

Shenzhen Toby Technology Co., Ltd.

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FCC Radio Test Report FCC ID: 2APB4-MST20C18W

Original Grant

Report No.	: TE	B-FCC159359
Applicant	: C	ooper Lighting, LLC
Equipment Under	Test (EUT)
EUT Name	: LE	ED FIXED LUMINAIRE
Model No.	: M	ST20C18W
Serial Model No.	: M	ST20C18B
Brand Name	: N/	/A
Receipt Date	: 20	018-04-19
Test Date	: 20	018-04-20 to 2018-05-10
Issue Date	: 20	018-05-11
Standards	: F(CC Part 15: 2017, Subpart C(15.247)
Test Method	: Al	NSI C63.10: 2013
Conclusions	: P/	ASS

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

Test/Witness Engineer

Approved& Authorized

IVAN SU fugti.

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



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Revision History

Report No.	Version	Description	Issued Date
TB-FCC159359	Rev.01	Initial issue of report	2018-05-11
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1. General Information about EUT

1.1 Client Information

Applicant:Cooper Lighting, LLCAddress:1121 Highway 74 South Peachtree City, GA 30269, USA.		Cooper Lighting, LLC
Address	-	1121 Highway 74 South Peachtree City, GA 30269, USA.
Manufacturer		Cooper Lighting, LLC
Address		1121 Highway 74 South Peachtree City, GA 30269, USA.

1.2 General Description of EUT (Equipment Under Test)

	1.1			
EUT Name	:	LED FIXED LUMINAIRE		
Models No.		MST20C18W, MST20C	18B	
Model Difference	-	All these models are identical in the same PCB, layout and electrica circuit, the only difference is appearance.		
		Operation Frequency:	Bluetooth 4.2(BLE): 2402MHz~2480MHz	
000		Number of Channel:	40 channels see note(3)	
Product		RF Output Power:	Module 1: -0.427dBm Conducted Power Module 2: -1.215 dBm Conducted Power	
Description	1	Antenna Gain:	2dBi Internal Antenna	
		Modulation Type:	GFSK	
and so		Bit Rate of Transmitter:	1Mbps(GFSK)	
Power Supply		AC Voltage supplied		
Power Rating	:	Input: AC 120~277V, 50	/60Hz, 18W	
Software Version	:	N/A		
Hardware Version	-	N/A		
Connecting I/O Port(S)	:	Please refer to the User	's Manual	
		as two bluetooth Module(is the other Lamp.	CSR 1010), the one module is for the Middle of	

Note:

This Test Report is FCC Part 15.247 for Bluetooth BLE, the test procedure follows the FCC KDB 558074 D01 DTS Means Guidance v04.

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) Antenna information provided by the applicant.



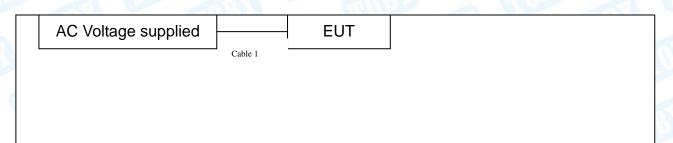
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(3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	14	2430	28	2458
01	2404	15	2432	29	2460
02	2406	16	2434	30	2462
03	2408	17	2436	31	2464
04	2410	18	2438	32	2466
05	2412	19	2440	33	2468
06	2414	20	2442	34	2470
07	2416	21	2444	35	2472
08	2418	22	2446	36	2474
09	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

	Equipment Information					
Name	NameModelFCC ID/VOCManufacturerUsed " $\sqrt{"}$					
/	1	/	1000	1		
	Cable Information					
Number	Shielded Type	Ferrite Core	Length	Note		
Cable 1	NO	NO	1.2M	1		

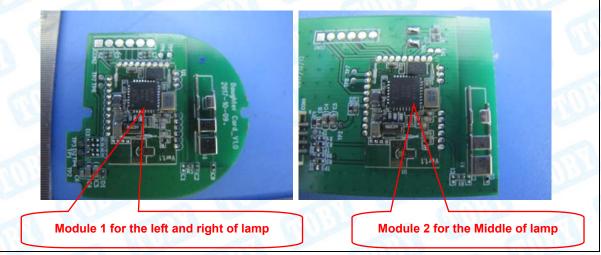


1.5 Description of Test Mode

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.

	e 1 TX Mode For Radiated Test		
Final Test Mode	Description		
Mode 1	TX Mode		
	For Radiated Test		
Final Test Mode	Description		
Mode 2	TX Mode		
Mode 3	TX Mode (Channel 00/20/39)		

Note: The EUT has two bluetooth Module, they can be operated simultaneously.



Note:

(1) 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.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

BLE Mode: GFSK Modulation Transmitting mode.

- (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; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. 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 setting.

Test Software Version	56317_InstalluEnergyTools_2_5_0_108 exe				
Frequency	2402 MHz	2442MHz	2480 MHz		
BLE GFSK	DEF	DEF	DEF		

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})
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Radiated Emission	Level Accuracy:	±4.60 dB
Radiated Emission	9kHz to 30 MHz	±4.00 UB
Radiated Emission	Level Accuracy:	±4.40 dB
Radiated Emission	30MHz to 1000 MHz	±4.40 UB
Padiated Emission	Level Accuracy:	14 20 dB
Radiated Emission	Above 1000MHz	±4.20 dB



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1.8 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, 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: 2005 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: 2005 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.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

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2. Test Summary

FCC Part 15 Subpart C(15.247)					
Standard Section FCC	Test Item	Judgment	Remark		
15.203	Antenna Requirement	PASS	N/A		
15.207(a)	Conducted Emission	PASS	N/A		
15.205&15.247(d)	Band-Edge & Unwanted Emissions into Restricted Frequency	PASS	N/A		
15.247(a)(2)	6dB Bandwidth	PASS	N/A		
15.247(b)(3)	Conducted Max Output Power	PASS	N/A		
15.247(e)	Power Spectral Density	PASS	N/A		
15.205, 15.209&15.247(d)	Transmitter Radiated Spurious &Unwanted Emissions into Restricted Frequency	PASS	N/A		



3. Test Equipment

Conducted Emiss	ion Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 20, 2017	Jul. 19, 2018
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 20, 2017	Jul. 19, 2018
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 20, 2017	Jul. 19, 2018
LISN	Rohde & Schwarz	ENV216	101131	Jul. 20, 2017	Jul. 19, 2018
Radiation Emissio	on Test	-	-	-	-
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 20, 2017	Jul. 19, 2018
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 20, 2017	Jul. 19, 2018
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.16, 2018	Mar. 15, 2019
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar.16, 2018	Mar. 15, 2019
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.16, 2018	Mar. 15, 2019
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.16, 2018	Mar. 15, 2019
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 03, 2017	Jul. 02, 2018
Pre-amplifier	Sonoma	310N	185903	Mar.16, 2018	Mar. 15, 2019
Pre-amplifier	HP	8449B	3008A00849	Mar.16, 2018	Mar. 15, 2019
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.16, 2018	Mar. 15, 2019
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conduct	ed Emission				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 20, 2017	Jul. 19, 2018
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 20, 2017	Jul. 19, 2018
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Oct. 26, 2017	Oct. 25, 2018
Vector Signal Generator	Agilent	N5182A	MY50141294	Oct. 26, 2017	Oct. 25, 2018
Analog Signal Generator	Agilent	N5181A	MY50141953	Oct. 26, 2017	Oct. 25, 2018
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO26	Oct. 26, 2017	Oct. 25, 2018
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO29	Oct. 26, 2017	Oct. 25, 2018
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO31	Oct. 26, 2017	Oct. 25, 2018
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO33	Oct. 26, 2017	Oct. 25, 2018



4. Conducted Emission Test

- 4.1 Test Standard and Limit
 - 4.1.1Test Standard FCC Part 15.207
 - 4.1.2 Test Limit

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

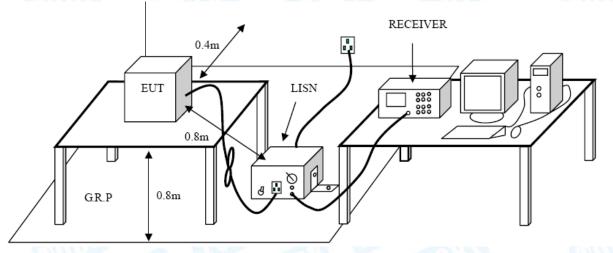
Notes:

(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.



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 at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9 kHz, 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 Test Data

Please refer to the Attachment A.



5. Radiated Emission Test

- 5.1 Test Standard and Limit
 - 5.1.1 Test Standard
 - FCC Part 15.247(d)
 - 5.1.2 Test Limit

Radiated Emission Limits (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	Distance Meters(at 3m)		
(MHz)	Peak (dBuV/m)	Average (dBuV/m)	
Above 1000	74	54	

Note:

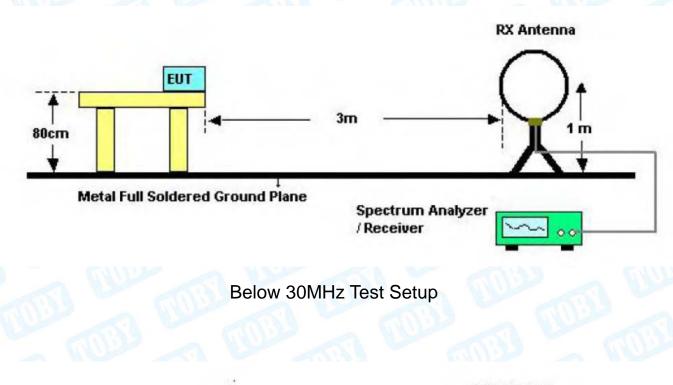
(1) The tighter limit applies at the band edges.

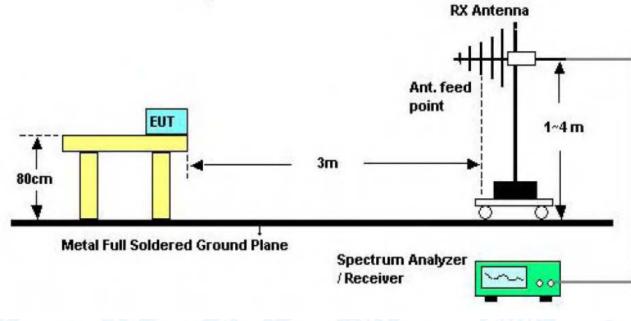
(2) Emission Level (dBuV/m)=20log Emission Level (uV/m)



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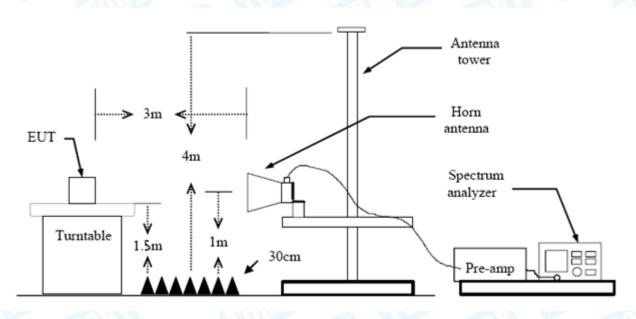
5.2 Test Setup





Below 1000MHz Test Setup





Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency Below 1GHz. 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.



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5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Data

Remark: During testing 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.

Please refer to the Attachment B.

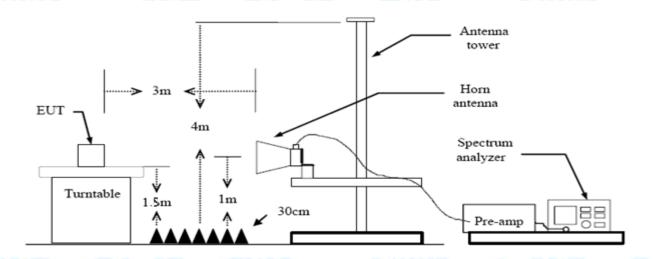


6. Restricted Bands Requirement

- 6.1 Test Standard and Limit
 - 6.1.1 Test Standard
 - FCC Part 15.247(d) FCC Part 15.205
 - 6.1.2 Test Limit

Restricted Frequency	Distance Meters(at 3m)		
Band (MHz)	Peak (dBuV/m)	Average (dBuV/m)	
2310 ~2390	74	54	
2483.5 ~2500	74	54	

6.2 Test Setup



6.3 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.

6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Remark: During testing 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. Please refer to the Attachment C.

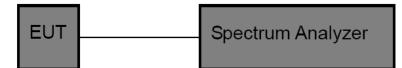


7. Bandwidth Test

- 7.1 Test Standard and Limit
 - 7.1.1 Test Standard
 - FCC Part 15.247 (a)(2)
 - 7.1.2 Test Limit

1	FCC Part 15 Subpart C(15.247)					
Test Item	Test Item Limit Frequency Range(MH					
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5				

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB 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.
- (3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

7.5 Test Data

Please refer to the Attachment D.

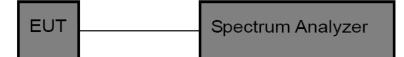


8. Peak Output Power Test

- 8.1 Test Standard and Limit
 - 8.1.1 Test Standard
 - FCC Part 15.247 (b)(3)
 - 8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)					
Test Item Limit Frequency Range(M					
Peak Output Power	1 Watt or 30 dBm	2400~2483.5			

8.2 Test Setup



8.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement is according to section 9.1.1 of KDB 558074 D01 DTS Meas Guidance v04.

- (1) Set the RBW≥DTS Bandwidth
- (2) Set VBW≥3*RBW
- (3) Set Span≥3*RBW
- (4) Sweep time=auto
- (5) Detector= peak
- (6) Trace mode= maxhold.
- (7) Allow trace to fully stabilize, and then use peak marker function to determine the peak amplitude level.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

8.5 Test Data

Please refer to the Attachment E.

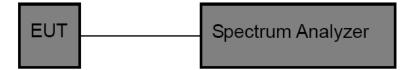


9. Power Spectral Density Test

- 9.1 Test Standard and Limit
 - 9.1.1 Test Standard
 - FCC Part 15.247 (e)
 - 9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)					
Test Item Limit Frequency Range(MHz					
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5			

9.2 Test Setup



9.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v04.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz
- (5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

9.5 Test Data

Please refer to the Attachment F.



10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard

FCC Part 15.203

10.1.2 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.

10.2 Antenna Connected Construction

The gains of the antenna used for transmitting is 2dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

10.3 Result

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

Antenna Type		
	Permanent attached antenna	
a lu an	Unique connector antenna	
	Professional installation antenna	

Attachment A-- Conducted Emission Test Data

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	TX GFSK Mode 2402 M	IHz	The second se
Remark:	Only worse case is repo	orted	
90.0 dBuV			· ·····
40	A MAN MAN MAN	The first of the f	QP:
-10	a have have we have		

No. I	Иk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1 '	*	0.4300	37.71	9.60	47.31	57.25	-9.94	QP
2		0.4300	23.33	9.60	32.93	47.25	-14.32	AVG
3		0.6020	34.14	9.60	43.74	56.00	-12.26	QP
4		0.6020	19.85	9.60	29.45	46.00	-16.55	AVG
5		1.1980	34.21	9.60	43.81	56.00	-12.19	QP
6		1.1980	18.74	9.60	28.34	46.00	-17.66	AVG
7		1.9940	30.79	9.61	40.40	56.00	-15.60	QP
8		1.9940	16.73	9.61	26.34	46.00	-19.66	AVG
9		2.7940	29.73	9.64	39.37	56.00	-16.63	QP
10		2.7940	17.01	9.64	26.65	46.00	-19.35	AVG
11		3.9420	29.68	9.68	39.36	56.00	-16.64	QP
12		3.9420	19.48	9.68	29.16	46.00	-16.84	AVG



Temperature:	25℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz	A CONST	
Terminal:	Neutral		ALL ALL
Test Mode:	TX GFSK Mode 24	02 MHz	
Remark:	Only worse case is	reported	A BUCK
	A Market Market	Work Marine	QP: AVG: peak AVG
-10	0.5	(MHz) 5	30.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	1.2340	32.16	9.59	41.75	56.00	-14.25	QP
2	1.2340	16.59	9.59	26.18	46.00	-19.82	AVG
3	1.4540	31.60	9.60	41.20	56.00	-14.80	QP
4	1.4540	15.27	9.60	24.87	46.00	-21.13	AVG
5 *	2.0059	33.46	9.61	43.07	56.00	-12.93	QP
6	2.0059	16.80	9.61	26.41	46.00	-19.59	AVG
7	3.2139	31.33	9.68	41.01	56.00	-14.99	QP
8	3.2139	19.89	9.68	29.57	46.00	-16.43	AVG
9	3.9940	32.80	9.72	42.52	56.00	-13.48	QP
10	3.9940	20.60	9.72	30.32	46.00	-15.68	AVG
11	4.8700	31.07	9.89	40.96	56.00	-15.04	QP
12	4.8700	20.20	9.89	30.09	46.00	-15.91	AVG



Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 240V/60 Hz		
Terminal:	Line		ALL ALL
Test Mode:	TX GFSK Mode 2402 MHz		
Remark:	Only worse case is reported	(40)	
	Mar	Wertham Marine	QP: AVG: proving a second seco

No. MI	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.4380	37.86	9.60	47.46	57.10	-9.64	QP
2	0.4380	22.54	9.60	32.14	47.10	-14.96	AVG
3	2.1500	30.86	9.62	40.48	56.00	-15.52	QP
4	2.1500	19.31	9.62	28.93	46.00	-17.07	AVG
5	3.0980	31.22	9.65	40.87	56.00	-15.13	QP
6	3.0980	19.92	9.65	29.57	46.00	-16.43	AVG
7	3.8380	30.01	9.67	39.68	56.00	-16.32	QP
8	3.8380	20.12	9.67	29.79	46.00	-16.21	AVG
9	22.6299	41.73	10.60	52.33	60.00	-7.67	QP
10	22.6299	33.48	10.60	44.08	50.00	-5.92	AVG
11	24.0660	41.90	10.64	52.54	60.00	-7.46	QP
12 *	24.0660	33.68	10.64	44.32	50.00	-5.68	AVG



Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 240V/60 Hz	Rolatio Hamaly	0070
Terminal:	Neutral	21 600	30
Test Mode:	TX GFSK Mode 2402 MHz	z	
Remark:	Only worse case is reported	ed	Tor
90.0 dBuV	0.5 (MHz)	5	QP: AVG: peak AVG 30.000

No. I	Vlk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		1.3020	31.62	9.60	41.22	56.00	-14.78	QP
2		1.3020	18.66	9.60	28.26	46.00	-17.74	AVG
3		2.1260	31.75	9.62	41.37	56.00	-14.63	QP
4		2.1260	20.51	9.62	30.13	46.00	-15.87	AVG
5		3.0340	31.73	9.67	41.40	56.00	-14.60	QP
6		3.0340	20.56	9.67	30.23	46.00	-15.77	AVG
7		3.8980	32.14	9.71	41.85	56.00	-14.15	QP
8		3.8980	23.23	9.71	32.94	46.00	-13.06	AVG
9		4.6779	30.05	9.85	39.90	56.00	-16.10	QP
10		4.6779	21.62	9.85	31.47	46.00	-14.53	AVG
11	2	23.6540	40.63	10.69	51.32	60.00	-8.68	QP
12	* 4	23.6540	32.40	10.69	43.09	50.00	-6.91	AVG



Attachment B-- Radiated Emission Test Data

9 KHz~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

Temperature:	25℃	CUMP)	Relative Humidity:	55%		
Fest Voltage:	AC 120V/60HZ		600	ALU-		
Ant. Pol.	Horizontal					
fest Mode:	BLE TX 2402 M	/lode				
Remark:	Only worse case is reported					
80.0 dBuV/m						
-20	MMMmmul	3 X A A A A A A A A A A A A A A A A A A	5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	FCC 15C 3M Radiation Margin -6 dB		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		33.9174	43.53	-15.87	27.66	40.00	-12.34	QP
2		35.1278	43.87	-16.62	27.25	40.00	-12.75	QP
3		115.3205	51.03	-21.60	29.43	43.50	-14.07	QP
4		128.1130	55.39	-21.62	33.77	43.50	-9.73	QP
5	*	193.7728	56.21	-19.81	36.40	43.50	-7.10	QP
6		616.3718	39.04	-7.84	31.20	46.00	-14.80	QP

*:Maximum data x:Over limit !:over margin



							-
Temperature:	25 ℃	2	R	elative Humi	idity:	55%	- CAR
Test Voltage:	AC 120	V/60HZ					
Ant. Pol.	Vertical		-	11	100	132	_
Test Mode:	BLE TX	2402 Mod	e			A	
Remark:	Only wo	orse case is	reported	(U)	2		
80.0 dBu¥/m							
					(RF)FCC	15C 3M Radiation	
						Margin -6	dB
1 2							
	4 5 6						
m monterstate	N/M	way i Ale	Immend of which has	. when a	A. Martin M.	worklydraw all de Mansilesalwa	watertan
	·Y	" Ayur"	alan a Willing A M	when a prophy	an the part of the second		
-20							
30.000 40 50	60 70	80	(MHz)	300	400 !	500 600 700	1000.000
		Reading	Correct	Measure-		-	
No. Mk. F	req.	Level	Factor	ment	Limit	Over	
Ν	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1 * 31.	6202	47.96	-14.47	33.49	40.00	-6.51	QP
2 35.	3750	49.18	-16.77	32.41	40.00	-7.59	QP
3 49.	8814	52.67	-23.74	28.93	40.00	-11.07	QP
4 54.	4516	51.92	-23.86	28.06	40.00	-11.94	QP
5 68.	1514	53.16	-23.22	29.94	40.00	-10.06	QP
6 73.	8756	51.15	-22.93	28.22	40.00	-11.78	QP

*:Maximum data x:Over limit !:over margin

TOBY

Above 1GHz

Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ					
Ant. Pol.	Horizontal	Horizontal					
Fest Mode:	BLE Mode TX 2402	BLE Mode TX 2402 MHz(Module 1)					
Remark:	No report for the emi prescribed limit.	ission which more than 10 dB	ch more than 10 dB below the				
90.0 dBu∀/m							
		(RF) FCC	PART 15C (PEAK)				
	2 X	(RF) FC	PART 15C (AVG)				
	1 X						
40							
-10							

N	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.988	35.29	14.43	49.72	54.00	-4.28	AVG
2		4804.192	45.43	14.43	59.86	74.00	-14.14	peak



Cemperature:	25 ℃	5°C Relative Humidity: 55%						
est Voltage:	AC 120V/6	0HZ	AUD -					
Ant. Pol.	Vertical	ertical						
fest Mode:	BLE Mode	BLE Mode TX 2402 MHz(Module 1)						
Remark:	No report for prescribed	port for the emission which more than 10 dB below the ribed limit.						
90.0 dBuV/m								
			(RF) F	CC PART 15C (PEAK)				
2								
1 X			(RF)	FCC PART 15C (AVG)				
40								
1000.000 3550.00	6100.00 8650.00	11200.00 137	50.00 16300.00 18850.00 2	1400.00 26500.00 MI				

No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4804.090	35.60	14.43	50.03	54.00	-3.97	AVG
2		4804.228	44.92	14.43	59.35	74.00	-14.65	peak



emperature:	25 ℃	Relative Humidity:	55%				
est Voltage:	AC 120V/60HZ	TUP					
nt. Pol.	Horizontal		182				
est Mode:	BLE Mode TX 2442 MH	Hz(Module 1)					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						
90.0 dBu∀/m							
			PART 15C (PEAK)				
			FAIT TSC (FEAK)				
2 X							
		(RF) FCI	C PART 15C (AVG)				
40							
10							

N	No. Mk.		Freq.	-		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*		4884.130	35.44	14.92	50.36	54.00	-3.64	AVG
2			4884.274	43.25	14.93	58.18	74.00	-15.82	peak



Temp	perature:	25 ℃		Relative Hu	umidity:	55%
Test \	Voltage:	AC 120V/60H	IZ	Um	200	
Ant. I	Pol.	Vertical	1	21	100	133
Test	Mode:	BLE Mode T	< 2442 MHz	z(Module 1)	10	-
Remark: No report for the e prescribed limit.				on which more th	an 10 dB	below the
90.0	dBuV/m					
_					(RF) FCC	PART 15C (PEAK)
-	1 X				(RF) FCC	PART 15C (AVG)
	2 X					
40						
_						
-10						

N	lo. Mk	. Freq.	•		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4883.568	43.41	14.91	58.32	74.00	-15.68	peak
2	*	4883.758	34.77	14.91	49.68	54.00	-4.32	AVG



Cemperature:	25℃	Relative Humidity:	55%				
est Voltage:	AC 120V/60HZ	TUPS					
Ant. Pol.	Horizontal		182				
fest Mode:	BLE Mode TX 2480	MHz (Module 1)	-				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						
90.0 dBuV/m							
		(BE) ECC	PART 15C (PEAK)				
		().					
2 X							
×			PART 15C (AVG)				
40							
0							

N	o. Mk	. Freq.	Reading Correct Mea Level Factor me			Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4959.608	33.84	15.39	49.23	54.00	-4.77	AVG
2		4960.126	43.55	15.39	58.94	74.00	-15.06	peak



Temperatu	re:	25℃			Relative	Humidity:	55%		
Fest Voltag	e:	AC 120	V/60HZ	39		1000			
Ant. Pol.		Vertica	100		21	100	133		
Test Mode:		BLE M	ode TX 2	480 MHz (Module 1)		100		
Remark:		No report for the emission which more than 10 dB below the prescribed limit.							
90.0 dBu∀/m									
						(RF) FCC	PART 15C (PEAK)		
	1 X					(BE) EC	C PART 15C (AVG)		
	2 X					(
40	^								
-10									

No	No. Mk. Freq.		Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4960.130	43.46	15.39	58.85	74.00	-15.15	peak
2	*	4960.350	32.00	15.40	47.40	54.00	-6.60	AVG



Femperat	ure:	25 ℃		R	elative Humidity:	55%		
Fest Volta	ge:	AC 120V/	60HZ		MODE			
Ant. Pol.		Horizonta		100				
Fest Mode	e:	BLE Mode	e TX 2402 I	MHz(Modu	ıle 2)			
Remark:		No report for the emission which more than 10 dB below the prescribed limit.						
90.0 dBuV/r	n							
					(RF) FCC	PART 15C (PEAK)		
	2 X							
	1				(RF) FCC	PART 15C (AVG)		
40	×							
10								
-10								
1000.000 3	550.00 6	100.00 8650.0	0 11200.00	13750.00 1	6300.00 18850.00 2140	0.00 2650		

N	No. Mk.		Freq.			Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	ł	k	4804.004	35.62	14.43	50.05	54.00	-3.95	AVG
2			4804.138	46.15	14.43	60.58	74.00	-13.42	peak



Temperatu	ire:	25 ℃		Relative Hur	nidity:	55%				
Test Volta	st Voltage: AC 120V/60HZ									
Ant. Pol. Vertical					0.22					
Test Mode	:	BLE Mo	de TX 2402 M	/Hz(Module 2)	16					
Remark:			No report for the emission which more than 10 dB below the prescribed limit.							
90.0 dBu∀/m										
					(85) 50	C PART 15C (PEAK)				
					(nr) rc	C FANT TOC (FEAK)				
	2 X									
	1				(RF) F	CC PART 15C (AVG)				
40										
-10										

١	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4804.100	36.27	14.43	50.70	54.00	-3.30	AVG
2			4804.146	45.59	14.43	60.02	74.00	-13.98	peak



emperature	e :	25 ℃			Relative H	umidity:	55%
est Voltage							
nt. Pol.		Horizor	ntal	-	81	100	182
est Mode:		BLE Mo	ode TX 2442	2 MHz(M	lodule 2)		
lemark:			ort for the er bed limit.	mission	which more th	an 10 dB	below the
90.0 dBuV/m							
						(RF) FCC I	PART 15C (PEAK)
	1 X 2					(RF) FCC	PART 15C (AVG)
	x						
40							

N	lo. N	۱k.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4	4883.548	43.01	14.91	57.92	74.00	-16.08	peak
2	*	4	4884.328	35.99	14.93	50.92	54.00	-3.08	AVG



lemperatu	ire:	25 ℃		Relative Humidit	:y: 55%					
Fest Voltag										
Ant. Pol.	20187									
lest Mode	:	BLE Mode T	X 2442 MHz(Module 2)						
Remark:			No report for the emission which more than 10 dB below the prescribed limit.							
90.0 dBu∀/m										
				(BE)	FCC PART 15C (PEAK)					
				,						
	1 X				-) FCC PART 15C (AVG)					
	2				JICC PART ISC (AVO)					
40	×									
10										

No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4884.082	43.55	14.92	58.47	74.00	-15.53	peak
2	*	4884.346	32.11	14.93	47.04	54.00	-6.96	AVG



Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	tage: AC 120V/60HZ						
Ant. Pol.	Horizontal	orizontal LE Mode TX 2480 MHz (Module 2)					
Test Mode:	BLE Mode TX 2480	MHz (Module 2)	-				
Remark:	No report for the em prescribed limit.	ission which more than 10 dB be	low the				
90.0 dBuV/m							
			IT 15C (PEAK)				
2	2						
1		(RF) FCC PA	RT 15C (AVG)				
40							
-10							

1	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4960.348	34.91	15.40	50.31	54.00	-3.69	AVG
2			4960.426	43.99	15.40	59.39	74.00	-14.61	peak



emperature:	25℃	Relative Humidity:	55%				
est Voltage:	AC 120V/60HZ						
nt. Pol.	Vertical		152				
est Mode:	BLE Mode TX 2480 M	/Hz (Module 2)	-				
emark:	No report for the emis prescribed limit.	ssion which more than 10 dB	below the				
90.0 dBu∀/m							
		(BF) FCC I	PART 15C (PEAK)				
1 X			PART 15C (AVG)				
2 X							
40							
10							

N	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.724	43.29	15.39	58.68	74.00	-15.32	peak
2	*	4960.232	34.82	15.39	50.21	54.00	-3.79	AVG



Attachment C-- Restricted Bands Requirement Test Data

Temperature	: 25 ℃			Relativ	e Hun	nidity:	55%	
Test Voltage	: AC 120	0V/60HZ		12 P	-	aVS		5
Ant. Pol.	Horizor	ntal		6	100		A 19	0
Test Mode:	BLE M	ode TX 2402	2 MHz(Mo	odule 1)	9		18 .	
Remark:	N/A		GAUE	2	-	ARGE .		
100.0 dBu∀/m								
							3 ¥	
							Ϋ́	
						(RF) FCC F	PART 150 (PEA	g
							-+	
50						(RF) FCC	PART 15C (AVI	ä)
00						1 X	- (
						2		$\left \right $
		~~~~~				**************************************		~
0.0								
2313.000 2323	DO 2333.00	2343.00 23	53.00 2363	3.00 2373	3.00 23	383.00 2393.	00 :	2413.0
No. Mk.	Freq.	Reading Level	Correc Facto		asure- ent	Limit	Over	
	MHz	dBuV	dB/m	dB	uV/m	dBuV/m	dB	De
1 2	390.000	40.94	2.82	43	3.76	74.00	-30.24	p
2 2	390.000	29.57	2.82	32	2.39	54.00	-21.61	A
3 X 2	402.200	89.54	2.87	92	2.41	Fundamenta	I Frequency	р

Emission Level= Read Level+ Correct Factor

84.80

2.87

87.67

2402.200

4

*

AVG

**Fundamental Frequency** 



emp	perature:	<b>25</b> ℃					Relativ	/e Hun	nidity:	55%	
est	Voltage:	AC 1	20V/	60HZ	13	2		24	100		100
nt.	Pol.	Verti	cal	63	1	1	2			UP3	
est	Mode:	BLE	Mode	e TX 2	2402	MHz(I	Module '	1)			1
em	ark:	N/A		3			_ (	100		-	All Ar
100.0	dBuV/m										
ſ											3 X 4
											Ň
									(RF) F	CC PART 150	C (PEAK)
									(BE)	FCC PART 15	
50										1	
										×	
										2 *	/ _
0.0	10.000 2320.00	2330.00	234	0.00	2350.0	0 236	0.00 237	0.00 2	380.00 23	390.00	2410.00
						0	-4 N/-				
NL	o. Mk. I	Freq.		eadin ₋evel		Corre Facto		asure- nent	Limit	Ov	er

	No.	Mk.	Freq.	Level	Factor	ment	Limit	Over	
_			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
	1		2390.000	42.22	2.82	45.04	74.00	-28.96	peak
1	2		2390.000	30.13	2.82	32.95	54.00	-21.05	AVG
,	3	Х	2402.200	91.69	2.87	94.56	Fundamental	Frequency	peak
4	4	*	2402.200	86.03	2.87	88.90	Fundamental	Frequency	AVG
_									



Temperature:	<b>25°</b> ℃			Relati	ve Humidity:	55%	
Fest Voltage:	AC 12	20V/60HZ		-	TOPS		J.V.
Ant. Pol.	Horizo	ontal		28		132	
est Mode:	BLE N	Node TX 2	480 MHz(	Module 1)			
Remark:	N/A		5	10			
100.0 dBuV/m							
ž							
Ň							
					(BF) FCC	PART 15C (PEAK	a
3					(RF) FC	C PART 15C (AVG	i)
50							
			~				
0.0							
2473.000 2483.00	2493.00	2503.00 25	13.00 2523	.00 2533.00	0 2543.00 255	3.00 2	2573.00 MH
		Reading	Correc	t Meas	ure-		

	No.	Mk.	Freq.	Level	Factor	ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
	1	Х	2480.000	92.25	3.38	95.63	Fundamental	Frequency	peak
2	2	*	2480.000	86.57	3.38	89.95	Fundamental	Frequency	AVG
	3		2483.500	50.84	3.41	54.25	74.00	-19.75	peak
4	1		2483.500	45.75	3.41	49.16	54.00	-4.84	AVG
_									



ſem	perature:	<b>25</b> ℃			Relativ	ve Humid	ity:	55%	
<b>Fest</b>	Voltage:	AC 12	20V/60HZ			au	P	~	19
۹nt.	Pol.	Vertic	al		1800		m	1125	
ſest	Mode:	BLE N	/lode TX	2480 MH	z(Module	1)			-
Rem	ark:	N/A	-	85		1000		a \	200
100.0	dBuV∤m								
	× 2								
	$\wedge$								
							(RF) FCC	PART 15C (F	'EAK)
	з						(RF) FC	C PART 15C	(AVG)
50	×								
	$\mathcal{I} \setminus$	~~~~	~		$\sim$		Lunn		
0.0									

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2480.000	94.18	3.38	97.56	Fundamental	Frequency	peak
2	*	2480.000	87.99	3.38	91.37	Fundamental	Frequency	AVG
3		2483.500	50.95	3.41	54.36	74.00	-19.64	peak
4		2483.500	45.69	3.41	49.10	54.00	-4.90	AVG



Temperature:	<b>25</b> ℃			Relative Hu	umidity:	55%	
Test Voltage:	AC 120	0V/60HZ	000	1	UPP	-	100
Ant. Pol.	Horizo	ntal			6	0.25	
Test Mode:	BLE M	ode TX 240	)2 MHz(I	Module 2)			1
Remark:	N/A	-02	5	0.0	00	~	P.A.E.
100.0 dBuV/m							
							3
						1	Ś
					(RF) FO	C PART 150	(PEAK)
					(05)	FCC PART 150	
50							
					1 X		
		<u> </u>		~	2		
0.0							

No.	Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	40.94	2.82	43.76	74.00	-30.24	peak
2		2390.000	29.57	2.82	32.39	54.00	-21.61	AVG
3	Х	2402.200	89.54	2.87	92.41	Fundamental F	requency	peak
4	*	2402.200	84.80	2.87	87.67	Fundamental	Freauencv	AVG



Temperature:	<b>25</b> ℃		Relative Humidity:	55%
Test Voltage:	AC 120	)V/60HZ	The second second	
Ant. Pol.	Vertical			100
Test Mode:	BLE M	ode TX 2402 M	1Hz(Module 2)	
Remark:	N/A		CON .	A LUL
100.0 dBu¥/m				
				3 ¥
				∧
			(RF)	FCC PART 15C (PEAK)
			(B)	F) FCC PART 15C(AVG)
50				
				×
				2
0.0				

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.43	2.82	45.25	74.00	-28.75	peak
2		2390.000	29.95	2.82	32.77	54.00	-21.23	AVG
3	Х	2402.200	91.38	2.87	94.25	Fundamental	Frequency	peak
4	*	2402.200	86.01	2.87	88.88	Fundamental	Frequency	AVG



lemperature:	<b>25</b> ℃	Relative Humidity:	55%					
Fest Voltage:	AC 120V/60HZ	TUP						
Ant. Pol.	Horizontal							
Test Mode:	BLE Mode TX 2480 M	1Hz(Module 2)						
Remark:	N/A	- 44Um	a 199					
100.0 dBuV/m								
1 X 2								
Ň								
		(RF) FCC F	ART 15C (PEAK)					
50 50		(RF) FCC	PART 15C (AVG)					
0.0								

No	. Mł	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2480.000	90.29	3.38	93.67	- Fundamenta	I Frequency	peak
2	*	2480.000	84.34	3.38	87.72	Fundamenta	I Frequency	AVG
3		2483.500	46.26	3.41	49.67	74.00	-24.33	peak
4		2483.500	42.01	3.41	45.42	54.00	-8.58	AVG



emperature:	<b>25</b> ℃	Relative	Humidity:	55%
est Voltage:	AC 120V/60HZ		RUDE	
nt. Pol.	Vertical		61	189
est Mode:	BLE Mode TX 2	2480 MHz(Module 2)	A 10	
emark:	N/A		100	
00.0 dBuV/m				
1				
× X				
$\square$			(RF) FCC	PART 15C (PEAK)
50 3			(RF) FL	C PART 15C (AVG)
			$\sim$	
0.0				
2473.000 2483.00	2493.00 2503.00	2513.00 2523.00 2533.00	0 2543.00 255	3.00 257

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2480.000	88.07	3.38	91.45	Fundamental	Freauencv	peak
2	*	2480.000	83.29	3.38	86.67	Fundamental I	Frequency	AVG
3		2483.500	44.84	3.41	48.25	74.00	-25.75	peak
4		2483.500	41.03	3.41	44.44	54.00	-9.56	AVG



### (2) Conducted Test

MSG

mperature:	<b>25</b> ℃		Relative Humidity	<b>/:</b> 55%
st Voltage:	AC 120V/6	0HZ		antib
st Mode:	BLE Mode	TX 2402MHz	/ BLE Mode TX 2480	MHz(Module '
mark:	The EUT is	programed in	continuously transmi	itting mode
	n Analyzer - Swept SA RF 50 Ω AC	SENSE:INT		02:26:35 PM May 08, 201
	2.356000000 GHz	PNO: Fast 😱 Trig: Fre		02:26:35 PM May 08, 201 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
R	ef Offset 3.61 dB ef 23.61 dBm	IFGain:Low Atten: 3	0.08	Mkr1 2.402 0 GH -2.219 dBn
10 dB/div R Log 13.6	ef 23.61 dBm			-2.219 0.61
3.61				<u></u> 1-
-6.39				-22.25 dBi
-26.4				
-46.4		align of the second		numerican market 2 W
-66.4				
Start 2.30600 #Res BW 100		#VBW 300 kH	lz Swee	Stop 2.40600 GH p 9.600 ms (1001 pts
MKR MODE TRC SO	2 402 0 G	-2 219 dBm	UNCTION FUNCTION WIDTH	UNCTION VALUE
2 N 1 f 3 N 1 f 4 N 1 f	2.390 0 GH	Iz -54.853 dBm Iz -55.792 dBm Iz -53.729 dBm		
0				
6 7 8				
7 <b>7</b> 8 <b>9</b>		m	STATUS	
7 8 9 10 11 ×			STATUS	
7 8 9 10 MSG MSG MSG MSG MSG MSG MSG MSG MSG MSG	n Analyzer - Swept SA ξε   50 Ω AC   2.52600000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	02:32:24 PM May 08, 201 TRACE <b>12:24 4 S</b>
7 8 9 10 11 4 MSG MSG MSG MSG MSG Center Freq	RF 50 Ω AC 2.526000000 GHz		ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:24 PM May 08, 201 TRACE 1 2 3 4 5 TYPE MWWW DET PNNN
7 8 9 10 11 × MSG W RL F Center Freq	RF 50 Ω AC	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:24 PM May 08, 201
To the state of th	RF 50 Ω AC 2.526000000 GHz	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:24 PM May 08, 201 TRACE 12 3 4 5 TYPE MWWW DET P NNNN MKr1 2.480 0 GH
T S S S S S S S S S S S S S	RF 50 Ω AC 2.526000000 GHz	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:44 MMay 08, 23 45 TRACE [1:2:45 TYPE MYNNN OFT NNNN Mkr1 2,480 0 GH; -0.796 dBn
T S S S S S S S S S S S S S	RF 50 Ω AC 2.526000000 GHz	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:24 PM May 08, 201 TRACE 12 3 4 5 TYPE MWWW DET P NNNN MKr1 2.480 0 GH
7       8       9       10         10       11       4       10       11         MSG       Image: Section of the section	E 150 Q. AC 2.526000000 GHz ef Offset 3.61 dB ef 23.61 dBm	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg Hold:>100/100 0 dB	02:32:44 MMay 08, 23 45 TRACE [1:2:45 TYPE MYNNN OFT NNNN Mkr1 2,480 0 GH; -0.796 dBn
7       8       9       10         10       11       4       10       11         MSG       Image: Section of the section	RF 50 Ω AC 2.526000000 GHz	SENSE:INT PNO: Fast	ALIGN AUTO Avg Type: Log-Pwr e Run Avg[Hold:>100/100	02:32:44 MMay 08, 23 45 TRACE [1:2:45 TYPE MYNNN OFT NNNN Mkr1 2,480 0 GH; -0.796 dBn
7       8       9       10         10       11       1       11         MSG       11       1       1         MSG       11       1       1         MSG       11       1       1         MSG       1       1       1         MSG       1       1       1         13       1       1       1         13       1       1       1         13       1       1       1         13       1       1       1         13       1       1       1         13       1       1       1         14       1       1       1         15       1       1       1         14       1       1       1         15       1       1       1         16       1       1       1         16       1       1       1         16       1       1       1         16       1       1       1         16       1       1       1         16       1       1       1	E 50 Q. AC 2.526000000 GHz ef Offset 3.61 dB ef 23.61 dBm	PNO: Fast IFGain:Low IFGain:Low	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 0 dB	02:32:34 PM ay 08; 23 43 TRACE [1:2 45 TYPE P NNNN Mkr1 2.480 0 GH; -0.796 dBn -0.796 dBn -0.796 dBn -0.796 dBn -0.796 dBn -0.796 dBn
Keysight Spectrum MSG RL F Center Freq 10 dB/div RL Center Freq 13 6 3 61 -16 4 -26 4 -45	E 190 Q AC 2.526000000 GHz ef Offset 3.61 dB ef 23.61 dBm 4 4 4 0 GHz 0 GHz 0 KHz X	PNO: Fast SENSE: INT IFGain: Low Atten: 3	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	02:32:44 MMay 08, 20 45 TRACE [] 2: 45 TYPE MANNAN DET PINNAN Mkr1 2:480 0 GH3 -0.796 dBn
7       8       9       10         10       11       1       11         MSG       11       1       1         MSG       11       1       1         Center Freq       13.6       1       1         13.6       3.61       1       1         -6.39       -16.4       -46.4       -46.4         -66.4       -56.4       -56.4       -56.4         Start 2.47600       #Res BW 100       MKR MODE TRC SC         MKR MODE TRC SC       1       1       1         3       1       1       1       1	E 190 Q AC 2.526000000 GHz 2.526000000 GHz ef Offset 3.61 dB ef 23.61 dBm 4 4 4 4 4 4 4 4 4 4 4 4 4	SENSE:INT           PNO: Fast         Trig: Fre           IFGain:Low         Atten: 3           #VBW 300 kH         #VBW 300 kH           #VBW 300 kH         Ft           -53.236 dBm         Ft           2         -64.898 dBm	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	02:32:34 PMay 08; 03: 43 TRACE [1:2:45 TYPE P NNW PET P NNW Mkr1 2,480 0 GH: -0.796 dBn -0.796 d
7       8       9       10         10       11       4       10         MSG       11       6       10         10       12       10       10         10       12       10       10         10       13       6       10         13       6       10       10         14       10       10       10         15       10       10       10         16       10       10       10         16       10       10       10         16       10       10       10         16       10       10       10         16       10       10       10         17       10       10       10         18       10       10       10         19       10       10       10         2       10       10       10	E 190 Q AC 2.526000000 GHz 2.526000000 GHz ef Offset 3.61 dB ef 23.61 dBm 4 4 4 4 4 4 4 4 4 4 4 4 4	SENSE:INT           PNO: Fast         Trig: Fre           IFGain:Low         Atten: 3           #VBW 300 kH         #VBW 300 kH           #VBW 300 kH         Ft           -53.236 dBm         Ft           2         -64.898 dBm	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	02:32:34 PMay 08; 03: 43 TRACE [1:2:45 TYPE P NNW PET P NNW Mkr1 2,480 0 GH: -0.796 dBn -0.796 d

STATUS



perature:	<b>25</b> ℃		Relative Hum	idity:	55%	
Voltage:	AC 120V/60H	AC 120V/60HZ				
Mode:	BLE Mode T	X 2402MHz	/ BLE Mode TX 2	480MHz	(Module 2)	
ark:	The EUT is p	orogramed in	continuously tran	nsmitting	mode	
🚺 Keysight Spectrum						
		SENSE:INT		Pwr	08:35:45 PM May 07, 2018 TRACE <b>1 2 3 4 5 6</b> TYPE <b>M</b> WWWWW DET <b>P N N N N N</b>	
Re		Gain:Low Atten: 3	0 dB	Mkr1	2.402 0 GHz	
10 dB/div Re	ef Offset 3.61 dB ef 23.61 dBm				-2.985 dBm	
3.61					<b>1</b>	
-6.39 -16.4					-28.07 dBm	
-26.4 -36.4						
-46.4	n hundrik and an an and a star a free star and and a	And was a free when we have seen		$\rightarrow$	man 12 W	
-66.4						
Start 2.30600 #Res BW 100		#VBW 300 kH	Z		op 2.40600 GHz 0 ms (1001 pts)	
	2.402 0 GHz	Y FU -2.985 dBm -54.908 dBm	INCTION FUNCTION WIDTH	FUNCTION	/ALUE	
2 N 1 f 3 N 1 f 4 N 1 f	f 2.390 0 GHz	-54.908 dBm -54.745 dBm -53.614 dBm				
5 6 7 8						
9 10 11						
MSG		III	STATUS		4	
LXIR R	n Analyzer - Swept SA RF 50 Ω AC 2.526000000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-	Pwr	08:41:38 PM May 07, 2018 TRACE 1 2 3 4 5 6 TYPE MWWWWW	
	PI	NO: Fast 😱 Trig: Fre Gain:Low Atten: 3	e Run Avg Hold:>100/1 0 dB	00	DET P NNNN	
	IFC			Mkr4	2 490 0 CH-	
Re	ef Offset 3.61 dB ef 23.61 dBm			Mkr1	2.480 0 GHz -1.577 dBm	
Re 10 dB/div Re	ef Offset 3.61 dB			Mkr1		
10 dB/div Re 13.6	ef Offset 3.61 dB			Mkr1		
10 dB/div Re 13.6 3.61	ef Offset 3.61 dB			Mkr1		
10 dB/div Re 13.6 3.61 -6.39 -16.4 -26.4 -36.4	ef Offset 3.61 dB ef 23.61 dBm			Mkr1		
10 dB/div Re Log 13.6 3.6 4.39 -16.4 -26.4 -36.4 -36.4 4.46.4	ef Offset 3.61 dB ef 23.61 dBm	est - Sign H.C., days Property American pro-		Mkr1		
10 dB/div Re 13.6 3.6 -26.4 -36.4 -46.4 -66.4 Start 2.47600	ef Offset 3.61 dB ef 23.61 dBm			uppertuit spatiation of the spatial spatia	-1.577 dBm	
10 dB/div Re 13.6 3.6 -6.3 -6.3 -6.3 -6.4 -6.4 -6.4 -6.4 -6.4 -6.4 -7.6 -6.4 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6	ef Offset 3.61 dB ef 23.61 dBm	#VBW 300 kH		sweep 9.60	-1.577 dBm	
10 dB/div Re 13.6 3.61 -6.39 -16.4 -26.4 -36.4 -6.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -57.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4 -56.4	ef Offset 3.61 dB ef 23.61 dBm 2 4 2 4 2 4 3 3 0 GHz 0 GHz 0 KHz CL X 4 2.483 5 GHz	#VBW 300 kH	Z	uppertuit spatiation of the spatial spatia	-1.577 dBm	
Image: Deg	ef Offset 3.61 dB ef 23.61 dBm 4 2 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0	#VBW 300 kH Y FU -1.577 dBm		sweep 9.60	-1.577 dBm	
10         dE/div         Re           10         dE/div         Re           13.6         1         1           16.3         -         -           -05.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -06.4         -         -           -07         -         -           -08         -         -           -09         -         -           -01         -         -           -01         -         -           -01         -         -           -01         -	ef Offset 3.61 dB ef 23.61 dBm 4 2 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0	#VBW 300 kH -1.577 dBm -53.498 dBm -56.129 dBm		sweep 9.60	-1.577 dBm	
Image: Deg	ef Offset 3.61 dB ef 23.61 dBm 4 2 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0	#VBW 300 kH -1.577 dBm -53.498 dBm -56.129 dBm		sweep 9.60	-1.577 dBm	



### Attachment D-- Bandwidth Test Data

Temperature: 25℃			Relative Humidity:	55%			
Test Voltage:	AC 1	20V/60HZ		TIL T			
Test Mode:	BLE	TX Mode(Module 1)					
Channel frequency		6dB Bandwidth	99% Bandwidth	Limit			
(MHz)		(kHz)	(kHz) (kHz)				
2402		681.6	1035.0				
2442		2442 674.8		>=500			
2480		696.1 1031.8					

#### BLE Mode





**BLE Mode** 2442 MHz Keysight Spectrum Analyzer - Occupied BW

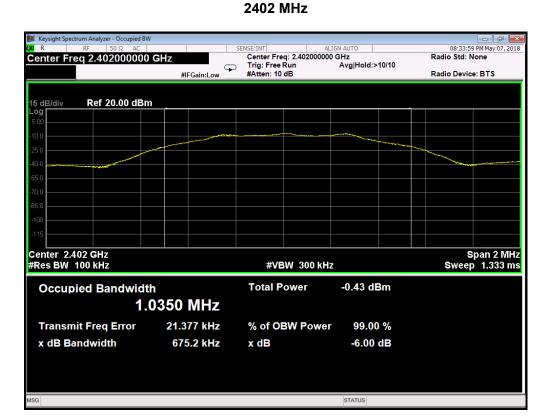
 RL
 RF
 50 Ω
 AC
 02:30:26 PM May 08, 20 Radio Std: None Center Freq 2.442000000 GHz #IFGain:Low Radio Device: BTS Ref 20.00 dBm 15 dB/div Log 5.00 Span 2 MHz Sweep 1.333 ms Center 2.442 GHz #Res BW 100 kHz #VBW 300 kHz 1.44 dBm Total Power **Occupied Bandwidth** 1.0350 MHz 22.726 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 674.8 kHz -6.00 dB x dB MSG STATUS **BLE Mode** 2480 MHz 🚺 Keysight Spectrum Analyzer - Occupied BW 02:31:47 PM May 08, 2018

enter Freq 2.480000000	GHz #IFGain:Low	Center Freq: 2.48000000	GHz Avg Hold:>10/10	Radio Std: None Radio Device: BTS	
5 dB/div Ref 20.00 dBm					
.0				~~~	
.0					
.0					
.0					
15					
enter 2.48 GHz Res BW 100 kHz		#VBW 300 kHz	Span 2 MF Sweep 1.333 m		
Occupied Bandwidth	1	Total Power	1.83 dBm		
1.0	)318 MHz				
Transmit Freq Error	1.335 kHz	% of OBW Power	99.00 %		
x dB Bandwidth	696.1 kHz	x dB	-6.00 dB		
3			STATUS		



Temperature:25°C			<b>Relative Humidity:</b>	55%
Test Voltage:	AC 1	20V/60HZ	- and -	
Test Mode:	1132			
Channel frequency		6dB Bandwidth 99% Bandwidth		Limit
(MHz)		(kHz)	(kHz)	(kHz)
2402		675.2	1035.0	
2442		2442 681.6		>=500
2480		686.4	1032.7	1
				u

### BLE Mode





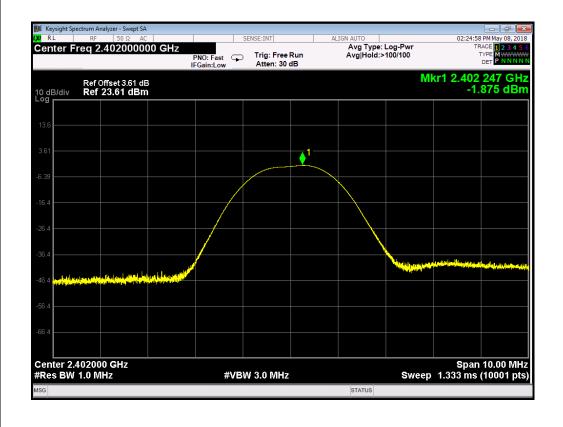


	#VBM	V 300 kHz			Span 2 Sweep 1.33		
	Total Po		1.02 dBm	n			
MHz							
387 Hz	% of OB	W Power	99.00 %	6			
6.4 kHz	x dB		-6.00 dE	3			
	6.4 kHz	6.4 kHz x dB	6.4 kHz x dB	6.4 kHz x dB -6.00 dl	6.4 kHz x dB -6.00 dB	6.4 kHz x dB -6.00 dB	

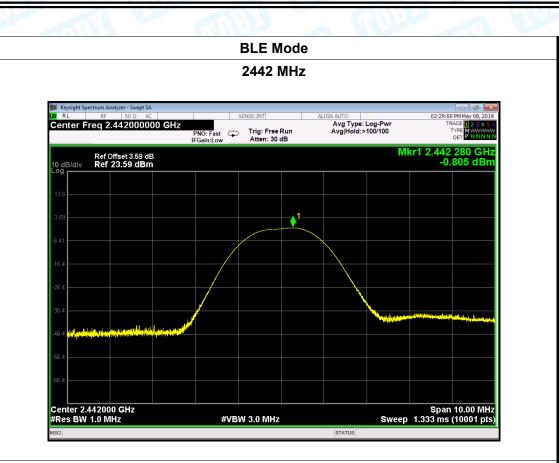


## **Attachment E-- Peak Output Power Test Data**

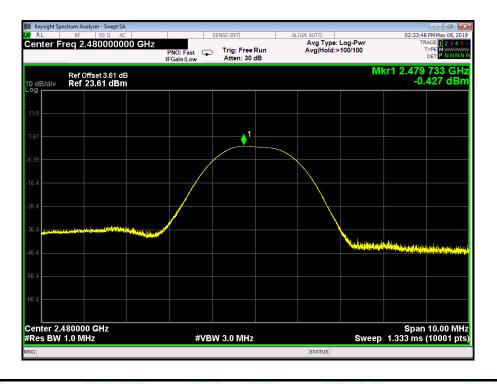
Temperature:	<b>25</b> ℃		Relative Humidity:	55%	
Test Voltage:	AC 120V/	60HZ		and the	
Test Mode:					
Channel frequer	ncy (MHz)	Test Result (dBm)		Limit (dBm)	
2402		-1.875			
2442		-0.805		30	
2480		-0.427			
		BLE	Mode		
		2402	MHz		





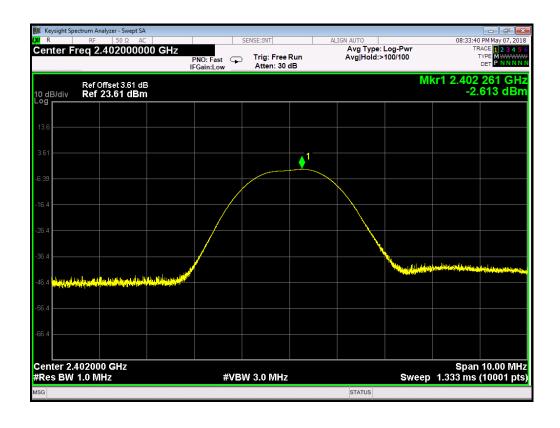


BLE Mode





Temperature:	<b>25</b> ℃	Relative Humidity:		55%	
Test Voltage:	AC 120V/	60HZ	AUP		
Test Mode: BLE TX Mode(Module 2)					
Channel frequen	icy (MHz)	Test Result (dBm)		Limit (dBm)	
2402		-2.6	613		
2442		-1.6	628	30	
2480		-1.2	215		
		BLE	Node		
		2402	MHz		

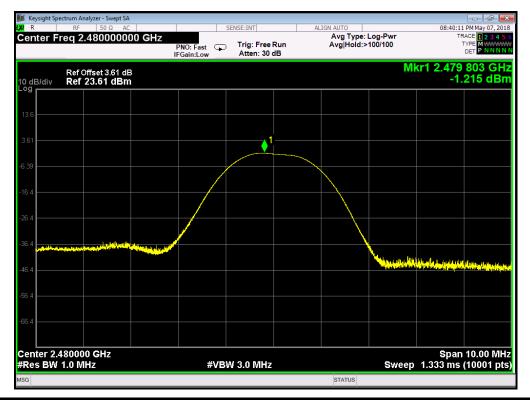




R

**BLE Mode** 2442 MHz 📕 Keysight Spectrum Analyzer - Swept SA 08:44:01 PM May 07, 20 TRACE 1 2 3 4 Center Freq 2.442000000 GHz Avg Type: Log-Pwi Avg|Hold:>100/100 PNO: Fast Trig: Free Run IFGain:Low Atten: 30 dB Mkr1 2.442 292 GHz -1.628 dBm Ref Offset 3.59 dB Ref 23.59 dBm 10 dB/div Log V باراده راريا Center 2.442000 GHz #Res BW 1.0 MHz Span 10.00 MHz Sweep 1.333 ms (10001 pts) #VBW 3.0 MHz

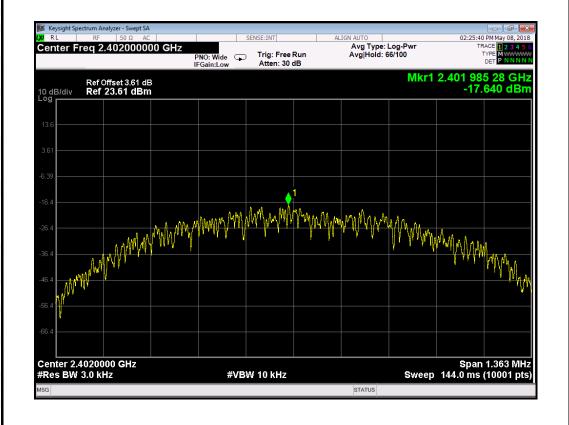
**BLE Mode** 



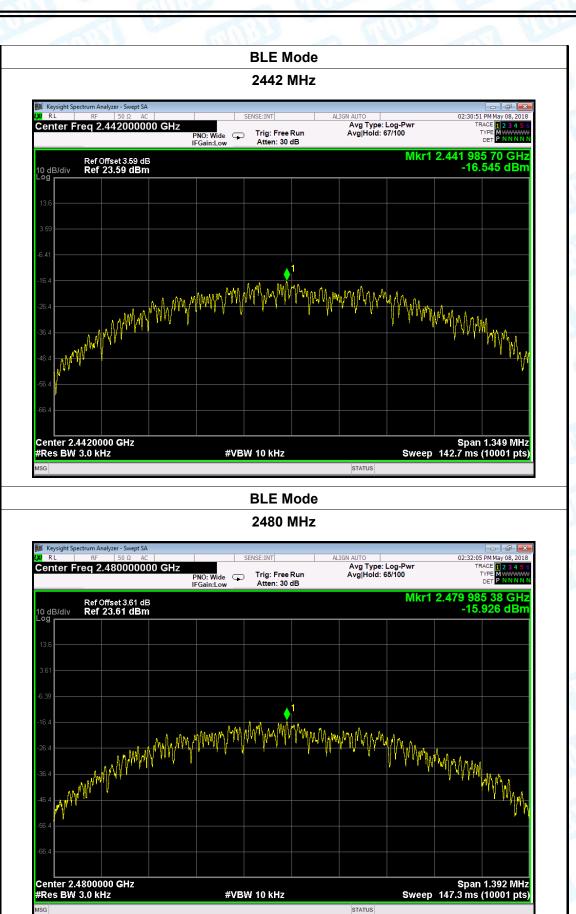
### **Attachment F-- Power Spectral Density Test Data**

TOBY

Temperature:	<b>25</b> ℃	Relative Humidity:		55%	ALC: N		
Test Voltage:	AC 120V/60HZ						
Test Mode:	BLE TX N	BLE TX Mode(Module 1)					
Channel Freq	uency	Power Density (dBm/3kHz)		Limit (dBm/3kHz)		Result	
(MHz)						Result	
2402		-17.640					
2442		-16.5	545	8	8 PA		
2480		-15.9	026				
		BLE N	lode	L	L. L		
		2402					

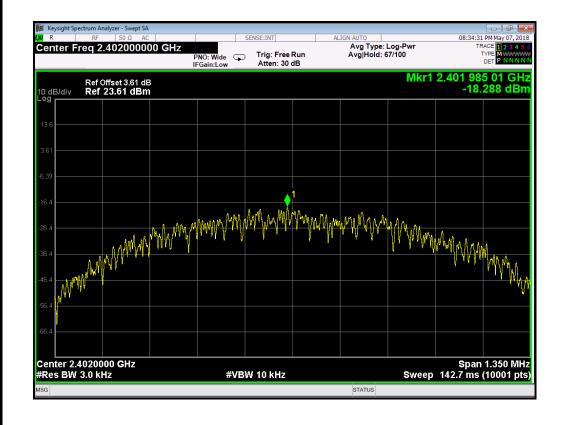




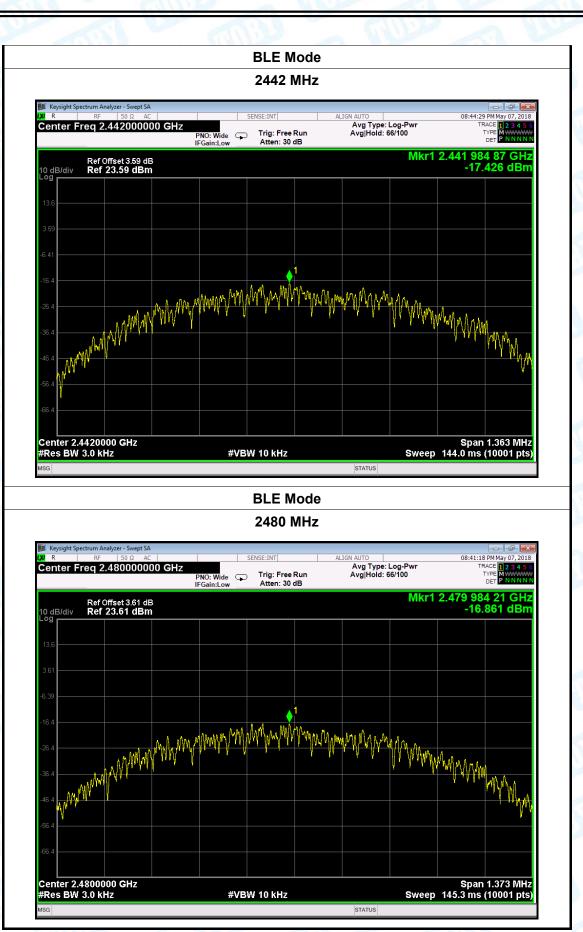




Temperature:	<b>25</b> ℃	Rel	ative Humidity:	55%	ALC: N	
Test Voltage: AC 120V/60HZ						
Test Mode:	BLE TX Mode(Module 2)					
Channel Free	quency	Power Densit	ver Density Limit		Result	
(MHz)		(dBm/3kHz)	(dBm/	3kHz)	Result	
2402		-18.288				
2442		-17.426	8	8 PAS		
2480		-16.861	-16.861			
		BLE Mode				
		0.400 MIL				







-----END OF REPORT-----