

Prüfbericht-Nr.: <i>Test report No.:</i>	50214442 001	Auftrags-Nr.: <i>Order No.:</i>	174097426	Seite 1 von 13 <i>Page 1 of 13</i>	
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	02.01.2019		
Auftraggeber: <i>Client:</i>	Ring LLC 1523 26th St, Santa Monica, CA 90404, USA				
Prüfgegenstand: <i>Test item:</i>	Floodlight Battery				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	5B21S8				
Auftrags-Inhalt: <i>Order content:</i>	FCC testing				
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.209				
Wareneingangsdatum: <i>Date of receipt:</i>	02.01.2019	Please refer to photo documents			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000723491-002				
Prüfzeitraum: <i>Testing period:</i>	02.01.2019 - 04.01.2019				
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von / tested by: Amy Wang		kontrolliert von / reviewed by: Storm Shu			
04.01.2019 Amy Wang / Project Manager		07.01.2019 Storm Shu / Technical Certifier			
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other: FCC ID: 2AEUPBHA001 Note: The Radiated Spurious Emission of this product are evaluated in this report which was additional tests as test report 50213031 001.					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

V04

Prüfbericht - Nr.: 50214442 001
Test Report No.

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Page 2 of 13

Test Summary

5.1.1 RADIATED SPURIOUS EMISSION

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of General 2.4GHz wireless

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.

No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663,
Guangdong Province P.R. China

FCC Accreditation Designation No.: CN1207

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For the measurement Equipment list, refer to the appendix B.

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Item		Extended Uncertainty
Conducted Emission		± 2.68 dB
Radiated Emission (30-1000MHz)	Field strength (dBμV/m)	± 5.16 dB
Radiated Emission (above 1000MHz)	Field strength (dBμV/m)	± 2.22 dB
Radio Spectrum		± 4.51 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Guangdong) Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. Test facility located at No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663, Guangdong Province P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT (equipment under test) 5B21S8 is a Floodlight Battery which support Bluetooth Wireless function operated at 2.4GHz.

Therefore, RE (1-18GHz) tests were performed on **5B21S8**.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Floodlight Battery
Bluetooth Core Version	Bluetooth Low Energy 4.2
Type Designation	5B21S8
FCC ID	2AEUPBHAFB001
Operating Voltage	DC 6V (lithium battery)
Testing Voltage	DC 6V
Type of Modulation	GFSK
Channel Number	39 channels
Channel Separation	2MHz
Antenna Type	Integral Antenna (PCB Antenna)
Antenna number	1
Antenna Gain	2 dBi Max

Table 3: RF Channel and Frequency of General 2.4GHz Bluetooth (LE mode)

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	11	2424.00	22	2446.00	33	2468.00
1	2404.00	12	2426.00	23	2448.00	34	2470.00
2	2406.00	13	2428.00	24	2450.00	35	2472.00
3	2408.00	14	2430.00	25	2452.00	36	2474.00
4	2410.00	15	2432.00	26	2454.00	37	2476.00
5	2412.00	16	2434.00	27	2456.00	38	2478.00
6	2414.00	17	2436.00	28	2458.00	39	2480.00
7	2416.00	18	2438.00	29	2460.00		
8	2418.00	19	2440.00	30	2462.00		
9	2420.00	20	2442.00	31	2464.00		
10	2422.00	21	2444.00	32	2466.00		

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz for General 2.4GHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, General 2.4GHz wireless transmitting mode
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Transmitting on hopping channel
- C. On, Normal operation with general 2.4GHz mode
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|----------------------------------|------------------|
| - Application Form | - Photo Document |
| - Block Diagram | - Schematics |
| - FCC/IC Label and Location Info | - User Manual |
| - Operation Description | |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model 5B21S8 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Notebook	Lenovo	ThinkPad X260	PC0DZSKR	N/A

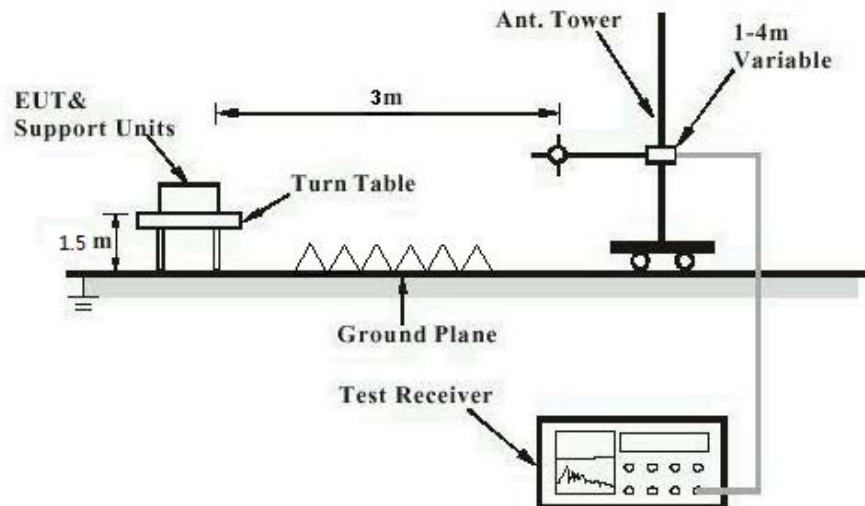
4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247 (d) & FCC Part 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: Refer to test result
Input voltage	: DC 6V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22 °C
Relative humidity	: 50 %
Atmospheric pressure	: 100 kPa

Remark:

Testing was carried out within frequency range 1GHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

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Appendix B: Test Results of General 2.4GHz

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Appendix B.1: Measurement Equipment List

Measurement Equipment List



Testing Start Date 02.01.2019
Testing end date 04.01.2019

Project Manager Amy Wang

Test Report Number 50141684 001
Order Item Number 0174097426A00040

Customer TUV Rheinland / CCIC (Ningbo)
Product Name Floodlight battery
Comment

Page 1 of 1

Old ID	Equip.	Description	Model	Manufacturer	Inte. (mon)	Due Date
1.805	1813829	FSP30 Spectrum Analyzer	FSP30	Rohde & Schwarz	12	22.08.2019
1.889C	1814199	Double-Ridged Horn Antenna	HF907(3米)	Rohde & Schwarz	24	23.10.2020
1.808	1813833	Horn Antenna	3160-09	EMCO	60	29.07.2019
1.819C	1814068	Pre-Amplifier	A44-00101800-25-10P-	MITEQ	12	16.03.2019
1.819A	1813846	Band Reject Filter	BRM50702	Micro-Tronics	24	04.07.2020
1.808A	1813834	Pre-Amplifier	A33-18002650-30-8P-4	MITEQ	24	20.07.2019
1.666	1813697	SAC	N/A	Albatross Project	36	08.10.2021
1.913	1814012	Shielding Room	9x4x3.4	Changzhou Yuanping	60	06.12.2020

Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix B.2: Fundamental & Harmonics Radiated Emission

1GHz - 18GHz

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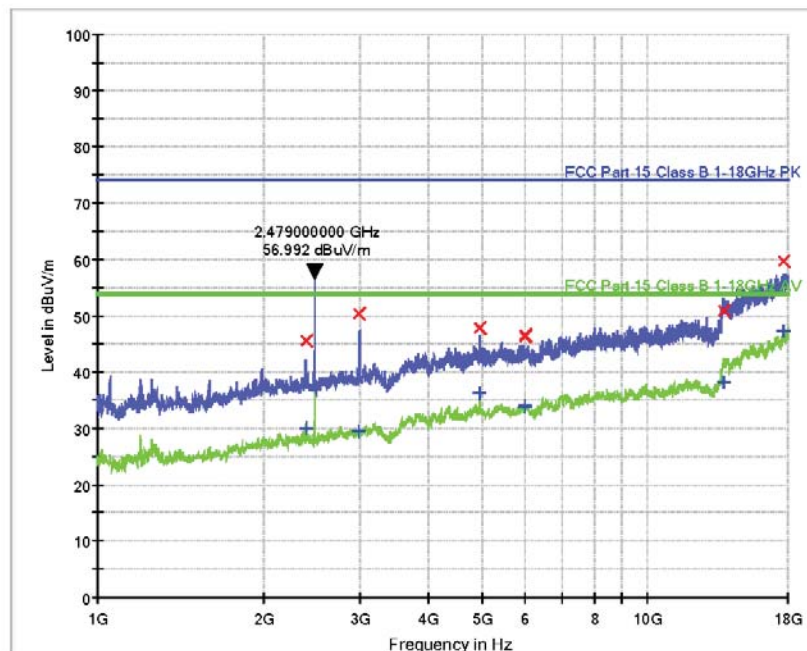
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	HIGH:2480 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Horizontal

Subrange 1	
Frequency range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREFO11-A02-05_1GHz-18GHz_With PreAMP EXT



Tested by: *Chris Liang* 20190103
Reviewed by: *Jacky Chen* 20190104

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EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
2394.000000	45.5	1000.0	1000.000	H	-11.6	28.5	74.0	
2995.500000	50.3	1000.0	1000.000	H	-9.8	23.7	74.0	
4959.000000	47.8	1000.0	1000.000	H	-5.1	26.2	74.0	
6000.000000	46.3	1000.0	1000.000	H	-4.1	27.7	74.0	
13805.000000	51.0	1000.0	1000.000	H	5.1	23.0	74.0	
17679.000000	59.8	1000.0	1000.000	H	11.4	14.2	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
2394.000000	30.1	1000.0	1000.000	H	-11.6	23.9	54.0	
2995.500000	29.6	1000.0	1000.000	H	-9.8	24.4	54.0	
4959.000000	36.3	1000.0	1000.000	H	-5.1	17.8	54.0	
6000.000000	33.9	1000.0	1000.000	H	-4.1	20.2	54.0	
13805.000000	38.2	1000.0	1000.000	H	5.1	15.8	54.0	
17679.000000	47.3	1000.0	1000.000	H	11.4	6.7	54.0	

Tested by: *Chris Liang* 20190103 Reviewed by: *Jacky Chen* 20190104

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EMC Test Service Hotline: +86-20-28391188

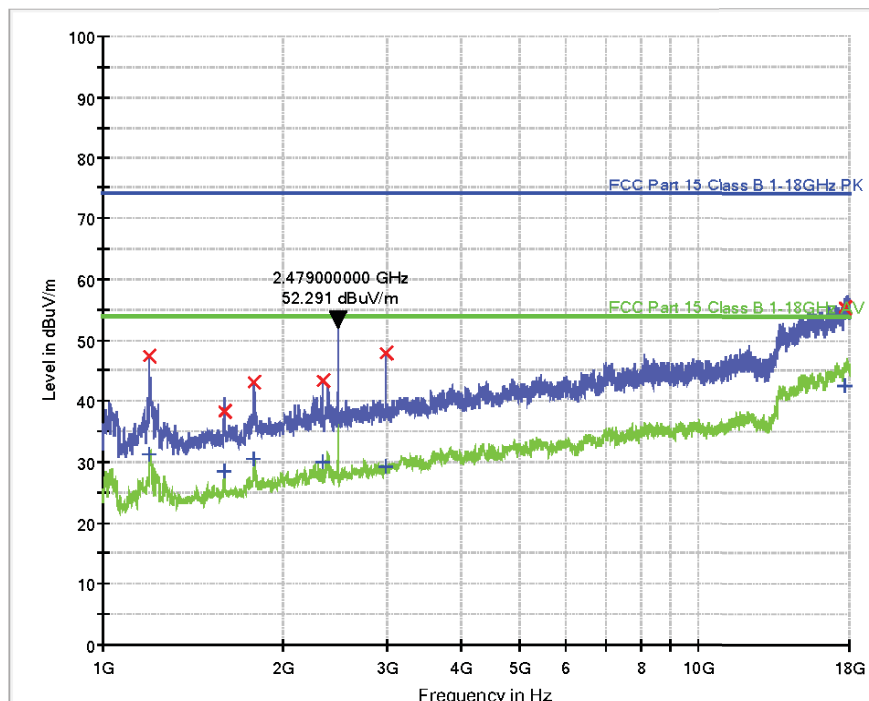
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	HIGH:2480 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1
Frequency range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_ERE011-A02-05_1GHz-18GHz_With PreAMP EXT



sTested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1195.000000	47.4	1000.0	1000.000	V	-15.7	26.6	74.0	
1599.000000	38.3	1000.0	1000.000	V	-13.7	35.7	74.0	
1790.000000	43.1	1000.0	1000.000	V	-12.3	30.9	74.0	
2345.000000	43.4	1000.0	1000.000	V	-12.5	30.6	74.0	
2987.000000	47.8	1000.0	1000.000	V	-8.8	26.2	74.0	
17666.000000	55.3	1000.0	1000.000	V	11.4	18.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1195.000000	31.3	1000.0	1000.000	V	-15.7	22.7	54.0	
1599.000000	28.5	1000.0	1000.000	V	-13.7	25.5	54.0	
1790.000000	30.5	1000.0	1000.000	V	-12.3	23.6	54.0	
2345.000000	29.9	1000.0	1000.000	V	-12.5	24.1	54.0	
2987.000000	29.3	1000.0	1000.000	V	-8.8	24.7	54.0	
17666.000000	42.6	1000.0	1000.000	V	11.4	11.4	54.0	

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Reviewed by:

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by: Jacky Chen
20190104

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Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1195.000000	45.2	1000.0	1000.000	H	-15.7	28.8	74.0	
1907.000000	38.2	1000.0	1000.000	H	-11.8	35.8	74.0	
4313.000000	40.6	1000.0	1000.000	H	-5.2	33.4	74.0	
8321.000000	43.9	1000.0	1000.000	H	1.3	30.1	74.0	
12180.000000	46.7	1000.0	1000.000	H	4.7	27.3	74.0	
17739.000000	55.7	1000.0	1000.000	H	11.5	18.3	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1195.000000	27.4	1000.0	1000.000	H	-15.7	26.6	54.0	
1907.000000	31.1	1000.0	1000.000	H	-11.8	22.9	54.0	
4313.000000	32.9	1000.0	1000.000	H	-5.2	21.1	54.0	
8321.000000	35.5	1000.0	1000.000	H	1.3	18.5	54.0	
12180.000000	37.4	1000.0	1000.000	H	4.7	16.6	54.0	
17739.000000	42.8	1000.0	1000.000	H	11.5	11.2	54.0	

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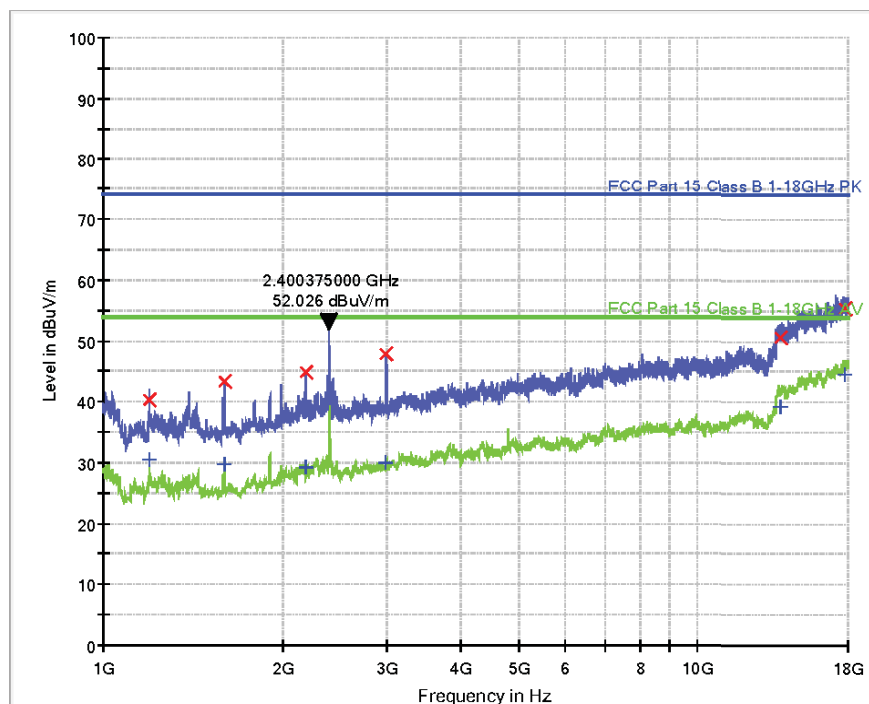
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	LOW:2402 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1
Frequency range: 1GHz-18GHz
Receiver: TUV FSP30
Transducer: TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_ERE011-A02-05_1GHz-18GHz_With PreAMP EXT



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Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1195.000000	40.2	1000.0	1000.000	V	-15.7	33.8	74.0	
1597.000000	43.2	1000.0	1000.000	V	-13.6	30.8	74.0	
2196.000000	44.8	1000.0	1000.000	V	1.5	29.2	74.0	
2987.000000	47.9	1000.0	1000.000	V	-8.8	26.1	74.0	
13835.000000	50.6	1000.0	1000.000	V	5.2	23.4	74.0	
17836.000000	55.3	1000.0	1000.000	V	11.3	18.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1195.000000	30.5	1000.0	1000.000	V	-15.7	23.5	54.0	
1597.000000	29.7	1000.0	1000.000	V	-13.6	24.3	54.0	
2196.000000	29.3	1000.0	1000.000	V	1.5	24.7	54.0	
2987.000000	30.1	1000.0	1000.000	V	-8.8	23.9	54.0	
13835.000000	39.4	1000.0	1000.000	V	5.2	14.6	54.0	
17836.000000	44.5	1000.0	1000.000	V	11.3	9.5	54.0	

Tested by:

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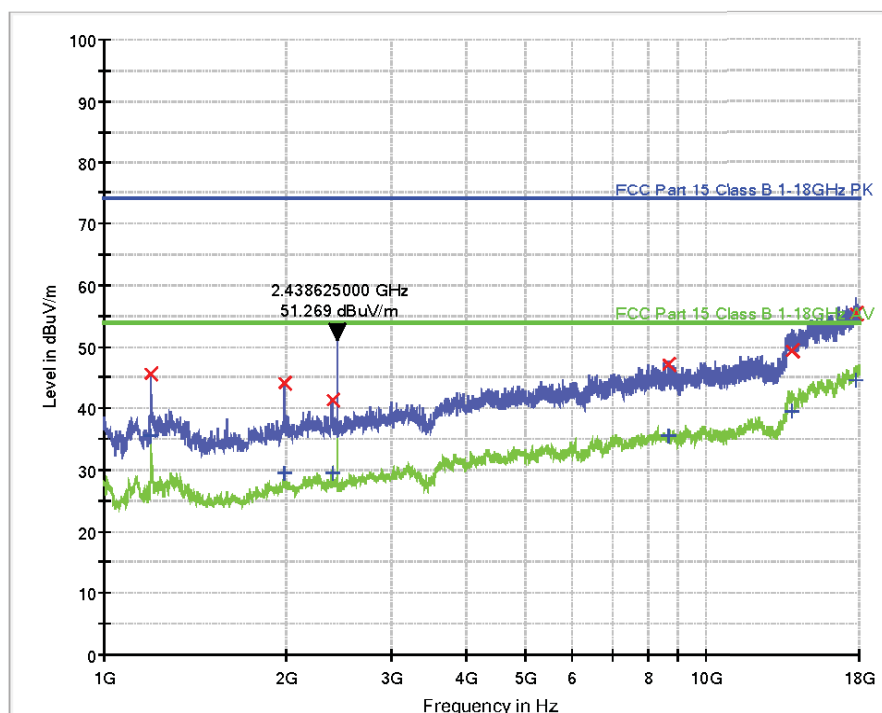
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	MIDDLE:2440 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Horizontal

Subrange 1	1GHz-18GHz
Frequency range:	TUV FSP30
Receiver:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907
Transducer:	

EMCTT_EREFO11-A02-05_1GHz-18GHz_With PreAMP EXT



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EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1195.000000	45.6	1000.0	1000.000	H	-15.7	28.4	74.0	
1994.000000	44.0	1000.0	1000.000	H	-10.7	30.0	74.0	
2388.000000	41.4	1000.0	1000.000	H	21.0	32.7	74.0	
8678.000000	47.0	1000.0	1000.000	H	1.6	27.0	74.0	
13948.000000	49.4	1000.0	1000.000	H	5.9	24.7	74.0	
17768.000000	55.4	1000.0	1000.000	H	11.4	18.6	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1195.000000	35.5	1000.0	1000.000	H	-15.7	18.5	54.0	
1994.000000	29.4	1000.0	1000.000	H	-10.7	24.6	54.0	
2388.000000	29.4	1000.0	1000.000	H	21.0	24.6	54.0	
8678.000000	35.5	1000.0	1000.000	H	1.6	18.5	54.0	
13948.000000	39.6	1000.0	1000.000	H	5.9	14.4	54.0	
17768.000000	44.7	1000.0	1000.000	H	11.4	9.4	54.0	

Tested by:

Chris Liang
20190103

Reviewed by:

Jacky Chen
20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

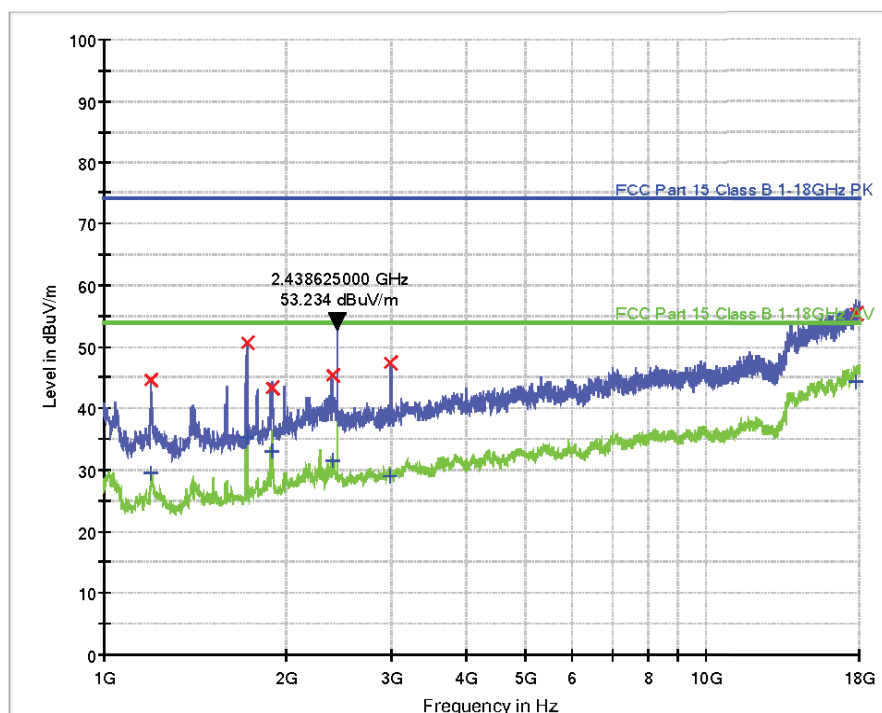
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	MIDDLE:2440 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1	1GHz-18GHz
Frequency range:	TUV FSP30
Receiver:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907
Transducer:	

EMCTT_EREFO11-A02-05_1GHz-18GHz_With PreAMP EXT



Tested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
1198.000000	44.6	1000.0	1000.000	V	-15.6	29.4	74.0	
1725.000000	50.7	1000.0	1000.000	V	-13.0	23.3	74.0	
1899.000000	43.4	1000.0	1000.000	V	-11.8	30.6	74.0	
2384.000000	45.4	1000.0	1000.000	V	20.0	28.6	74.0	
2993.000000	47.4	1000.0	1000.000	V	-8.8	26.7	74.0	
17824.000000	55.4	1000.0	1000.000	V	11.4	18.6	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
1198.000000	29.5	1000.0	1000.000	V	-15.6	24.5	54.0	
1725.000000	35.2	1000.0	1000.000	V	-13.0	18.8	54.0	
1899.000000	33.0	1000.0	1000.000	V	-11.8	21.0	54.0	
2384.000000	31.5	1000.0	1000.000	V	20.0	22.5	54.0	
2993.000000	29.1	1000.0	1000.000	V	-8.8	24.9	54.0	
17824.000000	44.4	1000.0	1000.000	V	11.4	9.6	54.0	

Tested by:

Chris Liang

20190103

Reviewed by:

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20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

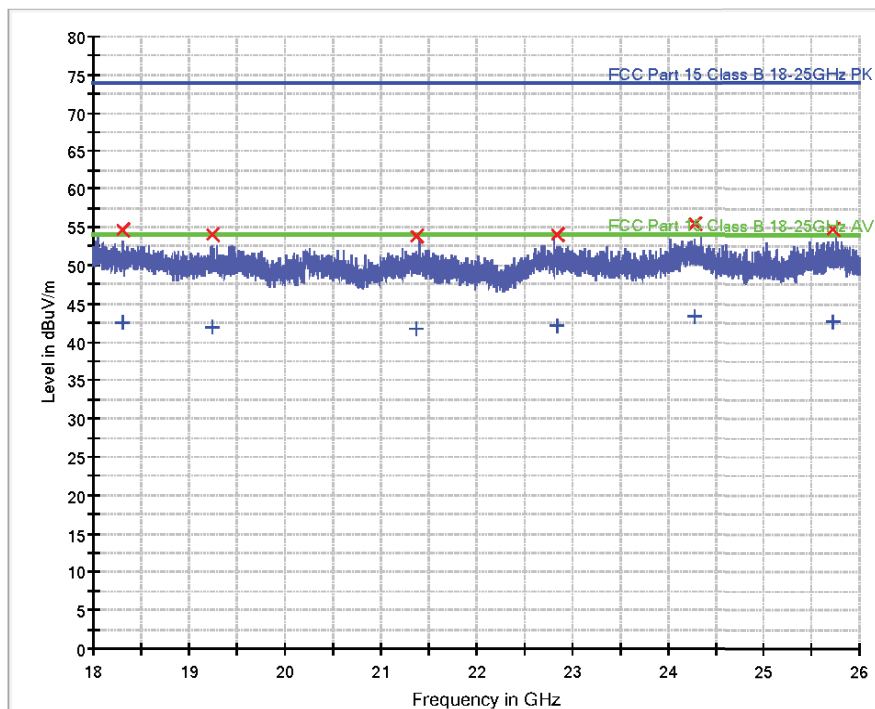
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	HIGH:2480 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Horizontal

Subrange 1	
Frequency range:	18GHz-26GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_ERE011-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:	Chris Liang	Reviewed by:	Jacky Chen
	20190103		20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
18302.000000	54.7	1000.0	1000.000	H	8.0	19.3	74.0	
19237.000000	54.0	1000.0	1000.000	H	7.9	20.1	74.0	
21363.000000	53.7	1000.0	1000.000	H	7.2	20.3	74.0	
22831.000000	53.9	1000.0	1000.000	H	7.4	20.1	74.0	
24276.000000	55.3	1000.0	1000.000	H	7.7	18.7	74.0	
25721.000000	54.8	1000.0	1000.000	H	7.1	19.2	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
18302.000000	42.5	1000.0	1000.000	H	8.0	11.5	54.0	
19237.000000	42.0	1000.0	1000.000	H	7.9	12.0	54.0	
21363.000000	41.8	1000.0	1000.000	H	7.2	12.3	54.0	
22831.000000	42.1	1000.0	1000.000	H	7.4	11.9	54.0	
24276.000000	43.3	1000.0	1000.000	H	7.7	10.8	54.0	
25721.000000	42.7	1000.0	1000.000	H	7.1	11.3	54.0	

Tested by:

Chris Liang

Reviewed by:

Jacky Chen

20190103

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

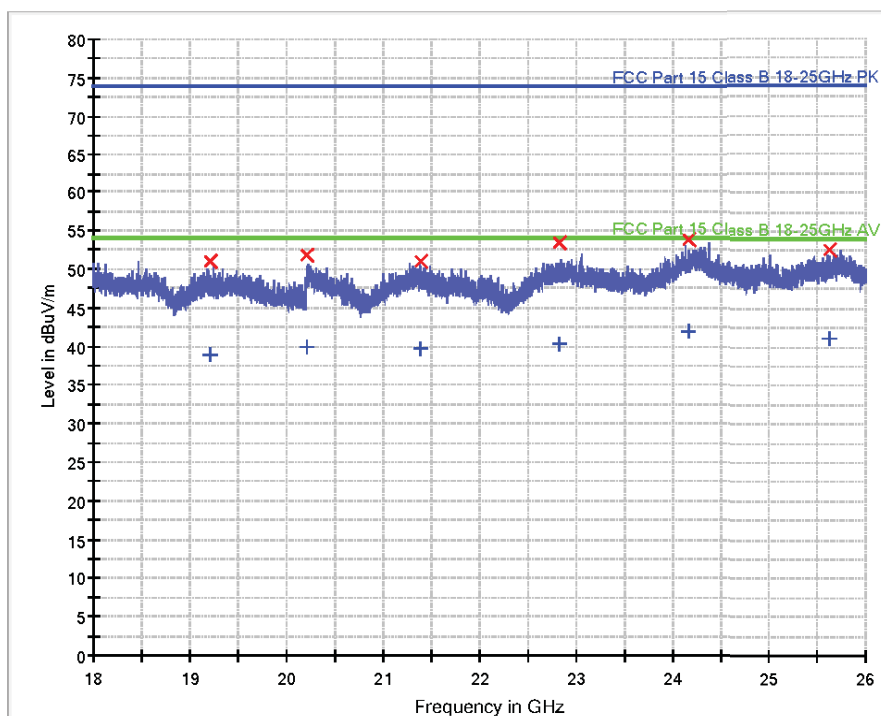
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	HIGH:2480 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1	18GHz-26GHz
Frequency range:	TUV FSP30
Receiver:	TUV SAC Horn 3160-09
Transducer:	

EMCTT_ERE011-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:

Chris Liang
20190103

Reviewed by:

Jacky Chen
20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
19206.000000	51.0	1000.0	1000.000	V	7.9	23.0	74.0	
20212.000000	51.9	1000.0	1000.000	V	7.7	22.1	74.0	
21395.000000	51.1	1000.0	1000.000	V	7.2	22.9	74.0	
22824.000000	53.4	1000.0	1000.000	V	7.4	20.7	74.0	
24161.000000	53.7	1000.0	1000.000	V	7.7	20.3	74.0	
25630.000000	52.7	1000.0	1000.000	V	7.0	21.4	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
19206.000000	39.0	1000.0	1000.000	V	7.9	15.0	54.0	
20212.000000	40.0	1000.0	1000.000	V	7.7	14.0	54.0	
21395.000000	39.7	1000.0	1000.000	V	7.2	14.3	54.0	
22824.000000	40.4	1000.0	1000.000	V	7.4	13.7	54.0	
24161.000000	42.0	1000.0	1000.000	V	7.7	12.0	54.0	
25630.000000	41.0	1000.0	1000.000	V	7.0	13.0	54.0	

Tested by: *Chris Liang* 20190103 Reviewed by: *Jacky Chen* 20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

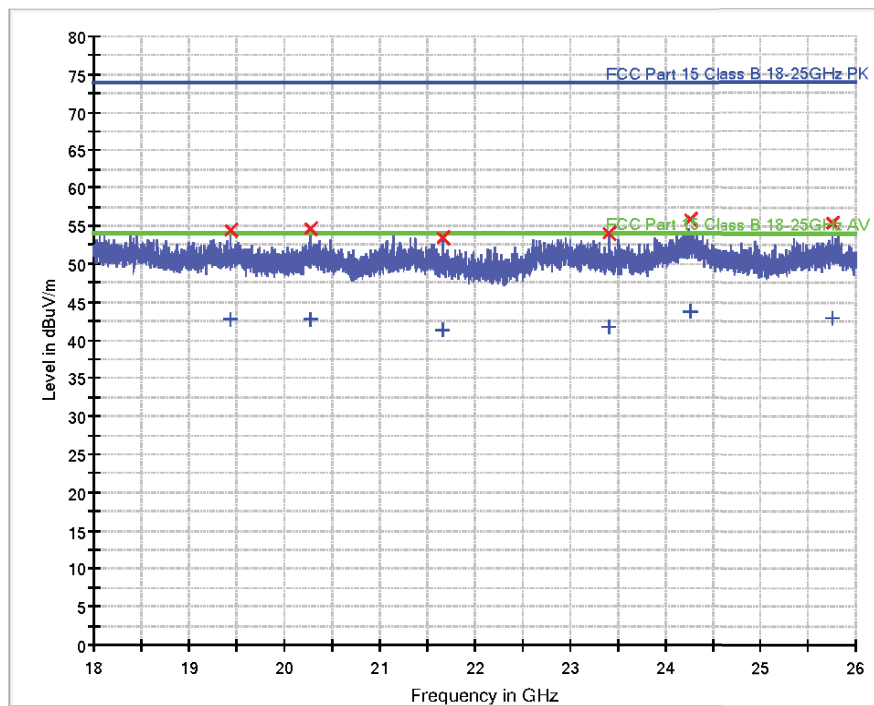
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	LOW:2402 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Horizontal

Subrange 1
Frequency range: 18GHz-26GHz
Receiver: TUV FSP30
Transducer: TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:

Chris Liang
20190103

Reviewed by:

Jacky Chen
20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
19438.000000	54.3	1000.0	1000.000	H	7.9	19.7	74.0	
20268.000000	54.6	1000.0	1000.000	H	7.6	19.4	74.0	
21658.000000	53.5	1000.0	1000.000	H	6.9	20.5	74.0	
23407.000000	54.0	1000.0	1000.000	H	7.3	20.0	74.0	
24256.000000	55.9	1000.0	1000.000	H	7.7	18.1	74.0	
25755.000000	55.4	1000.0	1000.000	H	7.1	18.6	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
19438.000000	42.7	1000.0	1000.000	H	7.9	11.3	54.0	
20268.000000	42.7	1000.0	1000.000	H	7.6	11.3	54.0	
21658.000000	41.3	1000.0	1000.000	H	6.9	12.7	54.0	
23407.000000	41.6	1000.0	1000.000	H	7.3	12.4	54.0	
24256.000000	43.8	1000.0	1000.000	H	7.7	10.2	54.0	
25755.000000	43.0	1000.0	1000.000	H	7.1	11.1	54.0	

Tested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

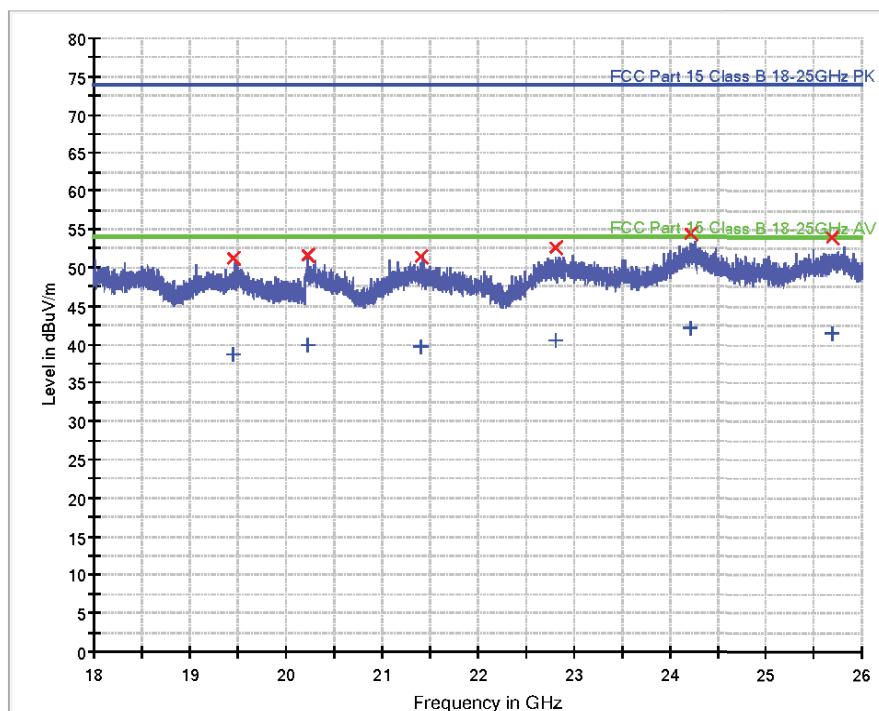
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	LOW:2402 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1	
Frequency range:	18GHz-26GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_ERE011-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:	Chris Liang	Reviewed by:	Jacky Chen
	20190103		20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
19450.000000	51.2	1000.0	1000.000	V	7.9	22.8	74.0	
20231.000000	51.6	1000.0	1000.000	V	7.7	22.4	74.0	
21405.000000	51.5	1000.0	1000.000	V	7.2	22.6	74.0	
22814.000000	52.6	1000.0	1000.000	V	7.4	21.4	74.0	
24217.000000	54.3	1000.0	1000.000	V	7.7	19.7	74.0	
25695.000000	54.1	1000.0	1000.000	V	7.0	19.9	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
19450.000000	38.7	1000.0	1000.000	V	7.9	15.3	54.0	
20231.000000	39.9	1000.0	1000.000	V	7.7	14.1	54.0	
21405.000000	39.7	1000.0	1000.000	V	7.2	14.3	54.0	
22814.000000	40.4	1000.0	1000.000	V	7.4	13.6	54.0	
24217.000000	42.1	1000.0	1000.000	V	7.7	11.9	54.0	
25695.000000	41.6	1000.0	1000.000	V	7.0	12.4	54.0	

Tested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

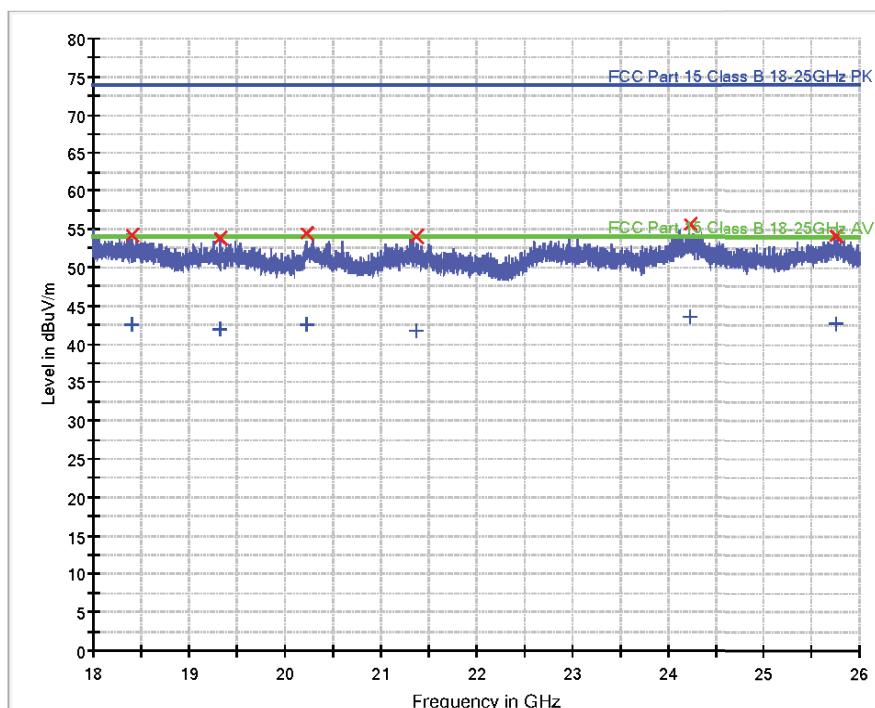
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	MIDDLE:2440 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Horizontal

Subrange 1	
Frequency range:	18GHz-26GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_ERE011-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:	Chris Liang	Reviewed by:	Jacky Chen
	20190103		20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin QP

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
18404.000000	54.2	1000.0	1000.000	H	8.1	19.8	74.0	
19329.000000	53.9	1000.0	1000.000	H	7.9	20.1	74.0	
20219.000000	54.4	1000.0	1000.000	H	7.7	19.6	74.0	
21366.000000	54.0	1000.0	1000.000	H	7.2	20.0	74.0	
24233.000000	55.5	1000.0	1000.000	H	7.7	18.5	74.0	
25759.000000	54.2	1000.0	1000.000	H	7.1	19.8	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
18404.000000	42.6	1000.0	1000.000	H	8.1	11.4	54.0	
19329.000000	42.0	1000.0	1000.000	H	7.9	12.0	54.0	
20219.000000	42.5	1000.0	1000.000	H	7.7	11.5	54.0	
21366.000000	41.8	1000.0	1000.000	H	7.2	12.2	54.0	
24233.000000	43.5	1000.0	1000.000	H	7.7	10.6	54.0	
25759.000000	42.7	1000.0	1000.000	H	7.1	11.3	54.0	

Tested by: *Chris Liang* Reviewed by: *Jacky Chen*
20190103 20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

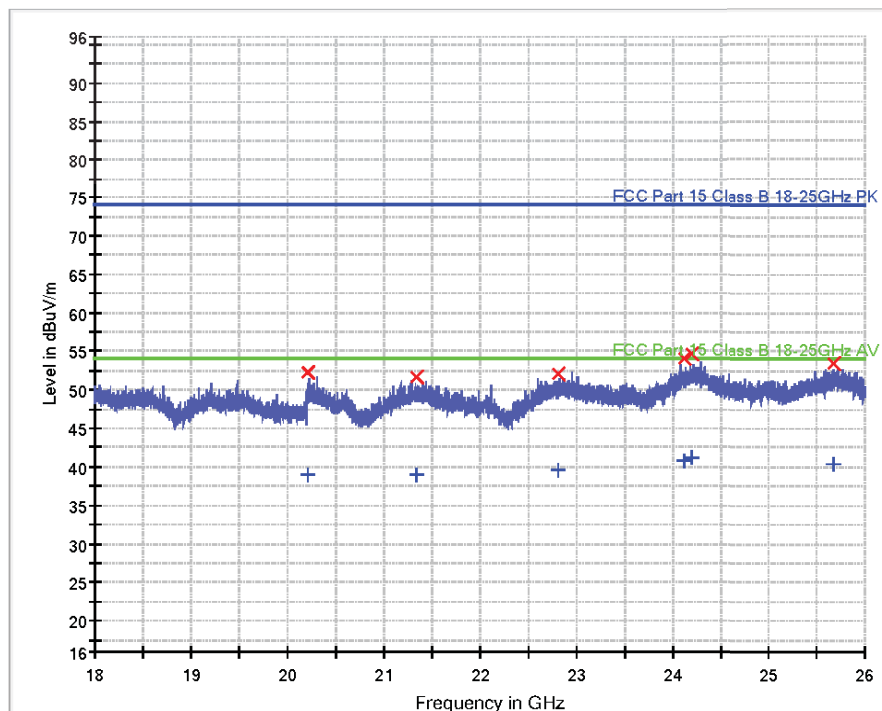
EMC Test Record (Emission)

Common Information

Manufacturer:	Ring LLC
Test Item:	Floodlight Battery
Identification:	5B21S8
Test Standard:	CFR Title 47 Part 15C
Test Detail:	Transmitter spurious
Operation Mode:	MIDDLE:2440 MHz
Climate Condition:	22 °C; 50 %RH; 101 kPa
Test Voltage/Freq.:	DC 6 V
Receive No.:	/
Report No.:	/
Result:	Pass
Comment:	Test distance is 3m;Vertical

Subrange 1	
Frequency range:	18GHz-26GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-08_18GHz-25GHz_With PreAMP EXT



Tested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)	Comment
20205.000000	52.3	1000.0	1000.000	V	7.7	21.8	74.0	
21343.000000	51.7	1000.0	1000.000	V	7.2	22.3	74.0	
22803.000000	52.0	1000.0	1000.000	V	7.4	22.0	74.0	
24110.000000	53.4	1000.0	1000.000	V	7.8	20.6	74.0	
24197.000000	54.7	1000.0	1000.000	V	7.7	19.3	74.0	
25673.000000	53.5	1000.0	1000.000	V	7.0	20.6	74.0	

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBuV/m)	Comment
20205.000000	39.1	1000.0	1000.000	V	7.7	14.9	54.0	
21343.000000	38.9	1000.0	1000.000	V	7.2	15.1	54.0	
22803.000000	39.5	1000.0	1000.000	V	7.4	14.5	54.0	
24110.000000	40.7	1000.0	1000.000	V	7.8	13.3	54.0	
24197.000000	41.2	1000.0	1000.000	V	7.7	12.9	54.0	
25673.000000	40.5	1000.0	1000.000	V	7.0	13.5	54.0	

Tested by:

Chris Liang

20190103

Reviewed by:

Jacky Chen

20190104