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Level 1 PCD – Implementation Conformance Statement Version 3.0a

ICS Reference Number and Validity Period (for EMVCo administrative use only)	
ICS Reference Number:	
Valid from:	
Valid to:	

Notice: ***This ICS form shall be completed for PCDs submitted for EMV Contactless Level 1 evaluation. The form shall be completed in its entirety. All Yes and No questions shall be answered. If a feature/option is NOT supported, i.e. a question is answered "No", the sub-questions for that feature/question shall be left blank.***

Part I - Administrative		
1 - Product provider identification		
M	I.1.1 – Company Legal Name: (As listed on the Letter of Registration)	Maxim Integrated Products
M	I.1.2 – EMVCo Registration Number:	xxxxxxxxxxxxxxxxxxxx
2 - Laboratory identification		
M	I.2.1 – Company Legal Name:	
M	I.2.2 – EMVCo Registration Number:	
3 - ICS submission type		
M	I.3.1 – Select submission type	Initial Submission
C	I.3.2 – For any submission except Initial, please provide the EMVCo letter of approval reference number of the previously approved product (if already granted)	
M	I.3.3 – Is this ICS a replacement of a previously accepted ICS?	☐ Yes ☑ No
C	I.3.3.1 – If Yes. please provide the reference number of the previously accepted ICS	
C	I.3.3.2 – If Yes, please provide the reason for replacing the ICS	<Select>
C	I.3.3.3 – If Yes, please provide details of ICS replacement	

4 - Manufacturer (if different from product provider)	
I.4.1 – Name	
I.4.2 – Address 1	
I.4.3 – Address 2	
I.4.4 – City	
I.4.5 – State or Province	
I.4.6 – Postal Code	
I.4.7 – Country	

5 - Representative for PCD Type Approval **The below details are for Laboratory use only, they are not taken into account by EMVCo. The vendor details reported on the PCD LoA are the details registered by EMVCo.**	
I.5.1 – Contact Name	
I.5.2 – Work Phone	
I.5.3 – Cell Phone	
I.5.4 – Fax Number	
I.5.5 – E-mail Address	
I.5.6 – Company Name	Maxim Integrated Products
I.5.7 – Address 1	14675 Dallas Parkway
I.5.8 – Address 2	
I.5.9 – City	Dallas
I.5.10 – State or Province	Texas
I.5.11 – Postal Code (Zip Code)	75254
I.5.12 – Country	United States

Part II – Product identification

1 - PCD identification (PCD Under Test)

	Name	Version	Checksum
II.1.1 – PCD–ID[1]	MAX32570-EVKIT	2.0	
II.1.2 – PCD hardware-ID[2]	MAX32570-EVKIT-PCD	2.0	
II.1.3 – PCD firmware/Software-ID[3]	MAX32570-PCD-MAXIM-SW	4.2.0	

II.1.4 – Please confirm that the provided identifications link unambiguously to one and only one PCD configuration definition, covering all functionalities required by EMV Contactless Interface Specification (including the antenna).	☑ Yes
II.1.5 – Please confirm that those mentioned identifications will serve as basis against which any further minor change will be tracked.	☑ Yes
II.1.6 – Is the product an OEM product?	☑ Yes ☐ No

2 - Product identification[5] (samples submitted as Device Under Test candidates)

II.2.1 – Product configuration[4] (please check one option only)	☑ Samples are Fully Integrated Terminals (FIT) ☐ Samples are Intelligent Card Readers (ICR) ☐ Samples are Transparent Card Reader

	Marketing name	Identifier (manufacturing code)	Version
II.2.2 – Terminal / Card Reader	NFC		01

II.2.3 – Please confirm that the provided identification links unambiguously to one and only one product configuration definition (including the antenna).	☑ Yes

Part II – Product identification		
II.2.4 – For Information purpose only (if this information is already known by the vendor): In case of an ICR submitted, please identify if it is a Single – ICR (S-ICR) or Multiple-ICR (M-ICR)		☑ ICR will be implemented as S-ICR ☐ ICR will be implemented as M-ICR
Sample 1[6]	Serial number	00001
	Version number	2.0
	Production batch	01
	Production date	05/04/2020
	Production site	Dallas, TX USA
	Other relevant information	
Sample 2[6]	Serial number	00002
	Version number	2.0
	Production batch	01
	Production date	05/04/2020
	Production site	Dallas, TX USA
	Other relevant information	
Sample 3[6]	Serial number	00003
	Version number	2.0
	Production batch	01
	Production date	05/04/2020
	Production site	Dallas, TX USA
	Other relevant information	
3 - Samples selection method[7]		
II.3.1 – Reference attached document		From the product line

[1] Provide the identification (name/identifier + version) you have assigned to uniquely identify the PCD for the concerned vendor. This identification shall define the combination of PCD hardware and firmware.

[2] Provide the identification (name/identifier + version) you have assigned to uniquely identify the PCD hardware for the concerned vendor. This identification shall define the full set of hardware components implementing EMV Contactless Specifications (analogue + digital). The antenna shall be part of the PCD hardware. The landing plane is not part of the PCD but part of the PCD environment within the device. The combination of the "PCD Hardware-ID" and of the "PCD Firmware/Software-ID" shall also form a unique combination for the concerned Vendor.

[3] Provide the identification (name/identifier + version) you have assigned to uniquely identify the PCD firmware for the concerned vendor. Identification shall define the full set of firmware components/modules implementing the EMV Contactless Specifications (analogue + digital). The combination of the "PCD Hardware-ID" and of the "PCD Firmware/Software-ID" shall also form a unique combination for the concerned Vendor.

[4] Please refer to EMVCo PCD Type Approval Administrative process section 3 for definition of terms

[5] Provide the product “marketing name”, as well as the identification you have assigned to uniquely identify the product configuration definition used to manufacture the submitted samples.
[6] Provide identification on all levels of the specific Samples submitted for Type Approval and indicate with a star “*” the information which is labeled on the Sample.
[7] Describe the method used to select the Samples submitted for Type Approval (e.g. from the production line).

Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
1 - Digital characteristics				
Related to Requirements 9.2 – Polling. (9.2.1.1 to 9.2.1.7) III.1.1 – Does the PCD use proprietary commands other than EMV Contactless Specifications Type A and Type B commands during the polling loop?	☐	☑		
III.1.1.1 – If yes, please list all the other technologies supported by the PCD and describe how the different technologies work together. Please describe the full polling sequence(s) used to detect a cardholder device in the field included but not limited to the number of polling commands for each technology and intervals between the commands per polling cycle. Indicate the level of priority for the other technologies in comparison with Type A and Type B during a polling cycle. III.1.1.2 – If yes, for each other technology, is a reset required **before** or **after** the proprietary polling command?				
Related to Section 9.1.1. Bullet 5 III.1.2 – When the PICC has been removed from the Operating Field at the end of a correct transaction, does the PCD reset the Operating Field (as defined in section 3.2.6 of EMV Contactless Specifications, wait the period of t_{PAUSE} with unmodulated carrier and resume with the polling and collision detection.	☑	☐		
III.1.2.1 – If yes, please indicate the value of t_{PAUSE}.			5.1 **ms**	
III.1.2.2 – If no, please describe the behavior of the PCD when the PICC has been removed from the Operating Field at the end of correct transaction with details including timing values.				
Related to Requirements 10.14 – Exception Processing – PCD (10.3.5.9) III.1.3 – Please describe the behavior of the PCD when it has performed a reset of the Operating Field because no error recovery is possible during the half-duplex block transmission protocol.				PCD waits with unmodulated carrier for a time tPAUSE and resumes with the polling procedure.

Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
Related to Requirement 10.1.5.1 –Legacy behavior support III.1.4 – Does the PCD implement a legacy behavior by accepting I-Blocks with b6 of PCB set to '1'?	☐	☑		
Related to Requirement 10.1.5.1 –Legacy behavior support III.1.5 – Does the PCD implement a legacy behavior by accepting R-Blocks with b2 of PCB set to '0'?	☐	☑		
Related to Requirement 10.1.5.1 –Legacy behavior support III.1.6 – Does the PCD implement legacy behavior by accepting S-Blocks with b1 of PCB set to '1'?	☐	☑		
Related to Requirement 10.3.2.2 – Maximum PCD chaining buffer size III.1.7 – What is the maximum FSC value supported by the PCD as a PCD chaining buffer size (i.e. what is the maximum size of I-blocks indicating chaining that the PCD can send)?			256 **Bytes**	
Related to Requirement 4.7.3.3 – FSD value III.1.8 – What is the maximum frame size that the PCD can receive (FSD)?			256 **Bytes**	
2 - Support of Type A communication PICCs				
Related to Requirements 4.5 – Loaded State III.2.1 – Does the PCD resort to transmission error processing when it senses the carrier modulated for the first half of the bit duration and bit period does not start with the loaded state of the subcarrier?	☐	☑		
III.2.1.1 – If no, please describe the PCD behavior in this case.				The PCD does not resort to error. It still correctly decodes the
Related to Requirements 4.20 – FDTA,PICC (4.8.1.1) III.2.2 – Does the PCD accept a Type A sequence received with a Frame Delay Time not aligned to the grid as defined in Figure 4.14, Table 4.2 and 4.3?	☐	☑		
III.2.2.1 – If yes, indicate after which commands or blocks is the FDT not aligned to the grid accepted.				

Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
Related to Requirements 5.7 – Type A PICC Compliance with ISO/IEC 14443-4 (5.5.2.1) III.2.3 – Does the PCD support Type A PICCs not indicating conformity to ISO 14443-4 (i.e. SAK byte with $b_6 = (1)_b$)?	☐	☑		
Related to Requirements 5.12- Length Byte TL of the ATS (5.7.2.2) III.2.4 – Does the PCD support Type A PICCs returning an ATS of length greater than 20 bytes (i.e. ATS with the TL bytes having a value > '14')?	☐	☑		
Related to Requirements 5.21 – Historical Bytes of the ATS (5.7.2.14) III.2.5 – Does the PCD support Type A PICCs returning an ATS with more than 15 Historical Bytes?	☑	☐		
Related to Requirements 5.16- Format Byte TA(1) of the ATS (5.7.2.8) III.2.6 – Does the PCD support Type A PICCs indicating support of other bit rates than 106 kbps in both directions (i.e. ATS with TA(1) different from '00', '08', '80' or '88')?	☑	☐		
III.2.6.1 – If yes, please indicate the supported bit rates (for each direction) and describe the behavior of the PCD when a Type A PICC indicates support of other bit rates than 106 kbps.			**kbps**	The PCD accepts ATS indicating support of other bit rates (212kbps, 424kbps, 848kbps) for either direction. However, the PCD only supports
III.2.6.2 – If no, please confirm that the PCD initiates exception processing for Type A PICCs indicating support of other bit rates than 106 kbps in any direction.	☐			
Related to Requirement 5.8.1.1 – PPS Command III.2.7 – May the PCD send a PPS command when the PICC indicates support of bit rates different from 106 kbit/s in the TA(1) of the ATS?	☐	☑		
III.2.7.1 – If yes, when does the PCD send a the PPS command?				
Related to Requirements 5.18 – Interface Byte TB(1) of the ATS (5.7.2.11) III.2.8 – Does the PCD support Type A PICCs having a SFGT > $SFGT_{MAX}$ (i.e. SFGI > $SFGI_{MAX}$)?	☐	☑		

Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
3 - Support of Type B communication PICCs				
Related to Requirements 4.15 – End of Sequence PICC->PCD – Type B (4.6.2.5) III.3.1 – Does the PCD resort to transmission error processing when the PICC maintains the subcarrier on for a time greater than t_{FSOFF} after the EoS)?	☐	☑		
III.3.1.1 – If no, please describe the PCD behavior in this case.				The PCD behaves normally without resorting to exception processing
Related to Requirements 4.3 – Synchronization PICC->PCD – Type B (4.3.2.3) III.3.2 – Does the PCD accept a Type B sequence received with a synchronization time TR1 < $TR1_{MIN}$ (i.e. subcarrier with no phase transition, sent for a duration inferior to $TR1_{MIN}$)?	☑	☐		
III.3.2.1 – If yes, please indicate the minimum TR1 accepted by the PCD.			1264 **1/fc**	
III.3.2.2 – If yes, does the PCD support the same minimum value of TR1 from one command to another and from one transaction to another?	☑	☐		
III.3.2.2.1 – If yes, what is the value ?			93.2 **µs**	
III.3.2.2.2 – If no (the supported minimum TR1 changes between commands and/or transactions), what are the limits and variations?			**µs**	
Related to Requirements 4.3 – Synchronization PICC->PCD – Type B (4.3.2.3) III.3.3 – Does the PCD accept a Type B sequence received with a synchronization time TR1 > $TR1_{MAX}$ (i.e. subcarrier with no phase transition, sent for a duration superior to $TR1_{MAX}$)?	☐	☑		
III.3.3.1 – If yes, please indicate the maximum TR1 accepted by the PCD.			**µs**	

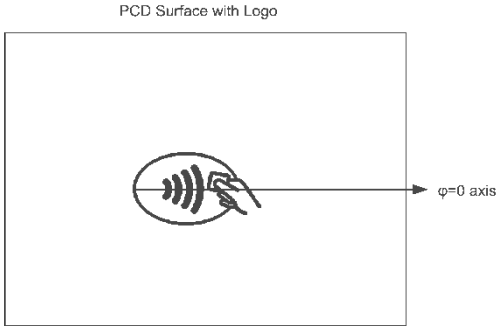
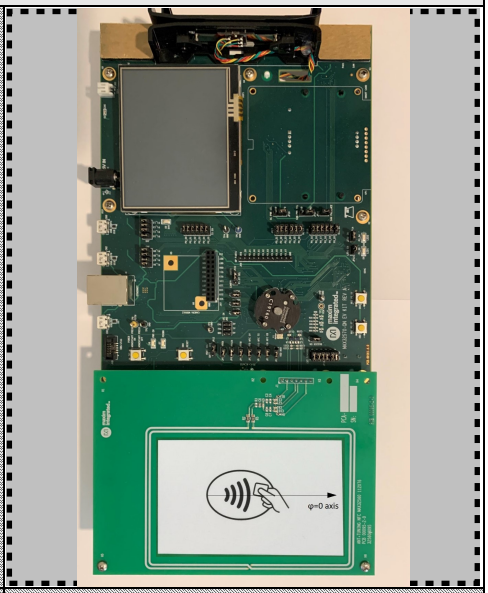
Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
Related to Requirements 6.8 –Byte Rates supported by the PICC (6.3.2.4) III.3.4 – Does the PCD support Type B PICCs indicating support of other bit rates than 106 kbps in both directions (i.e. ATQB with Bit_Rate_Capability different from '00', '08', '80' or '88')?	☑	☐		
III.3.4.1 – If yes, please indicate the supported bit rates (for each direction).			The **kbps**	
III.3.4.2 – If no, please confirm that the PCD initiates exception processing for Type B PICCs indicating support of other bit rates than 106 kbps in any direction.	☐			
Related to Requirements 6.22 – Setting the Bit Rate for Type B III.3.5 – Does the PCD establish bit rates higher than 106 kbps when working with Type B PICCs indicating support of bit rates higher than 106 kbps?	☐	☑		
III.3.5.1 – If yes, please describe the behavior of the PCD when a Type B PICC indicates support of other bit rates than 106 kbps.				
Related to Requirements 6.12 – Type B Protocol Type supported by the PICC (6.3.2.8) III.3.6 – Does the PCD support Type B PICCs not indicating conformity to ISO 14443-4 (i.e. ATQB with Protocol Type $\neq (0001)B_b$)?	☐	☑		
4 - Support of dual PICCs: Type A and Type B				
Related to Requirements 10.3 – Power Level Indication III.4.1 – Does the PCD support a power level indication different from $(00)_b$ in the received S(WTX) Request blocks (i.e. bits 'b_8b_7' of the INF field of the S(WTX) Request block different from $(00)_b$?	☐	☑		
Related to Requirements 10.11 – Block Handling Rules for the PCD (10.3.4.3) III.4.2 – When an R(ACK) block with a block number not equal to the PCD's current block number is received not in response to an R(NAK) block sent to notify a time out, does the PCD re-transmit the last I-block)?	☑	☐		
III.4.2.1 – If no, please describe the behavior.				

Part III: Implementation information				
	Yes	**No**	**Value**	**Reference attached document**
Related to Requirements 10.8 – Block Sizes during Chaining III.4.3 – When the PCD sends a chain of I-blocks, can the INF field of the last block sent by the PCD (i.e. the block not indicating chaining) have a length equal to zero? Remark: An I-Block sent by a PCD cannot have an INF field length equal to zero if indicating chaining.	☐	☑		
III.4.3.1 – If no, please describe the behavior.				The INF of the last block sent by

Part IV: Operational information				
	Yes	**No**	**Value**	**Reference attached document**
1 - Device Test Environment				
IV.1.1 – Describe the installation and operation of the Device Test Environment submitted with the Samples, including the location and version of the test applications (Pre-Validation and Loop-Back).				MAX32560 EMV DTE Users Manual.pdf Loop-Back Version: 4.0.0 Pre-Validation Version: 4.0.0
2 - Power supply				
	Yes	**No**	**Value**	**Reference attached document**
IV.2.1 – Is it a battery-operated Terminal or Card Reader?	☐	☑		
IV.2.1.1 – If yes, is the battery the only source of power to the Terminal or Card Reader?	☐	☐		
IV.2.1.2 – If battery operated, what type of batteries are required (Please specify an established standard type whenever possible)?				
IV.2.1.3 – Nominal voltage of batteries required?			**V**	
IV.2.2 – Is it a DC-operated Terminal or Card Reader?	☑	☐		
IV.2.2.1 – If yes, is the DC power the only source of power to the Terminal or Card Reader?	☑	☐		
IV.2.2.2 – What is the nominal voltage of the DC supply required?			5V **V**	
IV.2.2.3 – What is the nominal current of DC supply required?			3 **A**	

Part IV: Operational information				
	Yes	**No**	**Value**	**Reference attached document**
IV.2.3 – Is it an AC-operated Terminal or Card Reader?	☐	☑		
IV.2.3.1 – If yes, is the AC power the only source of power to the Terminal or Card Reader?	☐	☐		
IV.2.3.2 – What is the nominal voltage of AC supply required?			**V**	
IV.2.3.3 – What is the nominal frequency of AC supply required?			**Hz**	
IV.2.4 – Is a combination of battery and DC or battery and AC possible?	☐	☑		
IV.2.4.1 – If yes, please describe precisely how the Terminal or Card Reader is powered and attach a diagram				
IV.2.4.2 – Please describe what happens when the primary source of power is removed from the Terminal or Card Reader during operations (during a transaction with a PICC).				

Part V - Background information				
	Yes	**No**	**Value**	**Reference attached document**
1 - Architecture				
V.1.1 – Please describe the architecture of antenna and PCD/Terminal/Card Reader.				
2 - Landing plane shape				
V.2.1 – If the PCD has an uneven convex surface, please provide clearly the Z axis with a picture				
V.2.2 – If a PCD is concave or if a PCD is a type of concave device because it has a ridge in its perimeter that does not permit a flat Test PICC to fit properly against its actual level 0 surface, please indicates clearly the level 0 surface for the PICC with a picture				

Part V - Background information				
	Yes	No	Value	Reference attached document
3 - Contactless symbol				
V.3.1 – Please provide a picture of the Sample(s) showing the Contactless logo location. Please mark accurately the φ=0 axis and the center of the contactless logo on the samples provided to the Testing Laboratory 				
V.3.2 – Please confirm that the Contactless symbol indicates the center of the Landing Plane	☑			

Part VI – Digital signatures

1 - Product provider

I hereby declare that the referenced product information contained in this Implementation Conformance Statement for TTA Level 1 is currently in conformity with the following Specification:

EMV Level 1 Specifications for Payment Systems — EMV Contactless Interface Specification, version 3.0, February 2018,

Comments	
Signature	

2 - Laboratory

I hereby declare that this ICS document has been reviewed, and that all product information is consistent throughout the ICS.

Comments	
Signature	

3 - EMVCo Approval Secretariat

Signature	

Part VII - Instructions

The Implementation Conformance Statement – Level 1 (ICS-L1)

- describes vendor implementation choices and how the Proximity Coupling Device (PCD) implements EMV Contactless Specifications, including optional elements,
- allows a vendor to record precise details of the PCD embedded in their Samples submitted to testing,
- provides Test Laboratories with basic technical information to facilitate testing,
- enables EMVCo to register product details for the PCD Type Approval.

The description of the options selected by the vendor enables EMVCo and the Test Laboratory to identify and run the appropriate PCD Type Approval tests on the PCD.

The ICS consists of the following parts, related to the different nature of the information requested:

Identification information	Information about the EMVCo registration of the vendor and Information about the Vendor representative for PCD Type Approval. Unambiguous identification information of the PCD, its hardware and firmware, as well as the samples submitted for testing. This information will be used on the EMVCo PCD LoA. Remark: Inconsistent identification information across different documents may delay the test report assessment process or may result in a decline of a LoA request.
Implementation information	Specific information on how the vendor has implemented the specifications into the PCD. Some relate to options taken in EMV Contactless Specifications and other relate to PCD behaviors, chosen by the Vendor, and which are considered as out of scope of EMV Contactless Specifications (e.g.: PCD behavior following removal or an excess of error).
Operational information	Specific information on how the device and the Device Test Environment provided by the Vendor shall be configured and operate to perform the appropriate tests.
Background information	Detailed information on the PCD and on the Terminal/Card Reader architecture. This information is helpful to the Test Laboratory as an input for a test session.

The vendor shall complete the ICS form before sending it to the Test Laboratory.

Additional information submitted as part of an ICS shall comply with the following rules:

- All documents supplied shall be properly identified and controlled using footers on each page with the following information:
  - a document ID number generated by the vendor's documentation numbering system,
  - a date referring to the design of the samples submitted for testing.
- Additional pages (attachments with descriptions, drawings, and schematics) shall refer to the section of the ICS to which they correspond, and vice versa, and shall be included in the page count of the document,
- Additional documents (e.g. data sheets) shall be attached if necessary, and a list of all attached documents shall be added to the ICS.

This ICS is only valid if it is signed by the vendor. By signing, the vendor confirms that the ICS form contains all the necessary information regarding the PCD, the Terminal or Card Reader in which it will be tested, and its conformance to the referenced specifications.

IMPORTANT: An ICS is only valid for one specific Proximity Coupling Device implemented in one specific contactless product. Therefore:

1- if, for instance, a PCD can be used with two antennae, it shall be considered as two different PCDs and a separate ICS – L1 is required for each PCD.

2- if during testing, some tests fail and the vendor need to change the design of the PCD or of the Terminal or Card Reader in which it is submitted, the relevant product information declared in the ICS shall be updated to link unambiguously to the modified design.