TECHNICAL INFORMATION MANUAL

Slate R1260U

RFID UHF Desktop Reader

easy2read©

THE ART OF IDENTIFICATION

Scope of Manual

The goal of this manual is to provide the basic information to work with the SLATE R1260U UHF Desktop Reader.

Change Document Record

Date	Revision	Changes	Pages
11 Apr 2011	01	First release	-
28 Jul 2016	02	Modified *Driver installation* paragraph	7
		Added *SLATE GETTING STARTED* chapter	7-10
		Renamed *Slate R1260U Functional Description* chapter into *Slate R1260U External Interfaces Description*	12
		Moved *Firmware Upgrade* paragraph into the *Slate R1260U Reader Upgrade* chapter	13
14/12/2016	2.1	Draft release for FCC Class II Permissive change Application	
20/12/2016	2.2	Draft release for FCC Certification Application	-

Reference Document

[RD1]   EPCglobal: EPC Radio-Frequency Identity Protocols Class-1 Generation-2 UHF RFID Protocol for Communications at 860 MHz – 960 MHz, Version 1.1.0 (December 17, 2005).

Disposal of the product

Do not dispose the product in municipal or household waste. Please check your local regulations for disposal/recycle of electronic products.

Index

List of Figures

List of Tables

1   INTRODUCTION

Product Description

The Slate (Model R1260U), the new desktop reader of the easy2read© Family, is an UHF multiregional RFID reader with integrated antenna for short to medium range applications.

The Slate Reader is powered and controlled directly by an USB cable, thus allowing to read EPC Class 1 Gen 2 UHF RFID tags in an easy desktop environment.
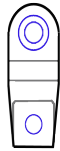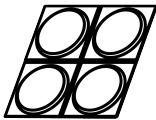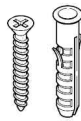
Thanks to its low profile (15 mm) and its size (approximately an A4 page), the Slate reader is the perfect choice for various applications such as point-of-sales, document tracking, RFID programming stations, access control and so on. It can be used as a building block for smart shelves and smart displays.

Fig. 1.1: Slate R1260U UHF Desktop Reader

Accessories

Check for the supplied accessories below:

No.2 wall hooks	No. 4 rubber feet
No.2 rawlplugs (ø 4 mm) +screws	No. 2 small screws (ø 3 mm)

Installation Notice

The Slate R1260U can be easily placed on a table for desktop applications or it is possible to hang it on the wall.
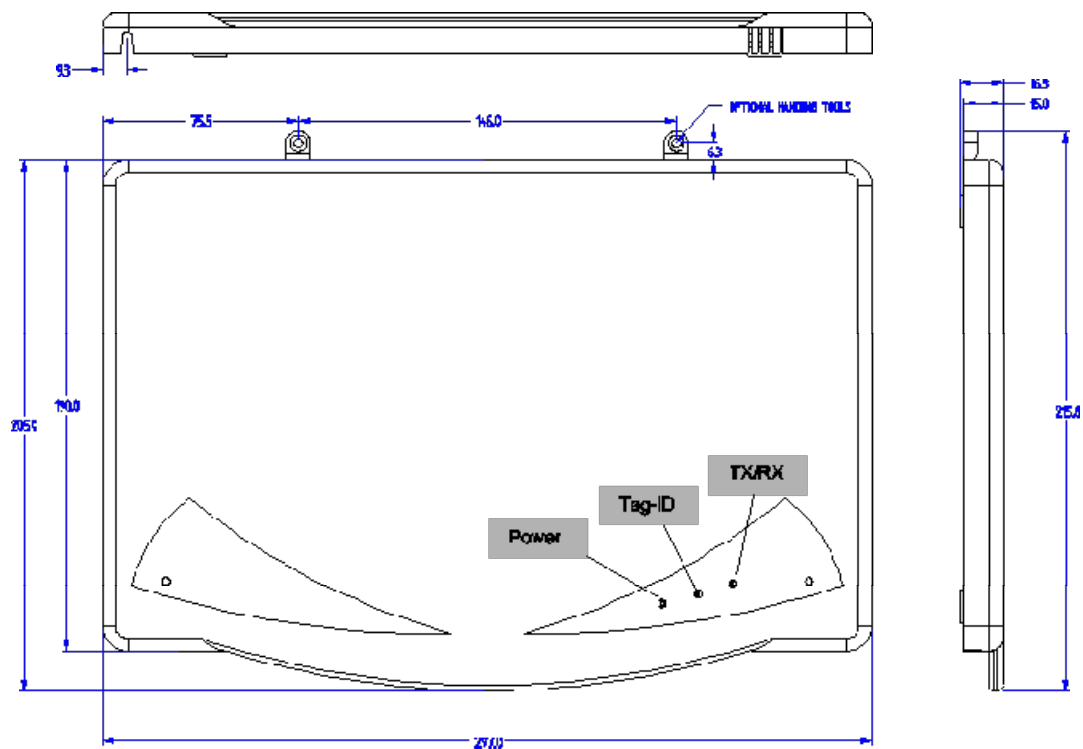
Fig. 1.2: Slate R1260U Technical drawings: top view

Horizontal Installation:

The Slate can be easily placed on a table for desktop applications affixing the 4 rubber feet to the bottom of the Slate R1260U to prevent it from sliding.

Vertical Installation:

The Slate can be hanged on the wall (see *Fig. 1.3: Slate R1260U Wall mounting*).

First of all, use the two small screws (ø 3 mm) to fix the 2 hooks on the Slate.

Then, to hang the Slate on the wall, fix the hooks to the wall using the 2 rawlplugs (ø 4 mm) + screws at a distance of 146 mm each other.

If you want to hang the Slate on a wood panelling, fix the hooks to the wall just using the 2 screws.
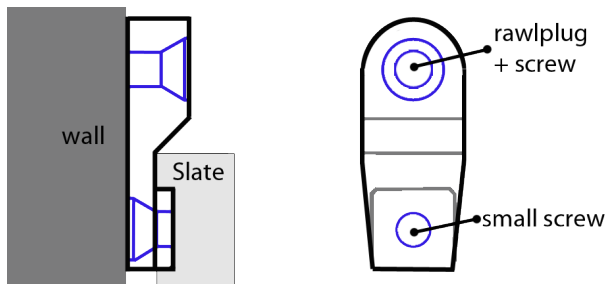
Fig. 1.3: Slate R1260U Wall mounting

Ordering Options

	Code	Description
Reader	WR1260UYAAAA	R1260U - RFID UHF Desktop Reader (FCC part 15)

2 SLATE GETTING STARTED

Introduction

This quickstart guide will help you to get started with your Slate R1260U reader.

For more detailed information on reader configuration, connections and setup options please refer to the next chapters.

To begin, you need first to download and install the .NET framework 2.0 (only required if .NET is not already installed on your PC).

Serial Port Emulator

The SLATE R1260U can be connected to a PC via USB connection. The RFID reader emulates a serial port. In the next paragraph the procedure to install the required driver is presented.

Driver installation

The Slate reader is based on a FTDI chip. To connect it to the PC you need to install the VCP (Virtual Com Port) drivers for your operating system. You can download VCP drivers for Windows based systems from the CAEN RFID Web Site at *Slate R1260I page* or from http://www.ftdichip.com/Drivers/VCP.htm for different operating systems (or for the most updated version).

The procedure to install the USB driver is presented below:

1. Verify that the USB cable is correctly plugged into the PC.

2. If the USB to Serial driver is not installed on the PC the following pop-up window is displayed.

3. Select *No, not this time* and click on *next*.

4. Select *Install from a list or specific location* and click on *next*.
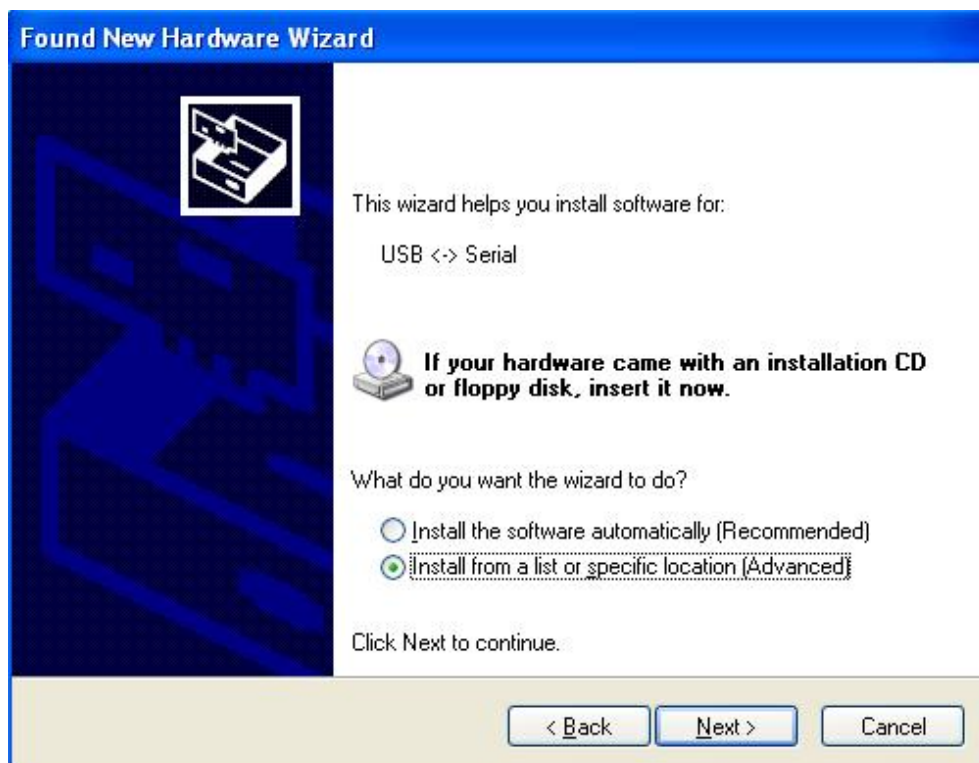
5. Select *Include this location in the search* and browse the folder where you have downloaded the VCP drivers then click on *next*.
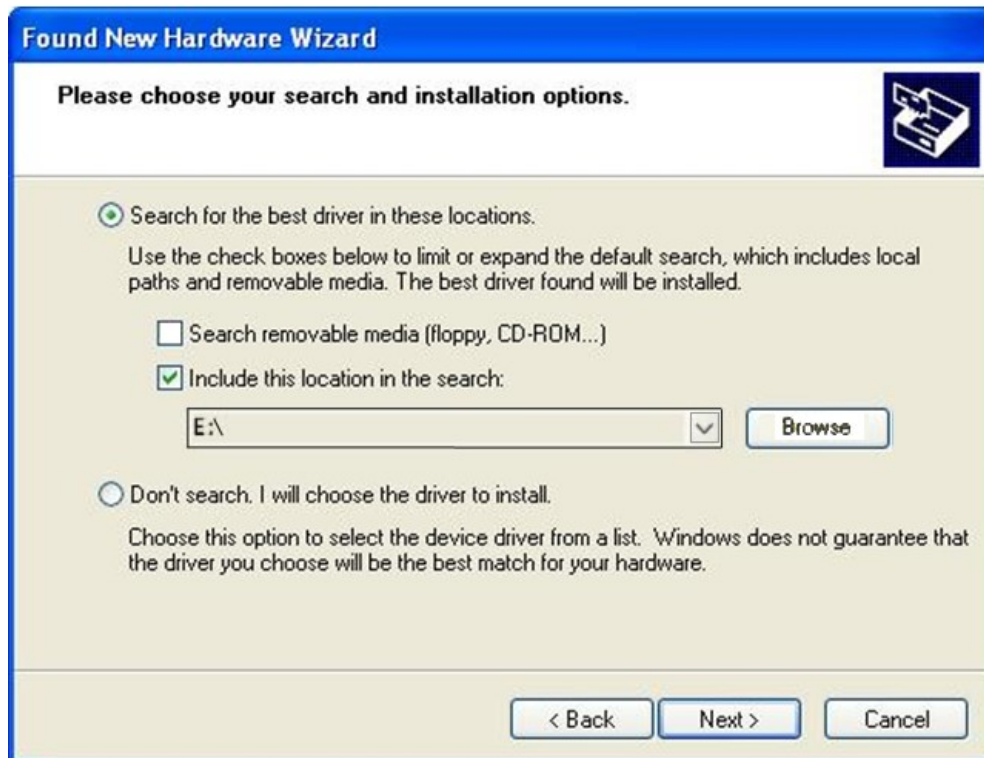
6.   When the installation is successfully terminated, press on Finish.

7.   Now the driver installation procedure is completed.

Connecting the Slate R1260U Reader

You can connect to the Slate R1260U Reader using the *EasyController* software via USB connection.

Connecting the Slate using the EasyController

1. Download from the CAEN RFID web site the latest version of the *EasyController* software and install it.

2. Follow the procedure described in *Driver installation* paragraph pag. 7.

3. Connect the Slate to your pc using the USB connection.

4. Open the System properties (right click on *My computer* icon) → *Hardware* → *Device Manager*.

5. See the emulated serial port in the "USB serial port (COM X)", in the case below COM4.
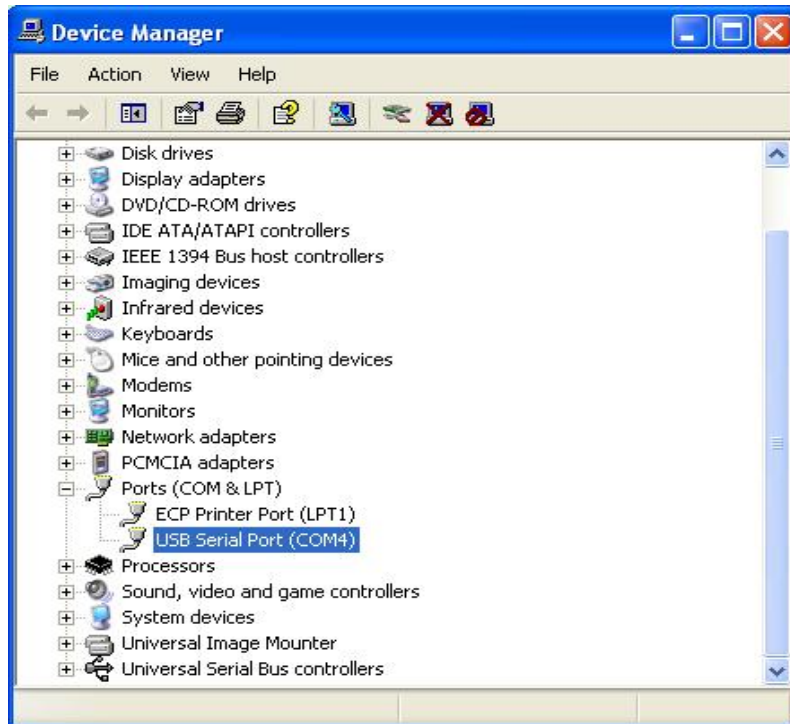
6. Once the serial port connection is established, CAEN RFID *EasyController* software can be used to interface the reader. Launch the Easycontroller by double clicking on the icon on your desktop.

7. Click on *File → Connect*, select the RS232 Connection Type and select from the pull-down menu the COM port number where the driver has mapped the virtual port for the Slate (in the example COM4) and then click on **connect**.

8. Place a tag on the reader, click on *start inventory* and see the tag information displayed on the main window.

For more info on the use of the *EasyController*, please refer to the manual *RFID Easy Controller Software*.

3 SLATE EXTERNAL INTERFACES DESCRIPTION

External Connection

The external connection is via USB port.

The USB cable is located in the back side of the Slate. You can pass the USB cable through the opening at the bottom or at the top of the Slate back side. The mechanical specification of the USB Port is as follows:

- USB Port: USB Type A plug connector

The Slate R1260U is powered through the USB host.

Front Panel Leds

The Slate R1260U front panel houses the following LEDs (see *Fig. 1.2: Slate R1260U Technical drawings: top view*):

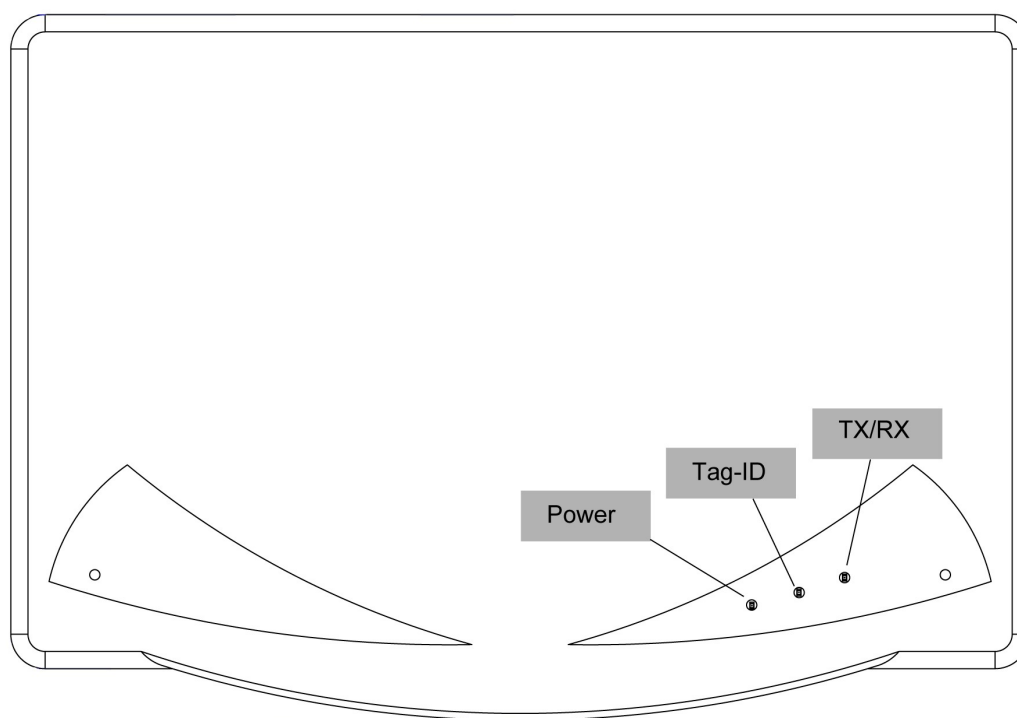| LEDS	FUNCTION	TYPE
POWER	Power ON	Green LED
TAG-ID	Tag detection	Blinking Red LED
TX/RX	USB communication activity	Blinking Yellow LED

Tab. 3.1: Slate R1260U Front Panel LEDs

Fig. 3.1: Slate R1260U Front Panel LEDs

4 SLATE READER UPGRADE

Firmware Upgrade

The Slate R1260U firmware upgrade can be managed via USB.

In order to upgrade the firmware follow the steps below:

- Verify the virtual COM port associated to the reader

- Open the FW upgrade program

- Select the COM port

- Select the image file by clicking on "Open" button
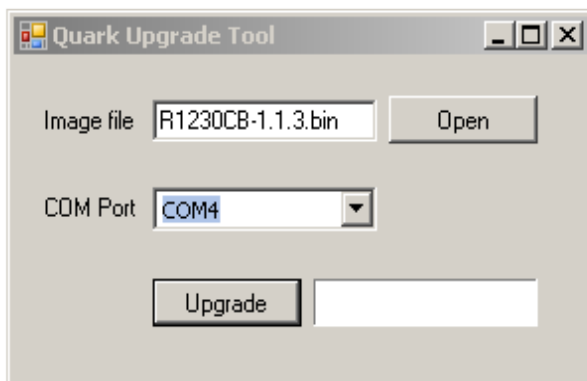
- Click on "Upgrade" button

- Wait for the upgrade to be completed

- Disconnect the USB cable

- Connect again the USB cable: now the reader is ready

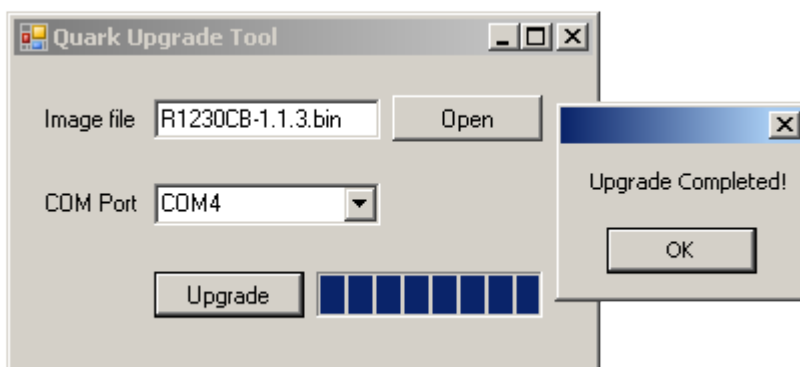# 5 SLATE TECHNICAL SPECIFICATIONS

Technical Specifications Table

Frequency Band	902÷928 MHz (FCC part 15)
RF Power	Programmable in 15 levels (1dB step) from 4dBm ERP to 18dBm ERP (from 2.5mW ERP to 67mW ERP)
Antenna	Integrated Circular Polarized Antenna
Number of Channels	50 hopping channels (compliant to FCC part 15.247).
Standard Compliance	EPC C1G2/ISO 18000-6C
User Interface	Green LED: Power Blinking red LED: Tag detection Blinking yellow LED: USB communication activity Buzzer: user programmable event signalling
USB Device Port	USB Type A plug connector Bus powered USB 2.0 device Must be connected to High-power Port (500 mA @ VBUS) It appears as USB serial port Virtual Com Port (VCP) drivers for Windows XP/Vista/Seven (7), Windows CE 4.2, Linux 2.40 and greater Baudrate: 115200 Databits: 8 Stopbits: 1 Parity: none Flow control: none
Dimensions	(W)297 x (L)205 x (H)15 mm^3 (11.7 x 8 x 0.6 inch^3)
Electrical Power	5 V DC bus powered (USB) Max 400 mA
Operating Temperature	-10 °C to +55 °C
Weight	525 g
Length of USB cable	1.5 m

Tab. 5.1: Slate R1260U Technical Specifications

Y *Warning: The RF settings must match the country/region of operating to comply with local laws and regulations.*

The usage of the reader in different countries/regions from the one in which the device has been sold is not allowed.

Reader – Tag Link Profiles

Slate R1260U reader supports different modulation and return link profiles according to EPC Class1 Gen2 protocol.

In the following table are reported all profiles that have been tested for the compliance with FCC regulation.

Link profile #	Regulation	Modulation	Return Link
0	FCC	DSB–ASK; f=40kHz	FM0; f = 40kHz
1	FCC	DSB–ASK; f=40kHz	Miller (M=4); f = 256kHz

Tab. 5.2: Slate R1260U Reader to tag link profiles

Radiation Patterns

The radiation patterns of Slate R1260U are shown in the following figures.
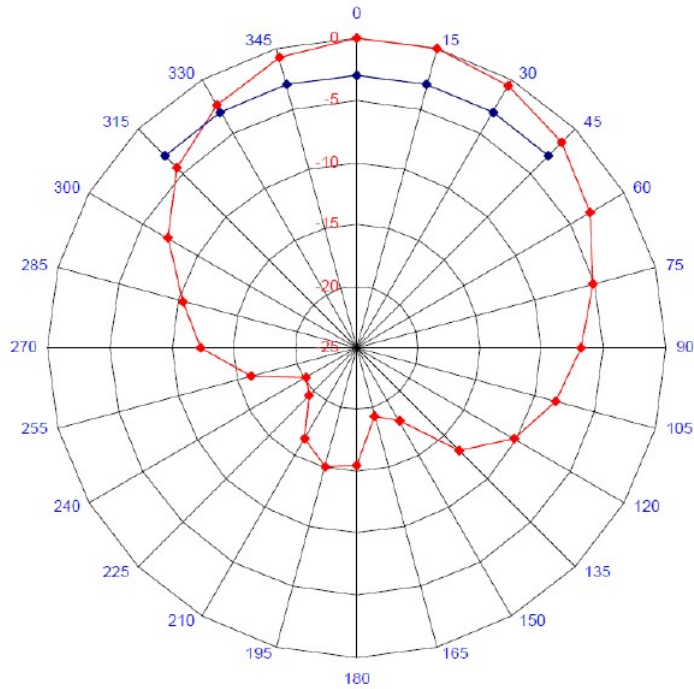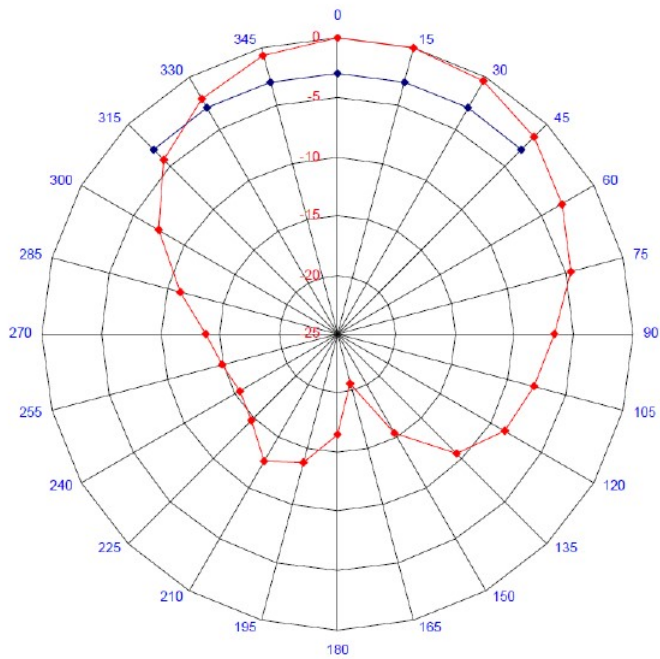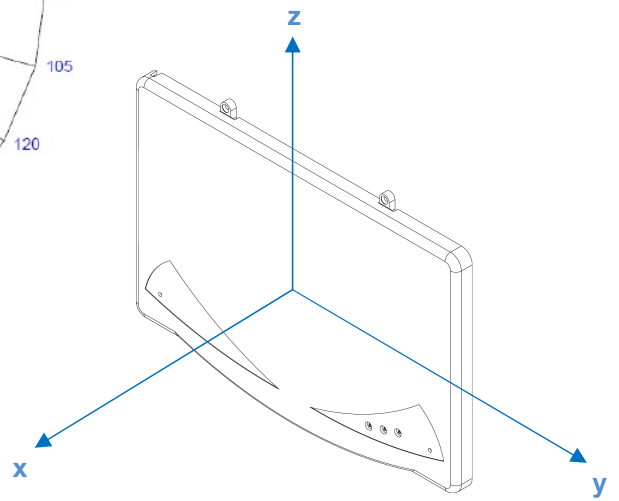

Fig. 5.1: Slate R1260U Radiation pattern H plane

Fig. 5.2: Slate R1260U Radiation pattern V plane

6 SLATE REGULATORY COMPLIANCE

FCC Compliance

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.

Any changes or modification not approved by CAEN RFID could void the user's authority to operate the equipment.

The device shall be used such that a minimum separation distance of 20cm is maintained between the reader and user's/nearby people's body.