

FCC TEST REPORT

REPORT NO.: RF130819E05 R1

MODEL NO.: RV130W

FCC ID: N89-RV130W

RECEIVED: Apr. 23, 2013

TESTED: Apr. 23, 2013 to Aug. 30, 2013

ISSUED: Sep. 27, 2013

APPLICANT: CyberTAN Technology, Inc.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130819E05	Original release	Sep. 26, 2013
RF130819E05 R1	Change the model of Ethernet X'fmr (2nd source)	Sep. 27, 2013

1. CERTIFICATION

PRODUCT: Wireless Multifunction VPN Router
BRAND NAME: Cisco
MODEL NO.: RV130W
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: CyberTAN Technology, Inc.
TESTED: Apr. 23, 2013 to Aug. 30, 2013
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: RV130W) 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 : Midoli Peng, **DATE:** Sep. 27, 2013
(Midoli Peng, Specialist)

APPROVED BY : May Chen, **DATE:** Sep. 27, 2013
(May Chen, Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -12.16dB at 0.22691MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390.00MHz & 2483.5MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	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	2.98 dB
Radiated emissions (30MHz-1GHz)	5.63 dB
Radiated emissions (1GHz -6GHz)	3.73 dB
Radiated emissions (6GHz -18GHz)	3.90 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Multifunction VPN Router
MODEL NO.	RV130W
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 270Mbps
OPERATING FREQUENCY	2.412 ~ 2.462GHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
MAXIMUM OUTPUT POWER	802.11b: 122.462mW 802.11g: 459.893mW 802.11n (HT20): 531.666mW 802.11n (HT40): 319.758mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x1

NOTE:

- The EUT has two different sources could be chosen and please refer the below table:

Ethernet X'fmr	WAN Port	
	Brand	Model
Main source	FPE	LG18103DF
2nd source	FCE	NS771801A

Ethernet X'fmr	LAN Port	
	Brand	Model
Main source	FPE	LG36203DF
2nd source	FCE	NS773601A

Flash	Brand	Model	Spec
Main source	MXIC	MX29GL256FHT2I-90Q	16M*16 90ns 3.0V-3.6V
2nd source	MICRON	M29W256GH70N6E	16M*16 70ns 2.7-3.6V

DDR	Brand	Model	Spec
Main source	WINBOND	W971GG6JB-25	DDR2 64M*16 2.5ns 1.8V
2nd source	MICRON	MT47H64M16HR-25:H	DDR2 64M*16 2.5ns 1.8V

Main source, the worse case one, was chosen for final test.

- The EUT must be supplied with power adapter as following table:

Brand	Model No.	Spec.
DVE	DSA-24PFD-15 FUS	Input: 100-240V, 0.8A, 50-60Hz Output: 12V, 2A DC output cable (Unshielded, 1.6m)

- The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Peak Gain (Excluded Cable loss) (dBi)	Cable Loss (dB)	Peak Gain (Included Cable loss) (dBi)	Cable Length (mm)	Antenna Type	Frequency range (MHz to MHz)	Connector Type
Chain (0)	2	0.9	1.1	254	Dipole	2400~2483.5	NA
Chain (1)	2	0.3	1.7	95	Dipole	2400~2483.5	NA

4. The EUT incorporates a MIMO function without beam forming.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX(diversity)/2RX
802.11g	2TX/2RX
802.11n (HT20)	2TX/2RX
802.11n (HT40)	2TX/2RX

5. The EUT could be applied with one 3.5G USB wireless device, therefore emission tests are added for simultaneously transmit between wireless LAN and 3.5G USB wireless device. The emission tests have been performed at the worst channel of both WLAN and 3.5G USB wireless device, the spurious emission of the simultaneous operation (WLAN & 3.5G USB wireless device) has been evaluated and no non-compliance found. < 3.5G USB wireless device only for test, not for sale >

Brand name	Model name	FCC ID	Spec.	Testing mode
HUAWEI	E169u	QISE169	GSM/GPRS/EDGE 850/1900MHz	GPRS ch128, 824.2MHz

6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
7. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20):

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

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC:** Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

OB: Conducted Out-Band Emission Measurement

NOTE: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane(below 1GHz) & X-plane(above 1GHz)** .

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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	MODULATIO N TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	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	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	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, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	25deg. C, 65%RH	120Vac, 60Hz	Anderson Chen
RE<1G	22deg. C, 69%RH	120Vac, 60Hz	Chilin Lee
RE ³ 1G	22deg. C, 67%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng
OB	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

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)

558074 D01 DTS Meas Guidance v03r01

662911 D01 Multiple Transmitter Output v01 r02

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.



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3.4 DESCRIPTION OF SUPPORT UNITS

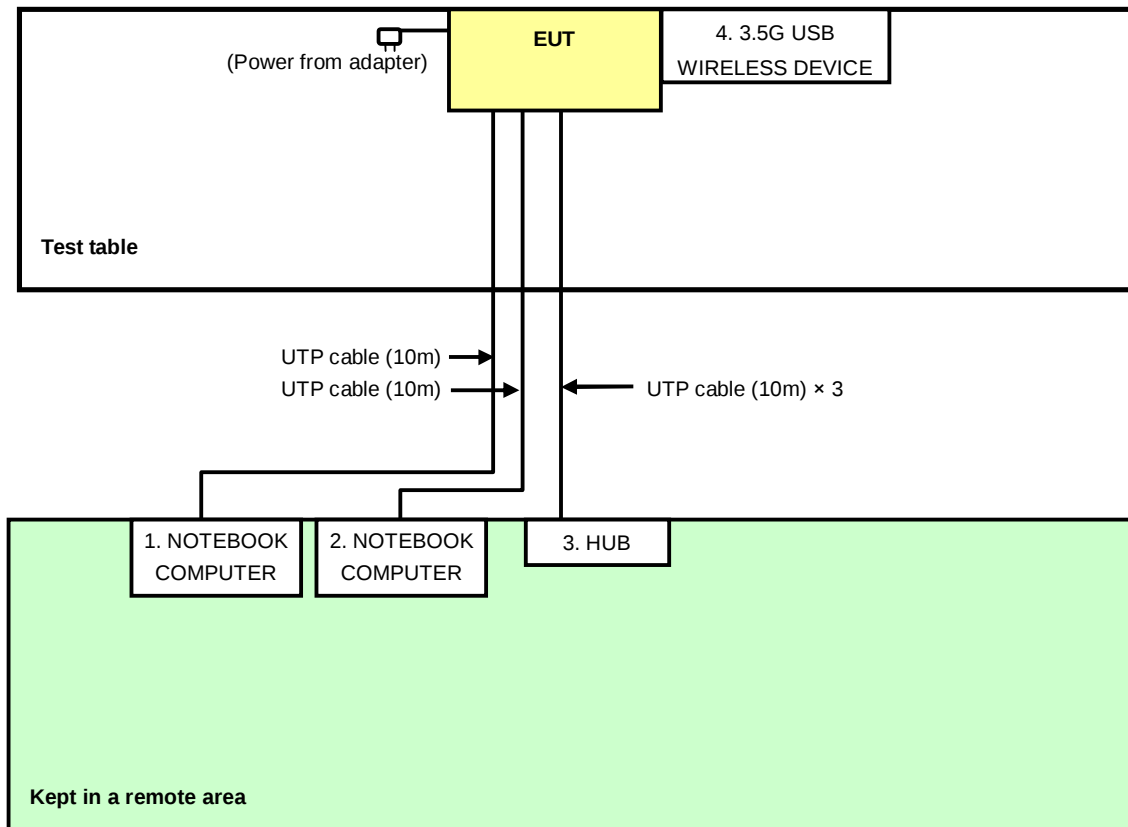
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	HSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP18L	12252644560	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
4	3.5G USB WIRELESS DEVICE	HUAWEI	E169u	Q54CAB1042404880	QISE169

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable (10m)
2	UTP cable (10m)
3	UTP cable (10m)
4	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER 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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100287	Feb. 28, 2013	Feb. 27, 2014
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK 8127	8127-523	Sep. 24, 2012	Sep. 23, 2013
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ESH3-Z5	8487731004	Oct. 29, 2012	Oct. 28, 2013
RF Cable (JYEBAO)	5DFB	COACAB-002	Aug. 05, 2012	Aug. 04, 2013
50 ohms Terminator	50	3	Oct. 16, 2012	Oct. 15, 2013
Software ADT	BV ADT_Cond_V7.3.7 .3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.
4. Tested Date: Apr. 23, 2013

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.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

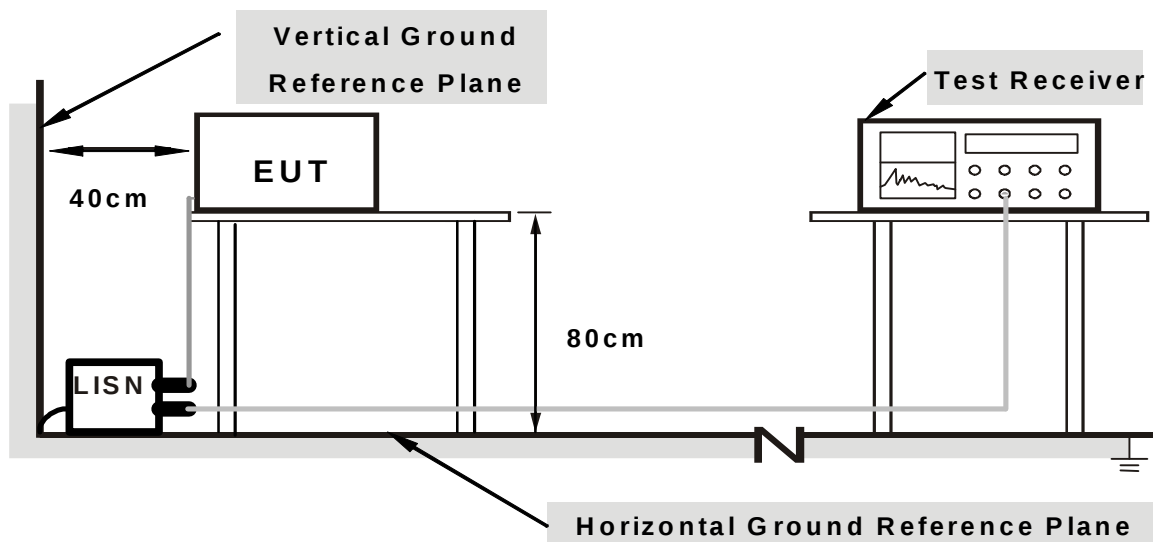
NOTE:

1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

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

4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared computer system (support units 1 ~ 2) to act as communication partner.
3. The communication partner ran test program “Mtool” to enable EUT under transmission/receiving condition continuously.

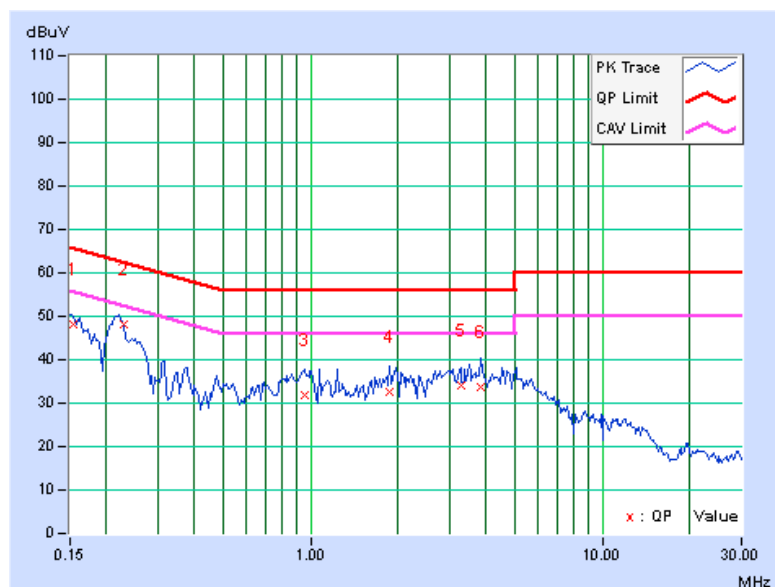
4.1.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15337	0.09	47.96	36.17	48.05	36.26	65.82	55.82	-17.76	-19.55
2	0.22975	0.11	48.13	38.17	48.24	38.28	62.46	52.46	-14.22	-14.18
3	0.96021	0.17	31.61	25.48	31.78	25.65	56.00	46.00	-24.22	-20.35
4	1.87129	0.20	32.52	26.21	32.72	26.41	56.00	46.00	-23.28	-19.59
5	3.28864	0.26	33.92	27.41	34.18	27.67	56.00	46.00	-21.82	-18.33
6	3.83192	0.28	33.43	27.79	33.71	28.07	56.00	46.00	-22.29	-17.93

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission Level – Limit value
4. Correction Factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

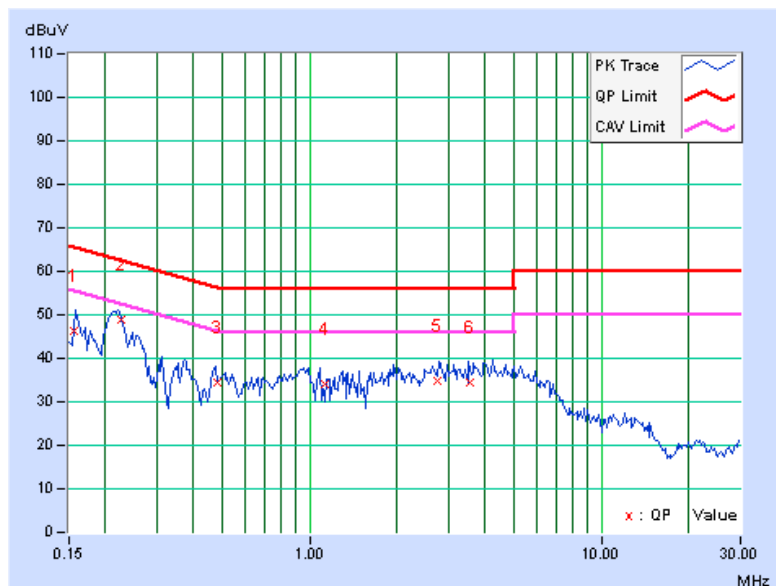


PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15634	0.14	46.02	36.90	46.16	37.04	65.66	55.66	-19.50	-18.62
2	0.22691	0.15	48.56	40.26	48.71	40.41	62.56	52.56	-13.86	-12.16
3	0.48164	0.18	34.37	23.28	34.55	23.46	56.31	46.31	-21.76	-22.85
4	1.13072	0.21	33.93	26.35	34.14	26.56	56.00	46.00	-21.86	-19.44
5	2.75628	0.27	34.46	29.11	34.73	29.38	56.00	46.00	-21.27	-16.62
6	3.52837	0.30	34.30	28.87	34.60	29.17	56.00	46.00	-21.40	-16.83

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission Level – Limit value
4. Correction Factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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. 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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
MXE EMI Receiver Agilent	N9038A	MY51210105	Jan. 29, 2013	Jan. 28, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 25, 2013	June 24, 2014
Pre-Amplifier SPACEK LABS	SLKka-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Mar. 19, 2013	Mar. 18, 2014
Horn_Antenna AISi	AIH.8018	0000320091110	Nov. 19, 2012	Nov. 18, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 25, 2012	Dec. 24, 2013
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	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.
- 7 Tested Date: Aug. 29, 2013

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 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 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.

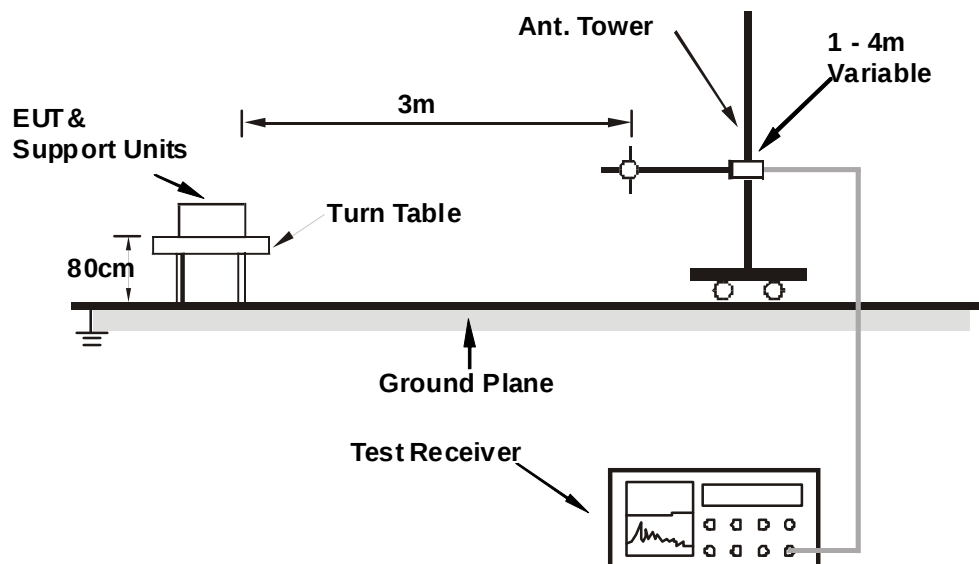
NOTE:

2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

4. Placed the EUT on testing table.
5. Prepared computer system (support units 1 ~ 2) to act as communication partner.
6. The communication partner ran test program “Mtool” to enable EUT under transmission/receiving condition continuously.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (HT20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

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	58.71	34.1 QP	40.0	-6.0	1.50 H	258	48.26	-14.21
2	250.00	42.4 QP	46.0	-3.7	1.00 H	70	56.79	-14.44
3	400.01	42.4 QP	46.0	-3.6	2.00 H	4	52.62	-10.25
4	500.01	39.3 QP	46.0	-6.7	1.50 H	53	47.03	-7.76
5	550.36	38.4 QP	46.0	-7.6	1.50 H	328	45.30	-6.93
6	799.99	38.9 QP	46.0	-7.1	1.00 H	360	40.84	-1.91
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	37.50	36.8 QP	40.0	-3.2	1.05 V	155	50.80	-13.99
2	250.00	36.8 QP	46.0	-9.2	2.00 V	360	51.22	-14.44
3	375.03	40.6 QP	46.0	-5.5	1.00 V	27	51.32	-10.77
4	399.96	39.4 QP	46.0	-6.7	1.50 V	360	49.60	-10.25
5	500.01	41.0 QP	46.0	-5.0	1.00 V	56	48.75	-7.76
6	875.02	36.0 QP	46.0	-10.0	1.50 V	360	36.93	-0.94

REMARKS:

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

ABOVE 1GHz DATA

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	49.6 PK	74.0	-24.4	1.00 H	19	50.79	-1.19
2	2390.00	37.2 AV	54.0	-16.8	1.00 H	19	38.39	-1.19
3	*2412.00	102.4 PK			1.00 H	19	103.49	-1.09
4	*2412.00	98.7 AV			1.00 H	19	99.79	-1.09
5	4824.00	49.9 PK	74.0	-24.1	1.00 H	223	42.31	7.59
6	4824.00	37.4 AV	54.0	-16.6	1.00 H	223	29.81	7.59
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	57.8 PK	74.0	-16.2	1.22 V	335	58.99	-1.19
2	2390.00	44.3 AV	54.0	-9.7	1.22 V	335	45.49	-1.19
3	*2412.00	108.8 PK			1.22 V	335	109.89	-1.09
4	*2412.00	106.0 AV			1.22 V	335	107.09	-1.09
5	4824.00	50.5 PK	74.0	-23.5	1.00 V	118	42.91	7.59
6	4824.00	39.1 AV	54.0	-14.9	1.00 V	118	31.51	7.59

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.3 PK			1.00 H	14	103.29	-0.99
2	*2437.00	98.3 AV			1.00 H	14	99.29	-0.99
3	4874.00	50.3 PK	74.0	-23.7	1.00 H	242	42.53	7.77
4	4874.00	35.8 AV	54.0	-18.2	1.00 H	242	28.03	7.77
5	7311.00	55.6 PK	74.0	-18.4	1.00 H	211	40.11	15.49
6	7311.00	42.0 AV	54.0	-12.0	1.00 H	211	26.51	15.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.7 PK			1.16 V	333	109.69	-0.99
2	*2437.00	105.9 AV			1.16 V	333	106.89	-0.99
3	4874.00	52.3 PK	74.0	-21.7	1.00 V	81	44.53	7.77
4	4874.00	38.4 AV	54.0	-15.6	1.00 V	81	30.63	7.77
5	7311.00	56.2 PK	74.0	-17.8	1.00 V	114	40.71	15.49
6	7311.00	43.3 AV	54.0	-10.7	1.00 V	114	27.81	15.49

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	102.7 PK			1.00 H	15	103.59	-0.89
2	*2462.00	98.9 AV			1.00 H	15	99.79	-0.89
3	2483.50	47.5 PK	74.0	-26.5	1.00 H	15	48.30	-0.80
4	2483.50	35.1 AV	54.0	-18.9	1.00 H	15	35.90	-0.80
5	4924.00	52.2 PK	74.0	-21.8	1.00 H	221	44.26	7.94
6	4924.00	37.1 AV	54.0	-16.9	1.00 H	221	29.16	7.94
7	7386.00	56.9 PK	74.0	-17.1	1.00 H	214	41.39	15.51
8	7386.00	42.8 AV	54.0	-11.2	1.00 H	214	27.29	15.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.5 PK			1.17 V	334	110.39	-0.89
2	*2462.00	106.5 AV			1.17 V	334	107.39	-0.89
3	2483.50	53.8 PK	74.0	-20.2	1.17 V	334	54.60	-0.80
4	2483.50	42.2 AV	54.0	-11.8	1.17 V	334	43.00	-0.80
5	4924.00	51.1 PK	74.0	-22.9	1.00 V	267	43.16	7.94
6	4924.00	39.1 AV	54.0	-14.9	1.00 V	267	31.16	7.94
7	7386.00	57.1 PK	74.0	-16.9	1.00 V	128	41.59	15.51
8	7386.00	43.6 AV	54.0	-10.4	1.00 V	128	28.09	15.51

REMARKS:

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

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CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	65.3 PK	74.0	-8.7	1.00 H	8	66.49	-1.19
2	2390.00	48.6 AV	54.0	-5.4	1.00 H	8	49.79	-1.19
3	*2412.00	104.8 PK			1.00 H	8	105.89	-1.09
4	*2412.00	94.2 AV			1.00 H	8	95.29	-1.09
5	4824.00	47.2 PK	74.0	-26.8	1.22 H	140	39.61	7.59
6	4824.00	35.2 AV	54.0	-18.8	1.22 H	140	27.61	7.59
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	68.4 PK	74.0	-5.6	1.00 V	19	69.59	-1.19
2	2390.00	52.9 AV	54.0	-1.1	1.00 V	19	54.09	-1.19
3	*2412.00	110.8 PK			1.00 V	19	111.89	-1.09
4	*2412.00	101.0 AV			1.00 V	19	102.09	-1.09
5	4824.00	47.0 PK	74.0	-27.0	1.15 V	305	39.41	7.59
6	4824.00	35.2 AV	54.0	-18.8	1.15 V	305	27.61	7.59

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.



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CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.4 PK	74.0	-13.6	1.00 H	16	61.59	-1.19
2	2390.00	47.0 AV	54.0	-7.0	1.00 H	16	48.19	-1.19
3	*2437.00	107.9 PK			1.00 H	16	108.89	-0.99
4	*2437.00	97.6 AV			1.00 H	16	98.59	-0.99
5	2483.50	55.2 PK	74.0	-18.8	1.00 H	16	56.00	-0.80
6	2483.50	37.8 AV	54.0	-16.2	1.00 H	16	38.60	-0.80
7	4874.00	46.7 PK	74.0	-27.3	1.21 H	136	38.93	7.77
8	4874.00	34.9 AV	54.0	-19.1	1.21 H	136	27.13	7.77
9	7311.00	55.6 PK	74.0	-18.4	1.16 H	305	40.11	15.49
10	7311.00	42.8 AV	54.0	-11.2	1.16 H	305	27.31	15.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.8 PK	74.0	-8.2	1.00 V	15	66.99	-1.19
2	2390.00	51.7 AV	54.0	-2.3	1.00 V	15	52.89	-1.19
3	*2437.00	114.5 PK			1.00 V	15	115.49	-0.99
4	*2437.00	104.3 AV			1.00 V	15	105.29	-0.99
5	2483.50	56.1 PK	74.0	-17.9	1.00 V	15	56.90	-0.80
6	2483.50	42.1 AV	54.0	-11.9	1.00 V	15	42.90	-0.80
7	4874.00	47.1 PK	74.0	-26.9	1.10 V	311	39.33	7.77
8	4874.00	35.3 AV	54.0	-18.7	1.10 V	311	27.53	7.77
9	7311.00	55.8 PK	74.0	-18.2	1.21 V	226	40.31	15.49
10	7311.00	43.1 AV	54.0	-10.9	1.21 V	226	27.61	15.49

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	103.4 PK			1.07 H	211	104.29	-0.89
2	*2462.00	93.2 AV			1.07 H	211	94.09	-0.89
3	2483.50	64.6 PK	74.0	-9.4	1.07 H	211	65.40	-0.80
4	2483.50	48.9 AV	54.0	-5.1	1.07 H	211	49.70	-0.80
5	4924.00	46.4 PK	74.0	-27.6	1.17 H	129	38.46	7.94
6	4924.00	35.1 AV	54.0	-18.9	1.17 H	129	27.16	7.94
7	7386.00	54.5 PK	74.0	-19.5	1.16 H	306	38.99	15.51
8	7386.00	41.9 AV	54.0	-12.1	1.16 H	306	26.39	15.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.19 V	339	112.49	-0.89
2	*2462.00	100.7 AV			1.19 V	339	101.59	-0.89
3	2483.50	72.8 PK	74.0	-1.2	1.19 V	339	73.60	-0.80
4	2483.50	53.0 AV	54.0	-1.0	1.19 V	339	53.80	-0.80
5	4924.00	47.2 PK	74.0	-26.8	1.14 V	290	39.26	7.94
6	4924.00	35.7 AV	54.0	-18.3	1.14 V	290	27.76	7.94
7	7386.00	55.6 PK	74.0	-18.4	1.26 V	207	40.09	15.51
8	7386.00	43.1 AV	54.0	-10.9	1.26 V	207	27.59	15.51

REMARKS:

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

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	65.7 PK	74.0	-8.3	1.00 H	16	66.89	-1.19
2	2390.00	49.2 AV	54.0	-4.8	1.00 H	16	50.39	-1.19
3	*2412.00	101.5 PK			1.00 H	16	102.59	-1.09
4	*2412.00	91.2 AV			1.00 H	16	92.29	-1.09
5	4824.00	46.8 PK	74.0	-27.2	1.22 H	123	39.21	7.59
6	4824.00	35.0 AV	54.0	-19.0	1.22 H	123	27.41	7.59
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	71.5 PK	74.0	-2.5	1.00 V	19	72.69	-1.19
2	2390.00	52.9 AV	54.0	-1.1	1.00 V	19	54.09	-1.19
3	*2412.00	108.8 PK			1.00 V	19	109.89	-1.09
4	*2412.00	98.4 AV			1.00 V	19	99.49	-1.09
5	4824.00	47.3 PK	74.0	-26.7	1.10 V	318	39.71	7.59
6	4824.00	35.4 AV	54.0	-18.6	1.10 V	318	27.81	7.59

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.



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CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	61.3 PK	74.0	-12.7	1.00 H	13	62.49	-1.19
2	2390.00	47.3 AV	54.0	-6.7	1.00 H	13	48.49	-1.19
3	*2437.00	107.8 PK			1.00 H	13	108.79	-0.99
4	*2437.00	97.6 AV			1.00 H	13	98.59	-0.99
5	2483.50	55.6 PK	74.0	-18.4	1.00 H	13	56.40	-0.80
6	2483.50	38.2 AV	54.0	-15.8	1.00 H	13	39.00	-0.80
7	4874.00	46.1 PK	74.0	-27.9	1.18 H	125	38.33	7.77
8	4874.00	34.2 AV	54.0	-19.8	1.18 H	125	26.43	7.77
9	7311.00	55.7 PK	74.0	-18.3	1.17 H	289	40.21	15.49
10	7311.00	43.2 AV	54.0	-10.8	1.17 H	289	27.71	15.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	1.00 V	15	66.79	-1.19
2	2390.00	51.7 AV	54.0	-2.3	1.00 V	15	52.89	-1.19
3	*2437.00	113.5 PK			1.00 V	15	114.49	-0.99
4	*2437.00	103.4 AV			1.00 V	15	104.39	-0.99
5	2483.50	59.3 PK	74.0	-14.7	1.00 V	15	60.10	-0.80
6	2483.50	42.2 AV	54.0	-11.8	1.00 V	15	43.00	-0.80
7	4874.00	46.2 PK	74.0	-27.8	1.11 V	304	38.43	7.77
8	4874.00	34.8 AV	54.0	-19.2	1.11 V	304	27.03	7.77
9	7311.00	55.3 PK	74.0	-18.7	1.19 V	199	39.81	15.49
10	7311.00	42.5 AV	54.0	-11.5	1.19 V	199	27.01	15.49

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	102.3 PK			1.08 H	215	103.19	-0.89
2	*2462.00	92.5 AV			1.08 H	215	93.39	-0.89
3	2483.50	65.1 PK	74.0	-8.9	1.08 H	215	65.90	-0.80
4	2483.50	49.1 AV	54.0	-4.9	1.08 H	215	49.90	-0.80
5	4924.00	46.7 PK	74.0	-27.3	1.22 H	105	38.76	7.94
6	4924.00	34.7 AV	54.0	-19.3	1.22 H	105	26.76	7.94
7	7386.00	55.4 PK	74.0	-18.6	1.16 H	309	39.89	15.51
8	7386.00	42.5 AV	54.0	-11.5	1.16 H	309	26.99	15.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.3 PK			1.18 V	337	110.19	-0.89
2	*2462.00	99.4 AV			1.18 V	337	100.29	-0.89
3	2483.50	71.4 PK	74.0	-2.6	1.18 V	337	72.20	-0.80
4	2483.50	52.8 AV	54.0	-1.2	1.18 V	337	53.60	-0.80
5	4924.00	46.9 PK	74.0	-27.1	1.07 V	313	38.96	7.94
6	4924.00	34.9 AV	54.0	-19.1	1.07 V	313	26.96	7.94
7	7386.00	55.2 PK	74.0	-18.8	1.16 V	209	39.69	15.51
8	7386.00	43.2 AV	54.0	-10.8	1.16 V	209	27.69	15.51

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	64.5 PK	74.0	-9.5	1.00 H	17	65.69	-1.19
2	2390.00	49.2 AV	54.0	-4.8	1.00 H	17	50.39	-1.19
3	*2422.00	97.6 PK			1.00 H	17	98.65	-1.05
4	*2422.00	87.1 AV			1.00 H	17	88.15	-1.05
5	4844.00	46.4 PK	74.0	-27.6	1.23 H	129	38.74	7.66
6	4844.00	35.0 AV	54.0	-19.0	1.23 H	129	27.34	7.66
7	7266.00	55.0 PK	74.0	-19.0	1.12 H	288	39.49	15.51
8	7266.00	42.1 AV	54.0	-11.9	1.12 H	288	26.59	15.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.7 PK	74.0	-3.3	1.00 V	20	71.89	-1.19
2	2390.00	52.9 AV	54.0	-1.1	1.00 V	20	54.09	-1.19
3	*2422.00	104.2 PK			1.00 V	20	105.25	-1.05
4	*2422.00	93.9 AV			1.00 V	20	94.95	-1.05
5	4844.00	47.5 PK	74.0	-26.5	1.14 V	324	39.84	7.66
6	4844.00	35.8 AV	54.0	-18.2	1.14 V	324	28.14	7.66
7	7266.00	55.4 PK	74.0	-18.6	1.21 V	234	39.89	15.51
8	7266.00	42.8 AV	54.0	-11.2	1.21 V	234	27.29	15.51

REMARKS:

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



A D T

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	65.3 PK	74.0	-8.7	1.00 H	11	66.49	-1.19
2	2390.00	48.5 AV	54.0	-5.5	1.00 H	11	49.69	-1.19
3	*2437.00	100.1 PK			1.00 H	11	101.09	-0.99
4	*2437.00	89.5 AV			1.00 H	11	90.49	-0.99
5	2483.50	63.2 PK	74.0	-10.8	1.00 H	11	64.00	-0.80
6	2483.50	45.3 AV	54.0	-8.7	1.00 H	11	46.10	-0.80
7	4874.00	46.6 PK	74.0	-27.4	1.17 H	139	38.83	7.77
8	4874.00	35.1 AV	54.0	-18.9	1.17 H	139	27.33	7.77
9	7311.00	55.6 PK	74.0	-18.4	1.11 H	306	40.11	15.49
10	7311.00	42.9 AV	54.0	-11.1	1.11 H	306	27.41	15.49
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	72.9 PK	74.0	-1.1	1.00 V	14	74.09	-1.19
2	2390.00	53.0 AV	54.0	-1.0	1.00 V	14	54.19	-1.19
3	*2437.00	107.1 PK			1.00 V	14	108.09	-0.99
4	*2437.00	96.7 AV			1.00 V	14	97.69	-0.99
5	2483.50	70.2 PK	74.0	-3.8	1.00 V	14	71.00	-0.80
6	2483.50	50.7 AV	54.0	-3.3	1.00 V	14	51.50	-0.80
7	4874.00	47.4 PK	74.0	-26.6	1.13 V	304	39.63	7.77
8	4874.00	35.4 AV	54.0	-18.6	1.13 V	304	27.63	7.77
9	7311.00	55.2 PK	74.0	-18.8	1.24 V	231	39.71	15.49
10	7311.00	42.8 AV	54.0	-11.2	1.24 V	231	27.31	15.49

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	98.1 PK			1.07 H	219	99.02	-0.92
2	*2452.00	87.7 AV			1.07 H	219	88.62	-0.92
3	2483.50	65.4 PK	74.0	-8.6	1.07 H	219	66.20	-0.80
4	2483.50	49.6 AV	54.0	-4.4	1.07 H	219	50.40	-0.80
5	4904.00	46.5 PK	74.0	-27.5	1.23 H	147	38.62	7.88
6	4904.00	34.8 AV	54.0	-19.2	1.23 H	147	26.92	7.88
7	7356.00	54.9 PK	74.0	-19.1	1.14 H	317	39.41	15.49
8	7356.00	42.3 AV	54.0	-11.7	1.14 H	317	26.81	15.49
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	104.8 PK			1.15 V	331	105.72	-0.92
2	*2452.00	94.6 AV			1.15 V	331	95.52	-0.92
3	2483.50	69.3 PK	74.0	-4.7	1.15 V	331	70.10	-0.80
4	2483.50	52.6 AV	54.0	-1.4	1.15 V	331	53.40	-0.80
5	4904.00	46.3 PK	74.0	-27.7	1.03 V	302	38.42	7.88
6	4904.00	34.7 AV	54.0	-19.3	1.03 V	302	26.82	7.88
7	7356.00	55.6 PK	74.0	-18.4	1.21 V	236	40.11	15.49
8	7356.00	43.1 AV	54.0	-10.9	1.21 V	236	27.61	15.49

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Jan. 21, 2013	Jan. 20, 2014

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. Tested date : Aug. 30, 2013

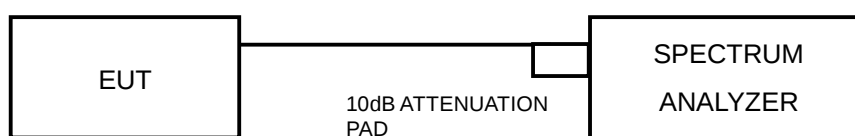
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 100kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

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

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.11	0.5	PASS
6	2437	8.08	0.5	PASS
11	2462	7.67	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.20	15.10	0.5	PASS
6	2437	14.25	15.30	0.5	PASS
11	2462	15.09	15.49	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.18	15.17	0.5	PASS
6	2437	15.14	16.38	0.5	PASS
11	2462	15.14	16.33	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.21	34.54	0.5	PASS
6	2437	35.29	34.55	0.5	PASS
9	2452	35.23	36.43	0.5	PASS

4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	0824006	May 20, 2013	May 19, 2014
Power Sensor Anritsu	MA2411B	0738172	May 20, 2013	May 19, 2014

- 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. Tested date : Aug. 30, 2013

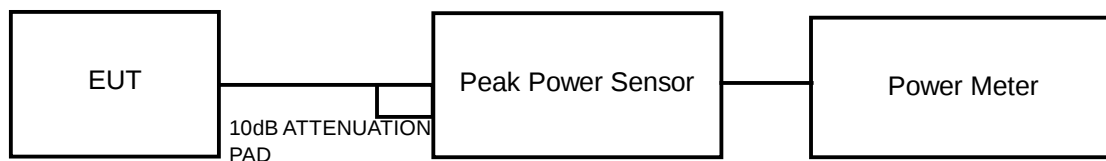
4.4.3 TEST PROCEDURES

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

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	122.462	20.88	30	PASS
6	2437	111.429	20.47	30	PASS
11	2462	109.648	20.40	30	PASS

802.11g

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	20.73	21.00	244.197	23.88	30	PASS
6	2437	23.51	23.72	459.893	26.63	30	PASS
11	2462	20.83	21.01	247.243	23.93	30	PASS

802.11n (HT20)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	19.64	19.87	189.096	22.77	30	PASS
6	2437	24.01	24.47	531.666	27.26	30	PASS
11	2462	20.88	21.44	261.778	24.18	30	PASS

802.11n (HT40)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	17.11	17.44	106.867	20.29	30	PASS
6	2437	21.69	22.36	319.758	25.05	30	PASS
9	2452	17.96	18.56	134.296	21.28	30	PASS

4.5 AVERAGE OUTPUT POWER

4.5.1 FOR REFERENCE.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	0824006	May 20, 2013	May 19, 2014
Power Sensor	MA2411B	0738172	May 20, 2013	May 19, 2014

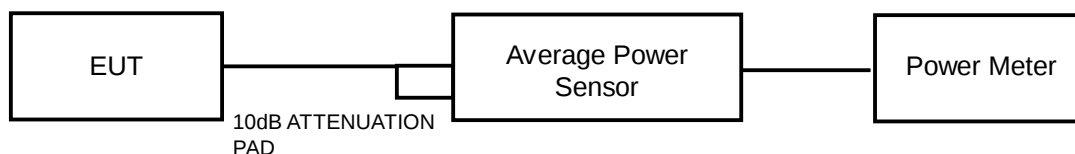
Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 30, 2013

4.5.3 TEST PROCEDURES

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.5.4 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.5.6 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	48.865	16.89
6	2437	47.973	16.81
11	2462	47.206	16.74

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
1	2412	12.71	12.93	38.298	15.83
6	2437	17.21	17.27	105.935	20.25
11	2462	12.98	13.04	39.998	16.02

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
1	2412	11.24	11.69	28.062	14.48
6	2437	17.76	17.66	118.049	20.72
11	2462	12.85	13.39	41.102	16.14

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
3	2422	9.38	9.41	17.400	12.41
6	2437	14.07	14.59	54.301	17.35
9	2452	10.26	10.83	22.723	13.56

4.6 POWER SPECTRAL DENSITY MEASUREMENT

4.6.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Jan. 21, 2013	Jan. 20, 2014

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. Tested date : Aug. 30, 2013

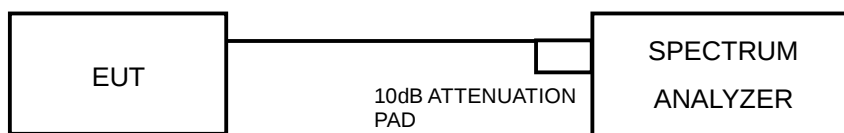
4.6.3 TEST PROCEDURE

1. Set the RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum amplitude level.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PSD (dBm/3kHz)	LIMIT (dBm/3kHz)	PASS /FAIL
1	2412	-6.30	8	PASS
6	2437	-6.93	8	PASS
11	2462	-6.35	8	PASS

802.11g

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-12.26	3.01	-9.25	8	PASS
	6	2437	-8.45	3.01	-5.44	8	PASS
	11	2462	-12.35	3.01	-9.34	8	PASS
1	1	2412	-13.09	3.01	-10.08	8	PASS
	6	2437	-9.17	3.01	-6.16	8	PASS
	11	2462	-12.01	3.01	-9.00	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.42\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.

802.11n (HT20)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-14.23	3.01	-11.22	8	PASS
	6	2437	-8.18	3.01	-5.17	8	PASS
	11	2462	-13.25	3.01	-10.24	8	PASS
1	1	2412	-14.33	3.01	-11.32	8	PASS
	6	2437	-8.22	3.01	-5.21	8	PASS
	11	2462	-13.51	3.01	-10.50	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.42\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.

802.11n (HT40)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-17.94	3.01	-14.93	8	PASS
	6	2437	-14.91	3.01	-11.90	8	PASS
	9	2452	-17.90	3.01	-14.89	8	PASS
1	3	2422	-18.01	3.01	-15.00	8	PASS
	6	2437	-13.81	3.01	-10.80	8	PASS
	9	2452	-17.76	3.01	-14.75	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.42\text{dBi} < 6\text{dBi}$, so the power density limit shall not be reduced.



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4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Jan. 21, 2013	Jan. 20, 2014

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. Tested date : Aug. 30, 2013

4.7.3 TEST PROCEDURE

Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

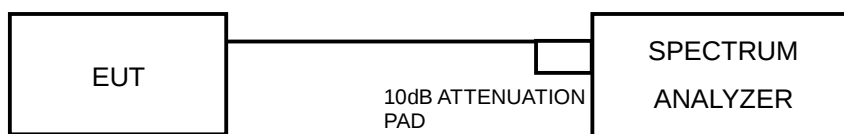
Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.7.7 TEST RESULTS

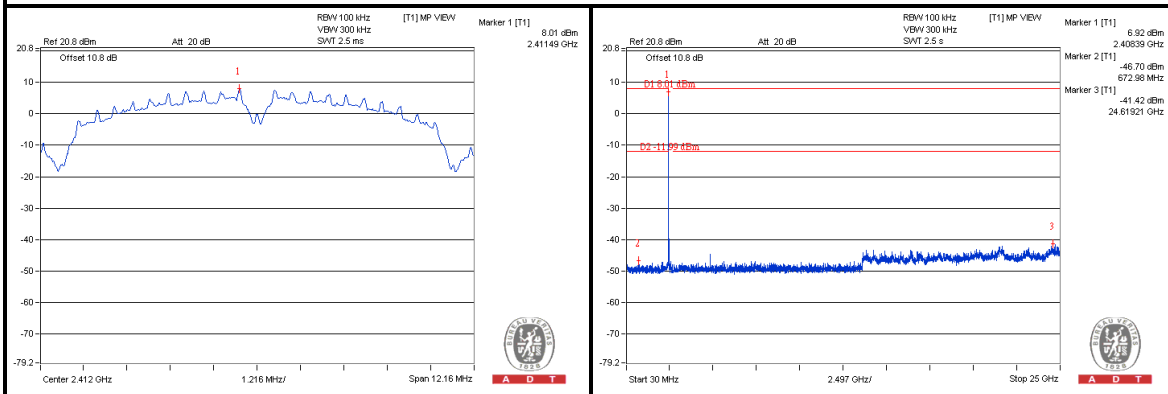
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement



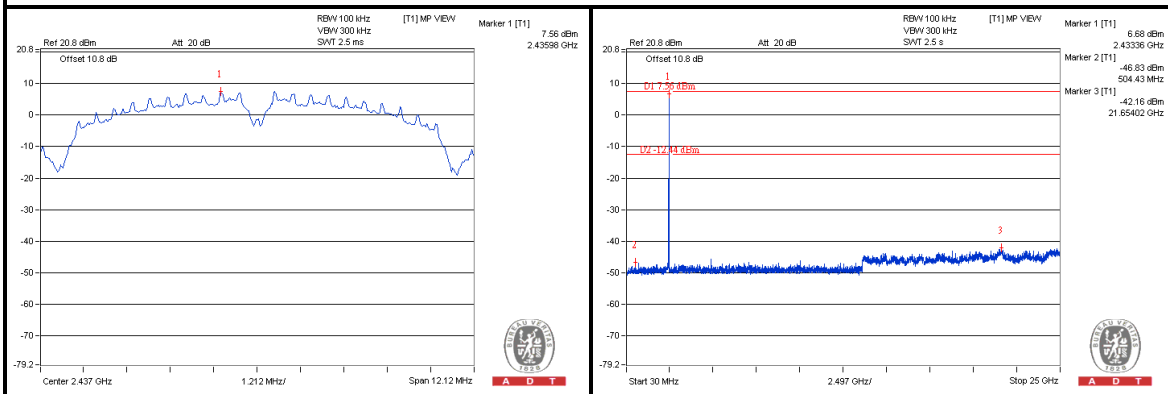
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802.11b:

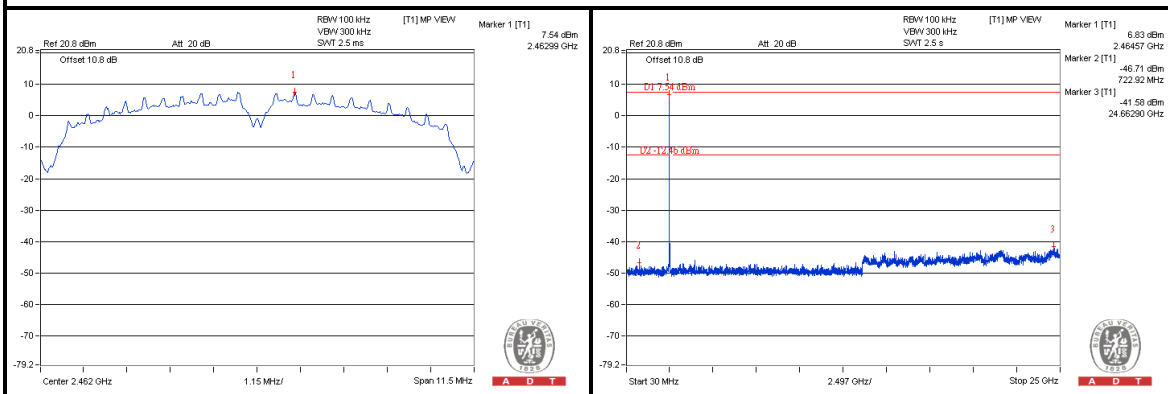
CH 1



CH 6



CH 11



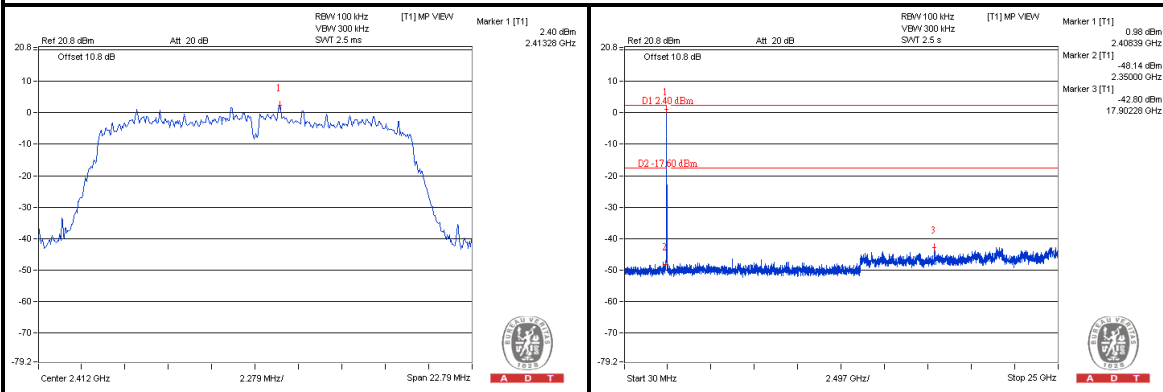


A D T

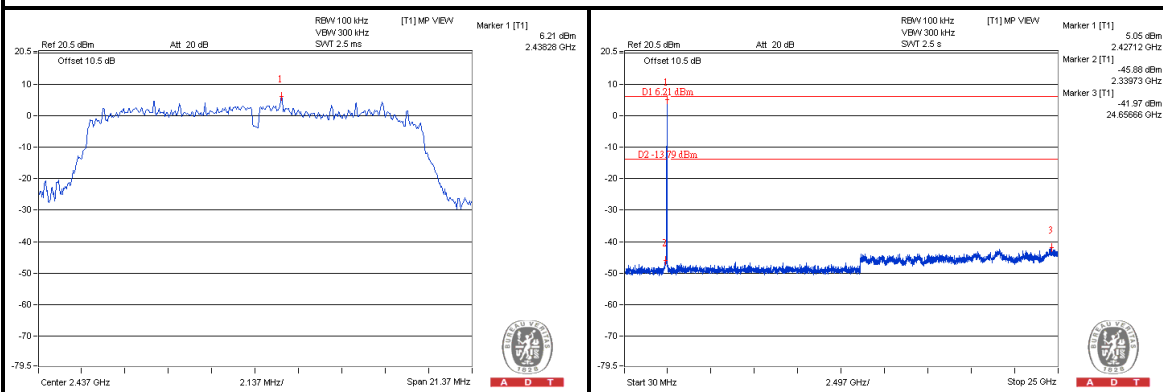
802.11g:

CHAIN (0)

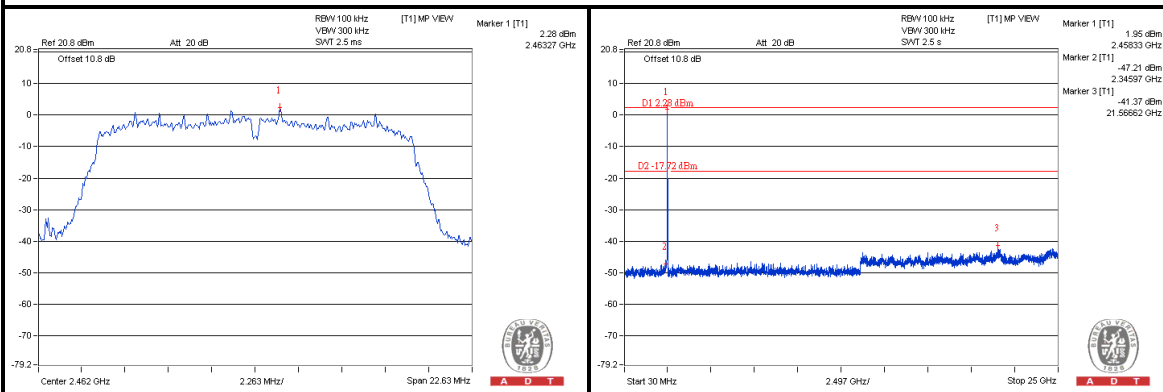
CH 1



CH 6



CH 11

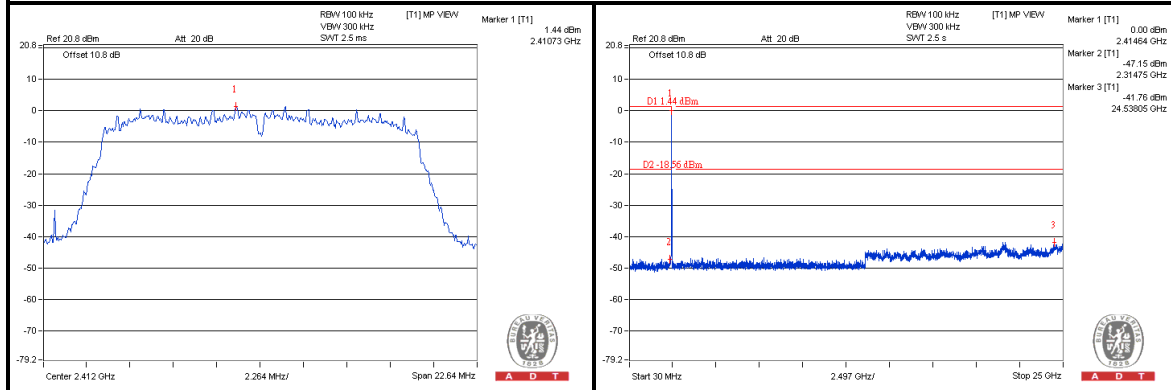




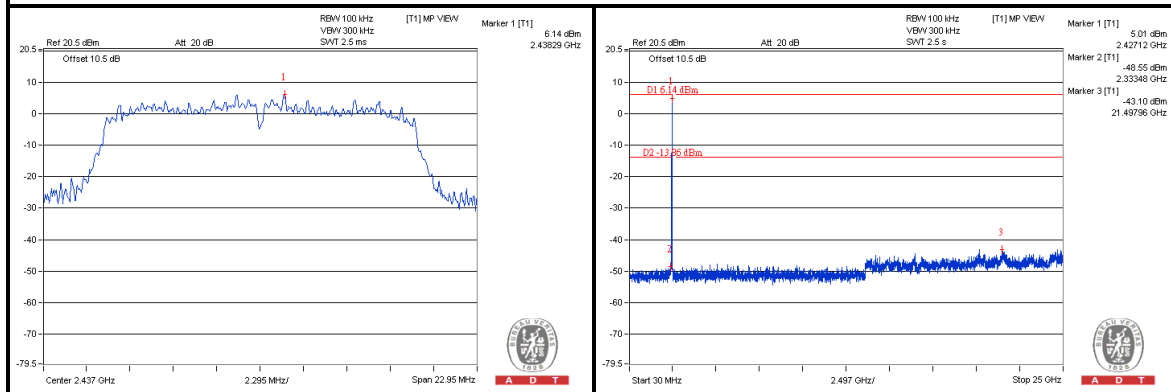
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CHAIN (1)

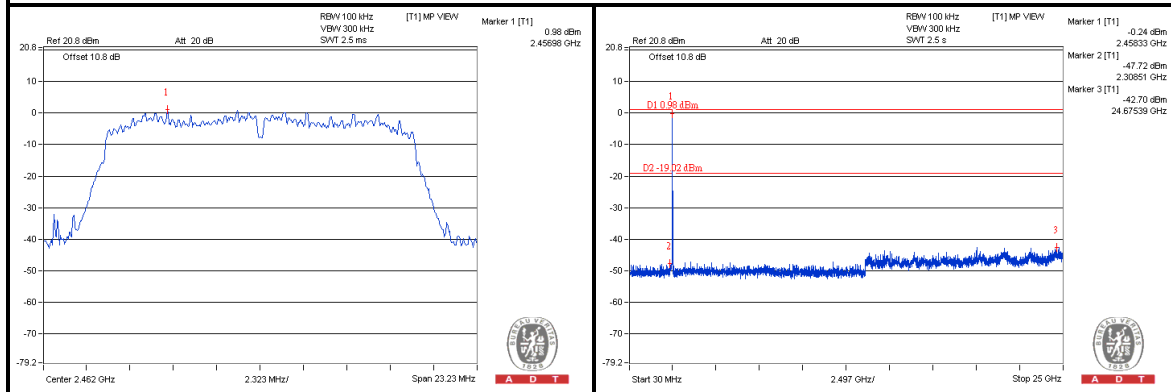
CH 1



CH 6



CH 11



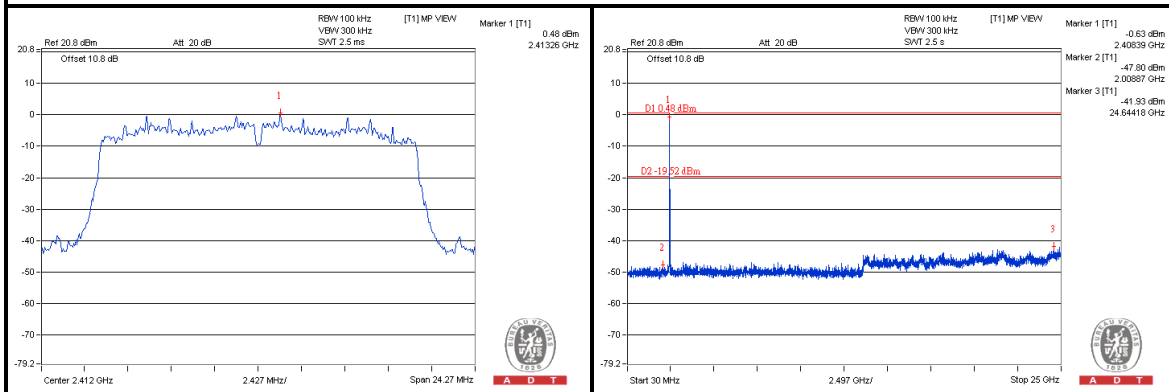


A D T

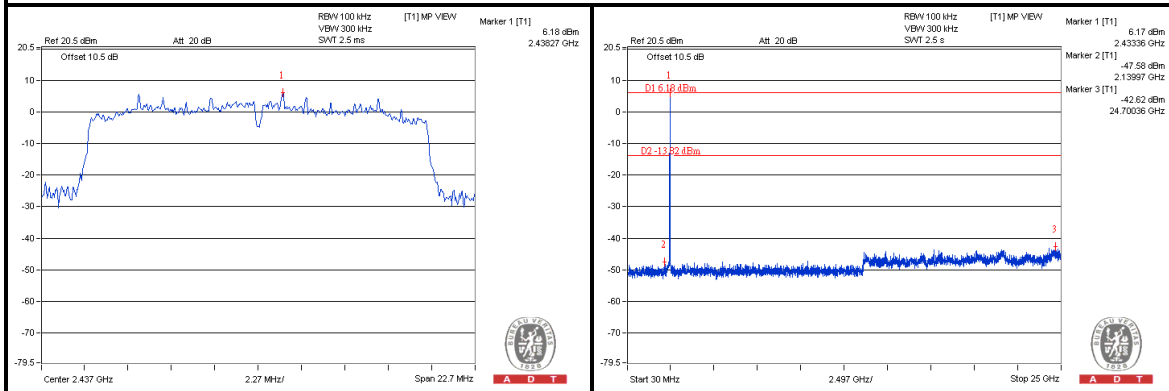
802.11n (HT20):

CHAIN (0)

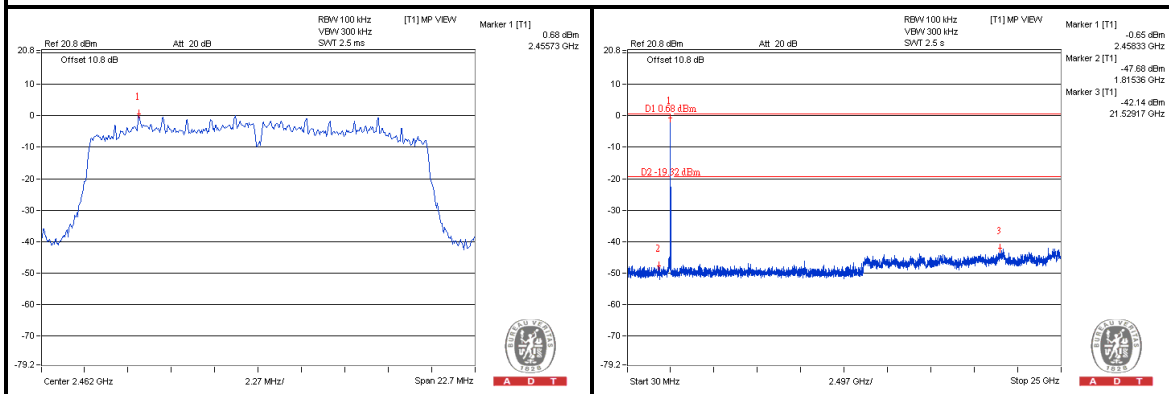
CH 1



CH 6



CH 11

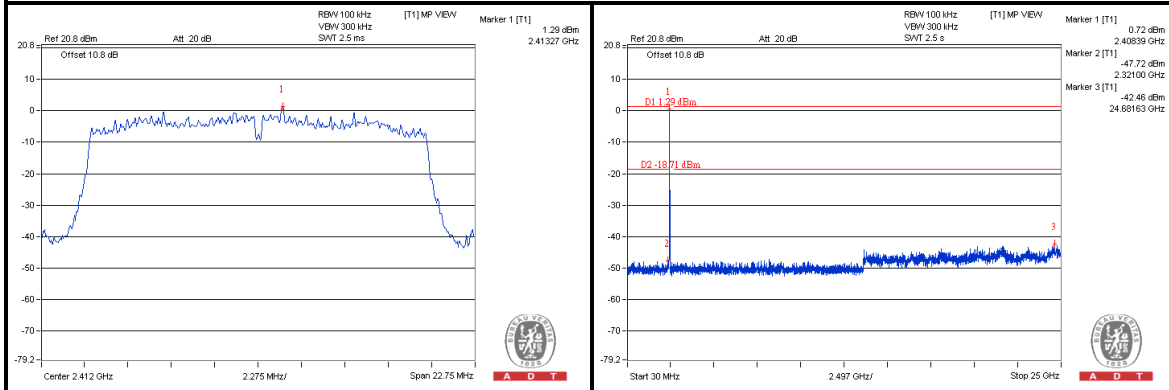




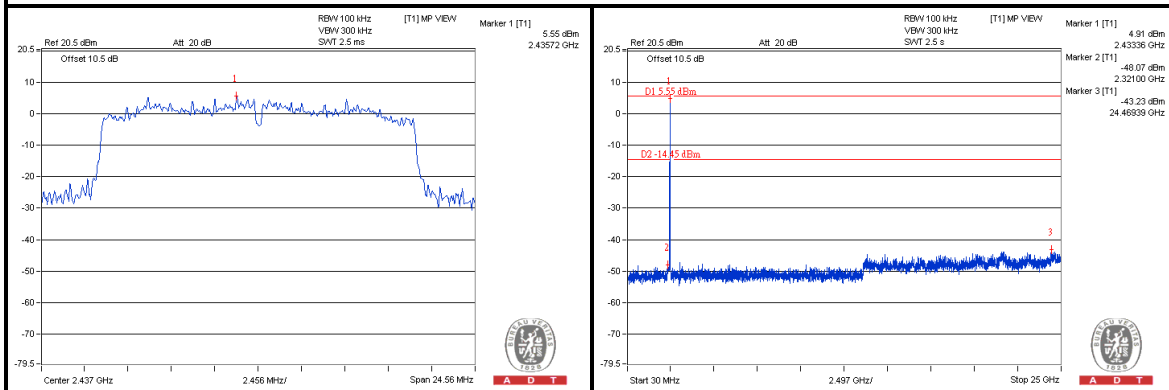
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CHAIN (1)

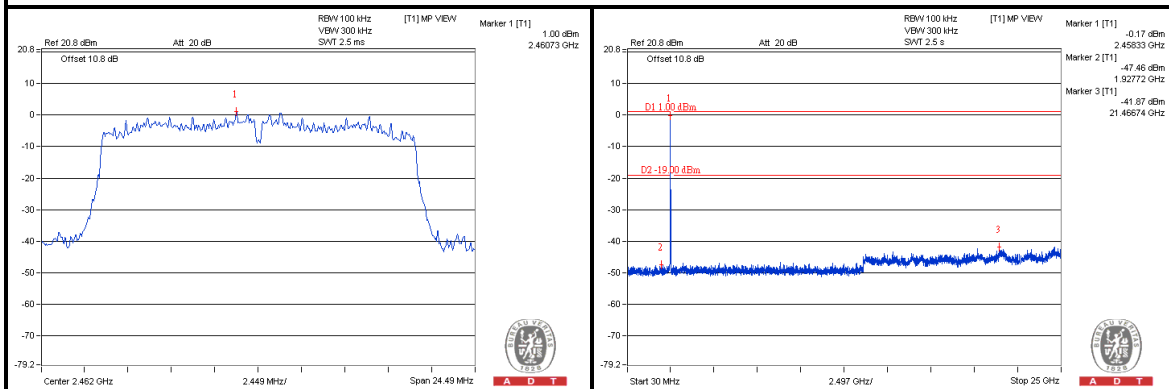
CH 1



CH 6



CH 11



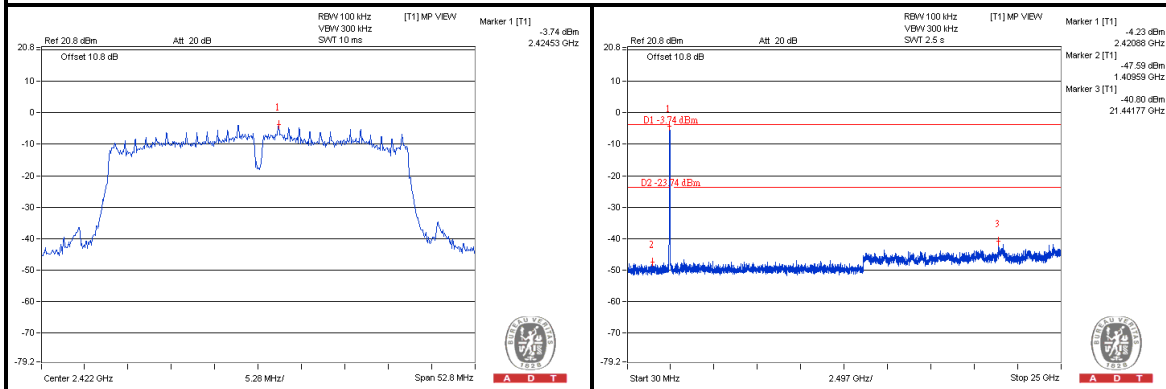


A D T

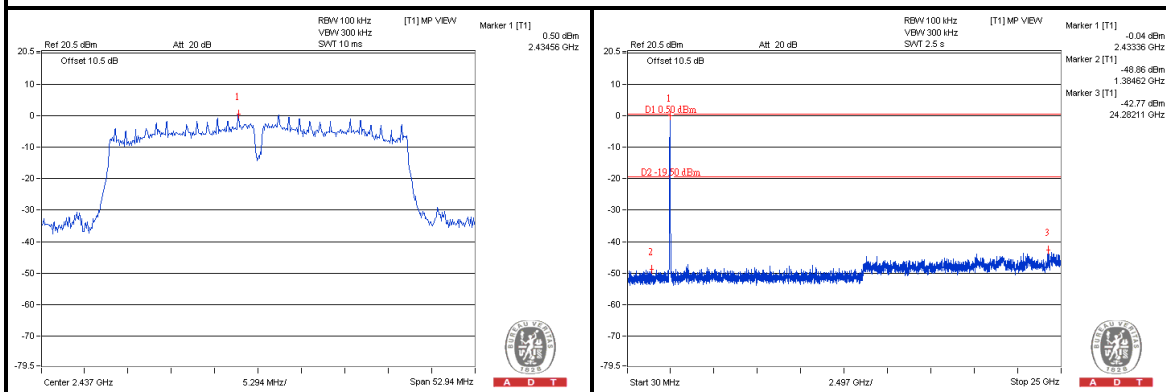
802.11n (HT40):

CHAIN (0)

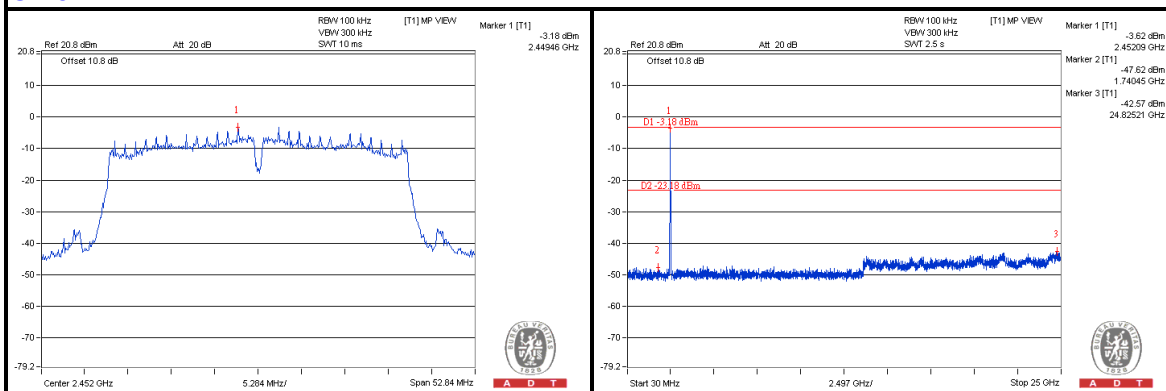
CH 3



CH 6



CH 9

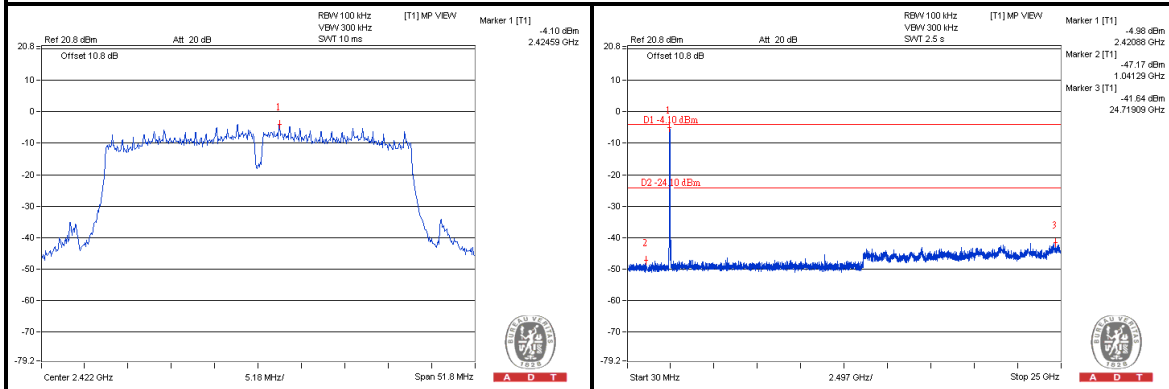




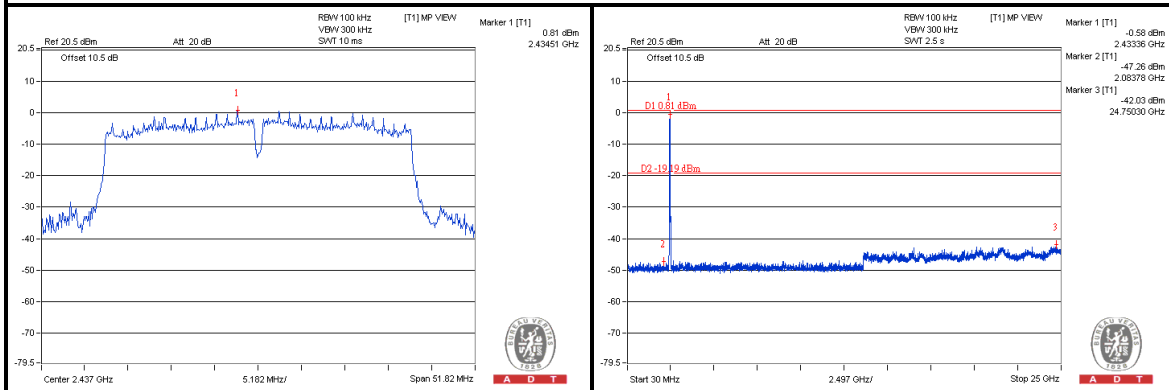
A D T

CHAIN (1)

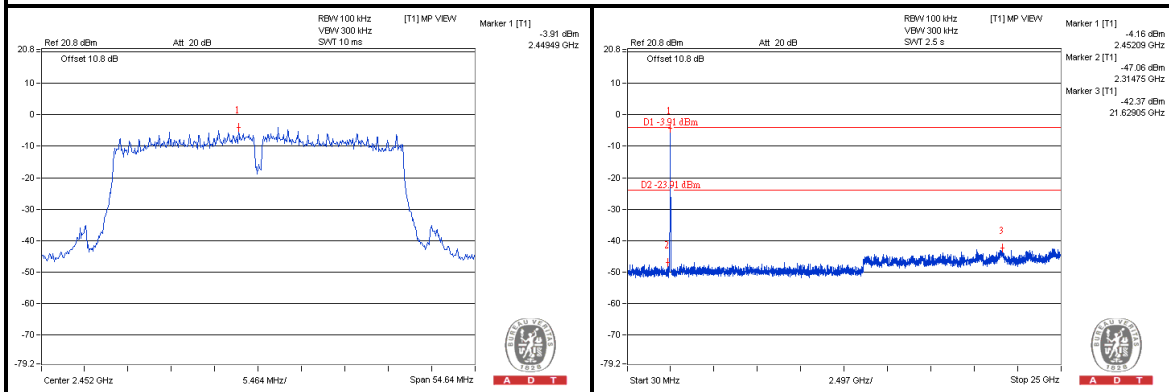
CH 3



CH 6



CH 9



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6. 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.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26052943

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Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



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

No modifications were made to the EUT by the lab during the test.

--- END ---