Prüfbericht-Nr.: *Test Report No.:*	**50271754 001**	**Auftrags-Nr.:** *Order No.:*	168113475	Seite 1 von 26 *Page 1 of 26*
Kunden-Referenz-Nr.: *Client Reference No.:*	695006	**Auftragsdatum:** *Order date.:*	09 Jul. 2019	
Auftraggeber: *Client:*	Nirrau Electronics Design and Manufacturing Co., Limited. 7/F., Bonham Centre 79-85 Bonham Strand Sheung Wan Hong Kong			
Prüfgegenstand: *Test item:*	LED Driver			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	NE-16-24-ACV, NE-16-350-ACC			
Auftrags-Inhalt: *Order content:*	TUV Rheinland - EMC service			
Prüfgrundlage: *Test specification:*	EN 55015:2013+A1 EN 61000-3-2:2014 EN 61000-3-3:2013 EN 61547:2009			

Wareneingangsdatum: *Date of receipt:*	09 July 2019
Prüfmuster-Nr.: *Test sample No.:*	A000944350-001, A000944350-003
Prüfzeitraum: *Testing period:*	Refer to test report
Ort der Prüfung: *Place of testing:*	Refer to section 2.1
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von / *tested by:*

Dylan Yang

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
02.03.2020	Dylan Yang Senior Project Engineer	

kontrolliert von / *reviewed by:*

Z. Tao

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*
02.03.2020	Felix Tao Technical Certifier	

Sonstiges / *Other:*

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: Test item complete and undamaged

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	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

TEST SUMMARY

5.1.1 HARMONICS ON AC MAINS
RESULT: *Pass*

5.1.2 VOLTAGE FLUCTUATIONS ON AC MAINS
RESULT: *Pass*

5.1.3 DISTURBANCE VOLTAGE AT AC MAINS
RESULT: *Pass*

5.1.4 RADIATED ELECTROMAGNETIC DISTURBANCES (9 KHZ – 30MHZ)
RESULT: *Pass*

5.2.1 RADIATED ELECTROMAGNETIC DISTURBANCES (30-300MHZ)
RESULT: *Pass*

6.2.1 RADIO FREQUENCY ELECTROMAGNETIC FIELDS SUSCEPTIBILITY (RS)
RESULT: *Pass*

6.2.2 INJECTED CURRENTS / CONDUCTED SUSCEPTIBILITY (CS)
RESULT: *Pass*

6.3.1 ELECTRICAL FAST TRANSIENTS (EFT)
RESULT: *Pass*

6.3.2 SURGE
RESULT: *Pass*

6.3.3 ELECTROSTATIC DISCHARGES (ESD)
RESULT: *Pass*

6.4.1 VOLTAGE DIPS AND INTERRUPTIONS
RESULT: *Pass*

Contents

1. General Remarks

1.1 Complementary Materials

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

Appendix 1: Test Result
Appendix 2: Measurement Uncertainties

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd. EMC Testing Center

No. 362 Huanguan Road Middle, Longhua District 518110, Shenzhen, P.R. China

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Conducted Emission				
EMI Test Receiver	R&S	ESR3	102428	2020-09-03
Artificial Mains Network	R&S	ENV216	102333	2020-08-19
Radiated Electromagnetic Disturbance (9kHz - 30MHz)				
EMI Test Receiver	R&S	ESR3	102428	2020-09-03
Triple Loop Antena	R&S	HM020	101119	2020-08-19
Radiated Electromagnetic Disturbance (30 - 300MHz)				
EMI Test Receiver	R&S	ESR7	102111	2021-01-04
Trilog-Broadband Antenna	SCHWARZBECK	VULB9168	0945	2020-12-09
Switching Controller Interface	R&S	OSP 120	102039	N/A
ESD				
ESD Tester	TESEQ	NSG-437	1282	2020-08-19
Radio-Frequency Strength Susceptibility (RS)				
Signal Generator	R&S	SMB100A	115183	2020-08-19
Power Amplifier	R&S	BBA150-BC250	103102	2020-08-19
NRP6AN Average power sensor	R&S	NRP6AN	101161	2020-08-19
NRP6AN Average power sensor	R&S	NRP6AN	101162	2020-08-19
Stacked double Log.-Per. Antenna	SCHWARZBECK	STL 9128E	0153	N/A
Switching Controller Interface	R&S	OSP 120	102039	N/A
EFT, Surge, Voltage Dips & Interruptions				
EFT/Surge/Voltage Dips & Interruption Main Test Unit	EMTest	compact NX5 bspt-1-300-16	P1807214329	2020-08-19
Capacitive Coupling Clamp	EMTest	CCI	P1827221599	2020-08-19
Variac	EMTest	Variac NX-1-260-16	P1828221789	2020-08-19
Injected Current Susceptibility				
Conducted Immunity Test System	Teseq	NSG 4070	51350	2020-08-19
CDN	Teseq	CDN M016	51055	2020-08-19
EM Clamp	Teseq	KEMZ 801A	51287	2020-04-18
6 dB Attenuator	Teseq	ATN 6150	18081004	2020-08-19

3. General Product Information

3.1 Product Function and Intended Use

The EUTs are LED Driver used for lighting equipment.

For more information refer to the circuit diagram & instruction manual.

3.2 Ratings and System Details

System Input Voltage:	AC 90-264V
Rated Frequency:	50/60Hz
Rated Output:	DC 24V, 670mA for model NE-16-24-ACV DC 12-48V, 350mA for model NE-16-350-ACC
Protection Class:	II

3.3 Independent Operation Modes

The basic operation modes are:

A. On
   1. Maximum load
   2. Medium load
   3. Minimum load

B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- PCB Layout
- Rating Label
- Instruction Manual

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipments 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.

Immunity: The equipments under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. 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 and 6.
Full tests were applied on models NE-16-24-ACV and NE-16-350-ACC.

4.3 Special Accessories and Auxiliary Equipment

LED lamps were employed during testing.

4.4 Countermeasures to achieve EMC Compliance

The test samples which have been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Harmonics on AC Mains

RESULT: **Pass**

Test procedure	:	EN 61000-3-2: 2014
Class	:	C

Since the active input power of the EUTs is <= 25W and there is no applicable limit described in EN 61000-3-2:2014 for class C equipment below 25W other than discharge lighting equipment, this test is not applicable.

5.1.2 Voltage Fluctuations on AC Mains

RESULT: **Pass**

Test procedure	:	EN 61000-3-3:2013
Limit	:	Clause 5
Frequency range	:	0 - 2kHz

The maximum active input power of the EUTs is around 20W, which unlikely to produce significant voltage fluctuation. Therefore no test was applied.

See clause 6.1***

*** EN 61000-3-3:2013, clause 6.1:" ... Tests need not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker...."

5.1.3 Disturbance Voltage at AC Mains

RESULT: **Pass**

Date of testing	:	2019-12-04 to 2019-12-05
Test standard	:	EN 55015:2013+A1
Frequency range	:	0.009 - 30MHz (Mains terminal)
Limits	:	Table 2a
Kind of test site	:	Shielded room

Test setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Condition	:	According to Clause 6, 8.1.1 & 8.4.2
Operation mode	:	A
Artificial Hand	:	Not applied
Earthing	:	Not Connected

Refer to attached Appendix 1.

5.1.4 Radiated Electromagnetic Disturbances (9 kHz – 30MHz)

RESULT: **Pass**

Date of testing	:	2019-12-05
Test standard	:	EN 55015:2013+A1
Frequency range	:	0.009 – 30MHz
Limits	:	Table 3a
Kind of test site	:	Shielded room

Test setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Condition	:	According to Clause 6, 9.1 & 9.4
Operation mode	:	A
Earthing	:	Not Connected

Refer to attached Appendix 1.

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Electromagnetic Disturbances (30-300MHz)

RESULT: **Pass**

Date of testing	:	2019-12-03
Test standard	:	EN 55015:2013+A1
Frequency range	:	30 – 300MHz
Limits	:	Table 3b
Kind of test site	:	3m semi-anechoic chamber

Test setup:

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Condition	:	According to clause 6 & 9.2
Operation mode	:	A
Earthing	:	Not Connected

Refer to attached Appendix 1.

6. Test Results IMMUNITY

6.1 Classification of apparatus

According to EN 61547:2009, the EUTs belong to independent auxiliaries, and shall be tested in accordance with clause 5 and comply with the performance criterion of table 14.

Continuous Disturbance

Radio-Frequency Electromagnetic Fields (RS)	**Criterion A**
Injected Currents / Conducted Susceptibility (CS)	**Criterion A**
Power Frequency Magnetic Fields *	**Criterion A**

Transient Disturbance

Fast Transient (EFT)	**Criterion B**
Surge	**Criterion C**
Electrostatic Discharges (ESD)	**Criterion B**

Power supply Alterations

Voltage Dips and Interruptions 30% Voltage Reduction, 10 Periods	**Criterion C**
100% Voltage Reduction, 0.5 Periods	**Criterion B**

"*": The EUTs don't contain devices susceptible to magnetic fields; therefore the Power-Frequency Magnetic Fields test is not necessary.

6.2 Continuous Disturbances

6.2.1 Radio Frequency Electromagnetic Fields Susceptibility (RS)

RESULT: **Pass**

Date of Testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 2
Basic Standard	:	IEC 61000-4-3:2006+A1
Criterion	:	A
Frequency Range	:	80 – 1,000MHz
Test Level	:	3V/m (Unmodulated, rms)
Modulation	:	80% AM, 1kHz

Test setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient Temperature	:	Refer to Appendix 1
Relative Humidity	:	Refer to Appendix 1
Atmospheric Pressure	:	101kPa

Refer to attached Appendix 1.

6.2.2 Injected Currents / Conducted Susceptibility (CS)

RESULT: **Pass**

Date of testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 8 & 9
Basic Standard	:	IEC 61000-4-6:2008
Criterion	:	A
Frequency range	:	0.15 – 80MHz
Source impedance	:	150Ω
Test level	:	3V (unmodulated, rms.)
Modulation	:	AM 80%, 1kHz sine-wave
Sweep mode	:	automatic
Sweep rate	:	< 1.5×10^{-3} decade / sec.

Test setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	101kPa

Refer to attached Appendix 1.

6.3 Transient Disturbances

6.3.1 Electrical Fast Transients (EFT)

RESULT: **Pass**

Date of testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 5 & 6
Basic Standard	:	IEC 61000-4-4:2004
Criterion	:	B
Test level	:	±0.5kV, ±1kV
Test duration	:	≥60sec
Rise time	:	5/50ns
Repetition frequency	:	5 kHz

Test setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	101kPa

Refer to attached Appendix 1.

6.3.2 Surge

RESULT: **Pass**

Date of testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 10
Basic Standard	:	IEC 61000-4-5:2005
Criterion	:	C
Source impedance	:	2Ω
Test level	:	±0.5kV
Coupling phases	:	π/2, 3π/2
Number of surges	:	5 (for each combination of parameters)
Repetition rate	:	Max. 1/min

Test Setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	101kPa

Refer to attached Appendix 1.

6.3.3 Electrostatic Discharges (ESD)

RESULT: **Pass**

Date of testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 1
Basic Standard	:	IEC 61000-4-2:2008
Criterion	:	B
Discharge voltage	:	±8.0kV (air discharge) ±4.0kV (contact discharge)
Number of discharges	:	>10

Test Setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	Refer to Appendix 1

Refer to attached Appendix 1.

6.4 Power Supply Alterations

6.4.1 Voltage Dips and Interruptions

RESULT: **Pass**

Date of testing	:	2019-12-13
Test Specification	:	EN 61547:2009, table 11 & 12
Basic Standard	:	IEC 61000-4-11:2004
Criterion	:	C - table 11 B - table 12

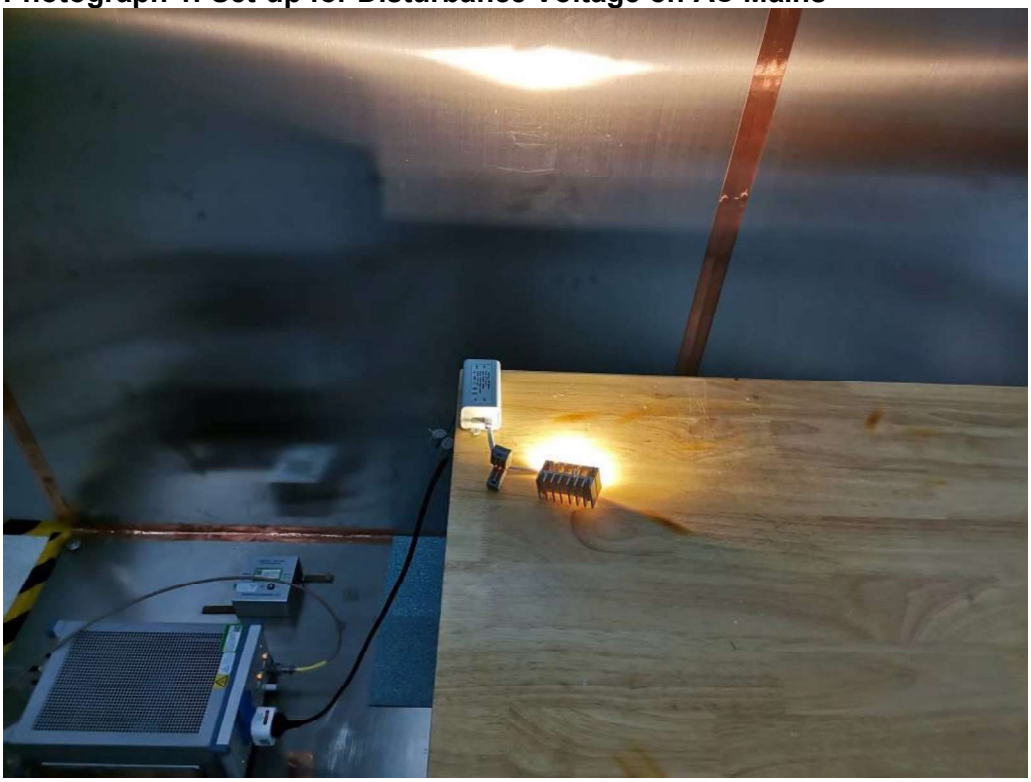
Test Setup

Input Voltage	:	AC 90-264V, 50/60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	101kPa

Refer to attached Appendix 1.

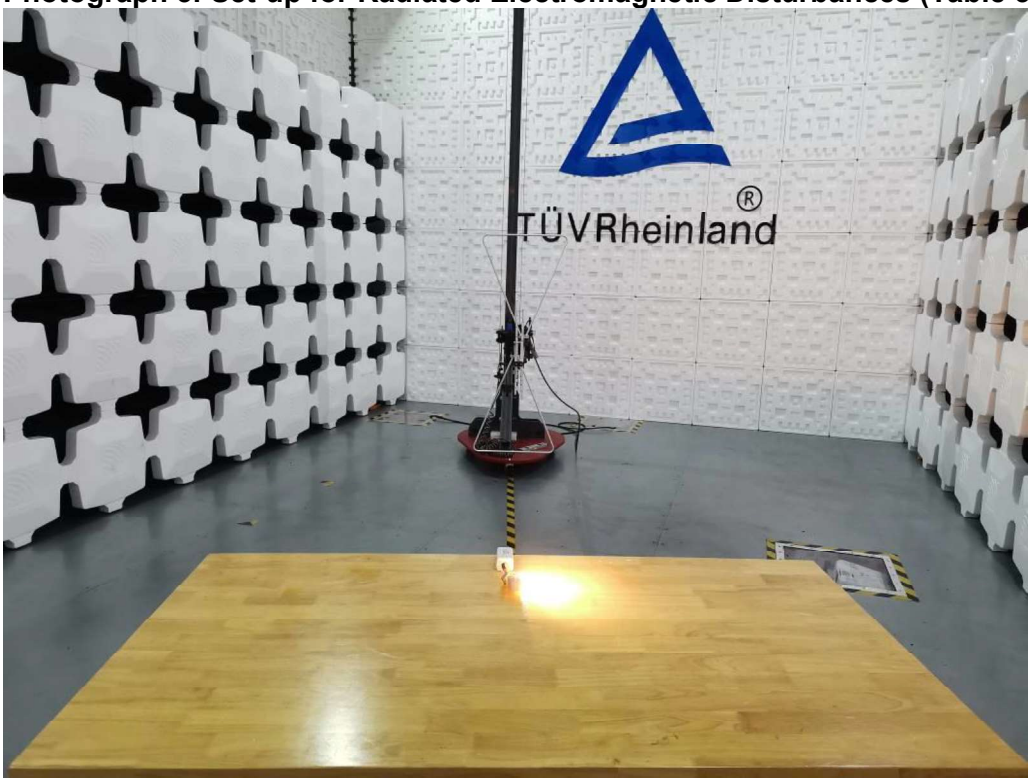
7. Photographs of the Test Set-Up

Photograph 1: Set-up for Disturbance Voltage on AC Mains

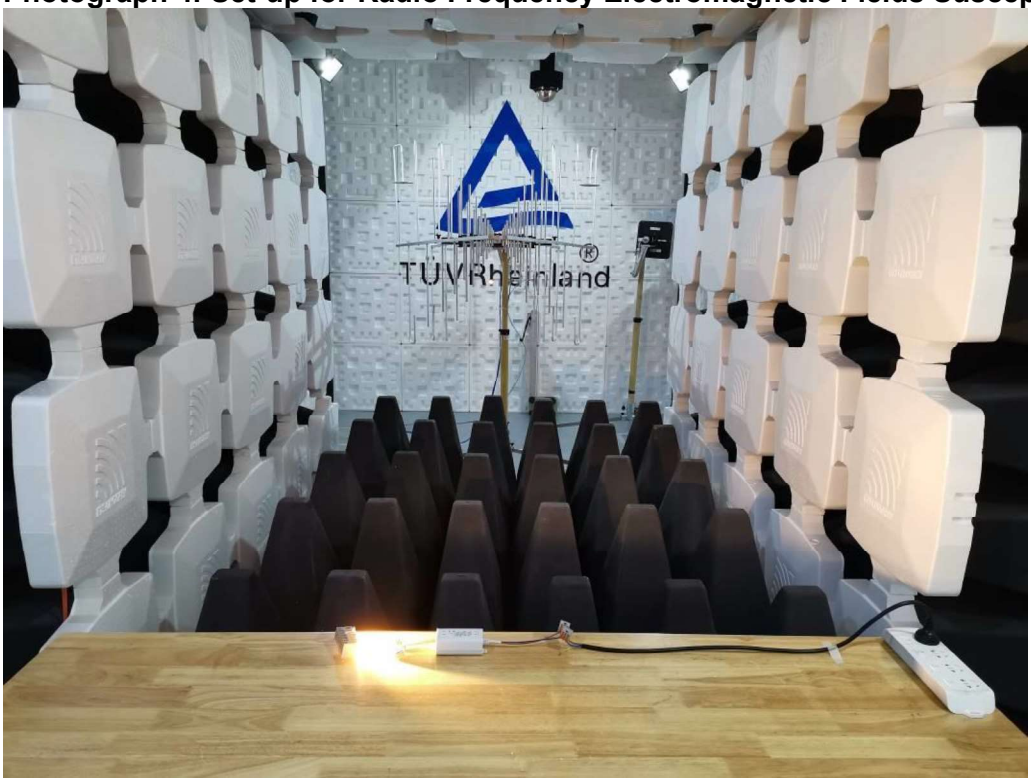


Photograph 2: Set-up for Radiated Electromagnetic Disturbances (Table 3a)

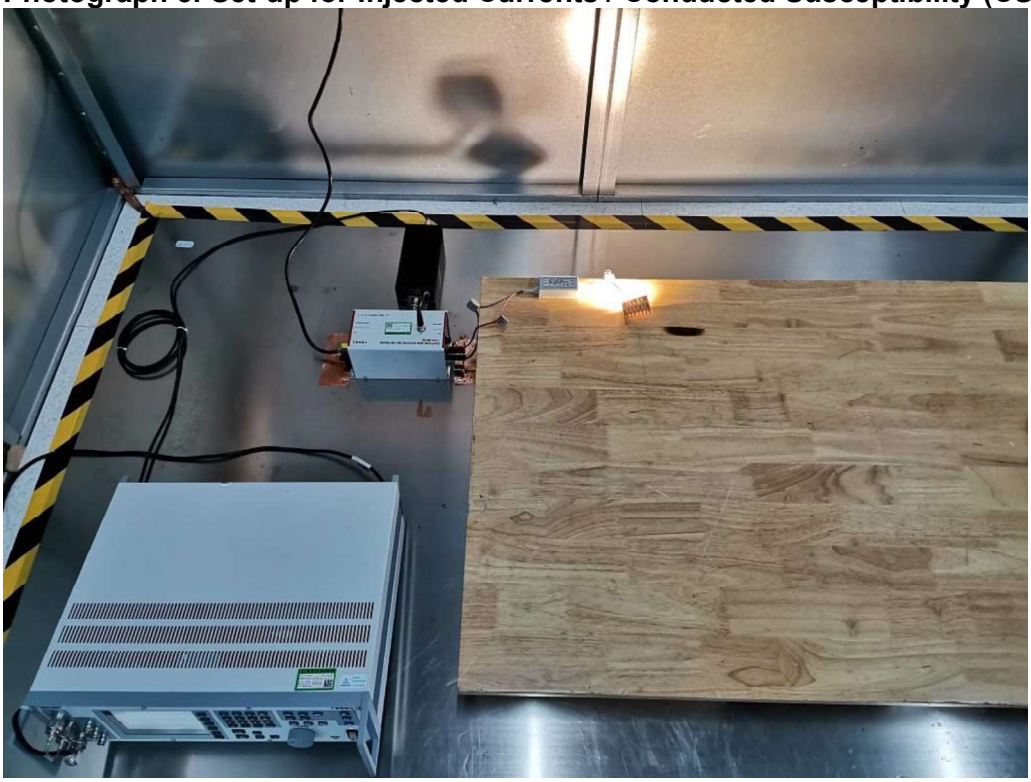
Photograph 3: Set-up for Radiated Electromagnetic Disturbances (Table 3b)

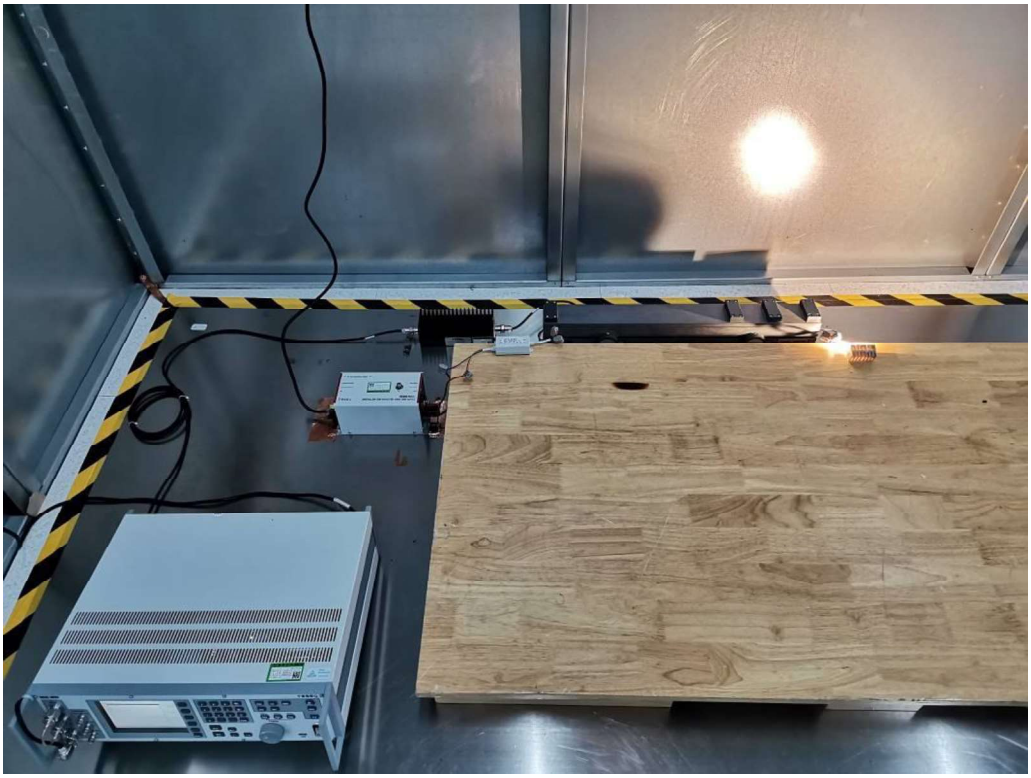


Photograph 4: Set-up for Radio Frequency Electromagnetic Fields Susceptibility (RS)

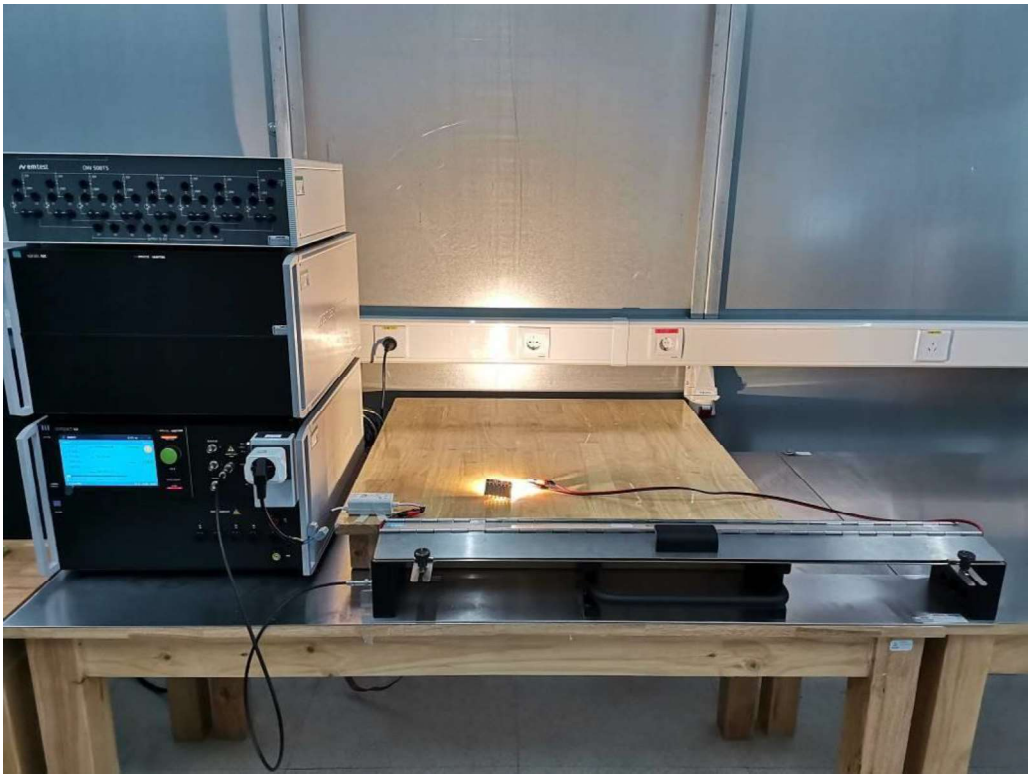


Photograph 5: Set-up for Injected Currents / Conducted Susceptibility (CS)





Photograph 6: Set-up for EFT



Photograph 7: Set-up for Surge, Voltage Dips and Interruptions

Photograph 8: Set-up for Electrostatic Discharges (ESD)

8. List of Tables

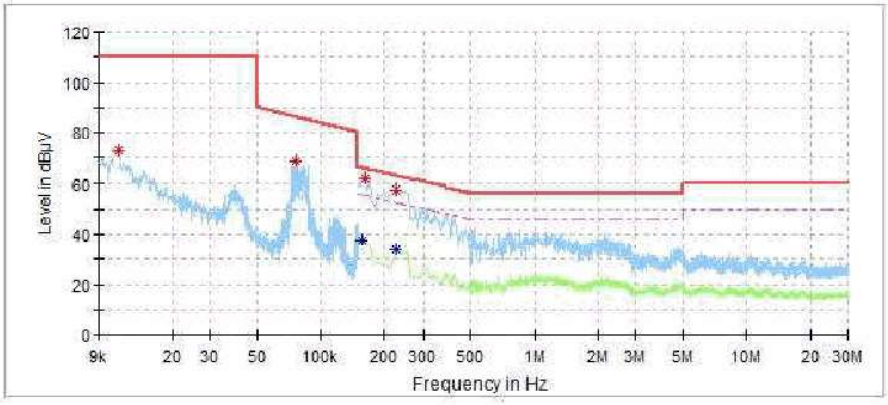
9. List of Photographs

CE-NE-16-24-ACV-100V60Hz-L 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.011200	72.40	---	110.00	37.60	---	---	L1	10.1
0.077000	68.26	---	86.07	17.81	---	---	L1	9.7
0.158000	---	37.72	55.57	17.85	---	---	L1	9.6
0.162000	61.79	---	65.36	3.57	---	---	L1	9.6
0.226000	---	33.87	52.60	18.73	---	---	L1	9.6
0.226000	57.41	---	62.60	5.19	---	---	L1	9.6

Final_Result

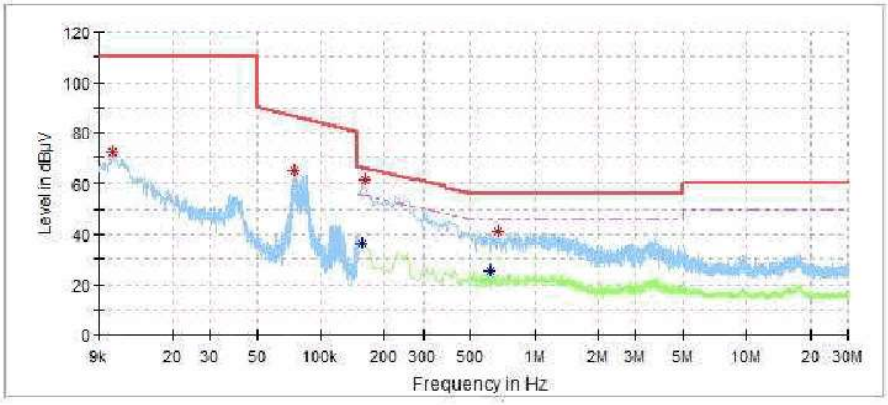
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

CE-NE-16-24-ACV-100V60Hz-N 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.010400	71.82	---	110.00	38.18	---	---	N	10.1
0.075600	64.56	---	86.24	21.68	---	---	N	9.7
0.158000	---	36.05	55.57	19.52	---	---	N	9.6
0.162000	60.85	---	65.36	4.52	---	---	N	9.6
0.624000	---	25.05	46.00	20.95	---	---	N	9.7
0.676000	41.07	---	56.00	14.93	---	---	N	9.7

Final_Result

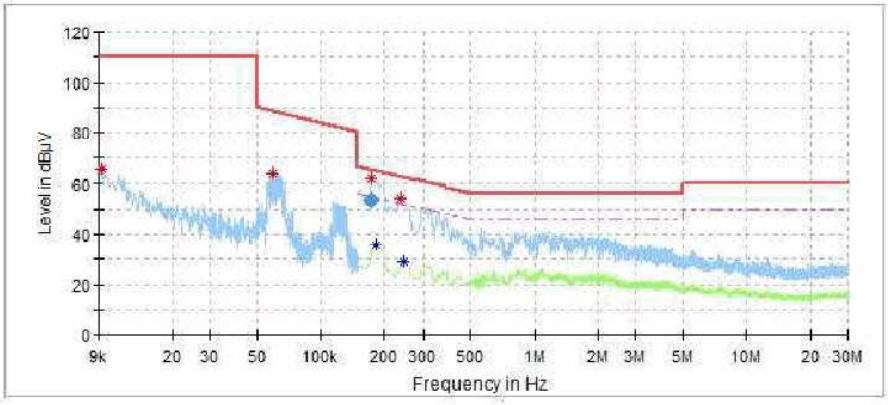
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

CE-NE-16-24-ACV-240V50Hz-L 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.009300	65.25	---	110.00	44.75	---	---	L1	10.2
0.059900	63.52	---	88.36	24.83	---	---	L1	9.7
0.173500	61.50	---	64.58	3.08	---	---	L1	9.6
0.182000	---	35.99	54.39	18.40	---	---	L1	9.6
0.238000	54.23	---	62.17	7.94	---	---	L1	9.6
0.246000	---	28.74	51.89	23.15	---	---	L1	9.6

Final_Result

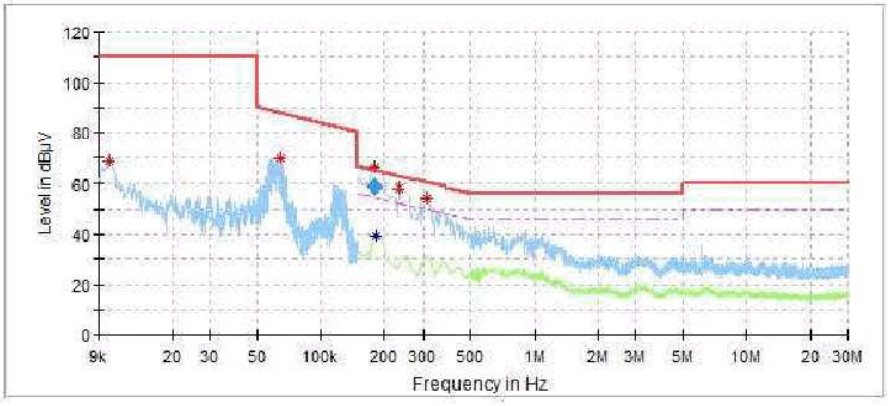
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.173500	53.70	---	64.79	11.09	50.0	9.000	L1	9.6

CE-NE-16-24-ACV-240V50Hz-N 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.010100	68.61	---	110.00	41.39	---	---	N	10.1
0.065300	69.55	---	87.57	18.02	---	---	N	9.7
0.178500	65.83	---	64.77	-1.06	---	---	N	9.6
0.182000	---	39.44	54.39	14.95	---	---	N	9.6
0.234000	57.80	---	62.31	4.51	---	---	N	9.6
0.310000	53.96	---	59.97	6.01	---	---	N	9.6

Final_Result

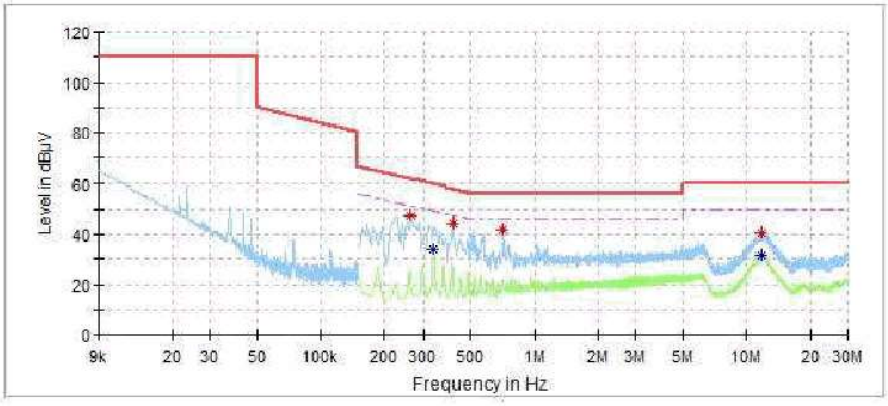
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.178500	58.76	---	64.56	5.80	50.0	9.000	N	9.6

CE-NE-16-350-ACC-100V60Hz-L 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.266000	47.10	---	61.24	14.14	---	---	L1	9.6
0.334000	---	33.78	49.35	15.57	---	---	L1	9.7
0.414000	44.24	---	57.57	13.33	---	---	L1	9.7
0.712000	41.92	---	56.00	14.09	---	---	L1	9.7
11.800000	40.58	---	60.00	19.42	---	---	L1	10.2
11.852000	---	31.55	50.00	18.45	---	---	L1	10.2

Final_Result

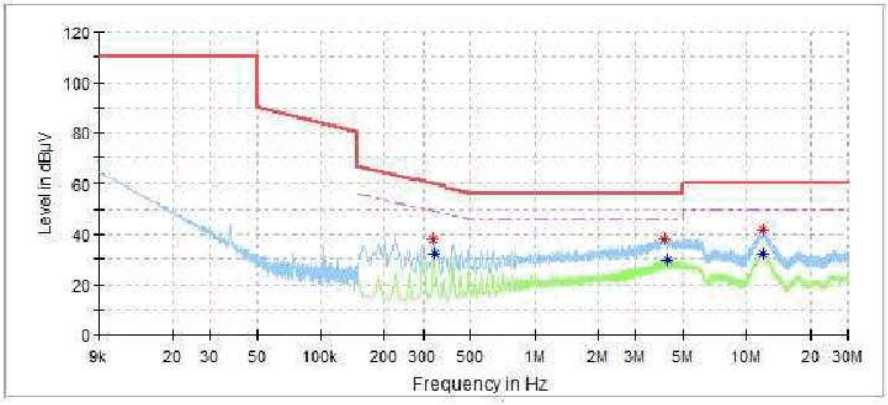
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

CE-NE-16-350-ACC-100V60Hz-N 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.334000	38.08	---	59.35	21.27	---	---	N	9.6
0.338000	---	31.93	49.25	17.32	---	---	N	9.6
4.068000	38.19	---	56.00	17.81	---	---	N	9.9
4.212000	---	29.49	46.00	16.51	---	---	N	9.9
11.860000	---	32.19	50.00	17.81	---	---	N	10.2
11.912000	41.68	---	60.00	18.32	---	---	N	10.2

Final_Result

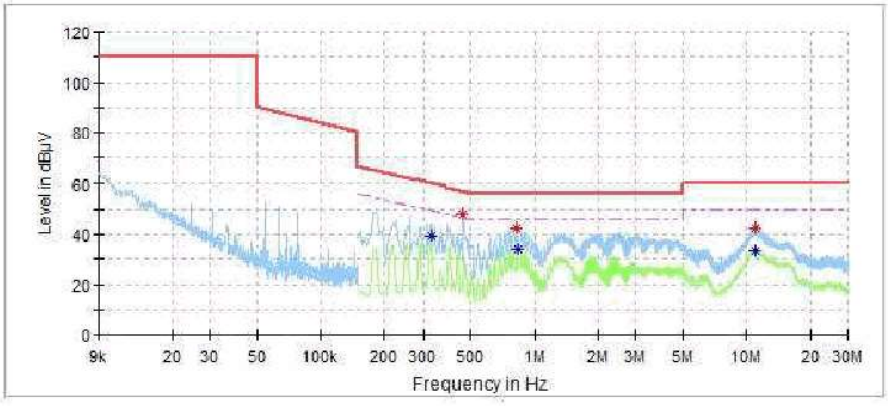
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

CE-NE-16-350-ACC-240V50Hz-L 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.326000	---	39.51	49.55	10.04	---	---	L1	9.7
0.462000	47.87	---	56.66	8.79	---	---	L1	9.7
0.828000	42.52	---	56.00	13.48	---	---	L1	9.7
0.832000	---	33.96	46.00	12.04	---	---	L1	9.7
11.048000	42.67	---	60.00	17.33	---	---	L1	10.1
11.068000	---	33.20	50.00	16.80	---	---	L1	10.1

Final_Result

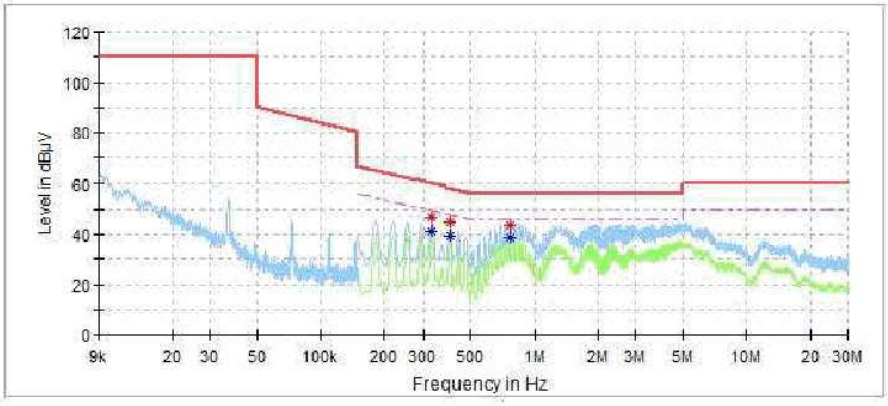
Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

CE-NE-16-350-ACC-240V50Hz-N 1 / 1

Test Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.330000	---	41.51	49.45	7.94	---	---	N	9.6
0.330000	46.62	---	59.45	12.83	---	---	N	9.6
0.402000	44.79	---	57.81	13.02	---	---	N	9.7
0.402000	---	39.26	47.81	8.56	---	---	N	9.7
0.764000	---	38.74	46.00	7.26	---	---	N	9.7
0.768000	43.96	---	56.00	12.04	---	---	N	9.7

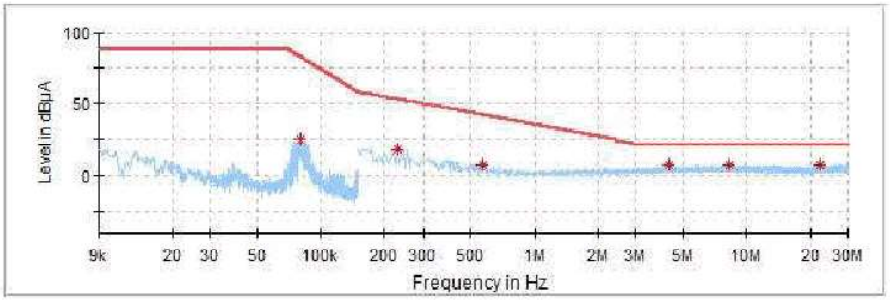
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
---	---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.081000	24.70	82.26	57.55	---	---	X	0.0
0.230000	18.84	52.86	34.02	---	---	X	0.0
0.572000	7.74	41.92	34.17	---	---	X	0.1
4.276000	7.31	22.00	14.69	---	---	X	0.2
8.244000	7.66	22.00	14.34	---	---	X	0.3
22.256000	7.80	22.00	14.20	---	---	X	0.5

Final_Result

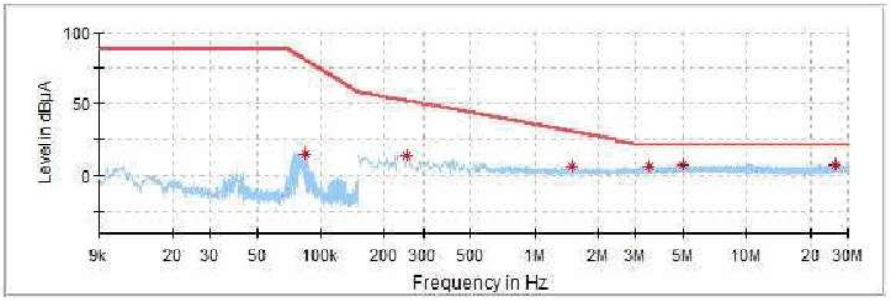
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

3 loop-NE-16-24-ACV-100V60Hz-Y 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.084000	15.58	80.82	65.24	---	---	Y	0.0
0.254000	14.49	51.67	37.18	---	---	Y	0.0
1.492000	6.18	30.39	24.21	---	---	Y	0.1
3.480000	6.73	22.00	15.27	---	---	Y	0.2
5.008000	7.48	22.00	14.52	---	---	Y	0.3
26.132000	7.40	22.00	14.60	---	---	Y	0.6

Final_Result

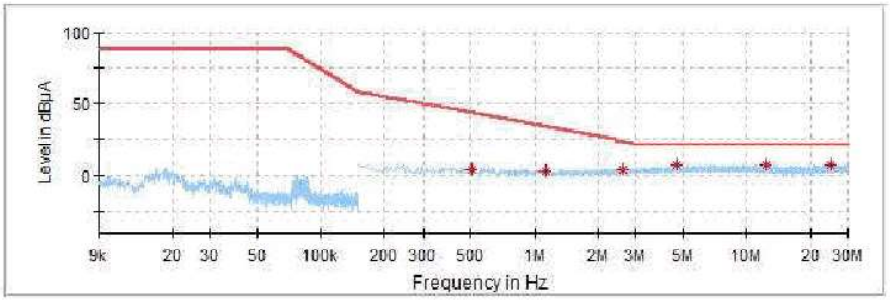
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

3 loop-NE-16-24-ACV-100V60Hz-Z 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.508000	4.70	43.34	38.65	---	---	Z	0.1
1.136000	3.91	33.67	29.76	---	---	Z	0.1
2.592000	4.70	23.76	19.06	---	---	Z	0.2
4.648000	7.74	22.00	14.26	---	---	Z	0.3
12.316000	7.54	22.00	14.46	---	---	Z	0.4
24.904000	7.81	22.00	14.19	---	---	Z	0.6

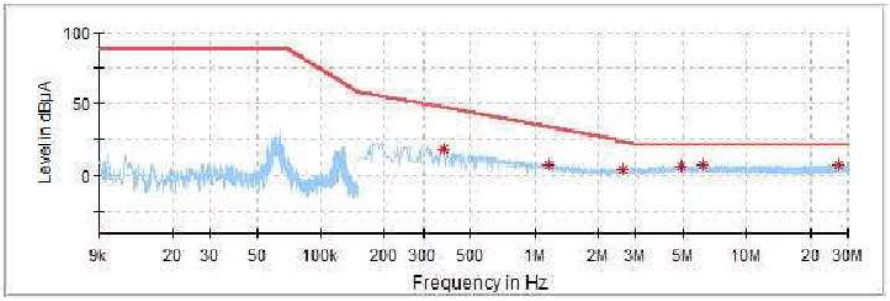
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.378000	18.37	46.89	28.52	---	---	X	0.1
1.168000	7.84	33.34	25.49	---	---	X	0.1
2.596000	4.87	23.74	18.86	---	---	X	0.2
4.924000	7.07	22.00	14.93	---	---	X	0.3
6.196000	7.47	22.00	14.53	---	---	X	0.3
27.312000	7.98	22.00	14.02	---	---	X	0.6

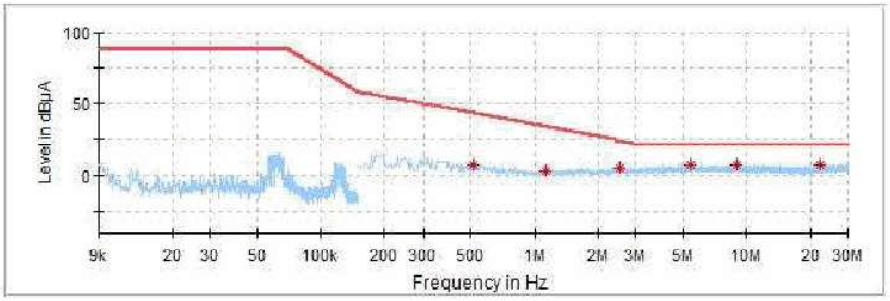
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.516000	7.67	43.15	35.48	---	---	Y	0.1
1.136000	3.51	33.67	30.16	---	---	Y	0.1
2.540000	5.24	24.00	18.76	---	---	Y	0.2
5.484000	8.05	22.00	13.95	---	---	Y	0.3
9.008000	7.92	22.00	14.08	---	---	Y	0.3
22.304000	8.18	22.00	13.82	---	---	Y	0.5

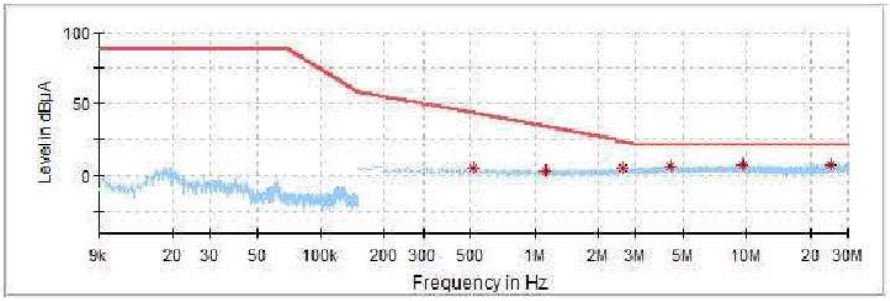
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.516000	5.08	43.15	38.07	---	---	Z	0.1
1.124000	3.80	33.80	30.00	---	---	Z	0.1
2.624000	5.05	23.61	18.56	---	---	Z	0.2
4.372000	6.94	22.00	15.06	---	---	Z	0.2
9.600000	7.49	22.00	14.51	---	---	Z	0.3
24.864000	8.10	22.00	13.90	---	---	Z	0.6

Final_Result

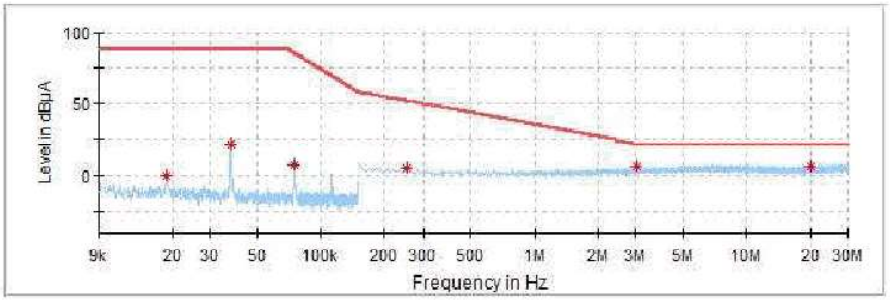
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

3 loop-NE-16-350-ACC-100V60Hz-X 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.018900	-0.04	88.00	88.04	---	---	X	0.0
0.037800	21.81	88.00	66.19	---	---	X	0.0
0.075400	8.16	85.08	76.91	---	---	X	0.0
0.254000	5.99	51.67	45.68	---	---	X	0.0
3.052000	7.06	22.00	14.94	---	---	X	0.2
19.932000	7.14	22.00	14.86	---	---	X	0.5

Final_Result

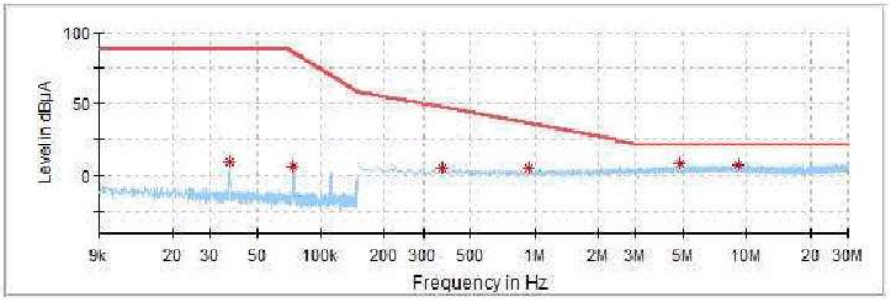
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

3 loop-NE-16-350-ACC-100V60Hz-Y 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.037300	9.68	88.00	78.32	---	---	Y	0.0
0.074600	7.21	85.50	78.29	---	---	Y	0.0
0.366000	5.47	47.28	41.81	---	---	Y	0.1
0.940000	5.13	35.95	30.82	---	---	Y	0.1
4.828000	9.00	22.00	13.00	---	---	Y	0.3
9.188000	7.91	22.00	14.09	---	---	Y	0.3

Final_Result

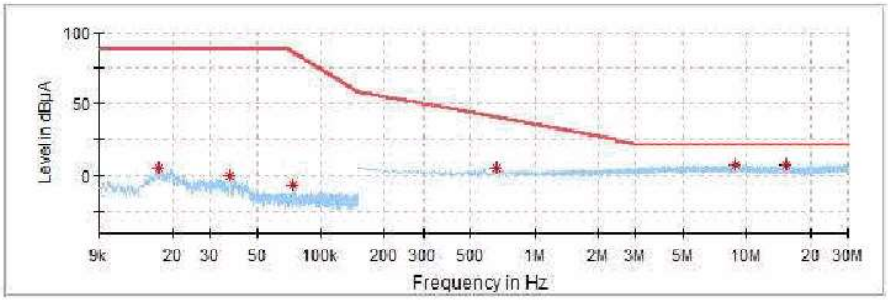
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

3 loop-NE-16-350-ACC-100V60Hz-Z 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.017400	5.17	88.00	82.83	---	---	Z	0.0
0.037200	-0.06	88.00	88.06	---	---	Z	0.0
0.074300	-6.54	85.65	92.20	---	---	Z	0.0
0.664000	5.33	40.12	34.79	---	---	Z	0.1
8.808000	7.89	22.00	14.11	---	---	Z	0.3
15.268000	7.42	22.00	14.58	---	---	Z	0.4

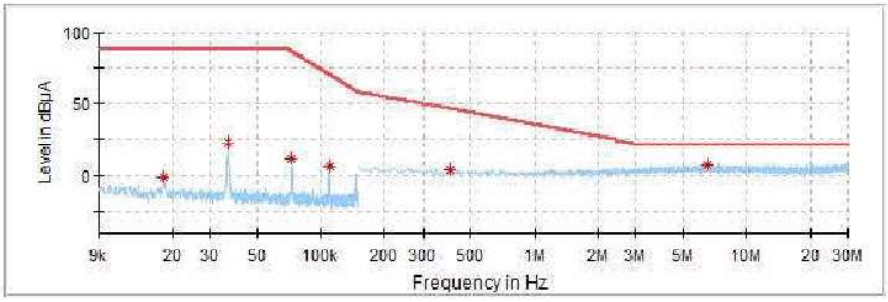
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.018300	-1.43	88.00	89.43	---	---	X	0.0
0.036600	23.47	88.00	64.53	---	---	X	0.0
0.073300	12.05	86.19	74.14	---	---	X	0.0
0.109900	6.16	70.24	64.08	---	---	X	0.0
0.402000	4.48	46.15	41.67	---	---	X	0.1
6.548000	7.50	22.00	14.50	---	---	X	0.3

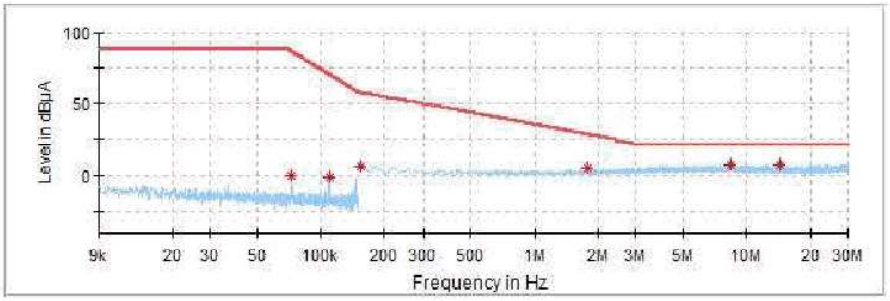
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.073200	0.41	86.24	85.83	---	---	Y	0.0
0.109900	-0.92	70.24	71.17	---	---	Y	0.0
0.154000	6.75	57.68	50.93	---	---	Y	0.0
1.784000	6.01	28.25	22.24	---	---	Y	0.1
8.404000	8.23	22.00	13.77	---	---	Y	0.3
14.396000	8.01	22.00	13.99	---	---	Y	0.4

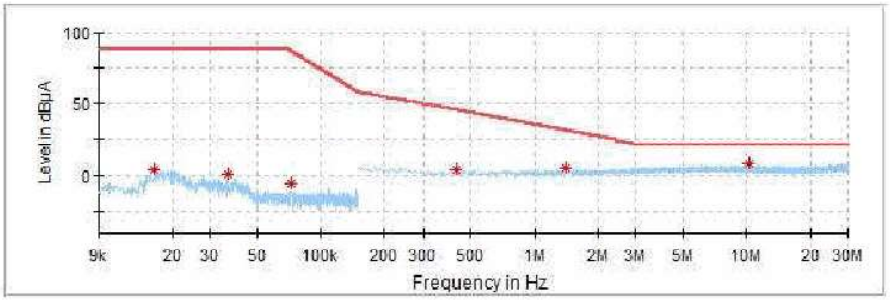
Final_Result

Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No.:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
0.016400	4.53	88.00	83.47	---	---	Z	0.0
0.036600	0.85	88.00	87.15	---	---	Z	0.0
0.073300	-5.62	86.19	91.80	---	---	Z	0.0
0.426000	4.22	45.46	41.24	---	---	Z	0.1
1.408000	5.93	31.09	25.16	---	---	Z	0.1
10.364000	8.68	22.00	13.32	---	---	Z	0.3

Final_Result

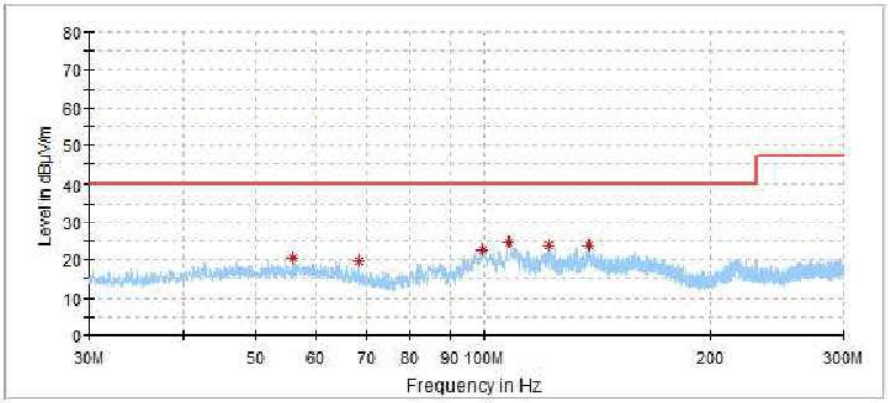
Frequency (MHz)	QuasiPeak (dBµA)	Limit (dBµA)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Axis	Corr. (dB)
---	---	---	---	---	---		---

RE-NE-16-24-ACV-100V60Hz-H 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
56.028000	20.50	40.00	19.50	---	---	100.0	H	93.0
68.394000	19.74	40.00	20.26	---	---	200.0	H	54.0
99.390000	22.77	40.00	17.23	---	---	200.0	H	228.0
107.733000	24.45	40.00	15.55	---	---	200.0	H	35.0
121.908000	23.88	40.00	16.12	---	---	100.0	H	46.0
137.487000	23.88	40.00	16.12	---	---	200.0	H	42.0

Final_Result

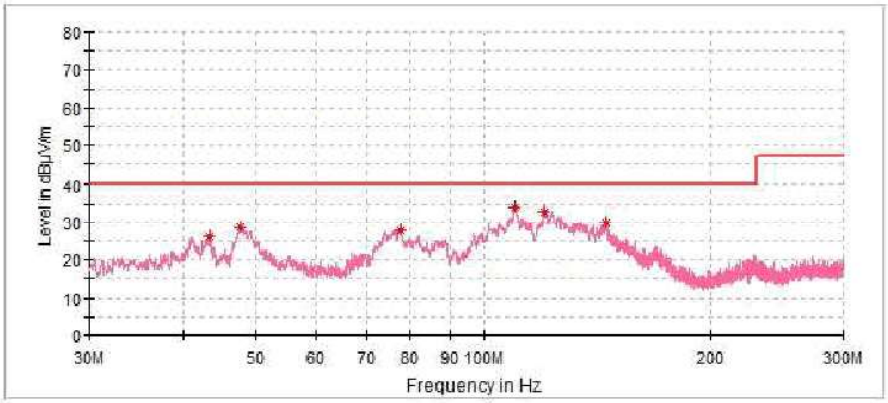
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-24-ACV-100V60Hz-V 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
43.338000	26.12	40.00	13.88	---	---	100.0	V	21.0
47.739000	28.72	40.00	11.28	---	---	100.0	V	160.0
77.709000	27.71	40.00	12.29	---	---	100.0	V	190.0
109.569000	34.08	40.00	5.92	---	---	100.0	V	196.0
119.883000	32.87	40.00	7.13	---	---	100.0	V	190.0
145.371000	29.84	40.00	10.16	---	---	100.0	V	255.0

Final_Result

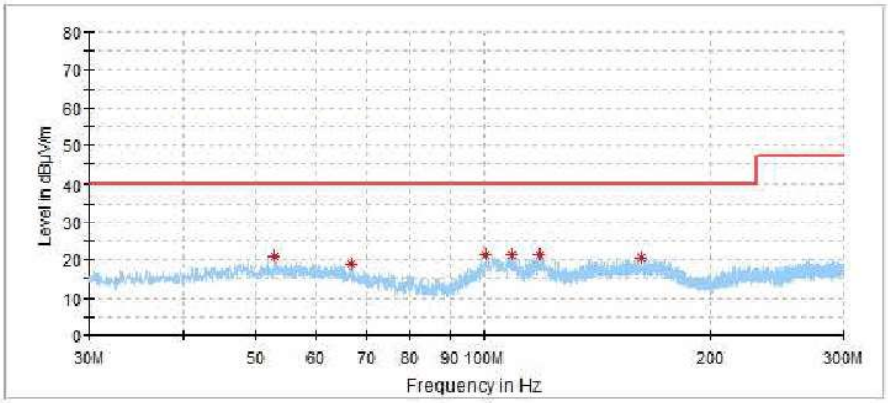
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-24-ACV-240V50Hz-H 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
52.815000	20.73	40.00	19.27	---	---	200.0	H	298.0
67.044000	19.07	40.00	20.93	---	---	100.0	H	330.0
100.416000	21.53	40.00	18.47	---	---	200.0	H	44.0
108.894000	21.29	40.00	18.71	---	---	200.0	H	59.0
118.344000	21.41	40.00	18.59	---	---	200.0	H	64.0
161.787000	20.58	40.00	19.42	---	---	200.0	H	280.0

Final_Result

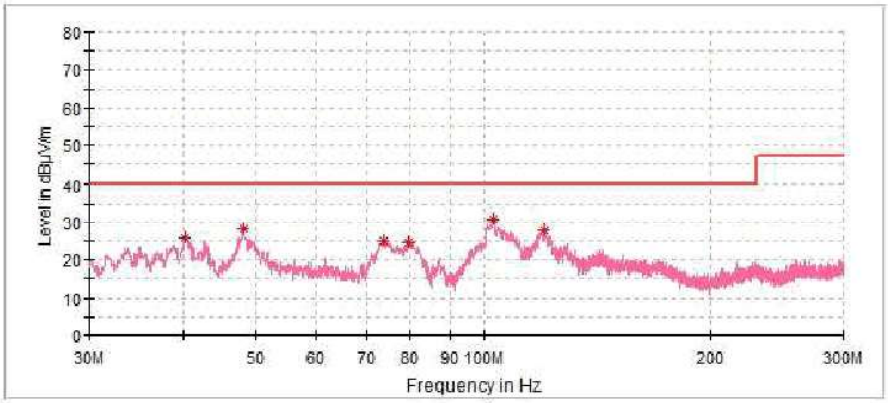
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-24-ACV-240V50Hz-V 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-24-ACV
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
40.206000	25.69	40.00	14.31	---	---	100.0	V	286.0
48.009000	28.36	40.00	11.64	---	---	100.0	V	91.0
73.875000	24.91	40.00	15.09	---	---	100.0	V	0.0
79.707000	24.68	40.00	15.32	---	---	100.0	V	227.0
102.603000	30.64	40.00	9.36	---	---	100.0	V	0.0
120.180000	28.05	40.00	11.95	---	---	100.0	V	124.0

Final_Result

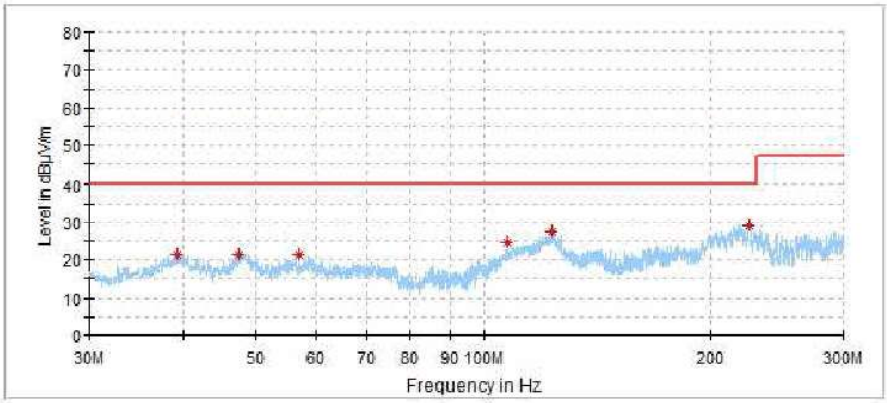
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-350-ACC-100V60Hz-H 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
39.234000	21.19	40.00	18.81	---	---	100.0	H	206.0
47.523000	21.47	40.00	18.53	---	---	200.0	H	224.0
56.973000	21.25	40.00	18.75	---	---	200.0	H	227.0
107.247000	24.46	40.00	15.54	---	---	200.0	H	36.0
123.123000	27.41	40.00	12.59	---	---	100.0	H	30.0
225.156000	29.33	40.00	10.67	---	---	100.0	H	74.0

Final_Result

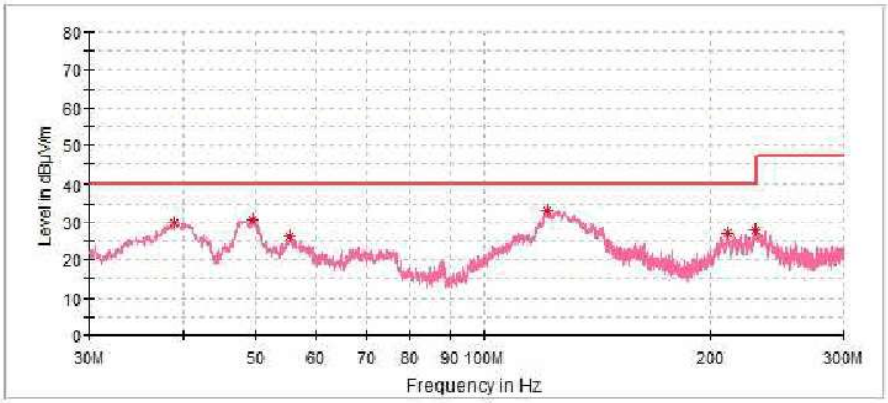
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-350-ACC-100V60Hz-V 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 100V/60Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
38.964000	29.92	40.00	10.08	---	---	100.0	V	126.0
49.521000	30.64	40.00	9.36	---	---	100.0	V	173.0
55.353000	26.15	40.00	13.85	---	---	200.0	V	187.0
121.179000	33.07	40.00	6.93	---	---	100.0	V	111.0
210.765000	27.09	40.00	12.91	---	---	100.0	V	209.0
229.449000	28.05	40.00	11.95	---	---	100.0	V	230.0

Final_Result

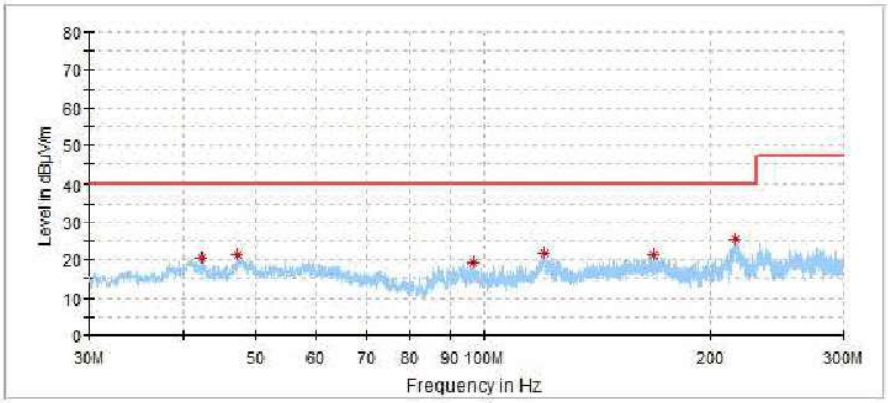
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-350-ACC-240V50Hz-H 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
42.366000	20.69	40.00	19.31	---	---	100.0	H	318.0
47.226000	21.19	40.00	18.81	---	---	100.0	H	318.0
96.501000	19.39	40.00	20.61	---	---	200.0	H	67.0
120.045000	21.70	40.00	18.30	---	---	100.0	H	60.0
167.970000	21.49	40.00	18.51	---	---	200.0	H	31.0
215.652000	25.32	40.00	14.68	---	---	100.0	H	31.0

Final_Result

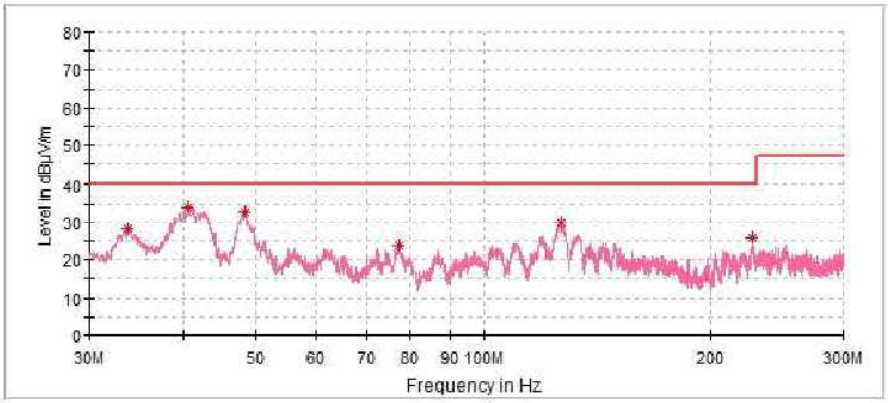
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

RE-NE-16-350-ACC-240V50Hz-V 1 / 1

EMC32 Report

EUT Information

EUT Name:	LED Driver
Model:	NE-16-350-ACC
Order No:	168113475 item 40
Test Mode:	Maximum load
Test Voltage:	AC 240V/50Hz
Test By:	Shower.Dai
Review By:	Gary Chen
Remark:	3M Chamber



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
33.753000	28.13	40.00	11.87	---	---	100.0	V	96.0
40.638000	34.15	40.00	5.85	---	---	100.0	V	115.0
48.279000	33.01	40.00	6.99	---	---	100.0	V	0.0
77.358000	23.76	40.00	16.24	---	---	100.0	V	0.0
126.390000	30.13	40.00	9.87	---	---	100.0	V	126.0
226.830000	25.84	40.00	14.16	---	---	100.0	V	275.0

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---		---

TÜVRheinland®

Client: Jing Duobao
Appliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-2

Test site at TÜV Rheinland Shenzhen EMC laboratory

Equipment used		
Equipment	Manufacturer	Model
☑ ESD Generator	TESEQ	NSG437

Temperature	21.3 °C
Relative humidity	52.7 %
Pressure	101.9 kPa

Operating modes tested	A
Test Voltage	BC, 220V/50Hz
Test setup	☑ Table-top ☐ Floor-standing
Performance criteria	☑ B ☐ C ☐ N/A

Overall result	☑ Pass ☐ Fail ☐ N/A
Observation / remark	☑ No observable change ☐

Type of discharge	Test voltage	No. of discharges	Polarity	Result
Indirect – HCP	☐ 8 kV ☑ 4 kV ☐	☐ 50 ☑ 20 ☐	+	☑ Pass ☐ Fail ☐ N/A
			-	☑ Pass ☐ Fail ☐ N/A
Indirect – VCP	☐ 8 kV ☑ 4 kV ☐	☐ 50 ☑ 20 ☐	+	☑ Pass ☐ Fail ☐ N/A
			-	☑ Pass ☐ Fail ☐ N/A
Direct – Contact	☐ 8 kV ☑ 4 kV ☐	☑ 20 ☐ 10 ☐	+	☑ Pass ☐ Fail ☐ N/A
			-	☑ Pass ☐ Fail ☐ N/A
Direct – Air	☑ 8 kV ☑ 4 kV ☑ 2 kV	☑ 20 ☐ 10 ☐	+	☑ Pass ☐ Fail ☐ N/A
			-	☑ Pass ☐ Fail ☐ N/A

Shower Dai/2019.12.13
Tested by (Signature / Date)

2019.12.13
Checked by (Signature / Date)

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TÜVRheinland®

Client: Jing Duobao
Appliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-3

Test site at TÜV Rheinland Shenzhen EMC laboratory

Test site / Equipment used		
Description	Manufacturer	Model
☑ 3m Fully-Anechoic Chamber	ETS	---
☑ Signal Generator	Rohde & Schwarz	SMB100A
☑ Power Amplifier	Rohde & Schwarz	BBA150-BC250
☐ Power Amplifier	Rohde & Schwarz	BBA150-D110E100
☑ RF Power Meter	Rohde & Schwarz	NRP6AN
☑ RF Power Meter	Rohde & Schwarz	NRP6AN
☑ Stacked double Log.-Per. Antenna	SCHWARZBECK	STL 9128 E
☐ Stacked double Log.-Per. Antenna	SCHWARZBECK	STL 9149
☐ Isotropic Field Probe	SCHWARZBECK	FL7006/KIT
☐ 10m Chamber	ETS	---
☐ Signal Generator	Rohde & Schwarz	SMB100A
☐ Power Amplifier	Rohde & Schwarz	BBA150-BC250
☐ Power Amplifier	Rohde & Schwarz	BBA150-D110E100
☐ RF Power Meter	Rohde & Schwarz	NRP6AN
☐ RF Power Meter	Rohde & Schwarz	NRP6AN
☐ Stacked double Log.-Per. Antenna	SCHWARZBECK	STL 9128 E
☐ Stacked double Log.-Per. Antenna	SCHWARZBECK	STL 9149
☐ Isotropic Field Probe	SCHWARZBECK	FL7006/KIT

Temperature	23.6 °C			
Relative Humidity	51.8 %			
Frequency range	☑ 80 MHz – 1GHz	☐ 1.4 – 2.0 GHz	☐ 2.0 – 2.7 GHz	
Test level	☐ 1V/m	☐ 1V/m	☐ 1V/m	
	☑ 3V/m	☐ 3V/m	☐ 3V/m	
	☐ 10V/m	☐ 10V/m	☐ 10V/m	
Step size	☑ 1 %	☐ 10 %		
Dwell Time	☐ 1 s	☑ 3 s		
Modulation	Sine wave 80% AM at 1kHz			

Side	Front	Rear	Left	Right
Horizontal	☑ Pass ☐ Fail	☑ Pass ☐ Fail	☑ Pass ☐ Fail	☑ Pass ☐ Fail
Vertical	☑ Pass ☐ Fail	☑ Pass ☐ Fail	☑ Pass ☐ Fail	☑ Pass ☐ Fail

Operating modes tested	A
Test Voltage	AC 220V/50Hz
Performance criterion	☑ A ☐ N/A

Overall result	☑ Pass ☐ Fail
Observation / re	☑ No observable change
	☐

Shower Dai/2019.12.13
Tested by (Signature / Date)

2019.12.13
Checked by (Signature / Date)

TÜVRheinland®

Client: Jing Duobao
Appliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-4

Test site at TÜV Rheinland Shenzhen EMC laboratory

Equipment used		
Description	Manufacturer	Model
☑ EFT/Surge/Voltage Dips & Interruption Main Test Unit	EMTest	Compact NX5 bspt-1-300-16
☐ Variac	EMTest	Variac NX-1-260-16
☑ Capacitive coupling clamp	EMTest	CCI

Temperature	23.2°C
Relative humidity	51.1%

Operating modes tested	A
Test Voltage	AC 220V/50Hz
Repetition frequency	☑ 5 kHz ☐ 100 kHz
Test duration	☐ 1 min ☑ 2 min
Performance criteria	☑ B ☐ N/A

Overall result	☑ Pass ☐ Fail ☐ N/A
Observation / remark	☑ No observable change ☐

Applicable	Coupling	Polarity	Voltage	Results
☑	L-N (common mode)	+	☐ 2 kV ☑ 1 kV ☐	☑ Pass ☐ Fail
		-		☑ Pass ☐ Fail
☐	L-N-PE (common mode)	+	☐ 2 kV ☐ 1 kV ☐	☐ Pass ☐ Fail
		-		☐ Pass ☐ Fail
☑	Capacitive coupling clamp	+	☐ ☐ 1 kV ☑ 0.5 kV	☑ Pass ☐ Fail
		-		☑ Pass ☐ Fail
☐		+	☐	☐ Pass ☐ Fail
		-	☐	☐ Pass ☐ Fail

Shower Dai/2019.12.13
Tested by (Signature / Date)

2019.12.13
Checked by (Signature / Date)

TÜVRheinland®

Client: Jing Duobao
Appliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-5

Test site at TÜV Rheinland Shenzhen EMC laboratory

Equipment used		
Description	Manufacturer	Model
☑ EFT/Surge/Voltage Dips & Interruption Main Test Unit	EMTest	Compact NX5 bspt-1-300-16
☐ Variac	EMTest	Variac NX-1-260-16
☐ Coupling Decoupling Network for Telecommunication port	EMTest	CNV508T5

Temperature	21.4°C
Relative humidity	52.3%

Operating modes tested	B
Test Voltage	AC 230V/50Hz
Repetition rate	☑ 1 / min ☐
Performance criteria	☐ B ☑ C ☐ N/A

Overall result	☑ Pass ☐ Fail ☐ N/A
Observation / remark	☑ No observable change ☐

Applicability	Line	Polarity	Voltage	Results 0°	90°	180°	270°
☑	L - N	+	☐ 2 kV ☐ 1 kV ☑ 0.5 kV ☐	☐ Pass ☐ Fail	☑ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
		-		☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☑ Pass ☐ Fail
☐	L - PE	+	☐ 4 kV ☐ 2 kV ☐ 1 kV ☐	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
		-		☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
☐	N - PE	+	☐ 4 kV ☐ 2 kV ☐ 1 kV ☐	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail
		-		☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail	☐ Pass ☐ Fail

Applicability	Line	Polarity	Voltage	Results
☐		+	☐ 4 kV ☐ 2 kV ☐ 1 kV ☐	☐ Pass ☐ Fail
		-		☐ Pass ☐ Fail

Shower. Dai / 2019.12.13
Tested by (Signature / Date)

2019.12.13
Checked by (Signature / Date)

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TÜVRheinland®

Client: Jing Duobao
Apliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-6

Test site at TÜV Rheinland Shenzhen EMC laboratory

Equipment used		
Description	Manufacturer	Model
☑ Conducted Immunity Test System	TESEQ	NSG 4070
☑ Coupling and Decoupling Network	TESEQ	CDN M016
☑ Attenuator – 6dB	TESEQ	100W6dB
☑ EM Clamp	TESEQ	KEMZ 801A

Temperature	22.3 °C
Relative humidity	52.4%

Operating modes tested	A
Test Voltage	AC 230V/50Hz
Frequency range	☑ 0.15 – 80 MHz ☐ 0.15 – 230 MHz
Coupling method	☑ CDN M2 ☐ CDN M3 ☑ Clamp injection
Test level	☑ 3 V (rms) ☐ 10 V (rms)
Modulation	1 kHz 80% AM
Step size	1 %
Dwell time	☑ 2 secs ☐
Performance criteria	☑ A ☐ N/A

Overall result	☑ Pass ☐ Fail ☐ N/A
Observation / remark	☑ No observable change ☐

Shower Dai 2019.12.13
Tested by (Signature / Date)

2019.12.13
Checked by (Signature / Date)

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TÜVRheinland®

Client: Jing Duobao
Appliance: LED Driver
Model No.: NE-16-24-ACV; NE-16-350-ACC
Sample No.: A000944350-001,003

Test record sheet for IEC 61000-4-11

Test site at TÜV Rheinland Shenzhen EMC laboratory

Equipment used		
Description	Manufacturer	Model
☑ EFT/Surge/Voltage Dips & Interruption Main Test Unit	EMTest	compact NX5 bspt-1-300-16
☐ Variable Transformer	EMTest	Variac NX-1-260-16

Temperature	21.3 °C
Relative humidity	53.1 %

Operating modes tested	A
Test Voltage	AC 230V/50Hz
Performance criteria	Refer to the table(s) below

Overall result	☑ Pass ☐ Fail ☐ N/A
Observation / remark	☑ No observable change ☐

Voltage dip/ interruptions

Test level (% U_T)	Supply frequency		Number of cycles	Performance Criterion			Results	
	50 Hz	60 Hz		B	C	N/A	Pass	Fail
0	☑	☐	0.5	☑	☐	☐	☑	☐
70	☑	☐	10	☐	☑	☐	☑	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐
	☐	☐		☐	☐	☐	☐	☐

Shower Dai / 2019.12.13
Tested by (Signature / Date)

[signature] 2019.12.13
Checked by (Signature / Date)

Measurement Uncertainties

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Table 1: Measurement Uncertainty levels

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cispr})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 3.70 dB ± 3.30 dB	± 3.8 dB ± 3.4 dB
Disturbance Power	Level accuracy (30MHz to 300MHz)	± 4.27 dB	± 4.5 dB
Electromagnetic Radiated Emission (Triple-loop)	Level accuracy (9kHz to 30MHz)	± 2.67 dB	N/A
Radiated Emission (3m SAC)	Level accuracy (30MHz to 1000MHz)	± 4.52 dB	± 6.3 dB
	Level accuracy (above 1000MHz)	± 4.37 dB	N/A
Radiated Emission (10m SAC)	Level accuracy (30MHz to 1000MHz)	± 4.66 dB	± 6.3 dB
	Level accuracy (above 1000MHz)	± 4.35 dB	N/A
Mains Harmonic	Current	± 4.60%	N/A
Voltage Fluctuations & Flicker	Voltage	± 0.64%	N/A

As U_{lab} in all applicable tests listed above are less than U_{cispr} according to CISPR 16-4-2:2011,

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.