



# Dual Interface EMV™ Test Card Set

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## Revision History

Version	Date	Updated By	Revisions
1.00	27-Oct-2014	B2PS	Document creation (6 Dual Interface (DI) cards descriptions)
1.10	28-Nov-14	B2PS	Document cleanup Added short card description Removed dynamic tags from tag lists`
1.11	30-Jan-15	B2PS	Corrected MasterCard & Visa PANs in Test Card Profiles Corrected Application Expiration Dates for MasterCard. Updated various EMV Tags for Test Card 06 (now v.1.10)
1.12	31-Mar-15	B2PS	Cosmetic changes Corrected Card 06 Contact Version Number
1.20	17-Nov-15	B2PS	All Visa cards converted to new VSDC cardstock. Visa tags updated. CVM list added for all cards.
1.30	26-Aug-16	B2PS	Correct format of CVM Table in Cards 01, 02 Tag 8E provided in CVM table for each card Transaction Values added TOC formatting adjusted for readability with new CVM Title page made consistent with other documents Layout made suitable for duplex printing Added PINBlock warning text
2.00	06-Nov-20	B2PS	All cards – updated cardstock support, where applicable “MasterCard” > ”Mastercard”
3.00	26-Mar-21	B2PS	Mastercards have longer Issuer Public Key Certificate
4.00	02-Mar-22	B2PS	TC01, TC03, TC05 – PAN, Expiry Date changes

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**CAUTION**

Multiple consecutive incorrect PIN entry attempts may result in the card being blocked.  
 This is known as being 'PIN Blocked'.  
 If this occurs, it will no longer be possible to enter an Offline PIN  
 which will cause all future transactions to be declined.

**\*\*\* It is not possible to unblock a 'PIN Blocked' card \*\*\***

## Chapter 1 - B2 Dual Interface Test Card Profiles

Cards in the B2 Dual Interface (DI) Test Card Set have EMV Contact, EMV Contactless and magnetic stripe interfaces. Cards may be inserted, tapped or swiped.

All cards share the following attributes:

- **Interfaces:** Contact, Contactless, Magstripe
- **Language Preference:** English
- **Service Code:** 201
- **Issuer Country Code:** 840 - USA
- **Currency Code:** 840 - USD

	DI Test Card 01	DI Test Card 03	DI Test Card 05
<b>Brand</b>	Visa	Visa	Visa
<b>Card Type</b>	Online Only	Online Preferred	Offline Preferred
<b>AID</b>	A0000000031010	A0000000031010	A0000000031010
<b>PAN</b>	4761 7300 0000 0011	4761 7310 0000 0043	4761 7310 0000 0043
<b>Expiry Date</b>	12/2024	12/2024	12/2024
<b>CVM (Contact) Default Condition: Terminal Supports CVM</b>	Online PIN (ATM) Online PIN (MCash) Signature (paper) Fail CVM processing Signature No CVM required <a href="#">See Card Definition</a>	Online PIN (ATM) Offline Enciphered PIN Offline Plaintext PIN Online PIN Signature No CVM required <a href="#">See Card Definition</a>	Online PIN (ATM) Offline Enciphered PIN Offline Plaintext PIN Online PIN Signature No CVM required <a href="#">See Card Definition</a>
<b>Approval Amount</b>	\$10.00	\$10.00	\$10.00
<b>Card Version</b>	v3.x	v3.x	v3.x

	DI Test Card 02	DI Test Card 04	DI Test Card 06
<b>Brand</b>	Mastercard	Mastercard	Mastercard
<b>Card Type</b>	Online Only	Online Preferred	Offline Preferred
<b>AID</b>	A0000000041010	A0000000041010	A0000000041010
<b>PAN</b>	5413 3300 8960 4111	5413 3300 8960 4111	5413 3300 8960 4111
<b>Expiry Date</b>	12/2025	12/2025	12/2025
<b>CVM (Contact) Default Condition: Terminal Supports CVM</b>	Online PIN Signature No CVM required <a href="#">See Card Definition</a>	Online PIN (ATM) Offline Enciphered PIN Offline Plaintext PIN Online PIN Signature No CVM required <a href="#">See Card Definition</a>	Online PIN (ATM) Offline Enciphered PIN Offline Plaintext PIN Online PIN Signature <a href="#">See Card Definition</a>
<b>Approval Amount</b>	\$20.00	\$20.00	\$20.00
<b>Card Version</b>	v3.x	v3.x	v3.x

## 1.1 DI Test Card 01 - Visa, Online Only

A Dual Interface (Contact / Contactless) Visa credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$10.00.

### 1.1.1 Contact: CVM List - AID A000000031010, Visa (EMV)

Cardholder Verification Method List ('0201 4204 1E04 0005 5E00 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended cash	Fail
2	Online PIN	Manual cash	Next CVM
3	Signature (paper)	Manual cash	Fail
4	Fail CVM processing	Purchase with cashback	Fail
5	Signature (paper)	Always	Next CVM
6	No CVM required	Always	Fail

### 1.1.2 Contact: Application Tag Data - AID A000000031010, Visa (EMV)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 00 00 00 00 11 D2 41 22 01 11 75 89 89 38 90 0F	
5A	Application Primary Account Number (PAN)	47 61 73 00 00 00 00 11	
5F 20	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 31 20 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 01'	
5F 24	Application Expiration Date	24 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VIS]	18 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA NOT supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - Use for Visa NOT supported b7 - Is NOT Mobile handset	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	

Tag	Element Name	Data	v3.x
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 01 42 04 1E 04 00 05 5E 00 1F 00	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	3C 96 F7 65 8F BC 29 A2 02 F1 91 46 BD E9 21 66 B0 F6 22 1B BC CB 02 E3 26 71 0B 9E 22 9D 16 FA E9 AD 0C 87 4C 06 85 91 6E 19 F0 E3 26 93 EE 20 1B CE 23 59 50 9A 6D 65 72 F8 EC 3F C3 73 12 6B 34 3F 9C B8 15 3D 61 B7 EA B2 D4 2D E1 9D 56 08 31 85 A0 3D D1 4C 26 8D 40 DF 08 35 C5 5E AB FA 38 ED 28 BC E4 2C D0 01 3D A9 4F 80 05 18 B7 53 C2 46 EF FB A0 8F D2 02 9B AD 5D FC F0 DA F0 7B 7D 80 1C 46 5F FD 25 2C 70 B9 21 53 B3 30 D9 5D CA 2F A1 FA AE 2D 01 68 A4 EA 8B 47 5C D8 05 DC 32 AA 96 4C 17 BF CD 2C D5 D0 30 9A B0 EA 76 1B	
92	Issuer Public Key Remainder	50 DA 20 DD A8 95 3B 69 3F ED 84 36 68 31 BA 1E EA 97 F7 8F 79 2A CF 8C B9 8F DF 01 49 A7 B7 8F DA 1C 49 67	
94	Application File Locator (AFL)	10 01 01 00 10 02 05 01 B0 01 01 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number [VIS]	00 96	
9F 0D	Issuer Action Code - Default	B8 50 AC 88 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B8 70 9C 98 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 1F	Track 1 Discretionary Data	31 37 35 38 39 30 30 38 39 33 30 30 30 30 30 30 30 30 30 30 30 30 30 30	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	

Tag	Element Name	Data	v3.x
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	11 3D 6C 93 19 79 C0 C6 55 19 18 9F AC 7D 61 63 5B BA 6C F8 D6 AD CB 7D DE 7D 27 18 8D F6 E5 98 70 1C 8E 7A 5E 1D 83 3F F6 BB BD 06 8E D7 75 49 97 D7 F7 E9 78 2D F1 7C 1F C3 90 D6 CF A2 6D A7 92 9B 64 98 01 6C 48 48 ED 33 B6 99 96 8E 40 A7 DE EF 61 19 B9 B1 05 4E C1 CA 7F 1C 21 4C 9E 6F 2F A4 EB 94 EC B3 32 77 49 A0 DD D5 04 92 85 3B A0 F7 73 ED 11 D1 CA 4D 8D 1E 12 F6 9B 6E EB E5 1B 5E ED 51 DE C6 CE 39 B4 D2 98 7E 57 42 98 46 3E 4C F2 8C 31 AF 58 76 02 D2 26 01 EB 4D E6 29 B2 7E D0 94 87 F5 65 5F 6C 2D 88 82 CB A3 81 08	
9F 47	ICC Public Key Exponent	03	
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04	
9F 4A	Static Data Authentication Tag List	82	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 10 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	
BF 56	Counters Data Template	DF 11 01 02 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 00 00 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage



## 1.1.3 CTLS: Application Tag Data - A000000031010, Visa (qVSDC Online ODA)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 00 00 00 00 11 D2 41 22 01 11 75 89 89 38 90 0F	
5A	Application Primary Account Number (PAN)	47 61 73 00 00 00 00 11	
5F 24	Application Expiration Date	24 12 31	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VCPS]	00 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA NOT supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	3C 96 F7 65 8F BC 29 A2 02 F1 91 46 BD E9 21 66 B0 F6 22 1B BC CB 02 E3 26 71 0B 9E 22 9D 16 FA E9 AD 0C 87 4C 06 85 91 6E 19 F0 E3 26 93 EE 20 1B CE 23 59 50 9A 6D 65 72 F8 EC 3F C3 73 12 6B 34 3F 9C B8 15 3D 61 B7 EA B2 D4 2D E1 9D 56 08 31 85 A0 3D D1 4C 26 8D 40 DF 08 35 C5 5E AB FA 38 ED 28 BC E4 2C D0 01 3D A9 4F 80 05 18 B7 53 C2 46 EF FB A0 8F D2 02 9B AD 5D FC F0 DA F0 7B 7D 80 1C 46 5F FD 25 2C 70 B9 21 53 B3 30 D9 5D CA 2F A1 FA AE 2D 01 68 A4 EA 8B 47 5C D8 05 DC 32 AA 96 4C 17 BF CD 2C D5 D0 30 9A B0 EA 76 1B	
92	Issuer Public Key Remainder	50 DA 20 DD A8 95 3B 69 3F ED 84 36 68 31 BA 1E EA 97 F7 8F 79 2A CF 8C B9 8F DF 01 49 A7 B7 8F DA 1C 49 67	
94	Application File Locator (AFL)	10 04 07 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	

Tag	Element Name	Data	v3.x
9F 46	ICC Public Key Certificate	4D 58 75 95 E6 AB 89 09 D4 BC 98 D8 0D 02 B7 44 AA C6 2F D1 5C 83 C8 AC A0 22 56 E5 A0 5B C8 09 D5 89 DC CC 12 D1 A9 03 B3 12 8B F0 AC 81 20 E6 16 F4 B9 06 F4 0C 01 10 45 F8 78 DB CB EF A2 80 10 48 FF AA 73 8F EE A5 98 12 26 79 A6 6C 60 67 06 93 14 0A 57 DF A6 5E A3 EA 2B 10 D8 1F 0F 84 A5 2B 28 BB B7 29 64 16 44 AE A1 6F 33 30 23 2D B6 34 C1 FD 23 11 F6 53 59 66 FA BC 1D F1 0A 4C E4 8F 78 94 70 A0 78 33 32 74 B3 62 3B CB DA 26 56 70 AF 7B 2D 30 D7 F7 8B F2 2E 9F FF DD 80 65 8C DC 33 93 C1 0F 48 B4 75 D0 89 FA 06 0C E4 2D	
9F 47	ICC Public Key Exponent	03	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 10 00	
9F 69	Card Authentication Related Data [qVSDC]	01 00 00 00 00 00 00	

Tag	Element Name	Data	v3.x
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	
BF 56	Counters Data Template	DF 11 01 01 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 00 00 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

#### 1.1.4 CTLS: Application Tag Data - A000000031010, Visa (qVSDC Offline)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 00 00 00 00 11 D2 41 22 01 11 75 89 89 38 90 0F	
5F 2D	Language Preference	65 6E ('en' – English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VCPS]	00 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA NOT supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	

Tag	Element Name	Data	v3.x
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 10 00	
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	

Tag	Element Name	Data	v3.x
BF 56	Counters Data Template	DF 11 01 01 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 00 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

## 1.2 DI Test Card 02 - Mastercard, Online Only

A Dual Interface (Contact / Contactless) Mastercard credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$20.00.

### 1.2.1 Contact: CVM List - AID A000000041010, Mastercard (EMV)

Cardholder Verification Method List ('4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

### 1.2.2 Contact: Application Tag Data - AID A000000041010, Mastercard (EMV)

	Element Name	Data	v3.x
50	Application Label	4D 61 73 74 65 72 63 61 72 64 - 'Mastercard'	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
5A	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
5F 20	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 32 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 02'	
5F 24	Application Expiration Date	25 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile	38 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	

<b>84</b>	Dedicated File (DF) Name	A0 00 00 00 04 10 10
<b>87</b>	Application Priority Indicator	01
<b>8C</b>	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14
<b>8D</b>	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08
<b>8E</b>	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 03 1E 03 1F 03
<b>8F</b>	Certification Authority Public Key Index	EF
<b>90</b>	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07
<b>92</b>	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD
<b>94</b>	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00
<b>94</b>	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00
<b>9F 07</b>	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed
<b>9F 08</b>	Application Version Number	00 02
<b>9F 0D</b>	Issuer Action Code - Default	B8 50 9C 80 00
<b>9F 0E</b>	Issuer Action Code - Denial	00 00 00 00 00
<b>9F 0F</b>	Issuer Action Code - Online	B8 70 9C 98 00
<b>9F 10</b>	Issuer Application Data [M/Chip Advance]	xx 10 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *
<b>9F 11</b>	Issuer Code Table Index	01

9F 12	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'
9F 14	Counter 1 Lower Limit [Mastercard]	00
9F 17	Personal Identification Number (PIN) Try Counter	03
9F 1F	Track 1 Discretionary Data	20 20
9F 23	Counter 1 Upper Limit [Mastercard]	00
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *
9F 27	Cryptogram Information Data (CID)	80
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	08 40 - USD
9F 44	Application Currency Exponent	02
9F 46	ICC Public Key Certificate	F3 1E 4A 4F 12 C9 5B 7F BF 40 5D 7B B3 65 C5 5C 39 47 BD CD CD 4C 12 5A DC D0 CA A3 55 ED F6 18 B1 CA CF 82 CF 72 66 25 55 C7 CF 7C 5D 92 62 CE 3A 4F 33 AD 25 4E BF CD 9F B9 A2 52 F9 7A C2 D7 27 2F 62 29 F1 67 EC 3A 42 97 C7 81 F9 46 EF 77 A2 78 E5 0A 9C C5 0D 71 48 FE 9A CA 2E F5 4C 24 C0 95 9E 44 46 23 A7 7C EC 37 14 8A 8A A5 9E E8 76 A4 A9 A7 B8 BA 1A 51 68 47 4E 84 9A E5 08 E4 C8 3D C4 9A 38 F0 AD D2 36 57 62 64 E6 76 6A 24 AB 6F 46 1F 2E E3 1F 9D 9C 9A E7 33 8C A4 6C 2A 9B ED DA EA 62 88 C9 55 55 5A F8 CE 45 68 80 E2 B2 36 6E 3E F8 47 21 D9 5F D0 5F EC D3 03 44 3E D9 D3 B7 BF FA CB 41 EB C3 58 1C 9B FC F5 D9 F1 EE FF 9B 7E C4 DE E7 A6 8F 41 F4 3F DB 81 32 65 4E CB 94 7A B3 0F 3D C5 C7 B3 47 09 63 67 84 02
9F 47	ICC Public Key Exponent	03
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04
9F 4A	Static Data Authentication Tag List	82
9F 4B	Signed Dynamic Application Data	7B 15 75 D1 C6 96 9A 43 57 DD 18 52 10 B5 A0 6B F7 87 EF 6F 39 42 F7 10 68 A8 EF E2 C1 A9 B9 C6 81 03 60 16 34 A6 D1 6D C7 53 DC 97 ED 6A ED 9A 5F 0E 94 10 15 50 A4 C6 27 08 B2 77 3A 96 04 3B 22 9C E9 00 AB AE 4B C0 48 1E A6 A1 91 6C 0B 55 EE 09 6A 00 2B 2E 1C AB D2 EF 28 8D DE 07 3C 29 EE 11 65 2E AF D6 F9 B7 25 B1 21 47 A9 58 A2 FF 0F DD F8 5E 53 48 B9 1A 31 1A 99 CB 0C 1B BF DC 30 15 A5 87 7B 6D DA BC A7 D1 0C ED 11 45 2B 7C 06 12 66 2E EE 0E A1 F5 05 30 69 4E 6D B6 8D 17 5F 60 BB 1B 17 B3 65 04 7B E0 0B 36 6E 5C 2A FC
9F 4D	Transaction Log Entry	0B 0A
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14

<b>9F 5D</b>	Application Capabilities Information [M/Chip Advance]	01 00 00
<b>9F 6E</b>	Third Party Data [Mastercard]	08 40 00 00 30 30 00
<b>9F 70</b>	Protected Data Envelope 1 [M/Chip Advance]	20 20
<b>9F 71</b>	Protected Data Envelope 2 [M/Chip Advance]	20 20
<b>9F 72</b>	Protected Data Envelope 3 [M/Chip Advance]	20 20
<b>9F 73</b>	Protected Data Envelope 4 [M/Chip Advance]	20 20
<b>9F 74</b>	Protected Data Envelope 5 [M/Chip Advance]	20 20
<b>9F 75</b>	Unprotected Data Envelope 1 [M/Chip Advance]	20 20
<b>9F 76</b>	Unprotected Data Envelope 2 [M/Chip Advance]	20 20
<b>9F 77</b>	Unprotected Data Envelope 3 [M/Chip Advance]	20 20
<b>9F 78</b>	Unprotected Data Envelope 4 [M/Chip Advance]	20 20
<b>9F 79</b>	Unprotected Data Envelope 5 [M/Chip Advance]	20 20
<b>9F 7E</b>	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20
<b>C3</b>	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00
<b>C4</b>	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	06 58 00
<b>C5</b>	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	06 F8 00
<b>C6</b>	PIN Try Limit [M/Chip Advance]	03
<b>C7</b>	CDOL1 Related Data Length [Mastercard]	42
<b>C8</b>	CRM Country Code [Mastercard]	08 40 - USA
<b>C9</b>	Accumulator 1 Currency Code [Mastercard]	08 40 - USD
<b>CA</b>	Accumulator 1 Lower Limit [Mastercard]	00 00 00 00 00 00
<b>CB</b>	Accumulator 1 Upper Limit [Mastercard]	00 00 00 00 00 00



<b>CD</b>	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00
<b>CE</b>	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00
<b>CF</b>	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	08 00 00
<b>D1</b>	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00
<b>D3</b>	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
<b>D5</b>	Application Control [M/Chip Advance]	8C 00 80 00 86 02
<b>D6</b>	Default ARPC Response Code [M/Chip Advance]	00 12
<b>D7</b>	Application Control [M/Chip Advance]	40 01 40 00 86 02
<b>D9</b>	Application File Locator (Contactless)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00
<b>DE</b>	Log Data Table [M/Chip Advance]	00 00 00 00 00 00 00 00 00
<b>DF 02</b>	Security Limits Status (Contact) [M/Chip Advance]	00
<b>DF 11</b>	Accumulator 1 Control (Contact) [M/Chip Advance]	C1
<b>DF 12</b>	Accumulator 1 Control (Contactless) [M/Chip Advance]	C1
<b>DF 14</b>	Accumulator 2 Control (Contact) [M/Chip Advance]	00
<b>DF 15</b>	Accumulator 2 Control (Contactless) [M/Chip Advance]	00
<b>DF 16</b>	Accumulator 2 Currency Code [Mastercard]	09 99
<b>DF 17</b>	Accumulator 2 Currency Conversion Table [Mastercard]	09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00
<b>DF 18</b>	Accumulator 2 Lower Limit [Mastercard]	00 00 00 00 00 00
<b>DF 19</b>	Accumulator 2 Upper Limit [Mastercard]	00 00 00 00 00 00
<b>DF 1A</b>	Counter 1 Control (Contact) [M/Chip Advance]	C1
<b>DF 1B</b>	Counter 1 Control (Contactless) [M/Chip Advance]	C1
<b>DF 1D</b>	Counter 2 Control (Contact) [M/Chip Advance]	00
<b>DF 1E</b>	Counter 2 Control (Contactless) [M/Chip Advance]	00
<b>DF 1F</b>	Counter 2 Lower Limit [Mastercard]	00
<b>DF 21</b>	Counter 2 Upper Limit [Mastercard]	00
<b>DF 22</b>	MTA CVM (Contact) [M/Chip Advance]	00 00 00 00 00 00
<b>DF 23</b>	MTA CVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00
<b>DF 24</b>	MTA Currency Code [M/Chip Advance]	09 99
<b>DF 25</b>	MTA NoCVM (Contact) [M/Chip Advance]	00 00 00 00 00 00
<b>DF 26</b>	MTA NoCVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00
<b>DF 27</b>	Number Of Days Offline Limit [M/Chip Advance]	00 00
<b>DF 28</b>	Accumulator 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00
<b>DF 29</b>	Accumulator 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00
<b>DF 2A</b>	Accumulator 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00

<b>DF 2B</b>	Accumulator 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00
<b>DF 2C</b>	Counter 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00
<b>DF 2D</b>	Counter 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00
<b>DF 2E</b>	Counter 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00
<b>DF 2F</b>	Counter 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00
<b>DF 30</b>	Interface Enabling Switch [M/Chip Advance]	03
<b>DF 35</b>	Security Limits Status (Contactless) [M/Chip Advance]	00
<b>DF 37</b>	Security Limits Status Common [M/Chip Advance]	00
<b>DF 3C</b>	CVR Issuer Discretionary Data (Contact) [M/Chip Advance]	00
<b>DF 3D</b>	CVR Issuer Discretionary Data (Contactless) [M/Chip Advance]	00
<b>DF 3F</b>	Read Record Filter (Contact) [M/Chip Advance]	00 00 00 00
<b>DF 40</b>	Read Record Filter (Contactless) [M/Chip Advance]	08 03 03 00
<b>DF 41</b>	DS Management Control [M/Chip Advance]	20

\* Tag value changes with card usage

### 1.2.3 CTLS: CVM List - AID A000000041010, Mastercard (PayPass)

Cardholder Verification Method List ('4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

### 1.2.4 CTLS: Application Tag Data - AID A000000041010, Mastercard (PayPass)

Tag	Element Name	Data	v3.x
<b>50</b>	Application Label	4D 61 73 74 65 72 63 61 72 64 - 'Mastercard'	
<b>56</b>	Track 1 Equivalent Data [Mastercard]	42 35 34 31 33 33 33 30 30 38 39 36 30 34 31 31 31 5E 20 2F 5E 32 35 31 32 32 30 31 30 30 30 30 30 30 30 30 30 30 20 20 20 20 20 30 30 30 20 20 20 20 30	
<b>57</b>	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
<b>5A</b>	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
<b>5F 24</b>	Application Expiration Date	25 12 31	
<b>5F 25</b>	Application Effective Date	xx xx xx	
<b>5F 28</b>	Issuer Country Code	08 40 - USA	
<b>5F 2D</b>	Language Preference	65 6E - 'en' (English)	
<b>5F 34</b>	Application PAN Sequence Number	01	

<b>82</b>	Application Interchange Profile	19 80 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA NOT supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b2 - On device Cardholder verification NOT supported b1 - Combined DDA / GEN AC supported BYTE 2: b8 - Mag Stripe profile [PayPass] supported
<b>84</b>	Dedicated File (DF) Name	A0 00 00 00 04 10 10
<b>87</b>	Application Priority Indicator	01
<b>8C</b>	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14
<b>8D</b>	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08
<b>8E</b>	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 03 1E 03 1F 03
<b>8F</b>	Certification Authority Public Key Index	EF
<b>90</b>	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07
<b>92</b>	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD
<b>94</b>	Application File Locator (AFL)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00

<b>9F 07</b>	Application Usage Control	<b>FF 00</b> BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed
<b>9F 08</b>	Application Version Number	00 02
<b>9F 0D</b>	Issuer Action Code - Default	B4 70 84 00 00
<b>9F 0E</b>	Issuer Action Code - Denial	00 00 00 00 00
<b>9F 0F</b>	Issuer Action Code - Online	B4 70 84 80 00
<b>9F 10</b>	Issuer Application Data [M/Chip Advance]	xx 11 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *
<b>9F 11</b>	Issuer Code Table Index	01
<b>9F 12</b>	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'
<b>9F 14</b>	Counter 1 Lower Limit [Mastercard]	00
<b>9F 17</b>	Personal Identification Number (PIN) Try Counter	03
<b>9F 23</b>	Counter 1 Upper Limit [Mastercard]	00
<b>9F 27</b>	Cryptogram Information Data (CID)	80
<b>9F 32</b>	Issuer Public Key Exponent	03
<b>9F 36</b>	Application Transaction Counter (ATC)	00 01
<b>9F 36</b>	Application Transaction Counter (ATC)	00 02
<b>9F 42</b>	Application Currency Code	08 40 - USD
<b>9F 44</b>	Application Currency Exponent	02
<b>9F 46</b>	ICC Public Key Certificate	58 27 DE FC CF 7A 5A A7 1A 32 30 32 7F A4 82 B9 1E 38 A4 70 BB 93 FD 14 54 5B 66 6E EF 95 40 96 12 D7 EC BB 42 AF DC 3D 9A B8 07 22 FB 43 93 1F 11 8D DB F9 45 99 C9 CF 90 2E 92 E2 8F 77 C5 7E 70 FF 63 D7 CC 09 D3 DC DA 67 28 A7 4D 5F 40 F0 D7 33 D6 F5 58 CD D9 C1 23 B4 54 8E 8E F3 AF C0 F7 37 B8 17 FB ED 36 E8 D0 EF ED 9A 19 87 C4 9D FA 0E A2 5C 50 42 B9 56 F7 20 FB E0 99 CB 3B 69 BF 9E 00 73 57 06 FC F7 E4 36 7B 23 20 F7 E1 B7 66 64 ED AA 54 65 B9 0E F2 25 71 AA 54 D3 A4 28 13 38 15 8A C8 AC 50 F2 C3 AA B3 8E F9 D0 45 C1 2A B6 76 42 F7 39 74 44 26 DB 3C 6A 00 B5 D2 0D E7 BD 4C 90 D4 60 4E 5E A7 3E EC 9F AB 6E 0F 09 B3 97 02 A6 D4 2C A0 59 1A 77 2D 47 0E 15 A7 DA A9 2A 78 33 23 8B B1 22 47 4F 96 60 0C B0 54 7C
<b>9F 47</b>	ICC Public Key Exponent	03
<b>9F 4A</b>	Static Data Authentication Tag List	82
<b>9F 4D</b>	Transaction Log Entry	0B 0A

9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14
9F 5D	Application Capabilities Information [M/Chip Advance]	01 00 00
9F 60	CVC3track1 [Mastercard]	43 FC
9F 61	CVC3track2 [Mastercard]	C7 6E
9F 62	Track 1 Bitmap for CVC3 (PCVC3 Track 1) [Mastercard]	00 00 00 38 00 00
9F 63	Track 1 Bitmap for UN and ATC (PUNATC Track 1) [Mastercard]	00 00 00 00 E0 E0
9F 64	Track 1 Number of ATC Digits (NATC Track 1) [Mastercard]	03
9F 65	Track 2 Bitmap for CVC3 (PCVC3 Track 2) [Mastercard]	00 0E
9F 66	Track 2 Bitmap for UN and ATC (PUNATC Track 2) [Mastercard]	0E 70
9F 67	Track 2 Number of ATC Digits (NATC Track 2) [Mastercard]	03
9F 6B	Track 2 Equivalent Data [Mastercard]	54 13 33 00 89 60 41 11 D2 51 22 01 00 00 40 00 00 00 0F
9F 6C	Application Version [Mastercard]	00 01
9F 6E	Third Party Data [Mastercard]	08 40 00 00 30 30 00
9F 7E	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20
C3	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00
C4	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	06 58 00
C5	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	06 F8 00
C6	PIN Try Limit [M/Chip Advance]	03
C7	CDOL1 Related Data Length [Mastercard]	42
C8	CRM Country Code [Mastercard]	08 40 - USA
C9	Accumulator 1 Currency Code [Mastercard]	08 40 - USD
CA	Accumulator 1 Lower Limit [Mastercard]	00 00 00 00 00 00
CB	Accumulator 1 Upper Limit [Mastercard]	00 00 00 00 00 00
CD	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00
CE	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00
CF	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	08 00 00
D1	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00
D3	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF
D5	Application Control [M/Chip Advance]	8C 00 80 00 86 02
D6	Default ARPC Response Code [M/Chip Advance]	00 12
D7	Application Control [M/Chip Advance]	40 01 40 00 86 02

<b>DF 02</b>	Security Limits Status (Contact) [M/Chip Advance]	00
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\* Tag value changes with card usage

### 1.3 DI Test Card 03 - Visa, Online Preferred

A Dual Interface (Contact / Contactless) Visa credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$10.00.

#### 1.3.1 Contact: CVM List - AID A000000031010, Visa (EMV)

Cardholder Verification Method List ('4201 4403 4103 4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended cash	Next CVM
2	Offline Enciphered PIN	Terminal supports CVM type	Next CVM
3	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
4	Online PIN	Terminal supports CVM type	Next CVM
5	Signature (paper)	Terminal supports CVM type	Fail
6	No CVM required	Terminal supports CVM type	Fail

#### 1.3.2 Contact: Application Tag Data - AID A000000031010, Visa (EMV)

Tag	Element Name	Data	v3.x
<b>50</b>	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
<b>57</b>	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0E	
<b>5A</b>	Application Primary Account Number (PAN)	47 61 73 10 00 00 00 43	
<b>5F 20</b>	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 33 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 03'	
<b>5F 24</b>	Application Expiration Date	24 12 31	
<b>5F 25</b>	Application Effective Date	xx xx xx	
<b>5F 28</b>	Issuer Country Code	08 40 - USA	
<b>5F 2D</b>	Language Preference	65 6E - 'en' (English)	
<b>5F 30</b>	Service Code	02 01	
<b>5F 34</b>	Application PAN Sequence Number	01	
<b>82</b>	Application Interchange Profile [VIS]	38 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - Use for Visa NOT supported b7 - Is NOT Mobile handset	

Tag	Element Name	Data	v3.x
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 44 03 41 03 42 03 1E 03 1F 03	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	04 D6 DC A7 7E 2D DF B5 60 0A 9D DE 4E A2 23 91 BF 4A F3 37 F2 FB 99 41 91 E0 39 70 74 D5 35 E8 AB D2 7F 43 90 6A DD D4 5F 01 54 01 98 EF 23 3C 9D 4C C8 98 AD 56 A9 56 A9 66 D7 38 58 55 86 68 13 F5 E9 29 FB 72 FA E5 E4 40 64 2E B1 EE A3 0D 80 C3 E6 D2 81 E0 E6 FB 51 6B 25 1D D7 5C 01 D5 9C 71 78 28 27 39 1F 89 D8 FF D9 E6 EA 30 2C BE 1B C9 86 BE A0 36 5C 36 F7 A6 DA 9F FD 80 F4 D0 FF 9E D8 9D D5 15 9A 5B 00 3C 78 6A 11 17 94 FD 93 92 3D 6C ED 15 4D 35 4E A7 F0 4E 4A 48 76 1A 74 D9 FC 18 48 48 F1 C6 33 CE 5A DF 54 96 35 BD	
92	Issuer Public Key Remainder	85 AA DF 04 3F AA 38 48 ED 86 9D 6E B3 D9 70 F4 AC 08 A9 74 74 27 88 42 C8 55 84 E3 4B 6F AC C0 72 07 BC 41	
94	Application File Locator (AFL)	10 01 01 00 10 02 05 01 B0 01 01 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number [VIS]	00 96	
9F 0D	Issuer Action Code - Default	B8 50 AC 88 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B8 70 BC 98 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	09	



Tag	Element Name	Data	v3.x
9F 1F	Track 1 Discretionary Data	31 31 34 33 38 30 34 34 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	8C 30 F9 F0 DF 98 58 74 1E BE 22 B7 EF 1A 22 CD 7B BC 5E 4E 6C CA E1 22 D9 EF 9E 72 01 05 7C 11 E5 AB F1 8F F4 26 0B E7 92 07 95 06 55 34 FB 26 1B 82 E9 F0 BE 16 7C 47 3B A1 77 7A E4 55 10 BD 66 B8 B4 99 BB 41 33 6E 3E 83 DF D3 5C 37 BC 26 DB 3C 85 66 C5 49 CE 29 F5 65 E6 BE 0D 94 51 2E CE 5F 6D D8 46 80 19 61 0B 4F FF 9C E4 84 C4 17 E9 73 A3 9A 9D 41 7E 49 C7 BF 19 F5 42 AC B8 DA 51 97 36 F6 14 9B A7 D4 BE 13 2F 0C F7 8E B9 28 35 47 34 5A 3B 1F 2F 6D 77 C3 D9 09 D2 EC EB BC DC F2 54 47 B4 4F 24 57 B0 6C FC DE 96 AC 68 6F	
9F 47	ICC Public Key Exponent	03	
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04	
9F 4B	Signed Dynamic Application Data	1E 2C BB D5 AA 37 2F 69 18 21 43 63 83 F2 79 DF AD 73 31 2A D9 4D 0F 1B 8C E0 DA 07 22 03 C6 7A CF 1E 1C E7 77 9F 0F 2D 0B D7 B1 20 03 53 F1 50 C0 BE 85 4B 95 6A 42 07 A4 70 92 0F C9 B1 60 BA D2 47 51 7D 91 B3 52 03 A4 04 B5 7D 9B 69 53 E2 2A FA B7 14 B4 6E 13 C1 19 F6 92 BD 1D 18 C4 51 5B BE C5 FE BB 38 28 B7 10 34 EF 97 82 49 0A 6C	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 05 00 00	



Tag	Element Name	Data	v3.x
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 D0 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	
BF 56	Counters Data Template	DF 11 01 02 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 05 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

### 1.3.3 CTLS: Application Tag Data - A000000031010, Visa (qVSDC Online ODA)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 10 00 00 00 43	
5F 24	Application Expiration Date	24 12 31	
5F 2D	Language Preference	65 6E ('en' – English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VCPS]	20 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8F	Certification Authority Public Key Index	92	

Tag	Element Name	Data	v3.x
90	Issuer Public Key Certificate	04 D6 DC A7 7E 2D DF B5 60 0A 9D DE 4E A2 23 91 BF 4A F3 37 F2 FB 99 41 91 E0 39 70 74 D5 35 E8 AB D2 7F 43 90 6A DD D4 5F 01 54 01 98 EF 23 3C 9D 4C C8 98 AD 56 A9 56 A9 66 D7 38 58 55 86 68 13 F5 E9 29 FB 72 FA E5 E4 40 64 2E B1 EE A3 0D 80 C3 E6 D2 81 E0 E6 FB 51 6B 25 1D D7 5C 01 D5 9C 71 78 28 27 39 1F 89 D8 FF D9 E6 EA 30 2C BE 1B C9 86 BE A0 36 5C 36 F7 A6 DA 9F FD 80 F4 D0 FF 9E D8 9D D5 15 9A 5B 00 3C 78 6A 11 17 94 FD 93 92 3D 6C ED 15 4D 35 4E A7 F0 4E 4A 48 76 1A 74 D9 FC 18 48 48 F1 C6 33 CE 5A DF 54 96 35 BD	
92	Issuer Public Key Remainder	85 AA DF 04 3F AA 38 48 ED 86 9D 6E B3 D9 70 F4 AC 08 A9 74 74 27 88 42 C8 55 84 E3 4B 6F AC C0 72 07 BC 41	
94	Application File Locator (AFL)	10 02 02 01 10 04 07 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 46	ICC Public Key Certificate	8C 30 F9 F0 DF 98 58 74 1E BE 22 B7 EF 1A 22 CD 7B BC 5E 4E 6C CA E1 22 D9 EF 9E 72 01 05 7C 11 E5 AB F1 8F F4 26 0B E7 92 07 95 06 55 34 FB 26 1B 82 E9 F0 BE 16 7C 47 3B A1 77 7A E4 55 10 BD 66 B8 B4 99 BB 41 33 6E 3E 83 DF D3 5C 37 BC 26 DB 3C 85 66 C5 49 CE 29 F5 65 E6 BE 0D 94 51 2E CE 5F 6D D8 46 80 19 61 0B 4F FF 9C E4 84 C4 17 E9 73 A3 9A 9D 41 7E 49 C7 BF 19 F5 42 AC B8 DA 51 97 36 F6 14 9B A7 D4 BE 13 2F 0C F7 8E B9 28 35 47 34 5A 3B 1F 2F 6D 77 C3 D9 09 D2 EC EB BC DC F2 54 47 B4 4F 24 57 B0 6C FC DE 96 AC 68 6F	
9F 47	ICC Public Key Exponent	03	

Tag	Element Name	Data	v3.x
9F 4B	Signed Dynamic Application Data	B9 FA 01 07 C5 DB E6 52 F4 E7 D1 42 5E EF 5C 5D 3D D3 06 F8 EE AE E1 17 D4 13 06 88 B4 2B 13 66 7A 2D B5 44 4E E0 EF 34 43 F8 CC 71 F8 10 FD 53 64 27 73 A8 28 CA BA 49 C5 9B 94 CA B6 E8 28 E5 C5 02 7B 71 25 5B 0A 6F 97 FC 27 A4 43 7E 2A 45 6F 41 0B AD 51 EE 16 B8 3A 5B CF 3C BC AD A1 17 BE FB 25 BA 85 7B 07 0E 65 98 91 32 85 B4 EF 1E	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 05 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 D0 00	
9F 69	Card Authentication Related Data [qVSDC]	01 6C 5B 96 EE 38 00	
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	

Tag	Element Name	Data	v3.x
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	
BF 56	Counters Data Template	DF 11 01 01 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 00 05 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

### 1.3.4 CTLS: Application Tag Data - A000000031010, Visa (qVSDC Offline)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0F	
5F 2D	Language Preference	65 6E ('en' – English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VCPS]	20 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	00 00 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	00	

Tag	Element Name	Data	v3.x
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	00	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 05 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 D0 00	
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	00	
BF 55	Contactless Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00	
BF 56	Counters Data Template	DF 11 01 01 DF 21 01 00 DF 31 01 00	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00 DF 61 01 00	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 05 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

## 1.4 DI Test Card 04 - Mastercard, Online Preferred

A Dual Interface (Contact / Contactless) Mastercard credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$20.00.

### 1.4.1 Contact: CVM List - AID A000000041010, Mastercard (EMV)

Cardholder Verification Method List ('4201 4403 4103 4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended cash	Next CVM
2	Offline Enciphered PIN	Terminal supports CVM type	Next CVM
3	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
4	Online PIN	Terminal supports CVM type	Next CVM
5	Signature (paper)	Terminal supports CVM type	Fail
6	No CVM required	Terminal supports CVM type	Fail

### 1.4.2 Contact: Application Tag Data - AID A000000041010, Mastercard (EMV)

Tag	Element Name	Data	v3.x
50	Application Label	4D 61 73 74 65 72 43 61 72 64 - 'Mastercard'	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
5A	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
5F 20	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 34 20 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 04'	
5F 24	Application Expiration Date	25 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile	38 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 04 10 10	
87	Application Priority Indicator	01	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14	

Tag	Element Name	Data	v3.x
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 44 03 41 03 42 03 1E 03 1F 03	
8F	Certification Authority Public Key Index	EF	
90	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07	
92	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD	
94	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00	
94	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 02	
9F 0D	Issuer Action Code - Default	B8 50 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B8 70 BC 98 00	
9F 10	Issuer Application Data [M/Chip Advance]	xx 10 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'	

Tag	Element Name	Data	v3.x
9F 14	Counter 1 Lower Limit [Mastercard]	00	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 1F	Track 1 Discretionary Data	20 20	
9F 23	Counter 1 Upper Limit [Mastercard]	00	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 42	Application Currency Code	08 40 - USD	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	E6 8B 23 BD A7 70 44 88 FA 59 D6 F4 B3 4D 80 78 CA E1 02 92 72 90 7B C7 BE CE 21 0C E8 99 69 D8 1F EF 1E 29 3F 3F 83 7E 7E 66 B4 FC 25 E4 B1 AD C2 EF BB 21 9C BD 5A 1E 55 F1 76 A7 AE 70 CD B9 93 62 CE 26 23 FD A6 CA A7 1A EA 53 83 1F D7 1D 19 A6 D2 3B F3 1F A4 70 7E 75 0A 60 2D 64 BA 5F 8B 59 57 5D 56 52 16 BB 1B 5B 9C 7E 3D 8B DF 24 16 69 79 A2 24 D9 B7 C7 5A 08 3B 3E 42 B2 5E 1B AF A0 57 A3 39 D4 AC 9B 65 1E E9 A2 7D 24 EE 35 FA 89 1C 11 8D 39 FE 28 18 A4 04 13 F4 21 DF 87 6D 70 E4 EE B2 64 B9 56 39 B0 65 A2 E4 C2 FF A2 EC 98 85 51 05 AD B8 3F E1 2B 73 5A 08 F7 4B 3F 15 B5 FC 6E 83 0C 70 2E 40 B6 F1 14 6A D3 95 32 8A C7 AF 4C 4F F3 8E 35 6F 95 37 E9 87 3A 56 0D 5B 00 A3 3E E7 24 95 FD 57 FD 32 66 6D FE A9 40	
9F 47	ICC Public Key Exponent	03	
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04	
9F 4A	Static Data Authentication Tag List	82	
9F 4B	Signed Dynamic Application Data	3E D4 92 4B FA 38 24 FD 5C 81 35 01 EB FC F0 E0 17 4B 35 8A 78 50 61 8C A4 01 D5 FE 0F C2 01 E7 5C 67 77 55 14 26 18 3A 47 E4 7F 3A 8A 96 9A 84 59 E2 7F 19 03 D0 41 FC 2D 0C 86 A9 62 44 49 DD 28 B4 DB 8C 72 4A 3E DE 04 9E 4B D2 D0 58 73 0D BF DE 15 B4 0B 9B 42 21 F7 77 7A 46 9B 49 81 0C DD 26 72 66 4F 9D 2D 78 DA 33 3F C3 5A F9 4D 41 53 2B 82 8E 3A DF 82 72 49 15 C5 78 54 A4 51 07 B5 3E 82 19 9A C4 EC F5 93 35 AD 6A 76 4E DF F9 3F 1C 11 0B 18 4A E6 9E FB 3B 92 BB F8 88 8F FC 41 6A AB 65 EE EF AD 2A 14 B5 06 8D 55 BF 83 3C	



Tag	Element Name	Data	v3.x
9F 4D	Transaction Log Entry	0B 0A	
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14	
9F 5D	Application Capabilities Information [M/Chip Advance]	01 00 00	
9F 6E	Third Party Data [Mastercard]	08 40 00 00 30 30 00	
9F 70	Protected Data Envelope 1 [M/Chip Advance]	20 20	
9F 71	Protected Data Envelope 2 [M/Chip Advance]	20 20	
9F 72	Protected Data Envelope 3 [M/Chip Advance]	20 20	
9F 73	Protected Data Envelope 4 [M/Chip Advance]	20 20	
9F 74	Protected Data Envelope 5 [M/Chip Advance]	20 20	
9F 75	Unprotected Data Envelope 1 [M/Chip Advance]	20 20	
9F 76	Unprotected Data Envelope 2 [M/Chip Advance]	20 20	
9F 77	Unprotected Data Envelope 3 [M/Chip Advance]	20 20	
9F 78	Unprotected Data Envelope 4 [M/Chip Advance]	20 20	
9F 79	Unprotected Data Envelope 5 [M/Chip Advance]	20 20	
9F 7E	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20	
C3	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00	
C4	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	19 50 00	
C5	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	39 FB 00	
C6	PIN Try Limit [M/Chip Advance]	03	

Tag	Element Name	Data	v3.x
C7	CDOL1 Related Data Length [Mastercard]	42	
C8	CRM Country Code [Mastercard]	08 40 - USA	
C9	Accumulator 1 Currency Code [Mastercard]	08 40 - USD	
CA	Accumulator 1 Lower Limit [Mastercard]	00 00 00 00 00 00	
CB	Accumulator 1 Upper Limit [Mastercard]	00 00 00 05 00 00	
CD	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00	
CE	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00	
CF	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	00 00 00	
D1	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00	
D3	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	
D5	Application Control [M/Chip Advance]	8C 00 80 00 86 02	
D6	Default ARPC Response Code [M/Chip Advance]	00 12	
D7	Application Control [M/Chip Advance]	40 01 40 00 86 02	
D9	Application File Locator (Contactless)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00	
DE	Log Data Table [M/Chip Advance]	00 00 00 00 00 00 00 00 00	
DF 02	Security Limits Status (Contact) [M/Chip Advance]	00	
DF 11	Accumulator 1 Control (Contact) [M/Chip Advance]	c1	
DF 12	Accumulator 1 Control (Contactless) [M/Chip Advance]	c1	
DF 14	Accumulator 2 Control (Contact) [M/Chip Advance]	00	
DF 15	Accumulator 2 Control (Contactless) [M/Chip Advance]	00	
DF 16	Accumulator 2 Currency Code [Mastercard]	09 99	
DF 17	Accumulator 2 Currency Conversion Table [Mastercard]	09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00	
DF 18	Accumulator 2 Lower Limit [Mastercard]	00 00 00 00 00 00	
DF 19	Accumulator 2 Upper Limit [Mastercard]	00 00 00 00 00 00	
DF 1A	Counter 1 Control (Contact) [M/Chip Advance]	c1	
DF 1B	Counter 1 Control (Contactless) [M/Chip Advance]	c1	
DF 1D	Counter 2 Control (Contact) [M/Chip Advance]	00	
DF 1E	Counter 2 Control (Contactless) [M/Chip Advance]	00	
DF 1F	Counter 2 Lower Limit [Mastercard]	00	
DF 21	Counter 2 Upper Limit [Mastercard]	00	
DF 22	MTA CVM (Contact) [M/Chip Advance]	00 00 00 00 00 00	

Tag	Element Name	Data	v3.x
DF 23	MTA CVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00	
DF 24	MTA Currency Code [M/Chip Advance]	09 99	
DF 25	MTA NoCVM (Contact) [M/Chip Advance]	00 00 00 00 00 00	
DF 26	MTA NoCVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00	
DF 27	Number Of Days Offline Limit [M/Chip Advance]	00 00	
DF 28	Accumulator 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 29	Accumulator 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2A	Accumulator 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2B	Accumulator 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2C	Counter 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2D	Counter 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2E	Counter 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2F	Counter 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 30	Interface Enabling Switch [M/Chip Advance]	03	
DF 35	Security Limits Status (Contactless) [M/Chip Advance]	00	
DF 37	Security Limits Status Common [M/Chip Advance]	00	
DF 3C	CVR Issuer Discretionary Data (Contact) [M/Chip Advance]	00	
DF 3D	CVR Issuer Discretionary Data (Contactless) [M/Chip Advance]	00	
DF 3F	Read Record Filter (Contact) [M/Chip Advance]	00 00 00 00	
DF 40	Read Record Filter (Contactless) [M/Chip Advance]	08 03 03 00	
DF 41	DS Management Control [M/Chip Advance]	20	

\* Tag value changes with card usage

#### 1.4.3 CTLS: CVM List - AID A000000041010, Mastercard (PayPass)

Cardholder Verification Method List ('4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

**1.4.4 CTLS: Application Tag Data - AID A000000041010, Mastercard (PayPass)**

Tag	Element Name	Data	v3.x
50	Application Label	4D 61 73 74 65 72 43 61 72 64 - 'Mastercard'	
56	Track 1 Equivalent Data [Mastercard]	42 35 34 31 33 33 33 30 30 38 39 36 30 34 31 31 31 5E 20 2F 5E 32 35 31 32 32 30 31 30 30 30 30 30 30 30 30 30 30 30 20 20 20 20 20 30 30 30 20 20 20 20 30	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
5A	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
5F 24	Application Expiration Date	25 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile	19 80 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA NOT supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b2 - On device Cardholder verification NOT supported b1 - Combined DDA / GEN AC supported BYTE 2: b8 - Mag Stripe profile [PayPass] supported	
84	Dedicated File (DF) Name	A0 00 00 00 04 10 10	
87	Application Priority Indicator	01	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14	
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 1E 03 42 03 1F 03	
8F	Certification Authority Public Key Index	EF	

90	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07
92	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD
94	Application File Locator (AFL)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed
9F 08	Application Version Number	00 02
9F 0D	Issuer Action Code - Default	B4 50 84 00 00
9F 0E	Issuer Action Code - Denial	00 00 00 00 00
9F 0F	Issuer Action Code - Online	B4 70 84 80 00
9F 10	Issuer Application Data [M/Chip Advance]	xx 11 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *
9F 11	Issuer Code Table Index	01
9F 12	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'
9F 14	Counter 1 Lower Limit [Mastercard]	00
9F 17	Personal Identification Number (PIN) Try Counter	03
9F 23	Counter 1 Upper Limit [Mastercard]	00
9F 27	Cryptogram Information Data (CID)	80
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	00 01

9F 36	Application Transaction Counter (ATC)	00 02
9F 42	Application Currency Code	08 40 - USD
9F 44	Application Currency Exponent	02
9F 46	ICC Public Key Certificate	BC F6 53 3F C0 3F E8 28 F2 22 23 7E B9 F8 BF 97 8A AA 62 0C 5F 83 18 78 21 F7 45 15 BD F2 41 3E 63 13 79 1F 14 19 35 93 27 F9 C8 8F D8 11 81 FD 99 DC 02 2A 29 0F 52 7B 7A 6C 5E A7 87 23 9C 0D 51 62 6F 4F BB D6 7D C9 39 B1 0A 4B 9E 2B 38 F4 CD 40 08 B6 07 61 5D 5F 9B 46 7B A5 7E 65 3A 86 F9 7F 91 26 6B D9 95 BD DD 49 CF B5 1F 39 C3 5F 22 BC DF 2C B0 58 74 97 F7 22 76 CC A0 BB 93 CF 83 91 1B BE EF C7 17 D0 B9 0A 40 6D BD 65 A3 CD F7 42 EB 62 BB 6C ED 37 A4 73 2E 1D 62 AF 73 FF F4 A7 A9 D4 4F 9F EB 93 3F 8C 21 1C D3 E8 E4 24 3E 21 35 14 D4 B7 F6 F8 62 28 3C 6E 9E 94 E9 BD 79 2C F2 16 48 9D 98 96 E6 2D FD C9 9C 8B F6 67 C8 86 5D 3C E6 9E C3 16 FE 8A B3 55 68 AB BE 8E 11 7F 3B 00 18 A9 B2 71 1A 9A 8F E7 F2 B4 18 63
9F 47	ICC Public Key Exponent	03
9F 4A	Static Data Authentication Tag List	82
9F 4D	Transaction Log Entry	0B 0A
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14
9F 5D	Application Capabilities Information [M/Chip Advance]	01 00 00
9F 60	CVC3track1 [Mastercard]	43 FC
9F 61	CVC3track2 [Mastercard]	C7 6E
9F 62	Track 1 Bitmap for CVC3 (PCVC3 Track 1) [Mastercard]	00 00 00 38 00 00
9F 63	Track 1 Bitmap for UN and ATC (PUNATC Track 1) [Mastercard]	00 00 00 00 E0 E0
9F 64	Track 1 Number of ATC Digits (NATC Track 1) [Mastercard]	03
9F 65	Track 2 Bitmap for CVC3 (PCVC3 Track 2) [Mastercard]	00 0E
9F 66	Track 2 Bitmap for UN and ATC (PUNATC Track 2) [Mastercard]	0E 70
9F 67	Track 2 Number of ATC Digits (NATC Track 2) [Mastercard]	03
9F 6B	Track 2 Equivalent Data [Mastercard]	54 13 33 00 89 60 41 11 D2 51 22 01 00 00 40 00 00 00 0F
9F 6C	Application Version [Mastercard]	00 01
9F 6E	Third Party Data [Mastercard]	08 40 00 00 30 30 00

<b>9F 7E</b>	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20
<b>C3</b>	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00
<b>C4</b>	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	19 50 00
<b>C5</b>	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	39 FB 00
<b>C6</b>	PIN Try Limit [M/Chip Advance]	03
<b>C7</b>	CDOL1 Related Data Length [Mastercard]	42
<b>C8</b>	CRM Country Code [Mastercard]	08 40 - USA
<b>C9</b>	Accumulator 1 Currency Code [Mastercard]	08 40 - USD
<b>CA</b>	Accumulator 1 Lower Limit [Mastercard]	00 00 00 00 00 00
<b>CB</b>	Accumulator 1 Upper Limit [Mastercard]	00 00 00 05 00 00
<b>CD</b>	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00
<b>CE</b>	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00
<b>CF</b>	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	00 00 00
<b>D1</b>	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00
<b>D3</b>	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
<b>D5</b>	Application Control [M/Chip Advance]	8C 00 80 00 86 02
<b>D6</b>	Default ARPC Response Code [M/Chip Advance]	00 12
<b>D7</b>	Application Control [M/Chip Advance]	40 01 40 00 86 02
<b>DF 02</b>	Security Limits Status (Contact) [M/Chip Advance]	00

\* Tag value changes with card usage

## 1.5 DI Test Card 05 - Visa, Offline Preferred

A Dual Interface (Contact / Contactless) Visa credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$10.00.

### 1.5.1 Contact: CVM List - AID A000000031010, Visa (EMV)

Cardholder Verification Method List ('4201 4403 4103 4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended cash	Next CVM
2	Offline Enciphered PIN	Terminal supports CVM type	Next CVM
3	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
4	Online PIN	Terminal supports CVM type	Next CVM
5	Signature (paper)	Terminal supports CVM type	Fail
6	No CVM required	Terminal supports CVM type	Fail

### 1.5.2 Contact: Application Tag Data - AID A000000031010, Visa (EMV)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 10 00 00 00 43	
5F 20	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 35 20 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 05'	
5F 24	Application Expiration Date	24 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VIS]	3C 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - Use for Visa NOT supported b7 - Is NOT Mobile handset	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	



Tag	Element Name	Data	v3.x
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 41 03 5E 03 1F 03	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	04 D6 DC A7 7E 2D DF B5 60 0A 9D DE 4E A2 23 91 BF 4A F3 37 F2 FB 99 41 91 E0 39 70 74 D5 35 E8 AB D2 7F 43 90 6A DD D4 5F 01 54 01 98 EF 23 3C 9D 4C C8 98 AD 56 A9 56 A9 66 D7 38 58 55 86 68 13 F5 E9 29 FB 72 FA E5 E4 40 64 2E B1 EE A3 0D 80 C3 E6 D2 81 E0 E6 FB 51 6B 25 1D D7 5C 01 D5 9C 71 78 28 27 39 1F 89 D8 FF D9 E6 EA 30 2C BE 1B C9 86 BE A0 36 5C 36 F7 A6 DA 9F FD 80 F4 D0 FF 9E D8 9D D5 15 9A 5B 00 3C 78 6A 11 17 94 FD 93 92 3D 6C ED 15 4D 35 4E A7 F0 4E 4A 48 76 1A 74 D9 FC 18 48 48 F1 C6 33 CE 5A DF 54 96 35 BD	
92	Issuer Public Key Remainder	85 AA DF 04 3F AA 38 48 ED 86 9D 6E B3 D9 70 F4 AC 08 A9 74 74 27 88 42 C8 55 84 E3 4B 6F AC C0 72 07 BC 41	
94	Application File Locator (AFL)	10 01 01 00 10 02 05 01 B0 01 01 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number [VIS]	00 96	
9F 0D	Issuer Action Code - Default	B8 50 AC 88 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B8 70 BC 98 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 1F	Track 1 Discretionary Data	31 31 34 33 38 30 34 34 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	

Tag	Element Name	Data	v3.x
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	8C 30 F9 F0 DF 98 58 74 1E BE 22 B7 EF 1A 22 CD 7B BC 5E 4E 6C CA E1 22 D9 EF 9E 72 01 05 7C 11 E5 AB F1 8F F4 26 0B E7 92 07 95 06 55 34 FB 26 1B 82 E9 F0 BE 16 7C 47 3B A1 77 7A E4 55 10 BD 66 B8 B4 99 BB 41 33 6E 3E 83 DF D3 5C 37 BC 26 DB 3C 85 66 C5 49 CE 29 F5 65 E6 BE 0D 94 51 2E CE 5F 6D D8 46 80 19 61 0B 4F FF 9C E4 84 C4 17 E9 73 A3 9A 9D 41 7E 49 C7 BF 19 F5 42 AC B8 DA 51 97 36 F6 14 9B A7 D4 BE 13 2F 0C F7 8E B9 28 35 47 34 5A 3B 1F 2F 6D 77 C3 D9 09 D2 EC EB BC DC F2 54 47 B4 4F 24 57 B0 6C FC DE 96 AC 68 6F	
9F 47	ICC Public Key Exponent	03	
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04	
9F 4B	Signed Dynamic Application Data	53 C0 1F F1 2B C4 19 EB EC DC 28 A4 41 AC 0B 05 A5 77 80 F0 22 AE A6 82 6C AB 1D 15 1C 45 0F 07 06 CE E1 33 36 F5 3A DB 06 5A 55 BC 57 67 11 7C 02 14 70 1D C7 BE 47 3F 8F 0C E2 88 37 35 F9 69 44 55 8B 30 CA 12 7A 72 4E E7 0E 19 DD D9 70 19 E9 DE 8A 49 56 E3 09 C9 E4 BC 03 D1 2A 61 C4 3C 2F EB A8 EC 01 67 86 44 0C 20 B7 01 41 60 BD FE	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	80 30 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	07	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 20 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	05	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	10	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 50 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	10	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	4E 00 F0 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	07	
BF 55	Contactless Counters Data Template	DF 11 01 02 DF 21 01 05 DF 31 01 10	

Tag	Element Name	Data	v3.x
BF 56	Counters Data Template	DF 11 01 01 DF 21 01 05 DF 31 01 10	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 07 DF 31 01 10 DF 51 01 07 DF 61 01 07	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 10 04 DF 21 06 00 00 00 00 20 00 DF 31 06 00 00 00 00 50 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

### 1.5.3 CTLS: Application Tag Data - AID A000000031010, Visa (qVSDC Online)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 10 00 00 00 43	
5F 24	Application Expiration Date	24 12 31	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VCPS]	20 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	04 D6 DC A7 7E 2D DF B5 60 0A 9D DE 4E A2 23 91 BF 4A F3 37 F2 FB 99 41 91 E0 39 70 74 D5 35 E8 AB D2 7F 43 90 6A DD D4 5F 01 54 01 98 EF 23 3C 9D 4C C8 98 AD 56 A9 56 A9 66 D7 38 58 55 86 68 13 F5 E9 29 FB 72 FA E5 E4 40 64 2E B1 EE A3 0D 80 C3 E6 D2 81 E0 E6 FB 51 6B 25 1D D7 5C 01 D5 9C 71 78 28 27 39 1F 89 D8 FF D9 E6 EA 30 2C BE 1B C9 86 BE A0 36 5C 36 F7 A6 DA 9F FD 80 F4 D0 FF 9E D8 9D D5 15 9A 5B 00 3C 78 6A 11 17 94 FD 93 92 3D 6C ED 15 4D 35 4E A7 F0 4E 4A 48 76 1A 74 D9 FC 18 48 48 F1 C6 33 CE 5A DF 54 96 35 BD	
92	Issuer Public Key Remainder	85 AA DF 04 3F AA 38 48 ED 86 9D 6E B3 D9 70 F4 AC 08 A9 74 74 27 88 42 C8 55 84 E3 4B 6F AC C0 72 07 BC 41	
94	Application File Locator (AFL)	10 02 02 01 10 04 07 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	

Tag	Element Name	Data	v3.x
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 46	ICC Public Key Certificate	8C 30 F9 F0 DF 98 58 74 1E BE 22 B7 EF 1A 22 CD 7B BC 5E 4E 6C CA E1 22 D9 EF 9E 72 01 05 7C 11 E5 AB F1 8F F4 26 0B E7 92 07 95 06 55 34 FB 26 1B 82 E9 F0 BE 16 7C 47 3B A1 77 7A E4 55 10 BD 66 B8 B4 99 BB 41 33 6E 3E 83 DF D3 5C 37 BC 26 DB 3C 85 66 C5 49 CE 29 F5 65 E6 BE 0D 94 51 2E CE 5F 6D D8 46 80 19 61 0B 4F FF 9C E4 84 C4 17 E9 73 A3 9A 9D 41 7E 49 C7 BF 19 F5 42 AC B8 DA 51 97 36 F6 14 9B A7 D4 BE 13 2F 0C F7 8E B9 28 35 47 34 5A 3B 1F 2F 6D 77 C3 D9 09 D2 EC EB BC DC F2 54 47 B4 4F 24 57 B0 6C FC DE 96 AC 68 6F	
9F 47	ICC Public Key Exponent	03	
9F 4B	Signed Dynamic Application Data	79 D6 6D EF C9 AF 21 60 3B 12 A3 EB 8D 61 19 36 08 12 66 A6 59 83 BA 89 80 12 A2 BE 1D 4B 91 CB E8 65 5A 9A C9 07 89 6B E0 5D 0F 21 73 0A 5A 8A BF BB 1A 91 30 12 79 D8 1E F1 D7 12 96 70 05 F3 88 28 DA C8 45 89 4A F5 20 FB 9E 51 32 BE 10 DB 72 5F 25 12 AA D5 86 D4 22 67 FF 18 B4 34 86 1F E3 11 28 35 8B E1 72 13 56 EA 96 98 9C 6B 41 E1	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	80 30 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	07	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 20 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	05	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	10	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 50 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	10	

Tag	Element Name	Data	v3.x
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	4E 00 F0 00	
9F 69	Card Authentication Related Data [qVSDC]	01 50 97 7A 30 38 00	
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	07	
BF 55	Contactless Counters Data Template	DF 11 01 02 DF 21 01 05 DF 31 01 10	
BF 56	Counters Data Template	DF 11 01 00 DF 21 01 05 DF 31 01 10	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 07 DF 31 01 10 DF 51 01 07 DF 61 01 07	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 10 04 DF 21 06 00 00 00 00 20 00 DF 31 06 00 00 00 50 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage

#### 1.5.4 CTLS: Application Tag Data - AID A000000031010, Visa (qVSDC Offline)

Tag	Element Name	Data	v3.x
50	Application Label	56 69 73 61 20 43 72 65 64 69 74 - 'Visa Credit'	
57	Track 2 Equivalent Data	47 61 73 10 00 00 00 43 D2 41 22 01 13 03 13 06 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 10 00 00 00 43	
5F 24	Application Expiration Date	24 12 31	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 34	Application PAN Sequence Number	01	

Tag	Element Name	Data	v3.x
82	Application Interchange Profile [VCPS]	20 00 BYTE 1: b7 - Offline SDA (online Auth) NOT supported b6 - Offline DDA supported BYTE 2: b8 - MSD NOT supported b7 - Is Mobile handset b6 - Is Contactless transaction	
84	Dedicated File (DF) Name	A0 00 00 00 03 10 10	
8F	Certification Authority Public Key Index	92	
90	Issuer Public Key Certificate	04 D6 DC A7 7E 2D DF B5 60 0A 9D DE 4E A2 23 91 BF 4A F3 37 F2 FB 99 41 91 E0 39 70 74 D5 35 E8 AB D2 7F 43 90 6A DD D4 5F 01 54 01 98 EF 23 3C 9D 4C C8 98 AD 56 A9 56 A9 66 D7 38 58 55 86 68 13 F5 E9 29 FB 72 FA E5 E4 40 64 2E B1 EE A3 0D 80 C3 E6 D2 81 E0 E6 FB 51 6B 25 1D D7 5C 01 D5 9C 71 78 28 27 39 1F 89 D8 FF D9 E6 EA 30 2C BE 1B C9 86 BE A0 36 5C 36 F7 A6 DA 9F FD 80 F4 D0 FF 9E D8 9D D5 15 9A 5B 00 3C 78 6A 11 17 94 FD 93 92 3D 6C ED 15 4D 35 4E A7 F0 4E 4A 48 76 1A 74 D9 FC 18 48 48 F1 C6 33 CE 5A DF 54 96 35 BD	
92	Issuer Public Key Remainder	85 AA DF 04 3F AA 38 48 ED 86 9D 6E B3 D9 70 F4 AC 08 A9 74 74 27 88 42 C8 55 84 E3 4B 6F AC C0 72 07 BC 41	
94	Application File Locator (AFL)	10 02 02 01 10 04 07 00	
9F 10	Issuer Application Data [VSDC]	xx xx 0A xx xx xx xx *	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	40	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 38	Processing Options Data Object List (PDOL)	9F 66 04 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04	

Tag	Element Name	Data	v3.x
9F 46	ICC Public Key Certificate	8C 30 F9 F0 DF 98 58 74 1E BE 22 B7 EF 1A 22 CD 7B BC 5E 4E 6C CA E1 22 D9 EF 9E 72 01 05 7C 11 E5 AB F1 8F F4 26 0B E7 92 07 95 06 55 34 FB 26 1B 82 E9 F0 BE 16 7C 47 3B A1 77 7A E4 55 10 BD 66 B8 B4 99 BB 41 33 6E 3E 83 DF D3 5C 37 BC 26 DB 3C 85 66 C5 49 CE 29 F5 65 E6 BE 0D 94 51 2E CE 5F 6D D8 46 80 19 61 0B 4F FF 9C E4 84 C4 17 E9 73 A3 9A 9D 41 7E 49 C7 BF 19 F5 42 AC B8 DA 51 97 36 F6 14 9B A7 D4 BE 13 2F 0C F7 8E B9 28 35 47 34 5A 3B 1F 2F 6D 77 C3 D9 09 D2 EC EB BC DC F2 54 47 B4 4F 24 57 B0 6C FC DE 96 AC 68 6F	
9F 47	ICC Public Key Exponent	03	
9F 4B	Signed Dynamic Application Data	71 16 FB 6C 89 72 94 70 94 35 EF 83 54 A4 06 F2 06 09 1F F9 31 E7 53 25 76 45 5A 51 D4 07 51 F8 63 31 BE 08 2D 3D 79 91 58 06 44 45 30 76 BA F6 79 AE B2 70 4A 4D 14 BA 5B 11 D1 4C 76 FF CB F5 A3 77 F8 12 F5 2B 58 D1 9B 97 E7 45 52 39 E6 5A 09 76 ED A9 48 44 77 B5 AE C6 E2 03 50 78 10 74 DD AF 44 7F 01 67 69 B0 3D E7 39 73 47 1B 87 41	
9F 51	Application Currency Code [VSDC]	08 40 - USD	
9F 52	Application Default Action [VSDC VIS 1.5]	80 30 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	07	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 20 00	
9F 57	Issuer Country Code [VSDC]	08 40 - USA	
9F 58	Consecutive Transaction Counter Limit [VSDC]	05	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	10	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 50 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	10	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	4E 00 F0 00	
9F 69	Card Authentication Related Data [qVSDC]	01 F4 8A 6F 7C 38 00	

Tag	Element Name	Data	v3.x
9F 6C	Card Transaction Qualifiers [qVSDC VCPS 2.1]	38 00 BYTE 1: b8 - Online PIN NOT required b7 - Signature NOT required b6 - Do go online if Offline Data Authentication fails and Reader is online capable b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip b4 - Do go Online if Application Expired b3 - Do NOT switch interface for Cash Transactions b2 - Do NOT switch interface for Cashback Transactions b1 - Is valid for contactless ATM transactions BYTE 2: b8 - Consumer Device CVM NOT performed b7 - Card does NOT Support Issuer Update Processing at POS	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	07	
BF 55	Contactless Counters Data Template	DF 11 01 02 DF 21 01 05 DF 31 01 10	
BF 56	Counters Data Template	DF 11 01 00 DF 21 01 05 DF 31 01 10	
BF 57	International Counters Data Template	DF 11 01 00 DF 21 01 07 DF 31 01 10 DF 51 01 07 DF 61 01 07	
BF 58	Amounts Data Template	DF 11 06 00 00 00 00 10 04 DF 21 06 00 00 00 00 20 00 DF 31 06 00 00 00 50 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

\* Tag value changes with card usage



## 1.6 DI Test Card 06 - Mastercard, Offline Preferred

A Dual Interface (Contact / Contactless) Mastercard credit card with issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$20.00.

### 1.6.1 Contact: CVM List - AID A000000041010, Mastercard (EMV)

Cardholder Verification Method List ('4201 4403 4103 4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended cash	Next CVM
2	Offline Enciphered PIN	Terminal supports CVM type	Next CVM
3	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
4	Online PIN	Terminal supports CVM type	Next CVM
5	Signature (paper)	Terminal supports CVM type	Fail
6	No CVM required	Terminal supports CVM type	Fail

### 1.6.2 Contact: Application Tag Data - AID A000000041010, Mastercard (EMV)

Tag	Element Name	Data	v3.x
50	Application Label	4D 61 73 74 65 72 43 61 72 64 - 'Mastercard'	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
5A	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
5F 20	Cardholder Name	44 49 20 54 65 73 74 2F 43 61 72 64 20 30 36 20 20 20 20 20 20 20 20 20 20 20 - 'DI Test/Card 06'	
5F 24	Application Expiration Date	25 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile	38 00 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 04 10 10	
87	Application Priority Indicator	01	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14	

Tag	Element Name	Data	v3.x
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 44 03 41 03 42 03 1E 03 1F 03	
8F	Certification Authority Public Key Index	EF	
90	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07	
92	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD	
94	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00	
94	Application File Locator (AFL)	08 02 04 01 18 01 01 00 20 01 01 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 02	
9F 0D	Issuer Action Code - Default	B8 50 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B8 70 BC 98 00	
9F 10	Issuer Application Data [M/Chip Advance]	xx 10 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'	

Tag	Element Name	Data	v3.x
9F 14	Counter 1 Lower Limit [Mastercard]	03	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 1F	Track 1 Discretionary Data	20 20	
9F 23	Counter 1 Upper Limit [Mastercard]	05	
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 42	Application Currency Code	08 40 - USD	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	93 BC 05 8B 2B 9E 4F 37 C6 59 EF CE F3 62 57 D7 23 55 BC 0A 38 DF 9E BE 08 5D DE CD AC DE BE FD E6 BC E7 0A C1 A4 DB 79 A3 EA 9C 32 F9 1D B4 1C 64 D0 B6 A1 2B 19 E4 A9 76 8C 3F 57 DE EC BB C5 BD 62 2E 4F 9E 42 B2 6F 97 88 63 2E 3D 78 0D FE 0F CF E5 AC 4E 30 F1 03 53 AF C6 A0 22 7A 2B 05 EB 3A 0C E9 F0 69 5B 95 A8 D5 0C 32 C5 D1 28 B1 BD C5 0C 3E 33 06 E2 29 F1 42 D2 B2 B4 71 CA 9D 29 70 1B A3 52 74 9D 78 CD 64 D4 2D 63 9D D2 D4 DE 33 C7 9C C4 8C 6E 0F 4B 36 C0 BE F7 AB 12 01 97 79 10 D6 23 48 50 E9 D2 86 1A 9E 78 27 8B BE 83 34 3B E8 EE 94 85 0E 18 6B 37 7F B1 67 DA E5 88 F2 13 5B FC 9A 07 38 03 55 F0 87 06 E2 2D 40 B6 C5 F8 D3 29 50 6E CF 63 94 EE A6 7F DA 5B 08 62 D5 57 A2 C3 34 0A 9D 91 BD FA E4 64 AC E2 F8	
9F 47	ICC Public Key Exponent	03	
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04	
9F 4A	Static Data Authentication Tag List	82	
9F 4B	Signed Dynamic Application Data	D0 00 1A 63 29 9C 17 76 34 8C 37 9D 84 22 EA 91 54 91 D0 7F F6 D8 48 B4 EB 8D AB DB DC 49 04 F1 B7 94 CE 4C 84 8C EA CF 3C 6A FF C6 E1 11 57 7D 14 B1 4F 06 77 04 B3 AA C7 3A 96 BC E8 00 17 25 D5 CA 8A 9A F5 FE 5E 75 E4 E2 A7 DD 98 4E A3 D4 35 2F BC 87 A5 45 5F 65 DF C4 A1 F6 9E 64 2E FB 30 DB F8 67 ED 40 32 81 E0 B6 66 0C 5D 3B C4 92 09 33 E5 42 8B 52 76 B7 AE 85 B5 CE 0C 73 D1 76 21 7E CE BC 5D B3 31 55 88 76 62 D7 8C B2 DC 84 31 0E 06 12 13 7D 3C 1C 8D C8 B3 AF FC 9E 72 48 41 03 ED AB BA 87 FE 7A F6 EC E2 1D D4 98 47 61	

Tag	Element Name	Data	v3.x
9F 4D	Transaction Log Entry	0B 0A	
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14	
9F 5D	Application Capabilities Information [M/Chip Advance]	01 00 00	
9F 6E	Third Party Data [Mastercard]	08 40 00 00 30 30 00	
9F 70	Protected Data Envelope 1 [M/Chip Advance]	20 20	
9F 71	Protected Data Envelope 2 [M/Chip Advance]	20 20	
9F 72	Protected Data Envelope 3 [M/Chip Advance]	20 20	
9F 73	Protected Data Envelope 4 [M/Chip Advance]	20 20	
9F 74	Protected Data Envelope 5 [M/Chip Advance]	20 20	
9F 75	Unprotected Data Envelope 1 [M/Chip Advance]	20 20	
9F 76	Unprotected Data Envelope 2 [M/Chip Advance]	20 20	
9F 77	Unprotected Data Envelope 3 [M/Chip Advance]	20 20	
9F 78	Unprotected Data Envelope 4 [M/Chip Advance]	20 20	
9F 79	Unprotected Data Envelope 5 [M/Chip Advance]	20 20	
9F 7E	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20	
C3	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00	
C4	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	19 50 00	
C5	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	39 FB 00	
C6	PIN Try Limit [M/Chip Advance]	03	

Tag	Element Name	Data	v3.x
C7	CDOL1 Related Data Length [Mastercard]	42	
C8	CRM Country Code [Mastercard]	08 40 - USA	
C9	Accumulator 1 Currency Code [Mastercard]	08 40 - USD	
CA	Accumulator 1 Lower Limit [Mastercard]	00 00 00 02 00 00	
CB	Accumulator 1 Upper Limit [Mastercard]	00 00 00 05 00 00	
CD	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00	
CE	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00	
CF	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	00 00 00	
D1	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00	
D3	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	
D5	Application Control [M/Chip Advance]	8C 00 80 00 86 02	
D6	Default ARPC Response Code [M/Chip Advance]	00 12	
D7	Application Control [M/Chip Advance]	40 01 40 00 86 02	
D9	Application File Locator (Contactless)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00	
DE	Log Data Table [M/Chip Advance]	00 00 00 00 00 00 00 00 00	
DF 02	Security Limits Status (Contact) [M/Chip Advance]	00	
DF 11	Accumulator 1 Control (Contact) [M/Chip Advance]	c1	
DF 12	Accumulator 1 Control (Contactless) [M/Chip Advance]	c1	
DF 14	Accumulator 2 Control (Contact) [M/Chip Advance]	00	
DF 15	Accumulator 2 Control (Contactless) [M/Chip Advance]	00	
DF 16	Accumulator 2 Currency Code [Mastercard]	09 99	
DF 17	Accumulator 2 Currency Conversion Table [Mastercard]	09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00 09 99 00 01 00	
DF 18	Accumulator 2 Lower Limit [Mastercard]	00 00 00 00 00 00	
DF 19	Accumulator 2 Upper Limit [Mastercard]	00 00 00 00 00 00	
DF 1A	Counter 1 Control (Contact) [M/Chip Advance]	c1	
DF 1B	Counter 1 Control (Contactless) [M/Chip Advance]	c1	
DF 1D	Counter 2 Control (Contact) [M/Chip Advance]	00	
DF 1E	Counter 2 Control (Contactless) [M/Chip Advance]	00	
DF 1F	Counter 2 Lower Limit [Mastercard]	00	
DF 21	Counter 2 Upper Limit [Mastercard]	00	
DF 22	MTA CVM (Contact) [M/Chip Advance]	00 00 00 00 00 00	

Tag	Element Name	Data	v3.x
DF 23	MTA CVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00	
DF 24	MTA Currency Code [M/Chip Advance]	09 99	
DF 25	MTA NoCVM (Contact) [M/Chip Advance]	00 00 00 00 00 00	
DF 26	MTA NoCVM (Contactless) [M/Chip Advance]	00 00 00 00 00 00	
DF 27	Number Of Days Offline Limit [M/Chip Advance]	00 00	
DF 28	Accumulator 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 29	Accumulator 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2A	Accumulator 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2B	Accumulator 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2C	Counter 1 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2D	Counter 1 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 2E	Counter 2 CVR Dependency Data (Contact) [M/Chip Advance]	00 00 00	
DF 2F	Counter 2 CVR Dependency Data (Contactless) [M/Chip Advance]	00 00 00	
DF 30	Interface Enabling Switch [M/Chip Advance]	03	
DF 35	Security Limits Status (Contactless) [M/Chip Advance]	00	
DF 37	Security Limits Status Common [M/Chip Advance]	00	
DF 3C	CVR Issuer Discretionary Data (Contact) [M/Chip Advance]	00	
DF 3D	CVR Issuer Discretionary Data (Contactless) [M/Chip Advance]	00	
DF 3F	Read Record Filter (Contact) [M/Chip Advance]	00 00 00 00	
DF 40	Read Record Filter (Contactless) [M/Chip Advance]	08 03 03 00	
DF 41	DS Management Control [M/Chip Advance]	20	

\* Tag value changes with card usage

### 1.6.3 CTLS: CVM List - AID (A0000000041010, Mastercard (PayPass))

Cardholder Verification Method List ('4203 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

**1.6.4 CTLS: Application Tag Data - AID A000000041010, Mastercard (PayPass)**

Tag	Element Name	Data	v3.x
50	Application Label	4D 61 73 74 65 72 43 61 72 64 - 'Mastercard'	
56	Track 1 Equivalent Data [Mastercard]	42 35 34 31 33 33 33 30 30 38 39 36 30 34 31 31 31 5E 20 2F 5E 32 35 31 32 32 30 31 30 30 30 30 30 30 30 30 30 30 30 20 20 20 20 20 30 30 30 20 20 20 20 30	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 51 22 01 01 23 40 91 72 02 9F	
5A	Application Primary Account Number (PAN)	54 13 33 00 89 60 41 11	
5F 24	Application Expiration Date	25 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	08 40 - USA	
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile	19 80 BYTE 1: b7 - Offline SDA NOT supported b6 - Offline DDA NOT supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication NOT supported via EXTERNAL AUTH command b2 - On device Cardholder verification NOT supported b1 - Combined DDA / GEN AC supported BYTE 2: b8 - Mag Stripe profile [PayPass] supported	
84	Dedicated File (DF) Name	A0 00 00 00 04 10 10	
87	Application Priority Indicator	01	
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03 9F 21 03 9F 7C 14	
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 1E 03 42 03 1F 03	
8F	Certification Authority Public Key Index	EF	

Tag	Element Name	Data	v3.x
90	Issuer Public Key Certificate	5B 2E 1F EF 4D 7D 2C 16 16 12 21 F7 97 2F E6 99 B7 82 44 E0 73 C8 AC 75 86 CE D1 76 EF 7B 93 AC 19 0B 05 70 40 E1 18 4F 2F 55 AC 70 D2 AA C3 94 BE 22 6A 26 50 D3 CA ED 90 60 88 C5 3A 88 B8 3C 46 1F 37 6D 89 10 B8 51 81 54 F3 08 EE ED 23 BC 15 7C FA BA 6E 51 26 9F 01 6D 59 FE 21 A6 F9 10 F2 85 13 0D EA F6 A4 78 BE 77 9D 2B AD 08 E1 2E D6 A5 93 71 5A 18 72 15 C5 63 28 1C B2 B7 2E 5B 14 05 5D 2D D8 30 4A C2 20 2E 53 96 D0 4C 5C 79 55 0B 4D E9 FA DA CB 35 F3 19 06 C5 A4 42 27 29 D6 A5 A8 F5 E1 4C B9 0D B7 05 49 4B 3D B1 0D E6 19 F3 B0 3E 64 96 FE 79 F4 6E 64 97 2A 46 34 A0 35 EF 7E 50 20 49 40 36 03 E0 BC FC 33 C3 87 BB 6D 72 CF F8 33 89 7E 81 F5 02 3F F4 D6 A9 CC 0C 89 E8 78 3F 07 B7 F0 55 3E 9D D3 59 B6 5B 62 3A F1 CE 27 8D 65 3C 37 07	
92	Issuer Public Key Remainder	14 3E 90 B8 B5 E6 2B E5 A9 0D 5A 4E F1 5C 77 40 4D 29 94 48 98 77 85 D7 E8 80 C2 CD	
94	Application File Locator (AFL)	08 01 01 00 10 01 01 01 18 01 01 00 20 01 02 00	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 02	
9F 0D	Issuer Action Code - Default	B4 50 84 00 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B4 70 84 80 00	
9F 10	Issuer Application Data [M/Chip Advance]	xx 11 xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	4D 61 73 74 65 72 63 61 72 64 43 72 65 64 69 74 - 'MastercardCredit'	
9F 14	Counter 1 Lower Limit [Mastercard]	03	
9F 17	Personal Identification Number (PIN) Try Counter	03	
9F 23	Counter 1 Upper Limit [Mastercard]	05	
9F 27	Cryptogram Information Data (CID)	80	
9F 32	Issuer Public Key Exponent	03	



Tag	Element Name	Data	v3.x
9F 36	Application Transaction Counter (ATC)	00 04	
9F 36	Application Transaction Counter (ATC)	00 05	
9F 42	Application Currency Code	08 40 - USD	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	A4 A2 DC 13 89 93 C8 02 1C ED 0E 0A 4F A1 F4 0C E2 85 12 42 CD 1B D8 78 D8 D2 FF 9A 7E E3 3C 9D 07 1D D4 BA D2 7E 29 84 06 AC AD B9 E0 6A 0E 14 E4 6D E7 81 06 2C C0 56 2E 68 FA 3C 8E 4A 4C 91 BA 50 72 00 54 99 A6 1B 89 BA 6D 4D 5F 37 01 5D 5B 56 16 FF EB 74 C5 0E 17 52 C0 5E FD E9 A1 54 6E F1 8A 85 05 FB 68 18 BE AF 9F 16 B0 86 D2 AA C7 96 BE 6B 04 E7 EB EE DA E7 B4 5B 77 A0 34 2F BE D3 1F 1B 95 61 BE 6B 32 98 FA 8D 8B 37 7A DA F1 0F F2 83 59 D4 54 8D EB 72 A4 18 0D 68 D6 6D 39 C0 32 EE 74 95 3D A9 11 BE 5B 02 4D 0E CB 2F 42 F9 80 A7 E2 8C 44 F3 66 C8 17 9D E5 29 7B 60 BA ED 88 B6 78 D6 20 13 B4 AC 9D 55 1D 68 11 7C 8B 8C 00 34 51 FA E7 50 E3 BD B7 A9 CB 88 14 DD 4D DB 08 00 03 03 10 92 2C 86 4E 66 9C 14 A1 1F	
9F 47	ICC Public Key Exponent	03	
9F 4A	Static Data Authentication Tag List	82	
9F 4D	Transaction Log Entry	0B 0A	
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06 DF 3E 01 9F 21 03 9F 7C 14	
9F 5D	Application Capabilities Information [M/Chip Advance]	01 00 00	
9F 60	CVC3track1 [Mastercard]	C5 9B	
9F 61	CVC3track2 [Mastercard]	39 9C	
9F 62	Track 1 Bitmap for CVC3 (PCVC3 Track 1) [Mastercard]	00 00 00 38 00 00	
9F 63	Track 1 Bitmap for UN and ATC (PUNATC Track 1) [Mastercard]	00 00 00 00 E0 E0	
9F 64	Track 1 Number of ATC Digits (NATC Track 1) [Mastercard]	03	
9F 65	Track 2 Bitmap for CVC3 (PCVC3 Track 2) [Mastercard]	00 0E	
9F 66	Track 2 Bitmap for UN and ATC (PUNATC Track 2) [Mastercard]	0E 70	
9F 67	Track 2 Number of ATC Digits (NATC Track 2) [Mastercard]	03	
9F 6B	Track 2 Equivalent Data [Mastercard]	54 13 33 00 89 60 41 11 D2 51 22 01 00 00 40 00 00 00 0F	
9F 6C	Application Version [Mastercard]	00 01	

Tag	Element Name	Data	v3.x
9F 6E	Third Party Data [Mastercard]	08 40 00 00 30 30 00	
9F 7E	Application Life Cycle Data [Mastercard]	03 10 0C 12 00 09 00 00 FF 00 04 00 00 02 60 00 00 38 4A 02 11 50 35 43 44 30 37 32 20	
C3	Card Issuer Action Code (Contact) - Decline [M/Chip Advance]	00 00 00	
C4	Card Issuer Action Code (Contact) - Default [M/Chip Advance]	19 50 00	
C5	Card Issuer Action Code (Contact) - Online [M/Chip Advance]	39 FB 00	
C6	PIN Try Limit [M/Chip Advance]	03	
C7	CDOL1 Related Data Length [Mastercard]	42	
C8	CRM Country Code [Mastercard]	08 40 - USA	
C9	Accumulator 1 Currency Code [Mastercard]	08 40 - USD	
CA	Accumulator 1 Lower Limit [Mastercard]	00 00 00 02 00 00	
CB	Accumulator 1 Upper Limit [Mastercard]	00 00 00 05 00 00	
CD	Card Issuer Action Code (Contactless) - Default [M/Chip Advance]	00 58 00	
CE	Card Issuer Action Code (Contactless) - Online [M/Chip Advance]	00 F8 00	
CF	Card Issuer Action Code (Contactless) - Decline [M/Chip Advance]	00 00 00	
D1	Accumulator 1 Currency Conversion Table [Mastercard]	08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00 08 40 00 01 00	
D3	Additional Check Table [Mastercard]	00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF	
D5	Application Control [M/Chip Advance]	8C 00 80 00 86 02	
D6	Default ARPC Response Code [M/Chip Advance]	00 12	
D7	Application Control [M/Chip Advance]	40 01 40 00 86 02	
DF 02	Security Limits Status (Contact) [M/Chip Advance]	00	

\* Tag value changes with card usage

## Chapter 2 - ASCII Character Conversion Chart

Dec	Bin	Hex	Char	Dec	Bin	Hex	Char	Dec	Bin	Hex	Char
00	00000000	00	<b>NUL</b>	44	00101100	2C	,	88	01011000	58	<b>X</b>
01	00000001	01	<b>SOH</b>	45	00101101	2D	-	89	01011001	59	<b>Y</b>
02	00000010	02	<b>STX</b>	46	00101110	2E	.	90	01011010	5A	<b>Z</b>
03	00000011	03	<b>ETX</b>	47	00101111	2F	/	91	01011011	5B	[
04	00000100	04	<b>EOT</b>	48	00110000	30	<b>0</b>	92	01011100	5C	\
05	00000101	05	<b>ENQ</b>	49	00110001	31	<b>1</b>	93	01011101	5D	]
06	00000110	06	<b>ACK</b>	50	00110010	32	<b>2</b>	94	01011110	5E	^
07	00000111	07	<b>BEL</b>	51	00110011	33	<b>3</b>	95	01011111	5F	_
08	00001000	08	<b>BS</b>	52	00110100	34	<b>4</b>	96	01100000	60	`
09	00001001	09	<b>HT</b>	53	00110101	35	<b>5</b>	97	01100001	61	<b>a</b>
10	00001010	0A	<b>LF</b>	54	00110110	36	<b>6</b>	98	01100010	62	<b>b</b>
11	00001011	0B	<b>VT</b>	55	00110111	37	<b>7</b>	99	01100011	63	<b>c</b>
12	00001100	0C	<b>FF</b>	56	00111000	38	<b>8</b>	100	01100100	64	<b>d</b>
13	00001101	0D	<b>CR</b>	57	00111001	39	<b>9</b>	101	01100101	65	<b>e</b>
14	00001110	0E	<b>SO</b>	58	00111010	3A	:	102	01100110	66	<b>f</b>
15	00001111	0F	<b>SI</b>	59	00111011	3B	;	103	01100111	67	<b>g</b>
16	00010000	10	<b>DLE</b>	60	00111100	3C	<	104	01101000	68	<b>h</b>
17	00010001	11	<b>DC1</b>	61	00111101	3D	=	105	01101001	69	<b>i</b>
18	00010010	12	<b>DC2</b>	62	00111110	3E	>	106	01101010	6A	<b>j</b>
19	00010011	13	<b>DC3</b>	63	00111111	3F	?	107	01101011	6B	<b>k</b>
20	00010100	14	<b>DC4</b>	64	01000000	40	@	108	01101100	6C	<b>l</b>
21	00010101	15	<b>NAK</b>	65	01000001	41	<b>A</b>	109	01101101	6D	<b>m</b>
22	00010110	16	<b>SYM</b>	66	01000010	42	<b>B</b>	110	01101110	6E	<b>n</b>
23	00010111	17	<b>ETB</b>	67	01000011	43	<b>C</b>	111	01101111	6F	<b>o</b>
24	00011000	18	<b>CAN</b>	68	01000100	44	<b>D</b>	112	01110000	70	<b>p</b>
25	00011001	19	<b>EM</b>	69	01000101	45	<b>E</b>	113	01110001	71	<b>q</b>
26	00011010	1A	<b>SUB</b>	70	01000110	46	<b>F</b>	114	01110010	72	<b>r</b>
27	00011011	1B	<b>ESC</b>	71	01000111	47	<b>G</b>	115	01110011	73	<b>s</b>
28	00011100	1C	<b>FS</b>	72	01001000	48	<b>H</b>	116	01110100	74	<b>t</b>
29	00011101	1D	<b>GS</b>	73	01001001	49	<b>I</b>	117	01110101	75	<b>u</b>
30	00011110	1E	<b>RS</b>	74	01001010	4A	<b>J</b>	118	01110110	76	<b>v</b>
31	00011111	1F	<b>US</b>	75	01001011	4B	<b>K</b>	119	01110111	77	<b>w</b>
32	00100000	20	<b>SP</b>	76	01001100	4C	<b>L</b>	120	01111000	78	<b>x</b>
33	00100001	21	!	77	01001101	4D	<b>M</b>	121	01111001	79	<b>y</b>
34	00100010	22	"	78	01001110	4E	<b>N</b>	122	01111010	7A	<b>z</b>
35	00100011	23	#	79	01001111	4F	<b>O</b>	123	01111011	7B	{
36	00100100	24	\$	80	01010000	50	<b>P</b>	124	01111100	7C	
37	00100101	25	%	81	01010001	51	<b>Q</b>	125	01111101	7D	}
38	00100110	26	&	82	01010010	52	<b>R</b>	126	01111110	7E	~
39	00100111	27	'	83	01010011	53	<b>S</b>	127	01111111	7F	<b>DEL</b>
40	00101000	28	(	84	01010100	54	<b>T</b>				
41	00101001	29	)	85	01010101	55	<b>U</b>				
42	00101010	2A	*	86	01010110	56	<b>V</b>				
43	00101011	2B	+	87	01010111	57	<b>W</b>				