RDR 417 USB contactless reader user manual

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1   SCOPE OF MANUAL

This manual describes ASK RDR 417 contactless reader main features and setup information.
This manual is intended for use by end users.
Sam installation requires a "Philips" screwdriver for case opening.

2   READER DESCRIPTION

The RDR417 is a high speed, low cost, multi-standard, multi-application USB contactless reader. It supports all current ISO dual interface / contactless cards and contactless paper tickets.

2.1   Characteristics
The RDR417 reader is based on CPL407 coupler platform.

2.1.1   Features

- ISO 14443 A/B - ISO 15693
  ISO/IEC 14443-2:2001/FPDAM 2 2004-03-17

- Contactless paper tickets
- High power class 1 RF interface
- Compatible with Windows 98 SE, Me, 2000, XP
- PC/SC driver, ASK (dll) proprietary driver, or virtual COM driver available
- High-speed communication: 106 Kb/s up to 847 Kb/s
- Cryptographic security management with embedded SAM slot + Mifare® asic
- USB 2.0 connection for PC-based applications
- Powered via USB port (500 mA port)

- CE Mark: EN300330, EN301 489-3, EN60950-1
- FCC class B part 15

- 3 control LEDs
- 178 mm x 125 mm x 26 mm
- Weight: 160 g
- Operating temperature: 0°C to 50°C

2.1.2 Main applications

- Identity
- Banking
- Logical / physical access control
- PC/ workstation add-on

2.1.3 Cards & tags supported

Mifare® standard, Mifare®4K, Mifare® Pro,
Mifare Ultra Light, Mifare DESFIRE, Smart MX,
SLE 55Rxx, SLE 66CL1605, SLE 66CLX320P, SR176,
SRIX4K, Sharp B, all ASK cards and tickets.
ICODE SLI.

2.2 Architecture

This diagram describes the general architecture of the RDR417 reader.
The reader is an assembly of the ASK CPL407 USB coupler, and its dedicated
local antenna ANT400.

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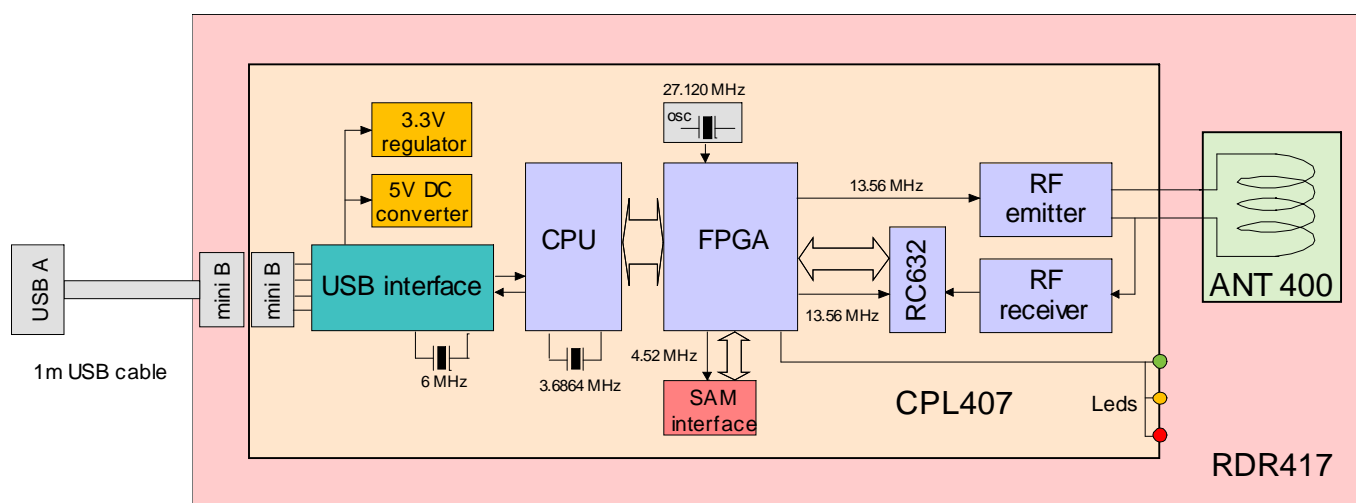
2.3 Mechanical aspects

Case: ABS
light grey (RAL 7035)

Soft side "grip" plastic:
grey (RAL 7012)
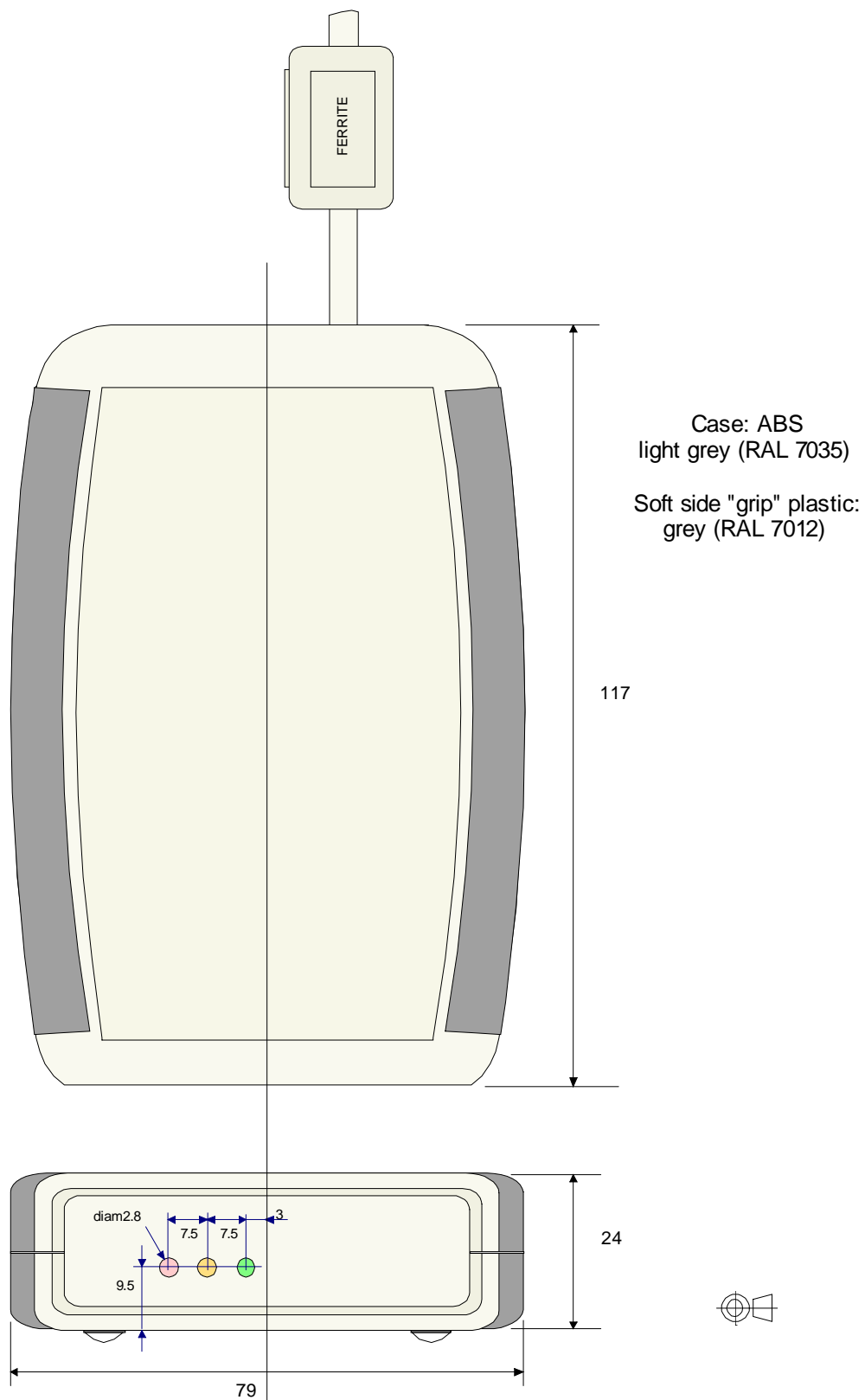
2.3.1 Attached USB cable definition

Mini-B-to-USB Type A
Length: 1m
Current: 1.0A
Contact resistance: 50mΩ max.
Over-Mold: Gray Polyvinyl Chloride, UL 94V-0
Ferrite: Wurth 7427114

2.3.2 Adhesive cover film

An adhesive cover film is added to the top case.
It supports ASK logo.
For volume order, it may be modified in order to support customer's logo.
Material is polycarbonate 250 µm, and adhesive 3M 468.

3   READER SETUP

### 3.1   Unpacking and inspection

For end user unity packaging, the **RDR 417** is delivered with an installation CD.
It includes user manuals in *;pdf format, USB drivers, and a few demonstration software.

3.2   Installing the SAM in the reader

In most applications, one SAM (Security Application Module) is required. This component is provided separately, so to set a SAM, the plastic case should be opened.

Caution: For SAM installation, it is mandatory to disconnect reader from USB port.

For opening, unscrew the cover screw using a "Philips" head screwdriver.
Open the case, and remove the lower case from the assembly.

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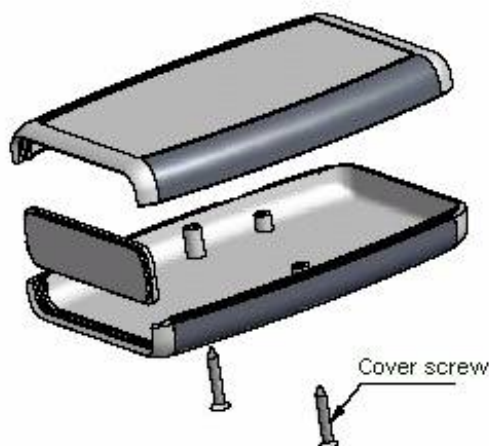
Caution: In a first time, µSIM shape SAM must be gently inserted in the opened cover, then in a second time the cover should be closed and locked.

Close and screw again the reader before use.

3.3   Reader connection to USB

Caution: The RDR417 is an USB powered reader.

Because of its high RF power, it has to be imperatively connected to a native USB port of a computer, or a self powered USB hub able to deliver up to 500mA according to USB standard.

To avoid improper operation:
Prefer connection to a rear USB port directly handled by the motherboard.
Avoid use of USB extension cable.
Avoid replacement of the existing 1 meter USB A to miniB cable by a longer one.

Note:
Some PCMCIA USB2.0 extension boards for handheld computers are not able to deliver 500 mA.

3.3.1   Driver installation

Connect the reader to the proper USB port.
Windows will detect it as a new device.
Insert the installation CD, and follow the instructions on screen.

You will be asked to choose between:
Standard virtual COM driver,
Card reader ASK (dll) proprietary driver,
or PC/SC driver.

Chosen driver will depend on the customer application software requirements.

3.3.2   Software

The RDR is delivered by default with an embedded application firmware called CSC which supports the ASK cards and C.ticket® families.
This firmware is upgradeable by download.
The external LEDs of the reader can be controlled by customer applicative software using CSC software commands. On power on, red led is active.

Complete driver installation, furnished demonstration software, and tools for customer application software development are described in a specific "software user manual" document.

4   HOW TO USE THE READER

4.1   Contactless operation

All the top surface of **RDR 417** reader is active.
Card must be laid on the top of the reader.

4.2   Cleaning

To clean, simply wipe with a wet cloth.
Abrasive or solving products are prohibited, except usual cleaning product for panes.

5 STANDARD COMPLIANCE

5.1 FCC compliance statements

This equipment has been tested and found to comply with the radiated limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interferences 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 the correct 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.

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

The ASK **RDR 417** reader was submitted and a grand of authorization received from the FCC as device under the intentional radiator requirements of Part 15, Subpart C.

Compliance accessory: The accessory associated with this equipment is a shielded USB cable including clipped ferrite core. This accessory is required to be used in order to ensure compliance with the FFC rules.

Caution : Any changes or modification not approved by ASK could void user's authority to operate the equipment. Switching power mode adaptors are prohibited.
It is strictly prohibited to remove the ferrites from the device.

5.2 CE compliance statement

The ASK **RDR 417** reader is in conformity with European requirements, this product has been assessed to the following standard:

EN 300330
EN 301 489-3
EN 60950-1

5.3 Annexe

RDR 417 is an assembly of a control board called "coupler board", and an antenna board.

5.3.1 Coupler board

The coupler board contains a microprocessor, non-volatile memory and a radio frequency transmitting circuitry. This board communicates with smart cards via RF link (provided by the antenna board), and to the terminal via "USB to serial" interface. The coupler platform is a CPL 4xx, which can be purchased separately as OEM product.

This coupler board is compliant with ISO/IEC14443-2 directives (Radio frequency power and signal interface). Communications can be executed according to the type A or type B of the directive.

It also complies with ISO/IEC15693.

(NB: remote antenna connector is only available on OEM coupler version)
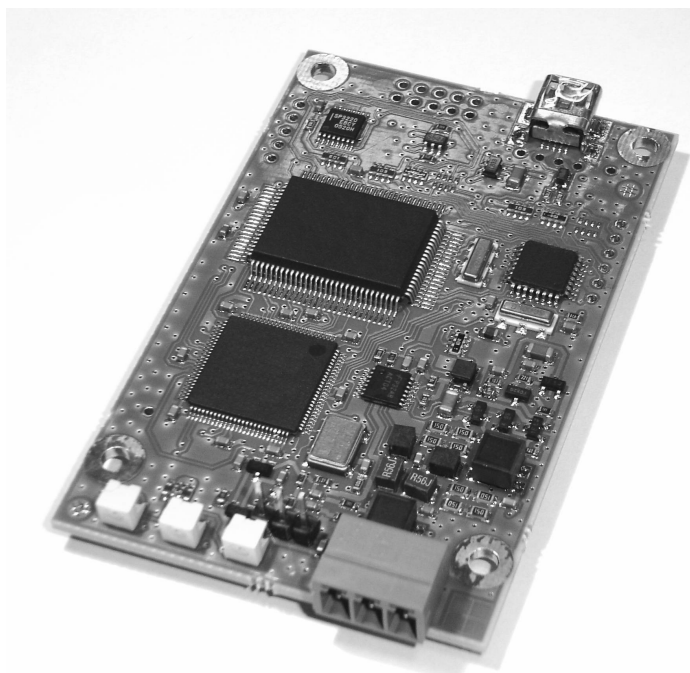
5.3.2 Antenna board

The antenna ANT 400 is a coil antenna directly designed on a printed circuit board.
No adjustment is required.
It can be purchased separately as OEM product.

5.3.3 Assembly

Inside the plastic case, these boards are stacked together, using M3 x 10 spacers.
Internal SMD Leds are replicated to front panel using light guides.