Internal Software Update Request

- VEP, v1.1.7
- Device = ADIS16228
- Manual FFT Mode
- Can we set Start button to only set GLOB_CMD[11] = 1?
- Can the waveform recorder screen automatically detect the sample rate associated with each record and update the FFT scales accordingly?
- This would allow the user to manually scroll through (up to) 4 different sample rate settings, while only hitting the Start button.
- Presumably, this would also work with the Periodic Mode, where every wake-up would result in a single sample rate record and automatically move to the next one, during the next “wake-up and capture period.”
  - In this mode, the pressing the start button would cause an automatic scroll through each sample rate.
  - In relation to the following slides that explain the Manual FFT operation (requires **Start** button press for each capture) the time in REC_PRD would be the same as the time between each **Start** button press.

Set **REC_CTRL1** = 1111 to enable all samples rates

Set all four bits to “1” in order to enable all four records

REC_CTRL1 = 0x1F00

Table 9. REC_CTRL1 (Base Address = 0x1A), Read/Write

Bits	Description (Default = 0x1100)
[15:14]	Not used (don't care).
[13:12]	Window setting. 00 = rectangular, 01 = Hanning, 10 = flat top, 11 = N/A.
11	SR3, 1 = enabled for FFT, 0 = disable. Sample rate = 20,480 ÷ $2^{AVG\_CNT[15:12]}$ (see Table 11).
10	SR2, 1 = enabled for FFT, 0 = disable. Sample rate = 20,480 ÷ $2^{AVG\_CNT[11:8]}$ (see Table 11).
9	SR1, 1 = enabled for FFT, 0 = disable. Sample rate = 20,480 ÷ $2^{AVG\_CNT[7:4]}$ (see Table 11).
8	SR0, 1 = enabled for FFT, 0 = disable. Sample rate = 20,480 ÷ $2^{AVG\_CNT[3:0]}$ (see Table 11).
7	Power-down between each recording. 1 = enabled.
[6:4]	Not used (don't care).
[3:2]	Storage method. 00 = none, 01 = alarm trigger, 10 = all, 11 = N/A.
[1:0]	Recording mode. 00 = manual FFT, 01 = automatic FFT, 10 = manual time capture, 11 = real-time sampling/data access.

Select multiple sample rate (SRx) settings in **AVG_CNT** register

SR-Record0 = 20480 SPS
SR-Record1 = 5120 SPS
SR-Record2 = 1280 SPS
SR-Record3 = 320 SPS
AVG_CNT = 0x6420

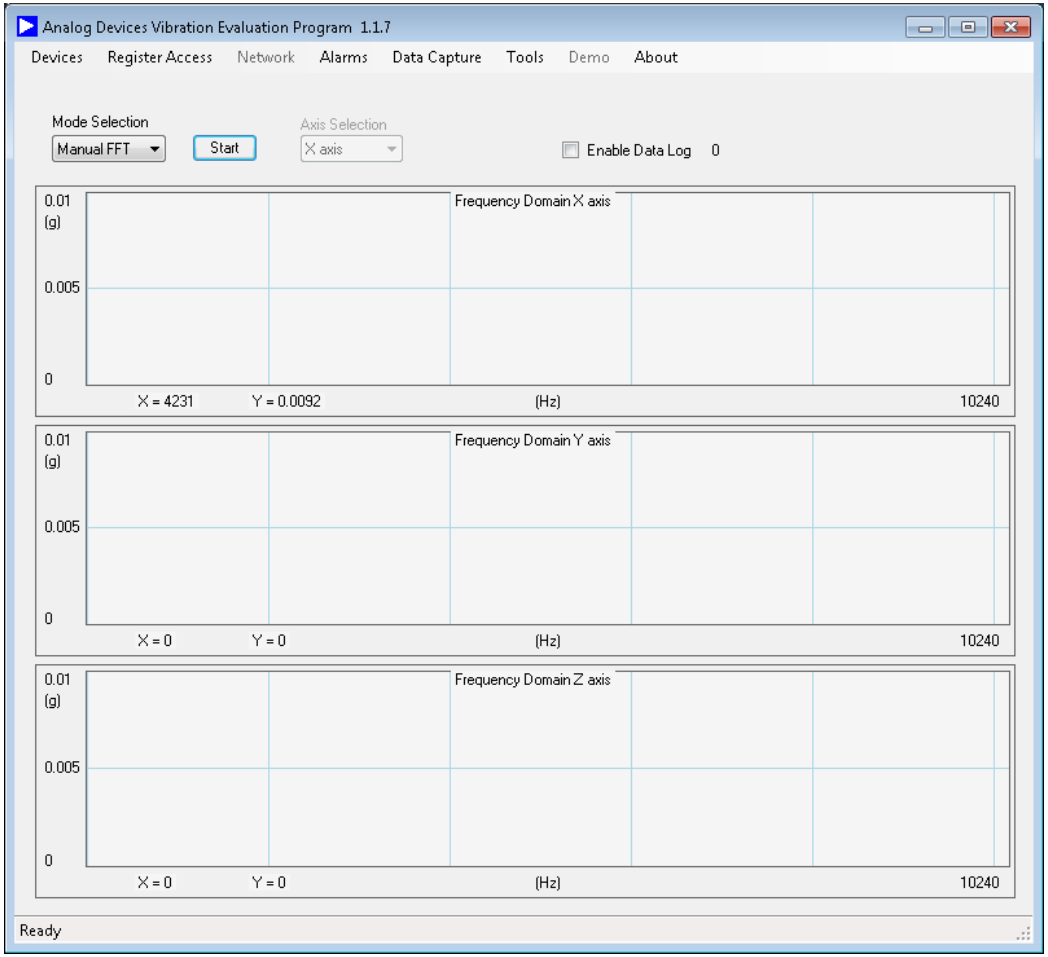
Table 11. AVG_CNT (Base Address = 0x3A), Read/Write

Bits	Description (Default = 0x9630)
[15:12]	Sample Rate Option 3, binary (0 to 10), SR3 option sample rate = 20,480 ÷ $2^{AVG\_CNT[15:12]}$
[11:8]	Sample Rate Option 2, binary (0 to 10), SR2 option sample rate = 20,480 ÷ $2^{AVG\_CNT[11:8]}$
[7:4]	Sample Rate Option 1, binary (0 to 10), SR1 option sample rate = 20,480 ÷ $2^{AVG\_CNT[7:4]}$
[3:0]	Sample Rate Option 0, binary (0 to 10), SR0 option sample rate = 20,480 ÷ $2^{AVG\_CNT[3:0]}$

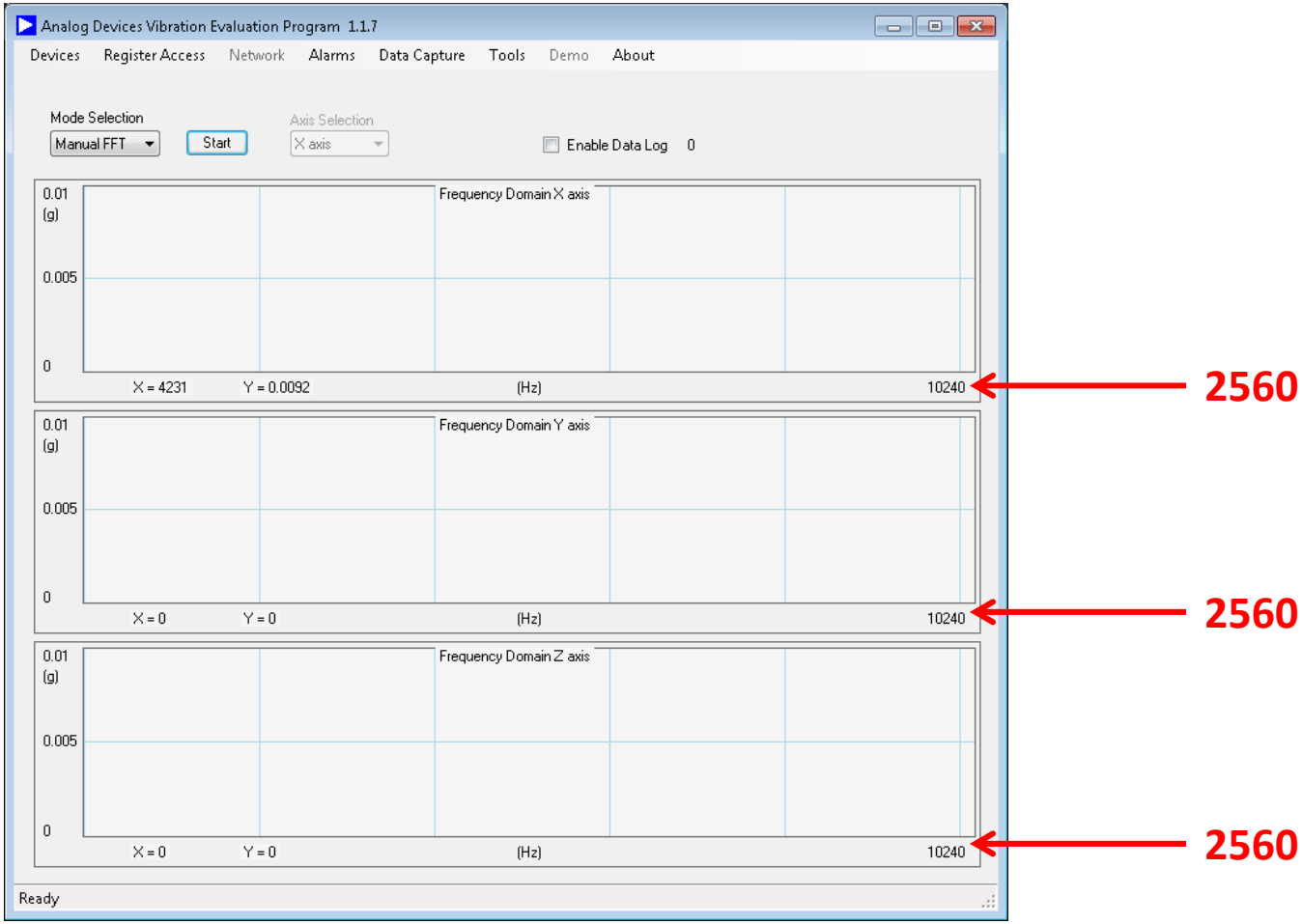
Table 12. Sample Rate Settings and Filter Performance

SRx Option	Sample Rate, f_S (SPS)	Bin Width (Hz)	Bandwidth (Hz)	Peak Noise per Bin (mg)
0	20,480	40	10,240	5.18
1	10,240	20	5120	3.66
2	5120	10	2560	2.59
3	2560	5	1280	1.83
4	1280	2.5	640	1.29
5	640	1.250	320	0.91
6	320	0.625	160	0.65
7	160	0.313	80	0.46
8	80	0.156	40	0.32
9	40	0.078	20	0.23
10	20	0.039	10	0.16

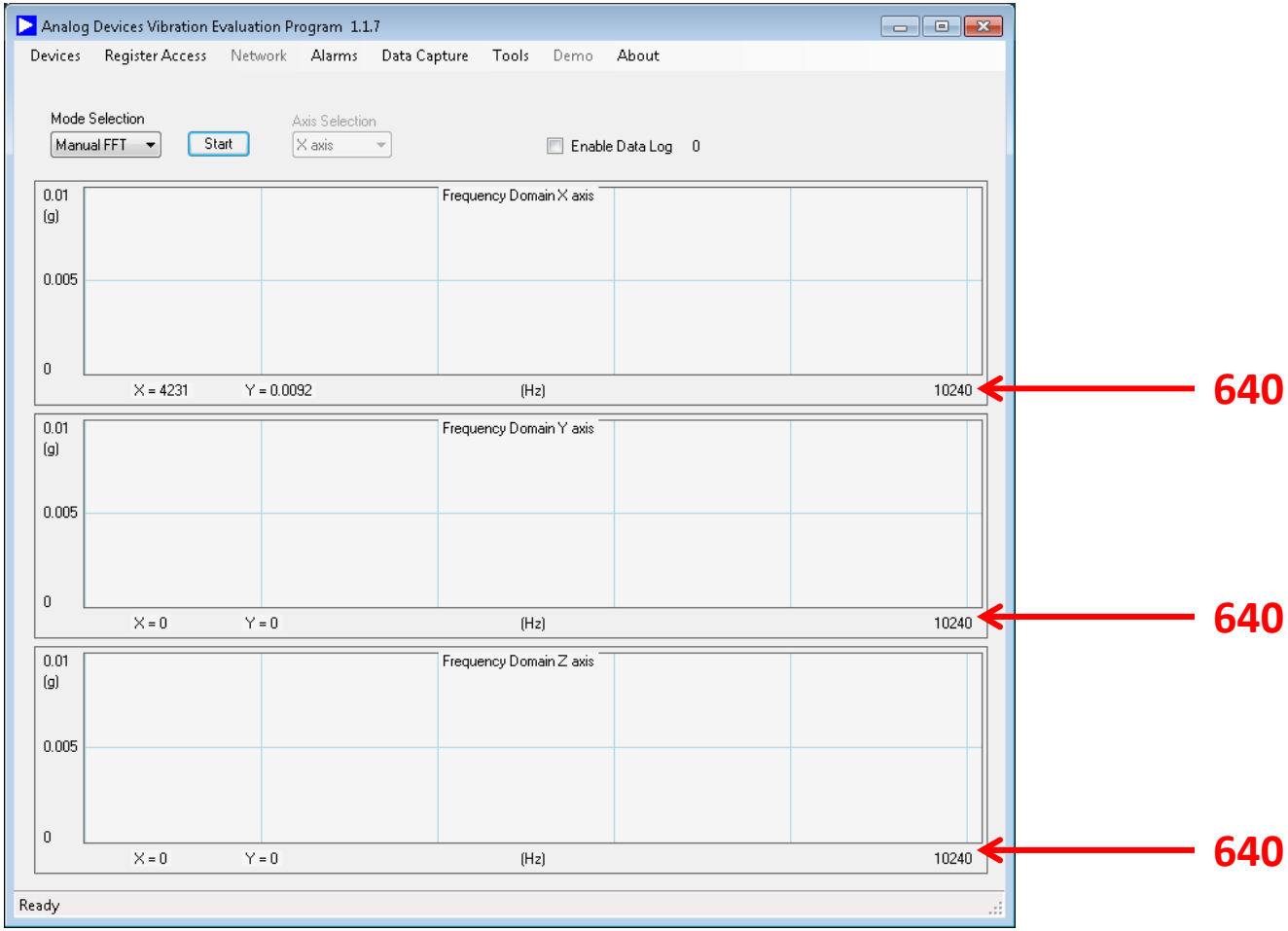
First **Start** button press would use this scale



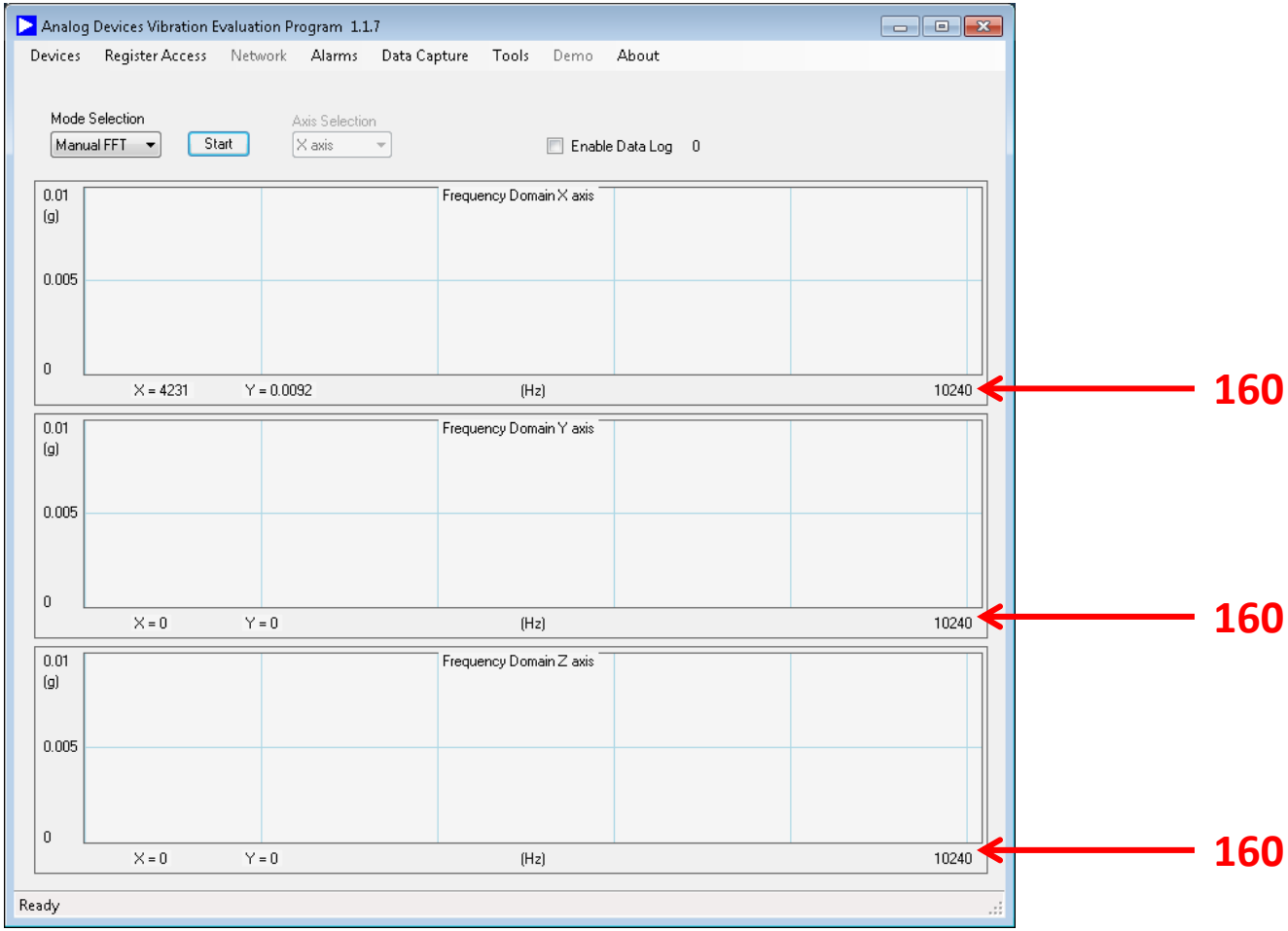
Second **Start** button press would use this scale



Third **Start** button press would use this scale



Fourth **Start** button press would use this scale



Fifth **Start** button press would revert back to the first sample rate setting and start the process over again.