2127535-QUA/PHO 09-115-57

**Approval testing of a rear combination lamp**

**trade mark (DAFA) & (dahao),**
**type name DF-TRL004.**

Arnhem, January 6, 2011

Author: H.M. van der Kolk
DEKRA Certification B.V. – Photometrics

By order of Zhejiang Dahao Automotive Co., Ltd., Taizhou, Zhejiang, P.R. China.

author : H.M. van der Kolk 06-01-2011 reviewed : G.C. Muda 06-01-2011
B 21 pages 4 annexes HVDK/RvdV

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## SUMMARY

The tested samples of a rear combination lamp marked (DAFA) & (dahao) type DF-TRL004 were found to comply with the requirements of ECE Regulations Nos. 03-02, 04-00, 06-01 and 07-02.

## 1 APPLICATION FOR APPROVAL TESTING

In the period from 12 to 21 October 2010, samples of a rear combination lamp, trade name (DAFA) & (dahao), type name DF-TRL004, manufactured by Zhejiang Dahao Automotive Co., Ltd. in Taizhou, Zhejiang, P.R. China were tested in the laboratory of ISOQA in Taichung, Taiwan.

The rear combination lamp consits of a:

- class IA retro reflector emitting red light,
- rear registration plate lamp using 8 LEDs and emitting white light,
- rear direction indicator using 5 LEDs emitting amber light
- rear position/ stop lamp using 5 LEDs emitting red light

A brief technical description and a drawing which were sufficiently detailed to permit identification of the model can be found in Annex 1 and 2 respectively.

The applicant desired an examination to check whether the rear combination lamp is in compliance with the requirements of the ECE Regulations No. 03-02, 04-00, 06-01 and 07-02

## 2 EXAMINATION

The examination was carried out in accordance with the relevant clauses of the regulation concerned. The tests were performed taking into consideration the manufacturer's information concerning centre and axis of reference.
For the photometric tests a test voltage of 13.5 V was applied.
The distance of measurement was 3.2m for the signal functions and 30.48m for the retro reflector. The diameter of the sensitive area of the receiver was 30 mm.

## 3 RESULTS OF EXAMINATION

The results of the tests are summarised in Annex 3. Detailed results of the tests of the lamps are presented in Annex 4, tables 1 up to 10.

## 4 SUPPLEMENTARY REMARKS

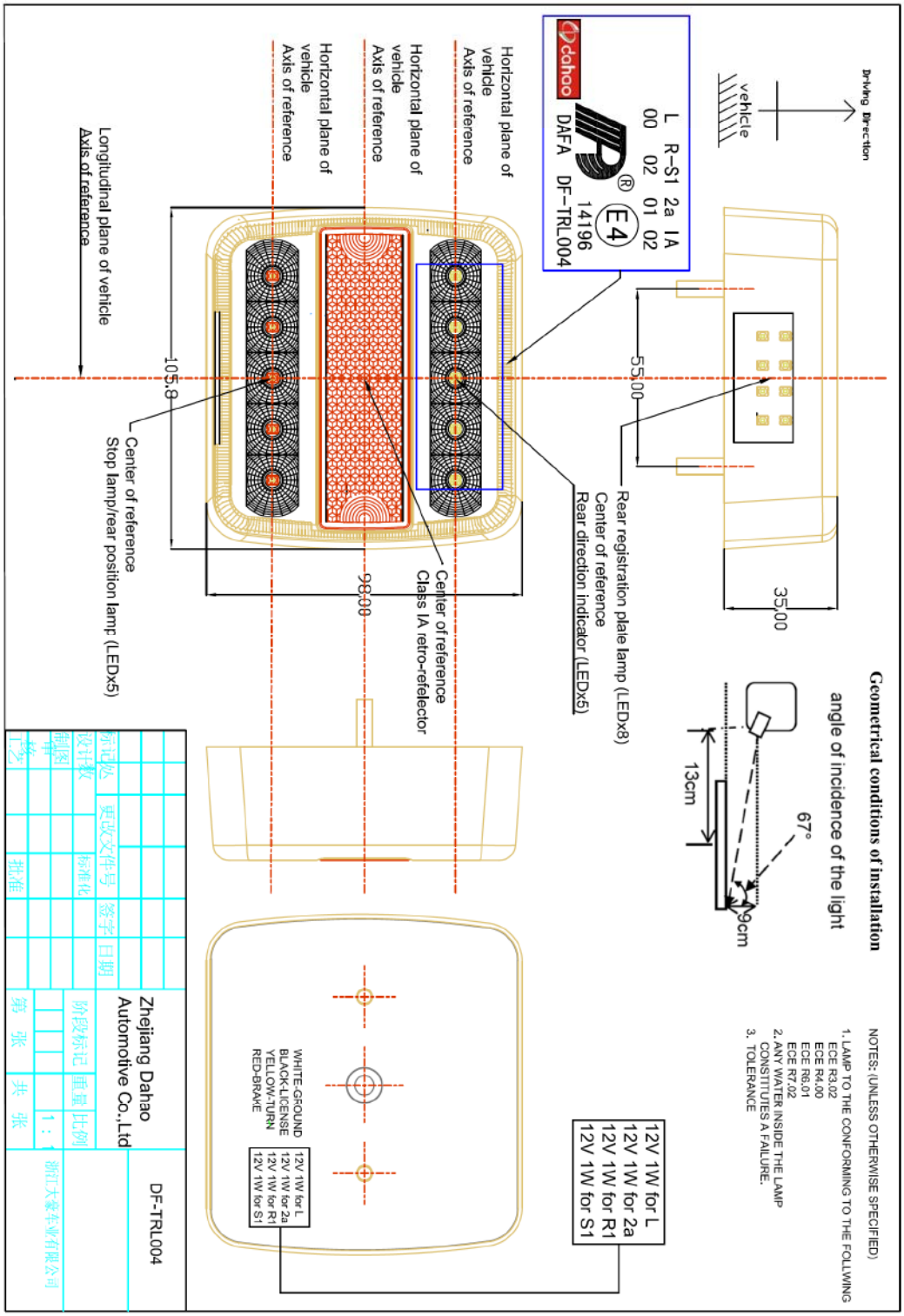
The approval number 14196 was assigned. The approval marking is shown in the drawing of Annex 2.

# Information Document

of Model Number- DF-TRL004

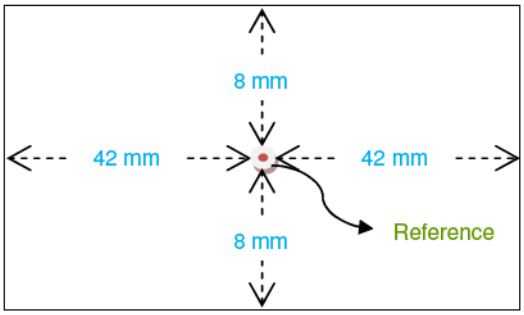
Approval Number: 14196

| | | |
|---|---|---|
| Manufacturer | | |
| Name | | Zhejiang Dahao Automotive Co., Ltd. |
| Address | | Xiaotian,Duqiao,Linhai,<br>Taizhou City Zhejiang, 317016,<br>China |
| Trade name or mark | | (DAFA) & (dahao) |
| Model Number | | DF-TRL004 |
| Material of lens | | PLASTIC |
| Rear Retro-reflective devices (Reg. 3) | Category | IA |
| | Color of light emit | Red |
| Rear Registration Plate Lamp (Reg. 4) | Category | L (Forestry Plate) |
| | Light Source | 8 x LED; 12V; 1W |
| | Color of light emit | White |
| | Color of lens | Clear |
| Rear Direction Indicator (Reg. 6) | Category | 2a |
| | Light Source | 5 x LED; 12V; 1W (if anyone LED fails, all LEDs fail) |
| | Color of light emit | Amber |
| | Color of lens | Clear |
| Rear Position Lamp (Reg. 7) | Category | R1 |
| | Light Source | 5 x LED; 12V; 1W (if anyone LED fails, all LEDs fail) |
| | Color of light emit | Red |
| | Color of lens | Clear |
| Stop Lamp (Reg. 7) | Category | S1 |
| | Light Source | 5 x LED; 12V; 1W (if anyone LED fails, all LEDs fail) |
| | Color of light emit | Red |
| | Color of lens | Clear |

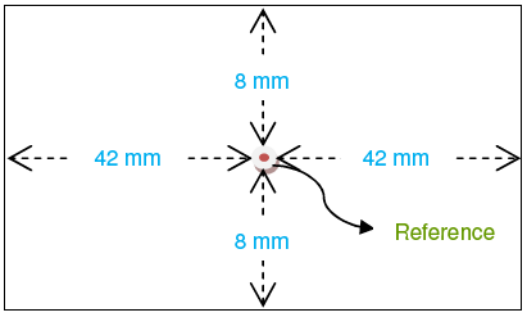

Geometrical conditions of installation
Driving Direction
vehicle
angle of incidence of the light
67°
13cm
9cm
35.00
55.00
Rear registration plate lamp (LEDx8)
Center of reference
Rear direction indicator (LEDx5)
L R-S1 2a IA
00 02 01 02
E4
14196
dahao
DAFA DF-TRL004
Horizontal plane of vehicle Axis of reference
Horizontal plane of vehicle Axis of reference
Horizontal plane of vehicle Axis of reference
Center of reference
Class IA retro-refelector
98.00
105.8
Center of reference
Stop lamp/rear position lamp (LEDx5)
Longitudinal plane of vehicle Axis of reference
NOTES: (UNLESS OTHERWISE SPECIFIED)
1. LAMP TO THE CONFORMING TO THE FOLLWING
ECE R3.02
ECE R4.00
ECE R6.01
ECE R7.02
2. ANY WATER INSIDE THE LAMP CONSTITUTES A FAILURE.
3. TOLERANCE
12V 1W for L
12V 1W for 2a
12V 1W for R1
12V 1W for S1
WHITE-GROUND
BLACK-LICENSE
YELLOW-TURN
RED-BRAKE
12V 1W for L
12V 1W for 2a
12V 1W for R1
12V 1W for S1
Zhejiang Dahao Automotive Co.,Ltd
DF-TRL004
浙江大豪汽车有限公司

Determination of the apparent surface

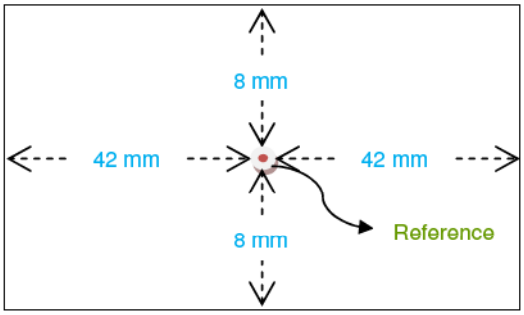
DF-TRL004 Direction Indicator




DF-TRL004 Rear Position Lamp




DF-TRL004 Stop Lamp



FRONT VIEW

SIDE VIEW

TOP VIEW

Examination of rear combination lamp DF-TRL004 carried out according to the relevant clauses of the regulations No. 4-00, 6-01 and 7-02.

| Clause No. | Subject of the relevant clause | Judgement of the device | Remark |
|---|---|---|---|
| 3 | 1 trade name or mark | complies | |
| | 2 space reserved for the approval mark | complies | |
| 5 | General specifications: | | |
| | a intensity and colour of the light emitted | complies | see Annex 4 |
| | b maintenance of satis factory operation and of photometric charac teristics | complies | by visual inspection only |
| | c field of visibility horizontal and vertical | complies | |
| | d No access to inner surf -ace of the retro-reflectors | complies | |
| 6 | intensity of the light emitted | complies | see Annex 4 |
| 8 | colour of the light emitted | complies | [1] |

[1] Rear Direction Indicator emitted amber color S1: x=0.5852, y=0.4146 S2: x=0.5826, y=0.4174
Rear position lamp emitted red color S1: x=0.6966, y=0.3033 S2: x=0.6984, y=0.3016
Stop lamp emitted red color S1: x=0.6980, y=0.3020 S2: x=0.6998, y=0.3002

Examination of red coloured retro reflector class IA, carried out in accordance with the relevant clauses of Regulation No. 3-02

| Clause (C) or Annex (A) | Title or subject either of the relevant clause it self or of the annex that clause is referring to | Samples submitted to examination | Judgement of the retro reflector | Remark |
|---|---|---|---|---|
| C4 | Markings | all ten | complies | on lens |
| C9 | General Specifications | all ten | complies | |
| A5 | Shape and Dimensions | all ten | complies | |
| A10 | Heat test | all ten | complies | |
| A6 | Colorimetry | c and a | complies | [1] |
| A7 | Photometry | c and a | complies | [2] |
| A8.1 | Water submersion test | f and g | complies | [3] |
| A8.3 | Fuel test | f and g | complies | |
| A8.4 | Lubricating oil test | f and g | complies | [4] |
| A8.2 | Corrosion test | d and e | complies | [5] |
| A8.5 | Brush test on the reverse side of mirror- backed reflectors, if accessible | -- | does not apply | [6] |
| A9 | Stability of the optical properties of the reflectors with ageing | -- | - | [7] |
| A11 | Colour-fastness | -- | - | [5] |

[1] Retro reflector emitted red color Sample c: x=0.6714, y=0.3241 Sample a: x=0.6693, y=0.3210

[2] These two samples are those giving the minimum and maximum CIL-values for an angle of divergence of 20' and an illumination angle V=H=0°.

[3] Sample f: HV = 811 Sample g: HV = 804

[4] Sample f: HV = 787 Sample g: HV = 776

[5] Sample d: HV = 414 Sample e: HV = 408

[6] The reverse side of the reflector is neither mirror-covered nor accessible.

[7] Awaiting the normalisation of a suitable method of examination, no test was made in this respect.

Reflex Reflector HV Test

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 01 | ECE R 3 IA,IB (Red) H-V Test-1 | |
| ECE R3 Class IA,IB red signal test | | | |
| **Name:** | 090487 DF-TRL004 S103301_3038~3040_3335~3336 Reflex reflector After Heat | | |
| **Number:** | ECER3100047 | | |
| **Report:** | | **Operator:** | Giverny |
| **Meas.-no.:** | | **Date:** | 10/21/2010 9:29:25 AM |
| **Comment:** | | | |

### ECE R 3 IA,IB (Red) H-V Test-1

| Function | Min | Value | N.O.K. |
|---|---|---|---|
| After Heat Single point test | | | |
| a H-V (20') | 300 | 400.0 | |
| b H-V (20') | 300 | 432.0 | |
| c H-V (20') | 300 | 858.0 | |
| d H-V (20') | 300 | 445.0 | |
| e H-V (20') | 300 | 433.0 | |
| f H-V (20') | 300 | 853.0 | |
| g H-V (20') | 300 | 843.0 | |
| h H-V (20') | 300 | 425.0 | |
| i H-V (20') | 300 | 426.0 | |
| j H-V (20') | 300 | 434.0 | |
| After water submersion(1A) or rain spray test(1B) | | | |
| teat 1 H-V (20') | 300 | 0.0 | |
| teat 2 H-V (20') | 300 | 0.0 | |
| After dust exposure test (1B) | | | |
| teat 1 H-V (20') | 300 | 0.0 | |
| teat 2 H-V (20') | 300 | 0.0 | |
| After motor fuels and oils test | | | |
| teat 1 H-V (20') | 300 | 0.0 | |
| teat 2 H-V (20') | 300 | 0.0 | |
| After corrosion test | | | |
| teat 3 H-V (20') | 300 | 0.0 | |
| teat 4 H-V (20') | 300 | 0.0 | |
| Resistanle of the accessible rear face of mirror-backed retro-reflecting devices | | | |
| teat 1 H-V (20') | 300 | 0.0 | |
| teat 2 H-V (20') | 300 | 0.0 | |

Reflex Reflector Max

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 01 (2004.03.12) | ECE R 3 IA,IB (Red) | |
| Reflex reflector ECE R3 Class IA,IB red | | | |
| **Name:** | 090487 DF-TRL004 S103300 Reflex reflector After Heat(MAX)-c | | |
| **Number:** | ECER3100047 | | |
| **Report:** | | **Operator:** | Giverny |
| **Meas.-no.:** | | **Date:** | 10/21/2010 10:19:36 AM |
| **Comment:** | | | |

### ECE R 3 IA,IB (Red)

| Function | Min | Value | N.O.K. |
|---|---|---|---|
| H - V (20') | 300 | 850.0 | |
| H - 10U (20') | 200 | 720.0 | |
| H - 10D (20') | 200 | 708.0 | |
| 20L - 5U (20') | 100 | 420.0 | |
| 20R - 5U (20') | 100 | 266.0 | |
| 20L - 5D (20') | 100 | 424.0 | |
| 20R - 5D (20') | 100 | 259.0 | |
| H - V (1.30') | 5 | 33.7 | |
| H - 10U (1.30') | 2,8 | 17.6 | |
| H - 10D (1.30') | 2,8 | 18.8 | |
| 20L - 5U (1.30') | 2,5 | 14.1 | |
| 20R - 5U (1.30') | 2,5 | 11.0 | |
| 20L - 5D (1.30') | 2,5 | 15.7 | |
| 20R - 5D (1.30') | 2,5 | 11.2 | |

Reflex Reflector Min

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## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 01 (2004.03.12) | ECE R 3 IA,IB (Red) | |
| Reflex reflector ECE R3 Class IA,IB red | | | |
| **Name:** | 090487 DF-TRL004 S103300 Reflex reflector After Heat(MIN)-a | | |
| **Number:** | ECER3100047 | | |
| **Report:** | | **Operator:** | Giverny |
| **Meas.-no.:** | | **Date:** | 10/21/2010 10:14:58 AM |
| **Comment:** | | | |

### ECE R 3 IA,IB (Red)

| Function | Min | Value | N.O.K. |
|---|---|---|---|
| H - V (20') | 300 | 393.0 | |
| H - 10U (20') | 200 | 208.0 | |
| H - 10D (20') | 200 | 237.0 | |
| 20L - 5U (20') | 100 | 118.7 | |
| 20R - 5U (20') | 100 | 107.3 | |
| 20L - 5D (20') | 100 | 100.3 | |
| 20R - 5D (20') | 100 | 114.2 | |
| H - V (1.30') | 5 | 45.5 | |
| H - 10U (1.30') | 2,8 | 19.8 | |
| H - 10D (1.30') | 2,8 | 24.5 | |
| 20L - 5U (1.30') | 2,5 | 12.4 | |
| 20R - 5U (1.30') | 2,5 | 13.0 | |
| 20L - 5D (1.30') | 2,5 | 14.8 | |
| 20R - 5D (1.30') | 2,5 | 13.4 | |

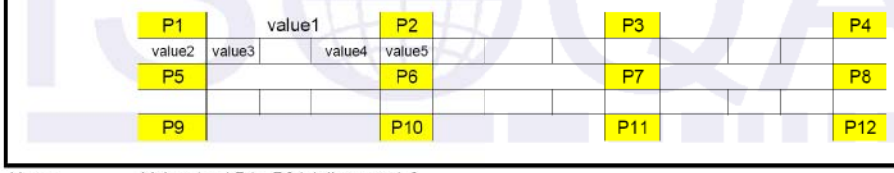
Rear Registration Plate Lamp – Forestry Plate

ISOQA 建維品質驗證有限公司
Integrated Services of Quality Assessment
*Professional Automobile Testing Laboratory and Certification Body*

## Photometric Characteristics(forestry plate)

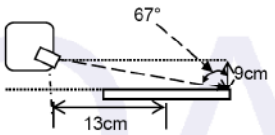
| | | | |
|---|---|---|---|
| Record No. | ISOQA090487 | Form No. | ISOQA-TW070-R03 |
| Requirement | Regulation 4 | Function | Rear Registration Plate Lamp |
| Type Name | DF-TRL004 | Date | 2010/10/13 |

minimum requirement = 2.5 cd/m$^2$




Note:
Value 1 = ( P1 - P2 ) / distance 1-2
Value 2 = ( P1 - P5 ) / distance 1-5
Value 3 = ( P1 - P6 ) / distance 1-6
Value 4 = ( P2 - P5 ) / distance 2-5
Value 5 = ( P2 - P6 ) / distance 2-6 etc.
distance 1-6 = $\sqrt{}$ (5.75 x 5.75 + 6.5 x 6.5)
distance 2-7 = $\sqrt{}$ (5.75 x 5.75 + 6 x 6)

angle of incidence of the light




| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-10-3037 for 1 min | 5.30 | 0.32 | | 7.39 | 0.06 | | 7.01 | 0.37 | | 4.60 | P4 = Bo |
| | 0.67 | 1.23 | 0.20 | 1.49 | 0.87 | 1.07 | 1.33 | 0.02 | 1.16 | 0.45 | (B2-B1) / distance1-2 in cm |
| | 9.13 | 1.05 | | 15.94 | 0.22 | | 14.65 | 1.15 | | 7.19 | |
| | 0.34 | 1.86 | 0.56 | 1.62 | 0.75 | 1.27 | 1.31 | 0.81 | 1.73 | 0.08 | ≤ 2 x Bo/cm = 9.20 |
| | 11.07 | 2.18 | | 25.24 | 0.51 | | 22.16 | 2.23 | | 7.66 | |
| S-10-3037 for 30 min | 5.22 | 0.32 | | 7.31 | 0.06 | | 6.96 | 0.37 | | 4.58 | P4 = Bo |
| | 0.65 | 1.22 | 0.19 | 1.48 | 0.87 | 1.07 | 1.32 | 0.03 | 1.15 | 0.45 | (B2-B1) / distance1-2 in cm |
| | 8.95 | 1.06 | | 15.82 | 0.21 | | 14.57 | 1.14 | | 7.19 | |
| | 0.36 | 1.87 | 0.55 | 1.63 | 0.76 | 1.28 | 1.31 | 0.8 | 1.72 | 0.08 | ≤ 2 x Bo/cm = 9.16 |
| | 11.04 | 2.18 | | 25.22 | 0.51 | | 22.13 | 2.23 | | 7.66 | |
| S-10-3300 for 1 min | 4.05 | 0.22 | | 5.47 | 0.05 | | 5.17 | 0.22 | | 3.76 | P4 = Bo |
| | 0.53 | 1.02 | 0.19 | 1.29 | 0.87 | 0.93 | 1.31 | 0.16 | 1.03 | 0.48 | (B2-B1) / distance1-2 in cm |
| | 7.11 | 0.89 | | 12.88 | 0.03 | | 12.68 | 0.94 | | 6.54 | |
| | 0.52 | 2.39 | 0.32 | 2.60 | 1.87 | 1.82 | 2.73 | 0.42 | 2.52 | 0.43 | ≤ 2 x Bo/cm = 7.52 |
| | 10.10 | 2.73 | | 27.83 | 0.10 | | 28.40 | 2.98 | | 9.00 | |
| S-10-3300 for 30 min | 3.98 | 0.23 | | 5.45 | 0.05 | | 5.15 | 0.21 | | 3.76 | P4 = Bo |
| | 0.54 | 1.01 | 0.19 | 1.26 | 0.86 | 0.91 | 1.30 | 0.16 | 1.02 | 0.48 | (B2-B1) / distance1-2 in cm |
| | 7.06 | 0.87 | | 12.71 | 0.01 | | 12.63 | 0.94 | | 6.52 | |
| | 0.52 | 2.38 | 0.31 | 2.61 | 1.89 | 1.82 | 2.74 | 0.42 | 2.52 | 0.43 | ≤ 2 x Bo/cm = 7.52 |
| | 10.05 | 2.72 | | 27.73 | 0.11 | | 28.37 | 2.98 | | 9.00 | |

Tested by Joyce Ou Signature Joyce Ou

Approved by Arthur C. H. Chang Signature Archer Chang

Rear Direction Indicator S1

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 01 (2005.01.28) | ECE R 6 2a (LED) | |
| Category 2a Rear Direction Indicator Lamp | | | |
| **Name:** | 09-0487 DF-TRL004 S103034 LHM ECE R6 Rear Direction Indicator | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.499 V | **Date:** | 10/12/2010 9:12:09 AM |
| **Current:** | 0.091 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

## ECE R 6_2a (LED)

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V(1min) | 50 | 350 | 74.140 | 0.00° | 0.00° | |
| H - V(30min) | 50 | 350 | 67.540 | 0.00° | 0.00° | |
| 10U - 5L | 10 | 350 | 20.590 | -5.00° | 10.00° | |
| 10U - 5R | 10 | 350 | 19.120 | 5.00° | 10.00° | |
| 5U - 20R | 5 | 350 | 6.988 | 20.00° | 5.00° | |
| 5U - 10R | 10 | 350 | 18.950 | 10.00° | 5.00° | |
| 5U - V | 35 | 350 | 56.190 | 0.00° | 5.00° | |
| 5U - 10L | 10 | 350 | 19.980 | -10.00° | 5.00° | |
| 5U - 20L | 5 | 350 | 6.233 | -20.00° | 5.00° | |
| H - 10L | 17.5 | 350 | 23.930 | -10.00° | 0.00° | |
| H - 5L | 45 | 350 | 49.780 | -5.00° | 0.00° | |
| H - 5R | 45 | 350 | 57.560 | 5.00° | 0.00° | |
| H - 10R | 17.5 | 350 | 22.880 | 10.00° | 0.00° | |
| 5D - 20R | 5 | 350 | 6.172 | 20.00° | -5.00° | |
| 5D - 10R | 10 | 350 | 19.640 | 10.00° | -5.00° | |
| 5D - V | 35 | 350 | 52.540 | 0.00° | -5.00° | |
| 5D - 10L | 10 | 350 | 20.140 | -10.00° | -5.00° | |
| 5D - 20L | 5 | 350 | 6.962 | -20.00° | -5.00° | |
| 10D - 5L | 10 | 350 | 21.530 | -5.00° | -10.00° | |
| 10D - 5R | 10 | 350 | 20.270 | 5.00° | -10.00° | |
| Visibility | 0.3 | 350 | (0.308) 67.540 | (80.00°) - 0.00° | (-10.00°) 0.00° | |

Rear Direction Indicator S2

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 01 (2005.01.28) | ECE R 6 2a (LED) | |
| Category 2a Rear Direction Indicator Lamp | | | |
| **Name:** | 09-0487 DF-TRL004 S103035 RHM ECE R6 Rear Direction Indicator | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.499 V | **Date:** | 10/12/2010 1:37:29 PM |
| **Current:** | 0.092 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

ECE R 6_2a (LED)

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V(1min) | 50 | 350 | 82.196 | 0.00° | 0.00° | |
| H - V(30min) | 50 | 350 | 69.970 | 0.00° | 0.00° | |
| 10U - 5L | 10 | 350 | 20.540 | -5.00° | 10.00° | |
| 10U - 5R | 10 | 350 | 19.570 | 5.00° | 10.00° | |
| 5U - 20R | 5 | 350 | 6.553 | 20.00° | 5.00° | |
| 5U - 10R | 10 | 350 | 20.060 | 10.00° | 5.00° | |
| 5U - V | 35 | 350 | 61.670 | 0.00° | 5.00° | |
| 5U - 10L | 10 | 350 | 20.260 | -10.00° | 5.00° | |
| 5U - 20L | 5 | 350 | 6.376 | -20.00° | 5.00° | |
| H - 10L | 17.5 | 350 | 25.140 | -10.00° | 0.00° | |
| H - 5L | 45 | 350 | 54.070 | -5.00° | 0.00° | |
| H - 5R | 45 | 350 | 61.750 | 5.00° | 0.00° | |
| H - 10R | 17.5 | 350 | 24.040 | 10.00° | 0.00° | |
| 5D - 20R | 5 | 350 | 6.570 | 20.00° | -5.00° | |
| 5D - 10R | 10 | 350 | 20.250 | 10.00° | -5.00° | |
| 5D - V | 35 | 350 | 58.040 | 0.00° | -5.00° | |
| 5D - 10L | 10 | 350 | 21.040 | -10.00° | -5.00° | |
| 5D - 20L | 5 | 350 | 6.589 | -20.00° | -5.00° | |
| 10D - 5L | 10 | 350 | 21.380 | -5.00° | -10.00° | |
| 10D - 5R | 10 | 350 | 21.050 | 5.00° | -10.00° | |
| Visibility | 0.3 | 350 | (0.302) 69.181 | (-72.25°) 0.50° | (-14.00°) 1.00° | |

Rear Position Lamp S1

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 02 (2004.04.23) | ECE R 7 RearPositionLamp1-1-LED | |
| Rear Position Lamp (Single Lamp) | | | |
| **Name:** | 09-0487 DF-TRL004 S103034 LHM ECE R7 Rear Position Lamp | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.499 V | **Date:** | 10/12/2010 11:10:22 AM |
| **Current:** | 0.082 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

ECE R 7_RearPositionLamp1-1-LED

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V(1min) | 4 | 12 | 9.681 | 0.00° | 0.00° | |
| H - V(30min) | 4 | 12 | 9.050 | 0.00° | 0.00° | |
| 10U - 5L | 0.8 | 12 | 2.615 | -5.00° | 10.00° | |
| 10U - 5R | 0.8 | 12 | 2.730 | 5.00° | 10.00° | |
| 5U - 20R | 0.4 | 12 | 0.913 | 20.00° | 5.00° | |
| 5U - 10R | 0.8 | 12 | 2.661 | 10.00° | 5.00° | |
| 5U - V | 2.8 | 12 | 7.708 | 0.00° | 5.00° | |
| 5U - 10L | 0.8 | 12 | 2.656 | -10.00° | 5.00° | |
| 5U - 20L | 0.4 | 12 | 0.936 | -20.00° | 5.00° | |
| H - 10L | 1.4 | 12 | 3.005 | -10.00° | 0.00° | |
| H - 5L | 3.6 | 12 | 7.492 | -5.00° | 0.00° | |
| H - 5R | 3.6 | 12 | 7.183 | 5.00° | 0.00° | |
| H - 10R | 1.4 | 12 | 3.144 | 10.00° | 0.00° | |
| 5D - 20R | 0.4 | 12 | 0.880 | 20.00° | -5.00° | |
| 5D - 10R | 0.8 | 12 | 2.489 | 10.00° | -5.00° | |
| 5D - V | 2.8 | 12 | 7.392 | 0.00° | -5.00° | |
| 5D - 10L | 0.8 | 12 | 2.561 | -10.00° | -5.00° | |
| 5D - 20L | 0.4 | 12 | 0.893 | -20.00° | -5.00° | |
| 10D - 5L | 0.8 | 12 | 2.450 | -5.00° | -10.00° | |
| 10D - 5R | 0.8 | 12 | 2.501 | 5.00° | -10.00° | |
| Visibility | 0.05 | 12 | (0.055) 9.161 | (65.75°) 0.50° | (-3.00°) 2.00° | |

Rear Position Lamp S2

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 02 (2004.04.23) | ECE R 7 RearPositionLamp1-1-LED | |
| Rear Position Lamp (Single Lamp) | | | |
| **Name:** | 09-0487 DF-TRL004 S103035 RHM ECE R7 Rear Position Lamp | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.498 V | **Date:** | 10/12/2010 2:17:58 PM |
| **Current:** | 0.082 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

ECE R 7_RearPositionLamp1-1-LED

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V(1min) | 4 | 12 | 9.900 | 0.00° | 0.00° | |
| H - V(30min) | 4 | 12 | 8.920 | 0.00° | 0.00° | |
| 10U - 5L | 0.8 | 12 | 2.345 | -5.00° | 10.00° | |
| 10U - 5R | 0.8 | 12 | 2.299 | 5.00° | 10.00° | |
| 5U - 20R | 0.4 | 12 | 0.778 | 20.00° | 5.00° | |
| 5U - 10R | 0.8 | 12 | 2.315 | 10.00° | 5.00° | |
| 5U - V | 2.8 | 12 | 7.439 | 0.00° | 5.00° | |
| 5U - 10L | 0.8 | 12 | 2.714 | -10.00° | 5.00° | |
| 5U - 20L | 0.4 | 12 | 0.909 | -20.00° | 5.00° | |
| H - 10L | 1.4 | 12 | 3.405 | -10.00° | 0.00° | |
| H - 5L | 3.6 | 12 | 8.290 | -5.00° | 0.00° | |
| H - 5R | 3.6 | 12 | 6.955 | 5.00° | 0.00° | |
| H - 10R | 1.4 | 12 | 3.044 | 10.00° | 0.00° | |
| 5D - 20R | 0.4 | 12 | 0.832 | 20.00° | -5.00° | |
| 5D - 10R | 0.8 | 12 | 2.647 | 10.00° | -5.00° | |
| 5D - V | 2.8 | 12 | 8.920 | 0.00° | -5.00° | |
| 5D - 10L | 0.8 | 12 | 3.052 | -10.00° | -5.00° | |
| 5D - 20L | 0.4 | 12 | 0.896 | -20.00° | -5.00° | |
| 10D - 5L | 0.8 | 12 | 3.261 | -5.00° | -10.00° | |
| 10D - 5R | 0.8 | 12 | 3.047 | 5.00° | -10.00° | |
| Visibility | 0.05 | 12 | (0.052) 8.920 | (-65.50°) - 0.00° | (4.00°) 0.00° | |

Stop Lamp S1

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 02 (2004.04.30) | ECE R 7 Stop Lamp S1-LED | |
| Stop Lamp Category S1 (Single Lamp Test) | | | |
| **Name:** | 09-0487 DF-TRL004 S103034 LHM ECE R7 Stop Lamp | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.499 V | **Date:** | 10/12/2010 11:34:50 AM |
| **Current:** | 0.093 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

### ECE R 7_Stop Lamp S1-LED

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V (1min) | 60 | 185 | 101.700 | 0.00° | 0.00° | |
| H - V (30min) | 60 | 185 | 100.900 | 0.00° | 0.00° | |
| 10U - 5L | 12 | 185 | 29.050 | -5.00° | 10.00° | |
| 10U - 5R | 12 | 185 | 30.660 | 5.00° | 10.00° | |
| 5U - 20R | 6 | 185 | 10.100 | 20.00° | 5.00° | |
| 5U - 10R | 12 | 185 | 29.740 | 10.00° | 5.00° | |
| 5U - V | 42 | 185 | 86.100 | 0.00° | 5.00° | |
| 5U - 10L | 12 | 185 | 29.600 | -10.00° | 5.00° | |
| 5U - 20L | 6 | 185 | 10.050 | -20.00° | 5.00° | |
| H - 10L | 21 | 185 | 33.720 | -10.00° | 0.00° | |
| H - 5L | 54 | 185 | 83.900 | -5.00° | 0.00° | |
| H - 5R | 54 | 185 | 80.100 | 5.00° | 0.00° | |
| H - 10R | 21 | 185 | 35.320 | 10.00° | 0.00° | |
| 5D - 20R | 6 | 185 | 9.820 | 20.00° | -5.00° | |
| 5D - 10R | 12 | 185 | 28.100 | 10.00° | -5.00° | |
| 5D - V | 42 | 185 | 82.700 | 0.00° | -5.00° | |
| 5D - 10L | 12 | 185 | 28.690 | -10.00° | -5.00° | |
| 5D - 20L | 6 | 185 | 9.920 | -20.00° | -5.00° | |
| 10D - 5L | 12 | 185 | 27.500 | -5.00° | -10.00° | |
| 10D - 5R | 12 | 185 | 28.060 | 5.00° | -10.00° | |
| Visibility | 0.3 | 185 | (0.307) 100.900 | (-44.90°) 0.00° | (-14.00°) 0.00° | |

Stop Lamp S2

**ISOQA**

## PHOTOMETRIC RESULTS

| | | | |
|---|---|---|---|
| **Program:** | 02 (2004.04.30) | ECE R 7 Stop Lamp S1-LED | |
| Stop Lamp Category S1 (Single Lamp Test) | | | |
| **Name:** | 09-0487 DF-TRL004 S103035 RHM ECE R7 Stop Lamp | | |
| **Number:** | L101004 | | |
| **Test distance:** | 3.176 m | **Meas.-no.:** | |
| **Lamp type:** | LED 13.5V | | |
| **Number:** | LED | | |
| **Flux:** | 0.000 lm | **Operator:** | lawrence |
| **Voltage:** | 13.497 V | **Date:** | 10/12/2010 2:47:34 PM |
| **Current:** | 0.092 A | **Set value:** | Const. voltage |
| **X-offset:** | 0.00° | **Y-offset:** | 0.00° |
| **Comment:** | | | |

ECE R 7_Stop Lamp S1-LED

| Function | Min | Max | Value | H | V | N.O.K. |
|---|---|---|---|---|---|---|
| H - V (1min) | 60 | 185 | 110.200 | 0.00° | 0.00° | |
| H - V (30min) | 60 | 185 | 106.200 | 0.00° | 0.00° | |
| 10U - 5L | 12 | 185 | 27.370 | -5.00° | 10.00° | |
| 10U - 5R | 12 | 185 | 26.730 | 5.00° | 10.00° | |
| 5U - 20R | 6 | 185 | 8.890 | 20.00° | 5.00° | |
| 5U - 10R | 12 | 185 | 26.660 | 10.00° | 5.00° | |
| 5U - V | 42 | 185 | 85.800 | 0.00° | 5.00° | |
| 5U - 10L | 12 | 185 | 31.100 | -10.00° | 5.00° | |
| 5U - 20L | 6 | 185 | 10.350 | -20.00° | 5.00° | |
| H - 10L | 21 | 185 | 39.020 | -10.00° | 0.00° | |
| H - 5L | 54 | 185 | 105.800 | -5.00° | 0.00° | |
| H - 5R | 54 | 185 | 78.900 | 5.00° | 0.00° | |
| H - 10R | 21 | 185 | 34.470 | 10.00° | 0.00° | |
| 5D - 20R | 6 | 185 | 9.190 | 20.00° | -5.00° | |
| 5D - 10R | 12 | 185 | 29.860 | 10.00° | -5.00° | |
| 5D - V | 42 | 185 | 99.800 | 0.00° | -5.00° | |
| 5D - 10L | 12 | 185 | 34.460 | -10.00° | -5.00° | |
| 5D - 20L | 6 | 185 | 9.940 | -20.00° | -5.00° | |
| 10D - 5L | 12 | 185 | 36.750 | -5.00° | -10.00° | |
| 10D - 5R | 12 | 185 | 34.120 | 5.00° | -10.00° | |
| Visibility | 0.3 | 185 | (0.309) 106.200 | (44.70°) - 0.00° | (-15.00°) 0.00° | |