

ISO/IEC 14443-1:2000(E) Amendment Proposal Document 1**Identification cards- Contactless integrated circuit(s) card-
Proximity Limited Use cards- Part 1: Physical characteristics****1 Scope**

This part of the ISO/IEC 14443 specifies the physical characteristics of proximity cards (PICC). It applies to identification cards of card type ID-1 and ID-1 with a modified thickness and construction materials.

1A Purpose

The revision to Part1 provides for the standardization of PICC s that are classed as Limited Use. These PICC's are designed to satisfy the need for a minimal cost contactless smart card media that have limited features and expected lifecycle.

2 Normative references

(No Changes)

3 Terms and definitions

Add: LU-----Limited Use PICC

(Changes to sections: 3.3, 3.4 only)

3.3**contactless integrated circuit(s) card**

A card of the card type ID-1 (as specified in ISO/IEC 7810) as well as ID1 with modified card body thickness per section 4 of this document.

3.4**proximity card (PICC)**

A card of the card type ID-1 or ID-1 with thickness modification into which integrated circuit(s) and coupling means have been placed and in which communication to such integrated circuit(s) is done by inductive coupling in proximity of a coupling device.

4 PHYSICAL CHARACTERISTICS

(Changes to sections: 4.1, 4.2, and 4.3.X)

4.1 General

The PICC shall have physical characteristics according to the requirements for the card ID-1 specified in ISO 7810 plus that of ID-1 with thickness modifications per section 4.2.1 for Limited Use. Materials used to construct Limited Use PICCs are extended to beyond that of plastic materials.

4.2 Dimensions

The nominal dimensions of the PICC shall be as for the card type ID-1 specified in ISO/IEC 7810 for all PICC types other than that of a Limited Use type. The Limited Use card type shall have the nominal dimensions of an ID-1 with a modified thickness per section 4.2.1.

4.2.1 Physical Specification

The Limited Use PICC shall have physical characteristics according to the requirements of the card type ID-1 with modifications to the thickness specification. The modified thickness specification shall be: **16.0 mils +/- 1.0 mil (See Figure-4)**.

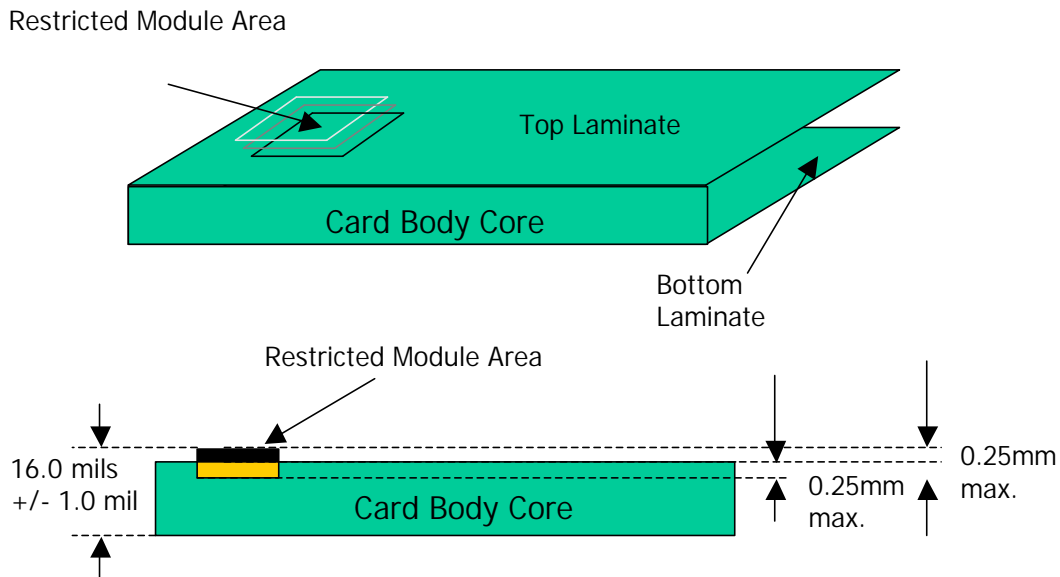


Figure 4 Card Body Core Thickness with Module Area

Note: The Die thickness with laminated printed package material must not exceed the maximum card package thickness specification.

4.2.2 Limited Use Card Materials

Limited Use card materials shall be extended to include other than generically referred to plastic. The expected lifecycle of the PICC will need to be taken into account in the selection of these card materials. Post printing of the PICC shall be accommodated if required by the application usage excluding the PICCs Restricted Module Area as defined by the card manufacturer.

4.2.2.1 Antenna Material

Materials used for the construction of the antenna must be consistent with the required electrical and physical stress specifications of this document. (See Annex C)

4.3.1 Ultra-violet

(No Changes)

4.3.2 X-rays

(No Change)

4.3.2.1 Irradiation

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373-6 being exposed to an irradiation beam dosage of 56 kGy. No visual package or printing discoloration shall occur.

4.3.3 Dynamic bending stress

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 where the maximum deflections about the short and long cards axes are h, A=20mm and h, B=10mm.

4.3.3.1 Extended Dynamic bending stress

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 where the maximum deflections about the short and long cards axes are extended to h, A= 26mm and h, B=12mm.

4.3.4 Dynamic torsion stress

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 where the maximum angle of rotation is Angle=15°.

4.3.4.1 Extended Dynamic torsion stress

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 where the maximum angle of rotation is extended to Angle=20°.

4.3.5 Alternating Magnetic fields

(No Changes)

4.3.6 Alternating electric field

(No Changes)

4.3.7 Static electricity

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 (referring to IEC 61000-4-2:1995), Where the test voltage is 6kV.

4.3.7.1 Extended Static electricity

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 where the static test voltage is 10KV.

4.3.8 Static Magnetic field

(No Changes)

4.3.9 Operating Temperature

The PICC shall operate as intended over an ambient temperature of 0⁰ C to 55⁰C.

4.3.10 Operating Temperature

The PICC shall operate maintain physical appearance as intended if stored in a non-operative manner over an ambient temperature of –20⁰C to 65⁰C @ 95% non-condensing.

4.3.10 Operating Limited Use PICC Lifecycle

The PICC shall continue to operate as intended after testing in accordance with the test methods described in ISO/IEC 10373 for a Lifecycle Period per Table 3.

Table-3--- Operational Limited Use PICC Lifecycle Categories

Type Category	Lifecycle Period	Environment
A	5 days	Less than 90% humidity
B	35 days	Less than 90% humidity
C	100 days	Less than 90% humidity

Note:

The PICC Lifecycle values for Card "Type Category" (A, B, and C), in the Table-3 are determined by an expected "Average Uses Factor" of 4.5 uses or transactions per day over a period of Lifecycle Period days. These uses are defined as a completed transactions containing either reads and or writes of the PICC data. A user presenting the PICC within the PCD/CID's active field and allowing it to remain in the field until the transaction is completed. The duration of user handling of the card (card remains in users hand) is 15 minutes between transactions with an ambient humidity of 90%.

4.3.10 Limited Use Embossing

There shall be no provision for embossing a Limited Use PICC

4.3.11 Limited Use Data User Memory

The LU PICC memory will be no greater than 1K Byte of usable space.

Note:

This memory limitation is applied to maintain the intended purpose and application of the product to remain as a low cost, limited application and limited Lifecycle product for a special class of PICC.

ANNEX A
(No Changes)

ANNEX B

Surface quality for Printing

Where there is a requirement to customize the PICC after the manufacturing process by overprinting, care should be taken to ensure the areas used for printing are sufficient quality appropriate to the printing technique or printer used.

Where there is a requirement to customize the PICC to accommodate post-printing of textual or graphical information, care should be taken to allow for thermal printing onto the card surfaces during the actual user's transaction.

ANNEX C

Materials Reference

Suggested Limited Use Antenna materials:

Silver, Aluminum, and Copper-alloy

Suggested Card Surface Materials:

**Triplex: Poly/Paper/Poly
Paper with Poly Protective coating
Poly on Poly
Paper**

Note: *Poly can be made up of either PET or PVC materials*

Note: *This reference is provided as a non-exhausted guide for materials that should be considered in the construction of a Limited Use PICC.*

ISO/IEC 14443-2:2001(E) Amendment Proposal Document 2

**Identification cards- Contactless integrated circuit(s) card-
Proximity Limited Use cards- Part 2: Radio frequency power and
signal interface**

1 Scope

(No Change)

2 Normative references

(No Changes)

3 TERMS AND DEFINITIONS

(No Changes)

4 Symbols and abbreviated terms

(addition to this section)

LU Limited Use PICC

5 Initial dialogue for proximity cards

(No Changes)

6 Power transfer

(Changes to 6.2 only)

6.1 Frequency

(No Changes)

6.2 Operating field

(addition to this section)

The PICC will have a read distance from the PCD coupler cover surface to a minimum of 3.0 cm distance from the PCD cover surface.

7 Signal interface

(No Changes)

8 Communications signal interface Type A

(No Changes, However higher bit rates section should be included when approved)

9 Communications signal interface Type B

(No Changes, However higher bit rates section should be included when approved)

ISO/IEC 14443-3:2001(E) Amendment Proposal **Document 3****Identification cards- Contactless integrated circuit(s) card-
Proximity Limited Use cards- Part 3: Initialization and anticollision****1 Scope**

(No Change)

2 Normative references

(No Changes)

3 Terms and definitions

(No Changes)

4 Symbols and abbreviations

(addition to this section)

LU Limited USE PICC

5 Polling

(No Changes)

6 Type A –Initialization and anticollision

(addition to this section)

If the PCD detect a collision that it cannot resolve, the PCD will send a signal to the host processor that a collision detect occurred, and no further action will be taken by the PCD. The PICC will return to the IDLE state.

(No changes from 6.1 through 6.4.4)

6.5 Initialization and Anti-collision

PICC product identification is a necessary means to identify the PICC in advance of file interrogation.

6.5.1 Type A Platforms

The four (4) most significant "Proprietary coding" bits will be used to identify cases of LU PICCs as well as detect a Standard PICC platform by means of the Answer to Request (ATQA). The following table-3A depicts the utilization of these proprietary bits to identify a LU type A platform or a FF type A platform.

Table 3A Identification of Type A Limited Use PICCs

Product Size	b12	b11	b10	b9
LU type "AA"	1	0	0	1
LU type "BB"	1	0	1	0
LU Type "CC"	1	0	1	1
Standard or other PICCs	0	X	X	X

7 Type B –Initialization and anticollision

(No Changes from 7.1 through 7.5, 7.7 through 7.72, and 7.74 through 7.12)

7.6 Anticollision response rules

(addition to this section)

If the PCD detect a collision that it cannot resolve, the PCD will send a signal to the host processor that a collision detect occurred, and no further action will be taken by the PCD. The PICC will return to the IDLE state.

7.7.3 Coding of AFI

(Addition to this section)

The AFI most significant and least significant half byte will be used to identify type of LU PICCs as well as detect a Standard PICC platform by means of the Answer to Request (ATQB). The following table-12A depicts the utilization of these AFI bits to identify a LU type B platform or Standard type B platform.

Table 12A LU Identification of Type B Limited Use PICCs

AFI Most Significant half byte	AFI Least Significant half byte	Use
'1'	'0'	Default
'1'	'1'	Future LU PICC
'1'	'2'	Future LU PICC
'1'	'3'	Future LU PICC
'1'	'4'	LU type "AA"
'1'	'5'	LU type "BB"
'1'	'6'	LU type "CC"
'1'	'7'	Standard or other PICCs

ANNEX A, B, C, and D

(No Changes)



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(No Changes, Not applicable to Limited Use PICCs)