FCC TEST REPORT

REPORT NO.:	RF120516C16
MODEL NO.:	TL-WR841N, TL-WR841ND
FCC ID:	TE7WR841NXV8
RECEIVED:	May 16, 2012
TESTED:	May 31 to July 05, 2012
ISSUED:	July 11, 2012

APPLICANT:	TP-LINK TECHNOLOGIES CO., LTD.
ADDRESS:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS:	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120516C16	Original release	July 11, 2012

1. CERTIFICATION

PRODUCT:	300Mbps Wireless N Router
BRAND NAME:	TP-LINK
MODEL NO.:	TL-WR841N, TL-WR841ND
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	TP-LINK TECHNOLOGIES CO., LTD.
TESTED:	May 31 to July 05, 2012
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009

The above equipment (Model: TL-WR841ND) 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 11, 2012*
(Elsie Hsu, Specialist)

APPROVED BY : _____ , **DATE:** *July 11, 2012*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (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 -5.71dB at 0.53281MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.7B at 4874.00MHz & 2390.00 MHz &74.00MHz
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 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 R-SMA 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)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.84 dB
Radiated emissions (6GHz -18GHz)	4.09 dB
Radiated emissions (18GHz -40GHz)	4.24 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	300Mbps Wireless N Router
MODEL NO.	TL-WR841N, TL-WR841ND
POWER SUPPLY	DC 9V 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 (20MHz) 7 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 65.577mW 802.11g: 381.496mW 802.11n (20MHz): 332.005mW 802.11n (40MHz): 302.793mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter × 1

NOTE:

1. The EUT has two model names, which are identical to each other in all aspects except for the following table:

Brand	Model No.	Difference
TP-LINK	TL-WR841N	Linear vertical antenna (Integral)
	TL-WR841ND	Linear vertical antenna (dedicated)

From the above models, the worst case was found in **TL-WR841ND**. Therefore only the test data of the model was recorded in this report individually.

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

For TL-WR841ND:					
Transmitter Circuit	Brand	Model	Antenna Type	Peak Gain (dBi)	Connecter Type
Chain (0)	Mgear	C636-510064-A	Linear vertical	5	R-SMA
Chain (1)	Mgear	C636-510064-A	Linear vertical	5	R-SMA
For TL-WR841N:					
Transmitter Circuit	Brand	Model	Antenna Type	Peak Gain (dBi)	Connecter Type
Chain (0)	Mgear	C636-510064-A	Linear vertical	5	NA
Chain (1)	Mgear	C636-510064-A	Linear vertical	5	NA

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

Brand:	TP-LINK
Model No.:	T090060-2B1
Input power :	100-240V~50/60Hz 0.3A
Output power :	9V / 0.6A DC output cable (unshielded, 1.5m)

4. The EUT incorporates a MIMO function.

MODULATION MODE	Tx/Rx FUNCTION
802.11b	2Tx/2Rx
802.11g	2Tx/2Rx
802.11n (20MHz)	2Tx/2Rx
802.11n (40MHz)	2Tx/2Rx

5. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function.

6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15. For MCS 0~7 support the correlated signal function.

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

3.2 DESCRIPTION OF TEST MODES

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

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

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

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

OB: Conducted Out-Band Emission Measurement

Note: The EUT had been pre-tested on the positioned of each 2 polarity. The worst case was found when positioned on **Y-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 (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	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 (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	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 (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 64%RH	120Vac, 60Hz	Bear Lee
RE<1G	24deg. C, 71%RH	120Vac, 60Hz	Robert Cheng
RE≥1G	23deg. C, 69%RH	120Vac, 60Hz	Robert Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang
OB	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang

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)
FCC KDB558074 D01 DTS Meas Guidance v01
ANSI C63.10-2009

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

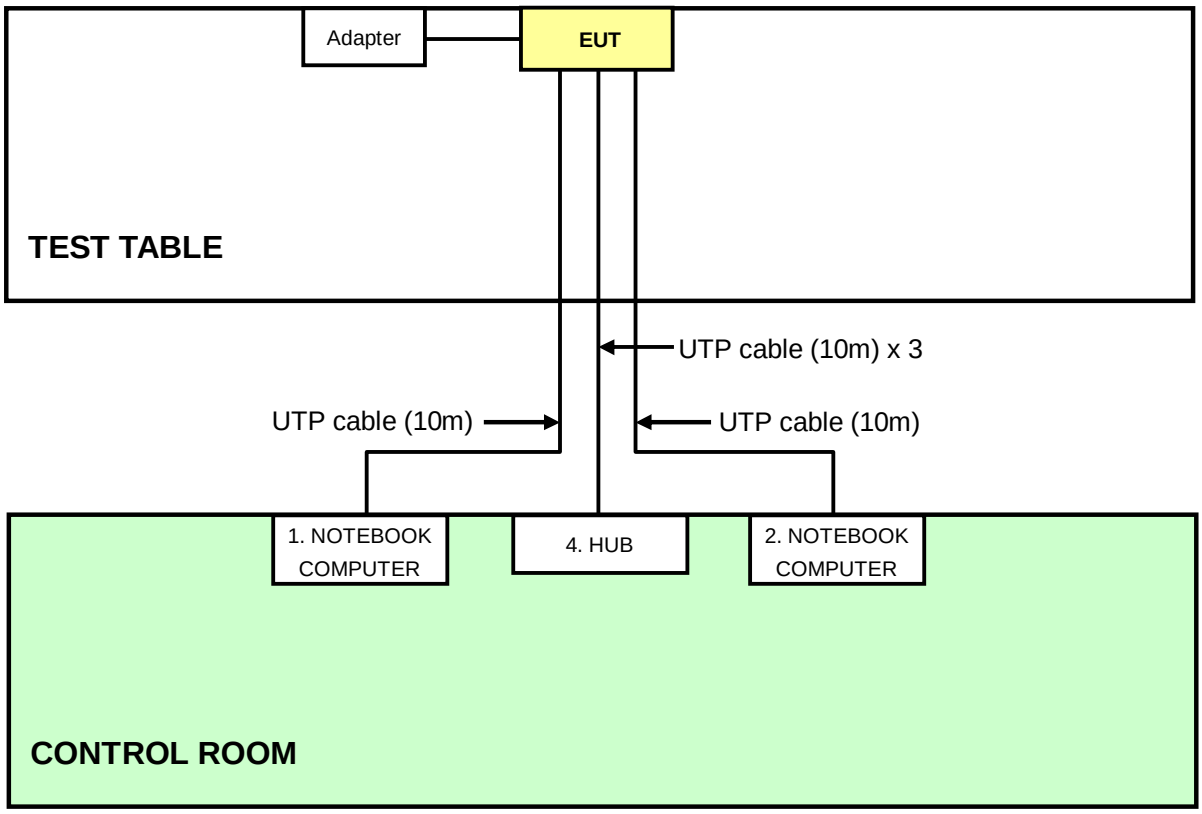
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable, 10m
2	UTP cable, 10m
3	USB 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)	
	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	Mar. 01, 2012	Apr. 30, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK 8127	8127-523	Sep. 20, 2011	Sep. 19, 2012
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ESH3-Z5	848773/004	Nov. 01, 2011	Oct. 31, 2012
RF Cable (JYEBAO)	5DFB	COACAB-002	Aug. 06, 2011	Aug. 05, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software ADT	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.
4. Tested Date: July 05, 2012

4.1.3 TEST PROCEDURES

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

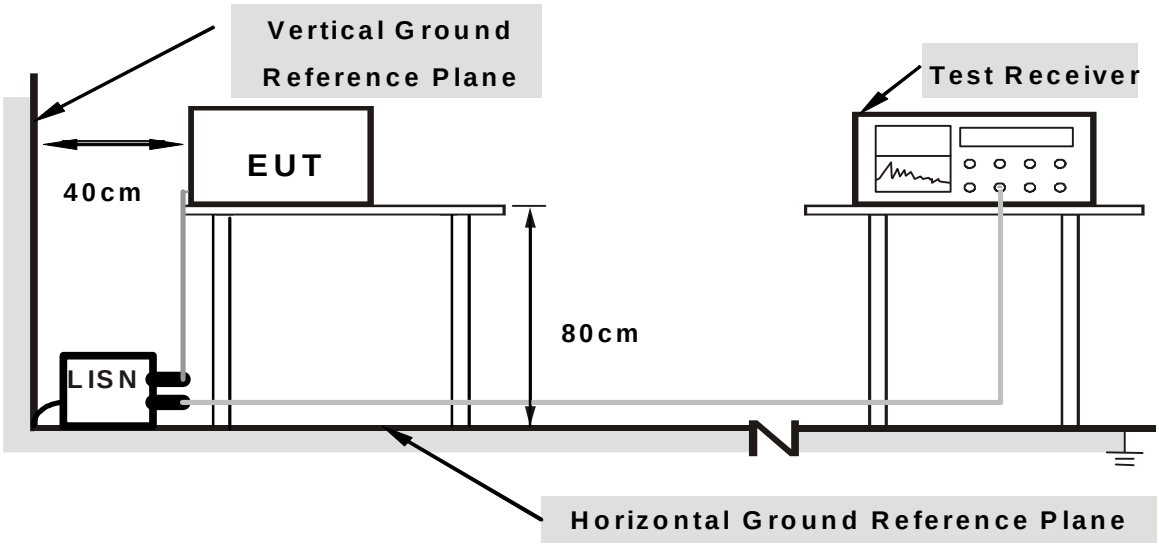
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared computer system (support unit 1) to act as communication partner.
3. The communication partner ran test program “ART2 2.1.8.exe” to enable EUT under transmission/receiving condition continuously.

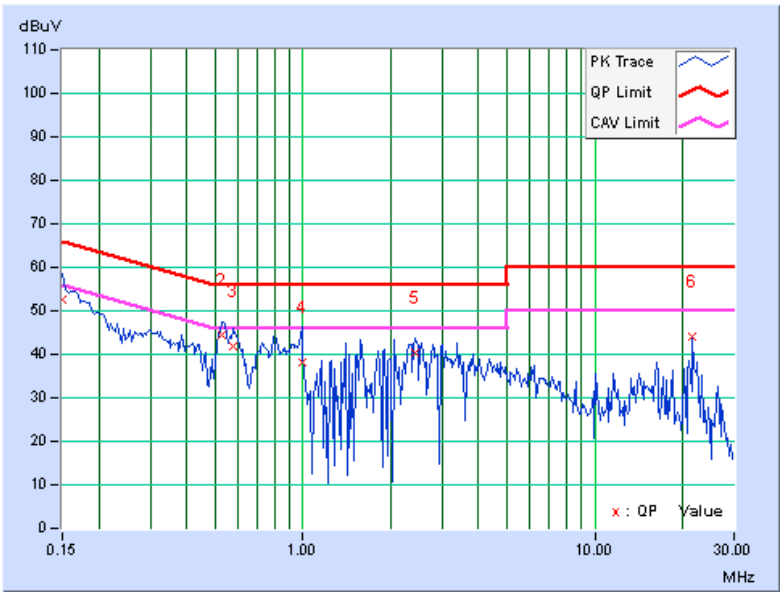
4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.06	52.46	39.88	52.52	39.94	66.00	56.00	-13.48	-16.06
2	0.52500	0.09	44.27	33.44	44.36	33.53	56.00	46.00	-11.64	-12.47
3	0.57969	0.09	41.93	30.31	42.02	30.40	56.00	46.00	-13.98	-15.60
4	0.98984	0.13	37.91	26.92	38.04	27.05	56.00	46.00	-17.96	-18.95
5	2.43359	0.24	40.30	28.62	40.54	28.86	56.00	46.00	-15.46	-17.14
6	21.66406	1.03	43.00	36.54	44.03	37.57	60.00	50.00	-15.97	-12.43

REMARKS:

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

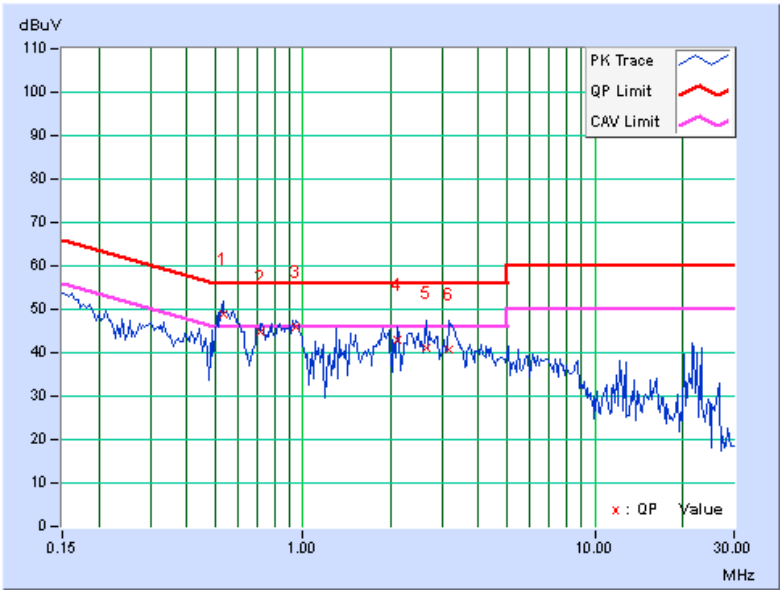


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.53281**	**0.10**	**48.67**	**40.19**	**48.77**	**40.29**	**56.00**	**46.00**	**-7.23**	**-5.71**
2	0.71641	0.12	44.81	36.74	44.93	36.86	56.00	46.00	-11.07	-9.14
3	0.94688	0.14	45.70	38.17	45.84	38.31	56.00	46.00	-10.16	-7.69
4	2.09766	0.23	42.60	31.81	42.83	32.04	56.00	46.00	-13.17	-13.96
5	2.63672	0.26	41.02	31.41	41.28	31.67	56.00	46.00	-14.72	-14.33
6	3.16406	0.29	40.56	32.23	40.85	32.52	56.00	46.00	-15.15	-13.48

REMARKS:

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



4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

For below 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 12, 2011	July 11, 2012
Pre-Selector Agilent	N9039A	MY46520311	July 12, 2011	July 11, 2012
Signal Generator Agilent	N5181A	MY49060517	July 12, 2011	July 11, 2012
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02578	July 04, 2011	July 03, 2012
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
Loop Antenna(*) R&S	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3 The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in 966 Chamber No. G.
5 The FCC Site Registration No. is 966073.
6 The VCCI Site Registration No. is G-137.
7 The CANADA Site Registration No. is IC 7450H-2.
8 Tested Date: May 31, 2012
9 Loop antenna was used for all emissions below 30 MHz.

For above 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Pre-Selector Agilent	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Signal Generator Agilent	N5181A	MY49060347	July 25, 2011	July 24, 2012
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
Loop Antenna(*) R&S	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3 The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in 966 Chamber No. H.
5 The FCC Site Registration No. is 797305.
6 The CANADA Site Registration No. is IC 7450H-3.
7 Tested Date: June 29, 2012
8 Loop antenna was used for all emissions below 30 MHz.

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 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

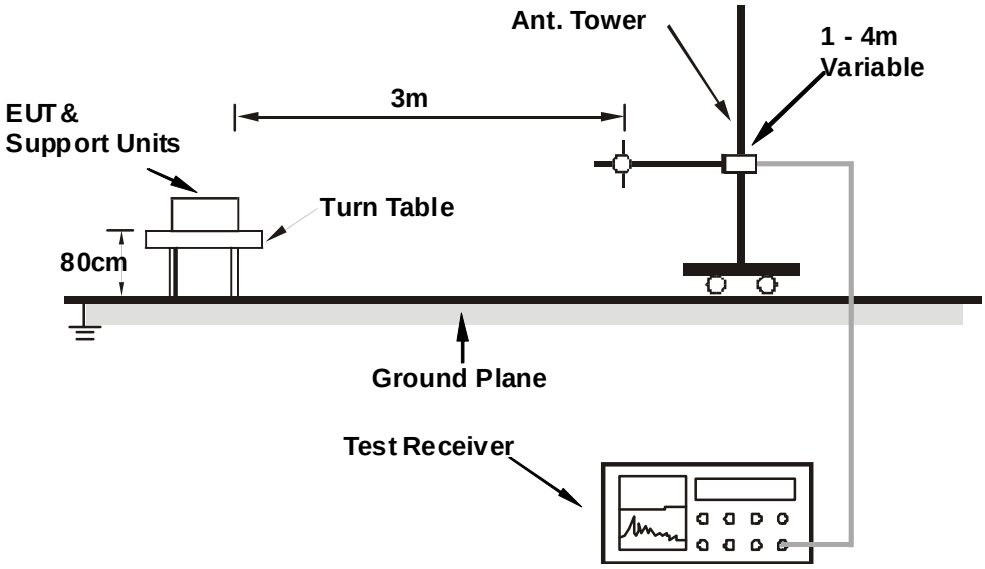
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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

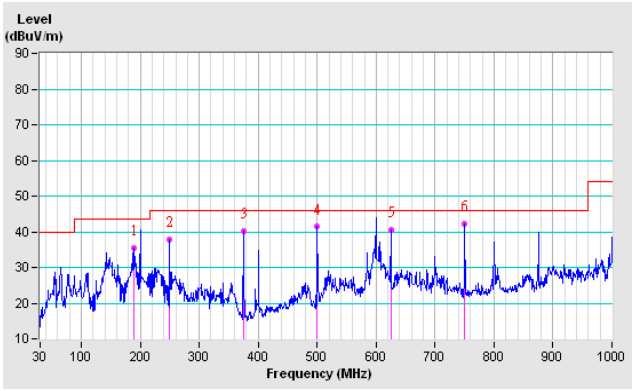
802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	189.40	35.6 QP	43.5	-7.9	1.50 H	339	23.47	12.11
2	250.03	37.8 QP	46.0	-8.2	1.00 H	95	24.45	13.35
3	374.97	40.3 QP	46.0	-5.7	2.00 H	54	23.08	17.22
4	500.02	41.4 QP	46.0	-4.6	1.50 H	316	21.04	20.39
5	624.96	40.6 QP	46.0	-5.4	1.00 H	0	17.61	22.97
6	**750.01**	**42.3 QP**	**46.0**	**-3.7**	**1.00 H**	**346**	**17.43**	**24.91**

REMARKS:

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

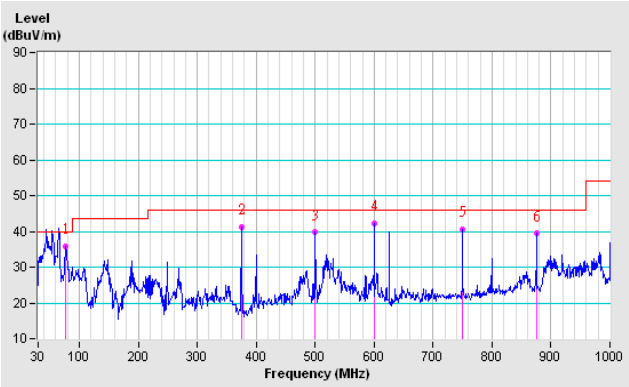


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	below 1GHz		

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	77.25	35.8 QP	40.0	-4.2	1.00 V	160	25.25	10.51
2	374.97	41.2 QP	46.0	-4.8	1.50 V	0	23.99	17.22
3	500.02	39.7 QP	46.0	-6.3	2.00 V	360	19.29	20.39
4	600.09	42.3 QP	46.0	-3.7	1.00 V	305	19.64	22.66
5	750.01	40.6 QP	46.0	-5.4	2.00 V	360	15.70	24.91
6	875.06	39.3 QP	46.0	-6.7	1.00 V	46	12.22	27.12

REMARKS:

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



ABOVE 1GHz DATA

802.11b

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

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	57.2 PK	74.0	-16.8	1.04 H	339	24.82	32.38
2	2390.00	45.0 AV	54.0	-9.0	1.04 H	339	12.62	32.38
3	*2412.00	99.2 PK			1.05 H	339	66.76	32.44
4	*2412.00	97.0 AV			1.05 H	339	64.56	32.44
5	4824.00	54.6 PK	74.0	-19.4	1.55 H	148	12.66	41.94
6	4824.00	52.5 AV	54.0	-1.5	1.55 H	148	10.56	41.94
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	60.8 PK	74.0	-13.2	1.19 V	306	28.42	32.38
2	2390.00	50.7 AV	54.0	-3.3	1.19 V	306	18.32	32.38
3	*2412.00	107.2 PK			1.19 V	295	74.76	32.44
4	*2412.00	105.1 AV			1.19 V	295	72.66	32.44
5	4824.00	51.7 PK	74.0	-22.3	1.14 V	203	9.76	41.94
6	4824.00	46.2 AV	54.0	-7.8	1.14 V	203	4.26	41.94

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	97.4 PK			1.30 H	3	64.89	32.51
2	*2437.00	95.1 AV			1.30 H	3	62.59	32.51
3	4874.00	55.5 PK	74.0	-18.5	1.55 H	146	13.51	41.99
4	**4874.00**	**53.3 AV**	**54.0**	**-0.7**	**1.55 H**	**146**	**11.31**	**41.99**
5	7311.00	55.8 PK	74.0	-18.2	1.40 H	132	9.27	46.53
6	7311.00	44.8 AV	54.0	-9.2	1.40 H	132	-1.73	46.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.6 PK			1.00 V	199	77.09	32.51
2	*2437.00	107.5 AV			1.00 V	199	74.99	32.51
3	4874.00	51.6 PK	74.0	-22.4	1.12 V	193	9.61	41.99
4	4874.00	46.3 AV	54.0	-7.7	1.12 V	193	4.31	41.99
5	7311.00	56.4 PK	74.0	-17.6	1.39 V	201	9.87	46.53
6	7311.00	47.8 AV	54.0	-6.2	1.39 V	201	1.27	46.53

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	96.8 PK			1.04 H	339	64.23	32.57
2	*2462.00	94.0 AV			1.04 H	339	61.43	32.57
3	2483.50	56.4 PK	74.0	-17.6	1.05 H	339	23.77	32.63
4	2483.50	44.1 AV	54.0	-9.9	1.05 H	339	11.47	32.63
5	4924.00	55.5 PK	74.0	-18.5	1.59 H	119	13.49	42.01
6	4924.00	53.2 AV	54.0	-0.8	1.59 H	119	11.19	42.01
7	7386.00	55.4 PK	74.0	-18.6	1.37 H	122	8.67	46.73
8	7386.00	44.4 AV	54.0	-9.6	1.37 H	122	-2.33	46.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.3 PK			1.00 V	200	76.73	32.57
2	*2462.00	107.4 AV			1.00 V	200	74.83	32.57
3	2483.50	58.5 PK	74.0	-15.5	1.00 V	200	25.87	32.63
4	2483.50	48.3 AV	54.0	-5.7	1.00 V	200	15.67	32.63
5	4924.00	51.7 PK	74.0	-22.3	1.18 V	184	9.69	42.01
6	4924.00	46.6 AV	54.0	-7.4	1.18 V	184	4.59	42.01
7	7386.00	56.2 PK	74.0	-17.8	1.42 V	196	9.47	46.73
8	7386.00	47.4 AV	54.0	-6.6	1.42 V	196	0.67	46.73

REMARKS:

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

802.11g

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

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	1.04 H	339	28.32	32.38
2	2390.00	46.2 AV	54.0	-7.8	1.04 H	339	13.82	32.38
3	*2412.00	101.3 PK			1.04 H	338	68.86	32.44
4	*2412.00	91.8 AV			1.04 H	338	59.36	32.44
5	4824.00	51.2 PK	74.0	-22.8	1.00 H	152	9.26	41.94
6	4824.00	39.5 AV	54.0	-14.5	1.00 H	152	-2.44	41.94
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	71.0 PK	74.0	-3.0	1.00 V	166	38.62	32.38
2	**2390.00**	**53.3 AV**	**54.0**	**-0.7**	**1.00 V**	**166**	**20.92**	**32.38**
3	*2412.00	112.7 PK			1.00 V	166	80.26	32.44
4	*2412.00	102.6 AV			1.00 V	166	70.16	32.44
5	4824.00	51.8 PK	74.0	-22.2	1.52 V	360	9.86	41.94
6	4824.00	39.3 AV	54.0	-14.7	1.52 V	360	-2.64	41.94

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	103.3 PK			1.04 H	338	70.79	32.51
2	*2437.00	94.5 AV			1.04 H	338	61.99	32.51
3	4874.00	54.4 PK	74.0	-19.6	1.00 H	157	12.41	41.99
4	4874.00	41.3 AV	54.0	-12.7	1.00 H	157	-0.69	41.99
5	7311.00	56.7 PK	74.0	-17.3	1.61 H	115	10.17	46.53
6	7311.00	44.5 AV	54.0	-9.5	1.61 H	115	-2.03	46.53
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	61.8 PK	74.0	-12.2	1.00 V	166	29.42	32.38
2	2390.00	50.4 AV	54.0	-3.6	1.00 V	166	18.02	32.38
3	*2437.00	114.7 PK			1.00 V	166	82.19	32.51
4	*2437.00	105.5 AV			1.00 V	166	72.99	32.51
5	2483.50	60.3 PK	74.0	-13.7	1.00 V	166	27.67	32.63
6	2483.50	48.5 AV	54.0	-5.5	1.00 V	166	15.87	32.63
7	4874.00	52.3 PK	74.0	-21.7	1.36 V	360	10.31	41.99
8	4874.00	40.3 AV	54.0	-13.7	1.36 V	360	-1.69	41.99
9	7311.00	55.5 PK	74.0	-18.5	1.56 V	184	8.97	46.53
10	7311.00	44.5 AV	54.0	-9.5	1.56 V	184	-2.03	46.53

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	98.2 PK			1.05 H	331	65.63	32.57
2	*2462.00	89.2 AV			1.05 H	331	56.63	32.57
3	2483.50	57.2 PK	74.0	-16.8	1.05 H	331	24.57	32.63
4	2483.50	44.9 AV	54.0	-9.1	1.05 H	331	12.27	32.63
5	4924.00	51.5 PK	74.0	-22.5	1.00 H	167	9.49	42.01
6	4924.00	39.5 AV	54.0	-14.5	1.00 H	167	-2.51	42.01
7	7386.00	55.3 PK	74.0	-18.7	1.61 H	121	8.57	46.73
8	7386.00	43.2 AV	54.0	-10.8	1.61 H	121	-3.53	46.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.9 PK			1.00 V	160	79.33	32.57
2	*2462.00	102.6 AV			1.00 V	160	70.03	32.57
3	2483.50	69.6 PK	74.0	-4.4	1.00 V	160	36.97	32.63
4	2483.50	53.2 AV	54.0	-0.8	1.00 V	160	20.57	32.63
5	4924.00	51.5 PK	74.0	-22.5	1.47 V	350	9.49	42.01
6	4924.00	39.0 AV	54.0	-15.0	1.47 V	350	-3.01	42.01
7	7386.00	53.4 PK	74.0	-20.6	1.41 V	214	6.67	46.73
8	7386.00	42.2 AV	54.0	-11.8	1.41 V	214	-4.53	46.73

REMARKS:

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

802.11n (20MHz)

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

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	62.3 PK	74.0	-11.7	1.08 H	337	29.92	32.38
2	2390.00	48.5 AV	54.0	-5.5	1.08 H	337	16.12	32.38
3	*2412.00	101.6 PK			1.08 H	337	69.16	32.44
4	*2412.00	92.4 AV			1.08 H	337	59.96	32.44
5	4824.00	52.2 PK	74.0	-21.8	1.04 H	162	10.26	41.94
6	4824.00	39.9 AV	54.0	-14.1	1.04 H	162	-2.04	41.94
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	66.5 PK	74.0	-7.5	1.00 V	164	34.12	32.38
2	2390.00	50.5 AV	54.0	-3.5	1.00 V	164	18.12	32.38
3	*2412.00	112.7 PK			1.00 V	164	80.26	32.44
4	*2412.00	102.8 AV			1.00 V	164	70.36	32.44
5	4824.00	51.5 PK	74.0	-22.5	1.53 V	349	9.56	41.94
6	4824.00	38.9 AV	54.0	-15.1	1.53 V	349	-3.04	41.94

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	2390.00	57.0 PK	74.0	-17.0	1.05 H	340	24.62	32.38
2	2390.00	44.9 AV	54.0	-9.1	1.05 H	340	12.52	32.38
3	*2437.00	101.9 PK			1.05 H	340	69.39	32.51
4	*2437.00	92.5 AV			1.05 H	340	59.99	32.51
5	2483.50	56.8 PK	74.0	-17.2	1.05 H	340	24.17	32.63
6	2483.50	44.0 AV	54.0	-10.0	1.05 H	340	11.37	32.63
7	4874.00	54.8 PK	74.0	-19.2	1.00 H	154	12.81	41.99
8	4874.00	41.7 AV	54.0	-12.3	1.00 H	154	-0.29	41.99
9	7311.00	56.9 PK	74.0	-17.1	1.57 H	111	10.37	46.53
10	7311.00	44.9 AV	54.0	-9.1	1.57 H	111	-1.63	46.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.9 PK	74.0	-13.1	1.00 V	164	28.52	32.38
2	2390.00	49.4 AV	54.0	-4.6	1.00 V	164	17.02	32.38
3	*2437.00	114.3 PK			1.00 V	164	81.79	32.51
4	*2437.00	105.3 AV			1.00 V	164	72.79	32.51
5	2483.50	60.0 PK	74.0	-14.0	1.00 V	164	27.37	32.63
6	2483.50	47.9 AV	54.0	-6.1	1.00 V	164	15.27	32.63
7	4874.00	52.0 PK	74.0	-22.0	1.34 V	360	10.01	41.99
8	4874.00	39.9 AV	54.0	-14.1	1.34 V	360	-2.09	41.99
9	7311.00	55.1 PK	74.0	-18.9	1.51 V	199	8.57	46.53
10	7311.00	44.0 AV	54.0	-10.0	1.51 V	199	-2.53	46.53

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	96.9 PK			1.03 H	339	64.33	32.57
2	*2462.00	87.5 AV			1.03 H	339	54.93	32.57
3	2483.50	57.7 PK	74.0	-16.3	1.03 H	339	25.07	32.63
4	2483.50	45.1 AV	54.0	-8.9	1.03 H	339	12.47	32.63
5	4924.00	52.2 PK	74.0	-21.8	1.00 H	174	10.19	42.01
6	4924.00	40.0 AV	54.0	-14.0	1.00 H	174	-2.01	42.01
7	7386.00	55.2 PK	74.0	-18.8	1.66 H	116	8.47	46.73
8	7386.00	43.2 AV	54.0	-10.8	1.66 H	116	-3.53	46.73
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.5 PK			1.00 V	161	78.93	32.57
2	*2462.00	101.6 AV			1.00 V	161	69.03	32.57
3	2483.50	67.9 PK	74.0	-6.1	1.00 V	161	35.27	32.63
4	2483.50	52.3 AV	54.0	-1.7	1.00 V	161	19.67	32.63
5	4924.00	51.2 PK	74.0	-22.8	1.45 V	346	9.19	42.01
6	4924.00	38.5 AV	54.0	-15.5	1.45 V	346	-3.51	42.01
7	7386.00	52.7 PK	74.0	-21.3	1.46 V	210	5.97	46.73
8	7386.00	41.8 AV	54.0	-12.2	1.46 V	210	-4.93	46.73

REMARKS:

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

802.11n (40MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.9 PK	74.0	-15.1	1.04 H	339	26.52	32.38
2	2390.00	46.4 AV	54.0	-7.6	1.04 H	339	14.02	32.38
3	*2422.00	95.0 PK			1.04 H	339	62.53	32.47
4	*2422.00	85.7 AV			1.04 H	339	53.23	32.47
5	4844.00	52.7 PK	74.0	-21.3	1.06 H	176	10.74	41.96
6	4844.00	40.7 AV	54.0	-13.3	1.06 H	176	-1.26	41.96
7	7266.00	55.0 PK	74.0	-19.0	1.69 H	124	8.60	46.40
8	7266.00	43.1 AV	54.0	-10.9	1.69 H	124	-3.30	46.40
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	1.00 V	162	34.52	32.38
2	**2390.00**	**53.3 AV**	**54.0**	**-0.7**	**1.00 V**	**162**	**20.92**	**32.38**
3	*2422.00	106.0 PK			1.00 V	162	73.53	32.47
4	*2422.00	96.8 AV			1.00 V	162	64.33	32.47
5	4844.00	51.2 PK	74.0	-22.8	1.35 V	351	9.24	41.96
6	4844.00	38.5 AV	54.0	-15.5	1.35 V	351	-3.46	41.96
7	7266.00	53.2 PK	74.0	-20.8	1.50 V	200	6.80	46.40
8	7266.00	42.0 AV	54.0	-12.0	1.50 V	200	-4.40	46.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	2390.00	59.4 PK	74.0	-14.6	1.04 H	339	27.02	32.38
2	2390.00	46.7 AV	54.0	-7.3	1.04 H	339	14.32	32.38
3	*2437.00	99.8 PK			1.05 H	339	67.29	32.51
4	*2437.00	90.3 AV			1.05 H	339	57.79	32.51
5	2483.50	58.3 PK	74.0	-15.7	1.04 H	339	25.67	32.63
6	2483.50	44.5 AV	54.0	-9.5	1.04 H	339	11.87	32.63
7	4874.00	54.2 PK	74.0	-19.8	1.03 H	154	12.21	41.99
8	4874.00	41.4 AV	54.0	-12.6	1.03 H	154	-0.59	41.99
9	7311.00	57.0 PK	74.0	-17.0	1.56 H	110	10.47	46.53
10	7311.00	44.7 AV	54.0	-9.3	1.56 H	110	-1.83	46.53
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	66.1 PK	74.0	-7.9	1.00 V	161	33.72	32.38
2	2390.00	52.4 AV	54.0	-1.6	1.00 V	161	20.02	32.38
3	*2437.00	111.5 PK			1.00 V	161	78.99	32.51
4	*2437.00	102.2 AV			1.00 V	161	69.69	32.51
5	2483.50	65.5 PK	74.0	-8.5	1.00 V	161	32.87	32.63
6	2483.50	49.5 AV	54.0	-4.5	1.00 V	161	16.87	32.63
7	4874.00	51.9 PK	74.0	-22.1	1.38 V	350	9.91	41.99
8	4874.00	40.1 AV	54.0	-13.9	1.38 V	350	-1.89	41.99
9	7311.00	54.6 PK	74.0	-19.4	1.49 V	196	8.07	46.53
10	7311.00	43.5 AV	54.0	-10.5	1.49 V	196	-3.03	46.53

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	93.7 PK			1.05 H	339	61.15	32.55
2	*2452.00	84.5 AV			1.05 H	339	51.95	32.55
3	2483.50	57.4 PK	74.0	-16.6	1.05 H	339	24.77	32.63
4	2483.50	44.7 AV	54.0	-9.3	1.05 H	339	12.07	32.63
5	4904.00	52.4 PK	74.0	-21.6	1.02 H	177	10.38	42.02
6	4904.00	40.4 AV	54.0	-13.6	1.02 H	177	-1.62	42.02
7	7356.00	55.4 PK	74.0	-18.6	1.64 H	125	8.75	46.65
8	7356.00	43.2 AV	54.0	-10.8	1.64 H	125	-3.45	46.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.0 PK			1.00 V	162	74.45	32.55
2	*2452.00	98.8 AV			1.00 V	162	66.25	32.55
3	2483.50	67.3 PK	74.0	-6.7	1.00 V	162	34.67	32.63
4	2483.50	52.6 AV	54.0	-1.4	1.00 V	162	19.97	32.63
5	4904.00	51.4 PK	74.0	-22.6	1.40 V	346	9.38	42.02
6	4904.00	38.7 AV	54.0	-15.3	1.40 V	346	-3.32	42.02
7	7356.00	53.0 PK	74.0	-21.0	1.46 V	207	6.35	46.65
8	7356.00	42.1 AV	54.0	-11.9	1.46 V	207	-4.55	46.65

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	FSP 40	100060	May 09, 2012	May 08, 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 : June 28, 2012

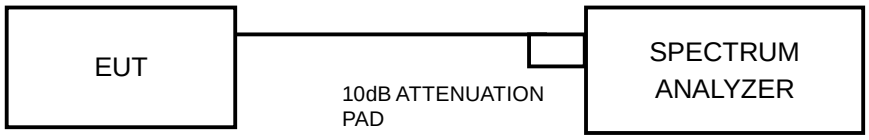
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) ≥ 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
		CHAIN 0	CHAIN 1		
1	2412	10.50	10.89	0.5	PASS
6	2437	10.96	10.35	0.5	PASS
11	2462	10.45	10.97	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.54	16.56	0.5	PASS
6	2437	16.53	16.59	0.5	PASS
11	2462	16.52	16.50	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.82	17.73	0.5	PASS
6	2437	17.75	17.78	0.5	PASS
11	2462	17.76	17.73	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.78	35.72	0.5	PASS
6	2437	35.61	35.50	0.5	PASS
9	2452	35.58	35.74	0.5	PASS

4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

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

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak 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 : June 28, 2012

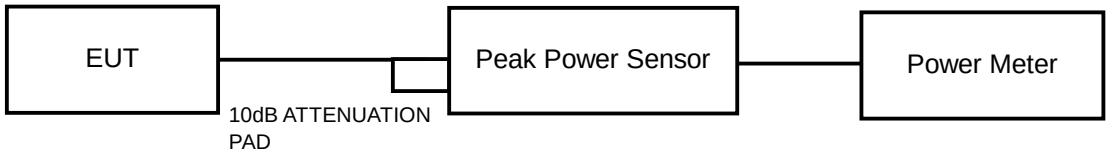
4.4.3 TEST PROCEDURES

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

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	15.40	14.90	65.577	18.17	27.99	PASS
6	2437	14.70	14.70	59.024	17.71	27.99	PASS
11	2462	14.80	14.80	60.400	17.81	27.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11g

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	21.00	20.80	246.119	23.91	27.99	PASS
6	2437	23.00	22.60	381.496	25.81	27.99	PASS
11	2462	20.80	20.10	222.555	23.47	27.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11n (20MHz)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	20.90	20.90	246.054	23.91	27.99	PASS
6	2437	22.30	22.10	332.005	25.21	27.99	PASS
11	2462	19.50	21.80	240.481	23.81	27.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11n (40MHz)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	17.80	16.70	107.030	20.30	27.99	PASS
6	2437	21.70	21.90	302.793	24.81	27.99	PASS
9	2452	18.40	17.40	124.137	20.94	27.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi) = 8.01
The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 09, 2012	May 08, 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 : June 28, 2012

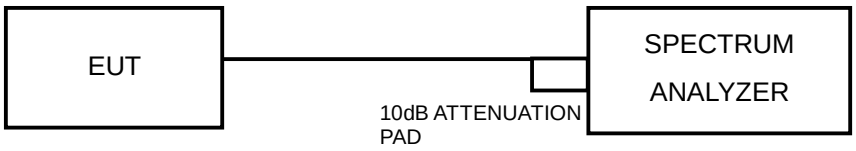
4.5.3 TEST PROCEDURE

1. Set the RBW = 100 kHz, VBW =300 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 power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(3 kHz/100kHz)
5.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	5.80	-9.43	3.01	-6.42	5.99	PASS
	6	2437	4.60	-10.63	3.01	-7.62	5.99	PASS
	11	2462	4.16	-11.07	3.01	-8.06	5.99	PASS
1	1	2412	4.75	-10.48	3.01	-7.47	5.99	PASS
	6	2437	3.65	-11.58	3.01	-8.57	5.99	PASS
	11	2462	3.70	-11.53	3.01	-8.52	5.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11g

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	0.32	-14.91	3.01	-11.90	5.99	PASS
	6	2437	1.80	-13.43	3.01	-10.42	5.99	PASS
	11	2462	-0.63	-15.86	3.01	-12.85	5.99	PASS
1	1	2412	-0.66	-15.89	3.01	-12.88	5.99	PASS
	6	2437	1.77	-13.46	3.01	-10.45	5.99	PASS
	11	2462	-0.89	-16.12	3.01	-13.11	5.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11n (20MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-0.48	-15.71	3.01	-12.70	5.99	PASS
	6	2437	0.40	-14.83	3.01	-11.82	5.99	PASS
	11	2462	-1.63	-16.86	3.01	-13.85	5.99	PASS
1	1	2412	-1.21	-16.44	3.01	-13.43	5.99	PASS
	6	2437	1.13	-14.10	3.01	-11.09	5.99	PASS
	11	2462	-2.45	-17.68	3.01	-14.67	5.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

802.11n (40MHz)

TX chain	Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-5.57	-20.80	3.01	-17.79	5.99	PASS
	6	2437	-1.81	-17.04	3.01	-14.03	5.99	PASS
	9	2452	-5.33	-20.56	3.01	-17.55	5.99	PASS
1	3	2422	-7.33	-22.56	3.01	-19.55	5.99	PASS
	6	2437	-2.02	-17.25	3.01	-14.24	5.99	PASS
	9	2452	-5.92	-21.15	3.01	-18.14	5.99	PASS

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.01

The effective legacy gain is 8.01dBi, therefore the limit needs to reduce.

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 09, 2012	May 08, 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 : June 28, 2012

4.6.3 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

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 OOBE

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.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP

4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

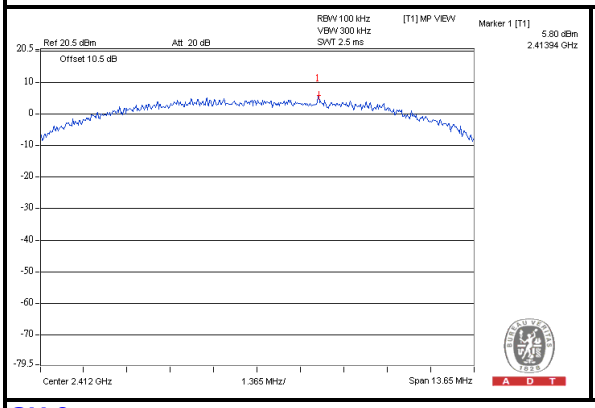
4.6.7 TEST RESULTS

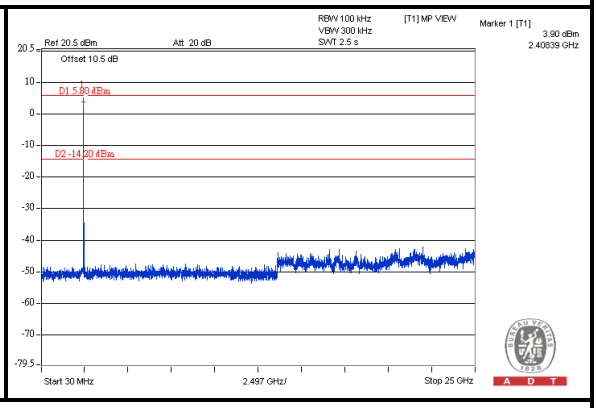
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

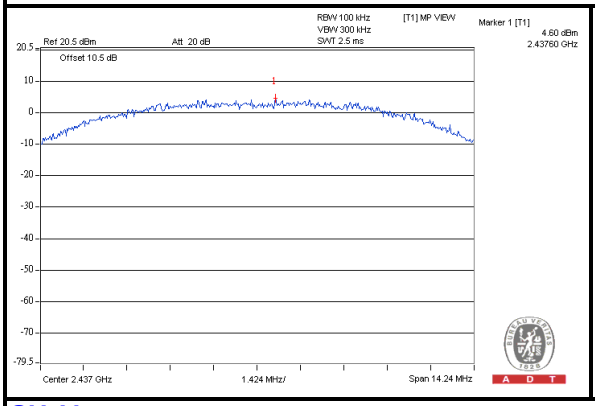
802.11b

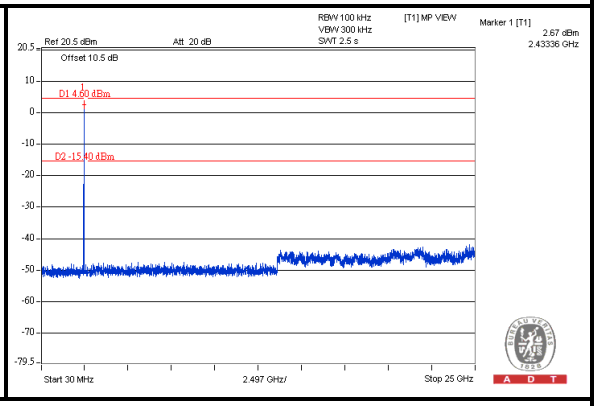
CH 1



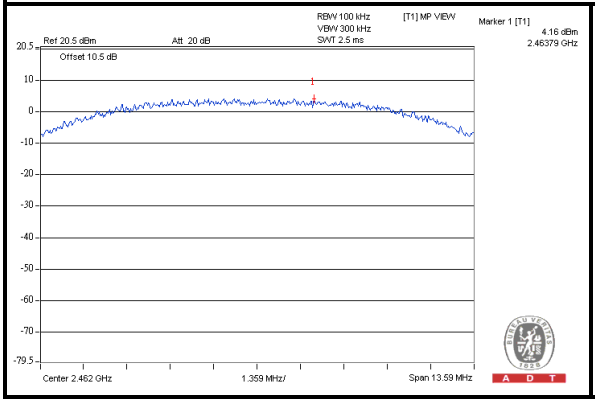


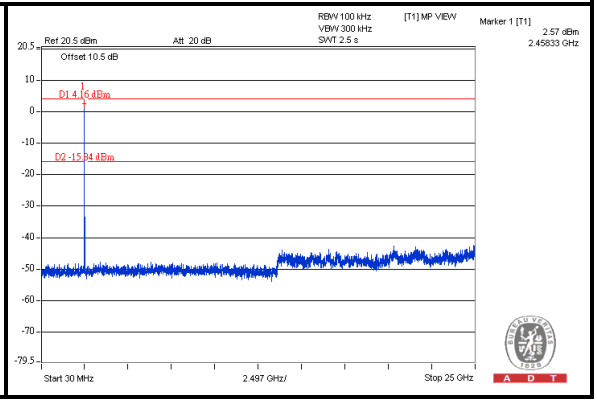
CH 6





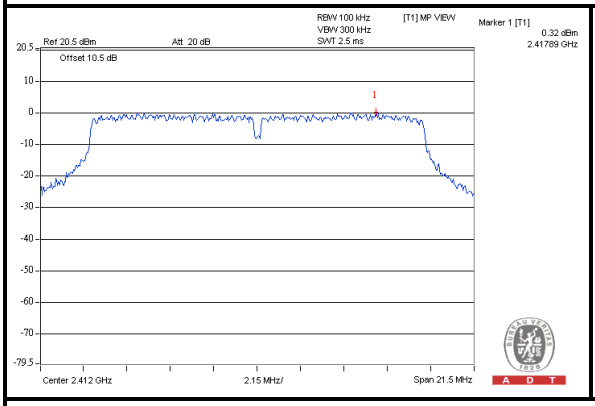
CH 11

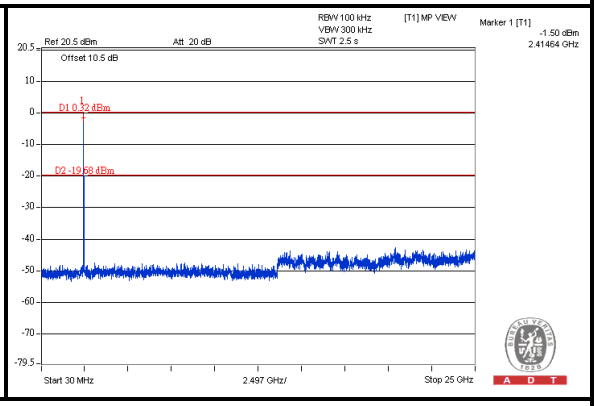




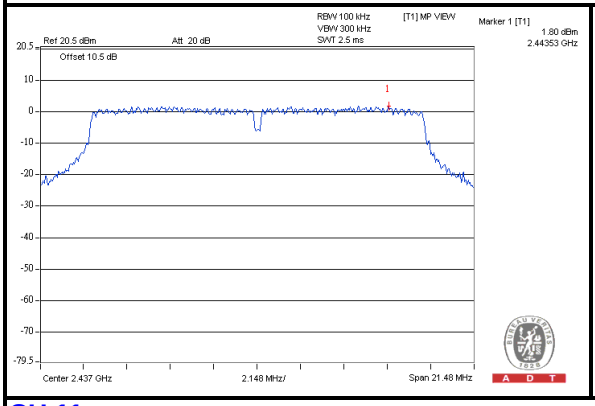
802.11g

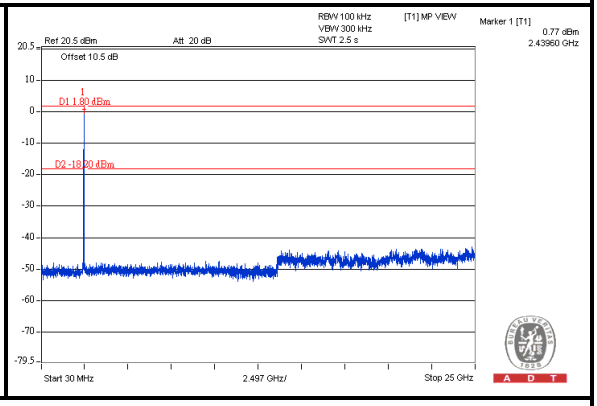
CH 1



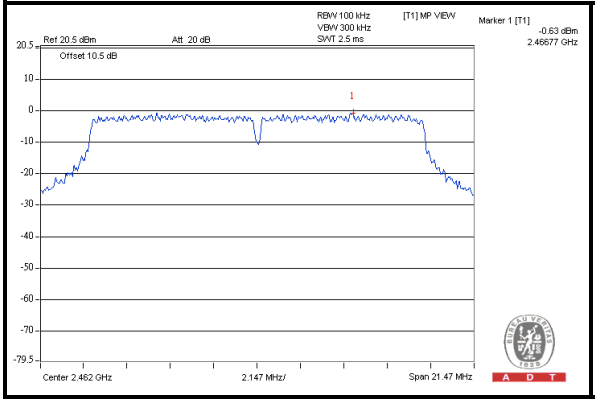


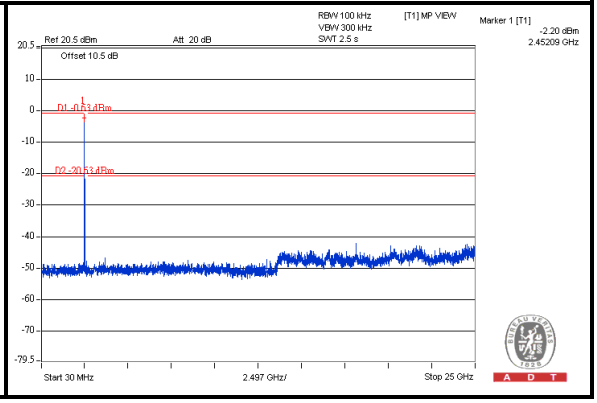
CH 6





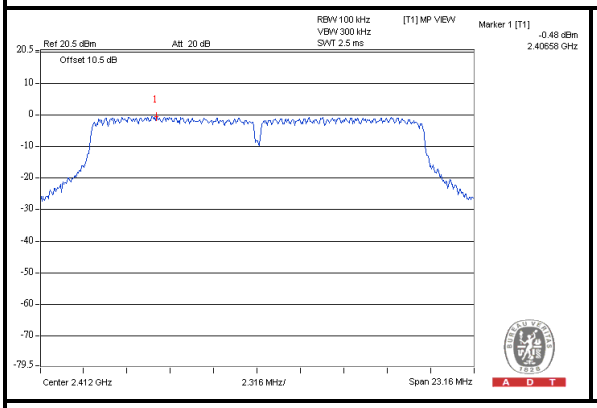
CH 11

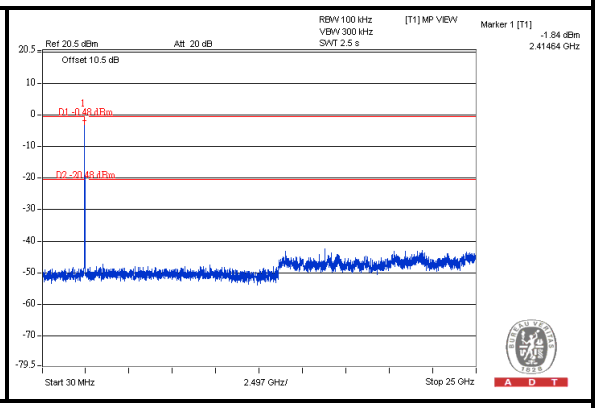




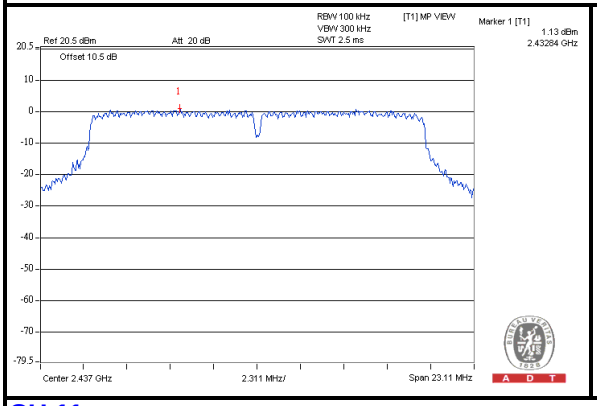
802.11n (20MHz)

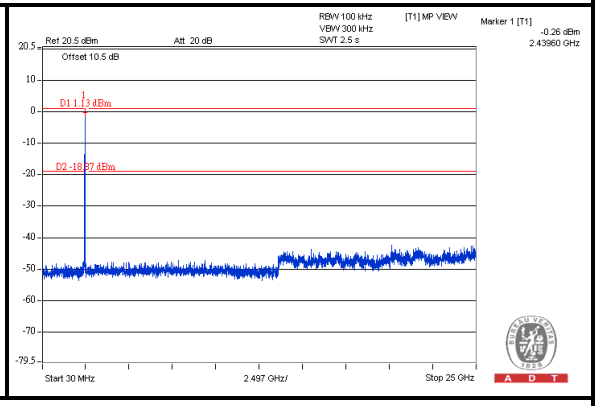
CH 1



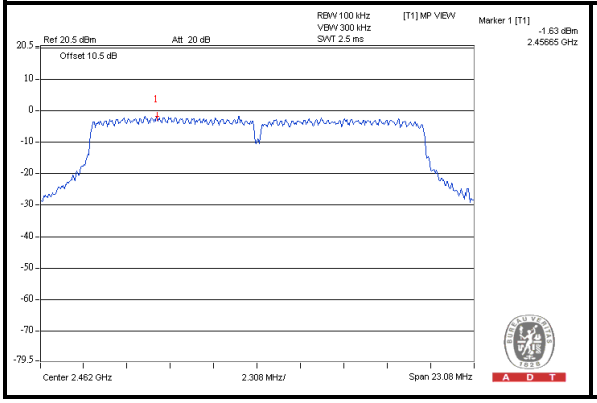


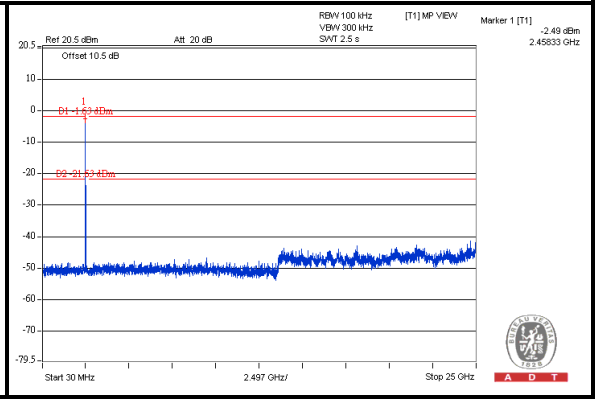
CH 6





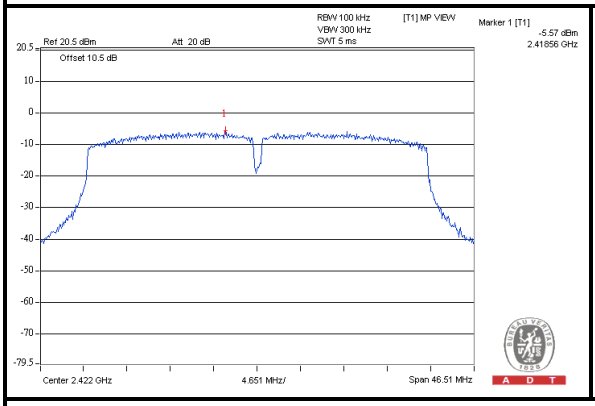
CH 11

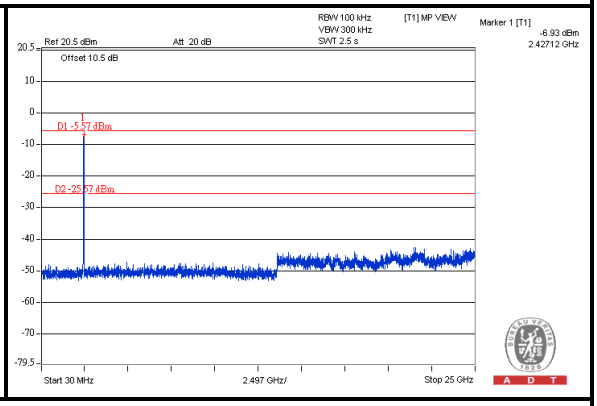




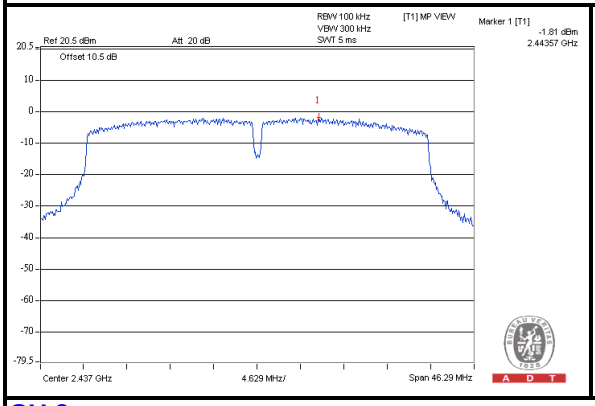
802.11n (40MHz)

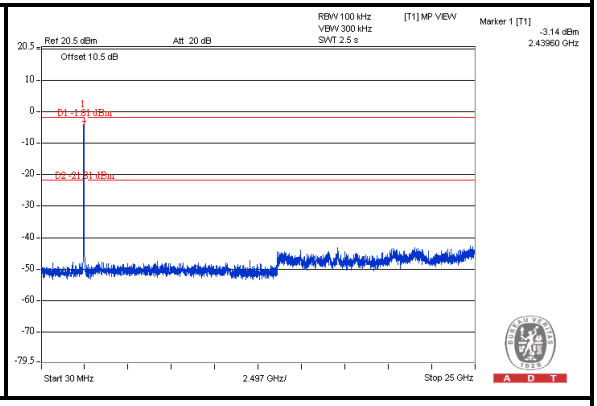
CH 3



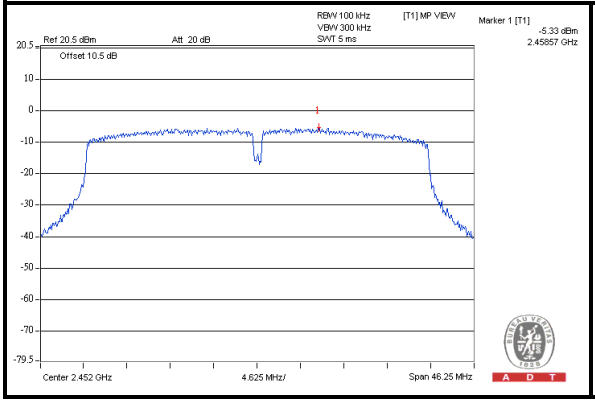


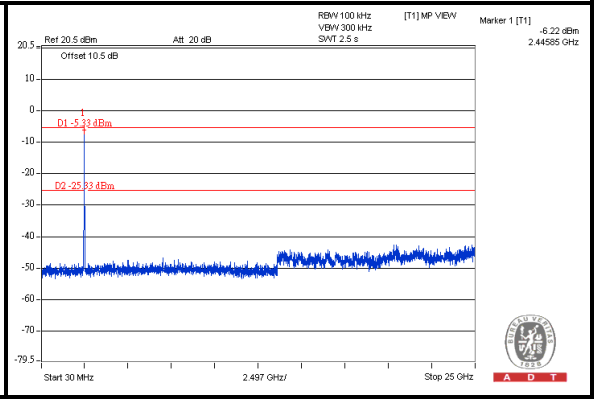
CH 6





CH 9





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:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892

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

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 ---