

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC178914

Page: 1 of 34

FCC Radio Test Report FCC ID: 2ASCK-12

Report No. : TB-FCC178914

Applicant: Dong Guan Green Power One Co.,Ltd

Equipment Under Test (EUT)

EUT Name : 2.4G Wireless Mouse

Model No. : BIGLTMSE

Series Model No. : GF15

Brand Name : N/A

Sample ID : TBBJ-20210220-03-1#&TBBJ-20210220-03-1#

Receipt Date : 2020-02-24

Test Date : 2020-02-24 to 2021-03-01

Issue Date : 2021-03-01

Standards : Too Fair 15, Suspair (

Test Method : ANSI C63.10: 2013

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC requirements

FCC Part 15, Subpart C 15.249

Test/Witness Engineer :

Engineer Supervisor : WKN SV

Approved & Authorized :

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



Report No.: TB-FCC178914 Page: 2 of 34

Contents

COI	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	4
	1.1 Client Information	4
	1.2 General Description of EUT (Equipment Under Test)	
	1.3 Block Diagram Showing the Configuration of System Tested	
	1.4 Description of Support Units	
	1.5 Description of Test Mode	5
	1.6 Description of Test Software Setting	6
	1.7 Measurement Uncertainty	7
	1.8 Test Facility	7
2.	TEST SUMMARY	8
3.	TEST SOFTWARE	8
4.	TEST EQUIPMENT	9
5.	CONDUCTED EMISSION TEST	10
	4.1 Test Standard and Limit	10
	4.2 Test Setup	
	4.3 Test Procedure	
	4.4 EUT Operating Mode	11
	4.5 Deviation From Test Standard	
	4.6 Test Data	11
6.	RADIATED EMISSION TEST	12
	5.1 Test Standard and Limit	12
	5.2 Test Setup	
	5.3 Test Procedure	14
	5.4 EUT Operating Condition	15
	5.5 Deviation From Test Standard	15
	5.6 Test Data	
7.	BANDWIDTH TEST	
	6.1 Test Setup	16
	6.2 Test Procedure	16
	6.3 EUT Operating Condition	16
	6.4 Deviation From Test Standard	16
	6.5 Test Data	16
8.	ANTENNA REQUIREMENT	17
	7.1 Standard Requirement	17
	7.2 Antenna Connected Construction	17
	7.3 Deviation From Test Standard	17
	7.4 Result	17
ATT	TACHMENT A RADIATED EMISSION TEST DATA	18
ATT	TACHMENT BBANDWIDTH DATA	32



Report No.: TB-FCC178914 Page: 3 of 34

Revision History

Report No.	Version	Description	Issued Date
TB-FCC178914	Rev.01	Initial issue of report	2021-03-01
TURE TO SERVICE			7013
	533		
(TUD)	a William		
	Temps 1		
THE PARTY OF THE P		33	THE REAL PROPERTY.
			TO SECOND



Page: 4 of 34

1. General Information about EUT

1.1 Client Information

Applicant : Dong Guan Green Power One Co.,Ltd			
Address : No.26, Hongyun Street, Qingxi Town, Dongguan City, Guange province. China.		No.26, Hongyun Street, Qingxi Town, Dongguan City, Guangdong province. China.	
Manufacturer : Dong Guan Green Power One Co.,Ltd		Dong Guan Green Power One Co.,Ltd	
		No.26, Hongyun Street, Qingxi Town, Dongguan City, Guangdong province.China.	

1.2 General Description of EUT (Equipment Under Test)

EUT Name		2.4G Wireless Mouse				
Model No.	:	BIGLTMSE, GF15				
Model Difference : The same product motherbo and model.			nerboard, different knowledge appearance			
		Operation Frequency:	2407~2477 MHz			
		Number of Channel:	16 Channels see note (2)			
Product Description		Output power:	90.67dBuV/m@3m Peak 88.51dBuV/m@3m Avg			
		Antenna Gain:	3.85 dBi PCB Antenna			
		Modulation Type:	GFSK			
Power Rating	:	Two DC 1.5V by AAA ba	atteries.			
Software Version	oftware Version : V2.0					
Hardware Version : V2.1						
Connecting I/O Port(S)	:	Please refer to the User's Manual				

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List:

	Channel							
	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
	2408MHz	2437MHz	2468MHz	2421MHz	2440MHz	2477MHz	2407MHz	2435MHz
FRE	CH9	CH10	CH11	CH12	CH13	CH14	CH15	CH16
	2467MHz	2410MHz	2442MHz	2455MHz	2414MHz	2428MHz	2449MHz	2441MHz
Note: T	he Channel 240	7MHz. 2440MH	z. 2477MHz we	re selected for	test.	19	MAINTE	



Page: 5 of 34

1.3 Block Diagram Showing the Configuration of System Tested

	EUT	
	1 1 1 1 1	
	1 17071	

1.4 Description of Support Units

Equipment Information						
Name Model No. Serial No. Manufacturer Used "√"						
100			111	√		

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test							
Final Test Mode Description							
Mode 1 TX Mode							
For Radiated Test							
Final Test Mode Description							
Mode 1 TX Mode(2407MHz/2440MHz/2477MHz)							

Note:

For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

- (1)According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels.
- (2)During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane.



Page: 6 of 34

Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel & Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF mode.

Product SW/HW Version :	The same	N/A	
Radio SW/HW Version:	N/A		
Test Software Version	Active to the second se	I the corresponding trar hrough the EUT entity k	17 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Frequency	2407MHz	2440MHz	2477MHz



Page: 7 of 34

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351.

Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.



Report No.: TB-FCC178914 Page: 8 of 34

2. Test Summary

Standard Section	Test Item	Test Sample(s)	Judgment	Remark
15.203	Antenna Requirement	TBBJ-20200220-03-1#	PASS	N/A
15.205	Restricted Bands	TBBJ-20200220-03-1#	PASS	N/A
15.207	AC Power Conducted Emission	TBBJ-20200220-03-2#	N/A	N/A
15.249 &15.209	Radiated Spurious Emission	TBBJ-20200220-03-1# TBBJ-20200220-03-2#	PASS	N/A
15.215(C)	20dB Bandwidth	TBBJ-20200220-03-1#	PASS	N/A

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFtest	V2.0.0.0



Report No.: TB-FCC178914 Page: 9 of 34

4. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 06, 2020	Jul. 05, 2021	
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 06, 2020	Jul. 05, 2021	
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 06, 2020	Jul. 05, 2021	
LISN	Rohde & Schwarz	ENV216	101131	Jul. 06, 2020	Jul. 05, 2021	
Radiation Emission 1	est	-		-	-	
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021	
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021	
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 06, 2020	Jul. 05, 2021	
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.01, 2020	Feb. 28, 2022	
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.01, 2020	Feb. 28, 2022	
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Mar.01, 2020	Feb. 28, 2022	
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 07, 2020	Jul. 06, 2021	
Pre-amplifier	Sonoma	310N	185903	Feb.25, 2021	Feb. 24, 2022	
Pre-amplifier	HP	8449B	3008A00849	Feb.25, 2021	Feb. 24, 2022	
Pre-amplifier	SKET	LNPA_1840G-50	SK201904032	Feb.25, 2021	Feb. 24, 2022	
Cable	HUBER+SUHNER	100	SUCOFLEX	Feb.25, 2021	Feb. 24, 2022	
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A	
Antenna Conducted I	Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 06, 2020	Jul. 05, 2021	
Spectrum Analyzer	Rohde & Schwarz	ESPI	100010/007	Jul. 06, 2020	Jul. 05, 2021	
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 11, 2020	Sep. 10, 2021	
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 11, 2020	Sep. 10, 2021	
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 11, 2020	Sep. 10, 2021	
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 11, 2020	Sep. 10, 2021	
1000	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 11, 2020	Sep. 10, 2021	
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 11, 2020	Sep. 10, 2021	
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 11, 2020	Sep. 10, 2021	



Page: 10 of 34

5. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

4.1.2 Test Limit

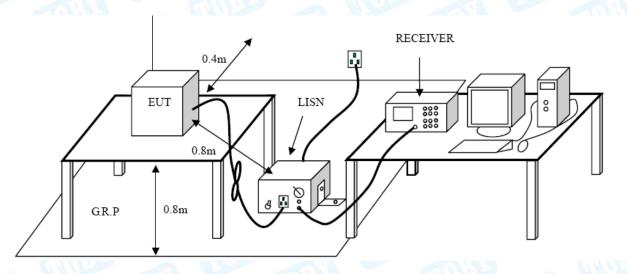
Conducted Emission Test Limit

Francis	Maximum RF Line Voltage (dBμV)				
Frequency	Quasi-peak Level	Average Level			
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



Page: 11 of 34

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN is at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Deviation From Test Standard

No deviation

4.6 Test Data

Not applicable.

TOBY

Report No.: TB-FCC178914

Page: 12 of 34

6. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limit (9kHz~1000MHz)

Frequency (MHz	Field Strength (microvolt/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

Radiated Emission Limit (Above 1000MHz)

Frequency	(dBuV/m)(at 3 M)				
(MHz)	Peak	Average			
Above 1000	74	54			

Note:

(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(Uv/m)

Limits of radiated emission measurement (15.249)

FCC Part 15 (15.249), Subpart C						
Limit Frequency Range (MHz)						
Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400~2483.5					
Field strength of fundamental 500 μV/m (54 dBμV/m) @ 3 m	Above 2483.5					

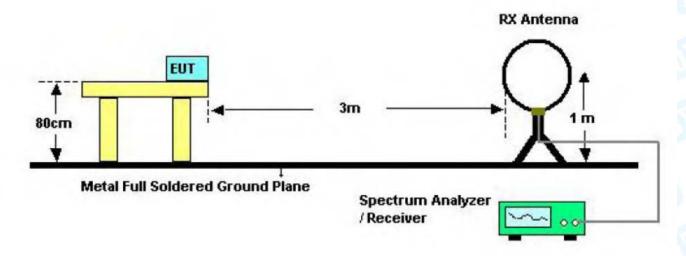
Restricted bands requirement for equipment operating in 2400MHz to 2483.5 MHz (15.249)



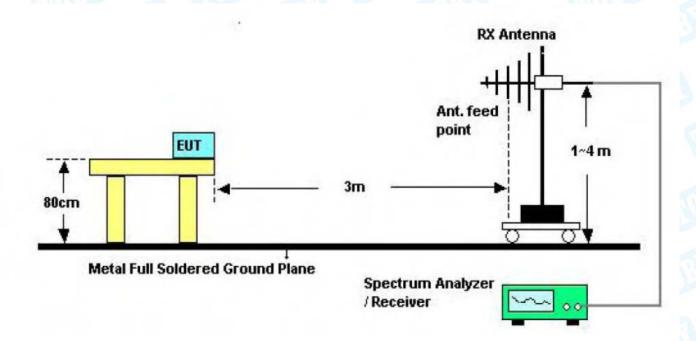
Page: 13 of 34

Restricted Frequency Band (MHz)	(dBuV/m)(at 3 M)
2310~2390	Attenuated by at least 50 dB below the level of the fundamental or to the general radiated
2483.5~2500	emission limits in 15.209, whichever is the lesser attenuation

5.2 Test Setup



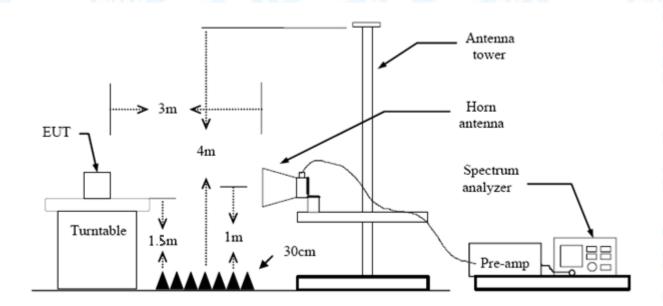
Below 30MHz Test Setup



Below 1000MHz Test Setup



Page: 14 of 34



Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.



Page: 15 of 34

5.4 EUT Operating Condition

The EUT was set to Continual Transmitting in maximum power, and new batteries are used during testing.

5.5 Deviation From Test Standard

No deviation

5.6 Test Data

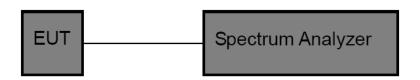
Please refer to the Attachment A.



Page: 16 of 34

7. Bandwidth Test

6.1 Test Setup



6.2 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Bandwidth: RBW=1%-5% OBW, VBW≥3RBW.

(3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.

6.3 EUT Operating Condition

The EUT was set to continuously transmitting for the Bandwidth Test.

6.4 Deviation From Test Standard

No deviation

6.5 Test Data

Please refer to the Attachment C.



Page: 17 of 34

8. Antenna Requirement

7.1 Standard Requirement

7.1.1 Standard FCC Part 15.203

7.1.2 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 shall be considered sufficient to comply with the provisions of this Section. 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.

7.2 Antenna Connected Construction

The gains of the antenna used for transmitting is 0 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

7.3 Deviation From Test Standard

No deviation

7.4 Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

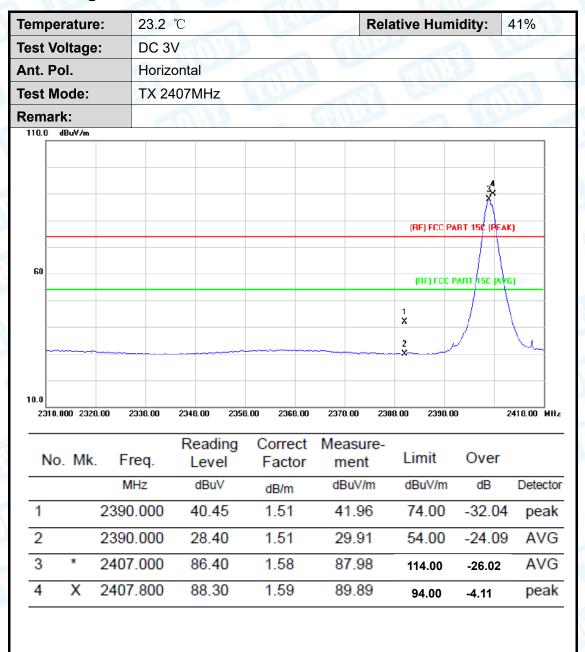
	Antenna Type
	▶ Permanent attached antenna
ann a	□ Unique connector antenna
THE SECTION	□ Professional installation antenna



TOBY Page: 18 of 34

Attachment A-- Radiated Emission Test Data

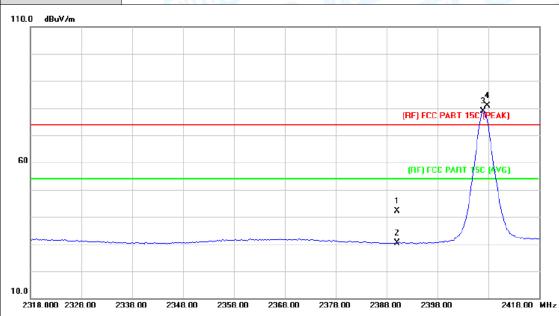
Field Strength of the Fundamental





Report No.: TB-FCC178914 Page: 19 of 34

Temperature:	23.2 ℃	Relative Humidity:	41%
Test Voltage:	DC 3V	THE STATE OF THE S	A Britain
Ant. Pol.	Vertical	TO THE PARTY OF TH	
Test Mode:	TX 2407MHz		
Remark:			IN THE



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	40.72	1.51	42.23	74.00	-31.77	peak
2		2390.000	28.84	1.51	30.35	54.00	-23.65	AVG
3	*	2407.000	77.42	1.58	79.00	114.00	-35.00	AVG
4	Χ	2407.800	79.40	1.59	80.99	94.00	-13.01	peak

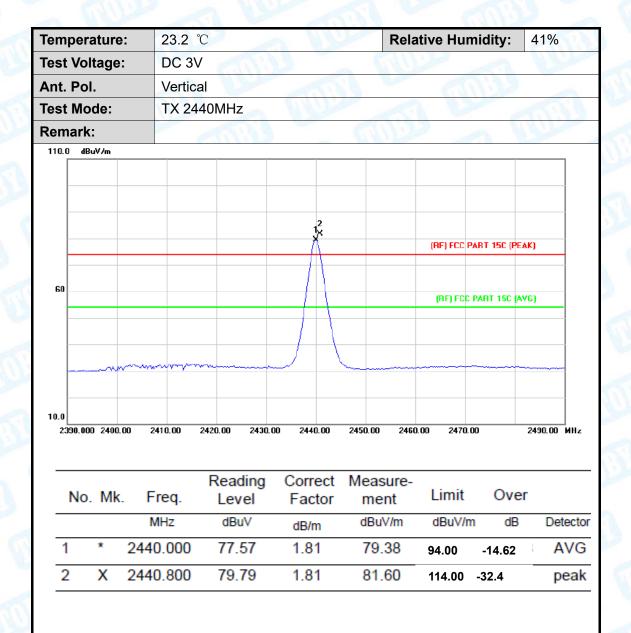


Report No.: TB-FCC178914 Page: 20 of 34

<u>e</u> m	peratur	e:	23.2	$^{\circ}$ C		a '	17	A STATE OF THE PARTY OF THE PAR	Relat	ive Humi	idity:	41%	10
est	t Voltag	e:	DC 3	V	111	10			CHI	1	-	Alle	
۱nt.	Pol.		Horiz	ontal			1			GU	1172)	h
est	Mode:		TX 2	440MHz	2	111				1 6			
Rem	nark:) "		1			n 1	P. B. L.	
110.0	dBuV/m												
ŀ							1						
ŀ							Å						+
							\mathbb{N}			(BF) FCC	PART 15C	(PEAK)	$\frac{1}{2}$
												, ,	1
60													
ŀ							+			(RF) FC	C PART 15	C (AVG)	-
ŀ													1
ŀ						-		$\overline{}$					1
ŀ		w~~~w	•	~~~		مسه		_					4
ŀ													-
10.0													
23	90.000 240	0.00 2	410.00	2420.00	2430	1.00 24	140.00	2450	1.00 24	60.00 2470	0.00	2490.00	М
-	No. Mk	. Fr	eq.	Read Lev		Corr			asure- ient	Limit	Ov	er	
		М	Hz	dBu	V	dB/	m	dE	BuV/m	dBuV/n	n dE	B Dete	ect
1	*	2439	.800	88.8	36	1.8	1	9	0.67	114.00	-23.3	33 pe	ea
2	X	2440	000	86.7	70	1.8	1	Q	8.51	94.00	-5.49	Δ'	VC



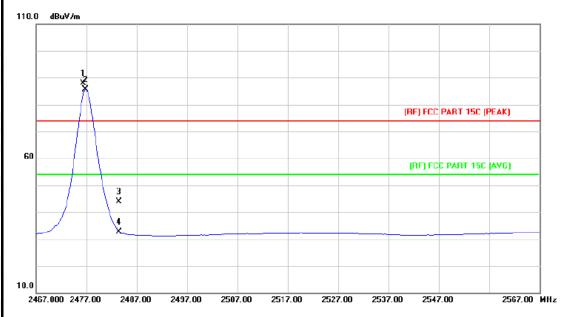
Page: 21 of 34





Report No.: TB-FCC178914 Page: 22 of 34

Temperature:	23.2 ℃	Relative Humidity:	41%
Test Voltage:	DC 3V		
Ant. Pol.	Horizontal	O U	
Test Mode:	TX 2477MHz	11000	MILL
Remark:	a Maria	(1)	

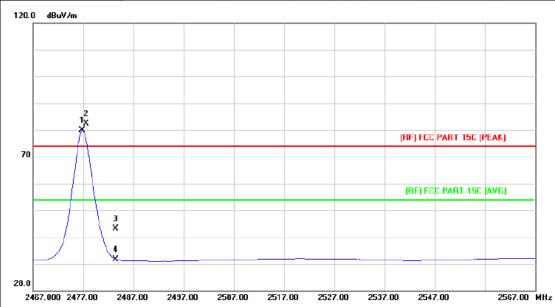


No	o. Mk	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2476.400	85.71	2.05	87.76	94.00	-6.24	peak
2	*	2476.800	83.46	2.05	85.51	114.00	-28.24	AVG
3		2483.500	41.76	2.10	43.86	74.00	-30.14	peak
4		2483.500	30.60	2.10	32.70	54.00	-21.30	AVG



Report No.: TB-FCC178914 Page: 23 of 34

Temperature:	23.2 ℃	Relative Humidity:	41%
Test Voltage:	DC 3V	THURSDAY	Alle
Ant. Pol.	Vertical	and by	
Test Mode:	TX 2477MHz		
Remark:			MA



No	o. Mk	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2476.800	77.73	2.05	79.78	114.00	-34.22	AVG
2	X	2477.600	80.37	2.06	82.43	94.00	-11.57	peak
3		2483.500	41.09	2.10	43.19	74.00	-30.81	peak
4		2483.500	29.48	2.10	31.58	54.00	-22.42	AVG



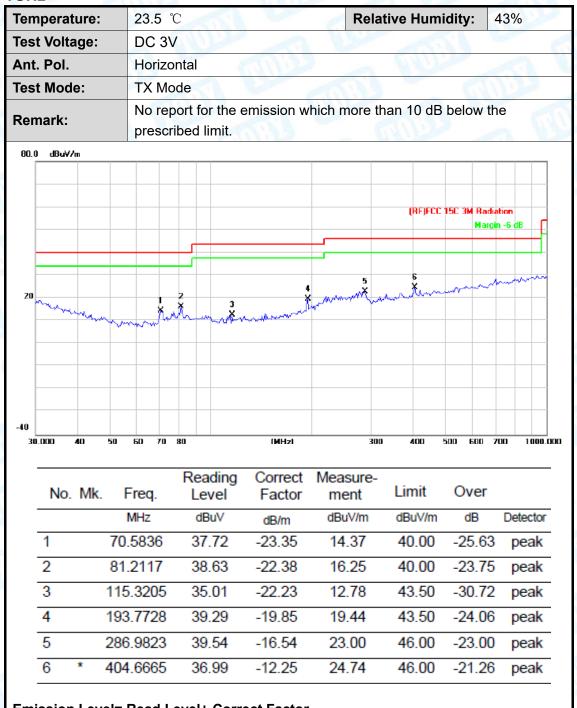
Page: 24 of 34

9 KHz to 30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

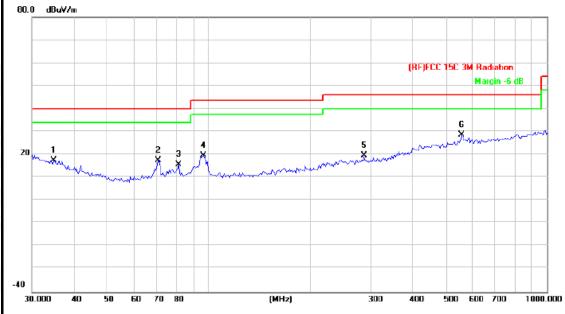
30MHz-1GHz





Report No.: TB-FCC178914 Page: 25 of 34

Temperature:	23.5 ℃	Relative Humidity:	43%
Test Voltage:	DC 3V		WHO I
Ant. Pol.	Vertical		
Test Mode:	TX Mode		
Remark:	No report for the emission prescribed limit.	n which more than 10 dB below	the
00.0 - 10-1/1-			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		34.7602	34.08	-16.49	17.59	40.00	-22.41	peak
2		70.5836	40.66	-23.35	17.31	40.00	-22.69	peak
3		81.2117	38.04	-22.38	15.66	40.00	-24.34	peak
4		96.0986	41.61	-21.91	19.70	43.50	-23.80	peak
5		286.9823	36.12	-16.54	19.58	46.00	-26.42	peak
6	*	558.7302	37.43	-8.82	28.61	46.00	-17.39	peak

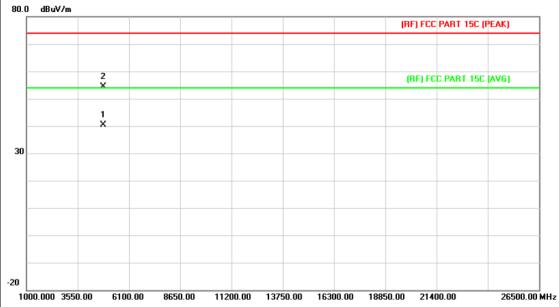


Report No.: TB-FCC178914 Page: 26 of 34

Page:

Radiated Spurious Emission (Above 1 GHz)

Temperature:	23.5 ℃	Relative Humidity:	43%			
Test Voltage:	DC 3V					
Ant. Pol.	Horizontal					
Test Mode:	TX 2407MHz		KILL			
Remark: No report for the emission which more than 10 dB below the prescribed limit.						

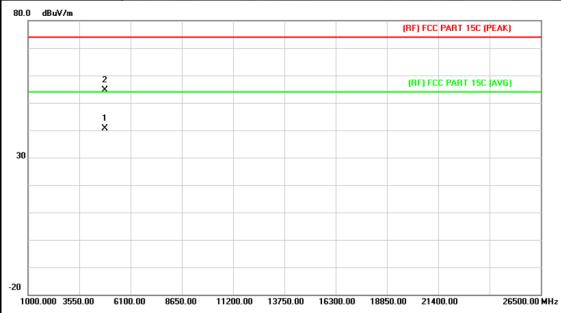


No	o. MI	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4812.500	28.01	12.47	40.48	54.00	-13.52	AVG
2		4813.184	41.91	12.47	54.38	74.00	-19.62	peak



Report No.: TB-FCC178914 Page: 27 of 34

Temperature:	23.5 ℃	Relative Humidity: 43%			
Test Voltage:	DC 3V	The state of the s			
Ant. Pol.	Vertical				
Test Mode:	TX 2407MHz				
Remark: No report for the emission which more than 10 dB below the					
	prescribed limit.				

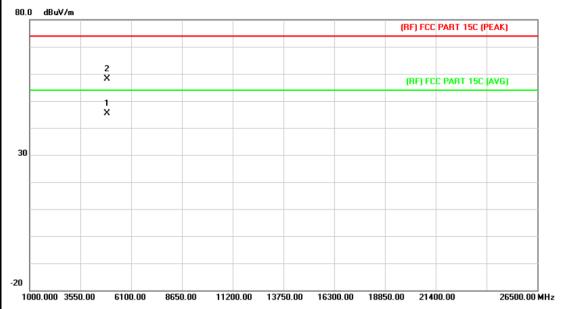


	No.	Mk.	Freq.			Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4812.500	28.11	12.47	40.58	54.00	-13.42	AVG
2			4814.282	42.04	12.48	54.52	74.00	-19.48	peak



Report No.: TB-FCC178914 Page: 28 of 34

Temperature:	23.5 ℃	Relative Humidity:	43%				
Test Voltage:	DC 3V						
Ant. Pol.	Horizontal						
Test Mode:	TX 2440MHz						
Remark:	rk: No report for the emission which more than 10 dB below the						
	prescribed limit.						

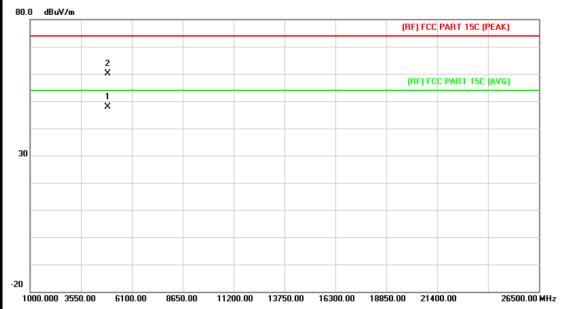


No. Mk.		Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4880.366	32.48	12.88	45.36	54.00	-8.64	AVG
2			4880.822	45.17	12.89	58.06	74.00	-15.94	peak



Report No.: TB-FCC178914 Page: 29 of 34

Temperature:	23.5 ℃	Relative Humidity:	43%			
Test Voltage:	DC 3V	THE STATE OF THE S	Miller			
Ant. Pol.	Vertical					
Test Mode:	TX 2440MHz					
Remark:	Remark: No report for the emission which more than 10 dB below the					
	prescribed limit.					

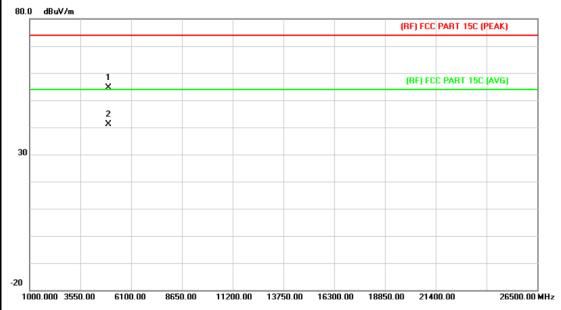


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4879.892	34.88	12.88	47.76	54.00	-6.24	AVG
2		4881.260	47.31	12.90	60.21	74.00	-13.79	peak



Report No.: TB-FCC178914 Page: 30 of 34

Temperature:	23.5 °C Relative Humidity: 43%				
Test Voltage:	DC 3V				
Ant. Pol.	Horizontal				
Test Mode:	TX 2477MHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.					



No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4955.398	41.35	13.35	54.70	74.00	-19.30	peak
2	*	4955.500	27.86	13.35	41.21	54.00	-12.79	AVG



Report No.: TB-FCC178914 Page: 31 of 34

Temperature:	23.5 ℃	Relative Humidity:	43%			
Test Voltage:	DC 3V					
Ant. Pol.	Vertical					
Test Mode:	TX 2477MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					



N	lo.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4953.502	27.97	13.33	41.30	54.00	-12.70	AVG
2			4954.636	42.28	13.35	55.63	74.00	-18.37	peak

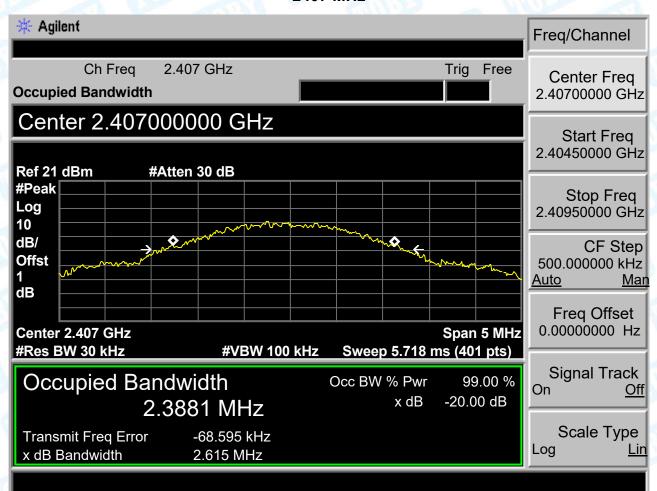


Page: 32 of 34

Attachment B--Bandwidth Data

Low Channel Frequency (MHz)	20dB Bandwidth (MHz)		
2407	2.615		

2407 MHz

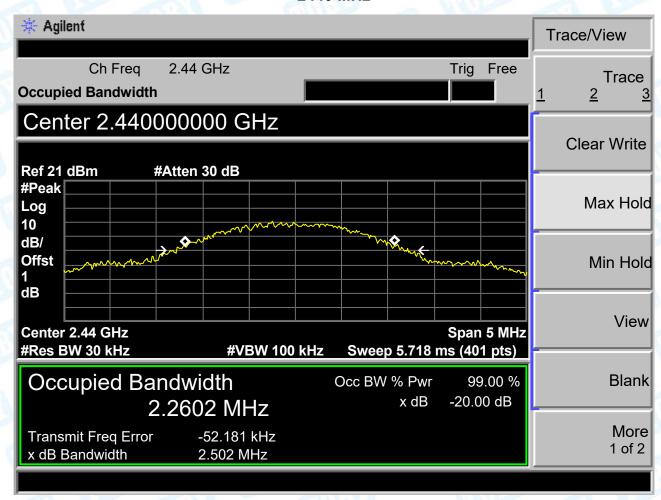




Page: 33 of 34

MID Channel Frequency (MHz)	20dB Bandwidth (MHz)		
2440	2.502		

2440 MHz

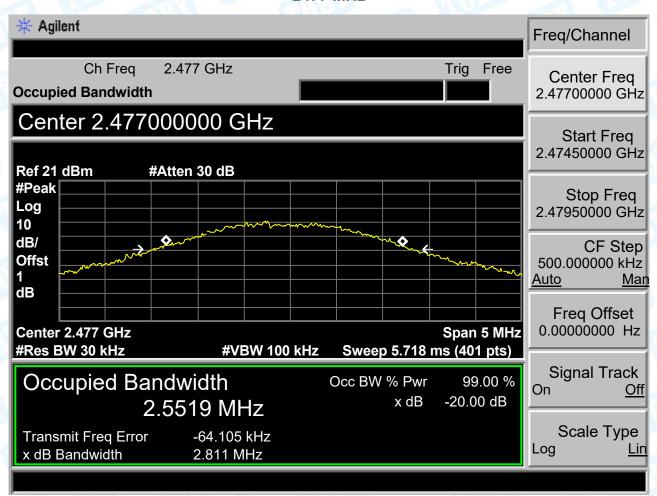




Page: 34 of 34

HIGH Channel Frequency (MHz)	20dB Bandwidth (MHz)		
2477	2.811		

2477 MHz



----End of Report----