



FCC TEST REPORT (15.247)

REPORT NO.: RF121015E01

MODEL NO.: WAP300N

FCC ID: Q87-WAP300N

RECEIVED: Oct. 15, 2012

TESTED: Oct. 16 to Nov. 07, 2012

ISSUED: Nov. 13, 2012

APPLICANT: Cisco Consumer Products LLC

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF121015E01	Original release	Nov. 13, 2012



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1. CERTIFICATION

PRODUCT: Selectable Dual-Band Wireless-N Access Point
BRAND NAME: Cisco
MODEL NO.: WAP300N
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Cisco Consumer Products LLC
TESTED: Oct. 16 to Nov. 07, 2012
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: WAP300N) 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:** Nov. 13, 2012
(Lori Chung, Specialist)

APPROVED BY :  , **DATE:** Nov. 13, 2012
(May Chen, Deputy Manager)



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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 -7.81dB at 0.30625MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 4824.00MHz & 4874.00MHz & 2489.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA not a standard connector.

For 5GHz, 5745~5825MHz 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 -7.47dB at 0.30625MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.2dB at 11570.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA not a standard connector.

NOTE: The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.400 ~ 2.4835GHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.



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2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.84 dB
Radiated emissions (6GHz -18GHz)	4.09 dB
Radiated emissions (18GHz -40GHz)	4.24 dB



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Selectable Dual-Band Wireless-N Access Point
MODEL NO.	WAP300N
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 5.18 ~ 5.24GHz
	For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
	For 15.247 (2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
	For 15.247 (5GHz) 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 42.658mW 802.11n (HT20): 42.862mW 802.11n (HT40): 44.265mW
	For 15.247 (2.4GHz) 802.11b: 100.000mW 802.11g: 199.526mW 802.11n (HT20): 420.632mW 802.11n (HT40): 296.136mW
	For 15.247 (5GHz) 802.11a: 134.896mW 802.11n (HT20): 235.229mW 802.11n (HT40): 229.874mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	LAN cable (unshielded, 1.5m) x 1
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x 1



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NOTE:

1. There are 2.4GHz and 5GHz WLAN technology used for the EUT. The test report of EUT listed as below table:

Function	Report No.
WLAN	RF121015E01 (15.247) RF121015E01-1(15.407)

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

No	Brand	Model No.	Spec.
1	HON-KWANG	HK-Q106-A12	Input: 100-240V, 0.2A, 50/60Hz
2	HON-KWANG	HK-Q906-A12	Output: 12V, 0.5A
3	HON-KWANG	HK-U-120A050-CP	DC output cable: unshielded, 1.5m
4	SOLYTECH	CAD0612C	Input: 100-240V, 0.5A, 50-60Hz
5	SOLYTECH	CAD0612M	Output: 12V, 0.5A
6	SOLYTECH	CAD0612L	DC output cable: unshielded, 1.5m
7	HON-KWANG	HK-Q1006-A12	Input: 100-240V, 0.2A, 50/60Hz Output: 12V, 0.5A DC output cable: unshielded, 1.5m
8	SOLYTECH	CAD0612J	Input: 100-240V, 0.5A, 50-60Hz Output: 12V, 0.5A DC output cable: unshielded, 1.5m

Note:

1. The adapter 2 is as same as adapter 1, except for plug shape.
2. The adapters 5 & 6 are as same as adapter 4, except for plug shape.
3. For radiated test, the EUT was pre-tested with adapter 1, 3, 4, 7, 8 the worse case was found in adapter 4. Therefore only the test data of the adapter was recorded in the test report.

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

Antenna Type	Gain (dBi) (Include cable loss)	Connector type	Frequency range (MHz to MHz)
Dipole	3.5	R-SMA	2400-2500 5150-5850

4. The EUT incorporates a MIMO function.

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

5. 2.4GHz and 5GHz technology cannot transmit at same time.

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

7. For more detailed product features, please refer to manufacturer's specification or user's manual.



3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20):

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

7 channels are provided for 802.11n (HT40):

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

Operated in 5725 ~ 5850MHz band:

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

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

2 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	OB	
1	√	√	√	√	√	Adapter 4
2	√	-	-	-	-	Adapter 1
3	√	-	-	-	-	Adapter 3
4	√	-	-	-	-	Adapter 7
5	√	-	-	-	-	Adapter 8

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

OB: Conducted Out-Band Emission Measurement

NOTE: 1. "-" means no effect.

2. The EUT had been pre-tested on the positioned of each 2 axis. The radiated emission worst case was found when positioned on X-plane.

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
For 2.4 GHz 802.11n (HT20)	1 to 11	11	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT20)	149 to 165	165	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	MODULATION TYPE	DATA RATE (Mbps)
For 2.4 GHz 802.11n (HT20)	1 to 11	11	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT20)	149 to 165	165	OFDM	BPSK	6.5



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RADIATED EMISSION TEST (ABOVE 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

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

ANTENNA PORT CONDUCTED MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

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



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CONDUCTED OUT-BAND EMISSION MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 57%RH 25deg. C, 60%RH	120Vac, 60Hz	Mike Hsieh Timmy Hu
RE<1G	24deg. C, 63%RH	120Vac, 60Hz	Robert Cheng
RE ³ 1G	25deg. C, 68%RH	120Vac, 60Hz	Robert Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Evan Huang
OB	25deg. C, 60%RH	120Vac, 60Hz	Evan 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)

KDB 558074 D01 DTS Meas Guidance

ANSI C63.10-2009

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

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

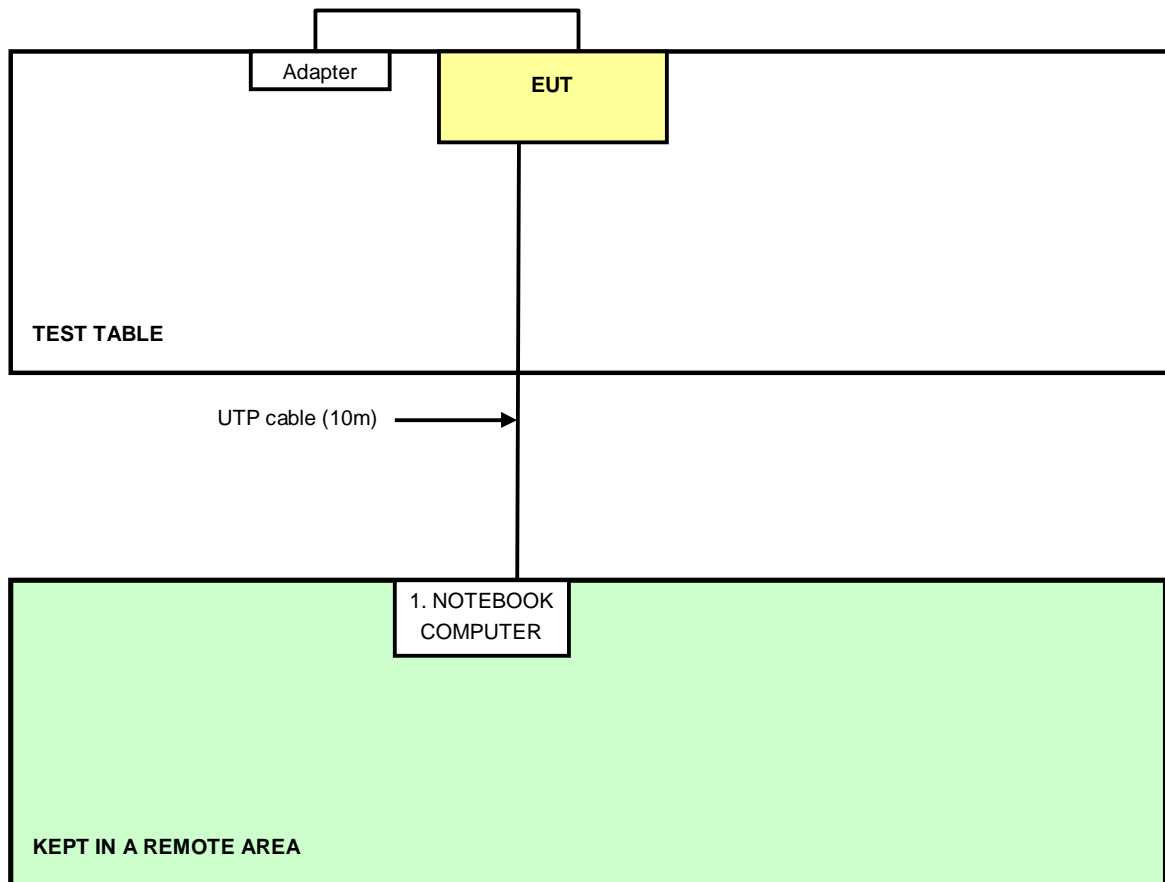
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC

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

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST





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4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2412 ~ 2462MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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. 12, 2012	Mar. 11, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 06, 2012	Sep. 05, 2013
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 08, 2012	June 07, 2013
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 28, 2012	Aug. 27, 2013
50 ohms Terminator	50	EMC-3	Sep. 25, 2012	Sep. 24, 2013
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Oct. 16 to Nov. 07, 2012



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4.1.3 TEST PROCEDURES

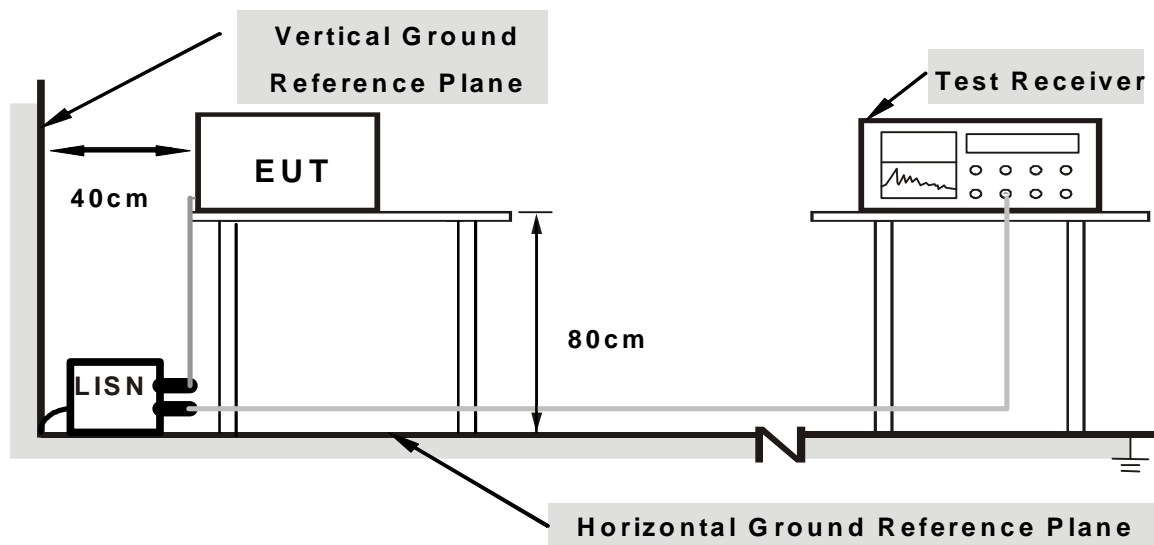
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. At least the disturbance levels and the frequencies of six highest disturbances from each mains port were recorded.

Note: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

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

4.1.6 EUT OPERATING CONDITIONS

1. Turn on the power of EUT.
2. The communication partner run test program “RT5x9xQA.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

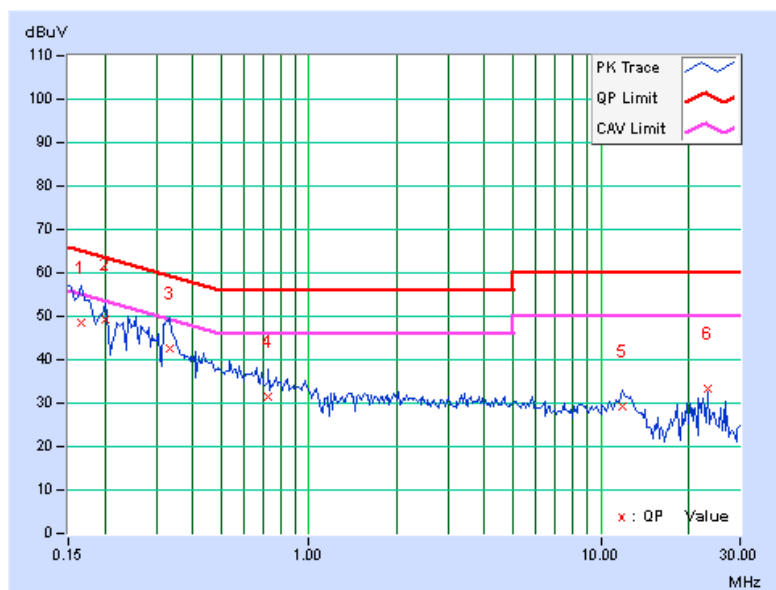
4.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	(dB)	(dB)
1	0.16562	0.11	48.42	29.83	48.53	29.94	65.18	55.18	-16.65	-25.24
2	0.20078	0.12	49.13	41.32	49.25	41.44	63.58	53.58	-14.33	-12.14
3	0.33359	0.15	42.34	27.06	42.49	27.21	59.36	49.36	-16.87	-22.15
4	0.72813	0.18	31.38	22.41	31.56	22.59	56.00	46.00	-24.44	-23.41
5	11.89063	0.63	28.67	22.07	29.30	22.70	60.00	50.00	-30.70	-27.30
6	23.12891	1.01	32.38	25.57	33.39	26.58	60.00	50.00	-26.61	-23.42

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.





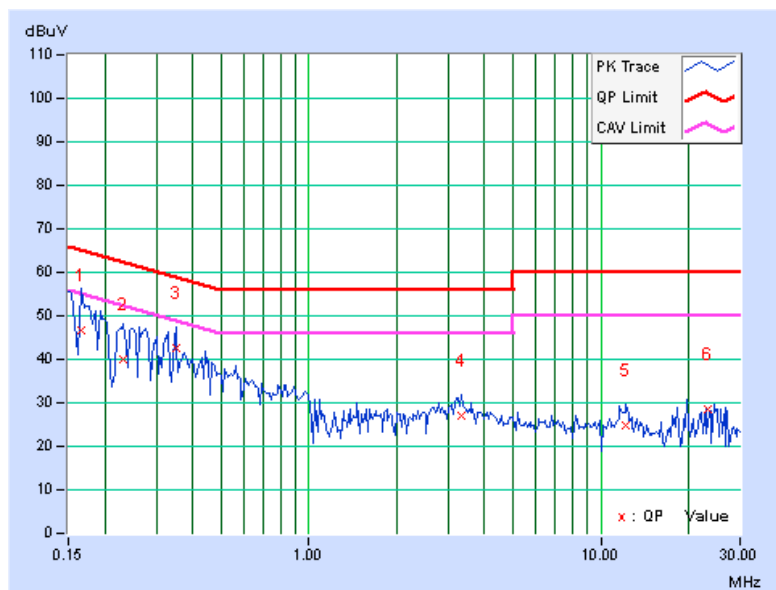
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16572	0.09	46.44	28.76	46.53	28.85	65.17	55.17	-18.64	-26.32
2	0.23232	0.11	40.01	23.57	40.12	23.68	62.37	52.37	-22.25	-28.69
3	0.34928	0.14	42.32	31.75	42.46	31.89	58.98	48.98	-16.52	-17.09
4	3.34757	0.23	26.74	17.32	26.97	17.55	56.00	46.00	-29.03	-28.45
5	12.19542	0.46	24.53	16.63	24.99	17.09	60.00	50.00	-35.01	-32.91
6	23.12882	0.68	27.68	21.38	28.36	22.06	60.00	50.00	-31.64	-27.94

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.



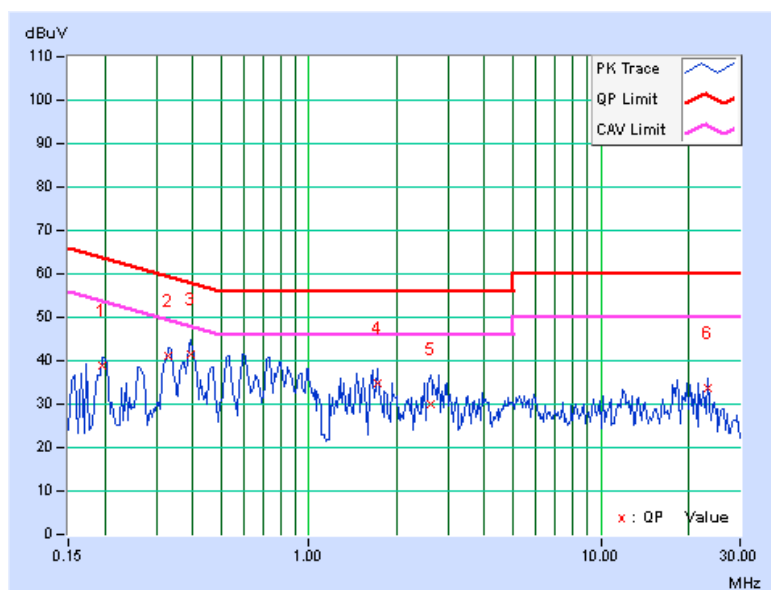
4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19687	0.12	38.82	33.12	38.94	33.24	63.74	53.74	-24.80	-20.50
2	0.32971	0.15	40.81	34.07	40.96	34.22	59.46	49.46	-18.50	-15.24
3	0.39221	0.16	41.37	34.53	41.53	34.69	58.02	48.02	-16.49	-13.33
4	1.73043	0.22	34.67	22.01	34.89	22.23	56.00	46.00	-21.11	-23.77
5	2.61723	0.24	29.77	18.58	30.01	18.82	56.00	46.00	-25.99	-27.18
6	23.12891	1.01	32.81	29.07	33.82	30.08	60.00	50.00	-26.18	-19.92

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.





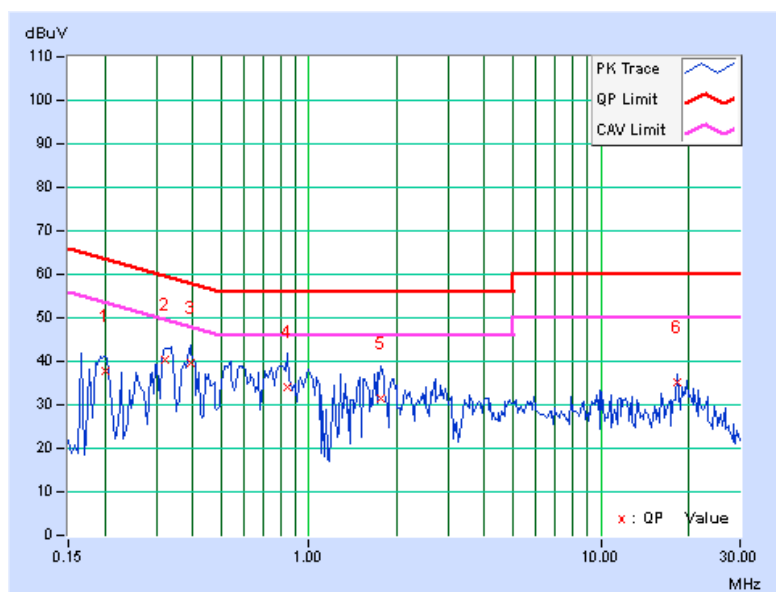
A D T

PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20084	0.10	37.63	25.43	37.73	25.53	63.58	53.58	-25.85	-28.05
2	0.32191	0.13	40.12	28.72	40.25	28.85	59.66	49.66	-19.41	-20.81
3	0.39222	0.15	39.32	30.44	39.47	30.59	58.02	48.02	-18.55	-17.43
4	0.84538	0.16	33.90	20.13	34.06	20.29	56.00	46.00	-21.94	-25.71
5	1.76948	0.20	31.21	12.78	31.41	12.98	56.00	46.00	-24.59	-33.02
6	18.24227	0.57	34.56	27.78	35.13	28.35	60.00	50.00	-24.87	-21.65

REMARKS:

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





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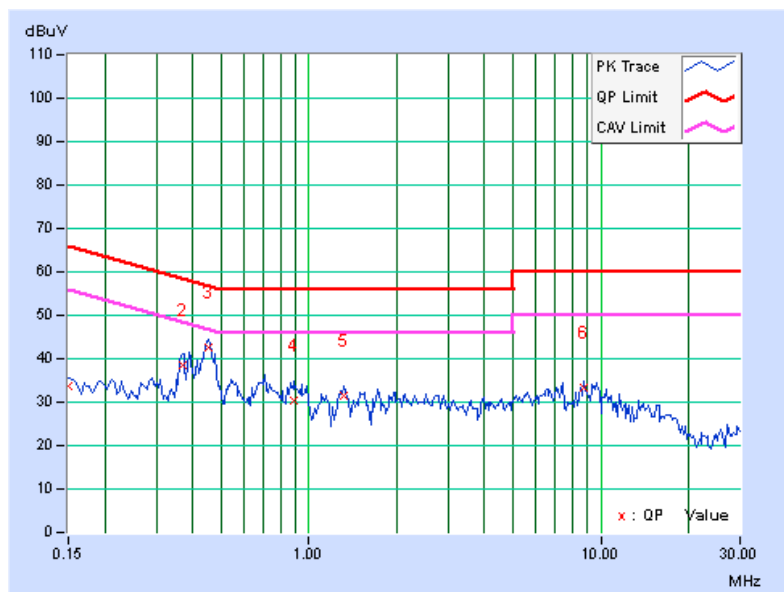
4.1.9 TEST RESULTS (MODE 3)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15013	0.11	33.74	26.37	33.85	26.48	65.99	55.99	-32.15	-29.52
2	0.36875	0.15	38.44	33.66	38.59	33.81	58.53	48.53	-19.94	-14.72
3	0.45078	0.16	42.44	34.62	42.60	34.78	56.86	46.86	-14.26	-12.08
4	0.88828	0.18	30.07	23.64	30.25	23.82	56.00	46.00	-25.75	-22.18
5	1.32031	0.20	31.44	24.92	31.64	25.12	56.00	46.00	-24.36	-20.88
6	8.71484	0.50	32.78	26.66	33.28	27.16	60.00	50.00	-26.72	-22.84

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.





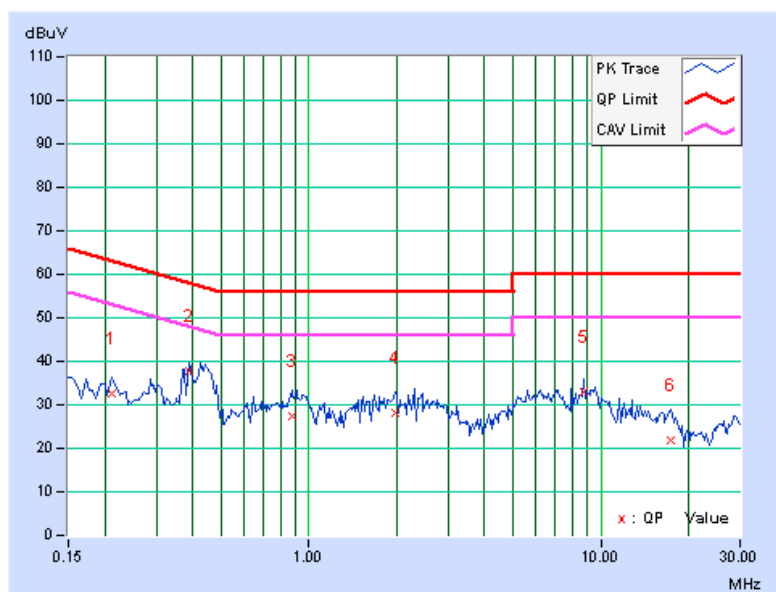
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21250	0.10	32.37	21.16	32.47	21.26	63.11	53.11	-30.63	-31.84
2	0.38828	0.15	37.46	32.33	37.61	32.48	58.10	48.10	-20.49	-15.62
3	0.87266	0.17	27.38	20.02	27.55	20.19	56.00	46.00	-28.45	-25.81
4	1.98438	0.21	28.03	19.28	28.24	19.49	56.00	46.00	-27.76	-26.51
5	8.71875	0.38	32.66	24.44	33.04	24.82	60.00	50.00	-26.96	-25.18
6	17.37891	0.56	21.13	14.29	21.69	14.85	60.00	50.00	-38.31	-35.15

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.



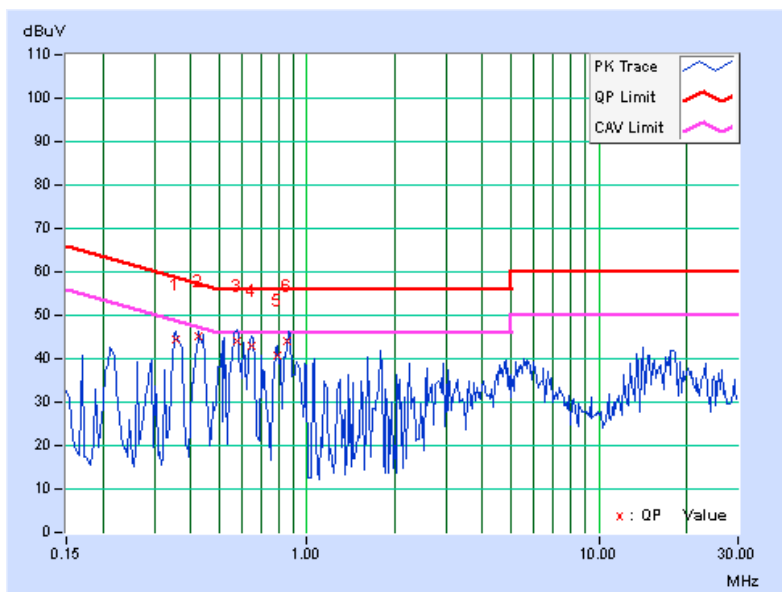
4.1.10 TEST RESULTS (MODE 4)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.35703	0.17	44.32	35.24	44.49	35.41	58.80
2	0.42734	0.18	44.96	35.50	45.14	35.68	57.30	47.30	-12.16	-11.62
3	0.57578	0.19	43.96	33.06	44.15	33.25	56.00	46.00	-11.85	-12.75
4	0.64609	0.20	42.68	32.28	42.88	32.48	56.00	46.00	-13.12	-13.52
5	0.79063	0.21	40.66	28.94	40.87	29.15	56.00	46.00	-15.13	-16.85
6	0.85434	0.21	43.86	30.68	44.07	30.89	56.00	46.00	-11.93	-15.11

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.





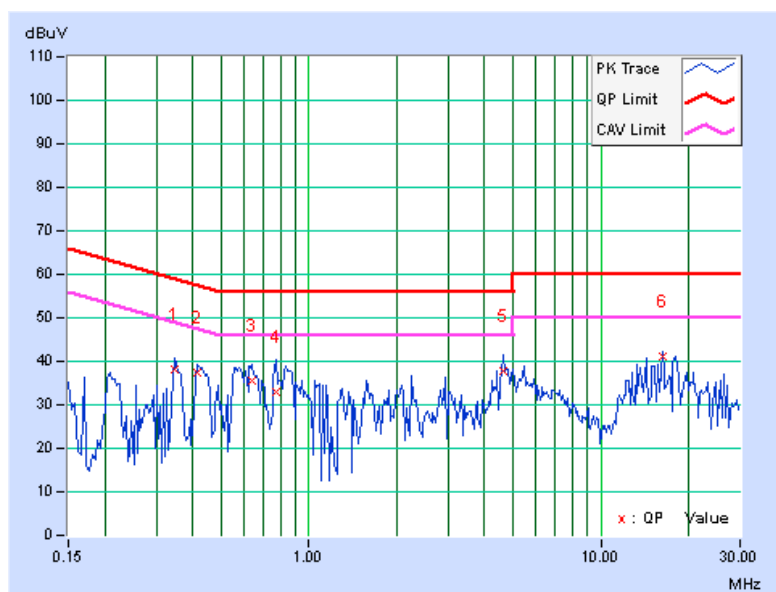
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.34906	0.16	38.02	31.56	38.18	31.72	58.98	48.98	-20.81	-17.27
2	0.41563	0.17	37.14	28.00	37.31	28.17	57.54	47.54	-20.22	-19.36
3	0.64219	0.18	35.28	26.10	35.46	26.28	56.00	46.00	-20.54	-19.72
4	0.77500	0.19	32.90	22.24	33.09	22.43	56.00	46.00	-22.91	-23.57
5	4.66016	0.38	37.54	19.72	37.92	20.10	56.00	46.00	-18.08	-25.90
6	16.22656	0.86	40.42	35.20	41.28	36.06	60.00	50.00	-18.72	-13.94

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.





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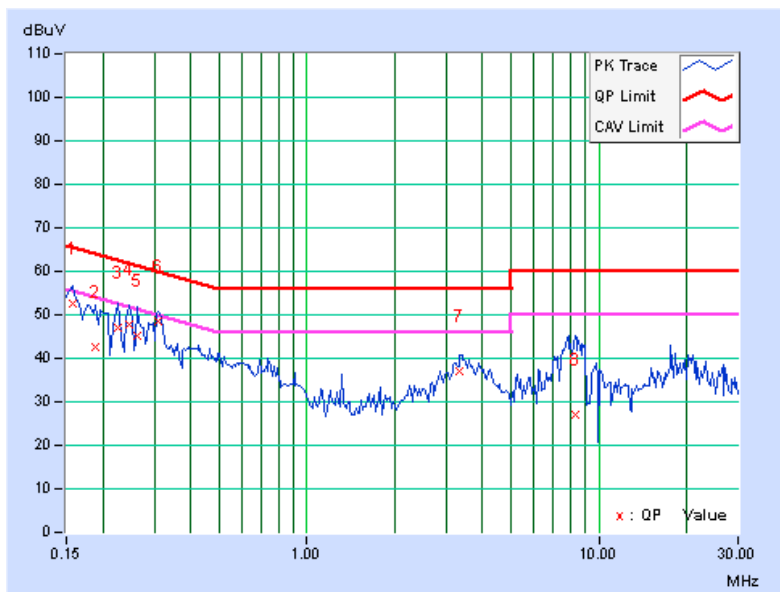
4.1.11 TEST RESULTS (MODE 5)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15781	0.11	52.54	45.74	52.65	45.85	65.58
2	0.18906	0.12	42.34	23.64	42.46	23.76	64.08	54.08	-21.61	-30.31
3	0.22422	0.14	47.00	39.18	47.14	39.32	62.66	52.66	-15.53	-13.35
4	0.24766	0.14	47.68	38.30	47.82	38.44	61.84	51.84	-14.01	-13.39
5	0.26328	0.15	45.04	37.16	45.19	37.31	61.33	51.33	-16.14	-14.02
6	0.31016	0.16	48.28	38.66	48.44	38.82	59.97	49.97	-11.53	-11.15
7	3.35156	0.32	36.86	27.56	37.18	27.88	56.00	46.00	-18.82	-18.12
8	8.27344	0.64	26.28	17.66	26.92	18.30	60.00	50.00	-33.08	-31.70

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.

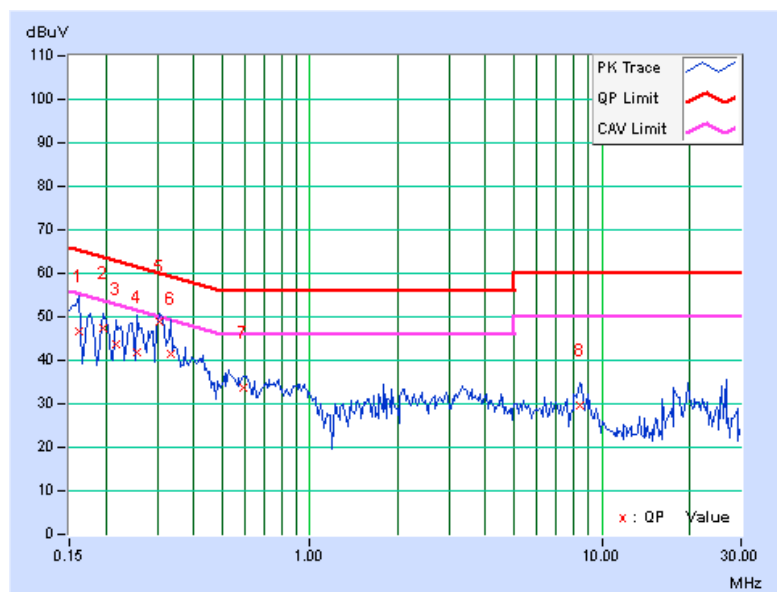


PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.10	46.56	31.64	46.66	31.74	65.38	55.38	-18.71	-23.63
2	0.19687	0.12	47.38	39.42	47.50	39.54	63.74	53.74	-16.24	-14.20
3	0.21641	0.12	43.74	36.76	43.86	36.88	62.96	52.96	-19.09	-16.07
4	0.25547	0.13	41.80	29.68	41.93	29.81	61.58	51.58	-19.64	-21.76
5	0.30625	0.15	48.62	42.12	48.77	42.27	60.07	50.07	-11.31	-7.81
6	0.33359	0.15	41.16	31.16	41.31	31.31	59.36	49.36	-18.05	-18.05
7	0.59141	0.18	33.42	28.66	33.60	28.84	56.00	46.00	-22.40	-17.16
8	8.39453	0.58	29.10	17.62	29.68	18.20	60.00	50.00	-30.32	-31.80

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.



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4.2.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.
7. Tested Date: Oct. 19, 2012



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For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
Pre-Selector Agilent	N9039A	MY46520310	Sep. 03, 2012	Sep. 02, 2013
Signal Generator Agilent	N5181A	MY49060347	July 24, 2012	July 23, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKka-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: Oct. 24, 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 a 3 meters chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

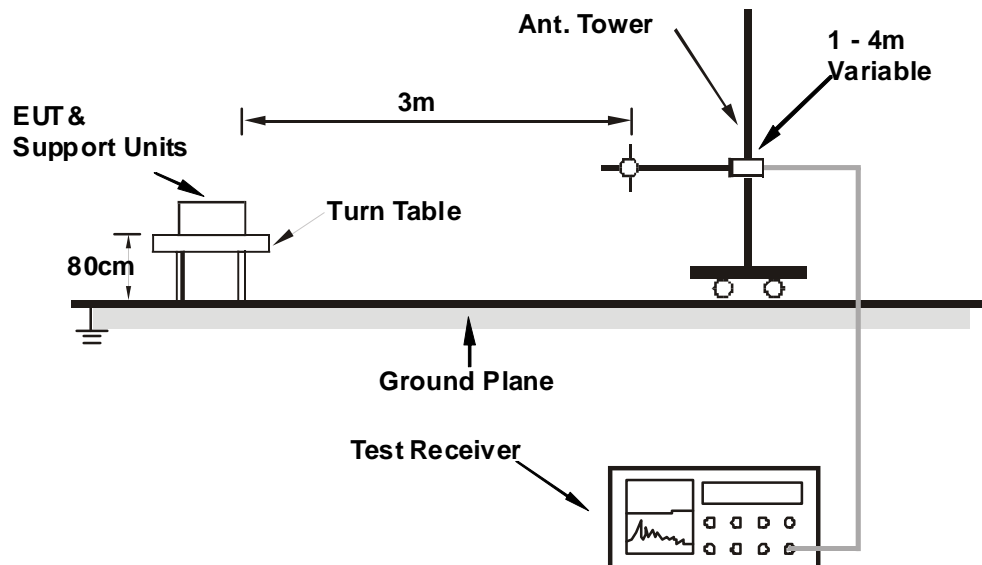
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (HT20)

CHANNEL	TX Channel 11	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	60.10	25.9 QP	40.0	-14.1	1.00 H	36	12.25	13.64
2	174.40	31.6 QP	43.5	-11.9	1.50 H	101	18.12	13.44
3	250.00	34.1 QP	46.0	-11.9	1.00 H	319	20.75	13.35
4	374.90	31.9 QP	46.0	-14.2	1.00 H	323	14.63	17.22
5	749.00	38.2 QP	46.0	-7.8	1.00 H	325	13.30	24.89
6	933.00	31.4 QP	46.0	-14.6	1.50 H	227	3.64	27.80
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	66.36	35.2 QP	40.0	-4.8	1.50 V	0	22.18	13.00
2	94.30	29.7 QP	43.5	-13.8	1.50 V	229	20.53	9.15
3	250.03	33.5 QP	46.0	-12.5	1.00 V	147	20.15	13.35
4	500.02	31.9 QP	46.0	-14.1	2.00 V	360	11.47	20.39
5	750.01	31.4 QP	46.0	-14.6	2.00 V	360	6.53	24.91
6	933.33	33.4 QP	46.0	-12.6	1.50 V	0	5.56	27.80

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.



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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	57.2 PK	74.0	-16.8	1.43 H	142	24.82	32.38
2	2390.00	45.4 AV	54.0	-8.6	1.43 H	142	13.02	32.38
3	*2412.00	102.6 PK			1.43 H	142	70.16	32.44
4	*2412.00	100.8 AV			1.43 H	142	68.36	32.44
5	4824.00	53.0 PK	74.0	-21.0	1.51 H	295	11.06	41.94
6	4824.00	48.5 AV	54.0	-5.5	1.51 H	295	6.56	41.94

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.4 PK	74.0	-15.6	1.13 V	100	26.02	32.38
2	2390.00	47.2 AV	54.0	-6.8	1.13 V	100	14.82	32.38
3	*2412.00	107.1 PK			1.13 V	100	74.66	32.44
4	*2412.00	105.0 AV			1.13 V	100	72.56	32.44
5	4824.00	55.8 PK	74.0	-18.2	1.00 V	345	13.86	41.94
6	4824.00	53.5 AV	54.0	-0.5	1.00 V	345	11.56	41.94

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.9 PK			1.40 H	140	70.39	32.51
2	*2437.00	101.0 AV			1.40 H	140	68.49	32.51
3	4874.00	52.5 PK	74.0	-21.5	1.55 H	293	10.51	41.99
4	4874.00	48.1 AV	54.0	-5.9	1.55 H	293	6.11	41.99
5	7311.00	54.8 PK	74.0	-19.2	1.01 H	81	8.27	46.53
6	7311.00	43.1 AV	54.0	-10.9	1.01 H	81	-3.43	46.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.3 PK			1.14 V	100	74.79	32.51
2	*2437.00	105.0 AV			1.14 V	100	72.49	32.51
3	4874.00	55.8 PK	74.0	-18.2	1.00 V	346	13.81	41.99
4	4874.00	53.5 AV	54.0	-0.5	1.00 V	346	11.51	41.99
5	7311.00	54.5 PK	74.0	-19.5	1.00 V	37	7.97	46.53
6	7311.00	43.4 AV	54.0	-10.6	1.00 V	37	-3.13	46.53

REMARKS:

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



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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	102.7 PK			1.40 H	152	70.13	32.57
2	*2462.00	100.7 AV			1.40 H	152	68.13	32.57
3	2483.50	57.6 PK	74.0	-16.4	1.41 H	144	24.97	32.63
4	2483.50	45.8 AV	54.0	-8.2	1.41 H	144	13.17	32.63
5	4924.00	52.7 PK	74.0	-21.3	1.51 H	307	10.69	42.01
6	4924.00	48.4 AV	54.0	-5.6	1.51 H	307	6.39	42.01
7	7386.00	55.0 PK	74.0	-19.0	1.00 H	75	8.27	46.73
8	7386.00	43.3 AV	54.0	-10.7	1.00 H	75	-3.43	46.73

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.6 PK			1.14 V	100	73.03	32.57
2	*2462.00	103.5 AV			1.14 V	100	70.93	32.57
3	2483.50	61.1 PK	74.0	-12.9	1.14 V	100	28.47	32.63
4	2483.50	53.3 AV	54.0	-0.7	1.14 V	100	20.67	32.63
5	4924.00	55.6 PK	74.0	-18.4	1.12 V	247	13.59	42.01
6	4924.00	53.1 AV	54.0	-0.9	1.12 V	247	11.09	42.01
7	7386.00	54.8 PK	74.0	-19.2	1.00 V	45	8.07	46.73
8	7386.00	43.6 AV	54.0	-10.4	1.00 V	45	-3.13	46.73

REMARKS:

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



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802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.8 PK	74.0	-10.2	1.42 H	152	31.42	32.38
2	2390.00	49.5 AV	54.0	-4.5	1.42 H	152	17.12	32.38
3	*2412.00	104.8 PK			1.42 H	152	72.36	32.44
4	*2412.00	94.7 AV			1.42 H	152	62.26	32.44
5	4824.00	54.7 PK	74.0	-19.3	1.03 H	87	12.76	41.94
6	4824.00	43.1 AV	54.0	-10.9	1.03 H	87	1.16	41.94
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.9 PK	74.0	-4.1	1.14 V	100	37.52	32.38
2	2390.00	52.7 AV	54.0	-1.3	1.14 V	100	20.32	32.38
3	*2412.00	109.0 PK			1.14 V	100	76.56	32.44
4	*2412.00	98.5 AV			1.14 V	100	66.06	32.44
5	4824.00	60.3 PK	74.0	-13.7	1.00 V	316	18.36	41.94
6	4824.00	44.2 AV	54.0	-9.8	1.00 V	316	2.26	41.94

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.45	57.4 PK	74.0	-16.6	1.35 H	143	25.04	32.36
2	2384.45	45.4 AV	54.0	-8.6	1.35 H	143	13.04	32.36
3	*2437.00	107.4 PK			1.42 H	149	74.89	32.51
4	*2437.00	97.5 AV			1.42 H	149	64.99	32.51
5	2489.35	58.1 PK	74.0	-15.9	1.37 H	138	25.46	32.64
6	2489.35	46.3 AV	54.0	-7.7	1.37 H	138	13.66	32.64
7	4874.00	53.0 PK	74.0	-21.0	1.49 H	318	11.01	41.99
8	4874.00	48.7 AV	54.0	-5.3	1.49 H	318	6.71	41.99
9	7311.00	54.9 PK	74.0	-19.1	1.04 H	87	8.37	46.53
10	7311.00	42.9 AV	54.0	-11.1	1.04 H	87	-3.63	46.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.45	60.9 PK	74.0	-13.1	1.12 V	98	28.54	32.36
2	2384.45	50.9 AV	54.0	-3.1	1.12 V	98	18.54	32.36
3	*2437.00	111.4 PK			1.12 V	99	78.89	32.51
4	*2437.00	101.4 AV			1.12 V	99	68.89	32.51
5	2489.35	66.2 PK	74.0	-7.8	1.12 V	98	33.56	32.64
6	2489.35	51.9 AV	54.0	-2.1	1.12 V	98	19.26	32.64
7	4874.00	55.1 PK	74.0	-18.9	1.54 V	360	13.11	41.99
8	4874.00	43.0 AV	54.0	-11.0	1.54 V	360	1.01	41.99
9	7311.00	54.7 PK	74.0	-19.3	1.06 V	42	8.17	46.53
10	7311.00	43.2 AV	54.0	-10.8	1.06 V	42	-3.33	46.53

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.4 PK			1.41 H	163	68.83	32.57
2	*2462.00	92.7 AV			1.41 H	163	60.13	32.57
3	2483.50	57.5 PK	74.0	-16.5	1.39 H	156	24.87	32.63
4	2483.50	45.3 AV	54.0	-8.7	1.39 H	156	12.67	32.63
5	4924.00	52.7 PK	74.0	-21.3	1.50 H	320	10.69	42.01
6	4924.00	48.2 AV	54.0	-5.8	1.50 H	320	6.19	42.01
7	7386.00	55.4 PK	74.0	-18.6	1.01 H	93	8.67	46.73
8	7386.00	43.2 AV	54.0	-10.8	1.01 H	93	-3.53	46.73

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.7 PK			1.11 V	101	74.13	32.57
2	*2462.00	95.8 AV			1.11 V	101	63.23	32.57
3	2483.50	73.0 PK	74.0	-1.0	1.11 V	101	40.37	32.63
4	2483.50	52.2 AV	54.0	-1.8	1.11 V	101	19.57	32.63
5	4924.00	60.5 PK	74.0	-13.5	1.01 V	317	18.49	42.01
6	4924.00	44.1 AV	54.0	-9.9	1.01 V	317	2.09	42.01
7	7386.00	54.8 PK	74.0	-19.2	1.00 V	33	8.07	46.73
8	7386.00	43.8 AV	54.0	-10.2	1.00 V	33	-2.93	46.73

REMARKS:

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



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802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	1.37 H	130	25.62	32.38
2	2390.00	45.7 AV	54.0	-8.3	1.37 H	130	13.32	32.38
3	*2412.00	104.4 PK			1.43 H	155	71.96	32.44
4	*2412.00	95.1 AV			1.43 H	155	62.66	32.44
5	4824.00	52.8 PK	74.0	-21.2	1.51 H	316	10.86	41.94
6	4824.00	48.4 AV	54.0	-5.6	1.51 H	316	6.46	41.94
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.0 PK	74.0	-1.0	1.13 V	88	40.62	32.38
2	2390.00	52.1 AV	54.0	-1.9	1.13 V	88	19.72	32.38
3	*2412.00	110.4 PK			1.13 V	88	77.96	32.44
4	*2412.00	98.3 AV			1.13 V	88	65.86	32.44
5	4824.00	61.1 PK	74.0	-12.9	1.02 V	308	19.16	41.94
6	4824.00	44.4 AV	54.0	-9.6	1.02 V	308	2.46	41.94

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.86	57.8 PK	74.0	-16.2	1.30 H	130	25.44	32.36
2	2384.86	45.9 AV	54.0	-8.1	1.30 H	130	13.54	32.36
3	*2437.00	107.1 PK			1.36 H	138	74.59	32.51
4	*2437.00	97.2 AV			1.36 H	138	64.69	32.51
5	2489.00	58.2 PK	74.0	-15.8	1.35 H	150	25.56	32.64
6	2489.00	46.3 AV	54.0	-7.7	1.35 H	150	13.66	32.64
7	4874.00	52.4 PK	74.0	-21.6	1.52 H	304	10.41	41.99
8	4874.00	48.2 AV	54.0	-5.8	1.52 H	304	6.21	41.99
9	7311.00	54.3 PK	74.0	-19.7	1.00 H	94	7.77	46.53
10	7311.00	42.5 AV	54.0	-11.5	1.00 H	94	-4.03	46.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.86	64.3 PK	74.0	-9.7	1.13 V	88	31.94	32.36
2	2384.86	52.4 AV	54.0	-1.6	1.13 V	88	20.04	32.36
3	*2437.00	112.6 PK			1.13 V	88	80.09	32.51
4	*2437.00	100.9 AV			1.13 V	88	68.39	32.51
5	2489.00	66.9 PK	74.0	-7.1	1.13 V	88	34.26	32.64
6	2489.00	53.5 AV	54.0	-0.5	1.13 V	88	20.86	32.64
7	4874.00	60.4 PK	74.0	-13.6	1.00 V	300	18.41	41.99
8	4874.00	44.2 AV	54.0	-9.8	1.00 V	300	2.21	41.99
9	7311.00	55.0 PK	74.0	-19.0	1.02 V	19	8.47	46.53
10	7311.00	43.8 AV	54.0	-10.2	1.02 V	19	-2.73	46.53

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.3 PK			1.41 H	135	71.73	32.57
2	*2462.00	93.1 AV			1.41 H	135	60.53	32.57
3	2483.50	57.1 PK	74.0	-16.9	1.29 H	141	24.47	32.63
4	2483.50	45.4 AV	54.0	-8.6	1.29 H	141	12.77	32.63
5	4924.00	52.6 PK	74.0	-21.4	1.51 H	290	10.59	42.01
6	4924.00	48.3 AV	54.0	-5.7	1.51 H	290	6.29	42.01
7	7386.00	53.7 PK	74.0	-20.3	1.00 H	86	6.97	46.73
8	7386.00	42.0 AV	54.0	-12.0	1.00 H	86	-4.73	46.73

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			1.13 V	88	76.23	32.57
2	*2462.00	96.4 AV			1.13 V	88	63.83	32.57
3	2483.50	71.6 PK	74.0	-2.4	1.13 V	88	38.97	32.63
4	2483.50	51.9 AV	54.0	-2.1	1.13 V	88	19.27	32.63
5	4924.00	60.1 PK	74.0	-13.9	1.03 V	310	18.09	42.01
6	4924.00	44.2 AV	54.0	-9.8	1.03 V	310	2.19	42.01
7	7386.00	55.1 PK	74.0	-18.9	1.03 V	17	8.37	46.73
8	7386.00	43.8 AV	54.0	-10.2	1.03 V	17	-2.93	46.73

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.7 PK	74.0	-17.3	1.24 H	135	24.32	32.38
2	2390.00	44.9 AV	54.0	-9.1	1.24 H	135	12.52	32.38
3	*2422.00	100.1 PK			1.46 H	150	67.63	32.47
4	*2422.00	89.7 AV			1.46 H	150	57.23	32.47
5	4844.00	52.7 PK	74.0	-21.3	1.49 H	284	10.74	41.96
6	4844.00	48.3 AV	54.0	-5.7	1.49 H	284	6.34	41.96
7	7266.00	53.7 PK	74.0	-20.3	1.00 H	84	7.30	46.40
8	7266.00	42.0 AV	54.0	-12.0	1.00 H	84	-4.40	46.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.8 PK	74.0	-1.2	1.14 V	87	40.42	32.38
2	2390.00	51.2 AV	54.0	-2.8	1.14 V	87	18.82	32.38
3	*2422.00	105.9 PK			1.13 V	100	73.43	32.47
4	*2422.00	93.9 AV			1.13 V	100	61.43	32.47
5	4844.00	60.7 PK	74.0	-13.3	1.02 V	322	18.74	41.96
6	4844.00	44.7 AV	54.0	-9.3	1.02 V	322	2.74	41.96
7	7266.00	55.2 PK	74.0	-18.8	1.05 V	19	8.80	46.40
8	7266.00	44.1 AV	54.0	-9.9	1.05 V	19	-2.30	46.40

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.5 PK	74.0	-16.5	1.24 H	132	25.12	32.38
2	2390.00	45.8 AV	54.0	-8.2	1.24 H	132	13.42	32.38
3	*2437.00	103.1 PK			1.35 H	153	70.59	32.51
4	*2437.00	92.2 AV			1.35 H	153	59.69	32.51
5	2483.50	57.8 PK	74.0	-16.2	1.33 H	165	25.17	32.63
6	2483.50	46.1 AV	54.0	-7.9	1.33 H	165	13.47	32.63
7	4874.00	52.5 PK	74.0	-21.5	1.54 H	291	10.51	41.99
8	4874.00	48.1 AV	54.0	-5.9	1.54 H	291	6.11	41.99
9	7311.00	54.0 PK	74.0	-20.0	1.00 H	97	7.47	46.53
10	7311.00	42.3 AV	54.0	-11.7	1.00 H	97	-4.23	46.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	1.14 V	88	35.02	32.38
2	2390.00	49.1 AV	54.0	-4.9	1.14 V	88	16.72	32.38
3	*2437.00	108.3 PK			1.14 V	88	75.79	32.51
4	*2437.00	95.6 AV			1.14 V	88	63.09	32.51
5	2483.50	72.4 PK	74.0	-1.6	1.14 V	88	39.77	32.63
6	2483.50	52.4 AV	54.0	-1.6	1.14 V	88	19.77	32.63
7	4874.00	61.1 PK	74.0	-12.9	1.08 V	324	19.11	41.99
8	4874.00	44.8 AV	54.0	-9.2	1.08 V	324	2.81	41.99
9	7311.00	55.8 PK	74.0	-18.2	1.06 V	25	9.27	46.53
10	7311.00	44.5 AV	54.0	-9.5	1.06 V	25	-2.03	46.53

REMARKS:

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



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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	97.2 PK			1.30 H	145	64.65	32.55
2	*2452.00	87.8 AV			1.30 H	145	55.25	32.55
3	2483.50	57.4 PK	74.0	-16.6	1.25 H	135	24.77	32.63
4	2483.50	46.0 AV	54.0	-8.0	1.25 H	135	13.37	32.63
5	4904.00	52.4 PK	74.0	-21.6	1.48 H	291	10.38	42.02
6	4904.00	47.8 AV	54.0	-6.2	1.48 H	291	5.78	42.02
7	7356.00	54.5 PK	74.0	-19.5	1.00 H	82	7.85	46.65
8	7356.00	42.6 AV	54.0	-11.4	1.00 H	82	-4.05	46.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.5 PK			1.13 V	113	70.95	32.55
2	*2452.00	91.3 AV			1.13 V	113	58.75	32.55
3	2483.50	72.3 PK	74.0	-1.7	1.13 V	88	39.67	32.63
4	2483.50	49.8 AV	54.0	-4.2	1.13 V	88	17.17	32.63
5	4904.00	61.4 PK	74.0	-12.6	1.10 V	336	19.38	42.02
6	4904.00	45.2 AV	54.0	-8.8	1.10 V	336	3.18	42.02
7	7356.00	56.1 PK	74.0	-17.9	1.06 V	10	9.45	46.65
8	7356.00	44.7 AV	54.0	-9.3	1.06 V	10	-1.95	46.65

REMARKS:

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

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

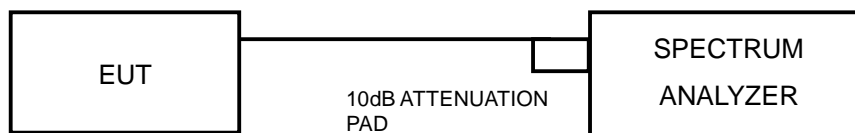
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



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4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.92	0.5	PASS
6	2437	11.68	0.5	PASS
11	2462	11.90	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.46	0.5	PASS
6	2437	16.54	0.5	PASS
11	2462	16.48	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.45	17.42	0.5	PASS
6	2437	17.54	17.48	0.5	PASS
11	2462	17.53	17.54	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	36.28	36.26	0.5	PASS
6	2437	36.19	36.24	0.5	PASS
9	2452	36.28	36.29	0.5	PASS



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4.4 CONDUCTED OUTPUT POWER MEASUREMENT

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

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

4.4.2 INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

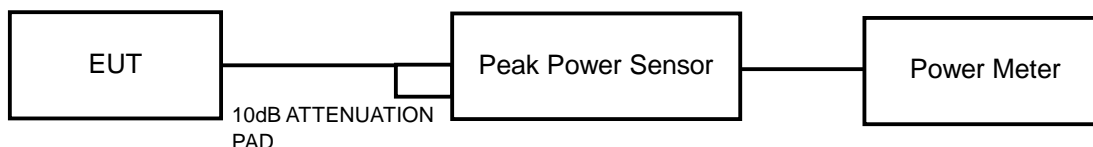
4.4.3 TEST PROCEDURES

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



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4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	100.000	20.0	30	PASS
6	2437	100.000	20.0	30	PASS
11	2462	77.625	18.9	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	190.546	22.8	30	PASS
6	2437	199.526	23.0	30	PASS
11	2462	144.544	21.6	30	PASS

802.11n (HT20)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.1	22.3	332.005	25.21	30	PASS
6	2437	22.7	23.7	420.632	26.24	30	PASS
11	2462	20.7	20.8	237.716	23.76	30	PASS

802.11n (HT40)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	21.0	20.9	248.920	23.96	30	PASS
6	2437	21.5	21.9	296.136	24.71	30	PASS
9	2452	18.6	19.0	151.877	21.81	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

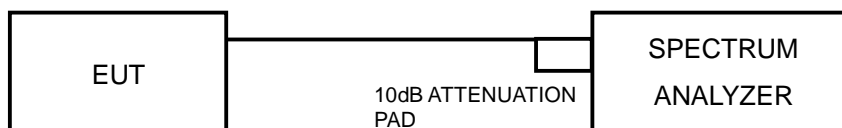
4.5.3 TEST PROCEDURE

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 $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

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



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4.5.7 TEST RESULTS

802.11b

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	9.09	-6.14	8	PASS
6	2437	10.00	-5.23	8	PASS
11	2462	9.00	-6.23	8	PASS

802.11g

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	4.89	-10.34	8	PASS
6	2437	7.34	-7.89	8	PASS
11	2462	3.37	-11.86	8	PASS

802.11n (HT20)

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	3.07	-12.16	3.01	-9.15	8	PASS
	6	2437	5.51	-9.72	3.01	-6.71	8	PASS
	11	2462	1.34	-13.89	3.01	-10.88	8	PASS
1	1	2412	3.53	-11.70	3.01	-8.69	8	PASS
	6	2437	6.04	-9.19	3.01	-6.18	8	PASS
	11	2462	1.79	-13.44	3.01	-10.43	8	PASS

802.11n (HT40)

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	-1.37	-16.60	3.01	-13.59	8	PASS
	6	2437	0.37	-14.86	3.01	-11.85	8	PASS
	9	2452	-3.60	-18.83	3.01	-15.82	8	PASS
1	3	2422	-1.01	-16.24	3.01	-13.23	8	PASS
	6	2437	0.37	-14.86	3.01	-11.85	8	PASS
	9	2452	-3.00	-18.23	3.01	-15.22	8	PASS

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

4.6.3 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

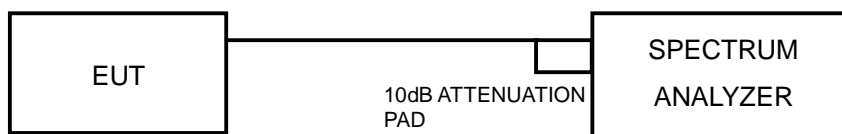
MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

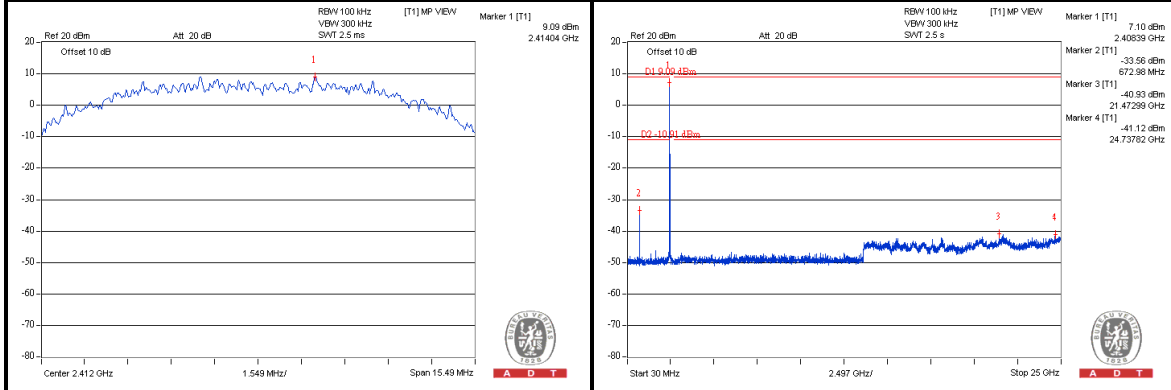
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



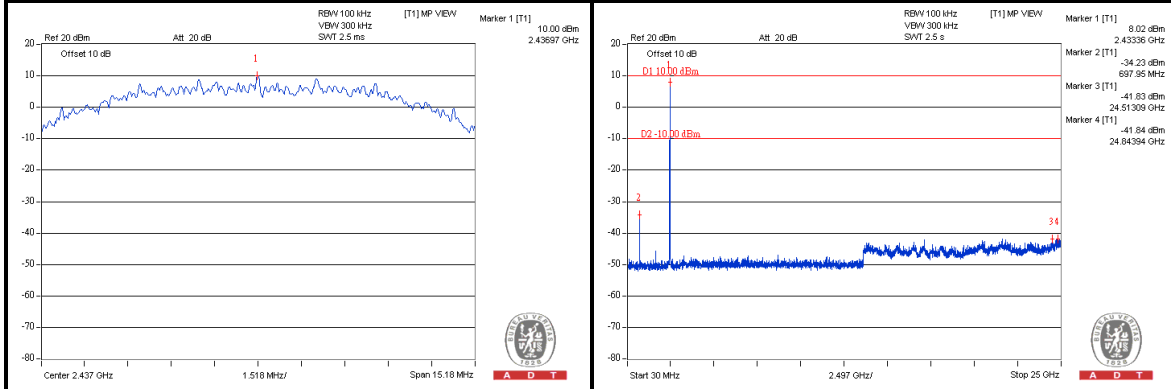
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802.11b

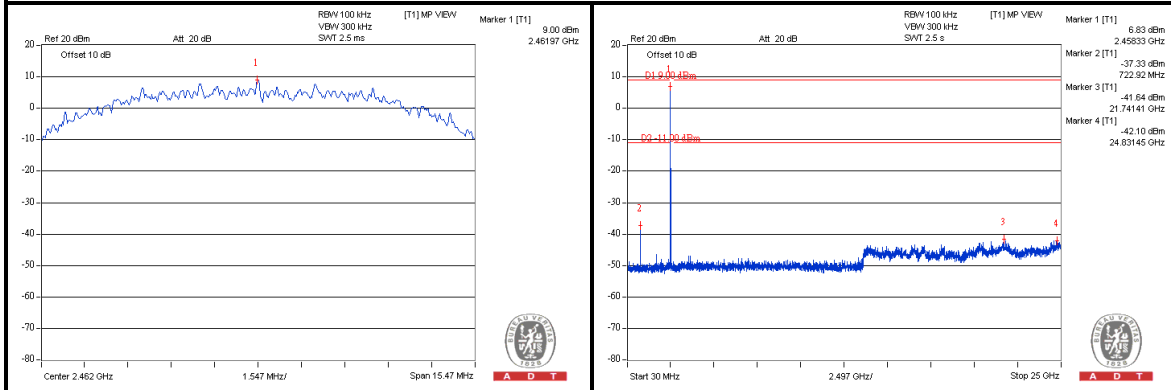
CH 1



CH 6



CH 11

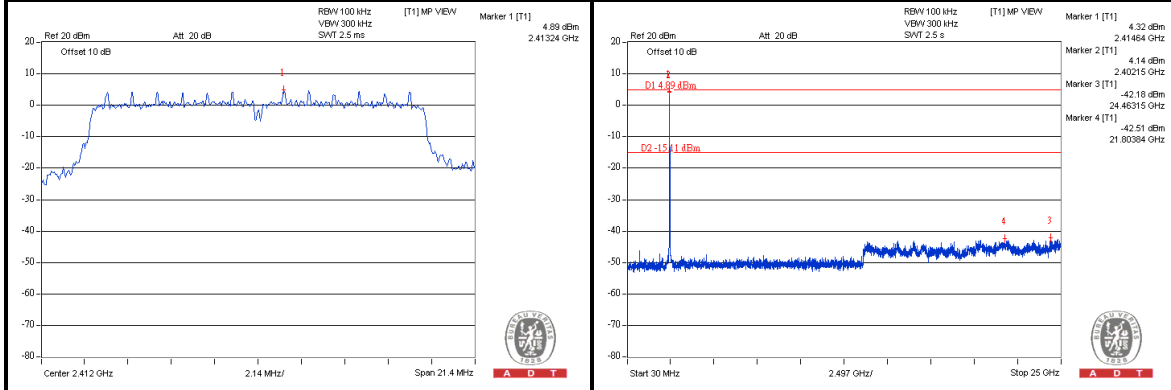




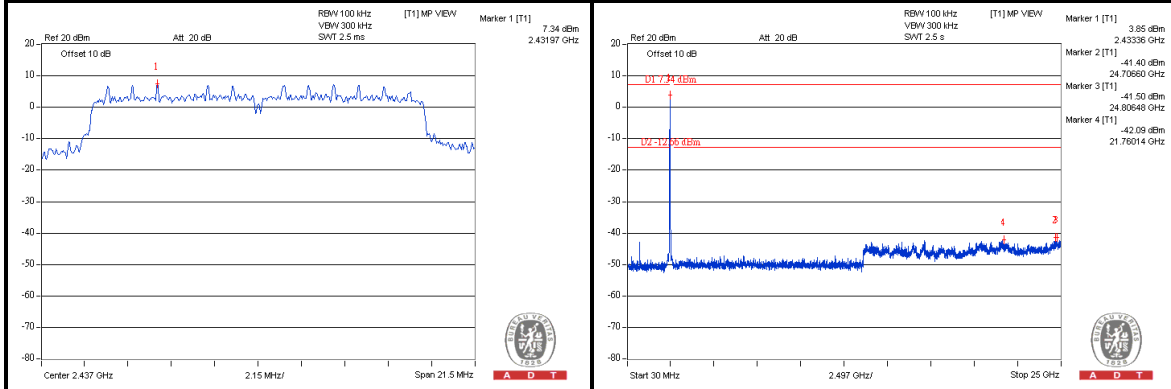
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802.11g

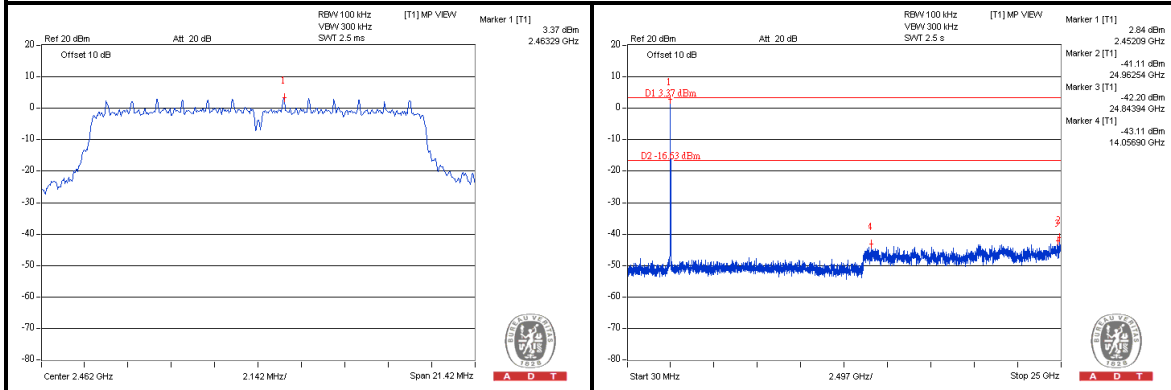
CH 1



CH 6



CH 11

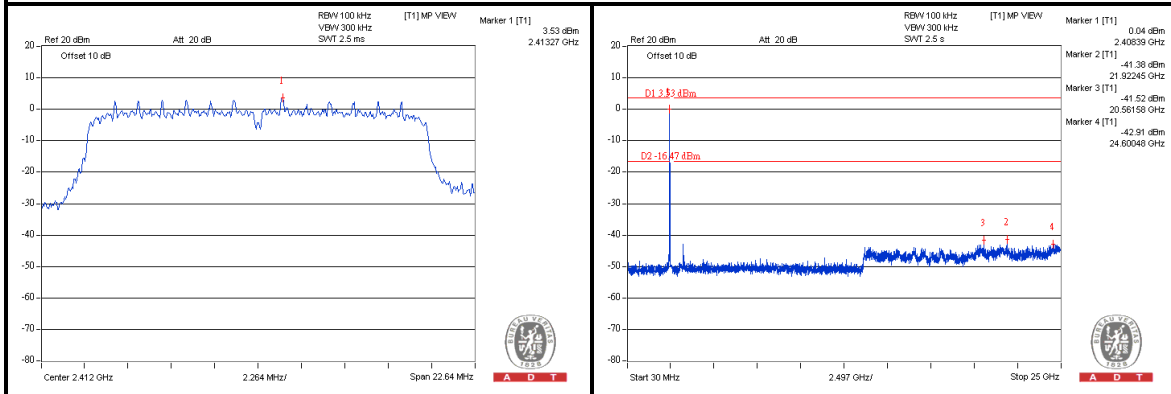




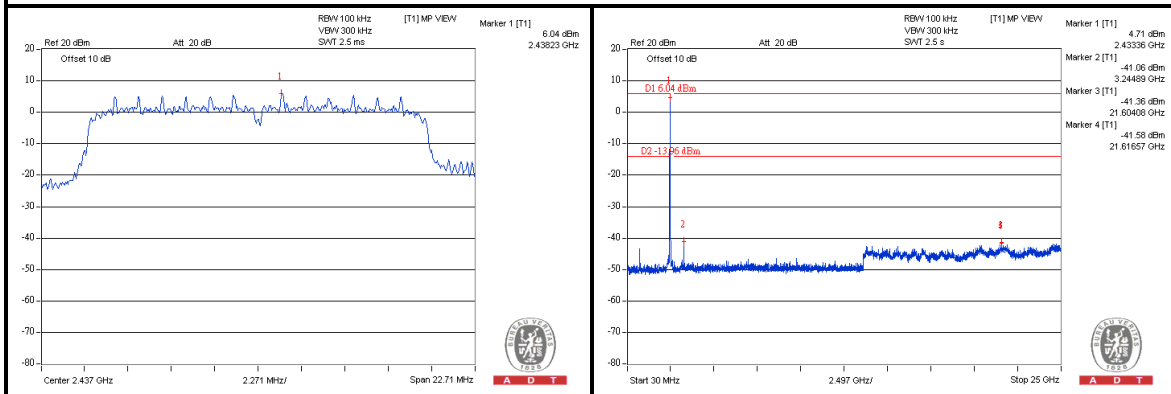
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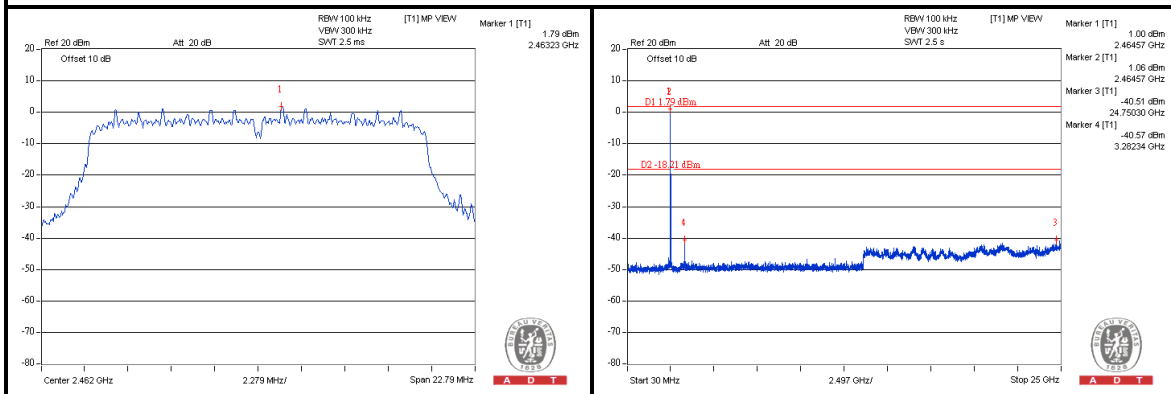
CH 1



CH 6



CH 11

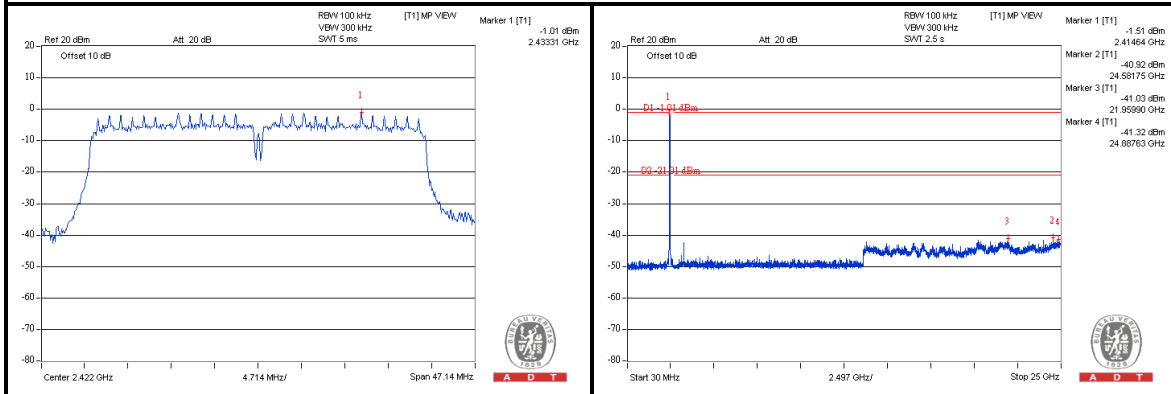




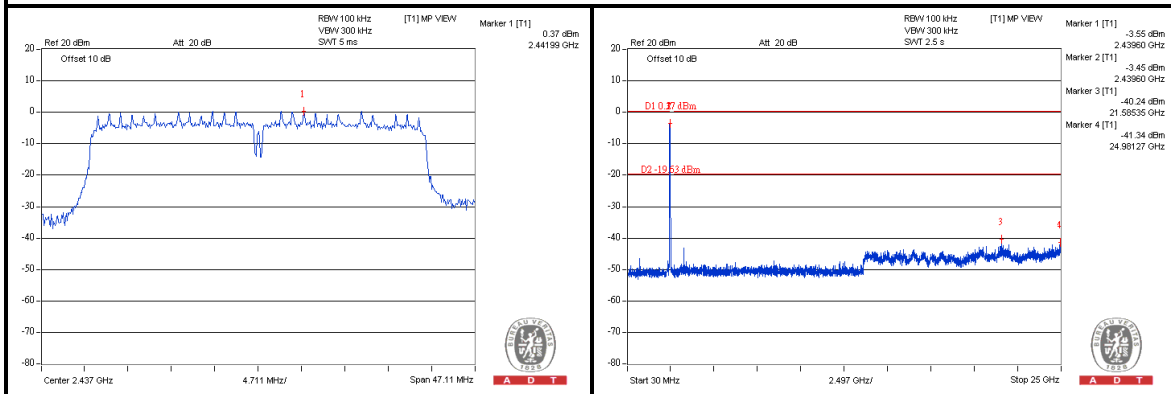
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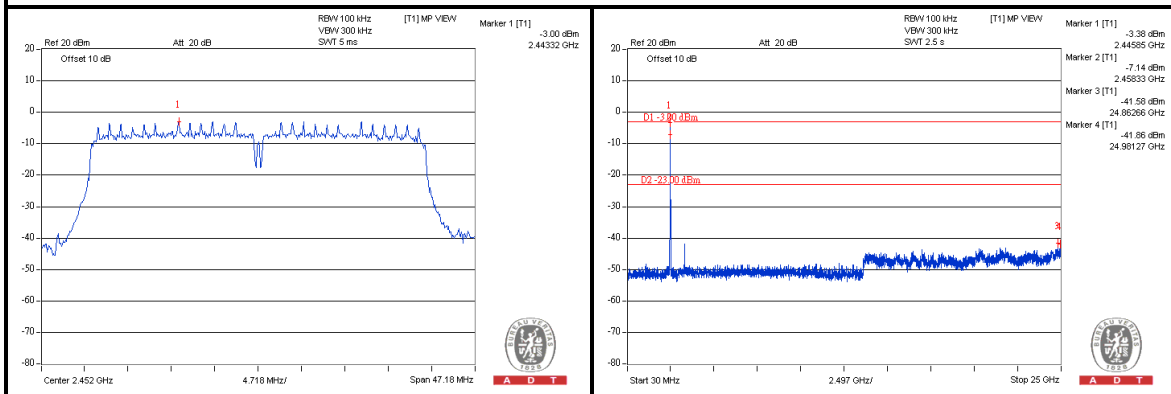
CH 1



CH 6



CH 11





A D T

5. TEST TYPES AND RESULTS (FOR 5GHz, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 12, 2012	Mar.11, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 06, 2012	Sep. 05, 2013
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 08,2012	June 07,2013
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 28, 2012	Aug. 27, 2013
50 ohms Terminator	50	EMC-3	Sep. 25, 2012	Sep. 24, 2013
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Oct. 16 to Nov. 07, 2012



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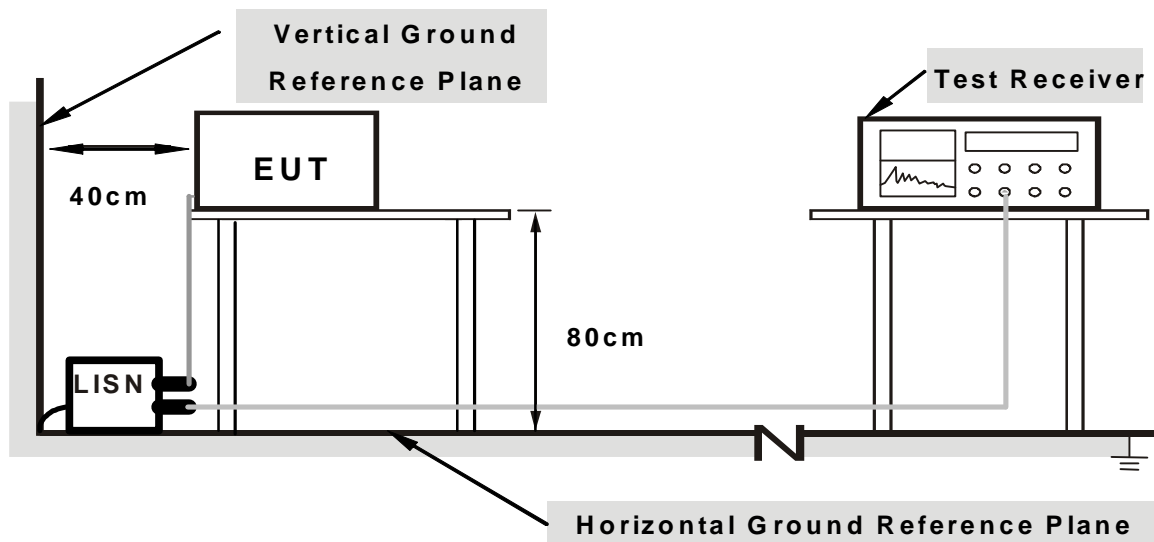
5.1.3 TEST PROCEDURES

- 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. At least the disturbance levels and the frequencies of six highest disturbances from each mains port were recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

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

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

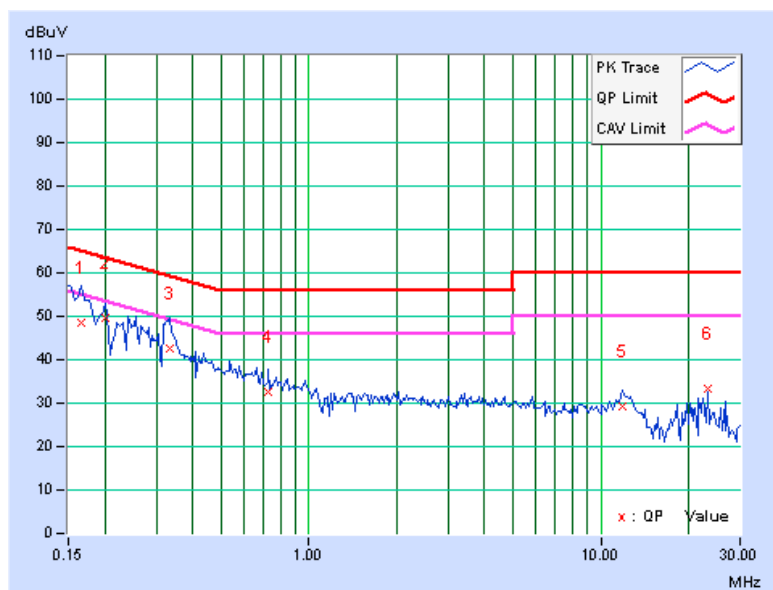
5.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16566	0.11	48.56	29.78	48.67	29.89	65.18	55.18	-16.51	-25.29
2	0.20083	0.12	49.38	41.39	49.50	41.51	63.58	53.58	-14.08	-12.07
3	0.33348	0.15	42.41	27.36	42.56	27.51	59.36	49.36	-16.81	-21.86
4	0.72883	0.18	32.27	22.47	32.45	22.65	56.00	46.00	-23.55	-23.35
5	11.89072	0.63	28.48	22.37	29.11	23.00	60.00	50.00	-30.89	-27.00
6	23.12873	1.01	32.27	25.52	33.28	26.53	60.00	50.00	-26.72	-23.47

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.





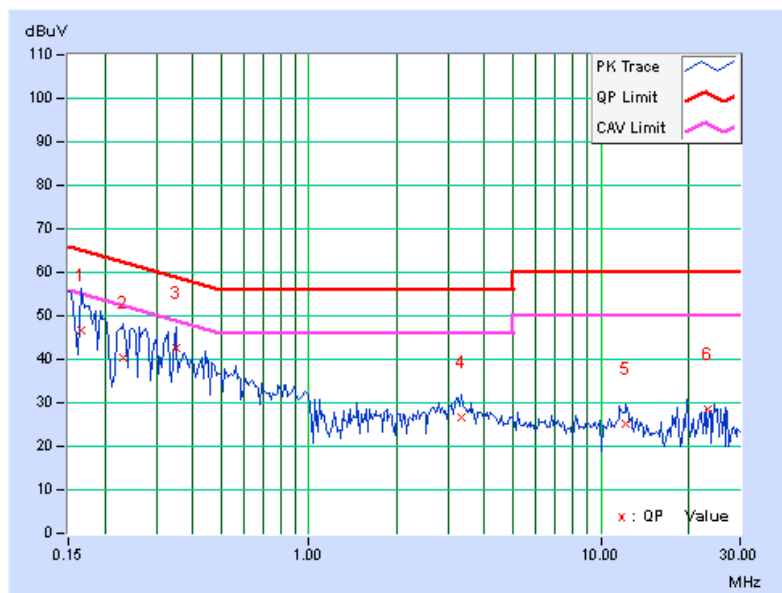
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16567	0.09	46.57	28.83	46.66	28.92	65.17	55.17	-18.52	-26.26
2	0.23241	0.11	40.23	23.63	40.34	23.74	62.36	52.36	-22.03	-28.63
3	0.34932	0.14	42.49	31.83	42.63	31.97	58.98	48.98	-16.35	-17.01
4	3.34768	0.23	26.58	17.47	26.81	17.70	56.00	46.00	-29.19	-28.30
5	12.19553	0.46	24.63	16.78	25.09	17.24	60.00	50.00	-34.91	-32.76
6	23.12886	0.68	27.72	21.47	28.40	22.15	60.00	50.00	-31.60	-27.85

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.



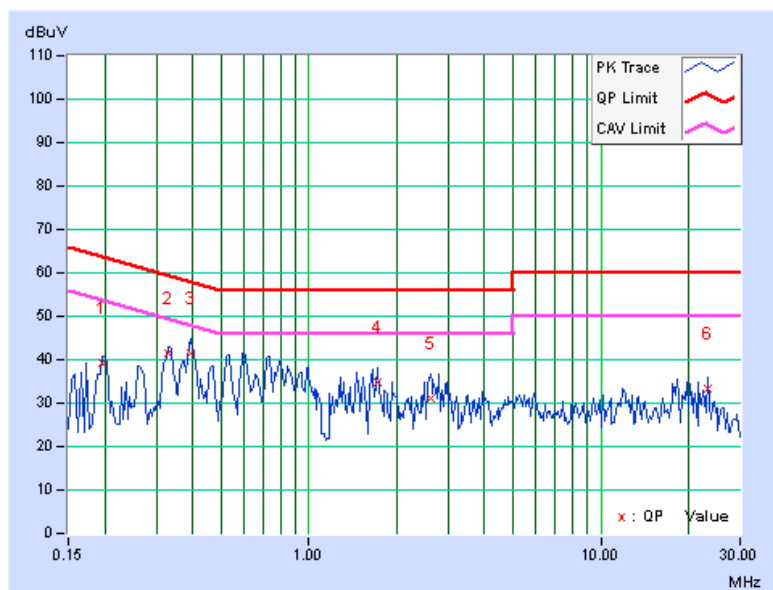
5.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19677	0.12	39.02	33.42	39.14	33.54	63.75	53.75	-24.61	-20.21
2	0.32983	0.15	41.21	34.51	41.36	34.66	59.46	49.46	-18.10	-14.80
3	0.39234	0.16	41.44	34.81	41.60	34.97	58.01	48.01	-16.42	-13.05
4	1.73061	0.22	34.58	22.32	34.80	22.54	56.00	46.00	-21.20	-23.46
5	2.61738	0.24	30.74	19.32	30.98	19.56	56.00	46.00	-25.02	-26.44
6	23.12888	1.01	32.39	29.38	33.40	30.39	60.00	50.00	-26.60	-19.61

REMARKS:

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





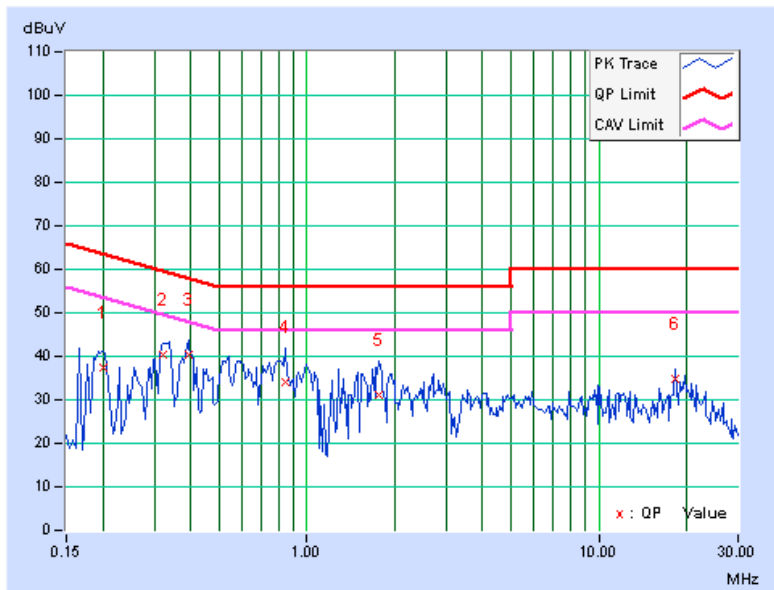
A D T

PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20088	0.10	37.44	25.32	37.54	25.42	63.57	53.57	-26.03	-28.15
2	0.32187	0.13	40.41	28.61	40.54	28.74	59.66	49.66	-19.12	-20.92
3	0.39231	0.15	40.12	30.38	40.27	30.53	58.01	48.01	-17.75	-17.49
4	0.84547	0.16	34.01	20.44	34.17	20.60	56.00	46.00	-21.83	-25.40
5	1.76955	0.20	31.07	12.61	31.27	12.81	56.00	46.00	-24.73	-33.19
6	18.24238	0.57	34.38	27.62	34.95	28.19	60.00	50.00	-25.05	-21.81

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.



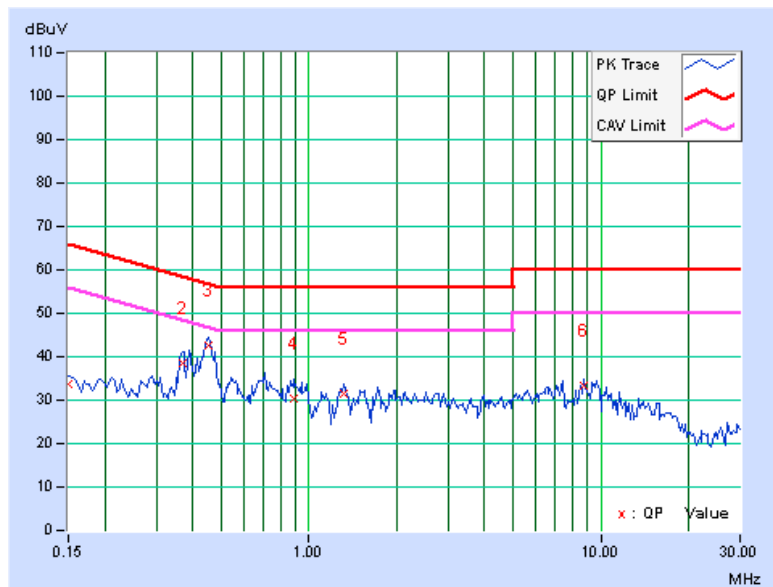
5.1.9 TEST RESULTS (MODE 3)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. (dB)	AV. (dB)
	1	0.15013	0.11	33.61	26.41	33.72	26.52	65.99	55.99	-32.28
2	0.36875	0.15	38.41	33.62	38.56	33.77	58.53	48.53	-19.97	-14.76
3	0.45078	0.16	42.52	34.71	42.68	34.87	56.86	46.86	-14.18	-11.99
4	0.88828	0.18	30.12	23.34	30.30	23.52	56.00	46.00	-25.70	-22.48
5	1.32031	0.20	31.12	25.03	31.32	25.23	56.00	46.00	-24.68	-20.77
6	8.71484	0.50	32.84	26.42	33.34	26.92	60.00	50.00	-26.66	-23.08

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.

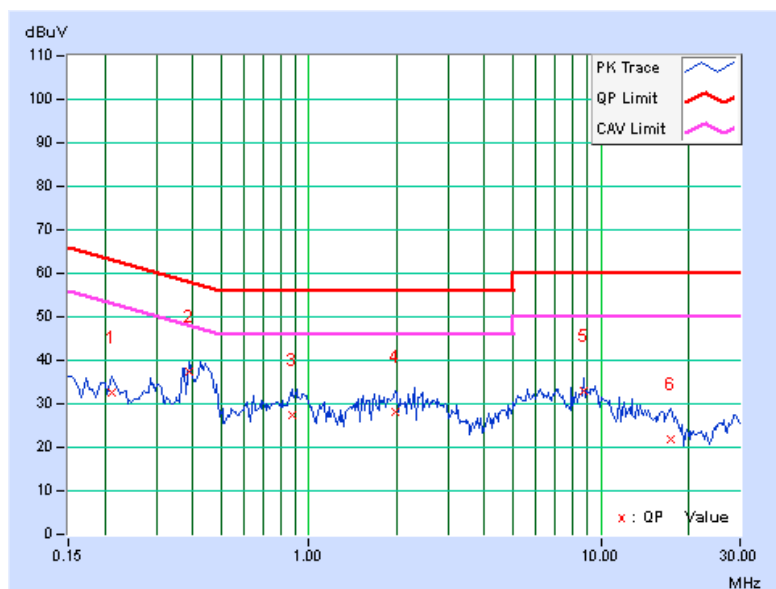


PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21253	0.10	32.33	21.22	32.43	21.32	63.11	53.11	-30.67	-31.78
2	0.38833	0.15	37.41	32.41	37.56	32.56	58.10	48.10	-20.54	-15.54
3	0.87273	0.17	27.41	20.12	27.58	20.29	56.00	46.00	-28.42	-25.71
4	1.98436	0.21	28.11	19.31	28.32	19.52	56.00	46.00	-27.68	-26.48
5	8.71872	0.38	32.57	24.38	32.95	24.76	60.00	50.00	-27.05	-25.24
6	17.37896	0.56	21.41	14.32	21.97	14.88	60.00	50.00	-38.03	-35.12

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.



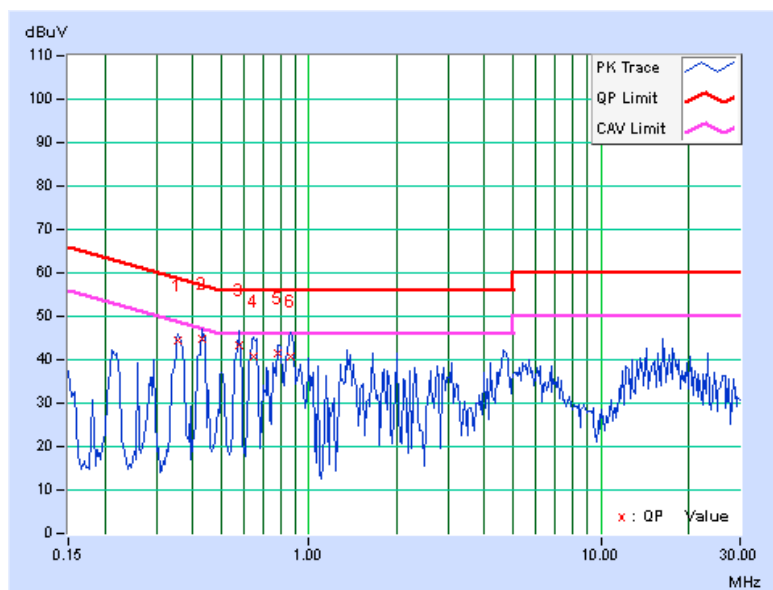
5.1.10 TEST RESULTS (MODE 4)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.35703	0.17	44.38	35.48	44.55	35.65	58.80	48.80	-14.25	-13.15
2	0.43125	0.18	44.72	34.52	44.90	34.70	57.23	47.23	-12.33	-12.53
3	0.57578	0.19	43.30	32.82	43.49	33.01	56.00	46.00	-12.51	-12.99
4	0.65000	0.20	40.56	26.40	40.76	26.60	56.00	46.00	-15.24	-19.40
5	0.78281	0.21	41.30	29.66	41.51	29.87	56.00	46.00	-14.49	-16.13
6	0.86484	0.21	40.56	26.60	40.77	26.81	56.00	46.00	-15.23	-19.19

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.





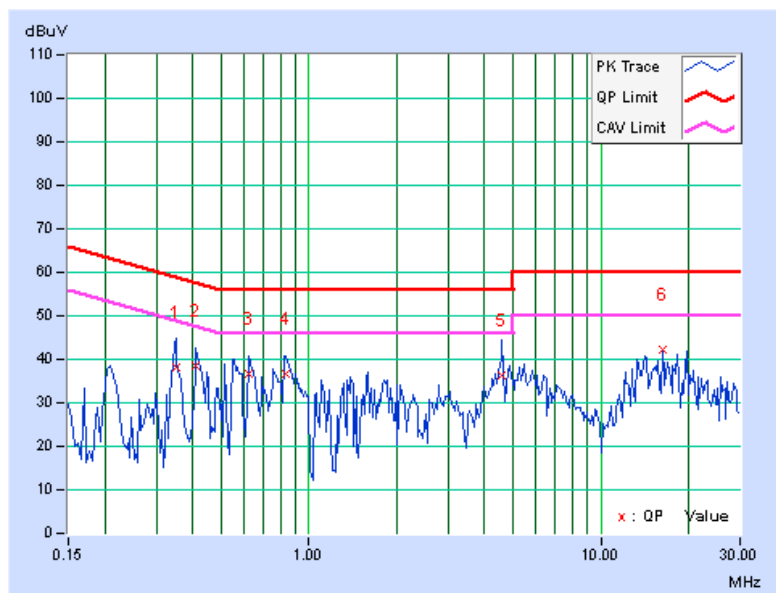
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.34922	0.16	38.14	32.14	38.30	32.30	58.98	48.98	-20.68	-16.68
2	0.41172	0.17	38.18	26.08	38.35	26.25	57.61	47.61	-19.26	-21.36
3	0.62266	0.18	36.52	24.94	36.70	25.12	56.00	46.00	-19.30	-20.88
4	0.82969	0.19	36.66	24.42	36.85	24.61	56.00	46.00	-19.15	-21.39
5	4.59766	0.38	35.74	19.18	36.12	19.56	56.00	46.00	-19.88	-26.44
6	16.22656	0.86	41.42	35.92	42.28	36.78	60.00	50.00	-17.72	-13.22

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.



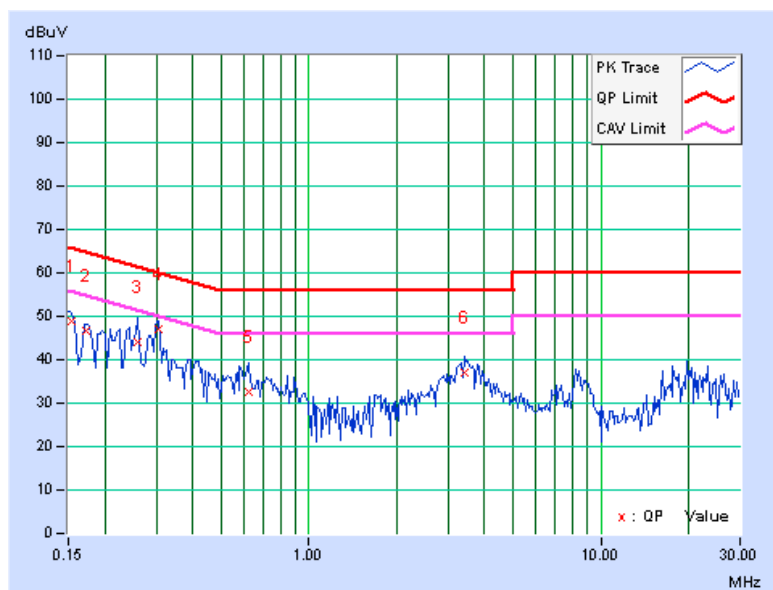
5.1.11 TEST RESULTS (MODE 5)

PHASE	Line (L)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.11	48.94	41.80	49.05	41.91	65.79	55.79	-16.74	-13.88
2	0.17344	0.12	46.62	39.52	46.74	39.64	64.79	54.79	-18.06	-15.16
3	0.25938	0.14	43.82	36.86	43.96	37.00	61.45	51.45	-17.49	-14.45
4	0.30625	0.16	46.92	38.20	47.08	38.36	60.07	50.07	-13.00	-11.72
5	0.61875	0.19	32.40	21.48	32.59	21.67	56.00	46.00	-23.41	-24.33
6	3.40625	0.32	36.70	26.46	37.02	26.78	56.00	46.00	-18.98	-19.22

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.





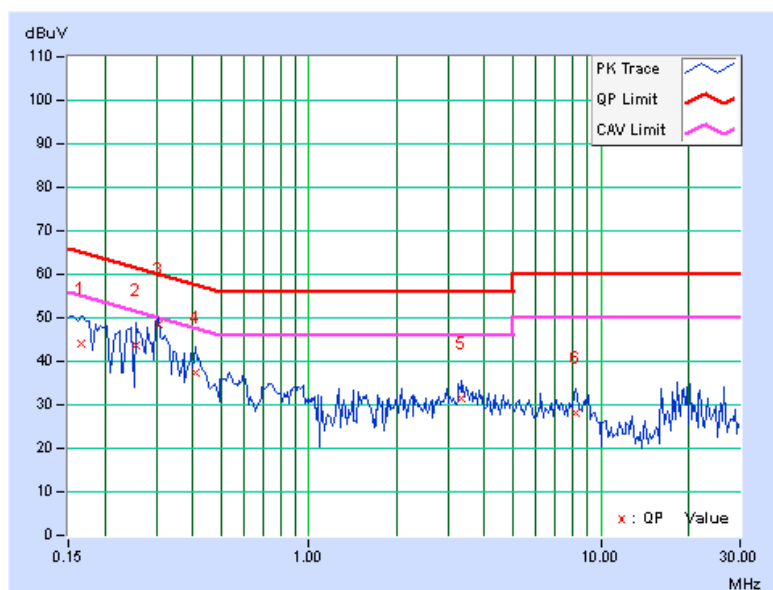
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PHASE	Neutral (N)	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak (QP) / Average (AV), 9 kHz
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No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.10	43.86	26.74	43.96	26.84	65.18	55.18	-21.21	-28.33
2	0.25547	0.13	43.46	35.34	43.59	35.47	61.58	51.58	-17.98	-16.10
3	0.30625	0.15	48.42	42.46	48.57	42.61	60.07	50.07	-11.51	-7.47
4	0.40781	0.17	37.22	30.64	37.39	30.81	57.69	47.69	-20.30	-16.88
5	3.34766	0.32	31.14	24.46	31.46	24.78	56.00	46.00	-24.54	-21.22
6	8.25781	0.57	27.40	19.72	27.97	20.29	60.00	50.00	-32.03	-29.71

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.



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5.2.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.
7. Tested Date: Oct. 19, 2012



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For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
Pre-Selector Agilent	N9039A	MY46520310	Sep. 03, 2012	Sep. 02, 2013
Signal Generator Agilent	N5181A	MY49060347	July 24, 2012	July 23, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: Oct. 24, 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 meters chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

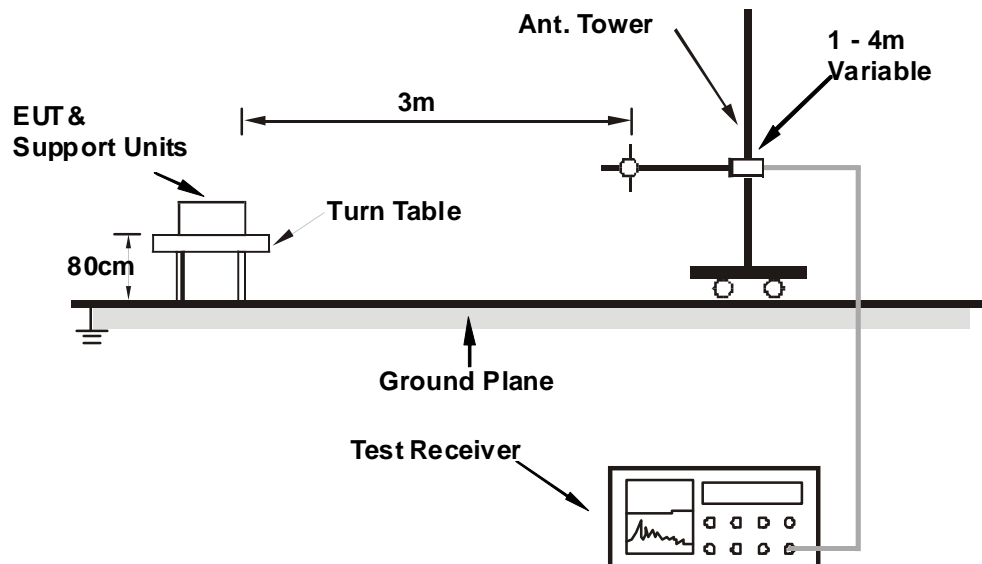
NOTE:

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

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 (HT20)

CHANNEL	TX Channel 165	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	60.19	25.9 QP	40.0	-14.1	1.00 H	36	12.31	13.63
2	174.70	31.6 QP	43.5	-11.9	1.50 H	101	18.19	13.42
3	250.02	34.2 QP	46.0	-11.8	1.00 H	319	20.82	13.35
4	374.95	31.9 QP	46.0	-14.1	1.00 H	323	14.68	17.22
5	750.00	38.3 QP	46.0	-7.8	1.00 H	325	13.34	24.91
6	933.20	31.5 QP	46.0	-14.5	1.50 H	227	3.70	27.80
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	66.35	35.1 QP	40.0	-4.9	1.50 V	0	22.13	13.00
2	94.30	29.6 QP	43.5	-13.9	1.50 V	229	20.48	9.15
3	250.03	33.5 QP	46.0	-12.5	1.00 V	147	20.15	13.35
4	500.00	31.8 QP	46.0	-14.2	2.00 V	360	11.38	20.39
5	749.00	31.4 QP	46.0	-14.6	2.00 V	360	6.50	24.89
6	933.32	33.3 QP	46.0	-12.7	1.50 V	0	5.53	27.80

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.



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ABOVE 1GHz DATA

802.11a

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	*5745.00	102.3 PK			1.00 H	192	58.98	43.32
2	*5745.00	93.3 AV			1.00 H	192	49.98	43.32
3	11490.00	62.9 PK	74.0	-11.1	1.32 H	130	13.11	49.79
4	11490.00	49.5 AV	54.0	-4.5	1.32 H	130	-0.29	49.79

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	110.7 PK			1.21 V	10	67.38	43.32
2	*5745.00	101.4 AV			1.21 V	10	58.08	43.32
3	11490.00	61.5 PK	74.0	-12.5	1.31 V	209	11.71	49.79
4	11490.00	48.3 AV	54.0	-5.7	1.31 V	209	-1.49	49.79

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.



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CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	101.8 PK			1.00 H	206	58.43	43.37
2	*5785.00	92.7 AV			1.00 H	206	49.33	43.37
3	11570.00	63.0 PK	74.0	-11.0	1.36 H	135	13.17	49.83
4	11570.00	49.8 AV	54.0	-4.2	1.36 H	135	-0.03	49.83

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	113.1 PK			1.24 V	19	69.73	43.37
2	*5785.00	100.2 AV			1.24 V	19	56.83	43.37
3	11570.00	61.3 PK	74.0	-12.7	1.36 V	222	11.47	49.83
4	11570.00	47.9 AV	54.0	-6.1	1.36 V	222	-1.93	49.83

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.



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	98.7 PK			1.00 H	192	55.23	43.47
2	*5825.00	89.2 AV			1.00 H	192	45.73	43.47
3	11650.00	62.3 PK	74.0	-11.7	1.40 H	121	12.19	50.11
4	11650.00	49.4 AV	54.0	-4.6	1.40 H	121	-0.71	50.11

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	113.0 PK			1.20 V	9	69.53	43.47
2	*5825.00	100.3 AV			1.20 V	9	56.83	43.47
3	11650.00	61.5 PK	74.0	-12.5	1.38 V	215	11.39	50.11
4	11650.00	48.0 AV	54.0	-6.0	1.38 V	215	-2.11	50.11

REMARKS:

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

802.11n (HT20)

CHANNEL	TX Channel 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	*5745.00	103.1 PK			1.02 H	206	59.78	43.32
2	*5745.00	93.6 AV			1.02 H	206	50.28	43.32
3	11490.00	62.9 PK	74.0	-11.1	1.36 H	112	13.11	49.79
4	11490.00	49.7 AV	54.0	-4.3	1.36 H	112	-0.09	49.79
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	113.0 PK			1.20 V	10	69.68	43.32
2	*5745.00	100.3 AV			1.20 V	10	56.98	43.32
3	11490.00	57.2 PK	74.0	-16.8	1.00 V	87	7.41	49.79
4	11490.00	47.2 AV	54.0	-6.8	1.00 V	87	-2.59	49.79

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.



A D T

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	102.8 PK			1.00 H	211	59.43	43.37
2	*5785.00	92.7 AV			1.00 H	211	49.33	43.37
3	11570.00	62.7 PK	74.0	-11.3	1.35 H	122	12.87	49.83
4	11570.00	49.3 AV	54.0	-4.7	1.35 H	122	-0.53	49.83

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	113.4 PK			1.19 V	22	70.03	43.37
2	*5785.00	100.5 AV			1.19 V	22	57.13	43.37
3	11570.00	62.4 PK	74.0	-11.6	1.47 V	119	12.57	49.83
4	11570.00	48.7 AV	54.0	-5.3	1.47 V	119	-1.13	49.83

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.



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	99.1 PK			1.00 H	193	55.63	43.47
2	*5825.00	90.6 AV			1.00 H	193	47.13	43.47
3	11650.00	62.4 PK	74.0	-11.6	1.40 H	133	12.29	50.11
4	11650.00	48.8 AV	54.0	-5.2	1.40 H	133	-1.31	50.11

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	112.7 PK			1.22 V	32	69.23	43.47
2	*5825.00	100.1 AV			1.22 V	32	56.63	43.47
3	11650.00	62.9 PK	74.0	-11.1	1.43 V	130	12.79	50.11
4	11650.00	49.0 AV	54.0	-5.0	1.43 V	130	-1.11	50.11

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 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	*5755.00	100.4 PK			1.00 H	226	57.06	43.34
2	*5755.00	89.1 AV			1.00 H	226	45.76	43.34
3	11510.00	62.7 PK	74.0	-11.3	1.41 H	129	12.92	49.78
4	11510.00	48.9 AV	54.0	-5.1	1.41 H	129	-0.88	49.78
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			1.20 V	47	68.16	43.34
2	*5755.00	99.7 AV			1.20 V	47	56.36	43.34
3	11510.00	62.8 PK	74.0	-11.2	1.47 V	126	13.02	49.78
4	11510.00	49.1 AV	54.0	-4.9	1.47 V	126	-0.68	49.78

REMARKS:

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



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CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	97.9 PK			1.00 H	193	54.52	43.38
2	*5795.00	86.7 AV			1.00 H	193	43.32	43.38
3	11590.00	63.1 PK	74.0	-10.9	1.39 H	134	13.26	49.84
4	11590.00	49.3 AV	54.0	-4.7	1.39 H	134	-0.54	49.84

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	111.4 PK			1.16 V	41	68.02	43.38
2	*5795.00	99.5 AV			1.16 V	41	56.12	43.38
3	11590.00	63.2 PK	74.0	-10.8	1.44 V	141	13.36	49.84
4	11590.00	49.3 AV	54.0	-4.7	1.44 V	141	-0.54	49.84

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.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

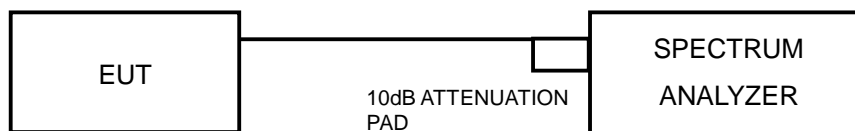
5.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

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.



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5.3.7 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.47	0.5	PASS
157	5785	16.52	0.5	PASS
165	5825	16.52	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.59	17.63	0.5	PASS
157	5785	17.56	17.51	0.5	PASS
165	5825	17.52	17.59	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.48	36.45	0.5	PASS
159	5795	36.46	36.48	0.5	PASS



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5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

5.4.2 INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

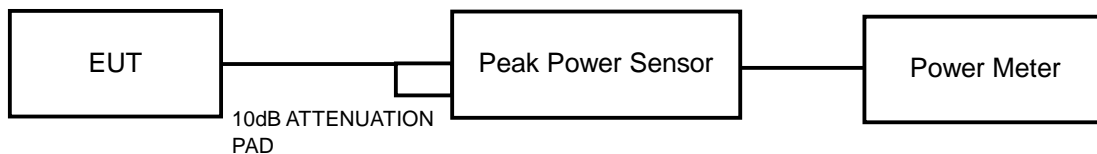
5.4.3 TEST PROCEDURES

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



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5.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
149	5745	134.896	21.3	30	PASS
157	5785	131.826	21.2	30	PASS
165	5825	125.893	21.0	30	PASS

802.11n (HT20)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	20.9	20.5	235.229	23.71	30	PASS
157	5785	20.6	20.3	221.967	23.46	30	PASS
165	5825	20.4	20.1	211.977	23.26	30	PASS

802.11n (HT40)

CHAN.	FREQUENCY (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	20.8	20.4	229.874	23.61	30	PASS
159	5795	20.5	20.0	212.202	23.27	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

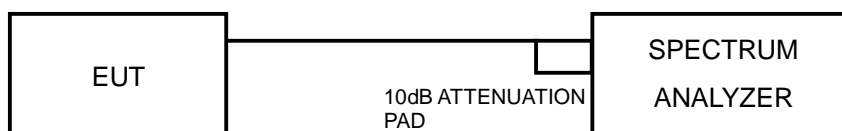
5.5.3 TEST PROCEDURE

1. Set the RBW = 100 kHz, VBW =300 kHz, Detector = peak.
2. Sweep time = auto couple.
3. Trace mode = max hold.
4. Allow trace to fully stabilize.
5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. 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 $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

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



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5.5.7 TEST RESULTS

802.11a

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	7.81	-7.42	8	PASS
157	5785	6.95	-8.28	8	PASS
165	5825	6.49	-8.74	8	PASS

802.11n (HT20)

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	5.61	-9.62	3.01	-6.61	8	PASS
	157	5785	4.66	-10.57	3.01	-7.56	8	PASS
	165	5825	3.76	-11.47	3.01	-8.46	8	PASS
1	149	5745	6.10	-9.13	3.01	-6.12	8	PASS
	157	5785	5.22	-10.01	3.01	-7.00	8	PASS
	165	5825	4.25	-10.98	3.01	-7.97	8	PASS

802.11n (HT40)

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	1.79	-13.44	3.01	-10.43	8	PASS
	159	5795	1.27	-13.96	3.01	-10.95	8	PASS
1	151	5755	2.32	-12.91	3.01	-9.90	8	PASS
	159	5795	1.66	-13.57	3.01	-10.56	8	PASS

5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

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

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Oct. 26, 2012

5.6.3 TEST PROCEDURE

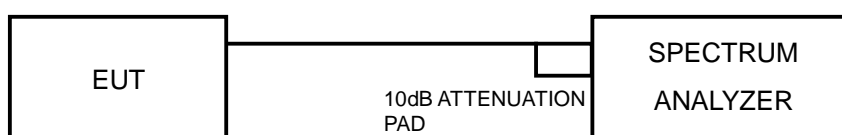
Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.7 TEST RESULTS

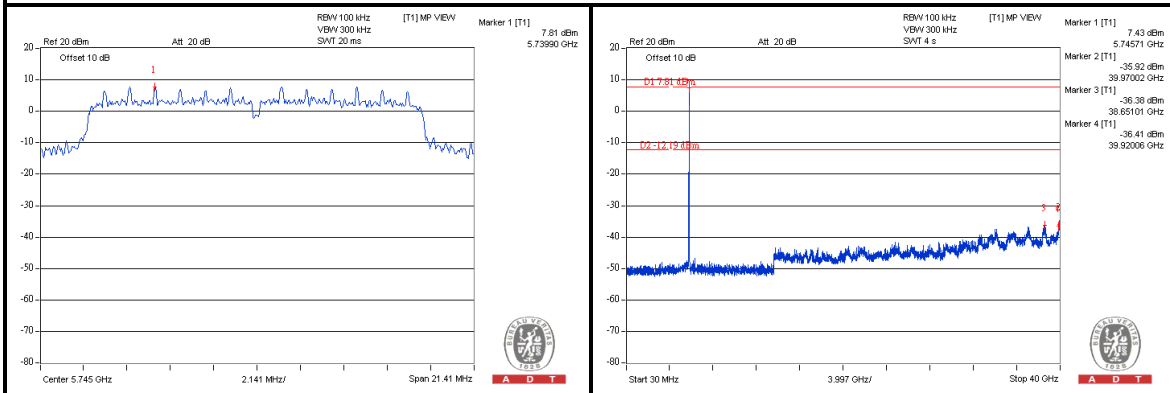
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



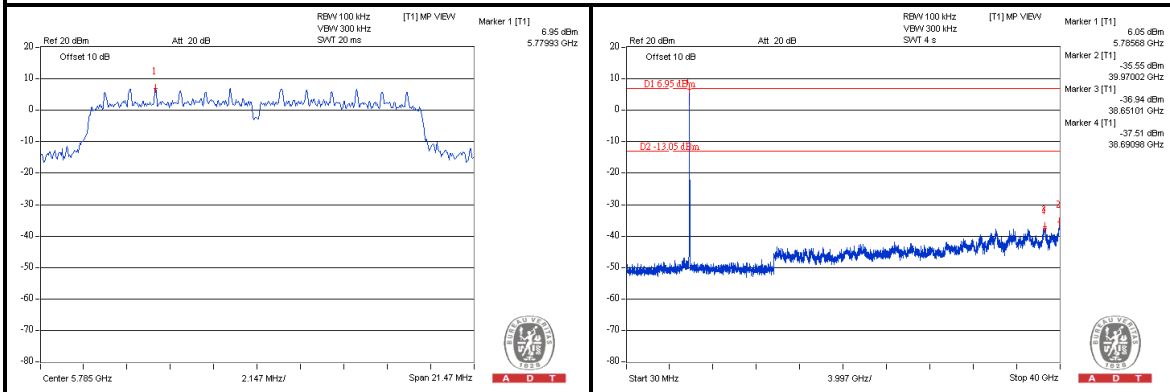
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802.11a

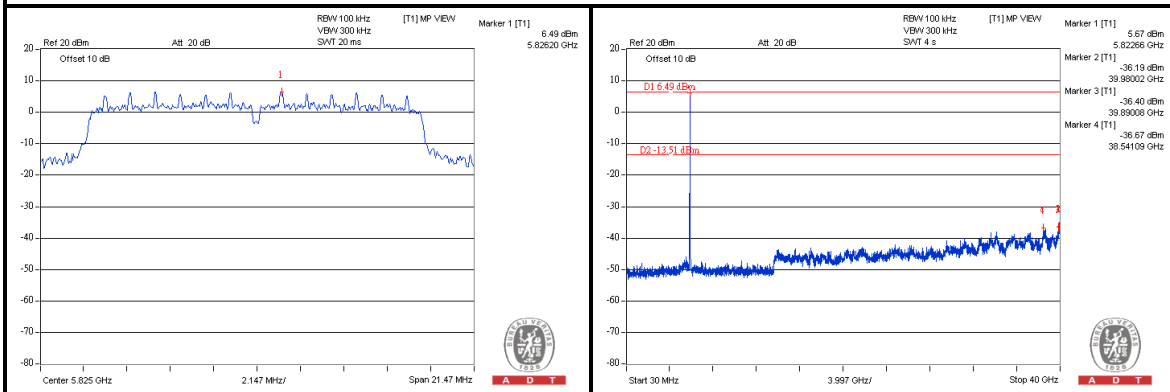
CH 149



CH 157



CH 165

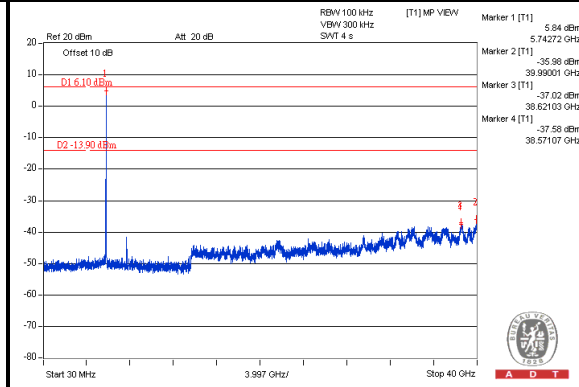
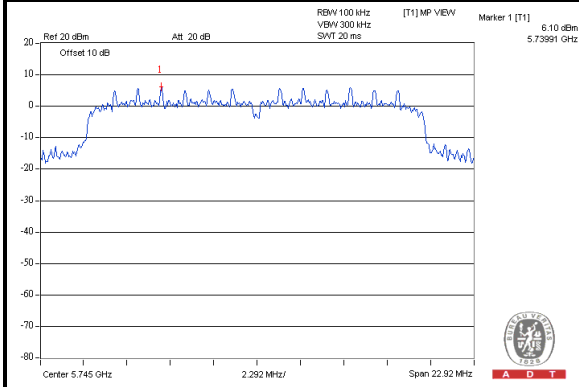




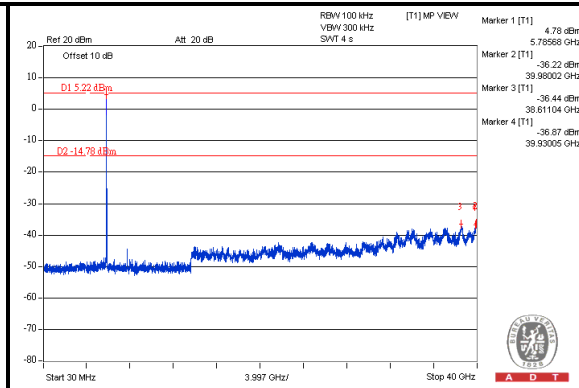
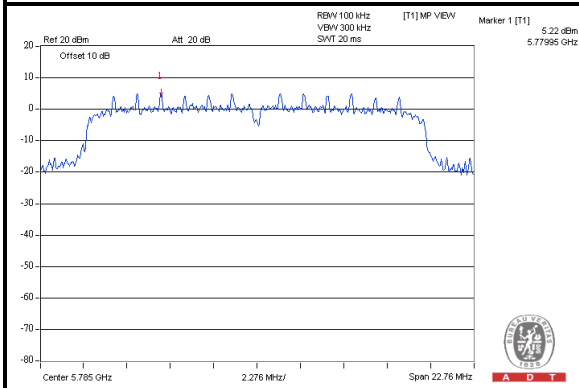
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802.11n (HT20)

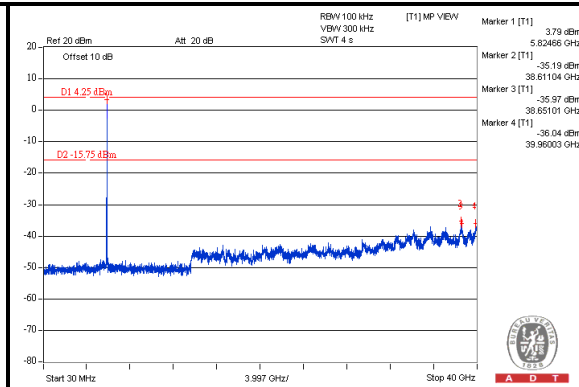
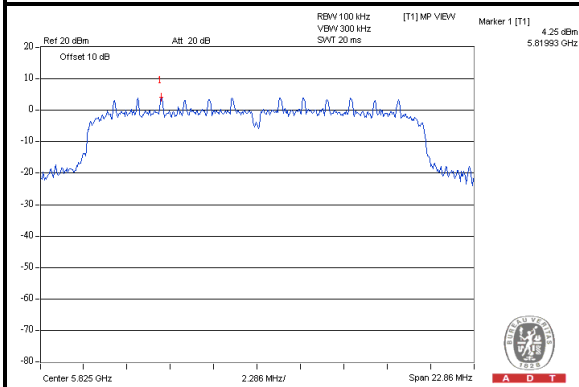
CH 149



CH 157



CH 165

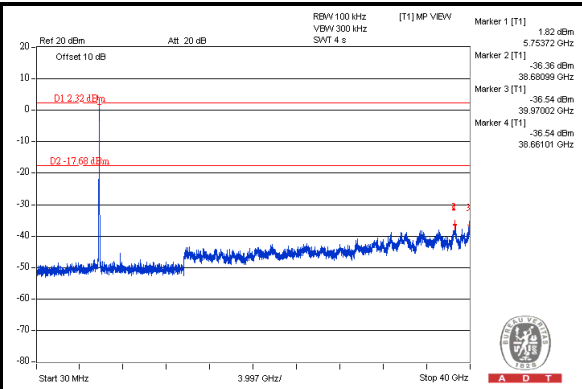
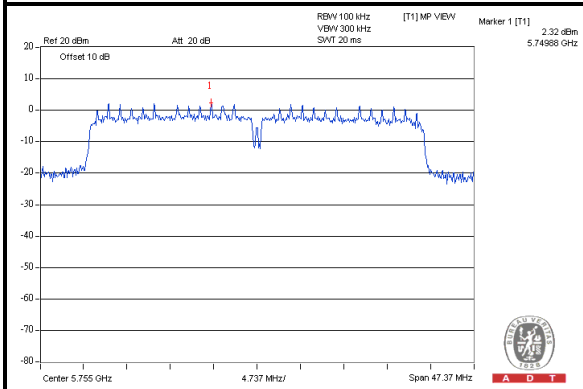




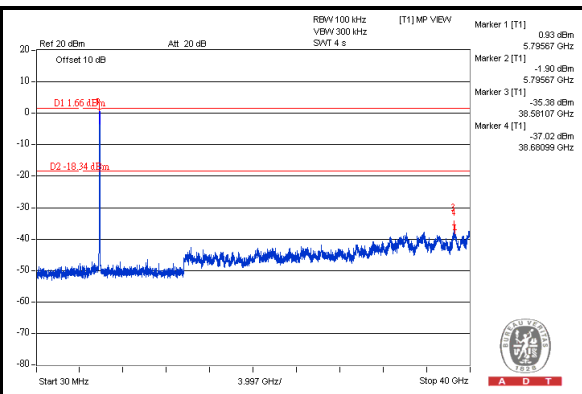
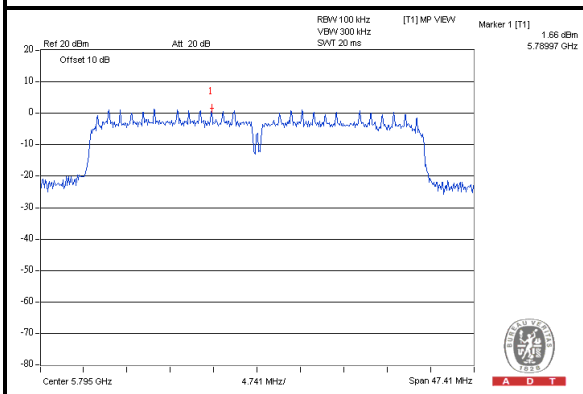
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802.11n (HT40)

CH 151



CH 159





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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





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7. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.



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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 ---