

Calculating Output Amplitude Accuracy using dB

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Some specifications, like the SDG800 and 1000 series, describe the vertical accuracy using dB

The SDG1000, for example, states:

Vertical Accuracy = $\pm (0.3 \text{ dB} + 1 \text{ mV})$

First, let's convert the dB part...

$$\text{Vertical Accuracy(dB)} = 20 \log (1 + (\text{Error}(\%)/100))$$

$$\pm 0.3 \text{ dB} = 20 \log (1 + (\text{Error}(\%)/100))$$

$$\text{Error} (\%) = 3.5\%$$

So, if we set the voltage output to 1 V:

$$\text{Vertical Accuracy} = \pm (0.3 \text{ dB} + 1 \text{ mV}) = \pm ((1 \text{ V}) * 3.5\% + 1 \text{ mV}) = \pm 0.036$$

So, for a 1 V set point, an in-tolerance sourced value would lie in the span of 1 +/- 0.036 V



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