



**AWMF-0197-0198-DK-UG**  
**Development Kit Control Software**  
**Installation and User's Guide**

|          |                                                              |           |
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## 2 VERIFY PACKING LIST

Your AWMF-0197/8 Development Kit comes with the following components:

1. Characterized AWMF-0197/0198 Evaluation Board with Mounted Heat Sink
2. Loose Parts for Evaluation, if ordered
3. SPI Interposer Board
4. I2C/SPI Interface Module
5. USB Cable for I2C/SPI Interface
6. High Speed IO Cable Assembly
7. Power Supply Cable Assembly
8. Banana Plugs Set
9. Quick Start Guide one-page with link for software and documents download, AWMF-01xx-DKnn-QSG.pdf



There will be 2 software installation steps. One is for the NI-8452 National Instruments USB-SPI controller, and the other is for the device control software.

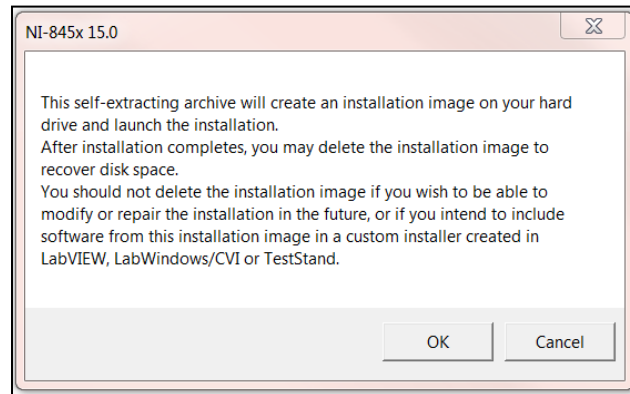


**Do not connect any cables to your test board until the proper steps have been followed. This guide will outline the steps necessary to safely power up and control your test board.**

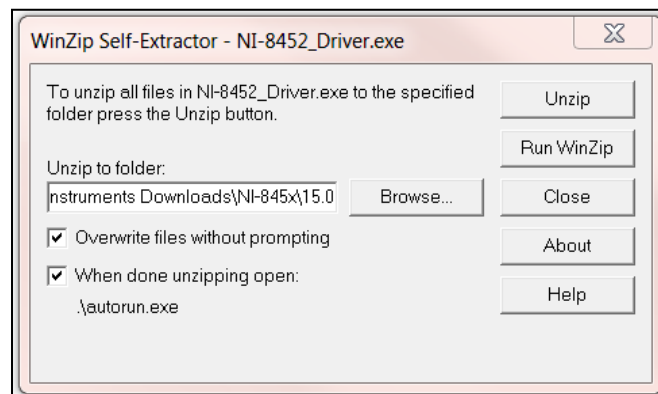
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### 3 INSTALL NI-USB DRIVER SOFTWARE

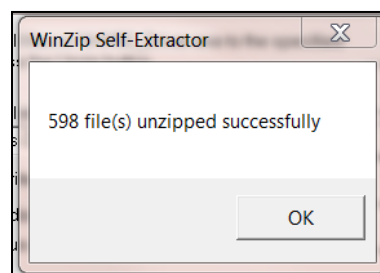
Your development kit comes with the National Instruments 8452 USB-SPI Interface driver, refer to link mentioned on the Development Kit Quick Start Guide: AWMF-0yyy-DKxxx-QSG.pdf.



Click "OK" to allow the driver to continue.

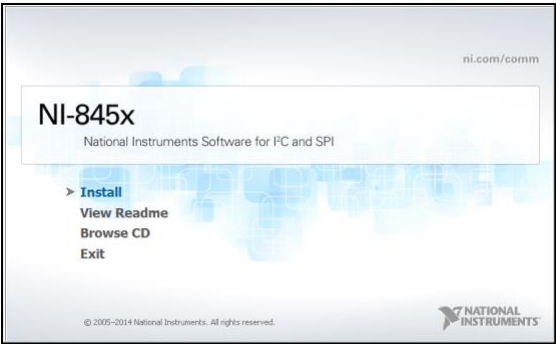


Click "Unzip" to continue.

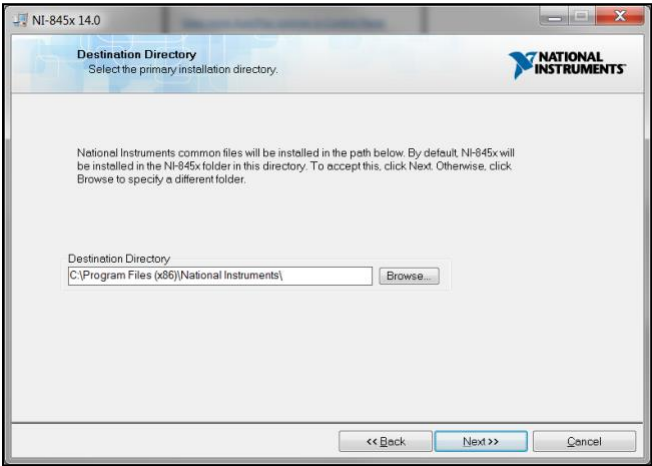


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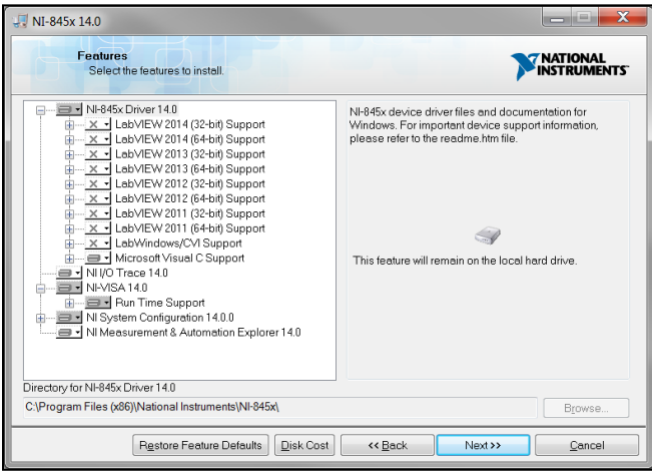
Click “OK” to continue.



Click “Install” to continue.

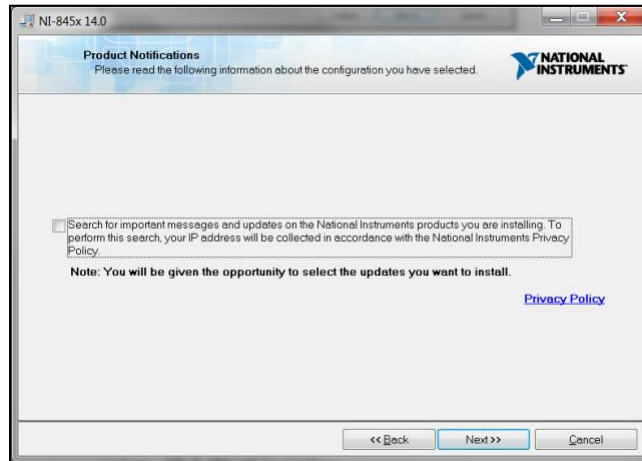


Use the default Destination Directory by clicking “Next”.



|                                                                                   |                                                                                  |            |                      |
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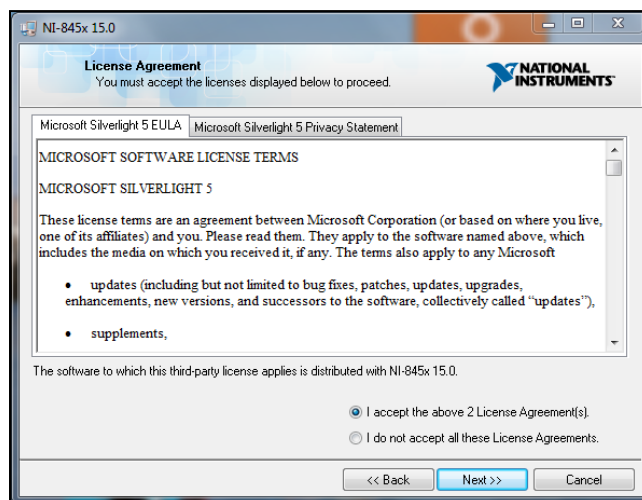
The driver software installer will automatically choose the support files needed for your system. Click “Next” to continue.



Un-check the “Search for important messages” box, then click “Next” to continue.

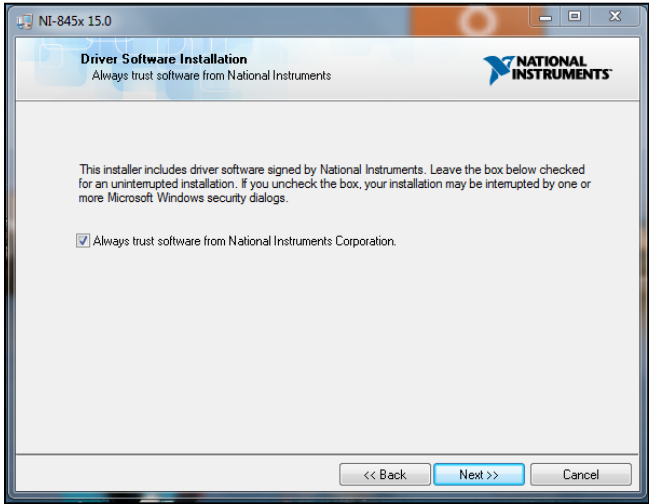


Click the accept license agreements button, then click “Next” to continue. This screen may not appear if your system already has National Instruments software installed.

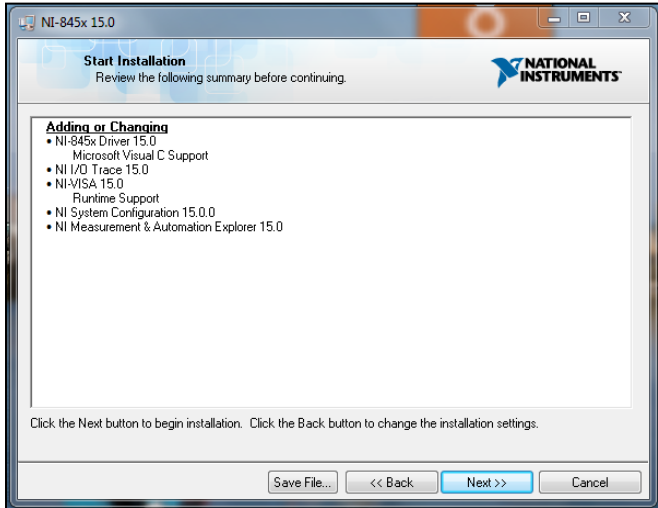


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Click the accept license button, then click “Next” to continue. This screen may not appear if Microsoft Silverlight is already installed and up to date on your system.

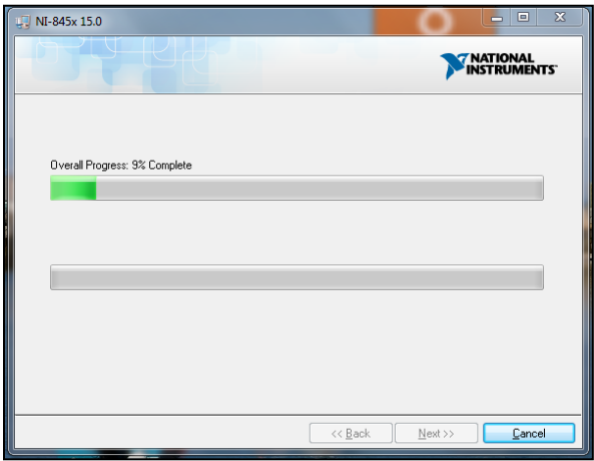


Check the trust NI software box, then click “Next” to continue. This screen may not appear if your system already has NI software installed.

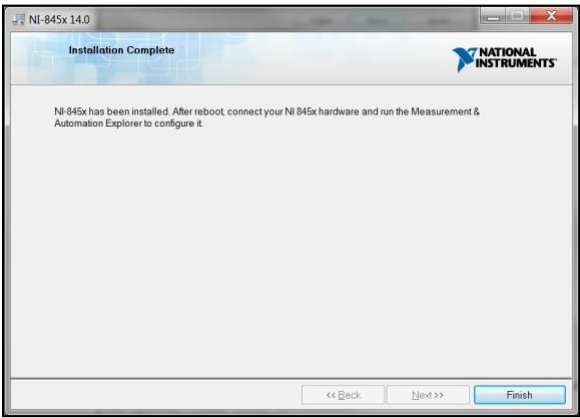


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Your system may show a different set of software tools than the image shown above, depending on past installations. Click “Next” to continue.



The NI-8452 driver and support files will then be installed. It may take several minutes depending on your system's existing configuration.



Click “Finish” to complete the install of the NI-8452 USB-SPI driver. You may be prompted to restart your computer, in which case you should click the “restart” button



## 4 PLUG IN NI-USB SPI DEVICE

Your system should now be configured with the driver for the National Instruments USB SPI device (NI-8452). Connect the USB cable to the NI-8452 and to your PC. Watch for any error or confirmation messages about the software driver installation.

The blue LED light labeled “USB” should now be lit.



|                                                                                   |                                                                           |            |                      |
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## 5 INSTALL AWMF-0197/8 CONTROL SOFTWARE

Refer to link mentioned on the Development Kit Quick Start Guide : AWMF-0yyy-DKxxx-QSG.pdf to access to the Anokiwave Development Kit control software installer.

### 5.1 Download archive onto your PC

Double click the file named "AWMF-0197\_0198\_GUI\_vnnn\_archive.exe".

The unzip path "c:\anokiwave\DK" is a suggestion, but it is not required. The software package will unzip to this folder and then the installer will exit.

**\*Note the location of unzipped control software so that you may easily locate it later.**

### 5.2 Verify NI Hardware Connection

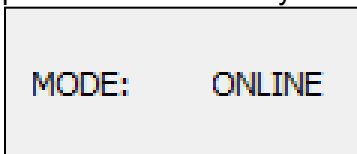
Browse to the folder where you unzipped the control software.

The suggested location is C:\Anokiwave\DK folder

Click on the file "AWMF\_0197\_0198\_GUI.exe" to launch the graphical user interface Control Panel.



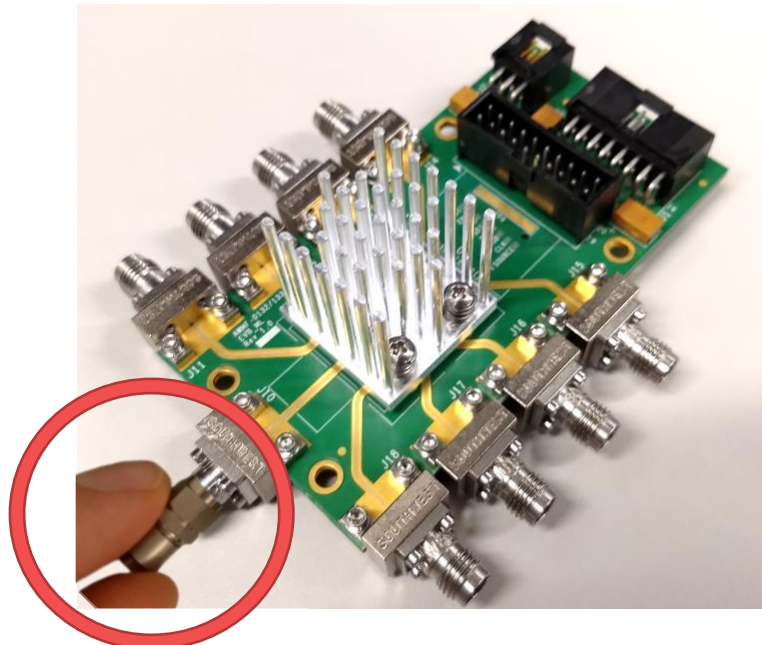
Check for a message in the Top-Right of the window that says "ONLINE". If the message shows "OFFLINE", please double check your USB cable connection and that you have followed the full installation instructions.



## 6 PREPARING THE TEST BOARD

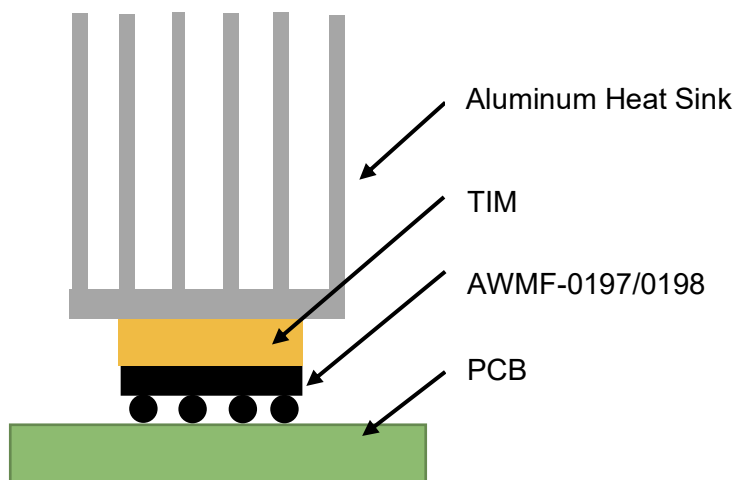
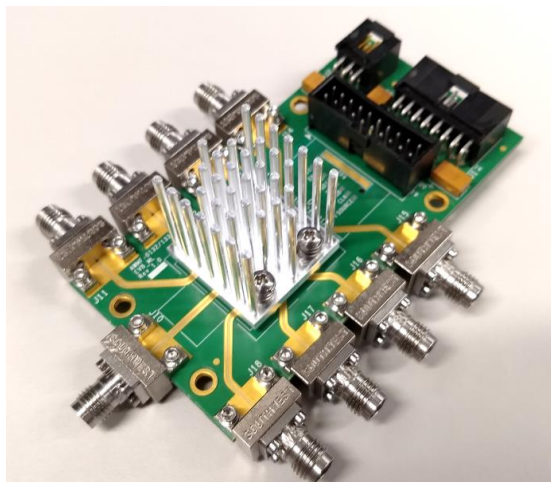


### 6.1 Attach 50 ohm Loads to all of the Unused RF Test Ports



**Note:** 2.4 mm connector loads and cables are recommended.

## 6.2 Ensure Heat Sink Is Attached

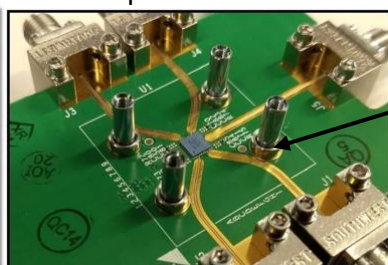
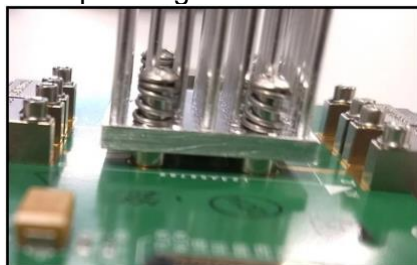


The heat sink provided with the Development Kit is required to achieve documented performance.

### Heat Sink Details:

|              |                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer | Cool Innovations                                                                                                                                                           |
| Part Number  | 3-101011US74480                                                                                                                                                            |
| Material     | Aluminum                                                                                                                                                                   |
| Note         | Anokiwave added the spacer PN: 952-1559 to ensure solid mechanical connection between the Cool Innovations Heat Sink and the PCB. This prevents damage to the AWMF-0197/8. |

### Example images of Anokiwave heat sink spacer:



Digikey: 952-1559-ND

### TIM (Thermal Interface Material) Details:

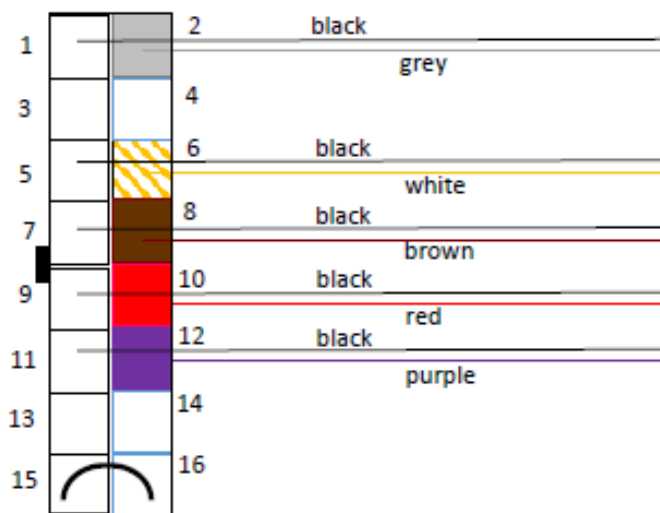
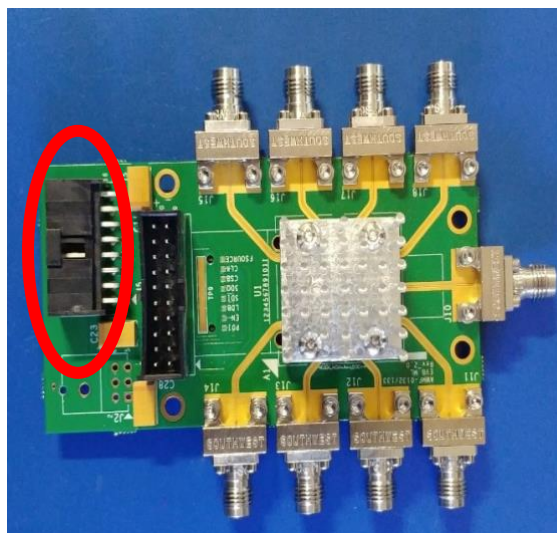
|              |           |
|--------------|-----------|
| Manufacturer | Dexerials |
| Part Number  | EX20100C7 |

For detail regarding heat sink requirements for your application, please contact the factory.

**Note:** Over tightening of the heat sink can cause damage to the IC. Contact factory for assistance.

## 6.3 DC Cable Harness Preparation

The evaluation board requires the 16-pin connector, connected to port circled below:



| Pin | Name         | Color  | Bias          |
|-----|--------------|--------|---------------|
| 1   | VDIG Lo      | Black  | GND           |
| 2   | VDIG Hi      | Grey   | 1.2V Force    |
| 3   | N/A          | N/A    | N/A           |
| 4   | N/A          | N/A    | N/A           |
| 5   | VXX Force Lo | Black  | GND           |
| 6   | VXX Force Hi | White  | 1.2V Force    |
| 7   | VXX Sense Lo | Black  | 1.2V Sense Lo |
| 8   | VXX Sense Hi | Brown  | 1.2V Sense    |
| 9   | VDD Force Lo | Black  | GND           |
| 10  | VDD Force Hi | Red    | 1.2V Force    |
| 11  | VDD Sense Lo | Black  | 1.2V Sense Lo |
| 12  | VDD Sense Hi | Purple | 1.2V Sense    |
| 13  | N/A          | N/A    | N/A           |
| 14  | N/A          | N/A    | N/A           |
| 15  | N/A          | N/A    | N/A           |
| 16  | N/A          | N/A    | N/A           |

**Note:** If you are using a power supply without sense (2-wire configuration):

- Combine pins 5 and 7
- Combine pins 6 and 8
- Combine pins 9 and 11
- Combine pins 10 and 12
- Verify the proper voltage at the board DC pin header in each mode.

|                                                                                   |                                                                           |            |                      |
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## 6.4 Safe DC Power On

To make sure your test board is safely connected with no shorting, follow these steps to limit the current to your board:

1. Connect VDIG to its own 1.2V power supply per Section 6.3. Set supply DC current limit to 200mA max. Leave power supply disabled.
2. Connect VXX to its own 1.2V power supply per Section 6.3. Set supply DC current limit to 200mA max. Leave power supply disabled.
3. Connect VDD to its own 1.2V power supply per Section 6.3. Set supply DC current limit to 200mA max. Leave power supply disabled.
4. Connect the DC power cable to the evaluation board. The connector is keyed and can only be inserted in one orientation.
5. Enable the DC power supplies. **Note:** For the AWMF-0198 VDD must be enabled either before or at the same time as VDIG to ensure proper device operation. VXX can then be enabled after VDD and VDIG
6. Ensure DC current consumption matches the following for each device:
  - a. AWMF-0197
    - i. ~ 3mA for VDIG supply
    - ii. <2mA for VXX supply
    - iii. <2mA for VDD supply
  - b. AWMF-0198
    - i. ~ 3mA for VDIG supply
    - ii. <2mA for VXX supply
    - iii. ~3mA for VDD supply
7. If the current in Step 6 is correct, disable the power supply, readjust your DC current limit to 1A for VDIG, VXX and VDD supplies
8. If the current is NOT correct in Step 6, disable the power supply and check connections. Contact the factory if error persists.

## 6.5 Connect SPI Communications Cable

1. Connect the Samtec high speed SPI communication cable to connector on the back side of the test board, as shown below:



2. Connect the other end of the SPI cable to the Anokiwave SPI Interposer Board J3 connector.
3. Connect the Anokiwave SPI Interposer Board J1 40-pin connector to the NI USB-8452 SPI device.





# 7 SOFTWARE CONTROL PANEL

This section outlines the features of the Main control panel

