FCC TEST REPORT (15.247)

REPORT NO.:	RF120417E04
MODEL NO.:	DAP-1525
FCC ID:	KA2AP1525B1
RECEIVED:	Apr. 17, 2012
TESTED:	Apr. 30 to May 08, 2012
ISSUED:	May 30, 2012

APPLICANT:	D-Link Corporation
ADDRESS:	No.289, Sinhu 3rd Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.

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.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120417E04	Original release	May 30, 2012

1. CERTIFICATION

PRODUCT:	Wi-Fi Booster Access Point /MediaBridge
BRAND NAME:	D-Link
MODEL NO.:	DAP-1525
TEST SAMPLE:	MASS-PRODUCTION
APPLICANT:	D-Link Corporation
TESTED:	Apr. 30 to May 08, 2012
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)** ANSI C63.10-2009

The above equipment (Model: DAP-1525) 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:** *May 30, 2012*
(Lori Chung, Specialist)

APPROVED BY : _____ , **DATE:** *May 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 -15.00dB at 0.16562MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2389.84MHz & 2489.02MHz & 2390.00MHz
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 UFL not a standard connector.

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 -15.07dB at 0.16562MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 11510.00MHz
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 UFL not a standard connector.

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)	5.69 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	Wi-Fi Booster Access Point /MediaBridge
MODEL NO.	DAP-1525
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 300Mbps
OPERATING FREQUENCY	**For 15.407** 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b/g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
	For 15.247 (2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) **For 15.247 (5GHz)** 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)

MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 26.366mW 802.11n (20MHz): 32.067mW 802.11n (40MHz): 38.553mW **For 15.247 (2.4GHz)** 802.11b: 194.984mW 802.11g: 720.176mW 802.11n (20MHz): 727.889mW 802.11n (40MHz): 677.688mW **For 15.247 (5GHz)** 802.11a: 694.209mW 802.11n (20MHz): 578.183mW 802.11n (40MHz): 663.843mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x 1

NOTE:

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

Antenna 1						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	2.95	5G Band1: 4.00 5G Band2: 3.80 5G Band3: 3.82 5G Band4: 3.89	Dipole	UFL
Antenna 2						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	3.98	5G Band1: 4.01 5G Band2: 3.55 5G Band3: 3.96 5G Band4: 3.00	Dipole	UFL
Antenna 3						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	3.23	5G Band1: 2.91 5G Band2: 3.11 5G Band3: 3.50 5G Band4: 3.10	Dipole	UFL
Antenna 4						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	4.20	5G Band1: 4.10 5G Band2: 3.87 5G Band3: 4.24 5G Band4: 3.63	Dipole	UFL
Antenna 5						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	2.65	5G Band1: 3.30 5G Band2: 3.13 5G Band3: 3.96 5G Band4: 4.19	Dipole	UFL
Antenna 6						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	3.45	5G Band1: 3.94 5G Band2: 3.99 5G Band3: 4.05 5G Band4: 3.32	Dipole	UFL

For 802.11b: From the above antennas, **antenna 4** was selected as representative antenna for the test and its data was recorded in this report.

2. According to the above antennas for 802.11a/g/n, there are two antennas will transmit simultaneously (one is Horizontal and the other one is Vertical). As the antenna combination must be supplied with one Horizontal and one Vertical antennas, therefore the following antenna combination modes could be chosen as below table:

COMBINATION MODE	Antenna Configuration	
	CHAIN(1)	CHAIN(0)
1	Antenna 3 - H	Antenna 1 - V
2	Antenna 3 - H	Antenna 2 - V
3	Antenna 3 - H	Antenna 6 - V
4	Antenna 4 - H	Antenna 1 - V
5	Antenna 4 - H	Antenna 2 - V
6	Antenna 4 - H	Antenna 6 - V
7	Antenna 5 - H	Antenna 1 - V
8	Antenna 5 - H	Antenna 2 - V
9	Antenna 5 - H	Antenna 6 - V

Note: 1. This report Chose the max. Antenna gain to do final test.
2. For 2.4GHz & 5GHz Band1: Mode 5 was selected as representative antennas for the test.
3. For 5GHz Band4: Mode 7 was selected as representative antennas for the test.

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

Brand	Model No.	Manufacture	Spec.
D-Link	AMS3-1201250FU	AMIGO	Input: 100-240V, 50/60Hz Output: 12V, 1.25A DC output cable (unshielded, 1.5m)

4. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX/RX FUNCTION
802.11b	1Tx/1Rx
802.11g	2Tx/2Rx
802.11a	2Tx/2Rx
802.11n (20MHz)	2Tx/2Rx
802.11n (40MHz)	2Tx/2Rx

5. 2.4GHz and 5GHz technology cannot transmit at same time.
6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) with beam forming function.
7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
8. 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 (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		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

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 (40MHz):

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)
For 2.4 GHz 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	6.5
For 5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATIO N TYPE	DATA RATE (Mbps)
For 2.4 GHz 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	6.5
For 5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (40MHz)	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 (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (40MHz)	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 (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (40MHz)	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 (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (40MHz)	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 (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
For 2.4 GHz 802.11n (40MHz)	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 (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 74%RH	120Vac, 60Hz	Gavin Peng
RE<1G	25deg. C, 74%RH	120Vac, 60Hz	Frank Liu
RE≥1G	23deg. C, 68%RH	120Vac, 60Hz	Nelson Teng
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)

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

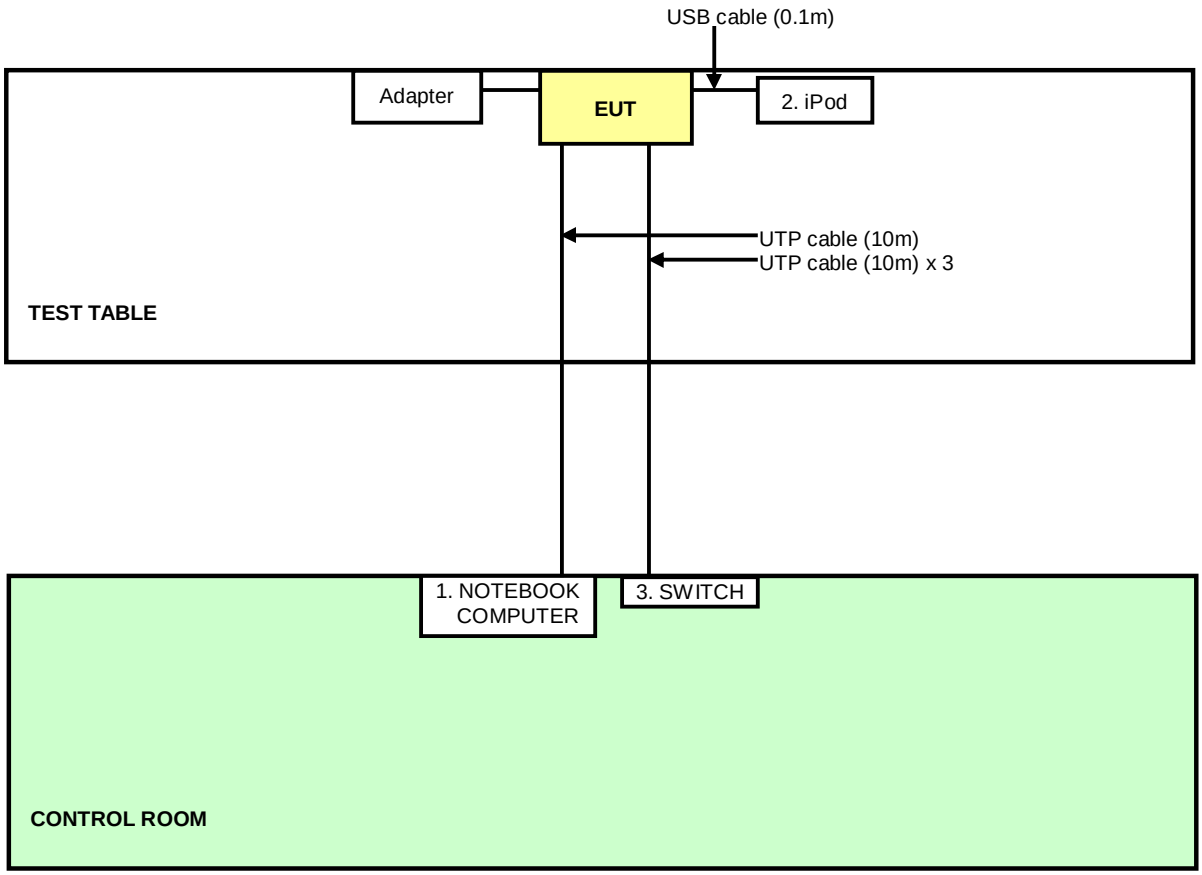
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	iPod	Apple	MC749TA/A	CC4DMFJUDFDM	NA
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP Cable (10m)
2	USB cable (0.1m)
3	UTP Cable (10m)

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4.TEST TYPES AND RESULTS (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	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	ESCS 30	100375	Mar. 08, 2012	Mar. 07, 2013
Line-Impedance Stabilization Network (for EUT)	NSLK8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 02, 2011	Nov. 01, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	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. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Apr. 30, 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.

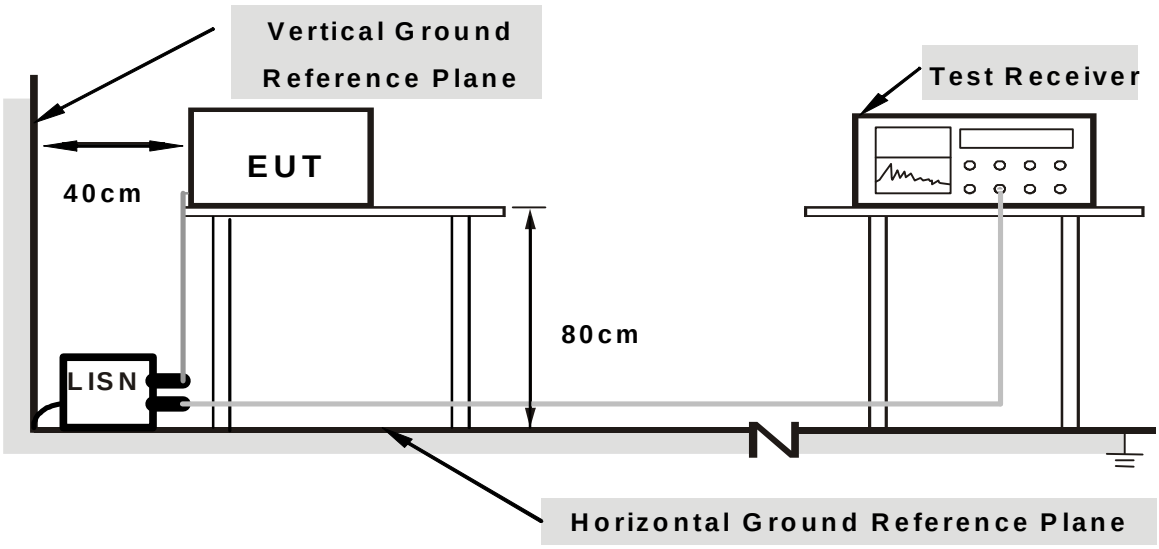
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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 partners and placed them outside of testing area.
3. The communication partners ran test program “RT3883QA_60MHz.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable transmission.

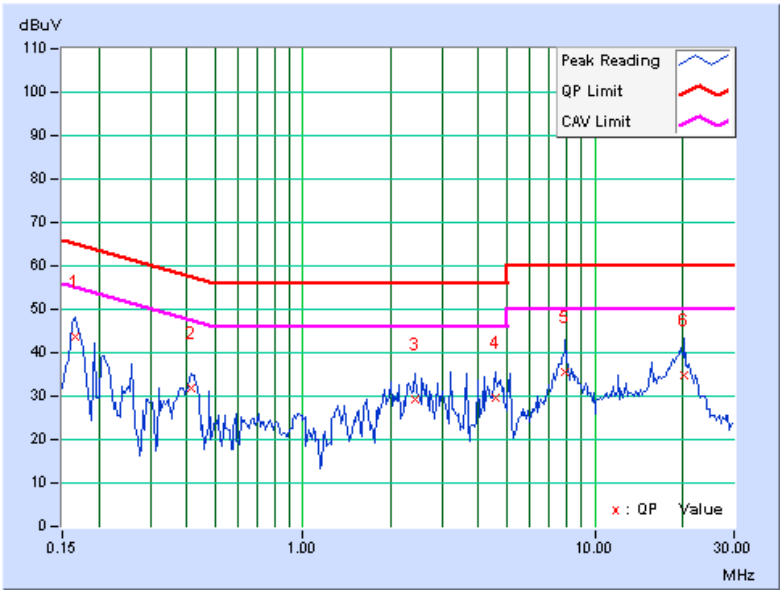
4.1.7 TEST RESULTS

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	0.16562	0.06	43.73	39.68	43.79	39.74	65.18	55.18	-21.39	-15.44
2	0.41563	0.07	31.88	22.35	31.95	22.42	57.54	47.54	-25.58	-25.11
3	2.42578	0.21	29.23	21.56	29.44	21.77	56.00	46.00	-26.56	-24.23
4	4.56641	0.28	29.20	23.64	29.48	23.92	56.00	46.00	-26.52	-22.08
5	7.89453	0.35	35.10	29.22	35.45	29.57	60.00	50.00	-24.55	-20.43
6	20.31250	0.63	34.32	28.99	34.95	29.62	60.00	50.00	-25.05	-20.38

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.

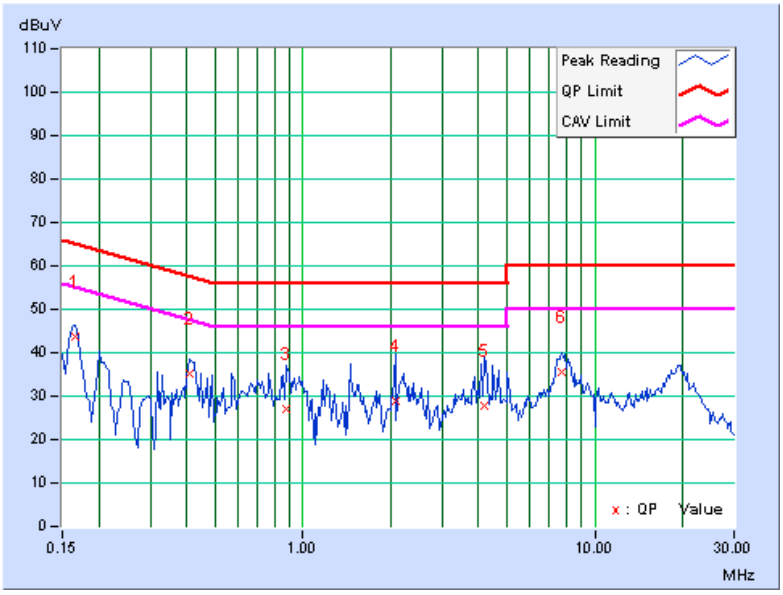


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

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	**0.16562**	**0.07**	**43.51**	**40.11**	**43.58**	**40.18**	**65.18**	**55.18**	**-21.60**	**-15.00**
2	0.41172	0.08	35.11	26.20	35.19	26.28	57.61	47.61	-22.42	-21.33
3	0.88047	0.11	26.86	17.82	26.97	17.93	56.00	46.00	-29.03	-28.07
4	2.07031	0.18	28.78	18.61	28.96	18.79	56.00	46.00	-27.04	-27.21
5	4.19531	0.25	27.53	21.77	27.78	22.02	56.00	46.00	-28.22	-23.98
6	7.73047	0.33	35.10	28.69	35.43	29.02	60.00	50.00	-24.57	-20.98

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
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
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
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5 The CANADA Site Registration No. is IC 7450H-3.
6 Tested Date: May 04, 2012

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30 , 2011	Nov. 29 , 2012
HP Pre_Amplifier	8449B	300801923	Oct. 31, 2011	Oct. 30, 2012
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 02, 2012	Apr. 01, 2013
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2011	Dec. 15, 2012
Schwarzbeck Horn_Antenna	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
CT Antenna Tower & Turn Table	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) and Spectrum Analyzer (model: FSP40) 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: May 04, 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 chamber room for below 1GHz test and 10 meter open site for above 1GHz 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.

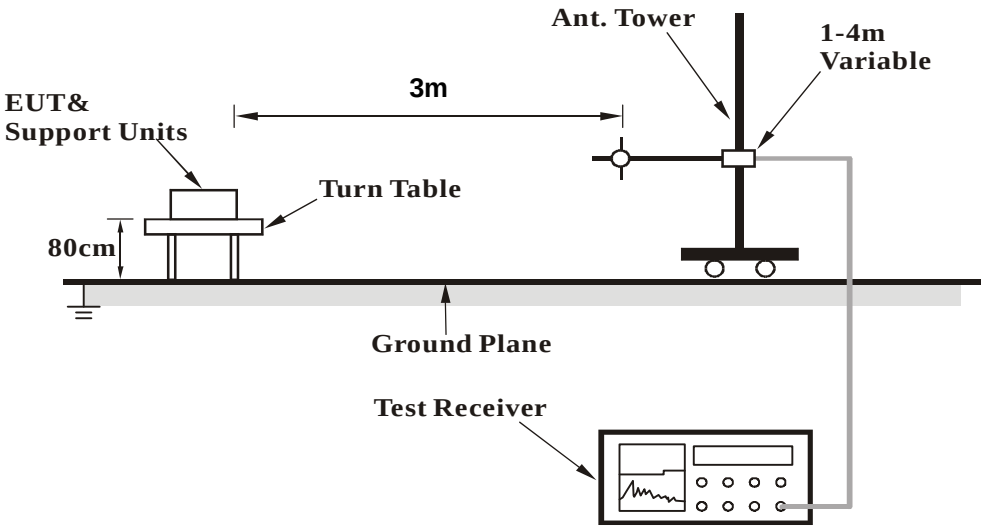
NOTE:

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

802.11n (20MHz)

CHANNEL	TX Channel 1	**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	124.97	33.8 QP	43.5	-9.7	2.00 H	106	21.05	12.79
2	250.03	40.1 QP	46.0	-5.9	1.00 H	125	26.82	13.30
3	374.97	40.6 QP	46.0	-5.5	2.00 H	274	23.47	17.08
4	500.02	34.3 QP	46.0	-11.7	1.50 H	84	14.22	20.04
5	624.96	30.4 QP	46.0	-15.6	1.50 H	57	7.89	22.54
6	874.95	30.7 QP	46.0	-15.3	1.00 H	126	4.01	26.66
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	74.05	35.0 QP	40.0	-5.0	1.00 V	360	23.93	11.08
2	124.97	31.8 QP	43.5	-11.8	1.00 V	187	18.95	12.80
3	250.03	40.3 QP	46.0	-5.8	1.50 V	360	26.95	13.30
4	374.97	36.9 QP	46.0	-9.1	1.50 V	256	19.81	17.08
5	500.02	36.4 QP	46.0	-9.6	1.00 V	93	16.32	20.04
6	624.96	30.9 QP	46.0	-15.1	1.00 V	92	8.32	22.54

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.

ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	61.4 PK	74.0	-12.6	1.24 H	16	30.08	31.32
2	2390.00	52.9 AV	54.0	-1.1	1.24 H	16	21.58	31.32
3	*2412.00	114.9 PK			1.43 H	9	83.51	31.39
4	*2412.00	113.0 AV			1.43 H	9	81.61	31.39
5	2490.19	61.3 PK	74.0	-12.7	1.43 H	15	29.62	31.68
6	2490.19	51.6 AV	54.0	-2.4	1.43 H	15	19.92	31.68
7	4824.00	46.8 PK	74.0	-27.2	1.69 H	58	10.63	36.17
8	4824.00	39.6 AV	54.0	-14.4	1.69 H	58	3.43	36.17
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	55.6 PK	74.0	-18.4	1.27 V	67	24.28	31.32
2	2390.00	43.9 AV	54.0	-10.1	1.27 V	67	12.58	31.32
3	*2412.00	101.7 PK			1.27 V	67	70.31	31.39
4	*2412.00	99.6 AV			1.27 V	67	68.21	31.39
5	4824.00	37.4 PK	74.0	-36.6	1.00 V	78	1.23	36.17
6	4824.00	32.6 AV	54.0	-21.4	1.00 V	78	-3.57	36.17

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	2381.60	63.1 PK	74.0	-10.9	1.43 H	41	31.81	31.29
2	2381.60	53.0 AV	54.0	-1.0	1.43 H	41	21.71	31.29
3	*2437.00	117.3 PK			1.45 H	19	85.81	31.49
4	*2437.00	115.2 AV			1.45 H	19	83.71	31.49
5	2492.27	63.9 PK	74.0	-10.1	1.45 H	17	32.21	31.69
6	2492.27	53.4 AV	54.0	-0.6	1.45 H	17	21.71	31.69
7	4874.00	50.9 PK	74.0	-23.1	1.00 H	39	14.59	36.31
8	4874.00	47.4 AV	54.0	-6.6	1.00 H	39	11.09	36.31
9	7311.00	48.9 PK	74.0	-25.1	1.15 H	261	6.67	42.23
10	7311.00	38.2 AV	54.0	-15.8	1.15 H	261	-4.03	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.1 PK			1.25 V	64	71.61	31.49
2	*2437.00	101.1 AV			1.25 V	64	69.61	31.49
3	4874.00	45.4 PK	74.0	-28.6	1.00 V	57	9.09	36.31
4	4874.00	37.1 AV	54.0	-16.9	1.00 V	57	0.79	36.31
5	7311.00	48.7 PK	74.0	-25.3	1.08 V	188	6.47	42.23
6	7311.00	36.7 AV	54.0	-17.3	1.08 V	188	-5.53	42.23

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	115.3 PK			1.45 H	18	83.72	31.58
2	*2462.00	113.3 AV			1.45 H	18	81.72	31.58
3	2483.87	62.2 PK	74.0	-11.8	1.45 H	17	30.54	31.66
4	2483.87	52.5 AV	54.0	-1.5	1.45 H	17	20.84	31.66
5	4924.00	47.7 PK	74.0	-26.3	1.86 H	52	11.28	36.42
6	4924.00	42.5 AV	54.0	-11.5	1.86 H	52	6.08	36.42
7	7386.00	49.2 PK	74.0	-24.8	1.31 H	243	6.68	42.52
8	7386.00	37.4 AV	54.0	-16.6	1.31 H	243	-5.12	42.52
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	102.0 PK			1.32 V	70	70.42	31.58
2	*2462.00	99.8 AV			1.32 V	70	68.22	31.58
3	2483.50	57.4 PK	74.0	-16.6	1.32 V	70	25.74	31.66
4	2483.50	45.8 AV	54.0	-8.2	1.32 V	70	14.14	31.66
5	4924.00	37.6 PK	74.0	-36.4	1.00 V	62	1.18	36.42
6	4924.00	32.6 AV	54.0	-21.4	1.00 V	62	-3.82	36.42
7	7386.00	48.3 PK	74.0	-25.7	1.04 V	187	5.78	42.52
8	7386.00	36.3 AV	54.0	-17.7	1.04 V	187	-6.22	42.52

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)
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	2389.84	63.3 PK	74.0	-10.7	1.48 H	9	31.98	31.32
2	**2389.84**	**53.5 AV**	**54.0**	**-0.5**	**1.48 H**	**9**	**22.18**	**31.32**
3	*2412.00	118.5 PK			1.44 H	14	87.11	31.39
4	*2412.00	109.6 AV			1.44 H	14	78.21	31.39
5	4824.00	39.3 PK	74.0	-34.7	1.79 H	63	3.13	36.17
6	4824.00	35.4 AV	54.0	-18.6	1.79 H	63	-0.77	36.17
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	64.6 PK	74.0	-9.4	1.00 V	189	33.28	31.32
2	2390.00	49.2 AV	54.0	-4.8	1.00 V	189	17.88	31.32
3	*2412.00	114.5 PK			1.52 V	187	83.11	31.39
4	*2412.00	106.2 AV			1.52 V	187	74.81	31.39
5	4824.00	37.1 PK	74.0	-36.9	1.00 V	59	0.93	36.17
6	4824.00	32.0 AV	54.0	-22.0	1.00 V	59	-4.17	36.17

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	2384.80	63.2 PK	74.0	-10.8	1.46 H	13	31.90	31.30
2	2384.80	53.3 AV	54.0	-0.7	1.46 H	13	22.00	31.30
3	*2437.00	117.2 PK			1.43 H	15	85.71	31.49
4	*2437.00	108.6 AV			1.43 H	15	77.11	31.49
5	2489.20	63.0 PK	74.0	-11.0	1.43 H	12	31.32	31.68
6	2489.20	53.1 AV	54.0	-0.9	1.43 H	12	21.42	31.68
7	4874.00	40.6 PK	74.0	-33.4	1.66 H	79	4.29	36.31
8	4874.00	35.7 AV	54.0	-18.3	1.66 H	79	-0.61	36.31
9	7311.00	48.3 PK	74.0	-25.7	1.29 H	256	6.07	42.23
10	7311.00	36.4 AV	54.0	-17.6	1.29 H	256	-5.83	42.23
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	2384.64	61.3 PK	74.0	-12.7	1.57 V	186	30.00	31.30
2	2384.64	50.8 AV	54.0	-3.2	1.57 V	186	19.50	31.30
3	*2437.00	112.7 PK			1.00 V	172	81.21	31.49
4	*2437.00	104.0 AV			1.00 V	172	72.51	31.49
5	2489.14	59.0 PK	74.0	-15.0	1.52 V	159	27.32	31.68
6	2489.14	48.4 AV	54.0	-5.6	1.52 V	159	16.72	31.68
7	4874.00	37.2 PK	74.0	-36.8	1.02 V	58	0.89	36.31
8	4874.00	32.0 AV	54.0	-22.0	1.02 V	58	-4.31	36.31
9	7311.00	48.5 PK	74.0	-25.5	1.02 V	185	6.27	42.23
10	7311.00	36.5 AV	54.0	-17.5	1.02 V	185	-5.73	42.23

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	118.3 PK			1.44 H	19	86.72	31.58
2	*2462.00	110.0 AV			1.44 H	19	78.42	31.58
3	2483.50	67.5 PK	74.0	-6.5	1.44 H	13	35.84	31.66
4	2483.50	53.2 AV	54.0	-0.8	1.44 H	13	21.54	31.66
5	4924.00	40.8 PK	74.0	-33.2	1.60 H	73	4.38	36.42
6	4924.00	35.7 AV	54.0	-18.3	1.60 H	73	-0.72	36.42
7	7386.00	48.1 PK	74.0	-25.9	1.27 H	262	5.58	42.52
8	7386.00	36.5 AV	54.0	-17.5	1.27 H	262	-6.02	42.52
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	112.7 PK			1.47 V	256	81.12	31.58
2	*2462.00	104.1 AV			1.47 V	256	72.52	31.58
3	2483.50	59.1 PK	74.0	-14.9	1.47 V	256	27.44	31.66
4	2483.50	46.3 AV	54.0	-7.7	1.47 V	256	14.64	31.66
5	4924.00	37.3 PK	74.0	-36.7	1.00 V	74	0.88	36.42
6	4924.00	32.4 AV	54.0	-21.6	1.00 V	74	-4.02	36.42
7	7386.00	48.7 PK	74.0	-25.3	1.00 V	184	6.18	42.52
8	7386.00	36.9 AV	54.0	-17.1	1.00 V	184	-5.62	42.52

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	2360.40	65.7 PK	74.0	-8.3	1.25 H	18	34.48	31.22
2	2360.40	53.4 AV	54.0	-0.6	1.25 H	18	22.18	31.22
3	*2412.00	116.4 PK			1.44 H	16	85.01	31.39
4	*2412.00	107.9 AV			1.44 H	16	76.51	31.39
5	4824.00	41.1 PK	74.0	-32.9	1.55 H	84	4.93	36.17
6	4824.00	35.9 AV	54.0	-18.1	1.55 H	84	-0.27	36.17
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	64.9 PK	74.0	-9.1	1.01 V	187	33.58	31.32
2	2390.00	49.4 AV	54.0	-4.6	1.01 V	187	18.08	31.32
3	*2412.00	113.2 PK			1.45 V	251	81.81	31.39
4	*2412.00	104.3 AV			1.45 V	251	72.91	31.39
5	4824.00	37.2 PK	74.0	-36.8	1.00 V	72	1.03	36.17
6	4824.00	32.2 AV	54.0	-21.8	1.00 V	72	-3.97	36.17

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	2384.96	63.5 PK	74.0	-10.5	1.46 H	13	32.20	31.30
2	2384.96	53.2 AV	54.0	-0.8	1.46 H	13	21.90	31.30
3	*2437.00	116.2 PK			1.45 H	17	84.71	31.49
4	*2437.00	107.5 AV			1.45 H	17	76.01	31.49
5	2489.02	65.6 PK	74.0	-8.4	1.44 H	19	33.92	31.68
6	**2489.02**	**53.5 AV**	**54.0**	**-0.5**	**1.44 H**	**19**	**21.82**	**31.68**
7	4874.00	41.0 PK	74.0	-33.0	1.56 H	61	4.69	36.31
8	4874.00	35.7 AV	54.0	-18.3	1.56 H	61	-0.61	36.31
9	7311.00	47.7 PK	74.0	-26.3	1.32 H	260	5.47	42.23
10	7311.00	36.2 AV	54.0	-17.8	1.32 H	260	-6.03	42.23
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	113.2 PK			1.44 V	237	81.71	31.49
2	*2437.00	104.2 AV			1.44 V	237	72.71	31.49
3	4874.00	37.2 PK	74.0	-36.8	1.02 V	67	0.89	36.31
4	4874.00	32.4 AV	54.0	-21.6	1.02 V	67	-3.91	36.31
5	7311.00	48.9 PK	74.0	-25.1	1.00 V	170	6.67	42.23
6	7311.00	37.2 AV	54.0	-16.8	1.00 V	170	-5.03	42.23

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	116.1 PK			1.44 H	15	84.52	31.58
2	*2462.00	108.0 AV			1.44 H	15	76.42	31.58
3	2483.50	66.4 PK	74.0	-7.6	1.45 H	16	34.74	31.66
4	2483.50	53.2 AV	54.0	-0.8	1.45 H	16	21.54	31.66
5	4924.00	40.3 PK	74.0	-33.7	1.54 H	53	3.88	36.42
6	4924.00	35.3 AV	54.0	-18.7	1.54 H	53	-1.12	36.42
7	7386.00	47.9 PK	74.0	-26.1	1.28 H	261	5.38	42.52
8	7386.00	36.7 AV	54.0	-17.3	1.28 H	261	-5.82	42.52
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	113.1 PK			1.45 V	245	81.52	31.58
2	*2462.00	104.4 AV			1.45 V	245	72.82	31.58
3	2483.50	58.8 PK	74.0	-15.2	1.52 V	264	27.14	31.66
4	2483.50	46.2 AV	54.0	-7.8	1.52 V	264	14.54	31.66
5	4924.00	37.3 PK	74.0	-36.7	1.00 V	55	0.88	36.42
6	4924.00	32.5 AV	54.0	-21.5	1.00 V	55	-3.92	36.42
7	7386.00	48.4 PK	74.0	-25.6	1.00 V	155	5.88	42.52
8	7386.00	36.8 AV	54.0	-17.2	1.00 V	155	-5.72	42.52

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	68.1 PK	74.0	-5.9	1.44 H	13	36.78	31.32
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**1.44 H**	**13**	**22.18**	**31.32**
3	*2422.00	109.5 PK			1.44 H	17	78.07	31.43
4	*2422.00	100.5 AV			1.44 H	17	69.07	31.43
5	4844.00	40.4 PK	74.0	-33.6	1.58 H	63	4.18	36.22
6	4844.00	35.6 AV	54.0	-18.4	1.58 H	63	-0.62	36.22
7	7266.00	48.0 PK	74.0	-26.0	1.24 H	271	5.87	42.13
8	7266.00	37.1 AV	54.0	-16.9	1.24 H	271	-5.03	42.13
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	1.02 V	198	33.98	31.32
2	2390.00	49.7 AV	54.0	-4.3	1.02 V	198	18.38	31.32
3	*2422.00	106.2 PK			1.44 V	251	74.77	31.43
4	*2422.00	96.3 AV			1.44 V	251	64.87	31.43
5	4844.00	37.5 PK	74.0	-36.5	1.00 V	48	1.28	36.22
6	4844.00	32.7 AV	54.0	-21.3	1.00 V	48	-3.52	36.22
7	7266.00	48.2 PK	74.0	-25.8	1.00 V	143	6.07	42.13
8	7266.00	36.8 AV	54.0	-17.2	1.00 V	143	-5.33	42.13

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	69.9 PK	74.0	-4.1	1.26 H	19	38.58	31.32
2	2390.00	52.1 AV	54.0	-1.9	1.26 H	19	20.78	31.32
3	*2437.00	115.0 PK			1.46 H	21	83.51	31.49
4	*2437.00	106.1 AV			1.46 H	21	74.61	31.49
5	2483.50	69.2 PK	74.0	-4.8	1.45 H	14	37.54	31.66
6	2483.50	53.3 AV	54.0	-0.7	1.45 H	14	21.64	31.66
7	4874.00	40.5 PK	74.0	-33.5	1.53 H	66	4.19	36.31
8	4874.00	35.7 AV	54.0	-18.3	1.53 H	66	-0.61	36.31
9	7311.00	47.4 PK	74.0	-26.6	1.28 H	277	5.17	42.23
10	7311.00	36.8 AV	54.0	-17.2	1.28 H	277	-5.43	42.23
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	112.6 PK			1.45 V	279	81.11	31.49
2	*2437.00	102.3 AV			1.45 V	279	70.81	31.49
3	4874.00	37.5 PK	74.0	-36.5	1.00 V	63	1.19	36.31
4	4874.00	32.5 AV	54.0	-21.5	1.00 V	63	-3.81	36.31
5	7311.00	48.3 PK	74.0	-25.7	1.00 V	143	6.07	42.23
6	7311.00	36.7 AV	54.0	-17.3	1.00 V	143	-5.53	42.23

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	108.2 PK			1.45 H	14	76.66	31.54
2	*2452.00	99.7 AV			1.45 H	14	68.16	31.54
3	2483.50	68.3 PK	74.0	-5.7	1.45 H	19	36.64	31.66
4	2483.50	53.4 AV	54.0	-0.6	1.45 H	19	21.74	31.66
5	4904.00	40.5 PK	74.0	-33.5	1.55 H	80	4.11	36.39
6	4904.00	36.0 AV	54.0	-18.0	1.55 H	80	-0.39	36.39
7	7356.00	47.7 PK	74.0	-26.3	1.27 H	271	5.30	42.40
8	7356.00	36.8 AV	54.0	-17.2	1.27 H	271	-5.60	42.40
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	*2452.00	106.3 PK			1.45 V	212	74.76	31.54
2	*2452.00	96.1 AV			1.45 V	212	64.56	31.54
3	2483.50	58.6 PK	74.0	-15.4	1.50 V	280	26.94	31.66
4	2483.50	46.0 AV	54.0	-8.0	1.50 V	280	14.34	31.66
5	4904.00	37.0 PK	74.0	-37.0	1.00 V	61	0.61	36.39
6	4904.00	32.1 AV	54.0	-21.9	1.00 V	61	-4.29	36.39
7	7356.00	47.7 PK	74.0	-26.3	1.03 V	138	5.30	42.40
8	7356.00	36.3 AV	54.0	-17.7	1.03 V	138	-6.10	42.40

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.

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 11, 2011	May 10, 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 : May 08, 2012

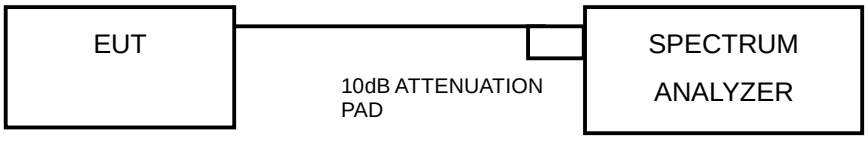
4.3.3 TEST PROCEDURE

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	11.49	0.5	PASS
6	2437	11.44	0.5	PASS
11	2462	11.85	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.31	16.24	0.5	PASS
6	2437	16.31	16.33	0.5	PASS
11	2462	16.29	16.18	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.20	17.18	0.5	PASS
6	2437	17.05	17.18	0.5	PASS
11	2462	17.22	17.22	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.02	35.97	0.5	PASS
6	2437	35.99	35.88	0.5	PASS
9	2452	35.82	35.76	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	1014008	Apr. 28, 2012	Apr. 27, 2013
Peak Power Sensor	MA2411B	0917122	Apr. 28, 2012	Apr. 27, 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 : May 08, 2012

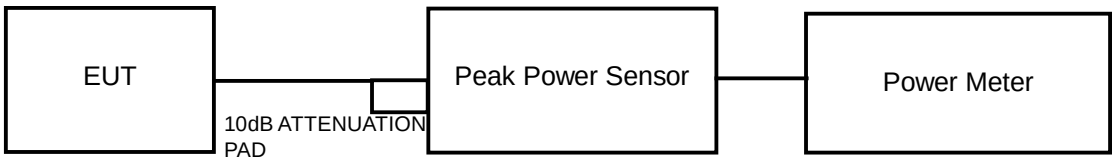
4.4.3 TEST PROCEDURES

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	114.815	20.60	30	PASS
6	2437	194.984	22.90	30	PASS
11	2462	102.329	20.10	30	PASS

802.11g

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	25.20	25.90	720.176	28.57	28.90	PASS
6	2437	24.80	25.20	633.126	28.01	28.90	PASS
11	2462	25.30	25.70	710.379	28.51	28.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1

The effective legacy gain is 7.1 dBi, 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	25.30	25.90	727.889	28.62	28.90	PASS
6	2437	25.30	25.20	669.975	28.26	28.90	PASS
11	2462	25.20	24.50	612.969	27.87	28.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1

The effective legacy gain is 7.1 dBi, 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	21.40	21.60	282.582	24.51	28.90	PASS
6	2437	25.30	25.30	677.688	28.31	28.90	PASS
9	2452	21.30	20.50	247.098	23.93	28.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1

The effective legacy gain is 7.1 dBi, 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 11, 2011	May 10, 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 : May 08, 2012

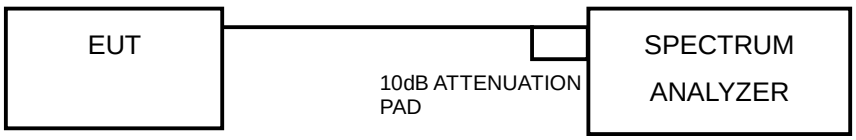
4.5.3 TEST PROCEDURE

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	11.32	-3.91	8	PASS
6	2437	13.37	-1.86	8	PASS
11	2462	9.14	-6.09	8	PASS

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	7.81	-7.42	3.01	-4.41	6.90	PASS
	6	2437	7.75	-7.48	3.01	-4.47	6.90	PASS
	11	2462	7.59	-7.64	3.01	-4.63	6.90	PASS
1	1	2412	8.77	-6.46	3.01	-3.45	6.90	PASS
	6	2437	9.42	-5.81	3.01	-2.80	6.90	PASS
	11	2462	8.91	-6.32	3.01	-3.31	6.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1
The effective legacy gain is 7.1 dBi, 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	8.09	-7.14	3.01	-4.13	6.90	PASS
	6	2437	7.12	-8.11	3.01	-5.10	6.90	PASS
	11	2462	6.30	-8.93	3.01	-5.92	6.90	PASS
1	1	2412	8.09	-7.14	3.01	-4.13	6.90	PASS
	6	2437	7.54	-7.69	3.01	-4.68	6.90	PASS
	11	2462	7.28	-7.95	3.01	-4.94	6.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1
The effective legacy gain is 7.1 dBi, 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	-0.01	-15.24	3.01	-12.23	6.90	PASS
	6	2437	4.39	-10.84	3.01	-7.83	6.90	PASS
	9	2452	-1.37	-16.60	3.01	-13.59	6.90	PASS
1	3	2422	0.37	-14.86	3.01	-11.85	6.90	PASS
	6	2437	4.27	-10.96	3.01	-7.95	6.90	PASS
	9	2452	-1.76	-16.99	3.01	-13.98	6.90	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.1
The effective legacy gain is 7.1 dBi, 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 11, 2011	May 10, 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 : May 08, 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.

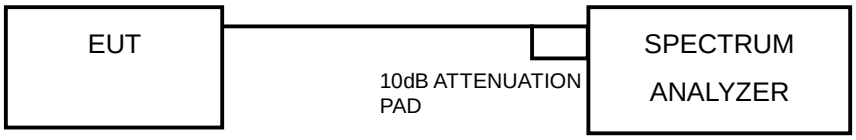
MEASUREMENT PROCEDURE OOBE

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

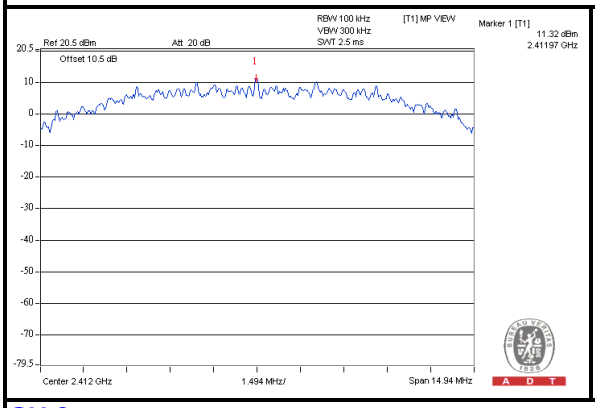
4.6.7 TEST RESULTS

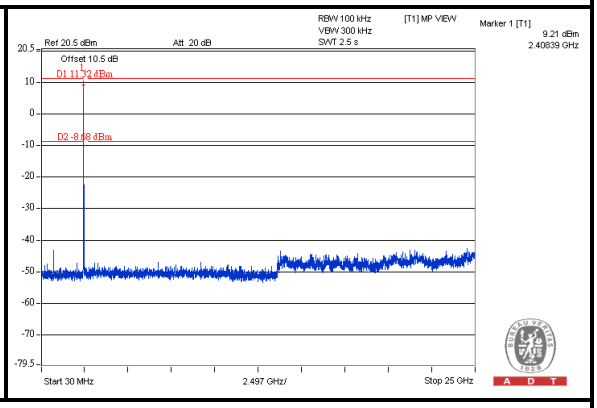
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

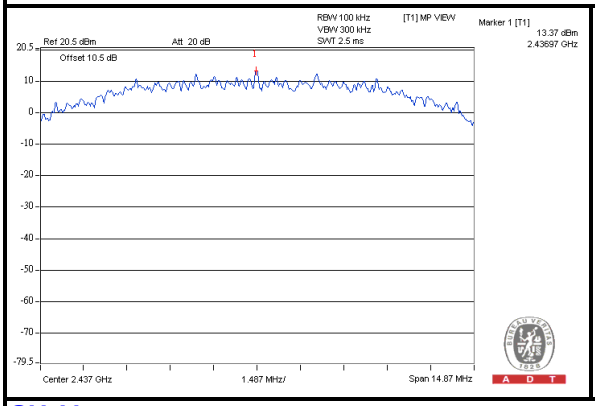
802.11b

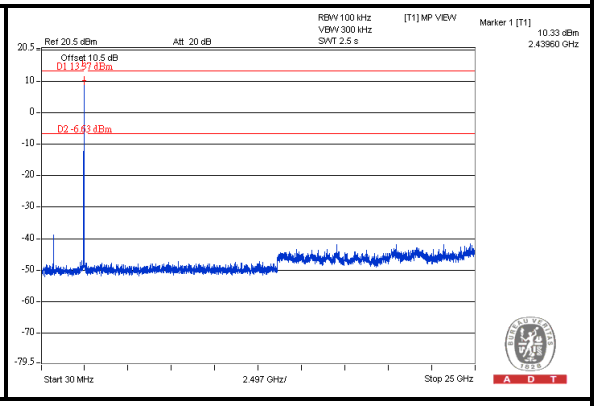
CH 1



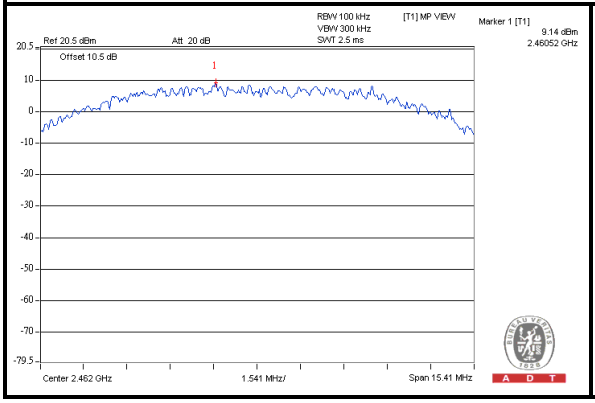


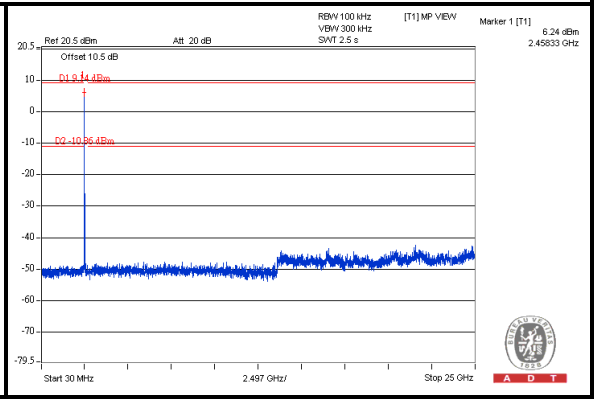
CH 6





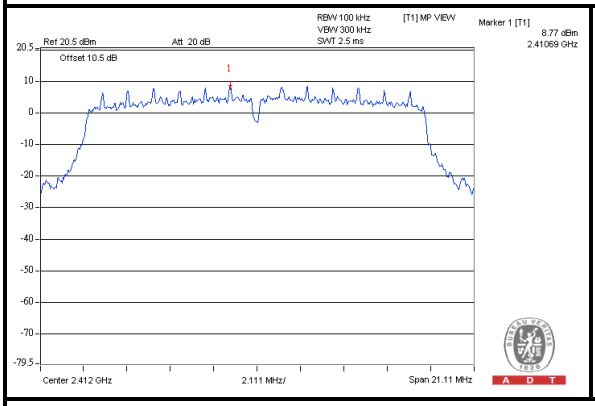
CH 11

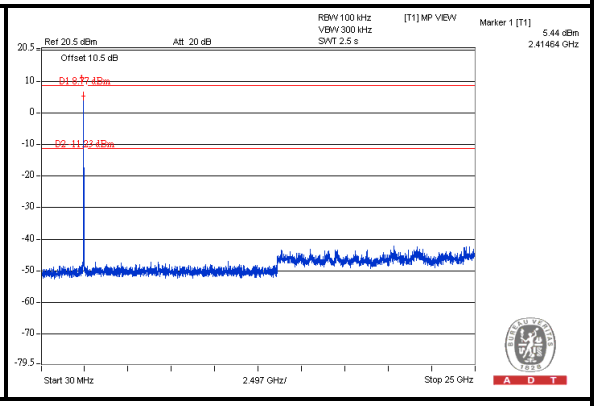




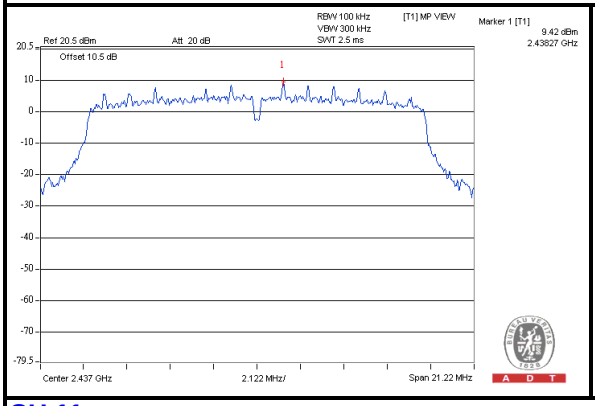
802.11g

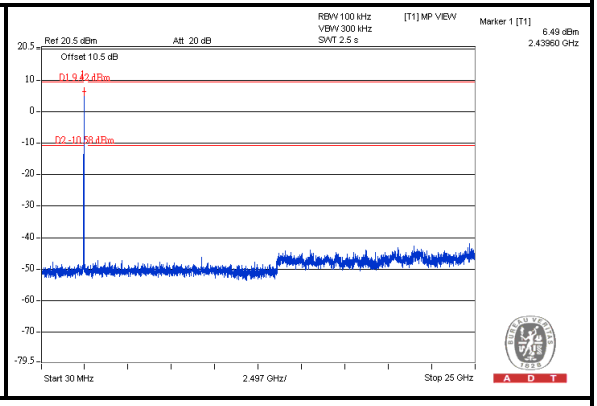
CH 1



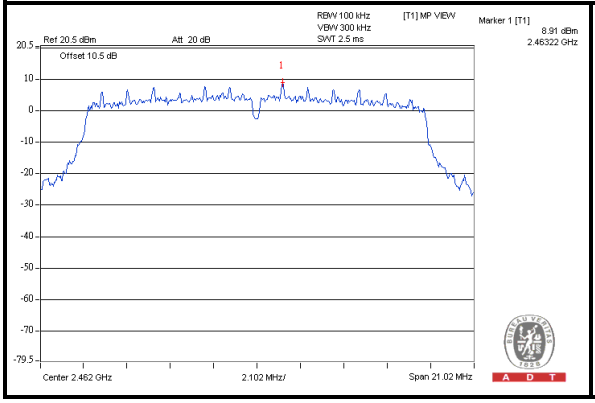


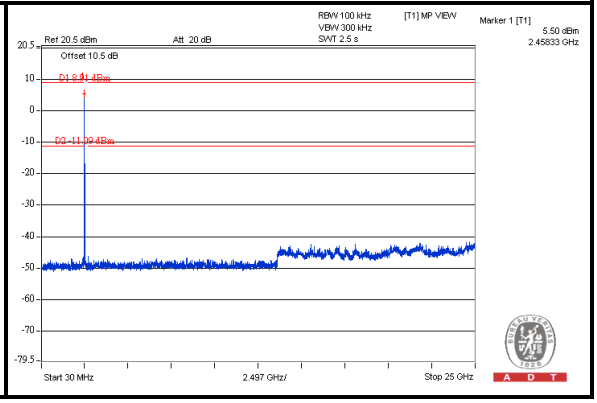
CH 6





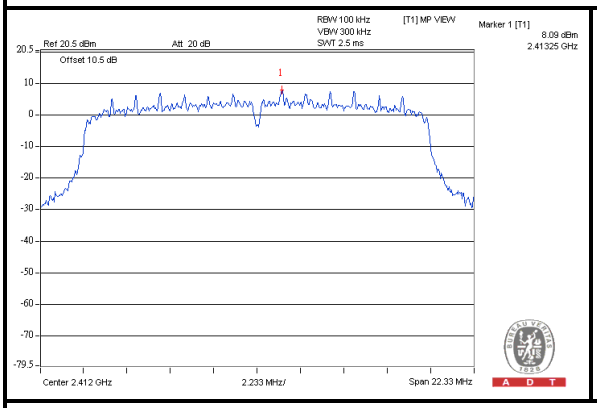
CH 11

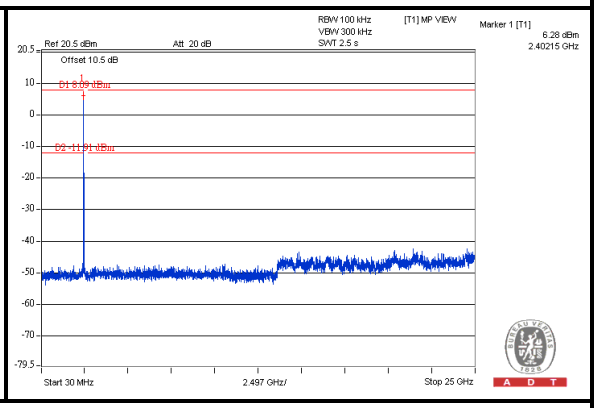




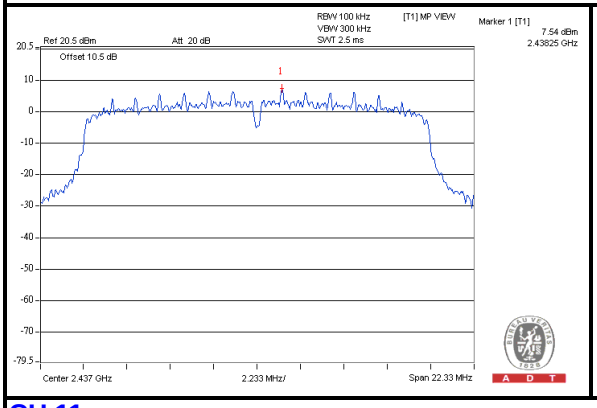
802.11n (20MHz)

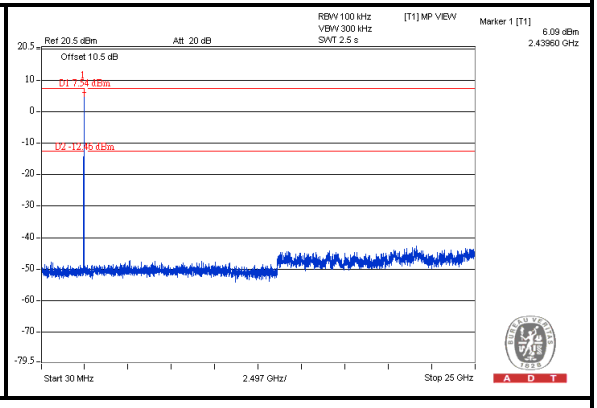
CH 1



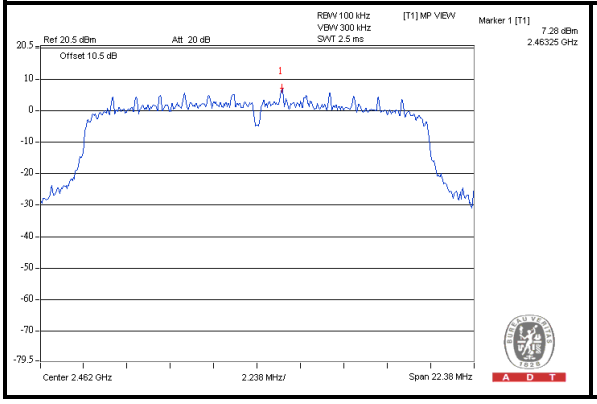


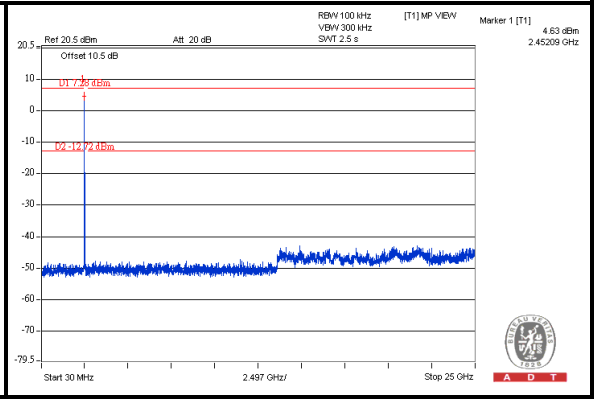
CH 6





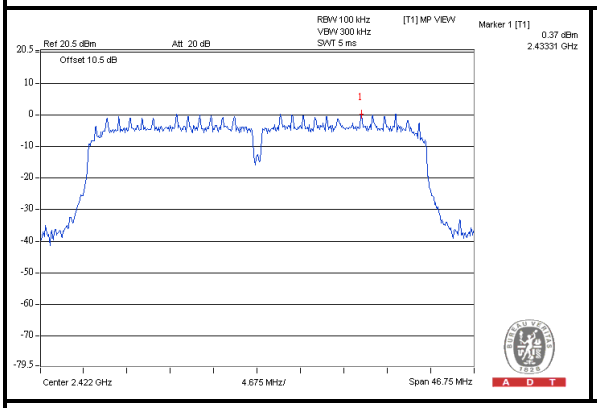
CH 11

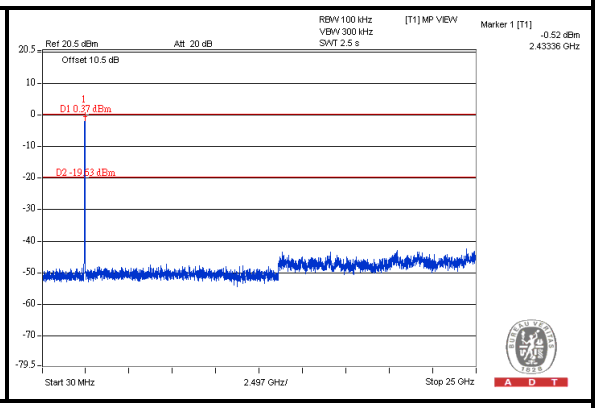




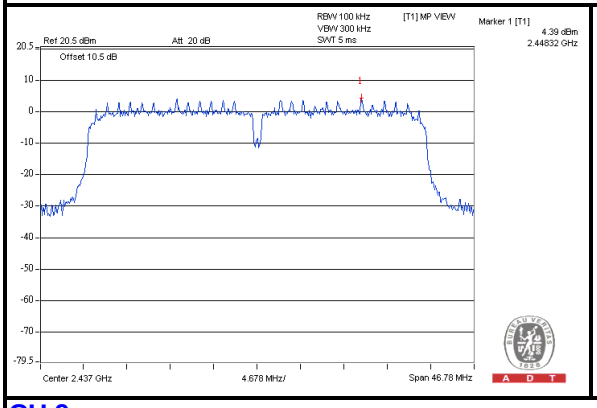
802.11n (40MHz)

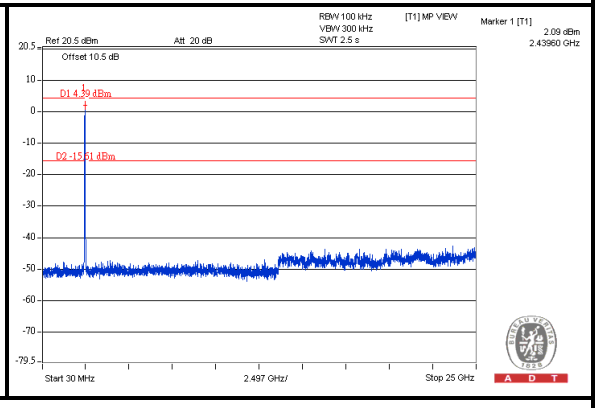
CH 3



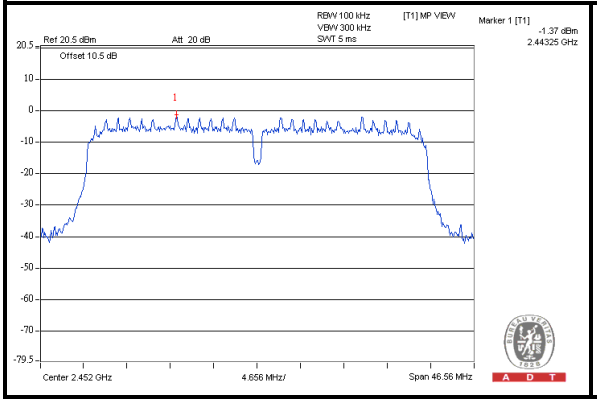


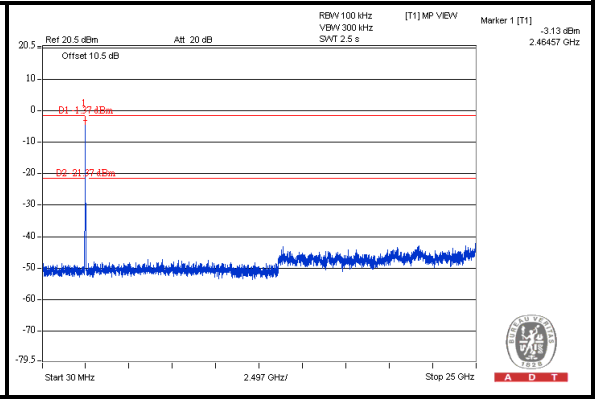
CH 6





CH 9





5. 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 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 08, 2012	Mar. 07, 2013
Line-Impedance Stabilization Network (for EUT)	NSLK8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 02, 2011	Nov. 01, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	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. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Apr. 30, 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.

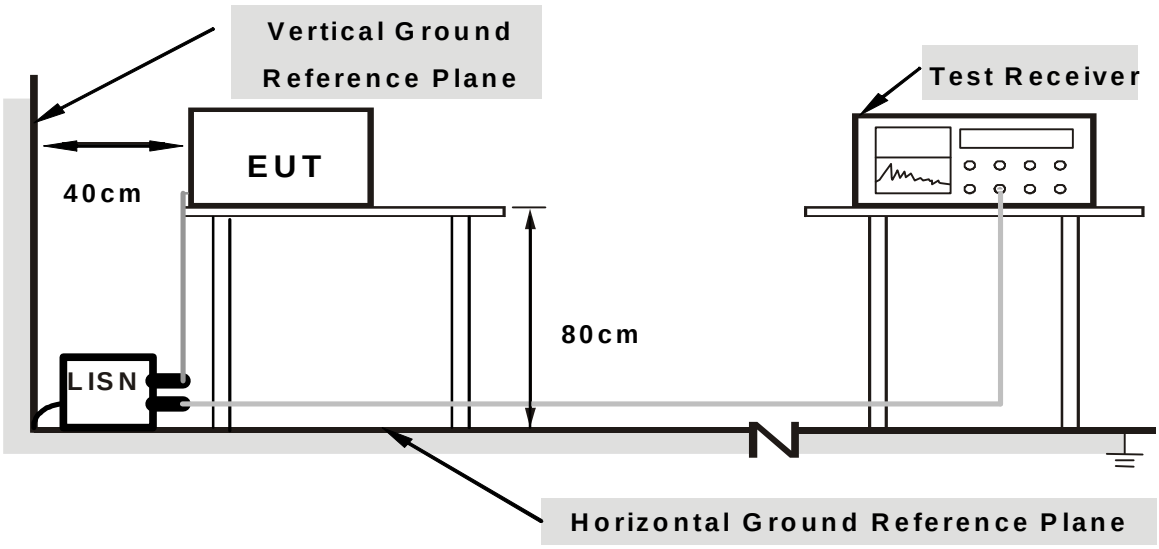
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

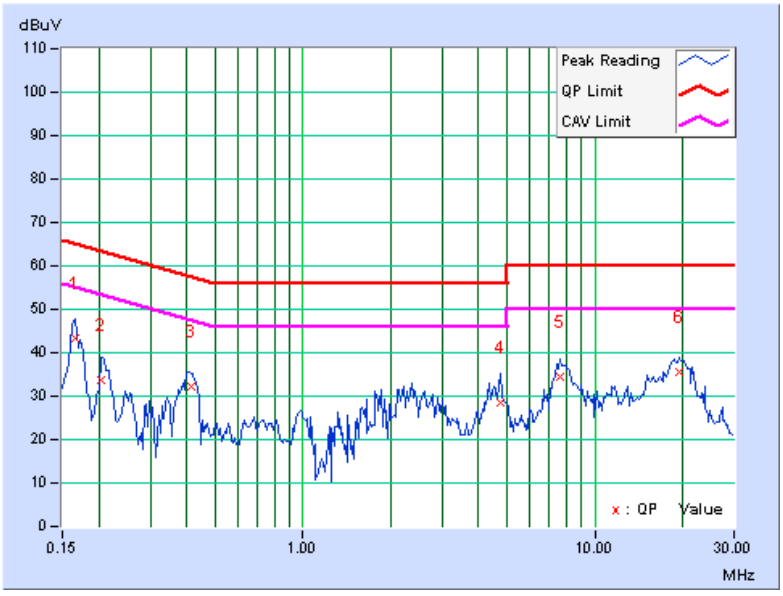
5.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

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	**0.16562**	**0.06**	**43.27**	**40.05**	**43.33**	**40.11**	**65.18**	**55.18**	**-21.85**	**-15.07**
2	0.20469	0.06	33.78	26.76	33.84	26.82	63.42	53.42	-29.58	-26.60
3	0.41694	0.07	32.11	22.86	32.18	22.93	57.51	47.51	-25.33	-24.58
4	4.72656	0.29	28.35	23.28	28.64	23.57	56.00	46.00	-27.36	-22.43
5	7.60156	0.35	34.25	28.37	34.60	28.72	60.00	50.00	-25.40	-21.28
6	19.55859	0.61	34.84	30.05	35.45	30.66	60.00	50.00	-24.55	-19.34

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.

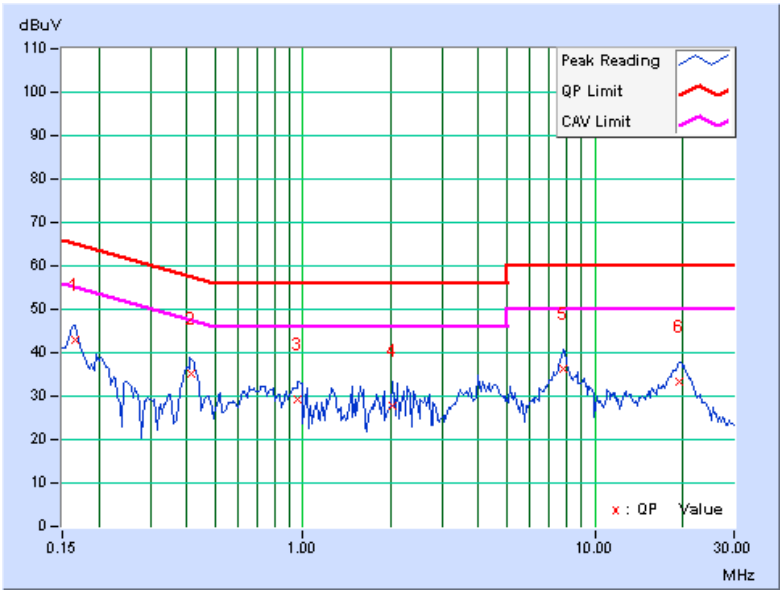


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

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	0.16562	0.07	42.85	39.93	42.92	40.00	65.18	55.18	-22.26	-15.18
2	0.41547	0.08	35.07	25.76	35.15	25.84	57.54	47.54	-22.39	-21.70
3	0.95859	0.12	29.24	20.38	29.36	20.50	56.00	46.00	-26.64	-25.50
4	2.01953	0.18	27.44	18.31	27.62	18.49	56.00	46.00	-28.38	-27.51
5	7.78906	0.33	35.92	29.98	36.25	30.31	60.00	50.00	-23.75	-19.69
6	19.49609	0.59	32.79	27.78	33.38	28.37	60.00	50.00	-26.62	-21.63

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

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
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
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5 The CANADA Site Registration No. is IC 7450H-3.
6 Tested Date: May 04, 2012

For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30 , 2011	Nov. 29 , 2012
HP Pre_Amplifier	8449B	300801923	Oct. 31, 2011	Oct. 30, 2012
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 02, 2012	Apr. 01, 2013
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2011	Dec. 15, 2012
Schwarzbeck Horn_Antenna	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
CT Antenna Tower & Turn Table	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) and Spectrum Analyzer (model: FSP40) 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: May 04, 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 a 3 meter chamber room for below 1GHz test and 10 meter open site for above 1GHz 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.

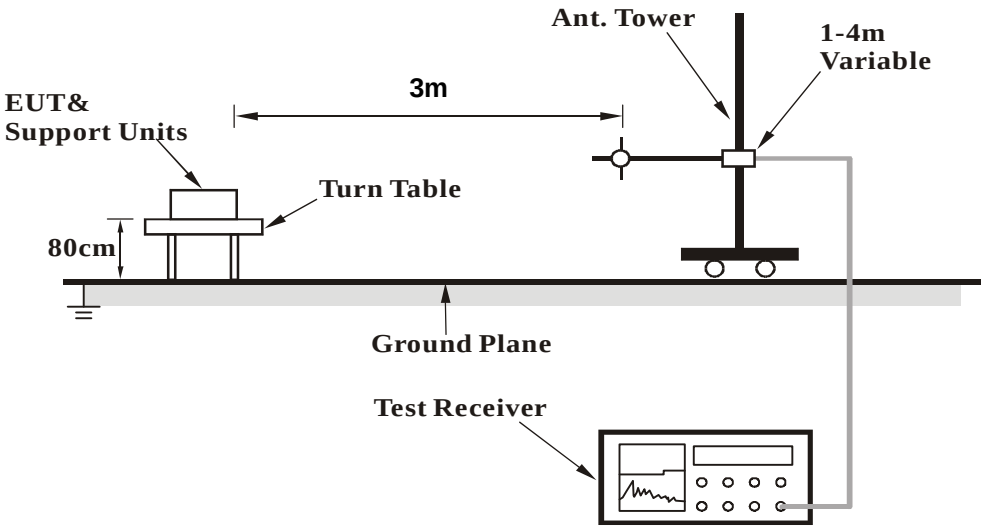
NOTE:

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 4.2.6

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (20MHz)

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	124.97	33.3 QP	43.5	-10.2	2.00 H	243	20.55	12.79
2	250.03	40.7 QP	46.0	-5.3	1.00 H	135	27.37	13.30
3	374.97	40.9 QP	46.0	-5.2	2.00 H	263	23.77	17.08
4	500.02	34.7 QP	46.0	-11.3	1.50 H	62	14.69	20.04
5	624.96	30.2 QP	46.0	-15.8	1.50 H	49	7.69	22.54
6	874.95	30.3 QP	46.0	-15.8	1.00 H	53	3.59	26.66
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	74.05	35.6 QP	40.0	-4.4	1.00 V	107	24.47	11.09
2	124.97	31.8 QP	43.5	-11.7	1.00 V	109	19.02	12.79
3	250.03	40.6 QP	46.0	-5.4	1.67 V	211	27.34	13.30
4	374.97	36.6 QP	46.0	-9.5	1.43 V	133	19.47	17.08
5	500.02	36.3 QP	46.0	-9.7	1.00 V	54	16.23	20.04
6	624.96	30.4 QP	46.0	-15.6	1.00 V	125	7.89	22.54

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.

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	3830.00	51.8 PK	74.0	-22.2	1.17 H	296	18.00	33.80
2	3830.00	43.1 AV	54.0	-10.9	1.17 H	296	9.30	33.80
3	*5745.00	113.5 PK			1.00 H	275	75.72	37.78
4	*5745.00	103.8 AV			1.00 H	275	66.02	37.78
5	11490.00	65.0 PK	74.0	-9.0	1.51 H	114	17.41	47.59
6	11490.00	53.1 AV	54.0	-0.9	1.51 H	114	5.51	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	3830.00	49.8 PK	74.0	-24.2	1.00 V	158	16.00	33.80
2	3830.00	39.6 AV	54.0	-14.4	1.00 V	158	5.80	33.80
3	*5745.00	112.8 PK			1.00 V	263	75.02	37.78
4	*5745.00	103.3 AV			1.00 V	263	65.52	37.78
5	11490.00	61.2 PK	74.0	-12.8	1.00 V	90	13.61	47.59
6	11490.00	49.2 AV	54.0	-4.8	1.00 V	90	1.61	47.59

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	3856.67	53.3 PK	74.0	-20.7	1.20 H	295	19.41	33.89
2	3856.67	43.8 AV	54.0	-10.2	1.20 H	295	9.91	33.89
3	*5785.00	114.0 PK			1.00 H	282	76.12	37.88
4	*5785.00	104.1 AV			1.00 H	282	66.22	37.88
5	11570.00	65.6 PK	74.0	-8.4	1.45 H	33	18.05	47.55
6	11570.00	52.3 AV	54.0	-1.7	1.45 H	33	4.75	47.55
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	3856.67	48.3 PK	74.0	-25.7	1.00 V	195	14.41	33.89
2	3856.67	38.4 AV	54.0	-15.6	1.00 V	195	4.51	33.89
3	*5785.00	112.9 PK			1.01 V	267	75.02	37.88
4	*5785.00	103.4 AV			1.01 V	267	65.52	37.88
5	11570.00	62.8 PK	74.0	-11.2	1.04 V	92	15.25	47.55
6	11570.00	51.1 AV	54.0	-2.9	1.04 V	92	3.55	47.55

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	3883.33	53.5 PK	74.0	-20.5	1.17 H	195	19.51	33.99
2	3883.33	46.5 AV	54.0	-7.5	1.17 H	195	12.51	33.99
3	5144.80	60.1 PK	74.0	-13.9	1.05 H	272	23.40	36.70
4	5144.80	51.1 AV	54.0	-2.9	1.05 H	272	14.40	36.70
5	5350.00	62.4 PK	74.0	-11.6	1.00 H	284	25.40	37.00
6	5350.00	51.7 AV	54.0	-2.3	1.00 H	284	14.70	37.00
7	*5825.00	114.7 PK			1.00 H	283	76.73	37.97
8	*5825.00	104.5 AV			1.00 H	283	66.53	37.97
9	11650.00	64.6 PK	74.0	-9.4	1.54 H	115	17.11	47.49
10	11650.00	53.1 AV	54.0	-0.9	1.54 H	115	5.61	47.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3883.33	48.9 PK	74.0	-25.1	1.00 V	200	14.91	33.99
2	3883.33	38.7 AV	54.0	-15.3	1.00 V	200	4.71	33.99
3	5144.80	59.3 PK	74.0	-14.7	1.12 V	259	22.60	36.70
4	5144.80	50.2 AV	54.0	-3.8	1.12 V	259	13.50	36.70
5	5457.47	61.6 PK	74.0	-12.4	1.03 V	274	24.49	37.11
6	5457.47	50.3 AV	54.0	-3.7	1.03 V	274	13.19	37.11
7	*5825.00	112.3 PK			1.00 V	252	74.33	37.97
8	*5825.00	103.1 AV			1.00 V	252	65.13	37.97
9	11650.00	62.9 PK	74.0	-11.1	1.06 V	80	15.41	47.49
10	11650.00	51.5 AV	54.0	-2.5	1.06 V	80	4.01	47.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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 (20MHz)

CHANNEL	TX Channel 149	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	3830.00	52.8 PK	74.0	-21.2	1.17 H	291	19.00	33.80
2	3830.00	43.3 AV	54.0	-10.7	1.17 H	291	9.50	33.80
3	5145.45	59.3 PK	74.0	-14.7	1.04 H	275	22.60	36.70
4	5145.45	48.8 AV	54.0	-5.2	1.04 H	275	12.10	36.70
5	5400.71	61.0 PK	74.0	-13.0	1.00 H	270	23.98	37.02
6	5400.71	49.4 AV	54.0	-4.6	1.00 H	270	12.38	37.02
7	*5745.00	114.2 PK			1.00 H	286	76.42	37.78
8	*5745.00	104.2 AV			1.00 H	286	66.42	37.78
9	11490.00	65.8 PK	74.0	-8.2	1.50 H	117	18.21	47.59
10	11490.00	53.0 AV	54.0	-1.0	1.50 H	117	5.41	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	113.1 PK			1.06 V	283	75.32	37.78
2	*5745.00	103.3 AV			1.06 V	283	65.52	37.78
3	11490.00	61.7 PK	74.0	-12.3	1.00 V	90	14.11	47.59
4	11490.00	49.6 AV	54.0	-4.4	1.00 V	90	2.01	47.59

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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	3856.67	52.8 PK	74.0	-21.2	1.18 H	287	18.91	33.89
2	3856.67	44.1 AV	54.0	-9.9	1.18 H	287	10.21	33.89
3	5147.60	57.7 PK	74.0	-16.3	1.05 H	271	20.99	36.71
4	5147.60	48.4 AV	54.0	-5.6	1.05 H	271	11.69	36.71
5	5403.35	60.8 PK	74.0	-13.2	1.00 H	273	23.77	37.03
6	5403.35	49.1 AV	54.0	-4.9	1.00 H	273	12.07	37.03
7	*5785.00	114.0 PK			1.02 H	288	76.12	37.88
8	*5785.00	104.2 AV			1.02 H	288	66.32	37.88
9	11570.00	66.0 PK	74.0	-8.0	1.54 H	117	18.45	47.55
10	11570.00	53.3 AV	54.0	-0.7	1.54 H	117	5.75	47.55
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	112.3 PK			1.04 V	242	74.42	37.88
2	*5785.00	102.8 AV			1.04 V	242	64.92	37.88
3	11570.00	61.4 PK	74.0	-12.6	1.02 V	79	13.85	47.55
4	11570.00	49.6 AV	54.0	-4.4	1.02 V	79	2.05	47.55

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	3883.33	53.7 PK	74.0	-20.3	1.17 H	294	19.71	33.99
2	3883.33	47.1 AV	54.0	-6.9	1.17 H	294	13.11	33.99
3	5150.00	60.9 PK	74.0	-13.1	1.16 H	274	24.19	36.71
4	5150.00	51.9 AV	54.0	-2.1	1.16 H	274	15.19	36.71
5	5403.57	63.6 PK	74.0	-10.4	1.00 H	272	26.57	37.03
6	5403.57	52.6 AV	54.0	-1.4	1.00 H	272	15.57	37.03
7	*5825.00	114.3 PK			1.00 H	298	76.33	37.97
8	*5825.00	104.7 AV			1.00 H	298	66.73	37.97
9	11650.00	65.5 PK	74.0	-8.5	1.54 H	118	18.01	47.49
10	11650.00	53.0 AV	54.0	-1.0	1.54 H	118	5.51	47.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	112.2 PK			1.01 V	231	74.23	37.97
2	*5825.00	102.6 AV			1.01 V	231	64.63	37.97
3	11650.00	61.5 PK	74.0	-12.5	1.04 V	79	14.01	47.49
4	11650.00	50.0 AV	54.0	-4.0	1.04 V	79	2.51	47.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
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 (40MHz)

CHANNEL	TX Channel 151	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	3836.67	53.6 PK	74.0	-20.4	1.17 H	297	19.78	33.82
2	3836.67	43.8 AV	54.0	-10.2	1.17 H	297	9.98	33.82
3	5146.75	60.4 PK	74.0	-13.6	1.04 H	269	23.70	36.70
4	5146.75	51.4 AV	54.0	-2.6	1.04 H	269	14.70	36.70
5	5406.10	64.4 PK	74.0	-9.6	1.00 H	269	27.37	37.03
6	5406.10	52.4 AV	54.0	-1.6	1.00 H	269	15.37	37.03
7	*5755.00	113.7 PK			1.05 H	297	75.90	37.80
8	*5755.00	104.3 AV			1.05 H	297	66.50	37.80
9	11510.00	64.8 PK	74.0	-9.2	1.46 H	113	17.22	47.58
10	**11510.00**	**53.5 AV**	**54.0**	**-0.5**	**1.46 H**	**113**	**5.92**	**47.58**
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	111.5 PK			1.01 V	219	73.70	37.80
2	*5755.00	102.2 AV			1.01 V	219	64.40	37.80
3	11510.00	61.6 PK	74.0	-12.4	1.10 V	72	14.02	47.58
4	11510.00	49.8 AV	54.0	-4.2	1.10 V	72	2.22	47.58

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	3863.33	53.5 PK	74.0	-20.5	1.18 H	291	19.58	33.92
2	3863.33	45.8 AV	54.0	-8.2	1.18 H	291	11.88	33.92
3	5146.75	60.8 PK	74.0	-13.2	1.05 H	269	24.10	36.70
4	5146.75	51.2 AV	54.0	-2.8	1.05 H	269	14.50	36.70
5	5404.12	63.5 PK	74.0	-10.5	1.00 H	272	26.47	37.03
6	5404.12	52.6 AV	54.0	-1.4	1.00 H	272	15.57	37.03
7	*5795.00	113.7 PK			1.06 H	292	75.79	37.91
8	*5795.00	104.3 AV			1.06 H	292	66.39	37.91
9	11590.00	63.9 PK	74.0	-10.1	1.45 H	117	16.37	47.53
10	11590.00	53.3 AV	54.0	-0.7	1.45 H	117	5.77	47.53
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	*5795.00	111.0 PK			1.03 V	208	73.09	37.91
2	*5795.00	101.8 AV			1.03 V	208	63.89	37.91
3	11590.00	61.1 PK	74.0	-12.9	1.15 V	66	13.57	47.53
4	11590.00	49.4 AV	54.0	-4.6	1.15 V	66	1.87	47.53

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.
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	FSP 40	100060	May 11, 2011	May 10, 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 : May 08, 2012

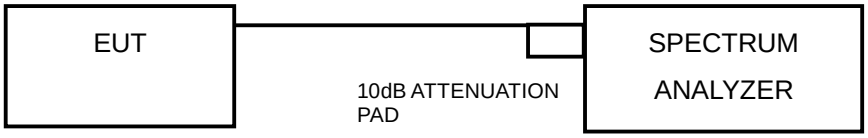
5.3.3 TEST PROCEDURE

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
		CHAIN 0	CHAIN 1		
149	5745	16.57	16.50	0.5	PASS
157	5785	16.59	16.53	0.5	PASS
165	5825	16.57	16.55	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.54	17.51	0.5	PASS
157	5785	17.55	17.61	0.5	PASS
165	5825	17.51	17.59	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.25	36.09	0.5	PASS
159	5795	35.99	36.05	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	1014008	Apr. 28, 2012	Apr. 27, 2013
Peak Power Sensor	MA2411B	0917122	Apr. 28, 2012	Apr. 27, 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 : May 08, 2012

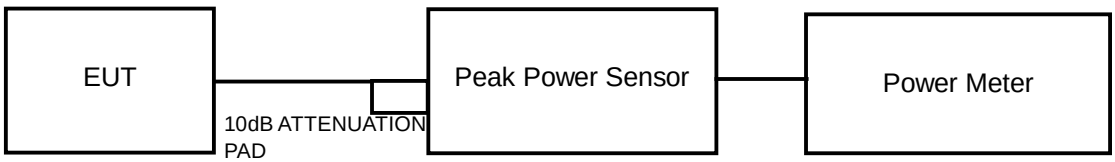
5.4.3 TEST PROCEDURES

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

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	25.20	25.60	694.209	28.41	28.95	PASS
157	5785	24.30	25.00	585.381	27.67	28.95	PASS
165	5825	24.10	24.40	532.463	27.26	28.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, 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				
149	5745	24.50	24.60	570.241	27.56	28.95	PASS
157	5785	24.30	24.90	578.183	27.62	28.95	PASS
165	5825	24.10	24.40	532.463	27.26	28.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, 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				
151	5755	24.90	25.50	663.843	28.22	28.95	PASS
159	5795	24.00	24.60	539.592	27.32	28.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, therefore the limit needs to reduce.

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	FSP 40	100060	May 11, 2011	May 10, 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 : May 08, 2012

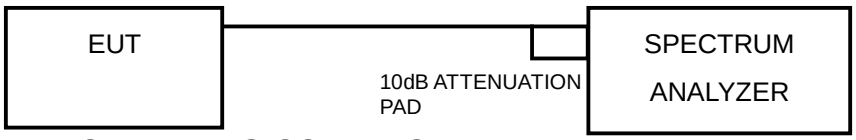
5.5.3 TEST PROCEDURE

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

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	149	5745	10.47	-4.76	3.01	-1.75	6.95	PASS
	157	5785	10.36	-4.87	3.01	-1.86	6.95	PASS
	165	5825	10.77	-4.46	3.01	-1.45	6.95	PASS
1	149	5745	10.52	-4.71	3.01	-1.70	6.95	PASS
	157	5785	12.16	-3.07	3.01	-0.06	6.95	PASS
	165	5825	10.43	-4.80	3.01	-1.79	6.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, 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	149	5745	7.86	-7.37	3.01	-4.36	6.95	PASS
	157	5785	9.56	-5.67	3.01	-2.66	6.95	PASS
	165	5825	10.26	-4.97	3.01	-1.96	6.95	PASS
1	149	5745	7.94	-7.29	3.01	-4.28	6.95	PASS
	157	5785	11.25	-3.98	3.01	-0.97	6.95	PASS
	165	5825	9.75	-5.48	3.01	-2.47	6.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, 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	151	5755	7.99	-7.24	3.01	-4.23	6.95	PASS
	159	5795	7.69	-7.54	3.01	-4.53	6.95	PASS
1	151	5755	8.04	-7.19	3.01	-4.18	6.95	PASS
	159	5795	7.84	-7.39	3.01	-4.38	6.95	PASS

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7.05
The effective legacy gain is 7.05 dBi, therefore the limit needs to reduce.

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	FSP 40	100060	May 11, 2011	May 10, 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 : May 08, 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 EUT OPERATING CONDITION

Same as Item 4.3.6

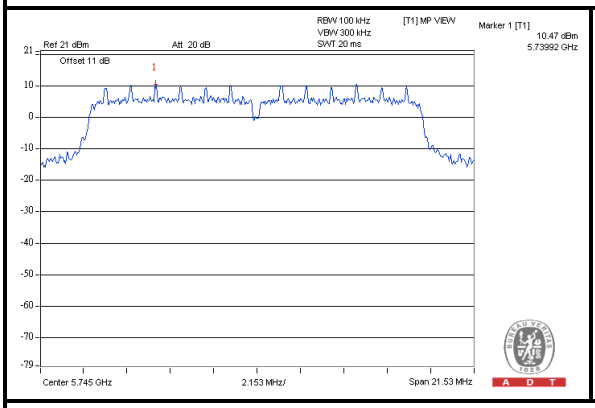
5.6.6 TEST RESULTS

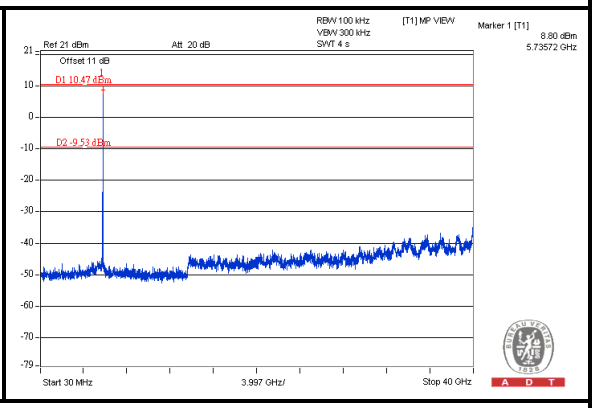
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit. Only worst data of each operating mode is presented.

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.

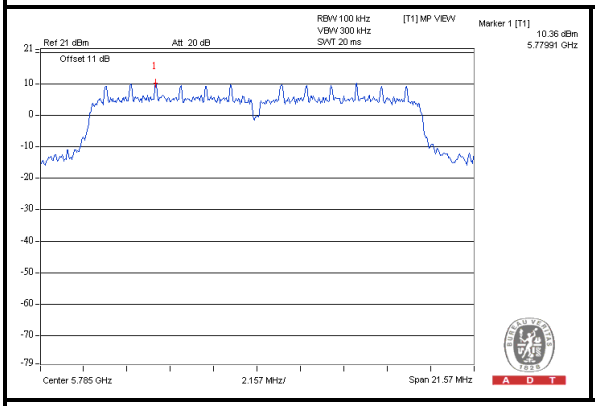
802.11a

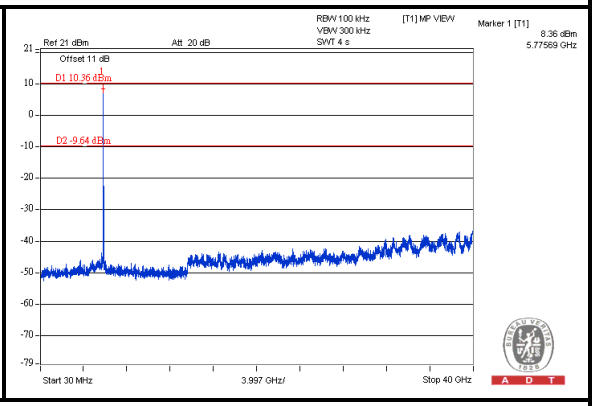
CH 149



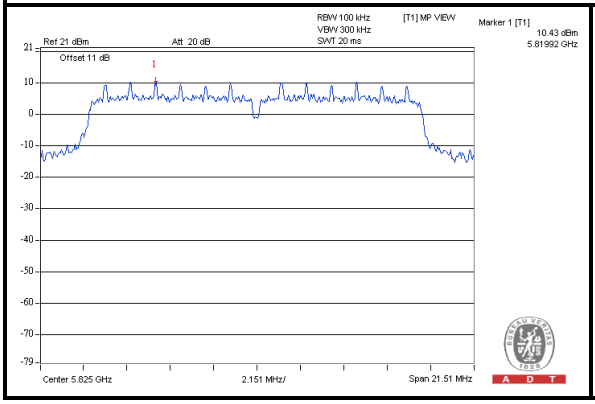


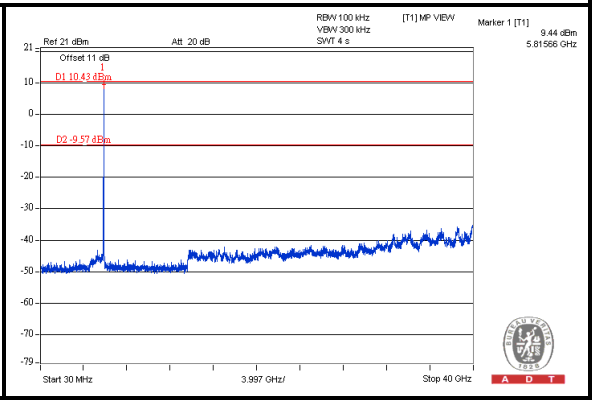
CH 157





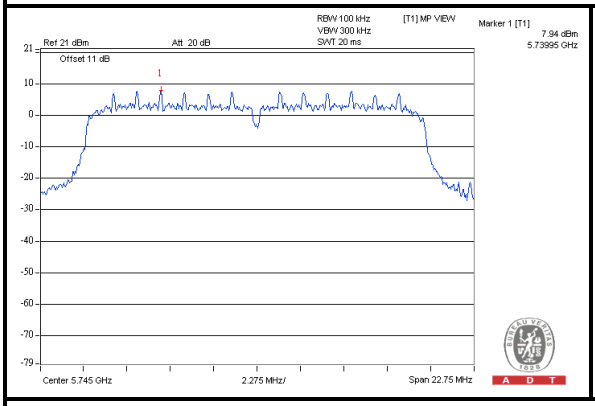
CH 165

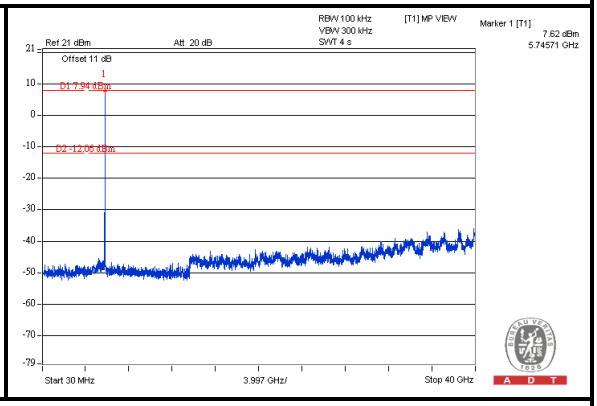




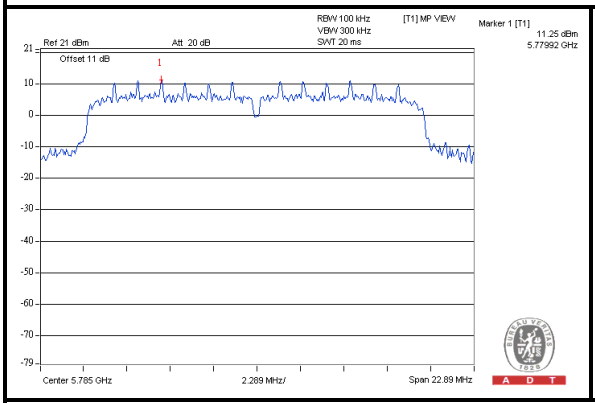
802.11n (20MHz)

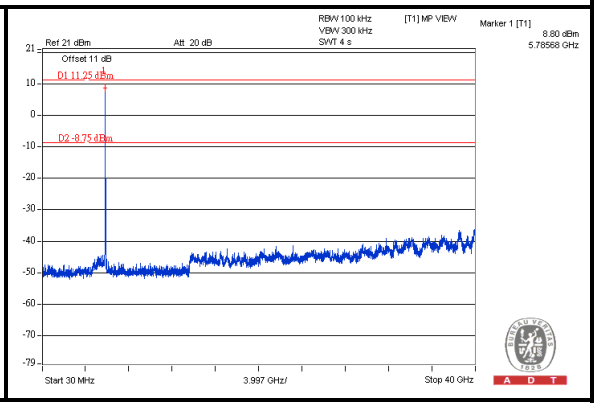
CH 149



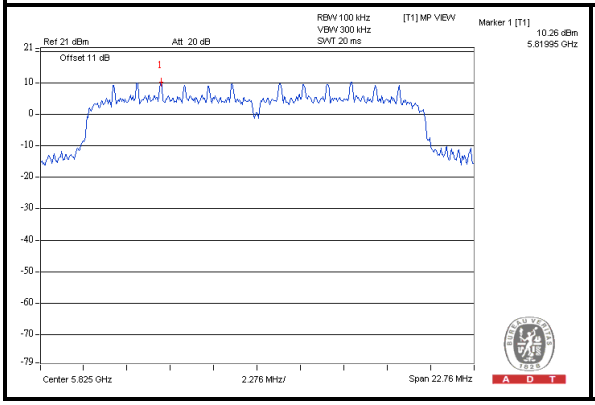


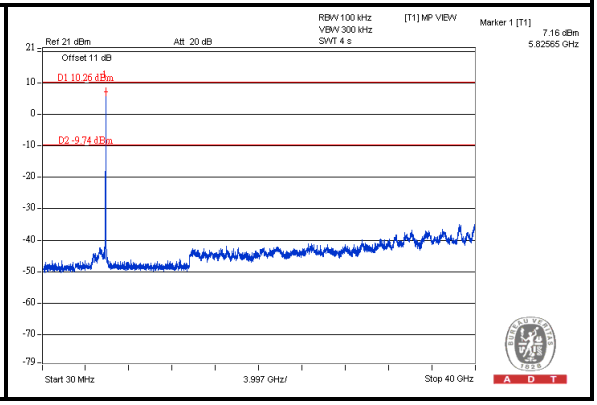
CH 157





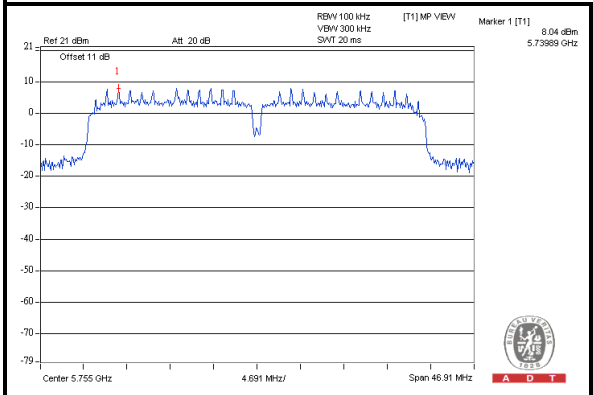
CH 165

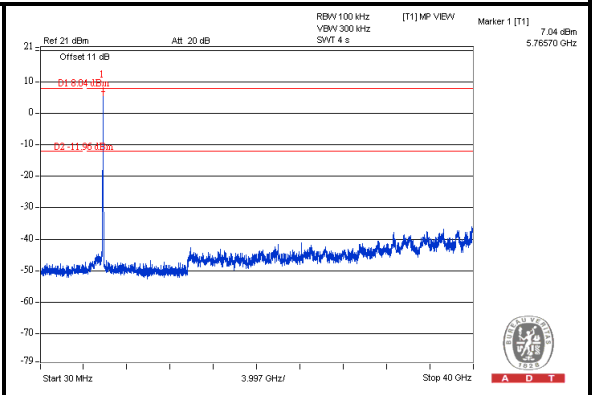




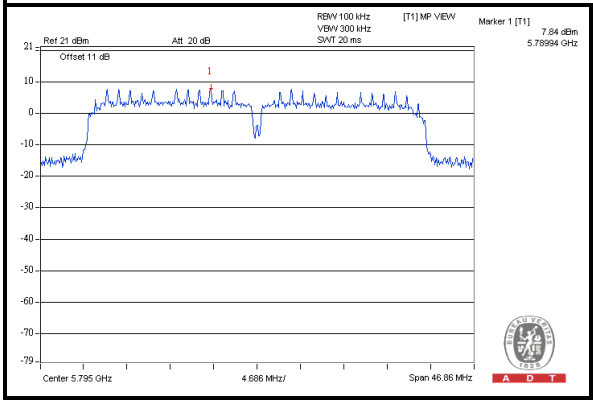
802.11n (40MHz)

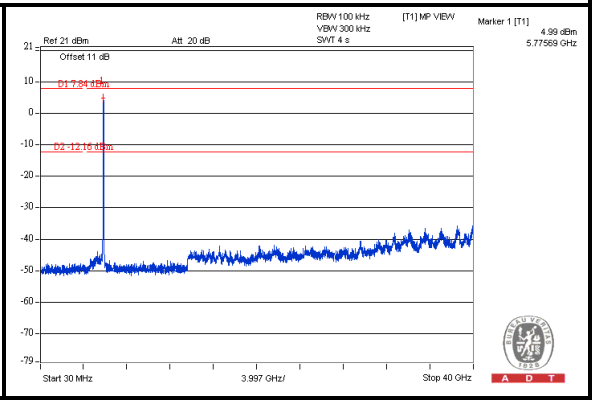
CH 151





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.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.
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.

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.

--- END ---