



**Development (DEV) Canada  
EMV™ Test Card Set**

**Version 9.01**

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**Powered by B2»**

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## Revision History

Version	Date	Updated By	Revisions
5.50	August 29, 2016	B2PS	Initial document release
5.60	Sept. 21, 2017	B2PS	<ul style="list-style-type: none"> <li>• TC08: Card v6.0 has 2-byte Kernel ID</li> </ul>
6.00	January 4, 2018	B2PS	<ul style="list-style-type: none"> <li>• TC02 - New version v6.0: Discretionary data updated (CVV)</li> <li>• TC07 - EMV Tags for AID A0000000291010 added</li> <li>• TC08 - New version v7.0: Increased contactless facility, 'Approval Amount' updated.</li> </ul>
7.00	October 4, 2018	B2PS	<ul style="list-style-type: none"> <li>• All cards - Tags 82, 9F07, 9F69 expanded &amp; interpreted</li> <li>• Amex card TC07 - Expiry date changed to 24/12</li> <li>• Discover card TC08 - Expiry date changed to 23/12</li> </ul>
8.00	February 27, 2019	B2PS	<ul style="list-style-type: none"> <li>• TC08 - Tag 57 expiry date corrected</li> </ul>
9.00	May 29, 2019	B2PS	<ul style="list-style-type: none"> <li>• TC07 - PAN changed - now ends in '41007', Approval amount changed, AIP contactless changed</li> </ul>
9.01	June 7, 2019	B2PS	<ul style="list-style-type: none"> <li>• Set renamed to "DEV Canada EMV Test Card Set". No change to cards themselves.</li> </ul>

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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 - DEV Canada EMV Test Card Set Profiles

This Development (DEV) Canada EMV Test Card Set contains 8 cards with at least one card from each of the following card brands.



	Test Card 01	Test Card 02	Test Card 03
<b>Brand</b>	Visa	Visa	Mastercard
<b>Type</b>	Credit	Credit	Credit
<b>Description</b>	Offline Capable	Fallback	Mastercard
<b>IIN</b>	-	-	-
<b>AID</b>	A0000000031010	-	A0000000041010
<b>PAN</b>	4761 7390 0101 0119	4761 7390 0101 0267	5413 3300 8960 4111
<b>Expiry Date</b>	12/2022	12/2022	12/2022
<b>Service Code</b>	201	201	201
<b>Interface</b>	Contact, Contactless, MSR	MSR	Contact, Contactless, MSR
<b>CVM</b>	<a href="#">See card definition</a>	<a href="#">See card definition</a>	<a href="#">See card definition</a>
<b>Approval Amount</b>	\$10.00	\$10.00	\$20.00
<b>Issuer Country Code</b>	124 - Canada	-	124 - Canada
<b>Application Currency Code</b>	124 - CAD	-	124 - CAD
<b>Language</b>	'en' - English	-	'fr' - French
<b>Card Version</b>	v5.0	v6.0	v5.0

	Test Card 04	Test Card 05	Test Card 06
Brand	Mastercard	Interac	Interac
Type	Credit	Debit	Debit
Description	Fallback	Canadian Debit	Canadian Debit
IIN	-		
AID	-	A0000002771010	A0000002771010
PAN	5413 3300 8902 0029	4506 4450 0693 1933	4506 4450 0693 1933
Expiry Date	12/2022	12/2022	12/2022
Service Code	201	201	201
Interface	MSR	Contact, MSR	Contact, MSR
CVM	<a href="#">See card definition</a>	<a href="#">See card definition</a>	<a href="#">See card definition</a>
Approval Amount	\$20.00	\$10.00	\$10.00
Issuer Country Code	-	124 - Canada	124 - Canada
Application Currency Code	-	124 - CAD	124 - CAD
Language	-	'en' - English	'fr' - French
Card Version	v5.0	v5.0	v5.0

	Test Card 07	Test Card 08
Brand	American Express	Discover
Type	Credit	Credit
Description	Online Only	Discover Credit
IIN	-	-
AID	A000000025010402, A0000000291010	A0000001523010
PAN	3742 450017 41007	6510 0000 0000 0216
Expiry Date	12/2024	12/2023
Service Code	201	201
Interface	Contact, Contactless, MSR	Contact, Contactless, MSR
CVM	<a href="#">See card definition</a>	<a href="#">See card definition</a>
Approval Amount	\$30.00	\$79.00
Issuer Country Code	124 - Canada	840 - USA
Application Currency Code	124 - CAD	840 - USD
Language	'en' - English	'en' - English
Card Version	v7.0	v9.0

## 1.1 Test Card 01 - Visa, DI, Credit, English, Canada, CAD

A Dual Interface (Contact / Contactless) Visa card with Issuer Country Code of 'Canada' and Currency Code of 'CAD'.

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

### 1.1.1 Cardholder Verification Method List

Cardholder Verification Method List('420141035E031F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	Signature (paper)	Terminal supports CVM type	Next CVM
4	No CVM required	Always	Fail

### 1.1.2 Application Tag data (Contact Interface, online)

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	56 49 53 41 20 43 52 45 44 49 54 - 'VISA CREDIT'	
57	Track 2 Equivalent Data	47 61 73 90 01 01 01 19 D2 21 22 01 11 43 80 44 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 90 01 01 01 19	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 31 20 20 20 20 20 20 - 'DEV CAN/Test Card 01'	
5F 24	Application Expiration Date	22 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	
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 [VSDC]	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 using External Auth command b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - Mag-stripe mode 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	
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	

Tag	Element name	Data	Card v5.x
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 04 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	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	
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	



Tag	Element name	Data	Card v5.x
9F 46	ICC Public Key Certificate	5A BC F3 59 B3 31 9E A4 90 C6 F8 55 E5 6D 54 10 70 46 D7 54 81 01 6C 7C CD AF 4F 84 A6 57 9C 4C 70 9E 41 41 5D F2 7E AD 5D 2B 30 59 1C AF 14 C2 37 EA 95 EC EF 71 A8 AF 62 57 12 EE 73 2B A5 2B 06 15 8B 43 4D F5 4D 77 97 A8 86 0E 17 FD EB 8B D8 DD 58 84 69 72 A6 B2 22 E8 38 79 CF 65 61 80 9D B1 89 22 35 05 F1 6A 6D 80 41 3D 91 2A 1C A3 47 F5 EB 8A 26 C3 CC D2 B2 74 42 70 01 90 1F BF 04 C9 25 A5 FE 4E F1 50 A2 94 B4 62 44 94 51 AA 8A 70 B2 77 27 58 EB 48 C8 77 65 AC 36 F2 BF FE B8 88 51 3D B3 7B 32 14 5C FB 59 8F 0D 6B C2 53	
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	80 BB D1 B8 52 AC 40 17 0D 5B D3 B6 BB 98 1B AA CD 57 D9 2C 17 9A F9 E9 AC 54 68 9D 90 58 38 8A 63 51 25 EE 7F 34 52 85 97 0F 49 51 37 6C 6D 03 71 24 93 11 E8 87 73 5D 1F 7C 96 0B 9C 55 88 54 81 38 BA AD F3 B1 A1 43 BD 1C 30 B9 E9 72 1A 96 2E 3F CC 39 EB C8 07 8B 0B 2A 2B 15 3D F9 FA 10 9F 64 9A 82 1A D9 F6 63 81 06 02 A1 60 69 A1 4A 9C A6 45 4C A1 72 45 20 A8 B4 D0 62 60 A7 88 D5	
9F 51	Application Currency Code [VSDC]	01 24	
9F 52	Application Default Action [VSDC VIS 1.5]	C0 30 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	03	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 02 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	
9F 57	Issuer Country Code [VSDC]	01 24 - Canada	
9F 58	Consecutive Transaction Counter Limit [VSDC]	03	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	07	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 04 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	07	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	4E 00 F0 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	03	
BF 55	Contactless Counters Data Template	DF 11 01 03 DF 21 01 03 DF 31 01 07	
BF 56	Counters Data Template	DF 11 01 03 DF 21 01 03 DF 31 01 07	
BF 57	International Counters Data Template	DF 11 01 03 DF 21 01 03 DF 31 01 07 DF 51 01 06 DF 61 01 03	

Tag	Element name	Data	Card v5.x
BF 58	Amounts Data Template	DF 11 06 00 00 00 01 00 06 DF 21 06 00 00 00 02 00 00 DF 31 06 00 00 00 04 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

1.1.3 Application Tag data (Contactless Interface, online)

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	56 49 53 41 20 43 52 45 44 49 54 - 'VISA CREDIT'	
57	Track 2 Equivalent Data	47 61 73 90 01 01 01 19 D2 21 22 01 11 43 80 44 00 00 0F	
5A	Application Primary Account Number (PAN)	47 61 73 90 01 01 01 19	
5F 24	Application Expiration Date	22 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	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 05 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 *	

Tag	Element name	Data	Card v5.x
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	8B 75 C4 3E 79 B1 6F B0 D8 85 FC 9F D0 60 9D BB C3 D0 8C E6 63 7B 89 50 8E 3A 8D 2F DF AD 37 C9 A0 C7 9B 8D 26 1A E4 19 34 3D 8E F2 AF C3 D9 94 53 CB 34 8F A4 06 37 37 E8 79 3D 26 81 17 EA 18 E4 C9 E7 B4 F2 0A 37 62 D4 4D B2 05 C1 1F 7A AB 62 AD 67 65 29 89 FC 40 5C C8 89 48 27 0B 2F C5 FA A7 98 90 9D 7B DF 93 91 BD 2B AD A8 6F B9 AA 2D DE 6B 7A CD 4D B5 64 B0 87 3D DC 2A DB 0F DF 1D 91 6A 8C 59 36 A8 15 8A 0D CE 41 40 96 F5 BA F8 68 08 2E B5 3C D7 DE 78 F6 D9 35 F8 28 4B 7F BF 8D CA 9D 1C F1 74 3F B8 0B 4B DC 5C 11 75 40	
9F 47	ICC Public Key Exponent	03	
9F 4A	Static Data Authentication Tag List	82	
9F 4B	Signed Dynamic Application Data	88 B9 0E 24 01 5C AF 2B CD 6B 99 5F EE FC BD 66 B1 CF 6A D2 6A DD 75 BE 15 30 95 2C 30 D3 17 32 00 57 99 A7 2A 1F BF 44 3F 5F 1F AB 2B 92 DA D0 CF 8B BF C3 43 48 BA A4 CC 23 0C BD B0 FB D6 B8 67 0F 6C 38 1F 82 B3 A7 23 35 56 10 67 C1 2F DC B2 6C 67 F4 01 9D C9 E1 9A F5 08 7B 9B 5F D3 8B 17 F1 CB D0 77 0A 08 7F B8 A7 5A 24 BC CF D2 92 15 4A C6 C2 E4 F9 49 3D 86 9B 55 BE 7D 5C 15 B9	
9F 51	Application Currency Code [VSDC]	01 24 - Canada	
9F 52	Application Default Action [VSDC VIS 1.5]	C0 30 00 00 00 00	
9F 53	Consecutive Transaction Limit (International) [VSDC]	03	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 02 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	
9F 57	Issuer Country Code [VSDC]	01 24 - Canada	
9F 58	Consecutive Transaction Counter Limit [VSDC]	03	
9F 59	Consecutive Transaction Counter Upper Limit [VSDC]	07	
9F 5A	Application Program Identifier	31 08 40 08 40	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 04 00 00	
9F 5E	Consecutive Transaction International Upper Limit [VSDC]	07	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	4E 00 F0 00	

Tag	Element name	Data	Card v5.x
9F 69	Card Authentication Related Data [qVSDC]	01 19 2B 03 9E 38 00 LAST TWO BYTES 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 b2 - NOT valid at ATMs	
9F 6C	Card Trans. Qualifiers [qVSDC VCPS 2.1]	38 00	
9F 6E	Form Factor Indicator [qVSDC]	20 70 00 00	
9F 72	Consecutive Transaction Limit (International-Country) [VSDC]	03	
BF 55	Contactless Counters Data Template	DF 11 01 03 DF 21 01 03 DF 31 01 07	
BF 56	Counters Data Template	DF 11 01 02 DF 21 01 03 DF 31 01 07	
BF 57	International Counters Data Template	DF 11 01 02 DF 21 01 03 DF 31 01 07 DF 51 01 05 DF 61 01 03	
BF 58	Amounts Data Template	DF 11 06 00 00 00 01 00 06 DF 21 06 00 00 00 02 00 00 DF 31 06 00 00 00 04 00 00	
BF 5B	Application Internal Data Template	DF 01 02 00 00	

## 1.2 Test Card 02 - Visa, 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 \$10.00.

Note: The test host may Approve / Decline based on its configuration with respect to CVV processing.

### 1.3 Test Card 03 - Mastercard, DI, Credit, French, Canada, CAD

A Dual Interface (Contact / Contactless) Mastercard credit card with Issuer Country Code of 'Canada' and Currency Code of 'CAD'.

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

#### 1.3.1 Cardholder Verification Method List

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

#### 1.3.2 Application Tag data (Contact Interface, online)

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	4D 41 53 54 45 52 43 41 52 44 -	'MASTERCARD'
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 21 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 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 33 20 20 20 20 20 20 - 'DEV CAN/Test Card 03'	
5F 24	Application Expiration Date	22 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	
5F 2D	Language Preference	66 72 - 'fr' (French)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [M/Chip, PayPass]	39 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 using External Auth command b2 - On device Cardholder verification NOT supported b1 - Combined DDA / GEN AC supported BYTE 2: b8 - EMV mode 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	
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 5E 03 1F 03	

Tag	Element name	Data	Card v5.x
8F	Certification Authority Public Key Index	FA	
90	Issuer Public Key Certificate	18 89 B9 97 E6 FC E8 4B 4A E7 AB 87 43 1C BD B3 DF 8C 1D 5A 55 A7 F6 0D 29 59 AF 3A 51 04 E7 58 83 17 ED 74 08 66 68 CF 1A 05 47 84 F7 49 3C 6D 74 7F A7 96 EC 14 D3 33 A6 8E C7 E0 08 62 95 9A 0B D0 F0 48 20 80 B7 1A C1 B7 62 5B 1B 8B 1F 35 A6 69 19 99 BA 78 F5 92 E2 3F 95 E9 96 09 D1 08 CF 1C 0E 30 8A 8B F6 4F BD E8 37 D3 CE 13 8A 50 DC 50 AF 4B 41 EE 53 D9 8A 11 B6 A8 1D DD 44 CC 43 0C 1E F3 BB 9D 1D 75 A0 2F AA 9C 81 4A FC 58	
92	Issuer Public Key Remainder	D3 52 41 07	
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	BC 50 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	BC 70 BC 98 00	
9F 10	Issuer Application Data [M/Chip 4]	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 43 61 72 64 - 'MasterCard'	
9F 14	Lower Consecutive Offline Limit	03	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 1F	Track 1 Discretionary Data	30 31 32 33 34 30 39 31 37 32 30 30 30 30 30 30 30 30 30 30 30 30 30 30	
9F 23	Upper Consecutive Offline Limit	07	
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	01 24 - CAD	
9F 44	Application Currency Exponent	02	

Tag	Element name	Data	Card v5.x
9F 46	ICC Public Key Certificate	65 53 84 BA 96 75 9A 62 30 12 C9 AC 3F 9F 8E 24 9C 30 60 0E CE C3 BD 72 7F 39 02 18 69 7B 4F 87 AA 84 32 C8 E1 3B 94 C2 5B 3C BA 15 EB 8B C3 86 57 F2 9F E4 F2 29 0B E4 01 08 38 66 0C 77 07 C4 51 DD EA 34 98 58 28 AD F8 6F 50 6D 76 90 AA CE EA D9 B2 AE D1 64 0B BA 84 D5 39 B5 92 59 DC E2 E5 C1 33 E7 FA 7D B7 5D EF 07 97 84 D8 14 18 83	
9F 47	ICC Public Key Exponent	03	
9F 48	ICC Public Key Remainder	1E C6 26 E6 A8 A3 F8 8B C5 08 FA FF 16 E9 25 D9 D6 75 83 AE 91 95 CD A1 15 A4 A1 BB 56 F8 E8 5D 36 95 2A 15 2E E9 E1 F5 1B 57	
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	A0 86 4D C5 1C 3C DE DA 46 74 65 41 4C 20 D0 AC 0B 87 DE 84 33 90 96 A8 A1 A4 5F 1C 02 AB 33 01 D6 41 2E 8C 71 97 89 34 EE 58 4A C6 77 47 76 8F 54 E4 0D 9E 4C 3D EA 15 0D E8 53 6F D4 F1 C5 A9 11 F5 15 8E CA 0A F8 DF 8A 3F 09 76 B3 6E AE A3 F3 06 5A 18 9F 6A 30 2E 44 2C 45 5D 31 7D 46 D5 73 B5 82 EF DD BA 48 7F 41 C8 0E 1D 10 4A 89 67	
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	
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 - Decline [MasterCard]	00 00 00	
C4	Card Issuer Action Code - Default [MasterCard]	19 50 00	
C5	Card Issuer Action Code - Online [MasterCard]	39 FB 00	
C6	Counters [MasterCard]	00 06 00 00 00 00 00 00 00 00	
C7	CDOL1 Related Data Length [MasterCard]	2B	
C8	CRM Country Code [MasterCard]	01 24 - Canada	
C9	CRM Currency Code [M/Chip4]	01 24 - CAD	
CA	Lower Cumulative Offline Transaction Amount [M/Chip]	00 00 00 02 00 00	
CB	Upper Cumulative Offline Transaction Amount [M/Chip]	00 00 00 04 00 00	
CD	Card Issuer Action Code - Default [PayPass M/Chip]	00 58 00	

Tag	Element name	Data	Card v5.x
CE	Card Issuer Action Code - Online [PayPass M/Chip]	00 F8 00	
CF	Card Issuer Action Code - Denial [PayPass M/Chip]	00 00 00	
D1	Currency Conversion Table [M/Chip]	01 24 00 01 00 01 24 00 01 00 01 24 00 01 00 01 24 00 01 00 01 24 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	
D5	Application Control [M/Chip]	CC 00	
D6	Default ARPC Response Code [M/Chip4]	00 12	
D7	Application Control [PayPass M/Chip]	40 01 40	
DF 02	Security Limits Status [MasterCard]	00	

1.3.3 Cardholder Verification Method List (CL)

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

1.3.4 Application Tag data (Contactless Interface, online)

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	4D 41 53 54 45 52 43 41 52 44 - 'MASTERCARD'	
57	Track 2 Equivalent Data	54 13 33 00 89 60 41 11 D2 21 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 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 33 20 20 20 20 20 20 - 'DEV CAN/Test Card 03'	
5F 24	Application Expiration Date	22 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	
5F 2D	Language Preference	66 72 - 'fr' (French)	
5F 30	Service Code	02 01	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [M/Chip, PayPass]	39 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 using External Auth command b2 - On device Cardholder verification NOT supported b1 - Combined DDA / GEN AC supported BYTE 2: b8 - M/Chip NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 04 10 10	
87	Application Priority Indicator	01	



Tag	Element name	Data	Card v5.x
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	
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 5E 03 1F 03	
8F	Certification Authority Public Key Index	FA	
90	Issuer Public Key Certificate	18 89 B9 97 E6 FC E8 4B 4A E7 AB 87 43 1C BD B3 DF 8C 1D 5A 55 A7 F6 0D 29 59 AF 3A 51 04 E7 58 83 17 ED 74 08 66 68 CF 1A 05 47 84 F7 49 3C 6D 74 7F A7 96 EC 14 D3 33 A6 8E C7 E0 08 62 95 9A 0B D0 F0 48 20 80 B7 1A C1 B7 62 5B 1B 8B 1F 35 A6 69 19 99 BA 78 F5 92 E2 3F 95 E9 96 09 D1 08 CF 1C 0E 30 8A 8B F6 4F BD E8 37 D3 CE 13 8A 50 DC 50 AF 4B 41 EE 53 D9 8A 11 B6 A8 1D DD 44 CC 43 0C 1E F3 BB 9D 1D 75 A0 2F AA 9C 81 4A FC 58	
92	Issuer Public Key Remainder	D3 52 41 07	
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	BC 50 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	BC 70 BC 98 00	
9F 10	Issuer Application Data [M/Chip 4]	xx xx 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 43 61 72 64 - 'MasterCard'	
9F 14	Lower Consecutive Offline Limit	03	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 1F	Track 1 Discretionary Data	30 31 32 33 34 30 39 31 37 32 30 30 30 30 30 30 30 30 30 30 30 30 30 30	
9F 23	Upper Consecutive Offline Limit	07	
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	01 24 - CAD	
9F 44	Application Currency Exponent	02	

Tag	Element name	Data	Card v5.x
9F 46	ICC Public Key Certificate	65 53 84 BA 96 75 9A 62 30 12 C9 AC 3F 9F 8E 24 9C 30 60 0E CE C3 BD 72 7F 39 02 18 69 7B 4F 87 AA 84 32 C8 E1 3B 94 C2 5B 3C BA 15 EB 8B C3 86 57 F2 9F E4 F2 29 0B E4 01 08 38 66 0C 77 07 C4 51 DD EA 34 98 58 28 AD F8 6F 50 6D 76 90 AA CE EA D9 B2 AE D1 64 0B BA 84 D5 39 B5 92 59 DC E2 E5 C1 33 E7 FA 7D B7 5D EF 07 97 84 D8 14 18 83	
9F 47	ICC Public Key Exponent	03	
9F 48	ICC Public Key Remainder	1E C6 26 E6 A8 A3 F8 8B C5 08 FA FF 16 E9 25 D9 D6 75 83 AE 91 95 CD A1 15 A4 A1 BB 56 F8 E8 5D 36 95 2A 15 2E E9 E1 F5 1B 57	
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	A0 86 4D C5 1C 3C DE DA 46 74 65 41 4C 20 D0 AC 0B 87 DE 84 33 90 96 A8 A1 A4 5F 1C 02 AB 33 01 D6 41 2E 8C 71 97 89 34 EE 58 4A C6 77 47 76 8F 54 E4 0D 9E 4C 3D EA 15 0D E8 53 6F D4 F1 C5 A9 11 F5 15 8E CA 0A F8 DF 8A 3F 09 76 B3 6E AE A3 F3 06 5A 18 9F 6A 30 2E 44 2C 45 5D 31 7D 46 D5 73 B5 82 EF DD BA 48 7F 41 C8 0E 1D 10 4A 89 67	
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	
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 - Decline [MasterCard]	00 00 00	
C4	Card Issuer Action Code - Default [MasterCard]	19 50 00	
C5	Card Issuer Action Code - Online [MasterCard]	39 FB 00	
C6	Counters [MasterCard]	00 06 00 00 00 00 00 00 00 00	
C7	CDOL1 Related Data Length [MasterCard]	2B	
C8	CRM Country Code [MasterCard]	01 24 - Canada	
C9	CRM Currency Code [M/Chip4]	01 24 - CAD	
CA	Lower Cumulative Offline Transaction Amount [M/Chip]	00 00 00 02 00 00	
CB	Upper Cumulative Offline Transaction Amount [M/Chip]	00 00 00 04 00 00	
CD	Card Issuer Action Code - Default [PayPass M/Chip]	00 58 00	

Tag	Element name	Data	Card v5.x
CE	Card Issuer Action Code - Online [PayPass M/Chip]	00 F8 00	
CF	Card Issuer Action Code - Denial [PayPass M/Chip]	00 00 00	
D1	Currency Conversion Table [M/Chip]	01 24 00 01 00 01 24 00 01 00 01 24 00 01 00 01 24 00 01 00 01 24 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	
D5	Application Control [M/Chip]	CC 00	
D6	Default ARPC Response Code [M/Chip4]	00 12	
D7	Application Control [PayPass M/Chip]	40 01 40	
DF 02	Security Limits Status [MasterCard]	00	

#### 1.4 Test Card 04 - Mastercard, 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 \$20.00.

#### 1.5 Test Card 05 - Interac, Debit, English, Canada, CAD

An Interac Canadian debit card with Issuer Country Code of 'Canada' and Currency Code of 'CAD'.

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

##### 1.5.1 Cardholder Verification Method List

Cardholder Verification Method List ('0100')			
CVM	Verification Method	Conditions	If unsuccessful
1	Offline Plaintext PIN	Always	Fail

##### 1.5.2 Application Tag data

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	49 4E 54 45 52 41 43 - 'INTERAC'	
57	Track 2 Equivalent Data	45 06 44 50 06 93 19 33 D2 21 22 20 01 62 90 74 00 00 1F	
5A	Application Primary Account Number (PAN)	45 06 44 50 06 93 19 33	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 35 20 20 20 20 20 20 - 'DEV CAN/Test Card 05'	
5F 24	Application Expiration Date	22 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	

Tag	Element name	Data	Card v5.x
5F 2D	Language Preference	65 6E - 'en' (English)	
5F 30	Service Code	02 20	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VSDC]	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 02 77 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	
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 01 00	
8F	Certification Authority Public Key Index	55	
90	Issuer Public Key Certificate	6C 16 73 99 B8 BE 0C CA 2A A9 EF 30 EC F5 14 C4 F4 F1 F0 89 85 8A 46 08 6F 12 F2 80 B6 81 FD CA 40 8C 09 51 C0 D6 BA 64 FD 05 C7 2C 5A 23 B2 66 DA 11 D6 75 BA B2 AC 74 C5 AF E0 41 A6 94 2D 84 FC 19 0D C0 6D 83 CF 17 71 F2 F9 74 B8 31 73 5A A1 30 39 4D 12 DC CF D5 74 61 D1 20 E5 58 F6 35 12 F6 DB 82 46 DD 41 00 9F A1 D9 73 1B 27 42 F9 7E FD 2B C1 16 DF B9 AF 7A 96 6A CF 12 83 A8 49 A7 A9 73 6A 0D 8A E2 63 98 36 BC A6 9B D9 EE 78	
92	Issuer Public Key Remainder	EC A4 19 2A 02 CA AC 0B 75 22 44 EC AE 9F 1A BA 46 15 E7 05 27 AD D0 D8 03 67 54 CA 9F A5 2E 7D 42 16 22 0F	
93	Signed Static Application Data	10 4E 83 86 72 A5 E9 D2 55 37 D2 68 6D C2 96 F2 5B A1 0F C2 FC 67 A2 77 6D EF 0E CB 67 10 A8 EF 8B 0C D3 A4 7C 69 42 53 CB D4 7E E9 97 BA C4 08 43 26 34 56 35 EE 5E E6 5F 33 FA 64 F9 46 54 96 F6 20 F6 1E 4A 9C 80 4B 1C 5D A9 FB 15 B8 BF E4 EC CF 7D 98 77 66 82 FB D4 F3 75 10 64 E8 66 73 8C 30 C9 08 5C C3 84 F0 8E 25 9D 7D C2 96 B6 F8 90 F9 03 DF C3 24 92 F7 32 2E 1F 11 89 80 DD 01 C0 87 0A E7 F4 C8 54 A1 E3 23 A7 E3 89 B4 4F C1	
94	Application File Locator (AFL)	10 01 01 00 10 02 04 01 10 06 06 00 B0 01 01 00	

Tag	Element name	Data	Card v5.x
9F 07	Application Usage Control	AB 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions NOT valid b6 - Domestic goods valid b5 - International goods NOT valid b4 - Domestic services valid b3 - International services NOT valid b2 - ATMs NOT valid b1 - non-ATM terminals 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	B0 70 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B0 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	49 6E 74 65 72 61 63 - 'Interac'	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 1F	Track 1 Discretionary Data	31 36 32 39 30 37 34 30 30 30 30 31 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 38	Processing Options Data Object List (PDOL)	9F 02 06 9F 1A 02	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	65 64 5B 61 27 72 8D BB 94 F4 C8 A5 D2 FD 79 D7 2E 6F 4A E7 55 50 88 FE 63 61 0F A7 E5 75 D8 3B 4D F7 F8 F1 D8 8A F9 38 D5 33 14 92 87 66 A0 81 60 37 11 96 6B F6 F9 CF 4B BB E2 6F 03 4C E4 5F 35 51 16 A8 36 0F BB E8 4B A8 FB 9A 98 FA 0A 86 66 FF 13 2F 68 71 7F 8E 67 48 6B 5A E8 47 27 DC 22 E9 AE DB B9 7C C5 AD 18 5F FA F1 BB 09 DA A3 4C 16 80 E6 4C 6F B9 3C B6 C8 81 06 A8 CE C6 3D 01 04 7E 1D 09 55 8C E6 D5 D5 46 DD 0C 1E 0B 60	
9F 47	ICC Public Key Exponent	03	
9F 48	ICC Public Key Remainder	AF C0 AB 3D 06 13 3D C7 0C 3C 92 33 B1 9A 25 64 97 1C F2 C1 9B D4 DD AA 13 47	
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]	01 24 - CAD	
9F 52	Application Default Action [VSDC VIS 1.5]	C0 38 00 00 00 00	
9F 54	Cumulative Total Transaction Amount Limit [VSDC]	00 00 00 00 00 00	
9F 56	Issuer Authentication Indicator [VSDC]	80	

Tag	Element name	Data	Card v5.x
9F 57	Issuer Country Code [VSDC]	01 24	- Canada
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 00 00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 10 00	
9F 6D	VLP Reset Threshold [VSDC]	00 00 00 00 00 00	

### 1.6 Test Card 06 - Interac, Debit, French, Canada, CAD

An Interac Canadian debit card with Issuer Country Code of 'Canada' and Currency Code of 'CAD'.

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

#### 1.6.1 Cardholder Verification Method List

Cardholder Verification Method List ('0100')			
CVM	Verification Method	Conditions	If unsuccessful
1	Offline Plaintext PIN	Always	Fail

#### 1.6.2 Application Tag data

\* Tag value changes with card usage

Tag	Element name	Data	Card v5.x
50	Application Label	49 6E 74 65 72 61 63	- 'INTERAC'
57	Track 2 Equivalent Data	45 06 44 50 06 93 19 33 D2 21 22 20 01 62 90 74 00 00 2F	
5A	Application Primary Account Number (PAN)	45 06 44 50 06 93 19 33	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 36 20 20 20 20 20 20	- 'DEV CAN/Test Card 06'
5F 24	Application Expiration Date	22 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24	- Canada
5F 2D	Language Preference	66 72	- 'fr' (French)
5F 30	Service Code	02 20	
5F 34	Application PAN Sequence Number	01	
82	Application Interchange Profile [VSDC]	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 02 77 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	

Tag	Element name	Data	Card v5.x
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 01 00	
8F	Certification Authority Public Key Index	55	
90	Issuer Public Key Certificate	6C 16 73 99 B8 BE 0C CA 2A A9 EF 30 EC F5 14 C4 F4 F1 F0 89 85 8A 46 08 6F 12 F2 80 B6 81 FD CA 40 8C 09 51 C0 D6 BA 64 FD 05 C7 2C 5A 23 B2 66 DA 11 D6 75 BA B2 AC 74 C5 AF E0 41 A6 94 2D 84 FC 19 0D C0 6D 83 CF 17 71 F2 F9 74 B8 31 73 5A A1 30 39 4D 12 DC CF D5 74 61 D1 20 E5 58 F6 35 12 F6 DB 82 46 DD 41 00 9F A1 D9 73 1B 27 42 F9 7E FD 2B C1 16 DF B9 AF 7A 96 6A CF 12 83 A8 49 A7 A9 73 6A 0D 8A E2 63 98 36 BC A6 9B D9 EE 78	
92	Issuer Public Key Remainder	EC A4 19 2A 02 CA AC 0B 75 22 44 EC AE 9F 1A BA 46 15 E7 05 27 AD D0 D8 03 67 54 CA 9F A5 2E 7D 42 16 22 0F	
93	Signed Static Application Data	10 4E 83 86 72 A5 E9 D2 55 37 D2 68 6D C2 96 F2 5B A1 0F C2 FC 67 A2 77 6D EF 0E CB 67 10 A8 EF 8B 0C D3 A4 7C 69 42 53 CB D4 7E E9 97 BA C4 08 43 26 34 56 35 EE 5E E6 5F 33 FA 64 F9 46 54 96 F6 20 F6 1E 4A 9C 80 4B 1C 5D A9 FB 15 B8 BF E4 EC CF 7D 98 77 66 82 FB D4 F3 75 10 64 E8 66 73 8C 30 C9 08 5C C3 84 F0 8E 25 9D 7D C2 96 B6 F8 90 F9 03 DF C3 24 92 F7 32 2E 1F 11 89 80 DD 01 C0 87 0A E7 F4 C8 54 A1 E3 23 A7 E3 89 B4 4F C1	
94	Application File Locator (AFL)	10 01 01 00 10 02 04 01 10 06 06 00 B0 01 01 00	
9F 07	Application Usage Control	AB 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions NOT valid b6 - Domestic goods valid b5 - International goods NOT valid b4 - Domestic services valid b3 - International services NOT valid b2 - ATMs NOT valid b1 - non-ATM terminals 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	B0 70 BC 80 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B0 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	49 6E 74 65 72 61 63 - 'Interac'	
9F 13	Last Online Application Transaction Counter (ATC) Register	xx xx *	

Tag	Element name	Data	Card v5.x
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 1F	Track 1 Discretionary Data	31 36 32 39 30 37 34 30 30 30 30 32 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 38	Processing Options Data Object List (PDOL)	9F 02 06 9F 1A 02	
9F 44	Application Currency Exponent	02	
9F 46	ICC Public Key Certificate	4A 55 B7 BB 0D 7A 9B A1 38 F8 C7 9F DC 17 D0 5A FE 2B 57 F6 73 C7 19 35 19 17 92 F2 B6 BB 92 9F 72 D5 70 64 38 72 85 D5 5F 79 D8 CF F9 8C 58 78 AB DC 36 13 BB 5E 03 23 F2 CF 01 73 D3 91 78 AB 28 93 8C 96 18 02 A0 2D 53 0F 31 1E 97 D6 01 4A 7C 1A 3E D2 9F 5D C5 1B F4 C4 DD 40 D4 B6 19 06 29 8D 48 68 BC A9 1A 70 88 22 63 92 85 C5 9D CC F6 C3 24 F0 31 FA B1 F0 6E 01 2E FD 31 5A E1 5D DF D6 4C CB 23 42 22 BF 42 D7 E4 1B 61 16 33 06	
9F 47	ICC Public Key Exponent	03	
9F 48	ICC Public Key Remainder	CF 73 74 B6 6B 39 27 A5 74 19 B5 58 7E B1 35 F4 81 BF 23 C7 F7 A5 4D 64 28 4F	
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]	01 24 - CAD	
9F 52	Application Default Action [VSDC VIS 1.5]	C0 38 00 00 00 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]	01 24 - Canada	
9F 5C	Cumulative Total Transaction Amount Upper Limit [VSDC]	00 00 00 00 00 00	
9F 68	Card Additional Processes [qVSDC VCPS 2.1]	10 00 10 00	
9F 6D	VLP Reset Threshold [VSDC]	00 00 00 00 00 00	



## 1.7 Test Card 07 - American Express, DI, Credit, English, Canada, CAD

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

The recommended transaction amount to generate a host approval is \$30.00

### 1.7.1 Cardholder Verification Method List - A00000025010402

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

### 1.7.2 Application Tag data (Contact Interface, online) - A00000025010402

\* Tag value changes with card usage

Tag	Element name	Data	Card v7.x
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 41 00 7D 24 12 20 11 71 01 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 17 41 00 7F	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 37 20 20 20 20 20 20 - 'DEV CAN/Test Card 07'	
5F 24	Application Expiration Date	24 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	
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 41 03 5E 03 5F 03	
94	Application File Locator (AFL)	08 01 01 00 08 02 03 01	

Tag	Element name	Data	Card v7.x
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 01	
9F 0D	Issuer Action Code - Default	B0 50 FC 98 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B0 78 FC 98 00	
9F 10	Issuer Application Data [AEIPS 4.2]	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	01 24 - CAD	

1.7.3 Cardholder Verification Method List (CL) - A00000025010402

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

1.7.4 Application Tag data (Contactless Interface, online) - A00000025010402

\* Tag value changes with card usage

Tag	Element name	Data	Card v7.x
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 10 41 00 7D 24 12 70 21 71 01 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 17 41 00 7F	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 37 20 20 20 20 20 20 - 'DEV CAN/Test Card 07'	
5F 24	Application Expiration Date	24 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	

Tag	Element name	Data	Card v7.x
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 2.0]	18 80 BYTE 1: b7 - SDA NOT supported b6 - DDA NOT supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - CDA NOT supported BYTE 2: b8 - EMV Contactless 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 trans. NOT valid b7 - Int'l cash transactions NOT 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 01	
9F 0D	Issuer Action Code - Default	B0 50 FC 98 00	
9F 0E	Issuer Action Code - Denial	00 00 00 00 00	
9F 0F	Issuer Action Code - Online	B0 78 FC 98 00	
9F 10	Issuer Application Data [Expresspay 2.0]	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	01 24 - CAD	

1.7.5 Cardholder Verification Method List - A000000291010

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

1.7.6 Application Tag data (Contact Interface, online) - A000000291010

\* Tag value changes with card usage

Tag	Element name	Data	Card v7.x
50	Application Label	41 4D 45 52 49 43 41 4E 20 45 58 50 52 45 53 5353 - 'AMERICAN EXPRESS'	
57	Track 2 Equivalent Data	37 42 45 00 10 41 00 7D 24 12 70 21 71 01 23 45 00 00 0F	
5A	Application Primary Account Number (PAN)	37 42 45 00 17 41 00 7F	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 37 20 20 20 20 20 20 - 'DEV CAN/Test Card 07'	
5F 24	Application Expiration Date	24 12 31	
5F 25	Application Effective Date	xx xx xx	
5F 28	Issuer Country Code	01 24 - Canada	
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	18 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 supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported	
84	Dedicated File (DF) Name	A0 00 00 00 29 10 10	
87	Application Priority Indicator	02	
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 41 03 5E 03 5F 03	
94	Application File Locator (AFL)	08 01 01 00 08 02 03 01	

Tag	Element name	Data	Card v7.x
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 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 [AEIPS 4.2]	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	01 24 - CAD	

### 1.8 Test Card 08 - 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.

#### 1.8.1 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

#### 1.8.2 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	

Tag	Element name	Data	Card v8.x
5A	Application Primary Account Number (PAN)	65 10 00 00 00 00 02 16	
5F 20	Cardholder Name	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 38 20 20 20 20 20 20 - 'DEV CAN/Test Card 08'	
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	
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 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 - 'Credit'	
9F 17	Personal Identification Number (PIN) Try Counter	09	
9F 26	Application Cryptogram (AC)	7A 1B DE D0 A7 08 88 28	
9F 27	Cryptogram Information Data (CID)	80	
9F 36	Application Transaction Counter (ATC)	xx xx *	
9F 4D	Transaction Log Entry	0B 0A	

Tag	Element name	Data	Card v8.x
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	
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	

1.8.3 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

1.8.4 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	44 45 56 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 38 20 20 20 20 20 20 - 'DEV CAN/Test Card 08'	
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	



Tag	Element name	Data	Card v8.x
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 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 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 *	
9F 11	Issuer Code Table Index	01	
9F 12	Application Preferred Name	44 69 73 63 6F 76 65 72 20 43 4C - 'Discover CL'	
9F 26	Application Cryptogram (AC)	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	
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	



Tag	Element name	Data	Card v8.x
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	

## 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>				