ADAR1000 Phase Error Definitions

Phase Error:

$$Phase\ Error = Phase_{Measured} - Phase_{Ideal}$$

Peak Error:

$$Peak\ Phase\ Error = Max(abs(\{Phase\ Error_i\}))$$

Where {*Phase Error*$_i$} is a set of phase errors between the 0 and 360 degree phase settings, in 2.8125 degree steps.

Average Phase Error:

$$Average\ Phase\ Error = \frac{1}{128}\sum_{i=1}^{128} Phase\ Error_i$$

RMS Phase Error (standard), not shown in the datasheet:

$$RMS\ Phase\ Error = \sqrt{\frac{1}{128}\sum_{1}^{128}(Phase\ Error_i)^2}$$

RMS Phase Error (referenced to Average Phase Error) shown in datasheet:

$$RMS\ Phase\ Error\ (ref{:}\ Average\ Error) = \sqrt{\frac{1}{128}\sum_{1}^{128}(RMS\ Phase\ Error_i - Average\ Error\ )^2}$$

Notes:

- Rx Phase error is referenced to phase setting 202.5 degrees, e.g. $Phase_{Measured\_202.5}$ = $Phase_{Ideal\_202.5}$ = 202.5 degrees (normalized), thus Phase Error at this setting is defined as zero.
- Tx Phase error is referenced to phase setting 22.5 degrees, e.g. $Phase_{Measured\_22.5}$ = $Phase_{Ideal\_22.5}$ = 22.5 degrees (normalized), thus Phase Error at this setting is defined as zero.
- Errors are calculated at each frequency point