FCC TEST REPORT

REPORT NO.: RF960829H03B
MODEL NO.: SMCWUSBS-N2
RECEIVED: Aug. 29, 2007
TESTED: Sep. 07 to 14, 2007
ISSUED: Oct. 11, 2007

APPLICANT: Arcadyan Technology Corporation

ADDRESS: 4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

Testing Laboratory 0536

No. 2177-01

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1. CERTIFICATION

PRODUCT :	Draft 11n Wireless USB2.0 Adapter
MODEL NO.:	SMCWUSBS-N2
BRAND:	SMC
APPLICANT :	Arcadyan Technology Corporation
TESTED:	Sep. 07 to 14, 2007
TEST SAMPLE:	R&D SAMPLE
STANDARDS :	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: SMCWUSBS-N2) has been tested by **Advance Data Technology Corporation**, 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 : Claire Kuan , **DATE:** Oct. 11, 2007
(Claire Kuan, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Oct. 11, 2007
Responsible for RF
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Oct. 11, 2007
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –15.24dB at 0.177MHz.
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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –0.26dB 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.

3.1 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	2.41 dB
Radiated emissions (30MHz-1GHz)	3.89 dB
Radiated emissions (1GHz -18GHz)	2.21 dB
Radiated emissions (18GHz -40GHz)	1.88 dB

3. GENERAL INFORMATION

3.2 GENERAL DESCRIPTION OF EUT

PRODUCT	Draft 11n Wireless USB2.0 Adapter
MODEL NO.	SMCWUSBS-N2
FCC ID	RAXWN7512A
POWER SUPPLY	DC 5V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/ 5.5/ 2/ 1Mbps 802.11g: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps Draft 802.11n (20MHz): 65/58.5/52/39/26/19.5/13/6.5Mbps Draft 802.11n (40MHz): 135/121.5/108/81/54/40.5/27/13.5Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 58.884mW 802.11g: 56.234mW draft 802.11n (20MHz): 57.544mW draft 802.11n (40MHz): 52.481mW
ANTENNA TYPE	Please see note 1 (on next page)
DATA CABLE	NA
ASSOCIATED DEVICES	NA

NOTE:

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

No.	Antenna Type	Gain (dBi)	Antenna Connector
1	PCB	2.03	NA
2	PCB	2.03	NA

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

3. The EUT is 1 * 2 spatial MIMO without beam forming function. The antenna configuration is one transmitter antenna and two receiver antennas, as there are 2 PCB antennas. Spatial multiplexing modes for simultaneous transmission using 1 antenna, and for simultaneous receiver using 2 antennas.

4. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.

5. The EUT operates in the 2.4GHz frequency spectrum with data rate up to 135Mbps.

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

3.3 DESCRIPTION OF TEST MODES

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		

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	-

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

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

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	DSSS	CCK	1
Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 11	1	OFDM	BPSK	13.5

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)
Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	6.5

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)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

BANDEDGE MEASUREMENT:

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

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

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

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

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

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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

3.5 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.

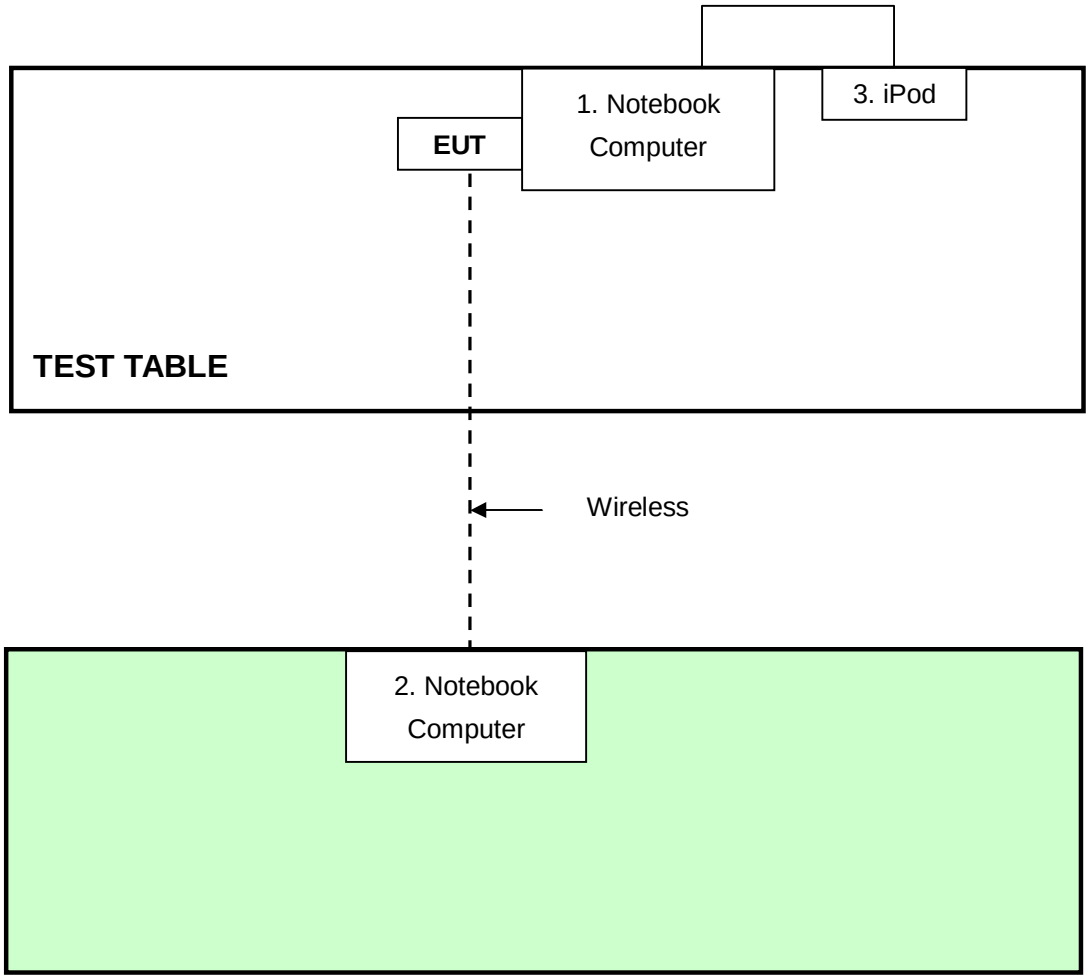
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5 CA-0448	PIW632500516610
2	NOTEBOOK COMPUTER (Only for conducted test)	DELL	PP21L	CN-0GD366-70166-5B 3-09ZX	QDS-BRCM1016
3	iPod	Apple	A1137	5K7170JBUPR	NA

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

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

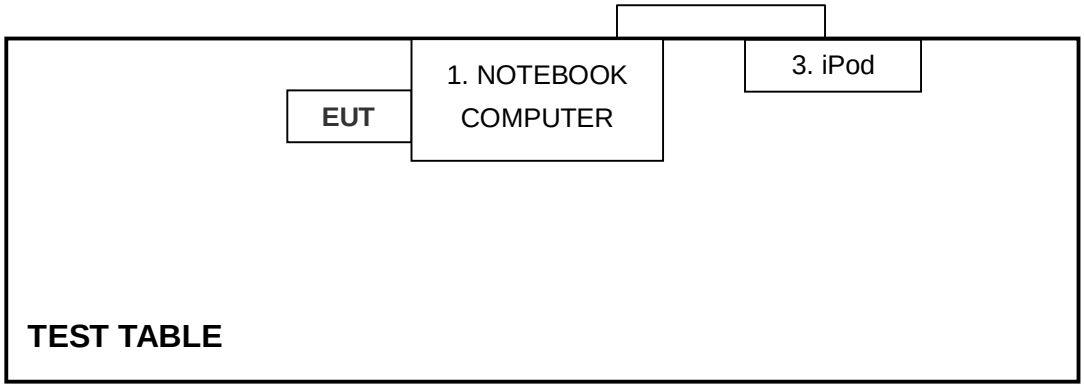
3.6 CONFIGURATION OF SYSTEM UNDER TEST

For conducted test :



NOTE: 1. Support unit 2 was kept in the control room during the test.

For Radiated test :



4. TEST TYPES AND RESULTS

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 UNTIL
Test Receiver	ESCS 30	847124/029	Mar. 28, 2008
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2007
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2007
Software	ADT_Cond_V7.3.2	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 ADT Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

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.

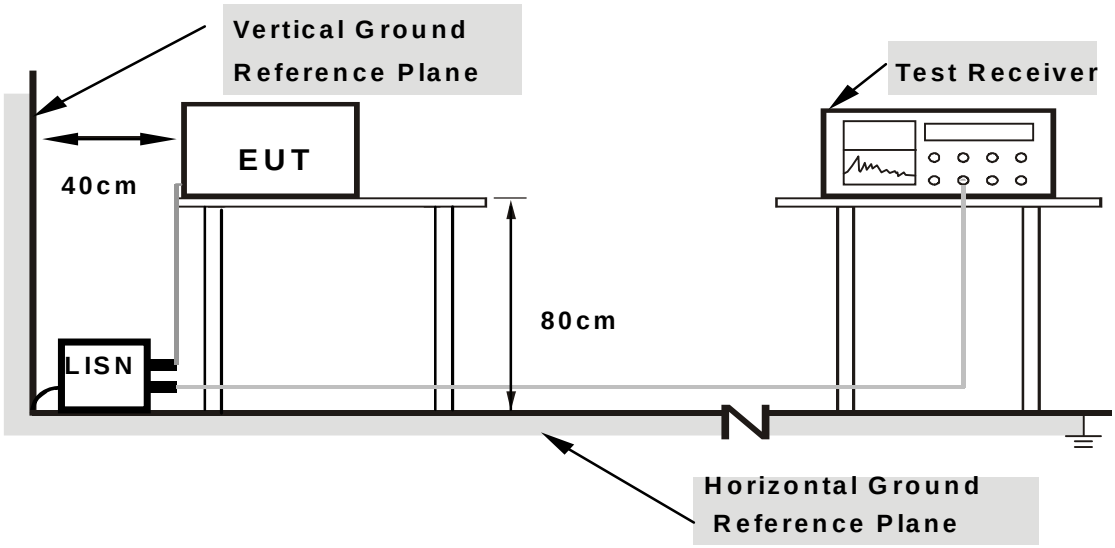
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was 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

a. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table.

b. Prepared other computer system (support unit 2) to act as a communication partner and placed it outside of testing area.

c. The Notebook computer runs test program “RT2870 .exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency via wireless.

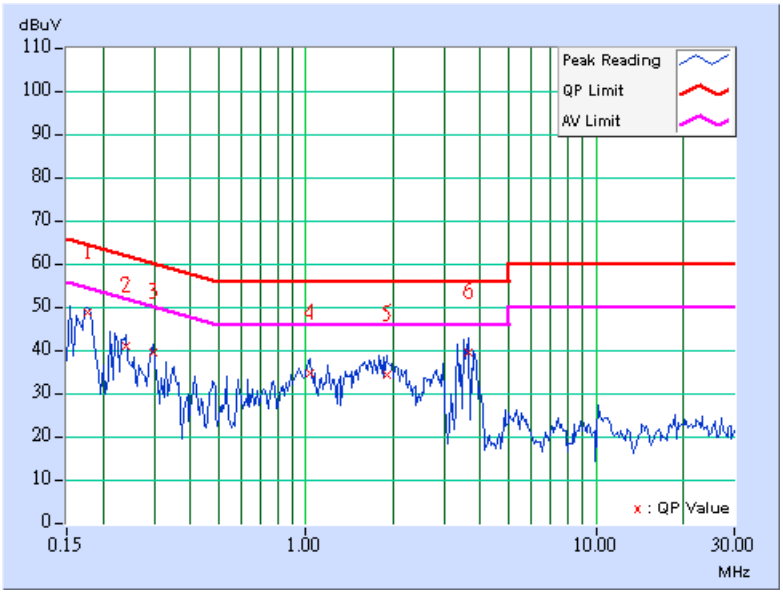
4.1.7 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	CCK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	TESTED BY	Tony Chen

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	0.177	0.40	48.24	-	48.64	-	64.61	54.61	-15.97	-
2	0.240	0.40	40.49	-	40.89	-	62.10	52.10	-21.21	-
3	0.298	0.40	39.20	-	39.60	-	60.29	50.29	-20.69	-
4	1.029	0.40	34.09	-	34.49	-	56.00	46.00	-21.51	-
5	1.904	0.49	34.03	-	34.52	-	56.00	46.00	-21.48	-
6	3.621	0.58	39.05	-	39.63	-	56.00	46.00	-16.37	-

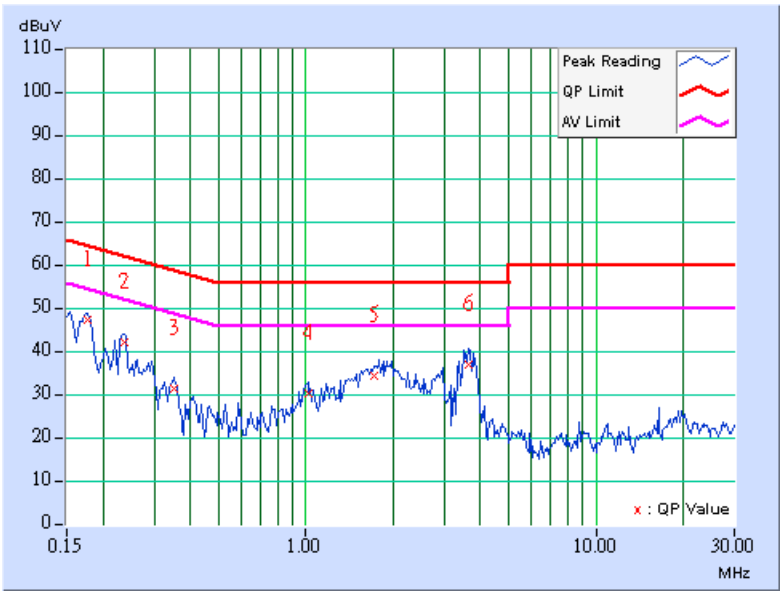
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	CCK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	TESTED BY	Tony Chen

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	0.176	0.20	46.79	-	46.99	-	64.67	54.67	-17.68	-
2	0.236	0.20	41.57	-	41.77	-	62.24	52.24	-20.47	-
3	0.349	0.20	30.84	-	31.04	-	58.98	48.98	-27.94	-
4	1.017	0.30	29.98	-	30.28	-	56.00	46.00	-25.72	-
5	1.728	0.37	34.00	-	34.37	-	56.00	46.00	-21.63	-
6	3.621	0.48	36.47	-	36.95	-	56.00	46.00	-19.05	-

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.

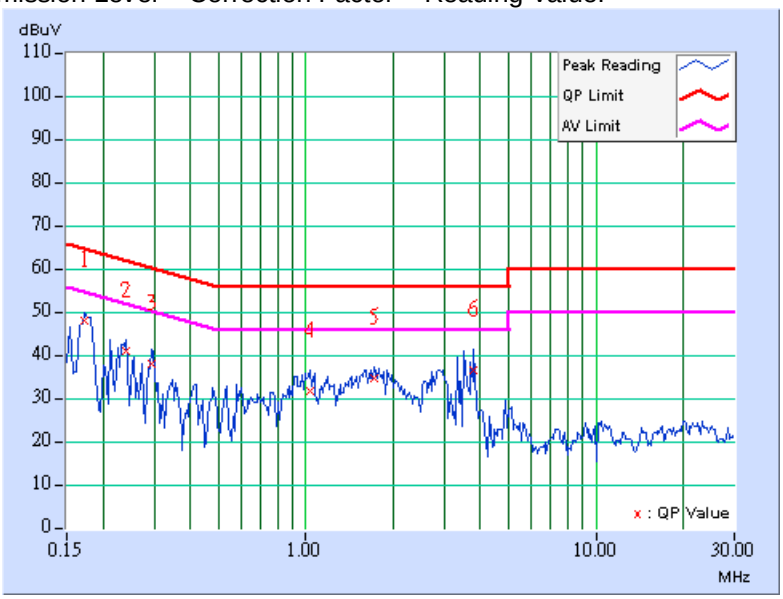


DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.5Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	TESTED BY	Tony Chen

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	0.173	0.40	47.38	-	47.78	-	64.79	54.79	-17.01	-
2	0.240	0.40	40.37	-	40.77	-	62.10	52.10	-21.33	-
3	0.295	0.40	37.73	-	38.13	-	60.40	50.40	-22.27	-
4	1.029	0.40	31.19	-	31.59	-	56.00	46.00	-24.41	-
5	1.728	0.47	34.40	-	34.87	-	56.00	46.00	-21.13	-
6	3.805	0.59	36.16	-	36.75	-	56.00	46.00	-19.25	-

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.5Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	TESTED BY	Tony Chen

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	0.177	0.20	47.02	-	47.22	-	64.61	54.61	-17.39	-
2	0.235	0.20	41.23	-	41.43	-	62.28	52.28	-20.85	-
3	1.013	0.30	27.94	-	28.24	-	56.00	46.00	-27.76	-
4	1.904	0.39	32.98	-	33.37	-	56.00	46.00	-22.63	-
5	3.578	0.48	35.70	-	36.18	-	56.00	46.00	-19.82	-
6	18.559	1.27	17.11	-	18.38	-	60.00	50.00	-41.62	-

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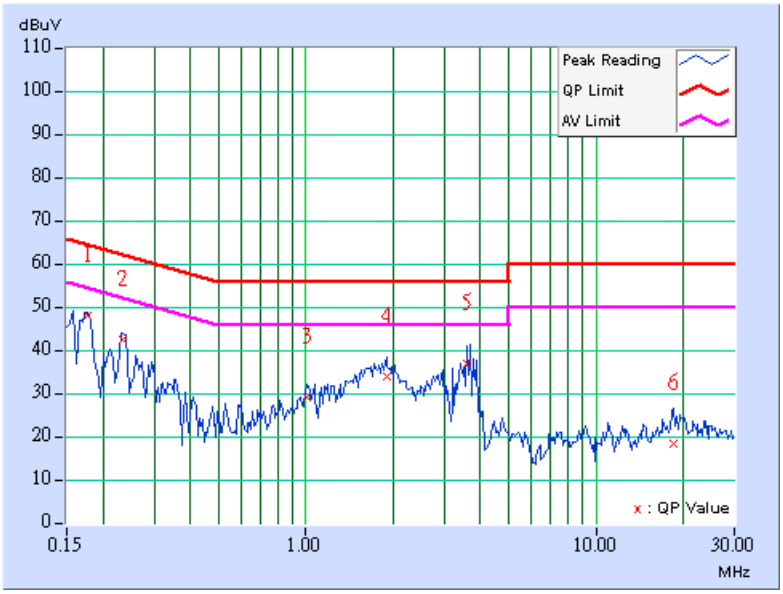
6. Emission Level = Correction Factor + Reading Value.

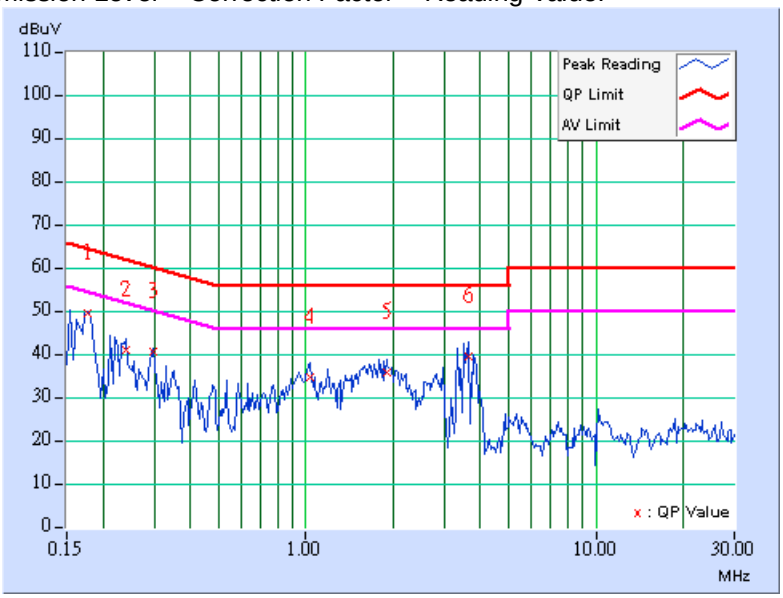


DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**PHASE**	Line (L)
MODULATION TYPE	BPSK	**6dB BANDWIDTH**	9 kHz
TRANSFER RATE	13.5Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	**TESTED BY**	Tony Chen

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	**0.177**	**0.40**	**48.97**	**-**	**49.37**	**-**	**64.61**	**54.61**	**-15.24**	**-**
2	0.240	0.40	40.49	-	40.89	-	62.10	52.10	-21.21	-
3	0.298	0.40	40.28	-	40.68	-	60.29	50.29	-19.61	-
4	1.029	0.40	34.09	-	34.49	-	56.00	46.00	-21.51	-
5	1.904	0.49	35.24	-	35.73	-	56.00	46.00	-20.27	-
6	3.621	0.58	39.05	-	39.63	-	56.00	46.00	-16.37	-

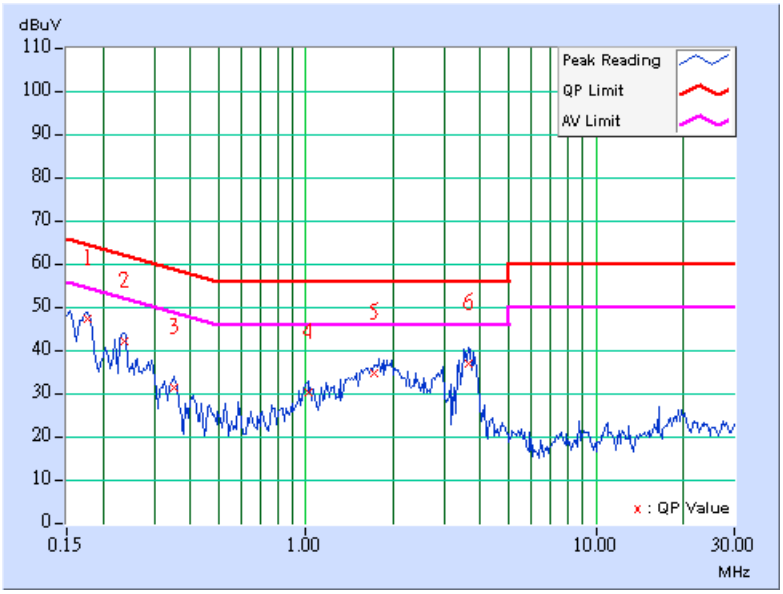
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13.5Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 960hPa	TESTED BY	Tony Chen

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	0.176	0.20	46.87	-	47.07	-	64.67	54.67	-17.60	-
2	0.236	0.20	41.57	-	41.77	-	62.24	52.24	-20.47	-
3	0.349	0.20	30.87	-	31.07	-	58.98	48.98	-27.91	-
4	1.017	0.30	29.98	-	30.28	-	56.00	46.00	-25.72	-
5	1.728	0.37	34.27	-	34.64	-	56.00	46.00	-21.36	-
6	3.621	0.48	36.47	-	36.95	-	56.00	46.00	-19.05	-

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 UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2008
HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Sep. 20, 2007
CHASE Broadband Antenna	VULB 9168	138	July 26, 2008
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 25, 2008
TRILOG Broad Band Antenna	VULB 9168	138	July 26, 2008
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14. 2007
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.7	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	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 ADT 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 4824A-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 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

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

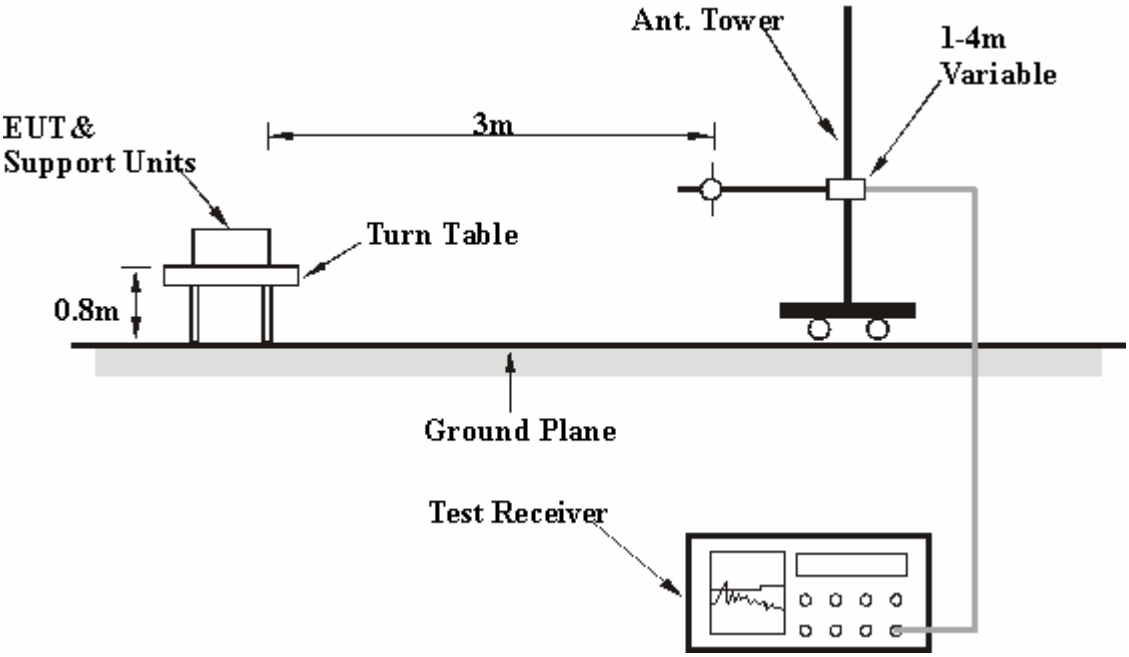
NOTE:

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

4.2.4 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

a. Connect the EUT with the support unit 1 (Notebook computer) and placed it on the testing table.

b. The support unit 1 (Notebook computer) ran a test program “RT2870.exe” to enable EUT under transmission condition continuously.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	Below 1000MHz
MODULATION TYPE	BPSK for draft 802.11n (20MHz)	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	32deg. C, 65%RH, 960hPa	**TESTED BY**	Phoenix 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	80.15	25.95 QP	40.00	-14.05	1.36 H	284	15.42	10.53
2	200.90	35.08 QP	43.50	-8.42	1.00 H	356	22.63	12.45
3	240.00	36.99 QP	46.00	-9.01	1.00 H	1	23.80	13.19
4	360.00	41.88 QP	46.00	-4.12	1.00 H	47	24.50	17.38
5	479.98	43.03 QP	46.00	-2.97	1.63 H	21	22.00	21.03
6	599.96	35.71 QP	46.00	-10.29	1.46 H	1	11.40	24.31
7	719.97	43.09 QP	46.00	-2.91	1.00 H	20	16.82	26.27
8	799.85	41.64 QP	46.00	-4.36	1.47 H	54	12.97	28.67
9	840.20	40.54 QP	46.00	-5.46	1.00 H	325	11.62	28.92
10	959.95	37.95 QP	46.00	-8.05	1.00 H	301	8.00	29.95

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	80.30	35.49 QP	40.00	-4.51	1.00 V	14	24.98	10.51
2	117.99	32.00 QP	43.50	-11.50	1.00 V	350	19.08	12.92
3	209.43	34.65 QP	43.50	-8.85	1.00 V	1	22.04	12.61
4	360.00	31.09 QP	46.00	-14.91	1.95 V	34	13.71	17.38
5	479.98	39.34 QP	46.00	-6.66	1.39 V	347	18.31	21.03
6	719.97	38.06 QP	46.00	-7.94	1.54 V	1	11.79	26.27
7	799.81	43.97 QP	46.00	-2.03	1.05 V	19	15.30	28.67
8	840.20	38.90 QP	46.00	-7.10	1.48 V	31	9.98	28.92

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.

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	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	2386.00	57.39 PK	74.00	-16.61	1.25 H	26	27.09	30.30
2	2386.00	44.79 AV	54.00	-9.21	1.25 H	26	14.49	30.30
3	*2412.00	102.30 PK			1.25 H	26	71.89	30.41
4	*2412.00	97.80 AV			1.25 H	26	67.39	30.41
5	4824.00	56.20 PK	74.00	-17.80	1.55 H	1	20.41	35.79
6	4824.00	53.60 AV	54.00	-0.40	1.55 H	1	17.81	35.79
7	7236.00	53.40 PK	74.00	-20.60	1.24 H	39	11.80	41.60
8	7236.00	40.20 AV	54.00	-13.80	1.24 H	39	-1.40	41.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.31 PK	74.00	-13.69	1.38 V	189	29.99	30.32
2	2390.00	49.90 AV	54.00	-4.10	1.38 V	189	19.58	30.32
3	*2412.00	106.70 PK			1.38 V	187	76.29	30.41
4	*2412.00	102.20 AV			1.38 V	187	71.79	30.41
5	4824.00	54.80 PK	74.00	-19.20	1.21 V	23	19.01	35.79
6	4824.00	51.30 AV	54.00	-2.70	1.21 V	23	15.51	35.79
7	7236.00	53.20 PK	74.00	-20.80	1.19 V	351	11.60	41.60
8	7236.00	40.10 AV	54.00	-13.90	1.19 V	351	-1.50	41.60

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	1Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**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	103.00 PK			1.25 H	27	72.48	30.52
2	*2437.00	98.50 AV			1.25 H	27	67.98	30.52
3	4874.00	56.30 PK	74.00	-17.70	1.57 H	332	20.38	35.92
4	4874.00	53.60 AV	54.00	-0.40	1.57 H	332	17.68	35.92
5	7311.00	53.40 PK	74.00	-20.60	1.22 H	43	11.59	41.81
6	7311.00	40.00 AV	54.00	-14.00	1.22 H	43	-1.81	41.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	107.00 PK			1.37 V	187	76.48	30.52
2	*2437.00	102.60 AV			1.37 V	187	72.08	30.52
3	4874.00	54.60 PK	74.00	-19.40	1.18 V	23	18.68	35.92
4	4874.00	51.40 AV	54.00	-2.60	1.18 V	23	15.48	35.92
5	7311.00	53.60 PK	74.00	-20.40	1.15 V	342	11.79	41.81
6	7311.00	40.50 AV	54.00	-13.50	1.15 V	342	-1.31	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	1Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

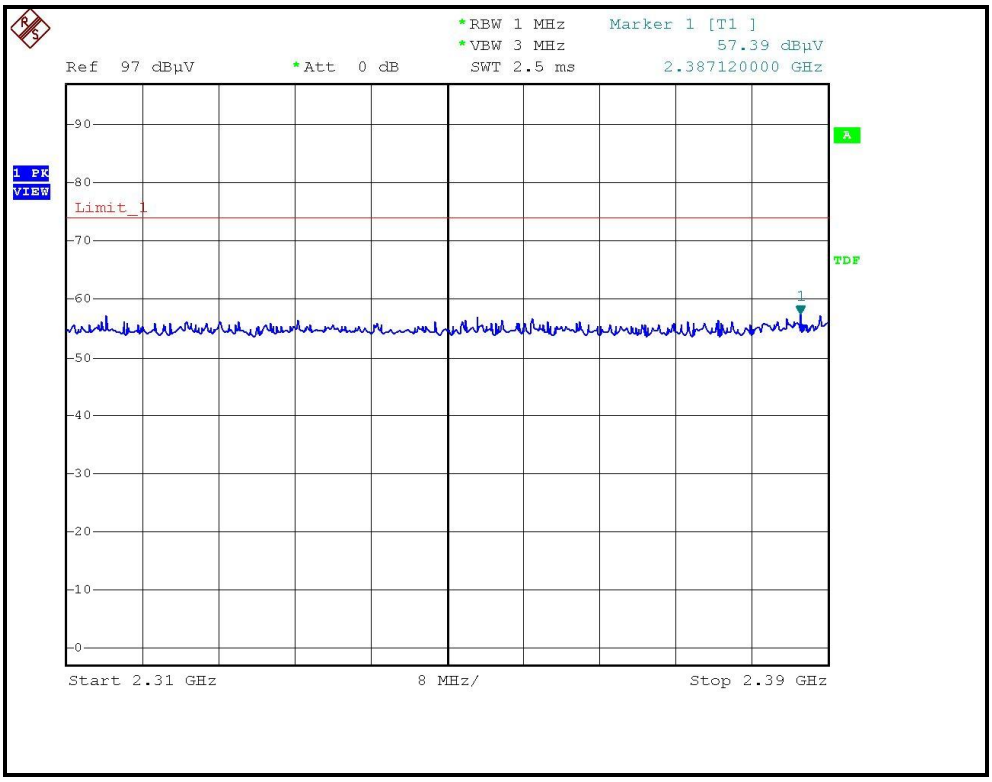
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	102.40 PK			1.26 H	27	71.77	30.63
2	*2462.00	97.90 AV			1.26 H	27	67.27	30.63
3	2483.50	57.36 PK	74.00	-16.64	1.26 H	27	26.64	30.72
4	2483.50	44.89 AV	54.00	-9.11	1.26 H	27	14.17	30.72
5	4924.00	56.10 PK	74.00	-17.90	1.38 H	333	20.04	36.06
6	4924.00	53.50 AV	54.00	-0.50	1.38 H	333	17.44	36.06
7	7386.00	53.30 PK	74.00	-20.70	1.21 H	44	11.29	42.01
8	7386.00	40.10 AV	54.00	-13.90	1.21 H	44	-1.91	42.01

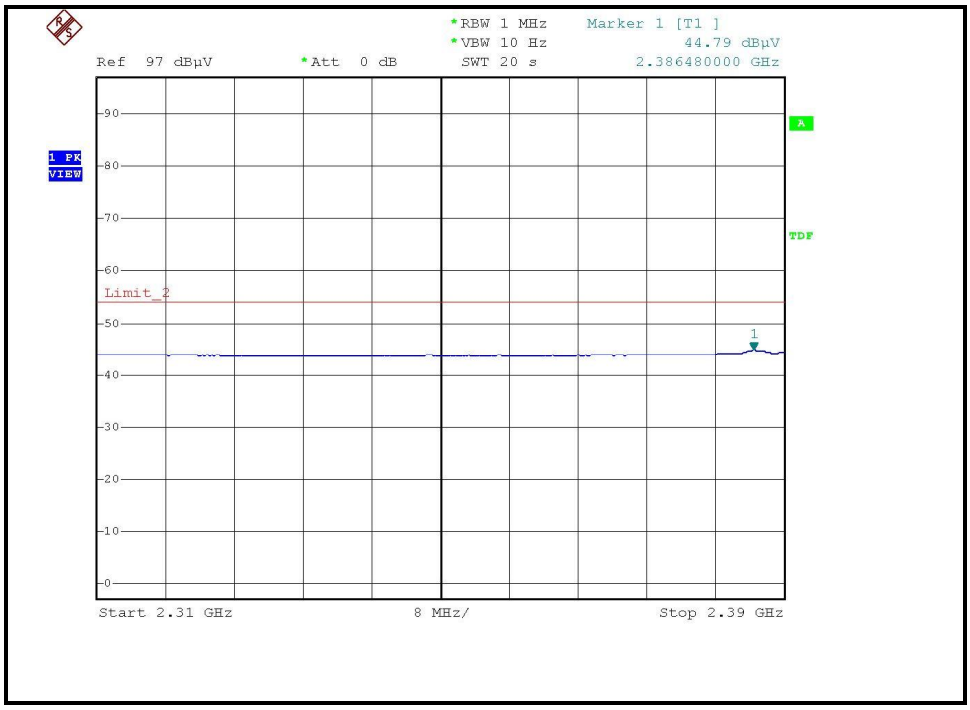
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	107.60 PK			1.37 V	347	76.97	30.63
2	*2462.00	103.10 AV			1.37 V	347	72.47	30.63
3	2483.50	59.18 PK	74.00	-14.82	1.35 V	346	28.46	30.72
4	2483.50	46.73 AV	54.00	-7.27	1.35 V	346	16.01	30.72
5	4924.00	55.40 PK	74.00	-18.60	1.17 V	5	19.34	36.06
6	4924.00	52.30 AV	54.00	-1.70	1.17 V	5	16.24	36.06
7	7386.00	53.40 PK	74.00	-20.60	1.17 V	340	11.39	42.01
8	7386.00	40.10 AV	54.00	-13.90	1.17 V	340	-1.91	42.01

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)





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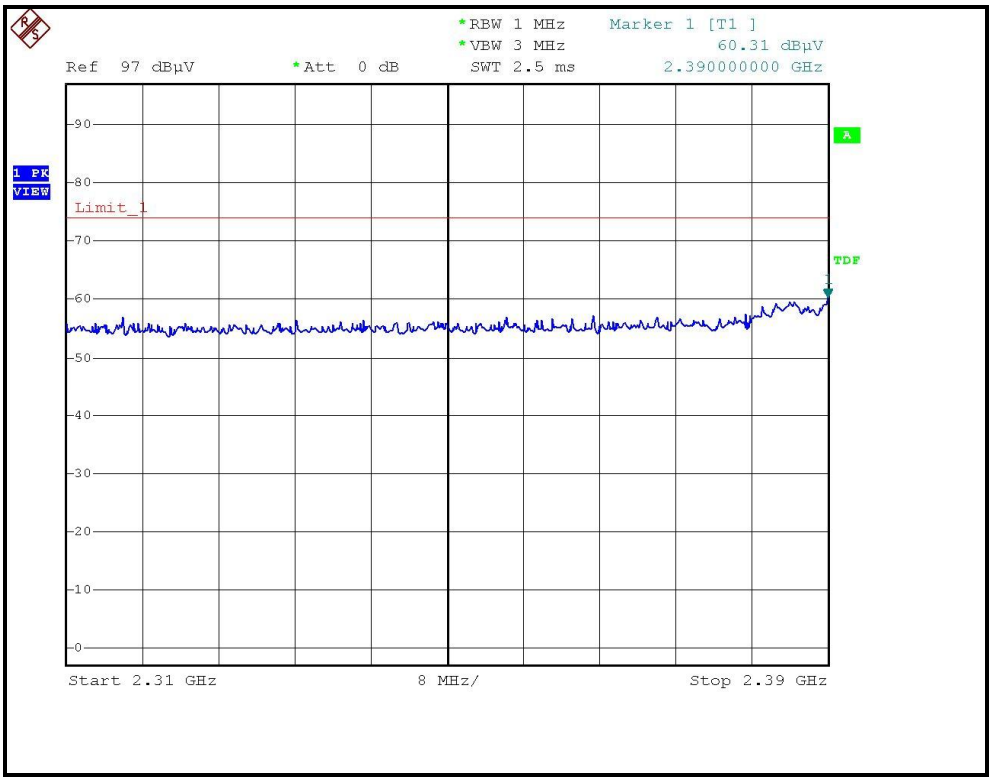
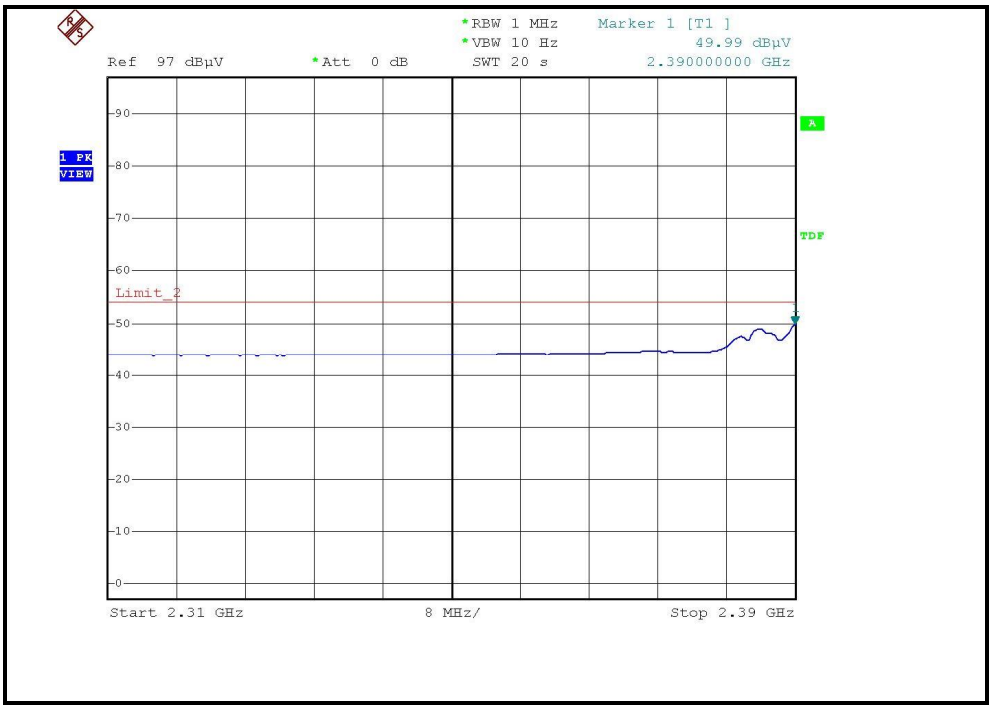
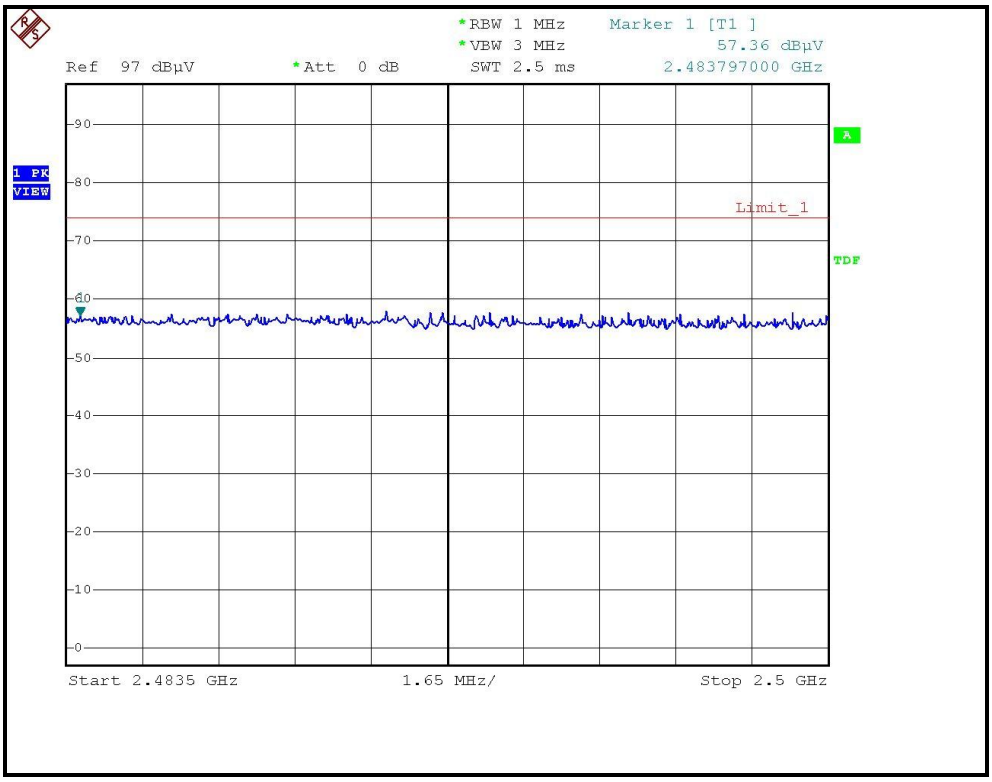
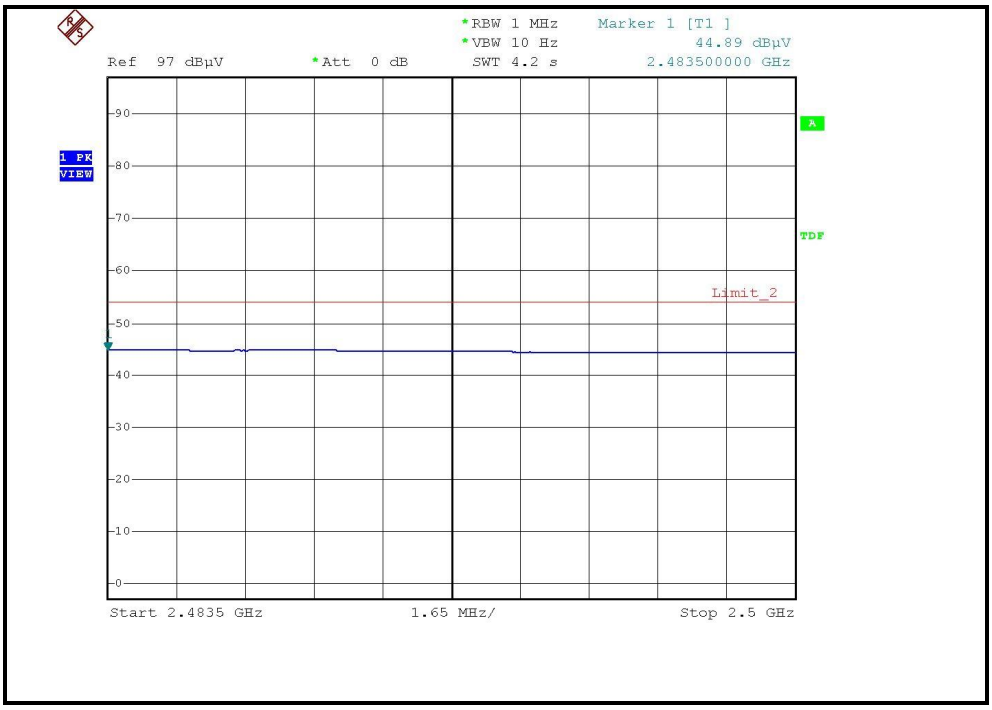




RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





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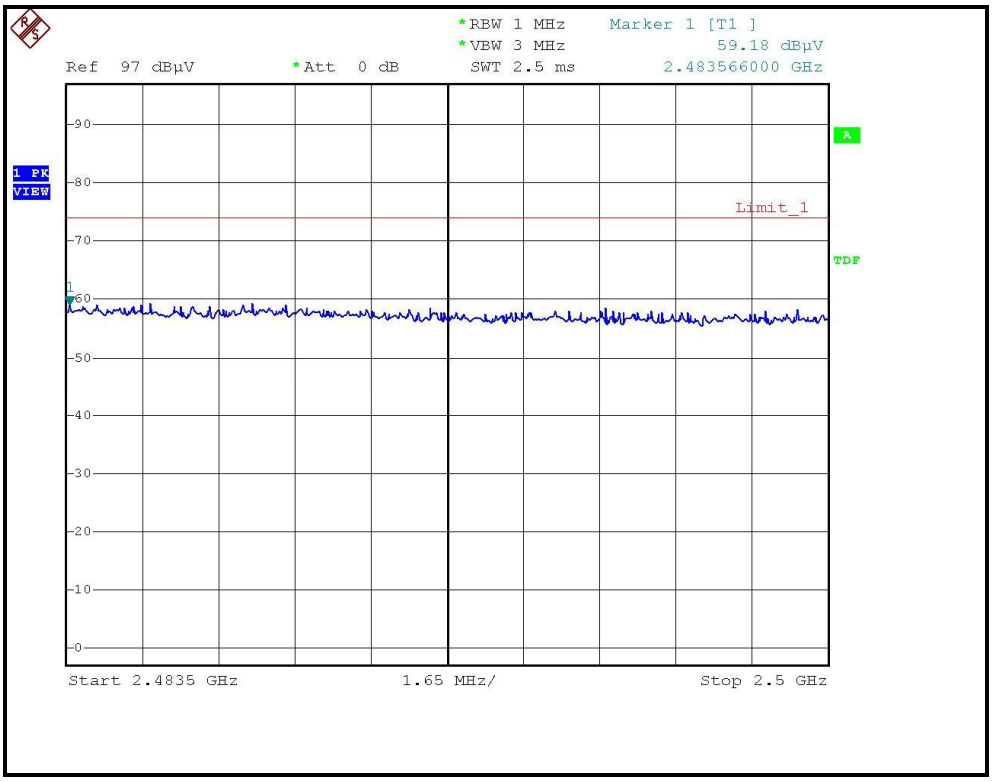
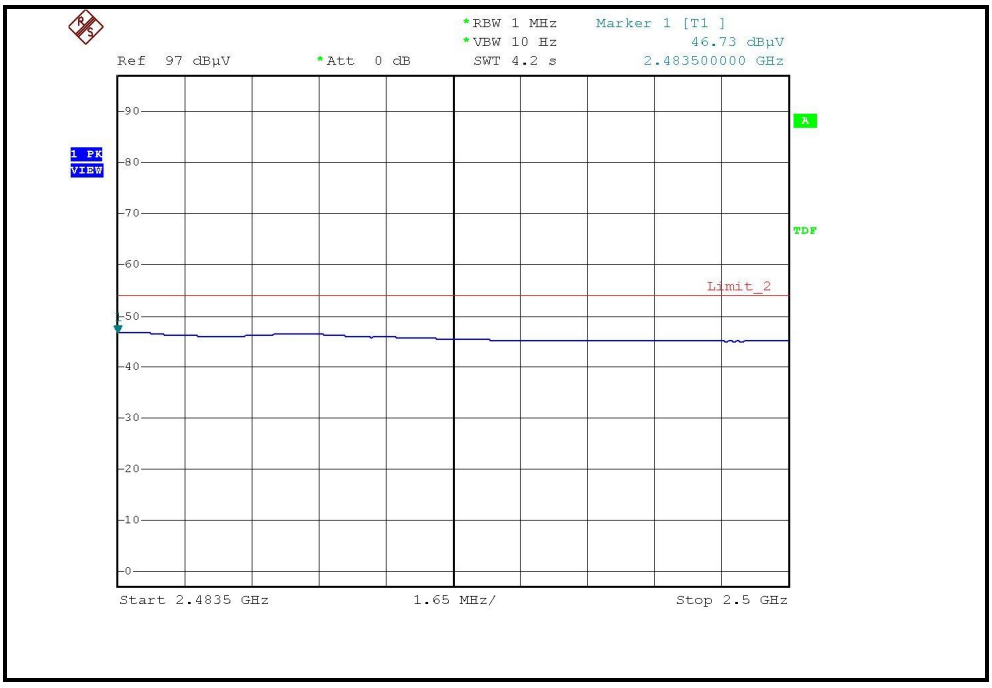




802.11g OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	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	66.96 PK	74.00	-7.04	1.24 H	26	36.64	30.32
2	2390.00	48.22 AV	54.00	-5.78	1.24 H	26	17.90	30.32
3	*2412.00	102.80 PK			1.24 H	26	72.39	30.41
4	*2412.00	92.20 AV			1.24 H	26	61.79	30.41
5	4824.00	53.40 PK	74.00	-20.60	1.55 H	359	17.61	35.79
6	4824.00	39.80 AV	54.00	-14.20	1.55 H	359	4.01	35.79
7	7236.00	52.40 PK	74.00	-21.60	1.24 H	41	10.80	41.60
8	7236.00	39.40 AV	54.00	-14.60	1.24 H	41	-2.20	41.60

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	72.39 PK	74.00	-1.61	1.38 V	191	42.07	30.32
2	2390.00	53.24 AV	54.00	-0.76	1.38 V	191	22.92	30.32
3	*2412.00	108.40 PK			1.38 V	187	77.99	30.41
4	*2412.00	98.17 AV			1.38 V	187	67.76	30.41
5	4824.00	51.60 PK	74.00	-22.40	1.21 V	24	15.81	35.79
6	4824.00	37.00 AV	54.00	-17.00	1.21 V	24	1.21	35.79
7	7236.00	52.70 PK	74.00	-21.30	1.21 V	347	11.10	41.60
8	7236.00	39.60 AV	54.00	-14.40	1.21 V	347	-2.00	41.60

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**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	106.80 PK			1.25 H	26	76.28	30.52
2	*2437.00	96.00 AV			1.25 H	26	65.48	30.52
3	4874.00	54.20 PK	74.00	-19.80	1.57 H	331	18.28	35.92
4	4874.00	40.80 AV	54.00	-13.20	1.57 H	331	4.88	35.92
5	7311.00	52.60 PK	74.00	-21.40	1.23 H	47	10.79	41.81
6	7311.00	39.50 AV	54.00	-14.50	1.23 H	47	-2.31	41.81

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	109.70 PK			1.36 V	186	79.18	30.52
2	*2437.00	99.90 AV			1.36 V	186	69.38	30.52
3	4874.00	53.90 PK	74.00	-20.10	1.19 V	29	17.98	35.92
4	4874.00	40.00 AV	54.00	-14.00	1.19 V	29	4.08	35.92
5	7311.00	52.90 PK	74.00	-21.10	1.18 V	341	11.09	41.81
6	7311.00	39.70 AV	54.00	-14.30	1.18 V	341	-2.11	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

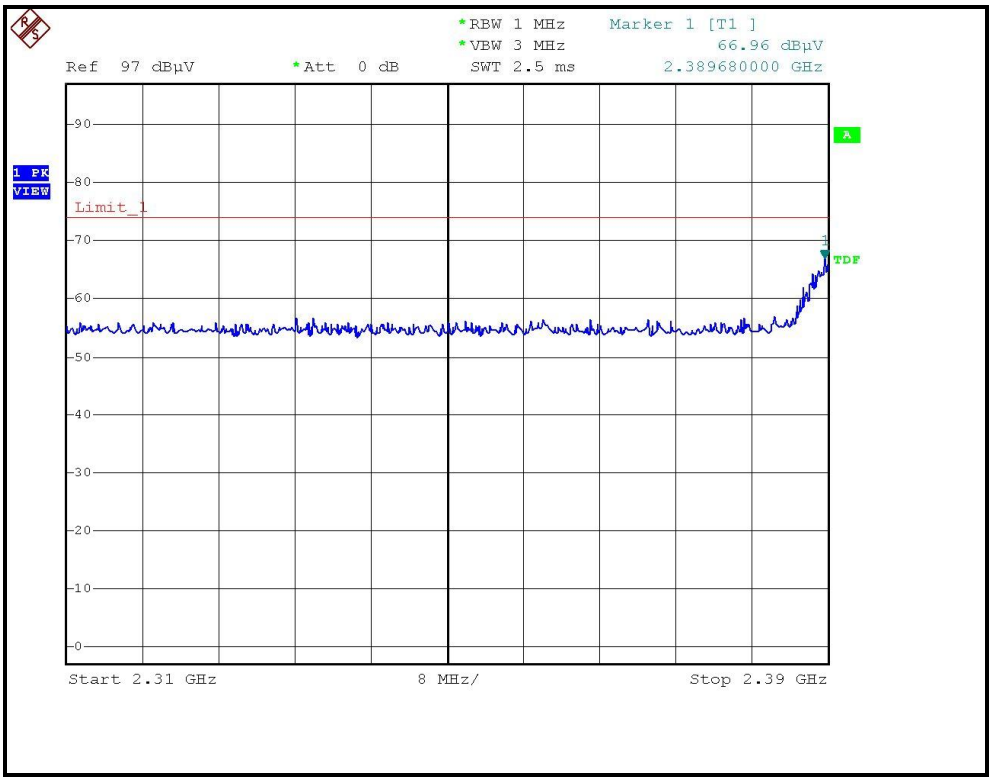
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	104.10 PK			1.26 H	27	73.47	30.63
2	*2462.00	93.50 AV			1.26 H	27	62.87	30.63
3	2483.50	67.47 PK	74.00	-6.53	1.26 H	27	36.75	30.72
4	2483.50	49.29 AV	54.00	-4.71	1.26 H	27	18.57	30.72
5	4924.00	54.10 PK	74.00	-19.90	1.37 H	334	18.04	36.06
6	4924.00	39.50 AV	54.00	-14.50	1.37 H	334	3.44	36.06
7	7386.00	52.70 PK	74.00	-21.30	1.22 H	46	10.69	42.01
8	7386.00	39.40 AV	54.00	-14.60	1.22 H	46	-2.61	42.01

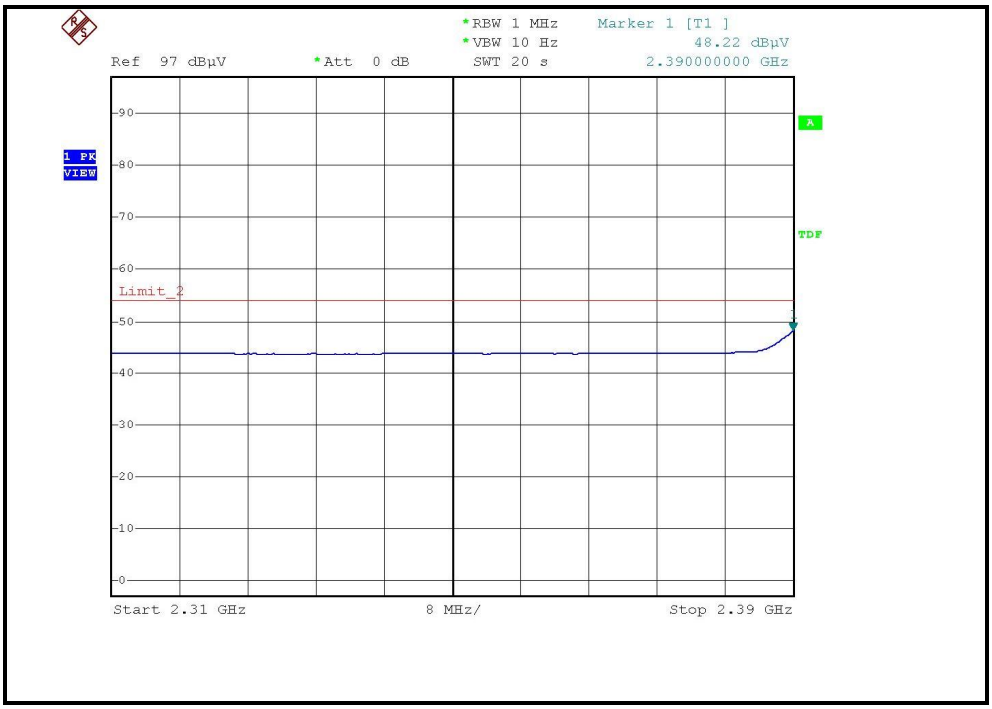
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	109.70 PK			1.38 V	347	79.07	30.63
2	*2462.00	99.10 AV			1.38 V	347	68.47	30.63
3	2483.50	73.26 PK	74.00	-0.74	1.33 V	347	42.54	30.72
4	2483.50	53.32 AV	54.00	-0.68	1.33 V	347	22.60	30.72
5	4924.00	53.90 PK	74.00	-20.10	1.18 V	21	17.84	36.06
6	4924.00	39.10 AV	54.00	-14.90	1.18 V	21	3.04	36.06
7	7386.00	52.40 PK	74.00	-21.60	1.18 V	341	10.39	42.01
8	7386.00	39.20 AV	54.00	-14.80	1.18 V	341	-2.81	42.01

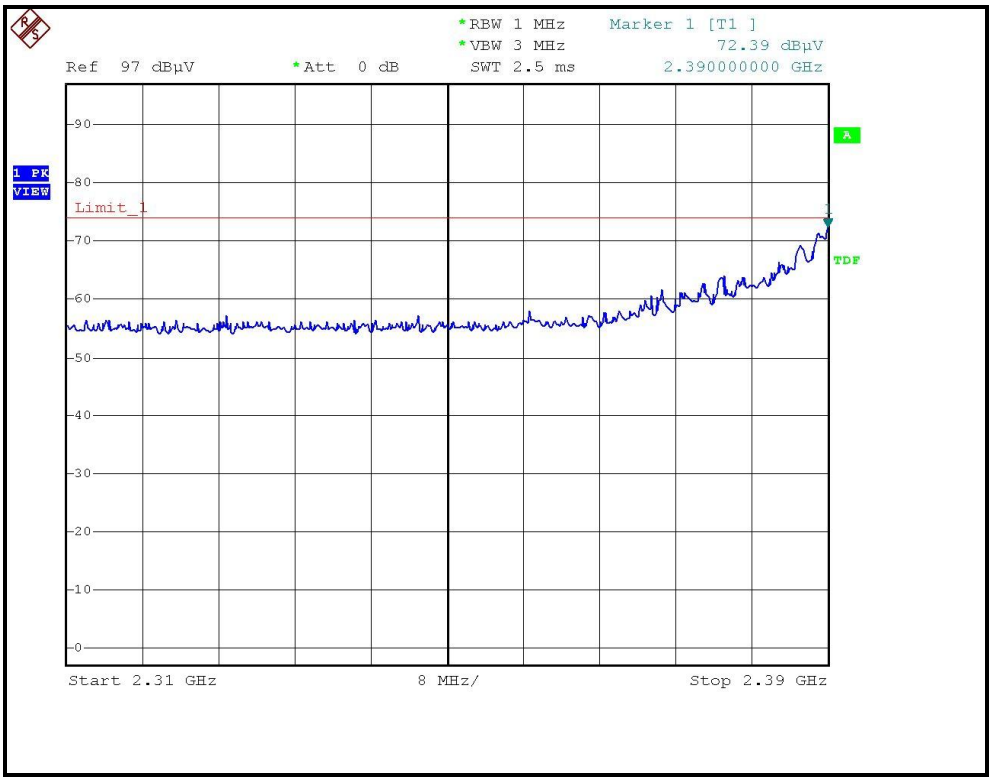
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

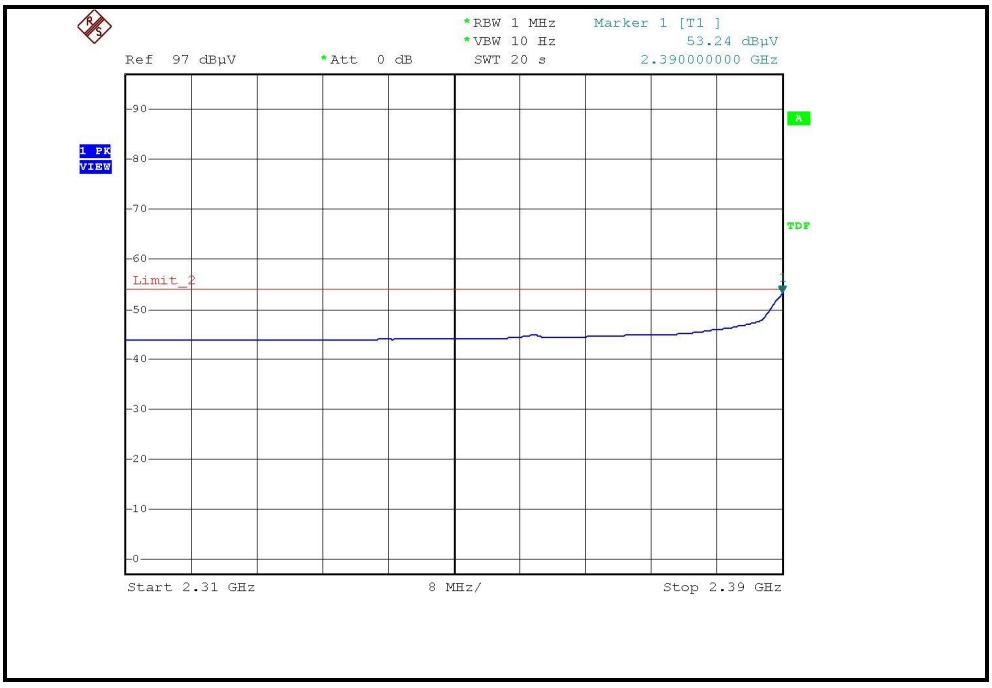
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



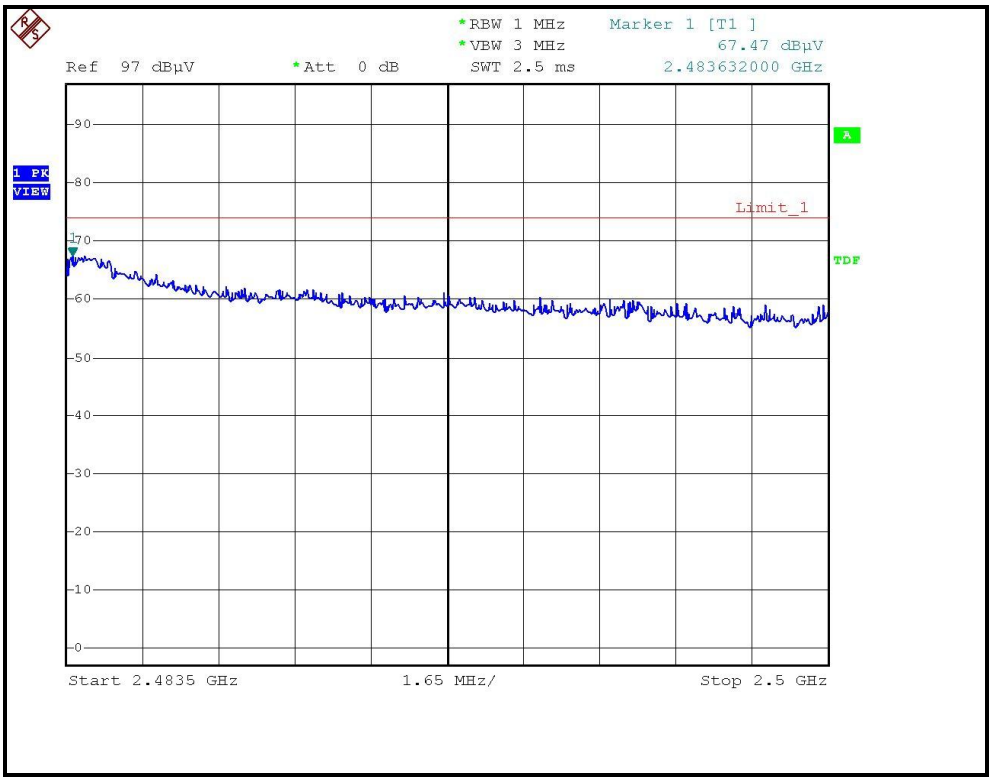


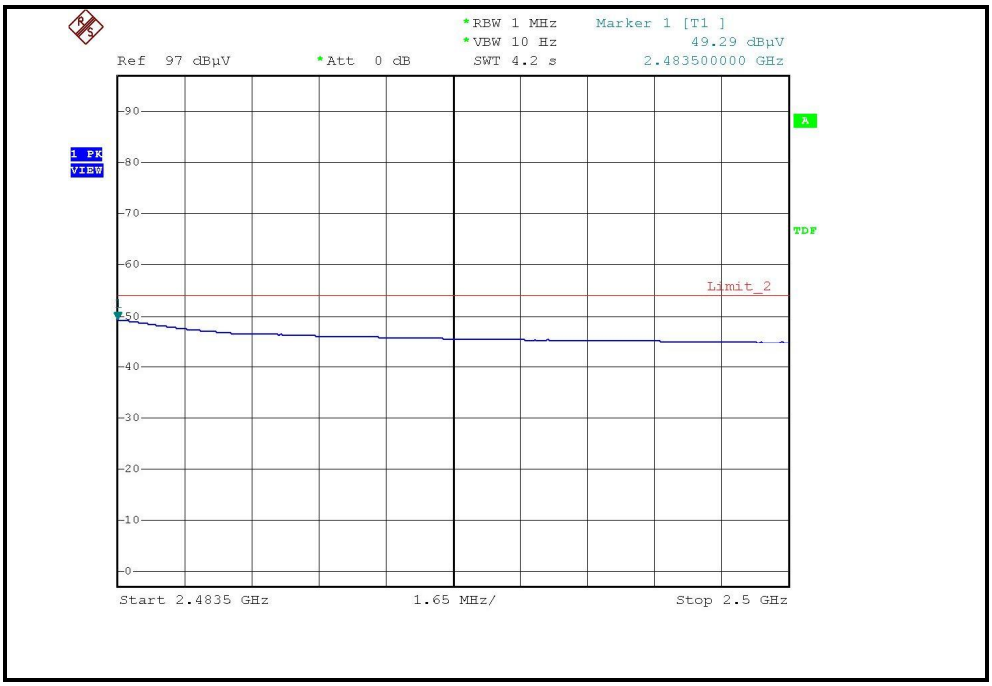
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



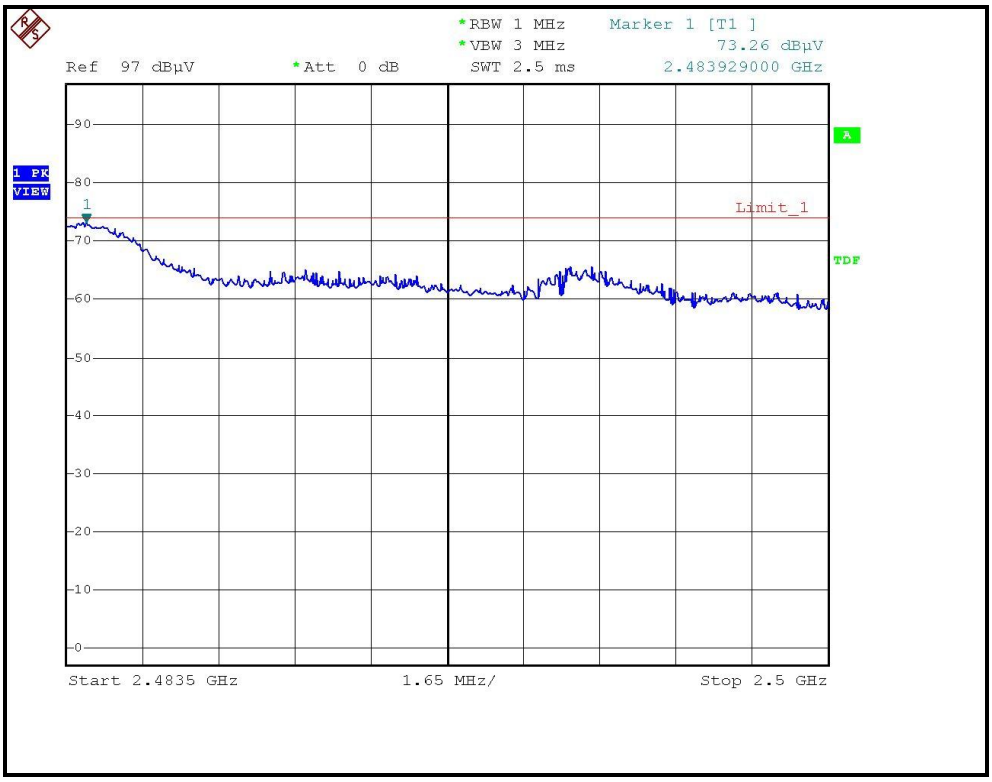


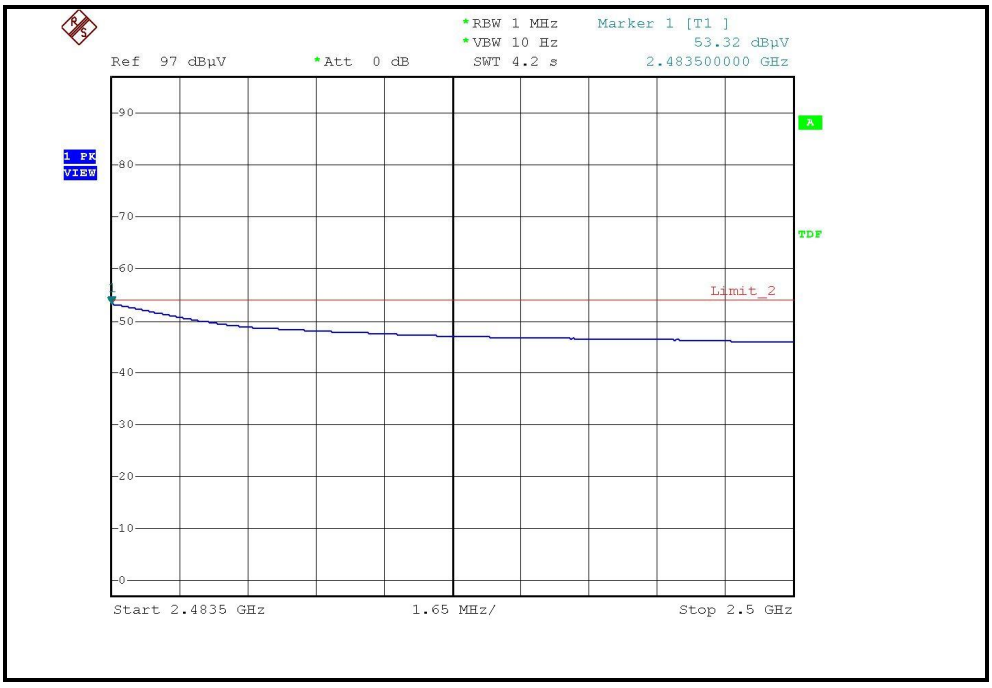
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	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	66.88 PK	74.00	-7.12	1.25 H	26	36.56	30.32
2	2390.00	49.29 AV	54.00	-4.71	1.25 H	26	18.97	30.32
3	*2412.00	104.30 PK			1.25 H	26	73.89	30.41
4	*2412.00	93.60 AV			1.25 H	26	63.19	30.41
5	4824.00	52.10 PK	74.00	-21.90	1.56 H	357	16.31	35.79
6	4824.00	37.90 AV	54.00	-16.10	1.56 H	357	2.11	35.79
7	7236.00	52.40 PK	74.00	-21.60	1.26 H	27	10.80	41.60
8	7236.00	38.80 AV	54.00	-15.20	1.26 H	27	-2.80	41.60

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	72.40 PK	74.00	-1.60	1.38 V	190	42.08	30.32
2	2390.00	52.38 AV	54.00	-1.62	1.38 V	190	22.06	30.32
3	*2412.00	107.40 PK			1.39 V	187	76.99	30.41
4	*2412.00	97.00 AV			1.39 V	187	66.59	30.41
5	4824.00	50.80 PK	74.00	-23.20	1.21 V	24	15.01	35.79
6	4824.00	35.70 AV	54.00	-18.30	1.21 V	24	-0.09	35.79
7	7236.00	52.30 PK	74.00	-21.70	1.18 V	343	10.70	41.60
8	7236.00	38.70 AV	54.00	-15.30	1.18 V	343	-2.90	41.60

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**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	103.40 PK			1.25 H	26	72.88	30.52
2	*2437.00	92.80 AV			1.25 H	26	62.28	30.52
3	4874.00	51.40 PK	74.00	-22.60	1.57 H	330	15.48	35.92
4	4874.00	37.20 AV	54.00	-16.80	1.57 H	330	1.28	35.92
5	7311.00	52.30 PK	74.00	-21.70	1.25 H	43	10.49	41.81
6	7311.00	38.60 AV	54.00	-15.40	1.25 H	43	-3.21	41.81

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	106.50 PK			1.35 V	187	75.98	30.52
2	*2437.00	95.90 AV			1.35 V	187	65.38	30.52
3	4874.00	50.30 PK	74.00	-23.70	1.19 V	21	14.38	35.92
4	4874.00	35.40 AV	54.00	-18.60	1.19 V	21	-0.52	35.92
5	7311.00	52.60 PK	74.00	-21.40	1.18 V	340	10.79	41.81
6	7311.00	39.10 AV	54.00	-14.90	1.18 V	340	-2.71	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

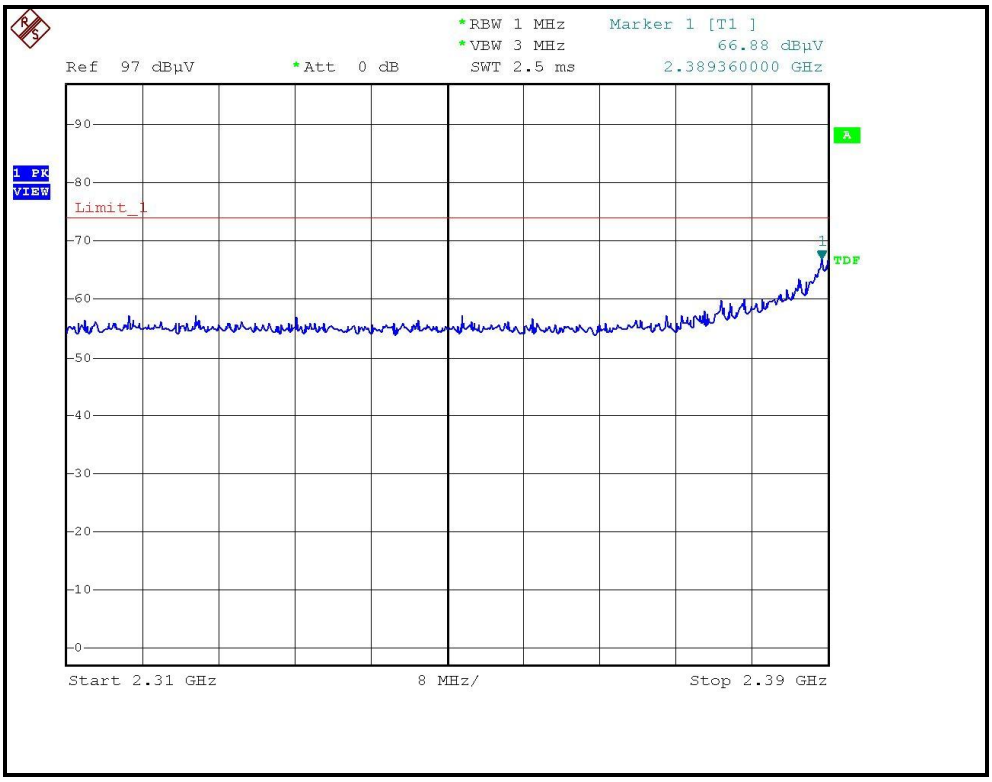
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	101.10 PK			1.26 H	26	70.47	30.63
2	*2462.00	90.30 AV			1.26 H	26	59.67	30.63
3	2483.50	61.27 PK	74.00	-12.73	1.26 H	26	30.55	30.72
4	2483.50	45.86 AV	54.00	-8.14	1.26 H	26	15.14	30.72
5	4924.00	51.00 PK	74.00	-23.00	1.39 H	331	14.94	36.06
6	4924.00	36.30 AV	54.00	-17.70	1.39 H	331	0.24	36.06
7	7386.00	52.10 PK	74.00	-21.90	1.21 H	43	10.09	42.01
8	7386.00	38.50 AV	54.00	-15.50	1.21 H	43	-3.51	42.01

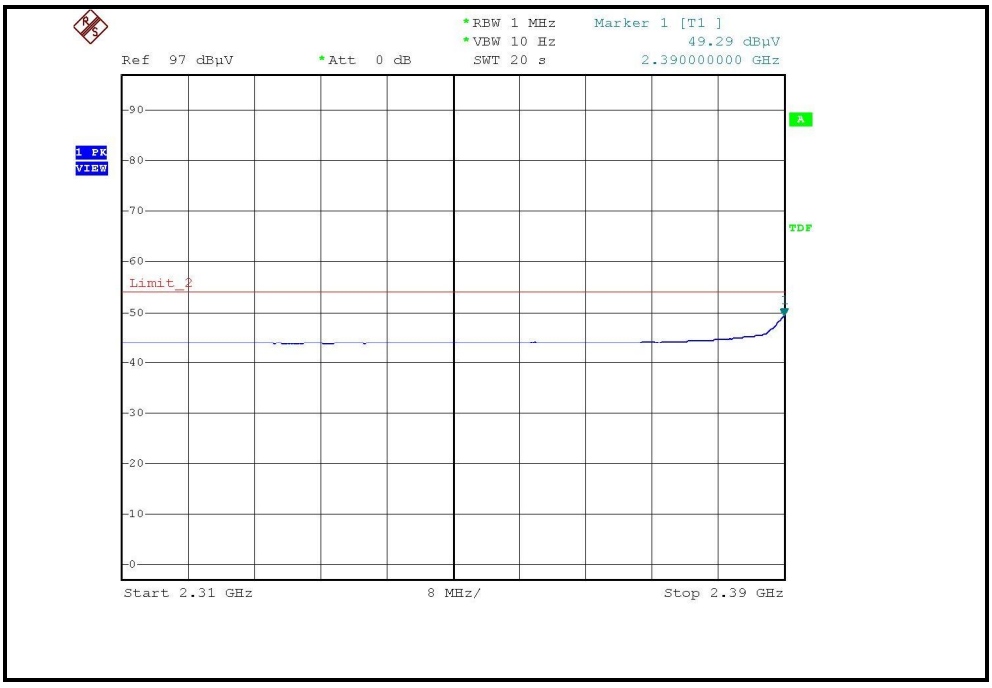
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	106.90 PK			1.38 V	346	76.27	30.63
2	*2462.00	96.20 AV			1.38 V	346	65.57	30.63
3	2483.50	66.79 PK	74.00	-7.21	1.34 V	347	36.07	30.72
4	2483.50	48.40 AV	54.00	-5.60	1.34 V	347	17.68	30.72
5	4924.00	50.50 PK	74.00	-23.50	1.18 V	41	14.44	36.06
6	4924.00	35.40 AV	54.00	-18.60	1.18 V	41	-0.66	36.06
7	7386.00	52.20 PK	74.00	-21.80	1.17 V	340	10.19	42.01
8	7386.00	38.40 AV	54.00	-15.60	1.17 V	340	-3.61	42.01

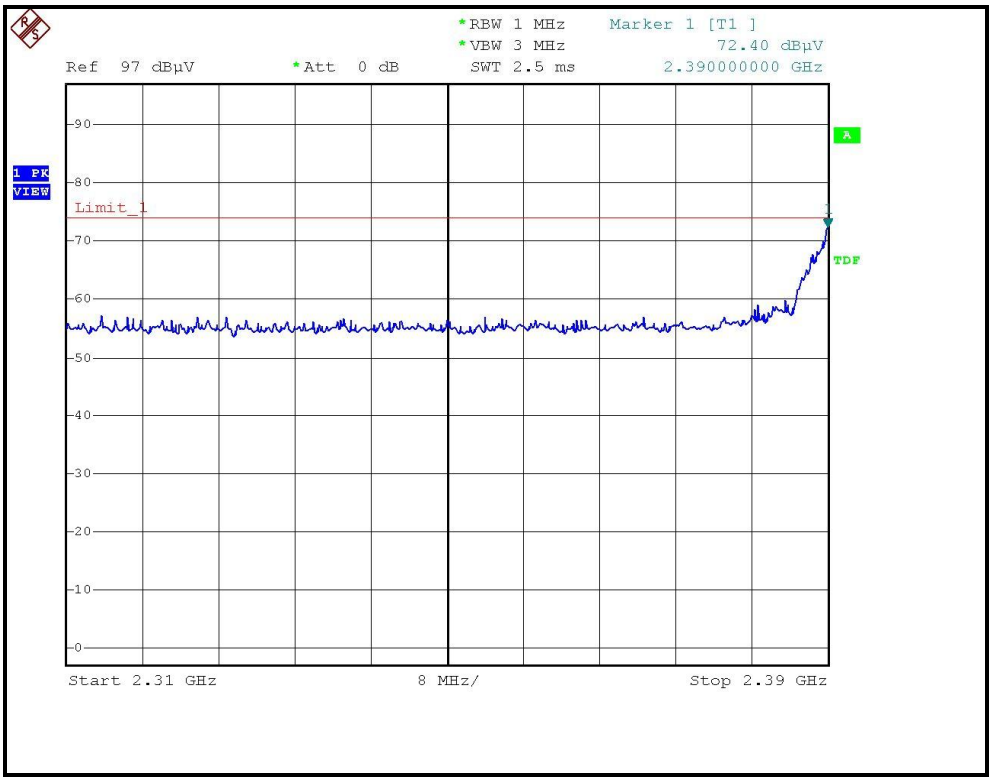
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

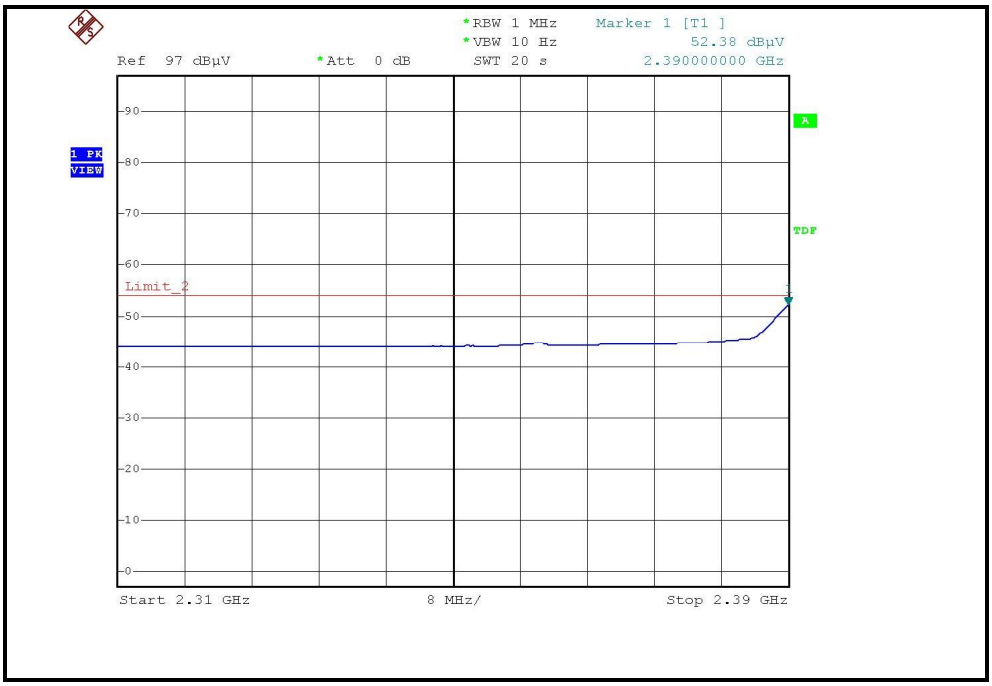
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



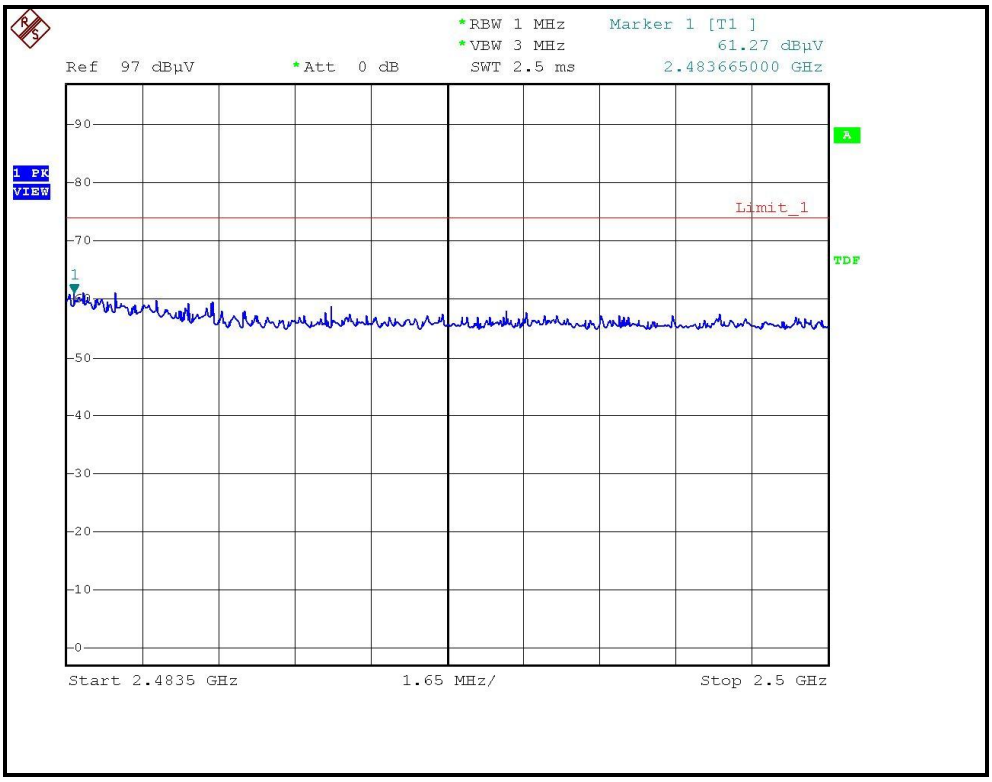


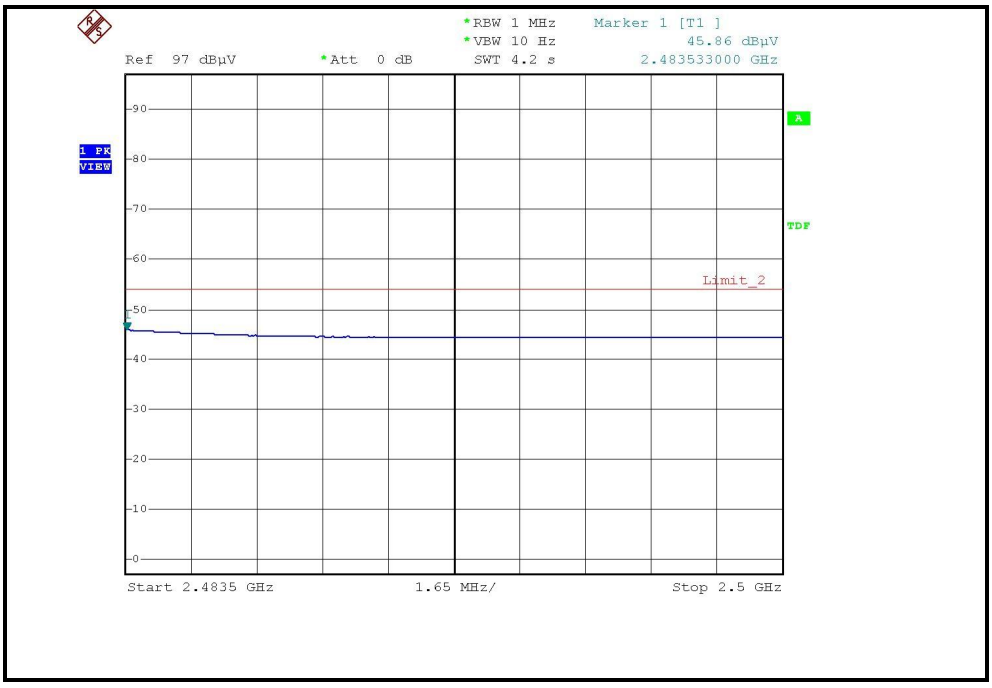
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



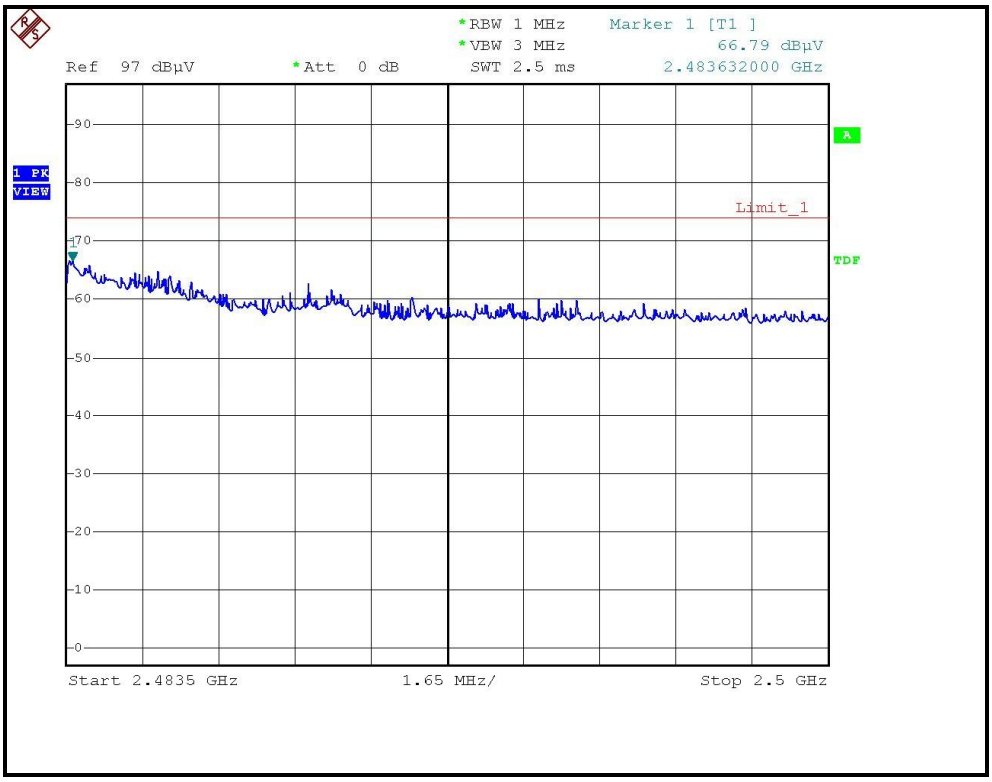


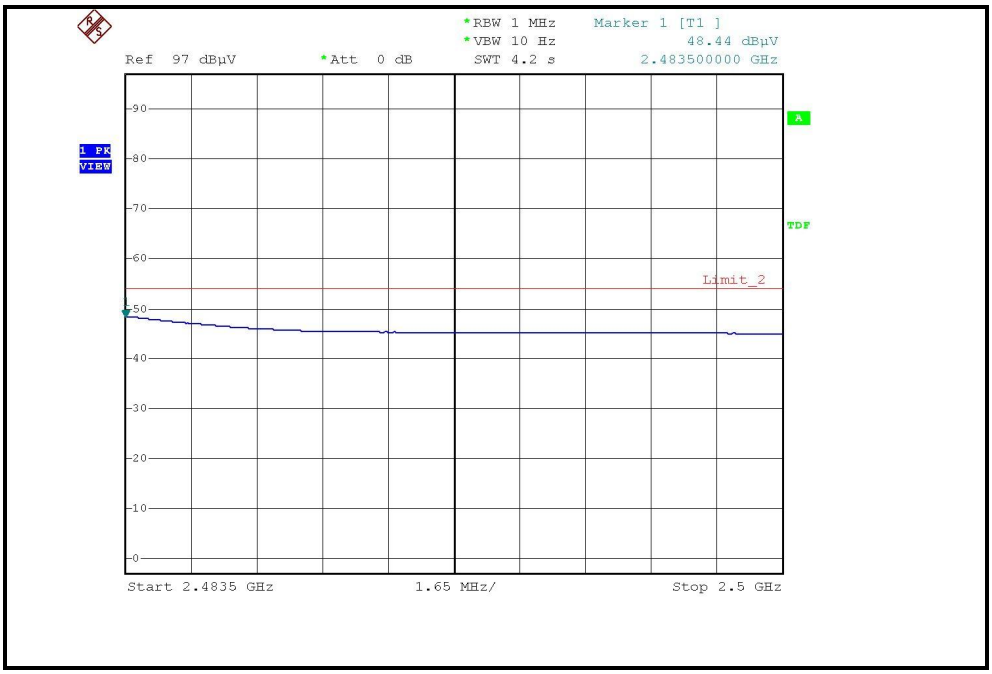
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





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
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**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	65.04 PK	74.00	-8.96	1.25 H	25	34.72	30.32
2	2390.00	49.10 AV	54.00	-4.90	1.25 H	25	18.78	30.32
3	*2422.00	98.50 PK			1.25 H	25	68.05	30.45
4	*2422.00	88.20 AV			1.25 H	25	57.75	30.45
5	4844.00	47.60 PK	74.00	-26.40	1.56 H	2	11.76	35.84
6	4844.00	34.30 AV	54.00	-19.70	1.56 H	2	-1.54	35.84
7	7266.00	52.20 PK	74.00	-21.80	1.25 H	43	10.52	41.68
8	7266.00	38.90 AV	54.00	-15.10	1.25 H	43	-2.78	41.68

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	69.38 PK	74.00	-4.62	1.38 V	191	39.06	30.32
2	**2390.00**	**53.74 AV**	**54.00**	**-0.26**	**1.38 V**	**191**	**23.42**	**30.32**
3	*2422.00	104.30 PK			1.36 V	187	73.85	30.45
4	*2422.00	93.60 AV			1.36 V	187	63.15	30.45
5	4844.00	47.00 PK	74.00	-27.00	1.18 V	24	11.16	35.84
6	4844.00	33.60 AV	54.00	-20.40	1.18 V	24	-2.24	35.84
7	7266.00	51.70 PK	74.00	-22.30	1.12 V	344	10.02	41.68
8	7266.00	38.10 AV	54.00	-15.90	1.12 V	344	-3.58	41.68

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**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	99.30 PK			1.25 H	26	68.78	30.52
2	*2437.00	88.90 AV			1.25 H	26	58.38	30.52
3	4874.00	48.80 PK	74.00	-25.20	1.56 H	334	12.88	35.92
4	4874.00	35.20 AV	54.00	-18.80	1.56 H	334	-0.72	35.92
5	7311.00	52.20 PK	74.00	-21.80	1.23 H	52	10.39	41.81
6	7311.00	38.70 AV	54.00	-15.30	1.23 H	52	-3.11	41.81

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	104.40 PK			1.36 V	186	73.88	30.52
2	*2437.00	93.70 AV			1.36 V	186	63.18	30.52
3	4874.00	48.00 PK	74.00	-26.00	1.19 V	29	12.08	35.92
4	4874.00	34.70 AV	54.00	-19.30	1.19 V	29	-1.22	35.92
5	7311.00	52.10 PK	74.00	-21.90	1.10 V	340	10.29	41.81
6	7311.00	38.50 AV	54.00	-15.50	1.10 V	340	-3.31	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 68%RH, 960hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

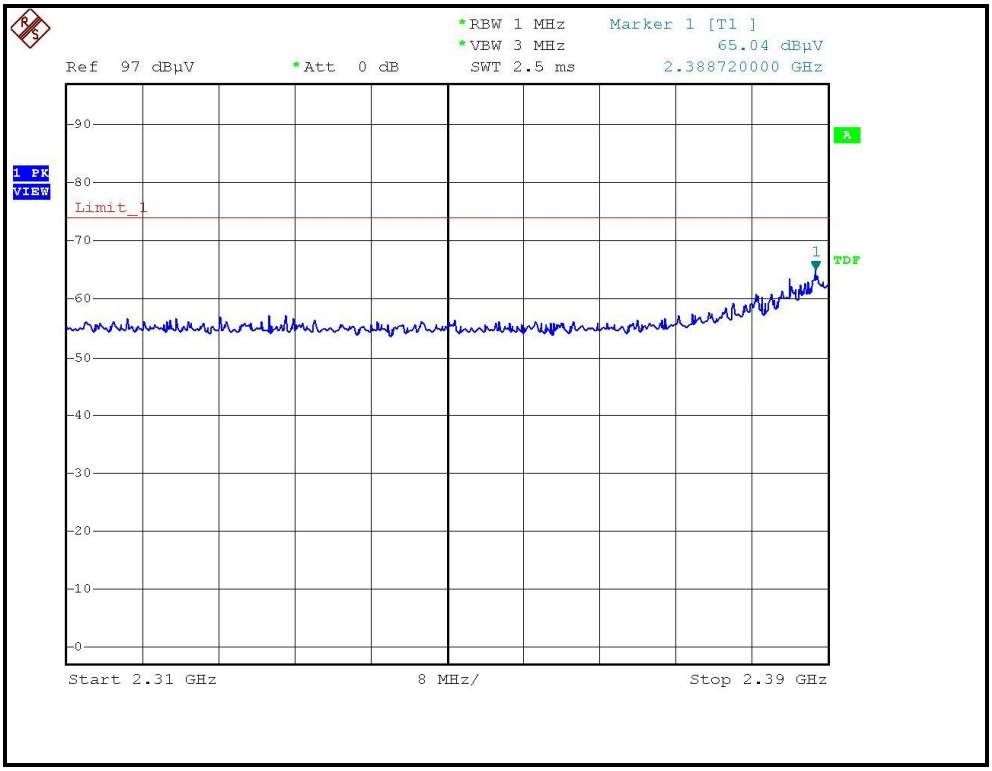
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	98.70 PK			1.26 H	27	68.12	30.58
2	*2452.00	88.10 AV			1.26 H	27	57.52	30.58
3	2483.50	64.13 PK	74.00	-9.87	1.26 H	27	33.41	30.72
4	2483.50	48.12 AV	54.00	-5.88	1.26 H	27	17.40	30.72
5	4904.00	50.10 PK	74.00	-23.90	1.38 H	329	14.10	36.00
6	4904.00	35.70 AV	54.00	-18.30	1.38 H	329	-0.30	36.00
7	7356.00	51.30 PK	74.00	-22.70	1.22 H	47	9.37	41.93
8	7356.00	37.40 AV	54.00	-16.60	1.22 H	47	-4.53	41.93

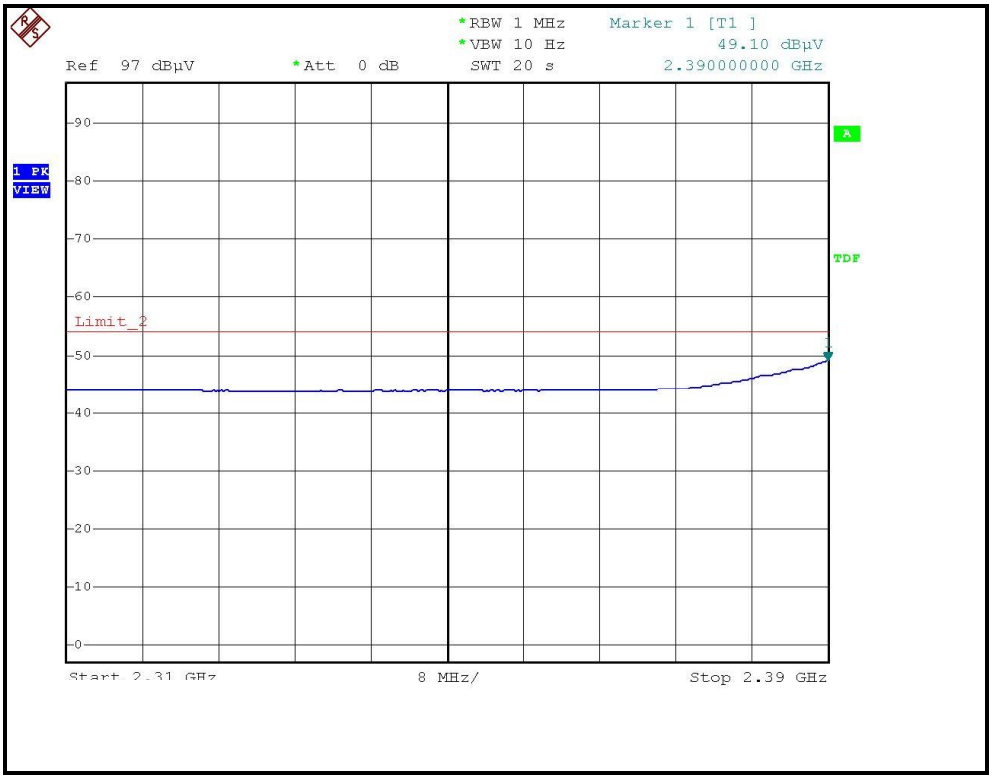
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	*2452.00	104.60 PK			1.39 V	347	74.02	30.58
2	*2452.00	94.10 AV			1.39 V	347	63.52	30.58
3	2483.50	69.19 PK	74.00	-4.81	1.35 V	346	38.47	30.72
4	2483.50	52.20 AV	54.00	-1.80	1.35 V	346	21.48	30.72
5	4904.00	49.20 PK	74.00	-24.80	1.18 V	29	13.20	36.00
6	4904.00	35.10 AV	54.00	-18.90	1.18 V	29	-0.90	36.00
7	7356.00	51.20 PK	74.00	-22.80	1.19 V	339	9.27	41.93
8	7356.00	37.50 AV	54.00	-16.50	1.19 V	339	-4.43	41.93

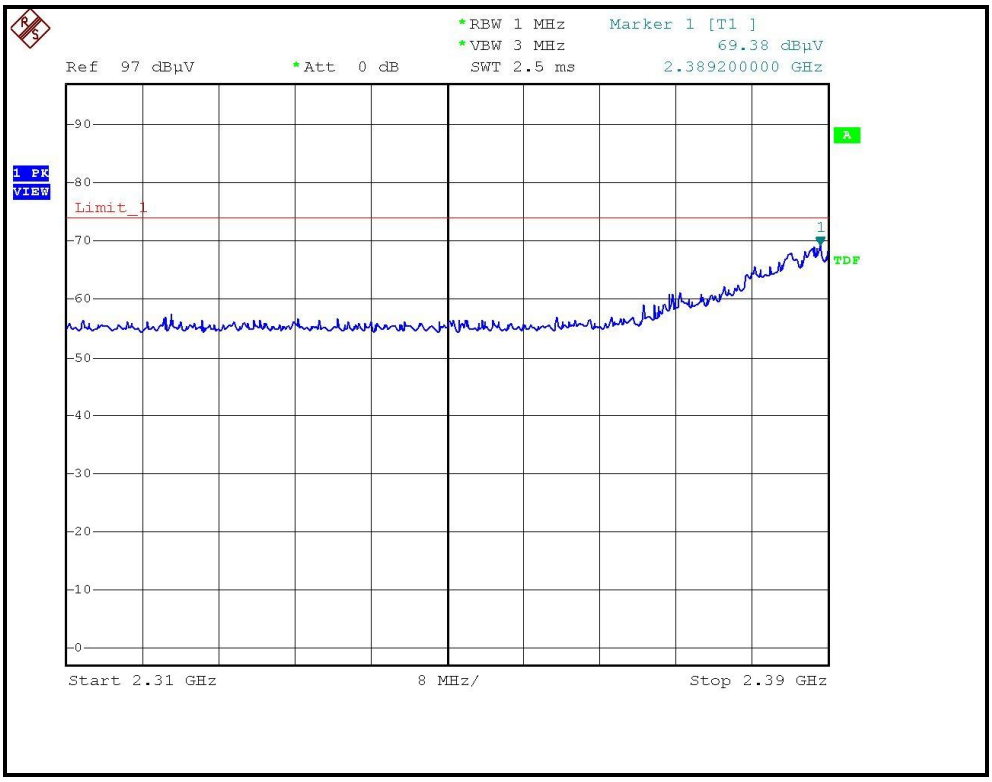
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

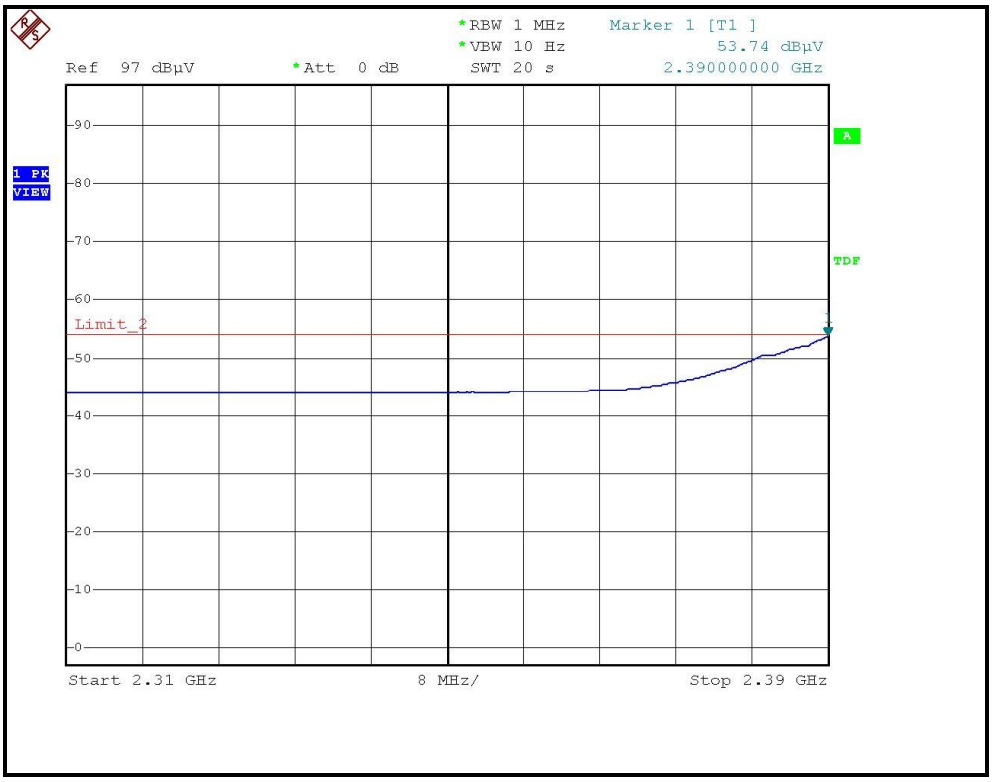
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



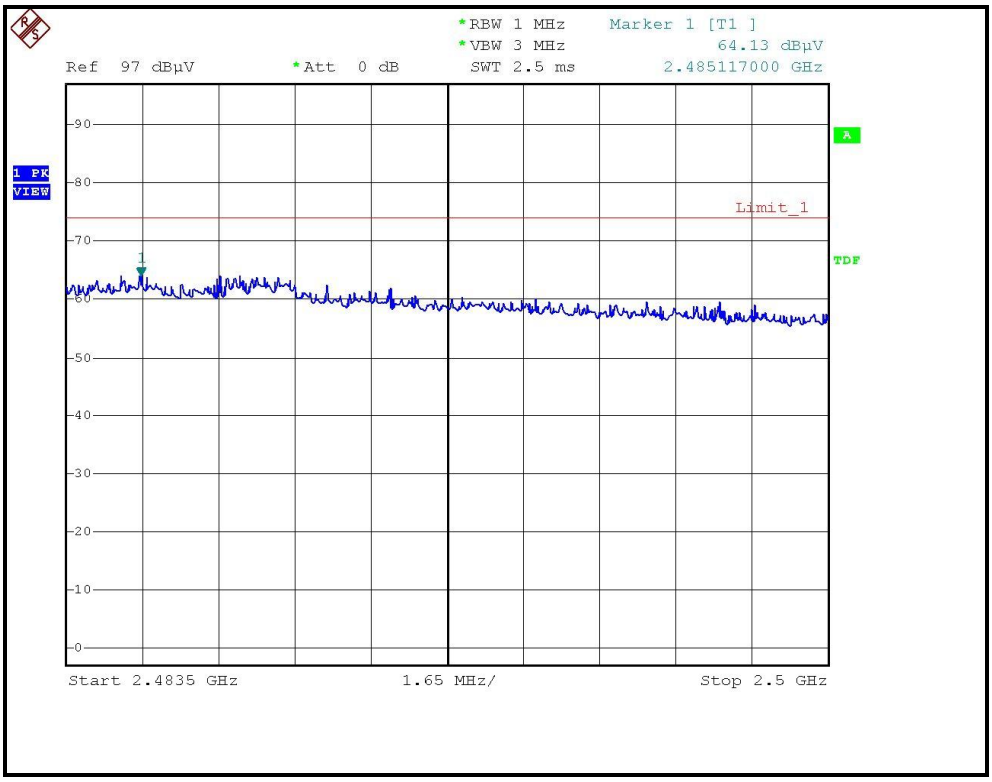


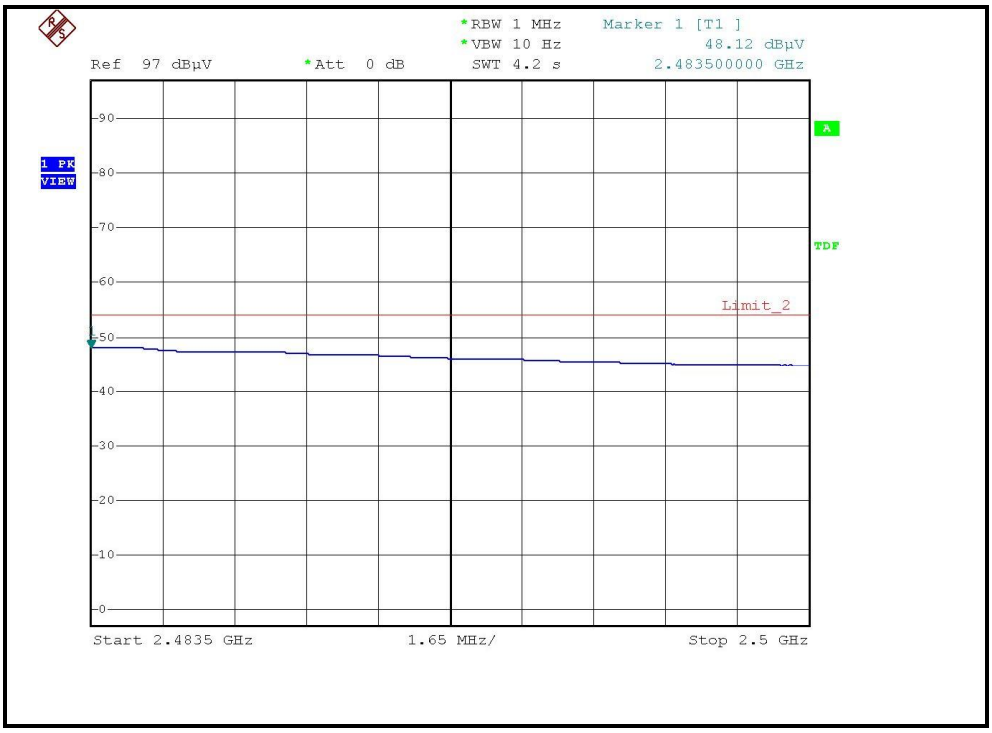
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



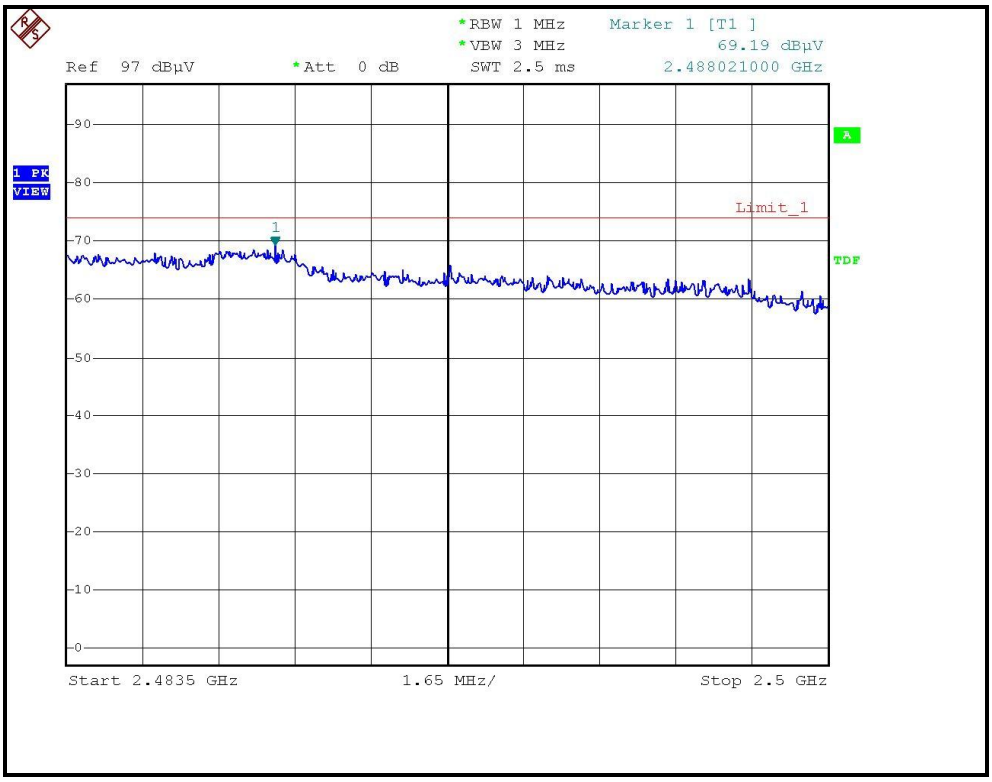


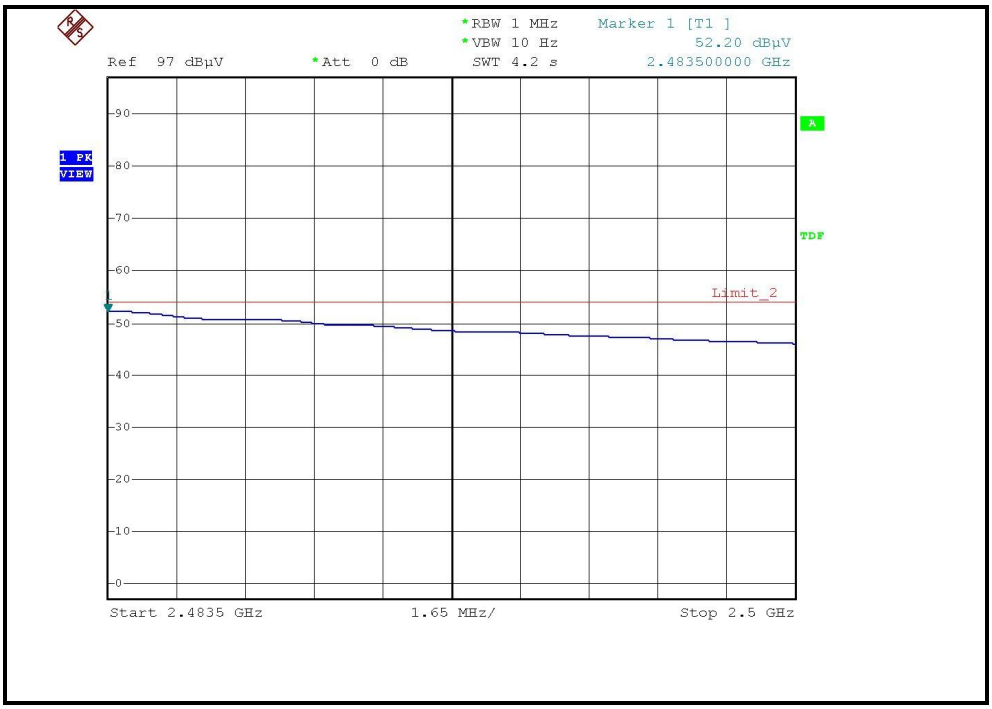
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)





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 Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2007

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

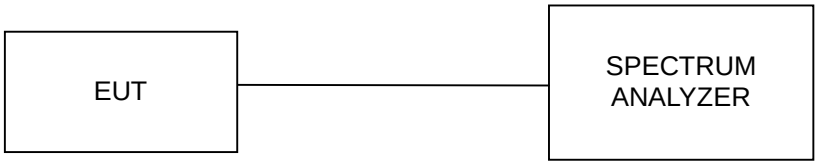
4.3.3 TEST PROCEDURE

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.

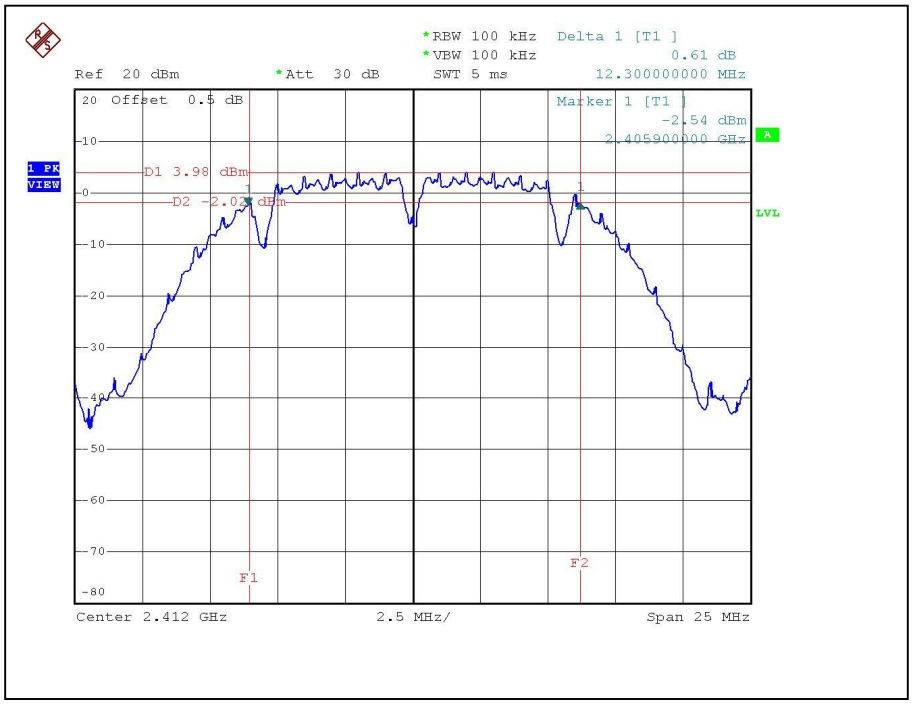
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

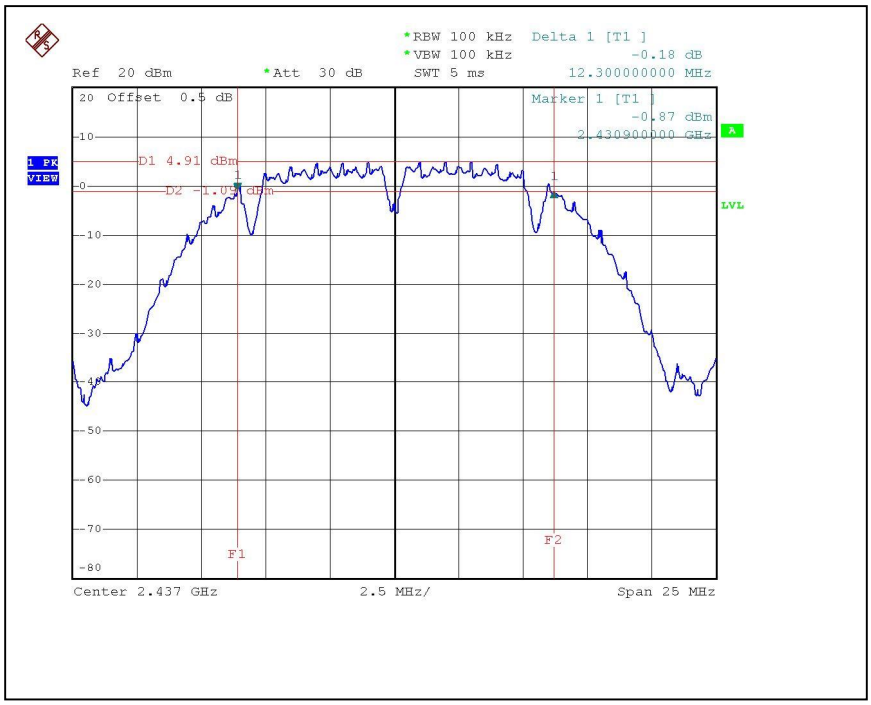
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 960hPa
TESTED BY	Tony Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.3	0.5	PASS
6	2437	12.3	0.5	PASS
11	2462	12.3	0.5	PASS

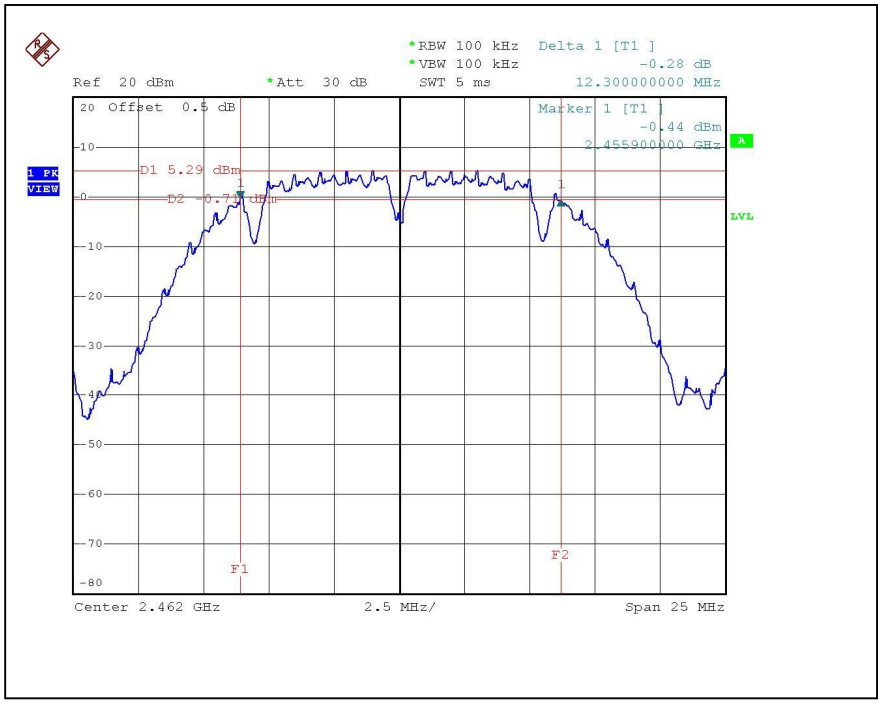
CH1



CH6


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
-0.18 dB
Ref 20 dBm
*Att 30 dB
SWT 5 ms
12.300000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
-0.87 dBm
2.430900000 GHz
D1 4.91 dBm
D2 -1.09 dBm
1 PK VIEW
LVL
F1
F2
Center 2.437 GHz
2.5 MHz/
Span 25 MHz

CH11


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
-0.28 dB
Ref 20 dBm
*Att 30 dB
SWT 5 ms
12.300000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
-0.44 dBm
2.455900000 GHz
D1 5.29 dBm
D2 -0.71 dBm
1 PK VIEW
LVL
F1
F2
Center 2.462 GHz
2.5 MHz/
Span 25 MHz