TECHNICAL SPECIFICATION

ISO/TS 13499

Third edition
2019-05

Road vehicles — Multimedia data exchange format for impact tests

Véhicules routiers — Format d'échange de données multimédia pour les essais de choc

Reference number
ISO/TS 13499:2019(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 36, *Safety and impact testing*.

This third edition cancels and replaces the second edition (ISO/TS 13499:2014) which has been technically revised. The main changes compared to the previous edition are as follows:

— ASCII 32 is the code for a space, therefore "blank" was changed to "spaces" in 3.10,

— 6.1 was modified to allow more than one static measurement data file, and

— the static subdirectory has been changed to contain the information file instead of the data file.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Road vehicles — Multimedia data exchange format for impact tests

1 Scope

This document presents a simple means for the exchange of multimedia data on impact tests between different laboratories. A format has been developed which defines a directory structure and the exchange information as ASCII files. Related electronic documents are available on the ISO website.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 80000-1, *Quantities and units — Part 1: General*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
test number
code specific to the test

Note 1 to entry: In this document and all related electronic documents it is referenced as <testnumber>.

3.2
test object
group of components with the same initial state (e.g. speed, direction of movement) at impact time

Note 1 to entry: In this document and all related electronic documents it is referenced as <testobject>.

3.3
channel code
code consisting of 16 characters, composed of a sequence of codes with a fixed length and specific order, defining test object, position, main location, fine locations, physical dimension, direction and filter class

Note 1 to entry: This document and all related electronic documents the complete channel code is referenced as <channelcode>.

EXAMPLE	1 1 HEAD LE 00 H3 AC X A			
Meaning:	Test object	= 1	Vehicle no. 1	referenced as <testobject>
	Position	= 1	Front left	referenced as <position>
	Main location	= HEAD	Dummy head	referenced as <mainlocation>
	Fine location 1	= LE	Left	
	Fine location 2	= 00	Undefined	
	Fine location 3	= H3	H III dummy	
	Dimension	= AC	Acceleration	
	Direction	= X	X-direction	
	Filter class	= A	CFC 1000	see ISO 6487

3.4
reference system
three-dimensional coordinate system which belongs to a test rig, a test object or a part of a test object

Note 1 to entry: For each used reference system a specific identifier shall be defined.

3.5
channel code extension
distinguishable data from different data sources or within different reference systems for the same measurement position described by a specific <channelcode>

Note 1 to entry: For this reason and for future purposes an extension of the <channelcode> is necessary. In this document and all related electronic documents this extension is referenced as <codeextension>. For details, see 4.4, 5.2 and the related electronic document A.

3.6
media type
multimedia data of vehicle safety tests which is from the same type is grouped to media types

EXAMPLE Photo, movie and channel.

Note 1 to entry: In this document and all related electronic documents this is referenced as <mediatype>.

3.7
quaternion
ambiguities of trigonometric functions avoidable when a rotation matrix with algebraic functions is used

Note 1 to entry: Three independent rotations are described by four algebraic parameters: qw, qx, qy and qz.

Note 2 to entry: For details see the related electronic document A.

3.8
descriptor
text with a maximum length of 28 characters identifying specific information

Note 1 to entry: Tabulation stops (ASCII 9) are not allowed. Case sensitivity is not required.

3.9
line delimiter
“carriage return” (ASCII 13) followed by a “line feed” (ASCII 10)

Note 1 to entry: The line length is not limited.

3.10
column separator
one or multiple tabulation stops (ASCII 9) or one or multiple spaces (ASCII 32)

3.11
separator line
"#Start of data" separating the header from the data section in all data files

4 General requirements

4.1 Physical units

All data shall be expressed in SI units in accordance with ISO 80000-1, if not explicitly specified in the related electronic documents. In particular, acceleration, *a*, has to be given in metres per second squared (m/s^2) and velocity, *v*, in metres per second (m/s).

4.2 Data types

The data values shall be in ASCII in accordance with ISO/IEC 8859-1 with the decimal symbol being a dot (ASCII 46). Valid basic data types are integer, float and string. Generic data types are date and datetime in accordance with ISO 8601 (all parts) and coded, reference and filereference. The data types are defined in the related electronic document A.

4.3 NOVALUE

For integrity, where data are unavailable, insert the reserved word "NOVALUE" as the data value. "NOVALUE" is not case sensitive.

4.4 Filename convention

The name of a file is composed by a base filename, a dot (ASCII 46) and an extension. The base filename and the extension are built from the lexical space ASCII {43, 45, 48 – 57, 65 – 90, 95, 97 – 122}. The '_' character (ASCII 95) is reserved for the separation within filenames. Filenames are case sensitive. The <testnumber> is free but shall be unique within the whole file structure. All other parts of filenames shall be used in the same notation as described in this document and all related electronic documents.

5 File types

5.1 Information files

Information files consist of a sequence of information lines. Each information line shall end with a line delimiter.

An information line shall start with a descriptor of 28 characters. Position 29 contains a separator, this may be a colon. The test information shall start at position 30.

If some information lines belong to a single <mediatype> these lines shall be summarized within an information block. Every block has a blockbegin- and a blockend-line. The general information valid for all <mediatypes> is not block structured and is positioned in front of the first block. Nesting of blocks is not allowed.

Comment lines may be used at any line and shall be marked by the descriptor "Comments". Each following line of a comment shall begin with this descriptor. Comment lines should not contain computer-readable information.

The information line with the descriptor “Data format edition number” in the *test information file* shall be the first line. Within a block the position order of all information lines is free. All descriptors except comments shall be unique within a block.

The mandatory and optional descriptors are specified in the related electronic document A. Additional partner specific descriptors may be agreed between the transferring parties. They shall start with a “+” sign (ASCII 43).

The filename of the *test information file* shall be built from the <testnumber> a dot (ASCII 46) and the extension “mme”. The names of all other multimedia information files start with the <testnumber>. They have the extension “mmi”. Information files are described in more detail in related electronic document A.

5.2 Data files

Data files consist of a header section and a data section. The header section is always in the beginning of the file. The data section starts behind a *separator line* and ends at the End of File. The construction of the descriptive lines in the header section is identical to the specification of an information file. The general rules for information files (see 5.1) apply also to the header section.

A data file may consist of one or more columns in the data section. The columns are separated by column separators. Specific often used data structures are predefined. These definitions and the examples are shown in the related electronic document A.

The filenames of all multimedia data files have the extension “mmd”. Allowed filenames for channel data are built by the <testnumber>, the <channelcode> and the <codeextension> defined in the related electronic document A in the format <testnumber>_<channelcode>_<codeextension>.mmd.

5.3 Comment files

These optional files contain all additional information exceeding the data volumes of the information files. Comment files may be stored in the main directory or in any subdirectory. The name of the *test comment file* shall be identical to the <testnumber>, while the names of the other comment files shall be built from the <testnumber> followed by an “_” (ASCII 95) and the name of the subdirectory with the extension “txt”. All comment files contain unformatted text.

Each item shall be separated by a line delimiter. If information specific to an individual data channel needs to be given, the information line shall start with the <channelcode>.

The comment files according to the exchanged media types shall be as follows:

File name: <testnumber>_<subdirectory-name>.txt

Location: in every subdirectory

Contents: unformatted text

……

<channelcode>: unformatted text

……

unformatted text

6 File organization

6.1 Directory structure

All files relating to a particular test shall be held in a standard directory structure as follows. Filenames and directory names are case sensitive. All subdirectories except the object subdirectory are optional.

<testnumber> **main directory**

|	
|----- <testnumber>.mme	test information file
|----- <testnumber>.txt	test comment file
|----- **Channel**	**subdirectory**
|-- <testnumber>_Channel.mmi	channel information file
|--- <Name of channel file 1>.mmd	channel data file 1
. . .	
|--- <Name of channel file c>.mmd	channel data file c
|--- <testnumber>_Channel.txt	channel comment file
|----- **Document**	**subdirectory**
|--- <testnumber>_Document.mmi	document information file
|--- <Name of document file 1>	document file 1
. . .	
|--- <Name of document file d>	document file d
|--- <testnumber>_Document.txt	document comment file
|----- **Movie**	**subdirectory**
|--- <testnumber> _Movie.mmi	movie information file
|--- <testnumber> _Movie.mmd	movie data file
|--- <Name of movie file 1>	movie file 1
. . .	
|--- <Name of movie file m>	movie file m
|--- <testnumber>_Movie.txt	movie comment file
|----- **Object**	**subdirectory**
|--- <testnumber>_Reference.mmi	reference system information file
|--- <testnumber>_Reference.mmd	reference system data file
|--- <testnumber>_Reference.txt	reference system comment file
|--- <Name of object file 1>.mmi	object information file 1
. . .	
|--- <Name of object file o>.mmi	object information file o
|--- <testnumber>_Object.txt	object comment file
|----- **Photo**	**subdirectory**