PD IEC/TS 63033-1:2017

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Car multimedia systems and equipment – Drive monitoring system

Part 1: General

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TECHNICAL SPECIFICATION

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Part 1: General

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Part 1: General

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviated terms 7
3.1 Terms and definitions 7
3.2 Abbreviated terms 7
4 System model 7
4.1 General 7
4.2 Number of cameras and camera field of view 8
4.3 Method for projecting visual image to 3D projection surface 9
4.4 Visualizing the projection image at free eye point 10
4.5 Free eye point capability 11
5 Camera configuration 11
5.1 Camera 11
5.2 Lens distortion data 11
5.2.1 Distortion data of rotationally symmetric lens 11
5.2.2 Distortion data of non-rotationally symmetric lens 12
5.3 Optical axis shift data 13
6 Rendering 14
6.1 General 14
6.2 Composite view data 14
6.2.1 3D projection surface data 14
6.2.2 Capture size 14
6.2.3 Conversion of eye point parameter 15
6.2.4 Virtual 3D image car model data 16
6.2.5 Guide line and bitmap data 17
6.2.6 Layout data and layer setting data 18
Annex A (informative) Camera mounting to the car 20
A.1 Camera mounting position 20
A.2 Camera mounting height 20
A.3 Camera mounting angle 20
Annex B (informative) Camera field of view 22
Annex C (informative) Camera calibration 23
Annex D (informative) Display 24
D.1 Display specification data 24
D.2 Composite view change mode 24
Annex E (informative) Time behaviour 25
E.1 Start-up time 25
E.2 Frame rate 25
E.3 Latency 25
Bibliography 26

Figure 1 – System model for the drive monitoring system 8
Figure 2 – Horizontal angle of view of the camera 8

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Full document details: PD IEC/TS 63033-1:2017

Figure 3 – Vertical angles of view of the camera 9
Figure 4 – 3D projection surface 10
Figure 5 – Projecting to 3D projection surface 10
Figure 6 – Distortion data of a rotationally symmetric lens 11
Figure 7 – Distortion data format of a rotationally symmetric lens 12
Figure 8 – Distortion data of a non-rotationally symmetric lens 12
Figure 9 – Distortion data format of a non-rotationally symmetric lens 13
Figure 10 – Texture normalization coordinate at the centre of each optical axis 13
Figure 11 – The format of optical shift data 14
Figure 12 – 3D projection surface data 14
Figure 13 – Capture specification data format 15
Figure 14 – Camera angle in conversion of eye point 15
Figure 15 – Camera position/scaling in conversion of eye point 16
Figure 16 – Virtual 3D image car model at original dimension 16
Figure 17 – Virtual 3D image car model at real dimension 17
Figure 18 – Guide line and bitmap data 17
Figure 19 – Camera image coordinate system 18
Figure 20 – Screen coordinate system 18
Figure 21 – Object coordinate system 19
Figure 22 – Layout data and layer setting data 19
Figure A.1 – Camera mounting position 20
Figure A.2 – Camera mounting height 20
Figure A.3 – Camera mounting angle 21
Figure C.1 – Camera calibration 23

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CAR MULTIMEDIA SYSTEMS AND EQUIPMENT – DRIVE MONITORING SYSTEM

Part 1: General

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IEC TS 63033-1, which is a technical specification, has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

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The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
100/2819/DTS	100/2877/RVDTS

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 63033 series, published under the general title *Car multimedia systems and equipment*, can be found on the IEC website.

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- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

The drive monitoring system is a camera-based visual system enabling the car user to record and view in real time the surrounding visual image of their vehicle from anywhere within a 360° surround view perspective. The purpose of this document is to specify the model for generating the desired surrounding visual image of the drive monitoring system. Typically, the drive monitoring system is defined by the audio-visual monitoring system requirements of the car multimedia system and equipment.

To ensure the correct positioning of the car in relation to its surroundings, the rear-view monitor for parking assistance, the blind spot monitor for displaying views of the blind spots, and the bird's-eye view monitor are used. Each drive monitoring system provides a different viewpoint to the car's driver. It's a heavy burden for a car driver to switch between these systems and quickly recognize the multiple fields of view. In addition, the fields of view are limited to these camera systems which cannot freely change the eye point depending on the driving situation. As a result, the usage cases for these types of systems are limited to singular functions such as parking assistance. Furthermore, on commercial vehicles such as trucks, buses and other special vehicles, ranging from construction to agricultural machinery, the usage cases for these systems is even more limited. In these vehicle types, there might exist situations in which no one is available to assist the driver in properly ensuring the car's correct and safe position.

To resolve these problems, the drive monitoring system provides the driver with the optimal surround view image as constructed by the model explained in this document. It provides the optimal viewpoint of the vehicle and its surroundings to the driver for ensuring the car's good positioning in various driving situations (parking, turning, high traffic situations, etc.). This is not only true for passenger cars, but good positioning can also be quickly ensured for commercial vehicles and other special vehicles as well.

Part 1 specifies the model for generating the surrounding visual image of the drive monitoring system. Part 2 specifies the information sets that are provided by the drive monitoring system, which include recording methods for that information and the actual visual images. Part 3 specifies the measurement methods of surrounding visual images for the drive monitoring system.

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CAR MULTIMEDIA SYSTEMS AND EQUIPMENT – DRIVE MONITORING SYSTEM

Part 1: General

1 Scope

This document specifies the model for generating the surrounding visual image of the drive monitoring system.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Terms and definitions

3.1.1
car
any kind of powered wheeled vehicle

3.2 Abbreviated terms

3D	three dimensional
camera ECU	camera electronic control unit
CAN	controller area network
GUI	graphical user interface

4 System model

4.1 General

The system model of the drive monitoring system is described in Figure 1. Cameras, which are mounted on the outside the car, capture the visual image of the environment outside the car. The visual images are projected onto a virtual 3D projection surface that is then displayed as a composite image onto the monitor. The images displayed can be rendered from any viewpoint within the 3D projection surface, thus enabling the optimal viewing perspective onto the display based on the scenario. The number of cameras required on vehicles other than passenger cars may be more than four depending on the size and shape of the car. This model defines a drive monitoring system with four cameras as typical for most car type applications. The number of cameras used in generating each composite image may change depending on the viewpoint. The mounting positions and angles for the four cameras should be calibrated as per the method described in 4.2 and 4.3.

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