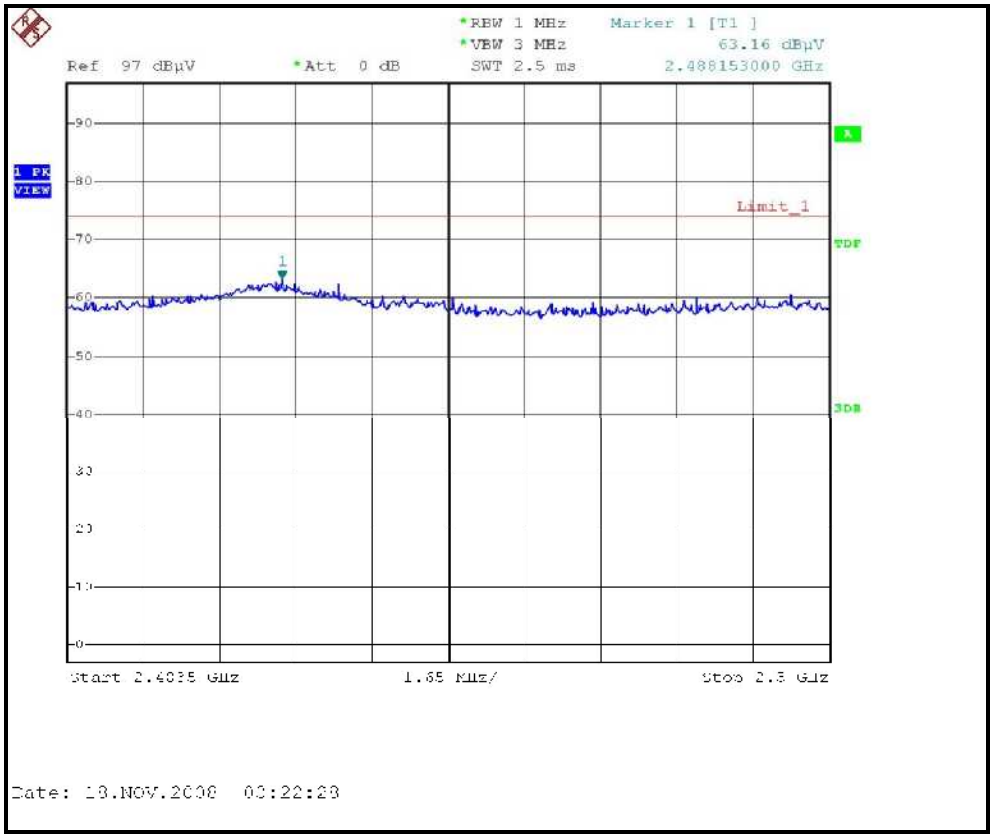


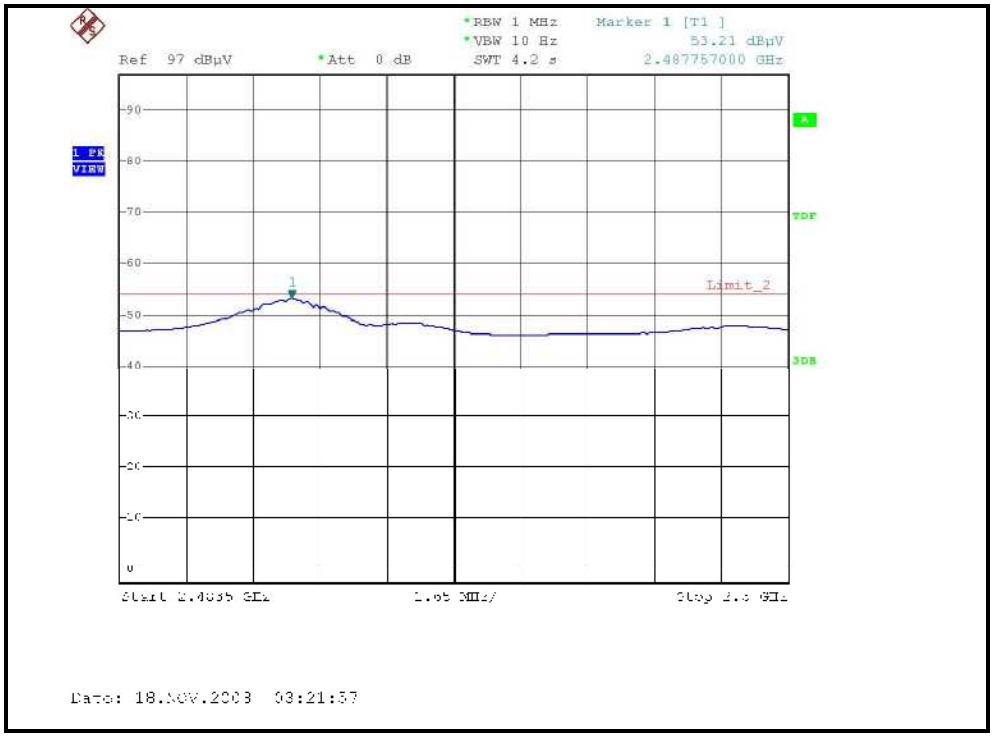
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





802.11g OFDM MODULATION

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 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.64 PK	74.00	-14.36	1.14 H	42	29.36	30.28
2	2390.00	44.42 AV	54.00	-9.58	1.14 H	42	14.14	30.28
3	*2412.00	100.30 PK			1.14 H	42	69.94	30.36
4	*2412.00	89.10 AV			1.14 H	42	58.74	30.36
5	4824.00	45.30 PK	74.00	-28.70	1.42 H	175	8.51	36.79
6	4824.00	31.60 AV	54.00	-22.40	1.42 H	175	-5.19	36.79
7	#7236.00	51.60 PK	80.30	-28.70	1.31 H	243	8.46	43.14
8	#7236.00	37.50 AV	69.10	-31.60	1.31 H	243	-5.64	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.74 PK	74.00	-4.26	1.20 V	129	39.46	30.28
2	2390.00	50.68 AV	54.00	-3.32	1.20 V	129	20.40	30.28
3	*2412.00	113.50 PK			1.19 V	143	83.14	30.36
4	*2412.00	102.40 AV			1.19 V	143	72.04	30.36
5	4824.00	45.40 PK	74.00	-28.60	1.12 V	271	8.61	36.79
6	4824.00	31.70 AV	54.00	-22.30	1.12 V	271	-5.09	36.79
7	#7236.00	51.50 PK	93.50	-42.00	1.00 V	24	8.36	43.14
8	#7236.00	37.70 AV	82.40	-44.70	1.00 V	24	-5.44	43.14

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

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 965hPa	TESTED BY	Rex Huang

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	103.80 PK			1.20 H	39	73.34	30.46
2	*2437.00	92.60 AV			1.20 H	39	62.14	30.46
3	2483.50	58.33 PK	74.00	-15.67	1.20 H	39	27.70	30.63
4	2483.50	43.44 AV	54.00	-10.56	1.20 H	39	12.81	30.63
5	4874.00	45.90 PK	74.00	-28.10	1.41 H	182	8.98	36.92
6	4874.00	32.10 AV	54.00	-21.90	1.41 H	182	-4.82	36.92
7	7311.00	51.80 PK	74.00	-22.20	1.32 H	246	8.66	43.14
8	7311.00	37.60 AV	54.00	-16.40	1.32 H	246	-5.54	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	118.30 PK			1.16 V	144	87.84	30.46
2	*2437.00	106.90 AV			1.16 V	144	76.44	30.46
3	2484.50	72.13 PK	74.00	-1.87	1.16 V	144	41.50	30.63
4	2484.50	51.49 AV	54.00	-2.51	1.16 V	144	20.86	30.63
5	4874.00	47.00 PK	74.00	-27.00	1.12 V	266	10.08	36.92
6	4874.00	33.30 AV	54.00	-20.70	1.12 V	266	-3.62	36.92
7	7311.00	51.90 PK	74.00	-22.10	1.00 V	20	8.76	43.14
8	7311.00	37.90 AV	54.00	-16.10	1.00 V	20	-5.24	43.14

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.70 PK			1.11 H	46	68.15	30.55
2	*2462.00	87.30 AV			1.11 H	46	56.75	30.55
3	2483.50	58.20 PK	74.00	-15.80	1.11 H	46	27.57	30.63
4	2483.50	43.73 AV	54.00	-10.27	1.11 H	46	13.10	30.63
5	4924.00	45.90 PK	74.00	-28.10	1.43 H	164	8.84	37.06
6	4924.00	31.80 AV	54.00	-22.20	1.43 H	164	-5.26	37.06
7	7386.00	51.90 PK	74.00	-22.10	1.30 H	254	8.77	43.13
8	7386.00	37.70 AV	54.00	-16.30	1.30 H	254	-5.43	43.13
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	113.30 PK			1.16 V	144	82.75	30.55
2	*2462.00	102.11 AV			1.16 V	144	71.56	30.55
3	2483.50	72.87 PK	74.00	-1.13	1.15 V	144	42.24	30.63
4	2483.50	52.67 AV	54.00	-1.33	1.15 V	144	22.04	30.63
5	4924.00	46.50 PK	74.00	-27.50	1.04 V	274	9.44	37.06
6	4924.00	32.10 AV	54.00	-21.90	1.04 V	274	-4.96	37.06
7	7386.00	51.80 PK	74.00	-22.20	1.00 V	17	8.67	43.13
8	7386.00	39.70 AV	54.00	-14.30	1.00 V	17	-3.43	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

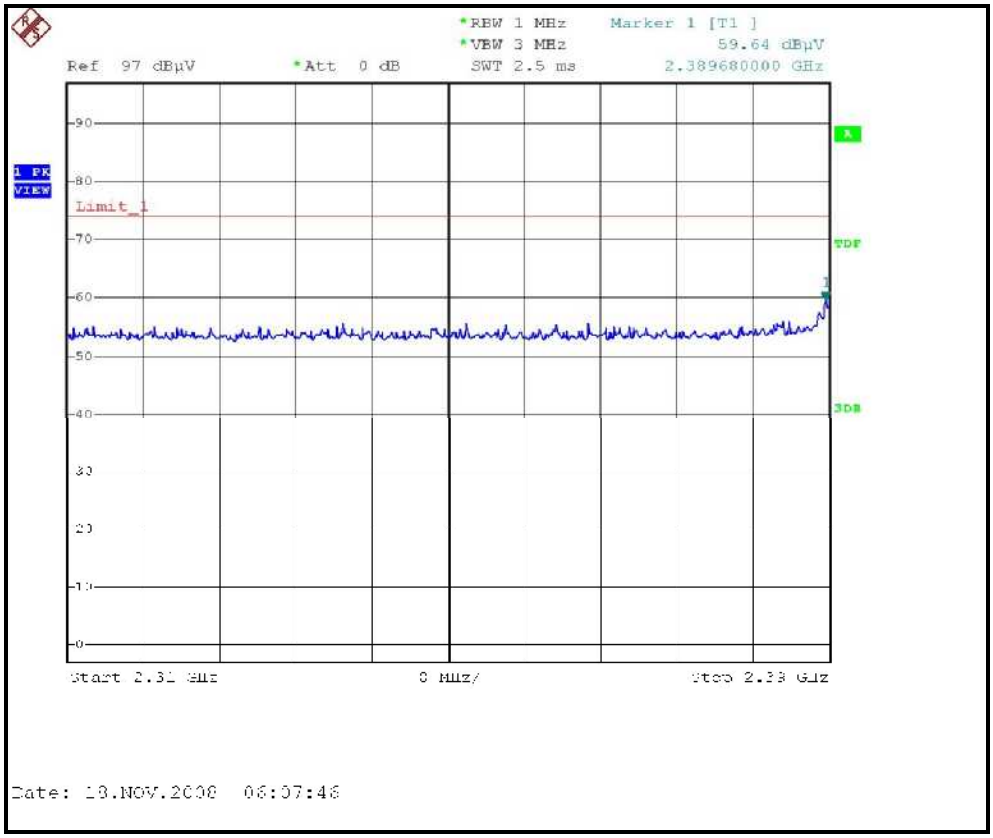
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

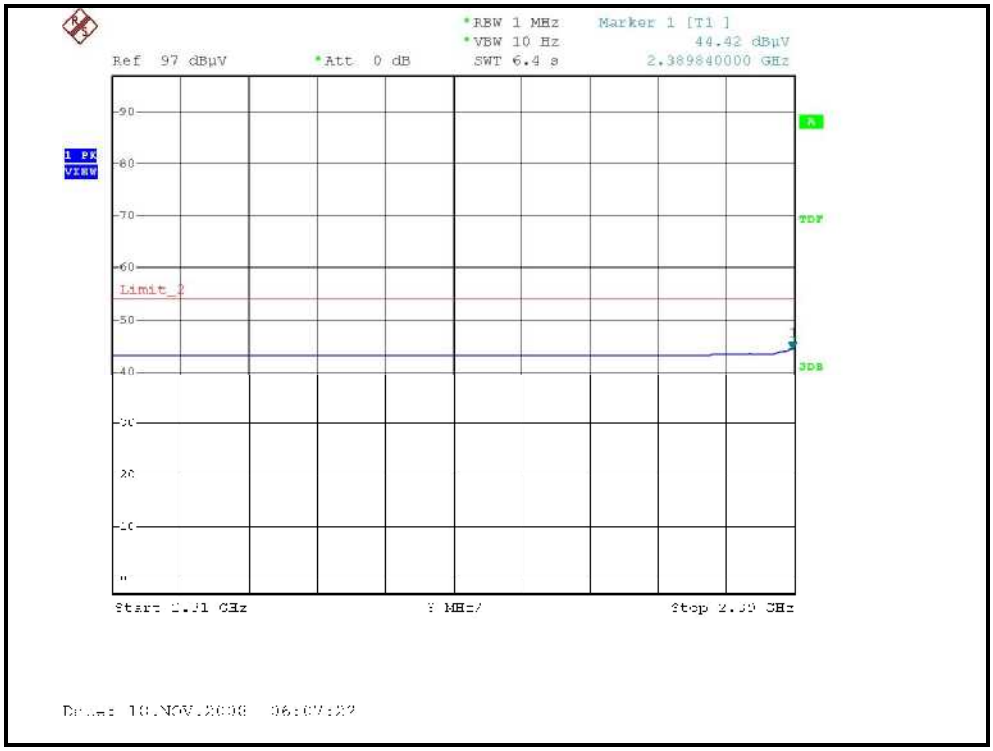
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

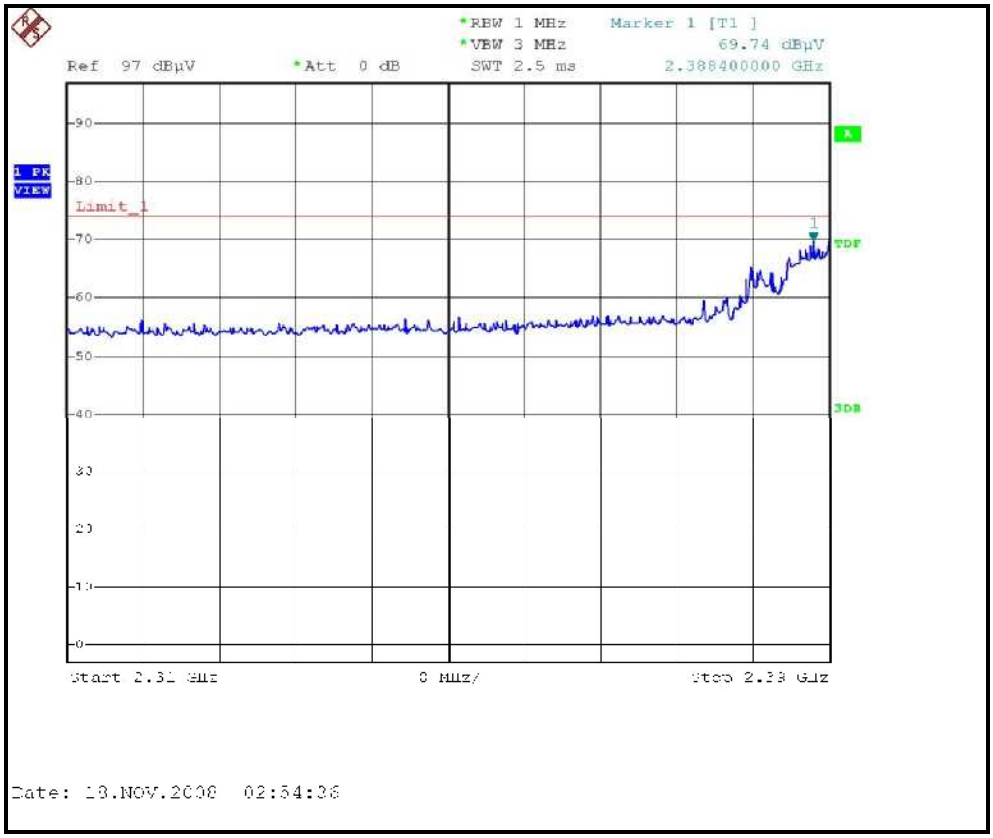
5. " * ": Fundamental frequency.

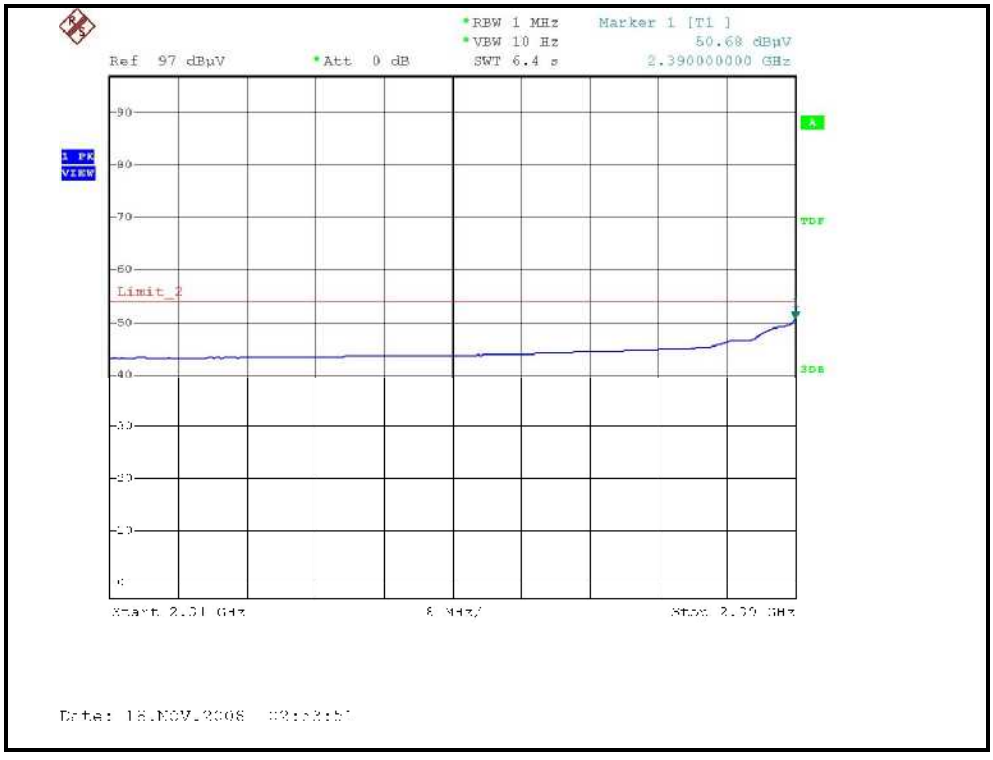
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



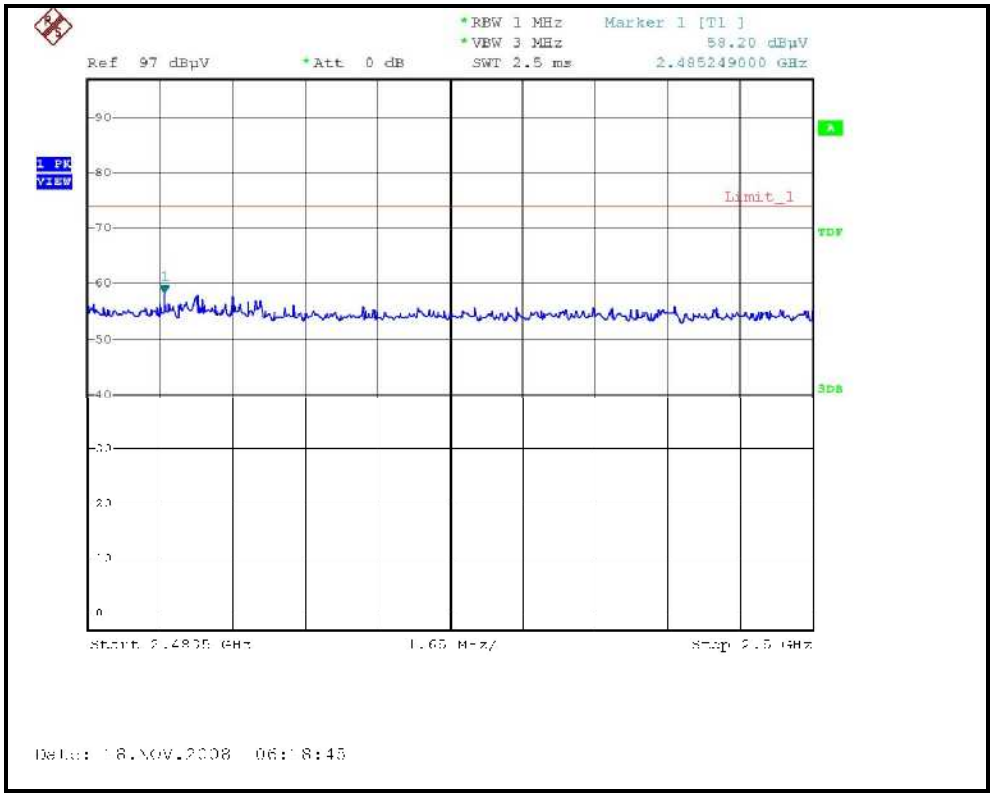


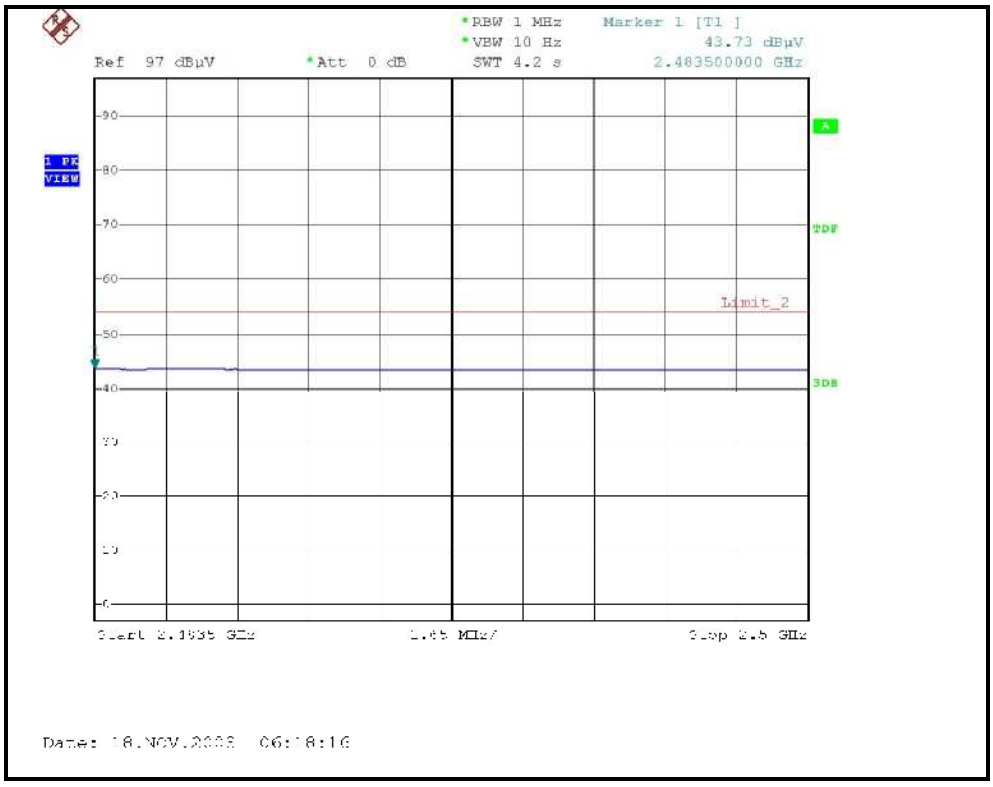
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



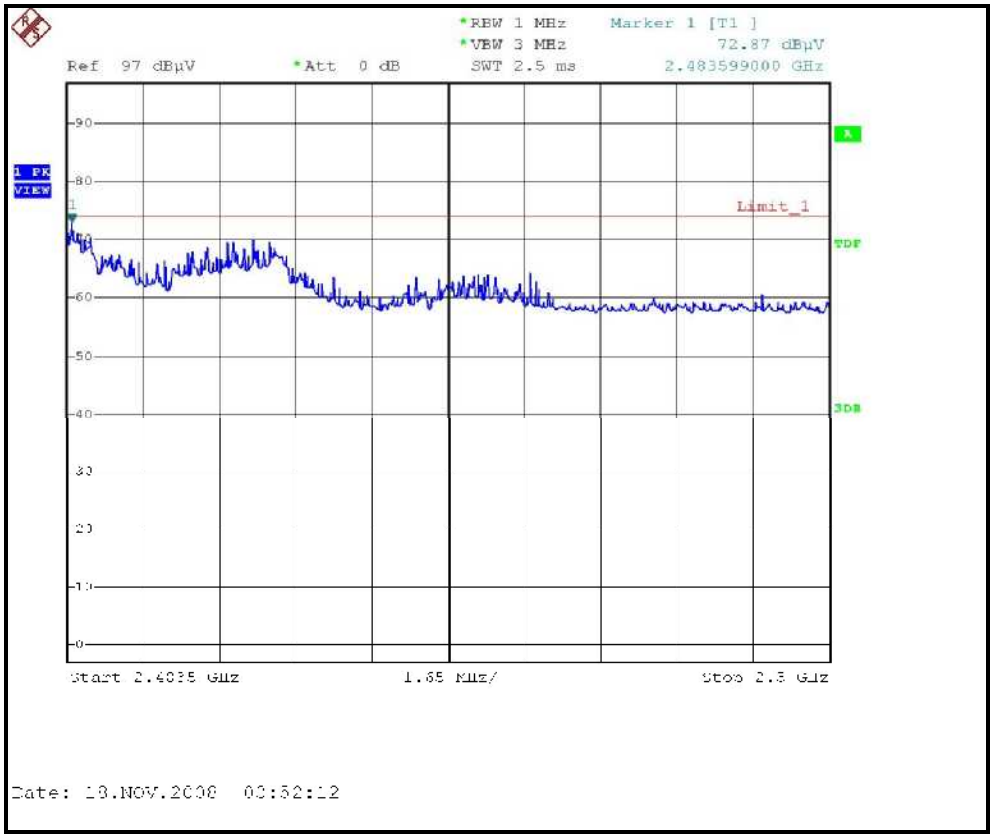


RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



DRAFT 802.11n (20MHz) OFDM MODULATION

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 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.66 PK	74.00	-15.34	1.14 H	42	28.38	30.28
2	2390.00	44.65 AV	54.00	-9.35	1.14 H	42	14.37	30.28
3	*2412.00	99.30 PK			1.14 H	42	68.94	30.36
4	*2412.00	86.20 AV			1.14 H	42	55.84	30.36
5	4824.00	45.10 PK	74.00	-28.90	1.43 H	181	8.31	36.79
6	4824.00	31.40 AV	54.00	-22.60	1.43 H	181	-5.39	36.79
7	#7236.00	52.10 PK	79.30	-27.20	1.29 H	263	8.96	43.14
8	#7236.00	37.80 AV	66.20	-28.40	1.29 H	263	-5.34	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.89 PK	74.00	-1.11	1.20 V	129	42.61	30.28
2	2390.00	53.30 AV	54.00	-0.70	1.20 V	129	23.02	30.28
3	*2412.00	112.60 PK			1.20 V	144	82.24	30.36
4	*2412.00	99.30 AV			1.20 V	144	68.94	30.36
5	4824.00	45.00 PK	74.00	-29.00	1.10 V	268	8.21	36.79
6	4824.00	31.50 AV	54.00	-22.50	1.10 V	268	-5.29	36.79
7	#7236.00	52.20 PK	92.60	-40.40	1.00 V	26	9.06	43.14
8	#7236.00	38.10 AV	79.30	-41.20	1.00 V	26	-5.04	43.14

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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

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 965hPa	TESTED BY	Rex Huang

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	102.60 PK			1.20 H	40	72.14	30.46
2	*2437.00	89.40 AV			1.20 H	40	58.94	30.46
3	2483.50	56.01 PK	74.00	-17.99	1.20 H	40	25.38	30.63
4	2483.50	43.36 AV	54.00	-10.64	1.20 H	40	12.73	30.63
5	4874.00	45.30 PK	74.00	-28.70	1.44 H	179	8.38	36.92
6	4874.00	31.40 AV	54.00	-22.60	1.44 H	179	-5.52	36.92
7	7311.00	51.90 PK	74.00	-22.10	1.25 H	257	8.76	43.14
8	7311.00	37.90 AV	54.00	-16.10	1.25 H	257	-5.24	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.70 PK			1.16 V	142	85.24	30.46
2	*2437.00	103.70 AV			1.16 V	142	73.24	30.46
3	2483.50	53.38 PK	74.00	-20.62	1.15 V	142	22.75	30.63
4	2483.50	51.52 AV	54.00	-2.48	1.15 V	142	20.89	30.63
5	4874.00	47.00 PK	74.00	-27.00	1.09 V	267	10.08	36.92
6	4874.00	32.50 AV	54.00	-21.50	1.09 V	267	-4.42	36.92
7	7311.00	52.10 PK	74.00	-21.90	1.00 V	14	8.96	43.14
8	7311.00	37.70 AV	54.00	-16.30	1.00 V	14	-5.44	43.14

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	97.60 PK			1.11 H	48	67.05	30.55
2	*2462.00	84.40 AV			1.11 H	48	53.85	30.55
3	2483.50	57.11 PK	74.00	-16.89	1.11 H	48	26.48	30.63
4	2483.50	44.04 AV	54.00	-9.96	1.11 H	48	13.41	30.63
5	4924.00	45.90 PK	74.00	-28.10	1.42 H	173	8.84	37.06
6	4924.00	31.60 AV	54.00	-22.40	1.42 H	173	-5.46	37.06
7	7386.00	51.60 PK	74.00	-22.40	1.29 H	276	8.47	43.13
8	7386.00	37.50 AV	54.00	-16.50	1.29 H	276	-5.63	43.13
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	112.10 PK			1.15 V	142	81.55	30.55
2	*2462.00	98.80 AV			1.15 V	142	68.25	30.55
3	2483.50	72.13 PK	74.00	-1.87	1.15 V	143	41.50	30.63
4	2483.50	52.81 AV	54.00	-1.19	1.15 V	143	22.18	30.63
5	4924.00	46.40 PK	74.00	-27.60	1.02 V	278	9.34	37.06
6	4924.00	31.80 AV	54.00	-22.20	1.02 V	278	-5.26	37.06
7	7386.00	51.90 PK	74.00	-22.10	1.00 V	13	8.77	43.13
8	7386.00	38.00 AV	54.00	-16.00	1.00 V	13	-5.13	43.13

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

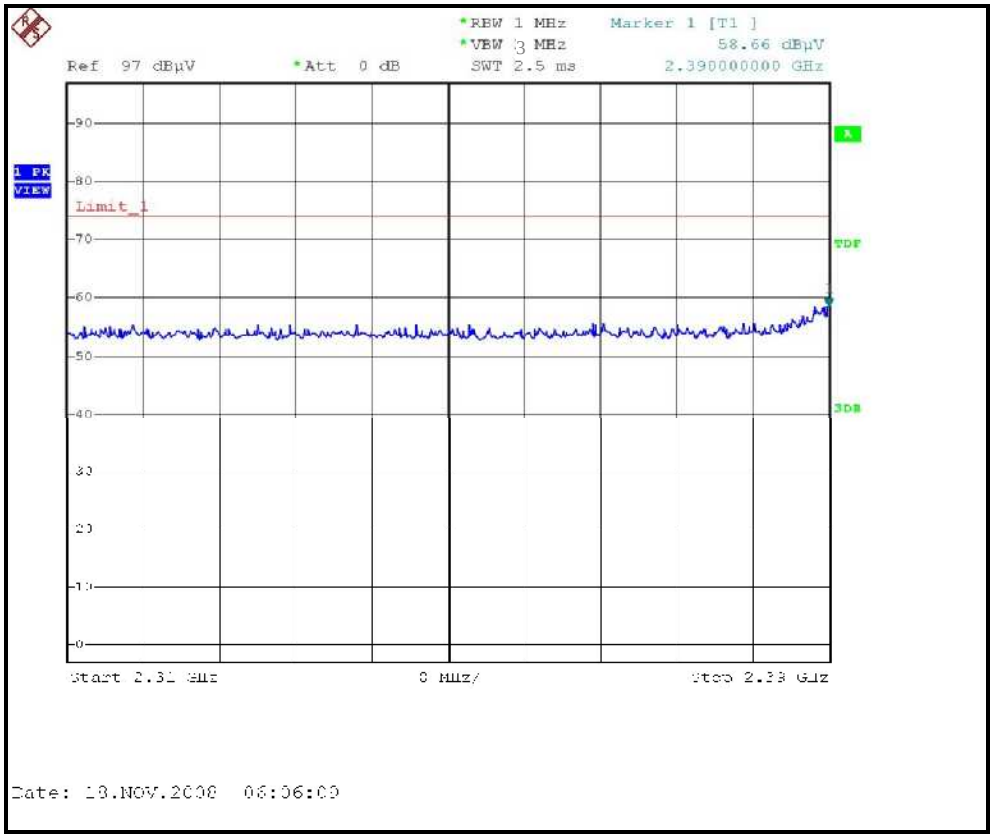
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

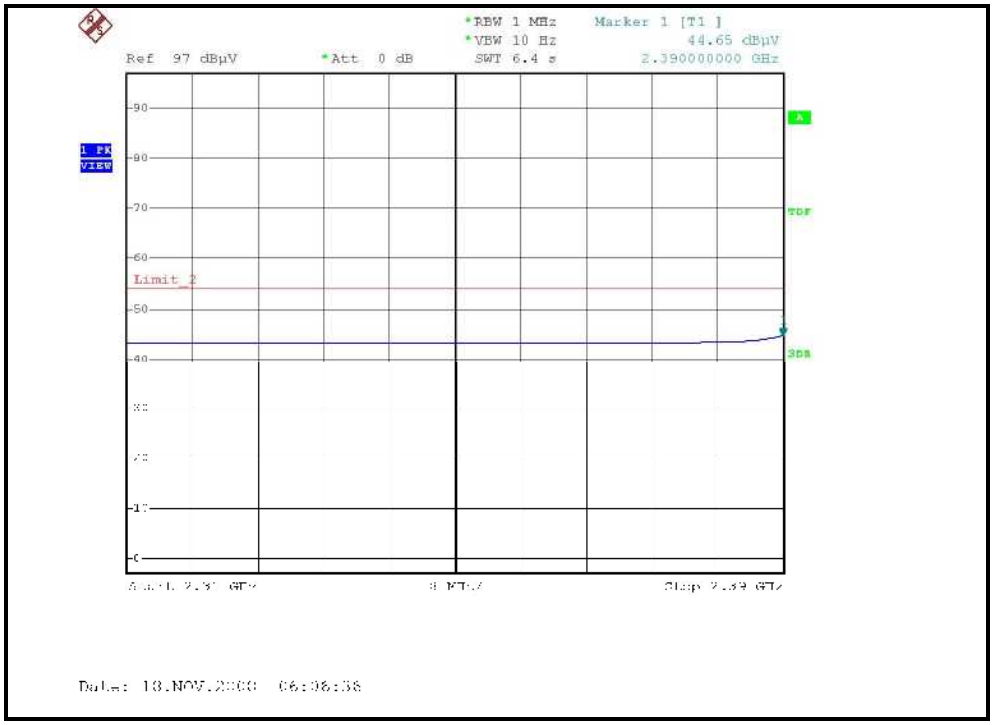
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

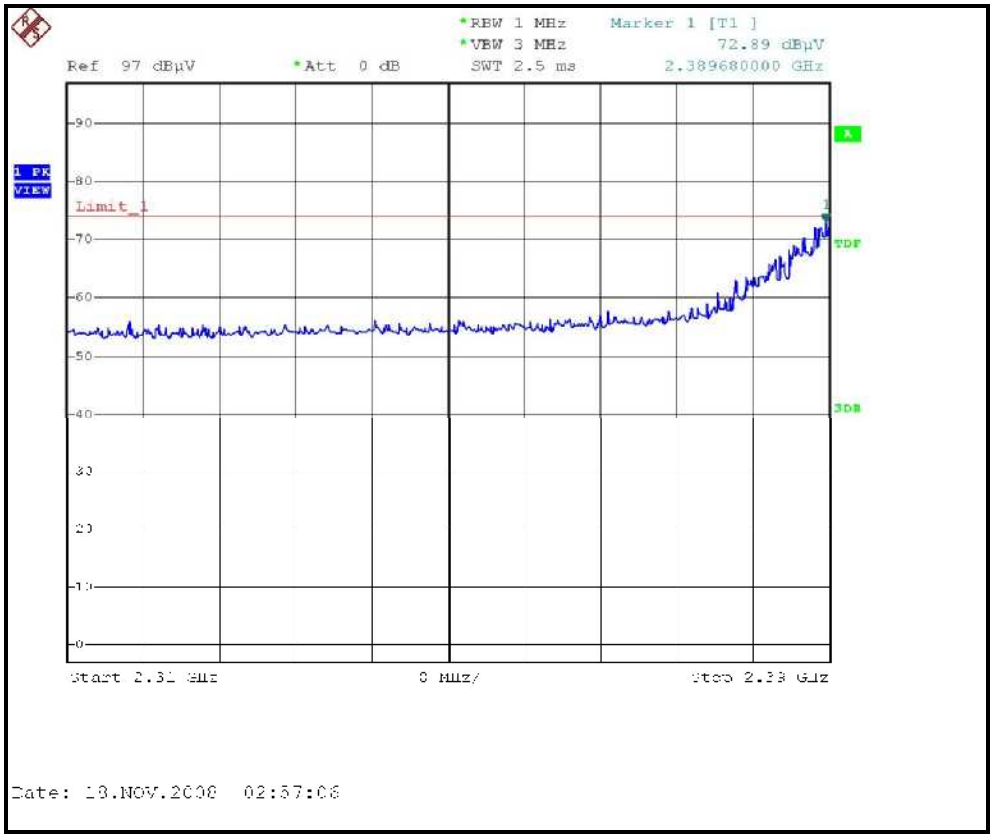
5. " * ": Fundamental frequency.

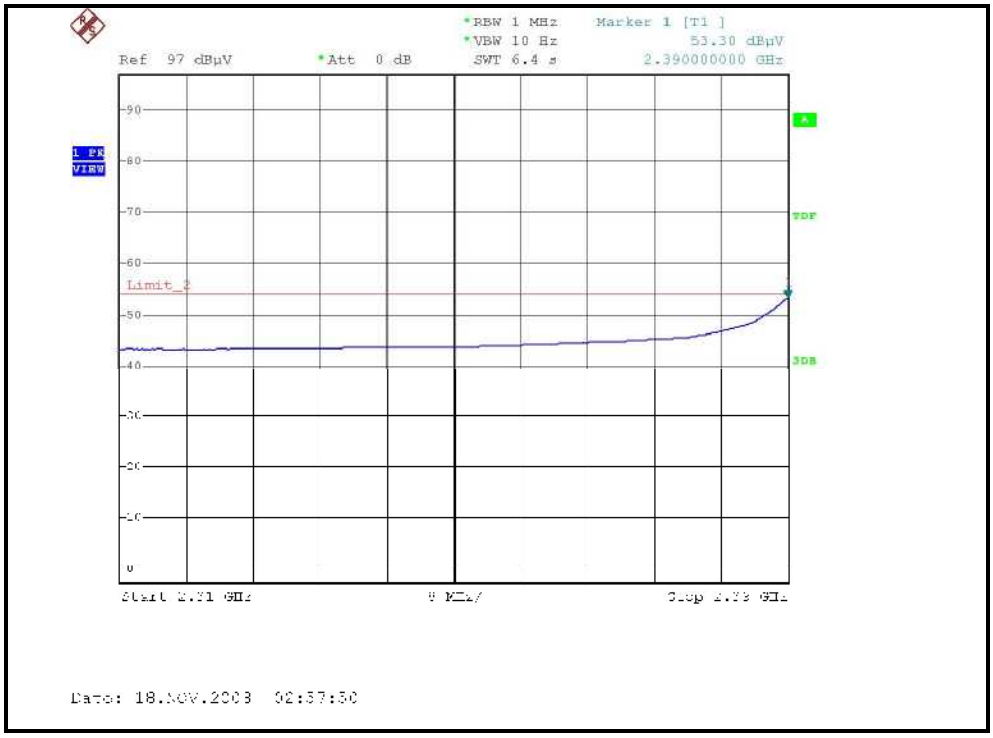
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



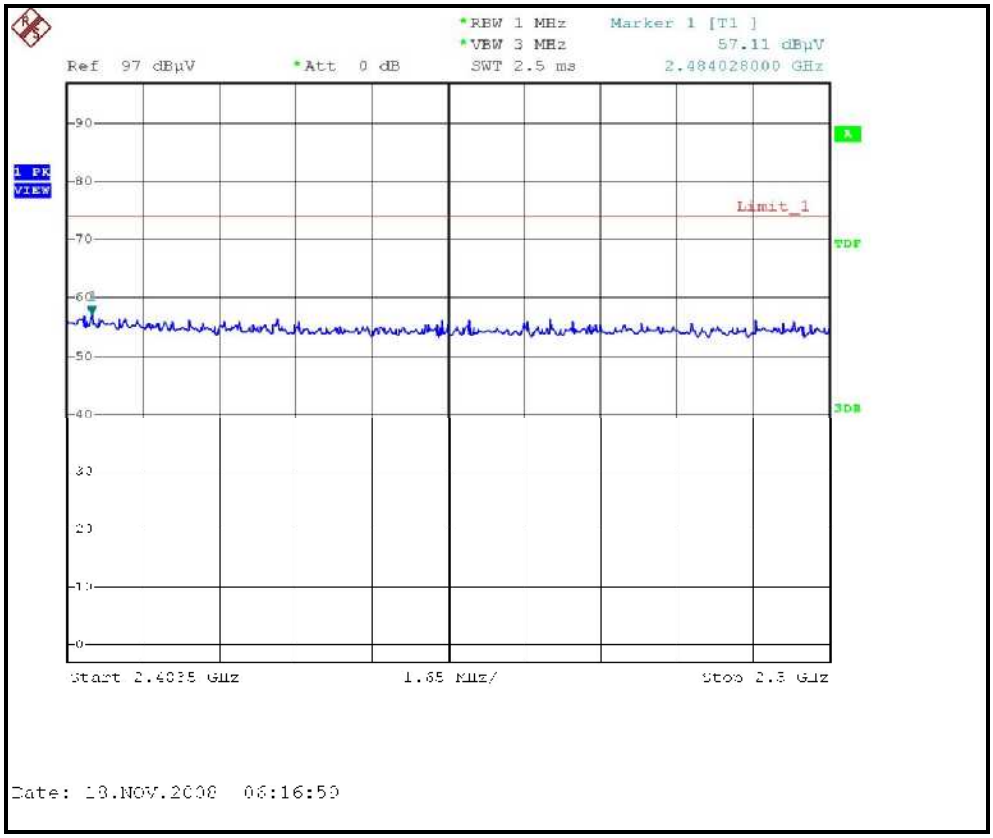


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)

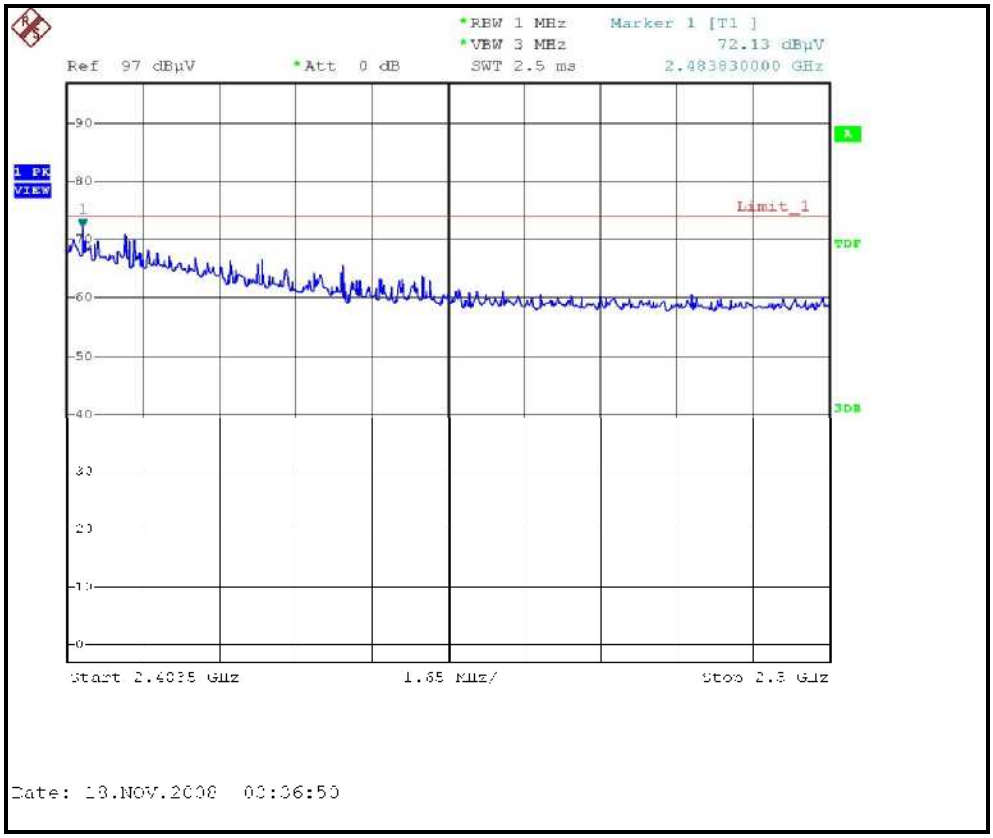




RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, VERTICAL)



DRAFT 802.11n (40MHz) OFDM MODULATION

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 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.78 PK	74.00	-16.22	1.14 H	41	27.50	30.28
2	2390.00	44.55 AV	54.00	-9.45	1.14 H	41	14.27	30.28
3	*2422.00	92.90 PK			1.14 H	41	62.50	30.40
4	*2422.00	80.00 AV			1.14 H	41	49.60	30.40
5	4844.00	45.30 PK	74.00	-28.70	1.42 H	165	8.46	36.84
6	4844.00	31.20 AV	54.00	-22.80	1.42 H	165	-5.64	36.84
7	7266.00	51.50 PK	74.00	-22.50	1.23 H	247	8.36	43.14
8	7266.00	31.60 AV	54.00	-22.40	1.23 H	247	-11.54	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.22 PK	74.00	-3.78	1.21 V	128	39.94	30.28
2	2390.00	53.14 AV	54.00	-0.86	1.21 V	128	22.86	30.28
3	*2422.00	106.70 PK			1.18 V	144	76.30	30.40
4	*2422.00	93.50 AV			1.18 V	144	63.10	30.40
5	4844.00	45.10 PK	74.00	-28.90	1.10 V	265	8.26	36.84
6	4844.00	31.10 AV	54.00	-22.90	1.10 V	265	-5.74	36.84
7	7266.00	51.90 PK	74.00	-22.10	1.00 V	18	8.76	43.14
8	7266.00	37.80 AV	54.00	-16.20	1.00 V	18	-5.34	43.14

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

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	95.00 PK			1.21 H	43	64.54	30.46
2	*2437.00	82.10 AV			1.21 H	43	51.64	30.46
3	2483.50	56.10 PK	74.00	-17.90	1.21 H	43	25.47	30.63
4	2483.50	43.45 AV	54.00	-10.55	1.21 H	43	12.82	30.63
5	4874.00	45.70 PK	74.00	-28.30	1.43 H	167	8.78	36.92
6	4874.00	31.50 AV	54.00	-22.50	1.43 H	167	-5.42	36.92
7	7311.00	51.80 PK	74.00	-22.20	1.25 H	251	8.66	43.14
8	7311.00	31.80 AV	54.00	-22.20	1.25 H	251	-11.34	43.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.80 PK			1.16 V	144	79.34	30.46
2	*2437.00	95.50 AV			1.16 V	144	65.04	30.46
3	2483.50	72.87 PK	74.00	-1.13	1.15 V	144	42.24	30.63
4	2483.50	52.53 AV	54.00	-1.47	1.15 V	144	21.90	30.63
5	4874.00	45.90 PK	74.00	-28.10	1.07 V	234	8.98	36.92
6	4874.00	31.80 AV	54.00	-22.20	1.07 V	234	-5.12	36.92
7	7311.00	52.10 PK	74.00	-21.90	1.00 V	23	8.96	43.14
8	7311.00	37.90 AV	54.00	-16.10	1.00 V	23	-5.24	43.14

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

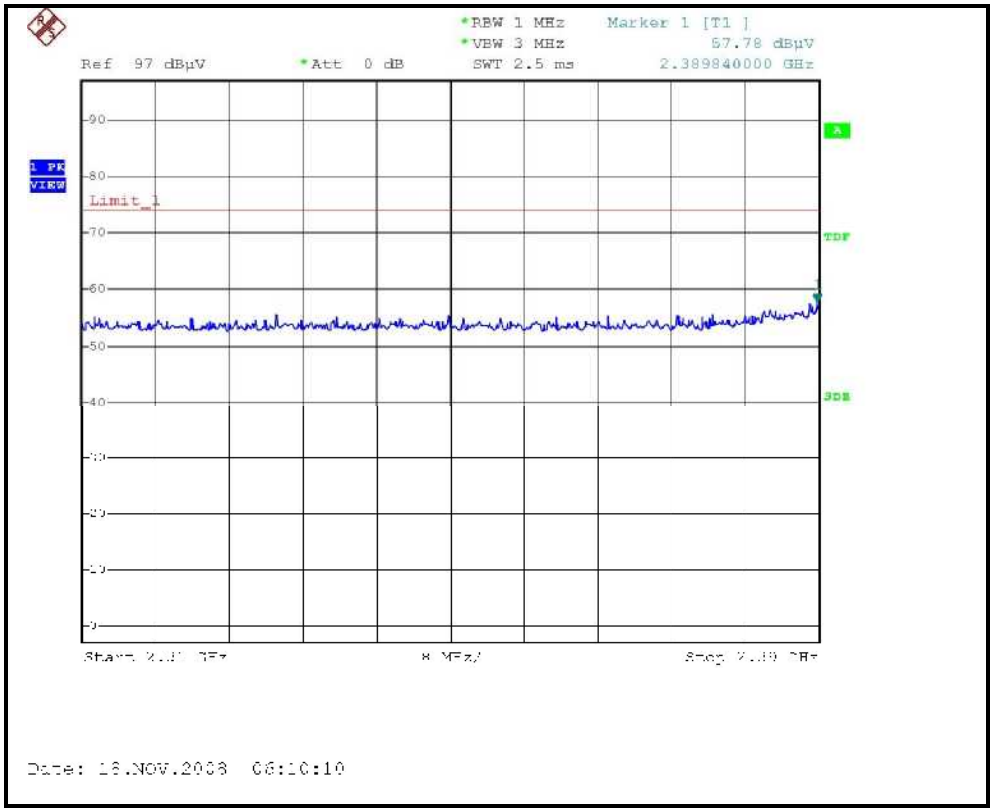
5. " * ": Fundamental frequency.

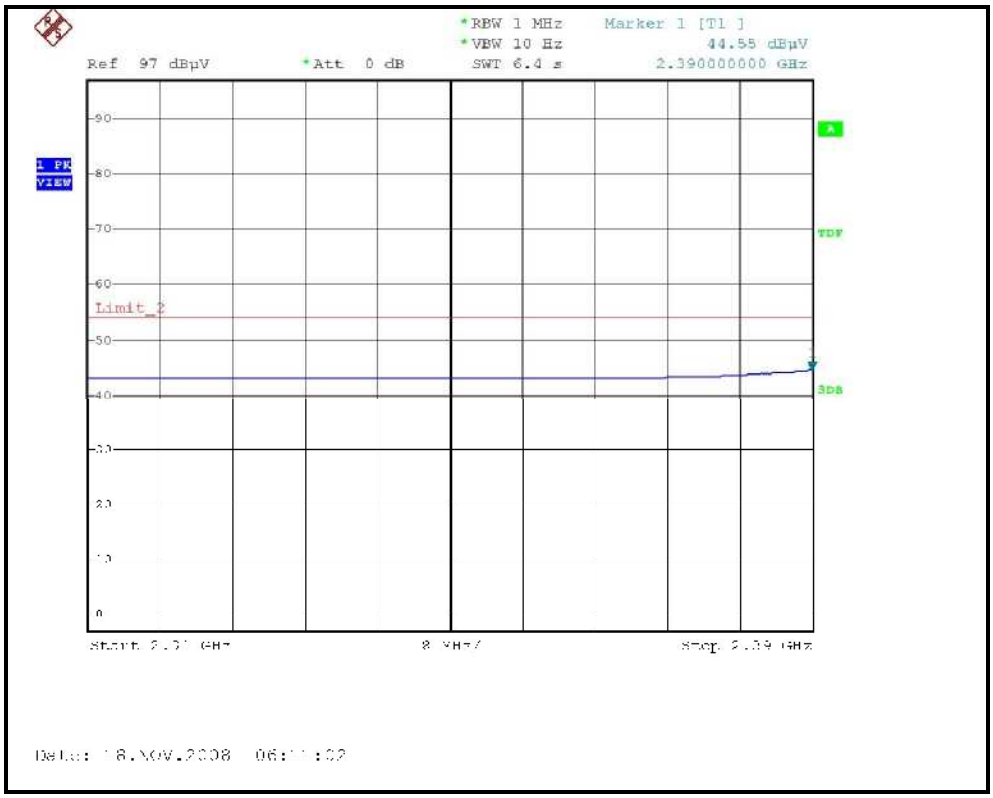
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	92.10 PK			1.11 H	44	61.59	30.51
2	*2452.00	79.40 AV			1.11 H	44	48.89	30.51
3	2483.50	57.63 PK	74.00	-16.37	1.11 H	44	27.00	30.63
4	2483.50	44.14 AV	54.00	-9.86	1.11 H	44	13.51	30.63
5	4904.00	45.60 PK	74.00	-28.40	1.44 H	165	8.60	37.00
6	4904.00	31.50 AV	54.00	-22.50	1.44 H	165	-5.50	37.00
7	7356.00	51.70 PK	74.00	-22.30	1.23 H	254	8.57	43.13
8	7356.00	31.90 AV	54.00	-22.10	1.23 H	254	-11.23	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.80 PK			1.15 V	143	76.29	30.51
2	*2452.00	93.30 AV			1.15 V	143	62.79	30.51
3	2483.50	71.27 PK	74.00	-2.73	1.16 V	102	40.64	30.63
4	2483.50	53.35 AV	54.00	-0.65	1.16 V	102	22.72	30.63
5	4904.00	45.60 PK	74.00	-28.40	1.05 V	275	8.60	37.00
6	4904.00	31.50 AV	54.00	-22.50	1.05 V	275	-5.50	37.00
7	7356.00	52.20 PK	74.00	-21.80	1.00 V	21	9.07	43.13
8	7356.00	37.90 AV	54.00	-16.10	1.00 V	21	-5.23	43.13

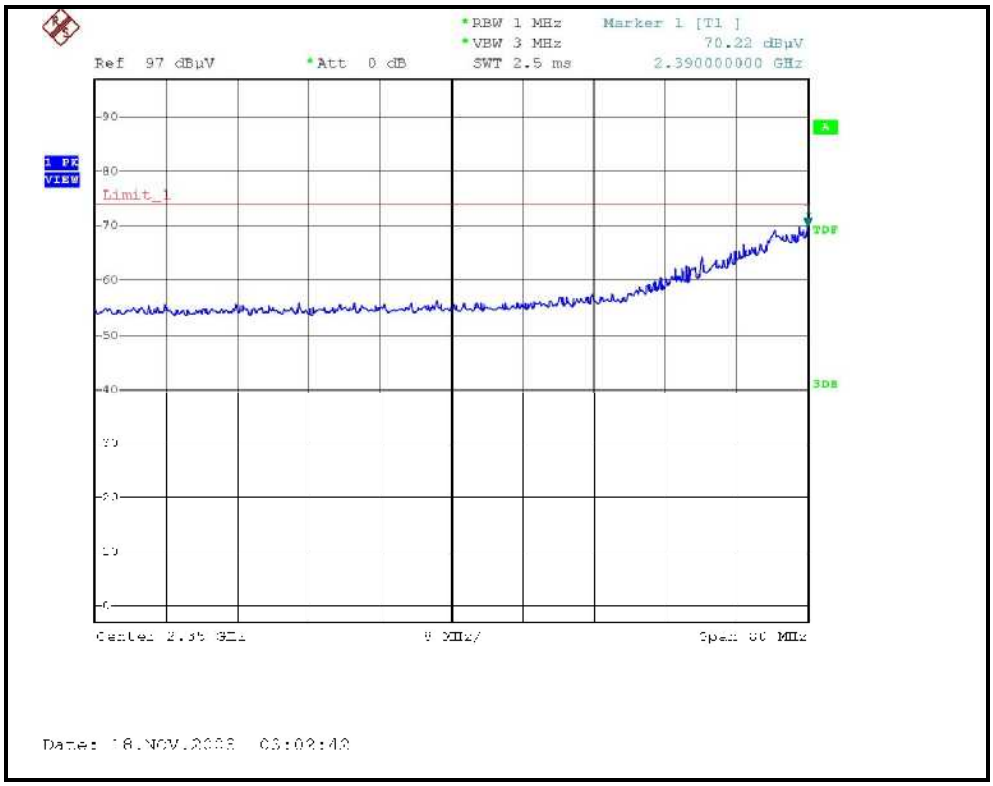
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

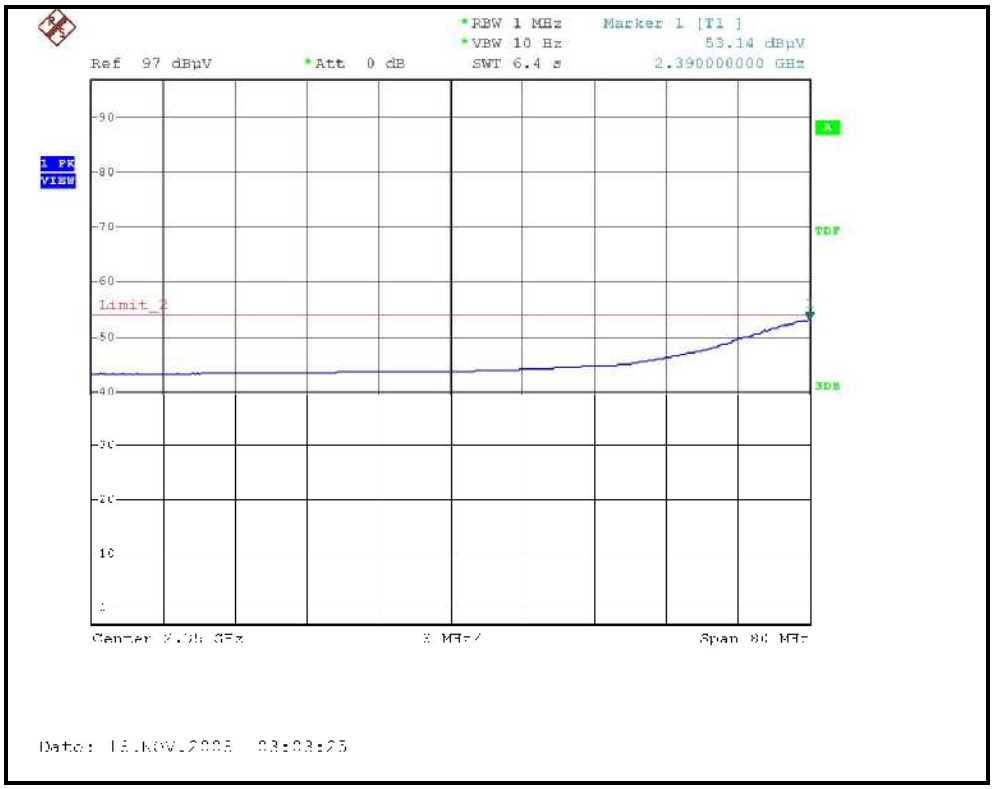
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



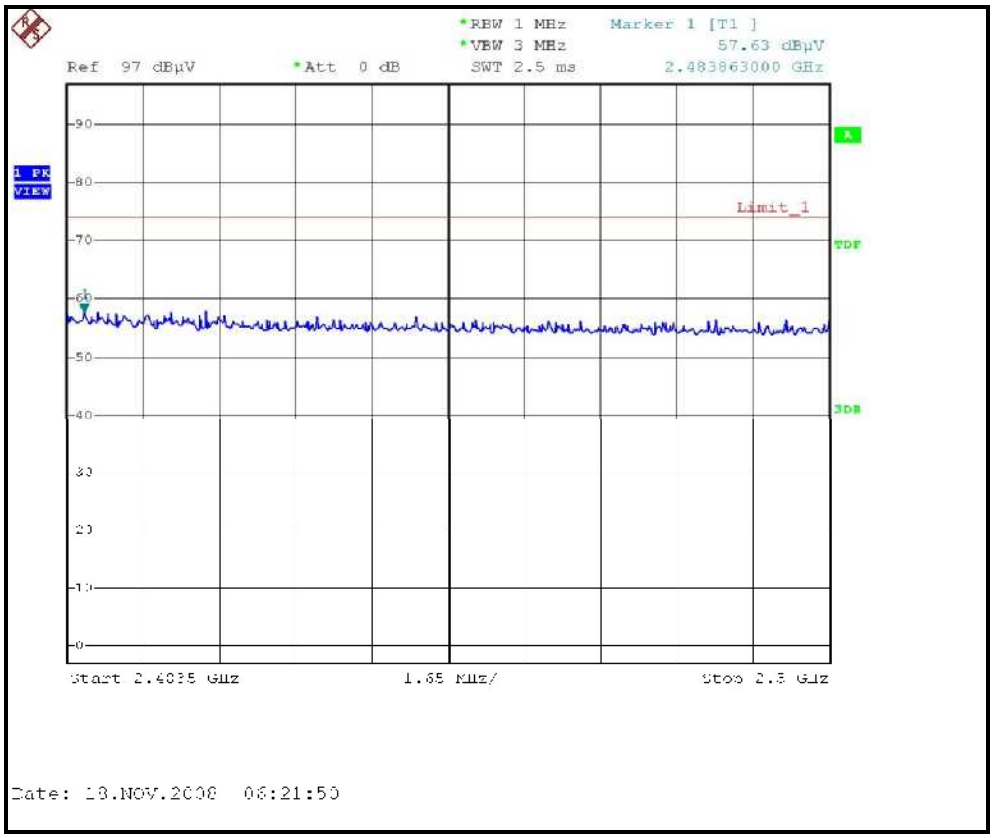


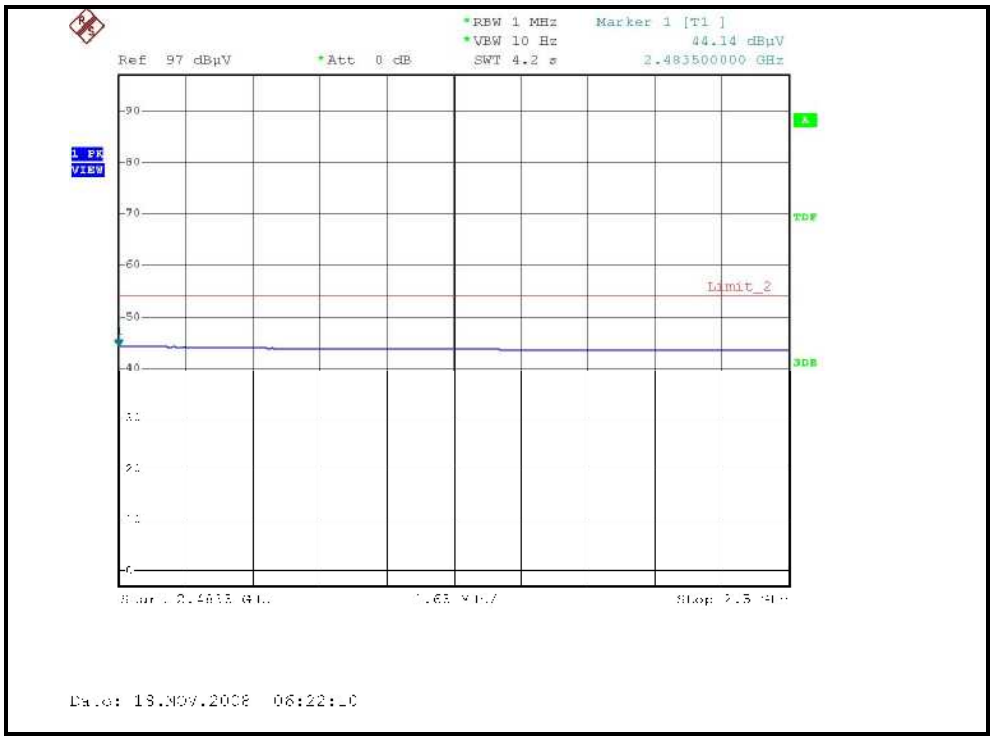
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



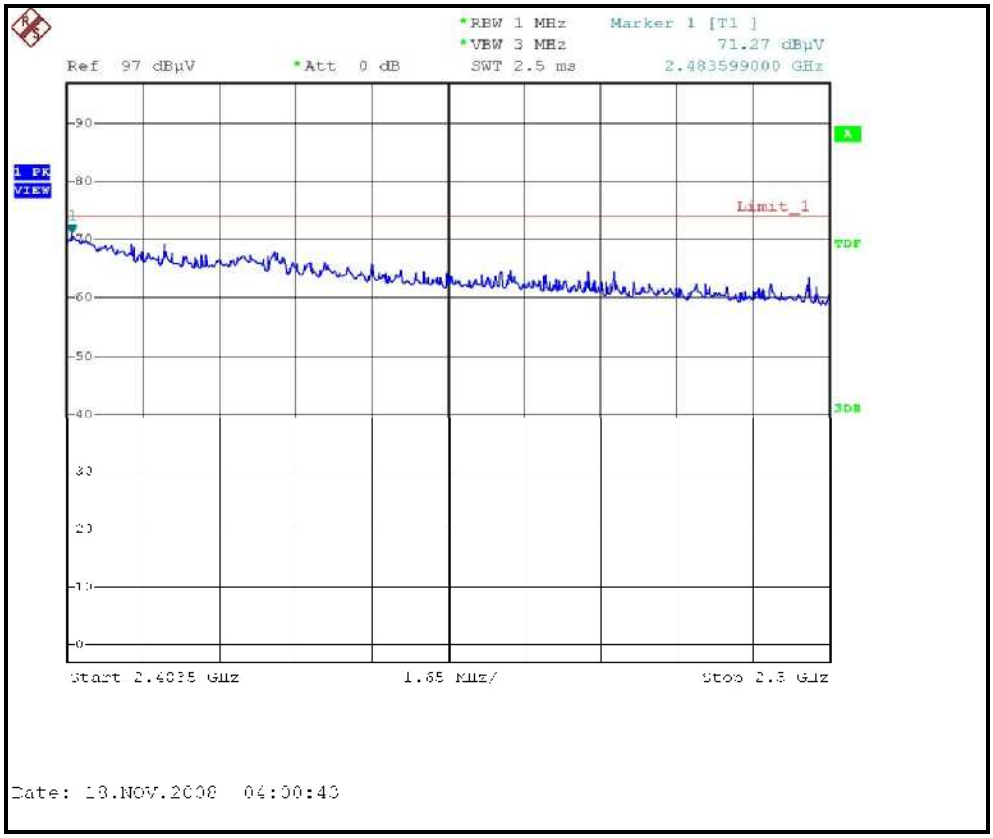


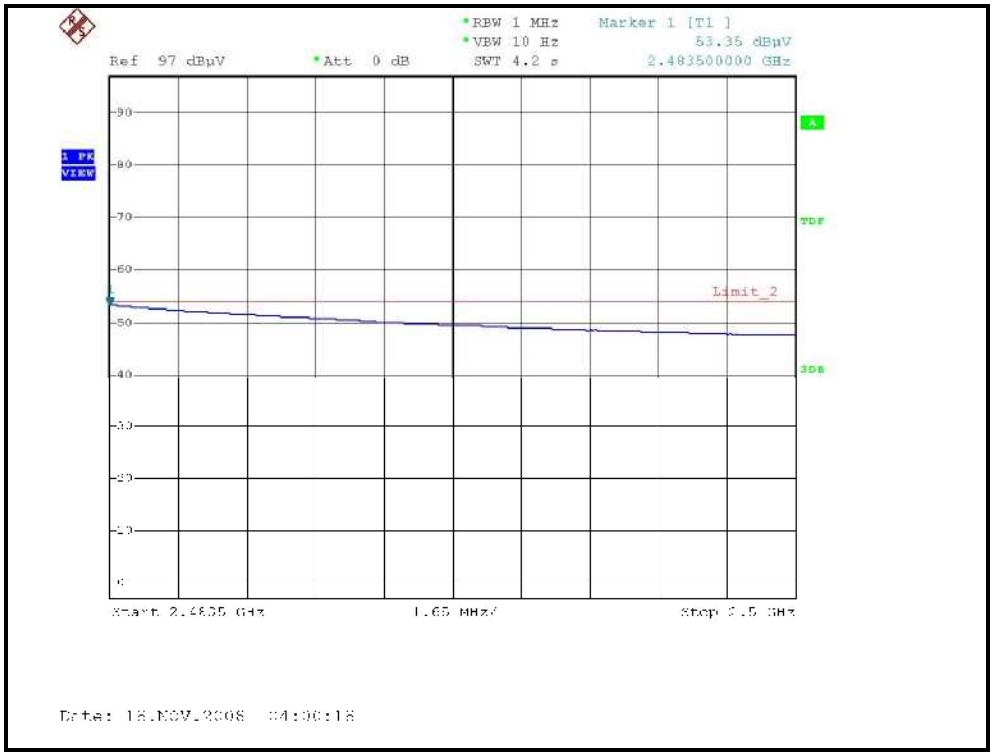
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)





RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, VERTICAL)





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.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. 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 100kHz 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.

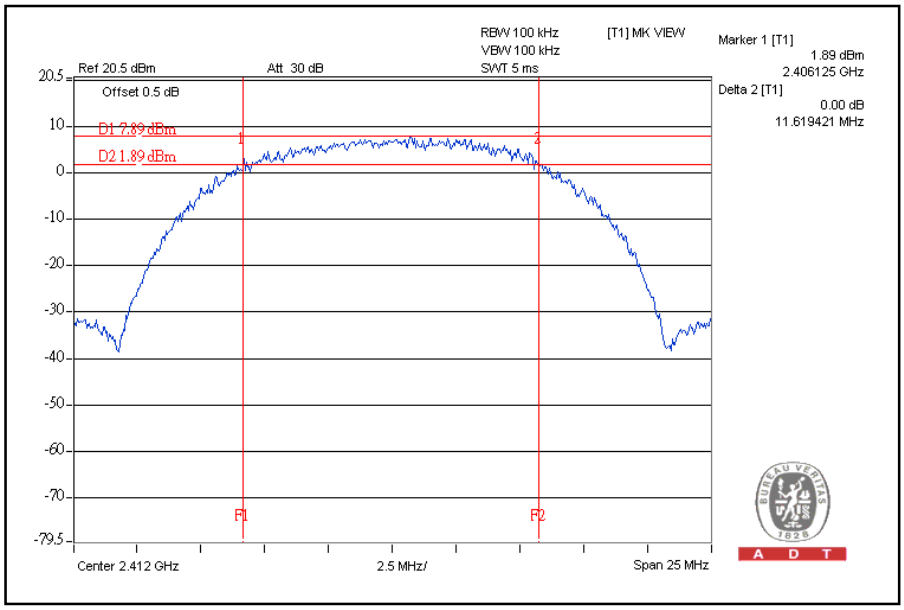
4.3.7 TEST RESULTS – with PCB antenna

802.11b DSSS MODULATION:

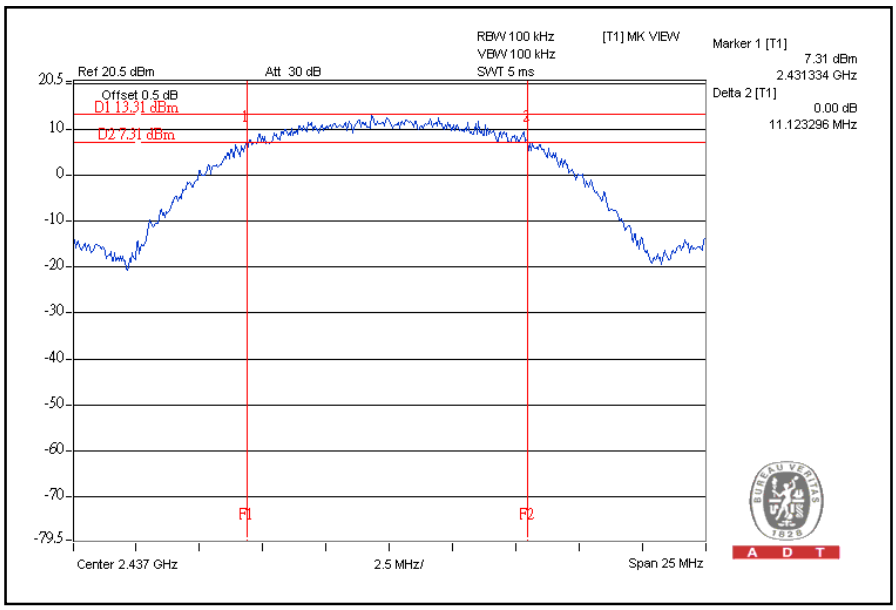
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	11.62	11.58	0.5	PASS
6	2437	11.12	11.18	0.5	PASS
11	2462	10.28	11.57	0.5	PASS

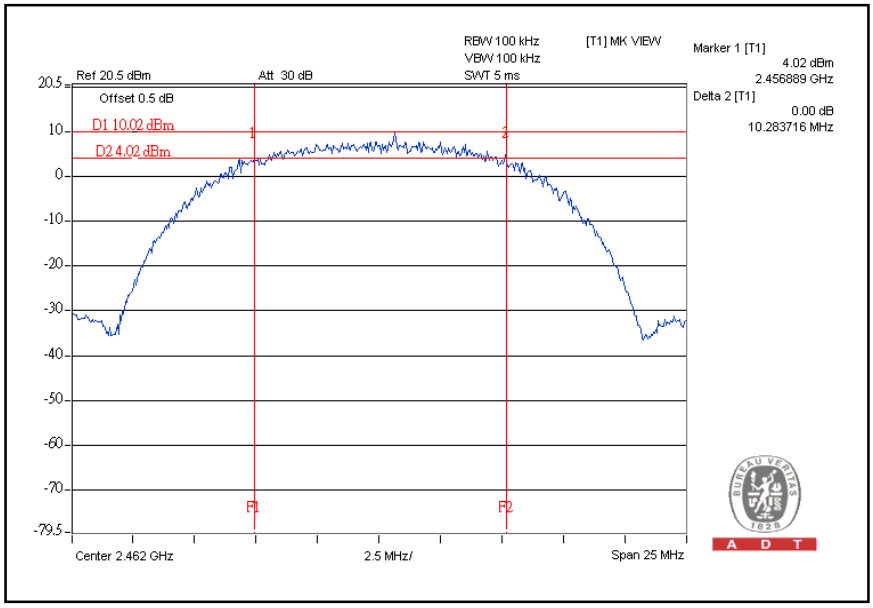
For Chain(0): CH1



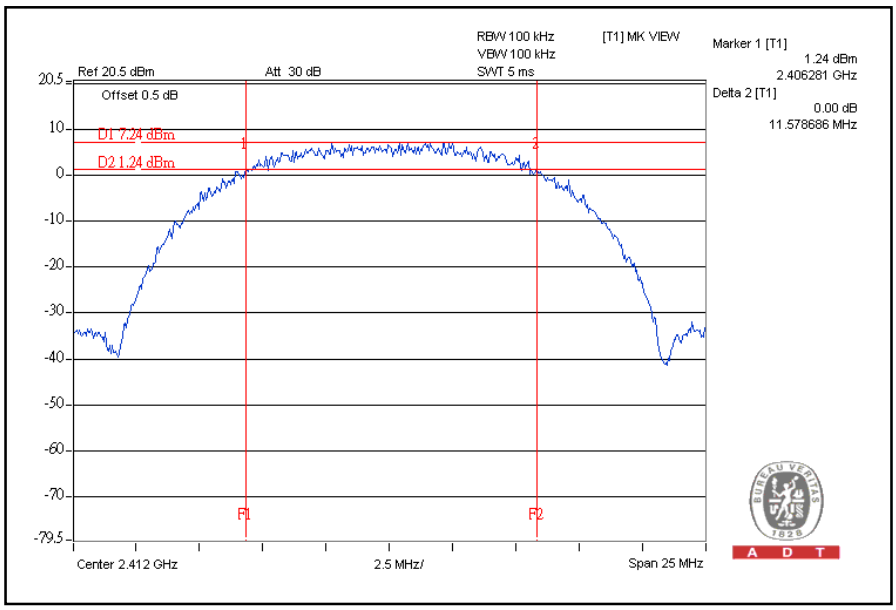
CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
7.31 dBm
2.431334 GHz
Delta 2 [T1]
0.00 dB
11.123296 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 13.31 dBm
D2 7.31 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

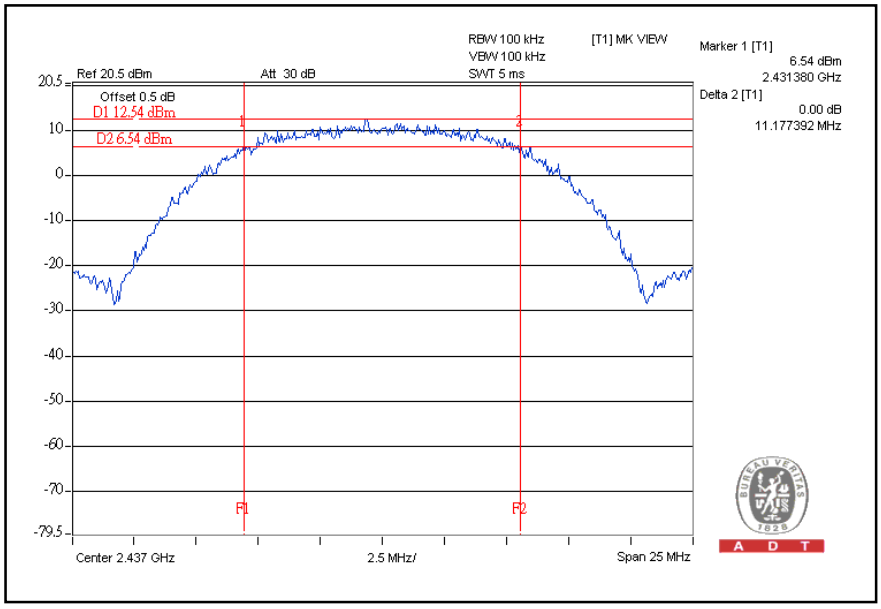
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
4.02 dBm
2.456889 GHz
Delta 2 [T1]
0.00 dB
10.283716 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 10.02 dBm
D2 4.02 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

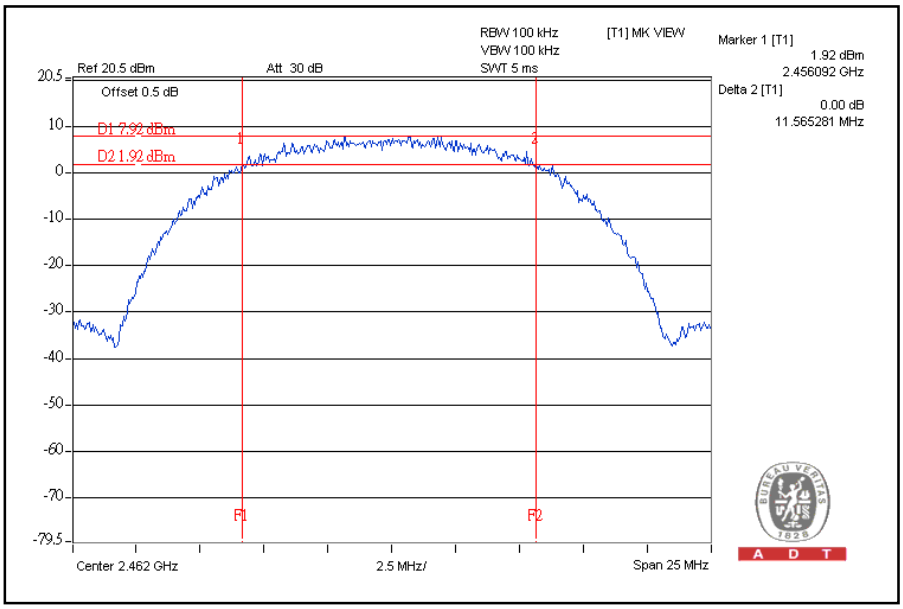
For CHAIN(1): CH1



CH6



CH11

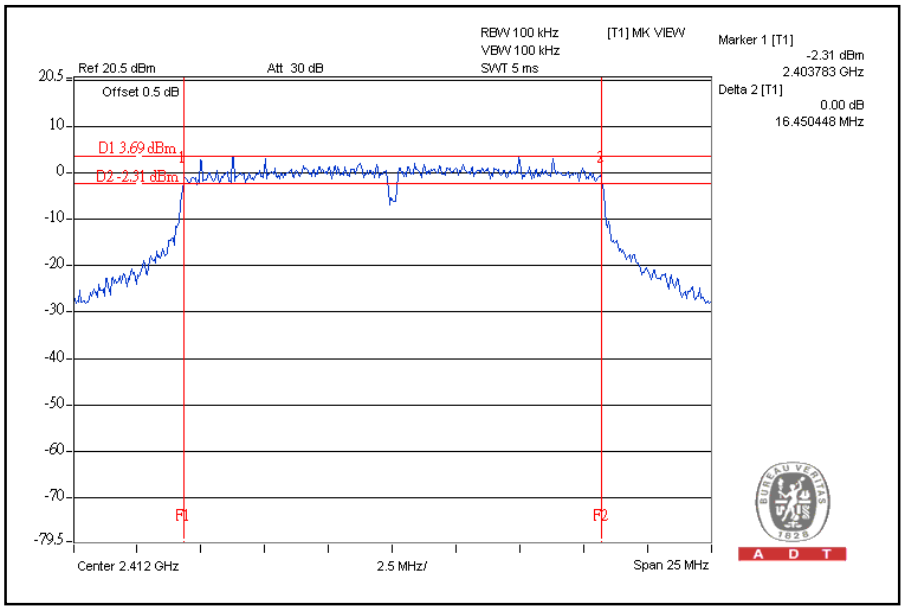

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
1.92 dBm
2.456092 GHz
Delta 2 [T1]
0.00 dB
11.565281 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 7.92 dBm
D2 1.92 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

802.11g OFDM MODULATION:

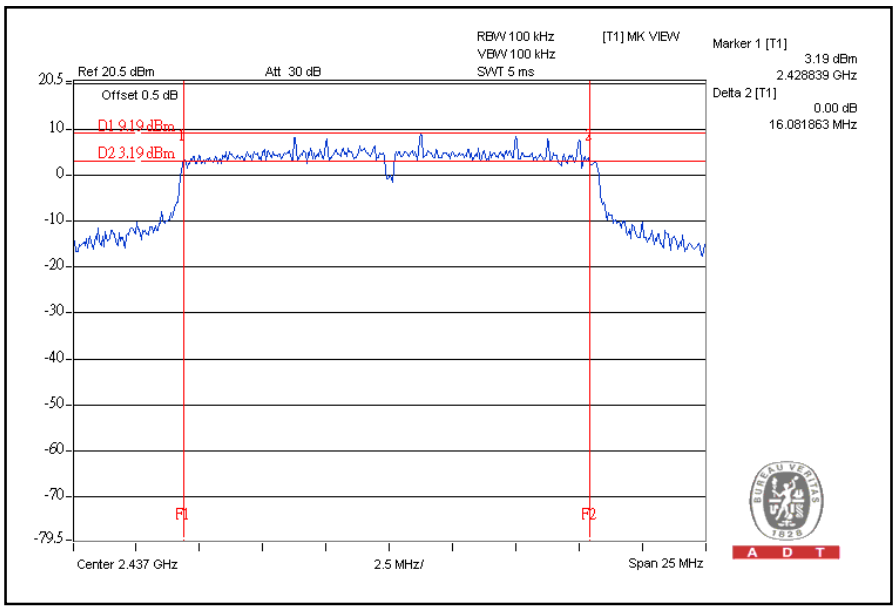
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	16.45	16.44	0.5	PASS
6	2437	16.08	16.44	0.5	PASS
11	2462	16.42	16.42	0.5	PASS

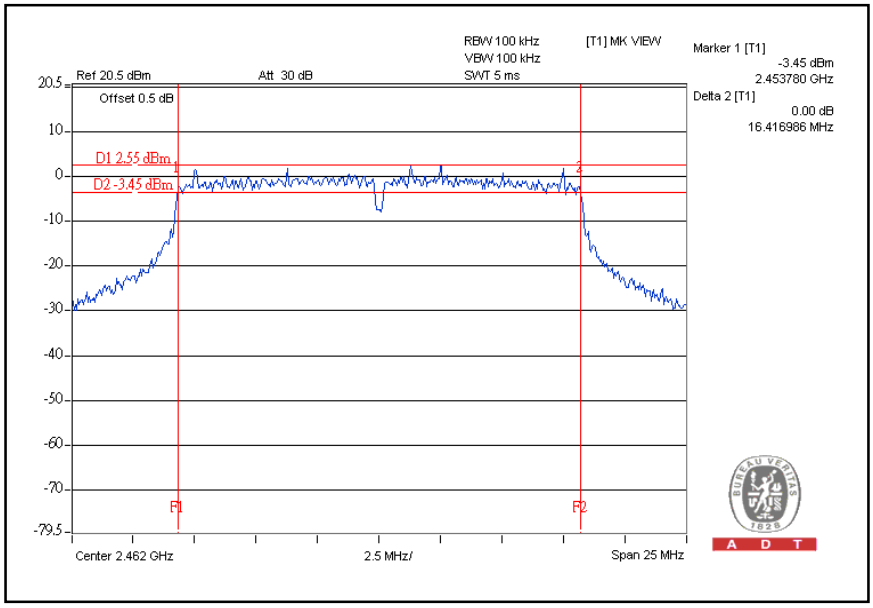
For Chain(0): CH1



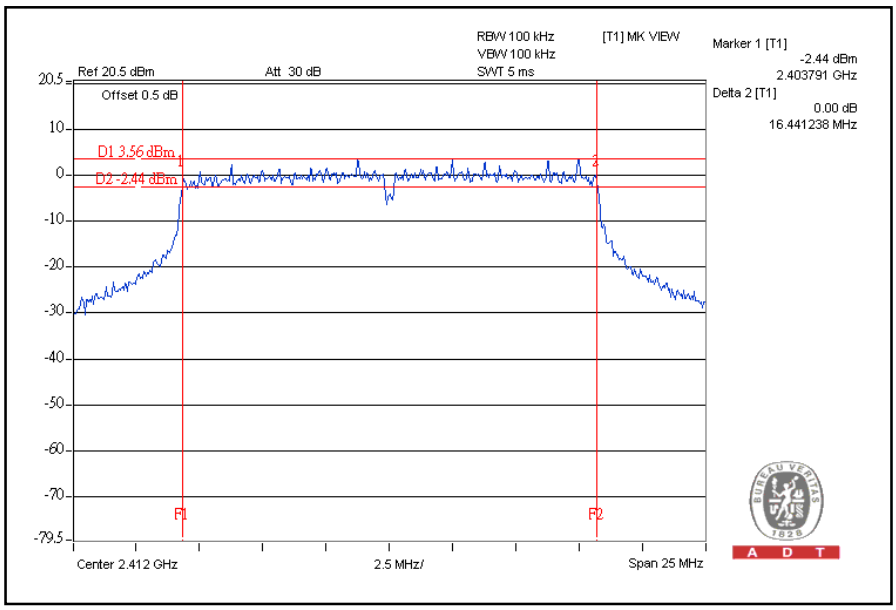
CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
3.19 dBm
2.428839 GHz
Delta 2 [T1]
0.00 dB
16.081863 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 9.19 dBm
D2 3.19 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

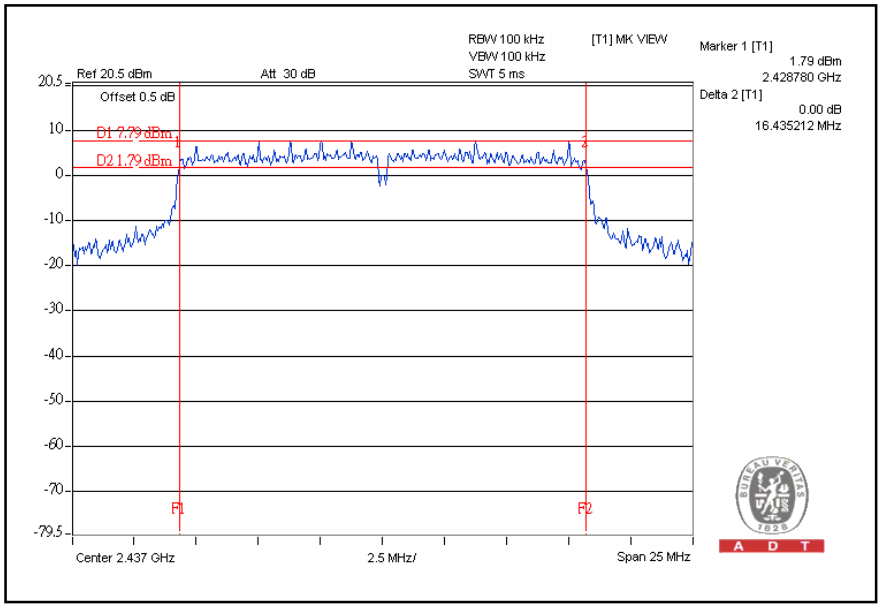
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.45 dBm
2.453780 GHz
Delta 2 [T1]
0.00 dB
16.416986 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.55 dBm
D2 -3.45 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

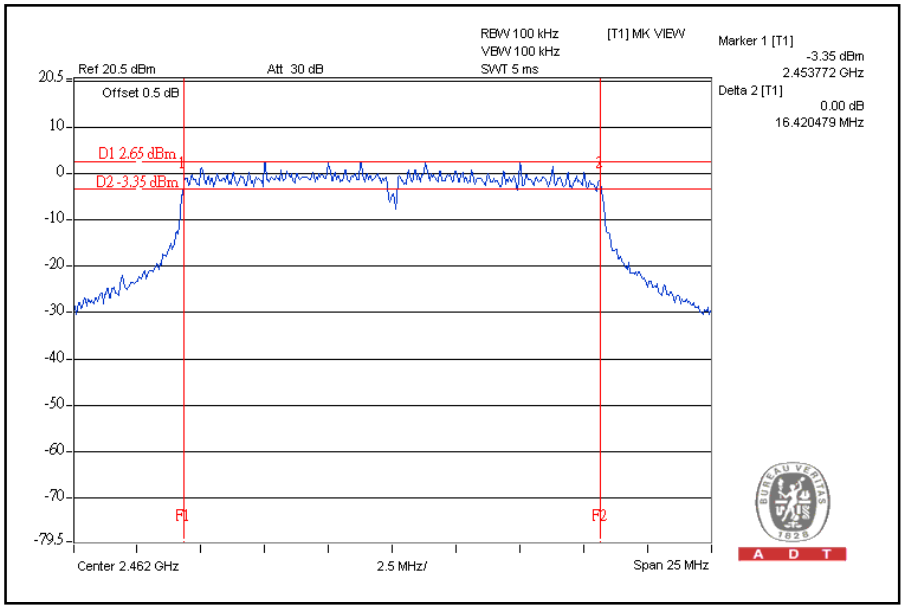
For CHAIN(1): CH1



CH6



CH11

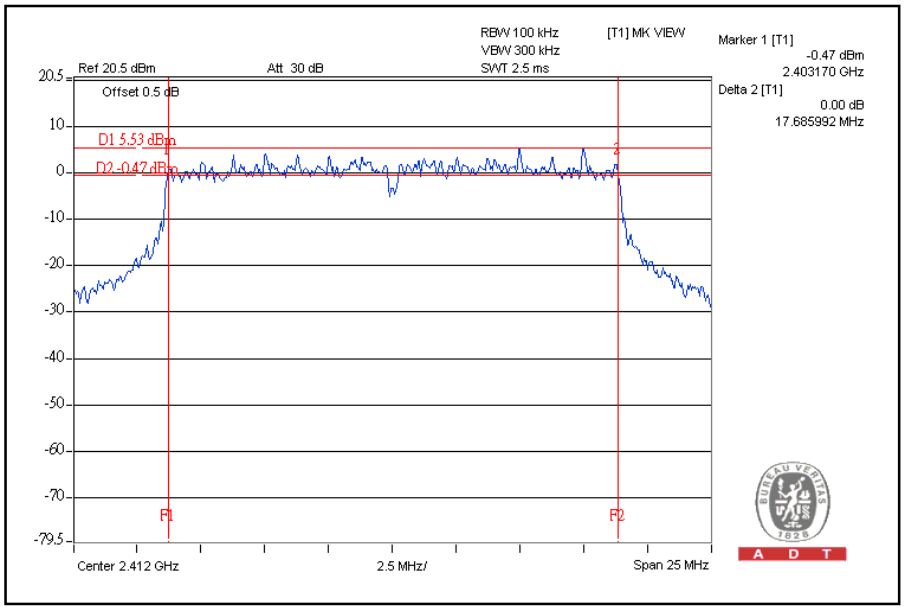

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.35 dBm
2.453772 GHz
Delta 2 [T1]
0.00 dB
16.420479 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.65 dBm
D2 -3.35 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

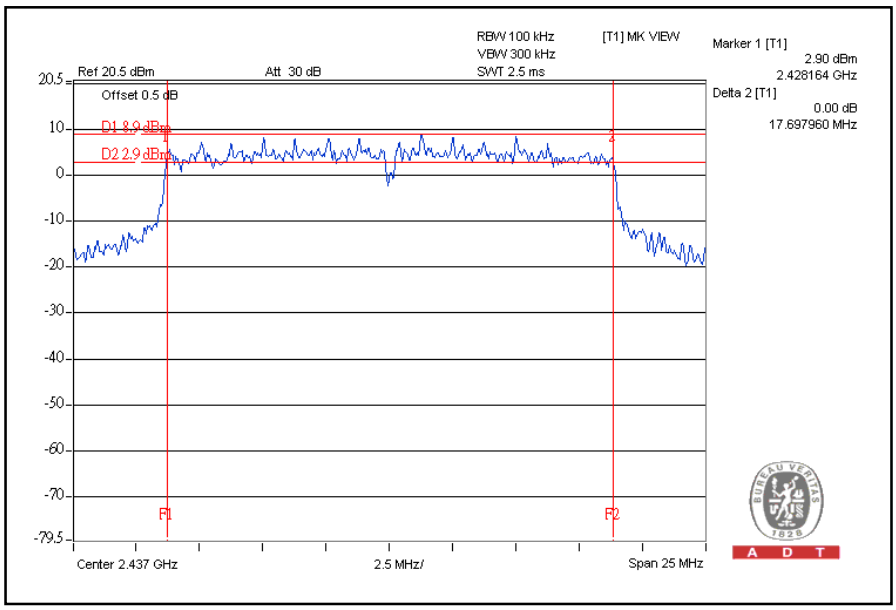
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	17.69	17.74	0.5	PASS
6	2437	17.70	17.69	0.5	PASS
11	2462	17.68	17.73	0.5	PASS

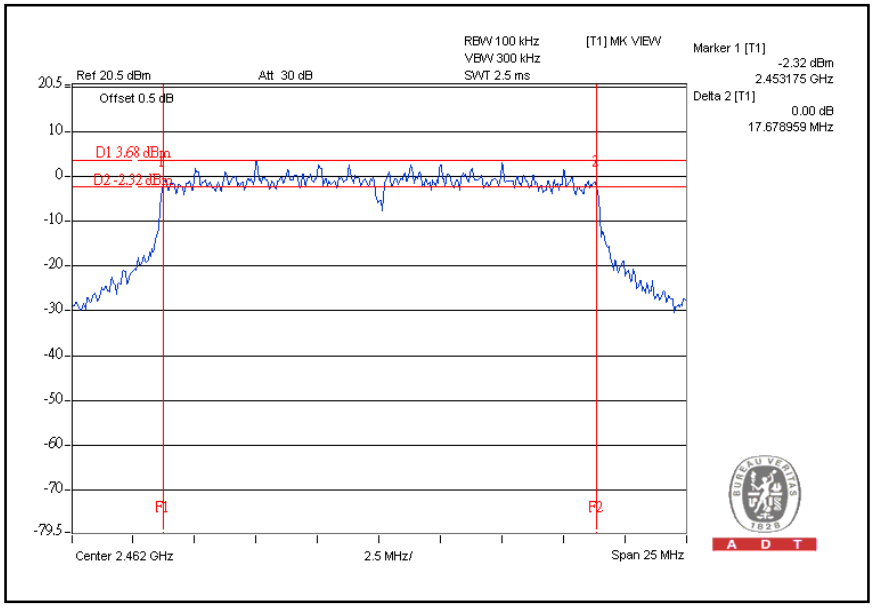
For Chain(0): CH1



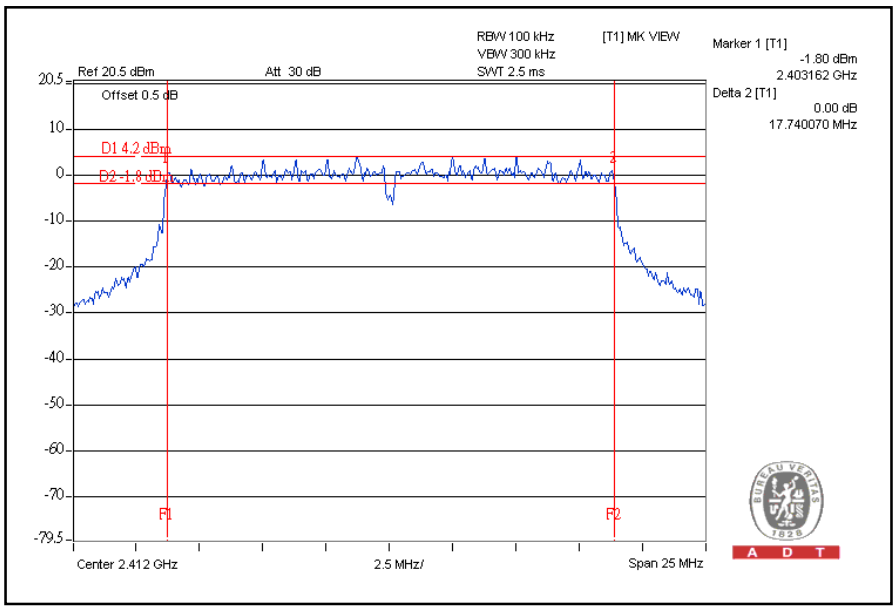
CH6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
2.90 dBm
2.428164 GHz
Delta 2 [T1]
0.00 dB
17.697960 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.9 dBm
D2 2.9 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

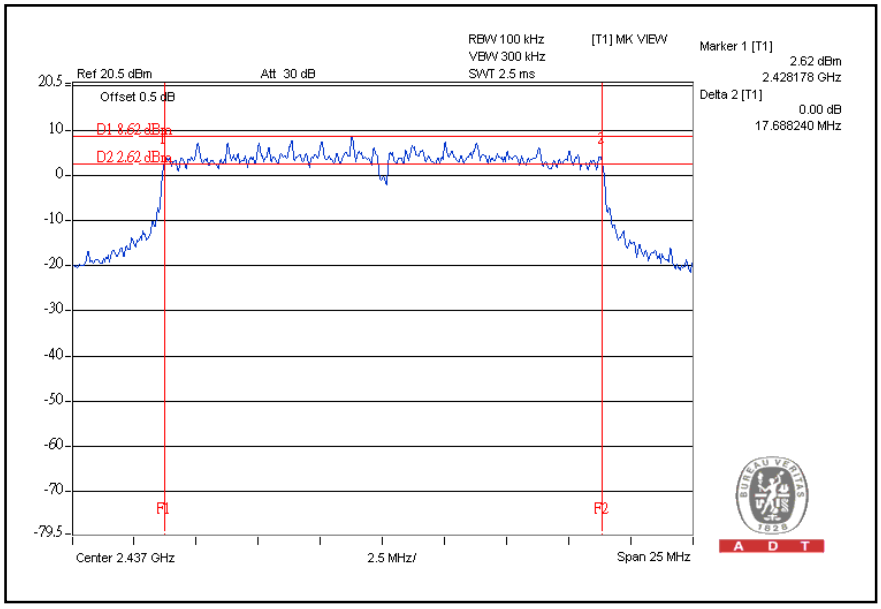
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-2.32 dBm
2.453175 GHz
Delta 2 [T1]
0.00 dB
17.678959 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3.68 dBm
D2 -2.32 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

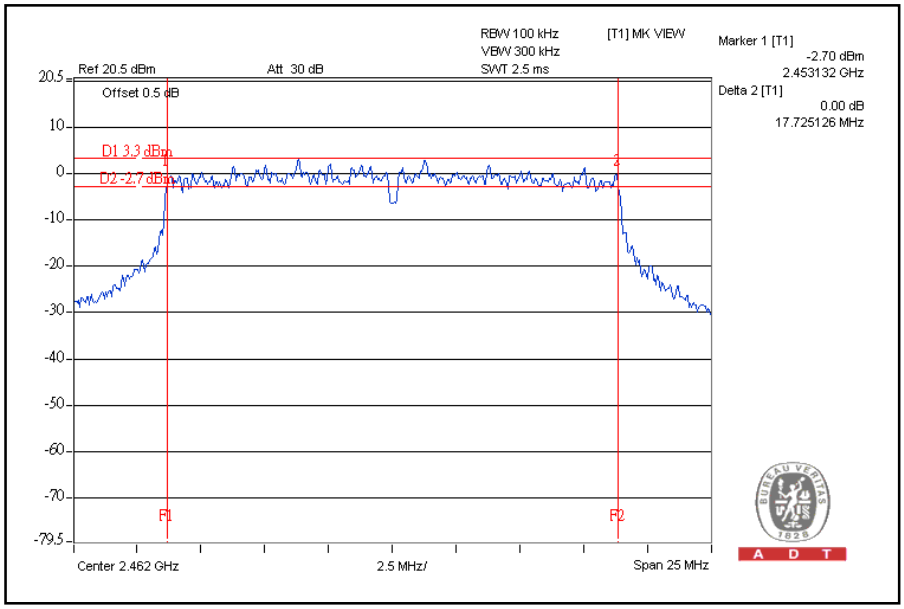
For CHAIN(1): CH1



CH6



CH11

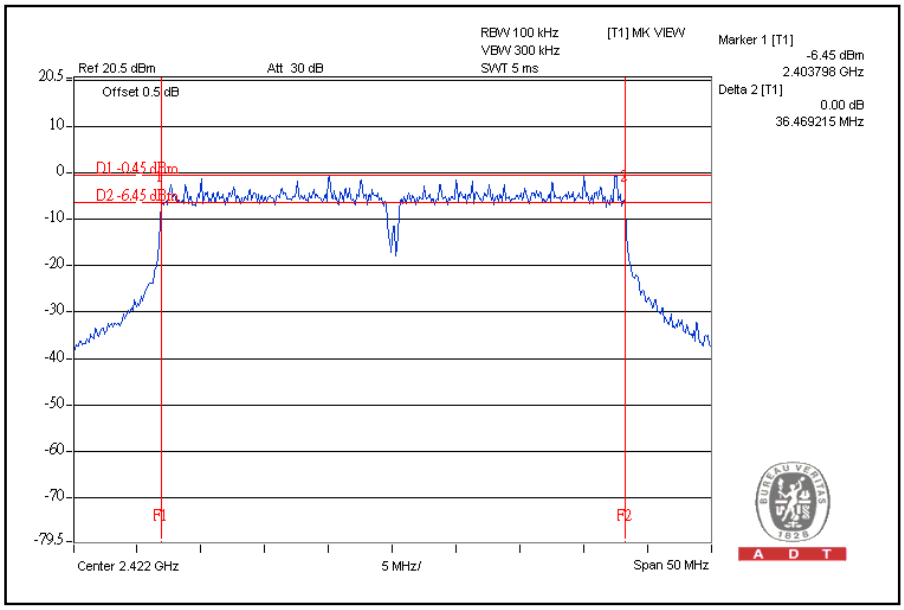

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-2.70 dBm
2.453132 GHz
Delta 2 [T1]
0.00 dB
17.725126 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3.3 dBm
D2 -2.7 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

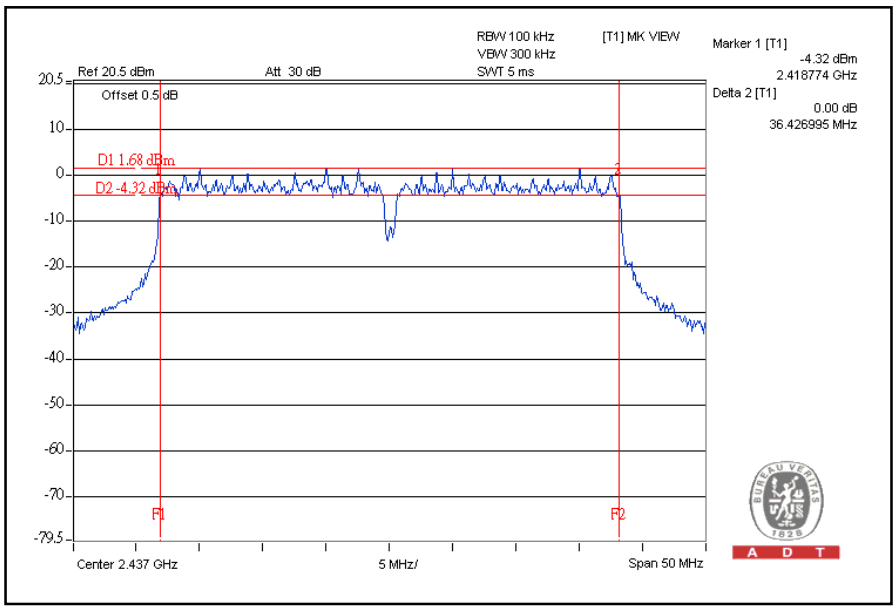
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2422	36.47	36.47	0.5	PASS
4	2437	36.43	36.52	0.5	PASS
7	2452	36.31	36.46	0.5	PASS

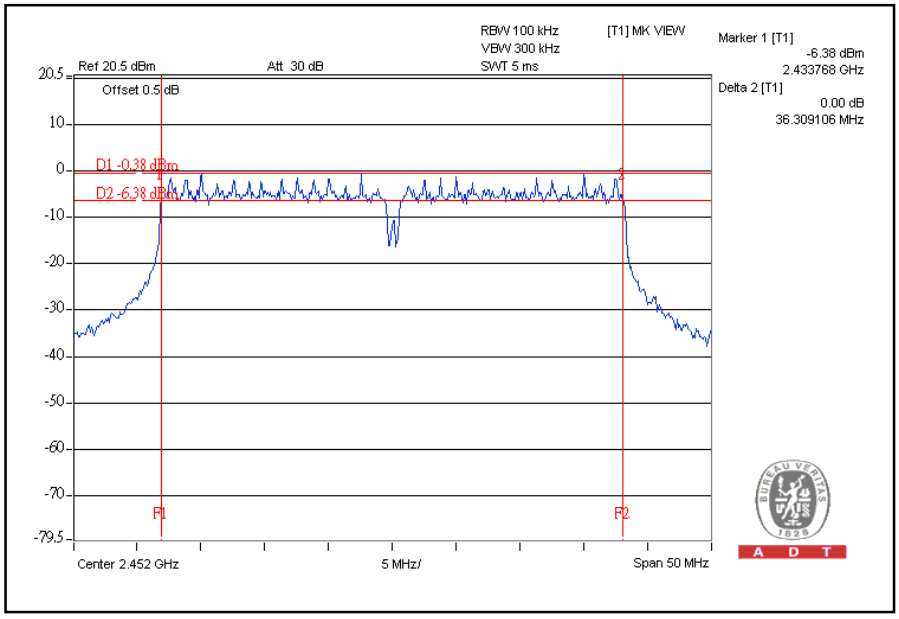
For Chain (0): CH1



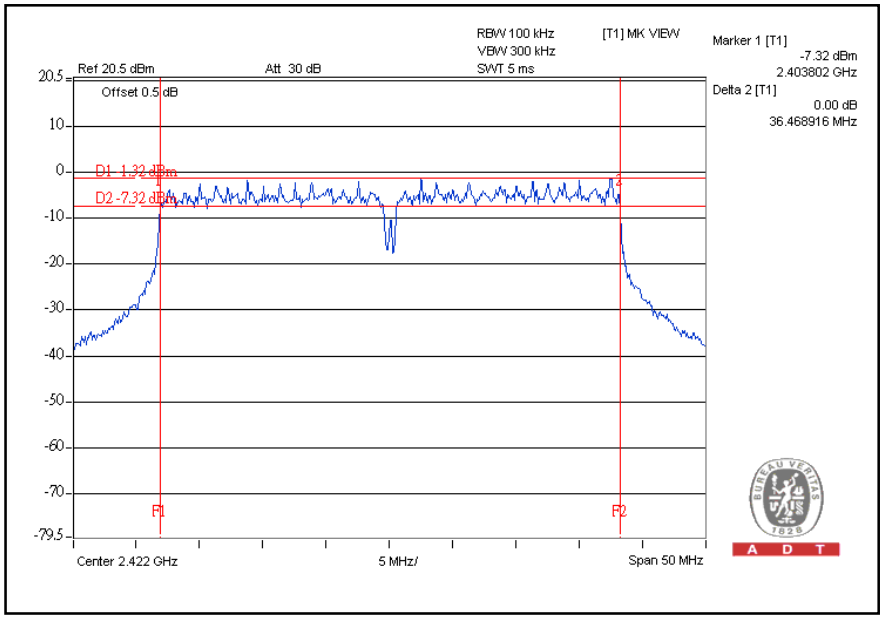
CH4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.32 dBm
2.418774 GHz
Delta 2 [T1]
0.00 dB
36.426995 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 1.68 dBm
D2 -4.32 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
5 MHz/
Span 50 MHz

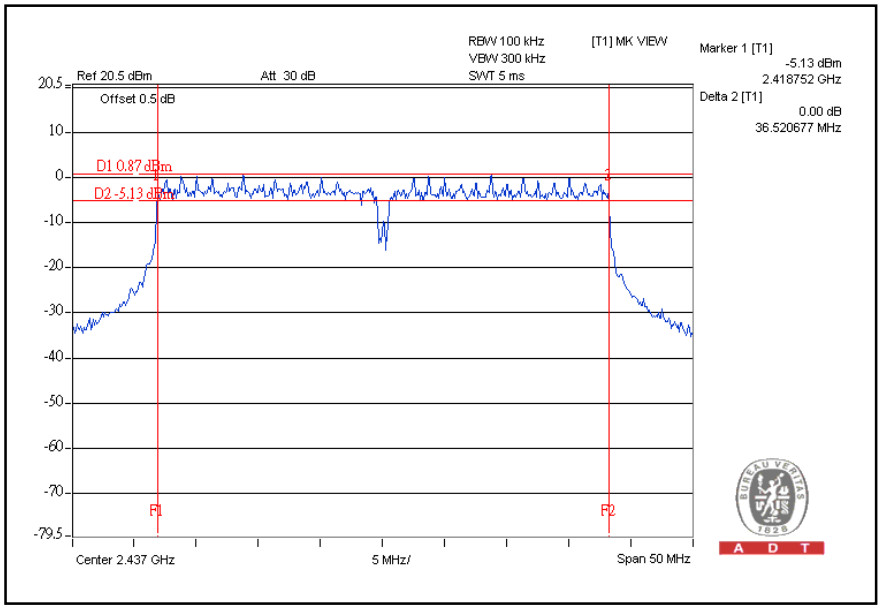
CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.38 dBm
2.433768 GHz
Delta 2 [T1]
0.00 dB
36.309106 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.38 dBm
D2 -6.38 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz

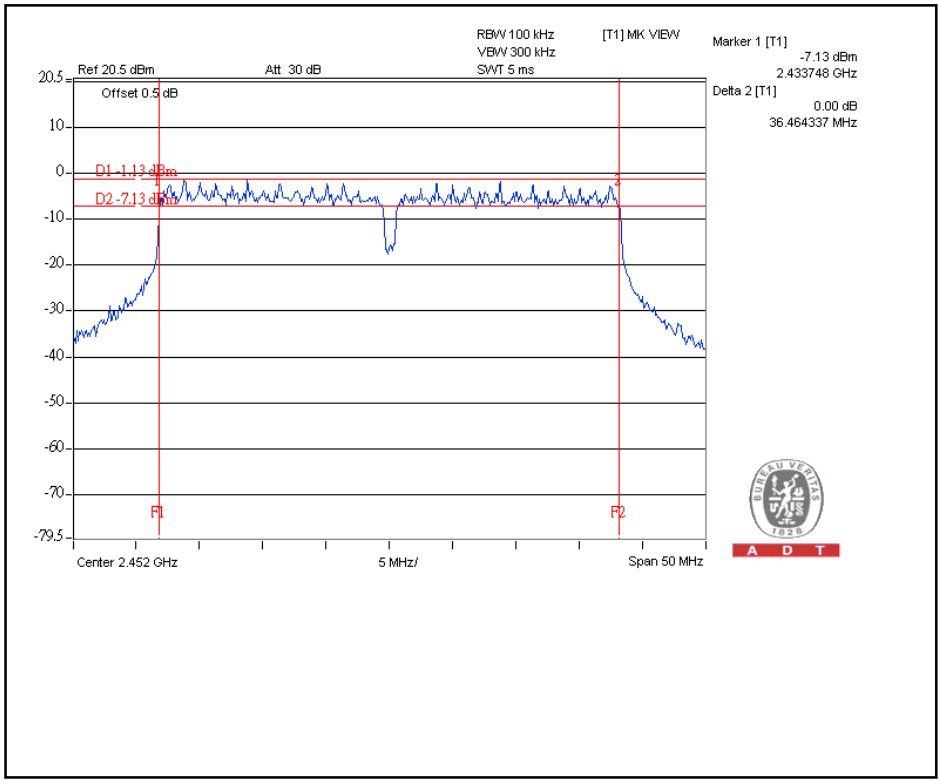
For Chain (1): CH1



CH4



CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.13 dBm
2.433748 GHz
Delta 2 [T1]
0.00 dB
36.464337 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -1.13 dBm
D2 -7.13 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz

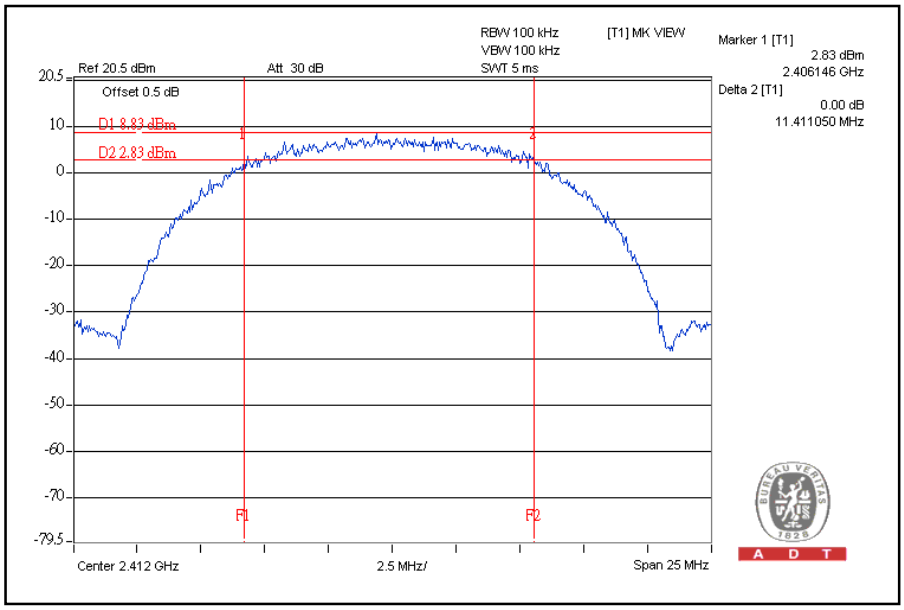
4.3.8 TEST RESULTS – with Dipole antenna

802.11b DSSS MODULATION:

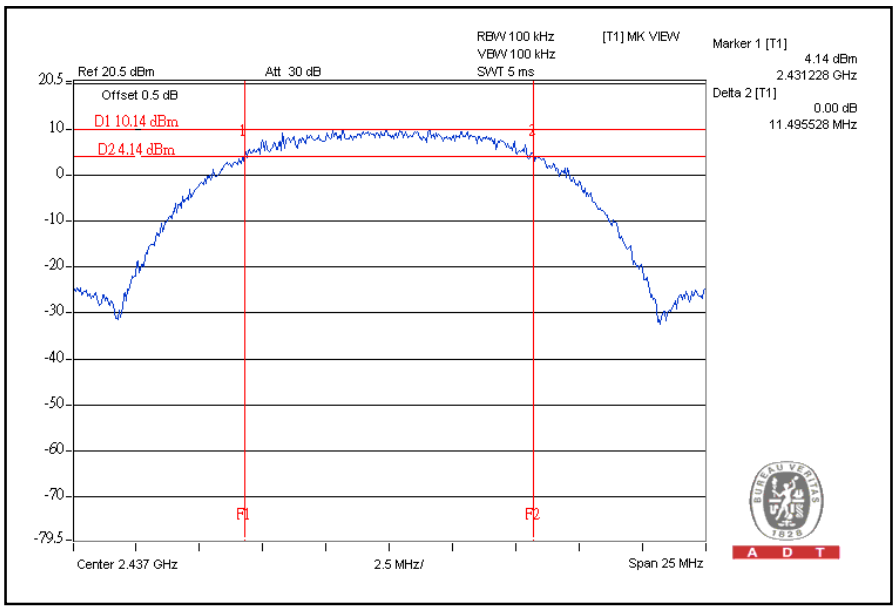
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	11.41	11.63	0.5	PASS
6	2437	11.50	11.62	0.5	PASS
11	2462	10.01	10.80	0.5	PASS

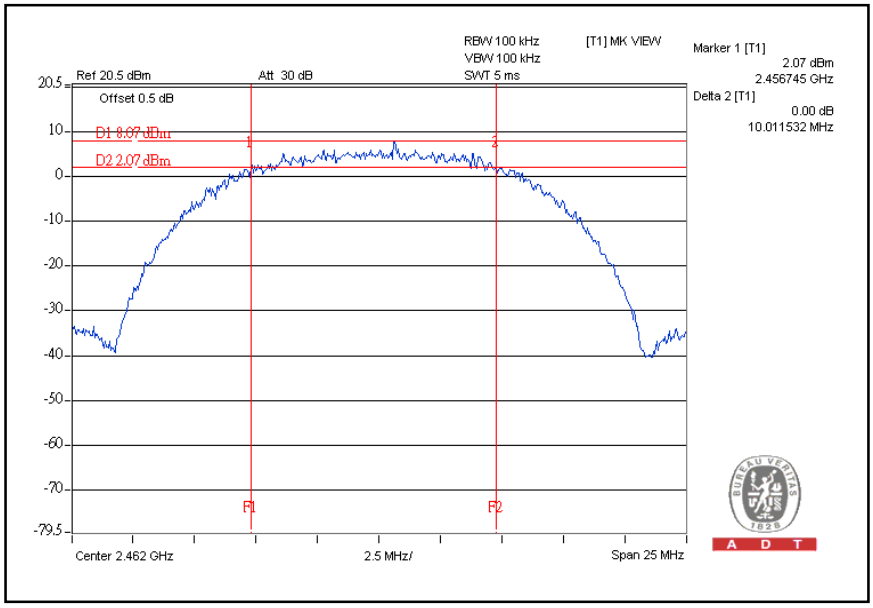
For Chain(0): CH1



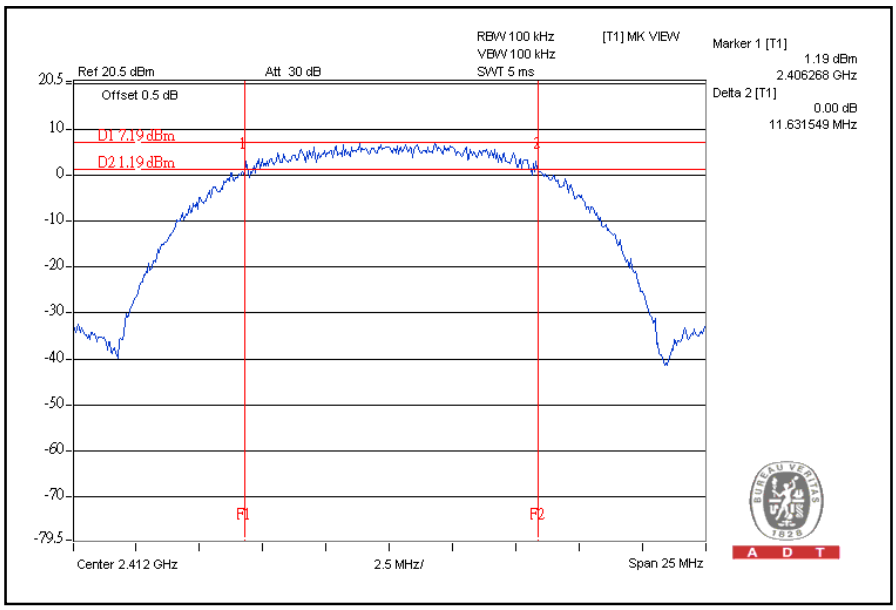
CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
4.14 dBm
2.431228 GHz
Delta 2 [T1]
0.00 dB
11.495528 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 10.14 dBm
D2 4.14 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

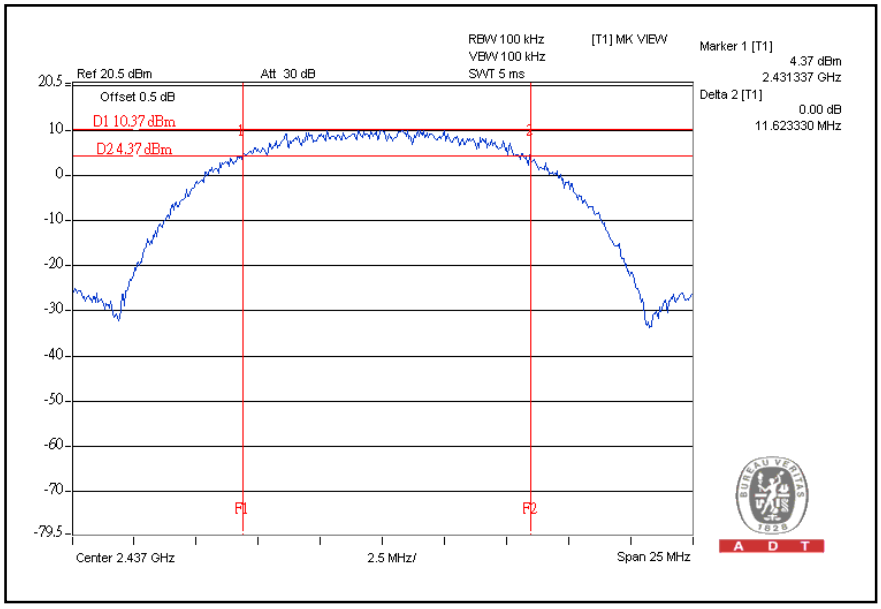
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
2.07 dBm
2.456745 GHz
Delta 2 [T1]
0.00 dB
10.011532 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.07 dBm
D2 2.07 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

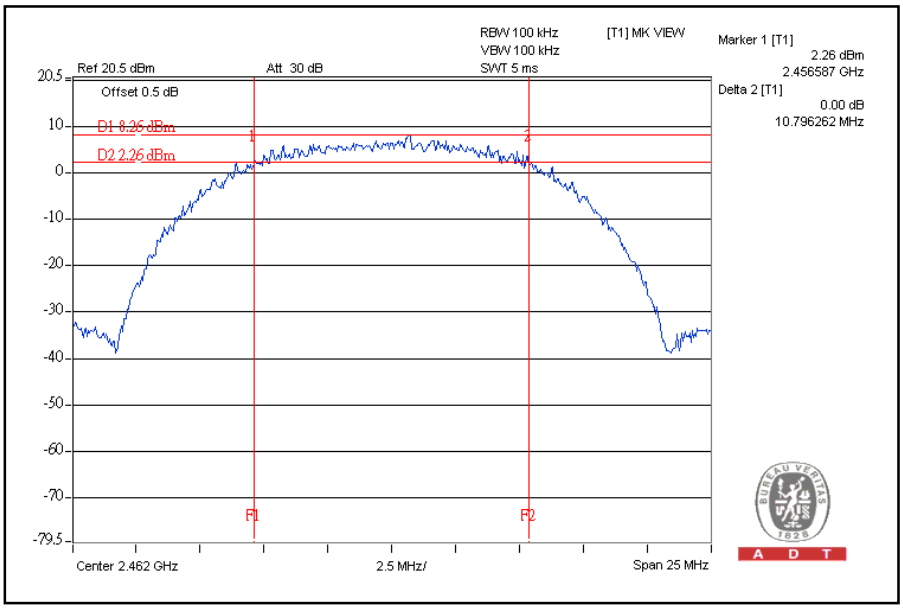
For CHAIN(1): CH1



CH6



CH11

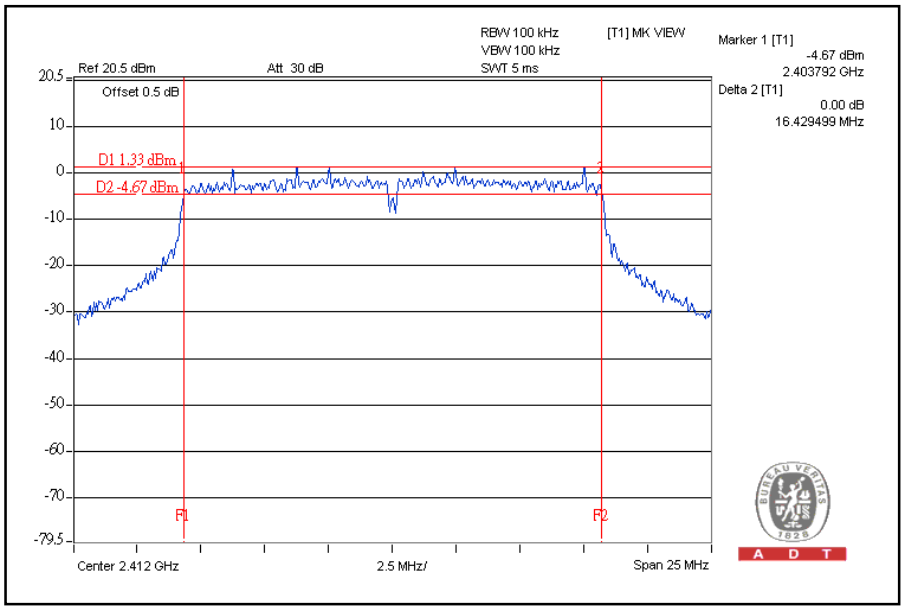

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
2.26 dBm
2.456587 GHz
Delta 2 [T1]
0.00 dB
10.796262 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.26 dBm
D2 2.26 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

802.11g OFDM MODULATION:

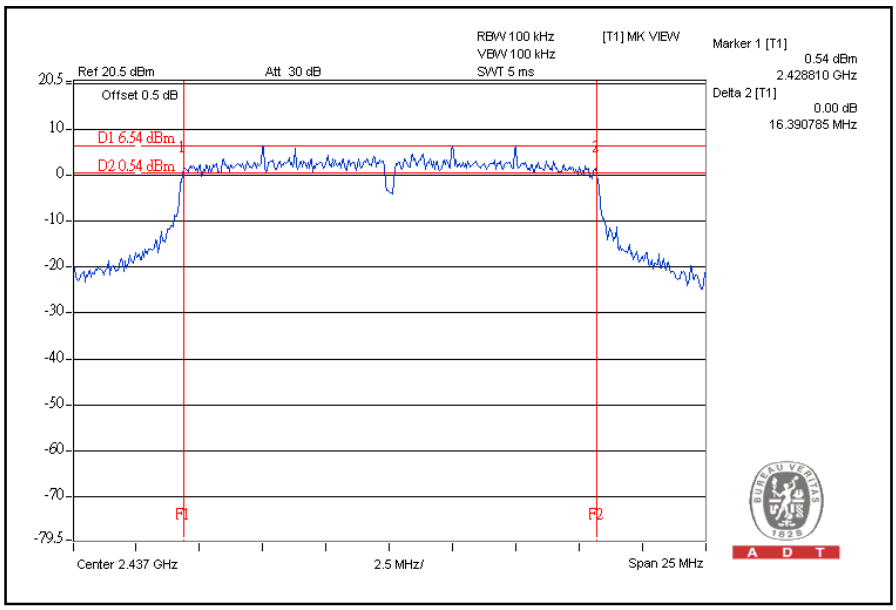
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	16.43	16.41	0.5	PASS
6	2437	16.39	16.42	0.5	PASS
11	2462	16.43	16.42	0.5	PASS

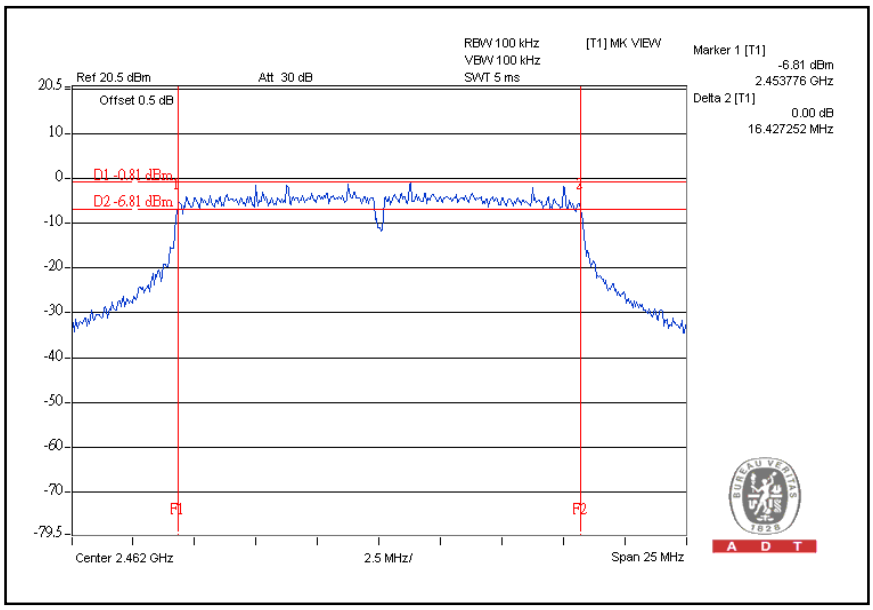
For Chain(0): CH1



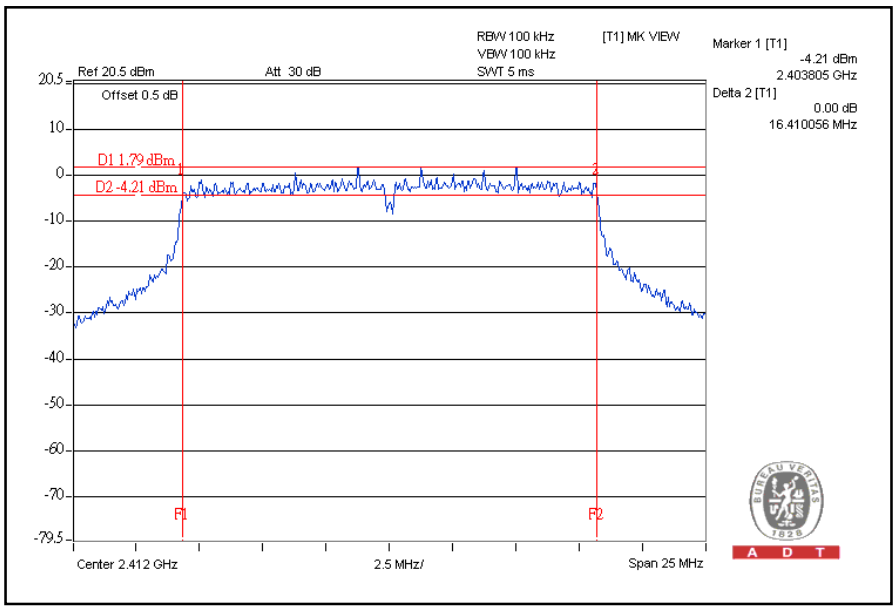
CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
0.54 dBm
2.428810 GHz
Delta 2 [T1]
0.00 dB
16.390785 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.54 dBm
D2 0.54 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

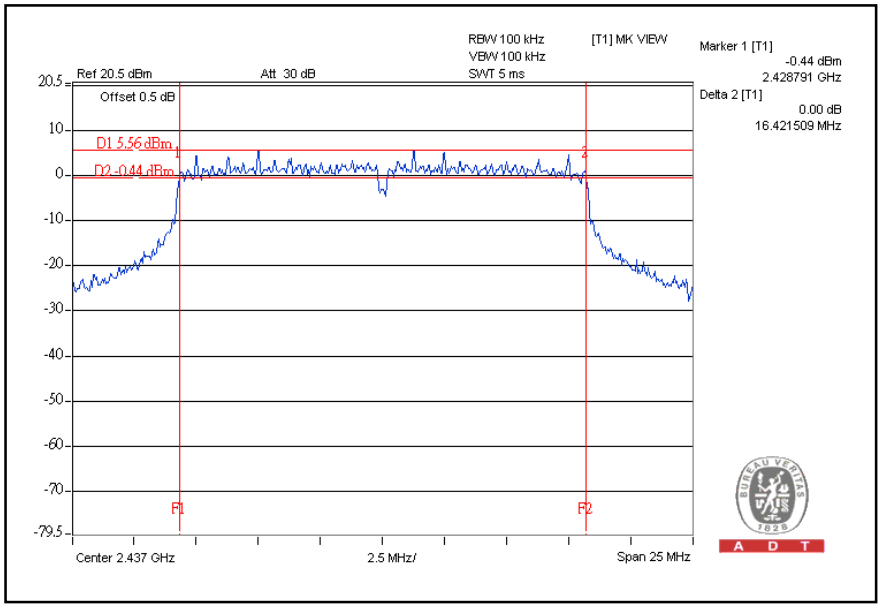
CH11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.81 dBm
2.453776 GHz
Delta 2 [T1]
0.00 dB
16.427252 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.81 dBm
D2 -6.81 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

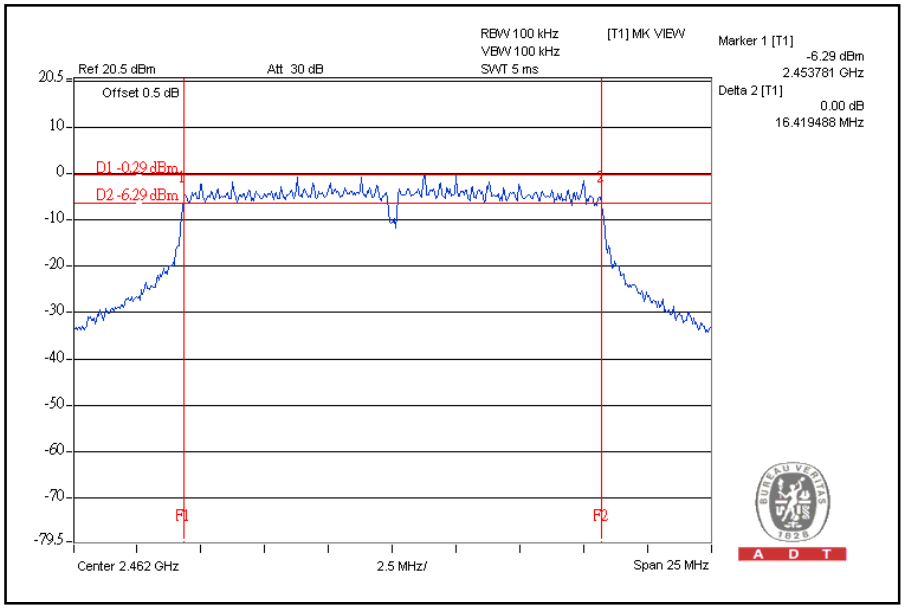
For CHAIN(1): CH1



CH6



CH11

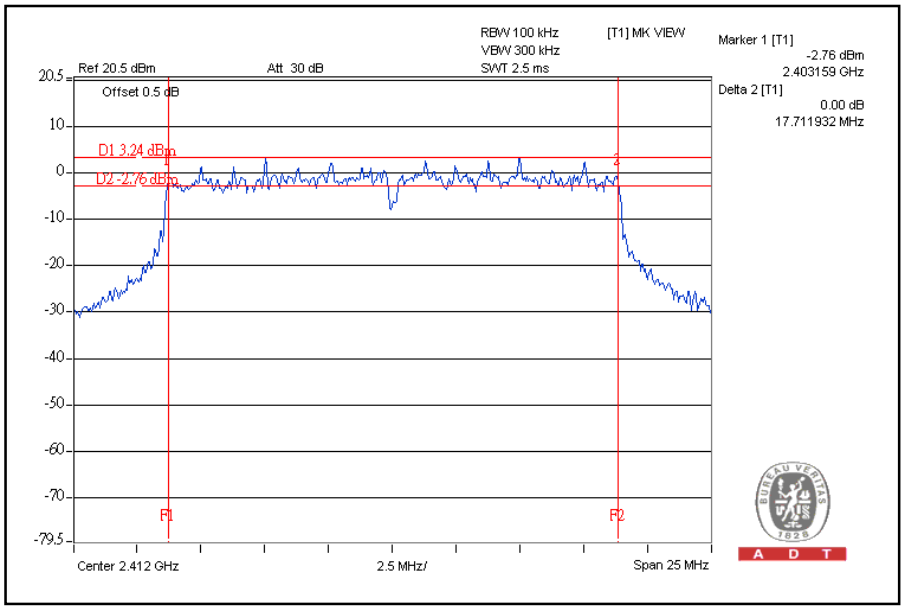

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.29 dBm
2.453781 GHz
Delta 2 [T1]
0.00 dB
16.419488 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.29 dBm
D2 -6.29 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

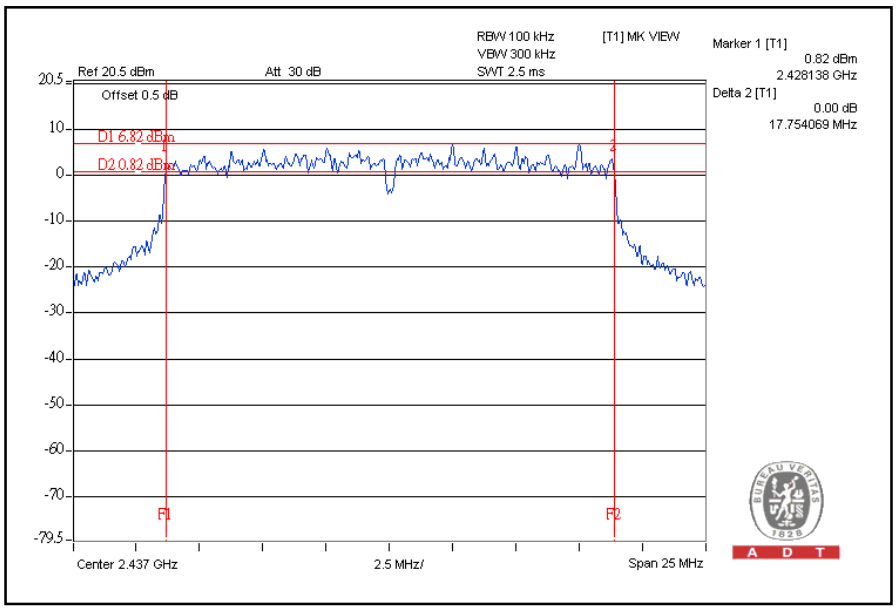
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	17.71	17.73	0.5	PASS
6	2437	17.75	17.84	0.5	PASS
11	2462	17.70	17.73	0.5	PASS

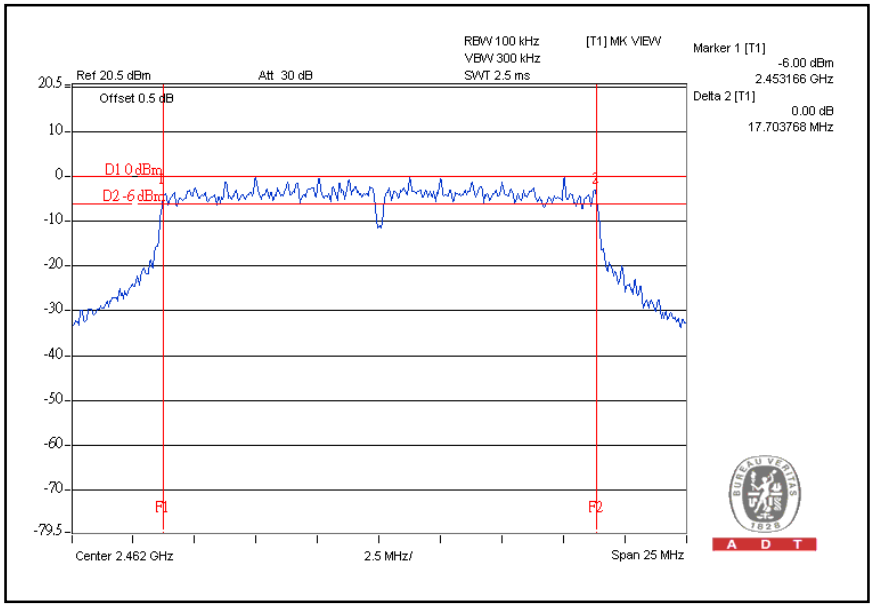
For Chain(0): CH1



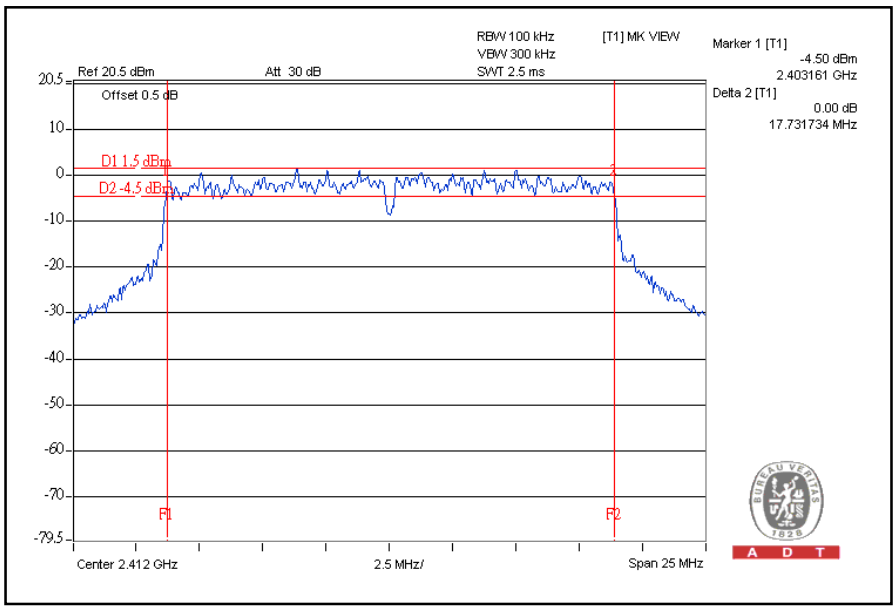
CH6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
0.82 dBm
2.428138 GHz
Delta 2 [T1]
0.00 dB
17.754069 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.82 dBm
D2 0.82 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

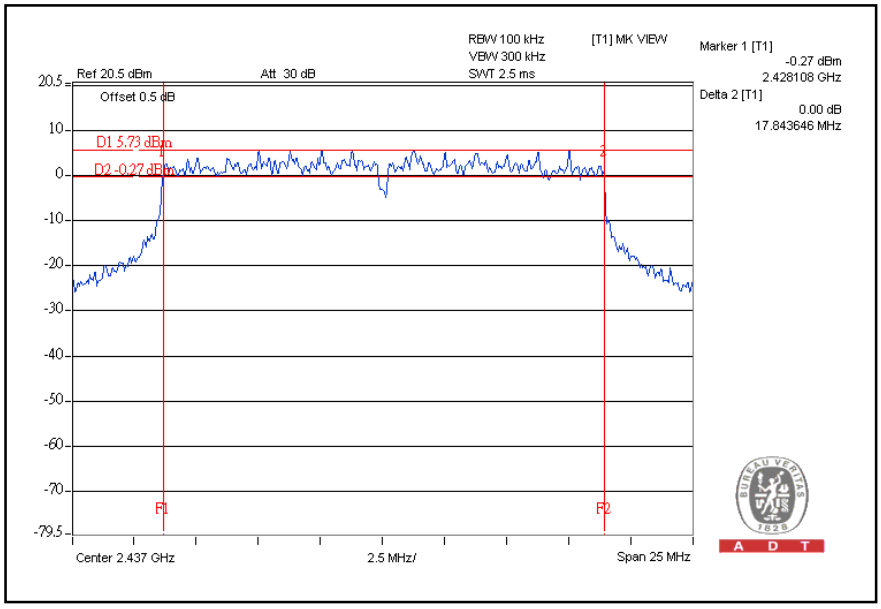
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.00 dBm
2.453166 GHz
Delta 2 [T1]
0.00 dB
17.703768 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0 dBm
D2 -6 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

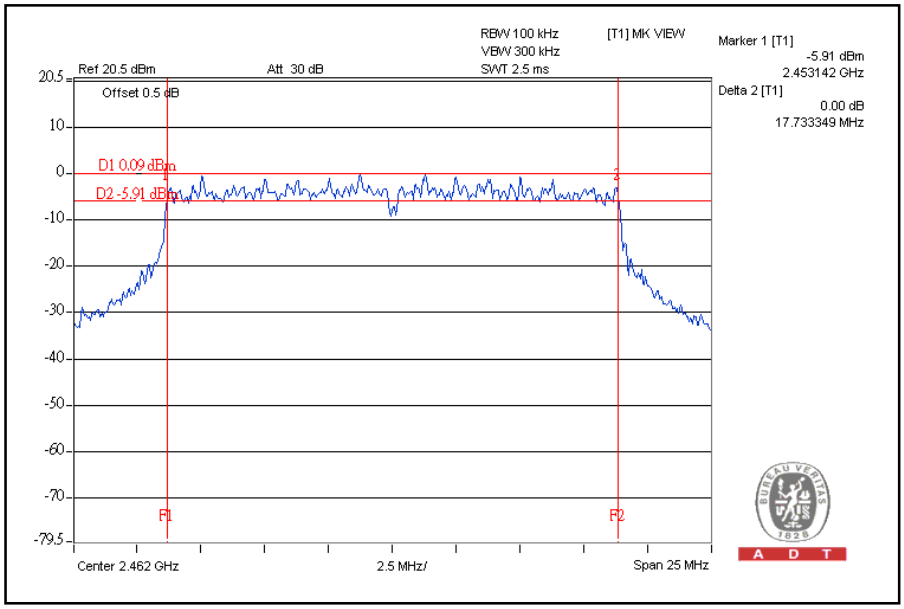
For CHAIN(1): CH1



CH6



CH11

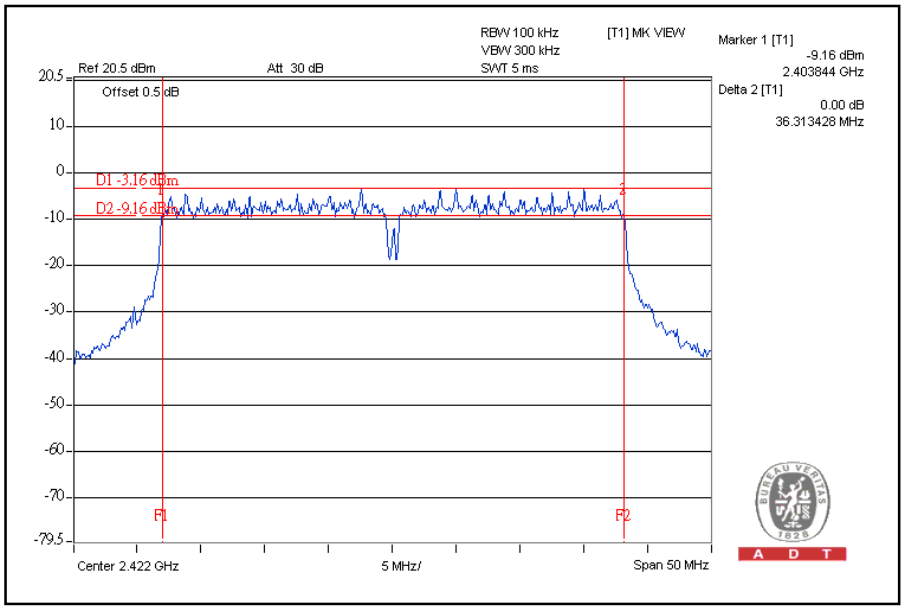

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-5.91 dBm
2.453142 GHz
Delta 2 [T1]
0.00 dB
17.733349 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.09 dBm
D2 -5.91 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

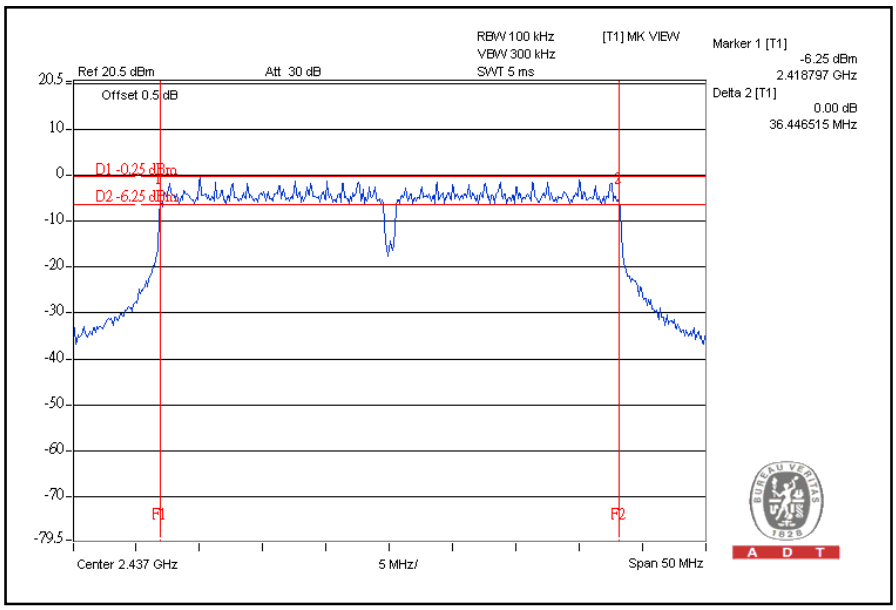
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2422	36.31	36.50	0.5	PASS
4	2437	36.45	36.53	0.5	PASS
7	2452	36.47	36.47	0.5	PASS

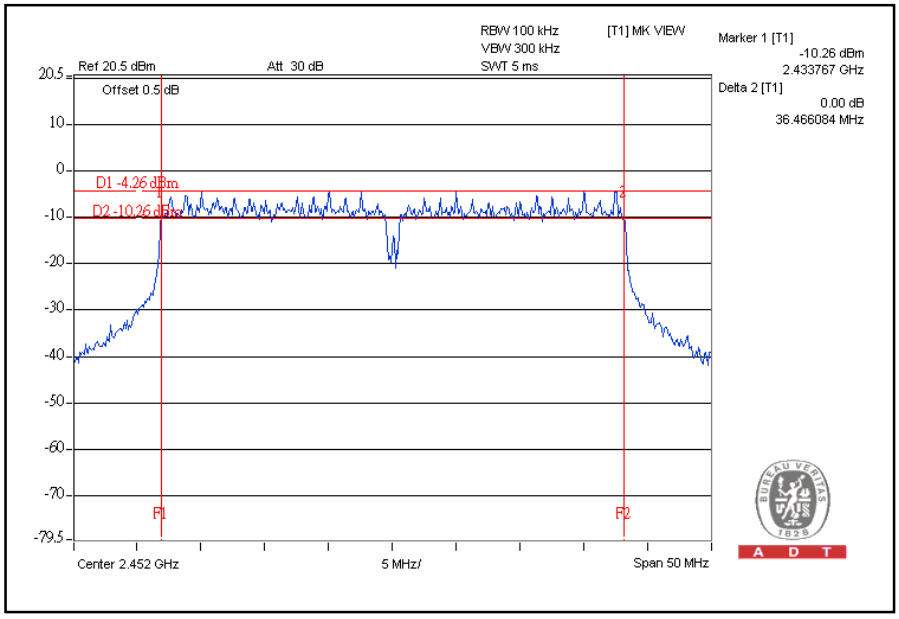
For Chain (0): CH1



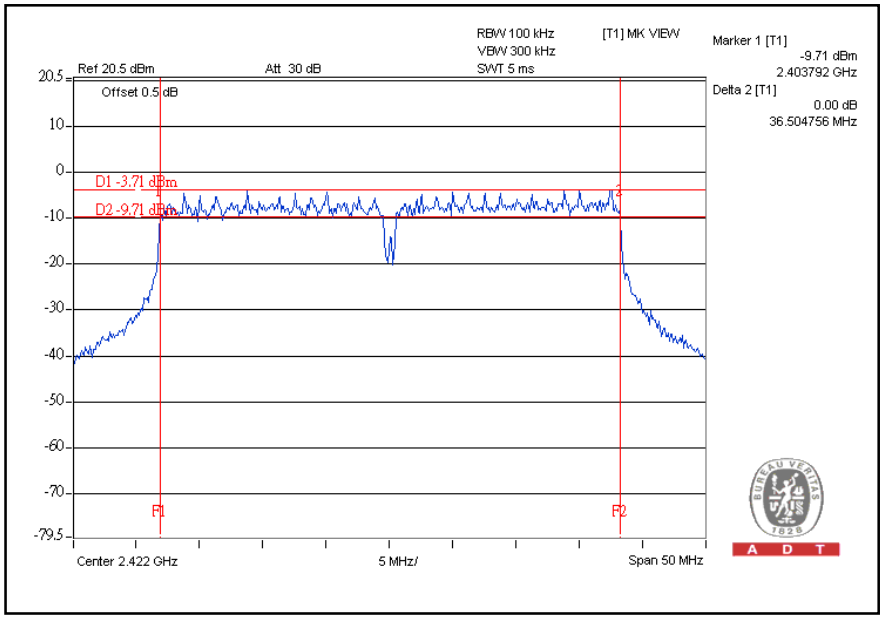
CH4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.25 dBm
2.418797 GHz
Delta 2 [T1]
0.00 dB
36.446515 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.25 dBm
D2 -6.25 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.437 GHz
5 MHz/
Span 50 MHz

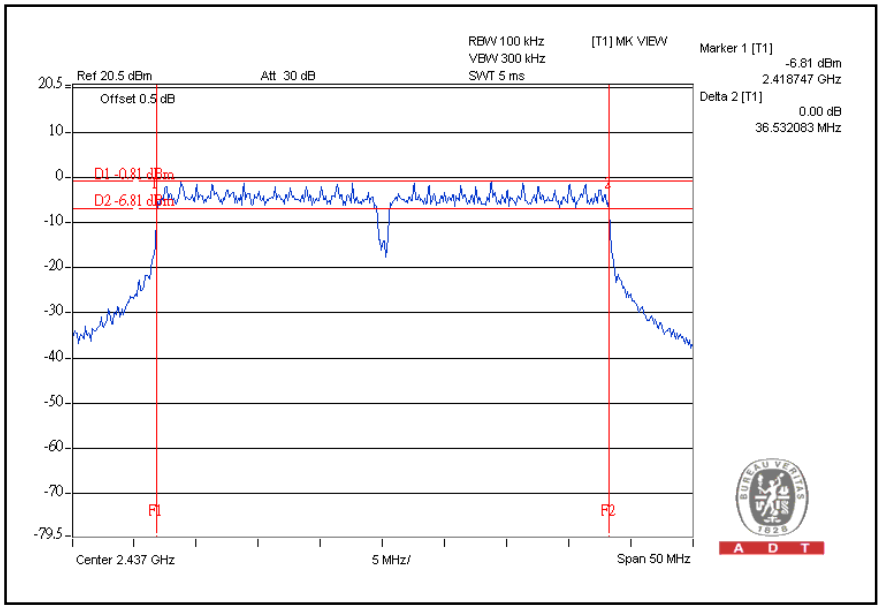
CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-10.26 dBm
2.433767 GHz
Delta 2 [T1]
0.00 dB
36.466084 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.26 dBm
D2 -10.26 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz

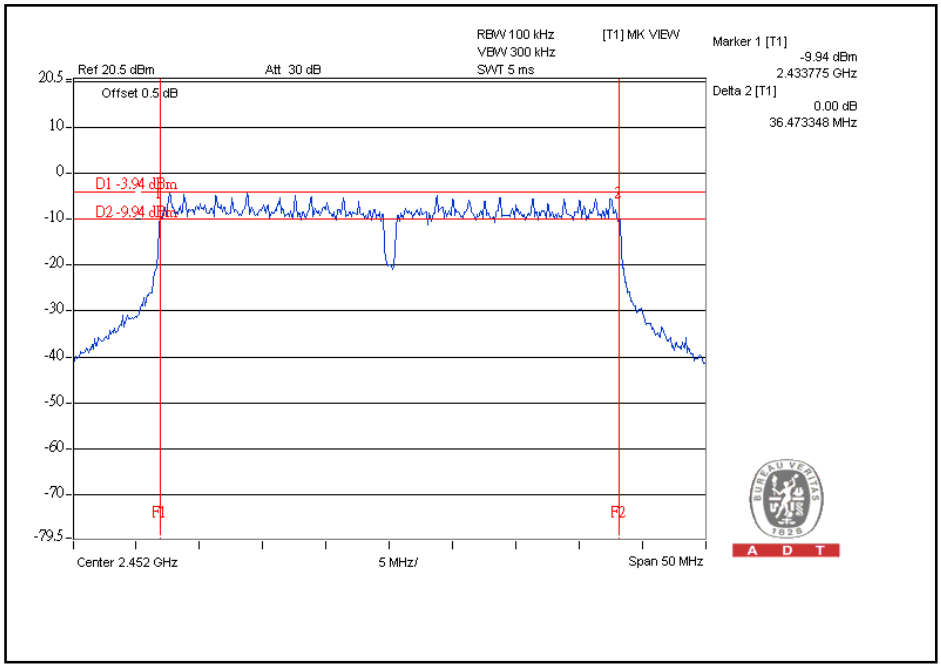
For Chain (1): CH1



CH4



CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.94 dBm
2.433775 GHz
Delta 2 [T1]
0.00 dB
36.473348 MHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -3.94 dBm
D2 -9.94 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
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.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 13, 2008	Aug. 12, 2009
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2008	Dec. 30, 2009
Anritsu Power Meter	ML2495A	0824006	June 14, 2008	June 13, 2009
Pulse Power Sensor	MA2411B	0738172	April 17, 2008	April 16, 2009

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

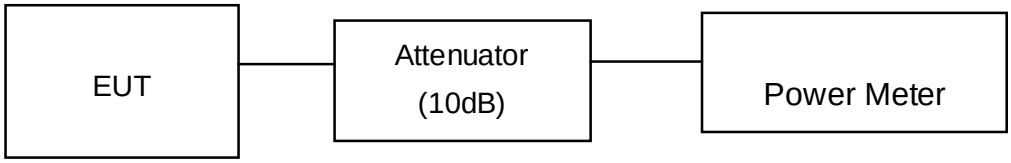
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. 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 – With PCB antenna

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	111.429	115.080	20.47	20.61	226.509	23.55	28	PASS
6	2437	243.220	252.348	23.86	24.02	495.568	26.95	28	PASS
11	2462	113.240	117.761	20.54	20.71	231.001	23.64	28	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	211.836	220.800	23.26	23.44	432.636	26.36	28	PASS
6	2437	186.209	198.153	22.70	22.97	384.362	25.85	28	PASS
11	2462	211.836	221.309	23.26	23.45	433.145	26.37	28	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	226.986	231.739	23.56	23.65	458.725	26.62	28	PASS
6	2437	180.302	189.234	22.56	22.77	369.536	25.68	28	PASS
11	2462	166.725	176.198	22.22	22.46	342.923	25.35	28	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	121.899	126.474	20.86	21.02	248.373	23.95	28	PASS
4	2437	218.273	229.615	23.39	23.61	447.888	26.51	28	PASS
7	2452	155.955	166.341	21.93	22.21	322.296	25.08	28	PASS

4.4.8 TEST RESULTS – With Dipole antenna

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	111.429	70.469	20.47	18.48	181.898	22.60	30	PASS
6	2437	181.552	120.781	22.59	20.82	302.333	24.80	30	PASS
11	2462	79.983	49.545	19.03	16.95	129.528	21.12	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	172.982	174.985	22.38	22.43	347.967	25.42	30	PASS
6	2437	255.270	252.930	24.07	24.03	508.200	27.06	30	PASS
11	2462	111.173	126.474	20.46	21.02	237.647	23.76	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	183.231	197.697	22.63	22.96	380.928	25.81	30	PASS
6	2437	250.035	260.615	23.98	24.16	510.650	27.08	30	PASS
11	2462	121.899	137.721	20.86	21.39	259.620	24.14	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	117.220	120.781	20.69	20.82	238.001	23.77	30	PASS
4	2437	194.536	204.644	22.89	23.11	399.180	26.01	30	PASS
7	2452	91.833	103.039	19.63	20.13	194.872	22.90	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.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

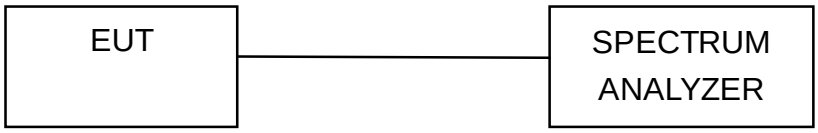
4.5.3 TEST PROCEDURE

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

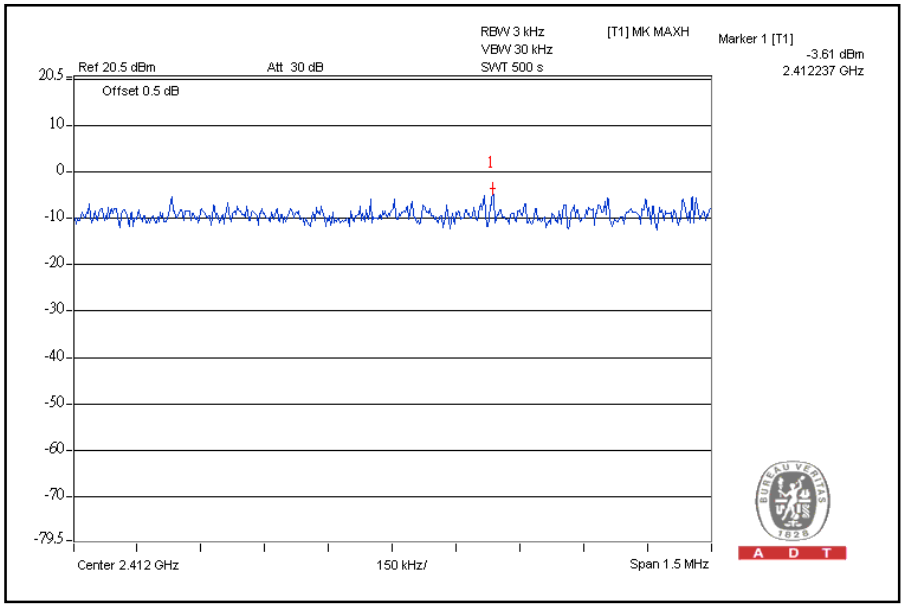
4.5.7 TEST RESULTS – with PCB antenna

802.11b DSSS MODULATION:

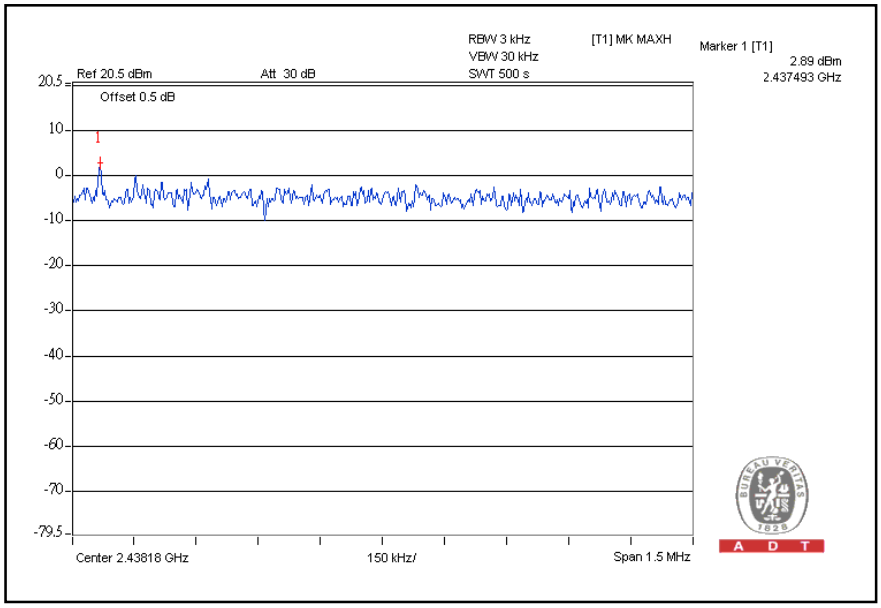
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.436	0.282	-3.61	-5.50	0.718	-1.44	8	PASS
6	2437	1.945	0.641	2.89	-1.93	2.586	4.13	8	PASS
11	2462	0.813	0.231	-0.90	-6.37	1.044	0.19	8	PASS

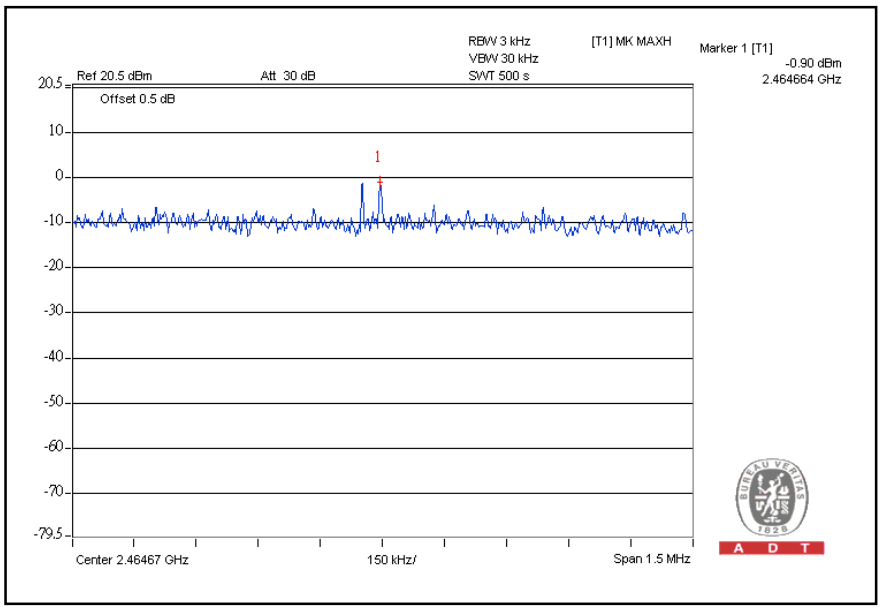
For Chain(0): CH1



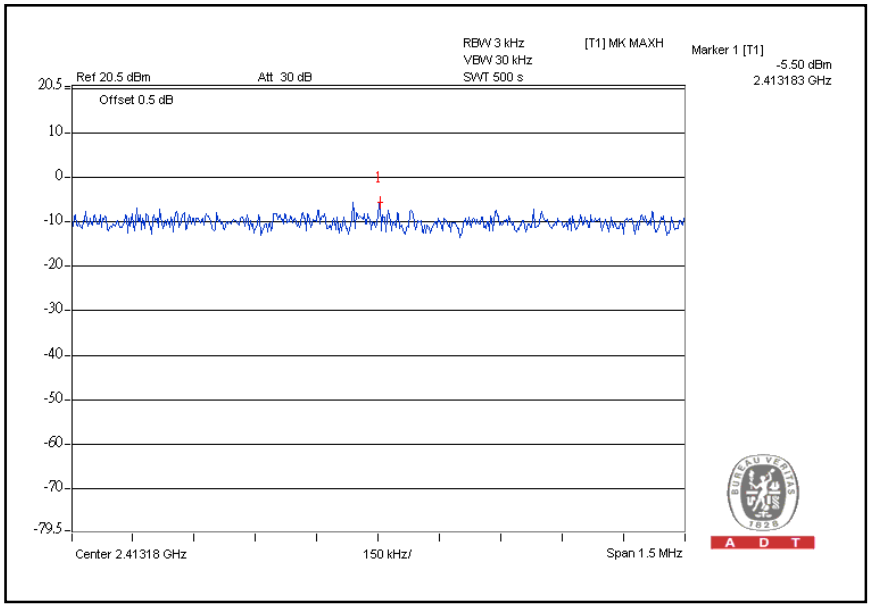
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
2.89 dBm
2.437493 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43818 GHz
150 kHz/
Span 1.5 MHz

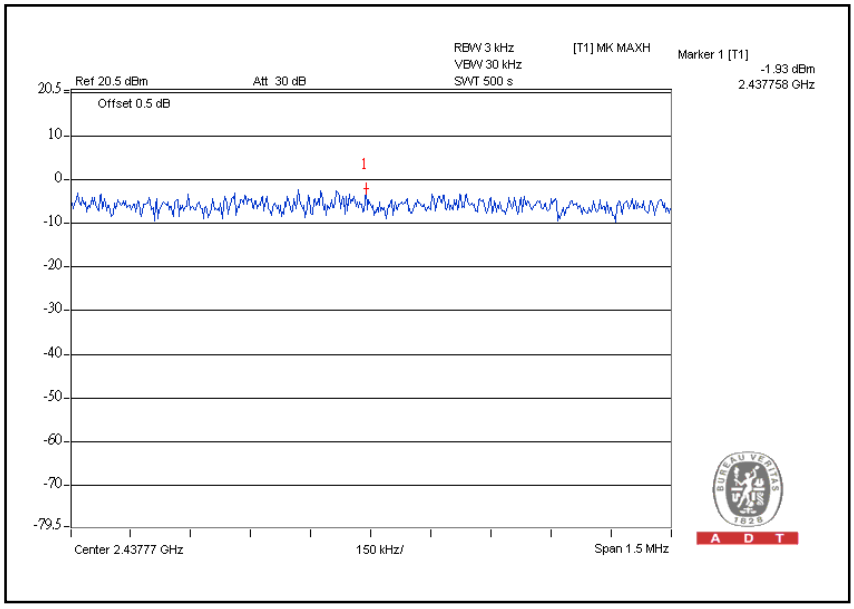
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-0.90 dBm
2.464664 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.46467 GHz
150 kHz/
Span 1.5 MHz

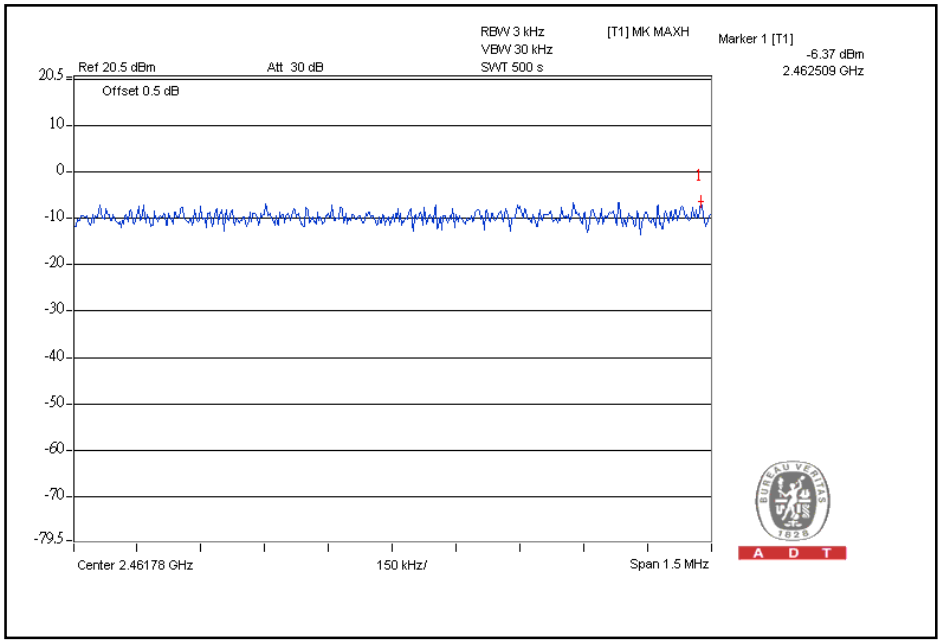
For Chain (1): CH1



CH6



CH11

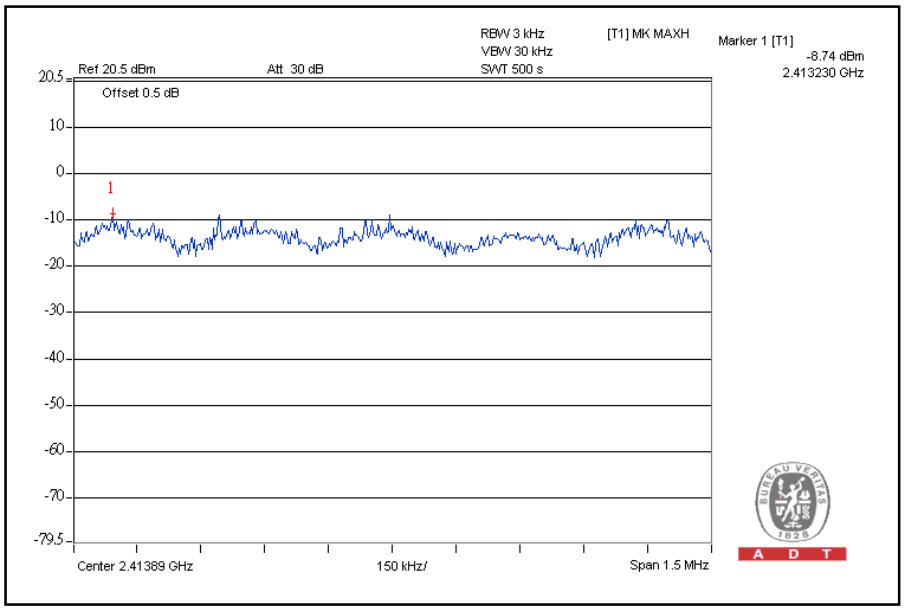

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-6.37 dBm
2.462509 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.46178 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM MODULATION:

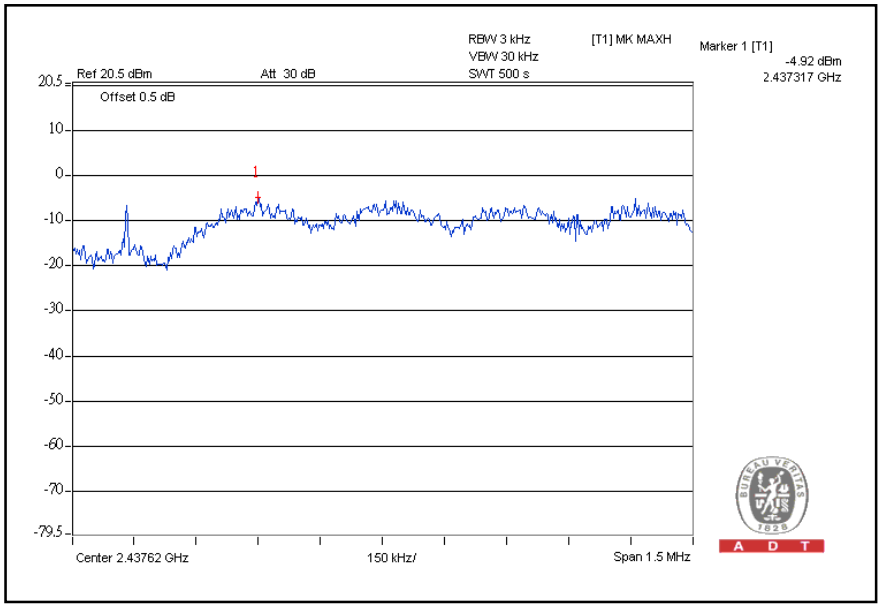
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.134	0.125	-8.74	-9.03	0.259	-5.87	8	PASS
6	2437	0.322	0.361	-4.92	-4.42	0.683	-1.66	8	PASS
11	2462	0.091	0.094	-10.42	-10.26	0.185	-7.33	8	PASS

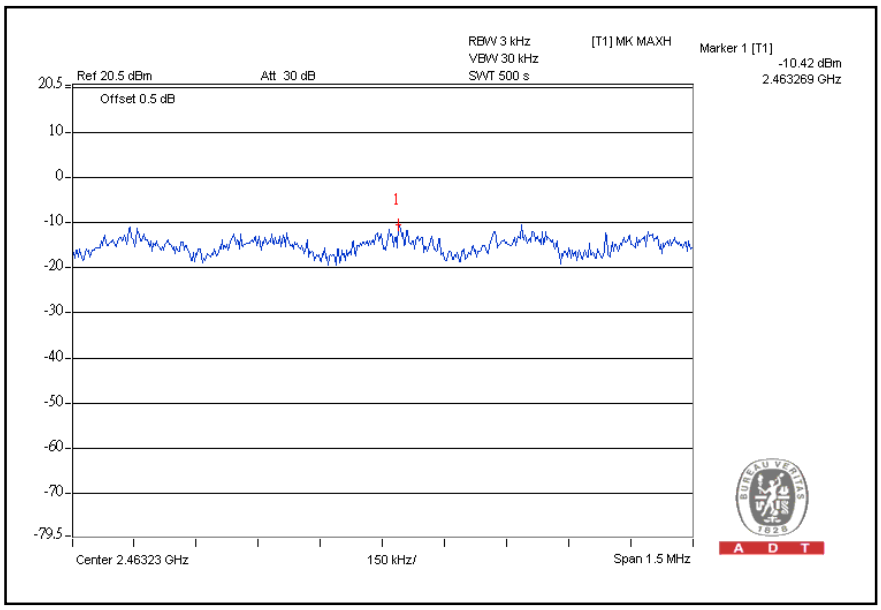
For Chain(0): CH1



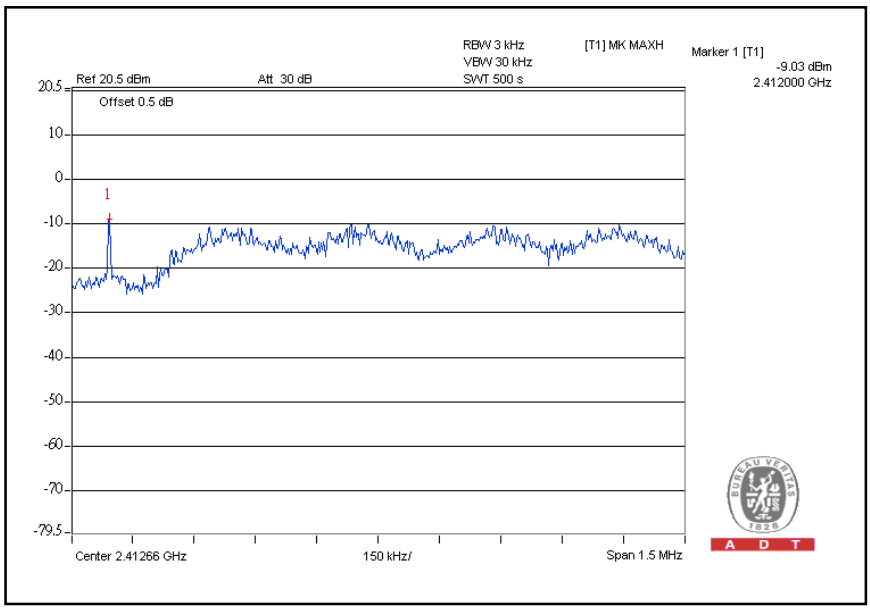
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-4.92 dBm
2.437317 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43762 GHz
150 kHz/
Span 1.5 MHz

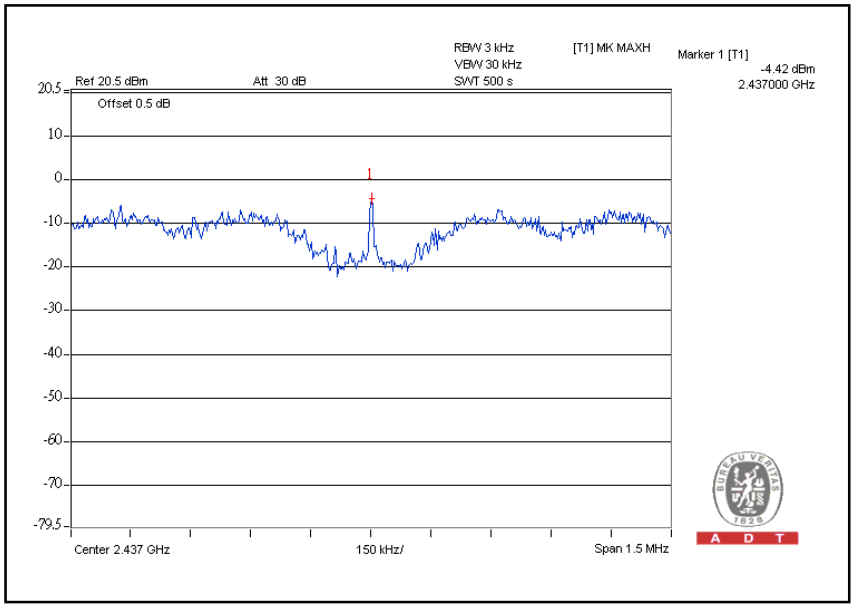
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.42 dBm
2.463269 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.46323 GHz
150 kHz/
Span 1.5 MHz

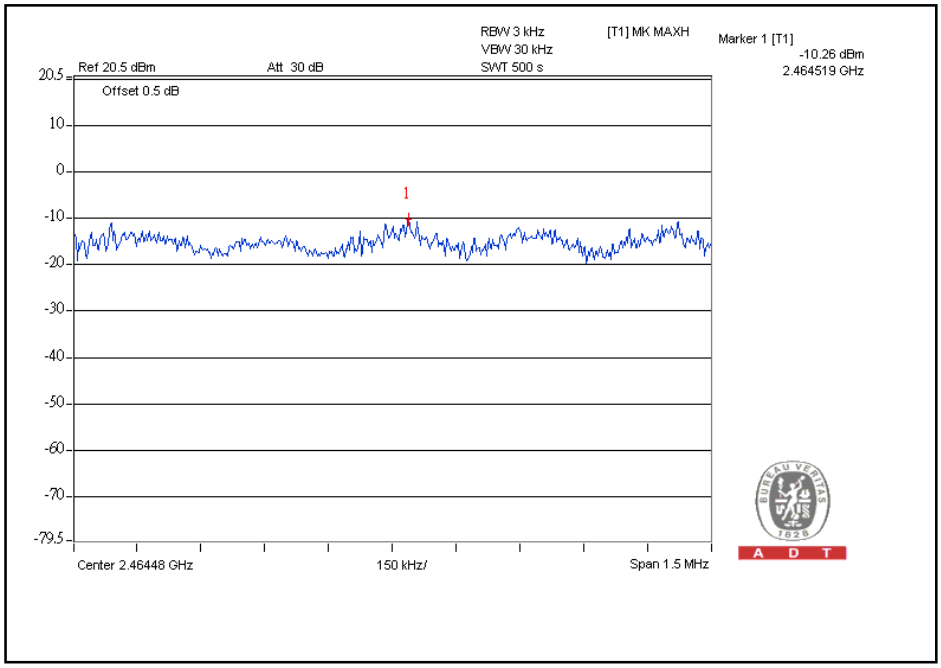
For Chain (1): CH1



CH6



CH11

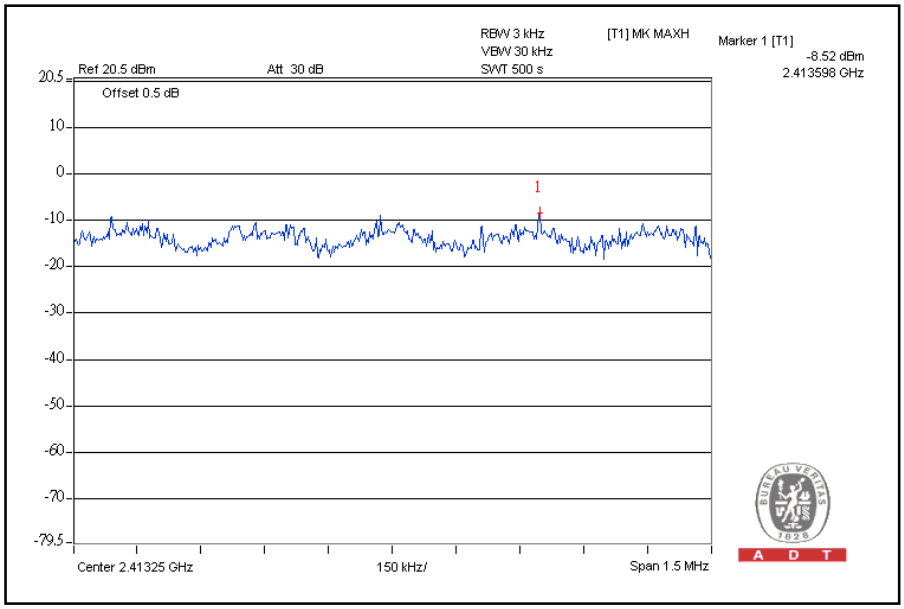

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.26 dBm
2.464519 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 2.46448 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

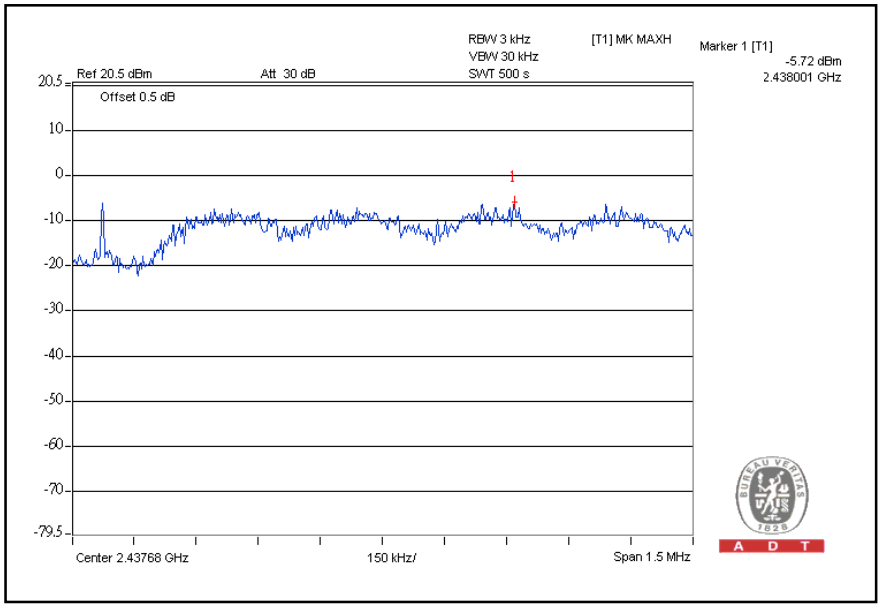
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 60%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.141	0.157	-8.52	-8.05	0.298	-5.26	8	PASS
6	2437	0.268	0.236	-5.72	-6.27	0.504	-2.98	8	PASS
11	2462	0.074	0.087	-11.28	-10.61	0.161	-7.93	8	PASS

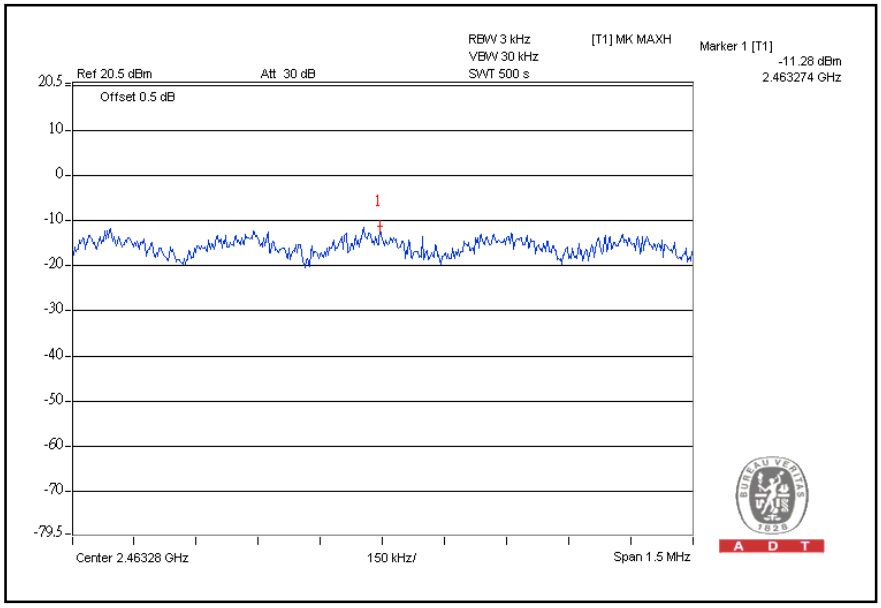
For Chain(0): CH1



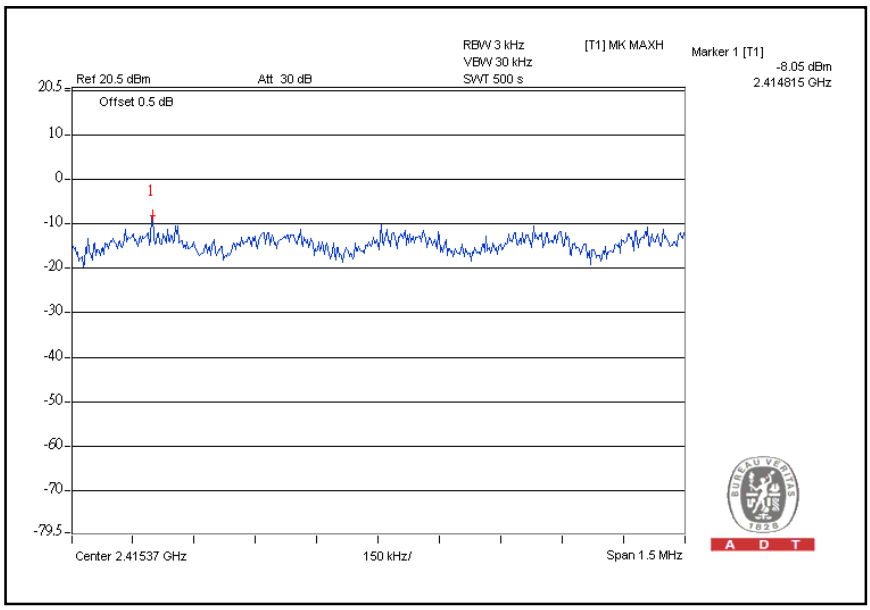
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-5.72 dBm
2.438001 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43768 GHz
150 kHz/
Span 1.5 MHz

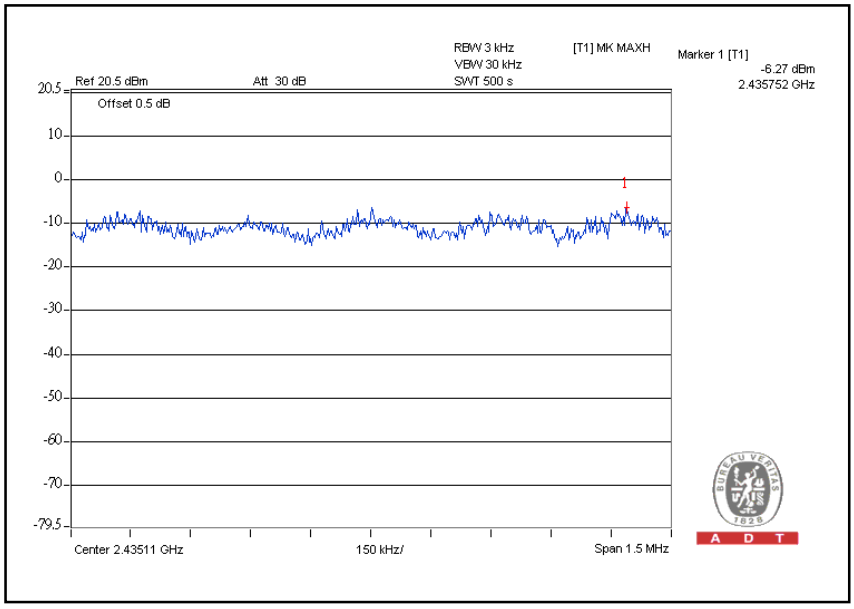
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.28 dBm
2.463274 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.46328 GHz
150 kHz/
Span 1.5 MHz

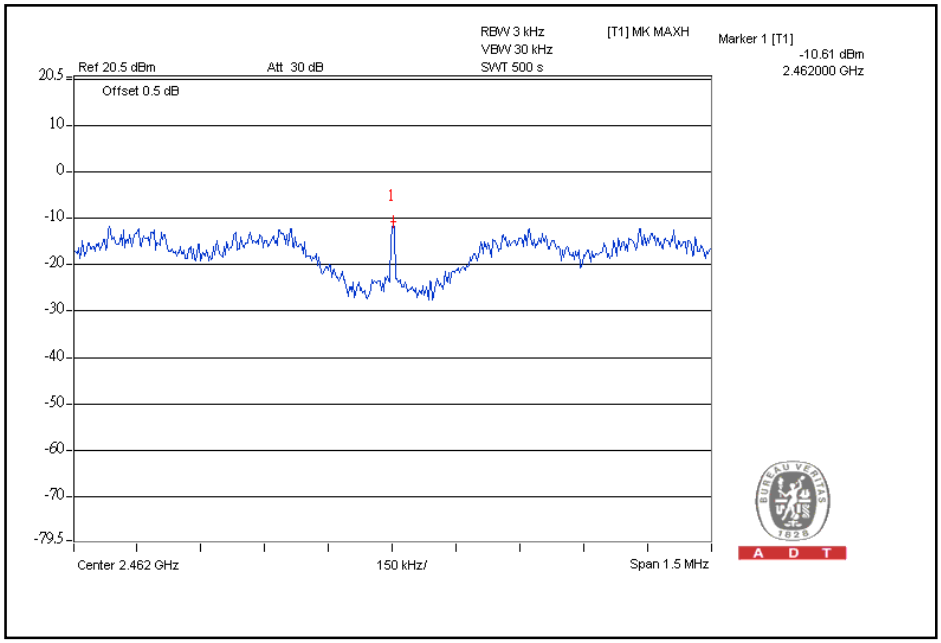
For Chain (1): CH1



CH6



CH11

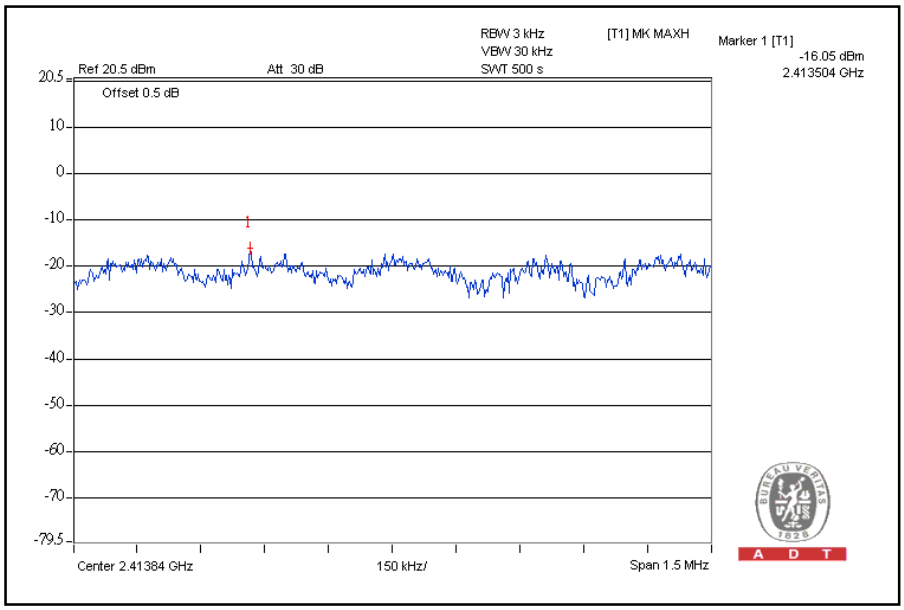

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.61 dBm
2.462000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 2.462 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

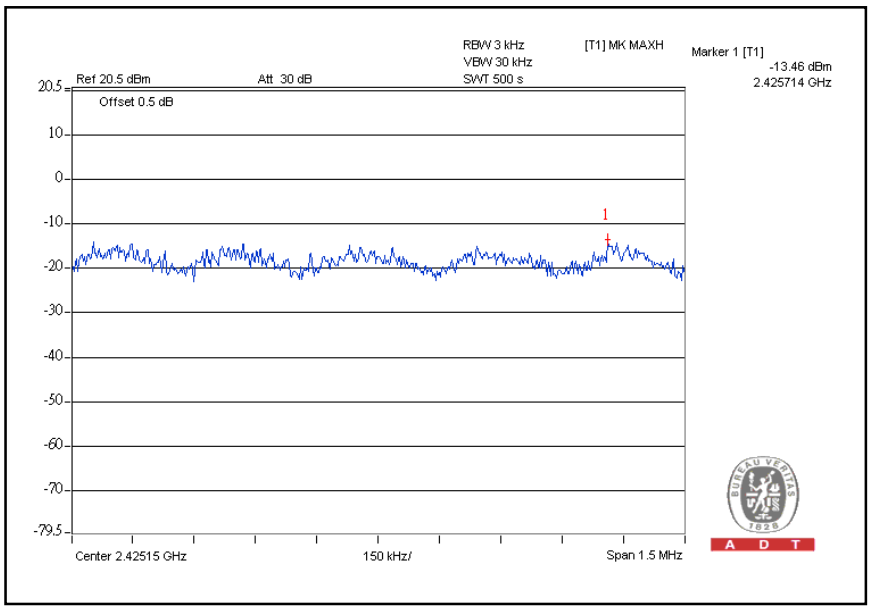
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	0.025	0.054	-16.05	-12.71	0.079	-11.02	8	PASS
4	2437	0.045	0.039	-13.46	-14.13	0.084	-10.76	8	PASS
7	2452	0.022	0.022	-16.60	-16.62	0.044	-13.57	8	PASS

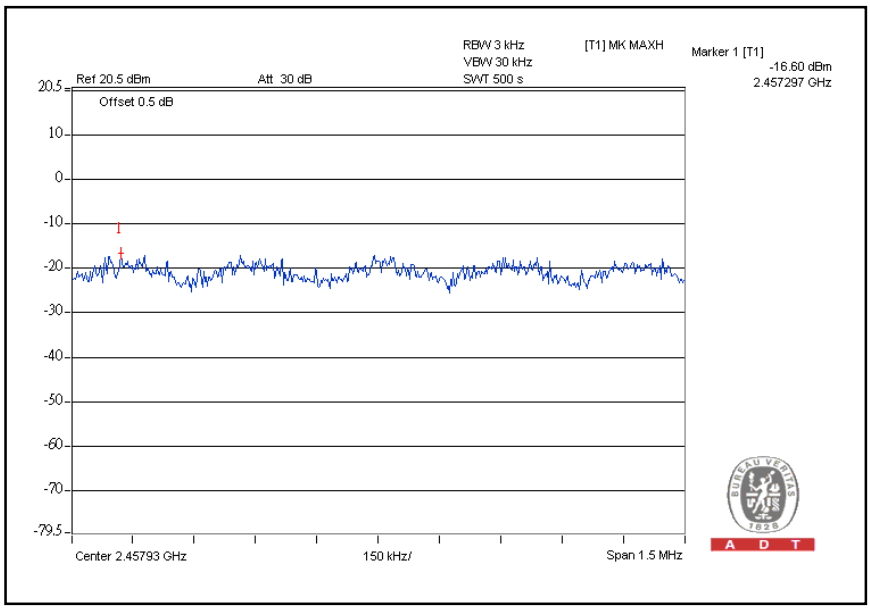
For Chain (0): CH1



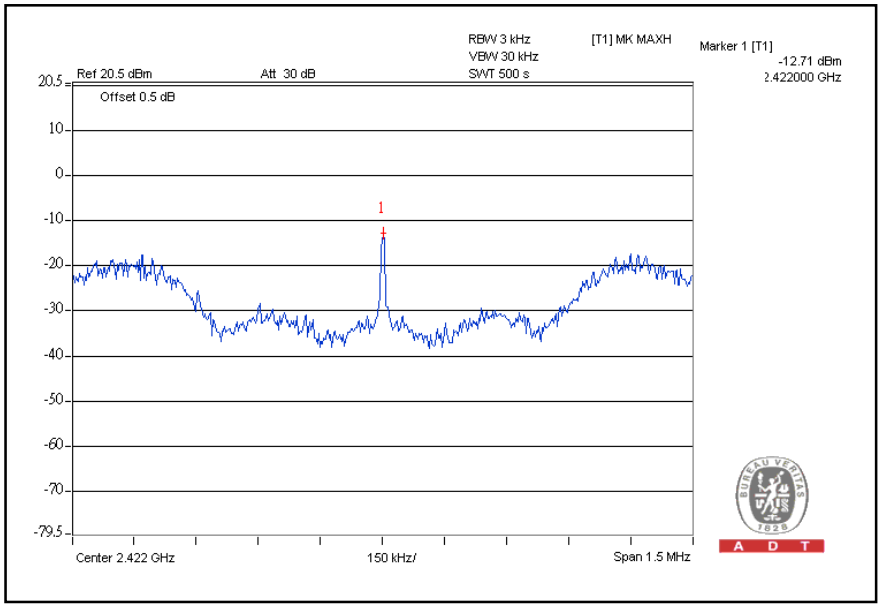
CH4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.46 dBm
2.425714 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.42515 GHz
150 kHz/
Span 1.5 MHz

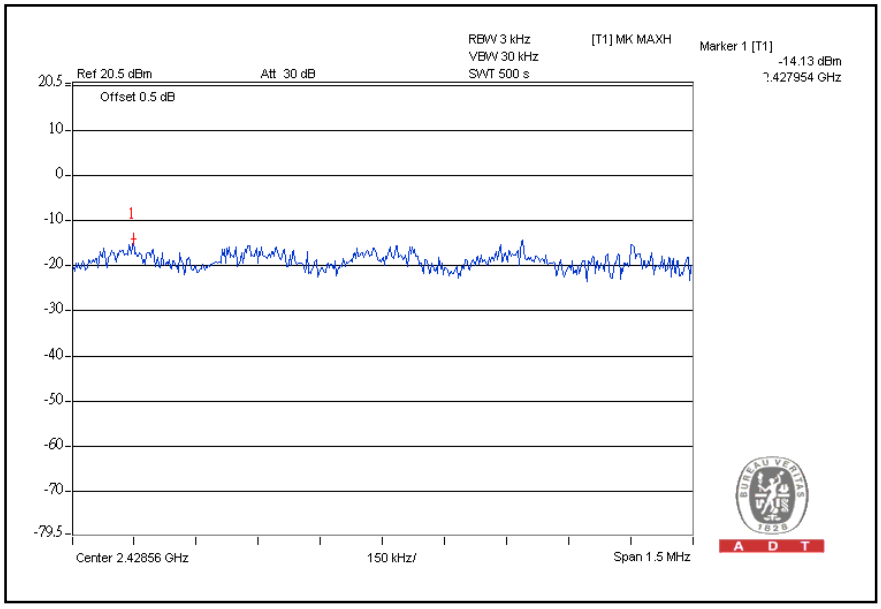
CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.60 dBm
2.457297 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.45793 GHz
150 kHz/
Span 1.5 MHz

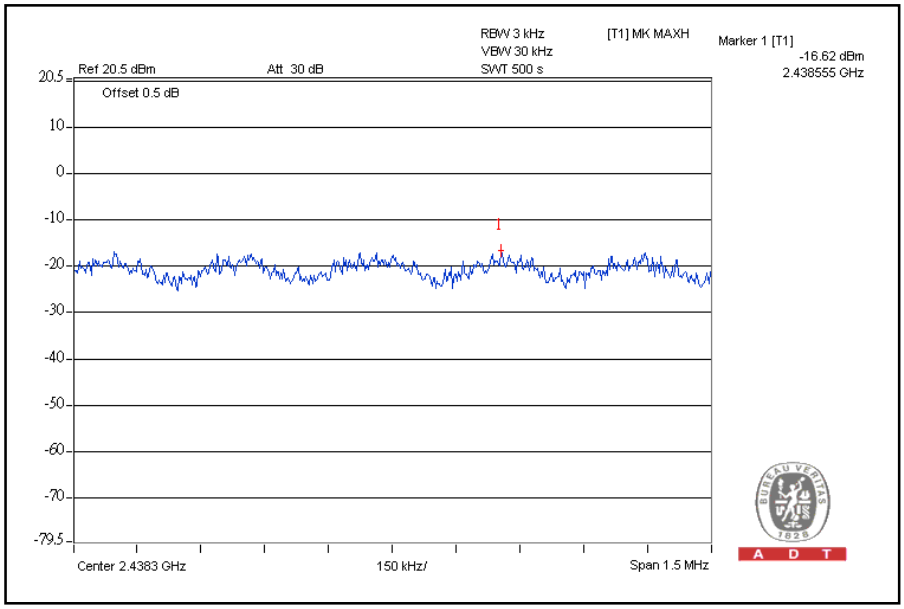
For Chain (1): CH1



CH4



CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.62 dBm
2.438555 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.4383 GHz
150 kHz/
Span 1.5 MHz

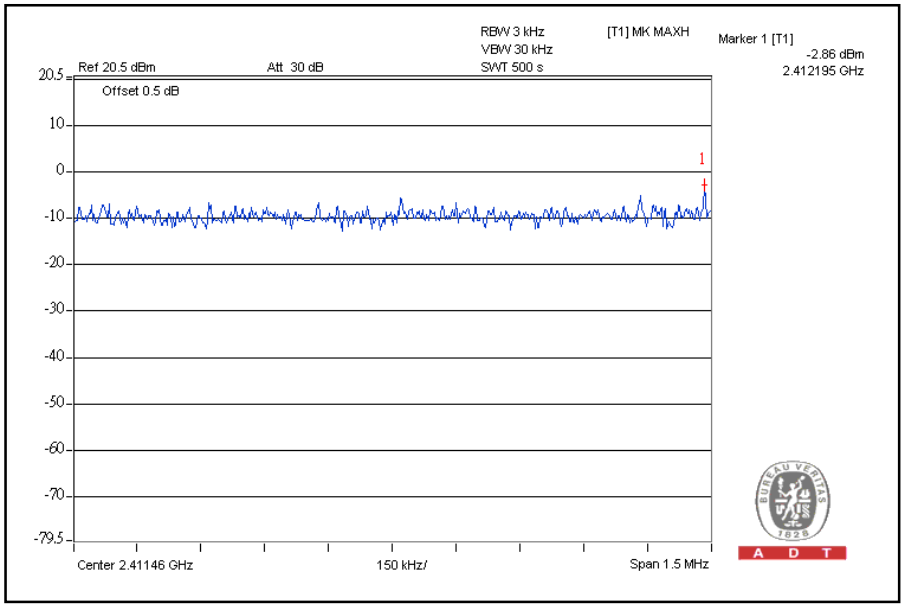
4.5.8 TEST RESULTS – with Dipole antenna

802.11b DSSS MODULATION:

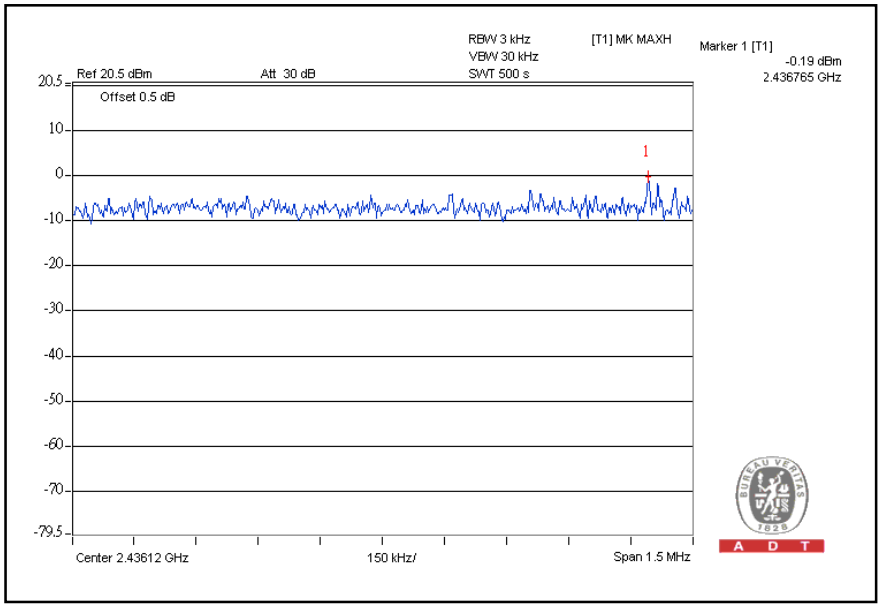
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.518	0.377	-2.86	-4.24	0.895	-0.48	8	PASS
6	2437	0.957	0.420	-0.19	-3.77	1.377	1.39	8	PASS
11	2462	0.338	0.647	-4.71	-1.89	0.985	-0.07	8	PASS

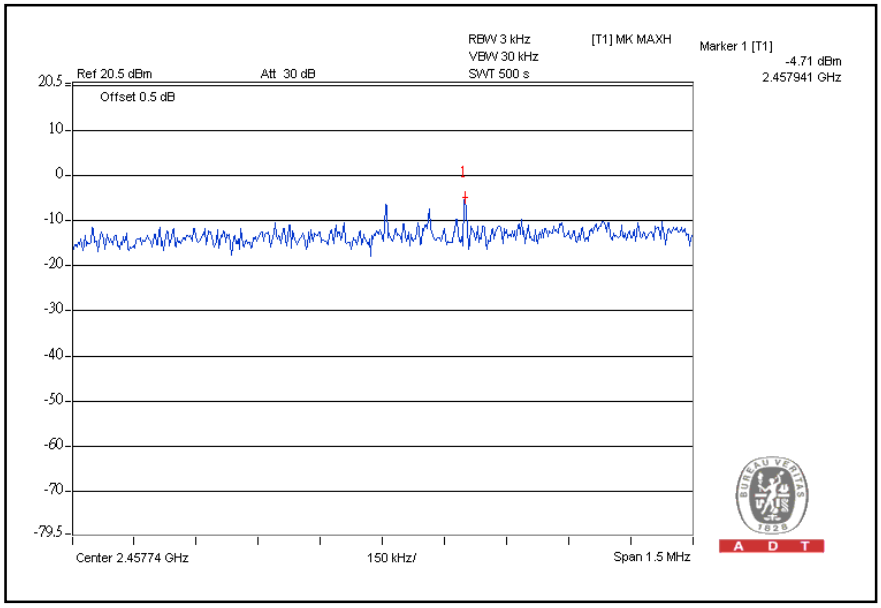
For Chain(0): CH1



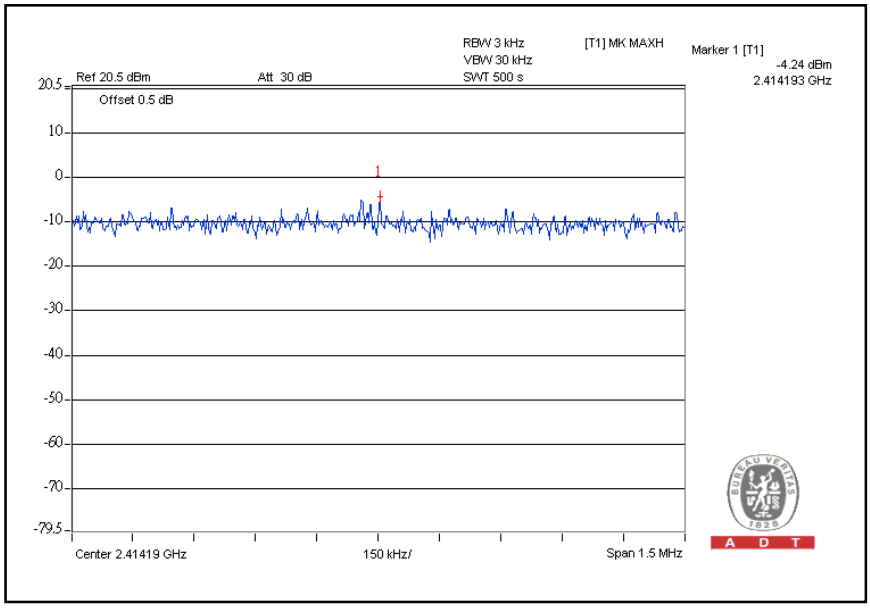
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-0.19 dBm
2.436765 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43612 GHz
150 kHz/
Span 1.5 MHz

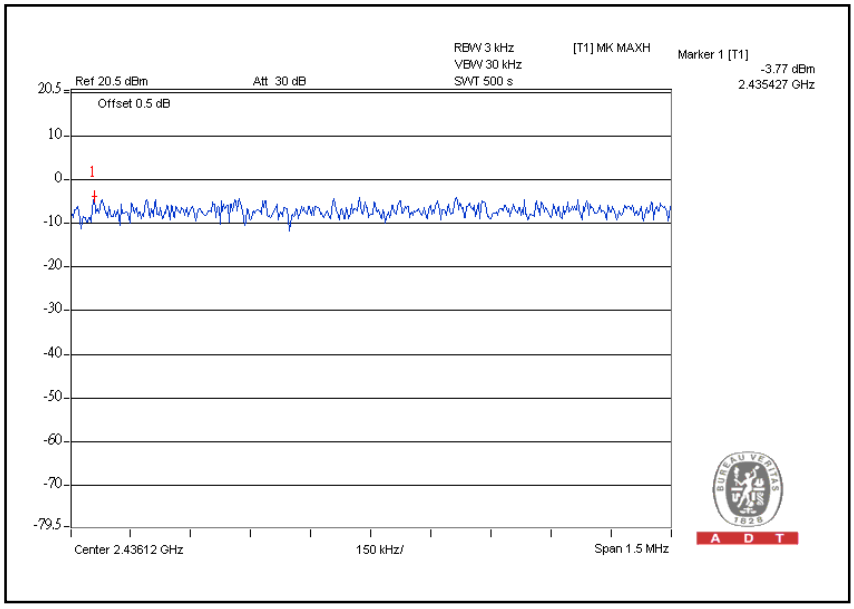
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-4.71 dBm
2.457941 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.45774 GHz
150 kHz/
Span 1.5 MHz

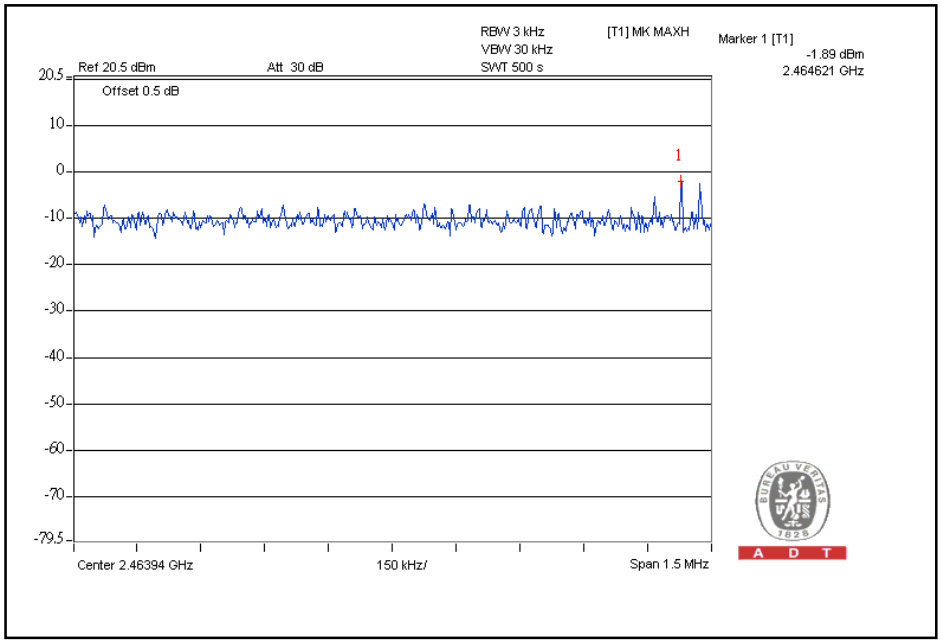
For Chain (1): CH1



CH6



CH11

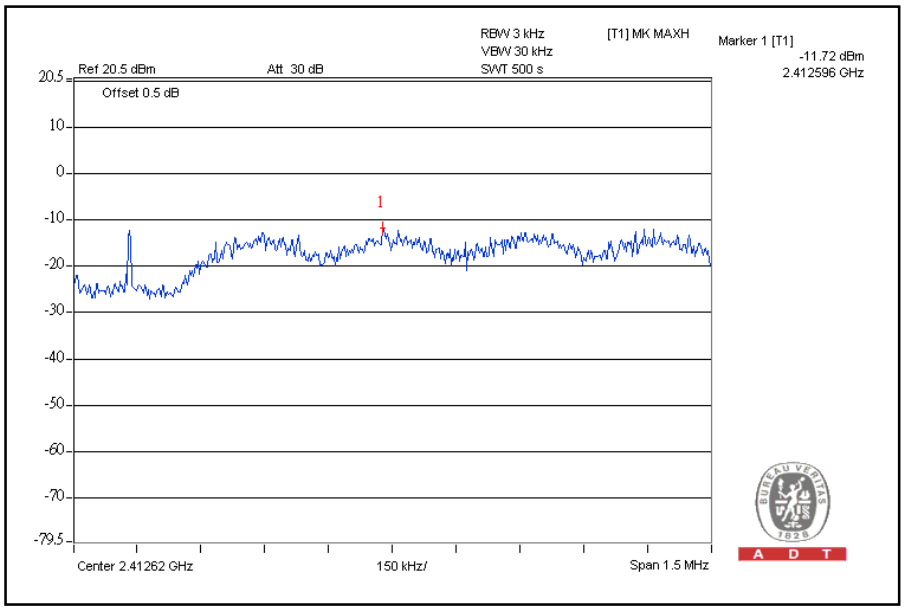

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-1.89 dBm
2.464621 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 2.46394 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM MODULATION:

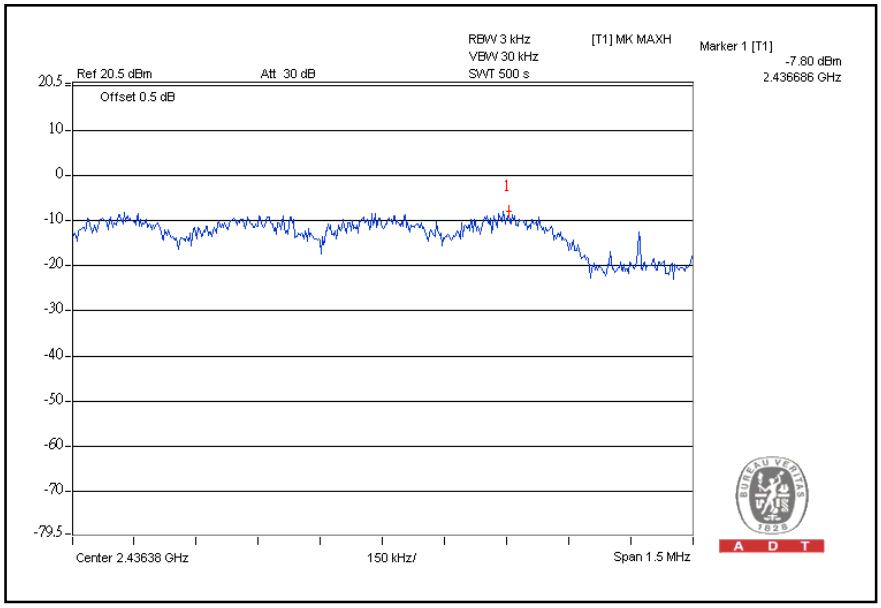
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.067	0.074	-11.72	-11.30	0.141	-8.51	8	PASS
6	2437	0.166	0.160	-7.80	-7.95	0.326	-4.87	8	PASS
11	2462	0.051	0.054	-12.90	-12.68	0.105	-9.79	8	PASS

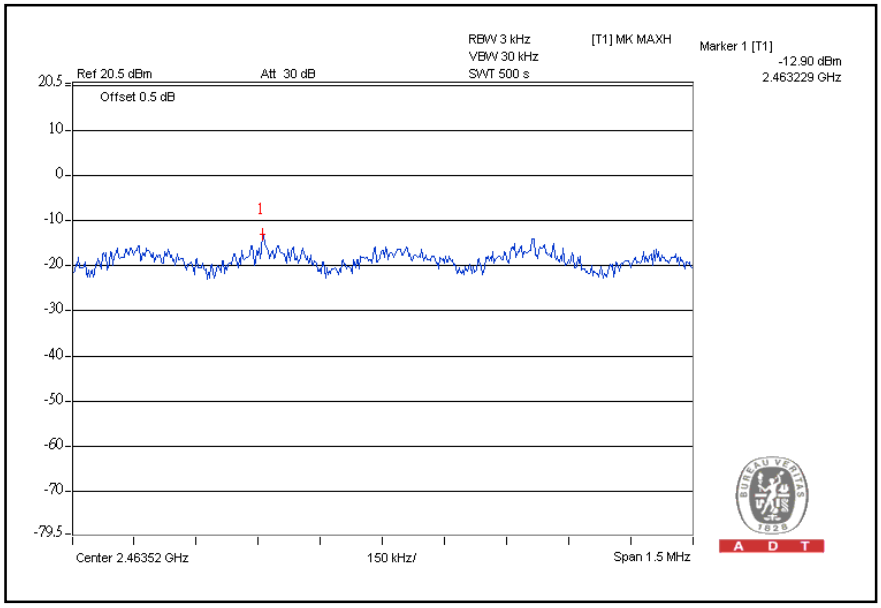
For Chain(0): CH1



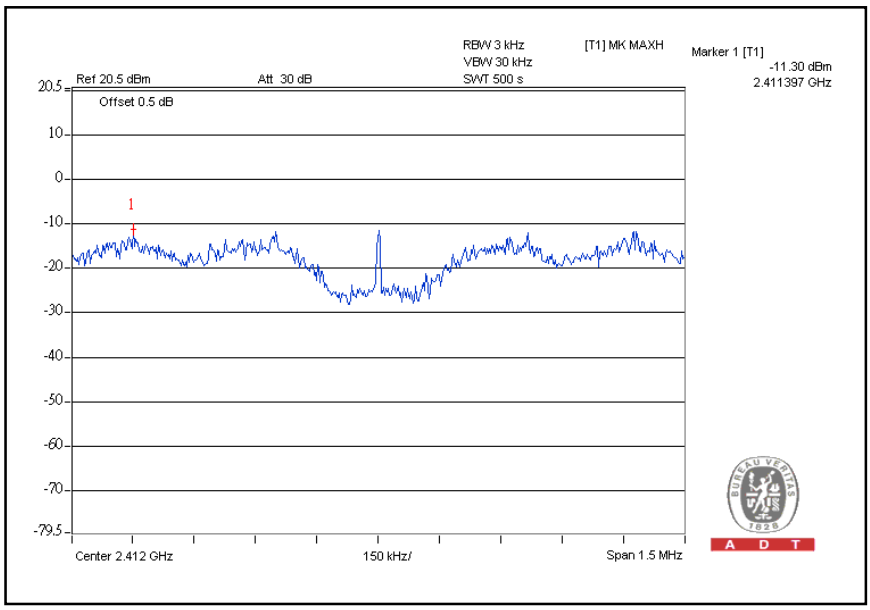
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.80 dBm
2.436686 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43638 GHz
150 kHz/
Span 1.5 MHz

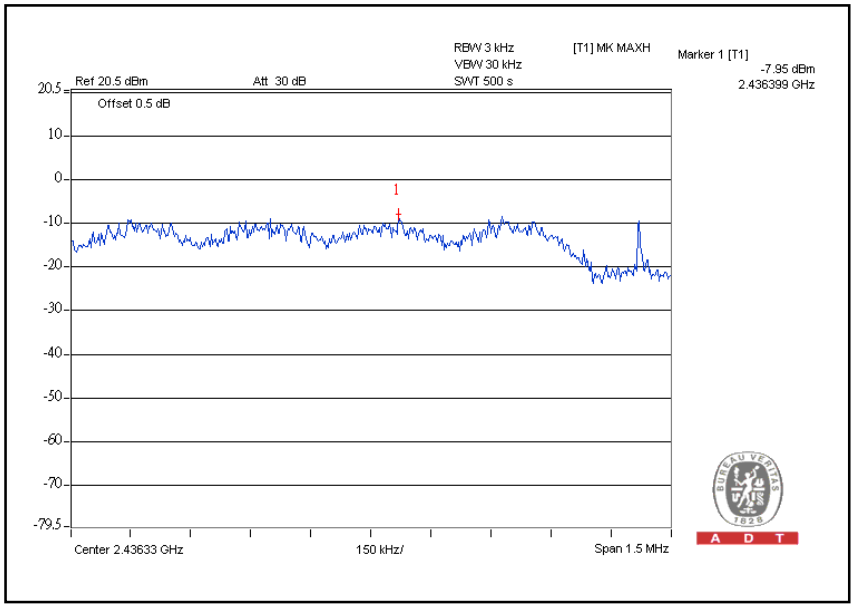
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.90 dBm
2.463229 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.46352 GHz
150 kHz/
Span 1.5 MHz

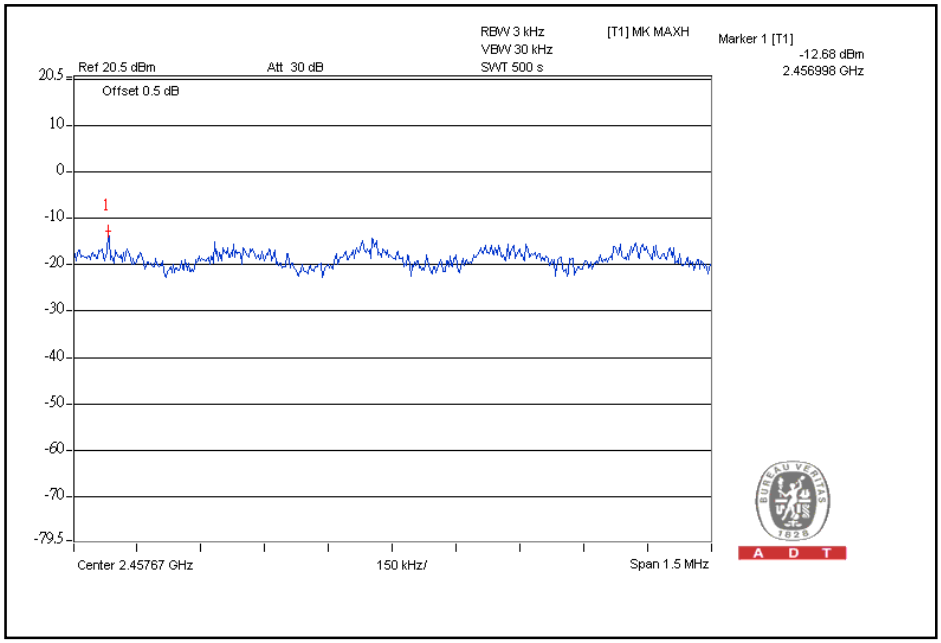
For Chain (1): CH1



CH6



CH11

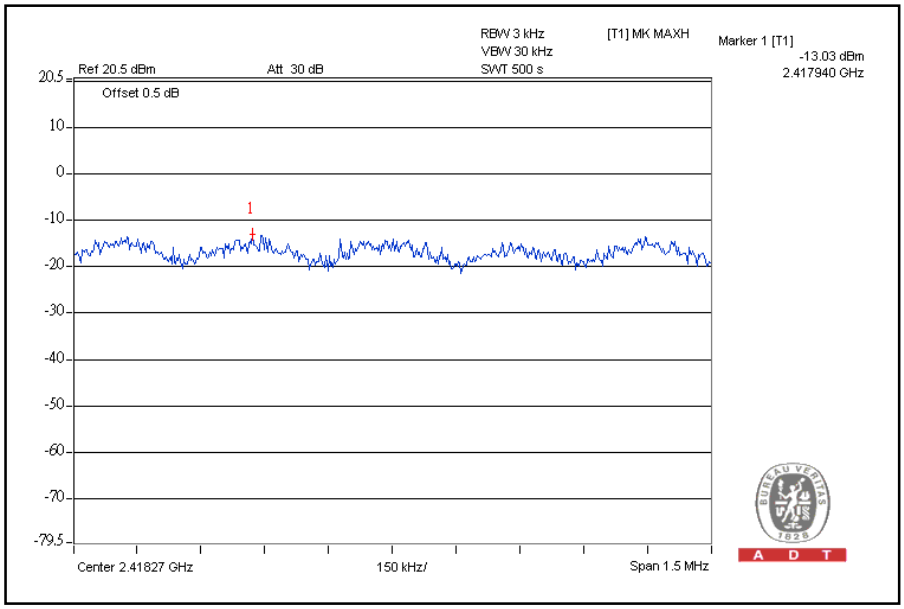

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.68 dBm
2.456998 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 2.45767 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

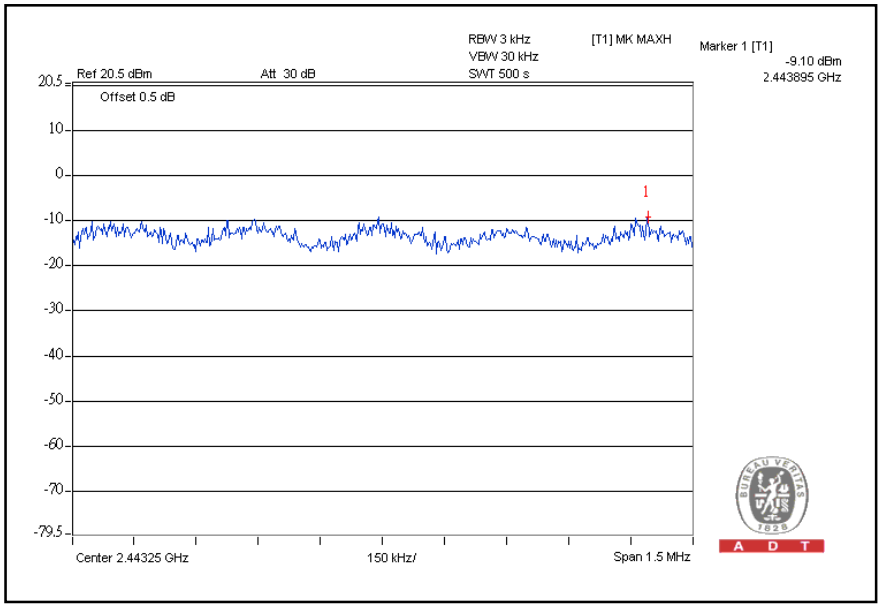
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 60%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.050	0.045	-13.03	-13.50	0.095	-10.22	8	PASS
6	2437	0.123	0.138	-9.10	-8.59	0.261	-5.83	8	PASS
11	2462	0.036	0.043	-14.40	-13.64	0.079	-11.02	8	PASS

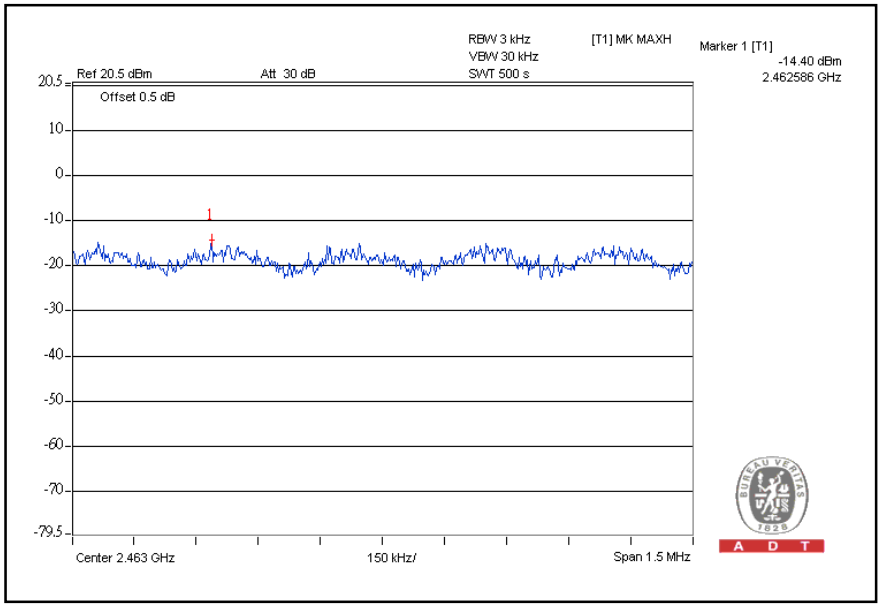
For Chain(0): CH1



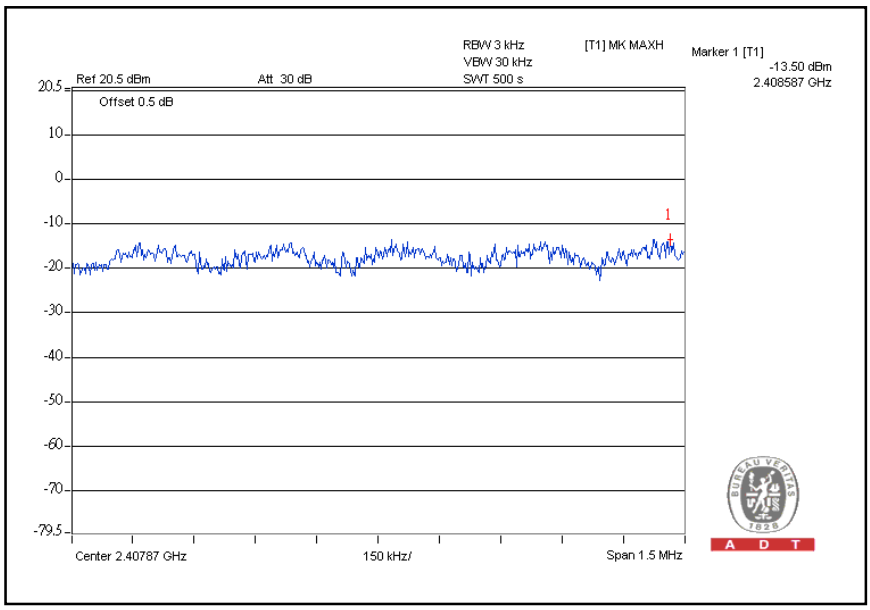
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.10 dBm
2.443895 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.44325 GHz
150 kHz/
Span 1.5 MHz

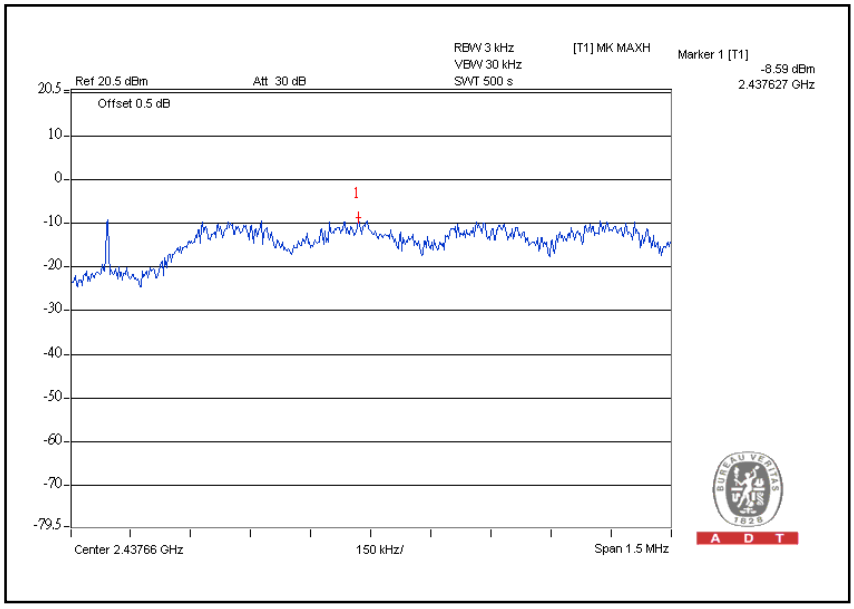
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.40 dBm
2.462586 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.463 GHz
150 kHz/
Span 1.5 MHz

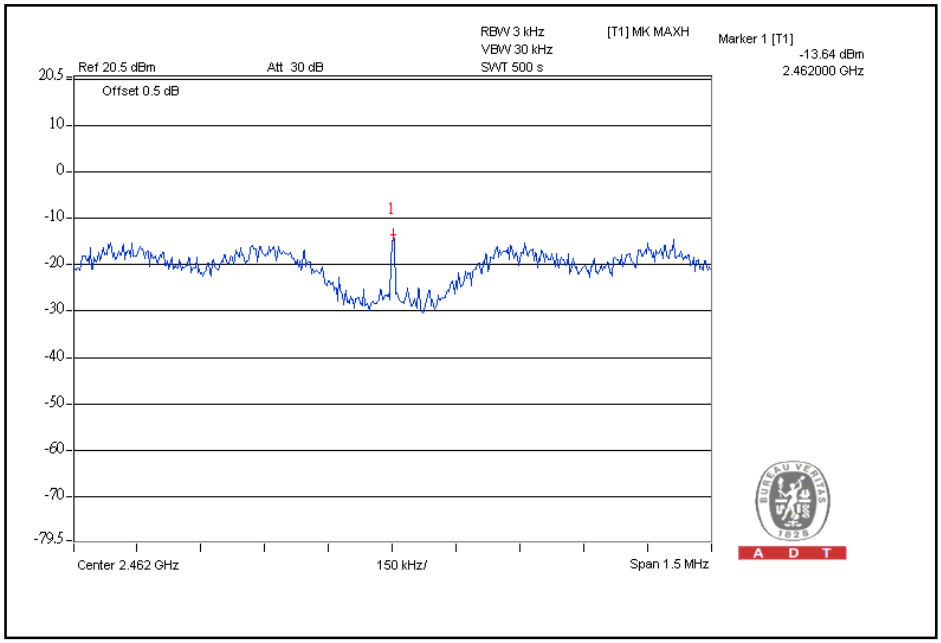
For Chain (1): CH1



CH6



CH11

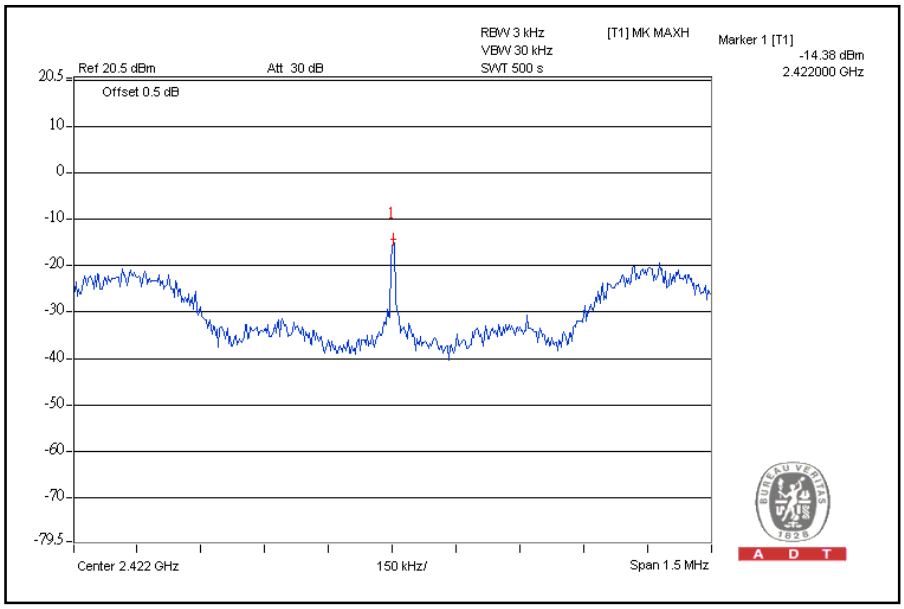

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.64 dBm
2.462000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 2.462 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

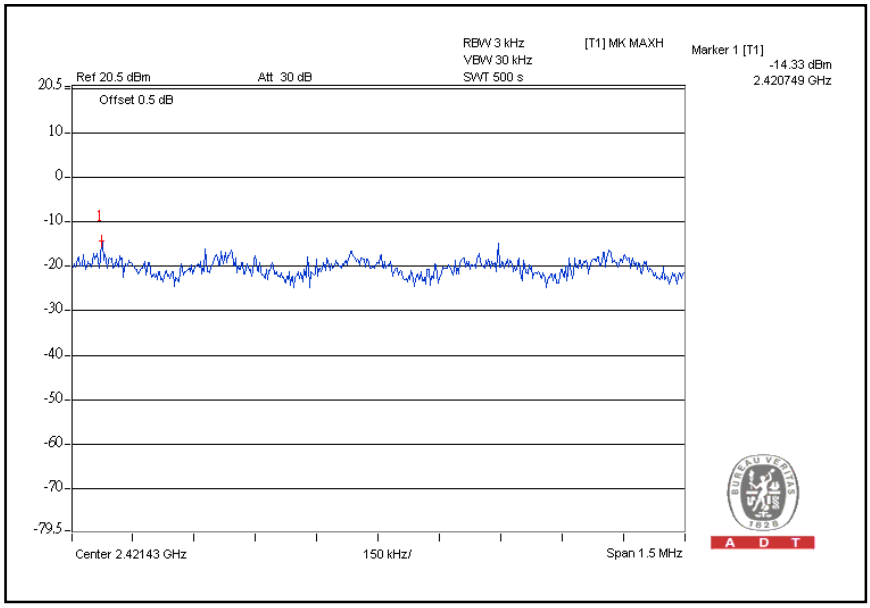
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23deg.C, 54%RH, 965hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	0.036	0.023	-14.38	-16.35	0.059	-12.29	8	PASS
4	2437	0.037	0.033	-14.33	-14.78	0.070	-11.55	8	PASS
7	2452	0.016	0.012	-17.88	-19.12	0.028	-15.53	8	PASS

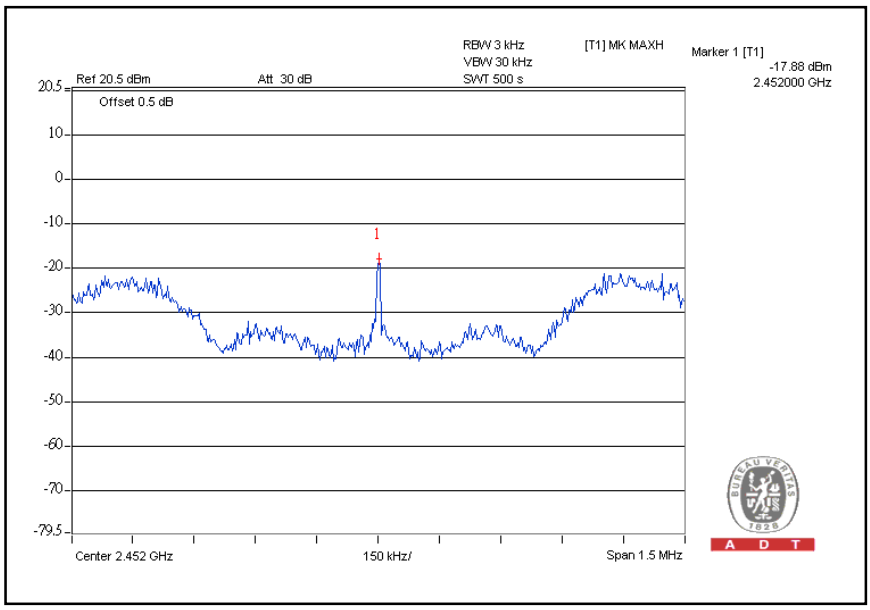
For Chain (0): CH1



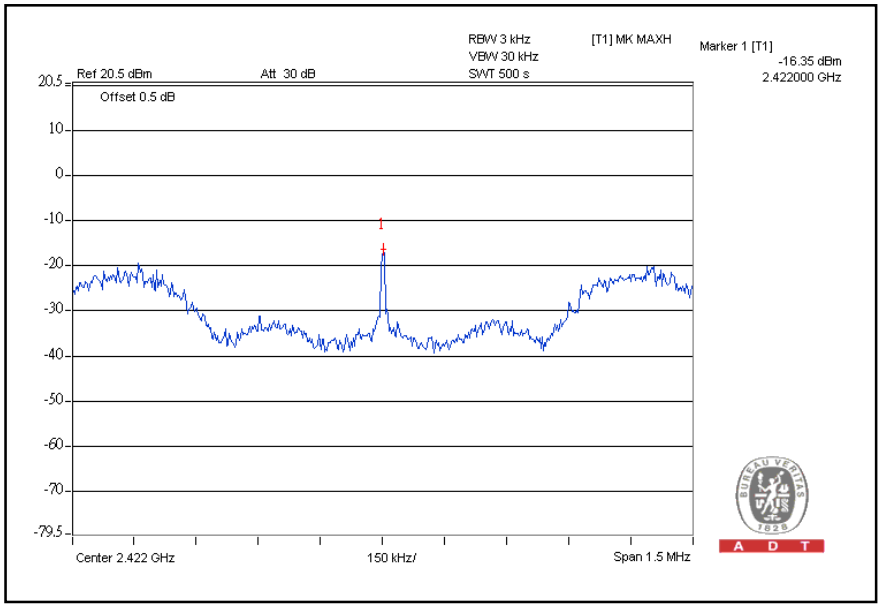
CH4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.33 dBm
2.420749 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.42143 GHz
150 kHz/
Span 1.5 MHz

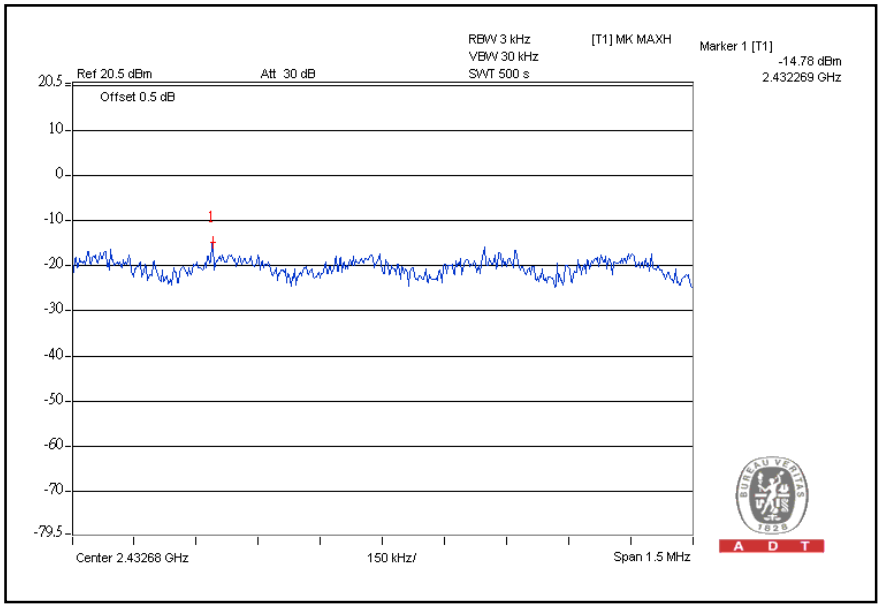
CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-17.88 dBm
2.452000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.452 GHz
150 kHz/
Span 1.5 MHz

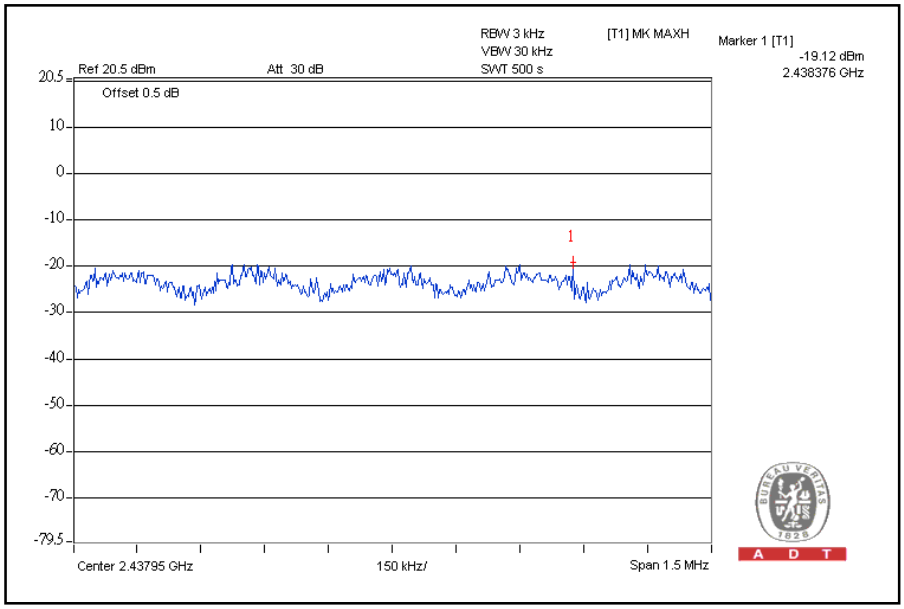
For Chain (1): CH1



CH4



CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.12 dBm
2.438376 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.43795 GHz
150 kHz/
Span 1.5 MHz

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION 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.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. 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

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

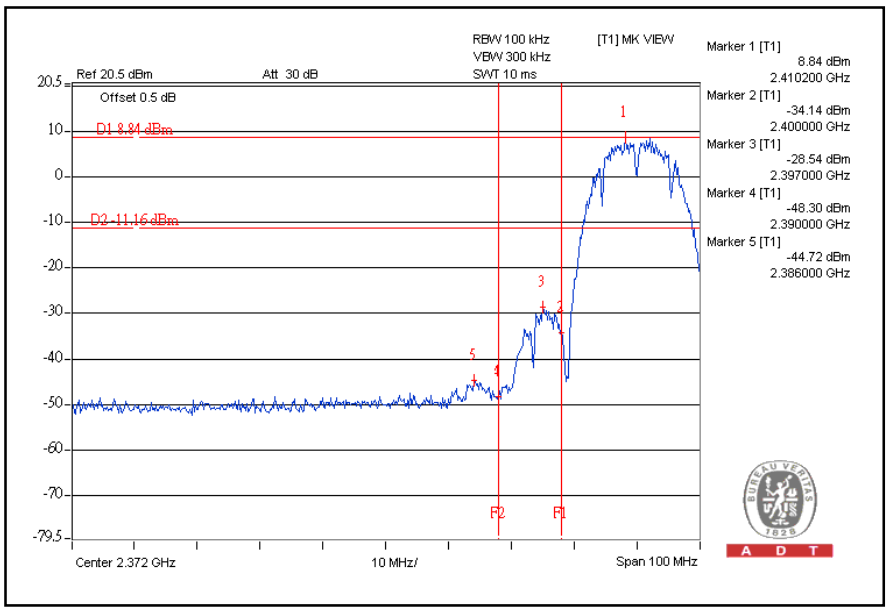
Same as Item 4.3.6

4.6.6 TEST RESULTS – with PCB antenna

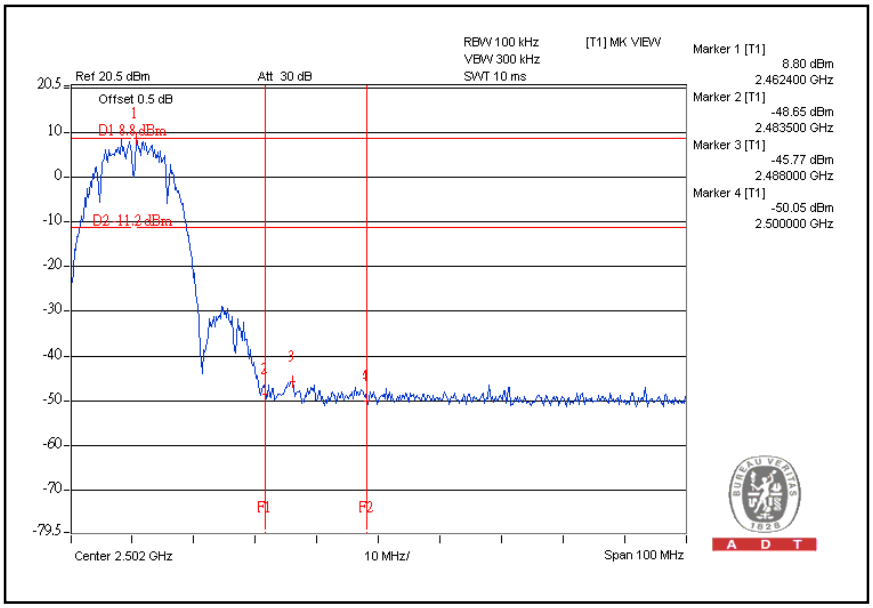
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

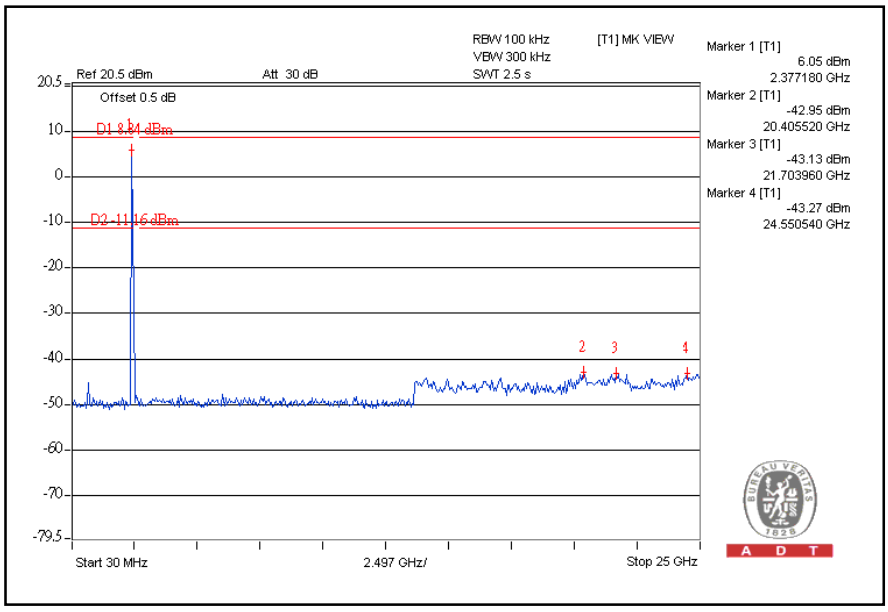
For Chain (0):CH1



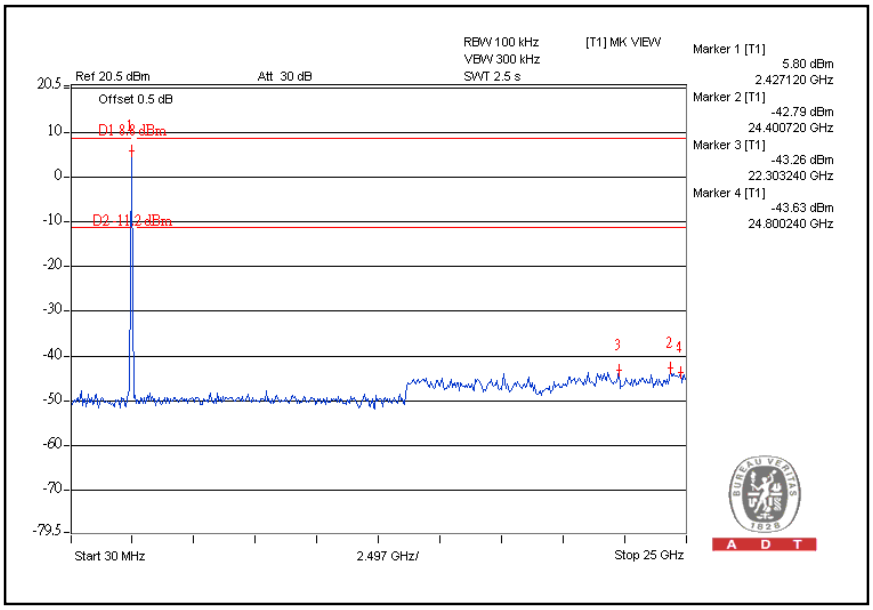
CH11



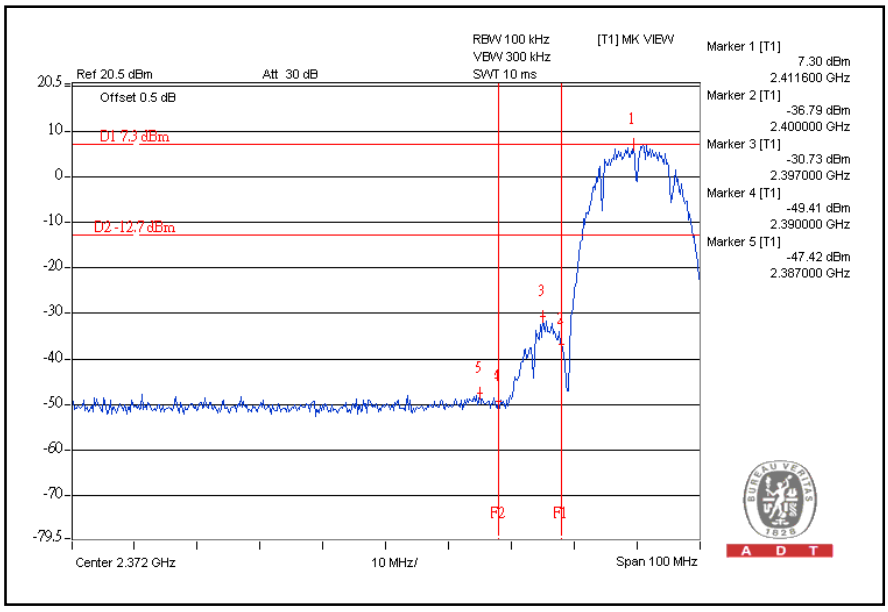
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
6.05 dBm
2.377180 GHz
Marker 2 [T1]
-42.95 dBm
20.405520 GHz
Marker 3 [T1]
-43.13 dBm
21.703960 GHz
Marker 4 [T1]
-43.27 dBm
24.550540 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.51 dBm
D2 -11.16 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

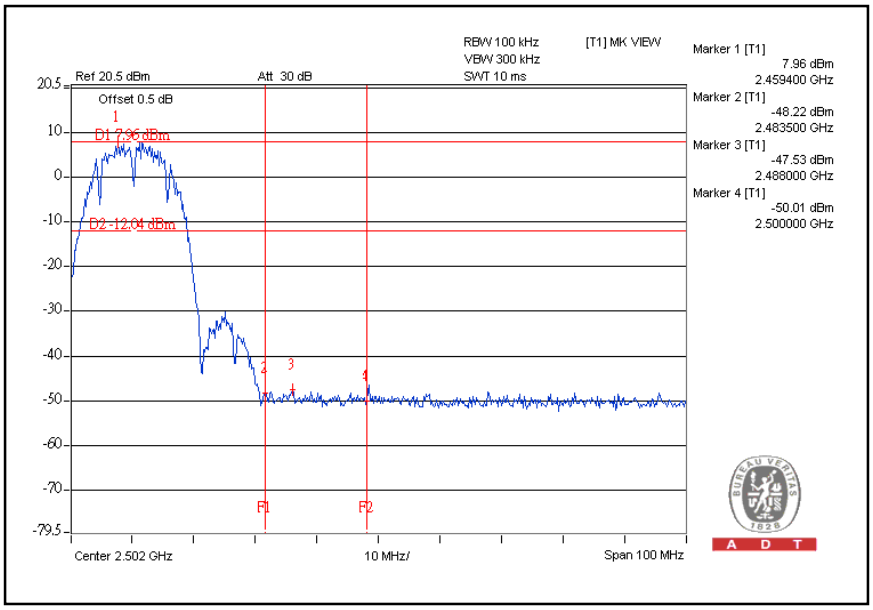
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
5.80 dBm
2.427120 GHz
Marker 2 [T1]
-42.79 dBm
24.400720 GHz
Marker 3 [T1]
-43.26 dBm
22.303240 GHz
Marker 4 [T1]
-43.63 dBm
24.800240 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.8 dBm
D2 -11.2 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

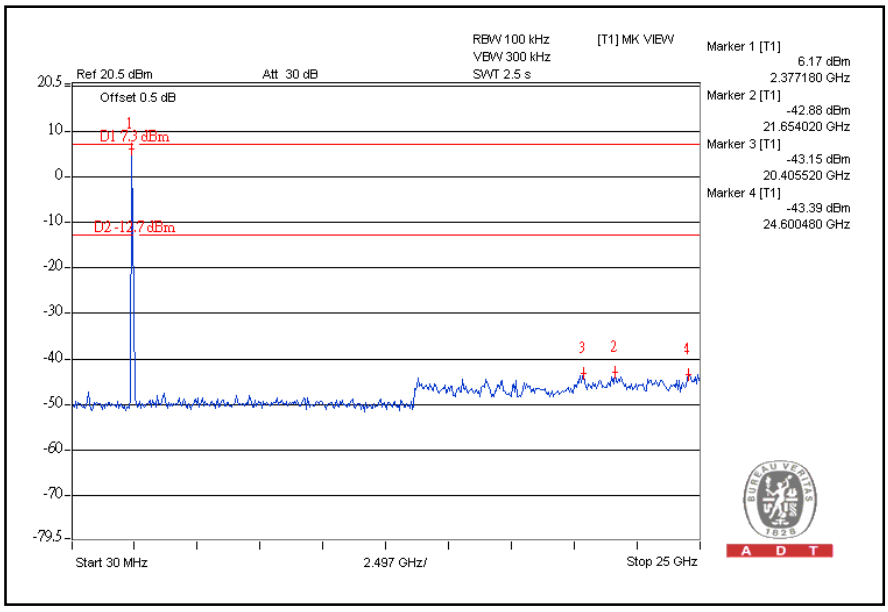
For Chain (1):CH1



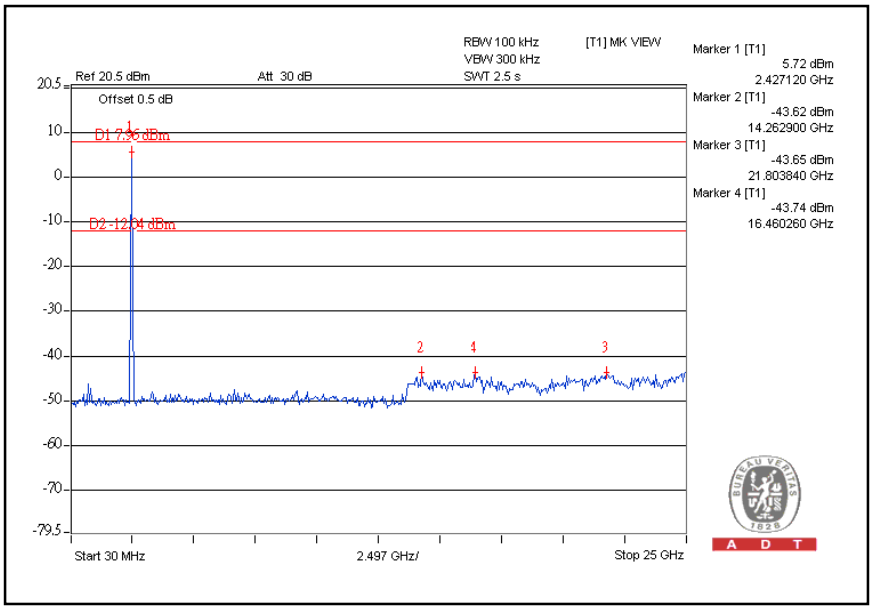
CH11



CH1

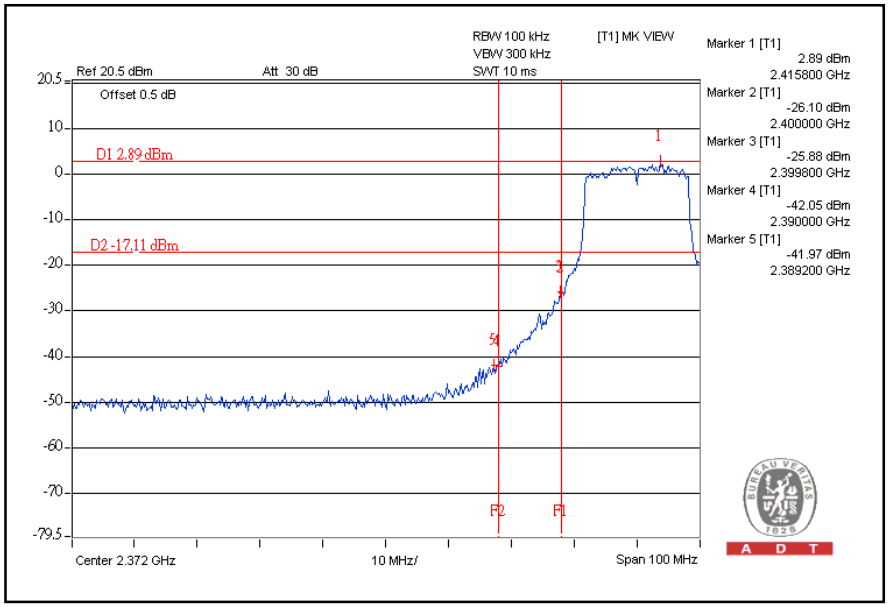

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 7.3 dBm
D2 -12.7 dBm
Marker 1 [T1]
6.17 dBm
2.377180 GHz
Marker 2 [T1]
-42.88 dBm
21.654020 GHz
Marker 3 [T1]
-43.15 dBm
20.405520 GHz
Marker 4 [T1]
-43.39 dBm
24.600480 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

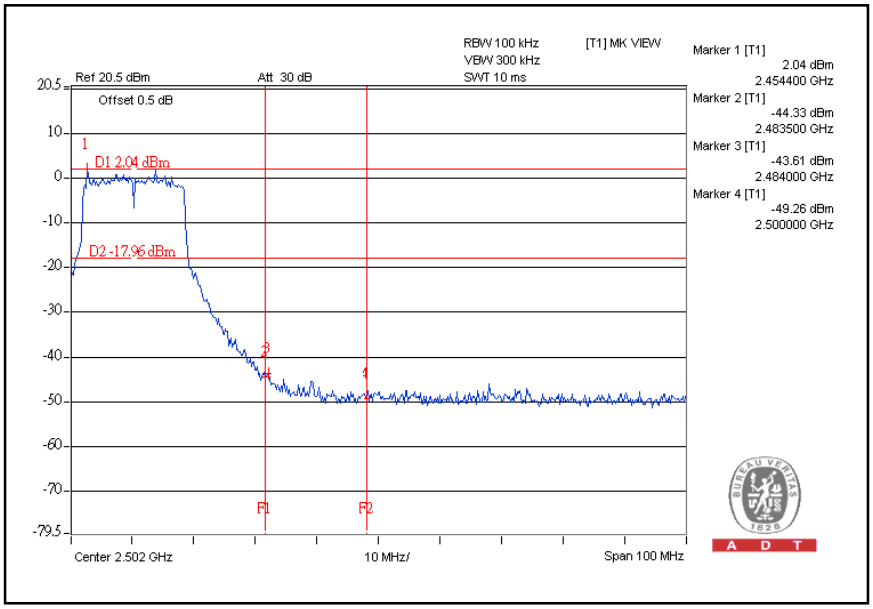

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 7.36 dBm
D2 -12.64 dBm
Marker 1 [T1]
5.72 dBm
2.427120 GHz
Marker 2 [T1]
-43.62 dBm
14.262900 GHz
Marker 3 [T1]
-43.65 dBm
21.803840 GHz
Marker 4 [T1]
-43.74 dBm
16.460260 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

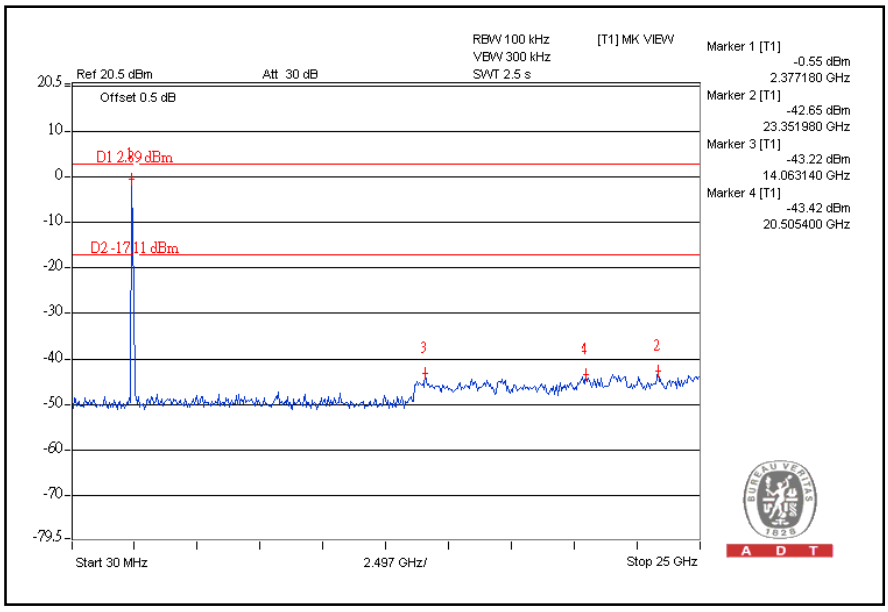
For Chain (0):CH1



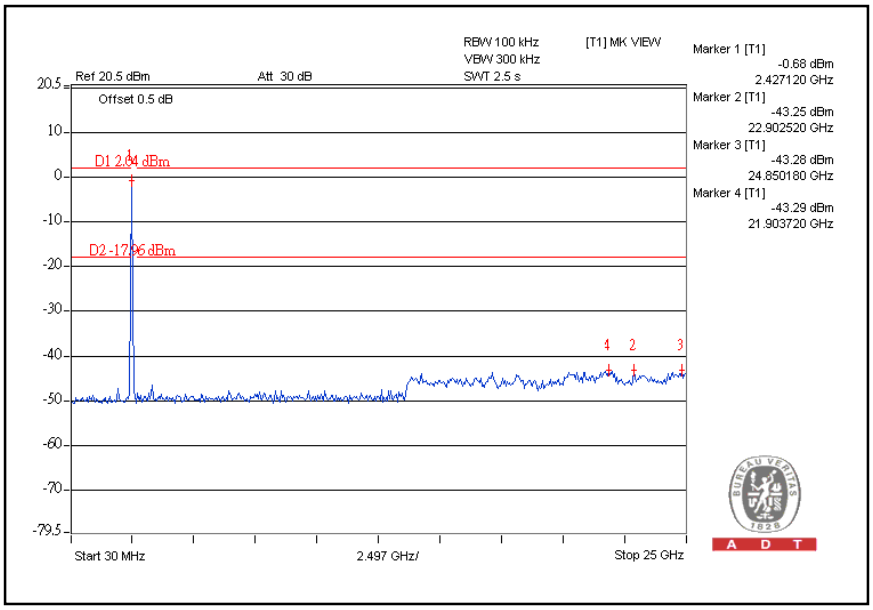
CH11



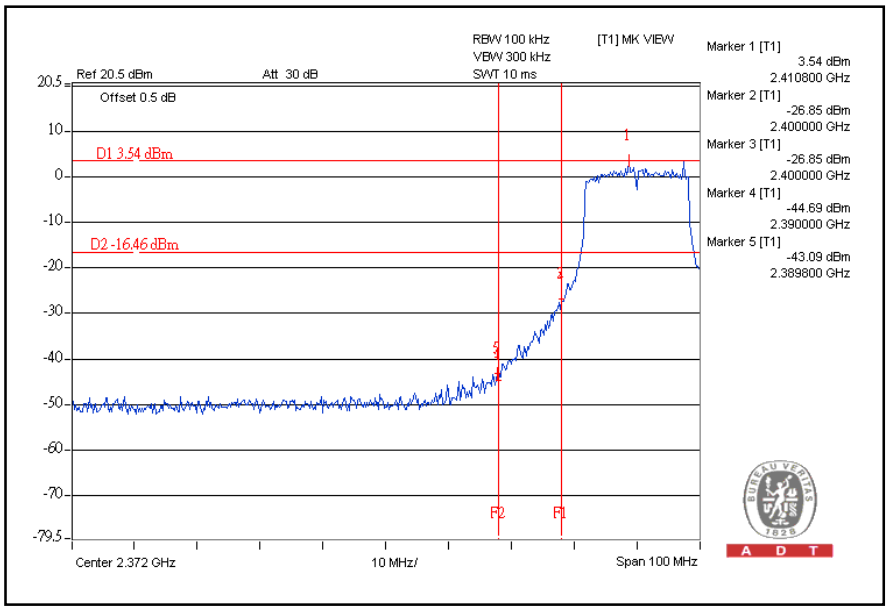
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.69 dBm
D2 -17.11 dBm
Marker 1 [T1]
-0.55 dBm
2.377180 GHz
Marker 2 [T1]
-42.65 dBm
23.351980 GHz
Marker 3 [T1]
-43.22 dBm
14.063140 GHz
Marker 4 [T1]
-43.42 dBm
20.505400 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

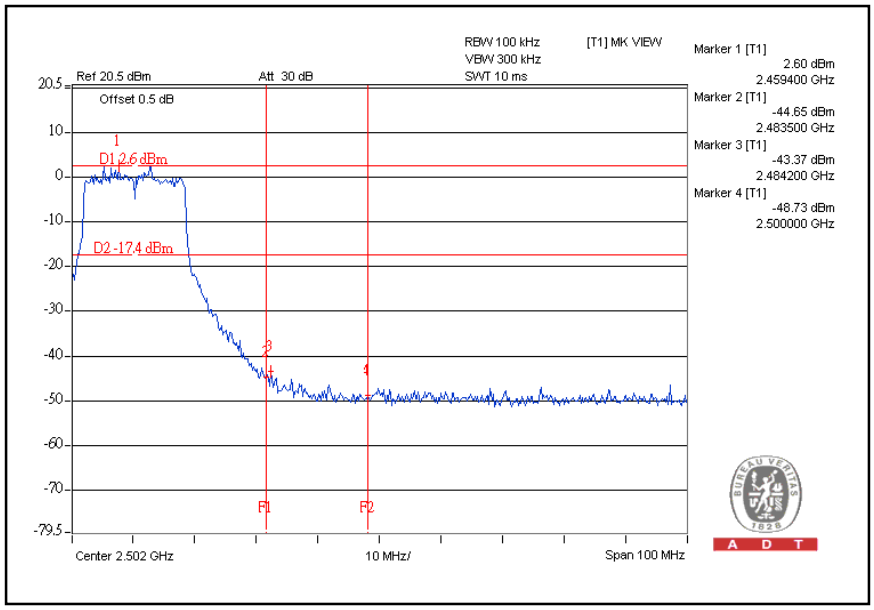
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.84 dBm
D2 -17.16 dBm
Marker 1 [T1]
-0.68 dBm
2.427120 GHz
Marker 2 [T1]
-43.25 dBm
22.902520 GHz
Marker 3 [T1]
-43.28 dBm
24.850180 GHz
Marker 4 [T1]
-43.29 dBm
21.903720 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

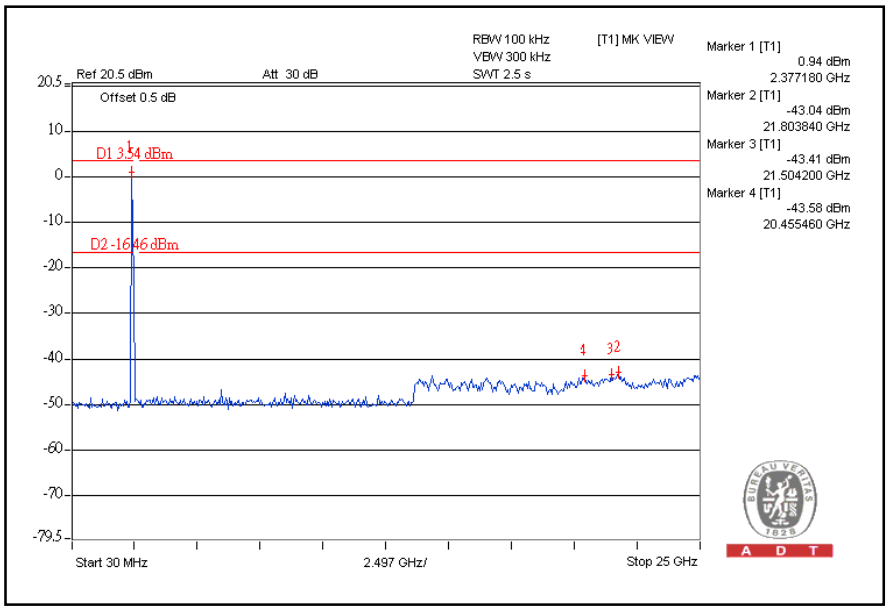
For Chain (1):CH1



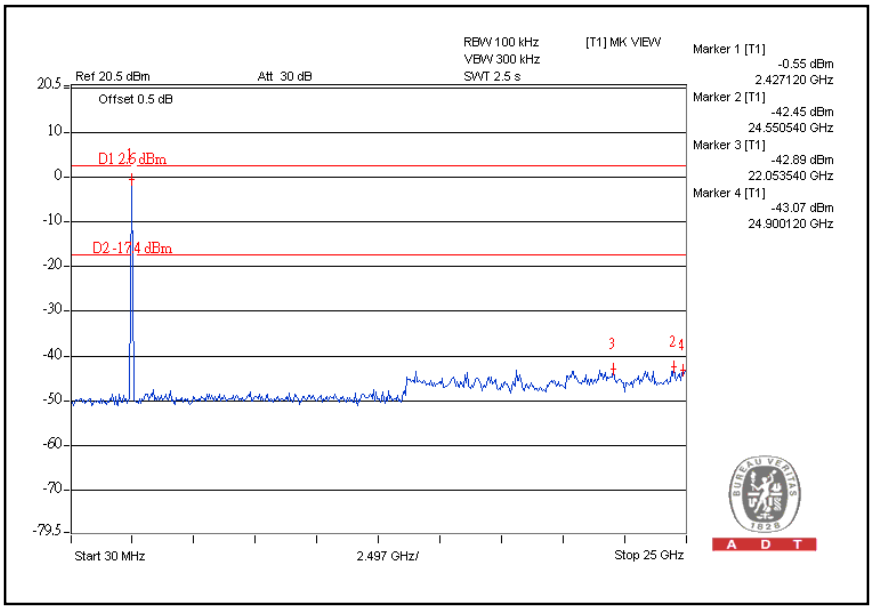
CH11



CH1

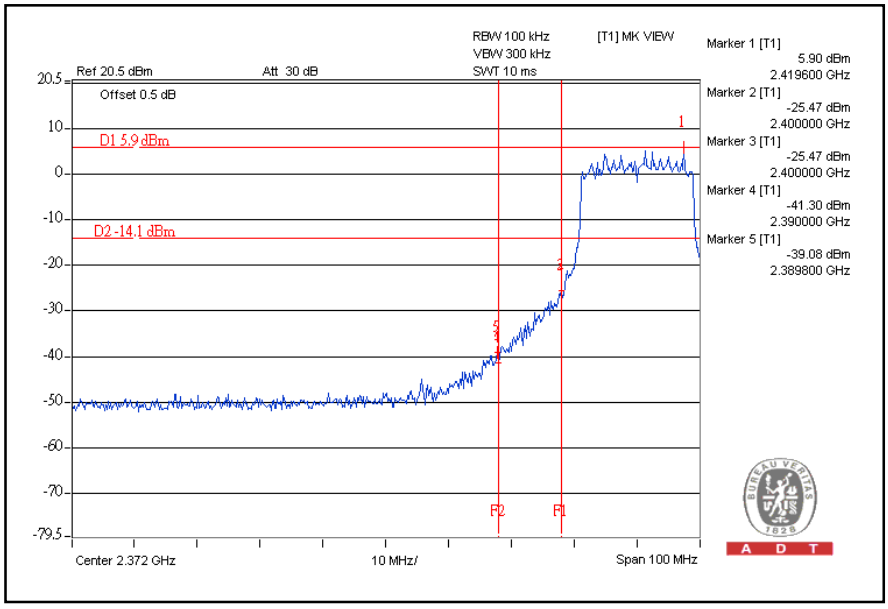

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3.54 dBm
D2 -16.46 dBm
Marker 1 [T1]
0.94 dBm
2.377180 GHz
Marker 2 [T1]
-43.04 dBm
21.803840 GHz
Marker 3 [T1]
-43.41 dBm
21.504200 GHz
Marker 4 [T1]
-43.58 dBm
20.455460 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

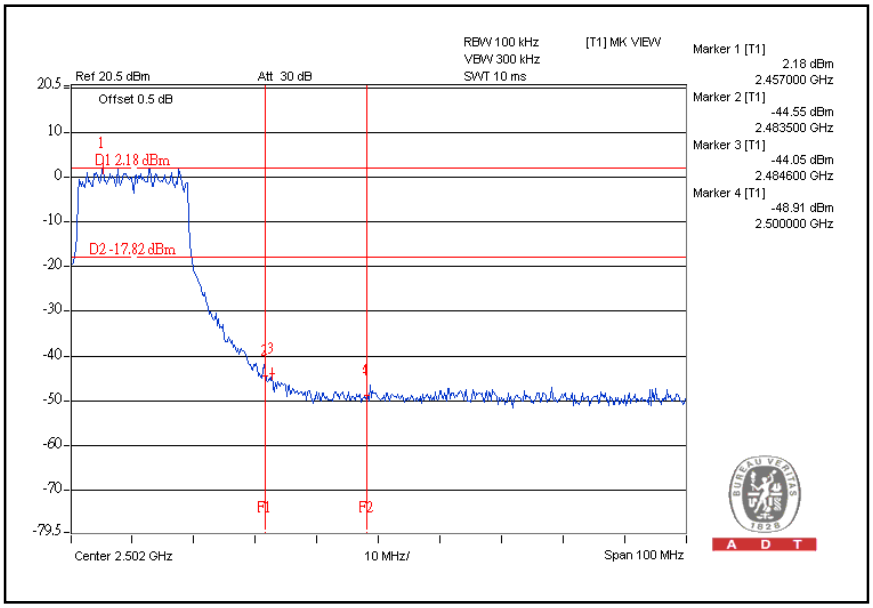

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.56 dBm
D2 -17.44 dBm
Marker 1 [T1]
-0.55 dBm
2.427120 GHz
Marker 2 [T1]
-42.45 dBm
24.550540 GHz
Marker 3 [T1]
-42.89 dBm
22.053540 GHz
Marker 4 [T1]
-43.07 dBm
24.900120 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

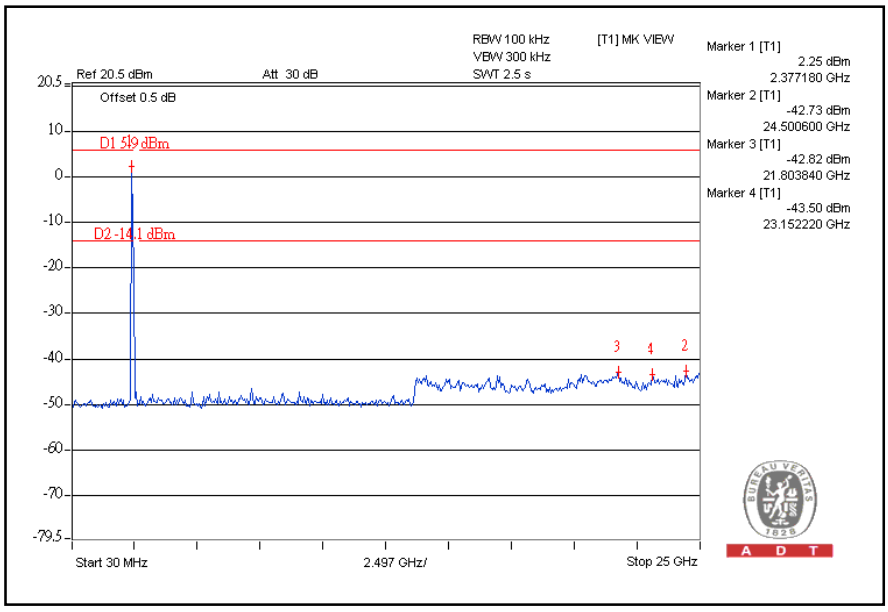
For Chain (0):CH1



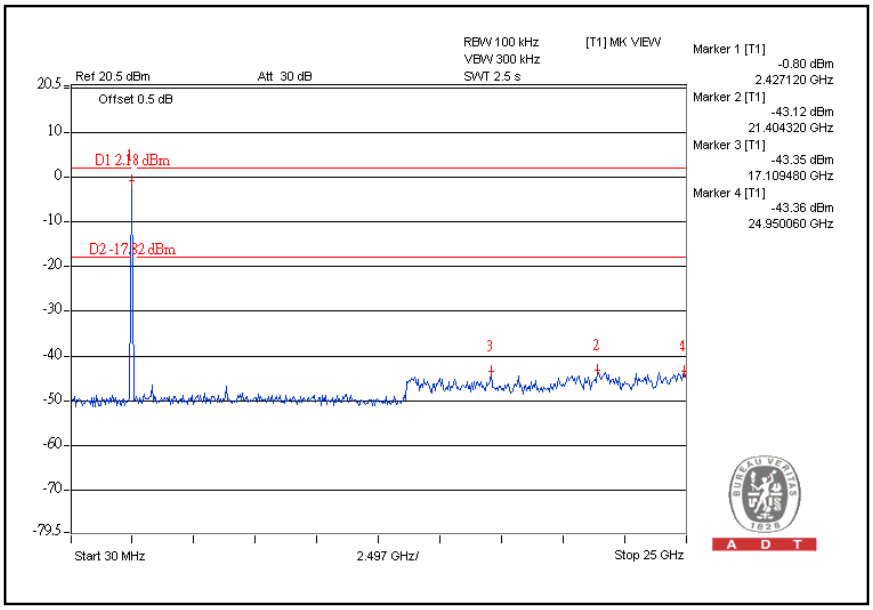
CH11



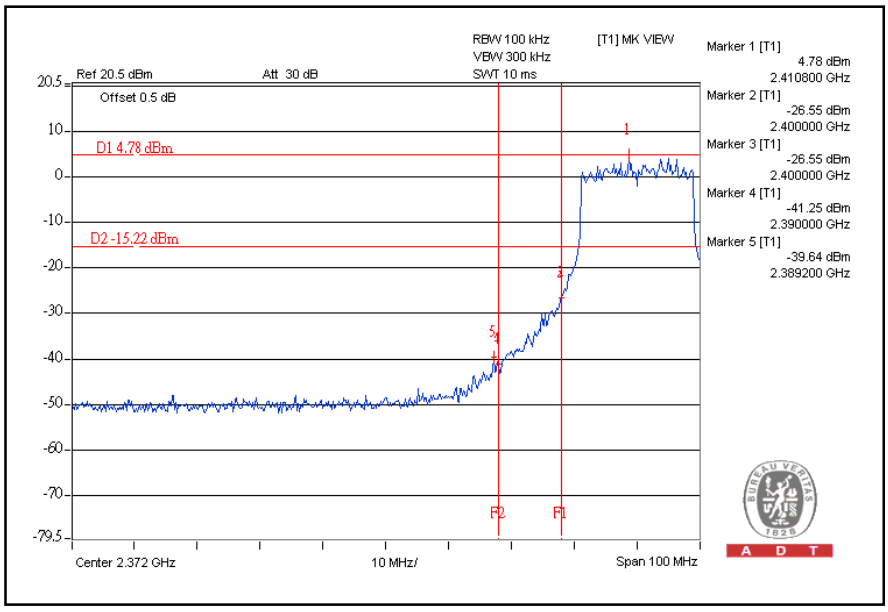
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 5.9 dBm
D2 -14.1 dBm
Marker 1 [T1]
2.25 dBm
2.377180 GHz
Marker 2 [T1]
-42.73 dBm
24.500600 GHz
Marker 3 [T1]
-42.82 dBm
21.803840 GHz
Marker 4 [T1]
-43.50 dBm
23.152220 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

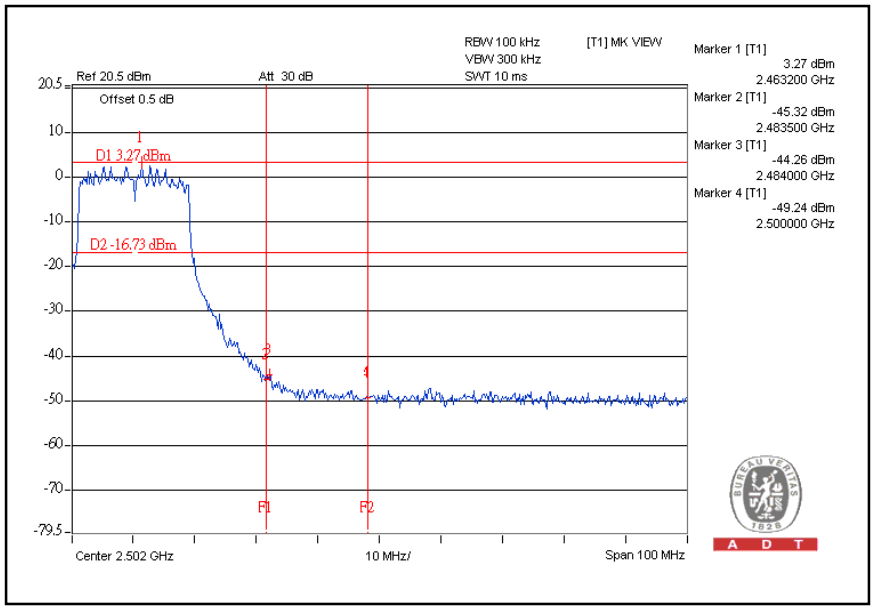
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 2.18 dBm
D2 -17.82 dBm
Marker 1 [T1]
-0.80 dBm
2.427120 GHz
Marker 2 [T1]
-43.12 dBm
21.404320 GHz
Marker 3 [T1]
-43.35 dBm
17.109480 GHz
Marker 4 [T1]
-43.36 dBm
24.950060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

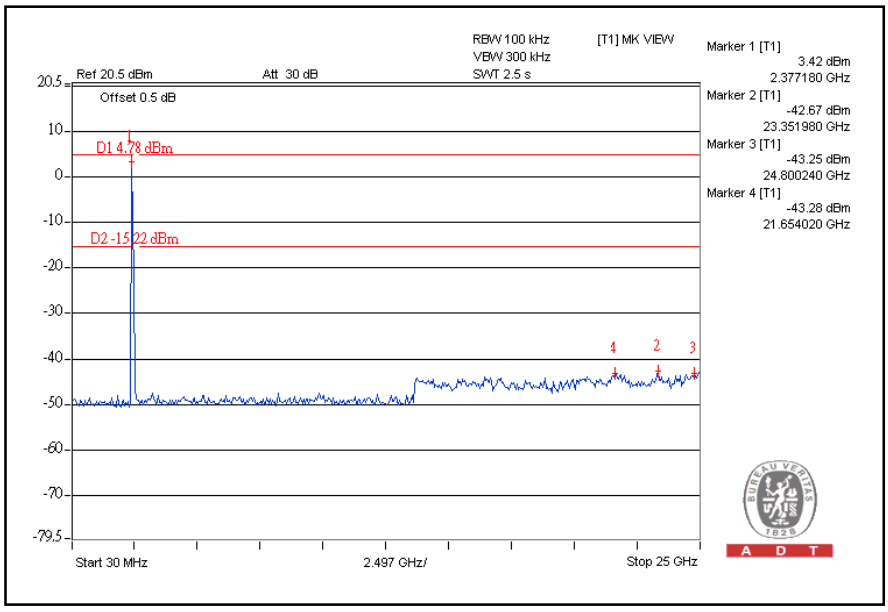
For Chain (1):CH1



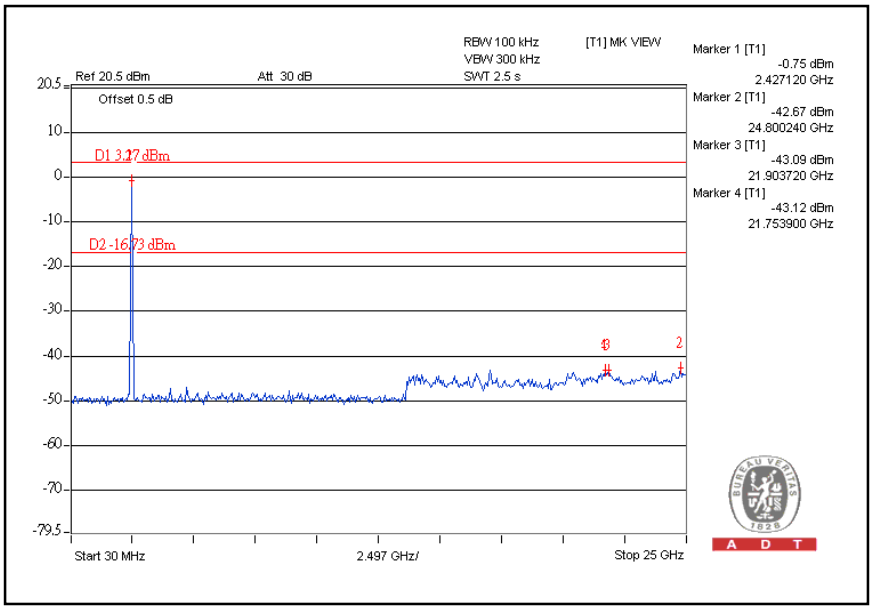
CH11



CH1

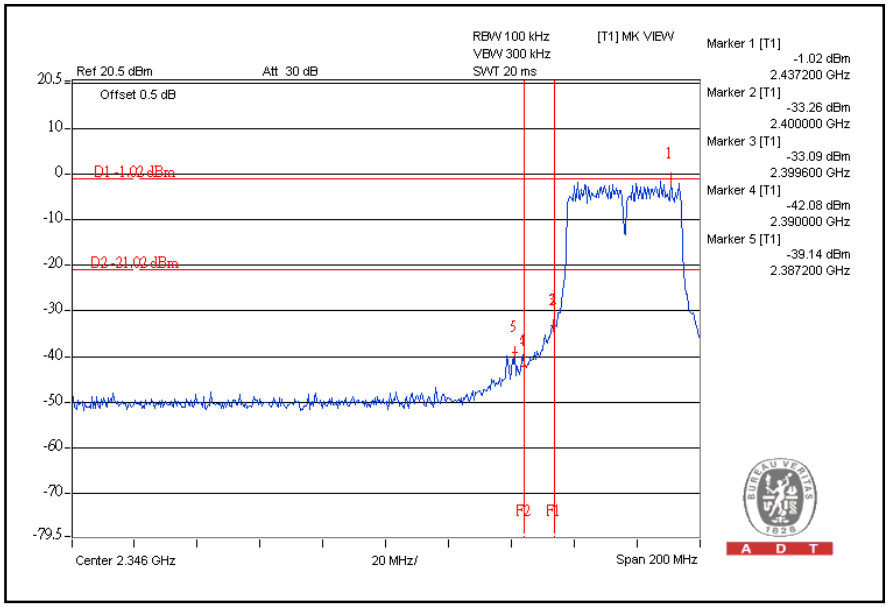

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
3.42 dBm
2.377180 GHz
Marker 2 [T1]
-42.67 dBm
23.351980 GHz
Marker 3 [T1]
-43.25 dBm
24.800240 GHz
Marker 4 [T1]
-43.28 dBm
21.654020 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 4.78 dBm
D2 -15.22 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

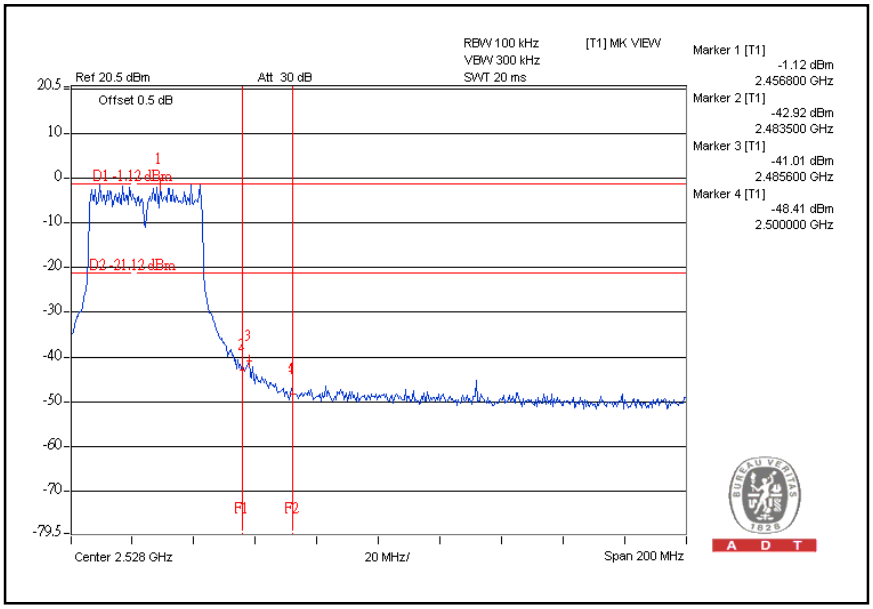

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-0.75 dBm
2.427120 GHz
Marker 2 [T1]
-42.67 dBm
24.800240 GHz
Marker 3 [T1]
-43.09 dBm
21.903720 GHz
Marker 4 [T1]
-43.12 dBm
21.753900 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3.27 dBm
D2 -16.73 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

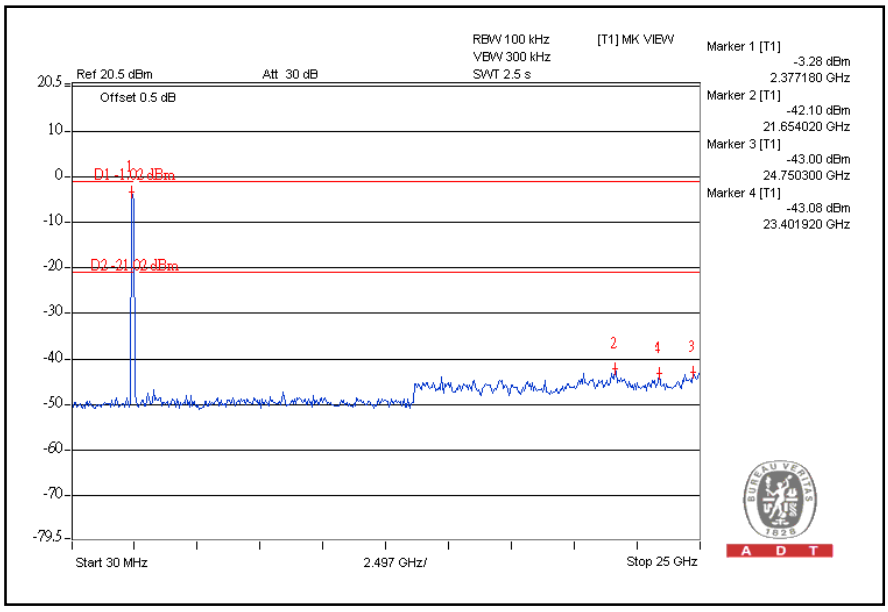
For Chain (0):CH1



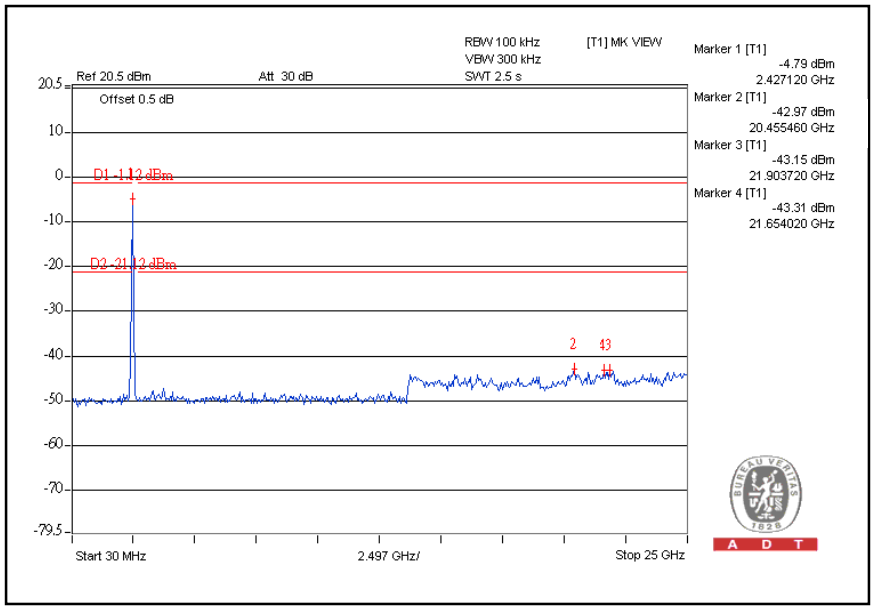
CH7



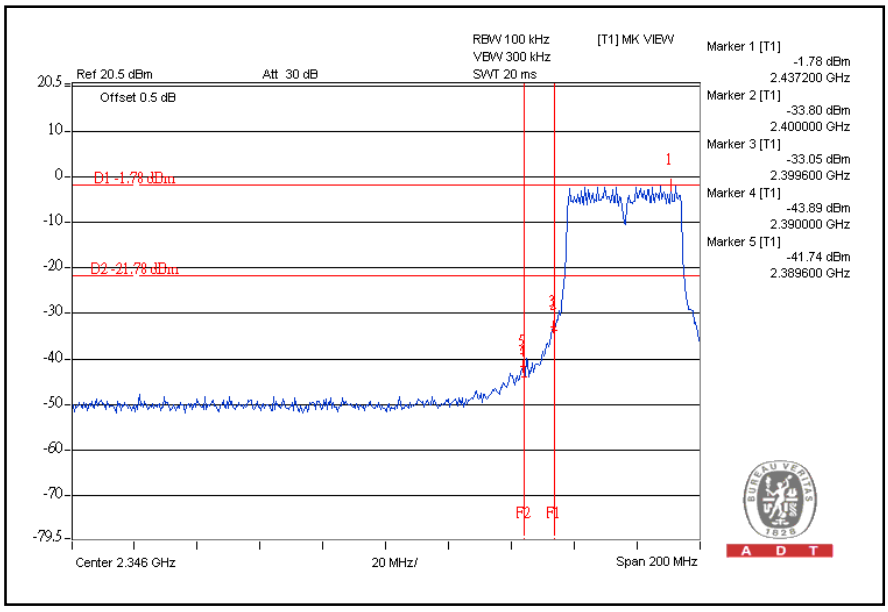
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-3.28 dBm
2.377180 GHz
Marker 2 [T1]
-42.10 dBm
21.654020 GHz
Marker 3 [T1]
-43.00 dBm
24.750300 GHz
Marker 4 [T1]
-43.08 dBm
23.401920 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -1.02 dBm
D2 -21.02 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

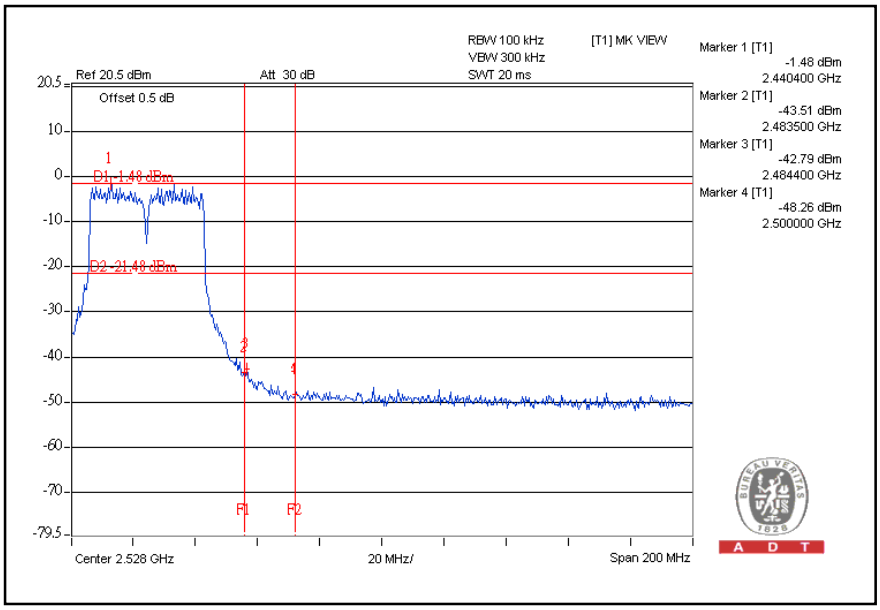
CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-4.79 dBm
2.427120 GHz
Marker 2 [T1]
-42.97 dBm
20.455460 GHz
Marker 3 [T1]
-43.15 dBm
21.903720 GHz
Marker 4 [T1]
-43.31 dBm
21.654020 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -1.12 dBm
D2 -21.12 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

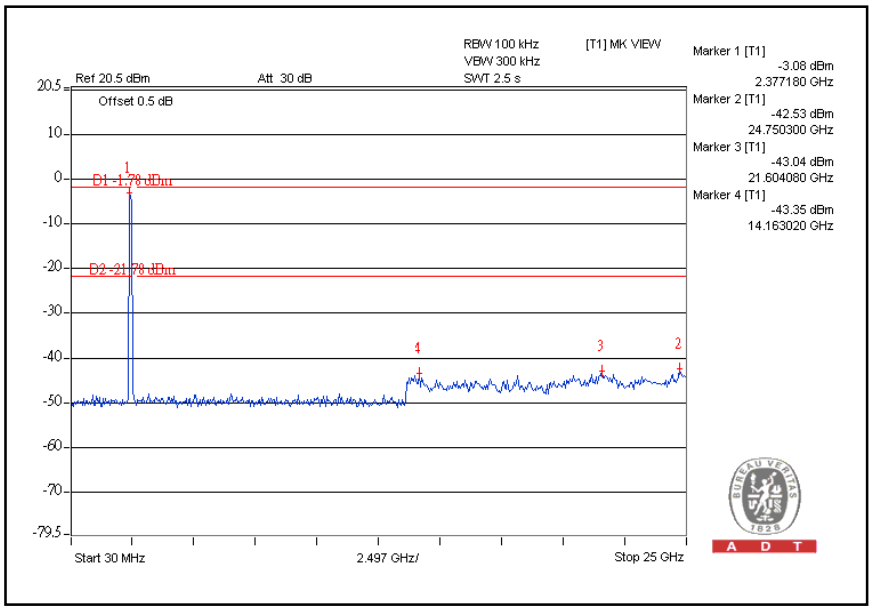
For Chain (1):CH1



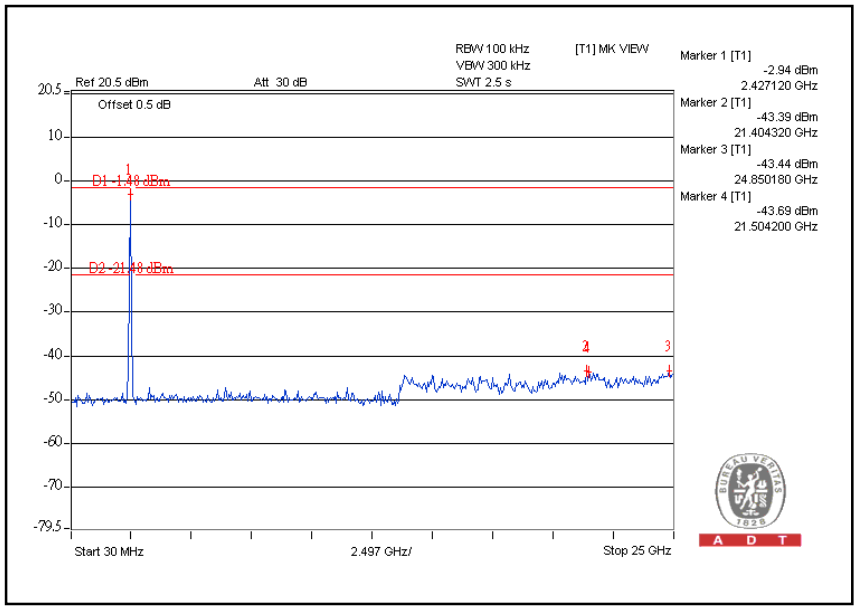
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -1.78 dBm
D2 -21.78 dBm
Marker 1 [T1]
-3.08 dBm
2.377180 GHz
Marker 2 [T1]
-42.53 dBm
24.750300 GHz
Marker 3 [T1]
-43.04 dBm
21.604080 GHz
Marker 4 [T1]
-43.35 dBm
14.163020 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH7

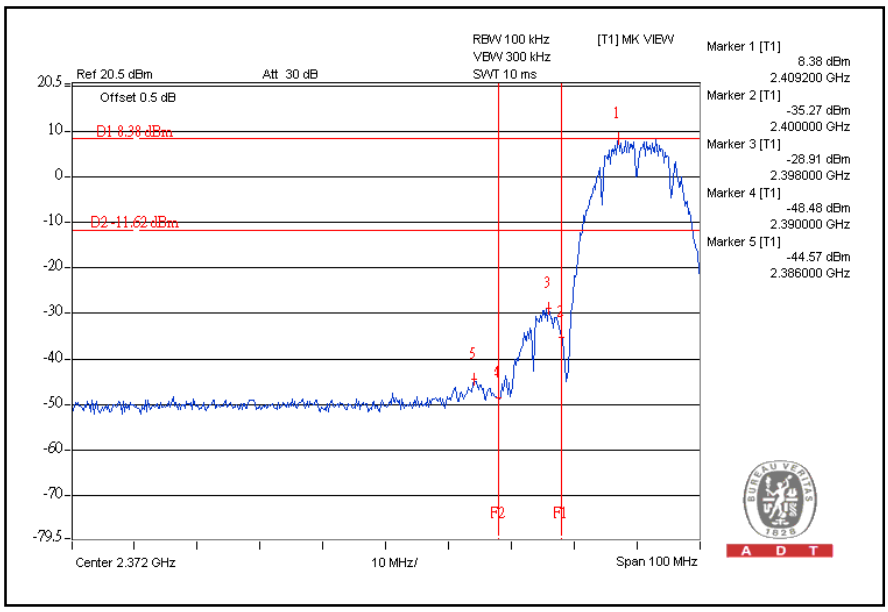

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -1.48 dBm
D2 -21.48 dBm
Marker 1 [T1]
-2.94 dBm
2.427120 GHz
Marker 2 [T1]
-43.39 dBm
21.404320 GHz
Marker 3 [T1]
-43.44 dBm
24.850180 GHz
Marker 4 [T1]
-43.69 dBm
21.504200 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

4.6.7 TEST RESULTS – with Dipole antenna

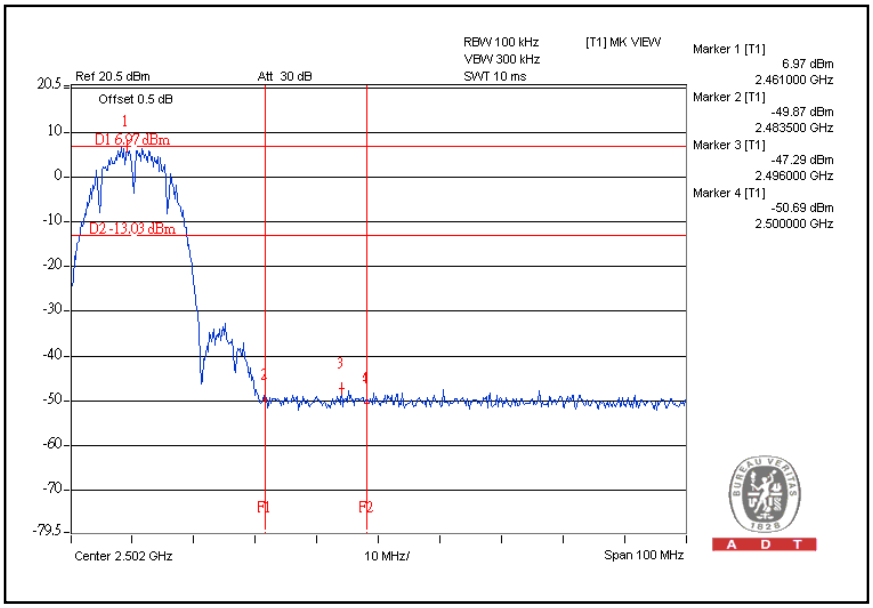
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

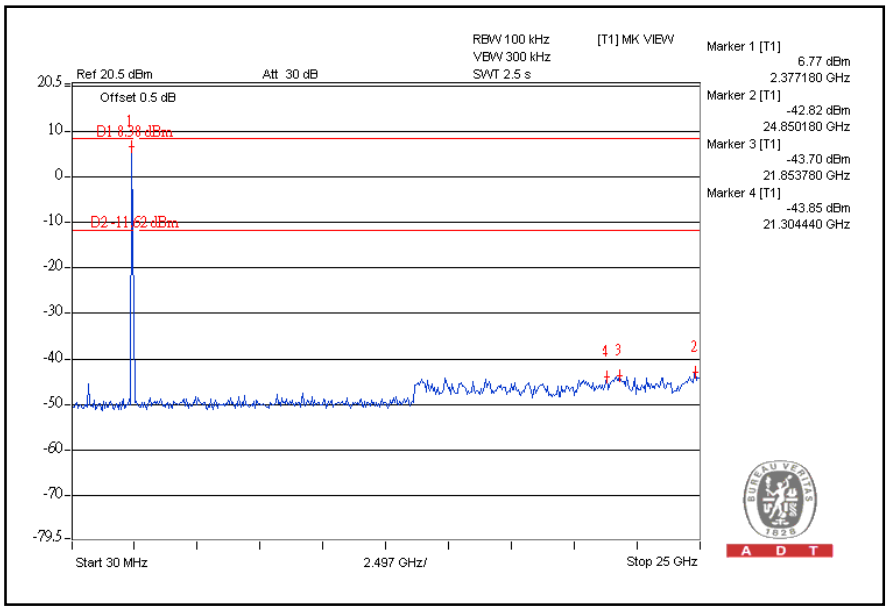
For Chain (0):CH1



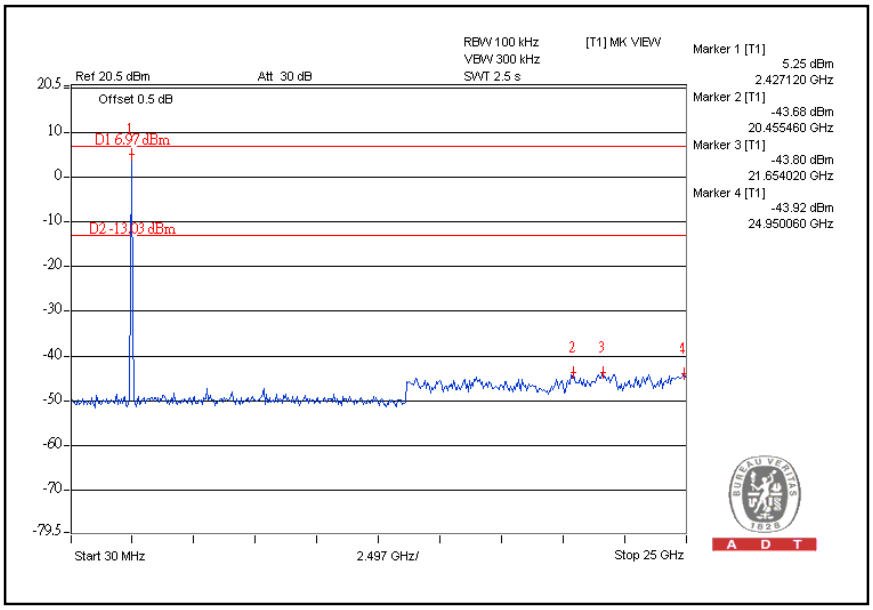
CH11



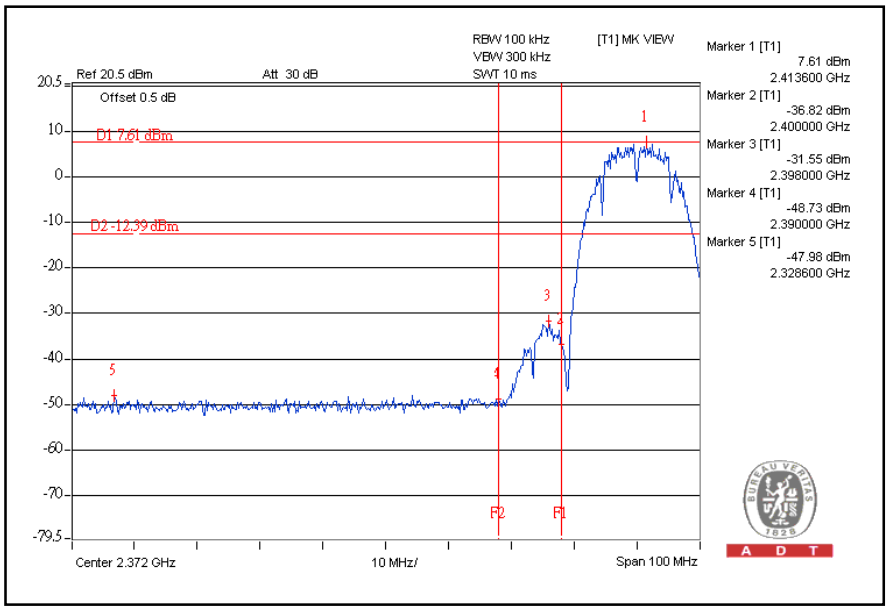
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 8.38 dBm
D2 -11.62 dBm
Marker 1 [T1]
6.77 dBm
2.377180 GHz
Marker 2 [T1]
-42.82 dBm
24.850180 GHz
Marker 3 [T1]
-43.70 dBm
21.853780 GHz
Marker 4 [T1]
-43.85 dBm
21.304440 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

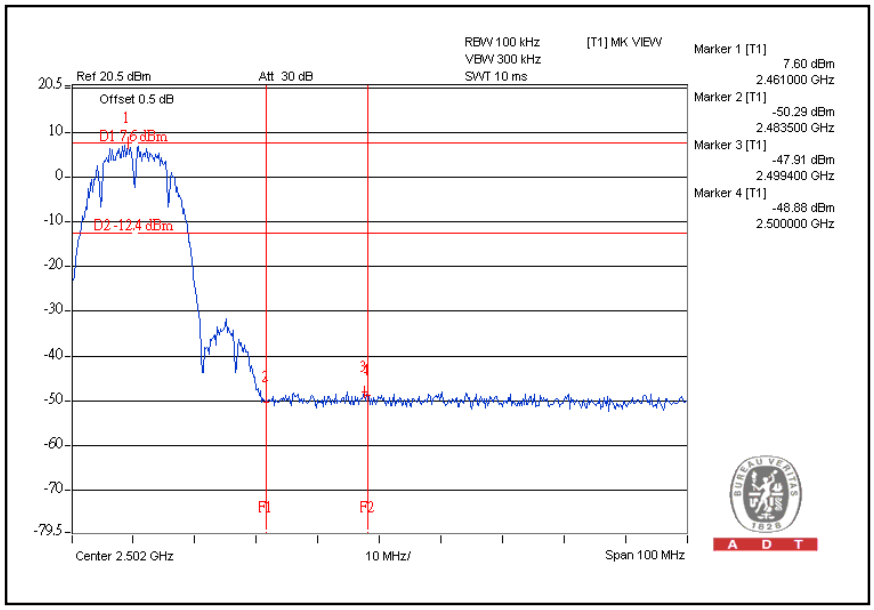
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.97 dBm
D2 -13.03 dBm
Marker 1 [T1]
5.25 dBm
2.427120 GHz
Marker 2 [T1]
-43.68 dBm
20.455460 GHz
Marker 3 [T1]
-43.80 dBm
21.654020 GHz
Marker 4 [T1]
-43.92 dBm
24.950060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

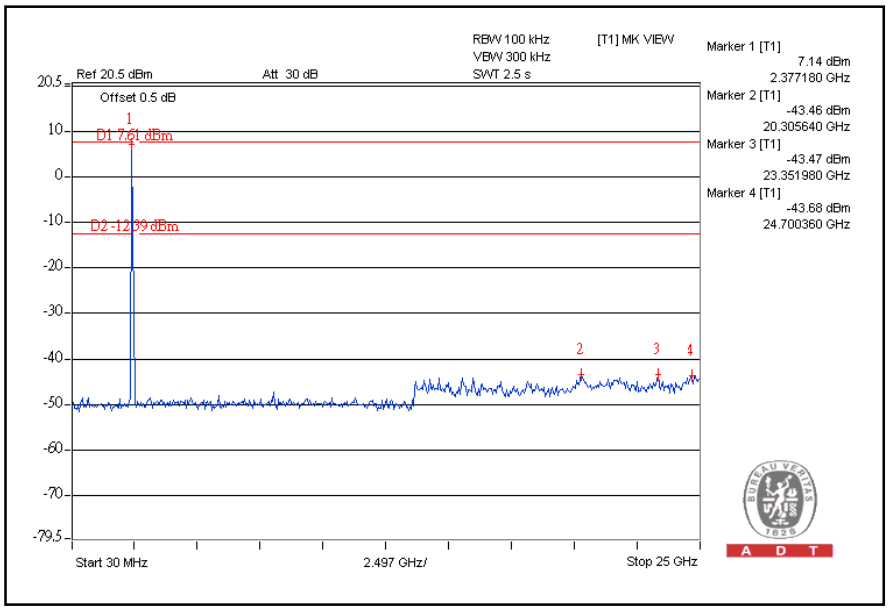
For Chain (1):CH1



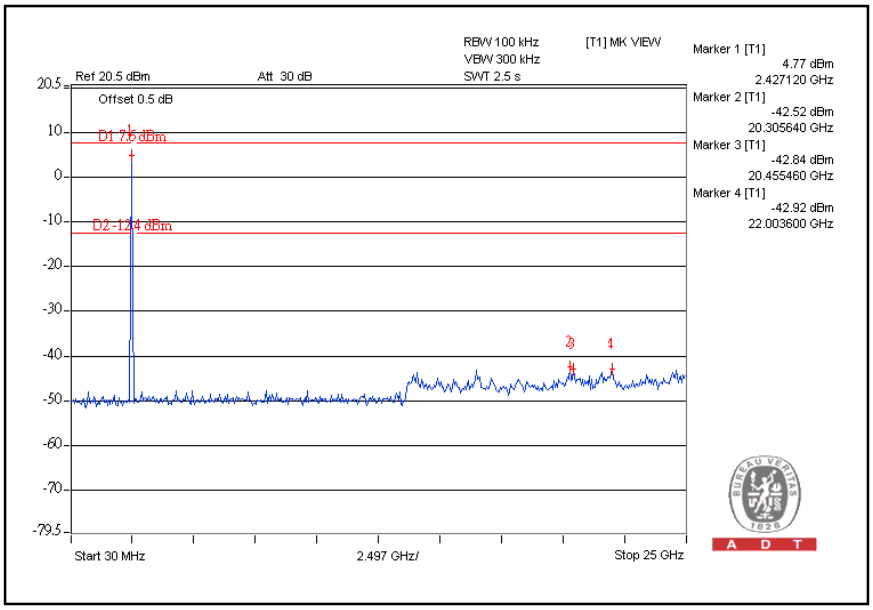
CH11



CH1

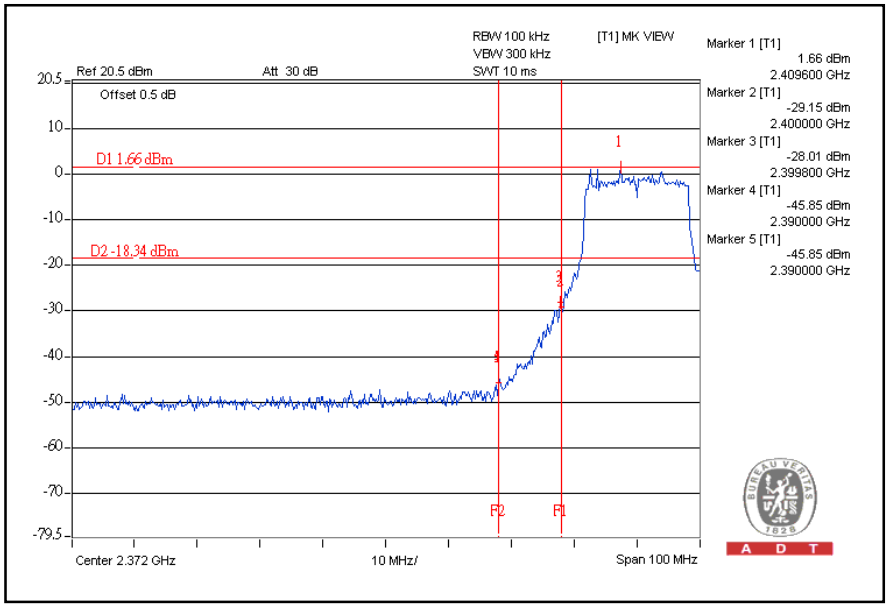

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
7.14 dBm
2.377180 GHz
Marker 2 [T1]
-43.46 dBm
20.305640 GHz
Marker 3 [T1]
-43.47 dBm
23.351980 GHz
Marker 4 [T1]
-43.68 dBm
24.700360 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 7.61 dBm
D2 -12.39 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

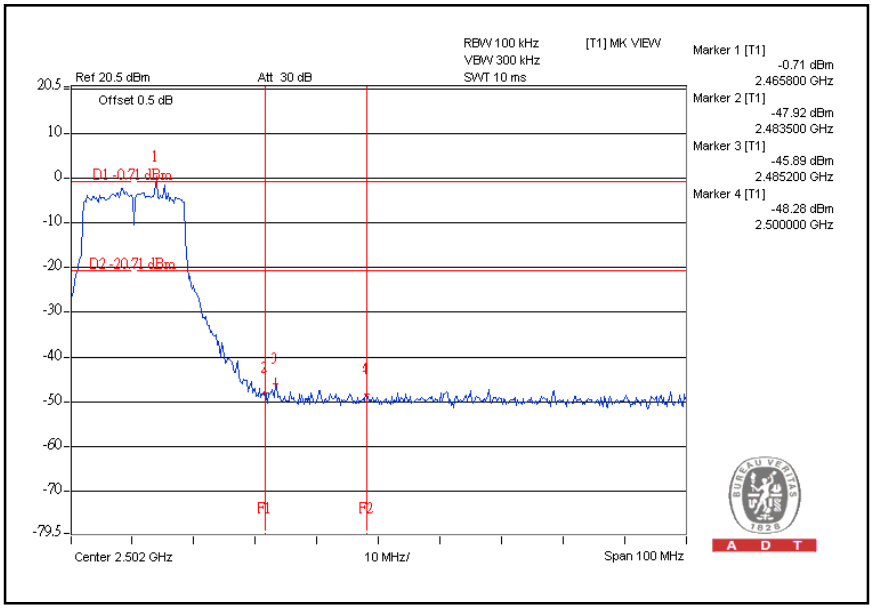

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
4.77 dBm
2.427120 GHz
Marker 2 [T1]
-42.52 dBm
20.305640 GHz
Marker 3 [T1]
-42.84 dBm
20.455460 GHz
Marker 4 [T1]
-42.92 dBm
22.003600 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 7.5 dBm
D2 -12.4 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

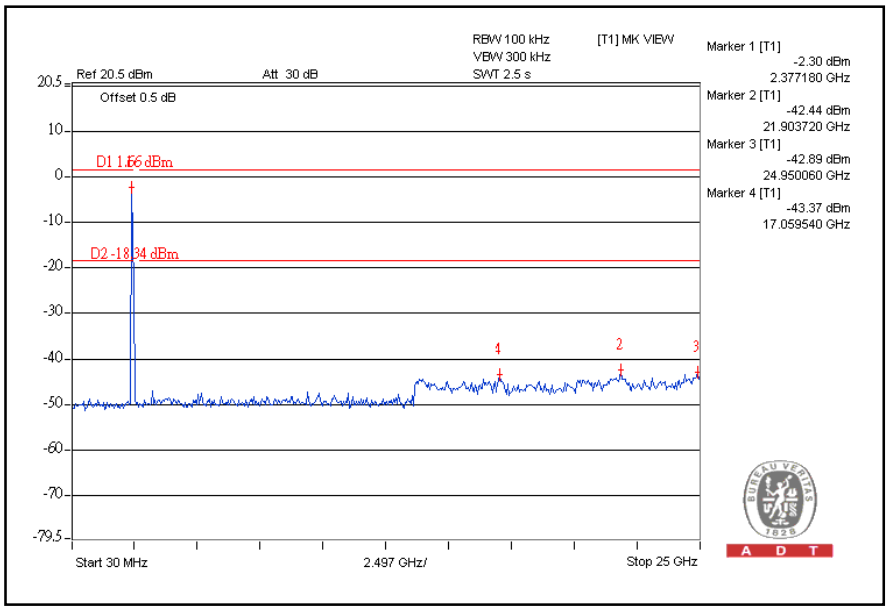
For Chain (0):CH1



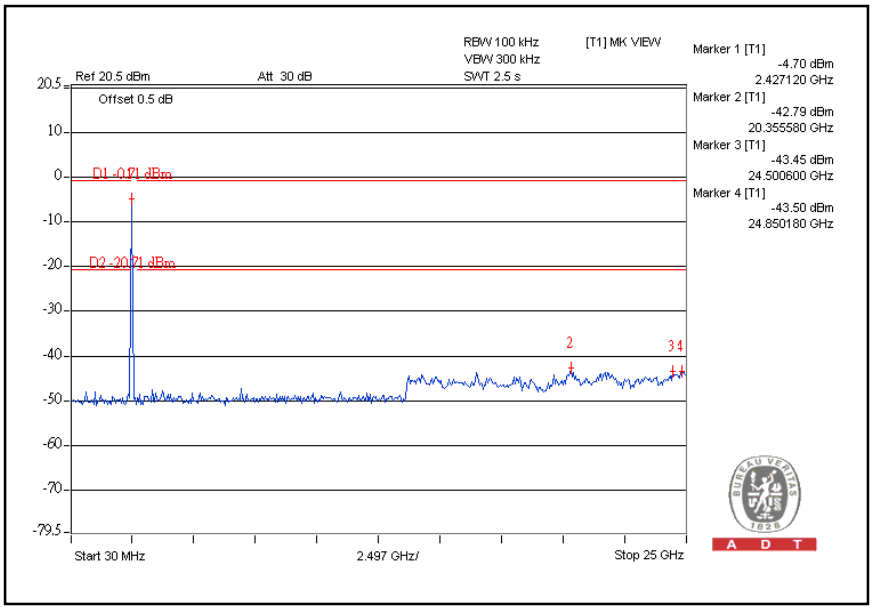
CH11



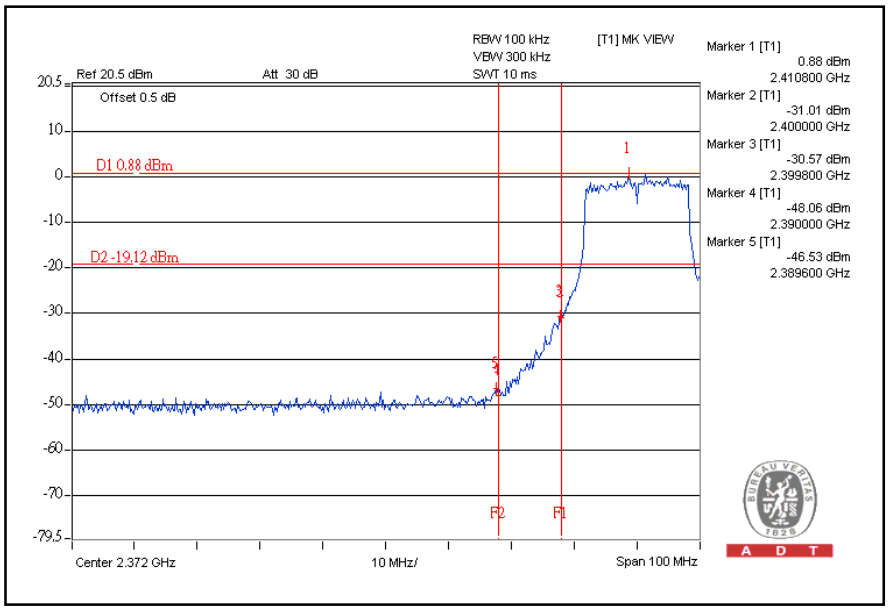
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 1.56 dBm
D2 -18.34 dBm
Marker 1 [T1]
-2.30 dBm
2.377180 GHz
Marker 2 [T1]
-42.44 dBm
21.903720 GHz
Marker 3 [T1]
-42.89 dBm
24.950060 GHz
Marker 4 [T1]
-43.37 dBm
17.059540 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

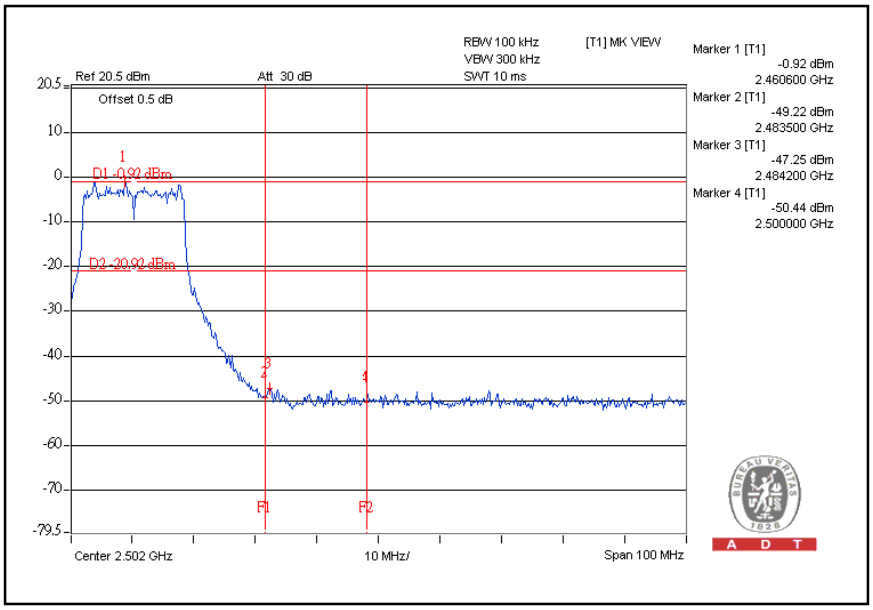
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.71 dBm
D2 -20.71 dBm
Marker 1 [T1]
-4.70 dBm
2.427120 GHz
Marker 2 [T1]
-42.79 dBm
20.355580 GHz
Marker 3 [T1]
-43.45 dBm
24.500600 GHz
Marker 4 [T1]
-43.50 dBm
24.850180 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

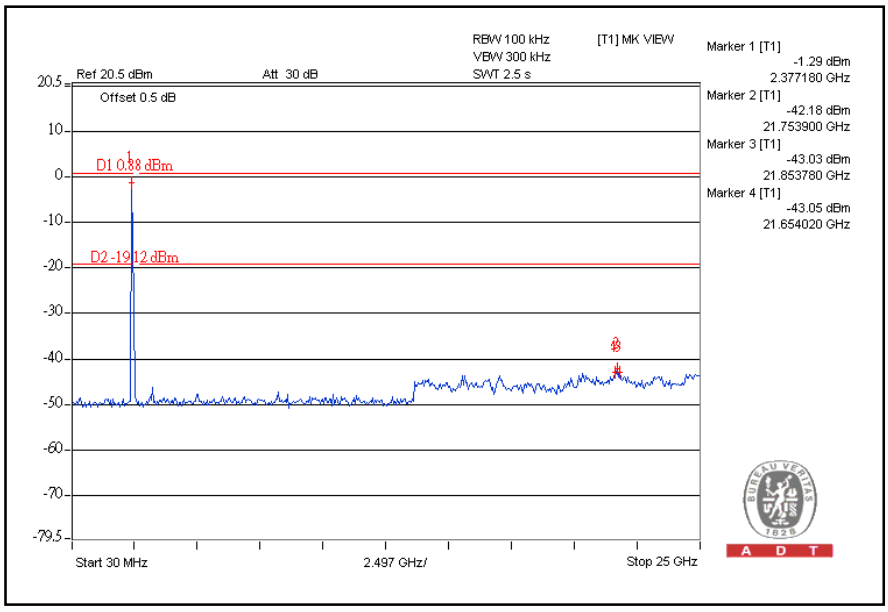
For Chain (1):CH1



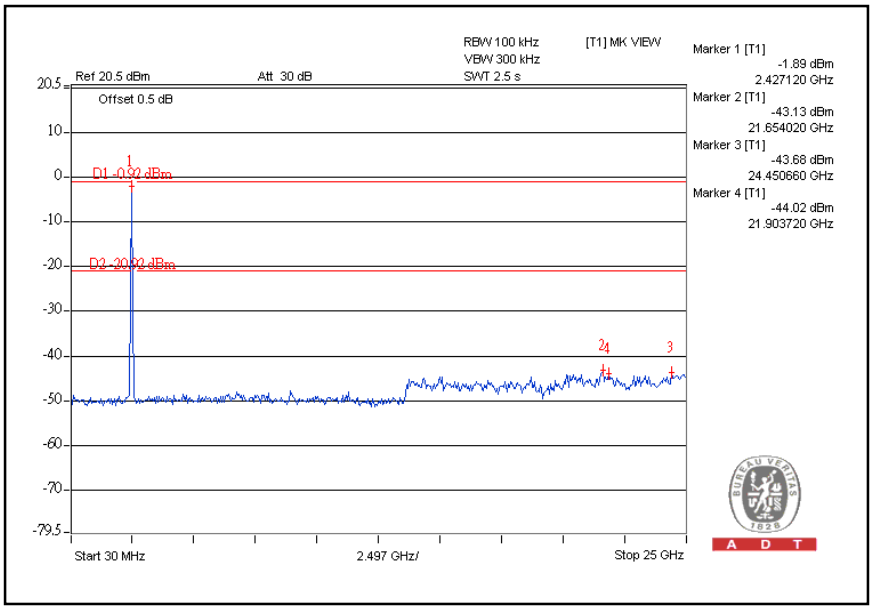
CH11



CH1

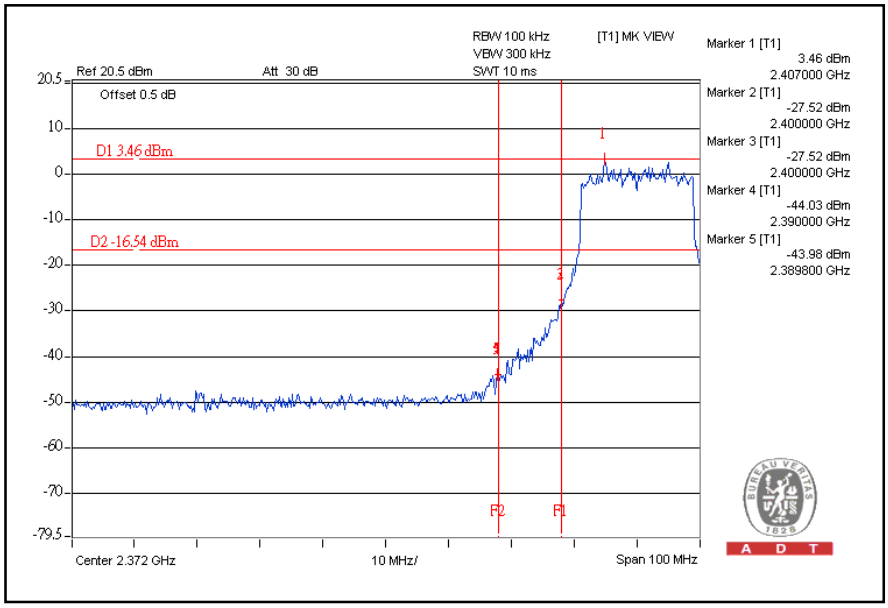

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.88 dBm
D2 -19.12 dBm
Marker 1 [T1]
-1.29 dBm
2.377180 GHz
Marker 2 [T1]
-42.18 dBm
21.753900 GHz
Marker 3 [T1]
-43.03 dBm
21.853780 GHz
Marker 4 [T1]
-43.05 dBm
21.654020 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

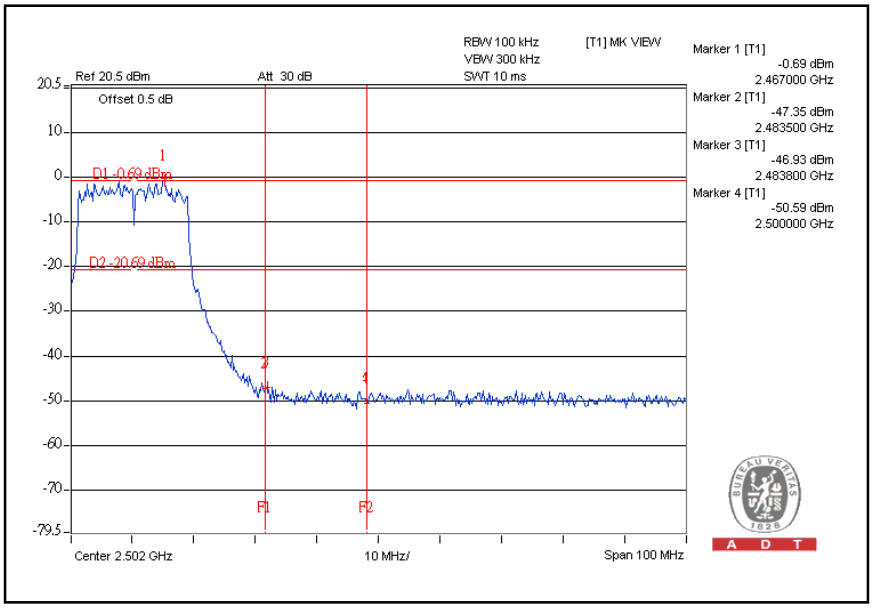

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.92 dBm
D2 -20.92 dBm
Marker 1 [T1]
-1.89 dBm
2.427120 GHz
Marker 2 [T1]
-43.13 dBm
21.654020 GHz
Marker 3 [T1]
-43.68 dBm
24.450660 GHz
Marker 4 [T1]
-44.02 dBm
21.903720 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

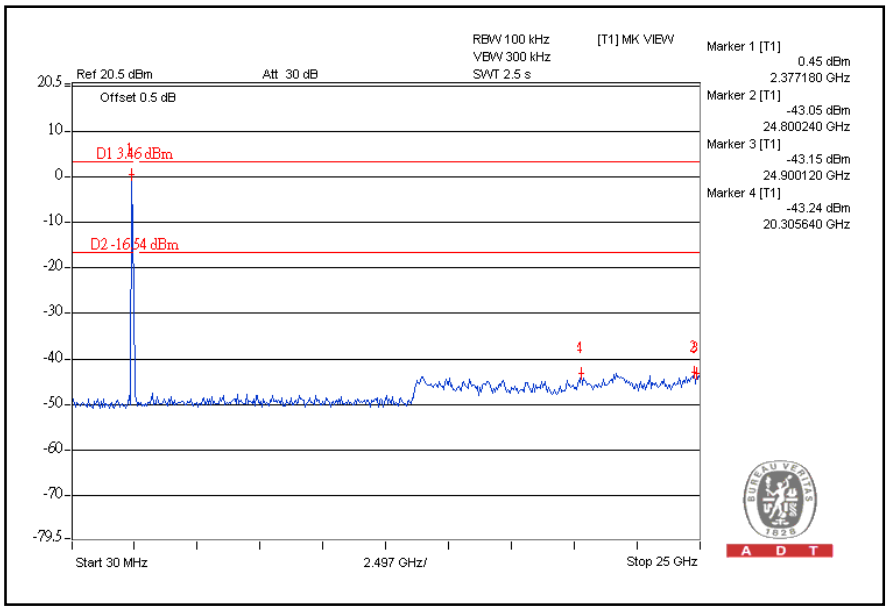
For Chain (0):CH1



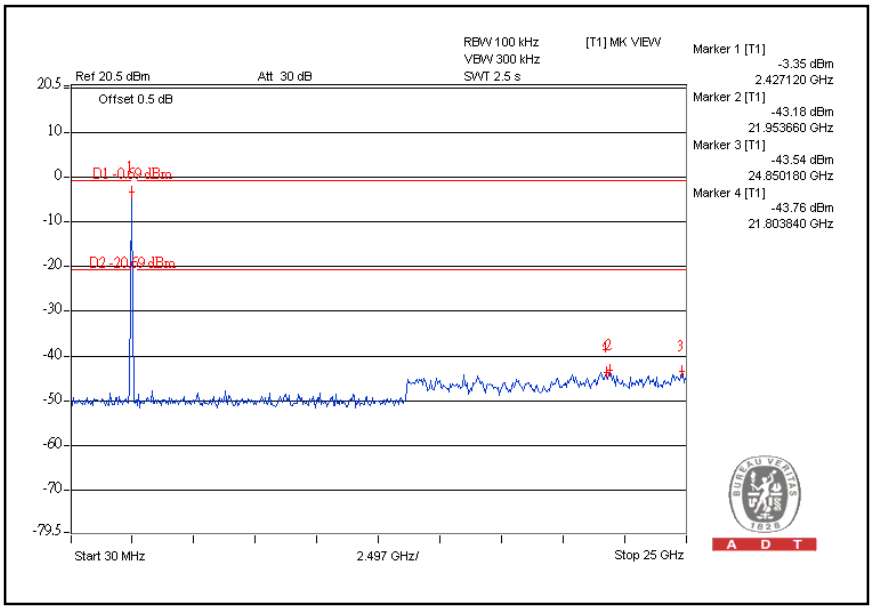
CH11



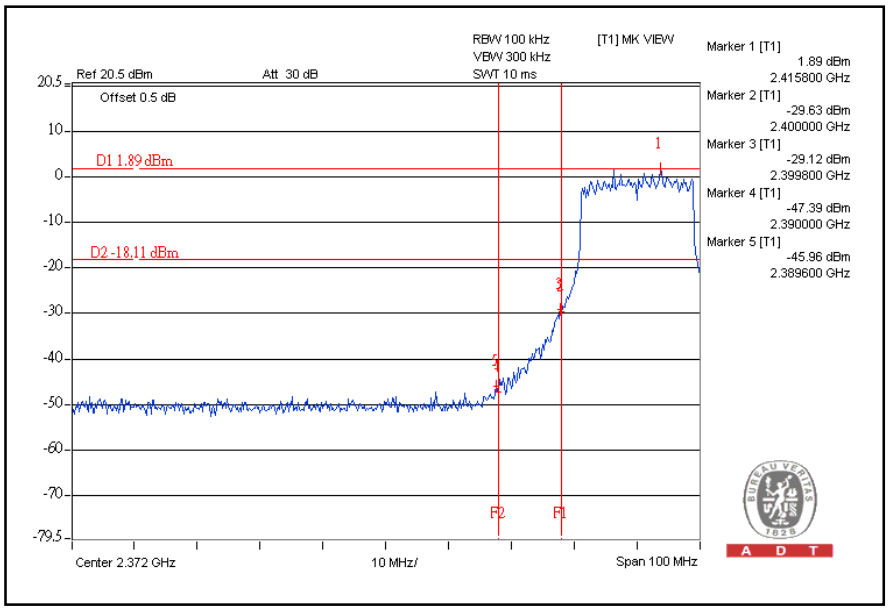
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3.46 dBm
D2 -16.54 dBm
Marker 1 [T1]
0.45 dBm
2.377180 GHz
Marker 2 [T1]
-43.05 dBm
24.800240 GHz
Marker 3 [T1]
-43.15 dBm
24.900120 GHz
Marker 4 [T1]
-43.24 dBm
20.305640 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

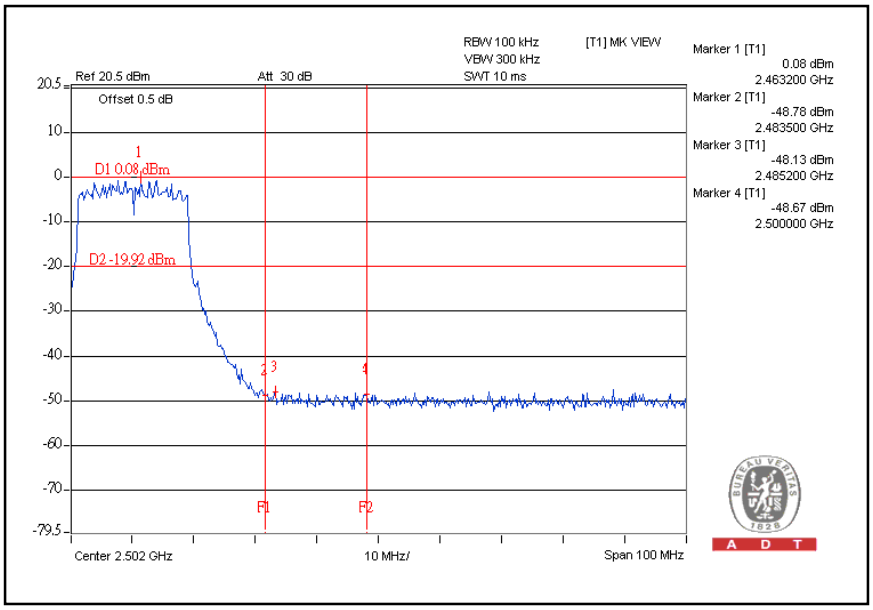
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.59 dBm
D2 -20.59 dBm
Marker 1 [T1]
-3.35 dBm
2.427120 GHz
Marker 2 [T1]
-43.18 dBm
21.953660 GHz
Marker 3 [T1]
-43.54 dBm
24.850180 GHz
Marker 4 [T1]
-43.76 dBm
21.803840 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

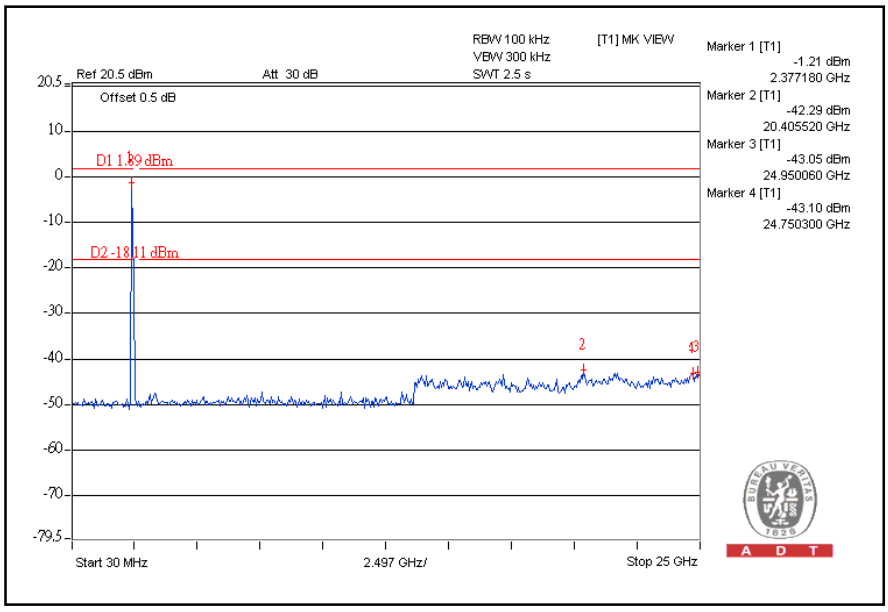
For Chain (1):CH1



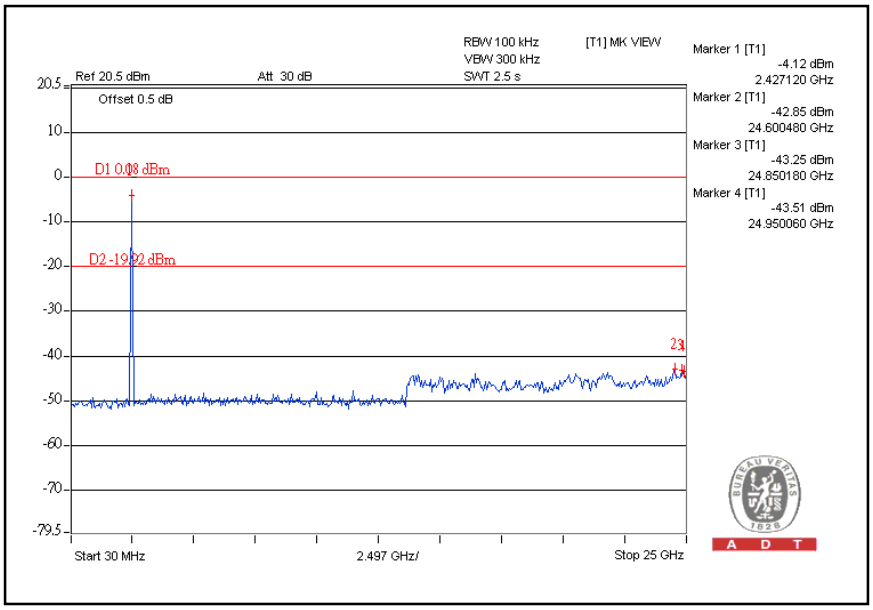
CH11



CH1

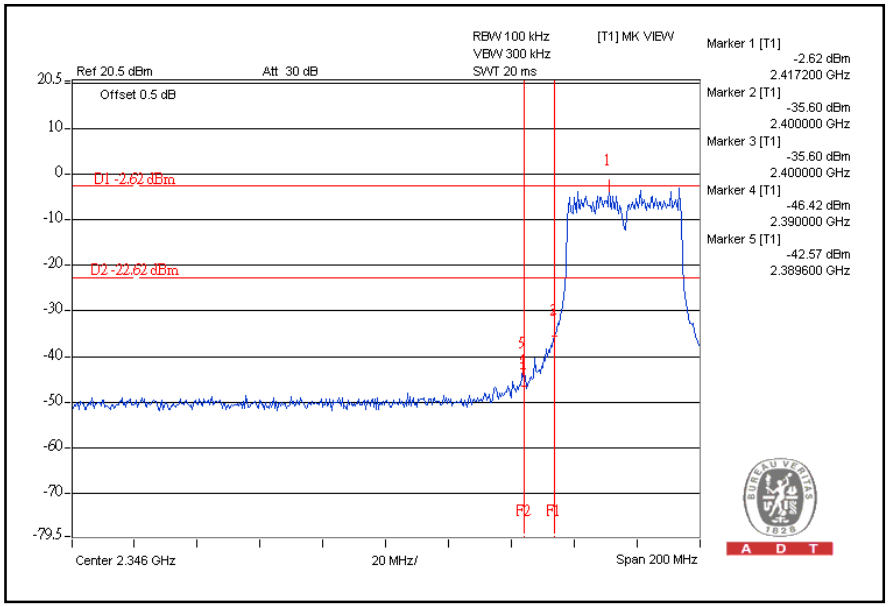

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-1.21 dBm
2.377180 GHz
Marker 2 [T1]
-42.29 dBm
20.405520 GHz
Marker 3 [T1]
-43.05 dBm
24.950060 GHz
Marker 4 [T1]
-43.10 dBm
24.750300 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 1.89 dBm
D2 -18.11 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

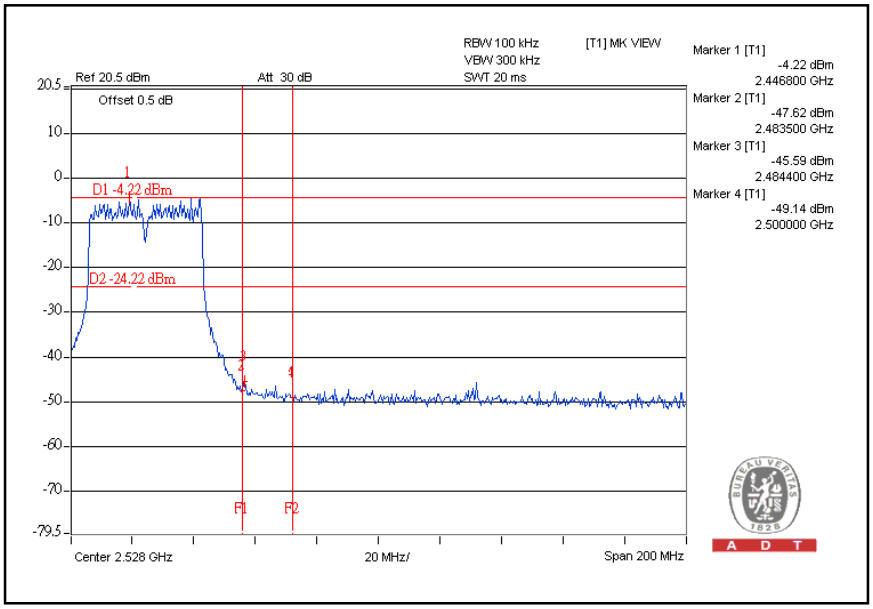

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-4.12 dBm
2.427120 GHz
Marker 2 [T1]
-42.85 dBm
24.600480 GHz
Marker 3 [T1]
-43.25 dBm
24.850180 GHz
Marker 4 [T1]
-43.51 dBm
24.950060 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.08 dBm
D2 -19.92 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

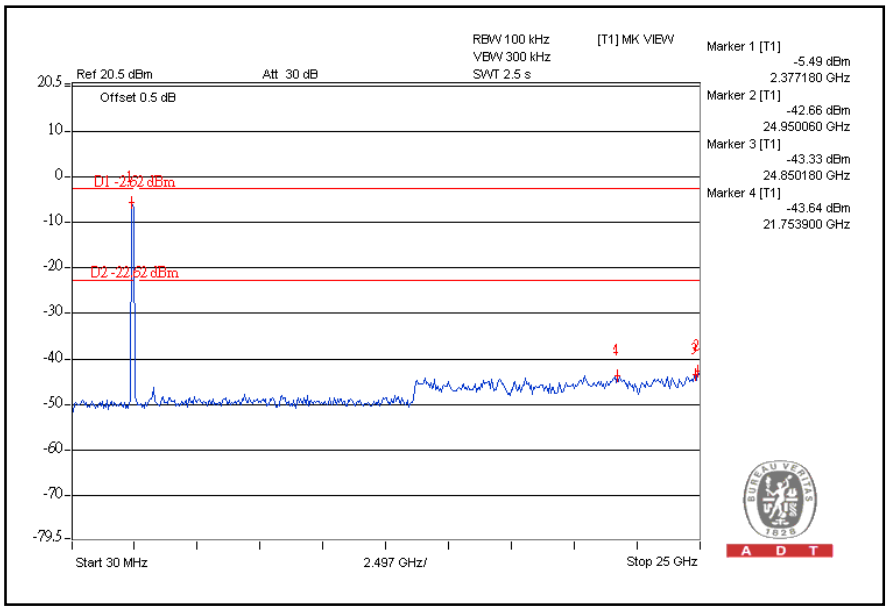
For Chain (0):CH1



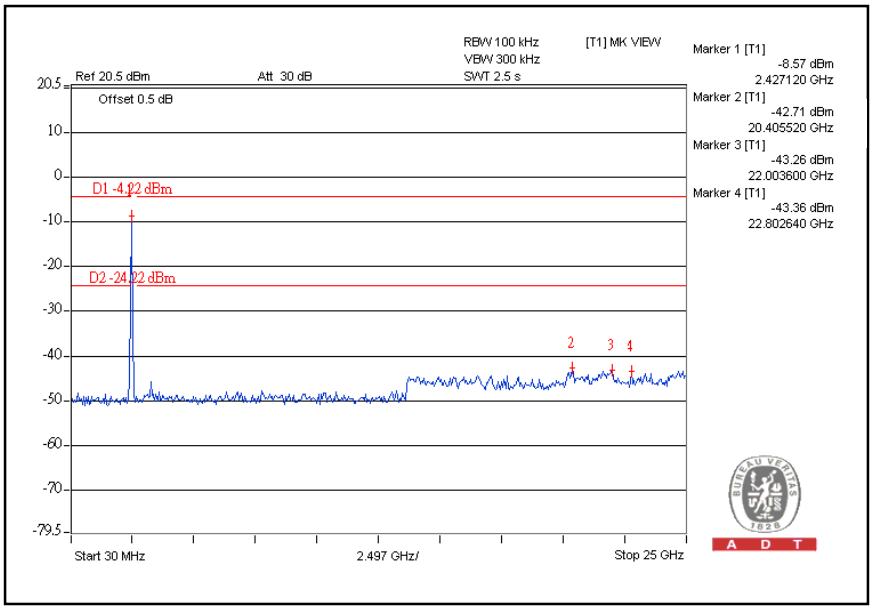
CH7



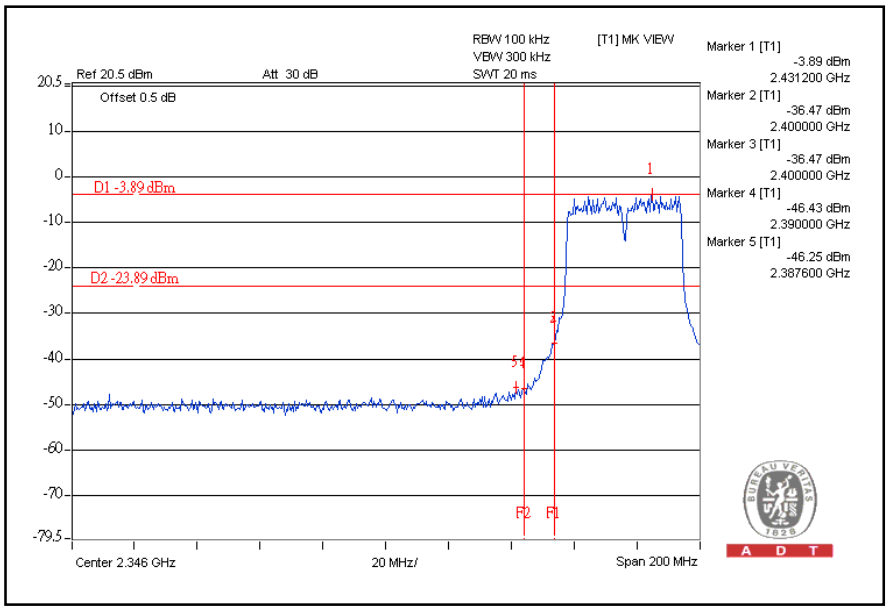
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -22.52 dBm
D2 -22.52 dBm
Marker 1 [T1]
-5.49 dBm
2.377180 GHz
Marker 2 [T1]
-42.66 dBm
24.950060 GHz
Marker 3 [T1]
-43.33 dBm
24.850180 GHz
Marker 4 [T1]
-43.64 dBm
21.753900 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

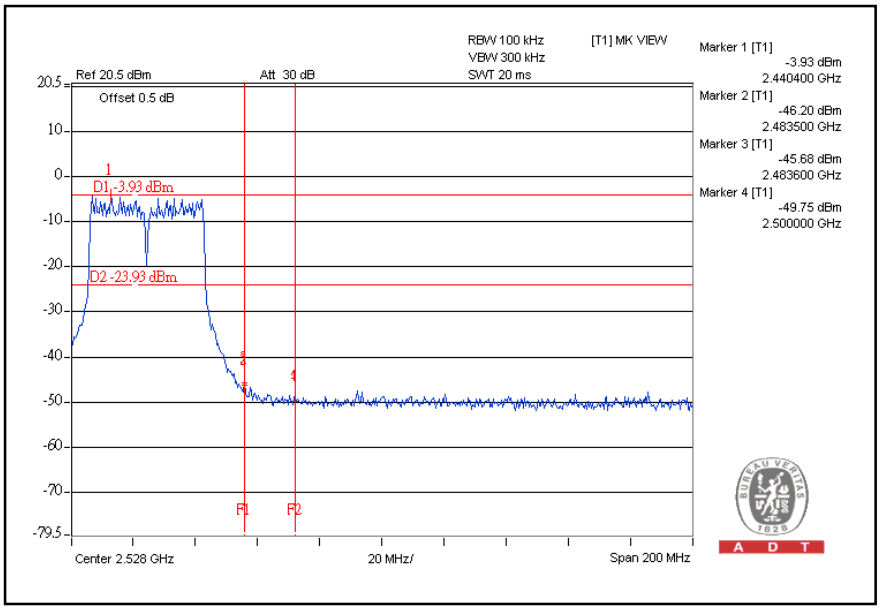
CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.22 dBm
D2 -24.22 dBm
Marker 1 [T1]
-8.57 dBm
2.427120 GHz
Marker 2 [T1]
-42.71 dBm
20.405520 GHz
Marker 3 [T1]
-43.26 dBm
22.003600 GHz
Marker 4 [T1]
-43.36 dBm
22.802640 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

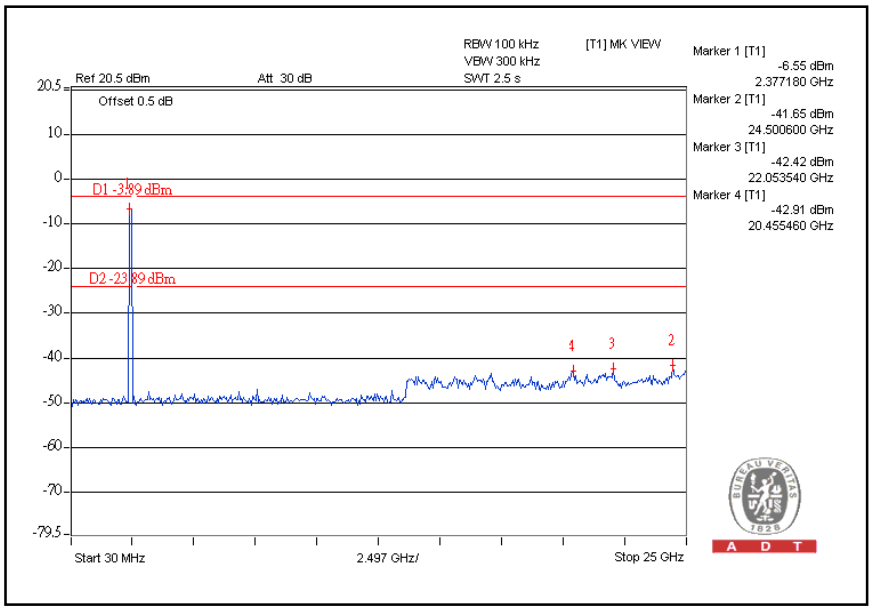
For Chain (1):CH1



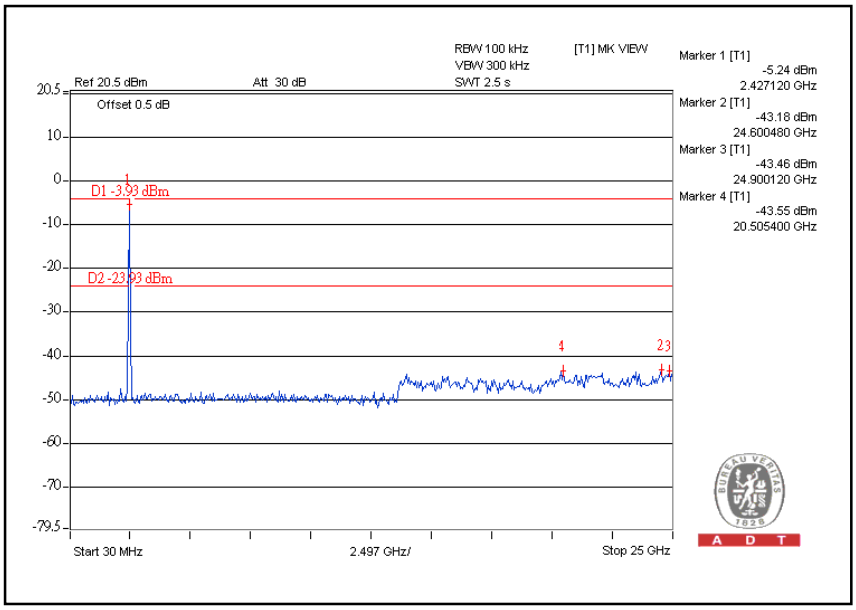
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -3.89 dBm
D2 -23.89 dBm
Marker 1 [T1]
-6.55 dBm
2.377180 GHz
Marker 2 [T1]
-41.65 dBm
24.500600 GHz
Marker 3 [T1]
-42.42 dBm
22.053540 GHz
Marker 4 [T1]
-42.91 dBm
20.455460 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -3.93 dBm
D2 -23.93 dBm
Marker 1 [T1]
-5.24 dBm
2.427120 GHz
Marker 2 [T1]
-43.18 dBm
24.600480 GHz
Marker 3 [T1]
-43.46 dBm
24.900120 GHz
Marker 4 [T1]
-43.55 dBm
20.505400 GHz
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

There are two set of antennas provided to this EUT, please refer to the following table:

<table>
<tr><td colspan="8">Antenna Set 1 (Internal antenna):</td></tr>
<tr><td>Transmitter Circuit</td><td>Manufacture</td><td>Antenna Model</td><td>For 2.4GHz Gain (dBi)</td><td>For 5GHz Gain (dBi)</td><td>Antenna Type</td><td colspan="2">Connector</td></tr>
<tr><td>Chain(0)</td><td>SmartAnt Telecom Co., Ltd.</td><td>DWL08-220190</td><td>8</td><td>10</td><td>PCB</td><td colspan="2">MMCX R/A plug</td></tr>
<tr><td>Chain (1)</td><td>SmartAnt Telecom Co., Ltd.</td><td>DWL08-220190</td><td>8</td><td>10</td><td>PCB</td><td colspan="2">MMCX R/A plug</td></tr>
<tr><td colspan="8">Antenna Set 2 (External antenna):</td></tr>
<tr><td>Transmitter Circuit</td><td>Manufacture</td><td>Antenna Model</td><td>Antenna Gain</td><td>Only 2.4GHz</td><td>Antenna Type</td><td colspan="2">Connector</td></tr>
<tr><td rowspan="4">Chain(0)</td><td rowspan="4">SmartAnt Telecom Co., Ltd.</td><td rowspan="4">ANT24-0800 (DWL07-050660)</td><td>Gain (dBi)</td><td>8</td><td rowspan="4">DIPOLE</td><td colspan="2" rowspan="4">N-jack</td></tr>
<tr><td>Cable Loss (dB)</td><td>3</td></tr>
<tr><td>Net Gain (dBi)</td><td>5</td></tr>
<tr><td>Cable length (m)</td><td>6</td></tr>
<tr><td rowspan="4">Chain(1)</td><td rowspan="4">SmartAnt Telecom Co., Ltd.</td><td rowspan="4">ANT24-0800 (DWL07-050660)</td><td>Gain (dBi)</td><td>8</td><td rowspan="4">DIPOLE</td><td colspan="2" rowspan="4">N-jack</td></tr>
<tr><td>Cable Loss (dB)</td><td>3</td></tr>
<tr><td>Net Gain (dBi)</td><td>5</td></tr>
<tr><td>Cable length (m)</td><td>6</td></tr>
<tr><td colspan="8">Note: While EUT connect with antenna set 2, the function of antenna set 1 were lose.</td></tr>
</table>