PMT Response Function

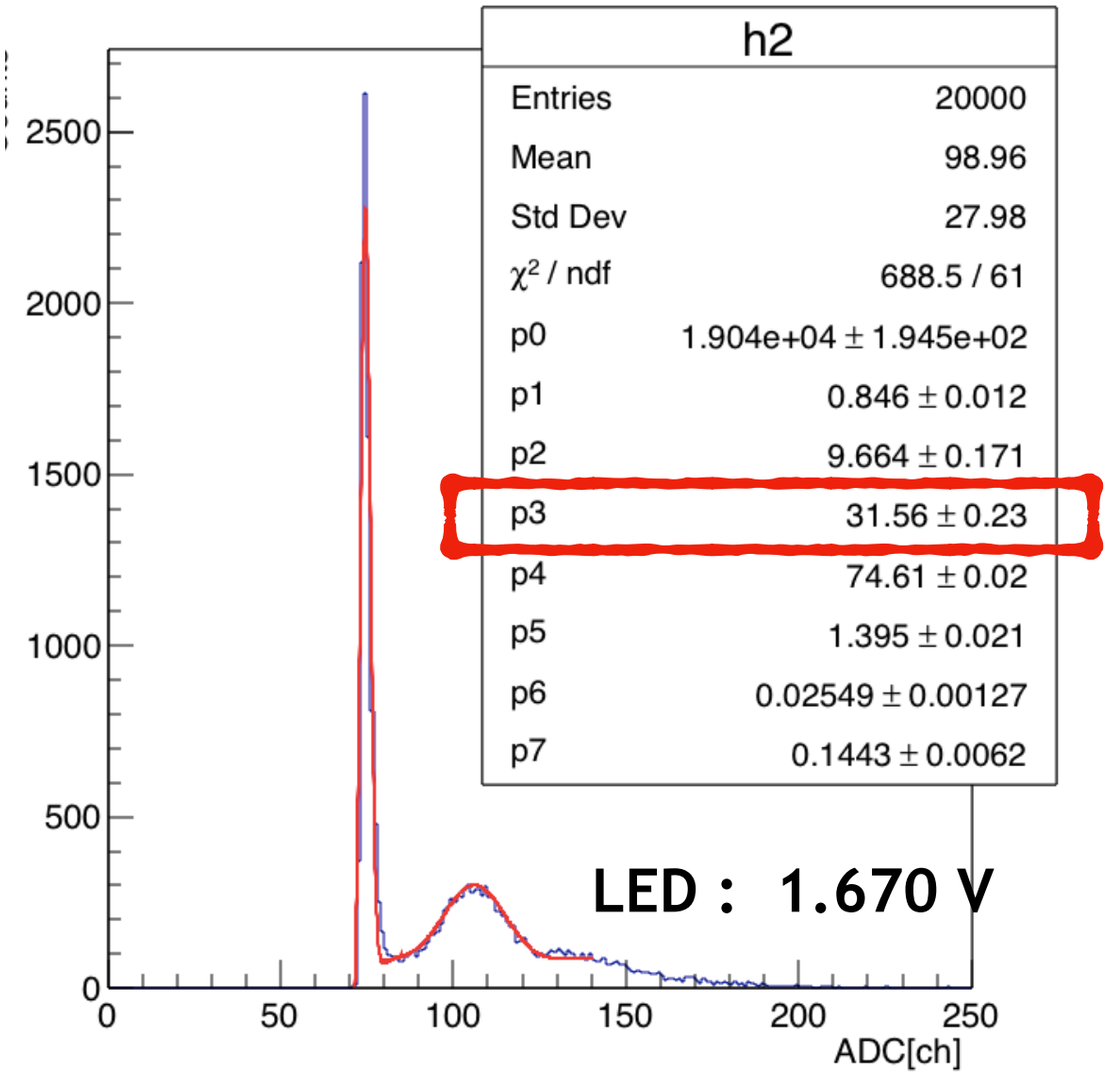
- Fitting Function for PMT Response

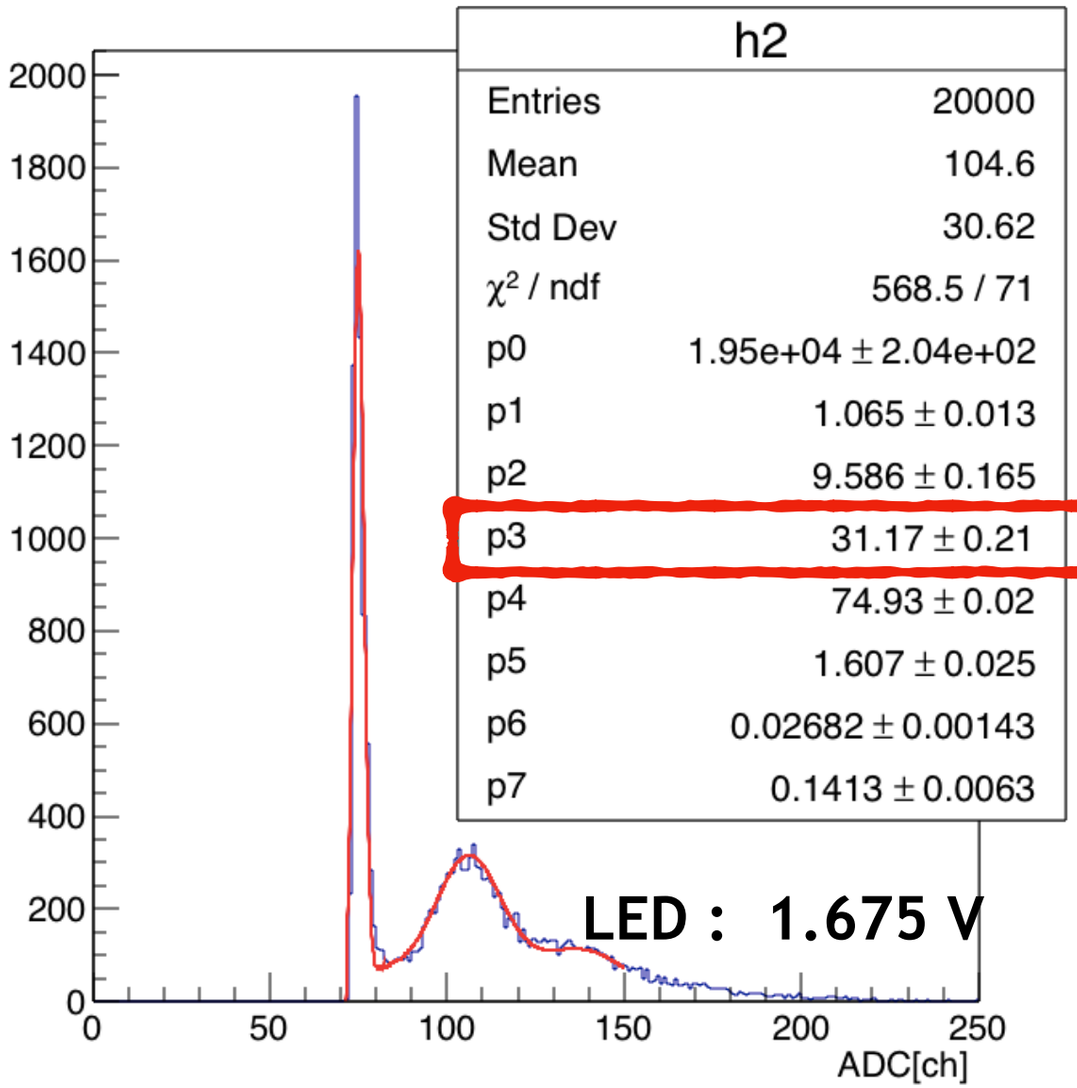
$$S_{real}(x) = const.\times\left[\left\{\frac{1-w}{\sigma_0\sqrt{2\pi}}exp\left(-\frac{(x-Q_0)^2}{2{\sigma_0}^2}\right)+w\theta(x-Q_0)\times\alpha exp\left[-\alpha(x-Q_0)\right]\right\}e^{-\mu}\right.$$
$$\left.+\sum_{n=1}^{\infty}\frac{\mu^n e^{-\mu}}{n}\times\frac{1}{\sigma_1\sqrt{2\pi n}}exp\left(-\frac{(x-Q_0-nQ_1)^2}{2n{\sigma_1}^2}\right)\right]$$

Fitting Params.	Meanings	Params.
const.	Constant	p0
μ	Expectation Value of Poission Distribution	p1
σ_1	1st Peak's Standard Dev.	p2
Q_1	Gain	p3
Q_0	Pedestal	p4
σ_0	Standard Deviation of Pedestal	p5
w	Probability of Background Process	p6
α	Procedure of Background Procedure	p7

PMT Test with LED

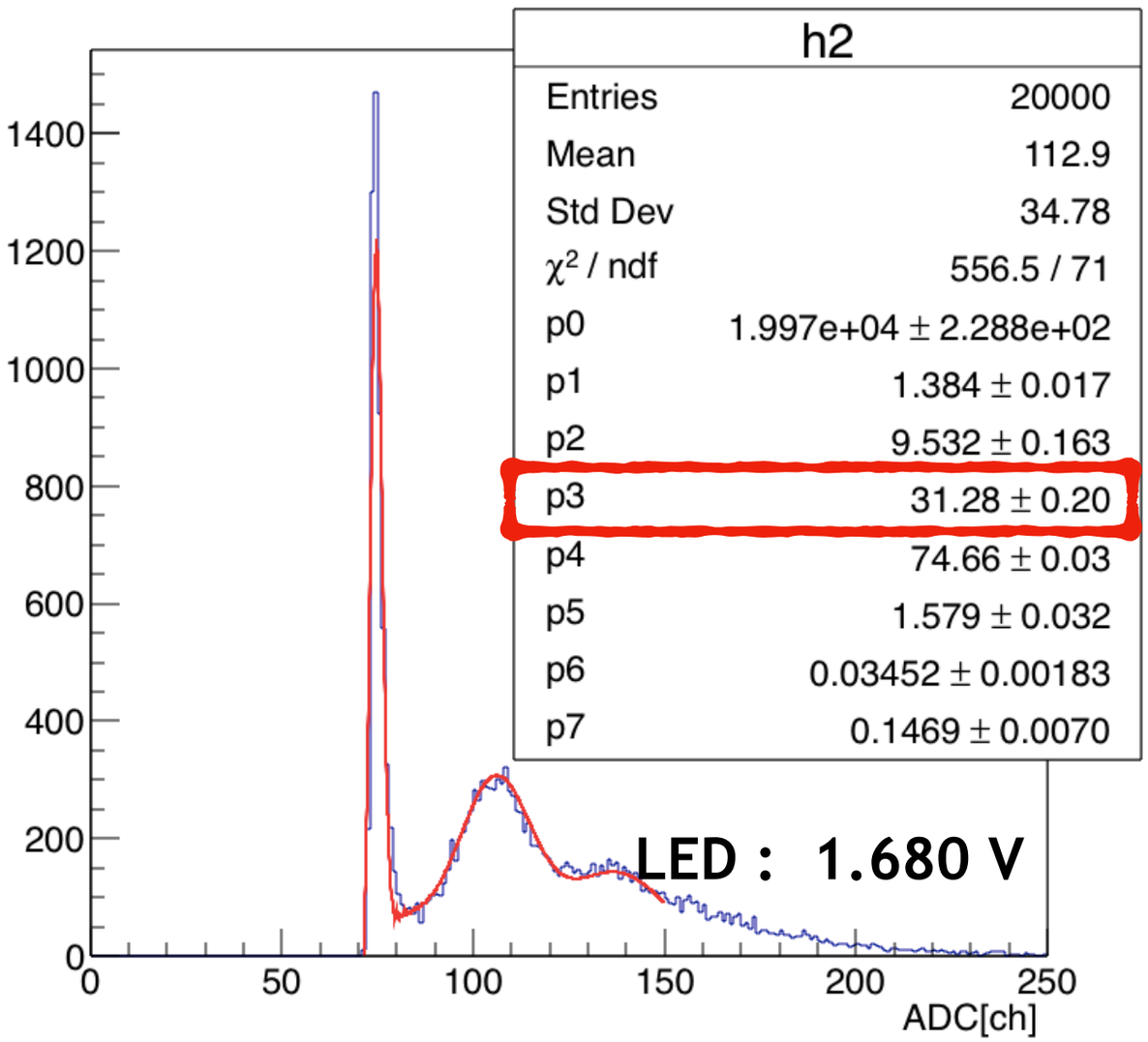
- Serial No.RD4974
- Applied Voltage : -2150 V
- LED : Scanned starting from 1.65 V to 1.68V, every 0.05 V, 100 Hz, 20 ns

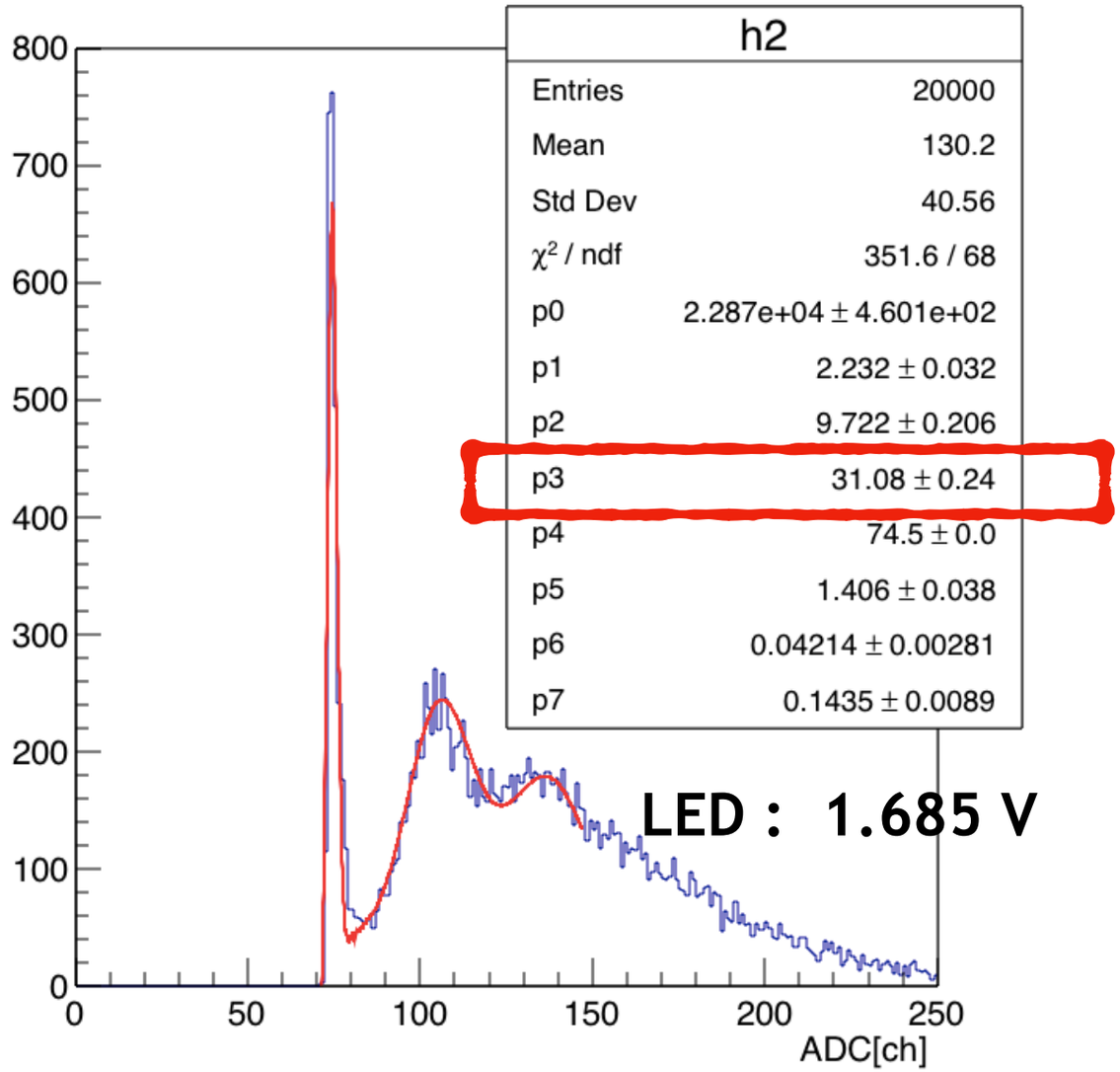




PMT Test with LED

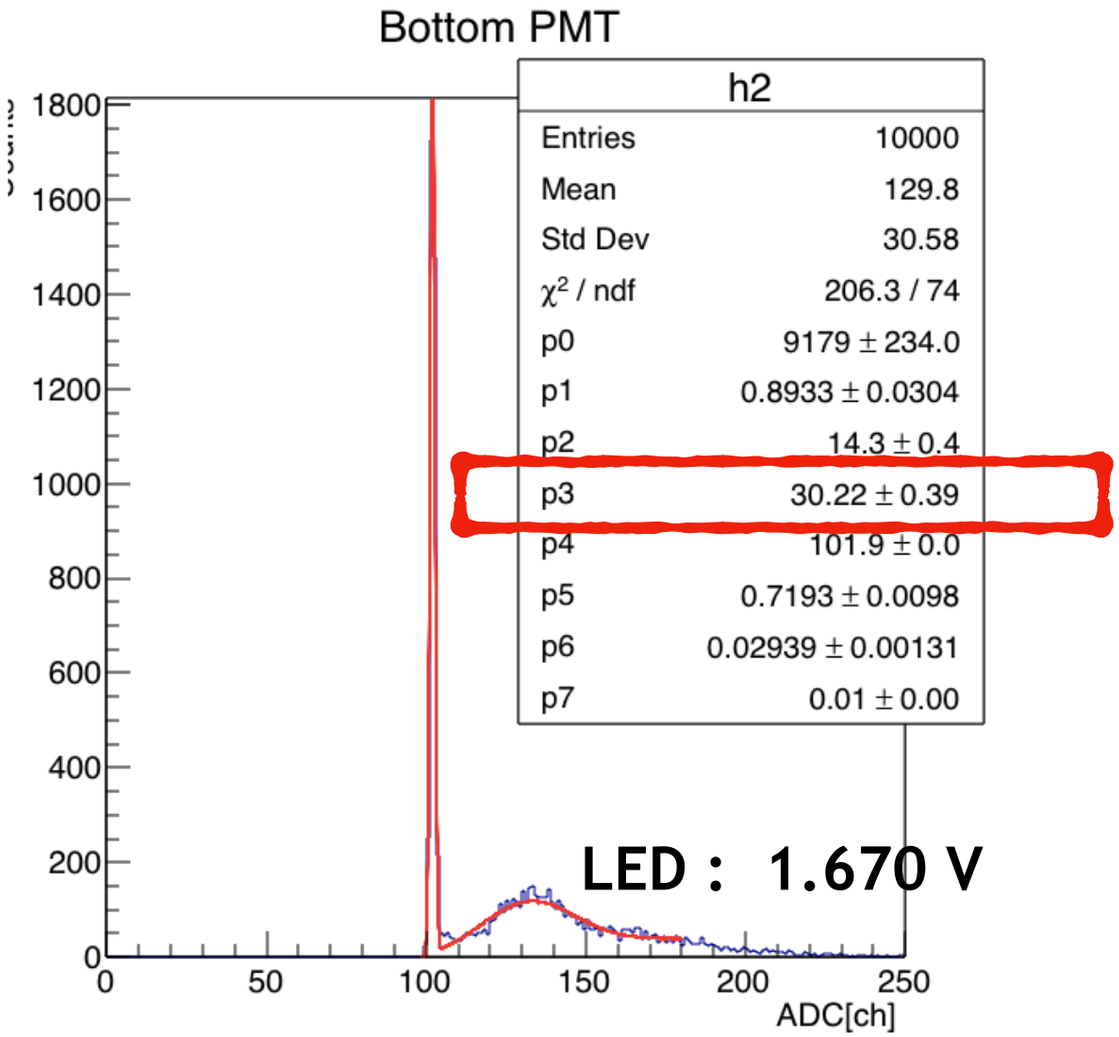
- Serial No.RD4974
- Applied Voltage : -2150 V
- LED : Scanned starting from 1.65 V to 1.68V, every 0.05 V, 100 Hz, 20 ns

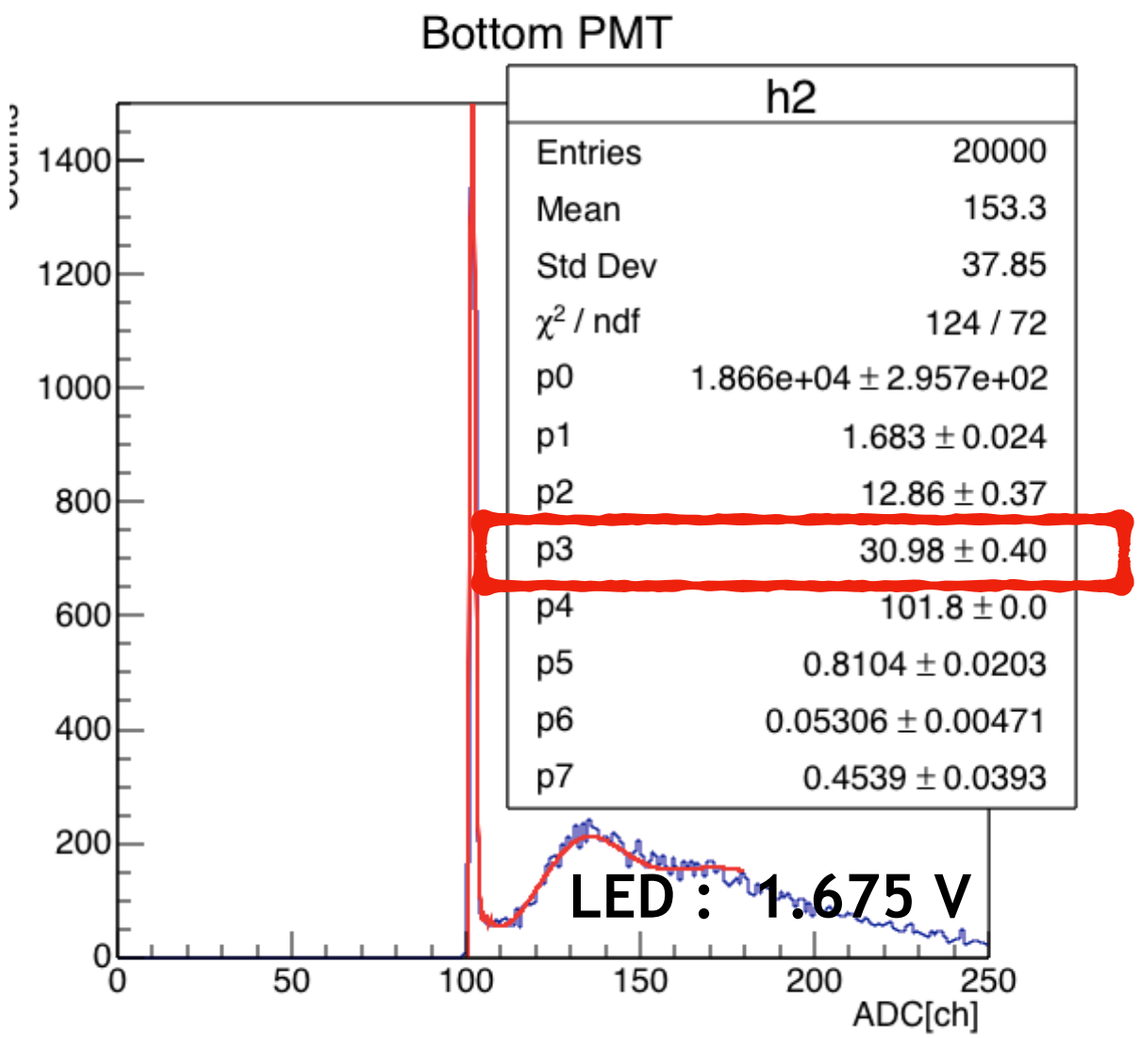




PMT Test with LED

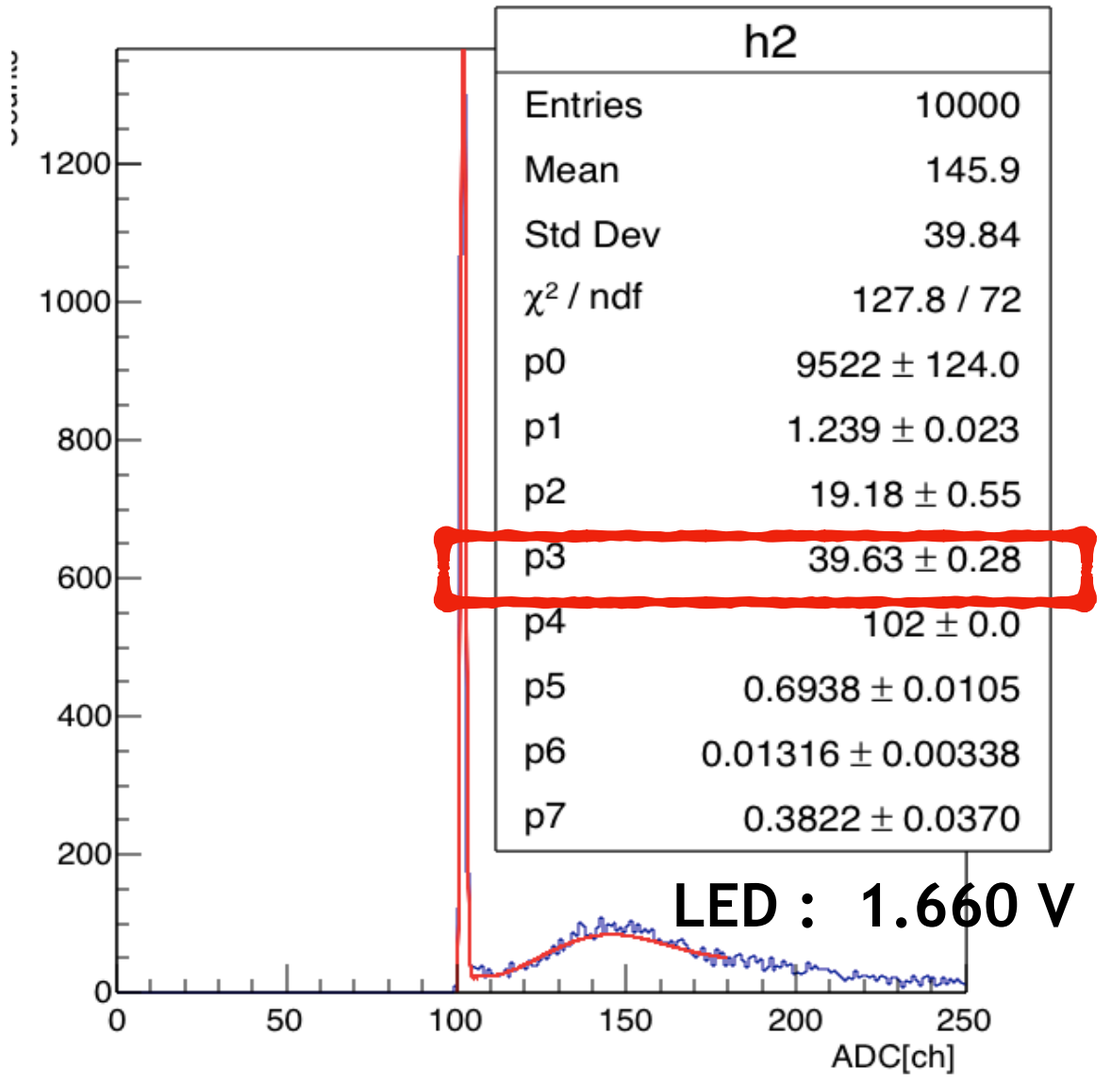
- Serial No.RD3560
- Applied Voltage : -2275 V
- LED : Scanned starting from 1.65 V to 1.68V, every 0.05 V, 100 Hz, 20 ns

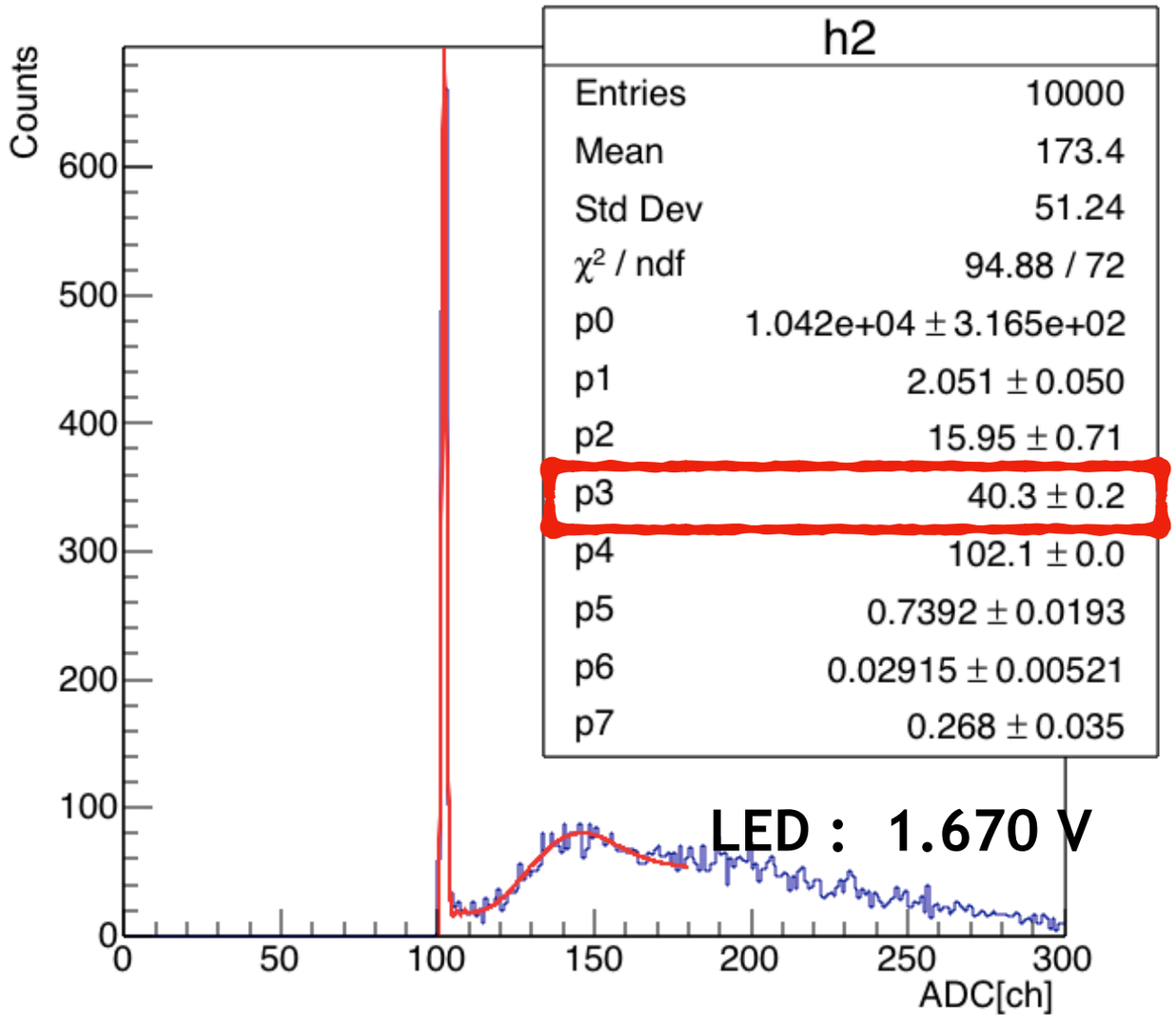




PMT Test with LED

- Serial No.RD6171
- Applied Voltage : -2130 V
- LED : Scanned starting from 1.65 V to 1.68V, every 0.05 V, 100 Hz, 20 ns





PMT Test with LED

- Summary of the test

Serial No,	Applied HV	Approx.Gain	Etc
RD 6201	-2100V	~ 30	Possible Candidate
RD 4974	-2150V	~ 31.2	Possible Candidate
RD 6224	-2400V	~ 26	Spare
RD 6160	-2300V	~ 24	Spare
RD 4977	-2300V	~ 30.8	Possible Candidate (Former Bottom PMT)
RD 3560	-2275V	~ 30.5	Possible Candidate
RD 6171	-2130V	~ 40	Possible Candidate
RD 2718			Too much Discharge