

NSAI

ECE TYPE-APPROVAL CERTIFICATE



Communication concerning:²

Approval granted
~~Approval extended~~
~~Approval refused~~
~~Approval withdrawn~~
~~Production definitely discontinued~~

of a type of headlamp pursuant to Regulation No. 112

Approval No: E24*112R02/00*0469*00

Reason for extension:

N/A

1. Trade name or mark of the device:

2. Manufacturer's name for the type of device:

10021050

Variant(s):

N/A

3. Manufacturer's name and address:

4. If applicable, name and address of manufacturer's representative:

N/A

5. Submitted for approval on:

08.05.2020

6. Technical service responsible for conducting approval tests:

TÜV NORD Mobilität GmbH & Co.
KG IFM - Institut für Fahrzeugtechnik
und Mobilität Schönscheidtstr. 28
D-45307 Essen

7. Date of test report issued by that service:

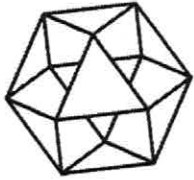
29.04.2020

8. Number of report issued by that service:

CS112-A0-2020-00674

¹ Distinguishing number of the country which has granted/refused/withdrawn approval (see the provisions of the Regulation concerning approval).

² Strike out which does not apply.



NSAI

Approval No: E24*112R02/00*0469*00

9. Brief description

Category as described by the relevant marking³: *HR PL*

Number and category(s) of filament lamp(s): *N/A*

Reference luminous flux used for the principal passing beam (lm): *N/A*

Principal passing beam operated at approximately (V): *N/A*

Measures according to paragraph 5.8 of this Regulation: *N/A*

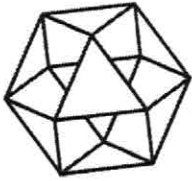
Number and specific identification code(s) of LED module(s) and for each LED module a statement of whether it is replaceable or not: *yes/no*² *No*

Number and specific identification code(s) of electronic light source control gear(s): *N/A*

Total objective luminous flux as described in paragraph 5.9 exceeds 2000 lumens: *yes/no/does not apply*² *N/A*

The adjustment of the cut-off has been determined at: *10 m/25 m/does not apply*² *N/A*

The determination of the minimum sharpness of "cut-off" has been carried out at: *10 m/25 m/does not apply*² *N/A*



NSAI

Approval No: E24*112R02/00*0469*00

- | | | |
|-----|--|----------------------------------|
| 10. | Approval mark position: | <i>On the lens</i> |
| 11. | Reason(s) for extension of approval: | <i>N/A</i> |
| 12. | Approval granted/ extended / refused / withdrawn ² | <i>Granted</i> |
| 13. | Place: | <i>Dublin</i> |
| 14. | Date: | <i>18th May, 2020</i> |
| 15. | Signature: | |



16. The list of documents deposited with the Administrative Service which has granted approval, is annexed and may be obtained on request.

³ Indicate the appropriate marking selected from the list below:

C, C, C, R, R PL, CR, CR, CR, C/R, C/R, C/R, C/, C/, C/,
 → ↔ → ↔ → ↔ → ↔
 C, PL, C PL, C PL, CR PL, CR PL, CR PL, C/R PL, C/R PL, C/R PL,
 → ↔ → ↔ → ↔ → ↔
 C/PL, C/PL, C/PL
 → ↔
 HC, HC, HC, HR, HR PL, HCR, HCR, HCR, HC/R, HC/R, HC/R, HC/, HC/, HC/,
 → ↔ → ↔ → ↔ → ↔
 HC PL, HC PL, HC PL, HCR PL, HCR PL, HCR PL, HC/R PL, HC/R PL, HC/R PL,
 → ↔ → ↔ → ↔ → ↔
 HC/PL, HC/PL, HC/PL
 → ↔



Approval No: E24*112R02/00*0469*00

Index to the Information Package

Date of issue:	<i>18th May, 2020</i>
Date of latest amendment:	<i>N/A</i>
Reason for extension/revision:	<i>N/A</i>
1. Additional conditions, and advisory notes on legal alternatives.	
2. Test report(s)	
- numbers(s):	<i>CS112-A0-2020-00674</i>
- date of issue:	<i>29.04.2020</i>
- date of latest amendment:	<i>N/A</i>
3. Information document	
- number(s):	<i>10021050-00</i>
- date of issue:	<i>09.04.2020</i>
- date of latest amendment:	<i>N/A</i>
Documentation:	<i>18 pages</i>



Approval No: E24*112R02/00*0469*00

Appendix: Additional conditions, and advisory notes on legal alternatives.

A: Additional conditions:

1. The device, Type 10021050, shall be marked as prescribed in the regulation.
2. The attached technical report, with any of its attachments, forms part of this Type Approval certificate.
3. Each individual product from series production shall be to the measurements specified in the attached drawings, and shall be manufactured only from the materials specified in the Approval documents.
4. Changes in the product are permitted only with the explicit permission of NSAI. Breaches of this requirement will lead to a withdrawal of the Type Approval, and in addition may be subject to criminal prosecution.
5. This Type Approval will expire when it is surrendered by the holder, or withdrawn by NSAI, or when the approved type of product no longer conforms to legal requirements. The recall of the Type Approval can be issued by NSAI when the conditions required for the issuing or continuation of the Type Approval are no longer current, or when the Approval holder is in breach of the duties attached to the Type Approval, or when it is established that the approved type no longer meets the requirements of traffic safety.
6. NSAI may at any time check the correct performance of the duties imposed by the grant of this Type Approval, and in order to do so, may make tests, or have tests made.
7. Changes in the company name, address or manufacturing site, as well as in any of the sales or other agents specified in the issuing of the approval must immediately be notified to the NSAI.
8. The duties imposed by the issuing of this certificate are not transferable. The legal protection of third parties is not affected by this certificate.
9. When the manufacture or sale of the vehicle, system, component or separate technical unit has not been started within one year of the date of issue of this certificate, then NSAI is to be informed. This requirement also applies when the manufacture or sale has been halted for more than one year, or when it ought to have been halted for more than one year. The initial commencement of manufacture or sale, or the resumption of manufacture or sale, shall then be notified to NSAI within one month of commencement or resumption.

B : Legal Options

Any objection to the requirements set out in this certificate shall be made within one month of the date of issue. The objection shall be made, in writing, to NSAI in Dublin.

Type :
Manufacturer :

Test Report

Agreement concerning the adoption of uniform technical prescriptions for the wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions

Approval of motor vehicle headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with filament lamps

ECE-R112

as last amended

Supplement 00 to the 02 series of amendments

Approval status	
ECE	Number of approval
	E24*112R02/00*0469*00



Test Report
No. : CS112-A0-2020-00674
ECE Regulation No.112



Type :
Manufacturer :

0. General information

- 0.1. Trademark or trade name of the lamp :
0.2. Manufacturer's name for the type of the lamp :
0.3. Name and address of the manufacturer :
0.4. Name and address of manufacturer's authorized representative :
0.5. No. of information folder : 10021050-00
Date of issue : April 09, 2020
Date of last amendment :



Type
Manufacturer

1. Test object(s) and general test information

1.1. Test object(s)

identification number

: ---

version

: ---

Remark

: head lamp incorporating a lens made of plastic, applying for class B, for high beam only

~~light source of passing beam can not be lit simultaneously with any other function with which it may be reciprocally incorporated.~~

Light source type: 12 LED in total

1) Non-replaceable light source, 6LEDs for high beam left side, 12V & 24V

2) Non-replaceable light source, 6LEDs for high beam right side, 12V & 24V



Test Report
No. : CS112-A0-2020-00674
ECE Regulation No.112



Type :
Manufacturer :

- 1.2. Worse case : ~~About test for stability of photometric performance, the worst case was determined as of following:~~
- ~~The test shall be carried out with the filament light source operated at the highest voltage (28V) that can be used, and two high beam operated together.~~
- 1.3. General test information
- 1.3.1. Order issued by (if different from manufacturer) : ~~---~~
- 1.3.2. Test object / test vehicle received on : Not applicable
- 1.3.3. Test date : April 9-23, 2020
- 1.3.4. Test site : TUV Asia Pacific Ltd. Taiwan Branch
No.33, Ln. 98, Zhi an 4th St., Annan Dist., Tainan City 709, Taiwan R.O.C.
SUN-JET Integrative Services of Quality Assessment
No.256, Sec. 4, Huanhe Rd., Wuri Dist., Taichung City 414, Taiwan (R.O.C.)
Zhifu Science Technologies Co., Ltd
No.243, Hejian Rd., Hemei Township, Changhua County 508, Taiwan R.O.C
- 1.3.5. Remark : The results of the test refer exclusively to the object(s) mentioned under point 1.1 of this report.



Type
Manufacturer

.....

2. Test minutes

2.1. Test facilities

: The test facilities are in compliance with the requirements of the Regulation

2.2. Test results

: ~~The lamp has been tested according the amendments mentioned in Appendix 0. The photometric values were carried over from the basic report.~~

2.2.1 Temperature

: 25 °C

2.2.2 Markings

: The trade mark is marked clearly legible and indelible on the LENS.

Space for the approval mark and for additional symbols is provided on the lens ~~and on the reflector~~. The lens can not be separated from the housing.



Type
Manufacturer

2.3. General specifications

: The head lamp is designed and made that, under normal use, their satisfactory operation is ensured and they retain the required characteristics.

The LED modules of the head lamp complies with the relevant requirements as described in paragraph Annex 10.

LED module(s) was so designed as to be and to remain in good working order when in normal use. A LED module was considered to have failed if any one of its LEDs has failed.

The head lamp is not fitted with a device enabling the correct adjustment on the lamp as to comply with the requirements applicable to it. The adjustment system is provided by a device where the lamp is fitted to.

2.4. Alternately a driving-beam and a passing-beam

: Not applicable

2.4.1 Withstand 50,000 operations

: Not applicable

2.4.2. In the case of the device is failure, the luminous intensity of a passing-beam above the line H-H and point 25V

: Not applicable

2.5. Adjustment of the cut-off line

: Not applicable

2.6. Illumination configuration for different traffic conditions

: Not applicable



Type
 Manufacturer

2.7. Requirements for LED modules and headlamps including LED modules

: A LED module is considered to have failed if any one of its LEDs has failed.

All samples are tested under the conditions as specified in paragraphs 6.1.4. and 6.1.5. of this Regulation.

For the measurement of electrical and photometric characteristics, the headlamp is operated in a dry and still atmosphere at an ambient temperature of 23 °C +5 °C.

Upon the request of the applicant the LED module is operated for 15 h and cooled down to ambient temperature before starting the tests as specified in this Regulation.

The total objective luminous flux of all LED modules producing the principal was equal or greater than 1,000 lumens.

2.7.1. Colour rendering

: $K_{1\text{red}} = 0.094$ limit ≥ 0.05

2.7.2. UV-radiation

: $K_{1\text{UV}} = 6.0\text{E-}08$ limit $\leq 10^{-5}$ W/lm

2.7.3. Luminous flux

: Luminous flux = **5183.6** lm ≥ 1000 lm

2.8. Temperature stability

: The lamp was continued operation until photometric stability has occurred. The moment at which the photometry is stable is defined as the point in time at which the variation of the photometric value is less than 3 per cent within any 15 minutes period.

2.9. Photometric tests

: The head lamps have been adjusted according to paragraph 6.2. of the Regulation.

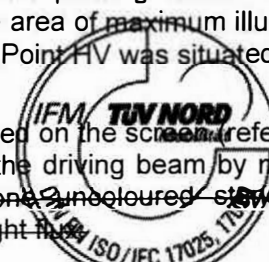
2.9.1. Passing beam

: Not applicable

2.9.2. Driving beam

: ~~The illumination measurements have been taken with the same alignment as for the passing beam.~~ The driving beam is adjusted that the area of maximum illumination is centred on the point HV. Point HV was situated within the isolux 80% of EM.

Illumination (in cd) obtained on the screen (refer to Annex 3 of the Regulation) by the driving beam by means of 6 LEDs (each side) or one uncoloured standard lamp producing the required light flux.



Type :
 Manufacturer :

Results of photometric tests of the **driving beam, class B (right side with 12V)**

One minute

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
illumination at point of intersection (HV) of lines hh and vv	106300.0	102200.0	$\geq 0.8 \times I_M$ ($215000 \geq I_M \geq 40500$)

Photometric stability

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
maximum illumination I_M	104209.3	105009.6	$215000 \geq I_M \geq 40500$
illumination at point of intersection (HV) of lines hh and vv	103500.0	100600.0	$\geq 0.8 \times I_M$
$I'_M = I_M / 4300$	24.23	24.42	-
rounded off to the reference mark of	25		
H-5L	42250.0	38930.0	≥ 5100
H-2.5L	87500.0	76110.0	≥ 20300
H-2.5R	89200.0	84900.0	≥ 20300
H-5R	44090.0	45330.0	≥ 5100

Test results : passed / ~~failed~~



Type :
 Manufacturer :

Results of photometric tests of the **driving beam, class B (left side with 12V)**

One minute

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
illumination at point of intersection (HV) of lines hh and vv	107000.0	107000.0	$\geq 0.8 \times I_M$ ($215000 \geq I_M \geq 40500$)

Photometric stability

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
maximum illumination I_M	103608.50	104311.9	$215000 \geq I_M \geq 40500$
illumination at point of intersection (HV) of lines hh and vv	103600.0	104300.0	$\geq 0.8 \times I_M$
$I'_M = I_M / 4300$	24.09	24.25	-
rounded off to the reference mark of	25		
H-5L	40550.0	36690.0	≥ 5100
H-2.5L	81210.0	75850.0	≥ 20300
H-2.5R	91600.0	94000.0	≥ 20300
H-5R	49250.0	51060.0	≥ 5100

Test results : passed / ~~failed~~



Type
 Manufacturer

Results of photometric tests of the **driving beam, class B (right side with 24V)**

One minute

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
illumination at point of intersection (HV) of lines hh and vv	105600.0	101800.0	$\geq 0.8 \times I_M$ ($215000 \geq I_M \geq 40500$)

Photometric stability

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
maximum illumination I_M	104311.1	104912.7	$215000 \geq I_M \geq 40500$
illumination at point of intersection (HV) of lines hh and vv	103400.0	100600.0	$\geq 0.8 \times I_M$
$I'_M = I_M / 4300$	24.25	24.39	-
rounded off to the reference mark of	25		
H-5L	41940.0	38440.0	≥ 5100
H-2.5L	86800.0	74890.0	≥ 20300
H-2.5R	89600.0	85500.0	≥ 20300
H-5R	44460.0	45910.0	≥ 5100

Test results : passed / failed



Type
 Manufacturer

Results of photometric tests of the **driving beam, class B (left side with 24V)**

One minute

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
illumination at point of intersection (HV) of lines hh and vv	106300.0	106400.0	$\geq 0.8 \times I_M$ ($215000 \geq I_M \geq 40500$)

Photometric stability

illumination produced on the screen in cd			
	Sample No.1	sample No.2	illumination required for Class B
maximum illumination I_M	103709.3	104314.0	$215000 \geq I_M \geq 40500$
illumination at point of intersection (HV) of lines hh and vv	103300.0	104000.0	$\geq 0.8 \times I_M$
$I'_M = I_M / 4300$	24.12	24.25	-
rounded off to the reference mark of	25		
H-5L	40710.0	36740.0	≥ 5100
H-2.5L	81710.0	75970.0	≥ 20300
H-2.5R	91700.0	94100.0	≥ 20300
H-5R	49060.0	51090.0	≥ 5100

Test results : passed / failed



Type :
 Manufacturer :

2.10. Stability of photometric performance of head lamps in operation

2.10.1. Stability of photometric performance

2.10.1.1. Clean head lamp

: The light source was operated for 12 hours as described in Annex 4 paragraph 1.1.1. of the Regulation, with each filament of the specified functions lit successively for the prescribed time.

The visual inspection after this test did not show any distortion, deformation, cracking or change in color of the head lamp lens.

photometric test results (in cd)					
points on screen		initial	end of test	difference	allowable difference
LH 12V	driving beam I _M	105107.0	104908.0	0.2%	10%
LH 24V		104907.3	104810.1	0.1%	10%

2.10.1.2. Dirty head lamp

: After preparation as prescribed in Annex 4 paragraph 1.2.1. of the Regulation, and confirmation that the illumination values have dropped to 15% to 20 % of the prior values, the head lamp was operated for 1 hour as described in Annex 4 paragraph 1.1.1., with each filament of the specified functions (driving beam/ ~~passing beam~~) lit successively for the prescribed time.

The visual inspection after this test did not show any distortion, deformation, cracking or change in color of the head lamp lens.

photometric test results (in cd)					
points on screen		initial	end of test	difference	allowable difference
LH 12V	driving beam I _M	104908.0	104789.7	0.1%	10%
LH 24V		104810.1	104807.7	0.0%	10%

Test results

: passed / failed

2.10.2. Change in vertical position of the cut-off line under the influence of heat

: Not applicable



Type
Manufacturer

2.11. Color of light emitted

The coloring beam is obtained through

: The CIE trichromatic coordinates of the light emitted by the head lamp are within the limits in the paragraph 7. of the Regulation.

Chromaticity coordinates		Sample no.	
		RH 1	LH 2
12V	x	0.3553	0.3519
	y	0.3681	0.3652
24V	x	0.3559	0.3519
	y	0.3692	0.3647
Tolerance area		Boundaries	W_{12} green boundary: $y=0.150+0.640x$ W_{23} yellowish green boundary: $y=0.440$ W_{34} yellow boundary: $x=0.5000$ W_{45} reddish purple boundary $y = 0.382$ W_{56} purple boundary: $y = 0.050 + 0.750 x$ W_{61} blue boundary: $x = 0.310$
		Intersection points	W_1 $x=0.310$ $y=0.348$ W_2 $x=0.453$ $y=0.440$ W_3 $x=0.500$ $y=0.440$ W_4 $x=0.500$ $y=0.382$ W_5 $x=0.443$ $y=0.382$ W_6 $x=0.310$ $y=0.283$



Type
Manufacturer

:
:

2.12. Explanatory note

: This report describes the examination of the head lamp as a part of a lamp device.

For the examination of the other lamp of the device, refer to the following report:

Type of lamp

Test report No.

2.13. Variants and component

: not applicable

2.14. Additional tests for adjustable reflector

: not applicable

photometric test results (in cd)			
points on screen	vertically + 2°	vertically - 2°	required value
driving beam I_M	-	-	$215000 \geq I_M \geq 40500$
driving beam HV	-	-	$\geq 0.8 \times I_M$

Test results

: passed / failed / not applicable



Type :
 Manufacturer :

2.15. Lamps incorporating lenses of plastic material : The lamp manufacturer proved that the product had already passed the tests prescribed in paragraphs 2.1.-2.5. of Annex 6 to this ECE-Regulation, or the equivalent tests pursuant to another Regulation.

With references to:

Test report No. : PMT 060 & PMT 060 N1 issued by
 Lichttechnisches Institut
 Universität Karlsruhe
 LTIK
 Kaisersraße 12, Karlsruhe,
 Germany
 B105LR0008 issued by
 ARTC
 No.6 Lugong S.7th Rd, Lukang
 Township, Changhua Country 50544,
 Taiwan

Report date: September 06, 1999
 November 07, 2007
 April 18, 2016

Those tests need not to be repeated. Only the tests prescribed in appendix 1, table B were conducted.

2.15.1. Tests according to paragraph 2.6 of the complete lamp incorporating a lens of plastic material : The lens of sample No. 1 was conditioned in accordance with the test described in paragraph 2.4.1.

photometric test results after conditioning (in cd)		
point	illumination measured	illumination required for Class B
RH 12V	101100.0	$\geq 0.8 \times I_M$ (215000 $\geq I_M \geq 40500$)
LH 12V	103100.0	
RH 24V	100700.0	
LH 24V	102900.0	

Test results : passed / ~~failed~~

2.15.2. Test of adherence of coatings : The sample No.2 complies with the requirements mentioned paragraph 2.5.

2.16. Test conclusion : Passed / ~~failed~~



Type
Manufacturer

3. Remark concerning tested object(s)

All versions of the lamps as stated in the information document are covered with the tested version(s) and test object(s) respectively.

4. Appendices

Information folder no. : 10021050-00

5. Statement of conformity

The type described in this test report and the appendices attached are in compliance with the Test Specification mentioned above.

The samples / test vehicles used were representative in terms of the type to be approved.

The Test Report comprises pages 1 to 16.

The Test Report shall be reproduced and published in full only and by the client only. It shall be reproduced partially with the written permission of the Test Laboratory only.

TEST LABORATORY

TÜV NORD Mobilität GmbH & Co. KG
IFM - Institut für Fahrzeugtechnik und Mobilität,
Schönscheidtstr. 28, D-45307 Essen

Approval authority	Country	Registration-number	Actual scope list
Kraftfahrt-Bundesamt (KBA)	Germany	KBA-P 00004-96	http://www.kba.de
Approval Authority of the Netherlands (RDW)	The Netherlands	RDWT-T04	http://ec.europa.eu/enterprise/sectors/automotive/approval-authorities-technical-services/technical-services/index_en.htm
National Standards Authority of Ireland (NSAI)	Ireland	Technical Service Number: 115	

Guangzhou, April 29, 2020

C. Zong



1. Specification Data

April 09, 2020

Type		10021050	
Function		Driving Beam	
Light Color		White	
Rated	Voltage	12 V	24 V
	Wattage	55 W	52 W
Application Regulation (ECE)		R112.02_Class B	
Category of light source		6 x LED */	
Position of marking	Trade mark	L32	
		On the lens	
	Approval mark	On the lens	

*/ The lamp equips 12 LEDs in total, six LEDs for left hand side lamp, another six LEDs for right hand side lamp. (Please refer to the drawing)

2. Construction and Material:

Construction	Material	Remarks
Lens	PC (Sabic LEXAN LS2-111) UVHC-3000 Coating	Clear
Reflector	PC	Aluminum Coating
Housing	Aluminum	Black

3. Name and Address of Manufactory :

4. Picture of tested sample



