

FCC TEST REPORT

REPORT NO.: RF130607E05

MODEL NO.: xPico Wi-Fi

FCC ID: R68XPICOW

RECEIVED: June 07, 2013

TESTED: June 11 to 19, 2013

ISSUED: July 04, 2013

APPLICANT: Lantronix

ADDRESS: 167 Technology, Irvine, CA 92618 (USA)

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
RF130607E05	Original release	July 04, 2013

1. CERTIFICATION

PRODUCT: 802.11b/g/n Wireless Module
BRAND NAME: Lantronix
MODEL NO.: xPico Wi-Fi
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Lantronix
TESTED: June 11 to 19, 2013
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10-2009

The above equipment (Model: xPico Wi-Fi) 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 :  , **DATE:** July 04, 2013
(Elsie Hsu, Specialist)

APPROVED BY :  , **DATE:** July 04, 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 -14.77dB at 0.16562MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.00dB at 2390.00MHz & 2483.50MHz
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	Antenna connector is IPEX not a standard connector.

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)	5.46 dB
Radiated emissions (1GHz -6GHz)	3.54 dB
Radiated emissions (6GHz -18GHz)	4.08 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11b/g/n Wireless Module
MODEL NO.	xPico Wi-Fi
POWER SUPPLY	DC 3.3V $\pm$ 10% from host equipment
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 72.2Mbps
OPERATING FREQUENCY	2.412 ~ 2.462GHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	802.11b: 88.308mW 802.11g: 231.739mW 802.11n (HT20): 208.930mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

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

Ant. No.	Brand	Model	Antenna Type	Net Gain (dBi) (Include cable loss)	Connector Type	Frequency range (MHz to MHz)	Cable Loss (dB)	Cable Length (mm)
1	ethertronics	1000602	PIFA	2.5	IPEX	2390 ~ 2490	NA	50
2	Wanshih	WSS002	Dipole	2.38	IPEX	2400 ~ 2483.5	0.5	100

2. The EUT incorporates a SISO function without beam forming.

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

3. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.
4. 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		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	OB	
1	√	√	√	√	√	With Antenna 1
2	-	√	√	-	-	With Antenna 2

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's antenna (PIFA) had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

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)
802.11g	1 to 11	6	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 CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	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 (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5

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

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	26deg. C, 55%RH	120Vac, 60Hz	Scott Chen
RE<1G	25deg. C, 75%RH	120Vac, 60Hz	Nelson Teng
RE ³ 1G	23deg. C, 72%RH	120Vac, 60Hz	Nelson Teng
APCM	25deg. C, 60%RH	120Vac, 60Hz	James Chen
OB	25deg. C, 60%RH	120Vac, 60Hz	James Chen

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

ANSI C63.10-2009

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

3.4 DESCRIPTION OF SUPPORT UNITS

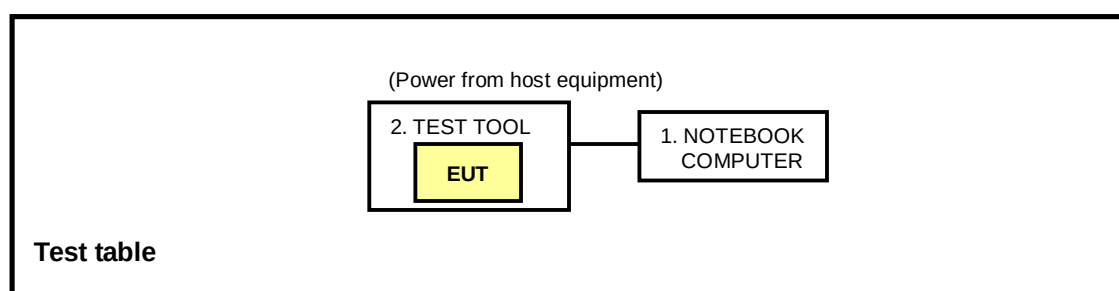
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	TEST TOOL	UGSI	XPICO_EVB_V10	BE09311114401G	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Cable, 1m
2	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 (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.

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. 19, 2012	Sep. 20, 2013
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ESH3-Z5	848773/004	Oct. 29, 2012	Oct. 28, 2013
RF Cable (JYEBAO)	5DFB	COACAB-002	Aug. 05, 2012	Aug. 04, 2013
50 ohms Terminator	50	3	Oct. 23, 2012	Oct. 22, 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: June 11, 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.

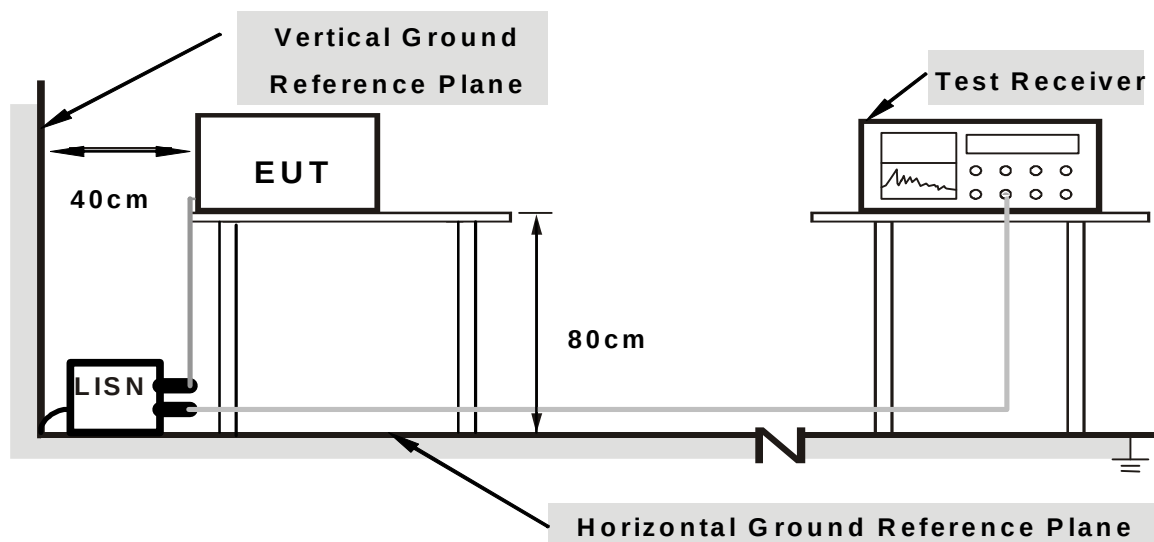
NOTE:

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. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a table in control room.
2. The communication partner run test program “tx b test-KEY.bat Wl command” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

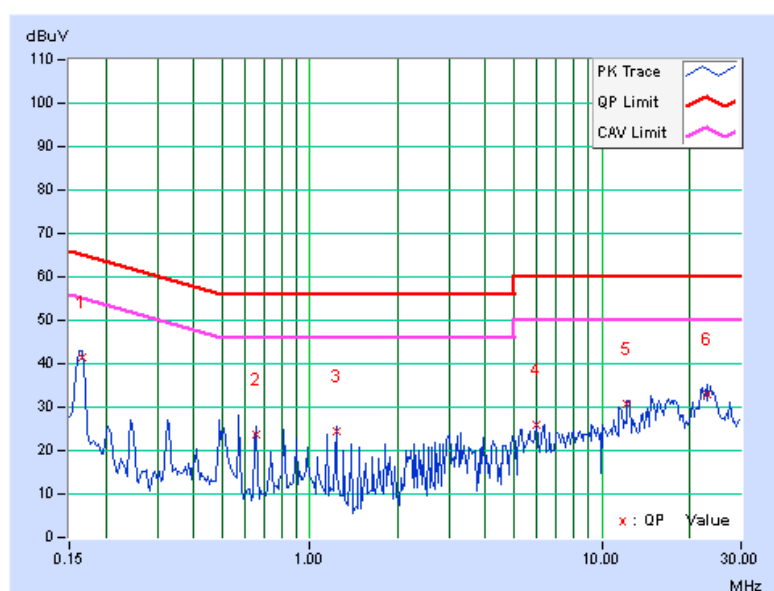
4.1.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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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	0.16562	0.09	41.25	40.15	41.34	40.24	65.18	55.18	-23.83	-14.93
2	0.65391	0.16	23.60	23.87	23.76	24.03	56.00	46.00	-32.24	-21.97
3	1.23047	0.18	24.20	21.47	24.38	21.65	56.00	46.00	-31.62	-24.35
4	5.97656	0.37	25.48	23.57	25.85	23.94	60.00	50.00	-34.15	-26.06
5	12.23047	0.63	30.09	28.45	30.72	29.08	60.00	50.00	-29.28	-20.92
6	22.91797	1.09	31.92	28.20	33.01	29.29	60.00	50.00	-26.99	-20.71

REMARKS:

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

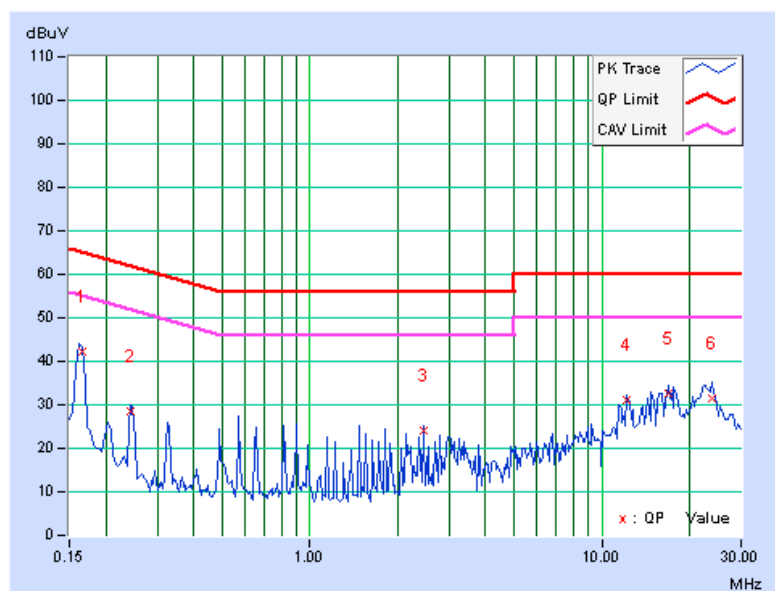


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.14	41.91	40.27	42.05	40.41	65.18	55.18	-23.13	-14.77
2	0.24375	0.15	28.45	28.32	28.60	28.47	61.97	51.97	-33.37	-23.50
3	2.44531	0.26	23.73	23.55	23.99	23.81	56.00	46.00	-32.01	-22.19
4	12.23047	0.57	30.45	29.69	31.02	30.26	60.00	50.00	-28.98	-19.74
5	16.85938	0.70	31.79	26.49	32.49	27.19	60.00	50.00	-27.51	-22.81
6	23.82031	0.86	30.73	26.61	31.59	27.47	60.00	50.00	-28.41	-22.53

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 BANDEGE MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION AND BANDEGE 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	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 30, 2012	Oct. 29, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 27, 2012	Nov. 26, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 26, 2012	Dec. 25, 2013
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 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. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: June 18 to 19, 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 3 meters chamber room test. 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.

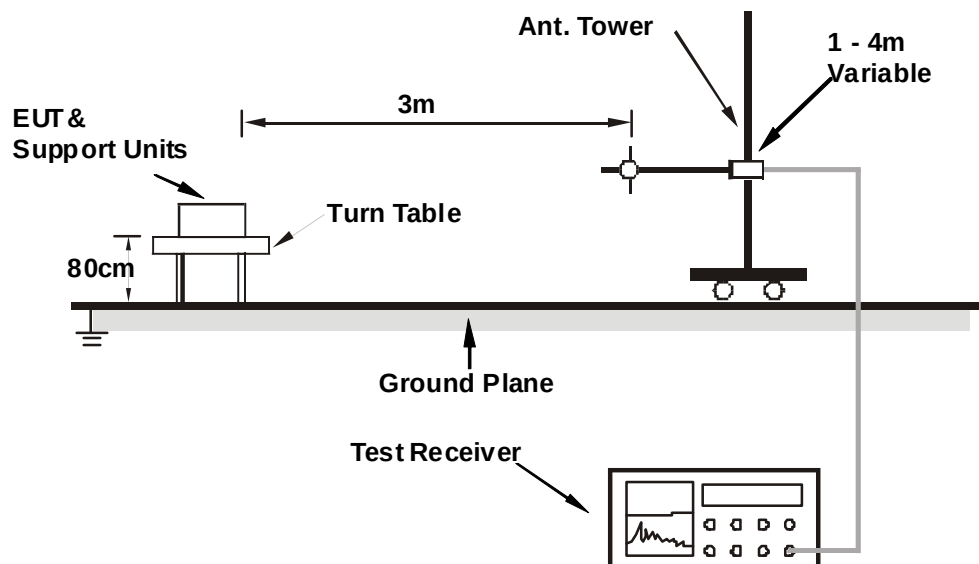
NOTE:

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

1. Placed the EUT on testing table.
2. Controlling software (tx b test-KEY.bat WI command) has been activated to set the EUT under transmission/receiving condition continuously.

4.2.7 TEST RESULTS (MODE 1)

BELOW 1GHz WORST-CASE DATA

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	173.51	33.4 QP	43.5	-10.1	1.00 H	249	47.57	-14.17
2	257.76	36.8 QP	46.0	-9.2	1.50 H	331	50.72	-13.96
3	408.69	34.3 QP	46.0	-11.7	1.50 H	324	44.07	-9.74
4	480.03	36.3 QP	46.0	-9.7	2.00 H	40	44.35	-8.03
5	846.01	33.4 QP	46.0	-12.6	1.00 H	1	34.68	-1.29
6	960.04	31.0 QP	54.0	-23.0	1.50 H	129	30.01	1.03
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	32.47	30.0 QP	40.0	-10.0	1.00 V	59	44.94	-14.91
2	102.65	33.7 QP	43.5	-9.8	2.00 V	107	50.82	-17.10
3	298.01	38.5 QP	46.0	-7.5	1.00 V	210	50.78	-12.28
4	425.57	37.4 QP	46.0	-8.6	1.00 V	64	46.38	-8.99
5	480.03	32.9 QP	46.0	-13.2	1.50 V	0	40.88	-8.03
6	932.29	34.8 QP	46.0	-11.2	1.00 V	105	34.25	0.57

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	60.1 PK	74.0	-13.9	1.31 H	295	62.63	-2.53
2	2390.00	49.1 AV	54.0	-4.9	1.31 H	295	51.63	-2.53
3	*2412.00	106.4 PK			1.31 H	295	108.87	-2.47
4	*2412.00	104.1 AV			1.31 H	295	106.57	-2.47
5	4824.00	52.0 PK	74.0	-22.0	1.65 H	37	44.15	7.85
6	4824.00	41.8 AV	54.0	-12.2	1.65 H	37	33.95	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	1.74 V	270	62.33	-2.53
2	2390.00	48.4 AV	54.0	-5.6	1.74 V	270	50.93	-2.53
3	*2412.00	104.0 PK			1.74 V	270	106.47	-2.47
4	*2412.00	101.8 AV			1.74 V	270	104.27	-2.47
5	4824.00	53.1 PK	74.0	-20.9	1.87 V	192	45.25	7.85
6	4824.00	45.1 AV	54.0	-8.9	1.87 V	192	37.25	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	104.3 PK			1.28 H	294	106.69	-2.39
2	*2437.00	102.1 AV			1.28 H	294	104.49	-2.39
3	4874.00	52.4 PK	74.0	-21.6	1.47 H	130	44.50	7.90
4	4874.00	41.4 AV	54.0	-12.6	1.47 H	130	33.50	7.90
5	7311.00	56.1 PK	74.0	-17.9	1.50 H	192	43.11	12.99
6	7311.00	47.2 AV	54.0	-6.8	1.50 H	192	34.21	12.99
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	103.6 PK			1.71 V	269	105.99	-2.39
2	*2437.00	101.4 AV			1.71 V	269	103.79	-2.39
3	4874.00	52.3 PK	74.0	-21.7	1.82 V	191	44.40	7.90
4	4874.00	44.5 AV	54.0	-9.5	1.82 V	191	36.60	7.90
5	7311.00	58.1 PK	74.0	-15.9	1.77 V	33	45.11	12.99
6	7311.00	50.6 AV	54.0	-3.4	1.77 V	33	37.61	12.99

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	106.1 PK			1.28 H	61	108.41	-2.31
2	*2462.00	103.6 AV			1.28 H	61	105.91	-2.31
3	2483.50	60.5 PK	74.0	-13.5	1.28 H	61	62.74	-2.24
4	2483.50	48.7 AV	54.0	-5.3	1.28 H	61	50.94	-2.24
5	3693.01	51.4 PK	74.0	-22.6	1.37 H	98	49.36	2.04
6	3693.01	42.9 AV	54.0	-11.1	1.37 H	98	40.86	2.04
7	4924.00	53.2 PK	74.0	-20.8	1.64 H	45	45.25	7.95
8	4924.00	43.8 AV	54.0	-10.2	1.64 H	45	35.85	7.95
9	7386.00	58.2 PK	74.0	-15.8	1.52 H	354	44.90	13.30
10	7386.00	50.0 AV	54.0	-4.0	1.52 H	354	36.70	13.30
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	104.6 PK			1.69 V	269	106.91	-2.31
2	*2462.00	102.3 AV			1.69 V	269	104.61	-2.31
3	2483.50	60.6 PK	74.0	-13.4	1.69 V	269	62.84	-2.24
4	2483.50	48.3 AV	54.0	-5.7	1.69 V	269	50.54	-2.24
5	3693.01	47.2 PK	74.0	-26.8	1.77 V	179	45.16	2.04
6	3693.01	36.2 AV	54.0	-17.8	1.77 V	179	34.16	2.04
7	4924.00	53.8 PK	74.0	-20.2	1.26 V	277	45.85	7.95
8	4924.00	46.5 AV	54.0	-7.5	1.26 V	277	38.55	7.95
9	7386.00	58.0 PK	74.0	-16.0	1.60 V	36	44.70	13.30
10	7386.00	50.4 AV	54.0	-3.6	1.60 V	36	37.10	13.30

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.

802.11g

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	70.7 PK	74.0	-3.3	1.33 H	99	73.23	-2.53
2	2390.00	53.0 AV	54.0	-1.0	1.33 H	99	55.53	-2.53
3	*2412.00	109.6 PK			1.33 H	99	112.07	-2.47
4	*2412.00	100.3 AV			1.33 H	99	102.77	-2.47
5	4824.00	49.4 PK	74.0	-24.6	1.06 H	37	41.55	7.85
6	4824.00	38.7 AV	54.0	-15.3	1.06 H	37	30.85	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.3 PK	74.0	-10.7	1.66 V	246	65.83	-2.53
2	2390.00	50.7 AV	54.0	-3.3	1.66 V	246	53.23	-2.53
3	*2412.00	104.4 PK			1.67 V	246	106.87	-2.47
4	*2412.00	95.3 AV			1.67 V	246	97.77	-2.47
5	4824.00	50.0 PK	74.0	-24.0	1.00 V	106	42.15	7.85
6	4824.00	38.5 AV	54.0	-15.5	1.00 V	106	30.65	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	61.1 PK	74.0	-12.9	1.33 H	106	63.63	-2.53
2	2390.00	48.4 AV	54.0	-5.6	1.33 H	106	50.93	-2.53
3	*2437.00	110.3 PK			1.33 H	106	112.69	-2.39
4	*2437.00	99.6 AV			1.33 H	106	101.99	-2.39
5	2483.50	61.0 PK	74.0	-13.0	1.33 H	106	63.24	-2.24
6	2483.50	48.3 AV	54.0	-5.7	1.33 H	106	50.54	-2.24
7	4874.00	48.8 PK	74.0	-25.2	1.00 H	45	40.90	7.90
8	4874.00	38.2 AV	54.0	-15.8	1.00 H	45	30.30	7.90
9	7311.00	56.5 PK	74.0	-17.5	1.39 H	189	43.51	12.99
10	7311.00	45.1 AV	54.0	-8.9	1.39 H	189	32.11	12.99
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	105.3 PK			1.69 V	266	107.69	-2.39
2	*2437.00	97.1 AV			1.69 V	266	99.49	-2.39
3	4874.00	49.7 PK	74.0	-24.3	1.00 V	116	41.80	7.90
4	4874.00	38.3 AV	54.0	-15.7	1.00 V	116	30.40	7.90
5	7311.00	57.7 PK	74.0	-16.3	1.78 V	23	44.71	12.99
6	7311.00	46.5 AV	54.0	-7.5	1.78 V	23	33.51	12.99

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	107.9 PK			1.31 H	107	110.21	-2.31
2	*2462.00	99.5 AV			1.31 H	107	101.81	-2.31
3	2483.50	68.8 PK	74.0	-5.2	1.31 H	107	71.04	-2.24
4	2483.50	52.8 AV	54.0	-1.2	1.31 H	107	55.04	-2.24
5	4924.00	48.8 PK	74.0	-25.2	1.00 H	61	40.85	7.95
6	4924.00	37.9 AV	54.0	-16.1	1.00 H	61	29.95	7.95
7	7386.00	56.4 PK	74.0	-17.6	1.41 H	174	43.10	13.30
8	7386.00	44.8 AV	54.0	-9.2	1.41 H	174	31.50	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.3 PK			1.67 V	271	108.61	-2.31
2	*2462.00	96.3 AV			1.67 V	271	98.61	-2.31
3	2483.50	65.3 PK	74.0	-8.7	1.67 V	271	67.54	-2.24
4	2483.50	50.9 AV	54.0	-3.1	1.67 V	271	53.14	-2.24
5	4924.00	50.1 PK	74.0	-23.9	1.00 V	112	42.15	7.95
6	4924.00	38.7 AV	54.0	-15.3	1.00 V	112	30.75	7.95
7	7386.00	57.4 PK	74.0	-16.6	1.77 V	26	44.10	13.30
8	7386.00	46.4 AV	54.0	-7.6	1.77 V	26	33.10	13.30

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	70.9 PK	74.0	-3.1	1.33 H	96	73.43	-2.53
2	2390.00	52.8 AV	54.0	-1.2	1.33 H	96	55.33	-2.53
3	*2412.00	107.5 PK			1.33 H	96	109.97	-2.47
4	*2412.00	99.1 AV			1.33 H	96	101.57	-2.47
5	4824.00	48.5 PK	74.0	-25.5	1.05 H	44	40.65	7.85
6	4824.00	38.2 AV	54.0	-15.8	1.05 H	44	30.35	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	1.71 V	269	66.83	-2.53
2	2390.00	51.2 AV	54.0	-2.8	1.71 V	269	53.73	-2.53
3	*2412.00	104.6 PK			1.71 V	269	107.07	-2.47
4	*2412.00	95.5 AV			1.71 V	269	97.97	-2.47
5	4824.00	49.8 PK	74.0	-24.2	1.00 V	104	41.95	7.85
6	4824.00	38.6 AV	54.0	-15.4	1.00 V	104	30.75	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	60.7 PK	74.0	-13.3	1.33 H	105	63.23	-2.53
2	2390.00	48.3 AV	54.0	-5.7	1.33 H	105	50.83	-2.53
3	*2437.00	108.1 PK			1.33 H	105	110.49	-2.39
4	*2437.00	99.1 AV			1.33 H	105	101.49	-2.39
5	2483.50	60.0 PK	74.0	-14.0	1.33 H	105	62.24	-2.24
6	2483.50	48.2 AV	54.0	-5.8	1.33 H	105	50.44	-2.24
7	4874.00	49.0 PK	74.0	-25.0	1.05 H	39	41.10	7.90
8	4874.00	38.2 AV	54.0	-15.8	1.05 H	39	30.30	7.90
9	7311.00	55.9 PK	74.0	-18.1	1.34 H	195	42.91	12.99
10	7311.00	44.7 AV	54.0	-9.3	1.34 H	195	31.71	12.99
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	105.1 PK			1.67 V	270	107.49	-2.39
2	*2437.00	96.1 AV			1.67 V	270	98.49	-2.39
3	4874.00	49.8 PK	74.0	-24.2	1.00 V	123	41.90	7.90
4	4874.00	38.6 AV	54.0	-15.4	1.00 V	123	30.70	7.90
5	7311.00	57.9 PK	74.0	-16.1	1.78 V	34	44.91	12.99
6	7311.00	46.8 AV	54.0	-7.2	1.78 V	34	33.81	12.99

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	107.5 PK			1.31 H	106	109.81	-2.31
2	*2462.00	99.0 AV			1.31 H	106	101.31	-2.31
3	2483.50	69.2 PK	74.0	-4.8	1.31 H	106	71.44	-2.24
4	2483.50	52.9 AV	54.0	-1.1	1.31 H	106	55.14	-2.24
5	4924.00	49.3 PK	74.0	-24.7	1.01 H	59	41.35	7.95
6	4924.00	38.6 AV	54.0	-15.4	1.01 H	59	30.65	7.95
7	7386.00	56.8 PK	74.0	-17.2	1.43 H	203	43.50	13.30
8	7386.00	45.2 AV	54.0	-8.8	1.43 H	203	31.90	13.30
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	104.5 PK			1.66 V	270	106.81	-2.31
2	*2462.00	95.6 AV			1.66 V	270	97.91	-2.31
3	2483.50	67.2 PK	74.0	-6.8	1.66 V	270	69.44	-2.24
4	2483.50	51.6 AV	54.0	-2.4	1.66 V	270	53.84	-2.24
5	4924.00	50.1 PK	74.0	-23.9	1.00 V	132	42.15	7.95
6	4924.00	38.4 AV	54.0	-15.6	1.00 V	132	30.45	7.95
7	7386.00	58.0 PK	74.0	-16.0	1.82 V	18	44.70	13.30
8	7386.00	47.0 AV	54.0	-7.0	1.82 V	18	33.70	13.30

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.

4.2.8 TEST RESULTS (MODE 2)

BELOW 1GHz WORST-CASE DATA

802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	66.81	25.5 QP	40.0	-14.5	2.00 H	17	40.85	-15.37
2	159.45	31.8 QP	43.5	-11.7	1.00 H	22	45.16	-13.33
3	294.13	34.1 QP	46.0	-12.0	2.00 H	81	46.47	-12.42
4	480.03	36.3 QP	46.0	-9.7	2.00 H	43	44.36	-8.03
5	847.56	33.0 QP	46.0	-13.0	2.00 H	332	34.25	-1.24
6	959.99	28.5 QP	46.0	-17.5	1.00 H	0	27.49	1.03
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	49.88	32.9 QP	40.0	-7.2	2.00 V	198	46.45	-13.60
2	132.09	34.3 QP	43.5	-9.2	2.00 V	0	48.77	-14.46
3	246.60	34.8 QP	46.0	-11.2	1.00 V	110	49.09	-14.31
4	414.22	35.4 QP	46.0	-10.6	1.00 V	348	44.87	-9.50
5	871.81	35.1 QP	46.0	-10.9	1.00 V	158	36.06	-0.97
6	940.64	30.7 QP	46.0	-15.3	1.00 V	205	30.17	0.49

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

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	59.3 PK	74.0	-14.7	1.05 H	226	61.83	-2.53
2	2390.00	47.5 AV	54.0	-6.5	1.05 H	226	50.03	-2.53
3	*2412.00	100.2 PK			1.05 H	226	102.67	-2.47
4	*2412.00	97.7 AV			1.05 H	226	100.17	-2.47
5	4824.00	53.4 PK	74.0	-20.6	1.55 H	119	45.55	7.85
6	4824.00	45.7 AV	54.0	-8.3	1.55 H	119	37.85	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.3 PK	74.0	-12.7	1.17 V	216	63.83	-2.53
2	2390.00	49.2 AV	54.0	-4.8	1.17 V	216	51.73	-2.53
3	*2412.00	107.3 PK			1.17 V	216	109.77	-2.47
4	*2412.00	105.0 AV			1.17 V	216	107.47	-2.47
5	4824.00	54.5 PK	74.0	-19.5	1.03 V	256	46.65	7.85
6	4824.00	46.9 AV	54.0	-7.1	1.03 V	256	39.05	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	99.9 PK			1.03 H	222	102.29	-2.39
2	*2437.00	97.3 AV			1.03 H	222	99.69	-2.39
3	4874.00	53.8 PK	74.0	-20.2	1.60 H	124	45.90	7.90
4	4874.00	45.9 AV	54.0	-8.1	1.60 H	124	38.00	7.90
5	7311.00	56.1 PK	74.0	-17.9	1.71 H	356	43.11	12.99
6	7311.00	45.5 AV	54.0	-8.5	1.71 H	356	32.51	12.99
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.0 PK			1.15 V	216	109.39	-2.39
2	*2437.00	104.3 AV			1.15 V	216	106.69	-2.39
3	4874.00	54.2 PK	74.0	-19.8	1.62 V	85	46.30	7.90
4	4874.00	48.3 AV	54.0	-5.7	1.62 V	85	40.40	7.90
5	7311.00	58.2 PK	74.0	-15.8	1.61 V	81	45.21	12.99
6	7311.00	50.6 AV	54.0	-3.4	1.61 V	81	37.61	12.99

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	100.4 PK			1.02 H	223	102.71	-2.31
2	*2462.00	97.8 AV			1.02 H	223	100.11	-2.31
3	2483.50	59.5 PK	74.0	-14.5	1.02 H	223	61.74	-2.24
4	2483.50	47.3 AV	54.0	-6.7	1.02 H	223	49.54	-2.24
5	4924.00	53.7 PK	74.0	-20.3	1.64 H	127	45.75	7.95
6	4924.00	45.5 AV	54.0	-8.5	1.64 H	127	37.55	7.95
7	7386.00	55.8 PK	74.0	-18.2	1.74 H	348	42.50	13.30
8	7386.00	45.4 AV	54.0	-8.6	1.74 H	348	32.10	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.6 PK			1.14 V	215	108.91	-2.31
2	*2462.00	104.5 AV			1.14 V	215	106.81	-2.31
3	2483.50	60.5 PK	74.0	-13.5	1.14 V	215	62.74	-2.24
4	2483.50	48.7 AV	54.0	-5.3	1.14 V	215	50.94	-2.24
5	4924.00	54.3 PK	74.0	-19.7	1.63 V	71	46.35	7.95
6	4924.00	48.7 AV	54.0	-5.3	1.63 V	71	40.75	7.95
7	7386.00	60.2 PK	74.0	-13.8	1.62 V	98	46.90	13.30
8	7386.00	50.5 AV	54.0	-3.5	1.62 V	98	37.20	13.30

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.

802.11g

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	62.1 PK	74.0	-11.9	1.03 H	217	64.63	-2.53
2	2390.00	48.8 AV	54.0	-5.2	1.03 H	217	51.33	-2.53
3	*2412.00	102.3 PK			1.03 H	217	104.77	-2.47
4	*2412.00	91.8 AV			1.03 H	217	94.27	-2.47
5	4824.00	49.6 PK	74.0	-24.4	1.03 H	113	41.75	7.85
6	4824.00	37.6 AV	54.0	-16.4	1.03 H	113	29.75	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	1.17 V	215	69.43	-2.53
2	2390.00	52.9 AV	54.0	-1.1	1.17 V	215	55.43	-2.53
3	*2412.00	108.8 PK			1.17 V	215	111.27	-2.47
4	*2412.00	98.9 AV			1.17 V	215	101.37	-2.47
5	4824.00	50.8 PK	74.0	-23.2	1.00 V	247	42.95	7.85
6	4824.00	39.1 AV	54.0	-14.9	1.00 V	247	31.25	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	102.2 PK			1.06 H	221	104.59	-2.39
2	*2437.00	93.5 AV			1.06 H	221	95.89	-2.39
3	4874.00	50.1 PK	74.0	-23.9	1.00 H	122	42.20	7.90
4	4874.00	38.1 AV	54.0	-15.9	1.00 H	122	30.20	7.90
5	7311.00	55.2 PK	74.0	-18.8	1.00 H	311	42.21	12.99
6	7311.00	43.5 AV	54.0	-10.5	1.00 H	311	30.51	12.99
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	59.2 PK	74.0	-14.8	1.16 V	217	61.73	-2.53
2	2390.00	47.9 AV	54.0	-6.1	1.16 V	217	50.43	-2.53
3	*2437.00	108.4 PK			1.16 V	217	110.79	-2.39
4	*2437.00	99.7 AV			1.16 V	217	102.09	-2.39
5	2483.50	59.8 PK	74.0	-14.2	1.16 V	217	62.04	-2.24
6	2483.50	48.1 AV	54.0	-5.9	1.16 V	217	50.34	-2.24
7	4874.00	50.5 PK	74.0	-23.5	1.00 V	250	42.60	7.90
8	4874.00	38.7 AV	54.0	-15.3	1.00 V	250	30.80	7.90
9	7311.00	60.3 PK	74.0	-13.7	1.73 V	98	47.31	12.99
10	7311.00	47.7 AV	54.0	-6.3	1.73 V	98	34.71	12.99

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	101.4 PK			1.04 H	223	103.71	-2.31
2	*2462.00	92.6 AV			1.04 H	223	94.91	-2.31
3	2483.50	64.4 PK	74.0	-9.6	1.04 H	223	66.64	-2.24
4	2483.50	49.5 AV	54.0	-4.5	1.04 H	223	51.74	-2.24
5	4924.00	50.1 PK	74.0	-23.9	1.00 H	137	42.15	7.95
6	4924.00	37.9 AV	54.0	-16.1	1.00 H	137	29.95	7.95
7	7386.00	55.0 PK	74.0	-19.0	1.05 H	301	41.70	13.30
8	7386.00	43.3 AV	54.0	-10.7	1.05 H	301	30.00	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.6 PK			1.15 V	216	110.91	-2.31
2	*2462.00	99.6 AV			1.15 V	216	101.91	-2.31
3	2483.50	69.3 PK	74.0	-4.7	1.15 V	216	71.54	-2.24
4	2483.50	53.0 AV	54.0	-1.0	1.15 V	216	55.24	-2.24
5	4924.00	50.2 PK	74.0	-23.8	1.03 V	246	42.25	7.95
6	4924.00	38.6 AV	54.0	-15.4	1.03 V	246	30.65	7.95
7	7386.00	60.5 PK	74.0	-13.5	1.68 V	107	47.20	13.30
8	7386.00	47.8 AV	54.0	-6.2	1.68 V	107	34.50	13.30

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	61.1 PK	74.0	-12.9	1.01 H	215	63.63	-2.53
2	2390.00	48.6 AV	54.0	-5.4	1.01 H	215	51.13	-2.53
3	*2412.00	100.1 PK			1.01 H	215	102.57	-2.47
4	*2412.00	91.1 AV			1.01 H	215	93.57	-2.47
5	4824.00	50.0 PK	74.0	-24.0	1.00 H	109	42.15	7.85
6	4824.00	38.1 AV	54.0	-15.9	1.00 H	109	30.25	7.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	1.17 V	215	69.43	-2.53
2	2390.00	52.2 AV	54.0	-1.8	1.17 V	215	54.73	-2.53
3	*2412.00	107.3 PK			1.17 V	215	109.77	-2.47
4	*2412.00	98.7 AV			1.17 V	215	101.17	-2.47
5	4824.00	50.9 PK	74.0	-23.1	1.00 V	260	43.05	7.85
6	4824.00	39.0 AV	54.0	-15.0	1.00 V	260	31.15	7.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	101.9 PK			1.06 H	221	104.29	-2.39
2	*2437.00	92.5 AV			1.06 H	221	94.89	-2.39
3	4874.00	49.8 PK	74.0	-24.2	1.05 H	120	41.90	7.90
4	4874.00	37.7 AV	54.0	-16.3	1.05 H	120	29.80	7.90
5	7311.00	55.7 PK	74.0	-18.3	1.00 H	310	42.71	12.99
6	7311.00	43.7 AV	54.0	-10.3	1.00 H	310	30.71	12.99
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	59.4 PK	74.0	-14.6	1.15 V	217	61.93	-2.53
2	2390.00	47.7 AV	54.0	-6.3	1.15 V	217	50.23	-2.53
3	*2437.00	108.5 PK			1.15 V	217	110.89	-2.39
4	*2437.00	98.9 AV			1.15 V	217	101.29	-2.39
5	2483.50	60.2 PK	74.0	-13.8	1.15 V	217	62.44	-2.24
6	2483.50	48.0 AV	54.0	-6.0	1.15 V	217	50.24	-2.24
7	4874.00	50.7 PK	74.0	-23.3	1.00 V	242	42.80	7.90
8	4874.00	38.9 AV	54.0	-15.1	1.00 V	242	31.00	7.90
9	7311.00	60.2 PK	74.0	-13.8	1.75 V	108	47.21	12.99
10	7311.00	47.6 AV	54.0	-6.4	1.75 V	108	34.61	12.99

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	103.0 PK			1.05 H	220	105.31	-2.31
2	*2462.00	92.3 AV			1.05 H	220	94.61	-2.31
3	2483.50	62.9 PK	74.0	-11.1	1.05 H	220	65.14	-2.24
4	2483.50	49.3 AV	54.0	-4.7	1.05 H	220	51.54	-2.24
5	4924.00	50.1 PK	74.0	-23.9	1.05 H	119	42.15	7.95
6	4924.00	38.1 AV	54.0	-15.9	1.05 H	119	30.15	7.95
7	7386.00	56.1 PK	74.0	-17.9	1.00 H	311	42.80	13.30
8	7386.00	44.2 AV	54.0	-9.8	1.00 H	311	30.90	13.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.4 PK			1.15 V	216	110.71	-2.31
2	*2462.00	98.7 AV			1.15 V	216	101.01	-2.31
3	2483.50	71.8 PK	74.0	-2.2	1.15 V	216	74.04	-2.24
4	2483.50	52.8 AV	54.0	-1.2	1.15 V	216	55.04	-2.24
5	4924.00	50.3 PK	74.0	-23.7	1.00 V	246	42.35	7.95
6	4924.00	38.7 AV	54.0	-15.3	1.00 V	246	30.75	7.95
7	7386.00	59.9 PK	74.0	-14.1	1.70 V	93	46.60	13.30
8	7386.00	47.3 AV	54.0	-6.7	1.70 V	93	34.00	13.30

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 : June 18, 2013

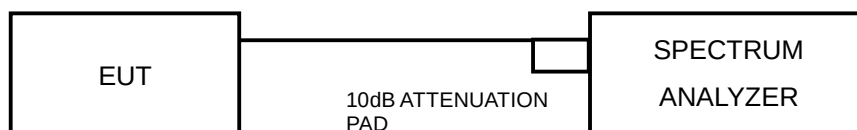
4.3.3 TEST PROCEDURE

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	7.75	0.5	PASS
6	2437	7.33	0.5	PASS
11	2462	7.69	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.10	0.5	PASS
6	2437	15.12	0.5	PASS
11	2462	15.14	0.5	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.16	0.5	PASS
6	2437	15.12	0.5	PASS
11	2462	15.17	0.5	PASS

4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 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 : June 18, 2013

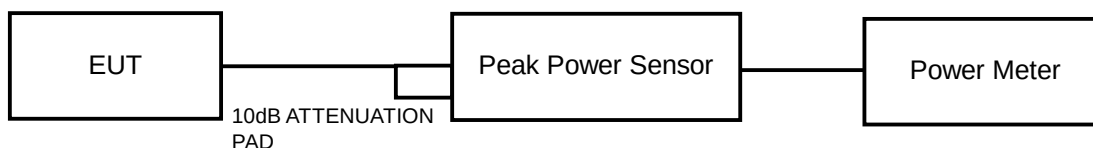
4.4.3 TEST PROCEDURES

A 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)	LIMIT (dBm)	PASS/FAIL
1	2412	88.308	19.46	30	PASS
6	2437	79.799	19.02	30	PASS
11	2462	87.700	19.43	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	197.242	22.95	30	PASS
6	2437	231.739	23.65	30	PASS
11	2462	220.293	23.43	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	204.644	23.11	30	PASS
6	2437	208.930	23.20	30	PASS
11	2462	204.644	23.11	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

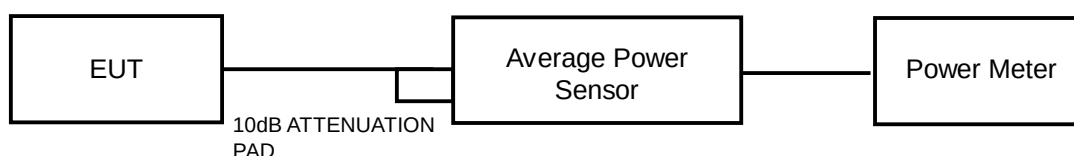
Note:

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 : June 18, 2013

4.5.3 TEST PROCEDURES

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

4.5.4 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	47.315	16.75
6	2437	40.458	16.07
11	2462	45.394	16.57

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	27.990	14.47
6	2437	34.754	15.41
11	2462	32.434	15.11

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	26.424	14.22
6	2437	30.832	14.89
11	2462	29.444	14.69

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 : June 18, 2013

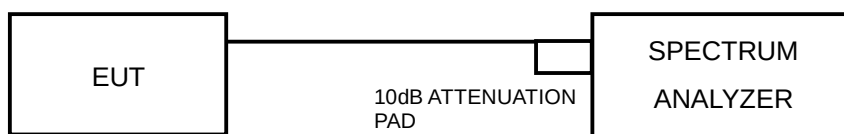
4.6.3 TEST PROCEDURE

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	-6.67	8	PASS
6	2437	-7.86	8	PASS
11	2462	-6.98	8	PASS

802.11g

Channel	FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-10.73	8	PASS
6	2437	-9.81	8	PASS
11	2462	-9.25	8	PASS

802.11n (HT20)

Channel	FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.00	8	PASS
6	2437	-11.34	8	PASS
11	2462	-10.73	8	PASS

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 : June 18, 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.

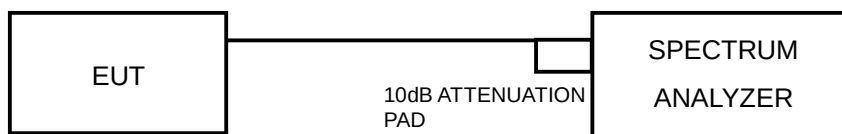
Measurement Procedure –Unwanted Emission Level

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

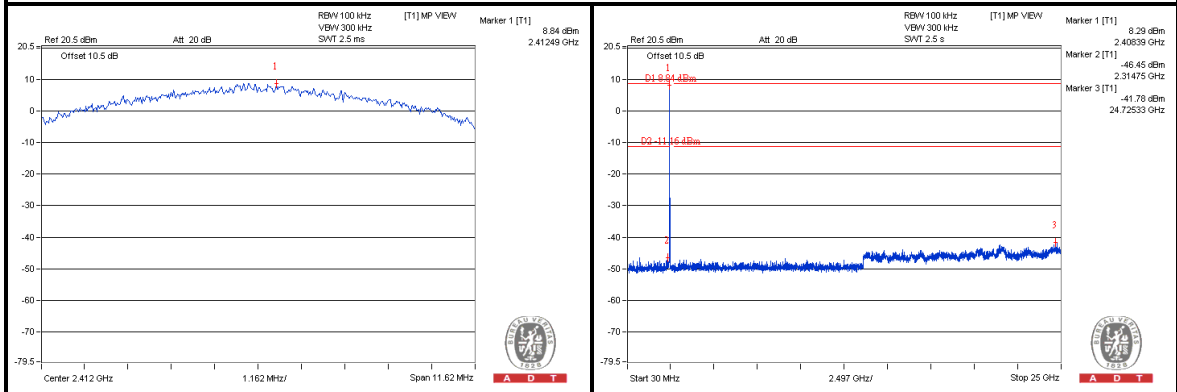
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



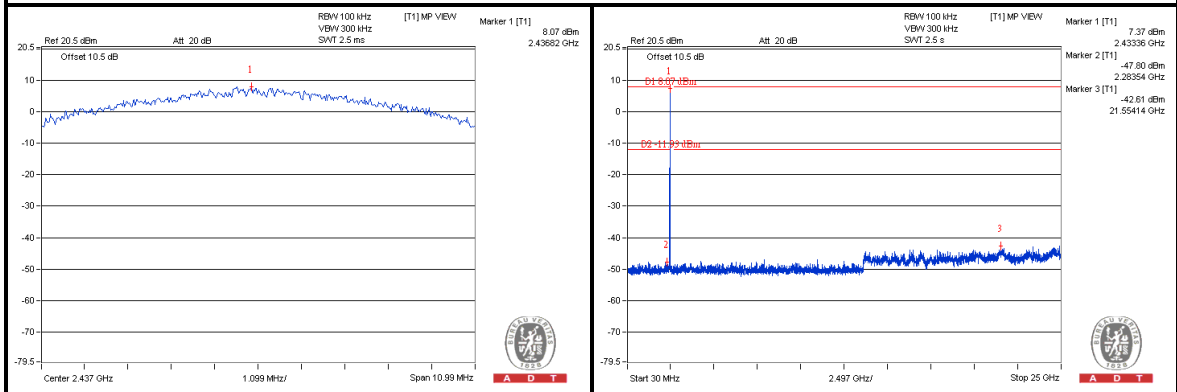
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802.11b

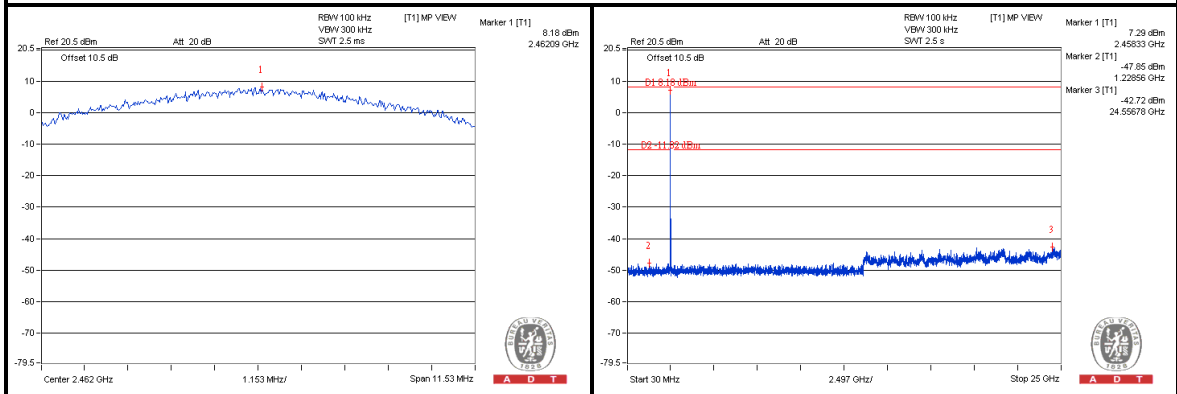
CH 1



CH 6



CH 11

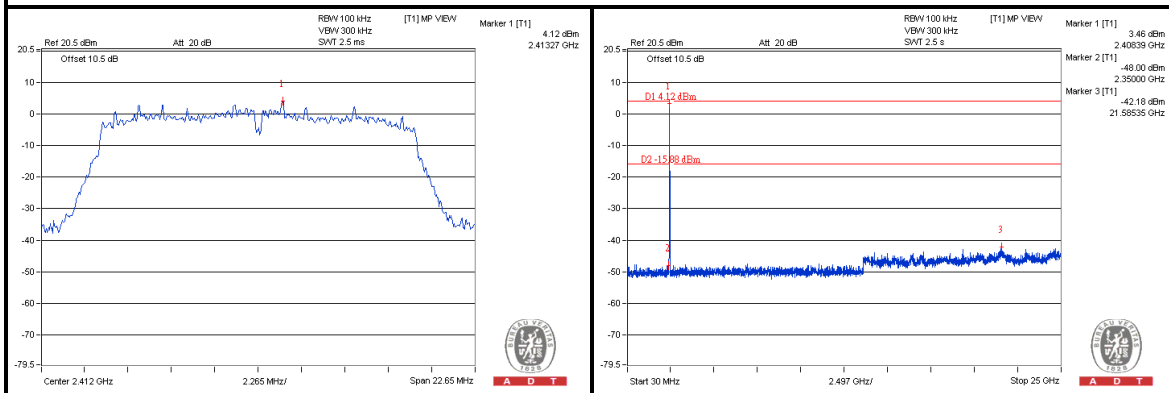




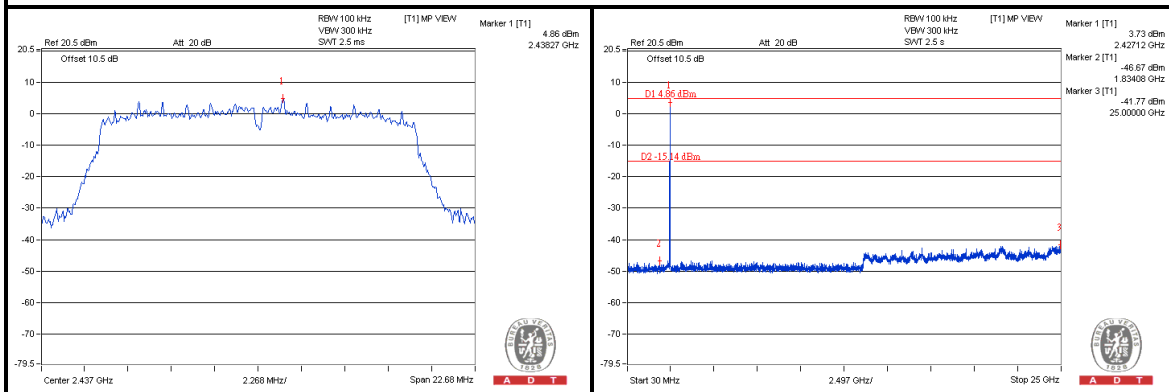
A D T

802.11g

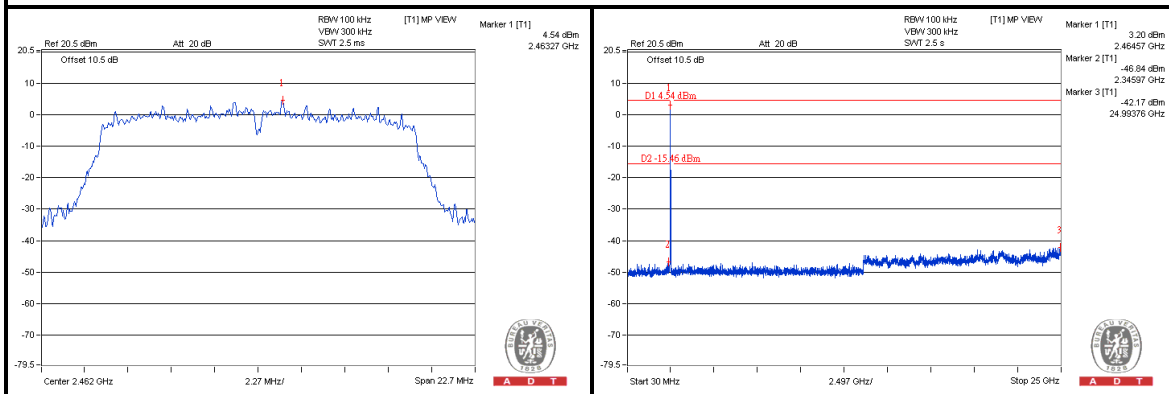
CH 1



CH 6



CH 11

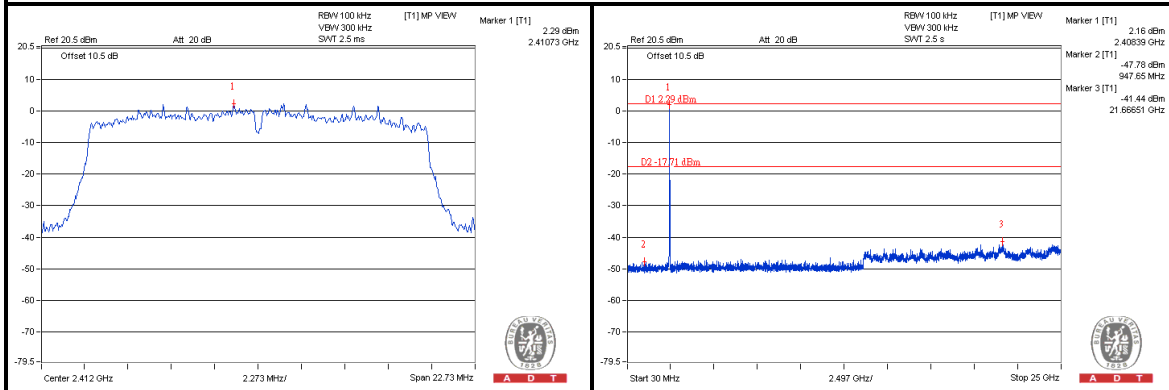




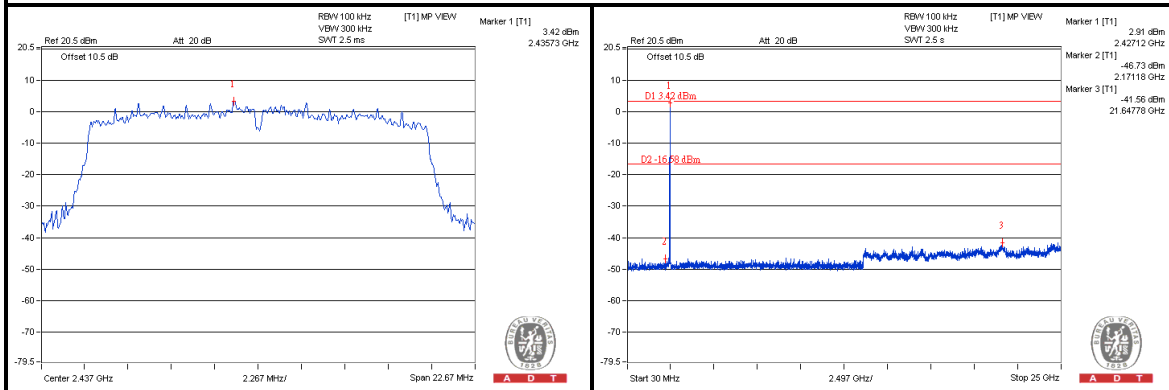
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802.11n (HT20)

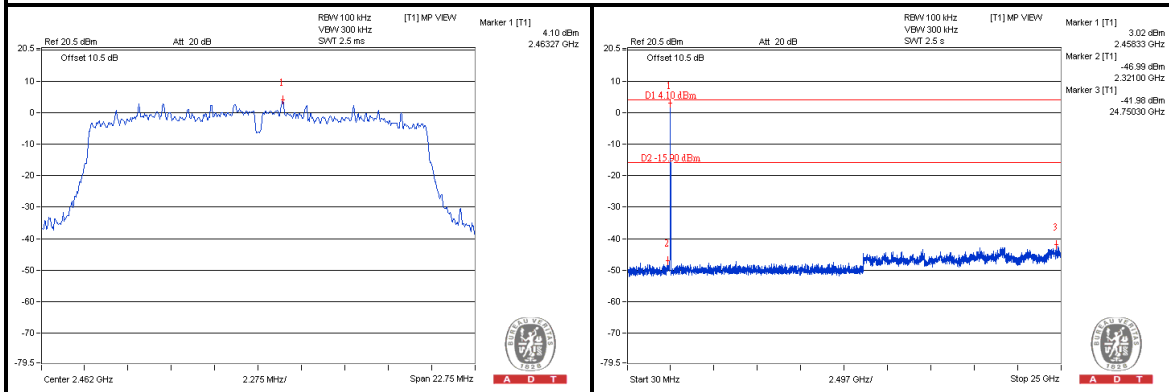
CH 1



CH 6



CH 11



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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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.

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