FCC Test Report

(Co-Located)

Report No.:	RF191129E09-2
FCC ID:	PY319400470
Test Model:	RBR750
Series Model:	RBS750
Received Date:	Nov. 29, 2019
Test Date:	Jan. 08, 2020
Issued Date:	Jan. 14, 2020
Applicant:	NETGEAR, INC.
Address:	350 East Plumeria Drive, San Jose, CA 95134, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number(1):	788550 / TW0003
Test Location (2):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number(2):	723255 / TW2022

Table of Contents

Release Control Record 3

1 Certificate of Conformity 4

2 Summary of Test Results 5

2.1 Measurement Uncertainty 5
2.2 Modification Record 5

3 General Information 6

3.1 General Description of EUT 6
3.2 Description of Test Modes 9
3.2.1 Test Mode Applicability and Tested Channel Detail 10
3.3 Description of Support Units 11
3.3.1 Configuration of System under Test 11
3.4 General Description of Applied Standards 12

4 Test Types and Results 13

4.1 Radiated Emission and Bandedge Measurement 13
4.1.1 Limits of Radiated Emission and Bandedge Measurement 13
4.1.2 Test Instruments 14
4.1.3 Test Procedures 15
4.1.4 Deviation from Test Standard 15
4.1.5 Test Setup 16
4.1.6 EUT Operating Conditions 17
4.1.7 Test Results 18

5 Pictures of Test Arrangements 21

Appendix – Information of the Testing Laboratories 22

Release Control Record

Issue No.	Description	Date Issued
RF191129E09-2	Original release.	Jan. 14, 2020

1 Certificate of Conformity

Product:	Orbi Router, Orbi Satellite
Brand:	NETGEAR
Test Model:	RBR750
Series Model:	RBS750
Sample Status:	Engineering sample
Applicant:	NETGEAR, INC.
Test Date:	Jan. 08, 2020
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10-2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** Jan. 14, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Jan. 14, 2020

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407)		
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d) 15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -3.3dB at 41.88MHz.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE test plots were recorded in Annex A.
Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	4.9 dB
Radiated Emissions above 1 GHz	1 GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	4.9 dB
	18GHz ~ 40GHz	5.2 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Orbi Router, Orbi Satellite
Brand	NETGEAR
Test Model	RBR750
Series Model	RBS750
Model Difference	Refer to Note for more details
Status of EUT	Engineering sample
Power Supply Rating	12Vdc (adapter)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	2.4GHz: 802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to MCS15 802.11n (VHT20/40): up to MCS9 802.11ax: up to MCS11 5.0GHz: 802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to MCS31 802.11ac (VHT20/40/80): up to MCS9 802.11ax: up to MCS11
Operating Frequency	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	2412 ~ 2462MHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11n (VHT40), 802.11ax (HE40): 7 5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 5 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1

Output Power	2.4GHz Band: CDD Mode: 958.897mW Beamforming Mode: 646.447mW 5GHz Band: CDD Mode: 5180 ~ 5240MHz: 693.591mW 5745 ~ 5825MHz: 984.884mW Beamforming Mode: 5180 ~ 5240MHz: 693.591mW 5745 ~ 5825MHz: 801.871mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	1.8m non-shielded RJ45 cable without core

Note:

1. All models are electrically identical except software firmware. Model: RBR750 is the representative for final test.

Brand	Product Name	Model	Difference
NETGEAR	Orbi Router	RBR750	Function: Master WAN port*1; LAN port*3
	Orbi Satellite	RBS750	Function: Master + Client LAN port*2

2. The EUT uses following adapters.

Adapter 1	
Brand	NETGEAR
Model	2ABL030F1 NJ
P/N	332-10948-01
Input Power	100-120Vac, 50/60Hz, 1.0A
Output Power	12.0V, 2.5A
Power Cable	1.8m non-shielded power cable without core

Adapter 2	
Brand	NETGEAR
Model	AD2067F10
P/N	332-11509-01
Input Power	100-120Vac, 50/60Hz, 1.0A
Output Power	12.0V, 2.5A
Power Cable	1.8m non-shielded power cable without core

Adapter 3	
Brand	NETGEAR
Model	AD2067M20
P/N	332-11074-01
Input Power	100-240Vac, 50/60Hz, 1.0A
Output Power	12.0V, 2.5A
Power Cable	1.8m non-shielded power cable without core

*After pre-testing, Adapter 3 is the worst case for the final tests.

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

2.4GHz Band		
Modulation Mode	TX Function	Beamforming
802.11b	2TX	Not Support
802.11g	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11n (VHT20)	2TX	Support
802.11n (VHT40)	2TX	Support
802.11ax (HE20)	2TX	Support
802.11ax (HE40)	2TX	Support

5GHz Band			
Modulation Mode	TX Function		Beamforming
	5180 ~ 5240MHz	5745 ~ 5825MHz	
802.11a	2TX	4TX	Not Support
802.11n (HT20)	2TX	4TX	Support
802.11n (HT40)	2TX	4TX	Support
802.11ac (VHT20)	2TX	4TX	Support
802.11ac (VHT40)	2TX	4TX	Support
802.11ac (VHT80)	2TX	4TX	Support
802.11ax (HE20)	2TX	4TX	Support
802.11ax (HE40)	2TX	4TX	Support
802.11ax (HE80)	2TX	4TX	Support

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11ac mode and HE20/HE40 on 802.11ax mode. The bandwidth and modulation are similar for VHT80 on 802.11ac mode and HE80 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n/ac/ax, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

4. The EUT uses following antennas.

Antenna Type	Dipole	
Antenna Connector	i-pex(MHF)	
Directional Gain (dBi)		
2.4GHz Band	5GHz U-NII-1	5GHz U-NII-3
5.46	5.67	6.94

3.2 Description of Test Modes

For 2.4GHz

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20), 802.11ax (HE20):

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

7 channels are provided for 802.11n (HT40), 802.11n (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

For 5180 ~ 5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
42	5210MHz

For 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE≥1G	RE<1G	
-	√	√	Power from adapter 3

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

Note:

1. The EUT is designed to be positioned on the X-plane only.

Radiated Emission Test (Above 1GHz):

☒ 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	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11b	2412~2462	1 to 11	CH 6 + CH 40 + CH 151	DBPSK
	802.11ax (HE20)	5180~5240	36 to 48		OFDMA
	802.11ax (HE40)	5745-5825	151 to 159		OFDMA

Radiated Emission Test (Below 1GHz):

☒ 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	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11b	2412~2462	1 to 11	CH 6 + CH 40 + CH 151	DBPSK
	802.11ax (HE20)	5180~5240	36 to 48		OFDMA
	802.11ax (HE40)	5745-5825	151 to 159		OFDMA

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	21 deg. C, 64% RH	120Vac, 60Hz	Kevin Ko
RE<1G	21 deg. C, 64% RH	120Vac, 60Hz	Kevin Ko

3.3 Description of Support Units

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

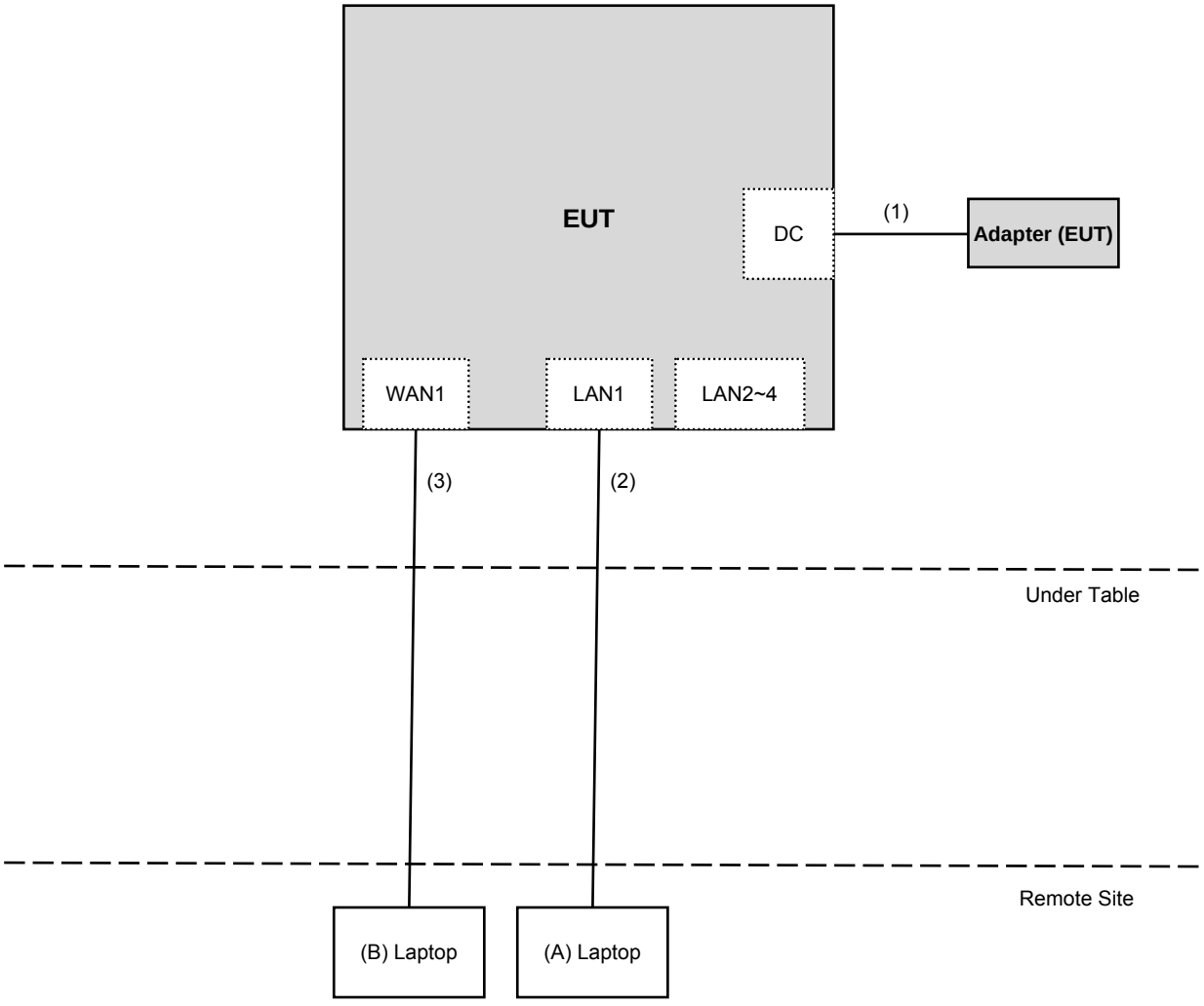
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC Approved	-
B.	Laptop	DELL	E5430	GM1SKV1	FCC DoC Approved	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A, B acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.8	N	0	Accessory of EUT
2.	RJ45 cable	1	10	N	0	-
3.	RJ45 cable	1	10	N	0	-

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)

FCC Part 15, Subpart E (15.407)

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK: 105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK: 122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*1 beyond 75 MHz or more above of the band edge.
*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.
*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</td></tr>
</table>

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Agilent	N9038A	MY51210202	Dec. 13, 2019	Dec. 12, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 23, 2019	Oct. 22, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-4-1	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-2	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-3	Mar. 19, 2019	Mar. 18, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 26, 2019	Sep. 25, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980385	Aug. 15, 2019	Aug. 14, 2020
RF Cable	EMC104-SM-SM-1200	160923	Jan. 28, 2019	Jan. 27, 2020
RF Cable	104 RF cable	131215	Jan. 10, 2019	Jan. 09, 2020
RF Cable	EMC104-SM-SM-6000	180418	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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 Hsinchu 966 Chamber No. 4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case 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.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects 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:

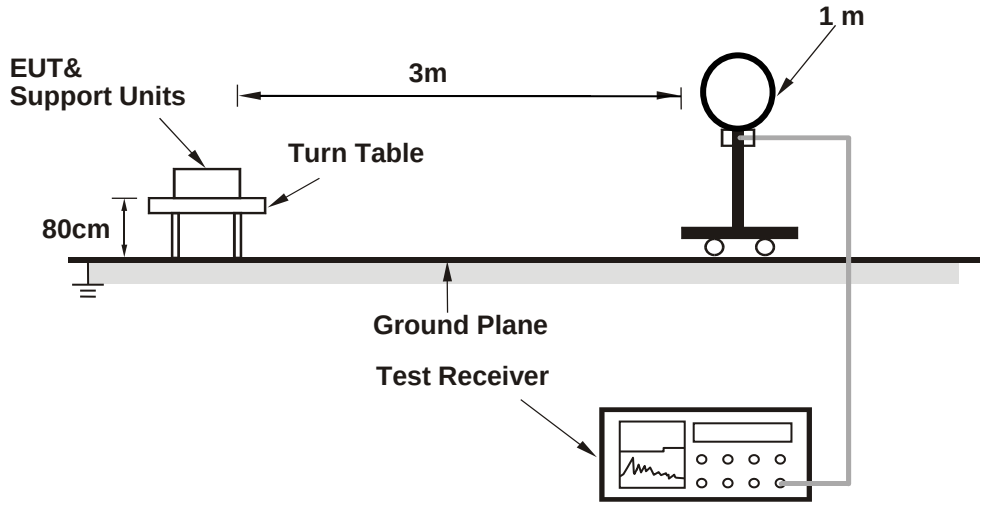
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) 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

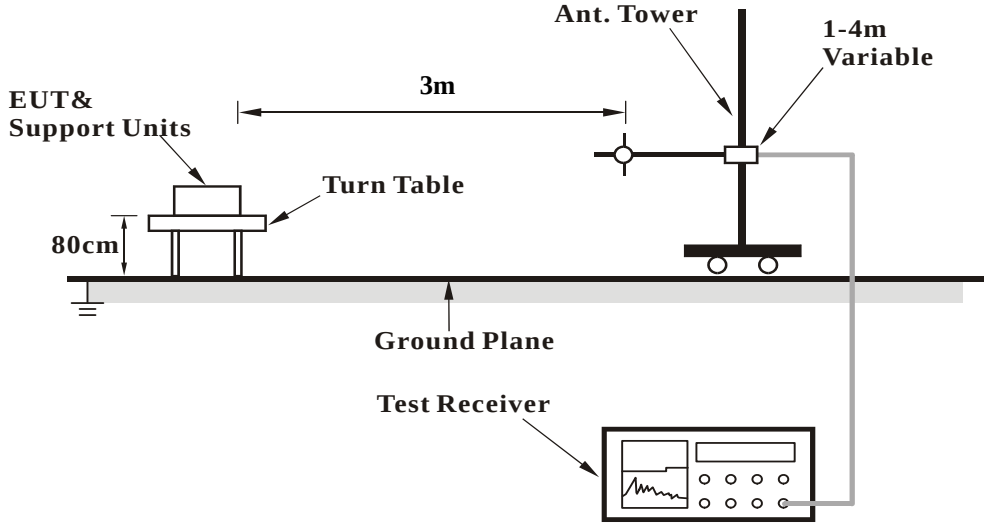
No deviation.

4.1.5 Test Setup

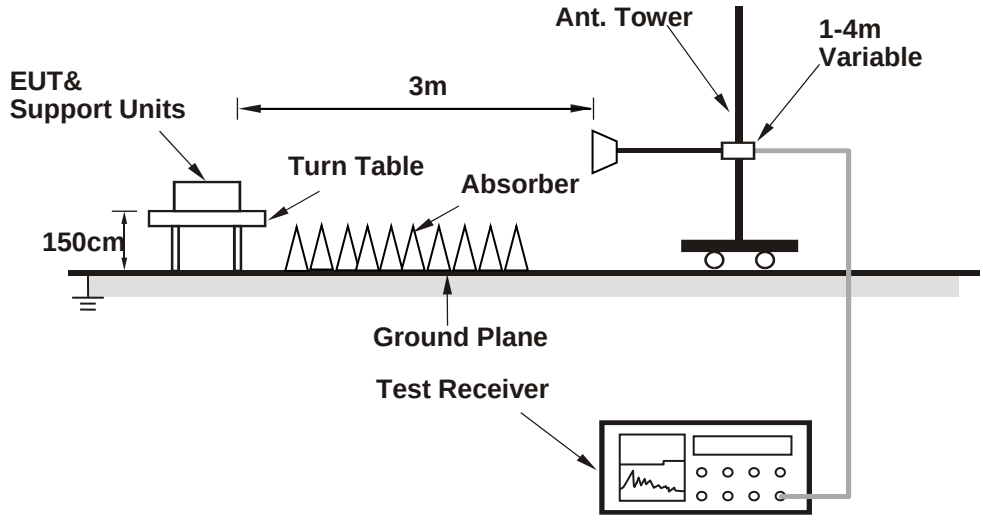
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table and power from notebook.
b. Prepared 2 notebooks to act as a communication partner.
c. The communication partner connected with EUT via RJ45 cables and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Data:

802.11b + 802.11ax (HE20) + 802.11ax (HE40)

CHANNEL	CH 6 + CH 40 + CH 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	43.6 PK	74.0	-30.4	1.08 H	166	41.4	2.2
2	4874.00	37.6 AV	54.0	-16.4	1.08 H	166	35.4	2.2
3	7311.00	45.2 PK	74.0	-28.8	2.27 H	87	36.2	9.0
4	7311.00	38.6 AV	54.0	-15.4	2.27 H	87	29.6	9.0
5	#10400.00	50.1 PK	68.2	-18.1	1.08 H	166	37.0	13.1
6	11510.00	50.3 PK	74.0	-23.7	1.08 H	166	36.7	13.6
7	11510.00	44.6 AV	54.0	-9.4	1.08 H	166	31.0	13.6
8	15600.00	49.6 PK	74.0	-24.4	2.27 H	87	36.5	13.1
9	15600.00	36.9 AV	54.0	-17.1	2.27 H	87	23.8	13.1
10	#17265.00	50.1 PK	68.2	-18.1	2.27 H	87	33.2	16.9
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	4874.00	41.2 PK	74.0	-32.8	1.08 V	166	39.0	2.2
2	4874.00	39.1 AV	54.0	-14.9	1.08 V	166	36.9	2.2
3	7311.00	44.9 PK	74.0	-29.1	2.27 V	87	35.9	9.0
4	7311.00	35.2 AV	54.0	-18.8	2.27 V	87	26.2	9.0
5	#10400.00	56.7 PK	68.2	-11.5	1.08 V	166	43.6	13.1
6	11510.00	55.9 PK	74.0	-18.1	1.08 V	166	42.3	13.6
7	11510.00	44.7 AV	54.0	-9.3	1.08 V	166	31.1	13.6
8	15600.00	48.6 PK	74.0	-25.4	2.27 V	87	35.5	13.1
9	15600.00	35.9 AV	54.0	-18.1	2.27 V	87	22.8	13.1
10	#17265.00	46.8 PK	68.2	-21.4	2.27 V	87	29.9	16.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz data

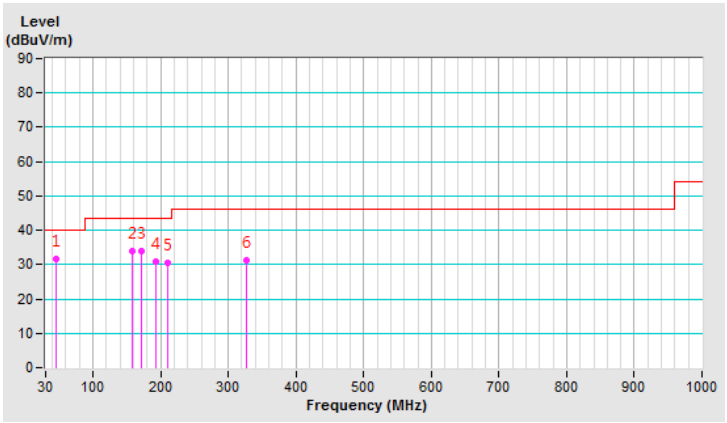
802.11b + 802.11ax (HE20) + 802.11ax (HE40)

CHANNEL	CH 6 + CH 40 + CH 151	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	46.08	31.7 QP	40.0	-8.3	1.00 H	310	39.6	-7.9
2	157.43	33.8 QP	43.5	-9.7	2.00 H	269	41.4	-7.6
3	171.45	33.9 QP	43.5	-9.6	2.00 H	266	42.3	-8.4
4	191.99	31.0 QP	43.5	-12.5	2.00 H	111	41.6	-10.6
5	211.20	30.5 QP	43.5	-13.0	1.00 H	269	41.4	-10.9
6	327.16	31.2 QP	46.0	-14.8	1.00 H	32	37.2	-6.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

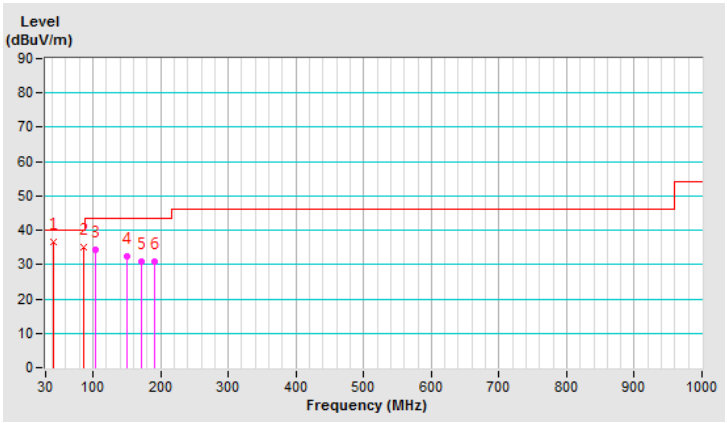


CHANNEL	CH 6 + CH 40 + CH 151	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	**41.88**	**36.7 QP**	**40.0**	**-3.3**	**1.00 V**	**233**	**45.0**	**-8.3**
2	85.75	35.1 QP	40.0	-4.9	2.00 V	61	48.8	-13.7
3	104.30	34.3 QP	43.5	-9.2	1.00 V	23	45.6	-11.3
4	150.84	32.5 QP	43.5	-11.0	2.00 V	0	40.2	-7.7
5	170.89	31.0 QP	43.5	-12.5	1.00 V	303	39.3	-8.3
6	191.67	31.0 QP	43.5	-12.5	1.00 V	339	41.6	-10.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



5 Pictures of Test Arrangements

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

Appendix – Information of 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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---