

## TEST REPORT

**Product** : Desktop PC  
**Trade mark** : COMPAQ  
**Model/Type reference** : QD15I5GW8512,  
QD15I3GW8512  
**Serial Number** : N/A  
**Report Number** : EED32R80383903  
**FCC ID** : 2BLU9-QD15GW  
**Date of Issue** : Apr. 24, 2025  
**Test Standards** : 47 CFR Part 15 Subpart C  
**Test result** : PASS

Prepared for:

**M&M Electronics, S.A.**  
**Cocosolito, Colon Free Zone, Main Entrance Warehouse**  
**10D and 11D, Panama**

Prepared by:

**Centre Testing International Group Co., Ltd.**  
**Hongwei Industrial Zone, Bao'an 70 District,**  
**Shenzhen, Guangdong, China**  
**TEL: +86-755-3368 3668**  
**FAX: +86-755-3368 3385**

Compiled by:

*Keven Tan*

Reviewed by:

*Frazer. Li*

Approved by:

*Keven Tan*

Date:

Apr. 24, 2025

Aaron Ma

Check No.:1637210325



## 1 Content

<b>1 CONTENT</b> .....	2
<b>2 VERSION</b> .....	3
<b>3 TEST SUMMARY</b> .....	4
<b>4 GENERAL INFORMATION</b> .....	5
4.1 CLIENT INFORMATION .....	5
4.2 GENERAL DESCRIPTION OF EUT .....	5
4.3 TEST CONFIGURATION .....	7
4.4 TEST ENVIRONMENT .....	8
4.5 DESCRIPTION OF SUPPORT UNITS .....	8
4.6 TEST LOCATION .....	8
4.7 MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2) .....	9
<b>5 EQUIPMENT LIST</b> .....	10
<b>6 TEST RESULTS AND MEASUREMENT DATA</b> .....	13
6.1 ANTENNA REQUIREMENT .....	13
6.2 AC POWER LINE CONDUCTED EMISSIONS .....	14
6.3 RADIATED SPURIOUS EMISSION & RESTRICTED BANDS .....	17
<b>7 PHOTOGRAPHS OF TEST SETUP</b> .....	28
<b>8 PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS</b> .....	30

## 2 Version

Version No.	Date	Description
00	Apr. 24, 2025	Original

### 3 Test Summary

Test Item	Test Requirement	Result
<b>Antenna Requirement</b>	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	PASS
<b>AC Power Line Conducted Emission</b>	47 CFR Part 15 Subpart C Section 15.207	PASS
<b>DTS Bandwidth</b>	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	NOTE
<b>Maximum Conducted Output Power</b>	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	NOTE
<b>Maximum Power Spectral Density</b>	47 CFR Part 15 Subpart C Section 15.247 (e)	NOTE
<b>Band edge measurements</b>	47 CFR Part 15 Subpart C Section 15.247(d)	NOTE
<b>Conducted Spurious Emissions</b>	47 CFR Part 15 Subpart C Section 15.247(d)	NOTE
<b>Radiated Spurious Emission &amp; Restricted bands</b>	47 CFR Part 15 Subpart C Section 15.205/15.209	PASS

Remark:

NOTE: The test data refer to the report of No.180717-02.TR04 (FCC ID: PD9AX201NG)  
Model No.: QD15I5GW8512, QD15I3GW8512  
Only the model QD15I5GW8512 was tested. The They have same electrical, PCB and layout, only the model name, QD15I5GW8512 and QD15I3GW8512 are different for marketing requirements.

## 4 General Information

### 4.1 Client Information

Applicant:	M&M Electronics, S.A.
Address of Applicant:	Cocosolito, Colon Free Zone, Main Entrance Warehouse 10D and 11D, Panama
Manufacturer:	M&M Electronics, S.A.
Address of Manufacturer:	Cocosolito, Colon Free Zone, Main Entrance Warehouse 10D and 11D, Panama
Factory:	Hunan Greatwall Computer System Co.,Ltd
Address of Factory:	Hunan Greatwall Industrial Park, Tianyi Science and Technology City, Xiangyun Middle Road, Tianyuan District, Zhuzhou, Hunan Province

### 4.2 General Description of EUT

Product Name:	Desktop PC	
Model No.:	QD15I5GW8512, QD15I3GW8512	
Test Model No.:	QD15I5GW8512	
Trade mark:	COMPAQ	
Product Type:	<input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fixed Location	
Operation Frequency:	IEEE 802.11b/g/n(HT20)/ax(HE20): 2412MHz to 2462MHz IEEE 802.11n(HT40)/ax(HE40): 2422MHz to 2452MHz	
Modulation Type:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK, BPSK) IEEE for 802.11ax(HE20 and HE40) : OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)	
Number of Channel:	IEEE 802.11b/g, IEEE 802.11n HT20/ax HE20: 11 Channels IEEE 802.11n HT40: 7 Channels IEEE 802.11ax HE40: 7 Channels	
Channel Separation:	5MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	ANT0: 1.65 dBi ANT1: 1.35 dBi	
Power Supply:	Adapter:	AC 100~240V
Test Voltage:	AC 120V	
Sample Received Date:	Apr. 09, 2025	
Sample tested Date:	Apr. 09, 2025 to Apr. 22, 2025	

Operation Frequency each of channel (802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel (802.11n HT40)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422MHz	6	2437MHz	9	2452MHz
4	2427MHz	7	2442MHz		
5	2432MHz	8	2447MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

802.11b/g/n (HT20)/ax(HE20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The highest channel	2462MHz

802.11n (HT40)/ax(HE40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The highest channel	2452MHz

### 4.3 Test Configuration

**EUT Test Software Settings:**

Test Software:	DRTU.exe
----------------	----------

EUT Power Grade:	Default
------------------	---------

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

**Test Mode:**

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

**Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.**

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	MCS0
802.11n(HT40)	MCS0
802.11ax(HE20)	MCS0
802.11ax(HE40)	MCS0

According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n(HT20) and MCS0 for 802.11n(HT40).

#### 4.4 Test Environment

<b>Operating Environment:</b>	
<b>Radiated Spurious Emissions:</b>	
Temperature:	22~25.0 °C
Humidity:	50~55 % RH
Atmospheric Pressure:	1010mbar
<b>Conducted Emissions:</b>	
Temperature:	22~25.0 °C
Humidity:	50~55 % RH
Atmospheric Pressure:	1010mbar
<b>RF Conducted:</b>	
Temperature:	22~25.0 °C
Humidity:	50~55 % RH
Atmospheric Pressure:	1010mbar

#### 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

##### 1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
/	/	/	/	/

#### 4.6 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

**4.7 Measurement Uncertainty (95% confidence levels, k=2)**

No.	Item	Measurement Uncertainty
1	Radio Frequency	$7.9 \times 10^{-8}$
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-40GHz)
3	Radiated Spurious emission test	3.3dB (9kHz-30MHz)
		4.3dB (30MHz-1GHz)
		4.5dB (1GHz-18GHz)
		3.4dB (18GHz-40GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

## 5 Equipment List

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
				(mm-dd-yyyy)	(mm-dd-yyyy)
Receiver	R&S	ESCI	100435	04-08-2025	04-07-2026
Temperature/ Humidity Indicator	Defu	TH128	/	04-25-2024	04-24-2025
LISN	R&S	ENV216	100098	09-19-2024	09-18-2025
Barometer	changchun	DYM3	1188	---	---
Test software	Fara	EZ-EMC	EMC-CON 3A1.1	---	---
Capacitive voltage probe	Schwarzbeck	CVP 9222C	00124	06-18-2024	06-17-2025
ISN	TESEQ	ISN T800	30297	12-05-2024	12-04-2025

3M Semi-anechoic Chamber (2)- Radiated disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
				(mm-dd-yyyy)	(mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05/22/2022	05/21/2025
Receiver	R&S	ESCI7	100938-003	09/07/2024	09/06/2025
Spectrum Analyzer	R&S	FSV40	101200	07/18/2024	07/17/2025
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-618	05/22/2022	05/21/2025
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04/07/2025	04/06/2026
Microwave Preamplifier	Tonscend	EMC051845SE	980380	12/05/2024	12/04/2025
Horn Antenna	A.H.SYSTEMS	SAS-574	374	07/02/2023	07/01/2026
Horn Antenna	ETS-LINGREN	BBHA 9120D	9120D-1869	04/07/2025	04/06/2026
Preamplifier	Agilent	11909A	12-1	03/03/2025	03/02/2026
Preamplifier	CD	PAP-1840-60	6041.6042	06/19/2024	06/18/2025
Test software	Fara	EZ-EMC	EMEC-3A1-Pre	---	---

Cable line	Fulai(7M)	SF106	5219/6A	05/22/2022	05/21/2025
Cable line	Fulai(6M)	SF106	5220/6A	05/22/2022	05/21/2025
Cable line	Fulai(3M)	SF106	5216/6A	05/22/2022	05/21/2025
Cable line	Fulai(3M)	SF106	5217/6A	05/22/2022	05/21/2025

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Fully Anechoic Chamber	TDK	FAC-3	---	01-09-2024	01-08-2027
Receiver	Keysight	N9038A	MY57290136	01-04-2025	01-03-2026
Spectrum Analyzer	Keysight	N9020B	MY57111112	01-14-2025	01-13-2026
Spectrum Analyzer	Keysight	N9030B	MY57140871	01-14-2025	01-13-2026
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-28-2024	04-27-2025
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-16-2024 04-12-2025	04-15-2025 04-11-2026
Horn Antenna	ETS-LINDGREN	3117	57407	07-03-2024	07-02-2025
Preamplifier	EMCI	EMC001330	980563	03-03-2025	03-02-2026
Preamplifier	Tonscend	TAP-011858	AP21B806112	07-18-2024	07-17-2025
Preamplifier	Tonscend	EMC051845SE	980380	12-05-2024	12-04-2025
Communication test set	R&S	CMW500	102898	01-04-2025	01-03-2026
Temperature/Humidity Indicator	biaozhi	GM1360	EE1186631	03-31-2025	03-30-2026
RSE Automatic test software	JS Tonscend	JS36-RSE	V4.0.0.0	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-09-2024	01-08-2027
Cable line	Times	EMC104-NMNM-1000	SN160710	01-09-2024	01-08-2027

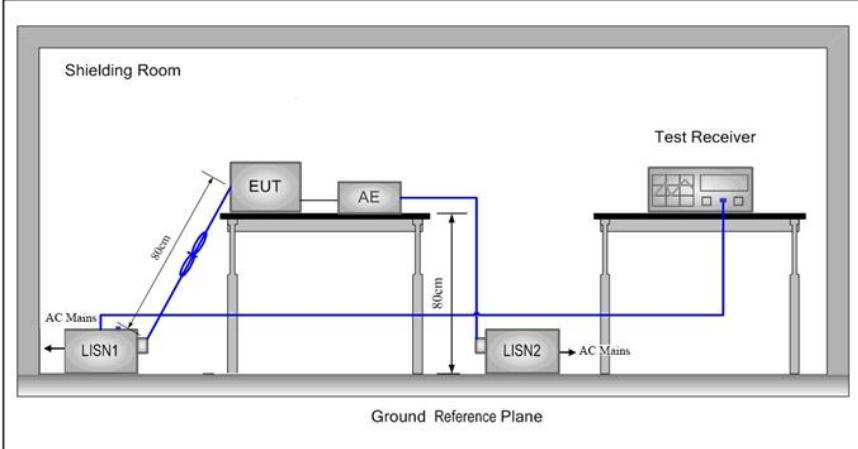
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-09-2024	01-08-2027
Cable line	Times	HF160-KMKG-3.00M	393493-0001	01-09-2024	01-08-2027

## 6 Test results and Measurement Data

### 6.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
<b>EUT Antenna:</b>	Please see Internal photos
The antenna is PIFA antenna. The best case gain of the antenna 0 is 1.65dBi.The best case gain of the antenna 1 is 1.35dBi.	

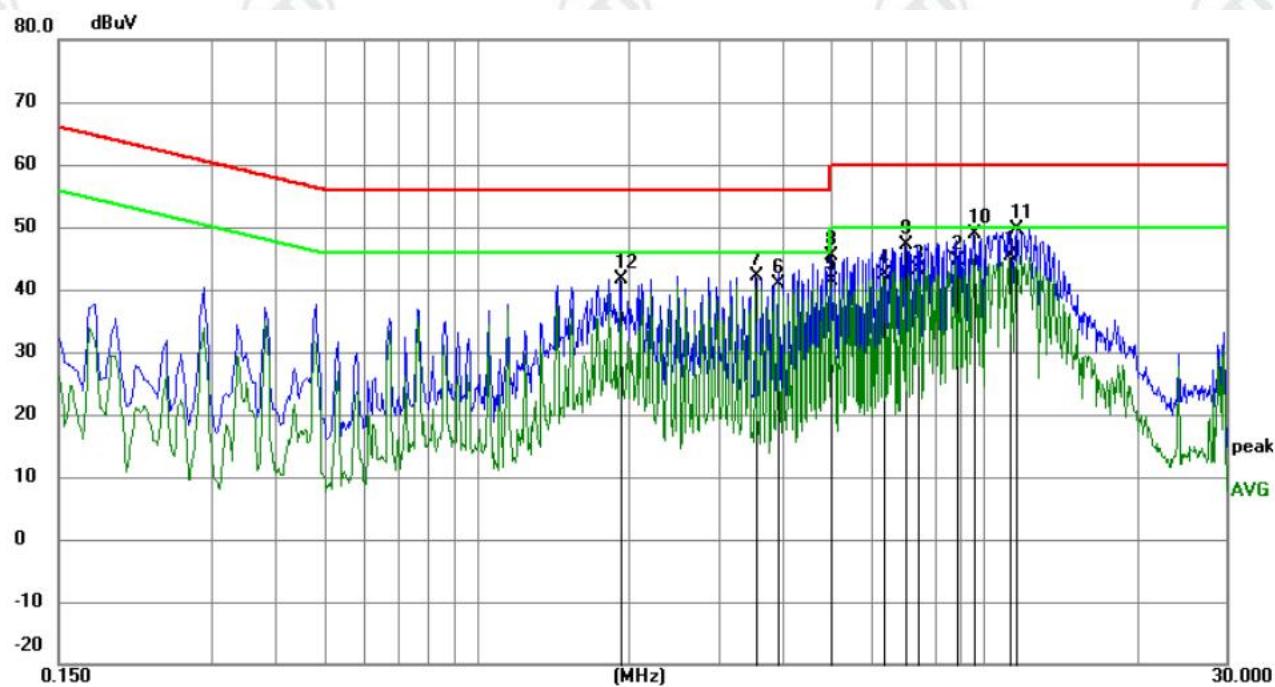
## 6.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207																	
Test Method:	ANSI C63.10: 2013																	
Test Frequency Range:	150kHz to 30MHz																	
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto																	
Limit:	<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th></th> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr> <tr> <td>0.5-5</td><td>56</td><td>46</td></tr> <tr> <td>5-30</td><td>60</td><td>50</td></tr> </tbody> </table>			Frequency range (MHz)	Limit (dBuV)			Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)																	
	Quasi-peak	Average																
0.15-0.5	66 to 56*	56 to 46*																
0.5-5	56	46																
5-30	60	50																
	<p>* Decreases with the logarithm of the frequency.</p>																	
Test Setup:																		
Test Procedure:	<ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>																	
Test Mode:	All modes were tested, only the worse case lowest channel of 1Mbps for 802.11b was recorded in the report.																	

Test Results:	Pass
---------------	------

## Measurement Data

Live line:

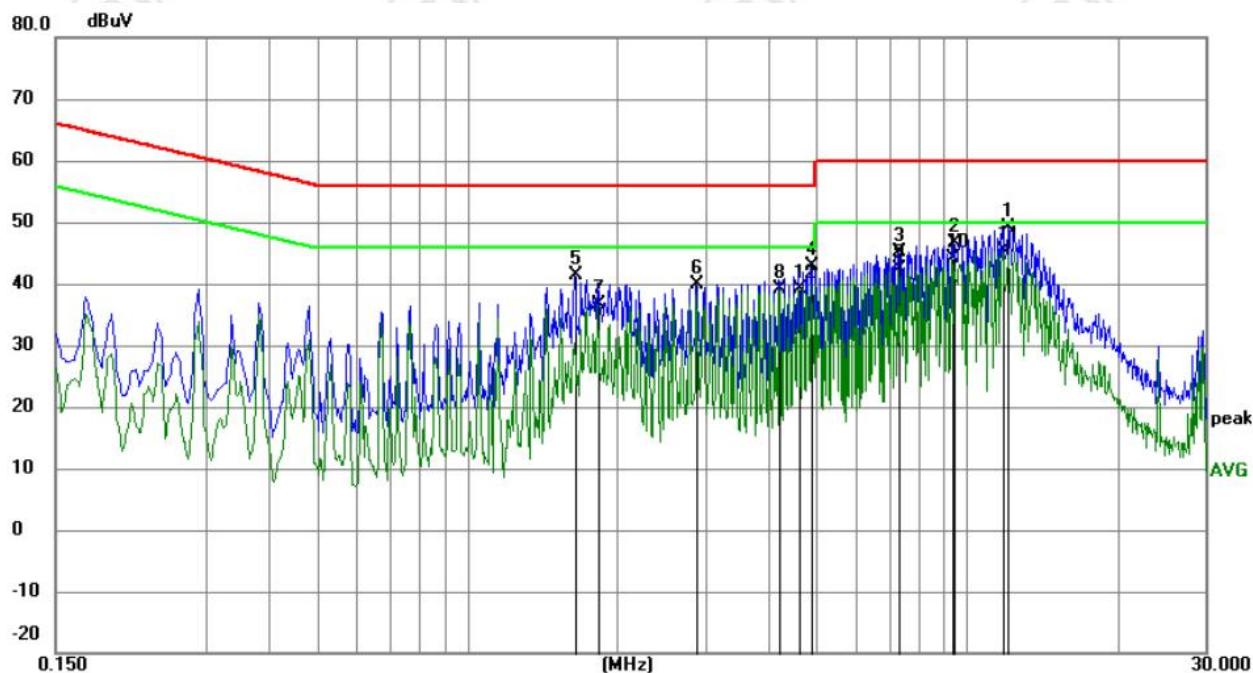


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
1	*	11.2335	35.56	9.93	45.49	50.00	-4.51	AVG	
2		8.8350	34.54	9.98	44.52	50.00	-5.48	AVG	
3		7.3905	33.20	10.02	43.22	50.00	-6.78	AVG	
4		6.3330	32.34	10.04	42.38	50.00	-7.62	AVG	
5		4.9920	31.27	10.06	41.33	46.00	-4.67	AVG	
6		3.9345	30.66	10.10	40.76	46.00	-5.24	AVG	
7		3.5520	31.99	10.11	42.10	56.00	-13.90	QP	
8		4.9920	35.36	10.06	45.42	56.00	-10.58	QP	
9		7.0080	37.07	10.03	47.10	60.00	-12.90	QP	
10		9.5100	38.80	9.96	48.76	60.00	-11.24	QP	
11		11.6205	39.68	9.92	49.60	60.00	-10.40	QP	
12		1.9185	31.56	10.17	41.73	56.00	-14.27	QP	

### Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	12.0975	39.20	9.91	49.11	60.00	-10.89	QP		
2	9.4020	36.74	9.97	46.71	60.00	-13.29	QP		
3	7.2915	35.20	10.02	45.22	60.00	-14.78	QP		
4	4.8930	32.83	10.06	42.89	56.00	-13.11	QP		
5	1.6440	31.23	10.17	41.40	56.00	-14.60	QP		
6	2.8815	29.85	10.14	39.99	56.00	-16.01	QP		
7	1.8240	26.57	10.17	36.74	46.00	-9.26	AVG		
8	4.2225	29.05	10.09	39.14	46.00	-6.86	AVG		
9	7.2915	32.35	10.02	42.37	50.00	-7.63	AVG		
10	9.3120	34.27	9.97	44.24	50.00	-5.76	AVG		
11 *	11.8005	35.54	9.92	45.46	50.00	-4.54	AVG		
12	4.6095	29.09	10.07	39.16	46.00	-6.84	AVG		

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

### 6.3 Radiated Spurious Emission & Restricted bands

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10kHz	Average
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
<p>Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.</p>					

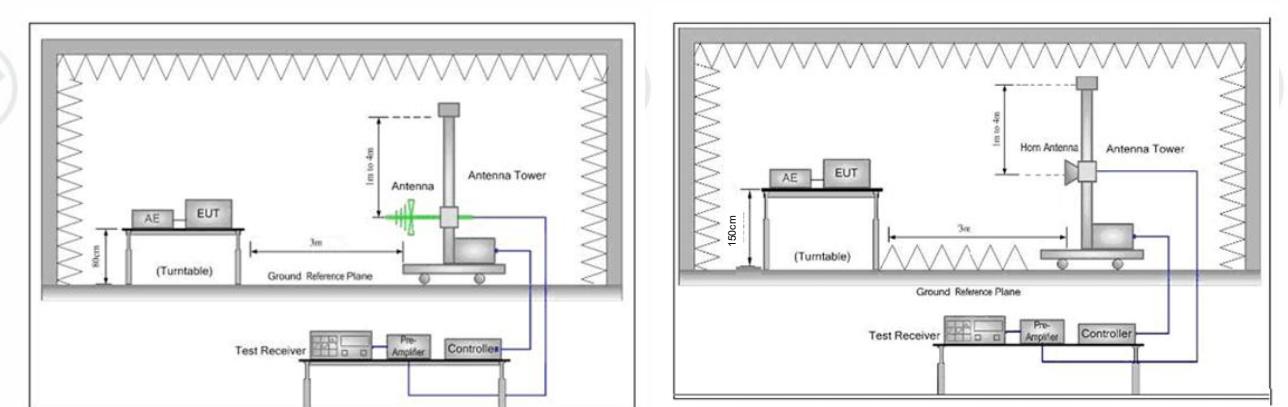
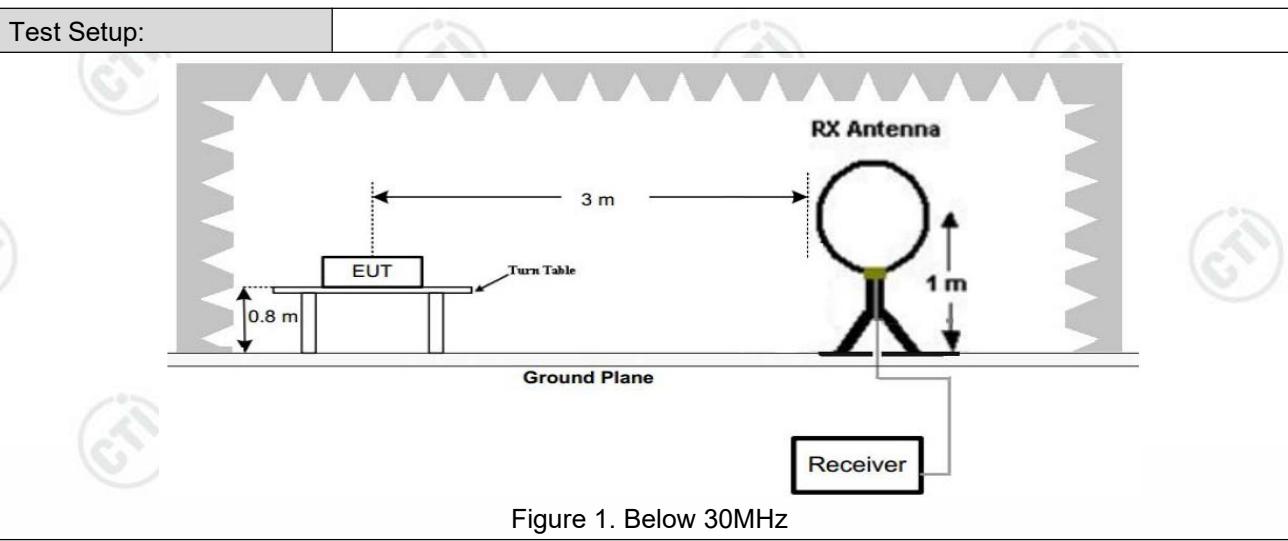


Figure 2. 30MHz to 1GHz

Figure 3. Above 1 GHz

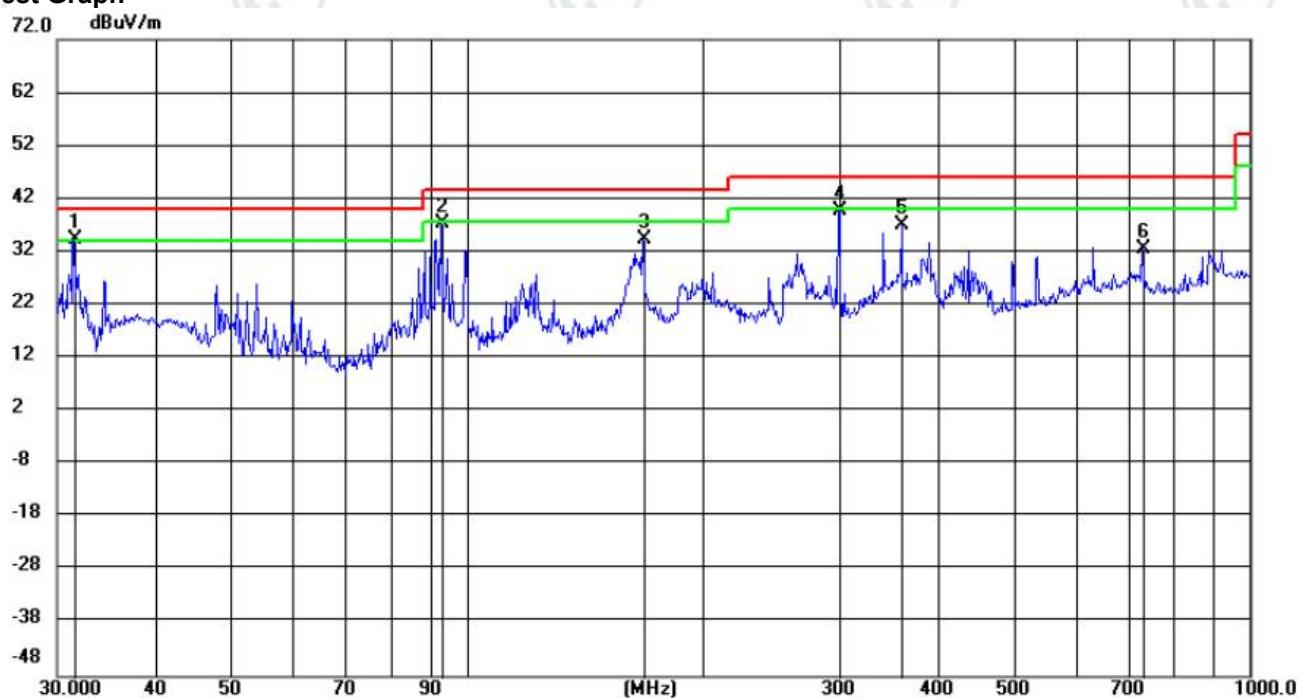
Test Procedure:	<ol style="list-style-type: none"> <li>1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> </ol> <p>Note: For the radiated emission test above 1GHz:          Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <ol style="list-style-type: none"> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both</li> </ol>
-----------------	---

	<p>horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> <p>g. Test the EUT in the lowest channel (2402MHz), the middle channel (2440MHz), the Highest channel (2480MHz)</p> <p>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p>
Test Mode:	Refer to clause 5.3
Test Results:	Pass

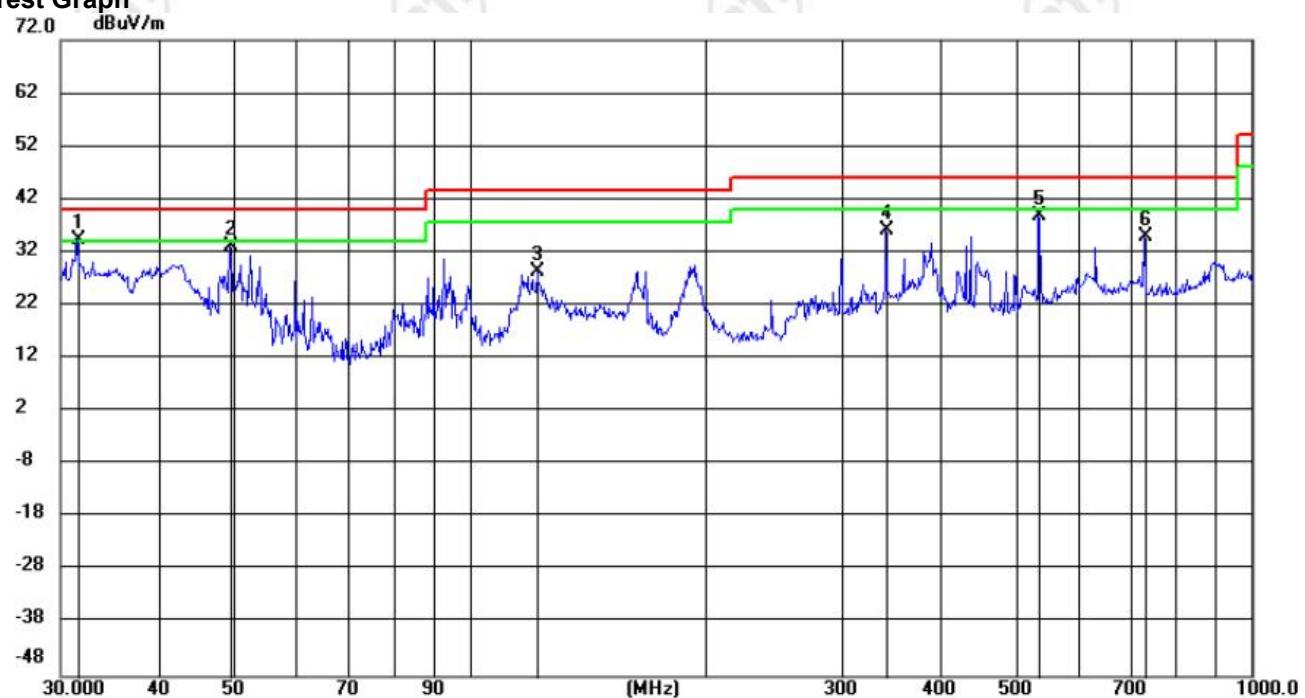
## Radiated Spurious Emission below 1GHz:

During the test, the Radiated Emission from 30MHz to 1GHz was performed in all modes, only the worst case lowest channel of 1Mbps for 802.11b was recorded in the report.

**Horizontal:  
Test Graph**



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
			Level	Factor	ment					
		MHz	dBuV	dB/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.5426	21.96	12.44	34.40	40.00	-5.60	QP	199	352
2		92.9826	25.28	11.99	37.27	43.50	-6.23	QP	199	236
3		168.0008	23.15	11.28	34.43	43.50	-9.07	QP	199	89
4		299.9462	23.30	16.58	39.88	46.00	-6.12	QP	100	237
5		360.0056	18.75	18.39	37.14	46.00	-8.86	QP	100	100
6		730.5100	8.16	24.44	32.60	46.00	-13.40	QP	199	352

**Vertical:**
**Test Graph**


No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table		
			Level	Factor	ment						
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.5261	21.82	12.44	34.26	40.00	-5.74	QP	100	13	
2		49.4981	18.72	14.48	33.20	40.00	-6.80	QP	100	139	
3		122.2324	16.80	11.45	28.25	43.50	-15.25	QP	100	129	
4		340.9012	18.24	17.81	36.05	46.00	-9.95	QP	100	65	
5		535.6134	17.02	21.72	38.74	46.00	-7.26	QP	100	352	
6		730.5101	10.65	24.44	35.09	46.00	-10.91	QP	100	352	

### Radiated Spurious Emission above 1GHz:

Remark: Through Pre-scan, for 20MHz Occupied Bandwidth, 802.11 b mode was the worst case; for 40MHz Occupied Bandwidth, 802.11 n(HT40) mode was the worst case; only the worst case was recorded in the report.

ANT 0:

Mode:		802.11 b Transmitting			Channel:		2412MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1269.0846	11.91	36.82	48.73	74.00	25.27	PASS	H	PK
2	1605.7737	13.73	37.36	51.09	74.00	22.91	PASS	H	PK
3	3861.3074	-12.06	51.98	39.92	74.00	34.08	PASS	H	PK
4	4553.6036	-9.60	52.55	42.95	74.00	31.05	PASS	H	PK
5	7998.8333	-1.36	50.00	48.64	74.00	25.36	PASS	H	PK
6	11895.8431	2.74	44.99	47.73	74.00	26.27	PASS	H	PK
7	1145.6097	11.47	37.45	48.92	74.00	25.08	PASS	V	PK
8	1548.7032	13.48	37.05	50.53	74.00	23.47	PASS	V	PK
9	3808.6539	-12.38	51.68	39.30	74.00	34.70	PASS	V	PK
10	5396.7098	-6.74	52.36	45.62	74.00	28.38	PASS	V	PK
11	7997.5332	-1.36	49.41	48.05	74.00	25.95	PASS	V	PK
12	11330.9554	2.34	45.45	47.79	74.00	26.21	PASS	V	PK

Mode:		802.11 b Transmitting			Channel:		2437MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1214.281	11.58	36.51	48.09	74.00	25.91	PASS	H	PK
2	1662.4442	13.81	37.11	50.92	74.00	23.08	PASS	H	PK
3	4903.9769	-8.27	50.24	41.97	74.00	32.03	PASS	H	PK
4	6365.9244	-4.36	47.74	43.38	74.00	30.62	PASS	H	PK
5	7984.5323	-1.38	49.75	48.37	74.00	25.63	PASS	H	PK
6	11730.732	2.51	47.03	49.54	74.00	24.46	PASS	H	PK
7	1149.7433	11.50	37.27	48.77	74.00	25.23	PASS	V	PK
8	1595.9064	13.71	37.27	50.98	74.00	23.02	PASS	V	PK
9	4525.0017	-9.61	49.80	40.19	74.00	33.81	PASS	V	PK
10	5497.4665	-6.51	48.62	42.11	74.00	31.89	PASS	V	PK
11	7999.4833	-1.36	50.26	48.90	74.00	25.10	PASS	V	PK
12	11767.1345	2.40	45.26	47.66	74.00	26.34	PASS	V	PK

Mode:		802.11 b Transmitting			Channel:		2462MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1209.7473	11.62	36.71	48.33	74.00	25.67	PASS	H	PK
2	1751.6501	14.09	36.51	50.60	74.00	23.40	PASS	H	PK
3	3877.5585	-12.02	51.91	39.89	74.00	34.11	PASS	H	PK
4	5362.9075	-6.88	48.36	41.48	74.00	32.52	PASS	H	PK
5	7987.7825	-1.37	50.30	48.93	74.00	25.07	PASS	H	PK
6	11837.9892	2.49	44.90	47.39	74.00	26.61	PASS	H	PK
7	1251.4834	11.67	37.83	49.50	74.00	24.50	PASS	V	PK
8	1793.9196	14.19	36.67	50.86	74.00	23.14	PASS	V	PK
9	3866.5078	-12.04	52.04	40.00	74.00	34.00	PASS	V	PK
10	5463.0142	-6.45	48.27	41.82	74.00	32.18	PASS	V	PK
11	7999.4833	-1.36	50.01	48.65	74.00	25.35	PASS	V	PK
12	11949.1466	3.09	44.63	47.72	74.00	26.28	PASS	V	PK

Mode:		802.11 n(HT40) Transmitting			Channel:		2422MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1119.3413	11.30	37.70	49.00	74.00	25.00	PASS	H	PK
2	1782.5855	14.27	36.44	50.71	74.00	23.29	PASS	H	PK
3	3935.4124	-11.93	51.40	39.47	74.00	34.53	PASS	H	PK
4	5864.0909	-5.49	47.89	42.40	74.00	31.60	PASS	H	PK
5	7998.1832	-1.36	51.20	49.84	74.00	24.16	PASS	H	PK
6	11834.0889	2.48	45.54	48.02	74.00	25.98	PASS	H	PK
7	1206.8138	11.64	37.19	48.83	74.00	25.17	PASS	V	PK
8	1687.3792	14.02	37.07	51.09	74.00	22.91	PASS	V	PK
9	3813.8543	-12.34	52.27	39.93	74.00	34.07	PASS	V	PK
10	5797.1365	-5.79	48.03	42.24	74.00	31.76	PASS	V	PK
11	7991.6828	-1.37	51.42	50.05	74.00	23.95	PASS	V	PK
12	11774.935	2.39	45.25	47.64	74.00	26.36	PASS	V	PK

Mode:		802.11 n(HT40) Transmitting				Channel:		2437MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1203.3469	11.66	37.25	48.91	74.00	25.09	PASS	H	PK
2	1718.8479	14.21	37.21	51.42	74.00	22.58	PASS	H	PK
3	3711.1474	-12.80	51.38	38.58	74.00	35.42	PASS	H	PK
4	5510.4674	-6.46	48.55	42.09	74.00	31.91	PASS	H	PK
5	7993.6329	-1.37	49.62	48.25	74.00	25.75	PASS	H	PK
6	11938.0959	3.01	44.72	47.73	74.00	26.27	PASS	H	PK
7	1225.215	11.53	36.86	48.39	74.00	25.61	PASS	V	PK
8	1704.9803	14.09	36.37	50.46	74.00	23.54	PASS	V	PK
9	3859.3573	-12.06	51.92	39.86	74.00	34.14	PASS	V	PK
10	5489.666	-6.49	48.07	41.58	74.00	32.42	PASS	V	PK
11	8000.1333	-1.36	51.03	49.67	74.00	24.33	PASS	V	PK
12	11817.1878	2.42	45.55	47.97	74.00	26.03	PASS	V	PK

Mode:		802.11 n(HT40) Transmitting				Channel:		2452MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1241.8828	11.59	37.14	48.73	74.00	25.27	PASS	H	PK
2	1726.3151	14.20	36.54	50.74	74.00	23.26	PASS	H	PK
3	3708.5472	-12.79	52.46	39.67	74.00	34.33	PASS	H	PK
4	5752.9335	-5.88	48.31	42.43	74.00	31.57	PASS	H	PK
5	7989.0826	-1.37	50.88	49.51	74.00	24.49	PASS	H	PK
6	11795.7364	2.37	45.15	47.52	74.00	26.48	PASS	H	PK
7	1201.6134	11.67	38.11	49.78	74.00	24.22	PASS	V	PK
8	1789.5193	14.19	37.13	51.32	74.00	22.68	PASS	V	PK
9	3710.4974	-12.80	52.52	39.72	74.00	34.28	PASS	V	PK
10	5684.679	-6.15	48.71	42.56	74.00	31.44	PASS	V	PK
11	7998.1832	-1.36	50.12	48.76	74.00	25.24	PASS	V	PK
12	11928.3452	2.95	44.81	47.76	74.00	26.24	PASS	V	PK

MIMO:

Mode:		802.11 n(HT20) Transmitting			Channel:		2412MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1171.8781	11.46	37.27	48.73	74.00	25.27	PASS	H	PK
2	1705.3804	14.10	36.17	50.27	74.00	23.73	PASS	H	PK
3	3874.9583	-12.03	52.72	40.69	74.00	33.31	PASS	H	PK
4	5443.5129	-6.46	48.77	42.31	74.00	31.69	PASS	H	PK
5	8000.1333	-1.36	50.86	49.50	74.00	24.50	PASS	H	PK
6	12274.8183	3.57	43.23	46.80	74.00	27.20	PASS	H	PK
7	1213.2142	11.59	37.42	49.01	74.00	24.99	PASS	V	PK
8	1825.1217	14.37	36.39	50.76	74.00	23.24	PASS	V	PK
9	3837.2558	-12.17	52.41	40.24	74.00	33.76	PASS	V	PK
10	5666.4778	-6.22	47.71	41.49	74.00	32.51	PASS	V	PK
11	7994.283	-1.37	49.86	48.49	74.00	25.51	PASS	V	PK
12	11750.2333	2.42	45.11	47.53	74.00	26.47	PASS	V	PK

Mode:		802.11 n(HT20) Transmitting			Channel:		2437MHz		
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1201.6134	11.67	37.56	49.23	74.00	24.77	PASS	H	PK
2	1746.7164	14.09	36.71	50.80	74.00	23.20	PASS	H	PK
3	3492.0828	-13.90	53.51	39.61	74.00	34.39	PASS	H	PK
4	5797.7865	-5.79	47.63	41.84	74.00	32.16	PASS	H	PK
5	7998.8333	-1.36	51.15	49.79	74.00	24.21	PASS	H	PK
6	12361.9241	4.10	44.48	48.58	74.00	25.42	PASS	H	PK
7	1176.4118	11.46	37.41	48.87	74.00	25.13	PASS	V	PK
8	1694.0463	14.05	36.26	50.31	74.00	23.69	PASS	V	PK
9	3775.5017	-12.64	53.23	40.59	74.00	33.41	PASS	V	PK
10	6430.9287	-4.30	47.58	43.28	74.00	30.72	PASS	V	PK
11	7991.6828	-1.37	51.05	49.68	74.00	24.32	PASS	V	PK
12	12417.8279	3.81	44.88	48.69	74.00	25.31	PASS	V	PK

Mode:			802.11 n(HT20) Transmitting			Channel:		2462MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1192.5462	11.56	37.38	48.94	74.00	25.06	PASS	H	PK
2	1716.5811	14.18	36.98	51.16	74.00	22.84	PASS	H	PK
3	3507.0338	-13.88	52.52	38.64	74.00	35.36	PASS	H	PK
4	5860.8407	-5.47	47.81	42.34	74.00	31.66	PASS	H	PK
5	7996.8831	-1.36	51.04	49.68	74.00	24.32	PASS	H	PK
6	11828.2385	2.46	45.48	47.94	74.00	26.06	PASS	H	PK
7	1149.4766	11.50	37.21	48.71	74.00	25.29	PASS	V	PK
8	1695.3797	14.05	36.07	50.12	74.00	23.88	PASS	V	PK
9	3468.6812	-13.87	52.51	38.64	74.00	35.36	PASS	V	PK
10	6103.9569	-5.20	47.76	42.56	74.00	31.44	PASS	V	PK
11	7998.1832	-1.36	50.06	48.70	74.00	25.30	PASS	V	PK
12	11928.9953	2.96	44.29	47.25	74.00	26.75	PASS	V	PK

Mode:			802.11 n(HT40) Transmitting			Channel:		2422MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1209.8807	11.62	37.21	48.83	74.00	25.17	PASS	H	PK
2	1817.9212	14.37	36.73	51.10	74.00	22.90	PASS	H	PK
3	3882.1088	-12.01	51.10	39.09	74.00	34.91	PASS	H	PK
4	5892.0428	-5.63	47.63	42.00	74.00	32.00	PASS	H	PK
5	8000.7834	-1.35	50.69	49.34	74.00	24.66	PASS	H	PK
6	11769.0846	2.40	45.08	47.48	74.00	26.52	PASS	H	PK
7	1245.483	11.61	38.05	49.66	74.00	24.34	PASS	V	PK
8	1918.7279	14.75	36.68	51.43	74.00	22.57	PASS	V	PK
9	3520.0347	-13.86	52.40	38.54	74.00	35.46	PASS	V	PK
10	5474.0649	-6.47	47.88	41.41	74.00	32.59	PASS	V	PK
11	8000.7834	-1.35	51.00	49.65	74.00	24.35	PASS	V	PK
12	11860.0907	2.59	45.10	47.69	74.00	26.31	PASS	V	PK

Mode:			802.11 n(HT40) Transmitting			Channel:		2437MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1305.3537	12.14	36.44	48.58	74.00	25.42	PASS	H	PK
2	1666.0444	13.92	36.92	50.84	74.00	23.16	PASS	H	PK
3	3809.304	-12.37	52.66	40.29	74.00	33.71	PASS	H	PK
4	5342.1061	-6.97	48.67	41.70	74.00	32.30	PASS	H	PK
5	7994.933	-1.37	50.88	49.51	74.00	24.49	PASS	H	PK
6	11826.2884	2.46	45.33	47.79	74.00	26.21	PASS	H	PK
7	1285.0857	11.89	36.78	48.67	74.00	25.33	PASS	V	PK
8	1818.1879	14.37	36.27	50.64	74.00	23.36	PASS	V	PK
9	3701.3968	-12.79	52.38	39.59	74.00	34.41	PASS	V	PK
10	5606.6738	-6.29	48.21	41.92	74.00	32.08	PASS	V	PK
11	8000.1333	-1.36	50.54	49.18	74.00	24.82	PASS	V	PK
12	11813.2876	2.41	45.74	48.15	74.00	25.85	PASS	V	PK

Mode:			802.11 n(HT40) Transmitting			Channel:		2452MHz	
NO	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	1246.5498	11.61	36.20	47.81	74.00	26.19	PASS	H	PK
2	1881.6588	14.42	36.37	50.79	74.00	23.21	PASS	H	PK
3	3561.6374	-13.65	52.39	38.74	74.00	35.26	PASS	H	PK
4	5464.3143	-6.45	48.79	42.34	74.00	31.66	PASS	H	PK
5	7998.1832	-1.36	50.07	48.71	74.00	25.29	PASS	H	PK
6	11869.1913	2.62	44.94	47.56	74.00	26.44	PASS	H	PK
7	1243.2162	11.59	36.73	48.32	74.00	25.68	PASS	V	PK
8	1858.9906	14.50	37.08	51.58	74.00	22.42	PASS	V	PK
9	3738.4492	-12.85	52.38	39.53	74.00	34.47	PASS	V	PK
10	5394.1096	-6.74	48.23	41.49	74.00	32.51	PASS	V	PK
11	8042.3862	-1.05	44.20	43.15	74.00	30.85	PASS	V	PK
12	11860.7407	2.59	45.92	48.51	74.00	25.49	PASS	V	PK

## Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

## 8 PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32R80383901 for EUT external and internal photos.

## Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;
5. Without written approval of CTI, this report can't be reproduced except in full;

\*\*\* End of Report \*\*\*