Pulse width Calculations

To generate a PWM at **20ms**, Calculation for ***TPM2->MOD*** is shown below. This is for the Module.

$$0xFFFF = 65536$$

$$if\ 65535 = (400m\ OR\ 0.4s)$$

$$x = (20ms\ OR\ 0.02s)$$

$$x = \frac{65535 \times 0.02}{0.4} = 3276.75\ \approx 3277 = 0xCCD$$

For the channel, calculation for ***TPM2->CONTROLS[0].CnV*** for **1ms** is shown below

$$0xFFFF = 65536$$

$$if\ 65535 = (400m\ OR\ 0.4s)$$

$$x = (1ms\ OR\ 0.001s)$$

$$x = \frac{65535 \times 0.001}{0.4} = 163.8375\ \approx 164 = 0xA4$$

For the channel, calculation for ***TPM2->CONTROLS[0].CnV*** for **1.5ms** is shown below

$$0xFFFF = 65536$$

$$if\ 65535 = (400m\ OR\ 0.4s)$$

$$x = (1.5ms\ OR\ 0.0015s)$$

$$x = \frac{65535 \times 0.0015}{0.4} = 245.75625\ \approx 246 = 0xF6$$

For the channel, calculation for ***TPM2->CONTROLS[0].CnV*** for **2ms** is shown below

$$0xFFFF = 65536$$

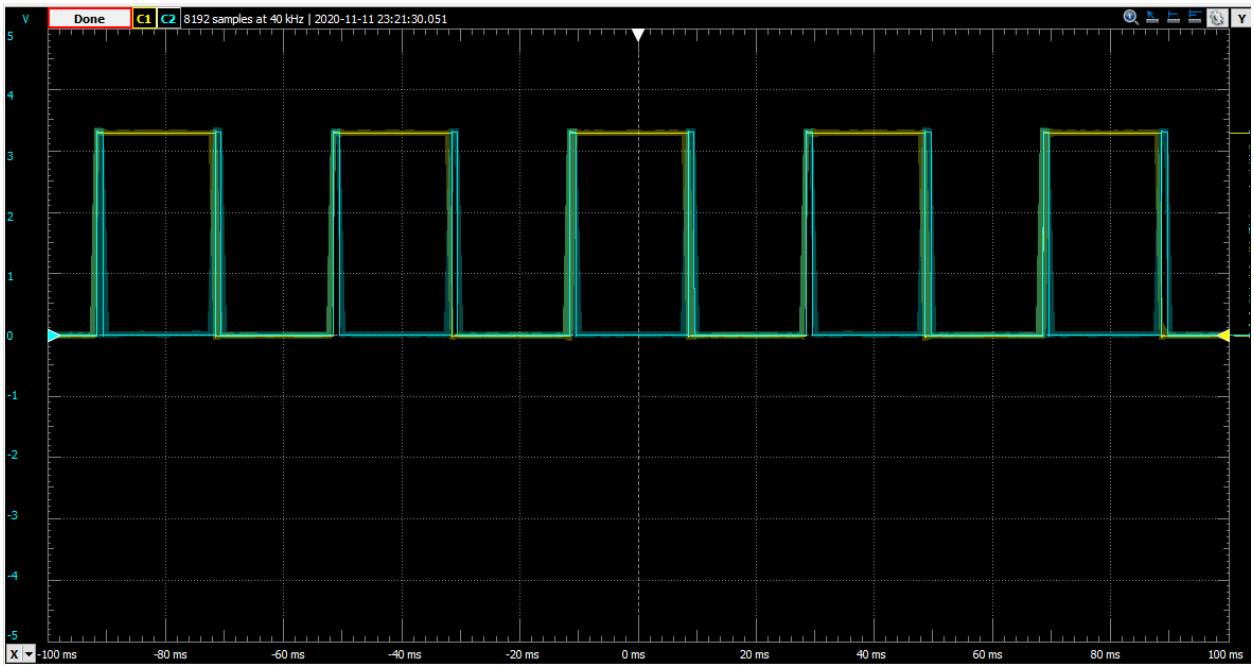
$$if\ 65535 = (400m\ OR\ 0.4s)$$

$$x = (2ms\ OR\ 0.002s)$$

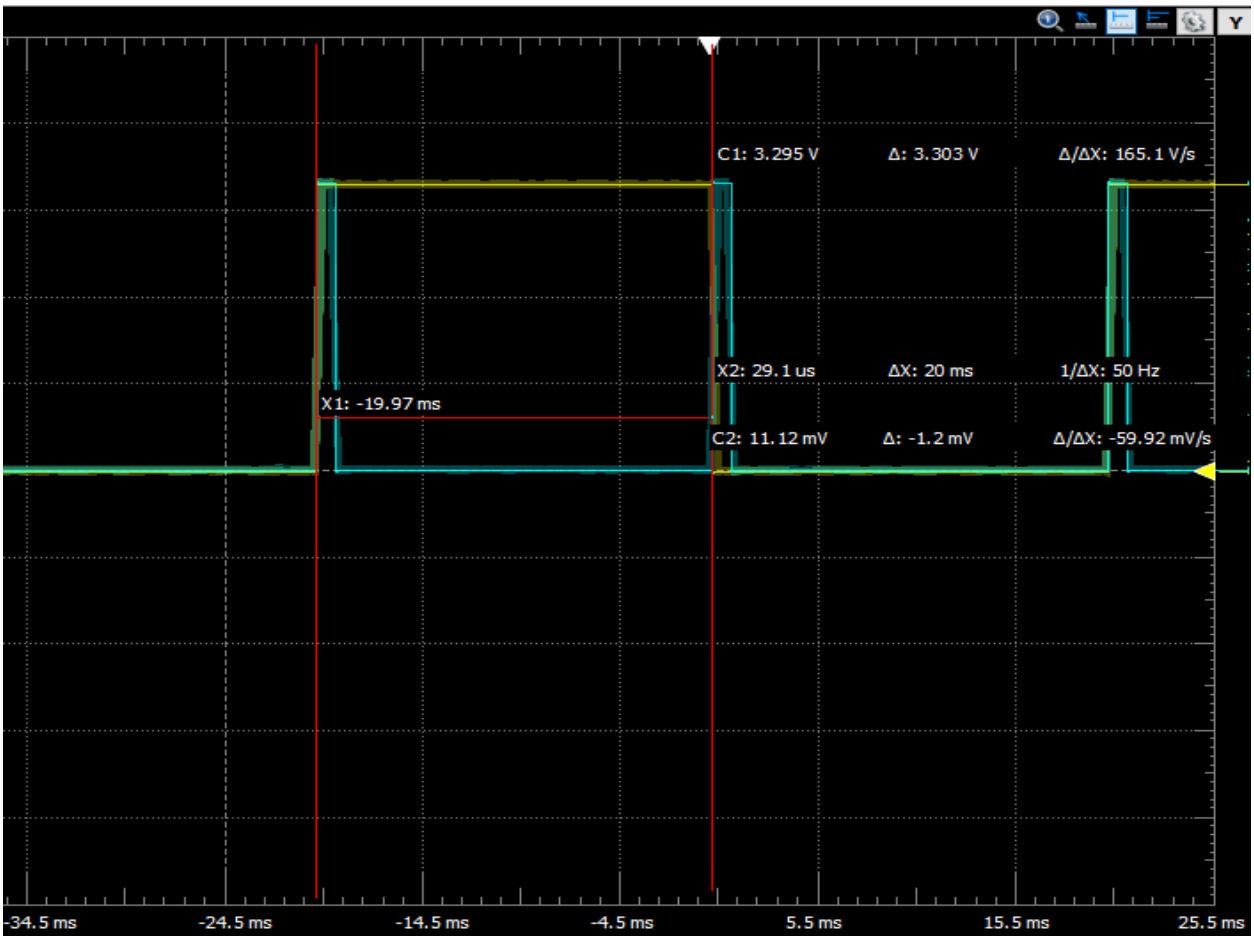
$$x = \frac{65535 \times 0.002}{0.4} = 327.675 \approx 328 = 0x148$$

OUTPUTS MEASURED WITH SCOPE

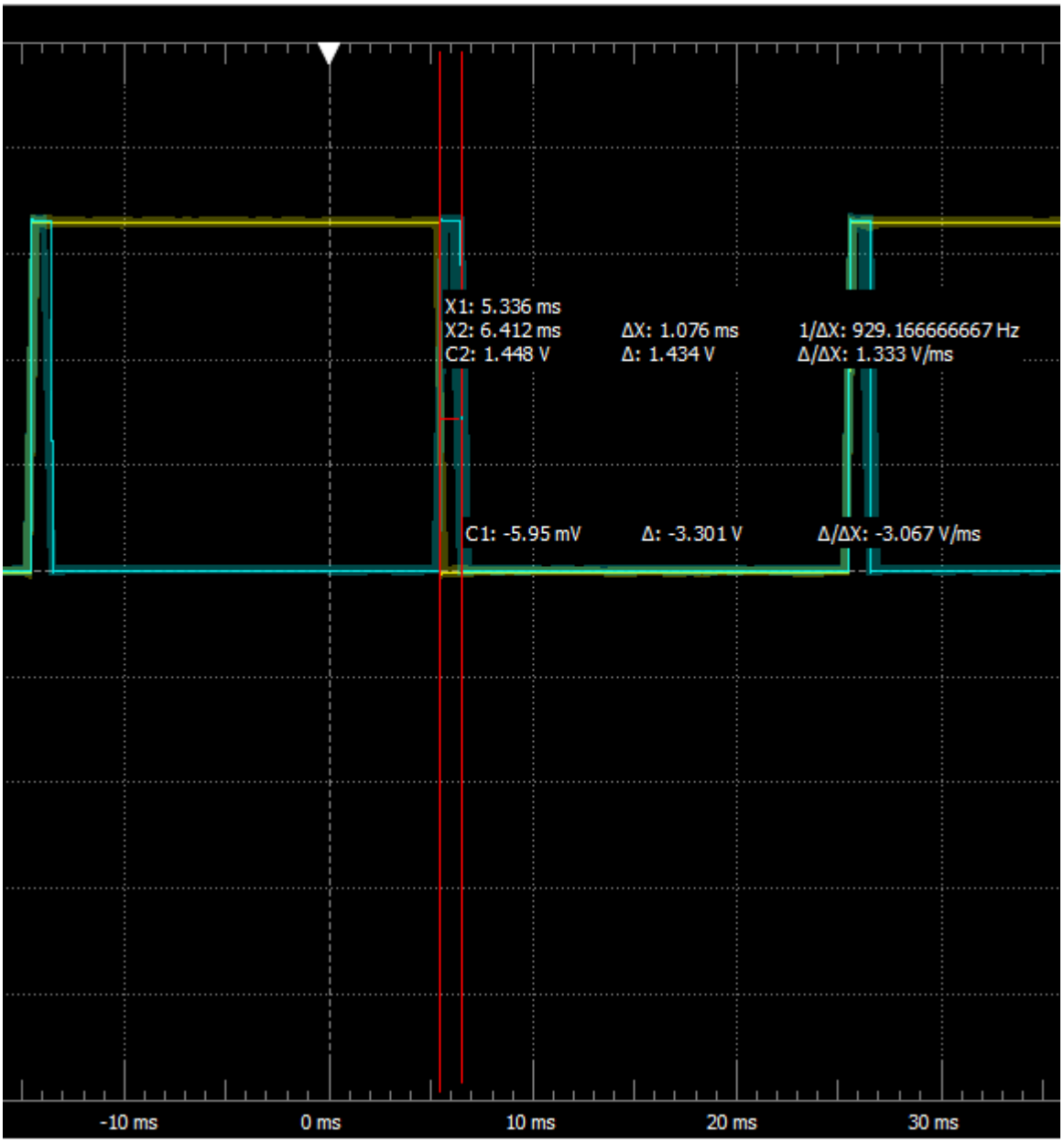
For pulse width of 1ms:



Output for PWM at 20ms with pulse width of 1ms

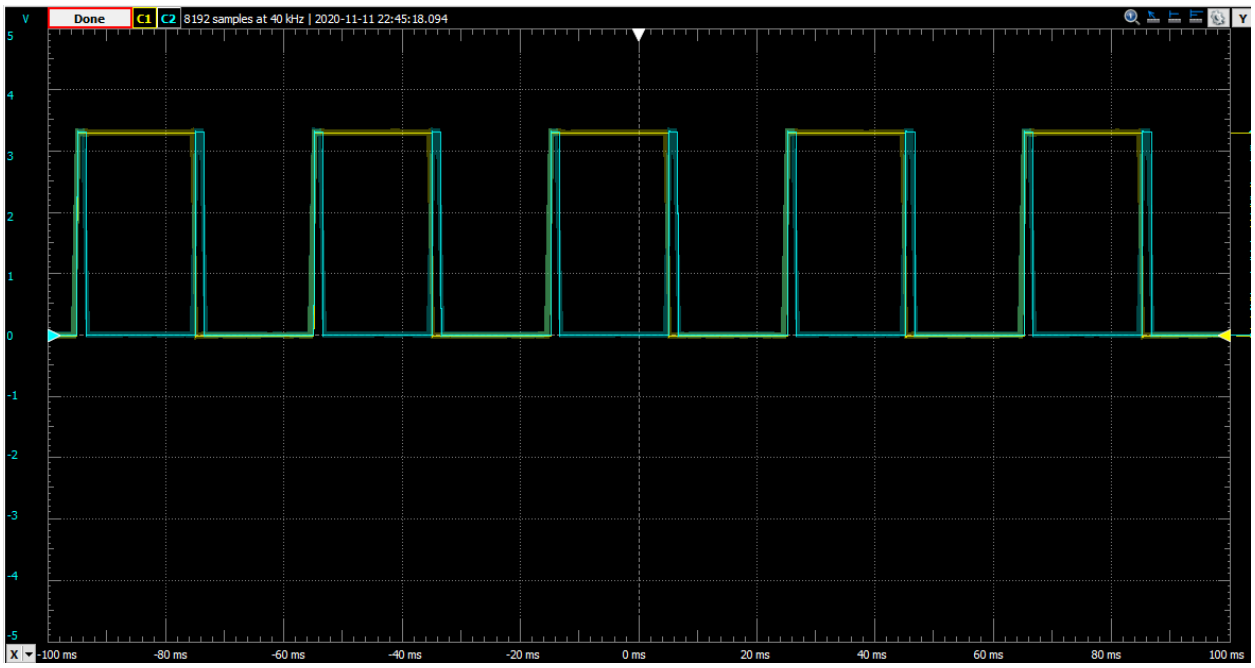


Proof that PWM is at 20ms

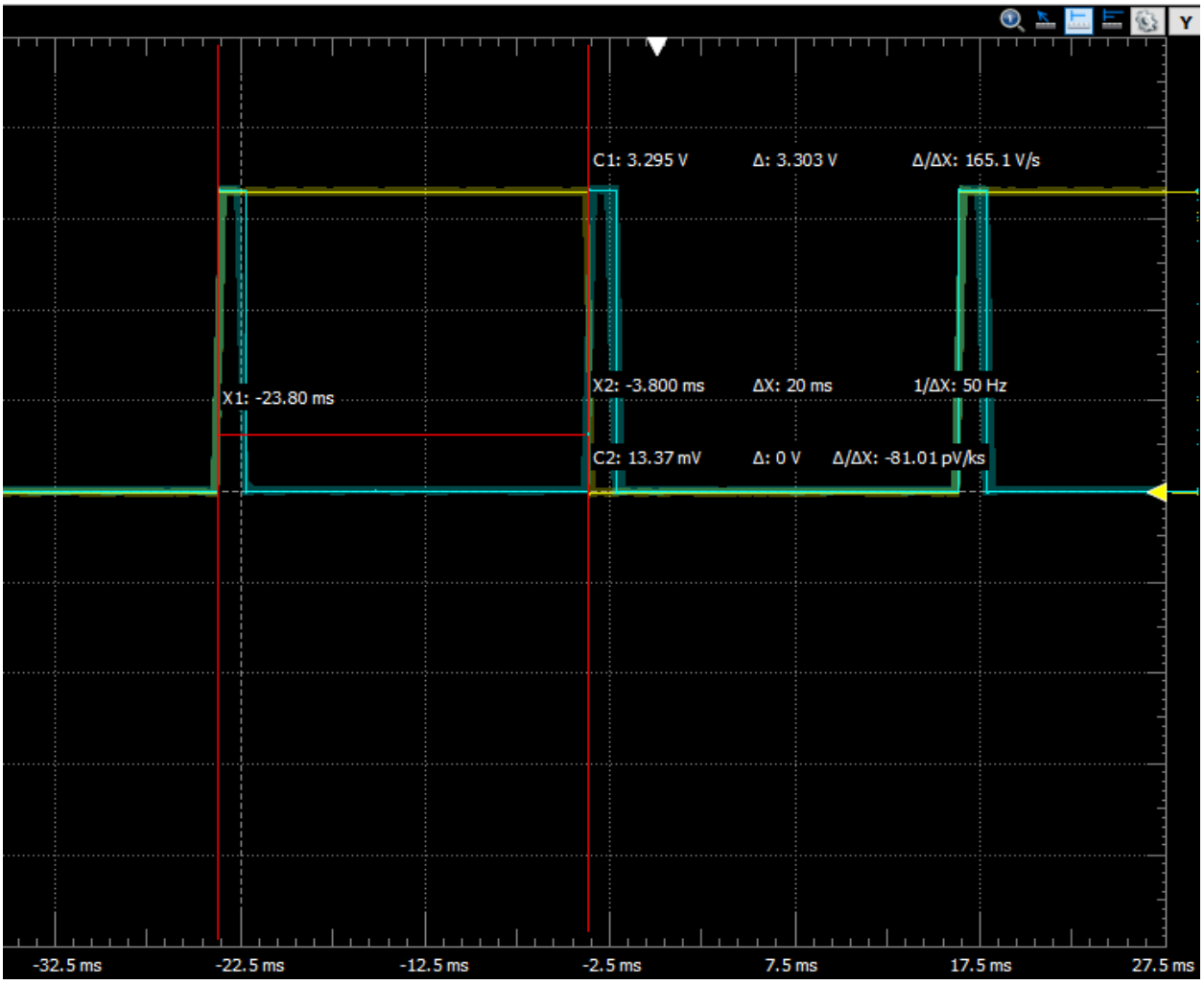


Proof that Pulse width is 1ms (Δx = 1.076ms)

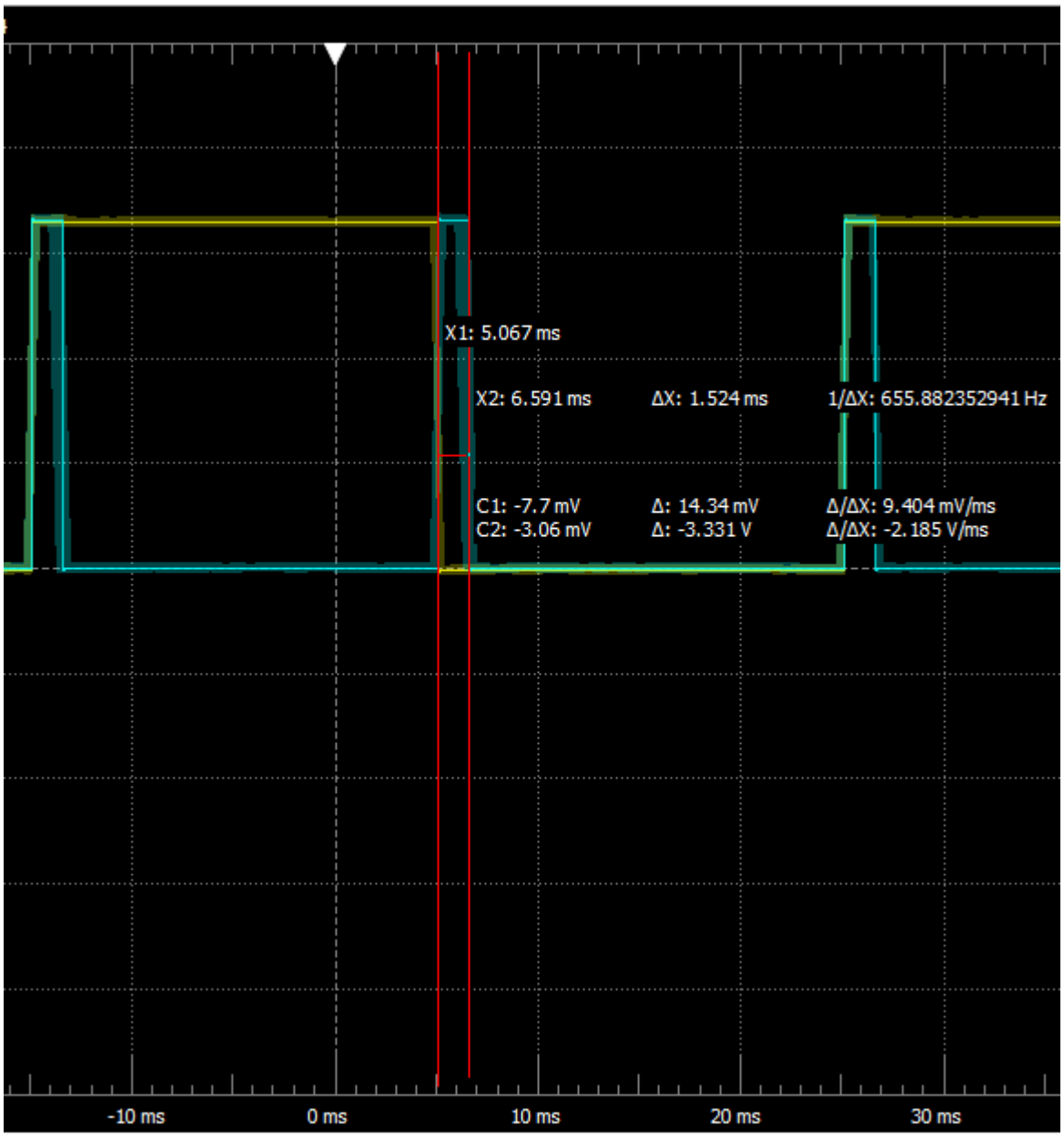
For pulse width of 1.5ms:



Output for PWM at 20ms with pulse width of 1.5ms

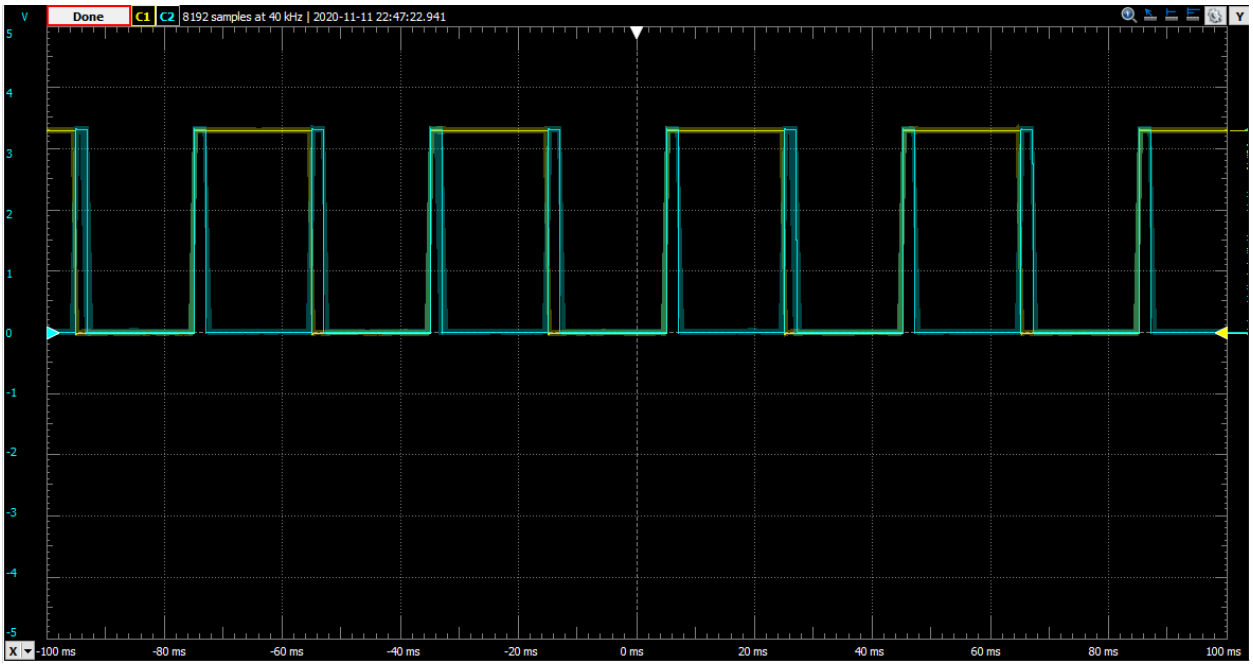


Proof that PWM is at 20ms

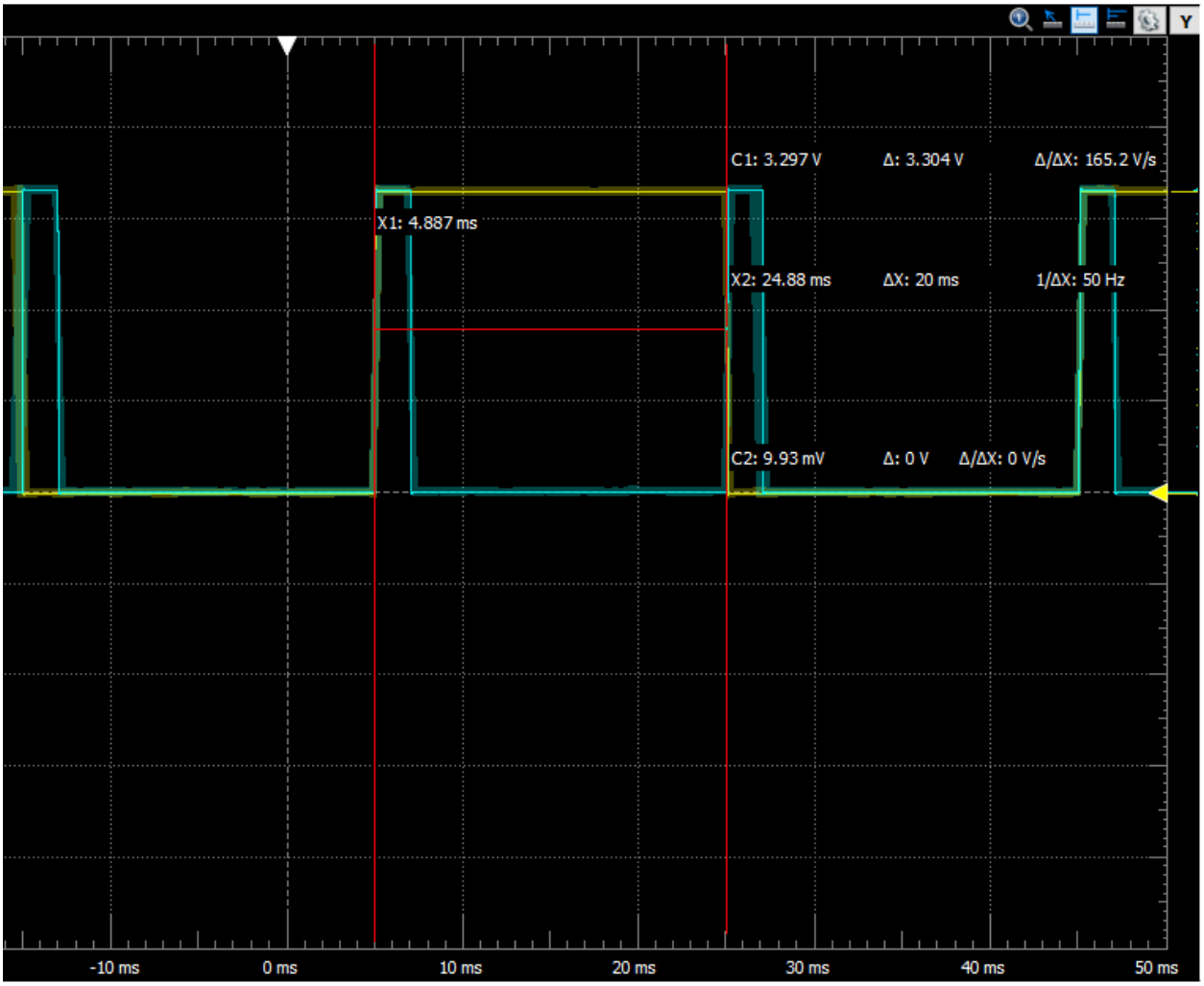


Proof that Pulse width is 1.5ms (Δx = 1.524ms)

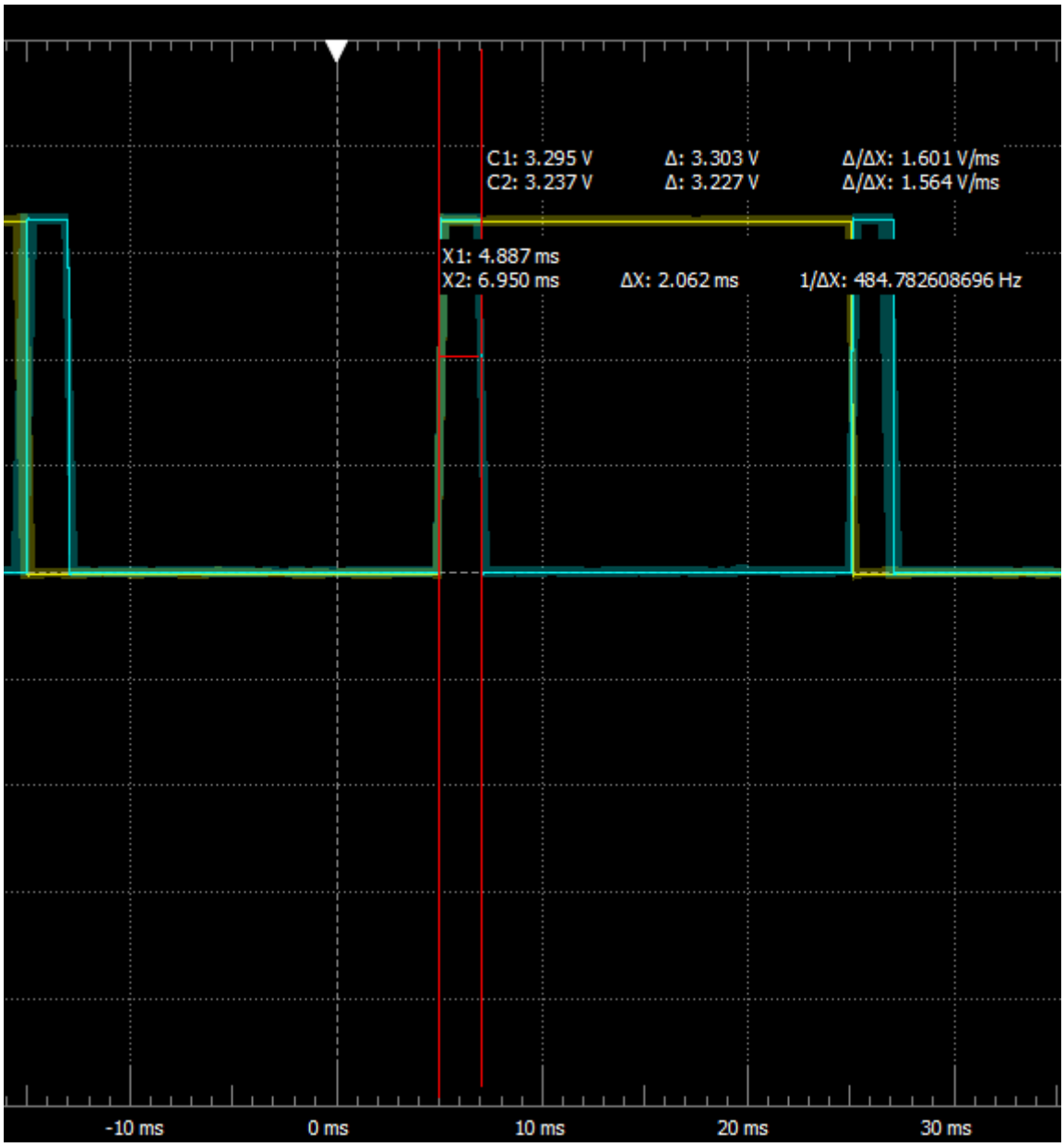
For pulse width of 2ms:



Output for PWM at 20ms with pulse width of 2ms



Proof that PWM is at 20ms



Proof that Pulse width is 2ms (Δx = 2.062ms)