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Requirements and test methods of the capability of wind resistance for tethered balloon

系留气球抗风能力要求和试验方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Aircraft Standardization Technical Committee (SAC/TC435).

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Wind resistance requirements and test methods for tethered balloons

1 Scope

This document specifies the wind resistance requirements for tethered balloons in both ground-tethered and air-tethered states, and describes the corresponding test methods.

This document applies to the testing of the wind resistance of tethered balloons; other aerostat products should refer to this document for implementation.

2 Normative references

GB/T 43328

3 Terms and Definitions

The terms and definitions defined in GB/T 43328 and the following terms and definitions apply to this document.

3.1 [Source. GB/T 43328-2023, 3.6.4, with modifications]

The maximum horizontal oncoming instantaneous wind speed allowed for normal ground anchoring/mooring when the airship is designed.

3.2 Working wind speed

At the designed working altitude, the maximum horizontal instantaneous wind speed allowed for the normal operation of the tethered balloon.

[Source. GB/T 43328-2023, 4.4.2, with modifications]

4 Symbols

The following symbols apply to this document.

vmax1 --- Maximum wind speed that can be resisted in the air, in meters per second (m/s).

vmax2 --- Wind speed at which the anchorage withstands wind, measured in meters per second (m/s).

v1 --- 60%~80% of the value of vmax1, in meters per second (m/s).

v2 --- 60%~80% of the value of vmax2, in meters per second (m/s).

Note. The specific values of v1 and v2 shall be determined in consultation with the user based on user requirements, ambient wind speed, and economic considerations for the experiment.

5 Wind resistance

Unless otherwise specified, the wind resistance of tethered balloons can be determined based on mission requirements and design specifications, with reference to similar products both domestically and internationally.