

Transmitted by the expert from Germany

**Kraftfahrt-
Bundesamt**



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12th GRVA, 24-28 January 2022
Agenda item 11



/ 1st System Type-Approval for UN-R157 (ALKS)

Highlights and Assessment Process

Agenda

- **Introduction**
- **Details and Scope of E1*157R00/01*0001*00**
- **Internal Preparation**
- **Experience with the Requirements of UN-R157**
- **Assessment Process**

Introduction

On **2nd of December 2021** the KBA granted the **world-wide first System Type-Approval** for an Automated Lane Keeping System (**ALKS**) according to the **UN-R157**.

The Type-Approval documents (**E1*157R00/01*0001*00**) have been uploaded to DETA on **6th of December 2021**.

Details and Scope of E1*157R00/01*0001*00

- **Market:** Germany
- **Road types:** Motorways / Controlled access roads
- **Max. speed:** up to 60 km/h
- **Pre-Conditions for activation (e.g.):**
 - Air temperature $\geq 4^{\circ}\text{C}$
 - Daylight time
 - Lane markings
 - No road events ahead (tunnels, toll station, etc.)



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über die Erteilung einer Genehmigung eines Fahrzeugtyps in Bezug auf Lenkauraüstung nach der UN-Regelung Nr. 157 einschließlich Änderung Nr. 00 Ergänzung 01

COMMUNICATION

issued by:
Kraftfahrt-Bundesamt

concerning the granting of an approval of a vehicle type with regard to steering equipment pursuant to UN Regulation No. 157 including amendment No. 00 supplement 01

Genehmigungsnummer: E1*157R00/01*0001*00
Approval number:

Details and Scope of E1*157R00/01*0001*00

- The granted System Type-Approval is currently used for **three EU individual vehicle approvals.**
- Potentially, **Q2/22** for the use within a **WVTA.**
- Further roll-out in other countries depending on the **national legislations.**



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Internal Preparation

- **07/2020:** Starting the development of “**Methods & Criteria's**” according to the UN-R155 and “**Rules for Designation of Technical Services**”
 - in parallel discussions with the OEM and Technical Service regarding UN-R155 / UN-R156 (as prerequisites for UN-R157)
- **03/2021:** Designation of the Technical Service for UN-R155, UN-R156 and UN-R157
- **08/2021:** Issuing the **Certificate of Compliance** for **CSMS** and **SUMS**

Experience with the Requirements of UN-R157

- **03/2021:** Start of intensive discussions with the OEM and Technical Service regarding specific and especially “implicit” requirements of UN-R157, e.g.
 - Fulfilment of German national traffic rules
 - System reaction on emergency vehicles
 - System limitations and boundaries

- Considering the prerequisites (UN-R155 and UN-R156) it took approx. **18 month** to finally grant the system type approval for UN-R157.

Assessment Process

- **Track tests** have been performed by Technical Service. **Additional track tests** conducted **by KBA** with the main focus on:
 - Activation/Deactivation and Transition Demands
 - Collision avoidance
 - Minimum-Risk-Maneuver (MRM)
 - Human-Machine Interface
- **Continuous exchange** between OEM, Technical Service and KBA and **detailed review** of the **System Information Document (SID)** and **test protocols**.

Assessment Process

- **Real-World Test drives** performed by the Technical Service **after** completion of the **risk assessment** and the **track tests** outlined in Annex 5:
 - Test efforts: **> 50 h** and **~ 1500 km** with **3 test vehicles**
 - **Challenge to find and keep** suitable traffic scenarios (even in national traffic hotspots and during rush hour) for **~ 30** traffic scenarios

At any time of the Type-Approval process, the focus was to ensure that the safety aspects of the UN-R157 are fulfilled in a comprehensive and understandable manner!

Thank you very much
for your attention!

Contact: kaitams.petersen@kba.de

Impressum

Herausgeber:
Kraffahrt-Bundesamt
24932 Flensburg

Internet: www.kba.de

Fachliche Auskünfte und Beratung:

Telefon: 0461 316-0
Telefax: 0461 316-1650
E-Mail: kba@kba.de

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