Cypress BLE-Beacon for PC User Guide

Doc. No. 002-12445 Rev. *A

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Contents

1. Introduction

Cypress BLE-Beacon is a Bluetooth® Low Energy (BLE) application developed by Cypress Semiconductor for PC.

The Cypress BLE-Beacon PC can be used with the following devices:

- S6SAE101A00SA1002 Solar-Powered IoT Device Kit
  www.cypress.com/solar-powered-iot-device-kit
- CYALKIT-E02 Solar-Powered BLE Sensor Beacon Reference Design Kit (RDK)
  www.cypress.com/CYALKIT-E02
- CYALKIT-E03 Solar-Powered BLE Sensor Beacon 5 Pack
  www.cypress.com/CYALKIT-E03

The Cypress BLE-Beacon PC can be used with the BLE example projects provided in PSoC® Creator™ 3.3. PSoC Creator can be downloaded from www.cypress.com/psoccreator. For some helpful tips on finding an example project in PSoC Creator, visit www.cypress.com/blog/psoc-creator-news-and-information/matts-tips-finding-code-examples-psoc-creator.

1.1 Application Features

The Cypress BLE-Beacon PC supports the following features:

- Runs on Windows PC platforms (including platforms that do not natively support Bluetooth LE)
- 3D graph visualization for sensor data that transmitted by Cypress's BLE Sensor Beacons
  - Color map surface graph
  - Interactive data: rotate, zoom, and highlight data using mouse or touch
  - Temperature and Humidity sensor data support
- Export logging data in CSV format

1.2 Software and Hardware Requirements

1.2.1 Software Requirements

Table 1-1. Software Prerequisites

Software/Operating System Prerequisites	Minimum	Recommended
Windows	7	7 or later

1.2.2 Hardware Requirements

Table 1-2. Hardware Requirements

Hardware Requirements	Minimum	Recommended
BLE-USB Bridge and Debug Board	Firmware 1.0.00	Firmware 1.0.00 or later

The Cypress BLE-Beacon PC supports following BLE-USB Bridges:

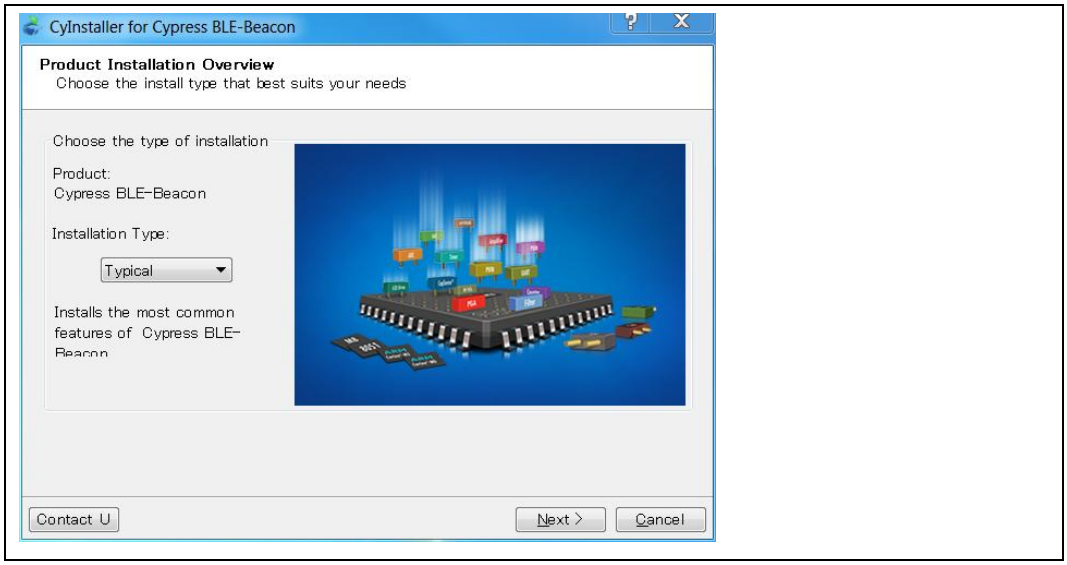
- S6SAE101A00SA1002 Solar-Powered IoT Device Kit - www.cypress.com/solar-powered-iot-device-kit
- CYALKIT-E02 Solar-Powered BLE Sensor Beacon Reference Design Kit - www.cypress.com/CYALKIT-E02

2. Software Installation

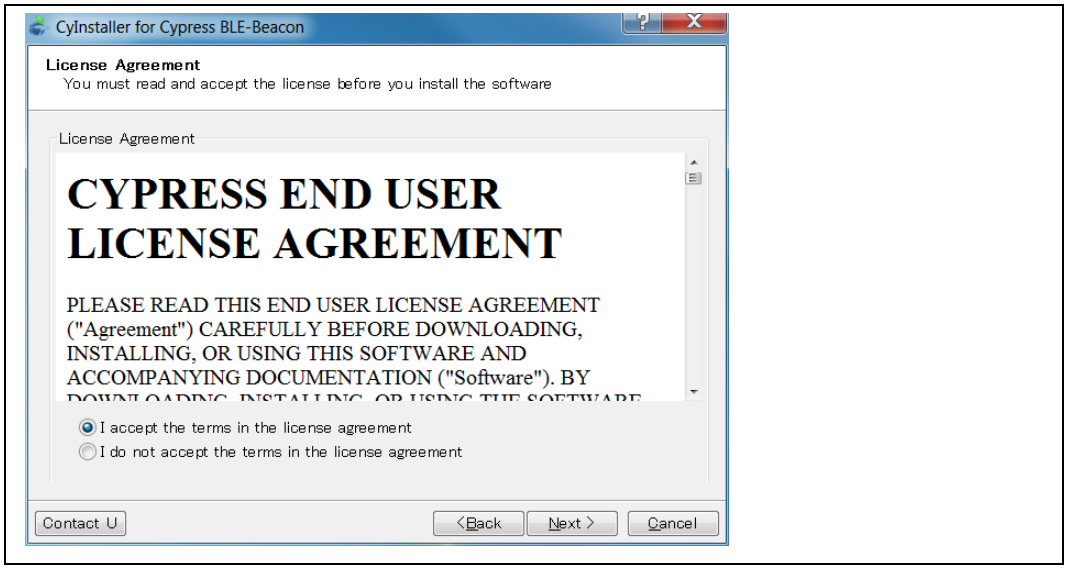
2.1 Installing the Application

To install the Cypress BLE-Beacon for PC, perform the following steps:

1. Download and install the Cypress BLE-Beacon PC software from www.cypress.com/CypressBLE-Beacon-PC. The software is available in two different formats for download:
   - **Cypress BLE-Beacon PC Only Package:** This executable file installs only the software contents, which include software files, and user documents. This package can be used if all the software prerequisites are installed on your computer.
   - **Cypress BLE-Beacon PC ISO:** This file is a complete package, stored in a CD-ROM image format that can be used to create a CD, or extract using ISO extraction programs, such as WinZip or WinRAR. This file includes all the required software and user documents.
2. Run Install Cypress BLE-Beacon to start the installation, as shown below.
3. Select the folder to install the Cypress BLE-Beacon –related files. Choose the directory and click **Next**.
4. The Cypress BLE-Beacon PC ISO installer automatically installs the required software, if it is not present on your computer. The Cypress BLE-Beacon Setup installer directs you to download the required software from the Internet.
5. Choose the **Typical/Custom/Complete** installation type in the **Product Installation Overview** window. Click **Next** after you select the installation type.



6. Read the **Cypress End User License Agreement** and make a selection based on the terms of the license agreement. Click **Next** to continue the installation.



7. When the installation begins, a list of packages appears on the installation page. A green check mark appears next to each package after successful installation.
8. Click **Finish** to complete the Cypress BLE-Beacon installation.
9. Enter your contact information or select the **Continue Without Contact Information** check box. Click **Finish** to complete the Cypress BLE-Beacon installation.
10. After the installation is complete, the kit contents are available at the following location:
    <Install directory>\Cypress BLE-Beacon
    Default location (Example: Windows 7)
    - 64-bit: *C:\Program Files (x86)\Cypress\Cypress BLE-Beacon*
    - 32-bit: *C:\Program Files\Cypress\Cypress BLE-Beacon*

2.2 Uninstalling the Application

You can uninstall the Cypress BLE-Beacon software using one of the following methods:

Example: Windows 7

- Go to **Start** > **All Programs** > **Cypress** > **Cypress Update Manager**; click the **Uninstall** button.
- Go to **Start** > **Control Panel** > **Programs and Features**. Select the Solar-Powered BLE Sensor Beacon RDK program from the list and click the **Uninstall/Change** button.

3. Getting Started

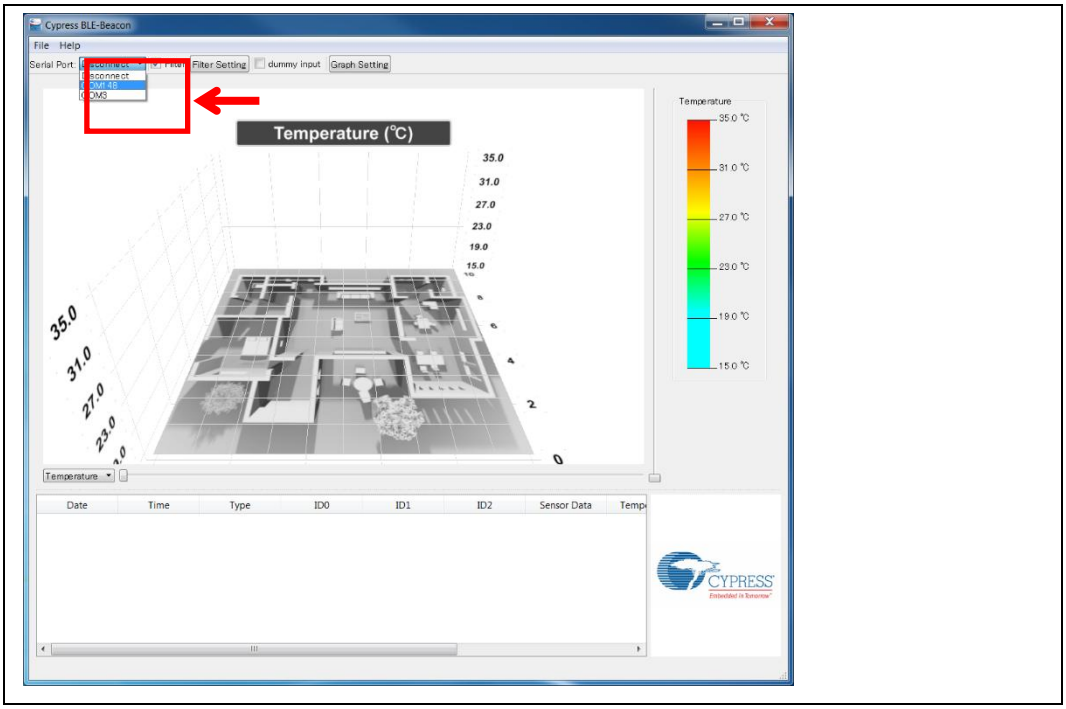
This chapter will help you get started with the Cypress BLE-Beacon PC. It briefly describes how to receive packets from BLE devices. For the purposes of description, a CYALKIT-E02 Solar Powered BLE Sensor Beacon RDK running a PSoC Creator 3.3 example project is used as the broadcaster device.

1. Set up the CYALKIT-E02 Solar Powered BLE Sensor Beacon RDK, Solar BLE Sensor using the steps provided in the RDK, which is available at www.cypress.com/CYALKIT-E02.
2. Plug the BLE-USB Bridge into your computer's USB port.

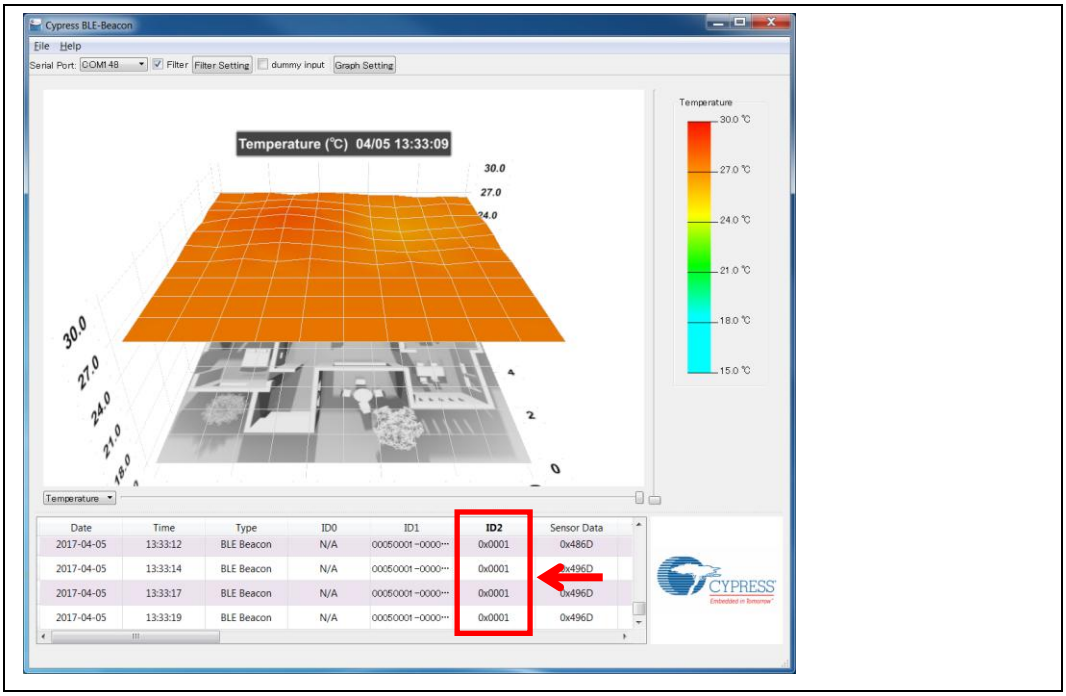
3. Run *CypressBLE-Beacon.exe*, which is in the Windows application used to view the data received from the Solar BLE Sensor. It is located in the Software folder that you installed earlier:

   <Install directory>\Cypress BLE-Beacon\<version>\EXE

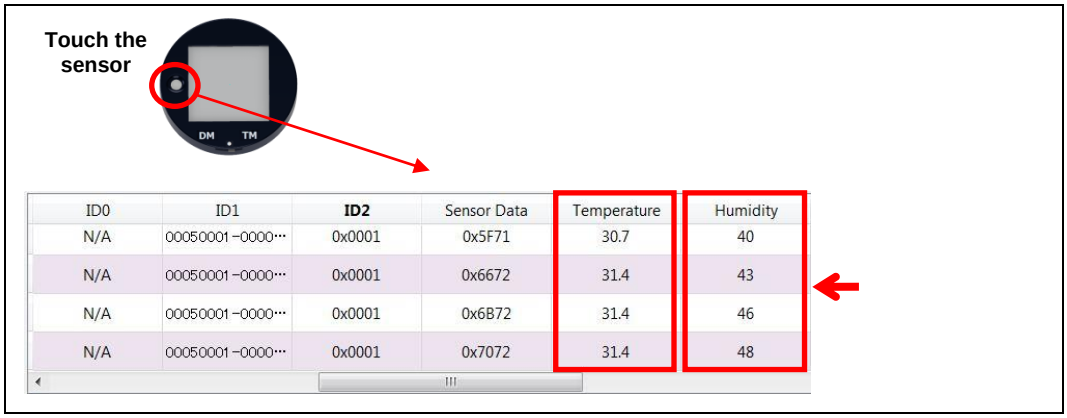
   A Cypress BLE-Beacon window will appear. Select COMxx in the **Serial Port** drop-down menu, where COMxx corresponds to the port that was confirmed in Kit Guide of CYALKIT-E02.



4. Find the **ID2** number (initial value is 0x0001) of the Solar BLE Sensor in the Cypress BLE-Beacon software.



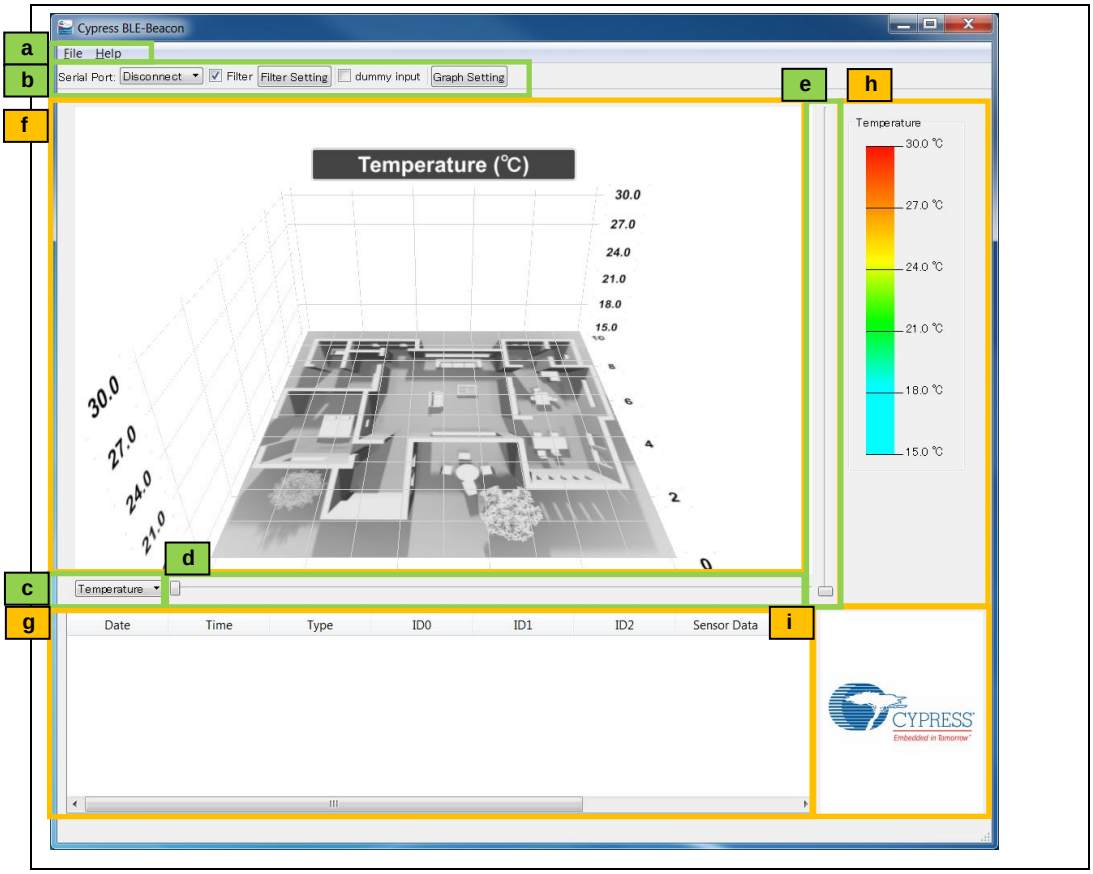
5. Confirm that the WSN is operating by placing your finger on the sensor on the Solar BLE Sensor. Placing your finger raises the temperature and humidity from the indoor environment condition. You should see a corresponding change in temperature or humidity on your PC. When touching the board, be careful of static electricity.



4. Cypress BLE-Beacon for PC Overview

4.1 Description of Cypress BLE-Beacon Window

This section describes the features of the Cypress BLE-Beacon window.



The window includes the following elements:

a. Menu bar

b. Setting bar

c. 3D view select (temperature or humidity)

d. History bar

e. Picture bar

f. 3D view window

g. Data window

h. Color information window

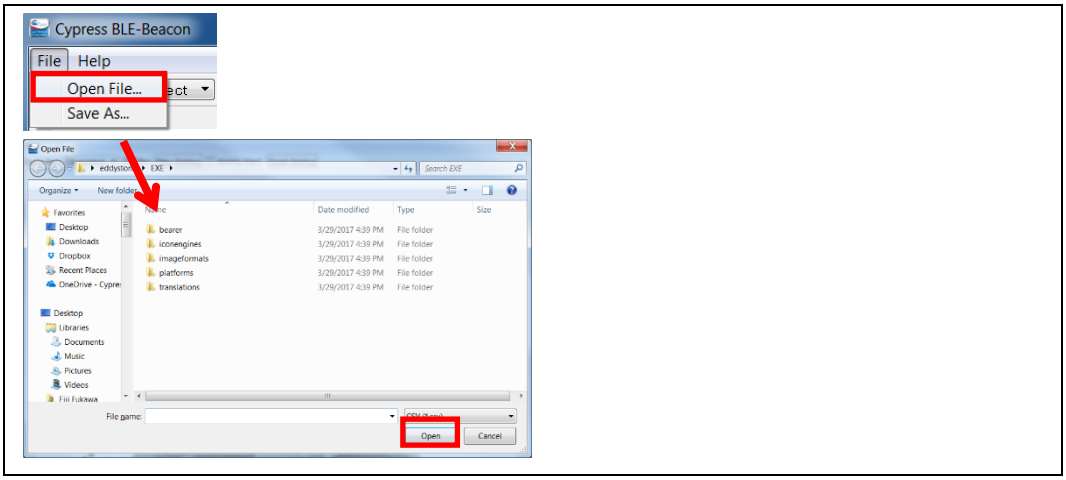
i. Cypress logo window

4.1.1 Menu Bar

There are two menus: **File** and **Help**.

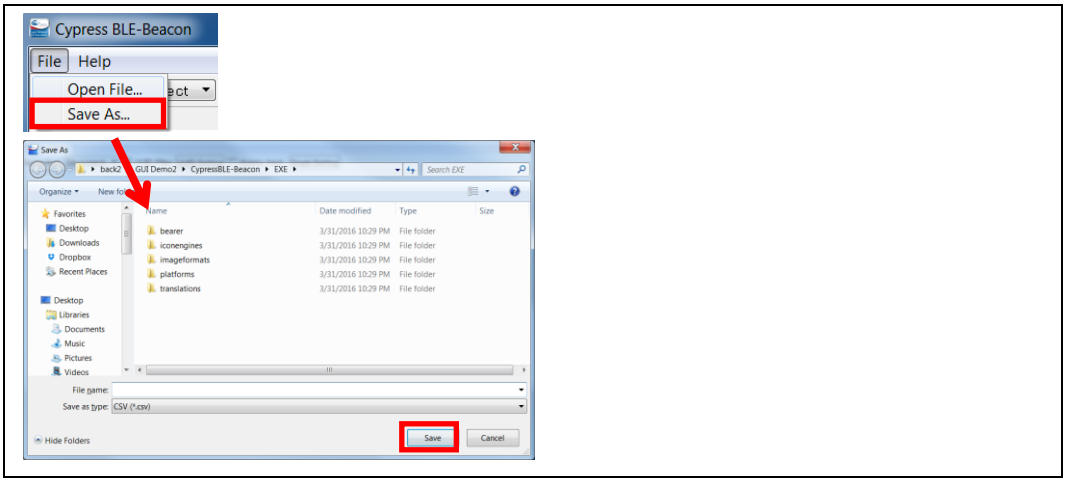
- **File** > **Open File…:** Open the log file that saved by the CSV file. Refer to

- Description of Log File for the file format.

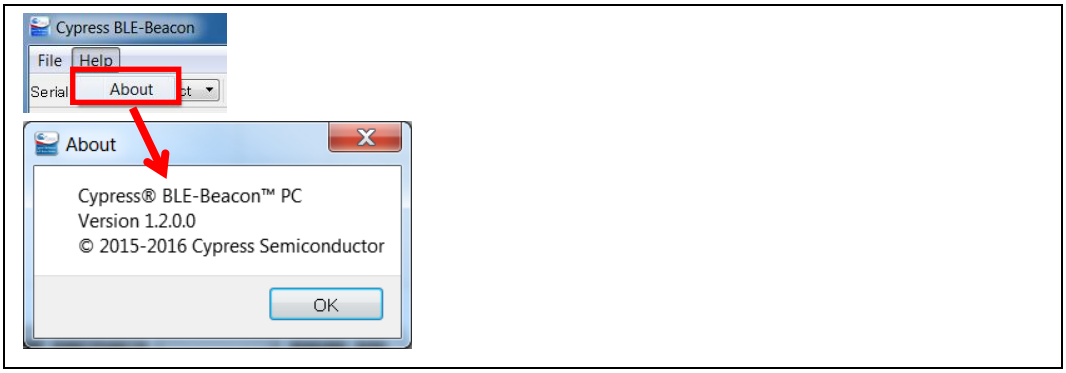


- **File** > **Save As…:** The log file of the received sensor data is saved as a folder using the CSV file. Refer to

- Description of Log File for the file format.

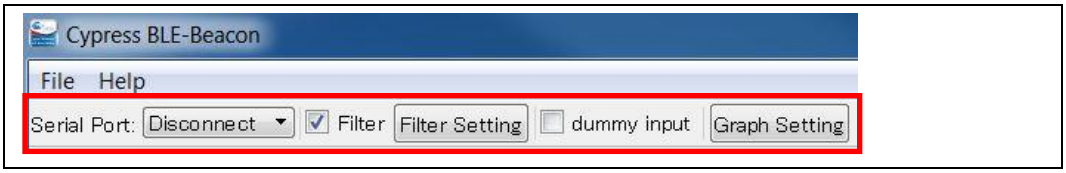


- **Help** > **About:** Cypress BLE-Beacon version and company information

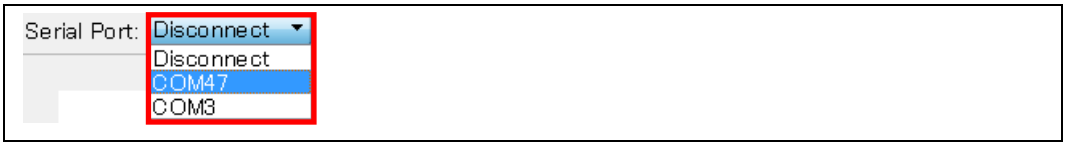


4.1.2 Setting Bar

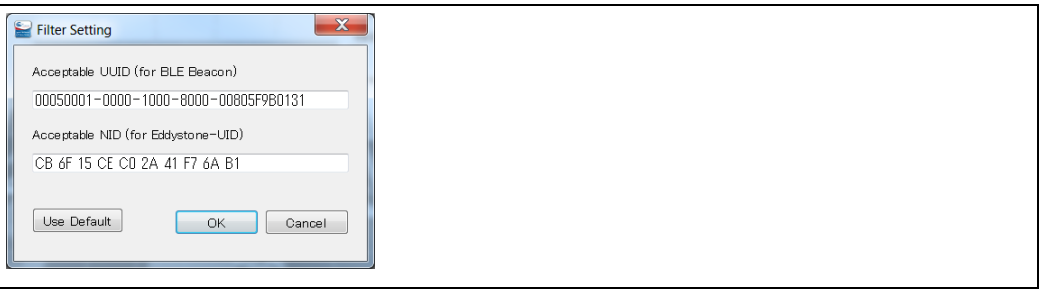
The setting bar includes five settings: **Serial Port, UUID Filter, UUID Setting, dummy input**, and **Graph Setting**.



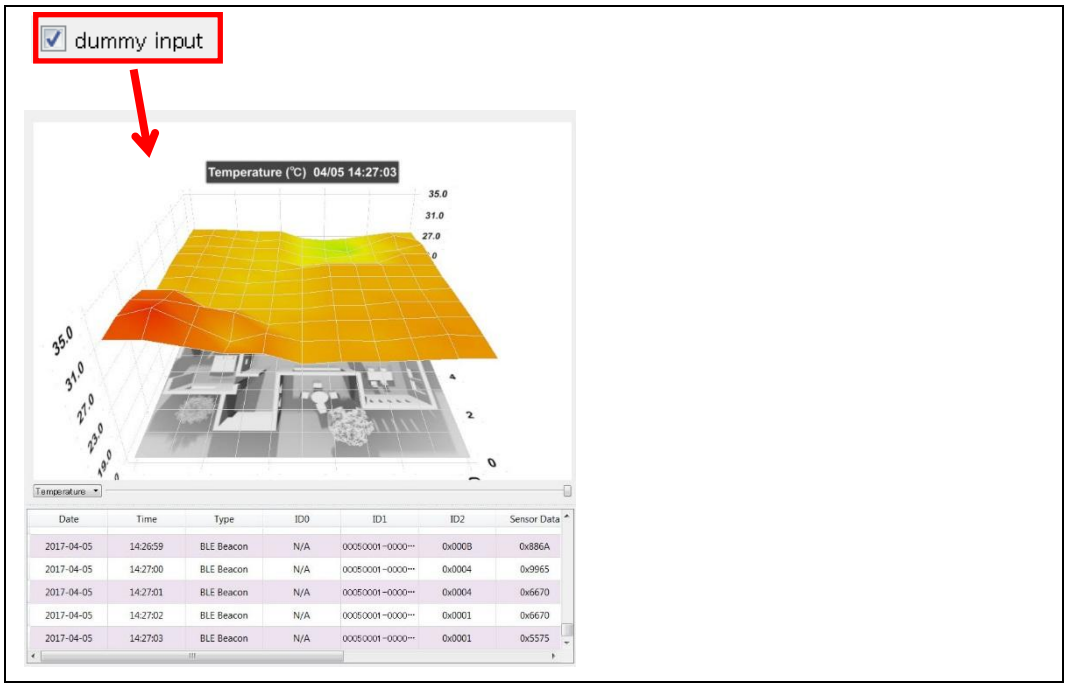
- **Serial Port:** You can select the serial port of the Debug Board. Refer to Kit Guide of CYALKIT-E02 for information on recognizing your COM port.



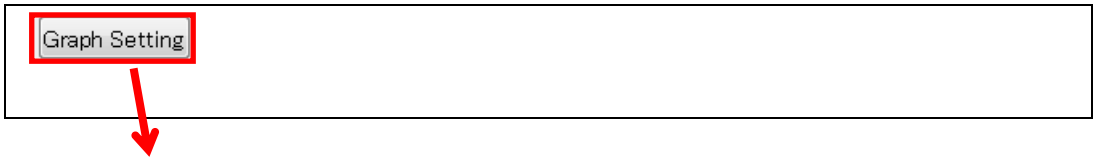
- **Filter:** When selected, the Cypress BLE-Beacon receives the ID, which is filtered on **Filter Setting**.
- **Filter Setting:** Setting for filtering UUID for BLE Beacon and NID for Eddystone

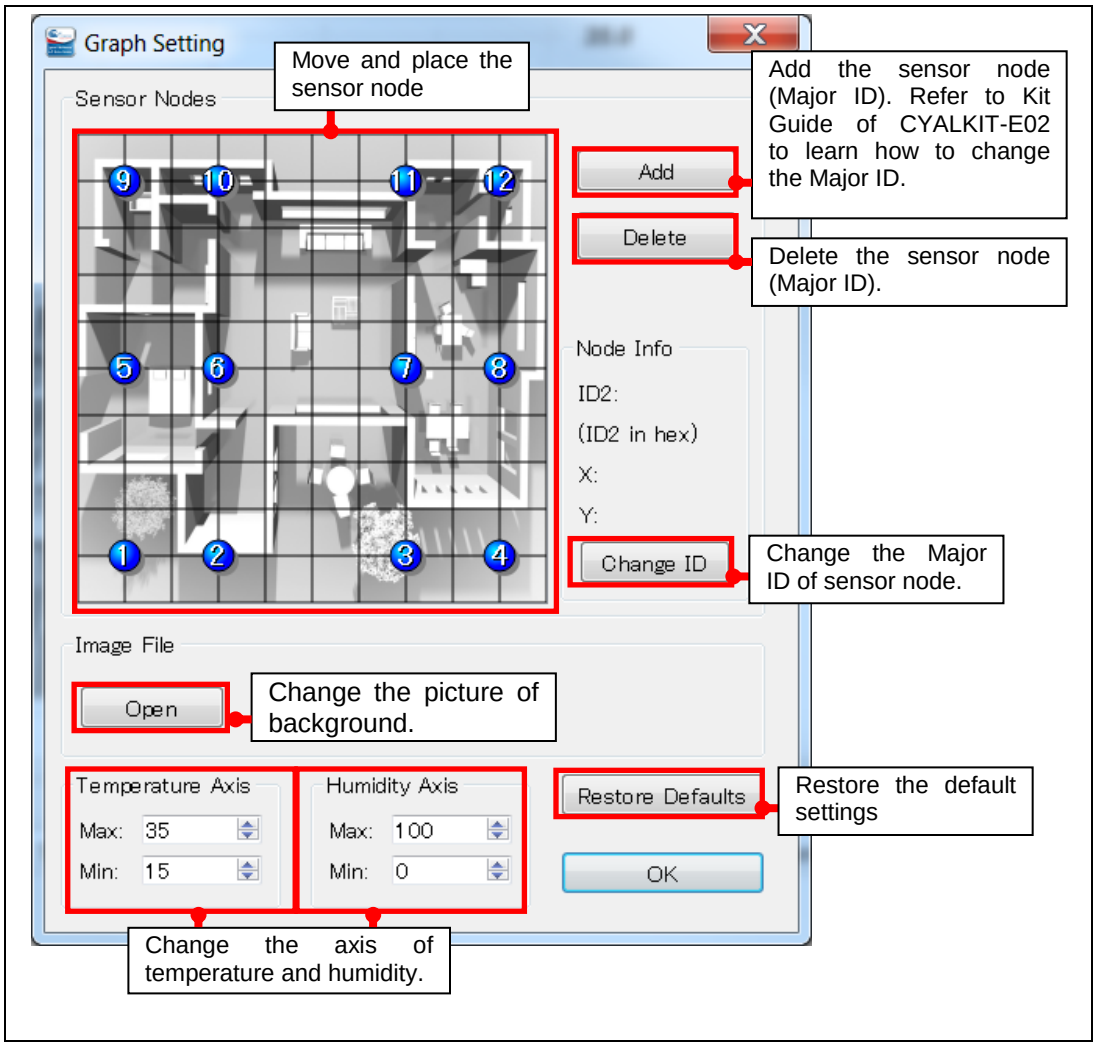


- **Dummy input**: When selected, the Cypress BLE-Beacon shows the demonstration graph using dummy data.



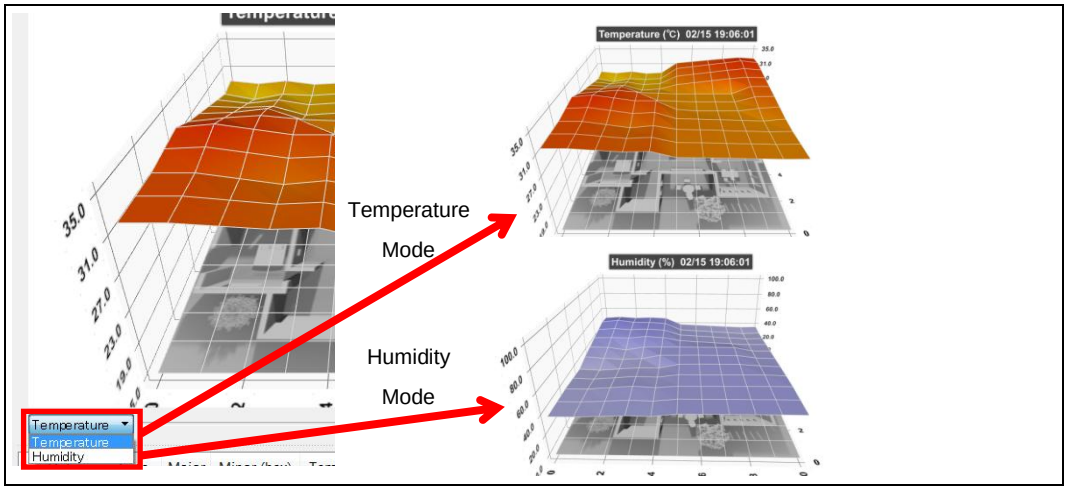
- **Graph Setting:** The following setting window appears. It includes these sections:
  - **Sensor Nodes** (Add/ Delete/ Change ID/ Move)
  - **Image File**
  - **Axis** (**Temperature**/**Humidity**)
  - **Restore Defaults**




Graph Setting
Sensor Nodes
Move and place the sensor node
Add
Add the sensor node (Major ID). Refer to Kit Guide of CYALKIT-E02 to learn how to change the Major ID.
Delete
Delete the sensor node (Major ID).
Node Info
ID2:
(ID2 in hex)
X:
Y:
Change ID
Change the Major ID of sensor node.
Image File
Open
Change the picture of background.
Temperature Axis
Max: 35
Min: 15
Humidity Axis
Max: 100
Min: 0
Restore Defaults
Restore the default settings
OK
Change the axis of temperature and humidity.

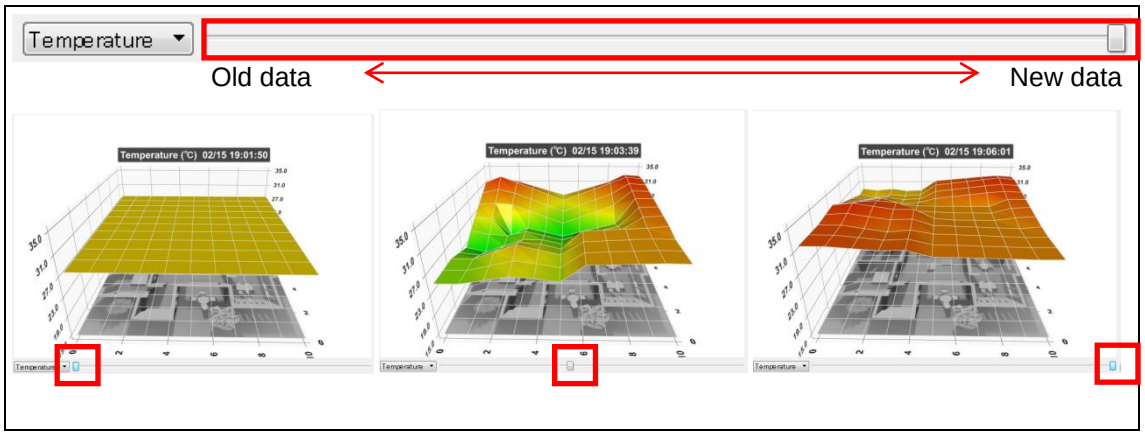
4.1.3 3D View Select

Select the view mode—either temperature or humidity.



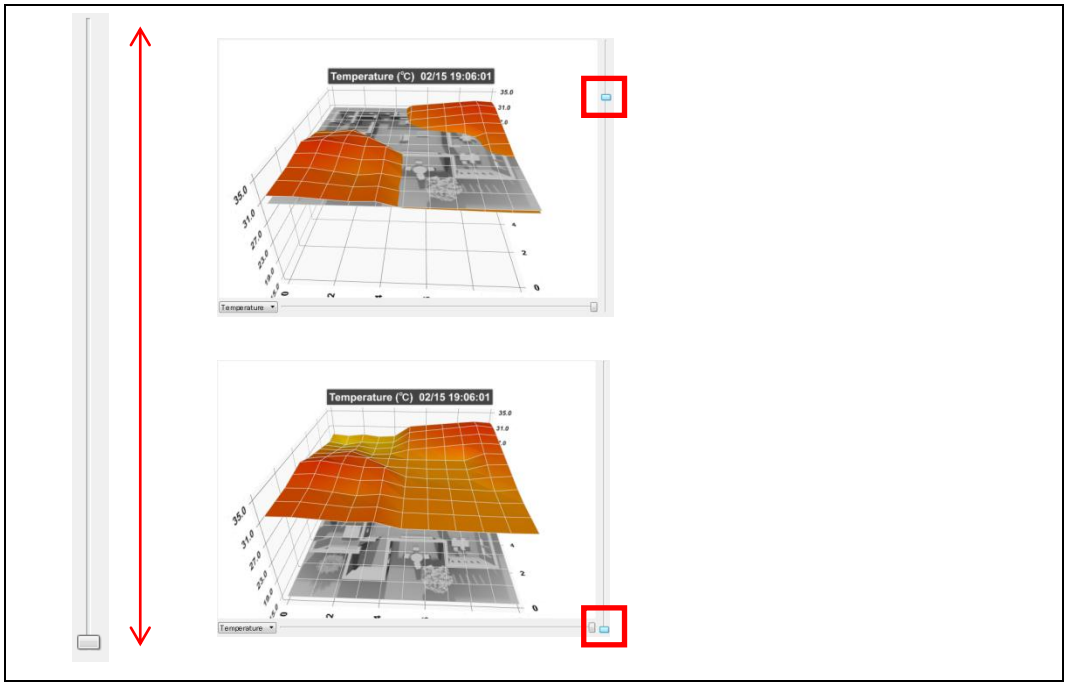
4.1.4 History Bar

Check the history of the received sensor data.



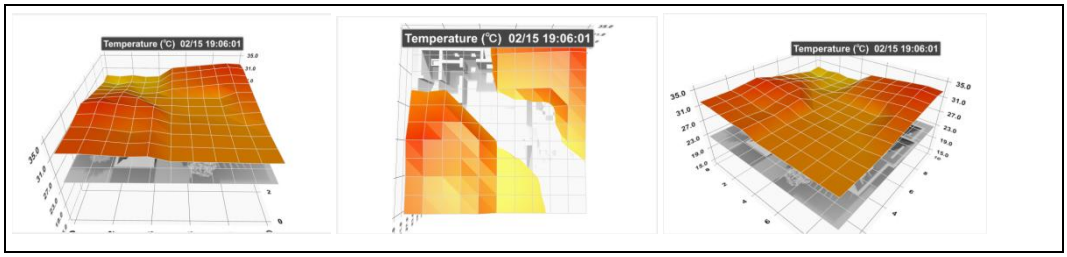
4.1.5 Picture Bar

Move the picture of a background to recognize which temperature or humidity is high.



4.1.6 3D View Window

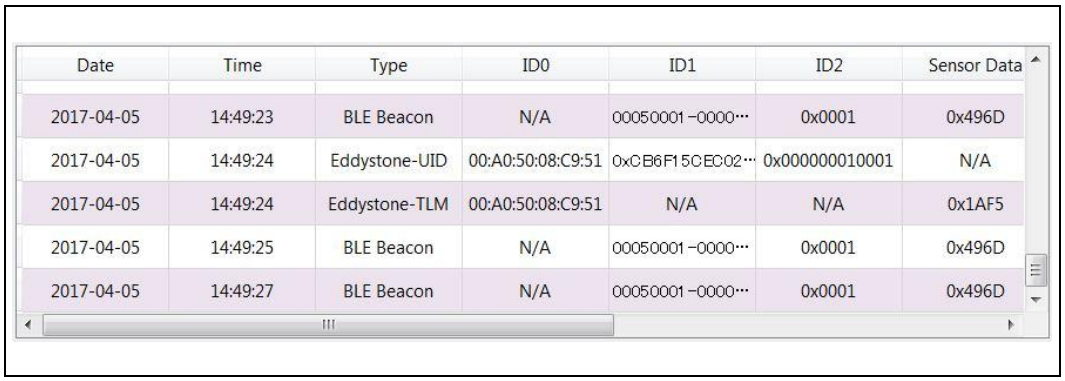
Change the view of the sensor data by left-clicking the mouse.



4.1.7 Data Window

The data window shows the history of received sensor data. Refer to

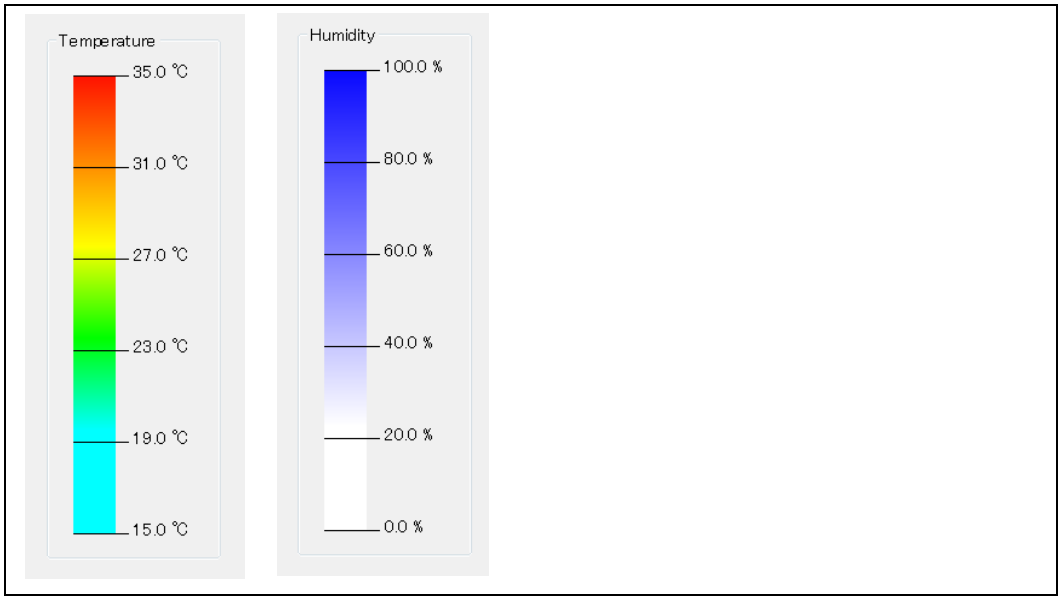
Description of Log File for the format.



Date	Time	Type	ID0	ID1	ID2	Sensor Data
2017-04-05	14:49:23	BLE Beacon	N/A	00050001-0000…	0x0001	0x496D
2017-04-05	14:49:24	Eddystone-UID	00:A0:50:08:C9:51	0xCB6F15CEC02…	0x000000010001	N/A
2017-04-05	14:49:24	Eddystone-TLM	00:A0:50:08:C9:51	N/A	N/A	0x1AF5
2017-04-05	14:49:25	BLE Beacon	N/A	00050001-0000…	0x0001	0x496D
2017-04-05	14:49:27	BLE Beacon	N/A	00050001-0000…	0x0001	0x496D

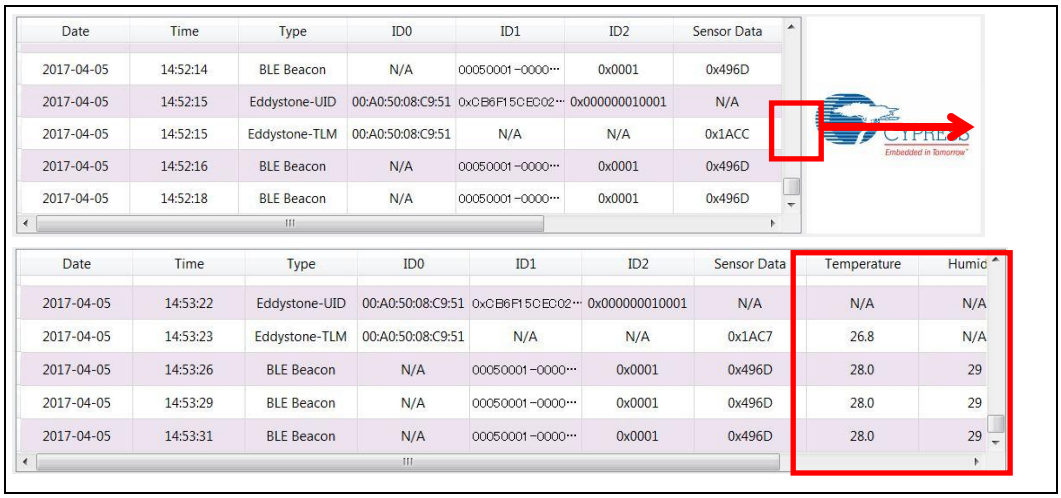
4.1.8 Color Information Window

This windows show the color of sensor data.



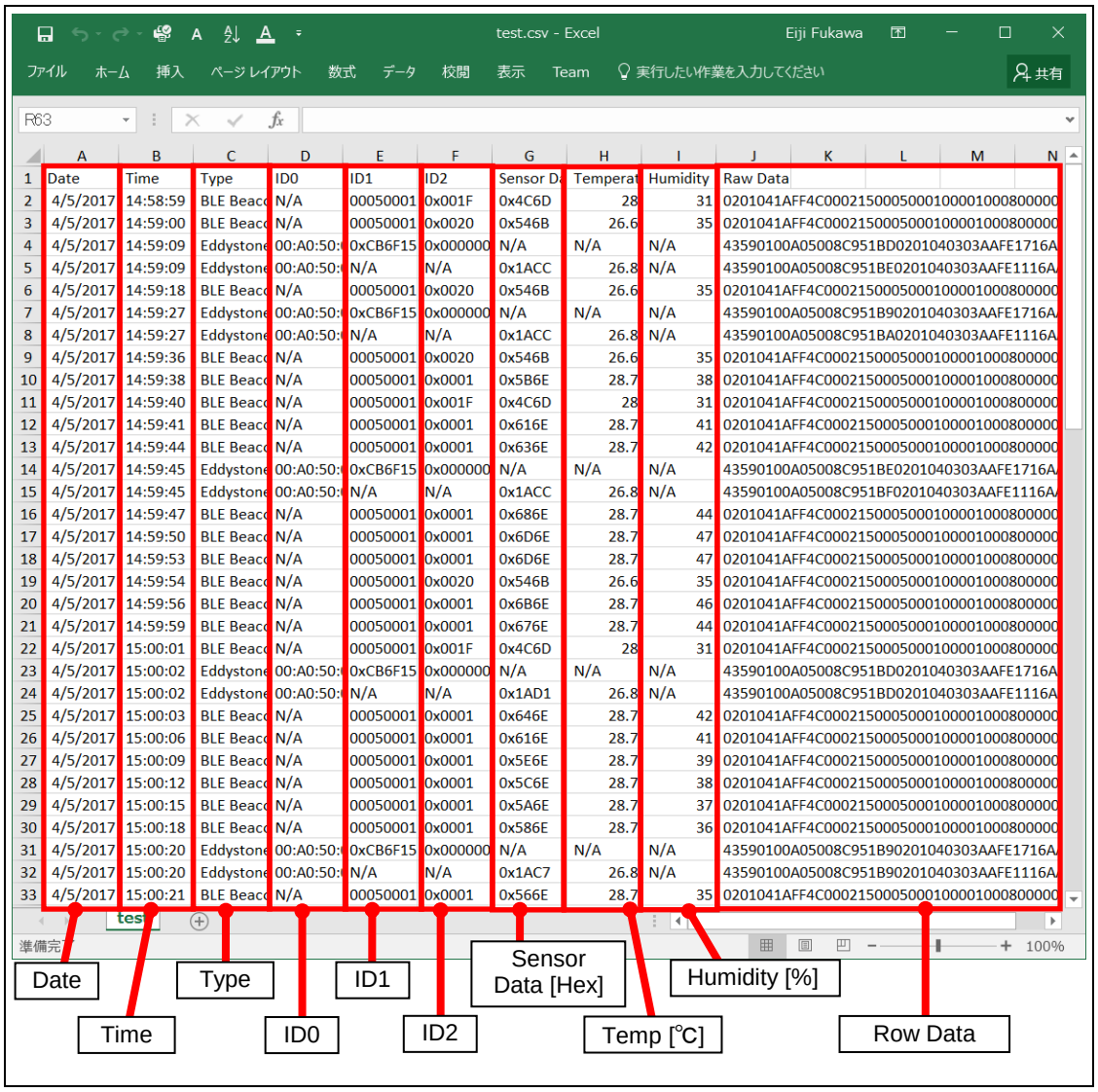
4.1.9 Cypress Logo Window

You can hide the logo by clicking and dragging the mouse.



4.2 Description of Log File

This section contains details on the CSV log file. Refer to Menu Bar to learn how to save the log file.



Revision History

Document Revision History

Document Title: Cypress BLE-Beacon for PC User Guide Document Number: 002-12445			
Revision	**Issue Date**	**Origin of Change**	**Description of Change**
**	05/01/2016	EIFU	New user guide
*A	04/07/2017	EIFU	Updated Cypress Logos Added Eddystone functions