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Battery charging interface for small handheld multimedia devices – Part 1: 2 mm barrel interface

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FOREWORD

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International Standard IEC 62637-1 has been prepared by technical area 1: Terminals for audio, video and data services and content, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

CDV	Report on voting
100/1673/CDV	100/1749/RVC

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 62637 series, under the general title *Battery charging interface for small handheld multimedia devices*, 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 web site 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- withdrawn,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.

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

BATTERY CHARGING INTERFACE FOR SMALL HANDHELD MULTIMEDIA DEVICES –

Part 1: 2 mm barrel interface

1 Scope

This part of IEC 62637 defines a charging interface between small handheld multimedia devices and power-supply accessories, specifically chargers. Devices, which could be based on this standard may vary over time, but have to comply with the limited power available[1].

The interface is a 2 mm barrel type charging interface. This standard does not include the whole charger nor does it include the internal functions of the device. Chargers and devices shall follow the applicable EMC and safety standards. The scope of this part of IEC 62637 is illustrated in Figure 1.

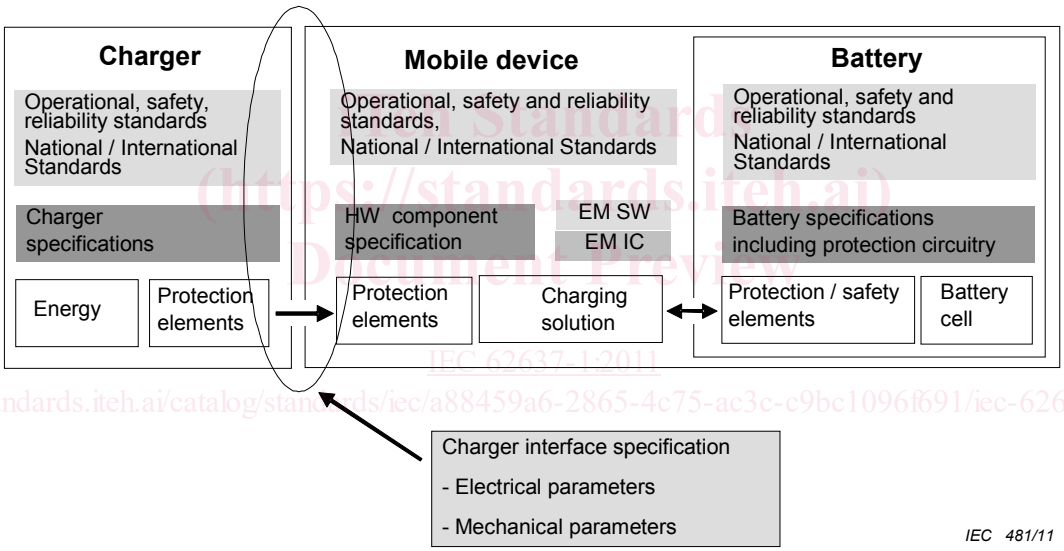

Figure 1 – Scope of the charging interface standard

2 Normative references

The following referenced documents are indispensable for the application 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 62637-2, *Battery charging interface for small handheld multimedia devices – Part 2: 2 mm barrel type interface conformance testing*

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[1] Devices like mobile phones, MP-3 players, portable radio receivers, small handheld TV receivers, GPS-navigators, gaming devices, digital cameras may use this interface if the delivered power is adequate.

3 Abbreviations and symbols

For the purposes of this document, the following abbreviations apply.

AC	Alternating Current
C	Capacitance F
CDN	Coupling/Decoupling Network
Crest factor	Current peak value/current RMS value
dB	Decibel
dB(mW)	Power in dB referring to 1 mW
DC	Direct Current
EM	Energy Management
EMC	Electromagnetic Compatibility
ESR	Effective Series Resistance Ω
f	Frequency in Hz
$f_{I\text{char}}$	Charging current change frequency Hz
GND	Ground
HW	HardWare
I	Current A
I_{char}	Charging current A
I_{max}	Maximum current A
I_{peak}	Peak current A
IC	Integrated Circuit
L	Inductance H
R	Resistance Ω
RMS	Root mean square
SW	SoftWare
V	Voltage V
V_{char}	Charging voltage
$V_{\text{max-out}}$	Maximum output voltage
V_{out}	Output voltage
V_{ripple}	Ripple voltage

4 Specifications for 2 mm barrel interface

4.1 General

Clauses 4 to 8 specify the 2 mm barrel type electrical and mechanical charging interface between devices and power-supply accessories, specifically chargers. Clause 7 defines the charger-identification process of these devices.

The 2 mm barrel interface may have a wide output current range and the current may change with other parameters, but shall stay within the charging current/voltage window specified in 5.6. The recommended minimum current is specified in 5.6.

4.2 Temperature

All specifications apply at normal room temperature 18 °C to 25 °C, unless some other temperature is specified.

4.3 Voltage

All specifications are valid under nominal operating voltage as defined by the manufacturer.

5 Electrical specification for 2 mm barrel type chargers

5.1 Charger output capacitance

The capacitance at the charger output causes charging current spikes when the charger's load is changing. Low-capacitance values are recommended if possible. The maximum charger output filter capacitor size shall be 1 000 µF with + 20 % tolerance if the charger $V_{max\text{-}out}$ is less than 7 V. For output voltages of 7,0 V to 9,3 V, the maximum capacitance value decreases linearly so that for a 9,3 V charger, the maximum output capacitance shall be 700 µF with + 20 % tolerance. The maximum capacitance value is illustrated in Figure 2.

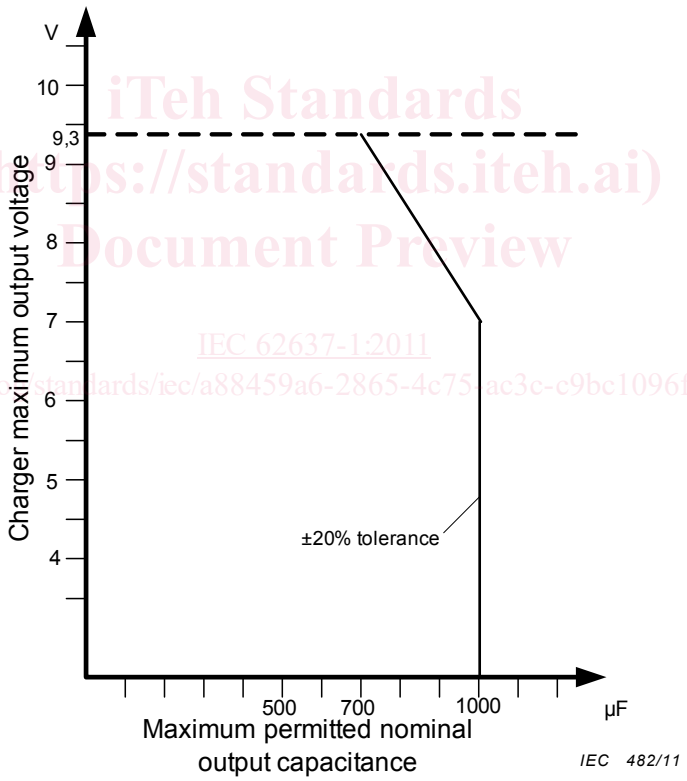

Figure 2 – Maximum permitted charger output capacitance

5.2 Maximum transient voltage and current values

Table 1 gives the maximum limits for voltage values and settling times. These limits apply to all conditions.