IDBLUE R8.HF
Users Guide

IDBLUE Support
06/17/2011

Contents

Change Record 4
Disclaimer 5
Trademarks 5
Introduction 6
Package Contents 6
Device Overview 7
Components: 7
Identifying the device name 8
Getting Started 9
Charging the IDBLUE R8.HF Device 9
Using IDBLUE R8.HF 9
Turning the device on 9
Turning the device off 9
Reading and Writing RFID Tags 10
Scanning a tag 10
Device Communication 12
Physical Connections 12
Logical Connections 12
Bluetooth Discoverable Mode 12
Bluetooth Name and PIN Code 13
Device Configuration 13
IDBLUE Factory Default Settings 13
Operating Modes 15
Disconnected Operating Mode 15
Connected Operating Mode 15
Power Saving Settings 16
Device Timeout 16
RFID Operation Timeout 16
Bluetooth Timeout 16
RFID Protocols 16

General Settings 16
Audio Buzzer 17
On-board Clock 17
Performing a device reset 17
User Feedback 17
Device Status LED 17
Not Charging 17
Charging 18
Bluetooth Discoverable 19
RFID Status LED 19
Audio Buzzer 19
Events 19
Demo Applications 21
FCC Disclaimer 22
Troubleshooting 23
Contact Information 24

Change Record

Version	Date	Author	Comments
1.7	June 17, 2011	CBP	Update FCC dislaimer
1.6	February 3, 2010	DMB	Updates for RTM5
1.5	June 18, 2009	DMB	Updates for RTM2
1.4	March 16, 2009	CBP	RTM1
1.3	February 19, 2009	DMB	Updates for RTM
1.2	Sept. 11, 2008	DAR	FCC Disclaimer added Back label updated
1.1	January 17, 2008	CBP	
1.0	October 4, 2007	CBP	Initial Draft

Disclaimer

Copyright© 2010 Cathexis Innovations Inc. All Rights Reserved.

Cathexis Innovations Inc. assumes no responsibility for any errors which may appear in this document, reserves the right to change systems or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Cathexis are granted by the Company in connection with the sale of Cathexis products, expressly or by implication.

All specifications are subject to change without notice.

Cathexis, IDBLUE, CathexisWEB, and Powered by Cathexis RFID Engine are either registered trademarks or trademarks of Cathexis Innovations Inc. in Canada and/or other countries.

Trademarks

IDBLUE® is a registered trademark of Cathexis Innovations Inc. (www.cathexis.com/)

Bluetooth® is a registered trademark of the Bluetooth SIG (http://www.bluetooth.com/).

Microsoft, Microsoft Windows XP, Microsoft Windows Vista, Microsoft Windows Server 2003, PocketPC, Windows Mobile are either registered trademarks or trademarks of Microsoft Corporation (http://www.microsoft.com/) in the United States and/or other countries.

Introduction

Congratulations on purchasing your new IDBLUE R8.HF Device. This guide will help you to familiarize yourself with the new device and learn how it works.

To help you get the most benefit from IDBLUE R8.HF, please make sure that you download and install the latest version of IDBLUE Manager that will allow you to configure your device and allow you to get up and running as quickly as possible. If you do not already have this software package installed on your machine please visit:

http://www.idblue.com/support/downloads.aspx

Package Contents

Upon receiving your IDBLUE package, please ensure that it contains the following items:

- IDBLUE R8.HF RFID Device
- Mini-B USB Cable
- IDBLUE Quick Start Guide w/ Sample RFID Tag

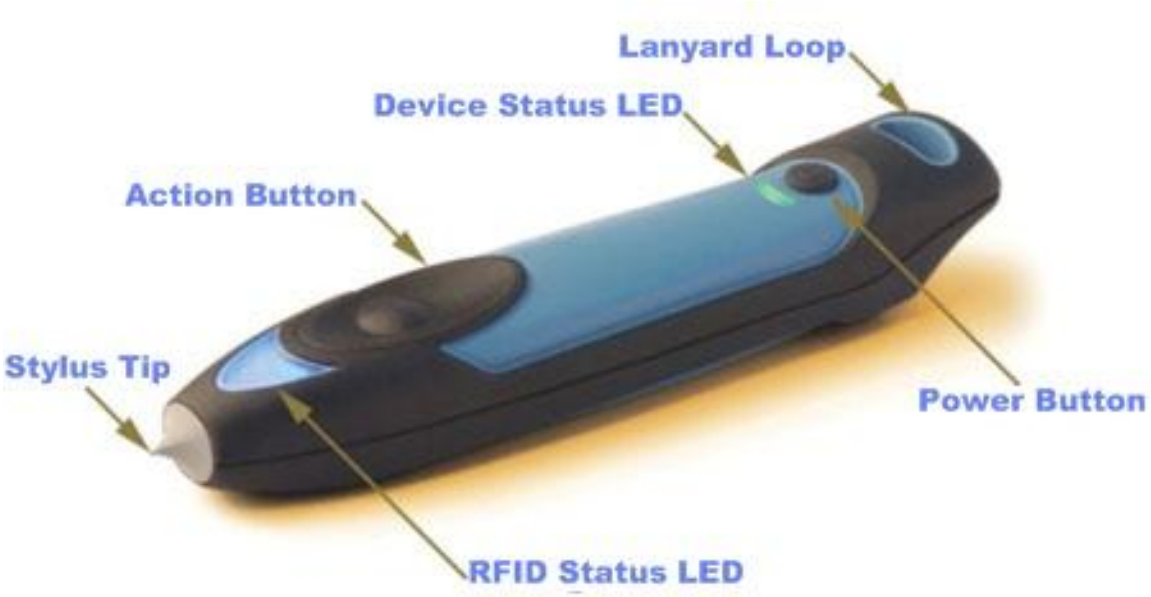
Device Overview

Please take a moment to examine IDBLUE R8.HF, and familiarize yourself with its components.

Components:

1. USB Port
2. Stylus Tip
3. RFID Status LED
4. Action Button
5. Device Status LED
6. Power Button
7. Lanyard Loop

\



Identifying the device name

The device name is printed on the back label of the device. The default name is a combination of the hardware revision (Revision 8 in the example below), and the last 4 digits of the Bluetooth® address (**DC:33** in the example above).

Getting Started

This section covers how to get up and running with your new IDBLUE R8.HF, including charging, device usage, and Bluetooth configuration.

Charging the IDBLUE R8.HF Device

Please ensure that IDBLUE R8.HF is fully charged before each use. Before initial use, the device must be charged for at least 2 hours. Subsequent recharging should take a maximum of 1 to 1.5 hours typically.

Use the supplied USB cable to charge IDBLUE R8.HF, making sure to use a high power USB port on a laptop/PC/hub.

IMPORTANT

You must install the IDBLUE R8.HF USB driver in order for your device to charge properly. Please download the driver at:
http://www.idblue.com/media/10176/idbluehf.inf

IDBLUE R8.HF will not charge with a 100mA USB charge source when it is turned on as the device draws more current than is provided.

Although a dedicated USB wall charger is not provided, any USB 2.0 compliant charger is compatible.

Using IDBLUE R8.HF

This section covers the basic operations for using IDBLUE R8.HF, including turning the device on and off, and how to use the device's user interface to read RFID tags.

Turning the device on

Turn on IDBLUE R8.HF by pressing and holding the power button for approximately 2 seconds.

When the device is powered on, the rear LED will turn green. At this point you can release the rear button while the device finishes powering up. Once the device has powered up, the device will emit two high tones and both the ***device status LED*** and the ***RFID Status LED*** will display two green flashes. Please refer to ***Table 5 : User Feedback on Events*** to review all LED feedback.

Turning the device off

There are a number of methods with which to shut down IDBLUE R8.HF.

1. The device may be manually shut down by pressing and holding the ***power button***, found on the rear of the device for at least 2 seconds. This is the recommended method

to shut down the device. In this case, the device will emit two high tones and the device status LED will display two green flashes before shutting down.

2. Each IDBLUE R8.HF has a *Device Timeout* setting that causes the device to automatically power down after a period of inactivity (where inactivity is defined as a period of time with no button press or commands sent to the device from a connected application). Set your device timeout to a suitable value for your application. The device timeout can be set under the 'Basic Device Settings' using IDBLUE Manager.

3. IDBLUE R8.HF may be shut down via a command sent from a connected application, such as IDBLUE Manager.

   For more information about IDBLUE Manager, the standard configuration and management application for IDBLUE R8.HF, please refer to *IDBLUE Manager User's Guide*.

Reading and Writing RFID Tags

IDBLUE R8.HF can perform a wide range of RFID related operations, including scanning tags, reading and writing data to/from RFID tags, etc. All of these operations are typically driven by pressing and releasing the ***action button***.

By default, IDBLUE R8.HF is shipped to you in *Tag Verify* mode (Please see ***Table 1 : Disconnected Mode Options*** for different operating modes). This mode will allow you to become more familiar with the device, ensure it is working properly, and check tag compatibility.

Scanning a tag

1. Ensure that the device is powered on and ready for use.
2. Press and release the **action button** on IDBLUE R8.HF.
3. The **RFID Status LED** will change to *blue* to indicate that the device is "busy" (i.e. attempting to scan RFID tags).

4. Move the tip of the IDBLUE device close to the tag – the optimal read range for most tags will be 2-3 cm.

5. Upon a successful tag read, the device will emit a high tone and the **RFID Status LED** will flash *green*

6. If the device cannot find the tag before the operation times out, the **RFID Status LED** will flash *red*. ***Note: the default RFID timeout value is four (4) seconds. This value can be configured using IDBLUE Manager.***

NOTE: Unless specifically noted otherwise, to "press" the button on the IDBLUE device means to press and release the button.

Device Communication

Physical Connections

Firmware versions 4.1.0.98 and above support both Bluetooth[1] and USB communication mechanisms. IDBLUE R8.HF is considered physically connected when the device is plugged into a computer via a USB cable and/or there is an established Bluetooth connection. It is possible to be physically connected via both USB and Bluetooth simultaneously. A low to high audio tone is emitted when a physical connection is established, and a high to low audio tone is emitted when a physical connection is dropped. During a Bluetooth connection, the device status LED will switch from Magenta to Cyan to indicate the transition from a connectable to physically connected state. However, the device status LED will remain Magenta for a USB connection to distinguish between a USB and Bluetooth physical connection.. Please refer to ***Table 5 : User Feedback on Events*** to review all audio and LED feedback.

Logical Connections

IDBLUE R8.HF is considered logically connected when there is a logical channel established to a host application. IDBLUE R8.HF will allow only one logical connection at a time. Once a logical connection is established over one of the physical channels, IDBLUE will prevent another logical connection via the other physical channel. In the case of establishing a logical USB connection, the IDBLUE R8.HF device will actually disable Bluetooth and drop any current physical connection. The device status LED will switch from Cyan to Blue when a logical connection is established, but no audio feedback is provided. Please refer to ***Table 5 : User Feedback on Events*** to review all audio and LED feedback.

Bluetooth Discoverable Mode

When attempting to first configure IDBLUE R8.HF to connect to a host, Bluetooth Discoverable Mode must be used. In this mode, IDBLUE R8.HF broadcasts its available services so that a host computer can discover and connect to it. To place the IDBLUE R8.HF device in Bluetooth Discoverable mode, press and release the power button of the device when the device is in connectable mode (Flashing Magenta). Once in Discoverable mode, the device status LED will flash Blue while it is waiting for a Bluetooth physical connection to be established. IDBLUE R8.HF will return to the previous mode if no connection is established within the Discovery timeout (60 seconds), or will indicate a physical connection if a Bluetooth connect is established.

[1] Connecting an IDBLUE R8.HF with firmware version 4.1.1.2 or earlier to a computer running Windows Vista SP2 or Windows 7 requires the user to manually pair IDBLUE R8.HF from *Bluetooth Devices* configuration available from the Windows Control Panel (Classic View).

Bluetooth Name and PIN Code

IDBLUE R8.HF comes pre-configured with a device name (as printed on the label on the bottom of the device). This is the Bluetooth name that will identify the device on a Bluetooth network.

It also comes pre-configured with a PIN code (sometimes referred to as a "pass code"); this is a security feature that will only allow you to connect to IDBLUE R8.HF if the PIN code is known.

Note: The default factory pin code is '0000'

Renaming IDBLUE R8.HF to your own specification or naming scheme is recommended. Please refer to IDBLUE Managers Guide for details on how to rename IDBLUE R8.HF.

Note: Press and release the power button to re-enable Bluetooth when it is disabled.

Device Configuration

This section covers the basic configuration options for IDBLUE R8.HF. These options are typically updated using either IDBLUE Manager or a custom application; please consult *IDBLUE Manager User's Guide* for more information on how to configure these settings.

IDBLUE Factory Default Settings

The following lists all of the factory default property settings for IDBLUE R8.HF device:

Block Count = 1
Block Data = 00000000
Block Index = 0
Bluetooth Timeout = 0 minutes (disabled)
Connected Mode = TagID
Continuous Scanning = False
Continuous Scanning Timeout = 16 seconds
Device Timeout = 10 minutes
Disconnected Mode = Tag Verify
Duplicate Elimination Timeout = 0 (no duplicate elimination)
Hold To Scan = True

IDBLUE Name = IDBLUE_R8<last 4 digits of Bluetooth MAC address>
RFID Protocol = ISO15693
RFID Timeout = 4 seconds
Timestamp Required = True

Operating Modes

Disconnected Operating Mode

The disconnected operating mode setting defines what happens when IDBLUE R8.HF does not have an established Bluetooth connection to a host, and the Action button is pressed. The disconnected mode options are:

Disconnected Mode	Description
Tag Verify	The device will read a Tag ID and not store any information. This function is offered to simply verify that a tag is compatible with the device.
Tag Store	The device will store the Tag ID, a timestamp, and first byte of data in non-volatile memory. This information can be later retrieved using IDBLUE Manager or other equivalent software.

Table 1 : Disconnected Mode Options

Note: IDBLUE will only read tags in *Tag Store* mode if the device's on-board clock has been set. The IDBLUE clock will be set from the factory, however if the IDBLUE battery is completely drained, the device will lose its clock. In this case, the device will need to be synchronized with a host. If the clock is not set, when the button is pressed in this mode the **RFID status LED** will flash *double-yellow*.

Connected Operating Mode

The connected operating mode setting defines what happens when IDBLUE R8.HF has an established USB or Bluetooth connection to a PC or PocketPC device, and the Action button is pressed. These modes are used by application developers to customize the behaviour of IDBLUE R8.HF to different types of applications and workflows. The connected mode options are:

Connected Mode	Description
Reactive (Button Press)	The device will send a button press event back to the host, where the host decides what command to execute. This mode is typically used by application developers.
Select Tag ID	The device will read the Tag ID and send this Tag ID back to the host. This is the default mode.
Read Block	The device will read the Tag ID and the data in a single block and send this information back to the host.
Read Multiple Blocks	The device will read the Tag ID and data from a series of blocks, and send this information back to the host.
Write Block	The device will read the Tag ID of a tag, write a single block of data to the tag, then send the Tag ID back to the host.

Table 2 : Connected Mode Options

Power Saving Settings

Device Timeout

The device timeout is a power saving feature that allows IDBLUE R8.HF to automatically shut down after a pre-defined period of inactivity. Inactivity is defined as a period of time (in minutes) with no button press (during connected or disconnected operating modes) or no commands sent to the device from a connected application. The default value of this setting is 10 minutes, but may be adjusted to best suit your application using IDBLUE Manager. Setting the Device Timeout to 0 will prevent IDBLUE R8.HF from automatically shutting down.

RFID Operation Timeout

The RFID timeout setting controls how the device performs when attempting to read an RFID tag. This setting is the length of time (in seconds) that the device will attempt to perform an RFID operation before timing out.

It is recommended that you not exceed the default four (4) second setting in order to conserve battery life.

Bluetooth Timeout

The Bluetooth timeout is a power saving feature that shuts down the Bluetooth module when the device is in disconnected mode. This setting is the length of time (in minutes) after which the Bluetooth module will shutdown if there is no user interaction with the device (i.e. no button press).

The default value for this option is zero (0) minutes, meaning that the Bluetooth module on-board IDBLUE R8.HF will not timeout and shutdown, but should be adjusted to 1 minute if the device is primarily used in disconnected mode

RFID Protocols

Firmware version 4.1.0.98 will support only ISO15693[2]. Further protocols will be available in future releases.

General Settings

This section covers some of the general settings and features of the device.

[2] Reading and writing to ISO 15693 tags is only supported for tags with a block structure of 4 bytes per block. Unsupported tags for reading and writing include STMicroelectronics LRI64 (1 byte per block) and EM Microelctronic (8 bytes per block) tags.

Audio Buzzer

IDBLUE R8.HF is equipped with an audio buzzer to provide feedback to the user. The user may enable or disable the audio buzzer using IDBLUE Manager. When the buzzer is enabled, the user will hear an audible tone upon a successful operation, as well as unique tones on various state changes. Please see ***Table 5 : User Feedback on Events*** for more information on the audio feedback.

To conserve battery power, the user may disable the audio buzzer under 'Basic Device Settings' of IDBLUE Manager.

On-board Clock

IDBLUE R8.HF has an internal real time clock to allow time stamping of each tag scan. This clock is set from the factory and under normal use does not need to be reset. However, in the case where the battery on IDBLUE R8.HF is completely drained, the device will lose its clock setting and will need to be synchronized with IDBLUE Manager or other similar host application.

Performing a device reset

In the unlikely event IDBLUE R8.HF becomes unresponsive, it will be necessary to perform a device reset. To reset the device, press and hold both the power button and the action button simultaneously for at least 3 seconds. While holding both buttons, the reading status and device status LEDs will display a solid cyan color. When both of these LEDs turn off, the device has performed a reset. Release both buttons. To power the device back up and continue using it press and hold the rear button for 2 seconds.

User Feedback

This section details how the user interface elements of IDBLUE R8.HF respond to different events and device states. IDBLUE R8.HF provides user feedback through three different methods:

1. Device Status LED – Provides feedback on battery level and communication status.
2. RFID Status LED– Provides feedback on RFID related events
3. Audio Buzzer – Provides feedback on RFID and transition events

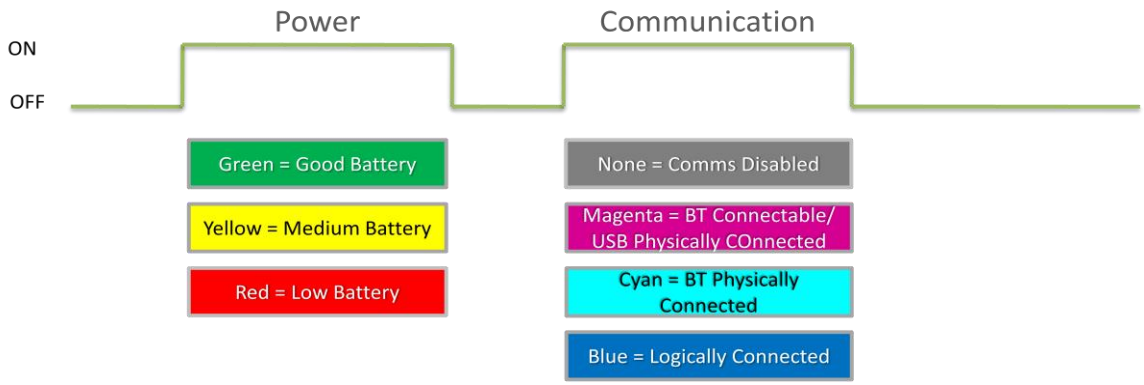
Device Status LED

The device status LED displays the status of the power and communications of the device. The patterns of colors displayed will differ depending on if the device is on or off, and charging or not charging.

Not Charging

When on but not charging, the device status LED default value is off, and will flash two consecutive colors in a continuous pattern. The first flash indicates power (battery level) and the

second communication. The color of each of these flashes will indicate the various states as shown below:

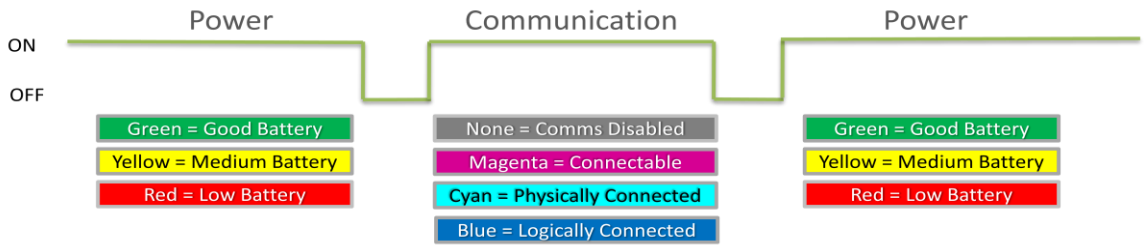


Device Status	Power Color	Communication Color
Comms Disabled – Good Battery	Green	None
Comms Disabled – Medium Battery	Yellow	None
Comms Disabled – Low Battery	Red	None
Connectable – Good Battery	Green	Magenta
Connectable – Medium Battery	Yellow	Magenta
Connectable – Low Battery	Red	Magenta
USB Physically Connected – Good Battery	Green	Magenta
USB Physically Connected – Medium Battery	Yellow	Magenta
USB Physically Connected – Low Battery	Red	Magenta
Bluetooth Physically Connected – Good Battery	Green	Cyan
Bluetooth Physically Connected – Medium Battery	Yellow	Cyan
Bluetooth Physically Connected – Low Battery	Red	Cyan
Logically Connected – Good Battery	Green	Blue
Logically Connected – Medium Battery	Yellow	Blue
Logically Connected – Low Battery	Red	Blue
Off	None	None

Table 3 : Device Status LED When Not Charging

Charging

When charging, the power LED is normally on, and will flash a single color. The solid color indicates the current charge level of the battery and the second will indicate the communication status as shown below:



Device Status	Power Color	Communication Color
Comms Disabled – Good Battery	Green	None
Comms Disabled – Medium Battery	Yellow	None
Comms Disabled – Low Battery	Red	None
Connectable – Good Battery	Green	Magenta
Connectable – Medium Battery	Yellow	Magenta
Connectable – Low Battery	Red	Magenta
USB Physically Connected – Good Battery	Green	Magenta
USB Physically Connected – Medium Battery	Yellow	Magenta
USB Physically Connected – Low Battery	Red	Magenta
Bluetooth Physically Connected – Good Battery	Green	Cyan
Bluetooth Physically Connected – Medium Battery	Yellow	Cyan
Bluetooth Physically Connected – Low Battery	Red	Cyan
Logically Connected – Good Battery	Green	Blue
Logically Connected – Medium Battery	Yellow	Blue
Logically Connected – Low Battery	Red	Blue
Off	Green	None

Table 4 : Device Status LED When Charging

Bluetooth Discoverable

When IDBLUE R8.HF is in Bluetooth Discoverable mode, the device status LED pattern will flash blue to indicate this unique state. The LED pattern will return to either the charging or not charging states after the Discovery timeout (60 seconds) or if IDBLUE R8.HF is connected via Bluetooth, whichever occurs first.

RFID Status LED

The Reading Status LED will display feedback on RFID operations. See ***Table 5 : User Feedback on Events***.

Audio Buzzer

The audio buzzer will provide audio feedback on various connection and RFID events. See ***Table 5 : User Feedback on Events***.

Events

The following table should be used as a reference to identify an event.

Event	Audio Buzzer	RFID Status LED	Device Status LED
Power On (Startup)	None	None	Solid Green
Power On (Ready)	Two High Tones	Two Green Flashes	Two Green Flashes
Power Off	Two High Tones	None	Two Green Flashes
Physical Bluetooth Connection Established	Low to High Transition	None	Blue Flash and Communication Flash Sequence = Cyan
Physical Bluetooth Connection Dropped	High to Low Transition	None	Green Flash and Communication Flash Sequence = Magenta
Physical USB Connection Established	Low to High Transition	None	None
Physical USB Connection Dropped	High to Low Transition	None	None
Logical Connection Established	None	None	Communication Flash Sequence = Blue
Logical Connection Dropped	None	None	Communication Flash Sequence = Cyan/Magenta
Action Button Pressed	None	Solid Blue	None
RFID Operation Success	High Tone	Green Flash	None
RFID Operation Failure	None	Red Flash	None
Tag Store – Invalid Clock	None	Two Yellow Flashes	None
Power Button Press and Hold	None	None	Solid Cyan (for 2 sec)
Power + Action Button Press and Hold	None	Solid Cyan (for 3 sec)	Solid Cyan (for 3 sec)

Table 5 : User Feedback on Events

Demo Applications

Please visit http://www.idblue.com/support/downloads.aspx for a list of available demo applications.

FCC Disclaimer

English
This device complies with FCC Part 15 and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Warning! Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment

French
Ce dispositif est conforme à la norme FCC Partie 15 et Industrie Canada exempts de licence standard RSS (s). L'opération est soumise aux deux conditions suivantes: (1) cetappareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Attention! Les changements ou modifications non expressément approuvés par le fabricantpourrait annuler l'autorisation de l'utilisateur à utiliser cet équipement

Troubleshooting

For the most up-to-date FAQ and other support information, please consult IDBLUE R8.HF support website at:

http://www.idblue.com/support.aspx

When contacting IDBLUE Support, please ensure that you have the following information available in order to streamline the resolution process:

- IDBLUE serial # (Bluetooth address)
- IDBLUE firmware version (Found under 'Update Firmware' in IDBLUE Manager)
- Bluetooth hardware information
    - Vendor (e.g. DLink)
    - Model number (e.g. DBT-120 B4)
    - Bluetooth stack type and version
- Device make and model for PocketPC devices and laptop / TabletPC's.
- Any error messages, or screenshots of error messages that you have encountered.

Contact Information

For more information about IDBLUE R8.HF and other IDBLUE products and services:

IDBLUE Product Page	http://www.idblue.com/products.aspx
IDBLUE Sales	Email: sales@idblue.com Phone: +1 (709) 754-7343 Fax: +1 (709) 754-7349
IDBLUE Support	http://www.idblue.com/support.aspx Phone: +1 (866) 304-7343 Ext. 322 +1 (709) 754-7343 Ext. 322
General Inquiries:	IDBLUE 100 Signal Hill Road, The Lower Tower St. John's, NL, Canada A1A 1B3

Copyright© 2005 - 2010 Cathexis Innovations Inc. All Rights Reserved. Cathexis Innovations Inc. assumes no responsibility for any errors which may appear in this document, reserves the right to change systems or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Cathexis are granted by the Company in connection with the sale of Cathexis products, expressly or by implication. All specifications are subject to change without notice. Cathexis, IDBLUE, and Mobile.RFID.Solutions are either registered trademarks or trademarks of Cathexis Innovations Inc. in Canada and/or other countries. The Bluetooth name and Bluetooth registered trademarks are owned by Bluetooth SIG, Inc. Microsoft, Windows, and the Windows logo are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.