



**USA Supplementary
EMV™ Test Card Set**

Version 7.10

November 2018

Powered by B2»

Disclaimer

Information provided in this document describes capabilities available at the time of developing and delivering this document and the associated test cards and information available from industry sources. This document is intended to be used as a guideline only and B2 Payment Solutions, Inc. and/or its affiliates accept no liability for any errors or omissions in this document and/or for any results of client's reliance thereon.

Copyright

© 2016 by B2 Payment Solutions, Inc. All rights reserved. All information and data contained herein and within the associated test cards is confidential and proprietary to B2 Payment Solutions. Such information shall not be disclosed, duplicated, reverse-engineered or used in part or in whole, for any purpose without prior written consent from B2 Payment Solutions, Inc. other than specific internal, non-commercial, non-assignable use in conjunction with the B2 USA Supplementary EMV™ Test Card Set (6 cards) only.

Attribution

EMV™ is a trademark owned by EMVCo LLC.

All trademarked symbols seen below are registered trademarks of their respective organizations: American Express Company and Discover Financial Services.



B2 Contact Information

251 Consumers Road, Suite 1200, Toronto, ON M2J 4R3
555 Northpoint Center, Suite 400, Alpharetta, GA 30022
Tel: 416.730.9827 www.b2ps.com

Revision History

Version	Date	Updated By	Revisions
5.50	August 30, 2016	B2PS	Initial document release
5.60	Sept. 21, 2017	B2PS	<ul style="list-style-type: none"> • TC04, TC05: Cards v6.0 have 2-byte Kernel ID
6.00	December 27, 2017	B2PS	<ul style="list-style-type: none"> • TC04, TC05 - Cards updated with increased contactless facility, 'Approval Amount' updated
6.10	June 26, 2018	B2PS	<ul style="list-style-type: none"> • TC04 - CL CVM (Tag '8E') corrected • TC05 - CL CVM list corrected.
7.00	September 24, 2018	B2PS	<ul style="list-style-type: none"> • TC01 - Contactless CVM corrected • All cards - Tags 82, 9F07: interpretation of bit values added • Amex cards (TC01, TC02, TC03) - Expiry date changed to 24/12 • Discover cards (TC04, TC05, TC06) - Expiry date changed to 23/12
7.10	November 23, 2018	B2PS	<ul style="list-style-type: none"> • TC05 - 'plastic-only' change (no change to card mastripe or chip). Card version changes from v8.0 to v8.1.

Table of Contents

Chapter 1 - B2 USA Supplementary EMV Test Card Set Profiles	2
1.1 Test Card 01 – American Express, DI, Credit, English, USA, USD	4
1.1.1 Cardholder Verification Method List	4
1.1.2 Application Tag data (Contact Interface, online)	4
1.1.3 Cardholder Verification Method List (CL)	5
1.1.4 Application Tag data (Contactless Interface, online).....	5
1.2 Test Card 02 – American Express, DI, Credit, English, USA, USD	7
1.2.1 Cardholder Verification Method List	7
1.2.2 Application Tag data (Contact Interface, online)	7
1.2.3 Cardholder Verification Method List (CL)	8
1.2.4 Application Tag data (Contactless Interface, online).....	8
1.3 Test Card 03 – American Express, Technical Fallback Card.....	9
1.4 Test Card 04 – Discover, DI, Credit, English, USA, USD	10
1.4.1 Cardholder Verification Method List	10
1.4.2 Application Tag data (Contact Interface, online)	10
1.4.3 Cardholder Verification Method List (CL)	11
1.4.4 Application Tag data (Contactless Interface, online).....	12
1.5 Test Card 05 – Discover, DI, Credit, English, USA, USD	14
1.5.1 Cardholder Verification Method List	14
1.5.2 Application Tag data (Contact Interface, online)	14
1.5.3 Cardholder Verification Method List (CL)	15
1.5.4 Application Tag data (Contactless Interface, online).....	16
1.6 Test Card 06 – Discover, Technical Fallback Card.....	18
Chapter 2 - ASCII Character Conversion Chart.....	19

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 USA Supplementary EMV Test Card Set Profiles

This USA-Supplementary EMV Test Card Set contains six cards with three cards from each of the following card brands.



	Test Card 01	Test Card 02	Test Card 03
Brand	American Express	American Express	American Express
Type	Credit	Credit	Credit
Description	Dual Interface, Online Only	Dual Interface, Online Only	Fallback
IIN	-	-	-
AID	A000000025010402	A000000025010402	-
PAN	3742 450017 51006	3742 450027 71003	3742 450037 31006
Expiry Date	12/2024	01/2024	12/2024
Service Code	201	201	201
Interface	Contact, Contactless, MSR	Contact, Contactless, MSR	MSR
CVM	See card definition	See card definition	See card definition
Approval Amount	\$68.00	\$1.03	\$36.00
Issuer Country Code	840 - USA	840 - USA	-
Application Currency Code	840 - USD	840 - USD	-
Language	'en' – English	'en' – English	-
Card Version	v6.0	v6.0	v6.0



	Test Card 04	Test Card 05	Test Card 06
Brand	Discover	Discover	Discover
Type	Credit	Credit	Credit
Description.	Dual Interface, Online Only	Dual Interface, Offline Capable	Fallback
IIN	-	-	
AID	A0000001523010	A0000001523010	-
PAN	6510 0000 0000 0133	6510 0000 0000 0216	6510 0000 0000 0331
Expiry Date	12/2023	12/2023	01/2023
Service Code	201	201	201
Interface	Contact, Contactless, MSR	Contact, Contactless, MSR	MSR
CVM	See card definition	See card definition	See card definition
Approval Amount	\$79.00	\$79.00	\$26.00
Issuer Country Code	840 - USA	840 - USA	-
Application Currency Code	840 - USD	840 - USD	-
Language	'en' – English	'en' – English	-
Card Version	v8.0	v8.1	v6.0

1.1 Test Card 01 – American Express, DI, Credit, English, USA, USD

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

The recommended transaction amount to generate a host approval is \$68.00.

1.1.1 Cardholder Verification Method List

Cardholder Verification Method List ('4201 4203 5E03 5F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Online PIN	Terminal supports CVM type	Next CVM
3	Signature (paper)	Terminal supports CVM type	Next CVM
4	No CVM required	Terminal supports CVM type	Next CVM

1.1.2 Application Tag data (Contact Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v6.0
50	Application Label	41 4D 45 52 49 43 41 4E 20 45 58 50 52 45 53 53 - 'AMERICAN EXPRESS'	
57	Track 2 Equivalent Data	37 42 45 00 17 51 00 6D 24 12 20 11 50 21 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 17 51 00 6F	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 31 20 20 20 20 20 - 'USA SUPP/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	00	
82	Application Interchange Profile	1C 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 supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 25 01 04 02	
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	
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 42 03 5E 03 5F 03	
94	Application File Locator (AFL)	08 01 01 00 08 02 03 01	

Tag	Element name	Data	Card v6.0
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	BC 50 EC A8 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	BC 78 FC F8 00	
9F 10	Issuer Application Data [American Express]	xx xx 01 xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	41 6D 65 72 69 63 61 6E 20 45 78 70 72 65 73 73 - 'American Express'	
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 35 01	
9F 42	Application Currency Code	08 40 - USD	

1.1.3 Cardholder Verification Method List (CL)

Cardholder Verification Method List ('4201 5E03 1F02')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Signature (paper)	Not Unattended Cash, Manual Cash or Cashback	Next CVM
3	No CVM required	Terminal supports CVM type	Fail

1.1.4 Application Tag data (Contactless Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v6.0
50	Application Label	41 4D 45 52 49 43 41 4E 20 45 58 50 52 45 53 53 - 'AMERICAN EXPRESS'	
57	Track 2 Equivalent Data	37 42 45 00 17 51 00 6D 24 12 70 21 50 21 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 17 51 00 6F	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 31 20 20 20 20 20 - 'USA SUPP/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	00	

Tag	Element name	Data	Card v6.0
82	Application Interchange Profile [Expresspay]	44 80 BYTE 1: b7 - SDA supported b6 - DDA NOT supported b5 - Cardholder verification NOT supported b4 - Terminal risk mgmt NOT to be performed b3 - Issuer authentication supported b1 - CDA NOT supported BYTE 2: b8 - EMV & Mag-stripe modes supported b7 - Expresspay Mobile NOT supported b6 - Expresspay Mobile HCE NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 25 01 04 02	
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	
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 00 00 00 00	
94	Application File Locator (AFL)	08 01 02 00 08 03 04 02	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	00 00 00 00 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	00 00 00 00 00	
9F 10	Issuer Application Data [American Express]	xx xx 01 xx xx xx xx *	
9F 12	Application Preferred Name	41 6D 65 72 69 63 61 6E 20 45 78 70 72 65 73 73 - 'American Express'	
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 35 01	
9F 42	Application Currency Code	08 40 - USD	

1.2 Test Card 02 – American Express, DI, Credit, English, USA, USD

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

The recommended transaction amount to generate a host approval is \$1.03.

1.2.1 Cardholder Verification Method List

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

1.2.2 Application Tag data (Contact Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v6.0
50	Application Label	41 4D 45 52 49 43 41 4E 20 45 58 50 52 45 53 53 - 'AMERICAN EXPRESS'	
57	Track 2 Equivalent Data	37 42 45 00 27 71 00 3D 24 12 20 11 50 21 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 27 71 00 3F	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 32 20 20 20 20 20 - 'USA SUPP/Test Card 02'	
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	00	
82	Application Interchange Profile	1C 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 supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 25 01 04 02	
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	
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 5E 03 41 03 5F 03	
94	Application File Locator (AFL)	08 01 01 00 08 02 03 01	
9F 07	Application Usage Control	FF 00 BYTE 1:	

Tag	Element name	Data	Card v6.0
		b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	BC 50 EC A8 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	BC 78 FC F8 00	
9F 10	Issuer Application Data [American Express]	xx xx 01 xx xx xx xx *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	41 6D 65 72 69 63 61 6E 20 45 78 70 72 65 73 73 - 'American Express'	
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 35 01	
9F 42	Application Currency Code	08 40 - USD	

1.2.3 Cardholder Verification Method List (CL)

Cardholder Verification Method List ('4203 5E03 1F02')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Next CVM
3	No CVM required	Not Unattended Cash, Manual Cash or Cashback	Fail

1.2.4 Application Tag data (Contactless Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v6.0
50	Application Label	41 4D 45 52 49 43 41 4E 20 45 58 50 52 45 53 53 - 'AMERICAN EXPRESS'	
57	Track 2 Equivalent Data	37 42 45 00 27 71 00 3D 24 12 70 21 50 21 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 27 71 00 3F	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 32 20 20 20 20 20 - 'USA SUPP/Test Card 02'	
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	00	
82	Application Interchange Profile [Expresspay]	44 80 BYTE 1: b7 - SDA supported b6 - DDA NOT supported b5 - Cardholder verification NOT supported b4 - Terminal risk mgmt NOT to be performed	

Tag	Element name	Data	Card v6.0
		b3 - Issuer authentication supported b1 - CDA NOT supported BYTE 2: b8 - EMV & Mag-stripe modes supported b7 - Expresspay Mobile NOT supported b6 - Expresspay Mobile HCE NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 25 01 04 02	
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	
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 5E 03 1F 02	
94	Application File Locator (AFL)	08 01 02 00 08 03 04 02	
9F 07	Application Usage Control	3D 00 BYTE 1: b8 - Domestic cash transactions NOT valid b7 - Int'l cash transactions NOT valid b2 - ATMs NOT valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	F4 70 C4 98 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	F4 70 C4 98 00	
9F 10	Issuer Application Data [American Express]	xx xx 01 xx xx xx xx *	
9F 12	Application Preferred Name	41 6D 65 72 69 63 61 6E 20 45 78 70 72 65 73 73 - 'American Express'	
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 35 01	
9F 42	Application Currency Code	08 40 - USD	

1.3 Test Card 03 – American Express, Technical Fallback Card

This card has a chip image printed on the card but it does not contain an actual chip.

When inserted, a chip error will be detected.

This should trigger Technical Fallback processing and the transaction should continue as a magstripe Technical Fallback transaction.

The recommended transaction amount to generate a host approval is \$36.00.

1.4 Test Card 04 – Discover, DI, Credit, English, USA, USD

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

The recommended transaction amount to generate a host approval is \$79.00.

1.4.1 Cardholder Verification Method List

Cardholder Verification Method List ('4203 5E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Terminal supports CVM type	Next CVM
2	Signature (paper)	Terminal supports CVM type	Next CVM
3	No CVM required	Terminal supports CVM type	Fail

1.4.2 Application Tag data (Contact Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v8.0
50	Application Label	44 49 53 43 4F 56 45 52 -	'DISCOVER'
57	Track 2 Data [Discover]	65 10 00 00 00 00 01 33 D2 31 22 01 10 00 07 49 00 00 0F	
5A	Application Primary Account Number (PAN)	65 10 00 00 00 00 01 33	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 34 20 20 20 20 20 - 'USA SUPP/Test Card 04'	
5F 24	Application Expiration Date	23 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	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 supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 01 52 30 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 34 03	
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 03 5E 03 1F 03	
94	Application File Locator (AFL)	08 01 01 00 18 01 02 01	

Tag	Element name	Data	Card v8.0
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	30 40 E4 28 00	
9F 0E	Issuer Action Code - Denial	00 10 00 00 40	
9F 0F	Issuer Action Code - Online	30 68 C4 F8 00	
9F 10	Issuer Application Data [DPAS]	xx 06 xx xx xx xx xx xx	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	43 72 65 64 69 74	
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 4D	Transaction Log Entry	0B 0A	
9F 4F	Transaction Log Format	9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 34 03 9F 52 06 9F 1A 02 95 05 9C 01 8A 02 9F 37 04 9F 03 06 9F 53 08 9F 66 04 9F 71 02 9F 6C 02	
9F 78	Application State [D-PAS]	01	
C1	Application Configuration Options [DPAS]	15 60	
C2	Issuer Life Cycle Data (ILCD) [DPAS]	00 00	
C3	Currency Conversion Codes 1 [DPAS]	08 40 00 00 02	
C4	Currency Conversion Codes 2 [DPAS]	08 40 00 00 02	
C5	Card Action Code - Denial [DPAS]	01 00	
C6	Card Action Code - Default [DPAS]	22 4B	
C7	Card Action Code - Online [DPAS]	F6 7F	
D0	Issuer Application Data ObjectList (IADOL) [DPAS]		
D2	CRM Country Code [DPAS]	08 40 - USA	
D3	CRM Currency Code [DPAS]	08 40 - USD	
DF 20	Transaction Profile Objects(TPO0) [DPAS]	00 18 00 08 01 01 00 18 01 02 01 00 01 00 F6 7F 22 4B 00	

1.4.3 Cardholder Verification Method List (CL)

Cardholder Verification Method List ('4203 5E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	No CVM required	Terminal supports CVM type	Fail

1.4.4 Application Tag data (Contactless Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v8.0
50	Application Label	44 49 53 43 4F 56 45 52 20 43 4C - 'DISCOVER CL'	
57	Track 2 Data [Discover]	65 10 00 00 00 00 02 16 D2 31 22 01 10 00 07 49 00 00 0F	
5A	Application Primary Account Number (PAN)	65 10 00 00 00 00 02 16	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 35 20 20 20 20 20 - 'USA SUPP/Test Card 04'	
5F 24	Application Expiration Date	23 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 [DPAS CL]	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 supported using External Auth command b1 - Combined DDA / GEN AC NOT supported	
84	Dedicated File (DF) Name	A0 00 00 01 52 30 10	
87	Application Priority Indicator	01	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 03 5E 03 1F 03	
94	Application File Locator (AFL)	08 02 02 00 18 03 04 01	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	00 00 00 00 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	00 00 00 00 00	
9F 10	Issuer Application Data [DPAS CL]	xx 15 xx xx xx xx xx xx xx xx	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	44 69 73 63 6F 76 65 72 20 43 4C	
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 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 4F	Transaction Log Format	9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 34 03 9F 52 06 9F 1A 02 95 05 9C 01 8A 02 9F 37 04 9F 03 06 9F 53 08 9F 66 04 9F 71 02 9F 6C 02	
9F 6C	Card Transaction Qualifiers [DPAS]	00 00	

Tag	Element name	Data	Card v8.0
9F 71	Card Processing Requirements [DPAS]	00 0F	
9F 71	Card Processing Requirements [DPAS]	00 0F	
9F 78	Application State [D-PAS]	01	
BF 51	Contactless D-PAS MS and ZIP Default Profile	82 02 00 00 94 04 08 01 01 00	
C0	Contactless Application Configuration Options (CL-ACO)	00 80	
C2	Issuer Life Cycle Data (ILCD) [DPAS]	00 00	
C3	Currency Conversion Codes 1 [DPAS]	08 40 00 00 02	
C4	Currency Conversion Codes 2 [DPAS]	08 40 00 00 02	
C8	Lower Consecutive Offline Amount (LCOA) Limit [DPAS]	00 00 00 00 00 00	
C9	Upper Consecutive Offline Amount Limit (UCOA) [DPAS]	00 00 00 00 00 00	
CA	Single Transaction Amount (STA) Limit [DPAS]	00 00 00 00 00 00	
CB	Lower Consecutive Offline Limit (LCOL) [DPAS]	00	
CC	Upper Consecutive Offline Transaction Limit (UCOL) [DPAS]	00	
CD	Number of Consecutive Offline Transactions (NCOT) [DPAS]	00	
CE	Cumulative Offline Amount [DPAS]	00 00 00 00 00 00	
D0	Issuer Application Data ObjectList (IADOL) [DPAS]		
D1	Offline Balance [DPAS]	00 00 00 00 00 00	
D2	CRM Country Code [DPAS]	08 40 - USA	
D3	CRM Currency Code [DPAS]	08 40 - USD	
D4	CVM-Accumulator [DPAS]	00 00 00 00 00 00	
D5	CVM-Cum limit 1	00 00 00 00 00 00	
D6	CVM-Cum limit 2	00 00 00 00 00 00	
D7	CVM-STA limit 1	00 00 00 00 00 00	
D8	CVM-STA limit 2	00 00 00 00 00 00	
D9	CVM-Counter	00	
DA	CVM-Cons limit 1	00	
DB	CVM-Cons limit 2	00	
DE	Counter and Accumulator Control Options (CACO) [D-PAS]	C1 01 21 01 01 00	
DF 30	CRM-CAC Switch Interface [D-PAS]	00 00 00	
DF 31	CRM-CAC Denial [D-PAS]	00 00 00	
DF 32	CRM-CAC Online [D-PAS]	C8 FE FF	
DF 33	CRM-CAC Default [D-PAS]	98 FE EB	
DF 34	CVM Card Action Codes - Online	40 80	
DF 35	CVM Card Action Codes - Signature	00 80	
DF 40	CL-Accumulator	00 00 00 00 00 00	
DF 41	CL-Cum Limit	00 00 00 00 00 00	
DF 42	CL-STA	00 00 00 00 00 00	
DF 43	CL-Counter	00	
DF 44	CL-Cons Limit	00	

1.5 Test Card 05 – Discover, DI, Credit, English, USA, USD

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

The recommended transaction amount to generate a host approval is \$79.00.

1.5.1 Cardholder Verification Method List

Cardholder Verification Method List ('4201 4103 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	No CVM required	Terminal supports CVM type	Fail

1.5.2 Application Tag data (Contact Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v8.x
50	Application Label	44 49 53 43 4F 56 45 52 -	'DISCOVER'
57	Track 2 Data [Discover]	65 10 00 00 00 00 02 16 D2 31 22 01 10 00 07 49 00 00 0F	
5A	Application Primary Account Number (PAN)	65 10 00 00 00 00 02 16	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 35 20 20 20 20 20 - 'USA SUPP/Test Card 05'	
5F 24	Application Expiration Date	23 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	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 supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 01 52 30 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 34 03	
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 41 03 1F 03	
94	Application File Locator (AFL)	08 01 01 00 18 01 02 01	

Tag	Element name	Data	Card v8.x
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	30 40 E4 28 00	
9F 0E	Issuer Action Code - Denial	00 10 00 00 40	
9F 0F	Issuer Action Code - Online	30 68 C4 F8 00	
9F 10	Issuer Application Data [DPAS]	xx 06 xx xx xx xx xx xx	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	43 72 65 64 69 74	
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 4D	Transaction Log Entry	0B 0A	
9F 4F	Transaction Log Format	9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 34 03 9F 52 06 9F 1A 02 95 05 9C 01 8A 02 9F 37 04 9F 03 06 9F 53 08 9F 66 04 9F 71 02 9F 6C 02	
9F 78	Application State [D-PAS]	01	
C1	Application Configuration Options [DPAS]	15 E0	
C2	Issuer Life Cycle Data (ILCD) [DPAS]	00 00	
C3	Currency Conversion Codes 1 [DPAS]	08 40 00 00 02	
C4	Currency Conversion Codes 2 [DPAS]	08 40 00 00 02	
C5	Card Action Code - Denial [DPAS]	01 00	
C6	Card Action Code - Default [DPAS]	22 4B	
C7	Card Action Code - Online [DPAS]	F6 7F	
D0	Issuer Application Data ObjectList (IADOL) [DPAS]		
D2	CRM Country Code [DPAS]	08 40 - USA	
D3	CRM Currency Code [DPAS]	08 40 - USD	
DF 20	Transaction Profile Objects(TPO0) [DPAS]	00 18 00 08 01 01 00 18 01 02 01 00 01 00 F6 7F 22 4B 00	

1.5.3 Cardholder Verification Method List (CL)

Cardholder Verification Method List ('4201 4103 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	No CVM required	Terminal supports CVM type	Fail

1.5.4 Application Tag data (Contactless Interface, online)

* Tag value changes with card usage

Tag	Element name	Data	Card v8.x
50	Application Label	44 49 53 43 4F 56 45 52 20 43 4C	'DISCOVER CL'
57	Track 2 Data [Discover]	65 10 00 00 00 00 02 16 D2 31 22 01 10 00 07 49 00 00 0F	
5A	Application Primary Account Number (PAN)	65 10 00 00 00 00 02 16	
5F 20	Cardholder Name	55 53 41 20 53 55 50 50 2F 54 65 73 74 20 43 61 72 64 20 30 35 20 20 20 20 20 - 'USA SUPP/Test Card 05'	
5F 24	Application Expiration Date	23 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 [DPAS CL]	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 supported using External Auth command b1 - Combined DDA / GEN AC NOT supported	
84	Dedicated File (DF) Name	A0 00 00 01 52 30 10	
87	Application Priority Indicator	01	
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 42 01 41 03 1F 03	
94	Application File Locator (AFL)	08 02 02 00 18 03 04 01	
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash transactions valid b7 - Int'l cash transactions valid b2 - ATMs valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed	
9F 08	Application Version Number	00 01	
9F 0D	Issuer Action Code - Default	00 00 00 00 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	00 00 00 00 00	
9F 10	Issuer Application Data [DPAS CL]	xx 15 xx xx xx xx xx xx xx xx	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	44 69 73 63 6F 76 65 72 20 43 4C	
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 5F 2A 02 9A 03 9C 01 9F 37 04	
9F 4F	Transaction Log Format	9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 34 03 9F 52 06 9F 1A 02 95 05 9C 01 8A 02 9F 37 04 9F 03 06 9F 53 08 9F 66 04 9F 71 02 9F 6C 02	
9F 6C	Card Transaction Qualifiers [DPAS]	00 00	

Tag	Element name	Data	Card v8.x	
9F 71	Card Processing Requirements [DPAS]	00 0F		
9F 71	Card Processing Requirements [DPAS]	00 0F		
9F 78	Application State [D-PAS]	01		
BF 51	Contactless D-PAS MS and ZIP Default Profile	82 02 00 00 94 04 08 01 01 00		
C0	Contactless Application Configuration Options (CL-ACO)	00 80		
C2	Issuer Life Cycle Data (ILCD) [DPAS]	00 00		
C3	Currency Conversion Codes 1 [DPAS]	08 40 00 00 02		
C4	Currency Conversion Codes 2 [DPAS]	08 40 00 00 02		
C8	Lower Consecutive Offline Amount (LCOA) Limit [DPAS]	00 00 00 00 00 00		
C9	Upper Consecutive Offline Amount Limit (UCOA) [DPAS]	00 00 00 00 00 00		
CA	Single Transaction Amount (STA) Limit [DPAS]	00 00 00 00 00 00		
CB	Lower Consecutive Offline Limit (LCOL) [DPAS]	00		
CC	Upper Consecutive Offline Transaction Limit (UCOL) [DPAS]	00		
CD	Number of Consecutive Offline Transactions (NCOT) [DPAS]	00		
CE	Cumulative Offline Amount [DPAS]	00 00 00 00 00 00		
D0	Issuer Application Data ObjectList (IADOL) [DPAS]			
D1	Offline Balance [DPAS]	00 00 00 00 00 00		
D2	CRM Country Code [DPAS]	08 40 - USA		
D3	CRM Currency Code [DPAS]	08 40 - USD		
D4	CVM-Accumulator [DPAS]	00 00 00 00 00 00		
D5	CVM-Cum limit 1	00 00 00 00 00 00		
D6	CVM-Cum limit 2	00 00 00 00 00 00		
D7	CVM-STA limit 1	00 00 00 00 00 00		
D8	CVM-STA limit 2	00 00 00 00 00 00		
D9	CVM-Counter	00		
DA	CVM-Cons limit 1	00		
DB	CVM-Cons limit 2	00		
DE	Counter and Accumulator Control Options (CACO) [D-PAS]	C1 01 21 01 01 00		
DF 30	CRM-CAC Switch Interface [D-PAS]	00 00 00		
DF 31	CRM-CAC Denial [D-PAS]	00 00 00		
DF 32	CRM-CAC Online [D-PAS]	C8 FE FF		
DF 33	CRM-CAC Default [D-PAS]	98 FE EB		
DF 34	CVM Card Action Codes - Online	40 80		
DF 35	CVM Card Action Codes - Signature	00 80		
DF 40	CL-Accumulator	00 00 00 00 00 00		
DF 41	CL-Cum Limit	00 00 00 00 00 00		
DF 42	CL-STA	00 00 00 00 00 00		
DF 43	CL-Counter	00		
DF 44	CL-Cons Limit	00		

1.6 Test Card 06 – Discover, Technical Fallback Card

This card has a chip image printed on the card but it does not contain an actual chip.

When inserted, a chip error will be detected.

This should trigger Technical Fallback processing and the transaction should continue as a magstripe Technical transaction.

The recommended transaction amount to generate a host approval is \$26.00.

Chapter 2 - ASCII Character Conversion Chart

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