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Portable and hand-held multimedia equipment – Mobile computers – Battery run-time measurement

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PORTABLE AND HAND-HELD MULTIMEDIA EQUIPMENT – MOBILE COMPUTERS – BATTERY RUN-TIME MEASUREMENT

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62393, which is a technical specification, has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
100/848/DTS	100/936/RVC

Full information on the voting for the approval of this technical specification 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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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

- transformed into an International standard,
- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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

INTRODUCTION

Adequate indication of the remaining battery level is crucial for mobile equipment, as its malfunction may lead to loss of user data. The wireless communication function of the mobile equipment causes the power dissipation to be larger and more irregular. A reliable indication of the remaining battery level is, therefore, strongly needed.

PORTABLE AND HAND-HELD MULTIMEDIA EQUIPMENT – MOBILE COMPUTERS – BATTERY RUN-TIME MEASUREMENT

1 Scope

This Technical Specification defines the operation-mode mix of portable and hand-held multimedia equipment which can be driven by battery, especially mobile personal computers, in order to clarify the issues to be standardized on the battery run time.

2 Battery run-time measurement methods for mobile PCs

2.1 General

Current products have a variety of methods for setting power management as shown in Figure 1, and screens may differ from this example. If this is the case, the settings which most closely match the example should be used.

The battery run time should be calculated as follows.

[(measurement method a) + (measurement method b)]/2

The result should be rounded downward to one decimal point, and the result displaced as x.y. It is acceptable to use the term "approximately" or "about."

Example:

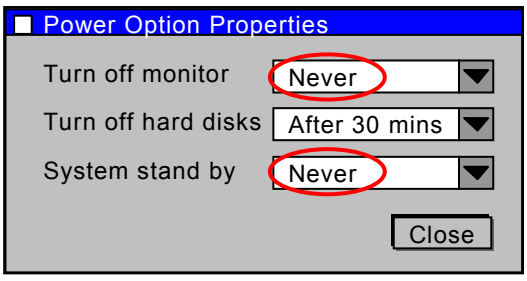
Measurement method (a) 3 h 15 min measurement method (b) 8 h 7 min (195 min + 487 min)/2 = 5,683 h This should be rounded down to 5,6 h (or about 5,6 h).

It is necessary to disclose all information on settings which are different from the factory shipping default.

Examples of disclosure:

by the Web, by an information centre, or by brochure.

The margin on the measured value to the published value should not be defined.



IEC 582/05

Figure 1 – Power option properties

2.2 Measurement method (a)

At a display luminance of 20 cd/m^2, the continuous playback time of one MPEG moving image file read from a hard disk should be measured.

- MPEG movie file

  The MPEG movie file specified by this measuring method should be used.
- The sound should be set to the minimum (mute is acceptable as shown in Figure 2).

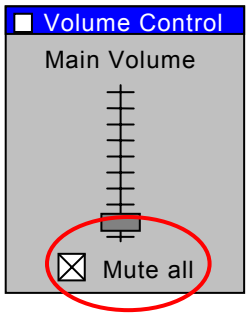


Figure 2 – Volume control

- Luminance of LCD

  While displaying white on the LCD, the luminance should be set to a minimum of 20 cd/m^2. Any luminance exceeding 20 cd/m^2 (such as 25 cd/m^2) is acceptable. The luminance of the white area should not be reduced to less than 20 cd/m^2 during measurement. The white should be defined as the R, G and B data of each pixel at their maximum values.

  – A fluctuating luminance is acceptable during measurement as long as it does not fall below 20 cd/m^2.

  – The way to set the values for the LCD to exceed the 20 cd/m^2 should be disclosed so that the luminance for measurement can be set without the need for an intensity meter (for example, two steps from the lower end of a five-step intensity range).
- Software used for movie playback is not defined. Software which is bundled in the shipping unit is preferred. Software which is used should be disclosed.

  The user should be able to obtain the same playback software used for the measurement by downloading or purchasing.
- Playback size of the movie: one time (320 × 240).
- Percentage setting of battery remaining to be defined at the end of the test: not defined.

  It is acceptable to disable the percentage checking and run the test all the way down until the battery is empty
- Margin between measured results and value published in product catalogue: not defined.

  The guidelines of each PC manufacturer may be followed.
- Charging the battery for testing: charge the battery in the notebook PC itself.
- Condition of battery (degree of degradation, etc.): not defined.

  Can be determined by each PC manufacturer.
- Setting the other power management: not defined.

  Power management should not cause any frame drops during playback of the movie.
- Location of movie file

  The movie file should be stored on the hard disk, and the file always played back by reading it directly from the hard disk during playback. However, if there is no hard drive in the system, the movie file may be stored in a secondary memory source such as a flash card.