

FCC TEST REPORT

REPORT NO.: RF130307E01

MODEL NO.: TEW-733GR

FCC ID: XU8TEW733GR

RECEIVED: Feb. 22, 2013

TESTED: Feb. 22 to Mar. 11, 2013

ISSUED: Apr. 30, 2013

APPLICANT: TRENDnet, Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services

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RELEASE CONTROL RECORD

ISSUE NO.	. REASON FOR CHANGE			
RF130307E01	Original release	Apr. 30, 2013		

Report No.: RF130307E01 4 of 60 Report Format Version 5.1.0



1. CERTIFICATION

PRODUCT: N300 Wireless Gigabit Router

BRAND NAME: TRENDnet

MODEL NO.: TEW-733GR

TEST SAMPLE: ENGINEERING SAMPLE

APPLICANT: TRENDnet, Inc.

TESTED: Feb. 22 to Mar. 11, 2013

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

ANSI C63.10-2009

The above equipment (Model: TEW-733GR) 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.

(Lori Chung, Specialist/)

(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	15.207 AC Power Conducted Emission		Meet the requirement of limit. Minimum passing margin is -16.23dB at 0.46553MHz.			
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.00MHz & 2483.50MHz & 7386.00MHz			
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	N300 Wireless Gigabit Router
MODEL NO.	TEW-733GR
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 300Mbps
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: 251.189mW 802.11g: 331.131mW 802.11n (HT20): 591.063mW 802.11n (HT40): 358.540mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x 1



NOTE:

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

Transmitter Circuit	Brand	Model	Gain(dBi)	Antenna Type	Frequency range (MHz to MHz)	Cable Length (mm)
Chain (0)	HL	NA	0.38	Printed	2400~2500	NA
Chain (1)	HL	NA	0.98	Printed	2400~2500	NA

2. The EUT must be supplied with a power adapter and following two different models could be chosen as following table:

No	Brand	Model No.	Spec.
1	LEI	MU12AB120100-A1	Input: 100-240V, 0.4A, 50-60Hz Output: 12V, 1A DC output cable (Unshielded, 1.2m)
2	AMIGO AMS9-1201000FC2		Input: 100-240V, 0.5A, 50-60Hz Output: 12V, 1A DC output cable (Unshielded, 1.2m)

For radiated emissions test, the EUT was pre-tested with above adapters 1 & 2, the worst case was found in adapter 1. Therefore only the test data of the adapter was recorded in this report.

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

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

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



3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

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		Al	PPLICABLE 1	го		
CONFIGURE MODE	PLC	RE < 1G	RE 3 1G	APCM	ОВ	DESCRIPTION
1	\checkmark	$\sqrt{}$	\checkmark	$\sqrt{}$	$\sqrt{}$	Adapter 1
2	\checkmark	-	-	-	-	Adapter 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 1: "-"means no effect.

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	TESTED	MODULATION	MODULATION	DATA RATE
	CHANNEL	CHANNEL	TECHNOLOGY	TYPE	(Mbps)
802.11n (HT20)	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	TESTED	MODULATION	MODULATIO	DATA RATE
	CHANNEL	CHANNEL	TECHNOLOGY	N TYPE	(Mbps)
802.11n (HT20)	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
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

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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	24deg. C, 65%RH	120Vac, 60Hz	Jason Huang
RE<1G	22deg. C, 65%RH	120Vac, 60Hz	Robert Cheng
RE ³ 1G	23deg. C, 69%RH	120Vac, 60Hz	Robert Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng
ОВ	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 v02 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.



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.

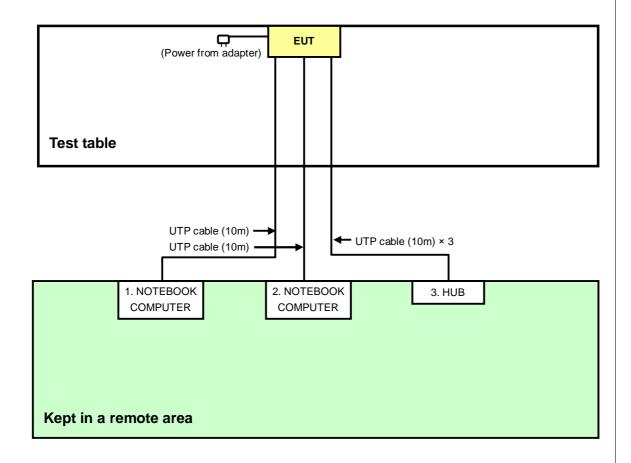
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID	
4	NOTEBOOK	DELL	PP32LA	FSLB32S	ECC DoC	
ı	COMPUTER	DELL	PP3ZLA	F3LD323	FCC DoC	
2	NOTEBOOK	DELL	DD00LA	COL DOOG	E00 D-0	
	COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC	
	LILID	7	EC 446D	S060H0200021	F00 D-0	
3	HUB	ZyXEL	ES-116P	5	FCC DoC	

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

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)			
0.15.0.5	Quasi-peak	Average		
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 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	ESCS 30	100375	Mar. 12, 2012	Mar. 11, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 06, 2012	Sep. 05, 2013
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 08,2012	June 07,2013
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 28, 2012	Aug. 27, 2013
50 ohms Terminator	50	EMC-3	Sep. 25, 2012	Sep. 24, 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. C.
- 3 The VCCI Con C Registration No. is C-3611.
- 4 Tested Date: Feb. 26, 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:

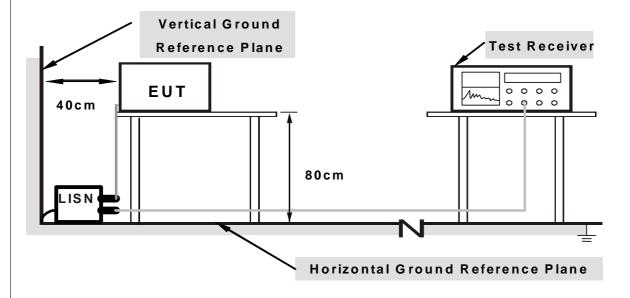
1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

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. Place the EUT on testing table.
- The communication partner run test program "MT7620QA.exe" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

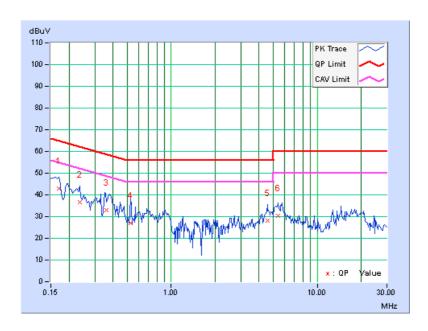


4.1.7 TEST RESULTS (MODE 1)

PHASE	Il ine (I)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

	Freq.	Corr.		ding lue	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	0.16953	0.11	42.94	30.82	43.05	30.93	64.98	54.98	-21.93	-24.05
2	0.23594	0.14	36.69	24.25	36.83	24.39	62.24	52.24	-25.41	-27.85
3	0.36097	0.17	32.87	26.67	33.04	26.84	58.71	48.71	-25.67	-21.87
4	0.52891	0.19	26.90	15.96	27.09	16.15	56.00	46.00	-28.91	-29.85
5	4.55078	0.39	27.65	19.82	28.04	20.21	56.00	46.00	-27.96	-25.79
6	5.37891	0.45	30.04	21.79	30.49	22.24	60.00	50.00	-29.51	-27.76

- 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.

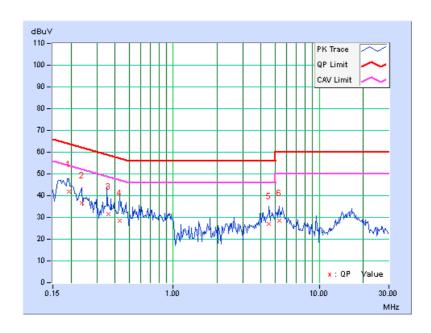




PHASE Neutral (N) DETECTOR Quasi-Peak (QP) / Average (AV)
--

	Freq.	Corr.	Rea Val	ding lue		sion vel	Limit		Mar	gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.12	41.58	30.70	41.70	30.82	63.91	53.91	-22.21	-23.09
2	0.23594	0.13	36.63	26.42	36.76	26.55	62.24	52.24	-25.48	-25.69
3	0.36188	0.18	31.37	25.37	31.55	25.55	58.69	48.69	-27.14	-23.14
4	0.43125	0.19	28.26	16.31	28.45	16.50	57.23	47.23	-28.78	-30.73
5	4.52344	0.37	26.84	18.99	27.21	19.36	56.00	46.00	-28.79	-26.64
6	5.35938	0.41	28.06	19.71	28.47	20.12	60.00	50.00	-31.53	-29.88

- 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.



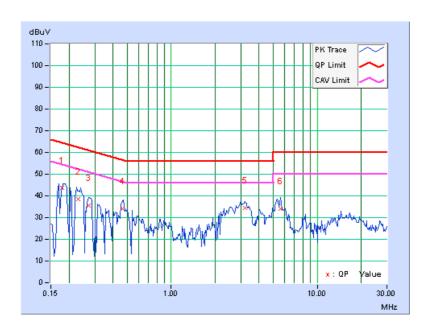


4.1.8 TEST RESULTS (MODE 2)

PHASE	II ine (I)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

	Freq.	Corr.	Rea Val	ding lue	Emission Limit Marg		Limit		gin		
No		Factor	[dB	[dB (uV)] [dB (uV)] [dB (uV)		[dB (uV)]		[dB (uV)] [dB (uV)]		(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18000	0.12	43.44	33.19	43.56	33.31	64.49	54.49	-20.93	-21.18	
2	0.23159	0.14	38.29	30.22	38.43	30.36	62.39	52.39	-23.96	-22.03	
3	0.27281	0.15	35.53	28.03	35.68	28.18	61.03	51.03	-25.35	-22.85	
4	0.46378	0.19	33.80	26.51	33.99	26.70	56.62	46.62	-22.64	-19.93	
5	3.19531	0.33	33.97	22.94	34.30	23.27	56.00	46.00	-21.70	-22.73	
6	5.59375	0.46	33.78	23.24	34.24	23.70	60.00	50.00	-25.76	-26.30	

- 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.

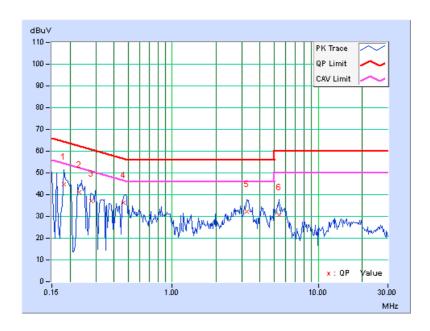




PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

	Freq.	Corr.		Reading Value		sion vel	Limit		Mar	gin
No		Factor	[dB	(uV)]	[dB	dB (uV)]		uV)] [dB (uV)]		B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.11	44.57	32.69	44.68	32.80	64.43	54.43	-19.75	-21.63
2	0.23247	0.13	40.94	32.04	41.07	32.17	62.36	52.36	-21.29	-20.19
3	0.27906	0.15	36.83	28.32	36.98	28.47	60.84	50.84	-23.87	-22.38
4	0.46553	0.20	36.11	30.17	36.31	30.37	56.59	46.59	-20.29	-16.23
5	3.26172	0.31	32.02	18.56	32.33	18.87	56.00	46.00	-23.67	-27.13
6	5.41016	0.42	30.42	17.68	30.84	18.10	60.00	50.00	-29.16	-31.90

- 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 30dB 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 under any condition of modulation.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
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 _V8.7.05	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: Feb. 22 to Mar. 11, 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:

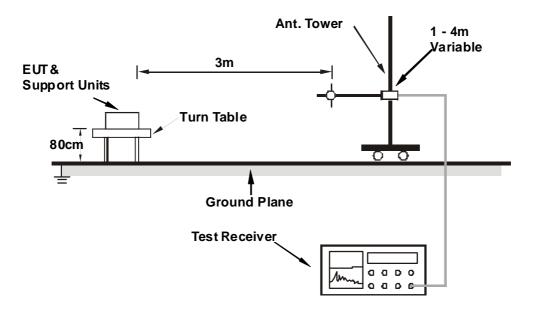
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
- 4. 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

Same as 4.1.6



4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (HT20)

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

	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	78.43	35.2 QP	40.0	-4.8	2.00 H	0	25.07	10.16	
2	103.30	33.5 QP	43.5	-10.0	1.00 H	54	23.15	10.32	
3	164.29	35.5 QP	43.5	-8.0	2.00 H	101	21.40	14.06	
4	191.88	35.0 QP	43.5	-8.5	1.50 H	124	23.13	11.89	
5	221.84	37.7 QP	46.0	-8.3	1.50 H	97	25.62	12.12	
6	250.03	42.9 QP	46.0	-3.2	1.00 H	292	29.50	13.35	
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	37.95	36.8 QP	40.0	-3.2	1.00 V	290	23.24	13.52	
2	75.17	26.1 QP	40.0	-13.9	1.00 V	240	14.96	11.11	
3	188.33	37.6 QP	43.5	-5.9	1.00 V	333	25.35	12.21	
4	192.95	39.0 QP	43.5	-4.5	1.00 V	309	27.19	11.79	
5	250.03	38.6 QP	46.0	-7.4	1.50 V	0	25.24	13.35	
6	500.02	36.1 QP	46.0	-10.0	1.00 V	298	15.66	20.39	

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



ABOVE 1GHz DATA

802.11b

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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.5 PK	74.0	-9.5	1.46 H	60	32.52	31.98
2	2390.00	52.7 AV	54.0	-1.3	1.46 H	60	20.72	31.98
3	*2412.00	110.1 PK			1.46 H	60	78.05	32.05
4	*2412.00	108.2 AV			1.46 H	60	76.15	32.05
5	4824.00	53.3 PK	74.0	-20.7	1.30 H	118	13.72	39.58
6	4824.00	50.0 AV	54.0	-4.0	1.30 H	118	10.42	39.58
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.4 PK	74.0	-12.6	1.00 V	54	29.42	31.98
2	2390.00	50.2 AV	54.0	-3.8	1.00 V	54	18.22	31.98
3	*2412.00	106.6 PK			1.00 V	54	74.55	32.05
4	*2412.00	104.6 AV			1.00 V	54	72.55	32.05
5	4824.00	54.5 PK	74.0	-19.5	1.18 V	56	14.92	39.58
6	4824.00	50.5 AV	54.0	-3.5	1.18 V	56	10.92	39.58

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



CHANNEL	TX Channel 6	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	108.4 PK			1.45 H	60	76.28	32.12	
2	*2437.00	106.0 AV			1.45 H	60	73.88	32.12	
3	4874.00	52.1 PK	74.0	-21.9	1.25 H	80	12.40	39.70	
4	4874.00	48.7 AV	54.0	-5.3	1.25 H	80	9.00	39.70	
5	7311.00	59.7 PK	74.0	-14.3	1.00 H	290	12.11	47.59	
6	7311.00	53.4 AV	54.0	-0.6	1.00 H	290	5.81	47.59	
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2437.00	104.1 PK			1.00 V	57	71.98	32.12	
2	*2437.00	102.0 AV			1.00 V	57	69.88	32.12	
3	4874.00	54.7 PK	74.0	-19.3	1.15 V	56	15.00	39.70	
4	4874.00	51.0 AV	54.0	-3.0	1.15 V	56	11.30	39.70	
5	7311.00	57.2 PK	74.0	-16.8	1.02 V	153	9.61	47.59	
6	7311.00	47.6 AV	54.0	-6.4	1.02 V	153	0.01	47.59	

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



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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.2 PK			1.17 H	69	76.02	32.18
2	*2462.00	106.2 AV			1.17 H	69	74.02	32.18
3	2483.50	58.8 PK	74.0	-15.2	1.17 H	69	26.56	32.24
4	2483.50	45.3 AV	54.0	-8.7	1.17 H	69	13.06	32.24
5	4924.00	54.4 PK	74.0	-19.6	1.30 H	91	14.56	39.84
6	4924.00	50.1 AV	54.0	-3.9	1.30 H	91	10.26	39.84
7	7386.00	58.3 PK	74.0	-15.7	1.00 H	291	10.78	47.52
8	7386.00	50.3 AV	54.0	-3.7	1.00 H	291	2.78	47.52
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.1 PK			1.00 V	58	71.92	32.18
2	*2462.00	102.1 AV			1.00 V	58	69.92	32.18
3	2483.50	58.6 PK	74.0	-15.4	1.12 V	58	26.36	32.24
4	2483.50	44.9 AV	54.0	-9.1	1.12 V	58	12.66	32.24
5	4924.00	56.2 PK	74.0	-17.8	1.16 V	77	16.36	39.84
6	4924.00	53.2 AV	54.0	-0.8	1.16 V	77	13.36	39.84
7	7386.00	56.6 PK	74.0	-17.4	1.00 V	155	9.08	47.52
8	7386.00	47.1 AV	54.0	-6.9	1.00 V	155	-0.42	47.52

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



802.11g

CHANNEL	TX Channel 1	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	70.1 PK	74.0	-3.9	1.48 H	57	38.12	31.98	
2	2390.00	53.5 AV	54.0	-0.5	1.48 H	57	21.52	31.98	
3	*2412.00	108.6 PK			1.48 H	57	76.55	32.05	
4	*2412.00	98.1 AV			1.48 H	57	66.05	32.05	
5	4824.00	49.9 PK	74.0	-24.1	1.00 H	308	10.32	39.58	
6	4824.00	38.7 AV	54.0	-15.3	1.00 H	308	-0.88	39.58	
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	2390.00	67.4 PK	74.0	-6.6	1.00 V	54	35.42	31.98	
2	2390.00	51.1 AV	54.0	-2.9	1.00 V	54	19.12	31.98	
3	*2412.00	104.9 PK			1.00 V	54	72.85	32.05	
4	*2412.00	95.1 AV			1.00 V	54	63.05	32.05	
5	4824.00	50.7 PK	74.0	-23.3	1.00 V	333	11.12	39.58	
6	4824.00	39.2 AV	54.0	-14.8	1.00 V	333	-0.38	39.58	

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



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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.9 PK	74.0	-12.1	1.47 H	87	29.92	31.98
2	2390.00	48.1 AV	54.0	-5.9	1.47 H	87	16.12	31.98
3	*2437.00	113.6 PK			1.48 H	56	81.48	32.12
4	*2437.00	103.7 AV			1.48 H	56	71.58	32.12
5	2483.50	64.4 PK	74.0	-9.6	1.47 H	87	32.16	32.24
6	2483.50	48.4 AV	54.0	-5.6	1.47 H	87	16.16	32.24
7	4874.00	47.5 PK	74.0	-26.5	1.01 H	311	7.80	39.70
8	4874.00	36.5 AV	54.0	-17.5	1.01 H	311	-3.20	39.70
9	7311.00	66.4 PK	74.0	-7.6	1.00 H	300	18.81	47.59
10	7311.00	53.4 AV	54.0	-0.6	1.00 H	300	5.81	47.59
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.3 PK	74.0	-13.7	1.00 V	54	28.32	31.98
2	2390.00	46.4 AV	54.0	-7.6	1.00 V	54	14.42	31.98
3	*2437.00	110.1 PK			1.00 V	54	77.98	32.12
4	*2437.00	100.2 AV			1.00 V	54	68.08	32.12
5	2483.50	61.9 PK	74.0	-12.1	1.00 V	54	29.66	32.24
6	2483.50	47.2 AV	54.0	-6.8	1.00 V	54	14.96	32.24
7	4874.00	59.7 PK	74.0	-14.3	1.03 V	339	20.00	39.70
8	4874.00	48.7 AV	54.0	-5.3	1.03 V	339	9.00	39.70
9	7311.00	53.1 PK	74.0	-20.9	1.00 V	237	5.51	47.59
10	7311.00	44.2 AV	54.0	-9.8	1.00 V	237	-3.39	47.59

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



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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.7 PK			1.42 H	58	76.52	32.18
2	*2462.00	99.1 AV			1.42 H	58	66.92	32.18
3	2483.50	71.2 PK	74.0	-2.8	1.42 H	58	38.96	32.24
4	2483.50	53.5 AV	54.0	-0.5	1.42 H	58	21.26	32.24
5	4924.00	52.4 PK	74.0	-21.6	1.03 H	332	12.56	39.84
6	4924.00	42.4 AV	54.0	-11.6	1.03 H	332	2.56	39.84
7	7386.00	53.4 PK	74.0	-20.6	1.01 H	160	5.88	47.52
8	7386.00	41.3 AV	54.0	-12.7	1.01 H	160	-6.22	47.52
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.4 PK			1.00 V	55	73.22	32.18
2	*2462.00	96.0 AV			1.00 V	55	63.82	32.18
3	2483.50	61.5 PK	74.0	-12.5	1.07 V	238	29.26	32.24
4	2483.50	48.8 AV	54.0	-5.2	1.07 V	238	16.56	32.24
5	4924.00	53.4 PK	74.0	-20.6	1.00 V	346	13.56	39.84
6	4924.00	43.4 AV	54.0	-10.6	1.00 V	346	3.56	39.84
7	7386.00	53.1 PK	74.0	-20.9	1.00 V	217	5.58	47.52
8	7386.00	41.4 AV	54.0	-12.6	1.00 V	217	-6.12	47.52

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



802.11n (HT20)

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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.2 PK	74.0	-1.8	1.50 H	58	40.22	31.98
2	2390.00	53.5 AV	54.0	-0.5	1.50 H	58	21.52	31.98
3	*2412.00	109.1 PK			1.50 H	58	77.05	32.05
4	*2412.00	97.8 AV			1.50 H	58	65.75	32.05
5	4824.00	56.8 PK	74.0	-17.2	1.00 H	360	17.22	39.58
6	4824.00	43.8 AV	54.0	-10.2	1.00 H	360	4.22	39.58
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.3 PK	74.0	-6.7	1.35 V	17	35.32	31.98
2	2390.00	50.0 AV	54.0	-4.0	1.35 V	17	18.02	31.98
3	*2412.00	105.7 PK			1.35 V	17	73.65	32.05
4	*2412.00	94.1 AV			1.35 V	17	62.05	32.05
5	4824.00	56.9 PK	74.0	-17.1	1.00 V	84	17.32	39.58
6	4824.00	43.9 AV	54.0	-10.1	1.00 V	84	4.32	39.58

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



CHANNEL	TX Channel 6	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	1.17 H	69	33.72	31.98			
2	2390.00	49.9 AV	54.0	-4.1	1.17 H	69	17.92	31.98			
3	*2437.00	116.0 PK			1.17 H	69	83.88	32.12			
4	*2437.00	104.0 AV			1.17 H	69	71.88	32.12			
5	2483.50	64.7 PK	74.0	-9.3	1.17 H	69	32.46	32.24			
6	2483.50	48.2 AV	54.0	-5.8	1.17 H	69	15.96	32.24			
7	4874.00	47.0 PK	74.0	-27.0	1.00 H	307	7.30	39.70			
8	4874.00	36.1 AV	54.0	-17.9	1.00 H	307	-3.60	39.70			
9	7311.00	66.4 PK	74.0	-7.6	1.19 H	300	18.81	47.59			
10	7311.00	53.2 AV	54.0	-0.8	1.19 H	300	5.61	47.59			
	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	52.6 PK	74.0	-21.4	1.00 V	212	20.62	31.98			
2	2390.00	41.1 AV	54.0	-12.9	1.00 V	212	9.12	31.98			
3	*2437.00	113.1 PK			1.35 V	35	80.98	32.12			
4	*2437.00	101.1 AV			1.35 V	35	68.98	32.12			
5	2483.50	61.9 PK	74.0	-12.1	1.05 V	238	29.66	32.24			
6	2483.50	49.0 AV	54.0	-5.0	1.05 V	238	16.76	32.24			
7	4874.00	61.4 PK	74.0	-12.6	1.58 V	78	21.70	39.70			
8	4874.00	48.7 AV	54.0	-5.3	1.58 V	78	9.00	39.70			
9	7311.00	53.1 PK	74.0	-20.9	1.00 V	347	5.51	47.59			
10	7311.00	43.1 AV	54.0	-10.9	1.00 V	347	-4.49	47.59			

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



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

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
		ANIENNA	POLARITY	& IEST DIS	I ANCE: HO	RIZONTAL	AI3M		
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	110.4 PK			1.17 H	68	78.22	32.18	
2	*2462.00	98.5 AV			1.17 H	68	66.32	32.18	
3	2483.50	72.8 PK	74.0	-1.2	1.14 H	66	40.56	32.24	
4	2483.50	52.9 AV	54.0	-1.1	1.14 H	66	20.66	32.24	
5	4924.00	46.7 PK	74.0	-27.3	1.00 H	320	6.86	39.84	
6	4924.00	35.8 AV	54.0	-18.2	1.00 H	320	-4.04	39.84	
7	7386.00	66.9 PK	74.0	-7.1	1.18 H	285	19.38	47.52	
8	7386.00	53.5 AV	54.0	-0.5	1.18 H	285	5.98	47.52	
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M		
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	*2462.00	107.6 PK			1.34 V	35	75.42	32.18	
2	*2462.00	95.1 AV			1.34 V	35	62.92	32.18	
3	2483.50	62.2 PK	74.0	-11.8	1.07 V	244	29.96	32.24	
4	2483.50	49.4 AV	54.0	-4.6	1.07 V	244	17.16	32.24	
5	4924.00	60.9 PK	74.0	-13.1	1.62 V	65	21.06	39.84	
6	4924.00	48.3 AV	54.0	-5.7	1.62 V	65	8.46	39.84	
7	7386.00	53.0 PK	74.0	-21.0	1.03 V	359	5.48	47.52	
8	7386.00	42.9 AV	54.0	-11.1	1.03 V	359	-4.62	47.52	

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



802.11n (HT40)

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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.7 PK	74.0	-4.3	1.48 H	58	37.72	31.98
2	2390.00	52.7 AV	54.0	-1.3	1.48 H	58	20.72	31.98
3	*2422.00	104.3 PK			1.48 H	58	72.22	32.08
4	*2422.00	92.7 AV			1.48 H	58	60.62	32.08
5	4844.00	47.0 PK	74.0	-27.0	1.00 H	307	7.37	39.63
6	4844.00	36.1 AV	54.0	-17.9	1.00 H	307	-3.53	39.63
7	7266.00	66.4 PK	74.0	-7.6	1.19 H	300	18.80	47.60
8	7266.00	53.2 AV	54.0	-0.8	1.19 H	300	5.60	47.60
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.5 PK	74.0	-11.5	1.04 V	255	30.52	31.98
2	2390.00	49.5 AV	54.0	-4.5	1.04 V	255	17.52	31.98
3	*2422.00	101.3 PK			1.34 V	35	69.22	32.08
4	*2422.00	89.6 AV			1.34 V	35	57.52	32.08
5	4844.00	62.1 PK	74.0	-11.9	1.57 V	71	22.47	39.63
6	4844.00	49.1 AV	54.0	-4.9	1.57 V	71	9.47	39.63
7	7266.00	52.7 PK	74.0	-21.3	1.22 V	332	5.10	47.60
8	7266.00	42.8 AV	54.0	-11.2	1.22 V	332	-4.80	47.60

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



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

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	1	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	2390.00	70.9 PK	74.0	-3.1	1.20 H	68	38.92	31.98	
2	2390.00	53.1 AV	54.0	-0.9	1.20 H	68	21.12	31.98	
3	*2437.00	107.8 PK			1.20 H	68	75.68	32.12	
4	*2437.00	94.8 AV			1.20 H	68	62.68	32.12	
5	2483.50	65.1 PK	74.0	-8.9	1.20 H	68	32.86	32.24	
6	2483.50	48.6 AV	54.0	-5.4	1.20 H	68	16.36	32.24	
7	4874.00	47.0 PK	74.0	-27.0	1.00 H	307	7.30	39.70	
8	4874.00	36.1 AV	54.0	-17.9	1.00 H	307	-3.60	39.70	
9	7311.00	66.4 PK	74.0	-7.6	1.19 H	300	18.81	47.59	
10	7311.00	53.2 AV	54.0	-0.8	1.19 H	300	5.61	47.59	
		ANTENNA	POLARITY	4 TEST DI	STANCE: V	ERTICAL A	T 3 M		
							D 414/	CODDECTION	
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)	
NO.		LEVEL		_	HEIGHT	ANGLE	VALUE	FACTOR	
	(MHz)	LEVEL (dBuV/m)	(dBuV/m)	(dB)	HEIGHT (m)	ANGLE (Degree)	VALUE (dBuV)	FACTOR (dB/m)	
1	(MHz) 2390.00	LEVEL (dBuV/m) 52.7 PK	(dBuV/m) 74.0	(dB) -21.3	HEIGHT (m) 1.00 V	ANGLE (Degree)	VALUE (dBuV) 20.72	FACTOR (dB/m) 31.98	
1 2	(MHz) 2390.00 2390.00	LEVEL (dBuV/m) 52.7 PK 41.1 AV	(dBuV/m) 74.0	(dB) -21.3	HEIGHT (m) 1.00 V 1.00 V	ANGLE (Degree) 208 208	VALUE (dBuV) 20.72 9.12	FACTOR (dB/m) 31.98 31.98	
1 2 3	(MHz) 2390.00 2390.00 *2437.00	LEVEL (dBuV/m) 52.7 PK 41.1 AV 104.5 PK	(dBuV/m) 74.0	(dB) -21.3	HEIGHT (m) 1.00 V 1.00 V 1.34 V	ANGLE (Degree) 208 208 37	VALUE (dBuV) 20.72 9.12 72.38	FACTOR (dB/m) 31.98 31.98 32.12	
1 2 3 4	(MHz) 2390.00 2390.00 *2437.00 *2437.00	LEVEL (dBuV/m) 52.7 PK 41.1 AV 104.5 PK 91.5 AV	74.0 54.0	(dB) -21.3 -12.9	HEIGHT (m) 1.00 V 1.00 V 1.34 V	208 208 208 37 37	VALUE (dBuV) 20.72 9.12 72.38 59.38	FACTOR (dB/m) 31.98 31.98 32.12 32.12	
1 2 3 4 5	(MHz) 2390.00 2390.00 *2437.00 *2437.00 2483.50	LEVEL (dBuV/m) 52.7 PK 41.1 AV 104.5 PK 91.5 AV 61.6 PK	74.0 54.0 74.0	(dB) -21.3 -12.9	HEIGHT (m) 1.00 V 1.00 V 1.34 V 1.34 V 1.08 V	ANGLE (Degree) 208 208 37 37 237	VALUE (dBuV) 20.72 9.12 72.38 59.38 29.36	FACTOR (dB/m) 31.98 31.98 32.12 32.12 32.24	
1 2 3 4 5 6	(MHz) 2390.00 2390.00 *2437.00 *2437.00 2483.50 2483.50	LEVEL (dBuV/m) 52.7 PK 41.1 AV 104.5 PK 91.5 AV 61.6 PK 49.0 AV	74.0 54.0 74.0 54.0	-21.3 -12.9 -12.4 -5.0	HEIGHT (m) 1.00 V 1.00 V 1.34 V 1.34 V 1.08 V	ANGLE (Degree) 208 208 37 37 237 237	VALUE (dBuV) 20.72 9.12 72.38 59.38 29.36 16.76	FACTOR (dB/m) 31.98 31.98 32.12 32.12 32.24 32.24	
1 2 3 4 5 6 7	(MHz) 2390.00 2390.00 *2437.00 *2437.00 2483.50 2483.50 4874.00	LEVEL (dBuV/m) 52.7 PK 41.1 AV 104.5 PK 91.5 AV 61.6 PK 49.0 AV 61.4 PK	74.0 54.0 74.0 54.0 74.0 54.0	-12.4 -5.0 -12.6	HEIGHT (m) 1.00 V 1.00 V 1.34 V 1.34 V 1.08 V 1.08 V 1.54 V	208 208 208 37 37 237 237 64	VALUE (dBuV) 20.72 9.12 72.38 59.38 29.36 16.76 21.70	FACTOR (dB/m) 31.98 31.98 32.12 32.12 32.24 32.24 39.70	

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



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

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.3 PK			1.16 H	69	73.14	32.16
2	*2452.00	93.1 AV			1.16 H	69	60.94	32.16
3	2483.50	69.2 PK	74.0	-4.8	1.16 H	69	36.96	32.24
4	2483.50	52.8 AV	54.0	-1.2	1.16 H	69	20.56	32.24
5	4904.00	47.0 PK	74.0	-27.0	1.00 H	307	7.23	39.77
6	4904.00	36.1 AV	54.0	-17.9	1.00 H	307	-3.67	39.77
7	7356.00	66.4 PK	74.0	-7.6	1.19 H	300	18.85	47.55
8	7356.00	53.2 AV	54.0	-0.8	1.19 H	300	5.65	47.55
		ANTENNA	A POLARITY	/ & TEST DI	ISTANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.1 PK			1.34 V	40	69.94	32.16
2	*2452.00	90.1 AV			1.34 V	40	57.94	32.16
3	2483.50	62.6 PK	74.0	-11.4	1.08 V	247	30.36	32.24
4	2483.50	49.8 AV	54.0	-4.2	1.08 V	247	17.56	32.24
5	4904.00	62.2 PK	74.0	-11.8	1.52 V	63	22.43	39.77
6	4904.00	49.4 AV	54.0	-4.6	1.52 V	63	9.63	39.77
7	7356.00	52.8 PK	74.0	-21.2	1.16 V	328	5.25	47.55
8	7356.00	42.6 AV	54.0	-11.4	1.16 V	328	-4.95	47.55

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



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Nov. 01, 2012	Oct. 31, 2013

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: Feb. 25, 2013

4.3.3 TEST PROCEDURE

- 1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
- 2. Set the video bandwidth (VBW) \geq 3 x 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	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.91	0.5	PASS
6	2437	8.44	0.5	PASS
11	2462	8.81	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.41	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.47	0.5	PASS

802.11n (HT20)

СПУ	NNEI	FREQUENCY	6dB BANDV	VIDTH (MHz)	MINIMUM	PASS / FAIL
СПА	NNEL (MHz)		CHAIN 0	CHAIN 1	LIMIT (MHz)	PASS / FAIL
	1	2412	17.13	17.37	0.5	PASS
	6	2437	17.35	17.36	0.5	PASS
	11	2462	17.36	17.61	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY	6dB BANDWIDTH (MHz)		MINIMUM	PASS / FAIL
CHANNEL	(MHz)	CHAIN 0	CHAIN 1	LIMIT (MHz)	PASS / FAIL
3	2422	36.42	36.16	0.5	PASS
6	2437	36.06	36.12	0.5	PASS
9	2452	36.16	36.43	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)

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 ≤ 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 ≥ 5.

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

4.4.2 INSTRUMENTS

DESCRIPTION &	MODEL NO.	SERIAL	CALIBRATED	CALIBRATED
MANUFACTURER	WIODEL NO.	NO.	DATE	UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Power Sensor	MA2411B	0738172	May 10, 2012	May 09, 2013

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: Feb. 25, 2013

4.4.3 TEST PROCEDURES

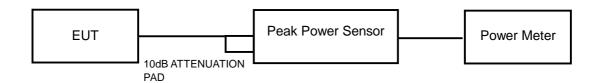
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation



4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	251.189	24.00	30	PASS
6	2437	173.780	22.40	30	PASS
11	2462	147.571	21.69	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	257.040	24.10	30	PASS
6	2437	331.131	25.20	30	PASS
11	2462	275.423	24.40	30	PASS

802.11n (HT20)

CHAN.	FREQUE NCY	PEAK POV	VER (dBm)	TOTAL POWER	TOTAL POWER	LIMIT	PASS /	
CHAN.	(MHz)	CHAIN 0	CHAIN 1	(mW)	(dBm)	(dBm)	FAIL	
1	2412	21.80	21.80	302.712	24.81	30	PASS	
6	2437	24.61	24.80	591.063	27.72	30	PASS	
11	2462	21.67	22.00	305.382	24.85	30	PASS	

802.11n (HT40)

CHAN.	FREQUE NCY	PEAK POWER (dBm)		TOTAL TOTAL POWER		LIMIT	PASS /
CHAN.	(MHz)	CHAIN 0	CHAIN 1			(dBm) (dBm)	
3	2422	19.30	19.70	178.439	22.51	30	PASS
6	2437	22.56	22.51	358.540	25.55	30	PASS
9	2452	20.30	20.60	221.967	23.46	30	PASS



4.5 AVERAGE OUTPUT POWER

4.5.1 FOR REFERENCE

4.5.2 INSTRUMENTS

DESCRIPTION &	MODEL NO	SERIAL	CALIBRATED	CALIBRATED
MANUFACTURER	MODEL NO.	NO.	DATE	UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Power Sensor	MA2411B	0738172	May 10, 2012	May 09, 2013

Note: 3. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4. Tested date: Feb. 25, 2013

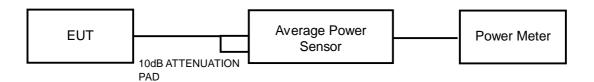
4.5.3 TEST PROCEDURES

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 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.5.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	140.605	21.48
6	2437	85.114	19.30
11	2462	69.502	18.42

802.11g

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	56.754	17.54
6	2437	132.739	21.23
11	2462	62.661	17.97

802.11n (HT20)

CHAN.	FREQUENCY	AVERAGE P	OWER (dBm)	TOTAL POWER	TOTAL POWER
CHAN.	(MHz)	CHAIN 0 CHAIN 1		(mW)	(dBm)
1	2412	13.76	13.41	45.696	16.60
6	2437	20.81	20.49	232.448	23.66
11	2462	13.70	13.97	48.388	16.85

802.11n (HT40)

CHAN	FREQUENCY	AVERAGE P	OWER (dBm)	TOTAL	TOTAL
CHAN.	(MHz)	CHAIN 0	CHAIN 1	POWER (mW)	POWER (dBm)
3	2422	11.24	11.06	26.069	14.16
6	2437	14.84	14.69	59.923	17.78
9	2452	12.43	12.46	35.118	15.46



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	100037	Nov. 01, 2012	Oct. 31, 2013

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: Feb. 25, 2013

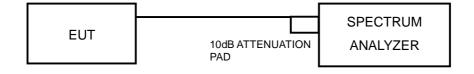
4.6.3 TEST PROCEDURE

- 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	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-1.70	8	PASS
6	2437	-4.14	8	PASS
11	2462	-5.74	8	PASS

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-8.97	8	PASS
6	2437	-5.52	8	PASS
11	2462	-9.74	8	PASS

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
	1	2412	-14.26	3.01	-11.25	8	PASS
0	6	2437	-6.23	3.01	-3.22	8	PASS
	11	2462	-13.89	3.01	-10.88	8	PASS
	1	2412	-7.61	3.01	-4.60	8	PASS
1	6	2437	-3.94	3.01	-0.93	8	PASS
	11	2462	-8.33	3.01	-5.32	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 3.7 dBi < 6 dBi$, 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
	3	2422	-17.49	3.01	-14.48	8	PASS
0	6	2437	-15.66	3.01	-12.65	8	PASS
	9	2452	-18.05	3.01	-15.04	8	PASS
	3	2422	-11.23	3.01	-8.22	8	PASS
1	6	2437	-6.97	3.01	-3.96	8	PASS
	9	2452	-7.90	3.01	-4.89	8	PASS

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 3.7 dBi < 6 dBi$, so the power density limit shall not be reduced.



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	100037	Nov. 01, 2012	Oct. 31, 2013

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: Feb. 25, 2013

4.7.3 TEST PROCEDURE

Measurement Procedure - Reference Level

- 1. Set the RBW = 100 kHz.
- 2. Set the VBW ≥ 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 ≥ 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

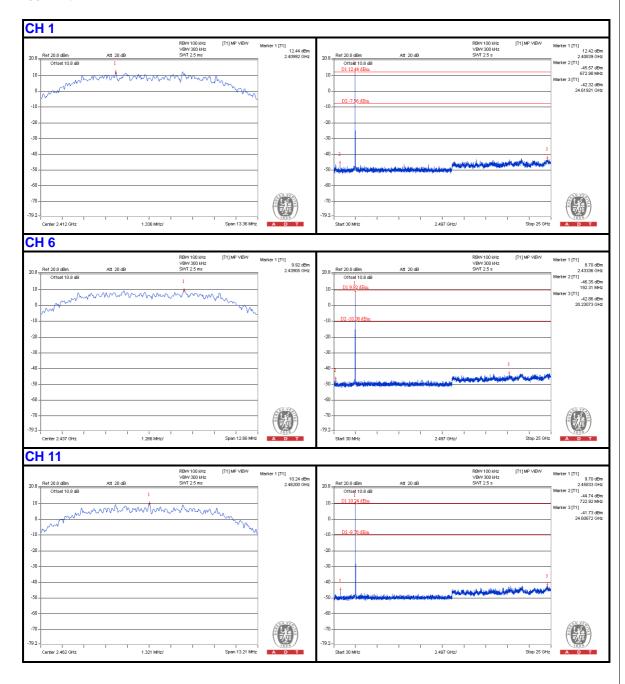
Same as Item 4.3.6

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

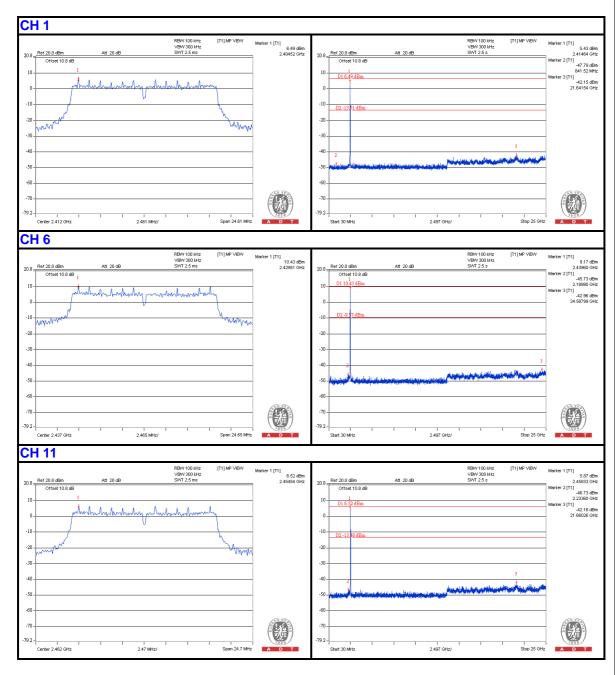


802.11b:



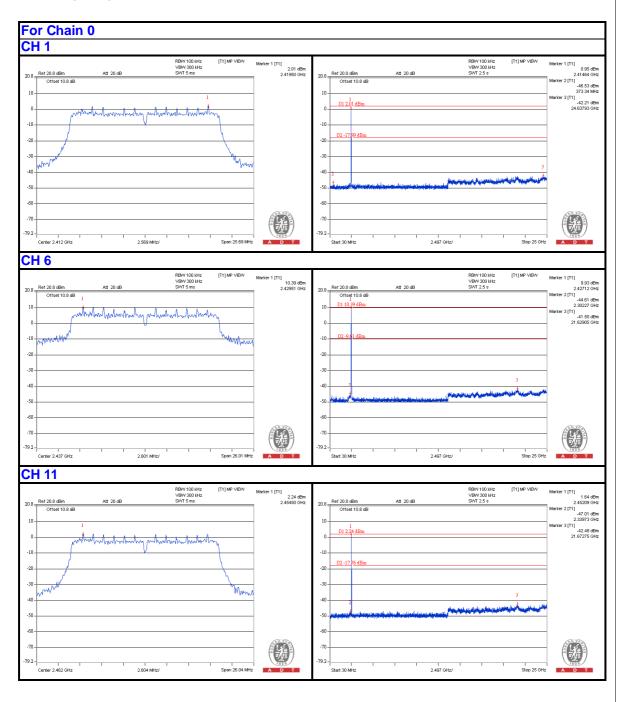


802.11g:

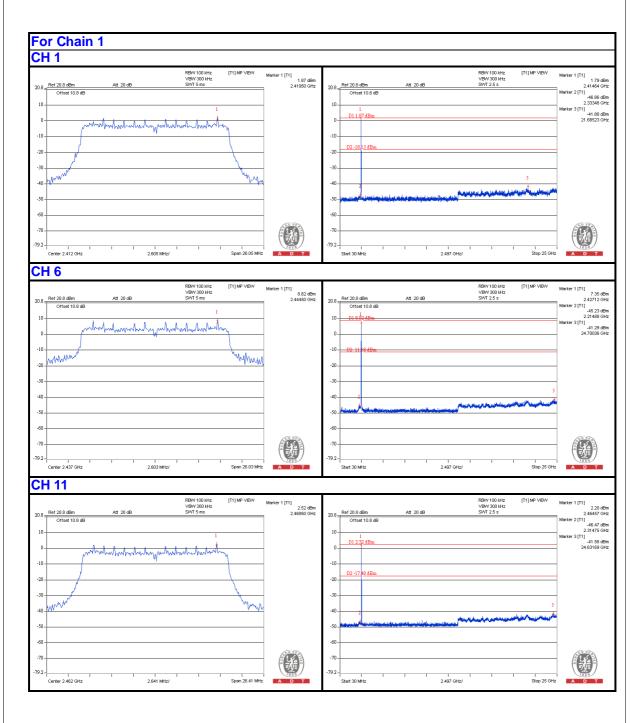




802.11n (HT20):

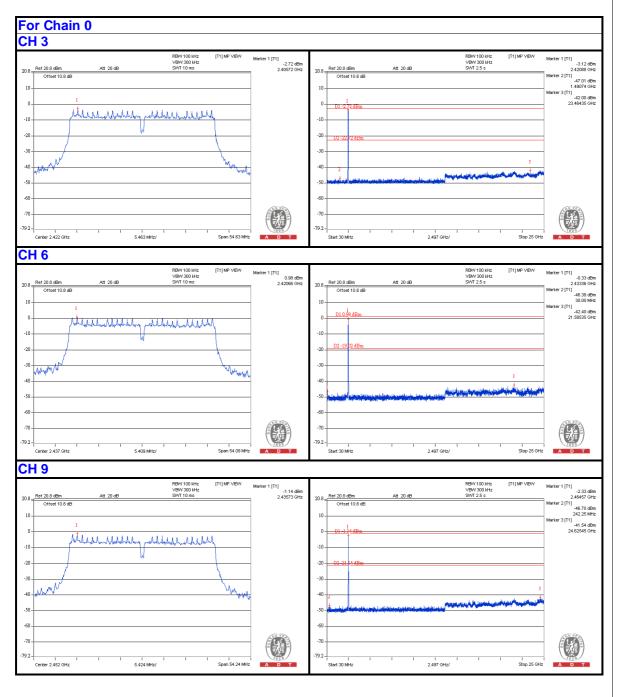




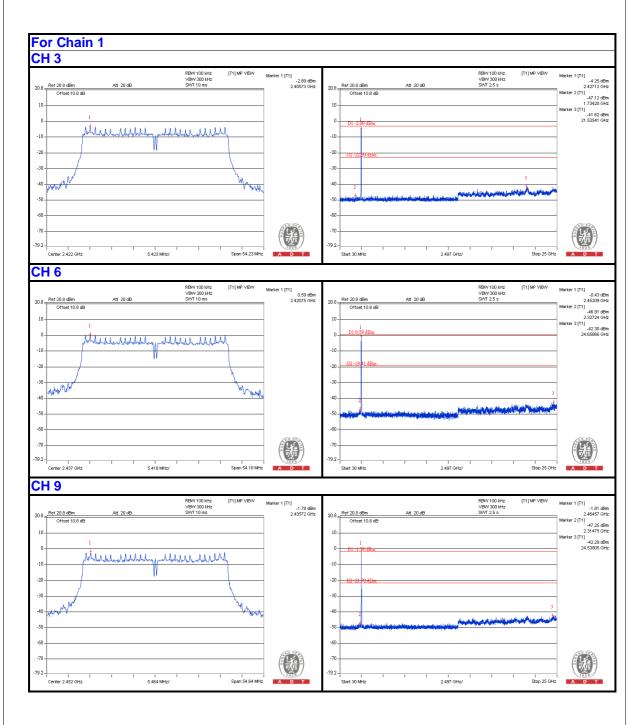




802.11n (HT40):









A D T	
5. PHOTOGRAPHS OF THE TEST CONFIGURATION	
Please refer to the attached file (Test Setup Photo).	



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:

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

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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.



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