

ACR3901U-S User Manual

	Name	Signature	Date
Prepared by:	Danny Deng		2014-06-07
Reviewed by:			
Approved by:			

Subject to change without prior notice

info@acs.com.hk www.acs.com.hk



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1.0. USB Mode Loopback program

This section introduces ACR3901U-S Reader using in USB Mode

Tools Requirement:

- a. ACR3901U-S reader
- b. ACOS3 Card
- c. USB Cable
- d. PC & USB Mode loopback program "ESD4.exe"

Test Procedure:

- 1. Plug the ACR3901U-S reader into PC through USB cable
- 2. Turn the switch on reader to "USB Mode" (as the picture). **For the first time of use, user needs to install a reader driver on PC. If the Windows could not install the* "Microsoft Usbccid Smartcard Reader (WUDF)" *driver automatically, please refer to section 3.0 ACR3901U-S USB Mode Driver Installation to install the reader driver.*



 Under the path ACR3901U-S1_TestProgram/USB_Mode, Double-click ESD4.exe, you will see the following interface

Reading and Writing to ACOS card	
Select Reader	Program ready
TEST	
<u>Connect</u> Retry timer (s)	
15 APDU Interval (ms)	
String Value of Data	
Reset Quit	

*The test program needs "Visual Basic 6.0 run time files" on PC, if "ESD4.exe" could not be opened, please install "vbrun60sp5.exe" first under the path: "ACR3901U-S1_TestProgram\USB_Mode\", before running the program.

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4.	Step1	Press "Initialize" button to Search the smart card reader name	
	Reading and Writing to ACOS card		
	Select Reader	Program ready	
		Connect	
	Retry timer (s)	<u>Senimerc</u>	
	APDU Interval (ms)		
	String Value of Data		
	Reset	Quit	

	Then you will find the "ACS ACI	R3901U ICC Reader 0"	
Reading and Writing to ACOS	card		x
Select Reader ACS ACR39	01U ICC Reade 🗸		
TEST -	Initialize		
	Connect		
Retry timer (s) 15 APDU Interval (ms) 1			
String Value of Data	Quit		

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5.	Step2	Press " test " bu	tton		
	Reading and Writing to ACOS	card			
	Select Reader ACS ACR3	901U ICC Reade 💌	Program ready	Ŷ	
	TEST	Initialize			
		<u>C</u> onnect			
	Retry timer (s)				
	APDU Interval (ms)				
	String Value of Data				
	Reset	Quit			

6. Now you will see that the program is working

т	he retry interval should be set to 15	
Reading and Writing to ACO3 card		
Select Reader ACS (CR3901U IC TEST Ir CC Retry timer (s 15 APDU Interval (ms) 1 String Value of Data	< 80 84 00 00 08 > 40 92 1E 7F D5 E6 94 45 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 95 Ef F 6F 09 51 FF 48 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 95 Ef F 6F 09 51 FF 48 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 80 84 00 00 08 > 85 66 86 04 ED 32 F 95 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 25 60 84 00 00 8 > 00 84 00 00 8 > 00 84 00 00 08 > 00 52 82 A2 04 18 A2 09 46 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 00 32 82 A6 79 B0 00 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 57 43 B7 58 E0 60 65 72 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 62 61 95 93 12 CD B3 37 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 62 C6 19 C7 54 09 A8 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 62 C6 19 00 75 A0 99 A8 Return 00 00 08 <t< th=""><th></th></t<>	
Reset	> 3C 46 C2 36 55 8E 45 30 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 87 9B 1E AF 47 DC 8D 80 Return string is invalid. Value: 90 00	

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7. Step3: After the testing, please press "Quit" button.

Reading and Writing to ACOS card	X
Select Reader ACS ACR3901U ICC Reade TEST Initialize Connect S0 840 00 00 8 PG F F GF 09 51 FF 48 Retry timer (s) Connect 15 APDU Interval (ms) 1 Connect String Value of Data S0 840 00 00 8 String Value of Data > 60 840 00 08 String Value of Data > 60 840 00 08 String Value of Data > 60 840 00 08 String Value of Data > 73 86 75 86 09 A8 Return string is invalid. Value: 90 00 < 80 840 00 08 > 35 60 68 69 4E D3 2F 95 Return string is invalid. Value: 90 00 < 80 840 00 08 > CD 54 2C A9 1B AE 00 46 Return string is invalid. Value: 90 00 < 80 840 00 08 > 57 43 B7 58 E0 60 65 72 Return string is invalid. Value: 90 00 < 80 840 00 08 > 57 43 B7 58 E0 60 65 72 Return string is invalid. Value: 90 00 < 80 840 00 08 > 27 43 B7 58 E0 60 65 72 Return string is invalid. Value: 90 00 < 80 840 00 00 8 > 57 43 B7 58 E0 60 65 72 Return string is invalid. Value: 90 00 < 80 840 00 008 > 26 62 26 55 8E 45 30 Return string is invalid. Value: 90 00	• E
	 -

8. Unplug the reader cable and then switch the reader to "OFF".

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2.0. Bluetooth Mode Loopback program

This section introduces ACR3901U-S Reader using in Bluetooth Mode

Tools Requirement:

- a. ACR3901U-S reader
- b. ACOS3 Card
- c. USB Cable
- d. Bluetooth 4.0 USB Adaptor Dongle
- e. PC & Bluetooth Mode loopback program "ACR3901U-S1_BT.exe"

Test Procedure:

- 1. Plug in the Bluetooth 4.0 Dongle into PC (*For the first time of use, please install the driver, please refer to section 4.0 Bluetooth Adaptor Driver Installation)
- 2. Run "ACR3901U-S1_BT_Test.exe" in folder ACR3901U-S1_TestProgram/BT_Mode/
- 3. If a message "Failed COM Port open" shows, press "OK" to enter program.



4. The program will be shown as the picture below. In "Com Port" selection column, select the suitable com port and then press "Connect" to initialize the Bluetooth adaptor. "Device initialization successfully completed!" will be shown if success. (please refer to section 4.0 to confirm which com port should be selected)

✗ FCC認證測試程序 V1.02	
Com Port COM9 Connect	Starting ACR3901U-S1_FCC Test Device initialization successfully completed!
Bluetooth Device Scan Connect Disconnect	
ICC Start Stop	
Stop the operation if one of the tests is failed	

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- 5. Insert the "ACOS3" test card into the ACR3901U-S reader.
- 6. Plug the ACR3901U-S reader into PC through USB cable for providing power.
- 7. Turn the ACR3901U-S reader to "Bluetooth Mode" and check that the green LED on the reader will slowly flash. It means the reader is ready to be paired with.



8. Press the "Scan" button to scan the Bluetooth device. If a pairing ACR3901U-S reader is discovered, it will display the reader information as the picture below:

》 FCC認證測試程序 V1.02	
Com Port COM9 Connect	Discovery Devices below: Device Number: 0 Device Name: ACR3901U-S1-000011 Device Addr. DD:AD:F2:5A:12:2A
Bluetooth Device ACR3901U-S1-000011 Connect Disconnect	
- ICC Start Stop	
Stop the operation if one of the tests is failed	

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9. Select the corresponding ACR3901U-S reader and then press "Connect" under Bluetooth device. If connection is successful, there will be the messages showing that the connection is successfully, as the picture below:

FCC認證測試程序 V1.02		
Serial	Successfully Connect to Device: DD:AD:F2:5A:12:2A Bond Success! Project Name: ACR3901U-S1-000011 Model Number: ACR3901U-S1	
Bluetooth	Manufacture: ACS FW Version: V0.01 Serial Number: 305-000011 There is a card in the reader, but the card is not powered! Sufficient battery!	
Device ACR3901U-S1-000011 Scan Connect Disconnect	Enable Service Success! Authentication Success! Get ATR success! There is a card in the reader, and the card is powered! ART: 3BBE110000410138000000012345678019000	
Start Stop		
Stop the operation if one of the tests is failed		

10. When the ACR3901U-S reader is successfully connected to the program, the blue LED and the green LED on the reader will flash slowly at the same time.

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11. Press "Start" button to start the test, now you will see the program is running for reading/writing card. The program running information will be shown on the message window.

Serial	<=Response:123456789000	
Com Port COM9 Connect	=>Command:802201/00081434F5354455354 =>Command:80A4000002FF02 <=Response:9000 =>Command:80D201000400000000	
Bluetooth	<=Response:9000 =>Command:80B2010004 <=Response:00000000000 =>Command:80D201000412345678	
Device ACR3901U-S1-000011 Scan Connect Disconnect	<=kesponse:9000 ⇒Command:8082010004 <=Response:123456789000 =>Command:802007000841434F5354455354 <=Response:9000 =>Command:80A4000002FF02 <=Response:9000	
	=>Command:80D201000400000000 <=Response:9000 =>Command:80B2010004 <=Response:00000009000 =>Command:80D201000412345678	
Start	<=Response:9000 =>Command:80B2010004 <=Response:123456789000 =>Command:802007000841434F5354455354 <=Response:9000	
☑ Stop the operation if one of the tests is failed	=>command:80A4000002FF02 <=Response:9000 ⇒>Command:80D201000400000000 <=Response:9000 =>Command:80B2010004	E

12. After the testing, press "Stop" to stop the card test; and then press "Disconnect" to disconnect the ACR3901U-S reader and the program. There will be a popup window to show the device successfully disconnected, press "OK".

⑧ FCC認證測試程序 V1.02		
Serial	<=Response:9000	A
Com Port COM9 Connect	=>Command:80A4000002FF02 <=Response:9000 =>Command:80D201000400000000 <=Response:9000	
Bluetooth	->Command:80D2010004 <response:00000009000 =>Command:80D201000412345678 <=Response:9000 =>Command:80E2010004</response:00000009000 	
Device ACR3901U-S1-000011 Scan Connect Disconnect	<=Response:123456789000 =>Command:802007000841434F5354455354 <=Response:9000 =>Command:80A4000002FF02	
Disconnect	<=Response.9000 =>Command:80D201000400000000 <=Response.9000 =>Command:80B2010004	
	<=rkesponse:000000009000 =>Command:80D201000412345678 <=Response:9000 =>Command:80B2010004	
Start	<=Response:123456789000 =>Command:802007000841434F5354455354 <=Response:9000 =>Command:804000002EE02	
	<pre><-Response:9000 =>Command:80D201000400000000 <=Response:9000</pre>	
✓ Stop the operation if one of the tests is failed	=>Command:80B2010004 <=Response:00000009000 =>Command:80D201000412345678	E .

13. Close the test program; turn the reader to "OFF" and unplug it from PC.



3.0. USB Mode Driver Installation

- 1. Connect the ACR3901U-S Reader and plug the USB cable into PC, if the PC could not install the driver "Microsoft Usbccid Smartcard Reader (WUDF)" automatically. User needs to unzip and use the driver under ACR3901U-S1_TestProgram\USB_Mode\USBModeDriver\
- 2. At Computer icon, right click on "Computer" select "Properties"



3. Select "Device Manager"





4. Check Smart card reader, use the mouse to right click "ACR3901U ICC Reader", and select "Update device software..."

🚔 Device Manager	-	 _	
File Action View Help			
a A ph-091-dell			
Batteries			
Biometric Devices			
Computer			
Disk drives			
Display adapters			
DVD/CD-ROM drives			
Human Interface Devices			
IDE ATA/ATAPI controllers			
Imaging devices			
Sevenards			
Mice and other pointing devices			
Monitors			
Network adapters			
Portable Devices			
Ports (COM & LPT)			
Processors			
I - 🛗 Smart card readers			
ACR39010 ICC Reader			
Sound, video and game controllers			
System devices			
Universal Serial Bus controllers			
· •			

5. Select "Browse my computer for driver software"



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6. Press "Browse" and select the unziped USB Mode driver under the path: \ACR3901U-S1_TestProgram\USB_Mode\USBModeDriver

5-	ageng derivat	23
0	Update Driver Software - Unknown Device	
	Browse for driver software on your computer	
	Search for driver software in this location:	
	C:\Users\Danny\Desktop\ACR3901U-S1 Production Package\Driver 👻 Browse	
	 Include subfolders Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device. 	
	Next C	Cancel

- 7. Press "Next"to install the driver.
- 8. The security window may popup and asks to confirm installation. Press "Install"

Installing driver so	tware
	Windows Security
	Would you like to install this device software? Name: Unified PC/SC Driver Publisher: Advanced Card Systems Ltd.
	Always trust software from "Advanced Card Install Don't Inst Systems Ltd.".
	You should only install driver software from publishers you trust. <u>How can I decide which device software is safe to install?</u>

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9. When the driver has finished installation, Press "Close"

_		23	í _]
\bigcirc	D Update Driver Software - ACR3901U ICC Reader		
	Windows has successfully updated your driver software		
	Windows has finished installing the driver software for this device:		
	ACR3901U ICC Reader		
		Close	1

- 10. In device manager, user could check the reader driver with name "ACR3901U ICC Reader" is ready.
 - Iungo
 Keyboards
 Keyboards
 Mice and other pointing devices
 Monitors
 Network adapters
 Portable Devices
 Ports (COM & LPT)
 Processors
 Smart card readers
 ACR3901U ICC Reader
 Sound, video and game controllers
 Storage controllers
 System devices
 Universal Serial Bus controllers

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4.0. Bluetooth Adaptor Driver Installation



Bluetooth 4.0 USB Dongle

1. Insert the Bluetooth Adaptor into PC, if the PC automatically popups the driver software installation window, just wait until the driver not successfully installed, press "Close".



2. Mouse move to Computer, right click on "Computer" select "Properties"



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3. Select "Device Manager"



4. Check "Other devices", use the mouse to right click "Unknown device", Select "Update device software..."

🐣 Device Manager	the second se	
File Action View Help		
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 ▲ And an analysis of the second secon		
 Display adapters DVD/CD-ROM drives TSSTcorp DVD+-RW TS-U633J Human Interface Devices IDE ATA/ATAPI controllers Imaging devices Jungo Keyboards Mice and other pointing devices 		
Monitors Metwork adapters Other devices Unk Update Driver Software Portabl Update Driver Software Sound, Uninstall Sound, Uninstall Scan for hardware changes Wrivers Properties		
Launches the Update Driver Software Wizard for the selected de	vice.	

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5. Select "Browse my computer for driver software"



6. Press "Browse" and select the Bluetooth adaptor driver "ccxxxx_usb_cdc.inf"under the following path:

\ACR3901U-S1_TestProgram\BT_Mode\AdaptorDriver\ccxxxx_usb_cdc.inf



7. Press "Next" to install the driver.

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8. It the windows security warning message shows as below, select "Install this driver software anyway "to continue the installation.



9. Wait until the driver updates successfully, the message will shows which COM Port is assigned to the Bluetooth adaptor. (**As the example below, the assigned com port is COM8.*) Press "Close" to finish the installation.

	23
Update Driver Software - TI CC2540 USB CDC Serial Port (COM8)	
Windows has successfully updated your driver software	
Windows has finished installing the driver software for this device:	
TI CC2540 USB CDC Serial Port	
	Close

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10. After driver installation successfully finish, user can check the assigned com port again from "Device Manager"



FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and 4

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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