

Measurement Uncertainty

The measurement uncertainties listed in this document do not include uncertainties of the equipment under test. Uncertainties are estimated at a confidence level of not less than 95%. This document aims to provide the typical or worst case measurement uncertainties.

All measurement uncertainties shown are based on the instrument absolute specifications. In certain measurements, relative measurement technique can be employed to improve the measurement uncertainty.

Itron, Inc. does not warrant the usage of any uncertainty stated in this document. These measurement uncertainties are subject to change without prior notice to the end-user.

We are able to provide services to compute exact uncertainty for your specific measurement. Contact us if you need the services.

1.	DC Voltage Generation		<11 ppm
2.	DC Current Generation		
		<2.2A	55ppm to 130ppm
		5A to 100A	0.006% to 0.060%
3.	LF AC Voltage Generation		0.011% to 0.600%
4.	LF AC Current Generation		0.018% to 1.009%
5.	Resistance		5ppm to 110ppm
6.	DC Voltage Measurement		9ppm to 35ppm
7.	Frequency		
		Timebase Accuracy	5×10^{-11}
8.	LCR Standards		
		Capacitance	
		>2pF and <100uF	0.01% to 0.4%
		2pF and >100uF	<2.0%
		Dissipation Factor,D	0.07%
		Inductance	
		100mH	<0.4%
		Resistance	
		DC	0.02% to 0.10%
		<13MHz	<0.7%
9.	High Resistance Standard		
		<10 ¹¹ ohm	0.07% to 1.00%
10.	Absolute RF and Microwave Power		
		35dBm to -20dBm	0.10dB to 0.24dB
		<-127dBm	<0.91dB
11.	SWR		
		Directivity	34dB to 40dB
12.	Attenuation		
		10dB to 120dB	0.084dB to 0.286dB
13.	Amplitude Modulation		
		Carrier < 26.5GHz	1.3% of reading to 3.6% of reading
14.	Frequency Modulation		
		Carrier < 26.5GHz	1.1% of reading to 5.1% of reading
15.	Phase Modulation		
		Carrier < 26.5GHz	3% of reading to 4% of reading
16.	Modulation Distortion		< 1dB
17.	Pulse Modulation		
		On-Off Ratio	1.6dB
		Rise and Fall Time	<400psec
18.	Rise Time Generation		<1nsec and <45psec
19.	Harmonics and Spurious		
		Up to 26.5GHz	1.894dB to 3.887dB
20.	Phase Noise		<2dB