FCC TEST REPORT (15.247)

REPORT NO.:	RF120802E02
MODEL NO.:	PTV3000
FCC ID:	PY312200199
RECEIVED:	Aug. 02, 2012
TESTED:	Aug. 15 to 27, 2012
ISSUED:	Aug. 30, 2012

APPLICANT:	Netgear Incorporated.
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ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120802E02	Original release	Aug. 30, 2012

1. CERTIFICATION

PRODUCT:	PUSH2TV WIRELESS DISPLAY ADAPTER
BRAND NAME:	NETGEAR
MODEL NO.:	PTV3000
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	Netgear Incorporated.
TESTED:	Aug. 15 to 27, 2012
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009

The above equipment (Model: PTV3000) 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:** *Aug. 30, 2012*
(Lori Chung, Specialist)

APPROVED BY : _____ , **DATE:** *Aug. 30, 2012*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2462MHz Band

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 -8.77dB at 0.59141MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2483.50MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted 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.

For 5GHz, 5725~5850MHz Band

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 -6.13dB at 0.61875MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -5.8dB at 11490.00MHz
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	No antenna connector is used.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.

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)	4.89 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	PUSH2TV WIRELESS DISPLAY ADAPTER
MODEL NO.	PTV3000
POWER SUPPLY	DC 5V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 150Mbps
OPERATING FREQUENCY	**For 15.407** **5GHz:** 5.18 ~ 5.24GHz
	For 15.247 **2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 4 for 802.11a, 802.11n HT20 2 for 802.11n (HT40)
	For 15.247 (2.4GHz) 11 for 802.11b, 802.11g, 802.11n HT20 7 for 802.11n (HT40) **For 15.247 (5GHz)** 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 30.200mW 802.11n (HT20): 30.903mW 802.11n (HT40): 48.978mW **For 15.247 (2.4GHz)** 802.11b: 186.209mW 802.11g: 602.560mW 802.11n (HT20): 562.341mW 802.11n (HT40): 223.872mW **For 15.247 (5GHz)** 802.11a: 363.078mW 802.11n (HT20): 354.813mW 802.11n (HT40): 371.535mW

ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x 1

NOTE:

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

No	Brand	Model No.	Spec.
1	NETGEAR	MU05B2050100-A1	Input: 100-240V, 0.3A, 50/60Hz Output: 5V, 1A USB cable (Shielded, 1.5m)

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

Antenna Type	Antenna Gain (dBi)		
	2.4GHz	5GHz Band 1	5GHz Band 4
PIFA	-2.71	-2.64	-2.27

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

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

4. 2.4GHz and 5GHz technology cannot transmit at same time.
5. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.
6. 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

Operated in 2400 ~ 2483.5MHz band:

Eleven 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		

Seven 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		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

Two channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

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

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
802.11a	149 to 165	149	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	MODULATIO N TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6
802.11a	149 to 165	149	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
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT40)	151 to 159	151, 159	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
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	25deg. C, 65%RH	120Vac, 60Hz	Kyle Huang
RE<1G	33deg. C, 72%RH	120Vac, 60Hz	Amos Chuang
RE≥1G	26deg. C, 77%RH	120Vac, 60Hz	Amos Chuang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Amos Chuang
OB	25deg. C, 60%RH	120Vac, 60Hz	Amos Chuang

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 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

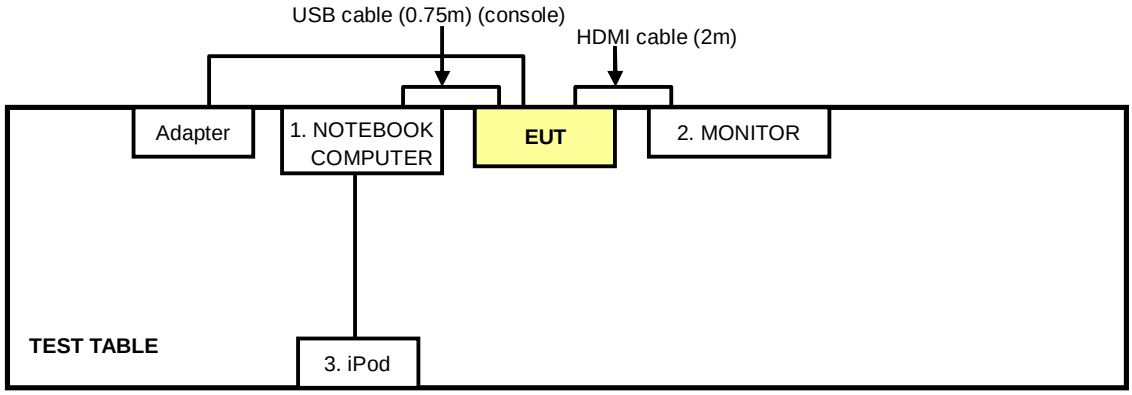
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	NA
2	MONITOR	DELL	U2410F	CNOJ257M728729AG159L	FCC DoC
3	iPod (For conducted emission test)	Apple	A1199	6U6425ZDVQ5	FCC DoC
	iPod (For other test item)	Apple	MC749TA/A	CC4DMFJUDFDM	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB cable (0.75m) (console)
2	HDMI cable (2m)
3	USB cable (0.1m)

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 (802.11b & g & n, 2400 ~ 2483.5MHz Band)

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 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 ROHDE & SCHWARZ	ESCS 30	100287	Feb. 29, 2012	Feb. 28, 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. 05, 2012	Aug. 04, 2013
50 ohms Terminator	50	4	Nov. 12, 2011	Nov. 11, 2012
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.
4. Tested Date: Aug. 15, 2012

4.1.3 TEST PROCEDURES

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

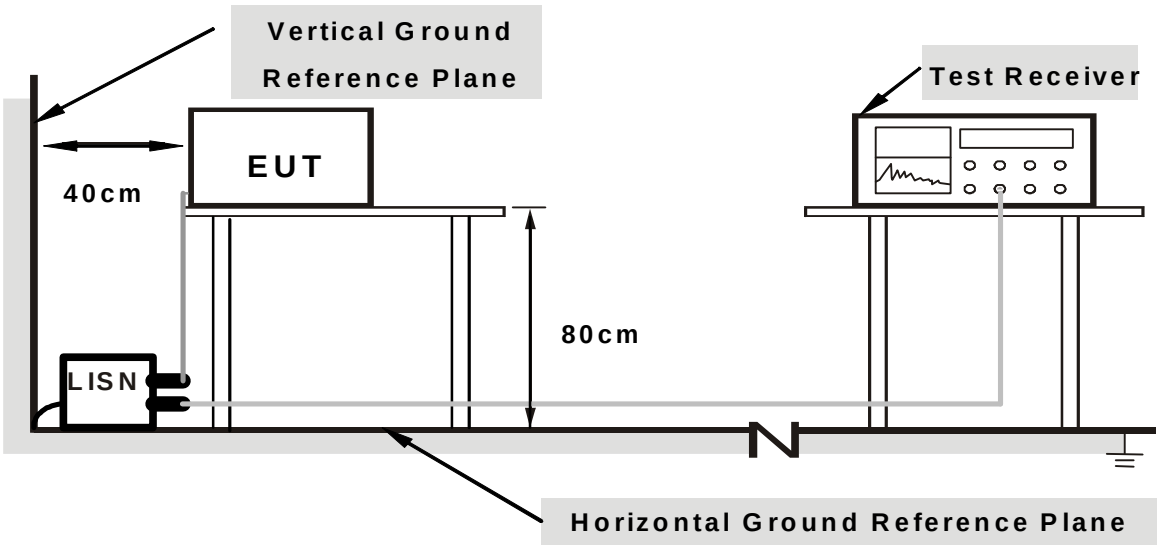
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

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 other computer system (support unit 1) to act as communication partner.
3. The communication partners ran test program “artgui.exe” to enable EUT under transmission/receiving condition continuously via one USB cable transmission.

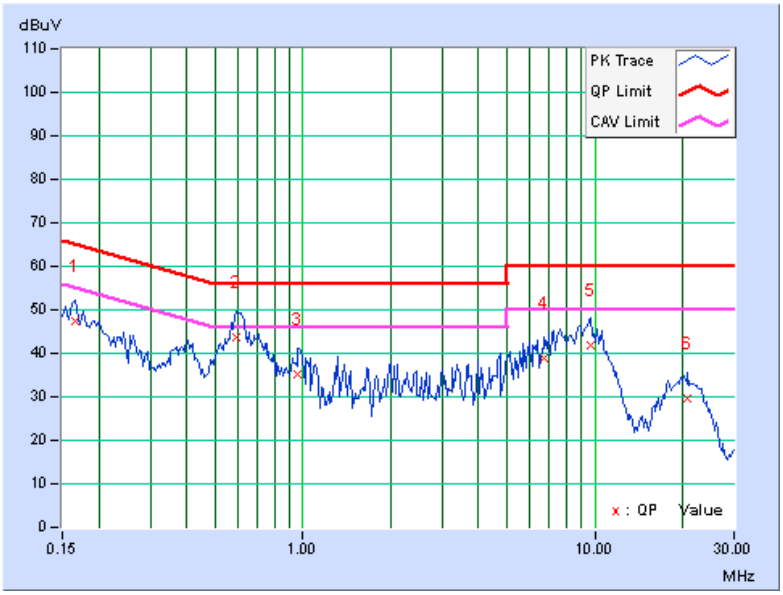
4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.09	47.27	40.63	47.36	40.72	65.18	55.18	-17.81	-14.45
2	**0.59141**	**0.18**	**43.55**	**37.05**	**43.73**	**37.23**	**56.00**	**46.00**	**-12.27**	**-8.77**
3	0.95859	0.21	34.92	24.05	35.13	24.26	56.00	46.00	-20.87	-21.74
4	6.72266	0.55	38.20	28.77	38.75	29.32	60.00	50.00	-21.25	-20.68
5	9.62500	0.70	41.31	32.80	42.01	33.50	60.00	50.00	-17.99	-16.50
6	20.83203	1.11	28.68	19.24	29.79	20.35	60.00	50.00	-30.21	-29.65

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.

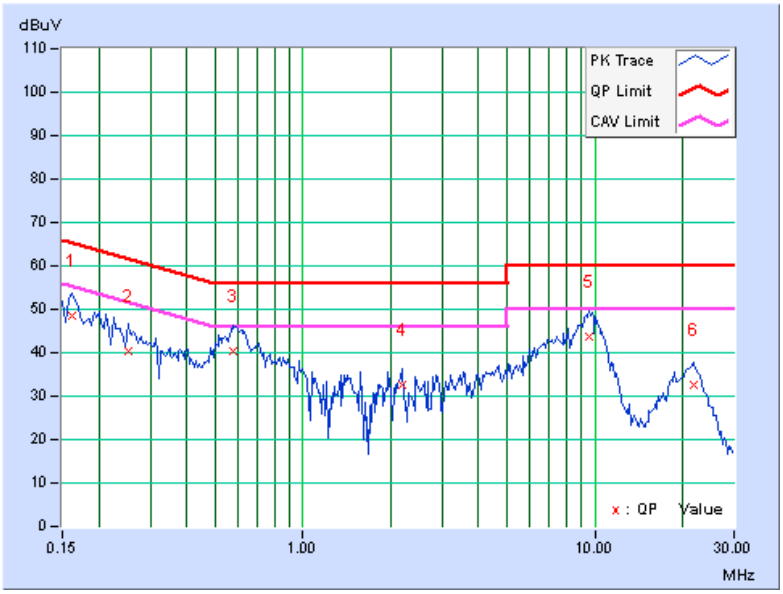


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.11	48.52	40.50	48.63	40.61	65.38	55.38	-16.74	-14.76
2	0.25156	0.14	40.32	21.12	40.46	21.26	61.71	51.71	-21.24	-30.44
3	0.57578	0.19	40.03	28.95	40.22	29.14	56.00	46.00	-15.78	-16.86
4	2.17969	0.30	32.32	19.80	32.62	20.10	56.00	46.00	-23.38	-25.90
5	9.50781	0.71	43.12	31.29	43.83	32.00	60.00	50.00	-16.17	-18.00
6	21.82031	1.12	31.37	20.52	32.49	21.64	60.00	50.00	-27.51	-28.36

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 19, 2011	Dec. 18, 2012
Spectrum Analyzer Agilent PSA	E4446A	MY48250113	Nov. 30 , 2011	Nov. 29 , 2012
Pre_Amplifier HP	8449B	300801923	Oct. 31, 2011	Oct. 30, 2012
Test Receiver ROHDE & SCHWARZ	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
TRILOG Broadband Antenna SCHWARZBECK	VULB 9168	138	Apr. 02, 2012	Apr. 01, 2013
Horn_Antenna SCHWARZBECK	BBHA9120	D124	Dec. 16, 2011	Dec. 15, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170153	Jan. 17, 2012	Jan. 16, 2013
RF Switches	EMH-011	1001	Sep. 24, 2011	Sep. 23, 2012
RF Cable (Chaintek)	Sucoflex 106	RF106-102	Jan. 19, 2012	Jan. 18, 2013
RF Cable	8DFB	STCCAB-30M -1GHz	Sep. 24, 2011	Sep. 23, 2012
Software	ADT_Radiated _V7.6.15.9.2	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 Open Site No. C.
4. The FCC Site Registration No. is 656396.
5 The VCCI Site Registration No. is R-1626.
6 The CANADA Site Registration No. is IC 7450G-3.
7 Tested Date: Aug. 16 to 27, 2012

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter open site for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

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

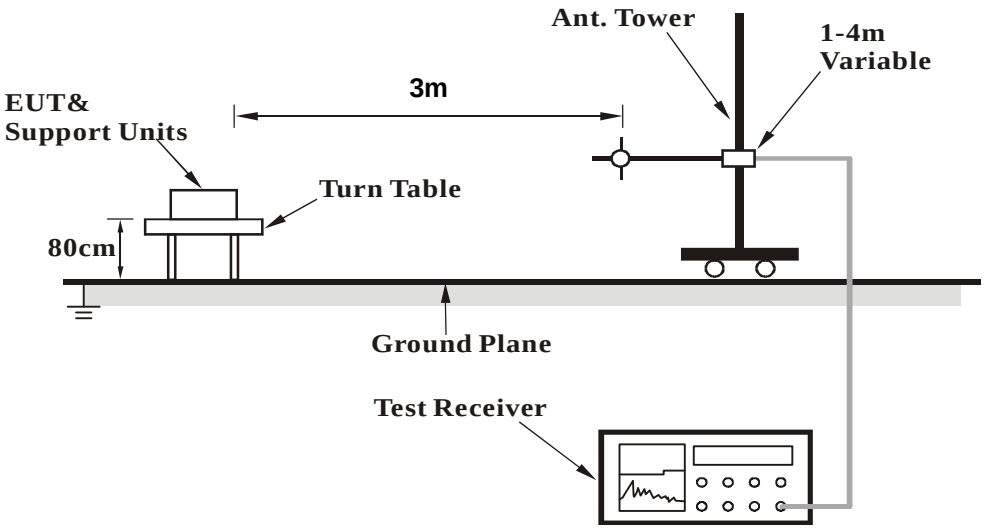
NOTE:

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	46.48	26.7 QP	40.0	-13.3	1.00 H	85	12.27	14.47
2	163.64	34.8 QP	43.5	-8.7	1.26 H	164	20.01	14.82
3	245.67	39.2 QP	46.0	-6.8	1.50 H	294	25.03	14.16
4	600.00	29.7 QP	46.0	-16.3	1.14 H	264	4.03	25.63
5	800.00	30.0 QP	46.0	-16.0	1.53 H	318	1.59	28.38
6	1000.00	25.8 QP	54.0	-28.2	1.00 H	313	-4.65	30.45
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	200.05	21.2 QP	43.5	-22.3	1.00 V	159	9.35	11.88
2	250.00	24.3 QP	46.0	-21.7	1.00 V	20	9.95	14.38
3	373.80	31.4 QP	46.0	-14.6	1.00 V	257	12.97	18.46
4	540.00	26.8 QP	46.0	-19.2	1.00 V	239	3.42	23.42
5	720.00	28.0 QP	46.0	-18.0	1.00 V	20	0.71	27.27
6	851.00	27.3 QP	46.0	-18.7	1.99 V	0	-1.46	28.78

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	59.1 PK	74.0	-14.9	1.45 H	191	28.71	30.39
2	2390.00	52.4 AV	54.0	-1.6	1.45 H	191	22.01	30.39
3	*2412.00	103.7 PK			1.45 H	191	73.23	30.47
4	*2412.00	101.6 AV			1.45 H	191	71.13	30.47
5	4824.00	52.6 PK	74.0	-21.4	1.32 H	290	16.69	35.91
6	4824.00	50.7 AV	54.0	-3.3	1.32 H	290	14.79	35.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	58.3 PK	74.0	-15.7	1.11 V	291	27.91	30.39
2	2390.00	51.9 AV	54.0	-2.1	1.11 V	291	21.51	30.39
3	*2412.00	102.6 PK			1.11 V	291	72.13	30.47
4	*2412.00	100.4 AV			1.11 V	291	69.93	30.47
5	4824.00	53.6 PK	74.0	-20.4	1.39 V	344	17.69	35.91
6	4824.00	51.8 AV	54.0	-2.2	1.39 V	344	15.89	35.91

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.
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	54.7 PK	74.0	-19.3	1.34 H	195	24.31	30.39
2	2390.00	44.5 AV	54.0	-9.5	1.34 H	195	14.11	30.39
3	*2437.00	106.4 PK			1.34 H	195	75.83	30.57
4	*2437.00	104.6 AV			1.34 H	195	74.03	30.57
5	2483.50	56.1 PK	74.0	-17.9	1.34 H	195	25.36	30.74
6	2483.50	43.9 AV	54.0	-10.1	1.34 H	195	13.16	30.74
7	4874.00	49.3 PK	74.0	-24.7	1.33 H	293	13.34	35.96
8	4874.00	46.1 AV	54.0	-7.9	1.33 H	293	10.14	35.96
9	7311.00	47.2 PK	74.0	-26.8	1.00 H	80	5.04	42.16
10	7311.00	37.8 AV	54.0	-16.2	1.00 H	80	-4.36	42.16
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	55.7 PK	74.0	-18.3	1.10 V	291	25.31	30.39
2	2390.00	43.9 AV	54.0	-10.1	1.10 V	291	13.51	30.39
3	*2437.00	105.1 PK			1.10 V	291	74.53	30.57
4	*2437.00	102.2 AV			1.10 V	291	71.63	30.57
5	2483.50	55.3 PK	74.0	-18.7	1.10 V	291	24.56	30.74
6	2483.50	44.4 AV	54.0	-9.6	1.10 V	291	13.66	30.74
7	4874.00	54.9 PK	74.0	-19.1	1.34 V	8	18.94	35.96
8	4874.00	53.4 AV	54.0	-0.6	1.34 V	8	17.44	35.96
9	7311.00	48.7 PK	74.0	-25.3	1.01 V	166	6.54	42.16
10	7311.00	37.9 AV	54.0	-16.1	1.01 V	166	-4.26	42.16

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	103.8 PK			1.36 H	199	73.14	30.66
2	*2462.00	101.9 AV			1.36 H	199	71.24	30.66
3	2483.50	59.6 PK	74.0	-14.4	1.36 H	199	28.86	30.74
4	2483.50	53.2 AV	54.0	-0.8	1.36 H	199	22.46	30.74
5	4924.00	50.1 PK	74.0	-23.9	1.36 H	287	14.07	36.03
6	4924.00	46.7 AV	54.0	-7.3	1.36 H	287	10.67	36.03
7	7386.00	47.4 PK	74.0	-26.6	1.00 H	69	4.98	42.42
8	7386.00	37.9 AV	54.0	-16.1	1.00 H	69	-4.52	42.42
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	103.3 PK			1.13 V	291	72.64	30.66
2	*2462.00	101.2 AV			1.13 V	291	70.54	30.66
3	2483.50	59.2 PK	74.0	-14.8	1.13 V	291	28.46	30.74
4	2483.50	52.2 AV	54.0	-1.8	1.13 V	291	21.46	30.74
5	4924.00	50.9 PK	74.0	-23.1	1.48 V	5	14.87	36.03
6	4924.00	48.3 AV	54.0	-5.7	1.48 V	5	12.27	36.03
7	7386.00	48.3 PK	74.0	-25.7	1.00 V	155	5.88	42.42
8	7386.00	37.7 AV	54.0	-16.3	1.00 V	155	-4.72	42.42

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	69.1 PK	74.0	-4.9	1.45 H	191	38.71	30.39
2	2390.00	53.1 AV	54.0	-0.9	1.45 H	191	22.71	30.39
3	*2412.00	104.5 PK			1.45 H	191	74.03	30.47
4	*2412.00	95.3 AV			1.45 H	191	64.83	30.47
5	4824.00	44.7 PK	74.0	-29.3	1.36 H	278	8.79	35.91
6	4824.00	32.6 AV	54.0	-21.4	1.36 H	278	-3.31	35.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	69.3 PK	74.0	-4.7	1.12 V	290	38.91	30.39
2	2390.00	53.3 AV	54.0	-0.7	1.12 V	290	22.91	30.39
3	*2412.00	103.1 PK			1.12 V	290	72.63	30.47
4	*2412.00	94.2 AV			1.12 V	290	63.73	30.47
5	4824.00	46.1 PK	74.0	-27.9	1.41 V	8	10.19	35.91
6	4824.00	33.6 AV	54.0	-20.4	1.41 V	8	-2.31	35.91

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.
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	69.3 PK	74.0	-4.7	1.34 H	195	38.91	30.39
2	2390.00	51.3 AV	54.0	-2.7	1.34 H	195	20.91	30.39
3	*2437.00	113.3 PK			1.34 H	195	82.73	30.57
4	*2437.00	104.1 AV			1.34 H	195	73.53	30.57
5	2483.50	72.5 PK	74.0	-1.5	1.34 H	195	41.76	30.74
6	2483.50	49.8 AV	54.0	-4.2	1.34 H	195	19.06	30.74
7	4874.00	44.9 PK	74.0	-29.1	1.38 H	71	8.94	35.96
8	4874.00	33.1 AV	54.0	-20.9	1.38 H	71	-2.86	35.96
9	7311.00	47.6 PK	74.0	-26.4	1.00 H	71	5.44	42.16
10	7311.00	37.1 AV	54.0	-16.9	1.00 H	71	-5.06	42.16
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	69.5 PK	74.0	-4.5	1.10 V	291	39.11	30.39
2	2390.00	51.6 AV	54.0	-2.4	1.10 V	291	21.21	30.39
3	*2437.00	111.4 PK			1.10 V	291	80.83	30.57
4	*2437.00	102.6 AV			1.10 V	291	72.03	30.57
5	**2483.50**	**73.5 PK**	**74.0**	**-0.5**	**1.10 V**	**291**	**42.76**	**30.74**
6	2483.50	51.1 AV	54.0	-2.9	1.10 V	291	20.36	30.74
7	4874.00	51.2 PK	74.0	-22.8	1.44 V	6	15.24	35.96
8	4874.00	38.8 AV	54.0	-15.2	1.44 V	6	2.84	35.96
9	7311.00	48.9 PK	74.0	-25.1	1.00 V	155	6.74	42.16
10	7311.00	37.3 AV	54.0	-16.7	1.00 V	155	-4.86	42.16

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	105.1 PK			1.37 H	199	74.44	30.66
2	*2462.00	96.6 AV			1.37 H	199	65.94	30.66
3	2483.50	71.3 PK	74.0	-2.7	1.37 H	199	40.56	30.74
4	2483.50	53.3 AV	54.0	-0.7	1.37 H	199	22.56	30.74
5	4924.00	44.8 PK	74.0	-29.2	1.34 H	65	8.77	36.03
6	4924.00	32.8 AV	54.0	-21.2	1.34 H	65	-3.23	36.03
7	7386.00	47.7 PK	74.0	-26.3	1.00 H	72	5.28	42.42
8	7386.00	36.6 AV	54.0	-17.4	1.00 H	72	-5.82	42.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.1 PK			1.13 V	290	73.44	30.66
2	*2462.00	94.1 AV			1.13 V	290	63.44	30.66
3	2483.50	68.7 PK	74.0	-5.3	1.13 V	290	37.96	30.74
4	2483.50	52.3 AV	54.0	-1.7	1.13 V	290	21.56	30.74
5	4924.00	45.8 PK	74.0	-28.2	1.47 V	6	9.77	36.03
6	4924.00	33.4 AV	54.0	-20.6	1.47 V	6	-2.63	36.03
7	7386.00	48.1 PK	74.0	-25.9	1.00 V	153	5.68	42.42
8	7386.00	36.7 AV	54.0	-17.3	1.00 V	153	-5.72	42.42

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 (HT20)

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	66.8 PK	74.0	-7.2	1.35 H	195	36.41	30.39
2	2390.00	52.1 AV	54.0	-1.9	1.35 H	195	21.71	30.39
3	*2412.00	103.6 PK			1.35 H	195	73.13	30.47
4	*2412.00	94.2 AV			1.35 H	195	63.73	30.47
5	4824.00	44.9 PK	74.0	-29.1	1.35 H	71	8.99	35.91
6	4824.00	32.5 AV	54.0	-21.5	1.35 H	71	-3.41	35.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.5 PK	74.0	-6.5	1.12 V	291	37.11	30.39
2	2390.00	52.7 AV	54.0	-1.3	1.12 V	291	22.31	30.39
3	*2412.00	102.2 PK			1.12 V	291	71.73	30.47
4	*2412.00	93.1 AV			1.12 V	291	62.63	30.47
5	4824.00	45.3 PK	74.0	-28.7	1.44 V	9	9.39	35.91
6	4824.00	32.9 AV	54.0	-21.1	1.44 V	9	-3.01	35.91

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.
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	68.9 PK	74.0	-5.1	1.35 H	199	38.51	30.39
2	2390.00	50.4 AV	54.0	-3.6	1.35 H	199	20.01	30.39
3	*2437.00	112.2 PK			1.35 H	199	81.63	30.57
4	*2437.00	103.1 AV			1.35 H	199	72.53	30.57
5	2483.50	72.6 PK	74.0	-1.4	1.35 H	199	41.86	30.74
6	2483.50	49.2 AV	54.0	-4.8	1.35 H	199	18.46	30.74
7	4874.00	45.1 PK	74.0	-28.9	1.33 H	63	9.14	35.96
8	4874.00	33.9 AV	54.0	-20.1	1.33 H	63	-2.06	35.96
9	7311.00	46.9 PK	74.0	-27.1	1.00 H	76	4.74	42.16
10	7311.00	36.3 AV	54.0	-17.7	1.00 H	76	-5.86	42.16
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	67.7 PK	74.0	-6.3	1.11 V	290	37.31	30.39
2	2390.00	51.3 AV	54.0	-2.7	1.11 V	290	20.91	30.39
3	*2437.00	110.9 PK			1.11 V	290	80.33	30.57
4	*2437.00	101.9 AV			1.11 V	290	71.33	30.57
5	2483.50	73.4 PK	74.0	-0.6	1.11 V	290	42.66	30.74
6	2483.50	49.6 AV	54.0	-4.4	1.11 V	290	18.86	30.74
7	4874.00	51.2 PK	74.0	-22.8	1.42 V	7	15.24	35.96
8	4874.00	37.9 AV	54.0	-16.1	1.42 V	7	1.94	35.96
9	7311.00	51.0 PK	74.0	-23.0	1.00 V	153	8.84	42.16
10	7311.00	37.9 AV	54.0	-16.1	1.00 V	153	-4.26	42.16

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	103.9 PK			1.36 H	201	73.24	30.66
2	*2462.00	95.2 AV			1.36 H	201	64.54	30.66
3	2483.50	72.1 PK	74.0	-1.9	1.36 H	201	41.36	30.74
4	2483.50	52.3 AV	54.0	-1.7	1.36 H	201	21.56	30.74
5	4924.00	44.9 PK	74.0	-29.1	1.31 H	61	8.87	36.03
6	4924.00	32.9 AV	54.0	-21.1	1.31 H	61	-3.13	36.03
7	7386.00	47.9 PK	74.0	-26.1	1.00 H	73	5.48	42.42
8	7386.00	36.7 AV	54.0	-17.3	1.00 H	73	-5.72	42.42
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	102.2 PK			1.13 V	291	71.54	30.66
2	*2462.00	93.1 AV			1.13 V	291	62.44	30.66
3	2483.50	68.8 PK	74.0	-5.2	1.13 V	291	38.06	30.74
4	2483.50	51.4 AV	54.0	-2.6	1.13 V	291	20.66	30.74
5	4924.00	45.5 PK	74.0	-28.5	1.41 V	6	9.47	36.03
6	4924.00	32.3 AV	54.0	-21.7	1.41 V	6	-3.73	36.03
7	7386.00	48.3 PK	74.0	-25.7	1.00 V	151	5.88	42.42
8	7386.00	36.5 AV	54.0	-17.5	1.00 V	151	-5.92	42.42

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 (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	1.35 H	195	35.51	30.39
2	2390.00	53.4 AV	54.0	-0.6	1.35 H	195	23.01	30.39
3	*2422.00	99.2 PK			1.35 H	195	68.69	30.51
4	*2422.00	88.9 AV			1.35 H	195	58.39	30.51
5	4844.00	44.3 PK	74.0	-29.7	1.32 H	66	8.37	35.93
6	4844.00	31.3 AV	54.0	-22.7	1.32 H	66	-4.63	35.93
7	7266.00	48.1 PK	74.0	-25.9	1.00 H	77	6.01	42.09
8	7266.00	35.7 AV	54.0	-18.3	1.00 H	77	-6.39	42.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.1 PK	74.0	-9.9	1.10 V	291	33.71	30.39
2	2390.00	53.3 AV	54.0	-0.7	1.10 V	291	22.91	30.39
3	*2422.00	96.6 PK			1.10 V	291	66.09	30.51
4	*2422.00	86.9 AV			1.10 V	291	56.39	30.51
5	4844.00	44.1 PK	74.0	-29.9	1.43 V	7	8.17	35.93
6	4844.00	31.2 AV	54.0	-22.8	1.43 V	7	-4.73	35.93
7	7266.00	48.2 PK	74.0	-25.8	1.00 V	148	6.11	42.09
8	7266.00	35.5 AV	54.0	-18.5	1.00 V	148	-6.59	42.09

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	64.4 PK	74.0	-9.6	1.35 H	196	34.01	30.39
2	2390.00	53.2 AV	54.0	-0.8	1.35 H	196	22.81	30.39
3	*2437.00	104.3 PK			1.35 H	196	73.73	30.57
4	*2437.00	95.1 AV			1.35 H	196	64.53	30.57
5	2483.50	67.5 PK	74.0	-6.5	1.35 H	196	36.76	30.74
6	2483.50	50.2 AV	54.0	-3.8	1.35 H	196	19.46	30.74
7	4874.00	44.4 PK	74.0	-29.6	1.36 H	68	8.44	35.96
8	4874.00	31.4 AV	54.0	-22.6	1.36 H	68	-4.56	35.96
9	7311.00	48.3 PK	74.0	-25.7	1.00 H	69	6.14	42.16
10	7311.00	35.8 AV	54.0	-18.2	1.00 H	69	-6.36	42.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	1.12 V	291	34.91	30.39
2	2390.00	53.4 AV	54.0	-0.6	1.12 V	291	23.01	30.39
3	*2437.00	101.1 PK			1.12 V	291	70.53	30.57
4	*2437.00	91.5 AV			1.12 V	291	60.93	30.57
5	2483.50	66.6 PK	74.0	-7.4	1.12 V	291	35.86	30.74
6	2483.50	49.6 AV	54.0	-4.4	1.12 V	291	18.86	30.74
7	4874.00	44.3 PK	74.0	-29.7	1.45 V	8	8.34	35.96
8	4874.00	31.3 AV	54.0	-22.7	1.45 V	8	-4.66	35.96
9	7311.00	48.3 PK	74.0	-25.7	1.00 V	151	6.14	42.16
10	7311.00	35.6 AV	54.0	-18.4	1.00 V	151	-6.56	42.16

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	102.2 PK			1.35 H	196	71.58	30.62
2	*2452.00	92.8 AV			1.35 H	196	62.18	30.62
3	2483.50	68.3 PK	74.0	-5.7	1.35 H	196	37.56	30.74
4	2483.50	52.9 AV	54.0	-1.1	1.35 H	196	22.16	30.74
5	4904.00	44.1 PK	74.0	-29.9	1.33 H	68	8.11	35.99
6	4904.00	31.5 AV	54.0	-22.5	1.33 H	68	-4.49	35.99
7	7356.00	48.2 PK	74.0	-25.8	1.00 H	74	5.88	42.32
8	7356.00	35.9 AV	54.0	-18.1	1.00 H	74	-6.42	42.32
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	98.8 PK			1.14 V	290	68.18	30.62
2	*2452.00	89.9 AV			1.14 V	290	59.28	30.62
3	2483.50	69.1 PK	74.0	-4.9	1.14 V	290	38.36	30.74
4	2483.50	53.2 AV	54.0	-0.8	1.14 V	290	22.46	30.74
5	4904.00	44.5 PK	74.0	-29.5	1.47 V	9	8.51	35.99
6	4904.00	31.5 AV	54.0	-22.5	1.47 V	9	-4.49	35.99
7	7356.00	48.6 PK	74.0	-25.4	1.00 V	144	6.28	42.32
8	7356.00	35.7 AV	54.0	-18.3	1.00 V	144	-6.62	42.32

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	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 2012

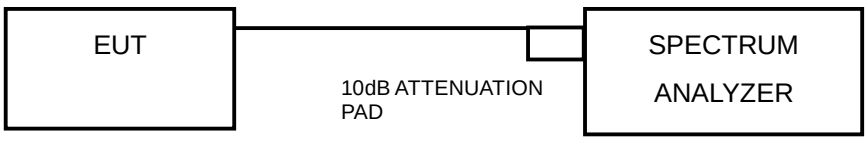
4.3.3 TEST PROCEDURE

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
1	2412	10.69	0.5	PASS
6	2437	10.72	0.5	PASS
11	2462	10.84	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.57	0.5	PASS
6	2437	16.56	0.5	PASS
11	2462	16.56	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.76	0.5	PASS
6	2437	17.84	0.5	PASS
11	2462	17.76	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.58	0.5	PASS
6	2437	37.01	0.5	PASS
9	2452	36.58	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

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
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Peak 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 : Aug. 17, 2012

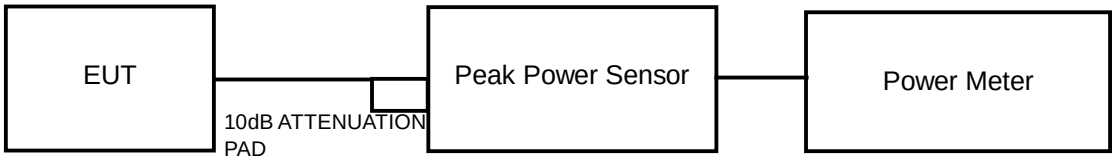
4.4.3 TEST PROCEDURES

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

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	107.152	20.3	30	PASS
6	2437	186.209	22.7	30	PASS
11	2462	134.896	21.3	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	257.040	24.1	30	PASS
6	2437	602.560	27.8	30	PASS
11	2462	263.027	24.2	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	204.174	23.1	30	PASS
6	2437	562.341	27.5	30	PASS
11	2462	218.776	23.4	30	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
3	2422	102.329	20.1	30	PASS
6	2437	223.872	23.5	30	PASS
9	2452	169.824	22.3	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 2012

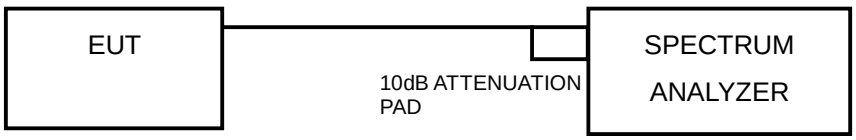
4.5.3 TEST PROCEDURE

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)

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

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	10.36	-4.87	8	PASS
6	2437	12.71	-2.52	8	PASS
11	2462	11.44	-3.79	8	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	6.11	-9.12	8	PASS
6	2437	14.47	-0.76	8	PASS
11	2462	6.58	-8.65	8	PASS

802.11n (HT20)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.01	-10.22	8	PASS
6	2437	13.88	-1.35	8	PASS
11	2462	5.37	-9.86	8	PASS

802.11n (HT40)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-0.10	-15.33	8	PASS
6	2437	3.65	-11.58	8	PASS
9	2452	2.67	-12.56	8	PASS

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 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.

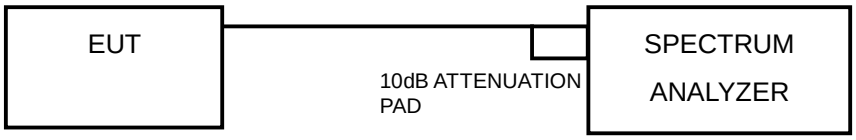
MEASUREMENT PROCEDURE OOBE

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

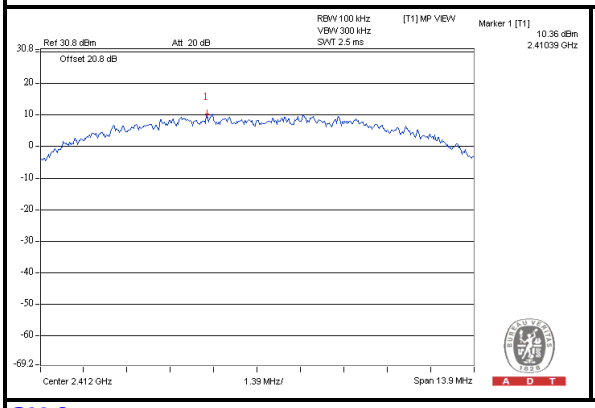
Same as Item 4.3.6

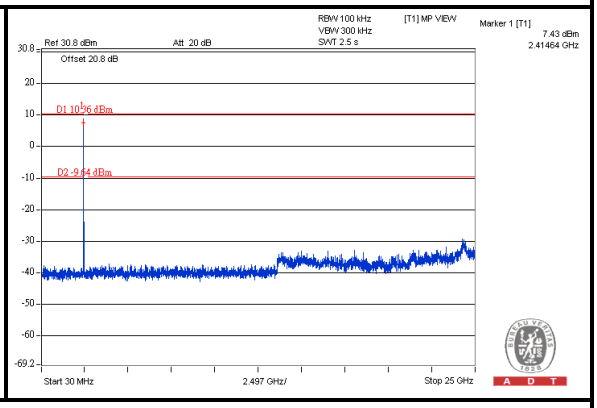
4.6.7 TEST RESULTS

The 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.

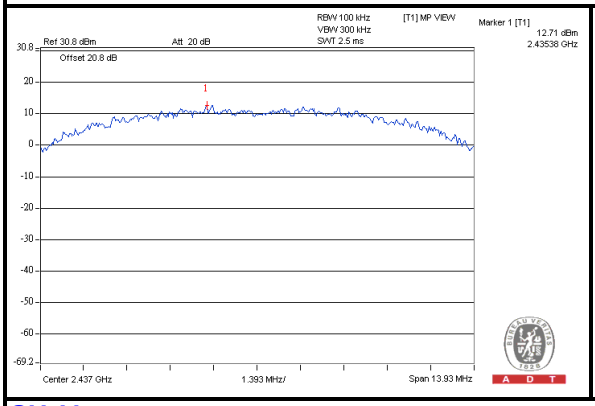
802.11b

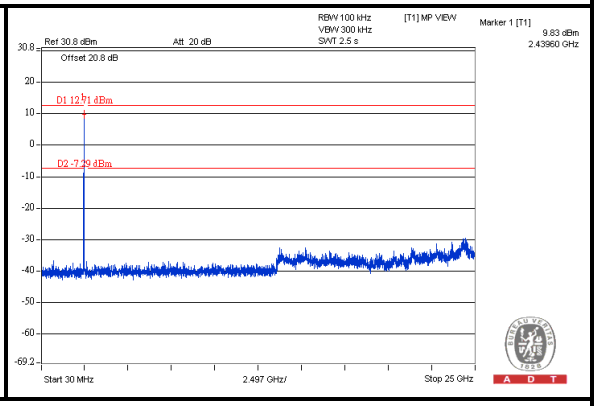
CH 1



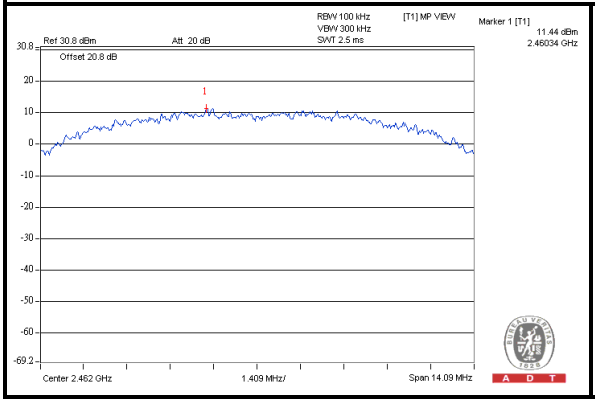


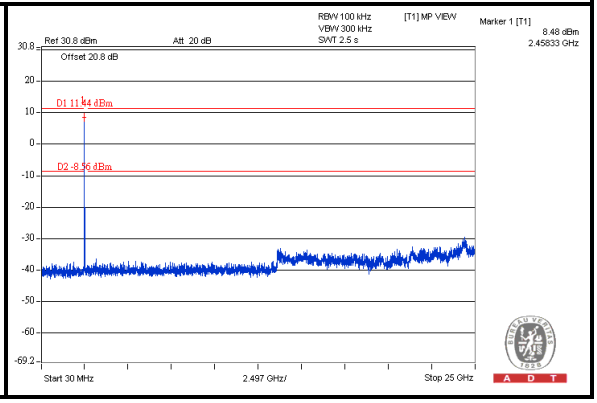
CH 6





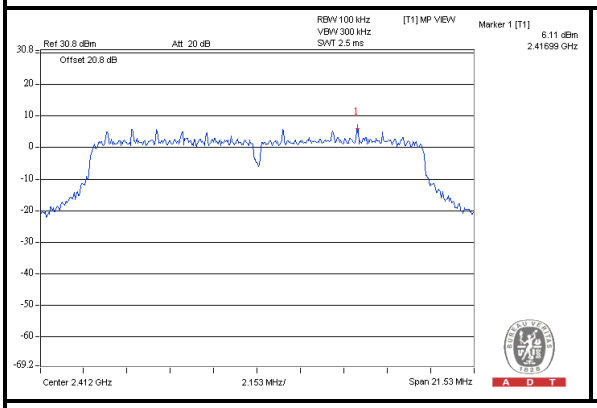
CH 11

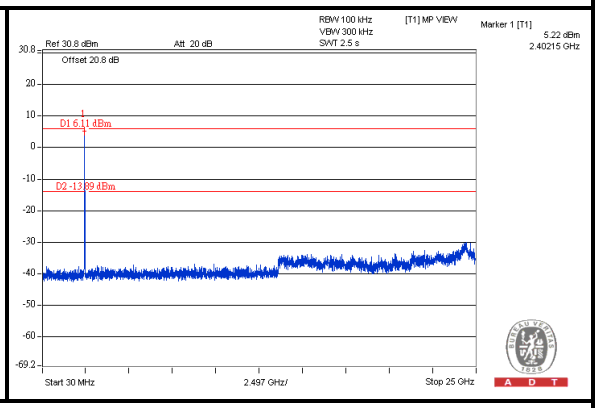




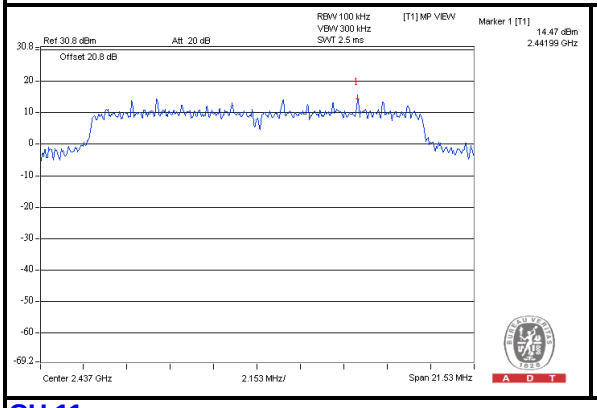
802.11g

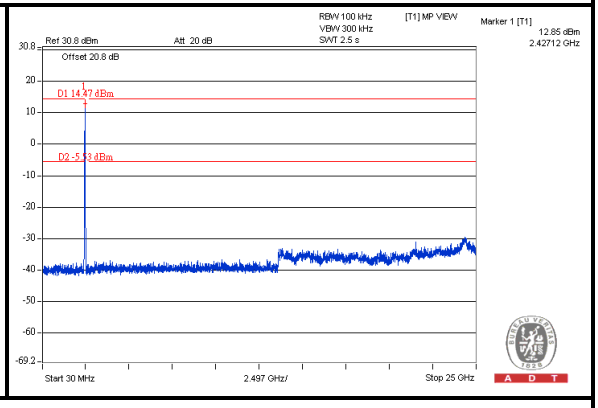
CH 1



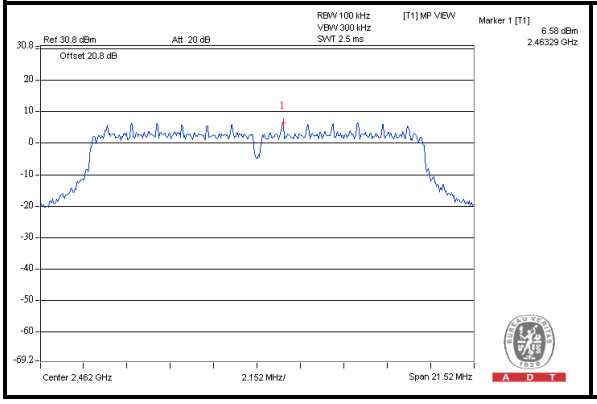


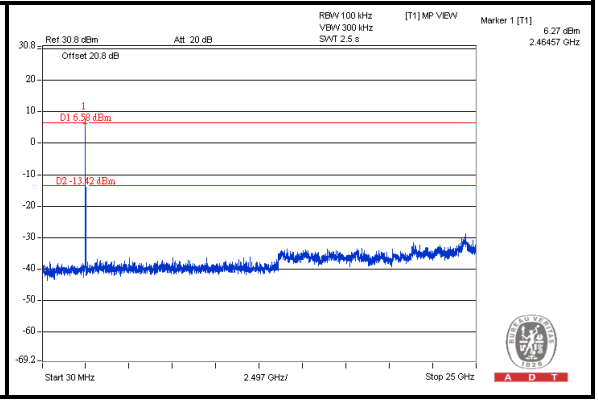
CH 6





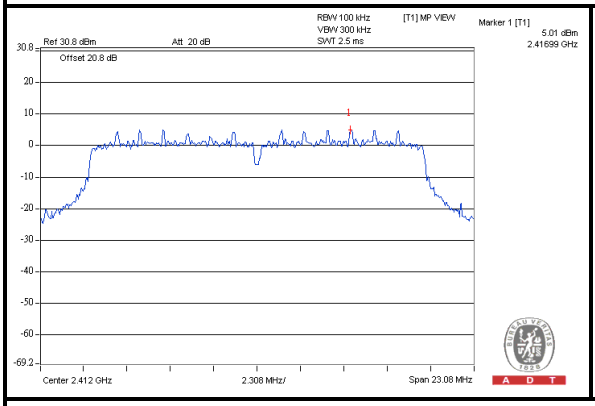
CH 11

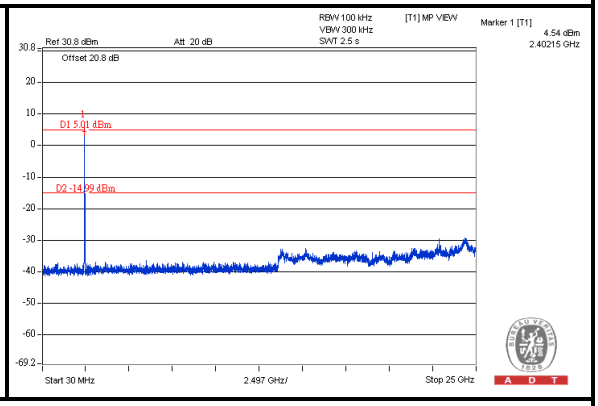




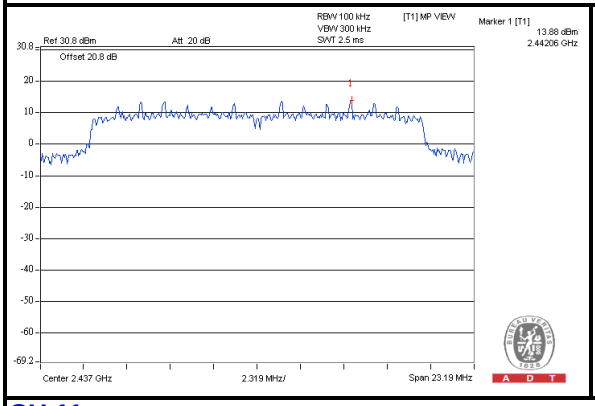
802.11n (HT20)

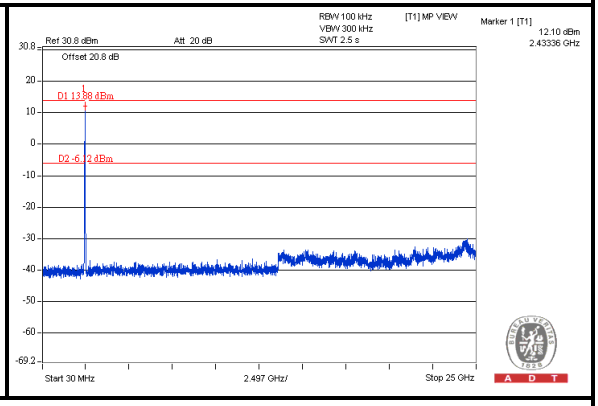
CH 1



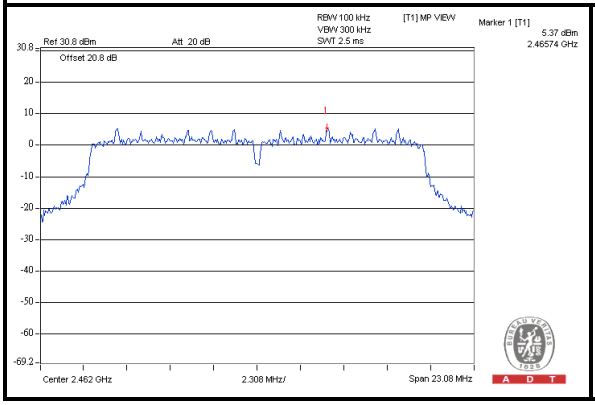


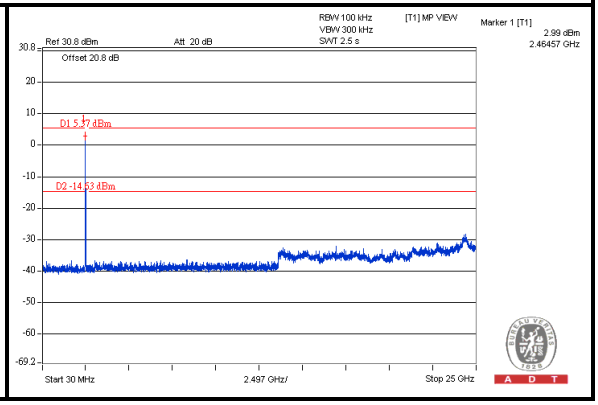
CH 6





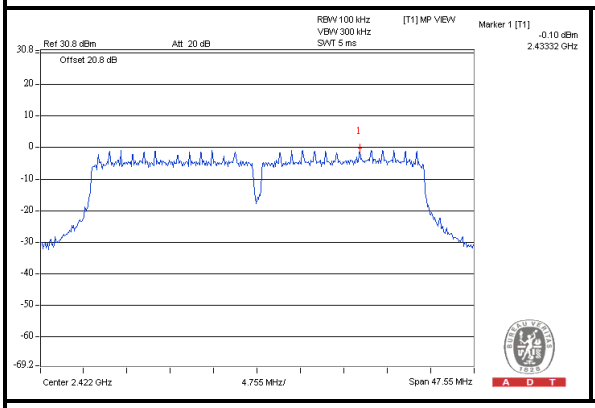
CH 11

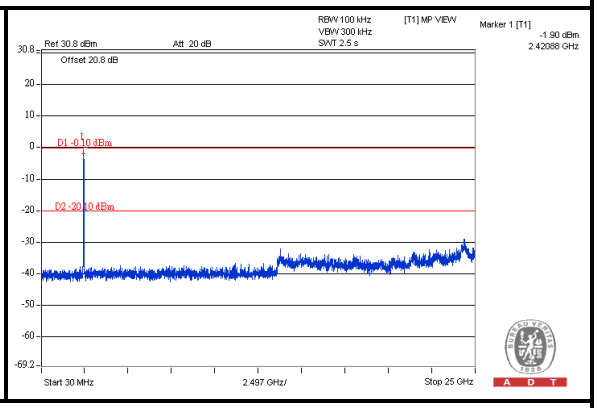




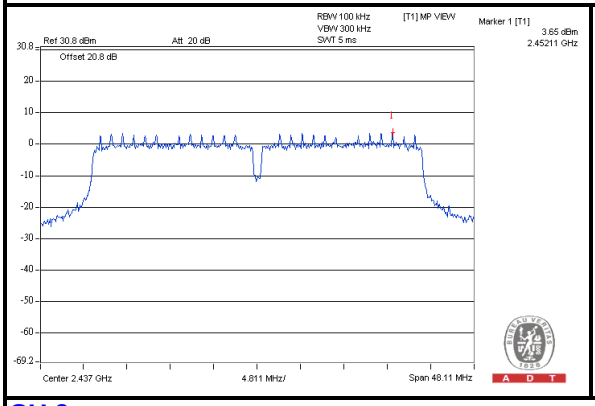
802.11n (HT40)

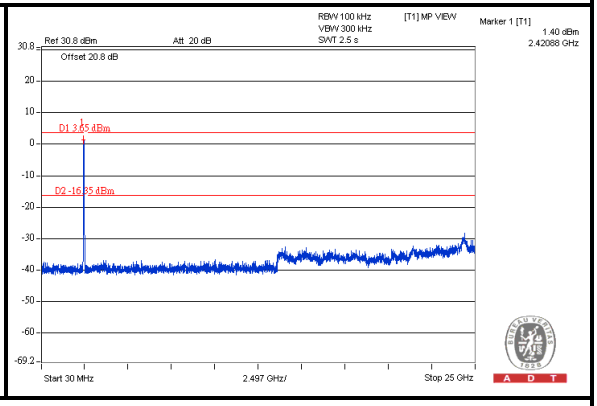
CH 3



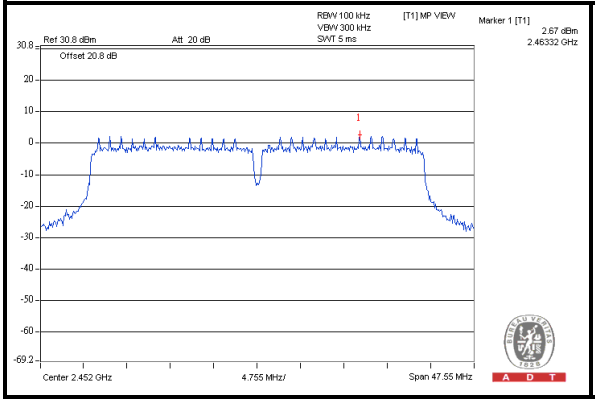


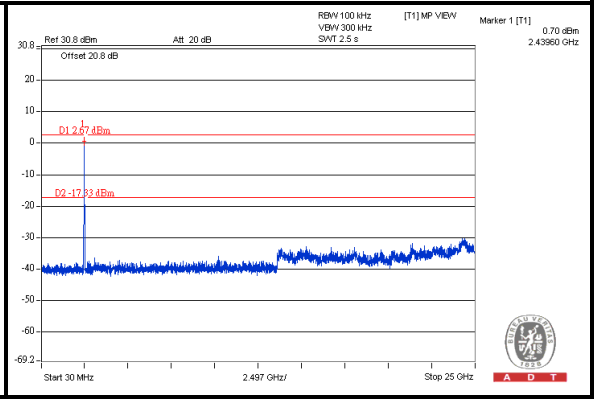
CH 6





CH 9





5. TEST TYPES AND RESULTS (802.11a & n, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	100287	Feb. 29, 2012	Feb. 28, 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. 05, 2012	Aug. 04, 2013
50 ohms Terminator	50	4	Nov. 12, 2011	Nov. 11, 2012
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.
4. Tested Date: Aug. 27, 2012

5.1.3 TEST PROCEDURES

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

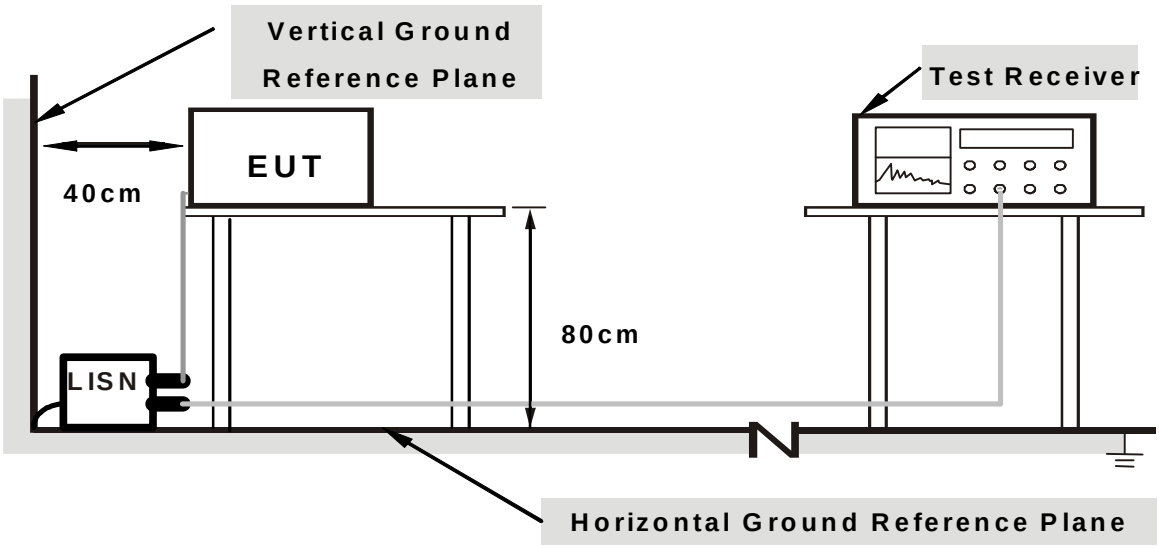
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 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.

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

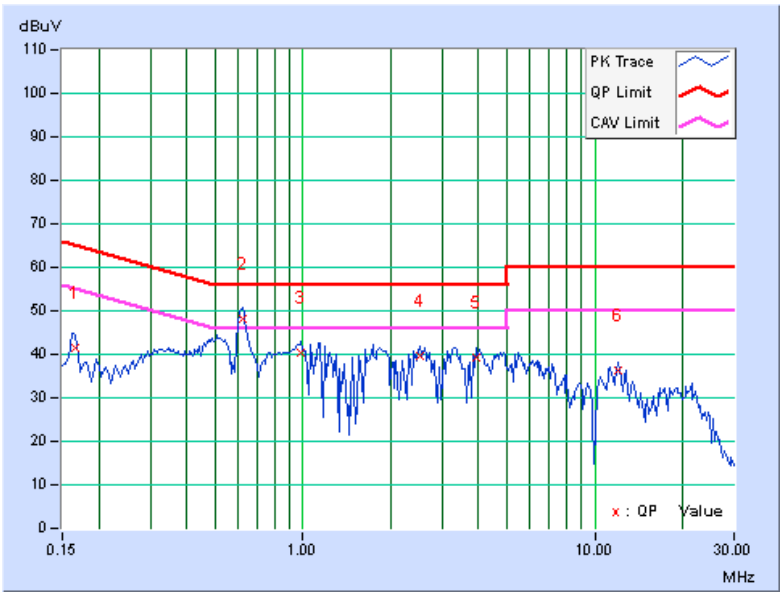
5.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.09	41.46	38.33	41.55	38.42	65.18	55.18	-23.62	-16.75
2	**0.61875**	**0.18**	**47.95**	**39.69**	**48.13**	**39.87**	**56.00**	**46.00**	**-7.87**	**-6.13**
3	0.98594	0.21	40.14	32.63	40.35	32.84	56.00	46.00	-15.65	-13.16
4	2.50781	0.32	39.13	31.63	39.45	31.95	56.00	46.00	-16.55	-14.05
5	3.91797	0.40	38.93	31.35	39.33	31.75	56.00	46.00	-16.67	-14.25
6	12.03125	0.80	35.52	27.59	36.32	28.39	60.00	50.00	-23.68	-21.61

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.

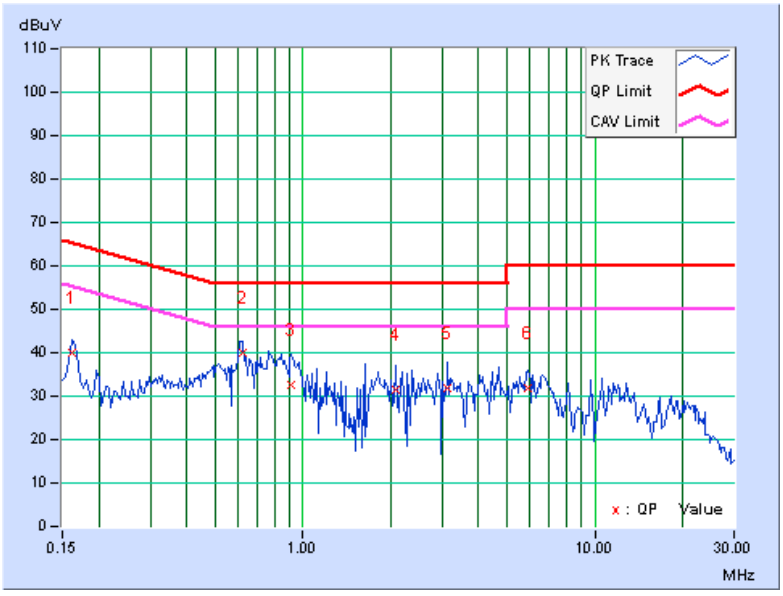


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.11	39.90	38.31	40.01	38.42	65.38	55.38	-25.36	-16.95
2	0.61875	0.19	39.78	33.23	39.97	33.42	56.00	46.00	-16.03	-12.58
3	0.91172	0.21	32.30	22.73	32.51	22.94	56.00	46.00	-23.49	-23.06
4	2.07422	0.29	31.37	23.23	31.66	23.52	56.00	46.00	-24.34	-22.48
5	3.11719	0.36	31.63	20.53	31.99	20.89	56.00	46.00	-24.01	-25.11
6	5.89063	0.52	31.22	20.38	31.74	20.90	60.00	50.00	-28.26	-29.10

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.



5.2 RADIATED AND BANDEDGE EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED AND BANDEDGE EMISSION 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.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 19, 2011	Dec. 18, 2012
Spectrum Analyzer Agilent PSA	E4446A	MY48250113	Nov. 30 , 2011	Nov. 29 , 2012
Pre_Amplifier HP	8449B	300801923	Oct. 31, 2011	Oct. 30, 2012
Test Receiver ROHDE & SCHWARZ	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
TRILOG Broadband Antenna SCHWARZBECK	VULB 9168	138	Apr. 02, 2012	Apr. 01, 2013
Horn_Antenna SCHWARZBECK	BBHA9120	D124	Dec. 16, 2011	Dec. 15, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170153	Jan. 17, 2012	Jan. 16, 2013
RF Switches	EMH-011	1001	Sep. 24, 2011	Sep. 23, 2012
RF Cable (Chaintek)	Sucoflex 106	RF106-102	Jan. 19, 2012	Jan. 18, 2013
RF Cable	8DFB	STCCAB-30M -1GHz	Sep. 24, 2011	Sep. 23, 2012
Software	ADT_Radiated _V7.6.15.9.2	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 Open Site No. C.
4. The FCC Site Registration No. is 656396.
5 The VCCI Site Registration No. is R-1626.
6 The CANADA Site Registration No. is IC 7450G-3.
7 Tested Date: Aug. 16 to 27, 2012

5.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter open site for test. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

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

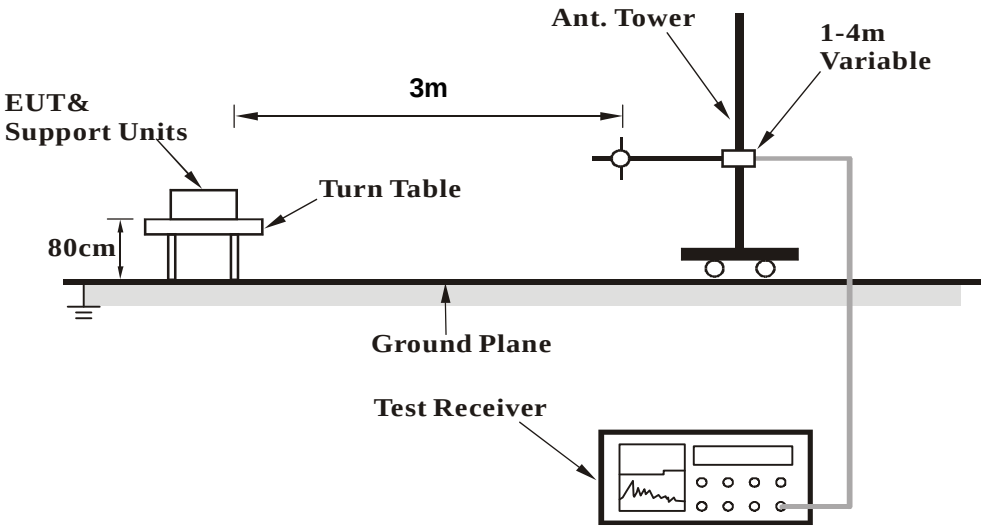
NOTE:

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.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 149	**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	46.59	27.2 QP	40.0	-12.8	1.00 H	226	12.71	14.47
2	162.52	35.5 QP	43.5	-8.0	1.93 H	238	20.62	14.89
3	246.25	39.5 QP	46.0	-6.5	1.18 H	233	25.33	14.19
4	600.00	30.4 QP	46.0	-15.6	1.14 H	81	4.79	25.63
5	800.00	29.7 QP	46.0	-16.4	2.00 H	9	1.27	28.38
6	1000.00	25.7 QP	54.0	-28.3	1.00 H	36	-4.72	30.45
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	200.00	21.5 QP	43.5	-22.0	1.00 V	87	9.66	11.88
2	250.00	24.2 QP	46.0	-21.8	1.00 V	66	9.78	14.38
3	374.92	31.2 QP	46.0	-14.8	1.90 V	268	12.70	18.49
4	540.00	27.0 QP	46.0	-19.0	1.00 V	324	3.55	23.42
5	720.00	28.3 QP	46.0	-17.8	1.00 V	170	0.98	27.27
6	850.00	27.9 QP	46.0	-18.1	1.69 V	216	-0.89	28.77

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

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5745.00	104.2 PK			1.38 H	330	66.34	37.86
2	*5745.00	95.7 AV			1.38 H	330	57.84	37.86
3	11490.00	53.8 PK	74.0	-20.2	1.00 H	17	6.19	47.61
4	11490.00	43.1 AV	54.0	-10.9	1.00 H	17	-4.51	47.61
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	*5745.00	106.3 PK			1.23 V	67	68.44	37.86
2	*5745.00	97.5 AV			1.23 V	67	59.64	37.86
3	11490.00	59.3 PK	74.0	-14.7	1.53 V	288	11.69	47.61
4	**11490.00**	**48.2 AV**	**54.0**	**-5.8**	**1.53 V**	**288**	**0.59**	**47.61**

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	103.9 PK			1.38 H	342	65.92	37.98
2	*5785.00	95.6 AV			1.38 H	342	57.62	37.98
3	11570.00	53.6 PK	74.0	-20.4	1.00 H	12	6.03	47.57
4	11570.00	42.8 AV	54.0	-11.2	1.00 H	12	-4.77	47.57
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	*5785.00	106.4 PK			1.26 V	81	68.42	37.98
2	*5785.00	97.6 AV			1.26 V	81	59.62	37.98
3	11570.00	58.2 PK	74.0	-15.8	1.55 V	281	10.63	47.57
4	11570.00	46.6 AV	54.0	-7.4	1.55 V	281	-0.97	47.57

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	104.8 PK			1.38 H	323	66.73	38.07
2	*5825.00	96.0 AV			1.38 H	323	57.93	38.07
3	11650.00	53.8 PK	74.0	-20.2	1.00 H	21	6.26	47.54
4	11650.00	42.8 AV	54.0	-11.2	1.00 H	21	-4.74	47.54
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	*5825.00	106.1 PK			1.23 V	81	68.03	38.07
2	*5825.00	97.1 AV			1.23 V	81	59.03	38.07
3	11650.00	57.1 PK	74.0	-16.9	1.58 V	296	9.56	47.54
4	11650.00	46.5 AV	54.0	-7.5	1.58 V	296	-1.04	47.54

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.
6. The limit value is defined as per 15.247.

802.11n (HT20)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5745.00	103.7 PK			1.39 H	328	65.84	37.86
2	*5745.00	95.2 AV			1.39 H	328	57.34	37.86
3	11490.00	58.3 PK	74.0	-15.7	1.00 H	20	10.69	47.61
4	11490.00	43.6 AV	54.0	-10.4	1.00 H	20	-4.01	47.61
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	*5745.00	105.9 PK			1.25 V	70	68.04	37.86
2	*5745.00	97.2 AV			1.25 V	70	59.34	37.86
3	11490.00	60.2 PK	74.0	-13.8	1.55 V	284	12.59	47.61
4	11490.00	47.9 AV	54.0	-6.1	1.55 V	284	0.29	47.61

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	104.2 PK			1.34 H	341	66.22	37.98
2	*5785.00	95.5 AV			1.34 H	341	57.52	37.98
3	11570.00	58.6 PK	74.0	-15.4	1.03 H	10	11.03	47.57
4	11570.00	43.3 AV	54.0	-10.7	1.03 H	10	-4.27	47.57
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	*5785.00	105.8 PK			1.19 V	70	67.82	37.98
2	*5785.00	97.3 AV			1.19 V	70	59.32	37.98
3	11570.00	60.3 PK	74.0	-13.7	1.55 V	286	12.73	47.57
4	11570.00	47.5 AV	54.0	-6.5	1.55 V	286	-0.07	47.57

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	103.8 PK			1.37 H	328	65.73	38.07
2	*5825.00	95.3 AV			1.37 H	328	57.23	38.07
3	11650.00	58.1 PK	74.0	-15.9	1.00 H	10	10.56	47.54
4	11650.00	43.9 AV	54.0	-10.1	1.00 H	10	-3.64	47.54
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	*5825.00	105.6 PK			1.30 V	70	67.53	38.07
2	*5825.00	96.9 AV			1.30 V	70	58.83	38.07
3	11650.00	60.1 PK	74.0	-13.9	1.56 V	298	12.56	47.54
4	11650.00	47.4 AV	54.0	-6.6	1.56 V	298	-0.14	47.54

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.
6. The limit value is defined as per 15.247.

802.11n (HT40)

CHANNEL	TX Channel 151	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5755.00	101.1 PK			1.38 H	329	63.21	37.89
2	*5755.00	91.9 AV			1.38 H	329	54.01	37.89
3	11510.00	54.6 PK	74.0	-19.4	1.00 H	28	6.99	47.61
4	11510.00	45.1 AV	54.0	-8.9	1.00 H	28	-2.51	47.61
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	*5755.00	102.2 PK			1.22 V	69	64.31	37.89
2	*5755.00	93.8 AV			1.22 V	69	55.91	37.89
3	11510.00	54.9 PK	74.0	-19.1	1.56 V	291	7.29	47.61
4	11510.00	46.3 AV	54.0	-7.7	1.56 V	291	-1.31	47.61

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.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5795.00	101.1 PK			1.43 H	322	63.09	38.01
2	*5795.00	91.8 AV			1.43 H	322	53.79	38.01
3	11590.00	54.9 PK	74.0	-19.1	1.00 H	14	7.34	47.56
4	11590.00	45.3 AV	54.0	-8.7	1.00 H	14	-2.26	47.56
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	*5795.00	101.6 PK			1.18 V	69	63.59	38.01
2	*5795.00	93.4 AV			1.18 V	69	55.39	38.01
3	11590.00	54.3 PK	74.0	-19.7	1.55 V	288	6.74	47.56
4	11590.00	45.1 AV	54.0	-8.9	1.55 V	288	-2.46	47.56

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.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 2012

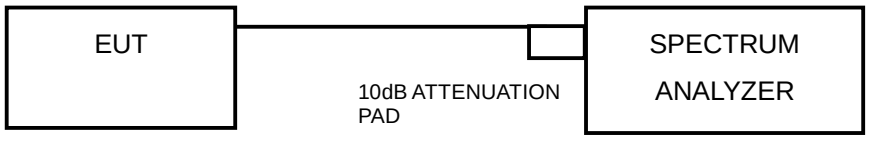
5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

5.3.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.47	0.5	PASS
157	5785	16.48	0.5	PASS
165	5825	16.47	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.65	0.5	PASS
157	5785	17.66	0.5	PASS
165	5825	17.61	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.35	0.5	PASS
159	5795	36.29	0.5	PASS

5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz band: 1 Watt (30dBm)

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Peak 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 : Aug. 17, 2012

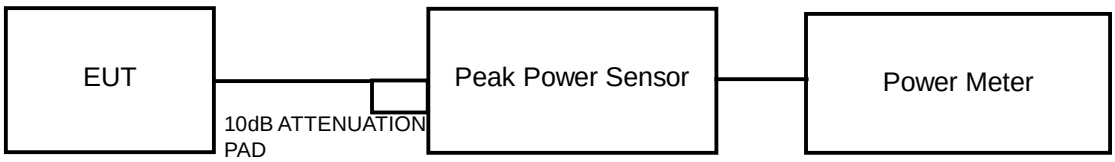
5.4.3 TEST PROCEDURES

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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	363.078	25.6	30	PASS
157	5785	295.121	24.7	30	PASS
165	5825	269.153	24.3	30	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	354.813	25.5	30	PASS
157	5785	281.838	24.5	30	PASS
165	5825	269.153	24.3	30	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
151	5755	371.535	25.7	30	PASS
159	5795	288.403	24.6	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 2012

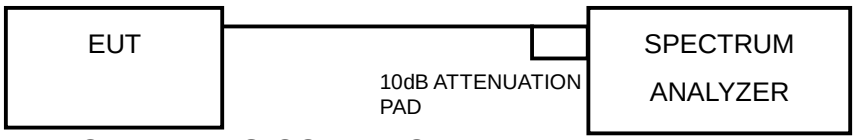
5.5.3 TEST PROCEDURE

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)

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	11.79	-3.44	8	PASS
157	5785	10.25	-4.98	8	PASS
165	5825	10.76	-4.47	8	PASS

802.11n (HT20)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	11.40	-3.83	8	PASS
157	5785	9.68	-5.55	8	PASS
165	5825	10.27	-4.96	8	PASS

802.11n (HT40)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
151	5755	8.62	-6.61	8	PASS
159	5795	8.07	-7.16	8	PASS

5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 17, 2012

5.6.3 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.

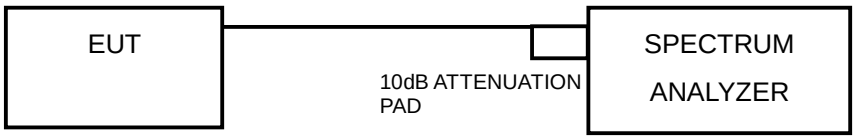
MEASUREMENT PROCEDURE OOBE

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.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.7 TEST RESULTS

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

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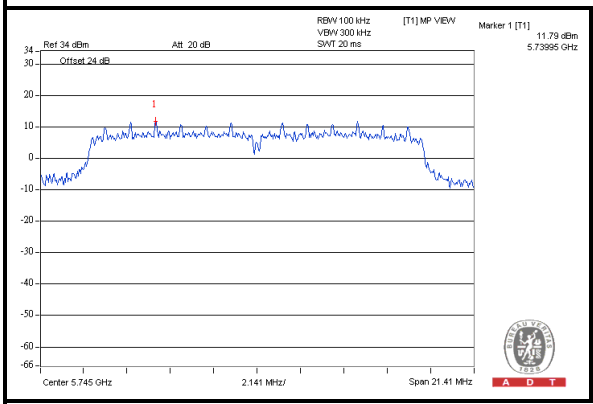

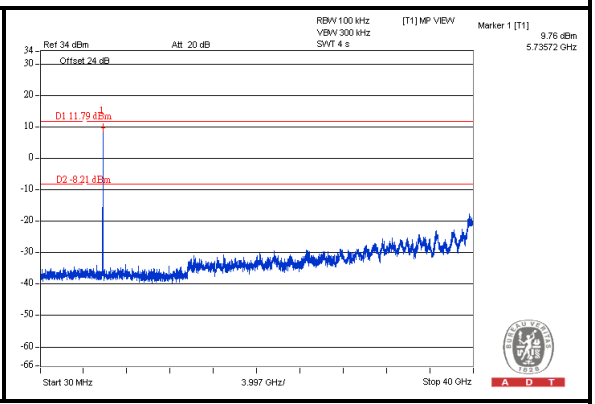

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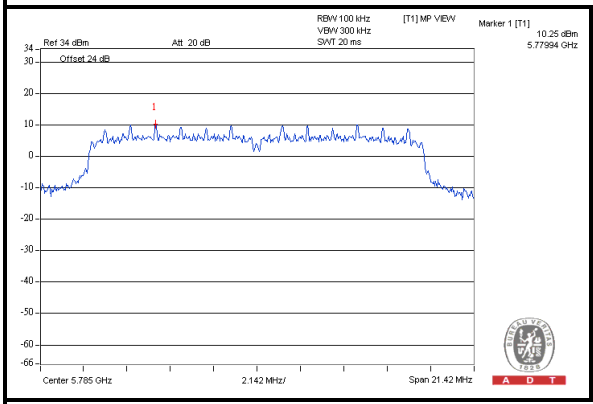
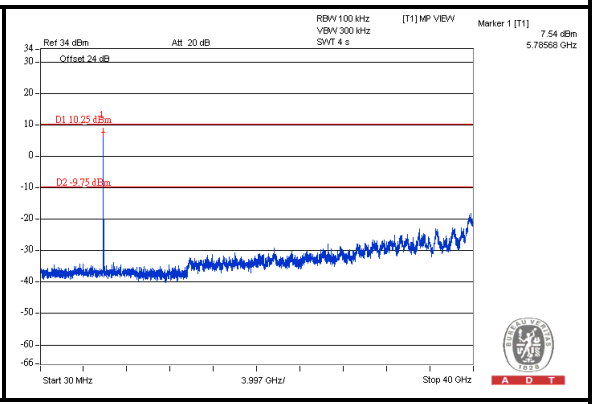
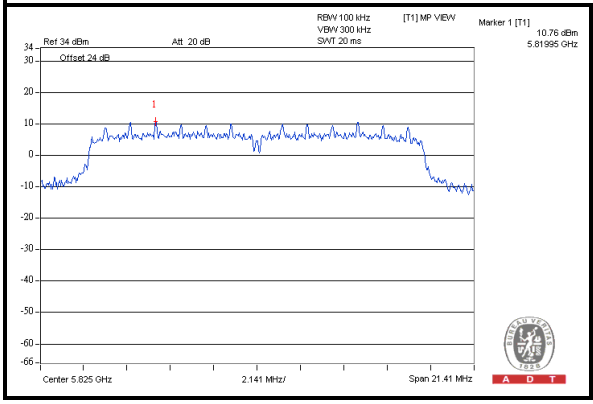
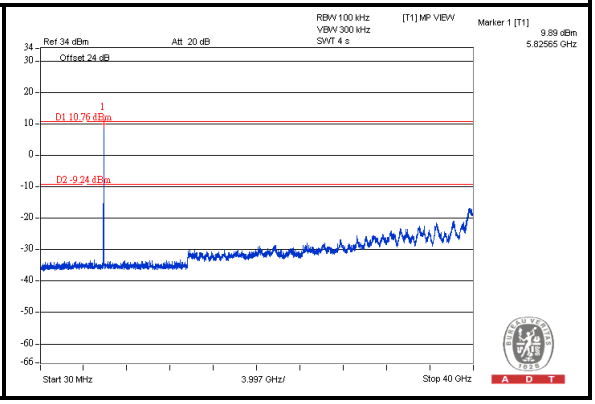




CH 165





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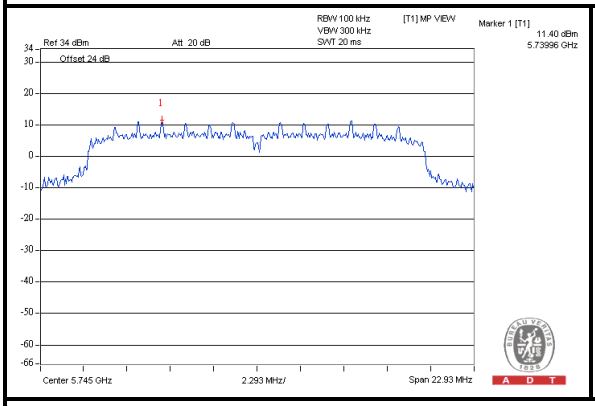
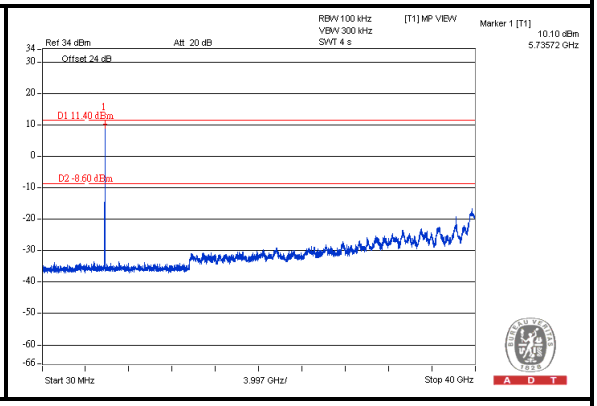
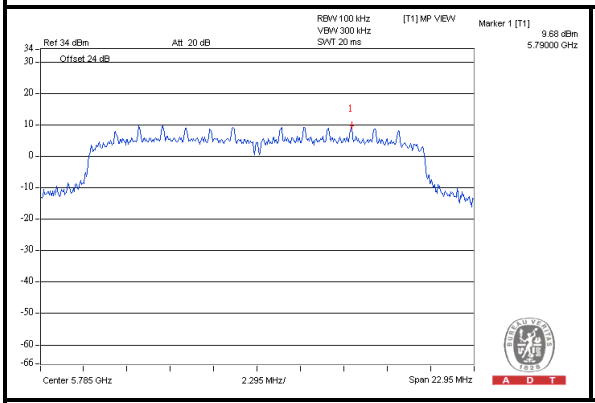
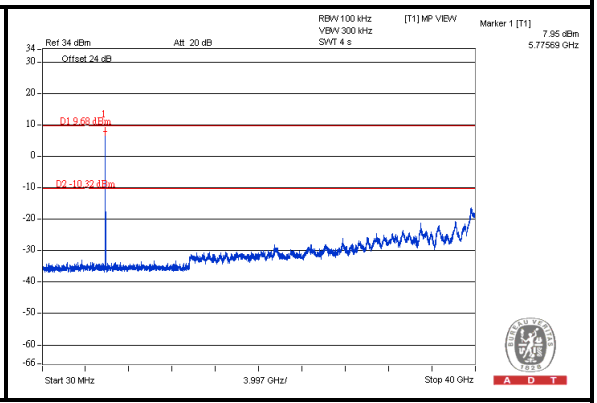


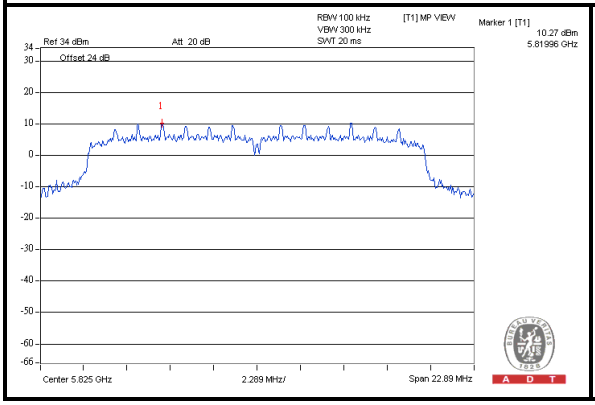


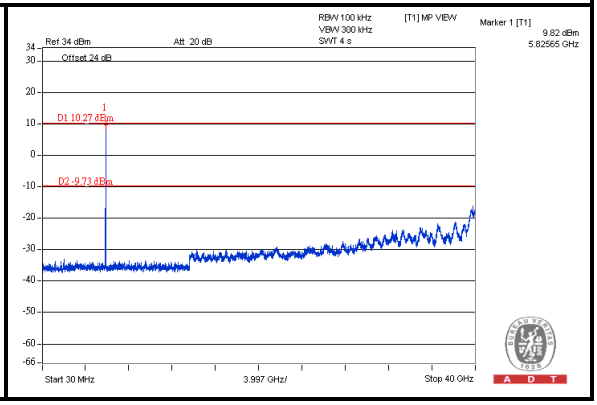
CH 157





CH 165





802.11n (HT40)

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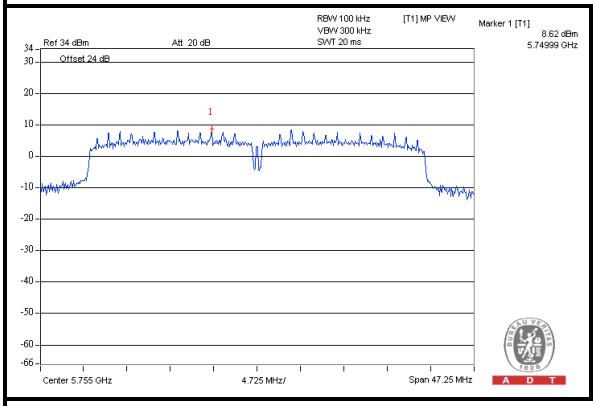
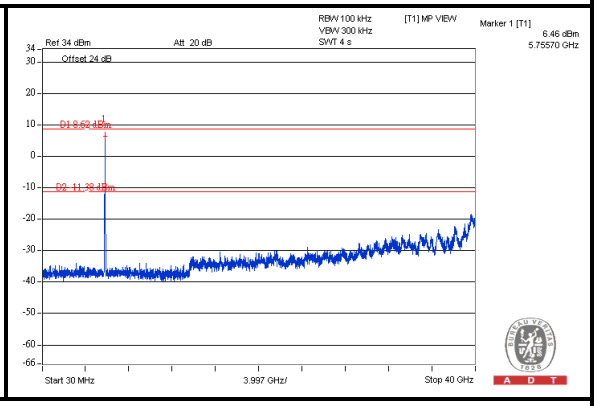
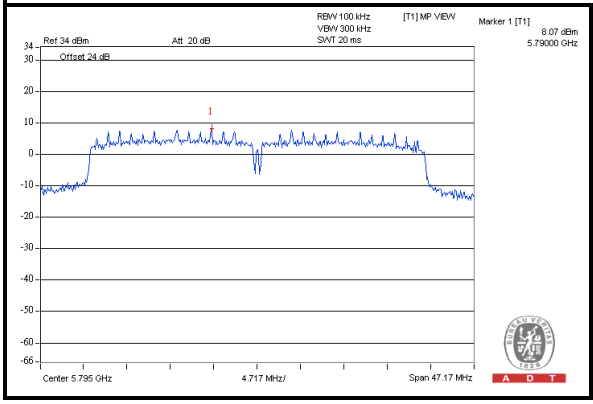
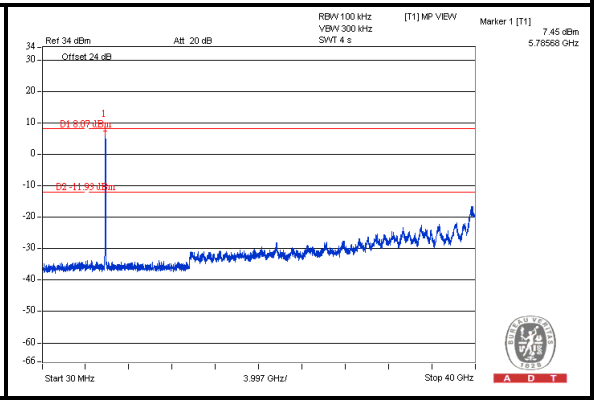




CH 159





6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

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

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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.

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

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

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