Outcome of 2\textsuperscript{nd} session of the IWG VGL

April 04, 2016 in Geneva
Introduction

• Situation with visibility and glare is not satisfactory in real road conditions

• Partial responsibility for this situation has present type approval system:
  • Provisions for beam patterns of headlamps
  • Provisions for initial aiming & levelling conditions
  • Requirements restricted to type approval process

• To improve situation was decided mandatory automatic levelling for every vehicle (90 month transitional provisions) – old but simple solution

• GTB took the task to prepare alternative solution
• Result of 4 years of GTB work (GTB & OICA Proposal) was not accepted by GRE
• Poland proposed improvement of it but it was not considered by GRE
• IWG VGL was appointed to find acceptable solution on base performance
• IWG VGL prepared ToR which were accepted
• Long and versatile general discussion was carried out on 1-st meeting
• Germany resigned from (co) chair IWG
• Poland undertook to continue chair the group
On 2-nd meeting 04.04.2016 took place discussion to select possible causes influencing visibility and glare in night driving conditions without another illumination.

• List of causes with potential impact on visibility & Glare **VGL-02-08**

• It is needed to understand what has an influence (or not) on visibility & glare, and how important is this influence

• Two kind of causes influencing visibility and glare:
  • **Type approval regulated**: HEADLAMP, VEHICLE
  • **Other**: temporary classified as ENVIRONMENT and VARIOUS (in-use, service tolerances, PTI requirements etc.)
SYNTHESIS OF DIFFERENT TOPICS TO BE TAKEN INTO ACCOUNT FOR VISIBILITY & GLARE

**VARIABLES**
- Light sources
- Shape
- Sharpness
- Glare
- Cut-off
- Color
- Coat aging
- ADB

**VEHICLE**
- Light sources
- HL Height
- Load
- Pitch \( \Delta / \) Suspension
- Cleaning device

**HEADLAMP**
- Light distribution
- Beam pattern
- Illumination for traffic signs
- Direct visibility
- HL design
- Size/HL perception
- ADB

**ENVIRONMENT**
- Road geometry
- Slope
- Bend
- Speed bump

**VARIOUS**
- Methods of aiming measurements
- Use of manual levelling
- Accuracy & repeatability of aiming
- Guidelines for PTI inspectors
- National reg. regarding aiming
- How much type approval rqt. reflected on road cond.
- Industrial prediction
- Characteristics of levelling devices
- Cut-off definition & quality

**GUIDELINES**
- Geometrical tol. HL & LS, influence for beam pattern
- Relation aiming/real road illumination & glare
- Accidents data
- Industrial prediction

**USE OF CLEANING DEVICE**
- How much type approval rqt. reflected on road cond.
- Industrial prediction

**GUIDELINES FOR PTI INSPECTORS**
- Industrial prediction
- National reg. regarding aiming
- Accidents data

**ACQUISITION**
- Method of aiming measurements
- Use of manual levelling
- Accuracy & repeatability of aiming
- Guidelines for PTI inspectors

**ENVIRONMENT**
- Road geometry
- Slope
- Bend
- Speed bump

**HUMAN BEHAVIOR**
- Traffic conditions
- Road geometry

**ERRORS**
- ADB
- Glare

**ENSURE VISIBILITY WITHOUT GLARE**
ENSURE VISIBILITY WITHOUT GLARE

HEADLAMP
- Light sources
  - Shape
  - Sharpness
- Cut-off
  - Color
- Coat aging
- ADB
- Light distribution
- Beam pattern
- Glare
- Illumination for traffic signs
- LS direct visibility
- HL design
- Size/HL perception

VEHICLE
- Categories
- HL Height
- Light sources
- Load
- Pitch Δ/ Suspension
- Cleaning device
- Levelling tolerance
- Initial aiming
- [Automatic switching]
ENSURE VISIBILITY WITHOUT GLARE

Methods of aiming measurements

Characteristics of levelling devices

National regulations regarding aiming

Industrial prediction

Accident data

Use of manual levelling

Accuracy & repeatability of aiming

Guidelines for PTI inspectors

Relation aiming/real road illumination & glare

Geometrical tolerances HL & LS, influence for beam pattern

ENVIRONMENT

Human behaviour

Traffic conditions

Slope

Bend

Road geometry

Speed bump

VARIOUS
• We need to select what has an influence on visibility & glare, and how much influence

How to do it? Who should do the work? Time frame?
- It is proposed to vote inside group (or inside GRE?)
- Vote **for/against** (that item is important for safety)? Justification/evidence required
- Who is voting „for” should be ready to prepare input

• Choice of categories of vehicles
  • M & N
  • L? T?
• What is the status of documents in GRE:
  • ECE/TRANS/WP.29/GRE/2011/27 - mandatory automatic levelling, 90 month TP
  • ECE/TRANS/WP.29/GRE/2015/5 - GTB and OICA Proposal
  • GRE-73-18 - Polish improvement of GRE/2015/5

• How to continue? (there in no one clear position inside the group)
  • First analyse GTB/OICA & Polish proposal?
  • From existing data (Klettwitz tests, Lab study, German study, AML study, TUD study, GTB literature study, etc.)? Are they representative?
  • Order new research? (Time, resources)
IWG VGL needs GRE guidelines...
Thank you for attention