



BSI Standards Publication

Road Vehicles — Ergonomic aspects of external visual communication from automated vehicles to other road users

National foreword

This Published Document is the UK implementation of [ISO/TR 23049:2018](#).

The UK participation in its preparation was entrusted to Technical Committee AUE/12, Ergonomics (Road vehicles).

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 99955 0

ICS 43.020; 03.220.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 September 2018.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

TECHNICAL REPORT

ISO/TR
23049

First edition
2018-09-28

Road Vehicles — Ergonomic aspects of external visual communication from automated vehicles to other road users

*Véhicules routiers — Aspects ergonomiques de la communication
visuelle extérieure du véhicule automatisé aux autres
utilisateurs de la route*



Reference number
ISO/TR 23049:2018(E)

AVA **Documents**
Document Sharing Hub
© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Contents

Page

Introduction	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Background	1
5 Current road user interactions	2
6 Potential ADS-DV communication	2
6.1 General	2
6.2 Vehicle information	2
6.2.1 State	2
6.2.2 Driving mode	3
6.3 Vehicle “understanding” of the environment	3
6.3.1 Perception	3
6.3.2 Recognition and acknowledgment	3
6.3.3 Belief state	3
6.4 Guidance	3
6.5 Intent	4
7 Format of ADS-DV communication	4
8 Considerations for ADS-DV communication	4
9 Acceptance of ADS-DVs by the public	5
Bibliography	7