

APPLICATION REPORT

On Behalf of

Shenzhen Betop Electronics Co., Ltd.

Corn Bulb

**Model: BT-PL18WE26-B, BT-PL40WE26-B,
BT-PL40WE39-B**

**Prepared For : Shenzhen Betop Electronics Co., Ltd.
Building C-D, Yisong Ecological Science and Technology
Park, Jiejiabao Road No.9, Shiyan Town, Bao'an District,
Shenzhen, China**

**Prepared By : Shenzhen LCS Compliance Testing Laboratory Ltd.
1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, China**

Date of Test : July 06, 2015 – July 31, 2015

Date of Report : July 31, 2015

Report Number : LCS1507271626S

TEST REPORT**JIS C8156****Self-ballasted LED-lamps for general lighting services by voltage > 50 V****– Safety specifications****Report reference No.** : LCS1507271626S**Tested by** : Sara Tang*Sara Tang***Approved by** : Hart Qiu*Hart Qiu***Date of issue** : July 31, 2015**Contents** : 12 pages**Testing laboratory****Name** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address** : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an
District, Shenzhen, Guangdong, China**Testing location** : As above**Client****Name** : Shenzhen Betop Electronics Co., Ltd.**Address** : Building C-D, Yisong Ecological Science and Technology Park,
Jiejiabao Road No.9, Shiyan Town, Bao'an District, Shenzhen, China**Manufacturer****Name** : Shenzhen Betop Electronics Co., Ltd.**Address** : Building C-D, Yisong Ecological Science and Technology Park,
Jiejiabao Road No.9, Shiyan Town, Bao'an District, Shenzhen, China**Test specification****Standard** : JIS C8156-2011; IEC 62560: 2011**Test procedure** : Compliance with JIS C8156-2011; IEC 62560: 2011**Non-standard test method** : N/A**Test item Description** : Corn Bulb**Trademark** : Bitco**Model and/or type reference** : BT-PL18WE36-B, BT-PL40WE26-B, BT-PL40WE39-B**Rating(s)** : 100-240V~, 50/60Hz, Max.40W, E39/E26

Test item particulars:

Lamp cap: E39/E26 lamp cap
 Lamp identification.....: Self-ballasted lamp
 Commission received form: Same as applicant
 Electrical safety class: Class II
 IP number: IP20

Test case verdicts

Test case does not apply to the test object.: N (N/A)
 Test item does meet the requirement: P(Pass)
 Test item does not meet the requirement: F(Fail)

Testing

Date of receipt of test item: July 06, 2015
 Date(s) of performance of test: July 06, 2015 – July 31, 2015

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

Clause numbers between brackets refer to clauses in IEC 62560.

"(see remark #)" refers to a remark appended to the report.

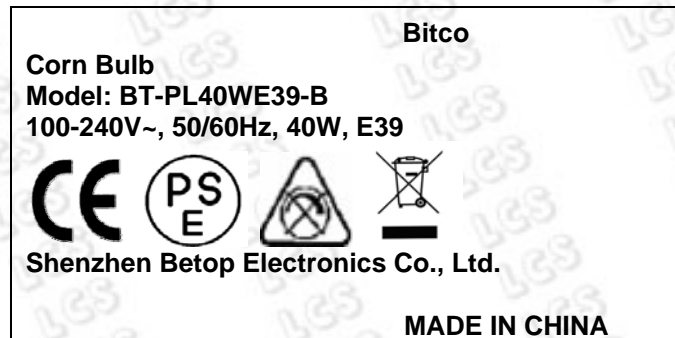
"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma is used as the decimal separator.

Remarks


1. The laboratory ambient for testing: 22.0-28.0°C, 60%-73%R.H.
2. All models are similar except their model names, appearance and power. All tests are conducted on model BT-PL40WE39-B
3. The report includes: Attachment 1: 3 pages of product photos.

Copy of marking plate



Label testing

Rubbing for 15 s with a piece of cloth soaked with water. And a further 15 s with a piece of cloth soaked with petroleum.

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS AND GENERAL TEST REQUIREMENTS		P
4.1	The lamps shall be so designed and constructed that in normal use they function reliably and cause no danger to the user or surroundings.		P
4.2	Self-ballasted LED-lamps are non-repairable, factory-sealed units. They shall normally not be opened for any tests. In the case of doubt based on the inspection of the lamp and the examination of the circuit diagram, and in agreement with the manufacturer or responsible vendor, either the output terminals shall be short-circuited or, in agreement with the manufacturer, lamps specially prepared so that a fault condition can be simulated shall be submitted for testing		P
4.3	In general, all tests are carried out on each type of lamp or, where a range of similar lamps is involved, for each wattage in the range or on a representative selection from the range, as agreed with the manufacturer.		P
4.4	When the lamp fails safely during one of the tests, it is replaced, provided that no fire, smoke or flammable gas is produced.		P
5	MARKING		P
5.1	1) Mark of origin		P
	2) Rated voltage/voltage range (V)	100-240V~	P
	3) Rated input (W)	Max.40W	P
	4) Rated frequency (Hz)	50/60Hz	P
5.2	1) Lamp current (A)	See instruction	P
	2) Burning position if restricted	Not such apparatus	N
	3) The mechanical stress caused by the weight of the lamp in the luminaire	No so higher weight	N
	4) Other things which have effect on the operation 		P
5.3	1) Presence and legibility of the marking by visual inspection		P

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict
	2) The durability of the marking is checked by rubbing lightly with water and hexane for 15s	After rubbing test, the marking was still legible.	P
	3) Availability of information by visual inspection		P

6.	INTERCHANGEABILITY		P
6.1	Interchange ability shall be ensured by the use of caps in accordance with IEC Publication 60061-1 and 60061-3	The caps is in accordance with EN Publication 60061-1	P
6.2	Bending moment, axial pull and mass		N
	B 22d:		N
	A max. and A min. gauge 7006-10/11		N
	D1 max. gauge 7006-10/11		N
	N min. gauge 7006-10/11		N
	Diametrical position of the pins:		N
	Insertion in lampholder gauge 7006-4A		N
	Retention in lampholder gauge 7006-4B		N
	Mass not exceeding 1 kg		N
	E 27:		N
	Max. dimension of the screw thread gauge		N
	Min. major diameter of the screw thread gauge 7006-28A		N
	Contact making gauge 7006-50		N
	Mass not exceeding 1 kg		N
	E14:		N
	Max. dimension of the screw thread gauge		N
	Min. major diameter of the screw thread gauge 7006-28B		N
	Contact making gauge 7006-54		N
	GU10:		N
	7006-121-1(go)		N
	7006-121-1(not go)		N
	GX53:		N
	7006-142-1		N
	7006-142D-1		N
	7006-142E-1		N
	7006-142F-1		N

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict

7.	PROTECTION AGAINST ELECTRIC SHOCK		P
	Lamps shall be so constructed that no internal metal parts or live parts are accessible, when the lamp is installed in a prescribed lampholder. Compliance is checked by means of the standard test finger with force of 10N.	Can not access internal metal parts or live parts.	P
	Edison screw caps compliance with gauge IEC60061-3, sheet 7006-51A for E27caps		N
	And sheet 7006-55 for E14 caps		N
	B22 or B15 caps compliances with normal incandescent lamps		N
	Lamps with B22, B15, GU10 or GZ10 caps are subject to the same requirements as normal incandescent lamps with this cap.		N
	External metal parts shall be so designed that live parts are not accessible (test of Cl. 8)		P

8.	INSULATION RESISTANCE AND ELECTRIC STRENGTH AFTER HUMIDITY TREATMENT		P
8.1	General		P
	Insulation resistance and electric strength shall be adequate between live parts of the lamp and accessible parts of the lamp.		P
8.2	Insulation resistance		P
	After storage 48 h at a 91-95 % relative humidity and at 20-30 °C.	93%, 25°C, 48h	P
	Insulation resistance with 500 V d.c., required $\geq 4 \text{ M}\Omega$.	$>100 \text{ M}\Omega$	P
8.3	Electric strength		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		N
	SELV:		N
	- between current-carrying parts of different polarity..... :		N

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface		N
	- between current-carrying parts and metal parts of the luminaire		
	Other than SELV:		P
	- between live parts of different polarity ... :	1480Vac, 1min, no damage	P
	- between live parts and plastic accessible parts..... :	2960Vac, 1min, no damage	P
	- between live parts and metal parts..... :	2960Vac, 1min, no damage	P
	No flashover or breakdown shall occur during the test. Measurements shall be carried out in the humidity cabinet.		P

9.	MECHANICAL STRENGTH		P
	Torsion resistance		P
	The mechanical strength of connection between the cap and the bulb/part of the lamp is checked by the torque of 3 Nm.		P
	- B22d3 Nm		N
	- B15d1.15 Nm		N
	- E26 and E273 Nm		N
	- E141.15 Nm		N
	- E120.8 Nm		N
	- E171.5 Nm		N
	-GU10.....:		N
	-GX53.....:		N
	Torque increased continuously from zero to specified value		P
	Uncemented caps; relative movement between cap and bulb does not exceed 10		P
	After mechanical strength test sample complies requirement of accessibility		P

10.	CAP TEMPERATURE RISE		P
	The surface temperature rise (above ambient) of a lampholder fitted to the lamp shall not be higher than that of the lamp type which is being replaced by the lamp.		P

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict
	The cap temperature rise Δt_s of the complete lamp shall not exceed 120 K. The value of Δt_s corresponds to a 60 W max. incandescent lamp. The operating position and ambient temperature are detailed in IEC 60360.		P
	Measurement shall be carried out at rated voltage. If the lamp is marked with a voltage range, it shall be measured at the maximum voltage of that range.		P

11.	RESISTANCE TO HEAT		P
	External parts of insulating material providing protection against electric shock, and parts of insulating material retaining live parts in position, ball pressure test:		P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm).....:	PCB, 125°C, 0.8mm	P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm).....:	Plastic enclosure, 80°C, 1.0mm	P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm).....:	Translucent cover, 80°C, 1.0mm	P

12.	RESISTANCE TO FLAME AND IGNITION		P
	Parts of insulating material retaining live parts in position and external parts of insulating material providing protection against electric shock, glow-wire test 650 °C		P
	Part tested; temperature (°C).....:	PCB, 650°C, no burning	P
	Part tested; temperature (°C).....:	Plastic enclosure, 650°C, no burning	P
	Part tested; temperature (°C).....:	Translucent cover, 650°C, no burning	P
	No visible flame and no sustained glowing		P
	Flames and glowing, extinguish within 30s:		N
	No ignition of the tissue paper		P

13.	FAULT CONDITIONS		--
13.1	General		P

JIS C8156			
Clause	Requirement - Test	Result - Remark	Verdict
	Lamps shall not impair safety when operated under fault conditions which may occur during the intended use. Each of the following fault conditions is applied in turn, as well as any other associated fault condition that may arise from them as logical consequence.		P
13.2	Extreme electrical conditions (dimmable lamps)		N
13.3	Extreme electrical conditions (non-dimmable lamps)		P
13.4	b) Short-circuit across capacitors	See the appended table	P
13.5	Fault conditions across electronic components	See the appended table	P

Tables

13	TABLE: tests of fault conditions (1.1 Un is more severe than 0.9Un and chose for test)					
	0,9xUn	1,1xUn	Short-circuited	Discon- nected	Result	Hazard
ZV1	90V	264V	S-C	--	Fuse opened. No hazard.	No
C1	90V	264V	S-C	--	Fuse opened. No hazard.	No
BD1	90V	264V	S-C	--	Fuse opened. No hazard.	No
C3	90V	264V	S-C	--	Fuse opened. No hazard.	No
Q1(G-S)	90V	264V	S-C	--	Shut down instantly, recoverable, No hazard.	No
Q1(G-D)	90V	264V	S-C	--	Fuse opened. No hazard.	No
Q1(D-S)	90V	264V	S-C	--	Shut down instantly, recoverable, No hazard.	No
C6	90V	264V	S-C	--	Fuse opened. No hazard.	No
D7	90V	264V	S-C	--	Shut down instantly, recoverable, No hazard.	No
output	90V	264V	S-C	--	Shut down instantly, recoverable, No hazard.	No
NOTE: S-C; short circuit ; O-C; open circuit; O-L: overload						

ANNEX 1	TABLE: Heating		P			
	Type reference	BT-PL40WE40-B	P			
	Lamp used	LED lamp	P			
	Lamp control gear used.....	Integral controlgear	P			
	Mounting position of luminaire.....	Fixed mounted	P			
	Supply wattage (W)	40W	P			
	Supply current (A)		--			
	Calculated power factor.....		--			
	Table: measured temperatures corrected for ta = 25°C :		P			
	- abnormal operating mode.....	--	N			
	- test 1: rated voltage.....	240VAC normal operation	P			
	- test 2: 1,1 times rate voltage	1.06X240AC normal operation	P			
	Through wiring or looping-in wiring loaded by current of A during the test	--	N			
Temperature(°C) of part	Clause 9					
	Clause 12.4 – normal			Clause 12.5 – abnormal		
	Test 1	Test 2	Limit (°C)	Test 3	Test 4	Limit (°C)
Internal wire	60.5	56.7	105	--	--	--
LED driver PCB	85.6	82.6	130	--	--	--
Plastic enclosure	52.7	50.6	90	--	--	--

Tables

Metal enclosure	47.8	45.3	70	--	--	--
E39 Lamp cap	86.7	83.4	145	--	--	--
LED module PCB	62.8	60.0	130	--	--	--
Translucent cover	52.4	50.6	Ref.	--	--	--
VZ1	62.3	60.0	85	--	--	--
CX1	70.4	67.5	100	--	--	--
C1	83.8	80.2	105	--	--	--
C2	82.5	78.6	105	--	--	--
Winding of T1	90.6	86.7	110	--	--	--
Bobbin of T1	86.7	83.5	110	--	--	--
C6	78.6	75.2	105	--	--	--
C7	75.6	72.5	105	--	--	--
CY1	80.5	76.7	125	--	--	--
Ambient	25.0	25.0	---	--	--	--

ANNEX 3	CREEPAGE DISTANCES AND CLEARANCES		—
	Class of protection	Class II	P
	Working voltage (V)	100-240V~	P
	Voltage form	Sinusoidal [√] Non-sinusoidal []	P
	PTI	< 600 [√] ≥ 600 []	P
	Rated pulse voltage (kV)	<2.5kV	P
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)	cl>3.2mm, limit: 1.5mm cr>3.2mm, limit: 2.5mm	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)	cl>6.0mm, limit: 3.0mm cr>6.0mm, limit: 5.0mm	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)		N
	(4) Outer surface of cable where it is clamp and metal parts: cr (mm); cl (mm)		N
	(5)not used		N
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)		N
	(6): Primary current and secondary current: (mm); cl (mm)		N

Tables

ANNEX 4		COMPONENTS				P
Object/Part No.	Code	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(s) of Conformity
Translucent cover	B	TEIJIN LIMITED RESIN AND PLASTIC	G-5010N	V-0, 80°C	UL 94	UL E50075
Plastic enclosure	B	KINGFA SCI & TECH CO LTD	JH830-R208	V-0, 80°C	UL 94	UL E171666
Internal wire	B	ELETECK WIRE & CABLE CO LTD	1332	20AWG, 105°C	UL758	UL E254881
PCB	B	KINGBOARD LAMINATES HOLDINGS LTD	KB-6160A	V-0, 130°C	UL 746	UL E123995
Fuse	B	Shenzhen Lanson Electronics Co. Ltd.	3K	T1A250V	EN 60127-1 EN 60127-3	VDE 40010682
Varistor (ZV1)	B	Hongzhi Enterprises	10D561K	2500VAC, 40/85/56	EN 61051-2-2 EN 61051-1 EN 61051-2	VDE 40008621
X-capacitor (CX1)	B	Dain Electronics Co., Ltd.	MEX	0,22uF, T110; AC275V, X2	EN 60384-14	VDE 40018798
Y-capacitor (CY1)	B	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-Series	2200pF/400V	EN 60384-14	VDE 40025754
Transformer	B	Shenzhen Betop Electronics Co., Ltd.	--	Class B	--	Test with appliance
-Bobbin	B	SUMITOMO BAKELITE CO LTD	PM-9850	V-0, 150°C	UL94	UL E41429
-Magnet Wire	B	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U	155°C	UL 1446	UL E201757
-Triple wire	B	FURUKAWA ELECTRIC CO LTD	TEX-FS	155°C	UL 2353	UL E206440
-Insulating tape	B	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 (b)	130°C	UL510	UL E17385
-Tube	B	GREAT HOLDING INDUSTRIAL CO LTD	TFS	600V, 200°C	UL 224	UL E156256
-Varnish	B	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	V1630FS	180°C	UL 1446	UL E75225

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

ATTACHMENT 2

Photo Documentation

View:
Model:
BT-
PL40WE39-B

☒General
☐Front
☐Rear
☐Internal
☐Top
☐Bottom
☐PWB



Figure 1

View:

☐General
☐Front
☐Rear
☐Internal
☐Top
☐Bottom
☒PWB



Figure 2

ATTACHMENT 2

Photo Documentation

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☐ Internal
- ☐ Top
- ☐ Bottom
- ☒ PWB

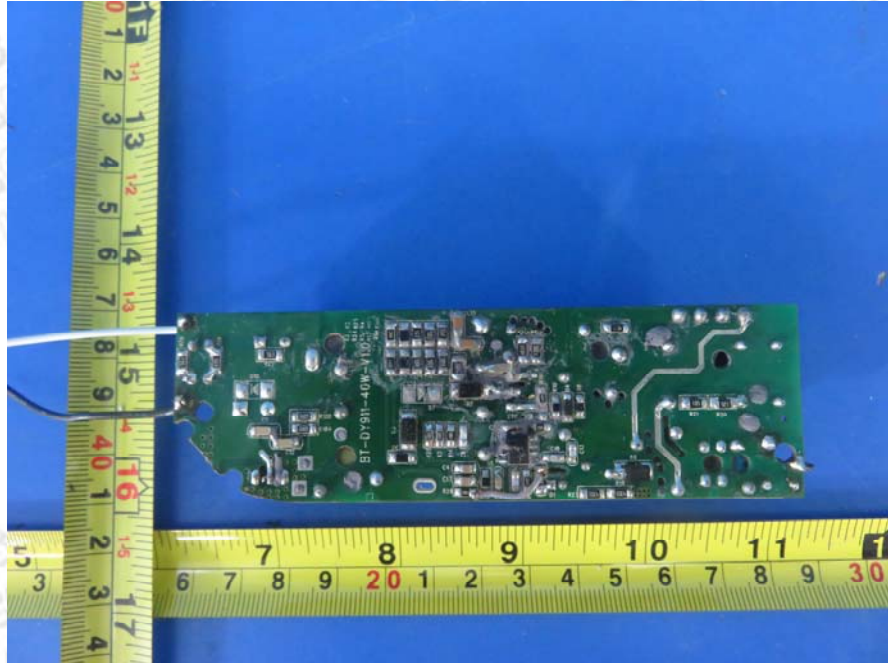


Figure 3

View:

Model:
BT-
PL40WE26-B

- ☒ General
- ☐ Front
- ☐ Rear
- ☐ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 4

ATTACHMENT 2

Photo Documentation

View:
Model:
BT-
PL18WE26-B

☒ General
☐ Front
☐ Rear
☐ Internal
☐ Top
☐ Bottom
☐ PWB



Figure 5