

FCC TEST REPORT (15.247)

REPORT NO.: RF110907E02R

MODEL NO.: AR5B22

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IC: 4104A-AR5B22

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APPLICANT: Qualcomm Atheros, Inc.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110907E02R	Original release	Feb. 08, 2013



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1. CERTIFICATION

PRODUCT: PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card
BRAND NAME: Atheros
MODEL NO.: AR5B22
TEST SAMPLE: R&D SAMPLE
APPLICANT: Qualcomm Atheros, Inc.
TESTED: Jan. 29 to Feb. 04, 2013
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10-2009
Canada RSS-210 Issue 8 (2010-12)
Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: AR5B22) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in 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:** Feb. 08, 2013
(Lori Chung, Specialist)

APPROVED BY : , **DATE:** Feb. 08, 2013
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz(WLAN), 2412~2462MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -4.55dB at 0.18906MHz
15.247(d) 15.209	RSS-210 A8.5	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.00MHz
15.247(b)	RSS-210 A8.2 (4)	Conducted power	PASS	Meet the requirement of limit.

For 2.4GHz(Bluetooth(LE mode)), 2402~2480MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.27dB at 0.18906MHz
15.247(d) 15.209	RSS-210 A8.5	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.2dB at 597.80MHz
15.247(b)	RSS-210 A8.2 (4)	Conducted power	PASS	Meet the requirement of limit.

For 5GHz, 5725~5850MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -5.32dB at 0.18906MHz
15.247(d) 15.209	RSS-210 A8.5	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -2.7dB at 11650.00MHz
15.247(b)	RSS-210 A8.2 (4)	Conducted power	PASS	Meet the requirement of limit.

NOTE:

1. There are Bluetooth technology and WLAN technology used for the EUT. (The Bluetooth test data please refer "RF110907E02R-2 ")
2. For WLAN: The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz RF parameters was recorded in another test report. (RF110907E02R-1).
3. This report is prepared for FCC class II change and IC reassessment change. Only conducted emission / radiated emission / conducted power were presented in this test report.

2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.63 dB
Radiated emissions (1GHz -6GHz) – Chamber G	3.73 dB
Radiated emissions (1GHz -6GHz) – Chamber H	3.54 dB
Radiated emissions (6GHz -18GHz) – Chamber G	3.90 dB
Radiated emissions (6GHz -18GHz) – Chamber H	4.08 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card
MODEL NO.	AR5B22
FCC ID	PPD-AR5B22
IC	4104A-AR5B22
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK(BT <LE> mode) for DSSS
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n : up to 300Mbps Bluetooth(LE mode): 1Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz Bluetooth(LE mode): 2.402 ~ 2.480GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (HT20) 7 for 802.11n (HT40)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) 40 (37 hopping + 3 advertising channel) for Bluetooth(LE mode) For 15.247(5GHz) 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)

MAXIMUM OUTPUT POWER	For 15.407 802.11a: 99.255mW 802.11n (HT20): 68.219mW 802.11n (HT40): 64.993mW For 15.247(2.4GHz) 802.11b: 174.377mW 802.11g: 478.630mW 802.11n (HT20): 459.666mW 802.11n (HT40): 323.809mW Bluetooth(LE mode): 2.228mW For 15.247(5GHz) 802.11a: 195.654mW 802.11n (HT20): 216.800mW 802.11n (HT40): 210.815mW
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

- This report is prepared for FCC class II permissive change and IC reassessment change. The difference compared with the Report No.: RF110907E02I R1 design is as the following information:
 - u Add shielded cover.
 - u HW version CUS217
- There are Bluetooth technology and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF110907E02R-2 ">
- The device has three configurations (working mode)
 - WLAN only (2x2 MIMO)
 - BT+WLAN (2x2 MIMO) with reduced power on WLAN
 - BT+WLAN (1x1 mode on a/b/g only, chain 0 is used for BT and chain 1 is used for WLAN)
- This device support the power back off (For WLAN only mode.) for WLAN/BT coexist mode. The WiFi output power will reduce 5dB from Maximum power for WLAN and BT simultaneously transmission.
- The EUT is 2 * 2 MIMO with 11n beam forming function.

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

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

3.2 DESCRIPTION OF ANTENNA

There is one set of antenna provided to this EUT, please refer to the following table:

No.	Brand	Model	Antenna Type	Connector	Antenna Gain (dBi)< included cable loss>			
					For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)
1&2	WNC	81.EBJ15.005	PIFA	IPEX	3.62	3.08	4.76	4.76

Cable Loss:

No.	Brand	Model	Cable Loss(dB)				Cable Length
			For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)	
1&2	WNC	81-EBJ15.005	1.15	1.70	1.74	1.79	300

Note: Above antenna gains of antenna are Total (H+V).

3.3 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

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

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

Seven channels are provided for 802.11n (HT40):

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

Forty channels are provided for Bluetooth LE mode:

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Operated in 5725 ~ 5850MHz band:

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

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

Two channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
For 2.4 GHz 802.11n (HT20)	1 to 11	6	OFDM	6.5
BT-LE	0 to 39	39	DTS	1
For 5 GHz 802.11n (HT20)	149 to 165	165	OFDM	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	DATA RATE (Mbps)
For 2.4 GHz 802.11n (HT20)	1 to 11	6	OFDM	6.5
BT-LE	0 to 39	39	DTS	1
For 5 GHz 802.11n (HT20)	149 to 165	165	OFDM	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	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	13.5
BT-LE	0 to 39	0, 19, 39	DTS	1
802.11a	149 to 165	149, 157, 165	OFDM	6
For 5 GHz 802.11n (HT20)	149 to 165	149, 157, 165	OFDM	6.5
For 5 GHz 802.11n (HT40)	151 to 159	151, 159	OFDM	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	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
For 2.4 GHz 802.11n (HT20)	1 to 11	1, 6, 11	OFDM	6.5
For 2.4 GHz 802.11n (HT40)	3 to 9	3, 6, 9	OFDM	13.5
BT-LE	0 to 39	0, 19, 39	DTS	1
802.11a	149 to 165	149, 157, 165	OFDM	6
For 5 GHz 802.11n (HT20)	149 to 165	149, 157, 165	OFDM	6.5
For 5 GHz 802.11n (HT40)	151 to 159	151, 159	OFDM	13.5



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	25deg. C, 51%RH	120Vac, 60Hz	Jason Huang
RE<1G	24deg. C, 67%RH	120Vac, 60Hz	Amos Chuang
RE ³ 1G	25deg. C, 69%RH 25deg. C, 77%RH 26deg. C, 73%RH	120Vac, 60Hz	Amos Chuang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.4 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 (Section 15.247)

558074 D01 DTS Meas Guidance

662911 D01 Multiple Transmitter Output

ANSI C63.10-2009

Canada RSS-210 Issue 8 (2010-12)

Canada RSS-Gen Issue 3 (2010-12)

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.

3.5 DESCRIPTION OF SUPPORT UNITS

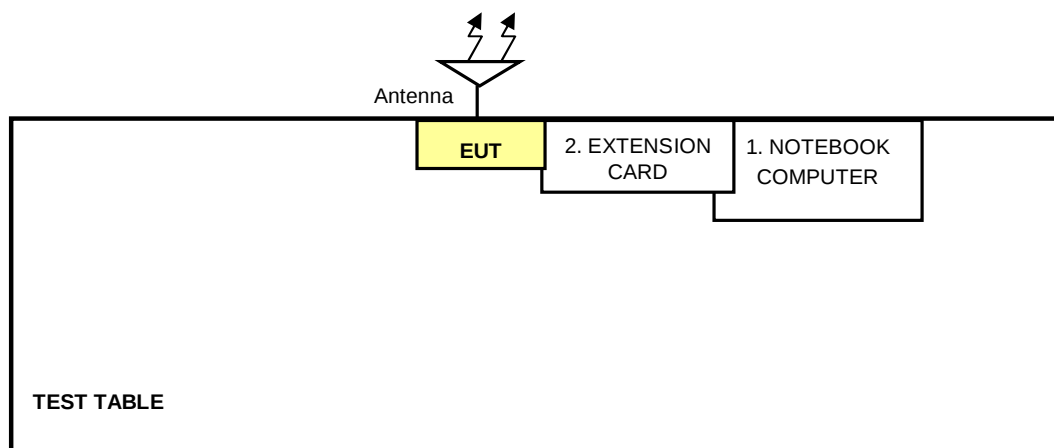
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	EXTENSION CARD	Atheros	NA	NA	NA

No.	Signal cable description
1	NA
2	NA

Note: The power cords of the above support units were unshielded (1.8m).

3.6 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED OUTPUT POWER

4.1.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

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

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.

4.1.2 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 : Feb. 04, 2013

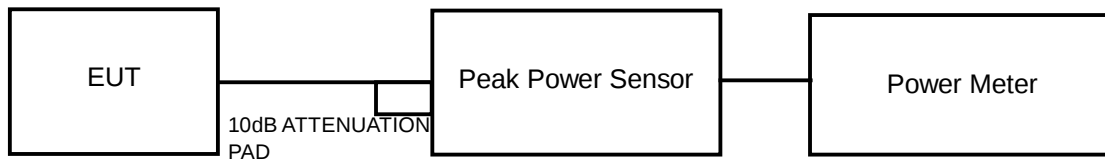
4.1.3 TEST PROCEDURES

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS (WLAN MODE)

Single chain - 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	169.824	22.30	30	PASS
6	2437	162.181	22.10	30	PASS
11	2462	154.882	21.90	30	PASS

Single chain - 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	177.828	22.50	30	PASS
6	2437	478.630	26.80	30	PASS
11	2462	165.959	22.20	30	PASS

Multiple chain - 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	19.3	19.1	166.397	22.21	30	PASS
6	2437	19.4	19.2	170.272	22.31	30	PASS
11	2462	19.6	19.2	174.377	22.41	30	PASS

Multiple chain - 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	22.7	21.6	330.753	25.20	30	PASS
6	2437	24.5	21.6	426.382	26.30	30	PASS
11	2462	20.7	20.8	237.716	23.76	30	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	23.2	22.5	386.758	25.87	30	PASS
6	2437	24.5	22.5	459.666	26.62	30	PASS
11	2462	21.1	23.1	332.999	25.22	30	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
3	2422	19.8	17.8	155.755	21.92	30	PASS
6	2437	22.9	21.1	323.809	25.10	30	PASS
9	2452	20.3	18.9	184.777	22.67	30	PASS

BT_LE-GFSK

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
0	2402	1.950	2.90	30	PASS
19	2440	2.168	3.36	30	PASS
39	2480	2.228	3.48	30	PASS

4.2 AVERAGE OUTPUT POWER

4.2.1 FOR REFERENCE.

4.2.2 TEST INSTRUMENTS

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

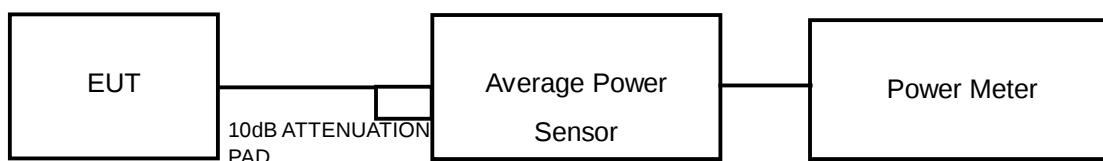
Note:

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 : Feb. 04, 2013

4.2.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator, the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the average power level.

4.2.4 TEST SETUP



4.2.5 EUT OPERATING CONDITIONS

Same as Item 4.1.6

4.2.6 TEST RESULTS

Single chain - 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)
1	2412	20.4
6	2437	20.2
11	2462	20.2

Single chain - 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)
1	2412	15.2
6	2437	20.0
11	2462	15.8

Multiple chain - 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
1	2412	17.6	17.4	20.51
6	2437	17.8	17.3	20.57
11	2462	17.5	17.2	20.36

Multiple chain - 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
1	2412	14.5	14.4	17.46
6	2437	17.3	18.1	20.73
11	2462	11.4	11.5	14.46

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
1	2412	15.8	16.0	18.91
6	2437	18.7	17.5	21.15
11	2462	12.2	12.3	15.26

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
3	2422	9.2	8.7	11.97
6	2437	13.3	13.7	16.51
9	2452	9.9	9.5	12.71

BT_LE-GFSK

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)
0	2402	2.85
19	2440	3.32
39	2480	3.41

4.3 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.3.1 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 20dB below the highest level of the desired power:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

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

4.3.2 TEST INSTRUMENTS

Below 1GHz test & Above 1GHz test (WLAN):

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. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 19, 2012	Nov. 18, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 25, 2012	Dec. 24, 2013
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: Jan. 29, 2013

Above 1GHz test (BT-LE):

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. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	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: Feb. 04, 2013

4.3.3 TEST PROCEDURES

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

NOTE:

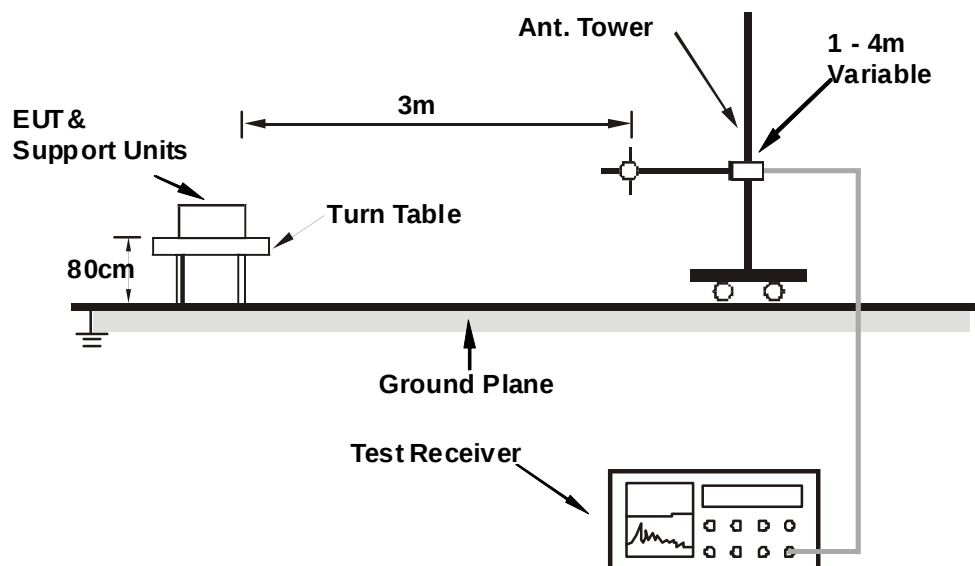
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.3.4 DEVIATION FROM TEST STANDARD

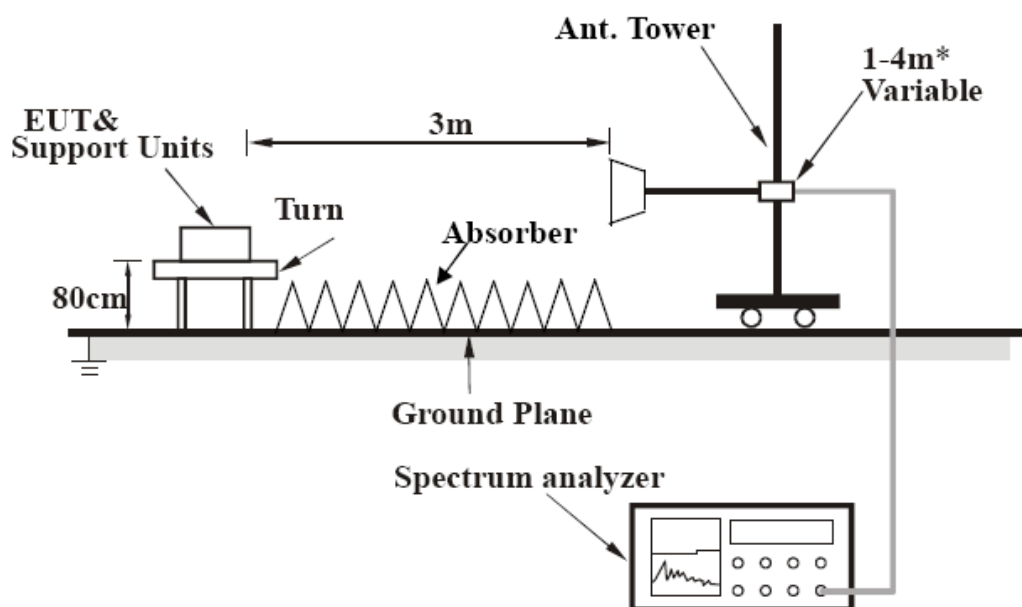
No deviation

4.3.5 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.

4.3.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “artgui.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.3.7 TEST RESULTS (WLAN MODE)

BELOW 1GHz WORST-CASE DATA

Multiple chain - 802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	110.00	35.2 QP	43.5	-8.3	1.54 H	232	23.98	11.23
2	179.00	37.9 QP	43.5	-5.6	1.40 H	155	24.81	13.05
3	299.00	38.8 QP	46.0	-7.2	1.73 H	143	23.55	15.25
4	606.00	40.9 QP	46.0	-5.1	1.19 H	176	18.18	22.74
5	811.00	41.9 QP	46.0	-4.1	1.06 H	76	15.76	26.10
6	882.00	38.3 QP	46.0	-7.7	1.56 H	287	11.04	27.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.80	28.3 QP	40.0	-11.7	1.00 V	0	15.08	13.18
2	175.07	34.9 QP	43.5	-8.6	2.00 V	121	21.47	13.40
3	300.00	34.1 QP	46.0	-11.9	2.00 V	89	18.79	15.29
4	399.95	35.5 QP	46.0	-10.5	1.00 V	129	17.60	17.86
5	600.32	41.4 QP	46.0	-4.6	1.00 V	176	18.73	22.66
6	748.83	37.0 QP	46.0	-9.0	1.50 V	48	12.12	24.88

REMARKS:

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

ABOVE 1GHz DATA

Single chain - 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	2386.30	61.1 PK	74.0	-12.9	1.42 H	86	29.13	31.97
2	2386.30	51.9 AV	54.0	-2.1	1.42 H	86	19.93	31.97
3	*2412.00	107.6 PK			1.42 H	86	75.55	32.05
4	*2412.00	105.4 AV			1.42 H	86	73.35	32.05
5	4824.00	51.3 PK	74.0	-22.7	1.16 H	123	11.72	39.58
6	4824.00	41.8 AV	54.0	-12.2	1.16 H	123	2.22	39.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.30	59.2 PK	74.0	-14.8	1.00 V	248	27.23	31.97
2	2386.30	49.9 AV	54.0	-4.1	1.00 V	248	17.93	31.97
3	*2412.00	104.9 PK			1.00 V	248	72.85	32.05
4	*2412.00	102.7 AV			1.00 V	248	70.65	32.05
5	4824.00	48.8 PK	74.0	-25.2	1.00 V	81	9.22	39.58
6	4824.00	40.1 AV	54.0	-13.9	1.00 V	81	0.52	39.58

REMARKS:

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

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	107.6 PK			1.42 H	86	75.48	32.12
2	*2437.00	105.5 AV			1.42 H	86	73.38	32.12
3	4874.00	51.1 PK	74.0	-22.9	1.16 H	122	11.40	39.70
4	4874.00	41.9 AV	54.0	-12.1	1.16 H	122	2.20	39.70
5	7311.00	55.6 PK	74.0	-18.4	1.14 H	104	8.01	47.59
6	7311.00	43.9 AV	54.0	-10.1	1.14 H	104	-3.69	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.6 PK			1.02 V	211	72.48	32.12
2	*2437.00	102.3 AV			1.02 V	211	70.18	32.12
3	4874.00	50.3 PK	74.0	-23.7	1.15 V	282	10.60	39.70
4	4874.00	40.2 AV	54.0	-13.8	1.15 V	282	0.50	39.70
5	7311.00	53.2 PK	74.0	-20.8	1.83 V	10	5.61	47.59
6	7311.00	41.5 AV	54.0	-12.5	1.83 V	10	-6.09	47.59

REMARKS:

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

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	107.9 PK			1.40 H	87	75.72	32.18
2	*2462.00	105.5 AV			1.40 H	87	73.32	32.18
3	2483.50	58.0 PK	74.0	-16.0	1.40 H	87	25.76	32.24
4	2483.50	46.1 AV	54.0	-7.9	1.40 H	87	13.86	32.24
5	4924.00	51.5 PK	74.0	-22.5	1.19 H	127	11.66	39.84
6	4924.00	42.3 AV	54.0	-11.7	1.19 H	127	2.46	39.84
7	7386.00	55.1 PK	74.0	-18.9	1.19 H	106	7.58	47.52
8	7386.00	43.6 AV	54.0	-10.4	1.19 H	106	-3.92	47.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.7 PK			1.01 V	211	72.52	32.18
2	*2462.00	102.7 AV			1.01 V	211	70.52	32.18
3	2483.50	56.7 PK	74.0	-17.3	1.00 V	243	24.46	32.24
4	2483.50	43.8 AV	54.0	-10.2	1.00 V	243	11.56	32.24
5	4924.00	50.3 PK	74.0	-23.7	1.29 V	281	10.46	39.84
6	4924.00	40.4 AV	54.0	-13.6	1.29 V	281	0.56	39.84
7	7386.00	52.8 PK	74.0	-21.2	1.28 V	324	5.28	47.52
8	7386.00	40.8 AV	54.0	-13.2	1.28 V	324	-6.72	47.52

REMARKS:

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

Single chain - 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	73.5 PK	74.0	-0.5	1.42 H	86	41.52	31.98
2	2390.00	51.9 AV	54.0	-2.1	1.42 H	86	19.92	31.98
3	*2412.00	106.4 PK			1.42 H	86	74.35	32.05
4	*2412.00	95.6 AV			1.42 H	86	63.55	32.05
5	4824.00	50.7 PK	74.0	-23.3	1.13 H	138	11.12	39.58
6	4824.00	41.9 AV	54.0	-12.1	1.13 H	138	2.32	39.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.8 PK	74.0	-4.2	1.31 V	224	37.82	31.98
2	2390.00	48.9 AV	54.0	-5.1	1.31 V	224	16.92	31.98
3	*2412.00	104.8 PK			1.08 V	241	72.75	32.05
4	*2412.00	93.1 AV			1.08 V	241	61.05	32.05
5	4824.00	50.0 PK	74.0	-24.0	1.23 V	280	10.42	39.58
6	4824.00	40.1 AV	54.0	-13.9	1.23 V	280	0.52	39.58

REMARKS:

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

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	110.5 PK			1.38 H	88	78.38	32.12
2	*2437.00	99.8 AV			1.38 H	88	67.68	32.12
3	2483.50	60.9 PK	74.0	-13.1	1.38 H	88	28.66	32.24
4	2483.50	46.5 AV	54.0	-7.5	1.38 H	88	14.26	32.24
5	4874.00	50.5 PK	74.0	-23.5	1.14 H	134	10.80	39.70
6	4874.00	41.6 AV	54.0	-12.4	1.14 H	134	1.90	39.70
7	7311.00	54.8 PK	74.0	-19.2	1.14 H	93	7.21	47.59
8	7311.00	43.4 AV	54.0	-10.6	1.14 H	93	-4.19	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.1 PK			1.33 V	284	75.98	32.12
2	*2437.00	97.5 AV			1.33 V	284	65.38	32.12
3	2483.50	58.1 PK	74.0	-15.9	1.55 V	277	25.86	32.24
4	2483.50	43.8 AV	54.0	-10.2	1.55 V	277	11.56	32.24
5	4874.00	50.3 PK	74.0	-23.7	1.31 V	282	10.60	39.70
6	4874.00	40.1 AV	54.0	-13.9	1.31 V	282	0.40	39.70
7	7311.00	52.5 PK	74.0	-21.5	1.25 V	338	4.91	47.59
8	7311.00	40.6 AV	54.0	-13.4	1.25 V	338	-6.99	47.59

REMARKS:

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

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	106.2 PK			1.38 H	88	74.02	32.18
2	*2462.00	94.8 AV			1.38 H	88	62.62	32.18
3	2483.50	71.2 PK	74.0	-2.8	1.38 H	88	38.96	32.24
4	2483.50	51.3 AV	54.0	-2.7	1.38 H	88	19.06	32.24
5	4924.00	51.0 PK	74.0	-23.0	1.21 H	134	11.16	39.84
6	4924.00	41.6 AV	54.0	-12.4	1.21 H	134	1.76	39.84
7	7386.00	54.8 PK	74.0	-19.2	1.19 H	107	7.28	47.52
8	7386.00	43.4 AV	54.0	-10.6	1.19 H	107	-4.12	47.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.8 PK			1.54 V	287	72.62	32.18
2	*2462.00	92.1 AV			1.54 V	287	59.92	32.18
3	2483.50	68.1 PK	74.0	-5.9	1.31 V	225	35.86	32.24
4	2483.50	49.8 AV	54.0	-4.2	1.31 V	225	17.56	32.24
5	4924.00	50.3 PK	74.0	-23.7	1.26 V	273	10.46	39.84
6	4924.00	40.4 AV	54.0	-13.6	1.26 V	273	0.56	39.84
7	7386.00	53.2 PK	74.0	-20.8	1.24 V	334	5.68	47.52
8	7386.00	40.9 AV	54.0	-13.1	1.24 V	334	-6.62	47.52

REMARKS:

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

Multiple chain - 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	55.1 PK	74.0	-18.9	1.12 H	88	23.12	31.98
2	2390.00	51.3 AV	54.0	-2.7	1.12 H	88	19.32	31.98
3	*2412.00	111.0 PK			1.12 H	88	78.95	32.05
4	*2412.00	108.7 AV			1.12 H	88	76.65	32.05
5	4824.00	49.8 PK	74.0	-24.2	1.00 H	47	10.22	39.58
6	4824.00	40.2 AV	54.0	-13.8	1.00 H	47	0.62	39.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.1 PK	74.0	-19.9	1.00 V	188	22.12	31.98
2	2390.00	49.3 AV	54.0	-4.7	1.00 V	188	17.32	31.98
3	*2412.00	109.5 PK			1.00 V	188	77.45	32.05
4	*2412.00	106.3 AV			1.00 V	188	74.25	32.05
5	4824.00	50.6 PK	74.0	-23.4	1.24 V	88	11.02	39.58
6	4824.00	41.4 AV	54.0	-12.6	1.24 V	88	1.82	39.58

REMARKS:

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

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	111.5 PK			1.10 H	89	79.38	32.12
2	*2437.00	109.3 AV			1.10 H	89	77.18	32.12
3	4874.00	49.7 PK	74.0	-24.3	1.00 H	50	10.00	39.70
4	4874.00	40.3 AV	54.0	-13.7	1.00 H	50	0.60	39.70
5	7311.00	54.6 PK	74.0	-19.4	1.00 H	12	7.01	47.59
6	7311.00	43.2 AV	54.0	-10.8	1.00 H	12	-4.39	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	109.3 PK			1.00 V	186	77.18	32.12
2	*2437.00	107.4 AV			1.00 V	186	75.28	32.12
3	4874.00	50.8 PK	74.0	-23.2	1.24 V	90	11.10	39.70
4	4874.00	41.3 AV	54.0	-12.7	1.24 V	90	1.60	39.70
5	7311.00	55.1 PK	74.0	-18.9	1.75 V	6	7.51	47.59
6	7311.00	44.5 AV	54.0	-9.5	1.75 V	6	-3.09	47.59

REMARKS:

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

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	111.2 PK			1.07 H	87	79.02	32.18
2	*2462.00	108.9 AV			1.07 H	87	76.72	32.18
3	2483.50	59.3 PK	74.0	-14.7	1.07 H	87	27.06	32.24
4	2483.50	49.9 AV	54.0	-4.1	1.07 H	87	17.66	32.24
5	4924.00	49.9 PK	74.0	-24.1	1.00 H	53	10.06	39.84
6	4924.00	40.5 AV	54.0	-13.5	1.00 H	53	0.66	39.84
7	7386.00	54.7 PK	74.0	-19.3	1.00 H	19	7.18	47.52
8	7386.00	43.5 AV	54.0	-10.5	1.00 H	19	-4.02	47.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.1 PK			1.00 V	183	76.92	32.18
2	*2462.00	106.9 AV			1.00 V	183	74.72	32.18
3	2483.50	59.1 PK	74.0	-14.9	1.00 V	183	26.86	32.24
4	2483.50	48.3 AV	54.0	-5.7	1.00 V	183	16.06	32.24
5	4924.00	50.3 PK	74.0	-23.7	1.25 V	86	10.46	39.84
6	4924.00	41.1 AV	54.0	-12.9	1.25 V	86	1.26	39.84
7	7386.00	55.3 PK	74.0	-18.7	1.74 V	10	7.78	47.52
8	7386.00	44.6 AV	54.0	-9.4	1.74 V	10	-2.92	47.52

REMARKS:

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

Multiple chain - 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	69.5 PK	74.0	-4.5	1.11 H	84	37.52	31.98
2	2390.00	51.5 AV	54.0	-2.5	1.11 H	84	19.52	31.98
3	*2412.00	109.5 PK			1.10 H	87	77.45	32.05
4	*2412.00	99.2 AV			1.10 H	87	67.15	32.05
5	4824.00	49.8 PK	74.0	-24.2	1.22 H	85	10.22	39.58
6	4824.00	40.1 AV	54.0	-13.9	1.22 H	85	0.52	39.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.0 PK	74.0	-9.0	1.00 V	182	33.02	31.98
2	2390.00	48.1 AV	54.0	-5.9	1.00 V	182	16.12	31.98
3	*2412.00	106.5 PK			1.00 V	181	74.45	32.05
4	*2412.00	96.0 AV			1.00 V	181	63.95	32.05
5	4824.00	50.6 PK	74.0	-23.4	1.25 V	278	11.02	39.58
6	4824.00	40.6 AV	54.0	-13.4	1.25 V	278	1.02	39.58

REMARKS:

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

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	112.7 PK			1.09 H	88	80.58	32.12
2	*2437.00	102.5 AV			1.09 H	88	70.38	32.12
3	2483.50	64.1 PK	74.0	-9.9	1.08 H	86	31.86	32.24
4	2483.50	48.7 AV	54.0	-5.3	1.08 H	86	16.46	32.24
5	4874.00	49.8 PK	74.0	-24.2	1.22 H	90	10.10	39.70
6	4874.00	40.5 AV	54.0	-13.5	1.22 H	90	0.80	39.70
7	7311.00	55.8 PK	74.0	-18.2	1.55 H	101	8.21	47.59
8	7311.00	45.1 AV	54.0	-8.9	1.55 H	101	-2.49	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.3 PK			1.00 V	183	78.18	32.12
2	*2437.00	100.4 AV			1.00 V	183	68.28	32.12
3	2483.50	62.6 PK	74.0	-11.4	1.00 V	183	30.36	32.24
4	2483.50	46.8 AV	54.0	-7.2	1.00 V	183	14.56	32.24
5	4874.00	50.8 PK	74.0	-23.2	1.31 V	269	11.10	39.70
6	4874.00	40.7 AV	54.0	-13.3	1.31 V	269	1.00	39.70
7	7311.00	56.3 PK	74.0	-17.7	1.26 V	312	8.71	47.59
8	7311.00	45.1 AV	54.0	-8.9	1.26 V	312	-2.49	47.59

REMARKS:

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

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	106.8 PK			1.08 H	86	74.62	32.18
2	*2462.00	96.9 AV			1.08 H	86	64.72	32.18
3	2483.50	72.5 PK	74.0	-1.5	1.05 H	101	40.26	32.24
4	2483.50	50.5 AV	54.0	-3.5	1.05 H	101	18.26	32.24
5	4924.00	50.1 PK	74.0	-23.9	1.08 H	78	10.26	39.84
6	4924.00	40.8 AV	54.0	-13.2	1.08 H	78	0.96	39.84
7	7386.00	55.8 PK	74.0	-18.2	1.22 H	98	8.28	47.52
8	7386.00	44.1 AV	54.0	-9.9	1.22 H	98	-3.42	47.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.6 PK			1.00 V	186	72.42	32.18
2	*2462.00	94.6 AV			1.00 V	186	62.42	32.18
3	2483.50	71.2 PK	74.0	-2.8	1.00 V	186	38.96	32.24
4	2483.50	49.3 AV	54.0	-4.7	1.00 V	186	17.06	32.24
5	4924.00	49.8 PK	74.0	-24.2	1.24 V	276	9.96	39.84
6	4924.00	40.0 AV	54.0	-14.0	1.24 V	276	0.16	39.84
7	7386.00	56.0 PK	74.0	-18.0	1.27 V	324	8.48	47.52
8	7386.00	44.7 AV	54.0	-9.3	1.27 V	324	-2.82	47.52

REMARKS:

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

802.11n (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	68.6 PK	74.0	-5.4	1.08 H	103	36.62	31.98
2	2390.00	53.2 AV	54.0	-0.8	1.08 H	103	21.22	31.98
3	*2412.00	110.7 PK			1.08 H	103	78.65	32.05
4	*2412.00	100.1 AV			1.08 H	103	68.05	32.05
5	4824.00	51.0 PK	74.0	-23.0	1.55 H	211	11.42	39.58
6	4824.00	40.8 AV	54.0	-13.2	1.55 H	211	1.22	39.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	1.01 V	188	34.92	31.98
2	2390.00	52.5 AV	54.0	-1.5	1.01 V	188	20.52	31.98
3	*2412.00	108.6 PK			1.01 V	188	76.55	32.05
4	*2412.00	98.5 AV			1.01 V	188	66.45	32.05
5	4824.00	51.5 PK	74.0	-22.5	1.05 V	210	11.92	39.58
6	4824.00	41.8 AV	54.0	-12.2	1.05 V	210	2.22	39.58

REMARKS:

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

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	115.1 PK			1.10 H	119	82.98	32.12
2	*2437.00	104.7 AV			1.10 H	119	72.58	32.12
3	2483.50	70.2 PK	74.0	-3.8	1.10 H	119	37.96	32.24
4	2483.50	53.3 AV	54.0	-0.7	1.10 H	119	21.06	32.24
5	4874.00	49.5 PK	74.0	-24.5	1.12 H	115	9.80	39.70
6	4874.00	41.7 AV	54.0	-12.3	1.12 H	115	2.00	39.70
7	7311.00	56.5 PK	74.0	-17.5	1.08 H	118	8.91	47.59
8	7311.00	46.5 AV	54.0	-7.5	1.08 H	118	-1.09	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.3 PK			1.00 V	185	80.18	32.12
2	*2437.00	102.3 AV			1.00 V	185	70.18	32.12
3	2483.50	66.6 PK	74.0	-7.4	1.00 V	185	34.36	32.24
4	2483.50	52.5 AV	54.0	-1.5	1.00 V	185	20.26	32.24
5	4874.00	48.9 PK	74.0	-25.1	1.11 V	214	9.20	39.70
6	4874.00	41.2 AV	54.0	-12.8	1.11 V	214	1.50	39.70
7	7311.00	55.8 PK	74.0	-18.2	1.25 V	335	8.21	47.59
8	7311.00	45.5 AV	54.0	-8.5	1.25 V	335	-2.09	47.59

REMARKS:

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

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	107.1 PK			1.10 H	87	74.92	32.18
2	*2462.00	95.9 AV			1.10 H	87	63.72	32.18
3	2483.50	73.2 PK	74.0	-0.8	1.10 H	87	40.96	32.24
4	2483.50	51.5 AV	54.0	-2.5	1.10 H	87	19.26	32.24
5	4924.00	50.1 PK	74.0	-23.9	1.17 H	231	10.26	39.84
6	4924.00	43.2 AV	54.0	-10.8	1.17 H	231	3.36	39.84
7	7386.00	57.5 PK	74.0	-16.5	1.21 H	178	9.98	47.52
8	7386.00	47.5 AV	54.0	-6.5	1.21 H	178	-0.02	47.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.1 PK			1.00 V	183	72.92	32.18
2	*2462.00	93.4 AV			1.00 V	183	61.22	32.18
3	2483.50	71.6 PK	74.0	-2.4	1.00 V	183	39.36	32.24
4	2483.50	49.6 AV	54.0	-4.4	1.00 V	183	17.36	32.24
5	4924.00	49.5 PK	74.0	-24.5	1.21 V	225	9.66	39.84
6	4924.00	42.3 AV	54.0	-11.7	1.21 V	225	2.46	39.84
7	7386.00	56.5 PK	74.0	-17.5	1.31 V	187	8.98	47.52
8	7386.00	46.5 AV	54.0	-7.5	1.31 V	187	-1.02	47.52

REMARKS:

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

802.11n (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	66.9 PK	74.0	-7.1	1.10 H	98	34.92	31.98
2	2390.00	52.3 AV	54.0	-1.7	1.10 H	98	20.32	31.98
3	*2422.00	102.3 PK			1.10 H	98	70.22	32.08
4	*2422.00	90.3 AV			1.10 H	98	58.22	32.08
5	4844.00	49.5 PK	74.0	-24.5	1.15 H	231	9.87	39.63
6	4844.00	41.5 AV	54.0	-12.5	1.15 H	231	1.87	39.63
7	7266.00	56.5 PK	74.0	-17.5	1.21 H	215	8.90	47.60
8	7266.00	46.7 AV	54.0	-7.3	1.21 H	215	-0.90	47.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.3 PK	74.0	-12.7	1.01 V	189	29.32	31.98
2	2390.00	47.3 AV	54.0	-6.7	1.01 V	189	15.32	31.98
3	*2422.00	100.5 PK			1.01 V	189	68.42	32.08
4	*2422.00	89.0 AV			1.01 V	189	56.92	32.08
5	4844.00	48.5 PK	74.0	-25.5	1.12 V	211	8.87	39.63
6	4844.00	40.5 AV	54.0	-13.5	1.12 V	211	0.87	39.63
7	7266.00	55.4 PK	74.0	-18.6	1.15 V	117	7.80	47.60
8	7266.00	45.8 AV	54.0	-8.2	1.15 V	117	-1.80	47.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.5 PK			1.07 H	111	74.38	32.12
2	*2437.00	96.3 AV			1.07 H	111	64.18	32.12
3	2483.50	71.8 PK	74.0	-2.2	1.07 H	111	39.56	32.24
4	2483.50	52.4 AV	54.0	-1.6	1.07 H	111	20.16	32.24
5	4874.00	50.1 PK	74.0	-23.9	1.88 H	253	10.40	39.70
6	4874.00	42.5 AV	54.0	-11.5	1.88 H	253	2.80	39.70
7	7311.00	55.5 PK	74.0	-18.5	1.21 H	245	7.91	47.59
8	7311.00	45.8 AV	54.0	-8.2	1.21 H	245	-1.79	47.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.7 PK			1.00 V	188	72.58	32.12
2	*2437.00	93.7 AV			1.00 V	188	61.58	32.12
3	2483.50	72.4 PK	74.0	-1.6	1.00 V	188	40.16	32.24
4	2483.50	52.7 AV	54.0	-1.3	1.00 V	188	20.46	32.24
5	4874.00	49.5 PK	74.0	-24.5	1.31 V	224	9.80	39.70
6	4874.00	41.2 AV	54.0	-12.8	1.31 V	224	1.50	39.70
7	7311.00	54.8 PK	74.0	-19.2	1.17 V	211	7.21	47.59
8	7311.00	44.3 AV	54.0	-9.7	1.17 V	211	-3.29	47.59

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.7 PK			1.06 H	117	70.54	32.16
2	*2452.00	92.2 AV			1.06 H	117	60.04	32.16
3	2483.50	67.9 PK	74.0	-6.1	1.06 H	117	35.66	32.24
4	2483.50	51.3 AV	54.0	-2.7	1.06 H	117	19.06	32.24
5	4904.00	49.5 PK	74.0	-24.5	1.08 H	222	9.73	39.77
6	4904.00	40.3 AV	54.0	-13.7	1.08 H	222	0.53	39.77
7	7356.00	55.5 PK	74.0	-18.5	1.08 H	280	7.95	47.55
8	7356.00	44.8 AV	54.0	-9.2	1.08 H	280	-2.75	47.55
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	100.5 PK			1.00 V	192	68.34	32.16
2	*2452.00	90.2 AV			1.00 V	192	58.04	32.16
3	2483.50	66.1 PK	74.0	-7.9	1.00 V	192	33.86	32.24
4	2483.50	49.5 AV	54.0	-4.5	1.00 V	192	17.26	32.24
5	4904.00	48.8 PK	74.0	-25.2	1.05 V	212	9.03	39.77
6	4904.00	39.6 AV	54.0	-14.4	1.05 V	212	-0.17	39.77
7	7356.00	54.5 PK	74.0	-19.5	1.17 V	288	6.95	47.55
8	7356.00	43.8 AV	54.0	-10.2	1.17 V	288	-3.75	47.55

REMARKS:

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

4.3.8 TEST RESULTS (BT <LE> MODE)

BELOW 1GHz WORST-CASE DATA

CHANNEL	TX Channel 39	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	99.99	35.0 QP	43.5	-8.5	2.00 H	191	25.08	9.88
2	168.20	37.6 QP	43.5	-5.9	2.00 H	360	23.78	13.82
3	299.89	38.8 QP	46.0	-7.2	1.00 H	360	23.53	15.29
4	600.32	40.5 QP	46.0	-5.5	2.00 H	360	17.88	22.66
5	799.87	41.4 QP	46.0	-4.6	2.00 H	114	15.50	25.92
6	871.16	37.9 QP	46.0	-8.2	2.00 H	360	10.79	27.06
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	39.00	28.4 QP	40.0	-11.6	1.27 V	88	14.71	13.69
2	180.00	35.0 QP	43.5	-8.5	1.54 V	191	22.02	12.96
3	300.90	34.4 QP	46.0	-11.6	1.48 V	198	19.08	15.31
4	406.00	35.9 QP	46.0	-10.1	1.33 V	316	17.88	18.01
5	597.80	41.8 QP	46.0	-4.2	1.41 V	235	19.15	22.61
6	760.36	37.5 QP	46.0	-8.5	1.60 V	153	12.38	25.12

REMARKS:

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

ABOVE 1GHz DATA

CHANNEL	TX Channel 0	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	2322.00	57.7 PK	74.0	-16.3	1.03 H	110	25.14	32.56
2	2322.00	46.5 AV	54.0	-7.5	1.03 H	110	13.94	32.56
3	*2402.00	98.4 PK			1.03 H	110	65.58	32.82
4	*2402.00	86.8 AV			1.03 H	110	53.98	32.82
5	4804.00	50.0 PK	74.0	-24.0	1.00 H	155	7.75	42.25
6	4804.00	38.0 AV	54.0	-16.0	1.00 H	155	-4.25	42.25
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	2322.00	57.6 PK	74.0	-16.4	1.39 V	236	25.04	32.56
2	2322.00	45.1 AV	54.0	-8.9	1.39 V	236	12.54	32.56
3	*2402.00	96.4 PK			1.40 V	236	63.58	32.82
4	*2402.00	85.2 AV			1.40 V	236	52.38	32.82
5	4804.00	49.8 PK	74.0	-24.2	1.00 V	94	7.55	42.25
6	4804.00	37.9 AV	54.0	-16.1	1.00 V	94	-4.35	42.25

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 19	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	2360.00	58.1 PK	74.0	-15.9	1.04 H	105	25.42	32.68
2	2360.00	46.5 AV	54.0	-7.5	1.04 H	105	13.82	32.68
3	*2440.00	99.1 PK			1.00 H	106	66.19	32.91
4	*2440.00	87.3 AV			1.00 H	106	54.39	32.91
5	2483.50	57.9 PK	74.0	-16.1	1.04 H	105	24.87	33.03
6	2483.50	45.2 AV	54.0	-8.8	1.04 H	105	12.17	33.03
7	4880.00	50.4 PK	74.0	-23.6	1.00 H	149	8.08	42.32
8	4880.00	37.8 AV	54.0	-16.2	1.00 H	149	-4.52	42.32
9	7320.00	54.5 PK	74.0	-19.5	1.00 H	168	7.52	46.98
10	7320.00	42.7 AV	54.0	-11.3	1.00 H	168	-4.28	46.98
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	2360.00	58.3 PK	74.0	-15.7	1.40 V	236	25.62	32.68
2	2360.00	45.7 AV	54.0	-8.3	1.40 V	236	13.02	32.68
3	*2440.00	97.3 PK			1.40 V	236	64.39	32.91
4	*2440.00	86.0 AV			1.40 V	236	53.09	32.91
5	2483.50	58.4 PK	74.0	-15.6	1.40 V	236	25.37	33.03
6	2483.50	45.1 AV	54.0	-8.9	1.40 V	236	12.07	33.03
7	4880.00	50.3 PK	74.0	-23.7	1.00 V	82	7.98	42.32
8	4880.00	37.6 AV	54.0	-16.4	1.00 V	82	-4.72	42.32
9	7320.00	54.1 PK	74.0	-19.9	1.00 V	31	7.12	46.98
10	7320.00	42.5 AV	54.0	-11.5	1.00 V	31	-4.48	46.98

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 39	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	*2480.00	99.2 PK			1.00 H	105	66.18	33.02
2	*2480.00	87.5 AV			1.00 H	105	54.48	33.02
3	2483.50	58.7 PK	74.0	-15.3	1.03 H	105	25.67	33.03
4	2483.50	45.3 AV	54.0	-8.7	1.03 H	105	12.27	33.03
5	4960.00	50.3 PK	74.0	-23.7	1.00 H	145	8.00	42.30
6	4960.00	37.8 AV	54.0	-16.2	1.00 H	145	-4.50	42.30
7	7440.00	55.8 PK	74.0	-18.2	1.00 H	168	8.51	47.29
8	7440.00	43.0 AV	54.0	-11.0	1.00 H	168	-4.29	47.29
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	*2480.00	98.3 PK			1.38 V	248	65.28	33.02
2	*2480.00	86.7 AV			1.38 V	248	53.68	33.02
3	2483.50	58.1 PK	74.0	-15.9	1.38 V	248	25.07	33.03
4	2483.50	45.2 AV	54.0	-8.8	1.38 V	248	12.17	33.03
5	4960.00	49.9 PK	74.0	-24.1	1.00 V	96	7.60	42.30
6	4960.00	37.6 AV	54.0	-16.4	1.00 V	96	-4.70	42.30
7	7440.00	55.6 PK	74.0	-18.4	1.00 V	25	8.31	47.29
8	7440.00	42.9 AV	54.0	-11.1	1.00 V	25	-4.39	47.29

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.

4.4 CONDUCTED EMISSION MEASUREMENT

4.4.1 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.

4.4.2 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: Jan. 30, 2013

4.4.3 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) was not recorded.

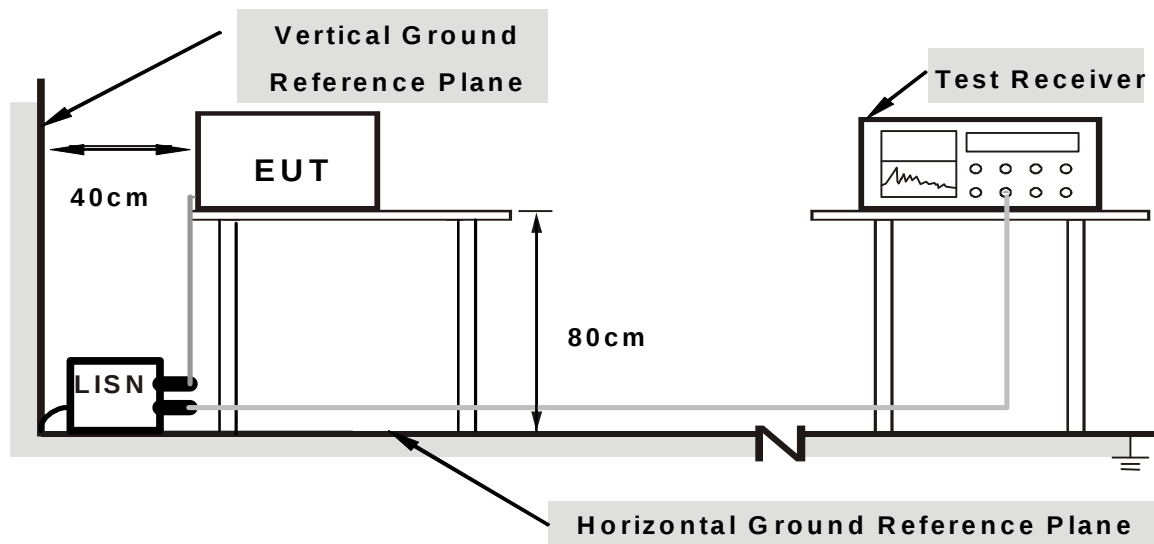
NOTE:

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 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.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

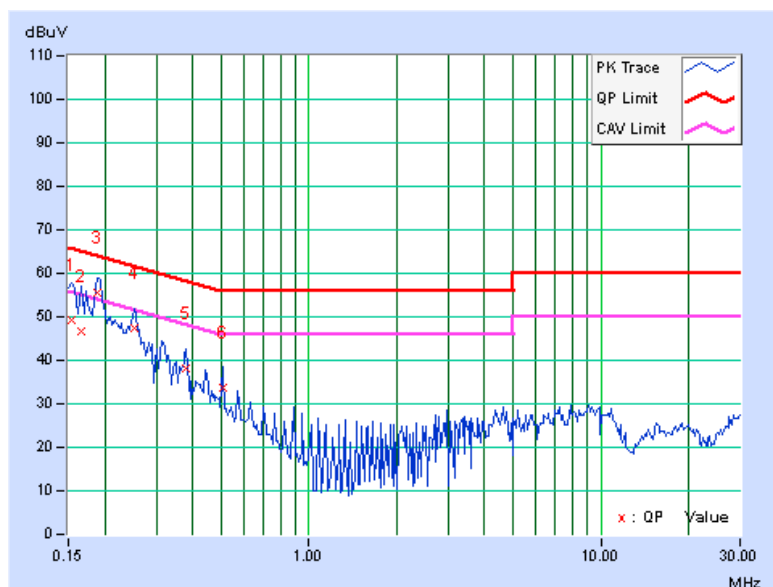
4.4.7 TEST RESULTS (WLAN mode)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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	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	0.15391	0.11	49.08	20.54	49.19	20.65	65.79	55.79	-16.60	-35.14
2	0.16562	0.11	46.46	19.97	46.57	20.08	65.18	55.18	-18.61	-35.10
3	0.18906	0.12	55.32	49.41	55.44	49.53	64.08	54.08	-8.64	-4.55
4	0.25156	0.13	47.34	41.41	47.47	41.54	61.71	51.71	-14.24	-10.17
5	0.38047	0.16	37.96	33.62	38.12	33.78	58.27	48.27	-20.15	-14.49
6	0.50547	0.17	33.37	30.71	33.54	30.88	56.00	46.00	-22.46	-15.12

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.

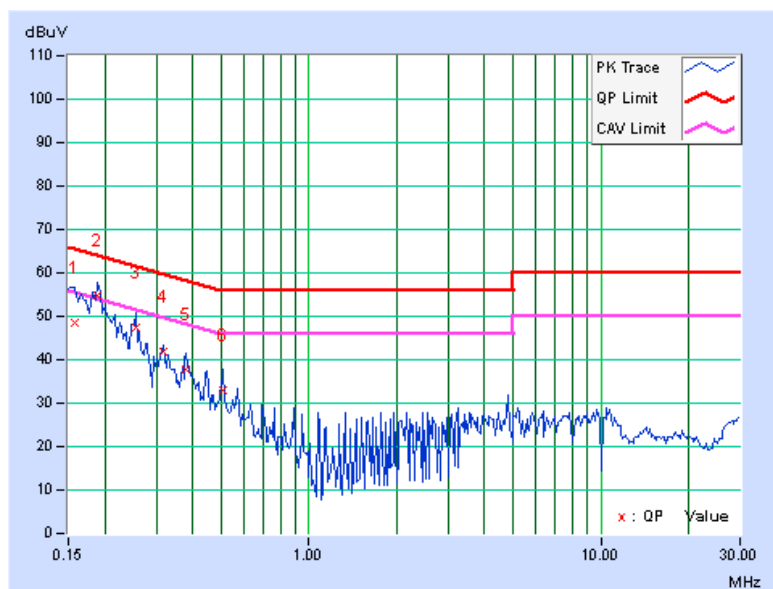


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor [dB]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB]	AV. [dB]
1	0.15781	0.09	48.45	20.62	48.54	20.71	65.58	55.58	-17.04	-34.87
2	0.18906	0.10	54.83	49.23	54.93	49.33	64.08	54.08	-9.15	-4.75
3	0.25547	0.11	47.16	40.91	47.27	41.02	61.58	51.58	-14.30	-10.55
4	0.31797	0.13	41.87	36.72	42.00	36.85	59.76	49.76	-17.76	-12.91
5	0.38047	0.15	37.80	33.59	37.95	33.74	58.27	48.27	-20.32	-14.53
6	0.50938	0.15	32.88	29.86	33.03	30.01	56.00	46.00	-22.97	-15.99

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.



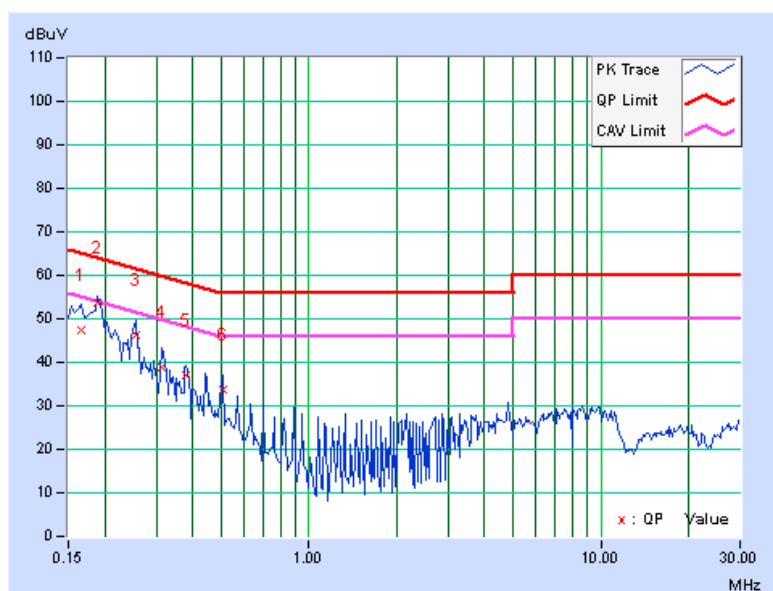
4.4.8 TEST RESULTS (BT<LE> mode)

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor [dB]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB]	[dB]
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.11	47.44	16.67	47.55	16.78	65.18	55.18	-17.63	-38.40
2	0.18906	0.12	53.42	47.69	53.54	47.81	64.08	54.08	-10.54	-6.27
3	0.25547	0.13	46.21	39.73	46.34	39.86	61.58	51.58	-15.24	-11.72
4	0.31406	0.14	38.79	34.12	38.93	34.26	59.86	49.86	-20.93	-15.60
5	0.38047	0.16	36.95	32.87	37.11	33.03	58.27	48.27	-21.16	-15.24
6	0.50547	0.17	33.36	30.84	33.53	31.01	56.00	46.00	-22.47	-14.99

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.

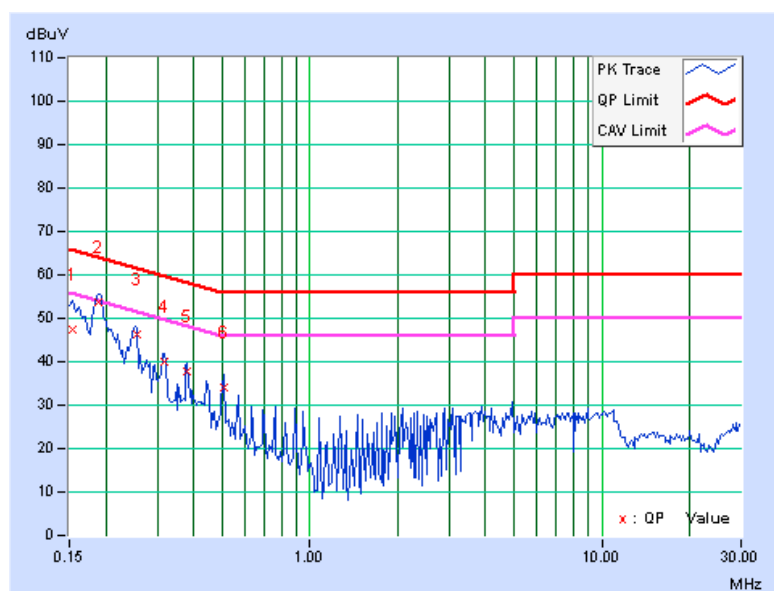


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	0.09	47.14	20.07	47.23	20.16	65.79	55.79	-18.56	-35.63
2	0.18906	0.10	53.44	47.52	53.54	47.62	64.08	54.08	-10.54	-6.46
3	0.25547	0.11	46.11	39.61	46.22	39.72	61.58	51.58	-15.35	-11.85
4	0.31797	0.13	39.91	34.55	40.04	34.68	59.76	49.76	-19.72	-15.08
5	0.38047	0.15	37.47	33.30	37.62	33.45	58.27	48.27	-20.65	-14.82
6	0.50547	0.15	33.92	31.89	34.07	32.04	56.00	46.00	-21.93	-13.96

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

5.1 CONDUCTED OUTPUT POWER

5.1.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

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

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.

5.1.2 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 : Feb. 04, 2013

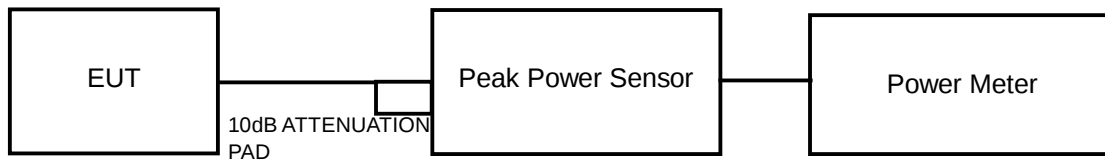
5.1.3 TEST PROCEDURES

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.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



5.1.6 EUT OPERATING CONDITIONS

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

5.1.7 TEST RESULTS

Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	162.181	22.1	30	PASS
157	5785	154.882	21.9	30	PASS
165	5825	151.356	21.8	30	PASS

Multiple chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	19.7	20.1	195.654	22.91	30	PASS
157	5785	19.2	19.9	180.900	22.57	30	PASS
165	5825	19.2	19.9	180.900	22.57	30	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	19.6	20.8	211.427	23.25	30	PASS
157	5785	20.0	20.5	212.202	23.27	30	PASS
165	5825	20.3	20.4	216.800	23.36	30	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
151	5755	20.1	20.3	209.481	23.21	30	PASS
159	5795	19.7	20.7	210.815	23.24	30	PASS

5.2 AVERAGE OUTPUT POWER

5.2.1 For reference.

5.2.2 TEST INSTRUMENTS

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

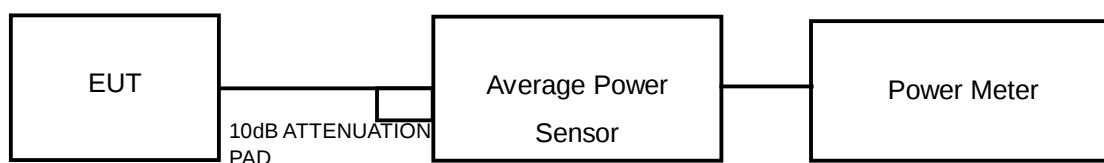
Note:

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 : Feb. 04, 2013

5.2.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator, the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the average power level.

5.2.4 TEST SETUP



5.2.5 EUT OPERATING CONDITIONS

Same as Item 4.1.6

5.2.6 TEST RESULTS

Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)
149	5745	16.5
157	5785	16.5
165	5825	16.6

Multiple chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
149	5745	13.2	13.7	16.47
157	5785	13.8	13.6	16.71
165	5825	13.6	13.7	16.66

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
149	5745	13.1	13.2	16.16
157	5785	13.8	13.7	16.76
165	5825	13.6	13.7	16.66

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER OUTPUT (dBm)		AVERAGE POWER OUTPUT (dBm)
		Chain(0)	Chain(1)	
151	5755	14.4	14.7	17.56
159	5795	13.8	14.3	17.07

5.3 RADIATED EMISSION AND BANDEDGE MEASUREMENT

5.3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

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

NOTE:

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

5.3.2 TEST INSTRUMENTS

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. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISL	AIH.8018	0000320091110	Nov. 19, 2012	Nov. 18, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 25, 2012	Dec. 24, 2013
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: Jan. 29 to 30, 2013

5.3.3 TEST PROCEDURES

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

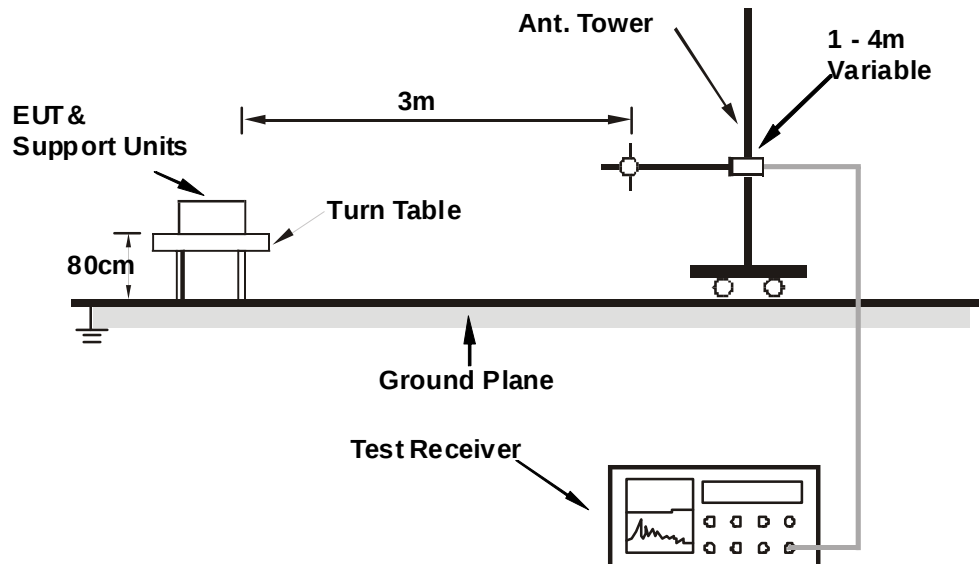
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



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

5.3.6 EUT OPERATING CONDITIONS

Same as the 4.3.6

5.3.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

Multiple chain - 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	105.00	35.1 QP	43.5	-8.4	1.24 H	221	24.58	10.55
2	174.00	37.8 QP	43.5	-5.7	1.35 H	145	24.33	13.46
3	306.00	38.9 QP	46.0	-7.1	1.69 H	136	23.44	15.44
4	602.00	40.9 QP	46.0	-5.1	1.26 H	184	18.19	22.69
5	810.00	41.8 QP	46.0	-4.2	1.11 H	67	15.70	26.09
6	878.00	38.2 QP	46.0	-7.8	1.52 H	319	11.05	27.17
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.00	28.2 QP	40.0	-11.8	1.13 V	14	14.67	13.53
2	175.40	35.0 QP	43.5	-8.6	1.82 V	231	21.58	13.37
3	300.00	34.2 QP	46.0	-11.8	1.85 V	78	18.95	15.29
4	400.05	35.6 QP	46.0	-10.4	1.10 V	239	17.71	17.86
5	600.50	41.5 QP	46.0	-4.6	1.08 V	184	18.78	22.67
6	748.90	37.1 QP	46.0	-8.9	1.59 V	41	12.22	24.88

REMARKS:

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

ABOVE 1GHz DATA

Single chain - 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	5460.00	60.2 PK	74.0	-13.8	1.46 H	204	18.69	41.51
2	5460.00	46.5 AV	54.0	-7.5	1.46 H	204	4.99	41.51
3	*5745.00	105.4 PK			1.00 H	118	63.03	42.37
4	*5745.00	95.4 AV			1.00 H	118	53.03	42.37
5	11490.00	57.8 PK	74.0	-16.2	1.00 H	17	9.04	48.76
6	11490.00	47.4 AV	54.0	-6.6	1.00 H	17	-1.36	48.76
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	5460.00	59.9 PK	74.0	-14.1	1.44 V	212	18.39	41.51
2	5460.00	48.2 AV	54.0	-5.8	1.44 V	212	6.69	41.51
3	*5745.00	108.8 PK			1.00 V	234	66.43	42.37
4	*5745.00	98.4 AV			1.00 V	234	56.03	42.37
5	11490.00	60.5 PK	74.0	-13.5	1.38 V	7	11.74	48.76
6	11490.00	49.3 AV	54.0	-4.7	1.38 V	7	0.54	48.76

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.2 PK	74.0	-13.8	1.46 H	204	18.69	41.51
2	5460.00	46.5 AV	54.0	-7.5	1.46 H	204	4.99	41.51
3	*5785.00	105.3 PK			1.03 H	104	62.86	42.44
4	*5785.00	95.3 AV			1.03 H	104	52.86	42.44
5	11570.00	57.9 PK	74.0	-16.1	1.00 H	22	9.19	48.71
6	11570.00	47.9 AV	54.0	-6.1	1.00 H	22	-0.81	48.71
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	5460.00	60.3 PK	74.0	-13.7	1.47 V	221	18.79	41.51
2	5460.00	48.4 AV	54.0	-5.6	1.47 V	221	6.89	41.51
3	*5785.00	108.7 PK			1.00 V	232	66.26	42.44
4	*5785.00	98.2 AV			1.00 V	232	55.76	42.44
5	11570.00	61.0 PK	74.0	-13.0	1.39 V	0	12.29	48.71
6	11570.00	49.6 AV	54.0	-4.4	1.39 V	0	0.89	48.71

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.2 PK	74.0	-13.8	1.46 H	204	18.69	41.51
2	5460.00	47.1 AV	54.0	-6.9	1.46 H	204	5.59	41.51
3	*5825.00	105.0 PK			1.00 H	113	62.43	42.57
4	*5825.00	95.2 AV			1.00 H	113	52.63	42.57
5	11650.00	58.1 PK	74.0	-15.9	1.00 H	25	9.18	48.92
6	11650.00	48.5 AV	54.0	-5.5	1.00 H	25	-0.42	48.92
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	5460.00	59.7 PK	74.0	-14.3	1.42 V	196	18.19	41.51
2	5460.00	49.8 AV	54.0	-4.2	1.42 V	196	8.29	41.51
3	*5825.00	108.1 PK			1.00 V	235	65.53	42.57
4	*5825.00	98.4 AV			1.00 V	235	55.83	42.57
5	11650.00	61.2 PK	74.0	-12.8	1.34 V	0	12.28	48.92
6	11650.00	50.0 AV	54.0	-4.0	1.34 V	0	1.08	48.92

REMARKS:

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

Multiple chain - 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	5460.00	60.2 PK	74.0	-13.8	1.46 H	204	18.69	41.51
2	5460.00	47.3 AV	54.0	-6.7	1.46 H	204	5.79	41.51
3	*5745.00	109.2 PK			1.20 H	135	66.83	42.37
4	*5745.00	98.8 AV			1.20 H	135	56.43	42.37
5	11490.00	63.0 PK	74.0	-11.0	1.02 H	23	14.24	48.76
6	11490.00	47.5 AV	54.0	-6.5	1.02 H	23	-1.26	48.76
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	5460.00	60.1 PK	74.0	-13.9	1.42 V	205	18.59	41.51
2	5460.00	48.2 AV	54.0	-5.8	1.42 V	205	6.69	41.51
3	*5745.00	110.4 PK			1.00 V	267	68.03	42.37
4	*5745.00	100.1 AV			1.00 V	267	57.73	42.37
5	11490.00	60.4 PK	74.0	-13.6	1.36 V	0	11.64	48.76
6	11490.00	49.0 AV	54.0	-5.0	1.36 V	0	0.24	48.76

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.5 PK	74.0	-13.5	1.40 H	205	18.99	41.51
2	5460.00	46.3 AV	54.0	-7.7	1.40 H	205	4.79	41.51
3	*5785.00	109.3 PK			1.22 H	129	66.86	42.44
4	*5785.00	99.2 AV			1.22 H	129	56.76	42.44
5	11570.00	63.2 PK	74.0	-10.8	1.00 H	30	14.49	48.71
6	11570.00	46.5 AV	54.0	-7.5	1.00 H	30	-2.21	48.71
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	5460.00	59.9 PK	74.0	-14.1	1.36 V	208	18.39	41.51
2	5460.00	48.3 AV	54.0	-5.7	1.36 V	208	6.79	41.51
3	*5785.00	109.9 PK			1.01 V	263	67.46	42.44
4	*5785.00	100.8 AV			1.01 V	263	58.36	42.44
5	11570.00	59.4 PK	74.0	-14.6	1.35 V	0	10.69	48.71
6	11570.00	48.3 AV	54.0	-5.7	1.35 V	0	-0.41	48.71

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.2 PK	74.0	-13.8	1.49 H	203	18.69	41.51
2	5460.00	46.3 AV	54.0	-7.7	1.49 H	203	4.79	41.51
3	*5825.00	109.1 PK			1.21 H	143	66.53	42.57
4	*5825.00	98.5 AV			1.21 H	143	55.93	42.57
5	11650.00	62.8 PK	74.0	-11.2	1.00 H	23	13.88	48.92
6	11650.00	49.8 AV	54.0	-4.2	1.00 H	23	0.88	48.92
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	5460.00	60.7 PK	74.0	-13.3	1.40 V	214	19.19	41.51
2	5460.00	48.6 AV	54.0	-5.4	1.40 V	214	7.09	41.51
3	*5825.00	110.6 PK			1.00 V	266	68.03	42.57
4	*5825.00	100.2 AV			1.00 V	266	57.63	42.57
5	11650.00	62.1 PK	74.0	-11.9	1.35 V	0	13.18	48.92
6	11650.00	51.3 AV	54.0	-2.7	1.35 V	0	2.38	48.92

REMARKS:

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

802.11n (HT20)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
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	5460.00	60.0 PK	74.0	-14.0	1.43 H	213	18.49	41.51
2	5460.00	47.4 AV	54.0	-6.6	1.43 H	213	5.89	41.51
3	*5745.00	108.8 PK			1.30 H	140	66.43	42.37
4	*5745.00	98.0 AV			1.30 H	140	55.63	42.37
5	11490.00	62.4 PK	74.0	-11.6	1.00 H	22	13.64	48.76
6	11490.00	47.3 AV	54.0	-6.7	1.00 H	22	-1.46	48.76
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	5460.00	60.8 PK	74.0	-13.2	1.45 V	203	19.29	41.51
2	5460.00	49.0 AV	54.0	-5.0	1.45 V	203	7.49	41.51
3	*5745.00	110.9 PK			1.12 V	262	68.53	42.37
4	*5745.00	100.1 AV			1.12 V	262	57.73	42.37
5	11490.00	61.3 PK	74.0	-12.7	1.35 V	0	12.54	48.76
6	11490.00	49.2 AV	54.0	-4.8	1.35 V	0	0.44	48.76

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.2 PK	74.0	-14.8	1.44 H	204	17.69	41.51
2	5460.00	47.9 AV	54.0	-6.1	1.44 H	204	6.39	41.51
3	*5785.00	109.0 PK			1.35 H	151	66.56	42.44
4	*5785.00	98.1 AV			1.35 H	151	55.66	42.44
5	11570.00	62.4 PK	74.0	-11.6	1.00 H	33	13.69	48.71
6	11570.00	47.5 AV	54.0	-6.5	1.00 H	33	-1.21	48.71
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	5460.00	61.2 PK	74.0	-12.8	1.45 V	208	19.69	41.51
2	5460.00	49.2 AV	54.0	-4.8	1.45 V	208	7.69	41.51
3	*5785.00	105.8 PK			1.05 V	231	63.36	42.44
4	*5785.00	100.6 AV			1.05 V	231	58.16	42.44
5	11570.00	61.3 PK	74.0	-12.7	1.30 V	0	12.59	48.71
6	11570.00	49.1 AV	54.0	-4.9	1.30 V	0	0.39	48.71

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.1 PK	74.0	-13.9	1.38 H	225	18.59	41.51
2	5460.00	47.6 AV	54.0	-6.4	1.38 H	225	6.09	41.51
3	*5825.00	108.7 PK			1.33 H	125	66.13	42.57
4	*5825.00	97.7 AV			1.33 H	125	55.13	42.57
5	11650.00	62.0 PK	74.0	-12.0	1.02 H	23	13.08	48.92
6	11650.00	47.3 AV	54.0	-6.7	1.02 H	23	-1.62	48.92
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	5460.00	60.7 PK	74.0	-13.3	1.40 V	218	19.19	41.51
2	5460.00	49.0 AV	54.0	-5.0	1.40 V	218	7.49	41.51
3	*5825.00	105.3 PK			1.11 V	229	62.73	42.57
4	*5825.00	100.2 AV			1.11 V	229	57.63	42.57
5	11650.00	61.6 PK	74.0	-12.4	1.41 V	14	12.68	48.92
6	11650.00	49.3 AV	54.0	-4.7	1.41 V	14	0.38	48.92

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
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	5460.00	60.3 PK	74.0	-13.7	1.37 H	211	18.79	41.51
2	5460.00	47.2 AV	54.0	-6.8	1.37 H	211	5.69	41.51
3	*5755.00	108.9 PK			1.31 H	123	66.51	42.39
4	*5755.00	95.5 AV			1.31 H	123	53.11	42.39
5	11510.00	61.7 PK	74.0	-12.3	1.01 H	17	12.96	48.74
6	11510.00	47.3 AV	54.0	-6.7	1.01 H	17	-1.44	48.74
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	5460.00	61.1 PK	74.0	-12.9	1.37 V	210	19.59	41.51
2	5460.00	49.3 AV	54.0	-4.7	1.37 V	210	7.79	41.51
3	*5755.00	105.7 PK			1.12 V	224	63.31	42.39
4	*5755.00	98.5 AV			1.12 V	224	56.11	42.39
5	11510.00	61.6 PK	74.0	-12.4	1.36 V	4	12.86	48.74
6	11510.00	49.4 AV	54.0	-4.6	1.36 V	4	0.66	48.74

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.9 PK	74.0	-14.1	1.41 H	216	18.39	41.51
2	5460.00	47.3 AV	54.0	-6.7	1.41 H	216	5.79	41.51
3	*5795.00	109.1 PK			1.29 H	123	66.65	42.45
4	*5795.00	95.0 AV			1.29 H	123	52.55	42.45
5	11590.00	62.1 PK	74.0	-11.9	1.00 H	34	13.40	48.70
6	11590.00	47.9 AV	54.0	-6.1	1.00 H	34	-0.80	48.70
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	5460.00	61.6 PK	74.0	-12.4	1.38 V	211	20.09	41.51
2	5460.00	49.6 AV	54.0	-4.4	1.38 V	211	8.09	41.51
3	*5795.00	105.0 PK			1.11 V	237	62.55	42.45
4	*5795.00	97.5 AV			1.11 V	237	55.05	42.45
5	11590.00	61.4 PK	74.0	-12.6	1.37 V	15	12.70	48.70
6	11590.00	49.4 AV	54.0	-4.6	1.37 V	15	0.70	48.70

REMARKS:

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

5.4 CONDUCTED EMISSION MEASUREMENT

5.4.1 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.

5.4.2 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: Jan. 30, 2013

5.4.3 TEST PROCEDURES

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

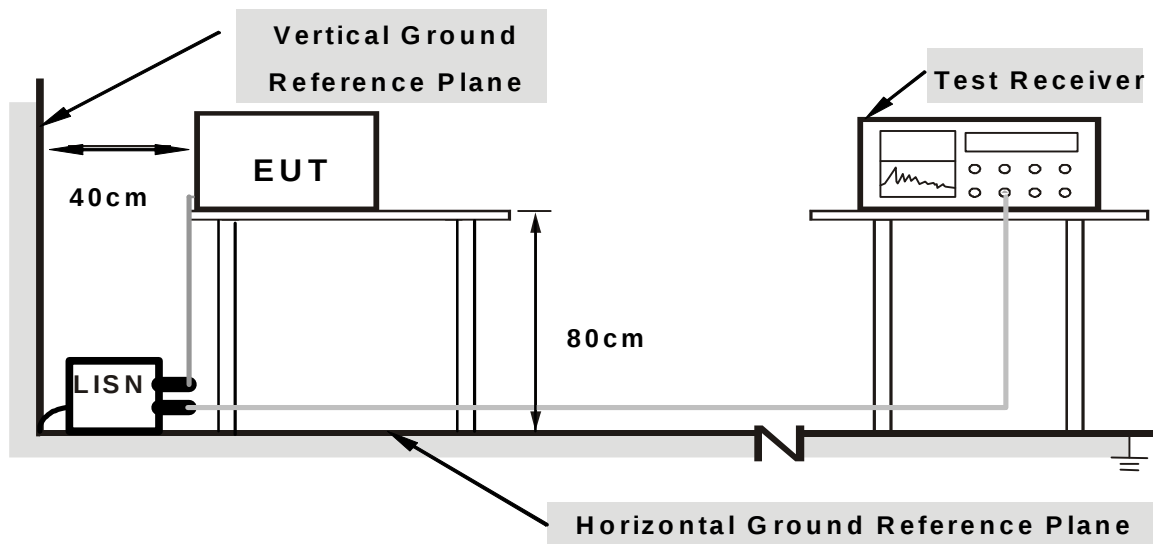
NOTE:

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

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 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.

5.4.6 EUT OPERATING CONDITIONS

Same as the 4.3.6

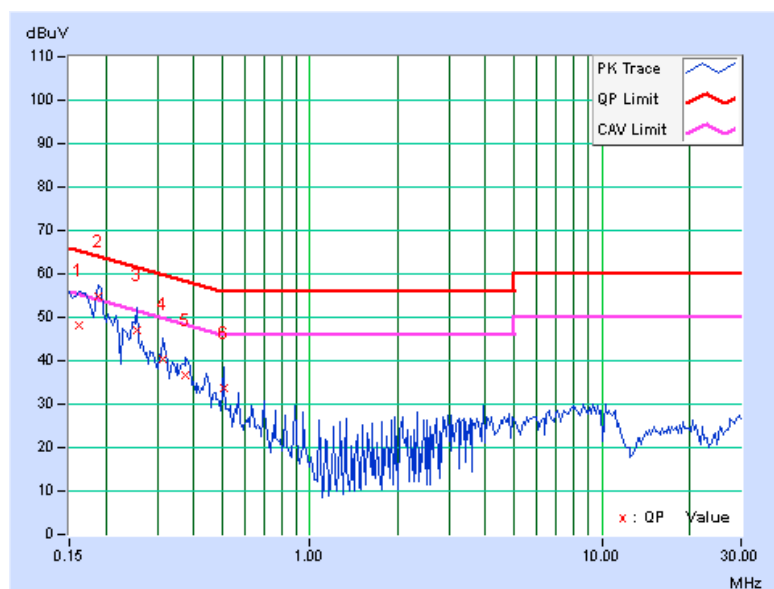
5.4.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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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	0.11	47.89	19.33	48.00	19.44	65.38	55.38	-17.38	-35.94
2	0.18906	0.12	54.57	48.23	54.69	48.35	64.08	54.08	-9.39	-5.73
3	0.25547	0.13	46.81	40.25	46.94	40.38	61.58	51.58	-14.64	-11.20
4	0.31406	0.14	40.11	36.07	40.25	36.21	59.86	49.86	-19.61	-13.65
5	0.37656	0.16	36.52	31.09	36.68	31.25	58.35	48.35	-21.68	-17.11
6	0.50547	0.17	33.45	29.52	33.62	29.69	56.00	46.00	-22.38	-16.31

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.

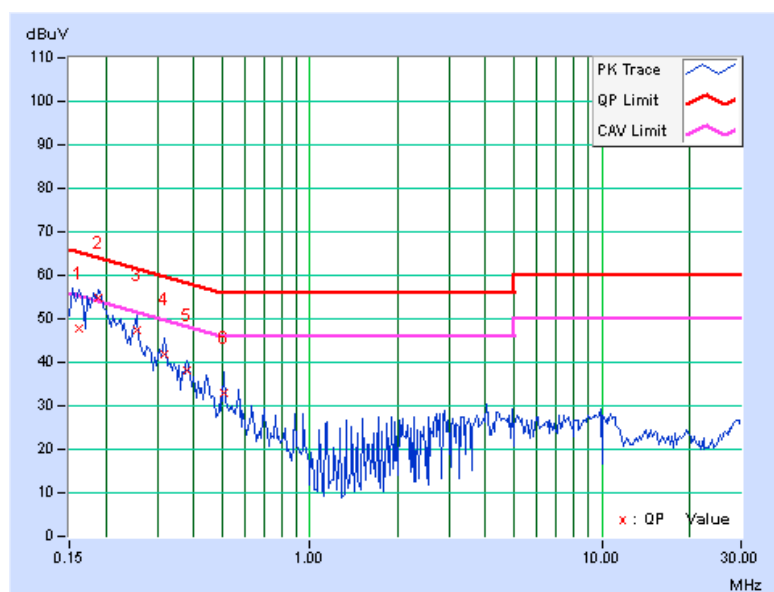


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.09	47.87	20.42	47.96	20.51	65.38	55.38	-17.42	-34.87
2	0.18906	0.10	54.81	48.66	54.91	48.76	64.08	54.08	-9.17	-5.32
3	0.25547	0.11	47.22	40.56	47.33	40.67	61.58	51.58	-14.24	-10.90
4	0.31797	0.13	41.55	36.44	41.68	36.57	59.76	49.76	-18.08	-13.19
5	0.38047	0.15	37.90	33.63	38.05	33.78	58.27	48.27	-20.22	-14.49
6	0.50938	0.15	32.74	29.76	32.89	29.91	56.00	46.00	-23.11	-16.09

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.



6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

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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.

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