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## 0.1 My header

The function generator creates 3 waveforms with user-defined amplitude and offset as well as in-phase and quadrature signals with amplitude 1 and offset 0.

$pos$ ,  $fg_i$  and  $fg_q$  are signals captured with DMA from hardware.

1. Offset is removed from position  $pos_0 = pos - \text{mean}(pos)$
2. I and Q components are calculated as:  $I = 2 * \text{mean}(pos * fg_i)$   $Q = 2 * \text{mean}(pos * fg_q)$
3. Amplitude and phase are calculated as  $\text{ampl} = \sqrt{I^2 + Q^2} / fg_{\text{ampl}}$   
 $\text{ph} = \arctan2(Q, I)$

where  $fg_{\text{ampl}}$  is (user-defined) output amplitude of function generator.

1. The values shown on the plots are represented in dBm:  $\text{ampl[dBm]} = 20 * \log_{10}(\frac{\text{ampl[um]}}{1 \text{ um}})$