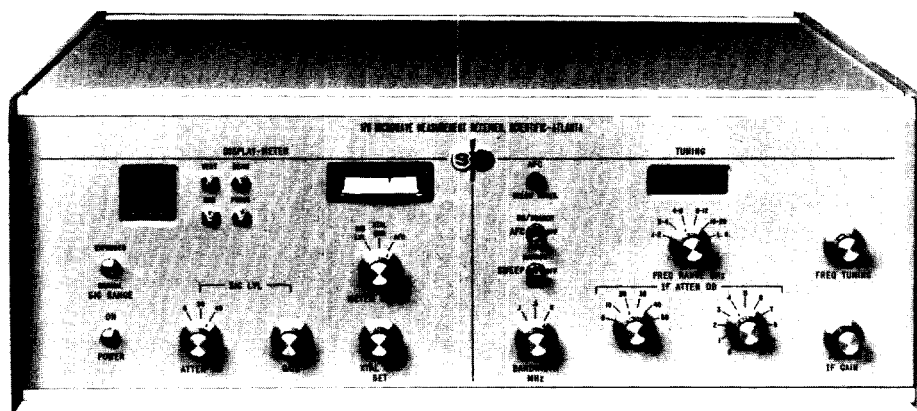


# Microwave Measurement Receiver

Series 1711

Scientific  
Atlanta



The Model 1711 Microwave Measurement Receiver converts CW signals in the 2 to 40 GHz range to a narrow bandwidth, 1 KHz signal. The Model 1711 is designed for use with antenna pattern recorders and amplitude displays for antenna pattern measurements or propagation studies.

The Receiver's low cost and excellent performance over a wide frequency range make it an ideal instrument for the antenna test range and microwave link analysis.

It is a compact, lightweight unit featuring a crystal harmonic-mixing technique to achieve 2-40 GHz coverage.

The Model 1711 Receiver is supplied with a Series 14 Mixer which provides an operating range of 2.0 to 12.4 GHz. The range can be expanded to 40 GHz when the appropriate Series 13A Waveguide Mixers are used. For optimum sensitivity, the mixers are normally remotely mounted to the antenna or device under test.

## Remote Mixer Operation

The Series 1711 Local Oscillator Unit is a plug-in module which may be housed in the receiver or may be remotely located up to 250 feet from the receiver. The remote Local Oscillator gives the receiver the accuracy of on-site measurements but allows the receiver mainframe to be in a more convenient location. A weatherproof enclosure is available for the Series 1711 Local Oscillator Unit. Additional Series 1711 Local Oscillator Units are available separately to allow permanent installation in locations such as tower sites where access is difficult. A Remote Local Oscillator Unit Kit, complete with the weather resistant enclosure and necessary cabling, is available. An optional high power local oscillator is also available to allow increased cable lengths between the mixer and LO unit.

## Signal Display

A front panel panoramic CRT display provides an indication of relative input noise, the IF gain setting, and signal stability. The frequency to which the receiver is tuned is displayed digitally on the front panel.

## AFC

The Model 1711 Receiver features an advanced electronic AFC system. A front panel switch allows the operator to select either the normal AFC mode or an AFC SEARCH mode in which the Receiver will automatically tune repetitively over a small frequency range searching for a received signal.

## Expanded (60 dB) Range Operation

The dynamic range of the receiver can be expanded from 40 dB to 60 dB by setting the front panel Signal Range switch to the Expanded position. Because this range expansion is achieved by controlling the receiver IF gain, the meter or recorder used must provide feedback to the receiver. The following equipment is designed to operate with the Model 1711 in the expanded range:

1. Series 1500 Recorder with a Model 4516B Plug-In Potentiometer.
2. Series 1410 Recorder Equipped with Option-P.
3. Model 1832A Digital Amplitude Display equipped with Option-5.

## Expanded Frequency Coverage

The -30 optional Low Frequency Converter adapts the receiver to accept signals in the 25 MHz to 2 GHz range. The Low Frequency Converter is housed in the receiver local oscillator unit.

# Microwave Measurement Receiver

## Series 1711

### Specifications

#### Frequency Coverage

Basic Receiver

2.0 - 12.4 GHz (to above 40 GHz with Series 13A

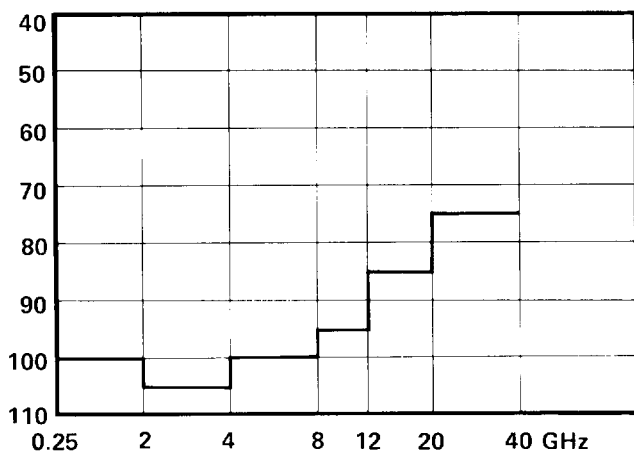
Waveguide Mixers)

#### Frequency Readout Accuracy

1% of displayed frequency  $\pm 1$  count or  $\pm 20$  MHz  $\pm 1$  count whichever is larger

#### Sensitivity

Signal equal to noise. (Narrow IF sweep and 0.1 MHz predetection BW; 30 Hz post-detection BW.)



#### Dynamic Range

40 dB minimum - 60 dB in expanded range

#### IF Amplifier

Bandwidth (selectable)

5.0 MHz, 0.5 MHz, or 0.1 MHz

Gain Control Range

40 dB min

#### IF Attenuator

Total Attenuation

0 to 60 dB in 1 dB minimum steps

Accuracy

$\pm 0.1$  dB on 1 dB step,  $\pm 0.2$  dB on 10 dB step

Attenuation

#### Outputs

1 kHz Bolometer (Square-Law)

40 dB dynamic range standard (60 dB when used with instruments which contain 60 dB option)

#### 1 kHz Linearity

40 dB dynamic range

0.25 dB

#### IF Output

10 MHz (0 dBm)

#### Maximum RF Input

For 0.25 dB non-linearity

-25 dBm

For 0.4 dB non-linearity

-20 dBm

#### Automatic Frequency Control (AFC)

Capture Range (with search)

$\pm 40$  MHz

#### Size

5 $\frac{1}{4}$ Hx19Wx19D inches (13Hx43Wx48D) CM

#### Weight

20 lb. (9.1 Kg.) Net

40 lb. (18 Kg.) Shipping

#### Power

115/230V; 50/60 Hz, 40 watts

# Microwave Measurement Receiver

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### Ordering Information

The Model 1711 Microwave Measurement Receiver includes the following:

- One Series 1711 Local Oscillator Unit
- One 3-ft. IF Cable, Local Oscillator to Receiver, Cable No. 126625
- One 3-ft. Control Cable, Local Oscillator to Receiver, Cable No. 135550
- One Series 14 Coaxial Mixer
- One Power Cord
- 6' RF Cable, Mixer to Local Oscillator
- One Card Extender

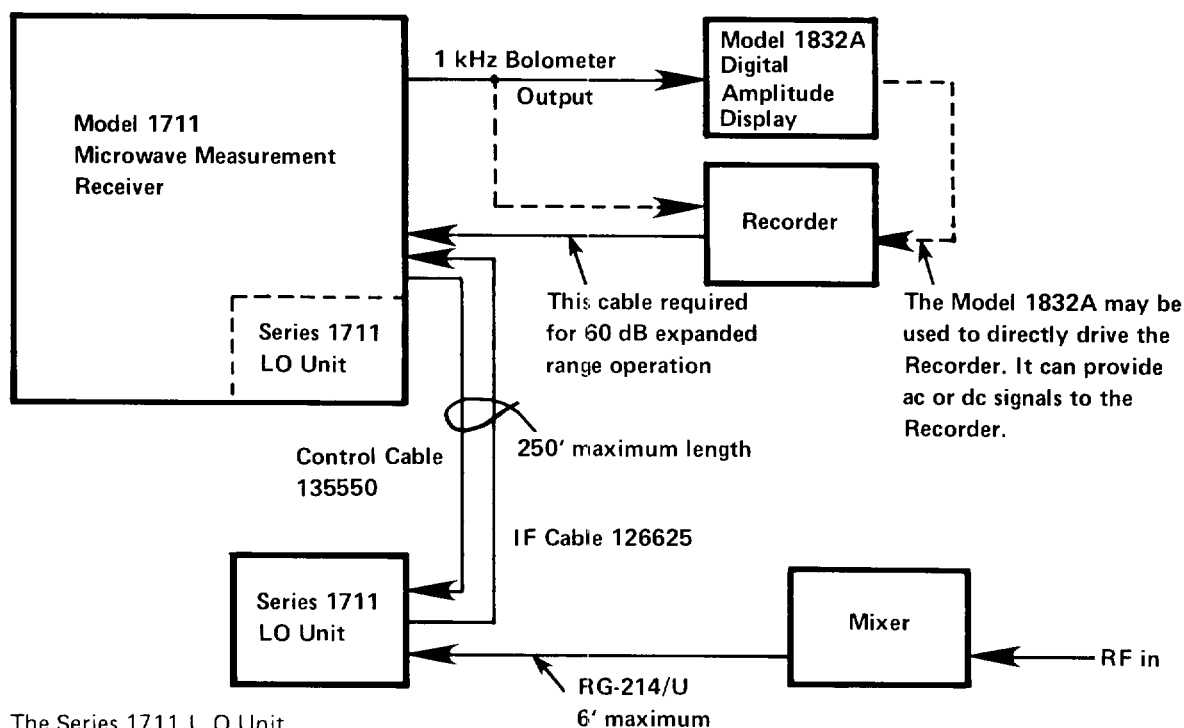
### Accessories

- Remote Local Oscillator Kit - Part No. 146119
- Series 1711 Local Oscillator Unit - Part No. 135587
- Model 1832A Digital Amplitude Display\*
- Series 1410 Portable Pattern Recorder\*
- Series 1500 Antenna Pattern Recorder\*

\*For expanded Range (60 dB) operation, order the Series 1410 Recorder equipped with option-P, and the Model 1832A Digital Amplitude Display with option-5. The Series 1500 Recorder requires a Model 4516B Plug-In Potentiometer for expanded range operation.

### Options

- Option 1 - Rack mount kit in lieu of cabinet
- Option 30 - Low Frequency Converter 25 MHz - 2 GHz



The Series 1711 L.O. Unit may be mounted in the Model 1711 Receiver or located remotely from the receiver mainframe.