

TEST REPORT

Product Name : Wi-Fi Plug

Brand Mark : Globe

Model No. : DR-G2186

Extension model : 50157*

FCC ID : 2AQUQGE50157A

Report Number : BLA-EMC-202205-A2401

Date of Sample Receipt : 2022/5/11

Date of Test : 2022/5/11 to 2022/5/31

Date of Issue : 2022/5/31

Test Standard : 47 CFR Part 15, Subpart C 15.247

Test Result : Pass

Josea Blue Thong

Prepared for:

Globe Electric Company Inc. 150 Oneida, Montreal, Quebec, Canada, H9R 1A8

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China

TEL: +86-755-23059481

Compiled by:

Approved by:

Review by:

Date:







Page 2 of 65

REPORT REVISE RECORD

Version No. Date		Description	
00	2022/5/31	Original	





TABLE OF CONTENTS

1	TES	ST SUMMARY	5
2	GE	NERAL INFORMATION	6
3	GE	NERAL DESCRIPTION OF E.U.T	6
4	TES	ST ENVIRONMENT	7
		ST MODE	
5			
6	ME	ASUREMENT UNCERTAINTY	7
7		SCRIPTION OF SUPPORT UNIT	
8	LAE	BORATORY LOCATION	8
9	TES	ST INSTRUMENTS LIST	9
10		DIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	
	10.1	LIMITS	12
	10.2	BLOCK DIAGRAM OF TEST SETUP	
	10.3	PROCEDURE	
	10.4	TEST DATA	15
11	і со	NDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)	19
	11.1	LIMITS	
	11.2	BLOCK DIAGRAM OF TEST SETUP	
	11.3	PROCEDURE	19
	11.4	TEST DATA	21
12	2 CO	NDUCTED BAND EDGES MEASUREMENT	23
	12.1	LIMITS	23
	12.2	BLOCK DIAGRAM OF TEST SETUP	
	12.3	TEST DATA	24
13	3 RAI	DIATED SPURIOUS EMISSIONS	25
	13.1	LIMITS	25
	13.2	BLOCK DIAGRAM OF TEST SETUP	26
	13.3	PROCEDURE	26
	13.4	TEST DATA	28
14	4 CO	NDUCTED SPURIOUS EMISSIONS	36
	14.1	LIMITS	36



Page 4 of 65

14	4.2	BLOCK DIAGRAM OF TEST SETUP	36
14	4.1	TEST DATA	37
15	POV	VER SPECTRUM DENSITY	38
15	5.1	LIMITS	38
15	5.2	BLOCK DIAGRAM OF TEST SETUP	38
15	5.3	TEST Data	38
16	CON	NDUCTED PEAK OUTPUT POWER	39
16	5.1	LIMITS	39
16	5.2	BLOCK DIAGRAM OF TEST SETUP	
16	5.3	TEST DATA	40
17	MIN	IMUM 6DB BANDWIDTH	41
17	7.1	LIMITS	42
17	7.2	BLOCK DIAGRAM OF TEST SETUP	41
	7.3	TEST DATA	
18	ANT	ENNA REQUIREMENT	42
18	3.1	CONCLUSION	42
19	APF	PENDIX	43
APP	END	IX A: PHOTOGRAPHS OF TEST SETUP	58
APP	END	IX B: PHOTOGRAPHS OF EUT	60



Page 5 of 65

1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5 47 CFR Part 15, Subpart C 15.209 & 15.247(d)		Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass



Page 6 of 65

2 GENERAL INFORMATION

Applicant	Globe Electric Company Inc.
Address	150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Manufacturer	NINGBO DIYA ELECTRIC APPLIANCE CO., LTD.
Address	SIMEN TOWN YUYAO CITY ZHEJIANG CHINA
Factory	NINGBO DIYA ELECTRIC APPLIANCE CO., LTD.
Address	SIMEN TOWN YUYAO CITY ZHEJIANG CHINA
Product Name	Wi-Fi Plug
Test Model No.	DR-G2186
Extension model	50157*
Note	All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose.

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	N/A
Software Version	N/A
Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK
Channel Spacing:	2MHz
Number of Channels:	40
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi(Provided by the applicant)



Page 7 of 65

4 TEST ENVIRONMENT

Environment	Temperature	Voltage	
Normal	25℃	DC3.3V	

5 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Transmitting mode	Keep the EUT in continuously transmitting mode with modulation.

6 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB



Page 8 of 65

7 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark		
Note: "" means no any support device during testing.						

8 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.



Page 9 of 65

9 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Emissions which fall in the restricted bands						
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due	
Chamber	SKET	966	N/A	10/11/2020	9/11/2023	
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022	
Receiver	R&S	ESR7	101199	24/9/2021	23/9/2022	
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2020	25/9/2022	
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2020	25/9/2022	
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2021	23/9/2022	
EMI software	EZ	EZ-EMC	N/A	N/A	N/A	
Loop antenna	SCHNARZBECK	FMZB1519B	00102	26/9/2020	25/9/2022	

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)						
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due	
Shield room	SKET	833	N/A	25/11/2020	24/11/2023	
Receiver	R&S	ESPI3	101082	24/9/2021	23/9/2022	
LISN	R&S	ENV216	3560.6550.15	24/9/2021	23/9/2022	
LISN	AT	AT166-2	AKK1806000003	26/9/2021	25/9/2022	
EMI software	EZ	EZ-EMC	N/A	N/A	N/A	

Test Equipment Of	Conducted Band	Edges Measure	ment		
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022



Page 10 of 65

Spectrum	Agilent	N9020A	MY49100060	24/9/2021	23/9/2022
Signal Generator	Agilent	N5182A	MY49060650	24/9/2021	23/9/2022
Signal Generator	Agilent	E8257D	MY44320250	24/9/2021	23/9/2022

Test Equipment Of	Radiated Spurious	s Emissions			
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Receiver	R&S	ESR7	101199	24/9/2021	23/9/2022
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2020	25/9/2022
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2020	25/9/2022
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2021	23/9/2022
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	26/9/2020	25/9/2022

Test Equipment Of	Conducted Spurio	ous Emissions			
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Spectrum	Agilent	N9020A	MY49100060	24/9/2021	23/9/2022
Signal Generator	Agilent	N5182A	MY49060650	24/9/2021	23/9/2022
Signal Generator	Agilent	E8257D	MY44320250	24/9/2021	23/9/2022

Test Equipment Of Power Spectrum Density



Page 11 of 65

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Spectrum	Agilent	N9020A	MY49100060	24/9/2021	23/9/2022
Signal Generator	Agilent	N5182A	MY49060650	24/9/2021	23/9/2022
Signal Generator	Agilent	E8257D	MY44320250	24/9/2021	23/9/2022

Test Equipment Of	Conducted Peak (Output Power			
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Spectrum	Agilent	N9020A	MY49100060	24/9/2021	23/9/2022
Signal Generator	Agilent	N5182A	MY49060650	24/9/2021	23/9/2022
Signal Generator	Agilent	E8257D	MY44320250	24/9/2021	23/9/2022

Test Equipment Of	Minimum 6dB Bar	ndwidth			
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Spectrum	R&S	FSP40	100817	24/9/2021	23/9/2022
Spectrum	Agilent	N9020A	MY49100060	24/9/2021	23/9/2022
Signal Generator	Agilent	N5182A	MY49060650	24/9/2021	23/9/2022
Signal Generator	Agilent	E8257D	MY44320250	24/9/2021	23/9/2022



Page 12 of 65

10 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

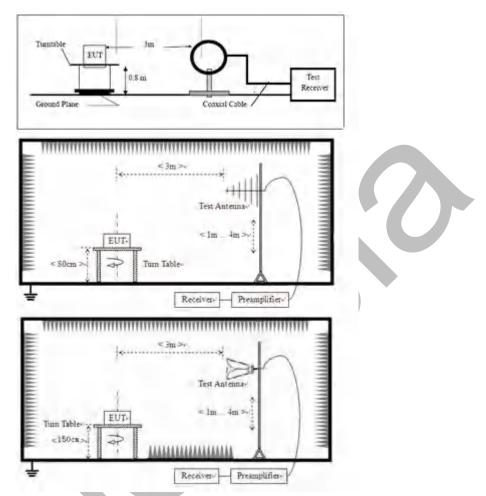
10.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.



10.2 BLOCK DIAGRAM OF TEST SETUP



10.3 PROCEDURE

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.



Page 14 of 65

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. 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.

j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.





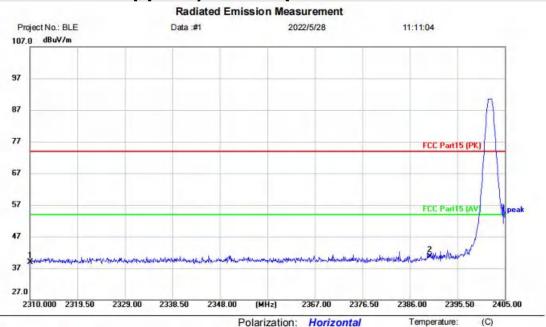
Humidity:

%RH

Page 15 of 65

10.4 TEST DATA

[TestMode: TX low channel]; [Polarity: Horizontal]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket M/N: DR-G2186 Mode: BLE TX-L

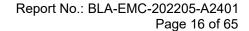
Note:

Site

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		2310.000	42.89	-3.93	38.96	74.00	-35.04	peak	
2	*	2390.000	44.37	-3.58	40.79	74.00	-33.21	peak	

Power:

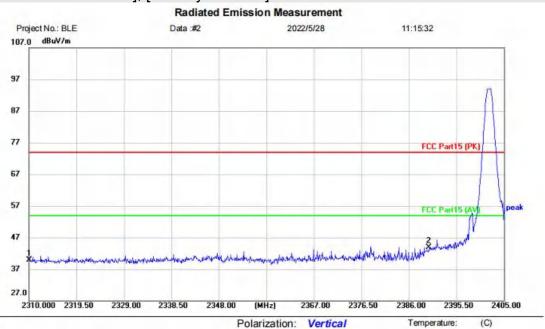
*:Maximum data x:Over limit !:over margin (Reference Only



%RH



[TestMode: TX low channel]; [Polarity: Vertical]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

M/N: DR-G2186 Mode: BLE TX-L

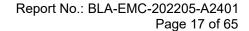
Note:

Site

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2310.000	43.90	-3.93	39.97	74.00	-34.03	peak		
2	*	2390.000	47.49	-3.58	43.91	74.00	-30.09	peak		

Power:

*:Maximum data x:Over limit !:over margin (Reference Only



Temperature:

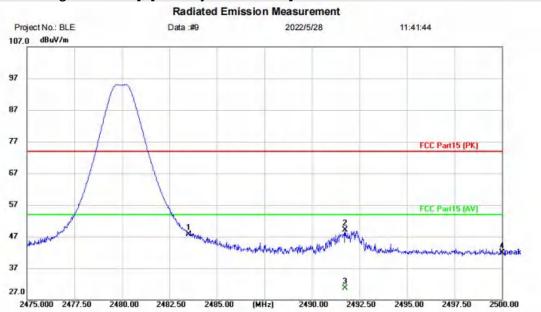
Humidity:

(C)

%RH



[TestMode: TX high channel]; [Polarity: Horizontal]



Polarization: Horizontal

Limit: FCC Part15 (PK)

EUT: Scene lamp socket

Note:

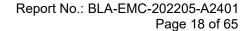
Site

M/N: DR-G2186 Mode: BLE TX-H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2483.500	48.89	-1.26	47.63	74.00	-26.37	peak		
2		2491.750	50.31	-1.30	49.01	74.00	-24.99	peak		
3	*	2491.750	31.96	-1.30	30.66	54.00	-23.34	AVG		
4		2500.000	43.18	-1.34	41.84	74.00	-32.16	peak		

Power:

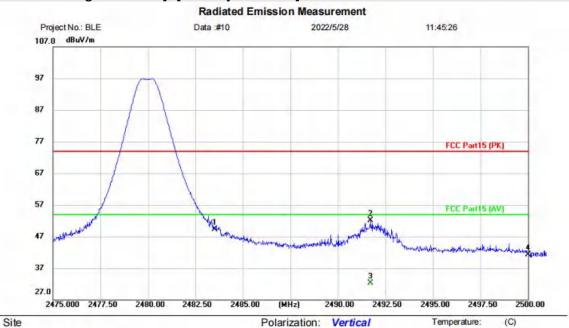
*:Maximum data x:Over limit !:over margin (Reference Only



%RH



[TestMode: TX high channel]; [Polarity: Vertical]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket M/N: DR-G2186

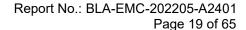
Mode: BLE TX-H

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment dBuV/m	Limit dBuV/m	Over	Detector	
		MHz	dBuV						Comment
1		2483.500	50.64	-1.26	49.38	74.00	-24.62	peak	
2		2491.700	53.47	-1.30	52.17	74.00	-21.83	peak	
3	*	2491.700	33.61	-1.30	32.31	54.00	-21.69	AVG	
4		2500.000	42.65	-1.34	41.31	74.00	-32.69	peak	

Power:

*:Maximum data x:Over limit !:over margin (Reference Only





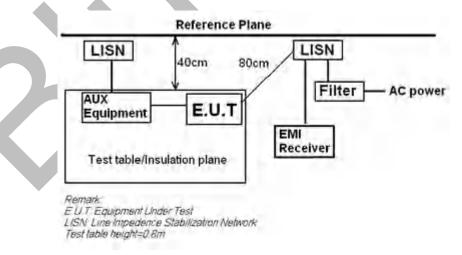
11 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

11.1 LIMITS

Frequency of	Conducted limit(dBµV)							
emission(MHz)	Quasi-peak	Average						
0.15-0.5	66 to 56*	56 to 46*						
0.5-5	56	46						
5-30	60	50						
*Decreases with the logarithn	n of the frequency.							

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 PROCEDURE

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm 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

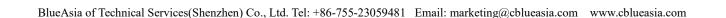


Page 20 of 65

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.

- 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,
- 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.
- 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 on conducted measurement.

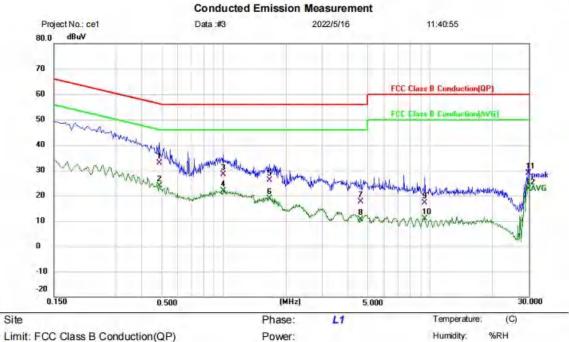
Remark: LISN=Read Level+ Cable Loss+ LISN Factor





11.4 TEST DATA

[TestMode: Transmitting mode]; [Line: Line] ;[Power:AC120V/60Hz]



Limit: FCC Class B Conduction(QP)

EUT: Scene lamp socket M/N: DR-G2186

Mode: BLE mode

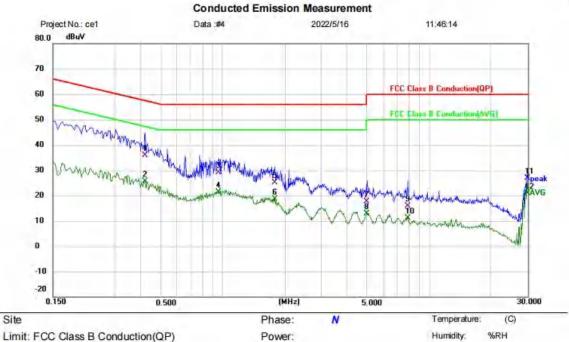
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4860	23.10	9.87	32.97	56.24	-23.27	QP	
2	*	0.4860	13.90	9.87	23.77	46.24	-22.47	AVG	
3		0.9900	18.54	9.92	28.46	56.00	-27.54	QP	
4		0.9900	12.00	9.92	21.92	46.00	-24.08	AVG	
5		1.6700	16.25	9.93	26.18	56.00	-29.82	QP	
6		1.6700	8.87	9.93	18.80	46.00	-27.20	AVG	
7		4.6180	7.63	9.97	17.60	56.00	-38.40	QP	
8		4.6180	0.66	9.97	10.63	46.00	-35.37	AVG	
9		9.4300	6.66	10.37	17.03	60.00	-42.97	QP	
10		9.4300	0.50	10.37	10.87	50.00	-39.13	AVG	
11		29.9700	18.38	10.50	28.88	60.00	-31.12	QP	
12		29.9700	12.04	10.50	22.54	50.00	-27.46	AVG	

*:Maximum data x:Over limit (Reference Only !:over margin



[TestMode: Transmitting mode]; [Line: Nutral] ;[Power:AC120V/60Hz]



Limit: FCC Class B Conduction(QP)

EUT: Scene lamp socket

M/N: DR-G2186 Mode: BLE mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.4180	26.03	9.78	35.81	57.49	-21.68	QP	
2		0.4180	15.94	9.78	25.72	47.49	-21.77	AVG	
3		0.9540	19.41	9.84	29.25	56.00	-26.75	QP	
4		0.9540	11.65	9.84	21.49	46.00	-24.51	AVG	
5		1.7820	15.32	9.86	25.18	56.00	-30.82	QP	
6		1.7820	8.69	9.86	18.55	46.00	-27.45	AVG	
7		4.9860	7.67	9.95	17.62	56.00	-38.38	QP	
8		4.9860	2.82	9.95	12.77	46.00	-33.23	AVG	
9		7.8540	5.91	10.06	15.97	60.00	-44.03	QP	
10		7.8540	1.00	10.06	11.06	50.00	-38.94	AVG	
11		29.9100	16.31	10.49	26.80	60.00	-33.20	QP	
12		29.9100	10.33	10.49	20.82	50.00	-29.18	AVG	

*:Maximum data x:Over limit (Reference Only !:over margin



Page 23 of 65

12 CONDUCTED BAND EDGES MEASUREMENT

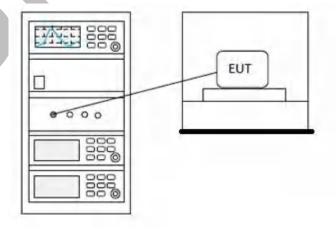
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25 ℃
Humidity	60%

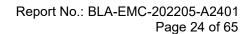
12.1 LIMITS

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

12.2 BLOCK DIAGRAM OF TEST SETUP







12.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details





Page 25 of 65

13 RADIATED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

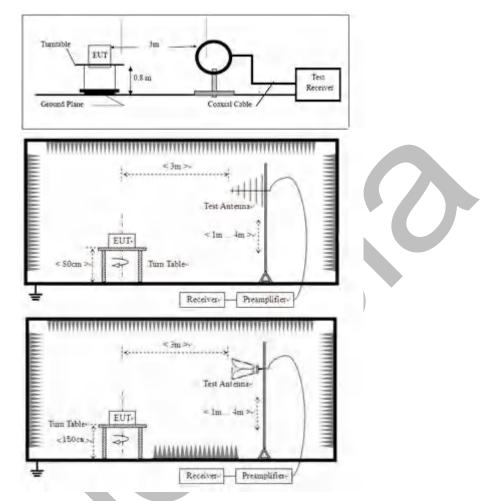
13.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, 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.



13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 PROCEDURE

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.



Page 27 of 65

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. Repeat above procedures until all frequencies measured was complete.

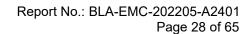
Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) 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

- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 4) 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

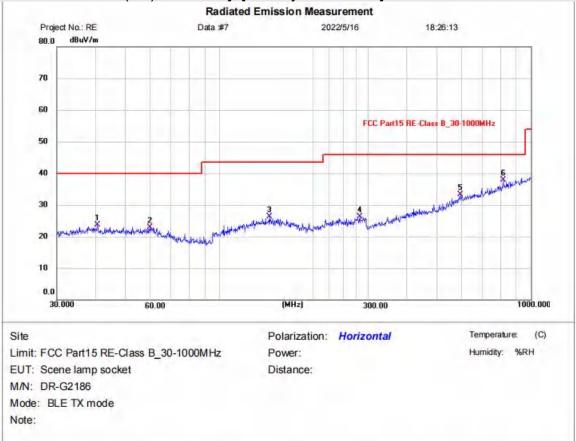






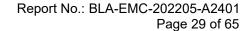
13.4 TEST DATA

[TestMode: TX mode (SE) below 1G]; [Polarity: Horizontal]



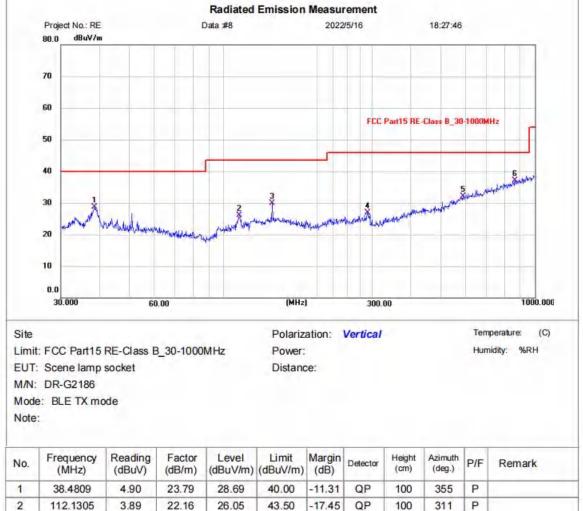
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	40.5591	-0.14	23.93	23.79	40.00	-16.21	QP	100	32	P	
2	59.8588	-0.56	23.49	22.93	40.00	-17.07	QP	100	359	P	
3	144.8417	2.42	23.90	26.32	43.50	-17.18	QP	100	191	Р	
4	281.9945	2.06	24.30	26.36	46.00	-19.64	QP	100	182	P	
5	593.0496	0.97	32.24	33.21	46.00	-12.79	QP	100	359	Р	
6 *	815.9678	2.18	35.82	38.00	46.00	-8.00	QP	100	10	P	

^{*:}Maximum data x:Over limit !:over margin





[TestMode: TX mode (SE) below 1G]; [Polarity: Vertical]



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	38.4809	4.90	23.79	28.69	40.00	-11.31	QP	100	355	P	
2	112.1305	3.89	22.16	26.05	43.50	-17.45	QP	100	311	P	
3	143.3261	6.04	23.91	29.95	43.50	-13.55	QP	100	317	Р	
4	290.0172	2.46	24.41	26.87	46.00	-19.13	QP	100	305	P	
5	586.8437	-0.01	32.02	32.01	46.00	-13.99	QP	100	124	P	
6 *	863.0562	0.83	36.37	37.20	46.00	-8.80	QP	100	248	P	

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



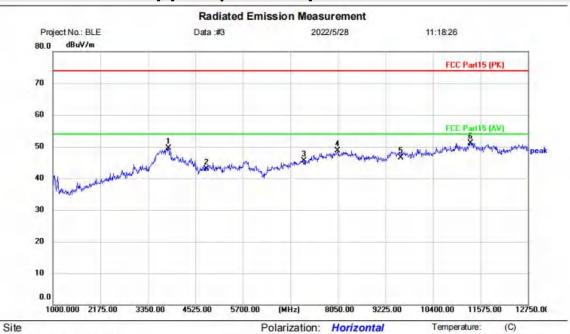
Humidity:

%RH

Page 30 of 65

Above 1GHz:

[TestMode: TX low channel]; [Polarity: Horizontal]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

M/N: DR-G2186 Mode: BLE TX-L

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		3855.250	42.50	6.97	49.47	74.00	-24.53	peak	
2		4804.000	39.23	3.71	42.94	74.00	-31.06	peak	
3		7206.000	39.56	5.96	45.52	74.00	-28.48	peak	
4		8038.250	40.76	7.99	48.75	74.00	-25.25	peak	
5		9608.000	37.17	9.29	46.46	74.00	-27.54	peak	
6	*	11328.250	39.34	11.86	51.20	74.00	-22.80	peak	

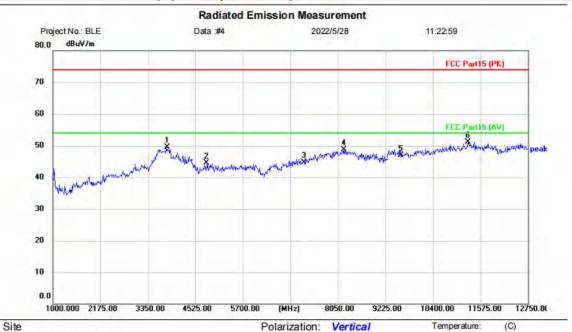
Power:

*:Maximum data x:Over limit !:over margin (Reference Only

%RH



[TestMode: TX low channel]; [Polarity: Vertical]



Limit: FCC Part15 (PK) EUT: Scene lamp socket

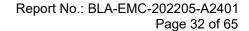
M/N: DR-G2186 Mode: BLE TX-L

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		3820.000	42.01	7.41	49.42	74.00	-24.58	peak	
2		4804.000	40.85	3.71	44.56	74.00	-29.44	peak	
3		7206.000	38.74	5.96	44.70	74.00	-29.30	peak	
4		8202.750	40.41	8.21	48.62	74.00	-25.38	peak	
5		9608.000	37.52	9.29	46.81	74.00	-27.19	peak	
6	*	11269.500	39.18	11.94	51.12	74.00	-22.88	peak	

Power:

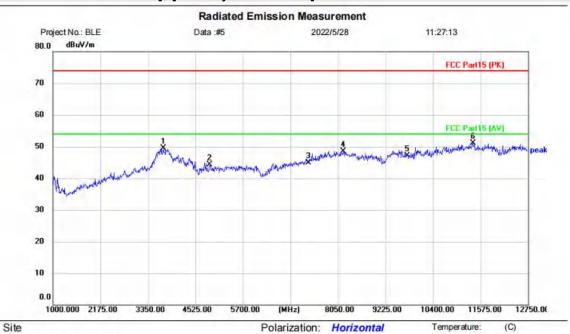
*:Maximum data x:Over limit 1:over margin (Reference Only



%RH



[TestMode: TX mid channel]; [Polarity: Horizontal]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

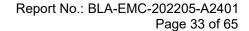
M/N: DR-G2186 Mode: BLE TX-M

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		3726.000	41.79	7.70	49.49	74.00	-24.51	peak		
2		4884.000	40.99	3.34	44.33	74.00	-29.67	peak		
3		7326.000	38.38	6.44	44.82	74.00	-29.18	peak		
4		8179.250	40.36	8.18	48.54	74.00	-25.46	peak		
5		9768.000	37.40	9.63	47.03	74.00	-26.97	peak		
6	*	11387.000	39.26	11.78	51.04	74.00	-22.96	peak		

Power:

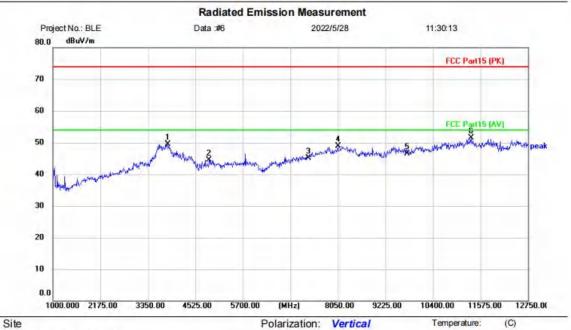
*:Maximum data x:Over limit 1:over margin (Reference Only



%RH



[TestMode: TX mid channel]; [Polarity: Vertical]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

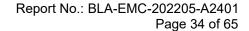
M/N: DR-G2186 Mode: BLE TX-M

Note:

MHz 3843.500 4865.750	1000	dB/m 7.12	dBuV/m 49.42	dBuV/m	dB	Detector	Comment
The Control of the	1000	7.12	49.42	7400			
4865.750	44 45			74.00	-24.58	peak	
	41.15	3.43	44.58	74.00	-29.42	peak	
7326.000	38.72	6.44	45.16	74.00	-28.84	peak	
8050.000	40.99	8.01	49.00	74.00	-25.00	peak	
9768.000	36.87	9.63	46.50	74.00	-27.50	peak	
	39.59	11.85	51.44	74.00	-22.56	peak	
	9768.000		9768.000 36.87 9.63	9768.000 36.87 9.63 46.50	9768.000 36.87 9.63 46.50 74.00	9768.000 36.87 9.63 46.50 74.00 -27.50	9768.000 36.87 9.63 46.50 74.00 -27.50 peak

Power:

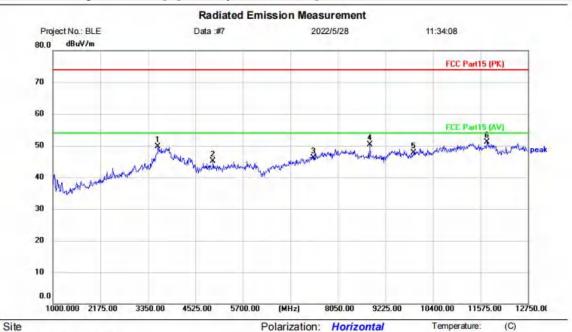
*:Maximum data x:Over limit 1:over margin (Reference Only



%RH



[TestMode: TX high channel]; [Polarity: Horizontal]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

M/N: DR-G2186 Mode: BLE TX-H

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		3596.750	42.12	7.68	49.80	74.00	-24.20	peak		
2		4959.750	41.42	3.75	45.17	74.00	-28.83	peak		
3		7440.000	39.27	6.86	46.13	74.00	-27.87	peak		
4		8837.250	42.50	7.79	50.29	74.00	-23.71	peak		
5		9920.000	37.46	10.16	47.62	74.00	-26.38	peak		
6	*	11739.500	39.46	11.70	51.16	74.00	-22.84	peak		

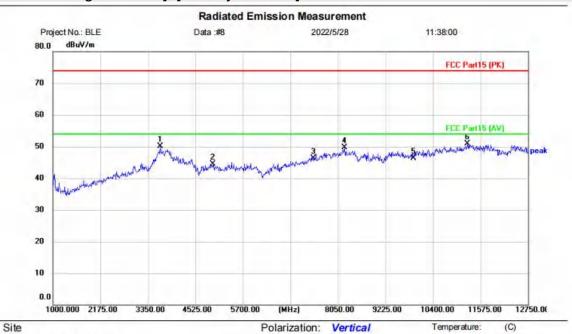
Power:

*:Maximum data x:Over limit !:over margin (Reference Only

%RH



[TestMode: TX high channel]; [Polarity: Vertical]



Limit: FCC Part15 (PK)

EUT: Scene lamp socket

M/N: DR-G2186 Mode: BLE TX-H

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		3655.500	42.27	7.76	50.03	74.00	-23.97	peak	
2		4960.000	40.84	3.75	44.59	74.00	-29.41	peak	
3		7440.000	39.40	6.86	46.26	74.00	-27.74	peak	
4		8214.500	41.49	8.21	49.70	74.00	-24.30	peak	
5		9920.000	36.10	10.16	46.26	74.00	-27.74	peak	
6	*	11257.750	38.93	11.95	50.88	74.00	-23.12	peak	

Power:

*:Maximum data x:Over limit 1:over margin (Reference Only



Page 36 of 65

14 CONDUCTED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247						
Test Method	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11						
Test Mode (Pre-Scan)	TX						
Test Mode (Final Test)	TX						
Tester	Jozu						
Temperature	C						
Humidity	%						

14.1 LIMITS

Limit:

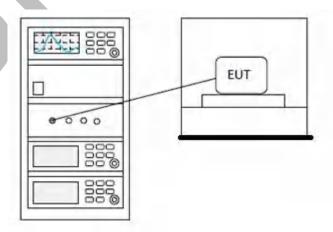
frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in

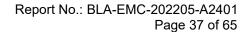
§15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated

emission limits specified in §15.209(a) (see §15.205(c)).

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio

14.2 BLOCK DIAGRAM OF TEST SETUP







14.1 TEST DATA





Page 38 of 65

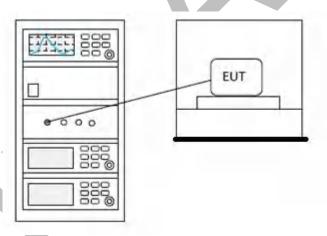
15 POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

15.1 LIMITS

Limit: | ≤8dBm in any 3 kHz band during any time interval of continuous transmission

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA



Page 39 of 65

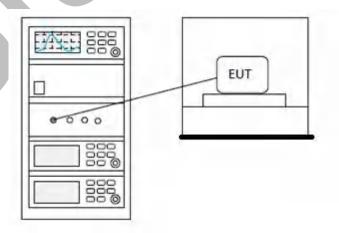
16 CONDUCTED PEAK OUTPUT POWER

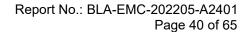
Test Standard	47 CFR Part 15, Subpart C 15.247				
Test Method	ANSI C63.10 (2013) Section 7.8.5				
Test Mode (Pre-Scan)	TX				
Test Mode (Final Test)	TX				
Tester	Jozu				
Temperature	25℃				
Humidity	60%				

16.1 LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)		
	1 for ≥50 hopping channels		
902-928	0.25 for 25≤ hopping channels <50		
	1 for digital modulation		
	1 for ≥75 non-overlapping hopping channels		
2400-2483.5	0.125 for all other frequency hopping systems		
	1 for digital modulation		
	1 for frequency hopping systems and digital		
5725-5850	modulation		

16.2 BLOCK DIAGRAM OF TEST SETUP







16.3 TEST DATA





Page 41 of 65

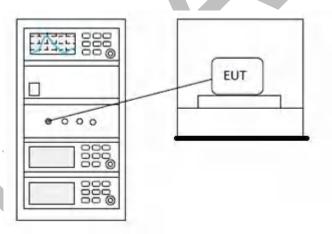
17 MINIMUM 6DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247				
Test Method	ANSI C63.10 (2013) Section 11.8.1				
Test Mode (Pre-Scan)	TX				
Test Mode (Final Test)	TX				
Tester	Jozu				
Temperature	25℃				
Humidity	60%				

17.1 LIMITS

Limit: ≥500 kHz

17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA



Page 42 of 65

18 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

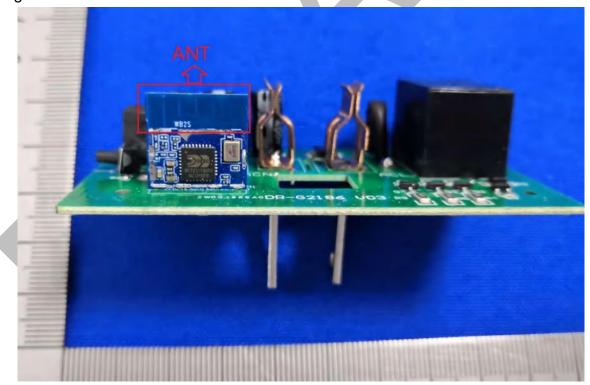
18.1 CONCLUSION

Standard 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1.5dBi.





Page 43 of 65

19 APPENDIX

Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE	2402	Ant1	1.721	30	Pass
NVNT	BLE	2440	Ant1	1.533	30	Pass
NVNT	BLE	2480	Ant1	3.843	30	Pass

Power NVNT BLE 2402MHz Ant1



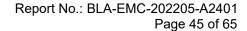
Power NVNT BLE 2440MHz Ant1





Power NVNT BLE 2480MHz Ant1







-6dB Bandwidth

Condition	Mode	Frequency	Antenna	-6 dB Bandwidth	Limit -6 dB	Verdict
		(MHz)		(MHz)	Bandwidth (MHz)	
NVNT	BLE	2402	Ant1	0.665	0.5	Pass
NVNT	BLE	2440	Ant1	0.669	0.5	Pass
NVNT	BLE	2480	Ant1	0.665	0.5	Pass

-6dB Bandwidth NVNT BLE 2402MHz Ant1



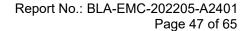
-6dB Bandwidth NVNT BLE 2440MHz Ant1





-6dB Bandwidth NVNT BLE 2480MHz Ant1







Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE	2402	Ant1	1.031550127
NVNT	BLE	2440	Ant1	1.035187458
NVNT	BLE	2480	Ant1	1.040309765

OBW NVNT BLE 2402MHz Ant1



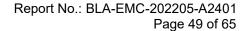
OBW NVNT BLE 2440MHz Ant1





OBW NVNT BLE 2480MHz Ant1







Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE	2402	Ant1	0.365	8	Pass
NVNT	BLE	2440	Ant1	0.514	8	Pass
NVNT	BLE	2480	Ant1	2.729	8	Pass

PSD NVNT BLE 2402MHz Ant1



PSD NVNT BLE 2440MHz Ant1





PSD NVNT BLE 2480MHz Ant1





Band Edge

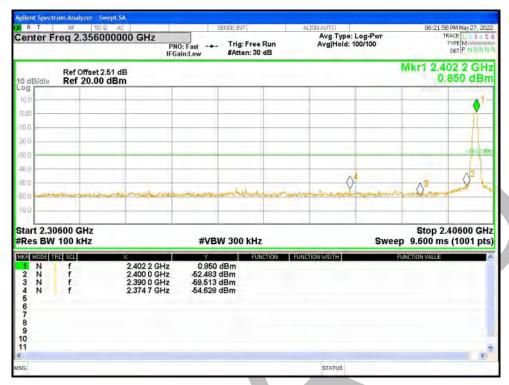
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE	2402	Ant1	-55.11	-30	Pass
NVNT	BLE	2480	Ant1	-53.94	-30	Pass

Band Edge NVNT BLE 2402MHz Ant1 Ref



Band Edge NVNT BLE 2402MHz Ant1 Emission



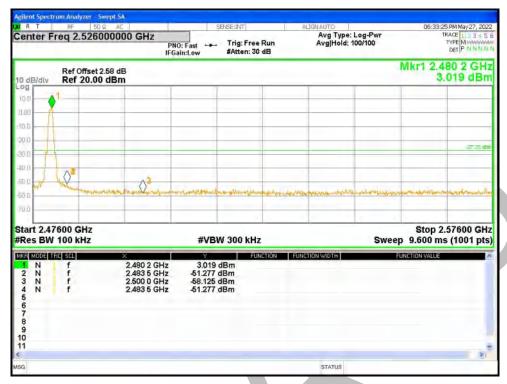


Band Edge NVNT BLE 2480MHz Ant1 Ref



Band Edge NVNT BLE 2480MHz Ant1 Emission







Conducted RF Spurious Emission

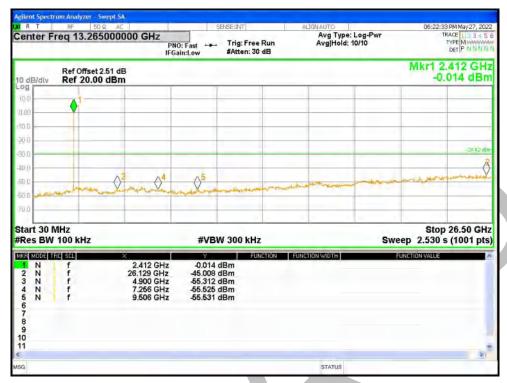
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE	2402	Ant1	-45.58	-30	Pass
NVNT	BLE	2440	Ant1	-44.84	-30	Pass
NVNT	BLE	2480	Ant1	-47.45	-30	Pass

Tx. Spurious NVNT BLE 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 2402MHz Ant1 Emission



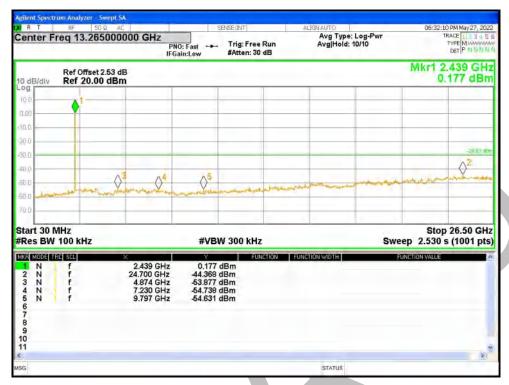


Tx. Spurious NVNT BLE 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 2440MHz Ant1 Emission



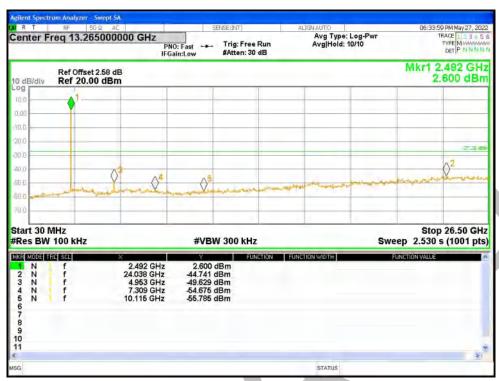


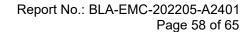
Tx. Spurious NVNT BLE 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2480MHz Ant1 Emission

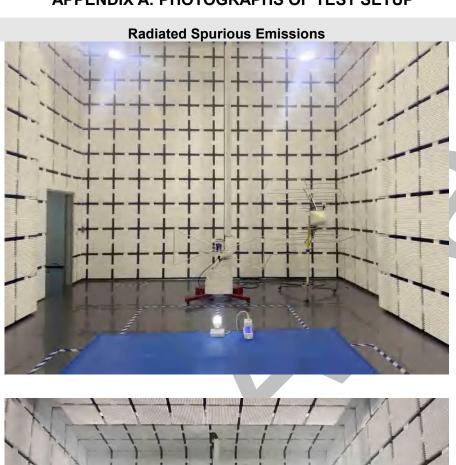




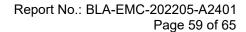




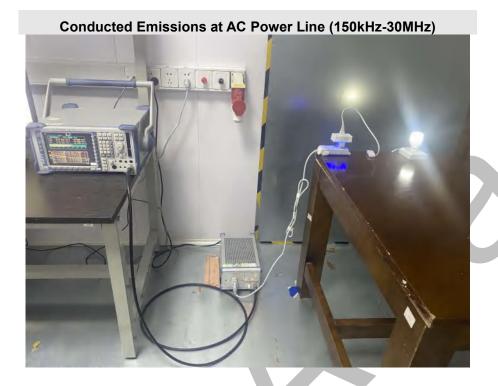
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

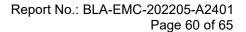








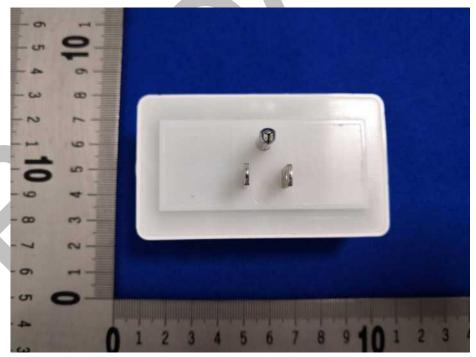


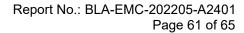




APPENDIX B: PHOTOGRAPHS OF EUT





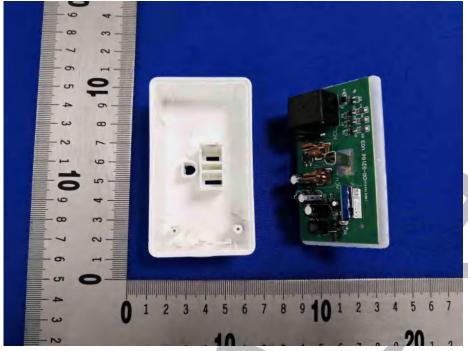


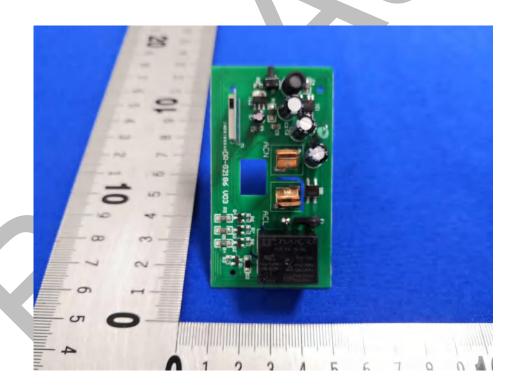




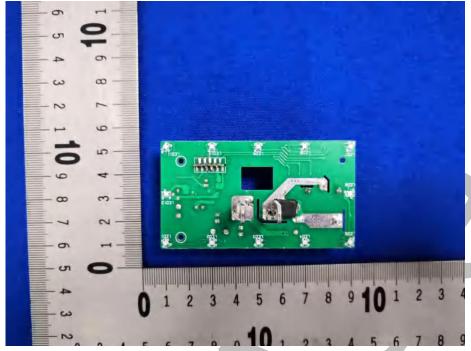


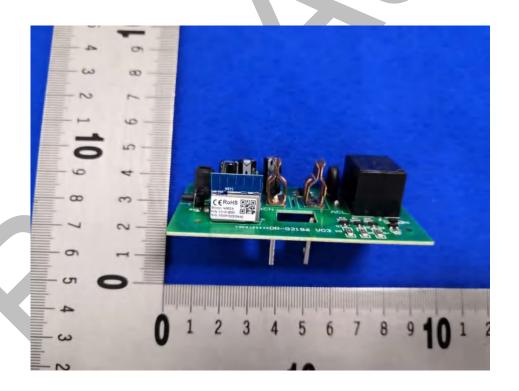






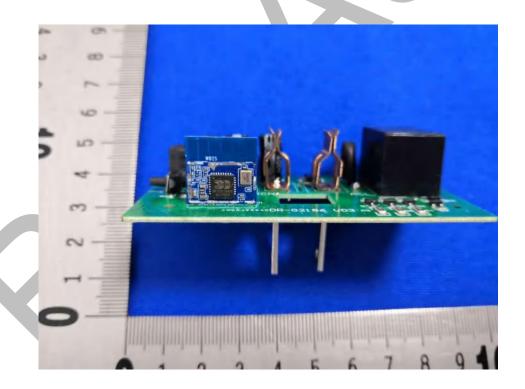


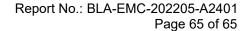














----END OF REPORT----

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full.

