

FCC Test Report (Spot Check)

Report No.: RF171227D04-10

FCC ID: PPQIC3V

Original FCC ID: PPQIC3A

Test Model: EZ-0762-0A32

Received Date: Dec. 27, 2017

Test Date: Jun. 1, 2018

Issued Date: Jun. 4, 2018

Applicant: Lite-On Technology Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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(R.O.C.)

**FCC Registration /
Designation Number:** 198487 / TW2021



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Release Control Record

Issue No.	Description	Date Issued
RF171227D04-10	Original release.	Jun. 4, 2018

1 Certificate of Conformity

Product: Network board

Brand: LITE-ON

Test Model: EZ-0762-0A32

Sample Status: Engineering sample

Applicant: Lite-On Technology Corporation

Test Date: Jun. 1, 2018

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
FCC Part 27, Subpart C, L
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 : Annie Chang, **Date:** Jun. 4, 2018
Annie Chang / Senior Specialist

Approved by : Rex Lai, **Date:** Jun. 4, 2018
Rex Lai / Associate Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247), FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
15.205 15.209 15.247(d) 2.1053 27.53(h)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.21dB at 2390.00MHz.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1000MHz	5.54 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.48 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Network board	
Brand	LITE-ON	
Test Model	EZ-0762-0A32	
Status of EUT	Engineering sample	
Power Supply Rating	12Vdc from adapter	
Modulation Type	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
	LTE	QPSK, 16QAM
Modulation Technology	WLAN	DSSS,OFDM
Transfer Rate	WLAN	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
		802.11n: up to 150Mbps
Operating Frequency	WLAN	2412 ~ 2462MHz
Frequency Range	LTE Band 4	LTE Band 4 (Channel Bandwidth: 5MHz): 1712.5 ~ 1752.5MHz LTE Band 4 (Channel Bandwidth: 10MHz): 1715.0 ~ 1750.0MHz LTE Band 4 (Channel Bandwidth: 15MHz): 1717.5 ~ 1747.5MHz LTE Band 4 (Channel Bandwidth: 20MHz): 1720.0 ~ 1745.0MHz
	LTE Band 13	LTE Band 13 (Channel Bandwidth: 5MHz): 779.5 ~ 784.5MHz LTE Band 13 (Channel Bandwidth: 10MHz): 782.0MHz
Number of Channel	WLAN	11 for 802.11b, 802.11g, 802.11n (20MHz)
		7 for 802.11n (40MHz)
Max. ERP Power	LTE Band 13	LTE Band 13 (Channel Bandwidth: 5MHz): 107.40mW
		LTE Band 13 (Channel Bandwidth: 10MHz): 102.09mW
Max. EIRP Power	LTE Band 4	LTE Band 4 (Channel Bandwidth: 5MHz): 262.12mW
		LTE Band 4 (Channel Bandwidth: 10MHz): 289.07mW
		LTE Band 4 (Channel Bandwidth: 15MHz): 331.89mW
		LTE Band 4 (Channel Bandwidth: 20MHz): 372.39mW
Antenna Type	WLAN	PCB Antenna with 2dBi gain
	LTE	Embedded Metal stamping Antenna
Antenna Connector	N/A	
Accessory Device	N/A	
Data Cable Supplied	N/A	

Note:

1. Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit.
2. The EUT incorporates a SISO function. Physically, the EUT provides 1 completed transmitter and 1 receiver.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

3. The above EUT information is 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 2412 ~ 2462MHz

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

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

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

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

3.3 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To		Description
	RE \geq 1G	APCM	
A	√	√	Sample 1
B	√	√	Sample 2

Where **RE \geq 1G**: Radiated Emission above 1GHz
APCM: Antenna Port Conducted Measurement

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)
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A & B	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE\geq1G	23deg. C, 79%RH	120Vac, 60Hz	James Wei
APCM	25deg. C, 76%RH	120Vac, 60Hz	Saxon Lee

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.

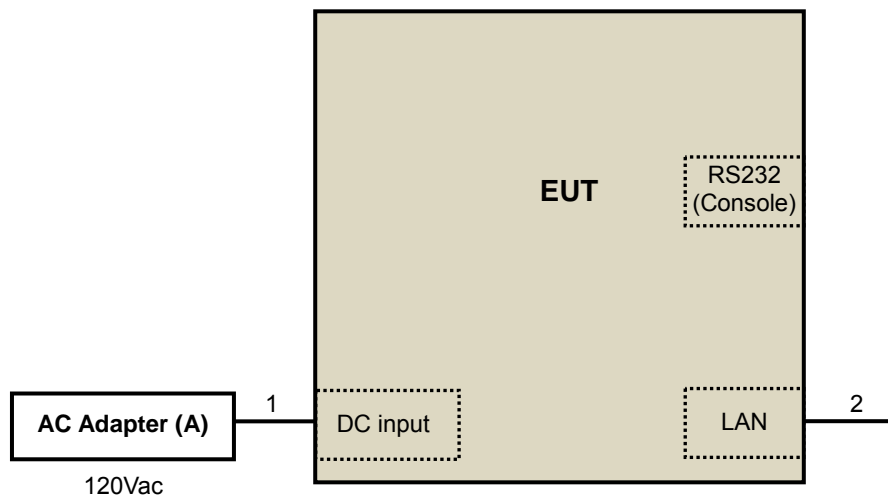
No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A.	Adapter	Lite-On	PB-1300-3AR1	N/A	N/A	Provided by Lab

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1.5	N	0	Supplied by client
2.	LAN cable	1	2.5	N	0	Provided by Lab

Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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 DTS Meas Guidance v04

ANSI C63.10-2013

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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.

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.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 21, 2018	Feb. 20, 2019
HP Preamplifier	8449B	3008A01201	Feb. 22, 2018	Feb. 21, 2019
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 21, 2018	Feb. 20, 2019
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 6, 2018	Feb. 5, 2019
Schwarzbeck Antenna	VULB 9168	139	Nov. 29, 2017	Nov. 28, 2018
Schwarzbeck Antenna	VHBA 9123	480	May 19, 2017	May 18, 2019
Schwarzbeck Horn Antenna	BBHA-9170	212	Dec. 1, 2017	Nov. 30, 2018
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Dec. 1, 2017	Nov. 30, 2018
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 14, 2017	Aug. 13, 2018
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 14, 2017	Aug. 13, 2018
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	MY55050005	Jun. 15, 2017	Jun. 14, 2018
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 26, 2017	Jul. 25, 2018
Loop Antenna EMCI	LPA600	270	Aug. 11, 2017	Aug. 10, 2019
EMCO Horn Antenna	3115	00028257	Nov. 30, 2017	Nov. 29, 2018
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 29, 2017	Sep. 28, 2018
Anritsu Power Sensor	MA2411B	0738404	Apr. 26, 2018	Apr. 25, 2019
Anritsu Power Meter	ML2495A	0842014	Apr. 26, 2018	Apr. 25, 2019

- NOTE:**
1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in Chamber No. 6.
 4. The Industry Canada Reference No. IC 7450E-6.

4.1.3 Test Procedure

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 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:

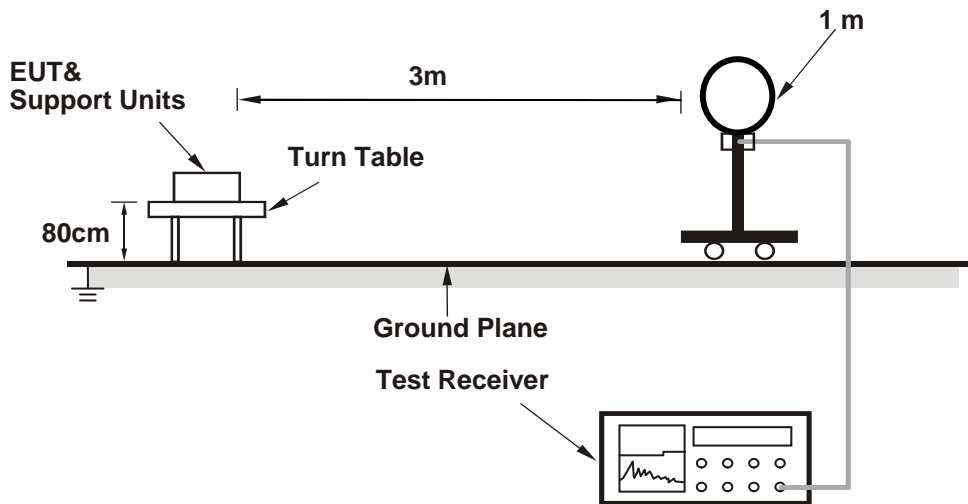
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

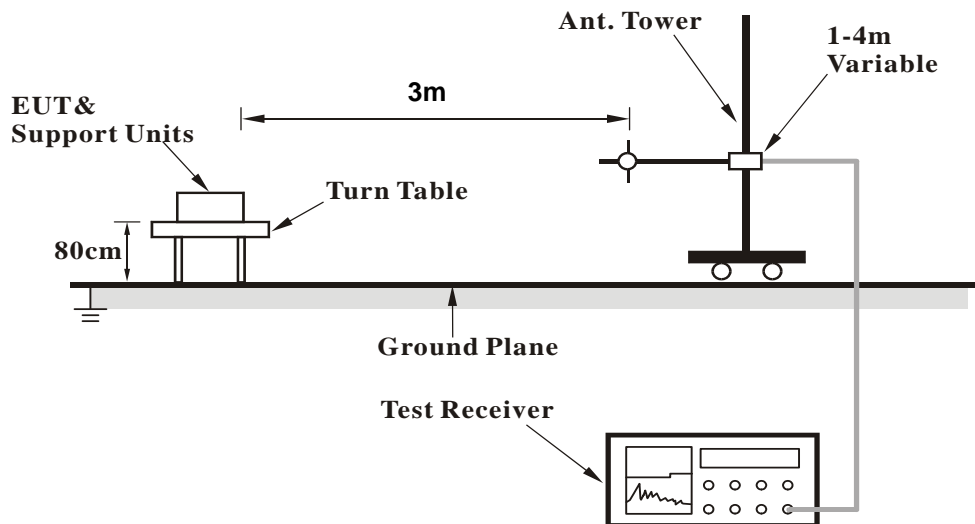
No deviation.

4.1.5 Test Setup

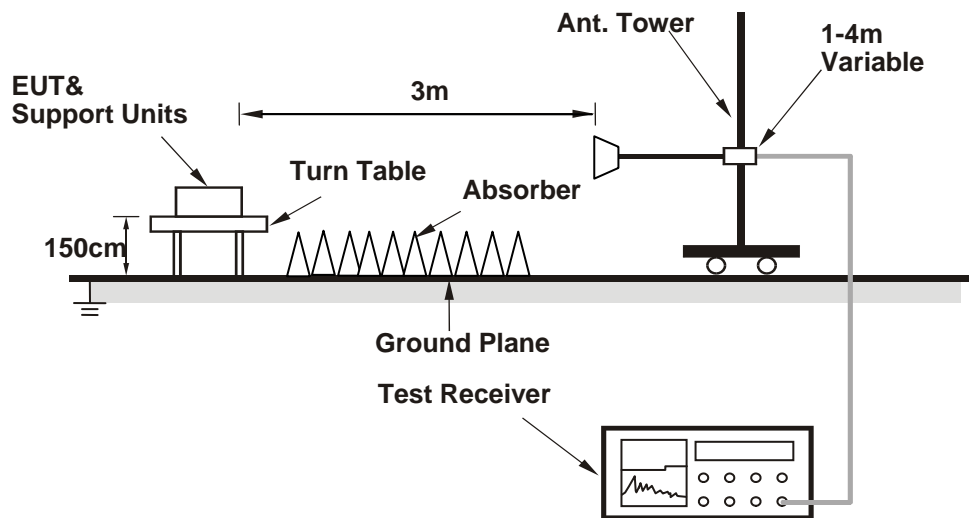
For Radiated emission below 30MHz



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 Condition

- a. Connected the EUT with the Adapter.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

ABOVE 1GHz DATA
802.11n (40MHz)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	Mode A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.45 PK	74.00	-4.55	1.19 H	272	71.83	-2.38
2	2390.00	52.79 AV	54.00	-1.21	1.19 H	272	55.17	-2.38
3	*2422.00	100.63 PK			1.19 H	272	103.19	-2.56
4	*2422.00	91.35 AV			1.19 H	272	93.91	-2.56
5	4844.00	43.79 PK	74.00	-30.21	2.46 H	103	40.41	3.38
6	4844.00	31.65 AV	54.00	-22.35	2.46 H	103	28.27	3.38

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	62.89 PK	74.00	-11.11	2.27 V	185	65.27	-2.38
2	2390.00	47.33 AV	54.00	-6.67	2.27 V	185	49.71	-2.38
3	*2422.00	97.56 PK			2.27 V	185	100.12	-2.56
4	*2422.00	88.16 AV			2.27 V	185	90.72	-2.56
5	4844.00	41.41 PK	74.00	-32.59	1.14 V	341	38.03	3.38
6	4844.00	30.73 AV	54.00	-23.27	1.14 V	341	27.35	3.38

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)
TEST MODE	Mode A		

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	67.11 PK	74.00	-6.89	2.27 H	241	69.49	-2.38
2	2390.00	52.45 AV	54.00	-1.55	2.27 H	241	54.83	-2.38
3	*2437.00	104.65 PK			2.27 H	241	107.29	-2.64
4	*2437.00	95.75 AV			2.27 H	241	98.39	-2.64
5	4874.00	44.47 PK	74.00	-29.53	2.31 H	112	41.12	3.35
6	4874.00	32.02 AV	54.00	-21.98	2.31 H	112	28.67	3.35

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	60.43 PK	74.00	-13.57	2.33 V	147	62.81	-2.38
2	2390.00	47.17 AV	54.00	-6.83	2.33 V	147	49.55	-2.38
3	*2437.00	101.14 PK			2.33 V	147	103.78	-2.64
4	*2437.00	91.93 AV			2.33 V	147	94.57	-2.64
5	4874.00	41.84 PK	74.00	-32.16	1.43 V	23	38.49	3.35
6	4874.00	31.16 AV	54.00	-22.84	1.43 V	23	27.81	3.35

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)
TEST MODE	Mode A		

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	101.59 PK			2.08 H	204	104.27	-2.68
2	*2452.00	92.64 AV			2.08 H	204	95.32	-2.68
3	2483.50	68.14 PK	74.00	-5.86	2.08 H	204	70.38	-2.24
4	2483.50	52.48 AV	54.00	-1.52	2.08 H	204	54.72	-2.24
5	4904.00	44.10 PK	74.00	-29.90	2.21 H	245	40.81	3.29
6	4904.00	31.92 AV	54.00	-22.08	2.21 H	245	28.63	3.29

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	98.09 PK			1.59 V	183	100.77	-2.68
2	*2452.00	89.05 AV			1.59 V	183	91.73	-2.68
3	2483.50	61.33 PK	74.00	-12.67	1.59 V	183	63.57	-2.24
4	2483.50	47.27 AV	54.00	-6.73	1.59 V	183	49.51	-2.24
5	4904.00	41.62 PK	74.00	-32.38	1.16 V	18	38.33	3.29
6	4904.00	30.91 AV	54.00	-23.09	1.16 V	18	27.62	3.29

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	Mode B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.27 PK	74.00	-4.73	1.02 H	296	71.65	-2.38
2	2390.00	52.64 AV	54.00	-1.36	1.02 H	296	55.02	-2.38
3	*2422.00	100.55 PK			1.02 H	296	103.11	-2.56
4	*2422.00	91.26 AV			1.02 H	296	93.82	-2.56
5	4844.00	43.66 PK	74.00	-30.34	2.41 H	96	40.28	3.38
6	4844.00	31.56 AV	54.00	-22.44	2.41 H	96	28.18	3.38

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	62.74 PK	74.00	-11.26	2.33 V	182	65.12	-2.38
2	2390.00	47.23 AV	54.00	-6.77	2.33 V	182	49.61	-2.38
3	*2422.00	97.45 PK			2.33 V	182	100.01	-2.56
4	*2422.00	88.03 AV			2.33 V	182	90.59	-2.56
5	4844.00	41.36 PK	74.00	-32.64	1.26 V	3	37.98	3.38
6	4844.00	30.66 AV	54.00	-23.34	1.26 V	3	27.28	3.38

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)
TEST MODE	Mode B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.93 PK	74.00	-7.07	2.47 H	229	69.31	-2.38
2	2390.00	52.29 AV	54.00	-1.71	2.47 H	229	54.67	-2.38
3	*2437.00	104.54 PK			2.47 H	229	107.18	-2.64
4	*2437.00	95.61 AV			2.47 H	229	98.25	-2.64
5	4874.00	44.38 PK	74.00	-29.62	2.43 H	107	41.03	3.35
6	4874.00	31.96 AV	54.00	-22.04	2.43 H	107	28.61	3.35

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	60.27 PK	74.00	-13.73	2.31 V	157	62.65	-2.38
2	2390.00	47.04 AV	54.00	-6.96	2.31 V	157	49.42	-2.38
3	*2437.00	100.99 PK			2.31 V	157	103.63	-2.64
4	*2437.00	91.78 AV			2.31 V	157	94.42	-2.64
5	4874.00	41.73 PK	74.00	-32.27	1.44 V	31	38.38	3.35
6	4874.00	31.08 AV	54.00	-22.92	1.44 V	31	27.73	3.35

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)
TEST MODE	Mode B		

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	101.47 PK			2.21 H	201	104.15	-2.68
2	*2452.00	92.51 AV			2.21 H	201	95.19	-2.68
3	2483.50	68.01 PK	74.00	-5.99	2.21 H	201	70.25	-2.24
4	2483.50	52.37 AV	54.00	-1.63	2.21 H	201	54.61	-2.24
5	4904.00	43.99 PK	74.00	-30.01	2.39 H	233	40.70	3.29
6	4904.00	31.80 AV	54.00	-22.20	2.39 H	233	28.51	3.29

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	97.89 PK			1.88 V	195	100.57	-2.68
2	*2452.00	88.93 AV			1.88 V	195	91.61	-2.68
3	2483.50	61.18 PK	74.00	-12.82	1.88 V	195	63.42	-2.24
4	2483.50	47.09 AV	54.00	-6.91	1.88 V	195	49.33	-2.24
5	4904.00	41.52 PK	74.00	-32.48	1.25 V	17	38.23	3.29
6	4904.00	30.83 AV	54.00	-23.17	1.25 V	17	27.54	3.29

REMARKS:

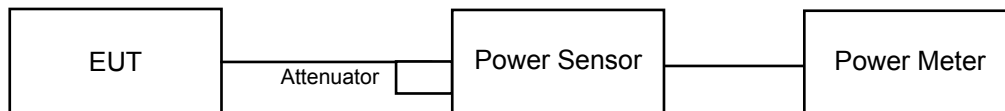
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

4.2 Conducted Output Power Measurement

4.2.1 Limits of Conducted Output Power Measurement

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

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

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

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

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

4.2.7 Test Results

802.11n (40MHz)

Mode A

Channel	Frequency (MHz)	Average Power (dBm)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	7.15	14.35	30	Pass
6	2437	11.45	17.85	30	Pass
9	2452	10.00	17.04	30	Pass

Mode B

Channel	Frequency (MHz)	Average Power (dBm)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	7.12	14.25	30	Pass
6	2437	11.32	17.82	30	Pass
9	2452	9.92	17.04	30	Pass

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 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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