LOG PERIODIC ANTENNA

300 - 1000 MHz

MODEL ALC-100

rev: 120103

WARRANTY

All equipment manufactured by Com-Power Corporation is warranted against defects in material and workmanship for a period of two (2) years from the date of shipment. Com-Power Corporation will repair or replace any defective item or material if notified within the warranty period.

You will not be charged for warranty service performed at our factory. You must, however, prepay inbound shipping costs and have a return authorization.

This warranty does not apply to:

a) products damaged during shipment from your plant or ours.
b) improperly installed products.
c) products operated outside their specifications.
d) improperly maintained products.
e) products which have been modified.
f) normal wear of material.
g) calibration.

Any warranties or guarantees, whether expressed or implied, that are not specified set forth herein, will not be considered applicable to any equipment sold or otherwise furnished by Com-Power Corporation. Under no circumstances does Com-Power Corporation recognize or assume any liability for any loss, damage or expense arising either directly or indirectly from the use or handling of products manufactured by Com-Power Corporation, or any inability to use them separately or in combination with other equipment or material.

The warranty is void if items are shipped outside the United States, without prior approval of Com-Power Corporation.

Warranty Limitations

The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the buyer, unauthorized modification or misuse, operation exceeding specifications, or improper site preparation.

SAFETY PRECAUTIONS

The model ALC-100 Log Periodic antenna were designed for use in an EMI laboratory to measure and / or generate electric (E) field strength.

Test Operator and Test Location:

The Model ALC-100 antenna should be operated by trained personnel in the field of EMC for the purpose of generating electromagnetic fields. The Test location should be selected to avoid interference to other equipment and exposure of personnel to high electromagnetic fields.

Maintenance and Service:

There are no user serviceable parts inside the balun. Do not remove the instrument cover. Com-Power provides calibration service for all equipment sold. Call the factory if calibration or other service is required.

About this Manual

This manual provides instructions for testing and using the Log Periodic Antenna model ALC-100.

If You Need Assistance

If you encounter problems while using the Model ALC-100, contact Com-Power Corporation at (714) 528-8800.

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General Information 1

This section includes the following:

a) Introduction
b) General Description
c) Specifications
d) Equipment Supplied

1.1 Introduction

This section contains general description of the Log Periodic Antenna Model ALC-100. This section also contains general performance, background information and technical information about the antennas.

1.2 General Description

The Model ALC-100 Log Periodic antennna was specifically designed for radiated EMI measurement over a wide frequency range. This antenna was designed to receive radiated EMI signals or transmit signals during susceptiblity testing for various agency specifications.

The Log Periodic Antenna is a broadband transducer which converts Electric field strength in dBuV/m to Volts that can be displayed on a spectrum analyzer or EMI meter.

Further information on the Log Periodic Antenna is given in Section 3.

1.3 Equipment Specifications

The functional and operational characteristics of the and ALC-100 Log Periodic antenna are listed in Table 1.1

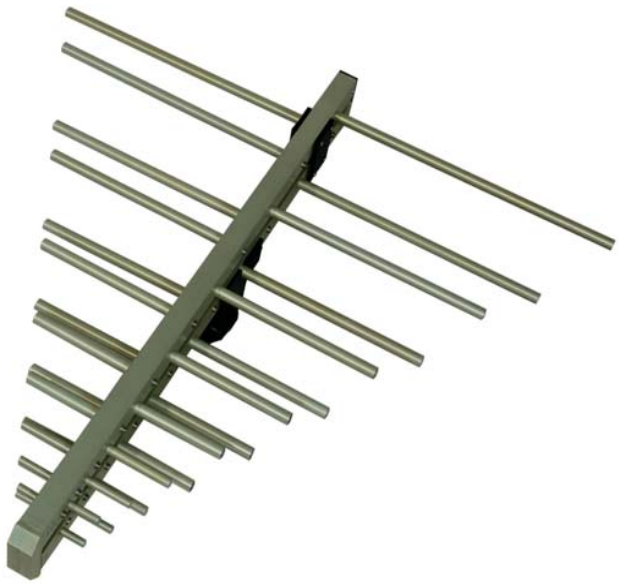

Figure 1.1 ALC-100 Log Periodic Antenna

1.4 Equipment, Accessories, and Documents Supplied

Equipment, accessories, and documents supplied with the ALC-100 Log Periodic Antennas are as follows:

a) One (1) Log Periodic Antenna
c) User's Guide
d) Calibration information

Table 1.1 Equipment Specifications

Model:	ALC-100
Frequency Range:	300 - 1000 MHz
VSWR (typ.)	1.2: :1
Impedance:	50 ohms (nominal)
Power Handling:	500 Watts CW
Connector:	N (f)
Weight:	4.5 lbs.
Mounting:	Center Pivoting joint for Hori-
zontal .	/ Vertical polarization.
Dimensions:	
Length	30 inches
Width	30 inches

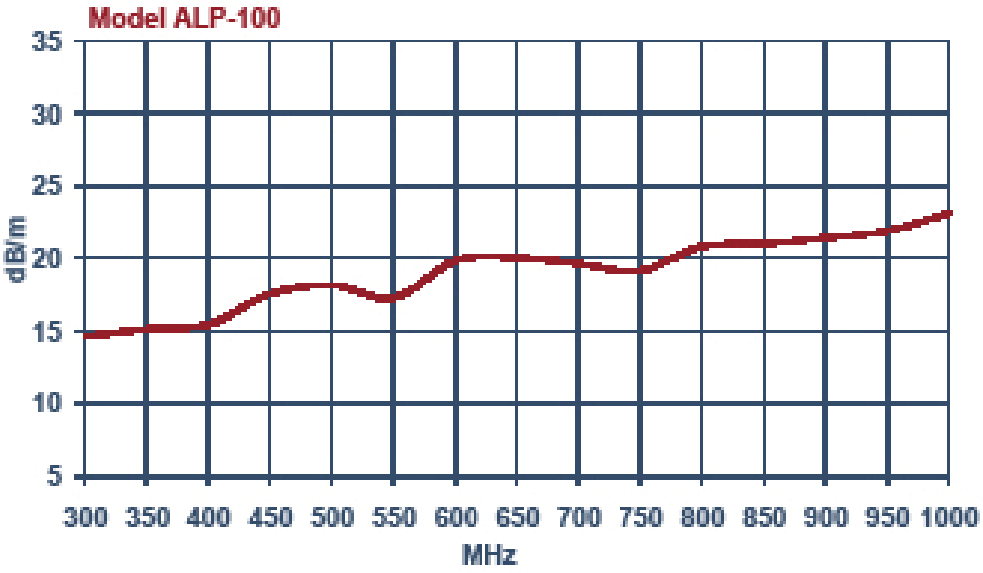

Figure 1.2 - Typical Antenna Factors for ALC-100 Log Periodic Antenna

Setup Procedure

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This section explains the following:

a) Introduction
b) Setup

2.0 Introduction

This section describes antenna setup and mounting for EMI measurement.

2.1 Antenna Setup

2.1.1 Connecting

The and Model ALC-100 Log Periodic Antennas have N type (f) connectors. The same connector is used for both signal input and output.

2.1.2 Antenna setup for receiving signals

The or Model ALC-100 antenna can be used to measure EMI from an equipment under test (EUT). The antenna is mounted on either an antenna mast (Model AM-400) or an antenna tripod. A cable is used to connect the antenna to the a measureing instrument. If a long cable is used, cable loss must be measured and used in calculating the field strength.

2.1.3 Antenna setup for transmitting signals

The Model ALC-100 antenna can be used to receive and transmit signals. The antenna is mounted on either on an antenna mast (Model AM-400 antenna mast) or antenna tripod (Model AT-100). To transmit signals, the antenna is connected to a signal generator and power amplifier. The Model ALC-100 Log Periodic Antenna can transmit up to 500 Watts continious power. The field generated by the antenna can be measured by using a field strength meter.

The Log Periodic Antenna must be mounted and placed in area away from other conductive objects or materials when in use. Large conductive building, structures and electrical cables, can reflect emissions of the equipment under test, causing errors in the test data. In addition, care should be taken to keep measuring intruments and test personnel away from the test area to avoid interference to the test, and exposure of test personnel to electromagnetic fields.

Theory of Operation 3

This chapter explains the following:

a) Overview
b) Theory of Operation
- Functional Block Diagram

3.0 Overview

This section describes the theory of operation of the ALC-100 Log Periodic Antenna.

3.1 Theory of Operation

Broadband antennas allow measurement of signals over a wide frequency range. These antennas do not require any tuning or balun switching during measurement. It is very useful for sweep measurement over the frequency range of operation. Model ALC-100 Log Periodic Antenna is a broadband antenna that operate in the frequency range of 300 MHz to 1000 MHz.

antenna is a receive only antenna. It cannot transmit signals. However, Model ALC-100 antenna can both receive and transmit signals over the frequency range of operation. Model ALC-100 antennas are used for susceptibility and emissions testing in EMC Laboratories.

Before the Log Periodic Antennas are used for measurement they have to be calibrated. Typically antenna calibration is performed in an open field test site(OATS). During calibration a known field strength (dBuV/m) is generated around the antenna at each frequency (300 -1000 MHz). The difference between field strength (dBuV) received by the antenna and known field strength generated (dBuV) is the antenna factor (dB) for that frequency. During EMC testing the antenna factor for the frequency of interest is added back to reading on the EMI meter or spectrum analyzer to measure field strength.

dBuV/m (field strength) = dBuV (output measured) + Antenna Factor