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**[GB/T 29303-2012] Switched protective earth portable residual
current devices for class I and battery powered vehicle
applications**

(English Translation)

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1 Scope

This Standard specifies the classification, characteristics, marking and product information, standard conditions for operation in service and for installation, and requirements for construction and operation of SPE-PRCDs.

This Standard applies to portable devices intended for use with vehicles having class

I insulation and battery powered vehicle applications having battery charging units.

They have a switched protective earth (SPE) (hereafter are referred to as SPE-PRCDs).

The SPE-PRCD consists of a plug, a residual current device (RCD) and a portable socket outlet.

This Standard applies to portable devices performing simultaneously the functions of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value.

In addition to the RCD function, the SPE-PRCDs address incorrect supply connections

resulting in a hazardous live PE and/or supply failure (for example: loss of supply PE or loss of supply N). These SPE-PRCDs are intended for application only on TN and TT systems.

These SPE-PRCDs will not operate if used on IT or other unearthed systems such as isolated winding generator or isolating transformer. These SPE-PRCDs, due to the PE effectively being an open supply conductor, will not function to close the contacts on an IT system.

NOTE 1: For applications where due to the supply system a SPE-PRCD cannot operate a PRCD according to GB 20044 may be used.

SPE-PRCDs are not required to incorporate overcurrent protection.

SPE-PRCDs are intended to be supplied from single-phase or two-phase circuits with rated currents not exceeding 16 A for rated voltages not exceeding 250 V a.c., or with rated current not exceeding 32 A for rated voltages not exceeding 130 V a.c. (to earth).

SPE-PRCD have a rated residual operating current not exceeding 30 mA and are intended to provide additional protection against shock hazard in case of direct contact on the circuit downstream of the SPE-PRCD. This protection is additional to that provided by the fixed installations. They will not detect a direct contact of a person from line to neutral and do not substitute for safe installation requirements.

Plugs and socket-outlets will comply with the relevant standards. The use of an integral fuse is permitted, if necessary, for the relevant plug and socket-outlet system.

SPE-PRCD are not intended to be used as part of a fixed installation or permanently connected to equipment. They should be connected by a plug and the outlet should be a portable socket outlet.

If a SPE-PRCD of the incorrect type is used (example an LNSE instead of an LLSE) it should continue to protect.

SPE-PRCDs including batteries are not covered by this Standard.

Additional requirements may be necessary for SPE-PRCDs used in locations having severe environmental conditions.

NOTE 2: The requirements for SPE-PRCDs are in line with the general requirements of GB 16916.1 and GB 20044. SPE-PRCDs are essentially intended to be operated by unskilled persons and designed not to require maintenance.

NOTE 3: The RCD part of the SPE-PRCD is not intended to provide isolation, which may be provided by the plug.