

User Guide

3659 0.8 mm Calibration/Verification Kit and 2300-558 System Performance Verification Software

VectorStar™ ME7838D Modular Broadband/Millimeter-Wave VNA System with 3739C BB Test Set and MA25300A mm-Wave Modules



3659 0.8 mm Calibration and Verification Kit

Anritsu

WARRANTY

The Anritsu products listed on the title page are 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.

LIMITATION OF WARRANTY

The foregoing warranty does not apply to Anritsu connectors that have failed due to normal wear. Also, the warranty does not apply to defects resulting from improper or inadequate maintenance, unauthorized modification or misuse, or operation outside of the environmental specifications of the product. No other warranty is expressed or implied, and the remedies provided herein are the Buyer's sole and exclusive remedies.

DISCLAIMER OF WARRANTY

DISCLAIMER OF WARRANTIES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ANRITSU COMPANY AND ITS SUPPLIERS DISCLAIM ALL WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE PRODUCT. THE USER ASSUMES THE ENTIRE RISK OF USING THE PRODUCT. ANY LIABILITY OF PROVIDER OR MANUFACTURER WILL BE LIMITED EXCLUSIVELY TO PRODUCT REPLACEMENT.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL ANRITSU COMPANY OR ITS SUPPLIERS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THE PRODUCT, EVEN IF ANRITSU COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

TRADEMARK ACKNOWLEDGMENTS

Windows, Windows XP, Microsoft Paint, Microsoft Word, Microsoft Access, Microsoft Excel, Microsoft PowerPoint, and Visual Studio are all registered trademarks of Microsoft Corporation. Acrobat Reader is a registered trademark of Adobe Corporation.

NOTICE

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.

UPDATES

Updates, if any, can be downloaded from the Documents area of the Anritsu Website at:
<http://www.anritsu.com>

For the latest service and sales contact information in your area, please visit:
<http://www.anritsu.com/contact.asp>

ANRITSU COMPANY SOFTWARE LICENSE AGREEMENT

IMPORTANT-READ CAREFULLY BEFORE OPENING THE SOFTWARE PACKET. BY OPENING THE PACKET CONTAINING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS AGREEMENT. THIS IS A LEGAL AGREEMENT BETWEEN YOURSELF, AND YOUR EMPLOYER, IF APPLICABLE, AND ANRITSU COMPANY ("ACUS"). IF YOU DO NOT AGREE WITH ALL OF THE TERMS OF THIS AGREEMENT, PROMPTLY RETURN THE UNOPENED SOFTWARE PACKAGE, AND THE ACCOMPANYING DOCUMENTATION TO ANRITSU FOR FULL CREDIT.

SOFTWARE LICENSE AGREEMENT

1. GRANT OF LICENSE. This License Agreement permits you to use one copy of the enclosed software program (the "Software") on a single computer (unless you have purchased a multiple test license to run on a dedicated client/server for a specified number of workstations). If you have a multi user license for the Software, then at any time you may use as many copies of the Software in use as are permitted by the multi user license. The SOFTWARE is in use on a computer when it is loaded into temporary memory (i.e. RAM), installed into permanent memory (i.e. hard disk, CD-ROM, or other storage device), or installed/ loaded into any appropriate ACUS product. If the anticipated number of users of the SOFTWARE could exceed the number of users permitted by applicable licenses, then you must have a reasonable mechanism or process in place to ensure that the number of persons using the SOFTWARE does not exceed the number permitted by the applicable license. All rights not expressly granted are reserved to ACUS. This Grant of License is not subject to transfer or assignment by Licensee.

2. COPYRIGHT. This SOFTWARE is owned by ACUS and is protected by United States copyright laws and international treaty provisions. Furthermore, it is considered by ACUS to be ACUS proprietary information. Therefore, you must treat the SOFTWARE like any other copyrighted or proprietary material except that you may either (a) make one copy of the SOFTWARE solely for backup or archival purposes, or (b) transfer the SOFTWARE to a single hard disk, provided you keep the original solely for backup or archival purposes. You may NOT copy any written documentation accompanying the SOFTWARE.

3. OTHER RESTRICTIONS. You may not reverse engineer, decompile, or disassemble the SOFTWARE, nor may you publish the SOFTWARE on the internet, or load the SOFTWARE onto your company's network.

4. WARRANTY. ACUS warrants for a period of one (1) year from date of delivery that the SOFTWARE will, unless modified, perform the functions described in the accompanying documentation. ACUS's sole obligation is to undertake to correct or replace any reported error conditions.

ACUS DOES NOT WARRANT THAT THE SOFTWARE WILL RUN PROPERLY ON ALL HARDWARE, THAT THE SOFTWARE WILL MEET LICENSEES REQUIREMENTS, OR THAT ALL SOFTWARE ERRORS WILL BE CORRECTED. THE WARRANTIES ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ACUS SHALL NOT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, OR DAMAGES FOR LOSS OF PROFITS, REVENUE, DATA, OR USE, INCURRED BY licensee, REGARDLESS OF WHETHER IN TORT OR CONTRACT, AND REGARDLESS OF WHETHER LICENSEE HAS ADVISED ACUS OF THE POSSIBILITY OF SUCH LOSSES.

5. EXPORT CONTROL. Licensee shall not export or re-export software technical data, goods, or information licensed by ACUS directly or through others, to the proscribed countries, or foreign nationals of those countries, and/or denied parties, in violation of any applicable U.S., U.K., Danish, or Japanese export control laws and regulations or any other applicable export control laws promulgated and administered by the government of any country having jurisdiction over the parties or transaction.

6. TERMINATION. Any breach of the terms or conditions of this Grant of License will result in termination of the license granted hereunder. Upon termination of the license granted hereunder, Licensee shall return all copies of the software to ACUS, or certify their destruction in writing.

7. GOVERNING LAW. This agreement, and all of the rights hereunder, shall be interpreted and determined by the laws of the State of California, and all disputes shall be subject to the jurisdiction of the Courts within the State of California.

Notes On Export Management

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.

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 and LVD directive of the European Union (EU).



C-tick Conformity Marking

Anritsu affixes the C-tick marking 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.



European Parliament and Council Directive 2002/96/EC

Equipment Marked with the crossed-out Wheelie Bin symbol complies with the European Parliament and Council Directive 2002/96/EC (the "WEEE Directive") in the European Union.



For Products placed on the EU market after August 13, 2005, please contact your local Anritsu representative at the end of the product's useful life to arrange disposal in accordance with your initial contract and the local law.

Chinese RoHS Compliance Statement

产品中有毒有害物质或元素的名称及含量

For Chinese Customers Only NLNB

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/T11363-2006 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/T11363-2006 标准规定的限量要求。

环保使用期限



这个标记是根据 2006/2/28 公布的「电子信息产品污染控制管理办法」以及 SJ/T 11364-2006 「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 0728XXXX 为 07 年第 28 周生产)。

Safety Symbols

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

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 equipment 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 equipment 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 equipment malfunction. Follow all precautions and procedures to minimize this risk.

Safety Symbols Used on Equipment and in Manuals

The following safety symbols are used inside or on the equipment 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 equipment. Some or all of the following five symbols may or may not be used on all Anritsu equipment. 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.

For Safety

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 equipment performance may be reduced.

Moreover, this alert mark is sometimes used with other marks and descriptions indicating other dangers.

Warning



or



When supplying power to this equipment, connect the accessory 3-pin power cord to a 3-pin grounded power outlet. If a grounded 3-pin outlet is not available, use a conversion adapter and ground the green wire, or connect the frame ground on the rear panel of the equipment to ground. If power is supplied without grounding the equipment, there is a risk of receiving a severe or fatal electric shock.

Warning



This equipment can not be repaired by the operator. Do not attempt to remove the equipment covers or to disassemble internal components. Only qualified service technicians with a knowledge of electrical fire and shock hazards should service this equipment. There are high-voltage parts in this equipment 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—3659 0.8 mm Calibration/Verification Kit Overview

1-1	Introduction	1-1
1-2	Description	1-1
1-3	Required Equipment	1-1
	GPIB Controller PC Operating System	1-1
	Verification Software Overview	1-2
	Data Output	1-2
	GPIB Interface Card and Cable	1-2
	Printer	1-2
1-4	Model 3659 0.8 mm Calibration/Verification Kit	1-3
1-5	Related Documentation	1-4

Chapter 2—Using the 2300-558 Software with the VectorStar ME7838D

2-1	Introduction	2-1
2-2	Required Equipment	2-1
	Required VectorStar ME7838D Broadband System, 70 kHz to 145 GHz Instruments and Components	2-1
2-3	Configuring the Hardware	2-1
2-4	0.8 mm Verification Application Installation	2-2
2-5	Running the Verification Software	2-5
	Procedure	2-5
	Enter Port 1 BB/mm-Wave Module Information	2-7
	Enter Port 2 BB/mm-Wave Module Information	2-8
	Enter Test Set Information	2-9
2-6	Application Interface – Setup Menu Tab	2-10
	Procedure	2-10
2-7	Low-Band Calibration	2-18
	Procedure	2-18
2-8	High-Band Calibration	2-22
	Procedure	2-22

Table of Contents (Continued)

2-9	Application Interface – Main Menu Tab	2-25
	Auto Scale Display Button	2-26
	Default Display Scale Button	2-27
	Go To Remote Control Button	2-27
	Go To Local Control Button	2-27
	Restart Button	2-27
	Quit Button	2-28
	About	2-28
	Run All Tests	2-28
	Repeat Last Cal	2-28
	Save Data	2-28
	Matched Thru	2-28
	Matched Thru SN	2-28
	Mismatched Thru	2-28
	Mismatched Thru SN	2-28
2-10	Application Interface – Serial Number Tab Functions	2-29
2-11	Matched Thru Tests	2-30
	Procedure	2-30
2-12	Mismatched Thru Tests	2-32
	Procedure	2-32
2-13	Saving Verification Data	2-35
2-14	Restart for Alternate Frequency Band	2-35
	Procedure	2-35
2-15	Troubleshooting	2-36
	Difficulty Running the Program	2-36
	Difficulty Meeting System Specifications	2-36

Chapter 3—GPIB Card and Instrument Settings

3-1	Introduction	3-1
3-2	GPIB Board Settings	3-1
3-3	Instrument Settings	3-2

Chapter 1 — 3659 0.8 mm Calibration/Verification Kit Overview

1-1 Introduction

This manual provides description and maintenance instructions for the Model 3659 0.8 mm Calibration and Verification Kit and describes the use of the Anritsu 2300-558 Performance Verification Software (PVS) for the VectorStar ME7838D Modular BB/mm-Wave VNA Measurement System.

This chapter provides an illustration and description of the kit components. General connector care instructions applicable to all calibration kits are provided in [Chapter 3, “Connector Care Overview”](#).

Operation and use of the 3659 0.8 mm Calibration/Verification Kit is documented in procedures in the VectorStar Operation Manual and Measurement Guide.

Note	The components in this kit are of the highest quality and accuracy. All components are NIST (National Institute of Standards Technology) traceable.
-------------	---

1-2 Description

The 0.8 mm calibration kit allows you to calibrate the performance of the following systems:

- VectorStar ME7838D Series Modular BB/mm-VNA System

The components in this kit provide the basis for issuing a calibration certification label.

1-3 Required Equipment

This section describes the recommended equipment for installing and running the 2300-558 software.

GPIB Controller PC Operating System

Make sure that the following minimum requirements are met before installing and using the software:

- Intel® Pentium® III with 1 GB RAM or Intel® Pentium® IV with 512 MB RAM, or equivalent
 - Intel® Pentium® IV with 1 GB RAM recommended
- Windows XP SP2 or Windows 7
 - This application has not been tested on Microsoft® Windows Vista®.
- 20 MB hard-disk free space
- National Instruments® PCI-GPIB Controller and associated drivers installed
- Display resolution 1024 × 768
- CD-ROM drive
- USB Port

Note	This program may not function on international versions of Microsoft Windows that use 4-byte character sets.
-------------	--

Verification Software Overview

The Anritsu 2300-558 Broadband Measurement System Performance Verification Software is provided on a PC-compatible CD-ROM disc. The verification software provides for automating measurements of the test components contained in the Anritsu Model 3659 Calibration/Verification Kit.

The software compares the measurements of NIST traceable standards made with your instrument to the standard's test data provided on the verification kit's USB stick. This aids in determining if the measurement values are consistent with system specifications.

Data Output

The test data and results are output in the form of four files to a directory (X:\installed directory) on your computer's hard drive. The default file names, depending on the type of test being performed, are:

- Matched Thru Low.dat
- Mismatched Thru Low.dat
- Matched Thru High.dat
- Mismatched Thru High.dat

Note

This performance verification software allows you to rename these files using the default **.dat** extension. The tabular data in each file is given at discrete frequencies at 1 GHz intervals, along with separate start and stop frequencies if the start and stop frequencies do not fall on 1 GHz spacing. The test results can be viewed or printed from the **Main Menu** window.

GPIO Interface Card and Cable

Depending upon the Operating System and hardware used to perform the verification, there are different requirements for the GPIO hardware configurations. This software supports the following GPIO interfaces:

- National Instruments Model PCMCIA-GPIO (Driver Software Versions 1.2 and above)
- National Instruments Model PCI-GPIO (Driver Software Version 1.2 and above)

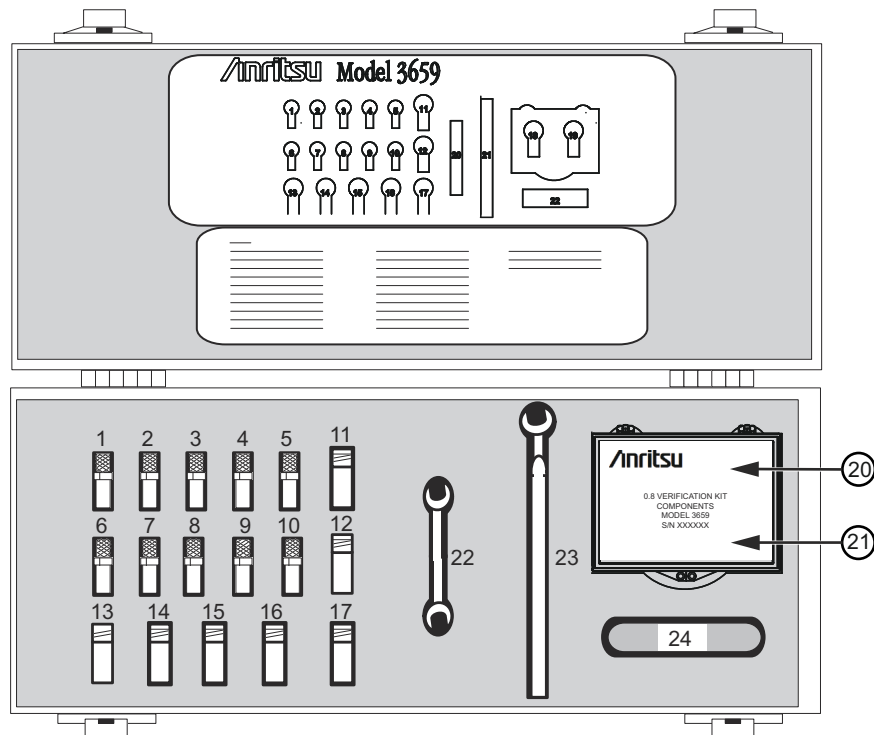
Regardless of which GPIO hardware and software is used, the GPIO card must be configured as "GPIO0." You also need a GPIO cable to interface the PC to the broadband measurement system (Anritsu PN: 2100-2).

Printer

A printer is not required for operation because the verification results and data are stored in four files on the computer hard disk drive. These files are saved in ASCII format for easy viewing and printing at a later time.

1-4 Model 3659 0.8 mm Calibration/Verification Kit

The 3659 0.8 mm Calibration/Verification Kit is shown in [Figure 1-1](#) below with the listed components.



3659B Cal/Verif Kit

Callout Number	Component Name and Description	Anritsu Part Number
1	Male Broadband Termination	28.850
2	Male Open	24.850
3	Male Offset Short 3	23.850-3
4	Male Offset Short 2	23.850-2
5	Male Offset Short 1	23.850-1
6	Female Broadband Termination	28.8F50
7	Female Open	24.8F50
8	Female Offset Short 3	23.8F50-3
9	Female Offset Short 2	23.8F50-2
10	Female Offset Short 1	23.8F50-1
11	W1M-0.8F Adapter	33W.8F50
12	W1M-0.8M Adapter	33W.850
13	W1F-0.8F Adapter	33WF.8F50
14	W1F-0.8M Adapter	33WF.850
15	0.8 Female-Female Adapter	33.8F.8F50

Figure 1-1. 3659 0.8 mm Calibration/Verification Kit Components (1 of 2)

Callout Number	Component Name and Description	Anritsu Part Number
16	0.8 Male-Female Adapter	33.8.8F50
17	0.8 Male-Male Adapter	33.8.850
20	Stepped Impedance Mismatch Thru Line (Verification Device inside plastic box)	18.8.8F50-1B
21	50 Ohm Matched Thru Line Verification Device inside plastic box	18.8.8F50-1
22	6 mm / 7 mm End Wrench	01-525
23	6 mm Torque Wrench	01-524
24	USB Memory Device for VectorStar MS4640A/B Series VNAs containing the following: <ul style="list-style-type: none"> • 0.8 mm Component Coefficient Data for VectorStar ME7838D Broadband/Millimeter Wave VNA Systems • 0.8 mm Component Verification Data for VectorStar ME7838D Broadband/Millimeter Wave VNA Systems 	The USB memory device is labeled with the Serial Number of the Calibration/Verification Kit

Figure 1-1. 3659 0.8 mm Calibration/Verification Kit Components (2 of 2)

1-5 Related Documentation

For additional literature related to the Anritsu VectorStar family of products listed below, refer to:

<http://www.anritsu.com>

Chapter 2 — Using the 2300-558 Software with the VectorStar ME7838D

2-1 Introduction

This chapter describes the use of the Anritsu 2300-558 Performance Verification Software (PVS) with the VectorStar ME7838D Modular BB/mm-Wave VNA Measurement System. The ME7838D is based on the VectorStar MS4647A/B Vector Network Analyzer running VectorStar for the MS4647B model Application Version 2.1.0 or higher and equipped with Option 08x or the MS4647A model Application Version 1.7.6 and equipped with Option 08x.

Note	Anritsu does not support tests or verification processes for wafer probe equipment. Contact the vendor of the wafer probe equipment if such support is desired.
-------------	---

2-2 Required Equipment

Required VectorStar ME7838D Broadband System, 70 kHz to 145 GHz Instruments and Components

The VectorStar ME7838D Broadband/Millimeter Wave Measurement System consists of:

- VectorStar MS4647A/B VNA, 70 kHz to 70 GHz, V Connectors, equipped with Option 08x
- 3739C Broadband Test Set
- Two (2) MA25300A Millimeter-Wave (mm-Wave) Modules, 70 GHz to 145 GHz.
- Necessary rear panel interconnect cables between the test set and the VNA.
- Necessary front panel interconnect cables between the test set and the VNA
- Necessary interconnect cables to the MA25300A mm-Wave Modules.

2-3 Configuring the Hardware

This section describes how the various system elements are interconnected and describes the preliminary steps required for operation of the verification software. See [“Required VectorStar ME7838D Broadband System, 70 kHz to 145 GHz Instruments and Components” on page 2-1](#) above for a complete equipment list.

1. Ensure that the VNA system is set to “Broadband”.
2. To verify the setting, from the right side MAIN menu, select the broadband test set button:
 - MAIN | Application | APPLICATION | Rcvr Config | RCVR CONFIG | BB/mmWave (3738 Test Set) or BB/mmWave (3739 Test Set)
3. Select the BB test set.
4. Connect a GPIB cable between the PC Controller and the VNA Rear Panel GPIB port labeled IEEE 488.2 GPIB.

Caution	Do not connect the cable to the VNA Rear Panel GPIB port labeled Dedicated GPIB .
----------------	--

2-4 0.8 mm Verification Application Installation

Prior to installation of the 0.8 mm Application, the National Instruments GPIB card and drivers must be installed in the Windows PC.

This needs to be done only once per PC Controller. The software is contained on the Disk supplied with each Verification Kit.

In order to correctly install the PVS application, the user (logged in) must have Administrative rights on the Windows PC Controller.

- Note** The PVS application is installed onto the PC Controller on an all-user basis.
- If your organization does not allow for all-user installations, consult your internal PC and network support group on how to best proceed.

1. Prior to installation of the 2300-558 PVS, the National Instruments GPIB card and its drivers must be installed in the PC Controller.
2. Turn off all other running applications on the PC Controller.
3. Insert the CD into the PC Controller CD Drive.
4. The Verification Software navigation page should automatically appear using the AutoRun function.



Figure 2-1. PVS Installation and Documentation Screen

5. If the screen above does not appear, navigate to the CD drive and double click the Start.html file.
 - Use Windows Explorer or the My Computer icon and browse to the root directory of the CD drive.
 - Double click the Startup.html file to begin the installation process.
6. On the navigation page, click the Install Anritsu 0.8 mm Verification Application Software link.
7. The first of several installation dialog boxes appears

- Two installation wizard setup dialog boxes appear in sequence. Click **Next** to proceed through each dialog box. The final dialog box shows an installation progress bar.

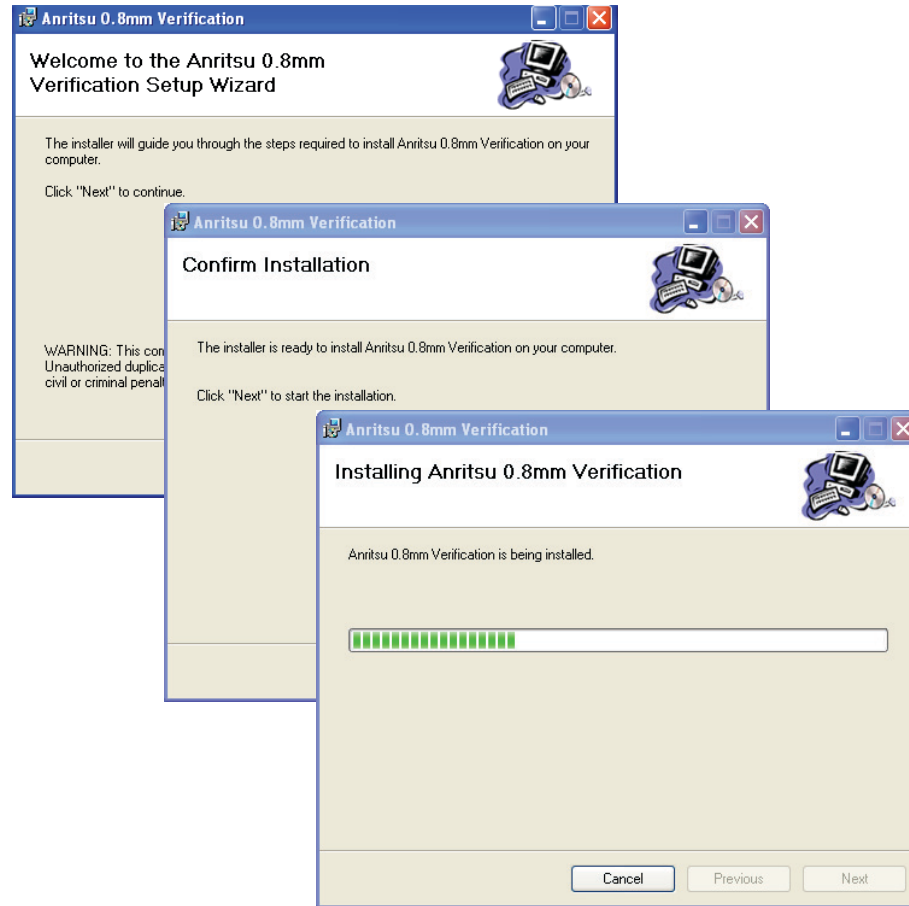


Figure 2-2. Installation Confirmation and Progress Dialog Boxes - Click Next on each

9. When the installation progress bar shows complete, click **Next**. The final Application Information dialog box appears. Click **Next**, and the Installation Complete dialog box appears.

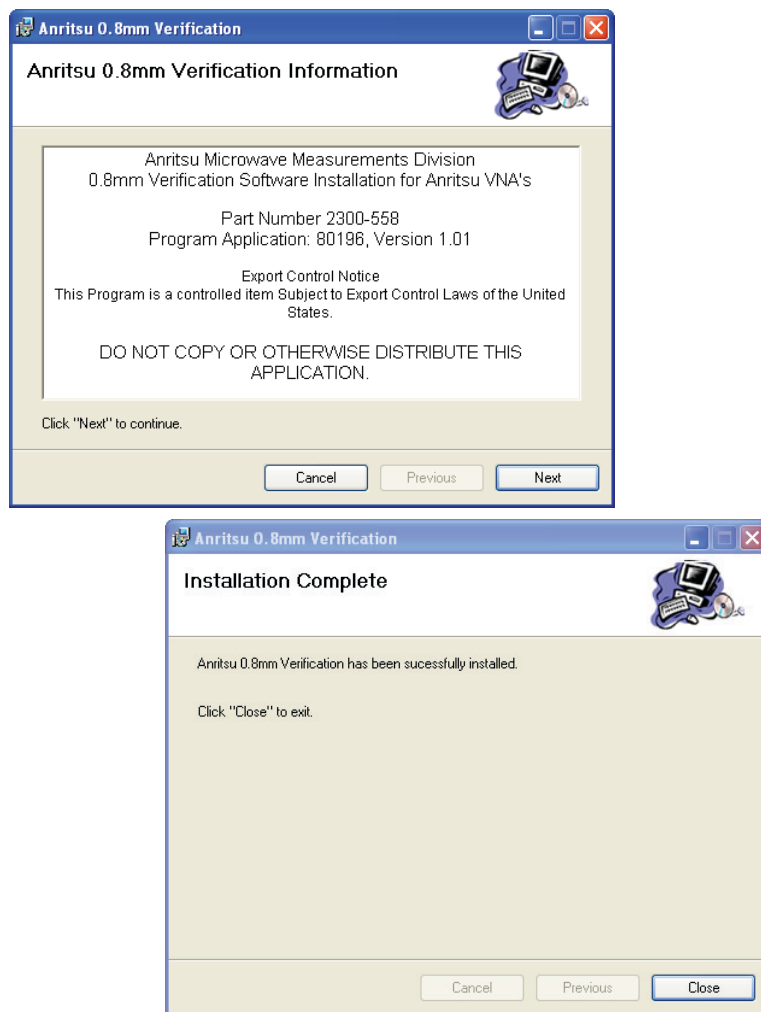


Figure 2-3. Final Application Information and Installation Complete Dialog Boxes

10. The installer adds all required files and makes the necessary registry updates on the PC Controller. When done, the navigation page [Figure 2-1](#) reappears.
11. If desired, open the **User Guide** (this document) and the **Quick Start Guide** and save and/or print a copy.
12. When done, eject the CD and return it to the Verification Kit.
13. The PVS application is available either the **Start** or **Program** menu of the PC Controller.

2-5 Running the Verification Software

After the VNA and PC have been configured as described above, you are ready to run the program and perform the calibration/verification. Make sure you have the following information available:

- Serial number of the 3659 0.8 mm Calibration/Verification Kit
- Serial number of the 3739C Broadband/Millimeter Wave Test Set
- Model number and serial number of the Port 1 BB/mm Module
- Model number and serial number of the Port 2 BB/mm Module

Procedure

1. With the equipment and software configured as described in “[Configuring the Hardware](#)” on page 2-1, turn on the computer and allow it to start Windows.
2. Locate the Anritsu 0.8 mm Verification icon (shown below) on the desktop and double-click it.



3. The program displays an About dialog box with version information. Click OK to continue.

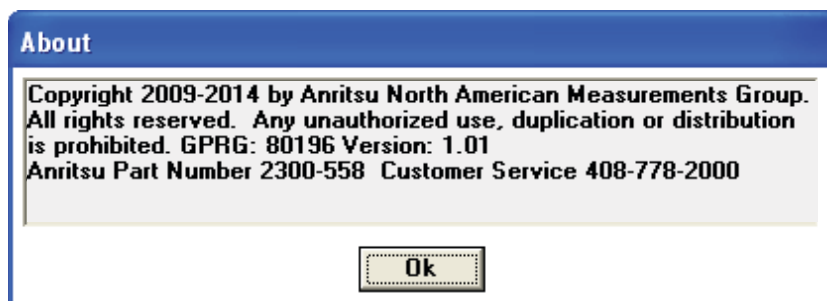


Figure 2-4. About Dialog

4. The Test Operator Name dialog box appears. Enter a user name or other identification.

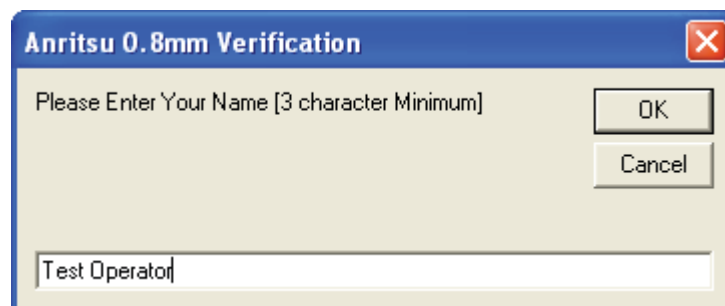


Figure 2-5. Name Dialog

5. Click OK to continue. The program searches for the GPIB Board in the PC Controller that is set to GPIB Address 0 and displays a confirmation dialog.
6. Click Yes to continue. Click No to search for another GPIB Board.

7. If **Yes** was clicked, the program searches for a compatible VNA on the GPIB. When the VNA is found, a confirmation dialog box appears.

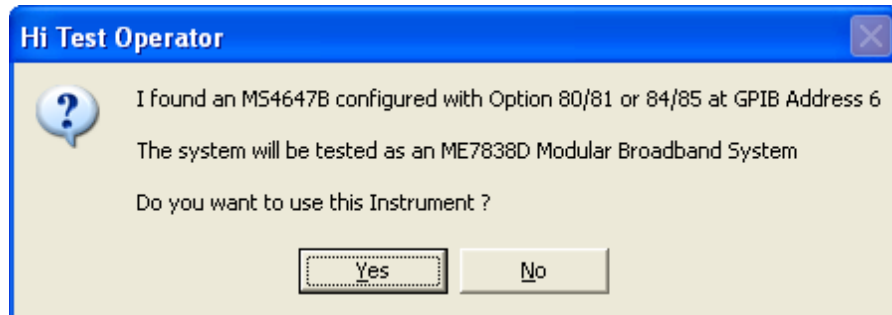


Figure 2-6. Found Instrument Dialog

8. Click **Yes** to continue, or click **No** to search for another VNA.
9. If **Yes** is clicked above, the program searches for the BB/mm Modules and, when found, requests the model number and the serial number of the test set and each module.

Enter Port 1 BB/mm-Wave Module Information

Enter the Port 1 BB/mm-Wave Module model number and click OK.

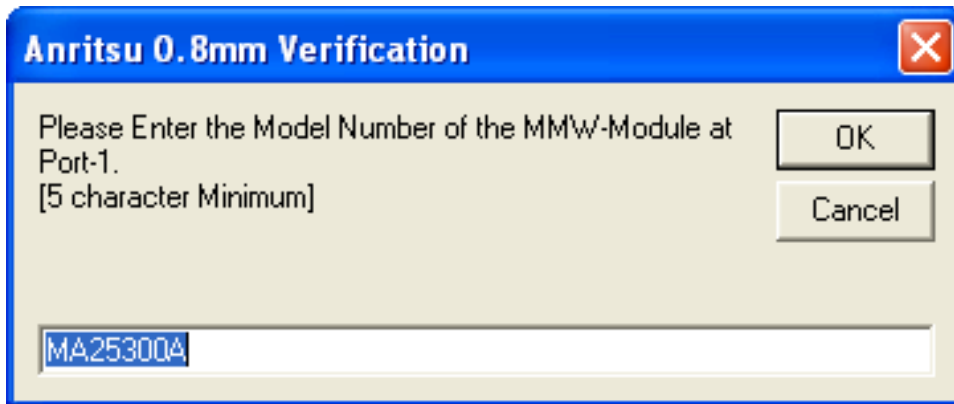


Figure 2-7. Anritsu 0.8 mm Verification Dialog - Port 1 BB/mm-Wave Module - Model Number

10. Enter the Port 1 BB/mm-Wave Module serial number and click OK.

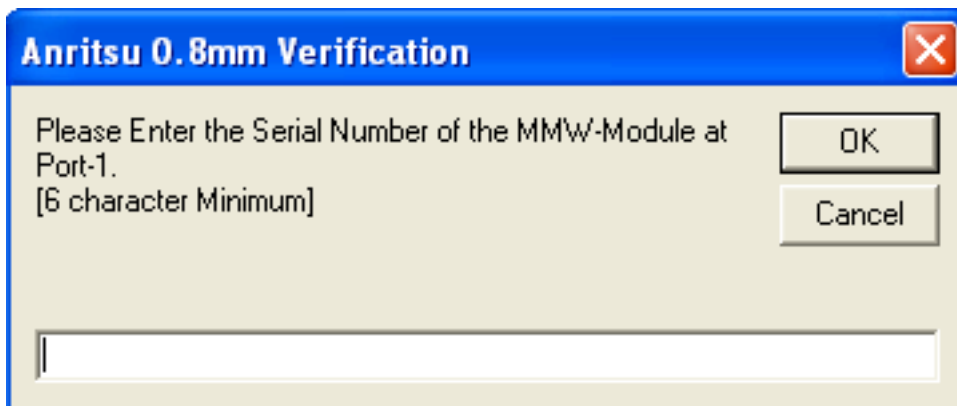


Figure 2-8. Anritsu 0.8 mm Verification Dialog - Port 1 BB/mm-Wave Module - Serial Number

Enter Port 2 BB/mm-Wave Module Information

11. Enter the Port 2 BB/mm-Wave Module model number and click OK.

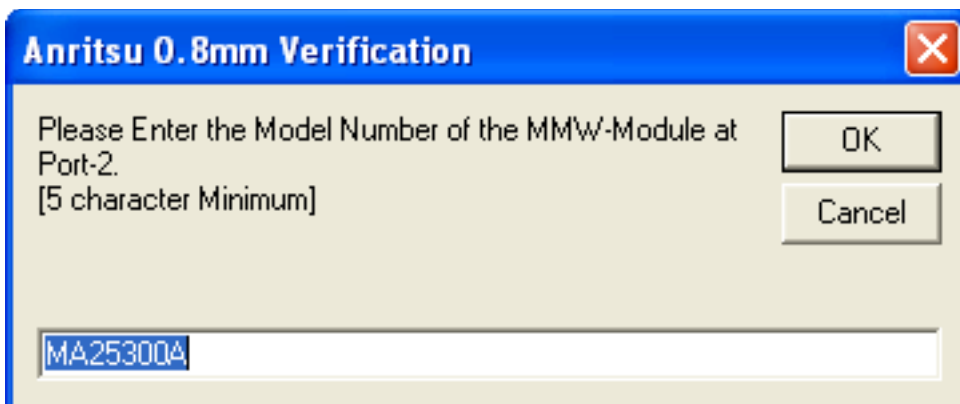


Figure 2-9. Anritsu 0.8 mm Verification Dialog - Port 2 BB/mm-Wave Module - Model Number

12. Enter the Port 2 BB/mm-Wave Module serial number and click OK.

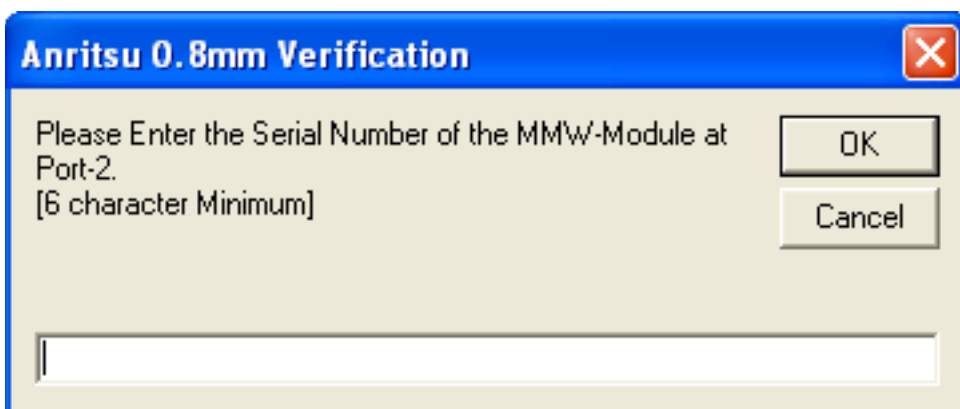


Figure 2-10. Anritsu 0.8 mm Verification Dialog - Port 2 BB/mm-Wave Module - Serial Number

Enter Test Set Information

13. Enter the Test Set model number and click OK.

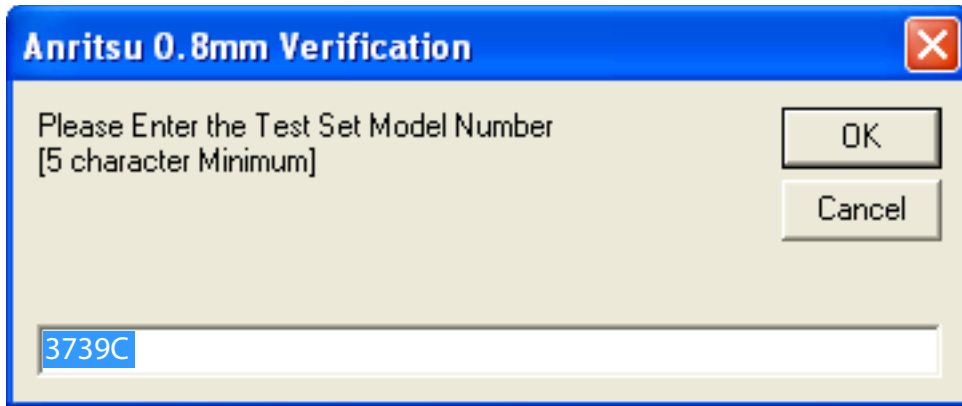


Figure 2-11. Anritsu 0.8 mm Verification Dialog - Test Set - Model Number

14. Enter the Test Set serial number found on the rear panel and click OK.

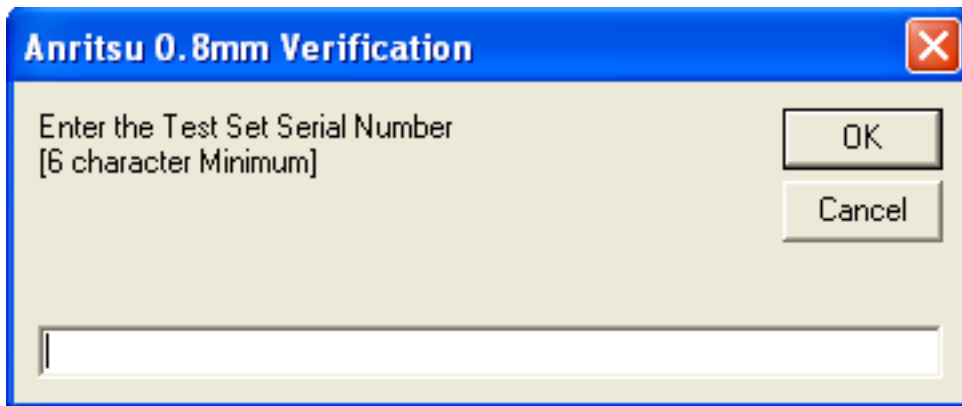


Figure 2-12. Anritsu 0.8 mm Verification Dialog - Test Set - Serial Number

15. The program execution continues to the following [Section 2-6, "Application Interface – Setup Menu Tab"](#) on page 2-10.

2-6 Application Interface – Setup Menu Tab

The PVS Application Interface dialog box displays three tabs with configuration, control, and serial number information. Each tabbed dialog box contains buttons to control program operations as outlined in the following sections:

- The Setup Menu tab is described in this section.
- The Main Menu tab display is described in [Section 2-9, “Application Interface – Main Menu Tab” on page 2-25](#).
- The Serial Number Info tab is described in [Section 2-10, “Application Interface – Serial Number Tab Functions” on page 2-29](#).

Procedure

The following procedure continues the program setup from the previous section:

1. In the Calibration Kit Type area, select 0.8 mm Coax.
2. In the Serial Number (5 Digits) area, enter the serial number for the 3659 Calibration/Verification Kit. At least five (5) digits are required.
3. In the Load Cal-Kit Coefficients to VNA area, select Cal-Kit.

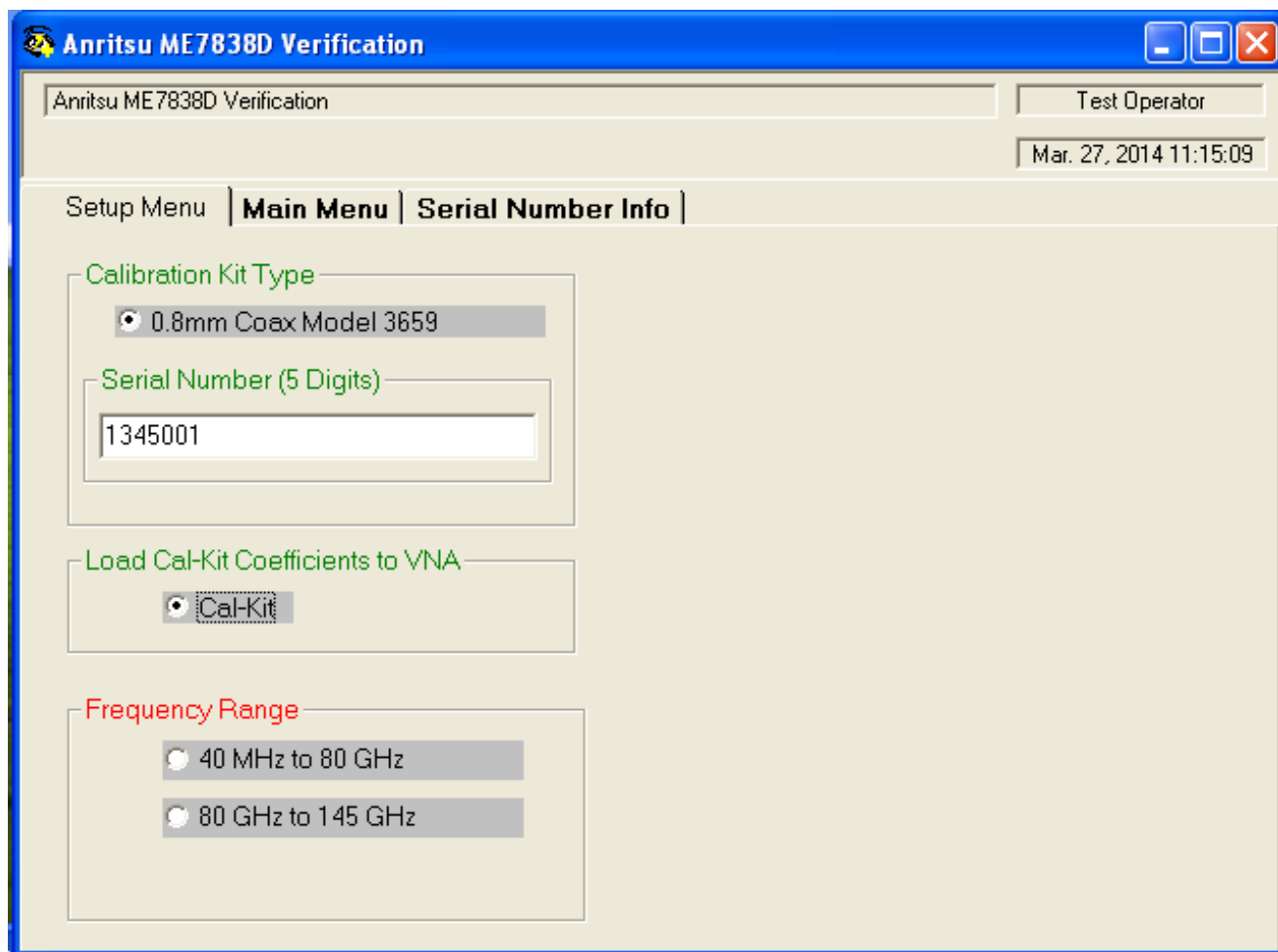


Figure 2-13. ME7838D Application Interface - Setup Menu Tab

4. The Install Calibration-Kit Coefficients to the VNA dialog box appears.

5. Follow the dialog box instructions for installing the 3659 calibration coefficients into the VNA, then click OK.

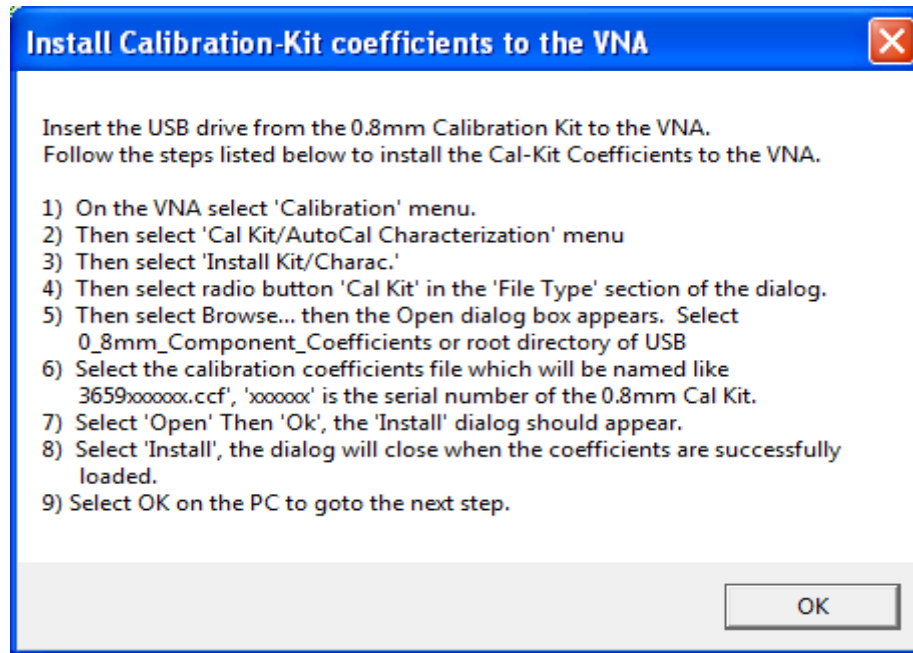


Figure 2-14. Install Calibration Kit Coefficients Dialog

6. The VNA displays an acknowledgement dialog box when the file load is complete, indicating that 10 files were loaded. After the VNA has loaded the 10 Calibration coefficient files, select OK on the PC application. The application will then prompt you to remove the USB drive from the VNA and install the USB drive to the PC.

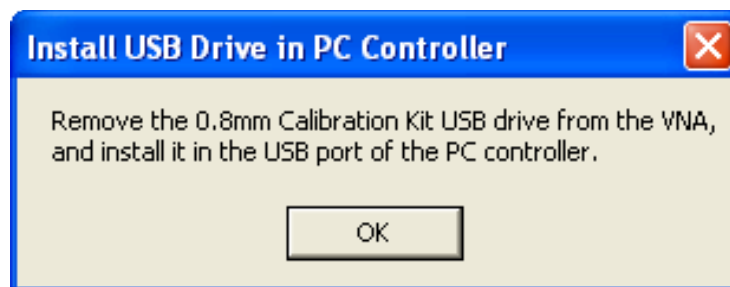


Figure 2-15. Install USB Drive in PC Dialog

- The Application Interface dialog box reappears displaying the Setup Menu tab and Frequency Range area. In the Frequency Range area, select either the low range (40 MHz to 80 GHz) or the high range (80 GHz to 145 GHz). For purposes of this document, the low band is done first. The range that is not selected is calibrated during the Restart Procedure described in [Section 2-14 “Restart for Alternate Frequency Band”](#) on [page 2-35](#). After selecting the frequency range, click OK. The Verification Kit Information area appears.

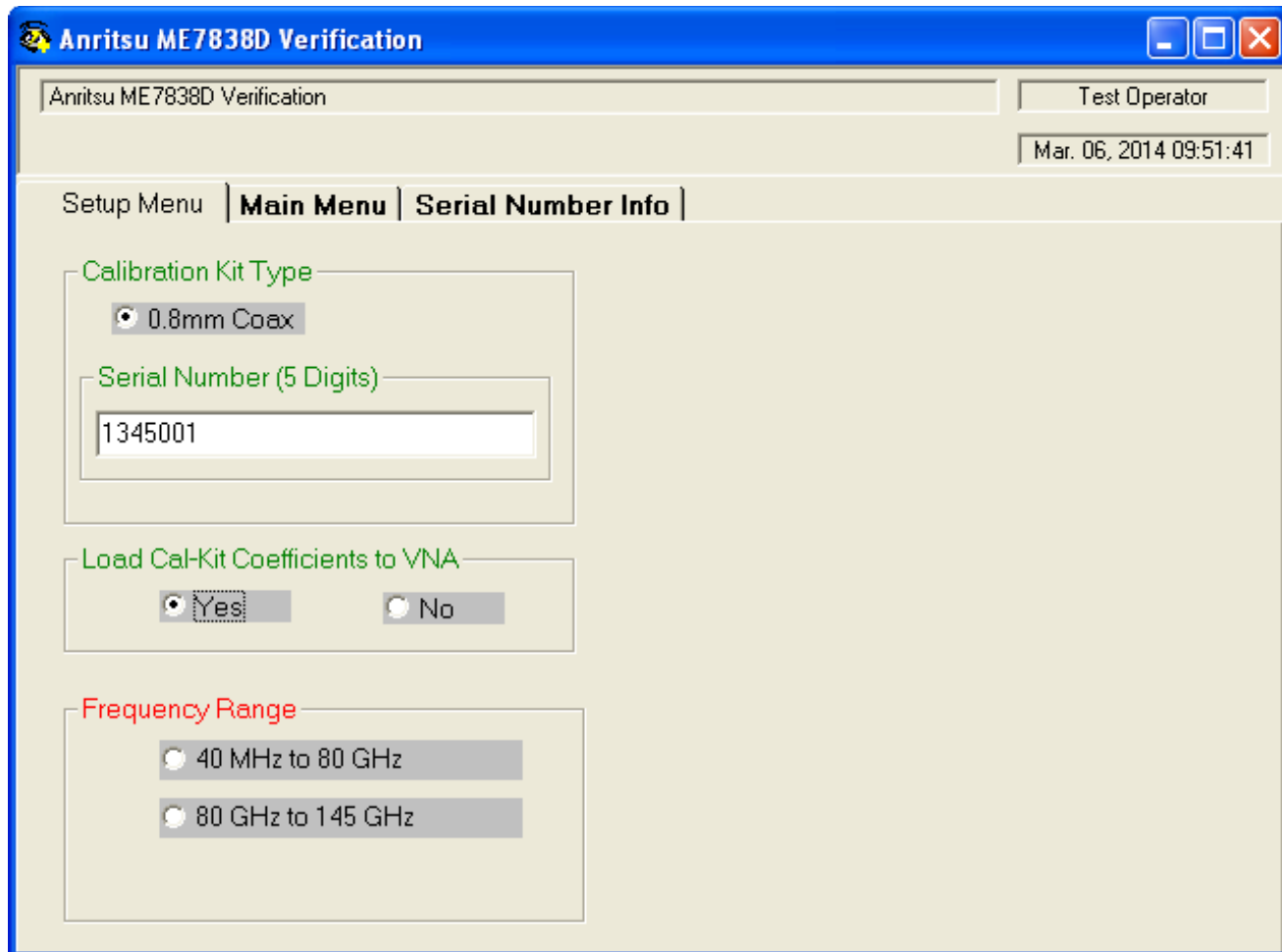


Figure 2-16. ME7838D Application Interface - Setup Menu Tab

8. Select the 0.8 mm Coax type, and then the Verification Kit Serial Number (usually the same as the Calibration Kit). When the Serial Number is complete, the Locate USB Drive Kit Data on PC area appears.

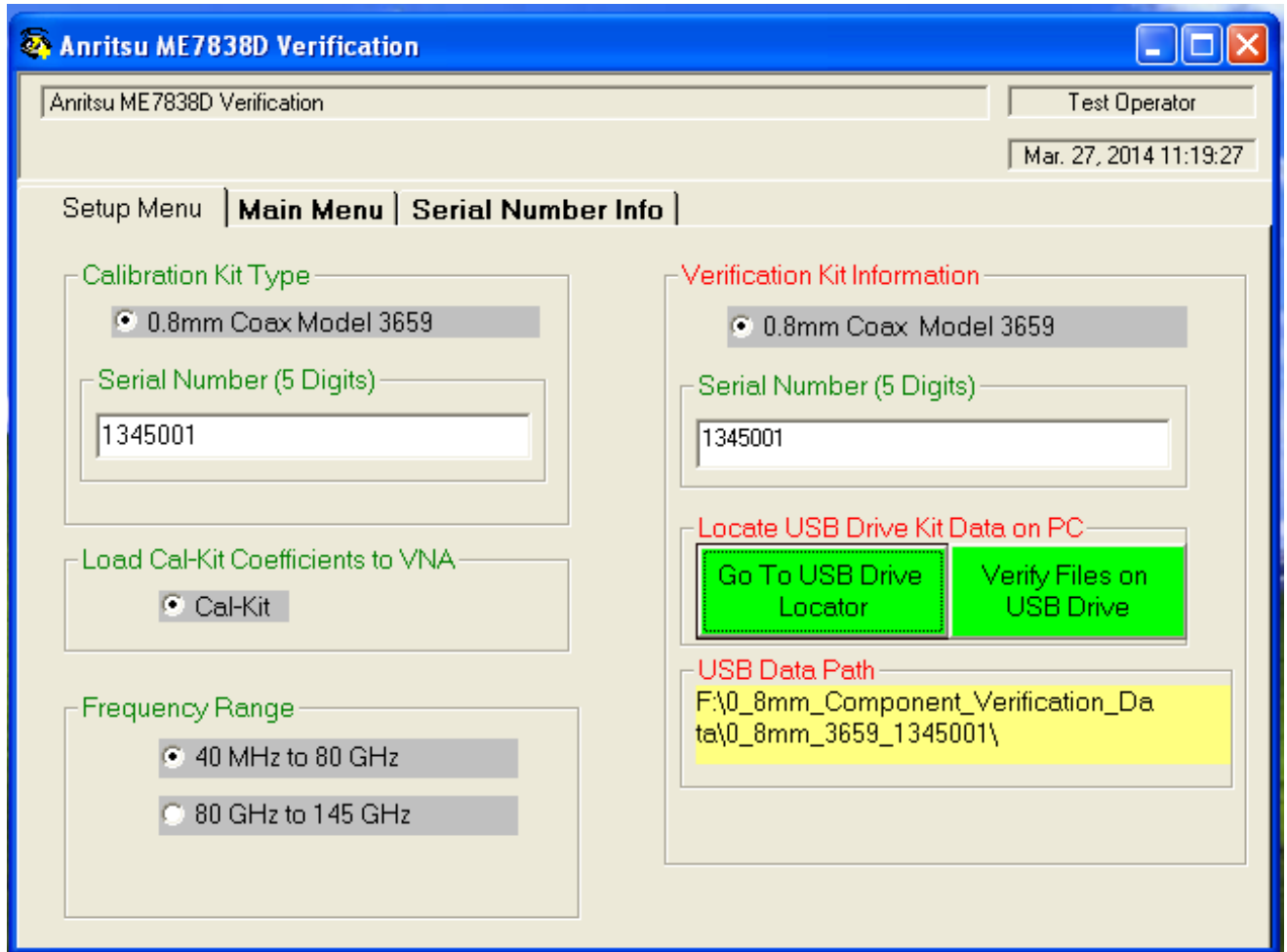


Figure 2-17. ME7838D Application Interface - Setup Menu Tab

9. In the Locate USB Drive Kit Data on PC area, click the Go To USB Drive Locator button.

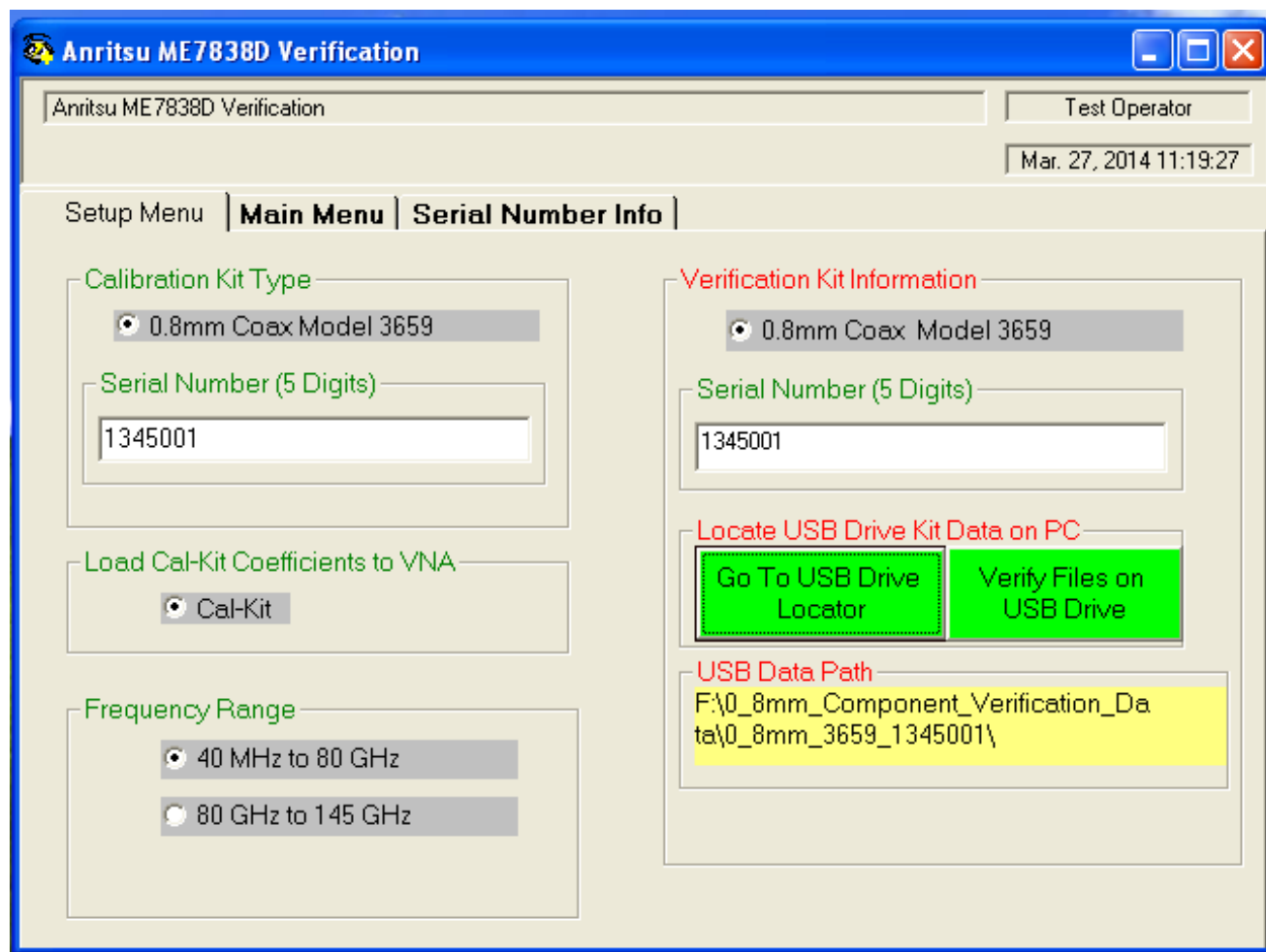


Figure 2-18. ME7838D Application Interface - Setup Menu Tab

10. When the Auto Find Verification Kit Data dialog box first appears, the Verification Kit Data Path text field is blank. Click the Auto-Find USB Drive Verification Kit Data button. The application automatically locates the verification kit data on the USB drive and displays the path in the Verification Kit Data Path text field.

In rare instances, due to PC/USB configurations, the Auto-find function may not be able to locate the verification data on the USB drive. In this case, you may need to use the Manually Locate Verification Data Kit button. This utility allows you to manually select the path where the verification kit data is located. The data path will be on the USB drive shipped with the verification kit. On most PC's, this will be the E, F, or G drive assignments. Navigate to the verification kit data in the file-path location shown in the example below (for this example, the USB drive was at E:\):

E:\0.8mm_Component_Verification_Data\0.8mm_3659_xxxxxx (where xxxxxx is the serial number of the Kit)

Within each data set on the USB, there is a file named EnableKit.dat. Double click that file to identify the file. This builds the path for the verification kit data and returns back to the Find Verification Kit Data on the removable USB drive. Once the data is found, the Verification Kit Data Path information appears in the text field. Click Next > to return to the Application Interface dialog box.

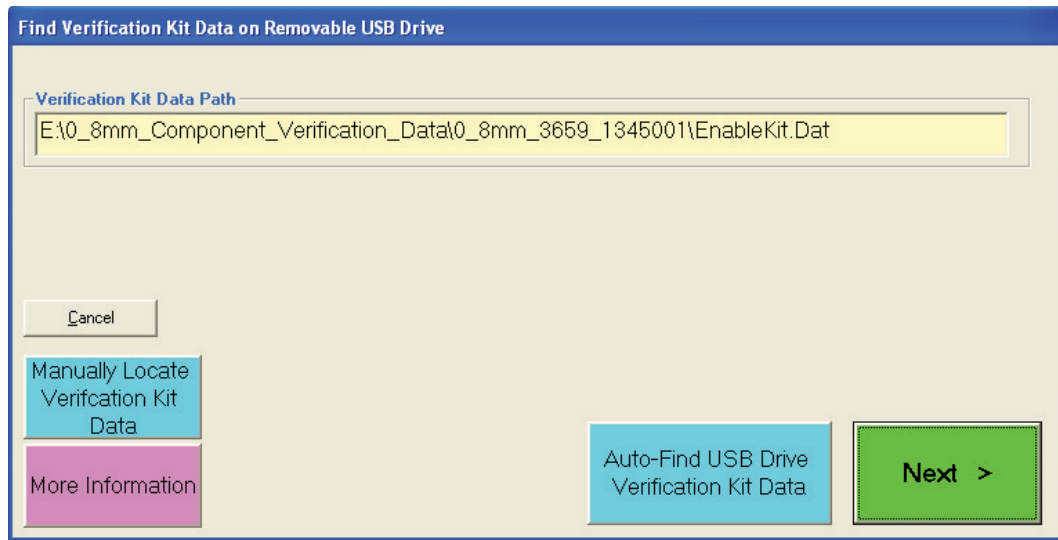


Figure 2-19. USB Drive Locator Dialog

11. Click Verify Files on USB Drive. The application checks the files on the USB drive to verify that all files are present and that each has the proper number of data points.

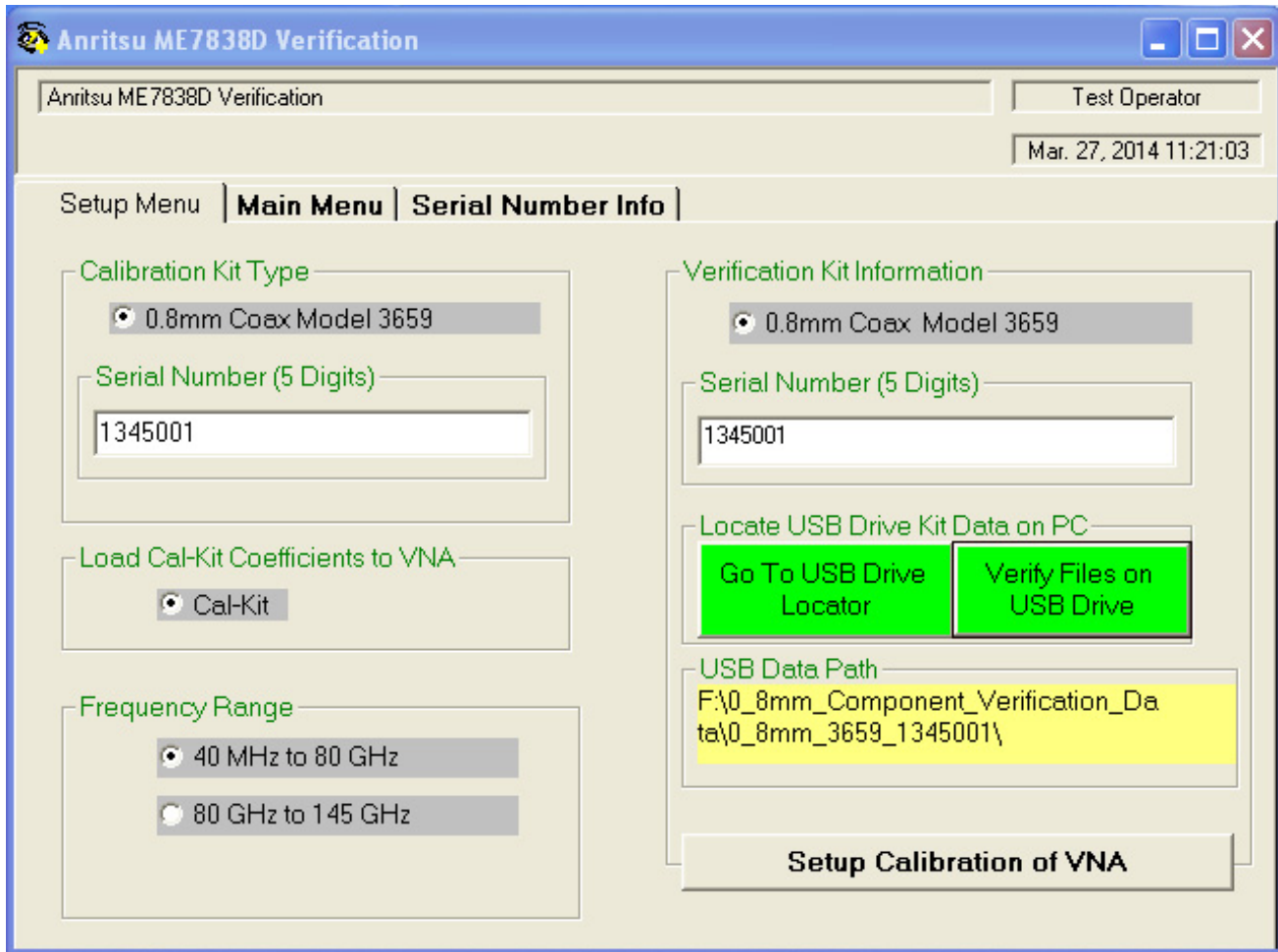


Figure 2-20. ME7838D Application Interface - Setup Menu Tab

- When all information is entered and you are ready to start, click the Setup Calibration of VNA button. A confirmation dialog box appears.

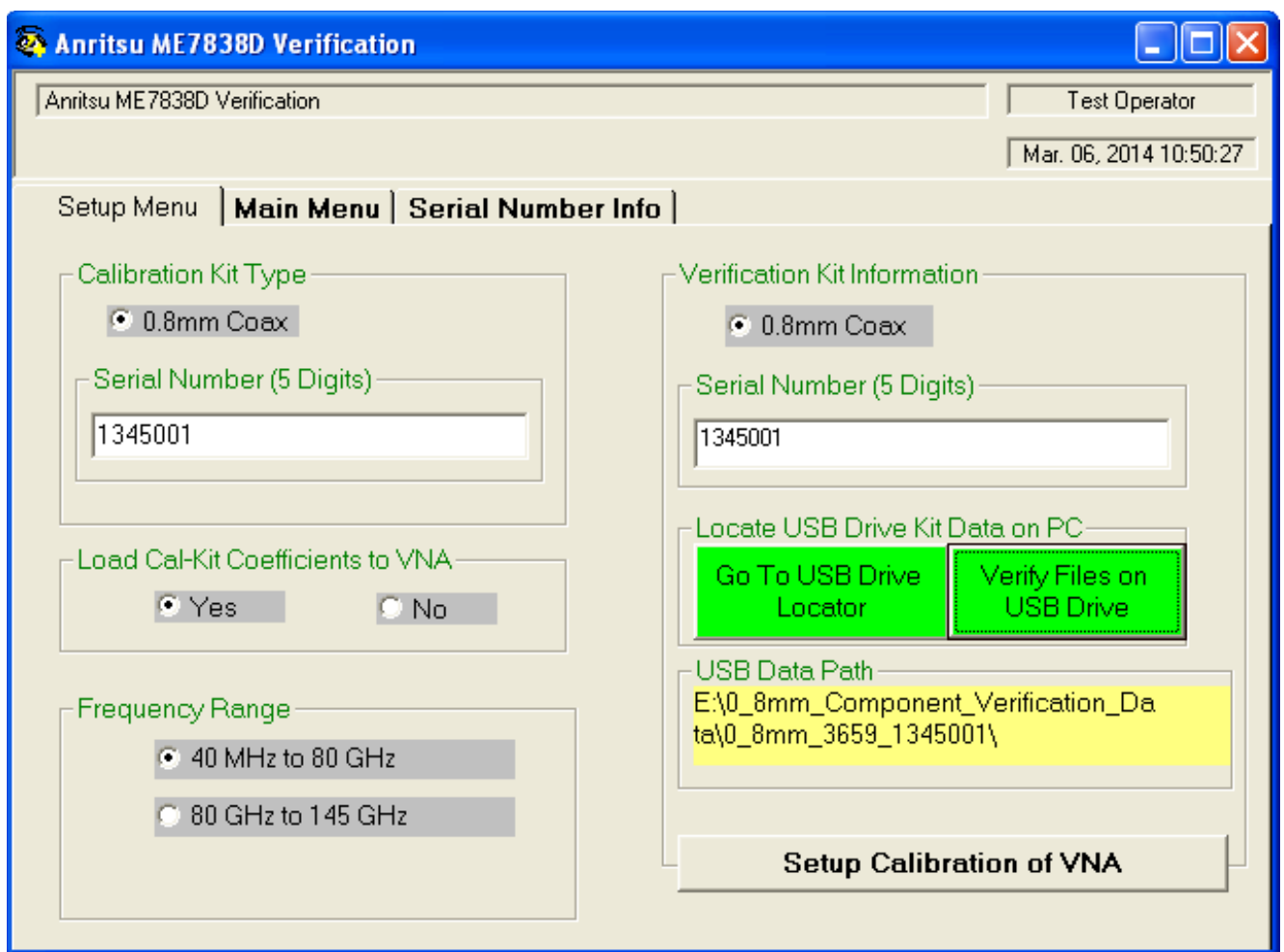


Figure 2-21. ME7838D Application Interface - Setup Menu Tab

- Click Yes to start. Click No to stop the calibration
- The program execution continues in either [Section 2-7, “Low-Band Calibration” on page 2-18](#) or [Section 2-8, “High-Band Calibration” on page 2-22](#) depending on the previous band selection.

2-7 Low-Band Calibration

During this procedure, the low-band portion of the VNA is calibrated with a full 12-term SOLT (Short-Open-Load-Thru) calibration. In [Section 2-8 “High-Band Calibration” on page 2-22](#), the high-band portion of the VNA is calibrated with a full 12-term SSST (Short-Short-Short-Thru) calibration.

Procedure

1. The 0.8 mm Verification Install Adapter dialog box appears.
 - a. Install a F-F adapter on VNA Port 1 so that a Female connector is available to the operator.
 - b. Install a F-M adapter on VNA Port 2 so that a Male connector is available to the operator.
 - c. When ready to proceed, click OK.



Figure 2-22. Anritsu 0.8 mm Verification Dialog

2. The VNA Calibration: Step 1 of 5 dialog box appears.
 - a. Connect the Male Cal Kit Isolation Device to VNA Port 1.
 - b. Connect the Female Cal Kit Isolation Device to VNA Port 2.
 - c. When ready to proceed, click OK.

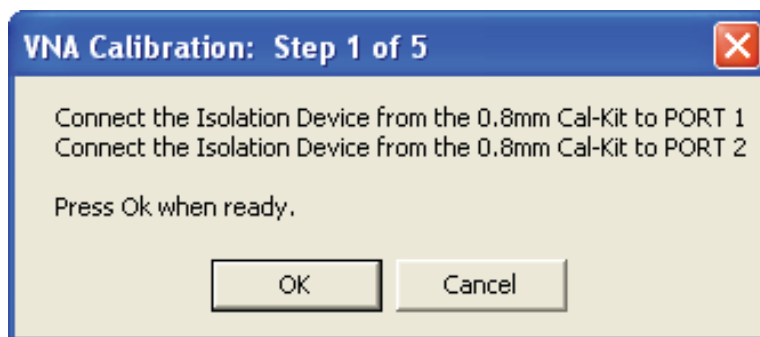


Figure 2-23. VNA Calibration: Step 1 of 5 Dialog

3. The VNA measures the load device data, then the VNA Calibration: Step 2 of 5 dialog box appears.
 - a. Connect the Male Cal Kit Broadband Load Device to VNA Port 1.
 - b. Connect the Female Broadband Load Device to VNA Port 2.
 - c. When ready to proceed, click OK.



Figure 2-24. VNA Calibration: Step 2 of 5 Dialog

4. The VNA measures the broadband load device data, then the VNA Calibration: Step 3 of 5 dialog box appears.
 - a. Connect the Male Cal Kit Open to VNA Port 1.
 - b. Connect the Female Short #1 (2.02 mm) to VNA Port 2.
 - c. When ready to proceed, click OK.

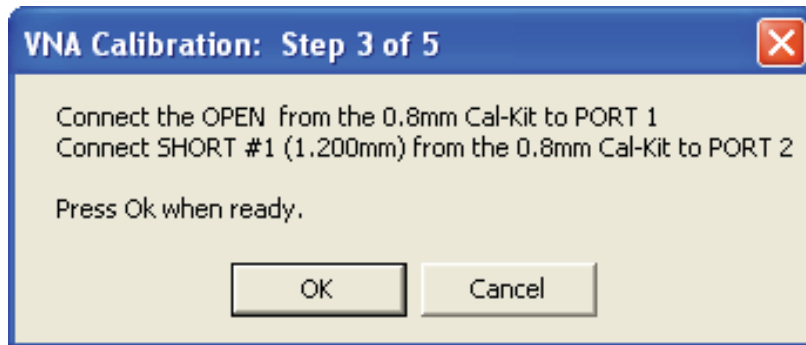


Figure 2-25. VNA Calibration: Step 3 of 5 Dialog

5. The VNA measures the open/short device data, then the VNA Calibration: Step 4 of 5 dialog box appears.
 - a. Connect the Male Short #1 (2.02 mm) to VNA Port 1.
 - b. Connect the Female Open to VNA Port 2.
 - c. When ready to proceed, click OK.

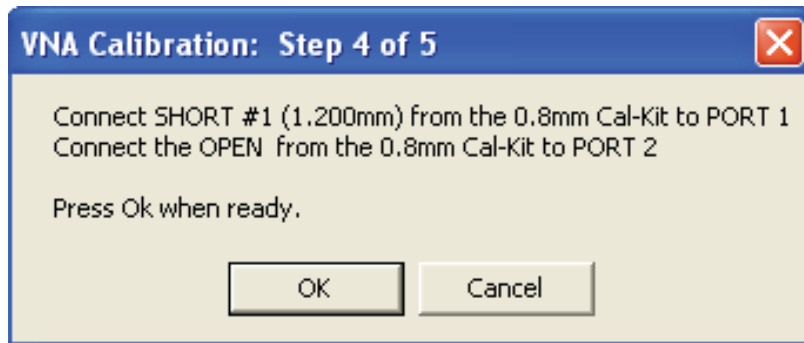


Figure 2-26. VNA Calibration: Step 4 of 5 Dialog

6. The VNA measures the short/open device data, then the VNA Calibration: Step 5 of 5 dialog box appears.
 - a. Remove the Short and the Open from Port 1 and Port 2, respectively.
 - b. Slide the two T-R modules towards each other and connect the VNA Port 1 (Female) to VNA Port 2 (Male) directly.
 - c. When ready to proceed, click OK.

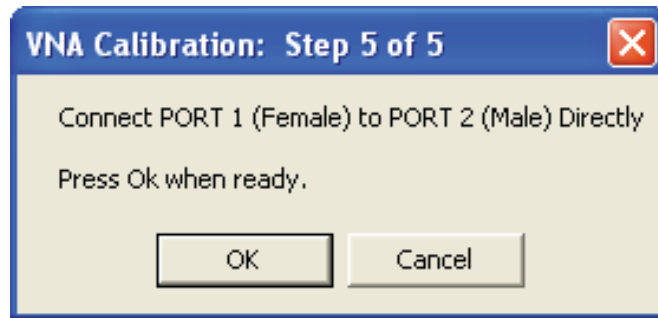


Figure 2-27. VNA Calibration: Step 5 of 5 Dialog

7. The program execution skips to [Section 2-9 “Application Interface – Main Menu Tab”](#) on page 2-25.

2-8 High-Band Calibration

During this procedure, the high-band portion of the VNA is calibrated with a full 12-term SSST (Short-Short-Short-Thru) calibration. In [Section 2-7 “Low-Band Calibration” on page 2-18](#), the low-band portion of the VNA is calibrated with a full 12-term SOLT (Short-Open-Load-Thru) calibration.

Procedure

1. The 0.8 mm Verification Install Adapter dialog box appears.
 - a. Install a F-F adapter on VNA Port 1 so that a Female connector is available to the operator.
 - b. Install a F-M adapter on VNA Port 2 so that a Male connector is available to the operator.
 - c. When ready to proceed, click OK.

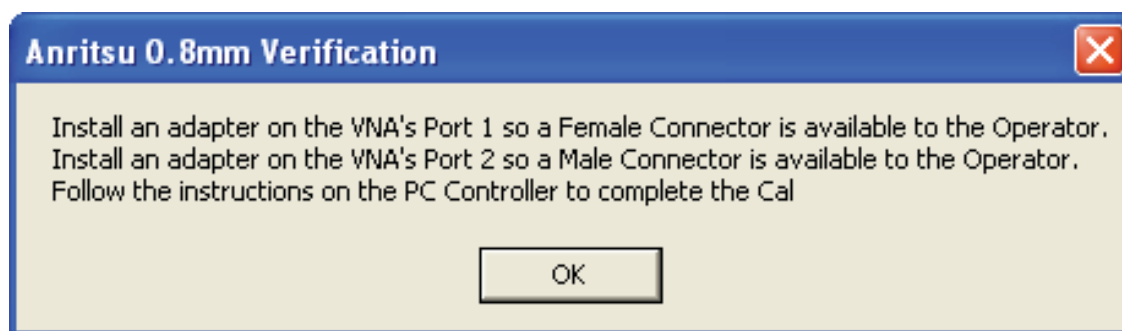


Figure 2-28. Anritsu 0.8 mm Verification Dialog

2. When ready to proceed, click OK. The VNA Calibration: Step 1 of 5 dialog box appears.
 - a. Connect the Male Cal Kit Isolation Device to VNA Port 1.
 - b. Connect the Female Cal Kit Isolation Device to VNA Port 2.
 - c. When ready to proceed, click OK.

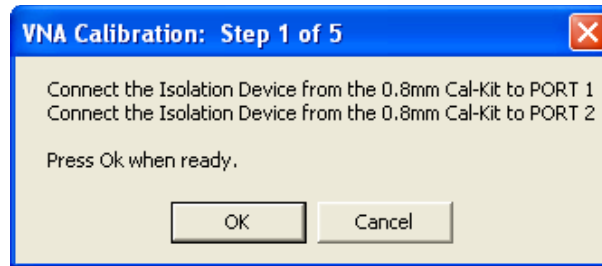


Figure 2-29. VNA Calibration: Step 1 of 5 Dialog

3. The VNA Calibration: Step 2 of 5 dialog box appears.
 - a. Connect the Male 2.02 mm Short #1 to VNA Port 1.
 - b. Connect the Female 2.65 mm Short #2 to VNA Port 2.
 - c. When ready to proceed, click OK.

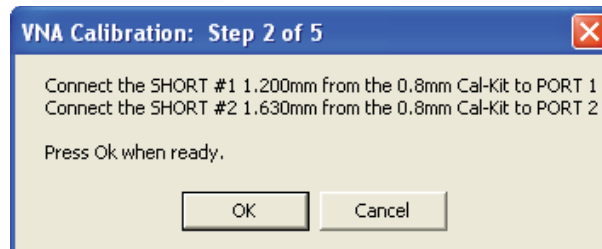


Figure 2-30. VNA Calibration: Step 2 of 5 Dialog

4. The VNA Calibration: Step 3 of 5 dialog box appears.
 - a. Connect the Male 2.65 mm Short #2 to VNA Port 1.
 - b. Connect the Female 3.18 mm Short #3 to VNA Port 2.
 - c. When ready to proceed, click OK.

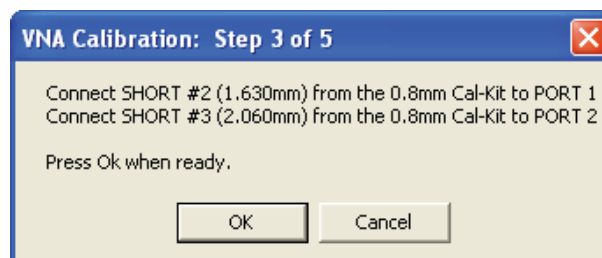


Figure 2-31. VNA Calibration: Step 3 of 5 Dialog

5. The VNA Calibration: Step 4 of 5 dialog box appears.
 - a. Connect the Male 3.18 mm Short #3 to VNA Port 1.
 - b. Connect the Female 2.02 mm Short #1 to VNA Port 2.
 - c. When ready to proceed, click OK.

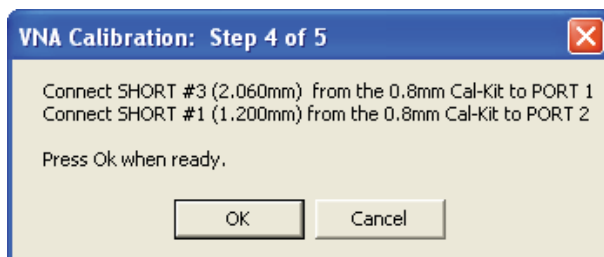


Figure 2-32. VNA Calibration: Step 4 of 5 Dialog

6. The VNA Calibration: Step 5 of 5 dialog box appears.
 - a. Remove the offset Shorts from Port 1 and Port 2.
 - b. Slide the two T-R modules towards each other and connect the VNA Port 1 (Female) to VNA Port 2 (Male) directly.
 - c. When ready to proceed, click OK.

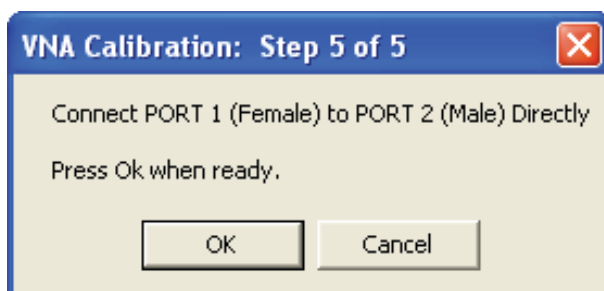


Figure 2-33. VNA Calibration: Step 5 of 5 Dialog

7. The program execution continues to [Section 2-9 “Application Interface – Main Menu Tab”](#) on page 2-25.

2-9 Application Interface – Main Menu Tab

The PVS Application Interface dialog box displays three tabs with configuration, control, and serial number information. Each tabbed dialog box contains buttons to control program operations as outlined in the following sections below.

- The Setup Menu tab is described in [Section 2-6, “Application Interface – Setup Menu Tab”](#) on page 2-10.
- The Main Menu tab display is described in the section immediately following and is shown below in [Figure 2-34](#)
- The Serial Number tab is described in [Section 2-10, “Application Interface – Serial Number Tab Functions”](#) on page 2-29.

Whenever the program is executing a command from the main menu, the buttons are disabled, due to the event-driven nature of the Windows Operating System, until the current command is finished. While a command is being executed, informational messages are usually displayed on the screen to aid the operator in understanding which steps the application is performing.

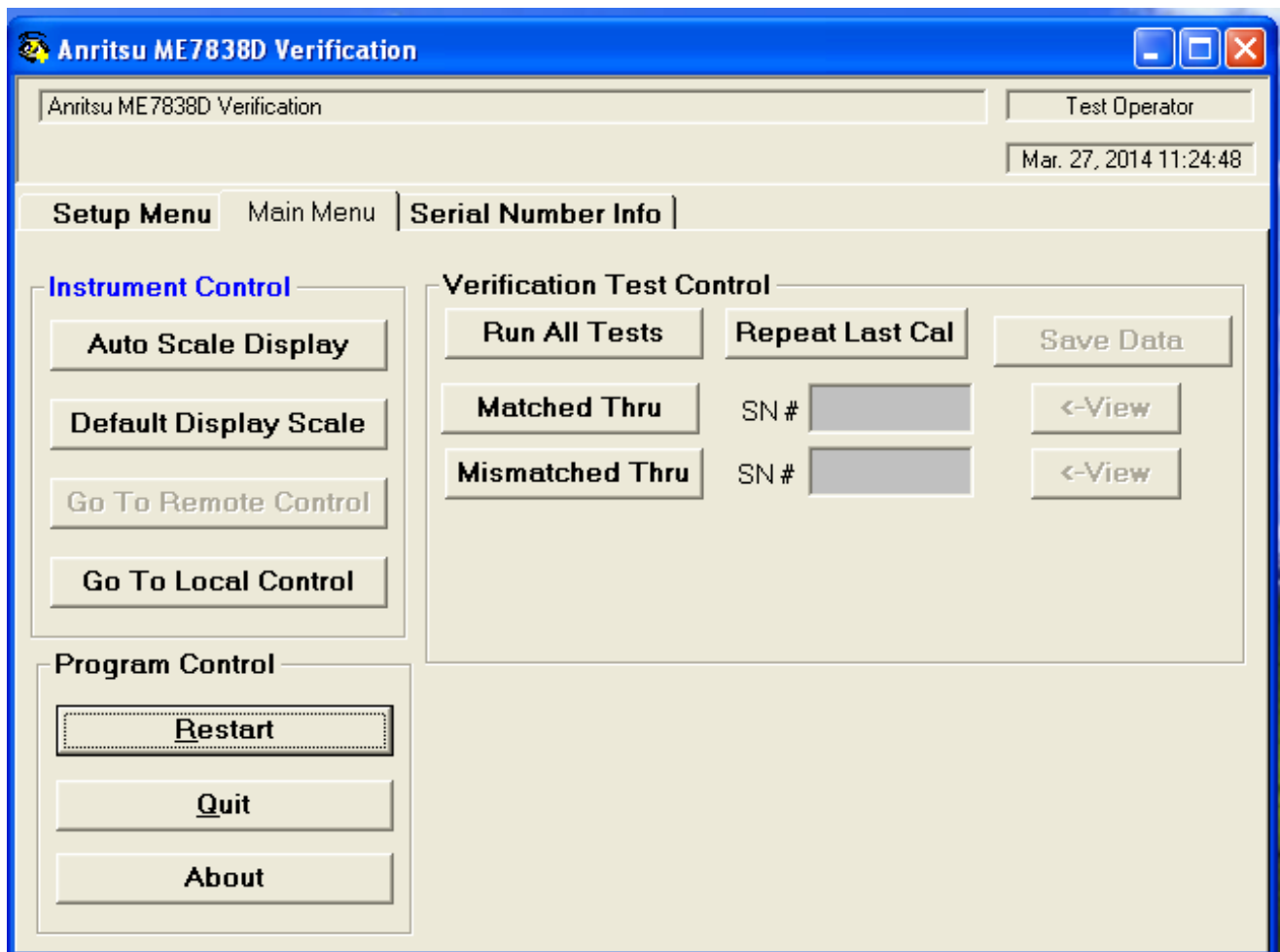


Figure 2-34. ME7838D Application Interface - Main Menu Tab

Auto Scale Display Button

This command automatically scales each channel on the Anritsu Vector Network Analyzer. It is the same as using the VectorStar VNA menus to navigate to and select either the Auto Scale Active Channel or Auto Scale All Channels buttons. The full path to these buttons is:

- MAIN | Scale | SCALE | Auto Scale Active Channel
- MAIN | Scale | SCALE | Auto Scale All Channels

When the program detects the VNA has finished a sweep, the program auto-scales all four channels before continuing.

The VNA display during the calibration and verification tests is set to one Channel and four traces. Each trace display is a paired Log Mag (top) and Phase (bottom) display showing the following parameters:

- Upper left quadrant – S21 – Forward Transmission
- Upper right quadrant – S12 – Reverse Transmission
- Lower left quadrant – S11 – Forward Reflection
- Lower right quadrant – S22 – Reverse Reflection

See [Figure 2-35](#) below for a display example. This is a typical display immediately after performing the High Band calibration. Please note this is for reference only and that the actual data on the VNA display may not be identical.



Figure 2-35. MS4640A/B Series VNA Auto Scale Example Trace Display

Default Display Scale Button

This command sets all four channels to a scale of 5 dB/Div for the Magnitude displays and to 40 Degrees for the Phase displays, and the reference value to 0. This allows you to see if the device is properly connected.

Go To Remote Control Button

This command is only available after you have clicked the Go to Local Control button. When you click this button, the program takes control of the VNA Display type and Display scale settings and sets them to the program default values.

Go To Local Control Button

This command allows you access to the front panel buttons while the program is running. The instrument is in Local Lock Out unless this button is pushed. This prevents an inadvertent front panel button actuation from affecting the proper operation of the program.

Caution Modifying the VNA settings (such as power level, bandwidth, averaging, etc.) could adversely affect the measurement results. This should only be used to view the data or for using markers.

Restart Button

The Restart button command allows you to change the tested instrument, the frequency range, or the selected verification kit. Selecting Yes causes the program to return to the program initialization stage.

Usually, this button is used to test for second frequency band and program execution continues below in [Section 2-14 “Restart for Alternate Frequency Band” on page 2-35](#) and the Choose The Restart Method dialog box appears.

Choose The Restart Method dialog box provides selectable options for a full restart, a restart with another verification kit, or a restart with another calibration kit.

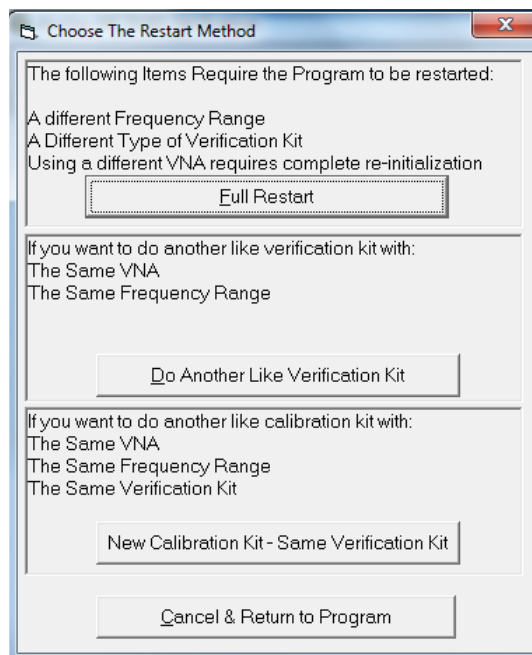


Figure 2-36. Choose The Restart Method Dialog

Quit Button

Selecting Quit brings up a confirmation dialog box. Selecting **Yes** exits the program; selecting **No** returns you to the previous screen.

About

Displays version information, copyright, other legal notices, and company contact information.

Run All Tests

This command button runs both the Matched Thru and Mismatched Thru tests. Program execution starts with [Section 2-11 “Matched Thru Tests” on page 2-30](#) and then continues with [Section 2-12 “Mismatched Thru Tests” on page 2-32](#). When both tests are completed, program execution returns to the **Main Menu tab** shown above in [Table 2-34 on page 2-25](#) above.

Repeat Last Cal

This command button re-calibrates the VNA according to the CURRENT calibration. This provides a way to recalibrate the VNA without having to reset the program parameters in case the original calibration was flawed for some reason. When the calibration sequence is complete, program execution continues to the Main Menu tab shown previously in [Table 2-34 on page 2-25](#).

Save Data

This command button writes data files to the PC/GPIB Controller and stores the files at C:\mmcsvc\Data. The program does not write data to the verification kit USB memory device. If selected, program execution continues below as described in [Section 2-13 “Saving Verification Data” on page 2-35](#).

The number of saved files varies depending on the user settings:

- If both the matched and mismatched thru tests are run, two files are written to the PC/GPIB Controller hard drive.
- If only one of the tests was run, only one file is written to the PC/GPIB Controller’s hard drive at C:\mmcsvc\data

Matched Thru

This command button only runs the Matched Thru tests. If selected, program execution continues as described below in [Section 2-11 “Matched Thru Tests” on page 2-30](#). When the tests are completed, the program returns to the Main Menu tab shown above in [Section 2-9 “Application Interface – Main Menu Tab” on page 2-25](#) above.

Matched Thru SN

This field is used to enter the serial number of the matched thru.

Mismatched Thru

This command button only runs the Mismatched Thru tests. If selected, program execution continues below in [Section 2-12 “Mismatched Thru Tests” on page 2-32](#). When the tests are completed, the program returns to the Main Menu tab shown above in [Table 2-34 on page 2-25](#) above.

Mismatched Thru SN

This field is used to enter the serial number of the matched thru.

2-10 Application Interface – Serial Number Tab Functions

The Serial Number Info tab displays a summary of the model number and serial number for the following devices. All screen information is included in the report headers.

- Operator Name
- Calibration Kit
- Test Set
- Verification Kit
- Vector Network Analyzer
- mm-Wave Modules

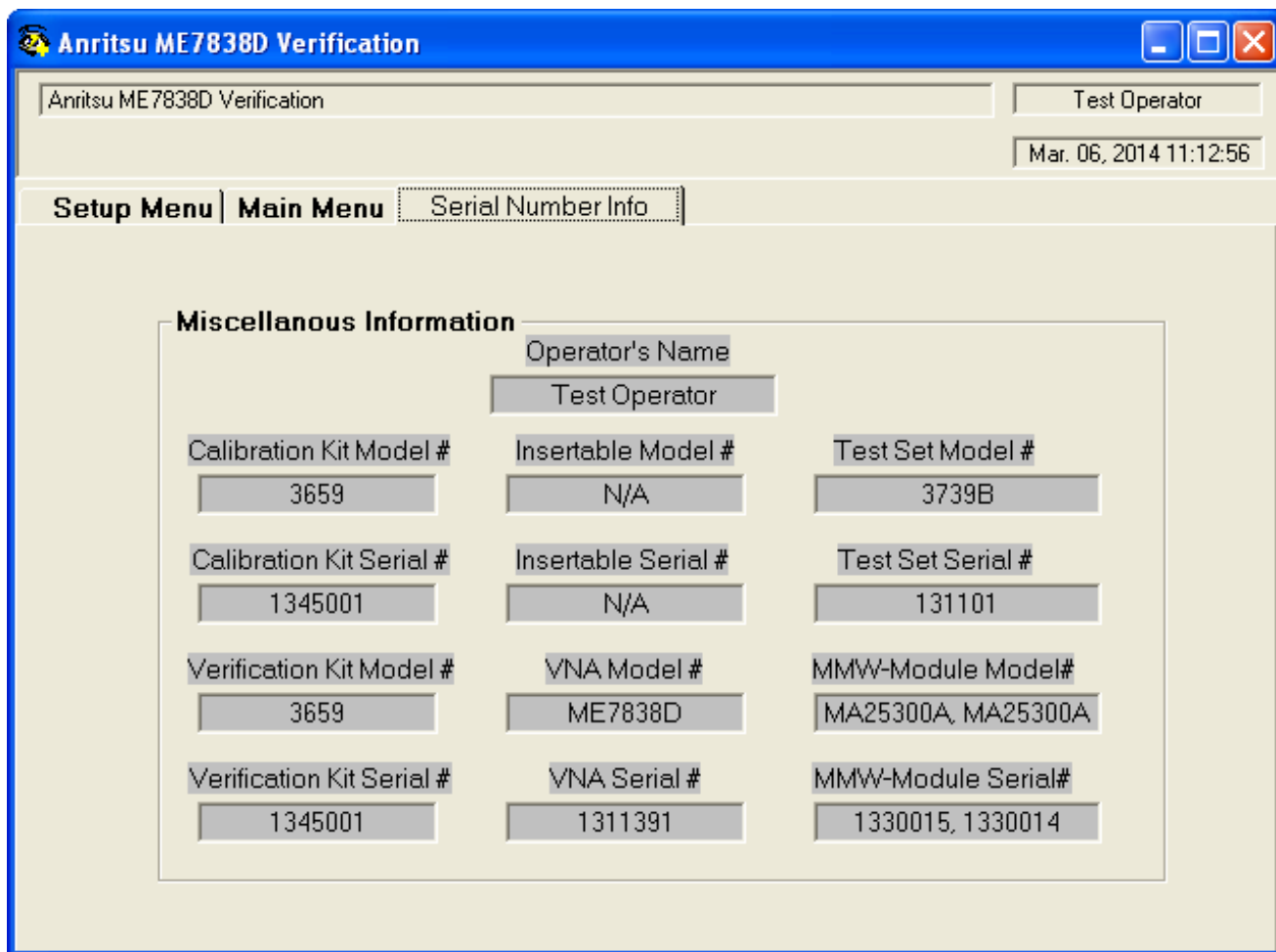


Figure 2-37. ME7838D Application Interface - Serial Number Tab

2-11 Matched Thru Tests

If the Run All Tests button on the Application Interface - Main Menu tab was selected, the Matched Thru tests (immediately below) are executed followed by the Mismatched Thru tests described in [Section 2-12 “Mismatched Thru Tests”](#) on page 2-32 below.

If the Matched Thru test button was selected, only the steps in this section are executed. When this test is complete, the program returns to the main menu described [Section 2-9 “Application Interface – Main Menu Tab”](#) on page 2-25 above.

Note The verification devices must be connected to the 0.8 mm Connector Coupler Ports and not to the VNA Ports. Use the torque wrench supplied with the verification kit when tightening the device connections.

Procedure

1. The Enter Serial Number Match Thru dialog box appears.

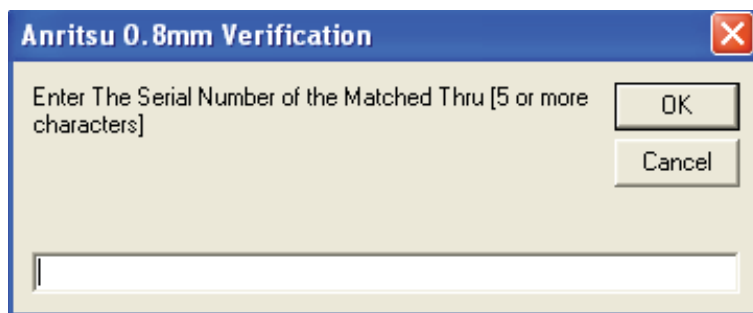


Figure 2-38. Enter Serial Number Thru Dialog

2. Ensure that the correct device is connected.
 - The Matched Thru verification standard is the device with one scribe line.
 - The Mismatched Thru verification standard is the device with two scribe lines.

Note The verification standards must be connected to the 0.8 mm Coupler Ports and not to the VNA ports.

3. Enter the serial number of the Matched Thru.
4. When ready to proceed, click OK. The Connect Mismatched Thru Male Connector dialog box appears.

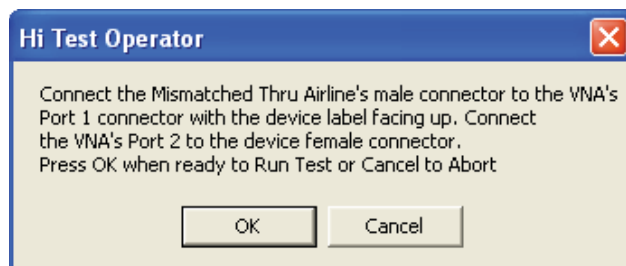


Figure 2-39. Connect the Mismatched Thru Dialog

5. Connect the Matched Thru male connector to VNA Port 1 with the label facing up.
6. Connect the Matched Thru female connector to VNA Port 2.

7. When ready to proceed, click OK. The matched thru test starts and the Matched Thru Test - Sweep 1 dialog box appears. After it completes, the Matched Thru Test - Sweep 2 dialog box appears.



Figure 2-40. Matched Thru Test, Sweep 1 and Sweep 2 Dialog Boxes

8. When the test completes, the next action depends on what the user selected in the Main Menu tab above. The VNA main display should be similar to the one below. This is a typical display immediately after measuring the Matched Thru in the Low Band. Please note this is for reference only and that the actual data on the VNA display may not be identical

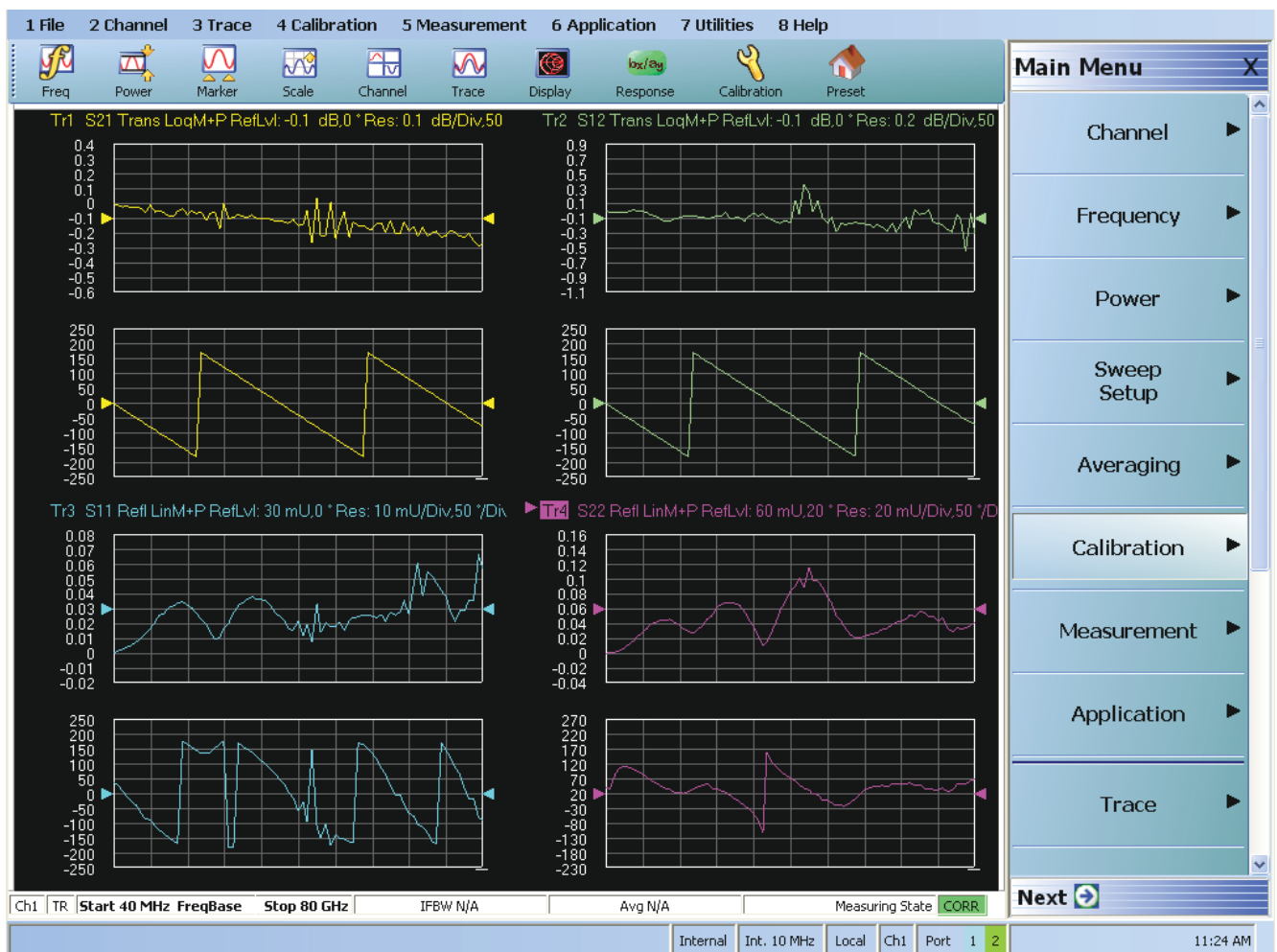


Figure 2-41. MS4640A/B Series VNA, Typical Matched Thru Data in Low Band

- Upper left quadrant= S21 - Forward Transmission
- Upper right quadrant= S12 - Reverse Transmission
- Lower left quadrant= S11 - Forward Reflection
- Lower right quadrant= S22 - Reverse Reflection

9. If only the Matched Thru button was selected, the program returns to the “Application Interface – Main Menu Tab” on page 2-25. The dialog box is shown in Figure 2-34, “ME7838D Application Interface - Main Menu Tab” on page 2-25 above.
10. If the Run All Tests button was selected, the program execution continues with the following Section 2-12, “Mismatched Thru Tests”.

2-12 Mismatched Thru Tests

If the Run All Tests button on the Application Interface - Main Menu tab was selected, the Matched Thru tests (described above in Section 2-11 “Matched Thru Tests” on page 2-30) is executed first, followed by the Mismatched Thru tests described in this section.

If the Matched Thru test button was selected, only the steps in this section are executed. When this test is complete, the program returns to the main menu described Section 2-9 “Application Interface – Main Menu Tab” on page 2-25 above.

Note	The verification devices must be connected to the 0.8 mm Connector Coupler Ports and not to the VNA Ports . Use the torque wrench supplied with the verification kit when tightening the device connections.
-------------	--

The entry point for this portion of the verification software depends on the user selections made in the Application Interface – Main Menu tab described in Section 2-9 “Application Interface – Main Menu Tab” on page 2-25 above.

The dialog box is shown in Figure 2-34, “ME7838D Application Interface - Main Menu Tab” on page 2-25 above.

If only the Mismatched Thru button was selected above, program execution starts here.

If the Run All Tests button was selected above, program execution continues here after the Matched Thru tests (described above in Section 2-11 “Matched Thru Tests” on page 2-30) have been completed.

Procedure

1. The Enter Serial Number Offset Set Mismatch Device dialog box appears. Enter the serial number of the offset mismatch device.

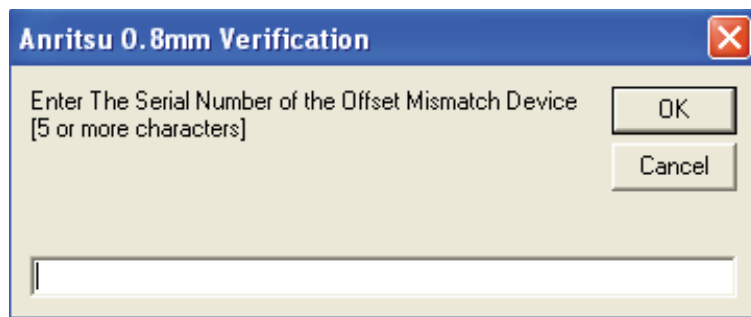


Figure 2-42. Serial Number Dialog

2. Ensure that the correct device is connected.
 - The Matched Thru verification standard is the device with one scribe line.
 - The Mismatched Thru verification standard is the device with two scribe lines.

Note	The verification standards must be connected to the 0.8 mm Coupler Ports and not to the VNA ports.
-------------	--

- When ready to continue, click OK. The Connect Mismatched Thru Airline dialog box appears.

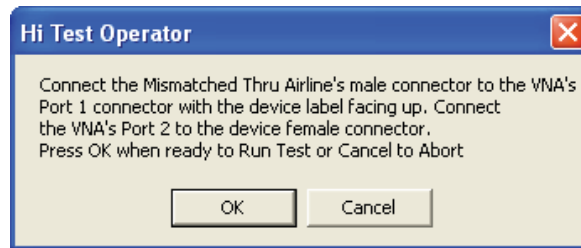


Figure 2-43. Instruction Dialog

- Connect the Mismatched Thru Airline male connector to VNA Port 1 with the device label facing up.
- Connect the Mismatched Thru Airline female connector to VNA Port 2.
- When ready to continue, click OK. The Mismatched Thru Test - Sweep 1 dialog box is displayed first followed by the Mismatched Thru Test - Sweep 2 dialog box.

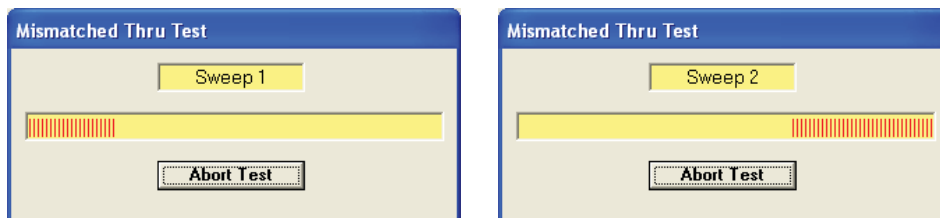


Figure 2-44. Status Dialogs

- When the test completes, the program returns to the main menu described [Section 2-9 “Application Interface – Main Menu Tab”](#) on [page 2-25](#) above, and the display should look similar to [Figure 2-45](#) below. This is a typical display immediately after measuring the Mismatched Thru in the Low Band. Please note this is for reference only and that the actual data on the VNA display may not be identical.

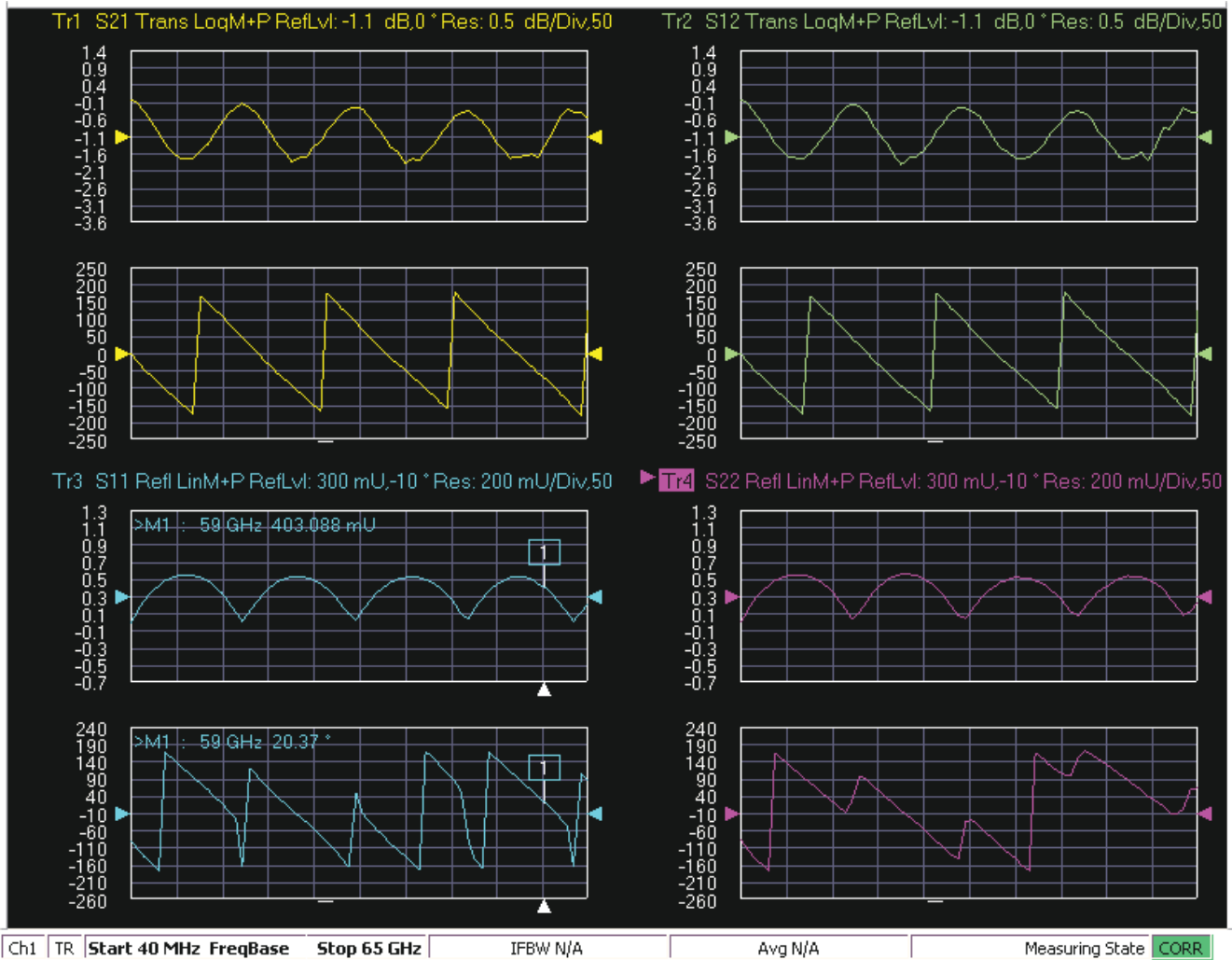


Figure 2-45. MS4640A/B Series VNA, Typical Mismatched Thru Data in Low Band

2-13 Saving Verification Data

If the Save Data button on the Main Menu tab was selected, the save data dialogs described below appear. When the save data procedure is completed, the program returns to the main menu as described previously in [Section 2-9 “Application Interface – Main Menu Tab” on page 2-25](#).

The default directory path and file names are:

- C:\mmdcsvc\Data\Matched Thru Low.dat
- C:\mmdcsvc\Data\Mismatched Thru Low.dat
- C:\mmdcsvc\Data\Matched Thru High.dat
- C:\mmdcsvc\Data\Mismatched Thru High.dat

If the default file names should be changed, select **Yes** and enter the new file names. Otherwise, select **No**.

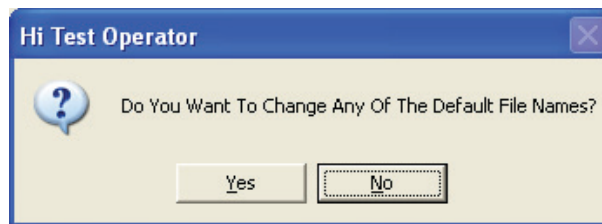


Figure 2-46. Confirmation Dialog

The following dialog is shown when the files are successfully saved to disk.

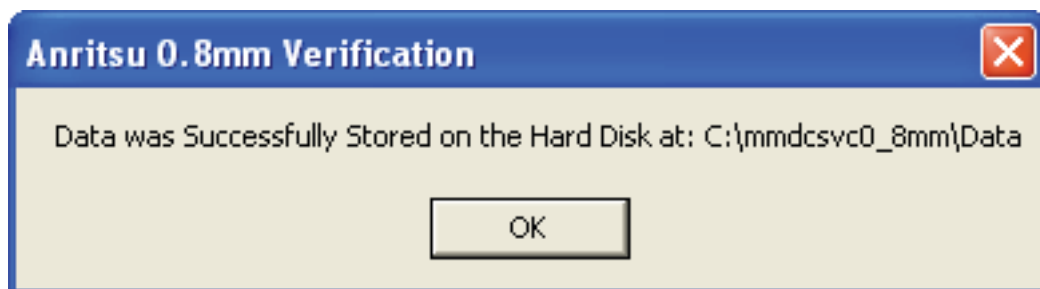


Figure 2-47. Information Dialog

2-14 Restart for Alternate Frequency Band

After the Matched Thru and Mismatched Thru tests have been successfully completed and the data saved, it is necessary to restart the program and test the other frequency band. For example, if you tested for 40 MHz to 80 GHz Frequency Range on your first calibration pass, on the second pass, select the 80 GHz to 145 GHz Frequency Range.

Procedure

1. Ensure that the verification results of the previous test have been saved to the C:\mmdcsvc\Data.
2. To perform the verification tests for the second frequency range, on the System Verification Software Main Menu - Main Menu Tab, select the **Restart** button. The main menu is described in [Section 2-9, “Application Interface – Main Menu Tab” on page 2-25](#) above.
3. The Choose The Restart Method dialog box appears. If you selected Full Restart, the calibration process starts again and the procedure steps are the same as the procedures described previously starting in [Section 2-5, “Running the Verification Software”, Step 7 on page 2-6](#).

4. On the Setup Menu, repeat the data entry for the following items. Click OK when ready to proceed to the next step.
5. Enter the GPIB Address 6.
6. Enter the Test Set Serial Number.
7. Enter the User Name.
8. Enter the Cal Kit Type selection.
9. Enter the Cal Kit Serial Number selection.
10. Enter the Load Cal Kit Disk from VNA Floppy selection.
11. Enter the Frequency Range selection. Select the frequency range that has not been tested.
 - a. If the first calibration procedure selected the 40 MHz to 80 GHz Frequency Range, select the 80 GHz to 145 GHz Frequency Range.
 - b. If the first calibration procedure selected the 80 GHz to 145 GHz Frequency Range, select the 40 MHz to 80 GHz Frequency Range.
12. Enter the Verification Kit Type selection.
13. Enter the Verification Kit Serial Number selection.
14. Click the Go to USB Drive Locator button.
15. Click the Verify Files on USB Drive button.
16. Complete the calibration and verification of the devices for the second frequency range.
17. Save the second set of calibration data and verification results to C:\mmdcsvc\Data.
18. This series of automated tests has verified that the VectorStar ME7838D Broadband S-parameter measurement accuracy meets factory specifications and ends the calibration and verification procedure.
19. The program returns to the main menu described in [Section 2-9, “Application Interface – Main Menu Tab” on page 2-25](#).

2-15 Troubleshooting

Difficulty Running the Program

If you have difficulty getting the program to run properly:

1. Check your GPIB interconnection cables and addresses.
2. Check to see that the Windows GPIB is present on the boot drive, that it is properly configured, and that it passes the National Instruments hardware and software tests.
3. This version of the verification software must be installed with the install program on the CD-ROM. The program does not run if it is just copied from the CD-ROM to the hard disk. Usually the CD-ROM will auto run. If it does not, navigate to the CD and the 80196.exe file.
4. Ensure that, after starting the performance verification software, the verification kit data USB memory device is installed in the correct USB port and that it contains 20 files.

If, after checking the above, you are still having difficulty, contact your Anritsu customer service center and ask for the Vector Network Analyzer support engineer for further assistance.

Difficulty Meeting System Specifications

If the verification software appears to run properly, but the results are not within the measurement limits associated with the verification kit:

1. Check both the verification kit and calibration kit devices for signs of physical damage. Make sure that the connectors are clean.

2. Ensure that the serial number of the verification kit USB drive matches that shown on the verification kit.
3. Repeat the process with a fresh calibration. Save the results of both measurements as an aid in troubleshooting, and in case you require factory assistance.
4. When installing calibration devices, and when measuring verification devices, pay particular attention to proper connector alignment and torque. Torque the connector using the torque wrench supplied with the calibration kit.
5. Assure all active systems have been powered on at least one hour before the start of the calibrations.

If you still have difficulty after following the above steps, please contact Anritsu customer service and ask for the Vector Network Analyzer support engineer for further assistance.

Chapter 3 — GPIB Card and Instrument Settings

3-1 Introduction

The following sections describe the recommended GPIB Card and GPIB Instrument Settings. These settings apply to the VectorStar ME7838D

3-2 GPIB Board Settings

Use these settings for your GPIB controller board.

Table 3-1. GPIB Board Settings

Parameter	Setting
Primary Address	0
Secondary Address	NONE or 0
Time-out Setting	10 seconds
Terminate Read on EOS	NO or unchecked
Set EOI with EOS on Writes	YES or checked
Type of compare on EOS	8-bit
EOS Byte	0Ah or decimal 10
Send EOI at End of Write	YES or checked
System Controller	YES or checked
Assert REN When SC	YES or checked
Enable Auto Serial Polling	NO or unchecked
Enable CIC Protocol	NO or unchecked
Bus Timing	2_seconds
Parallel Poll Duration	Default

The following settings may vary depending on the selected GPIB Card type and Operating System.

Use this GPIB Interface	YES or checked
Board Type	Your board type such as PCIIA or PCI
Base I/O Address	Consult the GPIB card manual
DMA Channel	Consult the GPIB card manual
Interrupt Level	Consult the GPIB card manual


3-3 Instrument Settings

Table 3-2. Instrument Setting

Parameter	Setting
Primary GPIB Address	6
Secondary GPIB Address	NONE
Time-out Setting	10 seconds
Serial Poll Time-out	1 second
Terminate Read on EOS	NO or unchecked
Set EOI with EOS on Writes	YES or checked
Type of compare on EOS	8-bit
EOS Byte	0Ah or decimal 10
Send EOI at End of Write	YES or checked
Enable Repeat Addressing	NO or unchecked

Anritsu



 Anritsu utilizes recycled paper and environmentally conscious inks and toner..

Anritsu Company
490 Jarvis Drive
Morgan Hill, CA 95037-2809
USA
<http://www.anritsu.com>