



# User Acceptance Test (UAT) Canada EMV™ Test Card Set

Version 13.00

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## Revision History

| Version | Date              | Updated By | Revisions  |
|---------|-------------------|------------|--|
| 5.50    | August 25, 2016   | B2PS       | Initial document release   |
| 5.60    | Sept. 21, 2017    | B2PS       | <ul style="list-style-type: none"> <li>TC15: Card v6.0 has 2-byte Kernel ID</li> </ul>   |
| 6.00    | December 27, 2017 | B2PS       | <ul style="list-style-type: none"> <li>TC04 - New version v6.0: Discretionary data updated (CVV)</li> <li>TC07 - 'Approval Amount' updated</li> <li>TC15 - New version v7.0: Increased contactless facility, 'Approval Amount' updated.</li> </ul>     |
| 6.10    | January 5, 2018   | B2PS       | <ul style="list-style-type: none"> <li>TC12, TC13 - EMV Tags for A0000000291010 added</li> </ul>   |
| 6.20    | April 11, 2018    | B2PS       | <ul style="list-style-type: none"> <li>TC11 - Profile table Service code corrected.</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 cards (TC12, TC13, TC14) - Expiry date changed to 24/12</li> <li>Discover cards (TC15, TC16) - Expiry date changed to 23/12</li> </ul> |
| 8.00    | May 30, 2019      | B2PS       | <ul style="list-style-type: none"> <li>TC12 - PAN changed - now ends in '41007', AIP contactless changed</li> <li>TC12 &amp; TC13 - Approval amounts changed</li> </ul>  |
| 8.01    | June 7, 2019      | B2PS       | <ul style="list-style-type: none"> <li>Set renamed to "UAT Canada EMV Test Card Set". No change to cards themselves.</li> </ul>  |
| 9.00    | June 29, 2020     | B2PS       | <ul style="list-style-type: none"> <li>TC01, TC05, TC06, TC07, TC10 – updated cardstock support; where applicable, "MasterCard"&gt;"Mastercard"</li> </ul>   |
| 10.00   | November 4, 2020  | B2PS       | <ul style="list-style-type: none"> <li>TC10 - updated CVM, AIP</li> <li>TC11 - Correction to documentation (CVM)</li> </ul>  |
| 11.00   | March 18, 2021    | B2PS       | <ul style="list-style-type: none"> <li>Mastercard cards change Expiry Date to 25/12</li> </ul>   |
| 11.01   | March 19, 2021    | B2PS       | <ul style="list-style-type: none"> <li>Format-only - limit awkward page-breaks</li> </ul>  |
| 11.10   | November 30, 2021 | B2PS       | <ul style="list-style-type: none"> <li>TC05, TC06 - Documentation correction only. EMV Tag 5F20 has been corrected.</li> </ul>   |
| 12.00   | December 16, 2021 | B2PS       | <ul style="list-style-type: none"> <li>TC01-TC04 - Visa cards change Expiry Date to 24/12</li> <li>TC10, TC11 – now DI with new BIN range</li> </ul>   |
| 13.00   | March 18, 2021    | B2PS       | <ul style="list-style-type: none"> <li>TC10, TC11 – new PAN, BIN range</li> </ul>  |

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| <p><b>CAUTION</b></p> <p>Multiple consecutive incorrect PIN entry attempts may result in the card being blocked.<br/>This is known as being 'PIN Blocked'.<br/>If this occurs, it will no longer be possible to enter an Offline PIN,<br/>which will cause all future transactions to be declined.</p> <p><b>*** It is not possible to unblock a 'PIN Blocked' card ***</b></p>  |
| <p><b>NOTICE</b></p> <p>Interac Flash card has a '001203' BIN range. These cards are supported by all Canadian processors but are not yet supported by all U.S. and international processors.</p> <p><b>*** Check with your acquirer account representative to determine if the Interac Flash BIN range is supported by their development host. If your processor does not yet support Interac Flash, the card will function properly at the POS but it will not obtain a host approval. ***</b></p> |
| <p><b>RECOMMENDATION</b></p> <p>For those that are relatively new to EMV and seek assistance in understanding 'the basics'...<br/>Consider B2's online courses – eLearning and Virtual Training.<br/>Learn from the comfort and convenience of your office (or home-office), at your own pace.</p> <p>Visit: <a href="http://b2ps.com/b2-university">b2ps.com/b2-university</a></p>  |

## Chapter 1. UAT Canada EMV Test Card Set Profiles

This User Acceptance Test (UAT) Canada EMV Test Card Set contains 16 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  | Visa   |
| <b>Type</b>   | Credit   | Credit  | Credit   |
| <b>Description</b>  | Offline Capable  | USA Signature   | No CVM   |
| <b>AID</b>  | A0000000031010   | A0000000031010  | A0000000031010   |
| <b>PAN</b>  | 4761 7310 0000 0043  | 4761 7300 0000 0011   | 4761 7300 0000 0243                                    |
| <b>Expiry Date</b>  | 12/2024  | 12/2024   | 12/2024  |
| <b>Service Code</b>   | 201  | 201   | 201  |
| <b>Interface</b>  | Contact, Contactless, MSR  | Contact, MSR  | Contact, MSR   |
| <b>CVM (Contact)<br/>Default Condition:<br/>Terminal Supports CVM</b> | Online PIN (ATM)<br>Offline Plaintext PIN<br>Signature<br>No CVM required<br><a href="#">See card definition</a> | Online PIN (ATM)<br>Online PIN (MCash)<br>Signature<br>No CVM required<br><a href="#">See card definition</a> | No CVM required<br><a href="#">See card definition</a> |
| <b>Approval Amount</b>  | \$10.00  | \$10.00   | \$10.00  |
| <b>Issuer Country Code</b>  | 124 - Canada   | 840 - USA   | 840 - USA  |
| <b>Application Currency Code</b>                                      | 124 - CAD  | 840 - USD   | 840 - USD  |
| <b>Language</b>   | 'en' – English   | 'en' – English  | 'en' – English   |
| <b>Card Version</b>   | v7.x   | v6.x  | v6.x   |

|   | Test Card 04                               | Test Card 05  | Test Card 06   |
|---|--|---|--|
| Brand   | Visa                                       | Mastercard  | Mastercard   |
| Type  | Credit                                     | Credit  | Credit   |
| Description   | Fallback                                   | Credit  | MasterCard   |
| AID   | -  | A0000000041010  | A0000000041010   |
| PAN   | 4761 7390 0101 0267                        | 5413 3300 8960 4111   | 5413 3300 8960 4111  |
| Expiry Date   | 12/2024                                    | 12/2025   | 12/2025  |
| Service Code  | 201  | 201   | 201  |
| Interface   | MSR  | Contact, Contactless, MSR   | Contact, Contactless, MSR  |
| CVM (Contact)<br>Default Condition:<br><i>Terminal Supports CVM</i> | N/A<br><a href="#">See card definition</a> | Online PIN (ATM)<br>Signature<br>No CVM required<br><a href="#">See card definition</a> | Online PIN (ATM)<br>Offline Enciphered PIN<br>Offline Plaintext PIN<br>Signature<br>No CVM required<br><a href="#">See card definition</a> |
| Approval Amount   | \$10.00                                    | \$20.00   | \$20.00  |
| Issuer Country Code   | -  | 124 - Canada  | 124 - Canada   |
| Application Currency Code   | -  | 124 - CAD   | 124 - CAD  |
| Language  | -  | 'en' – English  | 'fr' – French  |
| Card Version  | v7.x                                       | v7.x  | v7.x   |

|   | Test Card 07  | Test Card 08                               | Test Card 09                               |
|---|---|--|--|
| Brand   | Mastercard  | Mastercard                                 | Mastercard                                 |
| Type  | Credit  | Credit                                     | Credit                                     |
| Description   | ARPC Failure  | Fallback                                   | Empty Candidate List                       |
| AID   | A0000000041010  | -  | -  |
| PAN   | 5413 3300 8902 0011   | 5413 3300 8902 0029                        | 5413 3300 8902 0011                        |
| Expiry Date   | 12/2025   | 12/2025                                    | 12/2025                                    |
| Service Code  | 201   | 201  | 601  |
| Interface   | Contact, MSR  | MSR  | MSR  |
| CVM (Contact)<br>Default Condition:<br><i>Terminal Supports CVM</i> | Signature<br>No CVM required<br><a href="#">See card definition</a> | N/A<br><a href="#">See card definition</a> | N/A<br><a href="#">See card definition</a> |
| Approval Amount   | \$120.00  | \$20.00                                    | -  |
| Issuer Country Code   | 840 - USA   | -  | -  |
| Application Currency Code   | 840 - USD   | -  | -  |
| Language  | 'en' – English  | -  | -  |
| Card Version  | v7.x  | v6.x                                       | v6.x                                       |

|   | Test Card 10   | Test Card 11   | Test Card 12  |
|---|--|--|---|
| <b>Brand</b>  | Interac  | Interac  | American Express  |
| <b>Type</b>   | Debit  | Debit  | Credit  |
| <b>Description</b>  | Canadian Debit   | Canadian Debit   | Online Only   |
| <b>AID</b>  | A0000002771010   | A0000002771010   | A00000025010402,<br>A000000291010   |
| <b>PAN</b>  | 0012 0300 0000 0003  | 0012 0300 0000 0003  | 3742 450017 41007   |
| <b>Expiry Date</b>  | 12/2028  | 12/2028  | 12/2024   |
| <b>Service Code</b>   | 220  | 220  | 201   |
| <b>Interface</b>  | Contact, Contactless,<br>MSR   | Contact, Contactless,<br>MSR   | Contact, Contactless,<br>MSR  |
| <b>CVM (Contact)<br/>Default Condition:<br/>Terminal Supports CVM</b> | Offline Enciphered PIN<br>Offline Plaintext PIN<br>Online PIN<br><a href="#">See card definition</a> | Offline Enciphered PIN<br>Offline Plaintext PIN<br>Online PIN<br><a href="#">See card definition</a> | Online PIN (ATM)<br>Online PIN<br>Signature<br>No CVM required<br><a href="#">See card definition</a> |
| <b>Approval Amount</b>  | \$10.00  | \$10.00  | \$30.00   |
| <b>Issuer Country Code</b>  | 124 - Canada   | 124 - Canada   | 124 - Canada  |
| <b>Application Currency Code</b>                                      | 124 - CAD  | 124 - CAD  | 124 - CAD   |
| <b>Language</b>   | 'en' – English   | 'fr' – French  | 'en' – English  |
| <b>Card Version</b>   | v10.x  | v7.x   | v7.x  |

|   | Test Card 13   | Test Card 14                               | Test Card 15  |
|---|--|--|---|
| <b>Brand</b>  | American Express   | American Express                           | Discover  |
| <b>Type</b>   | Credit   | Credit                                     | Credit  |
| <b>Description</b>  | Amex Credit  | Fallback                                   | Discover Credit   |
| <b>AID</b>  | A00000025010402,<br>A000000291010  | -  | A0000001523010  |
| <b>PAN</b>  | 3742 450027 71003  | 3742 450037 31006                          | 6510 0000 0000 0216   |
| <b>Expiry Date</b>  | 12/2024  | 12/2024                                    | 12/2023   |
| <b>Service Code</b>   | 201  | 201  | 201   |
| <b>Interface</b>  | Contact, Contactless,<br>MSR   | MSR  | Contact, Contactless,<br>MSR  |
| <b>CVM (Contact)<br/>Default Condition:<br/>Terminal Supports CVM</b> | Online PIN (ATM)<br>Offline Plaintext PIN<br>Signature<br>No CVM required<br><a href="#">See card definition</a> | N/A<br><a href="#">See card definition</a> | Online PIN (ATM)<br>Offline Plaintext PIN<br>No CVM required<br><a href="#">See card definition</a> |
| <b>Approval Amount</b>  | \$39.00 or \$43.00   | \$36.00                                    | \$79.00   |
| <b>Issuer Country Code</b>  | 124 - Canada   | -  | 840 - USA   |
| <b>Application Currency Code</b>                                      | 124 - CAD  | -  | 840 - USD   |
| <b>Language</b>   | 'en' – English   | -  | 'en' – English  |
| <b>Card Version</b>   | v6.x   | v6.x                                       | v8.x  |



|   | Test Card 16                               |
|---|--|
| Brand   | Discover                                   |
| Type  | Credit                                     |
| Description   | Fallback                                   |
| AID   | -  |
| PAN   | 6510 0000 0000 0331                        |
| Expiry Date   | 12/2023                                    |
| Service Code  | 201  |
| Interface   | MSR  |
| CVM (Contact)<br>Default Condition:<br><i>Terminal Supports CVM</i> | N/A<br><a href="#">See card definition</a> |
| Approval Amount   | \$26.00                                    |
| Issuer Country Code   | -  |
| Application Currency Code   | -  |
| Language  | -  |
| Card Version  | v6.x                                       |

### 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 CVM List - AID A000000031010, Visa (EMV)

| Cardholder Verification Method List('4201 4103 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  | Signature (paper)     | Terminal supports CVM type | Next CVM        |
| 4  | No CVM required       | Always                     | Fail            |

#### 1.1.2 Application Tag data (Contact)

| Tag   | Element name                                    | Data  | Card v7.x |
|-------|---|---|-----------|
| 50    | Application Label                               | 56 49 53 41 20 43 52 45 44 49<br>54 - 'VISA CREDIT'   |           |
| 57    | Track 2 Equivalent Data                         | 47 61 73 10 00 00 00 43 D2 41<br>22 01 13 03 13 06 00 00 0F   |           |
| 5A    | Application Primary Account Number (PAN)        | 47 61 73 10 00 00 00 43   |           |
| 5F 20 | Cardholder Name                                 | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 30 31<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 01'   |           |
| 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                 | 01  |           |
| 82    | Application Interchange Profile [VIS]           | 3C 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported using<br>External Auth command<br>b1 - Combined DDA / GEN AC NOT<br>supported<br>BYTE 2:<br>b8 - Use for Visa NOT supported<br>b7 - Is NOT a 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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04  |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04  |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>41 03 5E 03 1F 03  |           |
| 8F    | Certification Authority Public Key Index        | 92  |           |

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| 90    | Issuer Public Key Certificate                              | 04 D6 DC A7 7E 2D DF B5 60 0A<br>9D DE 4E A2 23 91 BF 4A F3 37<br>F2 FB 99 41 91 E0 39 70 74 D5<br>35 E8 AB D2 7F 43 90 6A DD D4<br>5F 01 54 01 98 EF 23 3C 9D 4C<br>C8 98 AD 56 A9 56 A9 66 D7 38<br>58 55 86 68 13 F5 E9 29 FB 72<br>FA E5 E4 40 64 2E B1 EE A3 0D<br>80 C3 E6 D2 81 E0 E6 FB 51 6B<br>25 1D D7 5C 01 D5 9C 71 78 28<br>27 39 1F 89 D8 FF D9 E6 EA 30<br>2C BE 1B C9 86 BE A0 36 5C 36<br>F7 A6 DA 9F FD 80 F4 D0 FF 9E<br>D8 9D D5 15 9A 5B 00 3C 78 6A<br>11 17 94 FD 93 92 3D 6C ED 15<br>4D 35 4E A7 F0 4E 4A 48 76 1A<br>74 D9 FC 18 48 48 F1 C6 33 CE<br>5A DF 54 96 35 BD |           |
| 92    | Issuer Public Key Remainder                                | 85 AA DF 04 3F AA 38 48 ED 86<br>9D 6E B3 D9 70 F4 AC 08 A9 74<br>74 27 88 42 C8 55 84 E3 4B 6F<br>AC C0 72 07 BC 41   |           |
| 94    | Application File Locator (AFL)                             | 10 01 01 00 10 02 05 01 B0 01<br>01 00   |           |
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |           |
| 9F 08 | Application Version Number [VIS]                           | 00 96  |           |
| 9F 0D | Issuer Action Code - Default                               | B8 50 AC 88 00   |           |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00   |           |
| 9F 0F | Issuer Action Code - Online                                | B8 70 BC 98 00   |           |
| 9F 10 | Issuer Application Data [VSDC]                             | xx xx 0A xx xx xx xx *   |           |
| 9F 11 | Issuer Code Table Index                                    | 01   |           |
| 9F 12 | Application Preferred Name                                 | 56 69 73 61 20 43 72 65 64 69<br>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<br>30 30 30 30 30 30 30 30 30 30<br>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 v7.x |
|-------|--|--|-----------|
| 9F 46 | ICC Public Key Certificate                                   | 8C 30 F9 F0 DF 98 58 74 1E BE<br>22 B7 EF 1A 22 CD 7B BC 5E 4E<br>6C CA E1 22 D9 EF 9E 72 01 05<br>7C 11 E5 AB F1 8F F4 26 0B E7<br>92 07 95 06 55 34 FB 26 1B 82<br>E9 F0 BE 16 7C 47 3B A1 77 7A<br>E4 55 10 BD 66 B8 B4 99 BB 41<br>33 6E 3E 83 DF D3 5C 37 BC 26<br>DB 3C 85 66 C5 49 CE 29 F5 65<br>E6 BE 0D 94 51 2E CE 5F 6D D8<br>46 80 19 61 0B 4F FF 9C E4 84<br>C4 17 E9 73 A3 9A 9D 41 7E 49<br>C7 BF 19 F5 42 AC B8 DA 51 97<br>36 F6 14 9B A7 D4 BE 13 2F 0C<br>F7 8E B9 28 35 47 34 5A 3B 1F<br>2F 6D 77 C3 D9 09 D2 EC EB BC<br>DC F2 54 47 B4 4F 24 57 B0 6C<br>FC DE 96 AC 68 6F |           |
| 9F 47 | ICC Public Key Exponent                                      | 03   |           |
| 9F 49 | Dynamic Data Authentication Data Object List (DDOL)          | 9F 37 04   |           |
| 9F 4B | Signed Dynamic Application Data                              | 7A 74 0E 09 46 53 4D EC D9 4E<br>AD 3A F1 2A 7C 85 BB C3 D9 F5<br>1D 6E DC 15 B0 4F 0B FE 6B 34<br>9C 13 C4 6F 6D 41 B4 57 B3 08<br>CC 7B 94 65 ED 50 82 54 86 9C<br>DD 43 7F 93 F2 27 6C 85 27 8D<br>BE 54 D6 E2 51 60 9F 8C 0F C7<br>89 D2 F2 0A 23 C9 04 32 8E 5C<br>AC 58 3C BC ED 0B 0B 03 EF DC<br>8D E8 53 48 3B FC 55 84 DA E2<br>8F 24 78 1A BA 0B F9 5D 89 94<br>11 90   |           |
| 9F 51 | Application Currency Code [VSDC]                             | 01 24 - CAD  |           |
| 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 - CAN  |           |
| 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 01 DF 21 01 03 DF 31<br>01 07   |           |
| BF 56 | Counters Data Template                                       | DF 11 01 01 DF 21 01 03 DF 31<br>01 07   |           |
| BF 57 | International Counters Data Template                         | DF 11 01 01 DF 21 01 03 DF 31<br>01 07 DF 51 01 04 DF 61 01 03   |           |

| Tag   | Element name                       | Data   | Card v7.x |
|-------|------------------------------------|--|-----------|
| BF 58 | Amounts Data Template              | DF 11 06 00 00 00 01 00 02 DF<br>21 06 00 00 00 02 00 00 DF 31<br>06 00 00 00 04 00 00 |           |
| BF 5B | Application Internal Data Template | DF 01 02 00 00   |           |

\* Tag value changes with card usage

### 1.1.3 Application Tag data (Contactless - ODA)

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| 50    | Application Label  | 56 49 53 41 20 43 52 45 44 49<br>54 - 'VISA CREDIT'  |           |
| 57    | Track 2 Equivalent Data                                    | 47 61 73 10 00 00 00 43 D2 41<br>22 01 13 03 13 06 00 00 0F  |           |
| 5A    | Application Primary Account Number (PAN)                   | 47 61 73 10 00 00 00 43  |           |
| 5F 24 | Application Expiration Date                                | 24 12 31   |           |
| 5F 2D | Language Preference  | 65 6E  |           |
| 5F 34 | Application PAN Sequence Number                            | 01   |           |
| 82    | Application Interchange Profile [VCPS]                     | 20 00<br>BYTE 1:<br>b7 - Offline SDA (online Auth) NOT supported<br>b6 - Offline DDA supported<br>BYTE 2:<br>b8 - MSD NOT supported<br>b7 - Is a Mobile handset<br>b6 - Is Contactless transaction   |           |
| 84    | Dedicated File (DF) Name                                   | A0 00 00 00 03 10 10   |           |
| 8F    | Certification Authority Public Key Index                   | 92   |           |
| 90    | Issuer Public Key Certificate                              | 04 D6 DC A7 7E 2D DF B5 60 0A<br>9D DE 4E A2 23 91 BF 4A F3 37<br>F2 FB 99 41 91 E0 39 70 74 D5<br>35 E8 AB D2 7F 43 90 6A DD D4<br>5F 01 54 01 98 EF 23 3C 9D 4C<br>C8 98 AD 56 A9 56 A9 66 D7 38<br>58 55 86 68 13 F5 E9 29 FB 72<br>FA E5 E4 40 64 2E B1 EE A3 0D<br>80 C3 E6 D2 81 E0 E6 FB 51 6B<br>25 1D D7 5C 01 D5 9C 71 78 28<br>27 39 1F 89 D8 FF D9 E6 EA 30<br>2C BE 1B C9 86 BE A0 36 5C 36<br>F7 A6 DA 9F FD 80 F4 D0 FF 9E<br>D8 9D D5 15 9A 5B 00 3C 78 6A<br>11 17 94 FD 93 92 3D 6C ED 15<br>4D 35 4E A7 F0 4E 4A 48 76 1A<br>74 D9 FC 18 48 48 F1 C6 33 CE<br>5A DF 54 96 35 BD |           |
| 92    | Issuer Public Key Remainder                                | 85 AA DF 04 3F AA 38 48 ED 86<br>9D 6E B3 D9 70 F4 AC 08 A9 74<br>74 27 88 42 C8 55 84 E3 4B 6F<br>AC C0 72 07 BC 41   |           |
| 94    | Application File Locator (AFL)                             | 10 02 02 01 10 04 07 00  |           |
| 9F 10 | Issuer Application Data [VSDC]                             | xx xx 0A xx xx xx xx *   |           |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *  |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 09   |           |
| 9F 26 | Application Cryptogram (AC)                                | xx xx xx xx xx xx xx xx *  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 80   |           |
| 9F 32 | Issuer Public Key Exponent                                 | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |           |

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| 9F 38 | Processing Options Data Object List (PDOL)               | 9F 66 04 9F 02 06 9F 03 06 9F<br>1A 02 95 05 5F 2A 02 9A 03 9C<br>01 9F 37 04  |           |
| 9F 46 | ICC Public Key Certificate                               | 8C 30 F9 F0 DF 98 58 74 1E BE<br>22 B7 EF 1A 22 CD 7B BC 5E 4E<br>6C CA E1 22 D9 EF 9E 72 01 05<br>7C 11 E5 AB F1 8F F4 26 0B E7<br>92 07 95 06 55 34 FB 26 1B 82<br>E9 F0 BE 16 7C 47 3B A1 77 7A<br>E4 55 10 BD 66 B8 B4 99 BB 41<br>33 6E 3E 83 DF D3 5C 37 BC 26<br>DB 3C 85 66 C5 49 CE 29 F5 65<br>E6 BE 0D 94 51 2E CE 5F 6D D8<br>46 80 19 61 0B 4F FF 9C E4 84<br>C4 17 E9 73 A3 9A 9D 41 7E 49<br>C7 BF 19 F5 42 AC B8 DA 51 97<br>36 F6 14 9B A7 D4 BE 13 2F 0C<br>F7 8E B9 28 35 47 34 5A 3B 1F<br>2F 6D 77 C3 D9 09 D2 EC EB BC<br>DC F2 54 47 B4 4F 24 57 B0 6C<br>FC DE 96 AC 68 6F |           |
| 9F 47 | ICC Public Key Exponent                                  | 03   |           |
| 9F 4B | Signed Dynamic Application Data                          | 01 C4 FE F2 ED 0A 37 BF FC A8<br>A4 6A 90 EB 3E 07 F6 C6 F7 DE<br>2C ED D4 44 C6 79 48 25 FA D5<br>9D 7D AC 12 B3 66 2D FB 75 2D<br>4E 6F 8A CA 94 4A DB FF 48 1D<br>7F 06 A2 38 EC 80 D5 4B 95 74<br>97 BC 57 BE 78 3A EE AF 45 3D<br>79 7C 4D 53 15 E3 6E 76 0E FB<br>F8 F9 E1 34 CA 31 3D D2 65 67<br>1B 6A E3 D8 8E 3C 02 3A 56 D6<br>79 07 53 A3 95 F6 3C BD 9D 2D<br>39 9D   |           |
| 9F 51 | Application Currency Code [VSDC]                         | 01 24 - CAD  |           |
| 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 - CAN  |           |
| 9F 58 | Consecutive Transaction Counter Limit [VSDC]             | 03   |           |
| 9F 59 | Consecutive Transaction Counter Upper Limit [VSDC]       | 07   |           |
| 9F 5A | Application Program Identifier                           | 31 01 24 01 24   |           |
| 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 69 | Card Authentication Related Data [qVSDC]                 | 01 25 6A F0 57 38 00   |           |

| Tag   | Element name                                 | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 6C | Card Transaction Qualifiers [qVSDC VCPS 2.1] | 38 00<br>BYTE 1:<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - Do go online if Offline Data Authentication fails and Reader is online capable<br>b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip<br>b4 - Do go Online if Application Expired<br>b3 - Do NOT switch interface for Cash Transactions<br>b2 - Do NOT switch interface for Cashback Transactions<br>b1 - Is valid for contactless ATM transactions<br>BYTE 2:<br>b8 - Consumer Device CVM NOT performed<br>b7 - Card does NOT Support Issuer Update Processing at POS |           |

\* Tag value changes with card usage

1.1.4 Application Tag data (Contactless)

| Tag   | Element name                             | Data   | Card v7.x |
|-------|--|--|-----------|
| 50    | Application Label                        | 56 49 53 41 20 43 52 45 44 49  |           |
| 57    | Track 2 Equivalent Data                  | 54 - 'VISA CREDIT'   |           |
| 5A    | Application Primary Account Number (PAN) | 47 61 73 10 00 00 00 43  |           |
| 5F 24 | Application Expiration Date              | 24 12 31   |           |
| 5F 2D | Language Preference                      | 65 6E  |           |
| 5F 34 | Application PAN Sequence Number          | 01   |           |
| 82    | Application Interchange Profile [VCPS]   | 20 00<br>BYTE 1:<br>b7 - Offline SDA (online Auth) NOT supported<br>b6 - Offline DDA supported<br>BYTE 2:<br>b8 - MSD NOT supported<br>b7 - Is a Mobile handset<br>b6 - Is Contactless transaction |           |
| 84    | Dedicated File (DF) Name                 | A0 00 00 00 03 10 10   |           |
| 8F    | Certification Authority Public Key Index | 92   |           |

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| 90    | Issuer Public Key Certificate                              | 04 D6 DC A7 7E 2D DF B5 60 0A<br>9D DE 4E A2 23 91 BF 4A F3 37<br>F2 FB 99 41 91 E0 39 70 74 D5<br>35 E8 AB D2 7F 43 90 6A DD D4<br>5F 01 54 01 98 EF 23 3C 9D 4C<br>C8 98 AD 56 A9 56 A9 66 D7 38<br>58 55 86 68 13 F5 E9 29 FB 72<br>FA E5 E4 40 64 2E B1 EE A3 0D<br>80 C3 E6 D2 81 E0 E6 FB 51 6B<br>25 1D D7 5C 01 D5 9C 71 78 28<br>27 39 1F 89 D8 FF D9 E6 EA 30<br>2C BE 1B C9 86 BE A0 36 5C 36<br>F7 A6 DA 9F FD 80 F4 D0 FF 9E<br>D8 9D D5 15 9A 5B 00 3C 78 6A<br>11 17 94 FD 93 92 3D 6C ED 15<br>4D 35 4E A7 F0 4E 4A 48 76 1A<br>74 D9 FC 18 48 48 F1 C6 33 CE<br>5A DF 54 96 35 BD |           |
| 92    | Issuer Public Key Remainder                                | 85 AA DF 04 3F AA 38 48 ED 86<br>9D 6E B3 D9 70 F4 AC 08 A9 74<br>74 27 88 42 C8 55 84 E3 4B 6F<br>AC C0 72 07 BC 41   |           |
| 94    | Application File Locator (AFL)                             | 10 02 02 01 10 04 07 00  |           |
| 9F 10 | Issuer Application Data [VSDC]                             | xx xx 0A xx xx xx xx *   |           |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *  |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 09   |           |
| 9F 26 | Application Cryptogram (AC)                                | xx xx xx xx xx xx xx xx *  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 40   |           |
| 9F 32 | Issuer Public Key Exponent                                 | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |           |
| 9F 38 | Processing Options Data Object List (PDOL)                 | 9F 66 04 9F 02 06 9F 03 06 9F<br>1A 02 95 05 5F 2A 02 9A 03 9C<br>01 9F 37 04  |           |
| 9F 46 | ICC Public Key Certificate                                 | 8C 30 F9 F0 DF 98 58 74 1E BE<br>22 B7 EF 1A 22 CD 7B BC 5E 4E<br>6C CA E1 22 D9 EF 9E 72 01 05<br>7C 11 E5 AB F1 8F F4 26 0B E7<br>92 07 95 06 55 34 FB 26 1B 82<br>E9 F0 BE 16 7C 47 3B A1 77 7A<br>E4 55 10 BD 66 B8 B4 99 BB 41<br>33 6E 3E 83 DF D3 5C 37 BC 26<br>DB 3C 85 66 C5 49 CE 29 F5 65<br>E6 BE 0D 94 51 2E CE 5F 6D D8<br>46 80 19 61 0B 4F FF 9C E4 84<br>C4 17 E9 73 A3 9A 9D 41 7E 49<br>C7 BF 19 F5 42 AC B8 DA 51 97<br>36 F6 14 9B A7 D4 BE 13 2F 0C<br>F7 8E B9 28 35 47 34 5A 3B 1F<br>2F 6D 77 C3 D9 09 D2 EC EB BC<br>DC F2 54 47 B4 4F 24 57 B0 6C<br>FC DE 96 AC 68 6F |           |
| 9F 47 | ICC Public Key Exponent                                    | 03   |           |



| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 4B | Signed Dynamic Application Data                              | AB 5D 50 DE 6E 85 38 E3 3E F3<br>04 C6 AB E3 3F 98 5B 9A B2 CB<br>6D 36 D0 71 79 CC 2C A0 75 3A<br>C9 A3 10 98 F1 DD CA C7 98 1E<br>CD C7 F2 48 76 EC 41 23 25 B6<br>90 EA 17 C9 CF ED 86 50 07 ED<br>9E C8 03 4C C1 C0 33 05 82 CF<br>36 01 C1 1F 02 B7 15 09 96 B5<br>2A 2D 6E 0D BF F6 64 62 9A BC<br>F0 BF E0 36 27 3D D7 41 97 1F<br>1C 14 91 D8 1C 09 44 7C C2 2E<br>72 C2  |           |
| 9F 51 | Application Currency Code [VSDC]                             | 01 24 - CAD   |           |
| 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 - CAN   |           |
| 9F 58 | Consecutive Transaction Counter Limit [VSDC]                 | 03  |           |
| 9F 59 | Consecutive Transaction Counter Upper Limit [VSDC]           | 07  |           |
| 9F 5A | Application Program Identifier                               | 31 01 24 01 24  |           |
| 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 69 | Card Authentication Related Data [qVSDC]                     | 01 74 F1 A4 64 38 00  |           |
| 9F 6C | Card Transaction Qualifiers [qVSDC VCPS 2.1]                 | 38 00<br>BYTE 1:<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - Do go online if Offline Data Authentication fails and Reader is online capable<br>b5 - Do switch interface if Offline Data Authentication fails and Reader supports contact chip<br>b4 - Do go Online if Application Expired<br>b3 - Do NOT switch interface for Cash Transactions<br>b2 - Do NOT switch interface for Cashback Transactions<br>b1 - Is valid for contactless ATM transactions<br>BYTE 2:<br>b8 - Consumer Device CVM NOT performed<br>b7 - Card does NOT Support Issuer Update Processing at POS |           |
| 9F 6E | Form Factor Indicator [qVSDC]                                | 20 70 00 00   |           |
| 9F 72 | Consecutive Transaction Limit (International-Country) [VSDC] | 03  |           |
| BF 55 | Contactless Counters Data Template                           | DF 11 01 01 DF 21 01 03 DF 31 01 07   |           |
| BF 56 | Counters Data Template                                       | DF 11 01 00 DF 21 01 03 DF 31 01 07   |           |

| Tag   | Element name                         | Data   | Card v7.x |
|-------|--------------------------------------|--|-----------|
| BF 57 | International Counters Data Template | DF 11 01 00 DF 21 01 03 DF 31<br>01 07 DF 51 01 03 DF 61 01 03                         |           |
| BF 58 | Amounts Data Template                | DF 11 06 00 00 00 01 00 02 DF<br>21 06 00 00 00 02 00 00 DF 31<br>06 00 00 00 04 00 00 |           |
| BF 5B | Application Internal Data Template   | DF 01 02 00 00   |           |

\* Tag value changes with card usage

## 1.2 Test Card 02 – Visa, Credit, English, USA, USD

A Visa credit card with two AIDs, Issuer Country Code of 'USA' and Currency Code of 'USD'.

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

### 1.2.1 CVM List - AID A000000031010, Visa (EMV)

| Cardholder Verification Method List ('4201 4204 5E03 1F00') |                     |                            |                 |
|---|---------------------|----------------------------|-----------------|
| CVM   | Verification Method | Conditions                 | If unsuccessful |
| 1   | Online PIN          | Unattended Cash            | Next CVM        |
| 2   | Online PIN          | Manual Cash                | Next CVM        |
| 3   | Signature (paper)   | Terminal supports CVM type | Next CVM        |
| 4   | No CVM required     | Always                     | Fail            |

### 1.2.2 Application Tag data (Contact)

| Tag   | Element name                             | Data  | Card v6.x |
|-------|--|---|-----------|
| 50    | Application Label                        | 56 49 53 41 20 43 52 45 44 49<br>54 - 'VISA CREDIT'   |           |
| 57    | Track 2 Equivalent Data                  | 47 61 73 00 00 00 00 11 D2 41<br>22 01 11 43 80 44 00 00 0F   |           |
| 5A    | Application Primary Account Number (PAN) | 47 61 73 00 00 00 00 11   |           |
| 5F 20 | Cardholder Name                          | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 30 32<br>20 20 20 20 20 20 - 'UAT CAN/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          | 01  |           |
| 82    | Application Interchange Profile [VIS]    | 1C 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported via EXTERNAL AUTH command<br>b1 - Combined DDA / GEN AC NOT supported<br>BYTE 2:<br>b8 - Use for Visa NOT supported<br>b7 - Is NOT a Mobile handset |           |
| 84    | Dedicated File (DF) Name                 | A0 00 00 00 03 10 10  |           |
| 87    | Application Priority Indicator           | 01  |           |

| Tag   | Element name                                    | Data   | Card v6.x |
|-------|---|--|-----------|
| 8C    | Card Risk Management Data Object List 1 (CDOL1) | 9F 02 06 9F 03 06 9F 1A 02 95<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04   |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>42 04 5E 03 1F 00   |           |
| 8F    | Certification Authority Public Key Index        | 92   |           |
| 90    | Issuer Public Key Certificate                   | 3C 96 F7 65 8F BC 29 A2 02 F1<br>91 46 BD E9 21 66 B0 F6 22 1B<br>BC CB 02 E3 26 71 0B 9E 22 9D<br>16 FA E9 AD 0C 87 4C 06 85 91<br>6E 19 F0 E3 26 93 EE 20 1B CE<br>23 59 50 9A 6D 65 72 F8 EC 3F<br>C3 73 12 6B 34 3F 9C B8 15 3D<br>61 B7 EA B2 D4 2D E1 9D 56 08<br>31 85 A0 3D D1 4C 26 8D 40 DF<br>08 35 C5 5E AB FA 38 ED 28 BC<br>E4 2C D0 01 3D A9 4F 80 05 18<br>B7 53 C2 46 EF FB A0 8F D2 02<br>9B AD 5D FC F0 DA F0 7B 7D 80<br>1C 46 5F FD 25 2C 70 B9 21 53<br>B3 30 D9 5D CA 2F A1 FA AE 2D<br>01 68 A4 EA 8B 47 5C D8 05 DC<br>32 AA 96 4C 17 BF CD 2C D5 D0<br>30 9A B0 EA 76 1B |           |
| 92    | Issuer Public Key Remainder                     | 50 DA 20 DD A8 95 3B 69 3F ED<br>84 36 68 31 BA 1E EA 97 F7 8F<br>79 2A CF 8C B9 8F DF 01 49 A7<br>B7 8F DA 1C 49 67   |           |
| 93    | Signed Static Application Data                  | 18 E7 DC A7 C0 81 A4 B0 F1 9C<br>4E C3 2F 48 1F 8A A9 71 E1 05<br>56 4E D5 11 B6 7C E9 35 33 A4<br>43 AA 69 46 8D AB F7 92 4A 0F<br>CC E7 9F 6A CA 11 AC 50 EA 7C<br>F6 E3 61 13 8B CC 18 FF 56 94<br>6B CA ED 39 EA 62 B5 81 80 8F<br>15 0F 74 5A 4C 99 B9 0F EB 79<br>6F BF 9F 68 2D 72 B2 00 B0 DC<br>6A 91 EC 45 3A E2 04 41 D1 28<br>05 7F 91 3D 6F ED 89 D4 D5 98<br>35 E7 C9 F7 80 8B 63 03 28 F8<br>19 44 C4 84 AA CA E0 BF 08 7B<br>BA 05 6D E5 90 4D 0A FA D2 CE<br>AF AD 02 DB AB 87 91 CE 53 47<br>4A 37 19 70 CF A3 8C 8B B3 89<br>31 E9 E7 C6 D3 09 5A 3A FC 6B<br>46 7C F0 75 23 30 |           |
| 94    | Application File Locator (AFL)                  | 10 01 01 00 10 02 05 01 10 08<br>08 00 B0 01 01 00   |           |
| 9F 07 | Application Usage Control                       | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |           |

| Tag   | Element name   | Data   | Card v6.x |
|-------|--|--|-----------|
| 9F 08 | Application Version Number [VIS]                           | 00 96  |           |
| 9F 0D | Issuer Action Code - Default                               | B0 50 80 88 00   |           |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00   |           |
| 9F 0F | Issuer Action Code - Online                                | B0 50 80 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<br>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<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30  |           |
| 9F 26 | Application Cryptogram (AC)                                | xx xx xx xx xx xx xx xx *  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 80   |           |
| 9F 32 | Issuer Public Key Exponent                                 | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |           |
| 9F 44 | Application Currency Exponent                              | 02   |           |
| 9F 46 | ICC Public Key Certificate                                 | 25 FC B3 CA 15 F7 BD D7 53 40<br>27 90 BE 96 59 73 0B 8B ED F5<br>CF 92 55 3B A1 6F 31 B0 0A CE<br>07 1E 32 D0 A1 56 F0 09 30 BE<br>08 5E 47 BE B0 C1 8D 42 73 F6<br>6A C2 FB 15 29 01 19 3F 1C 35<br>45 B8 34 B8 B5 3F BA 40 21 4B<br>1F 05 AE 5C 66 95 3A 82 A8 C6<br>B5 E0 41 0A E0 7D 57 69 A0 88<br>B9 C9 9B B6 BF 59 3A 9A 49 54<br>4A 75 78 ED F2 9F 74 19 9B BB<br>DA 77 E1 3A B4 D7 37 5E AC 2A<br>70 D1 CF C1 01 5A 7D 83 12 01<br>78 FA C6 AE 80 D6 7C 34 1A 47<br>0A 16 3B E5 61 53 12 EF 47 3C<br>B8 98 26 A9 B1 AF 76 F6 50 74<br>95 53 27 31 B3 1C F1 22 2E 28<br>55 7E 73 D8 36 61 |           |
| 9F 47 | ICC Public Key Exponent                                    | 03   |           |
| 9F 49 | Dynamic Data Authentication Data Object List (DDOL)        | 9F 37 04   |           |
| 9F 4A | Static Data Authentication Tag List                        | 82   |           |
| 9F 51 | Application Currency Code [VSDC]                           | 08 40 - USD  |           |
| 9F 52 | Application Default Action [VSDC VIS 1.5]                  | C0 00 00 00 00 00  |           |
| 9F 53 | Consecutive Transaction Limit (International) [VSDC]       | 00   |           |
| 9F 54 | Cumulative Total Transaction Amount Limit [VSDC]           | 00 00 00 00 00 00  |           |
| 9F 56 | Issuer Authentication Indicator [VSDC]                     | 80   |           |
| 9F 57 | Issuer Country Code [VSDC]                                 | 08 40 - USA  |           |
| 9F 58 | Consecutive Transaction Counter Limit [VSDC]               | 00   |           |
| 9F 59 | Consecutive Transaction Counter Upper Limit [VSDC]         | 00   |           |
| 9F 5C | Cumulative Total Transaction Amount Upper Limit [VSDC]     | 00 00 00 00 00 00  |           |
| 9F 5E | Consecutive Transaction International Upper Limit [VSDC]   | 00   |           |

| Tag   | Element name                         | Data   | Card v6.x |
|-------|--------------------------------------|--|-----------|
| BF 56 | Counters Data Template               | DF 11 01 01 DF 21 01 00 DF 31 01 00  |           |
| BF 57 | International Counters Data Template | DF 11 01 00 DF 21 01 00 DF 31 01 00 DF 51 01 00                                  |           |
| BF 58 | Amounts Data Template                | DF 11 06 00 00 00 00 00 00 DF 21 06 00 00 00 00 00 00 DF 31 06 00 00 00 00 00 00 |           |

\* Tag value changes with card usage

### 1.3 Test Card 03– Visa, No CVM, English, USA, USD

A Visa card with no CVM, Issuer Country Code of 'USA' and Currency Code of 'USD'.

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

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

| Cardholder Verification Method List ('1F00') |                     |            |                 |
|--|---------------------|------------|-----------------|
| CVM  | Verification Method | Conditions | If unsuccessful |
| 1  | No CVM required     | Always     | Fail            |

#### 1.3.2 Application Tag data (Contact)

| Tag   | Element name                                    | Data  | Card v6.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 00 00 00 02 43 D2 41 22 01 11 43 80 44 00 00 0F  |           |
| 5A    | Application Primary Account Number (PAN)        | 47 61 73 00 00 00 02 43   |           |
| 5F 20 | Cardholder Name                                 | 55 41 54 20 43 41 4E 2F 54 65 73 74 20 43 61 72 64 20 30 33 20 20 20 20 20 20 - 'UAT CAN/Test Card 03'  |           |
| 5F 24 | Application Expiration Date                     | 24 12 31  |           |
| 5F 25 | Application Effective Date                      | xx xx xx  |           |
| 5F 28 | Issuer Country Code                             | 08 40 - USA   |           |
| 5F 2D | Language Preference                             | 65 6E - 'en' (English)  |           |
| 5F 30 | Service Code                                    | 02 01   |           |
| 5F 34 | Application PAN Sequence Number                 | 01  |           |
| 82    | Application Interchange Profile [VIS]           | 1C 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported via EXTERNAL AUTH command<br>b1 - Combined DDA / GEN AC NOT supported<br>BYTE 2:<br>b8 - Use for Visa NOT supported<br>b7 - Is NOT a Mobile handset |           |
| 84    | Dedicated File (DF) Name                        | A0 00 00 00 03 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 v6.x |
|-------|---|--|-----------|
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 1F 00  |           |
| 8F    | Certification Authority Public Key Index        | 92   |           |
| 90    | Issuer Public Key Certificate                   | 3C 96 F7 65 8F BC 29 A2 02 F1<br>91 46 BD E9 21 66 B0 F6 22 1B<br>BC CB 02 E3 26 71 0B 9E 22 9D<br>16 FA E9 AD 0C 87 4C 06 85 91<br>6E 19 F0 E3 26 93 EE 20 1B CE<br>23 59 50 9A 6D 65 72 F8 EC 3F<br>C3 73 12 6B 34 3F 9C B8 15 3D<br>61 B7 EA B2 D4 2D E1 9D 56 08<br>31 85 A0 3D D1 4C 26 8D 40 DF<br>08 35 C5 5E AB FA 38 ED 28 BC<br>E4 2C D0 01 3D A9 4F 80 05 18<br>B7 53 C2 46 EF FB A0 8F D2 02<br>9B AD 5D FC F0 DA F0 7B 7D 80<br>1C 46 5F FD 25 2C 70 B9 21 53<br>B3 30 D9 5D CA 2F A1 FA AE 2D<br>01 68 A4 EA 8B 47 5C D8 05 DC<br>32 AA 96 4C 17 BF CD 2C D5 D0<br>30 9A B0 EA 76 1B |           |
| 92    | Issuer Public Key Remainder                     | 50 DA 20 DD A8 95 3B 69 3F ED<br>84 36 68 31 BA 1E EA 97 F7 8F<br>79 2A CF 8C B9 8F DF 01 49 A7<br>B7 8F DA 1C 49 67   |           |
| 93    | Signed Static Application Data                  | 41 BA C7 39 63 B3 5B 8B 7C 4C<br>06 BC ED AD 44 CA 88 C4 9F E3<br>51 83 5C 8D 7B EB 67 0F 22 2F<br>8B FC ED 81 44 5F 56 6A 0F B0<br>65 15 1C 97 B3 7F 54 6F 0E A8<br>BF 5A A4 2E FB 8A A2 A9 6A EE<br>06 77 12 B9 F8 6C 91 F3 AF A8<br>C3 E2 08 B9 16 07 6D 86 5F 28<br>1A 83 73 B0 B2 7E CE 15 8E 51<br>AF ED 9B 19 47 25 E5 F4 9A 85<br>84 C4 42 07 E5 69 F4 8D 4D 34<br>B5 A3 D5 7C B5 BF C5 6B 41 3B<br>F3 D1 8E BB AF EE 79 D7 2B FD<br>72 A2 EE 53 6E DF 7A 85 95 FC<br>A2 3D A5 87 C3 60 ED 6A 0D D6<br>17 61 F3 0C 33 53 AF CC EB 2C<br>D1 03 F9 39 E8 26 2B D0 90 97<br>87 97 7E DB F6 A5 |           |
| 94    | Application File Locator (AFL)                  | 10 01 01 00 10 02 05 01 10 08<br>08 00 B0 01 01 00   |           |
| 9F 07 | Application Usage Control                       | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |           |
| 9F 08 | Application Version Number [VIS]                | 00 96  |           |
| 9F 0D | Issuer Action Code - Default                    | B0 50 80 88 00   |           |
| 9F 0E | Issuer Action Code - Denial                     | 00 00 00 00 00   |           |
| 9F 0F | Issuer Action Code - Online                     | B0 50 80 98 00   |           |

| Tag   | Element name   | Data   | Card v6.x |
|-------|--|--|-----------|
| 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<br>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 38 39<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30  |           |
| 9F 26 | Application Cryptogram (AC)                                | xx xx xx xx xx xx xx xx *  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 80   |           |
| 9F 32 | Issuer Public Key Exponent                                 | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |           |
| 9F 44 | Application Currency Exponent                              | 02   |           |
| 9F 46 | ICC Public Key Certificate                                 | 32 78 62 F6 AE 5C 3E EB 03 1D<br>25 FB C8 71 6A 88 51 E3 1A 54<br>57 71 F8 8D 42 EC 54 4D 22 9B<br>D1 E4 D5 B7 C7 8C 37 78 89 F9<br>68 60 6F 5C 85 93 BC 22 28 26<br>FD 5A 00 48 53 48 B3 2B 5F 97<br>5E B0 8B 57 68 F6 94 73 07 6E<br>C0 67 10 0D 54 E7 37 40 90 BA<br>3D 96 FF DE 7F B6 4B 43 2E 86<br>C8 30 D0 2E F4 1E BD 39 3A 8E<br>2D A4 62 98 08 51 92 3E 60 3E<br>F9 5E 0E 69 85 BD B3 81 3E 45<br>5B 75 20 EB 02 B3 FD 4B 2E 41<br>BD C3 03 1B BB D3 B4 16 2C AD<br>FC 63 C9 6C F3 6A 3D B5 EC 81<br>AB 8A 30 BB 66 5F 91 AB 09 E1<br>08 E7 8D 8F 62 D5 E8 9C A9 8D<br>B5 8D E5 8F 97 60 |           |
| 9F 47 | ICC Public Key Exponent                                    | 03   |           |
| 9F 49 | Dynamic Data Authentication Data Object List (DDOL)        | 9F 37 04   |           |
| 9F 4A | Static Data Authentication Tag List                        | 82   |           |
| 9F 51 | Application Currency Code [VSDC]                           | 08 40 - USD  |           |
| 9F 52 | Application Default Action [VSDC VIS 1.5]                  | C0 00 00 00 00 00  |           |
| 9F 53 | Consecutive Transaction Limit (International) [VSDC]       | 00   |           |
| 9F 54 | Cumulative Total Transaction Amount Limit [VSDC]           | 00 00 00 00 00 00  |           |
| 9F 56 | Issuer Authentication Indicator [VSDC]                     | 80   |           |
| 9F 57 | Issuer Country Code [VSDC]                                 | 08 40 - USA  |           |
| 9F 58 | Consecutive Transaction Counter Limit [VSDC]               | 00   |           |
| 9F 59 | Consecutive Transaction Counter Upper Limit [VSDC]         | 00   |           |
| 9F 5C | Cumulative Total Transaction Amount Upper Limit [VSDC]     | 00 00 00 00 00 00  |           |
| 9F 5E | Consecutive Transaction International Upper Limit [VSDC]   | 00   |           |
| BF 56 | Counters Data Template                                     | DF 11 01 01 DF 21 01 00 DF 31<br>01 00   |           |
| BF 57 | International Counters Data Template                       | DF 11 01 00 DF 21 01 00 DF 31<br>01 00 DF 51 01 00   |           |

| Tag   | Element name          | Data  | Card v6.x |
|-------|-----------------------|---|-----------|
| BF 58 | Amounts Data Template | DF 11 06 00 00 00 00 00 00 DF<br>21 06 00 00 00 00 00 00 DF 31<br>06 00 00 00 00 00 |           |

\* Tag value changes with card usage

#### 1.4 Test Card 04 – Visa, Technical Fallback Card

This card has a chip image printed on it but 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.

#### 1.5 Test Card 05 – Mastercard, DI, Credit, English, 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.

##### 1.5.1 CVM List - AID A000000041010, Mastercard (EMV)

| Cardholder Verification Method List ('4201 5E03 1F03') |                     |                            |                 |
|--|---------------------|----------------------------|-----------------|
| 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     | Terminal supports CVM type | Fail            |

##### 1.5.2 Application Tag data (Contact)

| Tag   | Element name                             | Data  | Card v7.x |
|-------|--|---|-----------|
| 50    | Application Label                        | 4D 41 53 54 45 52 43 41 52 44 -<br>'MASTERCARD'   |           |
| 57    | Track 2 Equivalent Data                  | 54 13 33 00 89 60 41 11 D2 51<br>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                          | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 30 35<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 05' |           |
| 5F 24 | Application Expiration Date              | 25 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  |           |



| Tag | Element name                                    | Data  | Card v7.x |
|-----|---|---|-----------|
| 82  | Application Interchange Profile                 | 18 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported via EXTERNAL AUTH command<br>b1 - Combined DDA / GEN AC NOT supported<br>BYTE 2:<br>b8 - EMV Contactless NOT supported  |           |
| 84  | Dedicated File (DF) Name                        | A0 00 00 00 04 10 10  |           |
| 87  | Application Priority Indicator                  | 01  |           |
| 8C  | Card Risk Management Data Object List 1 (CDOL1) | 9F 02 06 9F 03 06 9F 1A 02 95<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 35 01 9F 45 02 9F 4C 08<br>9F 34 03 9F 21 03 9F 7C 14   |           |
| 8D  | Card Risk Management Data Object List 2 (CDOL2) | 91 0A 8A 02 95 05 9F 37 04 9F<br>4C 08  |           |
| 8E  | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>5E 03 1F 03  |           |
| 8F  | Certification Authority Public Key Index        | EF  |           |
| 90  | Issuer Public Key Certificate                   | 5B 2E 1F EF 4D 7D 2C 16 16 12<br>21 F7 97 2F E6 99 B7 82 44 E0<br>73 C8 AC 75 86 CE D1 76 EF 7B<br>93 AC 19 0B 05 70 40 E1 18 4F<br>2F 55 AC 70 D2 AA C3 94 BE 22<br>6A 26 50 D3 CA ED 90 60 88 C5<br>3A 88 B8 3C 46 1F 37 6D 89 10<br>B8 51 81 54 F3 08 EE ED 23 BC<br>15 7C FA BA 6E 51 26 9F 01 6D<br>59 FE 21 A6 F9 10 F2 85 13 0D<br>EA F6 A4 78 BE 77 9D 2B AD 08<br>E1 2E D6 A5 93 71 5A 18 72 15<br>C5 63 28 1C B2 B7 2E 5B 14 05<br>5D 2D D8 30 4A C2 20 2E 53 96<br>D0 4C 5C 79 55 0B 4D E9 FA DA<br>CB 35 F3 19 06 C5 A4 42 27 29<br>D6 A5 A8 F5 E1 4C B9 0D B7 05<br>49 4B 3D B1 0D E6 19 F3 B0 3E<br>64 96 FE 79 F4 6E 64 97 2A 46<br>34 A0 35 EF 7E 50 20 49 40 36<br>03 E0 BC FC 33 C3 87 BB 6D 72<br>CF F8 33 89 7E 81 F5 02 3F F4<br>D6 A9 CC 0C 89 E8 78 3F 07 B7<br>F0 55 3E 9D D3 59 B6 5B 62 3A<br>F1 CE 27 8D 65 3C 37 07 |           |
| 92  | Issuer Public Key Remainder                     | 14 3E 90 B8 B5 E6 2B E5 A9 0D<br>5A 4E F1 5C 77 40 4D 29 94 48<br>98 77 85 D7 E8 80 C2 CD   |           |
| 94  | Application File Locator (AFL)                  | 08 02 04 01 18 01 01 00 20 01<br>01 00  |           |
| 94  | Application File Locator (AFL)                  | 08 02 04 01 18 01 01 00 20 01<br>01 00  |           |

| Tag   | Element name                                     | Data   | Card v7.x |
|-------|--|--|-----------|
| 9F 07 | Application Usage Control                        | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |           |
| 9F 08 | Application Version Number                       | 00 02  |           |
| 9F 0D | Issuer Action Code - Default                     | B0 50 9C 80 00   |           |
| 9F 0E | Issuer Action Code - Denial                      | 00 00 00 00 00   |           |
| 9F 0F | Issuer Action Code - Online                      | B0 70 9C 98 00   |           |
| 9F 10 | Issuer Application Data [M/Chip Advance]         | xx 10 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx *   |           |
| 9F 11 | Issuer Code Table Index                          | 01   |           |
| 9F 12 | Application Preferred Name                       | 4D 61 73 74 65 72 63 61 72 64 -<br>'Mastercard'  |           |
| 9F 14 | Counter 1 Lower Limit [Mastercard]               | 00   |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter | 03   |           |
| 9F 1F | Track 1 Discretionary Data                       | 30 31 32 33 34 30 39 31 37 32<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30  |           |
| 9F 23 | Counter 1 Upper Limit [Mastercard]               | 00   |           |
| 9F 26 | Application Cryptogram (AC)                      | xx xx xx xx xx xx xx xx *  |           |
| 9F 27 | Cryptogram Information Data (CID)                | 80   |           |
| 9F 32 | Issuer Public Key Exponent                       | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)            | xx xx *  |           |
| 9F 42 | Application Currency Code                        | 01 24 - CAD  |           |
| 9F 44 | Application Currency Exponent                    | 02   |           |
| 9F 46 | ICC Public Key Certificate                       | 96 A1 F8 A5 47 21 92 8B B7 1A<br>E3 25 26 ED AC 97 F2 D9 C0 99<br>C2 50 ED 79 DF E3 A4 C7 90 6E<br>20 71 89 DB 46 0C A0 65 EB B7<br>6F 37 62 F8 83 1E D0 9E C2 12<br>41 6E 22 2F 31 E2 BE A8 AA 27<br>B2 00 3A 42 06 37 60 CD 4B 67<br>54 5B 66 21 1D 86 0E FC 00 96<br>08 E7 3A 40 82 76 B6 A0 52 F3<br>49 88 94 E1 88 48 5E 6A 5F 55<br>88 D5 14 E9 92 BA 29 21 EC 3D<br>BE 66 9F 7A 0B 81 78 79 70 32<br>40 06 C9 8C 94 BA BF B6 82 2D<br>47 4E 4B DD 0C 74 EF 23 B0 2D<br>47 A2 E6 DB 8B 15 39 01 49 A7<br>DF B1 09 0F FB 30 B5 69 CD 59<br>AA 19 7E 23 10 68 0E 15 AA 4F<br>36 E5 D7 0F 3C 2D 68 E0 42 85<br>67 EA 37 DF AB BC 8E EE F8 07<br>66 71 B1 1C F7 19 C1 78 17 6E<br>77 7E 50 80 22 11 C7 0C 2B 4C<br>94 6C 2B B9 87 9F DD FF AD AD<br>E5 9C A8 E7 5B 77 9F 71 84 56<br>93 36 8C 73 C7 66 30 47 A0 CF |           |
| 9F 47 | ICC Public Key Exponent                          | 03   |           |

| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 49 | Dynamic Data Authentication Data Object List (DDOL)          | 9F 37 04  |           |
| 9F 4A | Static Data Authentication Tag List                          | 82  |           |
| 9F 4D | Transaction Log Entry  | 0B 0A   |           |
| 9F 4F | Transaction Log Format                                       | 9F 27 01 9F 02 06 5F 2A 02 9A<br>03 9F 36 02 9F 52 06 DF 3E 01<br>9F 21 03 9F 7C 14   |           |
| 9F 5D | Application Capabilities Information [M/Chip Advance]        | 01 00 00  |           |
| 9F 6E | Third Party Data [Mastercard]                                | 01 24 00 00 30 30 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00  |           |
| 9F 70 | Protected Data Envelope 1 [M/Chip Advance]                   | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 71 | Protected Data Envelope 2 [M/Chip Advance]                   | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 72 | Protected Data Envelope 3 [M/Chip Advance]                   | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 73 | Protected Data Envelope 4 [M/Chip Advance]                   | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 74 | Protected Data Envelope 5 [M/Chip Advance]                   | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 75 | Unprotected Data Envelope 1 [M/Chip Advance]                 | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 76 | Unprotected Data Envelope 2 [M/Chip Advance]                 | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 77 | Unprotected Data Envelope 3 [M/Chip Advance]                 | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 78 | Unprotected Data Envelope 4 [M/Chip Advance]                 | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 79 | Unprotected Data Envelope 5 [M/Chip Advance]                 | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |           |
| 9F 7E | Application Life Cycle Data [Mastercard]                     | 03 10 0C 12 00 09 00 00 FF FF<br>FF FF FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF 00 04<br>00 00 02 60 00 00 38 4A 02 11<br>50 35 43 44 30 37 32 20 |           |
| C3    | Card Issuer Action Code (Contact) - Decline [M/Chip Advance] | 00 00 00  |           |
| C4    | Card Issuer Action Code (Contact) - Default [M/Chip Advance] | 46 58 00  |           |

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| C5    | Card Issuer Action Code (Contact) - Online [M/Chip Advance]      | 06 F8 00   |           |
| C6    | PIN Try Limit [M/Chip Advance]                                   | 03   |           |
| C7    | CDOL1 Related Data Length [Mastercard]                           | 42   |           |
| C8    | CRM Country Code [Mastercard]                                    | 01 24 - CAN  |           |
| C9    | Accumulator 1 Currency Code [Mastercard]                         | 01 24 - CAD  |           |
| CA    | Accumulator 1 Lower Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| CB    | Accumulator 1 Upper Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| CD    | Card Issuer Action Code (Contactless) - Default [M/Chip Advance] | 00 58 00   |           |
| CE    | Card Issuer Action Code (Contactless) - Online [M/Chip Advance]  | 00 F8 00   |           |
| CF    | Card Issuer Action Code (Contactless) - Decline [M/Chip Advance] | 00 00 00   |           |
| D1    | Accumulator 1 Currency Conversion Table [Mastercard]             | 01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 |           |
| D3    | Additional Check Table [Mastercard]                              | 00 00 00 FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF                         |           |
| D5    | Application Control [M/Chip Advance]                             | 8C 00 80 00 86 02  |           |
| D6    | Default ARPC Response Code [M/Chip Advance]                      | 00 12  |           |
| D7    | Application Control [M/Chip Advance]                             | 40 01 40 00 86 02  |           |
| D9    | Application File Locator (Contactless)                           | 08 01 01 00 10 01 01 01 18 01<br>01 00 20 01 02 00                               |           |
| DE    | Log Data Table [M/Chip Advance]                                  | 00 00 00 00 00 00 00 00 00   |           |
| DF 02 | Security Limits Status (Contact) [M/Chip Advance]                | 00   |           |
| DF 11 | Accumulator 1 Control (Contact) [M/Chip Advance]                 | C1   |           |
| DF 12 | Accumulator 1 Control (Contactless) [M/Chip Advance]             | C1   |           |
| DF 14 | Accumulator 2 Control (Contact) [M/Chip Advance]                 | 00   |           |
| DF 15 | Accumulator 2 Control (Contactless) [M/Chip Advance]             | 00   |           |
| DF 16 | Accumulator 2 Currency Code [Mastercard]                         | 09 99  |           |
| DF 17 | Accumulator 2 Currency Conversion Table [Mastercard]             | 09 99 00 01 00 09 99 00 01 00<br>09 99 00 01 00 09 99 00 01 00<br>09 99 00 01 00 |           |
| DF 18 | Accumulator 2 Lower Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| DF 19 | Accumulator 2 Upper Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| DF 1A | Counter 1 Control (Contact) [M/Chip Advance]                     | C1   |           |
| DF 1B | Counter 1 Control (Contactless) [M/Chip Advance]                 | C1   |           |
| DF 1D | Counter 2 Control (Contact) [M/Chip Advance]                     | 00   |           |
| DF 1E | Counter 2 Control (Contactless) [M/Chip Advance]                 | 00   |           |
| DF 1F | Counter 2 Lower Limit [Mastercard]                               | 00   |           |
| DF 21 | Counter 2 Upper Limit [Mastercard]                               | 00   |           |
| DF 22 | MTA CVM (Contact) [M/Chip Advance]                               | 00 00 00 00 00 00  |           |
| DF 23 | MTA CVM (Contactless) [M/Chip Advance]                           | 00 00 00 00 00 00  |           |
| DF 24 | MTA Currency Code [M/Chip Advance]                               | 09 99  |           |
| DF 25 | MTA NoCVM (Contact) [M/Chip Advance]                             | 00 00 00 00 00 00  |           |

| Tag   | Element name   | Data              | Card v7.x |
|-------|--|-------------------|-----------|
| DF 26 | MTA NoCVM (Contactless) [M/Chip Advance]                         | 00 00 00 00 00 00 |           |
| DF 27 | Number Of Days Offline Limit [M/Chip Advance]                    | 00 00             |           |
| DF 28 | Accumulator 1 CVR Dependency Data (Contact) [M/Chip Advance]     | 00 00 00          |           |
| DF 29 | Accumulator 1 CVR Dependency Data (Contactless) [M/Chip Advance] | 00 00 00          |           |
| DF 2A | Accumulator 2 CVR Dependency Data (Contact) [M/Chip Advance]     | 00 00 00          |           |
| DF 2B | Accumulator 2 CVR Dependency Data (Contactless) [M/Chip Advance] | 00 00 00          |           |
| DF 2C | Counter 1 CVR Dependency Data (Contact) [M/Chip Advance]         | 00 00 00          |           |
| DF 2D | Counter 1 CVR Dependency Data (Contactless) [M/Chip Advance]     | 00 00 00          |           |
| DF 2E | Counter 2 CVR Dependency Data (Contact) [M/Chip Advance]         | 00 00 00          |           |
| DF 2F | Counter 2 CVR Dependency Data (Contactless) [M/Chip Advance]     | 00 00 00          |           |
| DF 30 | Interface Enabling Switch [M/Chip Advance]                       | 03                |           |
| DF 35 | Security Limits Status (Contactless) [M/Chip Advance]            | 00                |           |
| DF 37 | Security Limits Status Common [M/Chip Advance]                   | 00                |           |
| DF 3C | CVR Issuer Discretionary Data (Contact) [M/Chip Advance]         | 00                |           |
| DF 3D | CVR Issuer Discretionary Data (Contactless) [M/Chip Advance]     | 00                |           |
| DF 3F | Read Record Filter (Contact) [M/Chip Advance]                    | 00 00 00 00       |           |
| DF 40 | Read Record Filter (Contactless) [M/Chip Advance]                | 08 03 03 00       |           |
| DF 41 | DS Management Control [M/Chip Advance]                           | 20                |           |

\* Tag value changes with card usage

### 1.5.3 CVM List - AID A000000041010, Mastercard (PayPass, MChip)

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

### 1.5.4 Application Tag data (Contactless)

| Tag | Element name                             | Data   | Card v7.x |
|-----|--|--|-----------|
| 50  | Application Label                        | 4D 41 53 54 45 52 43 41 52 44 -<br>'MASTERCARD'  |           |
| 56  | Track 1 Equivalent Data [Mastercard]     | 42 35 34 31 33 33 33 30 30 38<br>39 36 30 34 31 31 31 5E 20 2F<br>5E 32 35 31 32 32 30 31 30 30<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30 30 30 30 30 30 30<br>30 30 |           |
| 57  | Track 2 Equivalent Data                  | 54 13 33 00 89 60 41 11 D2 51<br>22 01 01 23 40 91 72 02 9F  |           |
| 5A  | Application Primary Account Number (PAN) | 54 13 33 00 89 60 41 11  |           |

| Tag   | Element name                                    | Data  | Card v7.x |
|-------|---|---|-----------|
| 5F 24 | Application Expiration Date                     | 25 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 34 | Application PAN Sequence Number                 | 01  |           |
| 82    | Application Interchange Profile                 | 19 80<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported using External Auth command<br>b2 - On device Cardholder verification NOT supported<br>b1 - Combined DDA / GEN AC NOT supported<br>BYTE 2:<br>b8 - M/Chip 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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 35 01 9F 45 02 9F 4C 08<br>9F 34 03 9F 21 03 9F 7C 14   |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 91 0A 8A 02 95 05 9F 37 04 9F<br>4C 08  |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 5E 03<br>1F 03  |           |
| 8F    | Certification Authority Public Key Index        | EF  |           |
| 90    | Issuer Public Key Certificate                   | 5B 2E 1F EF 4D 7D 2C 16 16 12<br>21 F7 97 2F E6 99 B7 82 44 E0<br>73 C8 AC 75 86 CE D1 76 EF 7B<br>93 AC 19 0B 05 70 40 E1 18 4F<br>2F 55 AC 70 D2 AA C3 94 BE 22<br>6A 26 50 D3 CA ED 90 60 88 C5<br>3A 88 B8 3C 46 1F 37 6D 89 10<br>B8 51 81 54 F3 08 EE ED 23 BC<br>15 7C FA BA 6E 51 26 9F 01 6D<br>59 FE 21 A6 F9 10 F2 85 13 0D<br>EA F6 A4 78 BE 77 9D 2B AD 08<br>E1 2E D6 A5 93 71 5A 18 72 15<br>C5 63 28 1C B2 B7 2E 5B 14 05<br>5D 2D D8 30 4A C2 20 2E 53 96<br>D0 4C 5C 79 55 0B 4D E9 FA DA<br>CB 35 F3 19 06 C5 A4 42 27 29<br>D6 A5 A8 F5 E1 4C B9 0D B7 05<br>49 4B 3D B1 0D E6 19 F3 B0 3E<br>64 96 FE 79 F4 6E 64 97 2A 46<br>34 A0 35 EF 7E 50 20 49 40 36<br>03 E0 BC FC 33 C3 87 BB 6D 72<br>CF F8 33 89 7E 81 F5 02 3F F4<br>D6 A9 CC 0C 89 E8 78 3F 07 B7<br>F0 55 3E 9D D3 59 B6 5B 62 3A<br>F1 CE 27 8D 65 3C 37 07 |           |
| 92    | Issuer Public Key Remainder                     | 14 3E 90 B8 B5 E6 2B E5 A9 0D<br>5A 4E F1 5C 77 40 4D 29 94 48<br>98 77 85 D7 E8 80 C2 CD   |           |
| 94    | Application File Locator (AFL)                  | 08 01 01 00 10 01 01 01 18 01<br>01 00 20 01 02 00  |           |

| Tag   | Element name                                     | Data   | Card v7.x |
|-------|--|--|-----------|
| 9F 07 | Application Usage Control                        | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |           |
| 9F 08 | Application Version Number                       | 00 02  |           |
| 9F 0D | Issuer Action Code - Default                     | B4 70 80 80 00   |           |
| 9F 0E | Issuer Action Code - Denial                      | 00 00 00 00 00   |           |
| 9F 0F | Issuer Action Code - Online                      | B4 70 84 80 00   |           |
| 9F 10 | Issuer Application Data [M/Chip Advance]         | xx 11 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx *   |           |
| 9F 11 | Issuer Code Table Index                          | 01   |           |
| 9F 12 | Application Preferred Name                       | 4D 61 73 74 65 72 63 61 72 64 -<br>'Mastercard'  |           |
| 9F 14 | Counter 1 Lower Limit [Mastercard]               | 00   |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter | 03   |           |
| 9F 23 | Counter 1 Upper Limit [Mastercard]               | 00   |           |
| 9F 27 | Cryptogram Information Data (CID)                | 80   |           |
| 9F 32 | Issuer Public Key Exponent                       | 03   |           |
| 9F 36 | Application Transaction Counter (ATC)            | xx xx *  |           |
| 9F 42 | Application Currency Code                        | 01 24 - CAD  |           |
| 9F 44 | Application Currency Exponent                    | 02   |           |
| 9F 46 | ICC Public Key Certificate                       | 2A E7 AD A2 C7 85 ED 93 FC 76<br>F7 00 97 40 4E 19 FE 82 C1 99<br>1D 82 00 E8 ED 7E 71 5B 3C 9B<br>F9 F2 E8 3F 9A 35 46 25 2E 70<br>AC 71 46 6F 5C 7A 65 A3 1C A8<br>41 0B 23 60 22 66 36 75 21 99<br>AB E8 56 47 C8 1F AB CA FA C7<br>6A E8 97 DE 1A 81 14 37 A5 20<br>0A 72 5B E4 4D 86 8B C3 09 71<br>52 17 57 87 59 EE AB D0 4E 51<br>92 04 E1 5D DB 7F 10 E1 6A A3<br>2C 80 D9 04 08 23 08 F8 45 79<br>49 2D B1 D5 30 60 51 E9 76 08<br>71 65 1C 13 80 65 0B 44 54 EB<br>2D 6B 39 4A D9 B4 E6 2F 69 D4<br>04 1B 3C 98 48 AA D3 B8 78 FD<br>9B 3A DA 07 48 D5 1A AE 37 D6<br>90 22 BD 41 72 90 73 92 22 F4<br>E3 88 86 D5 5D 3E 25 69 02 93<br>43 46 9E FC BD DD 88 F3 36 86<br>B6 8D CD B5 C4 5F 71 5C 3B CF<br>20 C7 EA AA 30 47 5C 4D 8F 6C<br>FE AF A0 B1 20 F3 0B 48 C5 78<br>CE BE B6 2B F2 4A 39 74 A4 45 |           |
| 9F 47 | ICC Public Key Exponent                          | 03   |           |
| 9F 4A | Static Data Authentication Tag List              | 82   |           |
| 9F 4D | Transaction Log Entry                            | 0B 0A  |           |
| 9F 4F | Transaction Log Format                           | 9F 27 01 9F 02 06 5F 2A 02 9A<br>03 9F 36 02 9F 52 06 DF 3E 01<br>9F 21 03 9F 7C 14  |           |

| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 5D | Application Capabilities Information [M/Chip Advance]        | 01 00 00  |           |
| 9F 60 | CVC3track1 [Mastercard]                                      | xx xx *   |           |
| 9F 61 | CVC3track2 [Mastercard]                                      | xx xx *   |           |
| 9F 62 | Track 1 Bitmap for CVC3 (PCVC3 Track 1) [Mastercard]         | 00 00 00 38 00 00   |           |
| 9F 63 | Track 1 Bitmap for UN and ATC (PUNATC Track 1) [Mastercard]  | 00 00 00 00 E0 E0   |           |
| 9F 64 | Track 1 Number of ATC Digits (NATC Track 1) [Mastercard]     | 03  |           |
| 9F 65 | Track 2 Bitmap for CVC3 (PCVC3 Track 2) [Mastercard]         | 00 0E   |           |
| 9F 66 | Track 2 Bitmap for UN and ATC (PUNATC Track 2) [Mastercard]  | 0E 70   |           |
| 9F 67 | Track 2 Number of ATC Digits (NATC Track 2) [Mastercard]     | 03  |           |
| 9F 6B | Track 2 Equivalent Data [Mastercard]                         | 54 13 33 00 89 60 41 11 D2 51<br>22 01 00 00 40 00 00 00 0F   |           |
| 9F 6C | Application Version [Mastercard]                             | 00 01<br>BYTE 1:<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - Do NOT go online if Offline Data Authentication fails and Reader is online capable<br>b5 - Do NOT switch interface if Offline Data Authentication fails and Reader supports contact chip<br>b4 - Do NOT go Online if Application Expired<br>b3 - Do NOT switch interface for Cash Transactions<br>b2 - Do NOT switch interface for Cashback Transactions<br>b1 - Is valid for contactless ATM transactions<br>BYTE 2:<br>b8 - Consumer Device CVM NOT performed<br>b7 - Card does NOT Support Issuer Update Processing at POS |           |
| 9F 6E | Third Party Data [Mastercard]                                | 01 24 00 00 30 30 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00<br>00 00   |           |
| 9F 7E | Application Life Cycle Data [Mastercard]                     | 03 10 0C 12 00 09 00 00 FF FF<br>FF FF FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF 00 04<br>00 00 02 60 00 00 38 4A 02 11<br>50 35 43 44 30 37 32 20   |           |
| C3    | Card Issuer Action Code (Contact) - Decline [M/Chip Advance] | 00 00 00  |           |
| C4    | Card Issuer Action Code (Contact) - Default [M/Chip Advance] | 46 58 00  |           |
| C5    | Card Issuer Action Code (Contact) - Online [M/Chip Advance]  | 06 F8 00  |           |
| C6    | PIN Try Limit [M/Chip Advance]                               | 03  |           |
| C7    | CDOL1 Related Data Length [Mastercard]                       | 42  |           |
| C8    | CRM Country Code [Mastercard]                                | 01 24 - CAN   |           |
| C9    | Accumulator 1 Currency Code [Mastercard]                     | 01 24 - CAD   |           |



| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| CA    | Accumulator 1 Lower Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| CB    | Accumulator 1 Upper Limit [Mastercard]                           | 00 00 00 00 00 00  |           |
| CD    | Card Issuer Action Code (Contactless) - Default [M/Chip Advance] | 00 58 00   |           |
| CE    | Card Issuer Action Code (Contactless) - Online [M/Chip Advance]  | 00 F8 00   |           |
| CF    | Card Issuer Action Code (Contactless) - Decline [M/Chip Advance] | 00 00 00   |           |
| D1    | Accumulator 1 Currency Conversion Table [Mastercard]             | 01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 |           |
| D3    | Additional Check Table [Mastercard]                              | 00 00 00 FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF                         |           |
| D5    | Application Control [M/Chip Advance]                             | 8C 00 80 00 86 02  |           |
| D6    | Default ARPC Response Code [M/Chip Advance]                      | 00 12  |           |
| D7    | Application Control [M/Chip Advance]                             | 40 01 40 00 86 02  |           |
| DF 02 | Security Limits Status (Contact) [M/Chip Advance]                | 00   |           |

\* Tag value changes with card usage

## 1.6 Test Card 06 – 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.

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

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

### 1.6.2 Application Tag data (Contact)

| Tag   | Element name                             | Data  | Card v7x |
|-------|--|---|----------|
| 50    | Application Label                        | 4D 41 53 54 45 52 43 41 52 44 -<br>'MASTERCARD'   |          |
| 57    | Track 2 Equivalent Data                  | 54 13 33 00 89 60 41 11 D2 51<br>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                          | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 30 36<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 06' |          |
| 5F 24 | Application Expiration Date              | 25 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)  |          |

| Tag   | Element name                                    | Data  | Card v7x |
|-------|---|---|----------|
| 5F 30 | Service Code                                    | 02 01   |          |
| 5F 34 | Application PAN Sequence Number                 | 01  |          |
| 82    | Application Interchange Profile                 | 39 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported using External Auth command<br>b2 - On device Cardholder verification NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 35 01 9F 45 02 9F 4C 08<br>9F 34 03 9F 21 03 9F 7C 14   |          |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 91 0A 8A 02 95 05 9F 37 04 9F<br>4C 08  |          |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>44 03 41 03 5E 03 1F 03  |          |
| 8F    | Certification Authority Public Key Index        | EF  |          |
| 90    | Issuer Public Key Certificate                   | 5B 2E 1F EF 4D 7D 2C 16 16 12<br>21 F7 97 2F E6 99 B7 82 44 E0<br>73 C8 AC 75 86 CE D1 76 EF 7B<br>93 AC 19 0B 05 70 40 E1 18 4F<br>2F 55 AC 70 D2 AA C3 94 BE 22<br>6A 26 50 D3 CA ED 90 60 88 C5<br>3A 88 B8 3C 46 1F 37 6D 89 10<br>B8 51 81 54 F3 08 EE ED 23 BC<br>15 7C FA BA 6E 51 26 9F 01 6D<br>59 FE 21 A6 F9 10 F2 85 13 0D<br>EA F6 A4 78 BE 77 9D 2B AD 08<br>E1 2E D6 A5 93 71 5A 18 72 15<br>C5 63 28 1C B2 B7 2E 5B 14 05<br>5D 2D D8 30 4A C2 20 2E 53 96<br>D0 4C 5C 79 55 0B 4D E9 FA DA<br>CB 35 F3 19 06 C5 A4 42 27 29<br>D6 A5 A8 F5 E1 4C B9 0D B7 05<br>49 4B 3D B1 0D E6 19 F3 B0 3E<br>64 96 FE 79 F4 6E 64 97 2A 46<br>34 A0 35 EF 7E 50 20 49 40 36<br>03 E0 BC FC 33 C3 87 BB 6D 72<br>CF F8 33 89 7E 81 F5 02 3F F4<br>D6 A9 CC 0C 89 E8 78 3F 07 B7<br>F0 55 3E 9D D3 59 B6 5B 62 3A<br>F1 CE 27 8D 65 3C 37 07 |          |
| 92    | Issuer Public Key Remainder                     | 14 3E 90 B8 B5 E6 2B E5 A9 0D<br>5A 4E F1 5C 77 40 4D 29 94 48<br>98 77 85 D7 E8 80 C2 CD   |          |
| 94    | Application File Locator (AFL)                  | 08 02 04 01 18 01 01 00 20 01<br>01 00  |          |
| 94    | Application File Locator (AFL)                  | 08 02 04 01 18 01 01 00 20 01<br>01 00  |          |

| Tag   | Element name  | Data   | Card v7x |
|-------|---|--|----------|
| 9F 07 | Application Usage Control                           | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 Advance]            | xx 10 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx *   |          |
| 9F 11 | Issuer Code Table Index                             | 01   |          |
| 9F 12 | Application Preferred Name                          | 4D 61 73 74 65 72 63 61 72 64 -<br>'Mastercard'  |          |
| 9F 14 | Counter 1 Lower Limit [Mastercard]                  | 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<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30  |          |
| 9F 23 | Counter 1 Upper Limit [Mastercard]                  | 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   |          |
| 9F 46 | ICC Public Key Certificate                          | F2 11 20 DF B3 7F F8 25 A5 63<br>31 91 4A 3A 34 F1 50 E6 8B 14<br>54 AD CD AF B7 A0 7B 87 95 05<br>A2 1C B9 31 DB 96 0F FD 80 82<br>9C AB 28 C5 46 05 41 CD 29 B6<br>FF E7 9B 9D FF E1 F2 3A DA 21<br>67 78 AF 24 72 3F CF 75 C6 C5<br>F1 BE 3B 8B E3 F2 16 4A 2A 1C<br>92 24 D9 6D 3A 80 F2 24 B9 03<br>87 43 09 87 83 7C 16 CE 3D 6B<br>31 0D E1 29 16 6C 44 65 25 AC<br>28 C2 A9 B9 CE 63 71 F9 54 81<br>9B A1 AF 88 C8 91 64 2C 91 92<br>75 39 D5 27 AC 15 71 7B D7 4E<br>7D BD 10 5E 15 53 A8 E7 67 CA<br>CC A0 F3 A1 7E 25 73 18 3D BB<br>7A A1 DA 5A E2 59 98 28 D6 6C<br>A5 49 FE C1 C8 95 13 04 E0 EC<br>C8 F1 E1 AB 78 31 CB 78 CE 23<br>DD 24 0F 27 33 DF BA B8 4D 69<br>AA 8E 9B 4D E0 8B D4 B1 A9 50<br>25 DA A2 A5 03 11 1B ED BF CD<br>98 E2 BE BF 28 16 59 F2 03 6B<br>9D 84 8B 8F F4 06 62 35 84 F5 |          |
| 9F 47 | ICC Public Key Exponent                             | 03   |          |
| 9F 49 | Dynamic Data Authentication Data Object List (DDOL) | 9F 37 04   |          |

| Tag   | Element name  | Data   | Card v7x |
|-------|---|--|----------|
| 9F 4A | Static Data Authentication Tag List                   | 82   |          |
| 9F 4B | Signed Dynamic Application Data                       | 08 A2 35 14 6D 6F 41 1C AB FD<br>A1 92 45 67 A7 C6 1E 39 A9 19<br>E4 16 24 56 6C 3D 3A D6 95 B8<br>5D 65 98 A8 5F 81 CE 4C A0 3F<br>61 0A 40 E2 18 A6 EA D6 D7 AE<br>17 DC 54 5E 00 5C 12 D6 1C 13<br>17 4E 1C B2 10 6E 2A BD 80 1D<br>A4 D0 99 85 E0 77 A0 C7 F4 18<br>43 1C E6 1B 48 33 C8 BA 15 B5<br>26 80 32 F8 13 3A C0 64 0A 69<br>3D 7D A4 5A 7C E4 C6 AD 86 01<br>86 51 67 61 A7 45 BD 9E D9 2A<br>34 21 F4 7C E0 C9 04 7C C7 4B<br>67 AF 09 8F 57 2D 04 62 40 86<br>85 14 11 22 B1 7D DC 97 78 E5<br>4A 90 07 66 74 DC 39 6C F0 98<br>5E 13 C4 8B 74 67 DC 5B C8 DC<br>33 5D 18 97 C3 D6 |          |
| 9F 4D | Transaction Log Entry                                 | 0B 0A  |          |
| 9F 4F | Transaction Log Format                                | 9F 27 01 9F 02 06 5F 2A 02 9A<br>03 9F 36 02 9F 52 06 DF 3E 01<br>9F 21 03 9F 7C 14  |          |
| 9F 5D | Application Capabilities Information [M/Chip Advance] | 01 00 00   |          |
| 9F 6E | Third Party Data [Mastercard]                         | 01 24 00 00 30 30 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00   |          |
| 9F 70 | Protected Data Envelope 1 [M/Chip Advance]            | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 71 | Protected Data Envelope 2 [M/Chip Advance]            | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 72 | Protected Data Envelope 3 [M/Chip Advance]            | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 73 | Protected Data Envelope 4 [M/Chip Advance]            | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 74 | Protected Data Envelope 5 [M/Chip Advance]            | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 75 | Unprotected Data Envelope 1 [M/Chip Advance]          | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 76 | Unprotected Data Envelope 2 [M/Chip Advance]          | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |
| 9F 77 | Unprotected Data Envelope 3 [M/Chip Advance]          | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20   |          |

| Tag   | Element name   | Data  | Card v7x |
|-------|--|---|----------|
| 9F 78 | Unprotected Data Envelope 4 [M/Chip Advance]                     | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |          |
| 9F 79 | Unprotected Data Envelope 5 [M/Chip Advance]                     | 20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20 20 20 20 20 20 20 20 20<br>20 20  |          |
| 9F 7E | Application Life Cycle Data [Mastercard]                         | 03 10 0C 12 00 09 00 00 FF FF<br>FF FF FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF 00 04<br>00 00 02 60 00 00 38 4A 02 11<br>50 35 43 44 30 37 32 20 |          |
| C3    | Card Issuer Action Code (Contact) - Decline [M/Chip Advance]     | 00 00 00  |          |
| C4    | Card Issuer Action Code (Contact) - Default [M/Chip Advance]     | 19 50 00  |          |
| C5    | Card Issuer Action Code (Contact) - Online [M/Chip Advance]      | 39 FB 00  |          |
| C6    | PIN Try Limit [M/Chip Advance]                                   | 09  |          |
| C7    | CDOL1 Related Data Length [Mastercard]                           | 42  |          |
| C8    | CRM Country Code [Mastercard]                                    | 01 24 - CAN   |          |
| C9    | Accumulator 1 Currency Code [Mastercard]                         | 01 24 - CAD   |          |
| CA    | Accumulator 1 Lower Limit [Mastercard]                           | 00 00 00 02 00 00   |          |
| CB    | Accumulator 1 Upper Limit [Mastercard]                           | 00 00 00 04 00 00   |          |
| CD    | Card Issuer Action Code (Contactless) - Default [M/Chip Advance] | 00 58 00  |          |
| CE    | Card Issuer Action Code (Contactless) - Online [M/Chip Advance]  | 00 F8 00  |          |
| CF    | Card Issuer Action Code (Contactless) - Decline [M/Chip Advance] | 00 00 00  |          |
| D1    | Accumulator 1 Currency Conversion Table [Mastercard]             | 01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00  |          |
| D3    | Additional Check Table [Mastercard]                              | 00 00 00 FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF  |          |
| D5    | Application Control [M/Chip Advance]                             | 8C 00 80 00 86 02   |          |
| D6    | Default ARPC Response Code [M/Chip Advance]                      | 00 12   |          |
| D7    | Application Control [M/Chip Advance]                             | 40 01 40 00 86 02   |          |
| D9    | Application File Locator (Contactless)                           | 08 01 01 00 10 01 01 01 18 01<br>01 00 20 01 02 00  |          |
| DE    | Log Data Table [M/Chip Advance]                                  | 00 00 00 00 00 00 00 00 00  |          |
| DF 02 | Security Limits Status (Contact) [M/Chip Advance]                | 00  |          |
| DF 11 | Accumulator 1 Control (Contact) [M/Chip Advance]                 | C1  |          |
| DF 12 | Accumulator 1 Control (Contactless) [M/Chip Advance]             | C1  |          |
| DF 14 | Accumulator 2 Control (Contact) [M/Chip Advance]                 | 00  |          |
| DF 15 | Accumulator 2 Control (Contactless) [M/Chip Advance]             | 00  |          |
| DF 16 | Accumulator 2 Currency Code [Mastercard]                         | 09 99   |          |
| DF 17 | Accumulator 2 Currency Conversion Table [Mastercard]             | 09 99 00 01 00 09 99 00 01 00<br>09 99 00 01 00 09 99 00 01 00<br>09 99 00 01 00  |          |
| DF 18 | Accumulator 2 Lower Limit [Mastercard]                           | 00 00 00 00 00 00   |          |
| DF 19 | Accumulator 2 Upper Limit [Mastercard]                           | 00 00 00 00 00 00   |          |

| Tag   | Element name   | Data              | Card v7x |
|-------|--|-------------------|----------|
| DF 1A | Counter 1 Control (Contact) [M/Chip Advance]                     | c1                |          |
| DF 1B | Counter 1 Control (Contactless) [M/Chip Advance]                 | c1                |          |
| DF 1D | Counter 2 Control (Contact) [M/Chip Advance]                     | 00                |          |
| DF 1E | Counter 2 Control (Contactless) [M/Chip Advance]                 | 00                |          |
| DF 1F | Counter 2 Lower Limit [Mastercard]                               | 00                |          |
| DF 21 | Counter 2 Upper Limit [Mastercard]                               | 00                |          |
| DF 22 | MTA CVM (Contact) [M/Chip Advance]                               | 00 00 00 00 00 00 |          |
| DF 23 | MTA CVM (Contactless) [M/Chip Advance]                           | 00 00 00 00 00 00 |          |
| DF 24 | MTA Currency Code [M/Chip Advance]                               | 09 99             |          |
| DF 25 | MTA NoCVM (Contact) [M/Chip Advance]                             | 00 00 00 00 00 00 |          |
| DF 26 | MTA NoCVM (Contactless) [M/Chip Advance]                         | 00 00 00 00 00 00 |          |
| DF 27 | Number Of Days Offline Limit [M/Chip Advance]                    | 00 00             |          |
| DF 28 | Accumulator 1 CVR Dependency Data (Contact) [M/Chip Advance]     | 00 00 00          |          |
| DF 29 | Accumulator 1 CVR Dependency Data (Contactless) [M/Chip Advance] | 00 00 00          |          |
| DF 2A | Accumulator 2 CVR Dependency Data (Contact) [M/Chip Advance]     | 00 00 00          |          |
| DF 2B | Accumulator 2 CVR Dependency Data (Contactless) [M/Chip Advance] | 00 00 00          |          |
| DF 2C | Counter 1 CVR Dependency Data (Contact) [M/Chip Advance]         | 00 00 00          |          |
| DF 2D | Counter 1 CVR Dependency Data (Contactless) [M/Chip Advance]     | 00 00 00          |          |
| DF 2E | Counter 2 CVR Dependency Data (Contact) [M/Chip Advance]         | 00 00 00          |          |
| DF 2F | Counter 2 CVR Dependency Data (Contactless) [M/Chip Advance]     | 00 00 00          |          |
| DF 30 | Interface Enabling Switch [M/Chip Advance]                       | 03                |          |
| DF 35 | Security Limits Status (Contactless) [M/Chip Advance]            | 00                |          |
| DF 37 | Security Limits Status Common [M/Chip Advance]                   | 00                |          |
| DF 3C | CVR Issuer Discretionary Data (Contact) [M/Chip Advance]         | 00                |          |
| DF 3D | CVR Issuer Discretionary Data (Contactless) [M/Chip Advance]     | 00                |          |
| DF 3F | Read Record Filter (Contact) [M/Chip Advance]                    | 00 00 00 00       |          |
| DF 40 | Read Record Filter (Contactless) [M/Chip Advance]                | 08 03 03 00       |          |
| DF 41 | DS Management Control [M/Chip Advance]                           | 20                |          |

\* Tag value changes with card usage

1.6.3 CVM List - AID A000000041010, Mastercard (PayPass MChip)

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

1.6.4 Application Tag data (Contactless)

| Tag   | Element name                                    | Data  | Card v7.x    |  |
|-------|---|---|--------------|--|
| 50    | Application Label                               | 4D 41 53 54 45 52 43 41 52 44 -   | 'MASTERCARD' |  |
| 56    | Track 1 Equivalent Data [Mastercard]            | 42 35 34 31 33 33 33 30 30 38<br>39 36 30 34 31 31 31 5E 20 2F<br>5E 32 35 31 32 32 30 31 30 30<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30 30 30 30 30 30 30<br>30 30  |              |  |
| 57    | Track 2 Equivalent Data                         | 54 13 33 00 89 60 41 11 D2 51<br>22 01 01 23 40 91 72 02 9F   |              |  |
| 5A    | Application Primary Account Number (PAN)        | 54 13 33 00 89 60 41 11   |              |  |
| 5F 24 | Application Expiration Date                     | 25 12 31  |              |  |
| 5F 25 | Application Effective Date                      | xx xx xx  |              |  |
| 5F 28 | Issuer Country Code                             | 01 24 - Canada  |              |  |
| 5F 2D | Language Preference                             | 65 6E - 'en' (English)  |              |  |
| 5F 34 | Application PAN Sequence Number                 | 01  |              |  |
| 82    | Application Interchange Profile                 | 19 80<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported using External Auth command<br>b2 - On device Cardholder verification NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>b8 - M/Chip 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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 35 01 9F 45 02 9F 4C 08<br>9F 34 03 9F 21 03 9F 7C 14   |              |  |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 91 0A 8A 02 95 05 9F 37 04 9F<br>4C 08  |              |  |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 5E 03<br>1F 03  |              |  |
| 8F    | Certification Authority Public Key Index        | EF  |              |  |

| Tag   | Element name                                     | Data  | Card v7.x |
|-------|--|---|-----------|
| 90    | Issuer Public Key Certificate                    | 5B 2E 1F EF 4D 7D 2C 16 16 12<br>21 F7 97 2F E6 99 B7 82 44 E0<br>73 C8 AC 75 86 CE D1 76 EF 7B<br>93 AC 19 0B 05 70 40 E1 18 4F<br>2F 55 AC 70 D2 AA C3 94 BE 22<br>6A 26 50 D3 CA ED 90 60 88 C5<br>3A 88 B8 3C 46 1F 37 6D 89 10<br>B8 51 81 54 F3 08 EE ED 23 BC<br>15 7C FA BA 6E 51 26 9F 01 6D<br>59 FE 21 A6 F9 10 F2 85 13 0D<br>EA F6 A4 78 BE 77 9D 2B AD 08<br>E1 2E D6 A5 93 71 5A 18 72 15<br>C5 63 28 1C B2 B7 2E 5B 14 05<br>5D 2D D8 30 4A C2 20 2E 53 96<br>D0 4C 5C 79 55 0B 4D E9 FA DA<br>CB 35 F3 19 06 C5 A4 42 27 29<br>D6 A5 A8 F5 E1 4C B9 0D B7 05<br>49 4B 3D B1 0D E6 19 F3 B0 3E<br>64 96 FE 79 F4 6E 64 97 2A 46<br>34 A0 35 EF 7E 50 20 49 40 36<br>03 E0 BC FC 33 C3 87 BB 6D 72<br>CF F8 33 89 7E 81 F5 02 3F F4<br>D6 A9 CC 0C 89 E8 78 3F 07 B7<br>F0 55 3E 9D D3 59 B6 5B 62 3A<br>F1 CE 27 8D 65 3C 37 07 |           |
| 92    | Issuer Public Key Remainder                      | 14 3E 90 B8 B5 E6 2B E5 A9 0D<br>5A 4E F1 5C 77 40 4D 29 94 48<br>98 77 85 D7 E8 80 C2 CD   |           |
| 94    | Application File Locator (AFL)                   | 08 01 01 00 10 01 01 01 18 01<br>01 00 20 01 02 00  |           |
| 9F 07 | Application Usage Control                        | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed  |           |
| 9F 08 | Application Version Number                       | 00 02   |           |
| 9F 0D | Issuer Action Code - Default                     | B4 50 80 80 00  |           |
| 9F 0E | Issuer Action Code - Denial                      | 00 00 00 00 00  |           |
| 9F 0F | Issuer Action Code - Online                      | B4 70 80 80 00  |           |
| 9F 10 | Issuer Application Data [M/Chip Advance]         | xx 11 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx *  |           |
| 9F 11 | Issuer Code Table Index                          | 01  |           |
| 9F 12 | Application Preferred Name                       | 4D 61 73 74 65 72 63 61 72 64 -<br>'Mastercard'   |           |
| 9F 14 | Counter 1 Lower Limit [Mastercard]               | 03  |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter | 09  |           |
| 9F 23 | Counter 1 Upper Limit [Mastercard]               | 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 v7.x |
|-------|---|--|-----------|
| 9F 46 | ICC Public Key Certificate                                  | 81 8D 5A F1 AB 86 EA AC C4 99<br>6E 65 FA 3F 5A C9 E5 4D 6D B8<br>0D C2 49 B5 3F FA 89 72 31 89<br>4D 15 34 C5 9F 97 F8 01 53 20<br>63 CE 3C 02 53 FF 7A D9 74 BA<br>7F 21 28 64 29 C9 89 D7 B2 04<br>D4 F5 4E 67 EC DF 83 F8 A9 E5<br>F4 DF EA F1 97 3A BB 59 1D 6B<br>36 0A 8C A5 BA E1 75 0B 4A 0D<br>FC 3F 3B E9 A0 A9 35 D0 1E A7<br>5B 9E AB 1C 64 45 0C F2 BF 74<br>AB D0 B9 00 3A E1 FA CF 76 09<br>55 F4 5B A2 25 80 F8 9C EC 73<br>14 0E E9 90 7B FE 2C F8 5B 03<br>5E AD D8 A3 91 6B CA FC C3 C3<br>FD 4A C4 9E 3F C6 76 AB 82 72<br>C9 3F 40 C8 10 59 75 17 01 45<br>90 96 63 4A 07 47 4C BA D2 46<br>BB AC 09 86 5D 9F 79 FF E1 2C<br>81 5E 5F 73 87 7E 20 F4 6F 90<br>DD C1 66 F8 58 3B E4 C7 A1 8E<br>56 B0 80 FA D8 CF 0D 58 72 26<br>BE D2 80 E7 70 CC 70 28 5F 69<br>93 82 9C 01 32 F7 74 03 04 54 |           |
| 9F 47 | ICC Public Key Exponent                                     | 03   |           |
| 9F 4A | Static Data Authentication Tag List                         | 82   |           |
| 9F 4D | Transaction Log Entry                                       | 0B 0A  |           |
| 9F 4F | Transaction Log Format                                      | 9F 27 01 9F 02 06 5F 2A 02 9A<br>03 9F 36 02 9F 52 06 DF 3E 01<br>9F 21 03 9F 7C 14  |           |
| 9F 5D | Application Capabilities Information [M/Chip Advance]       | 01 00 00   |           |
| 9F 60 | CVC3track1 [Mastercard]                                     | xx xx *  |           |
| 9F 61 | CVC3track2 [Mastercard]                                     | xx xx *  |           |
| 9F 62 | Track 1 Bitmap for CVC3 (PCVC3 Track 1) [Mastercard]        | 00 00 00 38 00 00  |           |
| 9F 63 | Track 1 Bitmap for UN and ATC (PUNATC Track 1) [Mastercard] | 00 00 00 00 E0 E0  |           |
| 9F 64 | Track 1 Number of ATC Digits (NATC Track 1) [Mastercard]    | 03   |           |
| 9F 65 | Track 2 Bitmap for CVC3 (PCVC3 Track 2) [Mastercard]        | 00 0E  |           |
| 9F 66 | Track 2 Bitmap for UN and ATC (PUNATC Track 2) [Mastercard] | 0E 70  |           |
| 9F 67 | Track 2 Number of ATC Digits (NATC Track 2) [Mastercard]    | 03   |           |
| 9F 6B | Track 2 Equivalent Data [Mastercard]                        | 54 13 33 00 89 60 41 11 D2 51<br>22 01 00 00 40 00 00 00 0F  |           |

| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 6C | Application Version [Mastercard]                                 | 00 01<br>BYTE 1:<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - Do NOT go online if Offline Data Authentication fails and Reader is online capable<br>b5 - Do NOT switch interface if Offline Data Authentication fails and Reader supports contact chip<br>b4 - Do NOT go Online if Application Expired<br>b3 - Do NOT switch interface for Cash Transactions<br>b2 - Do NOT switch interface for Cashback Transactions<br>b1 - Is valid for contactless ATM transactions<br>BYTE 2:<br>b8 - Consumer Device CVM NOT performed<br>b7 - Card does NOT Support Issuer Update Processing at POS |           |
| 9F 6E | Third Party Data [Mastercard]                                    | 01 24 00 00 30 30 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00  |           |
| 9F 7E | Application Life Cycle Data [Mastercard]                         | 03 10 0C 12 00 09 00 00 FF FF<br>FF FF FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF 00 04<br>00 00 02 60 00 00 38 4A 02 11<br>50 35 43 44 30 37 32 20   |           |
| C3    | Card Issuer Action Code (Contact) - Decline [M/Chip Advance]     | 00 00 00  |           |
| C4    | Card Issuer Action Code (Contact) - Default [M/Chip Advance]     | 19 50 00  |           |
| C5    | Card Issuer Action Code (Contact) - Online [M/Chip Advance]      | 39 FB 00  |           |
| C6    | PIN Try Limit [M/Chip Advance]                                   | 09  |           |
| C7    | CDOL1 Related Data Length [Mastercard]                           | 42  |           |
| C8    | CRM Country Code [Mastercard]                                    | 01 24 - CAN   |           |
| C9    | Accumulator 1 Currency Code [Mastercard]                         | 01 24 - CAD   |           |
| CA    | Accumulator 1 Lower Limit [Mastercard]                           | 00 00 00 02 00 00   |           |
| CB    | Accumulator 1 Upper Limit [Mastercard]                           | 00 00 00 04 00 00   |           |
| CD    | Card Issuer Action Code (Contactless) - Default [M/Chip Advance] | 00 58 00  |           |
| CE    | Card Issuer Action Code (Contactless) - Online [M/Chip Advance]  | 00 F8 00  |           |
| CF    | Card Issuer Action Code (Contactless) - Decline [M/Chip Advance] | 00 00 00  |           |
| D1    | Accumulator 1 Currency Conversion Table [Mastercard]             | 01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00 01 24 00 01 00<br>01 24 00 01 00  |           |
| D3    | Additional Check Table [Mastercard]                              | 00 00 00 FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF  |           |
| D5    | Application Control [M/Chip Advance]                             | 8C 00 80 00 86 02   |           |
| D6    | Default ARPC Response Code [M/Chip Advance]                      | 00 12   |           |
| D7    | Application Control [M/Chip Advance]                             | 40 01 40 00 86 02   |           |
| DF 02 | Security Limits Status (Contact) [M/Chip Advance]                | 00  |           |

### 1.7 Test Card 07 – Mastercard, ARPC Failure, Credit, English, USA, USD

A Mastercard credit card that fails Authorization Response Cryptogram (ARPC) validation, and has Issuer Country Code of 'USA' and Currency Code of 'USD'.

The recommended transaction amount to generate a host approval is \$120.00.

Note: If the host approves the transaction, the card will decline the transaction at the 2<sup>nd</sup> Generate AC.

#### 1.7.1 CVM List - AID A000000041010, Mastercard (EMV)

| Cardholder Verification Method List ('5E03 1F00') |                     |                            |                 |
|---|---------------------|----------------------------|-----------------|
| CVM   | Verification Method | Conditions                 | If unsuccessful |
| 1   | Signature (paper)   | Terminal supports CVM type | Next CVM        |
| 2   | No CVM required     | Terminal supports CVM type | Fail            |

#### 1.7.2 Application Tag data (Contact)

| Tag   | Element name                                      | Data   | Card v7.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 02 00 11 D2 51<br>22 01 07 93 60 80 50 00 0F  |              |
| 5A    | Application Primary Account Number (PAN)          | 54 13 33 00 89 02 00 11  |              |
| 5F 20 | Cardholder Name                                   | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 30 37<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 07'  |              |
| 5F 24 | Application Expiration Date                       | 25 12 31   |              |
| 5F 25 | Application Effective Date                        | xx xx xx   |              |
| 5F 28 | Issuer Country Code                               | 08 40 - USA  |              |
| 5F 2D | Language Preference                               | 65 6E - 'en' (English)   |              |
| 5F 30 | Service Code                                      | 02 01  |              |
| 5F 34 | Application PAN Sequence Number                   | 00   |              |
| 82    | Application Interchange Profile [M/Chip, PayPass] | 18 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported<br>using External Auth command<br>b2 - On device Cardholder verification<br>NOT supported<br>b1 - Combined DDA / GEN AC NOT<br>supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 35 01 9F 45 02 9F 4C 08<br>9F 34 03 9B 02  |              |
| 8D    | Card Risk Management Data Object List 2 (CDOL2)   | 91 0A 8A 02 95 05 9F 37 04 9F<br>4C 08   |              |
| 8E    | Cardholder Verification Method (CVM) List         | 00 00 00 00 00 00 00 00 5E 03<br>1F 00   |              |
| 8F    | Certification Authority Public Key Index          | EF   |              |

| Tag   | Element name                                     | Data  | Card v7.x |
|-------|--|---|-----------|
| 90    | Issuer Public Key Certificate                    | 5B 2E 1F EF 4D 7D 2C 16 16 12<br>21 F7 97 2F E6 99 B7 82 44 E0<br>73 C8 AC 75 86 CE D1 76 EF 7B<br>93 AC 19 0B 05 70 40 E1 18 4F<br>2F 55 AC 70 D2 AA C3 94 BE 22<br>6A 26 50 D3 CA ED 90 60 88 C5<br>3A 88 B8 3C 46 1F 37 6D 89 10<br>B8 51 81 54 F3 08 EE ED 23 BC<br>15 7C FA BA 6E 51 26 9F 01 6D<br>59 FE 21 A6 F9 10 F2 85 13 0D<br>EA F6 A4 78 BE 77 9D 2B AD 08<br>E1 2E D6 A5 93 71 5A 18 72 15<br>C5 63 28 1C B2 B7 2E 5B 14 05<br>5D 2D D8 30 4A C2 20 2E 53 96<br>D0 4C 5C 79 55 0B 4D E9 FA DA<br>CB 35 F3 19 06 C5 A4 42 27 29<br>D6 A5 A8 F5 E1 4C B9 0D B7 05<br>49 4B 3D B1 0D E6 19 F3 B0 3E<br>64 96 FE 79 F4 6E 64 97 2A 46<br>34 A0 35 EF 7E 50 20 49 40 36<br>03 E0 BC FC 33 C3 87 BB 6D 72<br>CF F8 33 89 7E 81 F5 02 3F F4<br>D6 A9 CC 0C 89 E8 78 3F 07 B7<br>F0 55 3E 9D D3 59 B6 5B 62 3A<br>F1 CE 27 8D 65 3C 37 07 |           |
| 92    | Issuer Public Key Remainder                      | 14 3E 90 B8 B5 E6 2B E5 A9 0D<br>5A 4E F1 5C 77 40 4D 29 94 48<br>98 77 85 D7 E8 80 C2 CD   |           |
| 94    | Application File Locator (AFL)                   | 08 02 04 01 18 01 01 00 20 01<br>01 00  |           |
| 9F 07 | Application Usage Control                        | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed  |           |
| 9F 08 | Application Version Number                       | 00 02   |           |
| 9F 0D | Issuer Action Code - Default                     | B0 50 80 80 00  |           |
| 9F 0E | Issuer Action Code - Denial                      | 00 00 00 00 00  |           |
| 9F 0F | Issuer Action Code - Online                      | B0 70 80 98 00  |           |
| 9F 10 | Issuer Application Data [M/Chip 4]               | xx 10 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx *  |           |
| 9F 11 | Issuer Code Table Index                          | 01  |           |
| 9F 12 | Application Preferred Name                       | 4D 61 73 74 65 72 63 61 72 64 -<br>'Mastercard'   |           |
| 9F 14 | Lower Consecutive Offline Limit                  | 00  |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter | 0F  |           |
| 9F 1F | Track 1 Discretionary Data                       | 30 37 39 33 36 30 38 30 35 30<br>30 30 30 30 30 30 30 30 30 30<br>30 30 30 30   |           |
| 9F 23 | Upper Consecutive Offline Limit                  | 00  |           |
| 9F 26 | Application Cryptogram (AC)                      | xx xx xx xx xx xx xx xx *   |           |
| 9F 27 | Cryptogram Information Data (CID)                | 80  |           |
| 9F 32 | Issuer Public Key Exponent                       | 03  |           |

| Tag   | Element name   | Data   | Card v7.x |
|-------|--|--|-----------|
| 9F 36 | Application Transaction Counter (ATC)                | xx xx *  |           |
| 9F 42 | Application Currency Code                            | 08 40 - USA  |           |
| 9F 44 | Application Currency Exponent                        | 02   |           |
| 9F 46 | ICC Public Key Certificate                           | 23 BE 47 30 6E BD 4B 97 75 D2<br>5F 86 56 78 78 13 20 34 DD 00<br>05 3C F6 D0 DC BA 2D 09 4C F2<br>8D 09 FD 9E 8E E6 8E A6 79 E0<br>30 27 88 F2 5F 4B 4E E3 26 98<br>5E 08 F8 7E 00 AE 10 58 6F 46<br>F7 FA 4E A3 AF 7D 26 2E 03 86<br>B8 3B 3C 28 F3 45 F2 C6 F7 33<br>5F 72 2A 3E 0C BC 25 1A 90 75<br>FB 8B 22 71 37 95 C1 4D E2 24<br>5F A5 E9 59 2A 5C F3 06 3B CA<br>51 FD 8D D7 64 90 1F 66 3D 81<br>B4 0F C5 EB C0 26 43 B8 98 F6<br>41 95 BF 00 27 7B 9C 44 2A F1<br>E8 3E FF 1D 5C 00 E5 71 07 60<br>4F 01 A6 52 59 E2 08 44 C3 20<br>D5 84 22 96 B2 C1 BA 67 55 E2<br>46 B1 26 03 03 98 F7 49 D0 3E<br>4F 2E 9E 44 94 41 08 50 BA 63<br>66 5E 87 5F C1 27 CD 30 FD 96<br>0F E9 ED F1 01 74 5B 1A E0 DF<br>45 5F 56 B3 08 50 A8 34 00 57<br>9F 9E 78 9D 3E 7E EF A2 A1 6A<br>DD DB 9A 5A 29 F3 3C FA 8C 22 |           |
| 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 4D | Transaction Log Entry                                | 0B 0A  |           |
| 9F 4F | Transaction Log Format                               | 9F 27 01 9F 02 06 5F 2A 02 9A<br>03 9F 36 02 9F 52 06  |           |
| 9F 6E | Third Party Data [Mastercard]                        | 08 40 00 00 30 30 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00   |           |
| 9F 7E | Application Life Cycle Data [Mastercard]             | 03 10 0C 12 00 09 00 00 FF FF<br>FF FF FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF 00 04<br>00 00 02 60 00 00 38 4A 02 11<br>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]       | 40 50 00   |           |
| C5    | Card Issuer Action Code - Online [Mastercard]        | 06 F8 00   |           |
| C6    | Counters [Mastercard]                                | 00 01 00 00 00 00 00 00 00 00  |           |
| C7    | CDOL1 Related Data Length [Mastercard]               | 2D   |           |
| C8    | CRM Country Code [Mastercard]                        | 08 40 - USA  |           |
| C9    | CRM Currency Code [M/Chip4]                          | 08 40 - USD  |           |
| CA    | Lower Cumulative Offline Transaction Amount [M/Chip] | 00 00 00 00 00 00  |           |
| CB    | Upper Cumulative Offline Transaction Amount [M/Chip] | 00 00 00 00 00 00  |           |
| D1    | Currency Conversion Table [M/Chip]                   | 08 40 00 01 00 08 40 00 01 00<br>08 40 00 01 00 08 40 00 01 00<br>08 40 00 01 00   |           |

| Tag   | Element name                         | Data  | Card v7.x |
|-------|--------------------------------------|---|-----------|
| D3    | Additional Check Table [Mastercard]  | 00 00 00 FF FF FF FF FF FF FF FF<br>FF FF FF FF FF FF FF FF |           |
| D5    | Application Control [M/Chip]         | C0 00   |           |
| D6    | Default ARPC Response Code [M/Chip4] | 00 10   |           |
| DF 02 | Security Limits Status [Mastercard]  | 00  |           |

\* Tag value changes with card usage

### 1.8 Test Card 08 – Mastercard, Technical Fallback Card

This card has a chip image printed on it but 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.

### 1.9 Test Card 09 – Mastercard, ECL - MSR Fallback Card

This card has an un-programmed chip. When inserted, an Empty Candidate List will result and the POS should invoke fallback processing.

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

### 1.10 Test Card 10 – 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.

#### 1.10.1 CVM List - AID A0000002771010 (EMV)

| Cardholder Verification Method List ('0403 0103 0203') |                        |                            |                 |
|--|------------------------|----------------------------|-----------------|
| CVM  | Verification Method    | Conditions                 | If unsuccessful |
| 1  | Offline Enciphered PIN | Terminal supports CVM type | Fail            |
| 2  | Offline Plaintext PIN  | Terminal supports CVM type | Fail            |
| 3  | Online PIN             | Terminal supports CVM type | Fail            |

#### 1.10.2 Application Tag data (Contact)

| Tag | Element name                             | Data  | Card v10.x  |
|-----|--|---|-------------|
| 50  | Application Label                        | 49 6E 74 65 72 61 63  | - 'Interac' |
| 57  | Track 2 Equivalent Data                  | 00 12 03 00 00 00 00 03 D2 81<br>22 20 08 97 74 00 00 00 1F |             |
| 5A  | Application Primary Account Number (PAN) | 00 12 03 00 00 00 00 03                                     |             |

| Tag   | Element name                                    | Data  | Card v10.x |
|-------|---|---|------------|
| 5F 20 | Cardholder Name                                 | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 30<br>20 20 20 20 20 20 - 'UAT CAN/Test Card 10'  |            |
| 5F 24 | Application Expiration Date                     | 28 12 31  |            |
| 5F 25 | Application Effective Date                      | xx xx xx  |            |
| 5F 28 | Issuer Country Code                             | 01 24 - Canada  |            |
| 5F 2D | Language Preference                             | 65 6E 66 72 - 'enfr' (English, French)  |            |
| 5F 30 | Service Code                                    | 02 20   |            |
| 5F 34 | Application PAN Sequence Number                 | 01  |            |
| 5F 56 | Issuer Country Code (alpha3 format)             | 43 41 4E - 'CAN'  |            |
| 82    | Application Interchange Profile                 | 19 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 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<br>4C 08  |            |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 04 03<br>01 03 02 03  |            |
| 8F    | Certification Authority Public Key Index        | 07  |            |
| 90    | Issuer Public Key Certificate                   | 7E 37 FF 15 A4 88 1C 32 6D 5F<br>61 E4 D7 4A 00 39 24 76 D5 44<br>80 B9 16 92 4A 70 65 B7 B3 40<br>F3 1F A4 86 84 E1 99 CE 82 DA<br>3F F6 0C 77 4A 13 D0 0B C8 46<br>7B 87 1C 9E 00 40 28 FA 44 D9<br>55 38 0E D5 50 F9 F0 C8 B0 3B<br>3F 9A CE 0F FA FA 8B A6 B4 0C<br>F9 69 A9 72 AF C9 D1 EC 56 25<br>A0 0B B8 0E E0 38 6E 57 22 BD<br>FC 5C 7D 89 0C 71 5F 54 67 4F<br>CE B2 0B 5E 0E 80 E8 77 0B 59<br>9E A4 E6 15 D8 60 2D 30 37 F4<br>CB B2 CC 6F 4D B2 99 34 78 FC<br>CE 47 A5 23 59 AA 00 A4 94 C5<br>87 BB D3 2F 3B 64 A9 2E F8 77<br>47 25 66 A1 A7 24 F2 0B BB C8<br>24 26 9C 34 80 22 EF E7 83 85<br>13 A7 AD 3B DE 7B 2B 3D B8 8F<br>5F B3 A1 DA 45 B8 38 14 16 A1<br>0F 77 7E 55 07 B8 05 48 33 D3<br>99 97 C1 5B 34 34 E0 86 A7 B6<br>7F 6B B0 29 60 E1 F5 59 20 DC<br>2E 12 38 91 DA 23 34 03 AA D3<br>97 75 0F 44 56 09 CD 2A |            |
| 94    | Application File Locator (AFL)                  | 08 01 04 00 10 01 01 01 18 01<br>04 01  |            |

| Tag   | Element name   | Data   | Card v10.x |
|-------|--|--|------------|
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |            |
| 9F 08 | Application Version Number                                 | 00 02  |            |
| 9F 0D | Issuer Action Code - Default                               | FC 78 FC A8 40   |            |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00   |            |
| 9F 0F | Issuer Action Code - Online                                | FC F8 FC F8 70   |            |
| 9F 10 | Issuer Application Data [InteracFlash]                     | xx 02 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx xx xx<br>xx xx *  |            |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *  |            |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 99   |            |
| 9F 27 | Cryptogram Information Data (CID)                          | 80   |            |
| 9F 32 | Issuer Public Key Exponent                                 | 01 00 01   |            |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |            |
| 9F 42 | Application Currency Code                                  | 01 24 - CAD  |            |
| 9F 44 | Application Currency Exponent                              | 02   |            |
| 9F 46 | ICC Public Key Certificate                                 | 4C 11 7F 08 F0 E4 84 63 25 E0<br>E9 9A 80 1B 10 E0 7D 38 3C D6<br>11 91 4F DF 60 C7 26 0E F1 15<br>D3 01 9C DD 8D 1C 23 D6 68 C6<br>0B 20 43 30 EE 7B 19 2C 9A A4<br>D2 74 FA 48 31 3D 15 62 59 C5<br>3A 0B BB FB 76 3B 00 C7 7A E2<br>8E 33 E9 84 28 C9 B3 C8 6D 66<br>48 B9 BD C6 62 0C D4 8C 1E 2E<br>89 BE 18 2C C0 7F 2D DB CA 5D<br>B6 27 18 F0 66 F8 D3 8E 4D 18<br>4E D8 F8 93 1B FB 71 F8 1A 7B<br>29 F8 25 C0 6D EC C2 67 8D BF<br>5F 4E 94 E0 64 9B 24 C7 00 50<br>A9 8E A6 AE A6 C7 B2 28 F2 69<br>96 94 81 BB D2 CA 9F EA 8C 58<br>F5 B8 F0 73 00 08 C5 A6 4C C3<br>84 81 0D 34 34 4B |            |
| 9F 47 | ICC Public Key Exponent                                    | 01 00 01   |            |
| 9F 48 | ICC Public Key Remainder                                   | B9 05 E4 9E 6C 73 1E 87 79 17  |            |
| 9F 4A | Static Data Authentication Tag List                        | 82   |            |
| 9F 4D | Transaction Log Entry                                      | 0B 0A  |            |
| 9F 4F | Transaction Log Format                                     | 9F 02 06 5F 2A 02 9A 03 9F 36<br>02 9F 1A 02 95 05 9C 01 8A 02   |            |
| 9F 62 | Card Product Code [InteracFlash]                           | 00 01  |            |
| 9F 70 | Form Factor Indicator [InteracFlash]                       | 00   |            |
| DF 62 | Application Selection Flag [Canada]                        | 80 80  |            |

\* Tag value changes with card usage



## 1.10.3 Application Tag data (Contactless)

| Tag   | Element name                                    | Data  | Card v10.x                 |
|-------|---|---|----------------------------|
| 50    | Application Label                               | 49 6E 74 65 72 61 63  | - 'Interac'                |
| 57    | Track 2 Equivalent Data                         | 00 12 03 00 00 00 00 03 D2 81<br>22 20 08 97 74 00 00 00 1F   |                            |
| 5A    | Application Primary Account Number (PAN)        | 00 12 03 00 00 00 00 03   |                            |
| 5F 24 | Application Expiration Date                     | 28 12 31  |                            |
| 5F 25 | Application Effective Date                      | xx xx xx  |                            |
| 5F 28 | Issuer Country Code                             | 01 24   | - Canada                   |
| 5F 2D | Language Preference                             | 65 6E 66 72   | - 'enfr' (English, French) |
| 5F 30 | Service Code                                    | 02 20   |                            |
| 5F 34 | Application PAN Sequence Number                 | 01  |                            |
| 5F 56 | Issuer Country Code (alpha3 format)             | 43 41 4E  | - 'CAN'                    |
| 82    | Application Interchange Profile                 | 01 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification NOT supported<br>b4 - Terminal risk mgmt NOT to be performed<br>b3 - Issuer authentication NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 45 02 9F 4C 08 9F 34 03   |                            |
| 8F    | Certification Authority Public Key Index        | 07  |                            |
| 90    | Issuer Public Key Certificate                   | 7E 37 FF 15 A4 88 1C 32 6D 5F<br>61 E4 D7 4A 00 39 24 76 D5 44<br>80 B9 16 92 4A 70 65 B7 B3 40<br>F3 1F A4 86 84 E1 99 CE 82 DA<br>3F F6 0C 77 4A 13 D0 0B C8 46<br>7B 87 1C 9E 00 40 28 FA 44 D9<br>55 38 0E D5 50 F9 F0 C8 B0 3B<br>3F 9A CE 0F FA FA 8B A6 B4 0C<br>F9 69 A9 72 AF C9 D1 EC 56 25<br>A0 0B B8 0E E0 38 6E 57 22 BD<br>FC 5C 7D 89 0C 71 5F 54 67 4F<br>CE B2 0B 5E 0E 80 E8 77 0B 59<br>9E A4 E6 15 D8 60 2D 30 37 F4<br>CB B2 CC 6F 4D B2 99 34 78 FC<br>CE 47 A5 23 59 AA 00 A4 94 C5<br>87 BB D3 2F 3B 64 A9 2E F8 77<br>47 25 66 A1 A7 24 F2 0B BB C8<br>24 26 9C 34 80 22 EF E7 83 85<br>13 A7 AD 3B DE 7B 2B 3D B8 8F<br>5F B3 A1 DA 45 B8 38 14 16 A1<br>0F 77 7E 55 07 B8 05 48 33 D3<br>99 97 C1 5B 34 34 E0 86 A7 B6<br>7F 6B B0 29 60 E1 F5 59 20 DC<br>2E 12 38 91 DA 23 34 03 AA D3<br>97 75 0F 44 56 09 CD 2A |                            |
| 94    | Application File Locator (AFL)                  | 08 01 04 00 10 01 05 03   |                            |

| Tag   | Element name   | Data   | Card v10.x |
|-------|--|--|------------|
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed   |            |
| 9F 08 | Application Version Number                                 | 00 02  |            |
| 9F 0D | Issuer Action Code - Default                               | FC F8 FC F8 00   |            |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00   |            |
| 9F 0F | Issuer Action Code - Online                                | FC F8 FC F8 00   |            |
| 9F 10 | Issuer Application Data [InteracFlash]                     | xx 02 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx xx xx<br>xx xx *  |            |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *  |            |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 99   |            |
| 9F 27 | Cryptogram Information Data (CID)                          | 80   |            |
| 9F 32 | Issuer Public Key Exponent                                 | 01 00 01   |            |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *  |            |
| 9F 38 | Processing Options Data Object List (PDOL)                 | 9F 59 03 9F 5A 01 9F 02 06 9F<br>1A 02 5F 2A 02 9F 37 04 9F 58<br>01   |            |
| 9F 42 | Application Currency Code                                  | 01 24 - CAD  |            |
| 9F 44 | Application Currency Exponent                              | 02   |            |
| 9F 46 | ICC Public Key Certificate                                 | C9 AC 57 A3 26 96 CC 26 DC BF<br>D2 9B 5C 5B 5C 79 20 C9 E4 28<br>E7 2C 35 EE 49 12 F2 0B 83 A4<br>21 FA 6F 34 04 55 69 52 A6 5A<br>E1 4F E2 5F FC B8 48 76 8A 41<br>B4 FD 41 E0 1C 05 32 6D 74 B8<br>13 2B C9 24 BC 02 AA 4D 98 7A<br>DA 82 25 08 1F 81 A5 F2 8C 42<br>B9 7E A5 38 B8 57 51 9C 0E 0A<br>0E 00 CF B7 B9 87 C5 8C 32 48<br>8C 33 A6 C7 CE D2 0B 46 8B 8D<br>F7 FF 81 6D F2 0E 06 19 DA 54<br>E4 A7 8A 2A F5 D8 8B 44 F2 71<br>8B 47 F6 E0 94 43 5C D0 31 A6<br>53 E2 A8 AD DF 99 3E 86 A4 7B<br>03 3A BA 01 AD B5 9A B2 CC F8<br>D9 2C 44 EA C5 EC 5D FC 39 60<br>90 30 36 9A DE 82 |            |
| 9F 47 | ICC Public Key Exponent                                    | 01 00 01   |            |
| 9F 48 | ICC Public Key Remainder                                   | B9 05 E4 9E 6C 73 1E 87 79 17  |            |
| 9F 4A | Static Data Authentication Tag List                        | 82   |            |
| 9F 4D | Transaction Log Entry                                      | 0B 0A  |            |
| 9F 4F | Transaction Log Format                                     | 9F 02 06 5F 2A 02 9A 03 9F 36<br>02 9F 1A 02 95 05 9C 01 8A 02   |            |
| 9F 52 | Merchant Type Indicator Limits 01                          | 00 00 00 02 50 01 99 99 99 99<br>99 99   |            |
| 9F 54 | Merchant Type Indicator Limits 02                          | 00 00 00 02 50 01 99 99 99 99<br>99 99   |            |
| 9F 55 | Merchant Type Indicator Limits 03                          | 00 00 00 02 50 01 99 99 99 99<br>99 99   |            |

| Tag   | Element name                                | Data                                   | Card v10.x |
|-------|---|--|------------|
| 9F 56 | Merchant Type Indicator Limits 04           | 00 00 00 02 50 01 99 99 99 99<br>99 99 |            |
| 9F57  | Merchant Type Indicator Limits 05           | 00 00 00 02 50 01 99 99 99 99<br>99 99 |            |
| 9F 62 | Card Product Code [InteracFlash]            | 00 01                                  |            |
| 9F 63 | Card Transaction Information [InteracFlash] | 00 10 00 00                            |            |
| 9F 70 | Form Factor Indicator [InteracFlash]        | 00                                     |            |
| DF 62 | Application Selection Flag [Canada]         | 80 80                                  |            |

\* Tag value changes with card usage

### 1.11 Test Card 11 – 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.

#### 1.11.1 CVM List - AID A000002771010 (EMV)

| Cardholder Verification Method List ('0403 0103 0203') |                        |                            |                 |
|--|------------------------|----------------------------|-----------------|
| CVM  | Verification Method    | Conditions                 | If unsuccessful |
| 1  | Offline Enciphered PIN | Terminal supports CVM type | Fail            |
| 2  | Offline Plaintext PIN  | Terminal supports CVM type | Fail            |
| 3  | Online PIN             | Terminal supports CVM type | Fail            |

#### 1.11.2 Application Tag data (Contact)

| Tag   | Element name                             | Data   | Card v7.x                  |
|-------|--|--|----------------------------|
| 50    | Application Label                        | 49 6E 74 65 72 61 63   | - 'Interac'                |
| 57    | Track 2 Equivalent Data                  | 00 12 03 00 00 00 00 03 D2 81<br>22 20 08 97 74 00 00 00 1F  |                            |
| 5A    | Application Primary Account Number (PAN) | 00 12 03 00 00 00 00 03  |                            |
| 5F 20 | Cardholder Name                          | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 31<br>20 20 20 20 20 20  | - 'UAT CAN/Test Card 11'   |
| 5F 24 | Application Expiration Date              | 28 12 31   |                            |
| 5F 25 | Application Effective Date               | xx xx xx   |                            |
| 5F 28 | Issuer Country Code                      | 01 24  | - Canada                   |
| 5F 2D | Language Preference                      | 66 72 65 6E  | - 'fren' (French, English) |
| 5F 30 | Service Code                             | 02 20  |                            |
| 5F 34 | Application PAN Sequence Number          | 01   |                            |
| 5F 56 | Issuer Country Code (alpha3 format)      | 43 41 4E   | - 'CAN'                    |
| 82    | Application Interchange Profile          | 19 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>b8 - EMV Contactless NOT supported |                            |
| 84    | Dedicated File (DF) Name                 | A0 00 00 02 77 10 10   |                            |
| 87    | Application Priority Indicator           | 01   |                            |

| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 8C    | Card Risk Management Data Object List 1 (CDOL1)            | 9F 02 06 9F 03 06 9F 1A 02 95<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 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<br>4C 08  |           |
| 8E    | Cardholder Verification Method (CVM) List                  | 00 00 00 00 00 00 00 00 04 03<br>01 03 02 03  |           |
| 8F    | Certification Authority Public Key Index                   | 07  |           |
| 90    | Issuer Public Key Certificate                              | 7E 37 FF 15 A4 88 1C 32 6D 5F<br>61 E4 D7 4A 00 39 24 76 D5 44<br>80 B9 16 92 4A 70 65 B7 B3 40<br>F3 1F A4 86 84 E1 99 CE 82 DA<br>3F F6 0C 77 4A 13 D0 0B C8 46<br>7B 87 1C 9E 00 40 28 FA 44 D9<br>55 38 0E D5 50 F9 F0 C8 B0 3B<br>3F 9A CE 0F FA FA 8B A6 B4 0C<br>F9 69 A9 72 AF C9 D1 EC 56 25<br>A0 0B B8 0E E0 38 6E 57 22 BD<br>FC 5C 7D 89 0C 71 5F 54 67 4F<br>CE B2 0B 5E 0E 80 E8 77 0B 59<br>9E A4 E6 15 D8 60 2D 30 37 F4<br>CB B2 CC 6F 4D B2 99 34 78 FC<br>CE 47 A5 23 59 AA 00 A4 94 C5<br>87 BB D3 2F 3B 64 A9 2E F8 77<br>47 25 66 A1 A7 24 F2 0B BB C8<br>24 26 9C 34 80 22 EF E7 83 85<br>13 A7 AD 3B DE 7B 2B 3D B8 8F<br>5F B3 A1 DA 45 B8 38 14 16 A1<br>0F 77 7E 55 07 B8 05 48 33 D3<br>99 97 C1 5B 34 34 E0 86 A7 B6<br>7F 6B B0 29 60 E1 F5 59 20 DC<br>2E 12 38 91 DA 23 34 03 AA D3<br>97 75 0F 44 56 09 CD 2A |           |
| 94    | Application File Locator (AFL)                             | 08 01 04 00 10 01 01 01 18 01<br>04 01  |           |
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed  |           |
| 9F 08 | Application Version Number                                 | 00 02   |           |
| 9F 0D | Issuer Action Code - Default                               | FC 78 FC A8 40  |           |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00  |           |
| 9F 0F | Issuer Action Code - Online                                | FC F8 FC F8 70  |           |
| 9F 10 | Issuer Application Data [InteracFlash]                     | xx 02 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx xx xx<br>xx xx *   |           |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *   |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 99  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 80  |           |
| 9F 32 | Issuer Public Key Exponent                                 | 01 00 01  |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *   |           |

| Tag   | Element name                         | Data   | Card v7.x |
|-------|--------------------------------------|--|-----------|
| 9F 42 | Application Currency Code            | 01 24  | - CAD     |
| 9F 44 | Application Currency Exponent        | 02   |           |
| 9F 46 | ICC Public Key Certificate           | 11 A1 DD 2F F9 07 2B A3 AC 8A<br>15 F9 69 74 F5 6F F4 2B 5D 84<br>B6 4E 3F DC B1 60 90 B9 41 C8<br>6C 58 A0 1A 0E 5D 1D 6E A1 A6<br>05 21 85 D1 B9 43 E9 DC 59 FD<br>73 FB 62 30 BB C2 A8 50 B2 23<br>4F 68 C4 44 6E 71 9C 26 AA DA<br>CE 0D 45 93 8D 22 64 4A 60 40<br>15 E7 F5 BC 5B 1F 44 66 9D 58<br>62 2E 2E 77 50 60 9E C9 43 EE<br>FC 45 8D E1 C8 E6 79 D1 69 64<br>DC 01 8C 47 27 A2 D2 82 B6 AC<br>A6 54 E4 21 14 F1 78 8D 94 F6<br>2E 35 15 FB 68 EA F7 C6 5B 0B<br>5C C4 47 48 D2 4C 72 7C 40 E6<br>BB 03 44 AA 59 92 AF 8F F7 43<br>AC 38 E8 CE F3 6B A7 CC 18 16<br>56 07 97 38 B9 80 |           |
| 9F 47 | ICC Public Key Exponent              | 01 00 01   |           |
| 9F 48 | ICC Public Key Remainder             | 42 B8 EF 42 AC A8 D1 C7 E5 C7  |           |
| 9F 4A | Static Data Authentication Tag List  | 82   |           |
| 9F 4D | Transaction Log Entry                | 0B 0A  |           |
| 9F 4F | Transaction Log Format               | 9F 02 06 5F 2A 02 9A 03 9F 36<br>02 9F 1A 02 95 05 9C 01 8A 02   |           |
| 9F 62 | Card Product Code [InteracFlash]     | 00 01  |           |
| 9F 70 | Form Factor Indicator [InteracFlash] | 00   |           |
| DF 62 | Application Selection Flag [Canada]  | 80 80  |           |

\* Tag value changes with card usage

### 1.11.3 Application Tag data (Contactless)

| Tag   | Element name                             | Data   | Card v7.x                  |
|-------|--|--|----------------------------|
| 50    | Application Label                        | 49 6E 74 65 72 61 63   | - 'Interac'                |
| 57    | Track 2 Equivalent Data                  | 00 12 03 00 00 00 00 03 D2 81<br>22 20 08 97 74 00 00 00 1F  |                            |
| 5A    | Application Primary Account Number (PAN) | 00 12 03 00 00 00 00 03  |                            |
| 5F 24 | Application Expiration Date              | 28 12 31   |                            |
| 5F 25 | Application Effective Date               | xx xx xx   |                            |
| 5F 28 | Issuer Country Code                      | 01 24  | - Canada                   |
| 5F 2D | Language Preference                      | 66 72 65 6E  | - 'fren' (French, English) |
| 5F 30 | Service Code                             | 02 20  |                            |
| 5F 34 | Application PAN Sequence Number          | 01   |                            |
| 5F 56 | Issuer Country Code (alpha3 format)      | 43 41 4E   | - 'CAN'                    |
| 82    | Application Interchange Profile          | 01 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification NOT supported<br>b4 - Terminal risk mgmt NOT to be performed<br>b3 - Issuer authentication NOT supported<br>b1 - Combined DDA / GEN AC supported<br>BYTE 2:<br>b8 - EMV Contactless NOT supported |                            |
| 84    | Dedicated File (DF) Name                 | A0 00 00 02 77 10 10   |                            |
| 87    | Application Priority Indicator           | 01   |                            |

| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 8C    | Card Risk Management Data Object List 1 (CDOL1)            | 9F 02 06 9F 03 06 9F 1A 02 95<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04 9F 45 02 9F 4C 08 9F 34 03   |           |
| 8F    | Certification Authority Public Key Index                   | 07  |           |
| 90    | Issuer Public Key Certificate                              | 7E 37 FF 15 A4 88 1C 32 6D 5F<br>61 E4 D7 4A 00 39 24 76 D5 44<br>80 B9 16 92 4A 70 65 B7 B3 40<br>F3 1F A4 86 84 E1 99 CE 82 DA<br>3F F6 0C 77 4A 13 D0 0B C8 46<br>7B 87 1C 9E 00 40 28 FA 44 D9<br>55 38 0E D5 50 F9 F0 C8 B0 3B<br>3F 9A CE 0F FA FA 8B A6 B4 0C<br>F9 69 A9 72 AF C9 D1 EC 56 25<br>A0 0B B8 0E E0 38 6E 57 22 BD<br>FC 5C 7D 89 0C 71 5F 54 67 4F<br>CE B2 0B 5E 0E 80 E8 77 0B 59<br>9E A4 E6 15 D8 60 2D 30 37 F4<br>CB B2 CC 6F 4D B2 99 34 78 FC<br>CE 47 A5 23 59 AA 00 A4 94 C5<br>87 BB D3 2F 3B 64 A9 2E F8 77<br>47 25 66 A1 A7 24 F2 0B BB C8<br>24 26 9C 34 80 22 EF E7 83 85<br>13 A7 AD 3B DE 7B 2B 3D B8 8F<br>5F B3 A1 DA 45 B8 38 14 16 A1<br>0F 77 7E 55 07 B8 05 48 33 D3<br>99 97 C1 5B 34 34 E0 86 A7 B6<br>7F 6B B0 29 60 E1 F5 59 20 DC<br>2E 12 38 91 DA 23 34 03 AA D3<br>97 75 0F 44 56 09 CD 2A |           |
| 94    | Application File Locator (AFL)                             | 08 01 04 00 10 01 05 03   |           |
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>b7 - International cashback NOT allowed  |           |
| 9F 08 | Application Version Number                                 | 00 02   |           |
| 9F 0D | Issuer Action Code - Default                               | FC F8 FC F8 00  |           |
| 9F 0E | Issuer Action Code - Denial                                | 00 00 00 00 00  |           |
| 9F 0F | Issuer Action Code - Online                                | FC F8 FC F8 00  |           |
| 9F 10 | Issuer Application Data [InteracFlash]                     | xx 02 xx xx xx xx xx xx xx xx<br>xx xx xx xx xx xx xx xx xx xx<br>xx xx *   |           |
| 9F 13 | Last Online Application Transaction Counter (ATC) Register | xx xx *   |           |
| 9F 17 | Personal Identification Number (PIN) Try Counter           | 99  |           |
| 9F 27 | Cryptogram Information Data (CID)                          | 80  |           |
| 9F 32 | Issuer Public Key Exponent                                 | 01 00 01  |           |
| 9F 36 | Application Transaction Counter (ATC)                      | xx xx *   |           |
| 9F 38 | Processing Options Data Object List (PDOL)                 | 9F 59 03 9F 5A 01 9F 02 06 9F<br>1A 02 5F 2A 02 9F 37 04 9F 58<br>01  |           |
| 9F 42 | Application Currency Code                                  | 01 24 - CAD   |           |
| 9F 44 | Application Currency Exponent                              | 02  |           |

| Tag   | Element name                                | Data   | Card v7.x |
|-------|---|--|-----------|
| 9F 46 | ICC Public Key Certificate                  | 00 32 3A 2A E0 48 A6 C8 57 8D<br>62 54 A1 E4 78 5D 62 24 F3 37<br>09 31 B2 1F DD F9 34 DB 31 57<br>E1 39 77 0F B5 80 0D 9F DC 05<br>6A 40 61 7F DE 05 E6 13 98 D2<br>BA 27 1B 53 97 F7 89 FE 47 45<br>DD 4C AC C8 22 B3 60 FF DD F1<br>16 43 E5 81 F8 69 2E 40 CB A5<br>43 CE 12 DB D7 D4 C0 69 78 2D<br>05 CB 3B BD 52 CB 42 99 D3 CC<br>22 8E 68 B8 B3 2E 64 29 5F 31<br>6A B5 D7 54 C0 AF BB F0 79 BB<br>DE 47 0D 26 DC 32 D8 DB 9C 73<br>A0 5C D3 3B 63 A3 8C 0C 9D D6<br>09 24 C7 1F 16 AA 17 5C D1 3E<br>E2 D7 0F 50 CC DF F3 3A A1 5A<br>66 84 44 5A 3C DF A8 D5 5A BE<br>D8 9B DA 2D 40 98 |           |
| 9F 47 | ICC Public Key Exponent                     | 01 00 01   |           |
| 9F 48 | ICC Public Key Remainder                    | 42 B8 EF 42 AC A8 D1 C7 E5 C7  |           |
| 9F 4A | Static Data Authentication Tag List         | 82   |           |
| 9F 4D | Transaction Log Entry                       | 0B 0A  |           |
| 9F 4F | Transaction Log Format                      | 9F 02 06 5F 2A 02 9A 03 9F 36<br>02 9F 1A 02 95 05 9C 01 8A 02   |           |
| 9F 52 | Merchant Type Indicator Limits 01           | 00 00 00 02 50 01 99 99 99 99<br>99 99   |           |
| 9F 54 | Merchant Type Indicator Limits 02           | 00 00 00 02 50 01 99 99 99 99<br>99 99   |           |
| 9F 55 | Merchant Type Indicator Limits 03           | 00 00 00 02 50 01 99 99 99 99<br>99 99   |           |
| 9F 56 | Merchant Type Indicator Limits 04           | 00 00 00 02 50 01 99 99 99 99<br>99 99   |           |
| 9F57  | Merchant Type Indicator Limits 05           | 00 00 00 02 50 01 99 99 99 99<br>99 99   |           |
| 9F 62 | Card Product Code [InteracFlash]            | 00 01  |           |
| 9F 63 | Card Transaction Information [InteracFlash] | 00 10 00 00  |           |
| 9F 70 | Form Factor Indicator [InteracFlash]        | 00   |           |
| DF 62 | Application Selection Flag [Canada]         | 80 80  |           |

\* Tag value changes with card usage

### 1.12 Test Card 12 – 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.

#### 1.12.1 CVM List - AID A00000025010402 (EMV)

| 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        |

1.12.2 Application Tag data (Contact)

| Tag   | Element name                                    | Data   | Card v7.x |
|-------|---|--|-----------|
| 50    | Application Label                               | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN<br>EXPRESS'   |           |
| 57    | Track 2 Equivalent Data                         | 37 42 45 00 17 41 00 7D 24 12<br>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                                 | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 32<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 12'  |           |
| 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<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported<br>b1 - Combined DDA / GEN AC NOT<br>supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04   |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>41 03 5E 03 5F 03   |           |
| 94    | Application File Locator (AFL)                  | 08 01 01 00 08 02 03 01  |           |
| 9F 07 | Application Usage Control                       | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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   |           |



| Tag   | Element name   | Data  | Card v7.x |
|-------|--|---|-----------|
| 9F 12 | Application Preferred Name                                 | 41 6D 65 72 69 63 61 6E 20 45<br>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   |           |

\* Tag value changes with card usage

### 1.12.3 CVM List - AID A00000025010402 (ExpressPay EMV)

| 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            |

### 1.12.4 Application Tag data (Contactless)

| Tag   | Element name                                    | Data   | Card v7.x |
|-------|---|--|-----------|
| 50    | Application Label                               | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN EXPRESS'  |           |
| 57    | Track 2 Equivalent Data                         | 37 42 45 00 17 41 00 7D 24 12<br>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                                 | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 32<br>20 20 20 20 20 20 - 'UAT CAN/Test Card 12'   |           |
| 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 [Expresspay]    | 18 80<br>BYTE 1:<br>b7 - SDA NOT supported<br>b6 - DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported<br>b1 - CDA NOT supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04   |           |

| Tag   | Element name                                    | Data   | Card v7.x |
|-------|---|--|-----------|
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>5E 03 1F 02   |           |
| 94    | Application File Locator (AFL)                  | 08 01 02 00 08 03 04 02  |           |
| 9F 07 | Application Usage Control                       | 3D 00<br>BYTE 1:<br>b8 - Domestic cash trans. NOT valid<br>b7 - Int'l cash transactions NOT valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 [American Express]      | xx xx 01 xx xx xx xx *   |           |
| 9F 12 | Application Preferred Name                      | 41 6D 65 72 69 63 61 6E 20 45<br>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  |           |

\* Tag value changes with card usage

1.12.5 CVM List - AID A000000291010 (EMV)

| 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        |

1.12.6 Application Tag data (Contact)

| Tag   | Element name                             | Data   | Card v7.x |
|-------|--|--|-----------|
| 50    | Application Label                        | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN EXPRESS'                                      |           |
| 57    | Track 2 Equivalent Data                  | 37 42 45 00 17 41 00 7D 24 12<br>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                          | 55 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 32<br>20 20 20 20 20 20 - 'UAT CAN/Test Card 12' |           |
| 5F 24 | Application Expiration Date              | 24 12 31   |           |
| 5F 25 | Application Effective Date               | xx xx xx   |           |

| Tag   | Element name   | Data   | Card v7.x        |
|-------|--|--|------------------|
| 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 [Expresspay 2.0]           | 1C 00<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported<br>b1 - Combined DDA / GEN AC NOT supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04   |                  |
| 8D    | Card Risk Management Data Object List 2 (CDOL2)            | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |                  |
| 8E    | Cardholder Verification Method (CVM) List                  | 00 00 00 00 00 00 00 00 42 01<br>41 03 5E 03 5F 03   |                  |
| 94    | Application File Locator (AFL)                             | 08 01 01 00 08 02 03 01  |                  |
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 xx *  |                  |
| 9F 11 | Issuer Code Table Index                                    | 01   |                  |
| 9F 12 | Application Preferred Name                                 | 41 6D 65 72 69 63 61 6E 20 45<br>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            |

\* Tag value changes with card usage

### 1.13 Test Card 13 – 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 \$39.00 or \$43.00.

#### 1.13.1 CVM List - AID A00000025010402 (EMV)

| Cardholder Verification Method List ('4201 4103 5E03 5F03') |                       |                            |                 |
|---|-----------------------|----------------------------|-----------------|
| 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       | Terminal supports CVM type | Next CVM        |

#### 1.13.2 Application Tag data (Contact)

| Tag   | Element name                                    | Data  | Card v6.x |
|-------|---|---|-----------|
| 50    | Application Label                               | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN<br>EXPRESS'  |           |
| 57    | Track 2 Equivalent Data                         | 37 42 45 00 27 71 00 3D 24 12<br>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 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 33<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 13'   |           |
| 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<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported<br>b1 - Combined DDA / GEN AC NOT<br>supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04  |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04  |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>41 03 5E 03 5F 03  |           |
| 94    | Application File Locator (AFL)                  | 08 01 01 00 08 02 03 01   |           |

| Tag   | Element name   | Data   | Card v6.x |
|-------|--|--|-----------|
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 [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<br>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  |           |

\* Tag value changes with card usage

1.13.3 CVM List - AID A00000025010402 (ExpressPay EMV)

| 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            |

1.13.4 Application Tag data (Contactless)

| Tag   | Element name                             | Data   | Card v6.x |
|-------|--|--|-----------|
| 50    | Application Label                        | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN EXPRESS'                                      |           |
| 57    | Track 2 Equivalent Data                  | 37 42 45 00 27 71 00 3D 24 12<br>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 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 33<br>20 20 20 20 20 20 - 'UAT CAN/Test Card 13' |           |
| 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 v6.x |
|-------|---|--|-----------|
| 5F 2D | Language Preference                             | 65 6E  |           |
| 5F 30 | Service Code                                    | 02 01  |           |
| 5F 34 | Application PAN Sequence Number                 | 00   |           |
| 82    | Application Interchange Profile [Expresspay]    | 1C 80<br>BYTE 1:<br>b7 - SDA NOT supported<br>b6 - DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported<br>b1 - CDA NOT supported<br>BYTE 2:<br>b8 - EMV & Mag-stripe modes supported<br>b7 - Expresspay Mobile NOT supported<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04   |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04   |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>5E 03 1F 02   |           |
| 94    | Application File Locator (AFL)                  | 08 01 02 00 08 03 04 02  |           |
| 9F 07 | Application Usage Control                       | 3D 00<br>BYTE 1:<br>b8 - Domestic cash trans. NOT valid<br>b7 - Int'l cash transactions NOT valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 [American Express]      | xx xx 01 xx xx xx xx *   |           |
| 9F 12 | Application Preferred Name                      | 41 6D 65 72 69 63 61 6E 20 45<br>78 70 72 65 73 73 - 'American<br>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  |           |

\* Tag value changes with card usage

## 1.13.5 CVM List - AID A000000291010 (EMV)

| 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        |

## 1.13.6 Application Tag data (Contact)

| Tag   | Element name                                    | Data  | Card v6.x |
|-------|---|---|-----------|
| 50    | Application Label                               | 41 4D 45 52 49 43 41 4E 20 45<br>58 50 52 45 53 53 - 'AMERICAN<br>EXPRESS'  |           |
| 57    | Track 2 Equivalent Data                         | 37 42 45 00 27 71 00 3D 24 12<br>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 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 33<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 13'   |           |
| 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<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication supported<br>b1 - Combined DDA / GEN AC NOT<br>supported<br>BYTE 2:<br>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<br>05 5F 2A 02 9A 03 9C 01 9F 37<br>04  |           |
| 8D    | Card Risk Management Data Object List 2 (CDOL2) | 8A 02 9F 02 06 9F 03 06 9F 1A<br>02 95 05 5F 2A 02 9A 03 9C 01<br>9F 37 04  |           |
| 8E    | Cardholder Verification Method (CVM) List       | 00 00 00 00 00 00 00 00 42 01<br>41 03 5E 03 5F 03  |           |
| 94    | Application File Locator (AFL)                  | 08 01 01 00 08 02 03 01   |           |

| Tag   | Element name   | Data   | Card v6.x |
|-------|--|--|-----------|
| 9F 07 | Application Usage Control                                  | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 [American Express]                 | xx xx 01 xx 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<br>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  |           |

\* Tag value changes with card usage

### 1.14 Test Card 14 – American Express, Technical Fallback Card

This card has a chip image printed on it but 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.



### 1.15 Test Card 15 – 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.

#### 1.15.1 CVM List - AID A0000001523010 (EMV)

| 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            |

#### 1.15.2 Application Tag data (Contact)

| 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 02 16 D2 31               |           |
|       |   | 22 01 10 00 07 49 00 00 0F               |           |
| 5A    | Application Primary Account Number (PAN)        | 65 10 00 00 00 02 16                     |           |
| 5F 20 | Cardholder Name                                 | 55 41 54 20 43 41 4E 2F 54 65            |           |
|       |   | 73 74 20 43 61 72 64 20 31 35            |           |
|       |   | 20 20 20 20 20 20 - 'UAT CAN/Test        |           |
|       |   | Card 15'                                 |           |
| 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 NOT 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<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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 xx A0 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)                       | 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<br>02 9F 34 03 9F 52 06 9F 1A 02<br>95 05 9C 01 8A 02 9F 37 04 9F<br>03 06 9F 53 08 9F 66 04 9F 71<br>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 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 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<br>01 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 01 00 F6 7F 22<br>4B 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00<br>00 00  |           |

\* Tag value changes with card usage

## 1.15.3 CVM List - AID A000001523010 (DPAS-EMV)

| 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            |

## 1.15.4 Application Tag data (Contactless)

| Tag   | Element name                              | Data   | Card v8.x |
|-------|---|--|-----------|
| 50    | Application Label                         | 44 49 53 43 4F 56 45 52 20 43<br>4C - 'DISCOVER CL'  |           |
| 57    | Track 2 Data [Discover]                   | 65 10 00 00 00 00 02 16 D2 31<br>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 41 54 20 43 41 4E 2F 54 65<br>73 74 20 43 61 72 64 20 31 35<br>20 20 20 20 20 20 - 'UAT CAN/Test<br>Card 15'  |           |
| 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<br>BYTE 1:<br>b7 - Offline SDA NOT supported<br>b6 - Offline DDA NOT supported<br>b5 - Cardholder verification supported<br>b4 - Terminal risk mgmt to be performed<br>b3 - Issuer authentication NOT supported<br>using External Auth command<br>b1 - Combined DDA / GEN AC NOT<br>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<br>41 03 1F 03   |           |
| 94    | Application File Locator (AFL)            | 08 02 02 00 18 03 04 01  |           |
| 9F 07 | Application Usage Control                 | FF 00<br>BYTE 1:<br>b8 - Domestic cash trans. valid<br>b7 - Int'l cash transactions valid<br>b6 - Domestic goods valid<br>b5 - International goods valid<br>b4 - Domestic services valid<br>b3 - International services valid<br>b2 - ATMs valid<br>b1 - non-ATM terminals valid<br>BYTE 2:<br>b8 - Domestic cashback NOT allowed<br>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   |           |

| Tag   | Element name   | Data  | Card v8.x |
|-------|--|---|-----------|
| 9F 12 | Application Preferred Name                             | 44 69 73 63 6F 76 65 72 20 43<br>4C - 'Discover CL'   |           |
| 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<br>1A 02 5F 2A 02 9A 03 9C 01 9F<br>37 04   |           |
| 9F 4F | Transaction Log Format                                 | 9F 02 06 5F 2A 02 9A 03 9F 36<br>02 9F 34 03 9F 52 06 9F 1A 02<br>95 05 9C 01 8A 02 9F 37 04 9F<br>03 06 9F 53 08 9F 66 04 9F 71<br>02 9F 6C 02   |           |
| 9F 6C | Card Transaction Qualifiers [DPAS]                     | 00 00<br>BYTE 1:<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - Do NOT go online if Offline Data Authentication fails and Reader is online capable<br>b5 - Do NOT switch interface if Offline Data Authentication fails and Reader supports contact chip<br>b4 - Do NOT go Online if Application Expired<br>b3 - Do NOT switch interface for Cash Transactions<br>b2 - Do NOT switch interface for Cashback Transactions<br>b1 - Is valid for contactless ATM transactions<br>BYTE 2:<br>b8 - Consumer Device CVM NOT performed<br>b7 - Card does NOT Support Issuer Update Processing at POS |           |
| 9F 71 | Card Processing Requirements [DPAS]                    | 00 0F<br>BYTE 1 (Transient Data):<br>b8 - Online PIN NOT required<br>b7 - Signature NOT required<br>b6 - PID Limit NOT reached<br>b5 - Consumer Device CVM NOT performed<br>BYTE 2 (Permanent Data):<br>b8 - Do NOT switch to other interface if unable to process online<br>b7 - Do NOT process online if CDA failed<br>b6 - Do NOT decline/switch other interface if CDA failed<br>b5 - Issuer Update Processing NOT supported<br>b4 - Do process online if card expired<br>b3 - Do decline if card expired<br>b2 - CVM Fallback to Signature allowed<br>b1 - CVM Fallback to 'No CVM' allowed                      |           |
| 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   |           |

| Tag   | Element name  | Data   | Card v8.x |  |
|-------|---|--|-----------|--|
| C2    | Issuer Life Cycle Data (ILCD) [DPAS]                      | 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 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   |           |  |

\* Tag value changes with card usage

### **1.16 Test Card 16 – Discover, Technical Fallback Card**

This card has a chip image printed on it but 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  | <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> |     |          |     |            |