# Background Rates

# Final focus geometries test

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Background Phone Meeting

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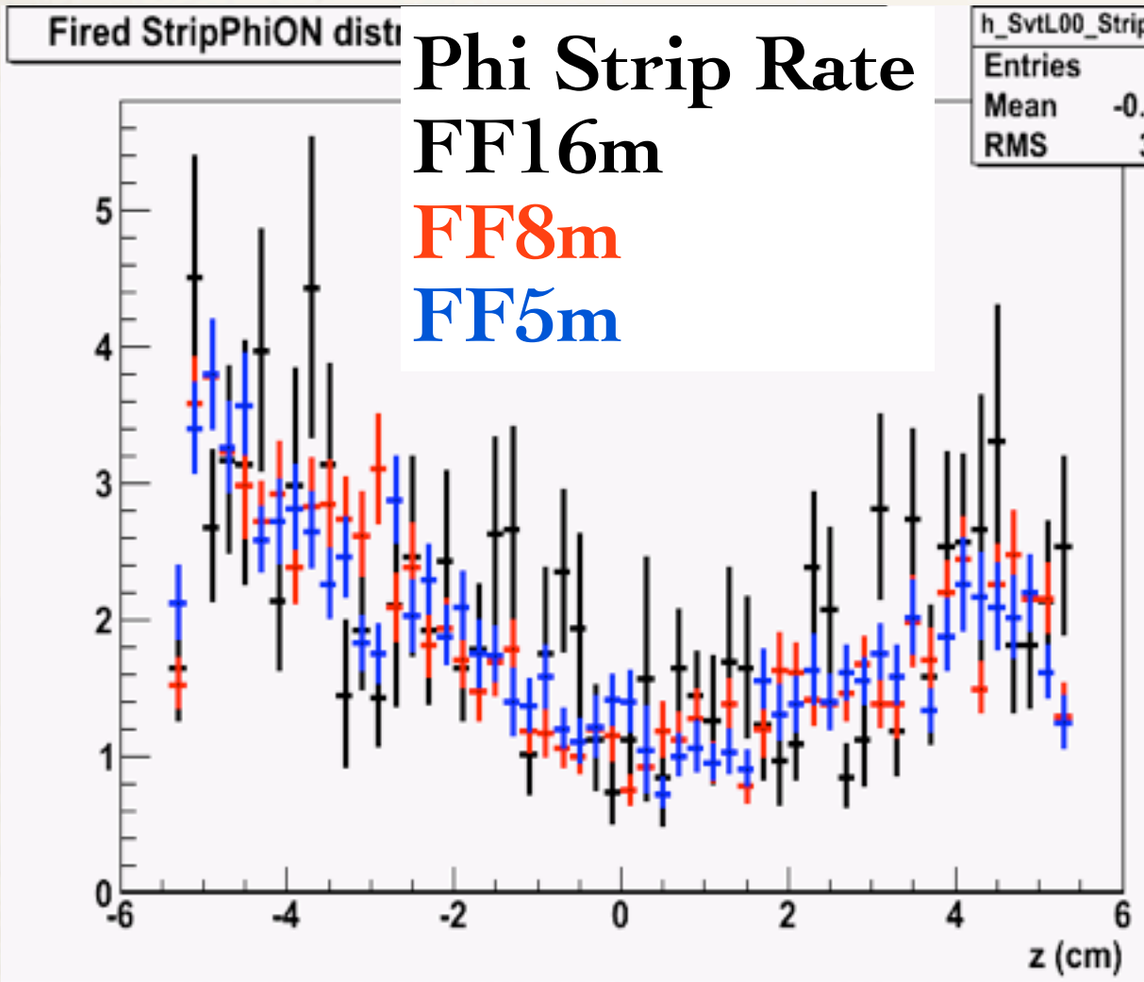
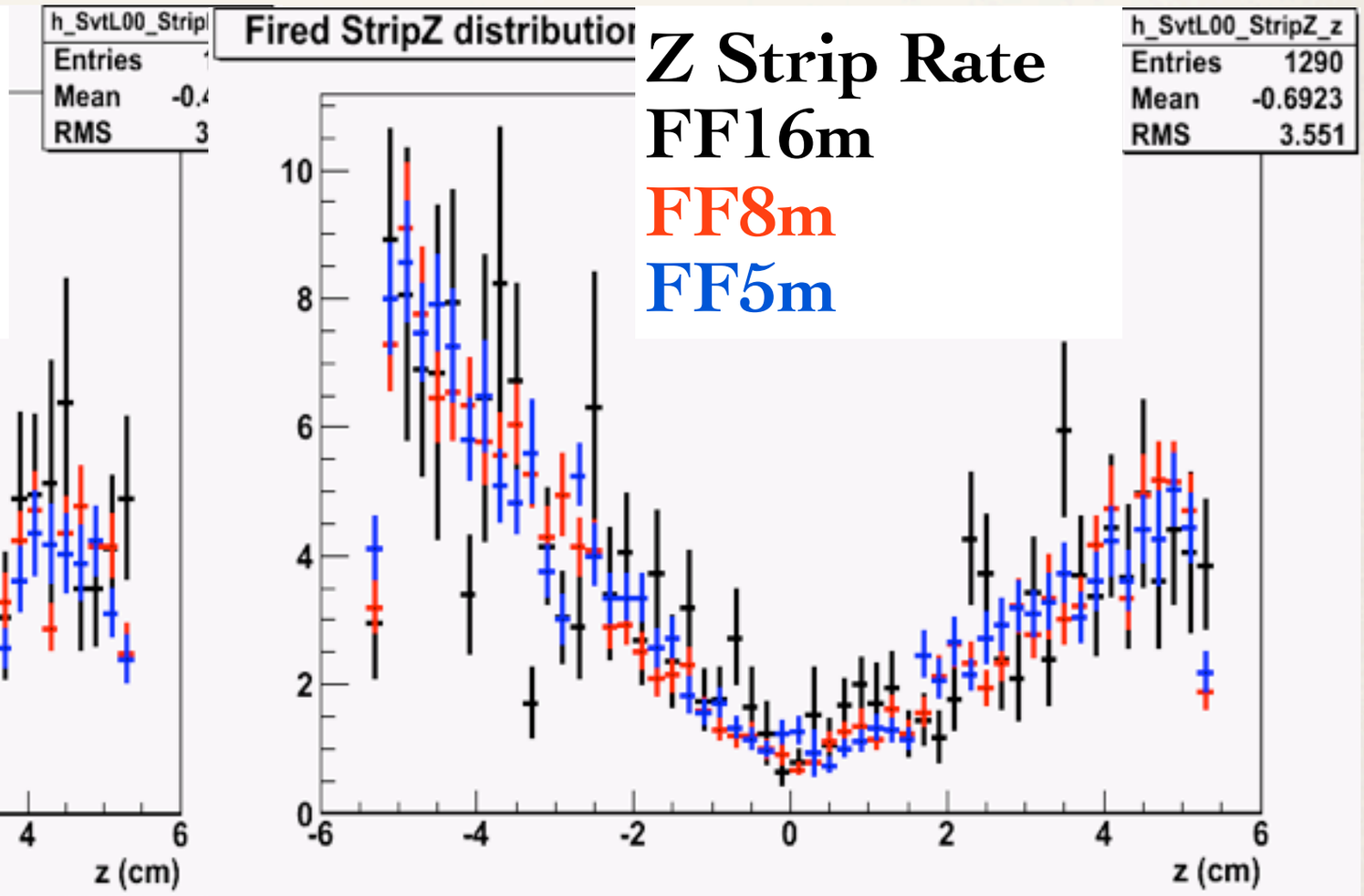
# Introduction

- Pre-production, Radiative BhaBha
- Goal: test the effect of using a reduced modeling of Final Focus geometry
  - **Nominal SuperB geometry (±16 m)** 6000 evts(Geometry_CIPE_V00-00-02)
  - **Reduced model of the FF (±8 m)** 29360 evts(Geometry_CIPE_V00-00-02_ShorterFF8mts)
  - **Reduced model of the FF (±5 m)** 29660 evts(Geometry_CIPE_V00-00-02_ShorterFF5mts)
- Rates are estimated using the same algorithm. Even if nominal geometry sample is 1/5th of others, it took >5 times more time to process, weird
- First evaluation of rates with RadBhaBha after moving to packaged version of Bruno

# SVT rate, layer 0

- No significative differences in rate



# SVT rates, all layers

- Still small discrepancy comparing different geometries
- Statistics is really low for outer layer

| LAYERS | Final Focus 16m Rate [kHz/cm2] | Final Focus 8m Rate [kHz/cm2] | Final Focus 5m Rate [kHz/cm2] |
|---|---|---|---|
| L0 phi | 3577 | 3396 | 3459 |
| L0 z | 2097 | 1885 | 1871 |
| L1 phi | 192 | 142 | 165 |
| L1 z | 96 | 89 | 104 |
| L2 phi | 72 | 103 | 114 |
| L2 z | 43 | 66 | 65 |
| L3 phi | 97 | 119 | 109 |
| L3 z | 61 | 84 | 69 |
| L4 phi | 13 | 16 | 17 |
| L4 z | 7.8 | 8.7 | 9.2 |
| L5 phi | 4.2 | 5.9 | 6.3 |
| L5 z | 2.9 | 3.9 | 3.8 |

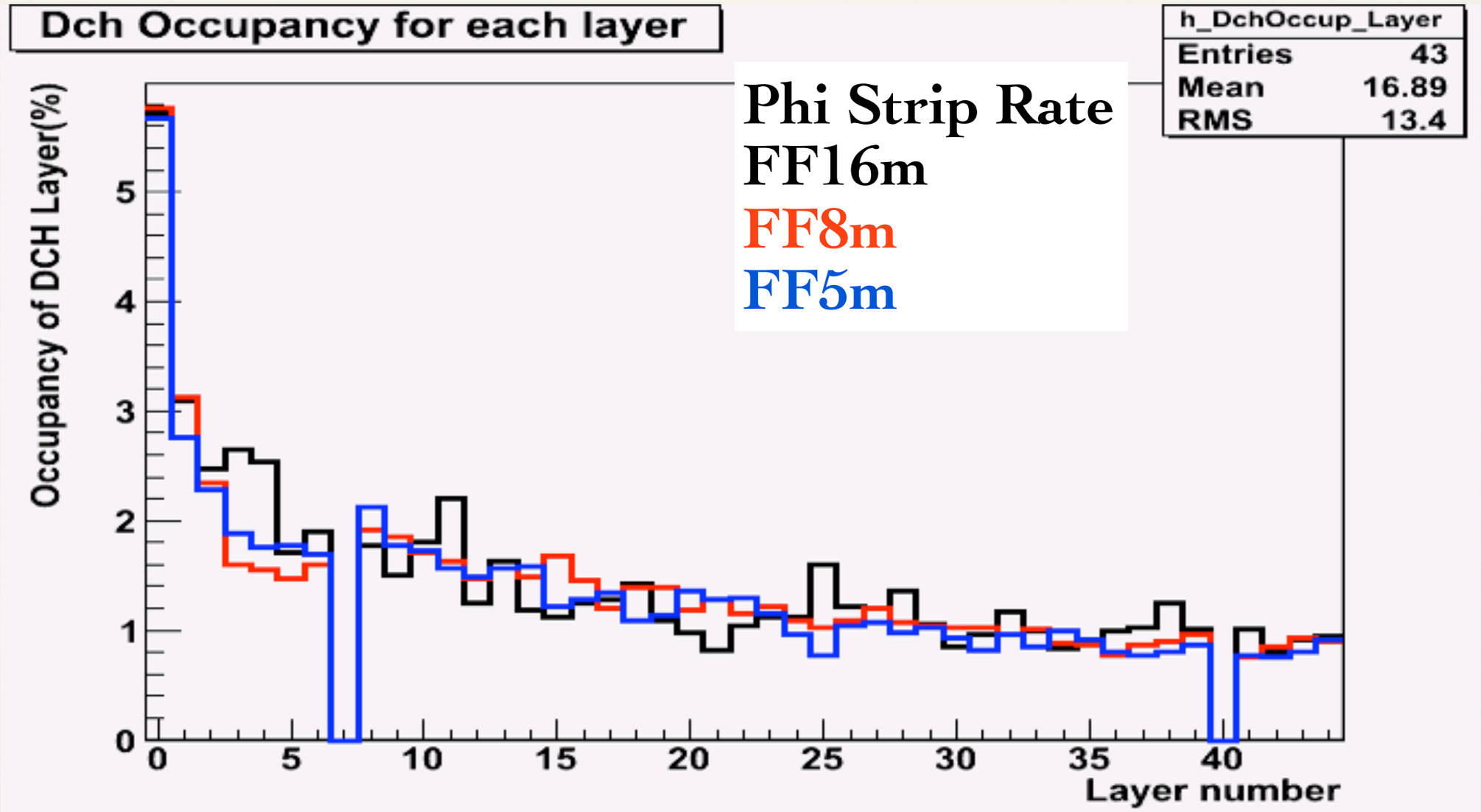
# SVT FEE doses, all layers

- Again, no significative differences

| LAYERS | Final Focus 16m Dose [kRad] | Final Focus 8m Dose [kRad] | Final Focus 5m Dose [kRad] |
|---|---|---|---|
| L0 | 81 | 84 | 89 |
| L1 | 12 | 15 | 15 |
| L2 | 14 | 20 | 21 |
| L3 | 18 | 21 | 20 |
| L4 | 11 | 11 | 11 |
| L5 | 2 | 2.5 | 2.7 |

# DCH rate

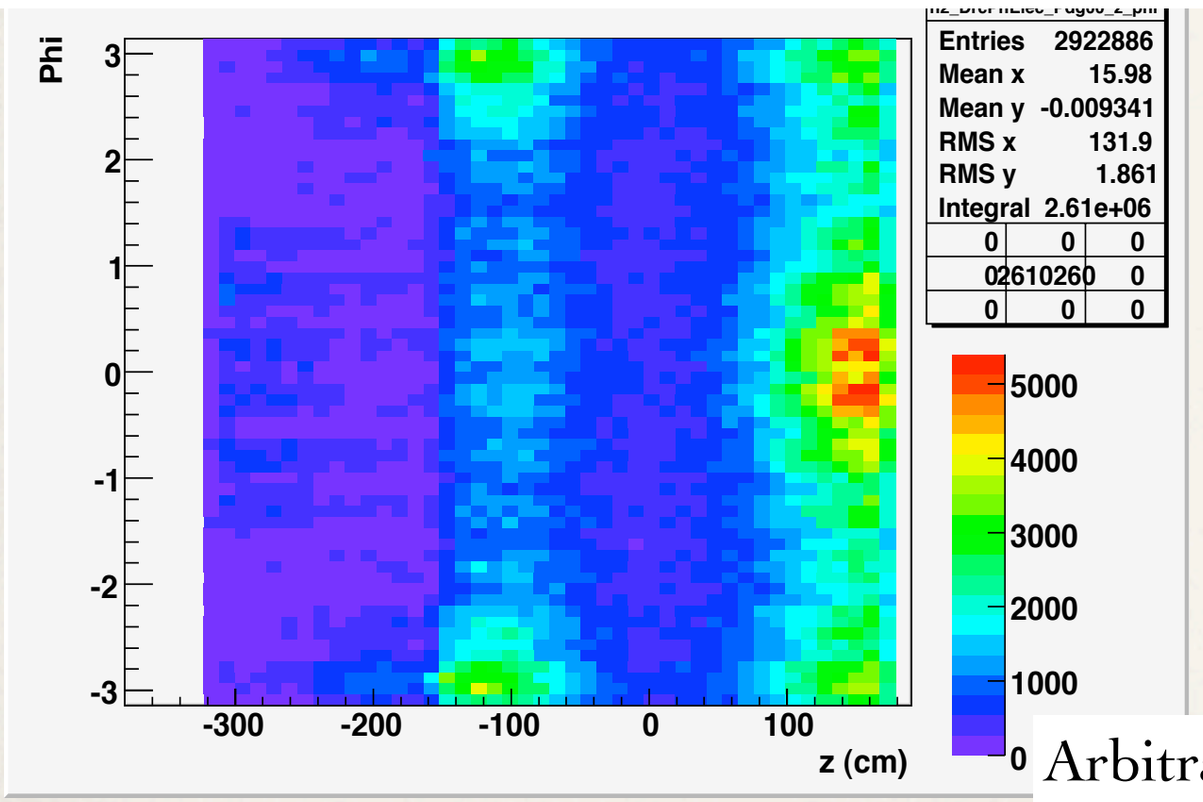
- No significative differences
- Occupancy: 16m 1.40%, 8m 1.33%, 5m 1.29%
- Also doses on FEE are the same (0.6-0.9 kRad)



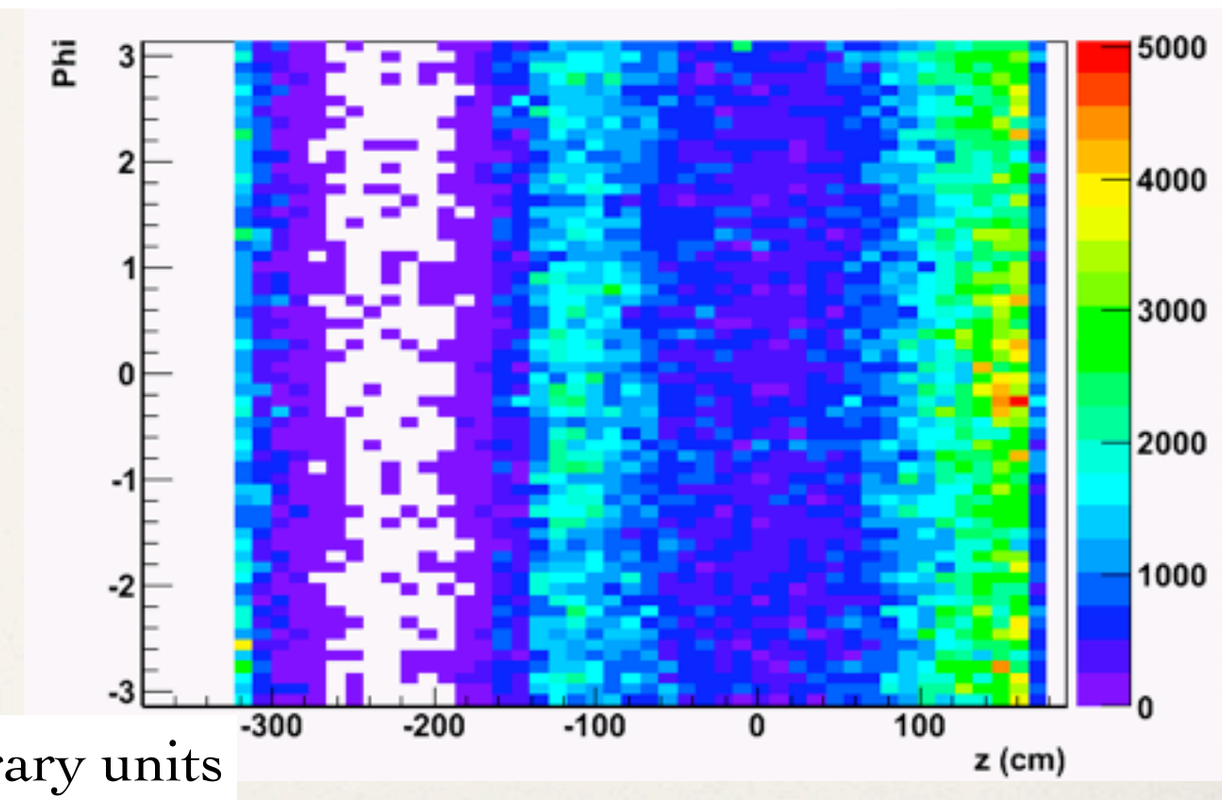
# DRC rates

- Main contribution, PhotoElectron from electron/positron: **119 kHz** per pixel (117 kHz @Elba 2010)
- Phi-z distribution is slightly different (maybe just from statistics)
- Results are consistent for the different geometries

**PhotoElec from e+/e-, Phi-Z distribution**




**Elba2010 (200k evts)**

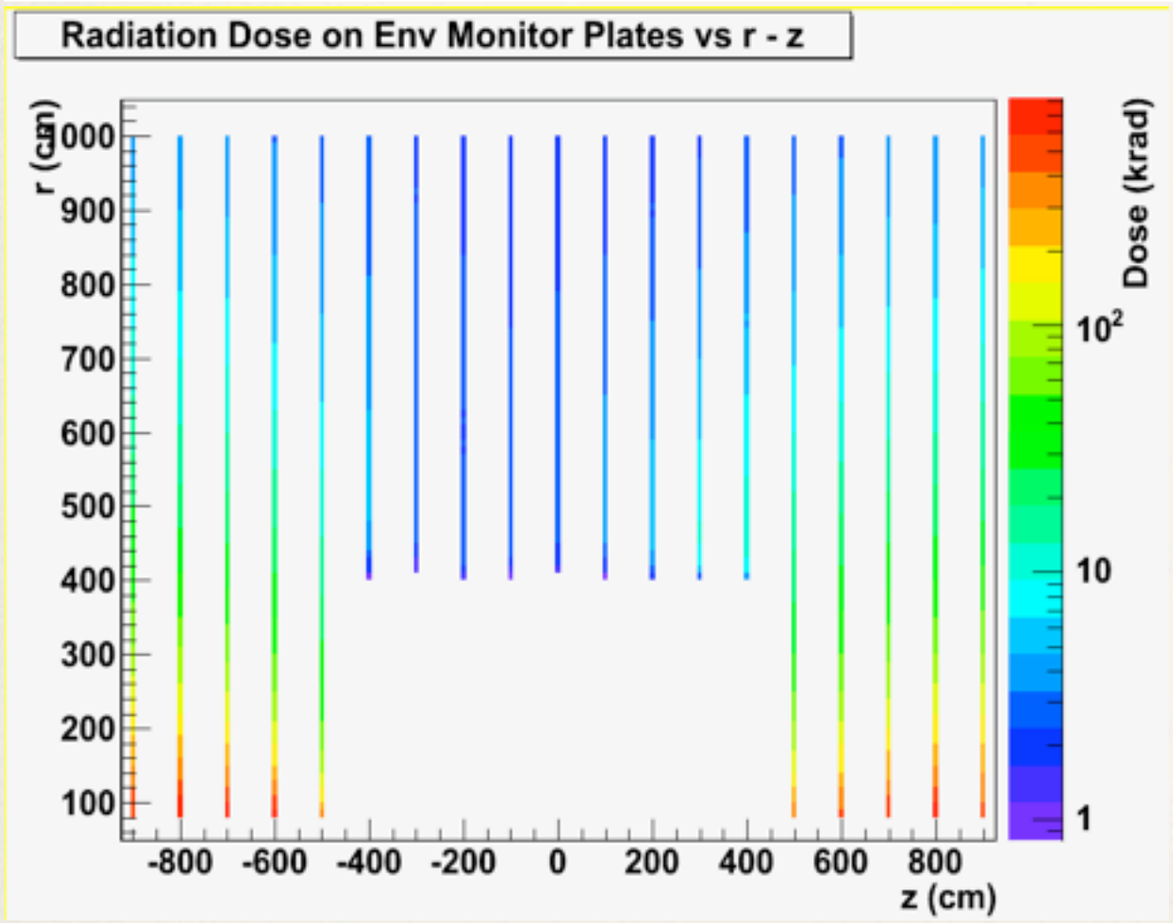



**Nov2011 - FF8m (30k evts)**

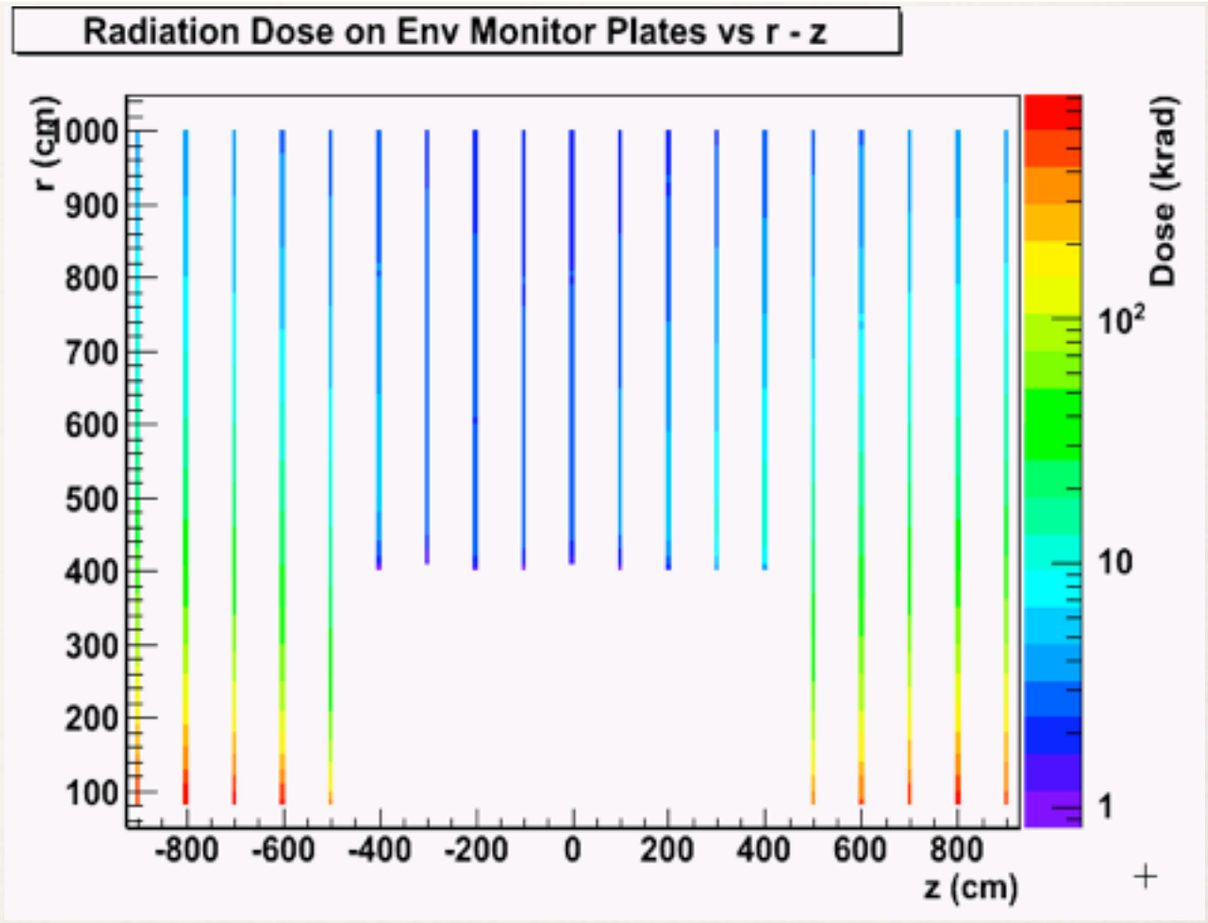
# Detector hall doses

- Silicon plates not present for modified geometries
- Doses are unchanged from Elba 2011

**PhotoElec from e+/e-, Phi-Z distribution**




**Elba2011 (20k evts)**




**Nov2011 - FF16m (30k evts)**

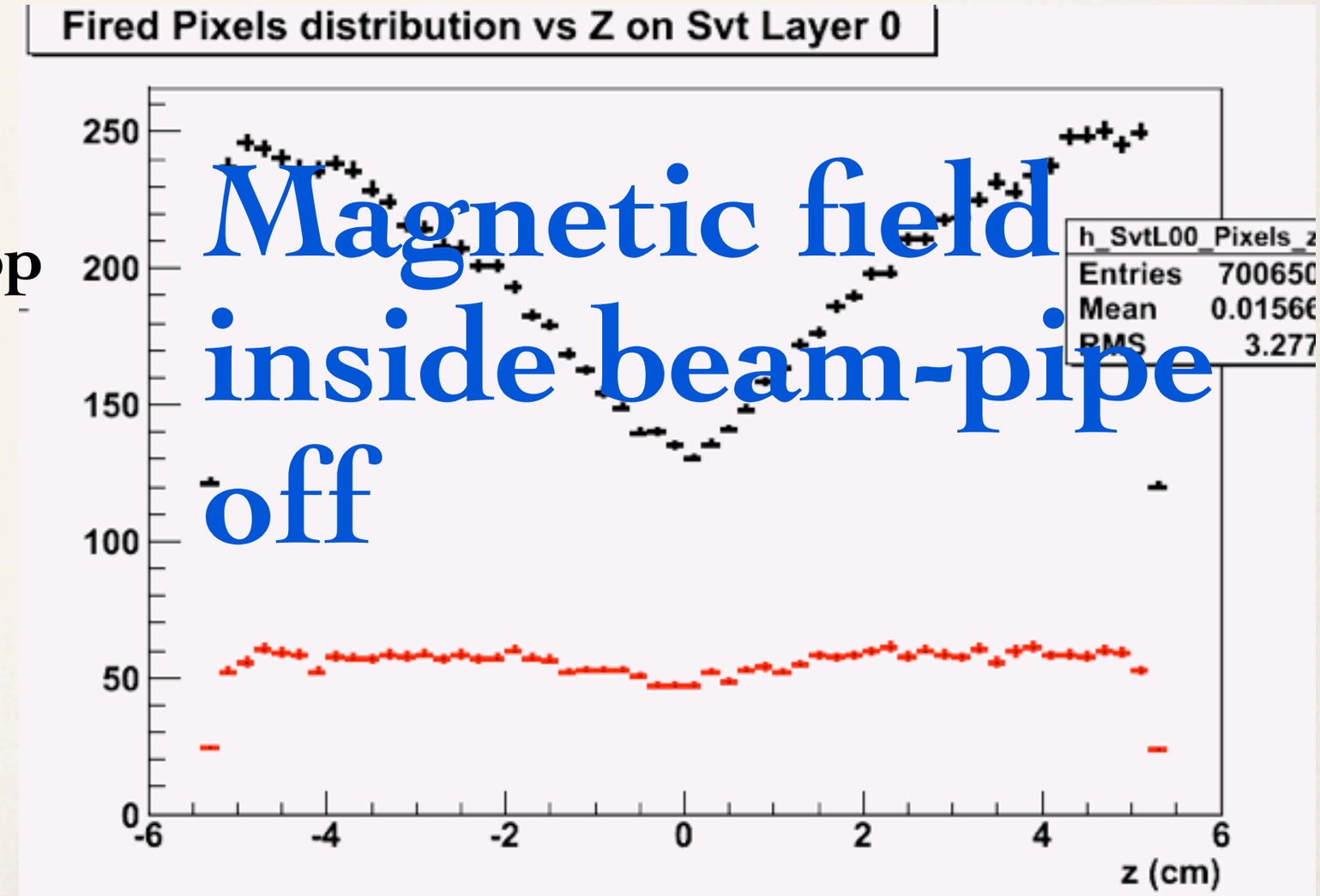
# Conclusions

- With present statistics, we don't observe any significative differences comparing the 3 geometries

# Preliminary results

- Rates are much higher than before, specially for L0 (~x4)

**2photon (pairs)**
**Pixel rate in MHz/cm$^2$**
**prod 2011 Sep, BrunoApp**
**prod 2011 May, Bruno**



# Map for cell rate

- Still 2photons
- Fill the map with rate for each cell
- 250us
- A cell fired once during 250us = 4kHz
- Higher statistics needed to spot which ones are the hot areas, it looks still isotropic