

RADIO TEST REPORT

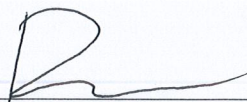
The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations 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. : 102R5-1701B1W, 132STR5-1801B1W, 226R5-1801B1W
(For model difference, refer to section 1)
FCC ID : 2AEBHT2R51801B1C
Measurement Standard : 47 CFR FCC PART 15B
Date of Receiver : April 03, 2018
Date of Test : April 03, 2018 to June 28, 2018
Date of Report : June 28, 2018

This Test Report is Issued Under the Authority of :

Prepared by

Approved & Authorized Signer


Rose Hu / Engineer


Ion Chan / 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
NTC1804019FV00	Initial Issue	2018-06-28

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

E.U.T.	: Control box for light string
Main Model Name	: 102R5-1701B1W
Additional Model name	: 132STR5-1801B1W, 226R5-1801B1W
Rating	: AC 120V 60Hz
Adapter	: Manufacturer: Guang Zhou Taiju Electronics co., Ltd. Model: J-5V30W Input: AC 120V 60Hz, 0.72A Output: DC 5V 6.0A
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	: These models have the same circuit schematic, construction, PCB Layout and critical components. Their difference in model number due to trading purpose.
Note	: N/A
Remark	: The EUT is a 433.92 MHz Receiver, which is used with a Remote Control (FCC ID: 2AEBHT2R51801B1).

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2AEBHT2R51801B1C** 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

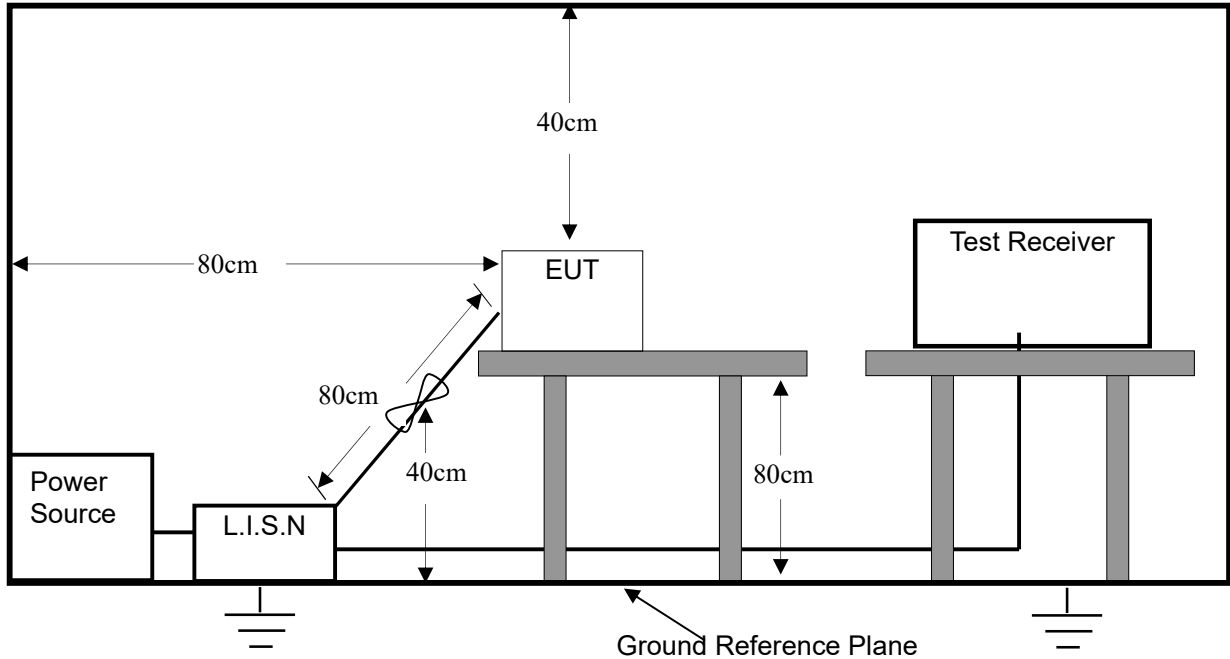
Not available for this EUT intended for grant.

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

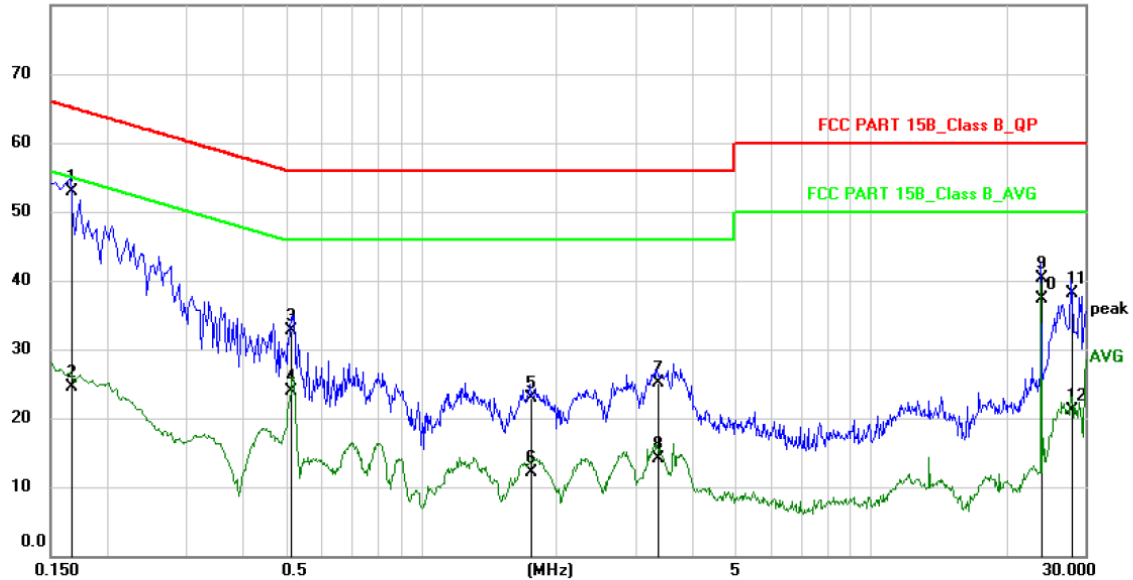
File : 102R5-1701B1W

Data : #12

Date: 2018-5-17

Time: 16:46:36

80.0 dBuV



Site
Limit: FCC PART 15B_Class B_QP
EUT:
M/N: 102R5-1701B1W
Mode: RX
Note: EUT: Control box for light string

Phase: **L1**
Power: AC120V/60Hz

Temperature: 24
Humidity: 50 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	42.20	10.80	53.00	65.16	-12.16	QP	
2		0.1660	13.80	10.80	24.60	55.16	-30.56	AVG	
3		0.5140	21.90	10.80	32.70	56.00	-23.30	QP	
4		0.5140	13.10	10.80	23.90	46.00	-22.10	AVG	
5		1.7500	12.10	10.80	22.90	56.00	-33.10	QP	
6		1.7500	1.30	10.80	12.10	46.00	-33.90	AVG	
7		3.3540	14.30	10.80	25.10	56.00	-30.90	QP	
8		3.3540	3.40	10.80	14.20	46.00	-31.80	AVG	
9		24.0020	29.60	10.80	40.40	60.00	-19.60	QP	
10		24.0020	26.60	10.80	37.40	50.00	-12.60	AVG	
11		27.9380	27.30	10.80	38.10	60.00	-21.90	QP	
12		27.9380	10.30	10.80	21.10	50.00	-28.90	AVG	



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Conducted Emission Measurement

File : 102R5-1701B1W

Data : #11

Date: 2018-5-17

Time: 16:39:44

80.0 dBuV



Site

Phase: **N**

Temperature: 24

Limit: FCC PART 15B_Class B_QP

Power: AC120V/60Hz

Humidity: 50 %

EUT:

M/N: 102R5-1701B1W

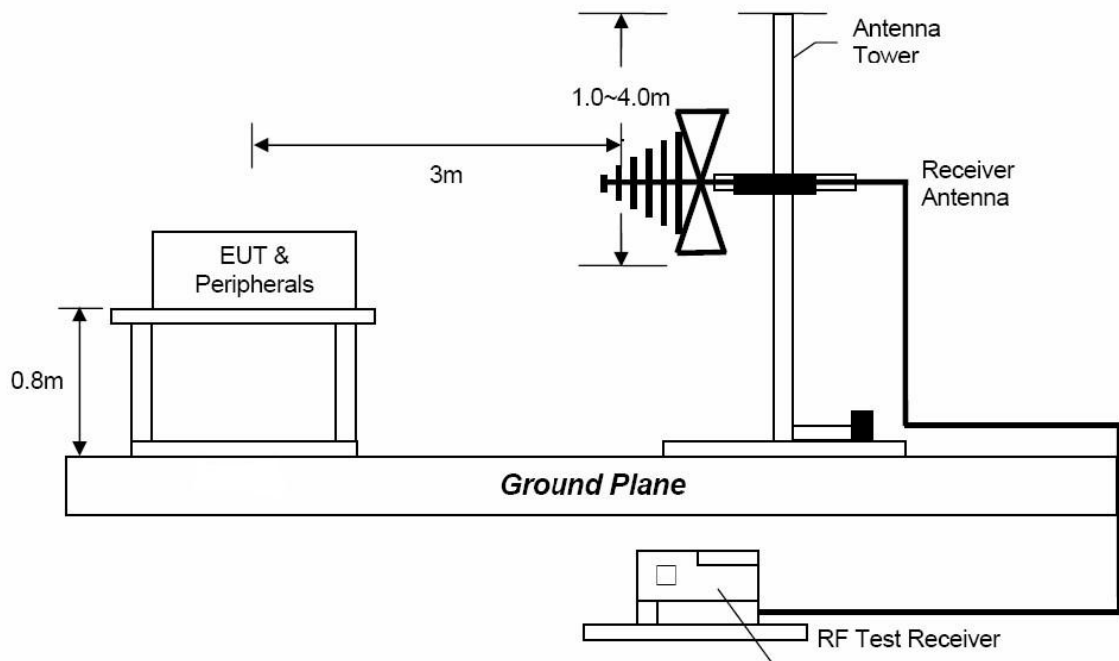
Mode: RX

Note: EUT: Control box for light string

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	41.50	10.80	52.30	65.57	-13.27	QP	
2		0.1580	14.90	10.80	25.70	55.57	-29.87	AVG	
3		0.1980	35.20	10.80	46.00	63.69	-17.69	QP	
4		0.1980	13.20	10.80	24.00	53.69	-29.69	AVG	
5		0.5060	22.00	10.80	32.80	56.00	-23.20	QP	
6		0.5060	13.90	10.80	24.70	46.00	-21.30	AVG	
7		3.6500	13.20	10.80	24.00	56.00	-32.00	QP	
8		3.6500	3.70	10.80	14.50	46.00	-31.50	AVG	
9		24.0020	29.70	10.80	40.50	60.00	-19.50	QP	
10	*	24.0020	26.20	10.80	37.00	50.00	-13.00	AVG	
11		26.7620	27.10	10.80	37.90	60.00	-22.10	QP	
12		26.7620	10.80	10.80	21.60	50.00	-28.40	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 $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$

(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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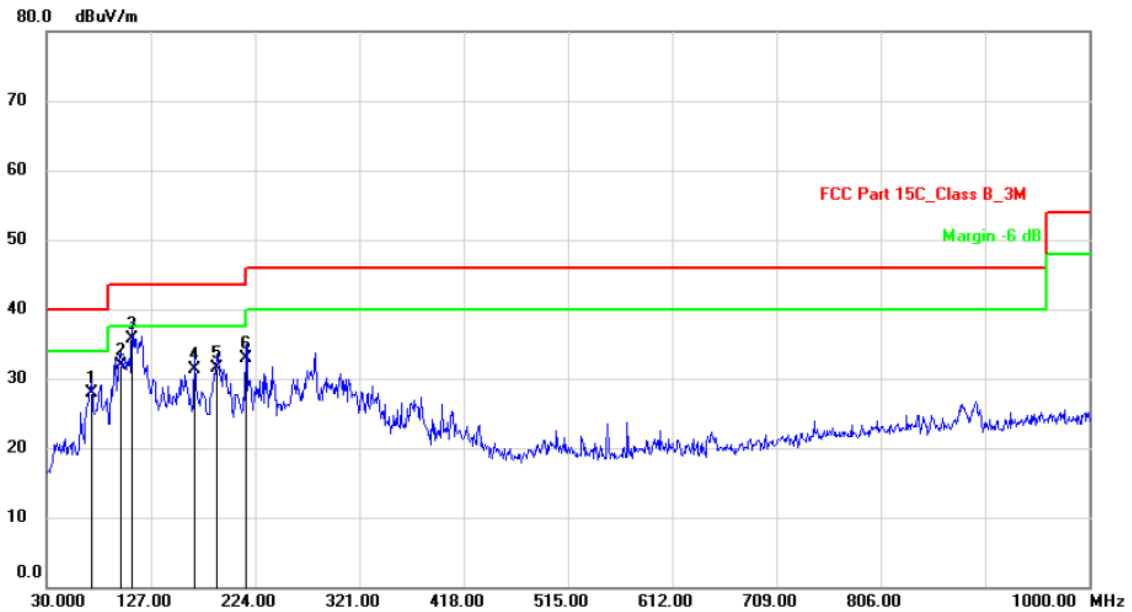
Radiated Emission Measurement

File : 102R5-1701B1W

Data : #55

Date: 2018-6-22

Time: 20:35:47



Site
Limit: FCC Part 15C_Class B_3M
EUT:
M/N: 102R5-1701B1W
Mode: RX
Note: EUT: Control box for light string

Polarization: **Horizontal** Temperature: 26
Power: AC120V/60Hz Humidity: 47 %
Distance: 3m

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		71.7100	48.61	-20.61	28.00	40.00	-12.00	QP		
2		98.8700	44.18	-12.28	31.90	43.50	-11.60	QP		
3	*	109.5400	47.97	-12.17	35.80	43.50	-7.70	QP		
4		167.7400	46.19	-14.89	31.30	43.50	-12.20	QP		
5		188.1100	45.28	-13.68	31.60	43.50	-11.90	QP		
6		215.2700	46.11	-13.11	33.00	43.50	-10.50	QP		



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Radiated Emission Measurement

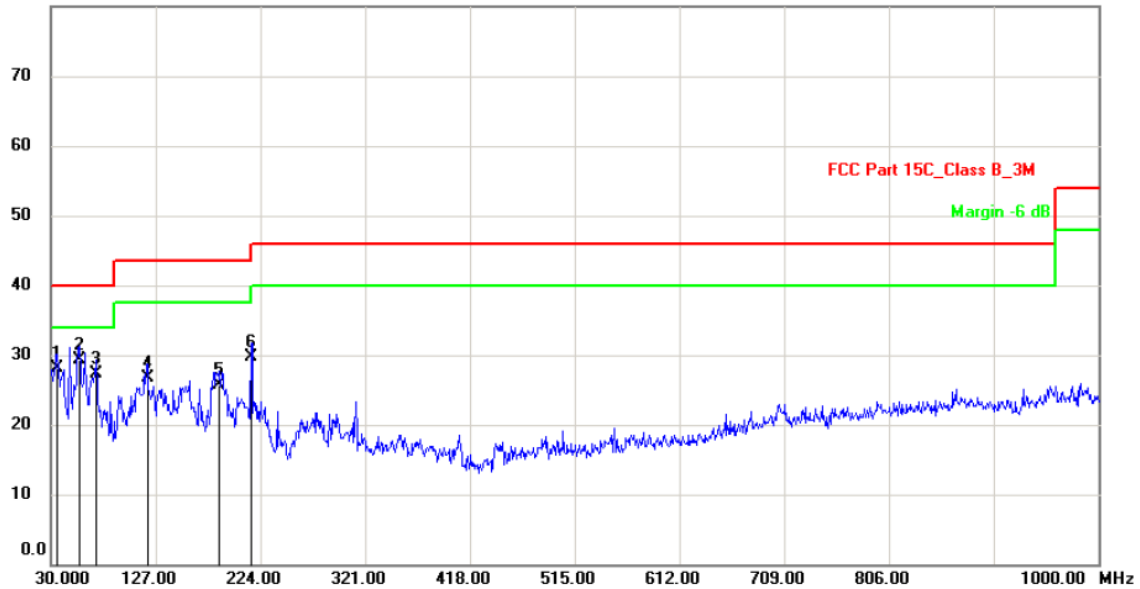
File : 102R5-1701B1W

Data : #54

Date: 2018-6-22

Time: 20:28:18

80.0 dBuV/m



Site

Polarization: **Vertical**

Temperature: 26

Limit: FCC Part 15C_Class B_3M

Power: AC120V/60Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: 102R5-1701B1W

Mode: RX

Note: EUT: Control box for light 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		35.8200	44.98	-16.88	28.10	40.00	-11.90	QP		
2	*	56.1900	43.15	-13.85	29.30	40.00	-10.70	QP		
3		71.7100	45.35	-17.95	27.40	40.00	-12.60	QP		
4		119.2400	43.69	-16.89	26.80	43.50	-16.70	QP		
5		185.2000	42.53	-16.83	25.70	43.50	-17.80	QP		
6		215.2700	45.81	-16.11	29.70	43.50	-13.80	QP		



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Radiated Emission Measurement

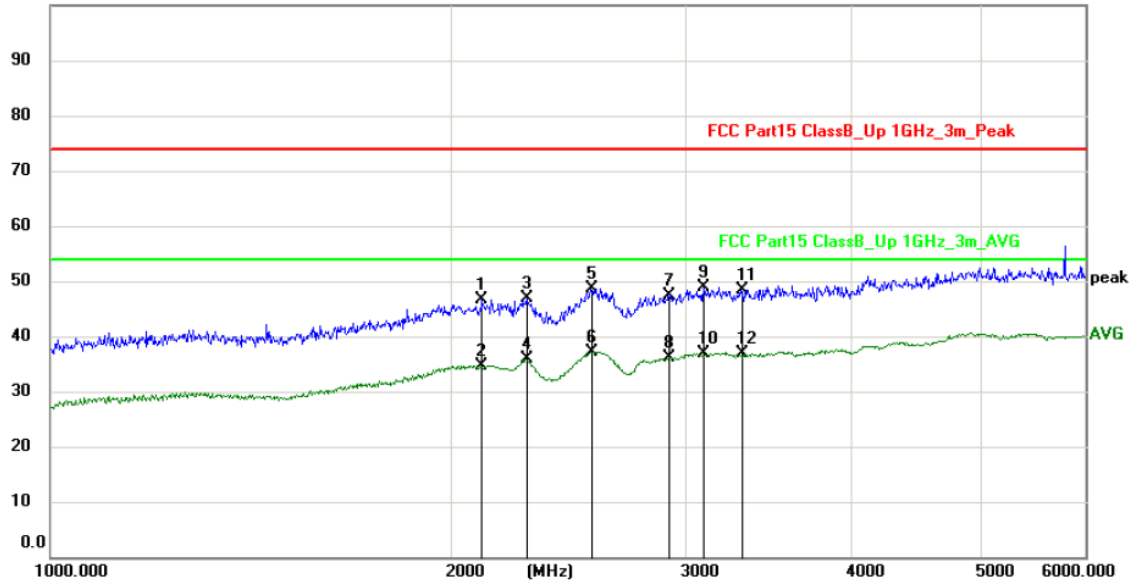
File: 102R5-1701B1W

Data: #52

Date: 2018-5-26

Time: 15:16:17

100.0 dBuV/m



Site

Polarization: **Horizontal**

Temperature: 26

Limit: FCC Part15 ClassB_Up 1GHz_3m_Peak

Power: AC120V/60Hz

Humidity: 47 %

EUT:

Distance: 3m

M/N: 102R5-1701B1W

Mode: RX

Note: EUT: Control box for light 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		2111.004	47.19	-0.60	46.59	74.00	-27.41	peak		
2		2111.004	35.25	-0.60	34.65	54.00	-19.35	AVG		
3		2280.077	47.03	-0.20	46.83	74.00	-27.17	peak		
4		2280.077	35.98	-0.20	35.78	54.00	-18.22	AVG		
5		2547.974	47.99	0.56	48.55	74.00	-25.45	peak		
6	*	2547.974	36.65	0.56	37.21	54.00	-16.79	AVG		
7		2914.448	45.77	1.63	47.40	74.00	-26.60	peak		
8		2914.448	34.52	1.63	36.15	54.00	-17.85	AVG		
9		3097.515	47.05	1.92	48.97	74.00	-25.03	peak		
10		3097.515	35.05	1.92	36.97	54.00	-17.03	AVG		
11		3303.900	46.26	2.22	48.48	74.00	-25.52	peak		
12		3303.900	34.69	2.22	36.91	54.00	-17.09	AVG		



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Radiated Emission Measurement

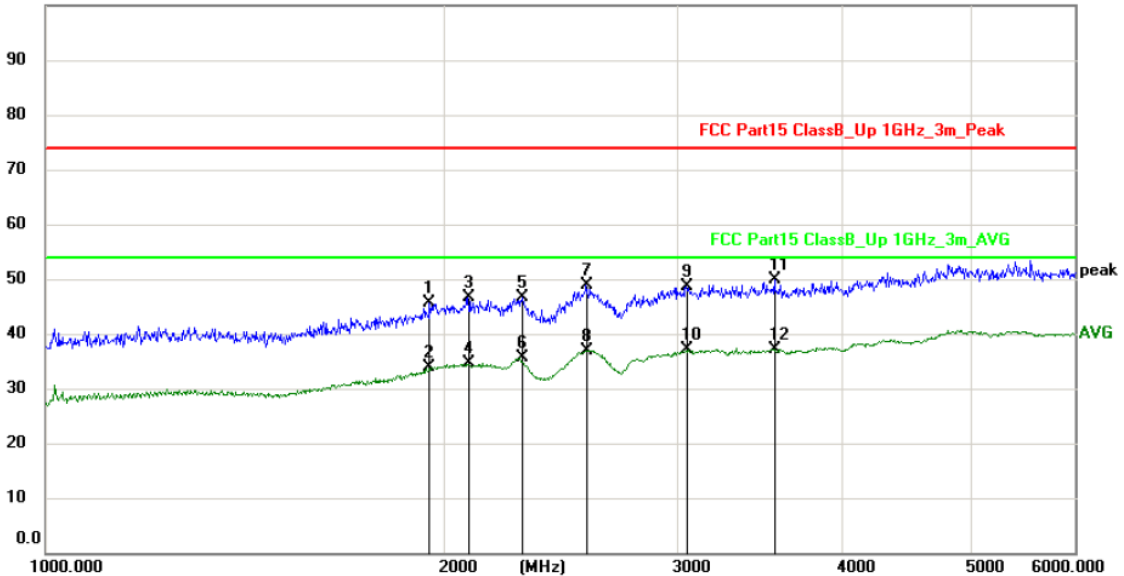
File : 102R5-1701B1W

Data : #53

Date: 2018-5-26

Time: 15:10:01

100.0 dBuV/m



Site: Polarization: **Vertical** Temperature: 26
Limit: FCC Part15 ClassB_Up 1GHz_3m_Peak Power: AC120V/60Hz Humidity: 47 %
EUT: Distance: 3m
M/N: 102R5-1701B1W
Mode: RX
Note: EUT: Control box for light 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		1950.969	47.13	-1.49	45.64	74.00	-28.36	peak		
2		1950.969	35.37	-1.49	33.88	54.00	-20.12	AVG		
3		2084.693	47.33	-0.65	46.68	74.00	-27.32	peak		
4		2084.693	35.25	-0.65	34.60	54.00	-19.40	AVG		
5		2292.366	46.81	-0.17	46.64	74.00	-27.36	peak		
6		2292.366	35.68	-0.17	35.51	54.00	-18.49	AVG		
7		2561.707	48.37	0.61	48.98	74.00	-25.02	peak		
8		2561.707	36.29	0.61	36.90	54.00	-17.10	AVG		
9		3047.966	46.67	1.86	48.53	74.00	-25.47	peak		
10	*	3047.966	35.28	1.86	37.14	54.00	-16.86	AVG		
11		3555.749	47.10	2.86	49.96	74.00	-24.04	peak		
12		3555.749	34.27	2.86	37.13	54.00	-16.87	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. 13, 2018	Mar. 12, 2019
Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Mar. 14, 2018	Mar. 13, 2019
Cable	Huber+Suhner	CBL2-NN-1M	22390001	9KHz~7GHz	Mar. 13, 2018	Mar. 12, 2019
Cable	Huber+Suhner	CIL02	N/A	9KHz~7GHz	Mar. 13, 2018	Mar. 12, 2019
RF Cable	Huber+Suhner	SF-104	MY16559/4	9KHz~25GHz	Apr. 25, 2018	Apr. 24, 2019
Power Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Mar. 13, 2018	Mar. 12, 2019
Horn Antenna	Schwarzbeck	BBHA9170	9170-242	15GHz~40GHz	Mar. 13, 2018	Mar. 12, 2019
Horn Antenna	Com-Power	AH-118	071078	1GHz~18GHz	Mar. 14, 2018	Mar. 13, 2019
RF Cable	Huber+Suhner	SF-104	N/A	9KHz~40GHz	Apr. 25, 2018	Apr. 24, 2019
Loop antenna	Daze	ZA30900A	0708	9KHz~30MHz	Apr. 25, 2018	Apr. 24, 2019
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	20Hz~26.5GHz	Apr. 25, 2018	Apr. 24, 2019
Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	10Hz~40GHz	Apr. 05, 2018	Apr. 04, 2019
Pre-Amplifier	EMCI	EMC 184045	980102	18GHz~40GHz	Nov. 03, 2017	Nov. 02, 2018
Pre-Amplifier	Agilent	8449B	3008A02964	1GHz~26.5GHz	Apr. 25, 2018	Apr. 24, 2019
L.I.S.N.	Rohde & Schwarz	ENV 216	101317	9KHz~30MHz	Mar. 13, 2018	Mar. 12, 2019
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---