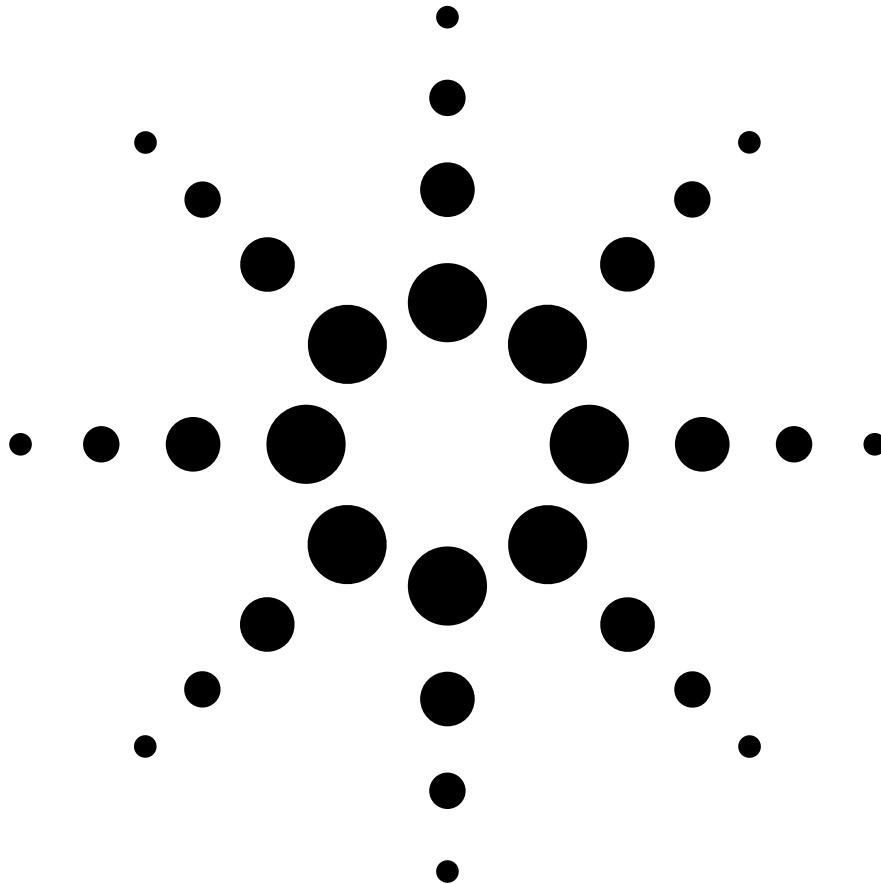


# Agilent CSA Preliminary Specifications

Data Sheet



## Frequency

**Range** 100 kHz to 3 GHz (Option 503)  
100 kHz to 6 GHz (Option 506)

### Frequency reading accuracy

± (freq indication x frequency reference accuracy +  
0.5 x horizontal resolution + 1 Hz)

**Internal reference accuracy** ≤ ± 5 ppm/year (within  
Aging rate 2 years of adjustment)  
Temperature stability ≤ ± 2 ppm/year  
≤ ± 1 ppm

## Resolution bandwidth (RBW)

10 Hz to 200 kHz in 1% steps, 250 kHz, 300 kHz, 1 MHz, 3 MHz, 5 MHz

**Selectivity** **Digital, approximately**  
**(60 dB/3 dB bandwidth ratio)** **Gaussian shape**

Span > 0; RBW ≤ 200 kHz < 8.4:1 (nominal)  
Span > 0; RBW ≥ 250 kHz < 4.5:1 (nominal)  
Zero span; RBW ≤ 10 kHz < 6.5:1 (nominal)  
Zero span; RBW ≤ 1 MHz < 3:1 (nominal)

### Accuracy

**(RBW ≤ 200 kHz)** < 2% zero span; < 7% span > 0  
(nominal)  
**(RBW = 250 kHz, 300 kHz,  
1 MHz, 3 MHz)** < 4% zero span; < 4% span > 0  
(nominal)

## Displayed average noise level (typical)

	Preamp on (10 Hz RBW)	Preamp off (10 Hz RBW)	Preamp on (Norm to 1 Hz)
500 MHz	-148 dBm	-130 dBm	-158 dBm/Hz
1 GHz	-146 dBm	-128 dBm	-156 dBm/Hz
2 GHz	-142 dBm	-124 dBm	-152 dBm/Hz
3 GHz	-144 dBm	-130 dBm	-154 dBm/Hz
4 GHz	-142 dBm	-128 dBm	-152 dBm/Hz
5 GHz	-139 dBm	-125 dBm	-149 dBm/Hz
6 GHz	-136 dBm	-122 dBm	-146 dBm/Hz

### Phase noise

-85 dBc at 10 kHz offset (typical)  
-124 dBc at 1 MHz offset (nominal)

## Sweep and trace update times

**Sweep time setting range** 2 μs to 10 s  
**(zero span)**

### Local trace update

Span ≤ 100 MHz 3 updates/sec max  
Span = 1 GHz 1 update/sec max

### Remote sweep and trace transfer

Span = 0 120 ms minimum  
Span ≤ 100 MHz 180 ms  
Span = 3 GHz 1 sec

## Amplitude

**Maximum average  
continuous power** +33 dBm  
**(Attenuator ≥ 19 dB)**

**Maximum DC** 50 V dc

**Input attenuator range** 0 to 40 dB in 1 dB steps

**1 dB gain compression** +13 dBm (nominal)

## Overall amplitude accuracy (95%)

(20 to 30 °C, peak detector, preamplifier off, input signal 0 dBm to -50 dBm)

±0.5 dB 100 kHz to 1 GHz  
±0.6 dB 1 GHz to 3 GHz  
±0.8 dB 3 GHz to 6 GHz

## Amplitude accuracy

**Absolute amplitude accuracy at 50 MHz reference** ±0.4 dB  
±0.4 dB 100 kHz to 1 GHz  
**Frequency response** ±0.6 dB 1 GHz to 2.7 GHz  
±0.7 dB 2.7 GHz to 3 GHz  
±1.1 dB 3 GHz to 6 GHz  
**Scale fidelity** ±0.2 dB (-10 to -80 dBm mixer level)  
**RBW switching** ±0.3 dB  
**Attenuator switching.** ±0.2 dB

## Spurs and residuals

**Third order intermodulation**  
TOI (third order intercept) +18 dBm nominal  
**Second order harmonic**  
SHI TBD (better than +40 dBm)  
**Input related spurs** TBD  
**Residuals** -90 dBm

## Preamplifier

100 kHz to 3 GHz (Option P03)  
100 kHz to 6 GHz (Option P06)

### Gain

22 dB (nominal) < 2.7 GHz  
18 dB (nominal) < 6 GHz

## Tracking generator

10 MHz to 3 GHz (Option P03)  
10 MHz to 6 GHz (Option P06)

## Input/output

**RF input** Type N, female (50 Ω)  
**Tracking generator output** Type N, female (50 Ω)  
**USB-A** USB 1.1 (low power device only)  
**LAN 10/100 base-T** RJ-45 connector  
**Reference out** BNC (female), 10 MHz, 0 dBm nominal  
**Reference in** BNC (female), 1 MHz, 2.048 MHz, 4.95 MHz, 10 MHz, 13 MHz, 15 MHz, 19.6608 MHz, 0.5 Hz (even second clock), -5 to +10 dBm (nominal)  
**External trigger input** BNC (female)



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Printed in USA, December 13, 2005  
5989-4519EN



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