

Submitted by the expert from China

Informal document **GRE-90-29**
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agenda item 7(b)

Questions regarding the interpretation of UN R149

Table 22

Class C – Bend lighting – Category 1 – System Requirements
(indicated for right-hand traffic)

| Element | Angular coordinates in deg. | | Luminous intensity in cd | | | | | | |
|-----------|--------------------------------|------------|------------------------------|-------------------|-------------------------------|-------------------|-------------------------------|-------------------|--------------------------------|
| | | | Column A | | Column B | | Column C | | |
| | | | $\triangleq 0\% \text{ CoP}$ | | $\triangleq 20\% \text{ CoP}$ | | $\triangleq 30\% \text{ CoP}$ | | |
| | vertical | horizontal | min | max | min | max | min | max | |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $2.10 \cdot 10^3$ | - | $2.28 \cdot 10^3$ | |
| Point BLL | 0.57°U | 8°L | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $1.01 \cdot 10^3$ | |
| B50L | 0.57°U | 3.43°L | - | $5.30 \cdot 10^2$ | - | $7.00 \cdot 10^2$ | - | $7.85 \cdot 10^2$ | |
| Line III | 0° | 4°L to 0° | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ | |
| 75R | 0.57°D | 1.15°R | $1.21 \cdot 10^4$ | - | $9.68 \cdot 10^3$ | - | $1.21 \cdot 10^4$ | - | $8.47 \cdot 10^3$ |
| 50L | 0.86°D | 3.43°L | $1.70 \cdot 10^3$ | - | $1.36 \cdot 10^3$ | - | $1.19 \cdot 10^3$ | - | |
| 50V | 0.86°D | 0° | $5.10 \cdot 10^3$ | - | $4.08 \cdot 10^3$ | - | $5.10 \cdot 10^3$ | - | $3.57 \cdot 10^3$ |
| 50R | 0.86°D | 1.72°R | $1.01 \cdot 10^4$ | - | $8.08 \cdot 10^3$ | - | $7.07 \cdot 10^3$ | - | $5100 \cdot (1 - 30\%) = 3570$ |

$$12100 \cdot (1 - 30\%) = 8470$$

$$8.47 \cdot 10^3$$

$$3.57 \cdot 10^3$$

$$5100 \cdot (1 - 30\%) = 3570$$

Type approval photometric requirements for Classes C, V, E and W passing-beam in conjunction with Figure A4-VI (indicated for right-hand traffic)

| Element | Angular coordinates in deg. | | Luminous intensity in cd | | | | | | | |
|--------------------|-----------------------------|------------------|--------------------------|-------------------|----------------------|-------------------|----------------------|----------------------|----------------------|-------------------|
| | vertical | horizontal | Class C | | Class V | | Class E | | Class W ^b | |
| | | | min | max | min | max | min | max | min | max |
| Zone III | As specified in Table 9 | | - | $6.25 \cdot 10^2$ | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ |
| S50+S50LL+S50RR | As specified in Table 11 | | $1.90 \cdot 10^{2d}$ | - | - | - | $1.90 \cdot 10^{2d}$ | - | $1.90 \cdot 10^{2d}$ | - |
| S100+S100LL+S100RR | As specified in Table 11 | | $3.75 \cdot 10^{2d}$ | - | - | - | $3.75 \cdot 10^{2d}$ | - | $3.75 \cdot 10^{2d}$ | - |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $1.75 \cdot 10^3$ | - | $1.75 \cdot 10^3$ | - | $2.65 \cdot 10^3$ |
| Segment BLL | 0.57°U | 20°L to 8°L | - | $6.25 \cdot 10^2$ | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ |
| B50L | 0.57°U | 3.43°L | - | $3.50 \cdot 10^2$ | -- | $3.50 \cdot 10^2$ | - | $6.25 \cdot 10^{2e}$ | - | $6.25 \cdot 10^2$ |
| P | 0° | 7°L | $6.3 \cdot 10^1$ | - | $6.3 \cdot 10^1$ | - | - | - | - | - |
| 125R | 0.34°D | 1.15°R | - | - | - | - | $1.20 \cdot 10^4$ | - | - | - |
| 75R | 0.57°D | 1.15°R | $1.21 \cdot 10^4$ | - | - | - | $1.52 \cdot 10^4$ | - | $1.52 \cdot 10^4$ | - |
| 50L | 0.86°D | 3.43°L | $5.00 \cdot 10^{3f}$ | $3.70 \cdot 10^4$ | $3.55 \cdot 10^{3f}$ | $3.70 \cdot 10^4$ | $6.80 \cdot 10^{3f}$ | - | $6.80 \cdot 10^{3f}$ | $3.70 \cdot 10^4$ |
| 50V | 0.86°D | 0° | $5.10 \cdot 10^{3f}$ | - | $5.10 \cdot 10^3$ | - | $1.01 \cdot 10^{4a}$ | - | $1.01 \cdot 10^{4a}$ | - |
| 50R | 0.86°D | 1.72°R | $1.01 \cdot 10^4$ | - | $5.10 \cdot 10^3$ | - | - | - | - | - |
| Segment 50 | 0.86°D | 6.84°L to 6.84°R | $2.54 \cdot 10^3$ | - | $1.80 \cdot 10^3$ | - | $2.54 \cdot 10^3$ | - | $2.54 \cdot 10^3$ | - |

There is no maximum value requirement for the 50R point of V class in low beam light distribution table 7, but there is a maximum value requirement for V class in production consistency.

It is recommended to cancel the maximum value requirement for V class production consistency in Table 24 and Table 25.

Table 24

Class V – non-bending mode – System Requirements (indicated for right-hand traffic)

| Element | Angular coordinates in deg | | Luminous intensity in cd | | | | | |
|-----------|----------------------------|------------|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | vertical | horizontal | Column A | | Column B | | Column C | |
| | | | ± 0% CoP | | ± 20% CoP | | ± 30% CoP | |
| vertical | horizontal | min | max | min | max | min | max | |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $2.10 \cdot 10^3$ | - | $2.28 \cdot 10^3$ |
| Point BLL | 0.57°U | 8°L | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $1.01 \cdot 10^3$ |
| B50L | 0.57°U | 3.43°L | - | $3.50 \cdot 10^2$ | - | $5.20 \cdot 10^2$ | - | $6.05 \cdot 10^2$ |
| Line III | 0° | 4°L to 0° | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $1.01 \cdot 10^3$ |
| 50L | 0.86°D | 3.43°L | $3.55 \cdot 10^3$ | $3.70 \cdot 10^4$ | $2.84 \cdot 10^3$ | $4.44 \cdot 10^4$ | $2.49 \cdot 10^3$ | $4.81 \cdot 10^4$ |
| 50R | 0.86°D | 1.72°R | $5.10 \cdot 10^3$ | $4.41 \cdot 10^4$ | $4.08 \cdot 10^3$ | $5.29 \cdot 10^4$ | $3.57 \cdot 10^3$ | $5.73 \cdot 10^4$ |

Table 25

Class V – Bend lighting – Category 1 – System Requirements (indicated for right-hand traffic)

| Element | Angular coordinates in deg | | Luminous intensity in cd | | | | | |
|-----------|----------------------------|------------|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | vertical | horizontal | Column A | | Column B | | Column C | |
| | | | ± 0% CoP | | ± 20% CoP | | ± 30% CoP | |
| vertical | horizontal | min | max | min | max | min | max | |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $2.10 \cdot 10^3$ | - | $2.28 \cdot 10^3$ |
| Point BLL | 0.57°U | 8°L | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |
| B50L | 0.57°U | 3.43°L | - | $5.30 \cdot 10^2$ | - | $7.00 \cdot 10^2$ | - | $7.85 \cdot 10^2$ |
| Line III | 0° | 4°L to 0° | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |
| 50L | 0.86°D | 3.43°L | $1.70 \cdot 10^3$ | - | $1.36 \cdot 10^3$ | - | $1.19 \cdot 10^3$ | - |
| 50R | 0.86°D | 1.72°R | $5.10 \cdot 10^3$ | $4.41 \cdot 10^4$ | $4.08 \cdot 10^3$ | $5.29 \cdot 10^4$ | $3.57 \cdot 10^3$ | $5.73 \cdot 10^4$ |

Table 9

Passing-beam photometric requirements in conjunction with Figure A4-VII

| Tabled requirements expressed in cd | | | Position / deg | | | Passing beam | | | | | | | |
|-------------------------------------|------------------------------------|--------------------------|----------------|--------|------------------|--------------|-------|---------|------------------|------------------|------------------|---------|---|
| | | | horizontal | | vertical | Class C | | Class V | | Class E | | Class W | |
| No | Element | At/from | to | at | min | max | min | max | min | max | min | max | |
| Part A | 1 B50L | L 3.43 | - | U 0.57 | 50 ⁴ | 350 | 50 | 350 | 50 | 625 ⁷ | 50 | 625 | |
| | 3 BR | R 2.50 | - | U 1.00 | 50 ⁴ | 1 750 | 50 | 880 | 50 | 1 750 | 50 | 2 650 | |
| | 4 Segment BRR | R 8.00 | R 20 | U 0.57 | 50 ⁴ | 3 550 | - | 880 | - | 3 550 | - | 5 300 | |
| | 5 Segment BLL | L 8.00 | L 20 | U 0.57 | 50 ⁴ | 625 | - | 880 | - | 880 | - | 880 | |
| | 6 P | L 7.00 | - | H | 63 | - | - | - | - | - | 63 | - | |
| | 7 Zone III | As specified in Table 11 | | | - | 625 | - | 625 | - | 880 | - | 880 | |
| | 8a S50+S50LL+S50RR ⁵ | - | - | U 4.00 | 190 ⁶ | - | - | - | 190 ⁶ | - | 190 ⁶ | - | - |
| | 9a S100+S100LL+S100RR ⁵ | - | - | U 2.00 | 375 ⁶ | - | - | - | 375 ⁶ | - | 375 ⁶ | - | - |
| | 10 50 R | R 1.72 | - | D 0.86 | - | - | 5 100 | | - | - | - | - | |
| | 11 75 R | R 1.15 | - | D 0.57 | 10 100 | - | - | - | 15 200 | - | 20 300 | - | |

There is no maximum value requirement for the 50R point of V class in the adaptive low-beam light distribution table 9, but there is a maximum value requirement for V class in production consistency. **It is recommended to cancel the maximum value requirement for V class production consistency in Table 20 and Table 21.**

Table 20

Class V – non-bending mode – System Requirements

| Class V -non-bending mode | | Position/deg | | | | Column A | | Column B | | Column C | | |
|-------------------------------------|-----------|--------------|------|----------|----|----------|------|--------------------|------|--------------------|------|--------------------|
| Tabled requirements expressed in cd | | horizontal | | vertical | | ≅ 0% CoP | | ≅ 20% CoP | | ≅ 30% CoP | | |
| No | Element | at/ | from | to | at | min | max | min | max | min | max | |
| 1 | B50L | L | 3.43 | | U | 0.57 | 350 | 520 | 605 | | | |
| 3 | BR | R | 2.5 | | U | 1 | 880 | 1135 | 1260 | | | |
| 4 | Point BRR | R | 8 | | U | 0.57 | 880 | 1135 | 1260 | | | |
| 5 | Point BLL | L | 8 | | U | 0.57 | 880 | 1135 | 1260 | | | |
| 7 | Line III | L | 4 | V V | H | | 625 | 880 | 1005 | | | |
| 10 | 50 R | R | 1.72 | | D | 0.86 | 5100 | 44100 | 4080 | 52920 | 3570 | 57330 |
| 13 | 50 L | L | 3.43 | | D | 0.86 | 3550 | 13200 ¹ | 2840 | 15840 ¹ | 2485 | 17160 ¹ |

Table 21

Class V – Bendlight – Category 1 – System Requirements

| Class V – Bendlight Cat. 1 | | Position/deg | | | | Column A | | Column B | | Column C | | |
|-------------------------------------|-----------|--------------|------|----------|----|----------|------|--------------------|------|--------------------|------|--------------------|
| Tabled requirements expressed in cd | | horizontal | | vertical | | ≅ 0% CoP | | ≅ 20% CoP | | ≅ 30% CoP | | |
| No | Element | at/ | from | to | at | min | max | min | max | min | max | |
| 1 | B50L | L | 3.43 | | U | 0.57 | 530 | 700 | 785 | | | |
| 3 | BR | R | 2.5 | | U | 1 | 880 | 1135 | 1260 | | | |
| 4 | Point BRR | R | 8 | | U | 0.57 | 880 | 1135 | 1260 | | | |
| 5 | Point BLL | L | 8 | | U | 0.57 | 880 | 1135 | 1260 | | | |
| 7 | Line III | L | 4 | V V | H | | 880 | 1135 | 1260 | | | |
| 10 | 50 R | R | 1.72 | | D | 0.86 | 5100 | 44100 | 4080 | 52920 | 3570 | 57330 |
| 13 | 50 L | L | 3.43 | | D | 0.86 | 1700 | 13200 ¹ | 2840 | 15840 ¹ | 2485 | 17160 ¹ |

Table 7
Type approval photometric requirements for Classes C, V, E and W passing-beam
in conjunction with Figure A4-VI (indicated for right-hand traffic)

| Element | Angular coordinates in deg. | | Luminous intensity in cd | | | | | | | |
|--------------------|-----------------------------|-------------|--------------------------------|-------------------|------------------|-------------------|--------------------------------|--------------------------------|--------------------------------|-------------------|
| | vertical | horizontal | Class C | | Class V | | Class E | | Class W ^b | |
| | | | min | max | min | max | min | max | min | max |
| Zone III | As specified in Table 9 | | - | $6.25 \cdot 10^2$ | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ |
| S50+S50LL+S50RR | As specified in Table 11 | | $1.90 \cdot 10^2$ ^d | - | - | - | $1.90 \cdot 10^2$ ^d | - | $1.90 \cdot 10^2$ ^d | - |
| S100+S100LL+S100RR | As specified in Table 11 | | $3.75 \cdot 10^2$ ^d | - | - | - | $3.75 \cdot 10^2$ ^d | - | $3.75 \cdot 10^2$ ^d | - |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $1.75 \cdot 10^3$ | - | $1.75 \cdot 10^3$ | - | $2.65 \cdot 10^3$ |
| Segment BLL | 0.57°U | 20°L to 8°L | - | $6.25 \cdot 10^2$ | - | $6.25 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ |
| B50L | 0.57°U | 3.43°L | - | $3.50 \cdot 10^2$ | - | $3.50 \cdot 10^2$ | - | $6.25 \cdot 10^2$ ^e | - | $6.25 \cdot 10^2$ |
| P | 0° | 7°L | $6.3 \cdot 10^1$ | - | $6.3 \cdot 10^1$ | - | - | - | - | - |

Part B (bending mode): Table 7 applies, however the requirements for point B50L, Zone III and point 50L are indicated hereunder:

| Part B | Element | Angular coordinates in deg. | | Luminous intensity in cd | | | | | | | |
|--------|----------|-----------------------------|------------|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|-------------------|
| | | vertical | horizontal | Class C | | Class V | | Class E | | Class W ^b | |
| | | | | min | max | min | max | min | max | min | max |
| | Zone III | As specified in Table 9 | | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ | - | $8.80 \cdot 10^2$ |
| | B50L | 0.57°U | 3.43°L | - | $5.30 \cdot 10^2$ | - | $5.30 \cdot 10^2$ | - | - | - | $7.90 \cdot 10^2$ |
| | 50L | 0.86°D | 3.43°L | $1.70 \cdot 10^3$ | - | $1.70 \cdot 10^3$ | - | $3.40 \cdot 10^3$ | - | $3.40 \cdot 10^3$ | - |

Table 25
Class V – Bend lighting – Category 1 – System Requirements
(indicated for right-hand traffic)

| Element | Angular coordinates in deg | | Luminous intensity in cd | | | | | |
|-----------|----------------------------|-----------|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | | Column A | | Column B | | Column C | |
| | | | ± 0% CoP | | ± 20% CoP | | ± 30% CoP | |
| vertical | horizontal | min | max | min | max | min | max | |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $2.10 \cdot 10^3$ | - | $2.28 \cdot 10^3$ |
| Point BLL | 0.57°U | 8°L | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |
| B50L | 0.57°U | 3.43°L | - | $5.30 \cdot 10^2$ | - | $7.00 \cdot 10^2$ | - | $7.85 \cdot 10^2$ |
| Line III | 0° | 4°L to 0° | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |
| 50L | 0.86°D | 3.43°L | $1.70 \cdot 10^3$ | - | $1.36 \cdot 10^3$ | - | $1.19 \cdot 10^3$ | - |
| 50R | 0.86°D | 1.72°R | $5.10 \cdot 10^3$ | $4.41 \cdot 10^4$ | $4.08 \cdot 10^3$ | $5.29 \cdot 10^4$ | $3.57 \cdot 10^3$ | $5.73 \cdot 10^4$ |

The maximum Segment BLL requirement for class V in the adaptive low-beam light distribution table 7 is $6.25 \cdot 10^2$, but the maximum requirement for 0%CoP of class V in the production consistency tables 25 and 26 is $8.80 \cdot 10^2$.

It is recommended to update Tables 25 and 26 The maximum value requirement for class V production consistency in Table 26 is $6.25 \cdot 10^2$, and its corresponding 20%CoP and 30%CoP values.

Table 26
Class V – Bend lighting – Category 2 – System Requirements
(indicated for right-hand traffic)

| Element | Angular coordinates in deg | | Luminous intensity in cd | | | | | |
|----------|----------------------------|-------------|--------------------------|-------------------|-----------|-------------------|-----------|-------------------|
| | | | Column A | | Column B | | Column C | |
| | | | ± 0% CoP | | ± 20% CoP | | ± 30% CoP | |
| vertical | horizontal | min | max | min | max | min | max | |
| BR | 1°U | 2.5°R | - | $1.75 \cdot 10^3$ | - | $2.10 \cdot 10^3$ | - | $2.28 \cdot 10^3$ |
| Line BLL | 0.57° U | 20°L to 8°L | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |
| B50L | 0.57° U | 3.43°L | - | $5.30 \cdot 10^2$ | - | $7.00 \cdot 10^2$ | - | $7.85 \cdot 10^2$ |
| Line III | 0° | 4° L to 0° | - | $8.80 \cdot 10^2$ | - | $1.14 \cdot 10^3$ | - | $1.26 \cdot 10^3$ |