

## INTT Run QA Analysis

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I've implemented the feature to skip too big INTT BCO compared with GL1 in decoder

Just realized that we should need another functionality to turn ON/OFF this feature since we have to decode the data without GL1 when we do INTT local run

It does not conflict with any current software. But want to share it today since I want it to be merged before next INTT meeting

Test is done last few days with Genki and Mahiro's z-vertex analysis

PR is here(still draft. working with Joe's review)

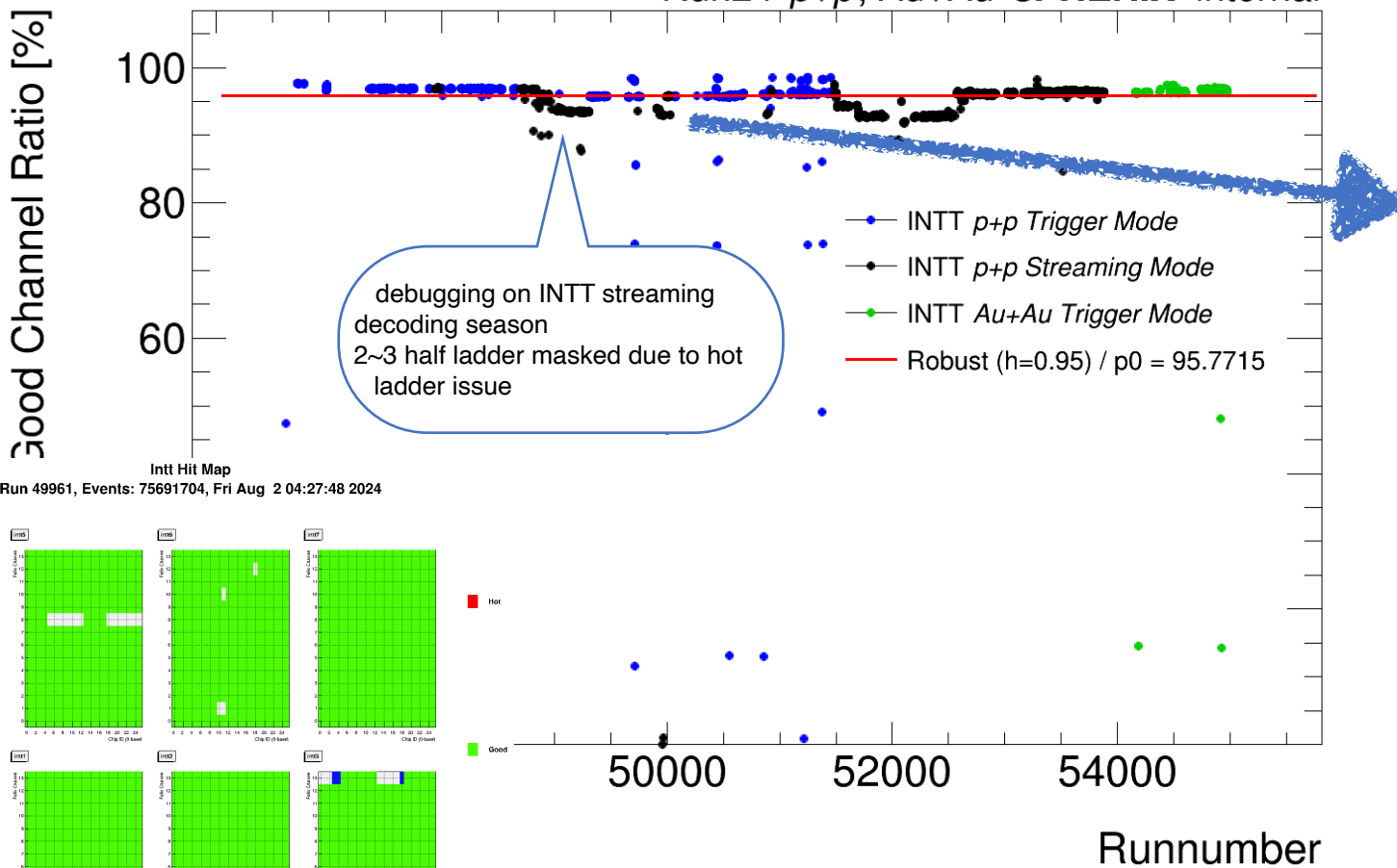
<https://github.com/sPHENIX-Collaboration/coresoftware/pull/3638>

# BACKUP

# Remarkable past record(1)

Good Channel Ratio (BCO\_QA == GOOD && Runtime > 300s)

Run24  $p+p$ , Au+Au **sPHENIX** internal



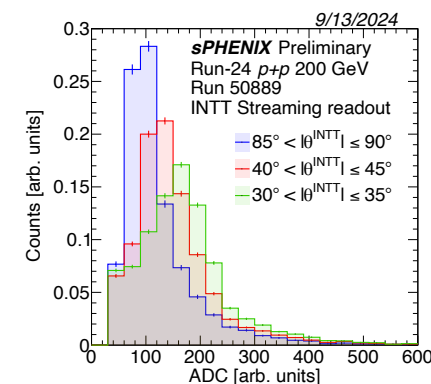
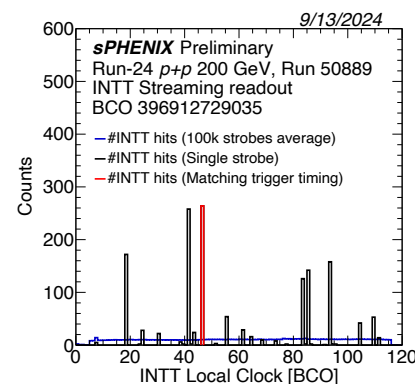
BLUE : Triggered mode

BLACK : Streaming mode

GREEN : AuAu Trigger mode

Linear / Robust (h=0.95) Fit

Run 50,889 / Golden run to clarify  
INTT is ready for streaming readout



# INTT Run QA Result

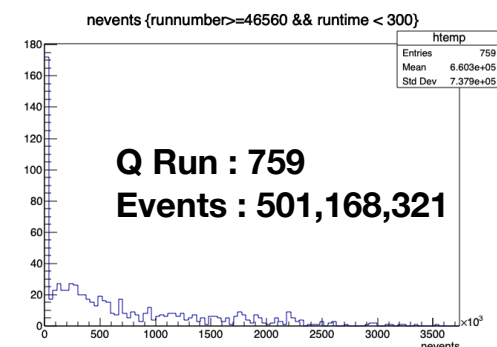
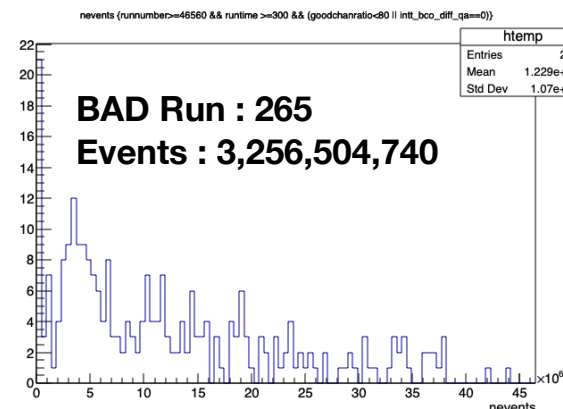
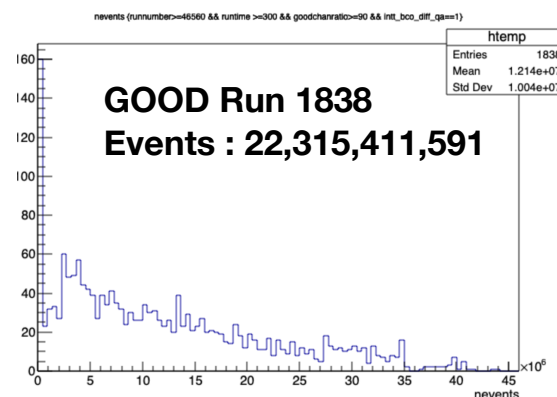
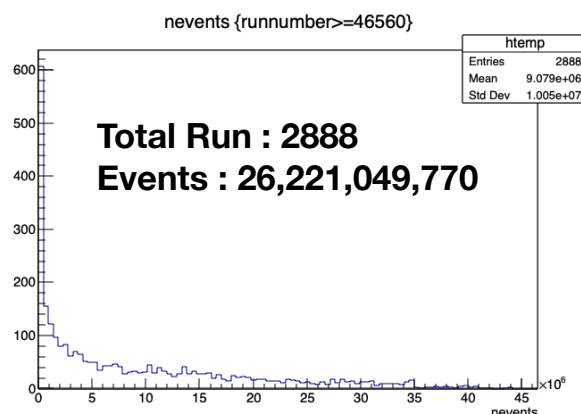
RC-DAQ events in daq database  
is used for # of events estimation

From Jun 21(Run 46560) to  
End of Run

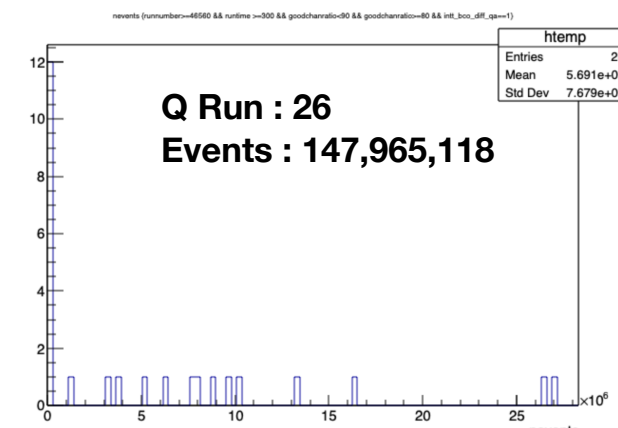
- Golden Run  
BCO alignment = GOOD  
Runtime  $\geq 5$  mins  
**GOOD Channel ratio > 90%**

- Bad Run case 1  
Runtime  $\geq 5$  mins  
BCO alignment = BAD
- BAD Run case 2  
Runtime  $\geq 5$  mins  
Good Channel ratio < 80%

- Questionable case 1  
Runtime < 5mins



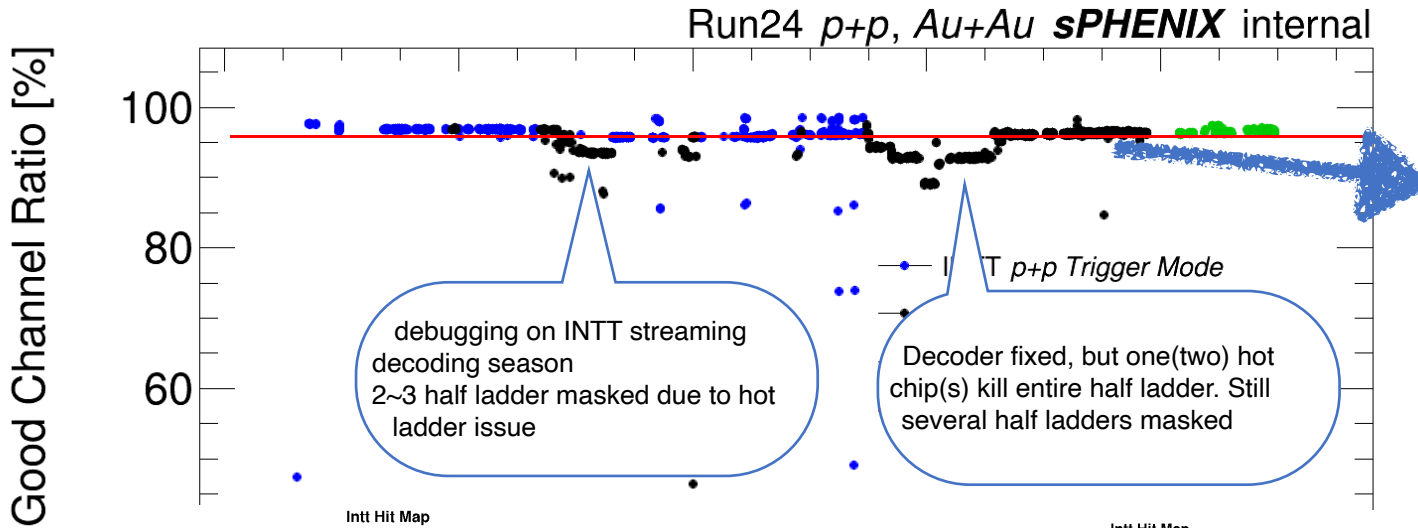
- Questionable case 2  
Runtime  $\geq 5$  mins  
80% < Good Channel ratio < 90%



Category	Fraction of Runs (%)	Fraction of Event (%)
GOOD	63.67%	85.09%
BAD	9.18%	12.42%
Questionable	27.15%	2.49%

# Remarkable past record(2)

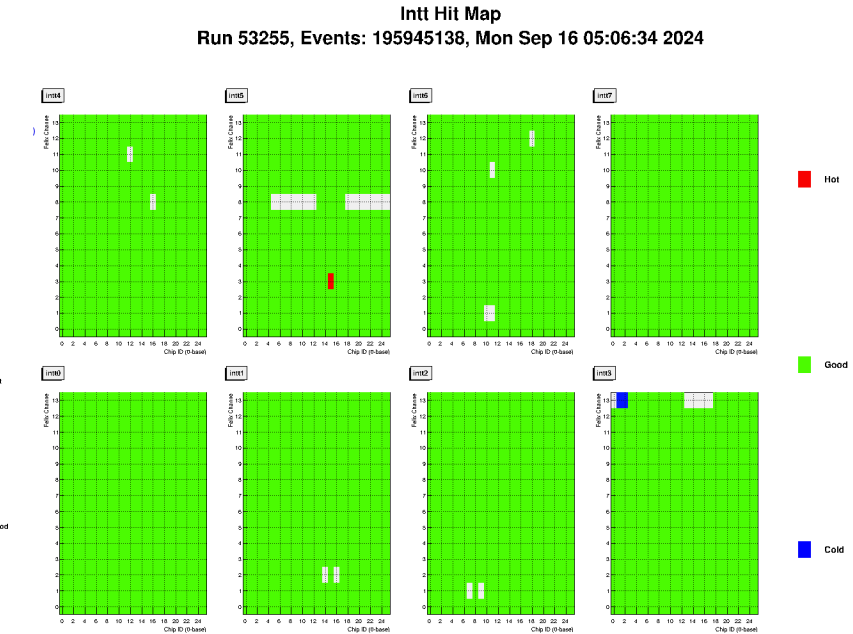
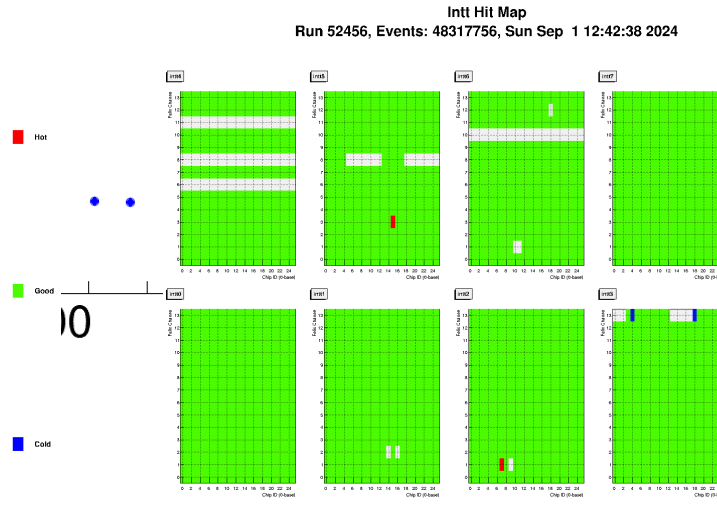
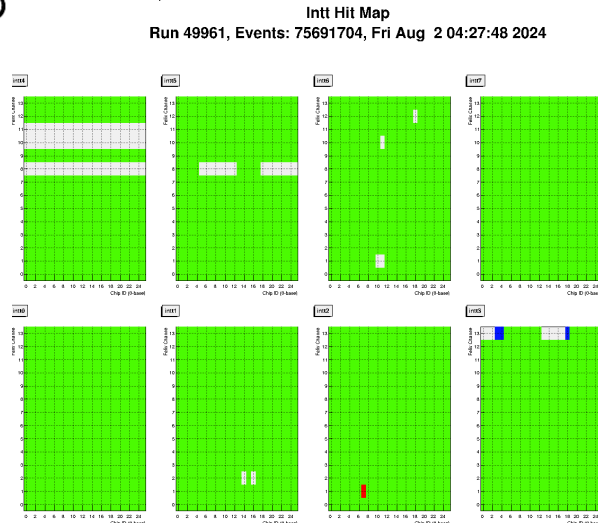
Good Channel Ratio (BCO\_QA == GOOD && Runtime > 300s)



FELIX Update by Raul

-> Chip masking on FELIX side available

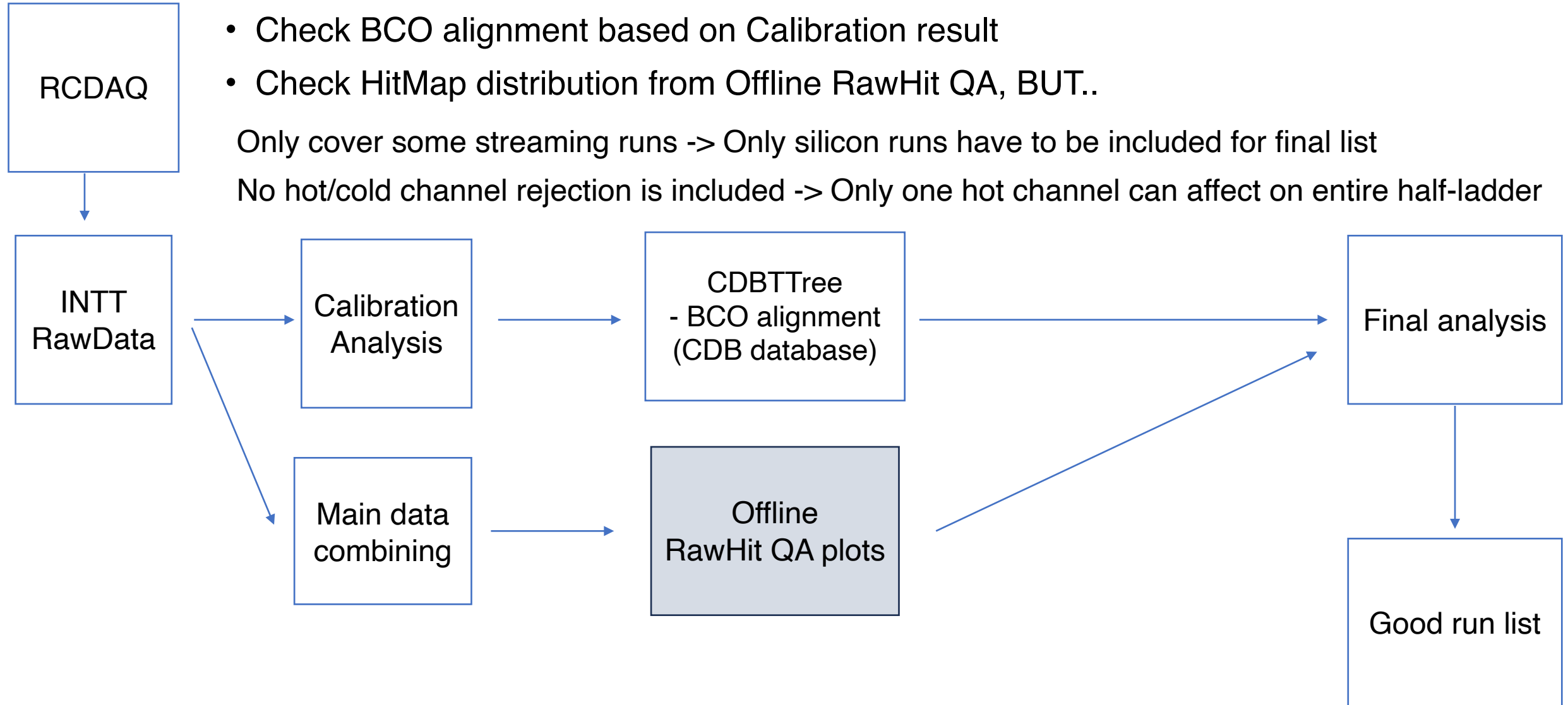
INTT back to operating with ~95% GOOD channel



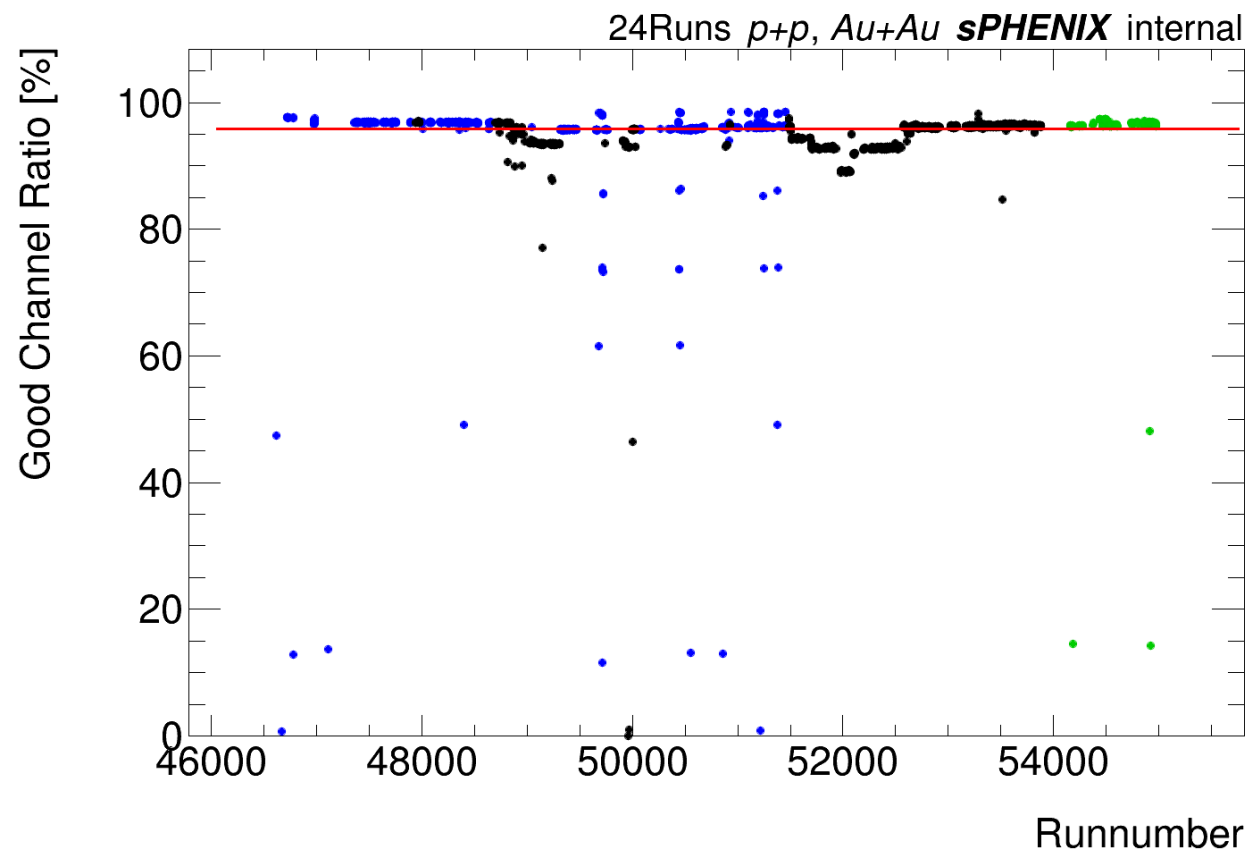
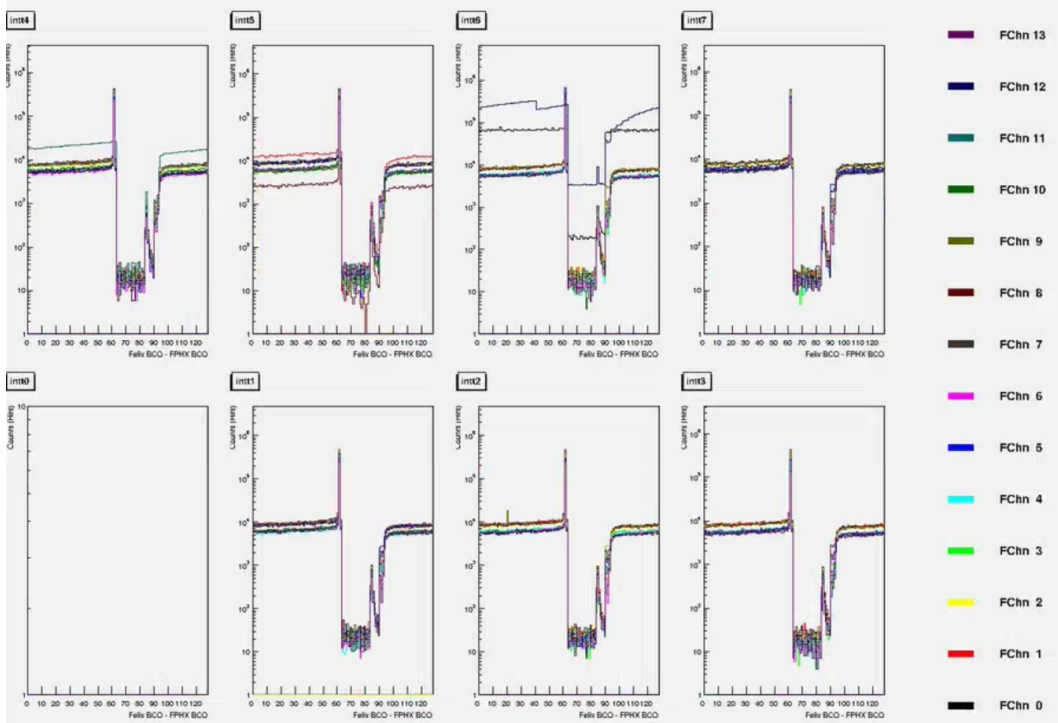
- Check BCO alignment based on Calibration result
- Check HitMap distribution from Offline RawHit QA, BUT..

Only cover some streaming runs -> Only silicon runs have to be included for final list

No hot/cold channel rejection is included -> Only one hot channel can affect on entire half-ladder

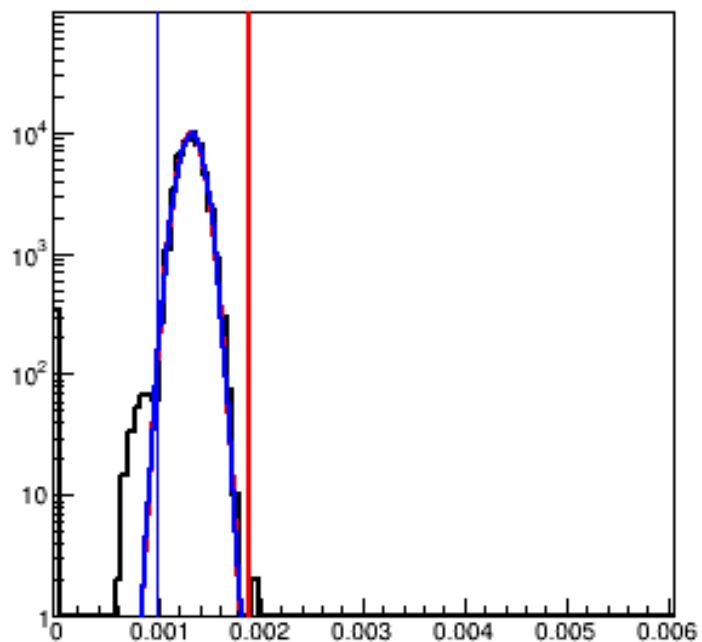


Felix Fphx Bco  
Run 46563, Events: 21215234, Mon Jun 24 01:14:03 2024





intt6

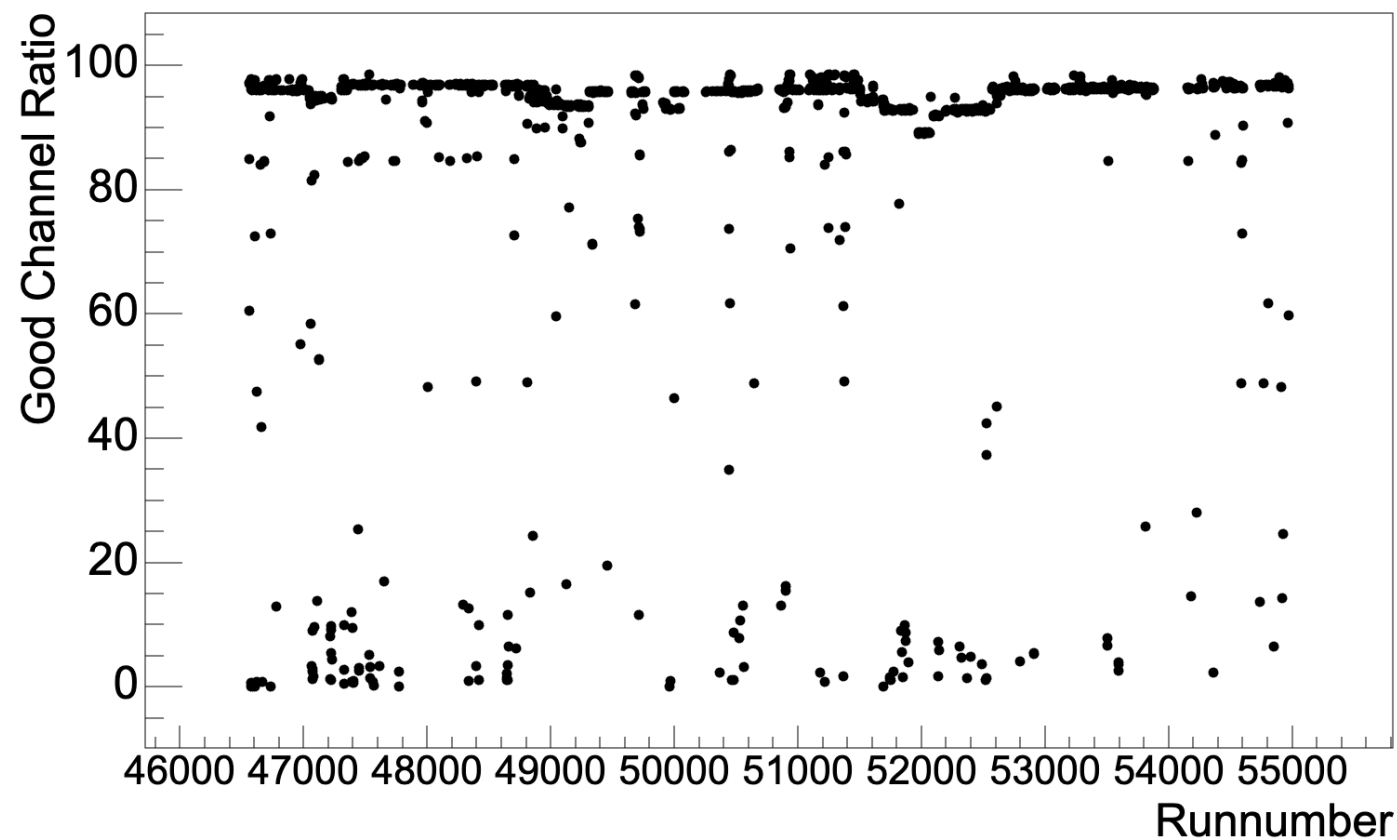


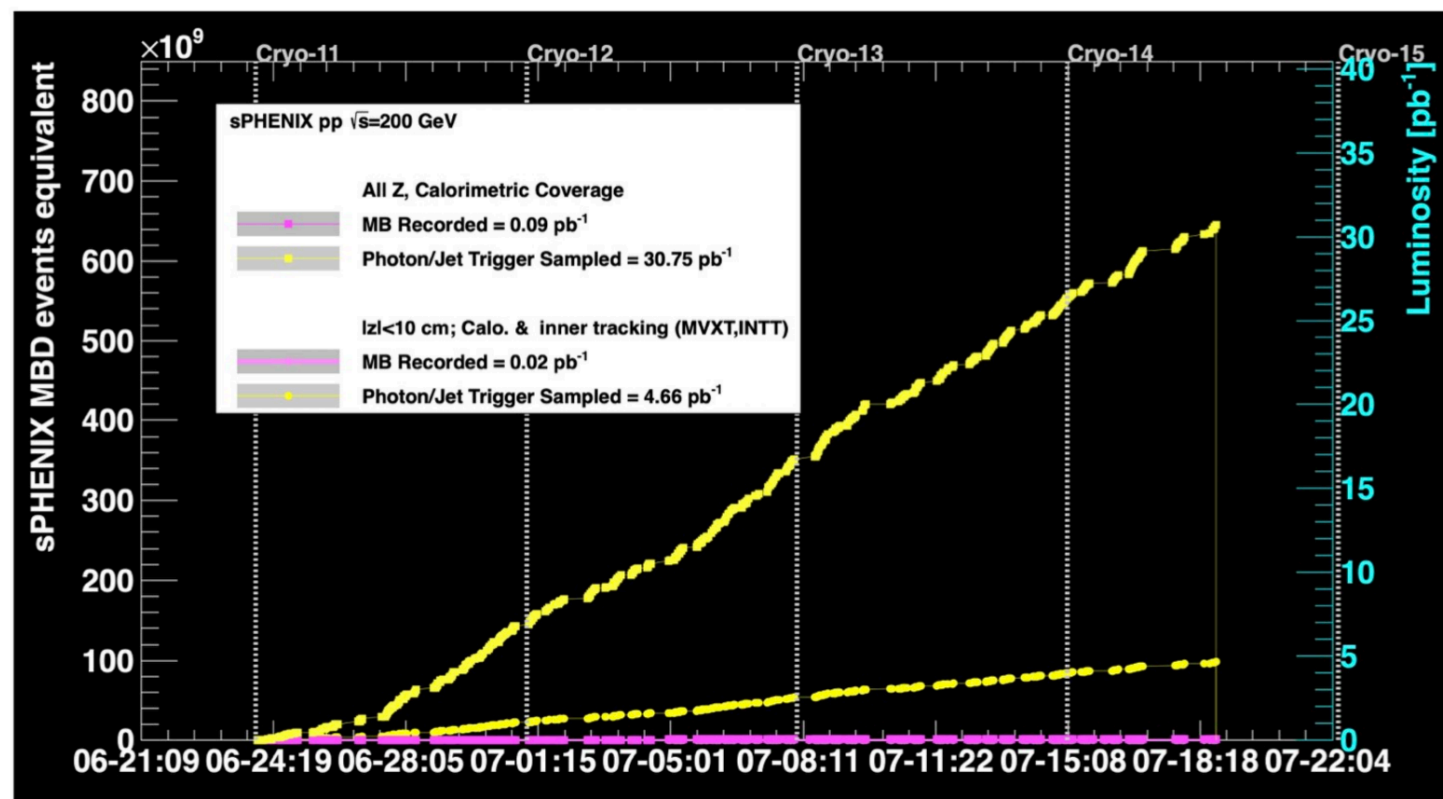
Dead/No hit Cold

Hot

$\text{mean}-3\text{sig} < \text{good} < \text{mean}+5\text{sig}$

Good Channel Ratio vs Runnumber (all\_nocut)



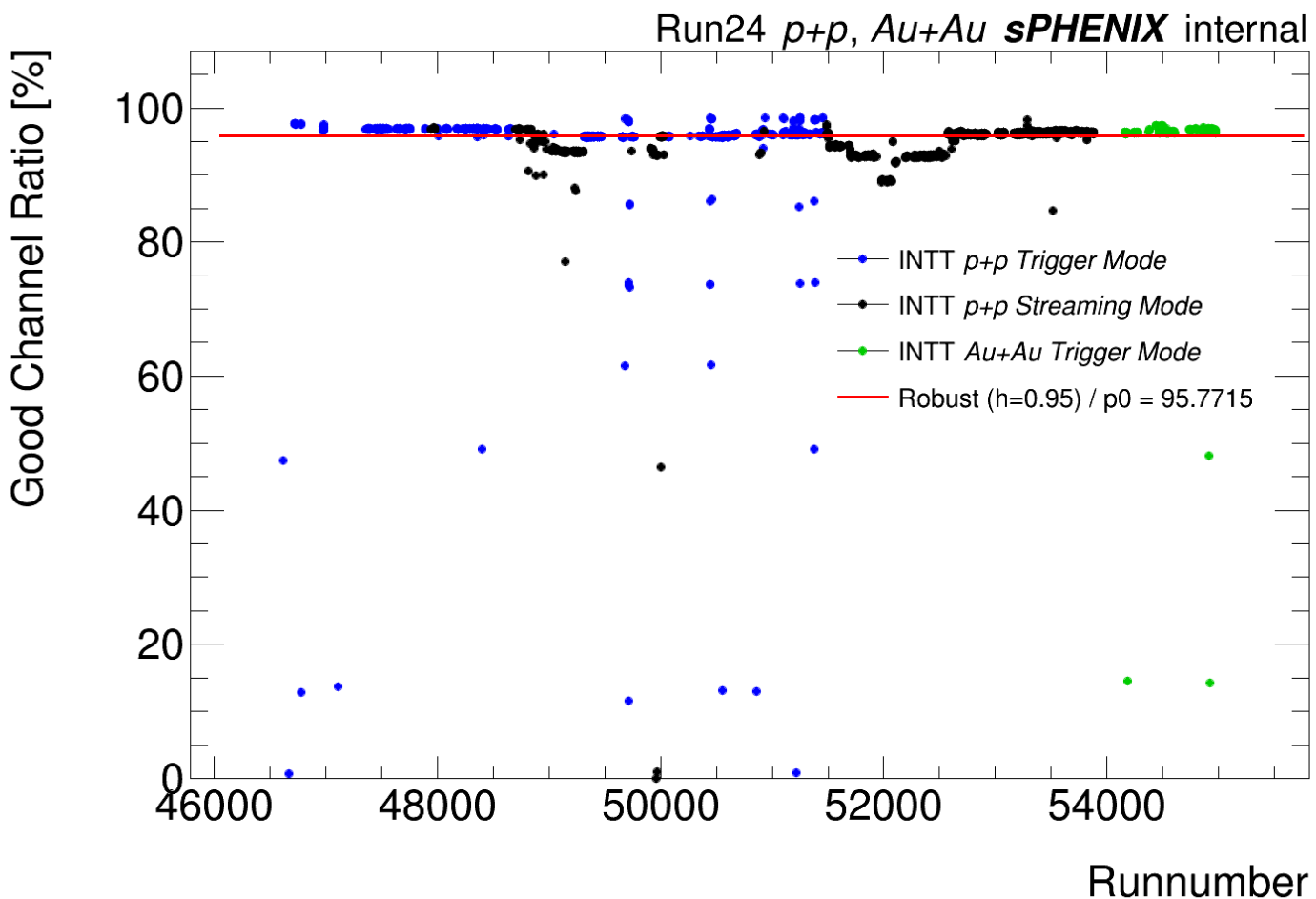


All our quality data is in the last three weeks.  
 $30.7 \text{ pb}^{-1}$  over all z-vertices,  $4.6 \text{ pb}^{-1}$  within  $|z| < 10 \text{ cm}$

My personal suggestion, only worth analyzing data after June 24, 2024.

# Good Channel Ratio for Run24

Good Channel Ratio (BCO\_QA == GOOD && Runtime > 300s)



BLUE : Trigger mode

BLACK : Streaming mode

GREEN :  $AuAu$  Trigger mode

Linear / Robust ( $h=0.95$ ) Fit

```
Minimizer is Linear / Robust (h=0.95)
Chi2           = 107060
Ndf            = 1890
p0             = 95.7715
```

**95% of the INTT channels are GOOD for overall Run24 data**

WHEN

- 1) FELIX is properly configured.
- 2) At least more than 5mins run to ensure stability and to accumulate the statistics

