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**Micro-electromechanical systems technology - Gyroscopes**

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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 for Standardization Documents" drafting:

This document is equivalent to IEC 62047-20:2014 "MEMS devices for semiconductor devices - Part 20: Gyroscope":

The following minimal editorial changes have been made to this document:

- a) In order to coordinate with existing standards, change the name of the standard to "Micro-Electro-Mechanical Systems (MEMS) Technology Gyroscope";
- b) Corrected the errors in the original text of IEC 62047-20:2014: Corrected the labeling of the broadband noise range in Figure 18;
- c) Corrected errors in the original text of IEC 62047-20:2014: Corrected the operation

symbols of formula (20) and formula (21):

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

## 1 Scope

This document specifies the terms and definitions, ratings, performance parameters and measurement methods of gyroscopes:

Gyroscopes are mainly used in consumer electronics, industrial and aerospace, etc: Gyroscopes make extensive use of MEMS and semiconductor laser technologies:

## 2 Normative references

This document has no normative references:

## 3 Terms and Definitions

The following terms and definitions apply to this document:

turntable rotating table Rate turntable rate table A rotating device with a gyroscope mounted during the measurement:

earth rotation rate earth rate the angular rate in inertial space due to the Earth's rotation:

**Note:** According to the International Earth Rotation and Reference System Service (IERS), the angular rate of the Earth in inertial space is defined by sidereal day, which is 23 hours and 56 minutes Clock 4:098903691 seconds: Therefore, the angular velocity of the earth in inertial space is about 15:04°/h: For more information on definitions, refer to the IERS web website (<http://www.iers.org>):

Scale factor the ratio of the output voltage or output digital signal of the gyroscope to the loading angular rate, the unit is V/[°/s] or bit/[°/s]:

## 4 Basic ratings and characteristics

### 4.1

Classification of gyroscopes

Table 1 shows the uses of gyroscopes classified by application field:

Table 1 Classification of gyroscopes

category content

1 Mainly used for consumer products, no requirement for zero offset

2 Mainly used for industrial purposes, set an appropriate value range for the zero offset

3 Mainly used for aerospace purposes, it can detect the rotation speed of the earth