COM-POWER CORPORATION

Absorbing Clamps

CLA-050 and CLA-150

Features

- **Frequency Range** *30 MHz to 1 GHz*
- **Useful for Distubance Power Measurement & Screening attenuation of cables.**
- **Complies with CISPR 16-1-3**
- **Individual Calibration Included**
- **Three-year Standard Warranty**

Description

The CLA-050 and CLA-150 Absorbing Clamps are designed to measure disturbance power on power input lines as well as other auxiliary I/O lines. The measurement of disturbance power is a method for determination of radiated disturbance, and an alternative to the measurement of disturbance field strength on an Open Area Test Site (OATS) or Semi-Anechoic Chamber (SAC).

Construction

The CLA-050 and CLA-150 consist of a broadband current transformer (30 MHz to 1 GHz) and two sets of ferrite rings. The line(s) under test are routed through the current transformer and one of the set of ferrite rings.

The ferrite rings act as a broadband RF power absorber and isolates the current transformer from disturbances on the mains and establishes asymmetric (common-mode) impedance. Each of these ferrites are split into two halves, with one half mounted in the absorbing clamp base, and the other half mounted in the hinged top cover. When the clamp is open, the line(s) under test are easily laid into place inside the bottom halves of the ferrites. When the clamp is closed, the two halves meet, forming a ring around the line(s) under test.

The coaxial line connecting the current transformer to the clamp's output connector is routed through the second set of ferrite ring which decouples the current transformer from the asymmetric (common-mode) impedance of the receiver.

The aperture size of the clamp dictates the maximum diameter of cable or cables bundle which can be placed under test. The CLA-050 has an aperture size of 0.5" & CLA-150 has an aperture size of 1.4", which is the main difference between the two clamps.

The chassis is designed to be extremely durable, making it an ideal choice for daily use in laboratory environments, both indoors and outdoors. The handle at the top and wheels at the bottom facilitate easy movement of the clamp along the length of the line(s) under test.

Application

Testing with Absorbing clamp is simplified compared to traditional methods of measuring radiated disturbances. It does not require a anechoic/ semi-anechoic chamber or a calibrated site.

The use of an absorbing clamp for disturbance power measurements is required for certain types of devices per CISPR 13 [EN 55013], CISPR 32 [EN 55032] and CISPR 14 [EN 55014]. It can also be used to measure screening attenuation of RF coaxial cables.

Measurement

Measurement of disturbance power is done in a 50 ohm system. The power (P) measured using the absorbing clamp in a 50 ohm system can be expressed as

$$10\log(P)_{dB(pW)} = 10\log(V^2/50) + IL$$
$$= 20\log(V) - 10\log(50) + IL$$
$$= 20\log(V) - 17 + IL$$

P = Power (watts)
V= Voltage measured at output of clamp
IL = Insertion loss of clamp

The clamp factor provided in the datasheet with each clamp accounts for the [-17 + IL]

So the Corrected reading for Power in dB(pW) equals

Meter Reading (dBuV) + Clamp Factor (dBpW/µV) + [Cable Loss]

Calibration

Each absorbing clamp is individually calibrated per CISPR 16-1-3 with NIST traceability. The calibration data and certificate is provided. Recognized ISO 17025 accredited calibration is also available upon request.

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Absorbing Clamps

CLA-050 and CLA-150

Specifications

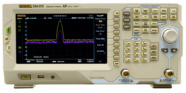
All values are typical, unless specified.
All specifications are subject to change without notice.

Product Model	CLA-050	CLA-150
Frequency Range	30 MHz to 1 GHz	
Clamp Factor	-4 to +5 dBpW/µV [-17 + clamp Insertion loss]	
Clamp Insertion loss	13 dB to 22 dB	
Decoupling Factor (DF)	> 21 dB	
Decoupling Factor (DR)	> 30 dB	
RF Connector	50Ω - BNC (female)	
Operating Current	30 A (max.)	
Operating Temperature	40°F to 104°F (5°C to 40°C)	
Aperture Diameter	0.5" (1.27 cm)	1.4" (3.5 cm)
Cable / Cable bundle Diameter (Max)	0.39" (1 cm)	1.25" (3.2 cm)
Dimensions (H x W x D)	5.8" x 24.8" x 3.7" 14.7 x 63 x 9.5 (cm)	7" x 24.2" x 5.1" 17.7 x 61.5 x 13 (cm)
Weight	12 lbs (5.4 kg)	21 lbs (9.5 kg)

Other products available from Com-Power:

PAM-103 Preamplifier

AT-812 Antenna Tripod

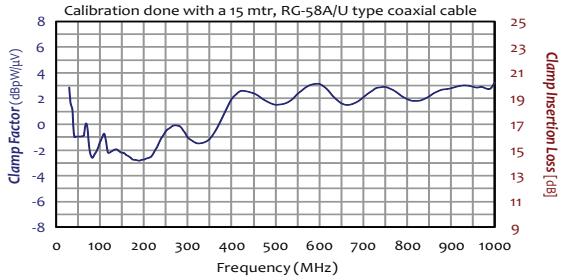


SPA-815TGE Spectrum Analyzer

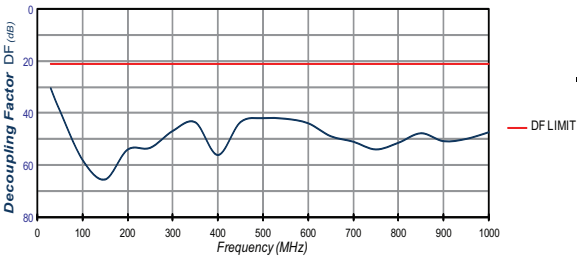
Also Available:

AB-900A Biconical Antenna
AM-741R Active Monopole Antenna
ALC-100 & AL-100 Log Periodic Antennas

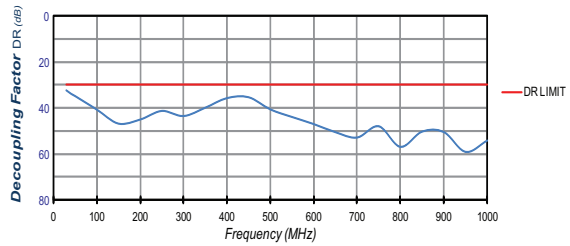
Clamp Factor / Clamp Insertion Loss



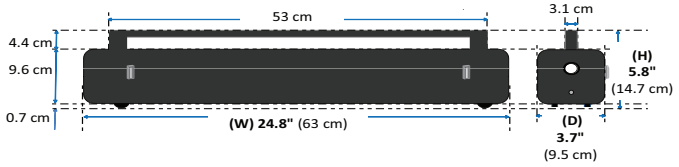
Decoupling Factor - DF



Decoupling Factor - DR



CLA-050 Dimensions



CLA-150 Dimensions