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FCC Test report for LED Panel Light
Models ZY-P4-40W CDS series

Guangzhou, date of issue: 2013-09-06

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By order of James Industry Group Co., Ltd at Hong Kong, China

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CONTENTS

1 CONCLUSION

The device under test (DUT) as mentioned in this report complies with the stated requirements of the FCC Part 15, Class B.

The tested system is classified as digital device Class B marked for use in a residential environment notwithstanding use in commercial, business and industrial environments.

The conclusion and results stated in this test report are based on a non-recurrent examination of sample(s) provided by the applicant.

The tests described in this report do not result in the right to use any approval mark as conferred by DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch As far as the tests were based on certain specifications; these are mentioned in the report.

2 SUMMARY

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

2.1 Applied standards

Standard	Year	Title
FCC part 15	2013	Federal Communications Commission (FCC) – Radio Frequency Devices

2.2 Reference standards

Standard	Year	Title
ANSI C63.4	2009	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

2.3 Overview of results

Emission tests	Result
Conducted emission	**PASS**
Radiated emission	**PASS**

3 CLASSIFICATION

This chapter presents an overview of the applicable classification and procedure.

The following procedure has been selected to confirm the compliance of the device under test:

√	**Verification procedure:** The Device under Test (DUT) is subject to the Verification procedure. The Verification procedure is defined in 47CFR Part 2 section 2.902 and described in section 2.951 through 2.957 of the FCC rules.

Base on client's declaration, the following applicable Class has been selected:

	Class A : The intended user environment of the device under test is limited to industrial environments and classified as a digital device class A.
√	**Class B :** The intended user environment of the device under tests is in commercial and light-industrial environments and classified as a digital device class B.

For the device under test the following measurement clauses are applicable:

√	**47CFR Part 15 Subpart B Unintentional radiators.**
	Section 15.107(b) Conducted emissions – Class A
√	Section 15.107(a) Conducted emissions – Class B
	Section 15.109(b) Radiated emissions – Class A
√	Section 15.109(a) Radiated emissions – Class B

4 GENERAL INFORMATION

4.1 Model description

The apparatus as supplied for the test is LED Panel Light, model ZY-P4-40W CDS is intended for residential use, the products contain electronic control circuitry but without earth connection and no component susceptible to magnetic fields.

All models use same LED driver and same construction, the difference is the rating, the difference list as below table 1:

Model	Rating power	Use same driver
ZY-P4-40W CDS	40W	Model LFP-40D-42
ZY-P4-40W CNS	40W	
ZY-P4-36W CDS	36W	
ZY-P4-36W CNS	36W	
ZY-P4-30W CDS	30W	
ZY-P4-30W CNS	30W	
ZY-P3-30W CDS	30W	
ZY-P3-30W CNS	30W	
ZY-P1-40W CDS	40W	
ZY-P1-40W CNS	40W	
ZY-P1-36W CDS	36W	
ZY-P1-36W CNS	36W	
ZY-P1-30W CDS	30W	
ZY-P1-30W CNS	30W	
ZY-P8-30W CDS	30W	
ZY-P8-30W CNS	30W	

Table 1

Hence, model ZY-P4-40W CDS were subject for full test, and the corresponding data is representative of derivative models list in table 1 as well.

Figure 1 model ZY-P4-40W CDS

Figure 2 model ZY-P4-40W CDS

The Operating Modes as stated in the User Manual are on mode and off mode.

4.2 Product Information

Equipment under test	LED Panel Light
Trade mark	James
Tested Type	ZY-P4-40W CDS
U nominal	100Vac, 60Hz, Class I, 40W
P rated	
Highest frequency used in the device	less than 108 MHz

Representative Type	ZY-P4-40W CDS series
U nominal	100Vac, 60Hz, Class I
P rated	Refer table 1
Highest frequency used in the device	less than 108 MHz

4.3 Customer Information

Applicant / Manufacturer	James Industry Group Co., Ltd
Contact person	Mr DENG JINSHENG
Telephone	+852-3173 3712
Telefax	+852-3173 3713
Address	Room 1205(S01), 12/F., Tai Sang Bank Bldg 130-132 DES VOEUX RD, CENTRAL, HONGKONG

Factory	DONGGUAN ZHIYUAN LIGHTING TECHNOLOGY CO., LTD
Contact person	Mr DENG JINSHENG
Telephone	+86-13500093572
Telefax	+86-769-22991702
Address	ChuangYe Industry Park, XinXiBian, LiXinNiuShan, DongCheng District, DongGuan City, GuangDong Province, China 523128

4.4 Product labeling

According to section 15.19, the DUT shall have the following statement labeled to its housing on a conspicuous location:

“This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation”.

4.5 User information

The user- or instruction manual shall:

Caution the user that changes or modifications not expressly approved by the responsible party for compliance could void the user’s authority to operate the equipment.

Inform the user about special RF emission protection measures, which are delivered with the product, for example shielded cables.

Contain the following statement in case of a Class B digital device:
“This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help “

5 TEST INFORMATION

5.1 Test facility

The FCC has per public notice declared these measurement facilities to be reviewed and to be in compliance with the requirements of Section 2.948 of the FCC Rules.

5.2 Measurement procedure

The DUT was configured for testing in a typical user configuration. The maximum test configuration was put to the tests. The DUT was tested as complete system.

5.3 Test data

Location	DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch
Address	Building A3, No.3 Qiyun Road, Science City, Guangzhou Hi-Tech Industrial Development Zone, Guangzhou, P.R. China
Date	2013-07-02 to 2013-08-09
Supervised by	Ryan Liang

5.4 Environmental conditions

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges.

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

6 CONDUCTED EMISSIONS

6.1 Measurement procedure

In accordance with section 15.107 the conducted radio frequency disturbance voltages between each of the power lines (live and neutral) and the ground terminal are determined over the frequency range from 150 kHz to 30 MHz.

The test set-up is in accordance with the requirements of ANSI C63.4.

The AC power line conducted emission measurements were performed at the line voltage of 120 Vac and at the power frequency of 60 Hz.

The initial step in collecting conducted data is a peak scan measurement over the frequency range of interest. Significant peaks are marked, and these peaks are re-measured using a quasi peak and average detector. This procedure is implemented in the utilized test receiver by the incorporated EMI firmware. The test receiver used also meets the requirement as mentioned in section 15.35 “measurement detector functions and bandwidths”. The test receiver employs a CISPR quasi-peak detector function with a bandwidth of 9-10 kHz.

6.2 Measurement equipment

Instrumentation	Model	Serial no.	Cal interval
EMI receiver	R&S	ESCI	Annual
LISN	R&S	ENV216	Annual
CABLE	R&S	3M	Annual
Shielded room	Feite Electronic	--	Annual

6.3 Measurement data

Limits

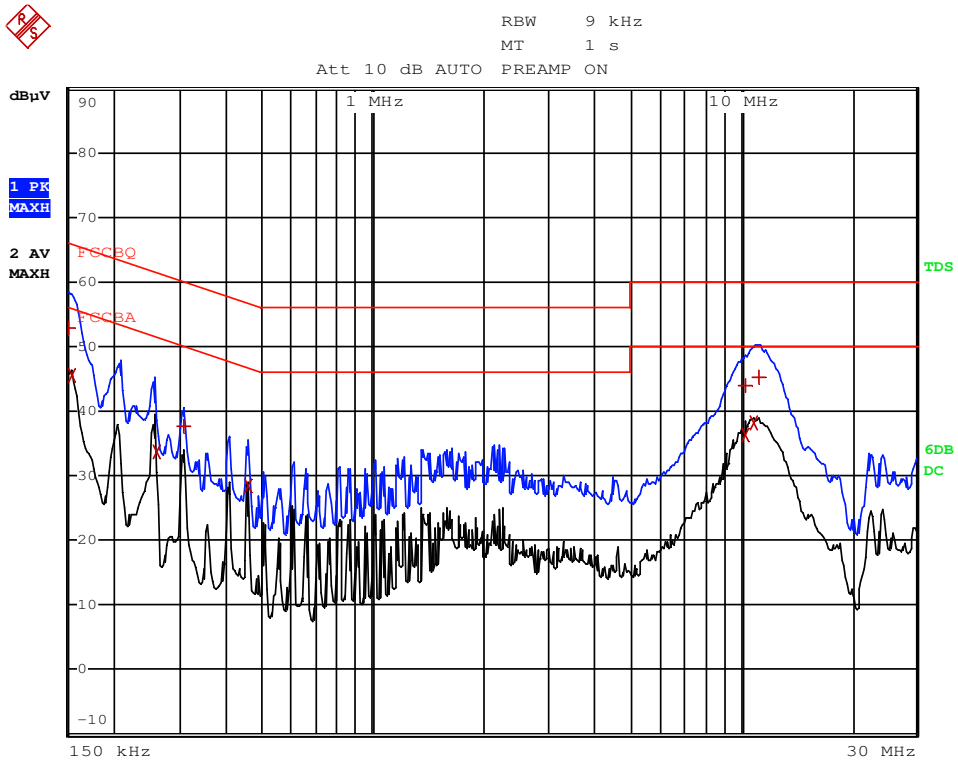
Standard	47CFR subpart B clause 15.107 (a) (Class B)	
Frequency [MHz]	Limit QP [dB(µV)]	Limit AV [dB(µV)]
0,15 – 0,50	66 – 56 *)	56 - 46 *)
0,50 – 5,0	56	46
0,50 – 30,0	60	50

*) Limits decreasing linearly with the logarithm of the frequency

Port	AC mains
Test method	LISN
Test-mode	On mode

Results

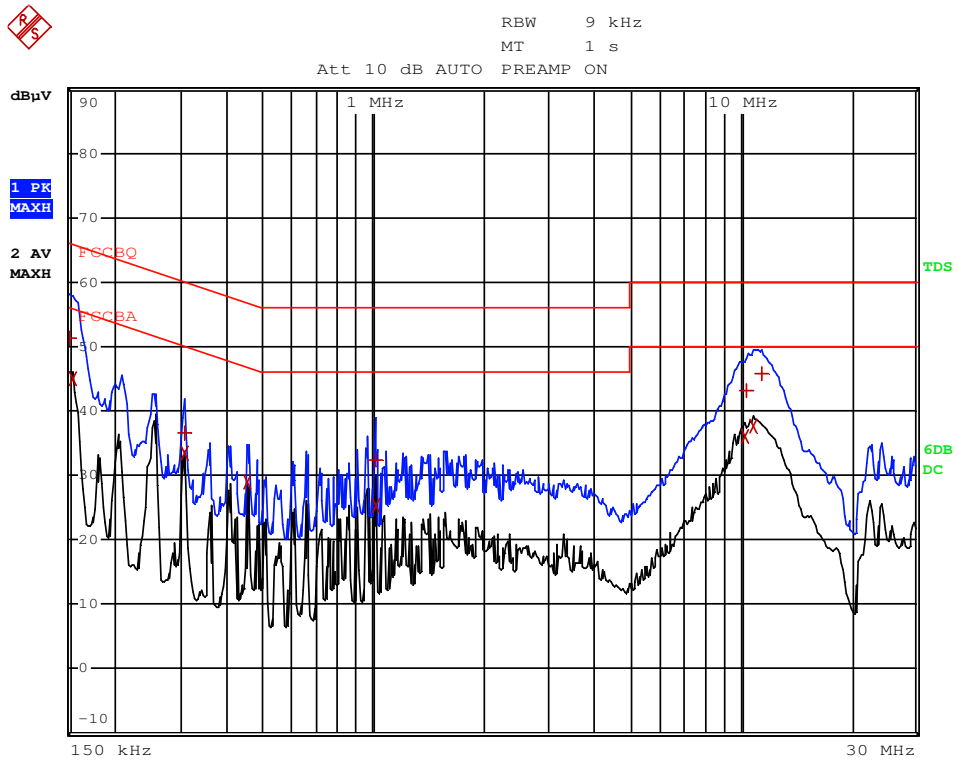
Live



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCBQ		
Trace2:	FCCBA		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	154 kHz	45.50	-10.28
2 Average	10.846 MHz	38.11	-11.88
1 Quasi Peak	150 kHz	52.83	-13.17
2 Average	10.318 MHz	36.28	-13.72
1 Quasi Peak	11.226 MHz	45.25	-14.74
1 Quasi Peak	10.318 MHz	43.83	-16.16
2 Average	258 kHz	33.65	-17.84
2 Average	458 kHz	28.32	-18.40
1 Quasi Peak	306 kHz	37.52	-22.55

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Neutral



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCBQ		
Trace2:	FCCBA		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	154 kHz	45.08	-10.69
2 Average	10.862 MHz	37.71	-12.28
2 Average	10.318 MHz	35.97	-14.02
1 Quasi Peak	11.41 MHz	45.71	-14.28
1 Quasi Peak	150 kHz	51.33	-14.66
2 Average	306 kHz	33.44	-16.63
1 Quasi Peak	10.386 MHz	43.27	-16.72
2 Average	454 kHz	28.99	-17.80
2 Average	1.022 MHz	25.37	-20.62
1 Quasi Peak	306 kHz	36.68	-23.39
1 Quasi Peak	1.022 MHz	32.47	-23.52

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Refer to chapter 8 for the test set-up.

Conclusion:

PASS

7 RADIATED EMISSIONS

7.1 Measurement procedure

In accordance with section 15.109.a the field strength levels of radiated emissions from this digital device class B at a measurement distance of 3 meters were determined.

If the highest internal frequency used in the DUT is less than 108 MHz, then the frequency range of interest shall be measured to 1 GHz. The measurements are conducted in accordance with the methodology as described in ANSI C63.4, as required by sections 15.31 and 15.33 of 47CFR.

Below or equal to 1 GHz, preliminary radiation measurements are performed in a semi anechoic room at a 3 meter measurement distance. The measurement receiver calculates the resulting field strength using the correction factors for cable loss and antenna. The final measurements are performed in the semi anechoic room at a 3 meter measurement distance too. At those frequencies where relevant significant levels were detected during the pre-scan the actual field strength level is measured using the CISPR quasi-peak detector with bandwidth of 120 kHz.

The highest levels measured with horizontal or vertical polarization are mentioned on the next page.

7.2 Measurement equipment

Instrumentation	Model	Serial no.	Cal interval
EMI receiver	R&S	ESCI	Annual
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	Annual
CABLE	SCHWARZBECK	10M	Annual
Chamber	ETS.LINDGREN	9*6*6	Annual

7.3 Measurement data

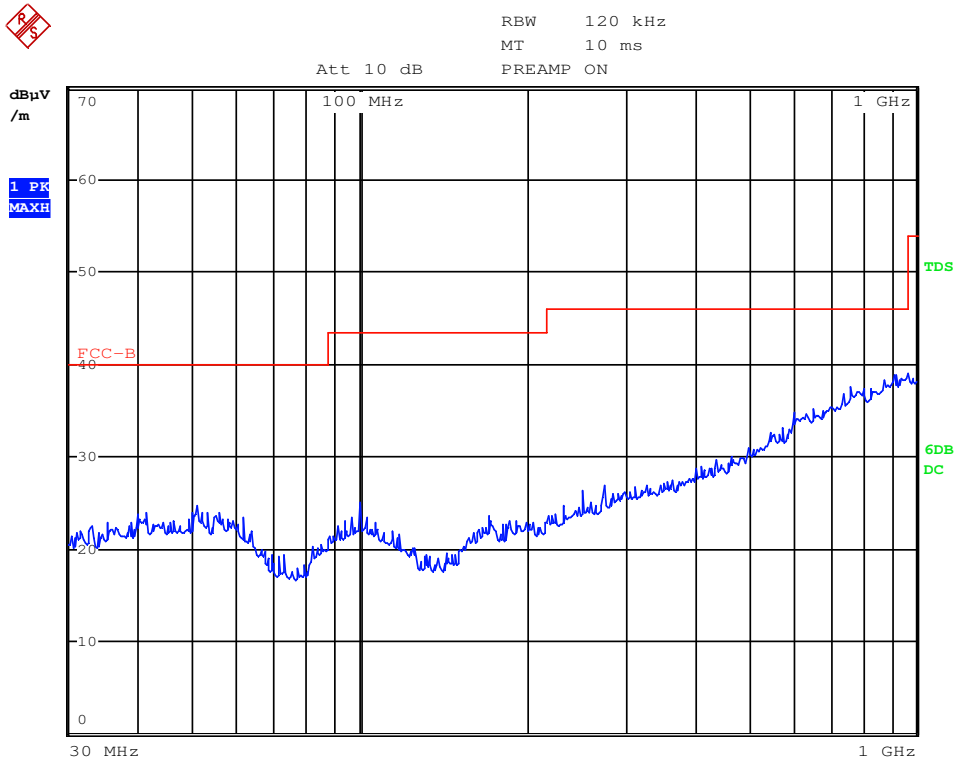
Limits

Standard	**47CFR subpart B clause 15.109 (a) (Class B)**	
Measuring distance	3 meters	
Frequency [MHz]	QP [dB(µV/m)]	microvolts/meter
30 – 88	40,0	100
88 – 216	43,5	150
216 – 960	46,0	200
960– 1000	53,9	500

Port	Enclosure with cabling
Test set-up	3 m Semi-Anechoic chamber
Test mode	On mode

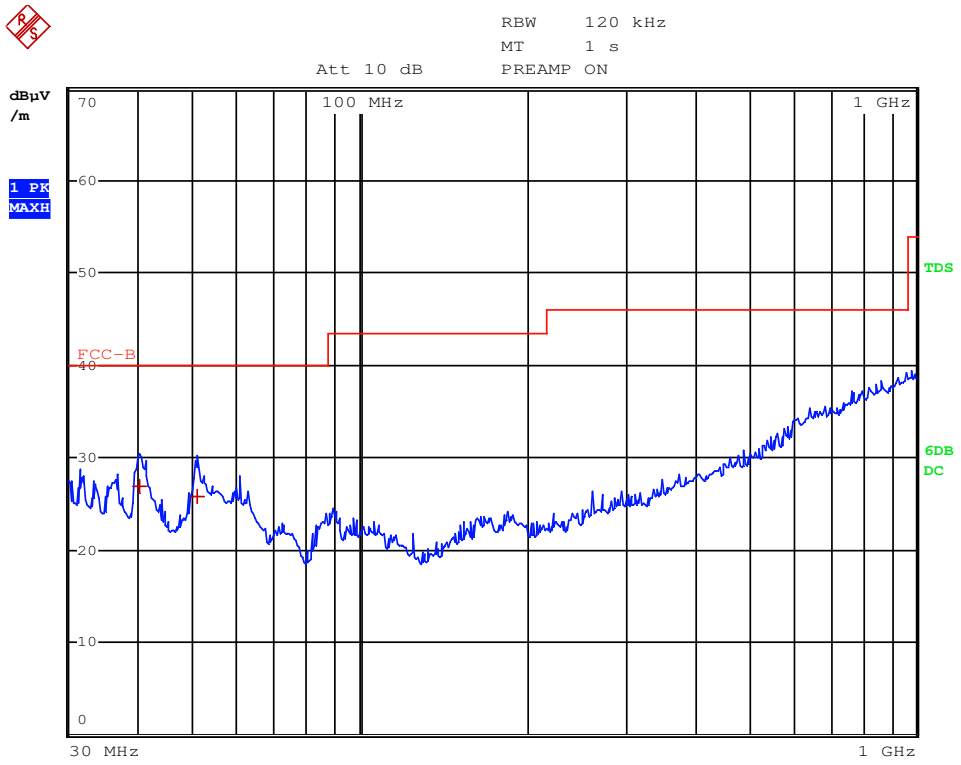
Results

Horizontal



No significant emissions were recorded employing the QP detector at the frequency range of interest (More than 20 dB below limits).

Vertical



EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC-B
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	40.16 MHz	26.93	-13.06
1 Quasi Peak	51.2 MHz	25.77	-14.22

No other significant emissions were recorded employing the QP detector at the frequency range of interest.

Refer to chapter 8 for the test set-up.

Conclusion:

PASS

8 TEST SETUP AND ARRANGEMENT

The photograph shows the tested device.

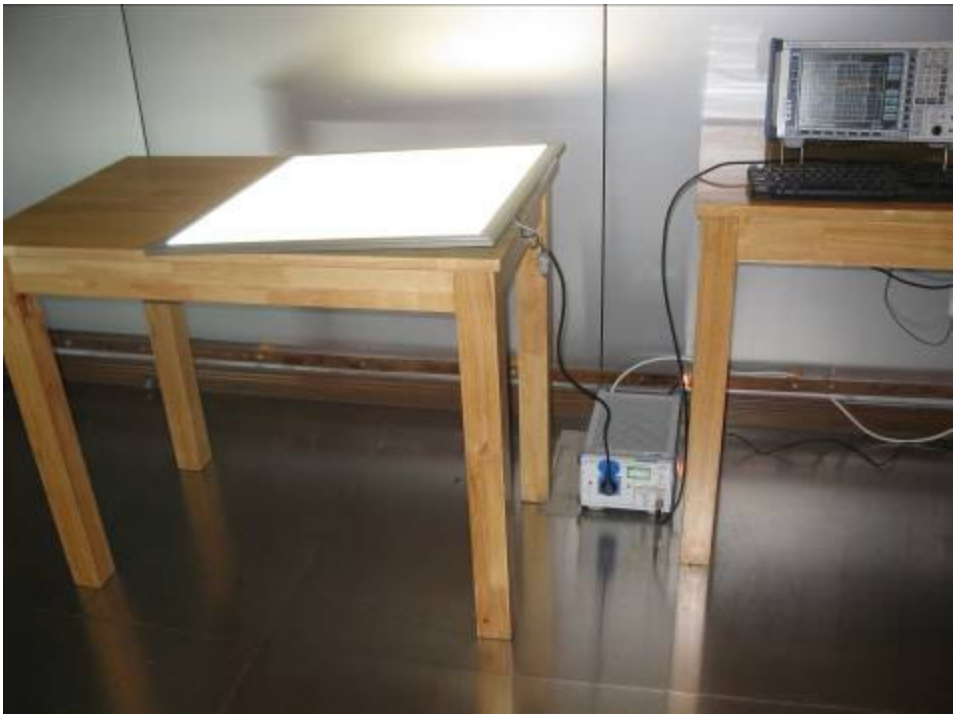


Figure 2 Conducted Emission test setup

Figure 3 Disturbance Power test setup

9 PRODUCT INTERNAL PHOTO

LED model LPF-40D-42