Tektronix®

# 6 Series B Mixed Signal Oscilloscopes

# Specifications and Performance Verification

# (MSO64B, MSO66B, MSO68B)

**Warning**: The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

Supports Product Firmware V1.28 and above

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# Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, see the *Service safety summary* that follows the *General safety summary*.

## General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

This product shall be used in accordance with local and national codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

### To avoid fire or personal injury

| | |
|---|---|
| **Use proper power cord** | Use only the power cord specified for this product and certified for the country of use. |
| **Ground the product** | This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded. Do not disable the power cord grounding connection. |
| **Power disconnect** | The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed. |
| **Connect and disconnect properly** | Do not connect or disconnect probes or test leads while they are connected to a voltage source.<br><br>Use only insulated voltage probes, test leads, and adapters supplied with the product, or indicated by Tektronix to be suitable for the product. |
| **Observe all terminal ratings** | To avoid fire or shock hazard, observe all rating and markings on the product. Consult the product manual for further ratings information before making connections to the product. Do not exceed the Measurement Category (CAT) rating and voltage or current rating of the lowest rated individual component of a product, probe, or accessory. Use caution when using 1:1 test leads because the probe tip voltage is directly transmitted to the product.<br><br>Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal. |
| **Do not operate without covers** | Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible. |
| **Avoid exposed circuitry** | Do not touch exposed connections and components when power is present. |
| **Do not operate with suspected failures** | If you suspect that there is damage to this product, have it inspected by qualified service personnel. |

| | |
|---|---|
| | Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.<br>Before use, inspect voltage probes, test leads, and accessories for mechanical damage and replace when damaged. Do not use probes or test leads if they are damaged, if there is exposed metal, or if a wear indicator shows.<br>Examine the exterior of the product before you use it. Look for cracks or missing pieces.<br>Use only specified replacement parts. |
| **Do not operate in wet/damp conditions** | Be aware that condensation may occur if a unit is moved from a cold to a warm environment. |
| **Do not operate in an explosive atmosphere** | |
| **Keep product surfaces clean and dry** | Remove the input signals before you clean the product. |
| **Provide proper ventilation** | Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.<br>Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings. |
| **Provide a safe working environment** | Always place the product in a location convenient for viewing the display and indicators.<br>Avoid improper or prolonged use of keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury.<br>Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.<br>Use care when lifting and carrying the product. This product is provided with a handle or handles for lifting and carrying.<br>Use only the Tektronix rackmount hardware specified for this product. |

## Probes and test leads

Before connecting probes or test leads, connect the power cord from the power connector to a properly grounded power outlet.

Keep fingers behind the protective barrier, protective finger guard, or tactile indicator on the probes. Remove all probes, test leads and accessories that are not in use.

Use only correct Measurement Category (CAT), voltage, temperature, altitude, and amperage rated probes, test leads, and adapters for any measurement.

# Service safety summary

The *Service safety summary* section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this *Service safety summary* and the *General safety summary* before performing any service procedures.

| | |
|---|---|
| **To avoid electric shock** | Do not touch exposed connections. |
| **Do not service alone** | Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present. |
| **Disconnect power** | To avoid electric shock, switch off the product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing. |

| | |
|---|---|
| **Use care when servicing with power on** | Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components. |
| **Verify safety after repair** | Always recheck ground continuity and mains dielectric strength after performing a repair. |

## Terms in the manual

These terms may appear in this manual:

**Warning:** Warning statements identify conditions or practices that could result in injury or loss of life.

**CAUTION:** Caution statements identify conditions or practices that could result in damage to this product or other property.

# Terms on the product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.

# Symbols on the product

When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbols(s) may appear on the product.

# Specifications

This chapter contains specifications for the instrument. All specifications are guaranteed unless noted as "typical." Typical specifications are provided for your convenience but are not guaranteed. Specifications that are marked with the ✓ symbol are checked in this manual. All specifications apply to all models unless noted otherwise.

To meet specifications, these conditions must first be met:

- The instrument must have been calibrated in an ambient temperature between 18 °C and 28 °C (64 °F and 82 °F).
- The instrument must be operating within the environmental limits. (See *Environmental specifications* on page 45)
- The instrument must be powered from a source that meets the specifications. (See *Power supply system* on page 45)
- The instrument must have been operating continuously for at least 20 minutes within the specified operating temperature range.
- You must perform the Signal Path Compensation procedure after the warmup period. See the online help for instructions on how to perform signal path compensation. If the ambient temperature changes more than 5 °C (9 °F), repeat the procedure.

## Analog inputs

**Number of analog input channels**

MSO64B: 4

MSO66B: 6

MSO68B: 8

**Input coupling**

DC, AC

**Input resistance selection**

1 MΩ or 50 Ω

250 KΩ selectable for Performance Verification

**✓DC Input Resistance, 50 Ω, DC coupled**

50 Ω ±3%

**✓DC Input Resistance, 1MΩ DC-Coupled**

1 MΩ ±1%

**Input VSWR, 50 Ω DC-coupled, typical**

| Input Frequency | VSWR <100 mV/div | VSWR ≥ 100 mV/div |
|---|---|---|
| ≤2.5 GHz | 1.4 | 1.2 |
| >2.5 GHz and ≤6 GHz | 1.5 | 1.3 |
| >6 GHz and ≤9.5 GHz | 1.9 | 1.8 |
| >9.5 GHz and ≤10 GHz | 2.1 | 1.9 |

**Maximum input voltage, 50 Ω**

2.3 $V_{RMS}$, at <100 mV/div, with peaks ≤±20 V (Pulse Width ≤ 1 µs)

5.5 $V_{RMS}$, at ≥ 100 mV/div, with peaks ≤±20 V (Pulse Width ≤ 200 µs)

**Maximum input voltage 1 MΩ DC-coupled**

300 $V_{RMS}$, DC to 10 kHz

Maximum peak input voltage at the BNC, ±425 V

**Sensitivity range, coarse**

**1 MΩ**

500 µV/div to 10 V/div in a 1-2-5 sequence

**50 Ω**

1 mV/div to 1 V/div in a 1-2-5 sequence

**Sensitivity range (Fine)**

| | |
|---|---|
| **1 MΩ** | Allows continuous adjustment from 500µV/div to 10V/div |
| **50 Ω** | Allows continuous adjustment from 1mV/divto 1V/div |
| **Sensitivity Resolution (Fine)** | ≤1% of coarse sensitivity range setting |
| **Input capacitance 1 MΩ DC coupled, typical** | 14.5 pF ±1.5 pF |

## Analog DC

**Maximum offset ranges,**

Input signal cannot exceed maximum input voltage for the 50 Ω input path.

| Volts/div Setting | Maximum offset range, 50 Ω Input |
|---|---|
| 1 mV/div - 99 mV/div | ±1 V |
| 100 mV/div - 1 V/div | ±10 V |

| Volts/div Setting | Maximum offset range, 1 MΩ Input |
|---|---|
| 500 µV/div - 63 mV/div | ±1 V |
| 64 mV/div - 999 mV/div | ±10 V |
| 1 V/div - 10 V/div | ±100 V |

Input Signal cannot exceed max input voltage for the 50 Ω input path.

**DC voltage measurement accuracy, Average acquisition mode**

| Measurement Type | DC Accuracy (In Volts) |
|---|---|
| Average of ≥16 waveforms | ±((DC Gain Accuracy) * \|reading - (offset - position)\| + Offset Accuracy + 0.05 * V/div setting) |
| Delta volts between any two averages of ≥16 waveforms acquired with the same oscilloscope setup and ambient conditions | ±(DC Gain Accuracy * \|reading\| + 0.1 div) |

**DC voltage measurement accuracy, Sample acquisition mode, typical**

| Measurement Type | DC Accuracy (In Volts) |
|---|---|
| Any Sample | ±(DC Gain Accuracy * \|reading - (offset - position)\| + Offset Accuracy + 0.15 div + 0.6 mV) |
| Delta volts between any two samples acquired with the same scope setup and ambient conditions | ±(DC Gain Accuracy * \|reading\| + 0.15 div +1.2 mV) |

**✓Offset accuracy**

**50 Ω DC-coupled**

≥5 mV/div: ± (0.005 X |offset – position| + 0.087 div)
2 mV/div: ± (0.005 X |offset – position| + 0.13 div)
1 mV/div: ± (0.005 X |offset – position| + 0.224 div)

**1 MΩ DC-coupled**

≥5 mV/div: ± (0.005 X |offset – position| + 0.2 div)
2 mV/div: ± (0.005 X |offset – position| + 0.237 div)
1 mV/div: ± (0.005 X |offset – position| + 0.384 div)
Offset and position in units of Volts

**Position range**

±5 divisions

**✓DC gain accuracy**

**50 Ω**

±2.0%[1] at >2 mV/div (±2.0% at 2 mV/div, ±4.0% at 1 mV/div, typical)

±1.0%[2] of full scale at >2 mV/div, (±1.0% of full scale at 2 mV/div, ± 2.0% at 1 mV/div, typical)

**1 MΩ**

±2.0%[1] at >2 mV/div (±2.0% at 2 mV/div, ±2.5% at 1 mV/div and 500 µV/div, typical)

±1.0%[2] of full scale at >2 mV/div, (±1.0% of full scale at 2 mV/div, ±1.25% at 1 mV/div and 500 µV/div, typical)

**✓Digital nonlinearity, typical**

INL @ > 2 mV/div: ±16 DL's (12-bit reference)
INL @ ≤ 2 mV/div: ±20 DL's (12-bit reference)
DNL: ±1.0 DL's (12-bit digitizing scale) when oscilloscope is in Hi-Res mode.

## Analog AC

**✓Analog bandwidth 50 Ω DC coupled**

| Model | Volts/div Setting | Bandwidth |
|---|---|---|
| MSO6XB BW-10000 | 1 mV/div – 1V/div | DC - 10GHz |
| MSO6XB BW-8000 | 1 mV/div – 1V/div | DC – 8 GHz |
| MSO6XB BW-6000 | 1 mV/div – 1V/div | DC – 6 GHz |
| MSO6XB BW-4000 | 1 mV/div – 1V/div | DC – 4 GHz |
| MSO6XB BW-2500 | 1 mV/div – 1V/div | DC – 2.5 GHz |
| MSO6XB BW-1000 | 1 mV/div – 1V/div | DC – 1 GHz |

**✓Analog Bandwidth, 1 MΩ**

The limits are for ambient temperature of ≤30 °C and the bandwidth selection set to FULL. Reduce the upper bandwidth frequency by 1% for each °C above 30 °C.

MSO6XB, all models:

| Volts/Div Setting | Bandwidth |
|---|---|
| 1 mV/div – 10 V/div | DC – 500 MHz |
| 500 µV/div – 995 µV/div | DC – 250 MHz |

1 Immediately following SPC, add 2% for every 5 °C change in ambient.
2 Immediately following SPC, add 1% for every 5 °C change in ambient.

**Analog bandwidth TPP1000 10X probe**

The limits are for ambient temperature of ≤30 °C and the bandwidth selection set to FULL. Reduce the upper bandwidth frequency by 1% for each °C above 30 °C.

| Model | Volts/Div Setting | Bandwidth |
|---|---|---|
| MSO6X, all models | 5 mV/div - 100 V/div | DC - 1 GHz |

**Bandwidth selections**

**10 GHz model, 50 Ohm:** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, 1 GHz, 2 GHz, 2.5 GHz, 3 GHz, 4 GHz, 5 GHz, 6 GHz, 7 GHz, 8GHz, 9GHz, and 10 GHz.

**8 GHz model, 50 Ohm** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, 1 GHz, 2 GHz, 2.5 GHz, 3 GHz,4 GHz, 5 GHz, 6 GHz, 7 GHz, and 8 GHz.

**6 GHz model, 50 Ohm** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, 1 GHz, 2 GHz, 2.5 GHz, 3 GHz,4 GHz, 5 GHz, and 6 GHz

**4 GHz model, 50 Ohm** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, 1 GHz, 2 GHz, 2.5 GHz, 3 GHz, and 4 GHz

**2.5 GHz model, 50 Ohm** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, 1 GHz, 2 GHz, and 2.5 GHz

**1 GHz model, 50 Ohm** 20 MHz, 200 MHz, 250 MHz, 350 MHz, 500 MHz, and 1 GHz

**1M Ohm** 20 MHz (HW), 200 MHz, 250 MHz (HW), 350 MHz, and Full (500 MHz)

**Frequency response tolerance/ flatness, 50 Ω**

± 0.5 dB from DC to 80% of rated bandwidth up to 8 GHz instruments

± 0.5 dB from DC To 65% of rated bandwidth for 10 GHz instruments

**Combined TDP7700 and 6 Series B MSO flatness, typical**

±0.6 dB from DC to 80% of nominal BW when used with P77C292MM (SMA Probe Tip)

Not valid while using peak detect or envelope mode. Valid for probe modes A, B, and D

**Phase accuracy** ±2.5 degrees, typical out to 9 GHz

**Lower frequency limit, AC coupled, typical** <10 Hz when AC 1 MΩ coupled. The AC coupled lower frequency limits are reduced by a factor of 10 (<1 Hz) when 10X passive probes are used.

**Upper frequency limit, 250 MHz bandwidth limited, typical**

**50 Ω, DC-coupled** 250 MHz, ± 5%

**1 MΩ, DC-coupled** 250 MHz, ± 25%

**Upper frequency limit, 20 MHz bandwidth limited, typical**

**50 Ω, DC-coupled** 20 MHz, ± 5%

**1 MΩ, DC-coupled** 20 MHz, ± 25%

**Calculated rise time**

The formula used is 0.4/BW where BW is the measured –3 dB bandwidth of the oscilloscope. The formula accounts for the rise time contribution of the oscilloscope independent of the rise time of the signal source.

Calculated Rise Time (10% to 90%)[3]

[3] Below specification is independent of oscilloscope model and is dependent on bandwidth option only.

| Model | 50 Ω | TPP1000 Probe |
|---|---|---|
| | 1 mV-1 V | 5 mV-10 V |
| MSO6X BW-10000 | 40 ps | 400 ps |
| MSO6X BW-8000 | 50 ps | 400 ps |
| MSO6X BW-6000 | 66.67 ps | 400 ps |
| MSO6X BW-4000 | 100 ps | 400 ps |
| MSO6X BW-2500 | 160 ps | 400 ps |
| MSO6X BW-1000 | 400 ps | 400 ps |

## Effective bits (ENOB), typical

These limits apply to:

- Fastacq turned OFF
- 8 channel box: ch1, ch5
- 6 channel box: ch1, ch4
- 4 channel box: ch1, ch3

| 50 mV/div, 50 GS, Sample mode, 50 ohm, TYP | | | | | | 50 mV/div, 25 GS, HiRes mode, 50 ohm, TYP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Channel bandwidth | | | | | | | | | | | | | | | |
| Frequency | 10 GHz | 9 GHz | 8 GHz | 7 GHz | 6 GHz | 5 GHz | 4 GHz | 3 GHz | 2.5 GHz | 2 GHz | 1 GHz | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
| 10 MHz | 6.6 | 6.75 | 6.85 | 7 | 7.15 | 7.4 | 7.6 | 7.85 | 7.95 | 8.05 | 8.45 | 8.65 | 8.8 | 8.85 | 8.9 | 9.85 |
| 250 MHz | 6.6 | 6.75 | 6.85 | 7 | 7.15 | 7.35 | 7.5 | 7.75 | 7.85 | 7.95 | 8.3 | 8.65 | 8.8 | 8.85 | | |
| 1 GHz | 6.6 | 6.75 | 6.85 | 7 | 7.1 | 7.3 | 7.45 | 7.7 | 7.8 | 7.95 | 8.3 | | | | | |
| 2 GHz | 6.55 | 6.65 | 6.75 | 6.85 | 7 | 7.2 | 7.35 | 7.55 | 7.65 | 7.75 | | | | | | |
| 4 GHz | 6.45 | 6.65 | 6.75 | 6.95 | 7.05 | 7.2 | 7.35 | | | | | | | | | |
| 7 GHz | 6.55 | 6.65 | 6.75 | 6.9 | | | | | | | | | | | | |

| 2 mV/div, 50 GS, Sample mode, 50 ohm, TYP | | | | | | 2 mV/div, 25 GS, HiRes mode, 50 ohm, TYP | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Channel bandwidth | | | | | | | | | | | | | | | |
| Frequency | 10 GHz | 9 GHz | 8 GHz | 7 GHz | 6 GHz | 5 GHz | 4 GHz | 3 GHz | 2.5 GHz | 2 GHz | 1 GHz | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
| 10 MHz | 4.95 | 5.1 | 5.2 | 5.35 | 5.55 | 5.7 | 5.9 | 6.1 | 6.2 | 6.35 | 6.8 | 7.25 | 7.5 | 7.65 | 7.85 | 9.25 |
| 250 MHz | 4.95 | 5.1 | 5.2 | 5.35 | 5.55 | 5.7 | 5.85 | 6.1 | 6.2 | 6.35 | 6.8 | 7.25 | 7.5 | 7.65 | | |
| 1 GHz | 4.95 | 5.1 | 5.2 | 5.35 | 5.55 | 5.7 | 5.85 | 6.1 | 6.2 | 6.35 | 6.8 | | | | | |

Table continued…

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2 GHz** | 4.95 | 5.1 | 5.2 | 5.35 | 5.55 | 5.65 | 5.85 | 6.05 | 6.2 | 6.35 | | | | | | |
| **4 GHz** | 4.9 | 5.1 | 5.2 | 5.35 | 5.55 | 5.65 | 5.85 | | | | | | | | | |
| **7 GHz** | 4.9 | 5.1 | 5.2 | 5.35 | | | | | | | | | | | | |

These limits apply to:

- 8 channel box: ch1, ch2, ch5, ch6
- 6 channel box: ch1, ch2, ch4, ch5
- 4 channel box: all channels

| **50 mV/div, 25 GS, Sample mode, 50 ohm, TYP** | | | | | | **50 mV/div, 12.5 GS, HiRes mode, 50 ohm, TYP** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Channel bandwidth** | | | | | | | | | | | | | | |
| **Frequency** | **10 GHz** | **9 GHz** | **8 GHz** | **7 GHz** | **6 GHz** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **10 MHz** | 6.25 | 6.4 | 6.5 | 6.6 | 6.8 | 7.05 | 7.25 | 7.5 | 7.6 | 7.8 | 8.2 | 8.5 | 8.65 | 8.75 | 8.85 | 9.75 |
| **250 MHz** | 6.25 | 6.4 | 6.5 | 6.6 | 6.8 | 7 | 7.2 | 7.4 | 7.55 | 7.7 | 8.1 | 8.5 | 8.9 | 9 | | |
| **1 GHz** | 6.25 | 6.4 | 6.5 | 6.6 | 6.8 | 7 | 7.15 | 7.4 | 7.5 | 7.65 | 8 | | | | | |
| **2 GHz** | 6.2 | 6.3 | 6.4 | 6.6 | 6.7 | 6.95 | 7.1 | 7.35 | 7.4 | 7.5 | | | | | | |
| **4 GHz** | 6.2 | 6.3 | 6.4 | 6.5 | 6.7 | 6.95 | 7 | | | | | | | | | |
| **7 GHz** | 6.2 | 6.2 | 6.3 | 6.4 | | | | | | | | | | | | |

| **2 mV/div, 25 GS, Sample mode, 50 ohm, TYP** | | | | | | **2 mV/div, 12.5 GS, HiRes mode, 50 ohm, TYP** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Channel bandwidth** | | | | | | | | | | | | | | |
| **Frequency** | **10 GHz** | **9 GHz** | **8 GHz** | **7 GHz** | **6 GHz** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **10 MHz** | 4.8 | 5 | 5.1 | 5.3 | 5.5 | 5.65 | 5.9 | 6.1 | 6.2 | 6.35 | 6.8 | 7.2 | 7.4 | 7.5 | 7.75 | 8.8 |
| **250 MHz** | 4.8 | 5 | 5.1 | 5.3 | 5.5 | 5.65 | 5.9 | 6.1 | 6.2 | 6.35 | 6.8 | 7.2 | 7.4 | 7.5 | | |
| **1 GHz** | 4.8 | 5 | 5.1 | 5.3 | 5.5 | 5.65 | 5.9 | 6.1 | 6.2 | 6.35 | 6.8 | | | | | |
| **2 GHz** | 4.8 | 5 | 5.1 | 5.3 | 5.5 | 5.6 | 5.85 | 6.1 | 6.2 | 6.35 | | | | | | |
| **4 GHz** | 4.8 | 5 | 5.1 | 5.3 | 5.5 | 5.6 | 5.8 | | | | | | | | | |
| **7 GHz** | 4.8 | 5 | 5.1 | 5.3 | | | | | | | | | | | | |

These limits apply to all channels

| **50 mV/div, 12.5 GS, Sample mode, 50 ohm, TYP** | **50 mV/div, 6.25 GS, HiRes mode, 50 ohm, TYP** |
|---|---|
| **Channel bandwidth** | |

Table continued…

| Frequency | 10 GHz | 9 GHz | 8 GHz | 7 GHz | 6 GHz | 5 GHz | 4 GHz | 3 GHz | 2.5 GHz | 2 GHz | 1 GHz | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 MHz | | | | | | 6.85 | 7.05 | 7.3 | 7.55 | 7.7 | 8.15 | 8.45 | 8.65 | 8.75 | 8.8 | 9.7 |
| 250 MHz | | | | | | 6.8 | 7.05 | 7.25 | 7.5 | 7.65 | 8.05 | 8.5 | 8.8 | 9.1 | | |
| 1 GHz | | | | | | 6.8 | 7 | 7.25 | 7.45 | 7.65 | 8 | | | | | |
| 2 GHz | | | | | | 6.7 | 7 | 7.15 | 7.4 | 7.55 | | | | | | |
| 4 GHz | | | | | | 6.7 | 7 | | | | | | | | | |
| 7 GHz | | | | | | | | | | | | | | | | |

| 2 mV/div, 12.5 GS, Sample mode, 50 ohm, TYP | | | | | | | | | 2 mV/div, 6.25 GS, HiRes Mode, 50 ohm, TYP | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Channel bandwidth | | | | | | | | | | | | | | | |
| Frequency | 10 GHz | 9 GHz | 8 GHz | 7 GHz | 6 GHz | 5 GHz | 4 GHz | 3 GHz | 2.5 GHz | 2 GHz | 1 GHz | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
| 10 MHz | | | | | | 5.6 | 5.8 | 6 | 6.15 | 6.3 | 6.75 | 7.2 | 7.4 | 7.5 | 7.75 | 8.8 |
| 250 MHz | | | | | | 5.6 | 5.75 | 6 | 6.15 | 6.3 | 6.75 | 7.2 | 7.4 | 7.5 | | |
| 1 GHz | | | | | | 5.55 | 5.75 | 6 | 6.15 | 6.3 | 6.75 | | | | | |
| 2 GHz | | | | | | 5.55 | 5.75 | 6 | 6.1 | 6.3 | | | | | | |
| 4 GHz | | | | | | 5.55 | 5.75 | | | | | | | | | |
| 7 GHz | | | | | | | | | | | | | | | | |

**Random Noise**

| | 50 Ω, 50 GS/s, Sample mode, RMS | | | | | 50 Ω, 25 GS/s, HiRes mode, RMS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V/div | 10 GHz | 9 GHz | 8 GHz | 7 GHz | 6 GHz | 5 GHz | 4 GHz | 3 GHz | 2.5 GHz | 2 GHz | 1 GHz | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
| 1 mV | 259 uV | 236 uV | 216 uV | 197 uV | 175 uV | 156 uV | 138 uV | 118 uV | 107 uV | 97.4 uV | 72.2 uV | 52.9 uV | 45 uV | 42 uV | 36.2 uV | 13 uV |
| 2 mV | 266 uV | 242 uV | 221 uV | 199 uV | 180 uV | 158 uV | 139 uV | 120 uV | 108 uV | 98.7 uV | 73.2 uV | 53.6 uV | 45.7 uV | 42.6 uV | 36.7 uV | 13.2 uV |
| 5 mV | 322 uV | 293 uV | 271 uV | 247 uV | 220 uV | 189 uV | 165 uV | 142 uV | 128 uV | 115 uV | 84.6 uV | 61.3 uV | 52.2 uV | 48.7 uV | 41.9 uV | 15 uV |
| 10 mV | 488 uV | 445 uV | 406 uV | 370 uV | 330 uV | 278 uV | 242 uV | 203 uV | 181 uV | 163 uV | 117 uV | 84.8 uV | 70.5 uV | 65.8 uV | 56.7 uV | 20.6 uV |
| 20 mV | 850 uV | 775 uV | 707 uV | 645 uV | 581 uV | 478 uV | 412 uV | 346 uV | 309 uV | 275 uV | 195 uV | 141 uV | 116 uV | 107 uV | 93.2 uV | 34.2 uV |
| 50 mV | 1.96 mV | 1.79 mV | 1.63 mV | 1.5 mV | 1.34 mV | 1.09 mV | 949 uV | 790 uV | 704 uV | 627 uV | 444 uV | 325 uV | 261 uV | 241 uV | 210 uV | 79 uV |

Table continued…

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **100 mV** | 5.05 mV | 4.55 mV | 4.15 mV | 3.79 mV | 3.38 mV | 2.81 mV | 2.45 mV | 2.06 mV | 1.83 mV | 1.65 mV | 1.17 mV | 858 uV | 705 uV | 658 uV | 573 uV | 203 uV |
| **1 V** | 38.8 mV | 35.4 mV | 32.6 mV | 29.7 mV | 26.8 mV | 21.8 mV | 18.8 mV | 15.8 mV | 13.9 mV | 12.4 mV | 8.78 mV | 6.51 mV | 5.11 mV | 4.77 mV | 4.15 mV | 1.56 mV |

| | **50 Ω, 25 GS/s, Sample mode, RMS** | | | | | **50 Ω, 12.5 GS/s, HiRes mode, RMS** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V/div** | **10 GHz** | **9 GHz** | **8 GHz** | **7 GHz** | **6 GHz** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 281 uV | 253 uV | 223 uV | 199 uV | 179 uV | 162 uV | 138 uV | 117 uV | 108 uV | 96.3 uV | 77.3 uV | 56 uV | 47.7 uV | 46.1 uV | 37.9 uV | 13 uV |
| **2 mV** | 288 uV | 260 uV | 224 uV | 202 uV | 180 uV | 164 uV | 139 uV | 119 uV | 110 uV | 97.6 uV | 72.4 uV | 56.2 uV | 47.3 uV | 46.7 uV | 38 uV | 13.3 uV |
| **5 mV** | 374 uV | 337 uV | 293 uV | 271 uV | 233 uV | 210 uV | 175 uV | 149 uV | 133 uV | 118 uV | 89.6 uV | 68 uV | 56.5 uV | 54 uV | 44.4 uV | 15.6 uV |
| **10 mV** | 600 uV | 541 uV | 482 uV | 440 uV | 388 uV | 330 uV | 271 uV | 226 uV | 203 uV | 186 uV | 128 uV | 91.9 uV | 77.3 uV | 74.7 uV | 65.8 uV | 22.6 uV |
| **20 mV** | 1.08 mV | 976 uV | 890 uV | 793 uV | 691 uV | 595 uV | 486 uV | 398 uV | 363 uV | 320 uV | 226 uV | 162 uV | 133 uV | 120 uV | 106 uV | 41.2 uV |
| **50 mV** | 2.53 mV | 2.3 mV | 2.1 mV | 1.85 mV | 1.67 mV | 1.4 mV | 1.15 mV | 960 uV | 856 uV | 745 uV | 534 uV | 396 uV | 307 uV | 280 uV | 247 uV | 105 uV |
| **100 mV** | 6.14 mV | 5.54 mV | 4.88 mV | 4.4 mV | 3.83 mV | 3.38 mV | 2.71 mV | 2.28 mV | 2.03 mV | 1.81 mV | 1.33 mV | 941 uV | 792 uV | 722 uV | 666 uV | 236 uV |
| **1 V** | 49.9 mV | 46.1 mV | 42 mV | 37 mV | 33.4 mV | 28.1 mV | 23.1 mV | 19.2 mV | 17.1 mV | 14.9 mV | 10.8 mV | 7.92 mV | 6.14 mV | 5.6 mV | 4.94 mV | 2.11 mV |

| | **50 Ω, 12.5 GS/s, Sample mode, RMS** | | | **50 Ω, 6.25 GS/s, HiRes mode, RMS** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **V/div** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 162 uV | 142 uV | 123 uV | 109 uV | 99.6 uV | 73.9 uV | 54.8 uV | 46.6 uV | 43.5 uV | 38.8 uV | 14.7 uV |
| **2 mV** | 168 uV | 148 uV | 127 uV | 112 uV | 101 uV | 74.9 uV | 55.5 uV | 47.3 uV | 44.1 uV | 39.3 uV | 14.8 uV |
| **5 mV** | 233 uV | 203 uV | 173 uV | 142 uV | 128 uV | 92.8 uV | 68 uV | 56.5 uV | 52.8 uV | 47 uV | 17.7 uV |
| **10 mV** | 388 uV | 334 uV | 281 uV | 221 uV | 197 uV | 134 uV | 97.4 uV | 80.1 uV | 74.7 uV | 66.6 uV | 25.6 uV |
| **20 mV** | 715 uV | 609 uV | 518 uV | 398 uV | 350 uV | 237 uV | 174 uV | 138 uV | 129 uV | 115 uV | 44.6 uV |
| **50 mV** | 1.71 mV | 1.47 mV | 1.25 mV | 938 uV | 836 uV | 559 uV | 410 uV | 322 uV | 300 uV | 271 uV | 105 uV |
| **100 mV** | 3.92 mV | 3.38 mV | 2.84 mV | 2.23 mV | 1.99 mV | 1.36 mV | 985 uV | 801 uV | 747 uV | 674 uV | 256 uV |
| **1 V** | 34.2 mV | 29.4 mV | 25 mV | 19 mV | 16.7 mV | 11.1 mV | 8.1 mV | 6.36 mV | 5.94 mV | 5.35 mV | 2.08 mV |

| **1 MΩ, 12.5 GS/s, HiRes mode, RMS** | | | | | |
|---|---|---|---|---|---|
| **V/div** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 262 uV | 190 uV | 153 uV | 149 uV | 103 uV |

Table continued…

| 1 MΩ, 12.5 GS/s, HiRes mode, RMS | | | | | |
|---|---|---|---|---|---|
| **V/div** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **2 mV** | 285 uV | 195 uV | 155 uV | 153 uV | 103 uV |
| **5 mV** | 297 uV | 205 uV | 161 uV | 154 uV | 110 uV |
| **10 mV** | 334 uV | 231 uV | 186 uV | 165 uV | 141 uV |
| **20 mV** | 407 uV | 305 uV | 257 uV | 211 uV | 224 uV |
| **50 mV** | 737 uV | 553 uV | 528 uV | 387 uV | 510 uV |
| **100 mV** | 1.77 mV | 1.38 mV | 1.18 mV | 952 uV | 1.13 mV |
| **1 V** | 19 mV | 14.9 mV | 13.6 mV | 11.3 mV | 11.7 mV |

**Random Noise (Typical)**

| **TYP** | **50 Ω, 50 GS/s, Sample mode, RMS**[4] | | | | | **50 Ω, 25 GS/s, HiRes mode, RMS**[4] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V/div** | **10 GHz** | **9 GHz** | **8 GHz** | **7 GHz** | **6 GHz** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 183 uV | 167 uV | 153 uV | 139 uV | 124 uV | 111 uV | 97.4 uV | 83.8 uV | 75.6 uV | 68.9 uV | 51.1 uV | 37.5 uV | 31.9 uV | 28.1 uV | 24.2 uV | 8.68 uV |
| **2 mV** | 188 uV | 172 uV | 156 uV | 141 uV | 127 uV | 112 uV | 98.7 uV | 85 uV | 76.6 uV | 69.9 uV | 51.8 uV | 38 uV | 32.3 uV | 28.5 uV | 24.5 uV | 8.8 uV |
| **5 mV** | 228 uV | 208 uV | 192 uV | 175 uV | 156 uV | 134 uV | 117 uV | 101 uV | 90.7 uV | 81.7 uV | 59.9 uV | 43.4 uV | 36.9 uV | 32.5 uV | 28 uV | 10.1 uV |
| **10 mV** | 346 uV | 315 uV | 287 uV | 262 uV | 234 uV | 197 uV | 171 uV | 144 uV | 128 uV | 116 uV | 82.9 uV | 60 uV | 49.9 uV | 44 uV | 37.9 uV | 13.8 uV |
| **20 mV** | 602 uV | 549 uV | 501 uV | 457 uV | 412 uV | 338 uV | 291 uV | 245 uV | 219 uV | 195 uV | 138 uV | 99.9 uV | 82.1 uV | 71.5 uV | 62.3 uV | 22.9 uV |
| **50 mV** | 1.39 mV | 1.27 mV | 1.15 mV | 1.07 mV | 949 uV | 772 uV | 672 uV | 559 uV | 498 uV | 444 uV | 314 uV | 230 uV | 185 uV | 161 uV | 140 uV | 52.8 uV |
| **100 mV** | 3.58 mV | 3.22 mV | 2.94 mV | 2.68 mV | 2.39 mV | 1.99 mV | 1.73 mV | 1.46 mV | 1.3 mV | 1.17 mV | 829 uV | 607 uV | 499 uV | 440 uV | 383 uV | 136 uV |
| **1 V** | 27.4 mV | 25 mV | 23.1 mV | 21.1 mV | 19 mV | 15.4 mV | 13.3 mV | 11.2 mV | 9.85 mV | 8.78 mV | 6.22 mV | 4.61 mV | 3.62 mV | 3.19 mV | 2.78 mV | 1.04 mV |

| **TYP** | **50 Ω, 25 GS/s, Sample mode, RMS** | | | | | **50 Ω, 12.5 GS/s, HiRes mode, RMS** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **V/div** | **10 GHz** | **9 GHz** | **8 GHz** | **7 GHz** | **6 GHz** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 199 uV | 179 uV | 158 uV | 141 uV | 127 uV | 114 uV | 97.4 uV | 82.9 uV | 76.5 uV | 68.1 uV | 54.8 uV | 39.7 uV | 33.8 uV | 30.8 uV | 25.3 uV | 8.68 uV |
| **2 mV** | 204 uV | 184 uV | 158 uV | 143 uV | 127 uV | 116 uV | 98.7 uV | 84 uV | 77.5 uV | 69.1 uV | 51.2 uV | 39.8 uV | 33.5 uV | 31.2 uV | 25.4 uV | 8.9 uV |
| **5 mV** | 264 uV | 238 uV | 208 uV | 192 uV | 165 uV | 149 uV | 124 uV | 105 uV | 93.8 uV | 83.6 uV | 63.4 uV | 48.1 uV | 40 uV | 36.1 uV | 29.7 uV | 10.4 uV |

Table continued…

[4] 50 GS sample mode and 25 GS hires mode not available in Fastacq

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10 mV** | 425 uV | 383 uV | 342 uV | 311 uV | 274 uV | 234 uV | 192 uV | 160 uV | 144 uV | 131 uV | 90.9 uV | 65.1 uV | 54.8 uV | 49.9 uV | 44 uV | 15.1 uV |
| **20 mV** | 766 uV | 691 uV | 630 uV | 562 uV | 489 uV | 421 uV | 344 uV | 282 uV | 257 uV | 226 uV | 160 uV | 115 uV | 94.3 uV | 80.3 uV | 70.7 uV | 27.5 uV |
| **50 mV** | 1.79 mV | 1.63 mV | 1.49 mV | 1.31 mV | 1.18 mV | 994 uV | 817 uV | 680 uV | 606 uV | 528 uV | 378 uV | 280 uV | 217 uV | 187 uV | 165 uV | 70.4 uV |
| **100 mV** | 4.35 mV | 3.92 mV | 3.46 mV | 3.11 mV | 2.71 mV | 2.39 mV | 1.92 mV | 1.62 mV | 1.44 mV | 1.28 mV | 941 uV | 666 uV | 560 uV | 482 uV | 445 uV | 158 uV |
| **1 V** | 35.4 mV | 32.6 mV | 29.7 mV | 26.2 mV | 23.6 mV | 19.9 mV | 16.3 mV | 13.6 mV | 12.1 mV | 10.6 mV | 7.65 mV | 5.6 mV | 4.35 mV | 3.75 mV | 3.3 mV | 1.41 mV |

| **TYP** | **50 Ω, 12.5 GS/s, Sample mode, RMS** | | | **50 Ω, 6.25 GS/s, HiRes mode, RMS** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **V/div** | **5 GHz** | **4 GHz** | **3 GHz** | **2.5 GHz** | **2 GHz** | **1 GHz** | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| **1 mV** | 114 uV | 101 uV | 86.8 uV | 77.3 uV | 70.5 uV | 52.3 uV | 38.8 uV | 33 uV | 29.1 uV | 25.9 uV | 9.85 uV |
| **2 mV** | 119 uV | 105 uV | 90.1 uV | 79.3 uV | 71.5 uV | 53 uV | 39.3 uV | 33.5 uV | 29.5 uV | 26.3 uV | 9.87 uV |
| **5 mV** | 165 uV | 144 uV | 122 uV | 101 uV | 90.7 uV | 65.7 uV | 48.1 uV | 40 uV | 35.3 uV | 31.4 uV | 11.8 uV |
| **10 mV** | 274 uV | 236 uV | 199 uV | 156 uV | 139 uV | 95.2 uV | 68.9 uV | 56.7 uV | 49.9 uV | 44.5 uV | 17.1 uV |
| **20 mV** | 506 uV | 431 uV | 367 uV | 282 uV | 248 uV | 168 uV | 123 uV | 97.6 uV | 86 uV | 76.6 uV | 29.8 uV |
| **50 mV** | 1.21 mV | 1.04 mV | 886 uV | 664 uV | 592 uV | 396 uV | 290 uV | 228 uV | 201 uV | 181 uV | 70.4 uV |
| **100 mV** | 2.78 mV | 2.39 mV | 2.01 mV | 1.58 mV | 1.41 mV | 963 uV | 697 uV | 567 uV | 499 uV | 450 uV | 171 uV |
| **1 V** | 24.2 mV | 20.8 mV | 17.7 mV | 13.4 mV | 11.8 mV | 7.82 mV | 5.73 mV | 4.5 mV | 3.97 mV | 3.58 mV | 1.39 mV |

| **V/div** | **1 MΩ, 25 GS/s and 12.5 GS/s, Sample Mode, RMS** | | | | |
|---|---|---|---|---|---|
| | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| 1 mV | 186 uV | 134 uV | 108 uV | 108 uV | 72.2 uV |
| 2 mV | 202 uV | 138 uV | 111 uV | 108 uV | 78.4 uV |
| 5 mV | 220 uV | 158 uV | 130 uV | 124 uV | 99.4 uV |
| 10 mV | 262 uV | 199 uV | 183 uV | 171 uV | 160 uV |
| 20 mV | 380 uV | 335 uV | 282 uV | 282 uV | 282 uV |
| 50 mV | 781 uV | 634 uV | 704 uV | 704 uV | 704 uV |
| 100 mV | 1.69 mV | 1.47 mV | 1.41 mV | 1.41 mV | 1.41 mV |
| 1 V | 18.3 mV | 15.8 mV | 15.6 mV | 15.4 mV | 14.1 mV |

| **V/div** | **1 MΩ, 12.5 GS/s and 6.25 GS/s, HiRes Mode, RMS** | | | | |
|---|---|---|---|---|---|
| | **500 MHz** | **350 MHz** | **250 MHz** | **200 MHz** | **20 MHz** |
| 1 mV | 186 uV | 134 uV | 108 uV | 106 uV | 73 uV |
| 2 mV | 202 uV | 138 uV | 110 uV | 108 uV | 73.2 uV |
| 5 mV | 210 uV | 145 uV | 114 uV | 109 uV | 78.1 uV |

Table continued…

| V/div | 1 MΩ, 12.5 GS/s and 6.25 GS/s, HiRes Mode, RMS | | | | |
|---|---|---|---|---|---|
| | 500 MHz | 350 MHz | 250 MHz | 200 MHz | 20 MHz |
| 10 mV | 236 uV | 163 uV | 131 uV | 117 uV | 99.6 uV |
| 20 mV | 288 uV | 216 uV | 182 uV | 149 uV | 158 uV |
| 50 mV | 522 uV | 391 uV | 374 uV | 274 uV | 361 uV |
| 100 mV | 1.25 mV | 974 uV | 838 uV | 674 uV | 801 uV |
| 1 V | 13.4 mV | 10.6 mV | 9.63 mV | 8.01 mV | 8.29 mV |

## Overdrive recovery time

**500 ns pulse width:**

| 50Ω | 400% Overdrive | | | 2000% Overdrive | | |
|---|---|---|---|---|---|---|
| Vertical scale | 5% | 1% | 0.2% | 5% | 1% | 0.2% |
| 2 mV / div | < 50 ns | 50 ns | 300 ns | — | — | — |
| 10 mV / div | < 50 ns | 50 ns | 300 ns | 50 ns | 50 ns | 400 ns |
| 0.1 V / div | < 50 ns | 50 ns | 300 ns | — | — | — |

**100 us pulse width**

| 50Ω | 400% Overdrive | | | 2000% Overdrive | | |
|---|---|---|---|---|---|---|
| Vertical scale | 5% | 1% | 0.2% | 5% | 1% | 0.2% |
| 2 mV / div | < 50 ns | 50 ns | 1 us | — | — | — |
| 10 mV / div | < 50 ns | 50 ns | 1 µs | <50 ns | 50 ns | 150 us |
| 0.1 V / div | < 50 ns | 50 ns | 1 us | — | — | — |

**TPP1000 Probe**

| Vertical scale | 500% Overdrive | | | 5000% Overdrive | | |
|---|---|---|---|---|---|---|
| | 5% | 1% | 0.2% | 5% | 1% | 0.2% |
| 10 mV / div | 20 µs | 2.0 ms | 2.0 ms | 30 µs | 50 µs | 2.2 ms |
| 20 mV / div | 14 µs | 2.0 ms | 2.0 ms | 30 µs | 50 µs | 110 µs |
| 50 mV / div | 12 µs | 60 µs | 2.0 ms | --- | --- | --- |
| 0.1 V / div | 12 µs | 60 µs | 2.0 ms | --- | --- | --- |

**Crosstalk (Channel Isolation) - 50 Ohm**

≥50 dB up to 2 GHz
≥45 dB up to 5 GHz
≥40 dB up to 10 GHz
With channels set to 200 mV/div

## SFDR analog channels

**SFDR analog channels, typical**

A single input tone at -1 dBFS is swept from 10 MHz to bandwidth and the largest error spur is recorded.

| Bandwidth | Sample rate | Acquisition mode | Vertical scale | SFDR |
|---|---|---|---|---|
| 10 GHz | 50 GS/s | Sample | 50 mV/div | -45 dB |
| 10 GHz | 25 GS/s | Sample | 50 mV/div | -45 dB |
| 5 GHz | 12.5 GS/s | Sample | 50 mV/div | -45 dB |
| 5 GHz | 25 GS/s | Hi Res | 50 mV/div | -51 dB |
| 5 GHz | 12.5 GS/s | Hi Res | 50 mV/div | -51 dB |
| 2 GHz | 6.25 GS/s | Hi Res | 50 mV/div | -52 dB |
| 10 GHz | 50 GS/s | Sample | 2 mV/div | -42 dB |
| 10 GHz | 25 GS/s | Sample | 2 mV/div | -42 dB |
| 5 GHz | 12.5 GS/s | Sample | 2 mV/div | -42 dB |
| 5 GHz | 25 GS/s | Hi Res | 2 mV/div | -51 dB |
| 5 GHz | 12.5 GS/s | Hi Res | 2 mV/div | -51 dB |
| 2 GHz | 6.25 GS/s | Hi Res | 2 mV/div | -52 dB |

## RF front-end

**Two-tone third intercept point, typical**
+25 dBm <6 GHz
+20 dBm 6 GHz to 8 GHz
12 dBm 8 GHz to 10 GHz

**SFDR, typical**
-60 dBc for a 1 GHz input in a 5 GHz span with a 3 GHz CF
-70 dBc at 2.35 GHz, 1.5 GHz span

**EVM (256 QAM), typical**
0.4% rms at 20 M Symbols/s
1.1% rms at 800 M Symbols/s
1.5% rms at 1.2 G Symbols/s
1.6% rms at 2 G Symbols/s

**DANL**
-163 dBm/Hz 10 MHz to 6 GHz, 1 mV/div
-160 dBm/Hz >6 GHz to 10 GHz, 1 mV/div

**Harmonic Distortion**
$2^{nd}$ harmonic distortion at -58 dBc with a 0 dBm 1 GHz signal.
$3^{rd}$ harmonic distortion at -55 dBc with a 0 dBm 1 GHz signal.

**Sensitivity/Noise Density, typical**
-157 dBm/Hz (1 mV/div, -38 dBm, 1.0001 GHz CF, 500 kHz span, 3 kHz RBW)

**Phase noise at 1 GHz, typical**
-118 dBc/Hz 10 kHz offset
-119 dBc/Hz 100 kHz offset
-132 dBc/Hz 1 MHz offset
-140 dBc/Hz 10 MHz offset

**Absolute amplitude accuracy, typical**
±1 dB (0-8 GHz) for max 10 GHz BW.

**Noise figure, typical**
1 mv/div, 11 dB 10 MHz to 6 GHz and 14 dB 6 GHz to 10 GHz

**SNR/Dynamic Range, typical**
112 dB with a 1 GHz signal in a 100 MHz span with 1 kHz RBW ± 20 MHz from the carrier.

## Skew and delay

**Digital skew, typical**

**Digital-to-Analog skew** 1 ns

**Digital-to-Digital skew** ± 320 ps from bit 0 of any TekVPI + channel to bit 0 of any TekVPI+ channel.

**Digital skew within a FlexChannel** < 200 ps within any TEKVPI + channel

**Delay between analog channels, full bandwidth, typical** ≤ 10 ps for any two channels with input impedance set to 50 Ω, DC coupling with equal Volts/div or above 10 mV/div

**Deskew range and resolution** -125 ns to +125 ns with a resolution of 40 ps (for Peak Detect and Envelope acquisition modes).

-125 ns to +125 ns with a resolution of 1 ps (for all other acquisition modes).

**Acquisition Modes** Sample, Peak Detect, High Res, Envelope, Average, Fast Frame

**Number of digitized bits**

| | Sample Rate | Acquisition Mode | Digitized Bits | Channel Bandwidth |
|---|---|---|---|---|
| MSO64B channels 1 and 3 (2 and 4 off)<br>MSO66B channels 1 and 4 (2, 3, 5, and 6 off)<br>MSO68B channels 1 and 5 (2, 3, 4, 6, 7, and 8 off) | 50 GS/s | Sample | 8 | 10 GHz |
| | 25 GS/s | Hi Res | 12 | 5 GHz |
| | 12.5 GS/s | Hi Res | 12 | 5 GHz |
| | 6.25 GS/s | Hi Res | 13 | 2.5 GHz |
| | 3.125 GS/s | Hi Res | 14 | 1 GHz |
| | 1.5625 GS/s | Hi Res | 15 | 500 MHz |
| | 625 MS/s | Hi Res | 16 | 200 MHz |
| MSO64B all channels<br>MSO66B channels 1, 2, 4, and 5 (3 and 6 off)<br>MSO68B channels 1, 2, 5, and 6 (3, 4, 7, and 8 off) | 25 GS/s | Sample | 8 | 10 GHz |
| | 12.5 GS/s | Sample | 12 | 10 GHz |
| | 12.5 GS/s | Hi Res | 12 | 5 GHz |
| | 6.25 GS/s | Hi Res | 13 | 2.5 GHz |
| | 3.125 GS/s | Hi Res | 14 | 1 GHz |
| | 1.5625 GS/s | Hi Res | 15 | 500 MHz |
| | 625 MS/s | Hi Res | 16 | 200 MHz |
| MSO66B all channels<br>MSO68B all channels | 12.5 GS/s | Sample | 8 | 5 GHz |
| | 6.25 GS/s | Sample | 12 | 5 GHz |
| | 3.125 GS/s | Hi Res | 13 | 1 GHz |
| | 1.5625 GS/s | Hi Res | 14 | 500 MHz |
| | 1.25 GS/s | Hi Res | 15 | 500 MHz |
| | 312.5 MS/s | Hi Res | 16 | 100 MHz |

**Peak Detect or Envelope Mode Minimum Detectable Pulse, typical**

| Channels | Sample Rate | Minimum Pulse Width |
|---|---|---|
| MSO64B channels 1 and 3 (2 and 4 off)<br>MSO66B channels 1 and 4 (2, 3, 5, and 6 off)<br>MSO68B channels 1 and 5 (2,3, 4, 6, 7, and 8 off) | 50 GS/s | 160 ps |
| MSO64B channels 2 and 4<br>MSO66B channels 2 and 5 (3 and 6 off)<br>MSO68B channels 2 and 6 (3, 4, 7 and 8 off) | 25 GS/s | 160 ps |
| MSO66B channels 3 and 6<br>MSO68B channels 3, 4, 7, and 8 | 12.5 GS/s | 320 ps |

**Number of waveforms for average acquisition mode** 2 to 10,240 Waveforms, default 16 waveforms

## TekVPI interface

**TekVPI interconnect** All analog channel inputs on the front panel conform to the TekVPI+ specification defined in the TEKPROBE, TEKCONNECT, AND TEKVPI STANDARDS specification.

**Total Probe Power**

80 W maximum

**MSO64B** 40 W maximum for channels 1 through 2 and 40 W maximum for channels 3 through 4.

**MSO66B** 40 W maximum for channels 1 through 3 and 40 W maximum for channels 4 through 6.

**MSO68B** 40 W maximum for channels 1 through 4 and 40 W maximum for channels 5 through 8.

**Probe Power per Channel** 5 V Supply: 300 mW (60 mA max)
12 V Supply: 20 W (1.67 A max)

**Low-C Passive Probe Support** Supports TPP1000 and similar probes

**Digital Probe Support** Supports TLP058 VPI+ digital probes

**Probe User Interface** Probe setup menu
Probe menu button support (opens probe setup menu)
Probe warning messages and indicators
Dynamic range indication
Probe bandwidth limiting

# Timebase system

**✓Timebase factory tolerance**

Frequency tolerance at factory calibration is ±12 ppb (parts per billion).

At Calibration, 25 °C ambient, over any ≥1 ms interval.

**Timebase temperature stability**

±20 PPB across the full operating range of 0 °C to 50 °C, after a sufficient soak time at the temperature.

The instrument needs to soak at a fixed temperature for an extended period of time to insure the time-base frequency is stable. The following is a worst case estimation for the frequency error versus the amount of time the instrument has been soaking at a temperature.Max error (in ppb) = ±10^[log[100/soak time(in hours)]]

For example, a 1 hour soak will have a max frequency error of ±100 ppb, but a 10 hour soak will have a max frequency error of 10 ppb.

±300 PPB/Year, and will not exceed ±2 PPM over 10 years without calibration.

Calibration will reduce this frequency error to under ±12 PPB

Frequency tolerance change at 25 °C over a periods of 1 year and 10 years.

# Sample rate

**Sample rate range**

| Channels | Sample rate (real time) | Sample rate (interpolated) |
|---|---|---|
| 2 channels | 6.25 S/s to 50 GS/s | 100 GS/s to 2.5 TS/s |
| 4 channels | 6.25 S/s to 25 GS/s | 50 GS/s to 2.5 TS/s |
| 8 channels | 6.25 S/s to 12.5 GS/s | 25 GS/s to 2.5 TS/s |

On 4-channel models, the 2 channels with 50 GS/s capability are 1 and 3 (channels 2 and 4 must be off).

On 6-channel models, the2 channels with 50 GS/s capability are 1 and 4 (channels 2, 3, 5, and 6 must be off).

On 8-channel models, the 2 channels with 50 GS/s capability are 1 and 5 (channels 2, 3, 4, 6, 7, and 8 must be off).

On 6-channel models, the 4 channels with 25 GS/s capability are 1,2, 4 and 5 (channels 3 and 6 must be off).

On 8-channel models, the 4 channels with 25 GS/s capability are 1, 2, 5, and 6 (channels 3, 4, 7, and 8 must be off).

**High Res sample rate**

| Channels | Sample rate |
|---|---|
| 2 channels | up to 25 GS/s |
| 4 channels | up to 12.5 GS/s |
| 8 channels | up to 6.25 GS/s |

On 4-channel models, the 2 channels with 25 GS/s capability are 1 and 3 (channels 2 and 4 must be off).

On 6-channel models, the 2 channels with 25 GS/s capability are 1 and 4 (channels 2, 3, 5, and 6 must be off).

On 8-channel models, the 2 channels with 25 GS/s capability are 1 and 5 (channels 2, 3, 4, 6, 7, and 8 must be off).

On 6-channel models, the 4 channels with 12.5 GS/s capability are 1, 2, 4, and 5 (channels 3 and 6 must be off).

On 8-channel models, the 4 channels with 12.5 GS/s capability are 1, 2, 5 and 6 (channels 3, 4, 7, and 8 must be off).

**Interpolated waveform rate (Sample mode):**

- 2.5 TS/s
- 1 TS/s
- 500 GS/s
- 250 GS/s
- 100 GS/s
- 50 GS/s (only with a 25 GS/s or12.5 GS/s channel on)
- 25 GS/s (only with a 12.5 GS/s channel on)

**Interpolated waveform rate (High Res mode):**

- 2.5 TS/s
- 1 TS/s
- 500 GS/s
- 250 GS/s
- 100 GS/s
- 50 GS/s
- 25 GS/s (only with a 25 GS/s or12.5 GS/s channel on)
- 12.5 GS/sec (only with a 12.5 GS/s channel on)

**Record length range**

Applies to analog and digital channels. All acquisition modes are 1 G maximum record length, down to 1 k minimum record length, adjustable in 1 sample increments.

Standard: 62.5 Mpoints

Option 6-RL-1: 125 Mpoints

Option 6-RL-2: 250 Mpoints

Option 6-RL-3: 500 Mpoints

Option 6-RL-4: 1 Gpoints

**Horizontal scale range**

40 ps/div to 1000 s/div

The minimum horizontal scale is determined by the record length by dividing the record length by 10 (because there are 10 divisions on-screen) and then dividing by the maximum sample rate (2.5 TS/s).

40 ps/div can only be achieved with a 2.5 TS/s sample rate (maximum) and a 1000 point record length (minimum).The table below shows minimum horizontal scales for a collection of record lengths.

| Record length | Minimum Horizontal Scale |
|---|---|
| 1 kS | 40 ps/div |
| 10 kS | 400 ps/div |
| 100 kS | 4 ns/div |

Table continued…

| Record length | Minimum Horizontal Scale |
|---|---|
| 1 MS | 40 ns/div |
| 10 MS | 400 ns/div |
| 62.5 MS | 2.5 us/div |
| 125 MS with optional memory length | 5 us/div |
| 250 MS with optional memory length | 10 us/div |
| 500 MS with optional memory length | 20 us/div |
| 1 GS with optional memory length | 40 us/div |

1000 s/div is the maximum horizontal scale which limits the acquisition length to 10000 s (2 hours, 46 minutes and 40 seconds).

Below a record length of 62.5 kS, the horizontal scale is further limited. The maximum horizontal scale can be calculated by dividing the record length by 10 (because there are 10 division on-screen) and then dividing by the minimum sample rate (6.25 S/s).The table below shows maximum horizontal scales for a collection of record length.

| Record length | Maximum Horizontal Scale |
|---|---|
| 1 kS | 16 s/div |
| 5 kS | 80 s/div |
| 10 kS | 160 s/div |
| 25 kS | 400 s/div |
| 50 kS | 800 s/div |
| 62.5 kS | 1000 s/div |

**Sample jitter (Aperture uncertainty), typical**

| Time duration | Typical jitter |
|---|---|
| <1 µs | 80 fs |
| <1 ms | 130 fs |

## Delta-time measurement accuracy, typical

**Delta-time measurement accuracy, typical**

Formula for DTA:$SR_1$ = Slew Rate (1st Edge) around 1st point in measurement

$SR_2$ = Slew Rate (2nd Edge) around 2nd point in measurement

N = RSS of input-referred noise (volts rms) and Dynamic noise estimate (volts rms).

Dynamic noise estimate* $= \sqrt{\frac{BW}{8GHz}} \times 19.9 \times 10^{-3} \times volts/div$

**Note:** Dynamic noise is noise that appears with a signal applied (such as distortion or interleave errors).

$t_j$ = aperture uncertainty (sec rms—80fs for short durations)

TBA = timebase accuracy or reference frequency error (which is 20ppb)

$t_p$ = delta-time measurement duration (sec)

$$DTA_{rms} = \sqrt{\left(\frac{N}{SR_1}\right)^2 + \left(\frac{N}{SR_2}\right)^2 + t_j{}^2} + TBA \times t_p$$

**Delta Time Measurement Accuracy (DTA), reference example**

These limits apply to:

- MSO64B: Channels 1 and 3
- MSO66B: Channels 1 and 4
- MSO68B: Channels 1 and 5 are the only ones used

| Volts/div | BW | Sample rate | Sample mode | Frequency | Amplitude pk-pk | DTA TYP |
|---|---|---|---|---|---|---|
| 50 mV | 10 GHz | 50 GHz | Sample | 5.65 GHz | 400 mV | 327.78 fs |
| 50 mV | 8 GHz | 50 GHz | Sample | 4.52 GHz | 400 mV | 346.08 fs |
| 50 mV | 6 GHz | 50 GHz | Sample | 3.39 GHz | 400 mV | 383.01 fs |
| 50 mV | 5 GHz | 25 GHz | Hi-Res | 2.825 GHz | 400 mV | 387.37 fs |
| 50 mV | 4 GHz | 25 GHz | Hi-Res | 2.26 GHz | 400 mV | 424.08 fs |
| 50 mV | 2.5 GHz | 25 GHz | Hi-Res | 1.4125 GHz | 400 mV | 512.12 fs |
| 50 mV | 2 GHz | 25 GHz | Hi-Res | 1.13 GHz | 400 mV | 569.94 fs |
| 50 mV | 1 GHz | 25 GHz | Hi-Res | 565 MHz | 400 mV | 802.6 fs |
| 5 mV | 10 GHz | 50 GHz | Sample | 5.65 GHz | 40 mV | 486.58 fs |
| 5 mV | 8 GHz | 50 GHz | Sample | 4.52 GHz | 40 mV | 514.54 fs |
| 5 mV | 6 GHz | 50 GHz | Sample | 3.39 GHz | 40 mV | 561 fs |
| 5 mV | 5 GHz | 25 GHz | Hi-Res | 2.825 GHz | 40 mV | 583.91 fs |
| 5 mV | 4 GHz | 25 GHz | Hi-Res | 2.26 GHz | 40 mV | 637.27 fs |
| 5 mV | 2.5 GHz | 25 GHz | Hi-Res | 1.4125 GHz | 40 mV | 791.51 fs |
| 5 mV | 2 GHz | 25 GHz | Hi-Res | 1.13 GHz | 40 mV | 889.92 fs |
| 5 mV | 1 GHz | 25 GHz | Hi-Res | 565 MHz | 40 mV | 1.29 ps |

These limits apply to:

- MSO64B: All channels
- MSO66B: Channels 1, 2, 4, and 5
- MSO68B: Channels 1, 2, 5, and 6 are the only ones used

| Volts/div | BW | Sample rate | Sample mode | Frequency | Amplitude pk-pk | DTA TYP |
|---|---|---|---|---|---|---|
| 50 mV | 10 GHz | 25 GHz | Sample | 5.65 GHz | 400 mV | 397.32 fs |
| 50 mV | 8 GHz | 25 GHz | Sample | 4.52 GHz | 400 mV | 417.47 fs |
| 50 mV | 6 GHz | 25 GHz | Sample | 3.39 GHz | 400 mV | 448.57 fs |
| 50 mV | 5 GHz | 12.5 GHz | Hi-Res | 2.825 GHz | 400 mV | 460.86 fs |
| 50 mV | 4 GHz | 12.5 GHz | Hi-Res | 2.26 GHz | 400 mV | 483.23 fs |

Table continued…

| Volts/div | BW | Sample rate | Sample mode | Frequency | Amplitude pk-pk | DTA TYP |
|---|---|---|---|---|---|---|
| 50 mV | 2.5 GHz | 12.5 GHz | Hi-Res | 1.4125 GHz | 400 mV | 581.18 fs |
| 50 mV | 2 GHz | 12.5 GHz | Hi-Res | 1.13 GHz | 400 mV | 636.8 fs |
| 50 mV | 1 GHz | 12.5 GHz | Hi-Res | 565 MHz | 400 mV | 904.88 fs |
| 5 mV | 10 GHz | 25 GHz | Sample | 5.65 GHz | 40 mV | 555.49 fs |
| 5 mV | 8 GHz | 25 GHz | Sample | 4.52 GHz | 40 mV | 551.87 fs |
| 5 mV | 6 GHz | 25 GHz | Sample | 3.39 GHz | 40 mV | 589.36 fs |
| 5 mV | 5 GHz | 12.5 GHz | Hi-Res | 2.825 GHz | 40 mV | 637.71 fs |
| 5 mV | 4 GHz | 12.5 GHz | Hi-Res | 2.26 GHz | 40 mV | 668.87 fs |
| 5 mV | 2.5 GHz | 12.5 GHz | Hi-Res | 1.4125 GHz | 40 mV | 814.74 fs |
| 5 mV | 2 GHz | 12.5 GHz | Hi-Res | 1.13 GHz | 40 mV | 907.3 fs |
| 5 mV | 1 GHz | 12.5 GHz | Hi-Res | 565 MHz | 40 mV | 1.36 ps |

hese limits apply to:

- MSO66B: All channels
- MSO68B: All channels are used

| Volts/div | BW | Sample rate | Sample mode | Frequency | Amplitude pk-pk | DTA TYP |
|---|---|---|---|---|---|---|
| 50 mV | 5 GHz | 12.5 GHz | Sample | 2.825 GHz | 400 mV | 536.22 fs |
| 50 mV | 4 GHz | 12.5 GHz | Sample | 2.26 GHz | 400 mV | 580.12 fs |
| 50 mV | 2.5 GHz | 6.25 GHz | Hi-Res | 1.4125 GHz | 400 mV | 620.41 fs |
| 50 mV | 2 GHz | 6.25 GHz | Hi-Res | 1.13 GHz | 400 mV | 690.69 fs |
| 50 mV | 1 GHz | 6.25 GHz | Hi-Res | 565 MHz | 400 mV | 934.61 fs |
| 5 mV | 5 GHz | 12.5 GHz | Sample | 2.825 GHz | 40 mV | 698.23 fs |
| 5 mV | 4 GHz | 12.5 GHz | Sample | 2.26 GHz | 40 mV | 761.47 fs |
| 5 mV | 2.5 GHz | 6.25 GHz | Hi-Res | 1.4125 GHz | 40 mV | 864.09 fs |
| 5 mV | 2 GHz | 6.25 GHz | Hi-Res | 1.13 GHz | 40 mV | 971.89 fs |
| 5 mV | 1 GHz | 6.25 GHz | Hi-Res | 565 MHz | 40 mV | 1.4 ps |

# Trigger system

**Trigger types**

Edge, Dual Edge, Pulse Width, Timeout, Runt, Logic, Setup & Hold, Rise / Fall Time, Window, Bus, Parallel, I2C, SPI, RS-232, CAN, LIN, FlexRay, USB LS, USB FS, USB HS, Ethernet 10/100, Audio (I2S/LJ/RJ/TDM), CAN-FD, ARINC 429, MIL-STD-1553, SPMI, SENT

**Trigger modes**

Normal and Auto

**Trigger coupling**

DC, HF Reject, LF Reject, Noise Reject

**Trigger holdoff range**

0 ns minimum to 10 seconds maximum

**Trigger level ranges, typical**

| Source | Range |
|---|---|
| Analog Inputs | ±5 divs from center of screen |
| Line | N/A |
| AUX Input | ±5 V |

**Time Range for Glitch, Pulse Width, Timeout, Time-qualified Runt or Time-qualified Window, Transition Time Trigger**

40 ps to 20 s

**Setup/Hold Violation Trigger, Setup and Hold Time Ranges**

| Feature | Min | Max |
|---|---|---|
| Setup Time | 0 ns | 20 s |
| Hold Time | 0 ns | 20 s |
| Setup + Hold Time | 80 ps | 22 s |

Input coupling on clock and data channels must be the same.

For Setup Time, positive numbers mean a data transition before the clock.

For Hold Time, positive numbers mean a data transition after the clock edge.

Setup + Hold Time is the algebraic sum of the Setup Time and the Hold Time programmed by the user.

Oscilloscopes Trigger position is equal to the Hold Time value.

**Trigger jitter, typical**

Analog Inputs

- Trigger jitter ≤ 1.5 ps RMS for Sample mode, Edge-type trigger, FastAcq, and Pulse width modes
- Trigger jitter ≤ 40 ps RMS for non-Edge-type trigger modes

**Trigger Bandwidth – Edge, Pulse, Logic, typical**

| Model | Instrument bandwidth | Edge trigger bandwidth | Pulse, Logic trigger bandwidth |
|---|---|---|---|
| MSO6XB | 10 GHz | 10 GHz | 4 GHz |
| MSO6XB | 8 GHz | 8 GHz | 4 GHz |
| MSO6XB | 6 GHz | 6 GHz | 4 GHz |
| MSO6XB | 4 GHz, 2.5 GHz, 1 GHz | Instrument bandwidth | Instrument bandwidth |

**Trigger level accuracy, DC-coupled, typical**

For signals having rise and fall times ≥10 ns, the limits are as follows:

| Source | Range |
|---|---|
| Any Input Channel | ±0.20 div |
| Line | N/A |

This limit is checked by SPC at very low frequency (nearly DC).

This limit does not include frequency dependent effects, edge type trigger sensitivity not DC coupled, or trigger position error.

Set the trigger level to the desired value. Using an adjustable DC source, inject a voltage into the instrument. Adjust the voltage downward (if checking negative slope) or upward (if checking positive slope) until the scope triggers. The difference between the trigger level setting and the voltage that actually caused the trigger is the trigger level accuracy.

**Edge-type Trigger Sensitivity, DC-coupled, typical**

| Trigger Source | Sensitivity |
|---|---|
| Any input channel, 1 MΩ path | 0.5 mv/div to 0.99 mV/div – 5 mV from DC to instrument bandwidth.<br>≥ 1 mV/div – The greater of 5 mV or 0.7 div from DC to the less of 500 MHz or BW. |
| Any input channel, 50 Ω path | • 1 mV/div to 1.99 mV/div – 3.5 divisions from DC to 80% of instrument bandwidth.<br>• 2 mV/div to 4.99 mV/div - 2 divisions from DC to 80% of instrument bandwidth.<br>• ≥ 5 mV/div - 1.5 divisions from DC to 80% of instrument bandwidth. |
| Line, 90 V to 264 V line voltage at 50-60 Hz line frequency | 103.5 V to 126.5 V |
| AUX Trigger | 250 mVpp (DC - 400 MHz) |

**Edge-type trigger sensitivity, not DC-coupled, typical**

| Trigger Coupling | Typical Sensitivity |
|---|---|
| NOISE REJ | 2.5 times the DC Coupled limits |
| HF REJ | 1.0 times the DC Coupled limits from DC to 50 kHz. Attenuates signals above 50 kHz. |
| LF REJ | 1.5 times the DC Coupled limits for frequencies above 50 kHz. Attenuates signals below 50 kHz. |

**Logic-type, or Logic-qualified trigger, or Events-delay sensitivities, DC-coupled, typical**

2.0 division, at vertical setting ≥5 mV/div

**Logic-type triggering, Minimum logic or Re-arm time, typical**

For all vertical settings, the minimums are:

| Triggering Type | Pulse Width | Re–Arm Time | Time overlap needed for 100% & No Triggering1 |
|---|---|---|---|
| Logic | 120 ps + trise[5] | 120 ps + trise[5] | ≥160 ps/ ≤-40 ps |
| Time-qualified logic | 240 ps + trise[5] | 240 ps + trise[5] | ≥280 ps/ ≤-40 ps |

For Logic, time between channels refers to the length of time a logic state derived from more than one channel must exist to be recognized. For Events, the time is the minimum time between a main and delayed event that will be recognized if more than one channel is used.

**Time accuracy for pulse width and timeout triggering**

The limits are as follows:

| Time Range | Accuracy |
|---|---|
| 320 ps to 20 s | ±(40 ps + (Time-Base-Accuracy * Setting)) |

Time-Base-Accuracy when locked to an external source is equivalent to the accuracy of the external source.

**Pulse-type Trigger, Minimum Pulse, Re-arm Time, Transition Time**

The limits are as follows:

| Pulse class | Minimum pulse width | Minimum rearm time |
|---|---|---|
| Runt | 40 ps + trise[5] | 40 ps + trise[5] |
| Time–qualified runt | 40 ps + trise[5] | 40 ps + trise[5] |
| Width | 40 ps + trise[5] | 40 ps + trise[5] |

| Trigger class | Minimum transition time | Minimum rearm time |
|---|---|---|
| Rise/Fall Time | 40 ps + trise[5] | 40 ps + trise[5] |

[5] trise = calculated rise time

**Minimum clock pulse widths for Setup/Hold time violation trigger, typical**

For all vertical settings, the minimums are:

| Minimum Pulse Width, Clock Active[6] | Minimum Pulse Width, Clock Inactive[6] |
|---|---|
| User's Hold Time[7] 80 ps + trise[5] | 80 ps + trise[5] |

For Setup/Hold trigger to work properly, Setup + Hold must be less than the clock period.

**B Trigger after events, minimum pulse width, and maximum event frequency, typical**

Minimum pulse width: 40 ps + trise[5]

Maximum Event Frequency: Instrument BW

**Pulse-type runt trigger sensitivities, typical**

2.0 division, at vertical setting ≥5 mV/div

**Pulse-type trigger width and glitch sensitivities, typical**

2.0 division, at vertical setting ≥5 mV/div

**B Trigger, minimum time arm, and trigger, typical**

80 ps

For trigger after time, this is the time between the end of the time period and the B trigger event.

For trigger after events, this is the time between the last A trigger event and the first B trigger event.

**B Trigger after time, time range**

40 ps to 20 seconds.

Accuracy = ±(40 ps + (Time-Base-Error * Setting))

**B Trigger after events, event range**

1 to 65,471

**Video-type trigger formats**

NTSC, PAL, and SECAM

**Lowest frequency for successful operation of "Set Level to 50%" function, typical**

45 Hz

**Maximum Triggered Acquisition Rate, typical**

Analysis/measurement mode: Analog or Digital (single channel [Analog or Digital 8-bit channel] on screen, measurements and math turned off): >40/sec

FastAcq mode (Peak detect or Envelope acquisition mode, OneAnalog channel, with or without digital channel enabled): >500,000 /s

FastAcq Mode (All other acq modes, One analog channel, with or without digital channel enabled): 30,000 /s

Fast frame rate (50-point frames): 5,000,000/second in 25 GS/s and 2,500,00/second in 12.5 GS/s

6 Active pulse width is the width of the clock pulse from its active edge (as defined in the Clock Edge setting) to its inactive edge. Inactive pulse width is the width of the pulse from its inactive edge to its active edge.

7 User Hold Time is the number selected by the user in the "Setup & Hold Times" setting.

| | |
|---|---|
| | Digital channels are not capable of acquiring at the FastAcq rate, but can still be enabled and acquiring (at a slower rate) while an analog channel is in FastAcq mode. |
| **Maximum Number of Frames in FastFrame, typical** | For system memory depths up to 250 M, and for record length ≥ 1,000 points, maximum number of frames = system memory depth / record length setting.<br>For system memory depths of 500 M, and when only channels capable of a maximum sample rate of ≥ 25 GS/s are used, maximum number of frames = system memory depth / record length setting.<br>For system memory depths of 500 M, and when any channels capable of a maximum sample rate of 12.5 GS/s are used, maximum number of frames is ≥ 250,000.<br>For system memory depths of 1 G, and when only channels capable of a maximum sample rate of ≥ 25 GS/s are used, maximum number of frames ≥ system memory depth / record length setting / 2.<br>For system memory depths of 1 G, and when only channels capable of a maximum sample rate of 12.5 GS/s are used, maximum number of frames ≥ system memory depth / record length setting / 4. |

## Optional Serial Bus Interface Triggering

| | |
|---|---|
| **$I^2C$ Bus** | Trigger on: Start, Repeated Start, Stop, Missing Ack, Data, Address, or Address & Data<br>Data Trigger: 1 – 5 Bytes of user-specified data<br>Address Triggering: 7 & 10 bits of user-specified addresses supported<br>Maximum Data Rate: 10 Mb/s |
| **SPI Bus** | Trigger on: SS Active, Data<br>Data Trigger: 1 – 16 Bytes of user-specified data<br>Maximum Data Rate: 20 Mb/s |
| **RS232 Bus** | Trigger on: Start, End of Packet, Data, Parity Error<br>Bit Rate: 50 bps – 10 Mbps<br>Data Bits: 7, 8, or 9<br>Parity: None, Odd, or Even |
| **CAN Bus** | Trigger on: Start of Frame, Type of Frame, Identifier, Data, Identifier & Data, End of Frame, Missing Ack, or Bit Stuffing Error<br>Frame Type: Data, Remote, Error, Overload<br>Identifier: Standard (11 bit) and Extended (29 bit) identifiers<br>Data Trigger: 1 – 8 Bytes of user-specified data, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥).<br>Maximum Data Rate: 1 Mb/s |
| **CAN-FD Bus** | Trigger on Start of Frame, Type of Frame (Data, Remote, Error, or Overload), Identifier (Standard or Extended), Data (1-8 bytes), Identifier and Data, End Of Frame, Error (Missing Ack, Bit Stuffing Error, FD Form Error, Any Error) on CAN FD buses up to 16 Mb/s |
| **LIN Bus** | Trigger on: Sync, Identifier, Data, Identifier & Data, Wakeup Frame, Sleep Frame, or Error.<br>Identifier Trigger: 6 bits of user-specified data, equal to (=). |

| | |
|---|---|
| | Data Trigger: 1 – 8 Bytes of user-specified data, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), inside range, outside range.<br>Error Trigger: Sync, Identifier Parity, Checksum.<br>Maximum Data Rate: 100 kb/s |
| **Flexray Bus** | Trigger on: Start of Frame, Indicator Bits, Frame ID, Cycle Count, Header Fields, Data, Frame ID & Data, End ofFrame, or Error.<br>Indicator Bits: Normal (01XX), Payload (11XX), Null (00XX), Sync (XX10), Startup (XX11).<br>Frame ID Trigger: 11 bits of user-specified data, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥).<br>Cycle Count Trigger: 6 bits of user-specified data, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥).<br>Header Fields Trigger: 40 bits of user-specified data comprising Indicator Bits, Identifier, Payload Length, Header CRC, and Cycle Count, equal to (=).<br>Data Trigger: 1 – 16 Bytes of user-specified data, with 0 to 253, or "don't care" bytes of data offset, including qualifiers of equal to (=), not equal to <>, less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), Inside Range, Outside Range.<br>End Of Frame: User-chosen types Static, Dynamic (DTS), and All.<br>Error Trigger: Header CRC, Trailer CRC, Null Frame-Static, Null Frame-Dynamic, Sync Frame, Startup Frame (No Sync)<br>Maximum Data Rate: 40 Mb/s |
| **SENT Bus** | Trigger on Start of Packet, Fast Channel Status and Data, Slow Channel Message ID and Data, and CRC Errors |
| **SPMI Bus** | Trigger on Sequence Start Condition, Reset, Sleep, Shutdown, Wakeup, Authenticate, Master Read, Master Write, Register Read, Register Write, Extended Register Read, Extended Register Write, Extended Register Read Long, Extended Register Write Long, Device Descriptor Block Master Read, Device Descriptor Block Slave Read, Register 0 Write, Transfer Bus Ownership, and Parity Error |
| **Ethernet Bus** | Trigger On: Start of Frame, MAC Addresses, MAC Length/Type, IP Header, TCP Header, Client Data, End of Packet, Idle, FCS (CRC) Error, MAC Q-Tag Control Information.<br>Bit rate: 10 BASE-T, 10 Mbps; 100 BASE-TX, 100 Mbps |
| **USB Bus** | Trigger On: Sync, Handshake Packet, Special Packet, Error, Token Packet, Data Packet, Reset, Suspend, Resume, End of Packet.<br>Data rates supported: High: 480 Mbs, Full: 12 Mbs, Low: 1.5 Mbs |
| **Audio $I^2S$ Bus** | Trigger on: Word Select, Data<br>Data Trigger: 32 bits of user-specified data in a left word, right word, or either, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), inside range, outside range.<br>Maximum Data Rate: 12.5Mb/s<br>Left Justified (LJ)<br>Trigger on: Word Select, Data |

| | |
|---|---|
| | Data Trigger: 32 bits of user-specified data in a left word, right word, or either, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥),inside range, outside range.<br>Maximum Data Rate: 12.5Mb/s |
| **Audio (LJ) Bus** | Trigger on Word Select, Frame Sync, or Data<br>Maximum data rate for LJ is 12.5 Mb/s |
| **Audio (RJ) Bus** | Trigger on: Word Select, Data<br>Data Trigger: 32 bits of user-specified data in a left word, right word, or either, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), inside range, outside range.<br>Maximum Data Rate: 12.5 Mb/s |
| **Audio (TDM) Bus** | Trigger on: Frame Sync, Data<br>Data Trigger: 32 bits of user-specified data in a channel 1-64, including qualifiers of equal to (=), not equal to (≠), less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), inside range, outside range.<br>Maximum Data Rate: 25 Mb/s |
| **MIL-STD-1553 Bus** | Trigger on Sync, Command (Transmit/Receive Bit, Parity, Subaddress / Mode, Word Count / Mode Count, RT Address), Status (Parity, Message Error, Instrumentation, Service Request, Broadcast Command Received, Busy, Subsystem Flag, Dynamic Bus Control Acceptance, Terminal Flag), Data, Time (RT/IMG), and Error (Parity Error, Sync Error, Manchester Error, Non-contiguous Data) on MIL-STD-1553 buses |
| **ARINC 429 Bus** | Trigger on Word Start, Label, Data, Label and Data, Word End, and Error (Any Error, Parity Error, Word Error, Gap Error) on ARINC 429 buses up to 1 Mb/s |

## Analysis

| | |
|---|---|
| **Supported Buses** | Parallel, I2C, SPI, RS-232, CAN, CAN-FD, LIN, FlexRay, USB LS, USB FS, USB HS, eUSB2, Ethernet 10/100, Audio ($I^2S$/LJ/RJ/TDM), ARINC 429, MIL-STD-1553, SENT, PSI5, $I^3C$, MDIO, SPMI, 8b/10b, NRZ, Automotive Ethernet (100Base-T1), Manchester, MIPI D-PHY, Spacewire, SVID |
| **Available Amplitude Measurements** | Amplitude, Peak-to-Peak, Mean, Top, Maximum, Positive Overshoot, RMS, Base, Minimum, Negative Overshoot, AC RMS, Area |
| **Available Time Measurements** | Period, Data Rate, Skew, Fall Time, Falling Slew Rate, Negative Duty Cycle, Hold Time, Low Time, Frequency, Positive Pulse Width, Delay, Phase, Burst Width, Time Outside Level, Duration N-Periods, Unit Interval, Negative Pulse Width, Rise Time, Rising Slew Rate Positive Duty Cycle, Setup Time, High Time |
| **Available Jitter Measurements** | TIE, Phase Noise |
| **Measurements Available with DJA** | AC Common Mode, DC Common Mode, Differential Crossover, T/nT Ratio, Bit High, Bit Low, Bit Amplitude, SSC Profile, SSC Freq Deviation, SSC Modulation Rate, Jitter Summary, RJ, RJ-sigmasigma, TJ@BER, DJ, DJ-sigmasigma, PJ, DDJ, DCD, J2, J9, Clock NPJ, SRJ, F/N, Eye Width, Eye Width@BER, Eye Height, Eye Height@BER, Eye High, Eye Low, Q-Factor |
| **Math Waveform Sources** | Analog Channels, Math Waveforms, Reference Waveforms, Measurements |

| | |
|---|---|
| **Math Waveform Operators** | +, - ,* , /, <, >, ≥, ≤, =, !=, AND, OR, NAND, NOR, XOR, EQV, square root, absolute value, integral, derivative, log10, ln, exponential, ceiling, floor, invert, minimum, maximum, sine, cosine, tangent, arcsin, arccos, arctan, radians, degrees, spectral magnitude, spectral phase, spectral real, spectral imaginary |
| **Available Cursor Types** | Waveform, V Bars, H Bars, V&H Bars |
| **Cursor Waveform Sources** | Analog channels, Digital channels, Math Waveforms, Reference Waveforms. Cursors can apply to the same waveform ("Same") or to different waveforms ("Split") |
| **Available Plot Types** | Plot menu: XY, XYZ, Eye Diagram<br>Measurement menu: Histogram, Time Trend, Spectrum |
| **Measurement Statistics** | Mean, standard deviation, maximum, minimum, waveform count |

# Arbitrary function generator

| | |
|---|---|
| **Function types** | Arbitrary, sine, square, pulse, ramp, triangle, DC level, Gaussian, Lorentz, exponential rise/fall, sin(x)/x, random noise, Haversine, Cardiac |

**Amplitude range**

Values are peak-to-peak voltages

| Waveform | 50Ω | 1MΩ |
|---|---|---|
| Arbitrary | 10 mV to 2.5 V | 20 mV to 5 V |
| Sine | 10 mV to 2.5 V | 20 mV to 5 V |
| Square | 10 mV to 2.5 V | 20 mV to 5 V |
| Pulse | 10 mV to 2.5 V | 20 mV to 5 V |
| Ramp | 10 mV to 2.5 V | 20 mV to 5 V |
| Triangle | 10 mV to 2.5 V | 20 mV to 5 V |
| Gaussian | 10 mV to 1.25 V | 20 mV to 2.5 V |
| Lorentz | 10 mV to 1.2 V | 20 mV to 2.4 V |
| Exponential Rise | 10 mV to 1.25 V | 20 mV to 2.5 V |
| Exponential Fall | 10 mV to 1.25 V | 20 mV to 2.5 V |
| Sine(x)/x | 10 mV to 1.5 V | 20 mV to 3.0 V |
| Random Noise | 10 mV to 2.5 V | 20 mV to 5 V |
| Haversine | 10 mV to 1.25 V | 20 mV to 2.5 V |
| Cardiac | 10 mV to 2.5 V | 20 mV to 5 V |

| | |
|---|---|
| **Maximum sample rate** | 250 MS/s |
| **Arbitrary function length** | 128 K Samples |

**Sine waveform**

| | |
|---|---|
| **Sine Frequency range** | 0.1 Hz to 50 MHz |
| **SIne Frequency setting resolution** | 0.1 Hz |
| **Sine and Ramp Frequency accuracy** | 130 ppm (frequency ≤ 10 kHz)<br>50 ppm (frequency > 10 kHz) |
| **Sine amplitude flatness, typical** | ±0.5 dB (relative to 1 kHz level) at 30 MHz |

| | |
|---|---|
| | ±1.0 dB (relative to1 kHz level) at 50 MHz |
| **Sine total harmonic distortion, typical** | 1% for amplitude ≥ 200 $mV_{pp}$ into 50 ohm load<br>2.5% for amplitude > 50 mV and < 200 $mV_{pp}$ into 50 ohm load |
| **Sine spurious-free dynamic range, typical** | 40 dB ($V_{pp}$ ≥0.1 V); 30 dB ($V_{pp}$ ≥0.02 V), 50 Ohm Load |
| **Square and pulse waveform** | |
| **Frequency range** | 0.1 Hz to 25 MHz |
| **Frequency setting resolution** | 0.1 Hz |
| **Square and Pulse Frequency Accuracy** | 130 ppm (frequency ≤10 KHz)<br>50 ppm (frequency > 10 KHz) |
| **Duty cycle range** | 10% - 90% or 10 ns minimum pulse, whichever is larger Minimum pulse time applies to both on and off time, so maximum duty cycle will reduce at higher frequencies to maintain 10 ns off time |
| **Square and Pulse Duty cycle resolution** | 0.1% |
| **Minimum pulse width, typical** | 10 ns. This is the minimum time for either on or off duration. |
| **Rise/Fall time, typical** | 5 ns, 10% - 90% |
| **Square and Pulse Pulse width resolution** | 100 ps |
| **Square and Pulse Overshoot, typical** | < 6% for signal steps greater than 100 $mV_{pp}$<br>This applies to overshoot of the positive-going transition (+overshoot) and of the negative-going (-overshoot) transition |
| **Square and Pulse Asymmetry, typical** | ±1% ±5 ns, at 50% duty cycle |
| **Square and Pulse Jitter, typical** | < 60 ps $TIE_{RMS}$, ≥ 100 $mV_{pp}$ amplitude, 40%-60% duty cycle |
| **Ramp and triangle waveform** | |
| **Frequency range** | 0.1 Hz to 500 kHz |
| **Frequency setting resolution** | 0.1 Hz |
| **Variable symmetry** | 0% - 100% |
| **Symmetry resolution** | 0.1% |
| **DC level range** | ±2.5 V into Hi-Z ±1.25 V into 50 Ω |
| **Gaussian pulse, Haversine, and Lorentz pulse Maximum frequency** | 5 MHz |
| **Exponential rise fall maximum frequency** | 5 MHz |
| **Sin(x)/x maximum frequency** | 2 MHz |
| **Random noise amplitude range** | 20 $mV_{pp}$ to 5 $V_{pp}$ into Hi-Z<br>10 $mV_{pp}$ to 2.5 $V_{pp}$ into 50 Ω |

| | |
|---|---|
| **Signal amplitude resolution** | 1 mV (Hi-Z)<br>500 µV (50 Ω) |
| **Signal amplitude accuracy** | ±[ (1.5% of peak-to-peak amplitude setting) + (1.5% of absolute DC offset setting) + 1 mV ]<br>(frequency = 1 kHz) |
| **DC offset range** | ±2.5 V into Hi-Z<br>±1.25 V into 50 Ω |
| **DC offset resolution** | 1 mV (Hi-Z)<br>500 µV (50 Ω) |
| **DC offset accuracy** | ±[ (1.5% of absolute offset voltage setting) + 1 mV ]<br>Add 3 mV of uncertainty per 10 °C change from 25 °C ambient |
| **Cardiac maximum frequency** | 500 kHz |

## Digital volt meter (DVM)

| | |
|---|---|
| **Measurement types** | DC, $AC_{RMS}$+DC, $AC_{RMS}$, Trigger frequency Count |
| **Voltage resolution** | 4 digits |
| **Voltage accuracy** | **DC**: ±((1.5% * \|reading - offset - position\|) + (0.5% * \|(offset - position)\|) + (0.1 * Volts/div))<br>De-rated at 0.100% / °C of \|reading - offset - position\| above 30 °C Signal<br>± 5 divisions from screen center<br>**AC**: ±3% (40 Hz to 1 kHz) with no harmonic content outside 40 Hz to 1 kHz<br>P-TYP: AC: ±2% (20 Hz to 10 kHz)<br>For AC measurements, the input channel vertical settings must allow the $V_{pp}$ input signal to cover between 4 and 10 divisions and must be fully visible on the screen. |
| **Resolution** | 8-digits |
| **Accuracy** | For Slew rates ≥ 3 mv/ns<br>±(1 count + time base accuracy * input frequency)<br>The signal must be at least 8 $mV_{pp}$ or 2 div, whichever is greater. |
| **Trigger frequency counter source** | Any analog input channel.<br>AC line |
| **Trigger frequency counter max input frequency** | 10 Hz to maximum bandwidth of the analog channel<br>The signal must be at least 8 $mV_{pp}$ or 3 div, whichever is greater. |

## Processor system

| | |
|---|---|
| **Host processor** | Intel Core i5-8400H @ 2.5 GHz (CoffeeLake 4-core), 16 GB System RAM |
| **Windows operating system** | Option 6-WIN: Microsoft Windows 10 Enterprise IoT 2016 LTSB (64 bit)<br>The Windows operating system is available on an optional, customer-installable mass storage device. |

| | |
|---|---|
| **Security options** | 6-SEC Option: USB and Ethernet communication ports, firmware upgrades and BIOS password protected. |
| **Password protected I/O ports** | 6-SEC option enables password protection of USB and Ethernet ports from oscilloscope application.<br>6-SEC option has password-protected BIOS |

# Input/Output port specifications

**Ethernet interface**

An 8-pin RJ-45 connector that supports 10/100/1000 Mb/s

Oscilloscope is intended for use with unshielded twisted-pair ethernet cables (UTP).

**DVI connector**

A 29-pin connector; connect to show the oscilloscope display on an external monitor or projector.Maximum supported resolution, Windows: 1920 x 1200 at 60 Hz.

Maximum supported resolution, Linux: 1920 x 1080 at 60 Hz.

Only a single TMDS link is provided by the interface.

Analog VGA signaling is not provided by the interface.

**VGA Connector**

A 15-pin, 3-row, D-sub VGA connector

Recommended resolution: 1920x1080 at 60 Hz

**DisplayPort connector**

A 20-pin DisplayPort connector

Maximum supported resolution:

Windows: 2560x1440 @ 60Hz

Linux: 1920 x 1080 @ 60Hz

DP++ Adapter:Maximum supported resolution: 2560x1440 @ 60Hz

**Simultaneous displays**

Up to 3 displays (including the internal display) with a maximum of 1 display per port.

**USB interface**

Three USB host ports on the front of the instrument: two USB 2.0 High Speed ports and one USB 3.0 SuperSpeed port.

Four USB host ports on the rear of the instruments: two USB 2.0 High Speed ports and two USB 3.0 SuperSpeed ports.

One USB 3.0 SuperSpeed device port on the rear of the instrument providing USBTMC support.

## Probe compensator

**Output Voltage and Frequency**

Output Voltage Amplitude: 2.5 V ±2% (nominally 0-2.5 V)

Output Frequency: 1 kHz ±25%

Output Source Impedance is nominally 1 kΩ

## Auxiliary output, Trigger out, or Reference clock out

**AUX OUT Connector and Functional Modes**

A single BNC connector.

Acquisition Trigger Out, Reference Clock Out, and AFG Trigger Out.

**AUX OUT Output Voltage**

Voltage thresholds are listed in the following table:

| Characteristic | Limits |
|---|---|
| Vout (HI) | ≥2.5 V open circuit; ≥1.0 V into a 50 W load to ground. |
| Vout (LO) | ≤ 0.7 V into a load of ≤4 mA; ≤0.25 V into a 50 W load to ground. |

**AUX OUT Acquisition Trigger Jitter**

Acquisition Trigger Out Jitter: < 50 ps standard deviation

**AUX OUT Acquisition Trigger Polarity**

A leading edge, which is user selectable transition from HIGH to LOW or from LOW to HIGH, marks the trigger event.

The pulse width is approximately 100 ns.

**AUX OUT Reference Clock**

Reference clock output can be referenced from either the internal clock reference or the external clock reference.

**AUX OUT AFG Trigger**

The output frequency is dependent the frequency of the AFG signal using the table below:

| AFG Signal Frequency | AFG Trigger Frequency |
|---|---|
| ≤ 4.9 MHz | Signal frequency |
| >4.9 MHz to 14.7 MHz | Signal frequency / 3 |
| >14.7 MHz to 24.5 MHz | Signal frequency / 5 |
| >24.5 MHz to 34.3 MHz | Signal frequency / 7 |
| >34.3 MHz to 44.1 MHz | Signal frequency / 9 |
| >44.1 MHz to 50 MHz | Signal frequency / 11 |

**External reference input**

BNC interface

**External reference input**

**Nominal input frequency**

10 MHz

User must select either 10 MHz external (±1 kppm), 10 MHz external (±1ppm), or the internal reference (default) from the UI.

**Frequency Variation Tolerance**

Low Phase Noise Mode: 9.99999 MHz to 10.00001 MHz (±1 $_{ppm}$)

Tracking Mode: 9.99 MHz to 10.01 MHz (± 1000$_{ppm}$)*

Loop Bandwidth of external tracking mode is a function of the PLL loop maximum slew rate capability, and is not linear. The modulation deviation frequency (±Hz) is dependent upon the maximum modulation rate (Hz). For example, a deviation of ±50 Hz or less can tolerate any modulation rate. A deviation of the maximum amount specified for this mode (±10 kHz or 1 kppm) will tolerate up to 80 Hz of modulation rate. A deviation of ±500Hz will tolerate up to about 1240 Hz of modulation rate. This is based on a measured instrument response to the reference clock being modulated. Example measurement is in the below table.

| Deviation (+/-Hz) | Modulation Rate (Hz) | Notes |
|---|---|---|
| 10000 | 80 | |
| 5000 | 190 | |
| 2500 | 320 | |
| 1000 | 760 | |
| 500 | 1240 | |
| 250 | 1720 | |
| 100 | 2150 | |
| 50 | | Won't lose lock at 50Hz and below |

**Sensitivity, typical**

Vin is 200 mV$_{p-p}$ up to 7 V$_{p-p}$, using an external 50 Ω termination on the input BNC.

**Maximum input signal**

7 V$_{pp}$

| | |
|---|---|
| **Impedance** | 745 Ω ± 20% with 18 pf ± 20% to ground at 10 MHz |
| **AUX IN trigger input impedance** | |
| **Interface** | SMA |
| **Input Impedance** | 50 Ω |
| **Maximum Input Voltage** | 5 $V_{RMS}$ |
| **Trigger Skew** | Trigger skew variation improves for pulse input voltages ≥1 $V_{p-p}$.<br>When sample rate is ≥25 GS/s and no channels with a maximum sample rate of 12.5 GS/s (channels 3 or 6 on an MSO66B, or channels 3, 4, 7, or 8 on MSO68B) are used: 200 ps ±200 ps<br>When sample rate is 12.5 GS/s and at least one channel with a maximum sample rate of 12.5 GS/s (channels 3 or 6 on an MSO66B, or channels 3, 4, 7, or 8 on MSO68B) is used: 7.87 ns ±200 ps |
| **Trigger Jitter** | Trigger Jitter ≤ 40 ps RMS for Sample Mode and Edge-Type Trigger<br>Trigger Jitter ≤ 40 ps RMS for Edge-Type Trigger and FastAcq Mode |
| **Front panel knob** | Multipurpose Knob A, Multipurpose Knob B, Trigger Level, Vertical Position, Vertical Scale, Horizontal Position, Horizontal Scale, Wave Inspector (two-tier knob) |
| **Front Panel Buttons** | Run/Stop, Single/Seq, Cursors, Fast Acq, High Res, Clear, Force Trigger, Trigger Slope, Trigger Mode, Vertical Input Selection (one for each analog input), Reference Waveform, Math Waveform, Bus Waveform, Zoom, Navigate Previous, Navigate Next,Touchscreen Off, Default Setup (recessed), Save, Autoset (recessed) |
| **Waveform Save Options** | Analog Waveforms can be saved as: Reference Waveforms, .wfm files, .csv files, .h5 files, .mat files<br>Digital Waveforms can be saved as: Reference Waveforms, .wfm files, .csv files<br>Math Waveforms can be saved as: .wfm files, .csv files |
| **Waveform Recall Options** | Analog Waveforms can be recalled to reference waveforms from: .wfm files, .csv files, .bin (keysight format) files, .trc (LeCroy format) files, .h5 files<br>Digital Waveforms can be recalled to reference waveforms from: .wfm files, .csvfiles<br>Math Waveforms can be recalled to reference waveforms from: .wfm files, .csv files<br>Reference files can be imported from .tr0 binary files. |

# Display system

| | |
|---|---|
| **Display type** | Display size: 15.6 inches diagonal<br>Display type: TFT liquid crystal display (LCD) |
| **Display resolution** | 1,920 horizontal × 1,080 vertical pixels (High Definition) |
| **Luminance, typical** | 500 $cd/m^2$, (Minimum: 400 $cd/m^2$), Display luminance is specified for a new display set at full brightness. |
| **Color Support** | 16.2M colors (6-bit RGB+FRC) |
| **Display Options** | |
| **Persistence** | Off, Infinite, Variable (Persistence Time is variable) or Auto |
| **Waveform styles** | Vectors, dots |
| **Graticule** | Grid, Time, Full or None |
| **Graticule Intensity** | variable |

| | |
|---|---|
| **Display Mode** | Overlay or Stacked |
| **Interpolation** | Sin(x)/x or Linear |
| **Waveform Intensity** | variable |

## Data storage specifications

| | |
|---|---|
| **Nonvolatile memory retention time, typical** | No time limit for front panel settings, saved waveforms, setups, product licensing, and calibration constants. |
| **Real-time clock** | A programmable clock maintaining and reporting the current time in the units of years, months, days, hours, minutes, and seconds. |
| **Nonvolatile memory capacity** | |
| **Instrument S/N** | A 2 kbit EEPROM on the main board that stores the instrument serial number, instrument start up count, total uptime and administration passwords. |
| **Companion CvP** | A pair of 16 Mbit flash memory devices that stores a portion of the Companion FPGA image data. One device serves as a backup for the other device. |
| **AFG S/N** | A 2 kbit EEPROM on the AFG riser card that stores a copy of the instrument serial number which is used to validate the AFG calibration. |
| **Front Panel ID** | A 64 kbit EEPROM on the LED board that stores the USB vendor ID and device ID for the internal front panel controller. |
| **Front Panel Memory** | A 4 GB EEPROM on the LED board stores licence options and calibration data |
| **BIOS** | A 128 Mbit flash memory device that stores the firmware image and device configuration for the host processor and chipset sub-processors. This includes the Basic Input Output System (BIOS), Management Engine (ME), Embedded Controller (EC) and Network Interface Controller (NIC). The Ethernet MAC address is stored in this device. |
| **CMOS Memory** | The host processor chipset includes an integrated memory device, powered by the real-time clock (RTC) battery, which stores BIOS configuration settings. A customer accessible switch disconnects the RTC battery from the chipset which clears the contents of the integrated CMOS memory device. |
| **Memory SPD** | Each SODIMM (memory module) contains a serial presence detect (SPD) memory device implemented using an unspecified memory technology. Each SPD device contains the parameter data specific to its memory module. All SPD devices are treated by the instrument as read only. The size of a given SPD is unspecified. The 4 channel instrument includes 4 SPD devices. |
| **UCD9248** | The instrument includes 3 UCD9248 power supply controllers. Each controller contains an *unspecified* quantity of nonvolatile memory that stores various power supply configuration settings. |
| **PMU** | A power management unit (PMU) microcontroller is used to manage instrument power supplies and hardware initialization. The PMU includes 32 KB of nonvolatile memory for storage of its own binary executable and redundant storage of UCD9248 device settings. |
| **Analog Board Controller** | A microcontroller is used to manage analog board operation. The PMU includes 64 KB of nonvolatile memory for storage of its own binary executable. |
| **Carrier FPGA** | The carrier FPGA stores its own configuration in its own internal 0.33 Mbit nonvolatile memory. The carrier FPGA implements simple "glue logic" for the instrument. |
| **Mass storage device capacity** | |

| | |
|---|---|
| **Linux** | ≥ 250 GB. Form factor is a 2.5 inch SSD with a SATA-3 interface. Waveforms and setups are stored on the solid state drive. Provides storage for saved customer data and the Linux operating system. |
| **Windows (optional)** | ≥ 500 GB. Form factor is a 2.5 inch SSD with a SATA-3 interface. This drive is customer installable and provides storage for the Windows operating system option, and saved customer data. |

## Power supply system

| | |
|---|---|
| **Power consumption** | 500 Watts maximum |
| **Fuse rating** | 12.5 A / 250 VAC<br>The fuse is not customer replaceable. The line lead is fused, but the neutral lead is not fused. |

## Safety characteristics

| | |
|---|---|
| **Safety certification** | US NRTL Listed - UL61010-1 and UL61010-2-030.<br>Canadian Certification - CAN/CSA-C22.2 No. 61010-1 and CAN/CSA C22.2 No. 61010-2-030.<br>EU Compliance - Low Voltage Directive 2014-35-EU and EN61010-1 and EN61010-2-030.<br>International Compliance - IEC 61010-1 and IEC 61010-2-030. |
| **Pollution degree** | Pollution degree 2, indoor, dry location use only |

## Environmental specifications

| | |
|---|---|
| **Temperature** | |
| **Operating** | +0 °C to +50 °C (32 °F to 122 °F) |
| **Non-operating** | -20 °C to +60 °C (-4 °F to 140 °F) |
| **Humidity** | |
| **Operating** | 5% to 90% relative humidity (% RH) at up to +40 °C<br>5% to 55% RH above +40 °C up to +50 °C, noncondensing |
| **Non-operating** | 5% to 90% relative humidity (% RH) at up to +60 °C, noncondensing and as limited by a maximum wet-bulb temperature of +39°C. |
| **Altitude** | |
| **Operating** | Up to 3,000 meters (9,843 feet) |
| **Non-operating** | Up to 12,000 meters (39,370 feet) |

## Dynamics

| | |
|---|---|
| **Random Vibration: Operating** | 0.31 GRMS, 5-500 Hz, 10 minutes per axis, 3 axes (30 minutes total). |
| **Mechanical Shock: Operating** | Half-sine mechanical shocks, 40 g peak amplitude, 11 ms duration, 3 drops in each direction of each axis (18 total). |

# Comparison against MIL-PRF-28800F Environmental Requirements

**Comparison against MIL-PRF28800F Environmental Requirements**

YES/NO indicates whether the instrument meets the minimum requirement for each combination of Class and Environmental Condition. The spec's here are those found in the MIL-PRF-28800F. The corresponding instrument spec's (if any) are listed above. If the instrument has no corresponding spec an N/A in used. If the MIL-PRF-28800F lists the spec as "invoked by the purchase description", an IPD is used

| Environmental Condition | Class | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **Temperature Non-operating** | No | No | No | No |
| | -51 °C/71 °C | -51 °C/71 °C | -40 °C/71 °C | -40 °C/71 °C |
| **Temperature Operating** | No | No | Yes | Yes |
| | -40 °C/55 °C | -10 °C/55 °C | 0 °C/50 °C | +10 °C/40 °C |
| **Relative Humidity** | No | No | No | No |
| | 5% to 95%, 30 °C to 40 °C | 5% to 80%, 30 °C to 40 °C | 5% to 80%, 30 °C to 40 °C | 5% to 80%, 30 °C to 40 °C |
| | 5% to 65%,<br>> 40 °C | 5% to 50%<br>> 40 °C | 5% to 50%,<br>> 40 °C | 5% to 50%,<br>> 40 °C |
| **Altitude non-operating** | Yes | Yes | Yes | Yes |
| | 4600 m | 4600 m | 4600 m | 4600 m |
| **Altitude operating** | No | No | No | No |
| | 4600 m | 4600 m | 4600 m | 4600 m |
| **Vibration**<br>**Non-Operating** | No | No | Yes | Yes |
| | Random | Random | Random | Random |
| | 10-500 Hz 0.03 g2/Hz<br>Overall GRMS: 3.83<br>Time/Axis: 30 minutes | 10-500 Hz 0.03 g2/Hz<br>Overall GRMS: 3.83<br>Time/Axis: 30 minutes | 5-100 Hz 0.015 g2/Hz<br>100-137Hz -6dB/octave<br>137-350 Hz 0.0075 g2/Hz<br>350-500 Hz -6 dB/octave<br>500 Hz 0.0039 g2/Hz<br>Overall GRMS: 2.09<br>Time/Axis: 10 minute | 5-100 Hz 0.015 g2/Hz<br>100-137 Hz -6dB/octave<br>137-350 Hz 0.0075 g2/Hz<br>350-500 Hz -6 dB/octave<br>500 Hz 0.0039 g2/Hz<br>Overall GRMS: 2.09<br>Time/Axis: 10 minutes |
| **Bounce** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |

Table continued…

| Environmental Condition | Class | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **Shock, Functional** | Yes | Yes | Yes | Yes |
| | 30 G<br>Half-sine, 11 ms pulse duration, 3 shocks in each direction of each axis for 18 total shocks. | 30 G<br>Half-sine, 11 ms pulse duration, 3 shocks in each direction of each axis for 18 total shocks. | 30 G<br>Half-sine, 11ms pulse duration, 3 shocks in each direction of each axis for 18 total shocks. | 30 G<br>Half-sine, 11ms pulse duration, 3 shocks in each direction of each axis for 18 total shocks. |
| **Transit Drop** | No | No | Yes | Yes |
| | 46 cm<br>10 impacts<br>4 bottom corners and 6 faces | 30 cm<br>10 impacts<br>4 bottom corners and 6 faces | 20 cm<br>10 impacts<br>4 bottom corners and 6 faces | 20 cm<br>10 impacts<br>4 bottom corners and 6 faces |
| **Bench Handling** | Yes | Yes | Yes | Yes |
| | Lift edge of chassis 45°, 10.16 cm, or point of balance and drop | Lift edge of chassis 45°, 10.16 cm, or point of balance and drop | Lift edge of chassis 45°, 10.16 cm, or point of balance and drop | Lift edge of chassis 45°, 10.16 cm, or point of balance and drop |
| **Shock High Impact** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |
| **Watertight** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |
| **Splash Proof** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |
| **Drip Proof** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |
| **Fungus Resistance** | N/A | N/A | N/A | N/A |
| | 28 days | 28 days | 28 days | 28 days |
| **Salt Exposure Enclosure** | N/A | N/A | N/A | N/A |
| | 48 hours | 48 hours | 48 hours | 48 hours |
| **Salt Exposure Structural** | N/A | N/A | N/A | N/A |
| | 48 hours | 48 hours | 48 hours | 48 hours |
| **Explosive Atmosphere** | N/A | N/A | N/A | N/A |
| | 3000m | | | |
| **Dust Resistance** | N/A | N/A | N/A | N/A |
| | 10.7±7.1 g/m$^3$ | | | |
| **Solar Radiation** | N/A | N/A | N/A | N/A |
| | IPD | IPD | IPD | IPD |

# Mechanical specifications

**Weight**

Weight of instruments by model:

- MSO68B 29.8 lbs
- MSO66B 29.6 lbs
- MSO64B 29.2 lbs
- Weight corrections of standard accessories:
- Instrument with protective front cover: + 1.8 lbs
- Instrument with front cover and soft pouch: + 3.4 lbs
- MSO68B Instrument when packaged for shipping: 42.95 lbs
- MSO66B Instrument when packaged for shipping: 42.75 lbs
- MSO64B Instrument when packaged for shipping: 42.35 lbs
- Instrument when configured for rack mount: -2.2 lbs
- Rack Mount: 15 lbs

**Dimensions**

Requirements that follow are nominal and unboxed:

Unit fits into rackmount configuration (7U)

| | |
|---|---|
| **Height** | 371 mm (14.6 in) feet folded in, handle folded up<br>309 mm (12.2in) feet folded in, handle folded to the backside of the instrument |
| **Width** | 454 mm (17.9 in) from handle hub to handle hub |
| **Depth** | 205 mm (8.0 in) from back of feet to front of knobs<br>297.2 mm (11.7in) feet folded in, handle folded to the backside of the instrument |
| **Clearance Requirements** | The clearance requirement for adequate cooling is 2.0 in (50.8 mm) on the right side (when looking at the front of the instrument) and on the rear of the instrument |
| **Audible Noise** | Audible noise (fan noise) produced by the instrument at ambient temperature (≤28°C): ≤ 45dB |
| **Kensington Lock** | Oscilloscope includes a Kensington Lock. |

# Environmental Compliance

| | |
|---|---|
| **Material Selection - RoHS Compliance** | EU Directive 2011/65/EU Less than 0.1% by mass (1000 ppm) in homogeneous material for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), and less than 0.01% by mass (100 ppm) of homogeneous material for cadmium, unless used in an application that is specifically exempted by the EU RoHS Directive or its amendments.<br>Complies with RoHS2 Directive 2011/65/EU. |

# Regional Certifications, Classifications, and Standards List

Meets intent of Directive 2014/30/EU for Electromagnetic compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

| | |
|---|---|
| **EN 61326-1, EN 61326-2-1** | EMC requirements for electrical equipment for measurement, control, and laboratory use.<br>• CISPR 11. Radiated and conducted emissions, Group 1, Class A<br>• IEC 61000-4-2. Electrostatic discharge immunity<br>• IEC 61000-4-3. RF electromagnetic field immunity[8]<br>• IEC 61000-4-4. Electrical fast transient / burst immunity<br>• IEC 61000-4-5. Power line surge immunity<br>• IEC 61000-4-6. Conducted RF immunity<br>• IEC 61000-4-11. Voltage dips and interruptions immunity<br>[9]<br>[10]<br>[11]<br>[12] |
| **EN 61000-3-2** | AC power line harmonic emissions |
| **EN 61000-3-3** | Voltage changes, fluctuations, and flicker |

## Australia / New Zealand Declaration of Conformity – EMC

Complies with the EMC provision of the Radiocommunications Act per the following standard, in accordance with ACMA.

| | |
|---|---|
| **EN 61326-1 and EN 61326-2-1** | Radiated and conducted emissions, Group 1, Class A. |

[8] 10 mV/division to 1 V/division: ≤0.1 division waveform displacement or ≤0.2 division increase in peak-to-peak noise is allowed when the instrument is subjected to fields and signals as defined in the IEC 61000-4-3.

[9] This product is intended for use in nonresidential areas only. Use in residential areas may cause electromagnetic interference.

[10] Emissions which exceed the levels required by this standard may occur when this equipment is connected to a test object.

[11] For compliance with the EMC standards listed here, high quality shielded interface cables that incorporate low impedance connection between the cable shield and the connector shell should be used.

[12] Equipment may not meet the immunity requirements of applicable listed standards when test leads and/or test probes are connected due to coupling of electromagnetic interference onto those leads/probes. To minimize the influence of electromagnetic interference, minimize the loop area between the unshielded portions of signal and associated return leads, and keep leads as far away as possible from electromagnetic disturbance sources. Twisting unshielded test leads together is an effective way to reduce loop area. For probes, keep the ground return lead as short as possible and close to the probe body. Some probes have accessory probe tip adapters to accomplish this most effectively. In all cases, observe all safety instructions for the probes or leads used.

# Performance verification procedures

This chapter contains performance verification procedures for the specifications marked with the ✓ symbol. The following equipment, or a suitable equivalent, is required to complete these procedures.

Required equipment

| Required equipment | Minimum requirements | Examples |
|---|---|---|
| DC voltage source | 3 mV to 4 V, ±0.1% accuracy | Fluke 9500B Oscilloscope Calibrator with a 9530 Output Module |
| Leveled sine wave generator | 50 kHz to 10 GHz, ±4% amplitude accuracy | |
| Time mark generator | 80 ms period, ±1.0 x $10^{-6}$ accuracy, rise time <50 ns | |
| Logic probe | Low capacitance digital probe, 8 channels. | TLP058 probe |
| BNC-to-0.1 inch pin adapter to connect the logic probe to the signal source. | BNC-to-0.1 inch pin adapter; female BNC to 2x16 .01 inch pin headers. | Tektronix adapter part number 878-1429-00; to connect the Fluke 9500B to the TLP058 probe. |
| Digital multimeter (DMM) | 0.1% accuracy or better | Tektronix DMM4020 |
| One 50 Ω terminator | Impedance 50 Ω; connectors: female BNC input, male BNC output | Tektronix part number 011-0049-02 |
| One 50 Ω BNC cable | Male-to-male connectors | Tektronix part number 012-0057-01 |
| Optical mouse | USB, PS2 | Tektronix part number 119-7054-00 |
| Frequency counter | Parts per billion accuracy | Tektronix FCA3000 Timer/Counter/Analyzer |

You might need additional cables and adapters, depending on the actual test equipment you use.

These procedures cover all MSO64B, MSO66B, and MSO68B models. Disregard checks that do not apply to the specific model you are testing.

Print the test record on the following pages and use it to record the performance test results for your oscilloscope.

**Note:** Completion of the performance verification procedure does not update the stored time and date of the latest successful adjustment. The date and time are updated only when the adjustment procedures in the service manual are successfully completed.

The performance verification procedures verify the performance of your instrument. They do not adjust your instrument. If your instrument fails any of the performance verification tests, you should return the instrument to Tektronix for adjustment or repair.

# Test records

## Instrument information, self test record

| Model | Serial # | Procedure performed by | Date |
|---|---|---|---|
| | | | |

| Test | Passed | Failed |
|---|---|---|
| Self Test | | |

## DC Offset Accuracy test record

| Offset Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Vertical scale** | **Vertical offset [13]** | **Low limit** | **Test result** | **High limit** |
| **All models** | | | | | |
| Channel 1 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.9663 V | | 5.0337 V |
| | 100 mV/div | -5.0 V | -5.0337 V | | -4.9663 V |
| Channel 1 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.12 mV | | 904.88 mV |
| | 1 mV/div | -900 mV | -904.88 mV | | -895.12 mV |
| | 100 mV/div | 1.0 V | 0.975 V | | 1.025 V |
| | 100 mV/div | - 1.0 V | -1.025 V | | -0.975 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.75 V | | 10.25 V |
| | 1.01 V/div | -10.0 V | -10.25 V | | -9.75 V |
| | 5 V/div | 10.0 V | 8.95 V | | 11.05 V |
| | 5 V/div | -10.0 V | -11.05 V | | -8.95 V |
| Channel 2 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |
| Channel 2 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.935 V | | 1.065 V |
| | 100 mV/div | - 1.0 V | -1.065 V | | -0.935 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.3 V | | 10.7 V |
| | 1.01 V/div | -10.0 V | -10.7 V | | -9.3 V |
| | 5 V/div | 10.0 V | 8.5 V | | 11.5 V |
| | 5 V/div | -10.0 V | -11.5 V | | -8.5 V |
| Channel 3 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |

Table continued…

[13] Use this value for both the calibrator output and the oscilloscope offset setting.

| Offset Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Vertical scale** | **Vertical offset [13]** | **Low limit** | **Test result** | **High limit** |
| Channel 3 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.935 V | | 1.065 V |
| | 100 mV/div | - 1.0 V | -1.065 V | | -0.935 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.3 V | | 10.7 V |
| | 1.01 V/div | -10.0 V | -10.7 V | | -9.3 V |
| | 5 V/div | 10.0 V | 8.5 V | | 11.5 V |
| | 5 V/div | -10.0 V | -11.5 V | | -8.5 V |
| Channel 4 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |
| Channel 4 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.935 V | | 1.065 V |
| | 100 mV/div | - 1.0 V | -1.065 V | | -0.935 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.3 V | | 10.7 V |
| | 1.01 V/div | -10.0 V | -10.7 V | | -9.3 V |
| | 5 V/div | 10.0 V | 8.5 V | | 11.5 V |
| | 5 V/div | -10.0 V | -11.5 V | | -8.5 V |
| Channel 5 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |

Table continued…

[13] Use this value for both the calibrator output and the oscilloscope offset setting.

| Offset Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Vertical scale** | **Vertical offset [13]** | **Low limit** | **Test result** | **High limit** |
| Channel 5 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.975 V | | 1.025 V |
| | 100 mV/div | - 1.0 V | -1.025 V | | -0.975 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.75 V | | 10.25 V |
| | 1.01 V/div | -10.0 V | -10.25 V | | -9.75 V |
| | 5 V/div | 10.0 V | 8.95 V | | 11.05 V |
| | 5 V/div | -10.0 V | -11.05 V | | -8.95 V |
| Channel 6 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |
| Channel 6 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.975 V | | 1.025 V |
| | 100 mV/div | - 1.0 V | -1.025 V | | -0.975 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.75 V | | 10.25 V |
| | 1.01 V/div | -10.0 V | -10.25 V | | -9.75 V |
| | 5 V/div | 10.0 V | 8.95 V | | 11.05 V |
| | 5 V/div | -10.0 V | -11.05 V | | -8.95 V |
| Channel 7 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |

Table continued…

[13] Use this value for both the calibrator output and the oscilloscope offset setting.

| Offset Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Vertical scale** | **Vertical offset [13]** | **Low limit** | **Test result** | **High limit** |
| Channel 7 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.975 V | | 1.025 V |
| | 100 mV/div | - 1.0 V | -1.025 V | | -0.975 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.75 V | | 10.25 V |
| | 1.01 V/div | -10.0 V | -10.25 V | | -9.75 V |
| | 5 V/div | 10.0 V | 8.95 V | | 11.05 V |
| | 5 V/div | -10.0 V | -11.05 V | | -8.95 V |
| Channel 8 DC Offset Accuracy, 20 MHz BW, 50 Ω | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 5.0 V | 4.965 V | | 5.035 V |
| | 100 mV/div | -5.0 V | -5.035 V | | -4.965 V |
| Channel 8 DC Offset Accuracy, 20 MHz BW, 1 MΩ | 1 mV/div | 900 mV | 895.3 mV | | 904.7 mV |
| | 1 mV/div | -900 mV | -904.7 mV | | -895.3 mV |
| | 100 mV/div | 1.0 V | 0.975 V | | 1.025 V |
| | 100 mV/div | - 1.0 V | -1.025 V | | -0.975 V |
| | 500 mV/div | 9.0 V | 8.855 V | | 9.145 V |
| | 500 mV/div | - 9.0 V | -9.145 V | | -8.855 V |
| | 1.01 V/div | 10.0 V | 9.75 V | | 10.25 V |
| | 1.01 V/div | -10.0 V | -10.25 V | | -9.75 V |
| | 5 V/div | 10.0 V | 8.95 V | | 11.05 V |
| | 5 V/div | -10.0 V | -11.05 V | | -8.95 V |

[13] Use this value for both the calibrator output and the oscilloscope offset setting.

## Analog Bandwidth test record

| Analog Bandwidth | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Performance checks** | | | | | | | |
| **Bandwidth at Channel** | **Impedance** | **Vertical scale** | **Horizontal scale** | **$V_{in\text{-}pp}$** | **$V_{bw\text{-}pp}$** | **Limit** | **Test result** Gain = $V_{bw\text{-}pp}/V_{in\text{-}pp}$ |
| **All models** | | | | | | | |
| Channel 1 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 1 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 2 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 2 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |

Table continued…

| Analog Bandwidth | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Performance checks** | | | | | | | |
| **Bandwidth at Channel** | **Impedance** | **Vertical scale** | **Horizontal scale** | **$V_{in\text{-}pp}$** | **$V_{bw\text{-}pp}$** | **Limit** | **Test result** Gain = $V_{bw\text{-}pp}/V_{in\text{-}pp}$ |
| Channel 3 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 3 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 4 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 4 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |

Table continued…

| Analog Bandwidth | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Performance checks** | | | | | | | |
| **Bandwidth at Channel** | **Impedance** | **Vertical scale** | **Horizontal scale** | **$V_{in\text{-}pp}$** | **$V_{bw\text{-}pp}$** | **Limit** | **Test result** Gain = $V_{bw\text{-}pp}/V_{in\text{-}pp}$ |
| Channel 5 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 5 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 6 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 6 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |

Table continued…

| Analog Bandwidth | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Performance checks** | | | | | | | |
| **Bandwidth at Channel** | **Impedance** | **Vertical scale** | **Horizontal scale** | **$V_{in\text{-}pp}$** | **$V_{bw\text{-}pp}$** | **Limit** | **Test result** Gain = $V_{bw\text{-}pp}/V_{in\text{-}pp}$ |
| Channel 7 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 7 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 8 | 50 Ω | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |
| Channel 8 | 1 MΩ, typical | 1 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 2 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 4 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 10 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 25 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 50 mV/div | 1 ns/div | | | ≥ 0.707 | |
| | | 100 mV/div | 1 ns/div | | | ≥ 0.707 | |

## Input impedance test record

| Input Impedance | | | | |
|---|---|---|---|---|
| **Performance checks** | **Vertical scale** | **Low limit** | **Test result** | **High limit** |
| **All models** | | | | |
| Channel 1 Input Impedance, 1 MΩ | 100 mV/div | 990 kΩ | | 1.01 MΩ |
| Channel 1 Input Impedance, 50 Ω | 10 mV/div | 48.5 Ω | | 51.5 Ω |
| | 100 mV/div | 48.5 Ω | | 51.5 Ω |
| Channel 2 Input Impedance, 1 MΩ | 100 mV/div | 990 kΩ | | 1.01 MΩ |
| Channel 2 Input Impedance, 50 Ω | 10 mV/div | 48.5 Ω | | 51.5 Ω |
| | 100 mV/div | 48.5 Ω | | 51.5 Ω |
| Channel 3 Input Impedance, 1 MΩ | 100 mV/div | 990 kΩ | | 1.01 MΩ |
| Channel 3 Input Impedance, 50 Ω | 10 mV/div | 48.5 Ω | | 51.5 Ω |
| | 100 mV/div | 48.5 Ω | | 51.5 Ω |
| Channel 4 Input Impedance, 1 MΩ | 100 mV/div | 990 kΩ | | 1.01 MΩ |
| Channel 4, Input Impedance, 50 Ω | 10 mV/div | 48.5 Ω | | 51.5 Ω |
| | 100 mV/div | 48.5 Ω | | 51.5 Ω |

## DC Gain Accuracy test record

| DC Gain Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Bandwidth** | **Vertical scale** | **Low limit** | **Test result** | **High limit** |
| Channel 1 DC Gain Accuracy, 0 V offset, 0 V vertical position, 50 Ω | 20 MHz | 1 mV/div | -4% | | 4% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |

Table continued…

| DC Gain Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Bandwidth** | **Vertical scale** | **Low limit** | **Test result** | **High limit** |
| Channel 1 DC Gain Accuracy, 0 V offset, 0 V vertical position, 1 MΩ | 20 MHz | 1 mV/div | -2.5% | | 2.5% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |
| Channel 2 DC Gain Accuracy, 0 V offset, 0 V vertical position, 50 Ω | 20 MHz | 1 mV/div | -4% | | 4% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |

Table continued…

| DC Gain Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Bandwidth** | **Vertical scale** | **Low limit** | **Test result** | **High limit** |
| Channel 2 DC Gain Accuracy, 0 V offset, 0 V vertical position, 1 MΩ | 20 MHz | 1 mV/div | -2.5% | | 2.5% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |
| Channel 3 DC Gain Accuracy, 0 V offset, 0 V vertical position, 50 Ω | 20 MHz | 1 mV/div | -4% | | 4% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |

Table continued…

| DC Gain Accuracy | | | | | |
|---|---|---|---|---|---|
| **Performance checks** | **Bandwidth** | **Vertical scale** | **Low limit** | **Test result** | **High limit** |
| Channel 3 DC Gain Accuracy, 0 V offset, 0 V vertical position, 1 MΩ | 20 MHz | 1 mV/div | -2.5% | | 2.5% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |
| Channel 4 DC Gain Accuracy, 0 V offset, 0 V vertical position, 50 Ω | 20 MHz | 1 mV/div | -4% | | 4% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |
| Channel 4 DC Gain Accuracy, 0 V offset, 0 V vertical position, 1 MΩ | 20 MHz | 1 mV/div | -2.5% | | 2.5% |
| | | 2 mV/div | -2% | | 2% |
| | | 5 mV/div | -2% | | 2% |
| | | 10 mV/div | -2% | | 2% |
| | | 20 mV/div | -2% | | 2% |
| | | 50 mV/div | -2% | | 2% |
| | | 100 mV/div | -2% | | 2% |
| | | 200 mV/div | -2% | | 2% |
| | | 500 mV/div | -2% | | 2% |
| | | 1 V/div | -2% | | 2% |
| | 250 MHz | 20 mV/div | -2% | | 2% |
| | FULL | 20 mV/div | -2% | | 2% |

## Random Noise, sample acquisition mode test record

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [14] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 1 mV/div | 10 GHz limit | | 259 uV |
| | | 9 GHz limit | | 236 uV |
| | | 8 GHz limit | | 216 uV |
| | | 7 GHz limit | | 197 uV |
| | | 6 GHz limit | | 175 uV |
| | 2 mV/div | 10 GHz limit | | 266 uV |
| | | 9 GHz limit | | 242 uV |
| | | 8 GHz limit | | 221 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 1** | 5 mV/div | 10 GHz limit | | 322 uV |
| | | 9 GHz limit | | 293 uV |
| | | 8 GHz limit | | 271 uV |
| | | 7 GHz limit | | 247 uV |
| | | 6 GHz limit | | 220 uV |
| | 10 mV/div | 10 GHz limit | | 488 uV |
| | | 9 GHz limit | | 445 uV |
| | | 8 GHz limit | | 406 uV |
| | | 7 GHz limit | | 370 uV |
| | | 6 GHz limit | | 330 uV |

Table continued…

[14] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [14] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 20 mV/div | 10 GHz limit | | 850 uV |
| | | 9 GHz limit | | 775 uV |
| | | 8 GHz limit | | 707 uV |
| | | 7 GHz limit | | 645 uV |
| | | 6 GHz limit | | 581 uV |
| | 50 mV/div | 10 GHz limit | | 1.96 mV |
| | | 9 GHz limit | | 1.79 mV |
| | | 8 GHz limit | | 1.63 mV |
| | | 7 GHz limit | | 1.5 mV |
| | | 6 GHz limit | | 1.34 mV |
| **Channel 1** | 100 mV/div | 10 GHz limit | | 5.05 mV |
| | | 9 GHz limit | | 4.55 mV |
| | | 8 GHz limit | | 4.15 mV |
| | | 7 GHz limit | | 3.79 mV |
| | | 6 GHz limit | | 3.38 mV |
| | 1 V/div | 10 GHz limit | | 38.8 mV |
| | | 9 GHz limit | | 35.4 mV |
| | | 8 GHz limit | | 32.6 mV |
| | | 7 GHz limit | | 29.7 mV |
| | | 6 GHz limit | | 26.8 mV |

[14] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [15] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 1** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[15] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [15] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 1** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[15] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [16] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 1 mV/div | 5 GHz | | 162 uV |
| | | 4 GHz | | 142 uV |
| | | 3 GHz | | 123 uV |
| | 2 mV/div | 5 GHz | | 168 uV |
| | | 4 GHz | | 148 uV |
| | | 3 GHz | | 127 uV |
| **Channel 1** | 5 mV/div | 5 GHz | | 233 uV |
| | | 4 GHz | | 203 uV |
| | | 3 GHz | | 173 uV |
| | 10 mV/div | 5 GHz | | 388 uV |
| | | 4 GHz | | 334 uV |
| | | 3 GHz | | 281 uV |
| **Channel 1** | 20 mV/div | 5 GHz | | 715 uV |
| | | 4 GHz | | 609 uV |
| | | 3 GHz | | 518 uV |
| | 50 mV/div | 5 GHz | | 1.71 mV |
| | | 4 GHz | | 1.47 mV |
| | | 3 GHz | | 1.25 mV |
| **Channel 1** | 100 mV/div | 5 GHz | | 3.92 mV |
| | | 4 GHz | | 3.38 mV |
| | | 3 GHz | | 2.84 mV |
| | 1 V/div | 5 GHz | | 34.2 mV |
| | | 4 GHz | | 29.4 mV |
| | | 3 GHz | | 25 mV |

[16] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [17] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 1** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 1** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 1** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[17] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [17] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 1** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 1** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 1** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[17] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [18] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 1** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 1** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 1** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[18] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [18] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 1** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 1** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 1** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 1** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[18] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [20] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 2** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[20] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [20] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 2** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[20] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [21] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 2** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 2** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 2** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[21] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [22] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 2** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 2** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 2** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[22] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [22] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 2** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 2** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 2** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[22] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [23] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 2** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 2** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 2** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[23] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [23] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 2** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 2** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 2** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 2** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[23] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [24] | Test result (mV) | High limit |
| **Models: MSO64B** | | | | |
| **Channel 3** | 1 mV/div | 10 GHz limit | | 259 uV |
| | | 9 GHz limit | | 236 uV |
| | | 8 GHz limit | | 216 uV |
| | | 7 GHz limit | | 197 uV |
| | | 6 GHz limit | | 175 uV |
| | 2 mV/div | 10 GHz limit | | 266 uV |
| | | 9 GHz limit | | 242 uV |
| | | 8 GHz limit | | 221 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 3** | 5 mV/div | 10 GHz limit | | 322 uV |
| | | 9 GHz limit | | 293 uV |
| | | 8 GHz limit | | 271 uV |
| | | 7 GHz limit | | 247 uV |
| | | 6 GHz limit | | 220 uV |
| | 10 mV/div | 10 GHz limit | | 488 uV |
| | | 9 GHz limit | | 445 uV |
| | | 8 GHz limit | | 406 uV |
| | | 7 GHz limit | | 370 uV |
| | | 6 GHz limit | | 330 uV |

Table continued…

[24] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [24] | Test result (mV) | High limit |
| **Models: MSO64B** | | | | |
| **Channel 3** | 20 mV/div | 10 GHz limit | | 850 uV |
| | | 9 GHz limit | | 775 uV |
| | | 8 GHz limit | | 707 uV |
| | | 7 GHz limit | | 645 uV |
| | | 6 GHz limit | | 581 uV |
| | 50 mV/div | 10 GHz limit | | 1.96 mV |
| | | 9 GHz limit | | 1.79 mV |
| | | 8 GHz limit | | 1.63 mV |
| | | 7 GHz limit | | 1.5 mV |
| | | 6 GHz limit | | 1.34 mV |
| **Channel 3** | 100 mV/div | 10 GHz limit | | 5.05 mV |
| | | 9 GHz limit | | 4.55 mV |
| | | 8 GHz limit | | 4.15 mV |
| | | 7 GHz limit | | 3.79 mV |
| | | 6 GHz limit | | 3.38 mV |
| | 1 V/div | 10 GHz limit | | 38.8 mV |
| | | 9 GHz limit | | 35.4 mV |
| | | 8 GHz limit | | 32.6 mV |
| | | 7 GHz limit | | 29.7 mV |
| | | 6 GHz limit | | 26.8 mV |

[24] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [25] | Test result (mV) | High limit |
| **Models: MSO64B** | | | | |
| **Channel 3** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 3** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[25] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [25] | Test result (mV) | High limit |
| **Models: MSO64B** | | | | |
| **Channel 3** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 3** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[25] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [26] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 3** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 3** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 3** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 3** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[26] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [27] | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | |
| **Channel 3** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 3** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 3** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 3** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[27] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [27] | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | |
| **Channel 3** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 3** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 3** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 3** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[27] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [28] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 3** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 3** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 3** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 3** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[28] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [28] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 3** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 3** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 3** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 3** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[28] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [29] | Test result (mV) | High limit |
| **Models: MSO66B** | | | | |
| **Channel 4** | 1 mV/div | 10 GHz limit | | 259 uV |
| | | 9 GHz limit | | 236 uV |
| | | 8 GHz limit | | 216 uV |
| | | 7 GHz limit | | 197 uV |
| | | 6 GHz limit | | 175 uV |
| | 2 mV/div | 10 GHz limit | | 266 uV |
| | | 9 GHz limit | | 242 uV |
| | | 8 GHz limit | | 221 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 4** | 5 mV/div | 10 GHz limit | | 322 uV |
| | | 9 GHz limit | | 293 uV |
| | | 8 GHz limit | | 271 uV |
| | | 7 GHz limit | | 247 uV |
| | | 6 GHz limit | | 220 uV |
| | 10 mV/div | 10 GHz limit | | 488 uV |
| | | 9 GHz limit | | 445 uV |
| | | 8 GHz limit | | 406 uV |
| | | 7 GHz limit | | 370 uV |
| | | 6 GHz limit | | 330 uV |

Table continued…

[29] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [29] | Test result (mV) | High limit |
| **Models: MSO66B** | | | | |
| **Channel 4** | 20 mV/div | 10 GHz limit | | 850 uV |
| | | 9 GHz limit | | 775 uV |
| | | 8 GHz limit | | 707 uV |
| | | 7 GHz limit | | 645 uV |
| | | 6 GHz limit | | 581 uV |
| | 50 mV/div | 10 GHz limit | | 1.96 mV |
| | | 9 GHz limit | | 1.79 mV |
| | | 8 GHz limit | | 1.63 mV |
| | | 7 GHz limit | | 1.5 mV |
| | | 6 GHz limit | | 1.34 mV |
| **Channel 4** | 100 mV/div | 10 GHz limit | | 5.05 mV |
| | | 9 GHz limit | | 4.55 mV |
| | | 8 GHz limit | | 4.15 mV |
| | | 7 GHz limit | | 3.79 mV |
| | | 6 GHz limit | | 3.38 mV |
| | 1 V/div | 10 GHz limit | | 38.8 mV |
| | | 9 GHz limit | | 35.4 mV |
| | | 8 GHz limit | | 32.6 mV |
| | | 7 GHz limit | | 29.7 mV |
| | | 6 GHz limit | | 26.8 mV |

[29] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [30] | Test result (mV) | High limit |
| **Models: MSO66B, MSO64B** | | | | |
| **Channel 4** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 4** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[30] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [30] | Test result (mV) | High limit |
| **Models: MSO66B, MSO64B** | | | | |
| **Channel 4** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 4** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[30] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [31] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 4** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 4** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 4** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 4** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[31] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [32] | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | |
| **Channel 4** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 4** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 4** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 4** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[32] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [32] | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | |
| **Channel 4** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 4** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 4** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 4** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[32] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [33] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 4** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 4** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 4** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 4** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[33] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [33] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | |
| **Channel 4** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 4** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 4** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 4** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[33] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [34] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 5** | 1 mV/div | 10 GHz limit | | 259 uV |
| | | 9 GHz limit | | 236 uV |
| | | 8 GHz limit | | 216 uV |
| | | 7 GHz limit | | 197 uV |
| | | 6 GHz limit | | 175 uV |
| | 2 mV/div | 10 GHz limit | | 266 uV |
| | | 9 GHz limit | | 242 uV |
| | | 8 GHz limit | | 221 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 5** | 5 mV/div | 10 GHz limit | | 322 uV |
| | | 9 GHz limit | | 293 uV |
| | | 8 GHz limit | | 271 uV |
| | | 7 GHz limit | | 247 uV |
| | | 6 GHz limit | | 220 uV |
| | 10 mV/div | 10 GHz limit | | 488 uV |
| | | 9 GHz limit | | 445 uV |
| | | 8 GHz limit | | 406 uV |
| | | 7 GHz limit | | 370 uV |
| | | 6 GHz limit | | 330 uV |

Table continued…

[34] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 50 GS/s** | | | |
| | V/div | Bandwidth [34] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 5** | 20 mV/div | 10 GHz limit | | 850 uV |
| | | 9 GHz limit | | 775 uV |
| | | 8 GHz limit | | 707 uV |
| | | 7 GHz limit | | 645 uV |
| | | 6 GHz limit | | 581 uV |
| | 50 mV/div | 10 GHz limit | | 1.96 mV |
| | | 9 GHz limit | | 1.79 mV |
| | | 8 GHz limit | | 1.63 mV |
| | | 7 GHz limit | | 1.5 mV |
| | | 6 GHz limit | | 1.34 mV |
| **Channel 5** | 100 mV/div | 10 GHz limit | | 5.05 mV |
| | | 9 GHz limit | | 4.55 mV |
| | | 8 GHz limit | | 4.15 mV |
| | | 7 GHz limit | | 3.79 mV |
| | | 6 GHz limit | | 3.38 mV |
| | 1 V/div | 10 GHz limit | | 38.8 mV |
| | | 9 GHz limit | | 35.4 mV |
| | | 8 GHz limit | | 32.6 mV |
| | | 7 GHz limit | | 29.7 mV |
| | | 6 GHz limit | | 26.8 mV |

[34] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [35] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 5** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[35] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [35] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 5** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[35] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [36] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 5** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 5** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 5** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[36] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [37] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 5** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 5** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 5** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[37] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [37] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 5** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 5** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 5** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[37] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [38] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 5** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 5** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 5** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[38] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [38] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 5** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 5** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 5** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 5** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[38] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [40] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 6** | 1 mV/div | 10 GHz limit | | 281 uV |
| | | 9 GHz limit | | 253 uV |
| | | 8 GHz limit | | 223 uV |
| | | 7 GHz limit | | 199 uV |
| | | 6 GHz limit | | 179 uV |
| | 2 mV/div | 10 GHz limit | | 288 uV |
| | | 9 GHz limit | | 260 uV |
| | | 8 GHz limit | | 224 uV |
| | | 7 GHz limit | | 202 uV |
| | | 6 GHz limit | | 180 uV |
| **Channel 6** | 5 mV/div | 10 GHz limit | | 374 uV |
| | | 9 GHz limit | | 337 uV |
| | | 8 GHz limit | | 293 uV |
| | | 7 GHz limit | | 271 uV |
| | | 6 GHz limit | | 233 uV |
| | 10 mV/div | 10 GHz limit | | 600 uV |
| | | 9 GHz limit | | 541 uV |
| | | 8 GHz limit | | 482 uV |
| | | 7 GHz limit | | 440 uV |
| | | 6 GHz limit | | 388 uV |

Table continued…

[40] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 25 GS/s** | | | |
| | V/div | Bandwidth [40] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 6** | 20 mV/div | 10 GHz limit | | 1.08 mV |
| | | 9 GHz limit | | 976 uV |
| | | 8 GHz limit | | 890 uV |
| | | 7 GHz limit | | 793 uV |
| | | 6 GHz limit | | 691 uV |
| | 50 mV/div | 10 GHz limit | | 2.53 mV |
| | | 9 GHz limit | | 2.3 mV |
| | | 8 GHz limit | | 2.1 mV |
| | | 7 GHz limit | | 1.85 mV |
| | | 6 GHz limit | | 1.67 mV |
| **Channel 6** | 100 mV/div | 10 GHz limit | | 6.14 mV |
| | | 9 GHz limit | | 5.54 mV |
| | | 8 GHz limit | | 4.88 mV |
| | | 7 GHz limit | | 4.4 mV |
| | | 6 GHz limit | | 3.83 mV |
| | 1 V/div | 10 GHz limit | | 49.9 mV |
| | | 9 GHz limit | | 46.1 mV |
| | | 8 GHz limit | | 42 mV |
| | | 7 GHz limit | | 37 mV |
| | | 6 GHz limit | | 33.4 mV |

[40] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [41] | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 6** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 6** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 6** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 6** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[41] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [42] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 6** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 6** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 6** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 6** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[42] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 25 GS/s | |
| | V/div | Bandwidth [42] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 6** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 6** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 6** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 6** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[42] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [43] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 6** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 6** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 6** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 6** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[43] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [43] | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | |
| **Channel 6** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 6** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 6** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 6** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[43] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [44] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 7** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 7** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 7** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 7** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[44] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [45] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 7** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 7** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 7** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 7** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[45] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [45] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 7** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 7** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 7** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 7** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[45] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| **Performance checks** | **50 Ω, 12.5 GS/s** | | | |
| | V/div | Bandwidth [46] | Test result (mV) | High limit |
| **Models: MSO68B** | | | | |
| **Channel 8** | 1 mV/div | 5GHz | | 162 uV |
| | | 4GHz | | 142 uV |
| | | 3GHz | | 123 uV |
| | 2 mV/div | 5GHz | | 168 uV |
| | | 4GHz | | 148 uV |
| | | 3GHz | | 127 uV |
| **Channel 8** | 5 mV/div | 5GHz | | 233 uV |
| | | 4GHz | | 203 uV |
| | | 3GHz | | 173 uV |
| | 10 mV/div | 5GHz | | 388 uV |
| | | 4GHz | | 334 uV |
| | | 3GHz | | 281 uV |
| **Channel 8** | 20 mV/div | 5GHz | | 715 uV |
| | | 4GHz | | 609 uV |
| | | 3GHz | | 518 uV |
| | 50 mV/div | 5GHz | | 1.71 mV |
| | | 4GHz | | 1.47 mV |
| | | 3GHz | | 1.25 mV |
| **Channel 8** | 100 mV/div | 5GHz | | 3.92 mV |
| | | 4GHz | | 3.38 mV |
| | | 3GHz | | 2.84 mV |
| | 1 V/div | 5GHz | | 34.2 mV |
| | | 4GHz | | 29.4 mV |
| | | 3GHz | | 25 mV |

[46] Start with the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [47] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 8** | 1 mV/div | 500 MHz limit | | 262 uV |
| | | 350 MHz limit | | 190 uV |
| | | 250 MHz limit | | 153 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 102 uV |
| **Channel 8** | 2 mV/div | 500 MHz limit | | 285 uV |
| | | 350 MHz limit | | 195 uV |
| | | 250 MHz limit | | 156 uV |
| | | 200 MHz limit | | 153 uV |
| | | 20 MHz limit | | 111 uV |
| **Channel 8** | 5 mV/div | 500 MHz limit | | 311 uV |
| | | 350 MHz limit | | 223 uV |
| | | 250 MHz limit | | 183 uV |
| | | 200 MHz limit | | 175 uV |
| | | 20 MHz limit | | 140 uV |
| **Channel 8** | 10 mV/div | 500 MHz limit | | 370 uV |
| | | 350 MHz limit | | 281 uV |
| | | 250 MHz limit | | 259 uV |
| | | 200 MHz limit | | 242 uV |
| | | 20 MHz limit | | 226 uV |

Table continued…

[47] Full = the highest bandwidth setting you can select.

| Random Noise, sample acquisition mode: MSO68B, MSO66B, MSO64B | | | | |
|---|---|---|---|---|
| Performance checks | | | 1 MΩ, 12.5 GS/s | |
| | V/div | Bandwidth [47] | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | |
| **Channel 8** | 20 mV/div | 500 MHz limit | | 536 uV |
| | | 350 MHz limit | | 473 uV |
| | | 250 MHz limit | | 398 uV |
| | | 200 MHz limit | | 398 uV |
| | | 20 MHz limit | | 398 uV |
| **Channel 8** | 50 mV/div | 500 MHz limit | | 1.1 mV |
| | | 350 MHz limit | | 896 uV |
| | | 250 MHz limit | | 994 uV |
| | | 200 MHz limit | | 994 uV |
| | | 20 MHz limit | | 994 uV |
| **Channel 8** | 100 mV/div | 500 MHz limit | | 2.39 mV |
| | | 350 MHz limit | | 2.08 mV |
| | | 250 MHz limit | | 1.99 mV |
| | | 200 MHz limit | | 1.99 mV |
| | | 20 MHz limit | | 1.99 mV |
| **Channel 8** | 1 V/div | 500 MHz limit | | 25.9 mV |
| | | 350 MHz limit | | 22.3 mV |
| | | 250 MHz limit | | 22.1 mV |
| | | 200 MHz limit | | 21.8 mV |
| | | 20 MHz limit | | 19.9 mV |

[47] Full = the highest bandwidth setting you can select.

## Random Noise, High Res mode test record

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 1 mV/div | 5 GHz | | | | 156 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 118 uV |
| | | 2.5 GHz limit | | | | 107 uV |
| | | 2 GHz limit | | | | 97.4 uV |
| | | 1 GHz limit | | | | 72.2 uV |
| | | 500 MHz limit | | | | 52.9 uV |
| | | 350 MHz limit | | | | 45 uV |
| | | 250 MHz limit | | | | 42 uV |
| | | 200 MHz limit | | | | 36.2 uV |
| | | 20 MHz limit | | | | 13 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 2 mV/div | 5 GHz | | | | 158 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 120 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 98.7 uV |
| | | 1 GHz limit | | | | 73.2 uV |
| | | 500 MHz limit | | | | 53.6 uV |
| | | 350 MHz limit | | | | 45.7 uV |
| | | 250 MHz limit | | | | 42.6 uV |
| | | 200 MHz limit | | | | 36.7 uV |
| | | 20 MHz limit | | | | 13.2 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 5 mV/div | 5 GHz | | | | 189 uV |
| | | 4 GHz limit | | | | 165 uV |
| | | 3 GHz limit | | | | 142 uV |
| | | 2.5 GHz limit | | | | 128 uV |
| | | 2 GHz limit | | | | 115 uV |
| | | 1 GHz limit | | | | 84.6 uV |
| | | 500 MHz limit | | | | 61.3 uV |
| | | 350 MHz limit | | | | 52.2 uV |
| | | 250 MHz limit | | | | 48.7 uV |
| | | 200 MHz limit | | | | 41.9 uV |
| | | 20 MHz limit | | | | 15 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 10 mV/div | 5 GHz | | | | 278 uV |
| | | 4 GHz limit | | | | 242 uV |
| | | 3 GHz limit | | | | 203 uV |
| | | 2.5 GHz limit | | | | 181 uV |
| | | 2 GHz limit | | | | 163 uV |
| | | 1 GHz limit | | | | 117 uV |
| | | 500 MHz limit | | | | 84.8 uV |
| | | 350 MHz limit | | | | 70.5 uV |
| | | 250 MHz limit | | | | 65.8 uV |
| | | 200 MHz limit | | | | 56.7 uV |
| | | 20 MHz limit | | | | 20.6 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 20 mV/div | 5 GHz | | | | 478 uV |
| | | 4 GHz limit | | | | 412 uV |
| | | 3 GHz limit | | | | 346 uV |
| | | 2.5 GHz limit | | | | 309 uV |
| | | 2 GHz limit | | | | 275 uV |
| | | 1 GHz limit | | | | 195 uV |
| | | 500 MHz limit | | | | 141 uV |
| | | 350 MHz limit | | | | 116 uV |
| | | 250 MHz limit | | | | 107 uV |
| | | 200 MHz limit | | | | 93.2 uV |
| | | 20 MHz limit | | | | 34.2 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 50 mV/div | 5 GHz | | | | 1.09 mV |
| | | 4 GHz limit | | | | 949 uV |
| | | 3 GHz limit | | | | 790 uV |
| | | 2.5 GHz limit | | | | 704 uV |
| | | 2 GHz limit | | | | 627 uV |
| | | 1 GHz limit | | | | 444 uV |
| | | 500 MHz limit | | | | 325 uV |
| | | 350 MHz limit | | | | 261 uV |
| | | 250 MHz limit | | | | 241 uV |
| | | 200 MHz limit | | | | 210 uV |
| | | 20 MHz limit | | | | 79 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 100 mV/div | 5 GHz | | | | 2.81 mV |
| | | 4 GHz limit | | | | 2.45 mV |
| | | 3 GHz limit | | | | 2.06 mV |
| | | 2.5 GHz limit | | | | 1.83 mV |
| | | 2 GHz limit | | | | 1.65 mV |
| | | 1 GHz limit | | | | 1.17 mV |
| | | 500 MHz limit | | | | 858 uV |
| | | 350 MHz limit | | | | 705 uV |
| | | 250 MHz limit | | | | 658 uV |
| | | 200 MHz limit | | | | 573 uV |
| | | 20 MHz limit | | | | 203 uV |

Table continued…

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [48] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 1 V/div | 5 GHz | | | | 21.8 mV |
| | | 4 GHz limit | | | | 18.8 mV |
| | | 3 GHz limit | | | | 15.8 mV |
| | | 2.5 GHz limit | | | | 13.9 mV |
| | | 2 GHz limit | | | | 12.4 mV |
| | | 1 GHz limit | | | | 8.78 mV |
| | | 500 MHz limit | | | | 6.51 mV |
| | | 350 MHz limit | | | | 5.11 mV |
| | | 250 MHz limit | | | | 4.77 mV |
| | | 200 MHz limit | | | | 4.15 mV |
| | | 20 MHz limit | | | | 1.56 mV |

[48] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [49] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 1** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[49] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [50] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 1** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[50] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [50] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 1** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[50] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [50] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 1** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[50] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [50] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 1** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 1** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[50] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [52] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 2** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[52] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [53] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 2** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[53] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [53] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 2** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[53] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [53] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 2** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[53] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [53] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 2** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 2** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[53] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 1 mV/div | 5 GHz | | | | 156 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 118 uV |
| | | 2.5 GHz limit | | | | 107 uV |
| | | 2 GHz limit | | | | 97.4 uV |
| | | 1 GHz limit | | | | 72.2 uV |
| | | 500 MHz limit | | | | 52.9 uV |
| | | 350 MHz limit | | | | 45 uV |
| | | 250 MHz limit | | | | 42 uV |
| | | 200 MHz limit | | | | 36.2 uV |
| | | 20 MHz limit | | | | 13 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 2 mV/div | 5 GHz | | | | 158 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 120 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 98.7 uV |
| | | 1 GHz limit | | | | 73.2 uV |
| | | 500 MHz limit | | | | 53.6 uV |
| | | 350 MHz limit | | | | 45.7 uV |
| | | 250 MHz limit | | | | 42.6 uV |
| | | 200 MHz limit | | | | 36.7 uV |
| | | 20 MHz limit | | | | 13.2 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 5 mV/div | 5 GHz | | | | 189 uV |
| | | 4 GHz limit | | | | 165 uV |
| | | 3 GHz limit | | | | 142 uV |
| | | 2.5 GHz limit | | | | 128 uV |
| | | 2 GHz limit | | | | 115 uV |
| | | 1 GHz limit | | | | 84.6 uV |
| | | 500 MHz limit | | | | 61.3 uV |
| | | 350 MHz limit | | | | 52.2 uV |
| | | 250 MHz limit | | | | 48.7 uV |
| | | 200 MHz limit | | | | 41.9 uV |
| | | 20 MHz limit | | | | 15 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 10 mV/div | 5 GHz | | | | 278 uV |
| | | 4 GHz limit | | | | 242 uV |
| | | 3 GHz limit | | | | 203 uV |
| | | 2.5 GHz limit | | | | 181 uV |
| | | 2 GHz limit | | | | 163 uV |
| | | 1 GHz limit | | | | 117 uV |
| | | 500 MHz limit | | | | 84.8 uV |
| | | 350 MHz limit | | | | 70.5 uV |
| | | 250 MHz limit | | | | 65.8 uV |
| | | 200 MHz limit | | | | 56.7 uV |
| | | 20 MHz limit | | | | 20.6 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 20 mV/div | 5 GHz | | | | 478 uV |
| | | 4 GHz limit | | | | 412 uV |
| | | 3 GHz limit | | | | 346 uV |
| | | 2.5 GHz limit | | | | 309 uV |
| | | 2 GHz limit | | | | 275 uV |
| | | 1 GHz limit | | | | 195 uV |
| | | 500 MHz limit | | | | 141 uV |
| | | 350 MHz limit | | | | 116 uV |
| | | 250 MHz limit | | | | 107 uV |
| | | 200 MHz limit | | | | 93.2 uV |
| | | 20 MHz limit | | | | 34.2 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 50 mV/div | 5 GHz | | | | 1.09 mV |
| | | 4 GHz limit | | | | 949 uV |
| | | 3 GHz limit | | | | 790 uV |
| | | 2.5 GHz limit | | | | 704 uV |
| | | 2 GHz limit | | | | 627 uV |
| | | 1 GHz limit | | | | 444 uV |
| | | 500 MHz limit | | | | 325 uV |
| | | 350 MHz limit | | | | 261 uV |
| | | 250 MHz limit | | | | 241 uV |
| | | 200 MHz limit | | | | 210 uV |
| | | 20 MHz limit | | | | 79 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 100 mV/div | 5 GHz | | | | 2.81 mV |
| | | 4 GHz limit | | | | 2.45 mV |
| | | 3 GHz limit | | | | 2.06 mV |
| | | 2.5 GHz limit | | | | 1.83 mV |
| | | 2 GHz limit | | | | 1.65 mV |
| | | 1 GHz limit | | | | 1.17 mV |
| | | 500 MHz limit | | | | 858 uV |
| | | 350 MHz limit | | | | 705 uV |
| | | 250 MHz limit | | | | 658 uV |
| | | 200 MHz limit | | | | 573 uV |
| | | 20 MHz limit | | | | 203 uV |

Table continued…

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [54] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO64B** | | | | | | |
| **Channel 3** | 1 V/div | 5 GHz | | | | 21.8 mV |
| | | 4 GHz limit | | | | 18.8 mV |
| | | 3 GHz limit | | | | 15.8 mV |
| | | 2.5 GHz limit | | | | 13.9 mV |
| | | 2 GHz limit | | | | 12.4 mV |
| | | 1 GHz limit | | | | 8.78 mV |
| | | 500 MHz limit | | | | 6.51 mV |
| | | 350 MHz limit | | | | 5.11 mV |
| | | 250 MHz limit | | | | 4.77 mV |
| | | 200 MHz limit | | | | 4.15 mV |
| | | 20 MHz limit | | | | 1.56 mV |

[54] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [55] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 3** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[55] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [56] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 3** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[56] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [56] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 3** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[56] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [56] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 3** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[56] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [56] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 3** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 3** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[56] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 1 mV/div | 5 GHz | | | | 156 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 118 uV |
| | | 2.5 GHz limit | | | | 107 uV |
| | | 2 GHz limit | | | | 97.4 uV |
| | | 1 GHz limit | | | | 72.2 uV |
| | | 500 MHz limit | | | | 52.9 uV |
| | | 350 MHz limit | | | | 45 uV |
| | | 250 MHz limit | | | | 42 uV |
| | | 200 MHz limit | | | | 36.2 uV |
| | | 20 MHz limit | | | | 13 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 2 mV/div | 5 GHz | | | | 158 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 120 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 98.7 uV |
| | | 1 GHz limit | | | | 73.2 uV |
| | | 500 MHz limit | | | | 53.6 uV |
| | | 350 MHz limit | | | | 45.7 uV |
| | | 250 MHz limit | | | | 42.6 uV |
| | | 200 MHz limit | | | | 36.7 uV |
| | | 20 MHz limit | | | | 13.2 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 5 mV/div | 5 GHz | | | | 189 uV |
| | | 4 GHz limit | | | | 165 uV |
| | | 3 GHz limit | | | | 142 uV |
| | | 2.5 GHz limit | | | | 128 uV |
| | | 2 GHz limit | | | | 115 uV |
| | | 1 GHz limit | | | | 84.6 uV |
| | | 500 MHz limit | | | | 61.3 uV |
| | | 350 MHz limit | | | | 52.2 uV |
| | | 250 MHz limit | | | | 48.7 uV |
| | | 200 MHz limit | | | | 41.9 uV |
| | | 20 MHz limit | | | | 15 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 10 mV/div | 5 GHz | | | | 278 uV |
| | | 4 GHz limit | | | | 242 uV |
| | | 3 GHz limit | | | | 203 uV |
| | | 2.5 GHz limit | | | | 181 uV |
| | | 2 GHz limit | | | | 163 uV |
| | | 1 GHz limit | | | | 117 uV |
| | | 500 MHz limit | | | | 84.8 uV |
| | | 350 MHz limit | | | | 70.5 uV |
| | | 250 MHz limit | | | | 65.8 uV |
| | | 200 MHz limit | | | | 56.7 uV |
| | | 20 MHz limit | | | | 20.6 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 20 mV/div | 5 GHz | | | | 478 uV |
| | | 4 GHz limit | | | | 412 uV |
| | | 3 GHz limit | | | | 346 uV |
| | | 2.5 GHz limit | | | | 309 uV |
| | | 2 GHz limit | | | | 275 uV |
| | | 1 GHz limit | | | | 195 uV |
| | | 500 MHz limit | | | | 141 uV |
| | | 350 MHz limit | | | | 116 uV |
| | | 250 MHz limit | | | | 107 uV |
| | | 200 MHz limit | | | | 93.2 uV |
| | | 20 MHz limit | | | | 34.2 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 50 mV/div | 5 GHz | | | | 1.09 mV |
| | | 4 GHz limit | | | | 949 uV |
| | | 3 GHz limit | | | | 790 uV |
| | | 2.5 GHz limit | | | | 704 uV |
| | | 2 GHz limit | | | | 627 uV |
| | | 1 GHz limit | | | | 444 uV |
| | | 500 MHz limit | | | | 325 uV |
| | | 350 MHz limit | | | | 261 uV |
| | | 250 MHz limit | | | | 241 uV |
| | | 200 MHz limit | | | | 210 uV |
| | | 20 MHz limit | | | | 79 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 100 mV/div | 5 GHz | | | | 2.81 mV |
| | | 4 GHz limit | | | | 2.45 mV |
| | | 3 GHz limit | | | | 2.06 mV |
| | | 2.5 GHz limit | | | | 1.83 mV |
| | | 2 GHz limit | | | | 1.65 mV |
| | | 1 GHz limit | | | | 1.17 mV |
| | | 500 MHz limit | | | | 858 uV |
| | | 350 MHz limit | | | | 705 uV |
| | | 250 MHz limit | | | | 658 uV |
| | | 200 MHz limit | | | | 573 uV |
| | | 20 MHz limit | | | | 203 uV |

Table continued…

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [57] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B** | | | | | | |
| **Channel 4** | 1 V/div | 5 GHz | | | | 21.8 mV |
| | | 4 GHz limit | | | | 18.8 mV |
| | | 3 GHz limit | | | | 15.8 mV |
| | | 2.5 GHz limit | | | | 13.9 mV |
| | | 2 GHz limit | | | | 12.4 mV |
| | | 1 GHz limit | | | | 8.78 mV |
| | | 500 MHz limit | | | | 6.51 mV |
| | | 350 MHz limit | | | | 5.11 mV |
| | | 250 MHz limit | | | | 4.77 mV |
| | | 200 MHz limit | | | | 4.15 mV |
| | | 20 MHz limit | | | | 1.56 mV |

[57] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

58 Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [58] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 4** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[58] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [59] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 4** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[59] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [59] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 4** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[59] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [59] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 4** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[59] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [59] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B, MSO64B** | | | | | | |
| **Channel 4** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 4** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[59] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 1 mV/div | 5 GHz | | | | 156 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 118 uV |
| | | 2.5 GHz limit | | | | 107 uV |
| | | 2 GHz limit | | | | 97.4 uV |
| | | 1 GHz limit | | | | 72.2 uV |
| | | 500 MHz limit | | | | 52.9 uV |
| | | 350 MHz limit | | | | 45 uV |
| | | 250 MHz limit | | | | 42 uV |
| | | 200 MHz limit | | | | 36.2 uV |
| | | 20 MHz limit | | | | 13 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 2 mV/div | 5 GHz | | | | 158 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 120 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 98.7 uV |
| | | 1 GHz limit | | | | 73.2 uV |
| | | 500 MHz limit | | | | 53.6 uV |
| | | 350 MHz limit | | | | 45.7 uV |
| | | 250 MHz limit | | | | 42.6 uV |
| | | 200 MHz limit | | | | 36.7 uV |
| | | 20 MHz limit | | | | 13.2 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 5 mV/div | 5 GHz | | | | 189 uV |
| | | 4 GHz limit | | | | 165 uV |
| | | 3 GHz limit | | | | 142 uV |
| | | 2.5 GHz limit | | | | 128 uV |
| | | 2 GHz limit | | | | 115 uV |
| | | 1 GHz limit | | | | 84.6 uV |
| | | 500 MHz limit | | | | 61.3 uV |
| | | 350 MHz limit | | | | 52.2 uV |
| | | 250 MHz limit | | | | 48.7 uV |
| | | 200 MHz limit | | | | 41.9 uV |
| | | 20 MHz limit | | | | 15 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 10 mV/div | 5 GHz | | | | 278 uV |
| | | 4 GHz limit | | | | 242 uV |
| | | 3 GHz limit | | | | 203 uV |
| | | 2.5 GHz limit | | | | 181 uV |
| | | 2 GHz limit | | | | 163 uV |
| | | 1 GHz limit | | | | 117 uV |
| | | 500 MHz limit | | | | 84.8 uV |
| | | 350 MHz limit | | | | 70.5 uV |
| | | 250 MHz limit | | | | 65.8 uV |
| | | 200 MHz limit | | | | 56.7 uV |
| | | 20 MHz limit | | | | 20.6 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 20 mV/div | 5 GHz | | | | 478 uV |
| | | 4 GHz limit | | | | 412 uV |
| | | 3 GHz limit | | | | 346 uV |
| | | 2.5 GHz limit | | | | 309 uV |
| | | 2 GHz limit | | | | 275 uV |
| | | 1 GHz limit | | | | 195 uV |
| | | 500 MHz limit | | | | 141 uV |
| | | 350 MHz limit | | | | 116 uV |
| | | 250 MHz limit | | | | 107 uV |
| | | 200 MHz limit | | | | 93.2 uV |
| | | 20 MHz limit | | | | 34.2 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 50 mV/div | 5 GHz | | | | 1.09 mV |
| | | 4 GHz limit | | | | 949 uV |
| | | 3 GHz limit | | | | 790 uV |
| | | 2.5 GHz limit | | | | 704 uV |
| | | 2 GHz limit | | | | 627 uV |
| | | 1 GHz limit | | | | 444 uV |
| | | 500 MHz limit | | | | 325 uV |
| | | 350 MHz limit | | | | 261 uV |
| | | 250 MHz limit | | | | 241 uV |
| | | 200 MHz limit | | | | 210 uV |
| | | 20 MHz limit | | | | 79 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 100 mV/div | 5 GHz | | | | 2.81 mV |
| | | 4 GHz limit | | | | 2.45 mV |
| | | 3 GHz limit | | | | 2.06 mV |
| | | 2.5 GHz limit | | | | 1.83 mV |
| | | 2 GHz limit | | | | 1.65 mV |
| | | 1 GHz limit | | | | 1.17 mV |
| | | 500 MHz limit | | | | 858 uV |
| | | 350 MHz limit | | | | 705 uV |
| | | 250 MHz limit | | | | 658 uV |
| | | 200 MHz limit | | | | 573 uV |
| | | 20 MHz limit | | | | 203 uV |

Table continued…

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 25 GS/s | |
| | V/div | Bandwidth [60] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 5** | 1 V/div | 5 GHz | | | | 21.8 mV |
| | | 4 GHz limit | | | | 18.8 mV |
| | | 3 GHz limit | | | | 15.8 mV |
| | | 2.5 GHz limit | | | | 13.9 mV |
| | | 2 GHz limit | | | | 12.4 mV |
| | | 1 GHz limit | | | | 8.78 mV |
| | | 500 MHz limit | | | | 6.51 mV |
| | | 350 MHz limit | | | | 5.11 mV |
| | | 250 MHz limit | | | | 4.77 mV |
| | | 200 MHz limit | | | | 4.15 mV |
| | | 20 MHz limit | | | | 1.56 mV |

[60] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [61] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 5** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[61] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [62] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 5** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[62] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [62] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 5** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[62] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [62] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 5** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[62] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [62] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 5** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 5** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[62] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 1 mV/div | 5 GHz | | | | 162 uV |
| | | 4 GHz limit | | | | 138 uV |
| | | 3 GHz limit | | | | 117 uV |
| | | 2.5 GHz limit | | | | 108 uV |
| | | 2 GHz limit | | | | 96.3 uV |
| | | 1 GHz limit | | | | 77.3 uV |
| | | 500 MHz limit | | 262 uV | | 56 uV |
| | | 350 MHz limit | | 190 uV | | 47.7 uV |
| | | 250 MHz limit | | 153 uV | | 46.1 uV |
| | | 200 MHz limit | | 149 uV | | 37.9 uV |
| | | 20 MHz limit | | 103 uV | | 13 uV |

Table continued…

[64] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 2 mV/div | 5 GHz | | | | 164 uV |
| | | 4 GHz limit | | | | 139 uV |
| | | 3 GHz limit | | | | 119 uV |
| | | 2.5 GHz limit | | | | 110 uV |
| | | 2 GHz limit | | | | 97.6 uV |
| | | 1 GHz limit | | | | 72.4 uV |
| | | 500 MHz limit | | 285 uV | | 56.2 uV |
| | | 350 MHz limit | | 195 uV | | 47.3 uV |
| | | 250 MHz limit | | 155 uV | | 46.7 uV |
| | | 200 MHz limit | | 153 uV | | 38 uV |
| | | 20 MHz limit | | 103 uV | | 13.3 uV |

Table continued…

[64] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 5 mV/div | 5 GHz | | | | 210 uV |
| | | 4 GHz limit | | | | 175 uV |
| | | 3 GHz limit | | | | 149 uV |
| | | 2.5 GHz limit | | | | 133 uV |
| | | 2 GHz limit | | | | 118 uV |
| | | 1 GHz limit | | | | 89.6 uV |
| | | 500 MHz limit | | 297 uV | | 68 uV |
| | | 350 MHz limit | | 205 uV | | 56.5 uV |
| | | 250 MHz limit | | 161 uV | | 54 uV |
| | | 200 MHz limit | | 154 uV | | 44.4 uV |
| | | 20 MHz limit | | 110 uV | | 15.6 uV |

Table continued…

[64] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 10 mV/div | 5 GHz | | | | 330 uV |
| | | 4 GHz limit | | | | 271 uV |
| | | 3 GHz limit | | | | 226 uV |
| | | 2.5 GHz limit | | | | 203 uV |
| | | 2 GHz limit | | | | 186 uV |
| | | 1 GHz limit | | | | 128 uV |
| | | 500 MHz limit | | 334 uV | | 91.9 uV |
| | | 350 MHz limit | | 231 uV | | 77.3 uV |
| | | 250 MHz limit | | 186 uV | | 74.7 uV |
| | | 200 MHz limit | | 165 uV | | 65.8 uV |
| | | 20 MHz limit | | 141 uV | | 22.6 uV |

Table continued…

[64] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 20 mV/div | 5 GHz | | | | 595 uV |
| | | 4 GHz limit | | | | 486 uV |
| | | 3 GHz limit | | | | 398 uV |
| | | 2.5 GHz limit | | | | 363 uV |
| | | 2 GHz limit | | | | 320 uV |
| | | 1 GHz limit | | | | 226 uV |
| | | 500 MHz limit | | 407 uV | | 162 uV |
| | | 350 MHz limit | | 305 uV | | 133 uV |
| | | 250 MHz limit | | 257 uV | | 120 uV |
| | | 200 MHz limit | | 211 uV | | 106 uV |
| | | 20 MHz limit | | 224 uV | | 41.2 uV |

Table continued…

64 Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 50 mV/div | 5 GHz | | | | 1.4 mV |
| | | 4 GHz limit | | | | 1.15 mV |
| | | 3 GHz limit | | | | 960 uV |
| | | 2.5 GHz limit | | | | 856 uV |
| | | 2 GHz limit | | | | 745 uV |
| | | 1 GHz limit | | | | 534 uV |
| | | 500 MHz limit | | 737 uV | | 396 uV |
| | | 350 MHz limit | | 553 uV | | 307 uV |
| | | 250 MHz limit | | 528 uV | | 280 uV |
| | | 200 MHz limit | | 387 uV | | 247 uV |
| | | 20 MHz limit | | 510 uV | | 105 uV |

Table continued…

64 Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 12.5 GS/s | |
| | V/div | Bandwidth [64] | Test result (mV) | High limit (mV) | Test result (mV) | High limit (mV) |
| **Models: MSO68B** | | | | | | |
| **Channel 6** | 100 mV/div | 5 GHz | | | | 3.38 mV |
| | | 4 GHz limit | | | | 2.71 mV |
| | | 3 GHz limit | | | | 2.28 mV |
| | | 2.5 GHz limit | | | | 2.03 mV |
| | | 2 GHz limit | | | | 1.81 mV |
| | | 1 GHz limit | | | | 1.33 mV |
| | | 500 MHz limit | | 1.77 mV | | 941 uV |
| | | 350 MHz limit | | 1.38 mV | | 792 uV |
| | | 250 MHz limit | | 1.18 mV | | 722 uV |
| | | 200 MHz limit | | 952 uV | | 666 uV |
| | | 20 MHz limit | | 1.13 mV | | 236 uV |
| **Channel 6** | 1 V/div | 5 GHz | | | | 28.1 mV |
| | | 4 GHz limit | | | | 23.1 mV |
| | | 3 GHz limit | | | | 19.2 mV |
| | | 2.5 GHz limit | | | | 17.1 mV |
| | | 2 GHz limit | | | | 14.9 mV |
| | | 1 GHz limit | | | | 10.8 mV |
| | | 500 MHz limit | | 19 mV | | 7.92 mV |
| | | 350 MHz limit | | 14.9 mV | | 6.14 mV |
| | | 250 MHz limit | | 13.6 mV | | 5.6 mV |
| | | 200 MHz limit | | 11.3 mV | | 4.94 mV |
| | | 20 MHz limit | | 11.7 mV | | 2.11 mV |

[64] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [65] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 6** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 6** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[65] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [65] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 6** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 6** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[65] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [65] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 6** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 6** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[65] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [65] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B, MSO66B** | | | | | | |
| **Channel 6** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 6** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[65] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [66] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 7** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 7** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[66] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [66] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 7** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 7** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[66] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [66] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 7** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 7** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[66] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [66] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 7** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 7** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[66] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [67] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 8** | 1 mV/div | 2.5 GHz limit | | | | 109 uV |
| | | 2 GHz limit | | | | 99.6 uV |
| | | 1 GHz limit | | | | 73.9 uV |
| | | 500 MHz limit | | | | 54.8 uV |
| | | 350 MHz limit | | | | 46.6 uV |
| | | 250 MHz limit | | | | 43.5 uV |
| | | 200 MHz limit | | | | 38.8 uV |
| | | 20 MHz limit | | | | 14.7 uV |
| **Channel 8** | 2 mV/div | 2.5 GHz limit | | | | 112 uV |
| | | 2 GHz limit | | | | 101 uV |
| | | 1 GHz limit | | | | 74.9 uV |
| | | 500 MHz limit | | | | 55.5 uV |
| | | 350 MHz limit | | | | 47.3 uV |
| | | 250 MHz limit | | | | 44.1 uV |
| | | 200 MHz limit | | | | 39.3 uV |
| | | 20 MHz limit | | | | 14.8 uV |

Table continued…

[67] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [67] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 8** | 5 mV/div | 2.5 GHz limit | | | | 142 uV |
| | | 2 GHz limit | | | | 128 uV |
| | | 1 GHz limit | | | | 92.8 uV |
| | | 500 MHz limit | | | | 68 uV |
| | | 350 MHz limit | | | | 56.5 uV |
| | | 250 MHz limit | | | | 52.8 uV |
| | | 200 MHz limit | | | | 47 uV |
| | | 20 MHz limit | | | | 17.7 uV |
| **Channel 8** | 10 mV/div | 2.5 GHz limit | | | | 221 uV |
| | | 2 GHz limit | | | | 197 uV |
| | | 1 GHz limit | | | | 134 uV |
| | | 500 MHz limit | | | | 97.4 uV |
| | | 350 MHz limit | | | | 80.1 uV |
| | | 250 MHz limit | | | | 74.7 uV |
| | | 200 MHz limit | | | | 66.6 uV |
| | | 20 MHz limit | | | | 25.6 uV |

Table continued…

[67] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [67] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 8** | 20 mV/div | 2.5 GHz limit | | | | 398uV |
| | | 2 GHz limit | | | | 350 uV |
| | | 1 GHz limit | | | | 237 uV |
| | | 500 MHz limit | | | | 174 uV |
| | | 350 MHz limit | | | | 138 uV |
| | | 250 MHz limit | | | | 129 uV |
| | | 200 MHz limit | | | | 115 uV |
| | | 20 MHz limit | | | | 44.6 uV |
| **Channel 8** | 50 mV/div | 2.5 GHz limit | | | | 938 uV |
| | | 2 GHz limit | | | | 836 uV |
| | | 1 GHz limit | | | | 559 uV |
| | | 500 MHz limit | | | | 410 uV |
| | | 350 MHz limit | | | | 322 uV |
| | | 250 MHz limit | | | | 300 uV |
| | | 200 MHz limit | | | | 271 uV |
| | | 20 MHz limit | | | | 105 uV |

Table continued…

[67] Full = the highest bandwidth setting you can select.

| Random Noise, High Res mode: MSO68B, MSO66B, MSO64B | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks | | | 1 MΩ | | 50 Ω, 6.25 GS/s | |
| | V/div | Bandwidth [67] | Test result (mV) | High limit (mV) | Test result (mV) | High limit |
| **Models: MSO68B** | | | | | | |
| **Channel 8** | 100 mV/div | 2.5 GHz limit | | | | 2.23 mV |
| | | 2 GHz limit | | | | 1.99 mV |
| | | 1 GHz limit | | | | 1.36 mV |
| | | 500 MHz limit | | | | 985 uV |
| | | 350 MHz limit | | | | 801 uV |
| | | 250 MHz limit | | | | 747 uV |
| | | 200 MHz limit | | | | 674 uV |
| | | 20 MHz limit | | | | 256 uV |
| **Channel 8** | 1 V/div | 2.5 GHz limit | | | | 19 mV |
| | | 2 GHz limit | | | | 16.7 mV |
| | | 1 GHz limit | | | | 11.1 mV |
| | | 500 MHz limit | | | | 8.1 mV |
| | | 350 MHz limit | | | | 6.36 mV |
| | | 250 MHz limit | | | | 5.94 mV |
| | | 200 MHz limit | | | | 5.35 mV |
| | | 20 MHz limit | | | | 2.08 mV |

[67] Full = the highest bandwidth setting you can select.

## Long term sample rate through AFG DC offset accuracy test records

| Long Term Sample Rate | | | |
|---|---|---|---|
| Performance checks | Low limit | Test result | High limit |
| Long Term Sample Rate | 9.999997 MHz | | 10.000003 MHz |

| Digital Threshold Accuracy, typical | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks: | | | | | | |
| Digital channel | Threshold | $V_{s-}$ | $V_{s+}$ | Low limit | Test result | High limit |
| **Channel 1** | | | | | | |
| D0 | 0 V | | | -0.1 V | | 0.1 V |
| D1 | 0 V | | | -0.1 V | | 0.1 V |
| D2 | 0 V | | | -0.1 V | | 0.1 V |
| D3 | 0 V | | | -0.1 V | | 0.1 V |
| D4 | 0 V | | | -0.1 V | | 0.1 V |
| D5 | 0 V | | | -0.1 V | | 0.1 V |
| D6 | 0 V | | | -0.1 V | | 0.1 V |
| D7 | 0 V | | | -0.1 V | | 0.1 V |
| **Channel 2** | | | | | | |
| D0 | 0 V | | | -0.1 V | | 0.1 V |
| D1 | 0 V | | | -0.1 V | | 0.1 V |
| D2 | 0 V | | | -0.1 V | | 0.1 V |
| D3 | 0 V | | | -0.1 V | | 0.1 V |
| D4 | 0 V | | | -0.1 V | | 0.1 V |
| D5 | 0 V | | | -0.1 V | | 0.1 V |
| D6 | 0 V | | | -0.1 V | | 0.1 V |

Table continued…

| Digital Threshold Accuracy, typical | | | | | | |
|---|---|---|---|---|---|---|
| Performance checks: | | | | | | |
| Digital channel | Threshold | $V_{s-}$ | $V_{s+}$ | Low limit | Test result | High limit |
| D7 | 0 V | | | -0.1 V | | 0.1 V |
| **Channel 3** | | | | | | |
| D0 | 0 V | | | -0.1 V | | 0.1 V |
| D1 | 0 V | | | -0.1 V | | 0.1 V |
| D2 | 0 V | | | -0.1 V | | 0.1 V |
| D3 | 0 V | | | -0.1 V | | 0.1 V |
| D4 | 0 V | | | -0.1 V | | 0.1 V |
| D5 | 0 V | | | -0.1 V | | 0.1 V |
| D6 | 0 V | | | -0.1 V | | 0.1 V |
| D7 | 0 V | | | -0.1 V | | 0.1 V |
| **Channel 4** | | | | | | |
| D0 | 0 V | | | -0.1 V | | 0.1 V |
| D1 | 0 V | | | -0.1 V | | 0.1 V |
| D2 | 0 V | | | -0.1 V | | 0.1 V |
| D3 | 0 V | | | -0.1 V | | 0.1 V |
| D4 | 0 V | | | -0.1 V | | 0.1 V |
| D5 | 0 V | | | -0.1 V | | 0.1 V |
| D6 | 0 V | | | -0.1 V | | 0.1 V |
| D7 | 0 V | | | -0.1 V | | 0.1 V |

| **MSO66 models** | | | | | | |
|---|---|---|---|---|---|---|
| **Channel 5** | | | | | | |
| D0 | 0 V | | | -0.1 V | | 0.1 V |
| D1 | 0 V | | | -0.1 V | | 0.1 V |

Table continued…

| | | | |
|---|---|---|---|
| D2 | 0 V | -0.1 V | 0.1 V |
| D3 | 0 V | -0.1 V | 0.1 V |
| D4 | 0 V | -0.1 V | 0.1 V |
| D5 | 0 V | -0.1 V | 0.1 V |
| D6 | 0 V | -0.1 V | 0.1 V |
| D7 | 0 V | -0.1 V | 0.1 V |
| **Channel 6** | | | |
| D0 | 0 V | -0.1 V | 0.1 V |
| D1 | 0 V | -0.1 V | 0.1 V |
| D2 | 0 V | -0.1 V | 0.1 V |
| D3 | 0 V | -0.1 V | 0.1 V |
| D4 | 0 V | -0.1 V | 0.1 V |
| D5 | 0 V | -0.1 V | 0.1 V |
| D6 | 0 V | -0.1 V | 0.1 V |
| D7 | 0 V | -0.1 V | 0.1 V |

| AUX Out output voltage levels | | | | |
|---|---|---|---|---|
| Performance checks | Vout | Low limit | Test result | High limit |
| Output levels, 1 MΩ input impedance | Max | ≥ 2.5 V | | n/a |
| | Min | n/a | | ≤ 700 mV |
| Output levels, 50 Ω Input Impedance, | Max | ≥ 1.0 V | | n/a |
| | Min | n/a | | ≤ 250 mV |

| **DVM voltage accuracy (DC)** | | | | | |
|---|---|---|---|---|---|
| **Channel 1** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | –5 | –5 | -5.125 | | -4.875 |
| 0.5 | –2 | –2 | -2.06 | | -1.94 |

Table continued…

| DVM voltage accuracy (DC) | | | | | |
|---|---|---|---|---|---|
| 0.5 | –1 | –0.5 | -1.06 | | -0.94 |
| 0.2 | –0.5 | –0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |
| **Channel 2** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | –5 | –5 | -5.125 | | -4.875 |
| 0.5 | –2 | –2 | -2.06 | | -1.94 |
| 0.5 | –1 | –0.5 | -1.06 | | -0.94 |
| 0.2 | –0.5 | –0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |
| **Channel 3** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | -5 | -5 | -5.125 | | -4.875 |
| 0.5 | -2 | -2 | -2.06 | | -1.94 |
| 0.5 | -1 | -0.5 | -1.06 | | -0.94 |
| 0.2 | -0.5 | -0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |
| **Channel 4** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | -5 | -5 | -5.125 | | -4.875 |
| 0.5 | -2 | -2 | -2.06 | | -1.94 |
| 0.5 | –1 | -0.5 | -1.06 | | -0.94 |
| 0.2 | -0.5 | -0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |

Table continued…

| DVM voltage accuracy (DC) | | | | | |
|---|---|---|---|---|---|
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |

| DVM voltage accuracy (DC) | | | | | |
|---|---|---|---|---|---|
| **Channel 5** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | -5 | -5 | -5.125 | | -4.875 |
| 0.5 | -2 | -2 | -2.06 | | -1.94 |
| 0.5 | -1 | -0.5 | -1.06 | | -0.94 |
| 0.2 | -0.5 | -0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |
| **Channel 6** | | | | | |
| Vertical Scale | Input Voltage | Offset Voltage | Low limit | Test result | High limit |
| 1 | -5 | -5 | -5.125 | | -4.875 |
| 0.5 | -2 | -2 | -2.06 | | -1.94 |
| 0.5 | -1 | -0.5 | -1.06 | | -0.94 |
| 0.2 | -0.5 | -0.5 | -0.5225 | | -0.4775 |
| 0.01 | 0.002 | 0 | 0.00097 | | 0.00303 |
| 0.2 | 0.5 | 0.5 | 0.4775 | | 0.5225 |
| 0.5 | 1 | 0.5 | 0.94 | | 1.06 |
| 0.5 | 2 | 2 | 1.94 | | 2.06 |
| 1 | 5 | 5 | 4.875 | | 5.125 |

| DVM voltage accuracy (AC) | | | | |
|---|---|---|---|---|
| **All models** | | | | |
| **Channel 1** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |

Table continued…

| DVM voltage accuracy (AC) | | | | |
|---|---|---|---|---|
| **Channel 2** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |
| **Channel 3** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |
| **Channel 4** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |

| DVM voltage accuracy (AC) | | | | |
|---|---|---|---|---|
| **MSO66 models** | | | | |
| **Channel 5** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |
| **Channel 6** | | | | |
| Vertical Scale | Input Signal | Low limit | Test result | High limit |
| 5 mV | 20 $mV_{pp}$ at 1 kHz | 9.700 mV | | 10.300 mV |
| 10 mV | 50 $mV_{pp}$ at 1 kHz | 24.25 mV | | 25.750 mV |

Table continued…

| DVM voltage accuracy (AC) | | | | |
|---|---|---|---|---|
| 100 mV | 0.5 $V_{pp}$ at 1 kHz | 242.500 mV | | 257.500 mV |
| 200 mV | 1 $V_{pp}$ at 1 kHz | 485.000 mV | | 515.000 mV |
| 1 V | 5 $V_{pp}$ at 1 kHz | 2.425 V | | 2.575 V |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| All models | | | | |
| Channel 1 | | | | |
| **Frequency** | **Low limit** | **Test result** | **High limit** | **Unit** |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| All models | | | | |
| Channel 2 | | | | |
| **Frequency** | **Low limit** | **Test result** | **High limit** | **Unit** |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO64B | | | | |
| Channel 3 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO64B | | | | |
| Channel 4 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 3 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |

Table continued…

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 3 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 4 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 5 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |

Table continued…

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 5 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO66B | | | | |
| Channel 6 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 3 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 4 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 5 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 6 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |

Table continued…

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 6 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |
| 4000 | 3999.998 | | 4000.002 | MHz |
| 8000 | 7999.996 | | 8000.004 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 7 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| Trigger frequency accuracy and trigger frequency counter maximum input frequency | | | | |
|---|---|---|---|---|
| MSO68B | | | | |
| Channel 8 | | | | |
| Frequency | Low limit | Test result | High limit | Unit |
| 100 | 99.99995 | | 1000.0005 | Hz |
| 1000 | 999.9995 | | 10000.005 | Hz |
| 10 | 9.999995 | | 10.000005 | kHz |
| 100 | 99.99995 | | 100.00005 | kHz |
| 1000 | 999.9995 | | 1000.0005 | kHz |
| 10 | 9.999995 | | 10.000005 | MHz |
| 100 | 99.99995 | | 100.00005 | MHz |
| 1000 | 999.9995 | | 1000.0005 | MHz |
| 2000 | 1999.999 | | 2000.001 | MHz |

| AFG sine and ramp frequency accuracy | | | |
|---|---|---|---|
| **Performance checks** | | | |
| **Waveform type** | **Minimum** | **Test result** | **Maximum** |
| Sine, 1 MHz | 0.999950 MHz | | 1.000050 MHz |
| Ramp, 500 KHz | 499.975 kHz | | 500.025 kHz |

| AFG square and pulse frequency accuracy | | | |
|---|---|---|---|
| **Performance checks** | | | |
| **Waveform type** | **Minimum** | **Test result** | **Maximum** |
| Square, 1 MHz | 0.999950 MHz | | 1.000050 MHz |
| Pulse, 1 MHz | 0.999950 MHz | | 1.000050 MHz |

| AFG signal amplitude accuracy | | | |
|---|---|---|---|
| **Performance checks** | | | |
| **Amplitude** | **Minimum** | **Test result** | **Maximum** |
| 30.0 $mV_{PP}$ | 28.55 $mV_{PP}$ | | 31.45 $mV_{PP}$ |
| 300.0 $mV_{PP}$ | 294.5 $mV_{PP}$ | | 305.5 $mV_{PP}$ |
| 800.0 $mV_{PP}$ | 787.0 $mV_{PP}$ | | 813.0 $mV_{PP}$ |
| 1.500 $V_{PP}$ | 1.4765 $V_{PP}$ | | 1.5235 $V_{PP}$ |
| 2.000 $V_{PP}$ | 1.9690 $V_{PP}$ | | 2.0310 $V_{PP}$ |
| 2.500 $V_{PP}$ | 2.4615 $V_{PP}$ | | 2.5385 $V_{PP}$ |

| AFG DC offset accuracy | | | |
|---|---|---|---|
| **Performance checks** | | | |
| **Offset** | **Minimum** | **Test result** | **Maximum** |
| 1.25 V | 1.23025 Vdc | | 1.26975 Vdc |
| 0 V | - 0.001 Vdc | | + 0.001 Vdc |
| -1.25 V | - 1.26975 Vdc | | - 1.23025 Vdc |

# Performance tests

This section contains a collection of manual procedures for checking that the instrument performs as warranted. They check all the characteristics that are designated as checked in *Specifications.* (The characteristics that are checked appear with a ✓ in *Specifications*).

# Prerequisites

The tests in this section comprise an extensive, valid confirmation of performance and functionality when the following requirements are met:

- The instrument must be in its normal operating configuration (no covers removed).
- You must have performed and passed the procedures under *Self Test*. (See *Self test* on page 239.)
- A signal-path compensation must have been done within the recommended calibration interval and at a temperature within ±5 ºC (±9 ºF) of the present operating temperature. (If the temperature was within the limits just stated at the time you did the prerequisite *Self Test,* consider this prerequisite met). A signal-path compensation must have been done at an ambient humidity within 25% of the current ambient humidity and after having been at that humidity for at least 4 hours.
- The instrument must have been last adjusted at an ambient temperature between +18 ºC and +28 ºC (+64 ºF and +82 ºF), must have been operating for a warm-up period of at least 20 minutes, and must be operating at an ambient temperature as listed in the specifications. The warm-up requirement is usually met in the course of meeting the Self Test prerequisites listed above.
- The instrument must be powered from a source maintaining voltage and frequency within the limits described in the *Specifications* section.
- The instrument must be in an environment with temperature, altitude, humidity, and vibration within the operating limits described in the *Specifications* section.

# Self test

This procedure verifies that the instrument passes the internal diagnostics and performs signal path compensation. No test equipment or hookups are required.

| Equipment required | Prerequisites |
|---|---|
| None | Power on the instrument and allow a 20 minute warm-up period before performing this procedure. |

1. *Run the System Diagnostics (may take a few minutes):*
   a. Disconnect all probes and/or cables from the oscilloscope inputs.
   b. Tap **Utility > Self Test**. This displays the **Self Test** configuration menu.
   c. Tap the **Run Self Test** button.
   d. The internal diagnostics perform an exhaustive verification of proper instrument function. This verification may take several minutes. When the verification is finished, the status of each self test is shown in the menu.
   e. Verify that the status of all tests is pass.
   f. Tap anywhere outside the menu to exit the menu.
2. *Run the signal-path compensation routine (may take 5 to 15 minutes per channel):*
   a. Tap **Utility > Calibration**. This displays the **Calibration** configuration menu.
   b. Tap the **Run SPC** button to start the routine.
   c. Signal-path compensation may take 5 to 15 minutes to run per channel.
   d. Verify that the **SPC Status** is **Passed**.
3. *Return to regular service:* Tap anywhere outside the menu to exit the **Calibration** menu.

The self test procedures are completed. If any of the above tests failed, run the tests again. If there are still failures, contact Tektronix Customer Support.

**Note:** You cannot run the remaining performance tests until the self tests pass and the SPC has successfully run.

## Check input impedance

This test checks the input impedance on all channels.

1. Connect the output of the oscilloscope calibrator (for example, Fluke 9500) to the oscilloscope channel 1 input, as shown in the following illustration.

   **Warning:** Be sure to set the generator to Off or 0 volts before connecting, disconnecting, and/or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.

   **Note:** Impedance measuring equipment that produces a voltage across the channel that exceeds the measurement range of the instrument may report erroneous impedance results. A measurement voltage exceeds the measurement range of the instrument when the resulting trace is not visible on the graticule.
2. Set the calibrator to measure 1 MΩ impedance.
3. Tap **File** > **Default Setup**.
4. *Test 1 MΩ input impedance as follows:*
   a. Tap the channel **1** button on the Settings bar.
   b. Double tap the **Ch 1** badge to open its menu.
   c. Set **Termination** to **1 MΩ**.
   d. Set the **Vertical Scale** to the value to test in the test record (first value is **10 mV/div**).
5. Use the calibrator to measure the input impedance of the oscilloscope and enter the value in the test record.
6. Repeat steps *4.d* on page 240 and *5* on page 240 for all vertical scale settings in the test record for the channel.
7. *Test 50 Ω input impedance as follows:*
   a. Set the calibrator impedance to measure 50 Ω impedance.
   b. Double-tap the **Ch 1** badge and set **Termination** to **50 Ω**.
   c. Repeat steps *4.d* on page 240 through *6* on page 240 for all vertical scale settings in the test record for the channel.
8. *Repeat the procedures for all remaining channels as follows:*
   a. Turn the calibrator output Off.
   b. Move the calibrator connection to the next channel to test.
   c. Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
   d. Tap the channel button on the Settings bar of the next channel to test.
   e. Starting from step *2* on page 240, repeat the procedures until all channels have been tested.

# Check DC gain accuracy

This test checks the DC gain accuracy.

1. Connect the oscilloscope to a calibrated DC voltage source. If you are using the Fluke 9500 calibrator, connect the calibrator head to the oscilloscope channel to test.

   **Warning:** Set the generator output to Off or 0 volts before connecting, disconnecting, and/or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.
2. Tap **File** > **Default Setup**.
3. Double-tap the **Acquisition** badge and set **Acquisition Mode** to **Average**.
4. Set the **Number of Waveforms** to **16**.
5. Tap outside the menu to close the menu.
6. Double-tap the **Trigger** badge and set the trigger **Source** to **AC line**.
7. Tap outside the menu to close it.
8. Add the **Mean** measurement to the Results bar:
   a. Tap the **Add New... Measure** button to open the **Add Measurements** menu.
   b. Set the **Source** to **Ch 1**.
   c. In the **Amplitude Measurements** panel, double-tap the **Mean** button to add the Mean measurement badge to the Results bar.
9. Tap outside the menu to close it.
10. Double-tap the **Mean** results badge.
11. Tap **Show Statistics in Badge**.
12. Tap **FILTER/LIMIT RESULTS** to open the panel.
13. Tap **Limit Measurement Population** to toggle it to **On.**
14. Tap outside the menu to close it.
15. Tap the channel button of the channel to test, to add the channel badge to the Settings bar.
16. Double tap the channel to test badge to open its menu and set the channel settings:
    a. Set **Vertical Scale** to **1 mV/div**.
    b. Set **Termination** to **50 Ω**.
    c. Tap **Bandwidth Limit** and set to **20 MHz**.
    d. Tap outside the menu to close it.
17. Record the negative-measured and positive-measured mean readings in the *Gain expected worksheet* as follows:
    a. On the calibrator, set the DC Voltage Source to the $V_{negative}$ value as listed in the 1 mV row of the worksheet.
    b. Double-tap the **Acquisition** badge and tap **Clear** to reset the measurement statistics.
    c. Enter the **Mean** reading in the worksheet as $V_{negative\text{-}measured}$.
    d. On the calibrator, set the DC Voltage Source to $V_{positive}$ value as listed in the 1 mV row of the worksheet.
    e. Double-tap the **Acquisition** badge (if not open) and tap **Clear**.
    f. Enter the **Mean** reading in the worksheet as $V_{positive\text{-}measured}$.

**Table 1: Gain expected worksheet**

| Oscilloscope Vertical Scale Setting | $V_{diffExpected}$ | $V_{negative}$ | $V_{positive}$ | $V_{negative\text{-}measured}$ | $V_{positive\text{-}measured}$ | $V_{diff}$ | Test Result (Gain Accuracy) |
|---|---|---|---|---|---|---|---|
| 1 mV/div | 7 mV | -3.5 mV | +3.5 mV | | | | |

Table continued…

| Oscilloscope Vertical Scale Setting | $V_{diffExpected}$ | $V_{negative}$ | $V_{positive}$ | $V_{negative-measured}$ | $V_{positive-measured}$ | $V_{diff}$ | Test Result (Gain Accuracy) |
|---|---|---|---|---|---|---|---|
| 2 mV/div | 18 mV | -9 mV | +9 mV | | | | |
| 5 mV/div | 45 mV | -22.5 mV | +22.5 mV | | | | |
| 10 mV/div | 90 mV | -45 mV | +45 mV | | | | |
| 20 mV/div | 180 mV | -90 mV | +90 mV | | | | |
| 50 mV/div | 450 mV | -225 mV | +225 mV | | | | |
| 100 mV/div | 900 mV | -450 mV | +450 mV | | | | |
| 200 mV/div | 1800 mV | -900 mV | +900 mV | | | | |
| 500 mV/div | 4900 mV | -2450 mV | +2450 mV | | | | |
| 1.0 V/div | 9000 mV | -4500 mV | +4500 mV | | | | |
| 20 mV/div at 250 MHz | 180 mV | -90 mV | +90 mV | | | | |
| 20 mV/div at Full bandwidth | 180 mV | -90 mV | +90 mV | | | | |

18. Calculate Gain Accuracy as follows:
    a. Calculate $V_{diff}$ as follows:

       $V_{diff} = | V_{negative-measured} - V_{positive-measured} |$

    b. Enter $V_{diff}$ in the worksheet.
    c. Calculate *Gain Accuracy* as follows:

       $Gain\ Accuracy = ((V_{diff} - V_{diffExpected})/V_{diffExpected}) \times 100\%$

    d. Enter the *Gain Accuracy* value in the worksheet and in the test record.
19. Repeat steps *16* on page 241 through *18* on page 242 for all vertical scale settings in the work sheet and the test record.
20. *Repeat tests at 1 MΩ impedance as follows:*
    a. Set the calibrator to **0** volts and **1 MΩ** output impedance.
    b. Double-tap the badge of the channel being tested.
    c. Set the **Termination** to **1 MΩ**
    d. Repeat steps *16* on page 241 through *19* on page 242 for all vertical scale settings in the test record.
21. *Repeat the procedure for all remaining channels:*
    a. Set the calibrator to **0** volts and **50 Ω** output impedance.
    b. Move the calibrator output to the next channel input to be tested.
    c. Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
    d. Double-tap the **Mean** measurement badge.
    e. Tap the **Configure** panel.
    f. Tap the **Source 1** field and select the next channel to test.
    g. Starting from step*16* on page 241, set the values from the test record for the channel under test, and repeat the above steps until all channels have been tested.
22. Touch outside a menu to close the menu.

# Check DC offset accuracy

This test checks the offset accuracy at 50 Ω and 1 MΩ input impedances.

1. Connect the oscilloscope to a calibrated DC voltage source. If you are using the Fluke 9500B calibrator as the DC voltage source, connect the calibrator head to the oscilloscope channel 1.

   **Warning:** Set the generator output to Off or 0 volts before connecting, disconnecting, or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.
2. Tap **File** > **Default Setup**.
3. Double-tap the **Acquisition** badge and set **Acquisition Mode** to **Average**.
4. Set the **Number of Waveforms** to **16**.
5. Tap outside the menu to close the menu.
6. Double-tap the **Trigger** badge and set the trigger **Source** to **AC line**.
7. Add the **Mean** measurement to the Results bar:
   a. Tap the **Add New... Measure** button to open the **Add Measurements** menu.
   b. Set the **Source** to **Ch 1**.
   c. In the **Amplitude Measurements** panel, double-tap the **Mean** button to add the Mean measurement badge to the Results bar.
8. Tap outside the menu to close it.
9. Double-tap the **Mean** results badge.
10. Tap **Show Statistics in Badge**.
11. Tap **FILTER/LIMIT RESULTS** to open the panel.
12. Tap **Limit Measurement Population** to toggle it to **On.**
13. Tap outside the menu to close it.
14. Tap the channel button on the Settings bar to add the channel under test to the Settings bar.
15. Double-tap the channel under test badge to open its configuration menu and change the vertical settings:
    a. Set **Vertical Scale** to **1 mV/div**.
    b. Set **Offset** to **900 mV**.
    c. Set **Position** to 0 by tapping **Set to 0**.
    d. Set **Termination** to **50 Ω**.
    e. Tap **Bandwidth Limit** and set to **20 MHz**.
    f. Tap outside the menu to close it.
16. Set the calibrator output to **+900 mV**, as shown in the test record, and turn the calibrator output On.
17. Enter the Mean measurement value in the test record.
18. Double-tap the channel under test badge to open its configuration menu and change the **Offset** to **-900 mV**.
19. Set the calibrator output to **-900 mV**, as shown in the test record.
20. Enter the Mean measurement value in the test record.
21. Repeat step *15* on page 243 through *20* on page 243, changing the channel vertical settings and the calibrator output as listed in the test record for the channel under test.
22. *Repeat the channel tests at 1 MΩ impedance as follows:*
    a. Set the calibrator output to Off or 0 volts.
    b. Change the calibrator impedance to **1 MΩ** and voltage to **+900 mV**.
    c. Turn the calibrator output On.
    d. Repeat steps *15* on page 243 through *20* on page 243, changing the channel **Termination** to **1 MΩ** and the vertical Offset value and the calibrator output as listed in the 1 MΩ test record for the channel under test.

**23.** *Repeat the procedure for all remaining channels as follows:*

- **a.** Double-tap the **Mean** measurement badge.
- **b.** Tap the **Configure** panel.
- **c.** Tap the **Source 1** field and select the next channel to test.
- **d.** Set the calibrator to **0** volts and **50 Ω** output impedance.
- **e.** Move the calibrator output to the next channel input to test.
- **f.** Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
- **g.** Tap the channel button on the oscilloscope Settings bar of the next channel to test.
- **h.** Starting from step , repeat the procedure until all channels have been tested.

# Check analog bandwidth

This test checks the bandwidth at 50 Ω and 1 MΩ terminations for each channel. The typical bandwidth at 1 M Ω termination is checked on the products as a functional check.

**1.** Connect the output of the calibrated leveled sine wave generator to the oscilloscope channel 1 input as shown in the following illustration.

**Warning:** Set the generator to off or 0 volts before connecting, disconnecting, and/or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.

**2.** Tap **File** > **Default Setup** to reset the instrument and add the channel 1 badge and signal to the display.

**3.** *Add the peak-to-peak measurement as follows:*

- **a.** Tap the **Add New. Measure** button.
- **b.** Set the **Source** to the channel under test.
- **c.** In the **Amplitude Measurements** panel, double-tap the **Peak-to-Peak** measurement button to add the measurement badge to the Results bar.
- **d.** Tap outside the menu to close it.
- **e.** Double-tap the **Peak-to-Peak** results badge.
- **f.** Tap **Show Statistics in Badge**.
- **g.** Tap **FILTER/LIMIT RESULTS** to open the panel.
- **h.** Tap **Limit Measurement Population** to toggle it to **On.**
- **i.** Tap outside the menu to close it.

**4.** Set the channel under test settings:

- **a.** Double-tap the badge of the channel under test to open its configuration menu.
- **b.** Set **Vertical Scale** to **1 mV/div**.
- **c.** Set **Termination** to **50 Ω**.
- **d.** Tap outside the menu to close it.

**5.** Adjust the leveled sine wave signal source to display a waveform of 8 vertical divisions at the selected vertical scale with a set frequency of **10 MHz**. For example, at 5 mV/div, use a ≥40 $mV_{p-p}$ signal; at 2 mV/div, use a ≥16 $mV_{p-p}$ signal.

**Note:** At some V/div settings, the generator may not provide 8 vertical divisions of signal. Set the generator output to obtain as many vertical divisions of signal as possible.

**6.** Double-tap the **Horizontal** badge in the Settings bar.

**7.** Set the **Horizontal Scale** to **1 ms/division**.

**8.** Tap outside the menu to close it.

**9.** Record the **Peak-to-Peak** measurement in the **$V_{in-pp}$** entry of the test record.

10. Double-tap the **Horizontal** badge in the Settings bar.
11. Set the **Horizontal Scale** such that there are at least 10 cycles on screen at all frequencies.
12. Adjust the signal source to the maximum bandwidth frequency for the bandwidth and model being tested.
13. *Record the peak-to-peak measurement as follows:*
    a. Record the **Peak-to-Peak** measurement at the new frequency in the **V** $_{bw\text{-}pp}$ entry of the test record.
14. Use the values of *V bw-pp* and *V in-pp* recorded in the test record, and the following equation, to calculate the Gain at bandwidth:

    *Gain* = *Vbw-pp* / *Vin-pp*.

    To pass the performance measurement test, Gain should be ≥ 0.707. Enter *Gain* in the test record.
15. Repeat steps *4* on page 244 through *14* on page 245 for all combinations of Vertical Scale settings listed in the test record.
16. *Repeat the tests at 1 MΩ impedance as follows:*
    a. Set the calibrator output to Off or 0 volts.
    b. Change the calibrator impedance to **1 MΩ**.
    c. Double-tap the badge of the channel under test to open its menu.
    d. Set the **Termination** to **1 MΩ**.
    e. Repeat steps *4* on page 244 through *16* on page 245 , but leave the termination set to **1 MΩ** .
17. *Repeat the test for all remaining channels as follows:*
    a. Set the calibrator to **0** volts and **50 Ω** output impedance.
    b. Move the calibrator output to the next channel input to be tested.
    c. Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
    d. Tap the channel button on the oscilloscope Settings bar of the next channel to test.
    e. Double-tap the **Peak-to-Peak** measurement badge.
    f. Tap the **Configure** panel.
    g. Tap the **Source 1** field and select the next channel to test.
    h. Starting from step *4* on page 244, repeat the procedure until all channels have been tested.

## Check random noise, sample acquisition mode (10, 8, and 6 GHz options)

This test checks random noise at 50 Ω for each channel in Sample acquisition mode. You do not need to connect any test equipment to the oscilloscope for this test.

1. Disconnect everything from the oscilloscope inputs.
2. Tap **File** > **Default Setup**.
3. Add the **AC RMS** measurement:
    a. Tap the **Add New... Measure** button.
    b. Set the **Source** to the channel being tested.
    c. In the **Amplitude Measurements** panel, double-tap the **AC RMS** measurement button to add the measurement badge to the Results bar.
    d. Tap outside the menu to close it.
    e. Double-tap the **AC RMS** measurement badge and tap **Show Statistics in Badge** to display statistics in the measurement badge.
    f. Tap the **Filter / Limit Results** panel.
    g. Turn on **Limit Measurement Population**.
    h. Set the limit to **100**.
    i. Tap outside the menu to close it.
4. Set up the Horizontal mode:

a. Double-tap the **Horizontal** setting badge.
b. Set **Horizontal Mode** to **Manual**.
c. Set the **Sample Rate** to **25 GS/s** or **50G/S**.
d. Set the **Record Length** to **2 Mpts**.
e. Tap outside the menu to close it.

5. Double-tap the Channel badge of the channel being tested.
6. Set the **Vertical Scale** value to **1 mV**.
7. *Check **50 Ω** termination as follows:*

a. In the Channel badge, set **Termination** to **50 Ω**.
b. Tap the **Bandwidth Limit** field and select the highest frequency listed.
c. Set the channel vertical Position value to **340 mdivs**.
d. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).
e. Set the channel vertical Position value to **360 mdivs**.
f. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).
g. Average the two values and record the result in the **1 mV/div** row of the **50 Ω** column of the Test Result record.

8. Repeat step *7* on page 246 for all frequencies above 4 GHz
9. *Repeat the 50 Ω test at all V/div settings for the current channel:*

a. In the Channel badge, set the **Vertical Scale** setting to the next value in the test record (2 mV, 5 mV, and so on, up to 1 V/div).
b. Repeat steps *7* on page 246 through *8* on page 246.

10. *Repeat all tests for the remaining input channels:*

a. Double-tap the **AC RMS** measurement badge.
b. Tap the **Configure** panel.
c. Tap the **Source 1** field and select the next channel to test.
d. Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
e. Tap the channel button on the oscilloscope Settings bar of the next channel to test.
f. Double-tap the channel badge for the channel being tested.
g. Starting at step *6* on page 246, repeat these procedures for each input channel.

## Check random noise, High Res mode

This test checks random noise at 1 M Ω and 50 Ω for each channel in High Res acquisition mode. You do not need to connect any test equipment to the oscilloscope for this test.

1. Disconnect everything from the oscilloscope inputs.
2. Tap **File** > **Default Setup**.
3. Double-tap the **Acquisition** badge and set **Acquisition Mode** to **High Res**.
4. Add the **AC RMS** measurement:
   a. Tap the **Add New... Measure** button to open the **Add Measurements** menu.
   b. Set the **Source** to the channel being tested.
   c. In the **Amplitude Measurements** panel, double-tap the **AC RMS** button to add the measurement badge to the Results bar.
   d. Tap outside the menu to close it.
   e. Double-tap the **AC RMS** measurement badge and tap **Show Statistics in Badge** to display statistics in the measurement badge.
   f. Tap the **Filter/Limit Results** panel.
   g. Turn on **Limit Measurement Population**.
   h. Set the limit to **100**.
   i. Tap outside the menu to close it.
5. Set up the Horizontal mode:
   a. Double-tap the **Horizontal** setting badge.
   b. Set Horizontal Mode to **Manual**.
   c. Set the Sample rate to **25G/S, 12.5G/S, or 6.25G/S** .
   d. Set the Record Length to **2 Mpts**.
   e. Tap outside the menu to close it.
6. *Check **1 M Ω** termination as follows:*
   a. Double-tap the Channel badge of the channel being tested.
   b. Set the **Vertical Scale** value to **1 mV**.
   c. Set **Termination** to **1 M Ω**.
   d. Tap the **Bandwidth Limit** field and select the highest frequency listed.
   e. Set the channel **Position** value to **340 mdivs**.
   f. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).
   g. Set the channel **Position** value to **-340 mdivs**.
   h. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).
   i. Average the two values and record the result in the **1 mV/div** row of the **1 MΩ** column of the random noise, High Res mode Test Result record.
7. Repeat step 6 on page 247 for all frequencies below 500 MHz
8. *Check **50 Ω** termination as follows:*
   a. In the Channel badge, set **Termination** to **50 Ω**.
   b. Tap the **Bandwidth Limit** field and select 4 GHz or the highest frequency listed.
   c. Set the channel **Position** value to **340 mdivs**.
   d. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).
   e. Set the channel **Position** value to **-340 mdivs**.
   f. Once the measurement count (N) in the measurement badge reaches 100, record the AC RMS Mean value (the **μ** readout).

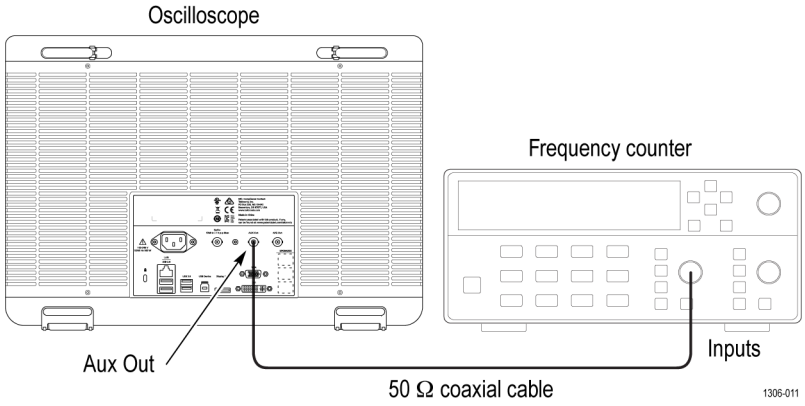
g. Average the two values and record the result in the **1 mV/div** row of the **50 Ω** column of the random noise, High Res mode Test Result record.

9. Repeat step *8* on page 247 for all frequencies below 4 GHz.
10. *Repeat 1 MΩ and 50 Ω tests at all V/div settings for the current channel:*
    a. In the Channel badge, set the **Vertical Scale** setting to the next value in the test record (2 mV, 5 mV, and so on, up to 1 V/div).
    b. Repeat steps *6* on page 247 through *9* on page 248.
11. *Repeat all tests for the remaining input channels:*
    a. Double-tap the **AC RMS** measurement badge.
    b. Tap the **Configure** panel.
    c. Tap the **Source 1** field and select the next channel to test.
    d. Double-tap the channel badge of the channel that you have finished testing and set **Display** to **Off**.
    e. Tap the channel button on the oscilloscope Settings bar of the next channel to test.
    f. Double-tap the channel badge for the channel being tested.
    g. Starting at step *6* on page 247, repeat these procedures for each input channel.

# Check long term samples rate and delay time accuracy

This test checks the sample rate and delay time accuracy (time base).

1. Connect a 50 Ω cable from the Aux Out connector to the frequency counter input as shown in the following figure.




2. Tap **File** > **Default Setup**.
3. Tap **Utility** > **I/O**.
4. Tap **AUX OUT** to open its configuration menu.
5. Tap **Reference Clock** to send the clock to the **Aux Out** connector.
6. Check the reading on the frequency counter. Enter the value in the Test record.

# Check digital threshold accuracy

This test checks the threshold accuracy of the logic probe digital channels D0-D7 at 0 V and 25 °C, for all oscilloscope input channels.

**Note:** Threshold Accuracy is a function of the logic probe only. It is a typical specification. The Threshold Accuracy test checks the typical logic probe performance, and may be considered a functional check of the oscilloscope digital input.

1. Connect the TLP058 digital probe to channel 1.
2. Connect the DC voltage source to digital channel **D0**.

   **Warning:** Set the generator output to Off or 0 volts before connecting, disconnecting, or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.

   If you are using the Fluke 9500 calibrator as the DC voltage source, connect the calibrator head to the digital channel D0, using the BNC-to-0.1 inch pin adapter listed in the table. Be sure to connect channel D0 to both the corresponding signal pin and to a ground pin on the adapter.
3. Tap **File** > **Default Setup**. This resets the instrument and adds the channel 1 badge and signal to the display.
4. *Display the digital channels and set the thresholds as follows:*
   a. Double-tap the badge of the channel under test on the Settings bar.
   b. Double-tap the **Threshold** field at the bottom of the menu and set the value to **0 V**.
   c. Tap **Set All Thresholds**. All thresholds are now set for the 0 V threshold check.
   d. Tap outside the menu to close it.
5. Double-tap the **Horizontal** badge in the Settings bar.
6. Set the **Horizontal Scale** to **10 ns/div**.
7. Tap outside the menu to close it.
8. Set the calibrator DC voltage output (Vs) to **-400 mV**.
9. Wait 1 second. Verify that the logic level is low on **D0**.
10. Increment Vs by **+10 mV**. Wait 1 second and check the logic level of the channel D0 signal display.

    If the signal level is a logic low or is alternating between high and low, continue to increment Vs by +10 mV, wait 1 second, and check the logic level until the logic state is a steady high.
11. Record this Vs value as **Vs-** for D0 of the test record.
12. Double-tap the **Trigger** badge and set the **Slope** to **Falling** edge.
13. Set the DC voltage source (Vs) to **+400 mV**.
14. Wait 1 second. Verify that the logic level is high.
15. Decrement Vs by **-10 mV**. Wait 1 second and check the logic level of the channel D0 signal display.

    If the signal level is a logic high or is alternating between high and low, continue to decrement Vs by -10 mV, wait 1 second, and check the logic level until the logic state is a steady low.
16. Record this Vs value as **Vs+** for D0 of the test record.
17. Find the average using this formula: $V_{sAvg} = (V_{s-} + V_{s+})/2$.
18. Record the average as the test result for D0 in the test record. The test result should be between the low and high limits.
19. *Repeat the procedure for all remaining digital channels as follows:*
    a. Connect the next digital channel to be tested (D1, D2, and so on) to the DC voltage source.
    b. Repeat steps *8* on page 249 through *19* on page 249, until all digital channels have been tested for this input channel.
20. *Repeat the procedure for all remaining input channels as follows:*
    a. Move the TLP058 digital probe from channel 1 to channel 2.
    b. Set the generator output to 0 volts and Off.

**c.** Repeat steps starting at 2 on page 249 for the channel being tested (channel 2, channel 3, and so on).

## Check AUX Out output voltage levels

This test checks the output voltage levels from the AUX Out connector.

1. Use a 50 Ω cable to connect the AUX Out signal from the rear of the instrument to the channel 1 input of the same instrument, as shown in the following illustration.
2. Tap **File** > **Default Setup**. This resets the instrument and adds the channel 1 badge and signal to the display.
3. Double-tap the badge of the channel 1 badge to open its configuration menu.
4. Set the **Vertical Scale** to **1 V/div**.
5. Tap outside the menu to close it.
6. Double-tap the **Horizontal** badge in the Settings bar.
7. Set the **Horizontal Scale** to **400 ns/div**.
8. Tap outside the menu to close it.
9. *Record the Maximum and Minimum measurements at 1 MΩ termination as follows:*
   - **a.** Tap the **Add New... Measure** button.
   - **b.** In the Amplitude Measurements panel, set the **Source** to **Ch 1**.
   - **c.** Double-tap the **Maximum** button to add the measurement badge to the Results bar.
   - **d.** Double-tap the **Minimum** button to add the measurement badge to the Results bar.
   - **e.** Tap outside the menu to close it.
   - **f.** Double-tap the **Maximum** results badge.
   - **g.** Tap **Show Statistics in Badge**.
   - **h.** Tap **FILTER/LIMIT RESULTS** to open the panel.
   - **i.** Tap **Limit Measurement Population** to toggle it to **On**.
   - **j.** Tap outside the menu to close it.
   - **k.** Double-tap the **Minimum** results badge.
   - **l.** Tap **Show Statistics in Badge**.
   - **m.** Tap **FILTER/LIMIT RESULTS** to open the panel.
   - **n.** Tap **Limit Measurement Population** to toggle it to **On**.
   - **o.** Tap outside the menu to close it.
   - **p.** Enter the Maximum and Minimum measurement readings in the 1 MΩ row of the test record.
10. *Record the Maximum and Minimum measurements at 50 Ω termination as follows:*
    - **a.** Double-tap the **Ch 1** badge to open its configuration menu.
    - **b.** Set **Termination** to **50 Ω**.
    - **c.** Tap outside the menu to close it.
    - **d.** Enter the Maximum and Minimum measurement readings in the 50 Ω row of the test record.

# Check DVM voltage accuracy (DC)

This test checks the DC voltage accuracy of the Digital Volt Meter (DVM) option. The DVM option is available for free when you register the instrument at tek.com.

## Procedure

1. Connect the oscilloscope to a DC voltage source to run this test. If using the Fluke 9500 calibrator as the DC voltage source, connect the calibrator head to the oscilloscope channel to test.

   **Warning:** Set the generator output to Off or 0 volts before connecting, disconnecting, or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.
2. Set the calibrator impedance to **1 MΩ**.
3. Tap **File** > **Default Setup**. This resets the instrument and adds the channel 1 badge and signal to the display.
4. *Set the channel settings:*
   a) Double tap the badge of the channel under test to open its menu.
   b) Check that **Position** is set to **0 divs**. If not, set the position to 0 divisions.
   c) Confirm that **Termination** is set to **1 MΩ**.
   d) Set the **Bandwidth Limit** to **20 MHz**.
5. Set the calibrator impedance to **1 MΩ**.
6. Double-tap the **Horizontal** badge and set **Horizontal Scale** to **1 ms/div**.
7. Tap outside the menu to close it.
8. Double-tap the **Acquisition** badge and set the **Acquisition Mode** to **Average**.
9. Verify or set the **Number of Waveforms** to **16**.
10. Tap outside the menu to close it.
11. Double-tap the **Trigger** badge and set the **Source** to **AC Line**.
12. Tap outside the menu to close it.
13. Tap the **DVM** button to add the DVM badge to the Results bar.
14. In the **DVM** menu, set **Source** to the channel to be tested.
15. Set **Mode** to **DC**.
16. Tap outside the menu to close it.
17. Set the calibrator to the input voltage shown in the test record (for example, –5 V for a 1V/div setting).
18. In the channel under test menu, set the **Offset** value to that shown in the test record (for example, –5 V for –5 V input and 1`V/div setting).
19. Set the **Vertical Scale** field to match the value in the test record (for example, 1 V/div).
20. Enter the measured value on the DVM badge into the DVM Voltage Accuracy Tests record.
21. Repeat the procedure (steps *17* on page 251, *18* on page 251, *19* on page 251 and *20* on page 251) for each volts/division setting shown in the test record.
22. Repeat all steps, starting with step *4* on page 251, for each oscilloscope channel to check. To set the next channel to test:
    a) Double tap the badge of the channel under test to open its menu.
    b) Set **Display** to **Off.**
    c) Tap the channel button in the Settings bar of the next channel to test to add that channel badge and signal to the display.

# Check DVM voltage accuracy (AC)

This test checks the AC voltage accuracy of the Digital Volt Meter (DVM) option. The DVM option is available for free when you register the instrument at tek.com.

## Procedure

1. Connect the output of the leveled square wave generator (for example, Fluke 9500) to the oscilloscope channel 1 input.

   **Warning:** Set the generator output to Off or 0 volts before connecting, disconnecting, or moving the test hookup during the performance of this procedure. The generator is capable of providing dangerous voltages.
2. Set the generator to **50 Ω** output impedance (50 Ω source impedance).
3. Set the generator to produce a square wave of the amplitude and frequency listed in the test record (for example, 20 $mV_{pp}$ at 1 kHz).
4. Tap **File** > **Default Setup** to reset the instrument and add the channel 1 badge and signal to the display.
5. Tap the **DVM** button to add the DVM badge to the Results bar.
6. Set the DVM **Mode** to **AC RMS**.
7. In the DVM menu, set **Source** to the channel to be tested.
8. Double-tap the channel badge of the channel being tested to open its configuration menu.
9. Set **Termination** to **50 Ω**.
10. Use the **Vertical Scale** controls to set the signal height so that the signal covers between 4 and 8 vertical divisions on the screen.
11. Enter the DVM measured value in the test record.
12. Repeat steps *10* on page 252 and *11* on page 252 for each voltage and frequency combination shown in the record.
13. Repeat all steps to test all remaining oscilloscope channels. To set the next channel to test:
    a) Double tap the badge of the channel under test to open its menu.
    b) Set **Display** to **Off.**
    c) Tap the channel button in the Settings bar of the next channel to test to add that channel badge and signal to the display.

# Check trigger frequency accuracy and maximum input frequency

This test checks trigger frequency counter accuracy. The trigger frequency counter is part of the free DVM and trigger frequency option that is available when you register the instrument at tek.com.

## Procedure

1. Tap **File** > **Default Setup** to reset the instrument and add the channel 1 badge and signal to the display.
2. Connect the **10 MHz Reference out** from the time mark generator to the **Ref In** connector on the back of the oscilloscope.
3. Connect the output of the time mark generator to the oscilloscope channel input being tested using a 50 Ω cable. Set the time mark generator to a 50 Ω source and a fast rising edge waveform (≥ 3 mV/ns).
4. Set the time mark generator frequency to the first value shown in the test record, starting at **100 Hz**.
5. Set the mark amplitude to **1 V** $_{pp}$, which makes a 2 divisions high waveform.
6. Double-tap the channel badge being tested (starting with channel 1) and set **Termination** to **50 Ω**.
7. Set the channel **Vertical Scale** to **500 mV/div**.
8. Tap outside the menu to close it.
9. Double-tap the **Acquisition** badge and set the **Timebase Reference Source** to **External Reference**.
10. Tap outside the menu to close it.
11. Double-tap the **Horizontal** badge and use the **Horizontal Scale** controls to display at least 2 cycles of the waveform.
12. Tap outside the menu to close it.
13. Double-tap the **Trigger** badge to open its menu.
    a) Set the **Source** field to the input channel being tested.
    b) Tap the **Set to 50%** button to obtain a stable display.
    c) Tap the **Mode & Holdoff** panel to open the **Mode & Holdoff** configuration menu.
    d) In the **Mode & Hold Off** menu, set the **Trigger Frequency Counter** to **On**. The trigger frequency readout is at the bottom of the Trigger badge.
    e) Tap outside the menu to close it.
14. Double-tap the channel badge being tested (starting with channel 1) and use the **Position** controls to vertically center the time mark in the waveform graticule.
15. Enter the value of the trigger frequency (**F** readout in the **Trigger** badge) in the test record for that frequency.
16. Repeat this procedure for each frequency setting shown in the record. Make sure to adjust the Horizontal scale after each calibrator frequency change to show at least two cycles of the waveform on the screen.
17. Repeat all these steps to test each oscilloscope channel.

# Arbitrary function generator

## Check AFG sine and ramp frequency accuracy

This test verifies the frequency accuracy of the arbitrary function generator. All output frequencies are derived from a single internally generated frequency. Only one frequency point of channel 1 is required to be checked.

1. Connect a 50 Ω cable from the **AFG Out** connector to the frequency counter input as shown in the following figure.

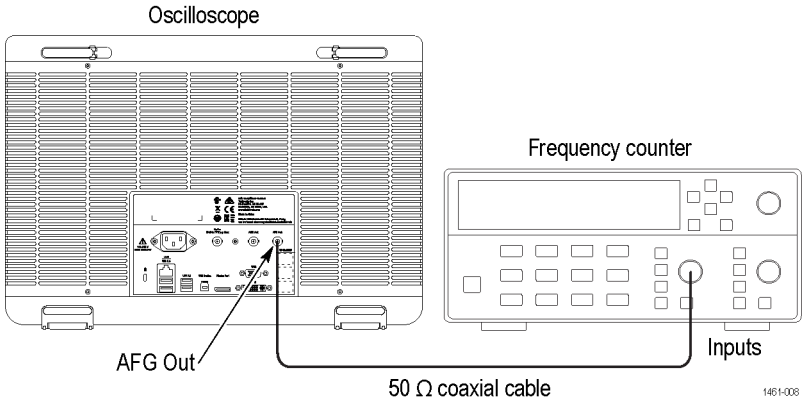



*Figure 1: Frequency/period test*

2. Tap **File** > **Default Setup** to set the instrument to the factory default settings.
3. Tap the **AFG** button to open the **AFG** menu.
4. Set the arbitrary function generator output as follows:

| Select menu | Setting |
|---|---|
| Output | On |
| Waveform Type | Sine |
| Frequency | 1.000000 MHz |
| Amplitude | 1.00 $V_{PP}$ |

5. Turn on the frequency counter:
   a. Double-tap the **Trigger** badge to open its menu.
   b. Set the **Source** field to the input channel being tested.
   c. Tap the **Set to 50%** button to obtain a stable display.
   d. Tap the **Mode & Holdoff** panel to open the Mode & Holdoff configuration menu
   e. In the Mode & Hold Off menu, set the **Trigger Frequency Counter** to **On**. The trigger frequency readout is at the bottom of the Trigger badge.
   f. Tap outside the menu to close it.
6. Check that the reading of the frequency counter is between **0.999950 MHz** and **1.000050 MHz**. Enter the value in the Test record.
7. Set the arbitrary function generator output as follows:

| Select menu | Setting |
|---|---|
| Waveform Type | Ramp |
| Frequency | 500 kHz |

8. Check that reading of the frequency counter is between **499.975 kHz** and **500.025 kHz**. Enter the value in the Test record.

## Check AFG square and pulse frequency accuracy

This test verifies the frequency accuracy of the arbitrary function generator. All output frequencies are derived from a single internally generated frequency. Only one frequency point of channel 1 is required to be checked.

1. Connect the arbitrary function generator to the frequency counter as shown in the following figure.

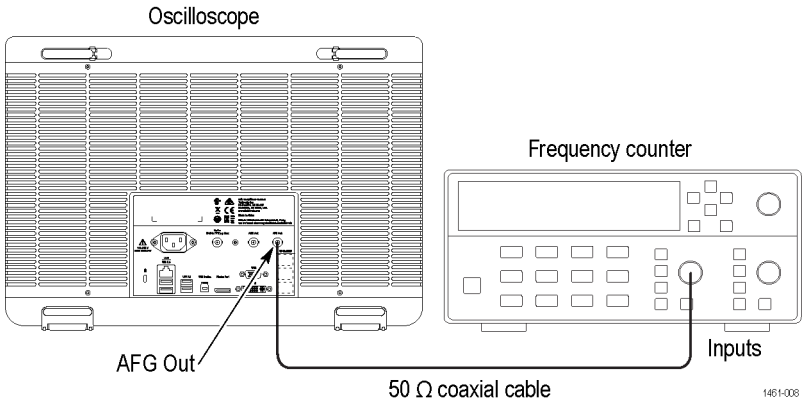



*Figure 2: Frequency/period test*

2. Tap **File** > **Default Setup** to set the instrument to the factory default settings.
3. Tap the **AFG** button to open the AFG menu.
4. Set the arbitrary function generator as follows:

| Select menu | Setting |
|---|---|
| Waveform Type | Square |
| Frequency | 1.000000 MHz |
| Amplitude | 1.00 $V_{PP}$ |
| Output | On |

5. Turn on the frequency counter:
   a. Double-tap the **Trigger** badge to open its menu.
   b. Set the **Source** field to the input channel being tested.
   c. Tap the **Set to 50%** button to obtain a stable display.
   d. Tap the **Mode & Holdoff** panel to open the Mode & Holdoff configuration menu
   e. In the Mode & Hold Off menu, set the **Trigger Frequency Counter** to **On**. The trigger frequency readout is at the bottom of the Trigger badge.
   f. Tap outside the menu to close it.
6. Check that the frequency counter readout is between **0.999950 MHz** and **1.00005 MHz**. Enter the value in the Test record.
7. Set up the arbitrary function generator as follows:

| Select menu | Setting |
|---|---|
| Waveform Type | Pulse |

8. Check that reading of the frequency counter is between **0.999950 MHz** and **1.000050 MHz**. Enter the value in the Test record.

## Check AFG signal amplitude accuracy

This test verifies the amplitude accuracy of the arbitrary function generator. All output amplitudes are derived from a combination of attenuators and 3 dB variable gain. Some amplitude points are checked. This test uses a 50 Ω terminator. It is necessary to know the accuracy of the 50 Ω terminator in advance of this amplitude test. This accuracy is used as a calibration factor.

1. Connect the 50 Ω terminator to the DMM as shown in the following figure and measure the resistance value.

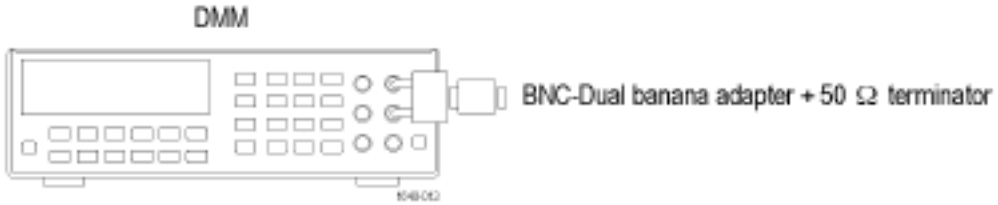



*Figure 3: 50 Ω terminator accuracy*

2. Calculate the 50 Ω calibration factor (CF) from the reading value and record as follows:

**Table 2: CF (Calibration Factor) = 1.414 × ((50 / Measurement Ω) + 1)**

| Measurement (reading of the DMM) | Calculated CF |
|---|---|
| | |

Examples:

For a measurement of 50.50 Ω, CF = 1.414 ( 50 / 50.50 + 1) = **2.814**.

For a measurement of 49.62 Ω, CF = 1.414 ( 50 / 49.62 + 1) = **2.839**.

3. Connect the arbitrary function generator output to the DMM as shown in the following figure. Be sure to connect the 50 Ω terminator to the **AFG Out** connector.

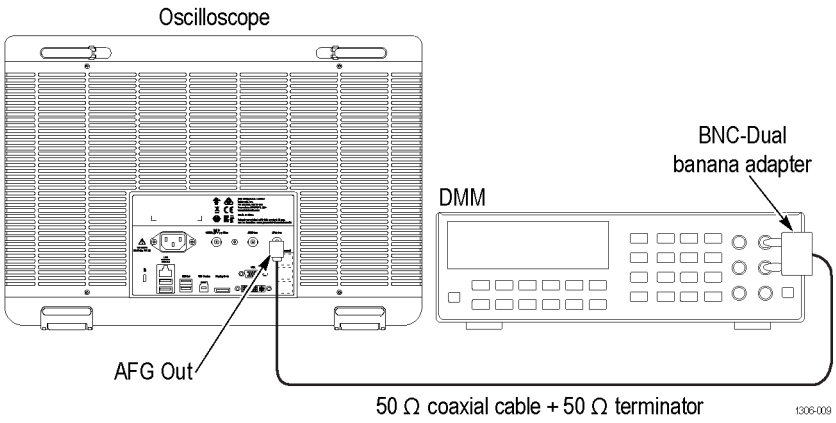



*Figure 4: Amplitude test*

4. Tap the **AFG** button and set up the arbitrary function generator output as follows:

| Select menu | Setting |
|---|---|
| Waveform Type | Sine |
| Frequency | 1.000000 kHz |
| Amplitude | 30 $mV_{PP}$ |
| Load Impedance | 50 Ω |

Table continued…

| Select menu | Setting |
|---|---|
| Output | On |

5. Measure the **AC RMS** voltage readout on the DMM.
6. Multiply the DMM voltage by the calculated CF to get the corrected peak to peak voltage. Enter the resulting value in the Measurement field in the following table.
7. Change the AFG output amplitude to the next value in the table.
8. Repeat steps *5* on page 257 through *7* on page 257 for each amplitude value. Check that the peak to peak voltages are within the limits in the table below. Enter the values in the test record.

| Waveform Type | Frequency | Amplitude | Measurement | Range |
|---|---|---|---|---|
| Sine | 1.000 kHz | 30.0 $mV_{PP}$ | | 28.55 $mV_{PP}$ - 31.45`$mV_{PP}$ |
| Sine | 1.000 kHz | 300.0 $mV_{PP}$ | | 294.5 $mV_{PP}$ - 305.5`$mV_{PP}$ |
| Sine | 1.000 kHz | 800.0 $mV_{PP}$ | | 787.0 $mV_{PP}$ - 813.0`$mV_{PP}$ |
| Sine | 1.000 kHz | 1.500 $V_{PP}$ | | 1.4765 $V_{PP}$ - 1.5235`$V_{PP}$ |
| Sine | 1.000 kHz | 2.000 $V_{PP}$ | | 1.969 $V_{PP}$ - 2.031`$V_{PP}$ |
| Sine | 1.000 kHz | 2.500 $V_{PP}$ | | 2.4615 $V_{PP}$ - 2.5385`$V_{PP}$ |

## Check AFG DC offset accuracy

This test verifies the DC offset accuracy of the arbitrary function generator. This test uses a 50 Ω terminator. It is necessary to know the accuracy of the 50 Ω terminator in advance of this test. This accuracy is used as a calibration factor.

1. Connect the 50 Ω terminator to the DMM as shown in the following figure and measure the resistance value.

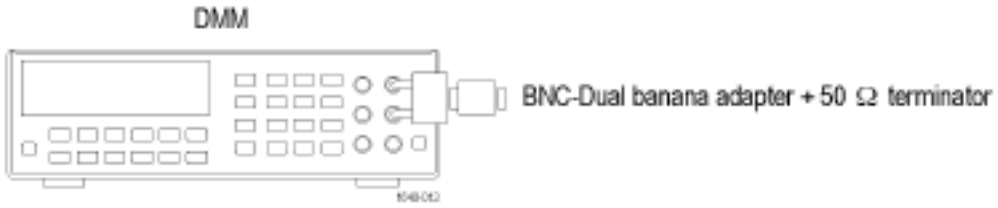



*Figure 5: 50 Ω terminator accuracy*

2. Calculate the 50 Ω calibration factor (CF) from the reading value and record as follows:

**Table 3: CF (Calibration Factor) = 0.5 × (( 50 / Measurement Ω) + 1)**

| Measurement (reading of the DMM) | Calculated CF |
|---|---|
| | |

Examples:

For a measurement of 50.50 Ω, CF = 0.5 ( 50 / 50.50 + 1) = **0.9951**.

For a measurement of 49.62 Ω, CF = 0.5 ( 50 / 49.62 + 1) = **1.0038**.

3. Connect the arbitrary function generator output to the DMM as shown in the following figure. Be sure to connect the 50 Ω terminator to the arbitrary function generator **AFG Output** connector.

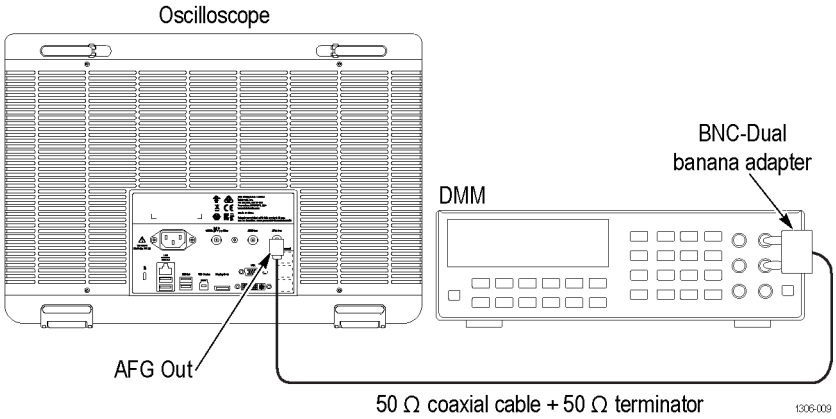



*Figure 6: DC offset tests*

4. Tap the **AFG** button and set up the arbitrary function generator as follows:

| Select menu | Setting |
|---|---|
| Waveform Type | DC |
| Offset | + 1.25 V |
| Output | On |

5. Measure the voltage readout on the DMM.
6. Multiply the DMM voltage by the calculated CF to get the corrected offset voltage. Enter the resulting value in the Measurement field in the following table.

| Function | Offset | Measurement | Range |
|---|---|---|---|
| DC | + 1.25 Vdc | Vdc | 1.23025 Vdc to 1.26975 Vdc |
| DC | 0.000 Vdc | Vdc | - 0.001 Vdc to + 0.001 Vdc |
| DC | - 1.25 Vdc | Vdc | -1.26975 Vdc to -1.23025 Vdc |

7. Change the AFG output amplitude to the next value in the table, measure the voltage readout on the DMM, multiply the DMM readout by the calculated CF to get the corrected offset voltage, and enter the resulting value in the Measurement field in the table.
8. Verify that the corrected offset measurements are within the range.

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## P