

# Agilent J7203A Atomic Frequency Reference

## Technical Overview

### Features and Benefits

- Fast setup time (less than 3 minutes) with high initial calibration accuracy of  $\pm 5 \times 10^{-11}$
- Long term temperature stability of  $\pm 5 \times 10^{-10}$  allows for high performance in variety of environmental conditions up to 55 °C
- Automatic synchronization of 1 PPS signal provides stability of instruments internal 10 MHz clock
- USB plug-and-play provides easy installation and power



### Description

The Agilent J7203A atomic frequency reference is designed to bring accuracy and stability as a portable cesium-based atomic clock when used with Agilent's N9010/20/30A X-Series signal analyzers. The atomic frequency reference unit conveniently attaches to the rear panel of the instrument and is powered by a simple plug-and-play USB connection. With a highly accurate one pulse per second (1PPS), it is used to keep the accuracy of the instruments internal 10 MHz clock phase and frequency ensuring a more sensitive frequency reading of the measurements. Therefore, the J7203A atomic frequency reference serves as a great alternative to a primary reference standard.

### Specifications

Specifications refer to the performance standards or limits against which the J7203A atomic frequency reference are tested. Typical characteristics are included for additional information only and they are not specifications. Those are denoted as "typical", "nominal" or "approximate" and are printed in *italic*.

Specifications subject to change

J7203A	Specification
Aging rate per year	$\pm 1 \times 10^{-9}$
Temperature stability	$\pm 5 \times 10^{-10}$
Achievable initial calibration accuracy	$\pm 5 \times 10^{-11}$ (3 minutes after turn on)
Calibration cycles	1 year
1-PPS signal amplitude	4.5V <V <5.2ns
1-PPS signal pulse width	pulse width >20ns
Supplemental characteristic	
USB requirement	5V nominal, 500mA maximum



## Environmental Specifications

Agilent J7203A atomic frequency reference is designed to fully comply with Agilent Technologies' product operating environmental specifications. The following are the summarized environmental specifications for these products.

Temperature range	
Operating	0 to 55 °C
Storage	- 40 to 70 °C
Relative Humidity	
Operating	95% RH at 40 °C (non-condensing)
Shock	
End-use handling shock	Half-sine wave form
Transportation shock	70 g
Vibration	
Operating	0.21 g rms
Survival	2.09g rms
Altitude	
Operating	< 4572 meters (15,000 feet)
ESD immunity	
Direct discharge	4.0 kV per IEC 61000-4-2
Air discharge	4.0 kV per IEC 61000-4-2

## Mechanical Dimension

Weight	Height	Width	Length
0.19 kg ( 0.42 lbs)	27.55 mm (1.08 in)	49.28 mm (1.94 in)	145.00 mm (5.71 in)

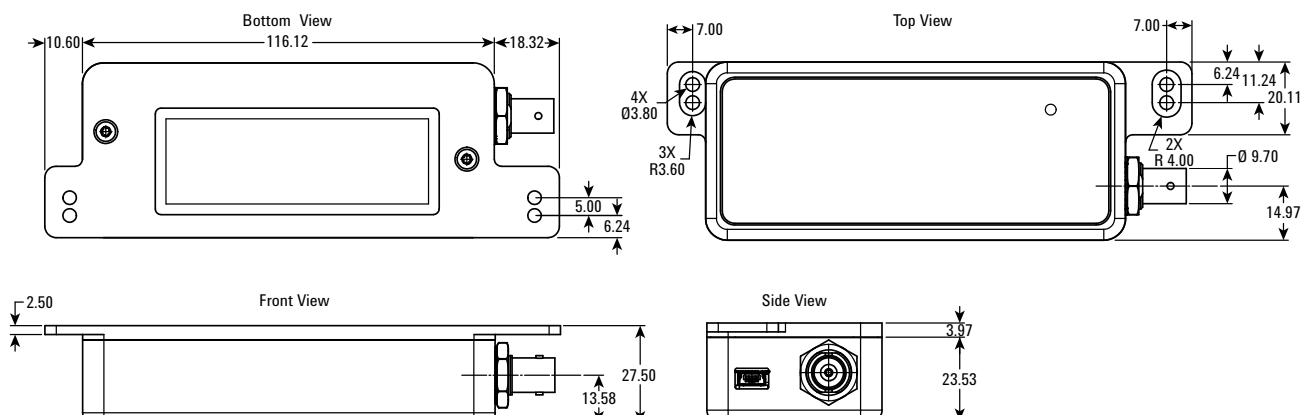


Figure 1. Mechanical dimension of the J7203A atomic frequency reference

## Ordering Information

**J7203A Atomic Frequency Reference**

## Recommended signal analyzers

N9010A EXA Series Signal Analyzers, 10 Hz to 44 GHz  
**[www.agilent.com/find/exa](http://www.agilent.com/find/exa)**

N9020A MXA Series Signal Analyzers, 10 Hz to 26.5 GHz  
**[www.agilent.com/find/mxa](http://www.agilent.com/find/mxa)**

N9030A PXA Series Signal Analyzers, 3 Hz to 50 GHz  
**[www.agilent.com/find/pxa](http://www.agilent.com/find/pxa)**

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Singapore	1 800 375 8100
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Product specifications and descriptions in this document subject to change without notice.

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