DRAFT AMENDMENT ISO/IEC 10373-6/DAmd 2

ISO/IEC JTC **1/SC 17** Secretariat: **ANSI**

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Identification cards — Test methods

Part 6: Proximity cards

AMENDMENT 2 Extension of PICC and PCD test methods

Cartes d'identification — Méthodes d'essai

Partie 6: Cartes de proximité

AMENDEMENT 2 Extension des méthodes de test PICC et PCD

ICS 35.240.15

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Foreword

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Amendment 8 to ISO/IEC 10373-6:2011 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

Identification cards — Test methods — Part 6: Proximity cards

AMENDEMENT 8: EXTENSION OF PICC AND PCD TEST METHODS

Page 6, 4.3

Add the following text at the beginning of 4.3:

"The following absolute tolerances shall be applied when adjusting test conditions in 7.2.2:

— for timings (t_1, t_2, t_3, t_5, t_6, t_r, t_f): ± 1/*fc*

— for envelope overshoot, Type A: ± 0,01 × (1-*a*)

— for envelope overshoot and undershoot, Type B: ± 0,01 × (1-*b*)

— for the modulation index *m*: ± 0,5 %

— for the pulse shape factor *a*: ± 0,02"

Editor's note: For highest bit rates, the timing tolerance may be too high

Page 6, Clause 4

Add the following subclause at the end of the clause 4:

"4.6 DUT position

The PICC and Reference PICC antennas shall be centered on the sense coil a of the test PCD assembly."

Page 12, 6.1.1.1

Replace:

"the average value specified in ISO/IEC 14443-1:2008"

with:

"the average values specified in ISO/IEC 14443-1:2008/Amd.1:2012, 4.4 for each class"

Page 12, 6.1.1.2

Add the following sentence at the beginning:

"Apply the following procedure with each Reference PICC."

Replace:

WARNING - R2 value should be between 55 and 65 Ω.

with the following text:

WARNING - R2 value for Reference PICC 1 should be between 55 and 65 Ω.

Editor's note: the warning needs to be updated with the missing R2 values for Reference PICCs 2 to 6.

Page 13, 6.2.1.2

Replace existing step g):

"g) Check that the PICC operates as intended."

with the modified steps g) and h):

"g) Wait for 30 s at 0 A/m (rms).

h) Check that the PICC operates as intended."

Page 14, 7.1 (amended by ISO/IEC 10373-6:2011/Amd.1:2012)

Replace existing Table 3 with the following Table:

Class	Reference PICC	H_{min} test			H_{max} test		Test PCD assembly
		V_{load}	$R2_{min}$	$R2_{max}$	$R2_{min}$	$R2_{max}$	
1	1	6 V	870 Ω	1070 Ω	85 Ω – 10%	85 Ω + 10%	Test PCD assembly 1
2	2	4,5 V	1030 Ω	1260 Ω	125 Ω – 10%	125 Ω + 10%	Test PCD assembly 1
3	3	4,5 V	1080 Ω	1320 Ω	130 Ω – 10%	130 Ω + 10%	Test PCD assembly 1
4	4	4,5 V	990 Ω	1210 Ω	110 Ω – 10%	110 Ω + 10%	Test PCD assembly 2
5	5	4,5 V	960 Ω	1170 Ω	115 Ω – 10%	115 Ω + 10%	Test PCD assembly 2
6	6	4,5 V	900 Ω	1100 Ω	130 Ω – 10%	130 Ω + 10%	Test PCD assembly 2

Page 15, 7.1.1.2 (amended by ISO/IEC 10373-6:2011/Amd.1:2012)

Replace the existing warning of step b) in the procedure for H_{max} test with the following:

"WARNING — R2 value should be between $R2_{min}$ and $R2_{max}$ as defined in H_{max} test columns in Table 3. Check this range at least once before using the alternative method."

Replace the existing warning of step b) in the procedure for H_{min} test with the following:

"WARNING — R2 value should be between $R2_{min}$ and $R2_{max}$ as defined in H_{min} test columns in Table 3. Check this range at least once before using the alternative method."

Page 19, 7.2.2

Add a new subclause and renumber following subclauses:

"7.2.2.2 General conditions

The test conditions shall be checked using the analysis tool defined in Annex E with the PICC under test in the DUT position. If at least a parameter is not within the tolerances defined in 4.3, the test conditions shall be readjusted."

Page 89, G.3.3.2.1

Add the following table footnote a in line IDLE of Table G.5:

[a]	IDLE state may be reached from ACTIVE state

Replace the original table footnote a in Table G.6:

[a]	Any SELECT command may be preceded with an anticollision command to retrieve the PICC UID, especially for random UID.

with the modified table footnote a:

[a]	If the PICC UID is unknown, SELECT command may be preceded with an anticollision command to retrieve the PICC UID.

Add the following row at the end of Table G.6:

ACTIVE → IDLE	REQA	⟶	
		⟵	Mute

Page 90, G.3.3.2.2

Delete the table footnote a from Table G.7 on States "READY(I), I < CascadeLevels" and "READY(I), I = CascadeLevels".

Add a table footnote a on received ATQA in Table G.7 on states IDLE and HALT:

[a]	If PICC UID is known , send an anticollision command to retrieve the PICC UID. Check that UID has not changed.

Page 91, G.3.3.3.2

Replace the original step a):

"a) Put the PICC into IDLE state."

with the modified step a):

"a) Put the PICC into IDLE state. If the UID is unknown, put the PICC in ACTIVE state to retrieve its UID and then put it in IDLE state. Check that the value '88' of the cascade tag CT is not used for uid0 in single size UID. "

Add the following row at the end of Table G.8:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC	('93 20')	⟶			IDLE
		⟵	Mute		

Remove the table footnotes c and d from Table G.8

Page 93, G.3.3.4.2

Add the following rows at the end of Table G.10:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [h]	('93 20', wrong parity bit)	⟶			IDLE
		⟵	Mute		
SELECT g (wrong parity bit) h	SELECT(1) with wrong parity bit	⟶			IDLE
		⟵	Mute		
AC	('93 20')	⟶		1172/*fc*	READY(1)
		⟵	$UIDTX_1$[[1..32]] BCC		

Replace the original table footnote g in Table G.10:

g	Any SELECT command may be preceded with an anticollision command to retrieve the PICC UID, especially for random UID.

with the modified table footnote g:

g	If the PICC UID is unknown, SELECT command may be preceded with an anticollision command to retrieve the PICC UID, especially for random UID.

Add the following table footnote h in Table G.10:

h	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.

Page 95, G.3.3.5.2

Add the following rows at the end of Table G.12:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [h]	('95 20', wrong parity bit)	⟶			IDLE
		⟵	Mute		
SELECT [g] (wrong parity bit) [h]	SELECT(2) with wrong parity bit	⟶			IDLE
		⟵	Mute		
AC	('95 20')	⟶		1172/*fc*	READY(2)
		⟵	$UIDTX_1$[[1..32]] BCC		

Replace the original table footnote g in Table G.12:

g	Any SELECT command may be preceded with an anticollision command to retrieve the PICC UID, especially for random UID.

with the modified table footnote g:

g	If the PICC UID is unknown, SELECT command may be preceded with an anticollision command to retrieve the PICC UID.

Add the following table footnote h in Table G.12:

h	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.

Page 97, G.3.3.6.2

Add the following rows at the end of Table G.14:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [f]	('97 20', wrong parity bit)	⟶			IDLE
		⟵	Mute		
SELECT [e] (wrong parity bit) [f]	SELECT(3) with wrong parity bit	⟶			IDLE
		⟵	Mute		
AC	('97 20')	⟶		1172/*fc*	READY(3)
		⟵	$UIDTX_1$[[1..32]] BCC		

Replace the original table footnote e in Table G.14:

e	Any SELECT command may be preceded with an anticollision command to retrieve the PICC UID, especially for random UID.

with the modified table footnote e:

e	If the PICC UID is unknown, SELECT command may be preceded with an anticollision command to retrieve the PICC UID.

Add the following table footnote f in Table G.14:

f	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.

Page 98, G.3.3.7.2

Add the following rows at the end of Table G.16:

Transition	PICC-test-apparatus		PICC	FDT	TTS
RATS (wrong parity bit) [c]	RATS(0,0) with wrong parity bit	⟶			IDLE
		⟵	Mute [b]		
Type B command	REQB	⟶			IDLE or ACTIVE [d]
		⟵	Mute		
AC	('93 20')	⟶			IDLE
		⟵	Mute		

Add the following table footnotes c and d in Table G.16:

c	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.
d	Check first IDLE state as TTS. If TTS is not IDLE state, rerun the test a second time to check ACTIVE state.

Page 100, G.3.3.8.2

Add the following row at the end of Table G.18:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC	('93 20')	⟶			HALT
		⟵	Mute		

Page 101, G.3.3.9.2

Add the following rows at the end of Table G.20:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [g]	('93 20', wrong parity bit)	⟶			HALT
		⟵	Mute		
SELECT (wrong parity bit) [g]	SELECT(1) with wrong parity bit	⟶			HALT
		⟵	Mute		
Type B command	REQB	⟶			READY*(1) or HALT [h]
		⟵	Mute		
AC	('93 20')	⟶			HALT
		⟵	Mute		

Add the following table footnotes g and h in Table G.20:

[g]	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.
[h]	Check first HALT state as TTS. If TTS is not HALT state, rerun the test a second time to check READY*(1) state.

Page 103, G.3.3.10.2

Add the following rows at the end of Table G.22:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [g]	('95 20', wrong parity bit)	⟶			HALT
		⟵	Mute		
SELECT (wrong parity bit) [g]	SELECT(2) with wrong parity bit	⟶			HALT
		⟵	Mute		
Type B command	REQB	⟶			READY*(2) or HALT [h]
		⟵	Mute		
AC	('95 20')	⟶			HALT
		⟵	Mute		

Add the following table footnotes g and h in Table G.22:

[g]	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.
[h]	Check first HALT state as TTS. If TTS is not HALT state, rerun the test a second time to check READY*(2) state.

Page 105, G.3.3.11.2

Add the following rows at the end of Table G.24:

Transition	PICC-test-apparatus		PICC	FDT	TTS
AC (wrong parity bit) [e]	('97 20', wrong parity bit)	⟶			HALT
		⟵	Mute		
SELECT (wrong parity bit) [e]	SELECT(3) with wrong parity bit	⟶			HALT
		⟵	Mute		
Type B command	REQB	⟶			READY*(3) or HALT [f]
		⟵	Mute		
AC	('97 20')	⟶			HALT
		⟵	Mute		

Add the following table footnotes e and f in Table G.24:

[e]	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.
[f]	Check first HALT state as TTS. If TTS is not HALT state, rerun the test a second time to check READY*(3) state.

Page 107, G.3.3.12.2

Add the following rows at the end of Table G.26:

Transition	PICC-test-apparatus		PICC	FDT	TTS
RATS (wrong parity bit) [c]	RATS(0,0) with wrong parity bit	⟶			HALT
		⟵	Mute [b]		
Type B command	REQB	⟶			HALT or ACTIVE* [d]
		⟵	Mute		
AC	('93 20')	⟶			HALT
		⟵	Mute		

Add the following table footnotes c and d in Table G.26:

[c]	The parity error is simulated on the first transmitted byte of the frame by reversing the parity bit.
[d]	Check first HALT state as TTS. If TTS is not HALT state, rerun the test a second time to check ACTIVE* state.