EMVCo L1 COTS MOBILE PILOT

BASED ON THE EMVCo PCD

ANALOG 3.0 TEST PLAN

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Considering the raise of mobile phone usage for payment and to follow the market's needs, EMVCo has decided to introduce a pilot testing program to evaluate consumer mobile devices for contactless payment: Contactless COTS Level 1 Type Approval.

A **COTS** (Commercial On-The-Shelf) product may be not fully compliant with EMV® contactless specification. EMVCo has defined a guideline than aim to adapt the existing EMV Contactless PCD Testing to COTS mobile Level 1 testing by:

- Selecting relevant test positions
- Identifying specific test configurations
- Defining Level 1 COTS mobile specific dispositions

The **Device Under Test** (DUT) consists of the COTS mobile product to be tested. The DUT shall be tested in the following conditions:

- The DUT should not be plugged to a charger.
- The tests should beginning at least 15 minutes after full charging
- DUT battery should remain over 50% during the whole test campaign
- If the DUT is equipped with a display, the display should remain ON during testing

Regarding the Test campaign itself:

- The *Transac_A* & *Transac_B* commands are not necessary so the test cases have been updated for WUP mode
- The tests in distance are limited to maximum Z=2 cm
- 2 different Processes
    - Evaluation Process
        - Usage of the EMVCo Test PICC 1 only (ISO 10373-6 Calibration coil used for TAB113 and TAB114)
        - More test positions than the EMVCo PCD Analog Test plan
    - Approval Process
        - Usage of the 3 EMVCo Test PICCs (ISO 10373-6 Calibration coil used for TAB113 and TAB114)
        - Same test positions as the EMVCo PCD analog Test plan
- The test cases have been separated in 2 groups
    - Group 1: 1 test position per Z value
    - Group 2: 15 test positions in Approval process and 23 test positions in Evaluation Process for Z=0, 1, and 2 cm
- Introduction of a Process Scoring for Group 2 tests using the weight positions from 0 to 2 cm (applicable only for the Evaluation Process)

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Below the COTS mobile test plan summary:

	Group	Scoring
Radio Frequency Power		
TAB111- Verifying the PCD to PICC Power Transfer	2	Y
TAB112 - Verifying the PCD Carrier Frequency	1	
TAB113 - Verifying the PCD Operating Field Resetting	1	
TAB114 - Verifying the PCD Power-Off of the Operating Field	1	
TAB115 - Polling sequence when supporting other technologies	1	
PCD to PICC Signal Interface for Type A Communications		
TA121 - Verifying the t1 Timing	1	
TA122 - Verifying the Monotonic Decrease from V4 to V2	1	
TA123 - Verifying the Ringing	1	
TA124 - Verifying the t2 Timing	1	
TA125 - Verifying the t3 and t4 Timings	1	
TA127 - Verifying the Monotonic Increase from V2 to V4	1	
TA128 - Verifying the Overshoot	1	
PICC to PCD Signal Interface for Type A Communications		
TA131 - Verifying the Load Modulation VS1,pp at Minimum Positive Modulation	2	Y
TA132 - Verifying the Load Modulation VS2,pp at Minimum Positive Modulation	Not necessary	
TA133 - Verifying the Load Modulation VS1,pp at Maximum Positive Modulation	2	Y
TA134 - Verifying the Load Modulation VS2,pp at Maximum Positive Modulation	Not necessary	
TA135 - Verifying the Load Modulation VS1,pp at Minimum Negative Modulation	2	Y
TA136 - Verifying the Load Modulation VS2,pp at Minimum Negative Modulation	Not necessary	
TA137 - Verifying the Load Modulation VS1,pp at Maximum Negative Modulation	2	Y
TA138 - Verifying the Load Modulation VS2,pp at Maximum Negative Modulation	Not necessary	
TA139 - Verifying the FDTA,PICC tolerance	1	
Bit Level Coding Signal Interface for Type A Communications		
TA141 - Verifying the PCD Transmitted Bit Rate	1	
TA142 - Verifying the Bit Coding and De-synchronization PCD to PICC	1	
TA143 - Verifying the Bit Coding and De-synchronization PICC to PCD	1	
PCD to PICC Signal Interface for Type B Communications		
TB121 - Verifying the Modulation Index	1	
TB122 - Verifying the Fall Time	1	
TB123 - Verifying the Rise Time	1	
TB124 - Verifying the Monotonic Rising Edge	1	
TB125 - Verifying the Monotonic Falling Edge	1	
TB126 - Verifying Overshoots	1	
TB127 - Verifying Undershoots	1	

PICC to PCD Signal Interface for Type B Communications		
TB131 - Verifying the Load Modulation VS1,pp at Minimum Positive Modulation	2	Y
TB132 - Verifying the Load Modulation VS2,pp at Minimum Positive Modulation	Not necessary	
TB133 - Verifying the Load Modulation VS1,pp at Maximum Positive Modulation	2	Y
TB134 - Verifying the Load Modulation VS2,pp at Maximum Positive Modulation	Not necessary	
TB135 - Verifying the Load Modulation VS1,pp at Minimum Negative Modulation	2	Y
TB136 - Verifying the Load Modulation VS2,pp at Minimum Negative Modulation	Not necessary	
TB137 - Verifying the Load Modulation VS1,pp at Maximum Negative Modulation	2	Y
TB138 - Verifying the Load Modulation VS2,pp at Maximum Negative Modulation	Not necessary	
Bit Level Coding Signal Interface for Type B Communications		
TB141 - Verifying the PCD Transmitted Bit Rate	1	
TB142 - Verifying the Synchronization, Bit Coding and De-synchronization of PCD to PICC	1	
TB145 - Verifying the Maximum Limit De-synchronization PICC to PCD (tFSOFF,MAX)	1	
TB147 - Verifying the Bit Boundaries with Type B Communications	1	
TB148 - Verifying the Minimum Limit De-synchronization PICC to PCD (tFSOFF,MIN)	1	

The COTS 3.0a Test suite is available for the KEOLABS' test bench configured to EMVCo PCD testing.