Preliminary

Proprietary Confidential Information

WILDR USER GUIDE

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NOTICES

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.

WARNING

THE EQUIPMENT PROVIDED TO THE USER COMPLIES WITH PART 15 OF FCC RULES. THE DEVICES OPERATING UNDER THIS LICENSE HAVE BEEN TESTED FOR COMPLIANCE, AND APPROVED. ***Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.***

1. Radio Setup Procedure

1.1. The following procedure is to be used to test a single radio unit. This test assumes the unit has just been received from the manufacturer.

1.2. Instruments and devices:

1.2.1. DC power supply / transformer provided with the package

1.2.2. Wrist grounded strap

1.2.3. A PC or laptop running hyper terminal or similar communication software

1.2.4. DB9 comport serial cable

1.2.5. A Spectrum Analyzer capable of measuring up to 3.5 GHz should the user wish to verify the channel frequency

2. Board connectors and jumpers:

2.1. DB-9 serial port 1 (J3), for console interface. This port is an RS-232 interface at 57.6 kbps, no parity, no flow control, 1 start bit, 1 stop bit. This port is used to configure the radio parameters.

2.2. DB-9 serial port 2 (J2) RS-232 data interface. This port can be configured for various bit rates using the console interface port (J3). The serial bit rate options can be selected from 9600 to 115200 bits per second. See configuration jumpers J6 and J7 settings for selecting RS-232, RS-485, or RS-422.

2.3. J5 is a 5 position terminal block with 5 screw-down contacts that can accommodate a 2-wire RS-485 interface or a 4-wire RS-422 interface.

2.4. When using a card reader, a separate 12 Volt DC power supply must power the reader with a common ground between the radio and the reader.

2.5. Jumper J6

2.5.1. Place a shunt between J2-1 and J2-2 for RS-232 (default)

2.5.2. Place a shunt between J2-2 and J2-3 for RS-485 two wire, or RS-422 4 wire interface

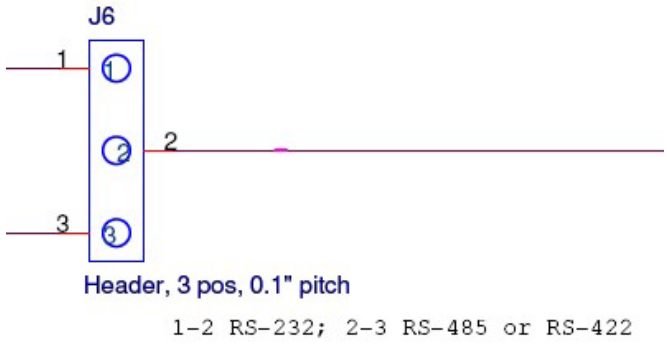

Figure 1- RS-232/485 selection jumper

2.6. Jumper J7

2.6.1. Place a shunt between J12-1 and J12-2 for RS-422, 4-wire interface

2.6.2. Place a shunt between J12-2 and J12-3 for RS-485 two wire interface

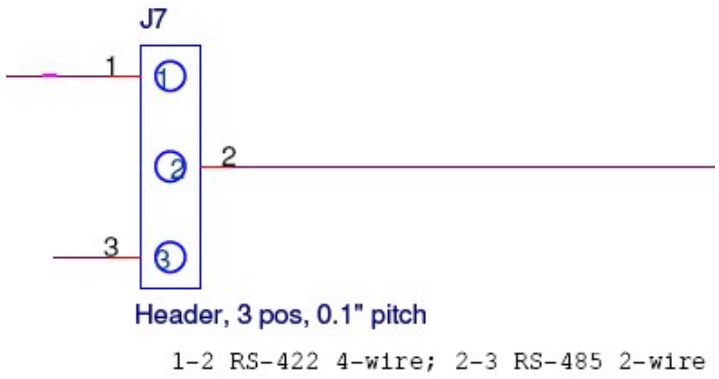

Figure 2- RS-485, RS-422 selection jumper

2.6.3. Board top side connectors and pin configurations

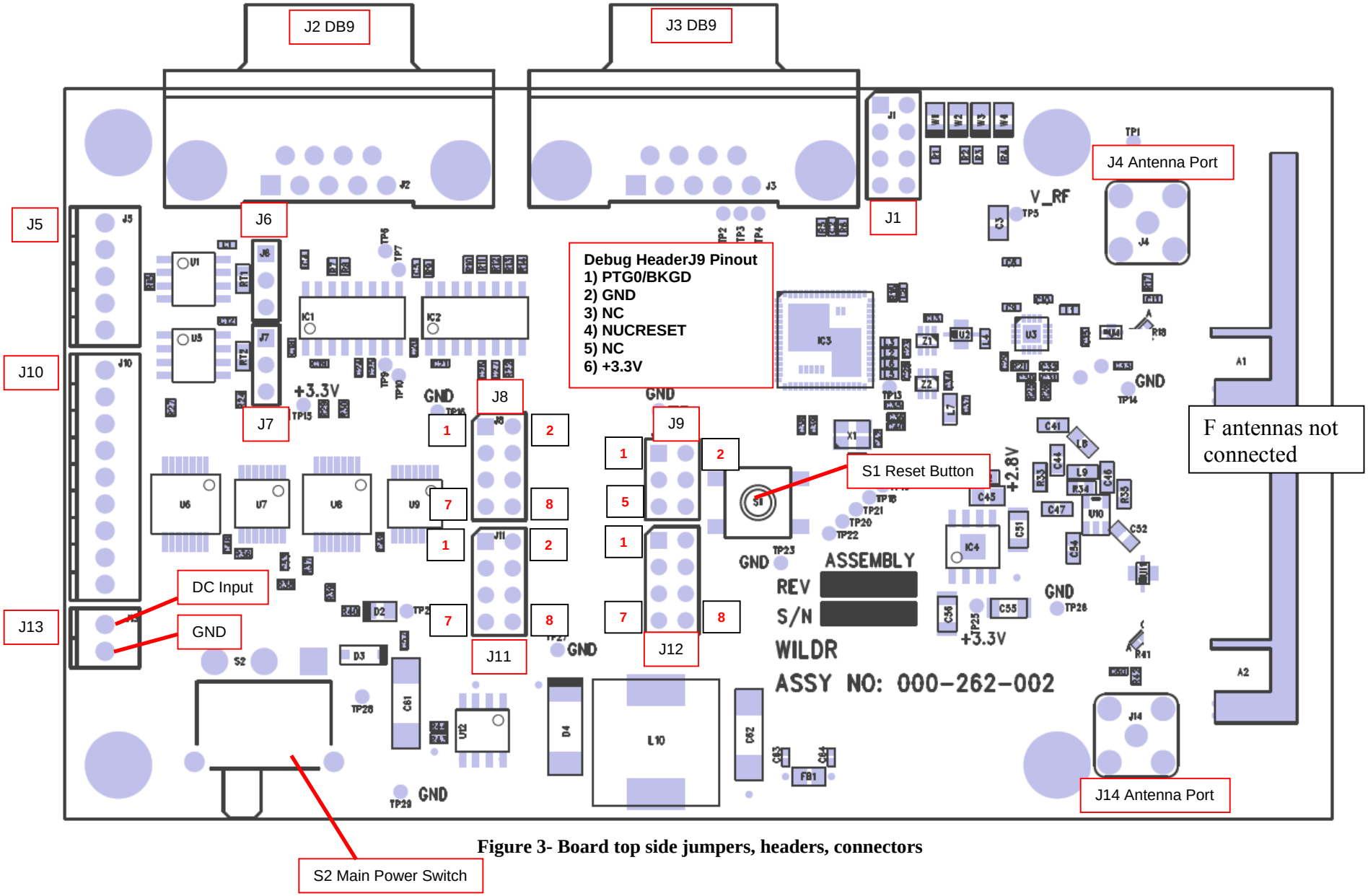

Figure 3- Board top side jumpers, headers, connectors

2.7. J13 DC Power Input connection

2.7.1. This two-position screw-down connector is the input power port, with the position closest to the long-edge of the board as ground (pin 2). Pin 1 is the positive voltage input. While applying power, be sure that the power switch (slide switch S2) on the board is in the off position. The +Vdc input should be between 9 to 12 Vdc. The transformer included in the package provides that range of voltage in a compact enclosure.

2.8. External Antenna Connectors J4, J14

2.8.1. J4 External Transmit antenna

This connector is an RP-SMA coaxial connector. The external antenna can be connected directly on the board (not recommended), or via a short segment of 50Ω thin coaxial cable. Care should be exercised to select the proper cable since the cable loss is quite high at ISM band frequencies. The transmitting antenna provided is a 7dBi gain omni-directional collinear antenna. The user may not substitute another antenna of a different type or higher gain as this would violate FCC rules.

2.8.2. J14 External Receive antenna

This connector is an RP-SMA coaxial connector. The external antenna can be connected directly on the board (not recommended), or via a short segment of 50Ω thin coaxial cable. Care should be exercised to select the proper cable since the cable loss is quite high at ISM band frequencies. The receiving antenna provided is a 7dBi gain omni-directional collinear antenna. There is no restriction on the type, or gain of a receiving antenna, however, it is recommended that the user not substitute another receiving antenna without first checking with the manufacturer.

3. Configuring The Radio Parameters Using The User Interface and Configuration Menu

3.1. **Connecting the radio.** In this section we will describe the user interface menus and functions

3.1.1. Connect the transformer to the power input port with the slide power switch in the off position.

3.1.2. Connect the CONSOLE port (J3 DB-9 serial port) to a PC com-port. The PC should be running hyper terminal, or some similar serial communication software. The radio configuration is programmed using this port.

3.1.3. Configure the PC communication software for 57.6 kbps data rate, 1 start, no parity, 1 stop, and no hardware flow control.

3.1.4. Turn on the radio by sliding switch S2 to on, and observe the terminal I/O. The first screen shows the initial firmware version.

3.2. **Logging in.** Press Enter to login to the radio. The password is case sensitive. The factory password is ADMIN. Once you login, you may change this password through the subsequent screen.

3.2.1. Pressing the Enter key will take you to the next screen, which displays the current, or default settings as described in 3.3. If the user chooses to change the password, pressing p, or P will allow that. The password is 5-character string, and all ASCII keyboard characters are allowed.

3.3. **Default Settings.** Press Enter and see the default parameters as a result of initial start up, or the values set at the last power up. At this point you will have a chance to enter new parameters

3.4. **Configuring WILDR Parameters.** To configure any of the parameters, simply type in the command letter of interest and follow the instructions on the screen.

3.4.1. There are three groups that define power ranges for the radio. Each group presents 6 choices for the user to select depending on the distance requirements. The user chooses a group first, then a setting within the selected group. ***It is important to note that the user selected RF power is examined by the radio and adjusted to remain compliant with FCC rules. The maximum power at the mid channels is limited to 20.89 dBm with the supplied antenna.***

3.4.1.1. Test mode choices are generally designed to measure FCC restricted band compliance for spurious signals, second and third order products. Below 2390 MHz and above 2483.5 MHz are restricted bands, so the radiated emissions must be kept to 500 μV/m (microvolt per meter). However, these modes also serve as tools for the user to measure receiver signal strength while transmitting continuous packets.

3.4.2. **Press X or x to exit** the configuration menu. If the parameters have been revised, the radio has to be reset for the new settings to take effect. Press the reset switch (by J19 push button), and let the radio restart.