

# P1110-EVB

## Evaluation Board for P1110 Powerharvester® Receiver

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### Description:

The P1110-EVB contains an evaluation board and antennas to test and develop with the P1110 Powerharvester Receiver. The P1110 converts RF energy (radio waves) into DC power which can be stored in a battery or capacitor, or used to directly power a circuit.

### Items included:

- 1 – Evaluation Board for P1110 Powerharvester Receiver (see description on next page)
- 1 – 915 MHz PCB dipole antenna (see description below)
- 1 – 915 MHz PCB patch antenna (see description below)

Note – this kit needs to receive power from an RF source such as a transmitter or test equipment.

### Instructions:

1. Download the P1110 product datasheet from [www.powercastco.com/documentation](http://www.powercastco.com/documentation) to learn about the specific I/O and functions of the P1110.
2. Connect one of the antennas to the SMA connector (J1) on the evaluation board, or connect J1 directly to RF test equipment. See datasheet for maximum input power.
3. Adjust switches S1, S2, S3, and S4 to desired settings. See descriptions on next page.
4. Place evaluation board on flat surface and connect test meters as desired.
5. Turn on the source of RF energy (e.g. Powercast transmitter, test equipment, other transmitter)

### Support:

Website: [http://www.powercastco.com/documentation/](http://www.powercastco.com/documentation)  
Email: [contact@powercastco.com](mailto:contact@powercastco.com)  
Phone: +1 412-455-5800 (Eastern Time Zone – USA)

### Item Descriptions

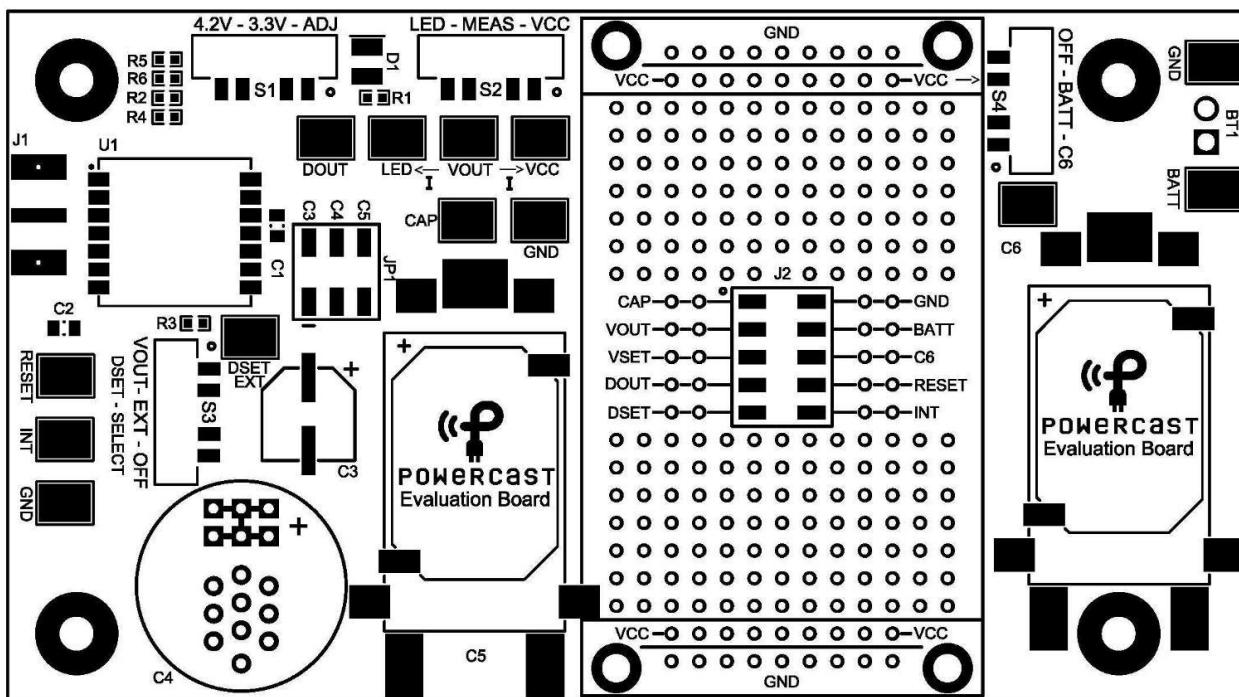
#### 915 MHz PCB Dipole Antenna

This antenna is flat and has the RF connector located at the bottom of the antenna. Type: omni-directional, vertically polarized  
Energy pattern: 360°  
Antenna gain: Linear gain = 1.25 (1.0 dBi)

#### 915 MHz PCB Patch Antenna

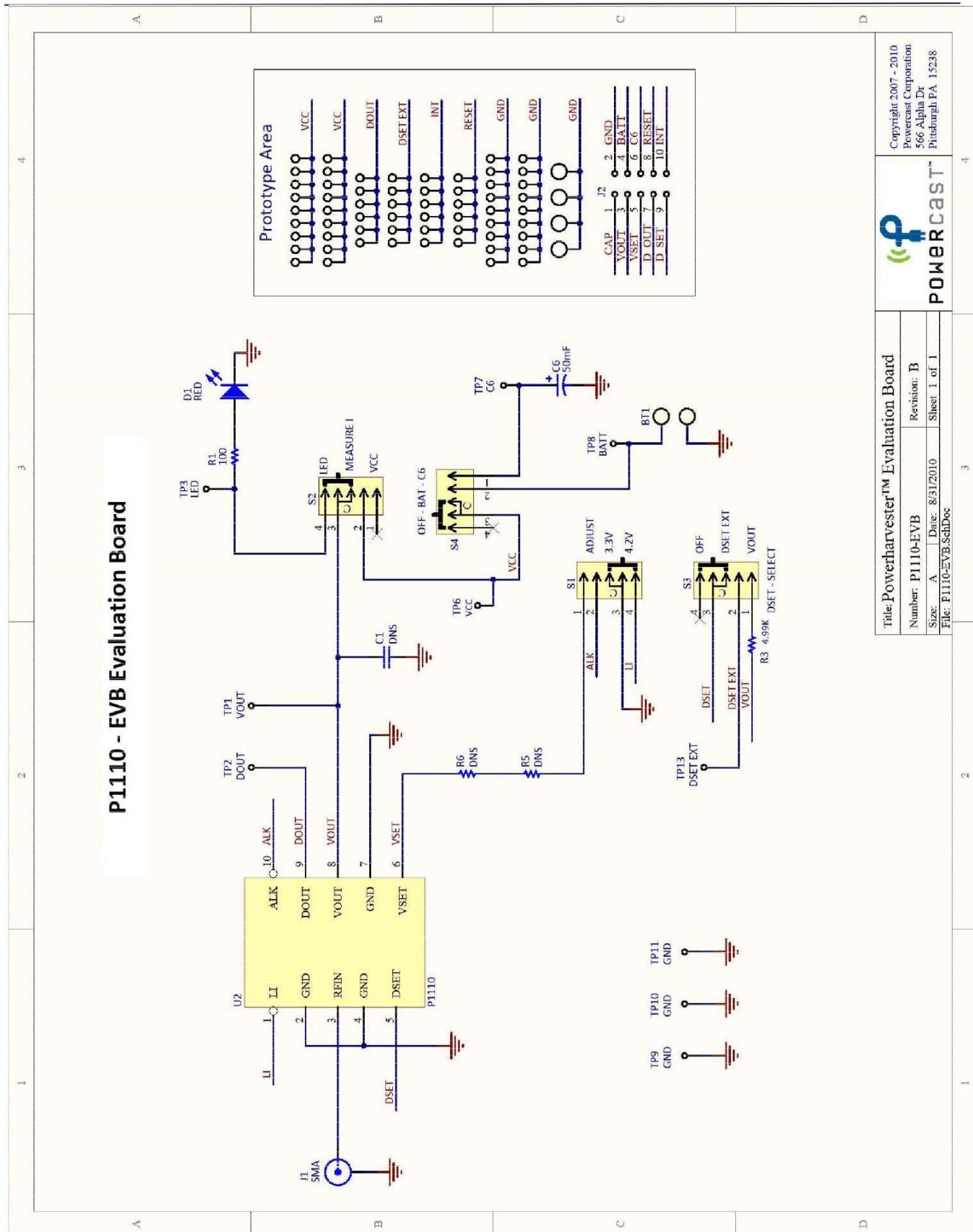
This antenna has two layers and the RF connector located on the back of the antenna. The front side should be pointed toward the transmitter with the same polarization  
Type: directional, vertically polarized  
Energy pattern: 122° (azimuth/horizontal), 68° (elevation/vertical)  
Antenna gain: Linear gain = 4.1 (6.1 dBi)

## Evaluation Board



| Component   | Description   |
|-------------|---|
| S1          | Switch for max. output voltage – 4.2V, 3.3V, ADJ (custom using R5 + R6 – see datasheet)   |
| S2          | Switch for output power<br>LED (power sent to illuminate LED D1)<br>MEAS (use with test points VOUT to LED or VOUT to STORE and in-line current meter)<br>VCC (power sent to test area and S4)  |
| S3          | Switch for DSET selection. When enabled, RSSI is available through DOUT.<br>VOUT (Enabled by on-board voltage source (>1V) from C6 or BT1 through switch S4)<br>EXT (Enabled by external source through DSET EXT test point)<br>OFF (Normal charging operation) |
| S4          | Switch for charging on-board capacitor C6, or external battery through BT1  |
| C1          | Optional output filtering for VOUT – 10 uF recommended (see datasheet)  |
| C2,C3,C4,C5 | Not used  |
| C6          | 50mF supercapacitor – storage for Powerharvester output   |
| JP1         | Not used  |
| D1          | LED for visual indication of power output   |
| R1          | Resistor for LED (D1)   |
| R2          | Not used  |
| R4          | Not used  |
| R5          | Resistor for max output voltage adjustment (see datasheet for R5+R6 selection)  |
| R6          | Resistor for max output voltage adjustment (see datasheet for R5+R6 selection)  |
| BT1         | External battery connection   |
| J1          | SMA connector for antenna or RF input (add DC block for DC short antenna)   |
| J2          | Connector for add-on boards<br>Connector on board: FCI – P/N: 52601-G10-8LF<br>Mating connector: Sullins – P/N: SFH11-PBPC-D05-ST-BK  |
| U2          | P1110 Powerharvester receiver (see datasheet for pin descriptions)  |

# P1110-EVB Electrical Schematic



# Mouser Electronics

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