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Integrated circuit – EMC evaluation of transceivers – Part 6: PSI5 transceivers

Circuits intégrés – Évaluation de la CEM des émetteurs-récepteurs – Partie 6: Émetteurs-récepteurs PSI5



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INTEGRATED CIRCUIT – EMC EVALUATION OF TRANSCEIVERS –

Part 6: PSI5 transceivers

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

Draft	Report on voting
47A/1145/FDIS	47A/1147/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.

A list of all parts in the IEC 62228 series, published under the general title *Integrated circuit – EMC evaluation of transceivers*, can be found on the IEC website.

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INTEGRATED CIRCUIT – EMC EVALUATION OF TRANSCEIVERS –

Part 6: PSI5 transceivers

1 Scope

This part of IEC 62228 specifies test and measurement methods for EMC evaluation of peripheral sensor interface 5 (PSI5) transceiver integrated circuits (ICs) under network condition. It defines test configurations, test conditions, test signals, failure criteria, test procedures, test setups and test boards. It is applicable for PSI5 satellite ICs (e.g. sensors) and ICs with embedded PSI5 transceivers (e.g. PSI5 electronic control unit IC). The document covers

- the emission of RF disturbances,
- the immunity against RF disturbances,
- the immunity against impulses, and
- the immunity against electrostatic discharges (ESD).

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 61967-1, *Integrated circuits – Measurement of electromagnetic emissions – Part 1: General conditions and definitions*

IEC 61967-4, *Integrated circuits – Measurement of electromagnetic emissions – Part 4: Measurement of conducted emissions – 1 Ω / 150 Ω direct coupling method*

IEC 62132-1, *Integrated circuits – Measurement of electromagnetic immunity – Part 1: General conditions and definitions*

IEC 62132-4, *Integrated circuits – Measurement of electromagnetic immunity 150 kHz to 1 GHz – Part 4: Direct RF power injection method*

IEC 62215-3, *Integrated circuits – Measurement of impulse immunity – Part 3: Non-synchronous transient injection method*

IEC 62228-1, *Integrated circuits – EMC evaluation of transceivers – Part 1: General conditions and definitions*

ISO 7637-2, *Road vehicles – Electrical disturbances from conduction and coupling – Part 2: Electrical transient conduction along supply lines only*

ISO 10605, *Road vehicles – Test methods for electrical disturbances from electrostatic discharge*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC 61967-1, IEC 62132-1, IEC 62228-1, as well as the following 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

3.1 Terms and definitions

3.1.1
global pin
pin which carries a signal or power, which enters or leaves the application board without any active component in between

3.1.2
mandatory components, pl
components needed for proper function and/or technical requirements of IC as specified by the IC manufacturer

3.1.3
PSI5 satellite IC
PSI5 satellite or sensor transceiver with access to PSI5 signal

Note 1 to entry: A PSI5 satellite IC is a sensor device.

3.1.4
IC with embedded PSI5 transceiver
IC with integrated PSI5 transceiver cell and PSI5 protocol handler with access to PSI5 signal

Note 1 to entry: An IC with an embedded PSI5 is an ECU device.

3.2 Abbreviated terms

ASIC	application specific integrated circuit
DPI	direct RF power injection
DUT	device under test
ECU	electronic control unit
PCB	printed circuit board
PSI5	peripheral sensor interface 5
TDMA	time division multiple access

4 General

The intention of this document is to evaluate the EMC performance of PSI5 transceiver ICs under application in minimal operating conditions (or in a minimal network). PSI5 transceiver ICs are in general available in two types: PSI5 satellite IC and IC with embedded PSI5 transceiver.

PSI5 transceiver system overview is shown in Figure 1.