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

MH/T 1064.3-2017

**Safety code of power working with the helicopter. Part 3-Laser
scanning operation
(English Translation)**

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 General requirements
4.1 Personnel
4.2 Equipment
4.3 Operating environment and weather
4.4 Personnel fatigue prevention measures
5 Preparation before homework
5.1 Preparation stage
5.2 Direct preparation phase
6 Work implementation
6.1 Laser scanning data collection
6.2 Work safety
6.3 Data Security
7 Work after homework

Foreword

MH/T 1064 "Safety Regulations for Helicopter Electric Operation" is divided into the following seven parts.

- Part 1: General requirements;
- Part 2: Inspection operation;
- Part 3: Laser scanning operation;
- Part 4: Live work;
- Part 5: Electric water washing operation;
- Part 6: Hoisting and assembly tower operations;
- Part 7: Unfold the guide rope operation.

This part is part 3 of MH/T 1064.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part was proposed by the Transportation Department of the Civil Aviation Administration of China.

This part was approved by the Aircraft Airworthiness Certification Department of the Civil Aviation Administration of China.

This part is under the jurisdiction of the China Academy of Civil Aviation Science and Technology.

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1 Scope

This part of MH/T 1064 specifies the use of manned helicopters (hereinafter referred to as helicopters) for laser scanning of overhead transmission lines General requirements for the job, job preparation, data collection, and safety requirements for work after the job.

This section applies to laser scanning operations on overhead transmission lines using manned helicopters equipped with special equipment.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 26859 Electric Safety Work Regulations Power Line Part RTCA/DO-160 Aviation Radio Technology Committee/Airborne Equipment Environmental Conditions and Test Procedures

3 Terms and definitions

The following terms and definitions apply to this document.

Helicopter laser scanning the operation method of using helicopter-mounted laser scanner to obtain 3D point cloud data of transmission line.

Laser scanner

By recording the time delay of the laser pulse from the launch and reflection of the target to the receiving unit, the precise measurement from the launch point to the ground reflection point System to obtain the three-dimensional coordinates of ground reflection points.

Global navigation satellite system GNSS A collective term for global, regional and enhanced satellite navigation systems.

LiDAR point cloud

A collection of scan points.

Note: The laser scanning system scans the ground to obtain the three-dimensional coordinates of the ground reflection points, and each ground reflection point is distributed in the three-dimensional space in the form of points according to the three-dimensional coordinates in, called scan point.

4.1 Personnel

4.1.1

The captain performing helicopter laser scanning operations shall meet the following requirements.

- The total flight time of the helicopter not less than 600 h;
- Not less than 100 hours of helicopter inspection flight experience;
- Have the flight qualification of the operating model, and complete the technical training for landing at ultra-low altitude and temporary outdoor landing sites, and have the ability to fly in mountains, Low-altitude flight, hovering, and other stable flight technology level.

4.1.2

On-board operators performing helicopter laser scanning operations shall meet the following requirements.

- Meet the requirements of GB 26859 for staff in terms of physical conditions, safety production knowledge and skills, electrical knowledge and business skills, etc.

Requirements;

- Able to provide theoretical knowledge support for flying under special conditions, and put forward opinions and suggestions on optimization of flight modes;
- Master the working principle of the airborne laser scanning system, be familiar with the various operations of the airborne laser scanning system, and be able to complete it on a helicopter the ability of laser scanning data collection and certain on-board equipment emergency troubleshooting capabilities.

4.2.1 Airborne laser scanning system

4.2.1.1

The laser scanning system, pendants and accessory parts carried outside the helicopter shall have airworthiness permits.

4.2.1.2

The effective range of laser scanning should not be less than 300 m, and the data storage

space should meet the requirements of continuous working for 8 hours.

4.2.1.3

The laser safety level of the airborne laser scanning system should be level I.

4.2.1.4

The electromagnetic compatibility design of the helicopter laser scanning pod shall comply with the relevant regulations of RTCA/DO-160, and the distance between AC and DC of 500 kV and above the transmission line should be able to be used normally at 20 m.

4.2.2 GNSS receiver

4.2.2.1

The environmental requirements of electronic components such as airborne GNSS receivers shall meet the following requirements.

--Working temperature is 0 °C~40 °C;

--The storage temperature is between -10 °C and 50 °C.

4.2.2.2

Special personnel should be assigned to guard the ground GNSS reference station and monitor the working status of the GNSS receiver in real time. Measures should be taken to prevent rain and lightning.

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4.2.3 Other equipment

4.2.3.1

The operation of electronic equipment involved in data collection operations shall comply with the requirements of the equipment manual.

4.2.3.2

Electronic equipment required for operations on a helicopter should not interfere with the helicopter's flight, communication and navigation systems.

4.3 Operating environment and weather

4.3.1

For mountain operations, the visibility under the cloud should be no less than 3 km, the vertical visibility should be no less than 500 m, and the wind speed should be no more than 5 m/s. level for the original operation, the visibility under the cloud should be no less than 2 km, the vertical visibility should be no less than 500 m, and the wind speed should be no more than 8 m/s.