

Akozon ADF4351

Akozon ADF4351 Development Board RF Source Frequency Synthesizer User Manual

Model: ADF4351

INTRODUCTION

This manual provides detailed instructions for the setup, operation, and maintenance of the Akozon ADF4351 Development Board. This board functions as a 35MHz to 4.4GHz RF source frequency synthesizer, designed for various applications requiring precise signal generation. Please read this manual thoroughly before using the device to ensure proper functionality and safety.

PRODUCT OVERVIEW

The ADF4351 Development Board is a versatile RF signal source. It features a well-designed circuit board layout for optimal performance and can be controlled via dedicated software on a computer. All control pins are accessible for flexible operation, supporting functions like frequency sweep and hopping.

- **Well-Designed Circuit Board Layout:** Ensures optimal performance and reliable operation for RF signal applications.
- **Convenient Control Options:** Can be controlled by official software on an upper computer, with all control pins leaded out for easy access.
- **Reliable Crystal Oscillator:** Includes a default ± 50 ppm 25M active crystal oscillator for accurate and stable frequency synthesis.
- **Flexible Control and Functionality:** Features a three-wire SPI interface for pin and state locking, enabling point frequency sweep and frequency hopping with stepping options down to 1K (or 0.1K for low frequencies).
- **Single-Chip Microcontroller Control:** Equipped with a control interface for single-chip microcontrollers and compatible with ADF5355.

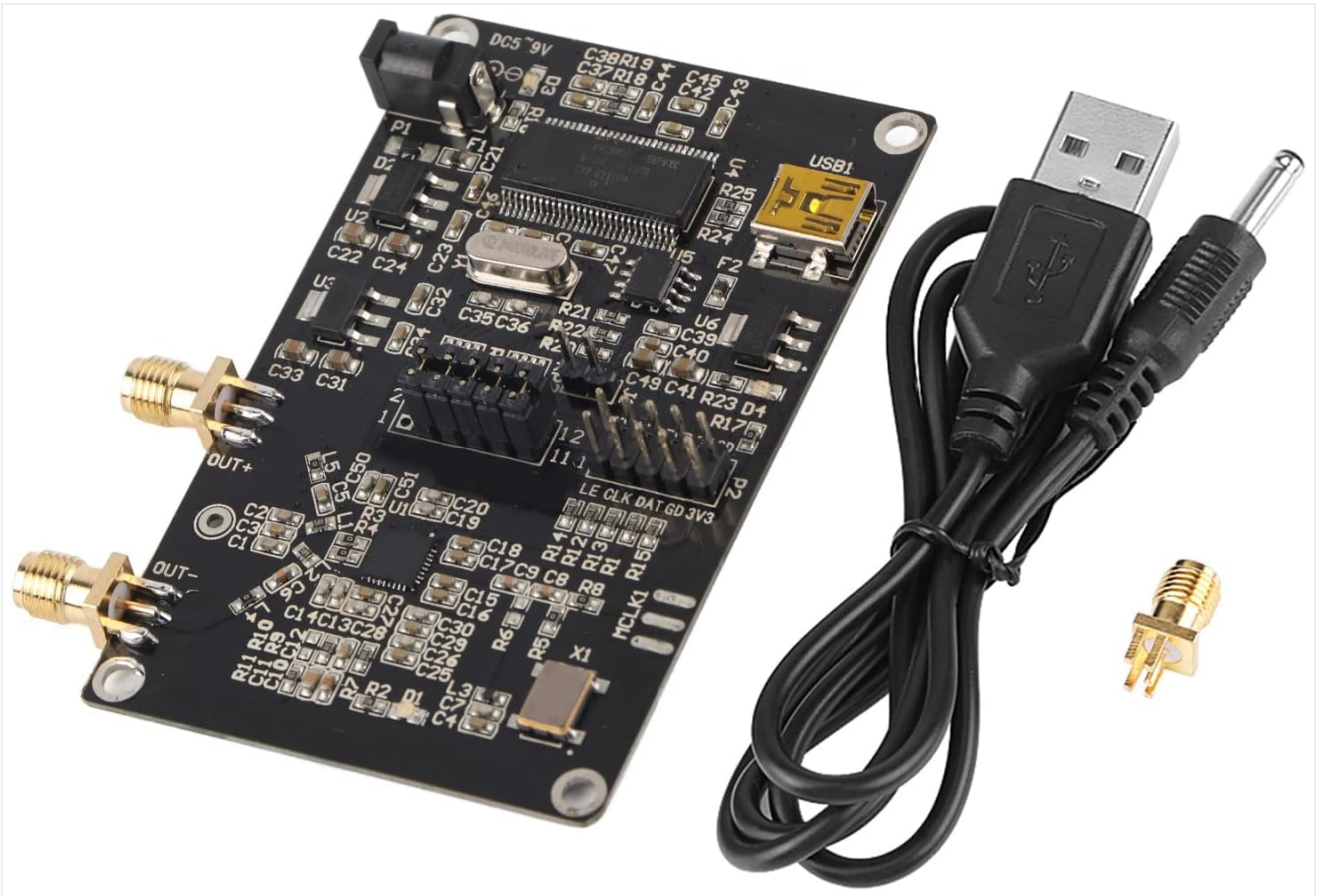


Figure 1: The Akozon ADF4351 Development Board, shown with its included USB cable and an SMA connector. This image provides a general view of the product and its accessories.

PACKAGE CONTENTS

Verify that all items listed below are present in your package:

- 1 x ADF4351 Signal Generator Development Board
- 1 x SMA Holder
- 1 x USB Cable





Figure 2: The USB cable supplied with the development board, used for power and data connection.

SETUP INSTRUCTIONS

1. **Power Connection:** Connect the provided USB cable to the USB1 port on the development board. The other end of the USB cable should be connected to a DC4-9V power source (typical 5V). Alternatively, a DC power adapter can be connected to the DC002 interface.

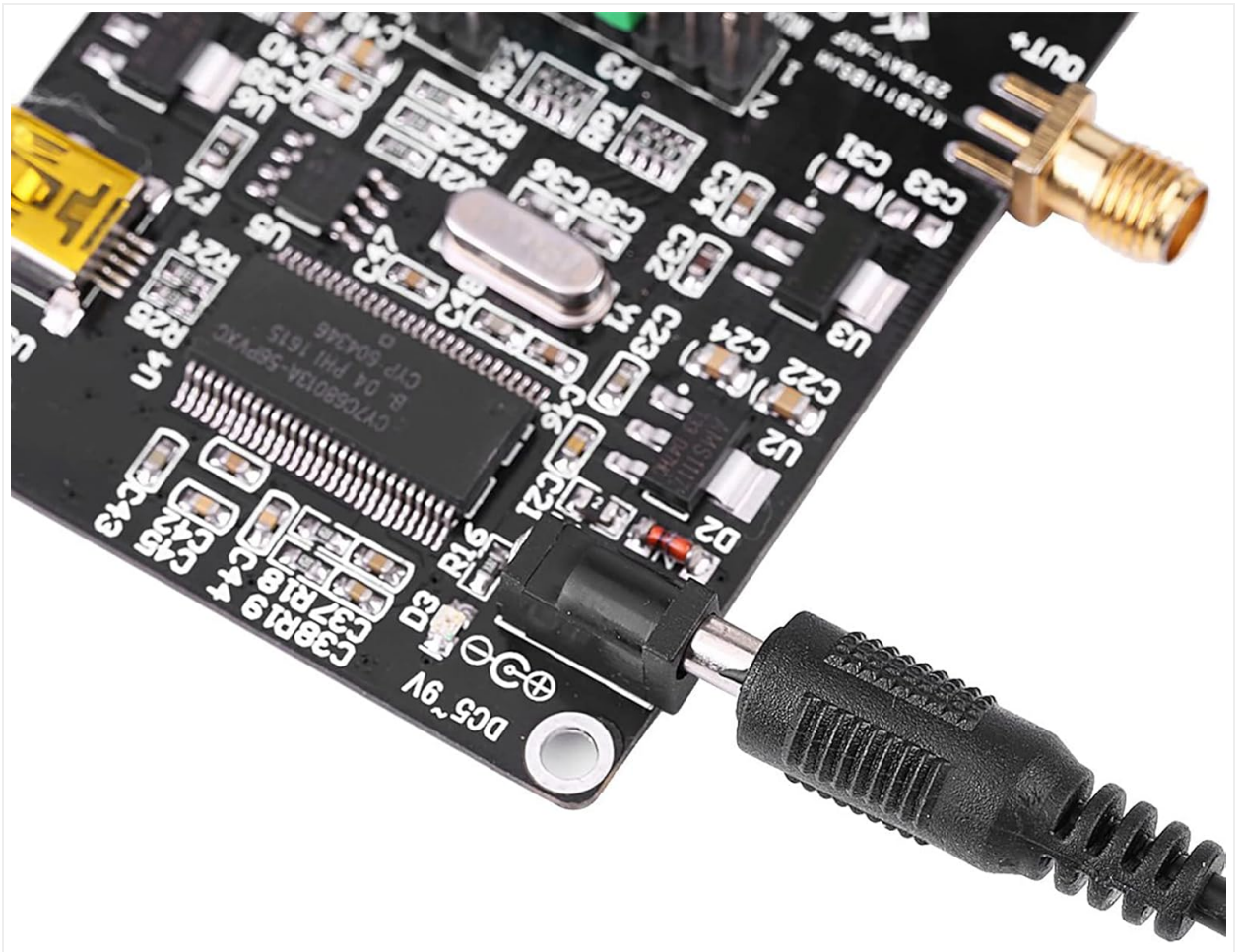


Figure 3: Detail of the DC002 power input interface (DC5~9V) on the board.

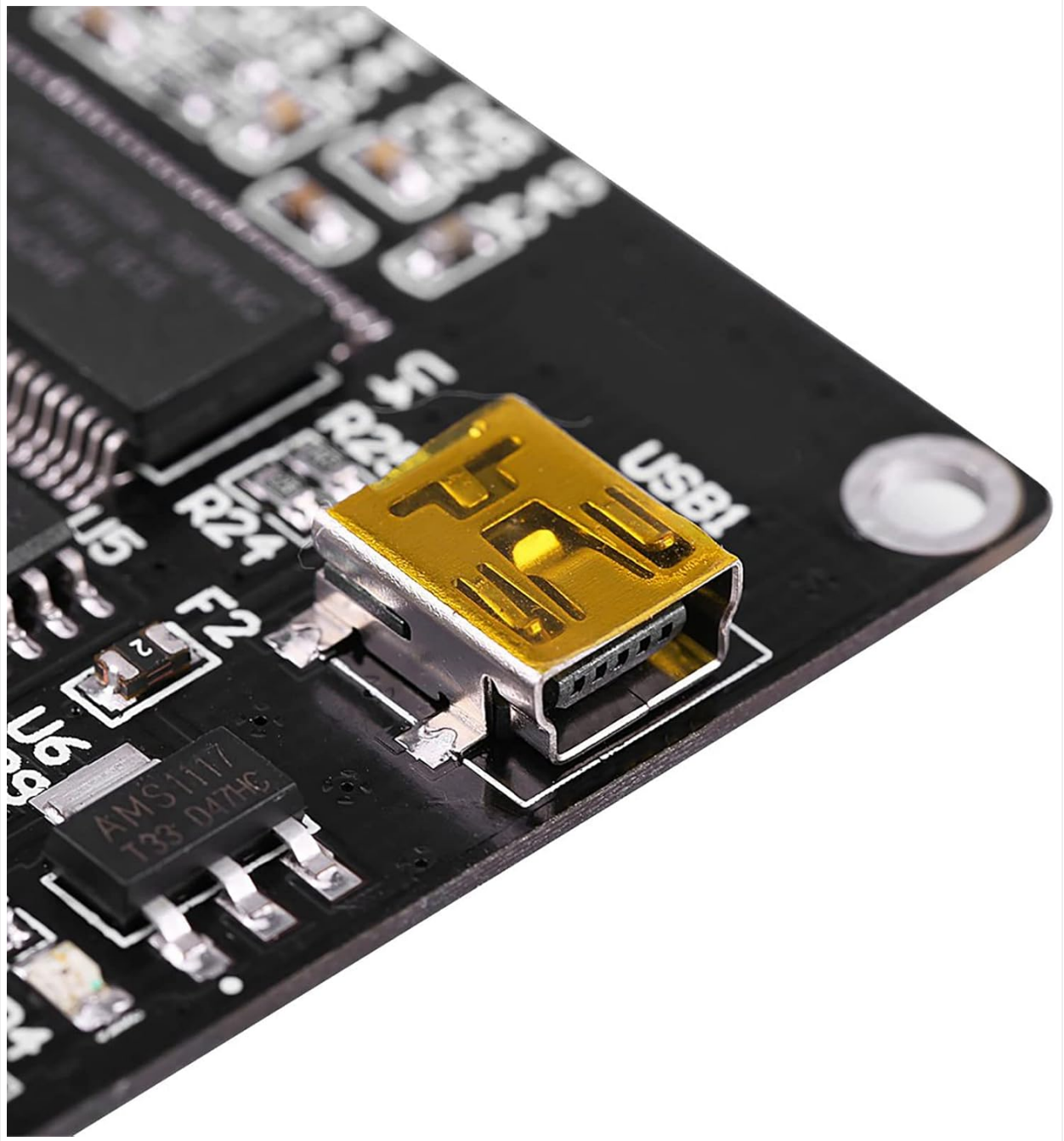


Figure 4: Detail of the USB1 port for power and data connection.

2. **Output Connection:** Connect your RF measurement equipment or application circuit to the SMA female connectors labeled "OUT+" and "OUT-".

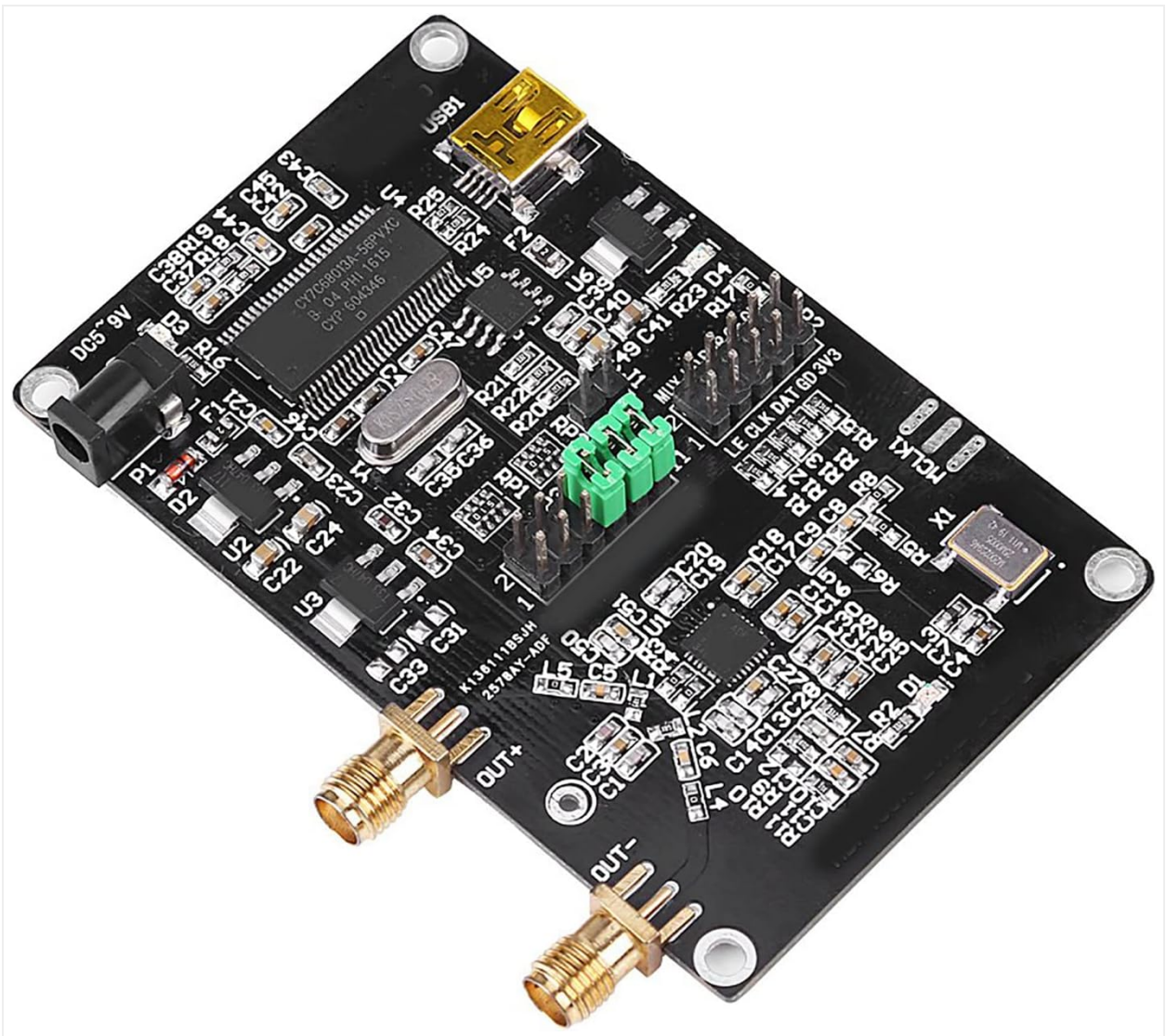


Figure 5: Top view of the board highlighting the "OUT+" and "OUT-" SMA female connectors for signal output.

3. **Software Installation:** Download and install the official control software for the ADF4351 from the manufacturer's website or the provided download link: <http://pan.baidu.com/s/1dE84sGp> (password: nlwq).
4. **Driver Installation:** Ensure any necessary USB drivers for the board are installed on your computer. These are typically included with the control software or available from the manufacturer.

OPERATING INSTRUCTIONS

1. **Launch Control Software:** Open the installed ADF4351 control software on your computer.
2. **Connect to Device:** Within the software, establish a connection to the ADF4351 Development Board. The software should detect the board automatically if drivers are correctly installed.
3. **Set Frequency:** Use the software interface to set the desired output frequency. The ADF4351 supports an output frequency range of 35MHz to 4.4GHz.
4. **Configure Output:** Adjust other parameters such as output power, modulation (if supported by software), and enable/disable the output signal.
5. **Advanced Control (SPI):** For advanced users, the three-wire SPI control pins (LE, CLK, DAT, GD, 3V3) are exposed for direct microcontroller control. This allows for custom programming of functions like point frequency sweep and frequency hopping. The board is also compatible with ADF5355 control.

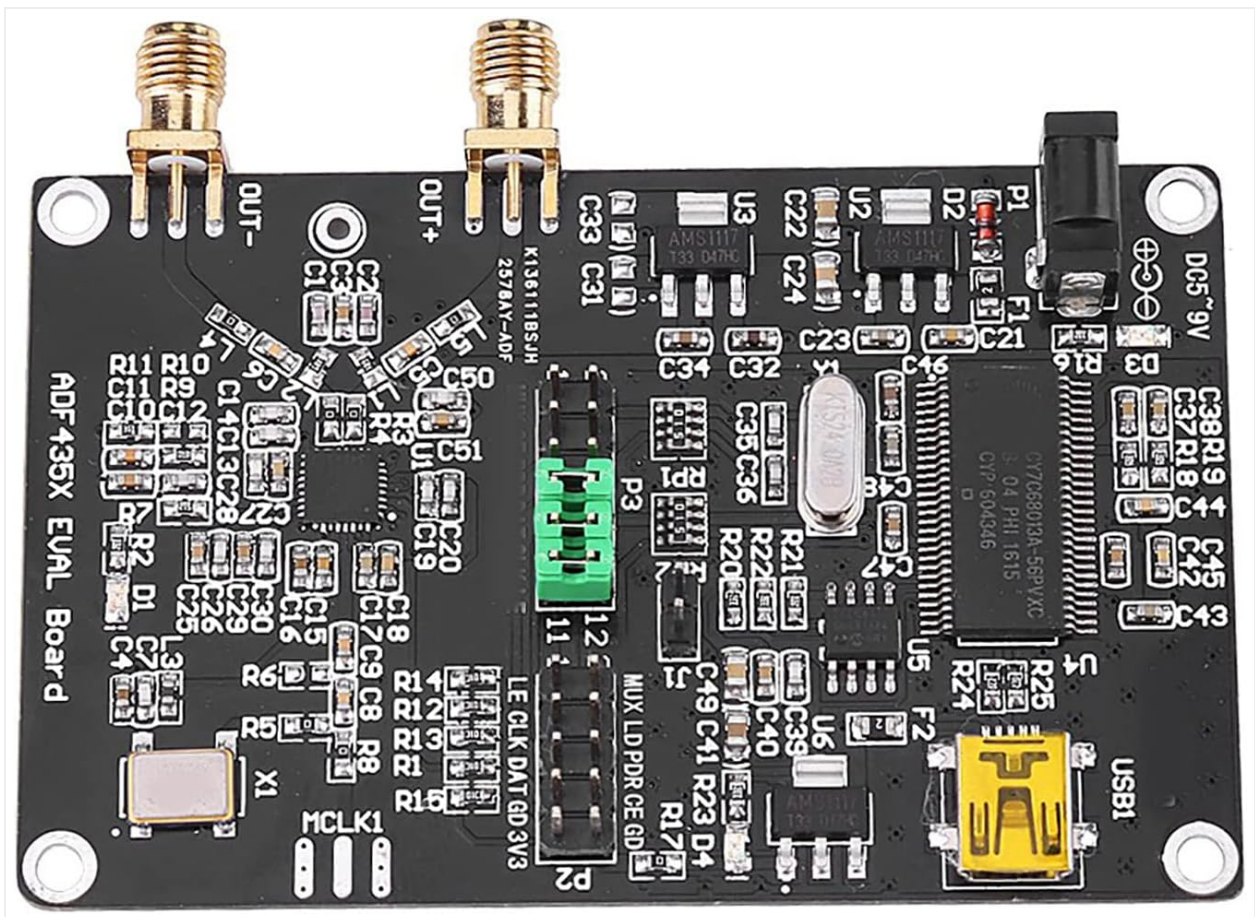


Figure 6: Detailed view of the ADF4351 Development Board, indicating various components and control pin headers (P2, P3) for advanced interfacing.

MAINTENANCE

- **Cleaning:** Keep the board clean and free from dust. Use a soft, dry cloth for cleaning. Avoid using liquids or abrasive cleaners.
- **Storage:** Store the development board in a dry, static-free environment when not in use.
- **Handling:** Handle the board by its edges to avoid touching sensitive components, especially to prevent electrostatic discharge.

TROUBLESHOOTING

- **No Power:**
 - Ensure the USB cable is securely connected to both the board and the power source.
 - Verify the power source is providing 4-9V DC.
 - Check for any visible damage to the power input port or cable.
- **Software Not Detecting Board:**
 - Confirm that the USB cable is properly connected to the computer.
 - Reinstall the control software and any associated drivers.
 - Try a different USB port on your computer.
- **No RF Output:**
 - Verify that the output frequency is set within the operational range (35MHz-4.4GHz).
 - Check that the output is enabled in the control software.

- Ensure SMA connectors are securely attached to the "OUT+" and "OUT-" ports.

SPECIFICATIONS

Feature	Specification
Output Frequency Range	ADF4351: 35MHz - 4.4GHz
Power Supply	DC002 Interface DC4-9V (typical 5V)
Output Signal (2.2-4.4G)	Fundamental wave (sine wave)
Output Signal (35M-2.2G)	Fundamental division (square wave)
Signal Output Connector	SMA female
Crystal Oscillator	±50ppm 25M active crystal oscillator
Control Interface	Three-wire SPI (LE, CLK, DAT, GD, 3V3)
Compatibility	ADF5355 (via control interface)
Item Weight	36g (1.38 ounces)
Product Dimensions	3.94 x 2.76 x 0.79 inches

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Akozon website or contact your retailer. Additional resources, including circuit diagrams in PDF format and STM32 test programs, are available via the provided download link: <http://pan.baidu.com/s/1dE84sGp> (password: nlwq).