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Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

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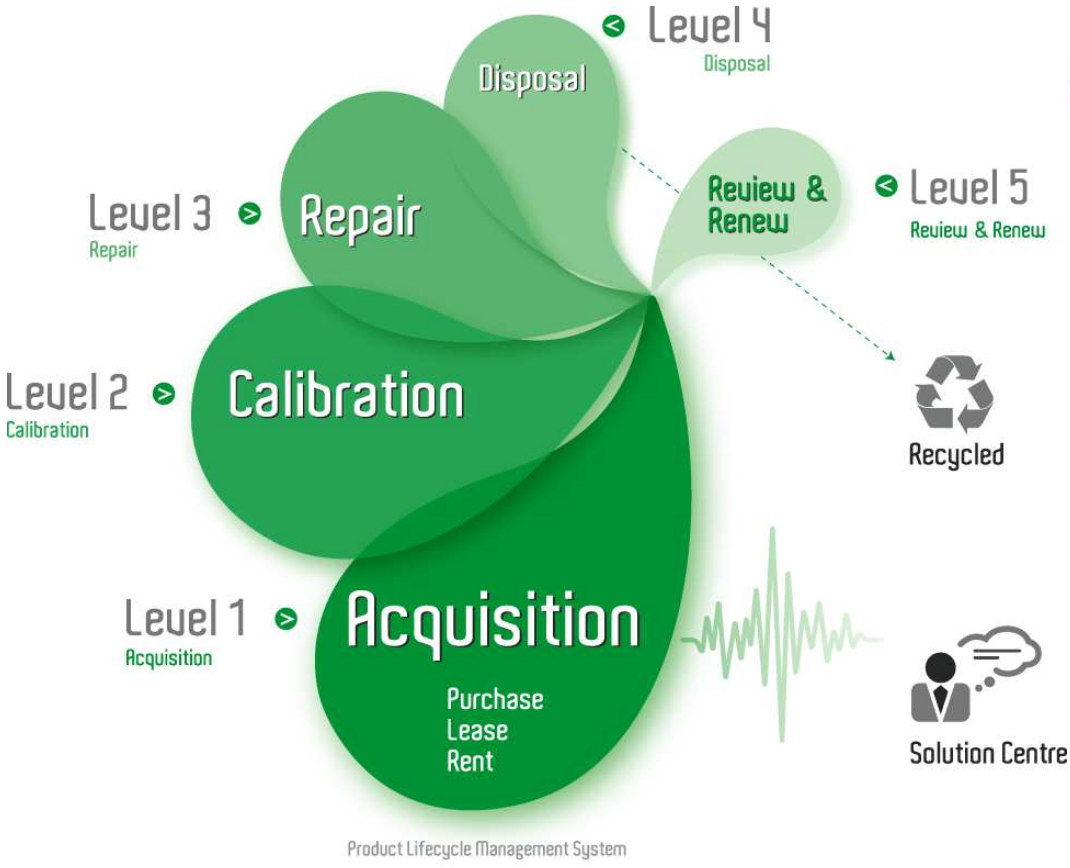

Broadband
Current Probe Series
Operation Manual

REV A

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WARRANTY INFORMATION

A.H. Systems Inc., warrants that our Antennas, Sensors and Probes will be free from defects in materials and workmanship for a period of three (3) years. All other products delivered under contract will be warranted for a period of two (2) years. A.H. Systems' obligation under this warranty shall be limited to repairing or replacing, F.O.B. Chatsworth, California, each part of the product which is defective, provided that the buyer gives A.H. Systems notice of such defect within the warranty period commencing with the delivery of the product by A.H. Systems.

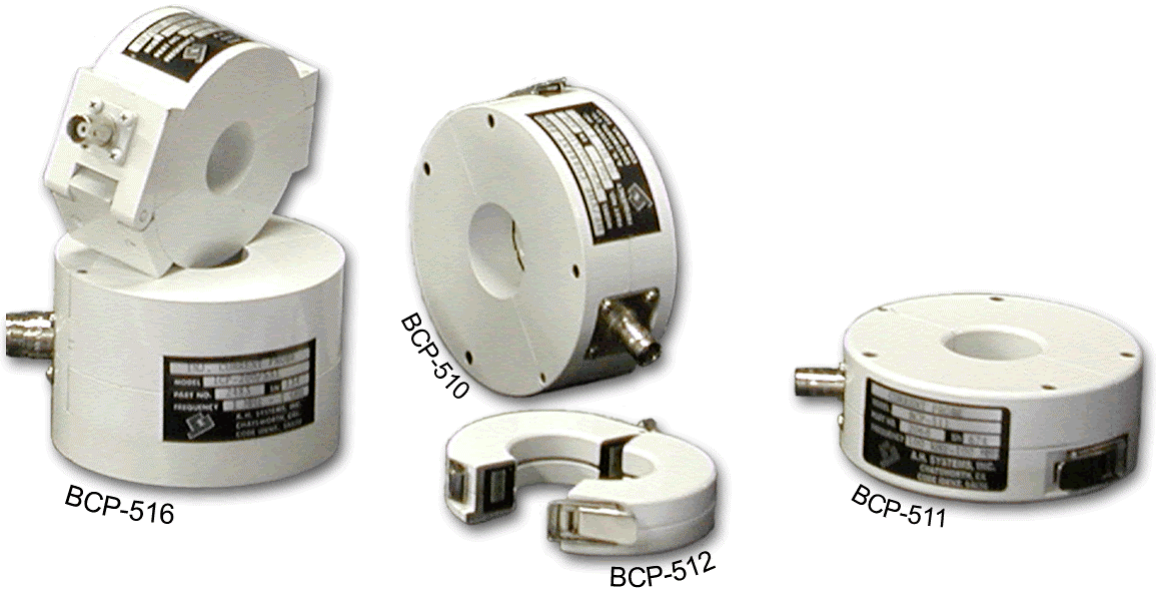
The remedy set forth herein shall be the only remedy available to the buyer, and in no event shall A.H. Systems be liable for direct, indirect, incidental or consequential damages.

This warranty shall not apply to any part of the product which, without fault of A.H. Systems has been subject to alteration, failure caused by a part not supplied by A.H. Systems, accident, fire or other casualty, negligence, misuse or normal wear of materials.

Except for the warranty set forth above, there are no other warranties, expressed or implied, with respect to the condition of the product or it's suitability for the use intended for them by the buyer.

For prompt service, please contact our service department for a Return Material Authorization Number before shipping equipment back to us.

INTRODUCTION



ANTENNA SPECIFICATIONS

Model Number	Frequency Range	Transfer Impedance (dB)	Max continuos Current (Amps)	Aperture (inches / CM)	Diameter (inches / CM)	Weight (lb's / Kg)
BCP-510	20 Hz – 1 MHz	-40 to -30	100	1.2" / 3.0cm	3.9" / 9.9cm	1.7
BCP-511	20 KHz – 100 MHz	-11 to +1	350	1.2" / 3.0cm	3.9" / 9.9cm	1.8
BCP-512	1 MHz – 1 GHz	0 to 24	200	1.2" / 3.0cm	2.8" / 6.3cm	0.5
BCP-514	10 KHz – 100 MHz	-16 to 0	350	2.7" / 6.9cm	5.0" / 12.7cm	2.5
BCP-515	1 MHz – 400 MHz	-12 to 17	300	1.2" / 3.0cm	2.8" / 7.1cm	0.3
BCP-516	10 KHz – 50 MHz	-5 to 12	800	1.2" / 3.0cm	3.7" / 9.4cm	2.5
BCP-517	10 KHz – 50 MHz	-3 to -7	800	2.6" / 6.6cm	5.6" / 14.2cm	2.1
BCP-518	100 KHz – 500 MHz	8 to 15	200	2.7" / 6.9cm	5.0" / 12.7cm	2.5
BCP-519	100 Hz – 100 MHz	-40 to 17	200	2.6 / 6.6cm	5.5" / 14cm	6.0
BCP-520	10 KHz – 500 MHz	-19 to 20	350	1.2" / 3.0cm	3.9" / 9.9cm	1.8
BCP-521	10 KHz – 1 GHz	0 to 25	200	1.2" / 3.0cm	3.9" / 9.9cm	1.4
BCP-522	1 KHz – 200 MHz	-30 to 0	100	1.2" / 3.0cm	2.8" / 7.1cm	0.5
BCP-526	100 KHz – 1 GHz	-22 to -19	350	1.2" / 3.0cm	2.8" / 7.1cm	1.1

GENERAL INFORMATION

INTENDED PURPOSES

This equipment is intended for general laboratory use in a wide variety of industrial and scientific applications, and designed to be used in the process of generating, controlling and measuring high levels of electromagnetic Radio Frequency (RF) energy. It is the responsibility of the user to assure that the device is operated in a location which will control the radiated energy such that it will not cause injury and will not violate regulatory levels of electromagnetic interference.

GENERAL DESCRIPTION

The measurement of conducted currents may be accomplished with different sensing devices. Conducted currents can be measured without making direct contact with the source conductor or metallic surface by means of clamp-on current probes.

The BCP-5xx Current Probes are designed to permit field intensity meters, spectrum analyzers, and other 50Ω impedance instruments to measure quantitative magnitudes of current. Measurements can be made on single and multi-conductor cables, ground and bonding straps, shielded conduits and on coaxial cables.

CIRCUIT

The BCP-5xx series of probes are inserted primary types of electromagnetic current transformers. When a probe is clamped around a conductor, the conductor is the primary winding and the probes windings are the secondary. Current measurements are made by having the current carrying conductor pass through the aperature of the probe and the probe's output voltage measured with a calibrated field intensity meter or spectrum analyzer. The supplied Current Probe calibration is then used to convert the reading from the receiver as follows:

dBμA = dBμV (from Receiver) - Transfer Impedance (dBΩ)

OPERATING INSTRUCTIONS

GENERAL USE INSTRUCTIONS

In measuring the current in a single conductor, the probe is clamped around the conductor. In the instance of a two-conductor cable, the probe can be used to measure the effects of currents leaving and returning. A Current Probe will measure the resultant magnitude of current flow of all wires passing through the aperture. The balance of a twisted pair circuit can be determined by measuring each wire individually and then measuring both wires simultaneously. The ratio of the two measurements shows how well the balance has been achieved. A shielded multiple wire cable can be measured to show how much resultant leakage current is occurring. Measurements with and without the shield will identify the actual shielding effectiveness.

INSTALLATION

Typical Current Probe installation is show in Figure 1. The probe should be placed over the cable and clamped shut. The cable connecting the probe to the receiver must have 50Ω characteristic impedance and matching cable connectors. The cable must be well shielded since any leakage will cause erroneous readings. The receiver must have 50 ohm input impedance.

Use precaution when measuring uninsulated conductors. If possible, de-energize the EUT during set-up. Also arrange to center the conductor in the aperture using additional insulation.

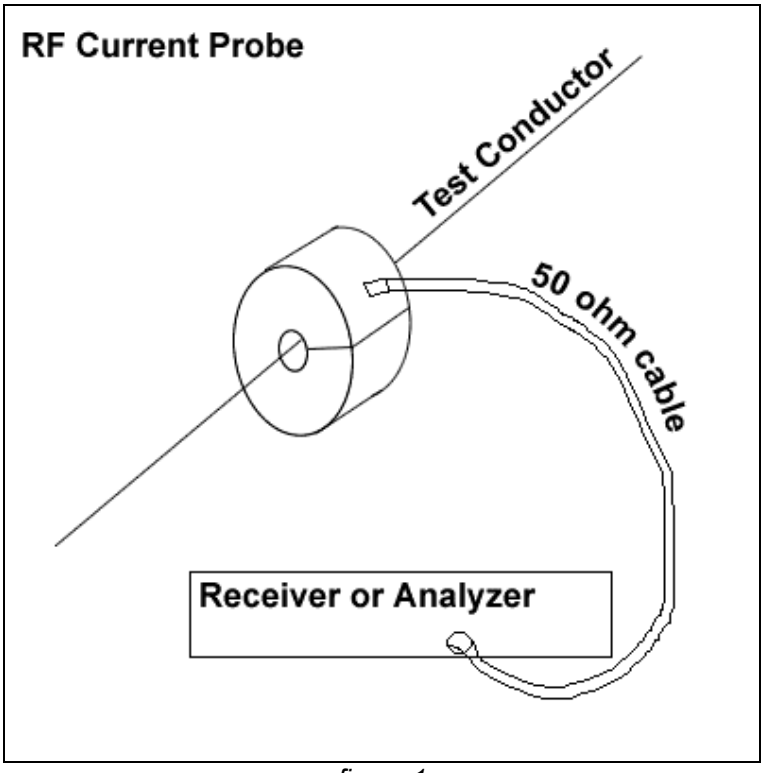


figure 1

ANTENNA FORMULAS AND CALCULATIONS

A specific Transfer Impedance Factor is associated with each frequency. This number is to be subtracted from the receiver reading in order to convert to dBuA

dBμA = dBμV (from Receiver) - Transfer Impedance (dBΩ) + cable Loss (dB)

EXAMPLE:
Assume that the frequency of interest is 80 KHz and we need to find the current at this frequency. Connect the probe per figure 1

Frequency: 80 KHz
Transfer Impedance: -2.76 dB ohms
Cable Loss: 0.1dB
Receiver Reading: -33.0dBuV

dBμA = dBμV (from Receiver) - Transfer Impedance (dBΩ) + cable Loss (dB)
dBμA = -33.0 - -2.76 + - 0.1
dBμA = -30.34

MAINTENANCE

To ensure reliable and repeatable long-term performance, annual re-calibration of your current probe by A.H. is recommended. Our staff can recalibrate almost any type or brand of antenna.

For more information about our calibration services or to place an order for antenna calibration visit our website at http://www.AHSystems.com or call 1(818) 998-0223.