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Assessment of contact current related to human exposure to electric, magnetic and electromagnetic fields

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC TR 63167, which is a Technical Report, has been prepared by IEC technical committee 106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
106/422/DTR	106/436A/RVDTR

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

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

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

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- withdrawn,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

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

In the guidelines limiting human exposure to electric, magnetic and electromagnetic fields (EMF guidelines), limits for the contact current are given to avoid adverse indirect effects, i.e. electric shocks and burn hazards caused by contact with a conductive object located in an electric and/or magnetic field, when the object has an electric potential owing to electric or magnetic induction to the object.

At the moment, no standardized method for evaluating the contact current, in the context of human exposures to the above fields has been well established. On the other hand, there is a huge amount of knowledge, as well as many standards and regulations on the issue of electrical safety (i.e. direct contact with live part of conductive object) to avoid severe electric shock hazards. Therefore, the evaluation methods used in the field of electrical safety might be useful references. This document summarizes general information on the assessment of contact current related to human exposure to electric, magnetic and electromagnetic fields.

ASSESSMENT OF CONTACT CURRENT RELATED TO HUMAN EXPOSURE TO ELECTRIC, MAGNETIC AND ELECTROMAGNETIC FIELDS

1 Scope

This document, which is a Technical Report, provides general information on the assessment of contact current related to human exposure to electric, magnetic and electromagnetic fields. The contact currents in this context occur when a human body comes into contact with a not electrified conductive object exposed to an electric and/or magnetic field at a different electric potential owing to electric and/or magnetic induction to the object. This is distinguished from the issue of electrical safety where contact with live parts of a conductive object is dealt with.

In reference to the international EMF guidelines [1]-[4] [1], the frequency range of contact current covered in this document is direct current to 110 MHz, and only steady-state (continuous) contact currents are covered. Transient contact currents (spark discharges) which may occur immediately before the contact with the object are not covered.

2 Normative references

There are no normative references in this document.

[1] Numbers in square brackets refer to the Bibliography.