

# RADIO TEST REPORT

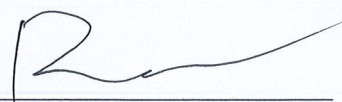
The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant : Guangde Ledup Enterprise Inc.  
Address : Jingtang Road, Economic Development Zone, Xuanchang City, China  
Manufacturer /Factory : Guangde Ledup Enterprise Inc  
Address : Jingtang Road, Economic Development Zone, Xuanchang City, China  
E.U.T. : Control box for light string  
Brand Name : N/A  
Model No. : 15STR5-1801B1  
FCC ID : 2AEBHSTR51801B1C  
Measurement Standard : 47 CFR FCC PART 15B  
Date of Receiver : February 01, 2018  
Date of Test : February 01, 2018 to February 06, 2018  
Date of Report : February 06, 2018

This Test Report is Issued Under the Authority of :

Prepared by

Approved & Authorized Signer

  
Rose Hu / Engineer

  
Iori Fan / Authorized Signatory

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.



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**Revision History of This Test Report**

Report Number	Description	Issued Date
NTC1802011FV00	Initial Issue	2018-02-06



## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment under Test

E.U.T.	:	Control box for light string
Main Model Name	:	15STR5-1801B1
Additional Model name	:	N/A
Rating	:	AC 120V 60Hz
Adapter	:	Manufacturer: Guang Zhou Taiju Electronics co., Ltd. Model: J-29V29W Input: AC 120V 60Hz, 0.58A Output: DC 29V 1.0A
Test Voltage	:	AC 120V/60Hz
E.U.T. Type	:	Class B
Operation Frequency	:	433MHz
Cable	:	N/A
I/O Port	:	N/A
Hardware version	:	V1.0
Software version	:	V1.0
Description of model difference	:	N/A
Note	:	N/A
Remark	:	The EUT is a 433.92 MHz Receiver, which is used with a Remote Control (FCC ID: 2AEBHR51701B1). This report only conducted the receiving function, exclusive the transmitting part.

## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2AEBHSTR51801B1C** filing to comply with FCC Part 15 Subpart C Class B (2016).

## 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters.

## 1.4 Equipment Modifications

Not available for this EUT intended for grant.

## 1.5 Support Device

N/A

## 1.6 Test Facility and Location

Site Description

- EMC Lab : Listed by CNAS, August 14, 2015  
The certificate is valid until August 13, 2018  
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01  
The Certificate Registration Number is L5795.
- Listed by A2LA, November 01, 2017  
The certificate is valid until December 31, 2019  
The Laboratory has been assessed and proved to be in compliance with ISO17025  
The Certificate Registration Number is 4429.01
- Listed by FCC, November 06, 2017  
The Designation Number is CN1214  
Test Firm Registration Number: 907417
- Listed by Industry Canada, June 08, 2017  
The Certificate Registration Number. Is 46405-9743
- Name of Firm : Dongguan Nore Testing Center Co., Ltd.  
(Dongguan NTC Co., Ltd.)
- Site Location : Building D, Gaosheng Science & Technology Park,  
Zhouxi Longxi Road, Nancheng District, Dongguan  
City, Guangdong Province, China

### 1.7 Summary of Test Results

FCC Rules	Description Of Test	Uncertainty	Result
§15.107(a)	AC Power Conducted Emission	±1.06dB	Compliant
§15.109	Radiated Emission	±3.70dB	Compliant

---

## 2. System Test Configuration

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 Special Accessories

Not available for this EUT intended for grant.

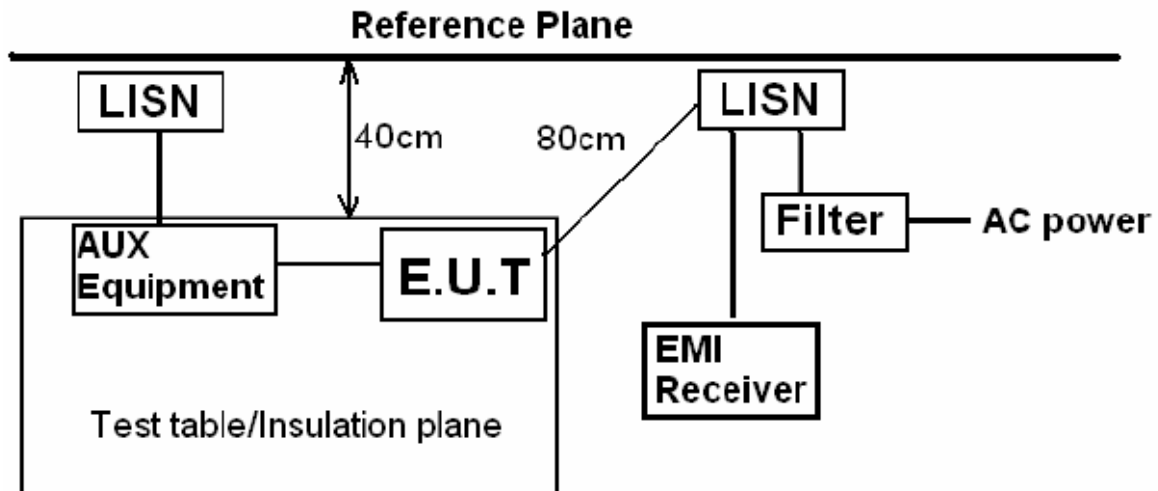
### 2.3 Description of test modes

The EUT has been tested under RX mode.



### 3. Conducted Emissions Test

#### 3.1 Test SET-UP (Block Diagram of Configuration)



#### 3.2 Test Condition

##### Test Requirement: FCC Part 15.107

The E.U.T. is put on the 0.8 m high table and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the FCC ANSI C63.10-2013 regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 9 KHz.

**Frequency Range: 150KHz ~ 30MHz**

**Detector: RBW 9KHz, VBW 30KHz**

**Operation Mode: Test mode RX**

### 3.3 Measurement Results

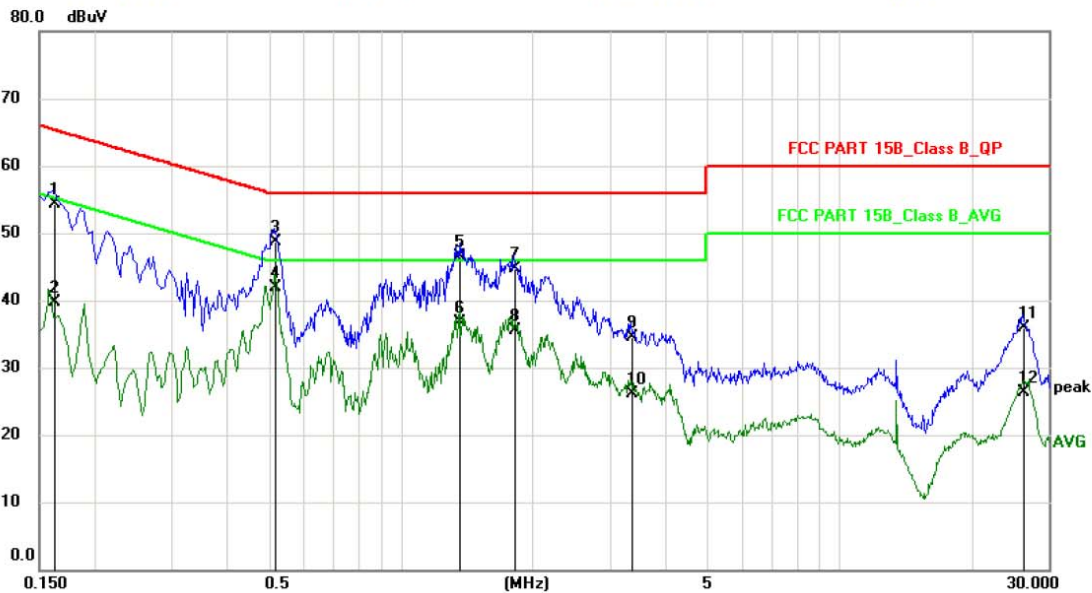
Please refer to following plots.



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### Conducted Emission Measurement

File : 15STR5-1801B1 Data : #2 Date : 2018-2-3 Time : 13:48:09



Site Phase: L1 Temperature: 26  
 Limit: FCC PART 15B\_Class B\_QP Power: AC120V/60Hz Humidity: 50 %  
 EUT: Indoor and outdoor use, series or series-parallel connected, LED lighting string  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note:

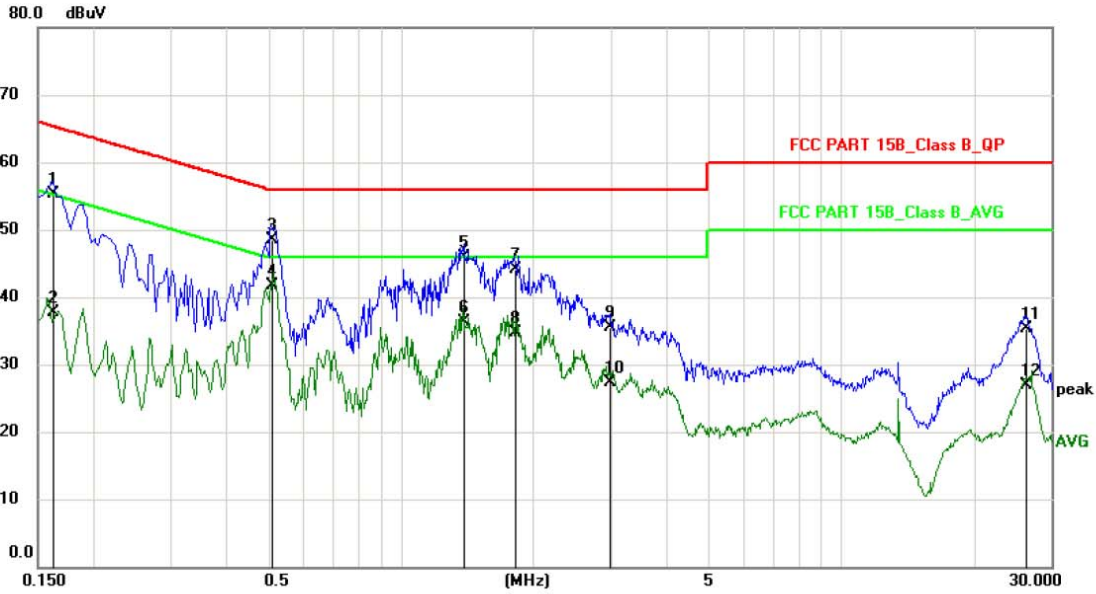
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1620	43.60	10.80	54.40	65.36	-10.96	QP	
2		0.1620	29.00	10.80	39.80	55.36	-15.56	AVG	
3		0.5180	37.90	10.80	48.70	56.00	-7.30	QP	
4	*	0.5180	31.10	10.80	41.90	46.00	-4.10	AVG	
5		1.3660	35.70	10.80	46.50	56.00	-9.50	QP	
6		1.3660	26.00	10.80	36.80	46.00	-9.20	AVG	
7		1.8140	33.90	10.80	44.70	56.00	-11.30	QP	
8		1.8140	24.70	10.80	35.50	46.00	-10.50	AVG	
9		3.3500	23.80	10.80	34.60	56.00	-21.40	QP	
10		3.3500	15.30	10.80	26.10	46.00	-19.90	AVG	
11		26.2540	25.10	10.80	35.90	60.00	-24.10	QP	
12		26.2540	15.60	10.80	26.40	50.00	-23.60	AVG	



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Conducted Emission Measurement

File :15STR5-1801B1 Data :#1 Date: 2018-2-3 Time: 13:41:29

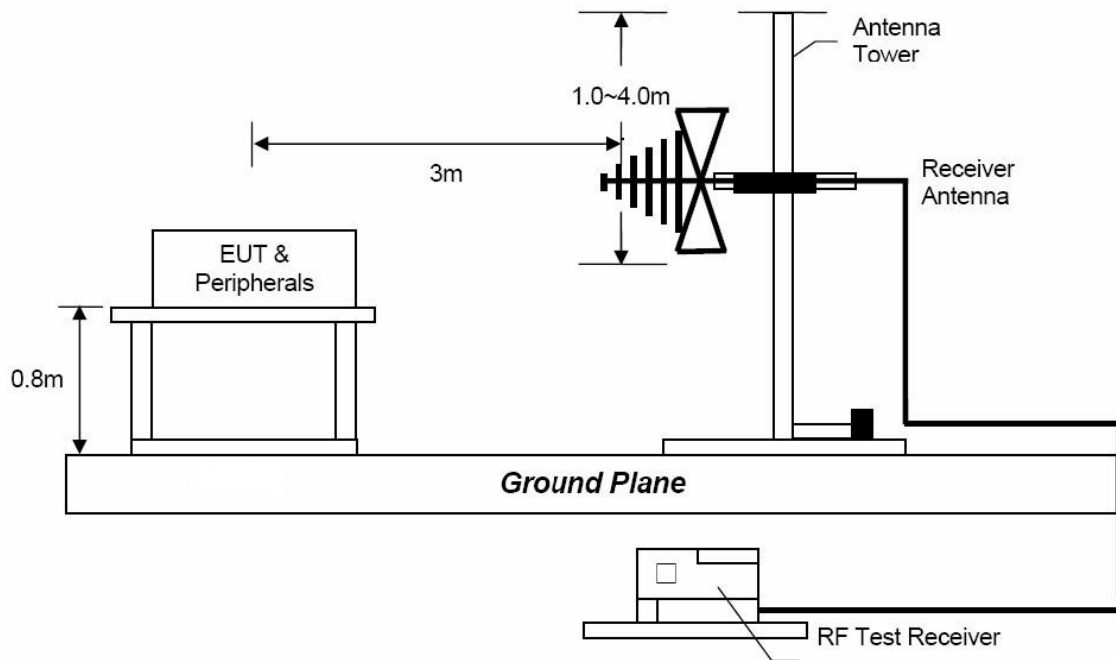


Site Phase: **N** Temperature: 26  
 Limit: FCC PART 15B\_Class B\_QP Power: AC120V/60Hz Humidity: 50 %  
 EUT: Indoor and outdoor use, series or series-parallel connected, LED lighting string  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1620	44.60	10.80	55.40	65.36	-9.96	QP	
2	0.1620	27.00	10.80	37.80	55.36	-17.56	AVG	
3	0.5100	37.80	10.80	48.60	56.00	-7.40	QP	
4 *	0.5100	30.90	10.80	41.70	46.00	-4.30	AVG	
5	1.3940	35.10	10.80	45.90	56.00	-10.10	QP	
6	1.3940	25.50	10.80	36.30	46.00	-9.70	AVG	
7	1.8100	33.30	10.80	44.10	56.00	-11.90	QP	
8	1.8100	24.00	10.80	34.80	46.00	-11.20	AVG	
9	2.9780	24.80	10.80	35.60	56.00	-20.40	QP	
10	2.9780	16.50	10.80	27.30	46.00	-18.70	AVG	
11	26.2700	24.60	10.80	35.40	60.00	-24.60	QP	
12	26.2700	16.20	10.80	27.00	50.00	-23.00	AVG	

## 4. Radiated Emission Test

### 4.1 Test SET-UP (Block Diagram of Configuration)



### 4.2 Measurement Procedure

E.U.T. and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. E.U.T. is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC ANSI C63.10-2013 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCI7) are set at 120 KHz and 1MHz. The frequency ranges from 30 MHz to 1000 MHz, 1000 MHz to 6000 MHz were checked.

### 4.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

- Remark : (1) Emission level  $(\text{dB})\mu\text{V} = 20 \log$  Emission level  $\mu\text{V}/\text{m}$   
(2) The smaller limit shall apply at the cross point between two frequency bands.  
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

### 4.4 Measurement Results

**Operation Mode: RX**

**Please refer to following plots.**

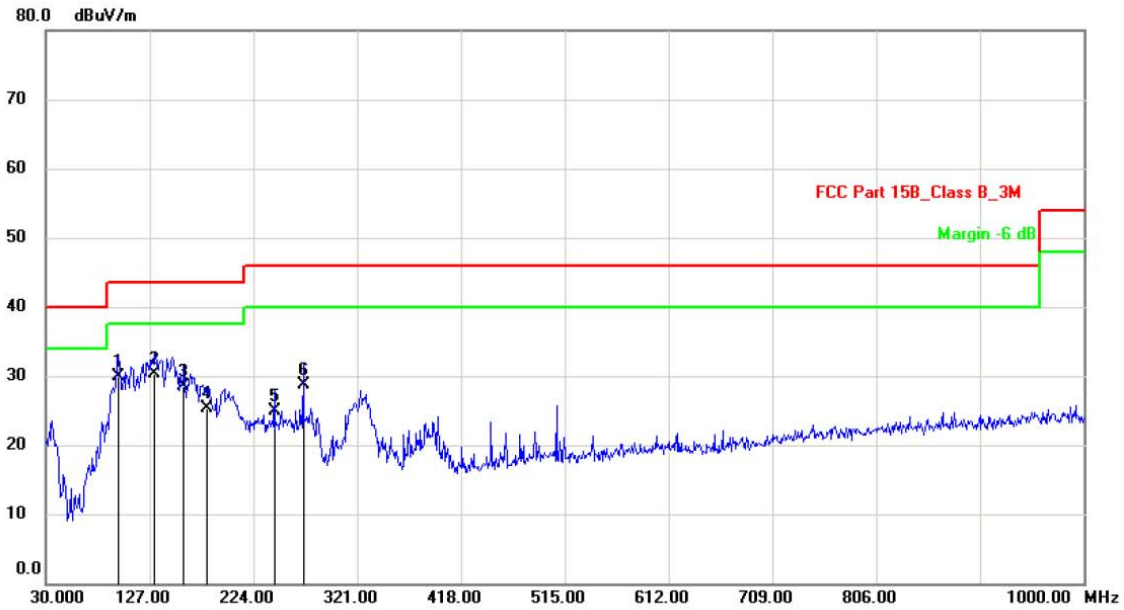




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**Radiated Emission Measurement**

File :15STR5-1801B1      Data :#2      Date: 2018-2-5      Time: 16:55:23



Site      Polarization: *Horizontal*      Temperature: 20  
 Limit: FCC Part 15B\_Class B\_3M      Power: AC120V/60Hz      Humidity: 41 %  
 EUT: INDOOR      Distance: 3m  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note: Indoor and outdoor use,series or series-parallel connected,LED lighting string

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		97.9000	42.30	-12.40	29.90	43.50	-13.60	QP			
2	*	131.8500	45.64	-15.24	30.40	43.50	-13.10	QP			
3		159.0100	43.80	-15.20	28.60	43.50	-14.90	QP			
4		180.3500	39.42	-14.12	25.30	43.50	-18.20	QP			
5		243.4000	36.82	-11.92	24.90	46.00	-21.10	QP			
6		270.5600	39.98	-11.18	28.80	46.00	-17.20	QP			



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### Radiated Emission Measurement

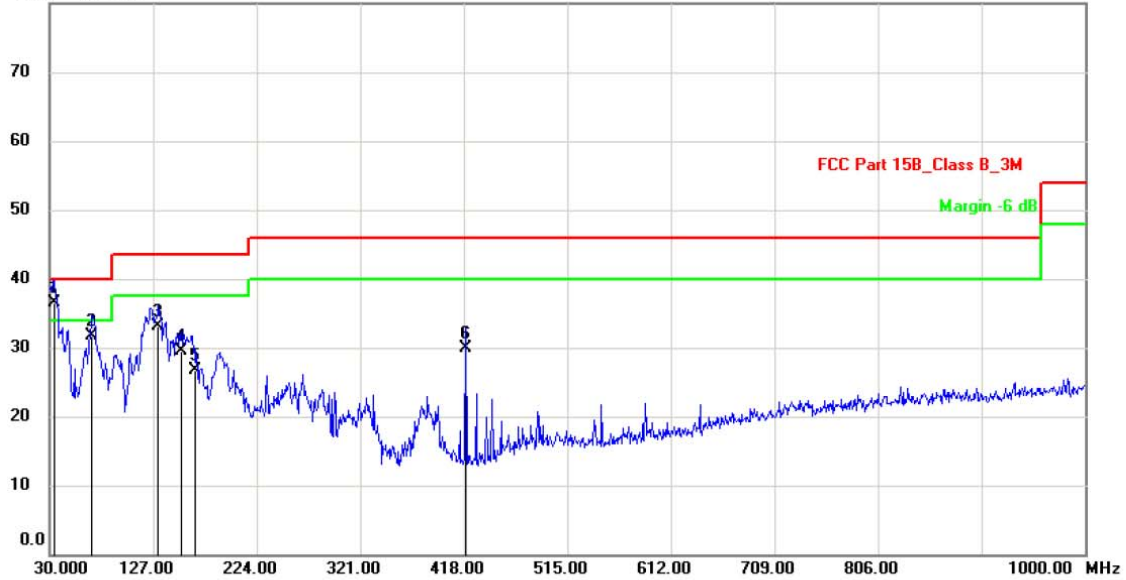
File :15STR5-1801B1

Data :#1

Date: 2018-2-5

Time: 16:49:32

80.0 dBuV/m



Site: Polarization: *Vertical* Temperature: 20  
 Limit: FCC Part 15B\_Class B\_3M Power: AC120V/60Hz Humidity: 41 %  
 EUT: INDOOR Distance: 3m  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note: Indoor and outdoor use,series or series-parallel connected,LED lighting string

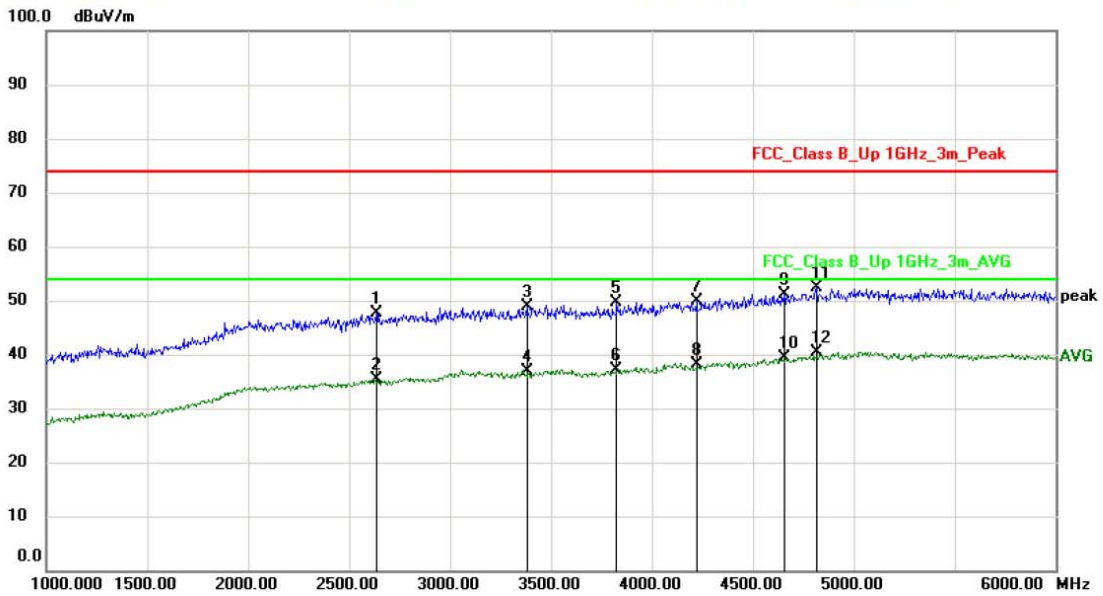
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	*	34.8500	52.77	-16.17	36.60	40.00	-3.40	QP			
2		69.7699	49.11	-17.31	31.80	40.00	-8.20	QP			
3		131.8500	51.34	-18.24	33.10	43.50	-10.40	QP			
4		153.1900	48.00	-18.40	29.60	43.50	-13.90	QP			
5		165.8000	44.65	-17.95	26.70	43.50	-16.80	QP			
6		419.9400	41.54	-11.64	29.90	46.00	-16.10	QP			



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**Radiated Emission Measurement**

File :15STR5-1801B1 Data :#3 Date: 2018-2-5 Time: 17:26:15



Site Polarization: **Horizontal** Temperature: 20  
 Limit: FCC\_Class B\_Up 1GHz\_3m\_Peak Power: AC120V/60Hz Humidity: 41 %  
 EUT: INDOOR Distance: 3m  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note: Indoor and outdoor use,series or series-parallel connected,LED lighting string

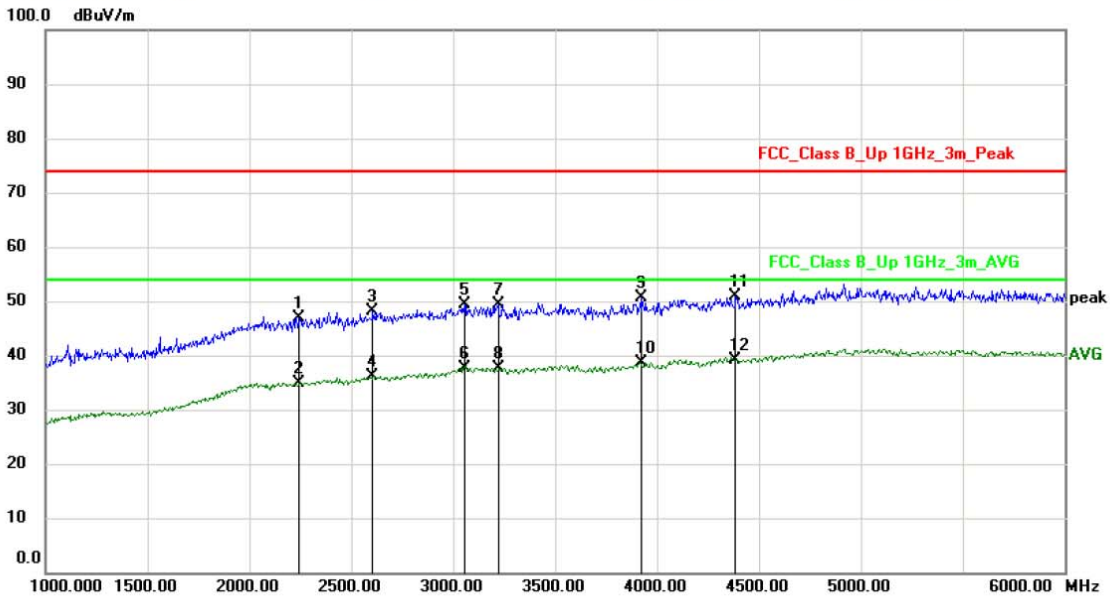
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2635.000	46.73	0.87	47.60	74.00	-26.40			peak
2		2635.000	34.57	0.87	35.44	54.00	-18.56			AVG
3		3380.000	46.35	2.42	48.77	74.00	-25.23			peak
4		3380.000	34.58	2.42	37.00	54.00	-17.00			AVG
5		3825.000	46.11	3.49	49.60	74.00	-24.40			peak
6		3825.000	33.71	3.49	37.20	54.00	-16.80			AVG
7		4220.000	45.39	4.49	49.88	74.00	-24.12			peak
8		4220.000	33.59	4.49	38.08	54.00	-15.92			AVG
9		4655.000	45.44	5.73	51.17	74.00	-22.83			peak
10		4655.000	33.62	5.73	39.35	54.00	-14.65			AVG
11		4815.000	46.08	6.34	52.42	74.00	-21.58			peak
12	*	4815.000	34.06	6.34	40.40	54.00	-13.60			AVG



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**Radiated Emission Measurement**

File :15STR5-1801B1      Data :#4      Date: 2018-2-5      Time: 17:35:58



Site      Polarization: **Vertical**      Temperature: 20  
 Limit: FCC\_Class B\_Up 1GHz\_3m\_Peak      Power: AC120V/60Hz      Humidity: 41 %  
 EUT: INDOOR      Distance: 3m  
 M/N: 15STR5-1801B1  
 Mode: RX  
 Note: Indoor and outdoor use,series or series-parallel connected,LED lighting string

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		2245.000	47.17	-0.29	46.88	74.00	-27.12	peak		
2		2245.000	35.29	-0.29	35.00	54.00	-19.00	AVG		
3		2605.000	47.24	0.77	48.01	74.00	-25.99	peak		
4		2605.000	35.39	0.77	36.16	54.00	-17.84	AVG		
5		3055.000	47.44	1.87	49.31	74.00	-24.69	peak		
6		3055.000	35.79	1.87	37.66	54.00	-16.34	AVG		
7		3220.000	47.30	2.05	49.35	74.00	-24.65	peak		
8		3220.000	35.57	2.05	37.62	54.00	-16.38	AVG		
9		3920.000	46.77	3.78	50.55	74.00	-23.45	peak		
10		3920.000	34.83	3.78	38.61	54.00	-15.39	AVG		
11		4385.000	46.11	4.84	50.95	74.00	-23.05	peak		
12	*	4385.000	34.35	4.84	39.19	54.00	-14.81	AVG		



## 5. Test Equipment List

Description	Manufacturer	Model Number	Serial Number	Characteristics	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	9KHz~7GHz	Mar. 14, 2017	Mar. 13, 2018
Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Mar. 15, 2017	Mar. 14, 2018
Cable	Huber+Suhner	CBL2-NN-1M	22390001	9KHz~7GHz	Mar. 14, 2017	Mar. 13, 2018
Cable	Huber+Suhner	CIL02	N/A	9KHz~7GHz	Mar. 14, 2017	Mar. 13, 2018
RF Cable	Huber+Suhner	SF-104	MY16559/4	9KHz~25GHz	Apr. 25, 2017	Apr. 25, 2018
Power Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Mar. 14, 2017	Mar. 13, 2018
Horn Antenna	Schwarzbeck	BBHA9170	9170-242	15GHz~40GHz	Mar. 14, 2017	Mar. 13, 2018
Horn Antenna	Com-Power	AH-118	071078	1GHz~18GHz	Mar. 15, 2017	Mar. 14, 2018
RF Cable	Huber+Suhner	SF-104	N/A	9KHz~40GHz	Apr. 25, 2017	Apr. 24, 2018
Loop antenna	Daze	ZA30900A	0708	9KHz~30MHz	Apr. 25, 2017	Apr. 24, 2018
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	20Hz~26.5GHz	Apr. 25, 2017	Apr. 24, 2018
Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	10Hz~40GHz	April. 06, 2017	April. 05, 2018
Pre-Amplifier	EMCI	EMC 184045	980102	18GHz~40GHz	Nov. 03, 2017	Nov. 02, 2018
Pre-Amplifier	Agilent	8449B	3008A02964	1GHz~26.5GHz	Apr. 25, 2017	Apr. 24, 2018
L.I.S.N.	Rohde & Schwarz	ENV 216	101317	9KHz~30MHz	Mar. 14, 2017	Mar. 13, 2018
Temporary antenna connector	TESCOM	SS402	N/A	9KHz-25GHz	N/A	N/A
Power Meter	Anritsu	ML2495A	1139001	100k-65GHz	Nov. 03, 2017	Nov. 02, 2018
Power Sensor	Anritsu	MA2411B	100345	300M-40GHz	Nov. 03, 2017	Nov. 02, 2018

---End---