Certified Wireless USB Module

User Guide

- Preliminary -

Wisair Proprietary Information

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About Wisair

Wisair is a leading provider of WiMedia ultra-wideband (UWB) chipset solutions for consumer electronics, PC peripherals, and mobile devices. Leveraging the management teams' decades of wireless communications product development expertise, Wisair is the first company to deliver fully-functional WiMedia-based UWB chipsets and small form-factor reference designs.
Today, the fabless semiconductor company continues to focus on delivering low-cost, low-power, and high bit-rate wireless connectivity solutions.

For more information, visit www.wisair.com.

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1 Introduction

The Wisair Certified Wireless USB reference design kit enables you to set up an ad hoc, Wireless network instantly, extending USB range without the need for a network infrastructure, while providing the right balance between functionality and aesthetics. It allows remote content browsing, sharing, control, multi channel streaming, hotsync, printing, fast copy and very fast information exchange between PC and USB 2.0/1.1 PC peripherals. The types of content supported are: data, applications, pictures, and compressed video and audio files.
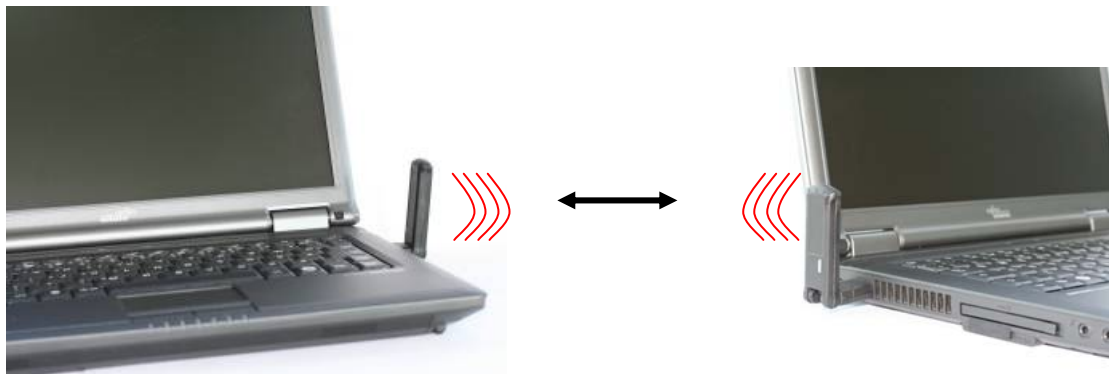
Figure 1: PC to PC communication via WiMedia based application
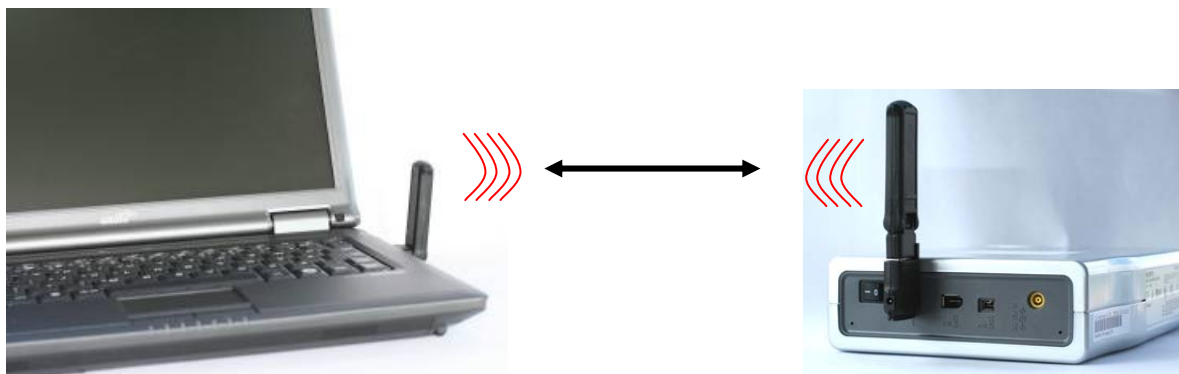
Figure 2: PC to PC Peripheral device (example: DVD-RW device) via WUSB

Figure 3: WSR601 WUSB Module for host/device– Component Side

Figure 4: WSR601 WUSB Module for host/device – Print Side

1.1 Key Features

- Single port USB 2.0/1.1
- CWUSB Host or Device Wire Adapter functionality with advanced throughput
- Support for Cable Association— Cable association functionality is provided by the reference design

1.2 Package Details

The package includes:

Category	Main Item	Accessories
Hardware	Wireless USB module	
Software	CDROM - software installation package	
Documentation	User Guide (this document)	

2 Software Installation

2.1 Automatic PC Driver Installation

Ensure that your PC system hardware and software are both operational.

Note: If your PC contains a previous HWA/DWA driver installation, please perform a proper uninstall procedure using the **Control Panel>Add or Remove Programs** utility

1. Ensure that the Host module is detached from the PC or the device module is detached/ switched off.
2. Run the **WUSB WinDrivers.msi** Wisair driver installation program.
Follow the onscreen instructions, and proceed by clicking **Next>** when prompted.
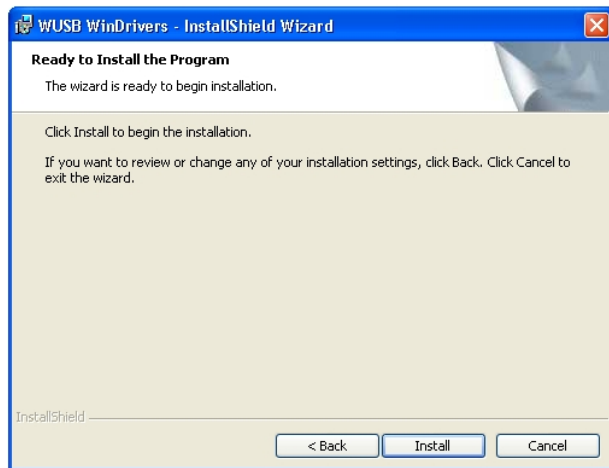
3. Click **Install**.

4. Click **Next >**, a secondary screen displays:

5. Click **Continue Anyway**. Repeat as many times as the request displays (four times in total).
6. The following notice is displayed, click **OK** to proceed.

7. The final screen of the installer is displayed. Click **Finish**.

2.1.1 Connect the Host module (HWA)

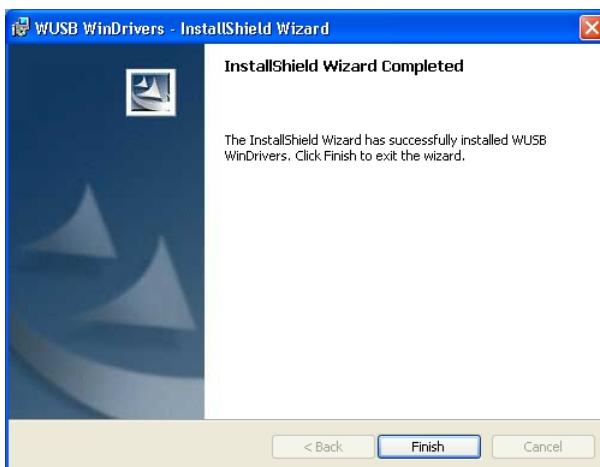8. Connect the Host module to the high speed PC USB port. The system will automatically detect and begin installation of the drivers for the connected HWA using the **Found New Hardware Wizard**.

9. Select **No, not this time**, and click **Next>**
10. Select **Install the software automatically (recommended)** and click **Next>** to install the first driver.
11. The **Hardware Installation** screen is displayed.

12. Click **Continue Anyway**. The **Completing the Found New Hardware Wizard** screen is displayed.
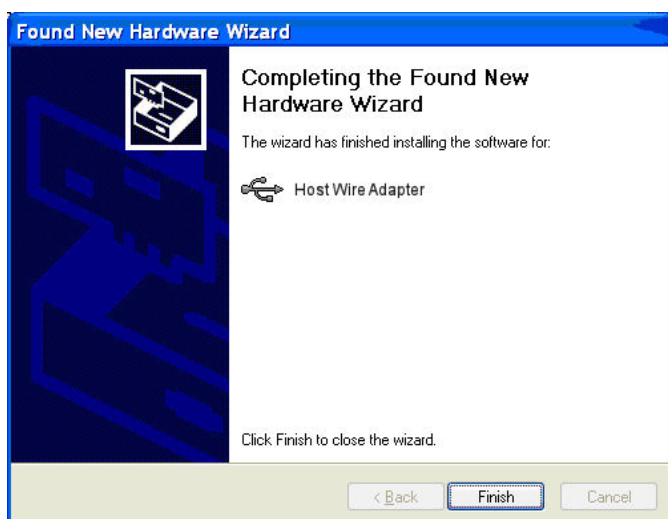
13. Click **Finish** to complete the driver installation.
14. Windows will repeat this sequence three more times for the rest of the drivers.

15. Disconnect the Host module from the USB port.
16. It is recommended that you restart the PC in order to ensure that the USB driver installation has been successful.
17. Connect the Host module to the PC after restart.
18. In order to verify a successful installation, run the Windows Device Manager utility (**Start>Run>devmgmt.msc**) and verify that it recognizes the Host module driver. See Sec. 3.2.1 Verifying Driver Installation for more details.

2.2 WisMan Management and Testing Utility

Invoke the WisMan.msi installer and follow the onscreen instructions to complete the installation.

3   Maintenance

3.1 Firmware Update

1. Ensure that no more than one dongle is attached to the PC.
2. Invoke the **FirmwareUpdate.exe file** provided to you by Customer Support.
3. Detach and reinsert the dongle to restart the module.

3.2 Troubleshooting

3.2.1 Verifying Driver Installation

To check for proper installation of drivers:

In order to verify a successful installation, run the Windows Device Manager utility (**Start>Run>devmgmt.msc**) and verify that it recognize the device driver as shown in the following picture (choose View-> Device by Connection).
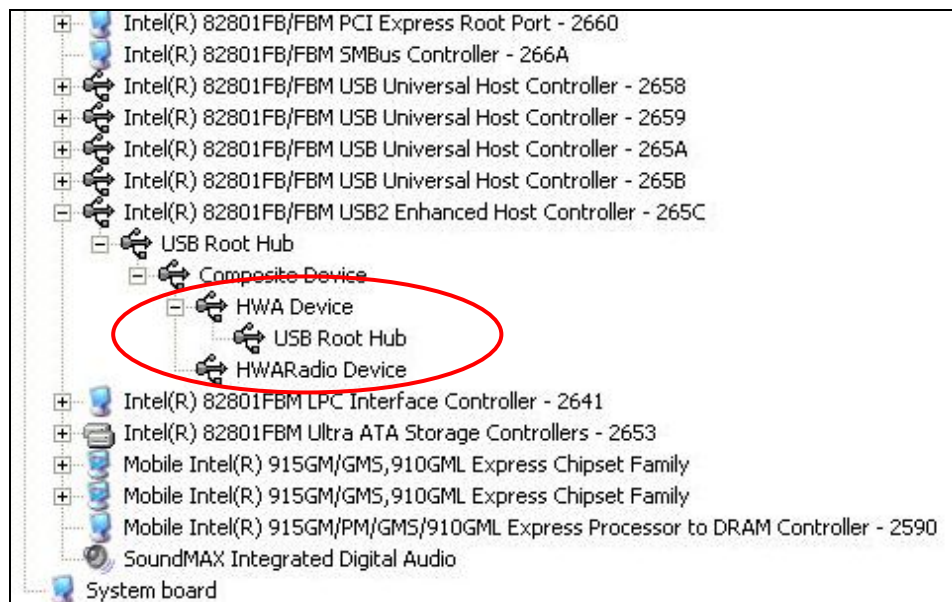
Figure 5: Windows Device Manager Window – HWA driver indication
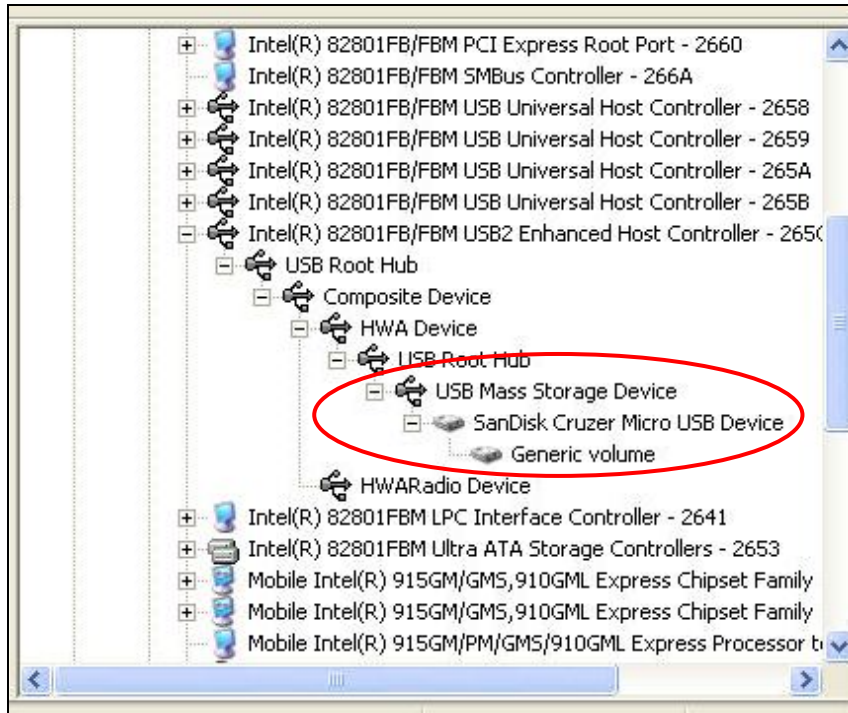
Figure 6: Windows Device Manager Window – Mass Storage Device driver indication

3.2.2 Reading Software and Firmware Version

In order to ensure that you are working with the latest version of software and hardware, you can check the versions of each component as follows:

Wisair application	TBD
PC host driver version	In the **Windows/System32/Drivers** directory, view the file properties of the **HWA.SYS** and **HWARadio.SYS** driver files.

4 Technical Specifications

Model number	601SD-D
UWB Chipset	Wisair WSR601 single CMOS chip
Operational Range	Up to 20 meters (30 to 60 feet with Line of Sight)
PHY data rate	53.3Mbps to 480Mbps (Automatic or manually selected)
Frequency range	3.1GHz to 4.8GHz; supporting 3 sub-bands, 528MHz each
RF modulation type	Multiband OFDM
Max. output power	-41.3dBm/MHz maximum
Max Power Consumption	1.5Watt
USB end points types	Bulk in/out, Interrupt, Control
USB association type	Cable association, Proprietary (preset at production)
PCB size	approx 18mm x 50mm
Antenna	1 micro SMT antenna connector, 1 onboard antenna soldering contact pad
Operating Temperature range	0°C to +50°C
Operational Humidity	10-95%
PHY compliance	Design complies with WiMedia PHY spec. Rev. 1.0, Certified WUSB spec v. 1.0
FCC compliance	Design complies with FCC CFR 47 Part 15 subpart F; UWB intentional radiation and subpart B.
OS compliance	Microsoft® Vista, Windows XP SP2
Coexistence	Co-exists with standard WiMedia devices Coexistence with co-located additional USB Hosts or UWB systems (FFI, TFI schemes)

5 FCC Statements

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.

Changes or modifications to this device not expressly approved by Wisair could void the user's authority to operate the equipment under the FCC grant of equipment authorization issued to Wisair.

Indoor granted product notice:

This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject to operator to serious legal penalties.

EMI Information

Electromagnetic Interference (EMI) is any signal or emission, radiated in free space or conducted along power or signal leads, that endangers the function of radio navigation or other safety service (the telephone and cellphones are considered to be safety services) or seriously degrades, obstructs or repeatedly interrupts a licensed radio communications service. Radio communications services include but are not limited to: AM/FM commercial broadcast, television, cellular services, radar, air traffic control, pager and personal communications services (PCS). These licensed services, along with unintentional radiators such as digital devices, including computer systems, contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electromagnetic environment. While this device has Revision 0.25 - 21 - been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this device does cause interference with radio communications services, which can be determined by turning the device on and off, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna

- Relocate the device with respect to the victim receiver

- Move the device away from the victim receiver

- Plug the device host into a different power outlet than the victim receiver so that the device system and receiver are on separate branch circuits

If necessary, consult your system service representative or an experienced radio/television technician for additional help in resolving interference.

6 Testing Procedure

The following is a basic testing procedure to demonstrate OFDM signal transmission from the Host side module in TFI mode.

1. Connect the Host module to the PC USB port. Wait approximately 30 seconds for hardware initialization to complete.

2. Double click the WisMan shortcut icon on the PC desktop to initiate the WisMan application.
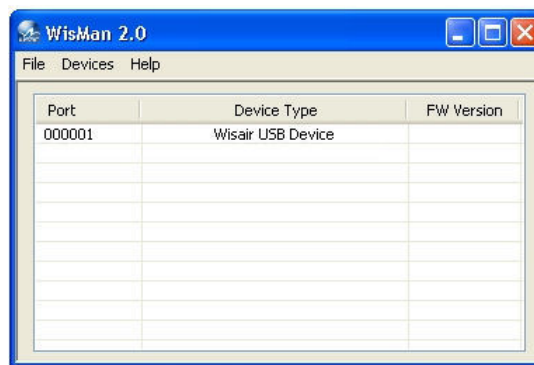

Figure 7: Initial screen

3. In the WisMan initial screen, select **Devices > Open >Intrusive** to open the Intrusive mode tabs of the configuration screens.
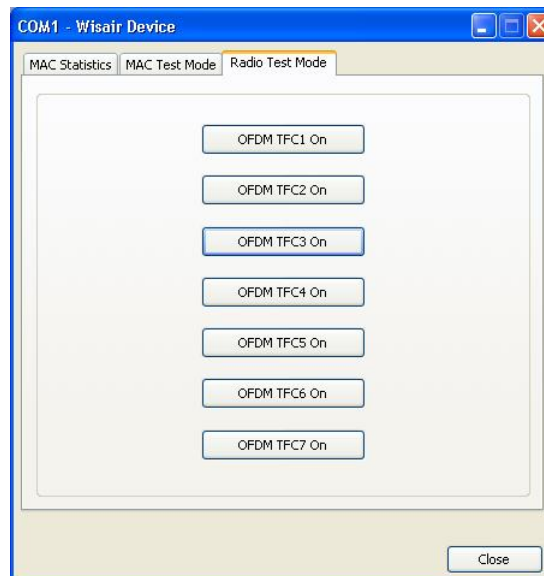

Figure 8: Radio Test Mode tab

4. Select the **RadioTest Mode** tab and press the **OFDM TFC1** button.
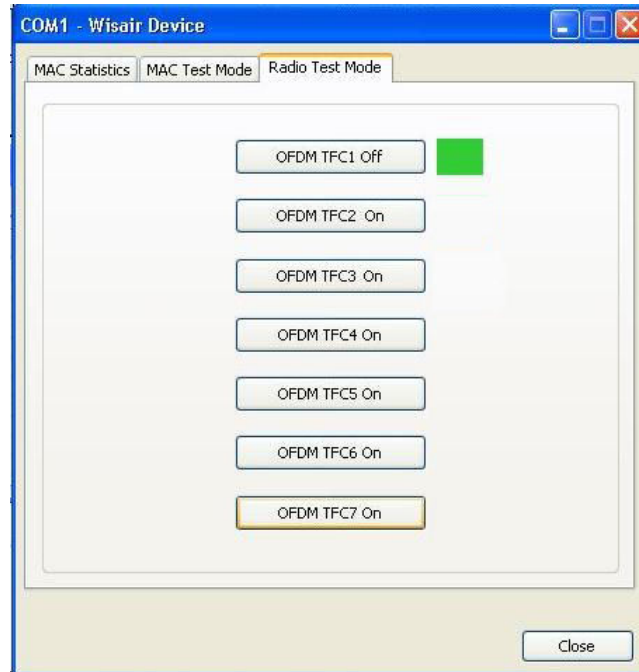5. Wait for the green signal to in.

Figure 9: WisMan Radio Test Mode tab

Note: If the USB dongle is not recognized by the PC or the WisMan utility you can do the following:
- Restart the dongle by detaching from the PC and reinserting the dongle
- Select **Devices > Scan** in the WisMan initial screen