TEST REPORT

Applicant Name :	Neo-Neon (Viet Nam) Development Co., Ltd.
Address :	GIA LE INDUSTRIAL ZONE, DONG XUAN COMMUNAL, DONG HUNG DISTRICT, THAI BINH PROVINCE, Vietnam
Report Number :	SZNS1220402-12309E-EM
FCC ID:	2AWEL-VN22004

Test Standard (s)

FCC PART 15B, CLASS B

Sample Description

Product Type:	16.4FT RGB Strip Light
Model No.:	PCB-5050RGB-60L-GP-24V-5M
Trade Mark:	N/A
Date Received:	2022-04-06
Date of Test:	2022-04-07 to 2022-04-09
Report Date:	2022-04-22

Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Icey Huang
EMC Engineer

Approved By:

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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Test Report Declaration

Applicant	:	Neo-Neon (Viet Nam) Development Co., Ltd.
Manufacturer	:	Neo-Neon (Viet Nam) Development Co., Ltd.
Product	:	16.4FT RGB Strip Light
Model No.	:	PCB-5050RGB-60L-GP-24V-5M
Trade Mark	:	N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B
ANSI C63.4: 2014

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Conducted Emission (150kHz-30MHz)	FCC Part 15 Subpart B Class B	Pass
Radiated Emission (30-1000MHz)	FCC Part 15 Subpart B Class B	Pass

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product	:	16.4FT RGB Strip Light
Model No.	:	PCB-5050RGB-60L-GP-24V-5M
Rating	:	AC 120V/ 60Hz
Adapter	:	Model No: RKP-UL2401500DP-4 Input:120V~50/60Hz 0.8A Output:24V/1500mA 36W (Note: The DC cable length is 1.5m, the cord length of control box is 0.1 meter, the length of EUT is 5m.)
Remark(s)	:	The EUT highest operating frequency is 27MHz, the radiated emission measurement shall be made up to 1GHz
Applicant	:	Neo-Neon (Viet Nam) Development Co., Ltd.
Address	:	GIA LE INDUSTRIAL ZONE, DONG XUAN COMMUNAL, DONG HUNG DISTRICT, THAI BINH PROVINCE, Vietnam
Manufacturer	:	Neo-Neon (Viet Nam) Development Co., Ltd.
Address	:	GIA LE INDUSTRIAL ZONE, DONG XUAN COMMUNAL, DONG HUNG DISTRICT, THAI BINH PROVINCE, Vietnam
Sample Number	:	SZNS1220402-12309E-EM-S1

2.2.Test mode

Test mode: Lighting

Note: EUT has a variety of different light colors and light color combinations, and we chose white light as our test case.

2.3.General disclaimer

1. Each test item follows test standard and with no deviation.
2. The test results presented in this report relate only to the object tested. The information supplied by the customer can affect the validity of results.

2.4.Accessory and Auxiliary Equipment and Cables

N/A

2.5.Description of Test Facility

EMC Lab.
Name of Firm : Shenzhen Accurate Technology Co., Ltd.

Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

2.6.Measurement Uncertainty

Radiated emission expanded uncertainty (30MHz-1000MHz) : *U=4.28dB, k=2*

Conduction Emission Expanded Uncertainty (150kHz-30MHz) : *U=2.72dB, k=2*

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1.For Conducted Emission Test

Item	Manufacturer	Equipment	Model No.	Serial No.	Calibration Date	Calibration Due Date
1.	Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
2.	Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
3.	Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
4.	Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
5.	Conducted Emission Test Software: e3 19821b (V9)					

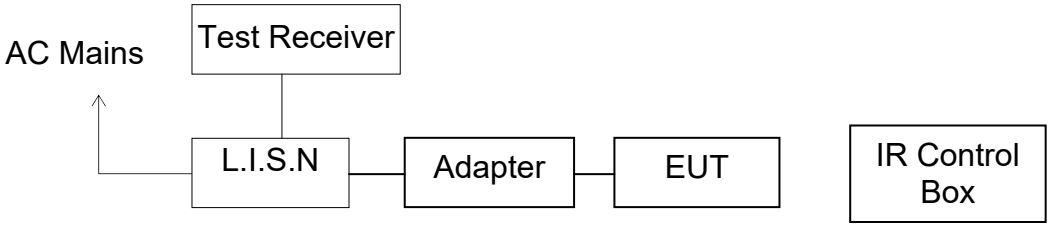
3.2.For Radiated Emission Measurement

Item	Manufacturer	Equipment	Model No.	Serial No.	Calibration Date	Calibration Due Date
1.	Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
3.	SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
4.	Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
5	Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
6	Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
7.	Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
8.	Radiated Emission Test Software: e3 19821b (V9)					

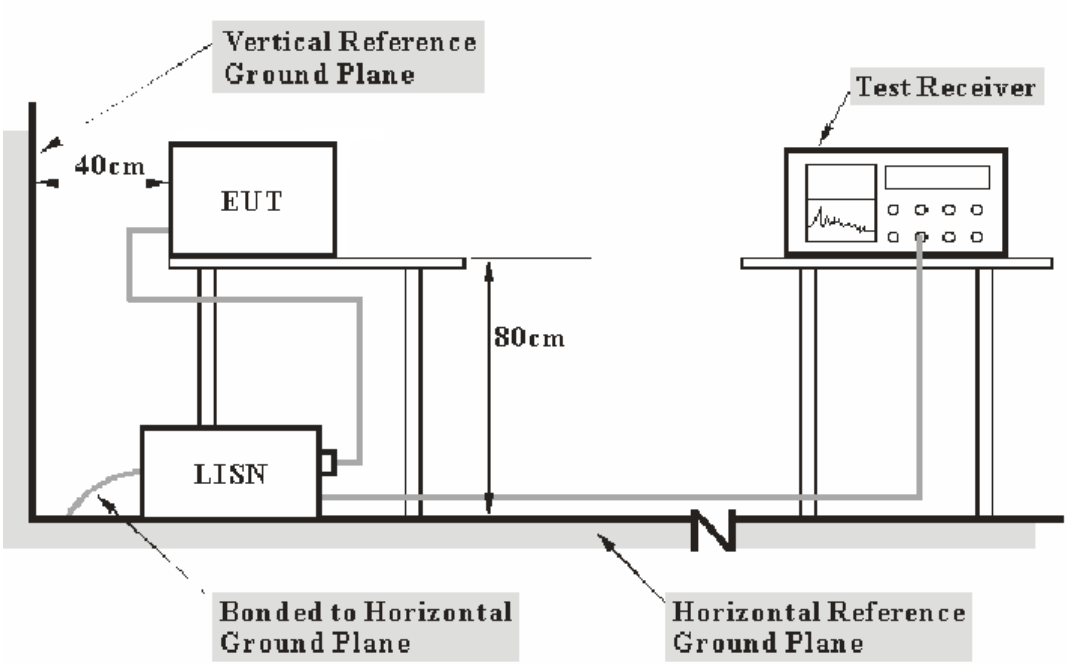
4. CONDUCTED EMISSION MEASUREMENT

4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators



4.1.2.Test System Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

4.2.Power Line Conducted Emission Measurement Limits (Class B)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

4.3.Manufacturer

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

4.3.1. 16.4FT RGB Strip Light (EUT)

Model Number : PCB-5050RGB-60L-GP-24V-5M

Manufacturer : Neo-Neon (Viet Nam) Development Co., Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipments.

4.4.3.Let the EUT work in test mode and measure it.

4.5.Test Procedure

The EUT is put on the plane 80cm high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

4.6.Data Explain

Over limit = Level (dBμV) - Limit (dBμV)

4.7.Power Line Conducted Emission Measurement Results

PASS.

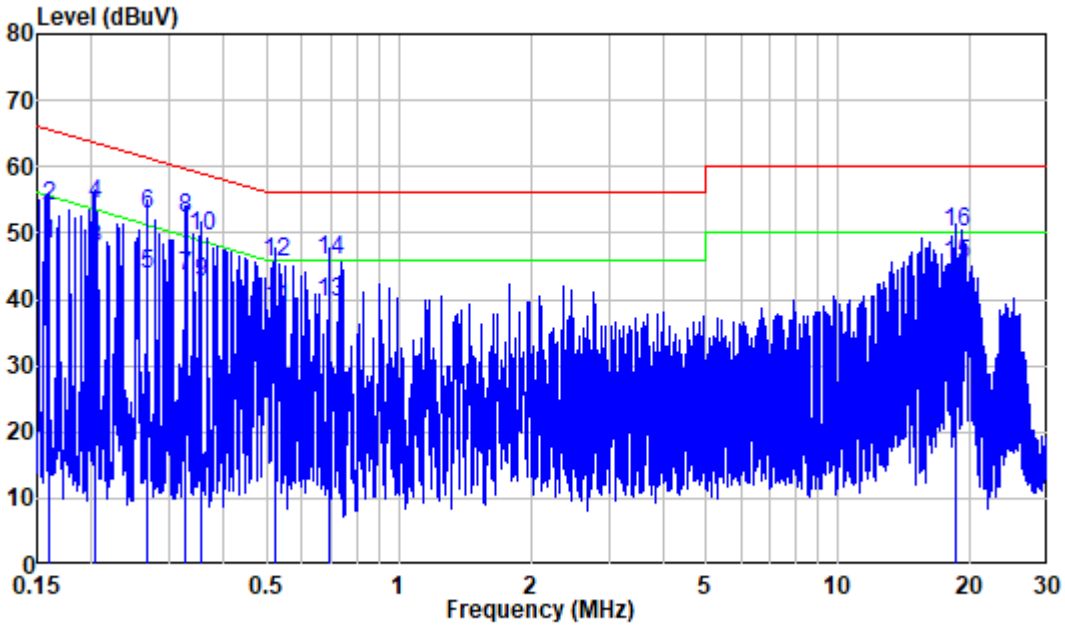
The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT. Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

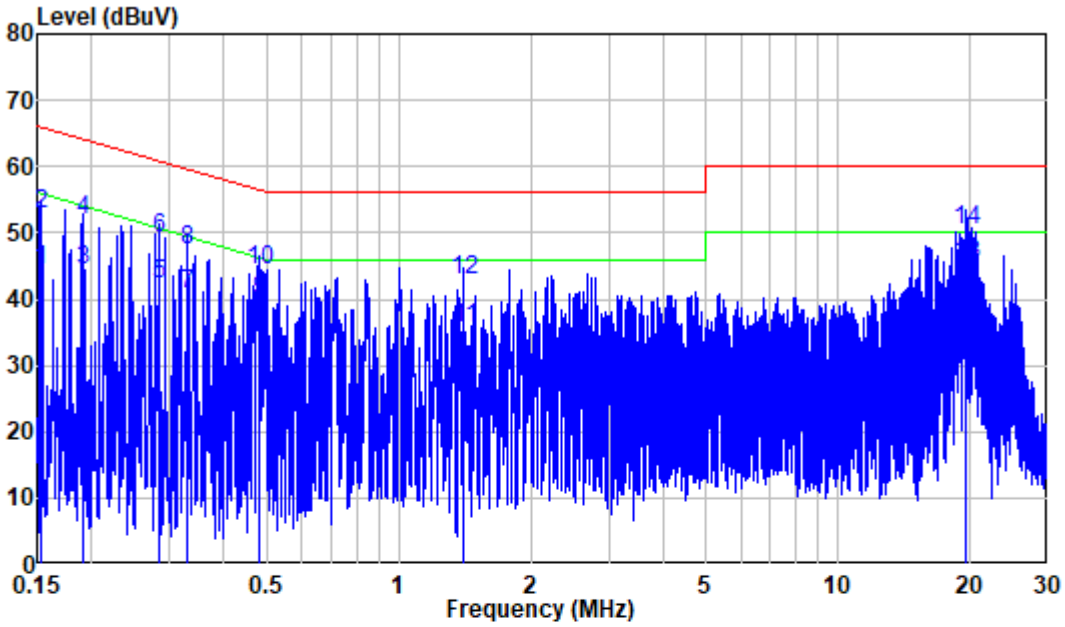
The spectral diagrams are attached as below.

Job No.:	**SZNS1220402-12309E-EM**	**Power:**	**AC 120V 60Hz**
Eut:	**16.4FT RGB Strip Light**	**Test By:**	**Caro Hu**
Model:	**PCB-5050RGB-60L-GP-24V-5M**	**Test item:**	**Conduction Test**
Climatic:	**24°C 50%RH**	**Date:**	**2022.4.7**



Site : Shielding Room
Condition: Line
Job No. : SZNS1220402-12309E-EM
Mode : Lighting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.159	9.80	38.36	48.16	55.50	-7.34	Average
2	0.159	9.80	44.20	54.00	65.50	-11.50	QP
3	0.203	9.80	37.85	47.65	53.50	-5.85	Average
4	0.203	9.80	44.51	54.31	63.50	-9.19	QP
5	0.268	9.80	33.99	43.79	51.18	-7.39	Average
6	0.268	9.80	43.12	52.92	61.18	-8.26	QP
7	0.328	9.80	33.77	43.57	49.51	-5.94	Average
8	0.328	9.80	42.30	52.10	59.51	-7.41	QP
9	0.354	9.80	32.70	42.50	48.86	-6.36	Average
10	0.354	9.80	39.75	49.55	58.86	-9.31	QP
11	0.525	9.81	28.80	38.61	46.00	-7.39	Average
12	0.525	9.81	35.73	45.54	56.00	-10.46	QP
13	0.696	9.81	29.65	39.46	46.00	-6.54	Average
14	0.696	9.81	36.03	45.84	56.00	-10.16	QP
15	18.585	9.99	35.35	45.34	50.00	-4.66	Average
16	18.585	9.99	40.27	50.26	60.00	-9.74	QP



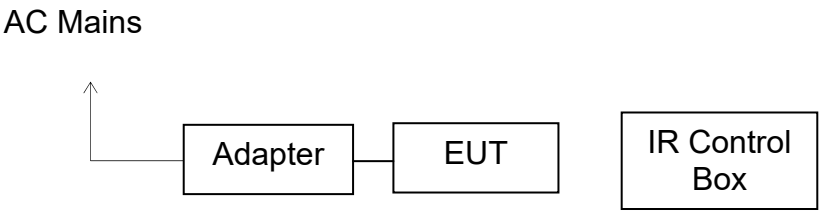
Site : Shielding Room
Condition: Neutral
Job No. : SZNS1220402-12309E-EM
Mode : Lighting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.153	9.80	34.65	44.45	55.84	-11.39	Average
2	0.153	9.80	42.94	52.74	65.84	-13.10	QP
3	0.191	9.80	34.46	44.26	54.01	-9.75	Average
4	0.191	9.80	42.07	51.87	64.01	-12.14	QP
5	0.285	9.80	32.36	42.16	50.68	-8.52	Average
6	0.285	9.80	39.42	49.22	60.68	-11.46	QP
7	0.329	9.80	30.98	40.78	49.49	-8.71	Average
8	0.329	9.80	37.68	47.48	59.49	-12.01	QP
9	0.481	9.80	29.97	39.77	46.33	-6.56	Average
10	0.481	9.80	34.64	44.44	56.33	-11.89	QP
11	1.407	9.81	25.89	35.70	46.00	-10.30	Average
12	1.407	9.81	32.99	42.80	56.00	-13.20	QP
13	19.609	10.10	35.04	45.14	50.00	-4.86	Average
14	19.609	10.10	40.46	50.56	60.00	-9.44	QP

5. RADIATED EMISSION MEASUREMENT

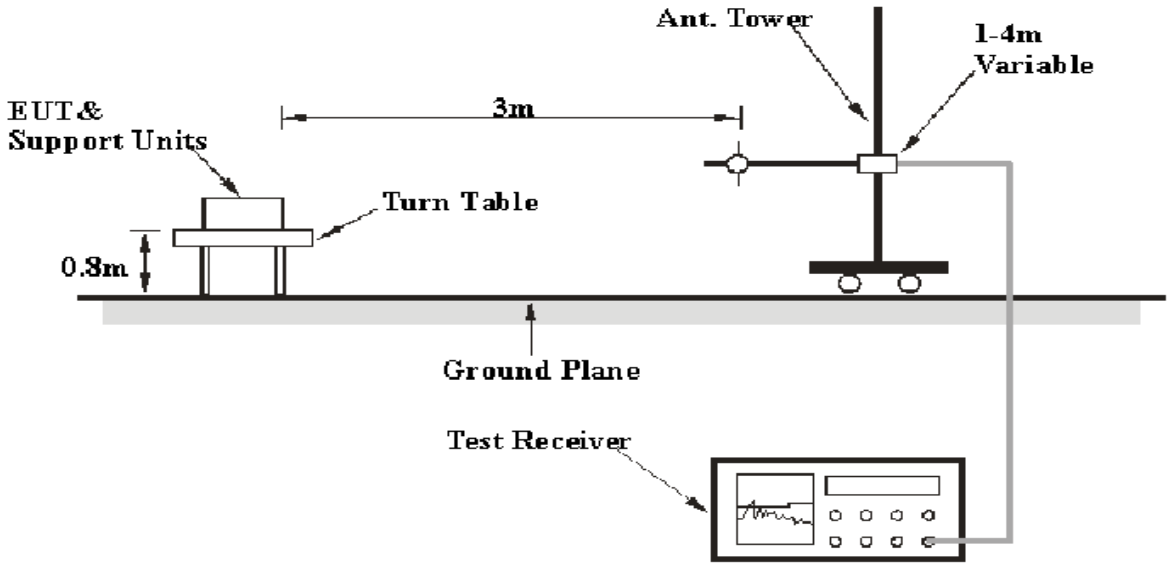
5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators



5.1.2.Test System Setup

Below 1GHz:



5.2.Radiated Emission Limit (Class B)

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Below 1GHz:

Frequency MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV/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 dB(μV) = 20 log Emission level μV/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.

5.3.Manufacturer

The following equipments are installed on Radiated Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.3.1. 16.4FT RGB Strip Light (EUT)

Model Number : PCB-5050RGB-60L-GP-24V-5M

Manufacturer : Neo-Neon (Viet Nam) Development Co., Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipments.

5.4.3.Let the EUT work in test mode and measure it.

5.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 80cm high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an 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 polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2014 on radiated emission measurement.

The bandwidth of the Receiver is set at 9kHz in 9kHz-30MHz, 120 kHz in 30-1000MHz, and 1MHz for above 1GHz.

The frequency range from 30MHz to 1GHz is investigated.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705–108	1000.
108–500	2000.
500–1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

5.6. Data Sample

Over Limit (dB) = Level(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading

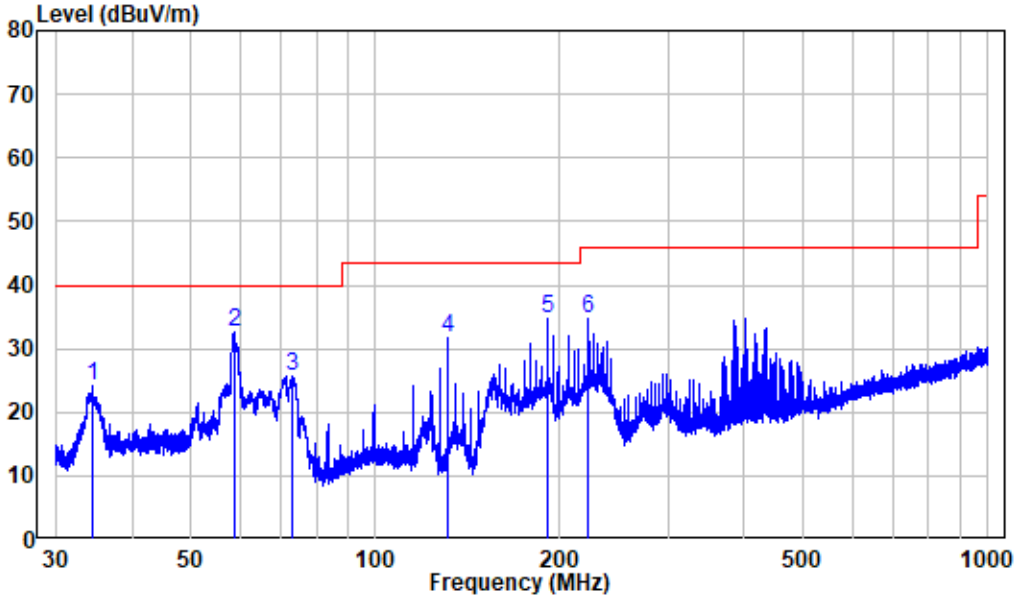
The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over Limit of -7dB means the emission is 7dB below the limit.

5.7. Radiated Emission Measurement Result

PASS.

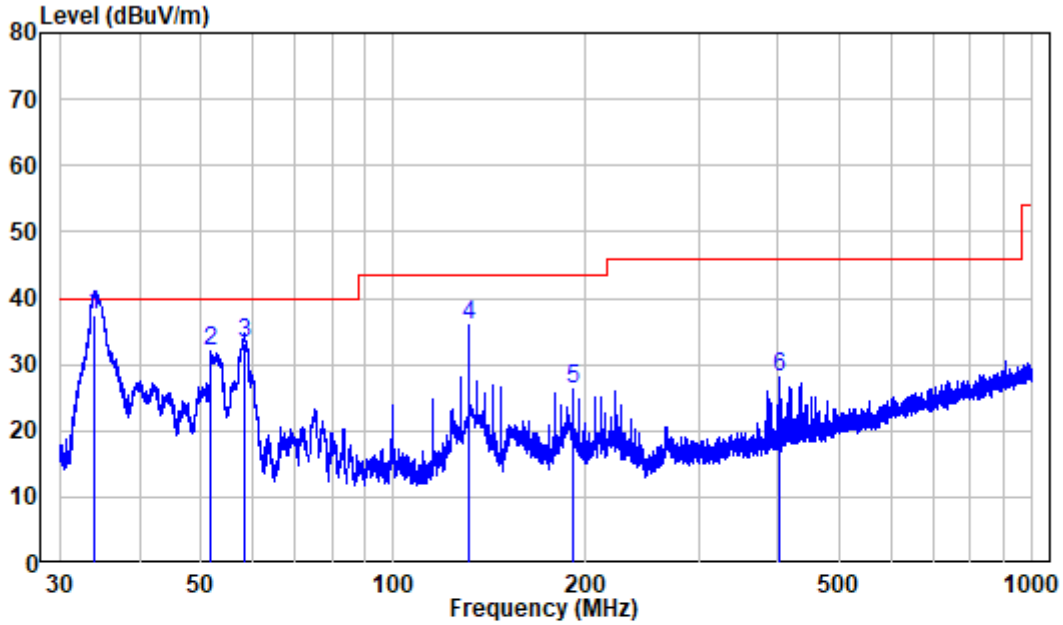
The frequency range from 30MHz to 1GHz is investigated.
The spectral diagrams are attached as below.

Job No.:	**SZNS1220402-12309E-EM**	**Power:**	**120V 60Hz**
Test standard:	**FCC Part 15B**	**Test By:**	**Nick Fang**
EUT:	**16.4FT RGB Strip Light**	**Test item:**	**Radiation Emission**
Model No.:	**PCB-5050RGB-60L-GP-24V-5M**	**Temp.(℃)/Hum.(%):**	**24°C 49%RH**
Applicant:	**Neo-Neon (Viet Nam) Development Co., Ltd.**	**Date:**	**2022.04.09**



Site : chamber
Condition: 3m HORIZONTAL
Job No. : SZNS1220402-12309E-EM
Test Mode: Lighting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.427	-11.72	35.83	24.11	40.00	-15.89	Peak
2	58.741	-10.18	42.73	32.55	40.00	-7.45	Peak
3	73.231	-15.90	41.57	25.67	40.00	-14.33	Peak
4	131.124	-14.94	46.55	31.61	43.50	-11.89	Peak
5	190.990	-11.41	45.99	34.58	43.50	-8.92	Peak
6	222.950	-11.32	46.07	34.75	46.00	-11.25	Peak



Site : chamber
Condition: 3m VERTICAL
Job No. : SZNS1220402-12309E-EM
Test Mode: Lighting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.111	-11.82	49.20	37.38	40.00	-2.62	QP
2	51.707	-9.97	41.95	31.98	40.00	-8.02	Peak
3	58.305	-10.01	43.12	33.11	40.00	-6.89	QP
4	131.297	-14.94	50.72	35.78	43.50	-7.72	Peak
5	190.906	-11.43	37.67	26.24	43.50	-17.26	Peak
6	401.839	-6.73	34.75	28.02	46.00	-17.98	Peak

Note 1:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
The other spurious emission which is in the noise floor level was not recorded.
Note 2: If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

---------- THE END OF TEST REPORT ----------