FCC TEST REPORT
for
Neo-Neon (Viet Nam) Development Co., Ltd

LED Low Voltage Outfit

Model No. : FCB-XM-3D-PG0104-CW-Z, FCB-XM-3D-PG0104-MU-Z

FCC ID: 2AWEL-VN002

Prepared for	:	Neo-Neon (Viet Nam) Development Co., Ltd
Address	:	GIA LE INDUSTRIAL ZONE, DONG XUAN COMMUNAL, DONG HUNG DISTRICT, THAI BINH PROVINCE, VIETNAM
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
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Report No.	:	ATE20200506
Date of Test	:	May 16, 2020
Date of Report	:	May 22, 2020

TABLE OF CONTENTS

Description Page

Test Report Certification
1. TEST RESULTS SUMMARY 4
2. GENERAL INFORMATION 5
2.1. Description of Device (EUT) 5
2.2. Accessory and Auxiliary Equipment 5
2.3. Model difference declaration 5
2.4. Description of Test Facility 6
2.5. Measurement Uncertainty 6
3. MEASURING DEVICE AND TEST EQUIPMENT 7
3.1. The Equipment Used to Conducted Emission Measurement 7
3.2. The Equipment Used to Radiated Emission Measurement 8
4. AC POWER LINE CONDUCTED EMISSION MEASUREMENT 9
4.1. Block Diagram of Test Setup 9
4.2. AC Power Line Conducted Emission Limits (Class B) 10
4.3. Test mode description 10
4.4. Manufacturer 10
4.5. Operating Condition of EUT 10
4.6. Test Procedure 10
4.7. Data Sample 11
4.8. Measurement Results 11
5. RADIATED EMISSION MEASUREMENT 16
5.1. Block Diagram of Test 16
5.2. Radiated Emission Limit (Class B) 17
5.3. Test Mode Description 17
5.4. Manufacturer 17
5.5. Operating Condition of EUT 17
5.6. Test Procedure 18
5.7. Data Sample 19
5.8. Measurement Result 19
6. PHOTOGRAPHS 22
6.1. Photo of AC Power Line Conducted Emission Measurement 22
6.2. Photo of Radiation Emission Measurement 22
6.3. Photo of EUT 23

Test Report Certification

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
Product	:	LED Low Voltage Outfit
Model No.	:	FCB-XM-3D-PG0104-CW-Z, FCB-XM-3D-PG0104-MU-Z
Trade name	:	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.

Date of Test : May 16, 2020
Date of Report : May 22, 2020

Prepared by :

(Tin Zhang, Engineer)

Approve & Authorized Signer :

(Martin Lü, Manager)

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Power Line Conducted Emission	FCC Part 15 Subpart B	Pass
Radiated Emission	FCC Part 15 Subpart B	Pass

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	:	LED Low Voltage Outfit
Model No.	:	FCB-XM-3D-PG0104-CW-Z, FCB-XM-3D-PG0104-MU-Z (Note: FCB-XM-3D-PG0104-CW-Z is the main test model. Please refer to chapter 2.3 for the specific difference of the model.)
Rating	:	AC 100-240V, 50/60Hz
Trade Mark	:	n.a.
Remark(s)	:	The EUT highest operating frequency provided by Manufacturer is less than 108MHz, 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
Date of sample received	:	May 12, 2020
Date of Test	:	May 16, 2020
Sample Number	:	2000453

2.2. Accessory and Auxiliary Equipment

n.a.

2.3. Model difference declaration

FCB-XM-3D-PG0104-CW-Z, FCB-XM-3D-PG0104-MU-Z are identical in interior structure, electrical circuits and components, except for the model name and appearance.
Note: “Z” represents color of LED: -R, -Y, -A, -G, -B, -O, -PI, -PP,-W, -WW, CW, -GO, -M, or blank(Blank for conventional model). “W” for white, “WW” for warm white, “CW” for cold white, “GO” for golden, “G” for green, “B” for blue, “O” for orange, “R” for red, “Y” for yellow, “A” for amber, “PI” for pink, “PP” for purple, “M” for multi-color.

2.4.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 Listed by Innovation, Science and Economic Development Canada (ISEDC) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
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

2.5.Measurement Uncertainty

Radiated emission expanded uncertainty (9kHz-30MHz)	:	U=2.66dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	:	U=4.28dB, k=2
Radiated emission expanded uncertainty (1G-18GHz)	:	U=4.98dB, k=2
Radiated emission expanded uncertainty (18G-26.5GHz)	:	U=5.06dB, k=2
Conduction Emission Expanded Uncertainty (Mains ports, 9kHz-30MHz)	:	U=2.72dB, k=2
Conduction Emission Expanded Uncertainty (Telecommunication ports, 150kHz-30MHz)	:	U=2.94dB, k=2

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. The Equipment Used to Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.4, 2020	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI	100396/003	Jan.4, 2020	1 Year
3.	Test Receiver	Rohde & Schwarz	ESPI	101526/003	Jan.4, 2020	1 Year
4.	Test Receiver	Rohde & Schwarz	ESR	101817	Jan.4, 2020	1 Year
5.	L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.4, 2020	1 Year
6.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100305	Jan.4, 2020	1 Year
7.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100310	Jan.4, 2020	1 Year
8.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100132	Jan.4, 2020	1 Year
9.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100979	Jan.4, 2020	1 Year
10.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Jan.4, 2020	1 Year
11.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100312	Jan.4, 2020	1 Year
12.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	Jan.4, 2020	1 Year
13.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283936	Jan.4, 2020	1 Year
14.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	Jan.4, 2020	1 Year
15.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.4, 2020	1 Year
16.	VOLTAGE PROBE	Schwarzbeck	TK9416	N/A	Jan.4, 2020	1 Year
17.	RF CURRENT PROBE	Rohde & Schwarz	EZ-17	100048	Jan.4, 2020	1 Year
18.	8-Wire Impedance Stabilisation Network	Schwarzbeck	CAT5 8158	8158-0035	Jan.4, 2020	1 Year
19.	RF Coaxial Cable	SUHNER	N-2m	No.2	Jan.4, 2020	1 Year
20.	RF Coaxial Cable	SUHNER	N-2m	No.3	Jan.4, 2020	1 Year
21.	RF Coaxial Cable	SUHNER	N-2m	No.14	Jan.4, 2020	1 Year
Conducted Emission Test Software: ES-K1 V1.71						

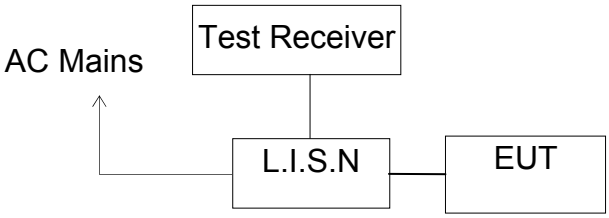
3.2. The Equipment Used to Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan.4, 2020	1 Year
2.	Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.4, 2020	1 Year
3.	Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan.4, 2020	1 Year
4.	Test Receiver	Rohde& Schwarz	ESPI	100396/003	Jan.4, 2020	1 Year
5.	Test Receiver	Rohde& Schwarz	ESPI	101526/003	Jan.4, 2020	1 Year
6.	Test Receiver	Rohde& Schwarz	ESR	101817	Jan.4, 2020	1 Year
7.	Bilog Antenna	Schwarzbeck	VULB9163	9163-194	Jan.4, 2020	1 Year
8.	Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.4, 2020	1 Year
9.	Log.-Per.Antenna	Schwarzbeck	VUSLP 9111B	9111B-074	Jan.4, 2020	1 Year
10.	Biconical Broad Band Antenna	Schwarzbeck	VHBB 9124+BBA 9106	9124-617	Jan.4, 2020	1 Year
11.	Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan.4, 2020	1 Year
12.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.4, 2020	1 Year
13.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan.4, 2020	1 Year
14.	Vertical Active Monopole Antenna	Schwarzbeck	VAMP 9243	9243-370	Jan.4, 2020	1 Year
15.	Pre-Amplifier	Compliance Direction	RSU-M2	38322	Jan.4, 2020	1 Year
16.	Pre-Amplifier	Agilent	8447D	294A10619	Jan.4, 2020	1 Year
17.	Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	Jan.4, 2020	1 Year
18.	Pre-Amplifier	A.H. System	PAM-0118	135	Jan.4, 2020	1 Year
19.	50 Coaxial Switch	Anritsu Corp	MP59B	6200237248	Jan.4, 2020	1 Year
20.	50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.4, 2020	1 Year
21.	RF Coaxial Cable	Schwarzbeck	N-5m	No.1	Jan.4, 2020	1 Year
22.	RF Coaxial Cable	Schwarzbeck	N-1m	No.6	Jan.4, 2020	1 Year
23.	RF Coaxial Cable	Schwarzbeck	N-1m	No.7	Jan.4, 2020	1 Year
24.	RF Coaxial Cable	SUHNER	N-3m	No.8	Jan.4, 2020	1 Year
25.	RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	Jan.4, 2020	1 Year
26.	RF Coaxial Cable	SUHNER	N-6m	No.10	Jan.4, 2020	1 Year
27.	RF Coaxial Cable	RESENBERGER	N-12m	No.11	Jan.4, 2020	1 Year
28.	RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	Jan.4, 2020	1 Year
29.	RF Coaxial Cable	SUHNER	N-2m	No.13	Jan.4, 2020	1 Year
30.	RF Coaxial Cable	SUHNER	N-0.5m	No.15	Jan.4, 2020	1 Year
31.	RF Coaxial Cable	SUHNER	N-2m	No.16	Jan.4, 2020	1 Year
32.	RF Coaxial Cable	RESENBERGER	N-6m	No.17	Jan.4, 2020	1 Year
33.	Radiated Emission Test Software: EZ_EMC V1.1.4.2					

4. AC POWER LINE CONDUCTED EMISSION MEASUREMENT

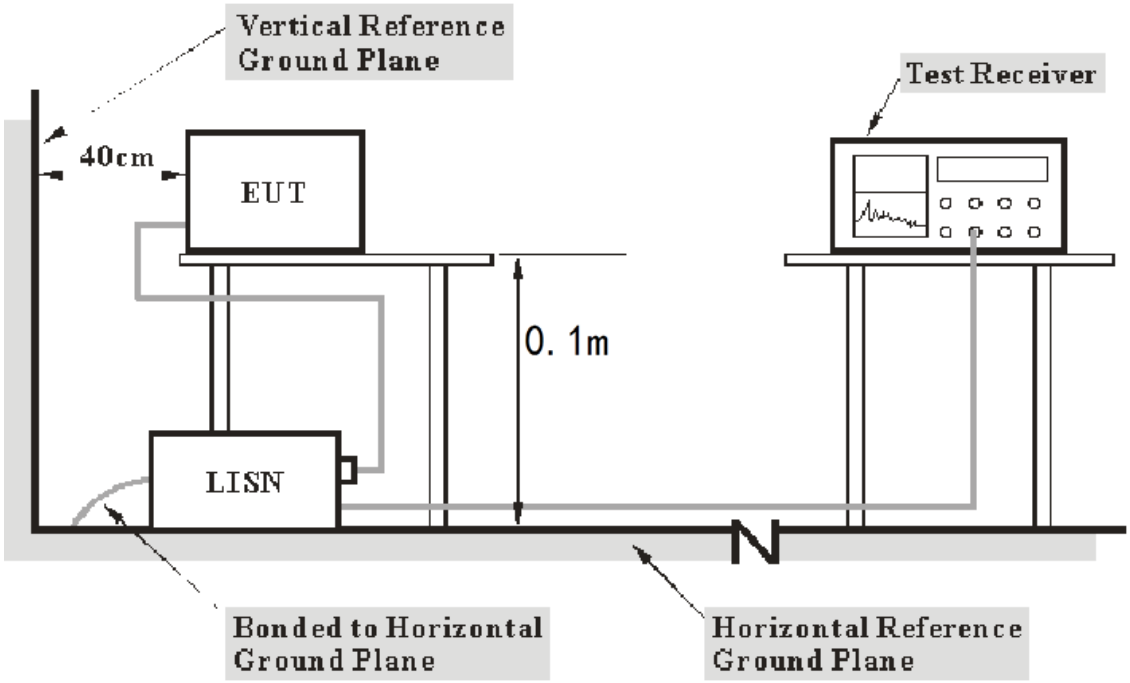
4.1.Block Diagram of Test Setup

4.1.1.Block diagram of connection between the EUT and simulators



(EUT: LED Low Voltage Outfit)

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.AC Power Line Conducted Emission 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.Test mode description

Test mode: ON

4.4.Manufacturer

The 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

4.4.1. LED Low Voltage Outfit (EUT)

Model Number : FCB-XM-3D-PG0104-CW-Z

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

4.5.Operating Condition of EUT

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

4.5.2.Turn on the power of all equipment.

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

4.6.Test Procedure

The EUT is put on the plane 0.1m 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.

4.7.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.6	25.3	17.0	59.0	49.0	33.7	32.0	Pass

Frequency(MHz) = Emission frequency in MHz
Transducer value(dB) = Insertion loss of LISN + Cable Loss
Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value
Limit (dBμV) = Limit stated in standard

Calculation Formula:
Margin = Limit (dBμV) - Level (dBμV)

4.8.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.

ACCURATE TECHNOLOGY CO.,LTD

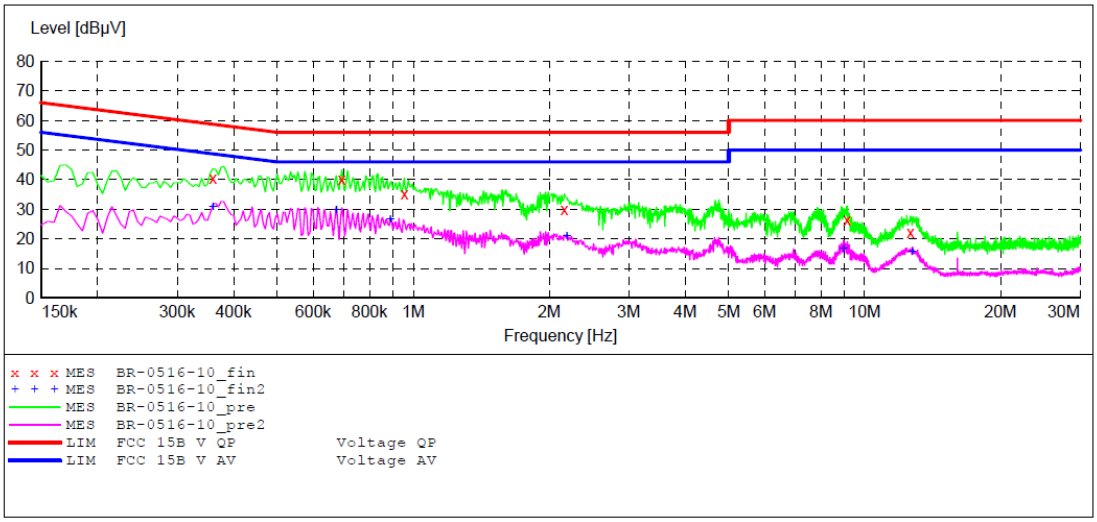
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: LED Low Voltage Outfit M/N:FCB-XM-3D-PG0104-CW-Z
Manufacturer: Neo-Neon (Viet Nam) Development Co., Ltd.
Operating Condition: ON
Test Site: 1#Shielding Room
Operator: Ben
Test Specification: N 120V/60Hz
Comment: Report No.:ATE20200506
Start of Test: 5/16/2020 / 10:52:10AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BR-0516-10_fin"

5/16/2020 10:55AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	40.60	10.6	59	18.1	QP	N	GND
0.695000	40.10	10.8	56	15.9	QP	N	GND
0.955000	35.10	10.8	56	20.9	QP	N	GND
2.160000	30.00	11.0	56	26.0	QP	N	GND
9.130000	26.30	11.3	60	33.7	QP	N	GND
12.625000	22.30	11.3	60	37.7	QP	N	GND

MEASUREMENT RESULT: "BR-0516-10_fin2"

5/16/2020 10:55AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	31.00	10.6	49	17.7	AV	N	GND
0.675000	29.90	10.8	46	16.1	AV	N	GND
0.890000	26.80	10.8	46	19.2	AV	N	GND
2.190000	20.90	11.0	46	25.1	AV	N	GND
8.980000	16.90	11.3	50	33.1	AV	N	GND
12.760000	15.60	11.3	50	34.4	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

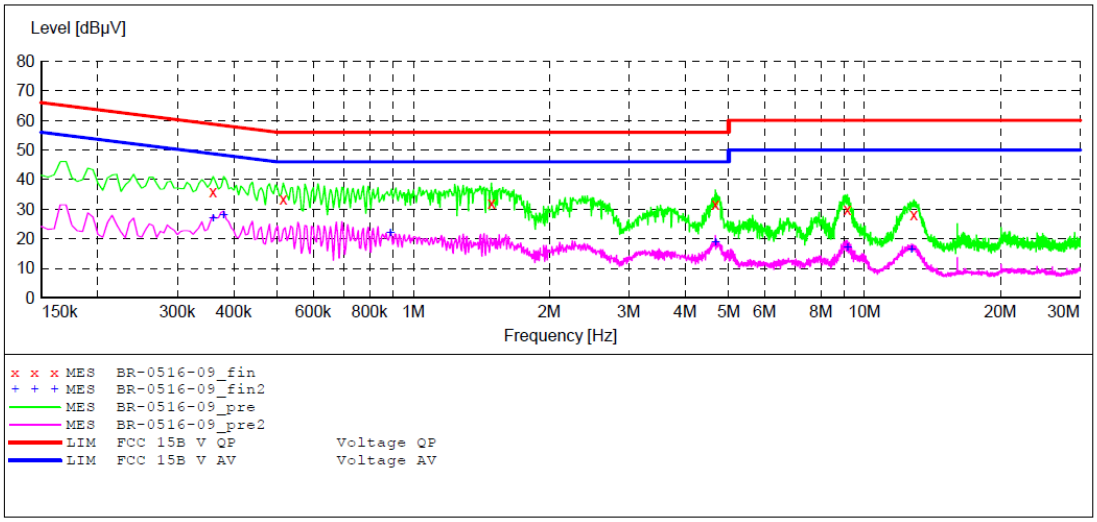
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: LED Low Voltage Outfit M/N:FCB-XM-3D-PG0104-CW-Z
Manufacturer: Neo-Neon (Viet Nam) Development Co., Ltd.
Operating Condition: ON
Test Site: 1#Shielding Room
Operator: Ben
Test Specification: L 120V/60Hz
Comment: Report No.:ATE20200506
Start of Test: 5/16/2020 / 10:48:27AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BR-0516-09_fin"

5/16/2020 10:51AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	35.80	10.6	59	22.9	QP	L1	GND
0.515000	33.40	10.7	56	22.6	QP	L1	GND
1.490000	31.90	10.9	56	24.1	QP	L1	GND
4.670000	31.50	11.1	56	24.5	QP	L1	GND
9.160000	29.90	11.3	60	30.1	QP	L1	GND
12.865000	28.30	11.3	60	31.7	QP	L1	GND

MEASUREMENT RESULT: "BR-0516-09_fin2"

5/16/2020 10:51AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.360000	27.10	10.6	49	21.6	AV	L1	GND
0.380000	28.30	10.7	48	20.0	AV	L1	GND
0.890000	22.00	10.8	46	24.0	AV	L1	GND
4.670000	18.80	11.1	46	27.2	AV	L1	GND
9.160000	17.30	11.3	50	32.7	AV	L1	GND
12.715000	16.60	11.3	50	33.4	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

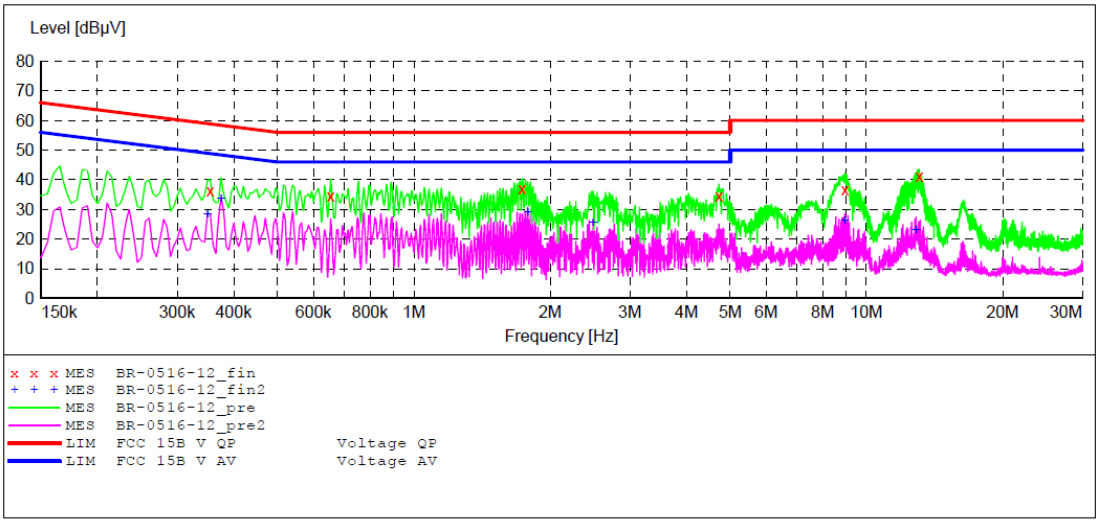
CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: LED Low Voltage Outfit M/N:FCB-XM-3D-PG0104-CW-Z
Manufacturer: Neo-Neon (Viet Nam) Development Co., Ltd.
Operating Condition: ON
Test Site: 1#Shielding Room
Operator: Ben
Test Specification: L 240V/60Hz
Comment: Report No.:ATE20200506
Start of Test: 5/16/2020 / 11:00:58AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BR-0516-12_fin"

5/16/2020 11:04AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.355000	36.40	10.6	59	22.4	QP	L1	GND
0.655000	34.40	10.8	56	21.6	QP	L1	GND
1.735000	36.80	10.9	56	19.2	QP	L1	GND
4.720000	34.40	11.1	56	21.6	QP	L1	GND
8.970000	36.70	11.3	60	23.3	QP	L1	GND
13.075000	41.30	11.3	60	18.7	QP	L1	GND

MEASUREMENT RESULT: "BR-0516-12_fin2"

5/16/2020 11:04AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.350000	28.40	10.6	49	20.6	AV	L1	GND
0.375000	33.90	10.7	48	14.5	AV	L1	GND
1.785000	29.30	11.0	46	16.7	AV	L1	GND
2.490000	25.80	11.0	46	20.2	AV	L1	GND
8.960000	26.20	11.3	50	23.8	AV	L1	GND
12.865000	23.10	11.3	50	26.9	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

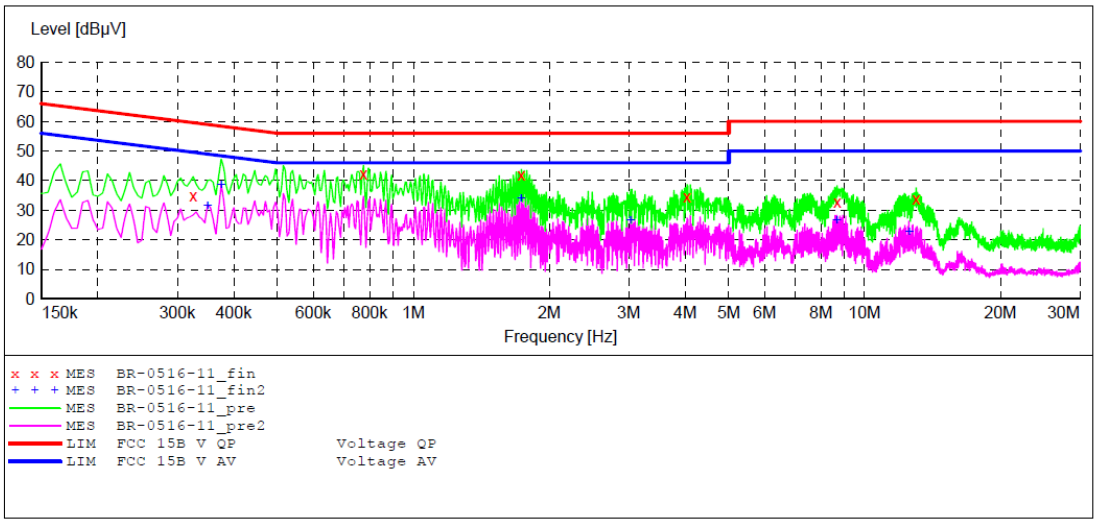
CONDUCTED EMISSION STANDARD FCC PART 15B

```
EUT:                  LED Low Voltage Outfit M/N:FCB-XM-3D-PG0104-CW-Z
Manufacturer:         Neo-Neon (Viet Nam) Development Co., Ltd.
Operating Condition:  ON
Test Site:            1#Shielding Room
Operator:             Ben
Test Specification:   N 240V/60Hz
Comment:              Report No.:ATE20200506
Start of Test:        5/16/2020 / 10:56:45AM
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BR-0516-11_fin"

5/16/2020 11:00AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.325000	34.70	10.6	60	24.9	QP	N	GND
0.775000	42.20	10.8	56	13.8	QP	N	GND
1.735000	41.80	10.9	56	14.2	QP	N	GND
4.040000	34.30	11.1	56	21.7	QP	N	GND
8.690000	32.80	11.3	60	27.2	QP	N	GND
13.000000	33.80	11.3	60	26.2	QP	N	GND

MEASUREMENT RESULT: "BR-0516-11_fin2"

5/16/2020 11:00AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.350000	31.50	10.6	49	17.5	AV	N	GND
0.375000	38.80	10.7	48	9.6	AV	N	GND
1.735000	34.10	10.9	46	11.9	AV	N	GND
3.030000	26.80	11.1	46	19.2	AV	N	GND
8.680000	26.80	11.3	50	23.2	AV	N	GND
12.535000	23.00	11.3	50	27.0	AV	N	GND

5. RADIATED EMISSION MEASUREMENT

5.1.Block Diagram of Test

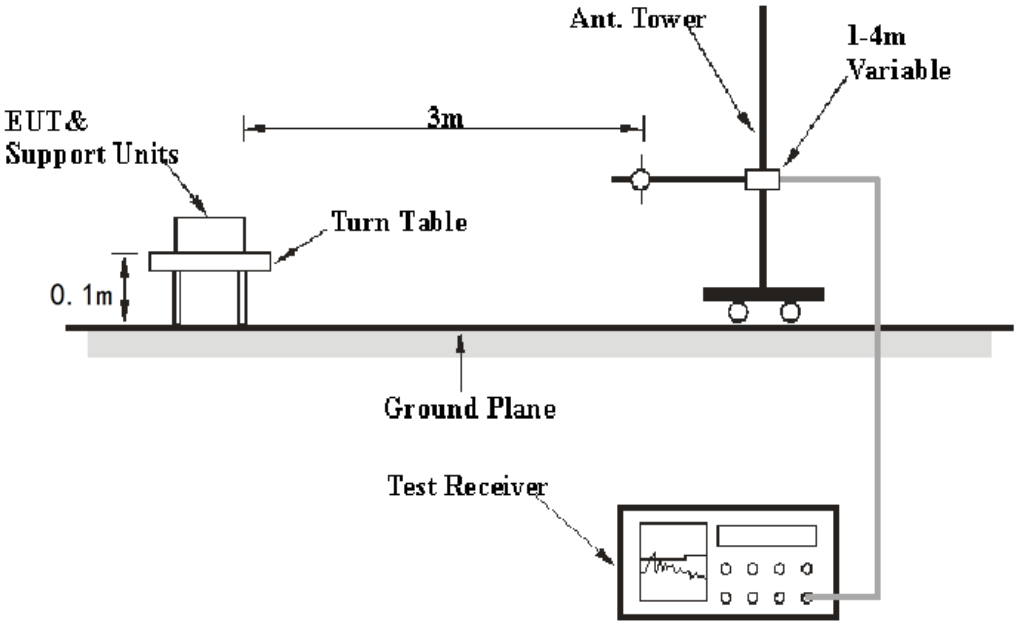
5.1.1.Block diagram of connection between the EUT and simulators

AC Mains ← EUT

(EUT: LED Low Voltage Outfit)

5.1.2.Block diagram of test setup (In chamber)

Radiated Emission Test Set-Up, Frequency 30MHz- 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:

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
Above 960	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.Test Mode Description

Test mode: ON

5.4.Manufacturer

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

5.4.1. LED Low Voltage Outfit (EUT)

Model Number : FCB-XM-3D-PG0104-CW-Z
Manufacturer : Neo-Neon (Viet Nam) Development Co., Ltd

5.5.Operating Condition of EUT

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

5.5.2.Turn on the power of all equipment.

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

5.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.1 meter 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.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.

2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.

Note: The EUT highest operating frequency provided by Manufacturer than less 108MHz, the radiated emission measurement shall be made up to 1GHz.

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.

5.7.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	49.83	-22.03	27.80	43.50	-15.70	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m)= Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading + Factor
Limit (dBμv/m)= Limit stated in standard

Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)

Calculation Formula:

Margin(dB) = Result (dBμv/m)–Limit(dBμv/m)
Result(dBμv/m)= Reading(dBμv)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

5.8.Measurement Result

Pass.

The frequency range from 30MHz to 1000MHz is investigated.

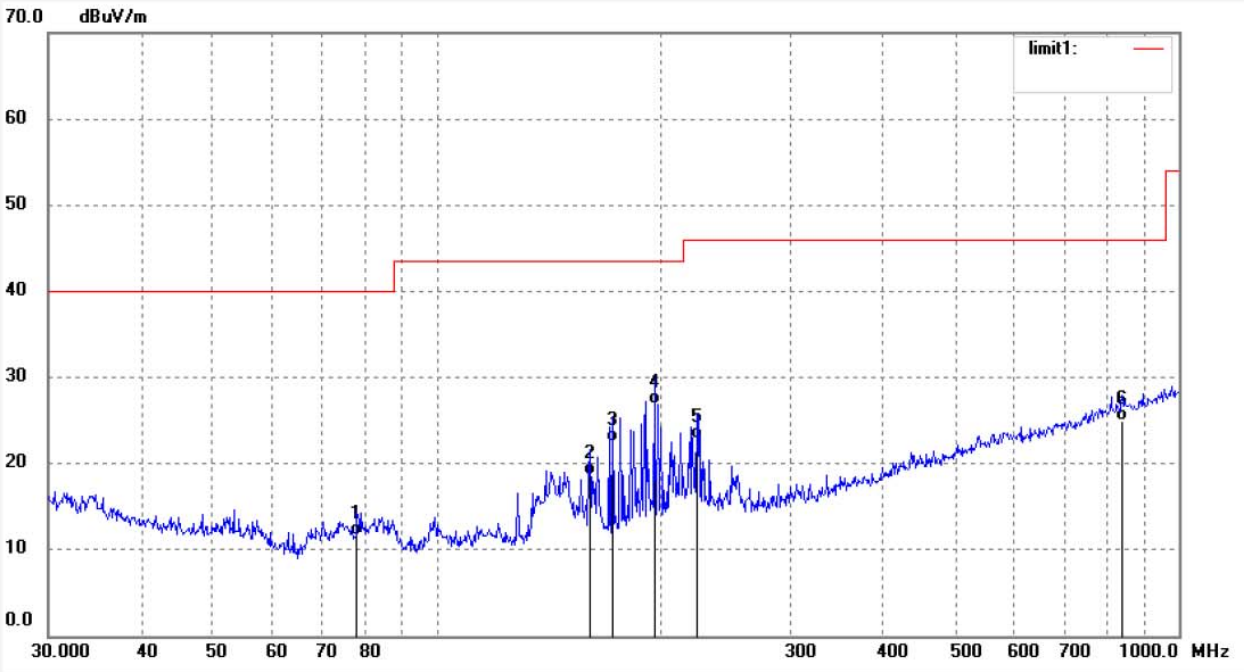
Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: JP2019 #79	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2020/05/16/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 11/16/26
EUT: LED Low Voltage Outfit	Engineer Signature: Ben
Mode: ON	Distance: 3m
Model: FCB-XM-3D-PG0104-CW-Z	
Manufacturer: Neo-Neon (Viet Nam) Development Co., Ltd	

Note: Report NO.:ATE20200506

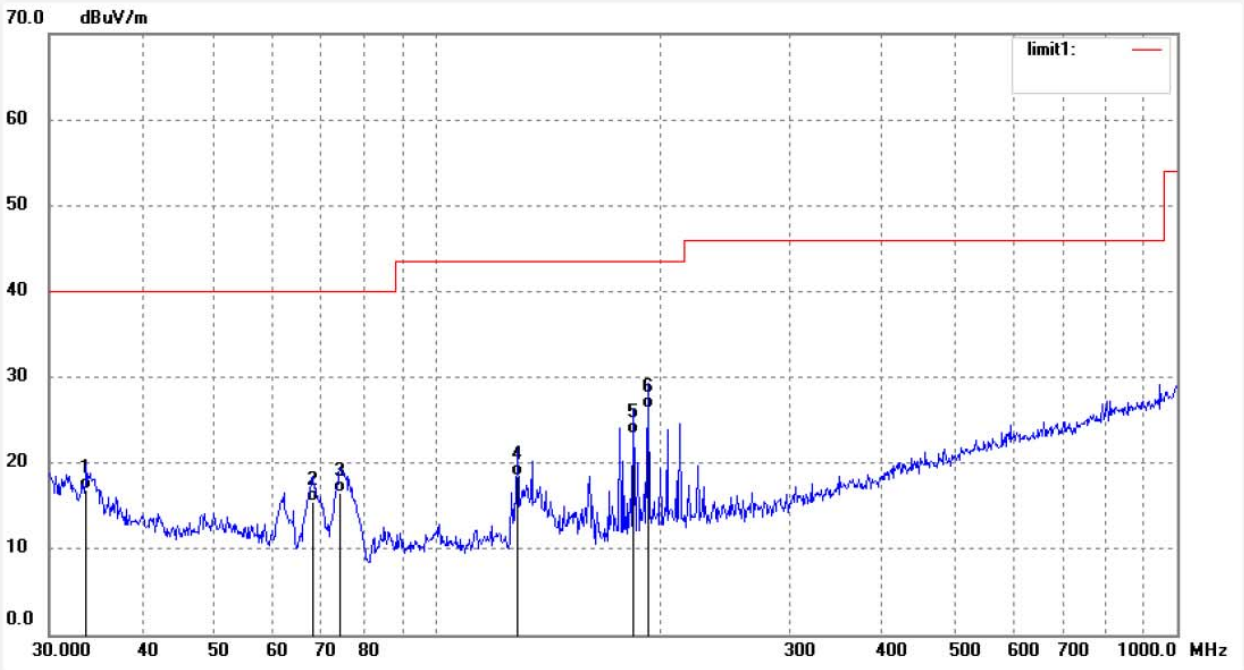


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	78.1389	29.20	-17.61	11.59	40.00	-28.41	QP	100	219	
2	160.9089	34.21	-15.53	18.68	43.50	-24.82	QP	100	310	
3	172.5988	37.17	-14.65	22.52	43.50	-20.98	QP	100	112	
4	196.5098	40.30	-13.47	26.83	43.50	-16.67	QP	100	65	
5	224.5193	35.23	-12.46	22.77	46.00	-23.23	QP	100	21	
6	839.1818	25.24	-0.36	24.88	46.00	-21.12	QP	100	173	

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: JP2019 #80	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2020/05/16/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 11/17/49
EUT: LED Low Voltage Outfit	Engineer Signature: Ben
Mode: ON	Distance: 3m
Model: FCB-XM-3D-PG0104-CW-Z	
Manufacturer: Neo-Neon (Viet Nam) Development Co., Ltd	

Note: Report NO.:ATE20200506



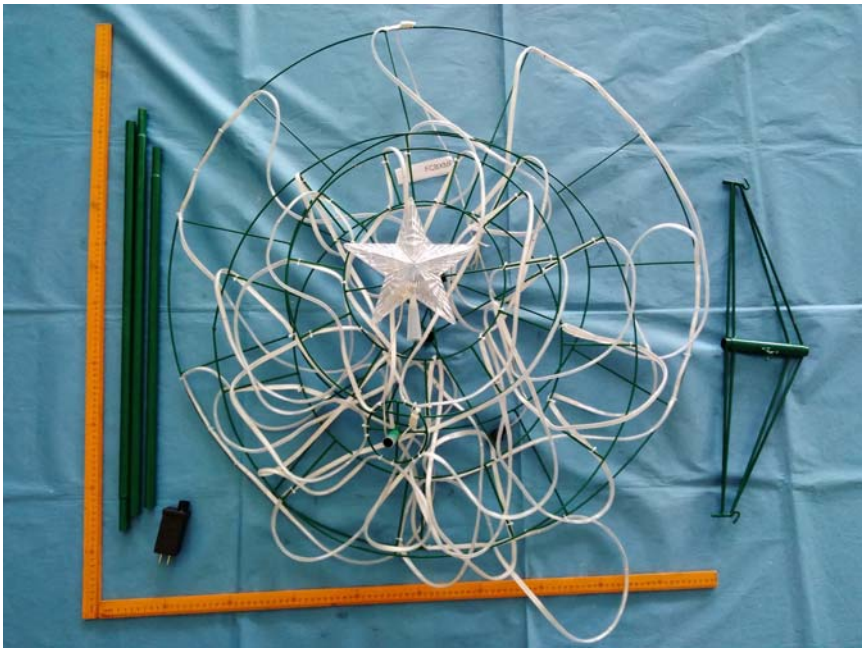
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.6802	27.94	-11.02	16.92	40.00	-23.08	QP	100	98	
2	68.1514	32.50	-16.97	15.53	40.00	-24.47	QP	100	31	
3	74.1351	34.15	-17.64	16.51	40.00	-23.49	QP	100	172	
4	128.5630	33.37	-14.82	18.55	43.50	-24.95	QP	100	330	
5	184.4898	37.15	-13.79	23.36	43.50	-20.14	QP	100	167	
6	193.0945	39.82	-13.54	26.28	43.50	-17.22	QP	100	318	

6. PHOTOGRAPHS

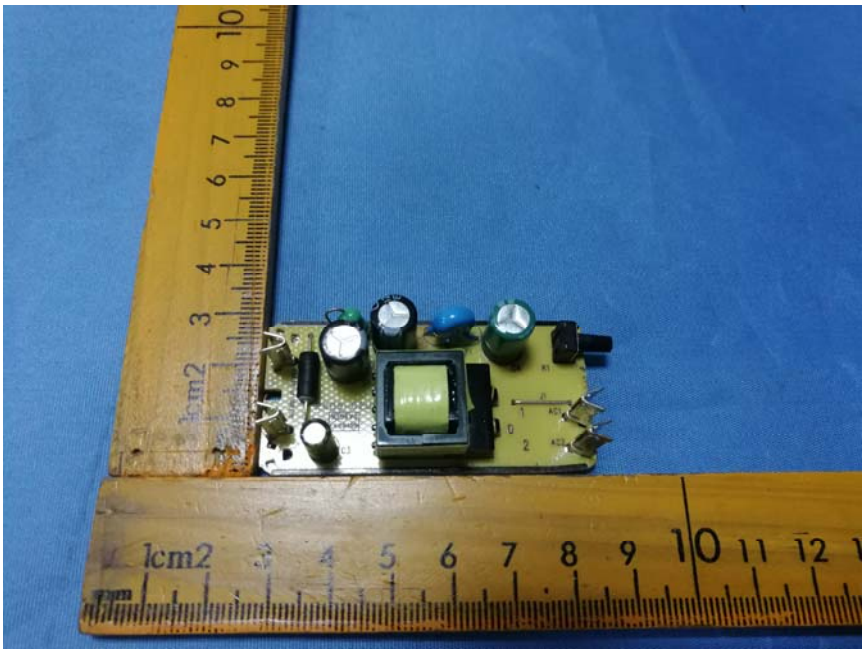
6.1.Photo of AC Power Line Conducted Emission Measurement

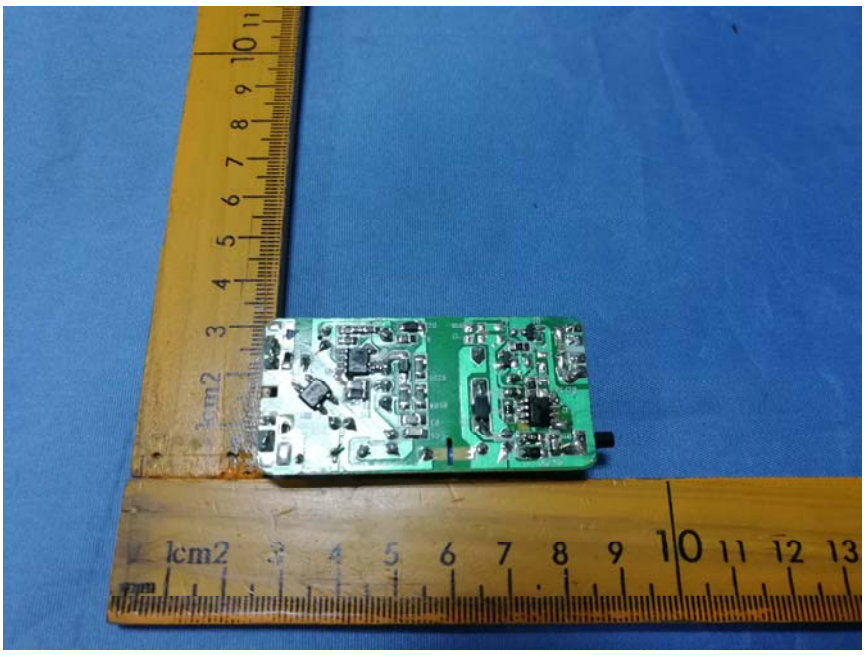
6.2.Photo of Radiation Emission Measurement

6.3.Photo of EUT



RICO
CLASS 2 POWER SUPPLY
MODEL NO.:RKP-UL2500300IP20-1C
INPUT:100-240V~ 50/60Hz 0.2A
OUTPUT:29V 300mA
Rainfight
Dongguan Rico Electronic Co.,Ltd.
Made in China





******* End of Test Report *******