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Measurement method for the output of electroshock weapons

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Measurement method for the output of electroshock weapons

FOREWORD

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This commented version (CMV) of the official standard IEC 62792:2026 edition 2.0 allows the user to identify the changes made to the previous IEC 62792:2015 edition 1.0. Furthermore, comments from IEC TC 85 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 62792 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities. It is an International Standard.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

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

a) addition of a new clause describing a method for measuring the high voltage arcing charge delivery distance; and
b) an annex describing an impedance matching network that is necessary to calibrate the measurement system.

The text of this International Standard is based on the following documents:

Draft	Report on voting
85/988/FDIS	85/995/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

Words in *italics* in the text are defined in Clause 3.

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

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

Manufacturers, medical researchers, policy makers, users, and other interested parties involved with different aspects of *electroshock weapons* (*ESW*s) use a variety of different measurement methods, different terminologies, and different *parameters* to measure and describe the performance of an *ESW*. These differences generate confusion and misunderstanding within this stakeholder community, and this impacts the ability to perform accurate, reliable, and reproducible measurement comparisons. By developing a generally-accepted terminology, set of performance *parameters*, and test methods, this document will facilitate accurate and precise communication for the *parameters* that describe the electrical outputs, current and *high voltage*, of *ESW*s. This improved communication will aid this stakeholder community in collectively developing uniform methods for describing the *ESW* output and its effect on human physiology consistently and accurately, thereby enabling the development of safe use performance standards~~/~~ or regulations by the appropriate standardization body. **1**

1 Scope

This document specifies a method for measuring the electrical outputs, current and *high voltage*, from *electroshock weapons* (*ESW*s) that deliver an electrical stimulus to humans. This document is applicable to any and all *ESW*s. This document describes *ESW* measurement systems to help guide the user of this document in developing their own *ESW* measurement system. It includes methods for measuring or computing a variety of *parameters* that can be used to characterize the electrical output of the *ESW*. The user of this document will select those *parameters* that are appropriate for their applications and stakeholders.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60469:2013, *Transitions, pulses and related waveforms - Terms, definitions and algorithms*

~~IEEE Std. 1057-2007, *IEEE Standard for digitizing waveform recorders*~~

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

BIPM, *The International System of Units (SI)*, ~~8th~~9th Edition, ~~2006~~2019

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/

– ISO Online browsing platform: available at https://www.iso.org/obp

NOTE The *parameters* included here and suggested for use in describing the performance of an *ESW* are those typically used to describe the *waveforms* of pulse-like *signals* that are produced by pulse generators, such as an *ESW*, and the step-response or impulse-response of *waveform recorders* that are used to measure these pulse-like *signals*.

3.1
aggregate current 2
flow of charge per second delivered by the *ESW pulse train*

3.2
impulse amplitude
difference between the specified *level* corresponding to the *maximum peak* (*minimum peak*) of the positive (negative) *impulse-like waveform and the level of the state preceding the first transition of that impulse-like waveform*

[SOURCE: IEC 60469:2013, 3.2.3.1]