ICS 17.200.20, 17.220.20, 29.050

SLOVENSKÁ TECHNICKÁ NORMA

September 2016

STN	**Supravodivosť. Časť 4: Meranie pomeru zvyškového odporu. Koeficient zvyškového odporu kompozitných supravodičov Nb-Ti a Nb3Sn.**	**STN EN 61788-4** 34 5685

Superconductivity - Part 4: Residual resistance ratio measurement - Residual resistance ratio of Nb-Ti and Nb3Sn composite superconductors

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/16

Obsahuje: EN 61788-4:2016, IEC 61788-4:2016

Oznámením tejto normy sa od 23.02.2019 ruší
STN EN 61788-4 (34 5685) z decembra 2011

123267

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61788-4

April 2016

ICS 17.200.20; 29.050

Supersedes EN 61788-4:2011

English Version

Superconductivity - Part 4: Residual resistance ratio measurement - Residual resistance ratio of Nb-Ti and Nb3Sn composite superconductors (IEC 61788-4:2016)

Supraconductivité - Partie 4: Mesurage du rapport de résistance résiduelle - Rapport de résistance résiduelle des composites supraconducteurs de Nb-Ti et de Nb3Sn (IEC 61788-4:2016)

Supraleitfähigkeit - Teil 4: Messung des Restwiderstandsverhältnisses - Restwiderstandsverhältnis von Nb-Ti und Nb3Sn Verbundsupraleitern (IEC 61788-4:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 61788-4:2016 E

EN 61788-4:2016

European foreword

The text of document 90/359/FDIS, future edition 4 of IEC 61788-4, prepared by IEC/TC 90 "Superconductivity" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61788-4:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-11-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-02-23

This document supersedes EN 61788-4:2011.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-815	-	International Electrotechnical Vocabulary- (IEV) -- Part 815: Superconductivity		-

IEC 61788-4

Edition 4.0 2016-01

INTERNATIONAL STANDARD

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Superconductivity – Part 4: Residual resistance ratio measurement – Residual resistance ratio of Nb-Ti and Nb_3Sn composite superconductors

Supraconductivité – Partie 4: Mesurage du rapport de résistance résiduelle – Rapport de résistance résiduelle des composites supraconducteurs de Nb-Ti et de Nb_3Sn

IEC 61788-4:2016-01(en-fr)

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IEC 61788-4

Edition 4.0 2016-01

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 17.220.20; 29.050

ISBN 978-2-8322-3129-6

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SUPERCONDUCTIVITY –

Part 4: Residual resistance ratio measurement – Residual resistance ratio of Nb-Ti and Nb_3Sn composite superconductors

FOREWORD

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International Standard IEC 61788-4 has been prepared by IEC technical committee 90: Superconductivity.

This fourth edition cancels and replaces the third edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the unification of similar test methods for residual resistance ratio (RRR) of Nb-Ti and Nb_3Sn composite superconductors, the latter of which is described in IEC 61788-11.

The text of this standard is based on the following documents:

FDIS	Report on voting
90/359/FDIS	90/360/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61788 series, published under the general title *Superconductivity,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Copper, Cu/Cu-Ni or aluminium is used as matrix material in Nb-Ti and Nb_3Sn composite superconductors and works as an electrical shunt when the superconductivity is interrupted. It also contributes to recovery of the superconductivity by conducting heat generated in the superconductor to the surrounding coolant. The cryogenic-temperature resistivity of copper is an important quantity, which influences the stability and AC losses of the superconductor. The residual resistance ratio is defined as a ratio of the resistance of the superconductor at room temperature to that just above the superconducting transition.

This part of IEC 61788 specifies the test method for residual resistance ratio of Nb-Ti and Nb_3Sn composite superconductors. The curve method is employed for the measurement of the resistance just above the superconducting transition. Other methods are described in A.3.

SUPERCONDUCTIVITY –

Part 4: Residual resistance ratio measurement – Residual resistance ratio of Nb-Ti and Nb_3Sn composite superconductors

1 Scope

This part of IEC 61788 specifies a test method for the determination of the residual resistance ratio (RRR) of Nb-Ti and Nb_3Sn composite superconductors with Cu, Cu-Ni, Cu/Cu-Ni and Al matrix. This method is intended for use with superconductor specimens that have a monolithic structure with rectangular or round cross-section, RRR value less than 350, and cross-sectional area less than 3 mm^2. In the case of Nb_3Sn, the specimens have received a reaction heat-treatment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-815, *International Electrotechnical Vocabulary – Part 815: Superconductivity* (available at: www.electropedia.org)