Laboratory Session: Week 2: Oscilloscopes and Function Generators

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Wave Form	Scope Voltage		Meter Voltage (RMS) DMM	Difference (%) Vs Calc DMM
100 Hz	Cursor	Calc	Vrms	%
	~5 Vpp	Vrms		
Sine	5.025 V	1.776 V	1.771 V	0.2 %
Triangle	5.025 V	1.45 V	1.447 V	0.2 %
Square	5.025 V	2.51 V	2.496 V	0.56 %

If there are differences, explain:

The meter voltage is consistently lower than the calculated RMS due to internal resistance not accounted for in “calculated rms” value but are still very close to each other.

Wave Form	Scope Voltage		Meter Voltage (RMS) DMM	Difference (%) Vs Calc DMM
25 kHz	Cursor	Calc	Vrms	%
	~5 Vpp	Vrms		
Sine	5.025 V	1.776 V	452.6 mV	74.5 %
Triangle	5.025 V	1.45 V	366.7 mV	74.7 %
Square	5.025 V	2.51 V	579.6 mV	76.9 %

If there are differences, explain:

The values contain a drastic difference in voltage as a result of the filter in the DMM. Since the wave form measured in the second table is 25 kHz and therefore high frequency, the DMM cannot measure the entire wave and the majority of the wave is lost as noise.