



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR1222L USB NFC Reader with LCD

Technical Specifications V1.07





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## 1.0. Introduction



The ACR1222L is a PC-linked NFC contactless reader with LCD screen and USB host interface. Developed based on the 13.56 MHz RFID technology and the ISO/IEC 18092 NFC standard, it supports ISO 14443 Type A and B cards, MIFARE®, FeliCa and all four types of NFC tags.

ACR1222L is equipped with four LEDs, a buzzer and an LCD screen, providing users with a clear indication of the reader's status. The two-line graphic LCD has multiple language support, including Chinese, English, Japanese, and several European languages. It

allows interactive operations such as scrolling up and down, left and right, etc. ACR1222L also comes with three built-in ISO 7816-compliant Class A SAM slots which can be used together with SAM cards for enhanced security in contactless operations.

Moreover, ACR1222L has a built-in anti-collision feature and direct card type polling commands that enable smooth operation in cases where multiple cards are present. ACR1222L is PC/SC-compliant and supports firmware upgrade, which allows interoperability across different applications and platforms. With its enabled convenience in contactless transactions, ACR1222L is suitable for applications such as payment, access control, and time and attendance checking.



## 2.0. Features

- USB Full Speed Interface
- CCID-compliant
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 424 Kbps
    - Built-in antenna for contactless tag access, with card reading distance of up to 50 mm (depending on tag type)
    - Supports ISO 14443 Part 4 Type A and B cards, MIFARE Classic®, FeliCa and all four types of NFC (ISO/IEC 18092) tags
    - Built-in anti-collision feature (only one tag is accessed at any time)
  - SAM Interface:
    - Three SAM Slots
    - Supports ISO 7816 Class A SAM card
- Built-in Peripherals:
  - Two-line graphic LCD screen with interactive operability (i.e. scroll up and down, left and right, etc.) and multi-language support (i.e. Chinese, English, Japanese, and several European languages)
  - Four user-controllable LEDs
  - User-controllable buzzer
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- USB Firmware Upgradability
- Supports Android™ 3.1 and later<sup>1</sup>
- Compliant with the following standards:
  - ISO 7816 Class A (SAM Slot)
  - ISO 14443
  - ISO 18092
  - USB Full Speed
  - PC/SC
  - CCID
  - CE
  - FCC
  - RoHS 2
  - VCCI (Japan)
  - KC (Korea)
  - Microsoft® WHQL

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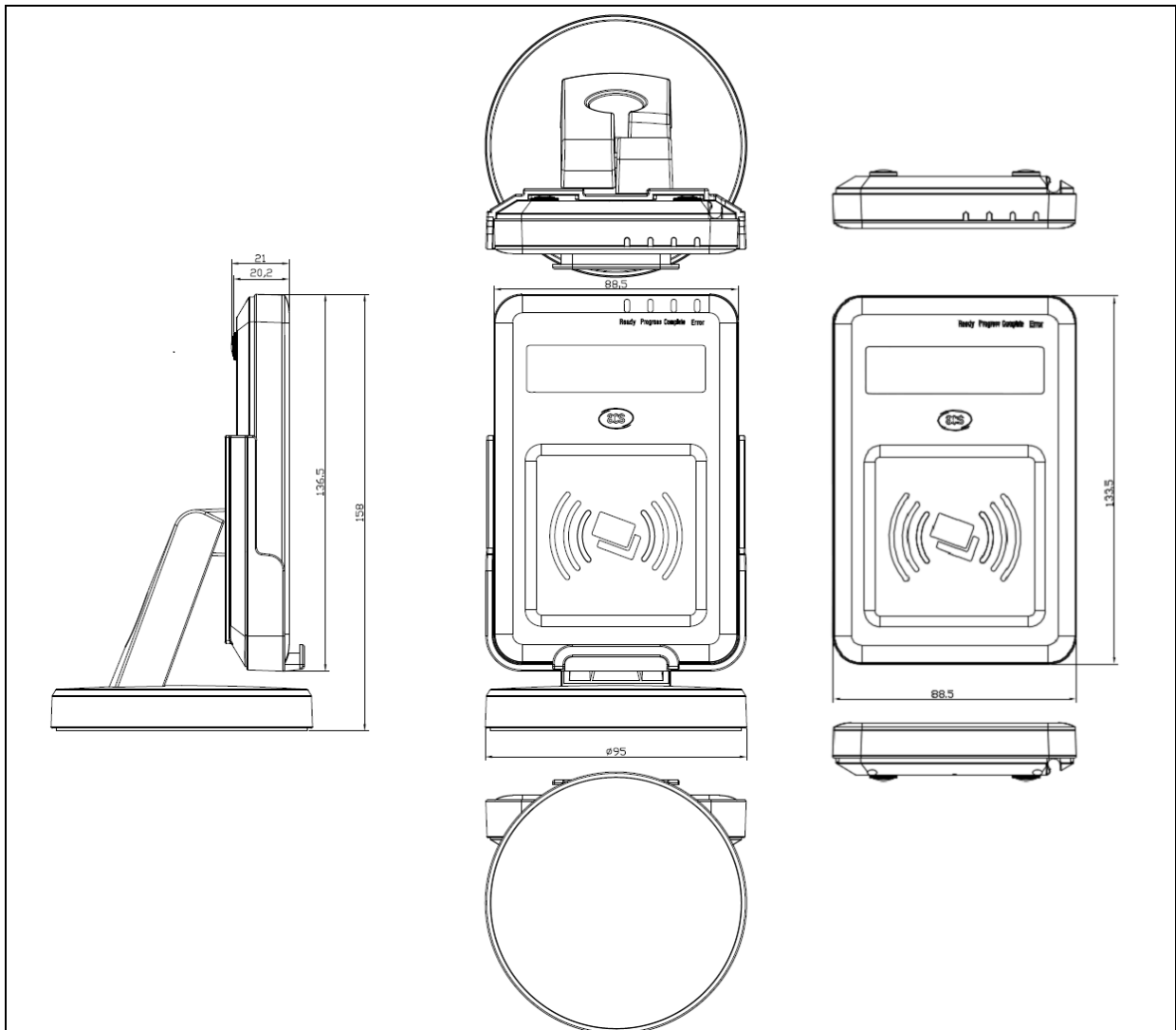
<sup>1</sup> Uses an ACS-defined Android Library



### **3.0. Typical Applications**

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program

## 4.0. Technical Specifications



### Physical Characteristics

Dimensions .....	Main Body: 133.5 mm (L) × 88.5 mm (W) × 21.0 mm (H)
.....	With Stand: 158 mm (L) × 95 mm (W) × 95 mm (H)
Weight .....	Main Body: 173 g
.....	With Stand: 415 g
Color .....	Black

### USB Host Interface

Protocol.....	USB CCID
Connector Type.....	Standard Type A
Power Source.....	From USB port
Speed.....	USB Full Speed (12 Mbps)
Supply Voltage.....	5 V
Supply Current.....	Max. 300 mA
Cable Length.....	1.5 m, Fixed

### Contactless Smart Card Interface

Standard .....	ISO/IEC 18092 NFC, ISO14443 Type A & B, MIFARE, FeliCa
Protocol.....	ISO 14443 T=CL for ISO14443-4-compliant cards
.....	T=CL Emulations for MIFARE Classic, ISO 18092, FeliCa and NFC tags
Operating Frequency .....	13.56 MHz
Operating Distance .....	Up to 50 mm (depending on tag type)
Smart Card Read/Write Speed.....	106 Kbps, 212 Kbps, 424 Kbps
Antenna Size.....	56 mm × 64 mm



**SAM Card Interface**

Number of Slots ..... 3 Standard SIM-sized Card Slots  
 Standard ..... ISO 7816, Class A (5 V)  
 Protocol..... T=0; T=1  
 Card Connector Type..... SAM Slot 0: Contact  
 ..... SAM Slot 1: Contact  
 ..... SAM Slot 2: Contact

**Built-in Peripherals**

LCD..... Graphic LCD with yellow-green backlight  
 ..... 128 pixels x 32 pixels  
 ..... Number of characters: 16 characters x 2 lines  
 LED ..... 4 single-color: Green, Blue, Orange, and Red  
 Buzzer ..... Monotone

**Other Feature**

Firmware Upgrade ..... Supported

**Application Programming Interface**

PC-linked Mode..... PC/SC  
 ..... CT-API (through wrapper on top of PC/SC)

**Operating Conditions**

Temperature..... 0 °C – 50 °C  
 Humidity ..... Max. 90% (non-condensing)  
 MTBF ..... 300,000 hrs

**Certifications/Compliance**

ISO 7816 (SAM slot), ISO 14443, ISO 18092, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS 2  
 VCCI (Japan), KC (Korea), Microsoft® WHQL

**Device Driver Operating System Support**

Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10  
 Windows® Server 2003, Windows® Server 2003 R2, Windows® Server 2008, Windows® Server 2008 R2,  
 Windows® Server 2012, Windows® Server 2012 R2  
 Linux®, Mac OS®, Android™ 3.1 and later



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