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**Superconductivity—Part 3: Critical
current measurement—DC critical
current of Ag- and/or Ag alloy-
sheathed Bi-2212 and Bi-2223
oxide superconductors**

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Contents

	Page
Introduction.....	1
1 Scope.....	1
2 Normative reference.....	2
3 Terms and definitions.....	2
4 Principle.....	3
5 Requirements.....	3
6 Apparatus.....	4
6.1 Measurement holder material.....	4
6.2 Measurement holder construction.....	5
6.3 Measurement set up.....	5
7 Specimen preparation.....	5
7.1 Reaction heat treatment.....	5
7.2 Specimen mounting for measurement.....	5
8 Measurement procedure.....	7
9 Precision and accuracy of the test method.....	8
9.1 Critical current.....	8
9.2 Temperature.....	8
9.3 Magnetic field.....	9
9.4 Specimen and holder support structure.....	9
9.5 Specimen protection.....	9
10 Calculation of results.....	9
10.1 Critical current criteria.....	9
10.2 n -value (optional).....	10
11 Test report.....	10
11.1 Identification of test specimen.....	10
11.2 Report of I_c values.....	11
11.3 Report of test conditions.....	11
Annex A (informative) Additional information relating to clauses 1 to 10.....	12
Annex B (informative) Magnetic hysteresis of the critical current of high- temperature oxide superconductors.....	18

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by International Superconductivity Technology Center (ISTEC)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS H 7305**:2003 is replaced with this Standard.

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Superconductivity—Part 3: Critical current measurement—DC critical current of Ag- and/or Ag alloy-sheathed Bi-2212 and Bi-2223 oxide superconductors

Introduction

This Japanese Industrial Standard has been prepared based on the second edition of IEC 61788-3 published in 2006 without modifying the technical contents and the structure.

The portions underlined with dots are the matters not stated in the original International Standard.

The test method covered in this Standard is intended to give an appropriate and agreeable technical base to those engineers working in the field of superconductivity technology.

The critical current of composite superconductors like Ag-sheathed Bi-oxide superconductors depends on many variables. These variables need to be considered in both the testing and the application of these materials. Test conditions such as magnetic field, temperature and relative orientation of the specimen and magnetic field are determined by the particular application. The test configuration may be determined by the particular conductor through certain tolerances. The specific critical current criterion may be determined by the particular application. It may be appropriate to measure a number of test specimens if there are irregularities in testing.

1 Scope

This Standard covers a test method for the determination of the dc critical current of short and straight Ag- and/or Ag alloy-sheathed Bi-2212 and Bi-2223 oxide superconductors that have a monolithic structure and a shape of round wire or flat or square tape containing mono- or multicores of oxides.

This method is intended for use with superconductors that have critical currents less than 500 A and n -values larger than 5. The test is carried out with and without an applying external magnetic field. For all tests in a magnetic field, the magnetic field is perpendicular to the length of the specimen. In the test of a tape specimen in a magnetic field, the magnetic field is parallel or perpendicular to the wider tape surface (or one surface if square). The test specimen is immersed either in a liquid helium bath or a liquid nitrogen bath during testing. Deviations from this test method that are allowed for routine tests and other specific restrictions are given in this Standard.

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows:

IEC 61788-3:2006 *Superconductivity—Part 3: Critical current measurement—DC critical current of Ag- and/or Ag alloy-sheathed Bi-2212 and Bi-2223 oxide superconductors* (IDT)