

# Wireless

## 2388 1 GHz Active Probe



The 2388 measures low-level intermodulation and harmonic distortion products with minimal circuit loading.

- Wide frequency coverage: 50 kHz to 1.25 GHz, for IF, HF, VHF and UHF
- Attenuation adjustable to ensure operation at optimum dynamic range
- Continuously variable attenuator
- Excellent intermodulation performance
- High input impedance

*The 2388 1 GHz Active Probe covers the frequency range 50 kHz to 1.25 GHz. It converts the 50 W input impedance of RF test equipment to a high impedance, providing minimal loading of the circuit under test for bridging measurements.*

*Intermodulation products are at least 75 dB down, permitting measurement of low-level intermodulation and harmonic distortion products.*

### **Integral Attenuator**

The design eliminates the need for clip-on voltage dividers by incorporating a variable attenuator within the probe. The adjustable 40 dB attenuator ensures that the probe can be operated at an optimum dynamic range independent of input signal level.

### **Supported Instruments**

2388 active probe is suitable for use with 2310 TETRA signal analyzer, 2309 FFT analyzer and 2319E RF digitizer; 2398, 2399 and 2390A series spectrum analyzers; 2945A and 2965 series radio test sets; and 6840 series microwave systems analyzers. The accessory power supply (54441/012) is required when using the probe with 2398, 2390A, 2965 and 6840. 2309, 2310, 2319E and 2399 have a built-in probe power supply and so do not need the accessory power supply.

Note that the 2399 does require the power supply adapter lead 54349/001.

### **Ruggedized**

The probe is very rugged, and can withstand being dropped. In cases of extreme stress, however, the tip may be damaged, but is easily replaced, since a spare assembly simply screws to the probe barrel.

### **Accessories**

The carrying case has storage space for the supplied accessories, including a spring grounding pin, terminated type N (Male) adaptor, and a spare probe tip.

The spring grounding pin incorporates a universal joint to allow the probe to be grounded to any convenient point.

The terminated adaptor may be used to check the insertion loss and frequency response of the probe allowing these effects to be measured.

# SPECIFICATION

## Frequency Response

(When terminated in Adapter type 43149-020)  
3 dB bandwidth 100 kHz to 1 GHz. Typically 50 kHz to 1.25 GHz.

Gain flatness  $\pm 0.75$  dB from 500 kHz to 400 MHz.

## INSERTION LOSS AT 10 MHz

Continuously variable from 0 dB  $\pm 1.5$  dB to 40 dB.

## INPUT IMPEDANCE

### Input capacitance at 10 MHz

<2.5 pF for probe setting of 0 dB loss.  
<1.5 pF for probe setting of 40 dB loss.

### Input damping resistance

>250 k $\Omega$  at 10 MHz for probe setting of 0 dB loss.  
>25 k $\Omega$  at 100 MHz for probe setting of 0 dB loss.

## DISTORTION

### Two-tone intermodulation products

>75 dB down on the level of a single tone, where each tone has a level of -30 dB at the probe output (i.e. <-105 dBm).

### Output level at 1 dB gain compression

+6 dBm minimum at output.

## MAXIMUM VOLTAGES

Maximum DC level: 200 V.  
Maximum AC level: 10 V peak-to-peak at any setting.

## SIGNAL TERMINATION

Type N male connector (50  $\Omega$ ).

## POWER REQUIREMENTS

### Probe supply

900 mW maximum, either from instrument front panel socket or from the optional Accessory Power Supply.

## ENVIRONMENTAL PERFORMANCE (Limit range of operation)

Temperature: 0 to +55°C.  
Rated range of operation: +5 to +50°C.

## Conditions of storage and transport

Temperature: -40 to +70°C.  
Humidity: Up to 90% relative humidity at 35°C.  
Altitude: Up to 2500 m (pressurized freight at 27 kPa differential, i.e. 3.9 lbf/in<sup>2</sup>).

## Electromagnetic Compatibility

Conforms with the protection requirements of the EEC Council Directive 89/336/EEC. Conforms with the limits specified in the following standards:  
IEC/EN61326-1 : 1997, RF Emission Class B, Immunity Table 1, Performance Criteria B

## Safety

Conforms with the requirements of EEC Council Directive 73/23/EEC and Standard IEC/EN 61010-1 : 1993

## DIMENSIONS AND WEIGHT

Height	Width	Depth	Weight
65 mm (9.6 in.)	236 mm (9.25 in.)	190 mm (7.5 in.)	0.8 kg (1.8 lb.)

Dimensions are of carrying case, weight includes all supplied accessories.

## VERSIONS AND ACCESSORIES

52388/900 1 GHz Active Probe 2388, 50  $\Omega$

### Supplied with

41700/517 Spare Probe Tip  
41700/518 Spring Grounding Pin  
43149/020 Terminated 50  $\Omega$  Type N Male Adapter  
41700/554 Grounding Clip Assembly

### Accessories

54441/012 Power Supply  
43149/023 Probe tip to BNC Adapter.  
54349/002 Power supply adapter lead. (Tektronix – short).  
54349/003 Power supply adapter lead. (Tektronix – long).

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