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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 41862-2022

**Earth-moving machinery and mining - Autonomous and
semi-autonomous machine system safety**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is equivalent to ISO 17757.2019 "Safety of autonomous and semi-autonomous machine systems for earthmoving and mining machinery".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies autonomous and semi-autonomous machines (ASAM) used in earthmoving and mining operations, as well as autonomous or semi-autonomous machines

Security requirements for the system (ASAMS). This document specifies safety standards for machines and their associated systems and infrastructure (including hardware and software)

It provides guidelines for safe use in the specified functional environment during the life cycle of machines and systems. This document also defines

ASAMS-related terms and definitions.

This document applies to the autonomous products of earth-moving machinery as defined in ISO 6165 and mobile mining machinery for surface or underground use

and semi-autonomous machines, but also for other types of autonomous or semi-autonomous machines used on worksites.

General safety requirements for mobile earth-moving and mining machinery and their operators, trainers or passengers on the machines are specified by other documents (eg

ISO 20474, ISO 19296) regulations. This document addresses other specific hazards associated with ASAMS when used as intended.

This document does not apply to remote control capabilities (specified by ISO 15817) or automation characteristics of specific functions, unless these functions are used as part of ASAMS.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 14781-2014 Earth-moving machinery tire-type machinery steering requirements (ISO 5010.2007, IDT)

GB/T 15706-2012 General Principles of Mechanical Safety Design Risk Assessment and Risk Reduction (ISO 12100.2010, IDT)

GB/T 19929-2014 Performance requirements and test methods for earth-moving machinery crawler-type machine braking systems (ISO 10265.

2008, IDT)

ISO 2867 Earth-moving machinery access systems
(Earth-movingmachinery-Accesssystems)

Note. GB/T 17300-2017 Earthmoving Machinery Channel Device (ISO 2867.2011, IDT)

ISO 3450.2011 Performance requirements and test methods for earth-moving machinery tire- or high-speed rubber tracked machine braking systems

(Earth-movingmachinery-Wheeledorhigh-speedrubber-trackedmachines-Performancerequire-
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Note. GB/T 21152-2018 Performance requirements and test methods for earth-moving machinery wheeled or high-speed rubber tracked machine braking systems (ISO 3450.

2011, MOD)

ISO 6165 Earth-moving machinery basic types identification, terms and definitions
(Earth-movingmachinery-Basictypes-

Note. GB/T 8498-2017 Earth-moving machinery basic type identification, terms and definitions (ISO 6165.2012, IDT)

ISO 9533 Earth-moving machinery airborne audible driving alarm and forward horn test methods and performance criteria (Earth-moving

ancecriteria)

Note. GB/T 21155-2015 Earth-moving machinery driving sound alarm device and front horn test method and performance criteria (ISO 9533:2010, IDT)

ISO 12100 General principles for safety design of machinery, risk assessment and risk reduction (Safety of machinery-General)

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