

Engineering Note

Topic: NIR512 Alternating Dark Pixel Levels

Product Affected: NIR512 Fiber Optic Spectrometer

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Description

The NIR512 uses a Hamamatsu G8053-512S InGaAs detector. While there are 512 individual pixels, the pixels are readout through two 256-element shift registers that are arranged in an even and odd pattern. Due to the slight differences in offset voltages and currents within each shift register, the average output “dark level” for each shift register is slightly different. Since the shift registers are arranged in an even-odd scheme, the overall resulting dark spectra appears to be “noisy” as shown in Figure 1 below, when in fact this is the normal result.

Fortunately this effect is constant and can be eliminated by subtracting a dark spectra. Thus the user cannot use Scope Mode data (which is not a recommended practice anyway), but should use Dark subtract, Transmission, Absorbance, or Relative Irradiance Mode. Once this is done, the even and odd shift register effect is eliminated.

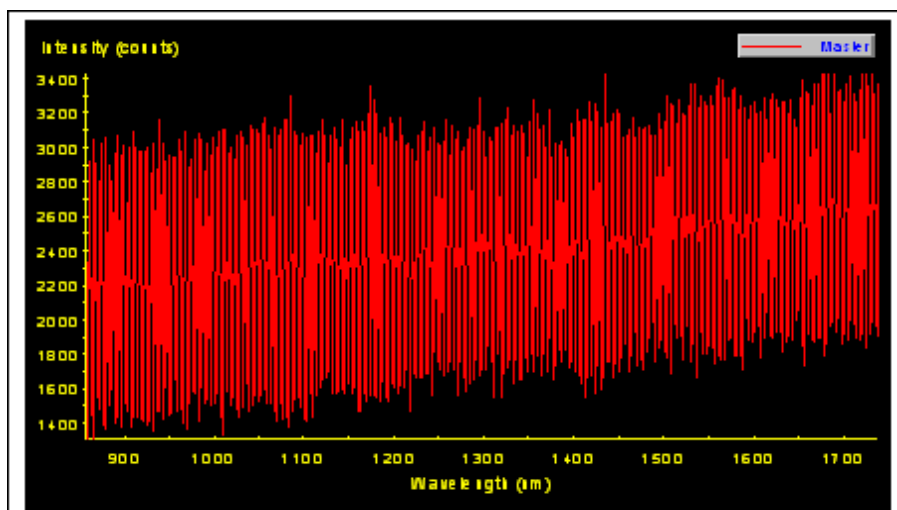


Figure 1. NIR512 Dark scan showing alternating pixel levels

