

## Updated Frequency Uncertainty Calculations (SSA, SSA Plus, SVA)

September 18, 2020

Currently listed datasheet calculation for SSA Frequency Uncertainty is being updated, but as of 08/26/2020, it has not.

Here is the new calculation:

We can use below new specification:

$\pm (\text{frequency indication} \times \text{frequency reference uncertainty} + 1/2(\text{span}/(\text{sweep points}-1)) + 10\% \times \text{resolution bandwidth} + \text{marker resolution})$

For example:

The frequency indication is 500 MHz;

Frequency reference uncertainty is 1 ppm;

The SPAN is 1000 MHz;

The sweep points are 751;

The resolution bandwidth is 100 kHz;

The marker resolution is 1Hz;

So the uncertainty =  $\pm (500 \text{ MHz} \times 1 \text{ ppm} + 0.5 \times (1000 / (751 - 1)) + 10\% \times 100 \text{ kHz} + 1 \text{ Hz}) = \pm (500 \text{ Hz} + 666 \text{ Hz} + 10 \text{ kHz} + 1 \text{ Hz}) = \pm 11.167 \text{ kHz}$



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