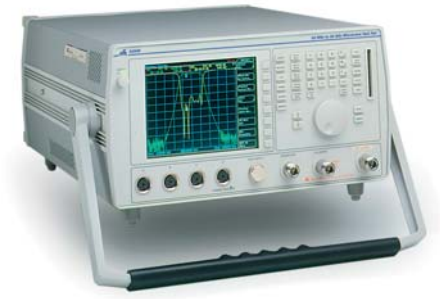
Microwave
6200 Series Guided Measurements Application



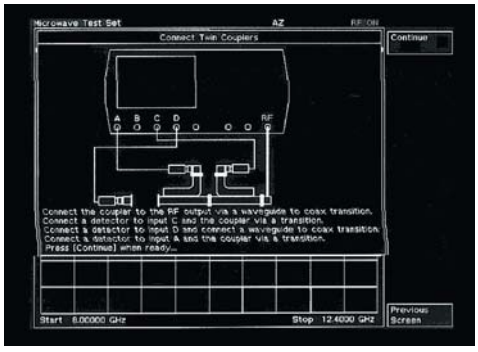
The guided measurements application software leads the user through measurement setup on both waveguide and coaxial systems.

- Simplifies transmission line measurements with 6200 series Microwave Test Set
- Designed specifically for the installation, commissioning and maintenance of RF and Microwave antenna systems
- Supports VSWR, Return Loss, Insertion Loss and Fault Location measurements
- Guides the user through measurement set-up
- On screen diagrams show instrument and component connections
- Ideal for less experienced users
- All levels of user can achieve fast, accurate and repeatable measurements

The 6200 series Microwave Test Set (MTS) integrates a synthesized sweep generator and scalar analyzer into a compact instrument making it ideal for field measurements of return loss, VSWR, insertion loss and fault location. The guided measurements application runs on the 6200 series MTS to guide the user through common transmission line measurements.

When installing and commissioning a new RF or microwave radio link the quality of the antenna and antenna feed, waveguide or coaxial, is fundamental to the overall link performance. Return loss is the principal measurement made to quantify the quality of the antenna and feed installation. Some users prefer to measure VSWR which is an alternative presentation of the same measurement.

With the guided measurements application the user is lead through the measurements. It is not necessary to have a comprehensive understanding of the MTS as the application presets key instrument parameters. Prompts and message boxes appear for the user to enter values specific to their system such as start and stop frequencies. Large onscreen diagrams show the user how to connect up the necessary components such as detectors, couplers and test heads.



Connection diagram for measurement of return loss and insertion loss in a waveguide feed using couplers

The guided measurements application supports measurements on both waveguide and coaxial systems. Should the system under test fail to meet the specified return loss (VSWR) measurement limit, the same application can be used to guide the user through a fault location measurement. Fault location identifies the position of a fault or discontinuity such as might occur at a coax connector or waveguide flange.

The 6200 series MTS is designed for people to install and maintain RF and microwave antenna systems. The excellent performance along with the integrated and compact design mean that it can be operated in all locations with confidence. When used with the guided measurements application, fast accurate and repeatable measure-

ments are guaranteed. This results in minimum installation time and quick repair of faulty sites.

Performing the Measurement

The application commences by prompting for the following information

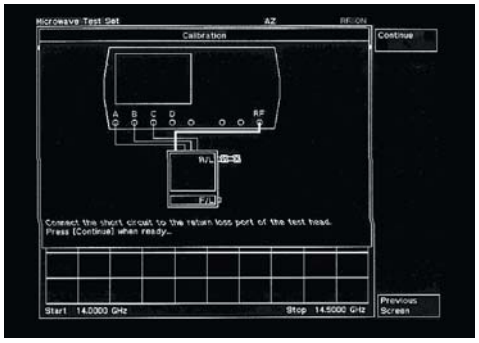
- type of measurement return loss, fault location, insertion loss

- transmission line medium waveguide, coax

- equipment to be used test head, waveguide couplers

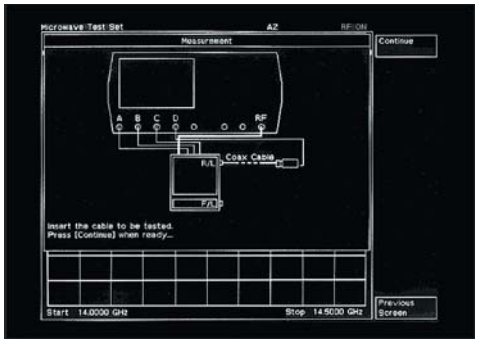
A diagram is then displayed to show the user how to connect the components to make the measurement. Messages prompt for data entry of parameters such as start and stop frequencies.

The user is then guided through the appropriate calibration for the chosen measurement. This routine minimises errors to give the best possible measurement accuracy.



On-screen diagrams guide the user through the calibration process

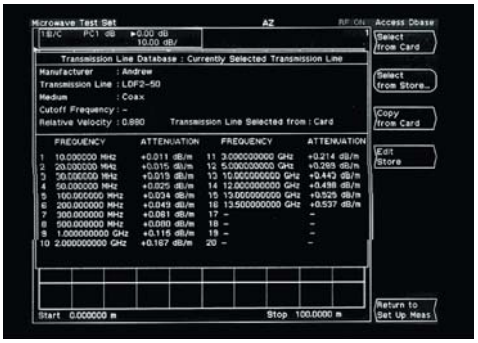
After calibration, on-screen diagrams show how to connect the equipment to measure the transmission line under test. The MTS will now display the trace of the measurement or measurements selected. Operation of the MTS returns to the standard user interface which allows markers to be positioned and traces plotted or stored to memory for further examination at a later date.



The application shows when and where to connect transmission line under test

Transmission Line Database

A separate memory card is available which contains the fundamental parameters of relative velocity, attenuation and cut off frequency for the most commonly used coaxial and waveguide transmission lines. This transmission line database complements the use of the guided measurement application and eliminates the need to carry transmission line manufacturers catalogues to the antenna site.



The Transmission Line Database contains the key parameters of the most common transmission lines

SPECIFICATION

RF Performance

As for MTS (see separate specification)

6200 series MTS requirements

Runs on any 6200 series Microwave Test Set (MTS) with issue 3.0 software or higher.

EQUIPMENT REQUIRED

The application will require one or more of the following pieces of test equipment.

6581 Transmission Line Test Head, 10 MHz - 20 GHz

6583 Transmission Line Test Head, 10 MHz - 26.5 GHz

(Usable to 40 GHz for fault location measurements)

6581E Fault Location Test Head, 10 MHz - 20 GHz

6583E Fault Location Test Head, 10 MHz - 26.5 GHz

(Usable to 40 GHz for fault location measurements)

6240 series Fault locators

Single waveguide coupler---

Two single waveguide couplers or one dual coupler

Coaxial-to-waveguide transformers (waveguide transitions) to allow the system detectors to be used.

Short circuit plate for calibration

6230 series scalar detector(s).

Other Features

The application is of the Auto Run type. This means that when the MTS powers up with the application card inserted, and if Auto Run was previously enabled, the application will be started automatically.

VERSIONS, OPTIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers	Versions
59000/280	Guided measurements application for6200 series Microwave Test Set (MTS). Supplied on MTS memory card. Supplied with:
46882/241	Operating Manual Complementary Product
59000/264	Transmission Line Database

† Requires issue 4.00 firmware or higher.
†† Requires issue 5.00 firmware or higher running on a 6200B series MTS.

Measurements Supported

Transission Line Medium	Accessories Used	Measurements Available
Coax	Test Head VSWR	Insertion Loss Single Ended Insertion Loss†† Return Loss Fault Location Insertion & Return Loss Insertion Loss & VSWR Insertion Loss & Fault Location
	Fault Locator	Insertion Loss† Single Ended Insertion Loss†† Return Loss† VSWR† Fault Location† Insertion & Return Loss† Insertion Loss & VSWR† Insertion Loss & Fault Location† Return Loss & Fault Location† VSWR & Fault Location† Insertion Loss, Return Loss & Fault Location†
	Bridge	Single ended insertion loss†† Return Loss VSWR
	Divider	Fault Location†
	None	Insertion Loss
Waveguide	Test Head	Insertion Loss Fault Location Insertion Loss & Fault Location
	Fault Locator	Insertion Loss† Fault Location† Insertion Loss & Fault Location†
	Single Coupler	Insertion Loss Return Loss VSWR Insertion & Return Loss Insertion Loss & VSWR
	Twin Couplers	Return Loss VSWR Insertion & Return Loss Insertion Loss & VSWR
	None	Insertion Loss

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