

FCC TEST REPORT

REPORT NO.: RF110112E03

MODEL NO.: ZTRP150

FCC ID: Y8BZDVM9092471782

RECEIVED: Jan. 12, 2011

TESTED: Jan. 18 to 24, 2011

ISSUED: Jan. 27, 2011

APPLICANT: Vido Media, Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Jan. 27, 2011



1. CERTIFICATION

PRODUCT: Travel Router Standard Type 1T1R

BRAND NAME: ZuniConnect

MODEL NO.: ZTRP150

TEST SAMPLE: MASS-PRODUCTION

TESTED: Jan. 18 to 24, 2011

APPLICANT: Vido Media, Inc.

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

ANSI C63.4-2003 ANSI C63.10-2009

The above equipment (Model: ZTRP150) 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 : (and , DATE: Jan. 27, 2011

(Carol Liao, Specialist)

APPROVED BY : , DATE: Jan. 27, 2011

(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 -5.05dB at 0.330MHz					
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)	15.247(d) Radiated Emissions Limit: Table 15.209		Meet the requirement of limit. Minimum passing margin is -3.1dB at 4924.00MHz					
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.					
15.247(d) Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency		PASS	Meet the requirement of limit.					
15.203	Antenna Requirement	PASS	No antenna connector is used.					



2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

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)	3.30 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Travel Router Standard Type 1T1R		
MODEL NO.	ZTRP150		
FCC ID	Y8BZDVM9092471782		
POWER SUPPLY	DC 5V from power adapter		
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 802.11n (20MHz, 800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps 802.11n (40MHz, 800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps 802.11n (20MHz, 400ns GI): 72.2 / 65 / 57.8 / 43.3 / 28.9 / 21.7 / 14.4 / 7.2Mbps 802.11n (40MHz, 400ns GI):		
FREQUENCY RANGE	2412MHz ~ 2462MHz		
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)		
MAXIMUM OUTPUT POWER	802.11b: 75.9mW 802.11g: 123.0mW 802.11n (20MHz): 102.3mW 802.11n (40MHz): 81.3mW		
ANTENNA TYPE	Please see note		
DATA CABLE	NA		
I/O PORTS	RJ-45 port x 2 USB port x 2		
ASSOCIATED DEVICES	Adapter x 1		



NOTE:

1. There is one antenna provided to this EUT, please refer to the following table:

Peak Gain	Antenna Type	Connecter Type	
2.5dBi	chip	NA	

2. The EUT must be supplied with a power adapter as following table:

		3
Brand	Model No.	Spec.
SIL	SSA-18W-05	AC Input: 100-240V, 0.6A, 50/60Hz DC Output: 5V, 2500mA
	US 050250F	DC output cable (unshielded, 1.56m)

- 3. The EUT incorporates a SISO function with 802.11n.
- 4. The EUT is 1 * 1 spatial SISO without beam forming function.
- 5. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.
- 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

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

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

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

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



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT		APPLICA	ABLE TO		DESCRIPTION
CONFIGURE MODE	PLC	RE < 1G	RE ³ 1G	APCM	DESCRIPTION
-	V	V	V	V	-

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 MODULATION ECHNOLOGY TYPE	
802.11g	1 to 11	1	OFDM	BPSK	6

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	TESTED	MODULATION	MODULATIO	DATA RATE	
	CHANNEL	CHANNEL	TECHNOLOGY	N TYPE	(Mbps)	
802.11g	1 to 11	1	OFDM	BPSK	6	



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	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

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



ANTENNA PORT CONDUCTED MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☐ Following channel(s) was (were) selected for the final test as listed below.

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	15deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Kent Liu
RE<1G	15deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Kent Liu
PLC	20deg. C, 70%RH, 1022 hPa	120Vac, 60Hz	Timmy Hu
APCM	25deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Kent Liu

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247) ANSI C63.4-2003 ANSI C63.10-2009

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	NOTEBOOK COMPUTER (For conducted test)	DELL	PP32LA	DSLB32S	FCC DoC
4	iPod shuffle	Apple	MC749TA/A	CC4DMFKUDFDM	NA
5	iPod shuffle	Apple	MC749TA/A	CC4DMFJUDFDM	NA

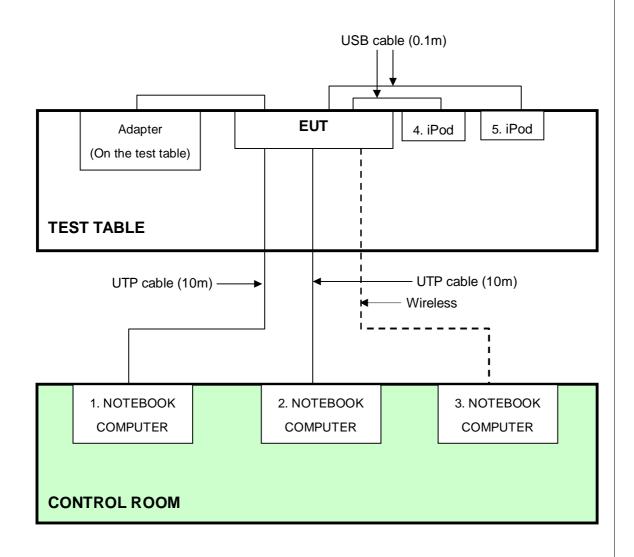
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP cable
2	10m UTP cable
3	NA
4	0.1m USB cable
5	0.1m USB cable

NOTE: 1. All power cords of the above support units are non shielded (1.8m).



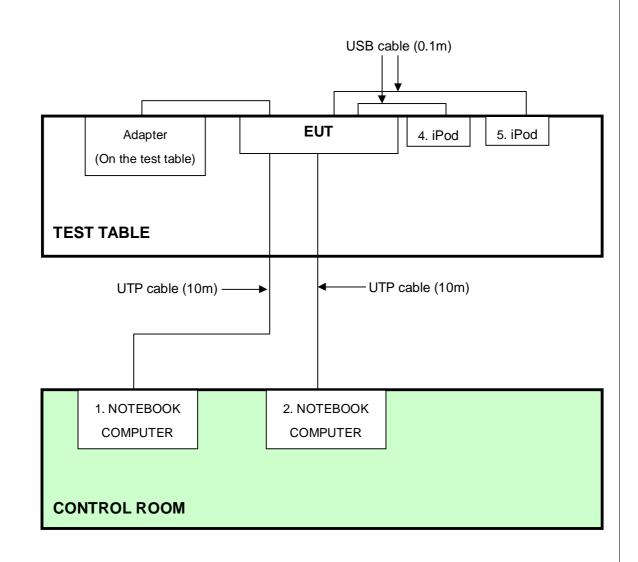
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For conducted test:





For other test items:





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 DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. The test was performed in Shielded Room No. C.
- 3 The VCCI Con C Registration No. is C-3611.



4.1.3 TEST PROCEDURES

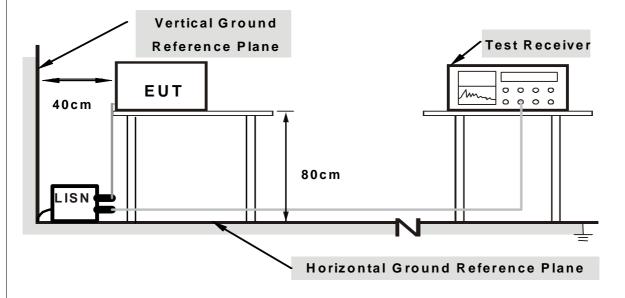
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

414	DEM		FROM 7	TEST	CINATS	ΔRD
4.1.4	DLVI	Δ I I \Box I \Box		$I \perp O I$	SIAIND	Δ

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. Turn on the power of all equipment.
- 2. Support units 1 ~ 3 (Notebook Computer) run a test program "Ping.exe" to enable of EUT via UTP cables and wireless continuously.



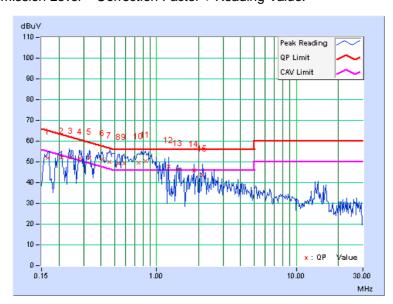
4.1.7 TEST RESULTS

PHASE Line (L)	6dB BANDWIDTH	9 kHz
----------------	---------------	-------

	Freq.	Corr.		ding lue	_	ssion vel	Lir	nit	Mar	gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.167	0.11	51.76	-	51.87	-	65.13	55.13	-13.26	-
2	0.209	0.13	52.25	-	52.38	-	63.26	53.26	-10.88	-
3	0.245	0.13	52.11	44.80	52.24	44.93	61.94	51.94	-9.70	-7.01
4	0.283	0.13	51.81	43.14	51.94	43.27	60.73	50.73	-8.79	-7.46
5	0.330	0.13	51.86	44.28	51.99	44.41	59.46	49.46	-7.47	-5.05
6	0.408	0.13	51.03	42.19	51.16	42.32	57.69	47.69	-6.53	-5.37
7	0.461	0.13	50.03	38.37	50.16	38.50	56.68	46.68	-6.52	-8.18
8	0.533	0.13	48.99	39.74	49.12	39.87	56.00	46.00	-6.88	-6.13
9	0.584	0.13	49.11	38.39	49.24	38.52	56.00	46.00	-6.76	-7.48
10	0.740	0.14	49.53	39.15	49.67	39.29	56.00	46.00	-6.33	-6.71
11	0.830	0.14	50.32	39.35	50.46	39.49	56.00	46.00	-5.54	-6.51
12	1.215	0.14	47.70	35.05	47.84	35.19	56.00	46.00	-8.16	-10.81
13	1.418	0.15	46.07	34.14	46.22	34.29	56.00	46.00	-9.78	-11.71
14	1.867	0.16	45.87	33.84	46.03	34.00	56.00	46.00	-9.97	-12.00
15	2.148	0.16	43.38	-	43.54	-	56.00	46.00	-12.46	-

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.

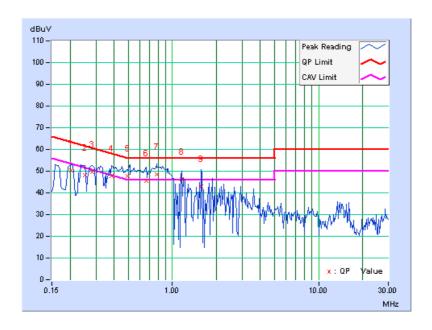




	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB ((uV)]	[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.14	50.12	-	50.26	-	63.42	53.42	-13.16	-
2	0.252	0.14	48.12	-	48.26	-	61.71	51.71	-13.44	-
3	0.283	0.14	49.44	-	49.58	-	60.73	50.73	-11.15	-
4	0.384	0.15	47.53	-	47.68	-	58.18	48.18	-10.51	-
5	0.497	0.15	47.79	34.07	47.94	34.22	56.06	46.06	-8.12	-11.84
6	0.666	0.15	45.55	-	45.70	-	56.00	46.00	-10.30	-
7	0.783	0.16	48.35	34.53	48.51	34.69	56.00	46.00	-7.49	-11.31
8	1.156	0.16	46.09	31.96	46.25	32.12	56.00	46.00	-9.75	-13.88
9	1.570	0.18	42.82	-	43.00	-	56.00	46.00	-13.00	-

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
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_ V8.7.05	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, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in 966 Chamber No. G.

4. The FCC Site Registration No. is 966073.

5. The VCCI Site Registration No. is G-137.

6. The CANADA Site Registration No. is IC 7450H-2.



4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meters chamber room. 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 height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

NOTE:

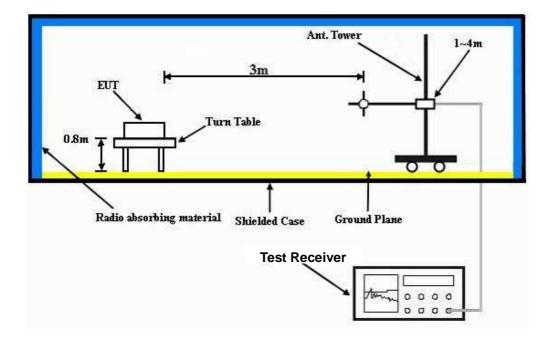
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency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

4.2.4 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

- 1. Turn on the power of all equipment.
- 2. Prepared other computer system support units 1~2 (Notebook Computer) to act as communication partners and placed them outside of testing area.
- The communication partner ran test program "8196C v1.1.1 MP 20100527" to enable EUT under transmission/receiving condition continuously via UTP cable.



4.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	Below 1000MHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL 15deg. C, 60%RH 1022 hPa		TESTED BY	Kent Liu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
		ANTENNA I	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	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	156.36	38.4 QP	43.5	-5.1	1.25 H	72	23.98	14.45		
2	312.56	38.7 QP	46.0	-7.3	1.75 H	360	23.01	15.73		
3	468.76	35.0 QP	46.0	-11.0	1.75 H	307	15.65	19.34		
4	500.02	38.4 QP	46.0	-7.6	1.75 H	14	18.28	20.10		
5	624.96	37.0 QP	46.0	-9.1	1.75 H	360	14.24	22.71		
6	781.27	39.3 QP	46.0	-6.7	2.00 H	140	14.58	24.75		
7	937.47	36.8 QP	46.0	-9.2	1.50 H	116	9.72	27.12		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	58.70	34.8 QP	40.0	-5.2	1.00 V	176	21.13	13.63		
2	156.36	35.0 QP	43.5	-8.5	1.25 V	353	20.58	14.45		
3	228.95	37.4 QP	46.0	-8.6	1.00 V	318	25.03	12.33		
4	312.44	36.3 QP	46.0	-9.7	1.75 V	351	20.58	15.73		
5	468.76	37.9 QP	46.0	-8.1	1.25 V	276	18.54	19.34		
6	500.02	35.5 QP	46.0	-10.5	1.00 V	50	15.39	20.10		
7	781.27	36.9 QP	46.0	-9.1	1.50 V	299	12.11	24.75		

- 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 WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

	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	2386.27	57.1 PK	74.0	-16.9	1.51 H	282	25.36	31.74			
2	2386.27	45.9 AV	54.0	-8.1	1.51 H	282	14.16	31.74			
3	*2412.00	105.9 PK			1.51 H	282	74.08	31.82			
4	*2412.00	103.5 AV			1.51 H	282	71.68	31.82			
5	4824.00	54.5 PK	74.0	-19.5	1.32 H	274	15.14	39.36			
6	4824.00	50.5 AV	54.0	-3.5	1.32 H	274	11.14	39.36			
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	2386.13	56.9 PK	74.0	-17.1	1.22 V	24	25.16	31.74			
2	2386.13	44.2 AV	54.0	-9.8	1.22 V	24	12.46	31.74			
3	*2412.00	99.9 PK			1.22 V	24	68.08	31.82			
4	*2412.00	97.5 AV			1.22 V	24	65.68	31.82			
5	4824.00	52.7 PK	74.0	-21.3	1.42 V	348	13.34	39.36			
6	4824.00	48.4 AV	54.0	-5.6	1.42 V	348	9.04	39.36			

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



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 6		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

	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	106.1 PK			1.51 H	282	74.18	31.92		
2	*2437.00	103.7 AV			1.51 H	282	71.78	31.92		
3	4874.00	54.2 PK	74.0	-19.8	1.31 H	275	14.70	39.50		
4	4874.00	50.2 AV	54.0	-3.8	1.31 H	275	10.70	39.50		
5	7311.00	55.2 PK	74.0	-18.8	1.28 H	264	8.32	46.88		
6	7311.00	41.8 AV	54.0	-12.2	1.28 H	264	-5.08	46.88		
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	100.3 PK			1.22 V	26	68.38	31.92		
2	*2437.00	97.7 AV			1.22 V	26	65.78	31.92		
3	4874.00	52.9 PK	74.0	-21.1	1.43 V	342	13.40	39.50		
4	4874.00	48.6 AV	54.0	-5.4	1.43 V	342	9.10	39.50		
5	7311.00	54.9 PK	74.0	-19.1	1.30 V	262	8.02	46.88		
6	7311.00	41.4 AV	54.0	-12.6	1.30 V	262	-5.48	46.88		

- 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.



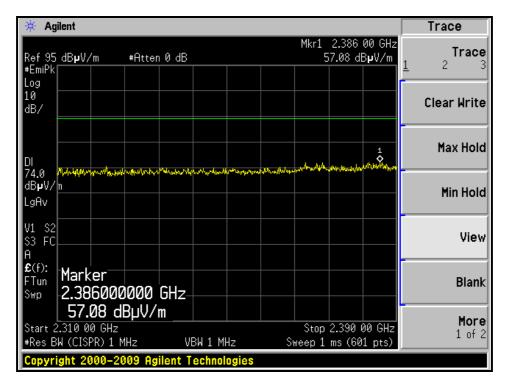
EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 11		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

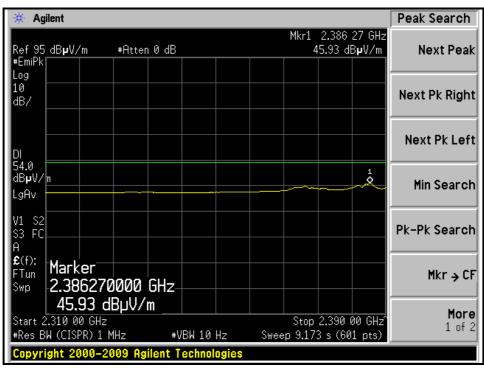
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
		ANIENNAI	POLARITY	& IESI DIS	I ANCE: HO	RIZONTAL	AI 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2462.00	105.5 PK			1.50 H	281	73.49	32.01	
2	*2462.00	103.4 AV			1.50 H	281	71.39	32.01	
3	2488.75	56.5 PK	74.0	-17.5	1.50 H	281	24.39	32.11	
4	2488.75	44.9 AV	54.0	-9.1	1.50 H	281	12.79	32.11	
5	4924.00	54.7 PK	74.0	-19.3	1.29 H	275	15.03	39.67	
6	4924.00	50.9 AV	54.0	-3.1	1.29 H	275	11.23	39.67	
7	7386.00	55.3 PK	74.0	-18.7	1.29 H	264	8.50	46.80	
8	7386.00	41.6 AV	54.0	-12.4	1.29 H	264	-5.20	46.80	
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2462.00	99.7 PK			1.22 V	25	67.69	32.01	
2	*2462.00	97.3 AV			1.22 V	25	65.29	32.01	
3	2487.85	55.7 PK	74.0	-18.3	1.22 V	25	23.59	32.11	
4	2487.85	44.0 AV	54.0	-10.0	1.22 V	25	11.89	32.11	
5	4924.00	52.4 PK	74.0	-21.6	1.43 V	349	12.73	39.67	
6	4924.00	48.1 AV	54.0	-5.9	1.43 V	349	8.43	39.67	
7	7386.00	55.7 PK	74.0	-18.3	1.09 V	332	8.90	46.80	
8	7386.00	41.7 AV	54.0	-12.3	1.09 V	332	-5.10	46.80	

- 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.



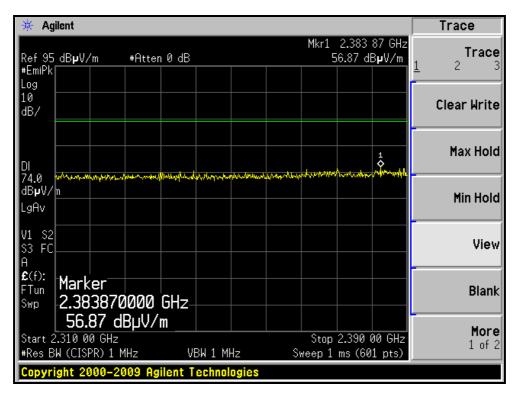
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)

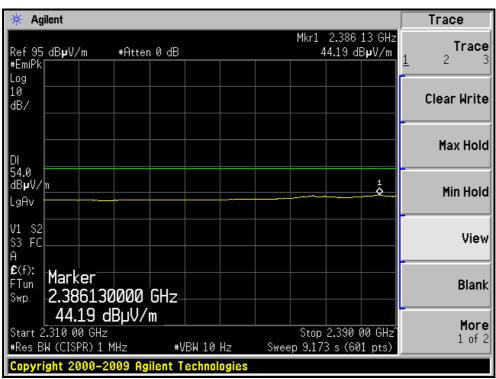






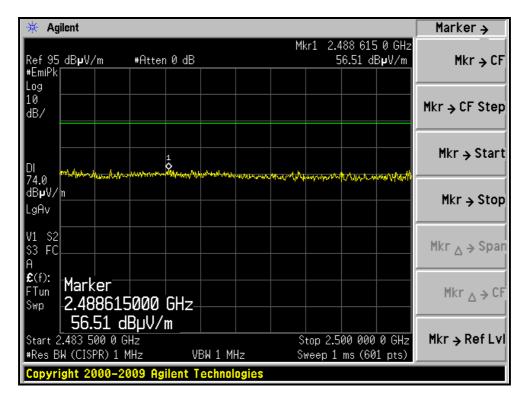
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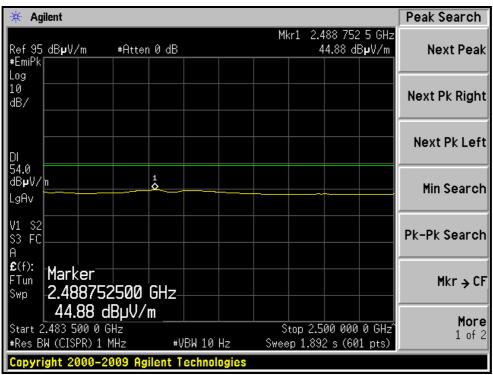






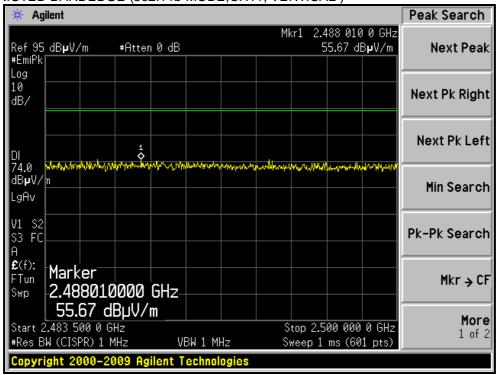
RESTRICTED BANDEDGE (802.11b MODE, CH11, HORIZONTAL)

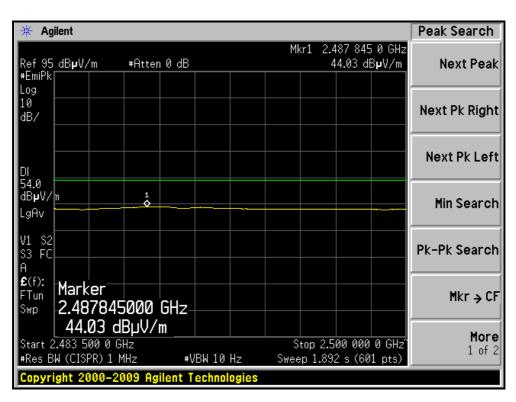






RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)







802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 1		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL 15deg. C, 60%RH 1022 hPa		TESTED BY	Kent Liu	

	ANTENNA DOLADITY O TEST DISTANCE LIGDIZONTAL AT OM								
	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	56.6 PK	74.0	-17.4	1.53 H	284	24.85	31.75	
2	2390.00	44.2 AV	54.0	-9.8	1.53 H	284	12.45	31.75	
3	*2412.00	104.8 PK			1.53 H	284	72.98	31.82	
4	*2412.00	95.3 AV			1.53 H	284	63.48	31.82	
5	4824.00	51.6 PK	74.0	-22.4	1.33 H	273	12.24	39.36	
6	4824.00	42.4 AV	54.0	-11.6	1.33 H	273	3.04	39.36	
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
I I I I I I I I I I I I I I I I I I I							CORRECTION FACTOR (dB/m)		
1	2390.00	55.3 PK	74.0	-18.7	1.19 V	27	23.55	31.75	
2	2390.00	43.8 AV	54.0	-10.2	1.19 V	27	12.05	31.75	
3	*2412.00	98.2 PK			1.19 V	27	66.38	31.82	
4	*2412.00	89.4 AV			1.19 V	27	57.58	31.82	
5	4824.00	49.8 PK	74.0	-24.2	1.44 V	346	10.44	39.36	
6	4824.00	39.3 AV	54.0	-14.7	1.44 V	346	-0.06	39.36	

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



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 6		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL 15deg. C, 60%RH 1022 hPa		TESTED BY	Kent Liu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2437.00	104.5 PK			1.54 H	283	72.58	31.92	
2	*2437.00	95.1 AV			1.54 H	283	63.18	31.92	
3	4874.00	51.3 PK	74.0	-22.7	1.35 H	272	11.80	39.50	
4	4874.00	42.1 AV	54.0	-11.9	1.35 H	272	2.60	39.50	
5	7311.00	55.0 PK	74.0	-19.0	1.20 H	240	8.12	46.88	
6	7311.00	41.7 AV	54.0	-12.3	1.20 H	240	-5.18	46.88	
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2437.00	98.7 PK			1.18 V	29	66.78	31.92	
2	*2437.00	89.6 AV			1.18 V	29	57.68	31.92	
3	4874.00	49.6 PK	74.0	-24.4	1.42 V	346	10.10	39.50	
4	4874.00	39.5 AV	54.0	-14.5	1.42 V	346	0.00	39.50	
5	7311.00	54.5 PK	74.0	-19.5	1.30 V	266	7.62	46.88	
6	7311.00	41.3 AV	54.0	-12.7	1.30 V	266	-5.58	46.88	

- 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.



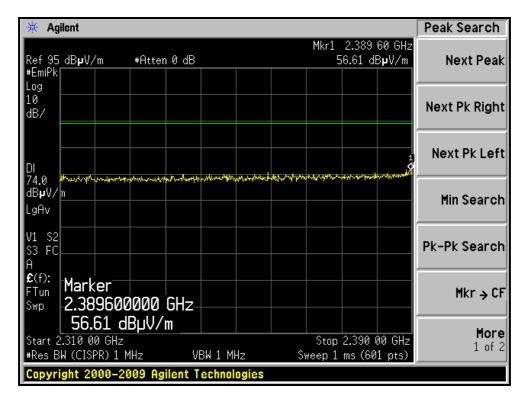
EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 11		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL 15deg. C, 60%RH 1022 hPa		TESTED BY	Kent Liu	

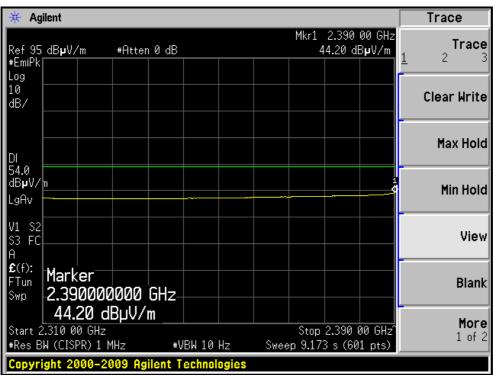
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		ANIENNAI	POLARITY	& LEST DIS	I ANCE: HO	RIZONTAL	AI 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.6 PK			1.54 H	256	71.59	32.01
2	*2462.00	94.7 AV			1.54 H	256	62.69	32.01
3	2483.50	57.8 PK	74.0	-16.2	1.54 H	256	25.71	32.09
4	2483.50	44.3 AV	54.0	-9.7	1.54 H	256	12.21	32.09
5	4924.00	51.9 PK	74.0	-22.1	1.33 H	272	12.23	39.67
6	4924.00	43.0 AV	54.0	-11.0	1.33 H	272	3.33	39.67
7	7386.00	54.9 PK	74.0	-19.1	1.20 H	242	8.10	46.80
8	7386.00	41.5 AV	54.0	-12.5	1.20 H	242	-5.30	46.80
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	98.6 PK			1.22 V	25	66.59	32.01
2	*2462.00	89.4 AV			1.22 V	25	57.39	32.01
3	2483.50	56.0 PK	74.0	-18.0	1.22 V	25	23.91	32.09
4	2483.50	43.4 AV	54.0	-10.6	1.22 V	25	11.31	32.09
5	4924.00	50.2 PK	74.0	-23.8	1.43 V	344	10.53	39.67
6	4924.00	39.9 AV	54.0	-14.1	1.43 V	344	0.23	39.67
7	7386.00	54.6 PK	74.0	-19.4	1.31 V	265	7.80	46.80
8	7386.00	41.4 AV	54.0	-12.6	1.31 V	265	-5.40	46.80

- 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.



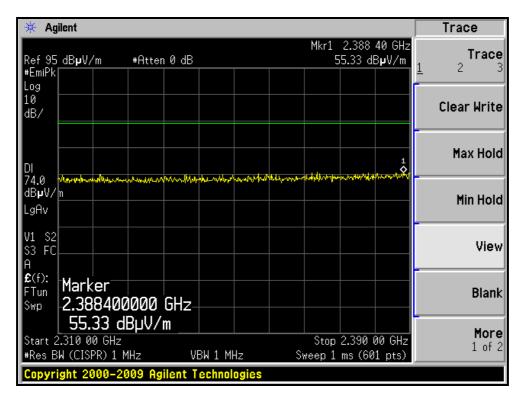
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)

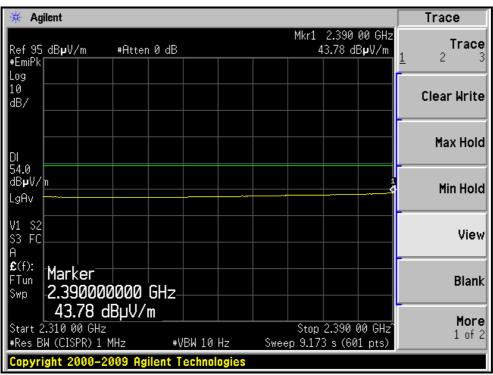






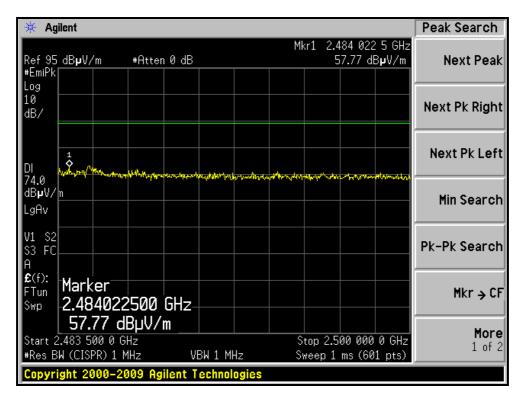
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)

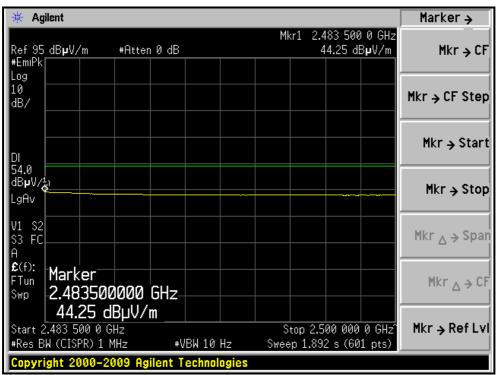






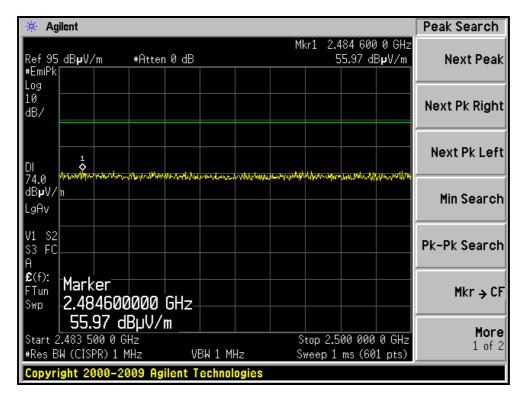
RESTRICTED BANDEDGE (802.11g MODE, CH11, HORIZONTAL)

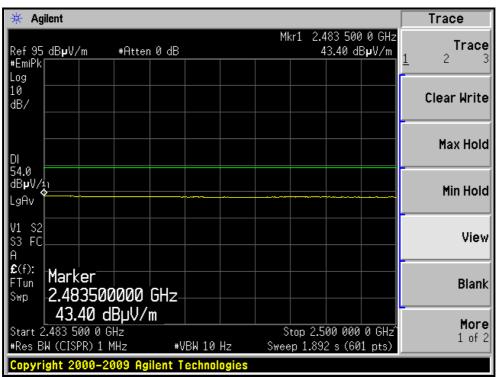






RESTRICTED BANDEDGE (802.11g MODE, CH11, VERTICAL)







802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

	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	58.7 PK	74.0	-15.3	1.54 H	282	26.95	31.75		
2	2390.00	44.3 AV	54.0	-9.7	1.54 H	282	12.55	31.75		
3	*2412.00	104.1 PK			1.54 H	282	72.28	31.82		
4	*2412.00	94.2 AV			1.54 H	282	62.38	31.82		
5	4824.00	51.9 PK	74.0	-22.1	1.33 H	274	12.54	39.36		
6	4824.00	42.5 AV	54.0	-11.5	1.33 H	274	3.14	39.36		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	55.9 PK	74.0	-18.1	1.26 V	28	24.15	31.75		
2	2390.00	43.2 AV	54.0	-10.8	1.26 V	28	11.45	31.75		
3	*2412.00	99.3 PK			1.26 V	28	67.48	31.82		
4	*2412.00	88.4 AV			1.26 V	28	56.58	31.82		
	4824.00	50.1 PK	74.0	-23.9	1.44 V	349	10.74	39.36		
5	4024.00	30.1 FK	74.0	-23.9	1.44 V	349	10.74	33.30		

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



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

	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	105.3 PK			1.55 H	284	73.38	31.92		
2	*2437.00	94.4 AV			1.55 H	284	62.48	31.92		
3	4874.00	52.6 PK	74.0	-21.4	1.34 H	271	13.10	39.50		
4	4874.00	42.8 AV	54.0	-11.2	1.34 H	271	3.30	39.50		
5	7311.00	55.4 PK	74.0	-18.6	1.22 H	243	8.52	46.88		
6	7311.00	41.5 AV	54.0	-12.5	1.22 H	243	-5.38	46.88		
		ANTENNA	A POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 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	99.6 PK			1.25 V	29	67.68	31.92		
2	*2437.00	88.7 AV			1.25 V	29	56.78	31.92		
3	*2437.00 4874.00	88.7 AV 51.3 PK	74.0	-22.7	1.25 V 1.43 V	29 342	56.78 11.80	31.92 39.50		
<u> </u>			74.0 54.0	-22.7 -13.9	-	-				
3	4874.00	51.3 PK			1.43 V	342	11.80	39.50		

- 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.



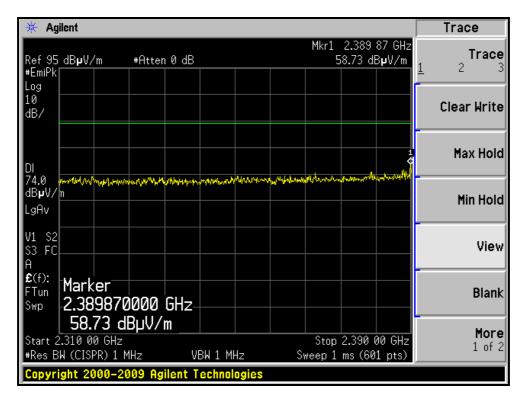
EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

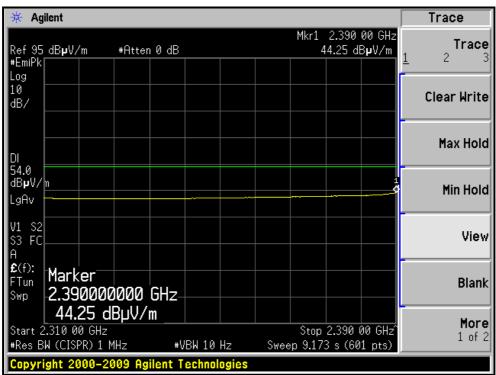
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
		ANTENNA I	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*2462.00	104.8 PK			1.48 H	283	72.79	32.01		
2	*2462.00	94.1 AV			1.48 H	283	62.09	32.01		
3	2483.50	58.3 PK	74.0	-15.7	1.50 H	284	26.21	32.09		
4	2483.50	44.5 AV	54.0	-9.5	1.50 H	284	12.41	32.09		
5	4924.00	53.1 PK	74.0	-20.9	1.33 H	273	13.43	39.67		
6	4924.00	42.7 AV	54.0	-11.3	1.33 H	273	3.03	39.67		
7	7386.00	55.6 PK	74.0	-18.4	1.24 H	242	8.80	46.80		
8	7386.00	41.6 AV	54.0	-12.4	1.24 H	242	-5.20	46.80		
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*2462.00	99.2 PK			1.24 V	26	67.19	32.01		
2	*2462.00	88.5 AV			1.24 V	26	56.49	32.01		
3	2483.50	55.4 PK	74.0	-18.6	1.42 V	342	23.31	32.09		
4	2483.50	43.4 AV	54.0	-10.6	1.42 V	342	11.31	32.09		
5	4924.00	51.7 PK	74.0	-22.3	1.42 V	342	12.03	39.67		
6	4924.00	40.8 AV	54.0	-13.2	1.42 V	342	1.13	39.67		
7	7386.00	55.5 PK	74.0	-18.5	1.00 V	264	8.70	46.80		
	7386.00	41.6 AV	54.0	-12.4	1.00 V	264	-5.20	46.80		

- 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.



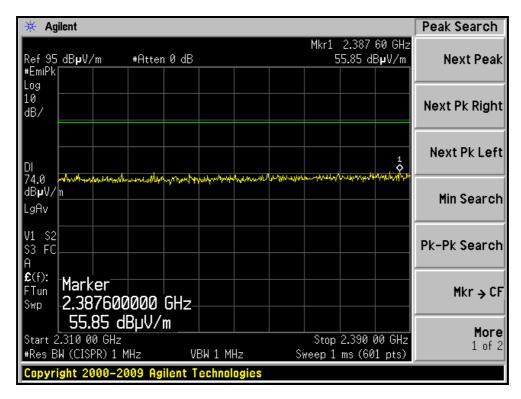
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)

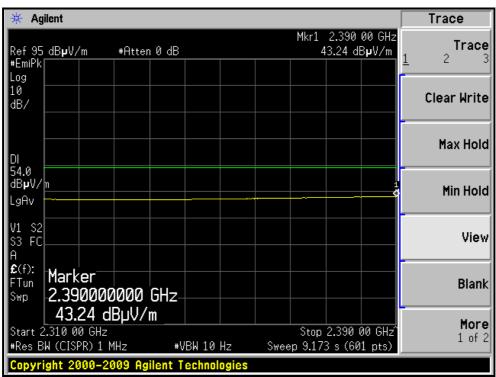






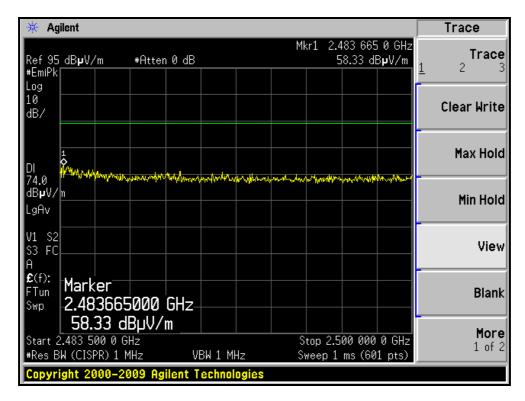
RESTRICTED BANDEDGE (802.11n (20MHz) MODE, CH1, VERTICAL)

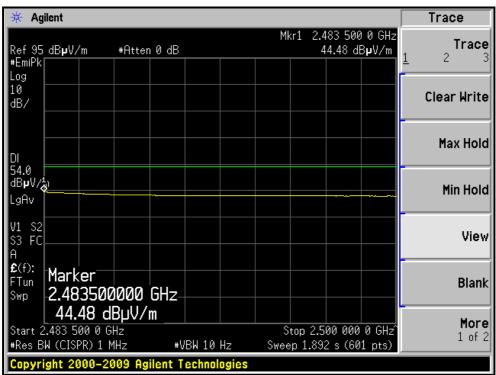






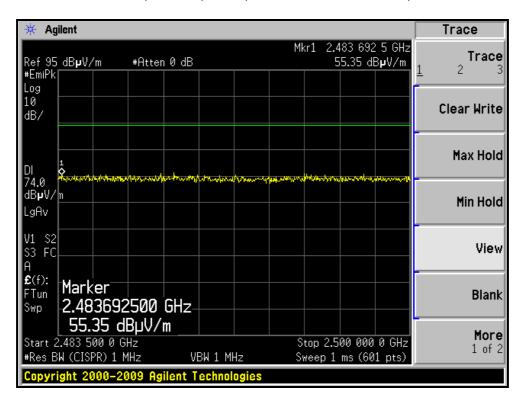
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)

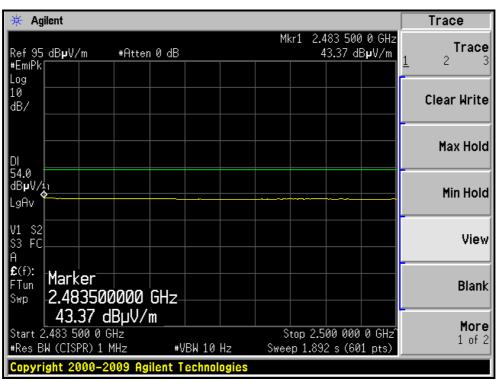






RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, VERTICAL)







802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
		ANIENNA	POLARITY	& TEST DIS	I ANCE: HO	RIZONTAL	AI 3 M	1	
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	58.2 PK	74.0	-15.8	1.50 H	281	26.45	31.75	
2	2390.00	44.2 AV	54.0	-9.8	1.50 H	281	12.45	31.75	
3	*2422.00	100.9 PK			1.51 H	282	69.04	31.86	
4	*2422.00	90.8 AV			1.51 H	282	58.94	31.86	
5	4844.00	51.3 PK	74.0	-22.7	1.31 H	273	11.88	39.42	
6	4844.00	42.1 AV	54.0	-11.9	1.31 H	273	2.68	39.42	
7	7266.00	55.2 PK	74.0	-18.8	1.22 H	242	8.29	46.91	
8	7266.00	41.3 AV	54.0	-12.7	1.22 H	242	-5.61	46.91	
		ANTENNA	A POLARIT	/ & TEST DI	STANCE: V	ERTICAL A	T 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	56.3 PK	74.0	-17.7	1.24 V	29	24.55	31.75	
2	2390.00	43.4 AV	54.0	-10.6	1.24 V	29	11.65	31.75	
3	*2422.00	94.1 PK			1.24 V	29	62.24	31.86	
4	*2422.00	83.8 AV			1.24 V	29	51.94	31.86	
5	4844.00	50.6 PK	74.0	-23.4	1.44 V	349	11.18	39.42	
6	4844.00	40.2 AV	54.0	-13.8	1.44 V	349	0.78	39.42	
7	7266.00	54.7 PK	74.0	-19.3	1.33 V	266	7.79	46.91	
8	7266.00	41.3 AV	54.0	-12.7	1.33 V	266	-5.61	46.91	

- 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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

		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	101.3 PK			1.50 H	284	69.38	31.92			
2	*2437.00	90.9 AV			1.50 H	284	58.98	31.92			
3	4874.00	51.9 PK	74.0	-22.1	1.31 H	274	12.40	39.50			
4	4874.00	42.2 AV	54.0	-11.8	1.31 H	274	2.70	39.50			
5	7311.00	55.0 PK	74.0	-19.0	1.23 H	241	8.12	46.88			
6	7311.00	41.2 AV	54.0	-12.8	1.23 H	241	-5.68	46.88			
		ANTENNA	A POLARIT	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M				
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*2437.00	94.6 PK			1.22 V	28	62.68	31.92			
_											
2	*2437.00	84.2 AV			1.22 V	28	52.28	31.92			
3	*2437.00 4874.00	84.2 AV 50.7 PK	74.0	-23.3	1.22 V 1.43 V	28 351	52.28 11.20	31.92 39.50			
		*	74.0 54.0	-23.3 -13.9							
3	4874.00	50.7 PK			1.43 V	351	11.20	39.50			

- 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.



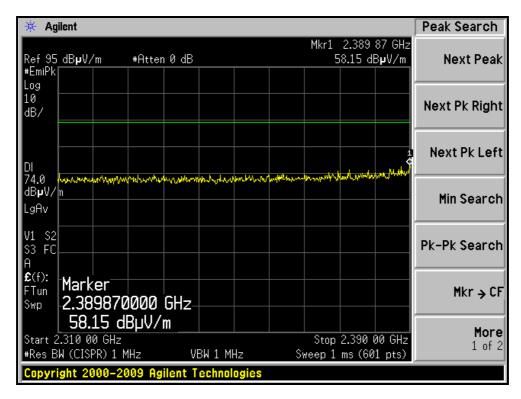
EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	15deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu	

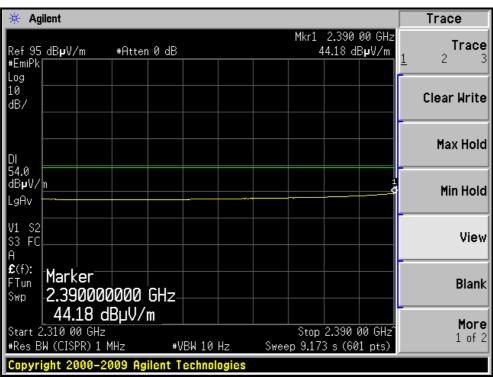
		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.1 PK			1.49 H	282	69.13	31.97
2	*2452.00	90.7 AV			1.49 H	282	58.73	31.97
3	2483.50	58.3 PK	74.0	-15.7	1.49 H	282	26.21	32.09
4	2483.50	44.4 AV	54.0	-9.6	1.49 H	282	12.31	32.09
5	4904.00	51.5 PK	74.0	-22.5	1.30 H	273	11.90	39.60
6	4904.00	42.3 AV	54.0	-11.7	1.30 H	273	2.70	39.60
7	7356.00	54.6 PK	74.0	-19.4	1.24 H	242	7.77	46.83
8	7356.00	41.4 AV	54.0	-12.6	1.24 H	242	-5.43	46.83
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	94.0 PK			1.26 V	29	62.03	31.97
2	*2452.00	83.5 AV			1.26 V	29	51.53	31.97
3	2483.50	55.4 PK	74.0	-18.6	1.26 V	29	23.31	32.09
4	2483.50	43.5 AV	54.0	-10.5	1.26 V	29	11.41	32.09
5	4904.00	50.6 PK	74.0	-23.4	1.43 V	352	11.00	39.60
6	4904.00	40.4 AV	54.0	-13.6	1.43 V	352	0.80	39.60
7	7356.00	54.5 PK	74.0	-19.5	1.32 V	265	7.67	46.83
8	7356.00	41.3 AV	54.0	-12.7	1.32 V	265	-5.53	46.83

- 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.



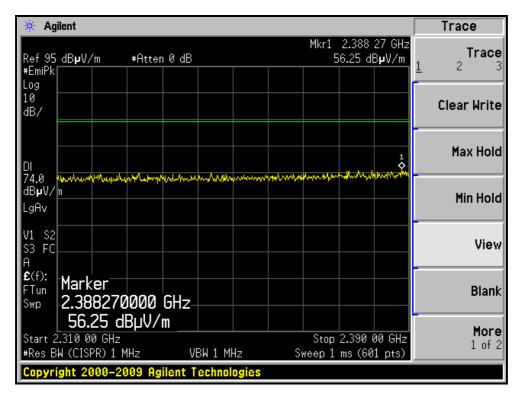
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)

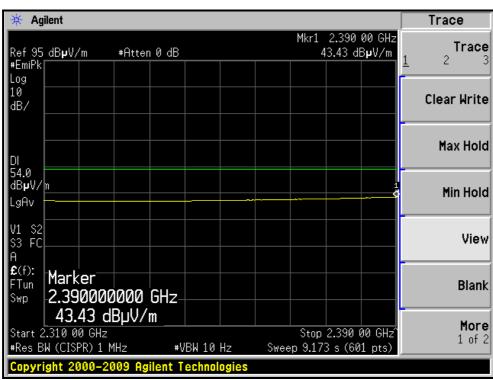






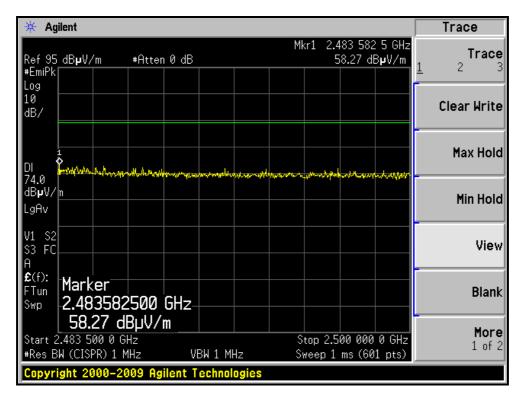
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)

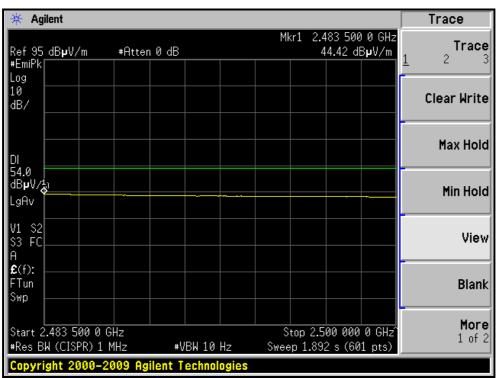






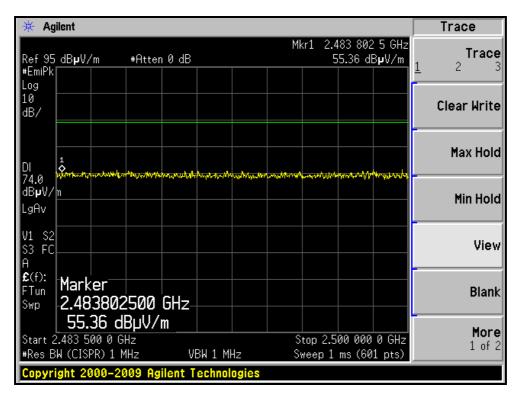
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH7, HORIZONTAL)

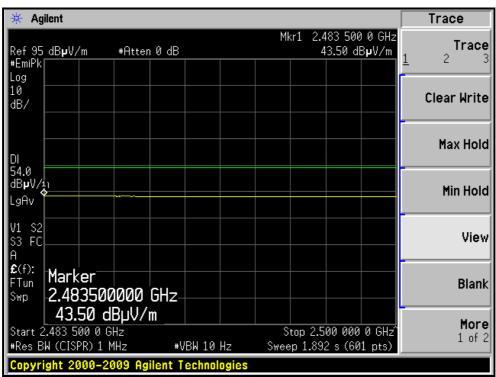






RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH7, VERTICAL)







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
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE:

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

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

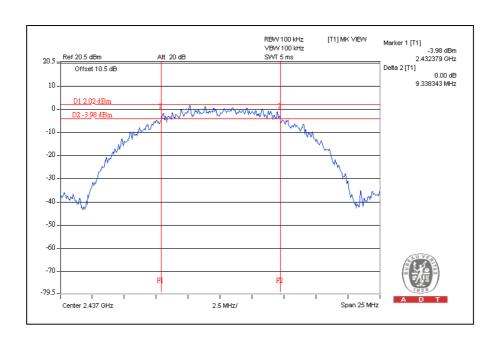
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

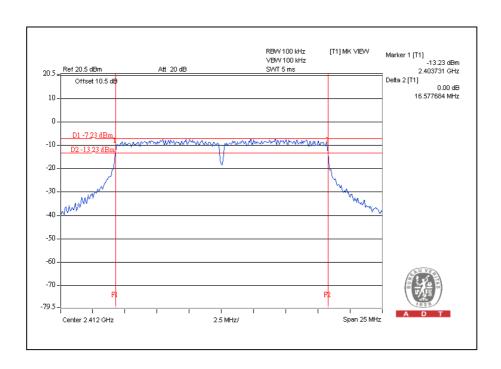
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.05	0.5	PASS
6	2437	9.33	0.5	PASS
11	2462	8.75	0.5	PASS





802.11g OFDM MODULATION:

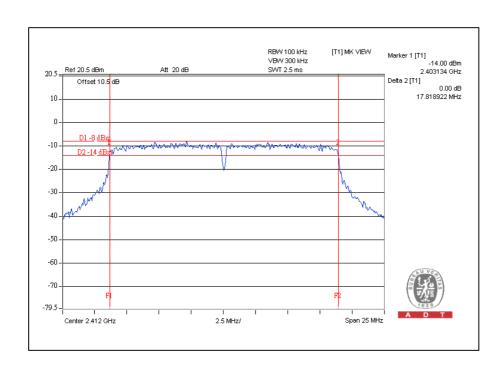
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.57	0.5	PASS
6	2437	16.57	0.5	PASS
11	2462	16.55	0.5	PASS





802.11n (20MHz) OFDM MODULATION:

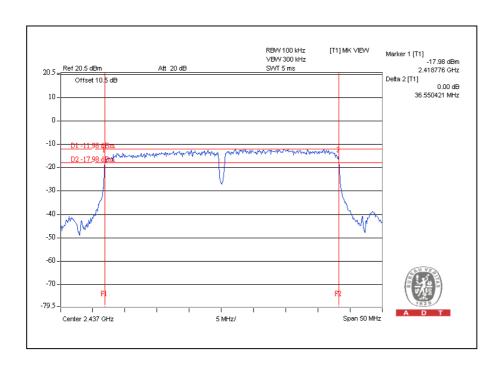
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.81	0.5	PASS
6	2437	17.79	0.5	PASS
11	2462	17.79	0.5	PASS





802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.51	0.5	PASS
4	2437	36.55	0.5	PASS
7	2452	36.52	0.5	PASS





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
Anritsu Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Pulse Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

NOTE:

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

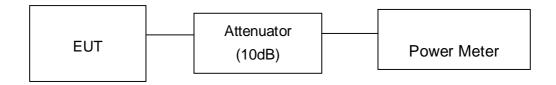
4.4.3 TEST PROCEDURES

- 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

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	67.6	18.3	30	PASS
6	2437	75.9	18.8	30	PASS
11	2462	64.6	18.1	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	123.0	20.9	30	PASS
6	2437	123.0	20.9	30	PASS
11	2462	117.5	20.7	30	PASS

802.11n (20MHz) OFDM modulation:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	93.3	19.7	30	PASS
6	2437	100.0	20.0	30	PASS
11	2462	102.3	20.1	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	81.3	19.1	30	PASS
4	2437	79.4	19.0	30	PASS
7	2452	74.1	18.7	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
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE:

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

4.5.3 TEST PROCEDURE

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

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

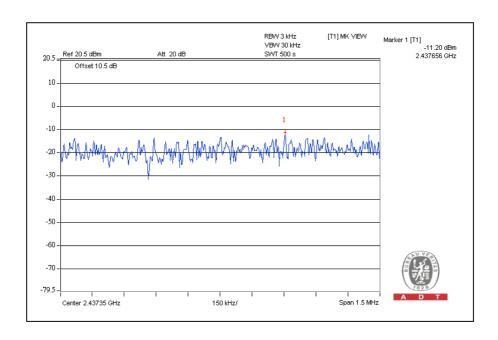
Same as Item 4.3.6



4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

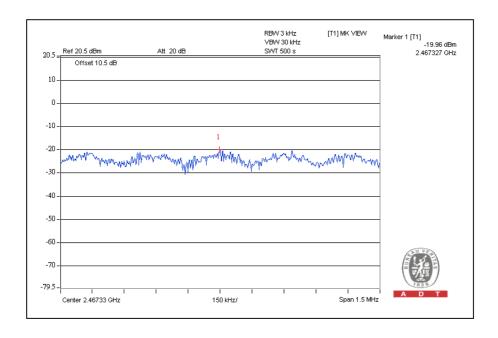
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-11.8	8	PASS
6	2437	-11.2	8	PASS
11	2462	-11.2	8	PASS





802.11g OFDM MODULATION:

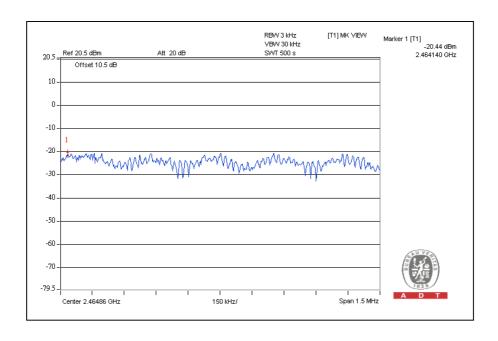
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-21.2	8	PASS
6	2437	-21.3	8	PASS
11	2462	-20.0	8	PASS





802.11n (20MHz) OFDM MODULATION:

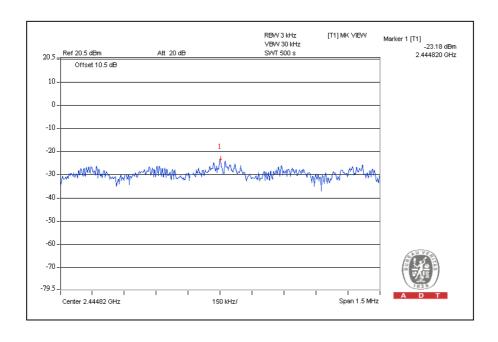
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-22.5	8	PASS
6	2437	-22.5	8	PASS
11	2462	-20.4	8	PASS





802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-24.9	8	PASS
4	2437	-23.2	8	PASS
7	2452	-23.4	8	PASS





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
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE:

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

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 or 200 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

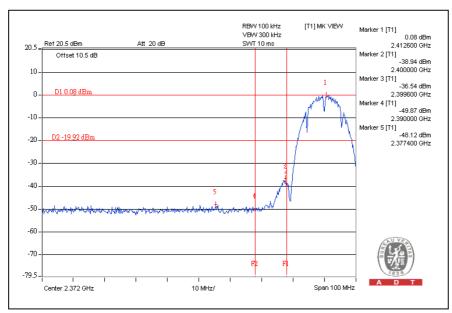
4.6.6 TEST RESULTS

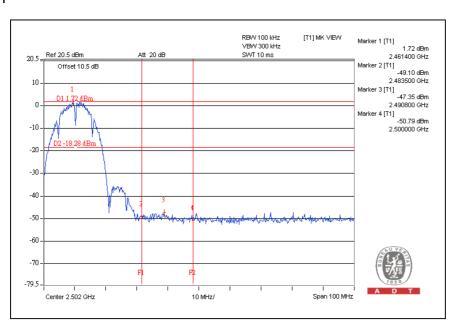
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).



802.11b DSSS MODULATION:

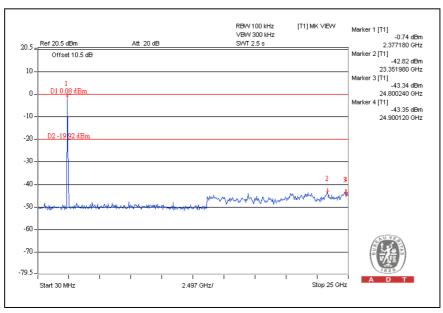
CH1

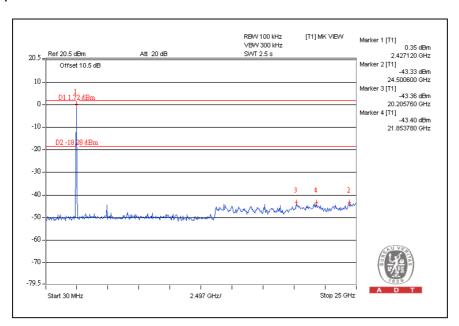






CH1

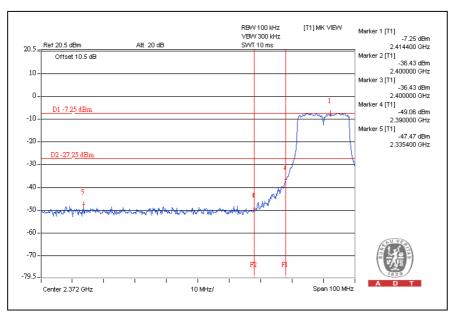


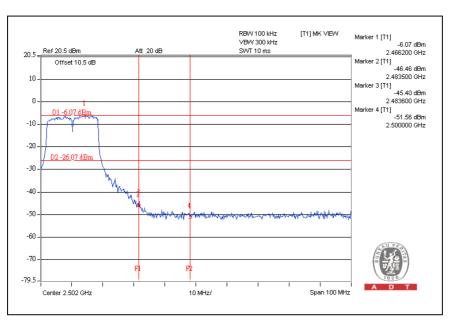




802.11g OFDM MODULATION:

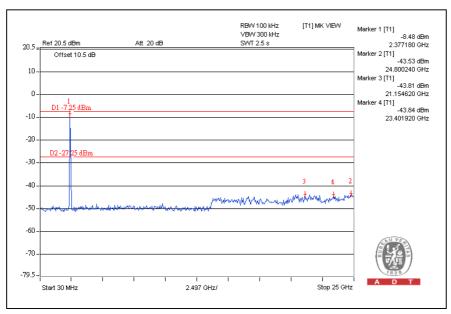
CH1

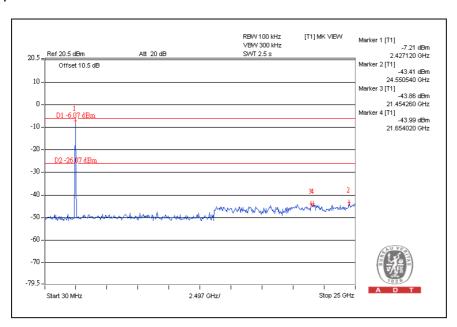






CH1

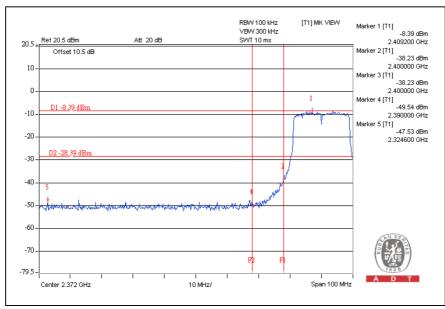


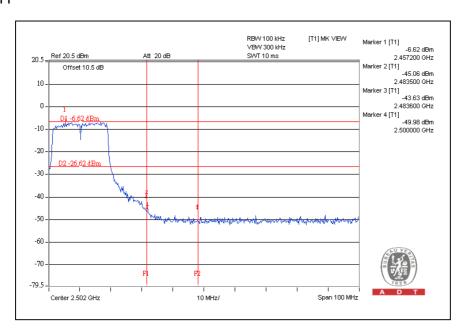




802.11n (20MHz) OFDM MODULATION:

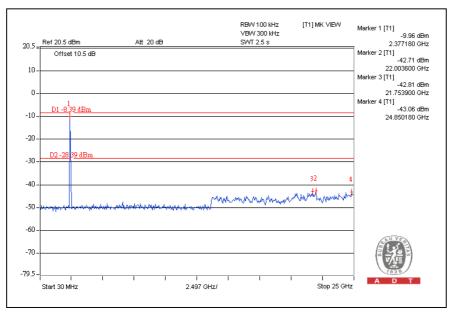
CH1

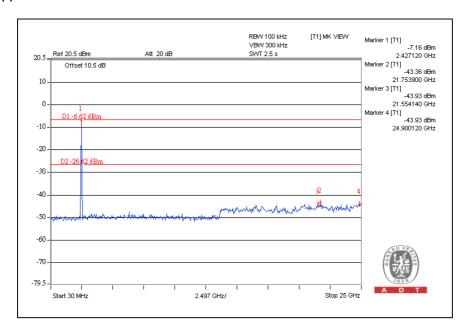






CH1

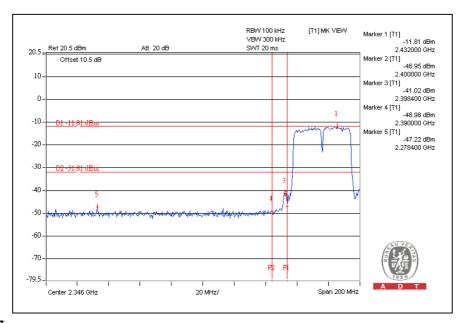


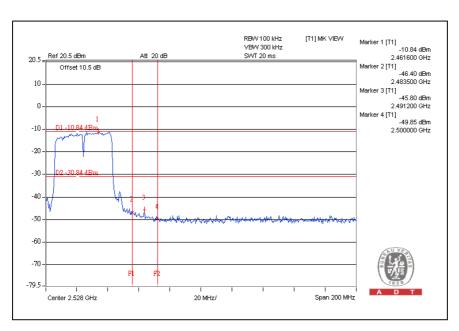




802.11n (40MHz) OFDM MODULATION:

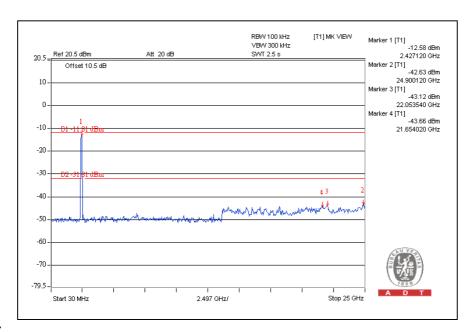
CH1

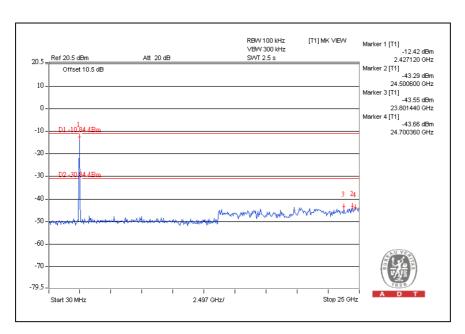






CH1







5.INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab: Hsin Chu EMC/RF Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26052943 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3185050

Email: service@adt.com.tw
Web Site: www.adt.com.tw

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



6.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.
END
LND