



BSI Standards Publication

Motorcycles — Consideration for use cases of ISO 26262-12 MSIL classification

National foreword

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Motorcycles — Consideration for use cases of ISO 26262-12 MSIL classification

*Motorcycles — Considération des cas d'usages de l'ISO 26262-12
Classification MSIL*





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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).

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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 38, *Motorcycles and mopeds*.

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.

Introduction

0.1 General

The ISO 26262 series is intended to be applied to safety-related systems that include one or more electrical and/or electronic (E/E) systems and that are installed in series production road vehicles, excluding mopeds. The ISO 26262 series does not address unique E/E systems in special vehicles such as E/E systems designed for drivers with disabilities.

ISO 26262-12:2018 is the standard to address the sector-specific needs of E/E systems within series production motorcycles. The motorcycle industry recognizes the need to use appropriate safety-related techniques to avoid unreasonable risk resulting from random or systematic faults of E/E systems.

Motorcycle safety integrity level (MSIL) is the output of hazard analysis and risk assessment (HARA). This is then apportioned between the risk-reduction mechanisms and measures assigned to E/E systems using automotive safety integrity level (ASIL) and the risk reduction taken care of by external measures and/or other technologies. Specifically in the motorcycle industry, a greater proportion of the overall risk reduction is generally apportioned to external measures (for example, riding rules, training/qualification of riders, personal protective equipment, e.g. helmets and infrastructure features).

The worldwide established level of technology (“state-of-the-art”) in the motorcycle industry suggests that ASIL requirements are not appropriate for motorcycles. This is addressed through the alignment between MSIL and ASIL. It is acknowledged that product development processes and technical solutions within the motorcycle industry are inhomogeneous with those of the automobile industry; therefore, the difference between MSIL and ASIL has been made to accommodate worldwide capability.

0.2 Objectives

Publicly-available research documents and references relating to the functional safety of motorcycles are fewer in number than those for passenger cars. The purpose of this document is to contribute to the functional safety of motorcycles by internationally collecting and providing examples for motorcycle HARA. This document provides an overview of the principles behind HARA using simplified examples to the concepts.

A prerequisite for HARA is the item definition, which is not the subject of this document. It also does not cover the safety goals of the item. This document takes examples of some items on motorcycles, but is also not exhaustive in terms of their function.

This document presents examples of potential accident scenarios and risk assessments, from the behaviour of an item when it fails and the hazard at vehicle level to its potential accident scenarios. Several methods have been published for each of these, and the aim is to provide a side-by-side comparison to assist in the implementation of HARA.

0.3 Points to note

In using this document, please note the following.

The hazard analysis results and MSIL described in this document is just a collection and does not specify the MSIL of a specific item. Although some examples are given in this document, they are the result of several approaches and do not specify the MSIL for a particular item. The same applies even if only one example is given for an item. Also, the information presented in this document is neither exhaustive nor complete. However, introducing some cases (i.e. analytical approaches and results) will help shape the image for applying the ISO 26262 series.

This document has taken as faithfully as possible the descriptions from published documents. Although there are formatting differences from the original text for the purpose of side-by-side comparison, severity(S), exposure(E), controllability(C) and MSIL described have not been altered or harmonised in any way. The information contained in this document is only part of the published material, and it is

recommended to consult the original when referring to it in implementation. The use of these methods is neither mandatory nor recommended and is to be used at the user's own responsibility.