

VULCAN Power- Mapper (v6)

The VULCAN Power-Mapper is a worldwide, battery-free UHF RFID Power indicator for Gen 2 RFID Systems.



Features:

- No Battery – It uses the RF power
- Pocket sized
- -6dB attenuation switch for antenna testing
- Wide frequency range
- Works with all Gen2 UHF RFID Readers
- Modulation Output



What it can do:

- Shows nulls and dead spots in the RF signal
- Detects which antenna is transmitting
- Shows approximate Radiated Power. EIRP or ERP
- dB scale for comparison power measurements
- Accurately maps the RFID field 15+ meters range. (30 Feet+)
- Tests polarization of antennas; linear, circular and cross polarized
- Ideal for beam angle measurements and antenna direction setup
- Pulses to show notify time and other transmit interruptions
- Oscilloscope output to show modulation or for Data logging the signal strength
- Can be switch from Average to Peak output reading
- Detects cable faults and bad connections easily
- Excellent installation, research and teaching tool
- It can be mounted permanently in the RF field to monitor or data log the RF power

Specifications:

- Frequency range 850MHz to 950 MHz Europe, USA and Far East frequencies
- Tested with Dipole, linear, circular patch and cross polarized antennas
- Tested for use to EN302 208, 866 MHz EU standard.
- Tested for use with 915MHz US FCC approved RFID readers
- Tested for use at 922.5MHz China
- The Battery life is Infinite. (It runs on harvested RF power)
- Conforms to all known radio standards
- The VULCAN Power-Mapper contains no banned substances, RoHS compliant
- The VULCAN Power-Mapper does not transmit or radiate any RF signals
- Height 109mm, Width 70mm, Depth 41mm
- The antenna is hand tuned to 908MHz center frequency

Instructions: Hold the VULCAN Power-Mapper between your finger and thumb, avoiding the antenna, then move the meter slowly around the area you want to test. In general, RFID tags take about 1uW to power up, so when mapping the RF field, a reading on the Power-Mapper of less than about 2 indicates that a standard Gen 2 tag may not be readable.

Rotate the Power-Mapper 90 Degrees from vertical to measure power in the horizontal polarization plane. A linear antenna will give a very low reading in this orthogonal plane.

To test circular polarized antennas for dead spots, use the meter horizontally at 3 to 5 meters range, the inherent dead zone can then be measured and avoided.

The VULCAN Power Mapper (V6) has a -6dB attenuator switch for antenna testing and close to antenna measurements. This meter is very sensitive and is capable of showing clearly the constructive and destructive interference patterns caused by ground bounce or metal objects within the RFID field.

With the -6dB attenuator switched on, a 2W ERP (EU) or a 4W EIRP (US) transmission will give full scale at a range of approximately 1 Meter. (3 feet). For a circular polarized antenna, this may reduce to 0.75 Meters, unless the reader has increased power to compensate for the 3dB loss inherent in a circular polarized antenna.

An oscilloscope can be connected across the data out terminals to show the signal modulation; or, a data logging device can be used to record the RF amplitude over time. The AV-PK switch will change the meter so it peak detects the RF signal level. (A screw kit is supplied with the meter for various attachments.)

dB value measurements. Set the meter to read about 100% (0dB) by moving the meter away from the antenna. (The -6 dB attenuator can be used for high level signal measurements.) For example, if you turn down the reader power by -3dBm, the meter will display an approximate 3dB reduction in radiated power.

Alternatively, if the antenna is changed from an 8dBi antenna to a 4dBi antenna the meter will display a decrease of approximately -4dB.

It is useful to know that a -3dB reduction in radiated power is half the power transmitted and this will give approximately 25% reduction in range; this is due to the square law of power with distance effect.

The white plastic hex standoffs at the back of the meter can be extended for better stability when the meter is placed horizontally; or, for permanent fixing to other equipment. The front center screw sets the meter zero. (Two turns to cover max and min settings.)

We hope you find the results from this meter useful, interesting and educational.

Safety Regulations state that you should not work within 25cm 9.5" of a 4W EIRP transmission for long periods.

  The Power-Mapper can be returned to Vulcan for disposal. It is RoHs compliant. EN60950 safety compliant and conforms to all radio standards for RFID EN and FCC. © 2011 to 2020.