

Test Report

Applicant : Globe Electric Company Inc.
Address : 150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Product Name : Smart LED Flush Mount
Brand Mark : SUPERSUN
Model No. : 66000166
Series model : N/A
FCC ID : 2AQUQGL66166
Report Number : BLA-EMC-202607-A126-01
Date of Receipt : Aug. 01, 2026
Date of Test : Aug. 01, 2026 to Aug. 24, 2026
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Compiled by: Mark Chen

Review by: Xavier

Approved by:



Issued Date: Sep. 21, 2026

BlueAsia Technical Services(Shenzhen) Co.,Ltd.

Address: No.41, South of Beihuan Road, Shangwu Community, Shiyuan
Subdistrict, Bao'an District, Shenzhen, Guangdong, China



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Revise Record

Version No.	Date	Description
01	Sep. 21, 2026	Original

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1 General information

1.1 General information

Applicant	Globe Electric Company Inc.
Address	150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Manufacturer	JIANGXI SUPERSUN TECHNOLOGY LIGHTING CO., LTD
Address	Supersun Park, Wannian IndustrialZone, SHANGRAO Jiangxi 335500
Factory	GLOBAL DRAGON TECH(THAILAND) CO., LTD.
Address	188/12 MOO1 T. MABPAI A. Banbung District, Chon Buri Province, 20170. Thailand

1.2 General description of EUT

Product Name	Smart LED Flush Mount
Model No.	66000166
Operation Frequency	2402MHz-2480MHz
Modulation Type	GFSK
Rate data	1Mbps
Channel Spacing	2MHz
Number of Channels	40
Antenna Type	PCB antenna
Antenna Gain	-0.23dBi(Provided by customer)
Power supply	AC 120V
Hardware Version	N/A
Software Version	N/A

Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2 Test summary

No.	Test item	FCC standard	Test Method(Clause)	Result
1	Antenna Requirement	§15.203	N/A	Pass
2	Conducted Emissions at AC Power Line (150kHz-30MHz)	§15.207	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 6.2	Pass
3	Conducted Peak Output Power	§15.247(b)(3)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.9.1	Pass
4	Minimum 6dB Bandwidth	§15.247a(2)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.8	Pass
5	Power Spectrum Density	§15.247(e)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.10.2	Pass
6	Conducted Band Edges Measurement	§15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.11	Pass
7	Conducted Spurious Emissions	§15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.12.2	Pass
8	Radiated Spurious Emissions	§15.209 §15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 6.3, 6.5,6.6,11.12.1	Pass
9	Radiated Emissions which fall in the restricted bands	§15.209 §15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 6.3, 6.5,6.6,11.12.1	Pass

3 Test Configuration

3.1 Test mode

Test Mode ^{Note 1}	Description
TX	Keep the EUT in continuously transmitting with modulation mode. (Duty cycle>98%)
RX	Keep the EUT in receiving mode
TX Low channel	Keep the EUT in continuously transmitting mode in low channel
TX middle channel	Keep the EUT in continuously transmitting mode in middle channel
TX high channel	Keep the EUT in continuously transmitting mode in high channel

Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use.

Power level setup in software			
Test Software Name	BLE Test Tool V1.7.4		
Mode	Channel	Frequency (MHz)	Soft Set
TX-BLE	CH00	2402	TX level : Default
	CH20	2442	
	CH39	2480	

3.2 Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
...	...	...	...	...	...	...	...
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

3.3 Test channel

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2442MHz
The Highest channel	2480MHz

3.4 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	Lenovo	E460C	N/A	From lab (No.BLA-ZC-BS-2022005)

Note:

“--” mean no any auxiliary device during testing.

3.5 Test environment

Environment	Temperature	Voltage
Normal	25°C	AC 120V

4 Laboratory information

4.1 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

Company name:	BlueAsia Technical Services(Shenzhen) Co., Ltd.
Address:	No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict,Bao'an District, Shenzhen, Guangdong, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
Test Firm Registration No.:	923526
ISED CAB identifier No.:	CN0028
Registration No.:	24243
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

4.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

Parameter	Expanded Uncertainty
Radiated Emission(9kHz-30MHz)	$\pm 4.34\text{dB}$
Radiated Emission(30Mz-1000MHz)	$\pm 4.24\text{dB}$
Radiated Emission(1GHz-18GHz)	$\pm 4.68\text{dB}$
Radiated Emission(18GHz-40GHz)	$\pm 3.68\text{dB}$
AC Power Line Conducted Emission(150kHz-30MHz)	$\pm 3.45\text{dB}$
Occupied Channel Bandwidth	$\pm 5\%$
Duty cycle	$\pm 2\%$
RF output power, conducted	$\pm 1.5\text{ dB}$
Power Spectral Density, conducted	$\pm 3.0\text{ dB}$
Unwanted Emissions, conducted	$\pm 3.0\text{ dB}$
Temperature	$\pm 3\text{ }^{\circ}\text{C}$

Supply voltages	$\pm 3 \%$
Time	$\pm 5 \%$

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5 Test equipment

Radiated Spurious Emissions (Below 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-002-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-002-02	Control room	966 control room	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2026/07/31	2027/07/30
BLA-EMC-043	Loop antenna	FMZB1519B	Schwarzbeck	00102	2026/05/31	2027/05/30
BLA-EMC-065	Broadband antenna	VULB9168	Schwarzbeck	01065P	2026/05/31	2027/05/30
BLA-XC-01	Coaxial Cable	N/A	BlueAsia	V01	N/A	N/A
BLA-XC-02	Coaxial Cable	N/A	BlueAsia	V02	N/A	N/A

Radiated Spurious Emissions (Above 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-001-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-001-02	Control Room	966 control room	SKET	N/A	2025/11/12	2026/11/11
BLA-EMC-008	Spectrum	FSP40	R&S	100817	2026/07/31	2027/07/30
BLA-EMC-013	Horn Antenna	BBHA9120D	Schwarzbeck	01892	2026/05/31	2027/05/30
BLA-EMC-014	Amplifier	PA_000318G-45	SKET	PA2018043003	2026/07/31	2027/07/30
BLA-EMC-046	Filter bank	2.4G/5G Filter bank	SKET	N/A	2026/05/25	2027/05/24
BLA-EMC-061	Receiver	ESPI7	R&S	101477	2026/05/25	2027/05/24
BLA-EMC-066	Amplifier	LNPA_30M01 G-30	SKET	SK2021060801	2026/05/25	2027/05/24
BLA-EMC-086	Amplifier	LNPA_18G40 G-50dB	SKET	SK2022071301	2026/05/25	2027/05/24
BLA-EMC-087	Horn Antenna	BBHA 9170	Schwarzbeck	1106	2026/05/31	2027/05/30
BLA-XC-03	Coaxial Cable	N/A	BlueAsia	V03	N/A	N/A

BLA-XC-04	Coaxial Cable	N/A	BlueAsia	V04	N/A	N/A
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Conducted Emissions

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-001	Shield room	8*3*3	SKET	N/A	2026/01/10	2028/01/09
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2026/07/31	2027/07/30
BLA-EMC-011	LISN	ENV216	R&S	101372	2026/07/31	2027/07/30
BLA-EMC-033	Impedance transformer	DC-2GHz	DFXP	N/A	2026/05/25	2027/05/24
BLA-EMC-041	LISN	AT166-2	ATTEN	AKK180600003	2026/07/31	2027/07/30
BLA-EMC-045	Impedance stable network	ISNT8-cat 6	TESEQ	53580	2026/07/31	2027/07/30
BLA-EMC-095	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01045	2026/05/25	2027/05/24
BLA-EMC-096	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01075	2026/05/25	2027/05/24
BLA-XC-05	Coaxial Cable	N/A	BlueAsia	V05	N/A	N/A

RF conducted

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-003	Shield room	5*3*3	SKET	N/A	2025/11/12	2026/11/11
BLA-EMC-016	Signal Generator	N5182A	Agilent	MY52420567	2026/05/25	2027/05/24
BLA-EMC-038	Spectrum	N9020A	Agilent	MY49100060	2026/07/31	2027/07/30
BLA-EMC-042	Power sensor	RPR3006W	DARE	14I00889SN042	2026/07/31	2027/07/30
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	2026/07/31	2027/07/30

BLA-EMC-064	Signal Generator	N5182B	KEYSIGHT	MY581088 92	2026/05/25	2027/05/24
BLA-EMC-079	Spectrum	N9020A	Agilent	MY544201 61	2026/07/31	2027/07/30
BLA-EMC-088	Audio Analyzer	ATS-1	Audio Precision	ATS14109 4	2026/05/25	2027/05/24

Test Software Record:

Software No.	Software Name	Manufacture	Software version	Test site
BLA-EMC-S001	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S002	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S003	EZ-EMC	EZ	EEMC-3A1+	CE
BLA-EMC-S010	MTS 8310	MW	2.0.0.0	RF

6 Test result

6.1 Antenna requirement

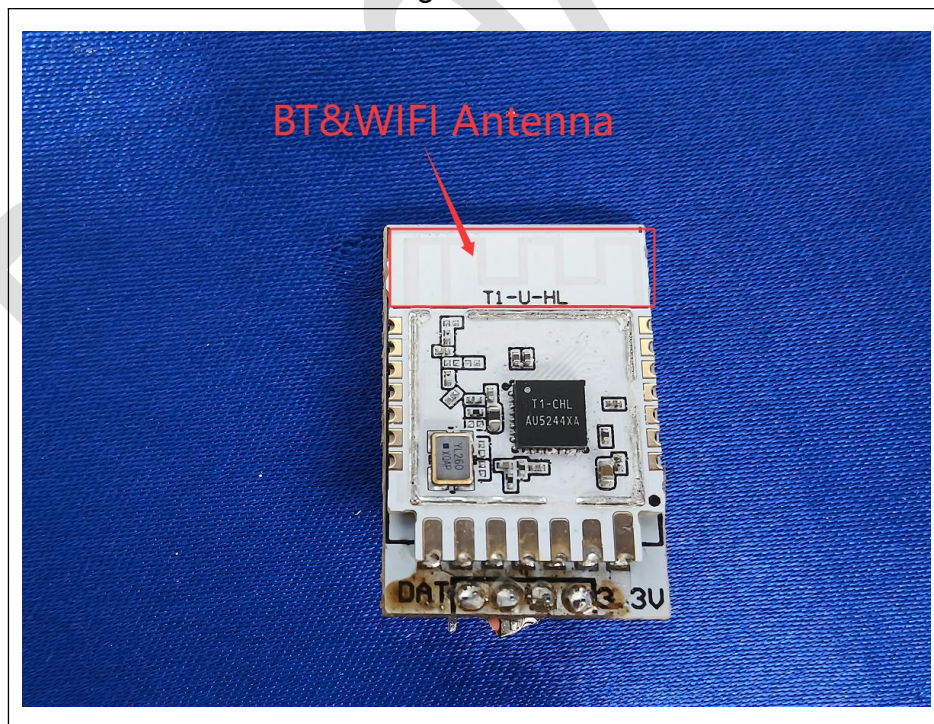
Test Standard	47 CFR Part 15, Subpart C 15.203
Test Method	N/A

6.1.1 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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of a 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 PCB antenna. The best case gain of the antenna is -0.23dBi.



6.2 Conducted emissions at AC power line (150 kHz-30 MHz)

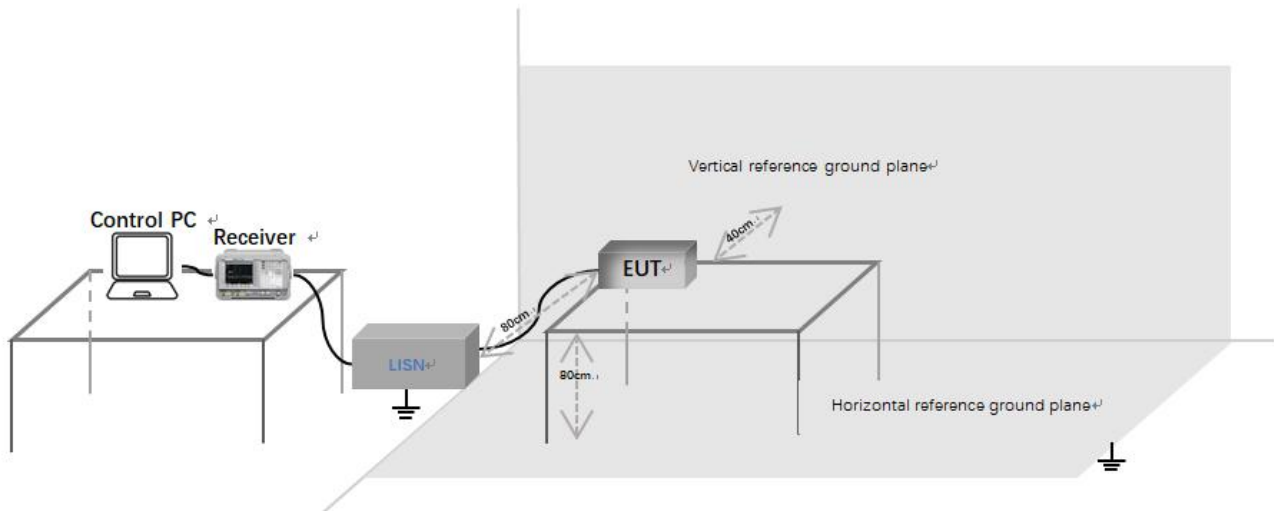
Test Standard	47 CFR Part 15, Subpart C 15.207
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.2.1 Limit

Frequency of emission(MHz)	Conducted limit(dB μ V)	
	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 logarithm of the frequency.

6.2.2 Test setup



Description of test setup connection:

- Connect the control PC to the receiver through a USB to GPIB cable;
- The receiver is connected to the LISN through a coaxial line;
- Connect the power port of LISN to the EUT.

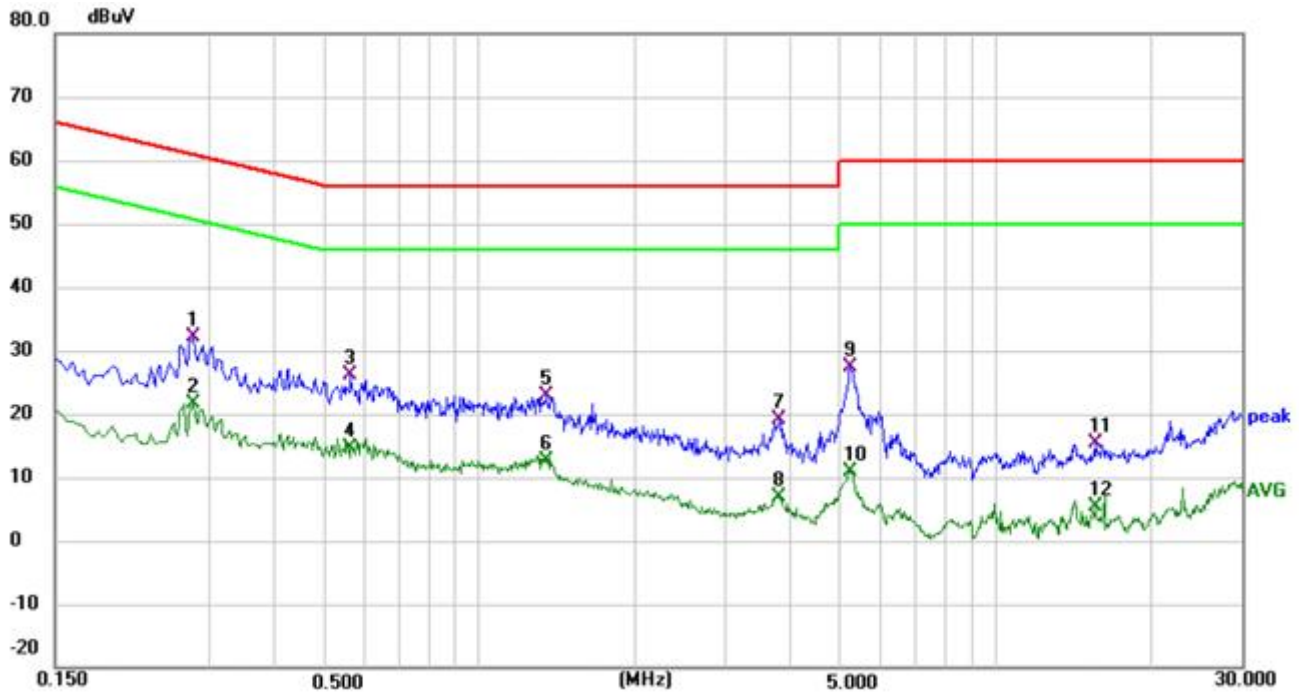
6.2.3 Procedure

- 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 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.

LISN=Read Level+ Cable Loss+ LISN Factor

6.2.4 Test data

[Test Mode: TX-2480MHz]; [Line: Line];[Voltage: AC120V/60Hz]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.2779	22.50	9.60	32.10	60.88	-28.78	QP
2		0.2779	12.07	9.60	21.67	50.88	-29.21	AVG
3		0.5620	16.52	9.63	26.15	56.00	-29.85	QP
4		0.5620	4.93	9.63	14.56	46.00	-31.44	AVG
5		1.3500	13.07	9.69	22.76	56.00	-33.24	QP
6		1.3500	3.06	9.69	12.75	46.00	-33.25	AVG
7		3.8140	9.45	9.73	19.18	56.00	-36.82	QP
8		3.8140	-2.73	9.73	7.00	46.00	-39.00	AVG
9		5.2380	17.57	9.77	27.34	60.00	-32.66	QP
10		5.2380	1.01	9.77	10.78	50.00	-39.22	AVG
11		15.6180	5.46	9.93	15.39	60.00	-44.61	QP
12		15.6180	-4.51	9.93	5.42	50.00	-44.58	AVG

Test Result: Pass

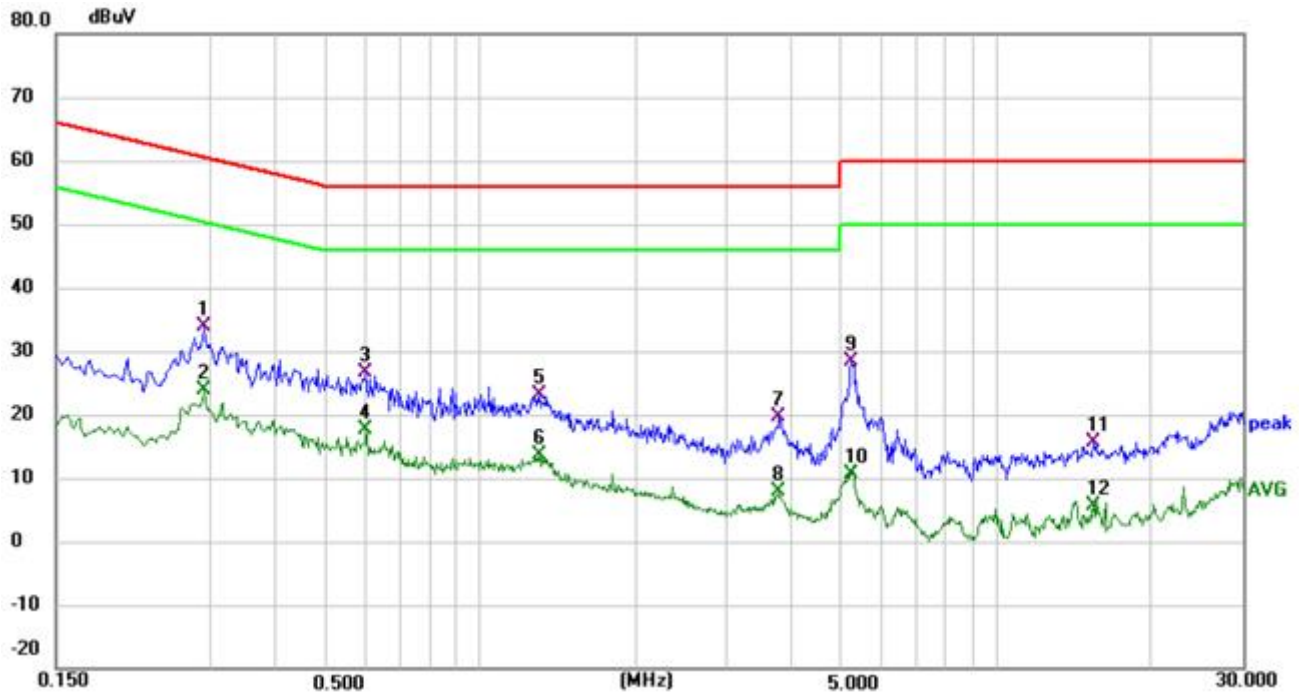
BlueAsia of Technical Services (Shenzhen) Co.,Ltd.

Tel: +86-755-23059481

Email: marketing@cblueasia.com www.cblueasia.com

Version:v1.3

[Test Mode: TX-2480MHz]; [Line: Neutral] ;[Voltage: AC120V/60Hz]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	0.2900	24.29	9.60	33.89	60.52	-26.63	QP
2		0.2900	14.17	9.60	23.77	50.52	-26.75	AVG
3		0.5980	17.03	9.63	26.66	56.00	-29.34	QP
4		0.5980	8.06	9.63	17.69	46.00	-28.31	AVG
5		1.3020	13.43	9.68	23.11	56.00	-32.89	QP
6		1.3020	3.84	9.68	13.52	46.00	-32.48	AVG
7		3.7900	10.02	9.73	19.75	56.00	-36.25	QP
8		3.7900	-1.83	9.73	7.90	46.00	-38.10	AVG
9		5.2220	18.70	9.77	28.47	60.00	-31.53	QP
10		5.2220	0.88	9.77	10.65	50.00	-39.35	AVG
11		15.4340	5.70	9.94	15.64	60.00	-44.36	QP
12		15.4340	-4.42	9.94	5.52	50.00	-44.48	AVG

Test Result: Pass

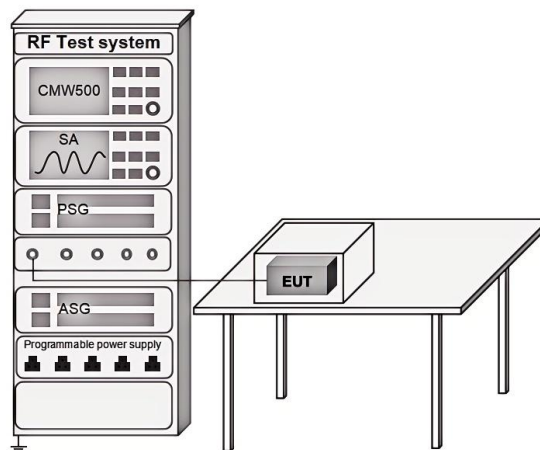
6.3 Conducted peak output Power

Test Standard	47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.9.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.3.1 Limit

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

6.3.2 Test setup



6.3.3 Test Procedure

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

- a) Set the RBW $\geq$ DTS bandwidth.
- b) Set VBW $\geq$ 3 RBW.
- c) Set span $\geq$ 3 x RBW.
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

6.3.4 Test data

Pass: Please refer to appendix A for details

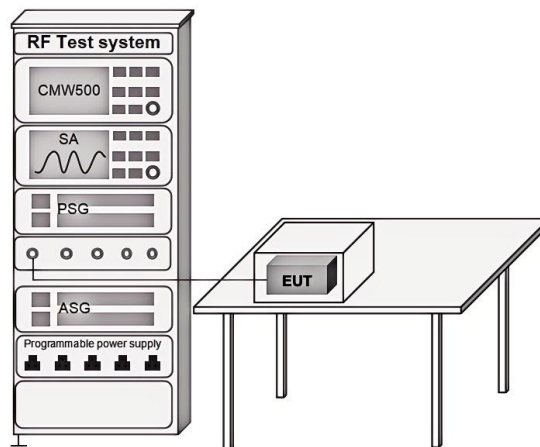
6.4 Minimum 6dB bandwidth

Test Standard	47 CFR Part 15, Subpart C 15.247a(2)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.8
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.4.1 Limit

≥500 kHz

6.4.2 Test setup



6.4.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

6.4.4 Test data

Pass: Please refer to appendix A for details

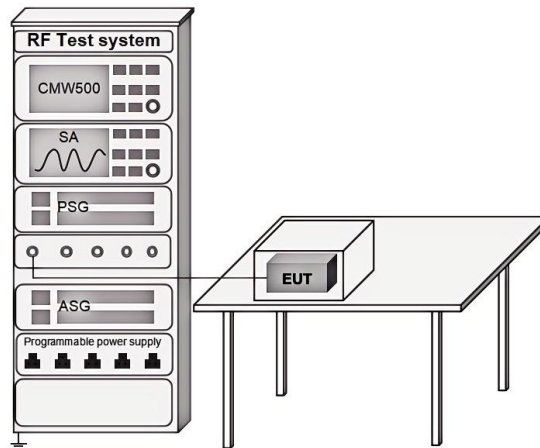
6.5 Power spectrum density

Test Standard	47 CFR Part 15, Subpart C 15.247(e)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.5.1 Limit

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

6.5.2 Test setup



6.5.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

6.5.4 Test data

Pass: Please refer to appendix A for details

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6.6 Conducted Band Edges Measurement

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.6.1 Limit

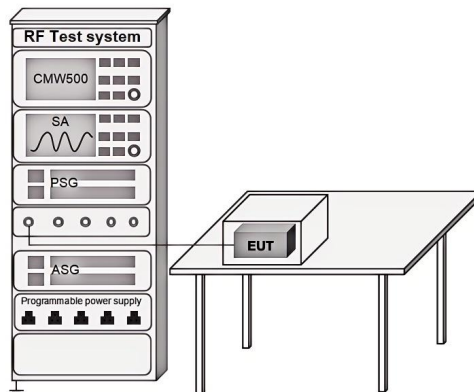
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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 20dB.

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)).

6.6.2 Test setup



6.6.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

6.6.4 Test data

Pass: Please refer to appendix A for details

6.7 Conducted spurious emissions

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 11.12.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.7.1 Limit

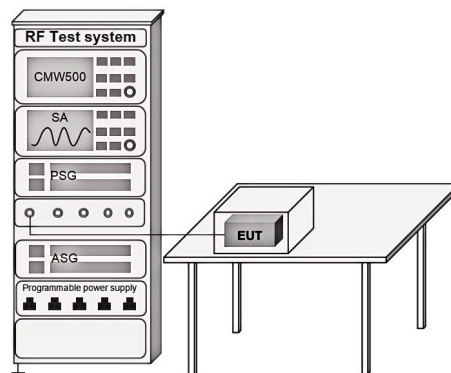
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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 20dB.

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)).

6.7.2 Test setup



6.7.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:
 - a) Set instrument center frequency to DTS channel center frequency.
 - b) Set the span to _ 1.5 times the DTS bandwidth.
 - c) Set the RBW = 100 kHz.
 - d) Set the VBW = [3×RBW].
 - e) Detector = peak.
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

6.7.4 Test data

Pass: Please refer to appendix A for details

6.8 Radiated spurious emissions

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024+Errata to C63.10a-2024 Clause 6.3,6.5,6.6,11.12.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

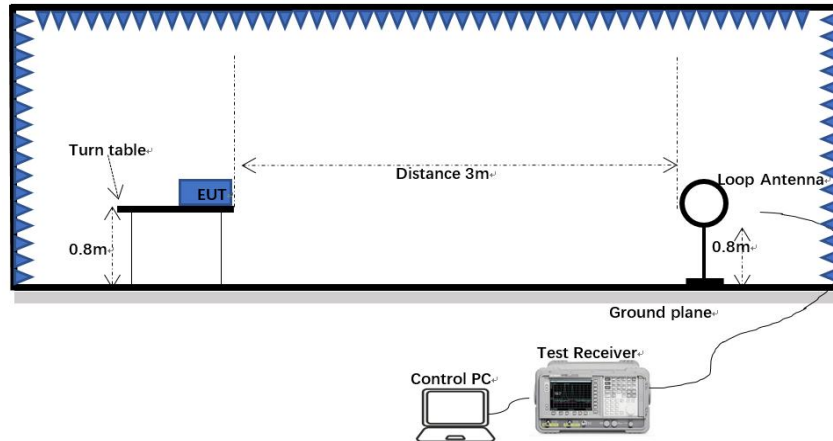
6.8.1 Limit

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

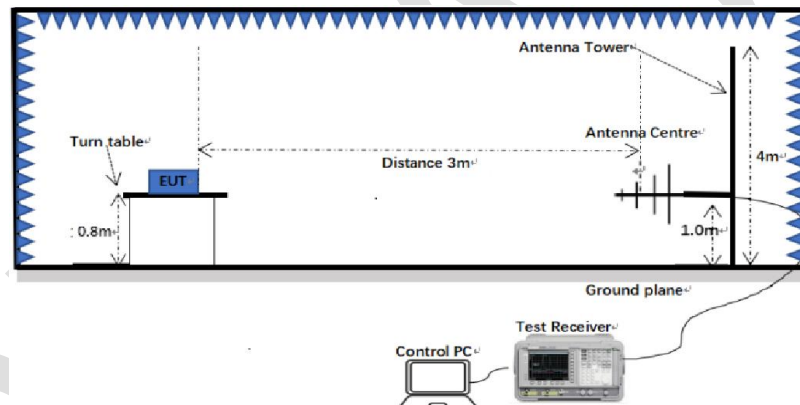
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

6.8.2 Test setup

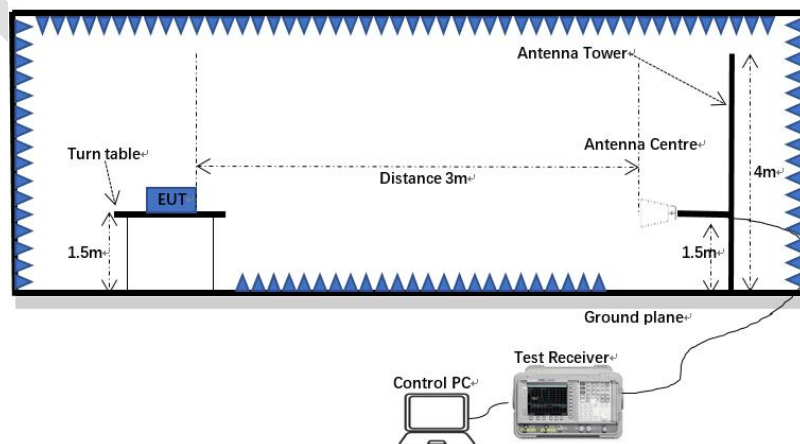
Below 1GHz:



30MHz-1GHz:



Above 1GHz:



6.8.3 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.
- 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.

Note 1: Scan from 9 kHz to 25GHz, the disturbance above 18GHz 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.

Note 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.

Note 3: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Level (dBuV) = Reading (dBuV) + Factor (dB/m)

6.8.4 Test data

Below 1GHz

Remark: During the test, pre-scan the BLE1M mode, and found the BLE1M high channel mode which it is worse case.

[Test mode: TX-2480MHz]; [Polarity: Horizontal]



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	33.4449	29.21	-17.17	12.04	40.00	-27.96	QP
2	40.8446	29.51	-16.78	12.73	40.00	-27.27	QP
3	71.0803	32.00	-16.61	15.39	40.00	-24.61	QP
4	116.5401	42.82	-19.79	23.03	43.50	-20.47	QP
5 *	138.8735	41.55	-16.45	25.10	43.50	-18.40	QP
6	212.2695	31.54	-18.94	12.60	43.50	-30.90	QP

Test Result: Pass

[Test mode: TX-2480MHz]; [Polarity: Vertical]

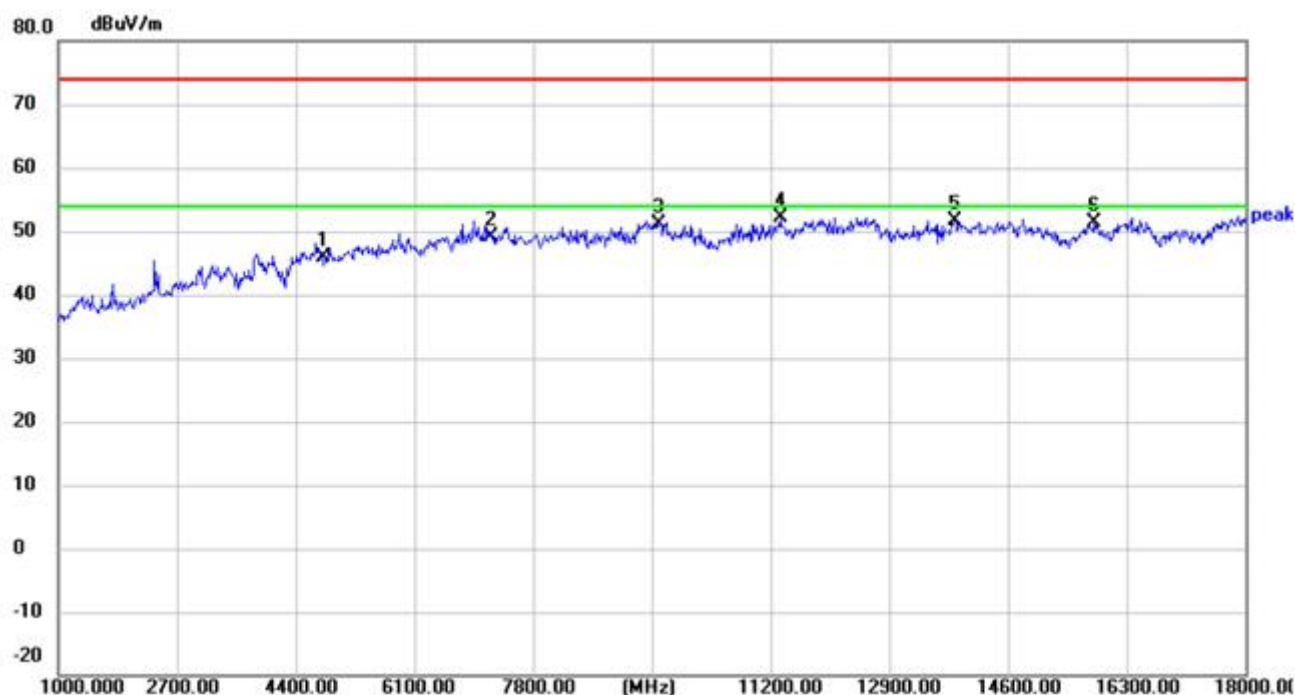


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	33.3279	41.87	-17.17	24.70	40.00	-15.30	QP
2 *	40.5591	44.98	-16.80	28.18	40.00	-11.82	QP
3	64.8865	40.55	-15.85	24.70	40.00	-15.30	QP
4	75.1822	43.15	-17.88	25.27	40.00	-14.73	QP
5	117.7725	43.21	-19.63	23.58	43.50	-19.92	QP
6	197.2001	39.44	-19.06	20.38	43.50	-23.12	QP

Test Result: Pass

Above 1GHz:

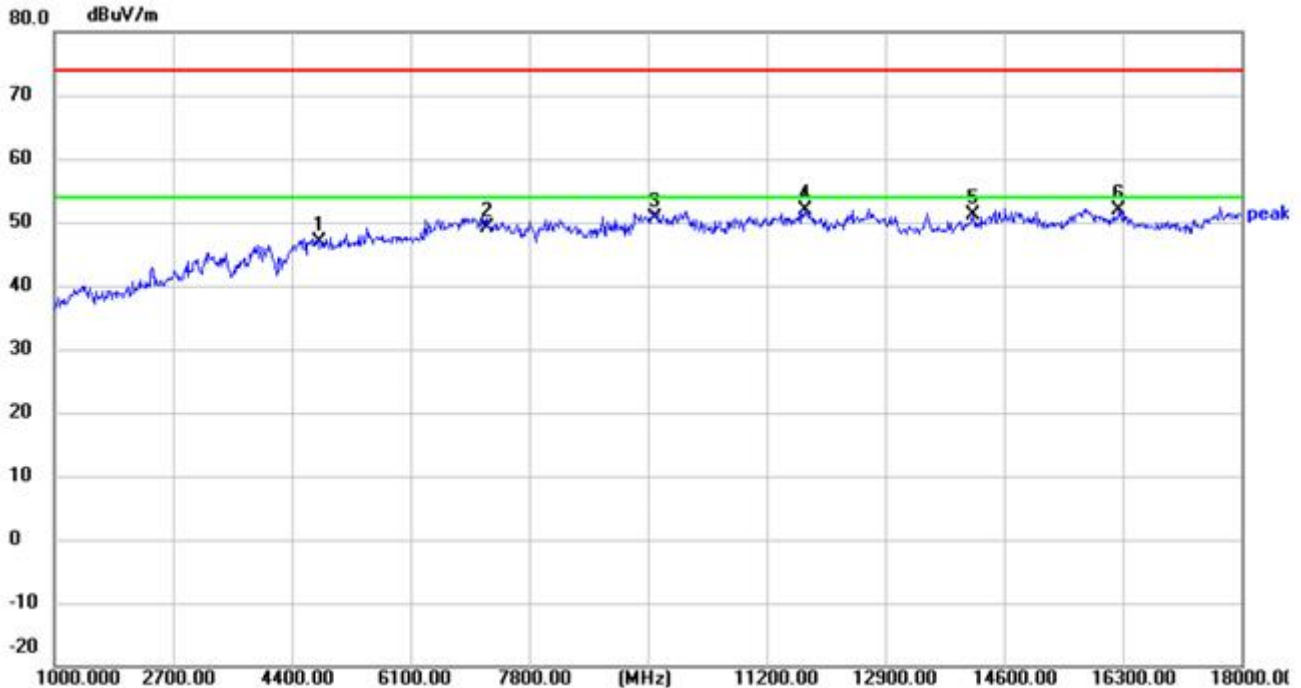
[Test mode: TX low channel]; [Polarity: Horizontal]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4804.000	46.33	-0.44	45.89	74.00	-28.11	peak
2		7206.000	42.59	6.46	49.05	74.00	-24.95	peak
3		9608.000	44.01	7.07	51.08	74.00	-22.92	peak
4	*	11336.00	43.94	8.10	52.04	74.00	-21.96	peak
5		13835.00	43.44	8.29	51.73	74.00	-22.27	peak
6		15841.00	43.15	8.19	51.34	74.00	-22.66	peak

Test Result: Pass

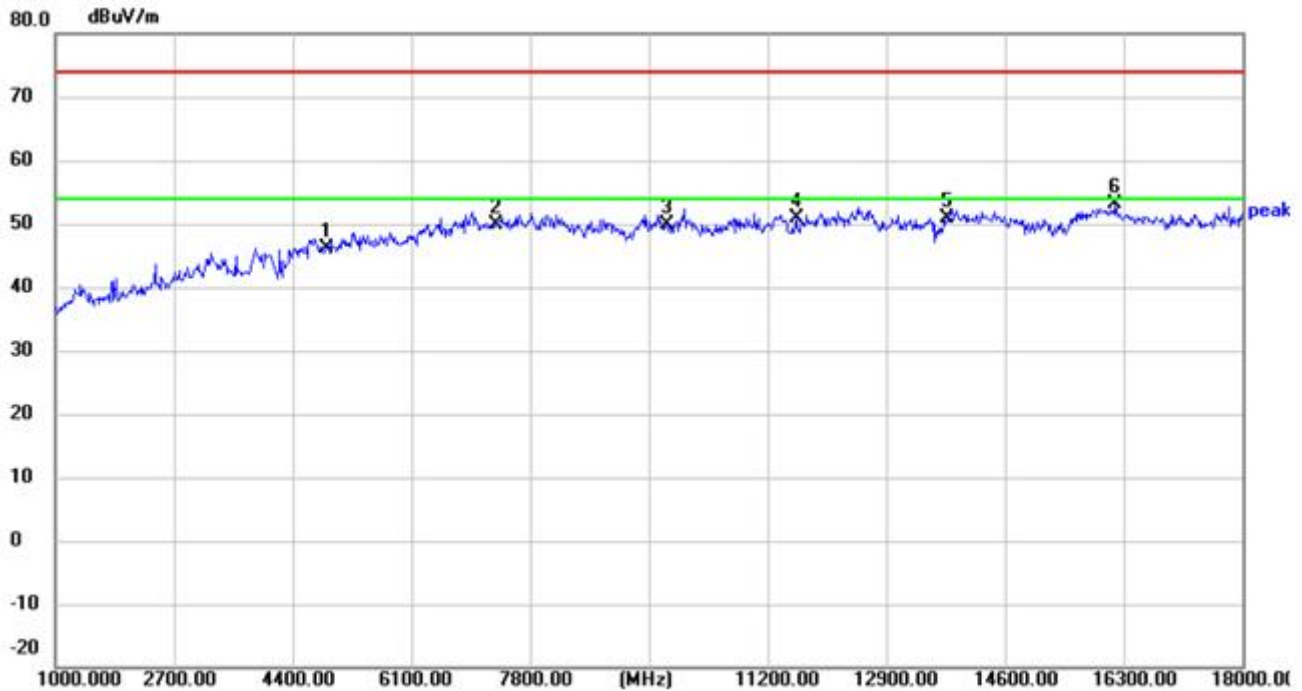
[Test mode: TX low channel]; [Polarity: Vertical]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4804.000	47.25	-0.44	46.81	74.00	-27.19	peak
2		7206.000	42.73	6.46	49.19	74.00	-24.81	peak
3		9608.000	43.39	7.27	50.66	74.00	-23.34	peak
4		11744.00	43.46	8.37	51.83	74.00	-22.17	peak
5		14158.00	43.46	7.66	51.12	74.00	-22.88	peak
6	*	16249.00	43.52	8.46	51.98	74.00	-22.02	peak

Test Result: Pass

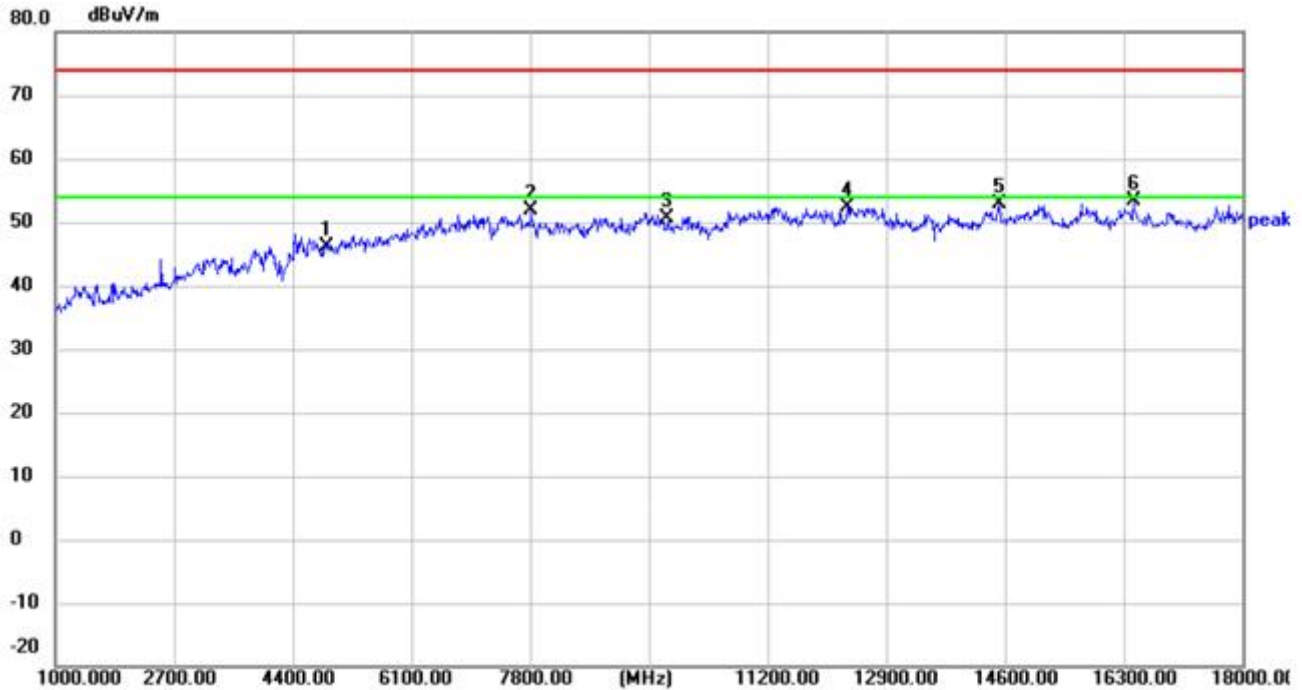
[Test mode: TX middle channel]; [Polarity: Horizontal]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4880.000	46.47	-0.23	46.24	74.00	-27.76	peak
2		7320.000	43.53	6.39	49.92	74.00	-24.08	peak
3		9760.000	42.52	7.35	49.87	74.00	-24.13	peak
4		11608.00	42.61	8.18	50.79	74.00	-23.21	peak
5		13767.00	42.39	8.40	50.79	74.00	-23.21	peak
6	*	16181.00	44.50	8.58	53.08	74.00	-20.92	peak

Test Result: Pass

[Test mode: TX middle channel]; [Polarity: Vertical]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		4880.000	46.42	-0.23	46.19	74.00	-27.81	peak
2		7817.000	45.81	6.00	51.81	74.00	-22.19	peak
3		9760.000	43.23	7.47	50.70	74.00	-23.30	peak
4		12339.00	43.41	8.93	52.34	74.00	-21.66	peak
5		14515.00	45.15	7.72	52.87	74.00	-21.13	peak
6	*	16436.00	45.44	8.01	53.45	74.00	-20.55	peak

Test Result: Pass