INTERNATIONAL STANDARD

ISO/IEC 14443-2

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AMENDMENT 1
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Identification cards — Contactless integrated circuit cards — Proximity cards —

Part 2: Radio frequency power and signal interface

AMENDMENT 1: Limits of electromagnetic disturbance levels parasitically generated by the PICC

Cartes d'identification — Cartes à circuit(s) intégré(s) sans contact — Cartes de proximité —

Partie 2: Interface radiofréquence et des signaux de communication

AMENDEMENT 1: Limites des niveaux de perturbations électromagnétiques générées de façon parasite par la PICC

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to ISO/IEC 14443-2:2010 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

Identification cards — Contactless integrated circuit cards — Proximity cards —

Part 2: Radio frequency power and signal interface

AMENDMENT 1: Limits of electromagnetic disturbance levels parasitically generated by the PICC

Page 2, Clause 4

Insert the following new symbols and abbreviated terms:

EMD electromagnetic disturbance, parasitically generated by the PICC

$V_{E,PICC}$ EMD limit, PICC

$V_{E,PCD}$ EMD limit, PCD

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Insert the following new clause after 9.2.5:

10 Electromagnetic disturbance levels

10.1 PCD limits

The PCD shall not detect any load modulation amplitude below $V_{E,PCD}$ at a field strength H [A/m (rms)], when measured as specified in ISO/IEC 10373-6:2011/Amd.2.

$V_{E,PCD}$ is:

— $2/3 + 3/H^2$ [mV (peak)] for $H_{min} \leq H \leq 4{,}5$ A/m (rms)

— 0,81 mV (peak) for 4,5 A/m (rms) $< H \leq H_{max}$

WARNING — This limit is referenced to "Class 1" only and may be detrimental to communication with PICCs of the other classes. Values for other classes will be specified in the future.

10.2 PICC limits

This EMD requirement is applicable for "Class 1" PICC only.

WARNING — Requirements for the classes other than "Class 1" will be specified in the future. However, the PICC limit for "Class 1" may ultimately be applied to "Class 2" and "Class 3" PICCs.

The EMD level before PICC data transmission shall be below $V_{E,PICC}$ at a field strength H [A/m (rms)], for at least the duration of the low EMD time $t_{E,PICC}$, when measured as specified in ISO/IEC 10373-6:2011/Amd.2.

$V_{E,PICC}$ for "Class 1" PICC is:

— $2/3 + 3/H^2$ [mV (peak)] for $H_{min} \leq H \leq 4{,}5$ A/m (rms)

— 0,81 mV (peak) for 4,5 A/m (rms) $< H \leq H_{max}$

During this low EMD time, the EMD level may exceed $V_{E,PICC}$ for no more than two short periods of 16/fc if:

— it never exceeds $4 \times V_{E,PICC}$ and

— in case of two periods, the time between the two periods is greater than 1 etu.

Figure 18 shows an illustration of such allowed EMD spikes.

NOTE The low EMD time $t_{E,PICC}$ is defined in ISO/IEC 14443-3:2011/Amd.1.

WARNING — This limit is referenced to "Class 1" only and values for the other classes may be specified in the future.

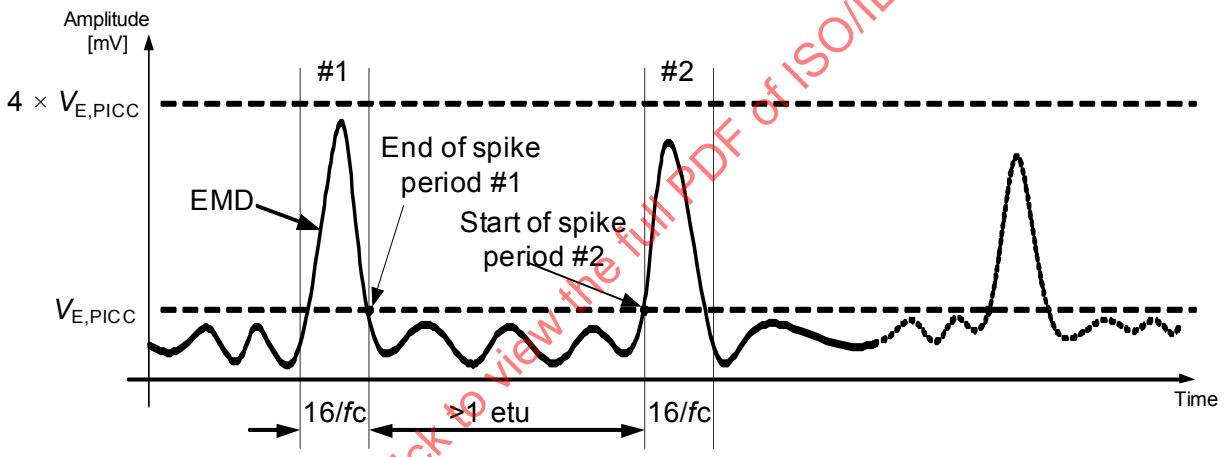

Figure 18 — Illustration of allowed EMD spikes