* Frequency of clock that drives TIM16 (frequency gen. timer) = 64MHz/4 = 16MHz
* TIM16 max counter period = 256 ticks (0 - 255)
* TIM16 min prescaler = 64
* Currently, with maximum symmetry adjustment, we have, not accounting for the extra symmetry adjustment of 12/8 (see code):

(256 - TIM16\_final\_start\_value) = (256 - TIM16\_raw\_start\_value)\*(1-0.5\*(pot\_rotation\_corrected/ADC\_HALF\_SCALE))

Which is the same as:

(256 - TIM16\_final\_start\_value) = (256 - TIM16\_raw\_start\_value) - (256 - TIM16\_raw\_start\_value)\*(PRC/ADC\_FULL\_SCALE)

Accounting for the 12/8 factor:

(256 - TIM16\_final\_start\_value) = (256 - TIM16\_raw\_start\_value) - (256 - TIM16\_raw\_start\_value)\*(PRC\*12/(ADC\_FULL\_SCALE\*8))

Thus min value for period (256 – TIM16\_final\_start\_value) is, given that the minimum value for the (256-raw start value) is 256 – 127 = 129:

(256 - TIM16\_final\_start\_value) = 129 – (129\*127\*12/(256\*8)) = 33

Thus with a prescaler of 64, the minimum we can get away with sampling the main oscillator is given by (which is the interrupt period of the wave at these settings):

Interrupt period = Speed of the timer / prescaler of timer / min. count of timer period

= 16MHz / 64 / 33 = **7.5757 kHz**

What number of samples for the delay line, based on this sampling frequency, would it take to store the a whole wave of **the lowest frequency** the oscillator is capable of? We now need to work out the period of the slowest wave.

= 16MHz / 1024 (max prescaler) / 512 (number of samples in a wave) / 256 (max. counter period) = 0.11920929Hz

Thus number of samples = 7.5757 kHz**/**0.11920929Hz = 63 549.5774 samples

HA, this is impossible, STM32 is running out of memory at ~2000 samples in delay line…