



A D T

Supplemental “Transmit Simultaneously” Test Report

REPORT NO.: RF130725E04A-2 R1

MODEL NO.: MR34-HW

FCC ID: UDX-60025010

RECEIVED: Aug. 02, 2013

TESTED: Aug. 02 to Sep. 23, 2013

ISSUED: Oct. 02, 2013

APPLICANT: Cisco Systems, Inc.

ADDRESS: 170 West Tasman Drive, San Jose, CA 95134 USA

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

LAB ADDRESS : No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (1): No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

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



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification



Table of Contents

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS.....	6
2.1 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:.....	12
3.3 DESCRIPTION OF SUPPORT UNITS	17
3.4 CONFIGURATION OF SYSTEM UNDER TEST.....	18
4. TEST TYPES AND RESULTS.....	20
4.1 CONDUCTED EMISSION MEASUREMENT.....	20
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	20
4.1.2 TEST INSTRUMENTS.....	20
4.1.3 TEST PROCEDURES	21
4.1.4 DEVIATION FROM TEST STANDARD.....	21
4.1.5 TEST SETUP	22
4.1.6 EUT OPERATING CONDITIONS.....	22
4.1.7 TEST RESULTS (MODE 1).....	23
4.1.8 TEST RESULTS (MODE 2).....	25
4.1.9 TEST RESULTS (MODE 3).....	27
4.1.10 TEST RESULTS (MODE 4).....	29
4.2 RADIATED EMISSION MEASUREMENT.....	31
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT.....	31
4.2.2 TEST INSTRUMENTS.....	32
4.2.3 TEST PROCEDURES	34
4.2.4 DEVIATION FROM TEST STANDARD.....	34
4.2.5 TEST SETUP	35
4.2.6 EUT OPERATING CONDITIONS.....	35
4.2.7 TEST RESULTS (MODE 1).....	36
4.2.8 TEST RESULTS (MODE 2).....	39
4.2.9 TEST RESULTS (MODE 5).....	42
4.3 CONDUCTED OUTPUT POWER MEASUREMENT	45
4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	45
4.3.2 INSTRUMENTS.....	46
4.3.3 TEST PROCEDURES	46
4.3.4 DEVIATION FROM TEST STANDARD.....	47
4.3.5 TEST SETUP	47
4.3.6 EUT OPERATING CONDITIONS.....	47
4.3.7 TEST RESULTS	48
4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT	52
4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	52



A D T

4.4.2	TEST INSTRUMENTS	52
4.4.3	TEST PROCEDURES	52
4.4.4	DEVIATION FROM TEST STANDARD.....	52
4.4.5	TEST SETUP	53
4.4.6	EUT OPERATING CONDITIONS.....	53
4.4.7	TEST RESULTS	54
5.	INFORMATION ON THE TESTING LABORATORIES	56

**A D T**

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130725E04A-2	Original release	Aug. 27, 2013
RF130725E04A-2 R1	1. Revised radiated emission and bandedge data. 2. Added power spectral density section.	Oct. 02, 2013



A D T

1. CERTIFICATION

PRODUCT : Cisco Meraki MR34
BRAND NAME : Cisco
MODEL NO. : MR34-HW
TEST ITEM: R&D SAMPLE
APPLICANT : Cisco Systems, Inc.
TESTED: Aug. 02 to Sep. 23, 2013
STANDARDS : FCC Part 15, Subpart C (Section 15.247)
FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10-2009

The above equipment (Model: MR34-HW) 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 : Phoenix Huang , **DATE:** Oct. 02, 2013
(Phoenix Huang, Specialist)

APPROVED BY : May Chen , **DATE:** Oct. 02, 2013
(May Chen, Manager)



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.28dB at 0.49925MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 5400.00MHz & 5434.00MHz
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.28dB at 0.49925MHz
15.407(b/1/2/3) (b)(5)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 5400.00MHz & 5434.00MHz
15.407(a/1/2/3)	Transmit Power	PASS	Meet the requirement of limit.

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)	5.46 dB
Radiated emissions (1GHz -6GHz)	3.54 dB
Radiated emissions (6GHz -18GHz)	4.08 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Cisco Meraki MR34
MODEL NO.	MR34-HW
POWER SUPPLY	DC 12V from power adapter, DC 37~57V _{dc} , 0.5~0.3A from POE
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only.
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
OPERATING FREQUENCY	5.26 ~ 5.32GHz, 5.50 ~ 5.58GHz & 5.66GHz ~ 5.70GHz
NUMBER OF CHANNEL	12 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 5 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
MAXIMUM OUTPUT POWER	Please see NOTE
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x1

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report design is as the following information:

u Add DFS band <5250~5350MHz & 5470~5725MHz>

2. The maximum output power table as below table:

MAXIMUM OUTPUT POWER (mW)			
Radio Card 1		Radio Card 0	
Annex 9		Annex 9	
802.11a	49.545	802.11a	112.036
802.11n (HT20)	49.774	802.11n (HT20)	194.327
802.11n (HT40)	37.497	802.11n (HT40)	194.069
		802.11ac (VHT80)	188.917

3. The EUT is a 2.4GHz & 5GHz WLAN device.

4. The EUT must be supplied with a adapter or POE (only for test not for sale) as below information:

Adapter		
Brand	Model No.	Spec.
Powertron Electronics Corp.	PA1015-2HU	AC Input : 100-240V, 0.4A, 50-60Hz DC Output : 12V, 1.5A DC output cable(unshielded ,1.6m)
POE(only for test not for sale)		
Brand	Model No.	Spec.
Power Dsine	PD-9501G/AC	AC Input : 100-240V, 1.5A, 50-60Hz DC Output : 55V, 1.35A
For radiated emission: From above power sources, the worst case was found in Adapter (Model: PA1015-2HU). Therefore only the test data of the mode was recorded in this report.		

5. The three radio cards and antennas provided to the EUT, please refer to the following table:

Radio Card 0 (Single band 3Tx)					
Transmitter Circuit	Gain (dBi) (Include cable loss)	Antenna Type	Connector Type	Frequency range (MHz to MHz)	Cable Length (mm)
Chain (0)	5.6	PIFA	IPEX	5150~5850	185
Chain (1)	5.5	PIFA	IPEX	5150~5850	270
Chain (2)	5.2	PIFA	IPEX	5150~5850	75
Radio Card 1 (Dual band 1Tx)					
Transmitter Circuit	Gain (dBi) (Include cable loss)	Antenna Type	Connector Type	Frequency range (MHz to MHz)	Cable Length (mm)
Chain (0)	4.3	PIFA	IPEX	2400~2500	95
	5.4	PIFA	IPEX	5150~5850	95
Radio Card 2 (Single band 3Tx)					
Transmitter Circuit	Gain (dBi) (Include cable loss)	Antenna Type	Connector Type	Frequency range (MHz to MHz)	Cable Length (mm)
Chain (0)	4.8	PIFA	IPEX	2400~2500	45
Chain (1)	2	PIFA	IPEX	2400~2500	195
Chain (2)	2.3	PIFA	IPEX	2400~2500	165

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

MODULATION MODE	RADIO CARD	TX/RX FUNCTION
802.11b 802.11g 802.11n (HT20) <2.4GHz> 802.11n (HT40) <2.4GHz>	Card 1	1Tx/1Rx
	Card 2	1Tx/1Rx (Diversity) 2Tx/2Rx (Diversity) 3Tx/3Rx
802.11a 802.11n (HT20) <5GHz> 802.11n (HT40) <5GHz>	Card 1	1Tx/1Rx
802.11a 802.11n (HT20) <5GHz> 802.11n (HT40) <5GHz> 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)	Card 0	1Tx/1Rx (Diversity) 2Tx/2Rx (Diversity) 3Tx/3Rx



A D T

7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 23.
8. When the EUT operating in 802.11ac, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 9.
9. The above EUT information was declared by the manufacturer and for more detailed feature descriptions, please refer to the manufacturer's specifications or User's Manual.

3.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	
1	√	√	√	Radio Card 1 (2.4G) + Radio Card 2 + Radio Card 0 with Adapter
2	√	√	√	Radio Card 1 (5G) + Radio Card 2 + Radio Card 0 with Adapter
3	√	-	-	Radio Card 1 (2.4G) + Radio Card 2 + Radio Card 0 with POE
4	√	-	-	Radio Card 1 (5G) + Radio Card 2 + Radio Card 0 with POE
5	-	-	√	Radio Card 1 (5G) + Radio Card 0 with Adapter
EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	APCM			
1	√			Radio Card 1 (5G) + Radio Card 0 with Adapter

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

Note: 1. For the original test report: the EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane** (for below 1GHz) and **Z-plane** (for above 1GHz).

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) (Radio Card 2) + For 5 GHz 802.11n (HT20) (Radio Card 0) + 802.11b (Radio Card 1)	1 to 11	6	OFDM	BPSK	19.5
	52 to 140	116	OFDM	BPSK	19.5
	1 to 11	6	DSSS	DBPSK	1
For 2.4 GHz 802.11n (HT20) (Radio Card 2) + For 5 GHz 802.11n (HT20) (Radio Card 0) + For 5 GHz 802.11n (HT20) (Radio Card 1)	1 to 11	6	OFDM	BPSK	19.5
	52 to 140	116	OFDM	BPSK	19.5
	52 to 140	116	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) (Radio Card 2) + For 5 GHz 802.11n (HT20) (Radio Card 0) + 802.11b (Radio Card 1)	1 to 11	6	OFDM	BPSK	19.5
	52 to 140	116	OFDM	BPSK	19.5
	1 to 11	6	DSSS	DBPSK	1
For 2.4 GHz 802.11n (HT20) (Radio Card 2) + For 5 GHz 802.11n (HT20) (Radio Card 0) + For 5 GHz 802.11n (HT20) (Radio Card 1)	1 to 11	6	OFDM	BPSK	19.5
	52 to 140	116	OFDM	BPSK	19.5
	52 to 140	116	OFDM	BPSK	6.5

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
For 2.4 GHz 802.11n (HT20) (Radio Card 2)	1 to 11	6	OFDM	BPSK	19.5
+					
For 5 GHz 802.11n (HT20) (Radio Card 0)	52 to 140	116	OFDM	BPSK	19.5
+					
802.11b (Radio Card 1)	1 to 11	6	DSSS	DBPSK	1
For 2.4 GHz 802.11n (HT20) (Radio Card 2)	1 to 11	6	OFDM	BPSK	19.5
+					
For 5 GHz 802.11n (HT20) (Radio Card 0)	52 to 140	116	OFDM	BPSK	19.5
+					
For 5 GHz 802.11n (HT20) (Radio Card 1)	52 to 140	116	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT40) (Radio Card 1)	54 to 62	62	OFDM	BPSK	13.5
+					
For 0 GHz 802.11n (HT20) (Radio Card 0)	52 to 64	64	OFDM	BPSK	19.5
For 5 GHz 802.11n (HT40) (Radio Card 1)	54 to 134	102	OFDM	BPSK	13.5
+					
For 5 GHz 802.11n (HT40) (Radio Card 0)	54 to 134	102	OFDM	BPSK	40.5
For 5 GHz 802.11n (HT40) (Radio Card 1)	54 to 134	134	OFDM	BPSK	13.5
+					
For 5 GHz 802.11n (HT40) (Radio Card 0)	54 to 134	134	OFDM	BPSK	40.5

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)
802.11a (Radio Card 1) +	52 to 64	52	OFDM	BPSK	6
For 5 GHz 802.11n (HT40) (Radio Card 0)	52 to 64	54	OFDM	BPSK	40.5
For 5 GHz 802.11n (HT20) (Radio Card 1) +	100 to 140	116	OFDM	BPSK	6.5
For 5 GHz 802.11n (HT20) (Radio Card 0)	100 to 140	116	OFDM	BPSK	19.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 66%RH	120Vac, 60Hz	JyunChun Lin
	25deg. C, 50%RH	120Vac, 60Hz	Scott Chen
RE	25deg. C, 65%RH	120Vac, 60Hz	Andy Ho
	24deg. C, 68%RH	120Vac, 60Hz	Tim Ho
	24deg. C, 71%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.3 DESCRIPTION OF SUPPORT UNITS

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

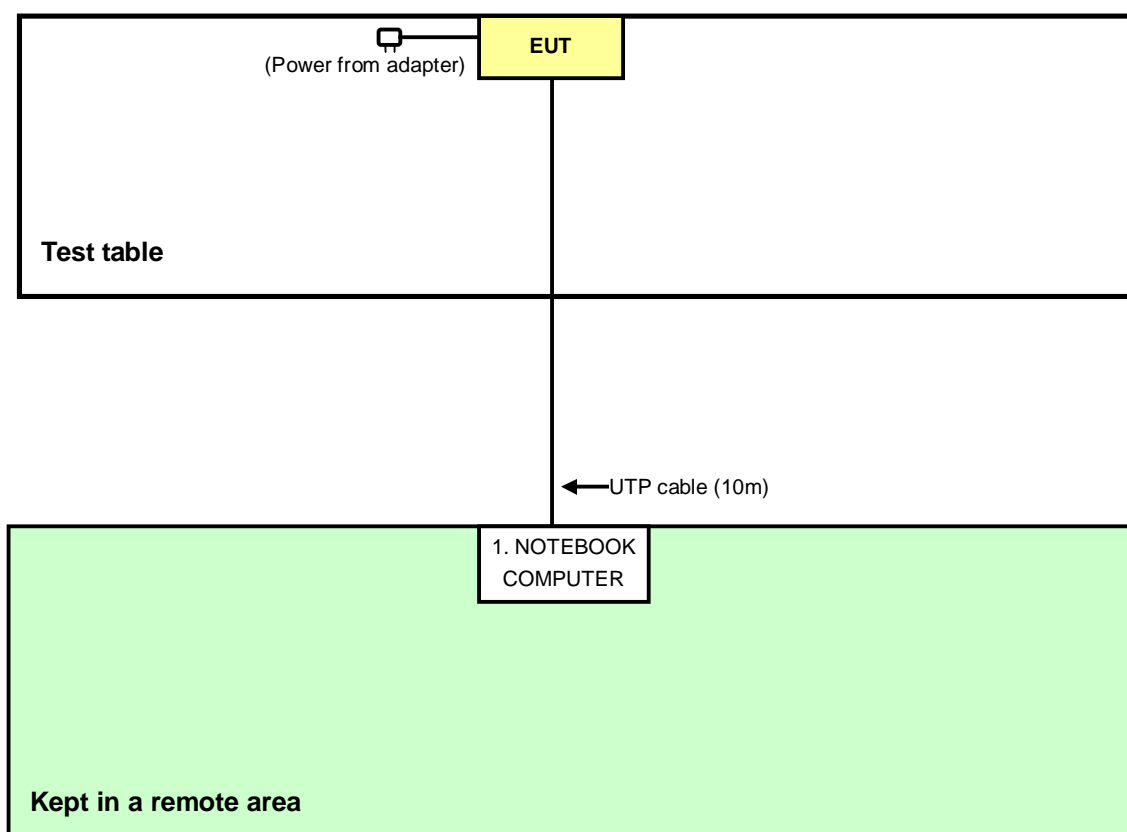
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	POE	Power Dsine	PD-9501G/AC	NA	NA

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

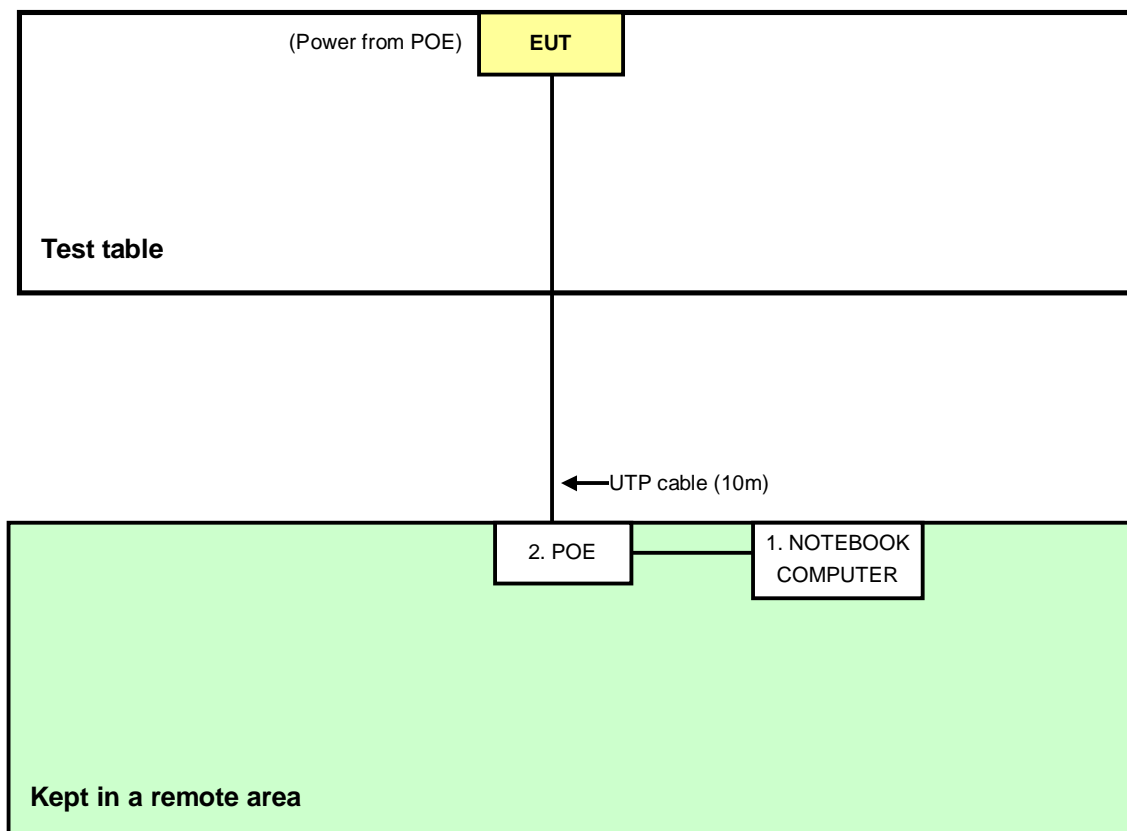
NOTE: All power cords of the above support units are non shielded (1.8m).

3.4 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted Emission (Mode 1~2) / Radiated Emission test:



For Conducted Emission (Mode 3~4) test:



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (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 ROHDE & SCHWARZ	ESCS 30	100375	Mar. 08, 2013	Mar. 07, 2014
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 07, 2013	June 06, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 11, 2013	Mar. 10, 2014
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: Aug. 02 to 05, 2013

4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

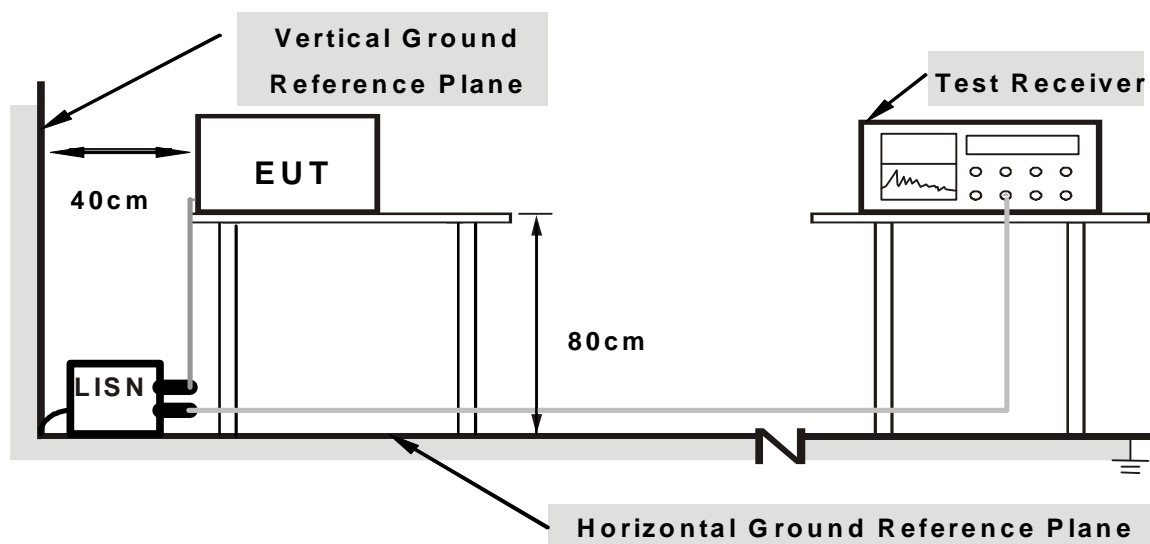
NOTE:

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

1. Turn on the power of EUT.
2. The communication partner run test program “MTool V1.0.0.10.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

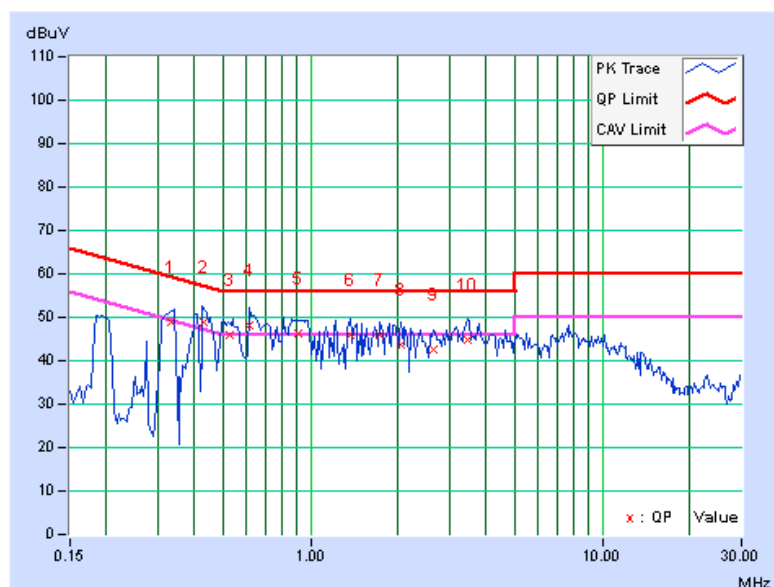
4.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	----------	----------------------	-----------------------------------

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	0.33359	0.18	48.56	36.44	48.74	36.62	59.36	49.36	-10.62	-12.74
2	0.43159	0.20	48.76	34.18	48.96	34.38	57.22	47.22	-8.26	-12.84
3	0.52887	0.21	45.84	32.98	46.05	33.19	56.00	46.00	-9.95	-12.81
4	0.61875	0.22	47.96	34.51	48.18	34.73	56.00	46.00	-7.82	-11.27
5	0.90781	0.24	46.03	32.87	46.27	33.11	56.00	46.00	-9.73	-12.89
6	1.36328	0.28	45.50	32.95	45.78	33.23	56.00	46.00	-10.22	-12.77
7	1.71875	0.31	45.58	32.34	45.89	32.65	56.00	46.00	-10.11	-13.35
8	2.03906	0.34	43.36	31.01	43.70	31.35	56.00	46.00	-12.30	-14.65
9	2.64453	0.38	42.03	30.19	42.41	30.57	56.00	46.00	-13.59	-15.43
10	3.45313	0.43	44.34	32.80	44.77	33.23	56.00	46.00	-11.23	-12.77

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

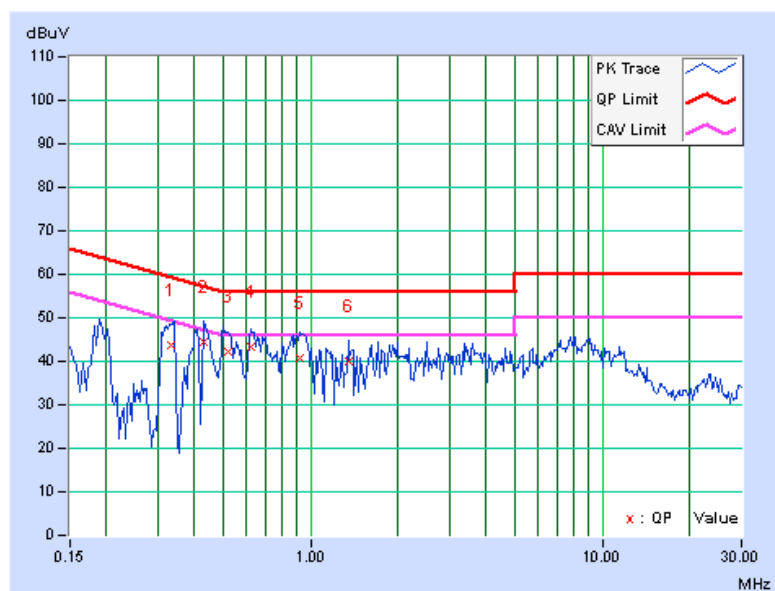


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.33241	0.17	43.48	30.97	43.65	31.14	59.39	49.39	-15.74	-18.25
2	0.43125	0.19	44.15	29.71	44.34	29.90	57.23	47.23	-12.89	-17.33
3	0.52109	0.20	41.98	30.52	42.18	30.72	56.00	46.00	-13.82	-15.28
4	0.62656	0.20	43.16	30.93	43.36	31.13	56.00	46.00	-12.64	-14.87
5	0.92344	0.22	40.68	28.64	40.90	28.86	56.00	46.00	-15.10	-17.14
6	1.35156	0.25	39.62	25.56	39.87	25.81	56.00	46.00	-16.13	-20.19

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



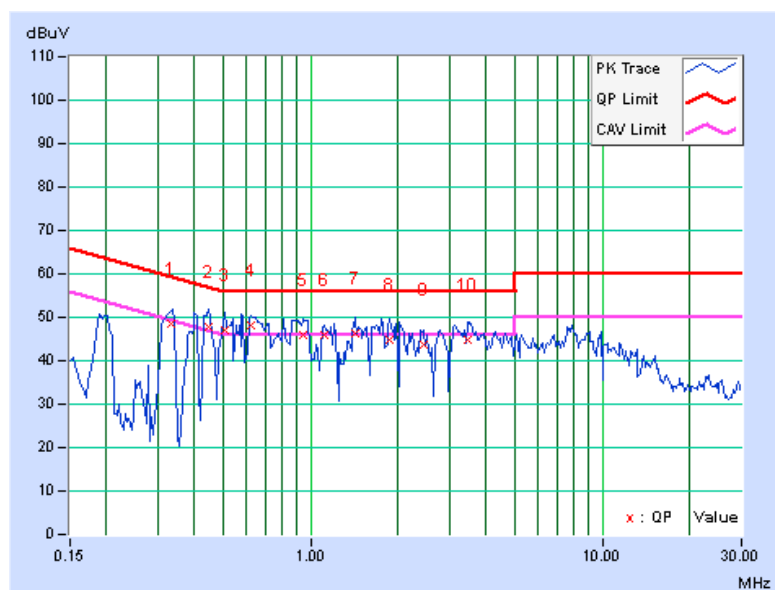
4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	----------	----------------------	-----------------------------------

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	0.33325	0.18	48.46	36.02	48.64	36.20	59.37	49.37	-10.73	-13.17
2	0.44688	0.20	47.47	37.89	47.67	38.09	56.93	46.93	-9.26	-8.84
3	0.50938	0.21	46.93	36.50	47.14	36.71	56.00	46.00	-8.86	-9.29
4	0.62266	0.22	48.08	36.05	48.30	36.27	56.00	46.00	-7.70	-9.73
5	0.94688	0.25	45.84	32.07	46.09	32.32	56.00	46.00	-9.91	-13.68
6	1.12109	0.26	45.69	33.60	45.95	33.86	56.00	46.00	-10.05	-12.14
7	1.41797	0.29	46.03	34.11	46.32	34.40	56.00	46.00	-9.68	-11.60
8	1.86328	0.33	44.53	32.04	44.86	32.37	56.00	46.00	-11.14	-13.63
9	2.44922	0.37	43.26	31.15	43.63	31.52	56.00	46.00	-12.37	-14.48
10	3.44922	0.43	44.48	33.22	44.91	33.65	56.00	46.00	-11.09	-12.35

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

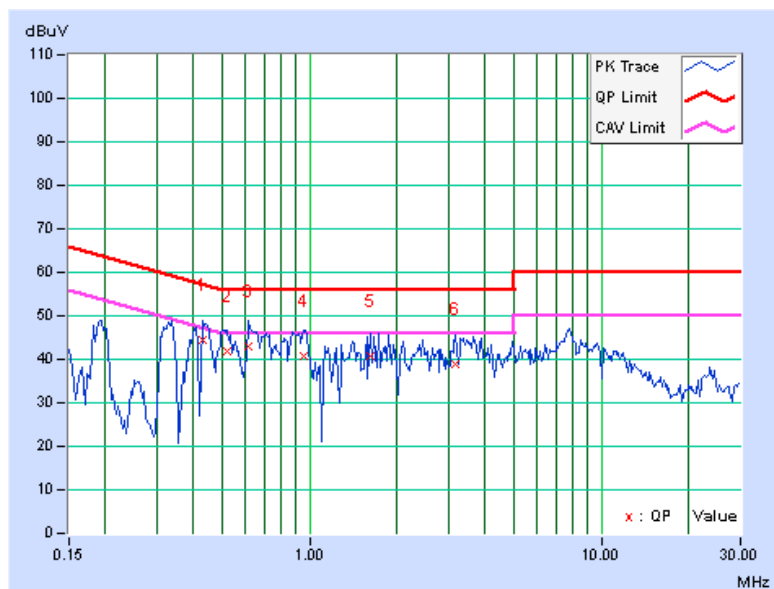


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.43300	0.19	44.17	30.95	44.36	31.14	57.19	47.19	-12.83	-16.05
2	0.52500	0.20	41.60	29.67	41.80	29.87	56.00	46.00	-14.20	-16.13
3	0.61875	0.20	42.70	28.79	42.90	28.99	56.00	46.00	-13.10	-17.01
4	0.95469	0.22	40.34	26.07	40.56	26.29	56.00	46.00	-15.44	-19.71
5	1.61719	0.27	40.59	28.13	40.86	28.40	56.00	46.00	-15.14	-17.60
6	3.16016	0.38	38.59	27.45	38.97	27.83	56.00	46.00	-17.03	-18.17

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



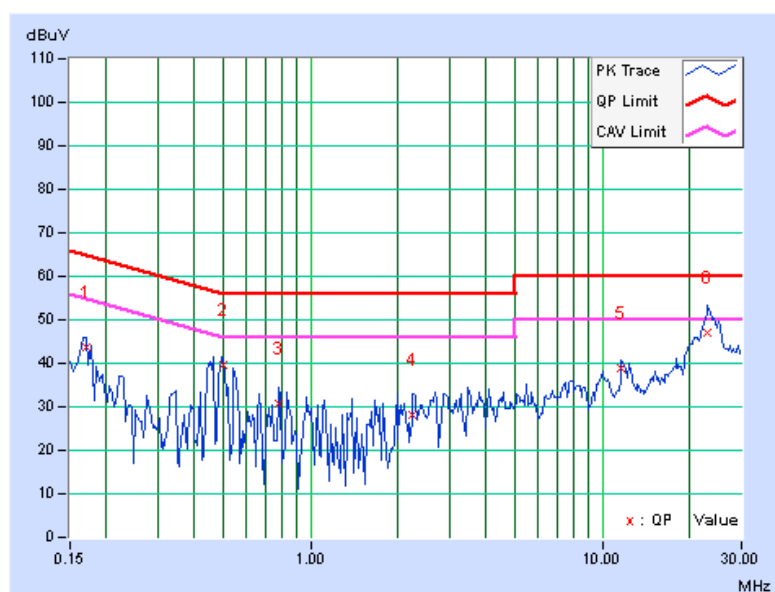
4.1.9 TEST RESULTS (MODE 3)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	----------	-------------------	--------------------------------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor [dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.13	43.58	35.52	43.71	35.65	64.98	54.98	-21.28	-19.34
2	0.50156	0.19	39.32	38.62	39.51	38.81	56.00	46.00	-16.49	-7.19
3	0.78281	0.21	30.56	26.94	30.77	27.15	56.00	46.00	-25.23	-18.85
4	2.24609	0.29	27.84	17.82	28.13	18.11	56.00	46.00	-27.87	-27.89
5	11.61328	0.73	38.02	35.48	38.75	36.21	60.00	50.00	-21.25	-13.79
6	23.01953	1.12	46.04	40.08	47.16	41.20	60.00	50.00	-12.84	-8.80

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

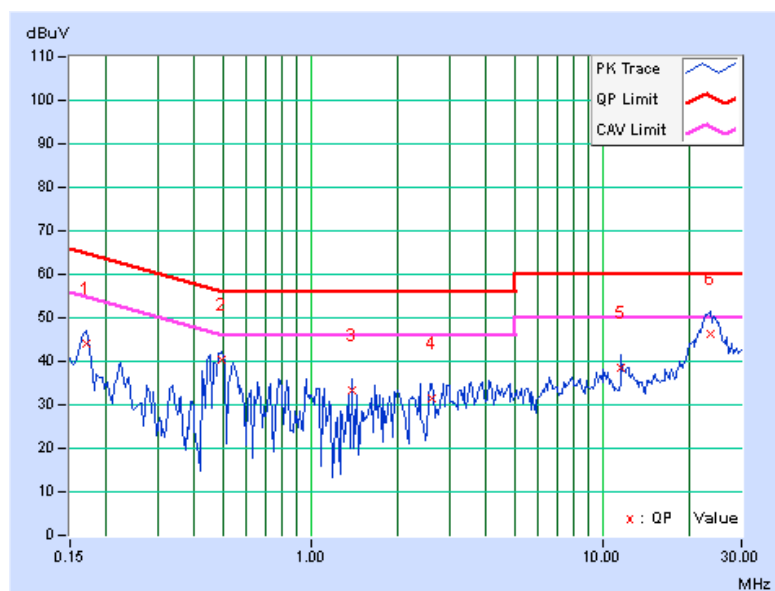


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	----------------------	-----------------------------------

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.11	44.02	36.51	44.13	36.62	64.98	54.98	-20.86	-18.37
2	0.49766	0.17	40.32	37.49	40.49	37.66	56.04	46.04	-15.54	-8.37
3	1.38281	0.22	33.23	27.06	33.45	27.28	56.00	46.00	-22.55	-18.72
4	2.60547	0.28	31.29	24.77	31.57	25.05	56.00	46.00	-24.43	-20.95
5	11.61328	0.56	37.96	35.04	38.52	35.60	60.00	50.00	-21.48	-14.40
6	23.41016	0.80	45.62	39.48	46.42	40.28	60.00	50.00	-13.58	-9.72

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



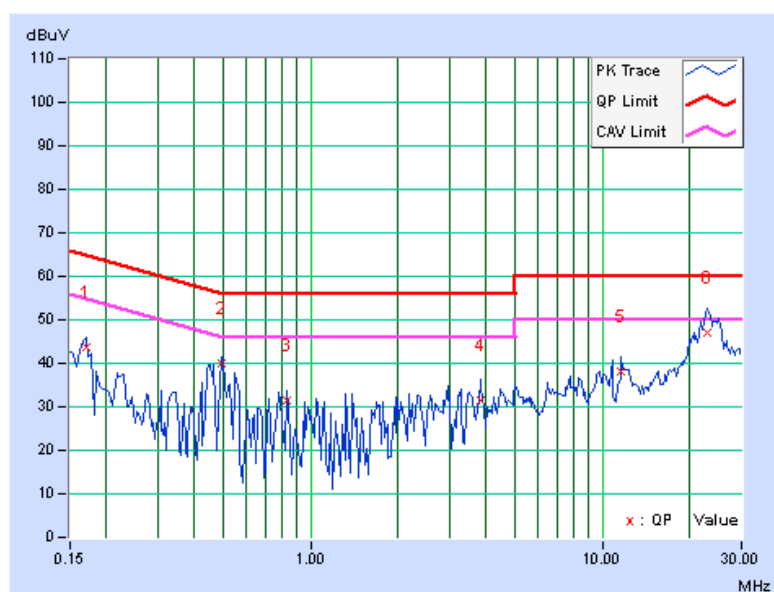
4.1.10 TEST RESULTS (MODE 4)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	----------	-------------------	--------------------------------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor [dB]	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.13	43.54	35.38	43.67	35.51	64.98	54.98	-21.32	-19.48
2	0.49850	0.19	39.68	38.14	39.87	38.33	56.02	46.02	-16.16	-7.70
3	0.82969	0.21	31.28	26.37	31.49	26.58	56.00	46.00	-24.51	-19.42
4	3.84375	0.35	31.07	22.51	31.42	22.86	56.00	46.00	-24.58	-23.14
5	11.60938	0.73	37.48	34.43	38.21	35.16	60.00	50.00	-21.79	-14.84
6	22.96484	1.12	45.92	39.94	47.04	41.06	60.00	50.00	-12.96	-8.94

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

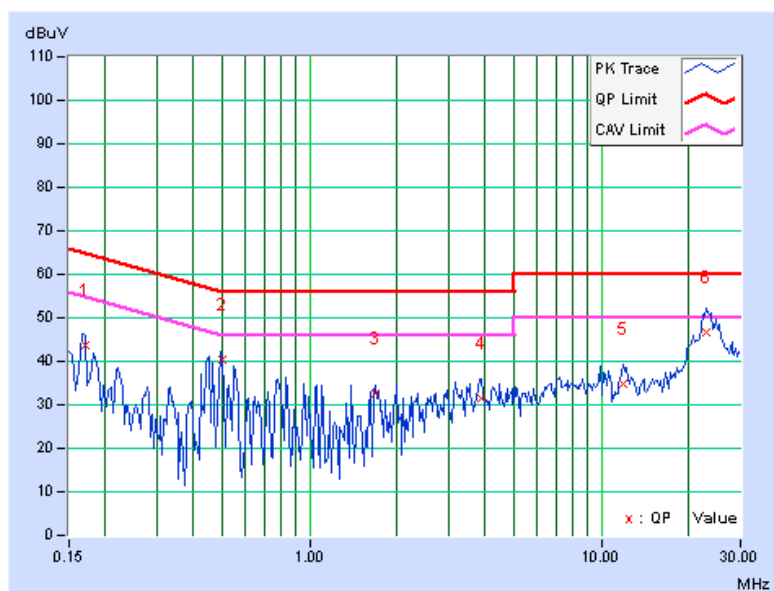


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.11	43.70	35.94	43.81	36.05	64.98	54.98	-21.18	-18.94
2	0.49925	0.17	40.28	39.56	40.45	39.73	56.01	46.01	-15.56	-6.28
3	1.67578	0.24	32.40	26.23	32.64	26.47	56.00	46.00	-23.36	-19.53
4	3.88281	0.33	31.03	23.96	31.36	24.29	56.00	46.00	-24.64	-21.71
5	11.82813	0.57	34.14	28.26	34.71	28.83	60.00	50.00	-25.29	-21.17
6	22.95703	0.79	46.02	39.94	46.81	40.73	60.00	50.00	-13.19	-9.27

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 MEASUREMENT

4.2.1 LIMITS OF RADIATED 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 30dB below the highest level of the desired power:

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

NOTE:

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

**A D T**

4.2.2 TEST INSTRUMENTS

For Mode 1~2:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 30, 2012	Oct. 29, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
Horn_Antenna AISL	AIH.8018	0000220091110	Nov. 27, 2012	Nov. 26, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 26, 2012	Dec. 25, 2013
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 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: Aug. 02 to 05, 2013



A D T

For Mode 5:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 2013
Horn_Antenna AISl	AIH.8018	0000220091110	Nov. 27, 2012	Nov. 26, 2013
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 30, 2012	Oct. 29, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 26, 2012	Dec. 25, 2013
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
Software	ADT_Radiated _V8.7.07	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: Sep. 23, 2013

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

NOTE:

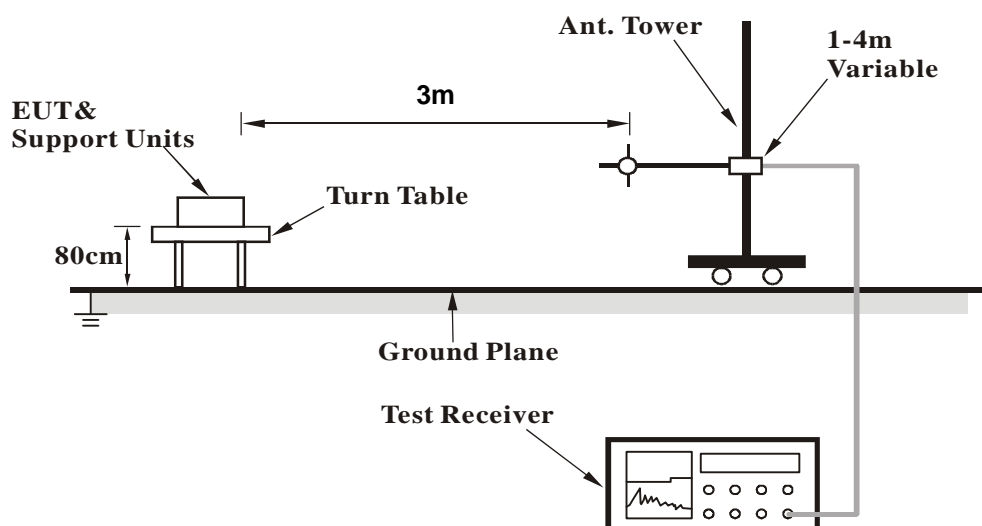
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.2.4 DEVIATION FROM TEST STANDARD

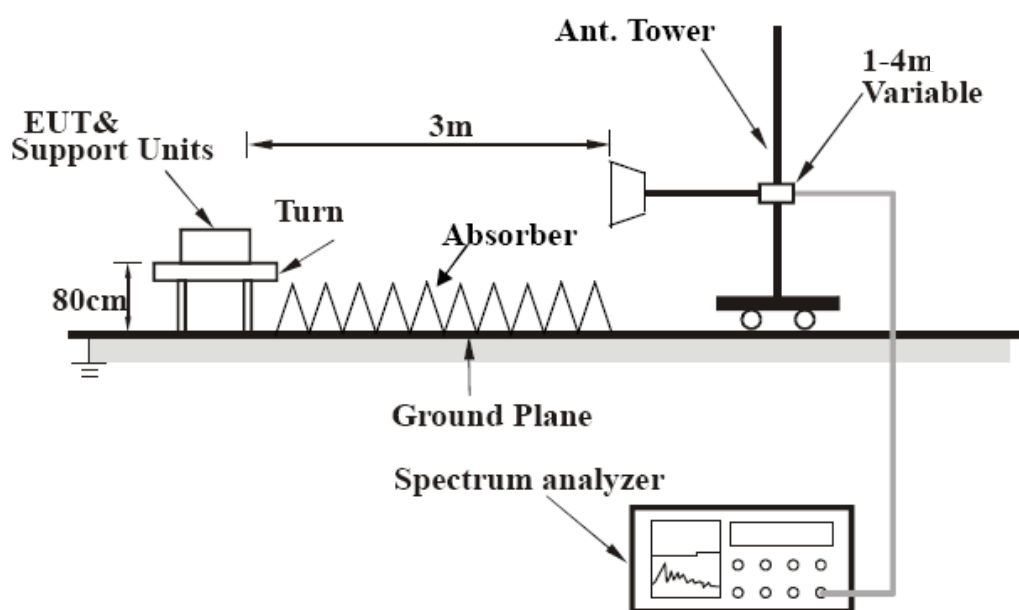
No deviation

4.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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



A D T

4.2.7 TEST RESULTS (MODE 1)

BELOW 1GHz DATA :

CHANNEL	For 2.4 GHz 802.11n (HT20) (Radio Card 2): Channel 6 +5 GHz 802.11n (HT20) (Radio Card 0): Channel 116 +802.11b (Radio Card 1): Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	89.85	32.4 QP	43.5	-11.1	2.00 H	103	51.56	-19.14
2	153.68	35.3 QP	43.5	-8.2	2.00 H	296	47.96	-12.62
3	375.03	32.0 QP	46.0	-14.0	2.00 H	236	42.27	-10.30
4	625.00	37.9 QP	46.0	-8.2	1.50 H	317	42.63	-4.78
5	866.72	39.7 QP	46.0	-6.3	1.00 H	26	40.71	-0.98
6	1000.00	38.4 QP	54.0	-15.6	1.50 H	130	36.95	1.48
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	38.24	34.2 QP	40.0	-5.8	1.00 V	292	48.03	-13.79
2	333.37	36.7 QP	46.0	-9.3	1.50 V	229	47.79	-11.06
3	466.69	36.2 QP	46.0	-9.9	1.00 V	56	44.36	-8.21
4	625.00	35.1 QP	46.0	-10.9	1.50 V	32	39.84	-4.78
5	750.03	36.4 QP	46.0	-9.6	1.00 V	23	38.97	-2.55
6	875.02	39.4 QP	46.0	-6.6	1.00 V	73	40.20	-0.82

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

ABOVE 1GHz DATA

CHANNEL	For 2.4 GHz 802.11n (HT20) (Radio Card 2): Channel 6 +5 GHz 802.11n (HT20) (Radio Card 0): Channel 116 +802.11b (Radio Card 1): Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.5 PK	74.0	-3.5	1.00 H	51	74.78	-4.28
2	2390.00	53.4 AV	54.0	-0.6	1.00 H	51	57.68	-4.28
3	2483.50	70.9 PK	74.0	-3.1	1.04 H	7	74.86	-3.96
4	2483.50	52.7 AV	54.0	-1.3	1.04 H	7	56.66	-3.96
5	4874.00	60.8 PK	74.0	-13.2	1.06 H	270	56.88	3.92
6	4874.00	47.2 AV	54.0	-6.8	1.06 H	270	43.28	3.92
7	7311.00	66.4 PK	74.0	-7.6	1.29 H	71	54.91	11.49
8	7311.00	52.5 AV	54.0	-1.5	1.29 H	71	41.01	11.49
9	11570.00	60.7 PK	74.0	-13.3	1.02 H	59	47.81	12.89
10	11570.00	47.7 AV	54.0	-6.3	1.02 H	59	34.81	12.89
11	12185.00	65.2 PK	74.0	-8.8	1.24 H	26	51.33	13.87
12	12185.00	52.0 AV	54.0	-2.0	1.24 H	26	38.13	13.87

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.5 PK	74.0	-6.5	1.09 V	68	71.78	-4.28
2	2390.00	50.2 AV	54.0	-3.8	1.09 V	68	54.48	-4.28
3	2483.50	66.6 PK	74.0	-7.4	1.07 V	73	70.56	-3.96
4	2483.50	48.9 AV	54.0	-5.1	1.07 V	73	52.86	-3.96
5	4874.00	57.9 PK	74.0	-16.1	1.01 V	360	53.98	3.92
6	4874.00	44.5 AV	54.0	-9.5	1.01 V	360	40.58	3.92
7	7311.00	60.5 PK	74.0	-13.5	1.20 V	320	49.01	11.49
8	7311.00	47.3 AV	54.0	-6.7	1.20 V	320	35.81	11.49
9	11570.00	59.9 PK	74.0	-14.1	1.00 V	71	47.01	12.89
10	11570.00	46.9 AV	54.0	-7.1	1.00 V	71	34.01	12.89
11	12185.00	62.4 PK	74.0	-11.6	1.24 V	144	48.53	13.87
12	12185.00	48.8 AV	54.0	-5.2	1.24 V	144	34.93	13.87

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.2.8 TEST RESULTS (MODE 2)

BELOW 1GHz DATA :

CHANNEL	For 2.4 GHz 802.11n (HT20) (Radio Card 2): Channel 6 +5 GHz 802.11n (HT20) (Radio Card 0): Channel 116 +For 5 GHz 802.11n (HT20) (Radio Card 1): Channel 116	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	89.85	32.4 QP	43.5	-11.1	2.00 H	103	51.56	-19.14
2	153.68	35.3 QP	43.5	-8.2	2.00 H	296	47.96	-12.62
3	400.01	30.1 QP	46.0	-15.9	2.00 H	318	39.99	-9.92
4	625.00	37.9 QP	46.0	-8.2	1.50 H	317	42.63	-4.78
5	866.72	39.7 QP	46.0	-6.3	1.00 H	26	40.71	-0.98
6	1000.00	38.4 QP	54.0	-15.6	1.50 H	130	36.95	1.48
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	37.66	33.7 QP	40.0	-6.3	1.00 V	315	47.40	-13.70
2	333.37	36.8 QP	46.0	-9.2	1.50 V	234	47.90	-11.06
3	466.69	36.6 QP	46.0	-9.4	1.00 V	65	44.80	-8.21
4	750.03	38.4 QP	46.0	-7.6	1.50 V	360	40.96	-2.55
5	875.02	39.8 QP	46.0	-6.2	1.00 V	73	40.58	-0.82
6	1000.00	41.5 QP	54.0	-12.5	1.00 V	218	40.04	1.48

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

ABOVE 1GHz DATA

CHANNEL	For 2.4 GHz 802.11n (HT20) (Radio Card 2): Channel 6 +5 GHz 802.11n (HT20) (Radio Card 0): Channel 116 +For 5 GHz 802.11n (HT20) (Radio Card 1): Channel 116	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.2 PK	74.0	-3.8	1.00 H	23	74.48	-4.28
2	2390.00	53.0 AV	54.0	-1.0	1.00 H	23	57.28	-4.28
3	2483.50	69.9 PK	74.0	-4.1	1.04 H	9	73.86	-3.96
4	2483.50	52.1 AV	54.0	-1.9	1.04 H	9	56.06	-3.96
5	4874.00	60.2 PK	74.0	-13.8	1.00 H	301	56.28	3.92
6	4874.00	46.9 AV	54.0	-7.1	1.00 H	301	42.98	3.92
7	5418.00	65.3 PK	74.0	-8.7	1.35 H	150	59.69	5.61
8	5418.00	53.3 AV	54.0	-0.7	1.35 H	150	47.69	5.61
9	#5741.00	65.0 PK	74.0	-9.0	1.33 H	165	58.43	6.57
10	#5741.00	52.1 AV	54.0	-1.9	1.33 H	165	45.53	6.57
11	7311.00	66.2 PK	74.0	-7.8	1.32 H	86	54.71	11.49
12	7311.00	51.7 AV	54.0	-2.3	1.32 H	86	40.21	11.49
13	11160.00	48.1 PK	74.0	-25.9	1.00 H	158	35.44	12.66
14	11160.00	36.1 AV	54.0	-17.9	1.00 H	158	23.44	12.66
15	12185.00	64.9 PK	74.0	-9.1	1.31 H	36	51.03	13.87
16	12185.00	51.7 AV	54.0	-2.3	1.31 H	36	37.83	13.87

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



A D T

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	68.4 PK	74.0	-5.6	1.11 V	83	72.68	-4.28
2	2390.00	50.9 AV	54.0	-3.1	1.11 V	83	55.18	-4.28
3	2483.50	66.1 PK	74.0	-7.9	1.06 V	52	70.06	-3.96
4	2483.50	48.4 AV	54.0	-5.6	1.06 V	52	52.36	-3.96
5	4874.00	58.6 PK	74.0	-15.4	1.00 V	360	54.68	3.92
6	4874.00	44.8 AV	54.0	-9.2	1.00 V	360	40.88	3.92
7	5418.00	60.8 PK	74.0	-13.2	1.02 V	275	55.19	5.61
8	5418.00	49.7 AV	54.0	-4.3	1.02 V	275	44.09	5.61
9	#5741.00	61.2 PK	74.0	-12.8	1.05 V	276	54.63	6.57
10	#5741.00	48.3 AV	54.0	-5.7	1.05 V	276	41.73	6.57
11	7311.00	60.1 PK	74.0	-13.9	1.10 V	311	48.61	11.49
12	7311.00	46.9 AV	54.0	-7.1	1.10 V	311	35.41	11.49
13	11160.00	56.9 PK	74.0	-17.1	1.00 V	80	44.24	12.66
14	11160.00	43.7 AV	54.0	-10.3	1.00 V	80	31.04	12.66
15	12185.00	62.9 PK	74.0	-11.1	1.17 V	139	49.03	13.87
16	12185.00	49.3 AV	54.0	-4.7	1.17 V	139	35.43	13.87

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " # ": The radiated frequency is out of the restricted band.



A D T

4.2.9 TEST RESULTS (MODE 5)

ABOVE 1GHz DATA

CHANNEL	For 5 GHz 802.11n (HT40) (Radio Card 1): Channel 62 +For 5 GHz 802.11n (HT20) (Radio Card 0): Channel 64	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5139.00	60.8 QP	74.0	-13.2	1.00 H	40	18.58	42.22
2	5139.00	50.1 QP	54.0	-3.9	1.00 H	40	7.88	42.22
3	5350.00	64.6 QP	74.0	-9.4	1.00 H	40	22.09	42.51
4	5350.00	45.0 QP	54.0	-9.0	1.00 H	40	2.49	42.51
5	5400.00	63.3 QP	74.0	-10.7	1.00 H	26	20.77	42.53
6	5400.00	53.8 QP	54.0	-0.2	1.00 H	26	11.27	42.53
7	10620.00	48.5 QP	74.0	-25.5	1.00 H	201	-0.58	49.08
8	10620.00	37.4 QP	54.0	-16.6	1.00 H	201	-11.68	49.08
9	15930.00	59.1 QP	74.0	-14.9	1.00 H	201	5.09	54.01
10	15930.00	47.5 QP	54.0	-6.5	1.00 H	201	-6.51	54.01
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	5139.00	54.8 QP	74.0	-19.2	1.13 V	251	12.58	42.22
2	5139.00	45.3 QP	54.0	-8.7	1.13 V	251	3.08	42.22
3	5350.00	60.2 QP	74.0	-13.8	1.13 V	108	17.69	42.51
4	5350.00	48.0 QP	54.0	-6.0	1.13 V	108	5.49	42.51
5	5400.00	58.5 QP	74.0	-15.5	1.13 V	153	15.97	42.53
6	5400.00	42.5 QP	54.0	-11.5	1.13 V	153	-0.03	42.53
7	10620.00	50.5 QP	74.0	-23.5	1.00 V	146	1.42	49.08
8	10620.00	38.0 QP	54.0	-16.0	1.00 V	146	-11.08	49.08
9	15930.00	57.7 QP	74.0	-16.3	1.10 V	109	3.69	54.01
10	15930.00	45.2 QP	54.0	-8.8	1.10 V	109	-8.81	54.01

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

CHANNEL	For 5 GHz 802.11n (HT40) (Radio Card 1): Channel 102 +For 5 GHz 802.11n (HT40) (Radio Card 0): Channel 102	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	55.3 QP	74.0	-18.7	1.00 H	24	12.79	42.51
2	5350.00	45.6 QP	54.0	-8.4	1.00 H	24	3.09	42.51
3	5434.00	70.7 QP	74.0	-3.3	1.00 H	137	28.07	42.63
4	5434.00	53.8 QP	54.0	-0.2	1.00 H	137	11.17	42.63
5	11020.00	49.2 QP	74.0	-24.8	1.22 H	158	-0.35	49.55
6	11020.00	38.1 QP	54.0	-15.9	1.22 H	158	-11.45	49.55
7	16530.00	59.8 QP	74.0	-14.2	1.02 H	146	3.83	55.97
8	16530.00	48.4 QP	54.0	-5.6	1.02 H	146	-7.57	55.97
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	5350.00	52.8 QP	74.0	-21.2	1.00 V	107	10.29	42.51
2	5350.00	45.4 QP	54.0	-8.6	1.00 V	107	2.89	42.51
3	5434.00	61.6 QP	74.0	-12.4	1.00 V	107	18.97	42.63
4	5434.00	50.3 QP	54.0	-3.7	1.00 V	107	7.67	42.63
5	11020.00	50.4 QP	74.0	-23.6	1.00 V	211	0.85	49.55
6	11020.00	37.7 QP	54.0	-16.3	1.00 V	211	-11.85	49.55
7	16530.00	57.9 QP	74.0	-16.1	1.00 V	108	1.93	55.97
8	16530.00	45.4 QP	54.0	-8.6	1.00 V	108	-10.57	55.97

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



A D T

CHANNEL	For 5 GHz 802.11n (HT40) (Radio Card 1): Channel 134 +For 5 GHz 802.11n (HT40) (Radio Card 0): Channel 134	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5350.00	56.4 QP	74.0	-17.6	1.00 H	24	13.89	42.51
2	5350.00	45.0 QP	54.0	-9.0	1.00 H	24	2.49	42.51
3	5725.00	73.1 QP	74.0	-0.9	1.00 H	32	30.01	43.09
4	5725.00	52.2 QP	54.0	-1.8	1.00 H	32	9.11	43.09
5	11340.00	50.1 QP	74.0	-23.9	1.25 H	153	0.28	49.82
6	11340.00	38.7 QP	54.0	-15.3	1.25 H	153	-11.12	49.82
7	17010.00	60.4 QP	74.0	-13.6	1.29 H	131	3.40	57.00
8	17010.00	49.2 QP	54.0	-4.8	1.29 H	131	-7.80	57.00
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	5350.00	55.2 QP	74.0	-18.8	1.00 V	110	12.69	42.51
2	5350.00	43.5 QP	54.0	-10.5	1.00 V	110	0.99	42.51
3	5725.00	56.4 QP	74.0	-17.6	1.00 V	108	13.31	43.09
4	5725.00	42.7 QP	54.0	-11.3	1.00 V	108	-0.39	43.09
5	11340.00	50.0 QP	74.0	-24.0	1.02 V	138	0.18	49.82
6	11340.00	37.2 QP	54.0	-16.8	1.02 V	138	-12.62	49.82
7	17010.00	57.2 QP	74.0	-16.8	1.00 V	211	0.20	57.00
8	17010.00	44.5 QP	54.0	-9.5	1.00 V	211	-12.50	57.00

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)
– Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.3 CONDUCTED OUTPUT POWER MEASUREMENT

4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

TEST STANDARD: Canada RSS-210 Issue 8 (Annex 8)

For systems using digital modulation in the 2400–2483.5 MHz band and 5725 –5850 MHz band: 1 Watt (30dBm)

TEST STANDARD: Canada RSS-210 Issue 8 (Annex 9)

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

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



A D T

4.3.2 INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power meter Anritsu	ML2495A	0824006	May 20, 2013	May 19, 2014
Power sensor Anritsu	MA2411B	0738172	May 20, 2013	May 19, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 05, 2013

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2013	Jan. 20, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 05, 2013

4.3.3 TEST PROCEDURES

FOR POWER OUTPUT MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 26dB OCCUPIED BANDWIDTH

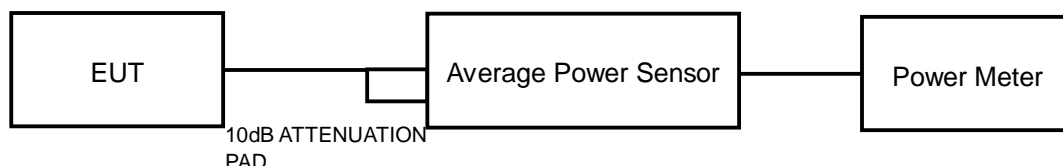
1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.4 DEVIATION FROM TEST STANDARD

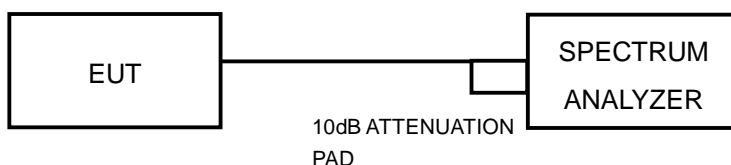
No deviation.

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6



A D T

4.3.7 TEST RESULTS

Band 2: 5250~5350MHz

For Radio Card 1 (5G):

POWER OUTPUT:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
52	5260	49.204	16.92	24	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
52	5260	37.09

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < Band 2~3>			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Limit (dBm)
52	5260	37.09	26.69 > 24



A D T

For Radio Card 0:**POWER OUTPUT:****802.11n (HT40)**

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
54	5270	18.12	18.42	17.76	194.069	22.88	24	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		
		CHAIN 0	CHAIN 1	CHAIN 2
54	5270	63.15	68.08	51.88

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < Band 2~3>			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Limit (dBm)
54	5270	51.88	28.14 > 24

Transmit Simultaneously Power:**For Radio Card 1 (5G) + Radio Card 0:**

AVERAGE POWER (mW)	AVERAGE POWER (dBm)	LIMIT (dBm)	PASS/FAIL
243.273	23.861	24	PASS



A D T

Band 3: 5500~5600MHz & 5650~5700MHz**For Radio Card 1 (5G):****POWER OUTPUT:****802.11n (HT20)**

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
116	5580	49.774	16.97	24	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
116	5580	40.61

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < Band 2~3>			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Limit (dBm)
116	5580	40.61	27.08 > 24



A D T

For Radio Card 0:**POWER OUTPUT:****802.11n (HT20)**

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
116	5580	18.34	18.23	17.75	194.327	22.89	24	PASS

26dB OCCUPIED BANDWIDTH:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		
		CHAIN 0	CHAIN 1	CHAIN 2
116	5580	21.40	23.62	27.76

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 11dBm + 10logB < Band 2~3>			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Limit (dBm)
116	5580	21.40	24.3 > 24

Transmit Simultaneously Power:**For Radio Card 1 (5G) + Radio Card 0:**

AVERAGE POWER (mW)	AVERAGE POWER (dBm)	LIMIT (dBm)	PASS/FAIL
244.101	23.876	24	PASS

4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 ~ 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP 40	100036	Jan. 21, 2013	Jan. 20, 2014

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 08, 2013

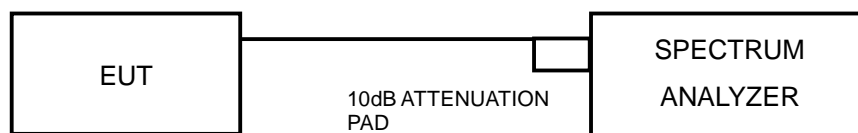
4.4.3 TEST PROCEDURES

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and for duty cycle of test signal is < 98% add 10 log (1/duty cycle)

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as 4.1.6



A D T

4.4.7 TEST RESULTS

Band 2: 5250~5350MHz

For Radio Card 1 (5G):

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
60	5300	5.85	11	PASS

For Radio Card 0:

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)			DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
52	5260	4.44	4.29	3.96	0.13	9.14	11	PASS

NOTE: 1. Duty cycle = 0.675 ms/0.695 ms = 0.971, Duty factor = $10 * \log(1/0.971) = 0.13$

Transmit Simultaneously Power:

For Radio Card 1 (5G) + Radio Card 0:

PSD (mW)	PSD (dBm)	LIMIT (dBm)	PASS/FAIL
12.050	10.810	11	PASS



A D T

Band 3: 5500~5600MHz & 5650~5700MHz**For Radio Card 1 (5G):****802.11a**

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
132	5660	4.82	11	PASS

For Radio Card 0:**802.11n (HT20)**

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)			DUTY FACTOR (dB)	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
116	5580	3.44	3.23	3.18	0.13	8.19	11	PASS

NOTE: 1. Duty cycle = 0.675 ms/0.695 ms = 0.971, Duty factor = $10 * \log(1/0.971) = 0.13$

Transmit Simultaneously Power:**For Radio Card 1 (5G) + Radio Card 0:**

PSD (mW)	PSD (dBm)	LIMIT (dBm)	PASS/FAIL
9.626	9.834	11	PASS



A D T

5. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

---END---