

## Information system Type-approval procedure

### Issuing emission-type approvals for light passenger cars and commercial vehicles in accordance with Regulation (EU) 2017/1151

#### **Question or issue:**

Regulation (EU) 2017/1151, supplementing Regulation (EC) No 715/2007, includes several inspections, declarations and verifications (hereinafter referred to collectively as “documentation”) that are necessary across interpolation (IP) families or emission types for issuing emission-type approvals. The *Kraftfahrt-Bundesamt* (KBA) provides recommendations for action to ensure that these are complete and correct in the type-approval procedure and that the procedure can be performed simply and promptly.

#### **Result:**

##### **General remarks**

Some of this documentation should be sent to the KBA before the specific emission-type approval is applied for. This concerns, in particular, documentation whose scope extends across IP families or emission types, and is used as verification for several type approvals. This can be assessed independently of the emission-type approval to be issued later. This is then documented by the KBA and, depending on the circumstances, the KBA actively gives its approval. This includes the following documentation:

##### **Manufacturer Declared Values (MDV)**

When the MDVs are transmitted, a clear reference to the IP family must be established. The MDVs are submitted independently of the application documents. The KBA archives the MDVs after transmission without issuing a separate confirmation to the manufacturer. MDVs may be updated until the complete application for the issue of an emission-type approval has been submitted.

The MDVs must be uniformly declared in all type-approval documents, such as test reports, information documents and test results.

If MDVs are amended after the emission-type approval has been issued, an extension of the type approval is required.

##### **Description of the standard emission strategies and auxiliary emission strategies (BES/AES descriptions), here report on software versions, checksums and calibration numbers**

BES/AES descriptions should be submitted in advance of the actual application for emission-type approval. The BES/AES descriptions are approved by the KBA. Reference shall be made to the relevant approved BES/AES description in the test report and/or information document for issuing the emission-type approval.

Regulation (EU) 2017/1154 inserts Annex 3a into Regulation (EU) 2017/1151 in Annex I. Paragraph (c) requires a statement on the software versions used to control

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the standard emission strategies and auxiliary emission strategies, including the appropriate checksums of these software versions and explanations. If a new software version with implications for the standard emission strategies and auxiliary emission strategies is used, the declaration shall be updated.

The KBA requires this information for the past production at the beginning of each quarter as a worksheet in a standard format for processing in spreadsheet software, such as \*.xlsx or \*.csv. Software changes are summarised in a single consolidated worksheet for all type approvals at the beginning of a quarter taking account of the aforementioned requirements. This list shall contain a reference to the approval number of the AES/BES description and/or the emission-type approval. It is also necessary to specify restricting technical parameters, such as engine or transmission code, or the vehicle's type-variant version key (TVV).

### Test-bench operation mode

According to Regulation (EU) 2017/1151, Annex XXI, Sub-annex 6, Section 1.2.4.2.2., the test-bench operation mode shall be approved by the licensing authority and the use of the test-bench operation mode shall be taken into account in all relevant test reports.

For this purpose, all functional groups (e.g. engine, transmission, adaptive speed control) and control units concerned shall be specified, the respective functional changes in the test-bench operation mode shall be described, and their necessity substantiated in tabular form. Furthermore, the activation of the test-bench operation mode shall be described in this document. In addition, a declaration shall be made stating that all functions of the test-bench operation mode are fully specified and that the described functional changes have no influence on the emission behaviour and fuel consumption under test conditions.

After approval by the KBA, the manufacturer is provided with a file number for reference in the application for the issue of an emission-type approval.

### Roll-out mode

According to Regulation (EU) 2017/1151, Annex XXI, Sub-annex 4, Section 4.2.1.8.5., the roll-out mode shall be approved by the licensing authority. For the description of the roll-out mode, the conditions set out in the "Test-bench operation mode" section shall apply.

### Transmission mode

According to Regulation (EU) 2017/1151, Annex XXI, Sub-annex 6, Section 1.2.6.5.2., vehicles equipped with automatic transmissions with driver-selectable operating modes shall comply with the emission limit values in all automatic forward-driving modes. Corresponding verification of this must be provided by the manufacturer and submitted before the emission-type approval is issued. Driver-selectable operating modes for very specific purposes in accordance with 1.2.6.5.2.2. (e.g. maintenance mode, creep mode) must be specified in the documents.

After approval by the KBA, the manufacturer is provided with a file number for reference in the application for the issue of an emission-type approval.

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#### **Provisions for electronic system security**

According to Regulation (EU) 2017/1151, Annex I, Section 2.3., the protection of electronic systems security and of the odometer must be approved by the approval authority.

For this assessment, the manufacturer must provide the KBA with a description for each circumstance.

The description of the verification of protection against manipulation of the odometer shall specify how falsification of the odometer reading in the powertrain control system and in the transmission unit for remote data exchange is prevented. In particular, cryptographic manipulation protection, manipulation detection, the separate comparison of different control units in relation to the odometer reading stored in different control units and the existing hardware manipulation protection, e.g. of the microcontroller, must be dealt with in the description.

Furthermore, in accordance with Regulation (EU) 2017/1151, Annex XXI, Paragraph 5.5., the description of electronic systems security must indicate how the requirements under Sections 5.5.1 to 5.5.4 have been technically implemented. Each section is to be dealt with in detail with sufficient explanations.

The KBA assesses the descriptions. After approval by the KBA, the manufacturer is provided with a file number for reference in the application for the issue of an emission-type approval.

#### **Verification of emissions in actual driving operation (RDE) and of the development of portable emission measurement systems (PEMS)**

Documentation on the development of PEMS groups, RDE routes and RDE test reports in accordance with Annex IIIA of Regulation (EU) 2017/1151 is sent to the KBA after preparation, where it is assessed and approved. A file number shall be provided to the applicant for reference in the application documents for the emission-type approval.

The steps described must also be taken into account when applying a “different PEMS test group”, as described in No. 3.4. of Annex 7 to the aforementioned Annex.

The manufacturer’s certificate in accordance with Annex IIIA, Annex 9 to Regulation (EU) 2017/1151 shall be attached to the emission-type approval’s information document.

#### **RDE reporting**

All information corresponding to numbers 3.1.3.1. and 3.1.3.2. of Annex IIIA to Regulation (EU) 2017/1151 must be submitted to the KBA. This includes the information listed in Annex 7, numbers 5.3. and 5.4. An Excel file is a suitable format for this. Furthermore, the report files shall be submitted in accordance with Annex 8 to the aforementioned Annex.

#### **Files for the co2mpas calculation program**

The data specified in Information Letter No. 03-17 entitled “Transmission and processing of correlated WLTP CO<sub>2</sub> Values (including ‘DICE’) to the European Commission server (so-called ‘RUN TA’ in the co2mpas tool)” shall be made available to the KBA in the

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procedure described therein. A reference to the IP family is required so that the documents can be assigned accordingly.

The HASH-2 value shall be established according to the CO2MPAS user guidelines of the Joint Research Centre (JRC), Section 8 “The Dice”, paragraph “Finalising the DICE project”, and shall be stated in the test report. The following is an example of a HASH-2 value:

dices/IP-10-AAA-2017-1234/1 936845d307388a8a44f02855b075cf69b1817d82

#### **Other documentation that can be used across types**

Test records of emission-related circumstances that can be used to obtain multiple emission-type approvals must only be submitted to the KBA once. Examples of such verifications are test reports on Ambient Temperature Coefficient Test (ATCT), Ki factors, On-Board Diagnosis (OBD), Evaporative Emissions (EVAP) or on driving resistance (Road Load).

The KBA files such documentation on a manufacturer-specific basis. A reference in the emission approval’s test report or associated information document to the document number of the test record is required for processing the approval documents.

#### **Information document**

Different IP families can refer to a common information document. In order to minimise the effort involved in the type-approval procedure, it is advisable to provide the information document only once for several IP families. The information document shall be provided under a separate ID. Reference is made in the application for each emission-type approval to the ID of the information document. Should it turn out during the processing of the document that amendments are necessary, the document is to be made available again only once. Assignment via the ID to the relevant IP families is guaranteed for the internal processes.

All documentation mentioned is to be transmitted via the established transmission channels by email to [421@kba.de](mailto:421@kba.de) or via server-based data exchange. At the latest when the complete application for the issue of an emission-type approval is submitted, the KBA must have all of the documentation required for evaluation.

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Flensburg,  
26/03/2018 Mario  
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