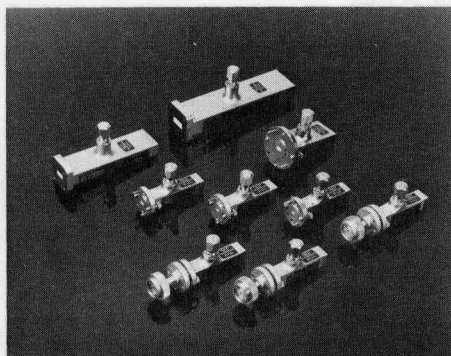




490 Series Waveguide Mixers

The 490 Series Tektronix Waveguide Mixers cover from 18 GHz to 220 GHz with optimum sensitivity. They are designed specifically for use with the Tektronix 492/492P and 7L18 Spectrum Analyzers.

The two microwave mixers cover ranges 18 GHz to 26.5 GHz and 26.5 GHz to 40 GHz. They have field replaceable diodes and frequency response of ± 3 dB when used with the spectrum analyzers indicated above.

Seven millimeter wave mixers cover the 40 GHz to 220 GHz range in the standard Mil-spec band ranges. A mixer designed specifically for the 140 GHz to 220 GHz band is available, or a flange transition (119-1729-00) can be used to allow the 90 GHz to 140 GHz mixer to cover this range.

The mixers are all gold plated brass, conforming to MIL-G-45204 Class I, Type 1 specifications and will withstand harsh environments. Each set comes complete with a container for spare diodes, a 28-inch cable, an instruction manual and a wood storage box with foam cutout storage locations for five mixers.

CHARACTERISTICS

For All Waveguide Mixers — Maximum cw RF input level: +10 dBm (10 mW)

Maximum PULSED RF Input Level — 1 W peak with 0.001 maximum duty factor and 1 μ s maximum pulse width.

L.O. Requirement — +7 dBm minimum, +15 dBm maximum, +10 dBm typical.

Bias Requirement — -2.0 V to +0.5 V with respect to the mixer body through a current limiting resistor, to provide 0 mA to 20 mA of bias current.

For the 18 GHz to 60 GHz Waveguide Mixers — 3 dB compression point (saturation): -10 dBm (typical).

Conversion Loss — 30 dB typical (when used in the proper spectrum analyzer frequency band).

ORDERING INFORMATION

Performance Specified Mixers and Sets:

18 GHz to 26.5 GHz Frequency Range —	
Order WM 490K	\$1,225
26.5 GHz to 40 GHz Frequency Range —	
Order WM 490A	\$1,225
40 GHz to 60 GHz Frequency Range —	
Order WM 490U	\$1,680
50 GHz to 75 GHz Frequency Range —	
Order WM 490V	\$1,950
60 GHz to 90 GHz Frequency Range —	
Order WM 490E	\$2,075
75 GHz to 110 GHz Frequency Range —	
Order WM 490W	\$2,075
90 GHz to 140 GHz Frequency Range —	
Order WM 490F	\$2,275
110 GHz to 170 GHz Frequency Range —	
Order WM 490D	\$3,175

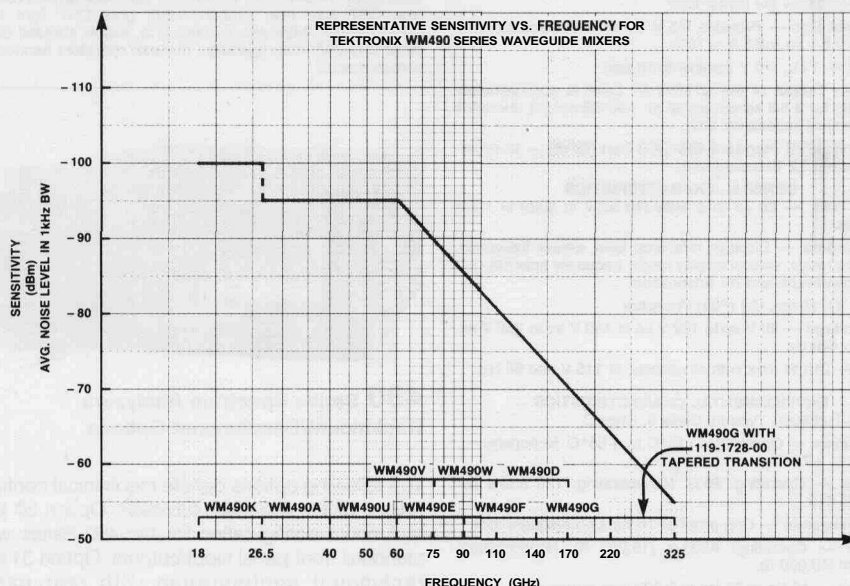
ELECTRICAL CHARACTERISTICS						
Frequency Range (GHz)	Tektronix Model No	Band Designation	Sensitivity (dBm)* ¹	Frequency Response* ²	Amplitude Accuracy* ³	3 dB Compression Point (Saturation)
18 to 26.5	WM 490K	K	-100	± 3 dB	± 6 dB	-10 dBm typical
26.5 to 40	WM 490A	A	-95	± 3 dB	± 6 dB	-10 dBm typical
40 to 60	WM 490U	U	-95	± 3 dB	± 6 dB	-10 dBm typical
50 to 75	WM 490V	V	-95 at 50 GHz	± 3 dB		-10 dBm at 50 GHz
			-90 at 75 GHz	typical* ⁴		-10 dBm at 75 GHz
			typical			typical
60 to 90	WM 490E	E	-95 at 60 GHz	± 3 dB		-10 dBm at 60 GHz
			-85 at 90 GHz	typical* ⁴		-5 dBm at 90 GHz
			typical			typical
75 to 110	WM 490W	W	-90 at 75 GHz	± 3 dB		-10 dBm at 75 GHz
			-80 at 110 GHz	typical* ⁴		0 dBm at 110 GHz
			typical			typical
90 to 140	WM 490F	F	-85 at 90 GHz	± 3 dB		-5 dBm at 90 GHz
			-75 at 140 GHz	typical* ⁴		0 dBm at 140 GHz
			typical			typical
110 to 170	WM 490D	D	-80 at 110 GHz	± 3 dB		0 dBm at 110 GHz
			-70 at 170 GHz	typical* ⁴		+5 dBm at 170 GHz
			typical			typical
140 to 220	WM 490G	G	-75 at 140 GHz	± 3 dB		0 dBm at 140 GHz
			-65 at 220 GHz	typical* ⁴		+10 dBm at 220 GHz
			typical			typical

*¹ Equivalent average noise level at 1 kHz bandwidth.

*² Maximum amplitude variation across each waveguide mixerband (with peaking control optimized at each frequency in response to a -30 dBm CW input signal to the mixer).

*³ Maximum reference level error with respect to the internal calibrator. Amplitude accuracy can be improved 3 dB by measuring amplitude with respect to a known external (waveguide) reference signal.

*⁴ Over any 5 GHz bandwidth for millimeter wave mixers above 60 GHz.



140 GHz to 220 GHz Frequency Range —

Order WM 490G \$3,325

18 GHz to 40 GHz Set Contains WM 490K, WM 490A —

Order WM 4902 \$2,520

18 GHz to 60 GHz Set Contains WM 490K, WM 490A and

WM 490U — Order WM 4903 \$4,200

18 GHz to 90 GHz Set Contains WM 490K, WM 490A,

WM 490U and WM 490E — Order WM 4904 \$6,275

18 GHz to 140 GHz Set Contains WM 490K, WM 490A,

WM 490U, WM 490E, and WM 490F —

Order WM 4905 \$8,550

Cable — Order 012-0649-00 \$50

Case — Order 016-0465-01 \$50

140 GHz to 220 GHz tapered transition 119-1729-00

used with WM 490F waveguide mixer \$650

General Purpose Waveguide Mixer and Set:

12.5 GHz to 18 GHz Frequency Range —

Order 119-0097-01 \$190

18 GHz to 26.5 GHz Frequency Range —

Order 119-0098-01 \$290

26.5 GHz to 40 GHz Frequency Range —

Order 119-0099-01 \$360

Cable — Order 012-0748-00 \$60

Case — Order 016-0465-01 \$50

12.5 GHz to 40 GHz Set Contains 119-0097-01,

119-0098-01, 119-0099-01 — Order 016-0640-00 \$740

OPTIONAL ACCESSORIES

Microwave Comb Generator TM 500 Series Compatible —

Order 087-0885-00 \$1,800

75 a to 50 S/ Minimum Loss Pad —

Order 011-0112-00 \$60

DC Block BNC to BNC — Order 015-0221-00 \$85

FET Probe P6201 to 900 MHz — Order 010-6201-01 \$1,145

1405 TV Sideband Adaptor (525/60 Markers) \$5,670

C-5C Camera \$530

TV Trigger Synchronizer — Order 015-0261-01 \$395

Hard Case (Transit) — Order 016-0658-00 \$625

Soft Case — Order 016-0659-00 \$125

Lab Cart Model 3 \$560

Note: 490 Series spectrum analyzers are compatible with all Tektronix C-50 Series cameras. Battery Pack 016-0270-02 is required for C-50, C-51, C-52 and C-53 Cameras.