



**Acquirer JCB  
EMV™ Test Card Set**

**Version 2.00**

**August 2019**

**Powered by B2»**

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## **Attribution**

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## Revision History

Version	Date	Updated By	Revisions
1.00	July 18 , 2017	B2PS	<ul style="list-style-type: none"><li>• Initial document release</li></ul>
1.01	June 19, 2019	B2PS	<ul style="list-style-type: none"><li>• Set references to “UL” removed. No change to cards themselves</li></ul>
2.00	August 28, 2019	B2PS	<ul style="list-style-type: none"><li>• All cards updated - expiry date now 12/2021</li><li>• Removed redundant card ‘version’ numbering</li></ul>

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**CAUTION**

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

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

**PIN Values**

The default PIN value for the JCB test cards in this set is '1234'.  
This may not be applicable in all test scenarios or host environments.

**Chapter 1 - Acquirer JCB EMV™ Test Card Set Profiles**

This Acquirer JCB EMV™ Test Card Set contains 4 cards. 3 EMV JCB cards and one magstripe-only card used for non-EMV testing or Fallback testing.



	Test Case 2	Test Case 5	Test Case 7
<b>Brand</b>	JCB	JCB	JCB
<b>Description (Card - Types)</b>	Credit	Credit	Credit
<b>AID list</b>	A0000000651010 A0000000046000	A0000000651010 A0000000046000	A0000000651010 A0000000046000
<b>PAN list</b>	3569 9900 1008 2211	3569 9900 1008 2211	3569 9900 1008 2211
<b>Expiry Date</b>	12/2021	12/2021	12/2021
<b>Service Code</b>	201	201	201
<b>Interface</b>	Contact	Contact	Contact
<b>CVM</b>	<a href="#">See card definition</a>	<a href="#">See card definition</a>	<a href="#">See card definition</a>
<b>Approval Amount</b>	\$10.00	\$10.00	\$10.00
<b>Issuer Country Code</b>	392 - JPN	158 - TWN	158 - TWN
<b>Application Currency Code</b>	392 - JPY	901 - TWD	901 - TWD
<b>Language</b>	'jaen' - Japanese, English	'zhen' - Chinese, English	'zhen' - Chinese, English

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	Test Card 99
Brand	JCB
Description (Card - Types)	Credit - Fallback
AID list	-
PAN list	3569 9900 1008 2211
Expiry Date	12/2021
Service Code	201
Interface	MSR
CVM	<a href="#">See card definition</a>
Approval Amount	\$10.00
Issuer Country Code	-
Application Currency Code	-
Language	-

**1.1 Test Case 2 - JCB, CO, 2-AID, Japanese/English, JPN, JPY**

A contact-only, single-AID(JCB) credit card with an Issuer Country Code of 'Japan' and Currency Code of 'Japanese Yen'. Languages supported are Japanese and English.

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

**1.1.1 Contact I/F: CVM List - JCB Credit, AID A000000651010, Issuer Auth**

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Offline PIN	Terminal supports CVM type	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	Signature (paper)	Terminal supports CVM type	Fail
4	Online PIN	Terminal supports CVM type	Fail
5	No CVM required	Always	Fail

**1.1.2 Contact I/F: Application Tag data, AID A000000651010, Issuer Auth**

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	03 92 - JPN
5F 2D	Language Preference	6A 61 65 6E - 'jaen' (Japanese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 5C 02 9F 15 02 9F 52 01
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 44 03 41 03 1E 03 02 03 1F 00
8F	Certification Authority Public Key Index	11

Tag	Element name	Data
90	Issuer Public Key Certificate	4E 9A ED 65 93 FD B9 ED 74 A9 95 2A 49 55 2F 4C 2F FE 52 4F 55 64 55 F6 99 F0 A0 B3 C9 CF CD 27 F8 91 EA 97 8B D7 6C 64 B7 54 97 7E 52 67 58 82 9B 56 A1 6F 17 E7 50 C8 5D 51 54 48 59 83 6B 29 FC 6C 11 A4 A4 E0 0A A5 B6 B7 46 A4 29 7E 16 B4 3C D7 BC 37 BD C9 54 0D D5 0A 32 3A 00 C0 35 FB AD 78 3B BB 22 29 95 45 A7 D8 35 D9 6B 72 4B 08 B3 B4 68 D2 E2 BC A6 D5 29 65 DE FB 0D 5C EB 3B 68 05 7B C1 66 74 A2 CB FB 83 2C 4B 11 62 36 59 F5 CA A1 0E 42 6C 35 AD 27 F4 07 BF 30 6D FB 5A C0 FD 49 00 DD 75 47 8C 25 14 54 44 2A 78 74 16
92	Issuer Public Key Remainder	85 BE 5F EB 42 E3 19 B7 8E 10 C8 D9 CB 08 63 88 06 FC 9B 52 8D 0C 6E C3 94 DC 34 81 53 61 11 6B 33 5E 42 A3
93	Signed Static Application Data	AE B8 5D EA C8 48 05 CF 94 3B 16 7B A2 D3 F6 60 79 44 FA 15 6E A7 B3 30 DA 62 18 A6 B0 E2 89 1D 8C C1 9A A6 8D 98 48 83 98 64 6B D3 BF DE 1F BC 73 CF 9F 9F DA 36 24 26 03 E7 CD ED 69 EE F7 84 91 C1 21 E0 C5 33 F1 32 5E D8 3F F4 40 5A 88 2C ED FD A2 EE AA 1A 99 33 43 40 E0 7D EF 36 60 56 A2 3D C3 F9 28 BD F9 D0 B9 81 1A E3 79 37 4A 6C BC CF 10 62 BE 27 F4 B2 01 6F 54 B0 F3 B8 C7 9A 58 FD BB 4E 50 40 1D 7B 26 F1 6A DB 8A F2 B6 F9 EC 49 75 B9 28 68 8D 48 F4 1F 20 75 7F 83 72 85 B9 C5 90 B7 E2 83 8B 03 60 B1 D4 7E 97 B0 F8 E3
94	Application File Locator (AFL)	18 01 05 01 08 01 01 00 10 01 01 00 B8 01 01 00 F0 01 01 00
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 AC 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 AC F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 11	Issuer Code Table Index	01
9F 12	Application Preferred Name	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'



Tag	Element name	Data
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	FF
9F 17	Personal Identification Number (PIN) Try Counter	14
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
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	01 00 01
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	03 92 - JPY
9F 46	ICC Public Key Certificate	BD F5 A5 F1 24 45 B8 91 D7 C0 10 F1 C3 96 98 63 22 47 DD 59 8A 1E A7 33 0A 6B 5B 70 1A 53 58 09 B2 C5 65 6F 86 BF AD 5D 86 D1 B0 2E 21 08 2C C2 D0 99 0C 2D 5A 07 88 8E 4B DB 09 6D 1D C5 DE D5 0D A0 A5 28 1D E3 7E 4D 69 41 DC BC 7B 73 9C D4 45 34 35 1F E2 83 4C 6A 05 BA 09 3D AB EA 58 D4 1A 87 2E CF E9 59 7F 2B FA 9B AD 63 4F C4 A0 83 7E 00 59 50 0F CC A9 3F 26 1E BF 83 43 37 13 40 D4 F2 DF 90 EC 5F 7E CA 61 20 5B 75 24 75 FD 9F DD 53 2B 63 56 43 8C 8F 33 96 9D 33 31 13 64 AF C7 B2 82 99 D9 24 4F C7 8D CC 49 88 CF B2 B7 A1
9F 47	ICC Public Key Exponent	03
9F 48	ICC Public Key Remainder	D3 16 8D 49 80 C1 76 16 C0 19 C7 F5
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82
9F 4B	Signed Dynamic Application Data	6E D5 F5 AF D0 45 43 EC 5E 01 82 E4 D7 B3 E9 10 64 B6 FA E2 D4 AB AF 39 48 0E 11 8C F2 F8 D4 B3 EF 94 ED 1D F7 4A 80 A5 23 EE 9E 9B 47 4E 05 CD 63 5B 11 7C 24 C8 20 BD EC 08 4F EA 9C 3F 6C 3A 9E 11 80 B9 D0 52 3B 2E 0D 31 EC D1 2B FC C9 B2 77 82 3A 90 66 4D EB 5D 29 DB 7F AD 53 62 64 3F 71 CC A9 4C 68 E2 BF 09 B4 3E 38 83 91 F3 3E 80 FA AE 5A 86 E8 3D A2 E1 F0 49 D4 9B BD 0D 5F 2F 8E A1 DC 0C FA 03 7D 7F 4E DB 2A 56 2B 6D 9A 04 A4 AB
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 05 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	FE
9F 59	Upper Consecutive International Offline Limit [JCB]	FE

Tag	Element name	Data
9F 5A	Lower Consecutive International Offline Limit [JCB]	FE
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 01 00 00
9F 5D	Specified Category Transaction Amount Limit [JCB]	00 00 00 05 00 00
9F 5E	Specified Category Transaction Counter Limit [JCB]	7F
9F 61	Application Default Action [JCB]	5C 30
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E FD 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 05 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00
9F 67	Specified Goods Code List [JCB]	00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
9F 68	Specified Merchant Category Code List [JCB]	00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

\* Tag value changes with card usage

**1.1.3 Contact I/F: CVM List - JCB Credit, AID A000000651010, 1<sup>st</sup> GAC ARQC**

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Offline PIN	Terminal supports CVM type	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	Signature (paper)	Terminal supports CVM type	Fail
4	Online PIN	Terminal supports CVM type	Fail
5	No CVM required	Always	Fail

**1.1.4 Contact I/F: Application Tag data, AID A000000651010, 1<sup>st</sup> GAC ARQC**

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	03 92 - JPN
5F 2D	Language Preference	6A 61 65 6E - 'jaen' (Japanese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00

Tag	Element name	Data
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 5C 02 9F 15 02 9F 52 01
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 44 03 41 03 1E 03 02 03 1F 00
8F	Certification Authority Public Key Index	11
90	Issuer Public Key Certificate	4E 9A ED 65 93 FD B9 ED 74 A9 95 2A 49 55 2F 4C 2F FE 52 4F 55 64 55 F6 99 F0 A0 B3 C9 CF CD 27 F8 91 EA 97 8B D7 6C 64 B7 54 97 7E 52 67 58 82 9B 56 A1 6F 17 E7 50 C8 5D 51 54 48 59 83 6B 29 FC 6C 11 A4 A4 E0 0A A5 B6 B7 46 A4 29 7E 16 B4 3C D7 BC 37 BD C9 54 0D D5 0A 32 3A 00 C0 35 FB AD 78 3B BB 22 29 95 45 A7 D8 35 D9 6B 72 4B 08 B3 B4 68 D2 E2 BC A6 D5 29 65 DE FB 0D 5C EB 3B 68 05 7B C1 66 74 A2 CB FB 83 2C 4B 11 62 36 59 F5 CA A1 0E 42 6C 35 AD 27 F4 07 BF 30 6D FB 5A C0 FD 49 00 DD 75 47 8C 25 14 54 44 2A 78 74 16
92	Issuer Public Key Remainder	85 BE 5F EB 42 E3 19 B7 8E 10 C8 D9 CB 08 63 88 06 FC 9B 52 8D 0C 6E C3 94 DC 34 81 53 61 11 6B 33 5E 42 A3
93	Signed Static Application Data	AE B8 5D EA C8 48 05 CF 94 3B 16 7B A2 D3 F6 60 79 44 FA 15 6E A7 B3 30 DA 62 18 A6 B0 E2 89 1D 8C C1 9A A6 8D 98 48 83 98 64 6B D3 BF DE 1F BC 73 CF 9F 9F DA 36 24 26 03 E7 CD ED 69 EE F7 84 91 C1 21 E0 C5 33 F1 32 5E D8 3F F4 40 5A 88 2C ED FD A2 EE AA 1A 99 33 43 40 E0 7D EF 36 60 56 A2 3D C3 F9 28 BD F9 D0 B9 81 1A E3 79 37 4A 6C BC CF 10 62 BE 27 F4 B2 01 6F 54 B0 F3 B8 C7 9A 58 FD BB 4E 50 40 1D 7B 26 F1 6A DB 8A F2 B6 F9 EC 49 75 B9 28 68 8D 48 F4 1F 20 75 7F 83 72 85 B9 C5 90 B7 E2 83 8B 03 60 B1 D4 7E 97 B0 F8 E3

Tag	Element name	Data
94	Application File Locator (AFL)	18 01 05 01 08 01 01 00 10 01 01 00 B8 01 01 00 F0 01 01 00
9F 07	Application Usage Control	FF 00 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback NOT allowed b7 - International cashback NOT allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 AC 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 AC F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 11	Issuer Code Table Index	01
9F 12	Application Preferred Name	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	FF
9F 17	Personal Identification Number (PIN) Try Counter	14
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
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	01 00 01
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	03 92 - JPY
9F 46	ICC Public Key Certificate	BD F5 A5 F1 24 45 B8 91 D7 C0 10 F1 C3 96 98 63 22 47 DD 59 8A 1E A7 33 0A 6B 5B 70 1A 53 58 09 B2 C5 65 6F 86 BF AD 5D 86 D1 B0 2E 21 08 2C C2 D0 99 0C 2D 5A 07 88 8E 4B DB 09 6D 1D C5 DE D5 0D A0 A5 28 1D E3 7E 4D 69 41 DC BC 7B 73 9C D4 45 34 35 1F E2 83 4C 6A 05 BA 09 3D AB EA 58 D4 1A 87 2E CF E9 59 7F 2B FA 9B AD 63 4F C4 A0 83 7E 00 59 50 0F CC A9 3F 26 1E BF 83 43 37 13 40 D4 F2 DF 90 EC 5F 7E CA 61 20 5B 75 24 75 FD 9F DD 53 2B 63 56 43 8C 8F 33 96 9D 33 31 13 64 AF C7 B2 82 99 D9 24 4F C7 8D CC 49 88 CF B2 B7 A1
9F 47	ICC Public Key Exponent	03
9F 48	ICC Public Key Remainder	D3 16 8D 49 80 C1 76 16 C0 19 C7 F5
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82

Tag	Element name	Data
9F 4B	Signed Dynamic Application Data	61 58 41 1B 43 12 7D F8 E7 5F C9 D8 F1 45 BD 1F 43 76 AA 74 05 8A 04 02 B8 27 84 E5 1F AF 9A AE EE E1 30 A3 A8 57 5F DE 7A EA B8 12 62 6A 13 A6 EF F3 1B 53 4D BA 16 9C A1 D2 39 E0 95 27 D7 AE 9A 6A C7 AF E0 E5 7A C3 EC 48 ED 3D 1D 6B 75 29 5C C9 6E 8B EF 3F 2B 2C 7F 8B 88 5E AB 87 19 28 AE B4 31 B7 B2 05 4B 6C 80 D4 3A 45 C8 18 FA 85 1E 25 3F B0 43 45 52 1B 29 B1 1A 62 A1 65 71 8A 00 DF 89 18 8B AF 18 18 FF DF D4 3F BE F1 ED 21 53 BE
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 05 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	FE
9F 59	Upper Consecutive International Offline Limit [JCB]	FE
9F 5A	Lower Consecutive International Offline Limit [JCB]	FE
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 01 00 00
9F 5D	Specified Category Transaction Amount Limit [JCB]	00 00 00 05 00 00
9F 5E	Specified Category Transaction Counter Limit [JCB]	7F
9F 61	Application Default Action [JCB]	5C 30
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E FD 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 05 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00
9F 67	Specified Goods Code List [JCB]	00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
9F 68	Specified Merchant Category Code List [JCB]	00 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

\* Tag value changes with card usage

**1.1.5 Contact I/F: CVM List - Cirrus, AID A000000046000, 1<sup>st</sup> GAC ARQC**

Cardholder Verification Method List ('02 00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Always	Fail

**1.1.6 Contact I/F: Application Tag data, AID A000000046000, 1<sup>st</sup> GAC ARQC**

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	43 69 72 72 75 73 - 'Cirrus'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	03 92 - JPN
5F 2D	Language Preference	6A 61 65 6E - 'jaen' (Japanese, English)
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile [M/Chip, PayPass]	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 00 04 60 00
87	Application Priority Indicator	02
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 00
94	Application File Locator (AFL)	08 01 01 00 10 01 01 00
9F 08	Application Version Number	00 02
9F 0D	Issuer Action Code - Default	B0 50 04 98 00
9F 0E	Issuer Action Code - Denial	00 00 98 00 00
9F 0F	Issuer Action Code - Online	B0 50 04 98 00
9F 14	Lower Consecutive Offline Limit	00
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	00
9F 42	Application Currency Code	03 92 - JPY
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06
9F 7E	Application Life Cycle Data [Mastercard]	00 00
C3	Card Issuer Action Code - Decline [Mastercard]	00 00 00
C4	Card Issuer Action Code - Default [Mastercard]	46 50 00
C5	Card Issuer Action Code - Online [Mastercard]	06 FB 00
C6	Counters [Mastercard]	00 01 00 00 00 00 00 00 00 00
C7	CDOL1 Related Data Length [Mastercard]	2B
C8	CRM Country Code [Mastercard]	03 92 - JPN
C9	CRM Currency Code [M/Chip4]	03 92 - JPY

Tag	Element name	Data
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]	00 00
D3	Additional Check Table [Mastercard]	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
D5	Application Control [M/Chip]	80 00
D6	Default ARPC Response Code [M/Chip4]	00 12

\* Tag value changes with card usage

## 1.2 Test Case 5 - JCB, CO, 2-AID, Chinese/English, TWN, TWD

A contact-only, single-AID(JCB) credit card with an Issuer Country Code of 'Taiwan' and Currency Code of 'New Taiwan Dollar'. Languages supported are Chinese and English.

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

### 1.2.1 Contact I/F: CVM List - JCB Credit, AID A000000651010, Issuer Auth

Cardholder Verification Method List ('0201 1E03 1F03')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Fail
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

### 1.2.2 Contact I/F: Application Tag data, AID A000000651010, Issuer Auth

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00

Tag	Element name	Data
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 5C 02 9F 15 02 9F 52 01
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 01 1E 03 1F 03
8F	Certification Authority Public Key Index	11
90	Issuer Public Key Certificate	2B 33 F7 A3 09 E4 D0 B9 79 14 64 1A 94 23 C1 12 57 01 8E 5F E7 A8 5B B6 E0 53 BD 68 5E B3 37 BF C4 DC 35 78 E8 5D 56 6B 1E 3A 79 C5 49 C6 E8 3A B9 7D C3 C3 01 07 64 FE 42 5E 2A 1D 8C 7B 57 DA 61 64 92 B8 D5 0B E4 A6 85 A6 5A 77 8E D6 19 EC 16 0C 93 61 CB CA 87 10 EC 4D 0E 17 9A 68 FD 33 C9 66 91 B3 4D 28 E1 79 23 72 CD 6A 24 40 54 35 AD C1 0E C0 8B 0F 93 38 CD 0D F6 49 CB 0A 05 76 8E 4F 32 AE 3E D8 69 55 E9 0C 9D F1 88 89 3F 4A 89 E1 64 9C E8 E9 BE 17 BC 92 08 66 15 CC E6 03 F9 05 20 A1 08 DB 4B CB A4 A1 FD ED AD 79 AD 57
92	Issuer Public Key Remainder	0D 1E 8E D7
93	Signed Static Application Data	28 E4 2A 0D 1D D6 C3 69 4D 1C BD C9 7E 50 52 40 DA ED 4D 7A 6D EE 12 37 9C 9B BF 12 16 44 C1 14 1E 07 4E E0 86 EE 99 C7 2B 77 FD 80 03 28 E4 F9 43 90 3D A7 06 D2 D6 E7 94 33 28 75 7F 95 C0 FB 48 65 7E 2E 65 E1 2A FF 95 35 82 F6 50 D4 8B 85 5D 81 21 8C B9 49 76 1E 6D C6 54 DA EB 2F 57 22 88 D7 DF 7C D1 BD 8D C2 42 C2 84 83 38 7A 89 DD 41 68 10 FC B6 6B CC CC 7E 01 57 92 5B 29 EF 42 74 89 A5 37 99 84 E6 FF DF 0E 4D 9E 8E DD E8 3B
94	Application File Locator (AFL)	18 01 05 01 08 01 01 00 10 01 01 00



Tag	Element name	Data
9F 07	Application Usage Control	FF C0 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback allowed b7 - International cashback allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 8C 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 8C F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 11	Issuer Code Table Index	01
9F 12	Application Preferred Name	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	00
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *
9F 27	Cryptogram Information Data (CID)	08
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	09 01 - TWD
9F 46	ICC Public Key Certificate	9D AB 5F BF 87 55 4A 6C 47 BE 59 18 47 6A 59 5A 70 F9 04 66 90 2A C7 BA B6 20 8D 3C 24 D9 07 AC 25 DC 56 1E 69 FD 19 9A 0E 56 E7 AB 48 29 23 7C D9 73 7A BA FA 5C 1C 90 59 0F 3B 55 1A 3D 54 88 88 F2 40 7B B1 32 73 63 E5 3A 8F C1 5E 6B 7D 25 AA 65 9F FE AD DB 1F 9B 8D 82 09 14 AB 21 5F 56 CD 9D 65 A3 D2 89 DF F0 08 43 AC 32 69 45 C4 F0 F2 AA 5A 14 CA 7D 83 5C AD 2A 2E 8C 12 4B B4 E8 4E 4B FF 5F 7F 1B A5 1A 5C F3 B5 EE 3D 17 43 4B
9F 47	ICC Public Key Exponent	03
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82

Tag	Element name	Data
9F 4B	Signed Dynamic Application Data	AD C1 9A D0 87 56 EE DB FD 18 66 06 3E A6 CC 0D 73 86 96 6C 5A 0C 0D 5E 0E F1 34 3D 43 74 A1 DC 42 99 69 04 50 0F 9E 67 2A DA C0 3A E5 D5 1F F9 97 A2 CD 3A 75 D4 53 73 E4 CB 5F 9E FC C5 1E AA C2 91 A3 D7 88 B4 39 0A DA 9D 26 77 7F 02 3E B8 A4 5E 78 02 FB 65 0F A9 E5 F8 33 4C A8 2D C9 A2
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	00
9F 59	Upper Consecutive International Offline Limit [JCB]	FE
9F 5A	Lower Consecutive International Offline Limit [JCB]	00
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 00 00 00
9F 61	Application Default Action [JCB]	54 00
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E 4C 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 00 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	00

\* Tag value changes with card usage

**1.2.3 Contact I/F: CVM List - JCB Credit, AID A000000651010, 1<sup>st</sup> GAC ARQC**

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Fail
2	Signature (paper)	Terminal supports CVM type	Fail
3	No CVM required	Terminal supports CVM type	Fail

**1.2.4 Contact I/F: Application Tag data, AID A000000651010, 1<sup>st</sup> GAC ARQC**

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11

Tag	Element name	Data
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 5C 02 9F 15 02 9F 52 01
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 01 1E 03 1F 03
8F	Certification Authority Public Key Index	11
90	Issuer Public Key Certificate	2B 33 F7 A3 09 E4 D0 B9 79 14 64 1A 94 23 C1 12 57 01 8E 5F E7 A8 5B B6 E0 53 BD 68 5E B3 37 BF C4 DC 35 78 E8 5D 56 6B 1E 3A 79 C5 49 C6 E8 3A B9 7D C3 C3 01 07 64 FE 42 5E 2A 1D 8C 7B 57 DA 61 64 92 B8 D5 0B E4 A6 85 A6 5A 77 8E D6 19 EC 16 0C 93 61 CB CA 87 10 EC 4D 0E 17 9A 68 FD 33 C9 66 91 B3 4D 28 E1 79 23 72 CD 6A 24 40 54 35 AD C1 0E C0 8B 0F 93 38 CD 0D F6 49 CB 0A 05 76 8E 4F 32 AE 3E D8 69 55 E9 0C 9D F1 88 89 3F 4A 89 E1 64 9C E8 E9 BE 17 BC 92 08 66 15 CC E6 03 F9 05 20 A1 08 DB 4B CB A4 A1 FD ED AD 79 AD 57
92	Issuer Public Key Remainder	0D 1E 8E D7

Tag	Element name	Data
93	Signed Static Application Data	28 E4 2A 0D 1D D6 C3 69 4D 1C BD C9 7E 50 52 40 DA ED 4D 7A 6D EE 12 37 9C 9B BF 12 16 44 C1 14 1E 07 4E E0 86 EE 99 C7 2B 77 FD 80 03 28 E4 F9 43 90 3D A7 06 D2 D6 E7 94 33 28 75 7F 95 C0 FB 48 65 7E 2E 65 E1 2A FF 95 35 82 F6 50 D4 8B 85 5D 81 21 8C B9 49 76 1E 6D C6 54 DA EB 2F 57 22 88 D7 DF 7C D1 BD 8D C2 42 C2 84 83 38 7A 89 DD 41 68 10 FC B6 6B CC CC 7E 01 57 92 5B 29 EF 42 74 89 A5 37 99 84 E6 FF DF 0E 4D 9E 8E DD E8 3B
94	Application File Locator (AFL)	18 01 05 01 08 01 01 00 10 01 01 00
9F 07	Application Usage Control	FF C0 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback allowed b7 - International cashback allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 8C 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 8C F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 11	Issuer Code Table Index	01
9F 12	Application Preferred Name	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	00
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *
9F 27	Cryptogram Information Data (CID)	08
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	09 01 - TWD

Tag	Element name	Data
9F 46	ICC Public Key Certificate	9D AB 5F BF 87 55 4A 6C 47 BE 59 18 47 6A 59 5A 70 F9 04 66 90 2A C7 BA B6 20 8D 3C 24 D9 07 AC 25 DC 56 1E 69 FD 19 9A 0E 56 E7 AB 48 29 23 7C D9 73 7A BA FA 5C 1C 90 59 0F 3B 55 1A 3D 54 88 88 F2 40 7B B1 32 73 63 E5 3A 8F C1 5E 6B 7D 25 AA 65 9F FE AD DB 1F 9B 8D 82 09 14 AB 21 5F 56 CD 9D 65 A3 D2 89 DF F0 08 43 AC 32 69 45 C4 F0 F2 AA 5A 14 CA 7D 83 5C AD 2A 2E 8C 12 4B B4 E8 4E 4B FF 5F 7F 1B A5 1A 5C F3 B5 EE 3D 17 43 4B
9F 47	ICC Public Key Exponent	03
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82
9F 4B	Signed Dynamic Application Data	41 3B 82 3D 90 66 43 96 0E 26 41 2D 2D 31 60 62 A7 28 00 87 2F 7A 78 58 7E 1F 33 FA 96 FF B1 D6 B7 87 4B DA 5B 08 2E 05 28 40 11 ED F9 D3 0D D9 DC 98 C2 F1 C8 C3 3F 53 14 B2 BA 39 1E 25 19 BA B9 2B 2E 93 7A BD A6 05 68 C1 DD F2 23 CF 5A 19 57 50 73 96 7F 8C FF 9B 01 FC 1B 4F 22 A1 3A 81
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	00
9F 59	Upper Consecutive International Offline Limit [JCB]	FE
9F 5A	Lower Consecutive International Offline Limit [JCB]	00
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 00 00 00
9F 61	Application Default Action [JCB]	54 00
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E 4C 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 00 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00

\* Tag value changes with card usage

**1.2.5 Contact I/F: CVM List - Cirrus, AID A000000046000, 1<sup>st</sup> GAC ARQC**

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Always	Fail

1.2.6 Contact I/F: Application Tag data, AID A000000046000, 1<sup>st</sup> GAC ARQC

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	43 69 72 72 75 73 - 'Cirrus'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile [M/Chip, PayPass]	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 00 04 60 00
87	Application Priority Indicator	02
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 00
94	Application File Locator (AFL)	08 01 01 00 10 01 01 00
9F 08	Application Version Number	00 02
9F 0D	Issuer Action Code - Default	B0 50 04 98 00
9F 0E	Issuer Action Code - Denial	00 00 98 00 00
9F 0F	Issuer Action Code - Online	B0 50 04 98 00
9F 14	Lower Consecutive Offline Limit	00
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	00
9F 42	Application Currency Code	09 01 - TWD
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06
9F 7E	Application Life Cycle Data [Mastercard]	00 00
C3	Card Issuer Action Code - Decline [Mastercard]	00 00 00
C4	Card Issuer Action Code - Default [Mastercard]	46 50 00
C5	Card Issuer Action Code - Online [Mastercard]	06 FB 00
C6	Counters [Mastercard]	00 02 00 00 01 00 00 00 00 00

Tag	Element name	Data
C7	CDOL1 Related Data Length [Mastercard]	2B
C8	CRM Country Code [Mastercard]	01 58 - TWN
C9	CRM Currency Code [M/Chip4]	09 01 - TWD
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]	00 00
D3	Additional Check Table [Mastercard]	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
D5	Application Control [M/Chip]	80 00
D6	Default ARPC Response Code [M/Chip4]	00 12

\* Tag value changes with card usage

### 1.3 Test Case 7 - JCB, CO, 2-AID, Chinese/English, TWN, TWD

A contact-only, single-AID(JCB) credit card with an Issuer Country Code of 'Taiwan' and Currency Code of 'New Taiwan Dollar'. Languages supported are Chinese and English.

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

#### 1.3.1 Contact I/F: CVM List - JCB Credit, AID A000000651010, Issuer Auth

Cardholder Verification Method List ('0201 4403 4103 1E03 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Unattended Cash	Fail
2	Offline PIN	Terminal supports CVM type	Next CVM
3	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
4	Signature (paper)	Terminal supports CVM type	Fail
5	No CVM required	Always	Fail

#### 1.3.2 Contact I/F: Application Tag data, AID A000000651010, Issuer Auth

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00

Tag	Element name	Data
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 52 01 9F 35 01 9F 15 02 9F 5C 02
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 01 44 03 41 03 1E 03 1F 00
8F	Certification Authority Public Key Index	11
90	Issuer Public Key Certificate	7C CA 9F E8 7B A3 1F 8B 3F E4 B0 68 10 DB E6 E9 C0 1B E6 C1 71 5F C9 87 D3 8F FC 2D 0E 33 07 6B 36 A3 9E 1F B0 8A D1 11 37 4E A0 37 55 D6 3C 3C 85 B1 65 5A DF BD B4 EF A5 2B F9 7F AD 56 43 D6 6F 41 8E F1 9C 52 04 E8 EB 74 18 7C 99 98 03 1B 3F F5 27 F4 AB 30 64 0F 8B 99 D2 57 49 43 5D BF 3D 09 89 0D 72 FC 6C B7 93 38 E7 25 7F B4 23 8C 7A 80 9D 39 B8 7F 95 63 BB 0F 58 08 B2 88 0A C5 09 9A D0 AB A8 98 75 E5 22 29 AA 95 12 A7 6C 21 C3 C6 4D 63 52 1C E2 CD 67 85 D7 EE 7A C9 8C 56 3F 74 D2 A0 03 82 DA AC 99 53 71 D6 7E 38 69 8D
93	Signed Static Application Data	DB 7B 58 B3 01 68 F6 EF 5C C0 79 F2 21 24 01 A4 75 09 7A A0 CF BA 29 5E 50 74 06 32 23 4D 08 B8 4E 63 76 52 D7 CD ED 99 EB 75 43 B2 A1 AB A0 1C 31 DC F4 F8 09 C8 43 24 C0 09 1E B9 01 C8 9A CA A5 25 6E 5B 40 D1 37 1D 8A 62 19 83 6F BD B3 19 30 ED 02 05 C2 82 36 35 D2 7A F2 2D 21 AE 52 E7 0B F9 CE B9 D1 11 2B 7E FB D0 9B 81 53 AC 11 E4 D8 02 39 88 88 33 2C 27 EC 69 86 D0 A6 AC 57 DE
94	Application File Locator (AFL)	18 01 06 01 08 01 01 00 10 01 01 00



Tag	Element name	Data
9F 07	Application Usage Control	FF C0 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback allowed b7 - International cashback allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 AC 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 AC F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	00
9F 17	Personal Identification Number (PIN) Try Counter	14
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *
9F 27	Cryptogram Information Data (CID)	80
9F 2D	ICC PIN Encipherment Public Key Certificate	4F E3 33 96 46 9E B5 3F 17 AE 2E 7B 15 E9 B1 B0 C8 FC D0 FA E1 6D 42 D6 0D 77 32 D8 8B 8A 76 C7 BE 6D 08 02 2D 99 11 A8 ED 89 41 C2 5D AC 58 40 7F FC 7D C1 C2 50 8B 88 EE 23 33 E7 09 05 E4 59 4C 95 CE EA 57 EC B9 D5 B4 BD B6 5C A7 B8 1B 3A 6E 64 4A 7E 9A C6 51 BB DD 7D 85 02 8F 67 E9 84 0A BD E4 55 62 81 57 A2 51 9E 01 E6 FA 58 F6 50 F0 DB 1F 00 4D 77 18 BA 76 57 85 30 7C AF 26 F0
9F 2E	ICC PIN Encipherment Public Key Exponent	03
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	09 01 - TWD
9F 46	ICC Public Key Certificate	47 61 0F 00 D2 59 5A CA 29 E2 CA 0E 4B 9F C9 57 CC 4F 0D CB 86 F6 BF 0D 6A 29 9D 80 95 47 B5 FD 97 9C 43 AC 88 87 36 3C 73 8D 61 06 0B FB 13 F2 BD 5C 8E 1E ED E4 0F 9C CB D5 22 21 0D EA 63 5C 65 FD EE 67 46 D1 CC 87 38 92 AE E0 38 BE E3 B6 E9 6E 93 2B 26 18 10 67 82 42 C3 E2 37 82 07 43 48 11 99 32 05 43 57 F9 29 D0 CF 59 30 5D 52 89 E3 21 66 82 6C C9 DA D0 D3 03 3A 67 02 BD 50 DC
9F 47	ICC Public Key Exponent	03

Tag	Element name	Data
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82
9F 4B	Signed Dynamic Application Data	9E 68 8A C4 2D E7 E8 8E 63 E1 63 35 39 D7 46 3B C0 0A C2 F9 F2 32 F0 FD 59 18 2B F6 D1 E0 50 E6 B9 28 85 F3 30 5E 58 4B 3F 99 B3 27 D3 06 55 61 07 86 98 A3 D6 2C 58 E6 FF 84 95 12 29 33 4E 0A
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	00
9F 59	Upper Consecutive International Offline Limit [JCB]	FE
9F 5A	Lower Consecutive International Offline Limit [JCB]	00
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 00 00 00
9F 5D	Specified Category Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 5E	Specified Category Transaction Counter Limit [JCB]	00
9F 61	Application Default Action [JCB]	5C 30
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E CD 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 00 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00
9F 67	Specified Goods Code List [JCB]	00 00
9F 68	Specified Merchant Category Code List [JCB]	00 00

\* Tag value changes with card usage

**1.3.3 Contact I/F: CVM List - JCB Credit, AID A000000651010, 1<sup>st</sup> GAC ARQC**

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Offline PIN	Terminal supports CVM type	Next CVM
2	Offline Plaintext PIN	Terminal supports CVM type	Next CVM
3	Signature (paper)	Terminal supports CVM type	Fail
4	Online PIN	Terminal supports CVM type	Fail
5	No CVM required	Always	Fail

1.3.4 Contact I/F: Application Tag data, AID A000000651010, 1<sup>st</sup> GAC ARQC

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	4A 43 42 20 43 72 65 64 69 74 - 'JCB Credit'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 30	Service Code	02 01
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile	7C 00 BYTE 1: b7 - Offline SDA supported b6 - Offline DDA supported b5 - Cardholder verification supported b4 - Terminal risk mgmt to be performed b3 - Issuer authentication supported b1 - Combined DDA / GEN AC NOT supported BYTE 2: b8 - EMV Contactless NOT supported
84	Dedicated File (DF) Name	A0 00 00 00 65 10 10
87	Application Priority Indicator	01
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 52 01 9F 35 01 9F 15 02 9F 5C 02
8D	Card Risk Management Data Object List 2 (CDOL2)	8A 02 9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 01 44 03 41 03 1E 03 1F 00
8F	Certification Authority Public Key Index	11
90	Issuer Public Key Certificate	7C CA 9F E8 7B A3 1F 8B 3F E4 B0 68 10 DB E6 E9 C0 1B E6 C1 71 5F C9 87 D3 8F FC 2D 0E 33 07 6B 36 A3 9E 1F B0 8A D1 11 37 4E A0 37 55 D6 3C 3C 85 B1 65 5A DF BD B4 EF A5 2B F9 7F AD 56 43 D6 6F 41 8E F1 9C 52 04 E8 EB 74 18 7C 99 98 03 1B 3F F5 27 F4 AB 30 64 0F 8B 99 D2 57 49 43 5D BF 3D 09 89 0D 72 FC 6C B7 93 38 E7 25 7F B4 23 8C 7A 80 9D 39 B8 7F 95 63 BB 0F 58 08 B2 88 0A C5 09 9A D0 AB A8 98 75 E5 22 29 AA 95 12 A7 6C 21 C3 C6 4D 63 52 1C E2 CD 67 85 D7 EE 7A C9 8C 56 3F 74 D2 A0 03 82 DA AC 99 53 71 D6 7E 38 69 8D

Tag	Element name	Data
93	Signed Static Application Data	DB 7B 58 B3 01 68 F6 EF 5C C0 79 F2 21 24 01 A4 75 09 7A A0 CF BA 29 5E 50 74 06 32 23 4D 08 B8 4E 63 76 52 D7 CD ED 99 EB 75 43 B2 A1 AB A0 1C 31 DC F4 F8 09 C8 43 24 C0 09 1E B9 01 C8 9A CA A5 25 6E 5B 40 D1 37 1D 8A 62 19 83 6F BD B3 19 30 ED 02 05 C2 82 36 35 D2 7A F2 2D 21 AE 52 E7 0B F9 CE B9 D1 11 2B 7E FB D0 9B 81 53 AC 11 E4 D8 02 39 88 88 33 2C 27 EC 69 86 D0 A6 AC 57 DE
94	Application File Locator (AFL)	18 01 06 01 08 01 01 00 10 01 01 00
9F 07	Application Usage Control	FF C0 BYTE 1: b8 - Domestic cash trans. valid b7 - Int'l cash transactions valid b6 - Domestic goods valid b5 - International goods valid b4 - Domestic services valid b3 - International services valid b2 - ATMs valid b1 - non-ATM terminals valid BYTE 2: b8 - Domestic cashback allowed b7 - International cashback allowed
9F 08	Application Version Number	02 00
9F 0D	Issuer Action Code - Default	F8 40 AC 28 00
9F 0E	Issuer Action Code - Denial	00 10 00 00 00
9F 0F	Issuer Action Code - Online	F8 40 AC F8 00
9F 10	Issuer Application Data [JCB]	xx xx 01 xx xx xx xx xx *
9F 13	Last Online Application Transaction Counter (ATC) Register	00 00
9F 14	Lower Consecutive Offline Limit	00
9F 17	Personal Identification Number (PIN) Try Counter	14
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	FF
9F 26	Application Cryptogram (AC)	xx xx xx xx xx xx xx xx *
9F 27	Cryptogram Information Data (CID)	80
9F 2D	ICC PIN Encipherment Public Key Certificate	4F E3 33 96 46 9E B5 3F 17 AE 2E 7B 15 E9 B1 B0 C8 FC D0 FA E1 6D 42 D6 0D 77 32 D8 8B 8A 76 C7 BE 6D 08 02 2D 99 11 A8 ED 89 41 C2 5D AC 58 40 7F FC 7D C1 C2 50 8B 88 EE 23 33 E7 09 05 E4 59 4C 95 CE EA 57 EC B9 D5 B4 BD B6 5C A7 B8 1B 3A 6E 64 4A 7E 9A C6 51 BB DD 7D 85 02 8F 67 E9 84 0A BD E4 55 62 81 57 A2 51 9E 01 E6 FA 58 F6 50 F0 DB 1F 00 4D 77 18 BA 76 57 85 30 7C AF 26 F0
9F 2E	ICC PIN Encipherment Public Key Exponent	03
9F 32	Issuer Public Key Exponent	03
9F 36	Application Transaction Counter (ATC)	xx xx *
9F 42	Application Currency Code	09 01 - TWD

Tag	Element name	Data
9F 46	ICC Public Key Certificate	47 61 0F 00 D2 59 5A CA 29 E2 CA 0E 4B 9F C9 57 CC 4F 0D CB 86 F6 BF 0D 6A 29 9D 80 95 47 B5 FD 97 9C 43 AC 88 87 36 3C 73 8D 61 06 0B FB 13 F2 BD 5C 8E 1E ED E4 0F 9C CB D5 22 21 0D EA 63 5C 65 FD EE 67 46 D1 CC 87 38 92 AE E0 38 BE E3 B6 E9 6E 93 2B 26 18 10 67 82 42 C3 E2 37 82 07 43 48 11 99 32 05 43 57 F9 29 D0 CF 59 30 5D 52 89 E3 21 66 82 6C C9 DA D0 D3 03 3A 67 02 BD 50 DC
9F 47	ICC Public Key Exponent	03
9F 49	Dynamic Data Authentication Data Object List (DDOL)	9F 37 04 9F 1C 08 9F 1A 02 9A 03
9F 4A	Static Data Authentication Tag List	82
9F 4B	Signed Dynamic Application Data	8E 11 0E 73 18 CD 4A 73 D6 77 3F 43 C3 B9 77 B1 9D FF 47 41 4E 05 7E 6E 43 6C 80 2F 11 B7 19 DF 37 A2 B6 3C 1C DD E8 77 C8 1E E4 82 F1 71 54 41 76 E4 4B 22 08 8D 7C 07 C9 0B FD 46 54 41 9C EA
9F 56	Cumulative Total Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 57	Upper Consecutive Domestic Offline Limit [JCB]	FE
9F 58	Lower Consecutive Domestic Offline Limit [JCB]	00
9F 59	Upper Consecutive International Offline Limit [JCB]	FE
9F 5A	Lower Consecutive International Offline Limit [JCB]	00
9F 5B	Maximum Domestic Offline Transaction Amount [JCB]	00 00 00 00 00 00
9F 5D	Specified Category Transaction Amount Limit [JCB]	00 00 00 00 00 00
9F 5E	Specified Category Transaction Counter Limit [JCB]	00
9F 61	Application Default Action [JCB]	5C 30
9F 62	Issuer Authentication Indicator [JCB]	00
9F 63	Card Action Analysis Support Information [JCB]	7E CD 80
9F 64	Cumulative Total Transaction Amount Upper Limit [JCB]	00 00 00 00 00 00
9F 65	Transaction Currency Conversion Table [JCB]	
9F 66	Card Action Code [JCB]	00 00 00 00 00
9F 67	Specified Goods Code List [JCB]	00 00
9F 68	Specified Merchant Category Code List [JCB]	00 00

\* Tag value changes with card usage

1.3.5 Contact I/F: CVM List - Cirrus, AID A000000046000, 1<sup>st</sup> GAC ARQC

Cardholder Verification Method List ('4403 4103 1E03 0203 1F00')			
CVM	Verification Method	Conditions	If unsuccessful
1	Online PIN	Always	Fail

1.3.6 Contact I/F: Application Tag data, AID A000000046000, 1<sup>st</sup> GAC ARQC

\* Tag value changes with card usage

Tag	Element name	Data
50	Application Label	43 69 72 72 75 73 - 'Cirrus'
57	Track 2 Equivalent Data	35 69 99 00 10 08 22 11 D2 11 22 01 00 00 00 00 00 00 0F
5A	Application Primary Account Number (PAN)	35 69 99 00 10 08 22 11
5F 20	Cardholder Name	4A 43 42 2F 54 45 53 54 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 - 'JCB/TEST'
5F 24	Application Expiration Date	21 12 31
5F 28	Issuer Country Code	01 58 - TWN
5F 2D	Language Preference	7A 68 65 6E - 'zhen' (Chinese, English)
5F 34	Application PAN Sequence Number	00
82	Application Interchange Profile [M/Chip, PayPass]	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 00 04 60 00
87	Application Priority Indicator	02
8C	Card Risk Management Data Object List 1 (CDOL1)	9F 02 06 9F 03 06 9F 1A 02 95 05 5F 2A 02 9A 03 9C 01 9F 37 04 9F 35 01 9F 45 02 9F 4C 08 9F 34 03
8D	Card Risk Management Data Object List 2 (CDOL2)	91 0A 8A 02 95 05 9F 37 04 9F 4C 08
8E	Cardholder Verification Method (CVM) List	00 00 00 00 00 00 00 00 02 00
94	Application File Locator (AFL)	08 01 01 00 10 01 01 00
9F 08	Application Version Number	00 02
9F 0D	Issuer Action Code - Default	B0 50 04 98 00
9F 0E	Issuer Action Code - Denial	00 00 98 00 00
9F 0F	Issuer Action Code - Online	B0 50 04 98 00
9F 14	Lower Consecutive Offline Limit	00
9F 1F	Track 1 Discretionary Data	30 30
9F 23	Upper Consecutive Offline Limit	00
9F 42	Application Currency Code	09 01 - TWD
9F 4F	Transaction Log Format	9F 27 01 9F 02 06 5F 2A 02 9A 03 9F 36 02 9F 52 06
9F 7E	Application Life Cycle Data [Mastercard]	00 00

Tag	Element name	Data
C3	Card Issuer Action Code - Decline [Mastercard]	00 00 00
C4	Card Issuer Action Code - Default [Mastercard]	46 50 00
C5	Card Issuer Action Code - Online [Mastercard]	06 FB 00
C6	Counters [Mastercard]	00 01 00 00 00 00 00 00 00 00
C7	CDOL1 Related Data Length [Mastercard]	2B
C8	CRM Country Code [Mastercard]	01 58 - TWN
C9	CRM Currency Code [M/Chip4]	09 01 - TWD
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]	00 00
D3	Additional Check Table [Mastercard]	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
D5	Application Control [M/Chip]	80 00
D6	Default ARPC Response Code [M/Chip4]	00 12

\* Tag value changes with card usage

### 1.4 Test Card 99 - JCB, Fallback Card

This card does not contain a chip.

If 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.

## 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>				