

Run 10-17

Analysis in CgemBoss

2020-02-13

after new calibrations

Summary

- Run 10 → with holes for channel 62
- Run 11-16 → without holes for channel 62, but with time distribution with waves
- Run 17 → perfect

- Total entries 758945
- This is the version of the files with the fixed calibrations

- Analysis already done with old files, replicated on these
- Same χ^2 cuts, but we need a new study on the correct cut to apply (ongoing)

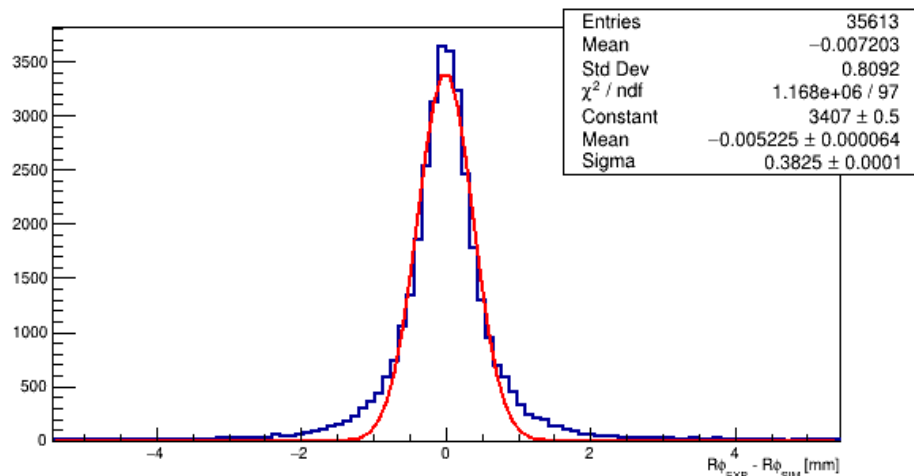
Study on charge and cl.size

***With a cut on nof sigma
both on $R\phi$ and z residuals***

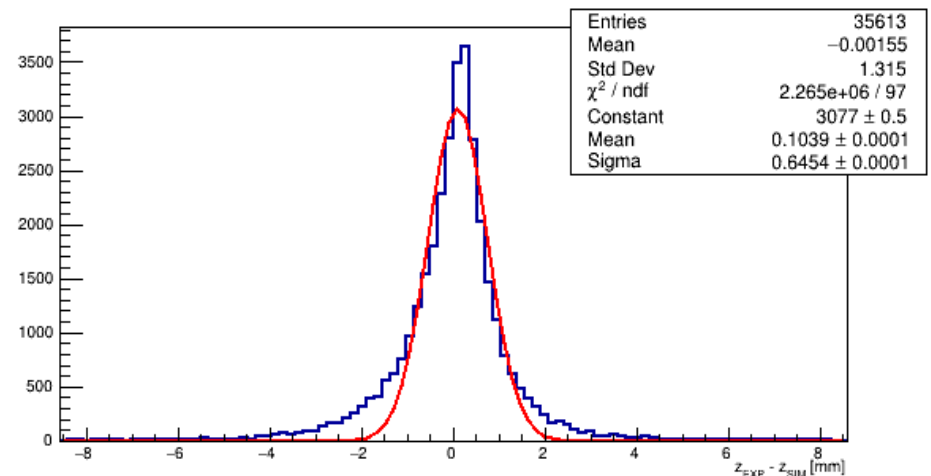
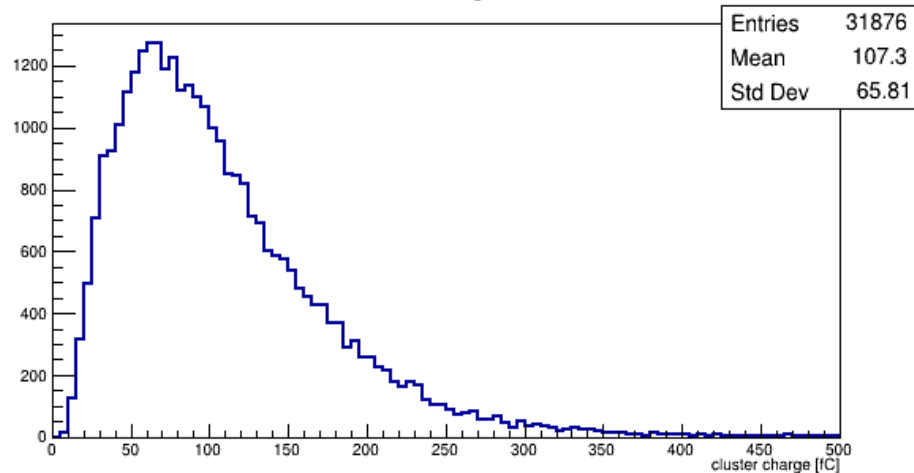
charge – L1 bottom

CUT:

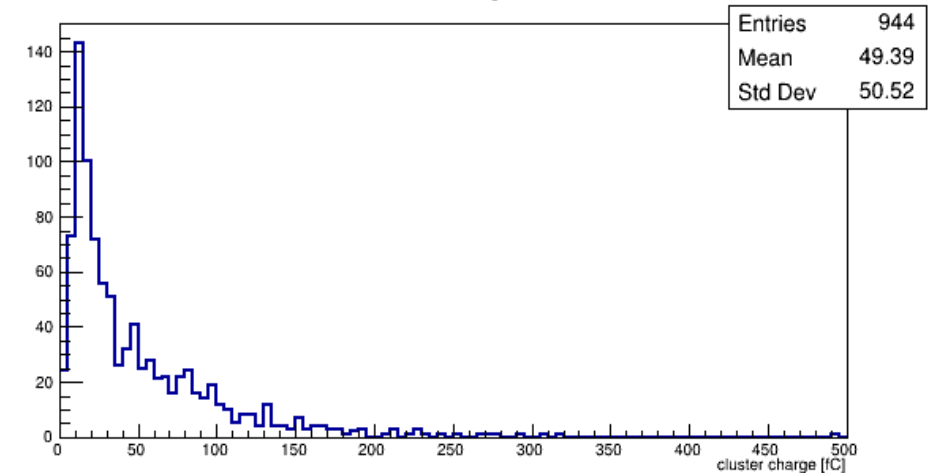
- test chamber $Q > 2$ fC && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



within 5 sigma



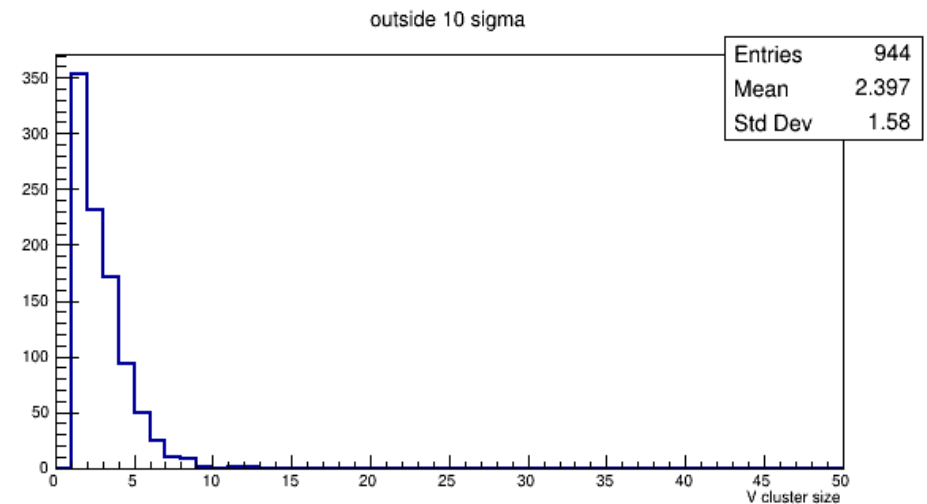
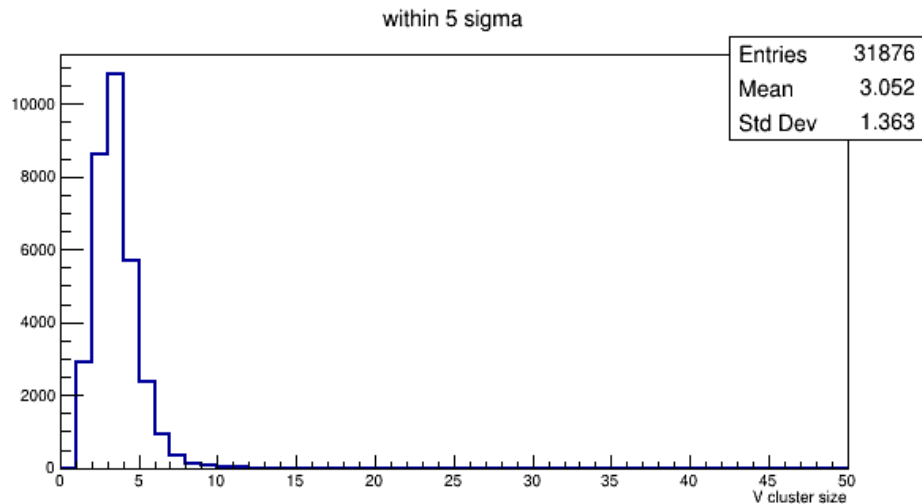
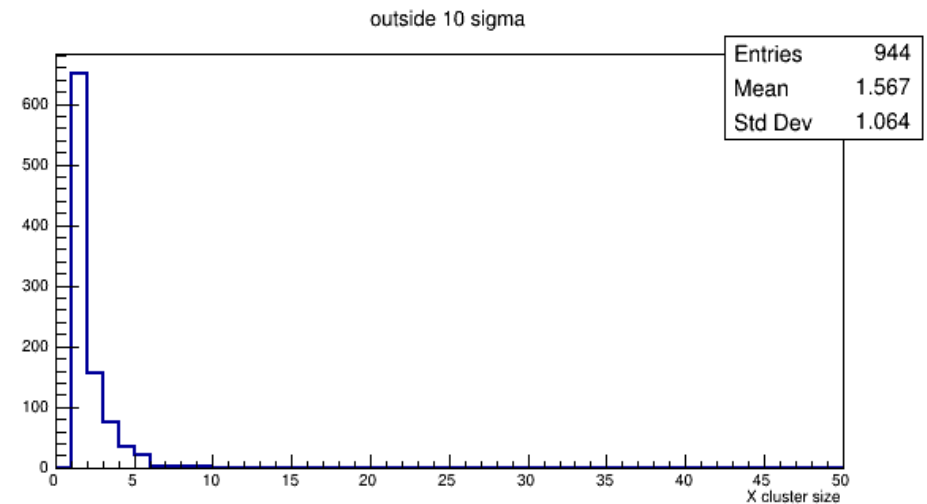
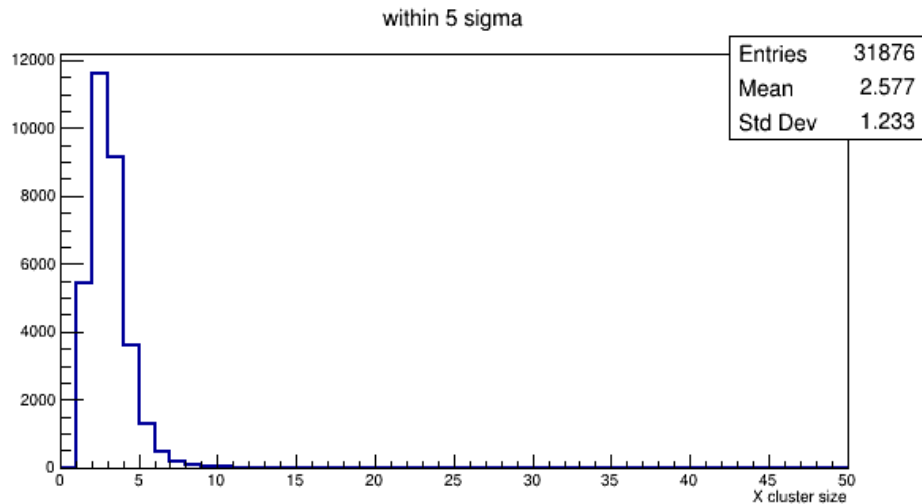
outside 10 sigma



charge – L1 bottom

CUT:

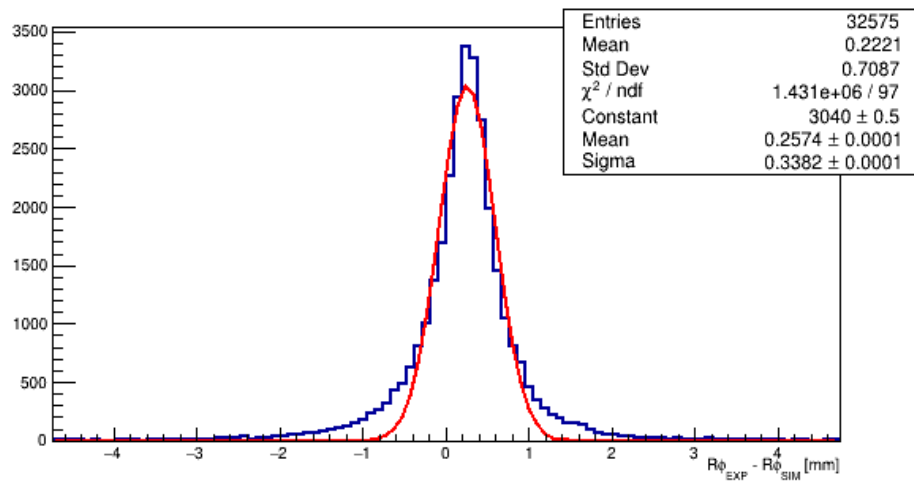
- test chamber $Q > 2 \text{ fC}$ && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



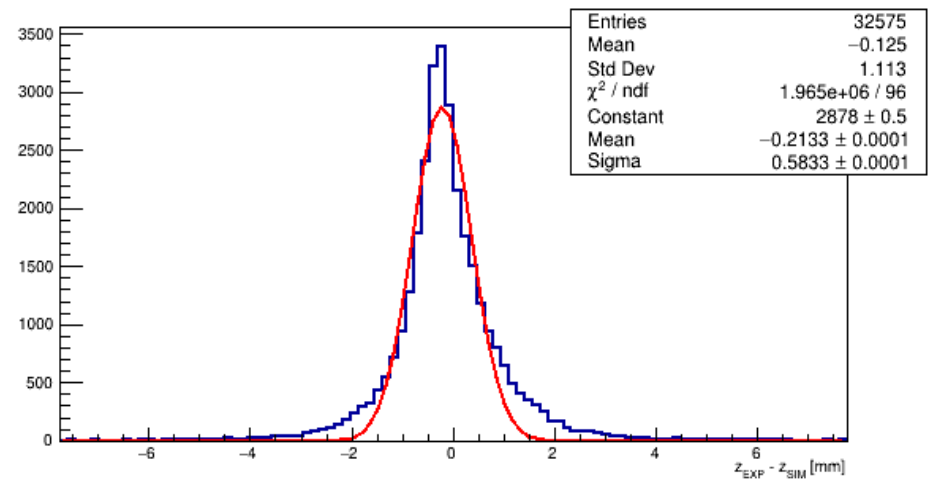
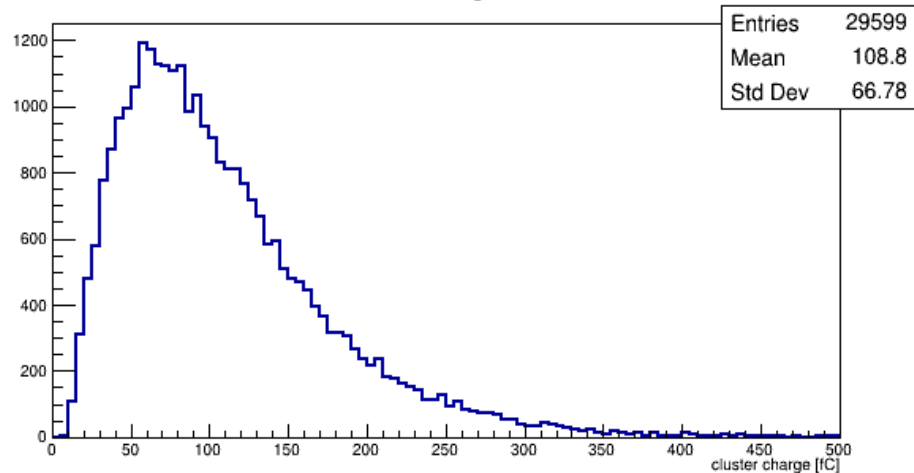
charge – L1 top

CUT:

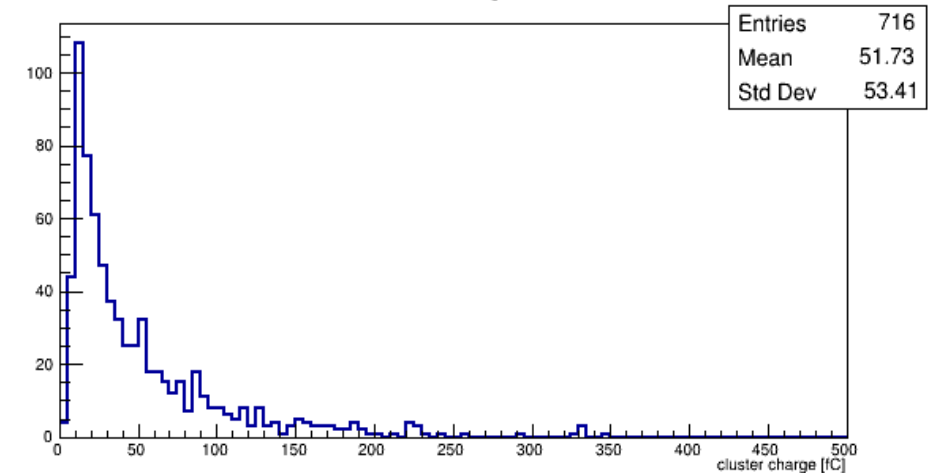
- test chamber $Q > 2$ fC && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - Signal is within 5 sigma**
 - Noise is outside 10 sigma (FIXED this time!)**
 - The cut on the #sigmas is applied both in Rphi and in z residuals!**



within 5 sigma



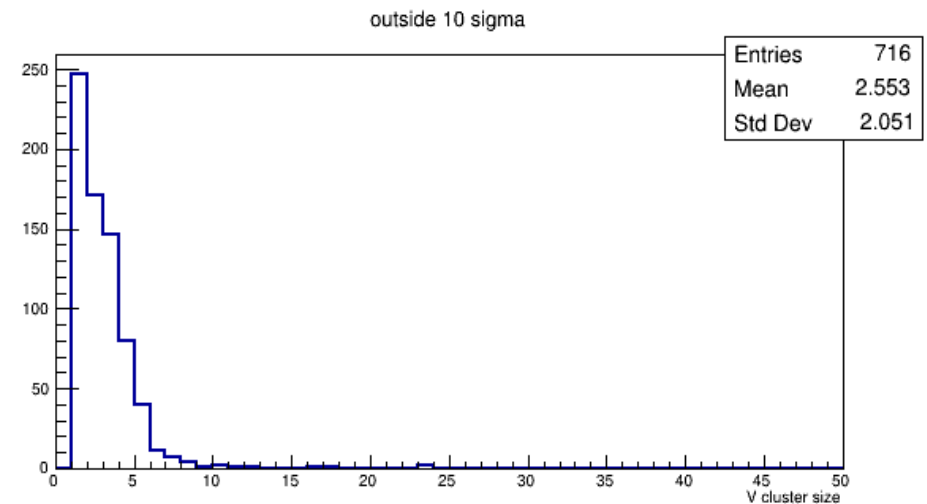
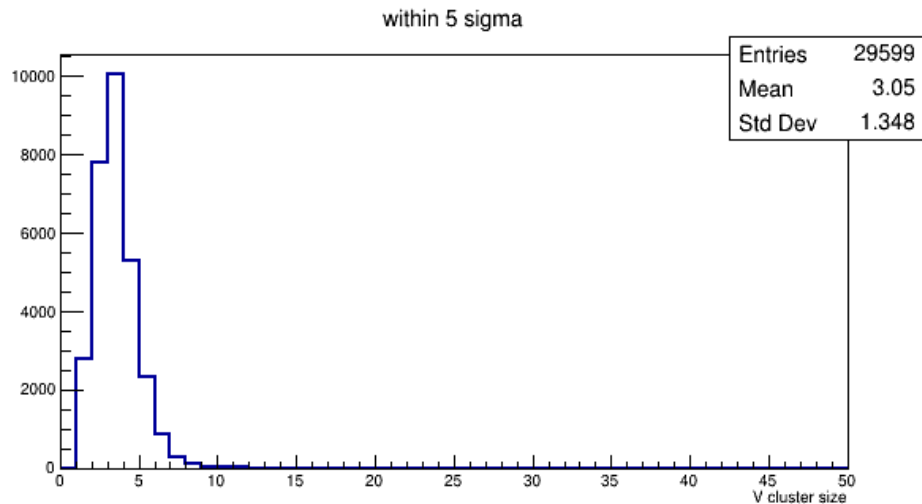
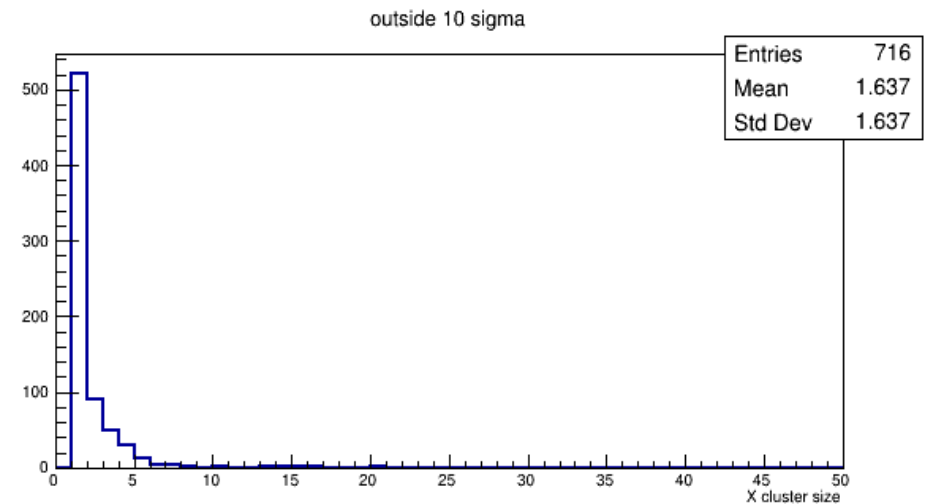
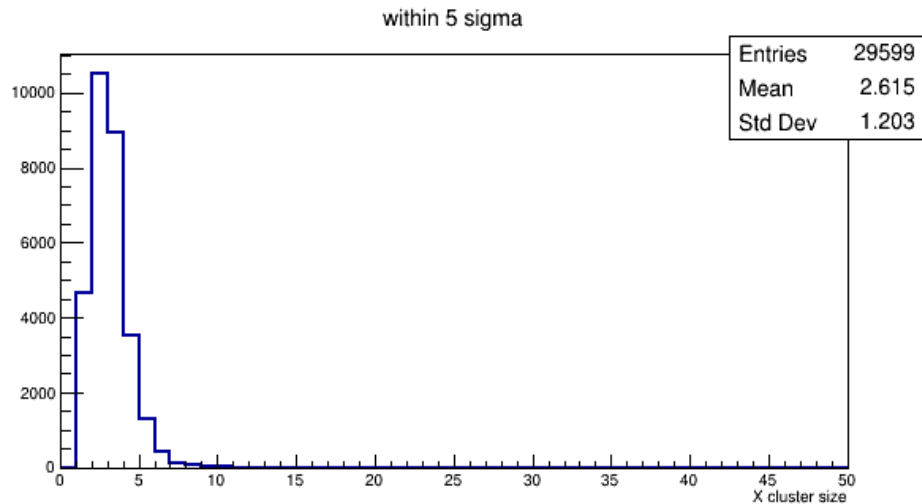
outside 10 sigma



charge – L1 top

CUT:

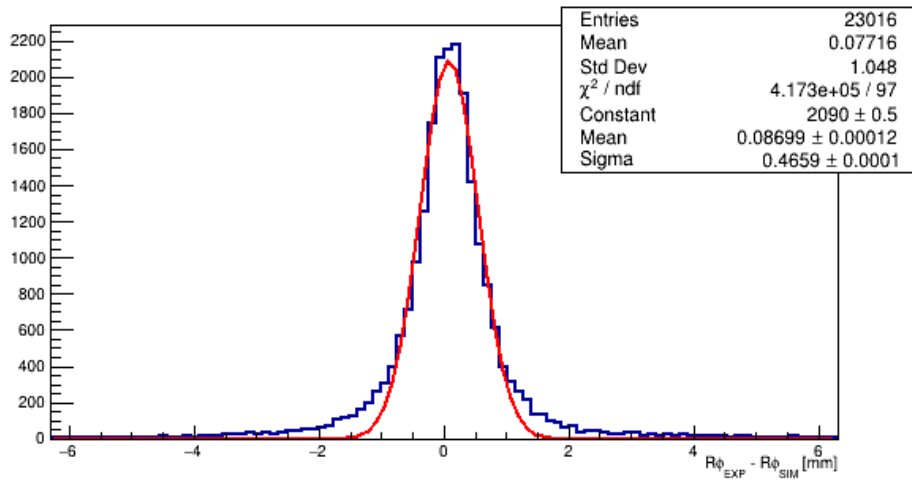
- test chamber $Q > 2 \text{ fC}$ && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



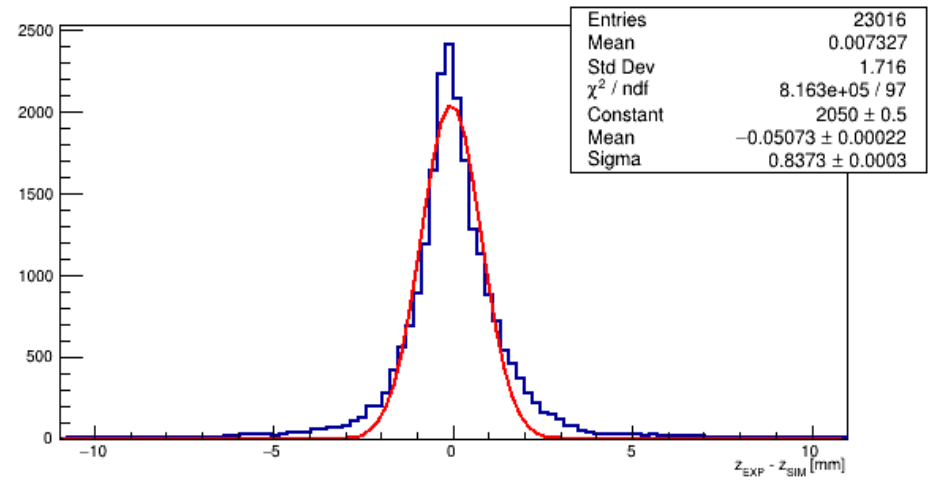
charge – L2 bottom

CUT:

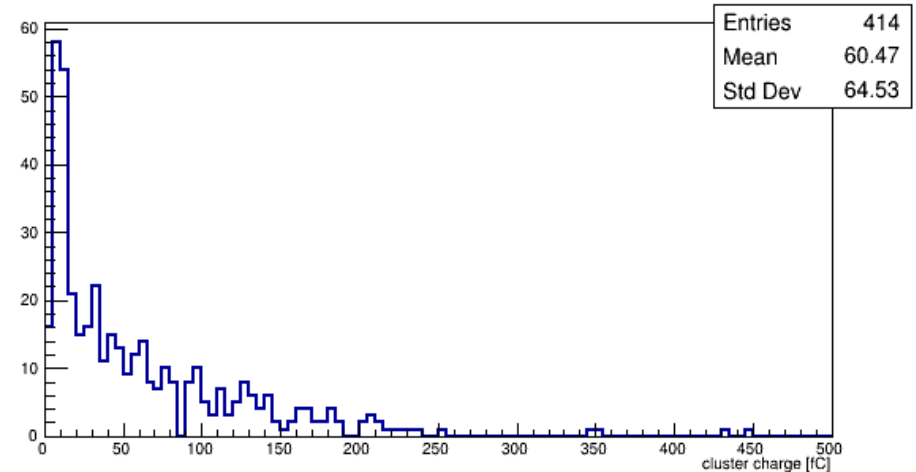
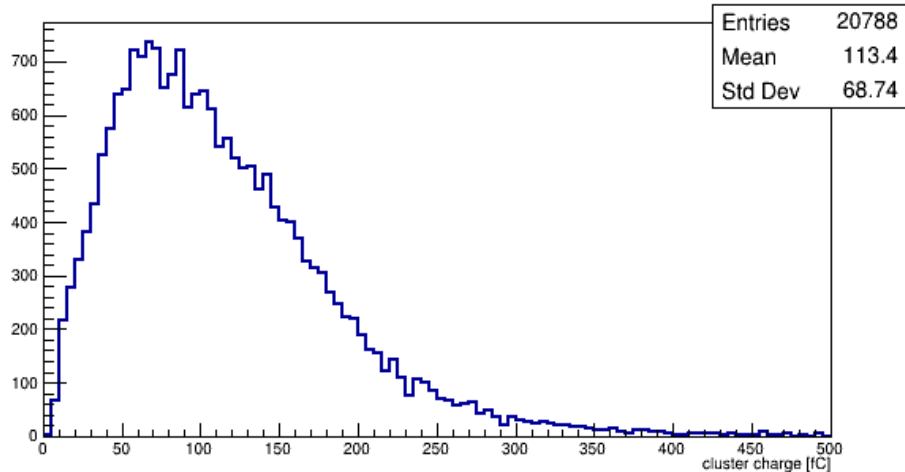
- test chamber $Q > 2$ fC && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



within 5 sigma



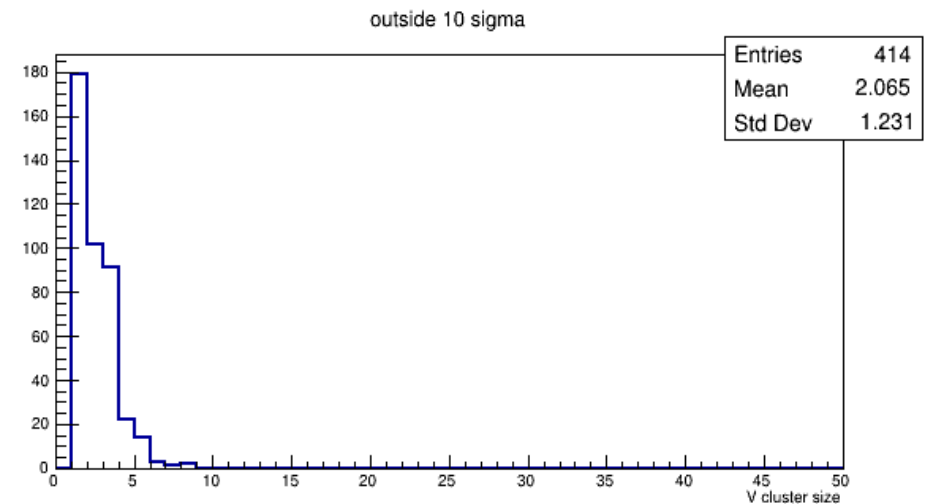
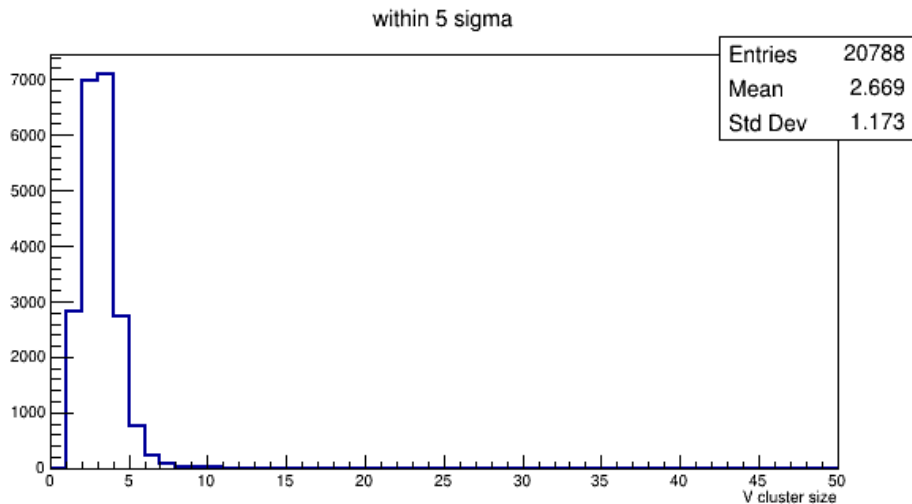
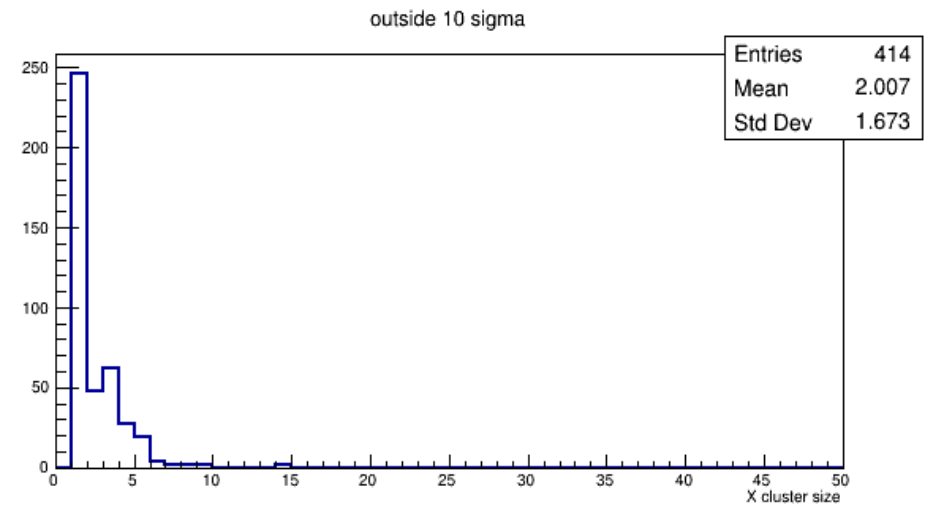
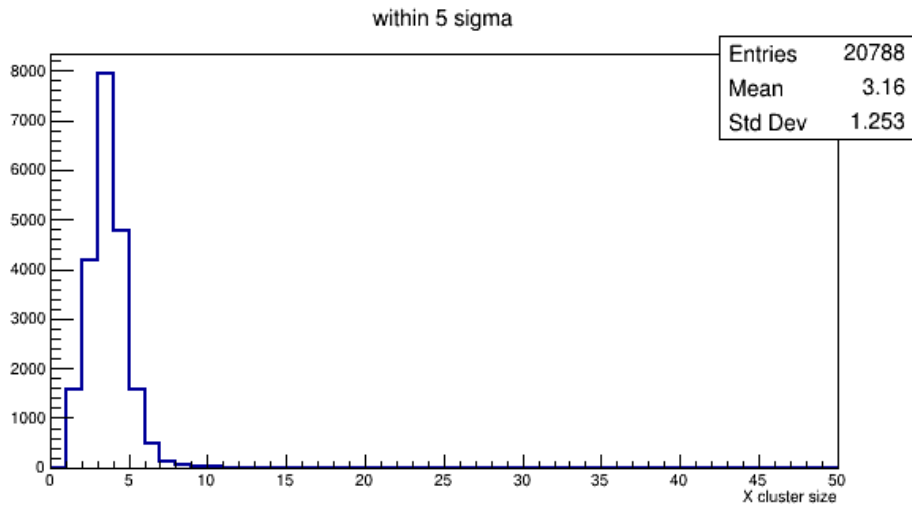
outside 10 sigma



charge – L2 bottom

CUT:

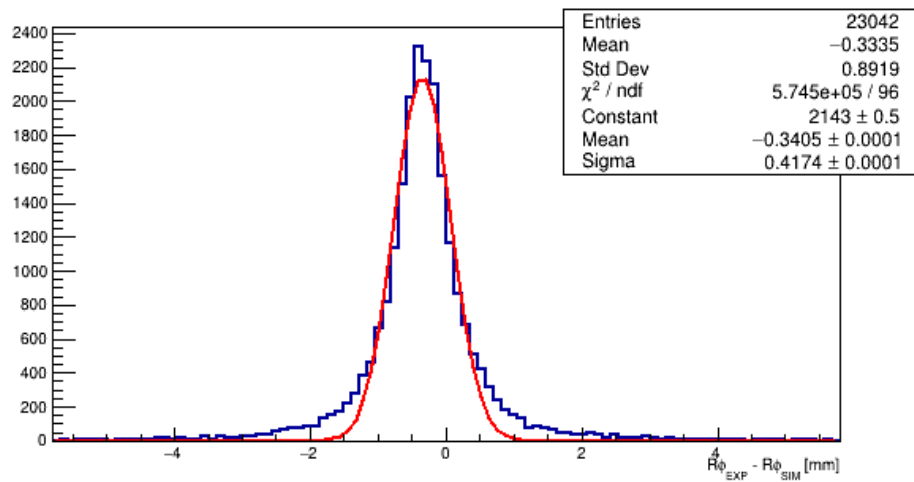
- test chamber $Q > 2 \text{ fC}$ && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



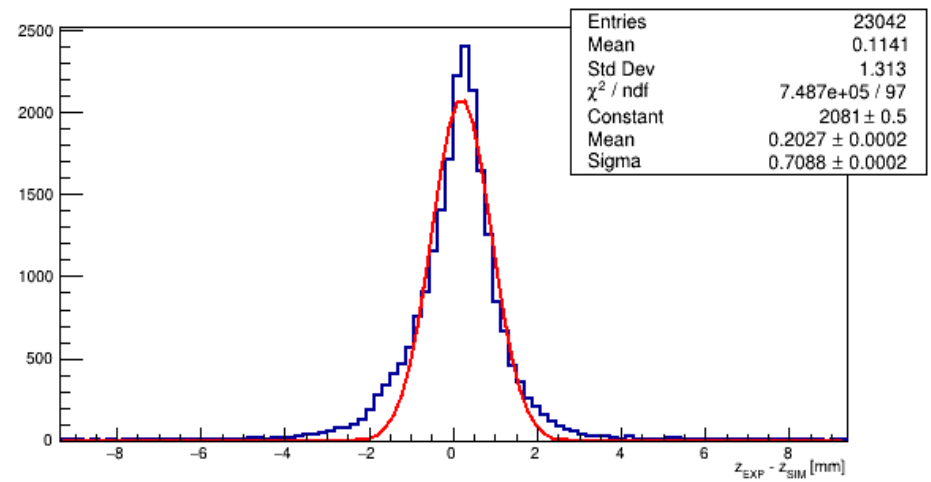
charge – L2 top

CUT:

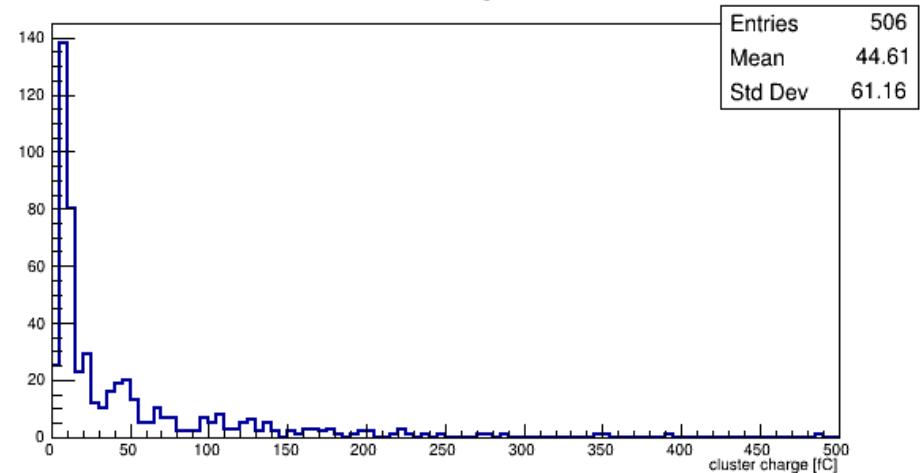
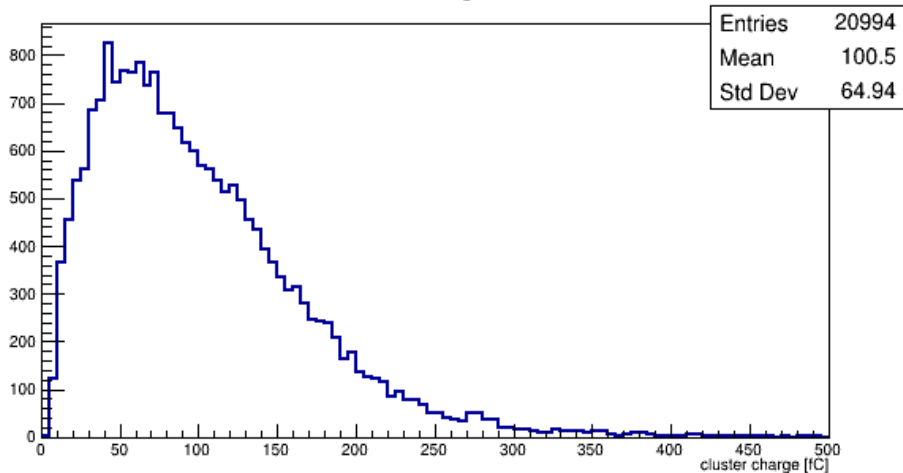
- test chamber $Q > 2$ fC && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



within 5 sigma



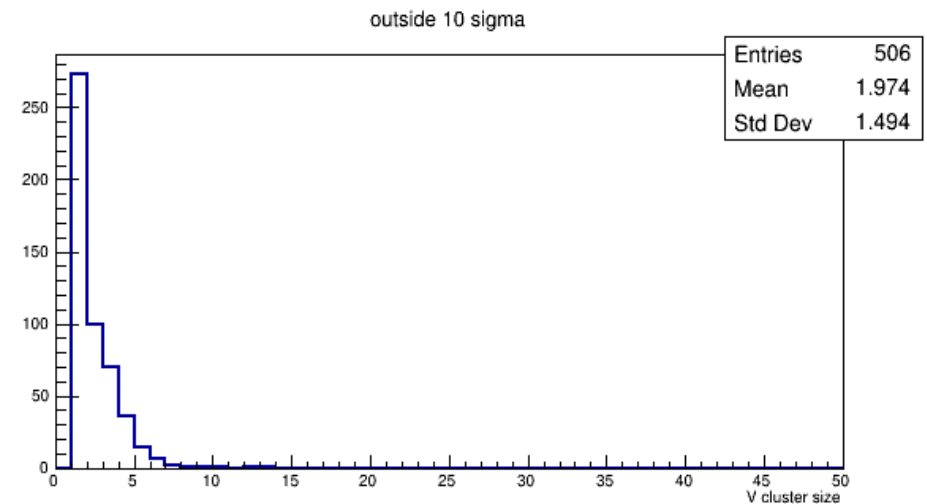
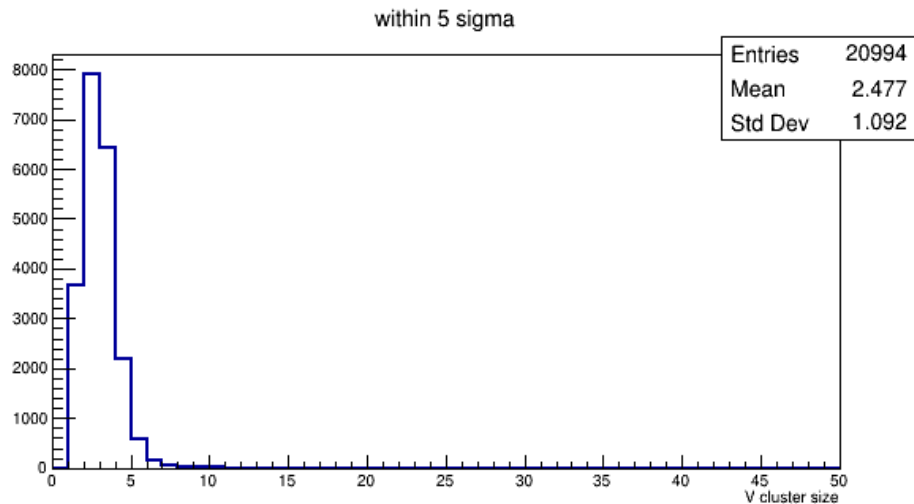
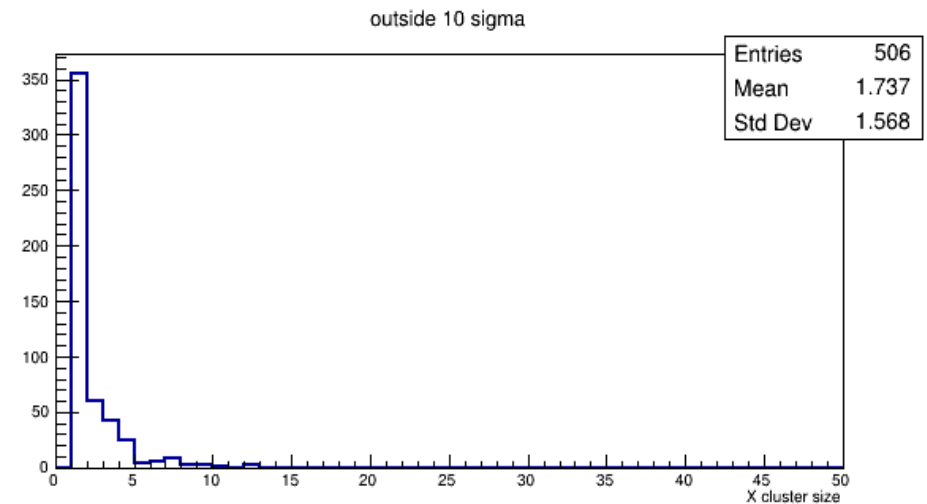
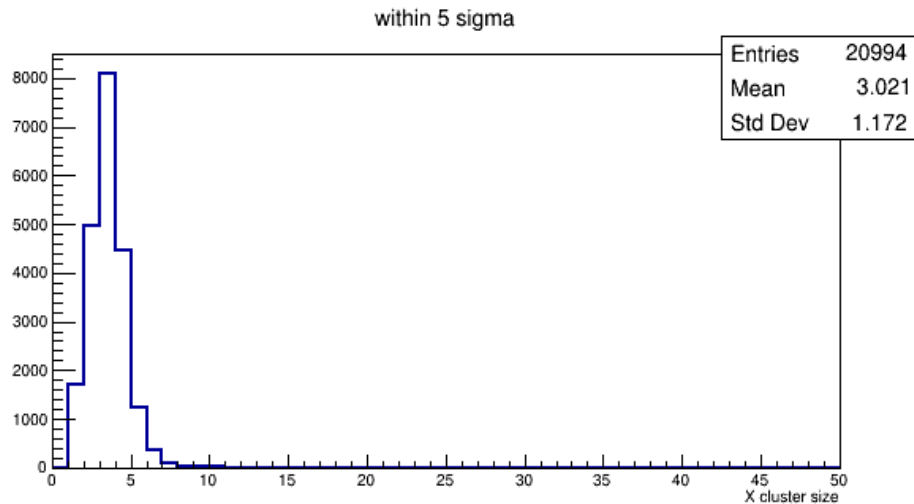
outside 10 sigma



charge – L2 top

CUT:

- test chamber $Q > 2$ fC && $\chi^2_{xy} < 0.01$ && $\chi^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**



cl.size & charge: comparison

CUT:

- test chamber $Q > 2 \text{ fC}$ && $\text{chi}^2_{xy} < 0.01$ && $\text{chi}^2_{rz} < 1$:
 - **Signal is within 5 sigma**
 - **Noise is outside 10 sigma (FIXED this time!)**
 - **The cut on the #sigmas is applied both in Rphi and in z residuals!**

L1 bottom - EFFICIENCY tot 0.836158 phi only 0.872095 z only 0.861497

mean charge inside 107.327 outside 49.3936 fC

mean cl.size X inside 2.57711 outside 1.56674

mean cl.size V inside 3.05179 outside 2.39725

L1 top - EFFICIENCY tot 0.852187 phi only 0.879769 z only 0.880287

mean charge inside 108.757 outside 51.7311 fC

mean cl.size X inside 2.61516 outside 1.63687

mean cl.size V inside 3.05047 outside 2.55307

L2 bottom - EFFICIENCY tot 0.863038 phi only 0.883921 z only 0.900278

mean charge inside 113.358 outside 60.468 fC

mean cl.size X inside 3.16048 outside 2.00725

mean cl.size V inside 2.66894 outside 2.06522

L2 top - EFFICIENCY tot 0.857843 phi only 0.880072 z only 0.888612

mean charge inside 100.475 outside 44.6116 fC

mean cl.size X inside 3.02101 outside 1.73715

mean cl.size V inside 2.47742 outside 1.97431

$$\text{Eff} = \frac{n(\text{req} > 2 + \text{chi}^2_{xy} + \text{chi}^2_{rz} + \text{in_phi} + \text{in_z})}{n(\text{chi}^2_{xy} + \text{chi}^2_{rz})}$$