WFS-1

Dipole Leakage Antenna

User's Guide

Notice

Every effort was made to ensure that the information in this manual was accurate at the time of printing. However, information is subject to change without notice, and VIAVI reserves the right to provide an addendum to this manual with information not available at the time that this manual was created.

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Copyright release

Ordering information

This guide is a product of the VIAVI Technical Publications Department, issued as part of the product. The catalog number for a published guide is Catalog Number - printed. The catalog number for an electronic guide on USB is Catalog Number - electronic.

Terms and conditions

Specifications, terms, and conditions are subject to change without notice. The provision of hardware, services, and/or software are subject to VIAVI standard terms and conditions, available at **www.viavisolutions.com/en/terms-and-conditions**.

China RoHS

China RoHS documentation is included in the shipping package and available on StrataSync.

EU WEEE Directive

This product should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations.

VIAVI has established a take-back process in compliance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive, 2012/19/EU.

Instructions for returning waste equipment to VIAVI can be found in the WEEE section of the VIAVI Standards and Policies web page.

If you have questions concerning disposal of your equipment, contact the VIAVI WEEE Program Management team at **WEEE.EMEA@ViaviSolutions.com**.

EU REACH

Article 33 of EU REACH regulation (EC) No 1907/2006 requires article suppliers to provide information if a listed Substance of Very High Concern (SVHC) is present in an article above a certain threshold.

For information on the presence of REACH SVHCs in VIAVI products, see the **Hazardous Substance Control** section of the VIAVI Standards and Policies web page.

California Proposition 65

California Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted in November 1986 with the aim of protecting individuals in the state of California and the state's drinking water and environment from excessive exposure to chemicals known to the state to cause cancer, birth defects or other reproductive harm.

For the VIAVI position statement on the use of Proposition 65 chemicals in VIAVI products, see the **Hazardous Substance Control** section of the VIAVI Standards and Policies web page.

Conventions

This guide uses typographical and symbols conventions as described in the following tables.

Typographical conventions

Description	Example
User interface actions	On the Status bar, press **Start**.
Buttons or switches that you press on a unit	Press the **ON** switch.
Code and output messages	All results okay
Text you must type exactly as shown	Type: ***a:\set.exe*** in the dialog box
Variables	Type the new ***hostname***.
Book references	Refer to ***Newton's Telecom Dictionary***
A vertical bar | means "or": only one option can appear in a single command.	platform [a|b|e]
Square brackets [ ] indicate an optional argument.	login [platform name]
Slanted brackets < > group required arguments.	<password>

Keyboard and menu conventions

Description	Example
A plus sign + indicates simultaneous keystrokes.	Press **Ctrl+s**
A comma indicates consecutive key strokes.	Press **Alt+f,s**
A slanted bracket indicates choosing a submenu from menu.	On the menu bar, press **Start > Program Files**.

Symbol conventions

This symbol indicates a note that includes important supplemental information or tips related to the main text.

This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See *"Safety definitions" on page 6* for more information.

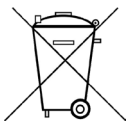
This symbol represents an alert. It indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

This symbol represents hazardous voltages. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See *"Safety definitions" on page 6* for more information.

This symbol represents a risk of explosion. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See *"Safety definitions" on page 6* for more information.

This symbol represents a risk of a hot surface. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See *"Safety definitions" on page 6* for more information.

This symbol represents a risk associated with fiber optic lasers. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See *"Safety definitions" on page 6* for more information.



This symbol, located on the equipment, battery, or the packaging indicates that the equipment or battery must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

Safety definitions

Term	Description
DANGER	Indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol.
WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury and/or damage to equipment. It may be associated with either a general hazard, high voltage, or risk of explosion symbol. When applied to software actions, indicates a situation that, if not avoided, could result in loss of data or a disruption of software operation.
ALERT	Indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

Precautions

CAUTION:

Do not use the instrument in any manner not recommended by the manufacturer.

DANGER:

Avoid power lines by maintaining a minimum distance of 10 ft (3m).

Avoid using the antenna during adverse weather conditions, when lightning could occur.

Before You Begin

Thank you for purchasing the WFS-1. This guide provides setup and operating instructions to get you up and running as soon as possible.

Technical assistance

If you require technical assistance, call 1-844-GO-VIAVI / 1.844.468.4284.

Outside US: +1-855-275-5378

Email: **Trilithic.support@viavisolutions.com**

For the latest TAC information, visit
https://support.viavisolutions.com/welcome

About the WFS-1

The VIAVI WFS-1 dipole signal leakage antenna enables faster field find-and-fix of leaks. By adjusting the dipole antenna length using the innovative cord markings, this single unit can be optimized to detect leaks anywhere from 130–450 MHz.

Final leak source localization is accelerated with the vertical and horizontal directionality that rubber duck or loop antennas simply can't provide. The result is a single, rugged antenna that is easy for techs to use, finds leaks faster, and enables maximum channel lineup flexibility without compromising performance.

Features

- Field tunable within 130-450 MHz range
- Superior sensitivity and directionality localizes leaks faster
- Supports Seeker D and Seeker X detectors
- Rugged unit built for field use

NOTE:

A 10-foot insulated telescoping pole can be purchased as an option for the antenna. See your VIAVI representative for details.

A guided tour of your WFS-1

Front and back views

Setting up the WFS-1

1. Using the element length chart, locate the desired frequency on the horizontal axis.
2. Draw a vertical straight line to the point of intersection with the sloping line for the antenna to be tuned.
3. Draw a horizontal straight line to the point of intersection with the vertical axis.
4. Read the approximate length "L" (in inches/cm) from the vertical axis.
5. Adjust the telescoping elements to equal the required length. The length read on the vertical axis is the length from the center of the antenna to the end of the element.

Freq (MHz)	Element length (inches/cm)	Cable marking (inches/cm)
130 MHz	21.7 in. (55.11 cm)	19.2 in. (48.76 cm)
138 MHz	20.5 in. (52.07 cm)	18 in. (45.72 cm)
150 MHz	18.9 in. (48 cm)	16.4 in. (41.65 cm)
200 MHz	14.1 in. (35.81 cm)	11.6 in. (29.46 cm)
250 MHz	11.3 in. (28.7 cm)	8.8 in. (22.35 cm)
300 MHz	9.5 in (24.13 cm)	7 in. (17.78 cm)
350 MHz	8.1 in. (20.57 cm)	5.6 in. (14.22 cm)
450 MHz	6.3 in. (16 cm)	3.8 in. (9.65 cm)

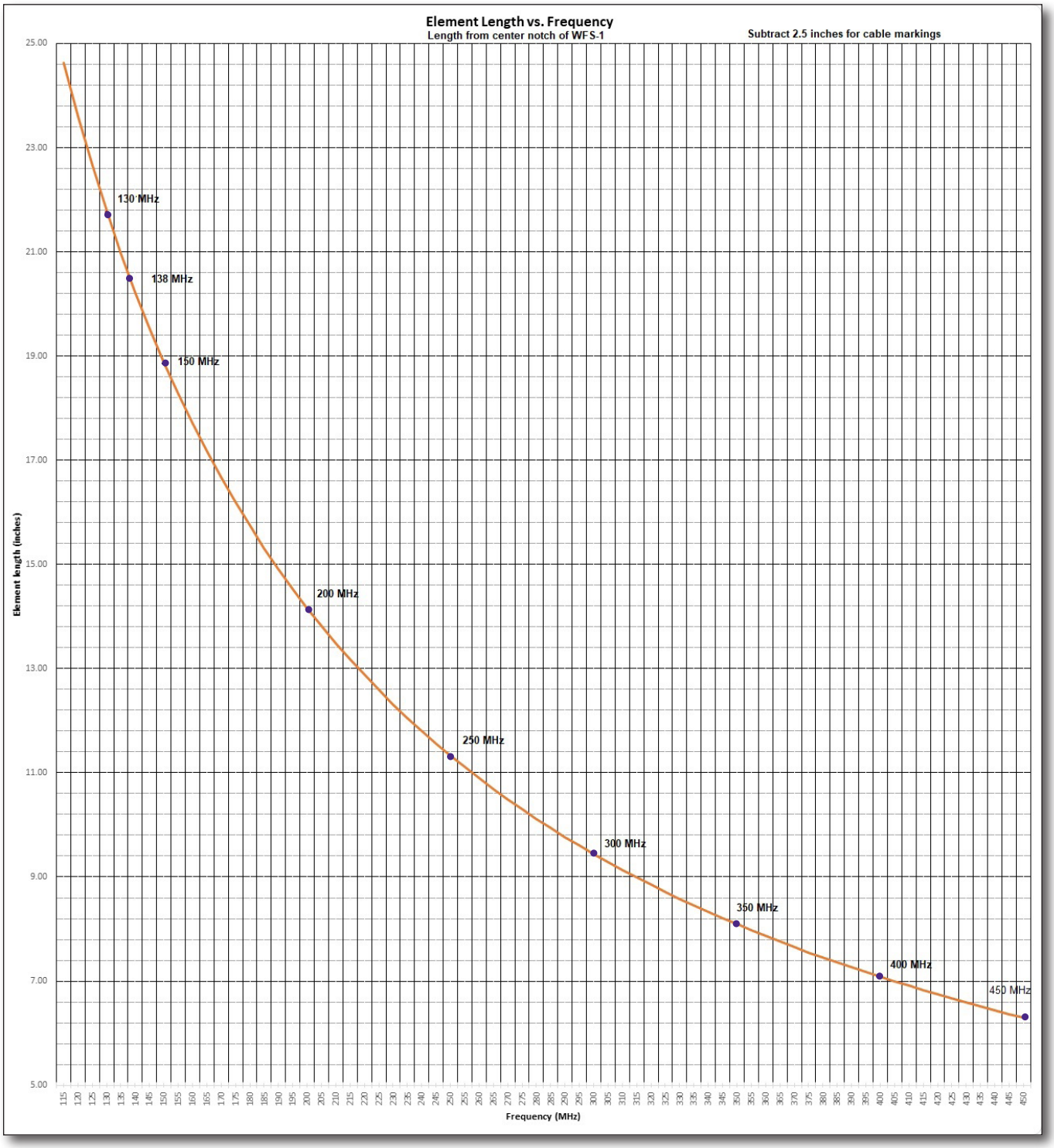
NOTE:

The provided RF cable comes pre-marked with several frequency markers to aid with quick extension of the elements to the correct length.

NOTE:

The antenna has a ridge on the top to mark the center.

To reduce the chance of bending the elements as you raise or lower them, always hold the element as close to the hinge as possible.



NOTE:

For the most accuracy, fully extend the elements, then shorten the smaller elements to the desired frequency marked on the cable. Line up the element with the part of the frequency label that is furthest from the antenna.

Using your WFS-1

Connect the cable to the BNC connector on the antenna assembly to the antenna connection on the Seeker Series leakage meter.

The dipole antenna used in leakage detection is also referred to as a half-wave dipole because it is equal in length to one-half the measured wavelength in free space. A dipole antenna which is onehalf a wavelength long, is commonly used because of the ease of extracting the received power.

An antenna's response (receiving or radiation) pattern is determined by its ability to receive or radiate signals better when tuned or pointed in one direction. If pointed or tuned elsewhere, the antenna's ability to receive is diminished.

The radiation pattern of a half-wave dipole looks like a figure eight, with the plane of maximum radiation perpendicular to the center of the dipole. The radiation pattern makes the dipole a usable direction-finding antenna. As the antenna is turned with the ends of the elements toward a leak's source, the level detected will weaken. As the elements' sides are turned toward the leak, the signal will increase.

To measure the leakage signals, the dipole must be placed in a horizontal position. The sides of the antenna's elements are most sensitive to RF signals; the ends are least sensitive. Once the antenna is in position, slowly rotate it about the vertical axis until the maximum signal level is found. This is how a signal is peaked. It may be necessary to rotate the dipole several times to confirm the peak signal reading. The operator may also reposition the dipole horizontally to obtain a peak reading.

Care and maintenance

In order to maximize both the performance and appearance of your antenna, it is recommended that you clean it on a regular basis.

When the antenna is not in use, fold down and retract the elements for storage.

Limited warranty

For the latest warranty information, visit

https://www.viavisolutions.com/literature/viavi-solutions-inc-general-terms-en.pdf

https://www.viavisolutions.com/en-us/literature/viavi-manufacturer-warranty-nse-products-en.pdf

Specifications

Electrical Specifications	
Frequency Range	130–450 MHz
Antenna Factor	2.14 dBi
Nominal Impedance	50 Ohm

Physical Specifications	
Connector	BNC Female
Dimensions of Antenna (L x W x H)	3 x 5.6 x 2 in (76 x 142 x 51 mm)
Weight without cable	0.4 lb (181 g)

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English

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