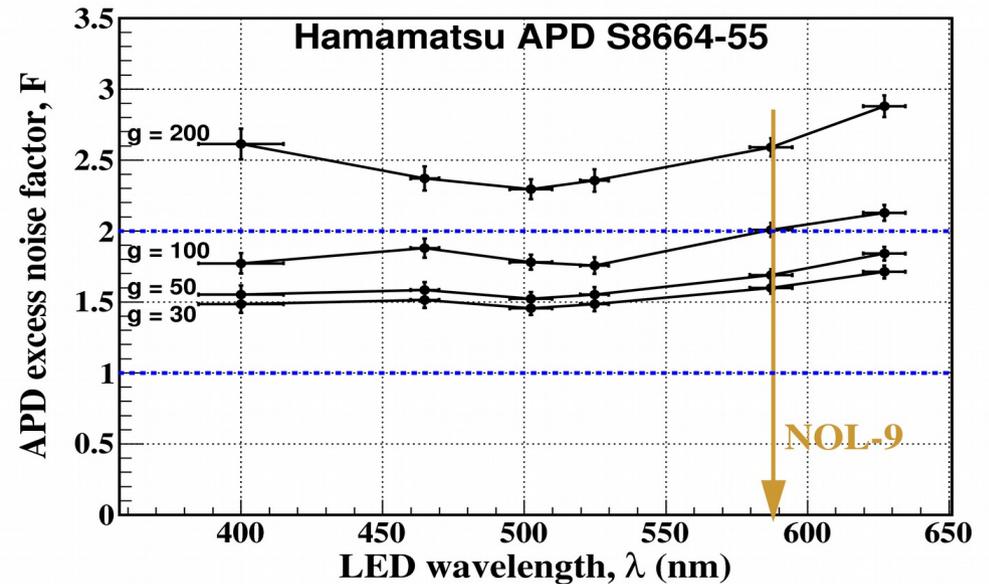
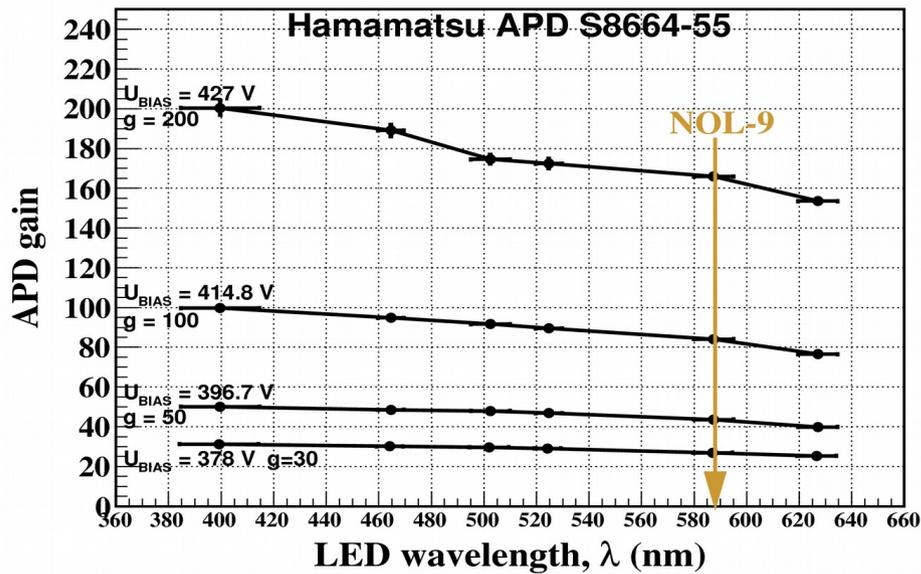


$$ENC_{light}^2(U_{BIAS}) = 2e\tau(I_{photo} + I_{dark}) \cdot g \cdot F \cdot K_{shaper} + ENC_{other}^2(U_{BIAS})$$

$$ENC_{dark}^2(U_{BIAS}) = 2e\tau I_{dark} \cdot g \cdot F \cdot K_{shaper} + ENC_{other}^2(U_{BIAS})$$

$$F(U_{BIAS}) = \frac{ENC_{light}^2(U_{BIAS}) - ENC_{dark}^2(U_{BIAS})}{2e\tau I_{photo}(U_{BIAS}) g(U_{BIAS}) K_{shaper}}$$

- ◆  $ENC_{other}(U_{BIAS})$  – thermal (~APD capacitance) + additional noise.     ◆  $e$  – positron charge;
- ◆  $K_{shaper} = 1.55 \pm 0.06$  – shape factor of ORTEC Amplifier 570;     ◆  $\tau$  – shaping time;
- ◆  $I_{photo}(U_{BIAS})$  – photocurrent;     ◆  $g(U_{BIAS})$  – APD gain;



**For  $\lambda = 588\text{ nm}$ :**

$$F(g=30) = 1.59 \pm 0.04$$

$$F(g=50) = 1.69 \pm 0.04$$

$$F(g=100) = 2.00 \pm 0.05$$

$$F(g=200) = 2.58 \pm 0.06$$