

## P2110-EVB

### Evaluation Board for P2110 Powerharvester™ Receiver

---

#### Description:

The P2110-EVB contains an evaluation board and antennas to test and develop with the P2110 Powerharvester Receiver. The P2110 converts RF energy (radio waves) into DC power and stores it in a capacitor to provide an intermittent, regulated voltage output.

#### Items included:

- 1 – Evaluation Board for P2110 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 P2110 product datasheet from [www.powercastco.com/resources](http://www.powercastco.com/resources) to learn about the specific I/O and functions of the P2110.
2. Connect one of the antennas to the SMA connector (J1) on evaluation board, or connect J1 directly to RF test equipment. See datasheet for maximum input power.
3. Adjust switches 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/resources/>  
Email: [contact@powercastco.com](mailto:contact@powercastco.com)  
Phone: +1 724-238-3700 (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.

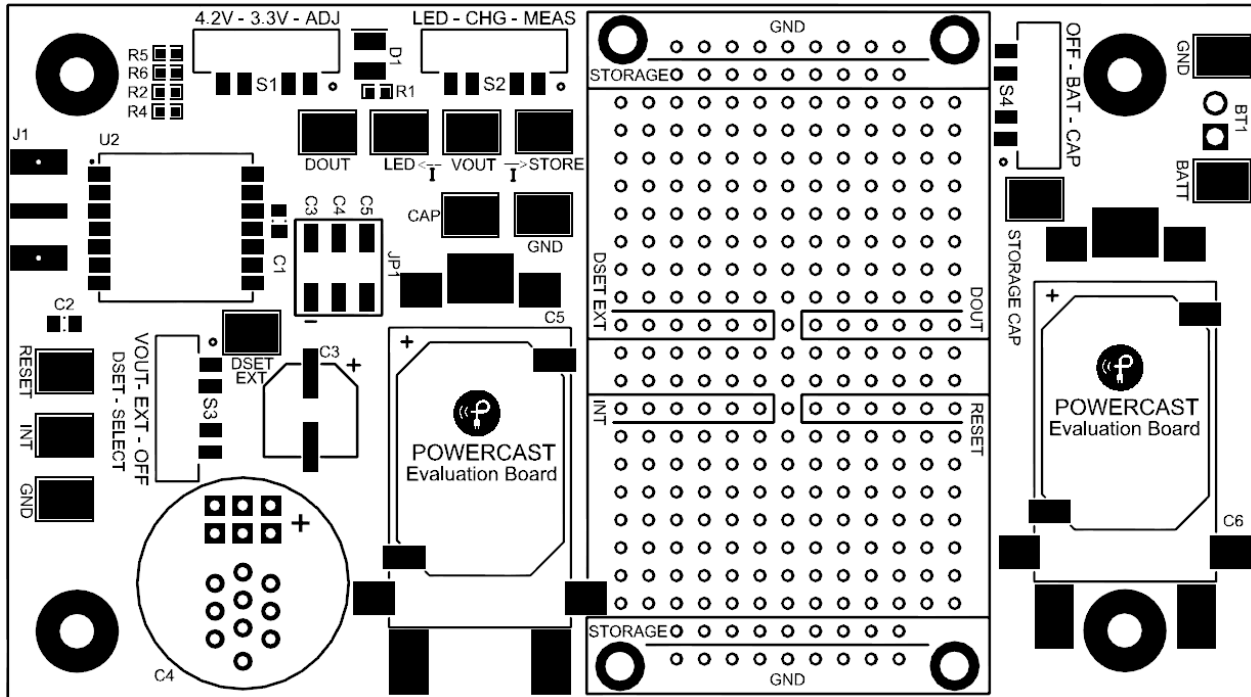
Type: omni-directional, vertically polarized  
Energy pattern: 360°  
Antenna gain: Linear gain = 1.25 (1.0 dBi)

##### 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

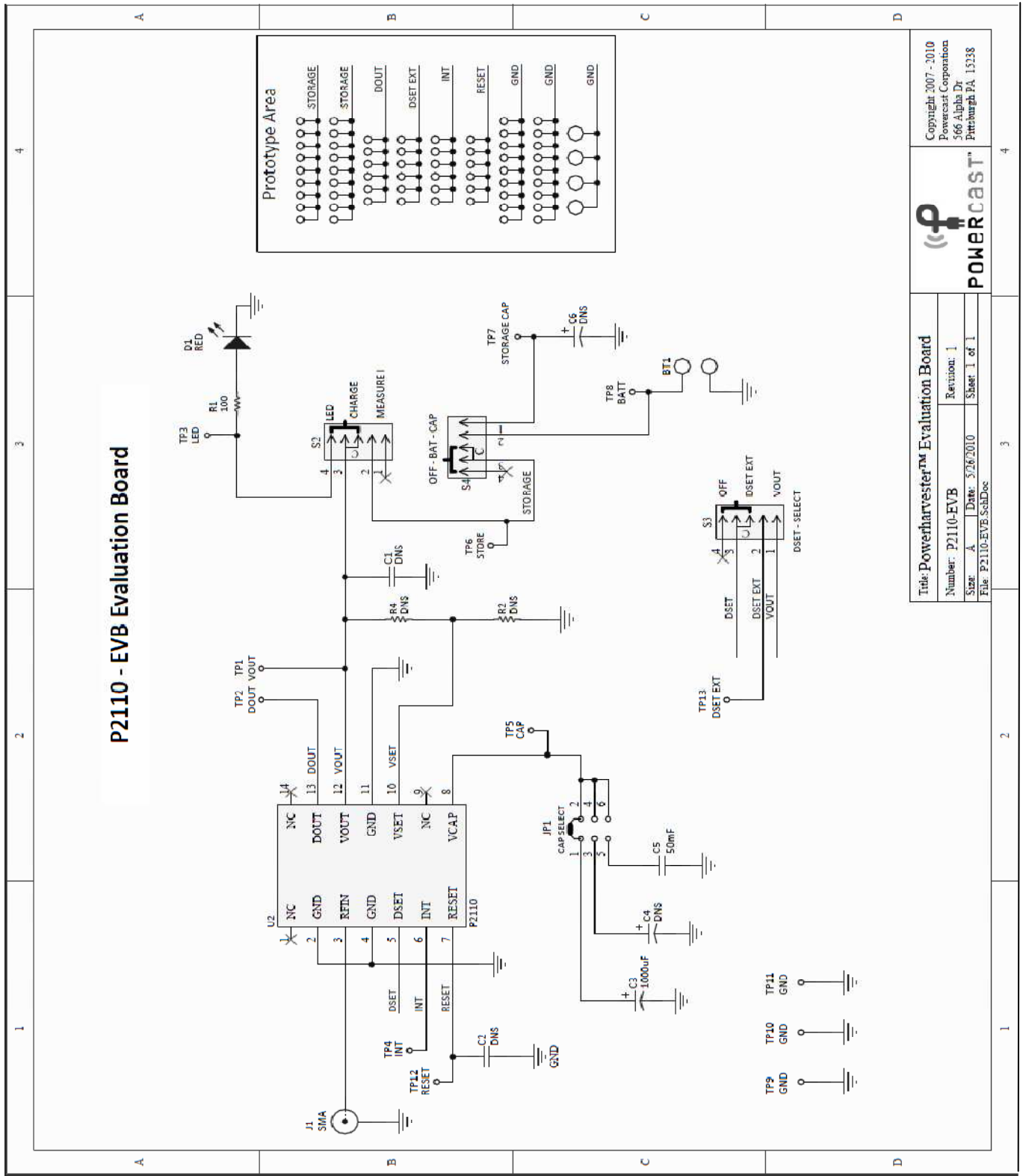
Type: directional, vertically polarized  
Energy pattern: 122° (azimuth/horizontal), 68° (elevation/vertical)  
Antenna gain: Linear gain = 4.1 (6.1 dBi)

## Evaluation Board



Component	Description
S1	Not used
S2	Switch for output power LED (power sent to illuminate LED D1) CHG (power sent through switch S4 for charging capacitor C6 or ext. battery BT1) MEAS (use with test points and in-line meter for current measurement)
S3	Switch for DSET selection. When enabled, RSSI is available through DOUT. VOUT (Not used) EXT (Enabled by external source through DSET EXT test point) OFF (Normal charging operation)
S4	Switch for powering external circuit through BT1 (BAT)
C1	Optional output filtering for VOUT – 10 uF recommended (see datasheet)
C2	Optional output filtering for RESET – 0.1 uF recommended (see datasheet)
C3	Capacitor (1000 uF)
C4	Capacitor (user selectable)
C5	Capacitor (50 mF)
C6	Not used
JP1	Selection for capacitors C3, C4, and C5
D1	LED for visual indication of power output
R1	Resistor for LED (D1)
R2	Connection from VSET to GND to increase output voltage above 3.3V (see datasheet)
R4	Connection from VSET to VOUT to decrease output voltage below 3.3V (see datasheet)
R5	Not used
R6	Not used
BT1	External circuit connection
J1	SMA connector for antenna or RF input (add DC block for DC short antenna)
U2	P2110 Powerharvester receiver (see datasheet for pin descriptions)

# P2110-EVB Electrical Schematic



Copyright 2007 - 2010  
Powercast Corporation  
566 Alpha Dr.  
Pittsburgh, PA 15238



Title: Powerharvester™ Evaluation Board	
Number: P2110-EVB	Revision: 1
Size: A	Date: 5/26/2010
File: P2110-EVB.SchDoc	Sheet: 1 of 1