RFMAX Power-Mapper (V5)
The RFMAX is a worldwide, battery-free UHF RFID Power Meter for Gen 2 Systems.

Features:
- No Battery – It uses the RF power
- Pocket sized
- -7dB attenuation switch for antenna testing
- Wide frequency range
- Works with all Gen2 UHF RFID Readers

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
- Tests polarization of antennas; Linear, circular and cross polarized.
- Accurately maps the RFID field 15+ meters range. (30 Feet+)
- dB scale for comparison power measurements.
- Ideal for beam angle measurements and antenna direction setup.
- Oscilloscope output to show modulation or for Data logging the signal strength
- Detect cable faults and bad connections easily
- Excellent 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 940 MHz Europe, USA and Fare 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 the transmitter RF power) No Battery.
CE marked and conforms to all known radio standards.
The RFMAX contains no banned substances, RoHs compliant.
The RFMAX 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 RFMAX Power-Mapper between your finger and thumb 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 1 indicates that a standard Gen 2 tag may not be readable.

Rotate the Power-Mapper 90 Degrees 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 dead zone can then be measured and avoided.

The RFMAX V5 has a -7dB 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 -7dB attenuator switched in, a 2W ERP or a 4W EIRP transmission will give full scale at a range of approximately 1Meter. (3 feet). For a circular polarized antenna, this may reduce to 0.74 Meters, unless the reader has increased power to compensate for the loss in the 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. A capacitor can be added across the output terminals; 47uF; this will change the meter to peak detect 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. (Switch in the -7 dB attenuator for high level signals.)

Now turn down the reader power by say -3dBm, the meter will show a -3dB reduction in radiated power.

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

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

Also, the plastic fixing screws can be extended for better stability when placed horizontally. The front center screw sets the meter zero.

Also available from RFMAX, is the Power-Ranger. The Power-Ranger is a pocket size indicator for simple quick antenna set-up and testing; it has a three foot range.

Tip, it is good practice for a Power-Ranger to be left at every installation, for antenna and system verification, by onsite staff.

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.

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The Power-Mapper can be returned to Arcadian for disposal. RoHs compliant. EN60950 safety compliant. Conforms to all radio standards for RFID EN and FCC. All rights reserved. Design rights claimed. Moral rights asserted. © 2011 to 2016.