

FCC Test Report

Report No.: 2405V85308EC

Applicant: Shenzhen Qianyan Technology LTD

Address: No.3301, Block C, Section 1, ChuangzhiYuncheng Building,

Liuxian Avenue, Xili Community, Xili Street, Nanshan District,

Shenzhen, China

Product Name: Govee Outdoor Projector Light

Product Model: H7070

Multiple Models: N/A

Trade Mark: Govee

FCC ID: 2A7VD-H7070

Standards: FCC CFR Title 47 Part 15C (§15.247)

Test Date: 2024-07-12 to 2024-08-06

Test Result: Complied

Report Date: 2024-08-07

Reviewed by:

Approved by:

Frank Yin

Frank Tin

Project Engineer

Jacob Kong

Jacob Gong

Manager

Prepared by:

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China



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Revision History

Version No. Issued Date		Description
00	2024-08-07	Original



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1 General Information

1.1 Client Information

Applicant:	Shenzhen Qianyan Technology LTD		
Address:	No.3301, Block C, Section 1, ChuangzhiYuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen, China		
Manufacturer:	Shenzhen Qianyan Technology LTD		
Address:	No.3301, Block C, Section 1, ChuangzhiYuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen, China		

1.2 Product Description of EUT

The EUT is Govee Outdoor Projector Light that contains BLE and 2.4G WLAN radio, this report covers the full testing of the BLE radio.

Sample Serial Number	2O9N-3 & 2O9N-11 for CE&RE test, 2O9N-10 for RF conducted test (assigned by WATC)
Sample Received Date	2024-07-10
Sample Status	Good Condition
Frequency Range	2402MHz - 2480MHz(BLE1M)
Maximum Conducted Peak Output Power	-4.55dBm
Modulation Technology	GFSK
Spatial Streams	SISO (1TX, 1RX)
Antenna Gain [#]	2.42dBi
Power Supply	AC 120V/60Hz
Adapter Information	Model: BI24G-120200-AdU
	Input: AC100-240V, 50/60Hz, 0.8A
	Output: DC 12V/2.0A,
Modification	Sample No Modification by the test lab

1.3 Antenna information

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Device Antenna information:

The BLE antenna is an internal antenna which cannot replace by end-user, please see product internal photos for details.



1.4 Related Submittal(s)/Grant(s)

No related submittal(s)/Grant(s)

1.5 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))		
AC Power Lines Condu	cted Emissions	±3.14dB		
Emissions, Radiated	Below 30MHz	±2.78dB		
	Below 1GHz	±4.84dB		
	Above 1GHz	±5.44dB		
Emissions, Conducted		1.75dB		
Conducted Power		0.74dB		
Frequency Error		150Hz		
Bandwidth		0.34%		
Power Spectral Density		0.74dB		

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 463912, the FCC Designation No.: CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

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2 Description of Measurement

2.1 Test Configuration

Operating channels:							
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)		
0	2402	19	2440	38	2478		
1	2404	20	2442	39	2480		
				/	/		
18	2438			/	/		

According to ANSI C63.10-2013 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	19	2440	39	2480

Test Mode:						
Transmitting mode:	Keep the EUT in	Keep the EUT in continuous transmitting with modulation				
Exercise software#:	UartAssist *	UartAssist *				
		Power Level Setting [#]				
Mode	Data rate	Low Channel	Middle Channel	High Channel		
BLE 1M	1Mbps	0x08	0x08	0x08		
The exercise software and the maximum power setting that provided by manufacturer.						

Worst-Case Configuration:

For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report

For AC power line conducted emission and radiated emission 9kHz-1GHz and above 18GHz were performed with the EUT transmits at the channel with highest output power as worst-case scenario.

2.2 Test Auxiliary Equipment

Manufacturer	Manufacturer Description		Serial Number
/	/	/	/

2.3 Interconnecting Cables

Manufacturer Description		From	То
Dong Guan Royal	DC Power Cable	Adapter	EUT

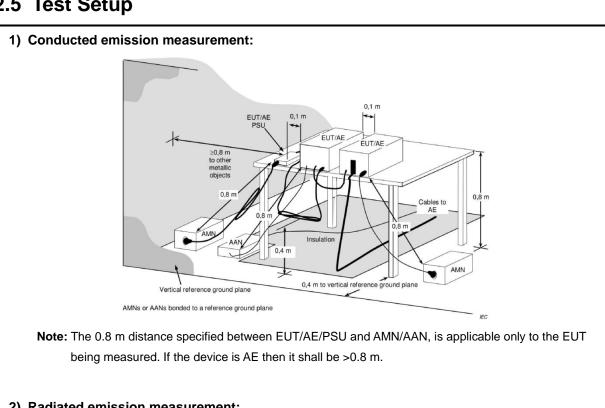
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2.4 Block Diagram of Connection between EUT and AE

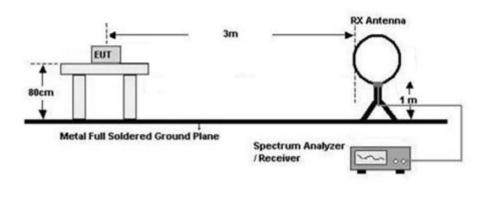


2.5 Test Setup

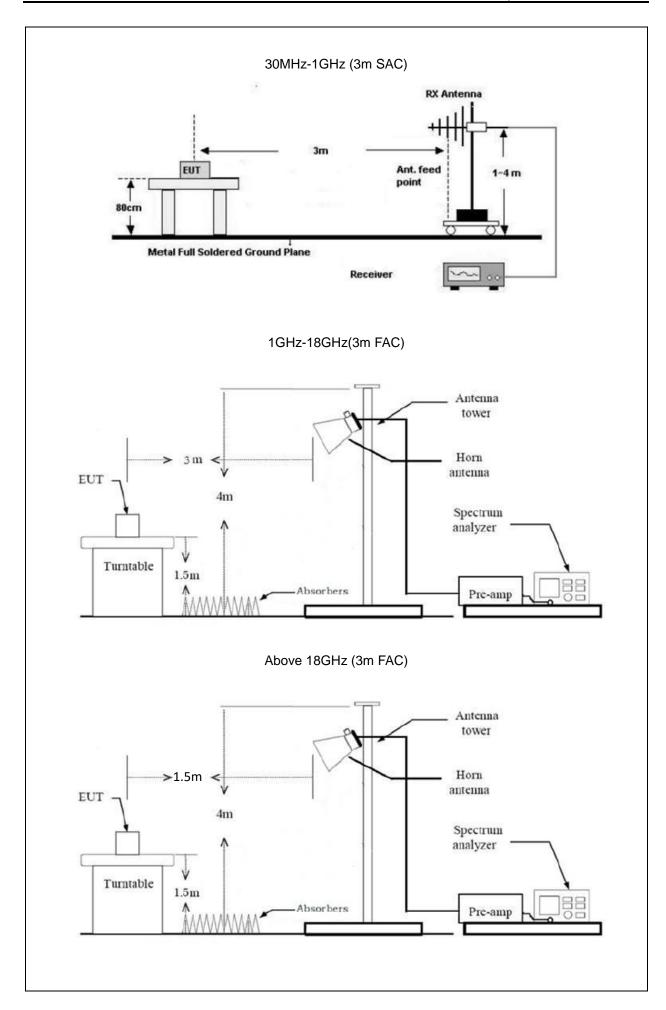


2) Radiated emission measurement:

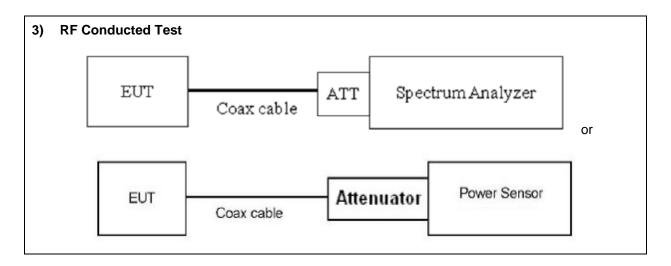
Below 30MHz (3m SAC)











2.6 Test Procedure

Conducted emission:

- 1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
- Both sides of A.C. line are checked for maximum conducted interference. 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.
- 3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

- 1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance).
- 2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, gound-parallel)

b) For 30MHz-1GHz:

- 1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
- 2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m (1-18GHz) and 1.5 m (above



18GHz).

- 2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
- 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
- 4. Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

- 1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or Spectrum analyzer) through Attenuator and RF cable.
- 2. The cable assembly insertion loss of 7.0dB (including 6.0 dB Attenuator and 1.0 dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 1.0dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
- 3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.7 Measurement Method

Description of Test	Measurement Method	
AC Line Conducted Emissions	ANSI C63.10-2013 Section 6.2	
Maximum Conducted Output Power	ANSI C63.10-2013 Section 11.9.1.1	
Power Spectral Density	ANSI C63.10-2013 Section 11.10.2	
6 dB Emission Bandwidth	ANSI C63.10-2013 Section 11.8.1	
99% Occupied Bandwidth	ANSI C63.10-2013 Section 6.9.3	
100kHz Bandwidth of Frequency Band Edge	ANSI C63.10-2013 Section 6.10	
Radiated emission	ANSI C63.10-2013 Section 11.11&11.12.1	
Duty Cycle	ANSI C63.10-2013 Section 11.6	



2.8 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date	
AC Line Conducted Emission Test						
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2024/6/4	2025/6/3	
R&S	LISN	ENV216	101748	2024/6/4	2025/6/3	
N/A	Coaxial Cable	NO.12	N/A	2024/6/4	2025/6/3	
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	1	/	
		Radiated Emissio	n Test			
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3	
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3	
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3	
COM-POWER	preamplifier	PAM-118A	18040152	2024/6/4	2025/6/3	
COM-POWER	Amplifier	PAM-840A	461306	2023/8/8	2024/8/7	
BACL	Loop Antenna	1313-1A	4010611	2024/2/7	2027/2/6	
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6	
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5	
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2023/7/10	2026/7/9	
Oulitong	Band Reject Filter	OBSF-2400-248 3.5-50N	OE02103119	2024/6/4	2025/6/3	
N/A	Coaxial Cable	N/A	NO.9	2024/6/4	2025/6/3	
N/A	Coaxial Cable	N/A	NO.14	2024/6/4	2025/6/3	
N/A	Coaxial Cable	N/A	NO.15	2024/6/4	2025/6/3	
N/A	Coaxial Cable	N/A	NO.16	2024/6/4	2025/6/3	
N/A	Coaxial Cable	N/A	NO.17	2024/6/4	2025/6/3	
Audix	Test Software	E3	191218 V9	/	/	
	1	RF Conducted	Test		1	
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSU-26	200680/026	2024/6/4	2025/6/3	
narda	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3	
		•			•	

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.



3 Test Results

3.1 Test Summary

FCC Rules	Description of Test	Result		
FCC Rules	Description of Test	Result		
§15.203	Antenna Requirement	Compliance		
§15.207 (a)	AC Line Conducted Emissions	Compliance		
§15.247(b)(3)	Maximum Conducted Output Power	Compliance		
§15.247(e)	Power Spectral Density	Compliance		
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance		
-	99% Occupied Bandwidth	Report only		
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance		
§15.205, §15.209, §15.247(d)	Radiated emission	Compliance		
-	Duty Cycle	Report only		



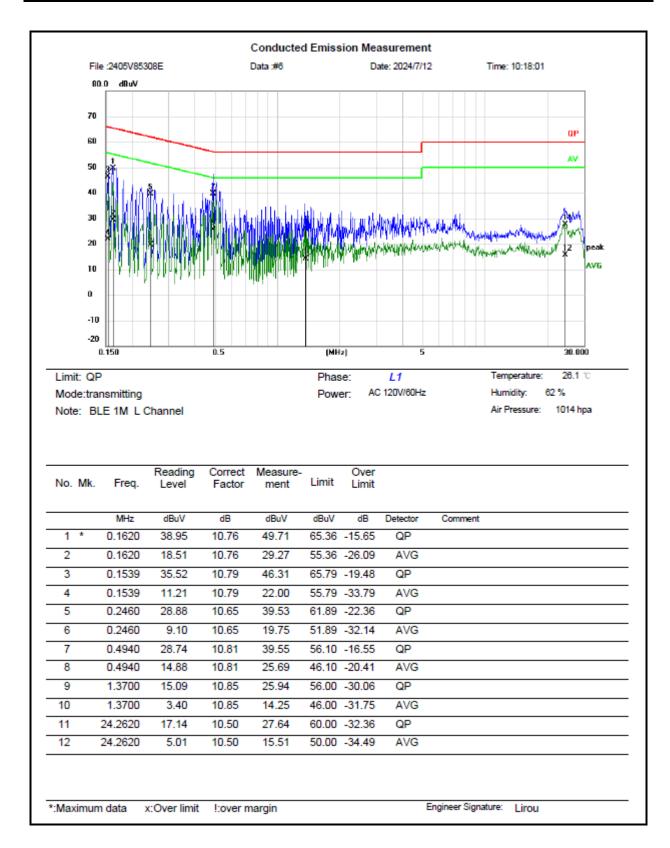
3.2 Limit

Test items	Limit
AC Line Conducted Emissions	See details §15.207 (a)
Conducted Output Power	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.
6dB Emission Bandwidth	The minimum 6 dB bandwidth shall be at least 500 kHz.
Power Spectral Density	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
Spurious Emissions, 100kHz Bandwidth of Frequency Band Edge	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 §15.205(c)).

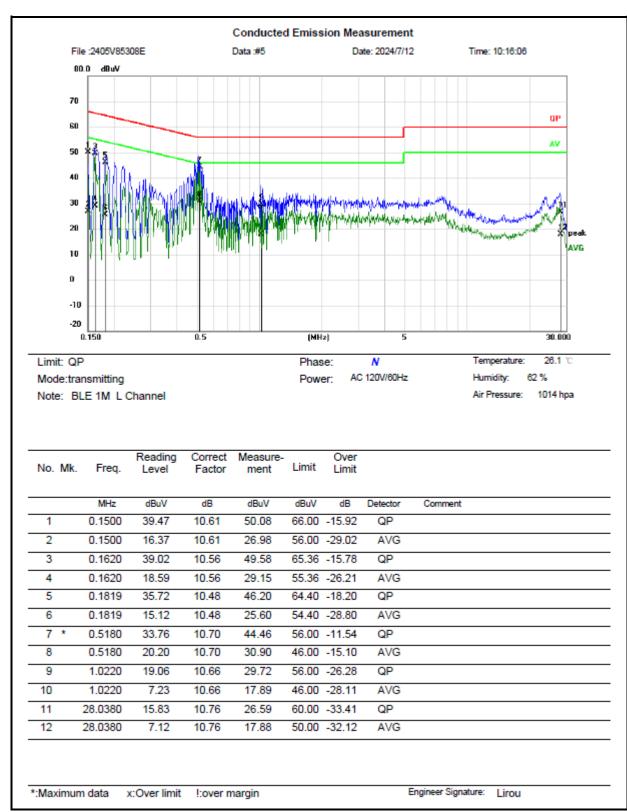


3.3 AC Line Conducted Emissions Test Data

Test Date:	2024-07-12	Test By:	Lirou Li
Environment condition:	Temperature: 26.1°C; Relative	Humidity:62%; ATM Pr	essure: 101.4kPa







Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

Correct Factor(dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

Over Limit = Measurement - Limit



3.4 Radiated emission Test Data

9 kHz-30MHz:

Test Date:	2024-07-15	Test By:	Bard Huang
Environment condition:	Temperature: 24.5°C; Relative	Humidity:65%; ATM Pr	essure: 100.2kPa

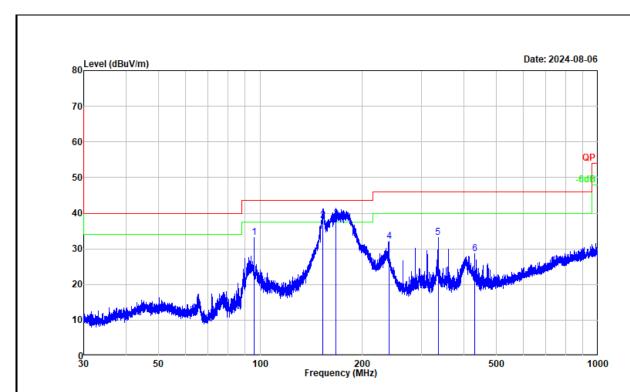
For radiated emissions below 30MHz, there were no emissions found within 20dB of limit.

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30MHz-1GHz:

Test Date:	2024-08-06	Test By:	Bard Huang
Environment condition:	Temperature: 23.2°C; Relative	Humidity:69%; ATM Pi	essure: 99.5kPa



Project No. : 2405V85308E Test Mode : Tranmsitting Test Voltage : AC 120V/60Hz

Environment : 23.2℃/69%R.H./99.5kPa

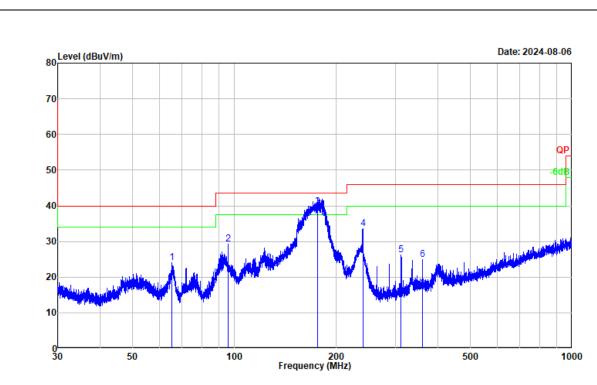
Tested by : Bard Huang Polarization : horizontal

Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	95.986	47.49	-14.35	33.14	43.50	-10.36	Peak
2	153.366	54.69	-16.85	37.84	43.50	-5.66	QP
3	167.346	54.30	-16.00	38.30	43.50	-5.20	QP
4	240.050	44.12	-11.98	32.14	46.00	-13.86	Peak
5	335.989	42.30	-9.11	33.19	46.00	-12.81	Peak
6	432.121	35.59	-7.03	28.56	46.00	-17.44	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain





Environment : 23.2℃/69%R.H./99.5kPa

Tested by : Bard Huang Polarization : vertical

Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector	
1	65.292	38.31	-14.26	24.05	40.00	-15.95	Peak	
2	95.986	43.64	-14.35	29.29	43.50	-14.21	Peak	
3	176.153	55.10	-15.48	39.62	43.50	-3.88	Average	
4	240.050	45.60	-11.98	33.62	46.00	-12.38	Peak	
5	311.997	36.30	-10.09	26.21	46.00	-19.79	Peak	
6	360.086	33.43	-8.45	24.98	46.00	-21.02	Peak	

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Remark:

Result = Reading + Factor

Factor = Antenna factor + Cable loss - Amplifier gain



Above 1GHz:

Test Date:	2024-07-25	Test By:	Bard Huang
Environment condition:	Temperature: 23.2°C; Relative	Humidity:69%; ATM Pr	essure: 99.5kPa

Frequency (MHz)	Reading level (dBµV)	Polar	Corrected Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark			
	BLE 1M									
			Low Ch	annel						
2390.000	37.67	horizontal	7.18	44.85	54.00	-9.15	Average			
2390.000	48.69	horizontal	7.18	55.87	74.00	-18.13	Peak			
2390.000	37.89	vertical	7.18	45.07	54.00	-8.93	Average			
2390.000	48.27	vertical	7.18	55.45	74.00	-18.55	Peak			
4804.000	47.31	horizontal	-0.21	47.10	74.00	-26.90	Peak			
4804.000	47.89	vertical	-0.21	47.68	74.00	-26.32	Peak			
			Middle C	hannel						
4880.000	46.91	horizontal	0.08	46.99	74.00	-27.01	Peak			
4880.000	46.97	vertical	0.08	47.05	74.00	-26.95	Peak			
			High Ch	annel	<u>, </u>					
2483.500	43.58	horizontal	7.25	50.83	54.00	-3.17	Average			
2483.500	54.12	horizontal	7.25	61.37	74.00	-12.63	Peak			
2483.629	41.82	vertical	7.25	49.07	54.00	-4.93	Average			
2483.629	53.58	vertical	7.25	60.83	74.00	-13.17	Peak			
4960.000	47.11	horizontal	0.28	47.39	74.00	-26.61	Peak			
4960.000	46.54	vertical	0.28	46.82	74.00	-27.18	Peak			

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss - Amplifier gain

Margin = Corrected Amplitude - Limit

For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

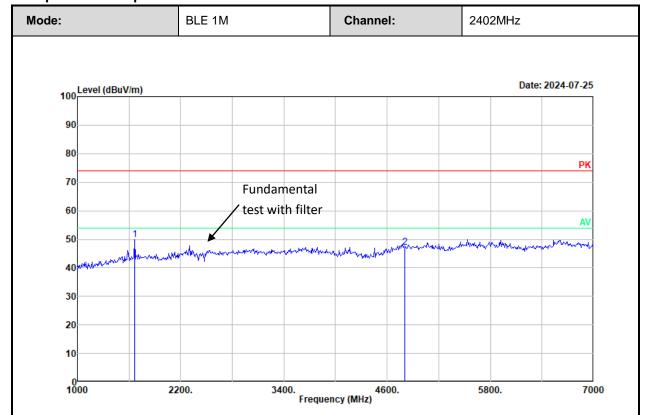
The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

For emissions in 18GHz-25GHz range, all emissions were investigated and in the noise floor level.

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Test plot for example as below:



Project No. : 2405V85308E Test Mode : Transmitting Test Voltage : AC 120V/60Hz

Environment : $23.2^{\circ}/69\%R.H./99.5kPa$

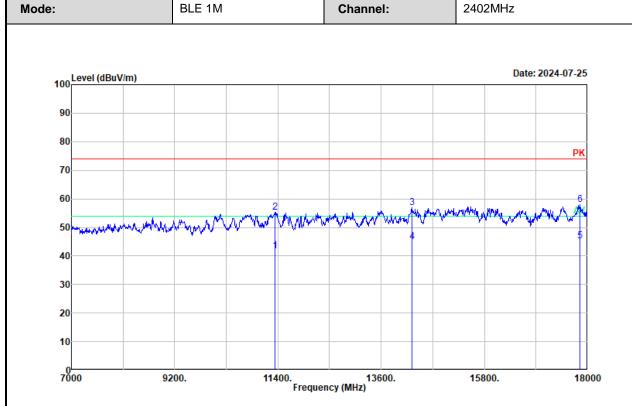
Tested by : Bard Huang Polarization : horizontal

Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1663.332	53.05	-3.25	49.80	74.00	-24.20	Peak
1	1003.332	33.03	-3.23	45.00	74.00	-24.20	reak
2	4804.000	47.31	-0.21	47.10	74.00	-26.90	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain Result = Reading + Factor Over Limit = Result - Limit





Environment : $23.2\,^{\circ}\text{C}/69\%\text{R.H.}/99.5\text{kPa}$

Tested by : Bard Huang Polarization : horizontal

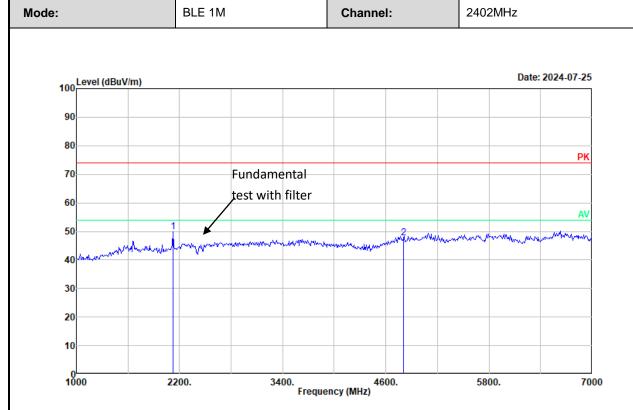
Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	11341.170	35.08	6.57	41.65	54.00	-12.35	Average
2	11341.170	48.75	6.57	55.32	74.00	-18.68	Peak
3	14249.630	48.09	8.80	56.89	74.00	-17.11	Peak
4	14249.630	36.25	8.80	45.05	54.00	-8.95	Average
5	17829.910	36.89	8.35	45.24	54.00	-8.76	Average
6	17829.910	49.67	8.35	58.02	74.00	-15.98	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Result = Reading + Factor





Environment : 23.2℃/69%R.H./99.5kPa Tested by : Bard Huang Polarization : vertical

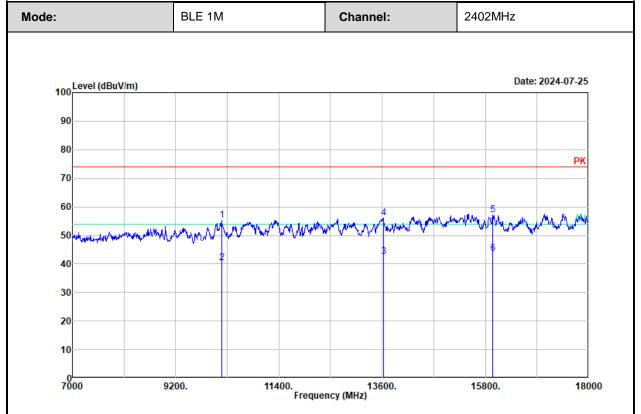
: BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2122.561	53.52	-3.59	49.93	74.00	-24.07	Peak
2	4804.000	47.89	-0.21	47.68	74.00	-26.32	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Result = Reading + Factor





Environment : $23.2\,^{\circ}\text{C}/69\%\text{R.H.}/99.5\text{kPa}$

Tested by : Bard Huang Polarization : vertical

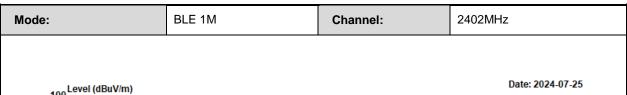
Remark : BLE 1M low channel

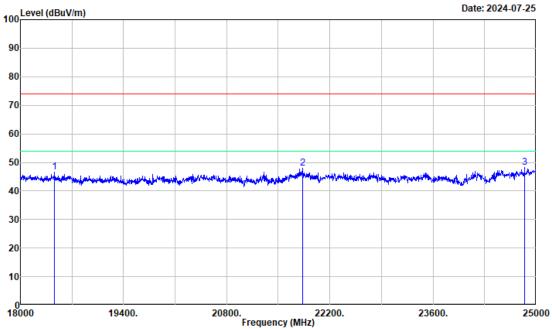
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	10176.090	50.32	4.92	55.24	74.00	-18.76	Peak
2	10176.090	35.58	4.92	40.50	54.00	-13.50	Average
3	13628.810	34.93	7.65	42.58	54.00	-11.42	Average
4	13628.810	48.45	7.65	56.10	74.00	-17.90	Peak
5	15958.980	48.71	8.53	57.24	74.00	-16.76	Peak
6	15958.980	35.09	8.53	43.62	54.00	-10.38	Average

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Result = Reading + Factor







Environment : 23.2℃/69%R.H./99.5kPa

Tested by : Bard Huang Polarization : horizontal

Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	18465.730	52.72	-6.13	46.59	74.00	-27.41	Peak
2	21827.410	54.93	-6.95	47.98	74.00	-26.02	Peak
3	24842.420	52.00	-3.83	48.17	74.00	-25.83	Peak

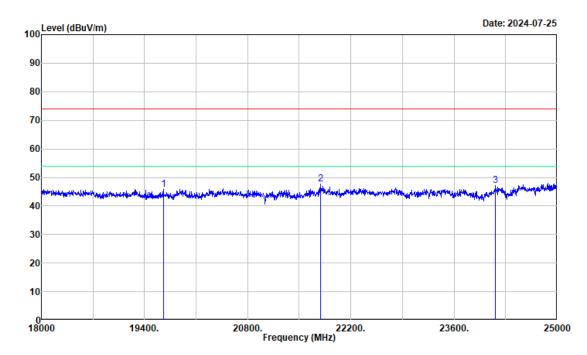
Remarks: Factor = Antenna factor + Cable loss -Preamp gain - distance extrapolate factor

Distance extrapolate factor = 20*log(distance specified/distance measured)

Distance specified = 3m, Distance measured = 1.5m







Environment : $23.2^{\circ}/69\%R.H./99.5kPa$

Tested by : Bard Huang Polarization : vertical

Remark : BLE 1M low channel

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1 2	19656.330 21785.390	53.25 54.58	-7.32 -7.01	45.93 47.57	74.00 74.00	-28.07 -26.43	Peak Peak
3	24159.580	53.01	-5.95	47.06	74.00	-26.94	Peak

Remarks: Factor = Antenna factor + Cable loss -Preamp gain - distance extrapolate factor

Distance extrapolate factor = 20*log(distance specified/distance measured)

Distance specified = 3m, Distance measured = 1.5m



3.5 RF Conducted Test Data

Test Date:	2024-07-29	Test By:	Ryan Zhang
Environment condition:	Temperature: 25.2°C; Relative	Humidity:45%; ATM Pr	essure: 100.6kPa

3.5.1 6 dB Emission Bandwidth

Mode	Value (MHz)	Limit (MHz)	Result
Low	0.689	≥0.5	Pass
Middle	0.685	≥0.5	Pass
High	0.677	≥0.5	Pass

3.5.2 99% Occupied Bandwidth

Mode	99% OBW (MHz)
Low	1.092
Middle	1.098
High	1.110

3.5.3 Maximum Conducted Peak Output Power

Mode	Value (dBm)	Limit (dBm)	Result
Low	-4.55	30.00	Pass
Middle	-5.44	30.00	Pass
High	-5.30	30.00	Pass

3.5.4 Power Spectral Density

Mode	Value (dBm/3kHz)	Limit (dBm/3kHz)	Result	
Low	-18.39	8	Pass	
Middle	-19.34	8	Pass	

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Mode	Value (dBm/3kHz)	Limit (dBm/3kHz)	Result	
High	-19.23	8	Pass	

3.5.5 100 kHz Bandwidth of Frequency Band Edge

Mode	Value (dB)		
Low	40.53	20	Pass
High	41.14	20	Pass

3.5.6 Duty Cycle

Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)	VBW Setting (kHz)
Middle	100	100	100	0	NA	0.010

Duty Cycle = Ton/(Ton+Toff)*100%

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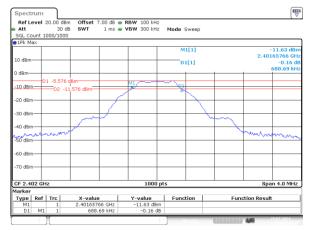


Test Plots:

6 dB Emission Bandwidth:

BLE 1M

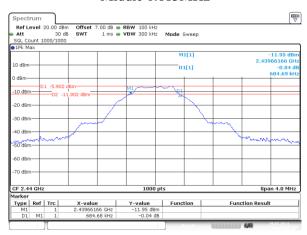
Low 0.689MHz



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang

Date: 29.JUL.2024 16:11:56

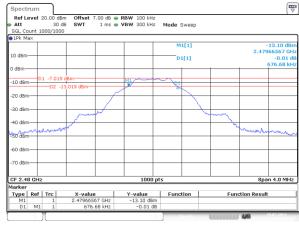
Middle 0.685MHz



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang

Date: 29.JUL.2024 16:19:27

High 0.677MHz



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang Date: 29.JUL.2024 16:23:13



99% Occupied Bandwidth:

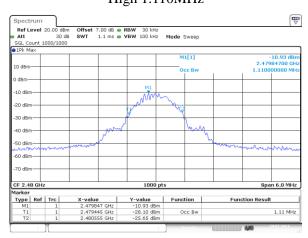
BLE 1M

Low 1.092MHz

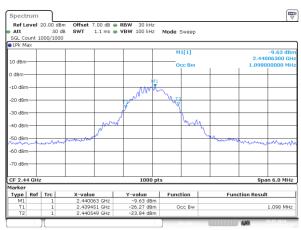


ProjectNo.:2405V85308E-RF Tester:Ryan Zhang Date: 29.JUL.2024 16:12:18

High 1.110MHz



Middle 1.098MHz



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang



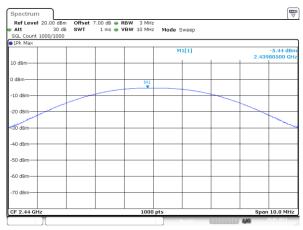
Maximum Conducted Peak Output Power:

BLE 1M

Low -4.55dBm

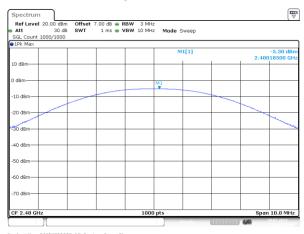


Middle -5.44dBm



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang Date: 29.JUL.2024 16:20:30

High -5.30dBm



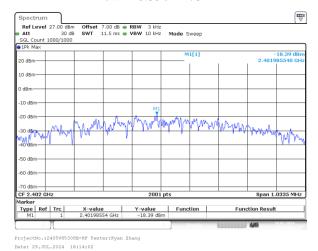
Report Template: TR-4-E-008/V1.1



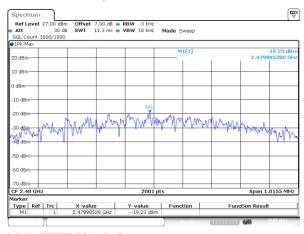
Power Spectral Density:

BLE 1M

Low -18.39dBm/3kHz

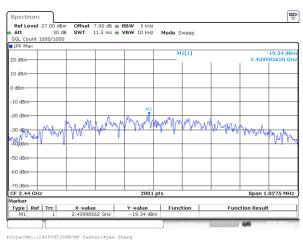


High -19.23dBm/3kHz



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Middle -19.34dBm/3kHz



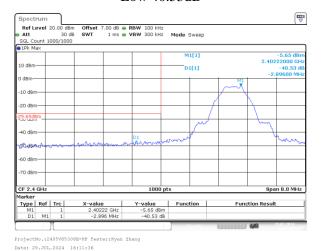
ProjectNo.:2405V85308E-RF Tester: Date: 29.JUL.2024 16:21:30



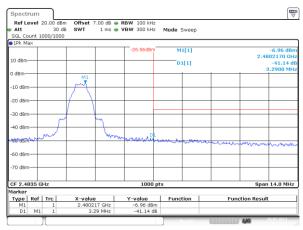
100kHz Bandwidth of Frequency Band Edge:

BLE 1M

Low 40.53dB



High 41.14dB

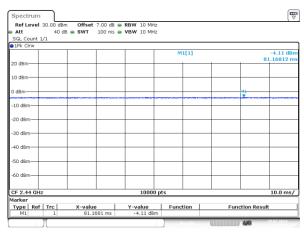


ProjectNo.:2405V85308E-RF Tester:Ryan Zhang Date: 29.JUL.2024 16:22:51

Duty cycle:

BLE 1M

Middle



ProjectNo.:2405V85308E-RF Tester:Ryan Zhang Date: 29.JUL.2024 16:20:05



4 Test Setup Photo

Please refer to the attachment 2405V85308E Test Setup photo.



5 E.U.T Photo

Please refer to the attachment 2405V85308E External photo and 2405V85308E Internal photo.

---End of Report---