User Guide

InterferenceHunter™ MA2700A

Handheld Direction Finding System

Includes GPS and Electronic Compass

Anritsu Company
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Morgan Hill, CA 95037-2809
USA

Part Number: 10580-00361
Revision: D
Published: October 2022

WARRANTY

The Anritsu product listed on the title page is warranted against defects in materials and workmanship for one year from the date of shipment.

Anritsu's obligation covers repairing or replacing products which prove to be defective during the warranty period. Buyers shall prepay transportation charges for equipment returned to Anritsu for warranty repairs. Obligation is limited to the original purchaser. Anritsu is not liable for consequential damages.

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TRADEMARK ACKNOWLEDGMENTS

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Anritsu Company has prepared this manual for use by Anritsu Company personnel and customers as a guide for the proper installation, operation and maintenance of Anritsu Company equipment and computer programs. The drawings, specifications, and information contained herein are the property of Anritsu Company, and any unauthorized use or disclosure of these drawings, specifications, and information is prohibited; they shall not be reproduced, copied, or used in whole or in part as the basis for manufacture or sale of the equipment or software programs without the prior written consent of Anritsu Company.

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This product and its manuals may require an Export License or approval by the government of the product country of origin for re-export from your country.

Before you export this product or any of its manuals, please contact Anritsu Company to confirm whether or not these items are export-controlled.

When disposing of export-controlled items, the products and manuals need to be broken or shredded to such a degree that they cannot be unlawfully used for military purposes.

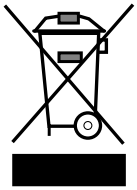
UPDATES

Updates, can be downloaded from the Anritsu Website at:
http://www.anritsu.com/contact-us

CE Conformity Marking

Anritsu affixes the CE Conformity marking onto its conforming products in accordance with Council Directives of The Council Of The European Communities in order to indicate that these products conform to the EMC, LVD, RoHS, and RED directives of the European Union (EU).

European Parliament and Council Directive 2012/19/EU



Equipment Marked with the crossed-out Wheelie Bin symbol complies with the European Parliament and Council Directive 2012/19/EU (the “WEEE Directive”) in the European Union.

For Products placed on the EU market after August 13, 2012, please contact your local representative at the end of the product’s useful life to arrange disposal in accordance with your initial contract and the local law.

RCM Conformity Marking

Anritsu affixes the Regulatory Compliance Mark (RCM) onto its conforming products in accordance with the electromagnetic compliance regulations of Australia and New Zealand in order to indicate that these products conform to the EMC regulations of Australia and New Zealand.

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Anritsu affixes the UKCA Conformity marking onto its conforming products in accordance with the United Kingdom conformity assessment body (CAB) in order to indicate that these products conform to the market of Great Britain (England, Wales, and Scotland).

KCC Conformity Marking

Anritsu affixes the Korean Communications Commissions (KCC) mark onto its conforming products in accordance with the electromagnetic compliance regulations of Korea

Recycle Marking

Anritsu affixes the universal recycle symbol onto its products to indicate that the marked part is made from recyclable materials and should be recycled. Materials should be recycled in accordance with your local regulatory requirements.

Canadian ICES-001 Conformity Marking

CAN/ICES-1 (A)/NMB-1(A)

Anritsu affixes the CAN ICES-1(A)/NMB-1(A) compliance label onto its conforming products in accordance with the following Canadian Interference-Causing Equipment Standards.
ICES-001 — Industrial, Scientific and Medical (ISM) Radio Frequency Generators

Chinese RoHS Compliance Statement

产品中有毒有害物质或元素的名称及含量

NLNB - 201606

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 [Cr(VI)]	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷线路板 (PCA)	×	○	×	○	○	○
机壳、支架 (Chassis)	×	○	×	×	○	○
其他（电缆、风扇、连接器等） (Appended goods)	×	○	×	×	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11364-2014 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11364-2014 标准规定的限量要求。

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这个标记是根据 2016/1/21 公布的「电子信息产品污染控制管理办法」以及 SJ/T 11364-2014「电子信息产品污染控制标识要求」的规定，适用于在中国销售的电子信息产品的环保使用期限。仅限于在遵守该产品的安全规范及使用注意事项的基础上，从生产日起算的该年限内，不会因产品所含有害物质的泄漏或突发性变异，而对环境污染，人身及财产产生深刻地影响。

注）生产日期标于产品序号的前四码(如 S/N 1628XXXX 为16 年第 28 周生产)。

Safety Symbols

To prevent the risk of personal injury or loss related to product malfunction, Anritsu Company uses the following symbols to indicate safety-related information. For your own safety, please read the information carefully *before* operating the product.

Symbols Used in Manuals

Danger

This indicates a risk from a very dangerous condition or procedure that could result in serious injury or death and possible loss related to product malfunction. Follow all precautions and procedures to minimize this risk.

Warning

This indicates a risk from a hazardous condition or procedure that could result in light-to-severe injury or loss related to product malfunction. Follow all precautions and procedures to minimize this risk.

Caution

This indicates a risk from a hazardous procedure that could result in loss related to product malfunction. Follow all precautions and procedures to minimize this risk.

Safety Symbols Used on Product and in Manuals

The following safety symbols are used inside or on the product near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions *before* operating the product. Some or all of the following five symbols may or may not be used on all Anritsu products. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

This indicates a compulsory safety precaution. The required operation is indicated symbolically in or near the circle.

This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

This indicates a note. The contents are described in the box.

These indicate that the marked part should be recycled.

Danger

Using the MA2700A InterferenceHunter while a car is in motion could be dangerous and lead to serious accidents.

Warning

Always refer to the operation manual when working near locations at which the alert mark, shown on the left, is attached. If the operation, etc., is performed without heeding the advice in the operation manual, there is a risk of personal injury. In addition, the product performance may be reduced. Moreover, this alert mark is sometimes used with other marks and descriptions indicating other dangers.

Warning

WARNING

This product can not be repaired by the operator. Do not attempt to remove the product covers or to disassemble internal components. Only qualified service technicians with a knowledge of electrical fire and shock hazards should service this product. There are high-voltage parts in this product presenting a risk of severe injury or fatal electric shock to untrained personnel. In addition, there is a risk of damage to precision components.

Caution

Electrostatic Discharge (ESD) can damage the highly sensitive circuits in the instrument. ESD is most likely to occur as test devices are being connected to, or disconnected from, the instrument's front and rear panel ports and connectors. You can protect the instrument and test devices by wearing a static-discharge wristband. Alternatively, you can ground yourself to discharge any static charge by touching the outer chassis of the grounded instrument before touching the instrument's front and rear panel ports and connectors. Avoid touching the test port center conductors unless you are properly grounded and have eliminated the possibility of static discharge.

Repair of damage that is found to be caused by electrostatic discharge is not covered under warranty.

Table of Contents

Chapter 1 — General Information

1-1 Introduction

This user guide provides an overview of the Anritsu InterferenceHunter MA2700A Handheld Direction Finding System.

The MA2700A easy-to-use handheld direction finding includes an internal preamplifier, a GPS receiver, and an electronic compass.

Caution	Do not use the MA2700A InterferenceHunter while driving. It is best practice to stop in a safe location, park, and turn off the car before using the MA2700A InterferenceHunter.

MA2700A Specifications

Refer to the MA2700A Technical Data Sheet (11410-00692).

Additional Documentation

This MA2700A InterferenceHunter User Guide is part of a set of manuals that describe remote spectrum analyzer functions with the Anritsu InterferenceHunter MA2700A handheld direction finding system. Refer to your Anritsu instrument product page for additional documentation and information on setting the measurement parameters, manually connecting to the MA2700A, locating the interfering signal, and interference mapping.

A complete suite of computer software applications are available for download:

https://www.anritsu.com/en-us/test-measurement/products/ma2700a

1-2 Preventive Maintenance

MA2700A preventive maintenance consists of cleaning the unit and inspecting and cleaning the USB and RF connector. For a complete instructional guide to connector care, see the Anritsu RF and Microwave Connector Care Instruction Sheet (10100-00031).

1-3 ESD Caution

The MA2700A, like other high performance instruments, is susceptible to electrostatic discharge (ESD) damage. Coaxial cables and antennas often build up a static charge, which (if allowed to discharge by connecting directly to the instrument without discharging the static charge) may damage the MS2700 input circuitry. Instrument operators must be aware of the potential for ESD damage and take all necessary precautions.

Operators should exercise practices outlined within industry standards such as JEDEC-625 (EIA-625), MIL-HDBK-263, and MIL-STD-1686, which pertain to ESD and ESDS devices, equipment, and practices. Because these apply to the MA2700A, it is recommended that any static charges that may be present be dissipated before connecting coaxial cables or antennas to the instrument. This may be as simple as temporarily attaching a short or load device to the cable or antenna prior to attaching to the MA2700A. It is important to remember that the operator may also carry a static charge that can cause damage. Following the practices outlined in the above standards will ensure a safe environment for both personnel and equipment.

1-4 Contacting Anritsu

To contact Anritsu, visit the following URL and select the services in your region: http://www.anritsu.com/contact-us

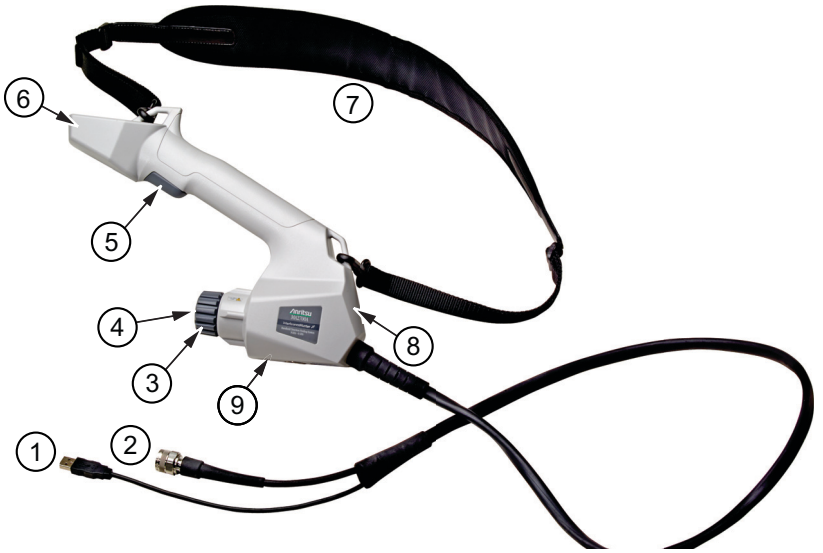
Chapter 2 — MA2700A Overview

2-1 Instrument Setup

Use the procedures in this chapter to connect the MA2700A to an Anritsu spectrum analyzer. When the MA2700A is attached with a directional antenna and connected to an Anritsu instrument, pressing the MA2700A trigger captures an interfering signals location and information.

Note	The Anritsu Instrument must have interference analysis options installed and firmware to use the MA2700A.

2-2 Instrument Description



1	USB cable, connect to Anritsu instrument
2	Coaxial cable with type N male connector to instrument's RF In.
3	Coupling nut for antenna connector.
4	Antenna connector (male type N). Connect directional antenna or filter and antenna combination. Refer to "Antenna and Filter Selection" on page 2-5 for additional information.
5	Pulling the MA2700A trigger prompts the Anritsu analyzer to beep. Release the trigger after the initial beep (< 1 second) to capture location and signal data. Release the trigger after the second beep (~ 2 seconds) to toggle the preamp in the MA2700A and the Anritsu analyzer's preamp On or Off. The Field Master series analyzer preamp functions are provided in the instrument user interface menu and the MA2700A preamp is not used.
6	Internal electronic compass and GPS receiver
7	Included shoulder strap
8	Internal preamplifier
9	1/4-20 UNC tripod mount

Figure 2-1. MA2700A Overview

2-3 Connections

Connect the MA2700A to an instrument for locating interference signals as follows:

1. Connect a directional antenna to the male N-connector (inside the coupling nut).

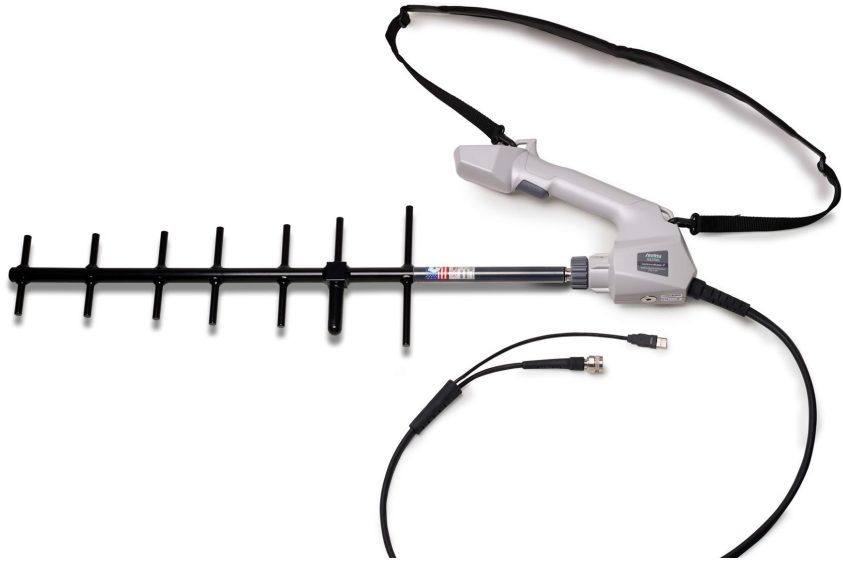


Figure 2-2. MA2700A with Attached Yagi Antenna

2. Connect the USB cable between the MA2700A and the Anritsu instrument.
3. Connect the coaxial cable between the MA2700A and the Anritsu instrument's RF Input connector.

Once detected, the MA2700A can be used to capture bearing and/or GPS data while in other interference mode measurements and even other supported instrument measurement modes, including spectrum analyzer mode.

Compass Calibration

Anritsu recommends calibrating the MA2700A electronic compass before the first use and afterwards if the Anritsu instrument connected to the MA2700A is displaying unexpected signal direction readings. Use your Anritsu instrument measurement guide to open the External Compass Calibration menu and follow the onscreen instructions as shown in (Figure 2-3).

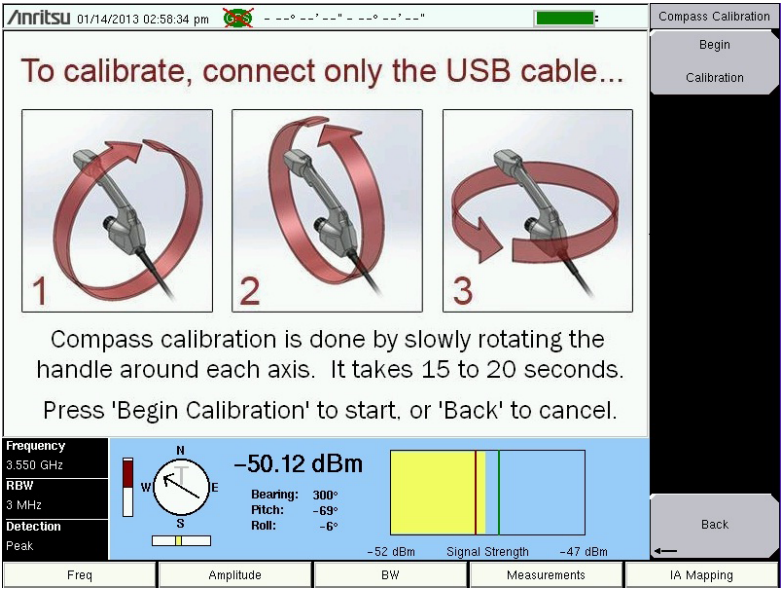


Figure 2-3. Compass Calibration

Note	Electrical or magnetic fields can interfere with compass readings. When calibrating the compass be careful to stay well clear of electronics, high voltage power lines, magnetic devices, and masses of steel or iron. These same precautions should be taken when mapping interference.

2-4 Antenna and Filter Selection

The MA2700A is designed to connect to a directional antenna that has a type N female connector at the back of the antenna's boom. To connect properly, the antenna's connector must be rigidly connected to the boom and facing toward the rear of the antenna. The connector must be at least 16 cm behind the rear-most antenna element to avoid interference between the MA2700A's body and the antenna element.

A filter can be connected between the antenna and MA2700A, to reduce the impact of high level signals at other frequencies. A short filter with male and female type N connectors will work best for this application.

Anritsu utilizes recycled paper and environmentally conscious inks and toner.

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