

HJ

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**Technical specification for emission remote supervision system
of non-road mobile machinery
(English Translation)**

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Foreword

This Standard is formulated to implement the Environmental Protection Law of the People's Republic of China and the Air Pollution Prevention and Control Law of the People's Republic of China, prevent and control environmental pollution caused by exhaust gas from non-road mobile machinery, standardize remote monitoring technology for machinery emissions, and improve air quality.

This Standard specifies the general requirements for emission remote supervision system of non-road mobile machinery, the functions, performance and safety requirements of on-board terminals and enterprise platforms, as well as test methods and communication protocols and data formats for data transmission.

Annexes A, C and D of this Standard are normative. Annexes B and E are informative.

This Standard is published for the first time.

This Standard was formulated by the Department of Atmospheric Environment and the Department of Regulations and Standards of the Ministry of Ecology and Environment.

Main drafting organizations of this Standard. Chinese Academy of Environmental

Sciences, Jinan Automobile Testing Center Co., Ltd., China Automotive Technology Research Center Co., Ltd., Xiamen Environmental Protection Motor Vehicle Pollution Control Technology Center, and Beijing Ecological Environment Monitoring Center. This Standard was approved by the Ministry of Ecology and Environment on December 4, 2023.

This Standard shall be implemented from July 1, 2024.

This Standard shall be interpreted by the Ministry of Ecology and Environment.

Technical specification for emission remote supervision
system of non-road mobile machinery

1 Scope

This Standard specifies the general requirements for emission remote supervision system of non-road mobile machinery, the functions, performance and safety requirements of on-board terminals and enterprise platforms, as well as test methods and communication protocols and data formats for data transmission.

This Standard applies to remote online monitoring and networking of non-road diesel mobile machinery with a rated net power of 37 kW and above that meets the fourth stage of HJ 1014-2020.

2 Normative references

This Standard refers to the following documents or clauses therein. For any dated referenced document, only the dated version applies to this Standard. For any undated referenced document, the latest version (including all amendments) applies to this Standard.

GB 17691-2018, Limits and measurement methods for emissions from diesel fueled heavy-duty vehicles (CHINA VI)

GB 18030, Information technology -- Chinese coded character set

GB 20891-2014, Limits and measurement methods for exhaust pollutants from diesel engines of non-road mobile machinery (CHINA III, IV)

GB/T 1988, Information technology -- 7-bit Coded character set for information

interchange

GB/T 2423.18, Environmental testing -- Part 2. Test methods -- Test Kb. Salt mist, cyclic (sodium chloride solution)

GB/T 4208, Degrees of protection provided by enclosure (IP code)

GB/T 22239, Information security technology -- Baseline for classified protection of cybersecurity

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB 20891-2014, HJ 1014-2020 as well as the followings apply.

3.1 non-road mobile machinery

All types of machinery used for non-road use and to which HJ 1014-2020 standard applies, namely.

3.2 construction machinery

All mechanical equipment used in earthwork projects, mobile lifting and loading and unloading projects, passenger and cargo lifting and transportation projects, municipal, sanitation and various construction projects, comprehensive mechanized construction and mechanized production processes related to the above projects, INCLUDING excavators, earth-moving and transportation machinery, lifting machinery, forklifts, compaction machinery, road construction and maintenance machinery, concrete machinery, tunneling machinery, pile-driving machinery, aerial work machinery, rock drilling machinery, etc.

3.3 on-board terminal

Installed on non-road mobile machinery, it is used to collect, store and transmit machinery positioning information, emission control diagnostic system information and engine emission data. It belongs to pollution control device. On-board terminals are divided into two categories. on-board emission terminals and on-board positioning terminals.

3.5 secret key

A symbol sequence used to control cryptographic transformation operations (such as encryption, decryption, cryptographic check function calculation, signature generation, or signature verification). It is an asymmetric secret key pair. It includes a public key and a private key. The private key is used for signing or decrypting. It shall not be disclosed. The public key is used for signature verification or encryption.

3.9 national platform

A platform established by the ecological and environmental protection department of the State Council to receive activation information of non-road mobile machinery and data of emission remote supervision system of non-road mobile machinery transmitted by enterprise platforms, and to manage the data in a unified manner.

3.10 data packet loss rate

The ratio of lost data packets to the total number of sent data packets during data transmission.

4.1 Non-road mobile machinery (excluding construction machinery) equipped with

diesel engines with a rated net power of 37 kW or more shall be equipped with an on-board positioning terminal that meets the requirements of Chapter 5 before leaving the factory in accordance with the provisions of HJ 1014-2020. Machinery manufacturers shall take necessary technical measures.

4.2 Engineering machinery equipped with diesel engines with a rated net power of 37

kW or above [if equipped with a selective catalytic reduction (SCR) after-treatment system,

4.3 The on-board terminal shall comply with the requirements specified in Chapter 5.

The machinery manufacturer or on-board terminal manufacturer shall conduct