



INVESTOR IN PEOPLE



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THE UNITED KINGDOM TYPE APPROVAL AUTHORITY

Date: 22 September 2016

Dear Sir / Madam.

1. The vehicle component / type described on the attached approval(s) has been tested and meets the requirements of the ECE Regulation displayed on the approval certificate(s). I enclose a set of approval documents, comprising, as appropriate, the approval certificate(s), test report and your documentation duly authenticated.

2. Maintaining Conformity of Production (COP) is a means of evidencing the ability to produce a series of products that exactly match the specification, performance and marking requirements outlined in the type approval documentation. Whether you are a manufacturer, or the agent applying for approvals on behalf of a manufacturer, and whatever your product is, suitable COP arrangements must be made. **Please follow these links to documents that explain COP in more detail:** <http://www.dft.gov.uk/vca/conformity-of-production/conformity-of-production.asp>

3. If you think there are any errors in the enclosed package, please contact Ian Woodruff, ian.woodruff@vca.gov.uk immediately.

Please be aware that from the date of issue we have a three week holding period, any manufacture/applicant document changes within this period may incur an additional time charge to review and re-issue. Any corrections required after this time will need to be corrected via an extension, index revision or correction 1 certificate, as appropriate.

ROAD TRAFFIC ACT 1988 - SECTION 80

3. The Secretary of State for Transport authorises, under section 80 of the Road Traffic Act 1988, the stated manufacturer or accredited agent to apply to the motor vehicle type / part specified, the appropriate mark designated in the Motor Vehicles (Designation of Approval Marks) Regulations 1979, as amended. The conditions attached to this authorisation are set out overleaf.

4. If this approval / extension / index revision results in a change being required to a vehicle information document issued under either a National or European Whole Vehicle approval you should notify the issuing authority to arrange for the approval(s) to be updated.

5. VCA is continually scrutinising the quality of the service it provides to customers, in order to discover more ways in which the standard can be improved. If you have a specific complaint concerning the way this job has been dealt with, please view the VCA complaints procedure for guidance: <http://www.dft.gov.uk/vca/vca-complaints-procedure.asp>

Yours faithfully,

Greg Engley

VCA Operations Branch

1. CONDITIONS

1.1 This Approval may be withdrawn at any time and while held is subject to the following conditions.

2. CONDITIONS OF MOTOR VEHICLE PARTS

2.1 The holder of this approval shall put the approval mark described in the Motor Vehicles (Designation of Approval Marks) Regulations 1979 as amended only on Motor Vehicle Parts that:

- a. Have been manufactured, assembled or completed in factories under his control and
- b. Conform in all material respects with the samples, which were tested before this approval was issued.

2.2 The holder of this approval shall mark his products in the manner set out in the relevant Regulation / Directive as given in the Motor Vehicles (Designation of Approval Marks) Regulations 1979 as amended together with:

- a. The approval number allocated by the Secretary of State for Transport.
- b. His name or trademark
- c. Any other markings specified in the appropriate international Regulation

2.3 The holder of this approval shall be prepared at any time to satisfy Department for Transport officials or agents of the Department, that the quality of the part being produced and marked or intended to be by him with the approval marking conforms in all material respects with that of the samples tested as the International Regulation requires.

2.4 The holder of this approval undertakes to admit duly authorised officials or agents of the Department at all reasonable times to any premises in which parts marked or intended to be marked are being manufactured, assembled or stored and to permit any such official or agent to inspect parts and all records relating to them and their production processes.

2.5 This approval may be suspended or withdrawn by the Secretary of State for Transport at any time without any particular length of notice being given and in the event of that being done the holder will absolve the Secretary of State from any claim for damages or compensation.

3. CONDITIONS FOR MOTOR VEHICLES

3.1 The holder of this approval shall put the approval mark described in the Motor Vehicles (Designation of Approval Marks) Regulation 1979 as amended only on Motor Vehicles fitted with Motor Vehicle parts which Motor Vehicles as fitted with such parts conform with the type of Motor Vehicle approved by as on behalf of the Secretary of State for Transport and only on Motor Vehicles that:

- a. Have been manufactured, assembled or completed in factories under his control and
- b. Conform in all material respects with the type of Motor Vehicle, which was tested before an approval certificate was issued.

3.2 The holder of this approval shall mark motor vehicles of the type approved. In the matter set out in the relevant Regulation / Directive using the authorised approval mark as given in the Motor Vehicles (Designation of Approval Marks) Regulation 1979 as amended together with the approval number allocated by the Secretary of State for Transport.

3.3 The holder of this approval shall mark Motor Vehicles of the type approved in the manner set out in the relevant Regulation annexed to the United Nations agreement of 1958 as amended using the authorised approval mark which comprises a capital letter E followed by the number 11 within a circle together with the approval number allocated by the Secretary of State for Transport.

3.4 The holder of this approval shall be prepared at any time to satisfy Department for Transport officials or agents of the Department that Motor Vehicles of the type approved which have been produced and marked or that are intended to be marked by him conform in all material respects with the type of vehicle approved.

3.5 The holder of this approval undertakes to admit duly authorised officials or agents of the Department at all reasonable times to any premises in which the Motor Vehicles of the type approved which have been or are intended to be marked are manufactured, assembled or stored and to permit any such official or agent to inspect the Motor Vehicles and all records relating to them and their production processes.

3.6 This approval may be suspended or withdrawn by the Secretary of State for Transport at any time without any particular length of notice given and in the event of that being done the holder will absolve the Secretary of State from any claim for damages or compensation.



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED ⁽¹⁾/~~APPROVAL EXTENDED ⁽⁴⁾~~/
~~APPROVAL REFUSED ⁽⁴⁾~~/~~APPROVAL WITHDRAWN ⁽⁴⁾~~/~~PRODUCTION DEFINITELY~~
~~DISCONTINUED ⁽⁴⁾~~ OF A TYPE OF RETRO-REFLECTING DEVICE PURSUANT TO REGULATION
NO 3.02



Approval No: 03R-026887

Extension No: Not applicable

1. Trade name or mark of the device: *FASA*
2. Manufacturer's name for the type of device: JH204
3. Manufacturer's name and address:
Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town
Yuyao City
Zhejiang Province
PEOPLE'S REPUBLIC OF CHINA
4. If applicable, name and address of the manufacturer's representative: Not applicable
5. Submitted for approval on: 14 August 2016
6. Technical service responsible for conducting approval tests: Vehicle Certification Agency
7. Date of test report: 19 August 2016
8. Number of test report: CSS370529



9. Concise description:

In isolation/~~part of an assembly~~ of devices: ⁽¹⁾ Class IB

Colour of light emitted: ~~white/red/amber~~ ⁽¹⁾

Installation as an integral part of a lamp which is integrated into the body of a vehicle: ~~YES~~/NO ⁽¹⁾

Geometric conditions of installation and relating variations, if any: See manufacturer's document

Only for limited mounting height of equal to or less than 750 mm above the ground: ~~YES~~/NO ⁽¹⁾

10. Position of the approval mark: Marked on lens

11. Reason(s) for extension (if applicable): Not applicable

12. Approval GRANTED/~~REFUSED/EXTENDED~~/WITHDRAWN ⁽¹⁾

13. Place: BRISTOL

14. Date: 22 SEPTEMBER 2016

15. Signature:  D LAWLOR
Head of Technical Standards & Legislation

16. The following documents, bearing the approval number shown above, are available on request:

Any remarks: Approval to Supplement 16

(1) Strike out what does not apply.



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED ⁽¹⁾/ ~~APPROVAL EXTENDED ⁽⁴⁾/~~
~~APPROVAL REFUSED ⁽⁴⁾/~~ ~~APPROVAL WITHDRAWN ⁽⁴⁾/~~ ~~PRODUCTION DEFINITELY~~
~~DISCONTINUED ⁽⁴⁾~~ OF A TYPE OF DEVICE FOR THE ILLUMINATION OF REAR REGISTRATION
PLATES OF MOTOR VEHICLES (EXCEPT MOTOR CYCLES) AND THEIR TRAILERS PURSUANT
TO ECE REGULATION NO. 4.



Approval No: 04R-006887

Extension No: Not applicable

1. Trade mark or name of the device: **FASA**
2. Manufacturer's name for the type of device: JH204
3. Manufacturer's name and address:
Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town
Yuyao City
Zhejiang Province
PEOPLE'S REPUBLIC OF CHINA
4. If applicable, name and address of manufacturer's representative: Not applicable
5. Submitted for approval on: 15 August 2016
6. Technical service responsible for conducting approval tests: Vehicle Certification Agency
7. Date of report issued by that service: 19 August 2016
8. Number of report issued by that service: CSS370529

9. Concise description: ⁽²⁾

Device for illuminating: a wide plate

Category ~~1a~~, 1b, ~~1c~~, ~~2a~~, ~~2b~~ ⁽¹⁾

Number and category (ies) of light sources(s): 1*(6*LED)

Light source module: ~~YES~~/NO ⁽¹⁾

Light source module specific identification code: Not applicable

Geometrical conditions of installation (position(s) and inclination(s) of the device in relation to the space to be occupied by the registration plate and/or different inclinations of this space):
See manufacturer's document

10. Position of the approval mark: Marked on lens

11. Reason(s) for extension (if applicable): Not applicable

12. Approval GRANTED/~~REFUSED~~/~~EXTENDED~~/~~WITHDRAWN~~ ⁽¹⁾

13. Place: BRISTOL

14. Date: 22 SEPTEMBER 2016

15. Signature:



D LAWLOR
Head of Technical Standards & Legislation

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

Any remarks: Approval to Supplement 17

(1) Strike out what does not apply.

(2) For lamps with non-replaceable light sources indicate the number and the total wattage of the light sources.



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED ⁽¹⁾/~~APPROVAL EXTENDED ⁽⁴⁾/~~
~~APPROVAL REFUSED ⁽⁴⁾/~~ ~~APPROVAL WITHDRAWN ⁽⁴⁾/~~ ~~PRODUCTION DEFINITELY~~
~~DISCONTINUED ⁽⁴⁾~~ OF A TYPE OF DIRECTION INDICATOR PURSUANT TO REGULATION NO 6.01



Approval No: 06R-016887

Extension No: Not applicable

1. Trade name or mark of the device: *FASA*
2. Manufacturer's name for the type of device: JH204
3. Manufacturer's name and address:
Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town
Yuyao City
Zhejiang Province
PEOPLE'S REPUBLIC OF CHINA
4. If applicable, name and address of the manufacturer's representative: Not applicable
5. Submitted for approval on: 15 August 2016
6. Technical Service responsible for conducting approval tests: Vehicle Certification Agency
7. Date of test report issued by that Service: 19 August 2016
8. Number of test report issued by that Service: CSS370529

9. Concise description:

Category: 1, ~~1a, 1b~~, 2a, ~~2b, 5, 6~~ ⁽¹⁾

Number, category: 1*(10* LED)

Function(s) produced by an interdependent lamp forming part of an interdependent lamps systems: Not applicable

Voltage and wattage: 12V, 2.5W

Light source module specific identification code: Not applicable

Only for limited mounting height of equal to or less than 750 mm above the ground: ~~YES/NO~~ ⁽¹⁾

Geometrical conditions of installation and relating variations, if any: See manufacturer's document

Application of an electronic light source control gear/variable intensity control: Not applicable

(a) Being part of the lamp: ~~YES/NO~~ ⁽¹⁾

(b) Being not part of the lamp: ~~YES/NO~~ ⁽¹⁾

Input voltage(s) supplied by an electronic light source control gear/variable intensity control: Not applicable

Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): Not applicable

Variable luminous intensity: ~~YES/NO~~ ⁽¹⁾

Sequential activation of light sources (see paragraph 5.6. of this Regulation): ~~YES/NO~~ ⁽¹⁾

10. Position of the approval mark: Marked on lens

11. Reason(s) for extension (if applicable): Not applicable

12. Approval GRANTED/~~EXTENDED/REFUSED/WITHDRAWN~~: ⁽¹⁾

13. Place: BRISTOL

14. Date: 22 SEPTEMBER 2016

15. Signature:  D LAWLOR
Head of Technical Standards & Legislation

16. The list of documents deposited with the Type Approval Authority which has granted approval is annexed to this communication and may be obtained on request.

Any remarks: Approval to Supplement 26

(1) Strike out what does not apply.





THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED ⁽¹⁾/~~APPROVAL EXTENDED ⁽⁴⁾/~~
~~APPROVAL REFUSED ⁽⁴⁾/~~ ~~APPROVAL WITHDRAWN ⁽⁴⁾/~~ ~~PRODUCTION DEFINITELY~~
~~DISCONTINUED ⁽⁴⁾~~ OF A TYPE OF DEVICE PURSUANT TO REGULATION NO. 7.02



Approval No: 07R-026887

Extension No: Not applicable

1. Trade name or mark of the device: *FASA*
2. Manufacturer's name for the type of device: JH204
3. Manufacturer's name and address:
Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town
Yuyao City
Zhejiang Province
PEOPLE'S REPUBLIC OF CHINA
4. If applicable, name and address of the manufacturer's representative: Not applicable
5. Submitted for approval on: 15 August 2016
6. Technical service responsible for conducting approval tests: Vehicle Certification Agency
7. Date of report issued by that service: 19 August 2016
8. Number of report issued by that service: CSS370529

9. Concise description:

9.1. By category of lamp: R1-S1

For mounting ~~either outside or inside or both~~: ⁽¹⁾

Colour of light emitted: RED/WHITE ⁽¹⁾

Number, category and kind of light source(s): Rear position lamp: 1*(10*LED)
Stop lamp: 1*(10*LED)

Voltage and wattage: Rear position lamp: 12V, 0.5W
Stop lamp: 12V, 2.5W

Light source module specific identification code: Not applicable

Only for limited mounting height of equal to or less than 750 mm above the ground:
~~YES/NO~~ ⁽¹⁾

Geometrical conditions of installation and relating variations, if any: See manufacturer's document

9.2 Function(s) produced by an interdependent lamp forming part of an interdependent lamp system: Not applicable

Front position lamp	YES/NO ⁽⁴⁾
R1 Rear position lamp	YES/NO ⁽⁴⁾
R2 Rear position lamp	YES/NO ⁽⁴⁾
S1 Stop lamp	YES/NO ⁽⁴⁾
S2 Stop lamp	YES/NO ⁽⁴⁾
S3 Stop lamp	YES/NO ⁽⁴⁾
S4 Stop lamp	YES/NO ⁽⁴⁾
End-outline marker lamp	YES/NO ⁽⁴⁾

10. Position of the approval mark: Marked on lens

11. Reason(s) for extension (if applicable): Not applicable

12. Approval GRANTED/~~REFUSED~~/~~EXTENDED~~/~~WITHDRAWN~~ ⁽¹⁾

13. Place: BRISTOL

14. Date: 22 SEPTEMBER 2016

15. Signature:  D LAWLOR
Head of Technical Standards & Legislation

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

Any remarks: Approval to Supplement 24

(1) Strike out what does not apply



Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town,
Yuyao City, Zhejiang Province, China

August 8, 2016

Dear Sirs,

We would like to apply for the type approval according to ECE.

Function	ECE approval number
Retro-Reflector Device	E11-3R-02XXXX*
License plate lamp	E11-4R-00XXXX*
Rear direction indicator lamp	E11-6R-01XXXX*
Stop lamp	E11-7R-02XXXX*
Rear position lamp	E11-7R-02XXXX*

Trade name or mark	:	FASA
Manufacturer's name for type of device	:	JH204
Name and address of manufacturer	:	Ningbo Jiahui Auto Parts Co., Ltd. Lincheng Village, Linshan Town, Yuyao City, Zhejiang Province, China

We confirm that the above mentioned application has not been submitted to any other EC member state nor has any other member state granted a corresponding approval.

Sincerely



Mr. Tao JianBo
Ningbo Jiahui Auto Parts Co., Ltd.



* XXXX means an approval number, please refer to the certificate.

Information folder No. : JH204-00

First application date : August 8, 2016

1. Specification data

Type		JH204				
Function		Rear group lamp				
		Retro-Reflector Device	License plate lamp	Rear direction indicator lamp	Stop lamp	Rear position lamp
Color		Red	Colorless	Amber	Red	Red
Rated	Voltage	--	12V	12V	12V	12V
	Wattage	--	0.5W	2.5W	2.5W	0.5W
Application Regulation ECE		R3.02 Class IB	R4.00 Cat. 1b	R6.01 Cat. 2a	R7.02 Cat. S1	R7.02 Cat. R1
Location of marking	Number and category of light source	--	6*LED	10*LED	10*LED	
			Non-replaceable light source			
	Marked on housing					
	Trade mark	<i>FASA</i>				
		Marked on lens				
	Approval mark		Marked on lens			
For vehicle category		O1、O2				
Mounting height		>750mm				

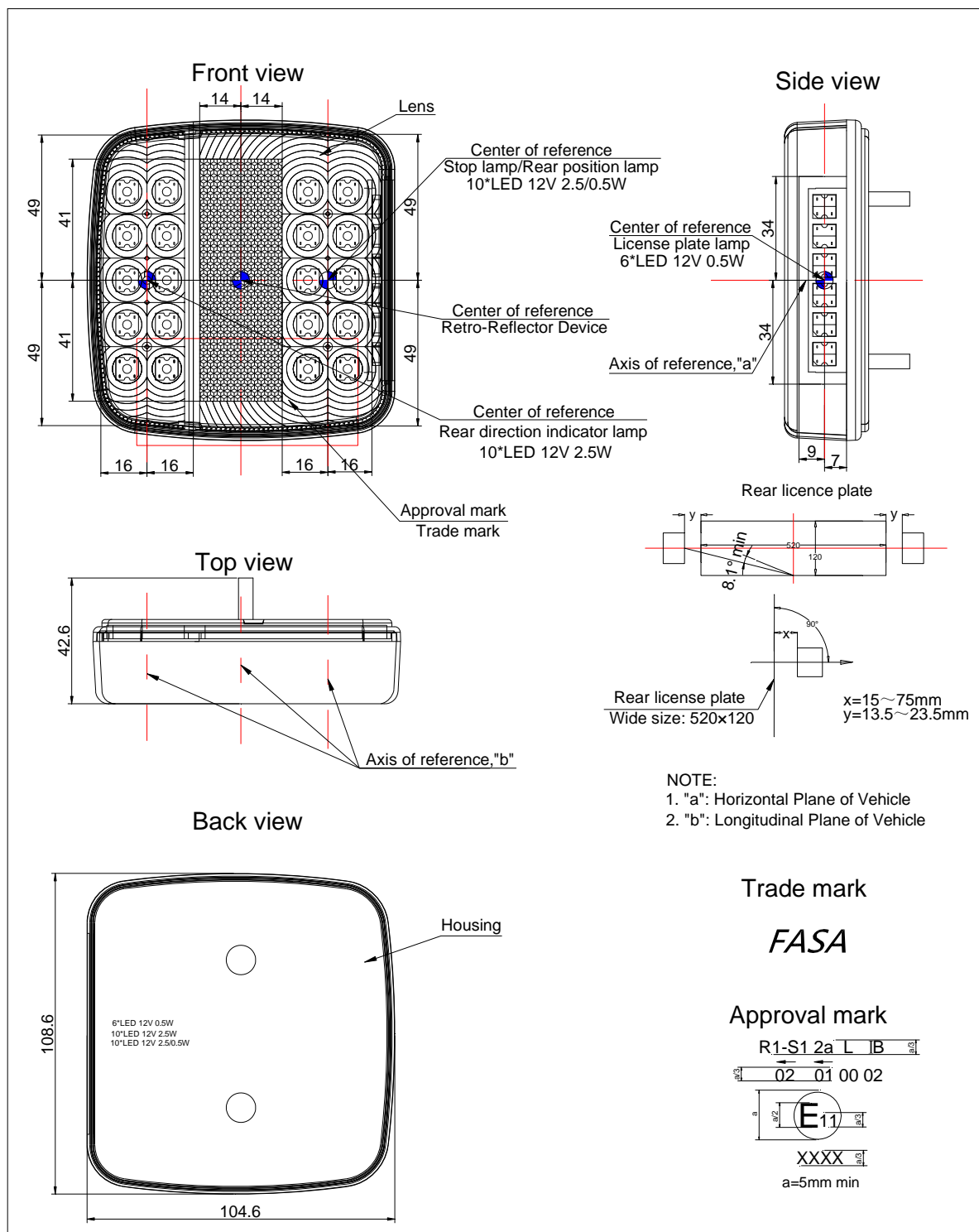
2. Construction and material

Construction	Material	Remarks
Lens	PC	R.D. +S.L.+R.P.L.: Red L.P.L.: Clear R.D.L.: Amber
Reflector	--	--
Housing	PC	--
Electrical Wiring	Copper covered with insulation	--

3. Name and address of manufacturer : Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town,
Yuyao City, Zhejiang Province, China

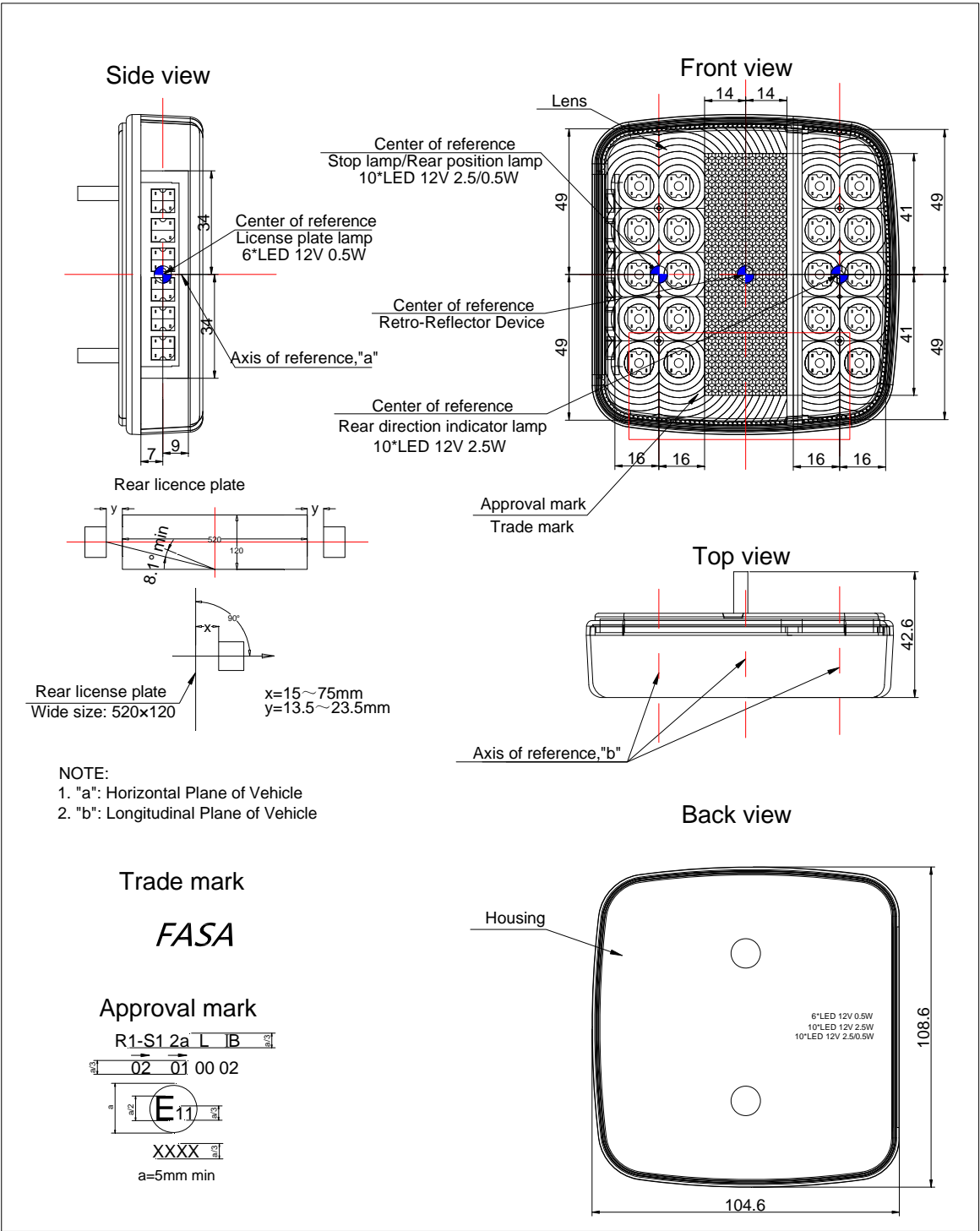
4. Name and address of the assembly plant : See 3.

5. Name and address of the manufacturer's representative : N/A



XXXX means an approval number, please refer to the certificate.

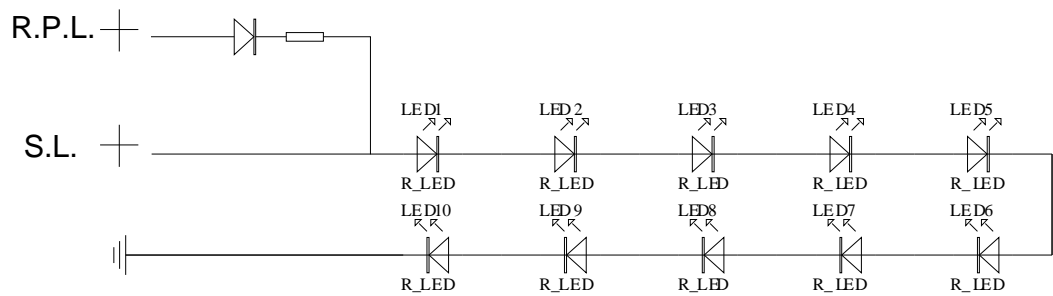
Product Type	JH204
General assembly drawing (Left side)	
Drawing No.	JH204-01



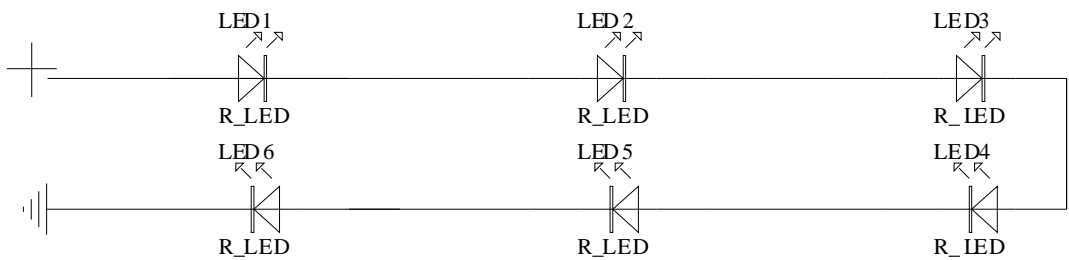
XXXX means an approval number, please refer to the certificate.

Product Type	JH204
General assembly drawing (Right side)	
Drawing No.	JH204-02

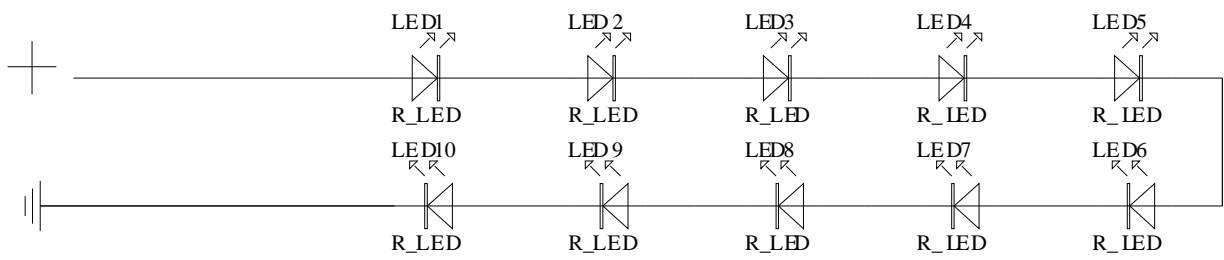
Stop lamp/ Rear position lamp
10*LED 12V 2.5W/0.5W



License plate lamp
6*LED 12V 0.5W



Rear direction indicator lamp
10*LED 12V 2.5W



Product Type	JH204
Led circuit diagram	
Drawing No.	JH204-03



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Report Number: CSS370529
Issue: N/A

Test Report: Reflex Reflectors

Legislation

UNECE Regulation	03.02 Supplement 16, Revision 4
Taiwan Regulation	N/A

Test Details

Location of Test:	Huachen Vehicle Inspection Co., Ltd Xinxing Road (No.29, West Zone of Jinjiang Industrial Park), Jinqiao Village, Danbei Town, Danyang City, Jiangsu Province, P.R. China
Date of Test:	14 August 2016
VCA Representative(s):	Ma Quanlin and Fu Zongyuan
Manufacturer's Representative(s):	Ye Feng
Reason for Test:	New approval

Manufacturer Details

Name and Address:	Ningbo Jiahui Auto Parts Co., Ltd. Lincheng Village, Linshan Town, Yuyao City, Zhejiang Province, China
Trade Name:	See manufacturer's documentation
Type and Commercial Description:	JH204
Class:	IB

Conclusion

The above mentioned lamp was tested in accordance with the above legislation and was found to comply in all respects.

Signature:

Name:	Fu Zongyuan
Position:	Type Approval Engineer
Date:	19 August 2016

List of Annexes

Annex	No. of Pages	Subject
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Report Number: CSS370529

Issue: N/A

Worst Case Rationale

New approval

Test Item Specification

Component Number(s):
10 samples

Class: IB

Location: Rear

Colour: Red

Fixation: Grouped with other lamps

Reflex reflector is as specified in manufacturer's documentation.

Yes

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested and covers all variants and versions agreed in the worst case rationale.

Yes

Facility and Equipment Checks

Calibration certificates checked and valid, and recorded in the following table:

Yes

Equipment	Serial / Certificate #	Calibration Data	
Photometry Measuring Equipment	GO-HD5	Calibration due:	18 December 2016
Colorimetric Test Equipment	PMS-2000	Calibration due:	18 December 2016
		Calibration due:	
		Calibration due:	
		Calibration due:	
		Calibration due:	
		Calibration due:	



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Report Number: CSS370529

Issue: N/A

Specifications

Markings

4.1.1.	Lamp bears indelible trade name or trade mark of the applicant.	Yes
4.1.2.	TOP' is inscribed horizontally on the highest part of the illuminating surface, if such an indication is necessary to determine without ambiguity the angle(s) of rotation prescribed by the manufacturer.	NA
4.1.3.	For class IA, IB, IIIA or IIIB intended to be installed with its H plane at a mounting height less than 750 mm above the ground, a vertical arrow starting from a horizontal segment	NA
4.3.	Markings are applied on the illuminating surface.	Yes
4.4.	Markings are clearly legible and indelible.	Yes

General

6.1.	Retro-reflecting devices are constructed so that they function satisfactorily and will continue to do so in normal use.	Yes
6.2.	Components of retro-reflecting devices are not capable of being easily dismantled.	Yes
6.3.	Retro-reflecting optical units are not replaceable.	Yes
6.4.	Outer surface of retro-reflecting devices are easy to clean.	Yes
6.5.	For devices of class IVA, their means of fixation are such that they allow a stable and durable connection between the device and the vehicle.	NA
6.6.	There is no access to the inner surface of the retro-reflectors when in normal use.	Yes

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.





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Report Number: CSS370529
Issue: N/A

Requirements

Annex 5 Specifications of Shape and Dimensions

- | | | |
|-----|---|-----|
| 1.1 | The shape of the illuminating surfaces shall not be easily confused with a triangle at normal observation distances. | Yes |
| 1.2 | The preceding paragraph notwithstanding, a shape resembling the letters or digits of simple form O, I, U or 8 is permissible. | NA |

Annex 16 Test Procedure - Class IB or IIIB

- | | | |
|---|--|-----|
| 1 | The applicant shall submit for approval ten samples which shall be tested in the chronological order indicated in Annex 12 | Yes |
| 2 | Ten samples shall be subjected to the heat resistance test described in Annex 10 | Yes |
| | at least one hour after this test examined as to their colorimetric characteristics and CIL (Annex7) | Yes |
| | The two retroreflecting devices giving the minimum and maximum values shall then be fully tested as shown in Annex 7. These two samples shall be kept by the laboratories for any further checks | Yes |

Samples G and H

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.



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Report Number: CSS370529
Issue: N/A

Requirements

Eight remaining samples shall be divided into four groups of two:

Group 1	The two samples shall be subjected successively to the water penetration test (Annex 8, paragraph 1.1.)	Yes
	Tests for resistance to fuels and lubricants (Annex 8, paragraphs 3. and 4.).	Yes
Group 2	Two samples shall, if necessary, be subjected to the corrosion test (Annex 8, paragraph 2.)	Yes
	The abrasive-strength test of the rear face of the retro-reflecting device (Annex 8, paragraph 5.).	Yes
Group 3	Two samples shall be subjected to the test for stability in time of the optical properties of retro-reflecting device (Annex 9).	Yes
Group 4	two samples shall be subjected to the colour-fastness test (Annex 11).	Yes
3	The retro-reflecting devices in each group must have	
3.1	a colour which satisfies the conditions laid down in Annex 6. This shall be verified by a qualitative method and, in case of doubt, confirmed by a quantitative method.	Yes
3.2	a CIL which satisfies the conditions laid down in Annex 7	Yes

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.



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Report Number: CSS370529

Issue: N/A

Photometric Specifications

Annex 7 The CIL values for red retro-reflecting devices must be at least equal to those in
3.1.1. the table below, expressed in millicandelas per lux, for the angles of divergence
and illumination shown.

Sample: G
Class: IB

Colour: Red
Location: Rear

Illumination Angle, Degrees	Minimum Limit	Measured Values at 20'	Minimum Limit	Measured Values at 1° 30'	Complies
H,V	300	322.75	5.0	49.91	Yes
10 U, V	200	257.78	2.8	42.48	Yes
10 D, V	200	273.66	2.8	43.46	Yes
5 U, 20 L	100	160.80	2.5	33.35	Yes
5 D, 20 L	100	158.33	2.5	33.00	Yes
5 U, 20 R	100	131.74	2.5	33.62	Yes
5D, 20 R	100	147.36	2.5	32.49	Yes

Sample: H
Class: IB

Colour: Red
Location: Rear

Illumination Angle, Degrees	Minimum Limit	Measured Values at 20'	Minimum Limit	Measured Values at 1° 30'	Complies
H,V	300	408.93	5.0	55.24	Yes
10 U, V	200	363.32	2.8	52.10	Yes
10 D, V	200	314.71	2.8	51.96	Yes
5 U, 20 L	100	199.56	2.5	38.84	Yes
5 D, 20 L	100	203.77	2.5	39.70	Yes
5 U, 20 R	100	175.67	2.5	37.01	Yes
5D, 20 R	100	184.27	2.5	38.05	Yes

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.



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Report Number: CSS370529
Issue: N/A

Photographs

Complete reflex-reflector showing geometric conditions of installation and relating variations.





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Report Number: CSS370529

Issue: N/A

Test Report: Rear Registration Plate Lamp

Legislation

UNECE Regulation 4.00 Supplement 17, Revision 3

Test Details

Location of Test: Huachen Vehicle Inspection Co., Ltd
Xinxing Road (No.29, West Zone of Jinjiang
Industrial Park), Jinqiao Village, Danbei Town,
Danyang City, Jiangsu Province, P.R. China
Date of Test: 15 August 2016
VCA Representative(s): Ma Quanlin and Fu Zongyuan
Manufacturer's Representative(s): Ye Feng
Reason for Test: New approval

Manufacturer Details

Name and Address: Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town,
Yuyao City, Zhejiang Province, China
Trade Name: See manufacturer's document
Type & Commercial Description: JH204
Lamp Category: L
Plate Category(ies) ☐ 1a ☒ 1b ☐ 1c ☐ 2a ☐ 2b

Conclusion

The above mentioned lamp was tested in accordance with the above mentioned legislation and was found to comply in all respects.

Signature: 
Test witnessed by:
Name: Fu Zongyuan
Position: Type Approval Engineer
Date: 19 August 2016

List of Annexes

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Report Number: CSS370529

Issue: N/A

Worst Case Rationale

New approval

Test Required

Luminance Measurements:	Yes
Colour of Light:	Yes
Photos of Lamp:	Yes
Determine Limits of the Apparent Surface (98 % Boundary):	Yes

Component Specification

Component Number(s): 2

Lamp Type:	LED	LED Module: Non-Replaceable
Number of Total Light Source(s):	1	
Rated Voltage and Wattage:	12 volts	0.5 watts
Light Source Module:	select one	

Vehicle Category: O (all)

Component lamp is as specified in manufacturer's documentation. Yes

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested and covers all variants and versions agreed in the worst case rationale. Yes

Facility and Equipment Checks

Calibration certificates checked and valid, recorded in the following table: Yes

Equipment	Serial / Certificate #	Calibration Due:
Photometry Measuring Equipment	GO-HD5	16 December 2016
Colormetric Test Equipment	PMS-2000	16 December 2016



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Report Number: CSS370529

Issue: N/A

General Requirements

Markings

3.1.	Lamp bears indelible trade name or trade mark of applicant.	Yes
3.2.	Drawings show sufficient space for approval markings and additional symbols.	Yes
3.3.	For lamps using non-replaceable light sources or light modules, lamp bears markings with the rated voltage and rated wattage.	Yes
3.4.	Category of filament lamps/light source module specific identification code clearly marked, legible and indelible. (N/A for non-replaceable light sources.)	Yes
3.5.1.	Light source module trade name/trade mark clearly legible and indelible.	NA
3.5.2.	Identification code of the module starts with 'MD', followed by approval marking.	NA
3.5.3.	Light source module rated voltage and wattage marked.	NA
4.6.1.2.	No part of the grouped/combined/reciprocally incorporated lamps that transmits light is removable without also removing the approval marking.	NA
4.6.5.	Approval marking clearly legible and indelible, visible when fitted and cannot be separated from the transparent part of the device.	Yes
4.6.	Grouped/combined/reciprocally incorporated with other lamps, all functions meet relevant regulations.	NA

General

5.2.	category prescribed by the manufacturer with the voltage regulated to provide reference flux.	Yes
5.4.	For devices except filament lamps, luminance values comply after one minute and after 30 minutes.	NA
5.5.1.	Light source module can only be fitted in the correct orientation.	NA
5.5.2.	Light source module is tamperproof.	NA





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Report Number: CSS370529 Issue: N/A

General Requirements

Incidence of Light

- | | | |
|---|---|-----|
| 7 | Lamps mounted as per manufacturer's specification. | Yes |
| 7 | Incident angle of light on the plate does not exceed 82° (measured from extremity of the device's illuminating area). | Yes |
| 7 | No light (other than red light for combined/grouped lamps) emitted directly to the rear. | Yes |

Photometric Characteristics

- | | | |
|---|--|-----|
| 9 | At each measurement point, $B \geq 2.5 \text{ cd/m}^2$. | Yes |
| 9 | Luminance gradient complies with: $(B2 - B1 / d) \leq 2 \times B0/\text{cm}$
B0 is the min. measured luminance, d is distance (in cm) between points B1 and B2. | Yes |

Remarks:

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.

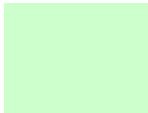
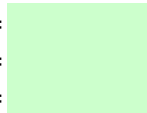


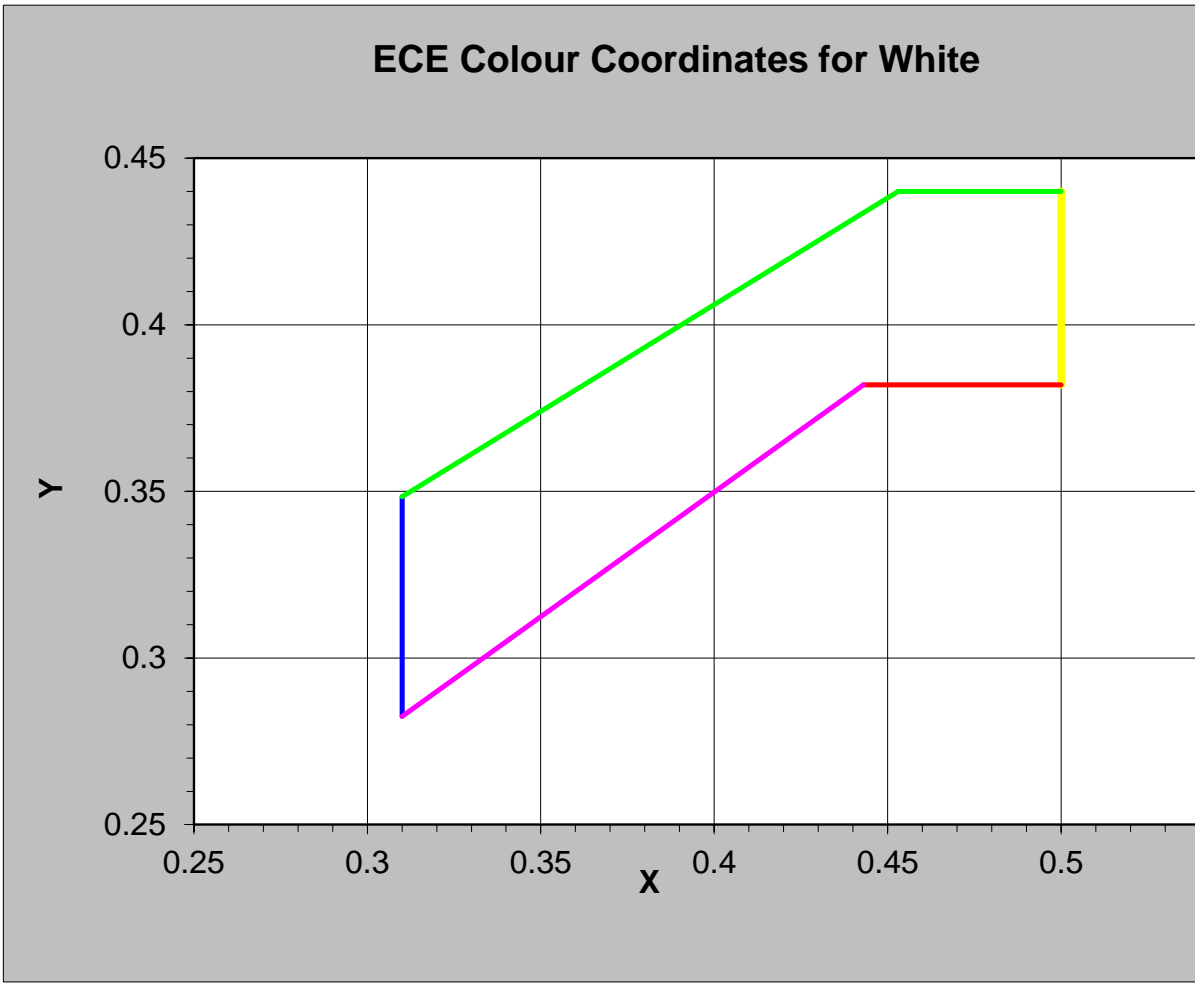


Report Number: CSS370529

General Requirements

- 6 Light produced by the lamp is sufficiently colourless not to change the colour of the registration plate

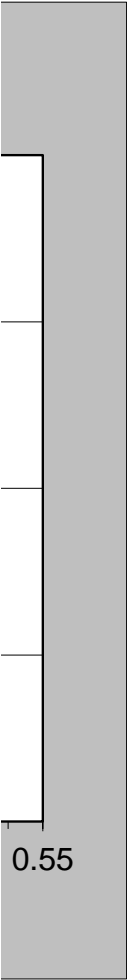
Sample 1	Sample 2
X= 	X= 
Y=	Y=
Z=	Z=



I5151

Issue: N/A

Yes





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Report Number: CSS370529

Issue: N/A

Category 1b (520 x 120) Results

Installation position: X=15 , Y=13.5

Sample: 1

Lamp Type: LED

Complies

1 minute: 11.1

Bo @ 1 min: 10.4

Yes

30 Mins.: 11.0

Max Gradient @ 1 min: 4.03

Yes

Ratio: 1.01

Bo @ 30 min: 10.3

Yes

Max Gradient @ 30 min: 3.99

Yes

Test Points

<div>74.9</div> <div>74.2</div> <div>1</div>	<div>35.4</div> <div>35.1</div> <div>2</div>	<div>11.1</div> <div>11.0</div> <div>3</div>	<div>11.0</div> <div>10.9</div> <div>4</div>	<div>34.9</div> <div>34.6</div> <div>5</div>	<div>74.4</div> <div>73.7</div> <div>6</div>
<div>74.5</div> <div>73.8</div> <div>7</div>	<div>34.2</div> <div>33.9</div> <div>8</div>	<div>10.5</div> <div>10.4</div> <div>9</div>	<div>10.4</div> <div>10.3</div> <div>10</div>	<div>34.7</div> <div>34.4</div> <div>11</div>	<div>74.2</div> <div>73.5</div> <div>12</div>

Sample: 2

Lamp Type: LED

Complies

1 minute: 10.6

Bo @ 1 min: 10.4

Yes

30 Mins.: 10.5

Max Gradient @ 1 min: 3.92

Yes

Ratio: 1.01

Bo @ 30 min: 10.3

Yes

Max Gradient @ 30 min: 3.88

Yes

Test Points

<div>74.0</div> <div>73.3</div> <div>1</div>	<div>34.9</div> <div>34.6</div> <div>2</div>	<div>10.6</div> <div>10.5</div> <div>3</div>	<div>10.7</div> <div>10.6</div> <div>4</div>	<div>35.3</div> <div>35.0</div> <div>5</div>	<div>74.5</div> <div>73.8</div> <div>6</div>
<div>73.9</div> <div>73.2</div> <div>7</div>	<div>34.9</div> <div>34.6</div> <div>8</div>	<div>10.5</div> <div>10.4</div> <div>9</div>	<div>10.4</div> <div>10.3</div> <div>10</div>	<div>34.6</div> <div>34.3</div> <div>11</div>	<div>73.8</div> <div>73.1</div> <div>12</div>



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Report Number: CSS370529

Issue: N/A

Category 1b (520 x 120) Results

Installation position: X=15 , Y=23.5

Sample: 1

Lamp Type: LED

Complies

1 minute: 7.3

Bo @ 1 min: 6.8

Yes

30 Mins.: 7.2

Max Gradient @ 1 min: 4.03

Yes

Ratio: 1.01

Bo @ 30 min: 6.7

Yes

Max Gradient @ 30 min: 3.99

Yes

Test Points

<div>63.5</div> <div>62.6</div> <div>1</div>	<div>22.3</div> <div>22.0</div> <div>2</div>	<div>7.3</div> <div>7.2</div> <div>3</div>	<div>7.1</div> <div>7.0</div> <div>4</div>	<div>21.7</div> <div>21.4</div> <div>5</div>	<div>61.6</div> <div>60.8</div> <div>6</div>
<div>62.7</div> <div>61.8</div> <div>7</div>	<div>21.7</div> <div>21.4</div> <div>8</div>	<div>7.1</div> <div>7.0</div> <div>9</div>	<div>6.8</div> <div>6.7</div> <div>10</div>	<div>21.3</div> <div>21.0</div> <div>11</div>	<div>60.9</div> <div>60.1</div> <div>12</div>

Sample: 2

Lamp Type: LED

Complies

1 minute: 7.9

Bo @ 1 min: 6.9

Yes

30 Mins.: 7.8

Max Gradient @ 1 min: 3.92

Yes

Ratio: 1.01

Bo @ 30 min: 6.8

Yes

Max Gradient @ 30 min: 3.88

Yes

Test Points

<div>64.3</div> <div>63.5</div> <div>1</div>	<div>23.9</div> <div>23.6</div> <div>2</div>	<div>7.9</div> <div>7.8</div> <div>3</div>	<div>7.2</div> <div>7.1</div> <div>4</div>	<div>22.6</div> <div>22.3</div> <div>5</div>	<div>62.7</div> <div>61.9</div> <div>6</div>
<div>63.4</div> <div>62.6</div> <div>7</div>	<div>23.1</div> <div>22.8</div> <div>8</div>	<div>7.6</div> <div>7.5</div> <div>9</div>	<div>6.9</div> <div>6.8</div> <div>10</div>	<div>22.3</div> <div>22.0</div> <div>11</div>	<div>62.2</div> <div>61.4</div> <div>12</div>



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Report Number: CSS370529

Issue: N/A

Category 1b (520 x 120) Results

Installation position: X=75 , Y=13.5

Sample: 1

Lamp Type: LED

Complies

1 minute: 8.2

Bo @ 1 min: 7.7

Yes

30 Mins.: 8.1

Max Gradient @ 1 min: 4.03

Yes

Ratio: 1.01

Bo @ 30 min: 7.6

Yes

Max Gradient @ 30 min: 3.99

Yes

Test Points

<div>56.4</div> <div>55.7</div> <div>1</div>	<div>29.4</div> <div>29.0</div> <div>2</div>	<div>8.2</div> <div>8.1</div> <div>3</div>	<div>8.0</div> <div>7.9</div> <div>4</div>	<div>28.8</div> <div>28.4</div> <div>5</div>	<div>55.8</div> <div>55.1</div> <div>6</div>
<div>54.7</div> <div>54.0</div> <div>7</div>	<div>28.6</div> <div>28.3</div> <div>8</div>	<div>7.7</div> <div>7.6</div> <div>9</div>	<div>7.8</div> <div>7.7</div> <div>10</div>	<div>28.3</div> <div>28.0</div> <div>11</div>	<div>55.7</div> <div>55.0</div> <div>12</div>

Sample: 2

Lamp Type: LED

Complies

1 minute: 8.6

Bo @ 1 min: 8.3

Yes

30 Mins.: 8.5

Max Gradient @ 1 min: 3.92

Yes

Ratio: 1.01

Bo @ 30 min: 8.2

Yes

Max Gradient @ 30 min: 3.88

Yes

Test Points

<div>55.5</div> <div>54.9</div> <div>1</div>	<div>29.1</div> <div>28.8</div> <div>2</div>	<div>8.6</div> <div>8.5</div> <div>3</div>	<div>8.7</div> <div>8.6</div> <div>4</div>	<div>29.2</div> <div>28.9</div> <div>5</div>	<div>55.0</div> <div>54.4</div> <div>6</div>
<div>55.8</div> <div>55.2</div> <div>7</div>	<div>29.0</div> <div>28.7</div> <div>8</div>	<div>8.4</div> <div>8.3</div> <div>9</div>	<div>8.3</div> <div>8.2</div> <div>10</div>	<div>28.3</div> <div>28.0</div> <div>11</div>	<div>55.1</div> <div>54.5</div> <div>12</div>



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Report Number: CSS370529

Issue: N/A

Category 1b (520 x 120) Results

Installation position: X=75 , Y=23.5

Sample: 1

Lamp Type: LED

Complies

1 minute: 6.0

Bo @ 1 min: 3.0

Yes

30 Mins.: 11.0

Max Gradient @ 1 min: 4.03

Yes

Ratio: 0.55

Bo @ 30 min: 5.5

Yes

Max Gradient @ 30 min: 3.99

Yes

Test Points

<div>25.1</div> <div>46.1</div> <div>1</div>	<div>12.2</div> <div>22.3</div> <div>2</div>	<div>3.2</div> <div>5.9</div> <div>3</div>	<div>3.3</div> <div>6.0</div> <div>4</div>	<div>12.2</div> <div>22.4</div> <div>5</div>	<div>25.3</div> <div>46.4</div> <div>6</div>
<div>24.9</div> <div>45.7</div> <div>7</div>	<div>11.9</div> <div>21.8</div> <div>8</div>	<div>3.2</div> <div>5.8</div> <div>9</div>	<div>3.0</div> <div>5.5</div> <div>10</div>	<div>12.0</div> <div>22.0</div> <div>11</div>	<div>25.1</div> <div>46.0</div> <div>12</div>

Sample: 2

Lamp Type: LED

Complies

1 minute: 5.8

Bo @ 1 min: 5.8

Yes

30 Mins.: 5.7

Max Gradient @ 1 min: 3.92

Yes

Ratio: 1.02

Bo @ 30 min: 5.7

Yes

Max Gradient @ 30 min: 3.88

Yes

Test Points

<div>46.1</div> <div>45.3</div> <div>1</div>	<div>21.6</div> <div>21.2</div> <div>2</div>	<div>5.8</div> <div>5.7</div> <div>3</div>	<div>6.0</div> <div>5.9</div> <div>4</div>	<div>22.5</div> <div>22.1</div> <div>5</div>	<div>46.6</div> <div>45.8</div> <div>6</div>
<div>45.6</div> <div>44.8</div> <div>7</div>	<div>21.4</div> <div>21.0</div> <div>8</div>	<div>5.8</div> <div>5.7</div> <div>9</div>	<div>5.9</div> <div>5.8</div> <div>10</div>	<div>22.1</div> <div>21.7</div> <div>11</div>	<div>46.0</div> <div>45.2</div> <div>12</div>



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Report Number: CSS370529
Issue: N/A

Test Report: Direction Indicators

Legislation

UNECE Regulation: 6.01 Supplement 26, Revision 06
Taiwan Regulation: N.A

Test Details

Location of Test: Huachen Vehicle Inspection Co., Ltd
Xinxing Road (No.29, West Zone of Jinjiang
Industrial Park), Jinqiao Village, Danbei Town,
Danyang City, Jiangsu Province, P.R. China
Date of Test: 15 August 2016
VCA Representative(s): Ma Quanlin and Fu Zongyuan
Manufacturer's Representative(s): Ye Feng
Reason for Test: New approval

Manufacturer Details

Name and Address: Ningbo Jiahui Auto Parts Co., Ltd.
Lincheng Village, Linshan Town,
Yuyao City, Zhejiang Province, China
Trade Name: See manufacture's document
Type & Commercial Description: JH204
Category: 2a --

Conclusion

The above mentioned lamp was tested in accordance with the above legislation and was found to comply in all respects.

Signature:

Name: Fu Zongyuan
Position: Type Approval engineer
Date: 19 August 2016

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Report Number: CSS370529
Issue: N/A

Worst Case Rationale

New approval

Test Required

Photometric Performance:	Yes
Photometric Performance with Failed Lamp:	NA
Colour of Light:	Yes
Photos of Lamps and Set-up:	Yes
Determine Limits of the Apparent Surface (98 % Bounda	Yes

Component Specification

Component Number(s): Two samples

Lamp Type:	LED	
Number of Total Light Source(s):	1	Colour: Amber
Rated Voltage:	12 volts	
Rated Wattage:	2.5 watts	
Light Source Module:	NA	

Electronic Light Source Gear: NA

Vehicle Category: O (all)
Mounting Height Above 750mm

Component lamp is as specified in the manufacturer's documentation. Yes

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component lamp tested and covers all variants and versions agreed in the worst case rationale. Yes



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Report Number: CSS370529
Issue: N/A

Facility and Equipment Checks

Calibration certificates checked and valid, recorded in the following table: Yes

Equipment	Serial / Certificate #	Calibration Data	
Photometry Measuring Equipment	GO-HD5	<i>Calibration due:</i>	16 December 2016
Colormetric Test Equipment	PMS-2000	<i>Calibration due:</i>	16 December 2016
		<i>Calibration due:</i>	
		<i>Calibration due:</i>	



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Report Number: CSS370529
Issue: N/A

Test Requirements

Complies

ECE

Markings

3.1.	Lamp bears indelible trade name or trade mark of the applicant.	Yes
3.2.	Lamp has non-replaceable light source or Lamp bears marking of bulb category(ies) or Lamp bears marking of light module identification code.	Yes NA NA
3.4.	For lamps using non-replaceable light sources or light modules, lamp bears markings with the rated voltage and rated wattage.	Yes
3.5.	Lamp meets light source module marking requirements.	NA
4.2, 4.3, 4.4	Approval mark meets requirements.	Yes

General

5.2.	Lamp is durable in normal operation.	Yes
5.3.1, 5.3.2	Light source modules are tamper-proof and only able to be installed in the correct orientation.	NA
5.4	In case of failure of the variable intensity control of a direction indicator of category 2b emitting more than the maximum value of category 2a, requirements of steady luminous intensity of category 2a shall be fulfilled automatically.	NA

Remarks:

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.



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Report Number: CSS370529
Issue: N/A

Test Requirements

Complies

ECE

Testing

6.1.1.	For an assembly of two or more direction indicator lamps, the total intensity doesnot exceed the maximum value.	NA
6.1.2.	When an assembly of two or more lamps having the same function is deemed to be a single lamp, it complies with the requirements for:	
a)	Maximum intensity when all lamps together are lit;	Yes
b)	If one lamp has failed: Minimum intensity is met; All lamps failed.	NA Yes
6.4	Lamps measured were continuously lit.	Yes
7.1.2	Lamps with non-replaceable light sources were tested at 6.75, 13.5 or 28 V.	Yes
7.5	Limits of apparent surface (98 % boundary) were defined.	Yes

Remarks:

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.



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Report Number: CSS370529
Issue: N/A

Photometric Performance

Category: 2a --

1 Min.: 61.87
30 Mins.: 59.74
Ratio: 1.04

Sample: 1
Lamp Type: LED
LED Module: NA

Location	Measured Value (cd)	Calculated Value at 1 Minute (cd) LED only	Required Maximum Value (cd)	Required Minimum Value (cd)	Complies
10U, 5L	20.9	21.61	500	10	Yes
10U, 5R	21.6	22.32	500	10	Yes
5U, 20R	11.7	12.10	500	5	Yes
5U, 10R	22.5	23.30	500	10	Yes
5U, V	42.7	44.17	500	35	Yes
5U, 10L	21.0	21.76	500	10	Yes
5U, 20L	11.3	11.72	500	5	Yes
H, 10L	21.3	22.05	500	17.5	Yes
H, 5L	52.6	54.50	500	45	Yes
H, V	59.7	61.87	500	50	Yes
H, 5R	53.3	55.23	500	45	Yes
H, 10R	23.5	24.29	500	17.5	Yes
5D, 20R	12.9	13.34	500	5	Yes
5D, 10R	23.6	24.44	500	10	Yes
5D, V	43.8	45.31	500	35	Yes
5D, 10L	22.2	23.03	500	10	Yes
5D, 20L	12.8	13.30	500	5	Yes
10D, 5L	23.8	24.68	500	10	Yes
10D, 5R	24.5	25.40	500	10	Yes
Visibility Scan (minimum and maximum values)					
15U - 15D 80L - 80R	0.550	0.57	500	0.3	Yes
15U - 15D 80L - 80R	62.710	64.95	500	0.3	Yes



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Report Number: CSS370529
Issue: N/A

Photometric Performance

Category: 2a --

1 Min.: 57.27
30 Mins.: 55.01
Ratio: 1.04

Sample: 2
Lamp Type: LED
LED Module: NA

Location	Measured Value (cd)	Calculated Value at 1 Minute (cd) LED only	Required Maximum Value (cd)	Required Minimum Value (cd)	Complies
10U, 5L	18.7	19.48	500	10	Yes
10U, 5R	18.6	19.34	500	10	Yes
5U, 20R	8.2	8.58	500	5	Yes
5U, 10R	18.8	19.57	500	10	Yes
5U, V	38.5	40.12	500	35	Yes
5U, 10L	19.1	19.83	500	10	Yes
5U, 20L	8.8	9.18	500	5	Yes
H, 10L	28.9	30.12	500	17.5	Yes
H, 5L	48.8	50.84	500	45	Yes
H, V	55.0	57.27	500	50	Yes
H, 5R	49.3	51.30	500	45	Yes
H, 10R	29.0	30.17	500	17.5	Yes
5D, 20R	8.5	8.88	500	5	Yes
5D, 10R	18.8	19.55	500	10	Yes
5D, V	39.3	40.92	500	35	Yes
5D, 10L	18.6	19.38	500	10	Yes
5D, 20L	9.4	9.74	500	5	Yes
10D, 5L	19.2	19.98	500	10	Yes
10D, 5R	18.9	19.70	500	10	Yes
Visibility Scan (minimum and maximum values)					
15U - 15D 80L - 80R	1.100	1.15	500	0.3	Yes
15U - 15D 80L - 80R	59.800	62.26	500	0.3	Yes



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Report Number: CSS370529

Issue: N/A

Colour of Light

8 Colour of light emitted

Complies

The colour of the light emitted inside the field of the light distribution grid defined in paragraph 2. of Annex 4 shall be **amber**

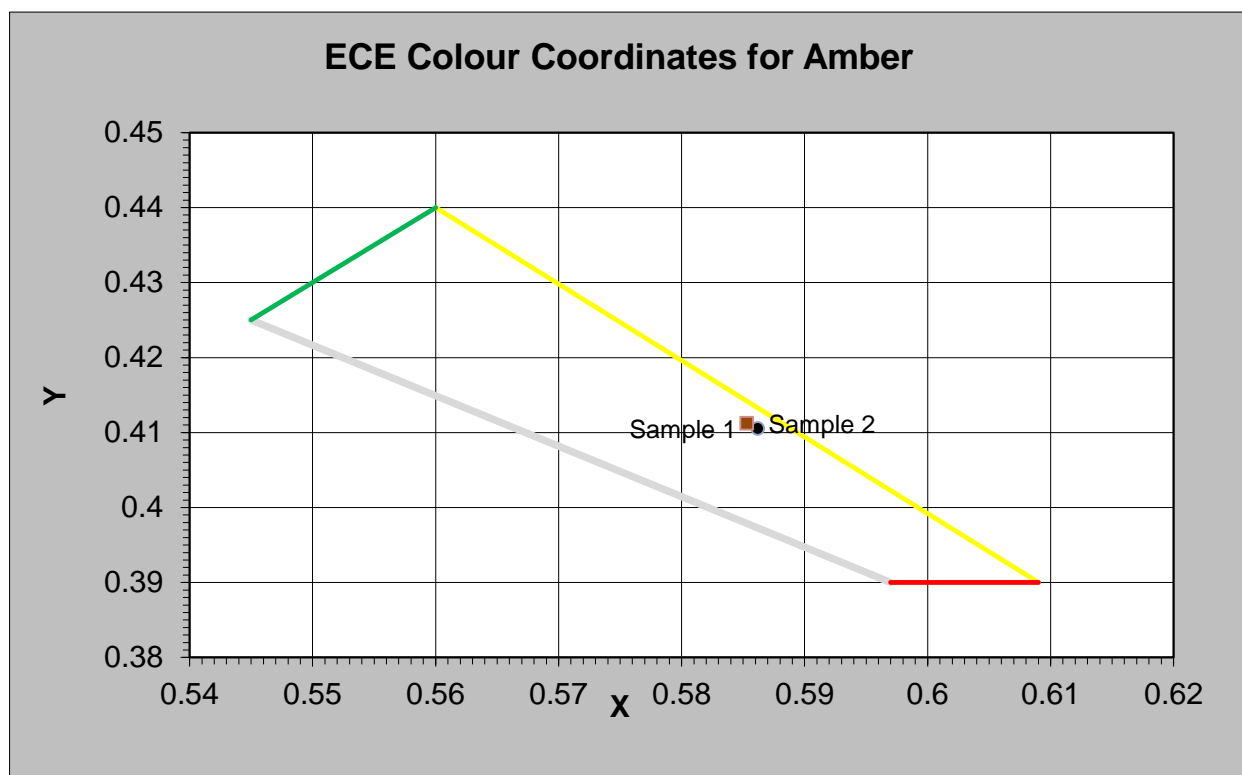
Y

Sample 1

x: 0.5862
y: 0.4105
z: -

Sample 2

x: 0.5853
y: 0.4112
z: -





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Report Number: CSS370529
Issue: N/A

Component Photos

Photos of lamp mounted on the goniometer including any surrounding housing or obstructions and fixturing.





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TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS

Regulation 7.02

REPORT/JOB NUMBER:	CSS370529
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TEST DETAILS

Location of Test:	Huachen Vehicle Inspection Co., Ltd
Date of Test:	2016/8/15
VCA Representative(s):	Ma Quanlin and Fu Zongyuan
Manufacturer's Representative(s):	Ye Feng
Reason for Test:	New approval

MANUFACTURER DETAILS

Manufacturer's Name:	Ningbo Jiahui Auto Parts Co., Ltd.
Manufacturer's Address:	Lincheng Village, Linshan Town, Yuyao City, Zhejiang Province, China
Model Type & Description:	JH204
Category:	S1-R1

CONCLUSION

The above mentioned lamp was tested in accordance with
ECE Regulation 7.02 and was found to comply in all respects

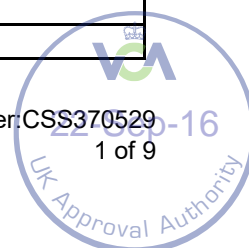
Signature:

Name: Fu Zongyuan
Position: Type Approval Engineer
Date: 2016/8/19

LIST OF ANNEXES		
ANNEX	No. of PAGES	SUBJECT
1		
2		
3		
4		

Job/ Report Number: CSS370529

1 of 9





TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS
Regulation 7.02

TEST SPECIFICATION AND WORST CASE RATIONALE

New approval

Tests required (if more than one is applicable):
2 samples for photometry (if design is symmetrically opposite, one left hand and one right hand lamp is acceptable)
2 samples for colour (if design is symmetrically opposite, one left hand and one right hand lamp is acceptable)
~~2 samples for stop/rear position: rear position ratio~~
~~2 samples for failed light source(s) (if lamp contains multiple light sources)~~

Manufacturer's documentation is complete and reflects the agreed specification for the component tested and covers all variants and versions agreed in the worst case rationale.

FACILITY AND EQUIPMENT CHECKS

- 1 Generic Risk Assessment followed Insert RA Identifier N/A
- OR
- Specific Risk Assessment completed and stored in in electronic job folder N/A
- 2 Facilities and test equipment are appropriate Y
- Brief description of test equipment:
- 3 Calibration certificates checked and valid, recorded in the following table

Equipment	Serial No	Calibration Date
Photometry Measuring Equipment	GO-HD5	2016/12/16
Colormetric Test Equipment	PMS-2000	2016/12/16



**TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS**

Regulation 7.02

Paragraph	Requirement	Complies? Y / N / N/A
-----------	-------------	--------------------------

Markings

3.1	Lamp bears indelible Trade Name or Trade Mark of applicant	Yes
3.2	Lamp has non-replaceable light source or Lamp bears marking of bulb category(ies) or Lamp bear marking of light module identification code	Yes N/A N/A
3.4	For lamps using non-replaceable light sources or light modules, lamp bears markings with the rated voltage and rated wattage	Yes
3.5	Lamp has non-standard/secondary operating voltage marking	N/A
3.6	Lamp meets light source module marking requirements	N/A
4.2, 4.3	Approval mark meets requirements	Yes

General

5.2	Lamp is durable in normal operation	Yes
5.5.1	Rear position lamps reciprocally incorporated with a stop lamp and using a common light source must either: Have multiple light sources or Be intended for fitment to a vehicle with a monitoring system (A note is required on the Comm Doc in either case)	Yes N/A
5.6.1, 5.6.2	Light source modules must be tamper-proof and only able to be installed in the correct orientation	N/A

Testing

6 Note 4b	Lamps with multiple light sources meet minimum photometric requirements with any one light source failed	Yes
7.1.2	Lamps with non-replaceable light sources were tested at 6.75, 13.5 or 28V	Yes
7.4	Limits of apparent surface (98% boundary) were defined	Yes
7.6	S3 stop lamps for mounting inside vehicles were tested behind samples of all optional glass (photometry and colour)	N/A





TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS
Regulation 7.02

Rear Position Lamp Photometry - Sample 1

Reading at HV at 1 minute: 5.24

Location	Measured Value at 30 minutes cd	Calculated Value at 1 Minute cd	Required Maximum Value cd	Required Minimum Value cd	Fail ?
15U, 80R	0.13	0.14	17	0.05	
15U, 80L	0.13	0.14	17	0.05	
10U, 5L	1.76	1.92	17	0.8	
10U, 5R	1.78	1.94	17	0.8	
5U, 20R	1.71	1.87	17	0.4	
5U, 10R	2.78	3.03	17	0.8	
5U, V	3.79	4.14	17	2.8	
5U, 10L	2.73	2.98	17	0.8	
5U, 20L	1.70	1.86	17	0.4	
H, 10L	2.72	2.97	17	1.4	
H, 5L	3.81	4.16	17	3.6	
H, V	4.80	5.24	17	4	
H, 5R	3.84	4.19	17	3.6	
H, 10R	1.78	1.94	17	1.4	
5D, 20R	1.69	1.84	17	0.4	
5D, 10R	2.76	3.01	17	0.8	
5D, V	3.77	4.12	17	2.8	
5D, 10L	2.71	2.96	17	0.8	
5D, 20L	1.68	1.83	17	0.4	
10D, 5L	1.71	1.87	17	0.8	
10D, 5R	1.73	1.89	17	0.8	
15D, 80R	0.13	0.14	17	0.05	
15D, 80L	0.13	0.14	17	0.05	

Colour coordinates

x (measured) 0.6952

y (measured) 0.3025

z (measured):

Requirement: $y \leq 0.335$

Pass

Requirement: $y \geq 0.98 - x$

Pass



TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS

Regulation 7.02

Rear Position Lamp Photometry - Sample 2

Reading at HV at 1 minute: 5.15

Location	Measured Value at 30 minutes cd	Calculated Value at 1 Minute cd	Required Maximum Value cd	Required Minimum Value cd	Fail ?
15U, 80R	0.16	0.18	17	0.05	
15U, 80L	0.18	0.20	17	0.05	
10U, 5L	2.21	2.47	17	0.8	
10U, 5R	2.22	2.48	17	0.8	
5U, 20R	2.43	2.71	17	0.4	
5U, 10R	2.22	2.48	17	0.8	
5U, V	3.29	3.68	17	2.8	
5U, 10L	2.24	2.50	17	0.8	
5U, 20L	2.50	2.79	17	0.4	
H, 10L	2.31	2.58	17	1.4	
H, 5L	4.08	4.56	17	3.6	
H, V	4.61	5.15	17	4	
H, 5R	4.05	4.52	17	3.6	
H, 10R	2.27	2.54	17	1.4	
5D, 20R	2.33	2.60	17	0.4	
5D, 10R	2.24	2.50	17	0.8	
5D, V	3.35	3.74	17	2.8	
5D, 10L	2.30	2.57	17	0.8	
5D, 20L	2.41	2.69	17	0.4	
10D, 5L	2.37	2.65	17	0.8	
10D, 5R	2.37	2.65	17	0.8	
15D, 80R	0.15	0.17	17	0.05	
15D, 80L	0.13	0.15	17	0.05	

Colour coordinates

x (measured) 0.6936

y (measured) 0.3019

z (measured):

Requirement: $y \leq 0.335$

Pass

Requirement: $y \geq 0.98 - x$

Pass





TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS
Regulation 7.02

S1 Stop Lamp Photometry - Sample 1

Reading at HV at 1 minute: 71.91

Location	Measured Value at 30 minutes cd	Calculated Value at 1 minute cd	Required Maximum Value cd	Required Minimum Value cd	Fail ?
15U, 45R	0.47	0.48	260	0.3	
15U, 45L	0.45	0.46	260	0.3	
10U, 5L	19.02	19.56	260	12	
10U, 5R	19.16	19.71	260	12	
5U, 20R	18.31	18.83	260	6	
5U, 10R	29.14	29.97	260	12	
5U, V	49.47	50.88	260	42	
5U, 10L	28.92	29.74	260	12	
5U, 20L	18.59	19.12	260	6	
H, 10L	39.24	40.36	260	21	
H, 5L	60.24	61.95	260	54	
H, V	69.92	71.91	260	60	
H, 5R	60.43	62.15	260	54	
H, 10R	40.29	41.44	260	21	
5D, 20R	18.80	19.34	260	6	
5D, 10R	29.55	30.39	260	12	
5D, V	50.01	51.43	260	42	
5D, 10L	29.40	30.24	260	12	
5D, 20L	19.03	19.57	260	6	
10D, 5L	19.70	20.26	260	12	
10D, 5R	19.81	20.37	260	12	
15D, 45R	0.48	0.49	260	0.3	
15D, 45L	0.51	0.52	260	0.3	

Colour coordinates

x (measured) 0.6922

y (measured) 0.3047

z (measured):

Requirement: $y \leq 0.335$

Pass

Requirement: $y \geq 0.98 - x$

Pass





TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS
Regulation 7.02

S1 Stop Lamp Photometry - Sample 2

Reading at HV at 1 minute: 69.75

Location	Measured Value at 30 minutes cd	Calculated Value at 1 minute cd	Required Maximum Value cd	Required Minimum Value cd	Fail ?
15U, 45R	0.79	0.82	260	0.3	
15U, 45L	0.86	0.89	260	0.3	
10U, 5L	25.10	26.11	260	12	
10U, 5R	25.06	26.07	260	12	
5U, 20R	17.87	18.59	260	6	
5U, 10R	35.64	37.08	260	12	
5U, V	48.39	50.35	260	42	
5U, 10L	35.37	36.80	260	12	
5U, 20L	18.22	18.96	260	6	
H, 10L	36.65	38.13	260	21	
H, 5L	59.71	62.12	260	54	
H, V	67.04	69.75	260	60	
H, 5R	57.31	59.63	260	54	
H, 10R	36.48	37.95	260	21	
5D, 20R	17.68	18.39	260	6	
5D, 10R	26.67	27.75	260	12	
5D, V	47.79	49.72	260	42	
5D, 10L	26.82	27.90	260	12	
5D, 20L	18.11	18.84	260	6	
10D, 5L	28.34	29.49	260	12	
10D, 5R	28.17	29.31	260	12	
15D, 45R	1.03	1.07	260	0.3	
15D, 45L	1.26	1.31	260	0.3	

Colour coordinates

x (measured) 0.6909

y (measured) 0.3052

z (measured):

Requirement: $y \leq 0.335$

Pass

Requirement: $y \geq 0.98 - x$

Pass





TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS

Regulation 7.02

Stop Lamp : Rear Position Lamp Ratios - Sample 1

At 1 minute:

	Rear Position Intensities cd	Stop Intensities cd	Ratio	Fail ?
5U, 10R	3.03	30.87	10.2	
5U, V	4.14	52.16	12.6	
5U, 10L	2.98	30.59	10.3	
H, 10L	2.97	40.90	13.8	
H, 5L	4.16	62.89	15.1	
H, V	5.24	73.58	14.0	
H, 5R	4.19	63.05	15.0	
H, 10R	1.94	40.97	21.1	
5D, 10R	3.01	31.20	10.4	
5D, V	4.12	52.63	12.8	
5D, 10L	2.96	31.01	10.5	

At 30 minutes:

	Rear Position Intensities cd	Stop Intensities cd	Ratio	Fail ?
5U, 10R	2.78	30.87	11.1	
5U, V	3.79	52.16	13.8	
5U, 10L	2.73	30.59	11.2	
H, 10L	2.72	40.90	15.0	
H, 5L	3.81	62.89	16.5	
H, V	4.80	73.58	15.3	
H, 5R	3.84	63.05	16.4	
H, 10R	1.78	40.97	23.0	
5D, 10R	2.76	31.20	11.3	
5D, V	3.77	52.63	14.0	
5D, 10L	2.71	31.01	11.4	

Note: This sheet calculates the ratio of the stop lamp to the rear position lamp. Depending on the construction of the lamp, this may be a worst case as the test should ratio the stop and rear position lamp against the rear position lamp. If the calculation does not meet the 5:1 ratio, the test should be run in full.



**TEST REPORT: POSITION, STOP AND OUTLINE MARKER LAMPS**

Regulation 7.02

Stop Lamp : Rear Position Lamp Ratios - Sample 2**At 1 minute:**

	Rear Position Intensities cd	Stop Intensities cd	Ratio	Fail ?
5U, 10R	2.48	36.94	14.9	
5U, V	3.68	50.64	13.8	
5U, 10L	2.50	36.55	14.6	
H, 10L	2.58	37.60	14.6	
H, 5L	4.56	62.49	13.7	
H, V	5.15	69.79	13.6	
H, 5R	4.52	59.87	13.2	
H, 10R	2.54	37.92	15.0	
5D, 10R	2.50	27.80	11.1	
5D, V	3.74	50.05	13.4	
5D, 10L	2.57	27.89	10.9	

At 30 minutes:

	Rear Position Intensities cd	Stop Intensities cd	Ratio	Fail ?
5U, 10R	2.22	36.94	16.6	
5U, V	3.29	50.64	15.4	
5U, 10L	2.24	36.55	16.3	
H, 10L	2.31	37.60	16.3	
H, 5L	4.08	62.49	15.3	
H, V	4.61	69.79	15.1	
H, 5R	4.05	59.87	14.8	
H, 10R	2.27	37.92	16.7	
5D, 10R	2.24	27.80	12.4	
5D, V	3.35	50.05	14.9	
5D, 10L	2.30	27.89	12.1	

Note: This sheet calculates the ratio of the stop lamp to the rear position lamp. Depending on the construction of the lamp, this may be a worst case as the test should ratio the stop and rear position lamp against the rear position lamp. If the calculation does not meet the 5:1 ratio, the test should be run in full.

