

FCC Test Report

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FCC ID: PY317100372

Test Model: EX8000

Received Date: Aug. 10, 2018

Test Date: Aug. 17 ~ Aug. 18, 2018

Issued Date: Aug. 28, 2018

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FCC Registration / 788550 / TW0003

Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF170301C16F	Original release.	Aug. 28, 2018

1 Certificate of Conformity

Product: Nighthawk X6S AC3000 Tri-Band WiFi Range Extender

Brand: NETGEAR

Test Model: EX8000

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Aug. 17 ~ Aug. 18, 2018

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

This report is issued as a supplementary report of RF170301C16. This report shall be used combined together with its original report.

Prepared by : Suntee Liu, **Date:** Aug. 28, 2018
Suntee Liu / Specialist

Approved by : Bruce Chen, **Date:** Aug. 28, 2018
Bruce Chen / Project Engineer

Note: Radiated emission and AC power conducted emission items are performed for the addendum. Refer to original report for the other test data.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -5.53dB at 0.34469MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.8dB at 2483.50MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6dB bandwidth	N/A	Refer to Note
15.247(b)	Conducted power	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

Note: Radiated emission and AC power conducted emission items are performed for the addendum. Refer to original report for the other test data.

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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Nighthawk X6S AC3000 Tri-Band WiFi Range Extender
Brand	NETGEAR
Test Model	EX8000
Sample Status	Engineering sample
Power Supply Rating	12Vdc (adapter)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 400Mbps
Operating Frequency	2412~2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	CDD Mode: 842.718mW Beamforming Mode: 826.314mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Data Cable	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of the original BV CPS report no.: RF170301C16. Please refer to the Operational Description for difference compared to the original report. After evaluation, receiver parameter and the RF portion of the EUT remain unchanged, therefore original conducted emission report data was kept. Radiated emission and AC power conducted emission items are retested in this report. Refer to original report for the other test data.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function
2.4GHz	802.11b	Not Support	2TX
	802.11g	Not Support	
	802.11n (HT20)	Support (CDD / NSS1)	
	802.11n (HT40)	Support (CDD / NSS1)	

* For 802.11n, CDD mode is the worst case for final tests after pretesting.

3. The EUT uses following antenna.

Ant. Type	Dipole					
Connector Type	I-PEX (WLAN)					
Directional Antenna Gain (dBi)						
Item	2.4G	5G Band 1	5G Band 2	5G Band 3	5G Band 4	
					NSS1	NSS2
-	2.61	4.18	4.18	7.76	7.43	4.86

4. The following filters are provided to this EUT.

RF Module	Filter	Filter No.	Position	Gasket	Remark
Module 1	1st	Filter 1	TFL1 ,TFL2	With TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
	2nd	Filter 2	TFL1 ,TFL2	Without TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
Module 2	1st	Filter 3	BHPF1 ,BHPF2 BHPF3 ,BHPF4	With BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)
	2nd	Filter 4	BHPF1 ,BHPF2 BHPF3 ,BHPF4	Without BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)

Note: The 1st Filter is the worst case for final test.

RF Module 1 (2TX) supports WLAN 2.4GHz band & 5GHz band 1 & 5GHz band 2 functionally.

RF Module 2 (4TX) supports WLAN 5GHz band 3 & 5GHz band 4 functionally.

5. The following options are provided to this EUT.

Option 1	Heat sink 1 without gasket
Option 2	Heat sink 2 with gasket

* Option 1 was worse case for final test.

6. The EUT uses following adapters. (Adapter 1 is chosen for final test.)

Adapter 1 (US)	
Brand	NETGEAR
Model	2ABN042F NA (PN:332-10761-01)
Input Power	100-240Vac, 50/60Hz, 1.3A
Output Power	12Vdc, 3.5A
Power Line	1.85m DC cable without core attached on adapter

Adapter 2 (US)	
Brand	NETGEAR
Model	AD2080F20 (PN:332-10876-01)
Input Power	100-240Vac, 50/60Hz, 1.0A
Output Power	12Vdc, 3.5A
Power Line	1.8m DC cable without core attached on adapter

7. 2.4GHz & 5GHz band 4 technologies can transmit at same time.

2.4GHz & 5GHz band 3 technologies can transmit at same time.

5GHz band 1 & 5GHz band 3 technologies can transmit at same time.

5GHz band 1 & 5GHz band 4 technologies can transmit at same time.

5GHz band 2 & 5GHz band 3 technologies can transmit at same time.

5GHz band 2 & 5GHz band 4 technologies can transmit at same time.

8. Spurious emission of the simultaneous operation (refer to above operation) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to			Description
	RE<1G	RE<1G	PLC	
-	√	√	√	-

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission

Note:

1. The antenna had been pre-tested on the positioned of each 3 axis. The worst cases were found when positioned on Z-plane.

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	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	-
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

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	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
-	802.11g	1 to 11	6	OFDM	BPSK	6.0	-

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)	Remark
-	802.11g	1 to 11	6	OFDM	BPSK	6.0	-

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
RE<1G	25 deg. C, 68% RH	120Vac, 60Hz	Noah Chang
PLC	22 deg. C, 66% RH	120Vac, 60Hz	Noah Chang

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.

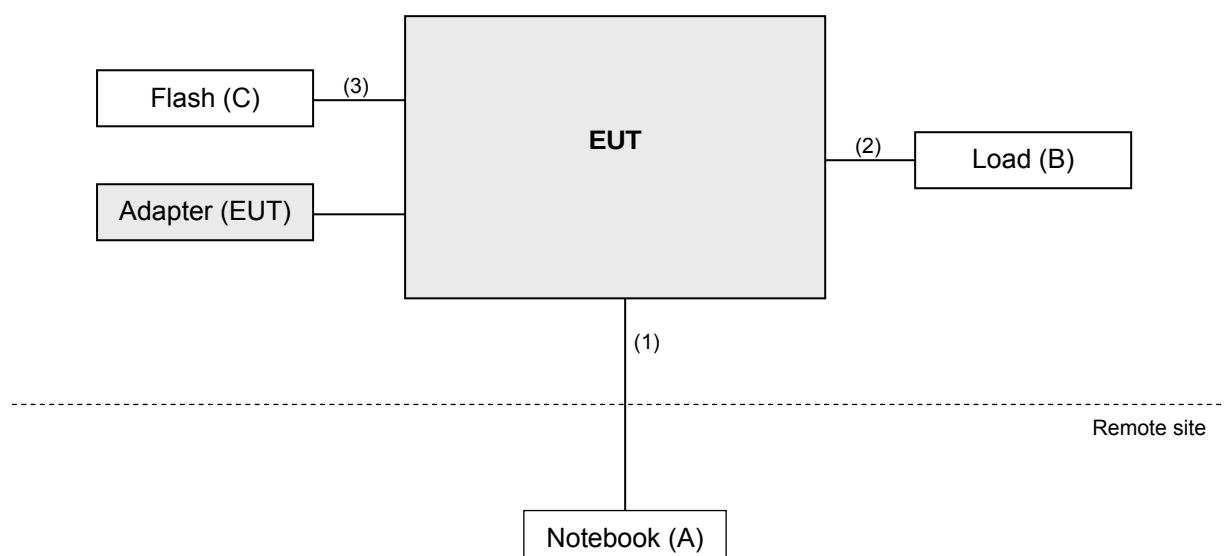
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5420	BPQ8MQ1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	Flash	HP	v250W	03	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	1	10	N	0	-
2.	RJ45	3	1.8	N	0	-
3.	USB	1	0.5	Y	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 specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

KDB 558074 D01 15.247 Meas Guidance v05

KDB 662911 D01 Multiple Transmitter Output v02r01

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.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	1232001	Dec. 13, 2017	Dec. 12, 2018
Power Sensor	MA2411B	1207334	Dec. 13, 2017	Dec. 12, 2018

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 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-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 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:

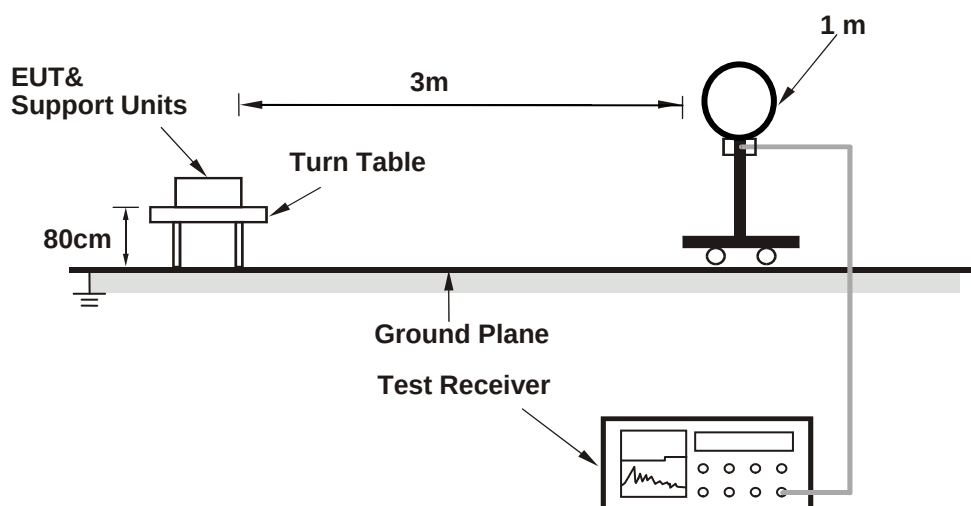
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

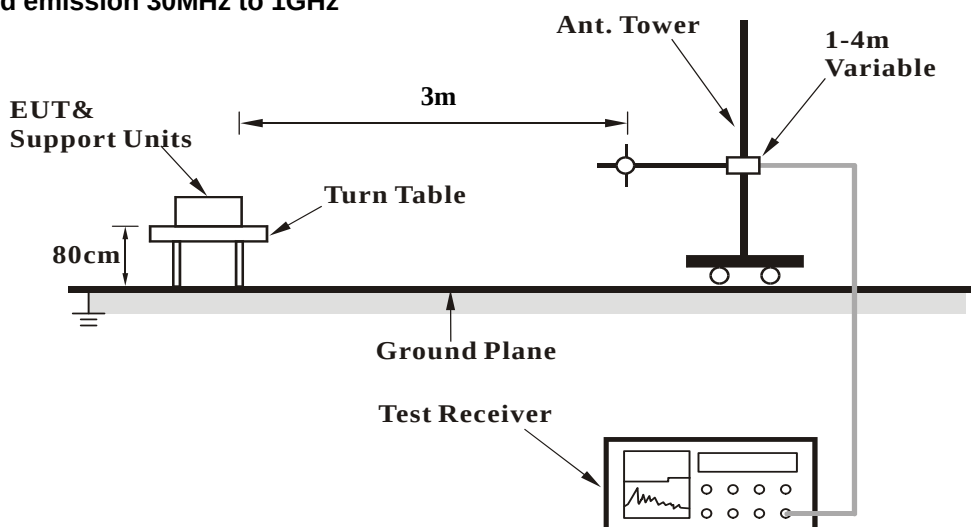
No deviation.

4.1.5 Test Setup

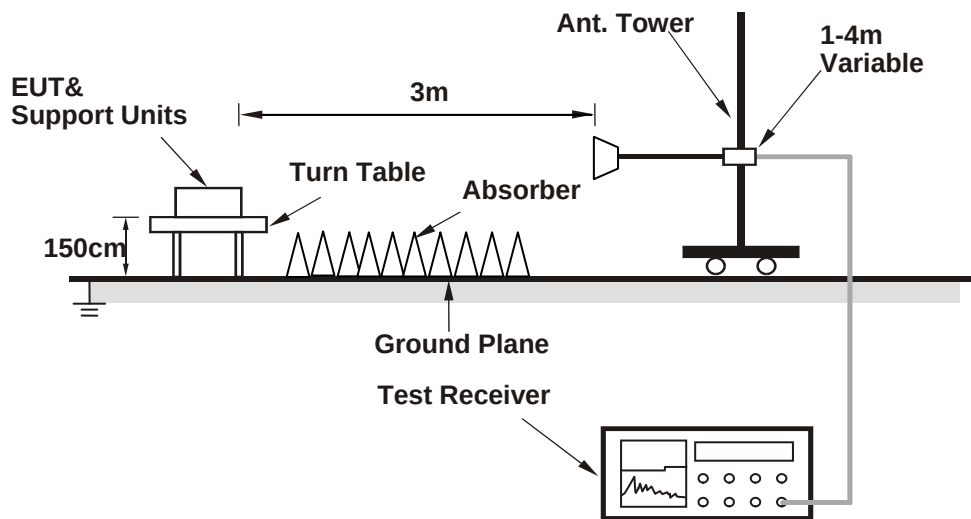
For Radiated emission below 30MHz



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

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran 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".
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Worst-Case Data :

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.2 PK	74.0	-16.8	1.57 H	219	23.9	33.3
2	2390.00	46.0 AV	54.0	-8.0	1.57 H	219	12.7	33.3
3	*2412.00	101.4 PK			1.57 H	219	68.0	33.4
4	*2412.00	99.2 AV			1.57 H	219	65.8	33.4
5	4824.00	52.8 PK	74.0	-21.2	2.25 H	157	40.2	12.6
6	4824.00	47.7 AV	54.0	-6.3	2.25 H	157	35.1	12.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	2.44 V	115	24.7	33.3
2	2390.00	47.3 AV	54.0	-6.7	2.44 V	115	14.0	33.3
3	*2412.00	112.1 PK			2.44 V	115	78.7	33.4
4	*2412.00	108.1 AV			2.44 V	115	74.7	33.4
5	4824.00	54.4 PK	74.0	-19.6	1.71 V	210	41.8	12.6
6	4824.00	48.4 AV	54.0	-5.6	1.71 V	210	35.8	12.6

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. " * ": 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	101.9 PK			1.48 H	218	68.5	33.4
2	*2437.00	97.9 AV			1.48 H	218	64.5	33.4
3	4874.00	54.9 PK	74.0	-19.1	1.54 H	223	42.5	12.4
4	4874.00	50.2 AV	54.0	-3.8	1.54 H	223	37.8	12.4
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	111.3 PK			2.78 V	109	77.9	33.4
2	*2437.00	107.5 AV			2.78 V	109	74.1	33.4
3	4874.00	55.7 PK	74.0	-18.3	2.81 V	124	43.3	12.4
4	4874.00	50.4 AV	54.0	-3.6	2.81 V	124	38.0	12.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.8 PK			1.48 H	221	69.3	33.5
2	*2462.00	100.3 AV			1.48 H	221	66.8	33.5
3	2483.50	57.6 PK	74.0	-16.4	1.48 H	221	24.1	33.5
4	2483.50	45.7 AV	54.0	-8.3	1.48 H	221	12.2	33.5
5	4924.00	53.5 PK	74.0	-20.5	1.63 H	255	41.1	12.4
6	4924.00	47.6 AV	54.0	-6.4	1.63 H	255	35.2	12.4
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	111.6 PK			1.89 V	135	78.1	33.5
2	*2462.00	107.7 AV			1.89 V	135	74.2	33.5
3	2483.50	59.0 PK	74.0	-15.0	1.89 V	135	25.5	33.5
4	2483.50	46.8 AV	54.0	-7.2	1.89 V	135	13.3	33.5
5	4924.00	53.8 PK	74.0	-20.2	2.20 V	241	41.4	12.4
6	4924.00	48.3 AV	54.0	-5.7	2.20 V	241	35.9	12.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.7 PK	74.0	-15.3	1.47 H	220	25.4	33.3
2	2390.00	46.0 AV	54.0	-8.0	1.47 H	220	12.7	33.3
3	*2412.00	97.7 PK			1.47 H	220	64.3	33.4
4	*2412.00	88.1 AV			1.47 H	220	54.7	33.4
5	4824.00	50.7 PK	74.0	-23.3	1.96 H	217	38.1	12.6
6	4824.00	37.2 AV	54.0	-16.8	1.96 H	217	24.6	12.6
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	61.1 PK	74.0	-12.9	2.28 V	98	27.8	33.3
2	2390.00	48.8 AV	54.0	-5.2	2.28 V	98	15.5	33.3
3	*2412.00	108.2 PK			2.28 V	98	74.8	33.4
4	*2412.00	98.2 AV			2.28 V	98	64.8	33.4
5	4824.00	51.0 PK	74.0	-23.0	3.26 V	188	38.4	12.6
6	4824.00	38.0 AV	54.0	-16.0	3.26 V	188	25.4	12.6

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. " * ": 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	103.4 PK			1.48 H	223	70.0	33.4
2	*2437.00	93.3 AV			1.48 H	223	59.9	33.4
3	4874.00	50.5 PK	74.0	-23.5	1.43 H	230	38.1	12.4
4	4874.00	38.7 AV	54.0	-15.3	1.43 H	230	26.3	12.4
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	112.0 PK			2.24 V	81	78.6	33.4
2	*2437.00	102.1 AV			2.24 V	81	68.7	33.4
3	4874.00	50.8 PK	74.0	-23.2	3.36 V	210	38.4	12.4
4	4874.00	39.1 AV	54.0	-14.9	3.36 V	210	26.7	12.4

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.

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	99.5 PK			1.48 H	220	66.0	33.5
2	*2462.00	88.8 AV			1.48 H	220	55.3	33.5
3	2483.50	57.5 PK	74.0	-16.5	1.48 H	220	24.0	33.5
4	2483.50	45.9 AV	54.0	-8.1	1.48 H	220	12.4	33.5
5	4924.00	50.6 PK	74.0	-23.4	1.08 H	295	38.2	12.4
6	4924.00	38.5 AV	54.0	-15.5	1.08 H	295	26.1	12.4
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	107.6 PK			2.72 V	124	74.1	33.5
2	*2462.00	97.1 AV			2.72 V	124	63.6	33.5
3	2483.50	62.6 PK	74.0	-11.4	2.72 V	124	29.1	33.5
4	2483.50	49.1 AV	54.0	-4.9	2.72 V	124	15.6	33.5
5	4924.00	51.3 PK	74.0	-22.7	1.54 V	326	38.9	12.4
6	4924.00	39.1 AV	54.0	-14.9	1.54 V	326	26.7	12.4

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.

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	57.6 PK	74.0	-16.4	1.49 H	222	24.3	33.3
2	2390.00	46.1 AV	54.0	-7.9	1.49 H	222	12.8	33.3
3	*2412.00	96.9 PK			1.49 H	222	63.5	33.4
4	*2412.00	86.8 AV			1.49 H	222	53.4	33.4
5	4824.00	50.6 PK	74.0	-23.4	1.63 H	210	38.0	12.6
6	4824.00	38.5 AV	54.0	-15.5	1.63 H	210	25.9	12.6
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	63.3 PK	74.0	-10.7	2.67 V	58	30.0	33.3
2	2390.00	49.8 AV	54.0	-4.2	2.67 V	58	16.5	33.3
3	*2412.00	107.3 PK			2.67 V	58	73.9	33.4
4	*2412.00	96.8 AV			2.67 V	58	63.4	33.4
5	4824.00	50.8 PK	74.0	-23.2	1.53 V	326	38.2	12.6
6	4824.00	38.8 AV	54.0	-15.2	1.53 V	326	26.2	12.6

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. " * ": 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	103.3 PK			1.49 H	222	69.9	33.4
2	*2437.00	92.3 AV			1.49 H	222	58.9	33.4
3	4874.00	50.7 PK	74.0	-23.3	1.35 H	274	38.3	12.4
4	4874.00	38.5 AV	54.0	-15.5	1.35 H	274	26.1	12.4
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	113.3 PK			2.64 V	101	79.9	33.4
2	*2437.00	103.0 AV			2.64 V	101	69.6	33.4
3	4874.00	51.0 PK	74.0	-23.0	1.50 V	265	38.6	12.4
4	4874.00	38.9 AV	54.0	-15.1	1.50 V	265	26.5	12.4

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.

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	98.3 PK			1.43 H	219	64.8	33.5
2	*2462.00	88.2 AV			1.43 H	219	54.7	33.5
3	2483.50	58.0 PK	74.0	-16.0	1.43 H	219	24.5	33.5
4	2483.50	46.2 AV	54.0	-7.8	1.43 H	219	12.7	33.5
5	4924.00	50.5 PK	74.0	-23.5	1.63 H	227	38.1	12.4
6	4924.00	38.3 AV	54.0	-15.7	1.63 H	227	25.9	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.1 PK			2.67 V	133	74.6	33.5
2	*2462.00	97.3 AV			2.67 V	133	63.8	33.5
3	2483.50	63.7 PK	74.0	-10.3	2.67 V	133	30.2	33.5
4	2483.50	49.7 AV	54.0	-4.3	2.67 V	133	16.2	33.5
5	4924.00	50.8 PK	74.0	-23.2	1.74 V	325	38.4	12.4
6	4924.00	38.7 AV	54.0	-15.3	1.74 V	325	26.3	12.4

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.

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	58.1 PK	74.0	-15.9	1.09 H	223	24.8	33.3
2	2390.00	45.9 AV	54.0	-8.1	1.09 H	223	12.6	33.3
3	*2422.00	91.3 PK			1.09 H	223	57.9	33.4
4	*2422.00	82.0 AV			1.09 H	223	48.6	33.4
5	4844.00	50.3 PK	74.0	-23.7	1.27 H	207	37.8	12.5
6	4844.00	38.4 AV	54.0	-15.6	1.27 H	207	25.9	12.5
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	61.7 PK	74.0	-12.3	2.65 V	88	28.4	33.3
2	2390.00	49.3 AV	54.0	-4.7	2.65 V	88	16.0	33.3
3	*2422.00	101.8 PK			2.65 V	88	68.4	33.4
4	*2422.00	92.8 AV			2.65 V	88	59.4	33.4
5	2483.50	57.8 PK	74.0	-16.2	2.65 V	88	24.3	33.5
6	2483.50	46.0 AV	54.0	-8.0	2.65 V	88	12.5	33.5
7	4844.00	50.6 PK	74.0	-23.4	1.47 V	265	38.1	12.5
8	4844.00	38.8 AV	54.0	-15.2	1.47 V	265	26.3	12.5

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.

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	95.6 PK			1.11 H	221	62.2	33.4
2	*2437.00	86.2 AV			1.11 H	221	52.8	33.4
3	4874.00	50.6 PK	74.0	-23.4	1.51 H	249	38.2	12.4
4	4874.00	38.5 AV	54.0	-15.5	1.51 H	249	26.1	12.4
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	104.9 PK			2.66 V	84	71.5	33.4
2	*2437.00	96.0 AV			2.66 V	84	62.6	33.4
3	4874.00	51.1 PK	74.0	-22.9	1.59 V	302	38.7	12.4
4	4874.00	38.7 AV	54.0	-15.3	1.59 V	302	26.3	12.4

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.

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	93.9 PK			1.45 H	218	60.5	33.4
2	*2452.00	84.7 AV			1.45 H	218	51.3	33.4
3	2483.50	59.0 PK	74.0	-15.0	1.45 H	218	25.5	33.5
4	2483.50	46.6 AV	54.0	-7.4	1.45 H	218	13.1	33.5
5	4904.00	50.8 PK	74.0	-23.2	1.32 H	288	38.3	12.5
6	4904.00	38.6 AV	54.0	-15.4	1.32 H	288	26.1	12.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.1 PK	74.0	-15.9	2.67 V	132	24.8	33.3
2	2390.00	46.3 AV	54.0	-7.7	2.67 V	132	13.0	33.3
3	*2452.00	102.7 PK			2.67 V	132	69.3	33.4
4	*2452.00	93.5 AV			2.67 V	132	60.1	33.4
5	2483.50	63.4 PK	74.0	-10.6	2.67 V	132	29.9	33.5
6	2483.50	51.2 AV	54.0	-2.8	2.67 V	132	17.7	33.5
7	4904.00	51.1 PK	74.0	-22.9	1.48 V	246	38.6	12.5
8	4904.00	39.2 AV	54.0	-14.8	1.48 V	246	26.7	12.5

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.

Below 1GHz Worst-Case Data:

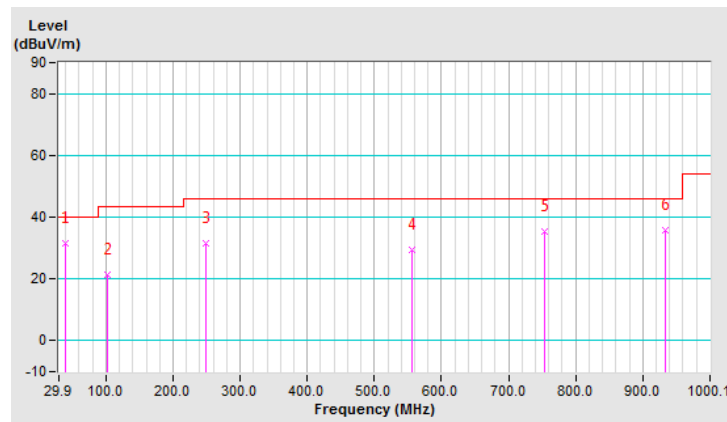
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FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 6		

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	39.60	31.4 QP	40.0	-8.6	2.00 H	29	40.3	-8.9
2	101.69	21.5 QP	43.5	-22.0	1.00 H	272	33.9	-12.4
3	249.17	31.7 QP	46.0	-14.3	1.00 H	230	40.4	-8.7
4	555.75	29.6 QP	46.0	-16.4	1.50 H	13	31.9	-2.3
5	753.67	35.3 QP	46.0	-10.7	1.50 H	318	31.8	3.5
6	934.13	35.8 QP	46.0	-10.2	1.50 H	13	29.5	6.3

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. Margin value = Emission Level – Limit value
4. 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.

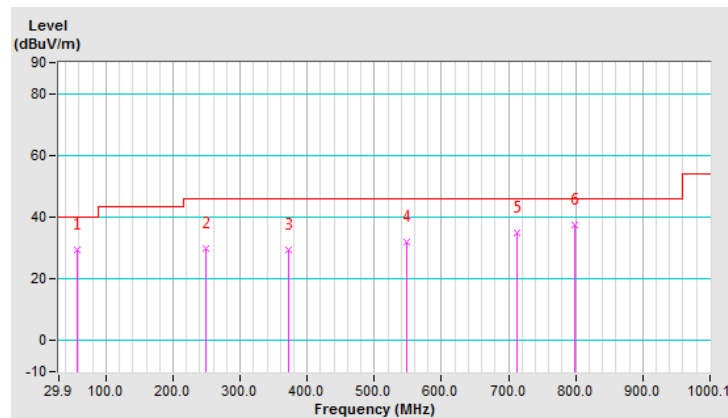


FREQUENCY RANGE	9kHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	TX Channel 6		

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	57.07	29.6 QP	40.0	-10.4	1.50 V	33	38.0	-8.4
2	249.17	29.8 QP	46.0	-16.2	1.00 V	176	38.5	-8.7
3	371.41	29.5 QP	46.0	-16.5	1.00 V	189	35.2	-5.7
4	547.99	32.1 QP	46.0	-13.9	1.00 V	118	34.7	-2.6
5	712.92	34.8 QP	46.0	-11.2	1.00 V	334	32.9	1.9
6	798.30	37.6 QP	46.0	-8.4	2.00 V	83	33.6	4.0

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. Margin value = Emission Level – Limit value
4. 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.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ENV216	101196	Apr. 24, 2018	Apr. 23, 2019
Software ADT	BV ADT_Conc_ V7.3.7.4	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 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

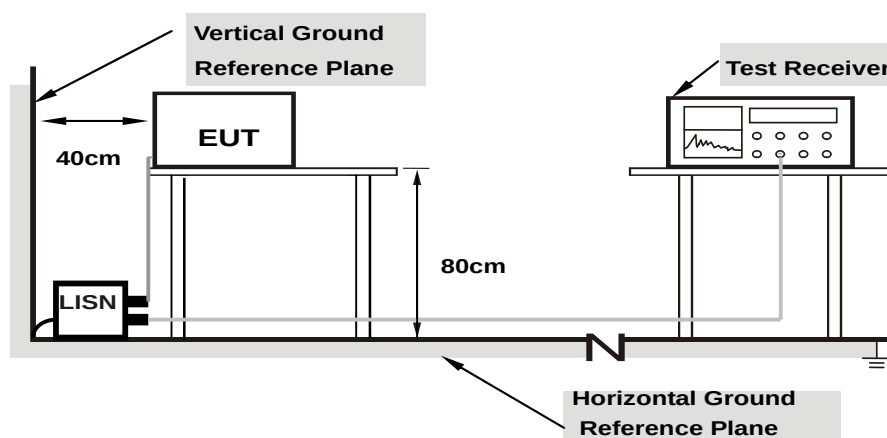
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

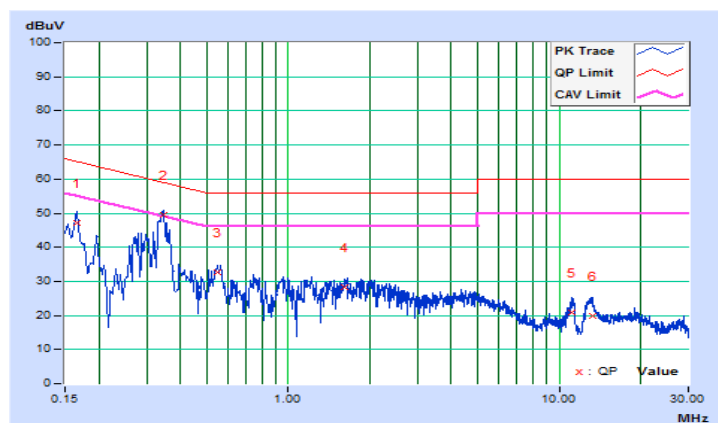
Worst-case data: 802.11g

Channel	Channel 6	Detector Function	Quasi-Peak (QP) / Average (AV)
Phase	Line (L)		

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	0.16526	10.16	36.93	27.77	47.09	37.93	65.20	55.20	-18.11	-17.27
2	0.34550	10.19	39.28	32.27	49.47	42.46	59.07	49.07	-9.60	-6.61
3	0.54806	10.20	22.36	14.07	32.56	24.27	56.00	46.00	-23.44	-21.73
4	1.62407	10.22	18.04	11.18	28.26	21.40	56.00	46.00	-27.74	-24.60
5	11.13744	10.72	10.16	5.00	20.88	15.72	60.00	50.00	-39.12	-34.28
6	13.35016	10.85	9.18	4.68	20.03	15.53	60.00	50.00	-39.97	-34.47

Remarks:

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

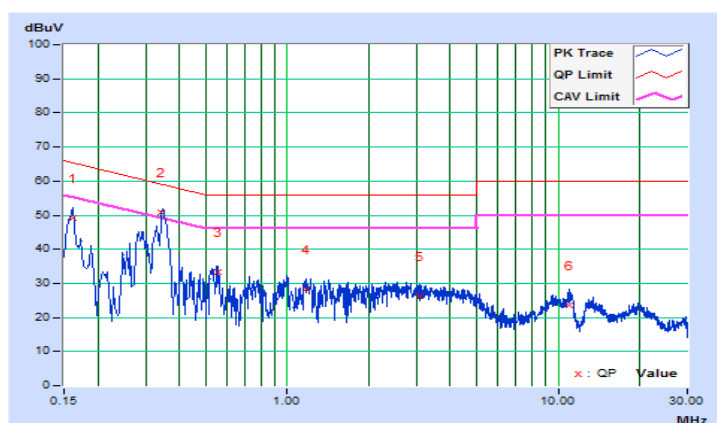


Channel	Channel 6	Detector Function	Quasi-Peak (QP) / Average (AV)
Phase	Neutral (N)		

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	0.16139	10.15	38.98	28.95	49.13	39.10	65.39	55.39	-16.26	-16.29
2	0.34469	10.19	40.54	33.37	50.73	43.56	59.09	49.09	-8.36	-5.53
3	0.55664	10.20	23.27	15.82	33.47	26.02	56.00	46.00	-22.53	-19.98
4	1.17674	10.21	18.24	10.58	28.45	20.79	56.00	46.00	-27.55	-25.21
5	3.08675	10.29	16.13	9.32	26.42	19.61	56.00	46.00	-29.58	-26.39
6	11.06281	10.62	12.94	8.03	23.56	18.65	60.00	50.00	-36.44	-31.35

Remarks:

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



5 Pictures of Test Arrangements

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

Appendix – 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 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:

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Web Site: www.bureauveritas-adt.com

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

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