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FCC TEST REPORT (15.247)

REPORT NO.: RF980618L05A

MODEL NO.: WNDR3700

RECEIVED: Jun. 18, 2009

TESTED: Jan. 06 ~ Feb. 06, 2010

ISSUED: Feb. 23, 2010

APPLICANT: NETGEAR, INC.

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ISSUED BY: Bureau Veritas Consumer Products Services
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1. CERTIFICATION

PRODUCT: RangeMax Dual Band Wireless-N Gigabit Router

MODEL: WNDR3700

BRAND: NETGEAR

APPLICANT: NETGEAR, INC.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Jan. 06 ~ Feb. 06, 2010

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

ANSI C63.4-2003

This report is issued as a supplementary report of **RF980618L05**. This report shall be used combined together with its original report.

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TECHNICAL ACCEPTANCE : Long Chen , **DATE** : Feb. 23, 2010
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APPROVED BY : Gary Chang , **DATE** : Feb. 23, 2010
Gary Chang / Assistant Manager

Note: Only the Radiated Emission below 1GHz tests & Conducted Emission test were performed for this addendum. Other testing data refer to original report.



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.14dB at 0.177MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	NA	Refer to Note as below
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	NA	Refer to Note as below
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2386.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	NA	Refer to Note as below
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	NA	Refer to Note as below
15.203	Antenna Requirement	PASS	No antenna connector is used.

Note: Only the Radiated Emission below 1GHz tests & Conducted Emission test were performed for this addendum. Other testing data refer to original 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.69dB
	200MHz ~1000MHz	3.84dB
Radiated emissions	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	RangeMax Dual Band Wireless-N Gigabit Router
MODEL NO.	WNDR3700
FCC ID	PY308300092
POWER SUPPLY	12Vdc
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
OUTPUT POWER	454.0mW for 2412 ~ 2462MHz 187.2mW for 5745 ~ 5825MHz
ANTENNA TYPE	Refer to Note as below
ANTENNA CONNECTOR	NA
I/O PORTS	USB, RJ45
DATA CABLE	1.5m shielded RJ45 cable without core
ACCESSORY DEVICES	Adapter

NOTE:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report are adding frequency band from 5.26 to 5.32GHz and 5.50 to 5.70GHz & re-layout the backboard. Therefore, we re-tested the radiated emission test below 1GHz, conducted emission test & 5GHz (5.26 to 5.32GHz and 5.50 to 5.70GHz) test items.



2. The EUT is a RangeMax Dual Band Wireless-N Gigabit Router. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF980618L05A
WLAN 802.11a, 802.11n (5745~5825 MHz)		
WLAN 802.11a, 802.11n (5180~5320MHz & 5500 ~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF980618L05A-1
WLAN 802.11a, 802.11n (For DFS report) (5260~5320MHz & 5500~5700MHz)		RF980618L05A-2

3. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5320	5500~5700	5745~5825
802.11b	√			
802.11g	√			
802.11a		√	√	√
802.11n (20MHz)	√	√	√	√
802.11n (40MHz)	√	√	√	√

4. The EUT were powered by the following adapter:

ADAPTER 1	
BRAND:	NETGEAR
MODEL:	P030WF120B
P/N:	332-10100-01
INPUT:	100-240Vac, 1.0A, 50/60Hz
OUTPUT:	12Vdc, 2.5A
POWER LINE:	DC 1.8m non-shielded cable without core

ADAPTER 2	
BRAND:	NETGEAR
MODEL:	MU30-5120250-A1
P/N:	332-10100-01
INPUT:	100-240Vac, 0.8A, 50/60Hz
OUTPUT:	12Vdc, 2.5A
POWER LINE:	DC 1.8m non-shielded cable without core

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

MODULATION MODE	TX FUNCTION
802.11b	2TX
802.11g	2TX
802.11a	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX



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6. The following antennas are used in this EUT.

Antenna Item	Type	Gain (dBi)
2.4GHz		
1	Printed	2.8
2	Printed	1.5
3	Printed	1.2
4	Printed	2.2
5.0GHz		
5	Printed	3.7
6	Printed	3.8
7	Printed	3.8
8	Printed	3.9

7. Antenna pair for transmission is defined by client

2.4GHz		
Antenna Pair	Antenna item	Antenna item
1	4	2
2	4	1
3	3	2
4	3	1
5.0GHz		
Antenna Pair	Antenna item	Antenna item
5	6	5
6	6	7
7	8	5
8	8	7

**After pretesting of radiated power and emission, Antenna pair 2 is worst case of 2.4GHz and Antenna pair 8 is worst case of 5GHz.

8. 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 TEST MODES

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

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

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

FOR 5.0GHz (5745 ~ 5825MHz):

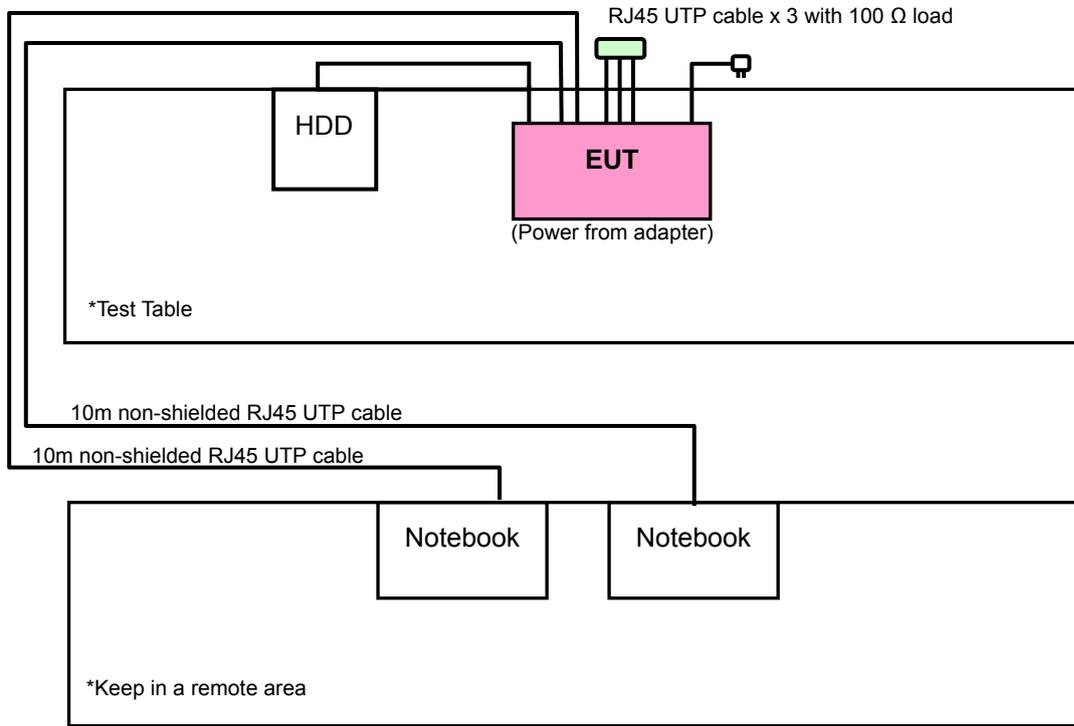
5 channels are provided for 802.11a, 802.11n (20MHz):

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

2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





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3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE<1G	PLC	
A	√	√	Power from AC Adapter 1
B	√	√	Power from AC Adapter 2

Where **RE<1G**: Radiated Emission below 1GHz **PLC**: Power Line Conducted Emission

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	6	DSSS	DBPSK	1.0	X
B	802.11b	1 to 11	6	DSSS	DBPSK	1.0	X

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	6	DSSS	DBPSK	1.0
B	802.11b	1 to 11	6	DSSS	DBPSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE<1G	22deg. C, 74%RH, 999 hPa	120Vac, 60Hz	Mick Chou
	21deg. C, 71%RH, 999 hPa		Ariel Lin
PLC	25deg. C, 65%RH, 988 hPa	120Vac, 60Hz	Mark Liao



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FOR 5.745 ~ 5.825GHz:

EUT CONFIGURE MODE	APPLICABLE TO		DESCRIPTION
	RE<1G	PLC	
A	√	√	Power from AC Adapter 1
B	√	√	Power from AC Adapter 2

Where **RE<1G**: Radiated Emission below 1GHz **PLC**: Power Line Conducted Emission

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2	Z
B	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2	Z

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2
B	802.11n (20MHz)	149 to 165	149	OFDM	BPSK	7.2

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE<1G	22deg. C, 74%RH, 999 hPa	120Vac, 60Hz	Whisky Chang
	21deg. C, 71%RH, 999 hPa		Ariel Lin
PLC	25deg. C, 65%RH, 988 hPa	120Vac, 60Hz	Mark Liao



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

ANSI C63.4-2003

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	EXTERNAL HARD DISK	DELL	RD1000	HK-0XM763-72953-77P-000F	NA
2	NOTEBOOK	DELL	PP05L	12130898320	E2K24CLNS
3	NOTEBOOK	DELL	PP05L	25191592336	E2K24CLNS

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	2 m shielded cable, terminated with USB connector, with core.
2	10m non-shielded RJ45 UTP cable
3	10m non-shielded RJ45 UTP cable

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 ~ 3 acted as communication partners to transfer data.



4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100186	Dec. 11, 2009	Dec. 10, 2010
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Sep. 18, 2009	Sep. 17, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May 26, 2009	May 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Apr. 28, 2009	Apr. 27, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-149	Apr. 28, 2009	Apr. 27, 2010
Preamplifier Agilent	8447D	2944A10636	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10637	Dec. 10, 2009	Dec. 09, 2010
RF signal cable Woken	8D-FB	Cable-Hych1-01	Oct. 24, 2009	Oct. 23, 2010
RF signal cable Woken	8D-FB	Cable-Hych1-02	Oct. 24, 2009	Oct. 23, 2010
Software ADT	ADT_Radiated_ V 7.7.03.6	NA	NA	NA
Antenna Tower(V)	MFA-440	9707	NA	NA
Antenna Tower(H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller	MF7802	074	NA	NA
Controller	MF7802	08093	NA	NA
RF signal cable EAST COST Microwave	HP 160S-29	NA	Feb. 17, 2009	Feb. 16, 2010

- 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 HwaYa Chamber 1.
 3. The FCC Site Registration No. is 477732.
 4. The IC Site Registration No. is IC 7450F-1.
 5. The VCCI Site Registration No. is R-1893.



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4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 & 10 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

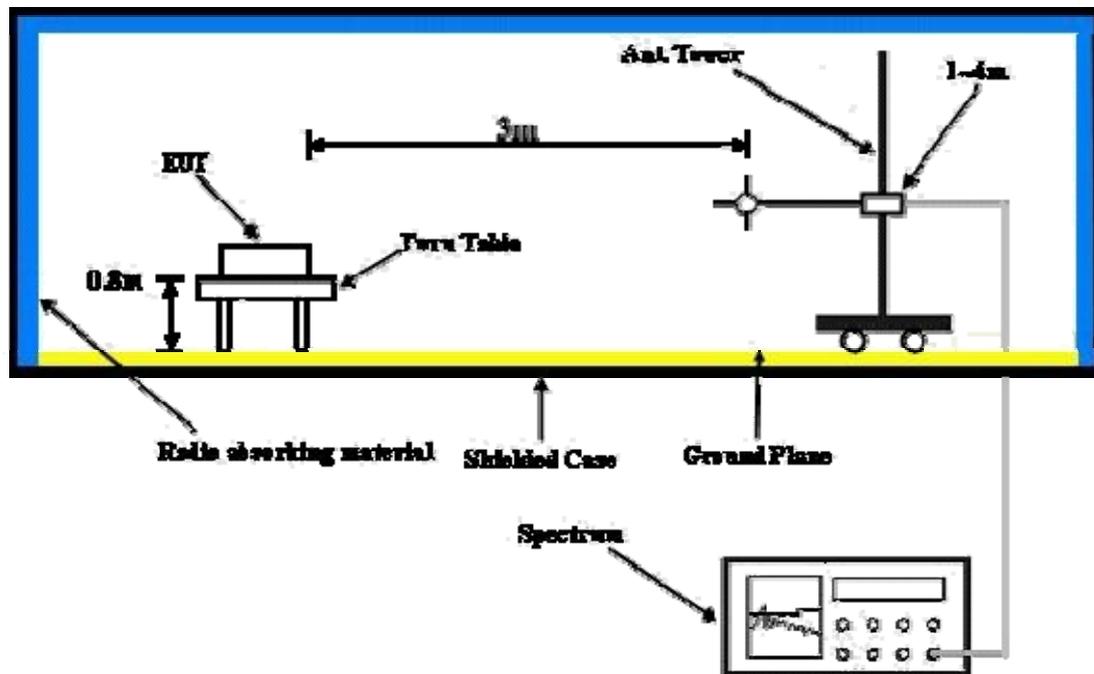
NOTE:

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- Prepared notebook system outside of testing area to act as a communication partners.
- The communication partner connected with EUT via a RJ45 UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".



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4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 74%RH 1020 hPa	TEST MODE	A
TESTED BY	Mick Chou		

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	467.37	40.9 QP	46.0	-5.1	1.00 H	224	22.10	18.84
2	500.42	41.2 QP	46.0	-4.8	1.50 H	167	21.57	19.62
3	533.32	42.9 QP	46.0	-3.1	1.50 H	169	22.49	20.44
4	599.99	42.1 QP	46.0	-4.0	2.00 H	16	19.99	22.06
5	624.83	42.3 QP	46.0	-3.7	2.50 H	170	19.94	22.37
6	667.60	40.6 QP	46.0	-5.4	1.50 H	54	17.66	22.94
7	750.01	43.4 QP	46.0	-2.6	1.00 H	256	19.17	24.26
8	875.59	41.0 QP	46.0	-5.0	1.00 H	230	14.98	26.04
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	57.01	36.6 QP	40.0	-3.4	1.00 V	101	23.39	13.18
2	62.51	37.9 QP	40.0	-2.1	1.00 V	152	25.27	12.66
3	72.77	37.0 QP	40.0	-3.0	1.00 V	123	25.97	11.01
4	249.66	37.7 QP	46.0	-8.3	2.00 V	213	24.48	13.18
5	374.07	36.6 QP	46.0	-9.4	1.00 V	299	19.67	16.91
6	500.42	43.4 QP	46.0	-2.6	1.00 V	229	23.52	19.87
7	523.74	33.5 QP	46.0	-12.5	1.50 V	292	13.09	20.40
8	533.47	38.8 QP	46.0	-7.2	1.50 V	84	18.14	20.62
9	751.18	40.6 QP	46.0	-5.4	2.00 V	36	16.16	24.46
10	875.59	40.1 QP	46.0	-5.9	1.00 V	300	13.73	26.41

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 71%RH 1020 hPa	TEST MODE	B
TESTED BY	Ariel Lin		

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	199.12	38.9 QP	43.5	-4.6	1.00 H	270	27.96	10.99
2	500.01	41.1 QP	46.0	-4.9	1.00 H	354	21.48	19.61
3	533.47	43.8 QP	46.0	-2.2	1.50 H	180	23.33	20.44
4	599.98	43.8 QP	46.0	-2.2	1.72 H	46	21.71	22.06
5	667.60	43.9 QP	46.0	-2.1	1.50 H	16	20.94	22.94
6	750.00	43.7 QP	46.0	-2.3	1.00 H	280	19.43	24.26
7	875.59	44.0 QP	46.0	-2.0	1.50 H	147	17.92	26.04
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	49.68	36.0 QP	40.0	-4.0	1.00 V	247	22.24	13.77
2	70.82	37.4 QP	40.0	-2.6	1.00 V	160	25.88	11.55
3	374.07	39.8 QP	46.0	-6.2	1.50 V	225	22.89	16.91
4	500.42	42.8 QP	46.0	-3.2	1.50 V	180	22.92	19.87
5	751.18	42.2 QP	46.0	-3.8	1.00 V	138	17.77	24.46
6	875.01	43.4 QP	46.0	-2.6	1.00 V	226	17.00	26.40

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



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4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 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 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 24, 2009	Sep. 23, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Aug. 24, 2009	Aug. 23, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 29, 2009	Jul. 28, 2010
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.



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4.2.3 TEST PROCEDURES

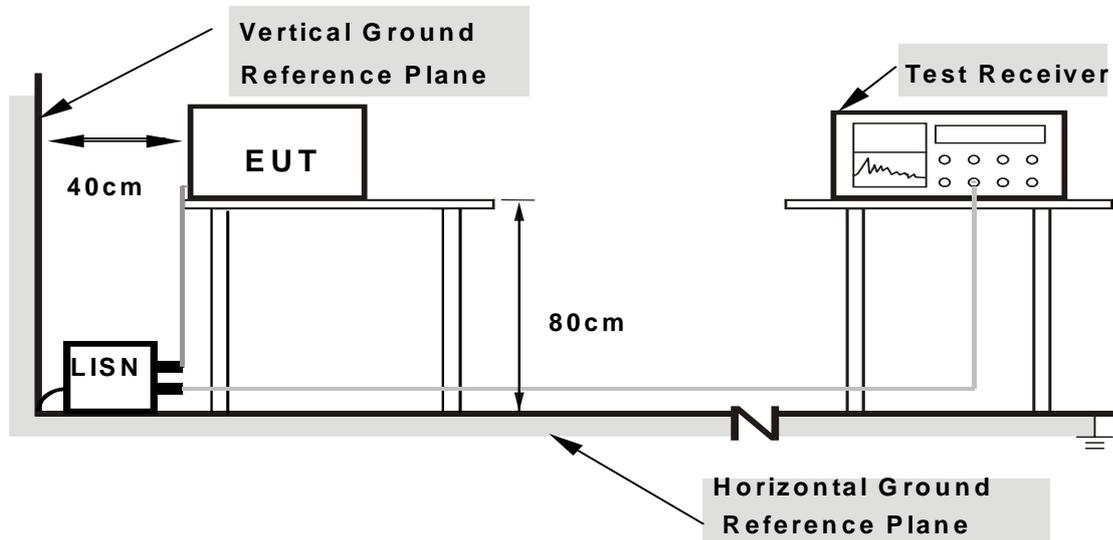
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

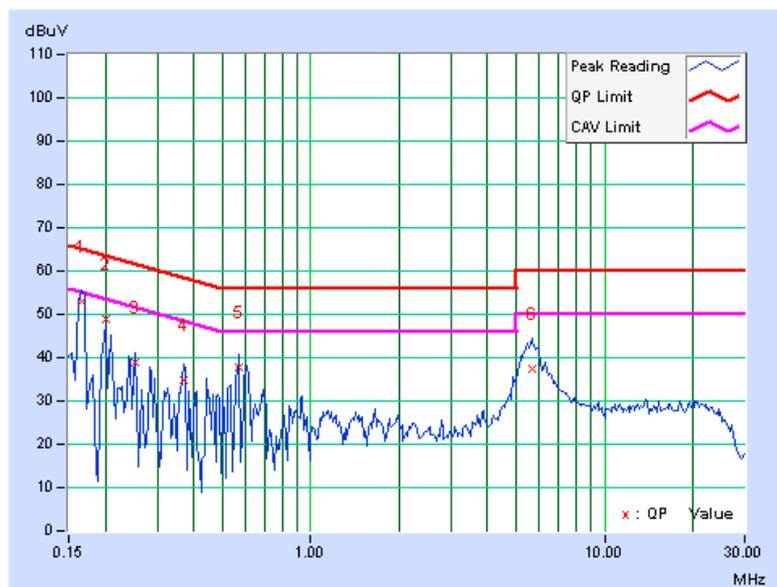
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11b

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.16	52.93	-	53.09	-	65.18	55.18	-12.09	-
2	0.201	0.16	48.90	-	49.06	-	63.58	53.58	-14.52	-
3	0.252	0.17	38.59	-	38.76	-	61.71	51.71	-22.95	-
4	0.369	0.18	34.56	-	34.74	-	58.53	48.53	-23.79	-
5	0.572	0.19	37.62	-	37.81	-	56.00	46.00	-18.19	-
6	5.648	0.35	37.23	-	37.58	-	60.00	50.00	-22.42	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



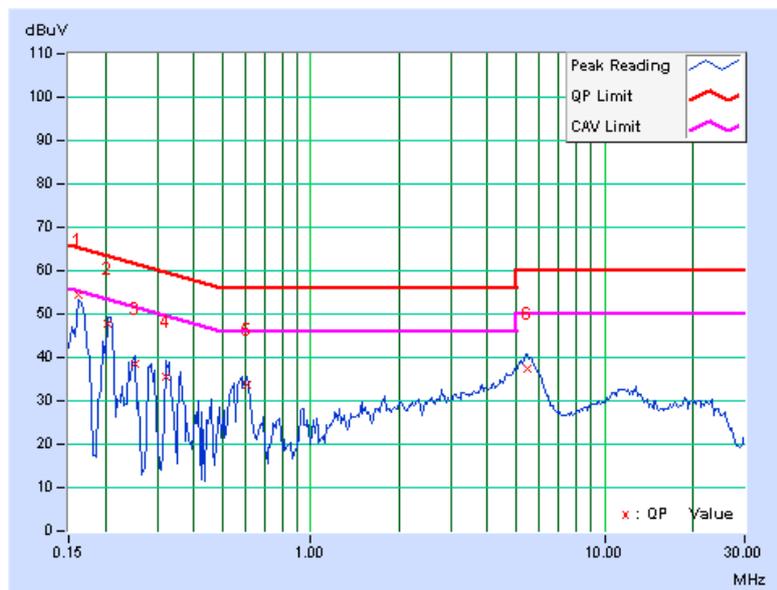


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PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

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	0.162	0.13	54.34	-	54.47	-	65.38	55.38	-10.91	-
2	0.205	0.13	47.80	-	47.93	-	63.42	53.42	-15.49	-
3	0.252	0.14	38.45	-	38.59	-	61.71	51.71	-23.12	-
4	0.322	0.15	35.31	-	35.46	-	59.66	49.66	-24.20	-
5	0.607	0.18	33.41	-	33.59	-	56.00	46.00	-22.41	-
6	5.457	0.38	36.88	-	37.26	-	60.00	50.00	-22.74	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



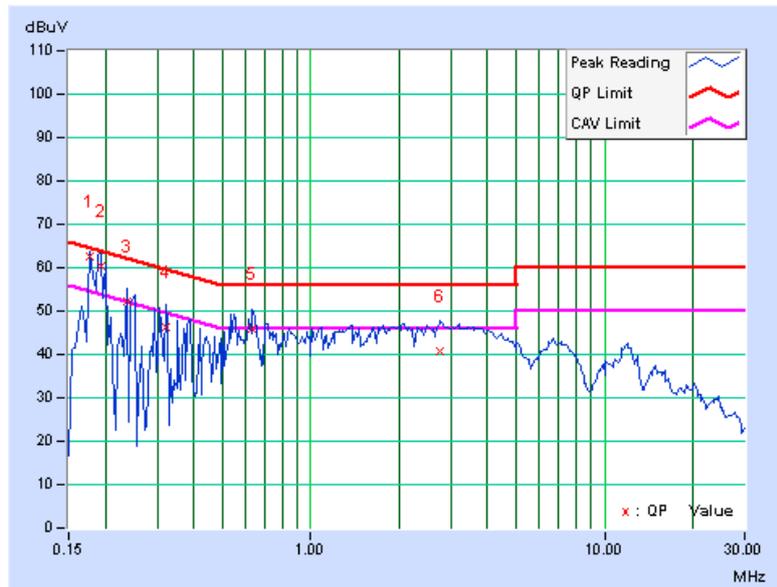


A D T

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.177	0.16	62.31	45.92	62.47	46.08	64.61	54.61	-2.14	-8.53
2	0.193	0.16	60.17	44.50	60.33	44.66	63.91	53.91	-3.58	-9.25
3	0.236	0.16	52.05	-	52.21	-	62.24	52.24	-10.02	-
4	0.322	0.17	46.24	-	46.41	-	59.66	49.66	-13.25	-
5	0.630	0.20	45.87	29.11	46.07	29.31	56.00	46.00	-9.93	-16.69
6	2.770	0.33	40.57	-	40.90	-	56.00	46.00	-15.10	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



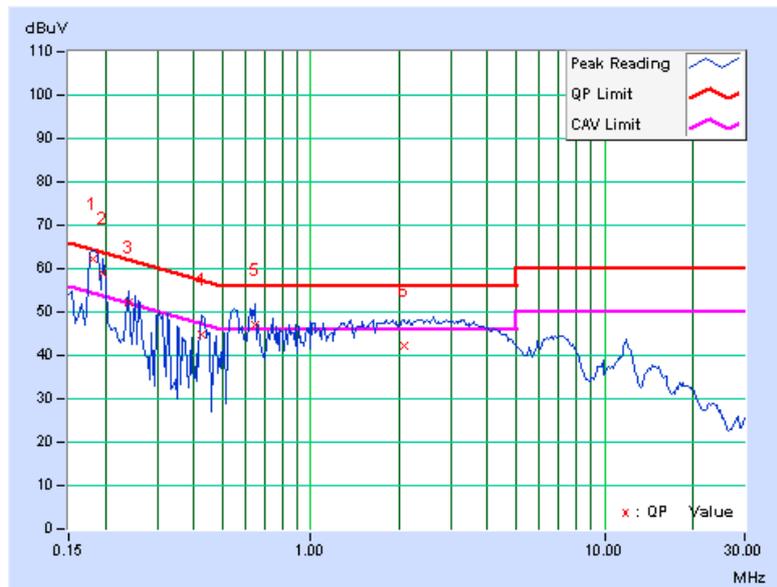


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PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.181	0.13	61.97	47.86	62.10	47.99	64.43	54.43	-2.33	-6.44
2	0.197	0.13	58.92	40.54	59.05	40.67	63.74	53.74	-4.69	-13.07
3	0.240	0.14	51.91	-	52.05	-	62.10	52.10	-10.06	-
4	0.427	0.16	44.66	-	44.82	-	57.30	47.30	-12.48	-
5	0.646	0.18	46.87	33.40	47.05	33.58	56.00	46.00	-8.95	-12.42
6	2.086	0.30	41.81	-	42.11	-	56.00	46.00	-13.89	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.





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5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100186	Dec. 11, 2009	Dec. 10, 2010
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Sep. 18, 2009	Sep. 17, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May 26, 2009	May 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Apr. 28, 2009	Apr. 27, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-149	Apr. 28, 2009	Apr. 27, 2010
Preamplifier Agilent	8447D	2944A10636	Dec. 10, 2009	Dec. 09, 2010
Preamplifier Agilent	8447D	2944A10637	Dec. 10, 2009	Dec. 09, 2010
RF signal cable Woken	8D-FB	Cable-Hych1-01	Oct. 24, 2009	Oct. 23, 2010
RF signal cable Woken	8D-FB	Cable-Hych1-02	Oct. 24, 2009	Oct. 23, 2010
Software ADT	ADT_Radiated_ V 7.7.03.6	NA	NA	NA
Antenna Tower(V)	MFA-440	9707	NA	NA
Antenna Tower(H)	MFA-440	970705	NA	NA
Turn Table	DS430	50303	NA	NA
Controller	MF7802	074	NA	NA
Controller	MF7802	08093	NA	NA
RF signal cable EAST COST Microwave	HP 160S-29	NA	Feb. 17, 2009	Feb. 16, 2010

- 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 HwaYa Chamber 1.
 3. The FCC Site Registration No. is 477732.
 4. The IC Site Registration No. is IC 7450F-1.
 5. The VCCI Site Registration No. is R-1893.



5.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 & 10 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

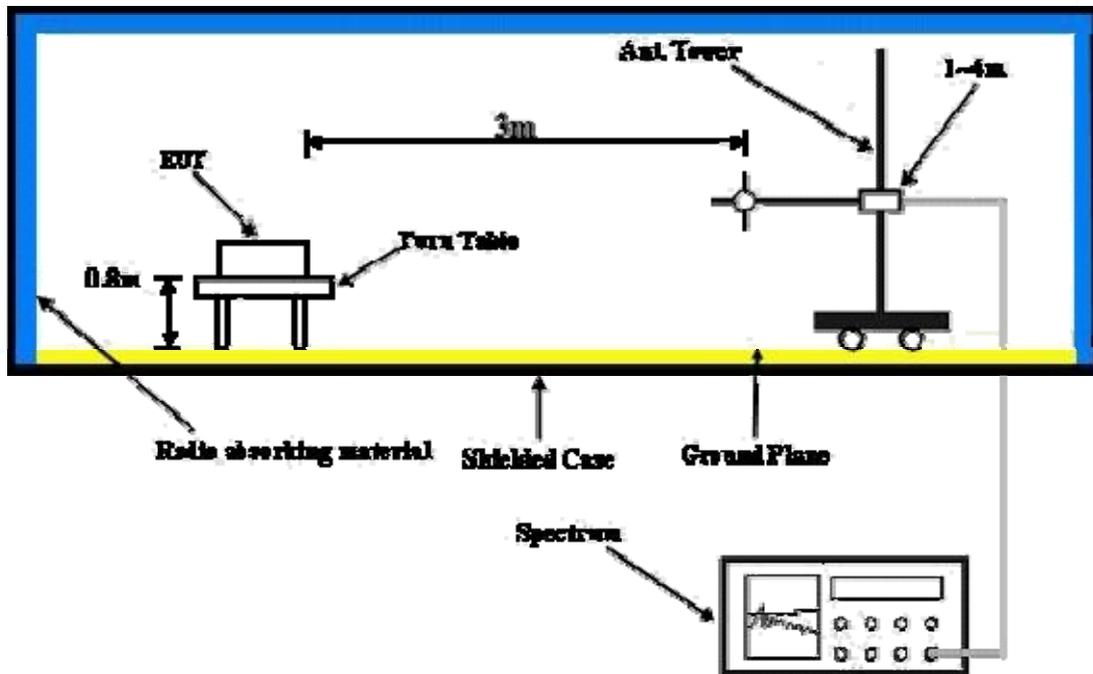
NOTE:

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



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5.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22deg. C, 74%RH 1020 hPa	TEST MODE	A
TESTED BY	Whisky Chang		

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	199.12	30.8 QP	43.5	-12.7	1.50 H	156	19.77	10.99
2	333.25	36.5 QP	46.0	-9.5	1.00 H	137	20.91	15.57
3	374.07	41.0 QP	46.0	-5.0	1.00 H	60	24.25	16.75
4	500.42	39.7 QP	46.0	-6.3	1.50 H	134	20.12	19.62
5	751.18	42.6 QP	46.0	-3.4	1.00 H	144	18.28	24.28
6	875.59	41.1 QP	46.0	-4.9	1.00 H	106	15.02	26.04
7	1000.00	40.1 QP	54.0	-13.9	1.00 H	167	13.11	27.02
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	39.72	36.7 QP	40.0	-3.3	1.00 V	122	22.53	14.22
2	47.49	38.0 QP	40.0	-2.0	1.00 V	275	23.76	14.22
3	72.77	37.2 QP	40.0	-2.8	1.00 V	190	26.16	11.01
4	467.37	43.8 QP	46.0	-2.3	1.00 V	50	24.69	19.06
5	500.42	41.2 QP	46.0	-4.9	1.00 V	114	21.29	19.87
6	533.32	43.2 QP	46.0	-2.8	1.00 V	94	22.55	20.62
7	599.99	43.5 QP	46.0	-2.5	1.00 V	141	21.36	22.10
8	667.60	43.8 QP	46.0	-2.2	1.00 V	88	20.83	22.95

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21deg. C, 71%RH 1020 hPa	TEST MODE	B
TESTED BY	Ariel Lin		

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	199.12	32.7 QP	43.5	-10.8	1.00 H	155	21.75	10.99
2	500.42	39.0 QP	46.0	-7.0	1.50 H	153	19.40	19.62
3	733.69	41.3 QP	46.0	-4.7	1.00 H	106	17.28	23.98
4	750.00	42.5 QP	46.0	-3.5	1.00 H	143	18.28	24.26
5	875.59	40.8 QP	46.0	-5.2	3.00 H	171	14.74	26.04
6	933.91	38.4 QP	46.0	-7.7	1.00 H	81	11.80	26.55
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	46.20	35.4 QP	40.0	-4.6	1.00 V	246	20.88	14.49
2	73.26	31.6 QP	40.0	-8.4	1.00 V	237	20.76	10.88
3	467.37	42.3 QP	46.0	-3.7	1.00 V	79	23.24	19.06
4	500.00	41.0 QP	46.0	-5.0	1.00 V	116	21.13	19.86
5	533.47	43.6 QP	46.0	-2.4	1.00 V	170	22.98	20.62
6	599.56	43.8 QP	46.0	-2.2	1.00 V	74	21.68	22.09
7	667.60	40.3 QP	46.0	-5.7	1.50 V	202	17.33	22.95
8	751.18	40.1 QP	46.0	-5.9	1.50 V	64	15.64	24.46

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



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5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 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 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 24, 2009	Sep. 23, 2010
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2009	Dec. 30, 2010
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Aug. 24, 2009	Aug. 23, 2010
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 29, 2009	Jul. 28, 2010
Software ADT	ADT_Cond_ V7.3.7	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.



A D T

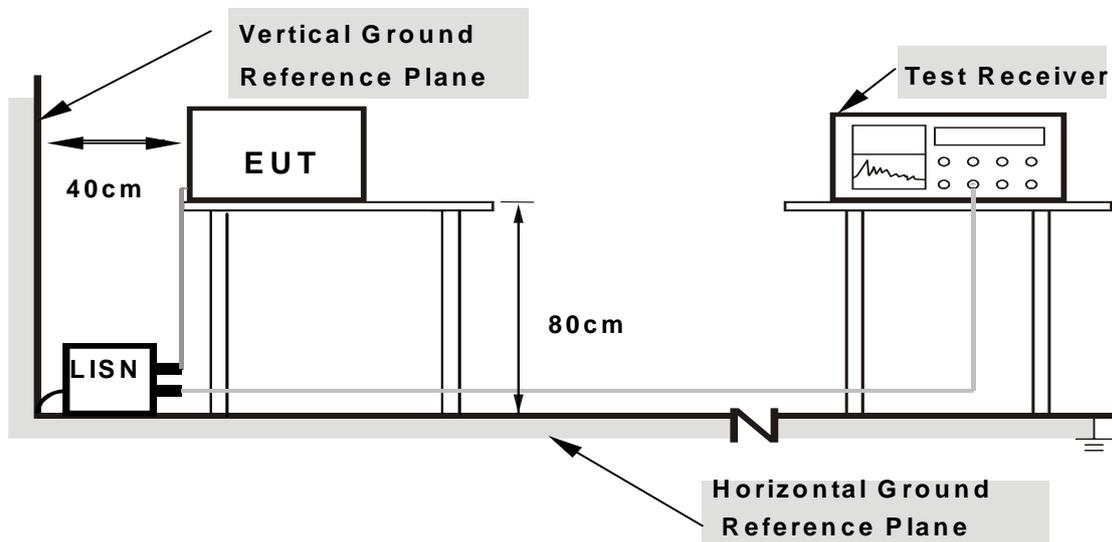
5.2.3 TEST PROCEDURES

- 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) was not recorded.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP



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

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

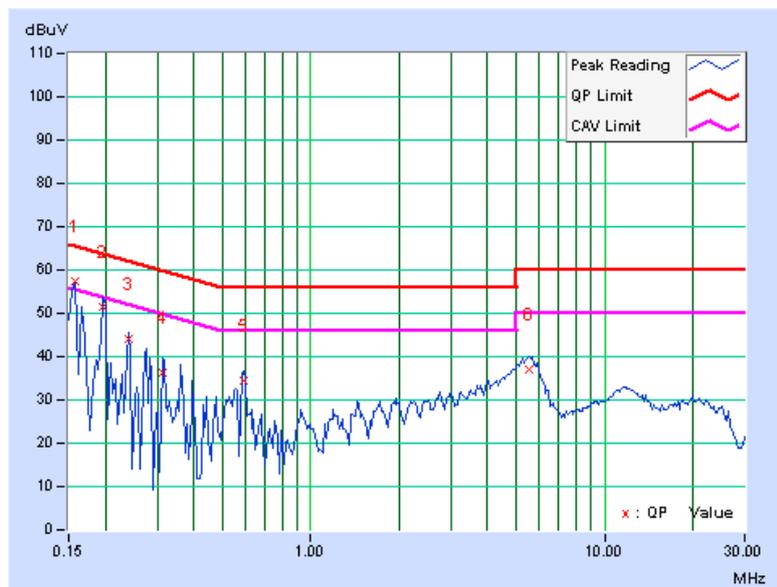
5.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.16	57.20	46.88	57.36	47.04	65.58	55.58	-8.22	-8.54
2	0.197	0.16	51.27	-	51.43	-	63.74	53.74	-12.31	-
3	0.240	0.16	43.98	-	44.14	-	62.10	52.10	-17.96	-
4	0.314	0.17	36.16	-	36.33	-	59.86	49.86	-23.53	-
5	0.591	0.20	34.25	-	34.45	-	56.00	46.00	-21.55	-
6	5.512	0.35	36.56	-	36.91	-	60.00	50.00	-23.09	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



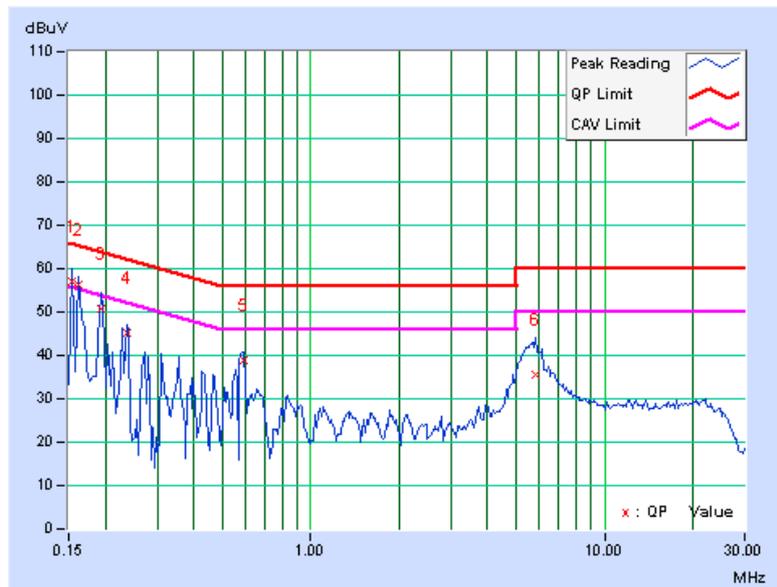


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PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	A		

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	0.154	0.13	56.75	44.99	56.88	45.12	65.79	55.79	-8.91	-10.67
2	0.162	0.13	56.08	44.80	56.21	44.93	65.38	55.38	-9.17	-10.45
3	0.193	0.13	50.58	-	50.71	-	63.91	53.91	-13.20	-
4	0.236	0.14	45.10	-	45.24	-	62.24	52.24	-17.00	-
5	0.595	0.18	38.70	-	38.88	-	56.00	46.00	-17.12	-
6	5.813	0.38	35.35	-	35.73	-	60.00	50.00	-24.27	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



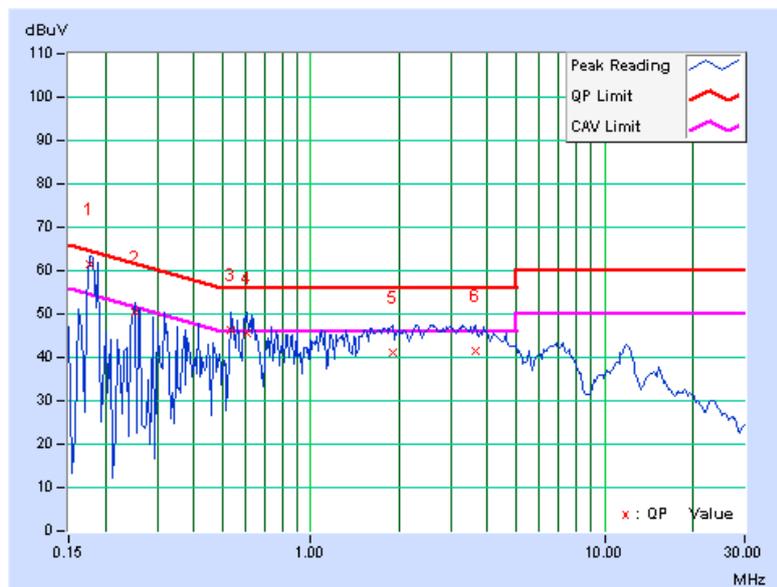


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PHASE	Line 1	6dB BANDWIDTH	9kHz
TEST MODE	B		

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	0.177	0.16	61.29	44.90	61.45	45.06	64.61	54.61	-3.16	-9.55
2	0.252	0.17	50.22	-	50.39	-	61.71	51.71	-11.32	-
3	0.537	0.19	46.04	31.28	46.23	31.47	56.00	46.00	-9.77	-14.53
4	0.607	0.20	45.45	-	45.65	-	56.00	46.00	-10.35	-
5	1.906	0.30	40.74	-	41.04	-	56.00	46.00	-14.96	-
6	3.621	0.34	41.05	-	41.39	-	56.00	46.00	-14.61	-

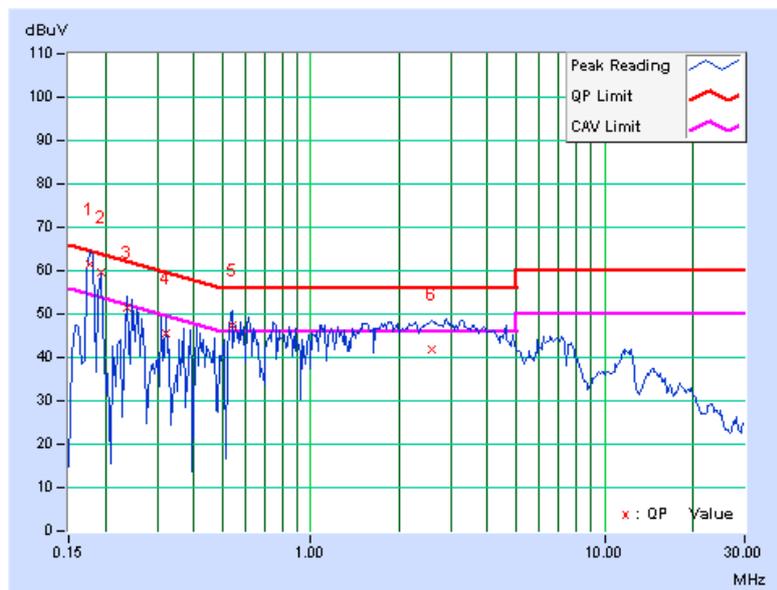
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



PHASE	Line 2	6dB BANDWIDTH	9kHz
TEST MODE	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.13	61.35	45.34	61.48	45.47	64.61	54.61	-3.13	-9.14
2	0.193	0.13	59.35	44.24	59.48	44.37	63.91	53.91	-4.43	-9.54
3	0.236	0.14	51.31	-	51.45	-	62.24	52.24	-10.79	-
4	0.322	0.15	45.56	-	45.71	-	59.66	49.66	-13.95	-
5	0.541	0.17	47.18	32.39	47.35	32.56	56.00	46.00	-8.65	-13.44
6	2.574	0.32	41.69	-	42.01	-	56.00	46.00	-13.99	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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7. INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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 any modifications are made to the EUT by the lab during the test.

---END---