ACR3901T-W

ACR3901T-W Test Manual V1.00

	Name	Signature	Date
Prepared by:	Keith Mo		2017-07-17
Reviewed by:			
Approved by:			

1.0. USB Mode Loopback program

This section introduces ACR3901T-W Reader using in USB Mode

Tools Requirement:

- a. ACR3901T-W reader
- b. ACOS3 Card
- c. USB Cable
- d. PC & USB Mode loopback program "ESD4.exe"

Test Procedure:

1. Insert the "ACOS3" test card into the ACR3901T-W reader.



2. Plug the ACR3901T-W reader into PC through USB cable



- 3. The Green LED is blinking and the reader is in USB mode.
- 4. Double-click "ESD4.exe" (TestProgram\USB_Mode) to start the testing application.

Reading and Writing to ACO5 card	
Select Reader	Program ready
TEST	
Connect	
Retry timer (s) 15 APDU Interval (ms) 1	
String Value of Data	
Reset Quit	

The test program needs "Visual Basic 6.0 run time files" on PC, if "ESD4.exe" cannot be opened, please install "vbrun60sp5.exe" first under the folder "TestProgram\USB_Mode\".

5. Press "Initialize" button to search the smart card reader.

Reading and Writing to ACOS card	
Select Reader	
Retry timer (s) 15 APDU Interval (ms) 1	
String Value of Data	
Reset Quit	

	ACS ACR3901U ICC Reader 0" will display
Select Reader ACS ACR3901U ICC Reade Program TEST Initialize Connect Retry timer (s) 15 APDU Interval (ms) 1	ready
String Value of Data	
<u>R</u> eset Quit	

6. Press "TEST" button to start testing.

Reading and Writing to ACOS card		
Select Reader ACS ACR3901U ICC Reade	Program ready	
Connect Retry timer (s) 15 APDU Interval (ms) 1		
String Value of Data		
<u>R</u> eset Quit		

7. The test program is running.

Reading and Writing to AC	:OS card	0	
Select Reader ACS AC	R3901U ICC Reade 💌	< 80 84 00 00 08 > AB D2 5E 53 8E 50 A9 A5< 80 84 00 00 08	-
TEST	Initialize	Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 26 F0 8D DB 05 3D 70 68 Return string is invalid. Value: 90 00	
	Connect	< 80 84 00 00 08 > BD E2 E1 C8 D6 A6 6F 4B Return string is invalid. Value: 90 00	
Retry timer (s) 15 APDU Interval (ms) 1		 > 99 7D A9 AE FF A7 A 8E Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 7B 30 75 D4 A5 50 49 B1 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 8F 9E D 46 42 2E CA 5F Return string is invalid. Value: 90 00 < 80 84 00 00 8 > 18 37 CD 71 84 F9 15 25 	
String Value of Data		Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 1F 2E 74 8E E0 61 91 B8 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 2C 17 3E EA D4 D5 56 73 Return string is invalid. Value: 90 00 < 80 84 00 00 08	E.
<u>R</u> eset	Quit	 > E2 D2 DF 11 94 28 86 E5 Return string is invalid. Value: 90 00 > A1 2C 74 F0 DB 3D 67 26 Return string is invalid. Value: 90 00 	

Select Reader	ACS ACR3901U ICC Reade 👻	< 80 84 00 00 08 > AB D2 5E 53 8E 50 A9 A5< 80 84 00 00 08	
TE	ST	Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 26 F0 8D DB 05 3D 70 68 Return string is invalid. Value: 90 00	
	<u>C</u> onnect	< 80 84 00 00 08 > BD E2 E1 C8 D6 A6 6F 4B Return string is invalid. Value: 90 00	
Retry timer (s)		< 80 84 00 00 08 > 99 7D A9 AE FF A7 A 8E Return string is invalid. Value: 90 00 < 80 84 00 00 08	ſ
APDU Interval	(ms)	> 75 30 75 D4 A5 50 49 B1 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 8F 9E D 46 42 2E CA 5F Return string is invalid. Value: 90 00 < 80 84 00 00 08	
		> 18 37 CD 71 84 F9 15 25 Return string is invalid. Value: 90 00 < 80 84 00 00 08 > 1F 2E 74 8E E0 61 91 B8 Return string is invalid. Value: 90 00 < 80 84 00 00 08	
String Value of	f Data	 > 2C 17 3E EA D4 D5 56 73 Return string is invalid. Value: 90 00 < 80 84 00 00 08 	
Posst		> E2 U2 UF 11 94 28 86 E5 Return string is invalid. Value: 90 00 > A1 2C 74 F0 DB 3D 67 26 Deturn string is invalid. Value: 90 00	

8. When the testing is finished, press "Quit" button to stop and end the program.

9. Unplug the reader.

2.0. Bluetooth Mode Loopback program

This section introduces ACR3901T-W Reader using in Bluetooth Mode. *(It can connect USB adapter to charge the battery inside the reader)*

Tools Requirement:

- a. ACR3901T-W reader
- b. ACOS3 Card
- c. Bluetooth 4.0 USB Adaptor Dongle
- d. PC & Bluetooth Mode loopback program "ACR3901U FCC Tool V2.00.exe"

Test Procedure:

- Plug in the Bluetooth Adaptor into PC (For the first time to use, please install the driver, please refer to Section 5.0 – Bluetooth Adaptor Driver Installation)
- 2. Run "ACR3901U FCC Tool V2.00.exe" in folder "TestProgram/BT_Mode/"
- 3. The program will be shown as the picture below.

Serial				
Com Port		- Connect		
Bluetooth				
Device				
	Scan	Disconnect		
	odan			
20				
	Start	Stop		

4. Select the suitable com port and then press "Connect".

Serial Com Port Bluetooth Device Scan Disconnect ICC Start Stop			
Com Port Bluetooth Device Scan Disconnect ICC Start Stop	Serial		
Bluetooth Device Scan Disconnect ICC Start Stop	Com Port	Connect	
Device Scan Disconnect ICC Start Stop	Bluetooth		
ICC Start Stop	Device	*	
ICC Start Stop	Scan	Disconnect	
ICC Start Stop			
Start Stop	ICC		
	Start	Stop	

5. "Device initialization successfully completed!" will be shown if success.

Serial Com Port CC	DM13	- Connect	Device initialization successfully completed!	
Bluetooth				
Device				
	Scan	Disconnect		
cc	r			
	Start	Stop		

6. Insert the "ACOS3" test card into the ACR3901T-W reader. (Open the back casing and then insert the test card)



 Press the button to turn on the reader and enter Bluetooth mode. The Blue LED is blinking and the reader is in pairing mode. (Do not plug-in the reader to PC by USB cable)



8. Press the "Scan" button to scan the Bluetooth device.

Com Port COM13	- Connect	Device initialization successibility completed	
Bluetooth			
Device			
Scan	Disconnect		
Start	Stop		

Com Port	COM13	- Connect	Discovery Devices below: Device Number: 0 Device Name: ACR3901T-W1-001001 Device Addr. 02/0218/20/09/04	
Bluetooth			Device Addi. C7.F9.18.78.86.EA	
Device	ACR3901T-W1-001001	•		
	Scan Di	sconnect		
сс				
	Start	Stop		

10. Select the ACR3901T-W reader (eg, ACR3901T-W-001001) and then press "Start" to connect the reader in Bluetooth mode.

Serial Com Port	COM13 Connect	Discovery Devices below: Device Number: 0 Device Name: ACR3901T-W1-001001 Device Name: ACR3901T-W1-001001
Bluetooth		Device Audi, C7.P3.Ib.76.b6.EA
Device	ACR3901T-W1-001001 -	
	Scan Disconnect	
ICC		
	Start Stop	

11. The card testing program is started.

Serial Com Port COM13	Discovery Devices below: Device Number: 0 Device Name: ACR3901T-W1-001001 Device Addr: C7:F9:1B:78:B8:EA
Bluetooth Device ACR3901T-W1-001001	Successfully Connect to Device: C7:F9:1B:78:B8:EA Bond Success! Enable Service Success!
ICC Start Stop	Command:802007000841434F5354455354 Response:9000 Command:80A4000002ff02 Response:9000 Command:80D201000412345678

12. The reader is sending and receiving command as below window. The Blue LED is blinking very fast.

	Contraction of the second	
Serial Com Port COM13 Connect	Command:802007000841434F5354455354 Response:9000	*
Bluetooth	Command:80A4000002ff02 Response:9000	
Device ACR39011-W1-001001	Command:80D201000412345678 Response:9000	
Disconnect	Command:80B2010004 Response:123456789000	
CC	Response:9000 Command:80B2010004	
Stop	Response:00000009000 Command:802007000841434F5354455354	
	Command:80A400002ff02	
	Command:80D201000412345678	
	Command:80B2010004	III .

13. After finished the test, press "Stop" to stop the card testing.

erial			
Com Port	COM13 - C	onnect Command:802007000841434F5354455354 Response:9000	
luetooth		Command:80A4000002ff02 Response:9000	
Device	ACR3901T-W1-001001	Command:80D201000412345678 Response:9000	
	Scan Disconnect	Command:80B2010004 Response:123456789000	
c		Command:80D20100040000000 Response:9000	
	Start Stop	Command.80B2010004 Response:00000009000	
		Command:802007000841434F5354455354 Response:9000	
		Command:80A4000002ff02 Response:9000	
		Command:80D201000412345678 Response:9000	
		Command 80B2010004	-

14. Press "Disconnect" to disconnect the bluetooth connection of the reader.

Serial		Response:9000	
Com Port	COM13 Connect	Command:80B2010004	
Bluetooth		1xesponse.123430703000	
		Command:80D201000400000000	
Device	ACR3901T-W1-001001	Response.9000	
		Command:80B2010004	
	Scan Disconnect	Response:00000009000	
		Command:802007000841434E5354455354	
		Response:9000	
		Command:80A4000002ff02	
ICC	<u> </u>	Response:9000	
	Start Stop		
		Response:9000	
		Command:80B2010004	
		Response.123456789000	
		Command:80D201000400000000	
		Response:9000	
		Command:80B2010004	
		Response:00000009000	
		Contraction and a strategy water and provide and provide and provide AUC AUC	*

- 15. Close the testing program.
- 16. <u>"Holding" the button for around 5 seconds to turn</u> off the reader.



Or press the button at the back to reset the reader.



4.0. USB Mode Driver Installation

- 1. Connect the 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 "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..."



5. Select "Browse my computer for driver software"



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

ages been	L
D 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	
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	Canc

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

Installing driver soft	ware
	- 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 Install 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>

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

		23
0	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

- 10. In device manager, user could check the reader driver with name "ACR3901U ICC Reader" is ready.
 - Yeyboards
 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
 Versal Serial Bus controllers

5.0. Bluetooth Adaptor Driver Installation

1. Insert the Bluetooth Adaptor into PC, then the PC will automatically popup the driver software installation window, wait that the driver will not successfully installed, press "Close".



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



3. Select "Device Manager"



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

Device Manager	the second of	and the second	the state man	X
File Action View	Help			
	🛛 📅 🧔 🕞 🦓 🚱 👘			
a 🝶 nb-094-dell				
Batteries				
Biometric I	Devices			
▷ III Computer				
Disk drives				
Display ada	apters			
A BVD/CD-R	OM drives			
	orp DVD+-KW TS-0633J			
D Um Human Int	TABLE Devices			
	avicer.			
lungo	evices			
Keyboards				
Mice and o	other pointing devices			
Monitors	, 3			
Network a	dapters			
a - 🚺 Other devi	ces			
🔄 🛺 Unk				
Portabl	Update Driver Software			
Process	Disable			
Sound,	Uninstall			
Storage	Scan for hardware changer			
System	Scan for hardware changes			
Durivers	Properties			
_				
		al collector d'accesso		
Lauriches the Opdate L	priver software wizard for the selecte	a aevice.		

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:

\ACR3901T-W_TestProgram\BT_Mode\AdaptorDriver\ccxxxx_usb_cdc.inf

Bro	wse for driver software on your computer	
Searc	h for driver software in this location:	
C:\U	sers\Danny\Desktop\ACR3901U-S1 Production Package\Driver 👻 Browse	
•	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.	

- 7. Press "Next" to install the driver.
- 8. It the windows security warning message shows as below, select "Install this driver software anyway" to continuous the installation.

g	driver software
🗿 Windo	ws Security
🛞 v	Vindows can't verify the publisher of this driver software
1	
	Don't install this driver software You should check your manufacturer's website for updated driver software for your device.
	Install this driver software anyway
	Only install driver software obtained from your manufacturer's website or

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.

65
Close

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

Device Manager	
ile Action View Help	
• 🔿 🖬 🔛 🖬 🧶 🕼 🥵	
🖌 🚔 Sun	
Batteries	
Biometric Devices	
🖕 🚯 Bluetooth Radios	
🦻 📲 Computer	
🔋 🧫 Disk drives	
🖕 📲 Display adapters	
DVD/CD-ROM drives	
👂 🥼 Human Interface Devices	
DE ATA/ATAPI controllers	
Imaging devices	
🖕 🛲 Keyboards	
🖕 🖞 Mice and other pointing devices	
Modems	
Monitors	
👂 👰 Network adapters	
Ports (COM & LPT)	
Printer Port (LPT1)	
TI CC2540 USB CDC Serial Port (COM8)	
Processors	
▶ - 🚆 Smart card readers	
Sound, video and game controllers	
👂 🚛 System devices	
Iniversal Serial Rus controllers	

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 (2) this device must accept any interference received, including interference that may cause

undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: —Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

- -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- -Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

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

uncontrolled environment . This transmitter must not be co-located or operating

in conjunction with any other antenna or transmitter.