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Interoperability specifications of common external power ~~supply~~ supplies (EPS) for use with data-enabled mobile telephones

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTEROPERABILITY SPECIFICATIONS OF COMMON EXTERNAL POWER ~~SUPPLY~~ SUPPLIES (EPS) FOR USE WITH DATA-ENABLED MOBILE TELEPHONES

FOREWORD

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This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 62684 has been prepared by technical area 14: Interfaces and methods of measurement for personal computing equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first 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) Clause 1 is modified to include updated references to IEC Universal Serial Bus interface standards;
b) Clause 2 is expanded to include references to IEC Universal Serial Bus interface standards;
c) Subclause 4.1 is expanded to include requirements for non USB Micro-B plug DC plug connectors;
d) Subclause 4.4 is modified to remove obsolete requirements for common mode noise and reference requirements of IEC Universal Serial Bus interface standards;
e) Subclause 4.5 is modified to reference appropriate safety standards.

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

CDV	Report on voting
100/2872/CDV	100/2966/RVC

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

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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

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INTEROPERABILITY SPECIFICATIONS OF COMMON EXTERNAL POWER ~~SUPPLY~~ SUPPLIES (EPS) FOR USE WITH DATA-ENABLED MOBILE TELEPHONES

1 Scope

This document specifies the interoperability of common external power supplies for use with data-enabled mobile telephones. It defines the common charging capability and specifies interface requirements for the external power supply.

Safety and EMC aspects are not covered by this document. Safety is covered by IEC 60950-1 or IEC 62368-1 and EMC is covered by ~~EN 301 489-34~~ regional /national standards.

This document defines interoperability based on legacy USB technologies and does not cover charging interfaces that implement IEC 62680-1-3 (USB Type-C™ [1]), IEC 62680-1-2 (USB PD) and IEC 63002.

NOTE: The content of this document is based on Annex II dated 12 January 2010 to the MoU regarding Harmonisation of a Charging Capability for Mobile Phone.

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 60950-1~~:2005~~, *Information technology equipment – Safety – Part 1: General requirements*

IEC 62368-1, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

IEC 62680-1-1, *Universal Serial Bus interfaces for data and power – Part 1-1: Common components – USB Battery Charging Specification, Revision 1.2*

IEC 62680-2-1:2015, *Universal Serial Bus interfaces for data and power – Part 2-1: Universal Serial Bus specification, Revision 2.0*

IEC 62680-2-2, *Universal Serial Bus interfaces for data and power – Part 2-2: USB Micro-USB Cables and Connectors Specification, Revision 1.01*

~~EN 301 489-34 *Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services – Part 34: Specific conditions for External Power Supply (EPS) for mobile phones*~~

~~Universal Serial Bus Specification, *Cables and Connectors Class Document*, Revision 2.0, August 2007~~

~~(http://www.usb.org/developers/docs)~~

[1] USB Type-C™ is a trademark of the USB Implementers Forum (USB-IF). This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of this product.

~~*USB Battery Charging Specification*, Revision 1.1~~

~~*USB Micro-USB Cables and Connectors Specification*, Revision 1.01~~

~~*USB-IF Cable Assembly Test Requirements for Compliant Usage of Connectors and Cables in Micro* USB 1.01~~

~~*USB-IF Connector Test Requirements*~~

The cable assembly supplied with the EPS may also terminate in a non USB Micro-B plug if a manufacturer makes available an adaptor from the Micro-USB connector of a common EPS to a specific non-Micro-USB socket in the mobile phone.[2]

An EPS provided with a detachable cable shall be equipped with a~~n~~ USB Standard-A receptacle to connect to the EPS. The detachable cable assembly, supplied for use with the EPS, shall have USB Standard-A and USB Micro-B plugs and meet the USB-IF cable assembly ~~test~~ requirements ~~for compliant usage of connectors and cables in Micro-USB 1.01~~ in IEC 62680-2-2.

The above requirement also applies to a cable~~s~~ used as an adaptor, i.e. when the USB Micro-B is connected to the mobile telephone by an adaptor where the mobile telephone does not have a Micro-USB interface.

4.2 AC input characteristic

The EPS shall meet ~~Class II~~ the requirements of IEC 60950-1 or IEC 62368-1 with a maximum touch current not exceeding 90 µA.

The EPS AC input shall operate over the following range:

– voltage range: the rated input voltage range ~~should be at least~~ covers the range 100 V to 230 V;

– frequency: 50 Hz to 60 Hz.

4.3 Environmental specification

The EPS operational environmental range, over which the DC output characteristics defined in 4.4 shall be maintained, shall be

– temperature range: 0 °C to +~~45~~ 35 °C,

– relative humidity: up to 90 %.

4.4 DC output characteristics

~~For EPS with permanently connected cables, the voltage at the USB Micro-B plug of the EPS shall be 5 V ± 0,25 V with no load current to rated output current.~~

~~For EPS with detachable cables the voltage at the USB standard A receptacle shall be (5 ± 0,25) V with no load current to rated output current. The maximum voltage drop caused by the detachable cable shall be 125 mV when measured across the power pair pins of the USB Micro-B plug, while drawing 500 mA from a nominal 5 V source.~~

~~The minimum rated output current shall be 500 mA.~~

~~The maximum rated output current shall be 1 500 mA.~~

~~The maximum output current at any voltage shall not be greater than 1 500 mA.~~

The DC output voltage of the EPS shall be as specified in IEC 62680-2-1. The cable voltage drop shall be as specified in IEC 62680-2-1.

The ripple voltage on the output with a no-load current to maximum rated output current shall be no more than 80 mV peak-to-peak measured at 20 MHz bandwidth ~~using the test method as defined in Clause 6~~ when measured in accordance with the test method defined in 5.2.

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[2] Memorandum of Understanding regarding Harmonisation of a Charging Capability for Mobile Phones. 5 June 2009, clause 4.2.1.

IEC 62684

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INTERNATIONAL STANDARD

Interoperability specifications of common external power supplies (EPS) for use with data-enabled mobile telephones



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