2.10 LINE NUMBER SENSITIVITY PROFILE FOR 2X2 AND 4X4 SUMMATION BIAS FRAMES NON-LINEAR
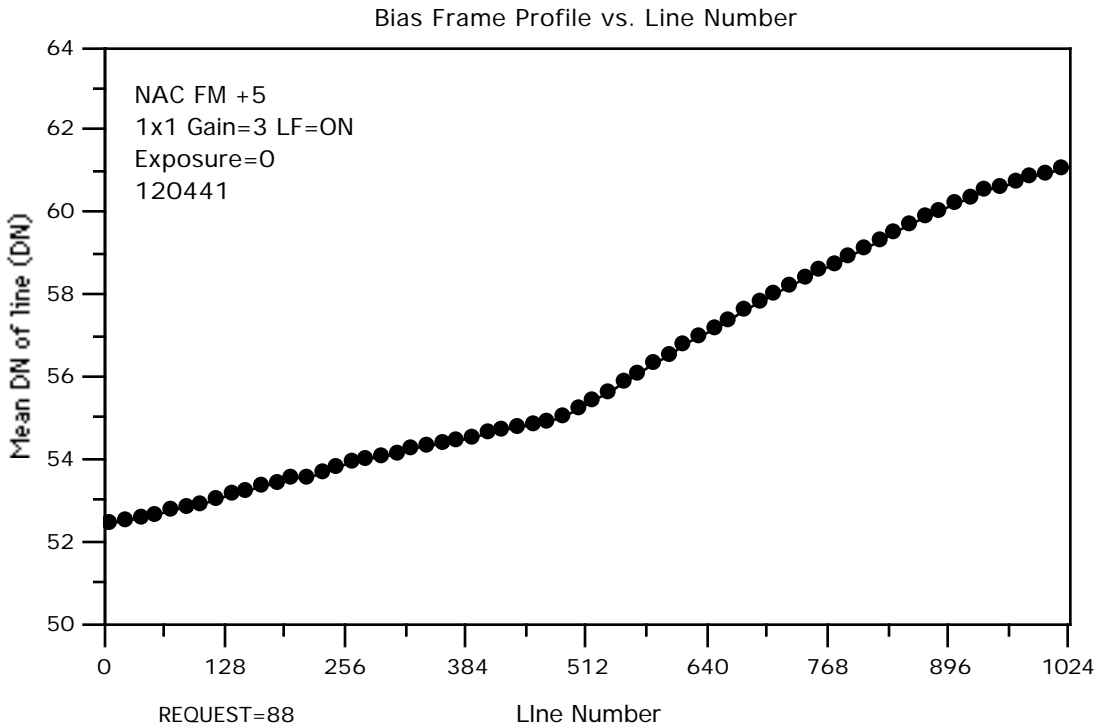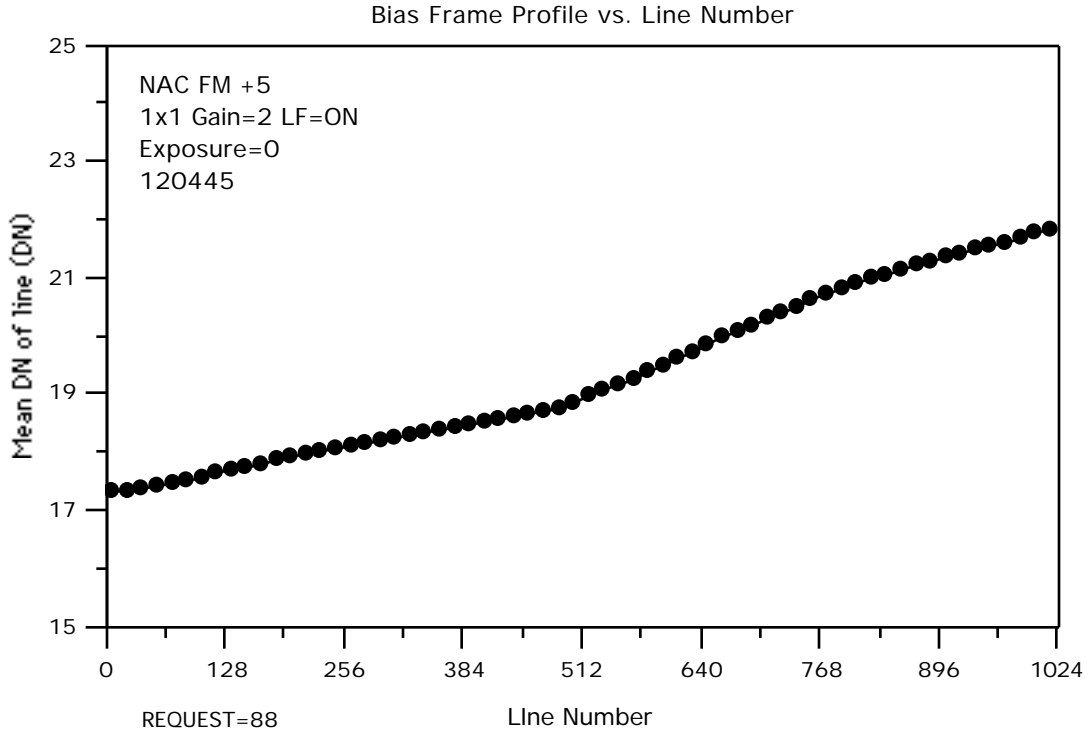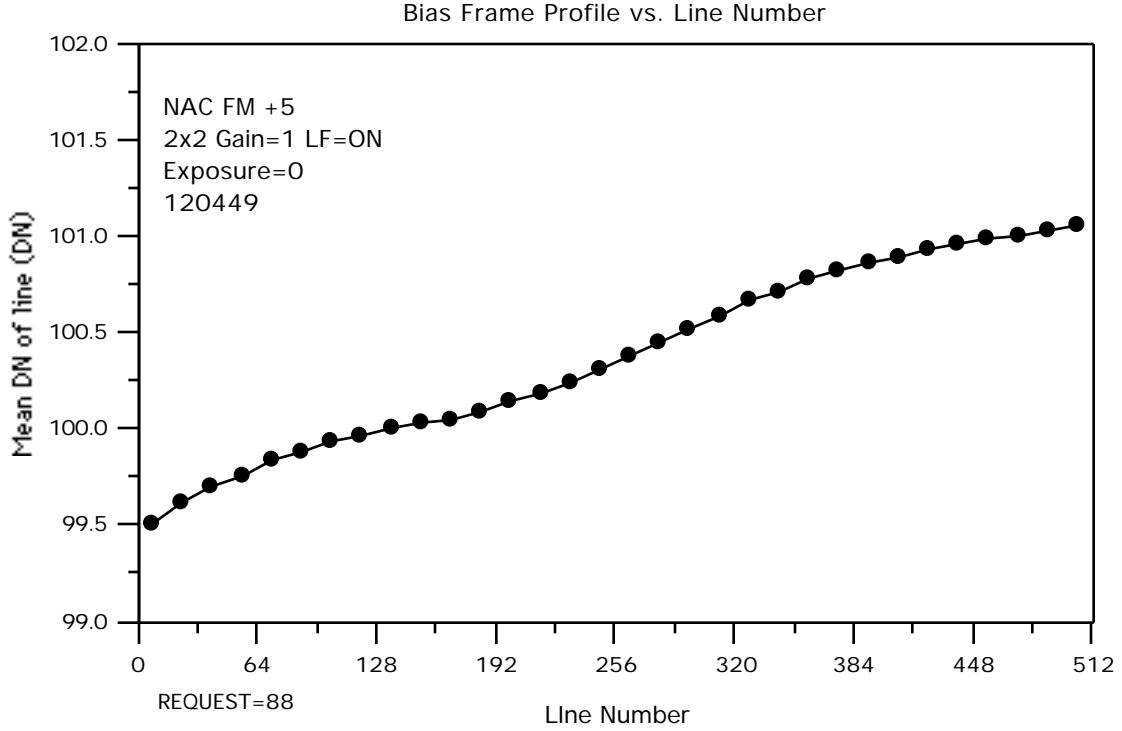
Bias frame (0 exposure) profile versus line number graphs for 1x1 Summation Mode in Gain States 3 and 2 show two linear sections where the two main slopes are defined by the data transfer rate from the detector to memory (see Figure 2.10-1 and Figure 2.10-2). The slope change (slower transfer data rate) occurs at line 490 when memory becomes full.   This profile for the 1x1 image is expected. However, unusual nonlinear profiles were found with the 2x2 and 4x4 bias frames (where the complete image can fit into memory). The 2x2 / Gain State 1 bias frame profile shows a varying slope (Figure 2.10-3). The 4x4 / Gain State 0 bias frame profile shows a decrease in the slope after line 64 (Figure 2.10-4). The explanation for the 2x2 and 4x4 bias frame line profiles has not been established. Although the plots are shown only for the NAC, this anomaly was seen for both the NAC and WAC cameras.
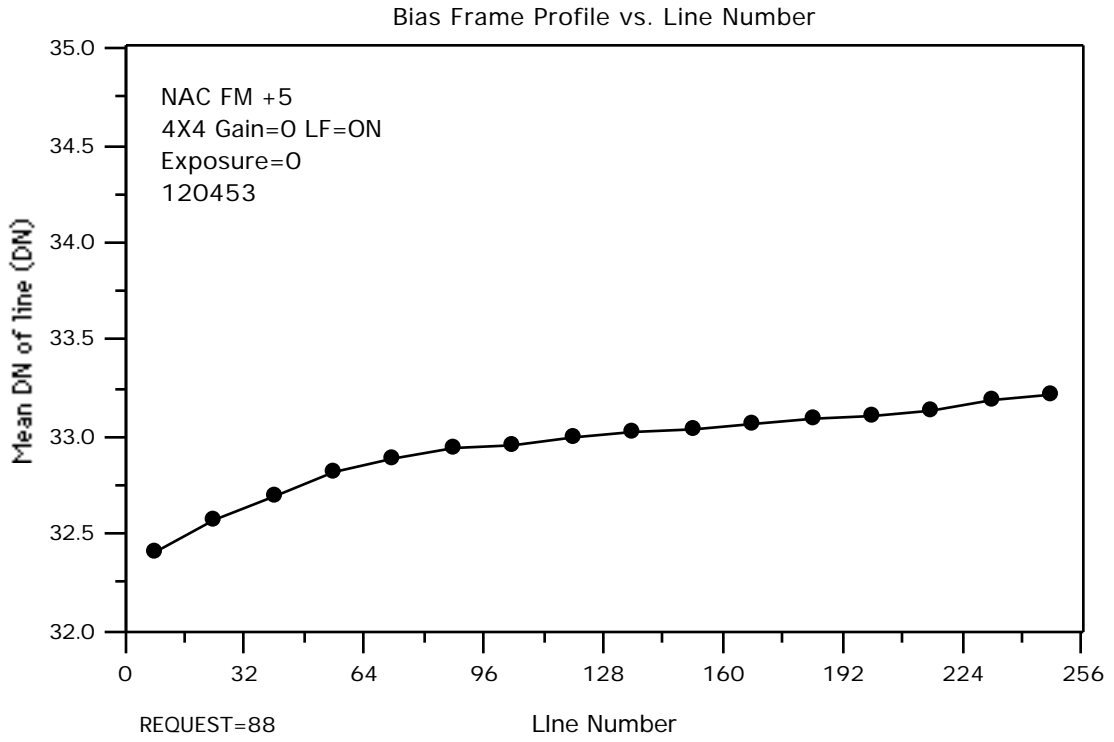

Figure 2.10-1 - NAC FM 1x1, Gain State 3, Bias Frame Line Profile

Bias Frame Profile vs. Line Number

NAC FM +5
1x1 Gain=2 LF=ON
Exposure=0
120445

REQUEST=88

Figure 2.10-2 - NAC FM 1x1, Gain State 2, Bias Frame Line Profile

Bias Frame Profile vs. Line Number

NAC FM +5
2x2 Gain=1 LF=ON
Exposure=0
120449

REQUEST=88

Figure 2.10-3 -NAC FM 2x2, Gain State 1, Bias Frame Line Profile

2

Bias Frame Profile vs. Line Number

Figure 2.10-4 - NAC FM 4x4, Gain State 0, Bias Frame Line Profile