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EMV – TEST PCD V3.0

This Specification Bulletin describes the specification changes related to the introduction of EMV – TEST PCD V3.0.

Applicability

This Specification Bulletin applies to:

- *EMV Level 1 Specifications for Payment Systems, EMV Contactless Interface Specification, Version 3.1 – December 2020.*

Related Documents

- *None*

Description

This Specification Bulletin describes the updates related to the introduction of the new EMV – TEST PCD V3.0.

EMC – TEST PCD V3.0 replaces EMV – TEST PCD V2.1 and is introduced to improve the test conditions for PICCs. Set-up values and limits are adjusted to align to the new PCD antenna characteristics.

Specification Changes

Change [PCD MANUAL] reference in section 1.2:

[PCD MANUAL] *EMV ~~Contactless~~ Level 1 Specifications for Payment Systems ~~– Level 1~~ – Contactless Test Equipment Specifications – PCD Manual*

Update Figure 2.2 as follows:

Figure 2.2: EMV – TEST PCD

A new set-up $V_{S,OV,INFL}$ value has been introduced to measure influence of the PICC on the Operating Field in section 3.2.3. Change Step 2 in Table 3.5 as follows:

Table 3.5: Measurement of the Influence of the PICC on the Operating Field

Step #	Action
	…
Step 2	Connect input J1 of the EMV – TEST PCD with a signal generator V generating a carrier signal with frequency $f_{S,c}$ within the range specified in Annex A.3. Regulate the signal generator V in such a way that it generates a mean voltage defined by the ~~minimum~~ value of ~~$V_{S,OV}$~~ $V_{S,OV,INFL}$ specified in Annex A.3 at J1 of the EMV – TEST PICC 1.
	…

Update maximum V_{PP} value in Table A.2 as follows:

Table A.2: RF Power and Signal Interface

Topic	Parameter	EMV – TEST PICC	Value Min	Value Max	Units
….					
Load Modulation	V_{pp}		See Table A.3	~~80~~92	mV

Update V_{pp} values in Table A.3 as follows:

Table A.3: Minimum Value of V_{pp}

z \ r		0	1.5	2.5
0		~~8.8~~10.3	~~4.9~~5.7	–
1		~~7.2~~8.4	~~4.1~~4.8	~~2.5~~2.9
2		~~5.6~~6.5	~~3.3~~3.9	~~2.1~~2.5
3		~~4.0~~4.7	~~2.5~~2.9	~~1.7~~2.0
4		~~2.4~~2.7	~~1.7~~1.9	–

Update the linear interpolation example following Table A.3 as follows:

Minimum values of V_{pp} for (z,r) not included in the table are derived through linear interpolation. For example:

V_{pp} (z=2.5, r=1):

V_{pp} (z=2.5, r=0) = ~~5.6~~6.5 – (~~5.6~~6.5 – ~~4.0~~4.7)x0.5 = ~~4.8~~5.6 mV

V_{pp} (z=2.5, r=1.5) = ~~3.3~~3.9 – (~~3.3~~3.9 – ~~2.5~~2.9)x0.5 = ~~2.9~~3.4 mV

V_{pp} (z=2.5, r=1) = ~~4.8~~5.6 – (~~4.8~~5.6 – ~~2.9~~3.4)/1.5 = ~~3.5~~4.1 mV

Update set-up values in Table A.4 as follows:

Table A.4: Set-up Values for EMV Contactless Level 1 Test Equipment

Topic	Parameter	EMV – TEST PICC	Min	Max	Unit
PCD Power	$V_{S,OV}$	1	~~5.11~~5.22	~~5.95~~5.57	V
	$V_{S,OV,RESET}$		0	5.3	mV
	$V_{S,OV,LM}$	1	~~5.74~~5.40		V
	$V_{S,OV,INFL}$		4.57		V
….					
Load Modulation	$V_{S1,pp}$	1	~~5.5~~6.5	~~85.0~~96.0	mV
		2	~~5.5~~6.5	~~85.0~~96.0	mV
		3	~~6.0~~7.0	~~85.0~~96.0	mV
	$V_{S2,pp}$	1	~~3.5~~4.2	~~40.0~~48.0	mV
		2	~~3.5~~4.2	~~40.0~~48.0	mV
		3	~~4.5~~5.3	~~33.0~~39.0	mV
	$V_{S2,pp,IQ}$	IQ	~~4.0~~4.8		mV

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