

Your ref.: T-Light  
Our ref.: LGT-190523-00037-1  
Enquiries: Tshepang Pheelwane  
Date: 2019/08/01

TECHNIQUE ELECTRONICS  
Attention : Neville Hart  
PO Box 6116  
WESTGATE  
1734  
South Africa

Dear Sir

With reference to your payment dated (07/11/2018 and 16/05/2019) and acceptance of our quotation no. 40390 we have pleasure in enclosing our Test Report No. LGT-190523-00037-1 for the tests conducted on your sample.

Our invoice covering the fee charged for conducting the tests will be forwarded to you under a separate cover.

Yours faithfully



Tshepang Pheelwane  
Acting Manager  
Lighting Technology  
SABS Commercial (SOC) Ltd  
Tel: +27 (012) 428 6030  
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# TEST REPORT

Attention : Neville Hart  
 TECHNIQUE ELECTRONICS  
 PO Box 6116  
 WESTGATE  
 1734  
 South Africa

SABS Commercial SOC Ltd  
 Lighting Technology  
 Private Bag X191  
 0001

Enquiries: Tshepang Pheelwane  
 Tel: (012) 428 6038  
 Email: tshepang.pheelwane@sabs.co.za

<b>Report number</b>	: LGT-190523-00037-1
Number of pages	: 21
Date sample received	: 2019/05/07
Sample condition	: Suitable for testing
Central receiving no.	: 42362
Manufacturer	: Technique Electronics
Trade name /Model no.	: T-Light
Testing dates	: 2019/07/03 to 2019/07/31
Report issue date	: 2019/08/01

TEST DETAILS
Full testing according to SANS 1376-3:2019 Edition 1.7
"Lights for motor vehicles" Part 3: Secondary Lights

## CONCLUSION

The sample complied with the requirements of standard SANS 1376-3:2019 Ed.1.7 'Lights for motor vehicles', Part 3 'Secondary lights'.

## SIGNATURES



**Tested by:**  
 Kalpesh D. Dhimmarr  
 Technical Signatory



**Approved by:**  
 Tshepang Pheelwane  
 Management Signatory

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**DESCRIPTION OF SAMPLE**

The sample was a rear combination secondary light for motor vehicles. It was fitted with a clear lens. The outer part of the light emitted red coloured light for the stop/position and the central part of the light emitting amber coloured light for the direction-indicator. The stop/position light was provide with an array of 12 x LED's and the direction- indicator light was provided with an array of 13 x LED's. The sample measured approximately 110 mm in diameter and 56 mm in depth. Flying leads were provided for connection to the supply.

See page 5 for the photographs of the sample.

**TESTS REQUESTED**

The testing of a combination secondary light for motor vehicles for compliance with the requirements of standard SANS 1376-3:2019, 'Lights for motor vehicles', Part 3 'Secondary lights'.

**TEST METHOD**

The tests were conducted in accordance with the requirements of SANS 1376-3:2019.

**TEST RESULTS**

The tests results are given in Table 1.



**TABLE 1 - TEST RESULTS**

Requirements	Clause	Results
General construction	Clause 3.1	Complied (The design and construction of the sample was adequate to retain its photometric characteristics and to remain in good working order)
Lamps	Clause 3.2	Not applicable
Grouped, combined and incorporated lights	Clause 3.3	Complied (The light complied with all the relevant requirements of the standard)
End-outline marker lights	Clause 3.4	Not applicable
Colour	Clause 3.5	Complied (See Annexures A-D)
Chromaticity co-ordinates	Clause 3.6	Complied (See Annexures A-D)
a) Front position light		Not applicable
b) Rear position light		Complied (See Annexure A)
c) Stop light		Complied (See Annexure B)
d) Rear direction-indicator light		Complied (See Annexures C-D)
e) Parking light		Not applicable
f) Reversing light		Not applicable
g) Rear registration-plate light		Not applicable
h) End-outline marker light		Not applicable
When determined in accordance with 5.6, the initial power of a sealed light shall not exceed the rated power	Clause 3.7	Complied
Rear position light (rated power 0.6 W)		Complied (0.431 W)
Stop light (rated power 3.6 W)		Complied (2.04 W)
Rear direction-indicator (rated power 3.0 W)		Complied (2.30 W)
Life (Sealed lights) Rear position light $\geq 200$ h Stop light $\geq 100$ h Rear direction indicator light $\geq 100$ h	Clause 3.8	Complied Rear position $> 200$ h Stop $> 100$ h Rear direction indicator $> 100$ h
Photometric properties	Clause 3.9	Complied (See clauses 3.9.2 -3.9.4 )

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**TABLE 1 - TEST RESULTS (cont.)**

Requirements	Clause	Results
Front position light and end-outline marker light	Clause 3.9.1	Not applicable
Rear position light	Clause 3.9.2	Complied (See Annexures E-H)
Stop light	Clause 3.9.3	Complied (See Annexures I-J)
Rear direction- indicator light	Clause 3.9.4	Complied (See Annexure K-N)
Parking lights	Clause 3.9.5	Not applicable
Reversing lights	Clause 3.9.6	Not applicable
Rear registration plate lights	Clause 3.9.7	Not applicable
Marking	Clause 4	Complied (See photographs of marking)
Each secondary light shall bear the following information in a clearly legible and indelible marking:	Clause 4.1	Complied (Marking clearly legible and indelible. See photographs)
a) The manufacturer's name or registered trademark		Complied (See photographs of marking)
b) At each lampholder, the category of incandescent lamp for which the light is designed. For sealed light rated voltage and rated power		Complied (See photographs of marking)
Each secondary light shall bear the relevant supplementary symbols	Clause 4.2	Complied (See photographs of marking)
In the case of secondary lights that are grouped, combined or incorporated, all the markings may be grouped together	Clause 4.3	Complied (Marking for combined and incorporated lights were clearly identified)

#### UNCERTAINTY OF MEASUREMENT

The estimated uncertainty of the photometric measurement is approximately  $\pm 3.04\%$  and that of chromaticity coordinates is  $\pm 0.006$ .

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by a coverage factor  $k=2$ , which for a normal distribution approximates a level of confidence of 95.45%.



## PHOTOGRAPHS OF THE SAMPLE



Front view of the light



Rear view of the light



Manufacturer's trade name and required symbols for the stop/position light and the rear direction - indicator light



Rated voltage and rated power marked on the housing

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## ANNEXURE A

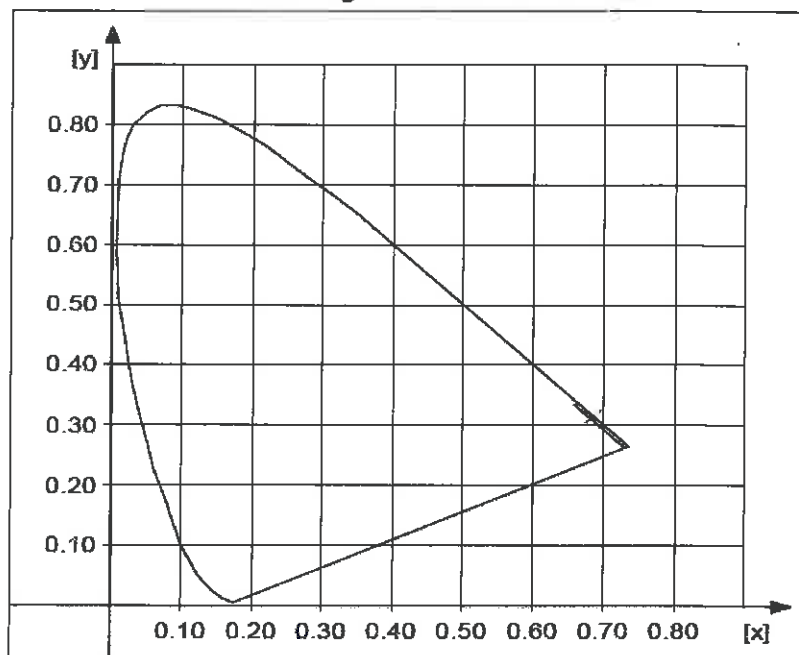
### SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**SANS 1376-3 RED COLOUR (REAR POSITION)**

Date 05. Jul 2019  
 Time 13:54:50  
 Department Lighting Technology  
 Name KD Dhimmar  
 Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 13.5 V DC  
**Sample:** Clear lens 12x LED's  
**Combination Secondary Light**

colour region SANS 1376-3 RED



Channel color standard

	H	V	colour x	colour y	illuminance lx
	0.00	0.00	0.685	0.315	1.014

Test passed

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ANNEXURE B

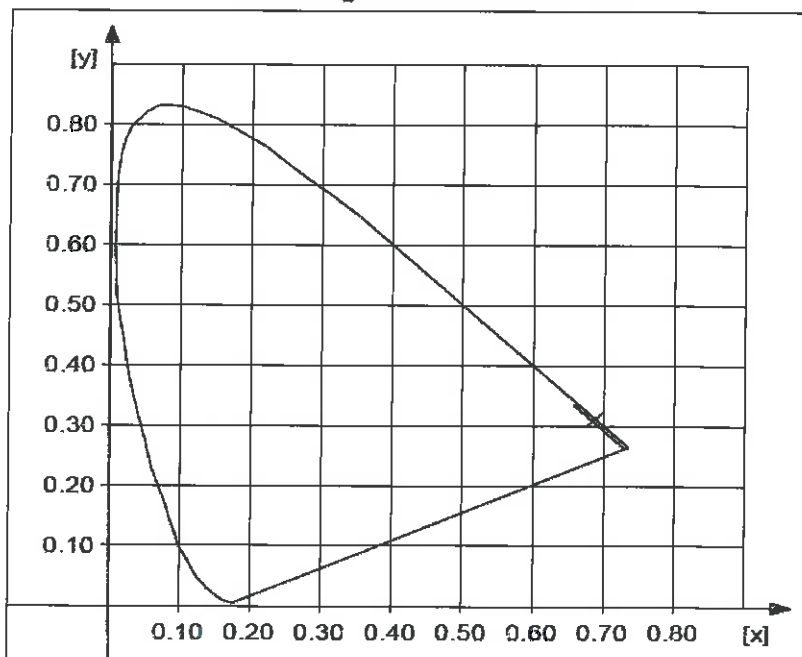
## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**SANS 1376-3 RED COLOUR (STOP)**

Date 05. Jul 2019  
Time 13:58:17  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 28.0 V DC  
**Sample:** Clear lens 12x LED's  
**Combination Secondary Light**

colour region SANS 1376-3 RED



Channel color standard

	H	V	colour x	colour y	illuminance lx
	0.00	0.00	0.688	0.312	14.970

Test passed

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## ANNEXURE C

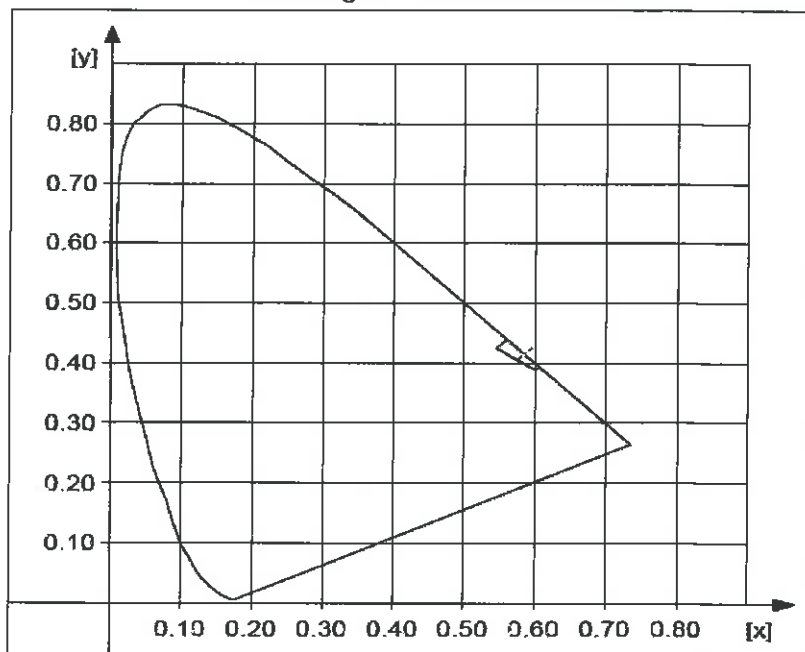
### SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**SANS 1376-3 AMBER COLOUR (Rear Dir.-Indicator)**

Date 05. Jul 2019  
 Time 14:53:43  
 Department Lighting Technology  
 Name KD Dhimmar  
 Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 13.5 V DC  
**Sample:** Clear lens 13x LED's  
**Combination Secondary Light**

colour region SANS 1376-3 Amber



Channel color standard

	H	V	colour x	colour y	illuminance lx	
	0.00	0.00	0.584	0.416	12.960	

Test passed



## ANNEXURE D

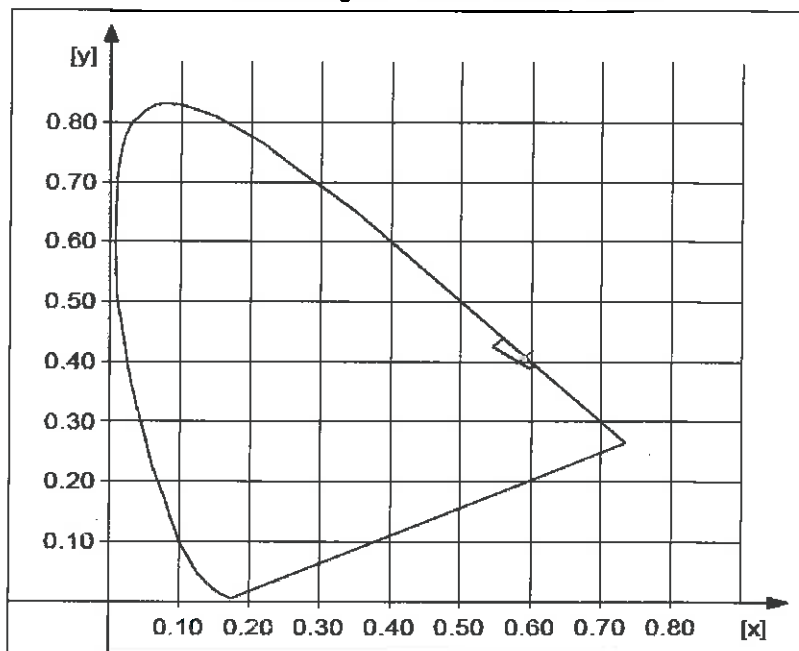
### SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**SANS 1376-3 AMBER COLOUR (Rear Dir.-Indicator)**

Date 08. Jul 2019  
 Time 08:39:03  
 Department Lighting Technology  
 Name KD Dhimmar  
 Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 28.0 V DC  
**Sample:** Clear lens 13x LED's  
**Combination Secondary Light**

colour region SANS 1376-3 Amber



Channel color standard

	H	V	colour x	colour y	illumiance lx
	0.00	0.00	0.591	0.409	16.120

Test passed



## ANNEXURE E

### SABS

**Photometric Test Report**  
SANS 1376-3:2019 Ed.1.7  
REAR POSITION LIGHT LED LM/RM SANS 1376-3

Date 04. Jul 2019  
Time 10:24:29  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

**Project :** LGT-190523-00037-1  
Client:Technique Electronics  
Trade Name / Model No.: T-Light  
Test Voltage : 13.5 V DC  
Sample: Clear lens 12x LED's  
Combination Secondary Light

Channel 3,162m DC

SANS 1376-3 Rear position light LM/RM Table

Unit : cd

deg VH	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			0.64		0.64		
10.0			3.47		3.67		
max			17.00		17.00		
min	0.32	0.32		2.24		0.64	0.32
5.0	1.63	3.33		6.50		3.67	1.80
max	17.00	17.00		17.00		17.00	17.00
min		1.12	2.88	3.20	2.88	1.12	
0.0		3.63	5.91	8.05	6.82	4.11	
max		17.00	17.00	17.00	17.00	17.00	
min	0.32	0.64		2.24		0.64	0.32
-5.0	1.71	3.30		6.20		3.73	1.79
max	17.00	17.00		17.00		17.00	17.00
min			0.64		0.64		
-10.0			3.27		3.50		
max			17.00		17.00		

	H	V	MIN	MAX	SAMPLE	
80R/15U	80.00	15.00	0.05	17.00	0.11	cd
80R/15D	80.00	-15.00	0.05	17.00	0.09	cd
45L/15U	-45.00	15.00	0.05	17.00	0.81	cd
45L/15D	-45.00	-15.00	0.05	17.00	0.78	cd

Maximum above 5° Down level 8.06 cd at H 0.13 V 0.08  
Max. Limit 17.00 cd

Maximum under 5° Down level 6.25 cd at H 1.40 V -5.00  
Max. Limit 60.00 cd

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.05		0.09	cd
80L/15D	-80.00	-15.00	0.05		0.08	cd
45R/15U	45.00	15.00	0.05		0.76	cd
45R/15D	45.00	-15.00	0.05		0.77	cd

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**ANNEXURE F****SABS**

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR POSITION LIGHT LED LM/RM SANS 1376-3**

Date 04. Jul 2019  
Time 10:24:29  
Department Lighting Technology  
Name KD Dhimmar  
Page 2

**Project :** LGT-190523-00037-1

Maximum under 5° Down level	<b>6.26</b> cd at H 0.92 V -5.00
Max. Limit	60.00 cd
Maximum above 5° Down level	<b>8.06</b> cd at H 0.40 V 0.22
Max. Limit	17.00 cd

Test passed



## ANNEXURE G

### SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR POSITION LIGHT LED LM/RM SANS 1376-3**

Date 04. Jul 2019  
Time 11:58:04  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 28.0 V DC  
**Sample:** Clear lens 12x LED's  
**Combination Secondary Light**

Channel 3,162m DC

SANS 1376-3 Rear position light LM/RM Table

Unit : cd

deg VH	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			0.64		0.64		
10.0			3.30		3.48		
max			17.00		17.00		
min	0.32	0.32		2.24		0.64	0.32
5.0	1.66	3.18		6.24		3.60	1.72
max	17.00	17.00		17.00		17.00	17.00
min		1.12	2.88	3.20	2.88	1.12	
0.0		3.49	5.70	7.75	6.55	3.94	
max		17.00	17.00	17.00	17.00	17.00	
min	0.32	0.64		2.24		0.64	0.32
-5.0	1.66	3.19		5.97		3.60	1.73
max	17.00	17.00		17.00		17.00	17.00
min			0.64		0.64		
-10.0			3.18		3.39		
max			17.00		17.00		

	H	V	MIN	MAX	SAMPLE	
80R/15U	80.00	15.00	0.05	17.00	0.10	cd
80R/15D	80.00	-15.00	0.05	17.00	0.09	cd
45L/15U	-45.00	15.00	0.05	17.00	0.78	cd
45L/15D	-45.00	-15.00	0.05	17.00	0.76	cd

Maximum above 5°Down level 7.76 cd at H 0.56 V 0.52  
Max. Limit 17.00 cd

Maximum under 5°Down level 6.03 cd at H 0.93 V -5.00  
Max. Limit 60.00 cd

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.05		0.09	cd
80L/15D	-80.00	-15.00	0.05		0.08	cd
45R/15U	45.00	15.00	0.05		0.73	cd
45R/15D	45.00	-15.00	0.05		0.74	cd

**ANNEXURE H****SABS**

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR POSITION LIGHT LED LM/RM SANS 1376-3**

Date 04. Jul 2019  
Time 11:58:04  
Department Lighting Technology  
Name KD Dhimmar  
Page 2

**Project :** LGT-190523-00037-1

Max. Limit 60.00 cd  
Maximum above 5° Down level 7.77 cd at H 0.13 V 0.40  
Max. Limit 17.00 cd

**Test passed**



ANNEXURE I

## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**STOP LIGHT CAT S1 & S2 LED SANS 1376:3**

Date 04. Jul 2019  
 Time 14:12:42  
 Department Lighting Technology  
 Name KD Dhimmar  
 Page 1

**Project :** LGT-190523-00037-1  
**Client:**Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 13.5 V DC  
**Sample:** Clear lens 12x LED's  
**Combination Secondary Light**

Channel 3,162m DC

	H	V	MIN	MAX	SAMPLE	
H/V	0.00	0.00	48.00	260.00	104.82	cd
10U/5L	5.00	10.00	9.60	260.00	48.17	cd
10U/5R	-5.00	10.00	9.60	260.00	45.40	cd
5U/20L	20.00	5.00	4.80	260.00	23.10	cd
5U/10L	10.00	5.00	9.60	260.00	47.67	cd
5U/V	0.00	5.00	33.60	260.00	84.78	cd
5U/10R	-10.00	5.00	9.60	260.00	43.13	cd
5U/20R	-20.00	5.00	4.80	260.00	21.12	cd
10L/V	10.00	0.00	16.80	260.00	52.61	cd
5L/V	5.00	0.00	43.20	260.00	88.34	cd
5R/V	-5.00	0.00	43.20	260.00	76.59	cd
10R/V	-10.00	0.00	16.80	260.00	46.49	cd
20L/5D	20.00	-5.00	4.80	260.00	22.60	cd
10L/5D	10.00	-5.00	9.60	260.00	47.57	cd
H/5D	0.00	-5.00	33.60	260.00	80.14	cd
10R/5D	-10.00	-5.00	9.60	260.00	41.95	cd
20R/5D	-20.00	-5.00	4.80	260.00	21.62	cd
5L/10D	5.00	-10.00	9.60	260.00	44.12	cd
5R/10D	-5.00	-10.00	9.60	260.00	41.35	cd
45L/15U	45.00	15.00	0.30	260.00	9.89	cd
45L/15D	45.00	-15.00	0.30	260.00	10.04	cd
45R/15D	-45.00	-15.00	0.30	260.00	10.10	cd
45R/15U	-45.00	15.00	0.30	260.00	10.54	cd
H/V	0.00	0.00	48.00	260.00	104.82	cd

Test passed

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ANNEXURE J

## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**STOP LIGHT CAT S1 & S2 LED SANS 1376:3**

Date 04. Jul 2019  
Time 15:41:17  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

Project : LGT-190523-00037-1  
Client:Technique Electronics  
Trade Name / Model No.: T-Light  
Test Voltage : 28.0 V DC  
Sample: Clear lens 12x LED's  
Combination: Secondary Light

Channel 3,162m DC

	H	V	MIN	MAX	SAMPLE	
H/V	0.00	0.00	48.00	260.00	109.36	cd
10U/5L	5.00	10.00	9.60	260.00	60.04	cd
10U/5R	-5.00	10.00	9.60	260.00	47.48	cd
5U/20L	20.00	5.00	4.80	260.00	23.89	cd
5U/10L	10.00	5.00	9.60	260.00	49.65	cd
5U/V	0.00	5.00	33.60	260.00	88.63	cd
5U/10R	-10.00	5.00	9.60	260.00	44.81	cd
5U/20R	-20.00	5.00	4.80	260.00	21.81	cd
10L/V	10.00	0.00	16.80	260.00	64.68	cd
5L/V	5.00	0.00	43.20	260.00	91.89	cd
5R/V	-5.00	0.00	43.20	260.00	79.65	cd
10R/V	-10.00	0.00	16.80	260.00	48.26	cd
20L/5D	20.00	-5.00	4.80	260.00	23.29	cd
10L/5D	10.00	-5.00	9.60	260.00	49.25	cd
H/5D	0.00	-5.00	33.60	260.00	83.50	cd
10R/5D	-10.00	-5.00	9.60	260.00	43.43	cd
20R/5D	-20.00	-5.00	4.80	260.00	22.40	cd
5L/10D	5.00	-10.00	9.60	260.00	46.60	cd
5R/10D	-5.00	-10.00	9.60	260.00	42.74	cd
45L/15U	45.00	15.00	0.30	260.00	10.24	cd
45L/15D	45.00	-15.00	0.30	260.00	10.42	cd
45R/15D	-45.00	-15.00	0.30	260.00	10.48	cd
45R/15U	-45.00	15.00	0.30	260.00	10.96	cd
H/V	0.00	0.00	48.00	260.00	109.26	cd

Test passed

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ANNEXURE K

## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR DIRE. INDICATOR 2a LED LM/RM SANS 1376-3**

Date 08. Jul 2019  
Time 08:03:59  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

**Project :** LGT-190523-00037-1  
**Client:** Technique Electronics  
**Trade Name / Model No.:** T-Light  
**Test Voltage :** 13.5 V DC  
**Sample:** Clear lens 13x LED's  
**Combination Secondary Light**

Channel 3,162m DC

SANS 1376 -3- Cat- 2a Rear Dir Ind RM/LM Table

Unit : cd

deg VH	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			8.0		8.0		
10.0			73.2		77.7		
max			500.0		500.0		
min	4.0	8.0		28.0		8.0	4.0
5.0	28.6	68.7		104.7		72.6	31.2
max	500.0	500.0		500.0		500.0	500.0
min		14.0	36.0	40.0	36.0	14.0	
0.0		69.9	95.2	105.1	98.5	75.4	
max		500.0	500.0	500.0	500.0	500.0	
min	4.0	8.0		28.0		8.0	4.0
-5.0	25.9	58.4		87.9		65.9	29.3
max	500.0	500.0		500.0		500.0	500.0
min			8.0		8.0		
-10.0			67.9		61.7		
max			500.0		500.0		

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.3		0.6	cd
80L/15D	-80.00	-15.00	0.3		0.6	cd
45R/15U	45.00	15.00	0.3		7.7	cd
45R/15D	45.00	-15.00	0.3		7.9	cd
80R/15U	80.00	15.00	0.3		0.7	cd
80R/15D	80.00	-15.00	0.3		0.6	cd
45L/15U	-45.00	15.00	0.3		7.5	cd
45L/15D	-45.00	-15.00	0.3		7.9	cd

Maximum overall **105.1** cd at H 0.00 V 0.00  
Max. Limit 500.0 cd  
Maximum overall **105.1** cd at H 0.00 V 0.00  
Max. Limit 500.0 cd



## ANNEXURE L

### SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**

**REAR DIRE. INDICATOR 2a LED LM/RM SANS 1376-3**

**Project : LGT-190523-00037-1**

Date 08. Jul 2019

Time 08:03:59

Department Lighting Technology

Name KD Dhimmar

Page 2

SANS 1376 -3- Cat- 2a Rear Dir Ind RM/LM Table

Unit : cd

deg VH	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			8.0		8.0		
10.0			<b>73.6</b>		<b>78.4</b>		
max			500.0		500.0		
min	4.0	8.0		28.0		8.0	4.0
5.0	<b>29.0</b>	<b>70.1</b>		<b>106.9</b>		<b>73.7</b>	<b>31.3</b>
max	500.0	500.0		500.0		500.0	500.0
min		14.0	36.0	40.0	36.0	14.0	
0.0		<b>71.9</b>	<b>98.5</b>	<b>109.5</b>	<b>102.8</b>	<b>78.6</b>	
max		500.0	500.0	500.0	500.0	500.0	
min	4.0	8.0		28.0		8.0	4.0
-5.0	<b>27.2</b>	<b>61.9</b>		<b>93.1</b>		<b>69.1</b>	<b>30.3</b>
max	500.0	500.0		500.0		500.0	500.0
min			8.0		8.0		
-10.0			<b>61.7</b>		<b>66.1</b>		
max			500.0		500.0		

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.3			<b>0.6</b> cd
80L/15D	-80.00	-15.00	0.3			<b>0.6</b> cd
45R/15U	45.00	15.00	0.3			<b>7.7</b> cd
45R/15D	45.00	-15.00	0.3			<b>7.8</b> cd
80R/15U	80.00	15.00	0.3			<b>0.7</b> cd
80R/15D	80.00	-15.00	0.3			<b>0.6</b> cd
45L/15U	-45.00	15.00	0.3			<b>7.4</b> cd
45L/15D	-45.00	-15.00	0.3			<b>7.8</b> cd

Maximum overall **109.5** cd at H 0.00 V 0.00

Max. Limit 500.0 cd

Maximum overall **109.5** cd at H 0.00 V 0.00

Max. Limit 500.0 cd

Test passed

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ANNEXURE M

## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR DIRE. INDICATOR 2a LED LM/RM SANS 1376-3**

Date 08. Jul 2019  
Time 09:26:29  
Department Lighting Technology  
Name KD Dhimmar  
Page 1

Project : LGT-190523-00037-1  
Client:Technique Electronics  
Trade Name / Model No.: T-Light  
Test Voltage : 28.0 V DC  
Sample: Clear lens 13x LED's  
Combination Secondary Light

Channel 3,162m DC

SANS 1376 -3- Cat- 2a Rear Dir Ind RM/LM Table

Unit : cd

deg V/H	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			8.0		8.0		
10.0			82.1		87.4		
max			500.0		500.0		
min	4.0	8.0		28.0		8.0	4.0
5.0	32.5	78.9		120.5		82.9	34.8
max	500.0	500.0		500.0		500.0	500.0
min		14.0	36.0	40.0	36.0	14.0	
0.0		81.2	112.0	124.7	117.6	90.0	
max		500.0	500.0	500.0	500.0	500.0	
min	4.0	8.0		28.0		8.0	4.0
-5.0	31.4	71.5		107.7		79.7	34.5
max	500.0	500.0		500.0		500.0	500.0
min			8.0		8.0		
-10.0			72.0		77.4		
max			500.0		500.0		

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.3		0.7	cd
80L/15D	-80.00	-15.00	0.3		0.7	cd
45R/15U	45.00	15.00	0.3		8.4	cd
45R/15D	45.00	-15.00	0.3		8.5	cd
80R/15U	80.00	15.00	0.3		0.7	cd
80R/15D	80.00	-15.00	0.3		0.7	cd
45L/15U	-45.00	15.00	0.3		7.9	cd
45L/15D	-45.00	-15.00	0.3		8.3	cd

Maximum overall 124.7 cd at H 0.00 V 0.00  
Max. Limit 500.0 cd  
Maximum overall 124.7 cd at H 0.00 V 0.00  
Max. Limit 500.0 cd



ANNEXURE N

## SABS

**Photometric Test Report**  
**SANS 1376-3:2019 Ed.1.7**  
**REAR DIRE. INDICATOR 2a LED LM/RM SANS 1376-3**

Date 03. Jul 2019  
Time 09:26:29  
Department Lighting Technology  
Name KD Dhimmar  
Page 2

Project : LGT-190523-00037-1

SANS 1376 -3- Cat- 2a Rear Dir Ind RM/LM Table

Unit : cd

deg VH	-20.0	-10.0	-5.0	0.0	5.0	10.0	20.0
min			8.0		8.0		
10.0			75.2		80.0		
max			500.0		500.0		
min	4.0	8.0		28.0		8.0	4.0
5.0	29.5	71.6		109.5		75.5	31.9
max	500.0	500.0		500.0		500.0	500.0
min		14.0	36.0	40.0	36.0	14.0	
0.0		73.3	100.9	111.9	105.1	80.6	
max		500.0	500.0	500.0	500.0	500.0	
min	4.0	8.0		28.0		8.0	4.0
-5.0	28.3	64.1		96.3		71.4	31.1
max	500.0	500.0		500.0		500.0	500.0
min			8.0		8.0		
-10.0			64.9		69.7		
max			500.0		500.0		

	H	V	MIN	MAX	SAMPLE	
80L/15U	-80.00	15.00	0.3		0.7	cd
80L/15D	-80.00	-15.00	0.3		0.6	cd
45R/15U	45.00	15.00	0.3		7.8	cd
45R/15D	45.00	-15.00	0.3		7.9	cd
80R/15U	80.00	15.00	0.3		0.7	cd
80R/15D	80.00	-15.00	0.3		0.6	cd
45L/15U	-45.00	15.00	0.3		7.5	cd
45L/15D	-45.00	-15.00	0.3		7.8	cd

Maximum overall 111.9 cd at H 0.00 V 0.00  
Max. Limit 500.0 cd  
Maximum overall 111.9 cd at H 0.00 V 0.00  
Max. Limit 500.0 cd

Test passed



**EQUIPMENT USED**

<b>Equipment Description</b>	<b>Equipment No.</b>	<b>Calibrated/Verified</b>	<b>Equipment accuracy Error</b>
Sms 10c Goniometer (Optronik)	PP&E0000735	Calibrated	± 0.046°
Photocell 3.163 M (Czibula & Grundmann No. 090207-2)	PP&E0025797	Calibrated	1.5%
Colormeter C 1210 (Lmt)	PP&E000755	Calibrated	± 0.002
Photocell Colour (Lmt)	PP&E0025795	Calibrated	±0.002
Multimeter 8842A (Fluke)	PP&E0000896	Calibrated	-0.002% V
Multimeter 45 (Fluke)	PP&E0000742	Calibrated	+0.05% A
Humidity and temp. recorder (Extech RH520)	PP&E0001730	Calibrated	-0.3°C / -9.0 % rh
Dc Power Supply (Specitec)	PP&E0000731	Verified	±0.18% V
Power Analyzer (infrateck, 106A-3 L2)	PP&E 0001735	Calibrated	0.011% VDC / 0.467% A DC/ -0.20% W
Multimeter 187 (Fluke)	77440739	Calibrated	-0.038% V
Multimeter 187 (Fluke)	77440746	Calibrated	-0.016% V
Digital Vernier (IP54)	LTM118	Calibrated	-0.01 mm

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\*\*\*\*\* THIS IS THE END OF THE TEST REPORT \*\*\*\*\*

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