

# Bad channels for 35t

DUNE 35-ton simulation and reconstruction

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# Introduction

## I continue work on identifying bad channels

- See also my talks at previous two 35t sim/reco meetings
- Here I propose a new bad channels list
  - I surveyed 12 runs using metrics discussed at earlier meetings
    - Truncated NSC RMS < 30-40
    - Four-consecutive SC rate < 30%
    - Four-consecutive NSC repeat rate < 5%
  - Runs well-spaced on my good run list
    - A few more mods to that list, in particular removing early runs that had high NSC (non-sticky code) repeat rates

SC = sticky code (0, 63, 64, ..., 4095)  
NSC = not-sticky code

## Today's plots

- Bad channel metrics
- ADC mean distributions (more problems)
- Bad-channel metrics for 12 runs for each of the 16 planes in appendix

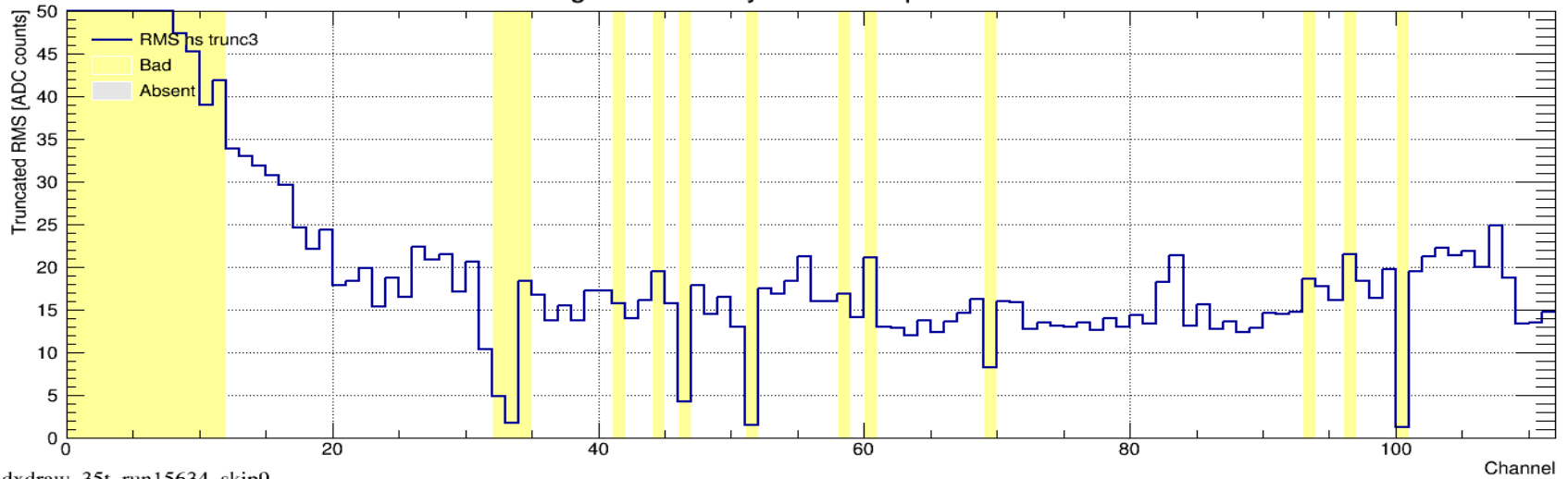
# Bad channel metric distributions

Bad channel metrics for each channel on the following pages

- Each page shows RMS on top and SC/NSC rates on bottom
  - For one of the 16 readout planes
- Results are shown for run 15634
  - All channels are read out for this run
  - Unusual—typically parts of the detector are turned off
- Plots for the full set of 12 reference runs are in the appendix
  - All 16 planes for each
  - I.e. 192 pages
  - Peruse at your leisure

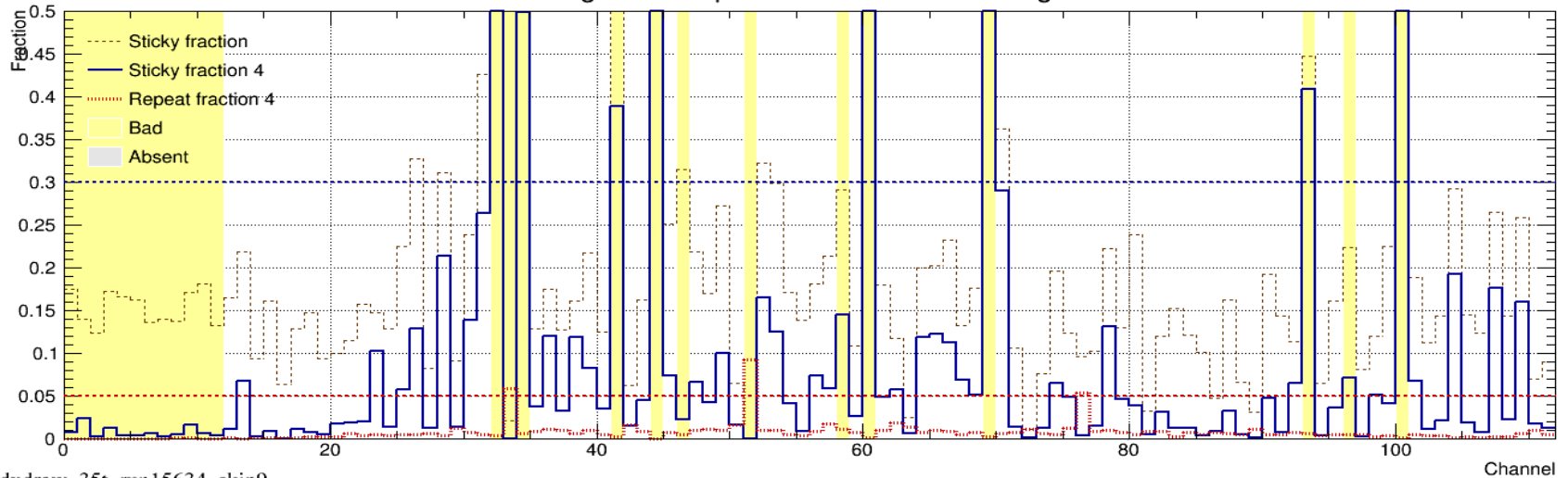
# APA 0z2 run 15634

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run15634\_skip9

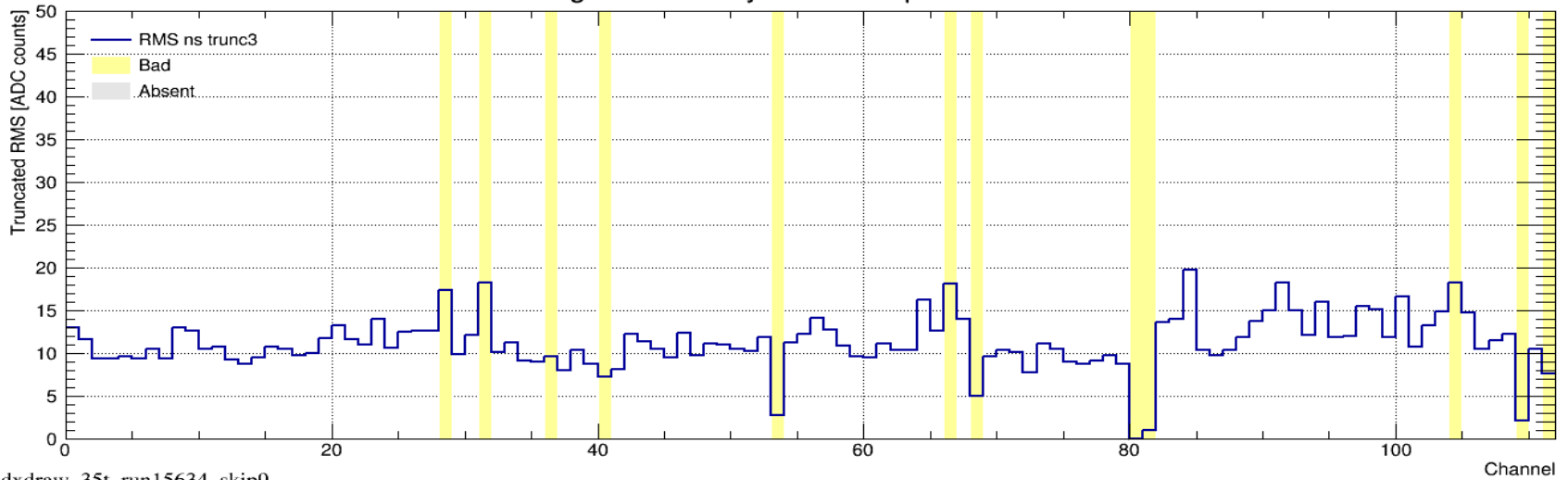
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

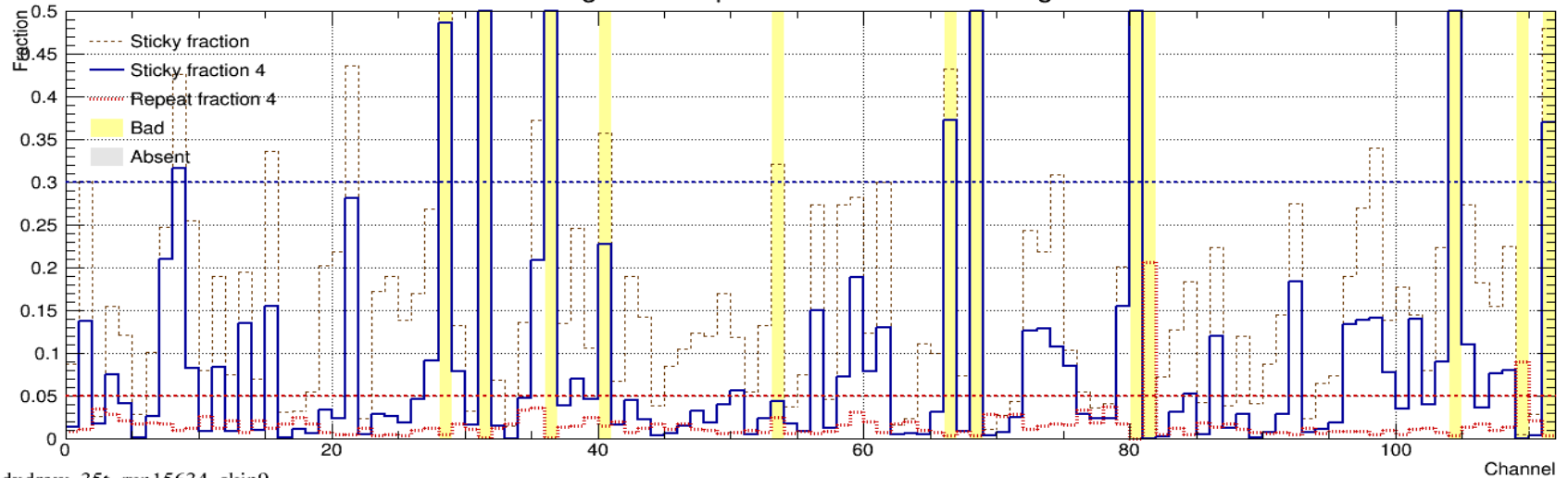
# APA 1z2 run 15634

Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run15634\_skip9

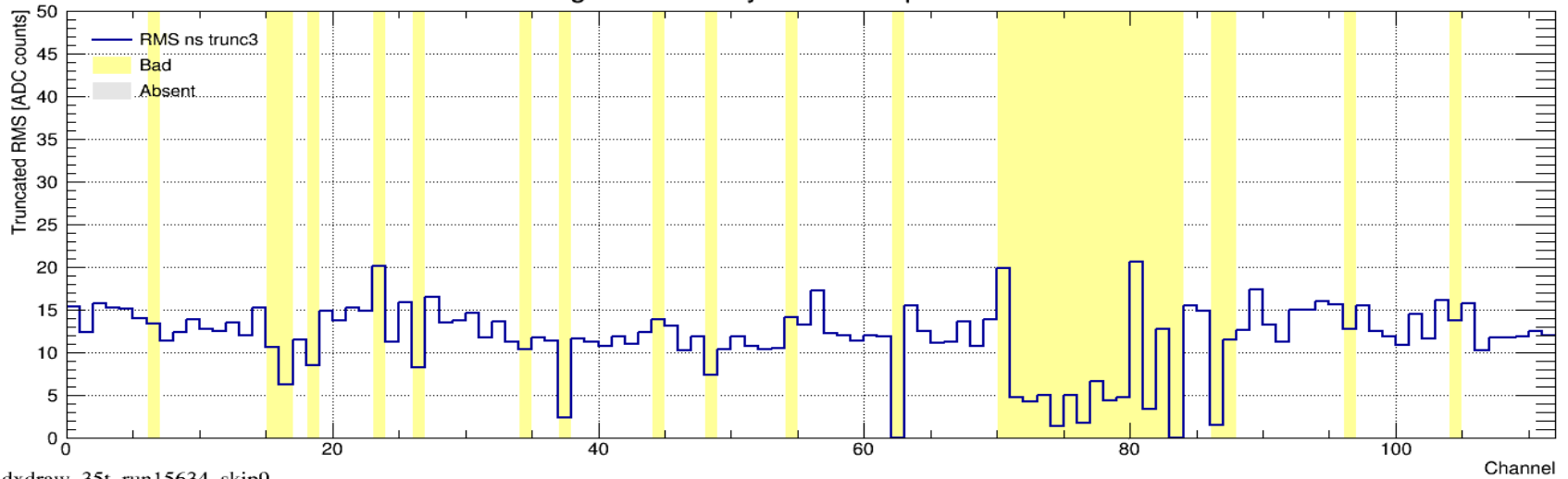
Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

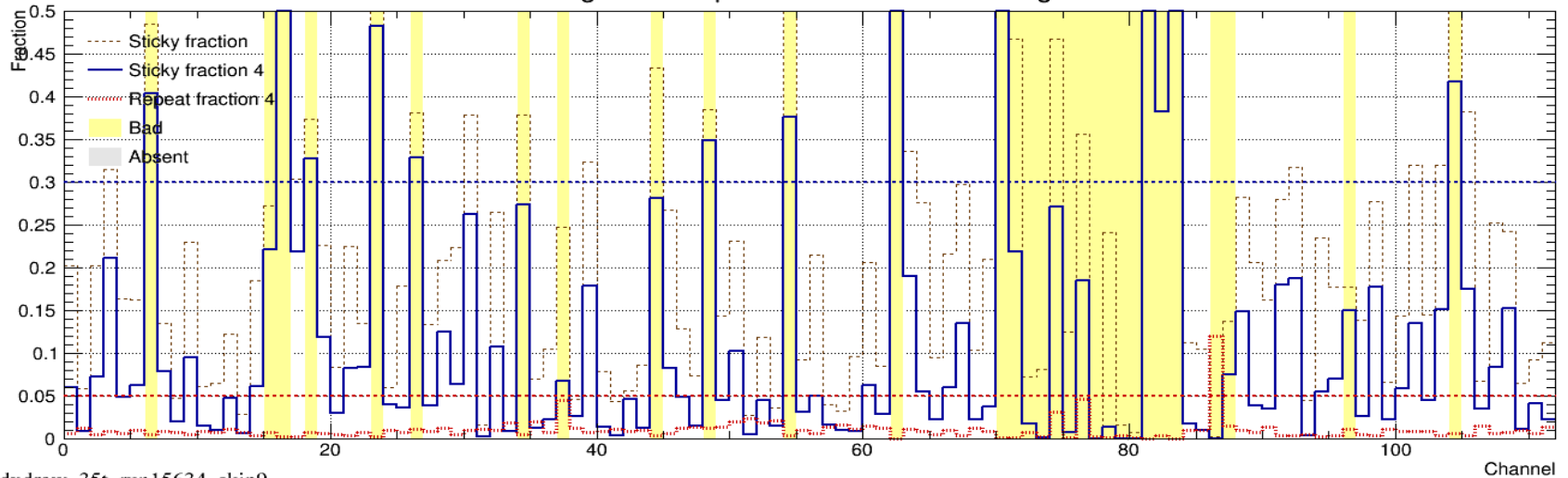
# APA 2z2 run 15634

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run15634\_skip9

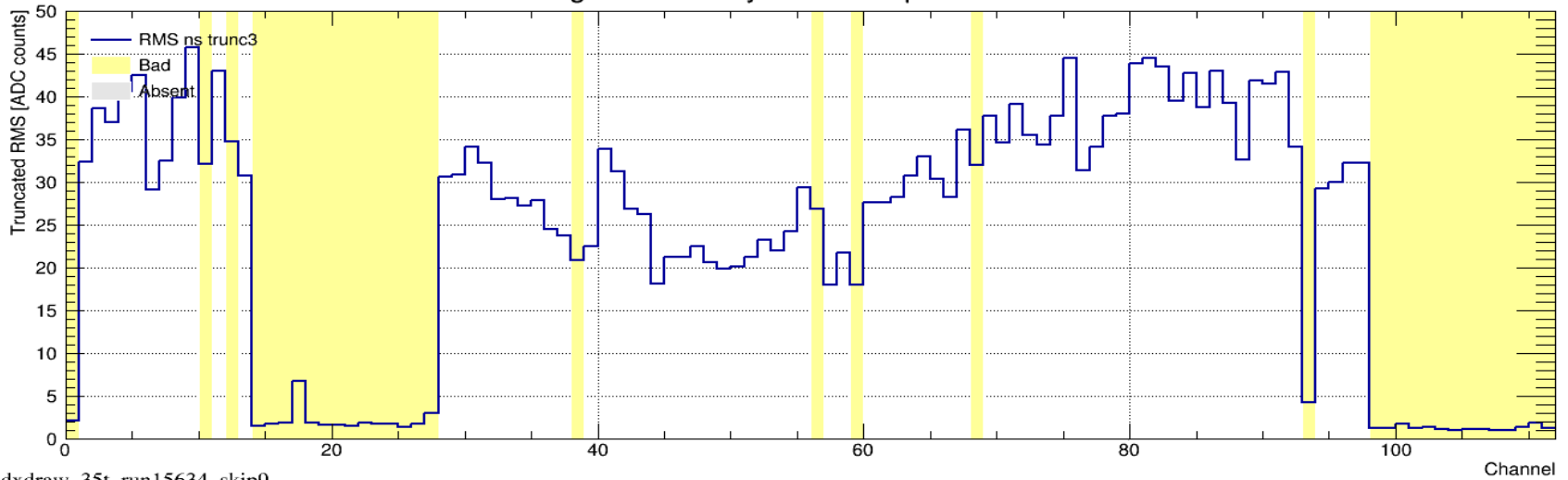
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

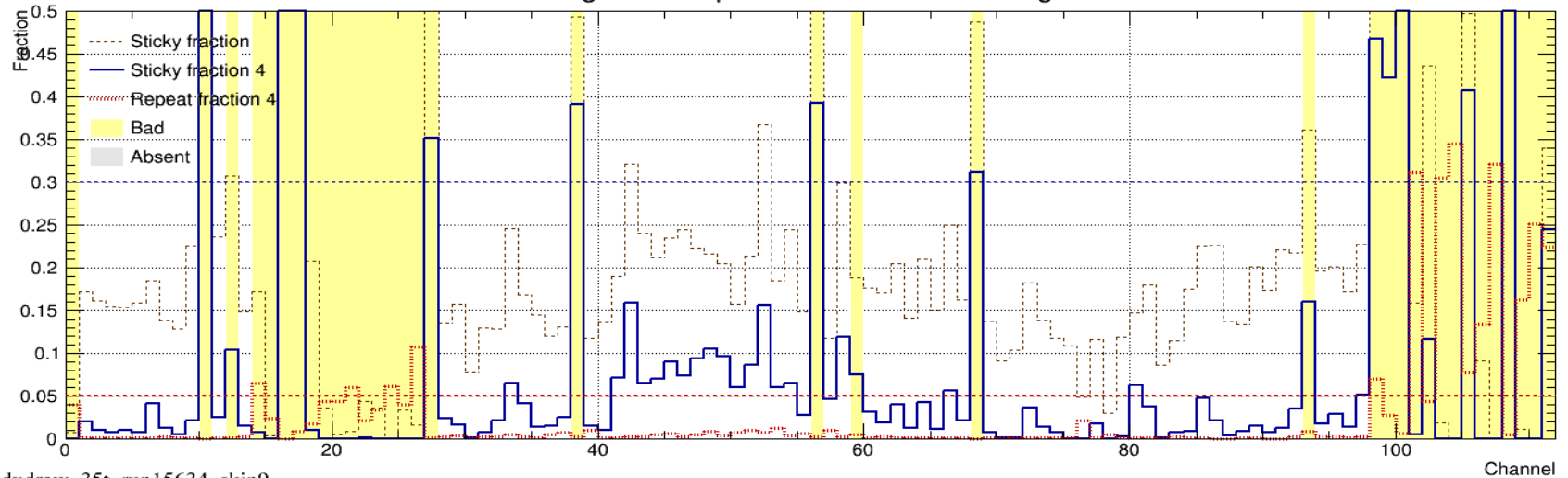
# APA 3z2 run 15634

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run15634\_skip9

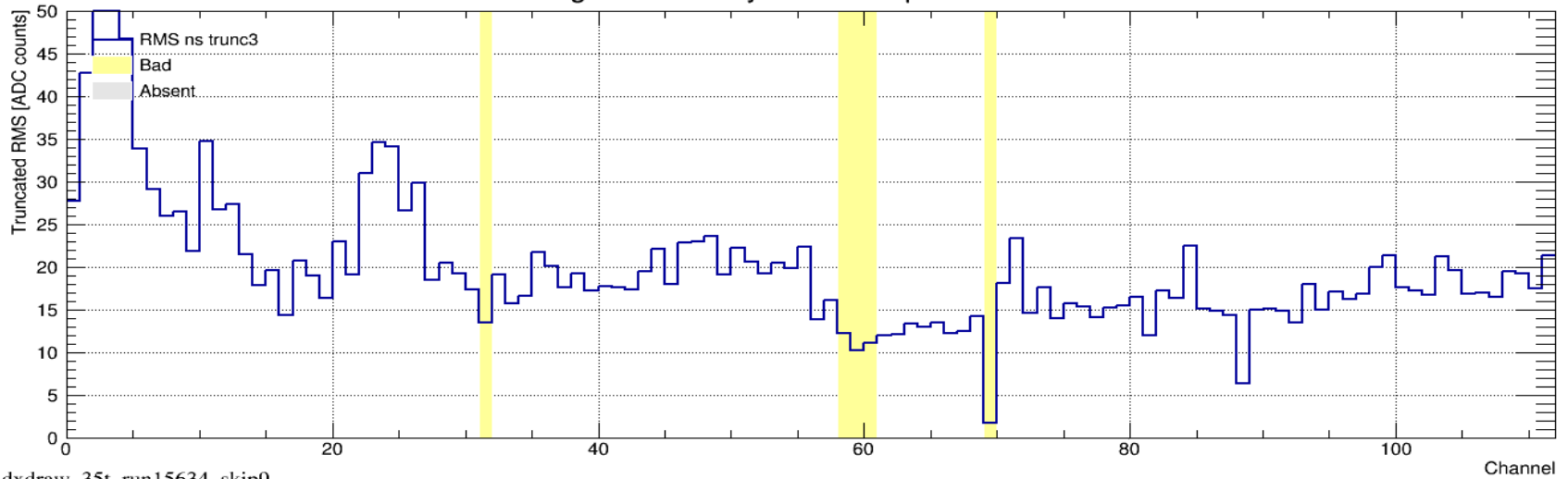
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

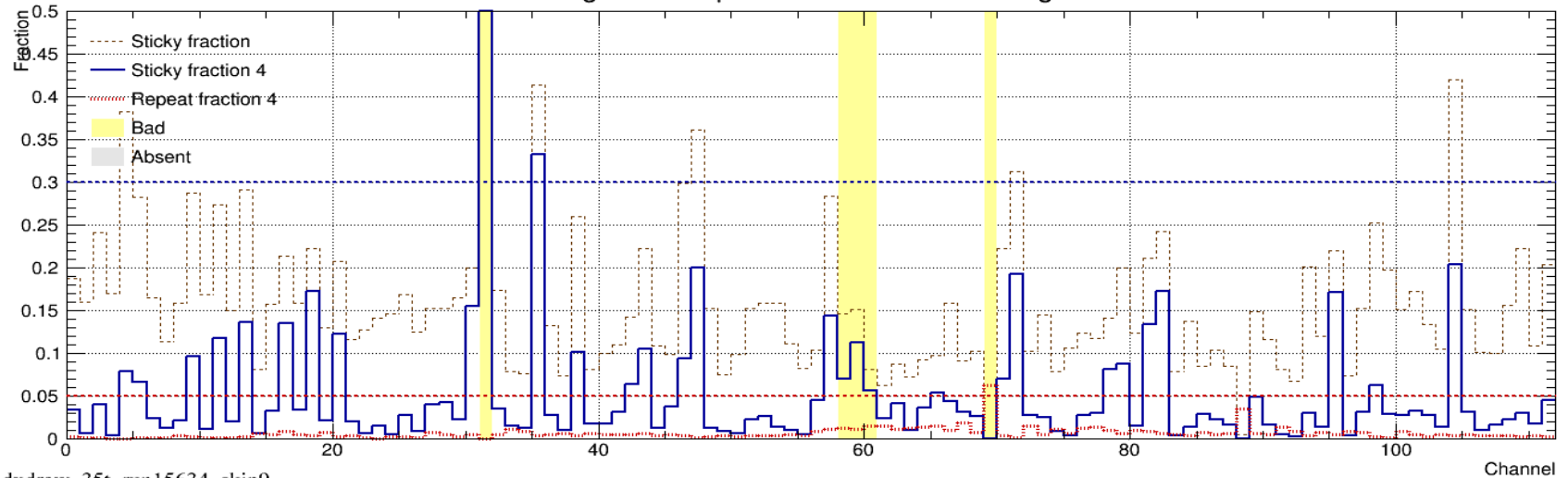
# APA 0z1 run 15634

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run15634\_skip9

Raw signals for apa0z1 event 10 stuck range 4

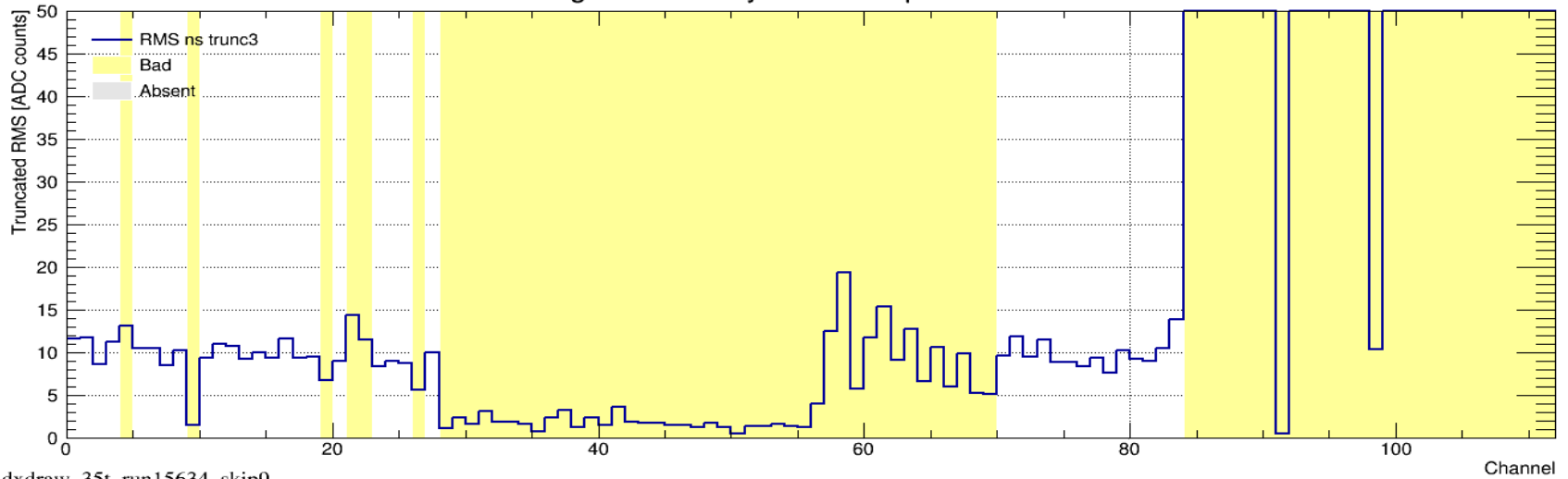


dxdraw\_35t\_run15634\_skip9



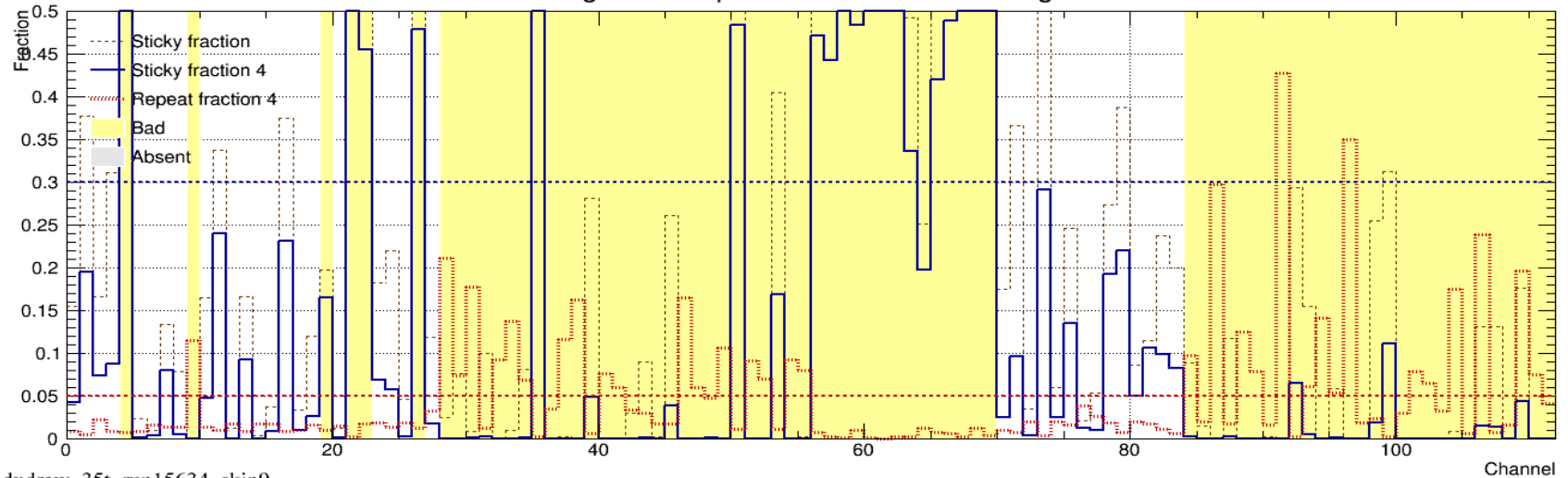
# APA 1z1 run 15634

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run15634\_skip9

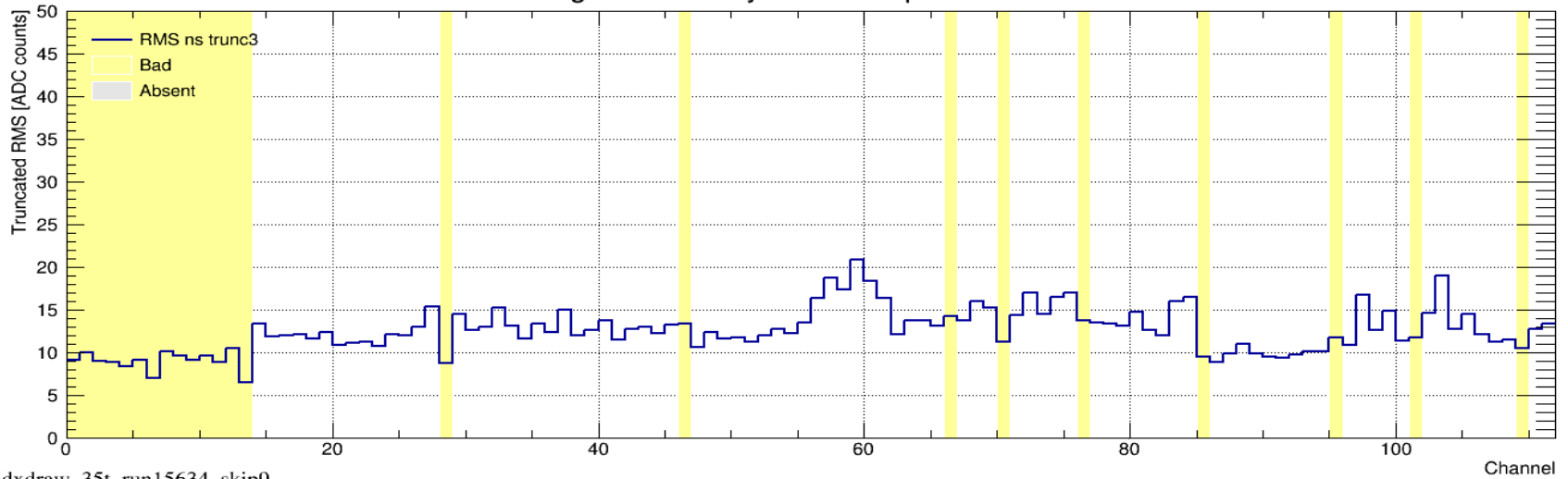
Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

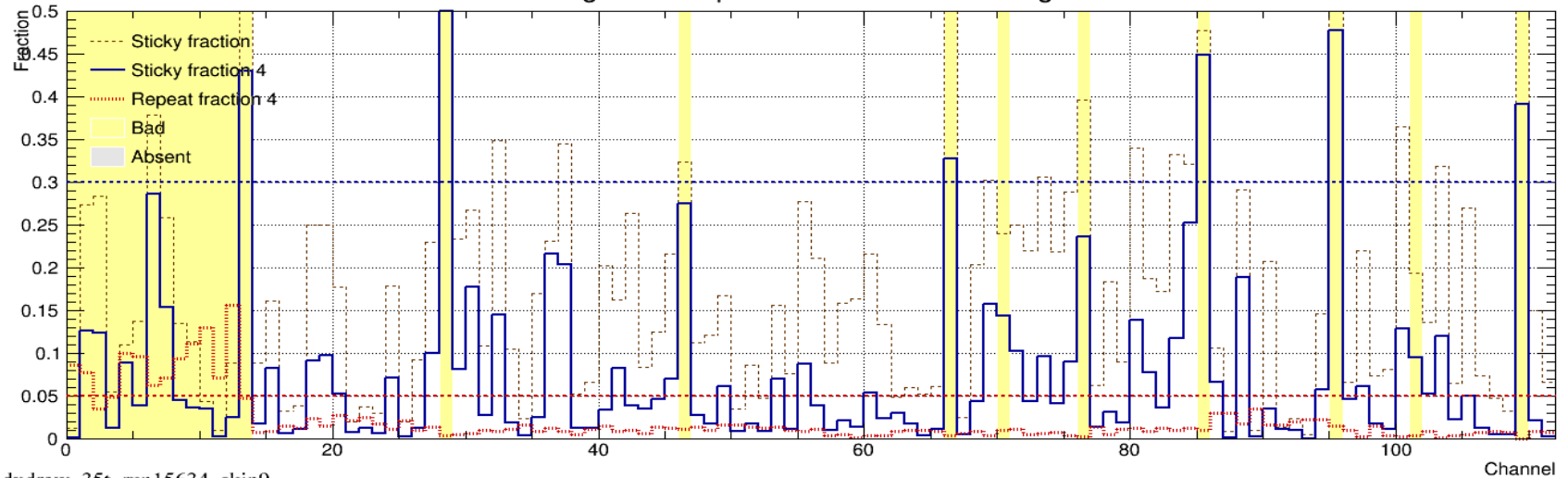
# APA 2z1 run 15634

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run15634\_skip9

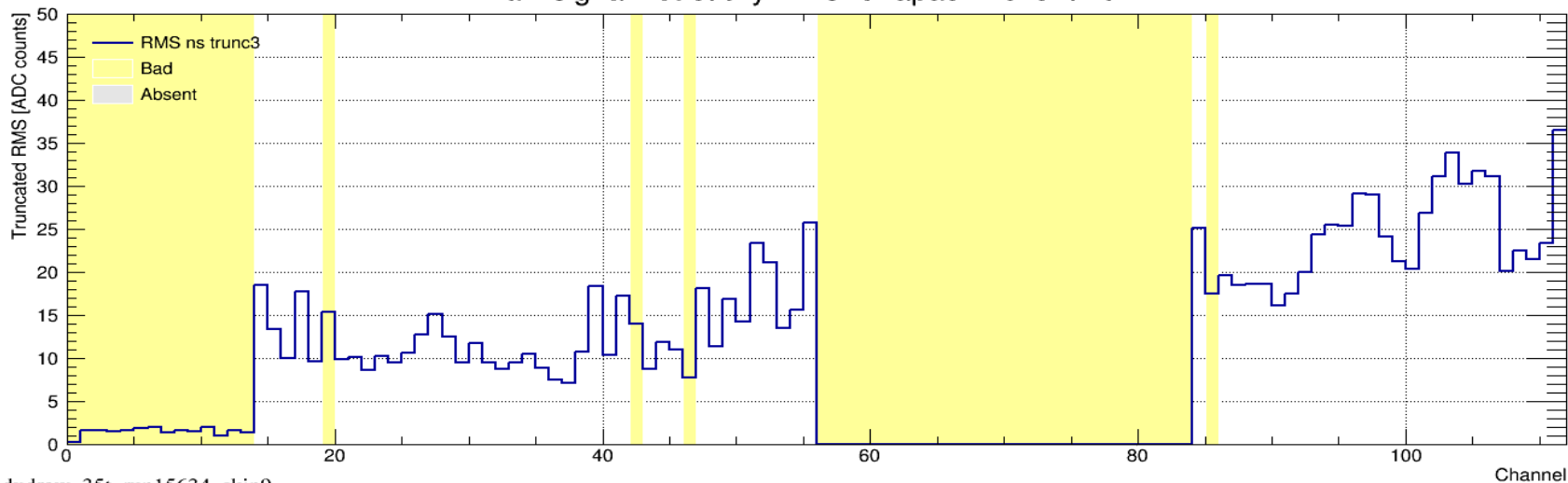
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

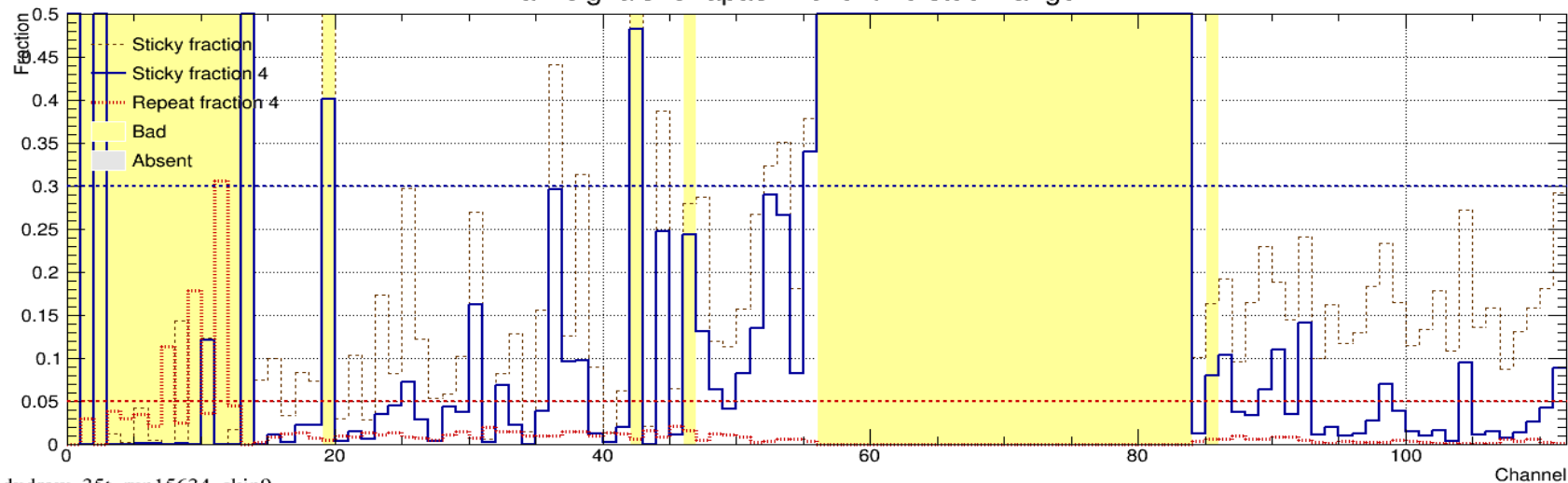
# APA 3z1 run 15634

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run15634\_skip9

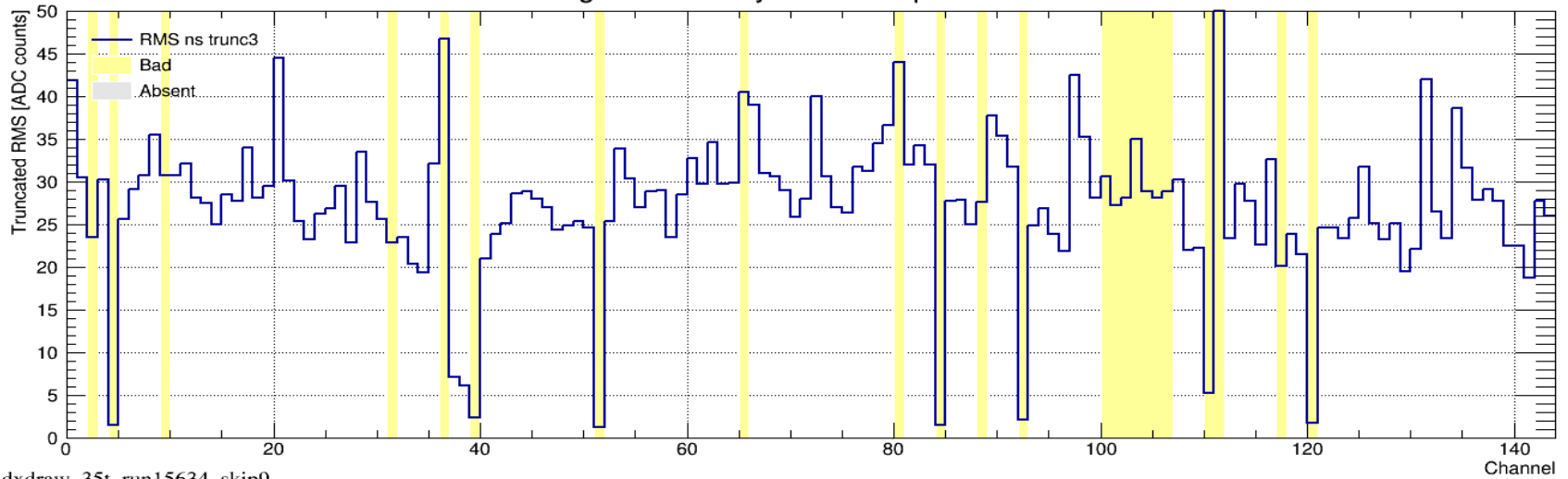
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

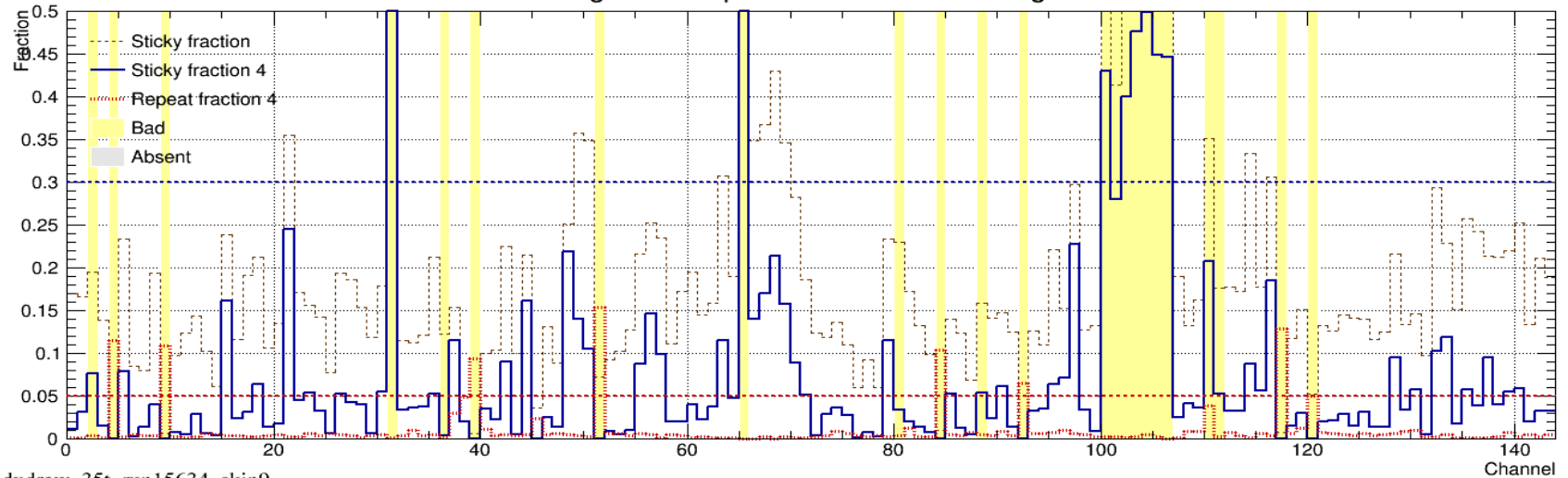
# APA 0u run 15634

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run15634\_skip9

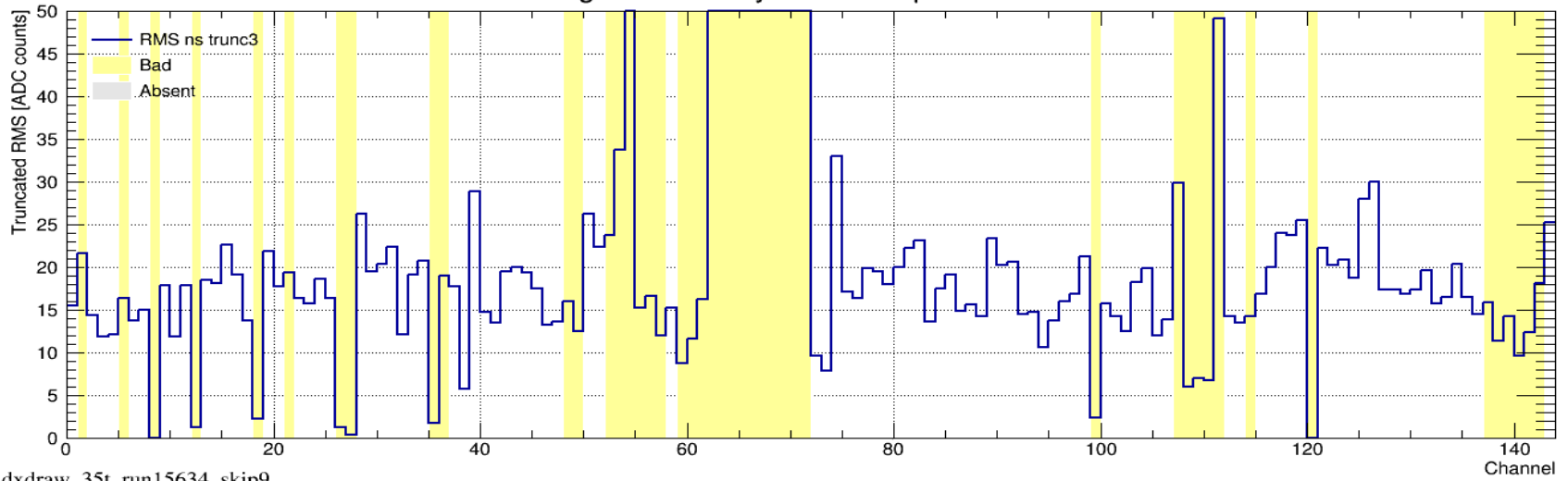
## Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

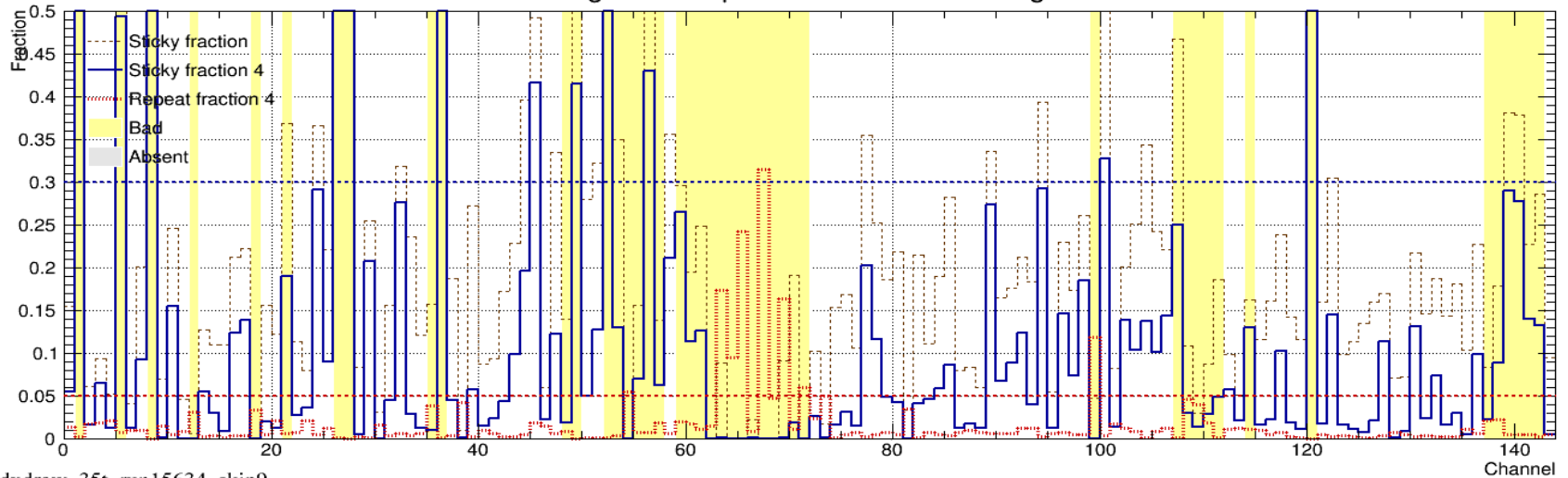
# APA 1u run 15634

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run15634\_skip9

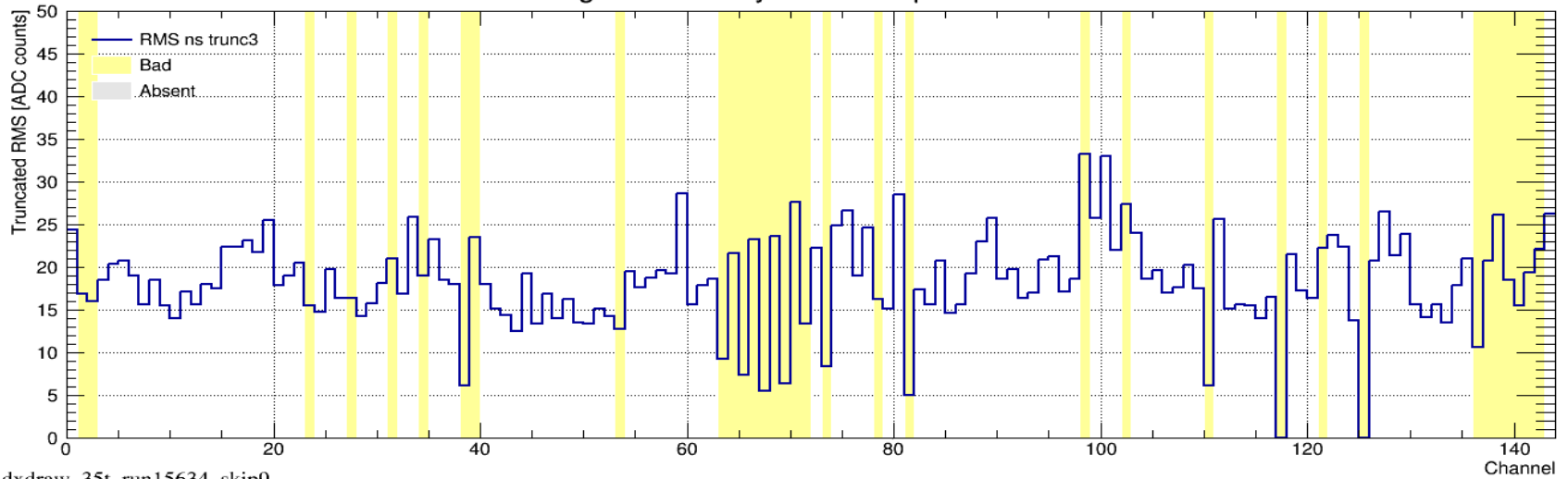
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

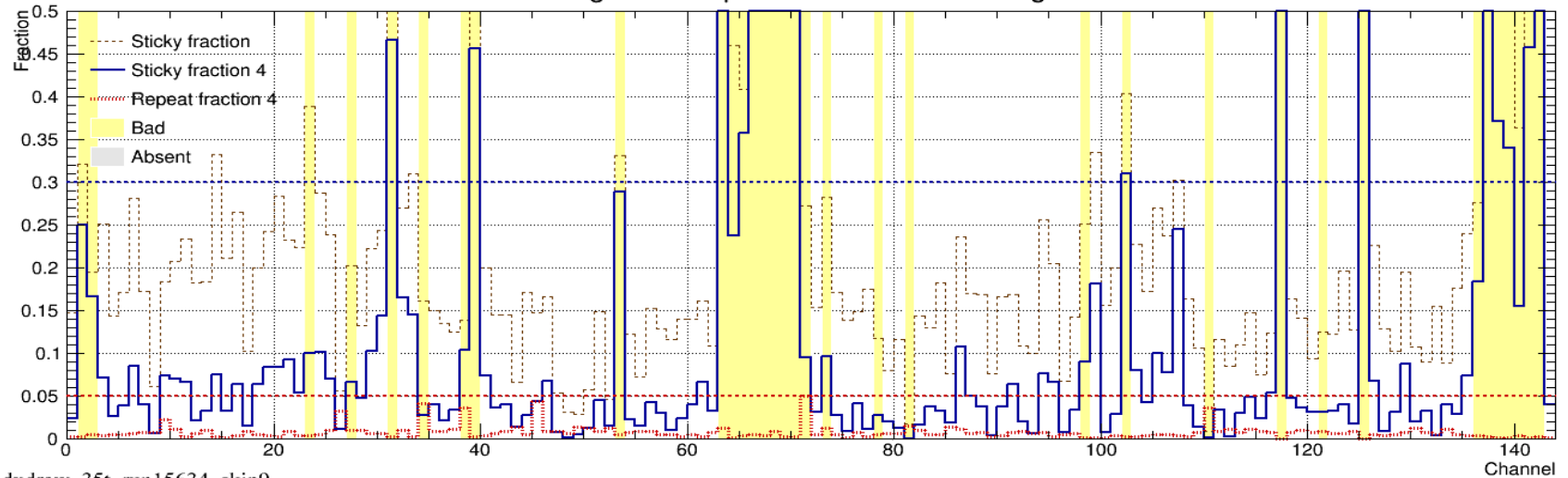
# APA 2u run 15634

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run15634\_skip9

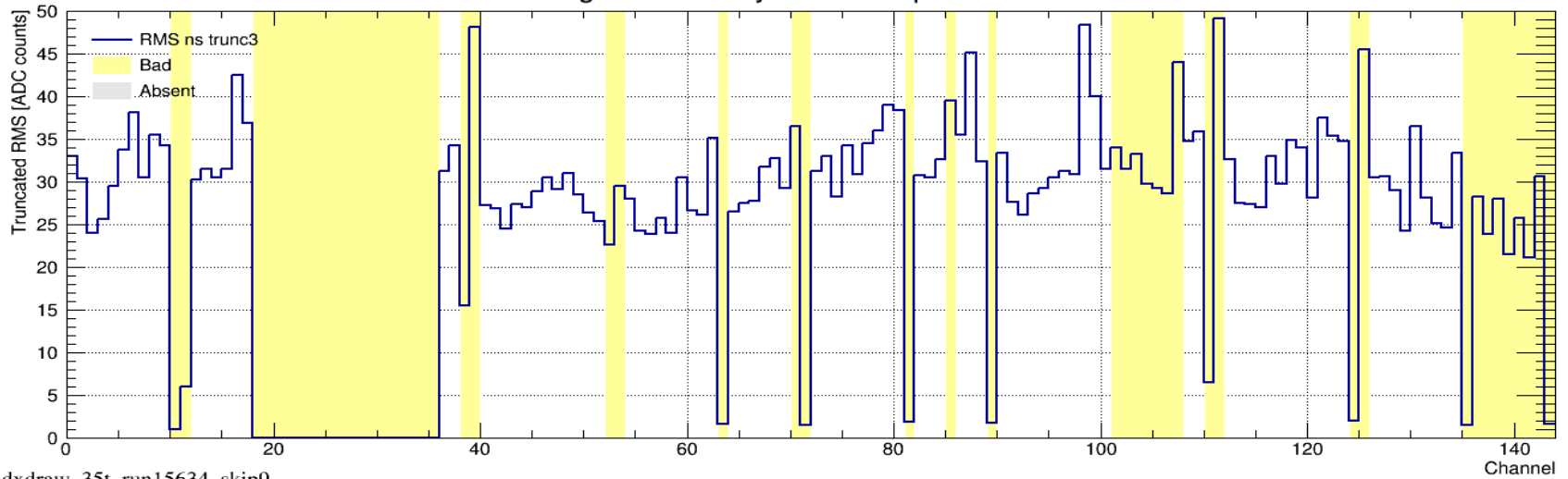
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

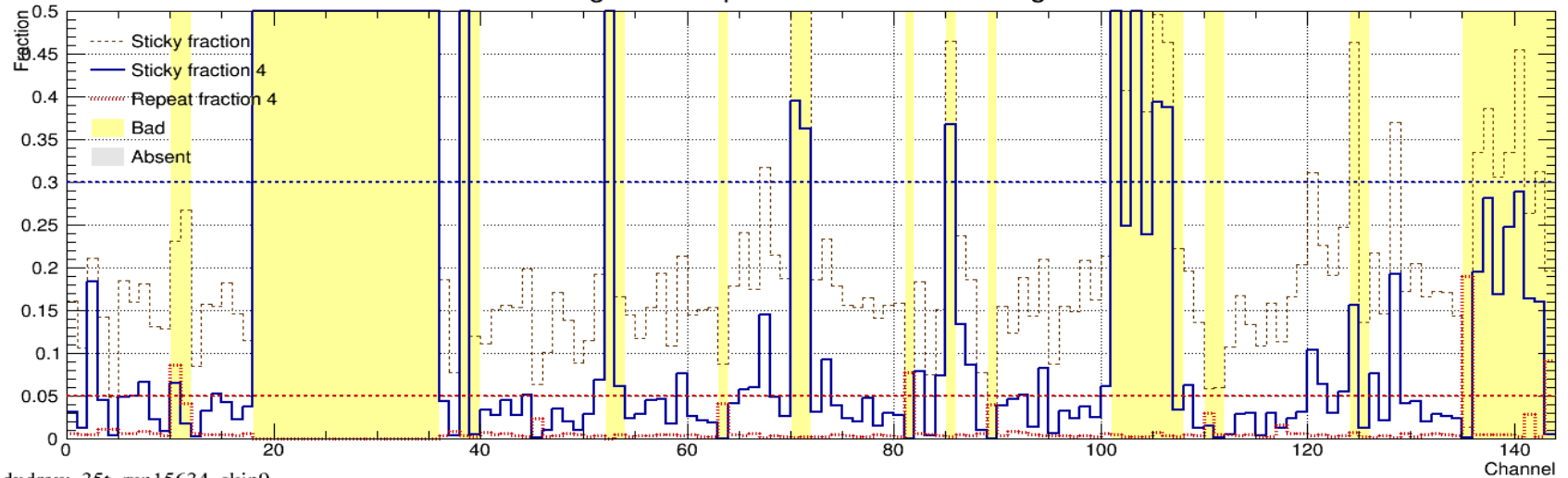
# APA 3u run 15634

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run15634\_skip9

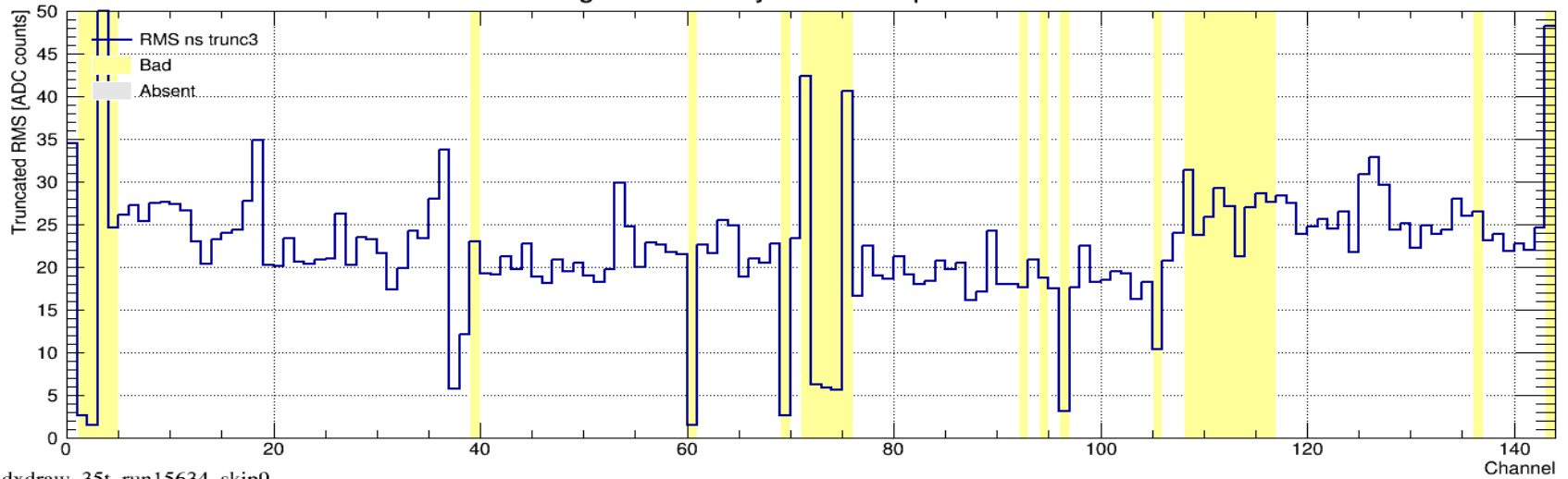
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

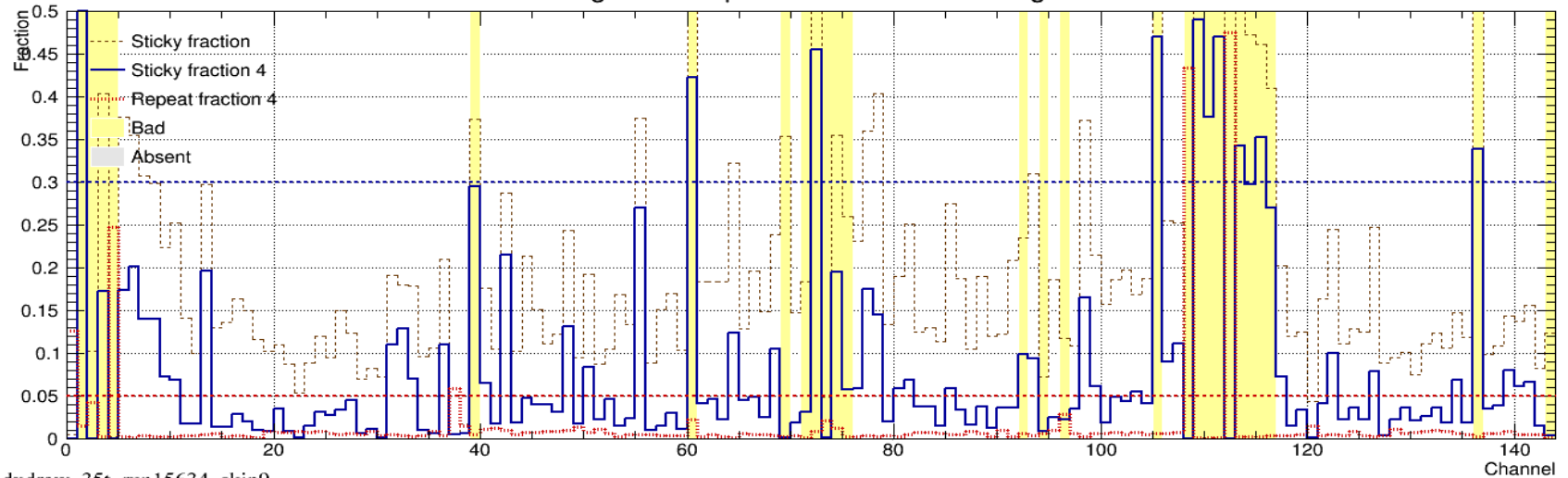
# APA 0v run 15634

Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run15634\_skip9

Raw signals for apa0v event 10 stuck range 4

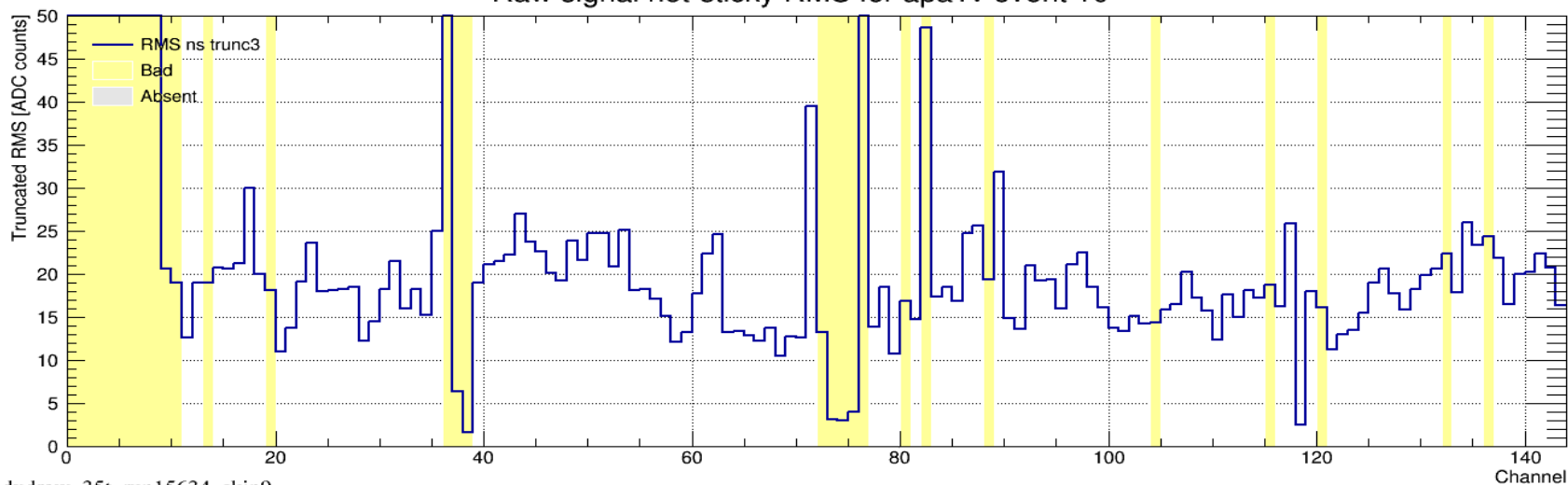


dxdraw\_35t\_run15634\_skip9



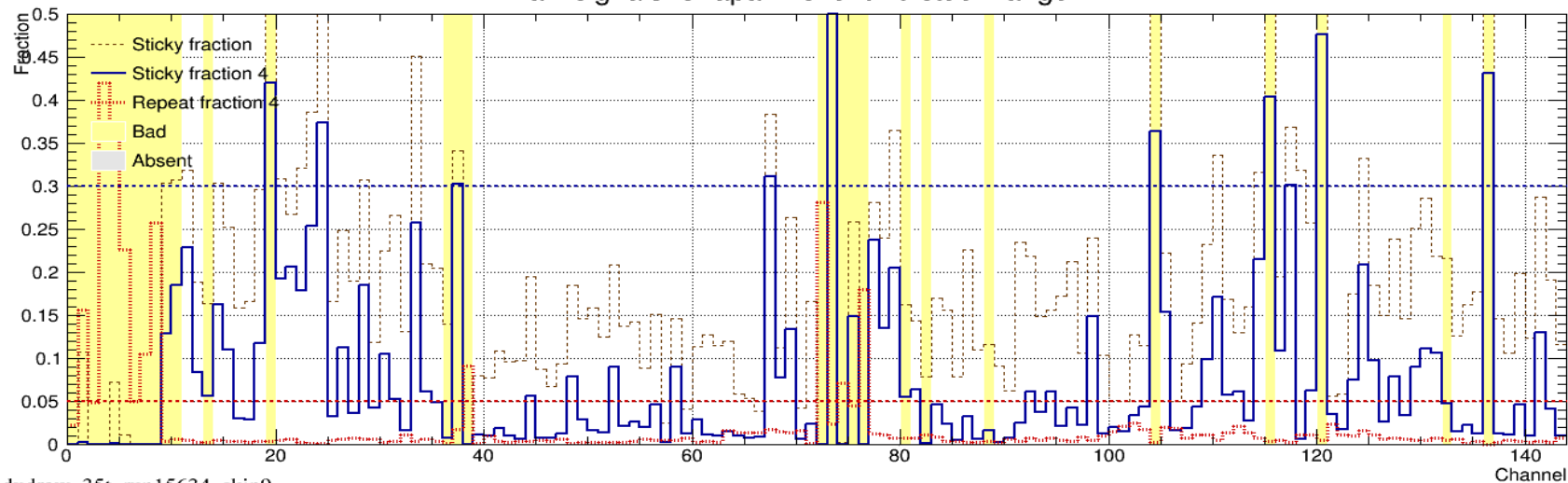
# APA 1v run 15634

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run15634\_skip9

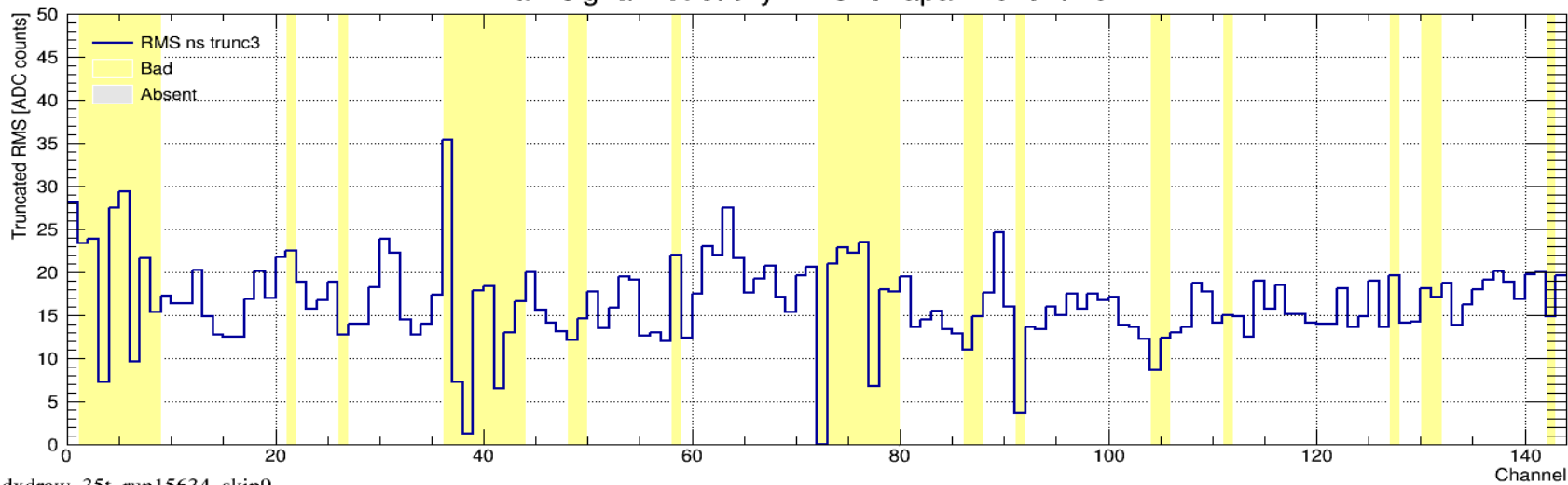
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

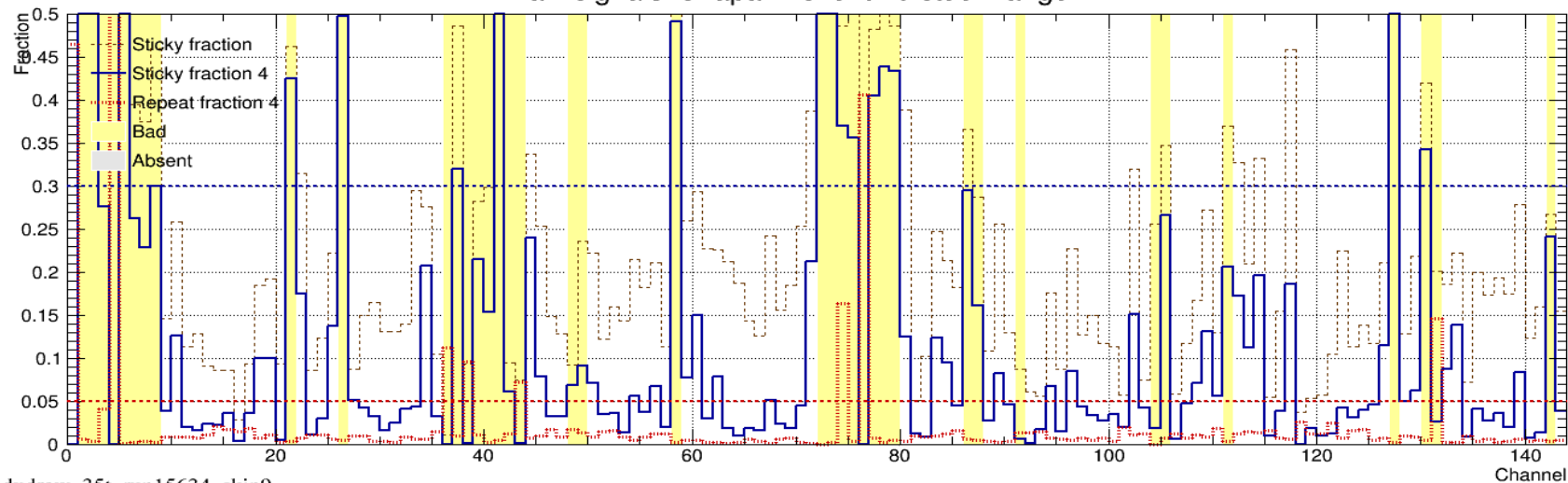
# APA 2v run 15634

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run15634\_skip9

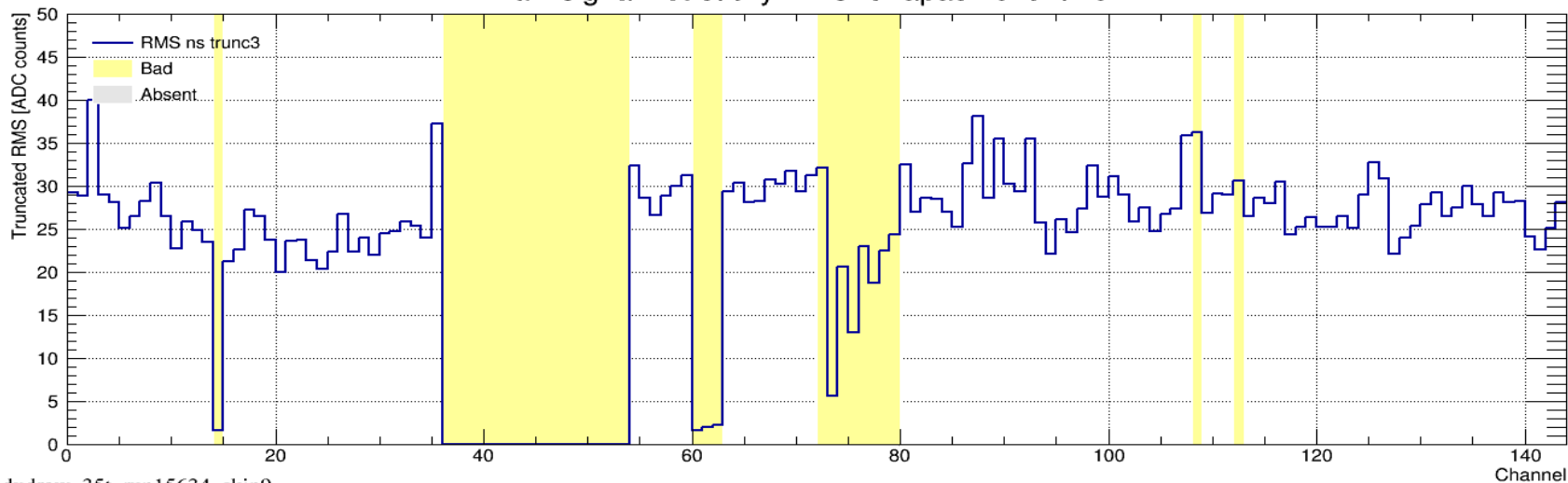
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

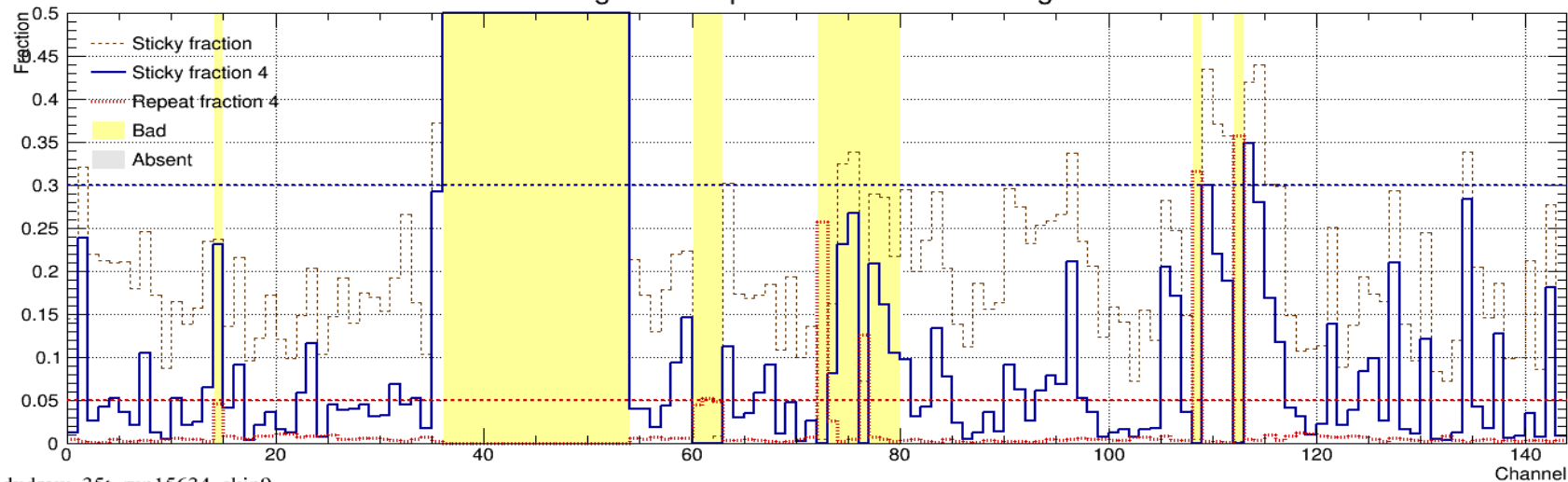
# APA 3v run 15634

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run15634\_skip9

## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

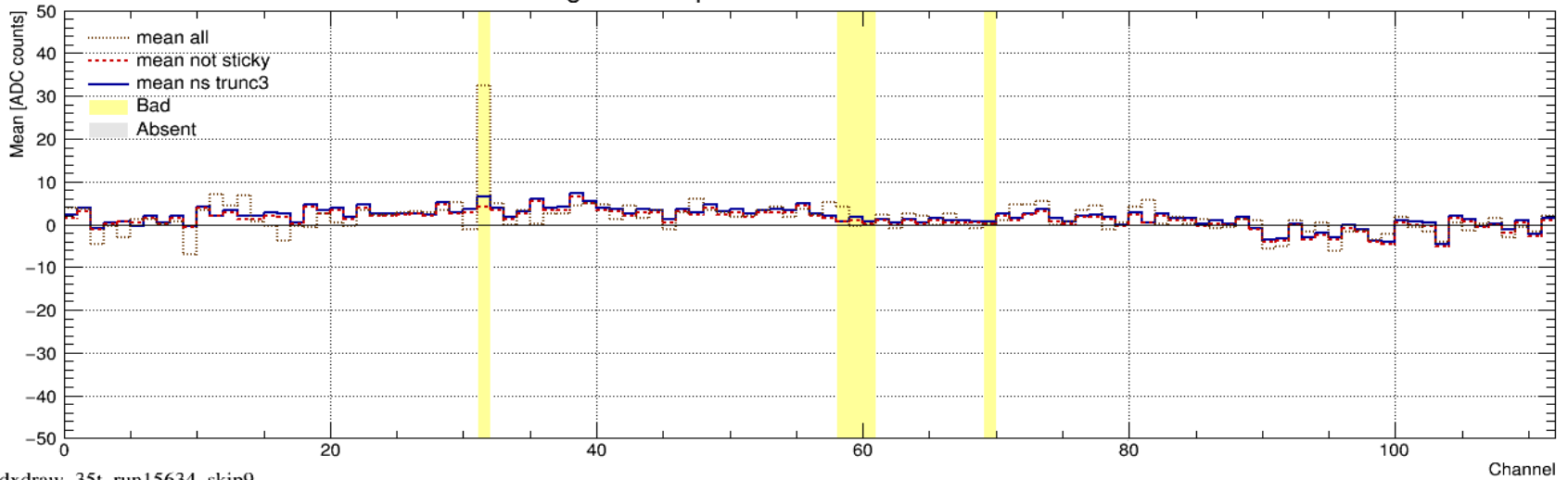
# ADC means

Following pages show the ADC means

- These will be zero if the pedestal is correct
  - Not always the case
- Again for run 15634
  - Only reference run with all channels read out

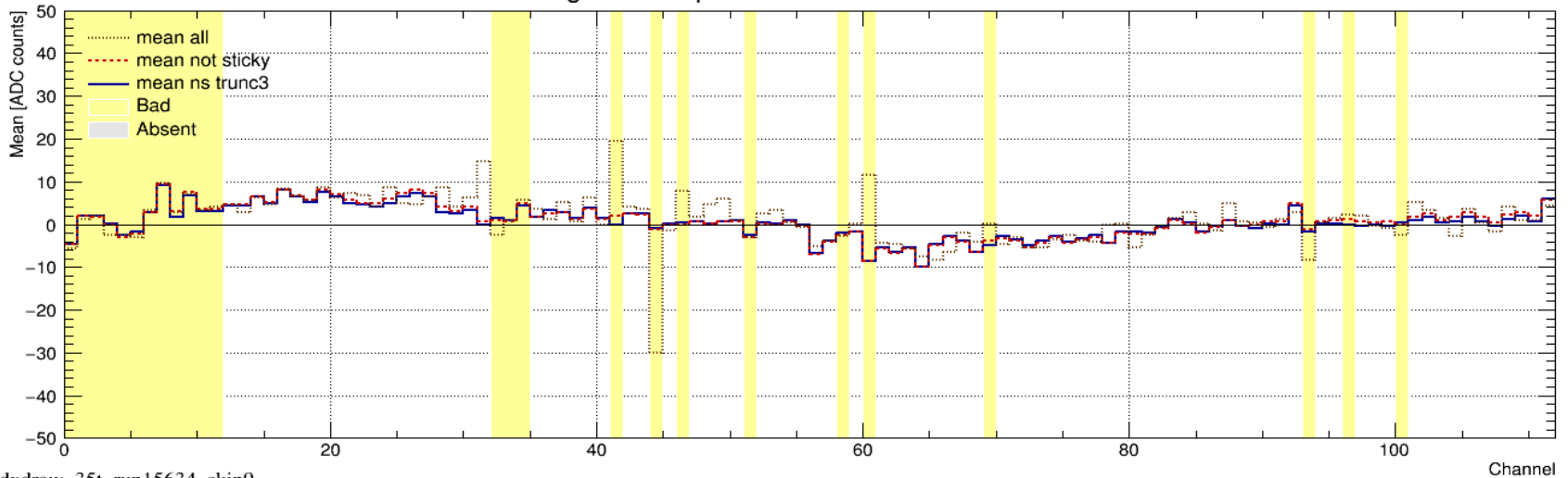
# APAs 0z1, 0z2 run 15634

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

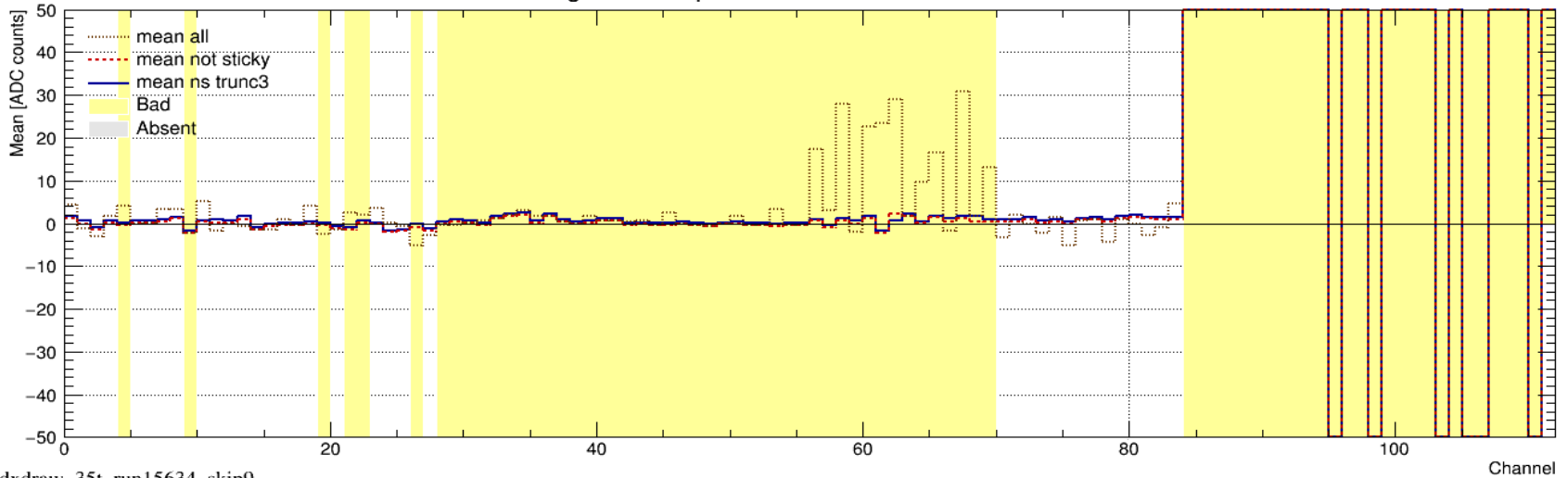
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

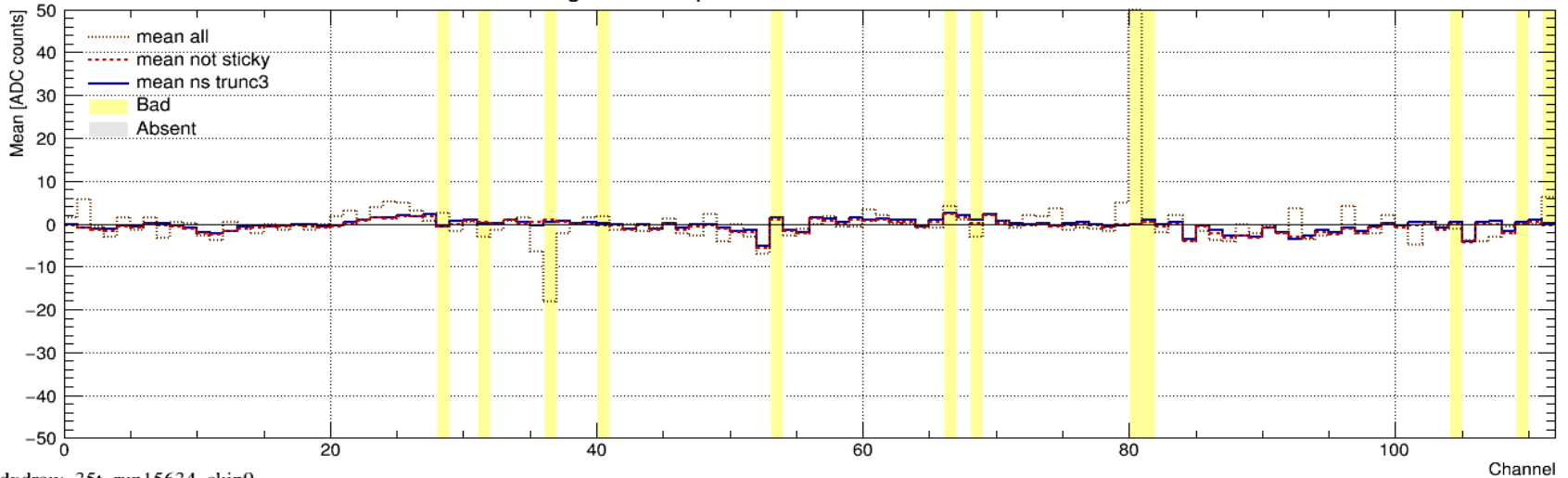
# APAs 1z1, 1z2 run 15634

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

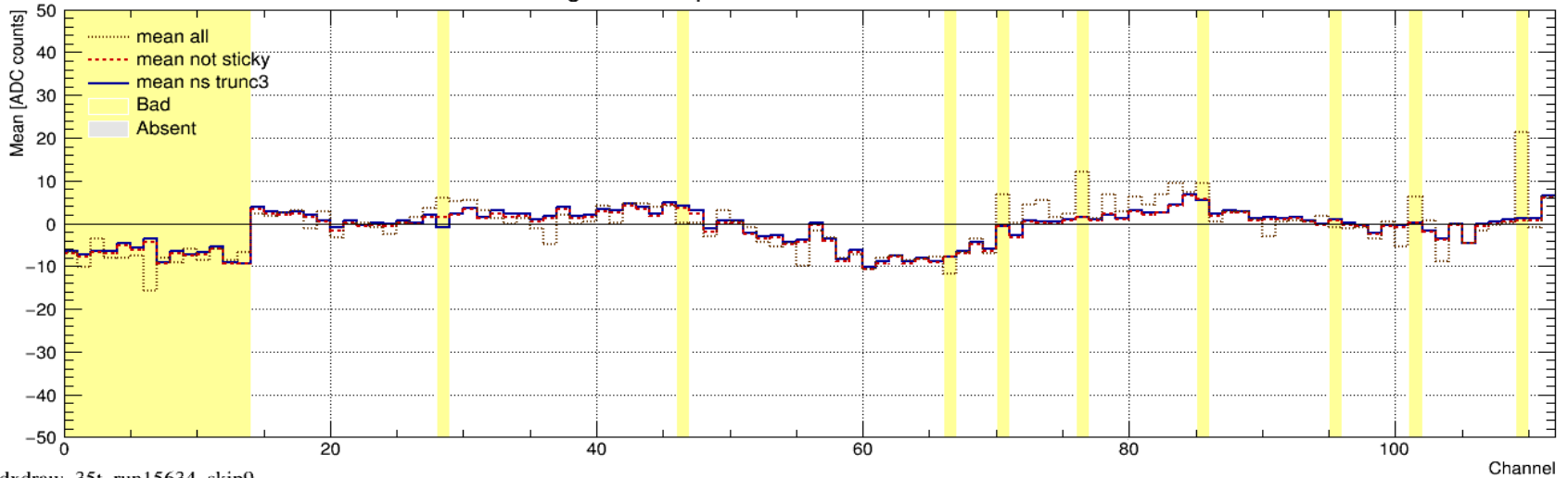
Raw signals for apa1z2 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

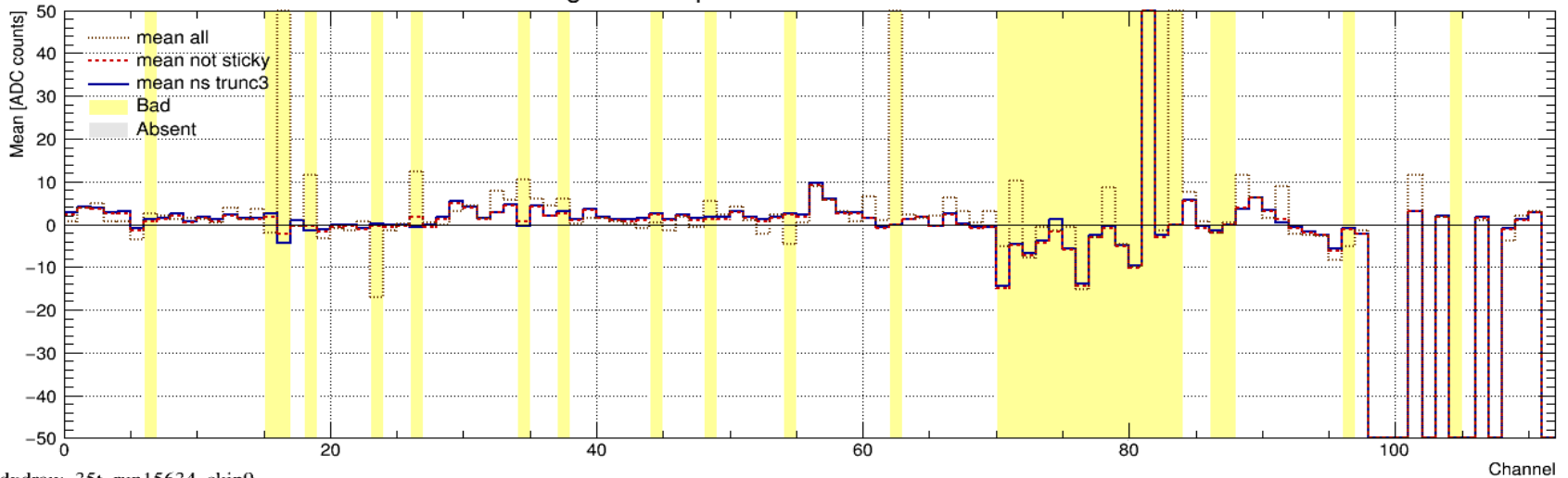
# APAs 2z1, 2z2 run 15634

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

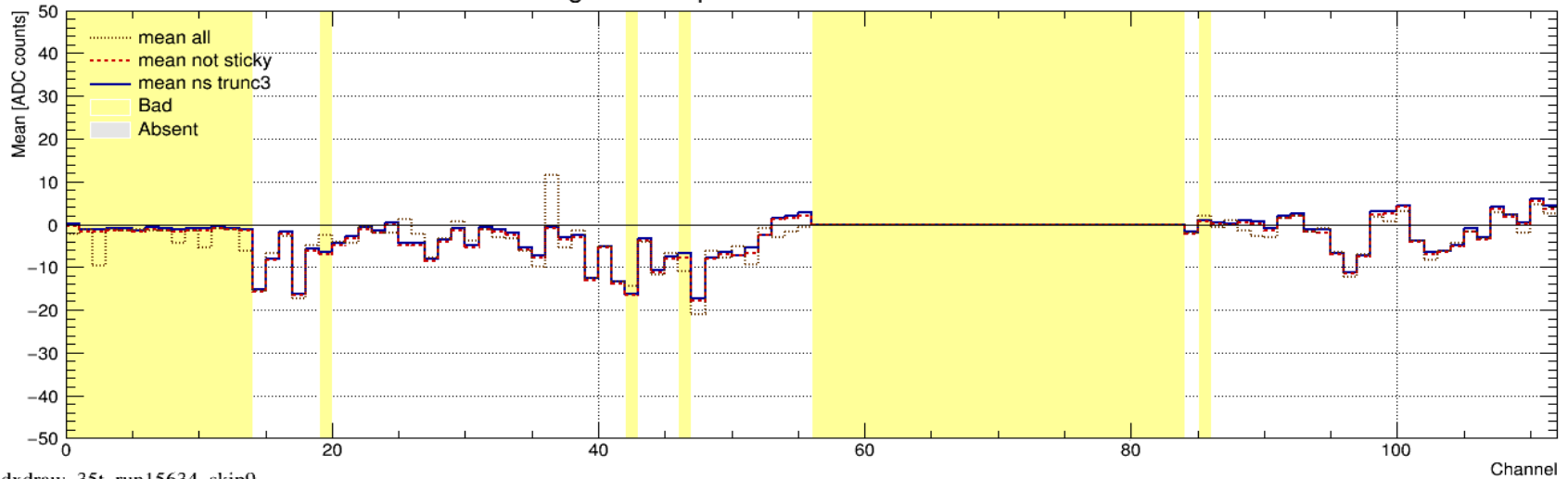
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

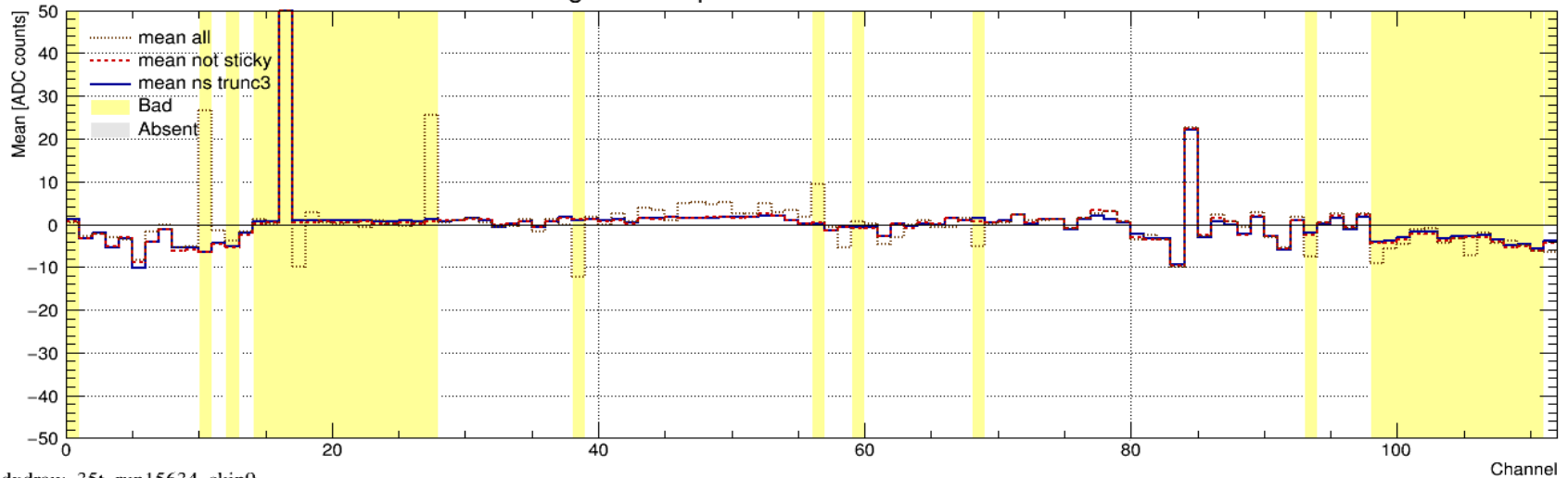
# APAs 3z1, 3z2 run 15634

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

Raw signals for apa3z2 event 10 mean ADC count

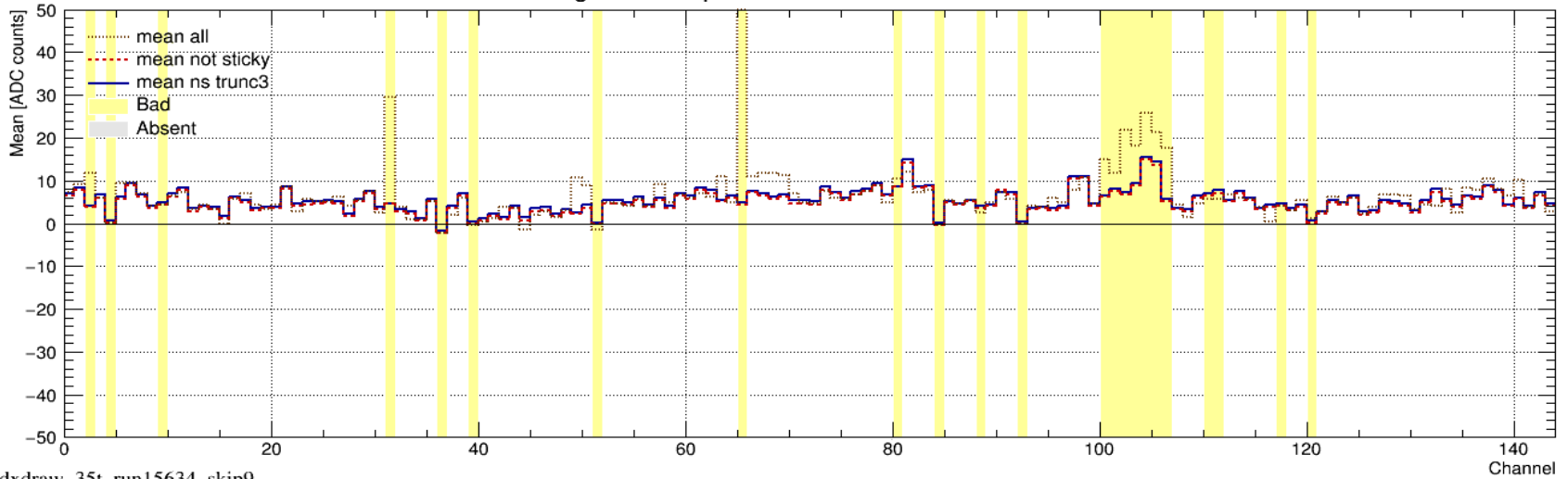


dxdraw\_35t\_run15634\_skip9



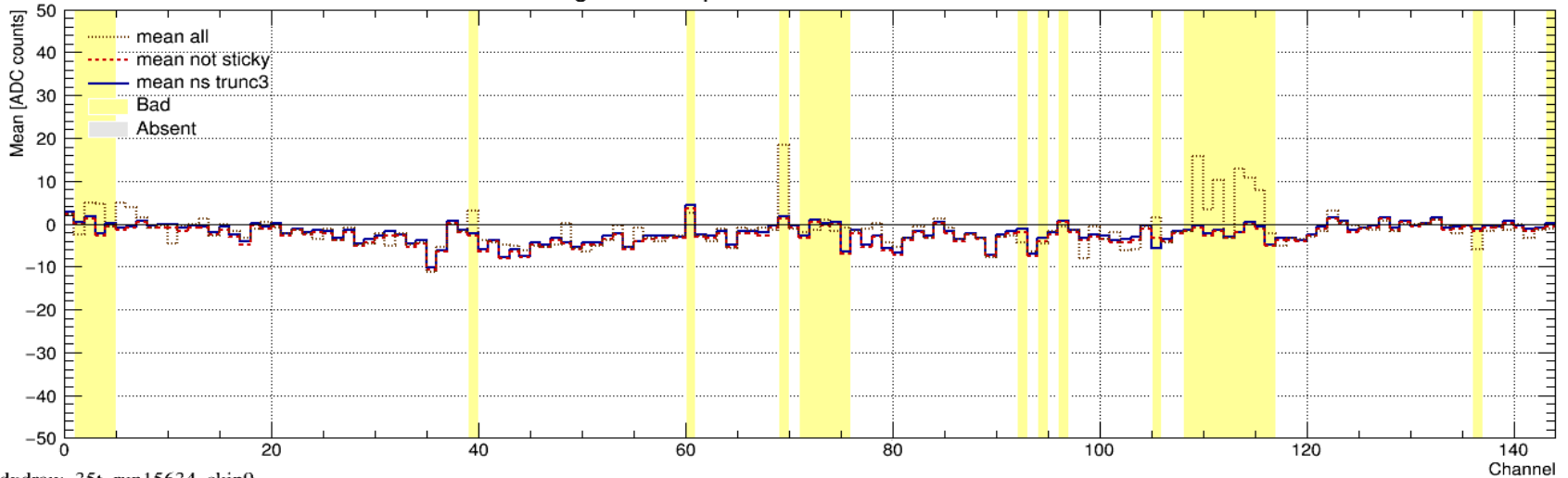
# APAs 0u, 0v run 15634

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

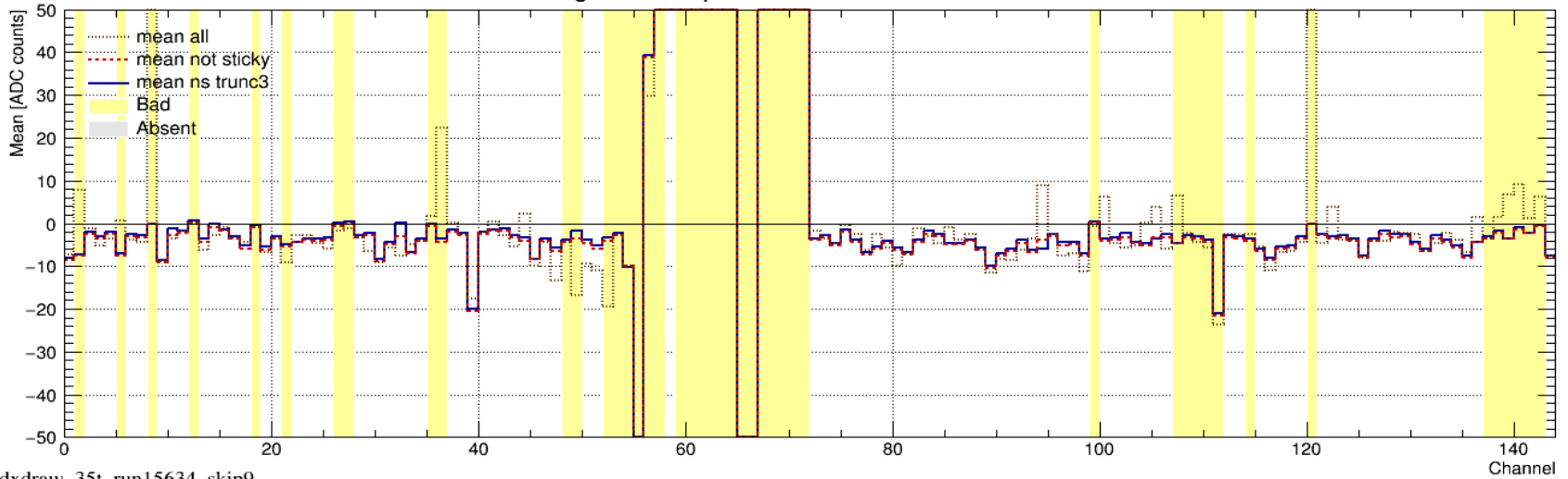
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

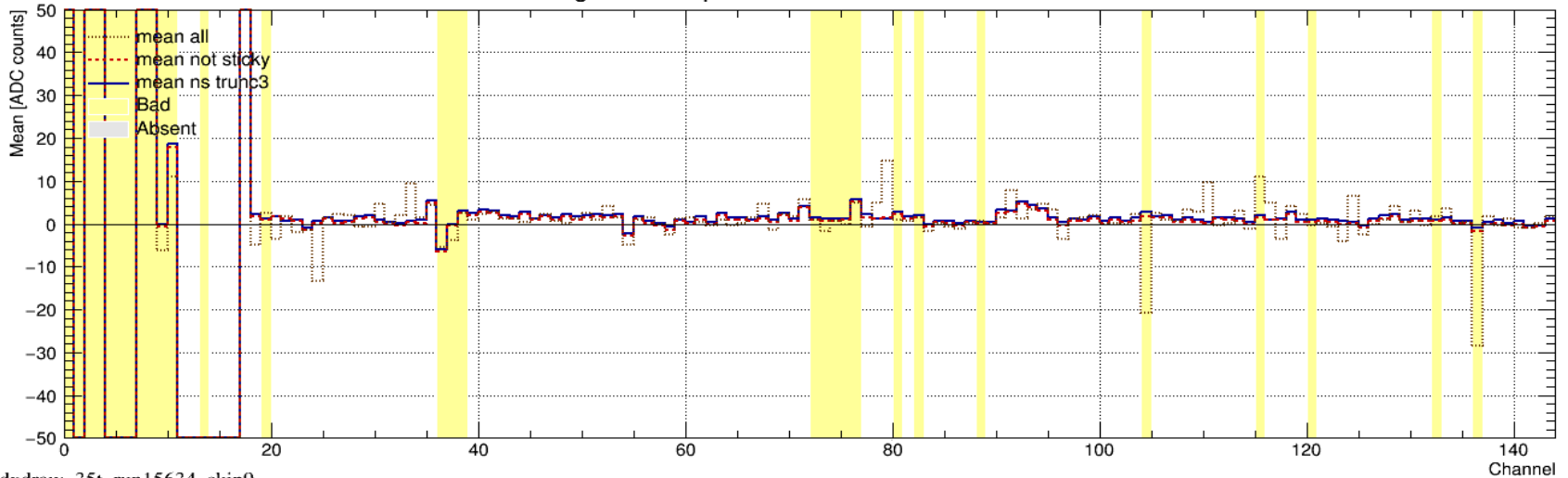
# APAs 1u, 1v run 15634

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

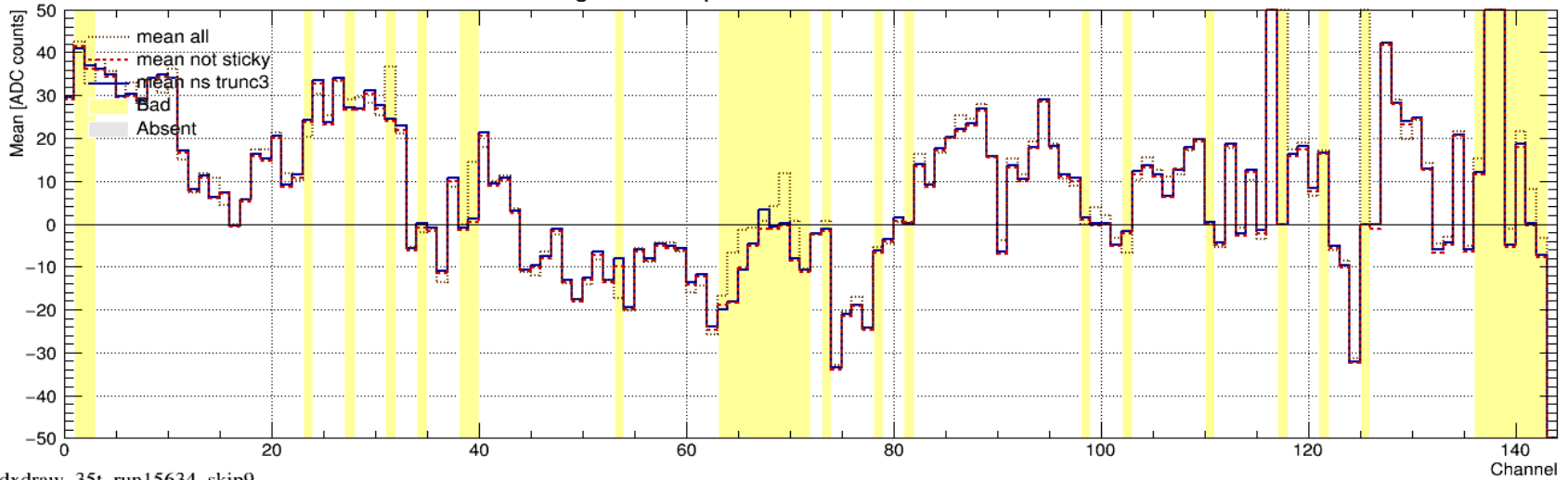
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

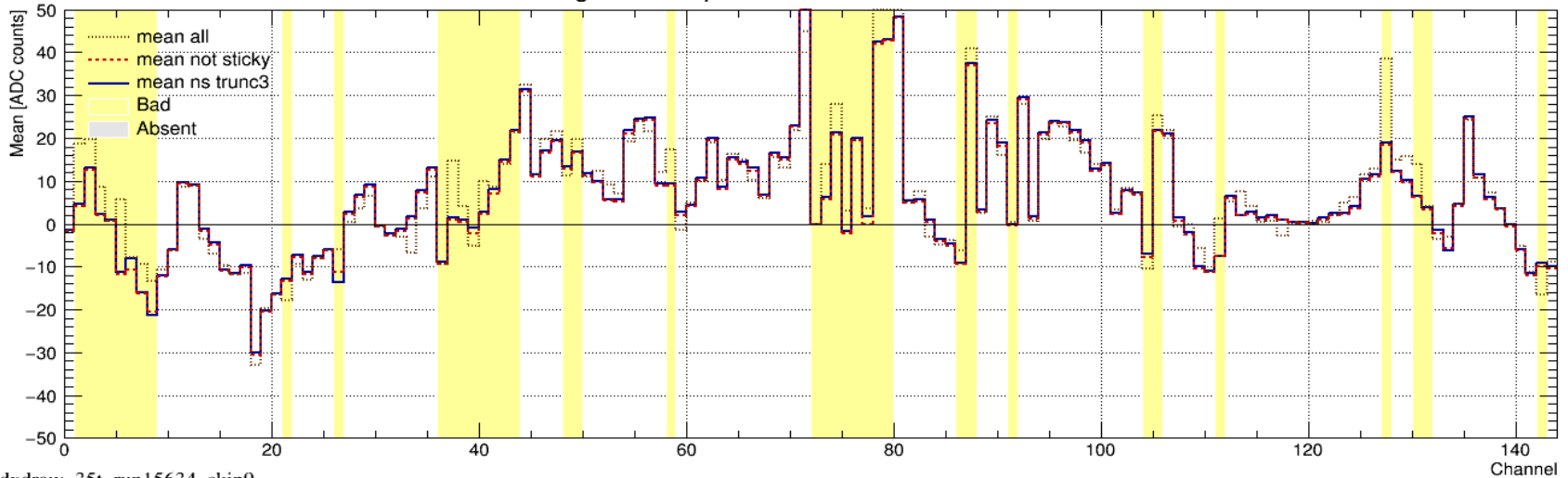
# APAs 2u, 2v run 15634

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

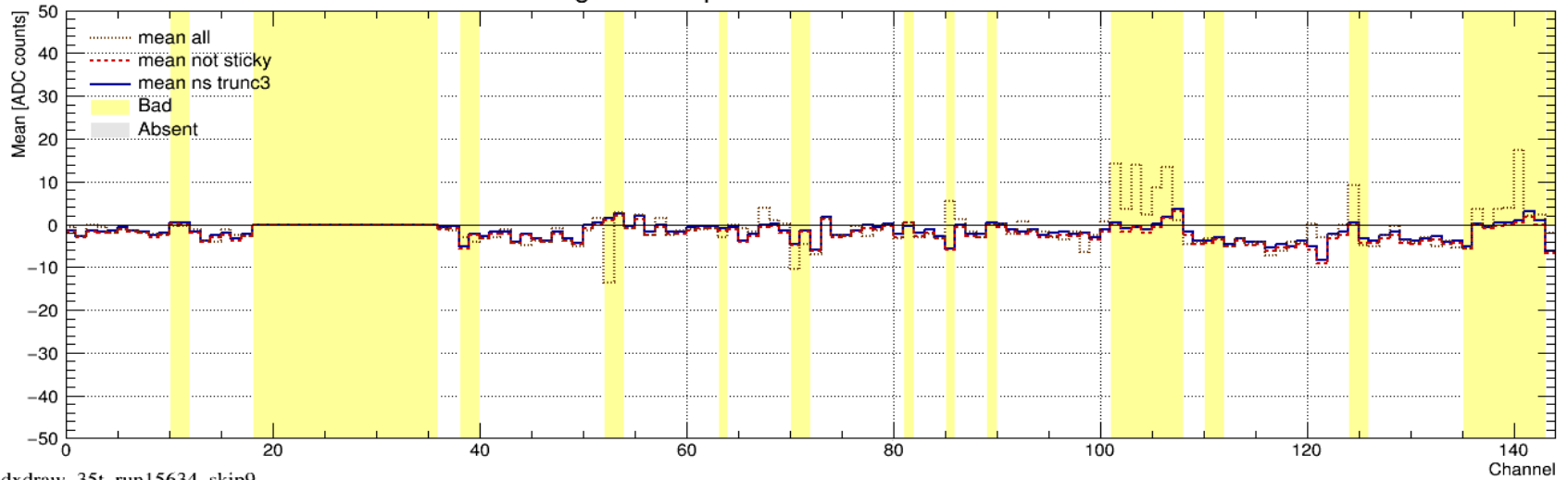
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

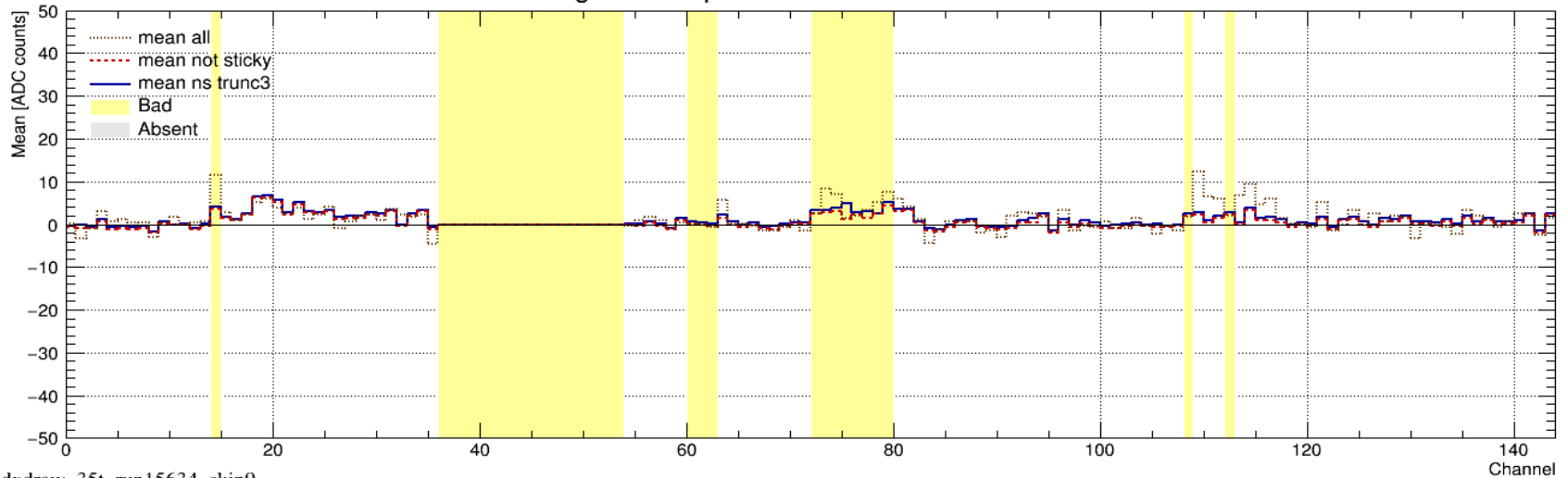
# APAs 3u, 3v run 15634

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

# Summary/conclusions

A new bad channel list has been generated

- Old list plus RMS and SC/NSC fractions
- New list has 543 entries (27% of detector)
  - Old list has 259 (13%)
- New list is `dune35t_channel_status_dla` in FCL
  - Old list renamed to `dune35t_channelstatus_wahl`
  - Soon to be committed to `dunetpc`

Do we want to change default to the new list?

- I.e. in `dune_services.fcl`
- Or should we make some other evaluation?

ADC means are not zero

- Should we reevaluate pedestals in DB?
- Or calculate pedestal for each event in data prep?
- Or flag channels or runs bad when they have large mean excursions

# Summary/conclusions (2)

## Next

- Check charged-particle signals in the good channels
  - Many-event average
  - Or use neighbors or tracks to predict where signal should be found
  - Measure efficiency and relative gains

# Appendix 1

Following slides have all spectra used to evaluate bad channels

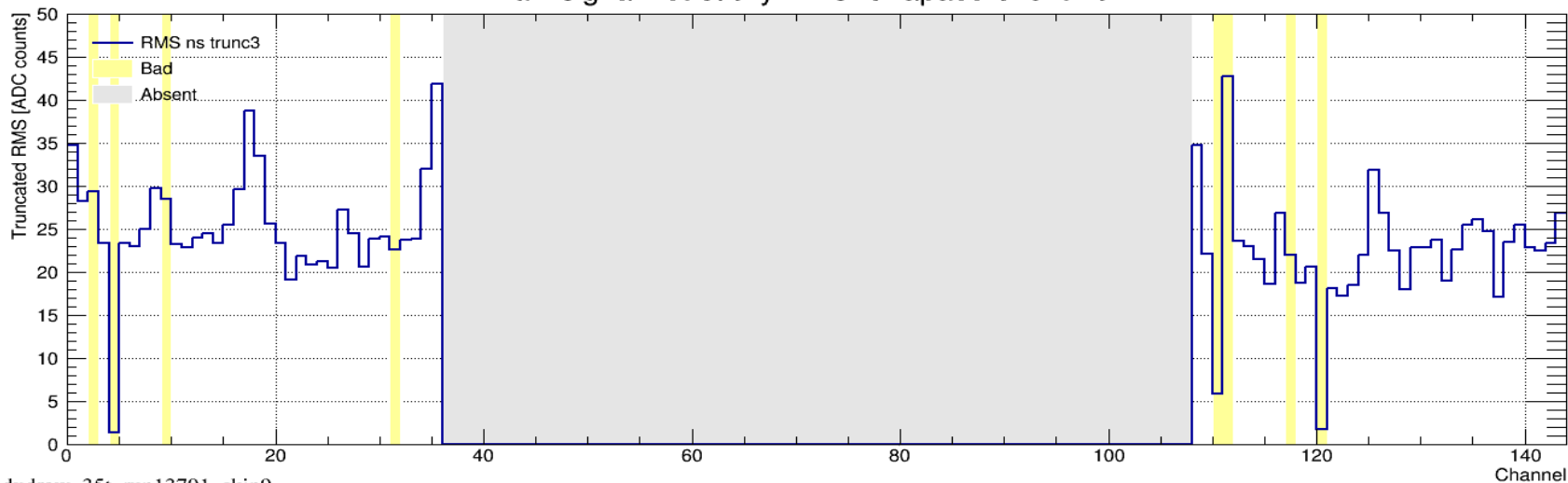
- RMS and SC/NSC fraction plots
- For all 16 readout planes
- For 12 reference runs
- Many plots—examine at your leisure

APA 0u



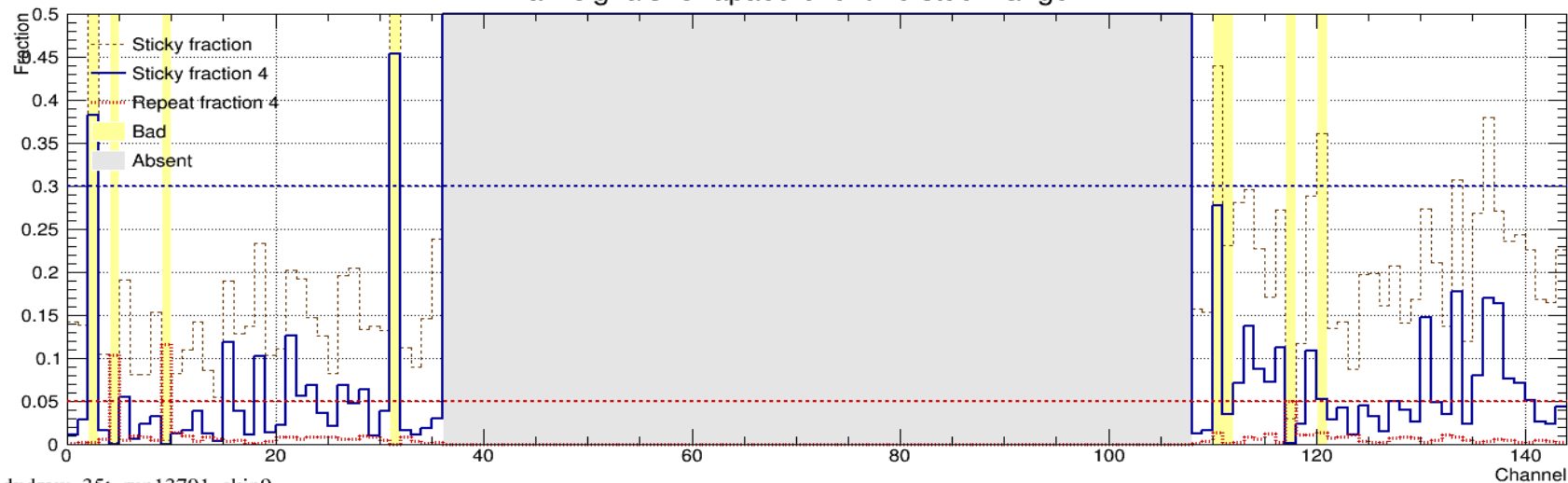
# APA 0u run 13791 (first)

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run13791\_skip9

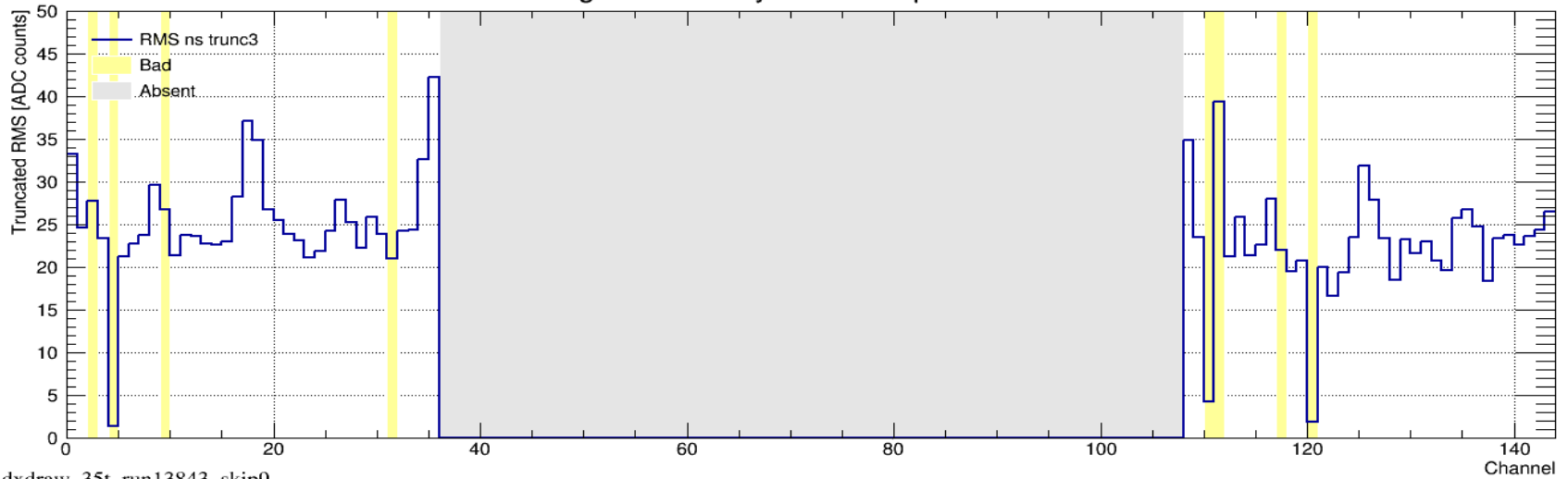
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

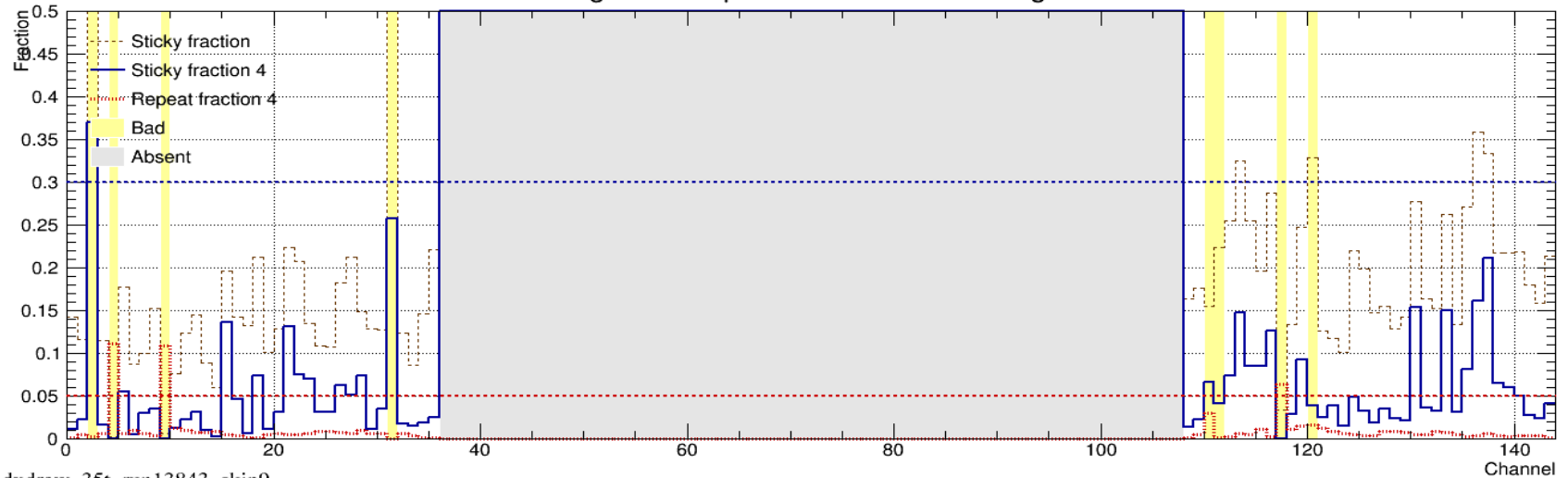
# APA 0u run 13843

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run13843\_skip9

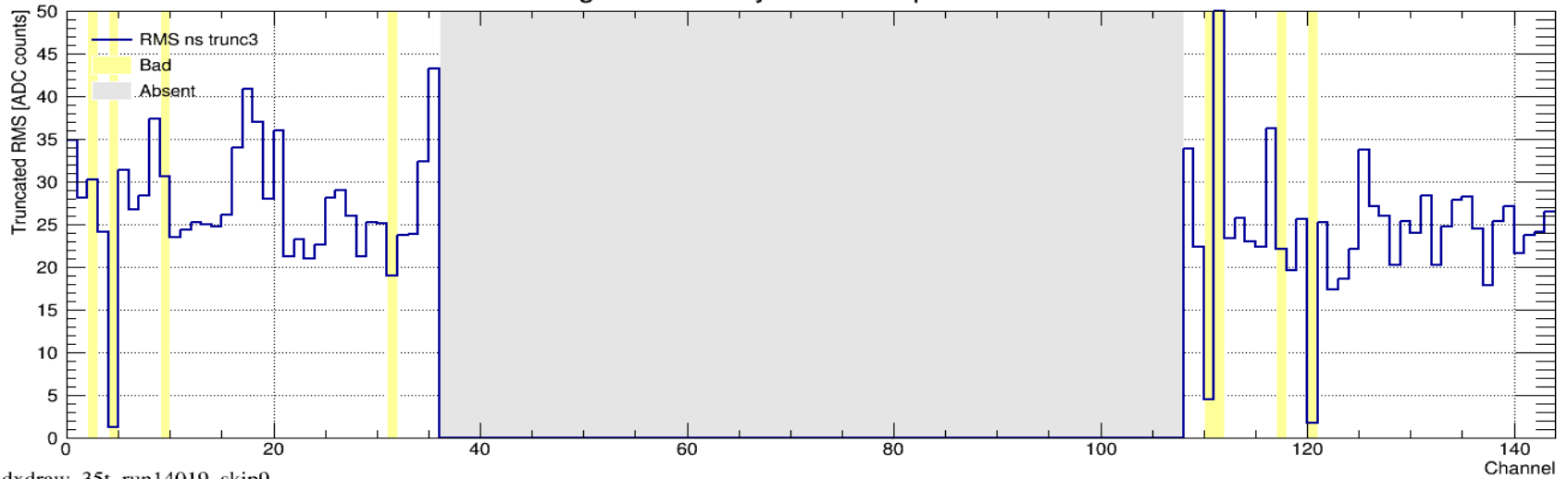
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

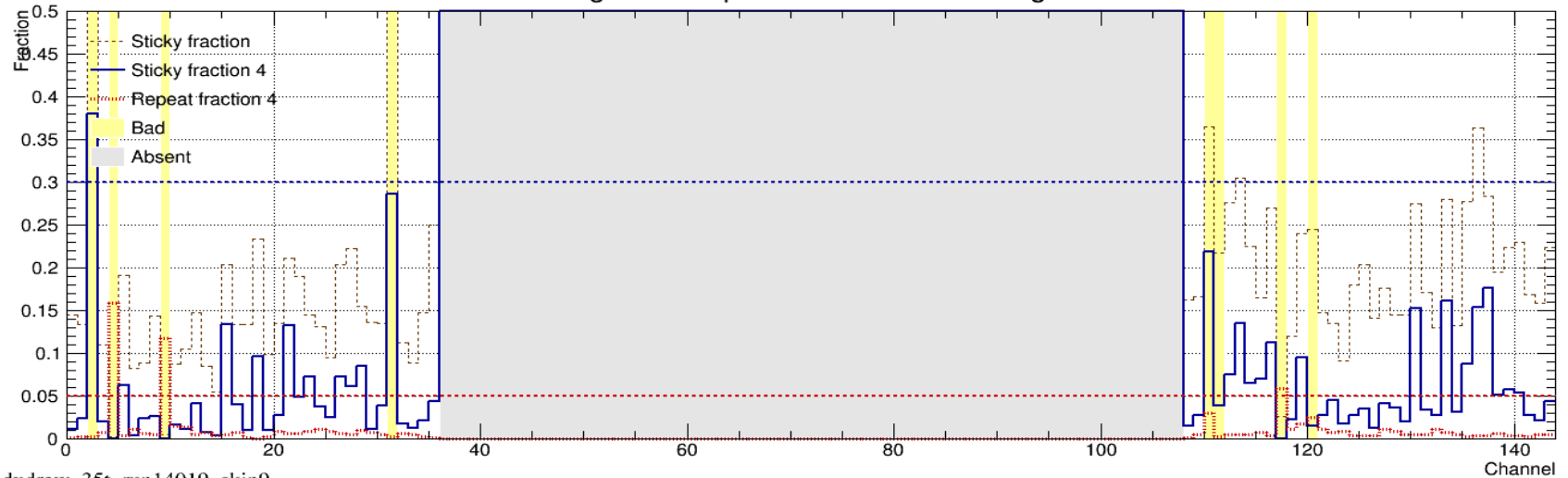
# APA 0u run 14019

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run14019\_skip9

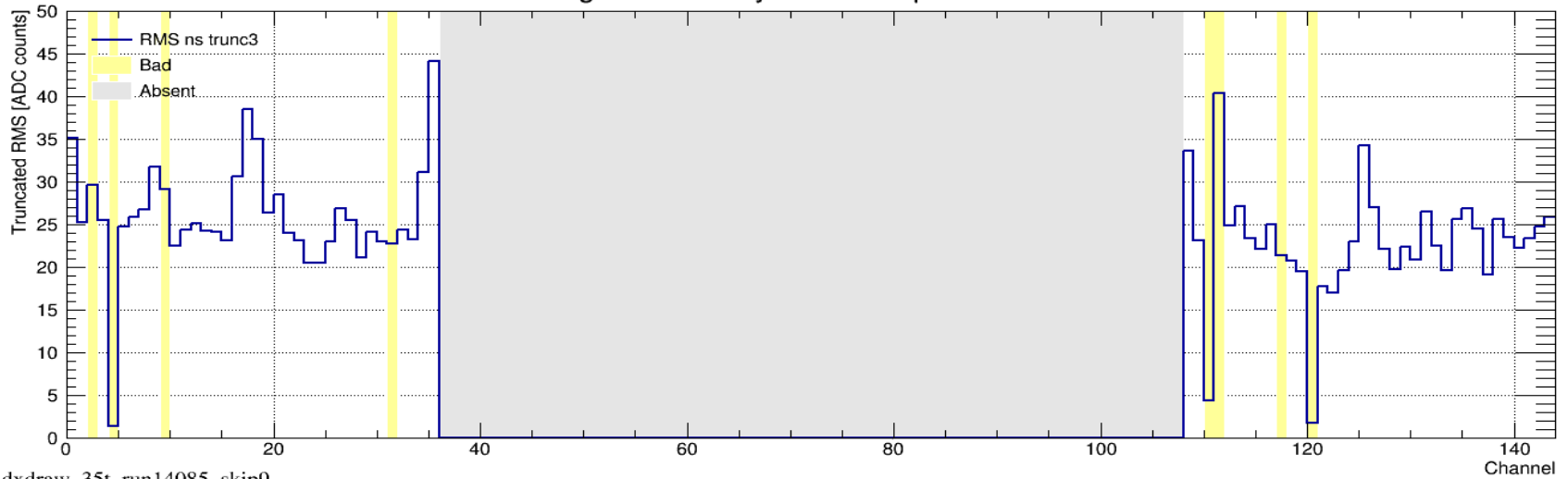
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

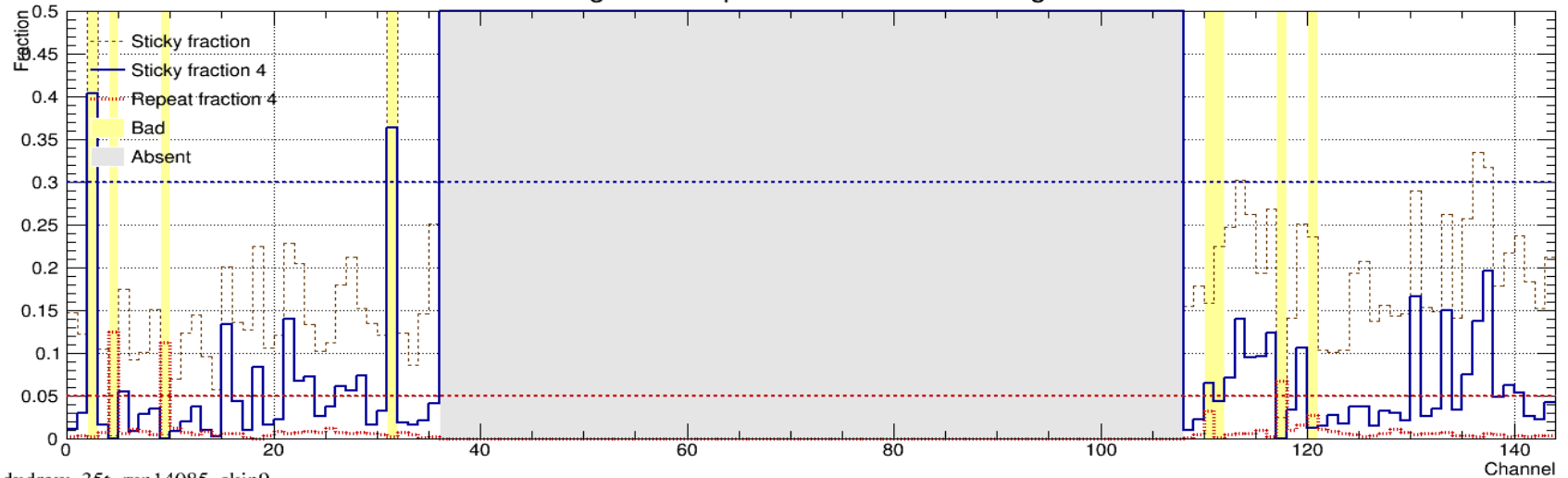
# APA 0u run 14085

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run14085\_skip9

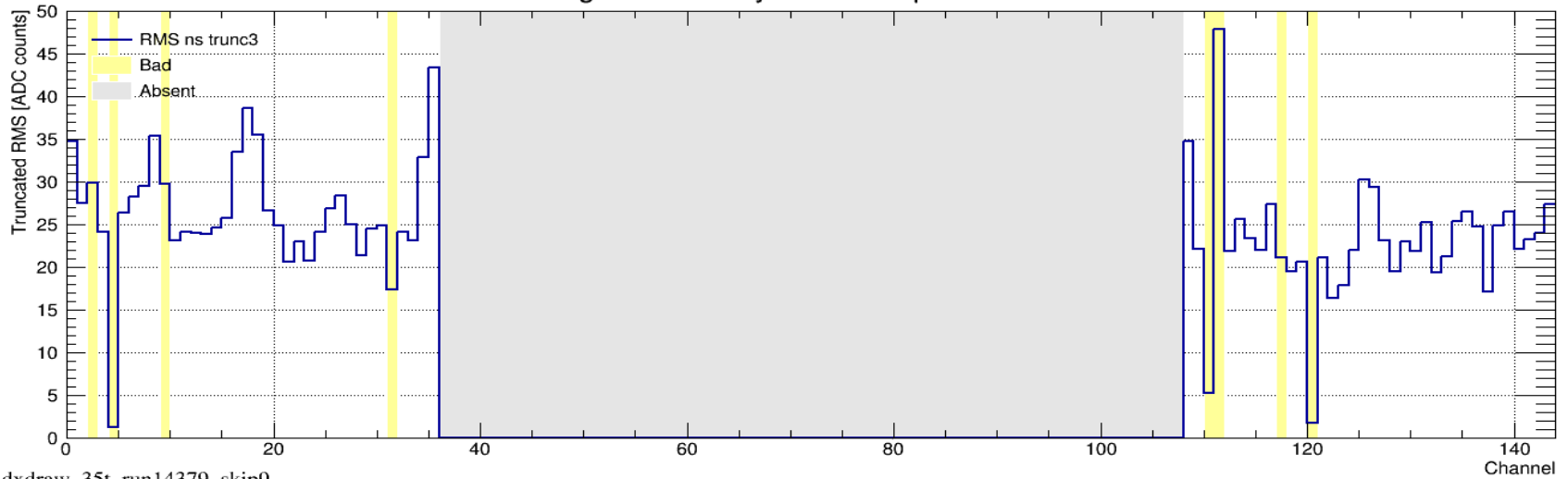
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

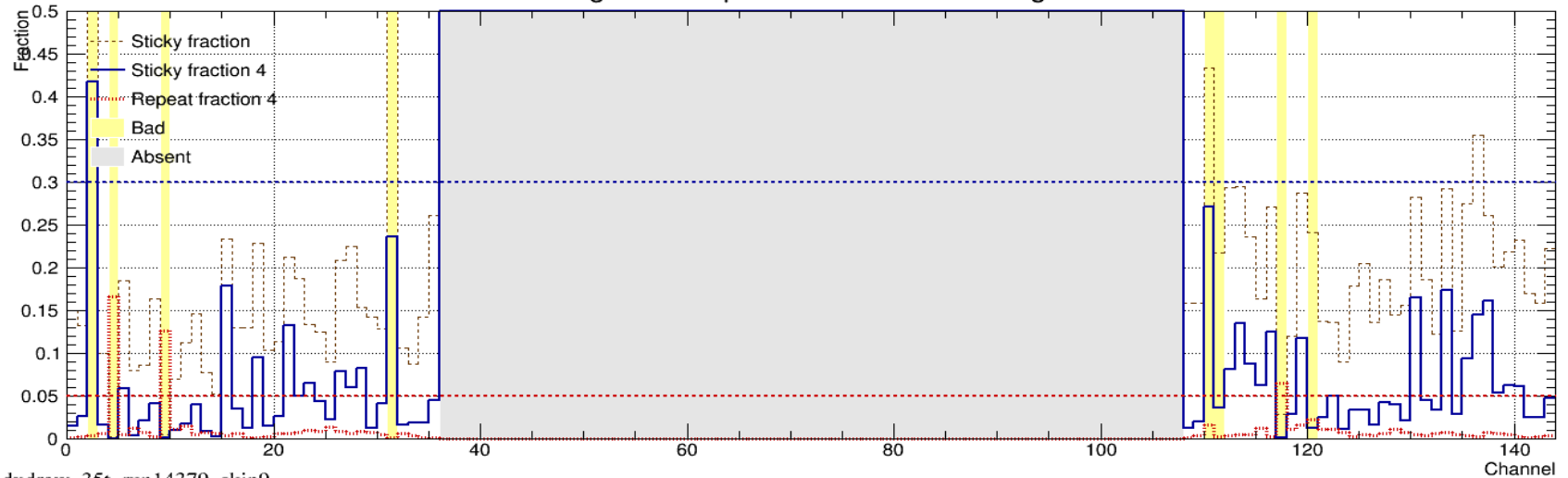
# APA 0u run 14379

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run14379\_skip9

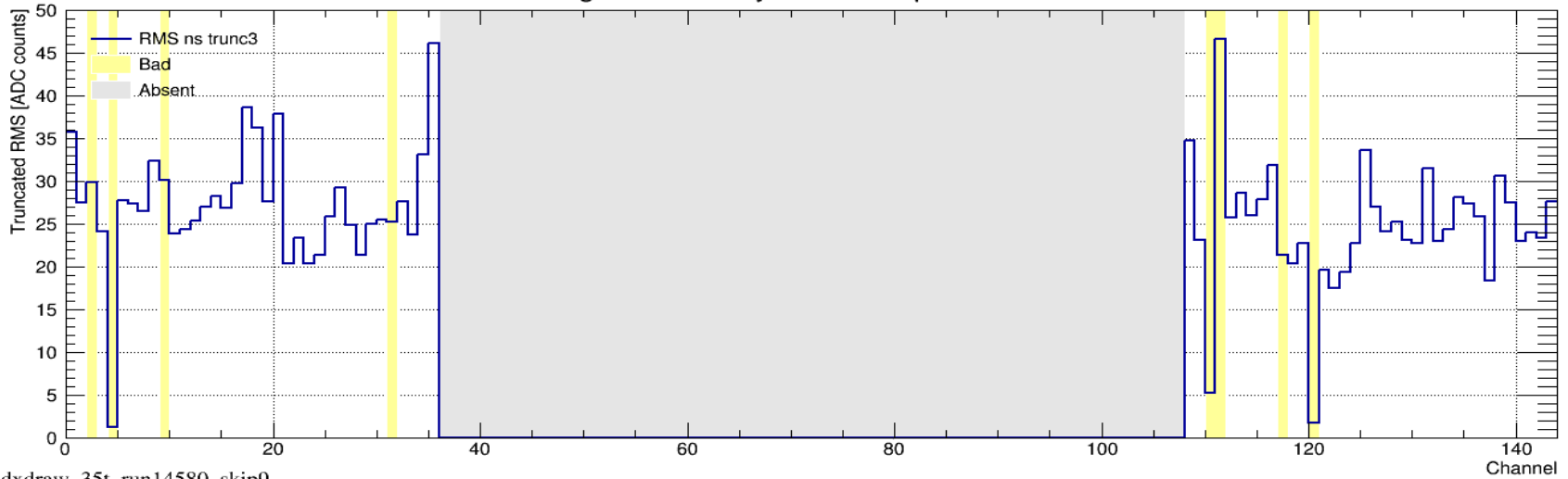
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

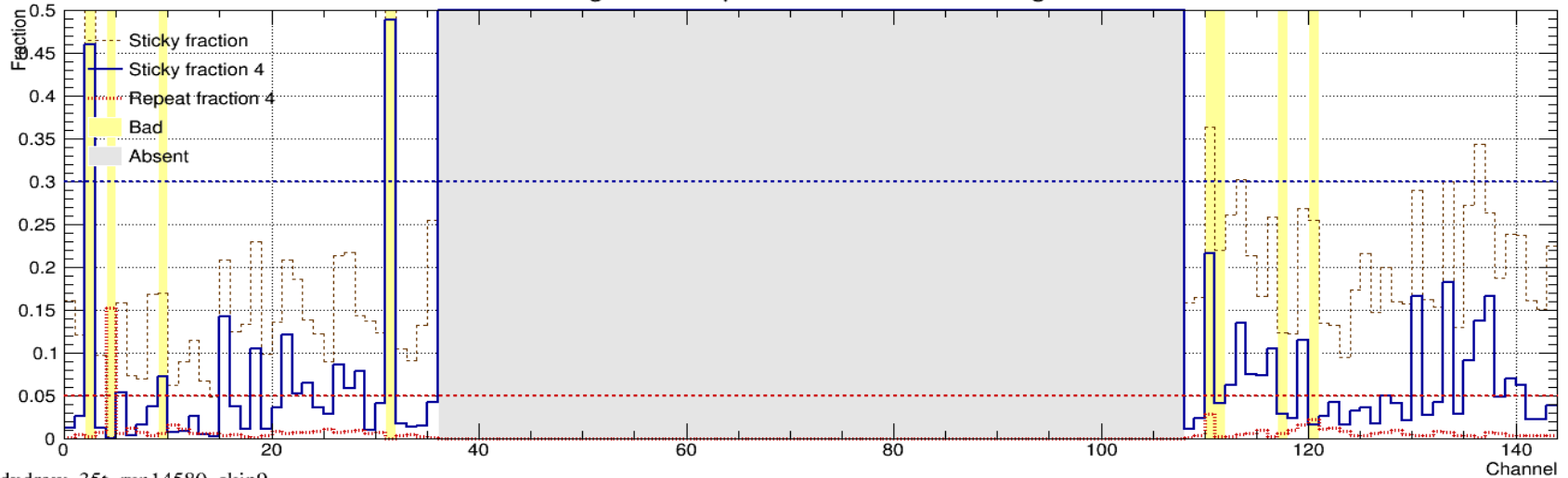
# APA 0u run 14580 (last before power failure)

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run14580\_skip9

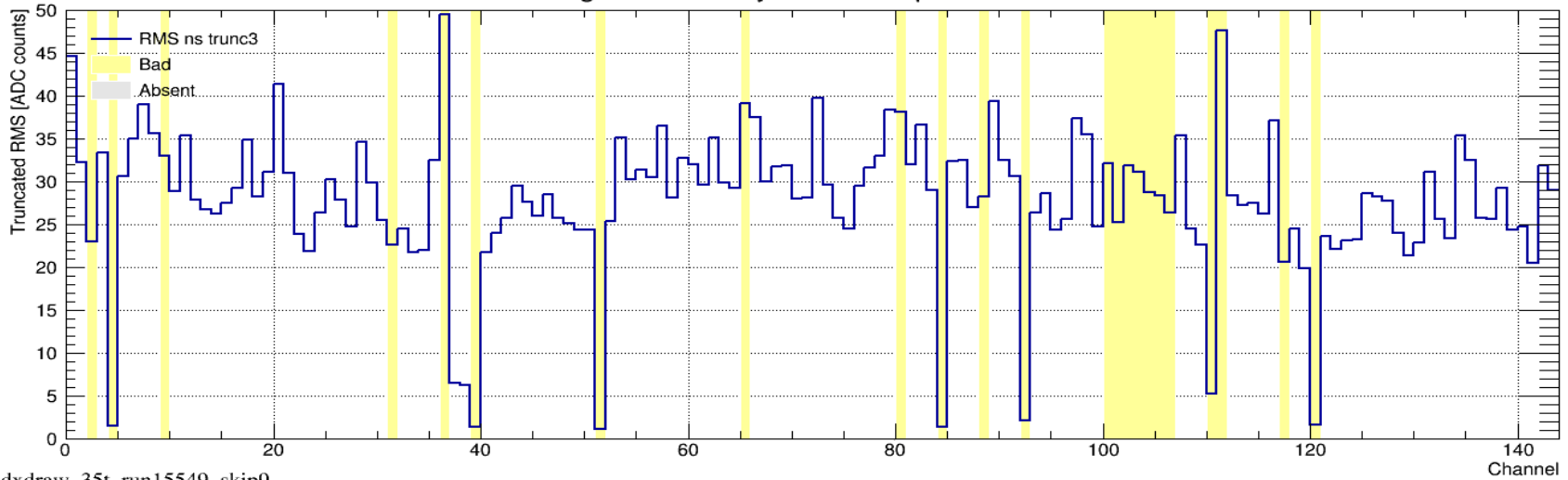
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

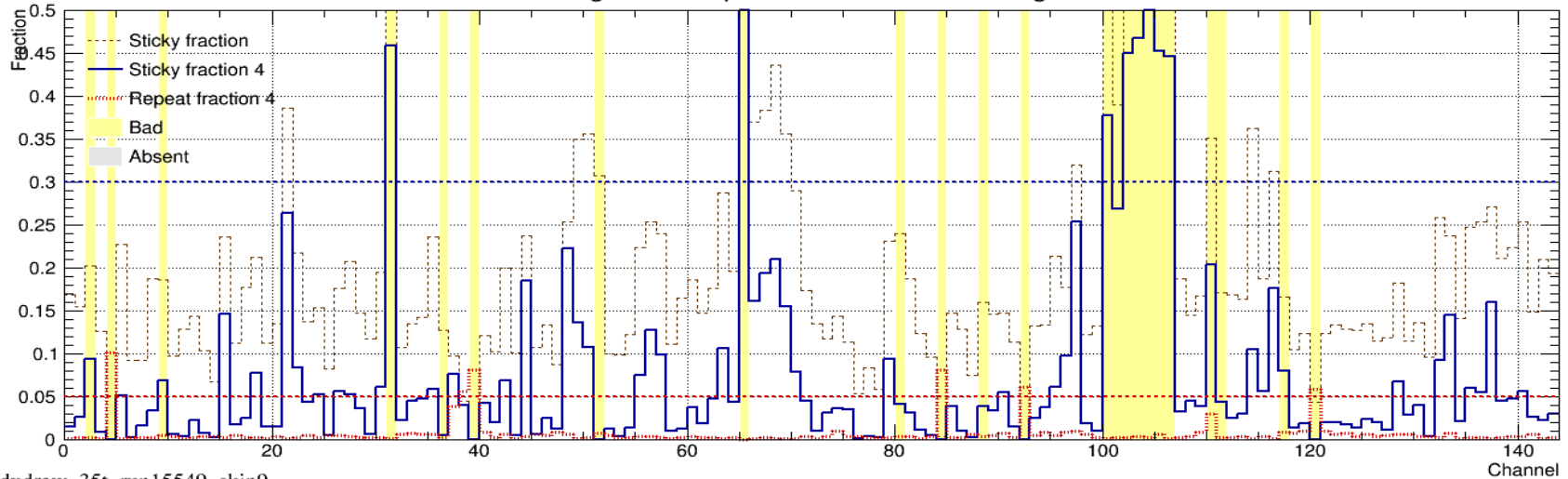
# APA 0u run 15549 (first after power failure)

Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run15549\_skip9

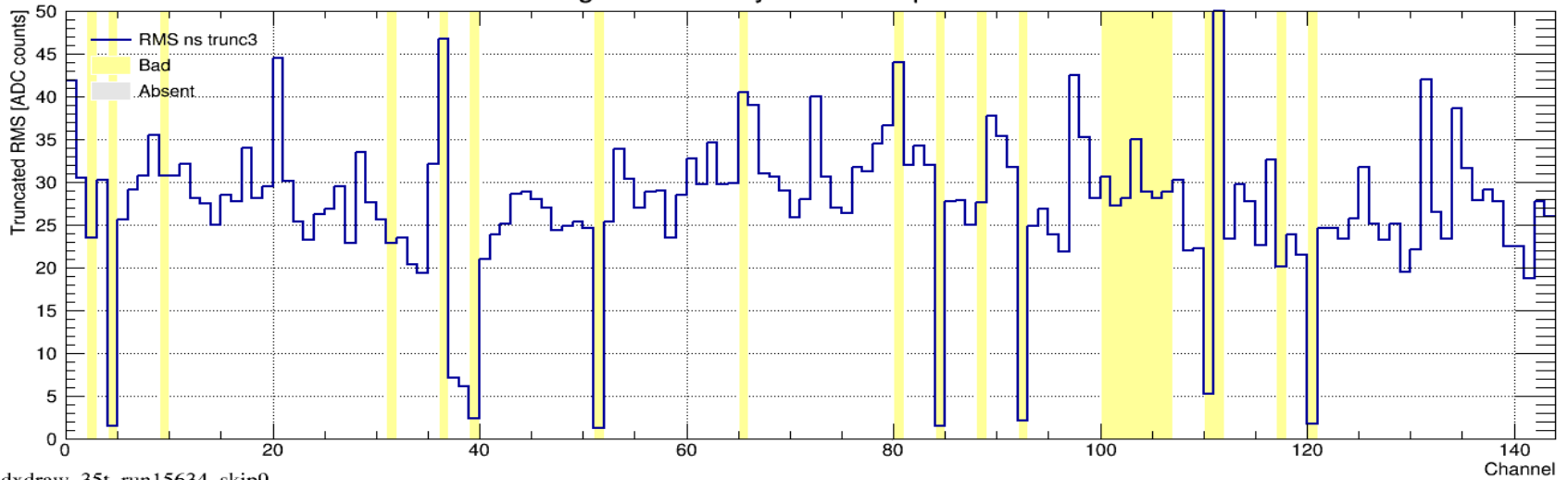
Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

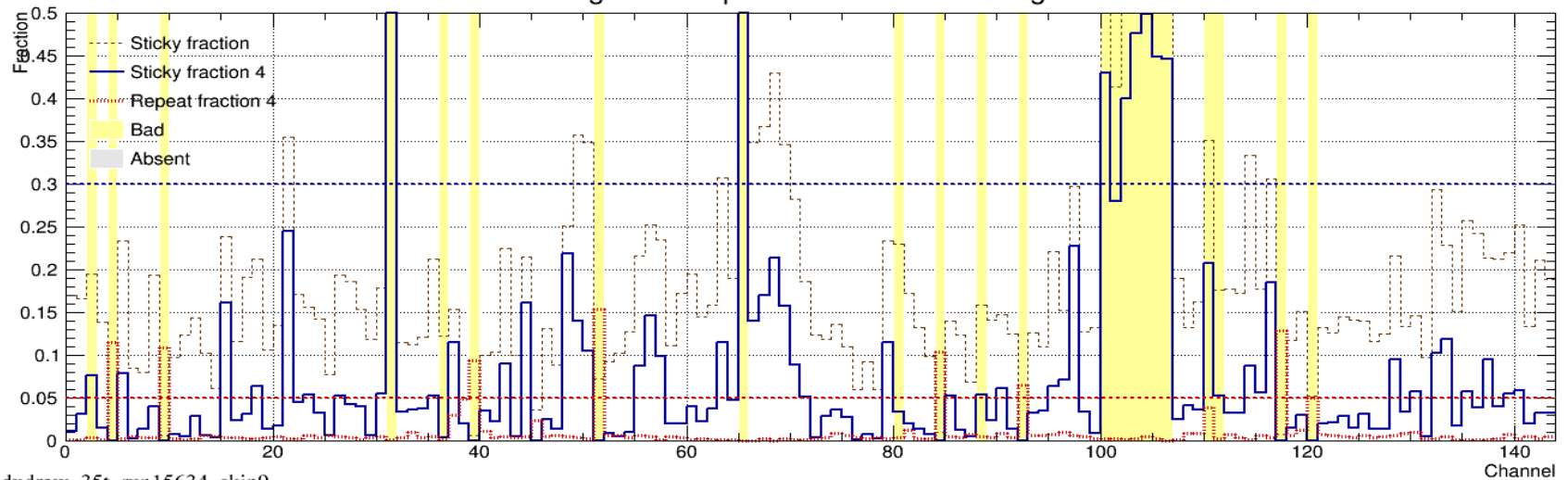
# APA 0u run 15634

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run15634\_skip9

## Raw signals for apa0u event 10 stuck range 4

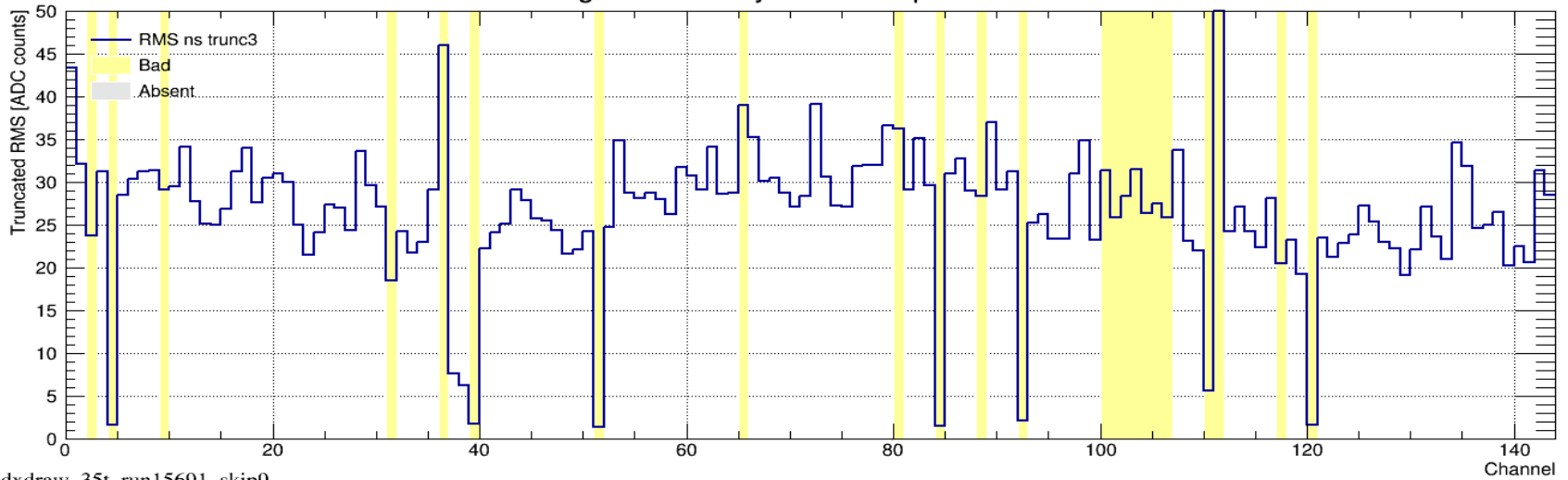


dxdraw\_35t\_run15634\_skip9



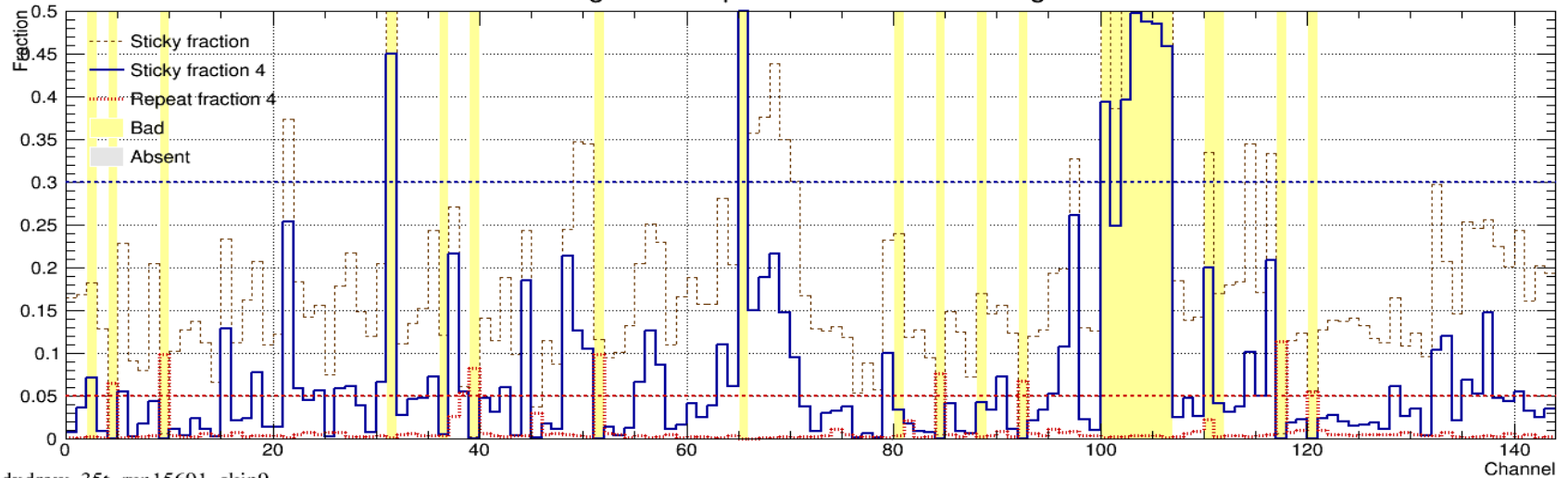
# APA 0u run 15691

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run15691\_skip9

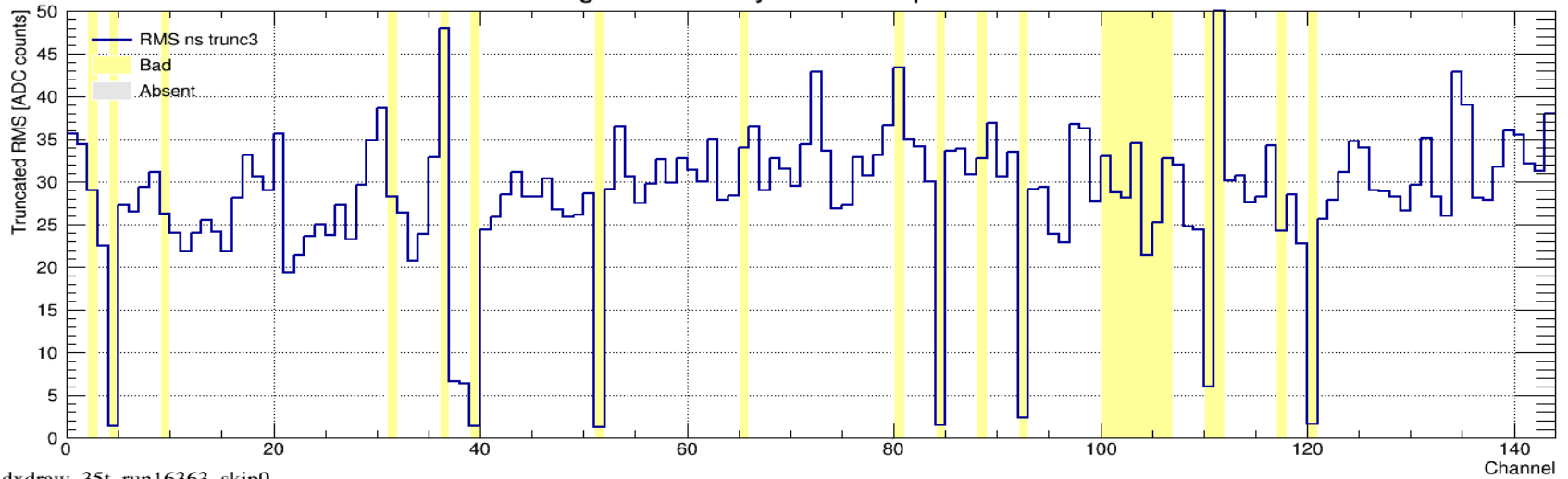
## Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

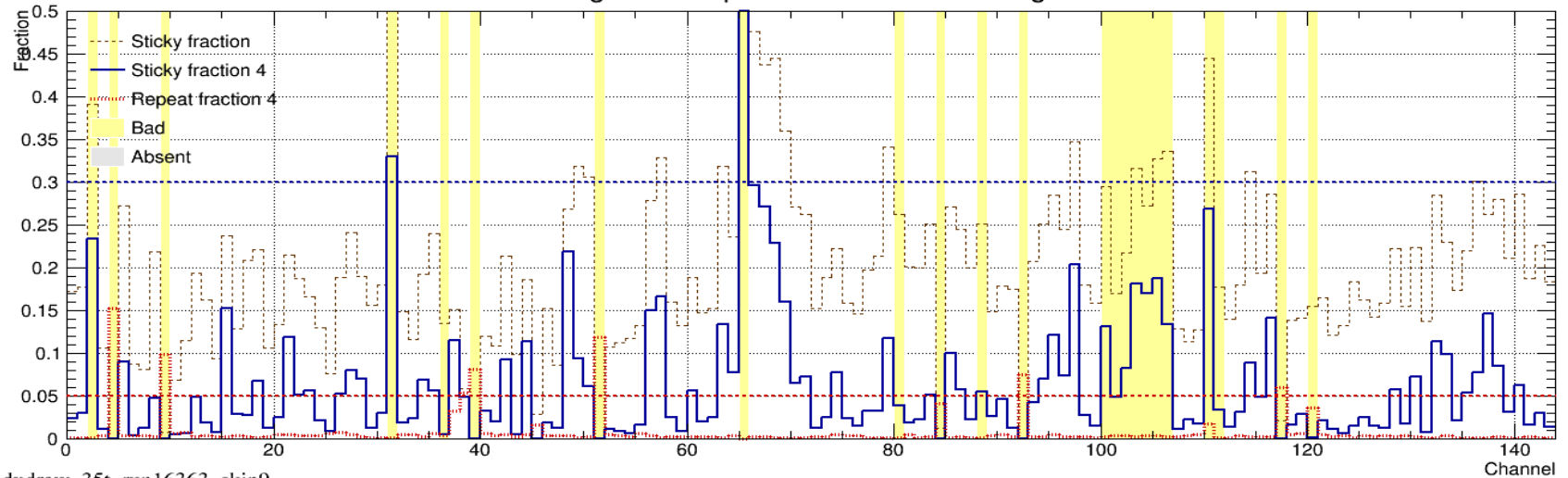
# APA 0u run 16363

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run16363\_skip9

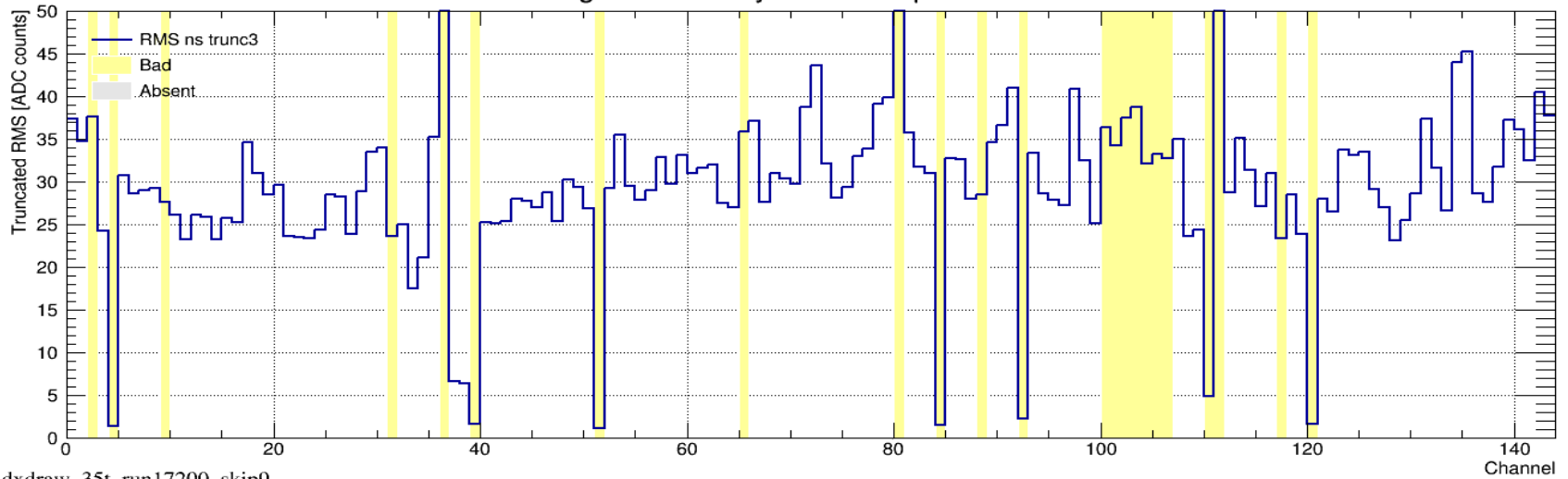
## Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

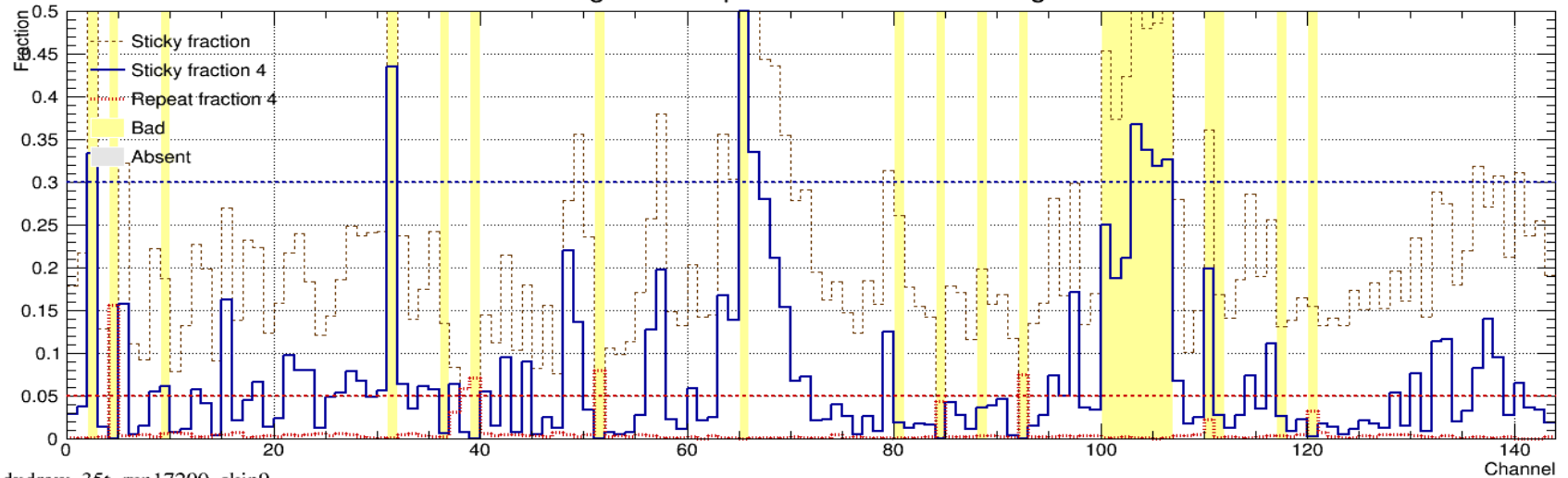
# APA 0u run 17200

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run17200\_skip9

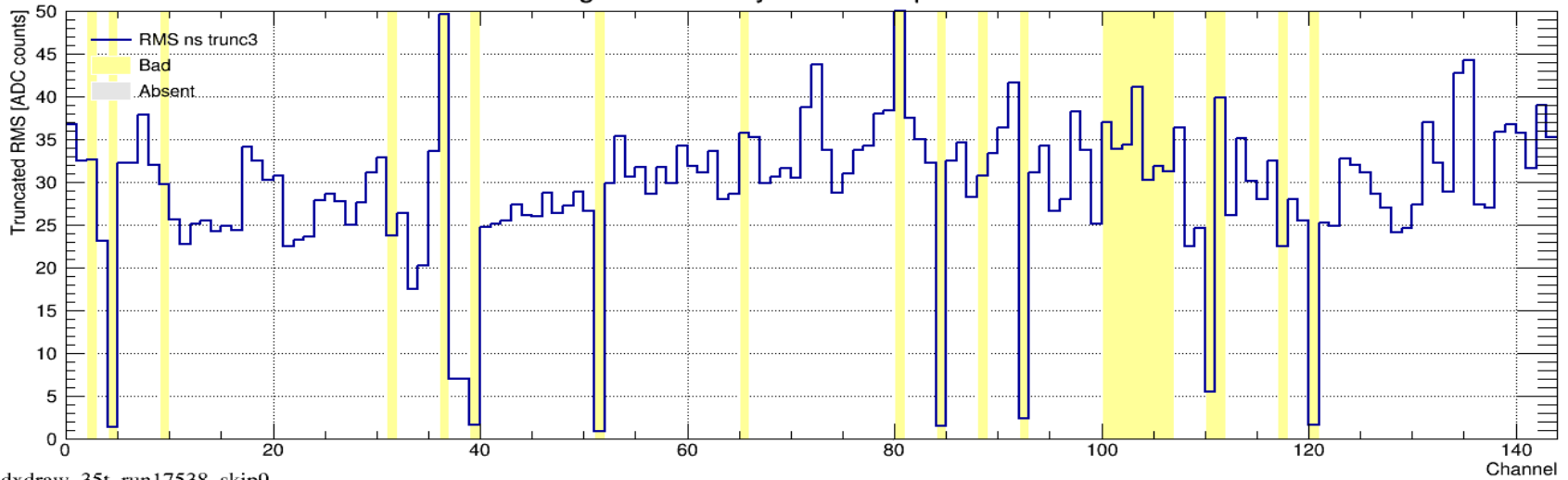
## Raw signals for apa0u event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

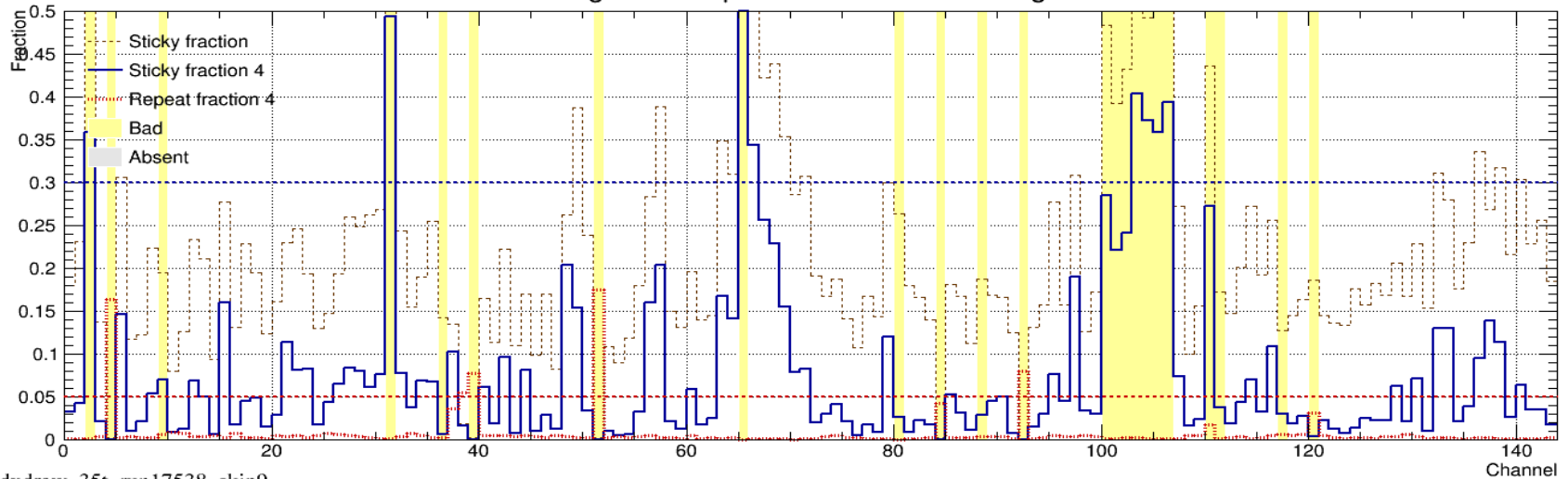
# APA 0u run 17538 (last)

## Raw signal not-sticky RMS for apa0u event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa0u event 10 stuck range 4

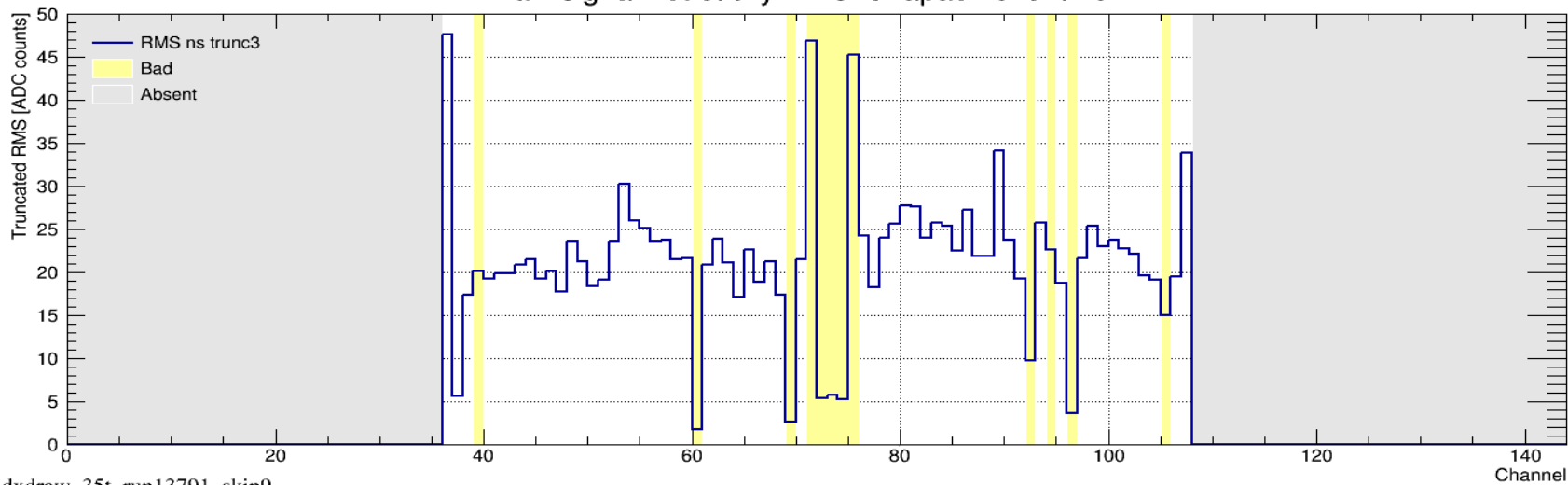


dxdraw\_35t\_run17538\_skip9

APA 0v

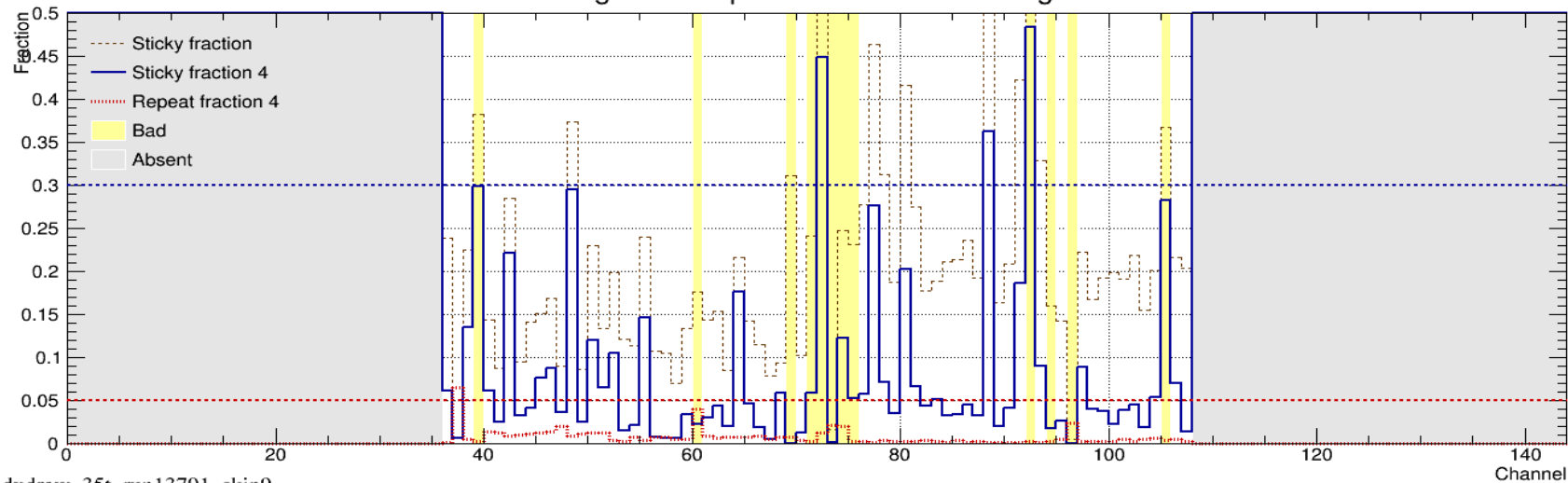
# APA 0v run 13791 (first)

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run13791\_skip9

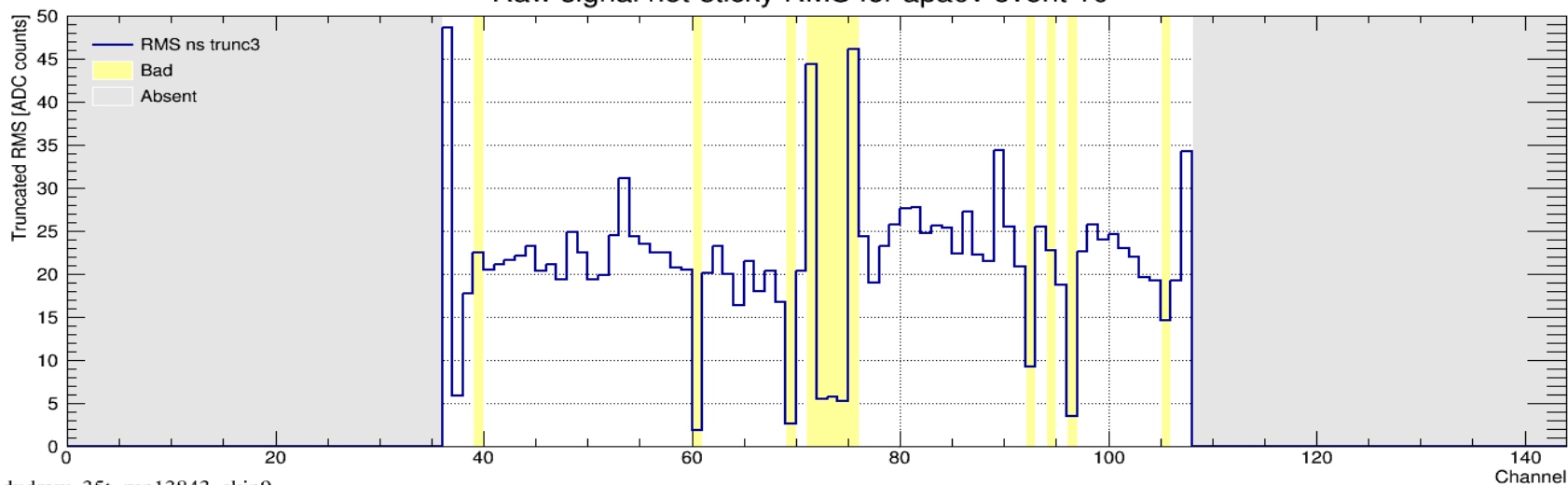
## Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

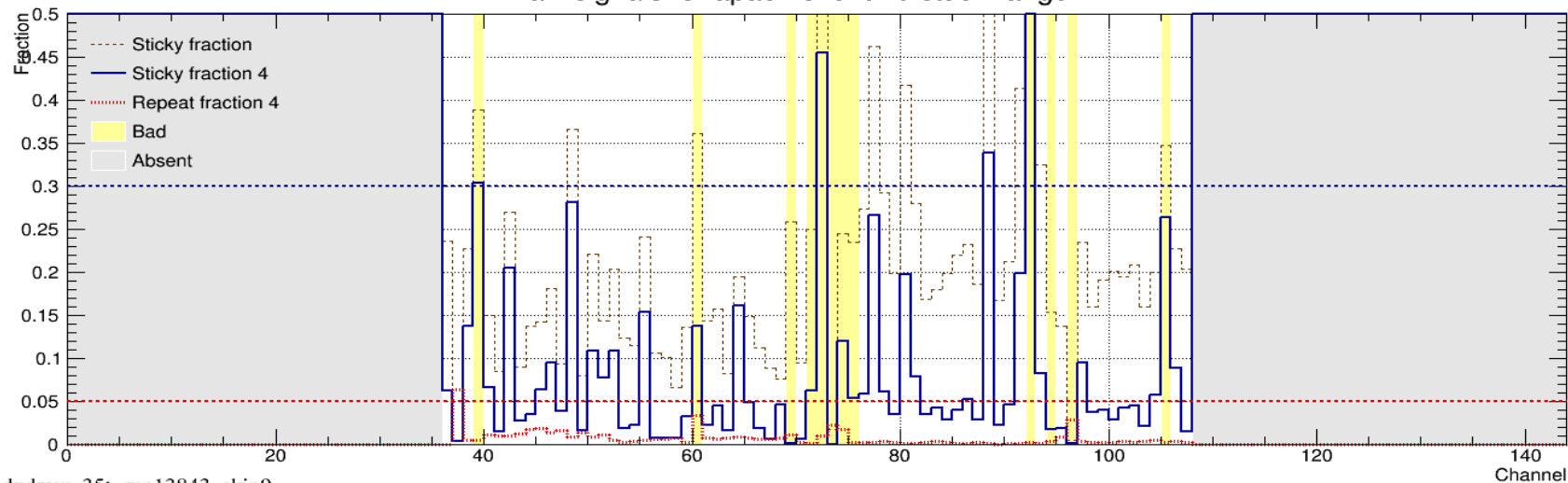
# APA 0v run 13843

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run13843\_skip9

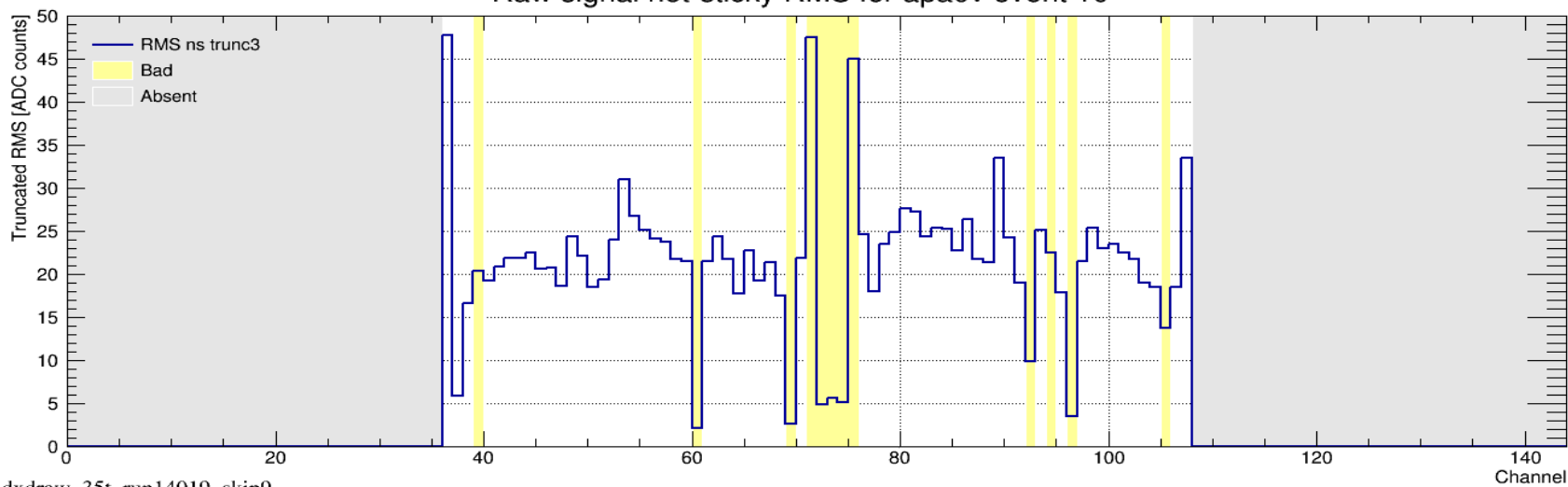
## Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

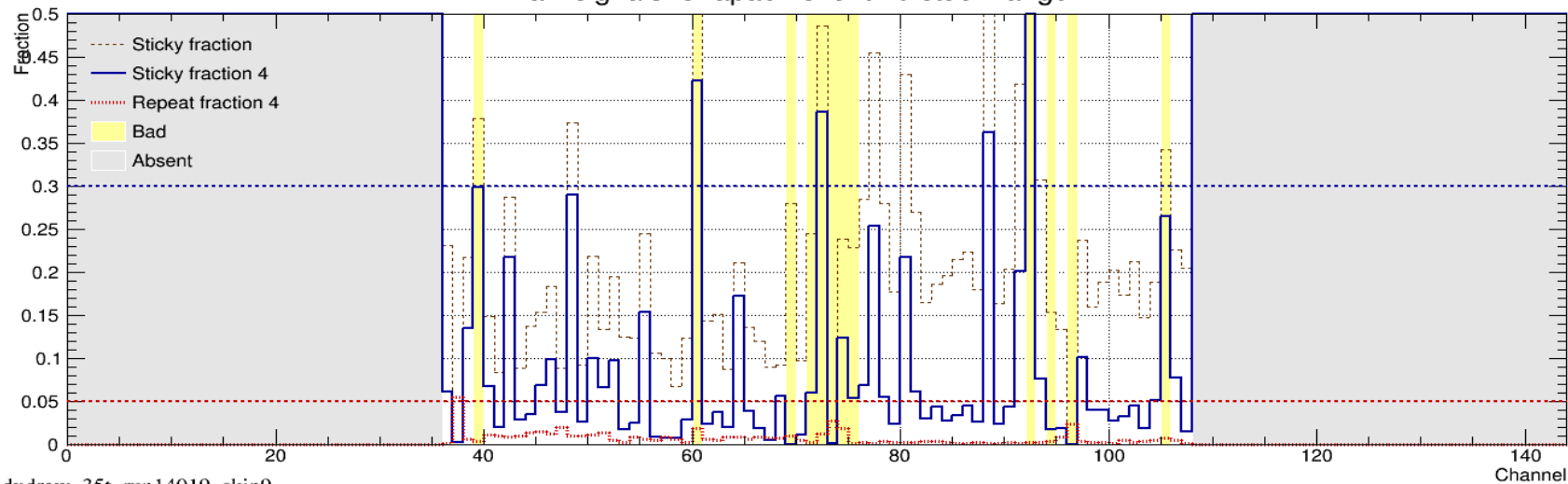
# APA 0v run 14019

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run14019\_skip9

## Raw signals for apa0v event 10 stuck range 4

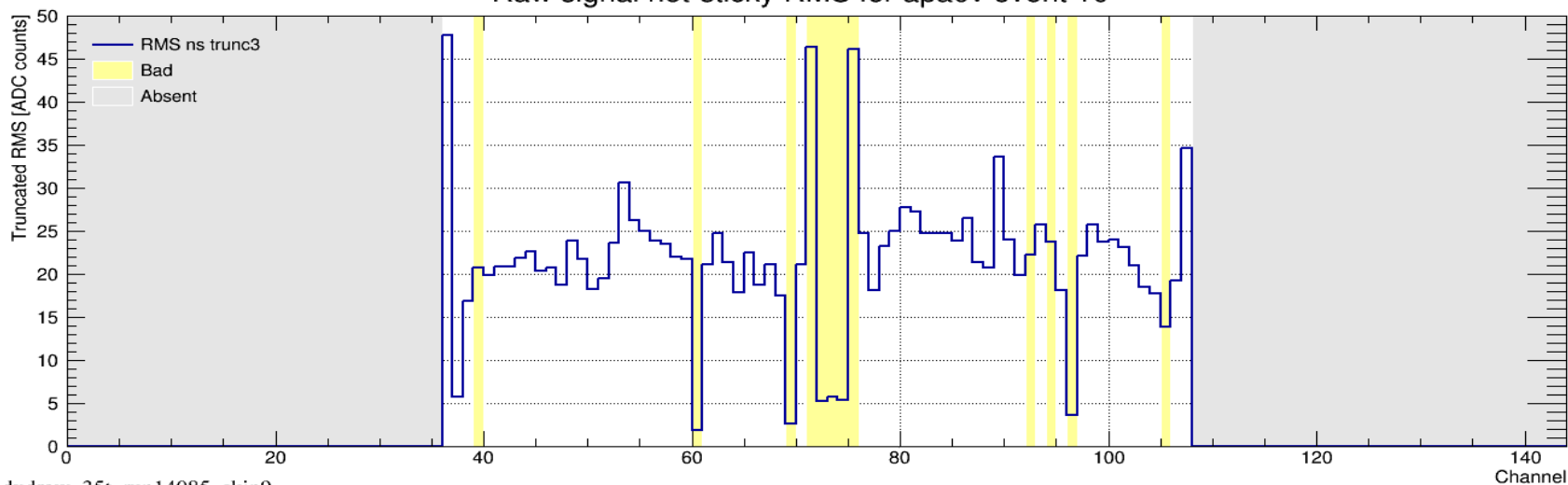


dxdraw\_35t\_run14019\_skip9



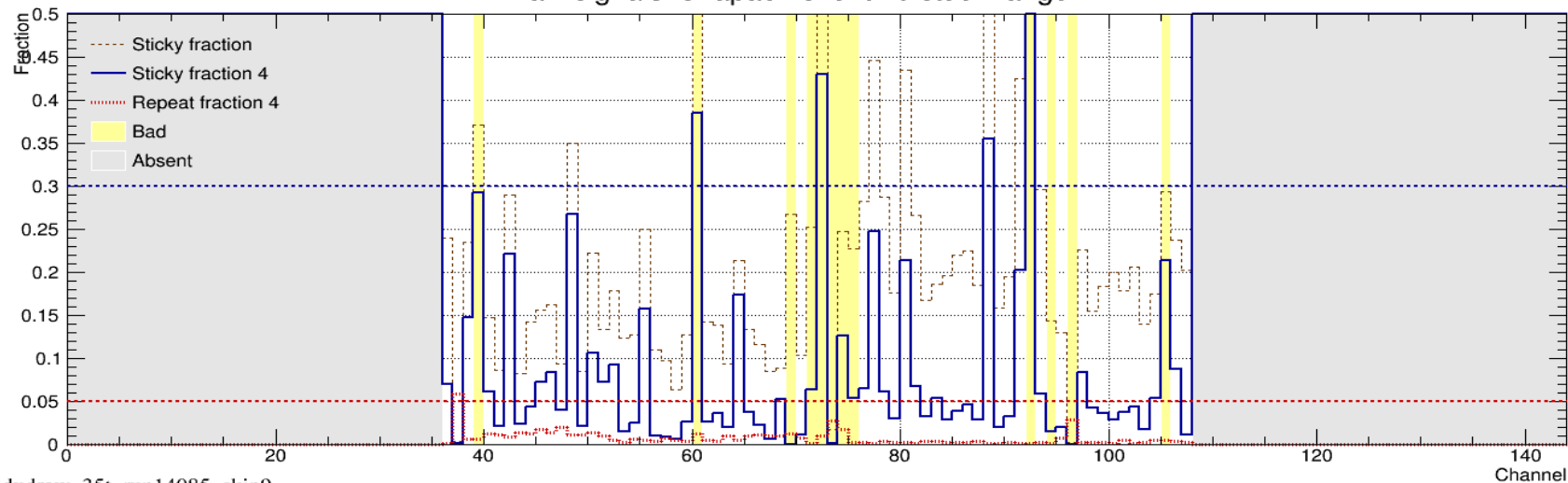
# APA 0v run 14085

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run14085\_skip9

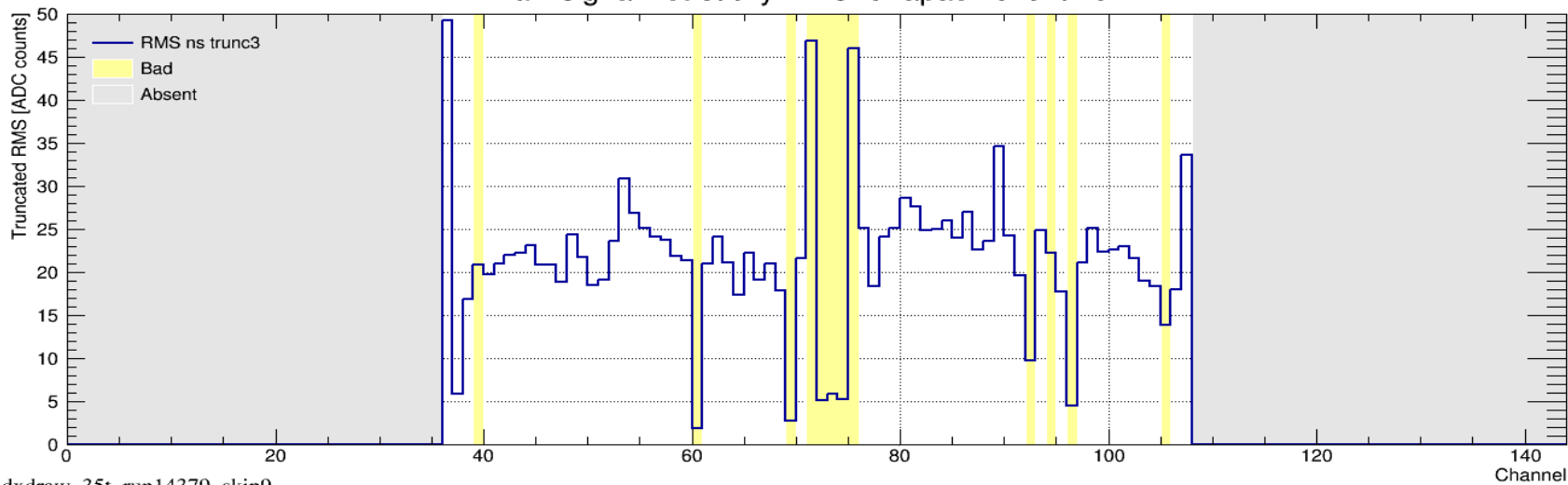
## Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

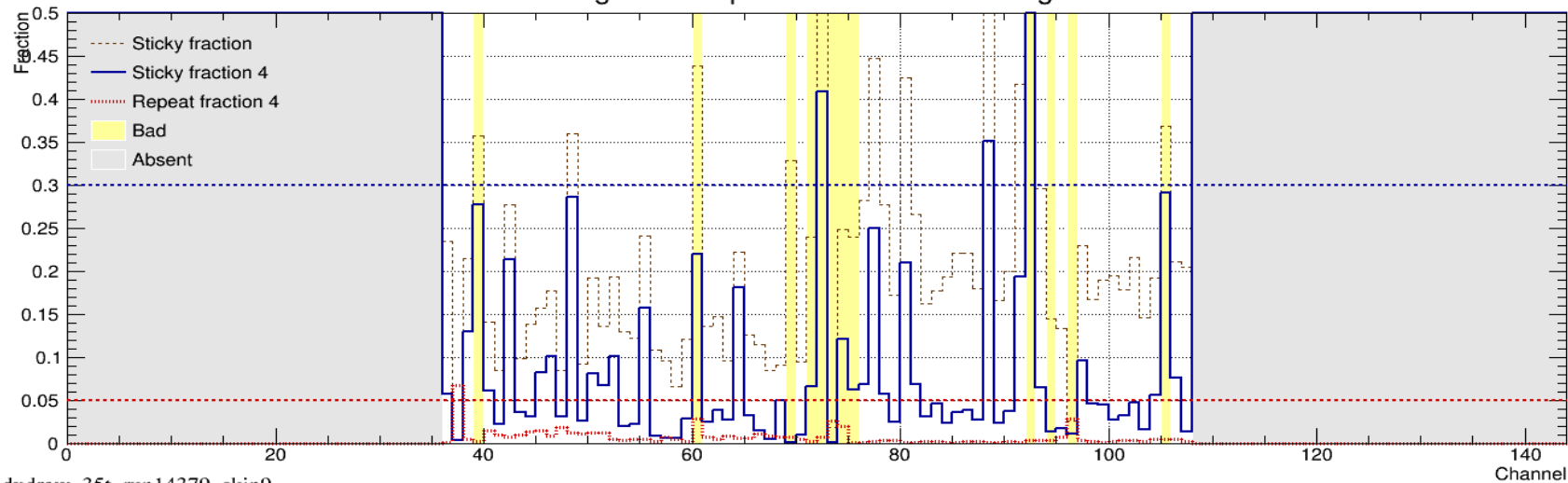
# APA 0v run 14379

## Raw signal not-sticky RMS for apa0v event 10



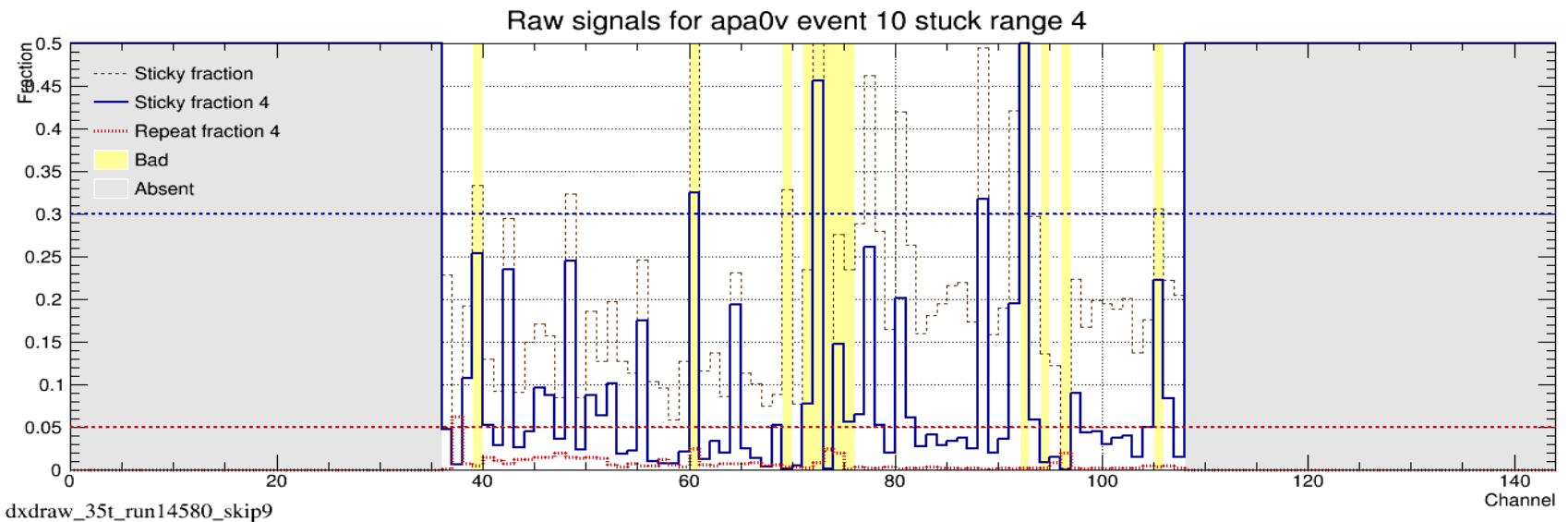
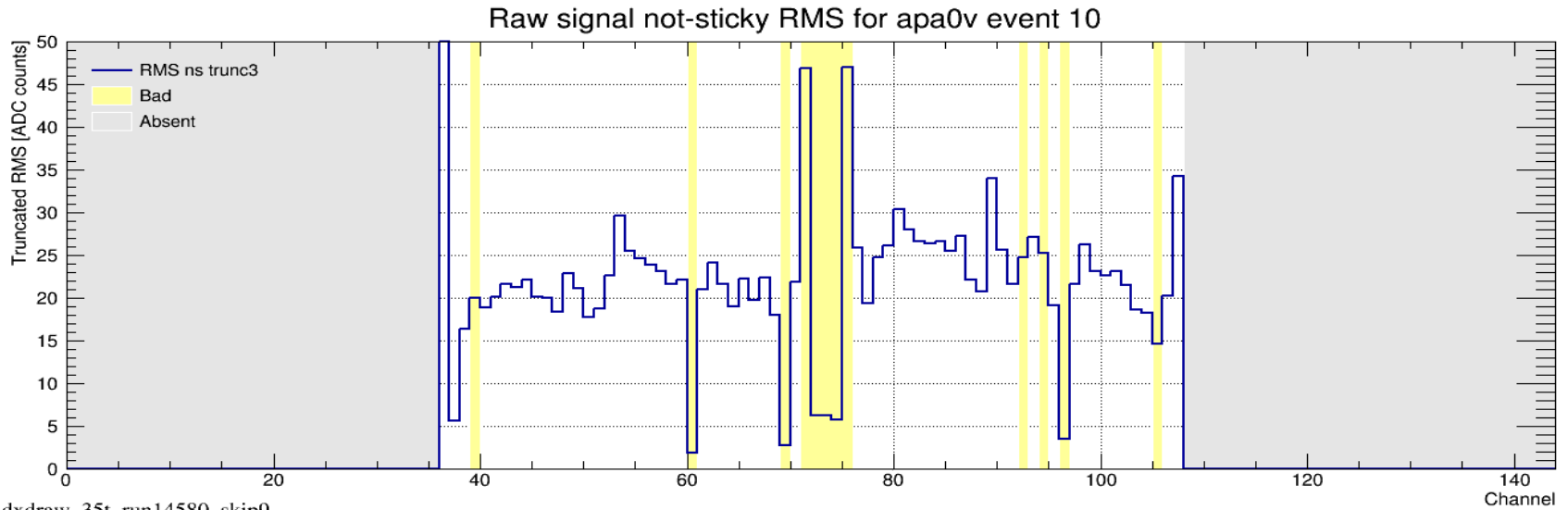
dxdraw\_35t\_run14379\_skip9

## Raw signals for apa0v event 10 stuck range 4



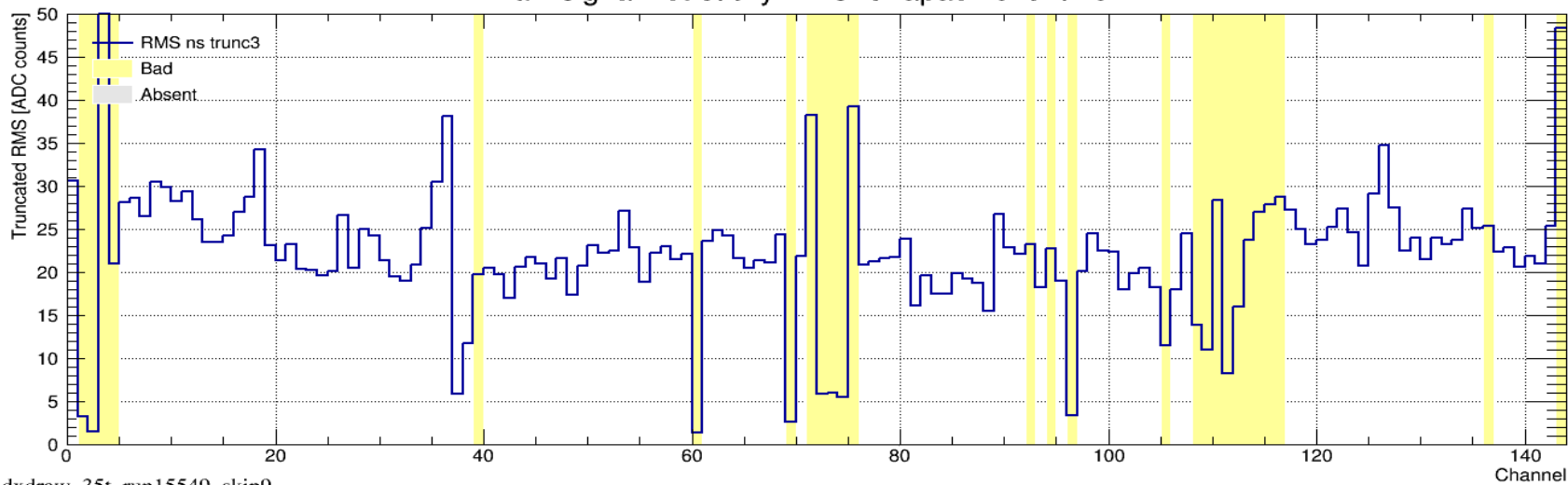
dxdraw\_35t\_run14379\_skip9

# APA 0v run 14580 (last before power failure)



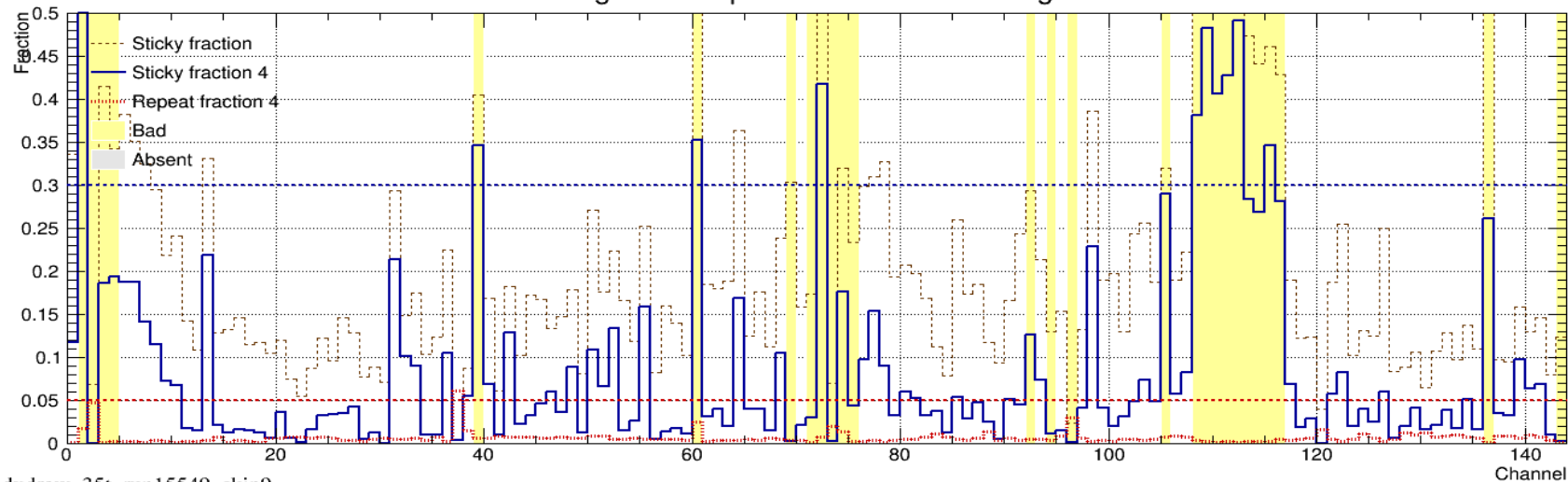
# APA 0v run 15549 (first after power failure)

Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run15549\_skip9

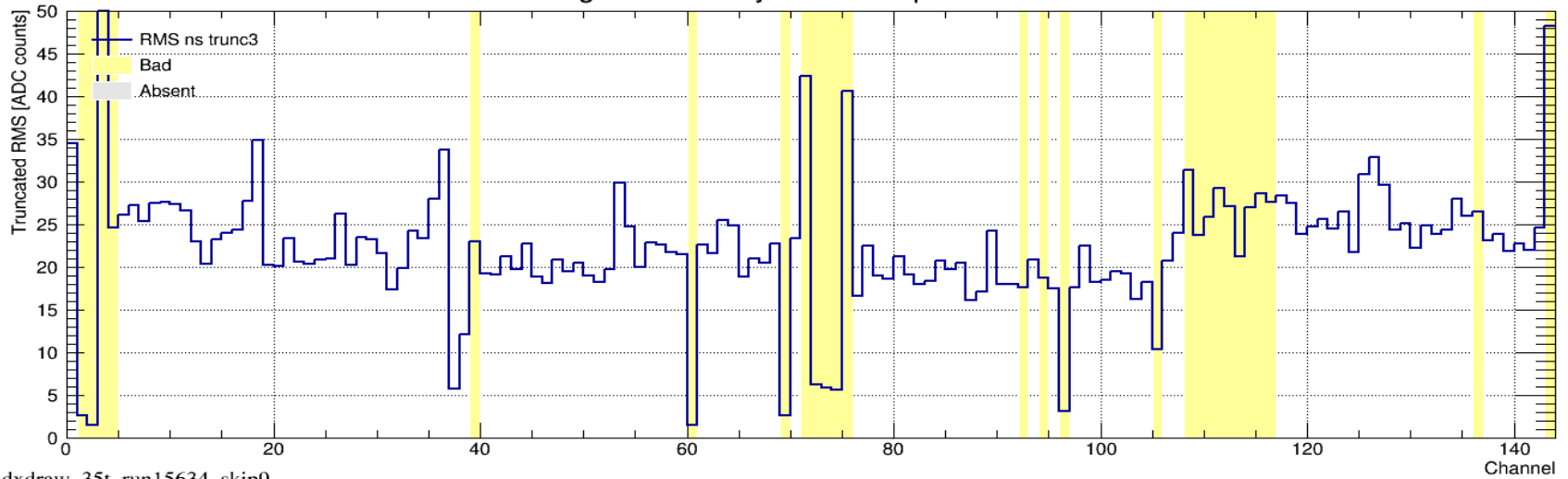
Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

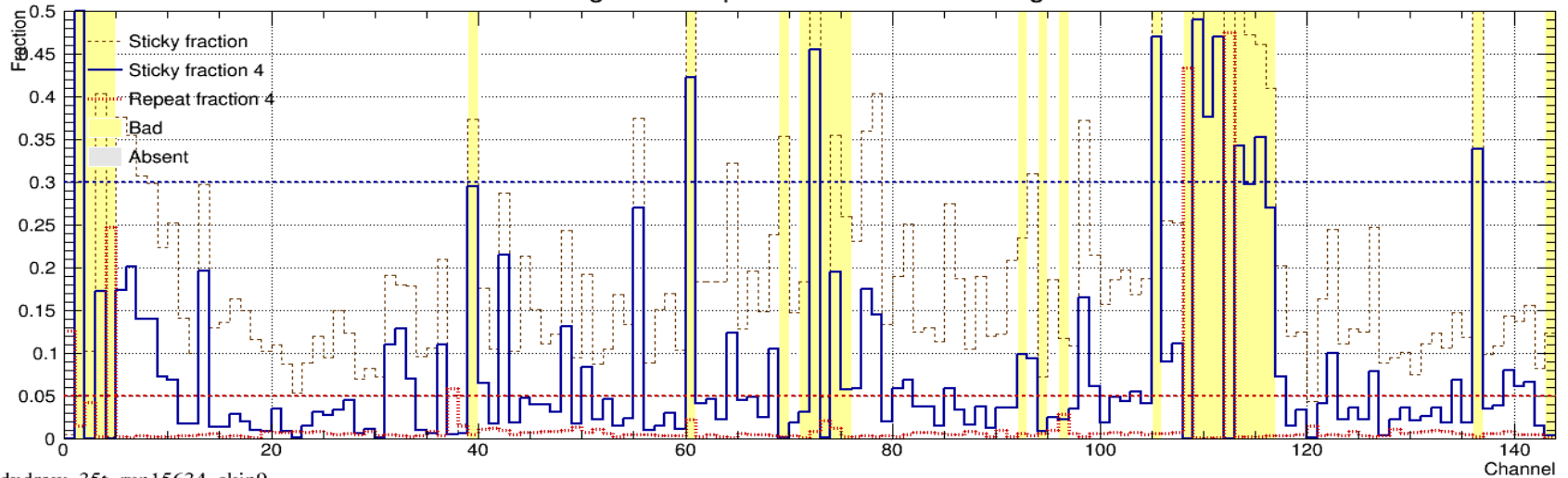
# APA 0v run 15634

Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run15634\_skip9

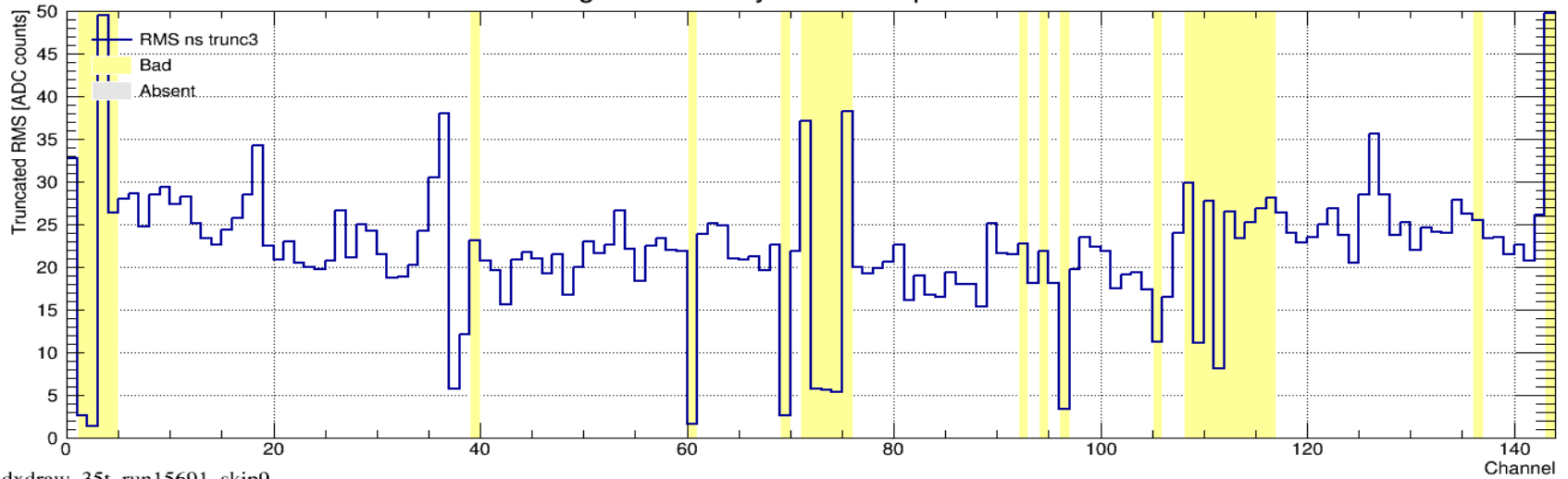
Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

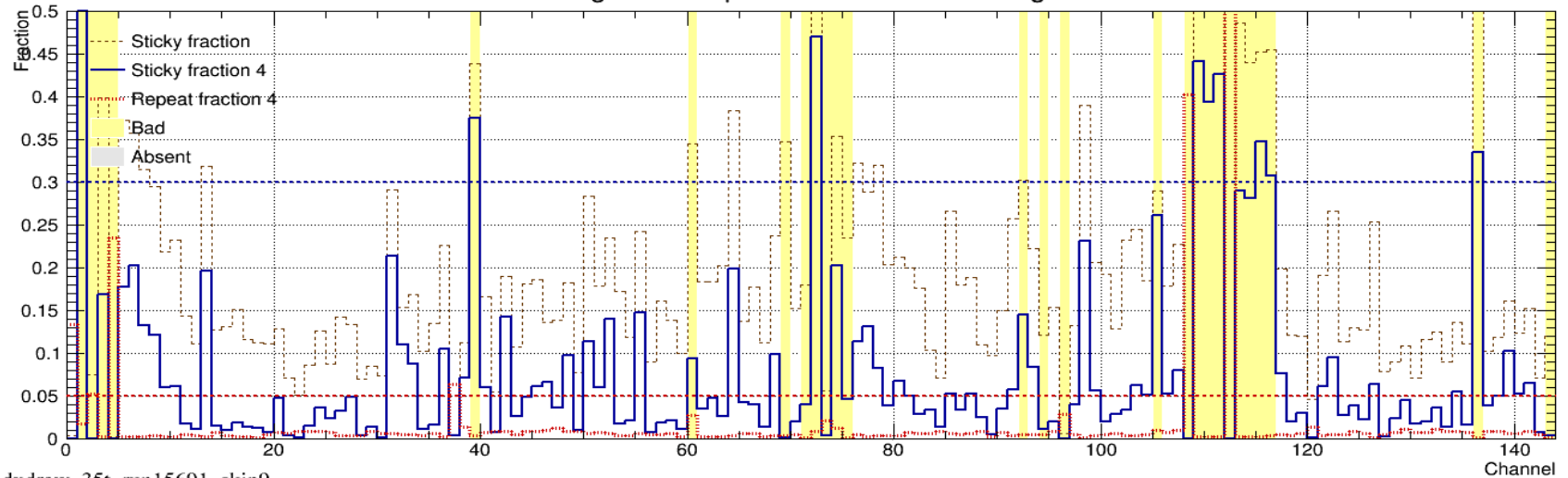
# APA 0v run 15691

Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run15691\_skip9

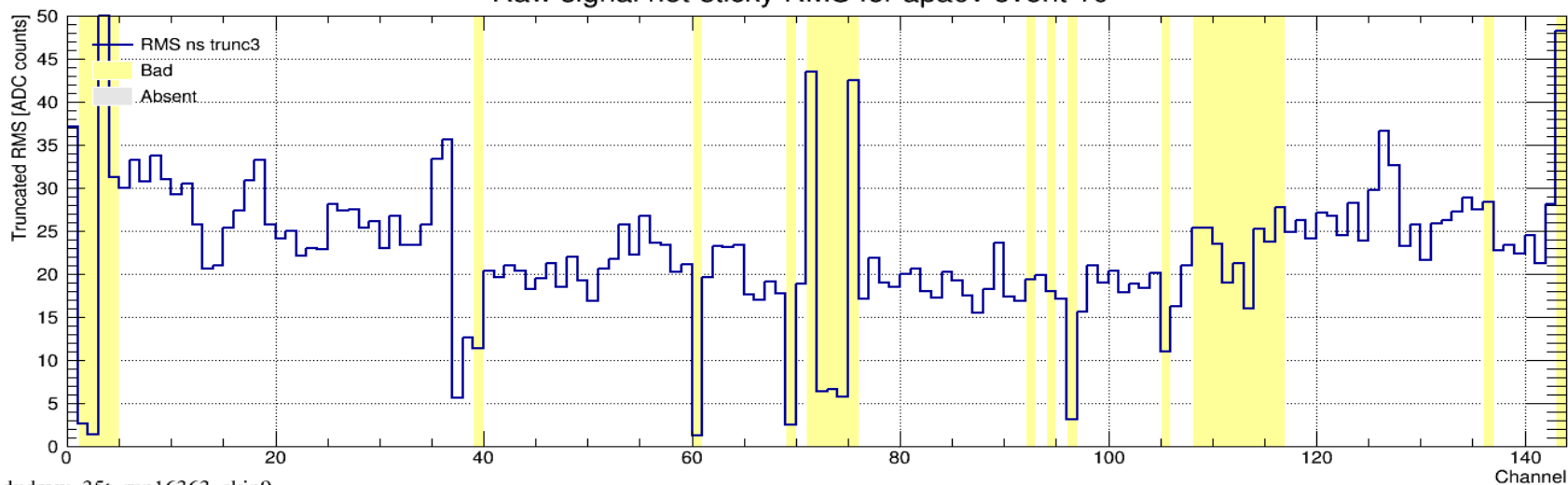
Raw signals for apa0v event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

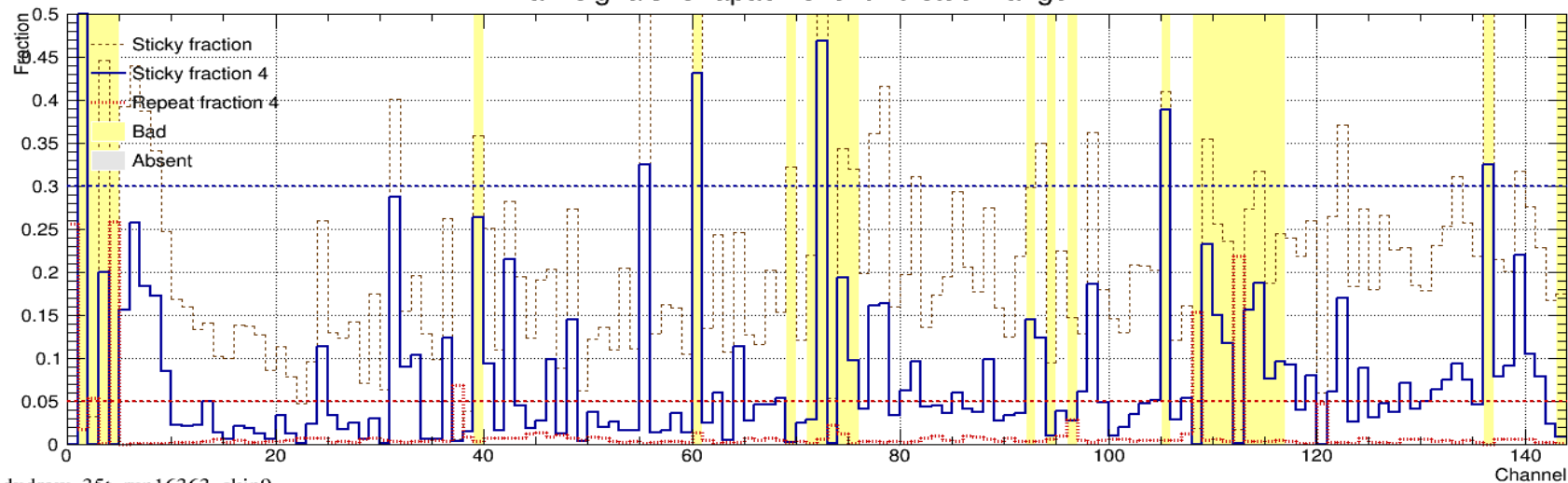
# APA 0v run 16363

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run16363\_skip9

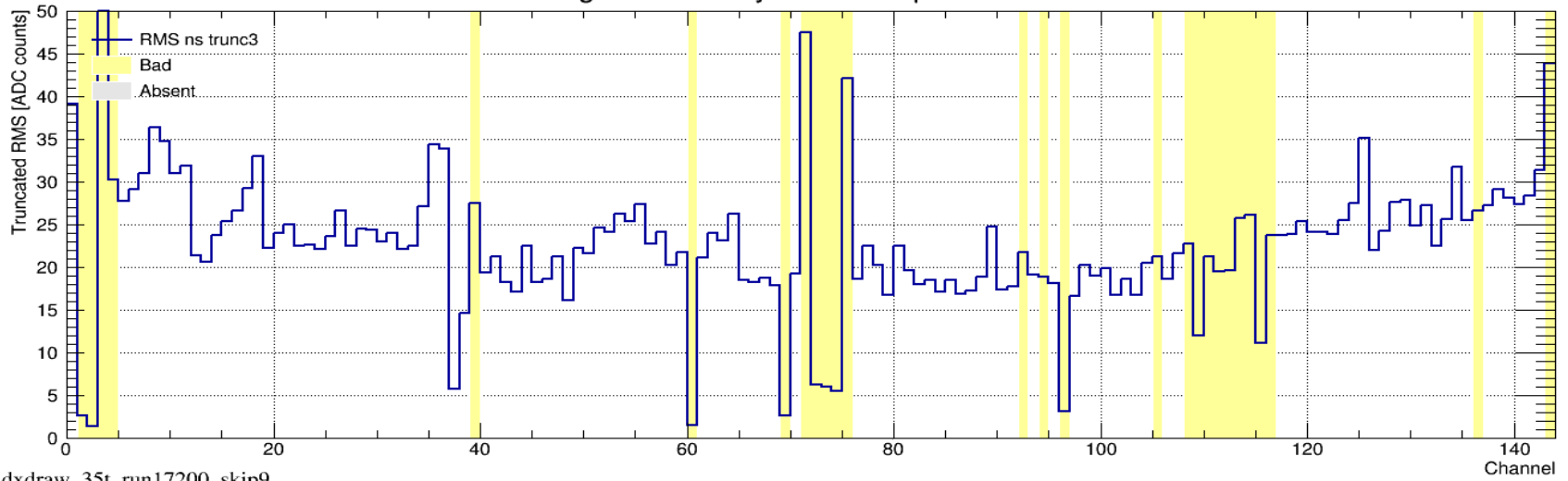
## Raw signals for apa0v event 10 stuck range 4



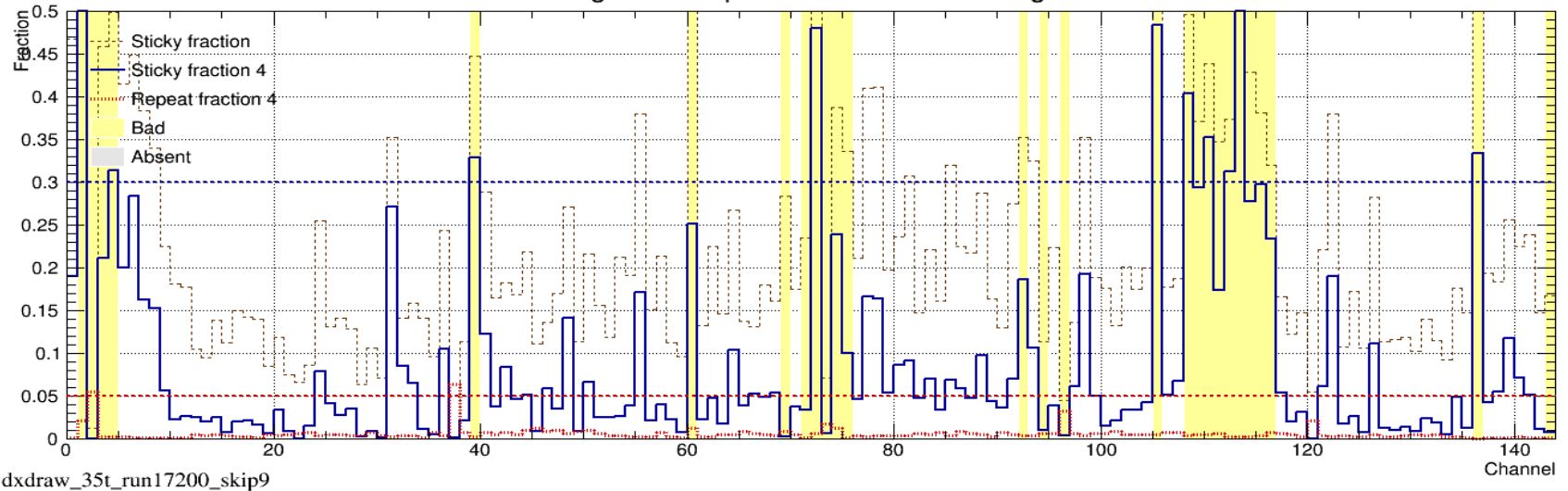
dxdraw\_35t\_run16363\_skip9

# APA 0v run 17200

## Raw signal not-sticky RMS for apa0v event 10



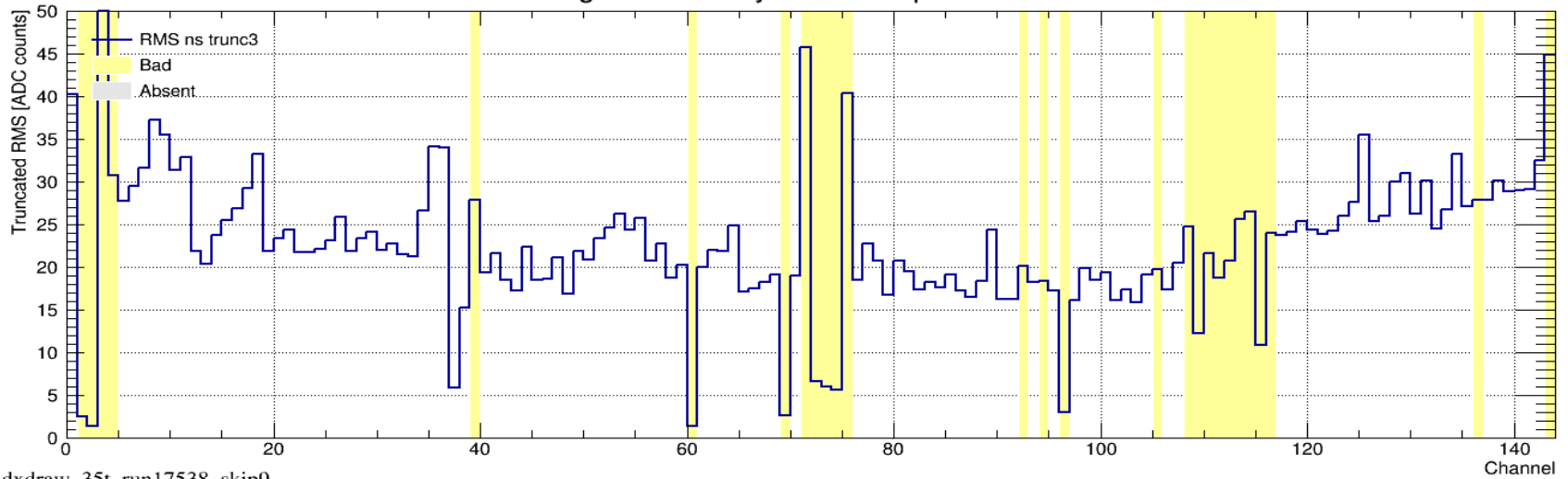
## Raw signals for apa0v event 10 stuck range 4





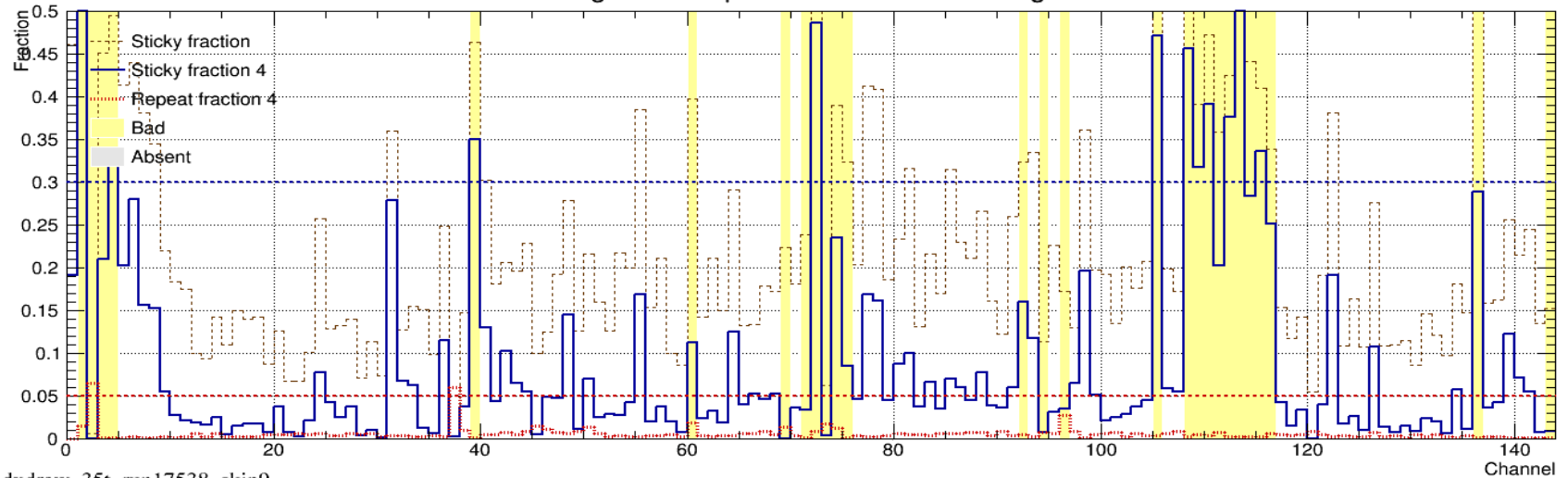
# APA 0v run 17538 (last)

## Raw signal not-sticky RMS for apa0v event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa0v event 10 stuck range 4

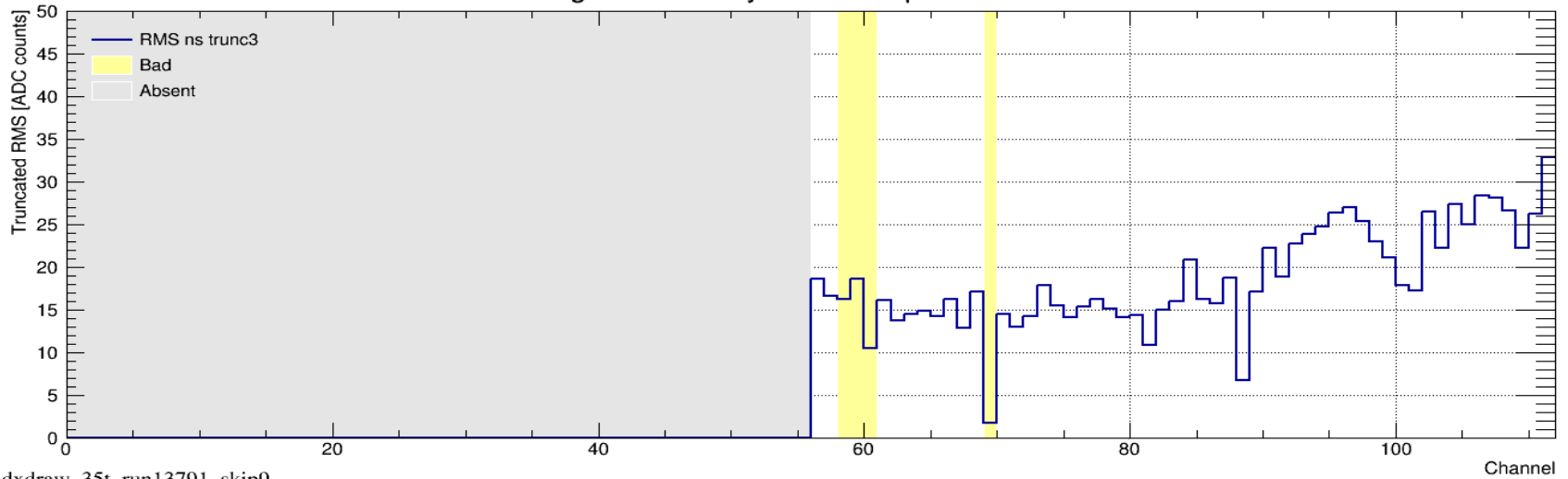


dxdraw\_35t\_run17538\_skip9

# APA 0z1

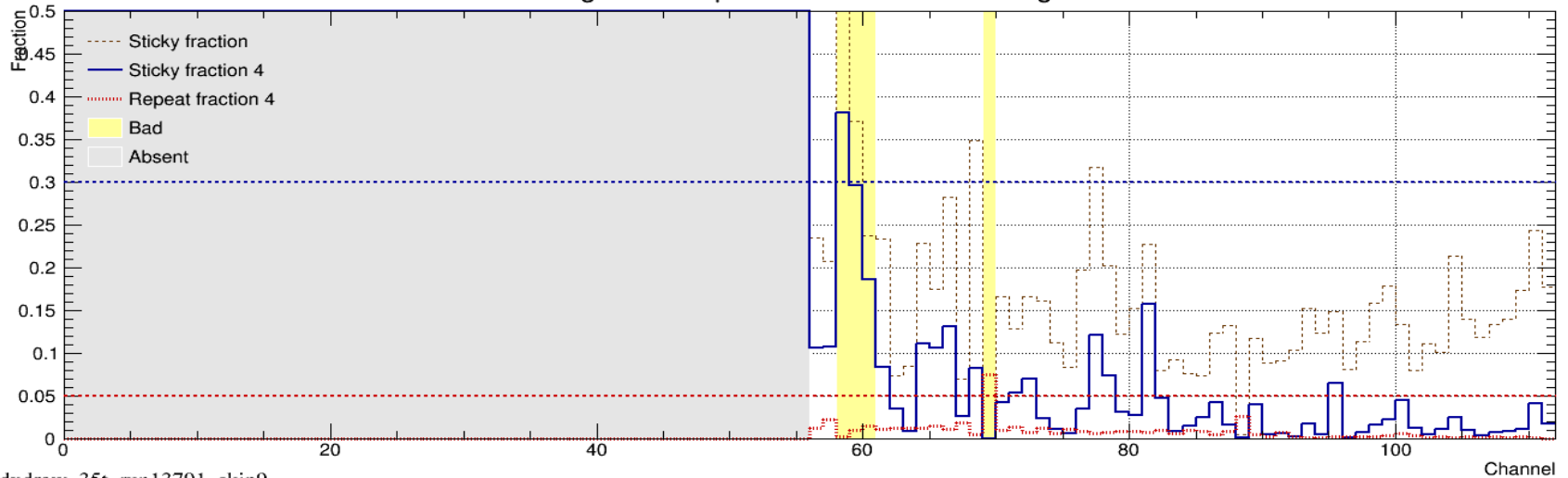
# APA 0z1 run 13791 (first)

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run13791\_skip9

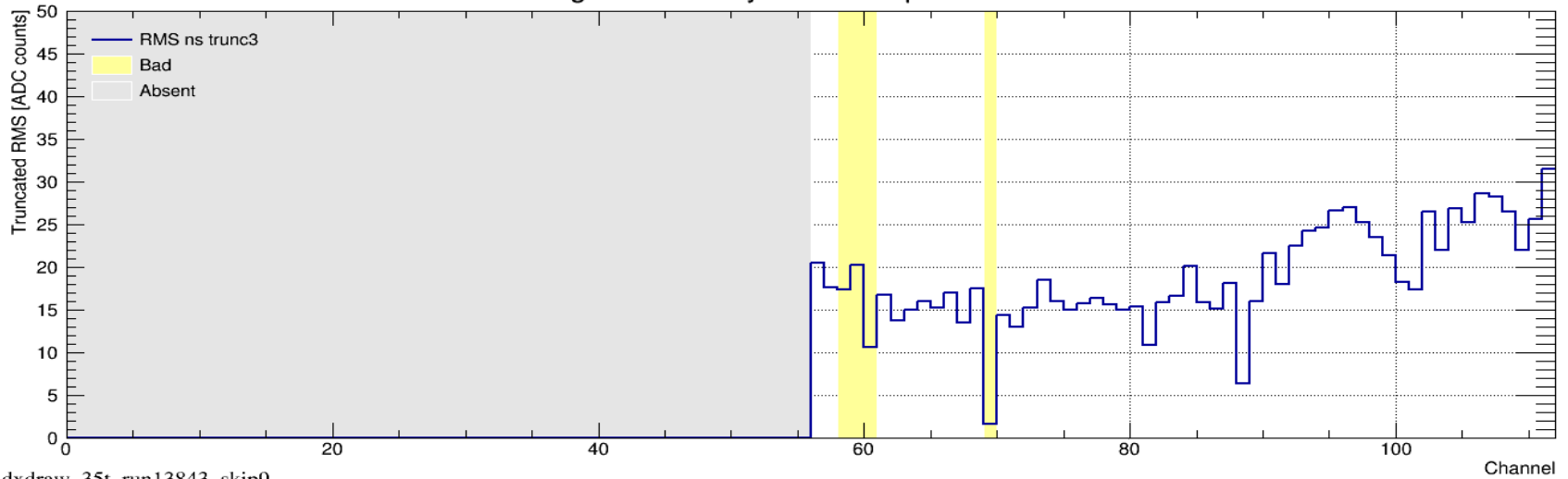
Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

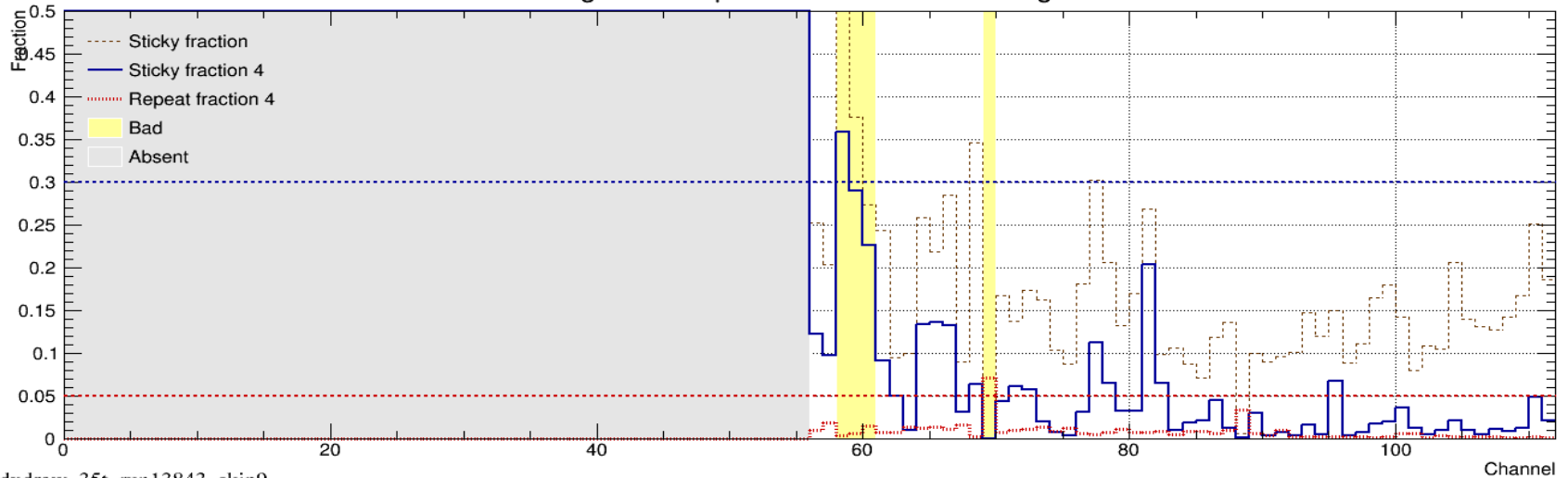
# APA 0z1 run 13843

## Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run13843\_skip9

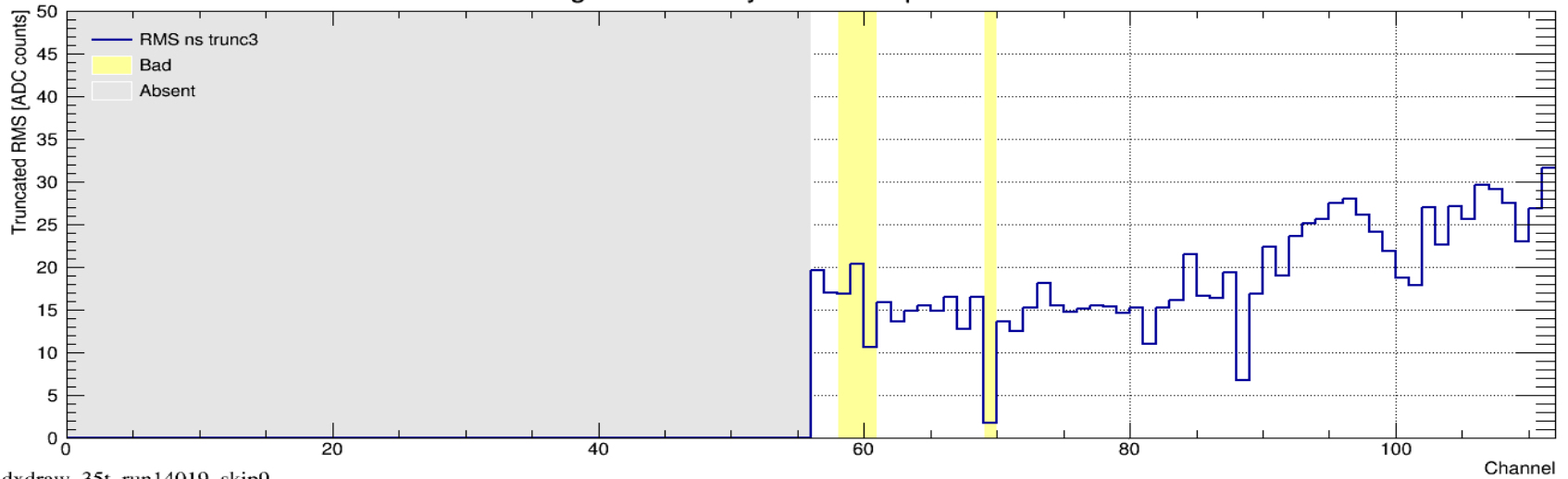
## Raw signals for apa0z1 event 10 stuck range 4



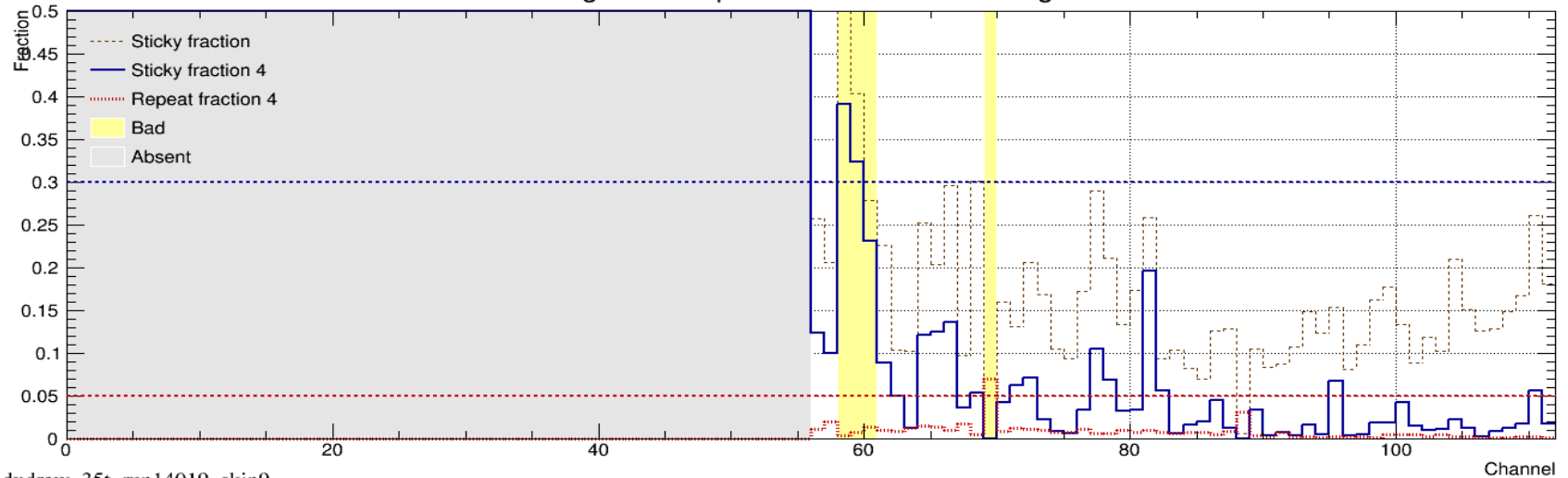
dxdraw\_35t\_run13843\_skip9

# APA 0z1 run 14019

Raw signal not-sticky RMS for apa0z1 event 10

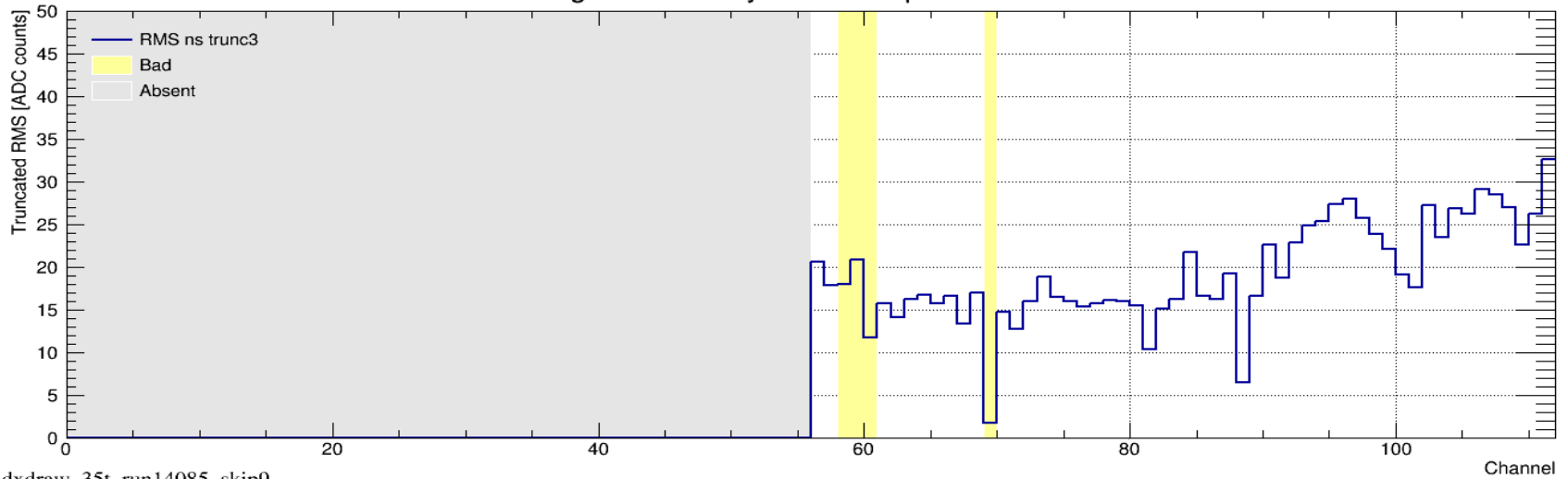


Raw signals for apa0z1 event 10 stuck range 4



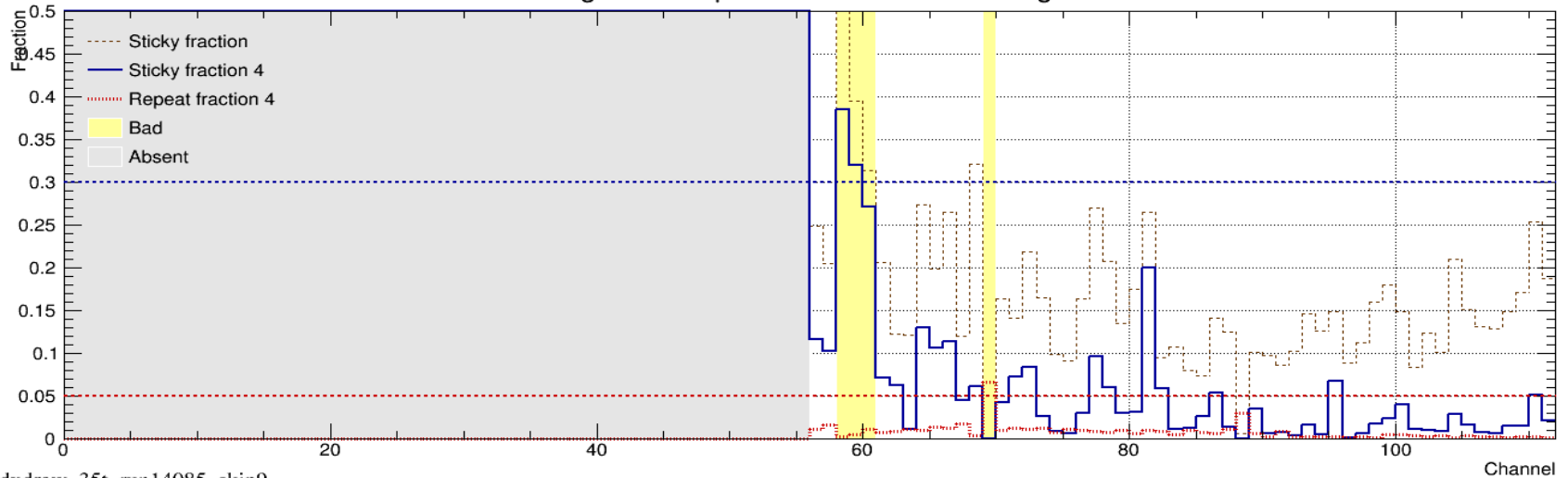
# APA 0z1 run 14085

## Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run14085\_skip9

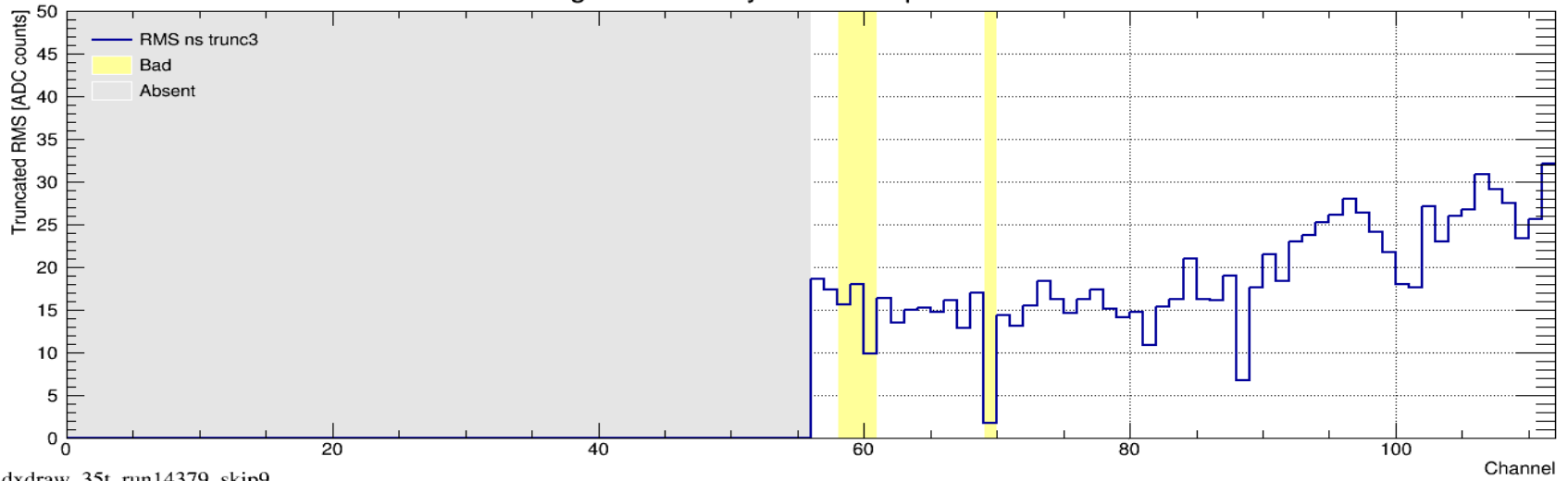
## Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

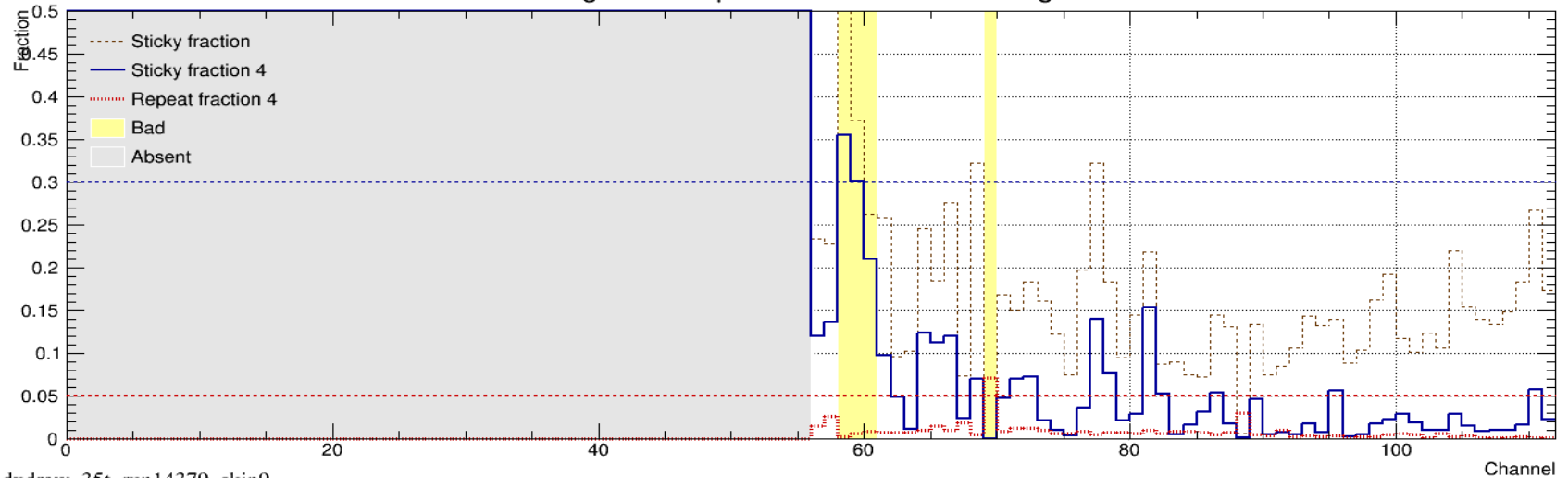
# APA 0z1 run 14379

Raw signal not-sticky RMS for apa0z1 event 10



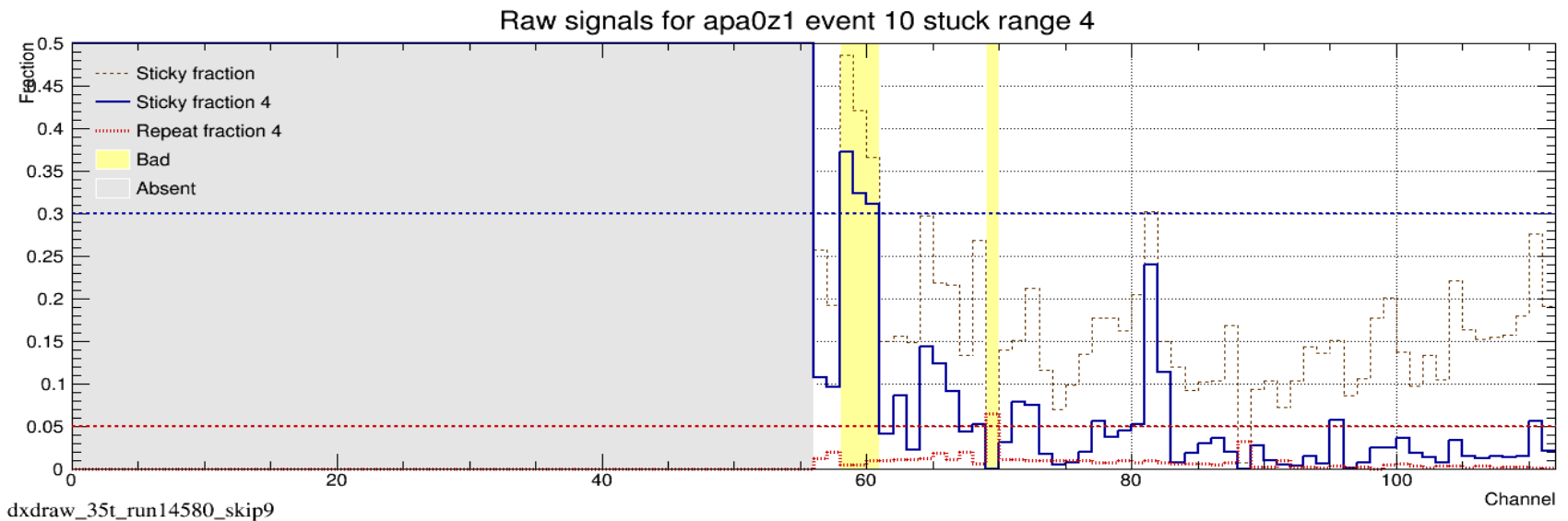
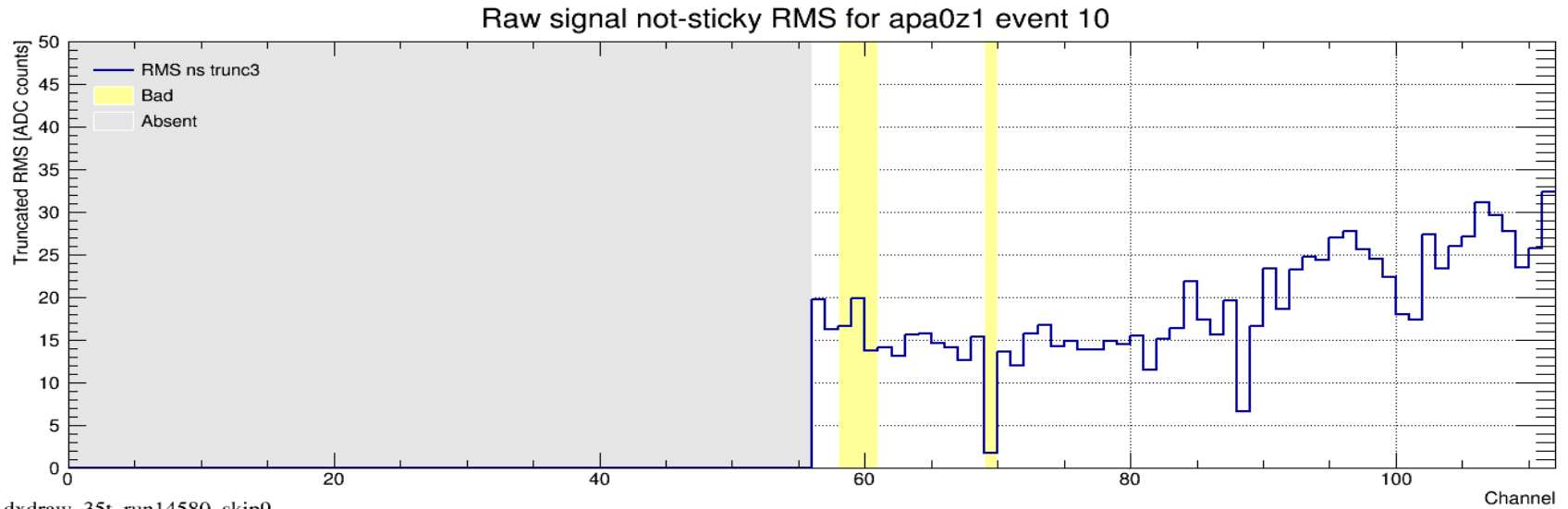
dxdraw\_35t\_run14379\_skip9

Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

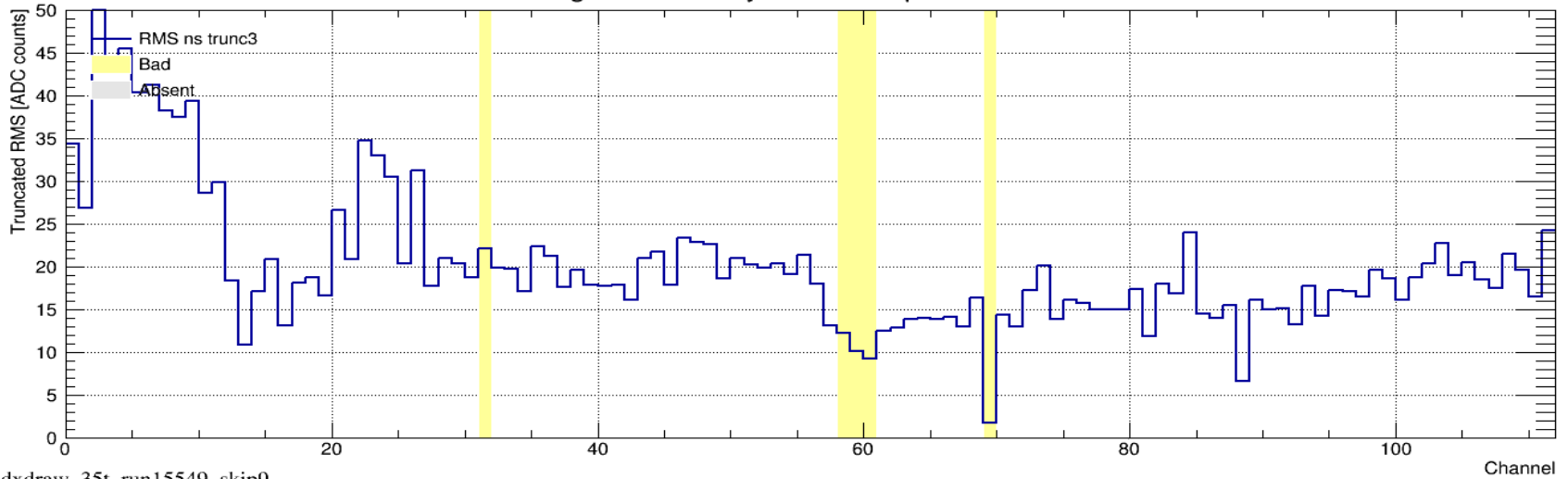
# APA 0z1 run 14580 (last before power failure)





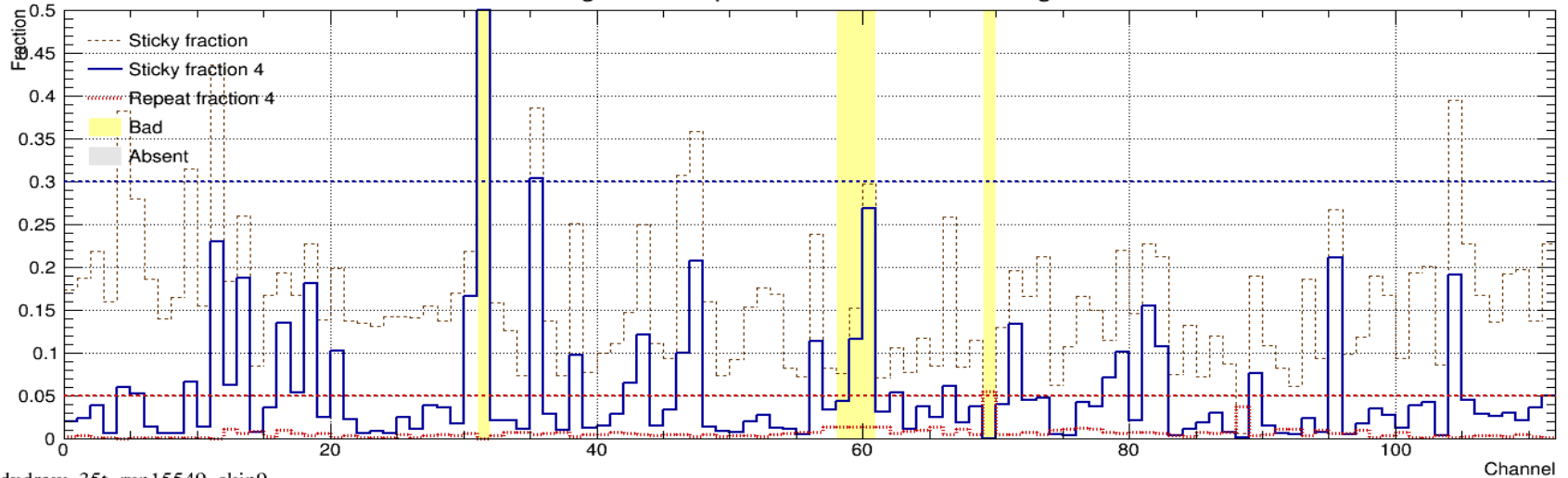
# APA 0z1 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run15549\_skip9

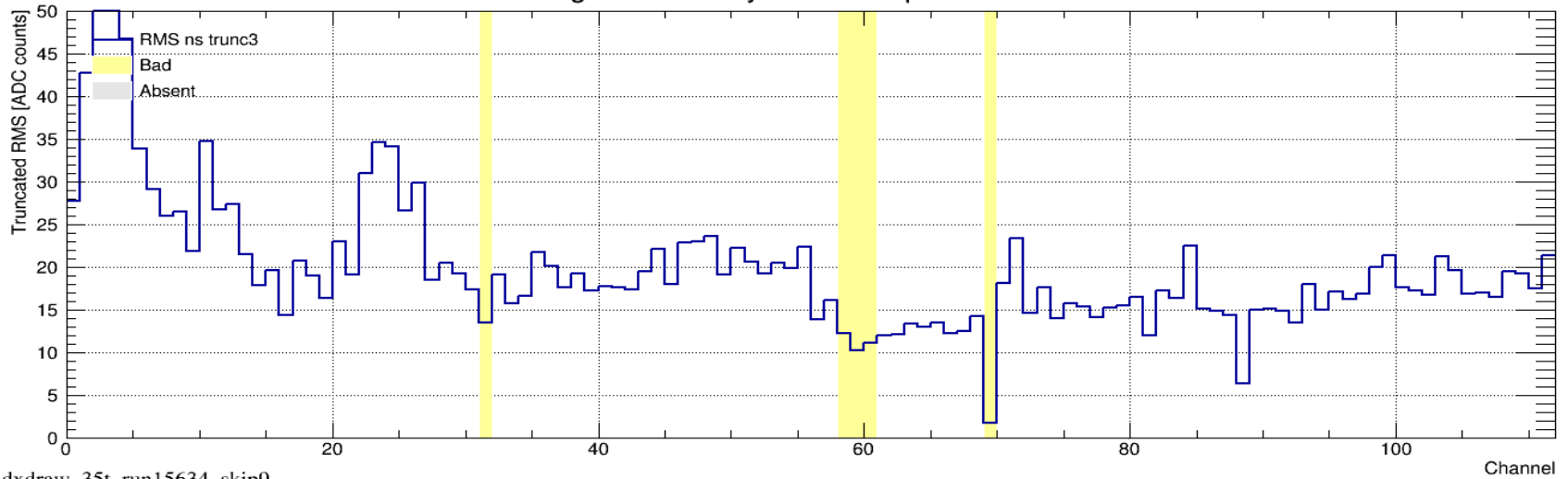
Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

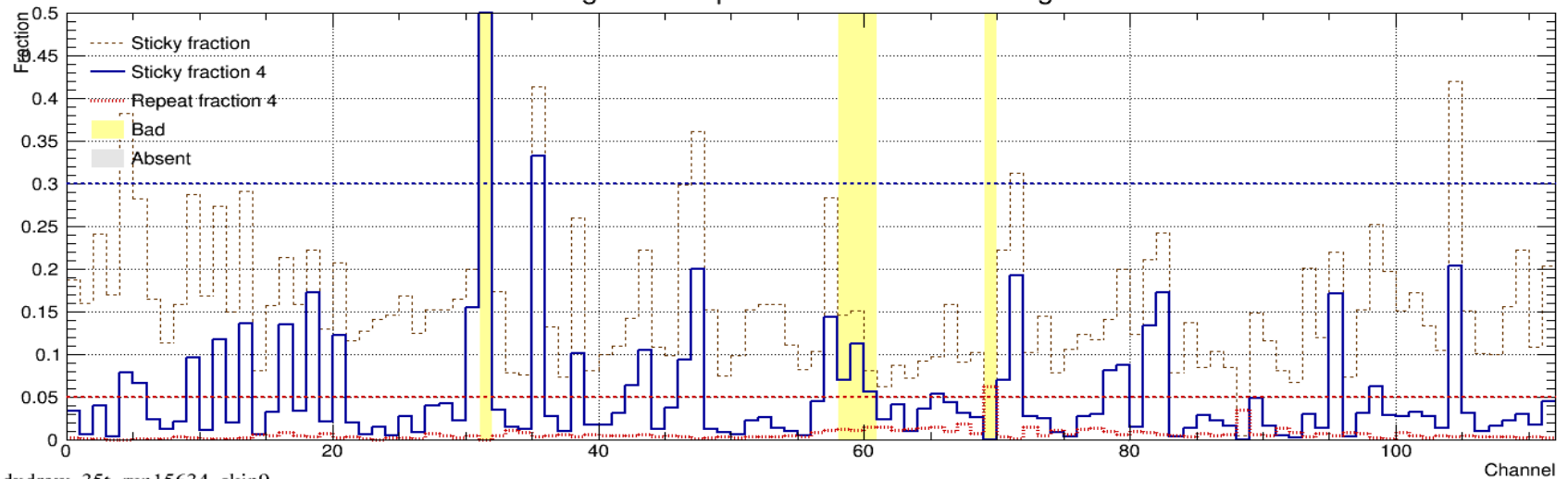
# APA 0z1 run 15634

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run15634\_skip9

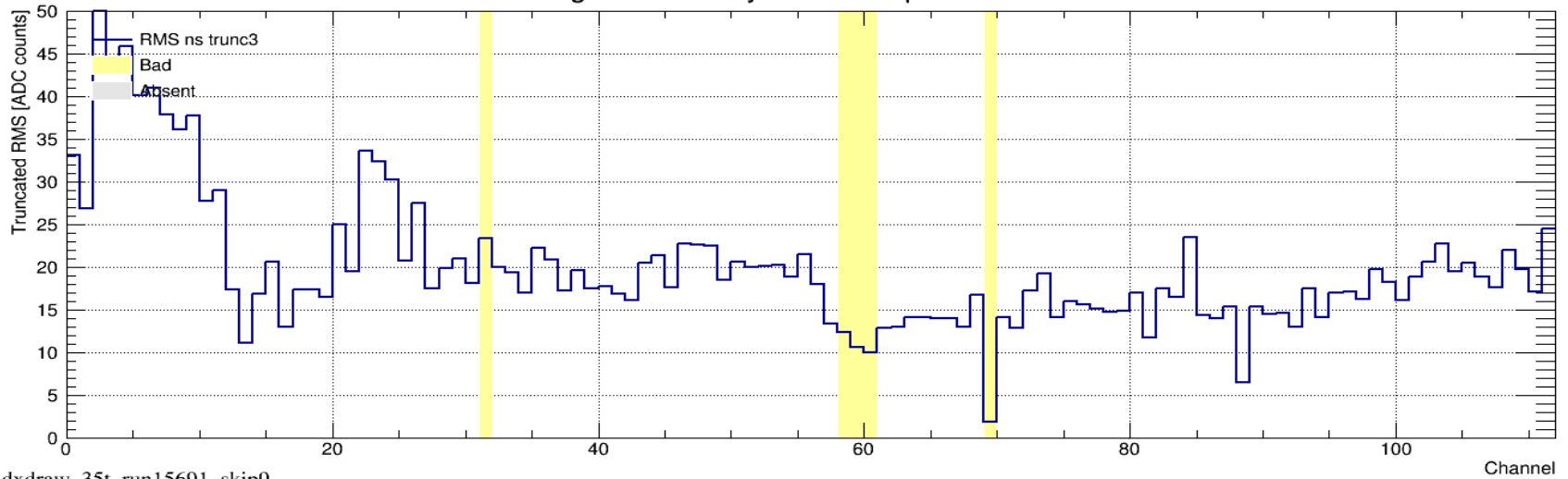
Raw signals for apa0z1 event 10 stuck range 4



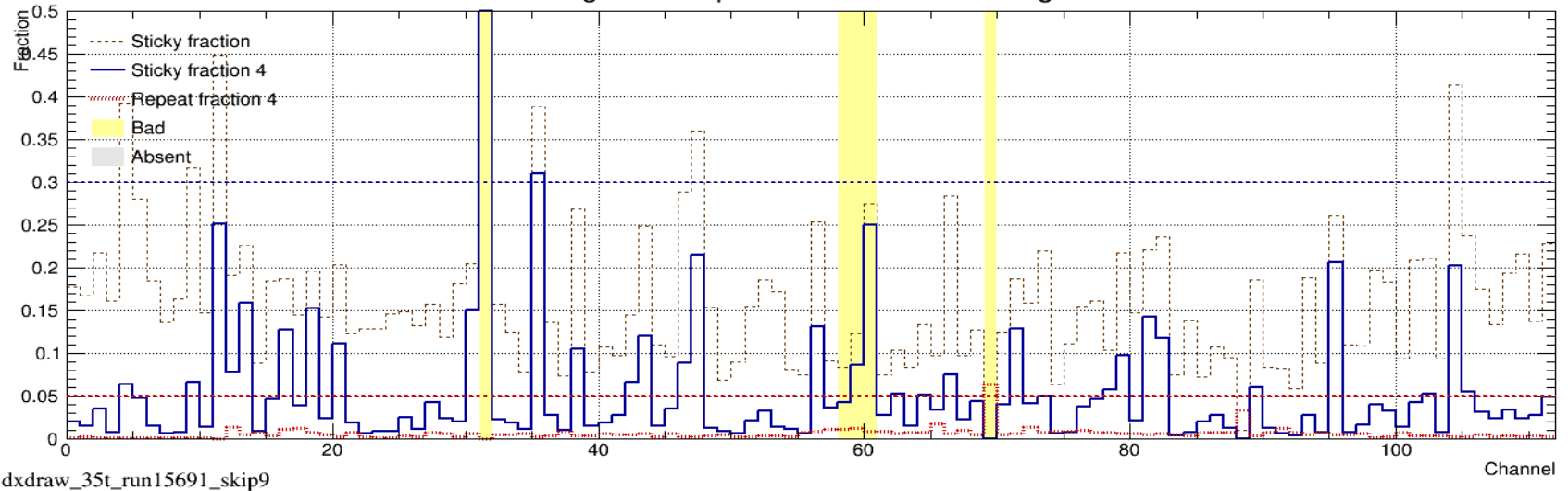
dxdraw\_35t\_run15634\_skip9

# APA 0z1 run 15691

Raw signal not-sticky RMS for apa0z1 event 10

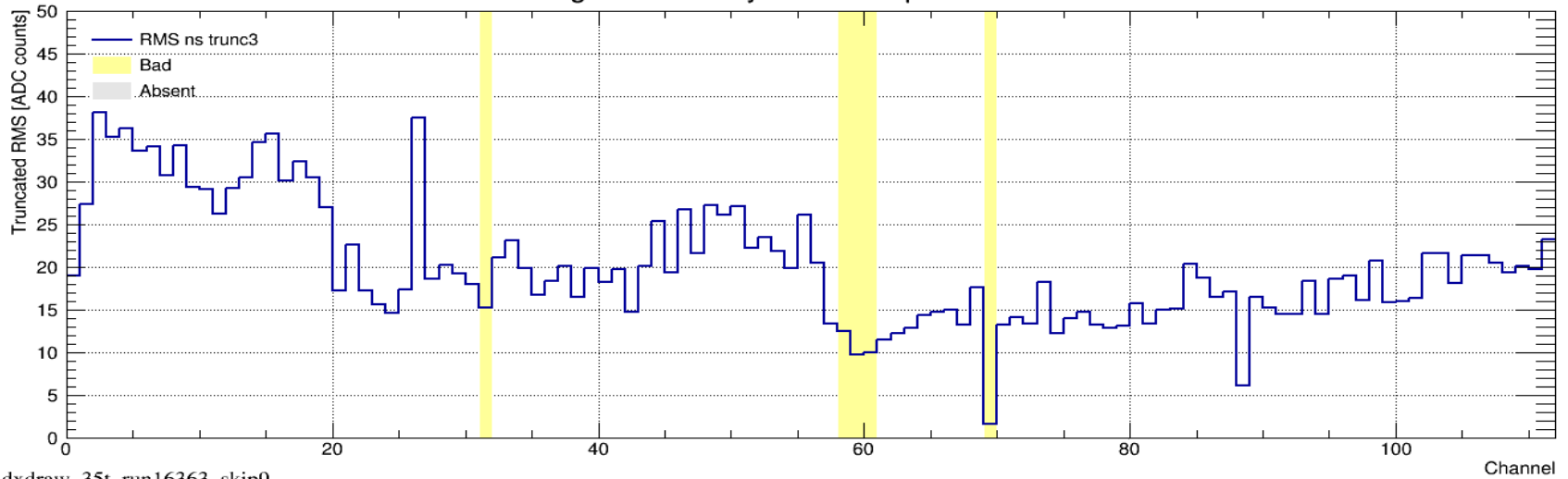


Raw signals for apa0z1 event 10 stuck range 4



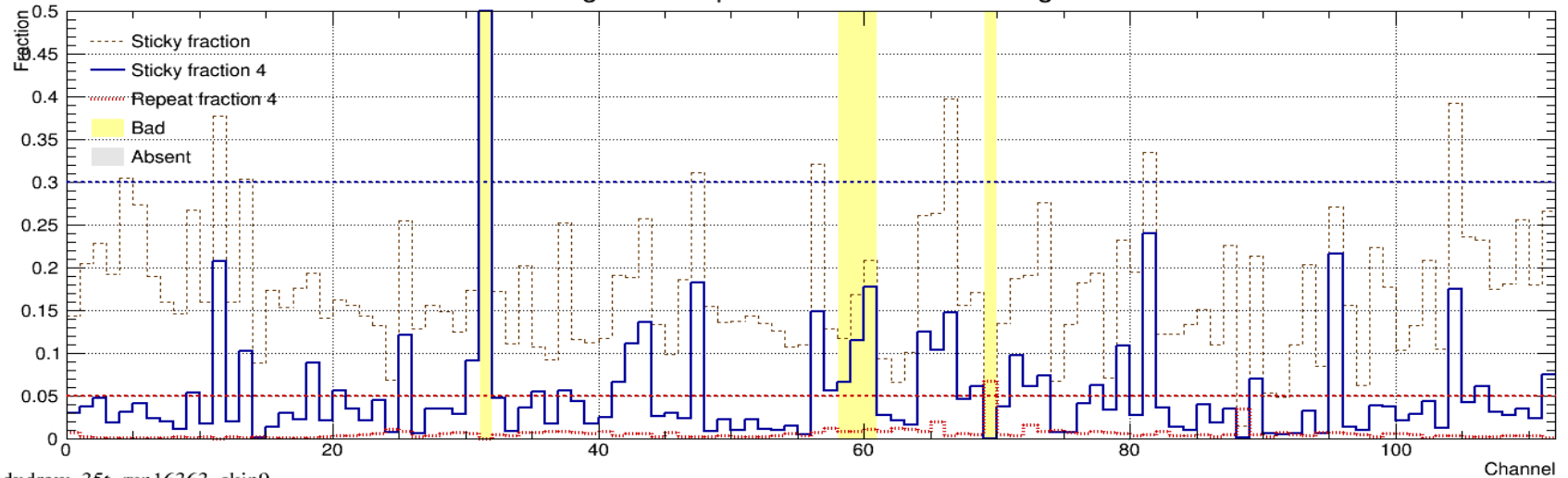
# APA 0z1 run 16363

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run16363\_skip9

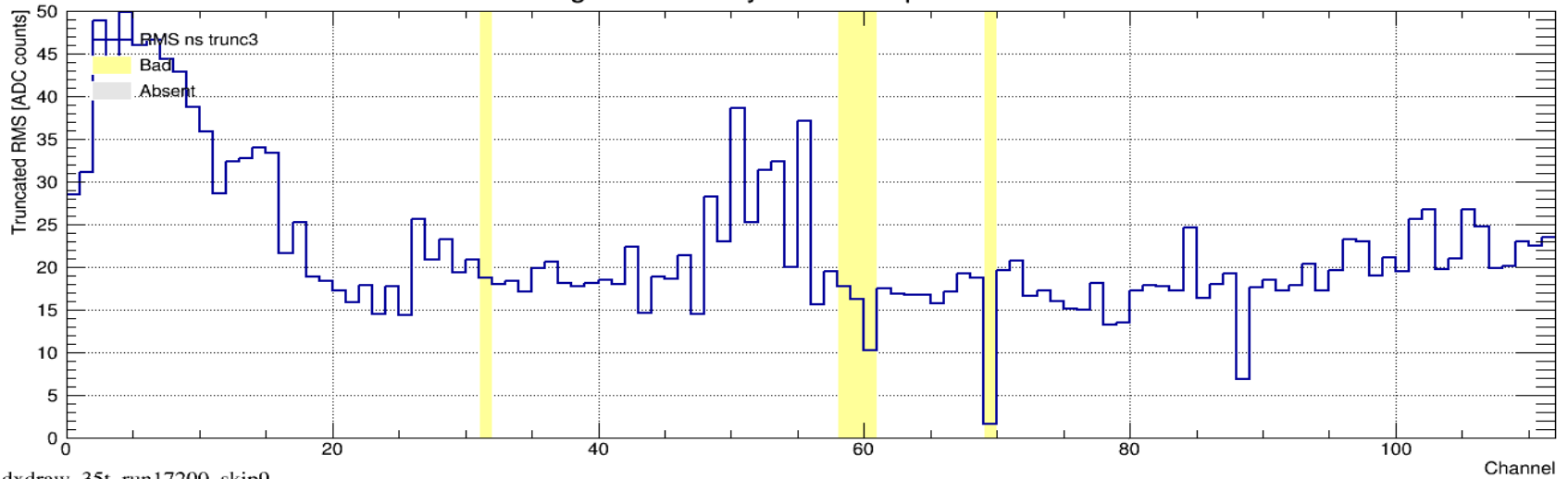
Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

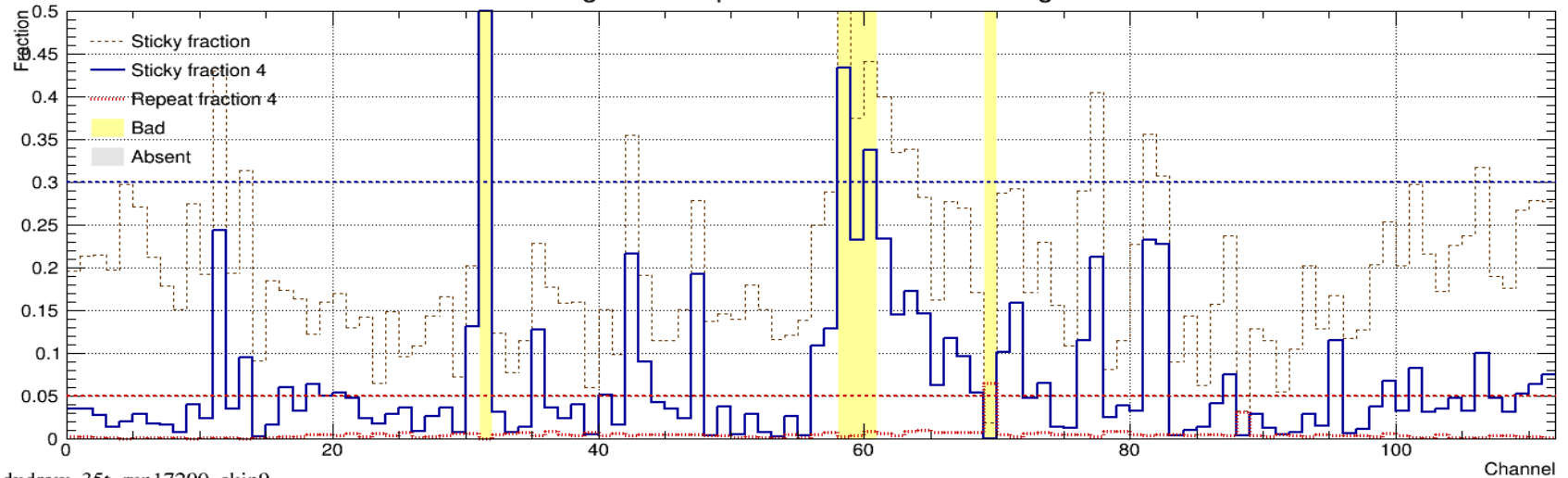
# APA 0z1 run 17200

## Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run17200\_skip9

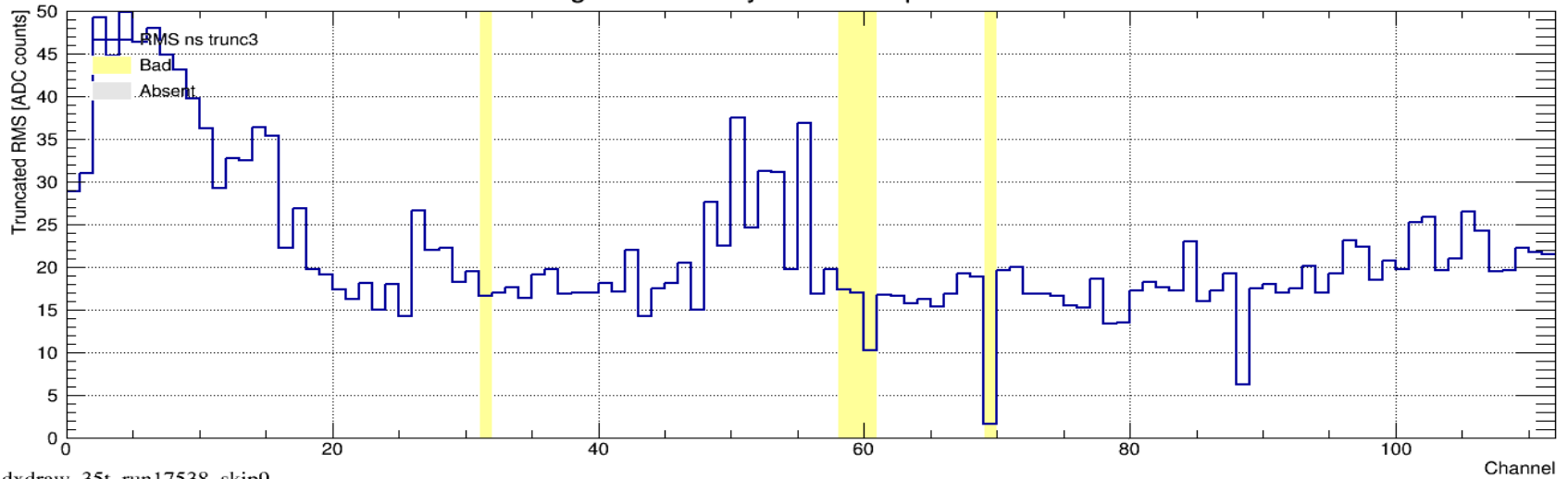
## Raw signals for apa0z1 event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

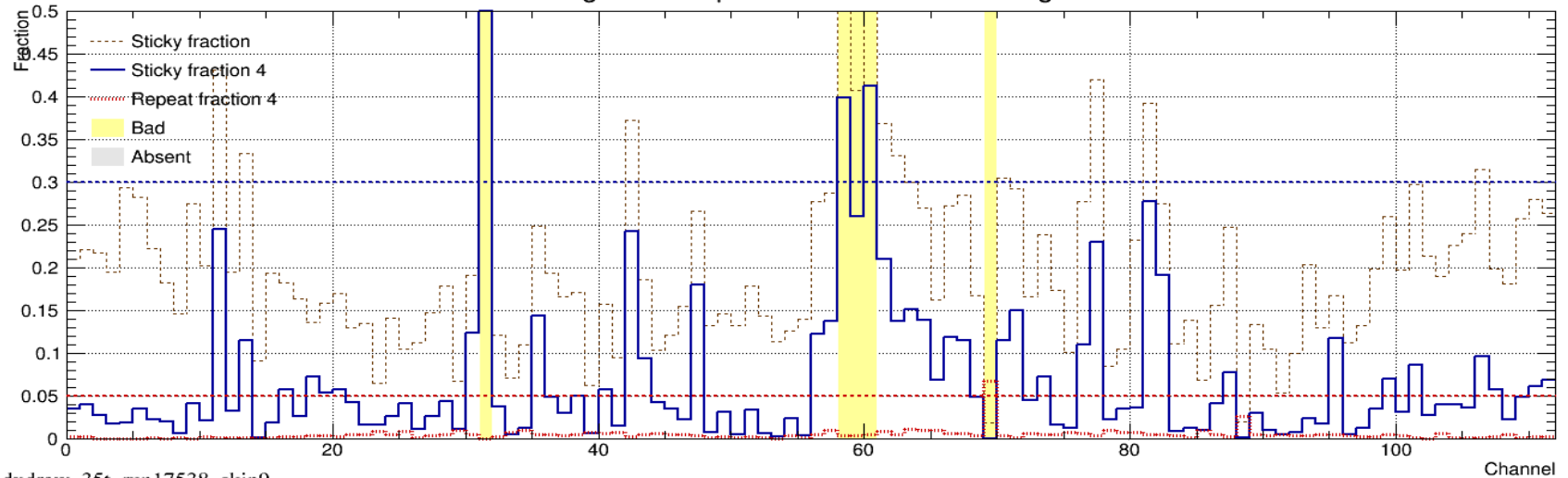
# APA Oz1 run 17538 (last)

Raw signal not-sticky RMS for apa0z1 event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa0z1 event 10 stuck range 4

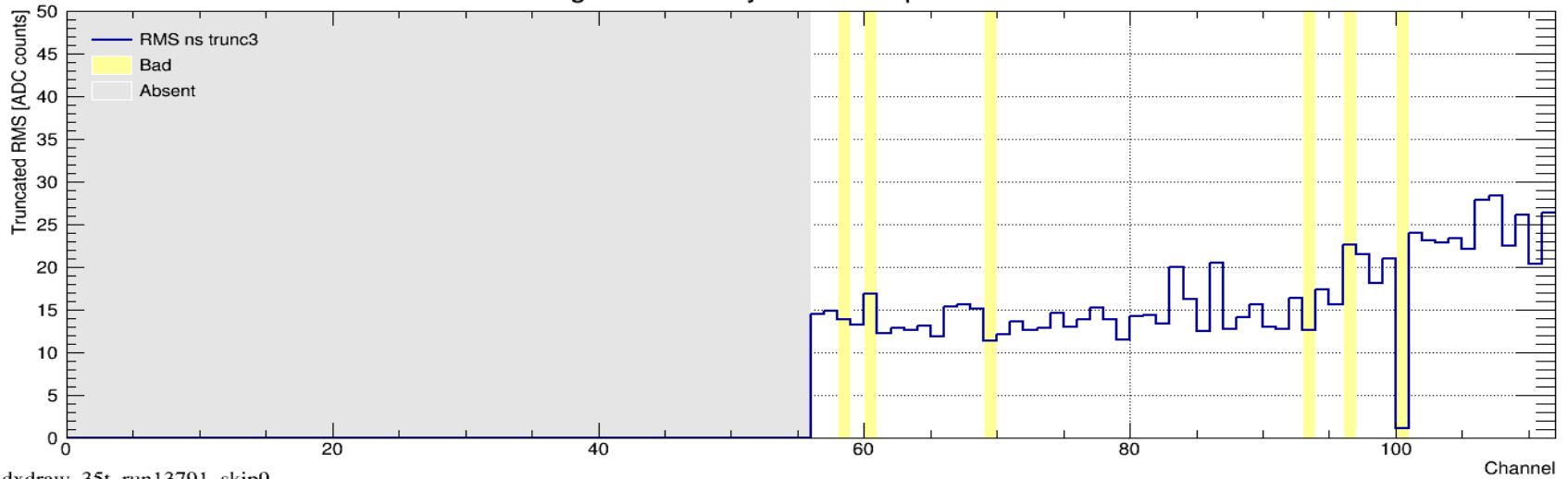


dxdraw\_35t\_run17538\_skip9

# APA 0z2

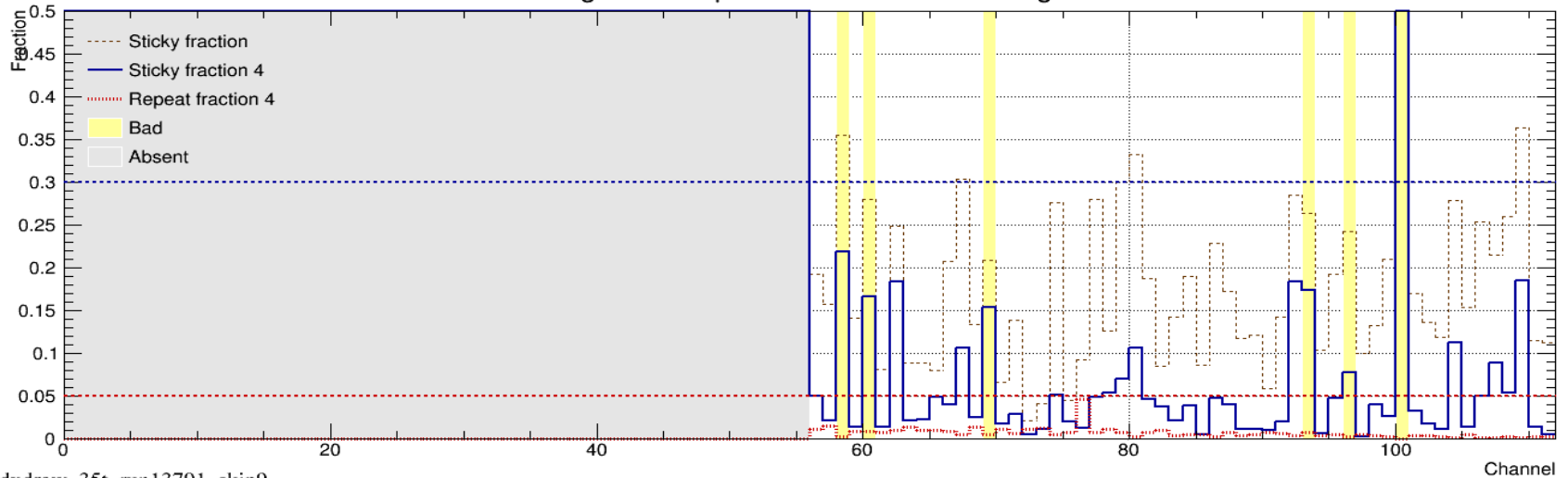
# APA 0z2 run 13791 (first)

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run13791\_skip9

Raw signals for apa0z2 event 10 stuck range 4

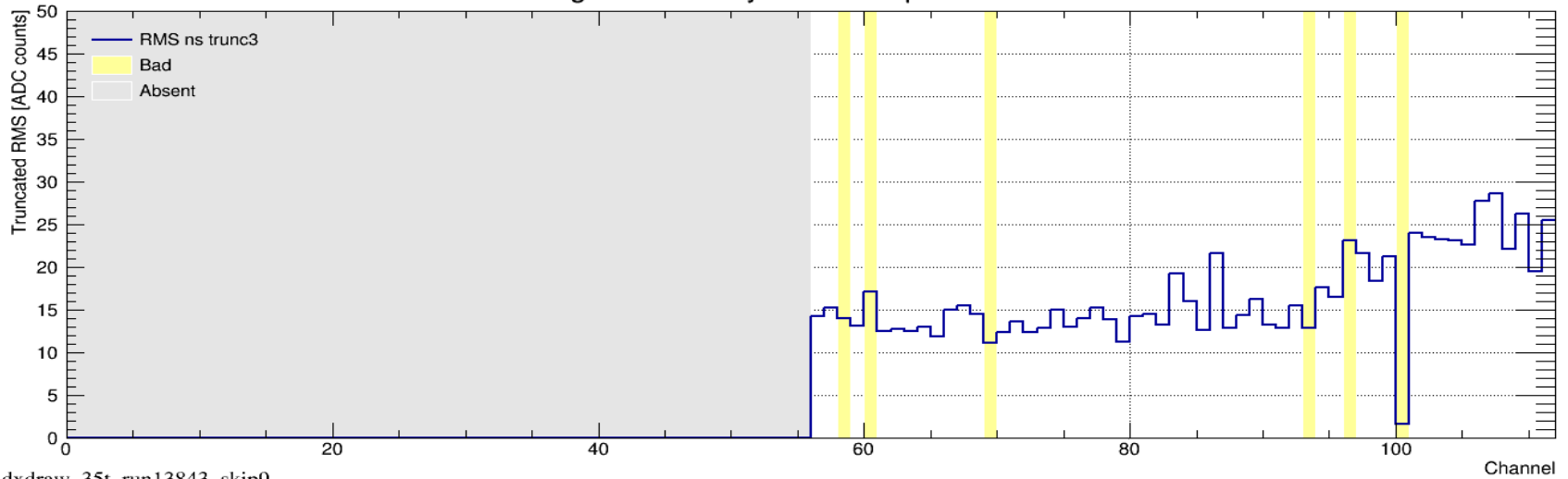


dxdraw\_35t\_run13791\_skip9



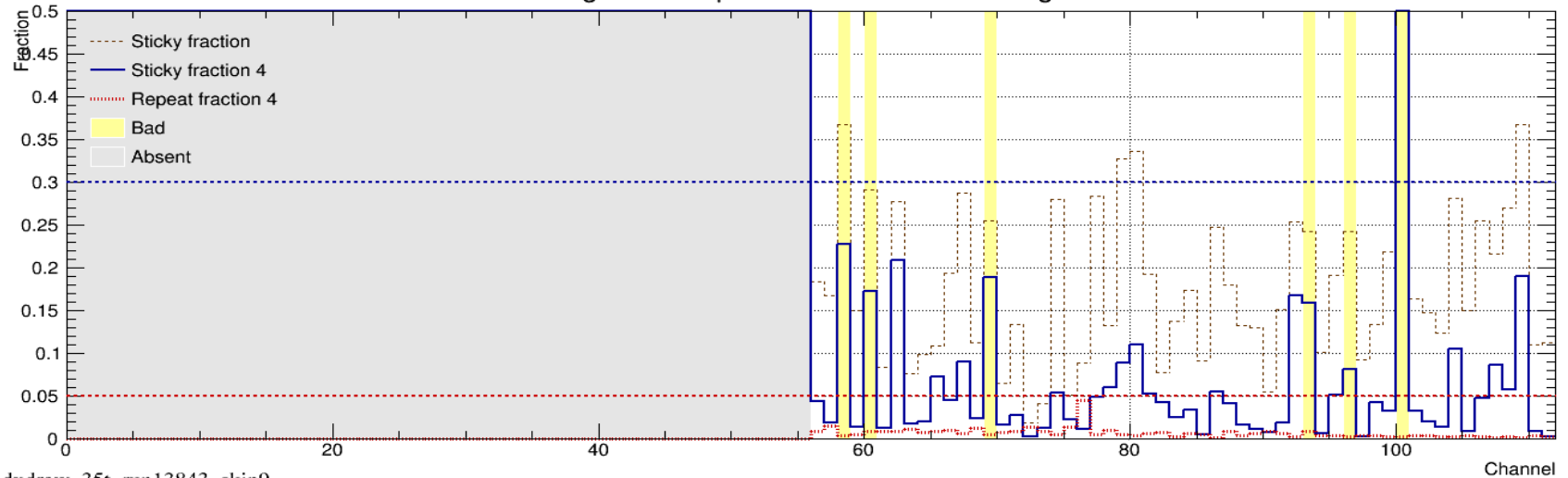
# APA 0z2 run 13843

## Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run13843\_skip9

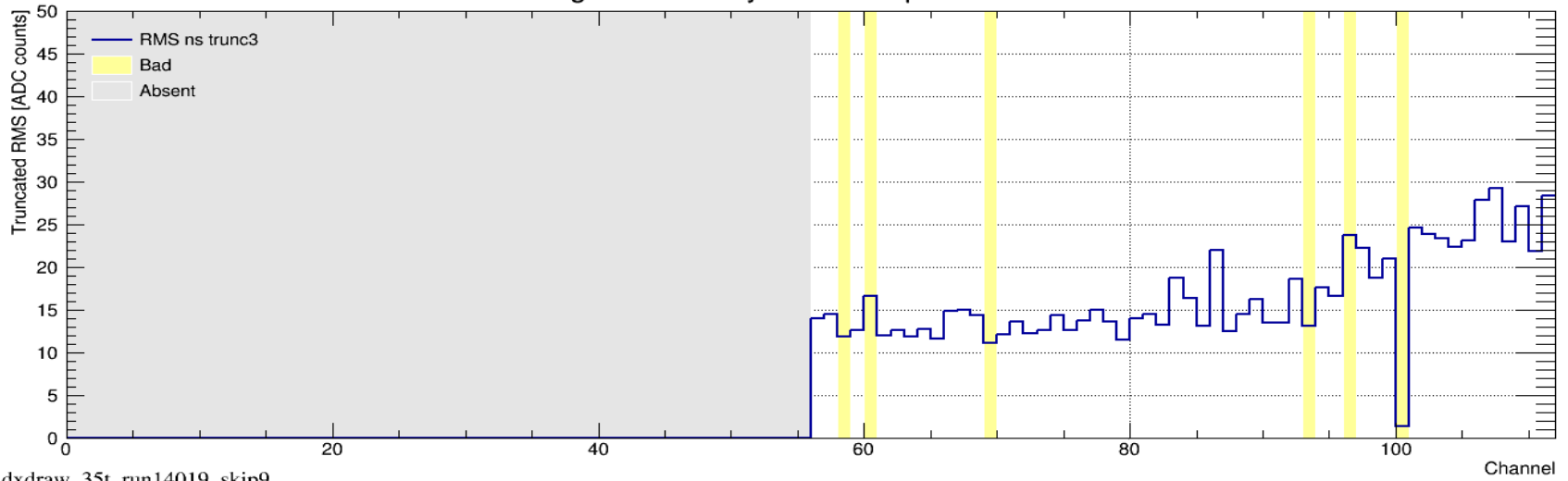
## Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

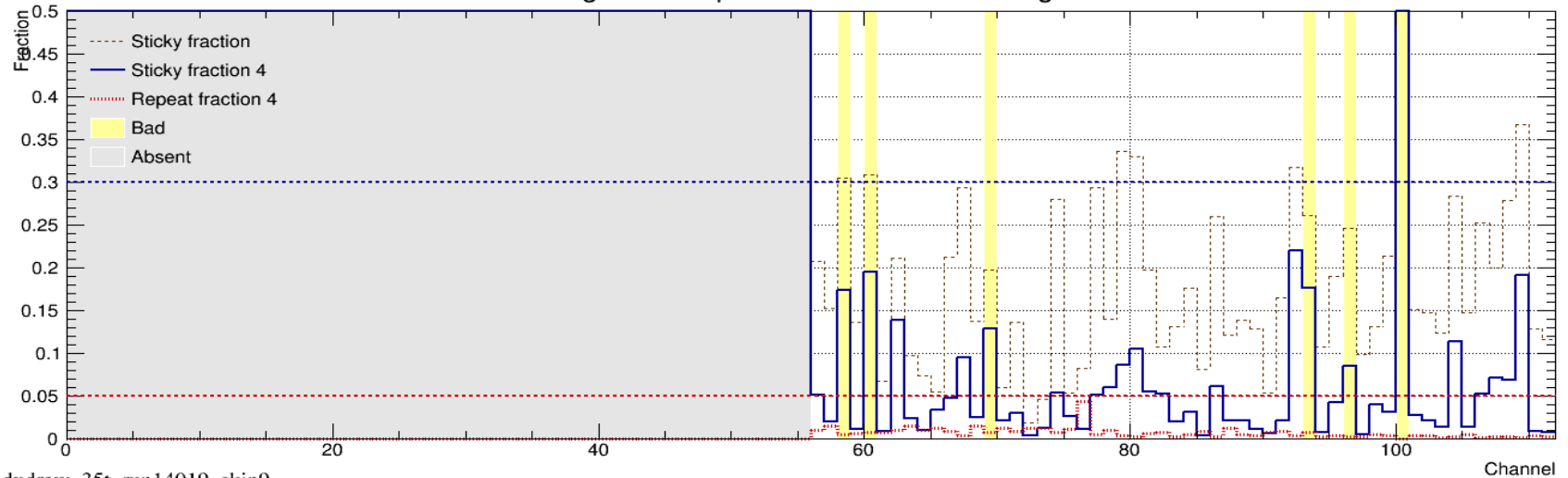
# APA 0z2 run 14019

## Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run14019\_skip9

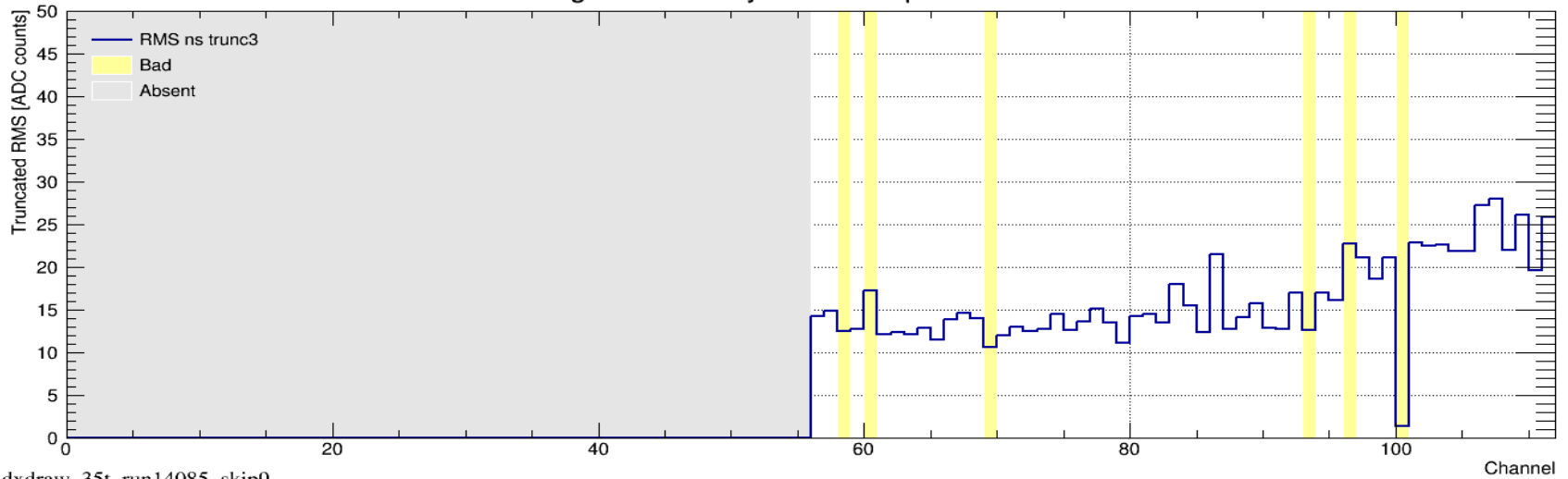
## Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

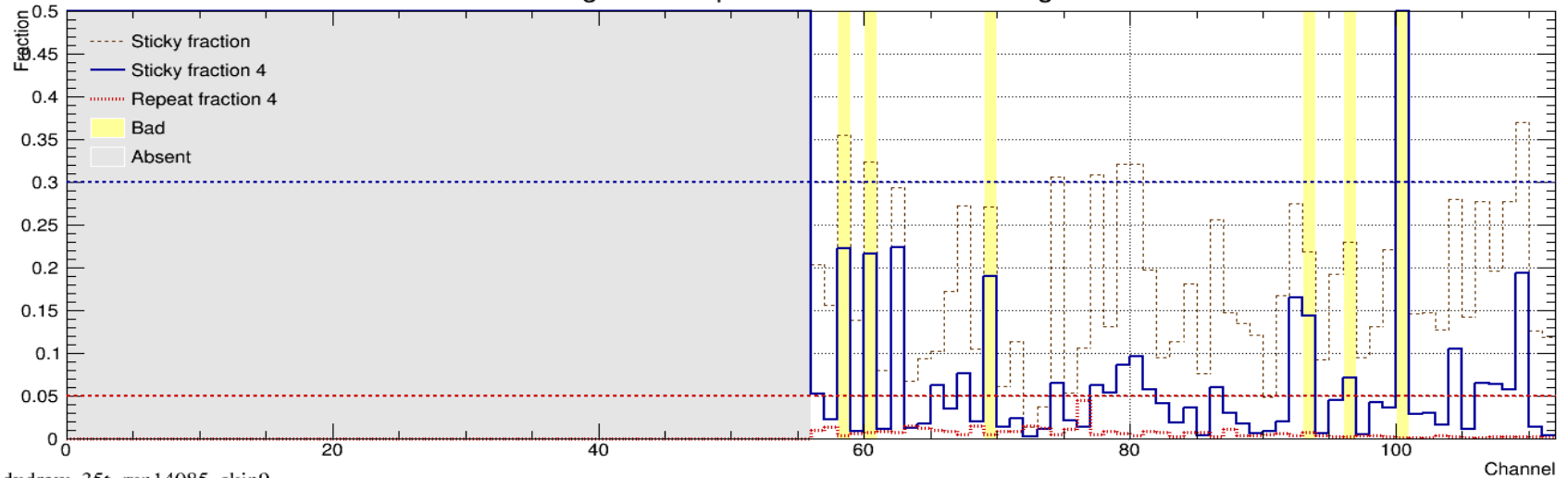
# APA 0z2 run 14085

## Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run14085\_skip9

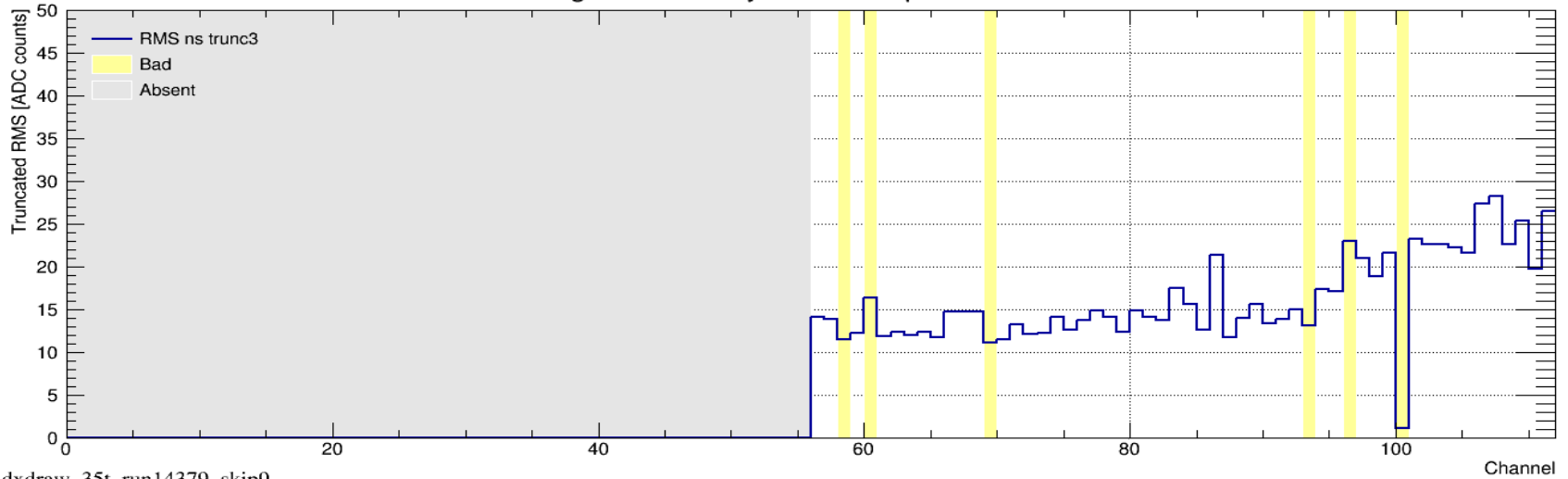
## Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

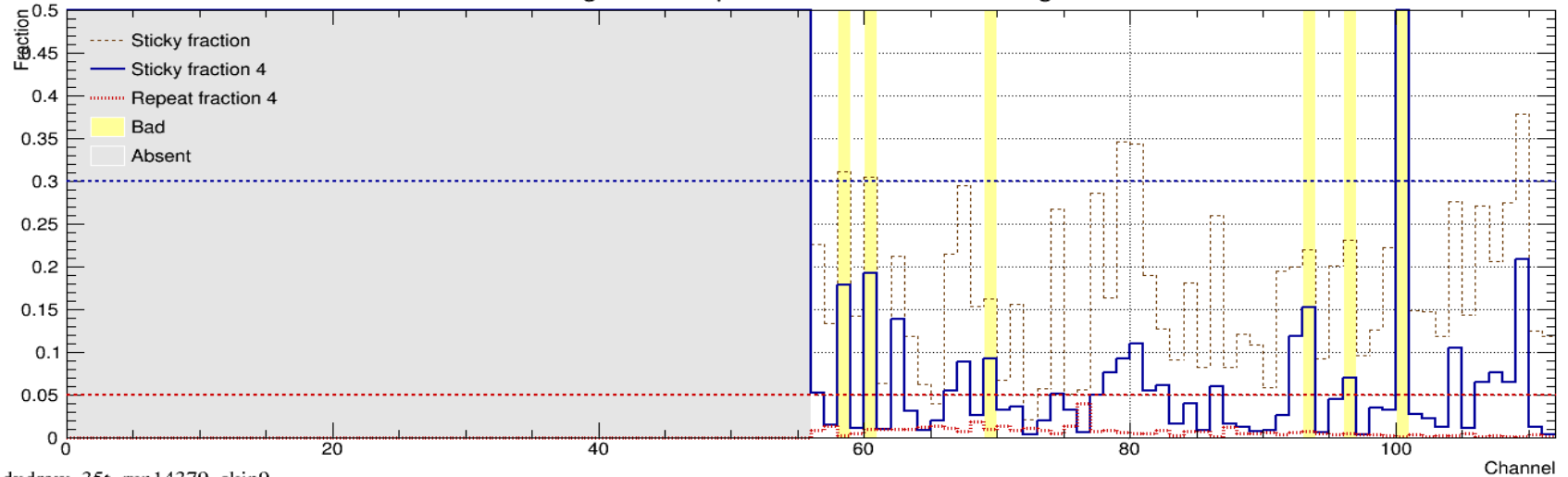
# APA 0z2 run 14379

## Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run14379\_skip9

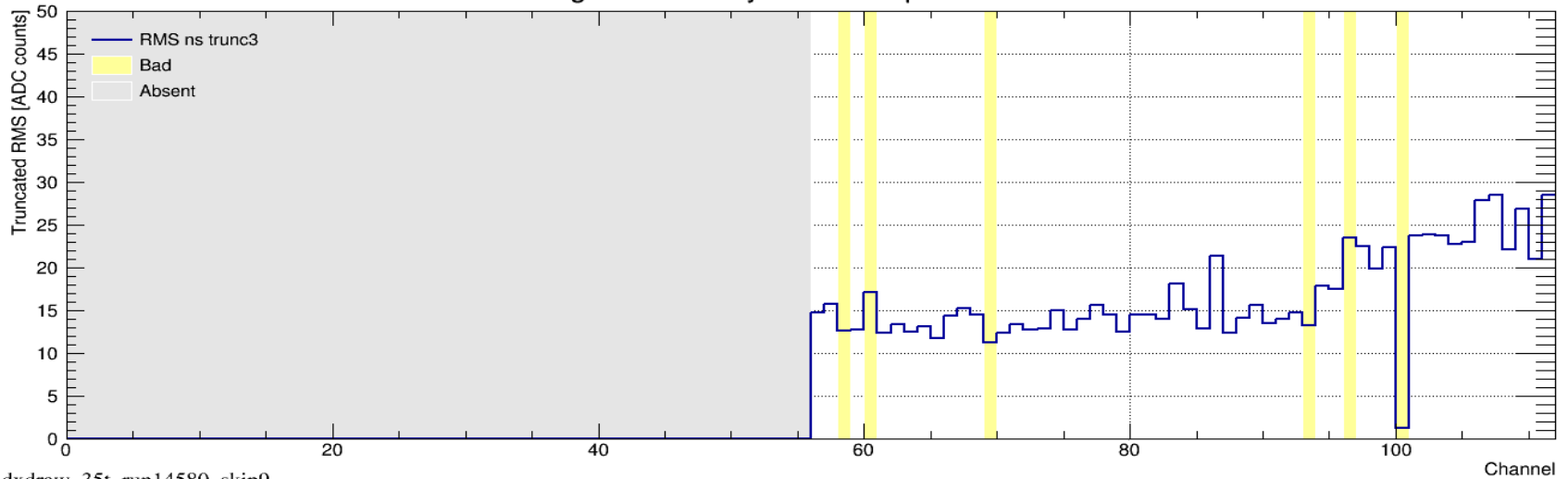
## Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

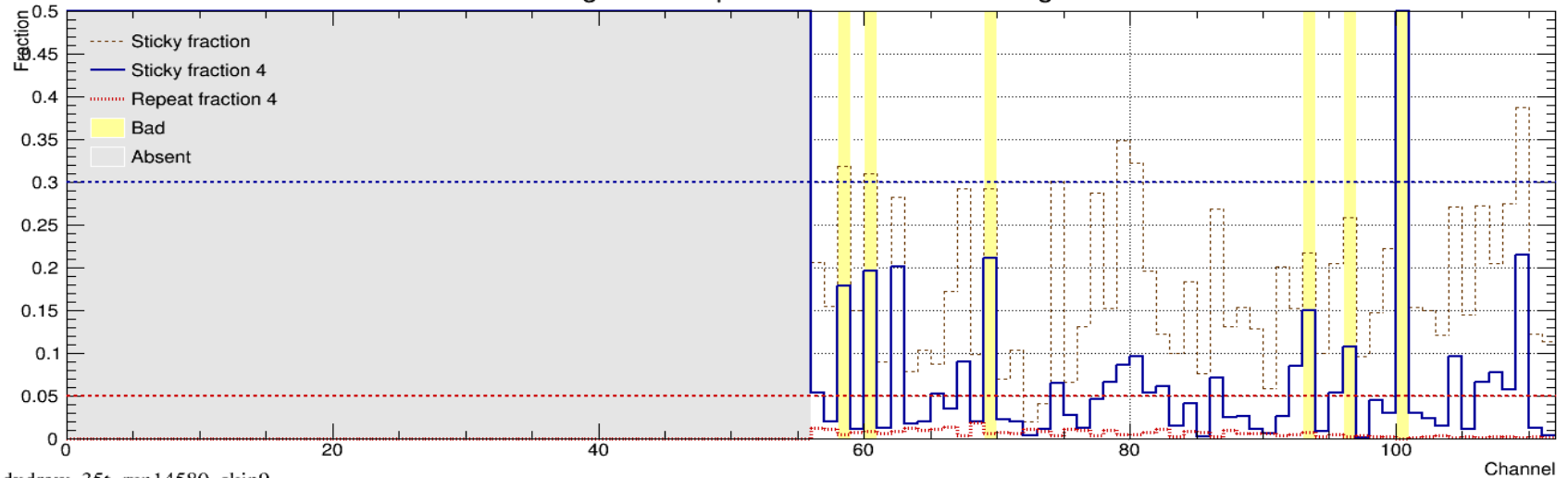
# APA 0z2 run 14580 (last before power failure)

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run14580\_skip9

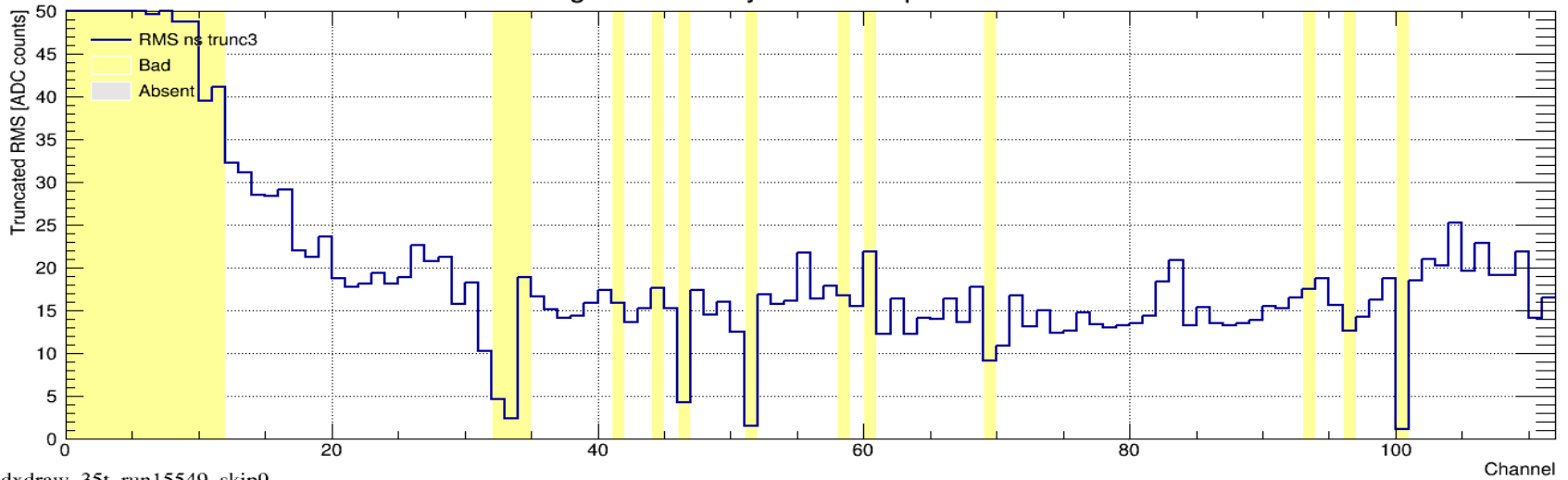
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

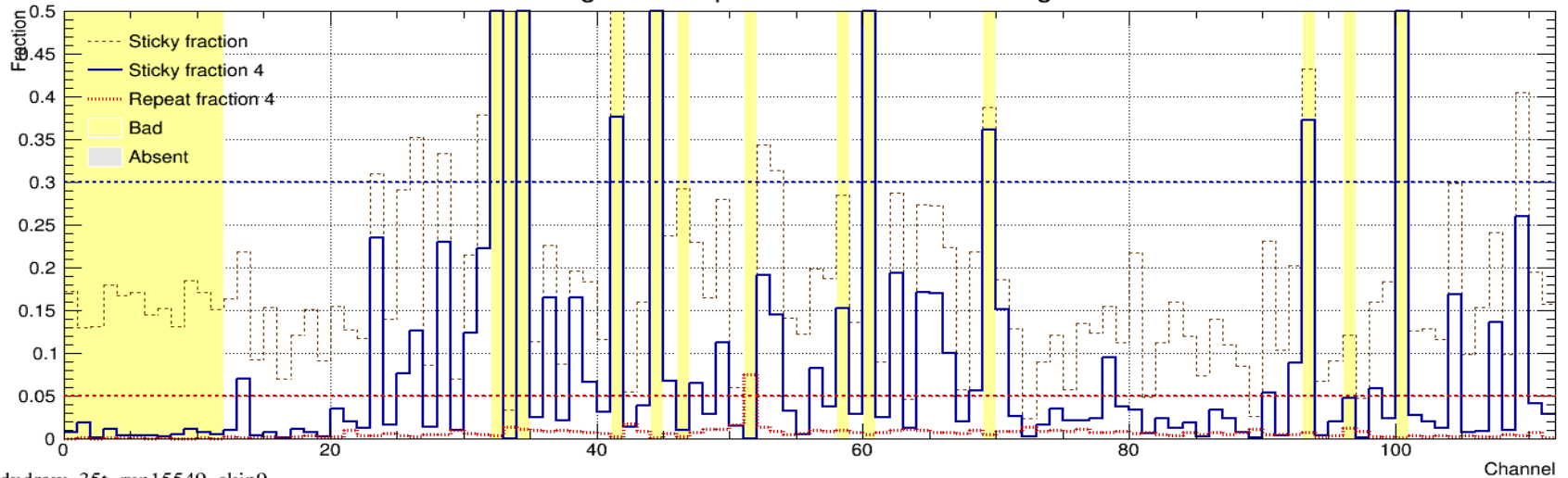
# APA 0z2 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run15549\_skip9

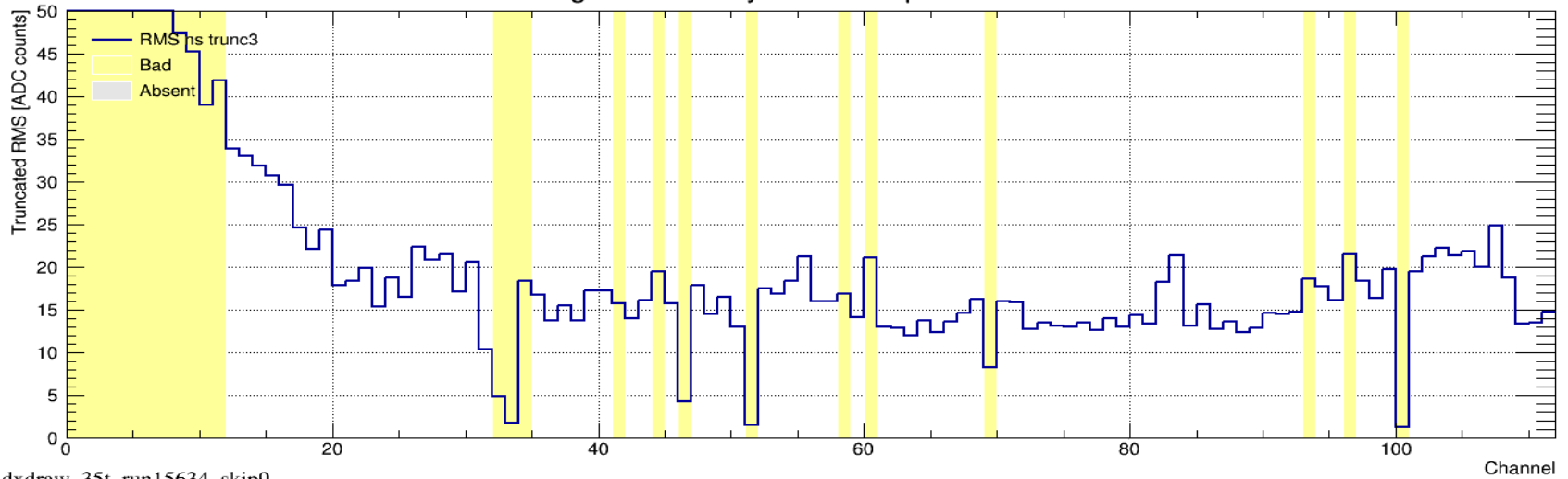
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

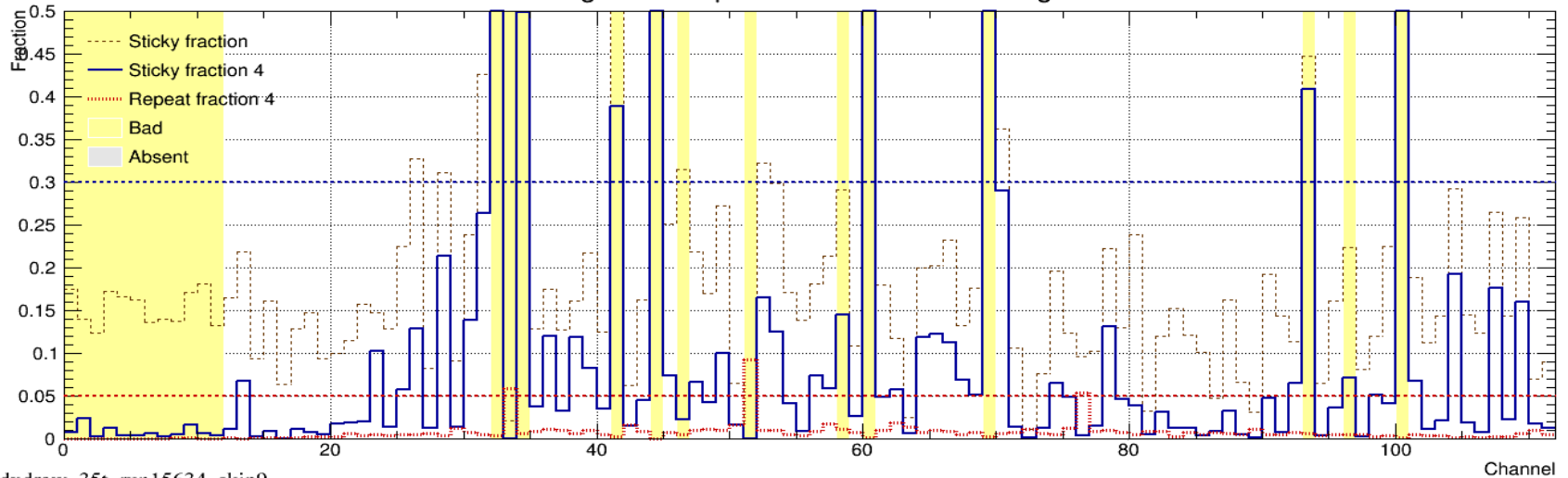
# APA 0z2 run 15634

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run15634\_skip9

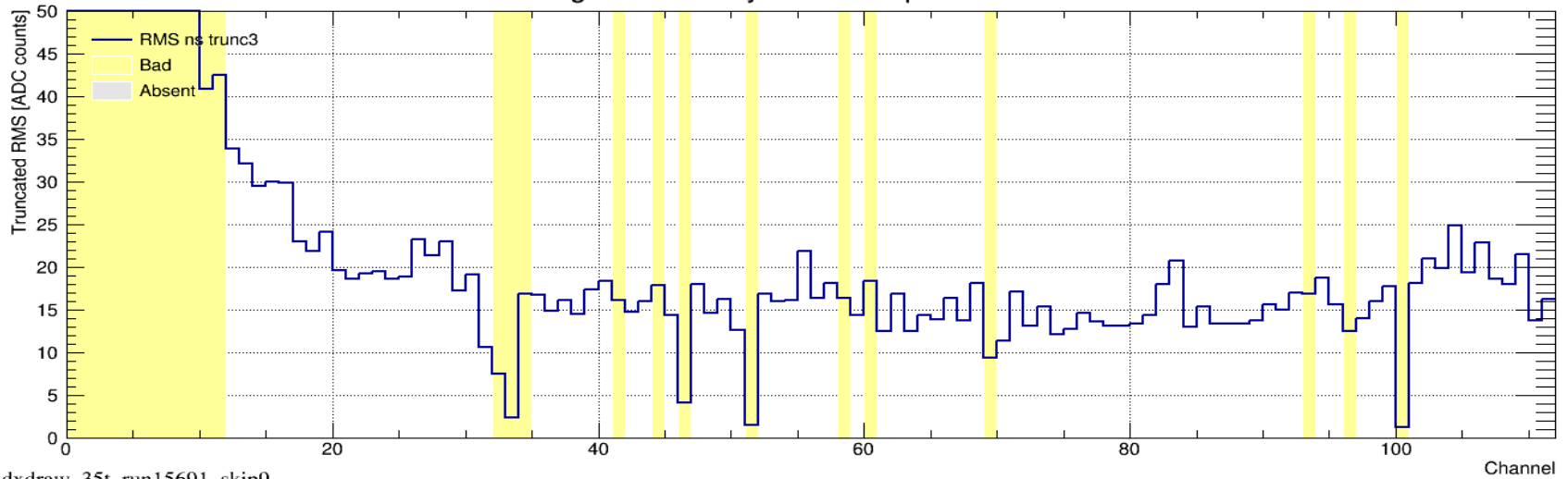
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

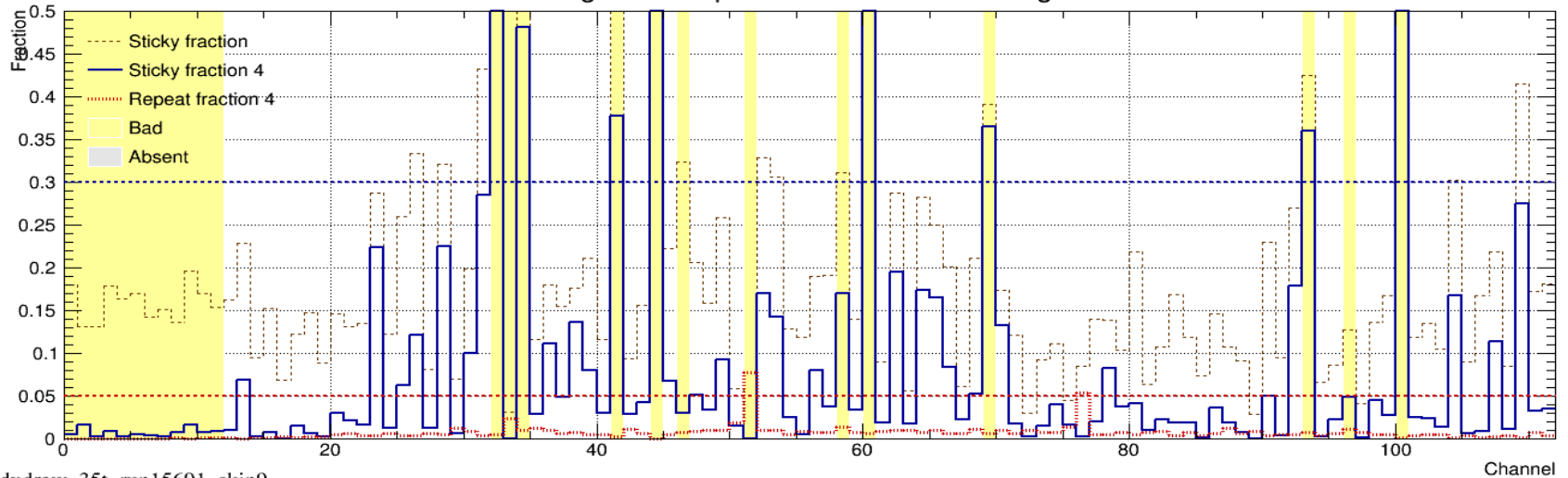
# APA 0z2 run 15691

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run15691\_skip9

Raw signals for apa0z2 event 10 stuck range 4

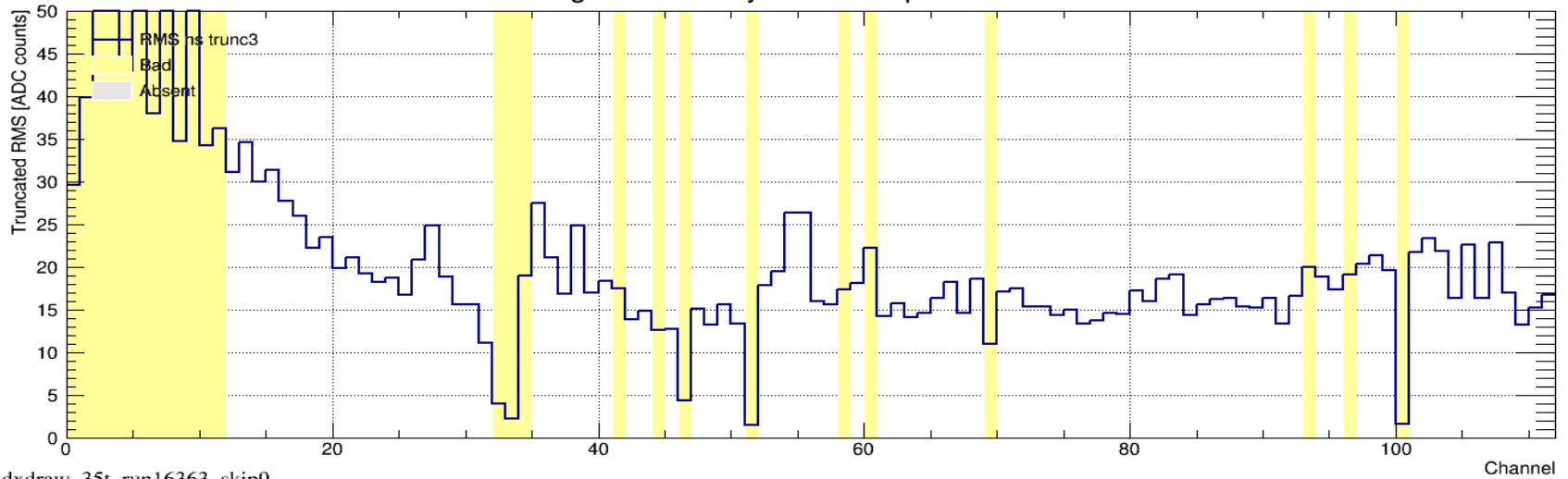


dxdraw\_35t\_run15691\_skip9



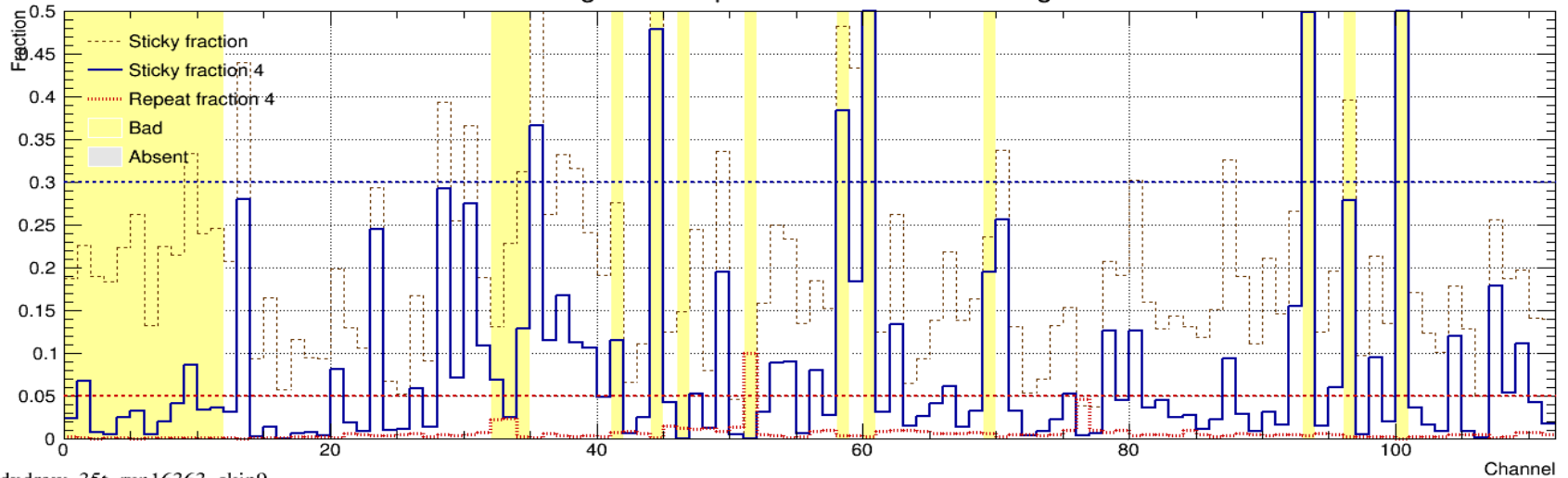
# APA 0z2 run 16363

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run16363\_skip9

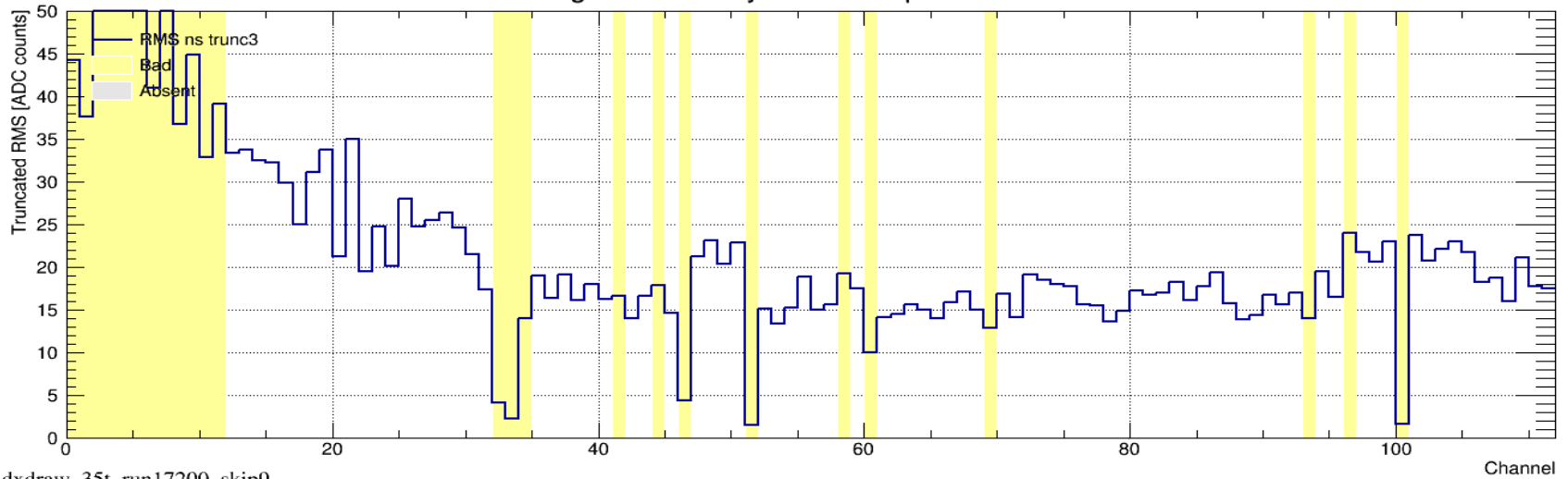
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

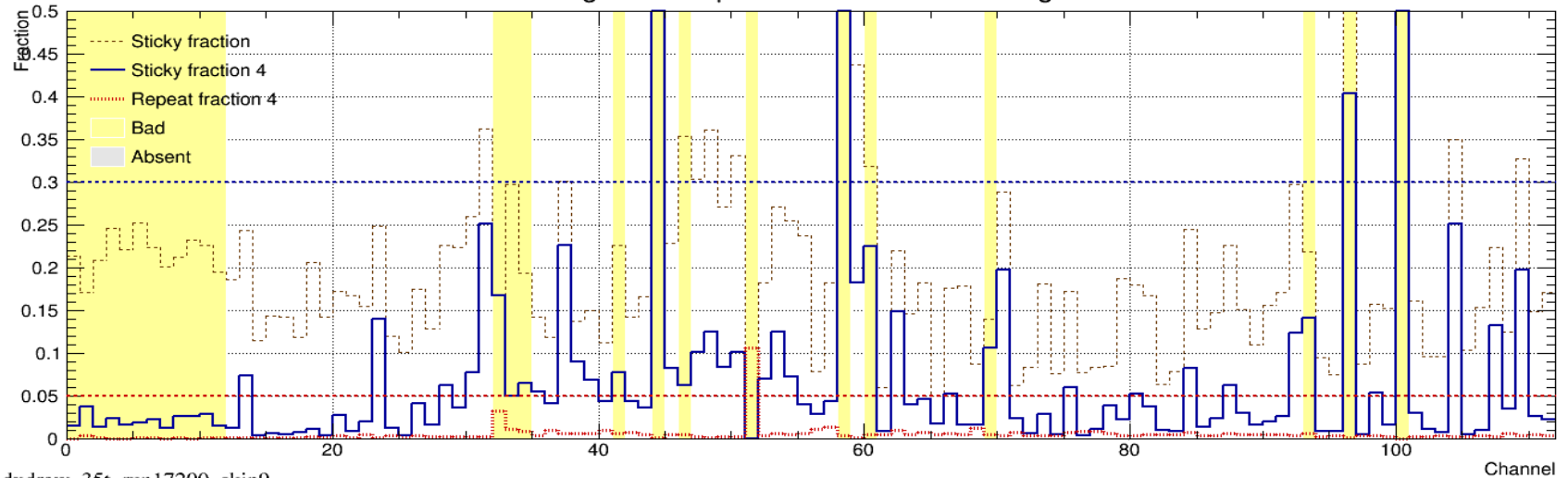
# APA 0z2 run 17200

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run17200\_skip9

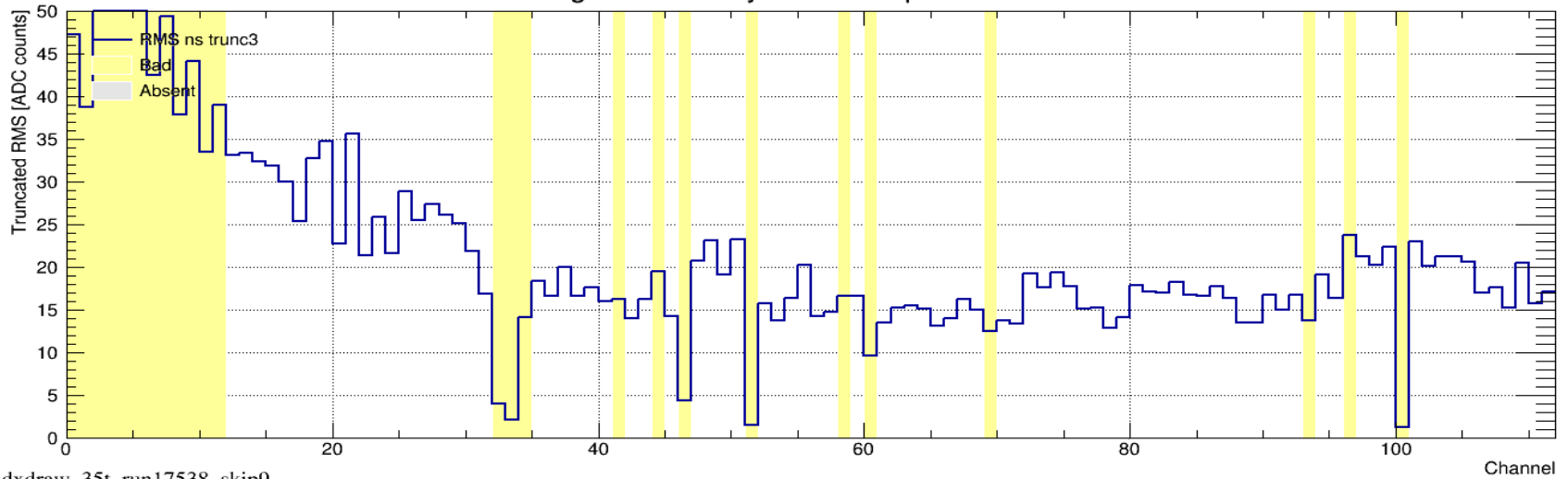
Raw signals for apa0z2 event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

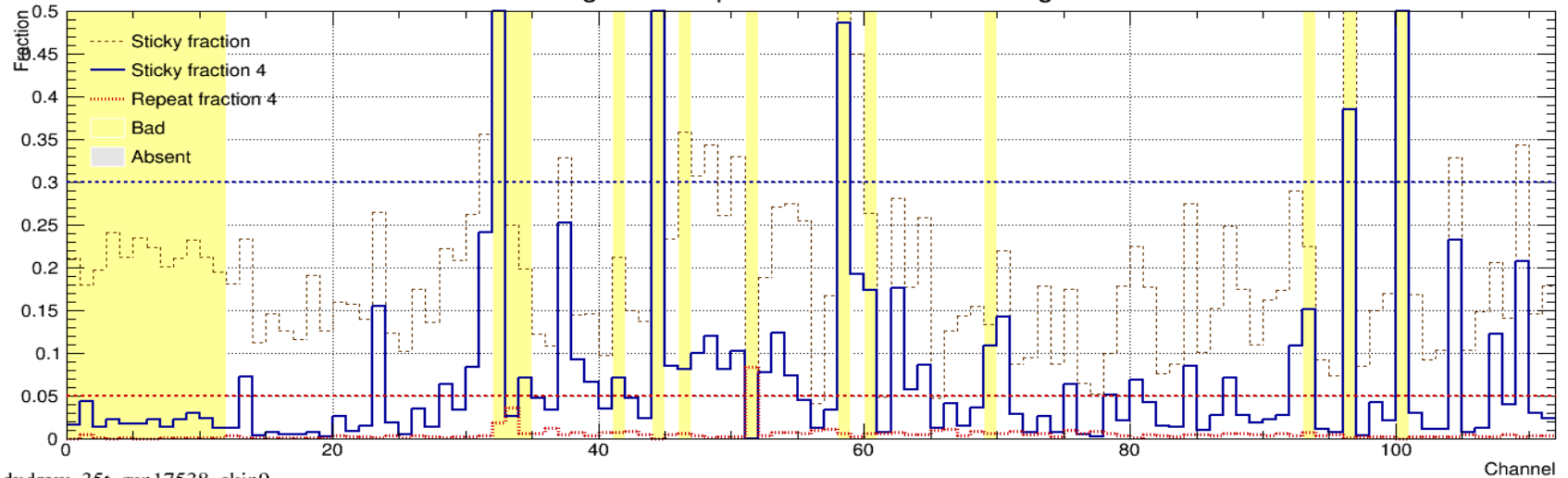
# APA 0z2 run 17538 (last)

Raw signal not-sticky RMS for apa0z2 event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa0z2 event 10 stuck range 4

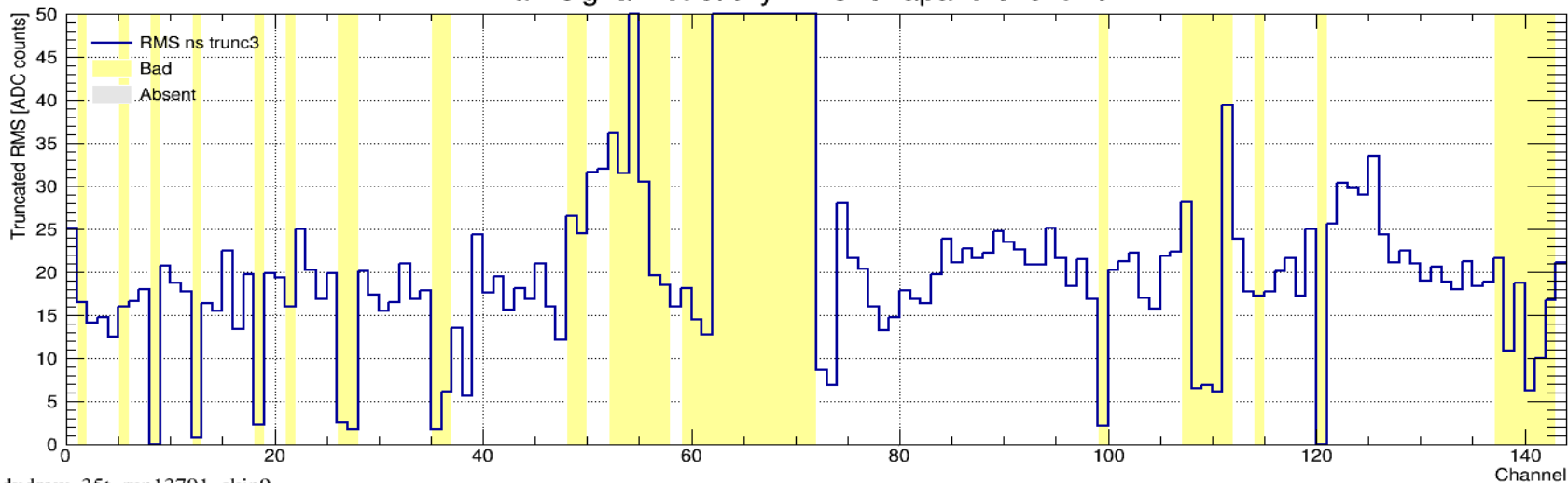


dxdraw\_35t\_run17538\_skip9

# APA 1u

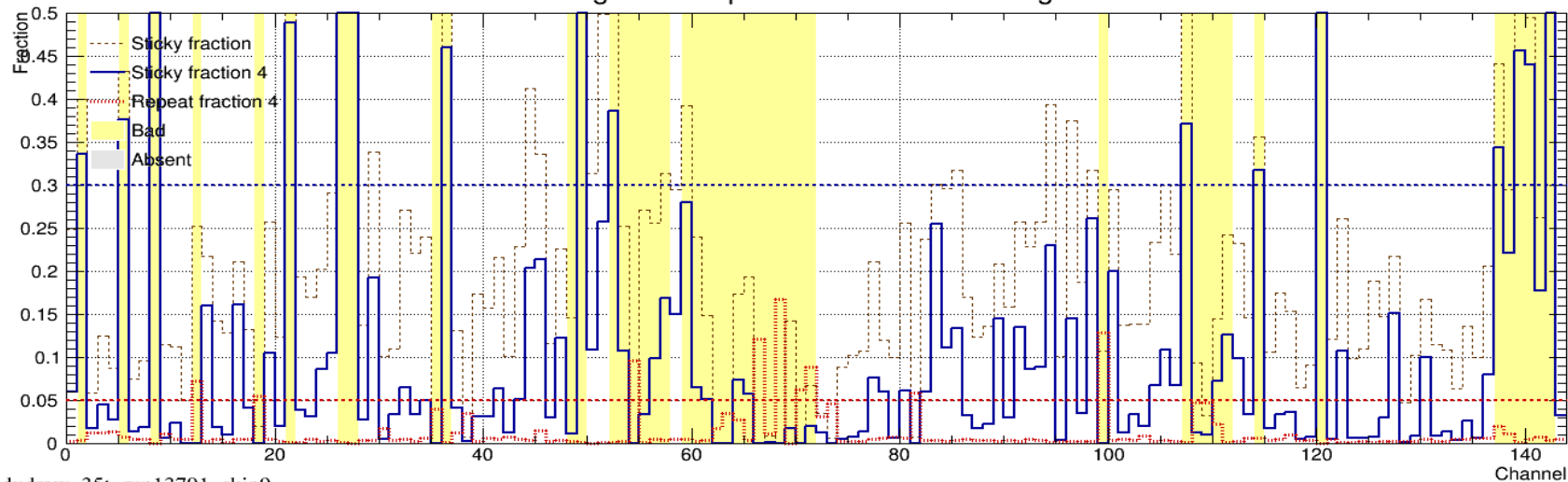
# APA 1u run 13791 (first)

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run13791\_skip9

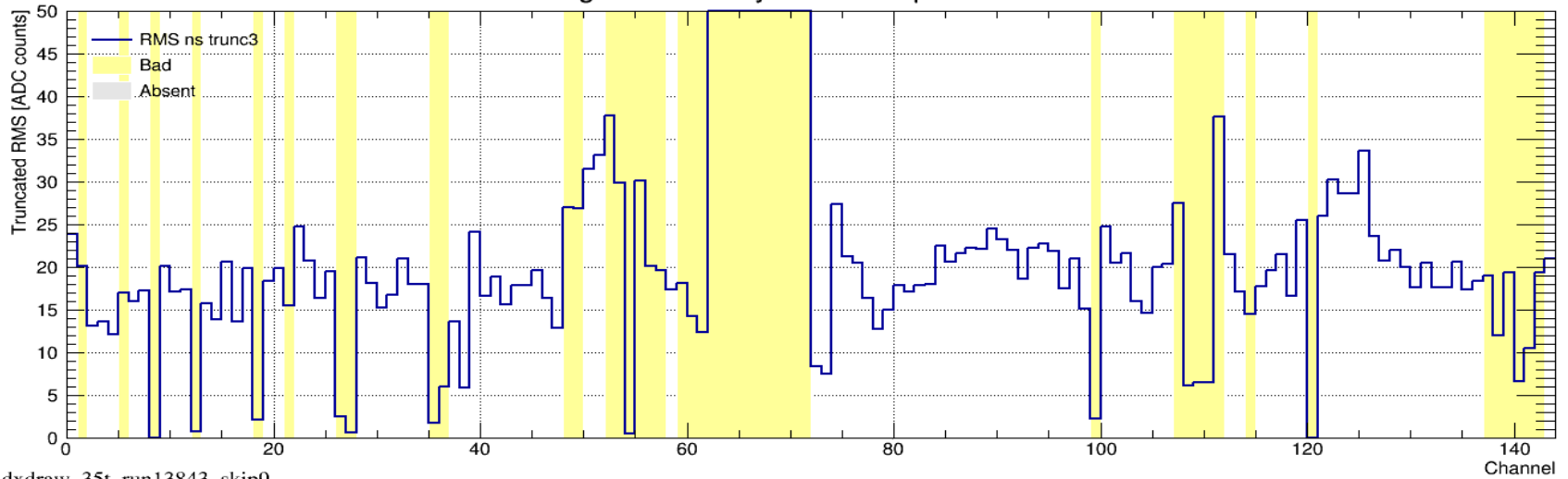
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

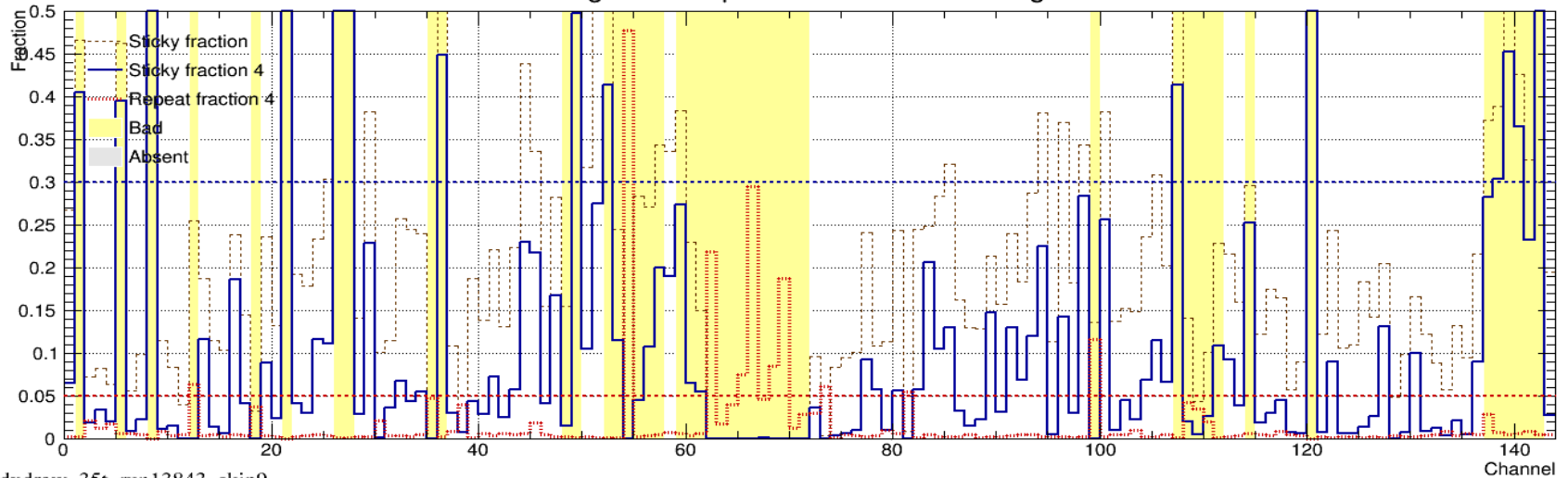
# APA 1u run 13843

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run13843\_skip9

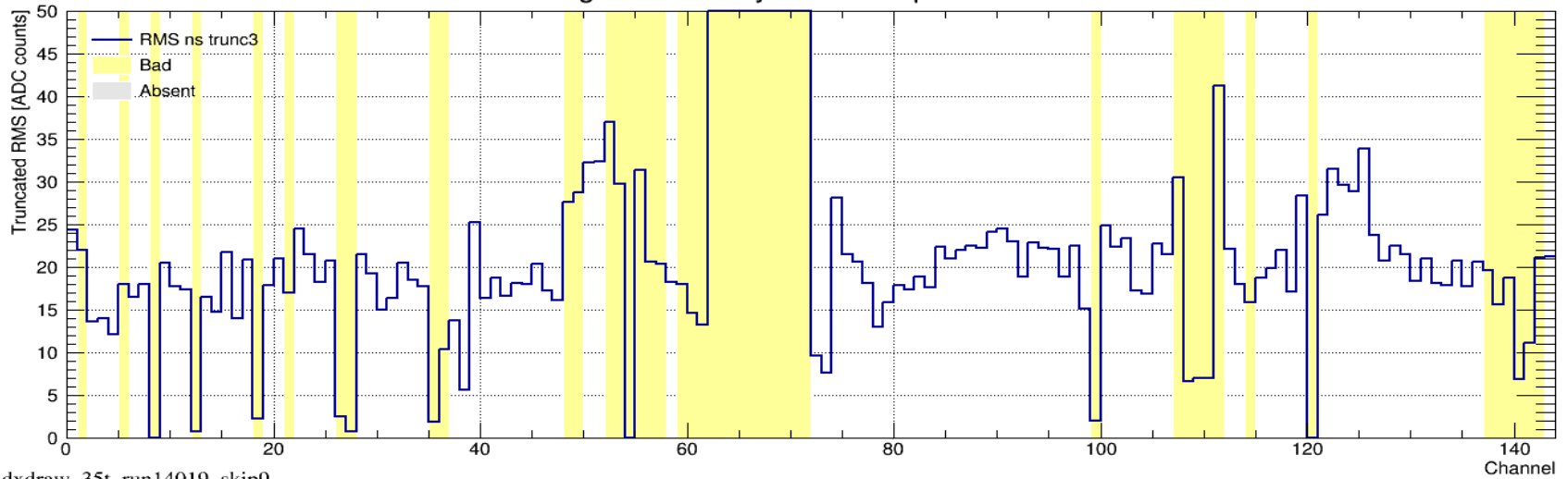
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

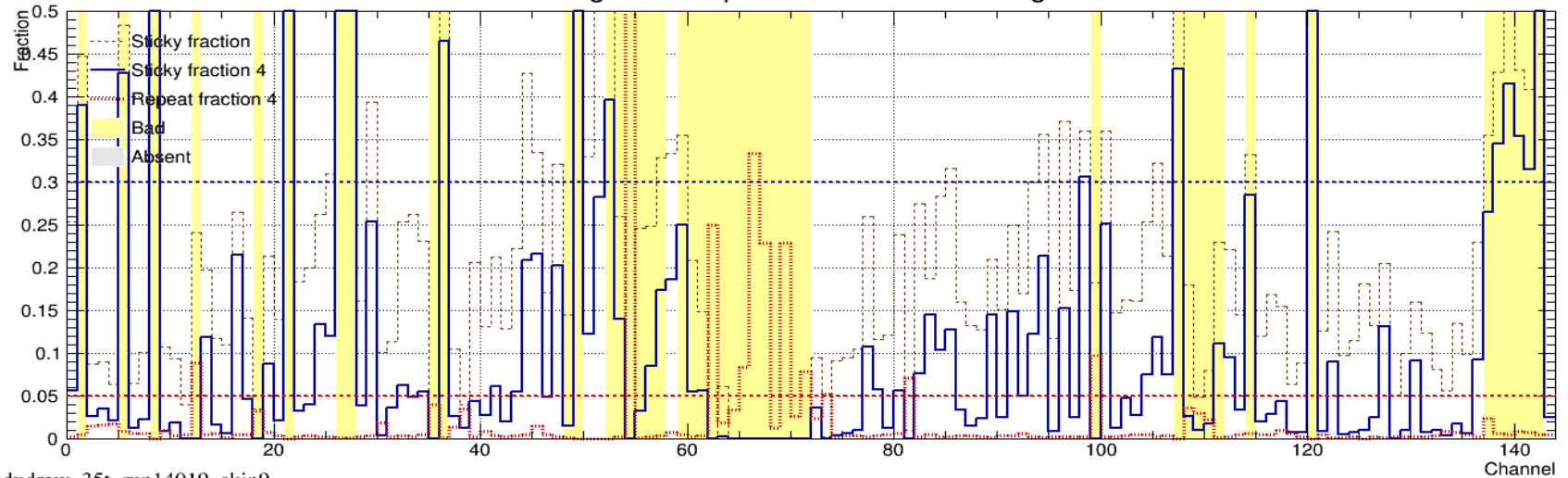
# APA 1u run 14019

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run14019\_skip9

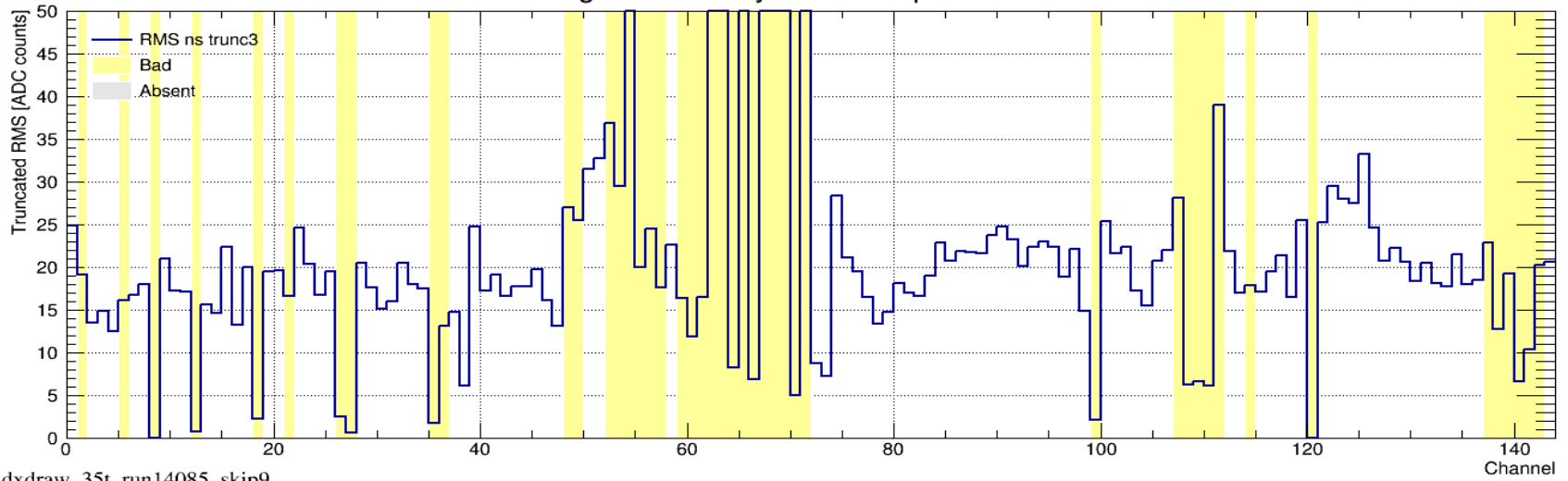
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

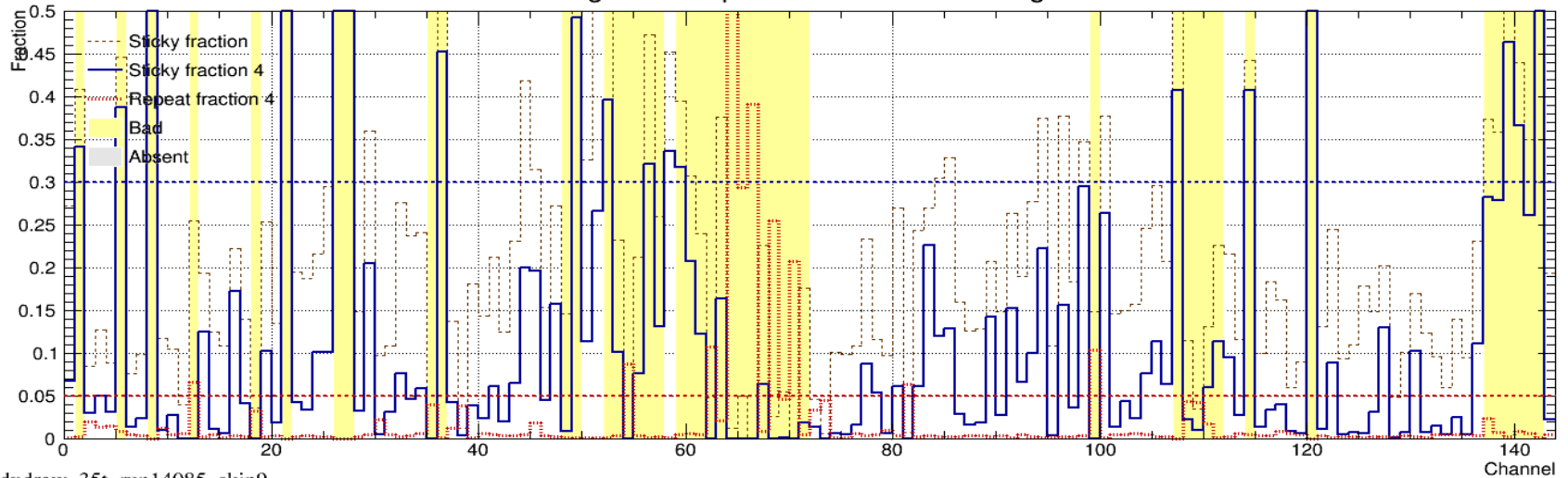
# APA 1u run 14085

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run14085\_skip9

## Raw signals for apa1u event 10 stuck range 4

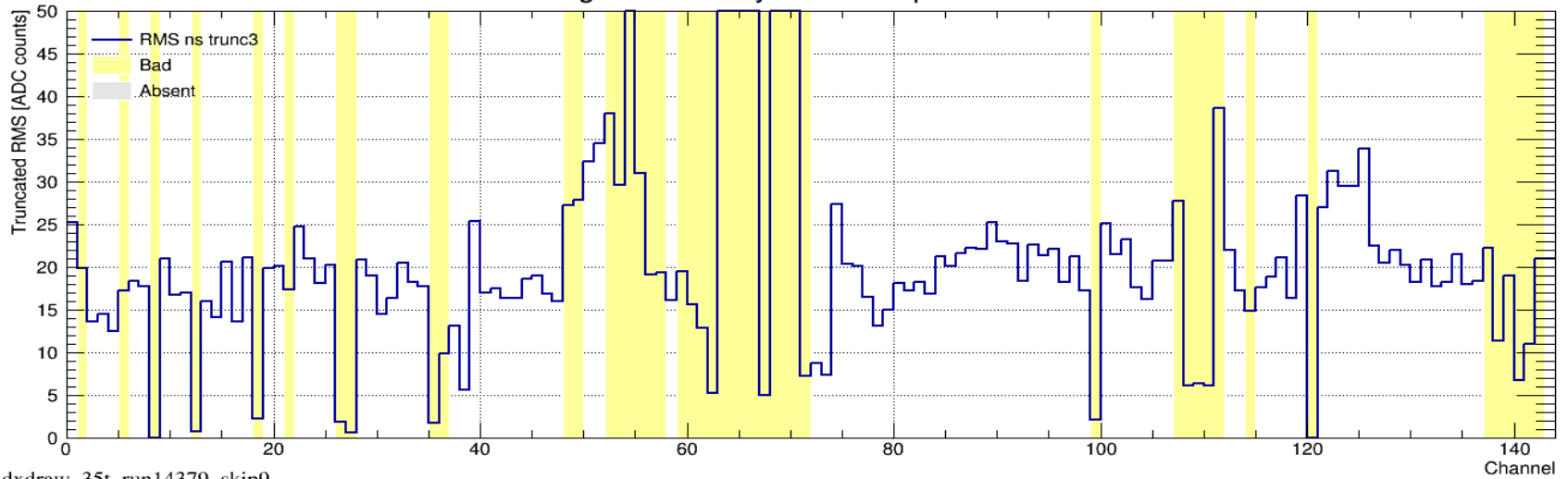


dxdraw\_35t\_run14085\_skip9



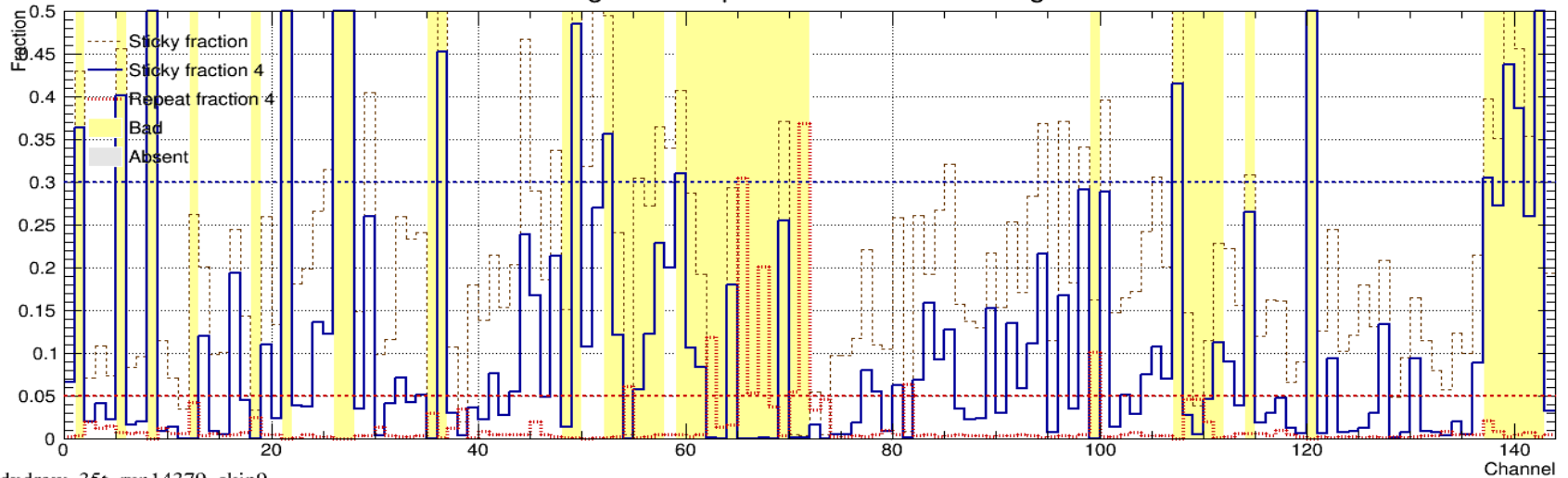
# APA 1u run 14379

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run14379\_skip9

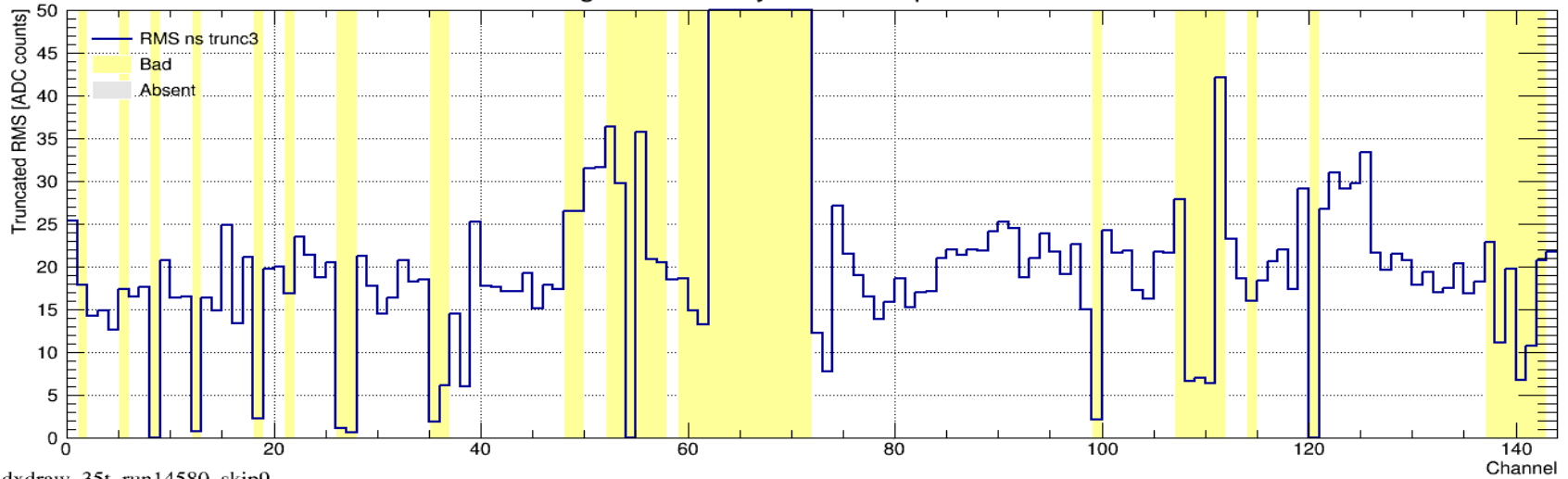
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

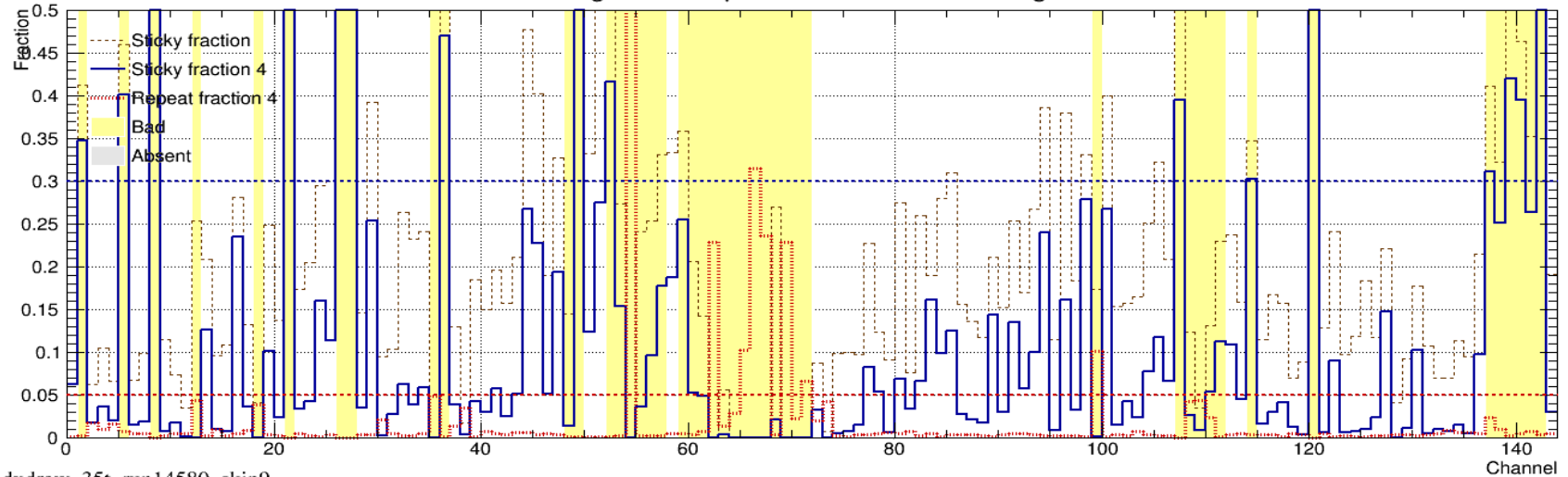
# APA 1u run 14580 (last before power failure)

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run14580\_skip9

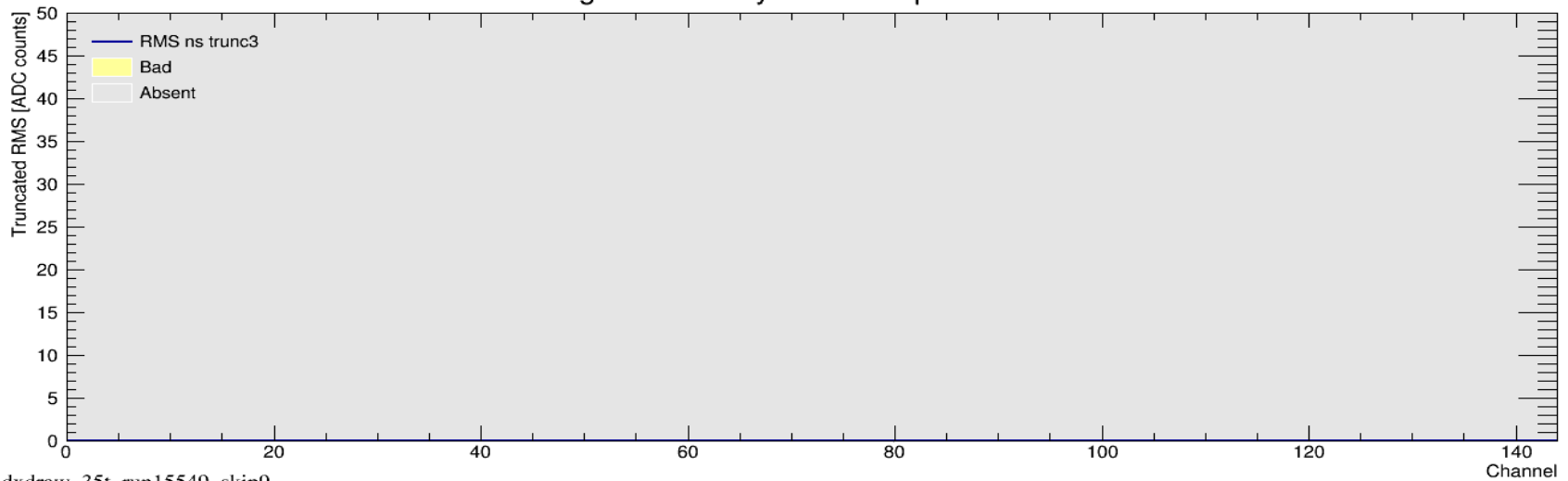
Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

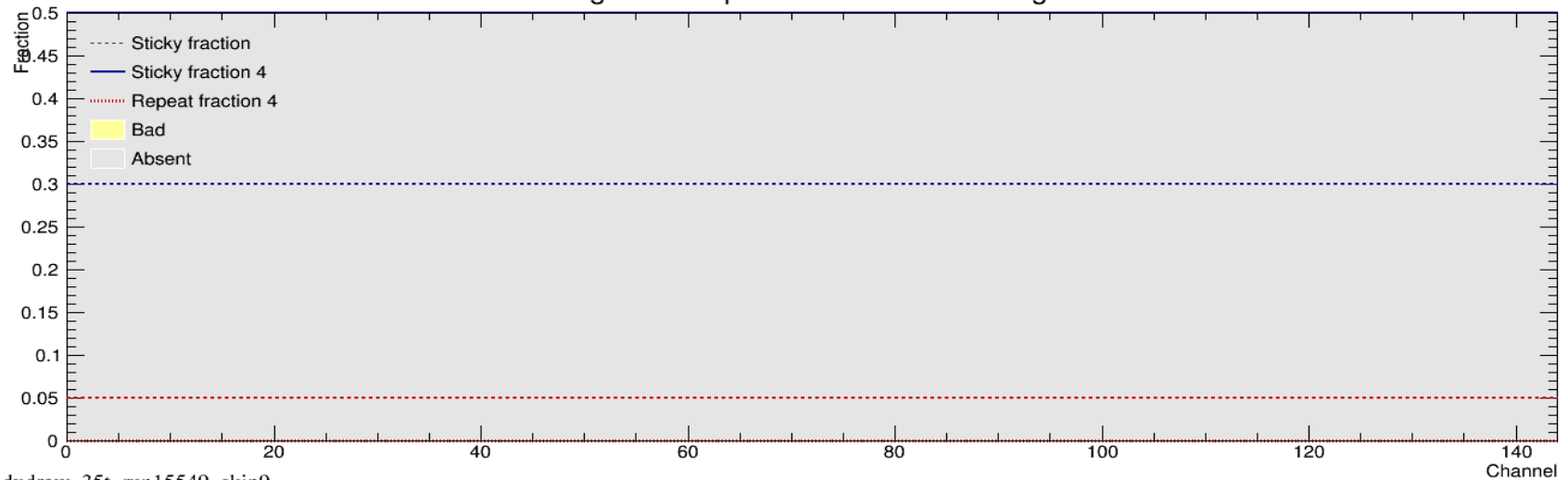
# APA 1u run 15549 (first after power failure)

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run15549\_skip9

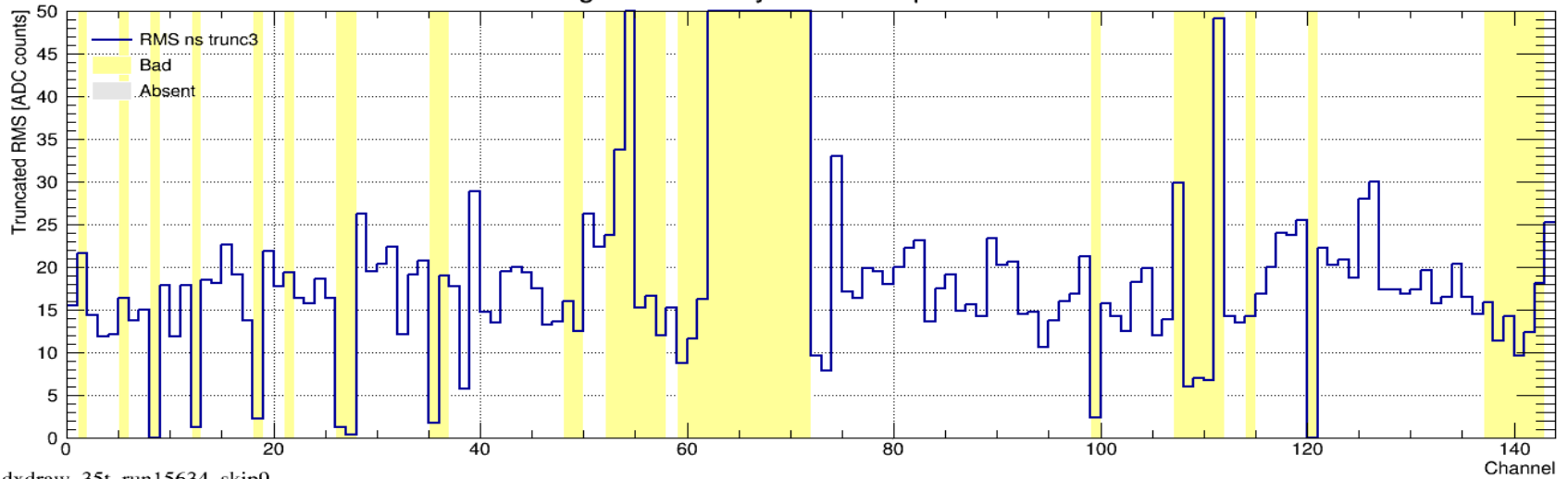
Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

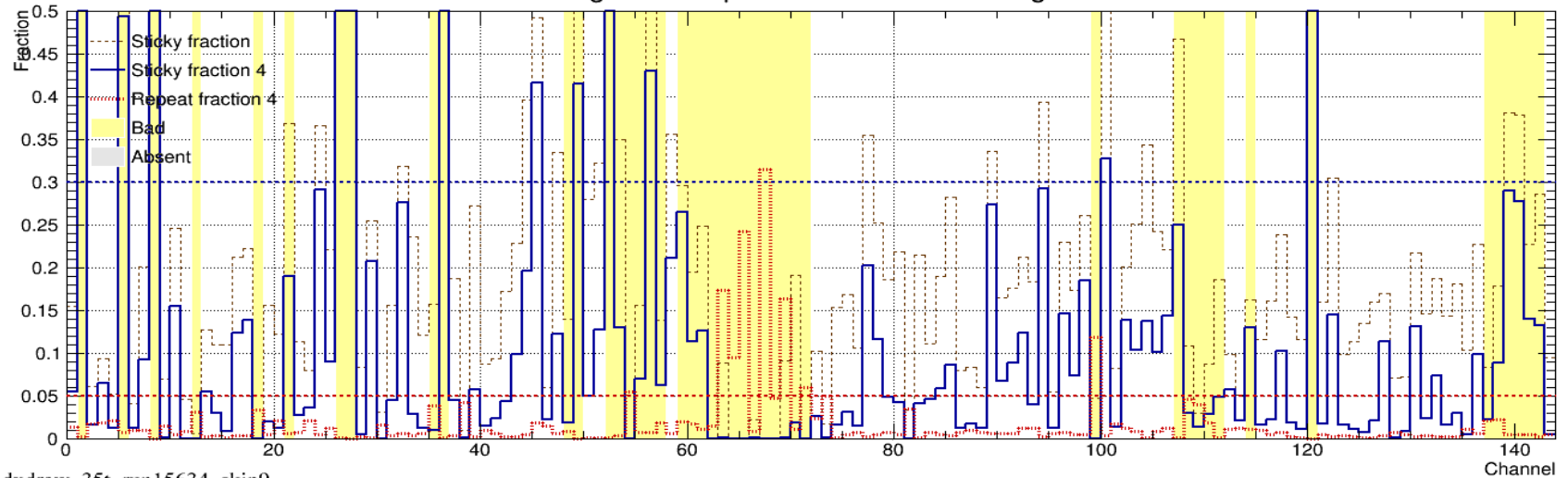
# APA 1u run 15634

## Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run15634\_skip9

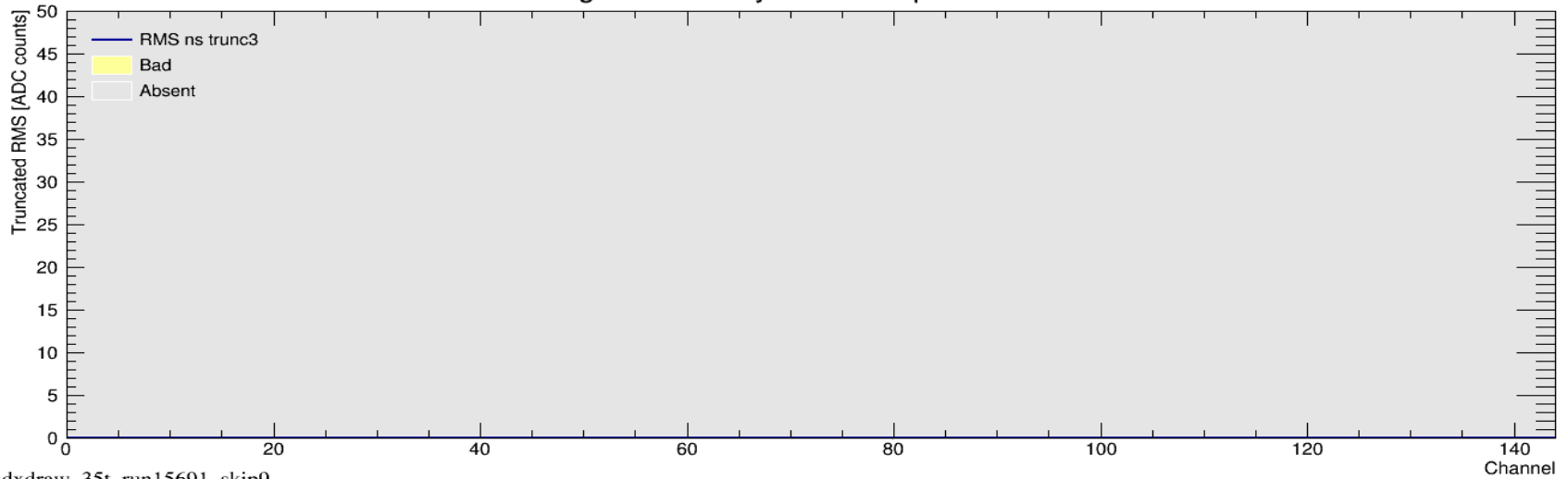
## Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

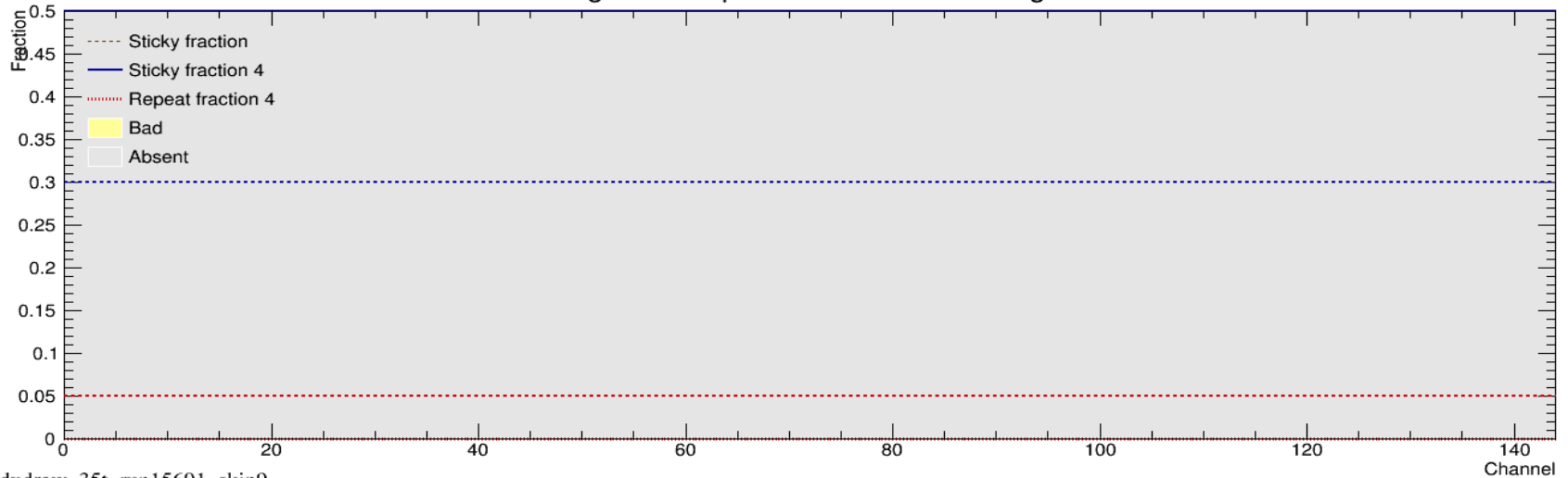
# APA 1u run 15691

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run15691\_skip9

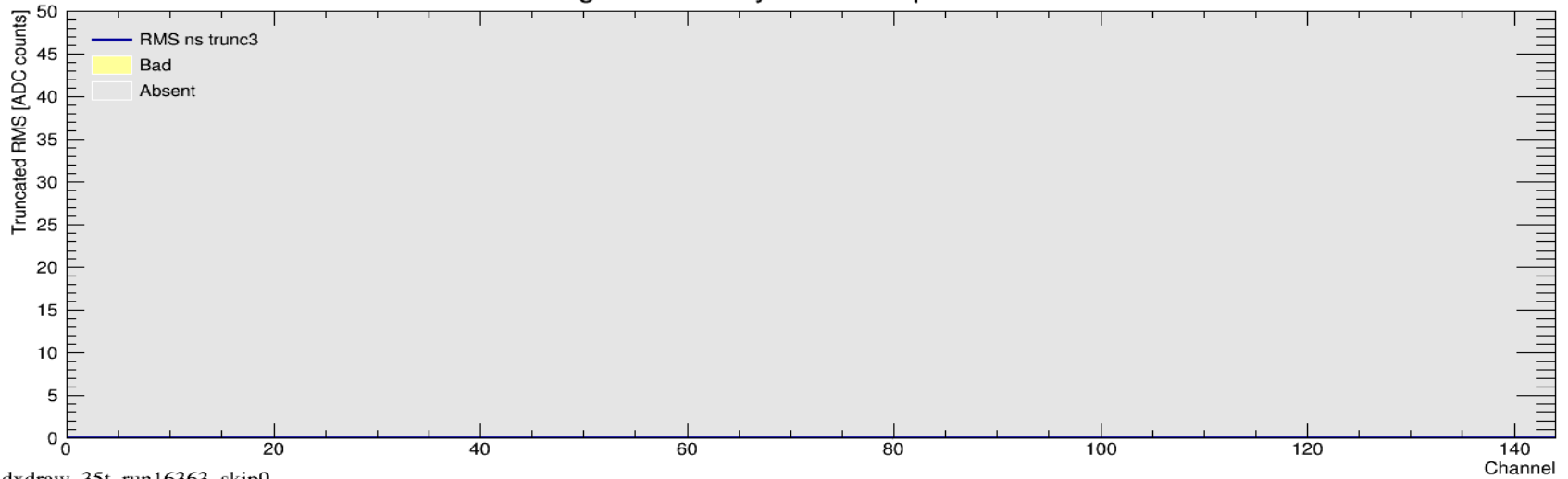
Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

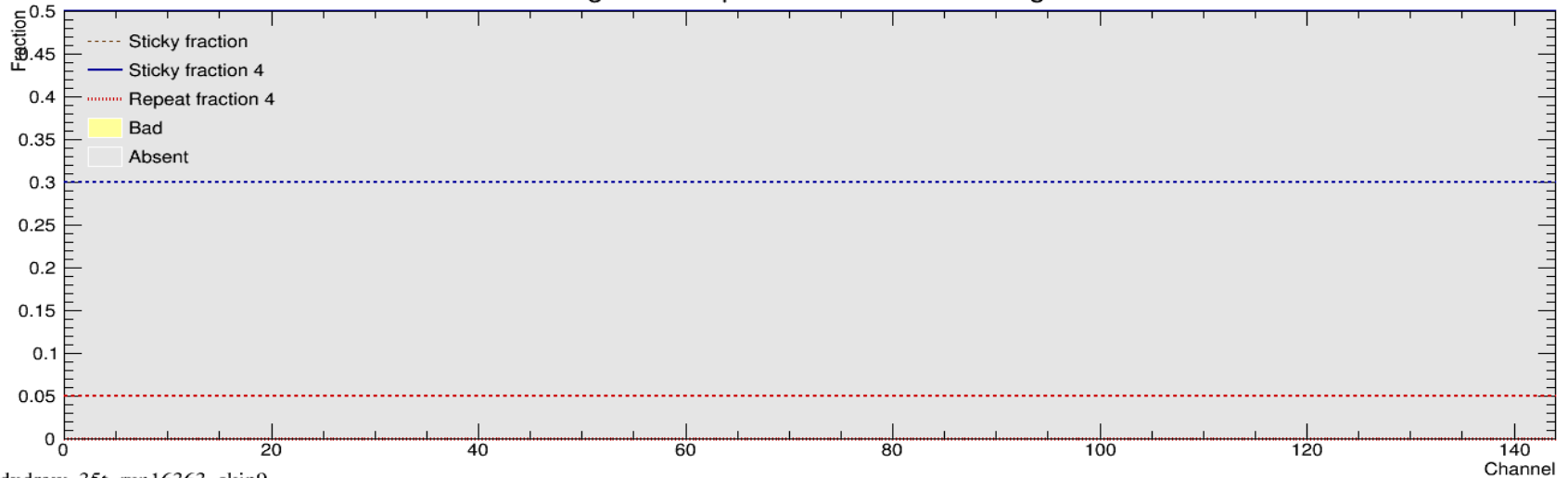
# APA 1u run 16363

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run16363\_skip9

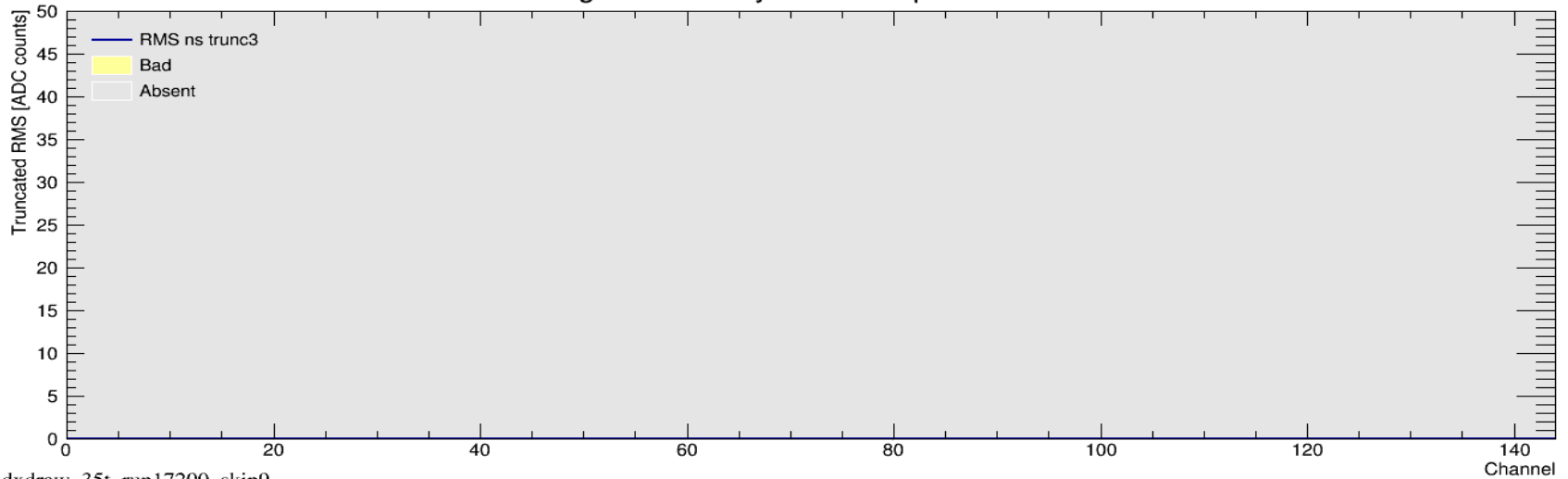
Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

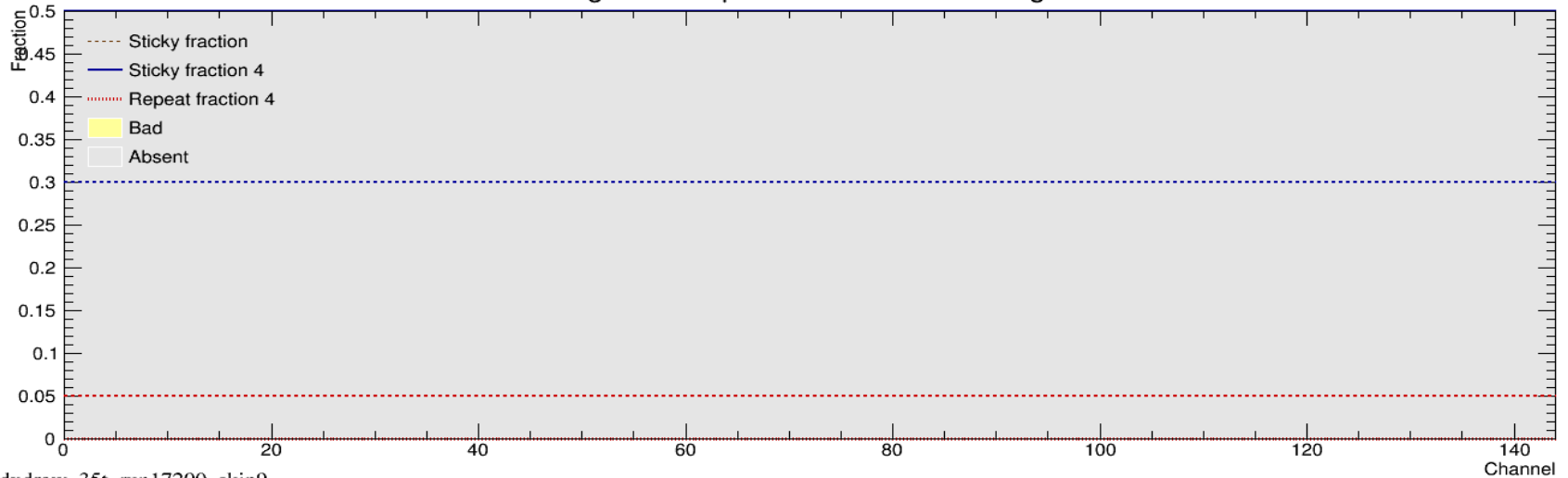
# APA 1u run 17200

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run17200\_skip9

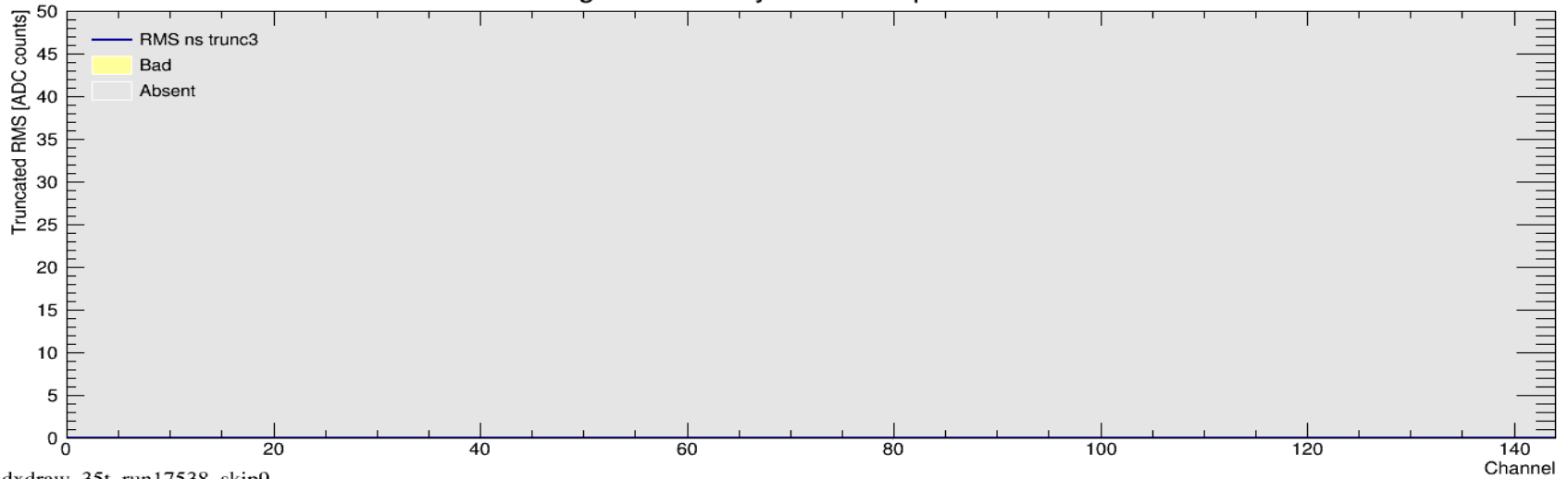
Raw signals for apa1u event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

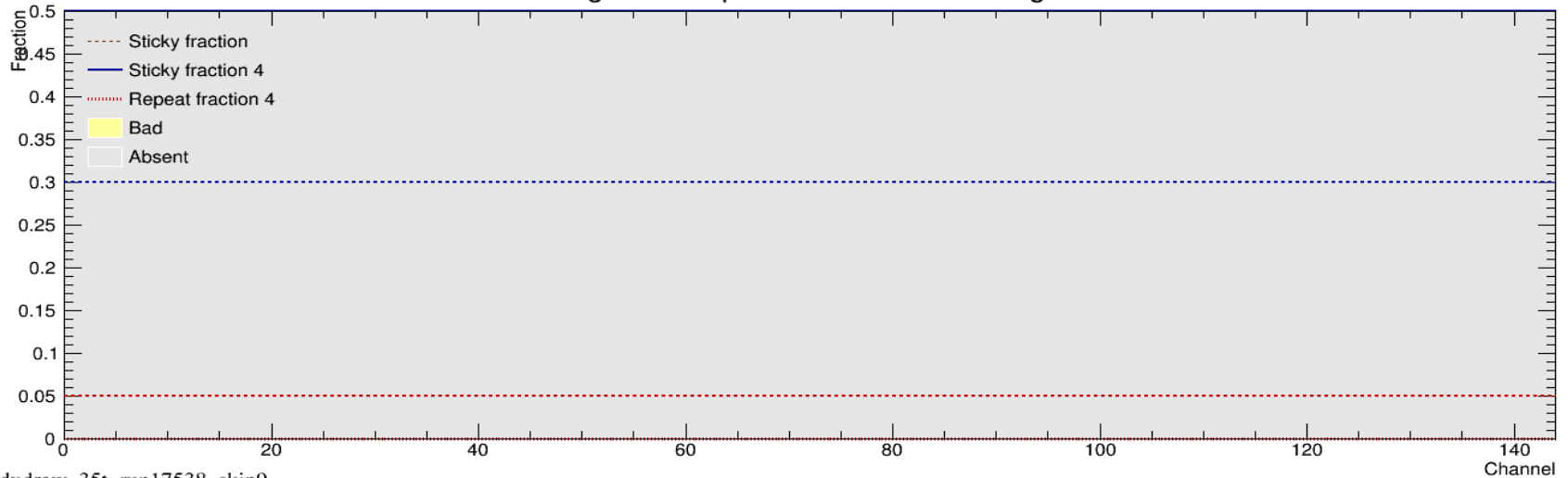
# APA 1u run 17538 (last)

Raw signal not-sticky RMS for apa1u event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa1u event 10 stuck range 4



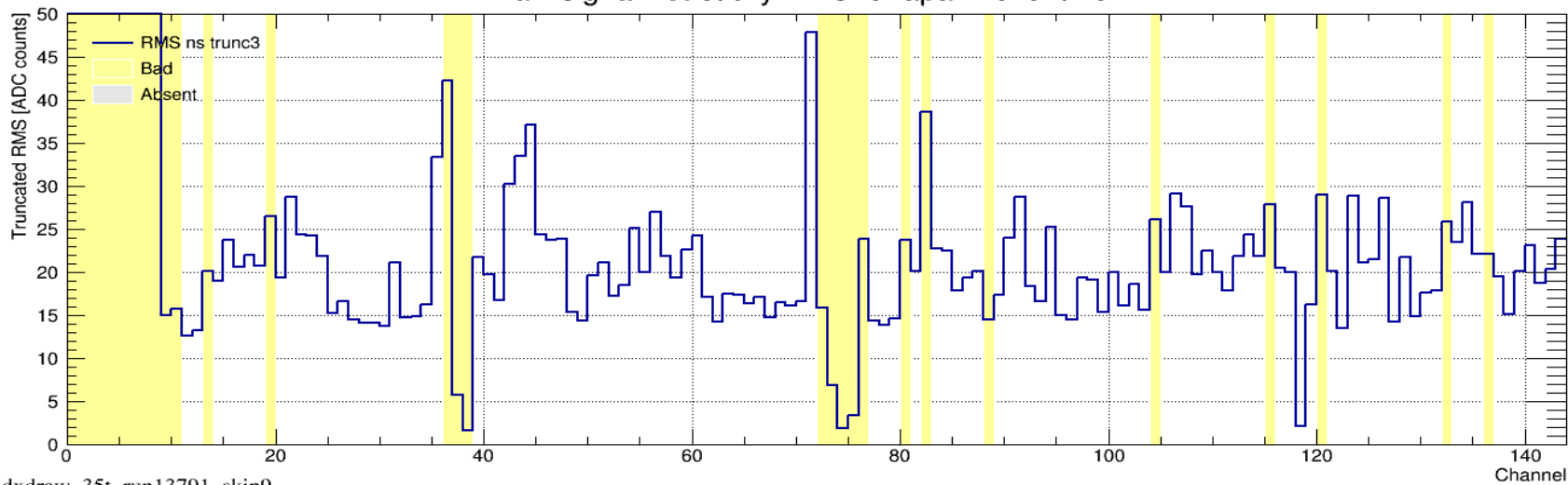
dxdraw\_35t\_run17538\_skip9



# APA 1v

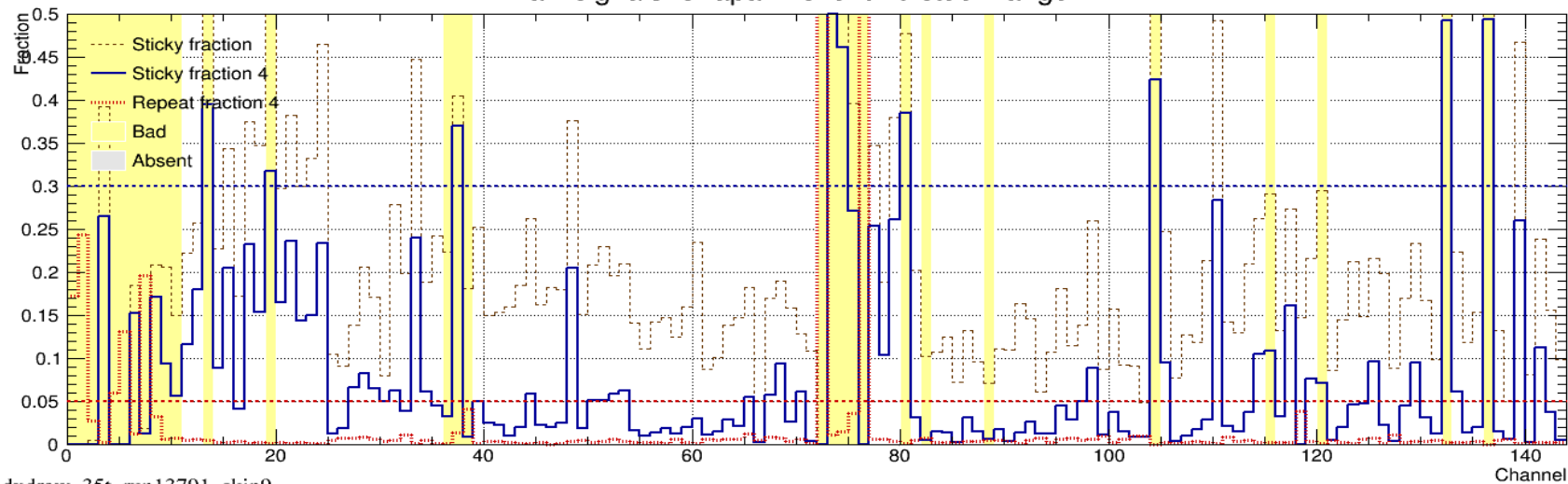
# APA 1v run 13791 (first)

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run13791\_skip9

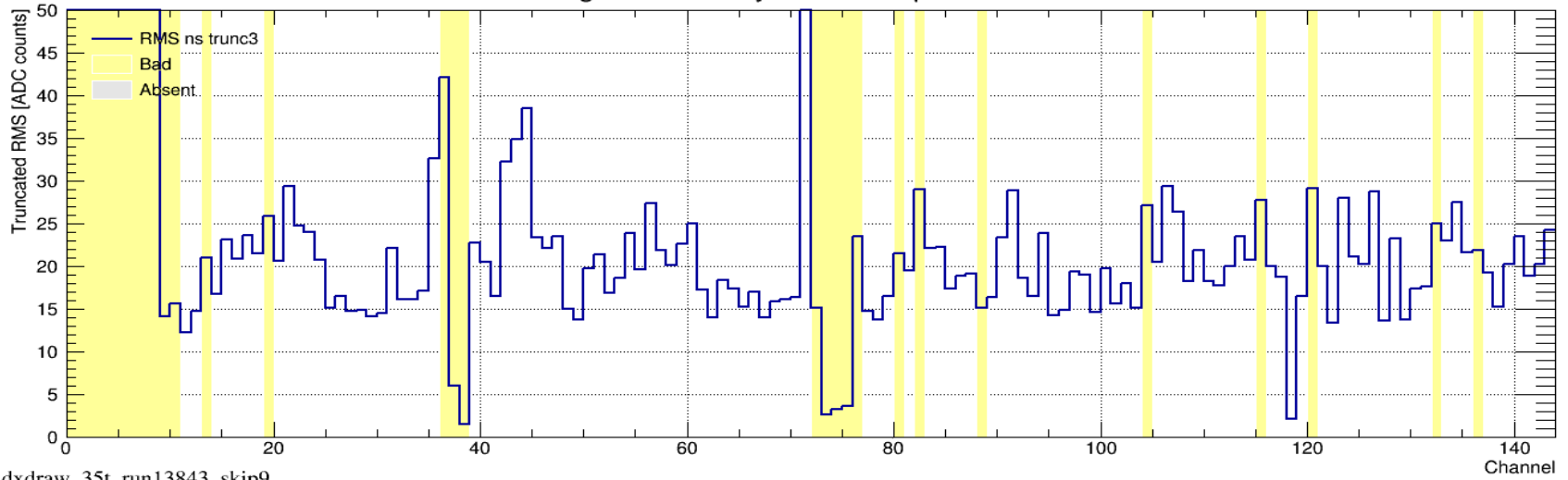
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

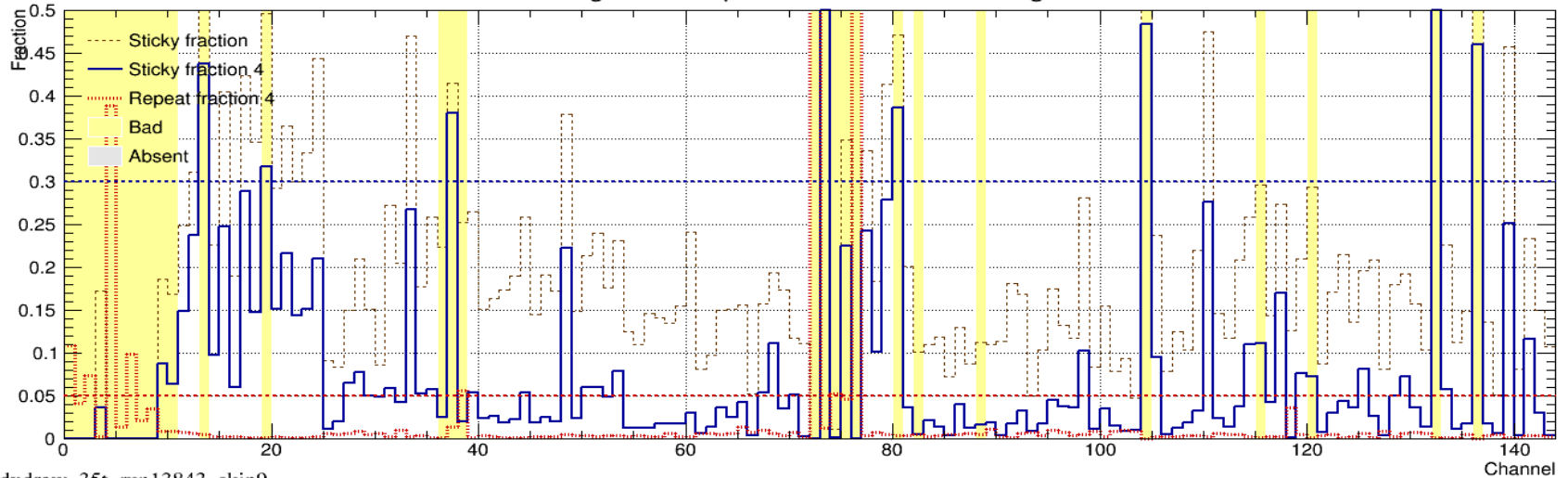
# APA 1v run 13843

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run13843\_skip9

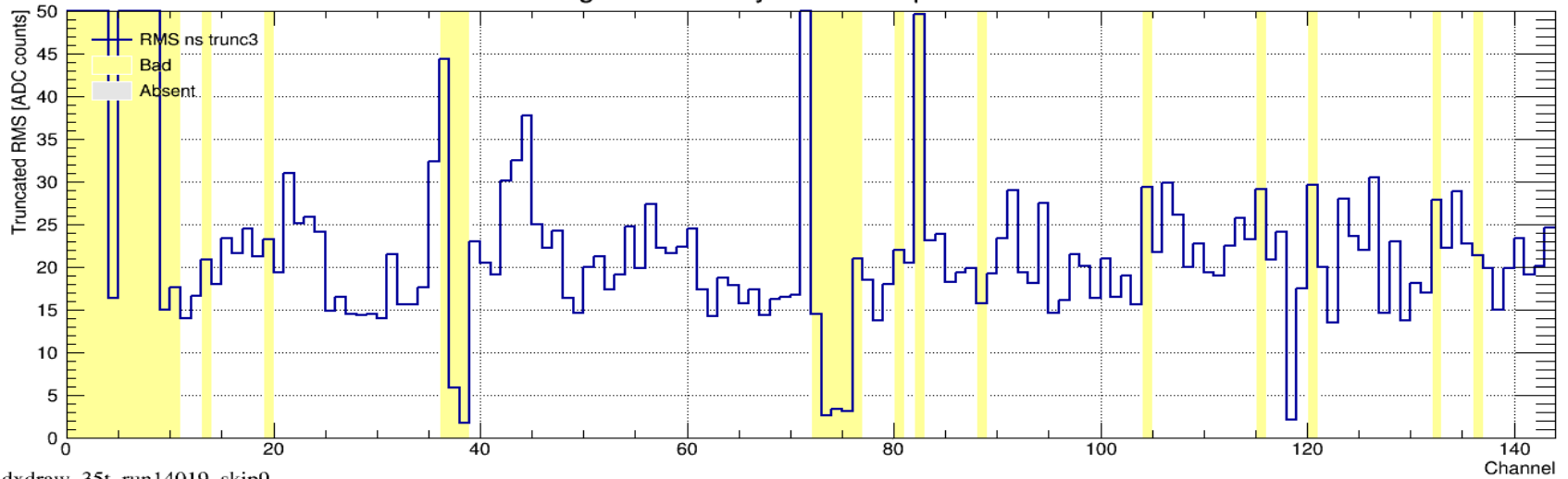
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

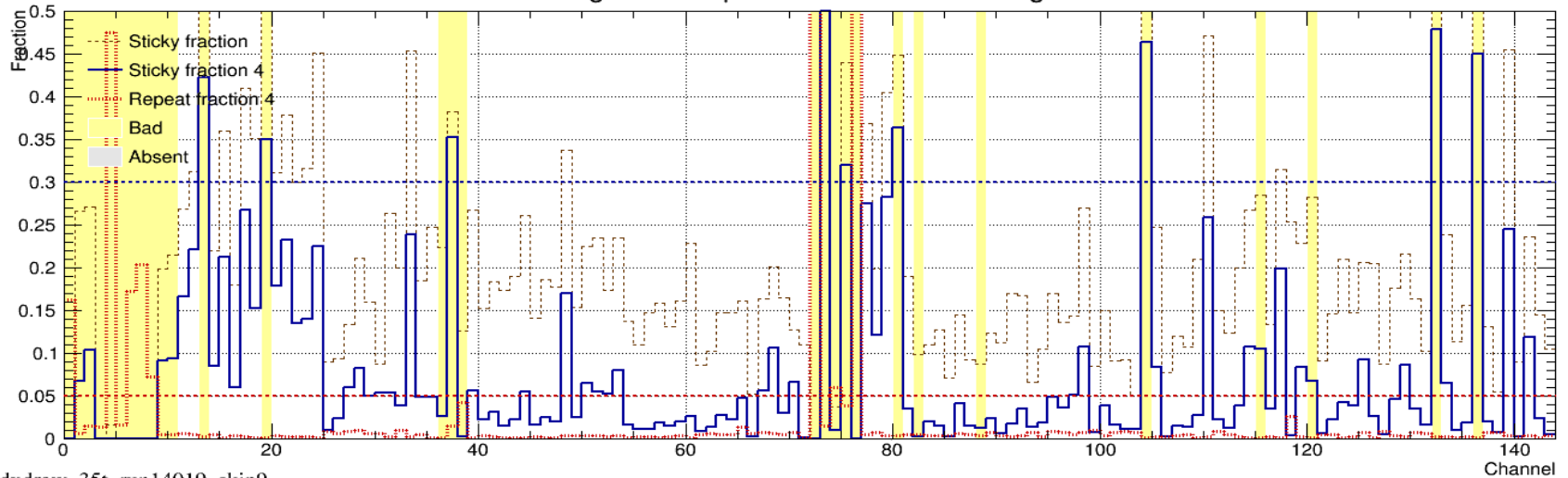
# APA 1v run 14019

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run14019\_skip9

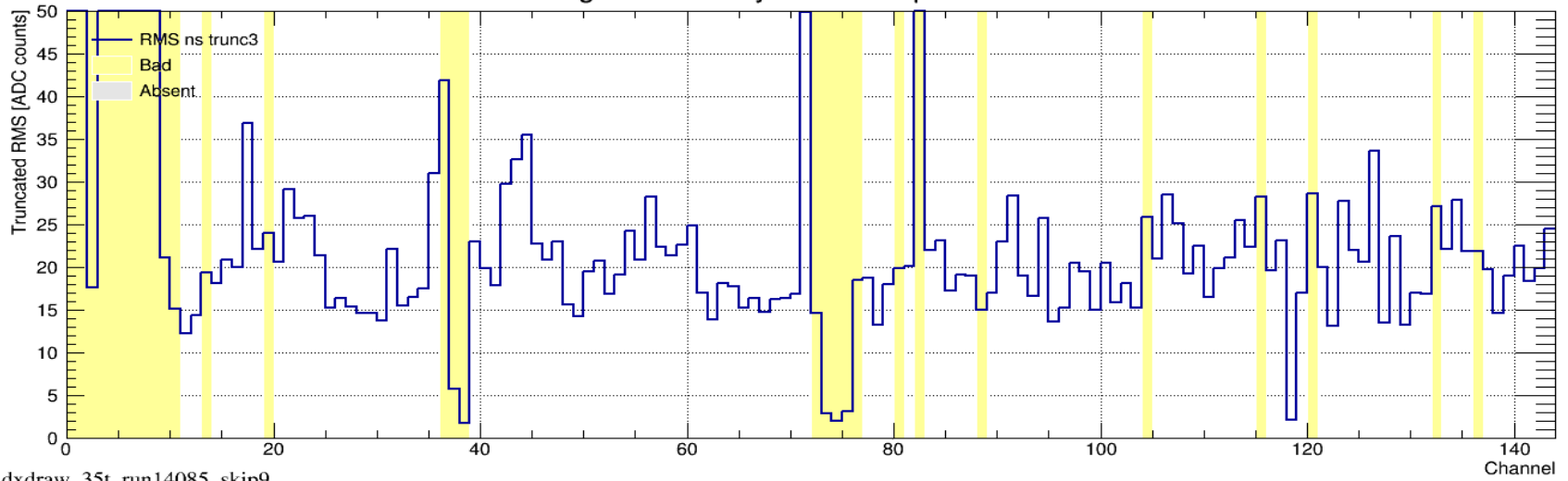
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

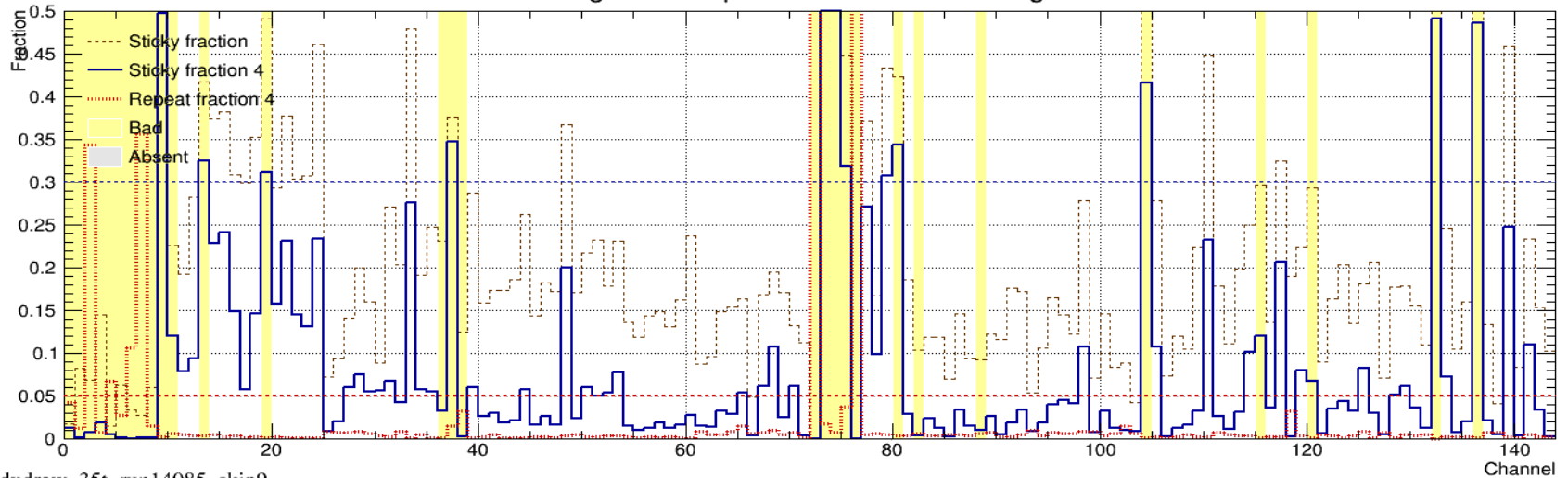
# APA 1v run 14085

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run14085\_skip9

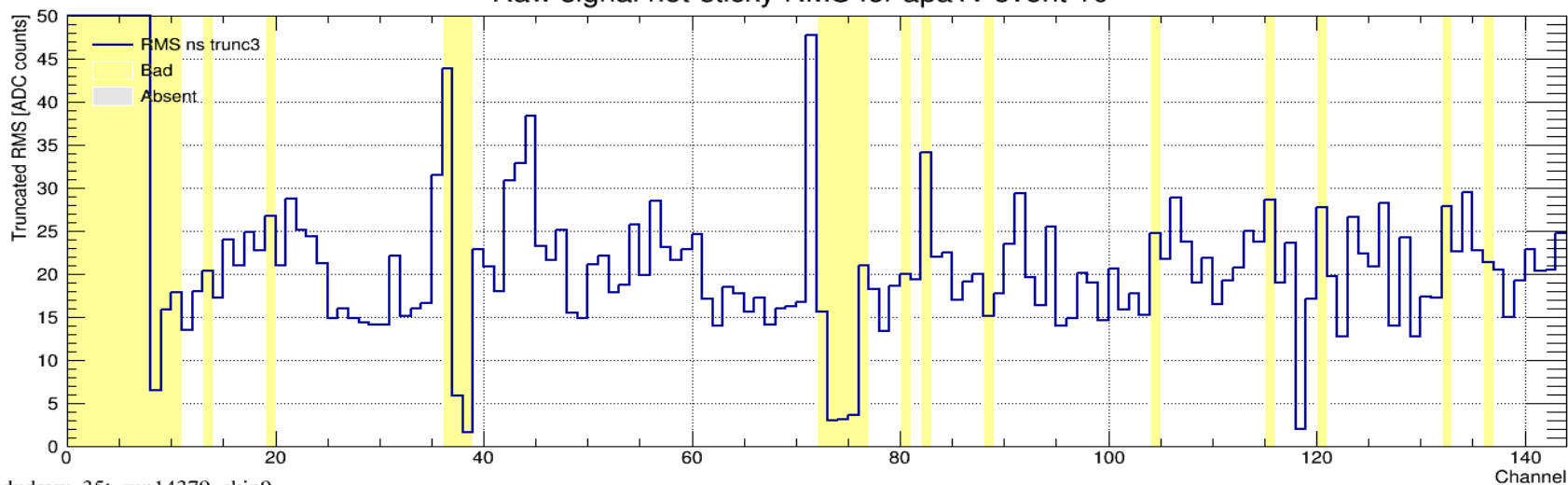
Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

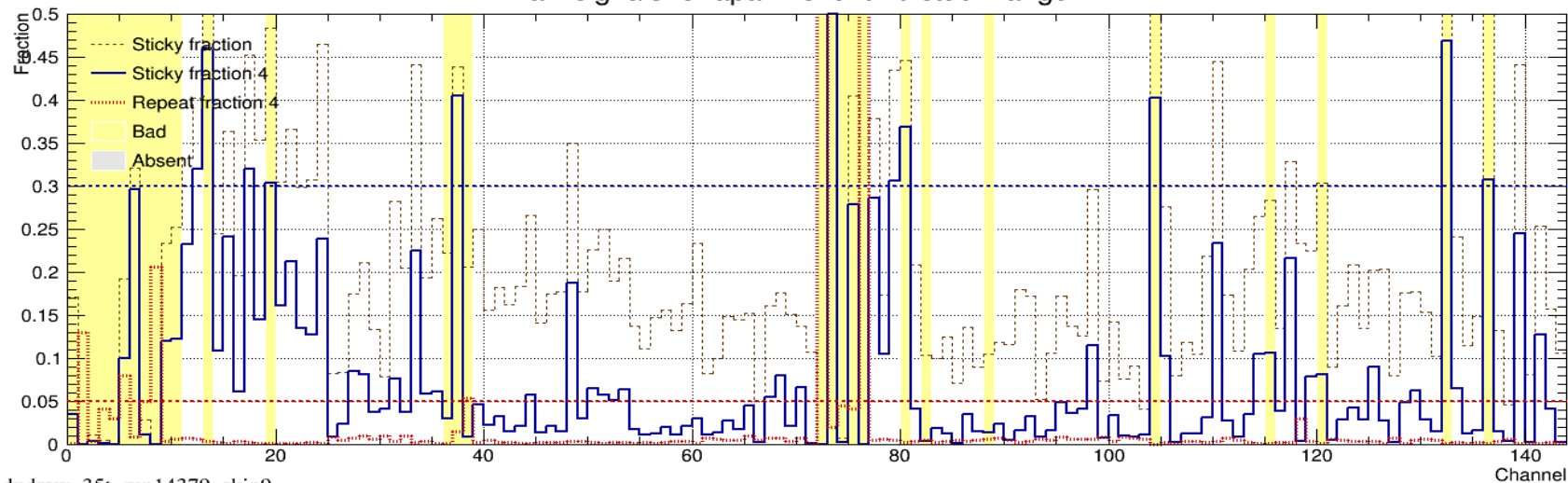
# APA 1v run 14379

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run14379\_skip9

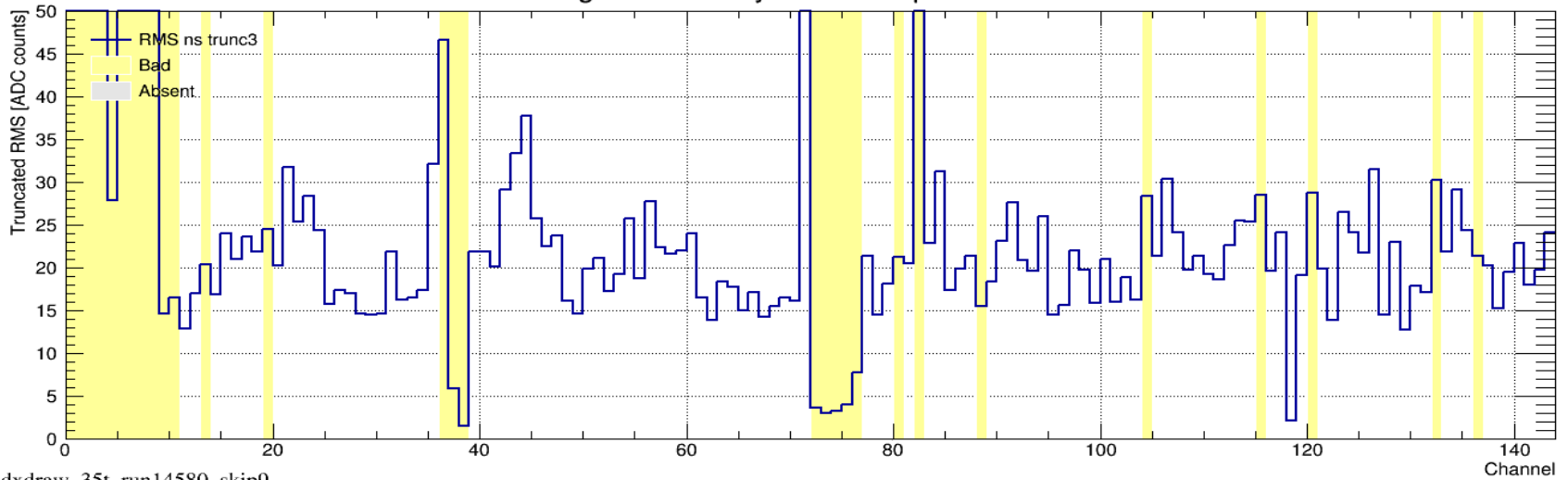
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

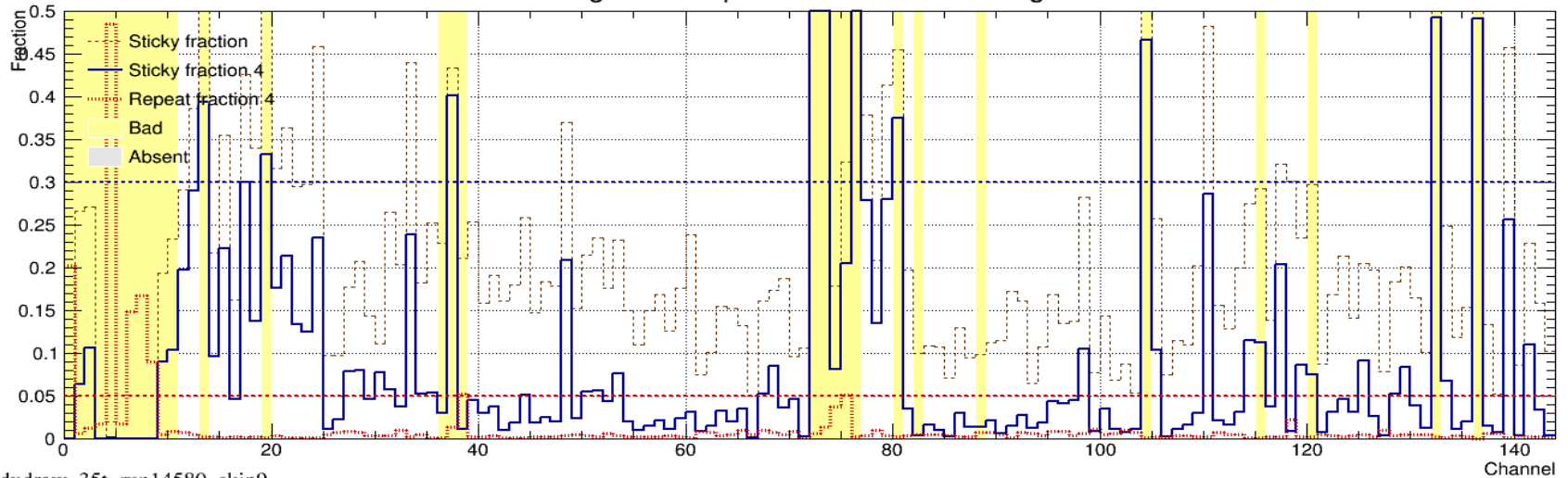
# APA 1v run 14580 (last before power failure)

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run14580\_skip9

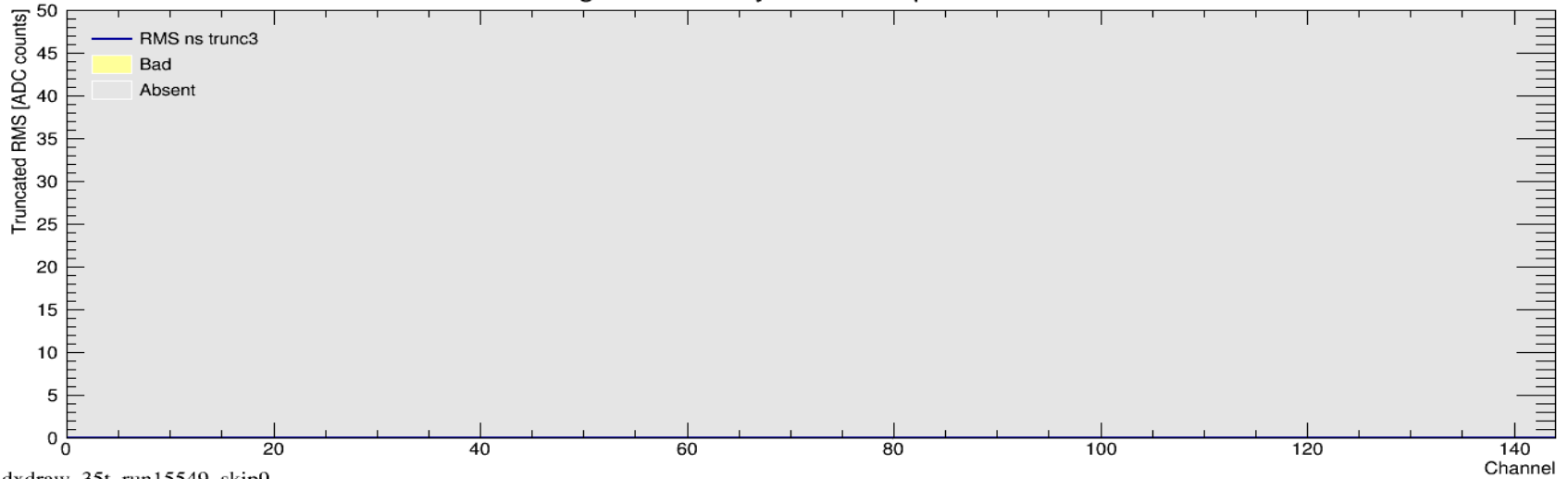
Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

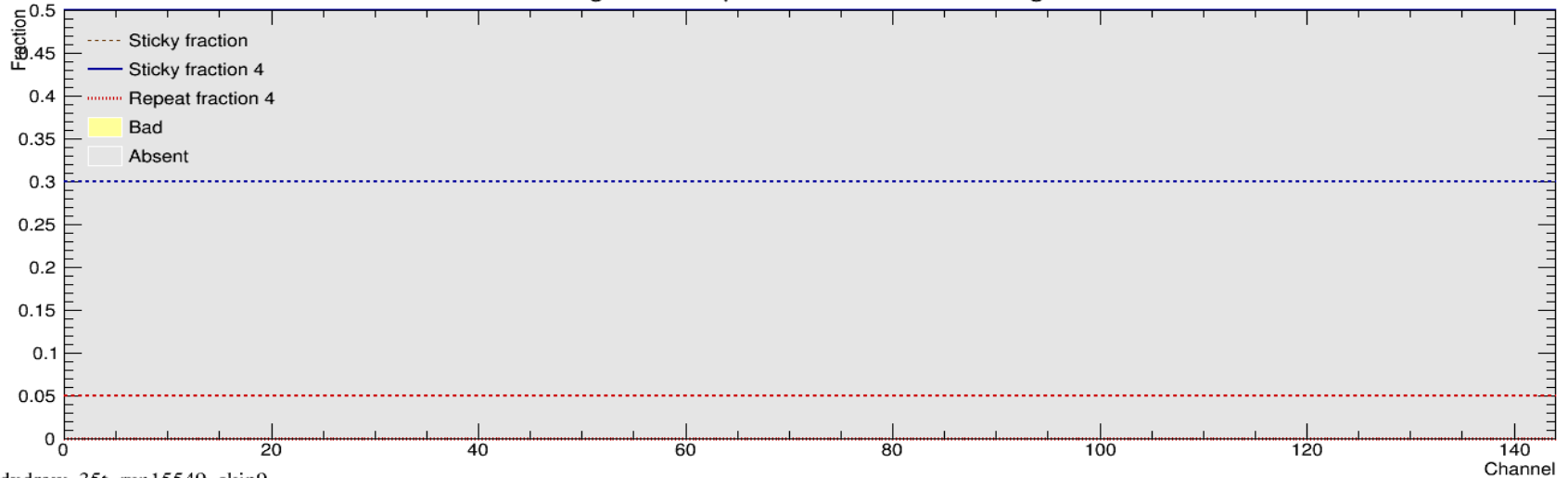
# APA 1v run 15549 (first after power failure)

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run15549\_skip9

Raw signals for apa1v event 10 stuck range 4

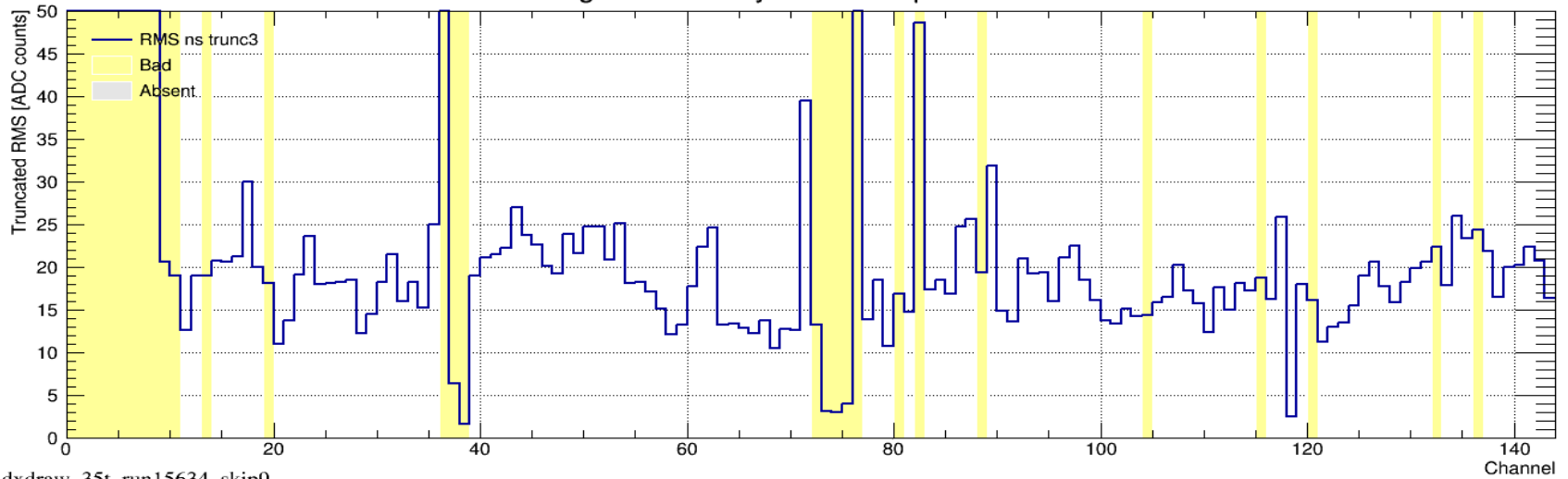


dxdraw\_35t\_run15549\_skip9



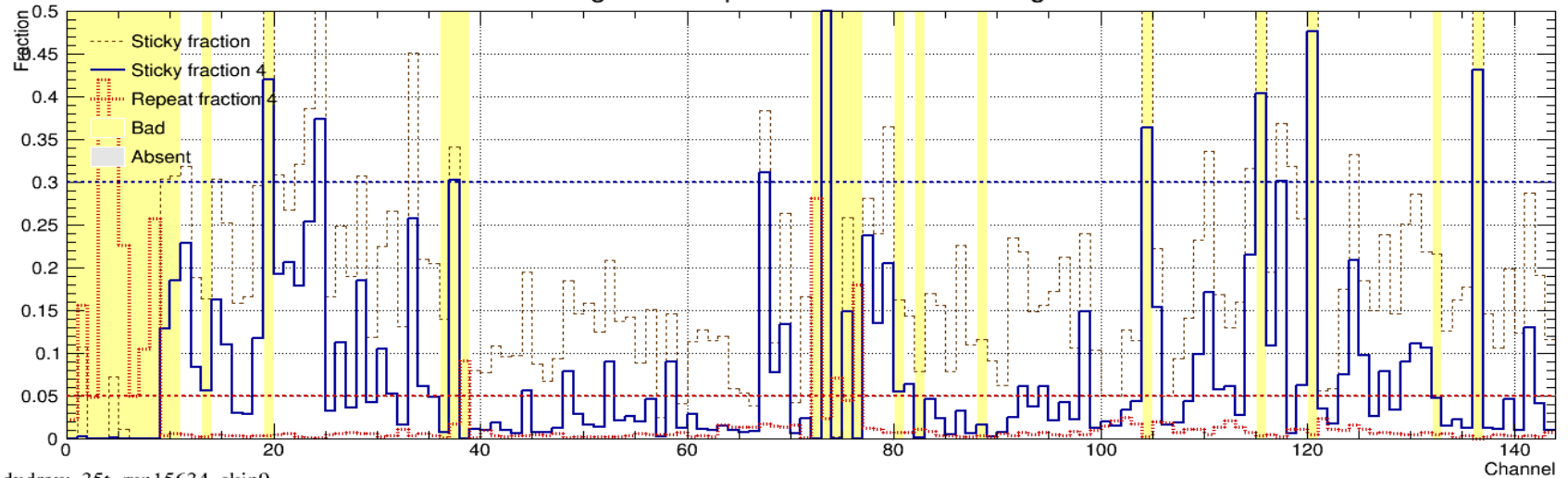
# APA 1v run 15634

## Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run15634\_skip9

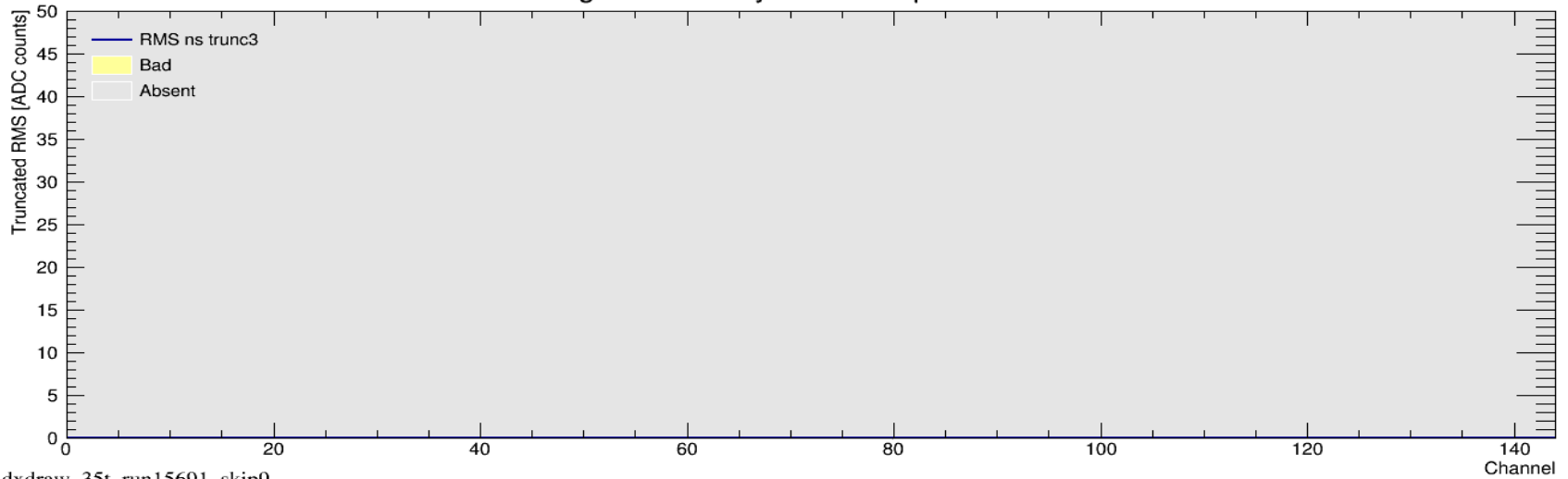
## Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

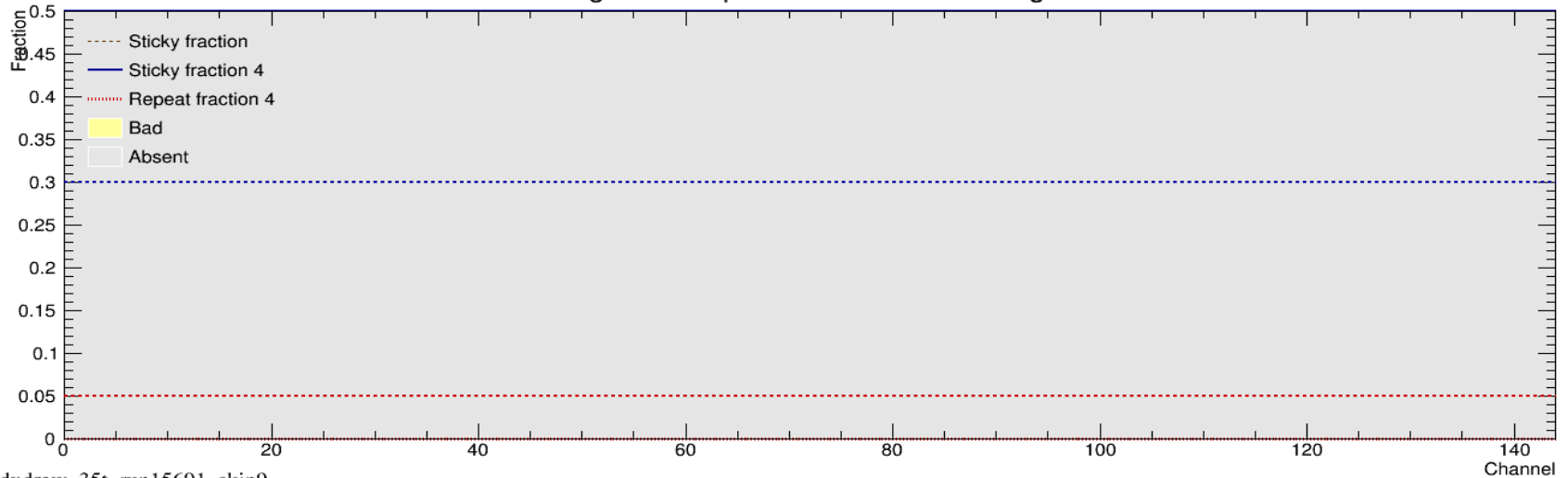
# APA 1v run 15691

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run15691\_skip9

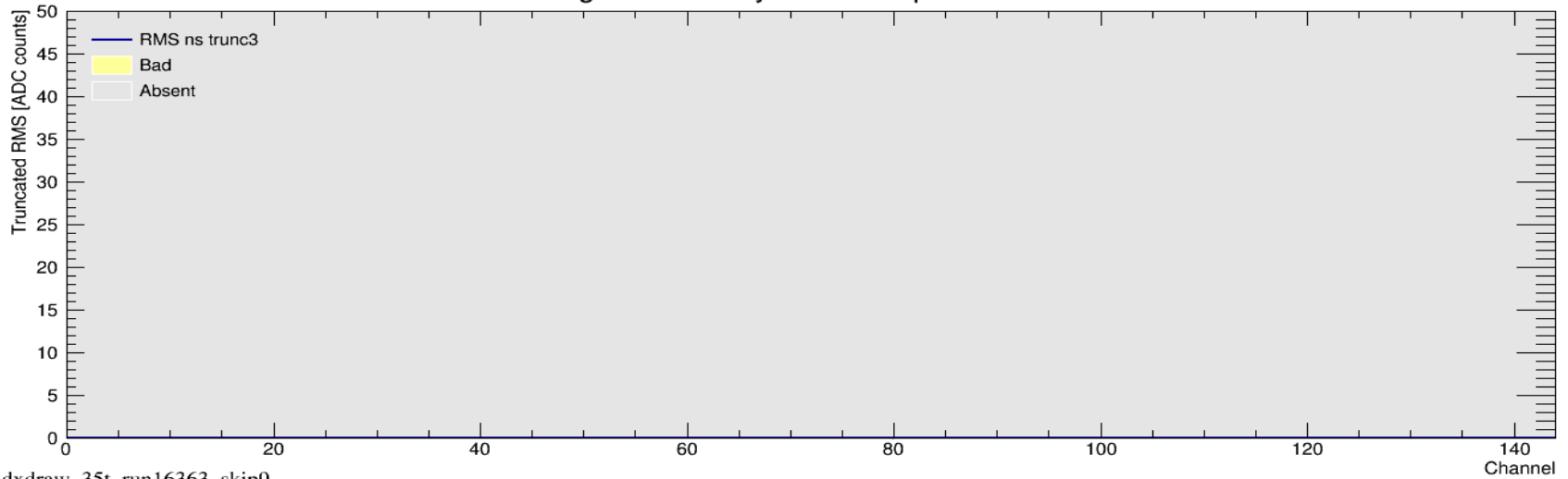
Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

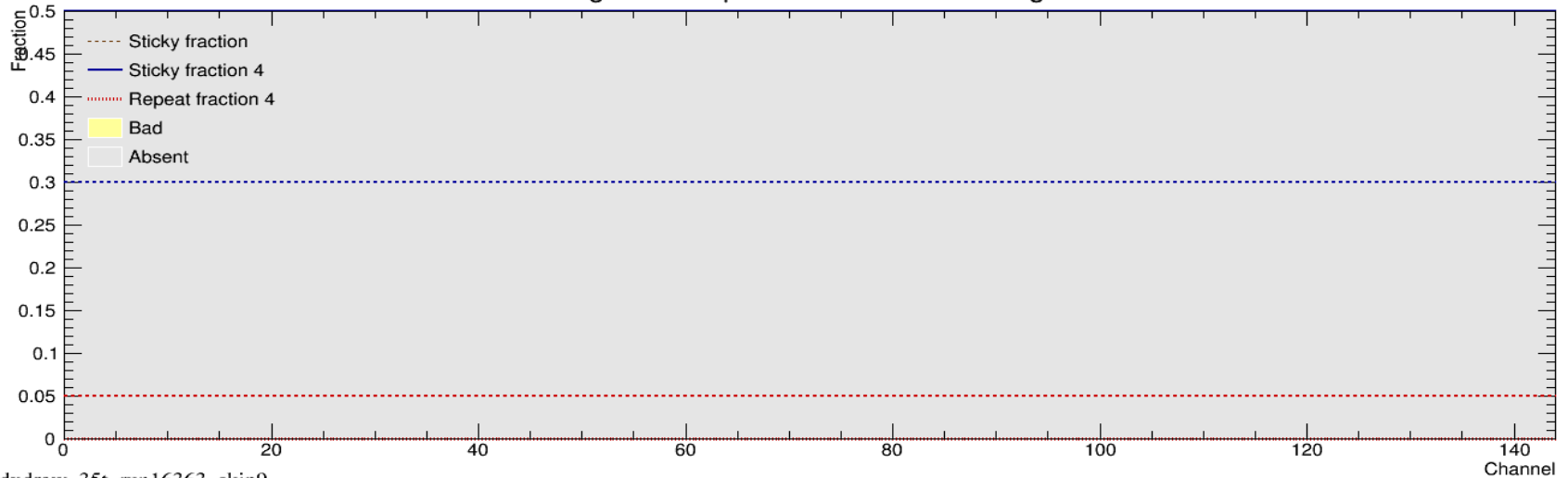
# APA 1v run 16363

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run16363\_skip9

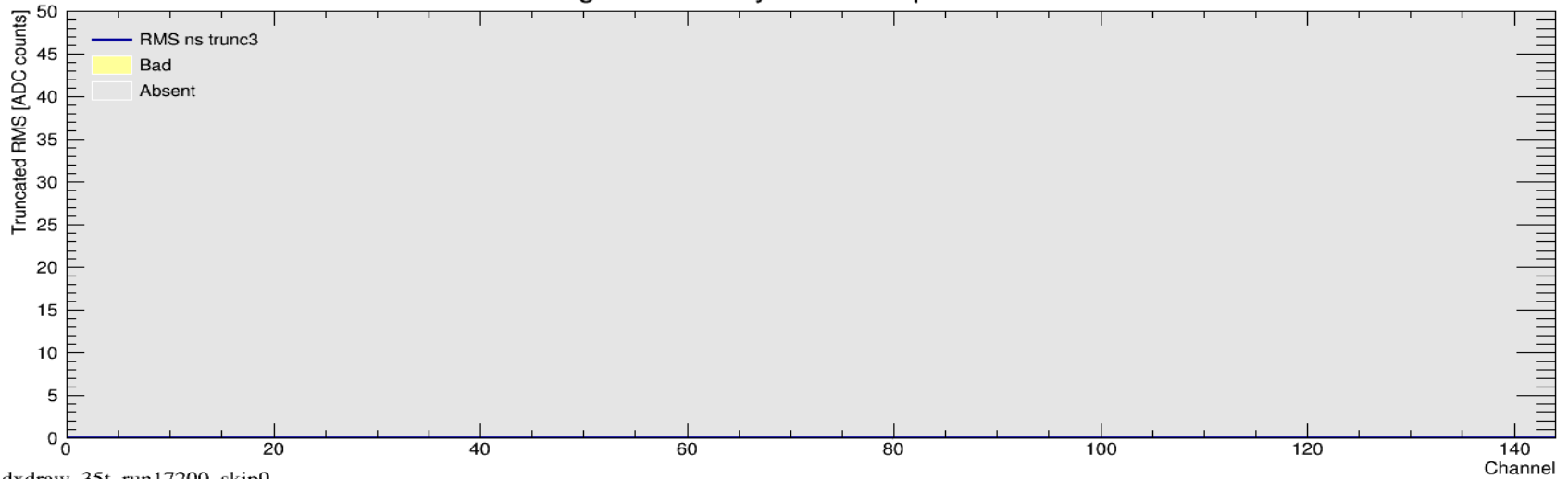
Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

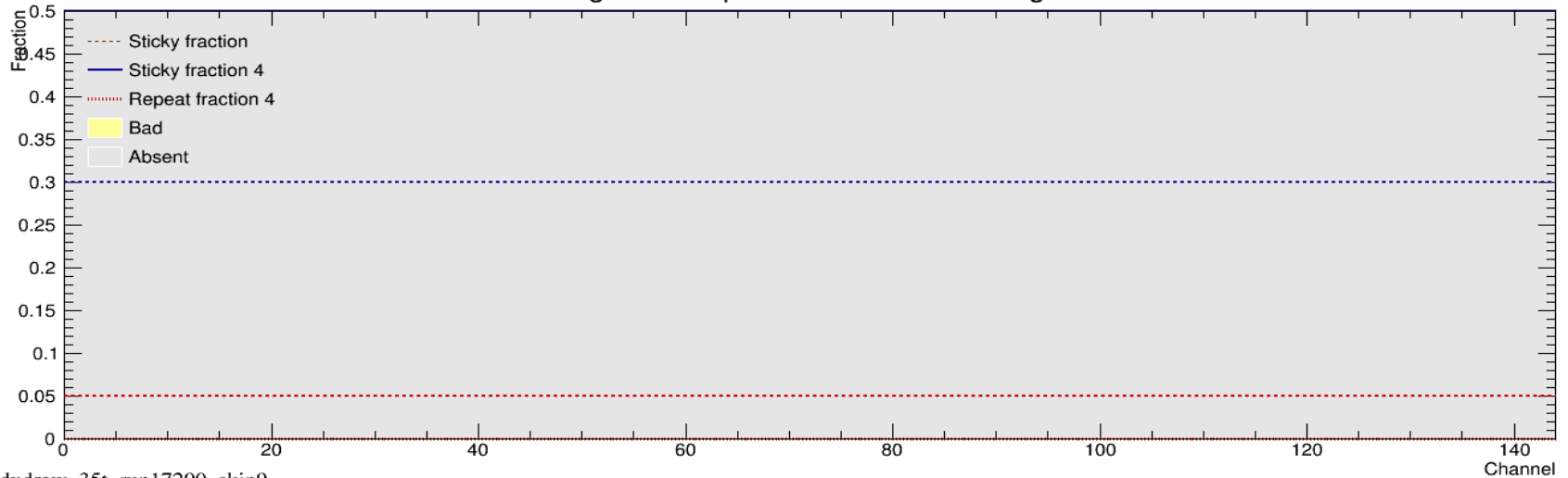
# APA 1v run 17200

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run17200\_skip9

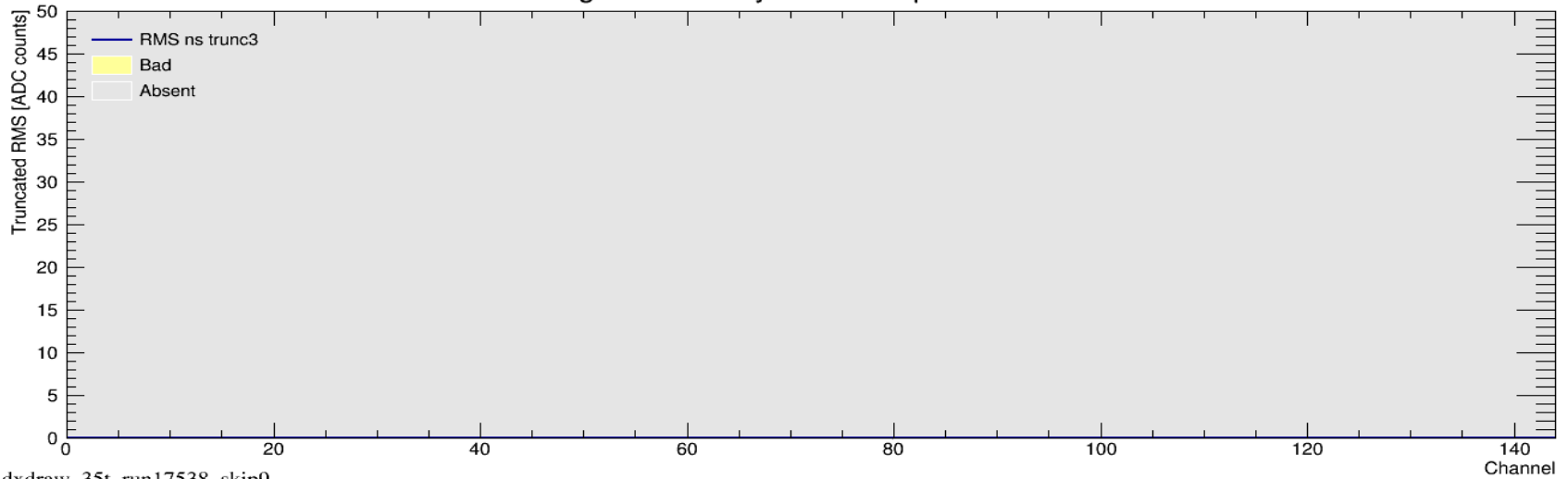
Raw signals for apa1v event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

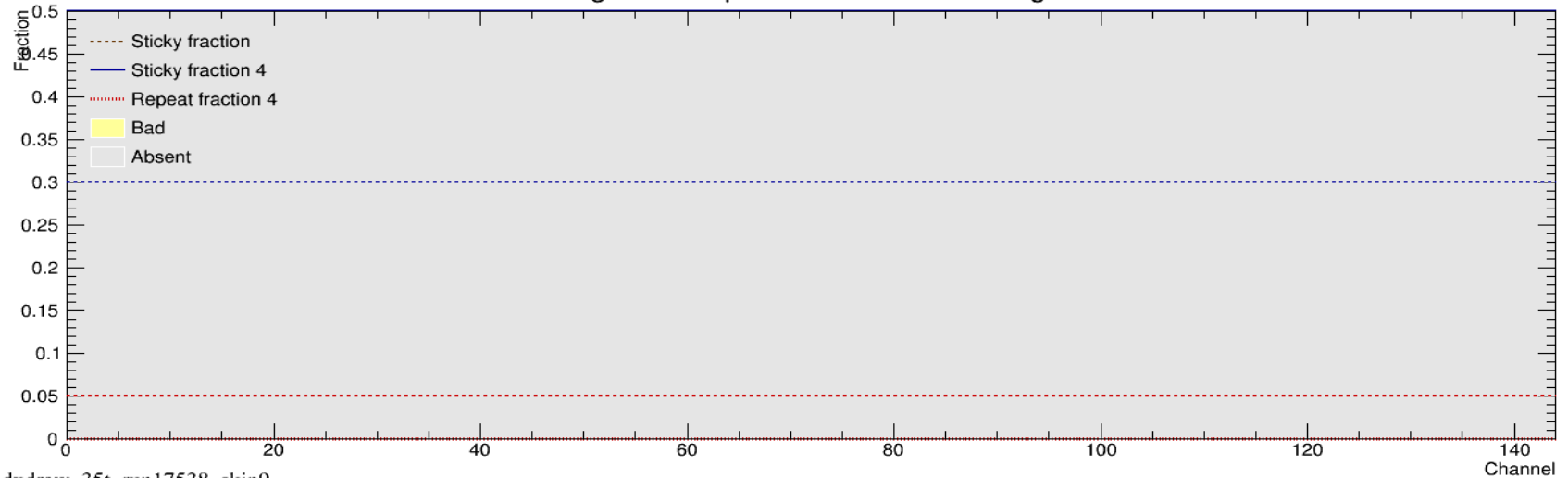
# APA 1v run 17538 (last)

Raw signal not-sticky RMS for apa1v event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa1v event 10 stuck range 4

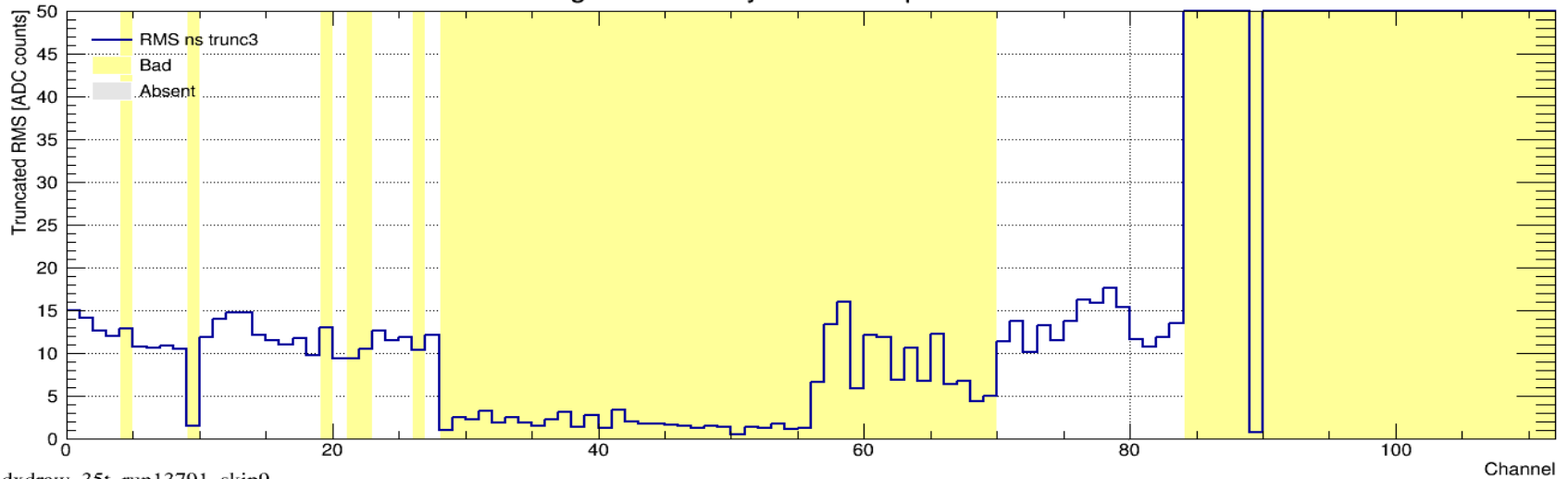


dxdraw\_35t\_run17538\_skip9

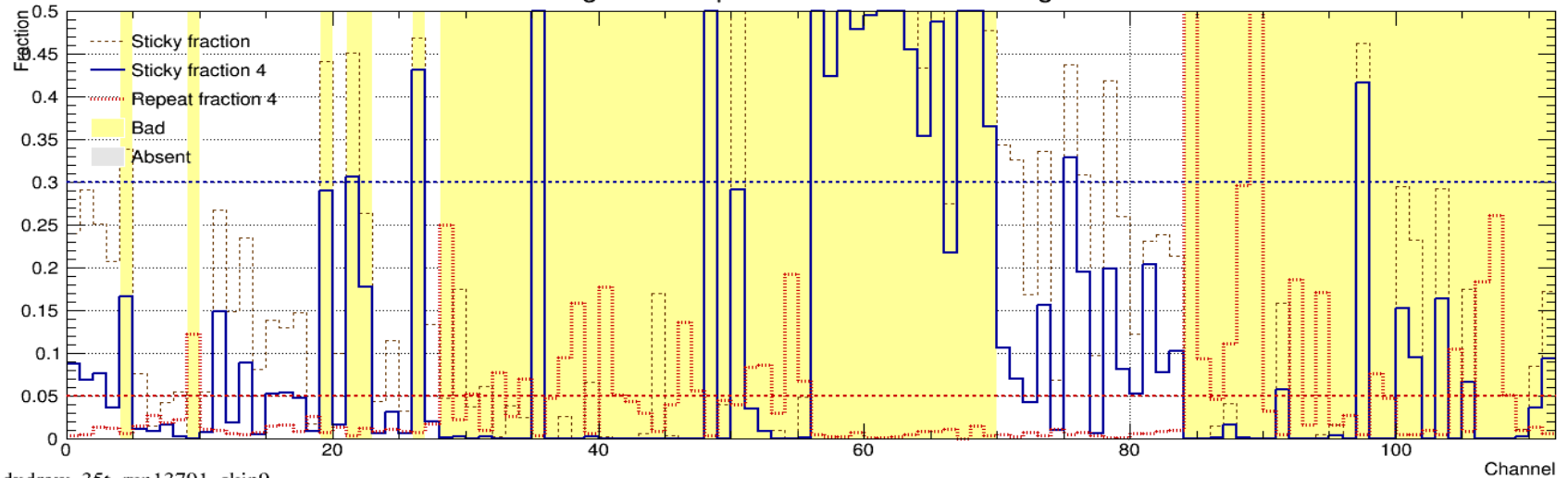
# APA 1z1

# APA 1z1 run 13791 (first)

Raw signal not-sticky RMS for apa1z1 event 10

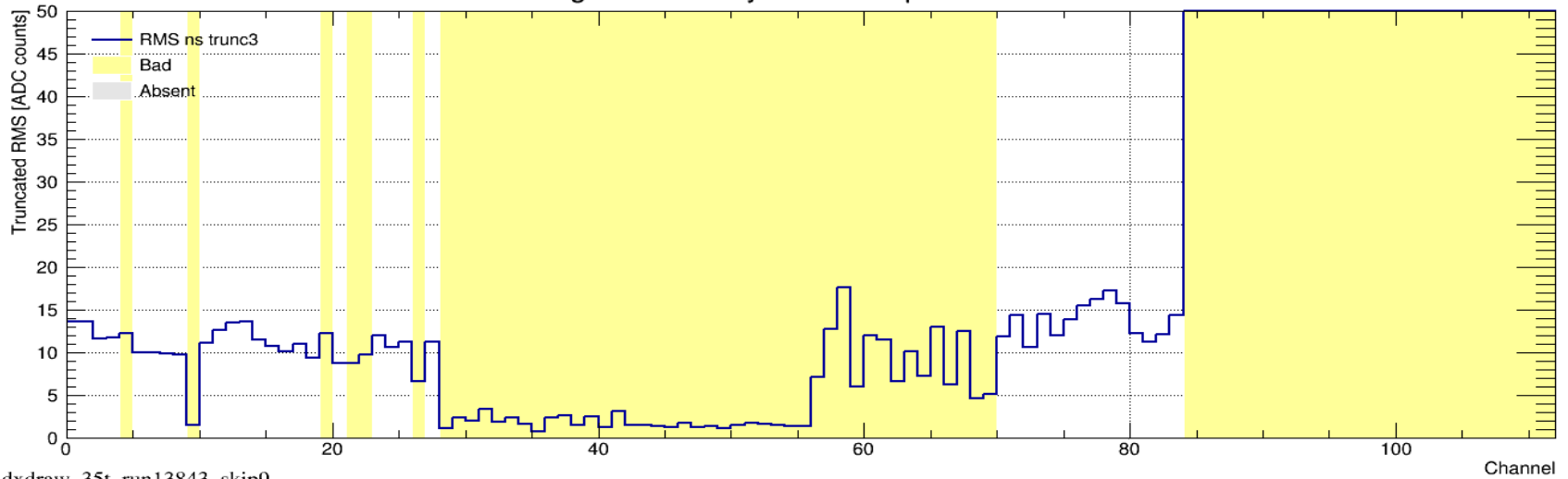


Raw signals for apa1z1 event 10 stuck range 4



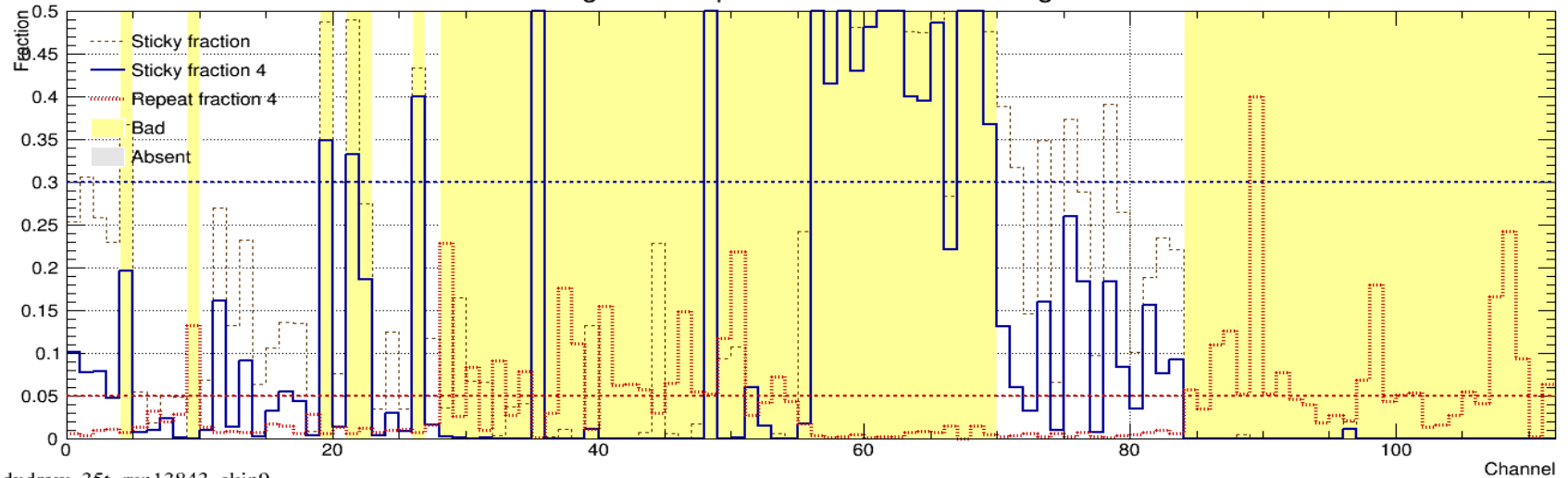
# APA 1z1 run 13843

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run13843\_skip9

Raw signals for apa1z1 event 10 stuck range 4

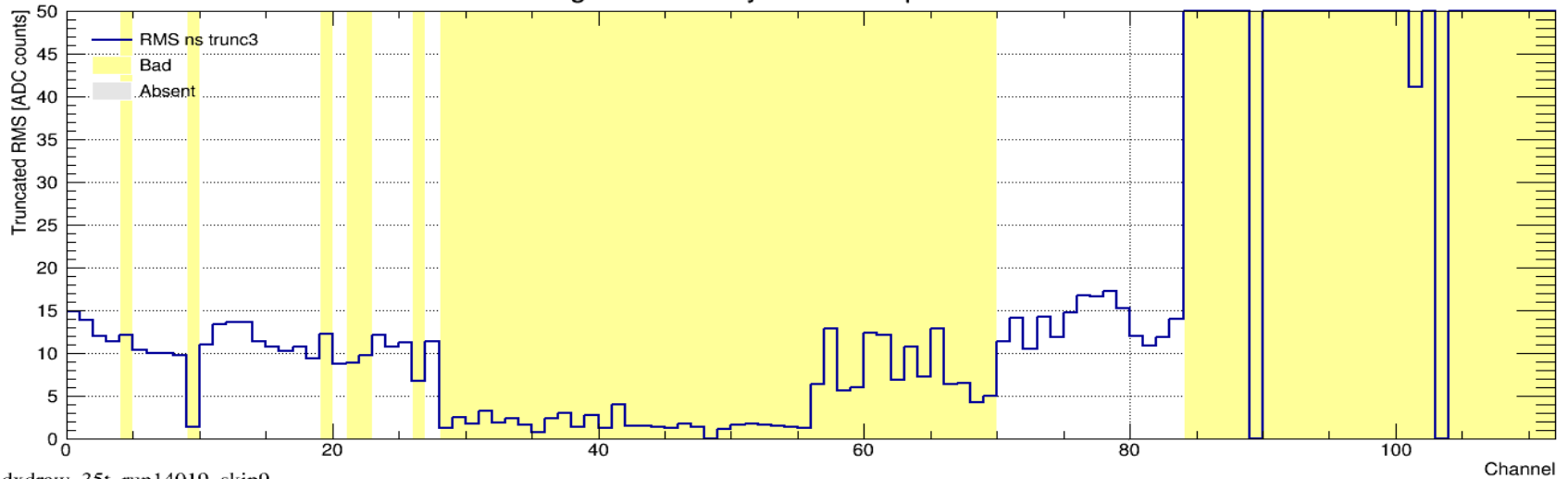


dxdraw\_35t\_run13843\_skip9



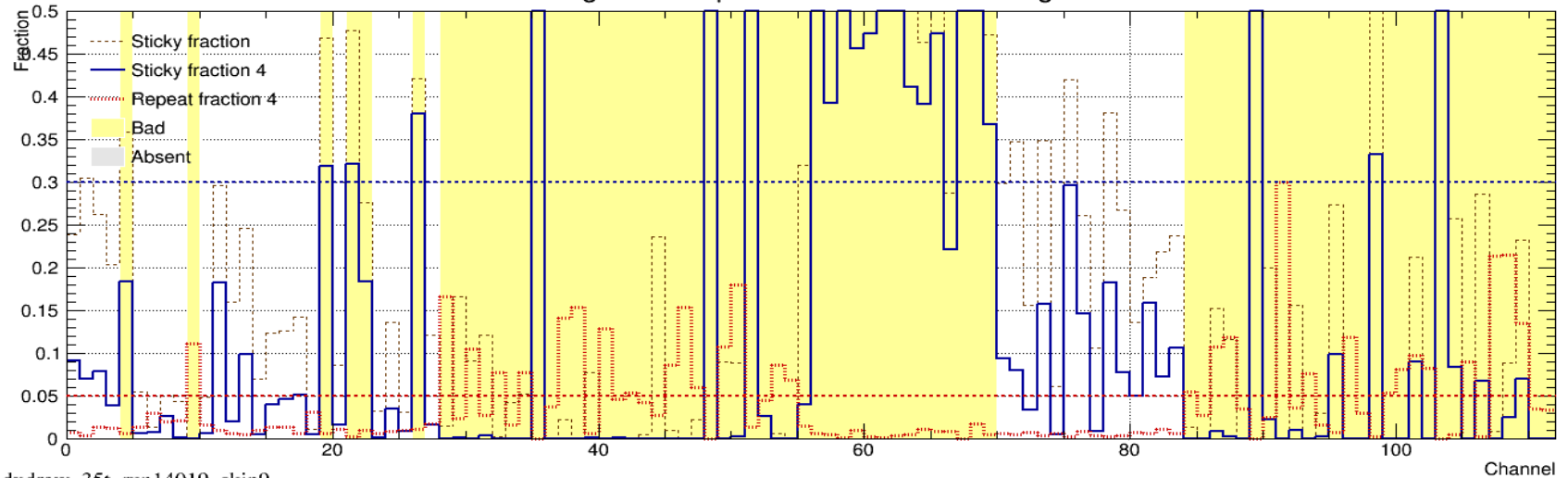
# APA 1z1 run 14019

## Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run14019\_skip9

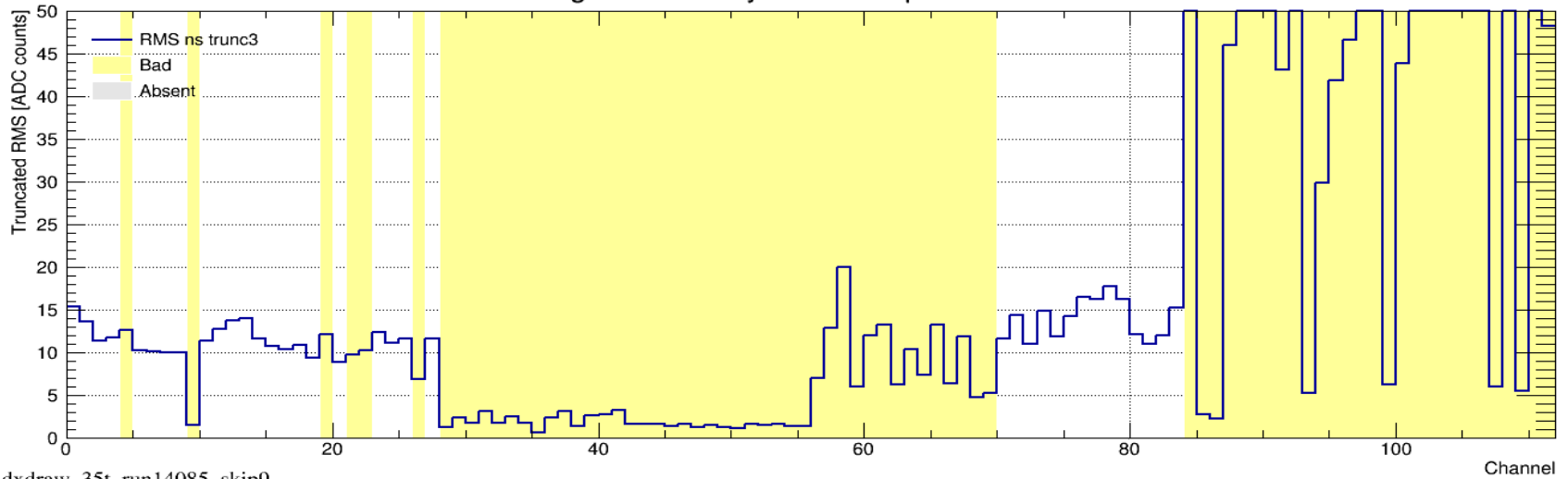
## Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

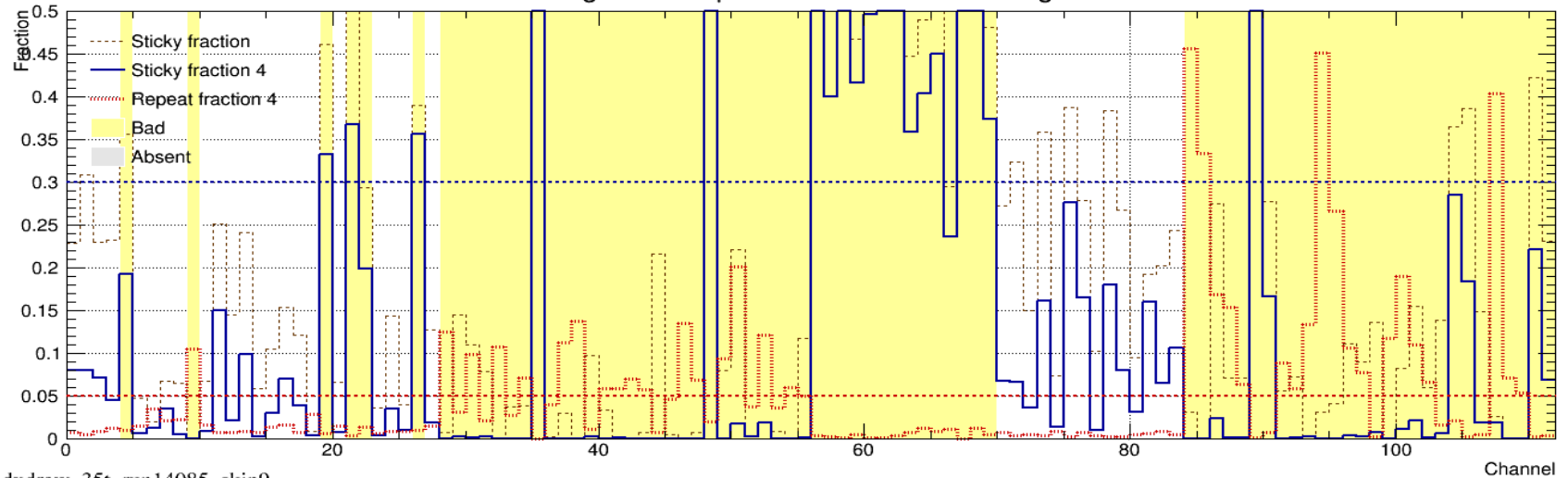
# APA 1z1 run 14085

## Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run14085\_skip9

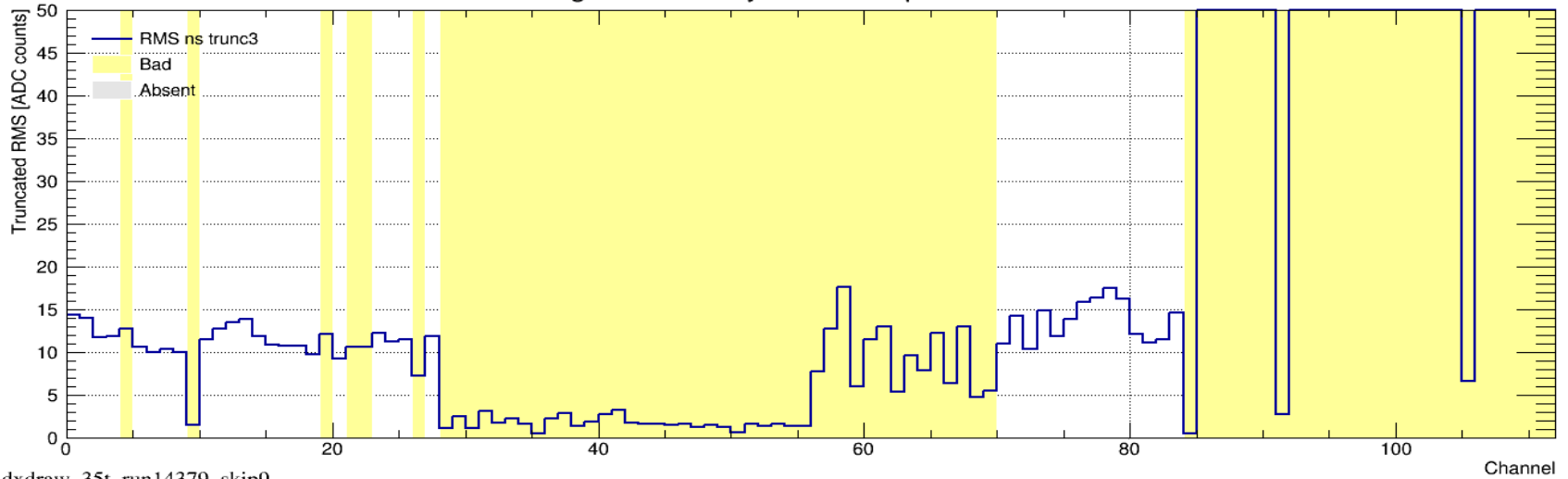
## Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

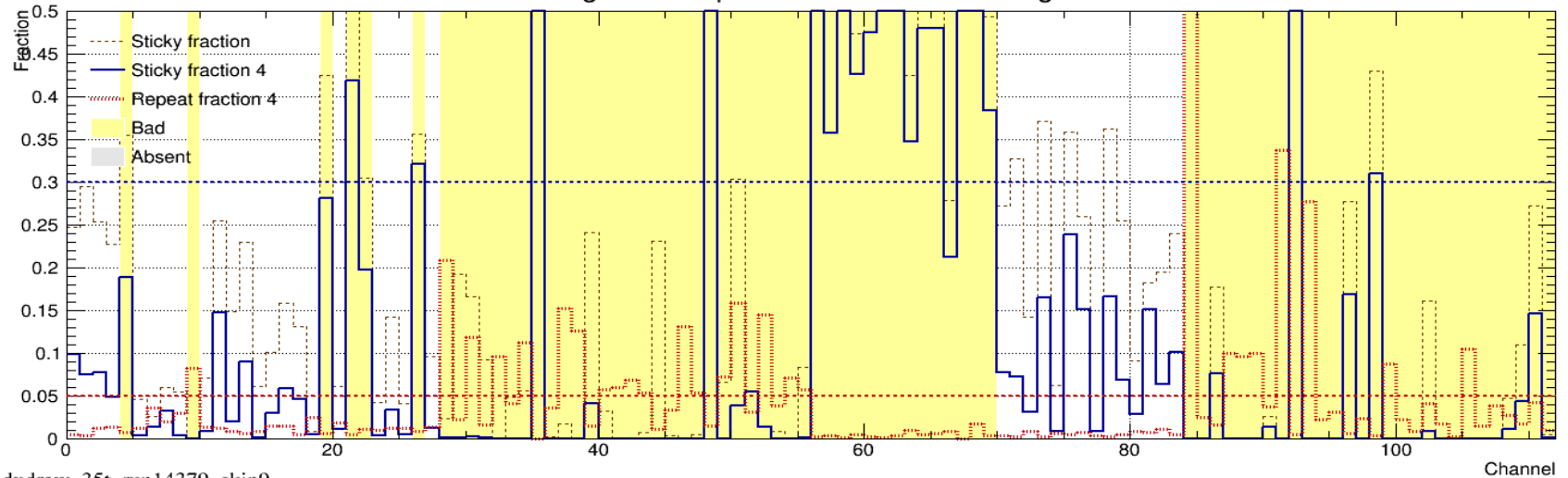
# APA 1z1 run 14379

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run14379\_skip9

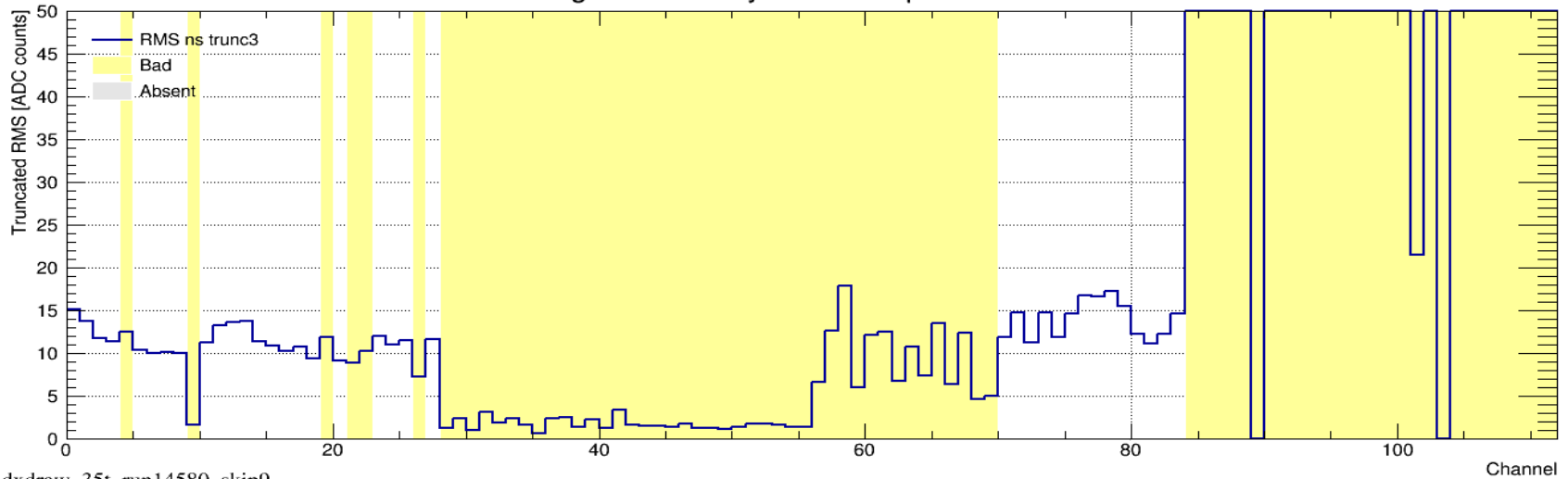
Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

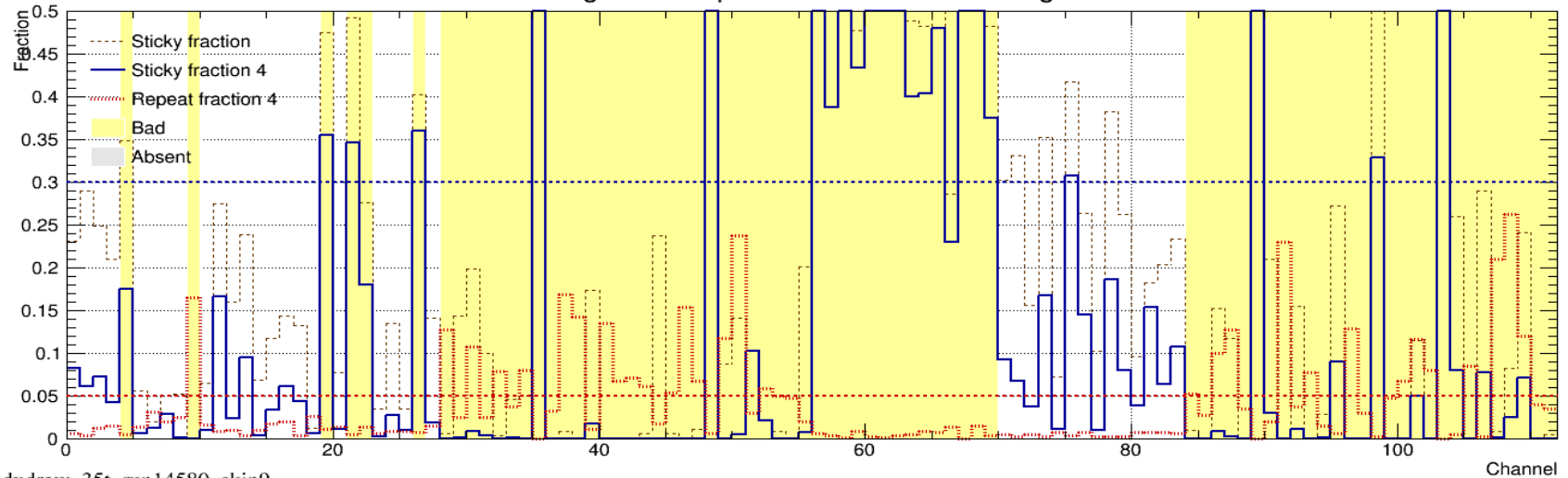
# APA 1z1 run 14580 (last before power failure)

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run14580\_skip9

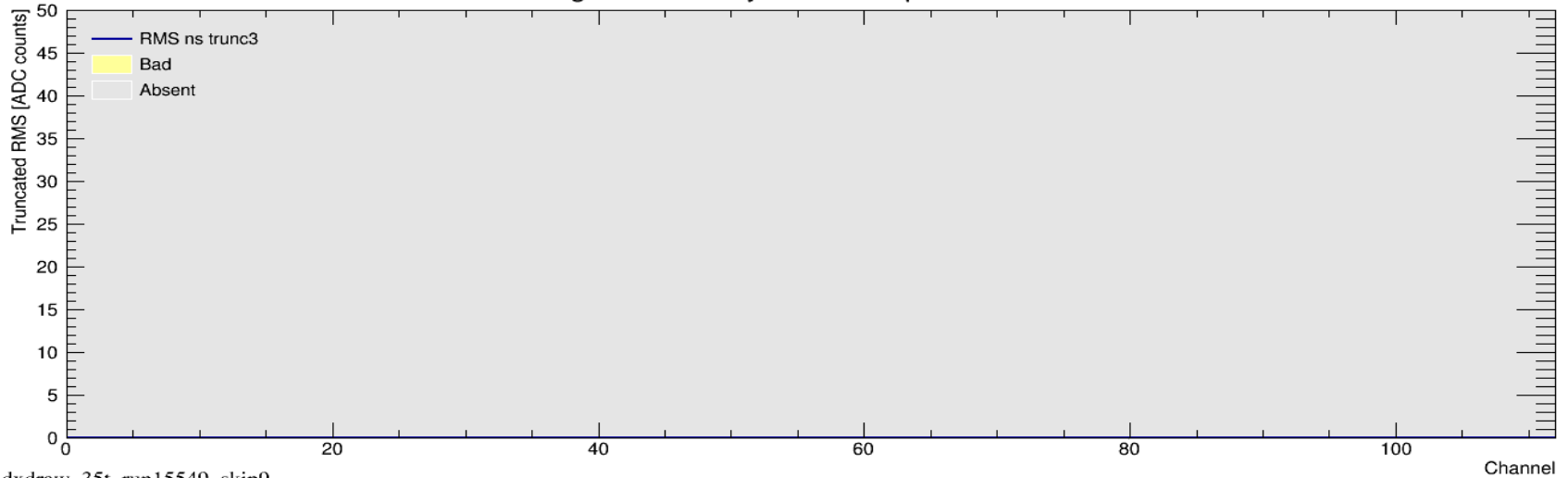
Raw signals for apa1z1 event 10 stuck range 4



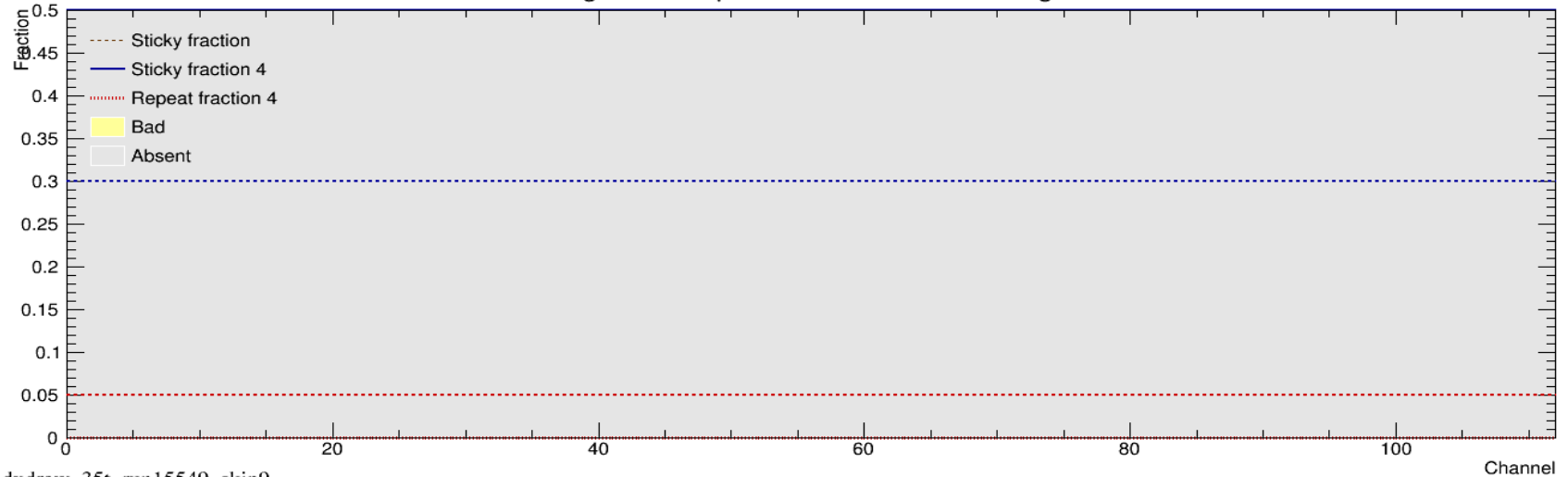
dxdraw\_35t\_run14580\_skip9

# APA 1z1 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa1z1 event 10

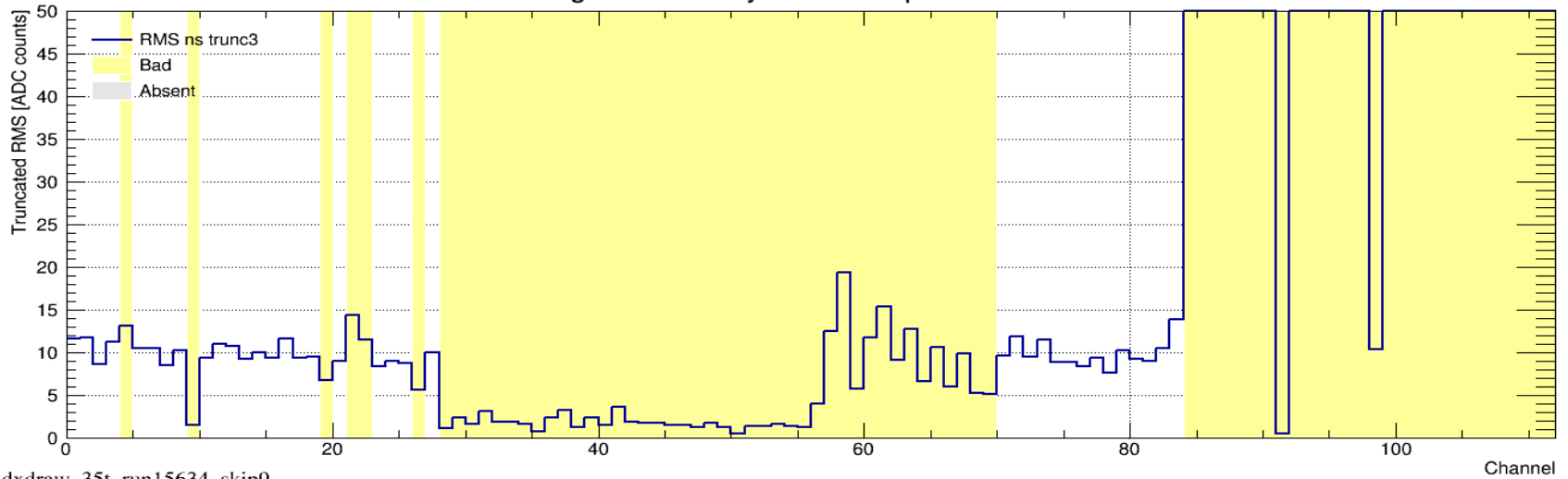


Raw signals for apa1z1 event 10 stuck range 4



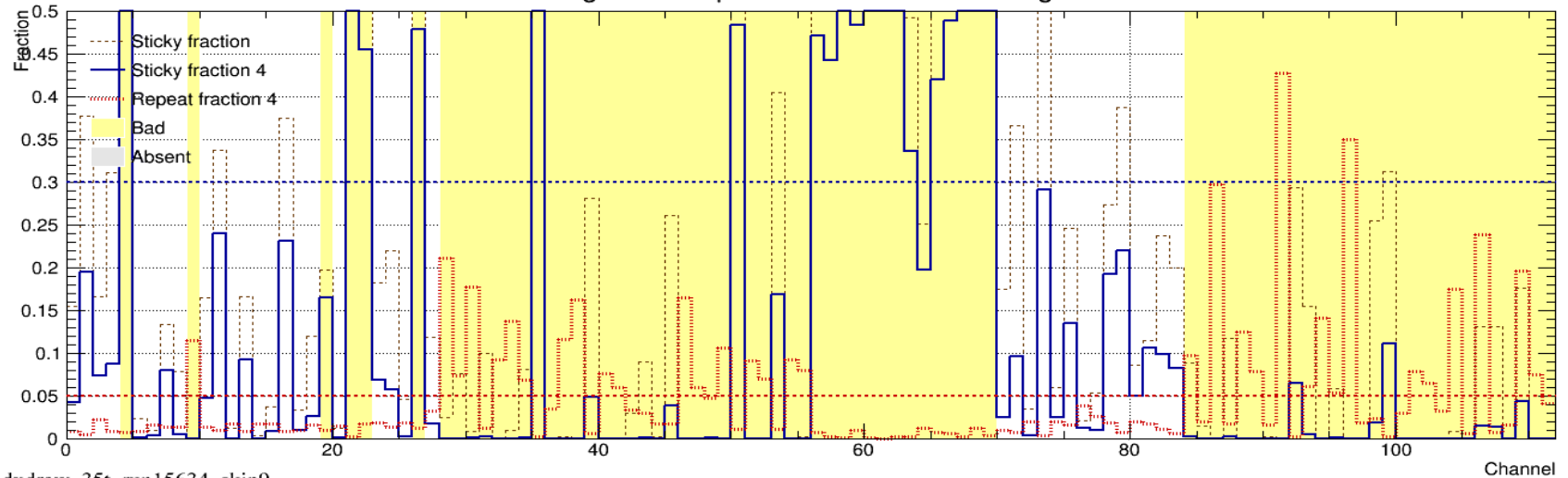
# APA 1z1 run 15634

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run15634\_skip9

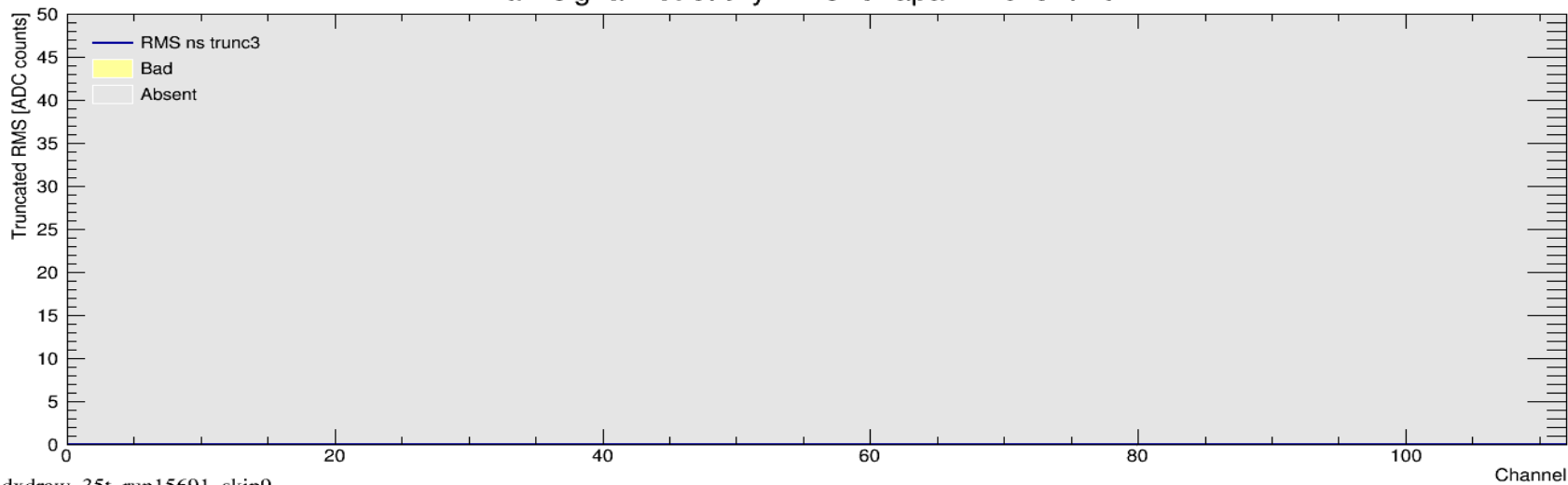
Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

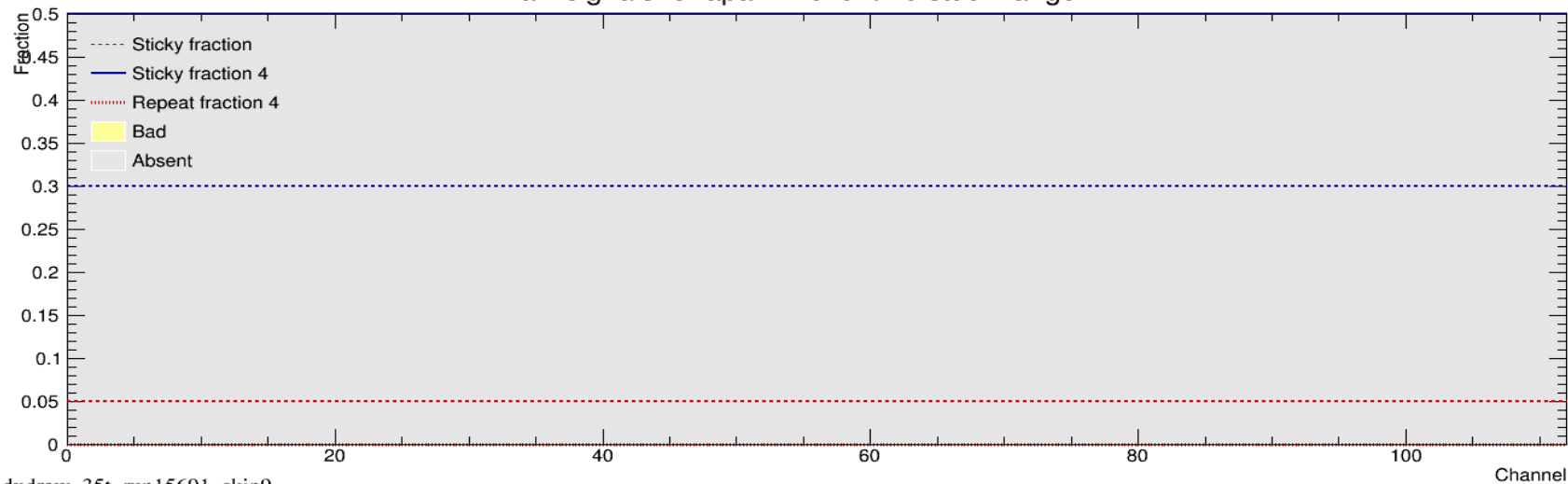
# APA 1z1 run 15691

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run15691\_skip9

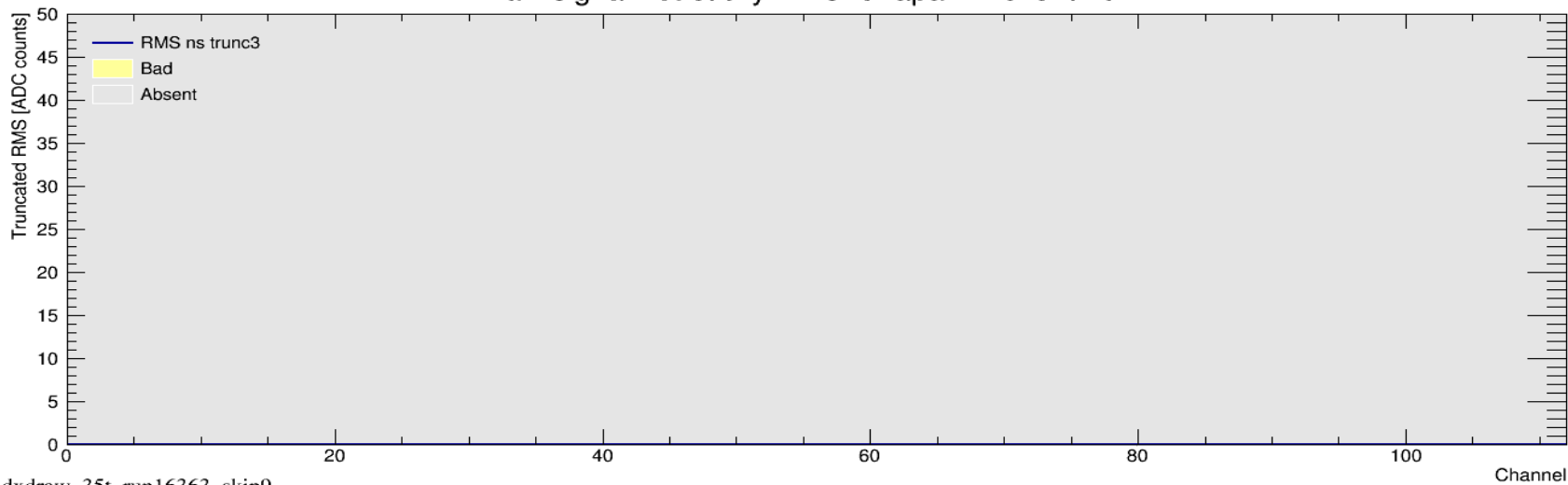
Raw signals for apa1z1 event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

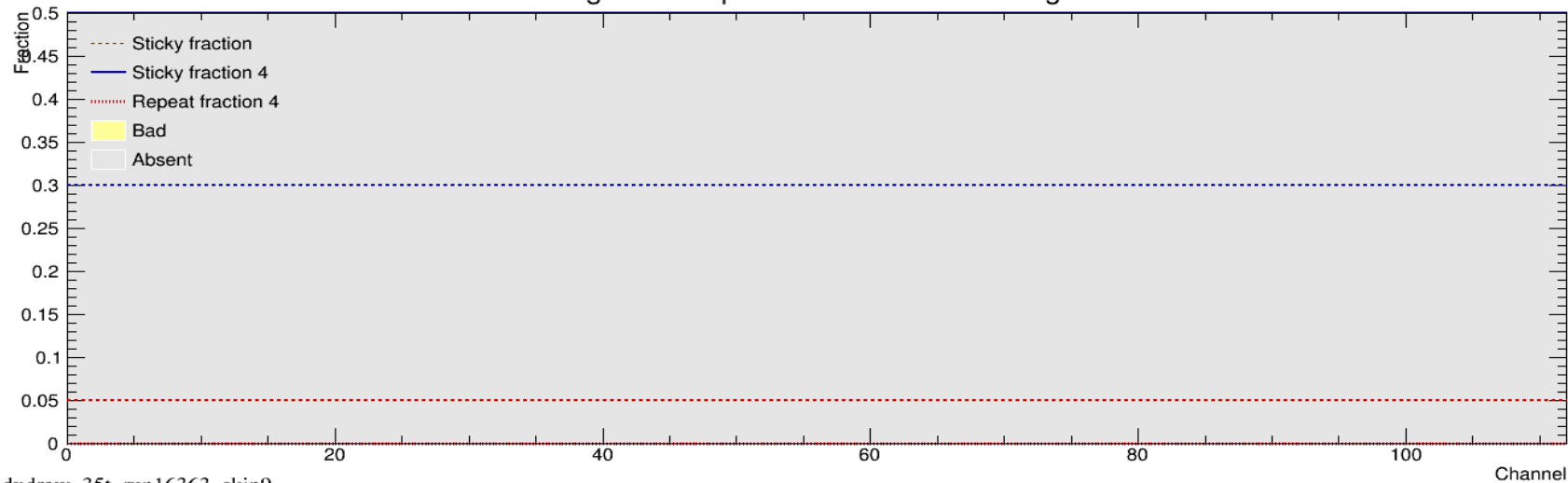
# APA 1z1 run 16363

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run16363\_skip9

Raw signals for apa1z1 event 10 stuck range 4

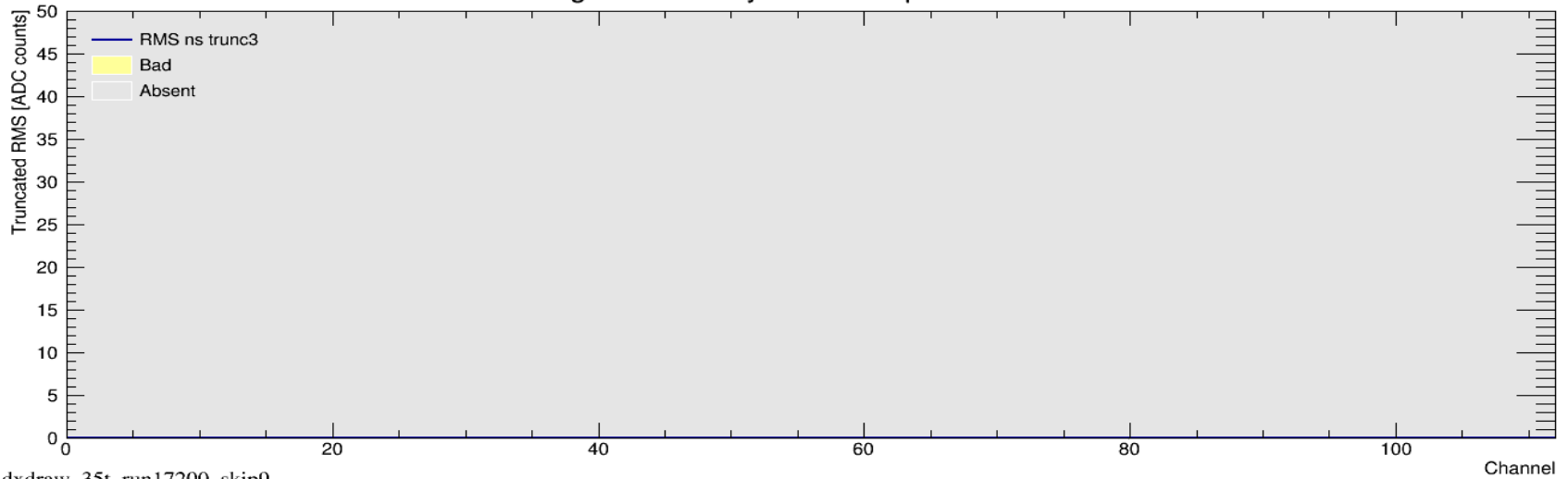


dxdraw\_35t\_run16363\_skip9



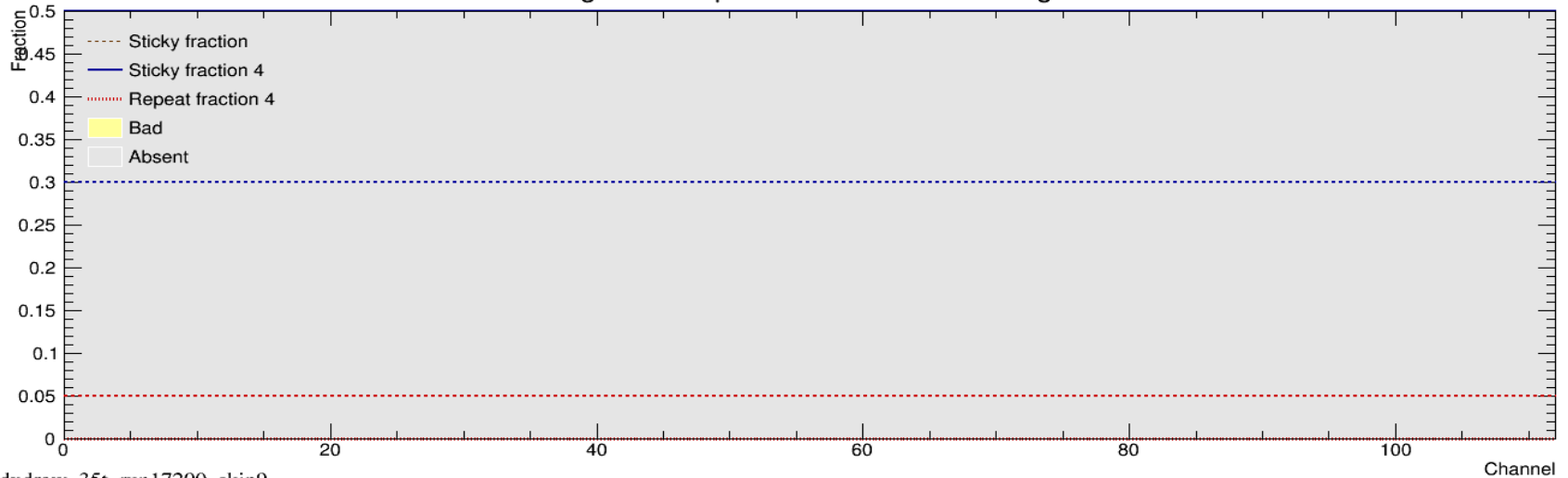
# APA 1z1 run 17200

Raw signal not-sticky RMS for apa1z1 event 10



dxdraw\_35t\_run17200\_skip9

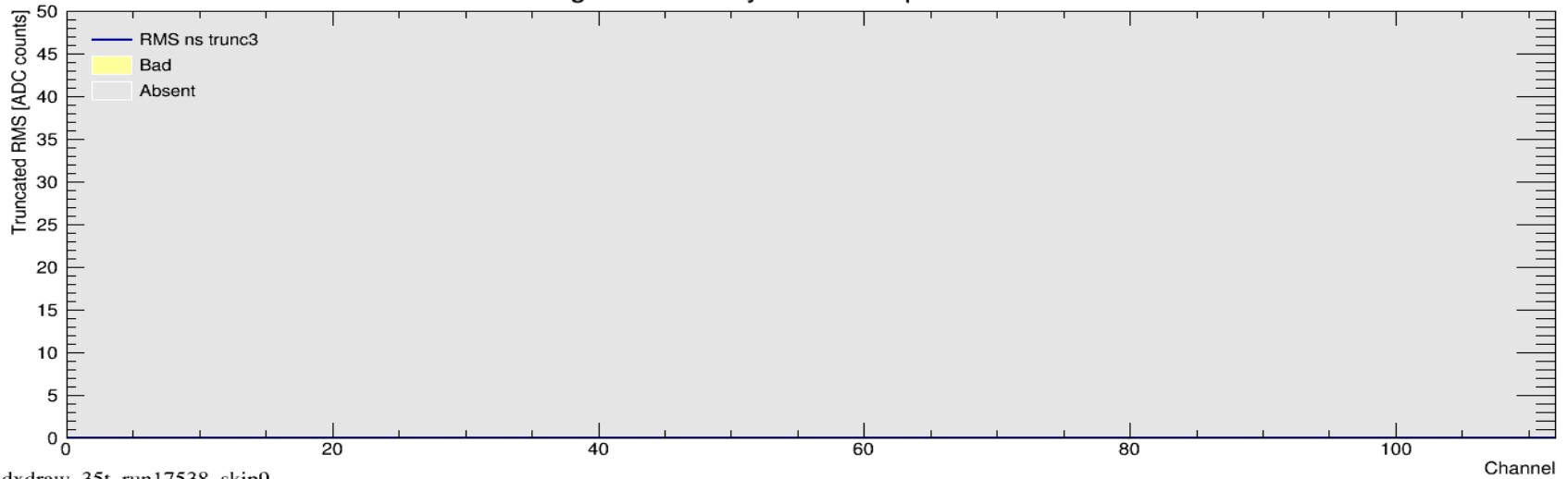
Raw signals for apa1z1 event 10 stuck range 4



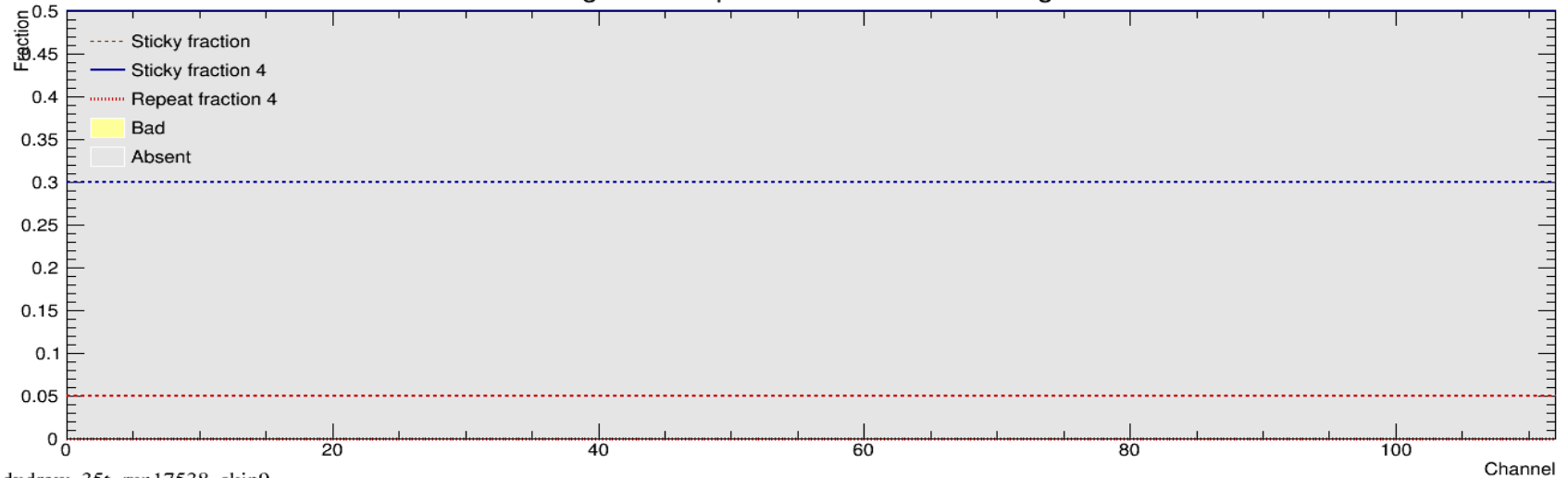
dxdraw\_35t\_run17200\_skip9

# APA 1z1 run 17538 (last)

Raw signal not-sticky RMS for apa1z1 event 10



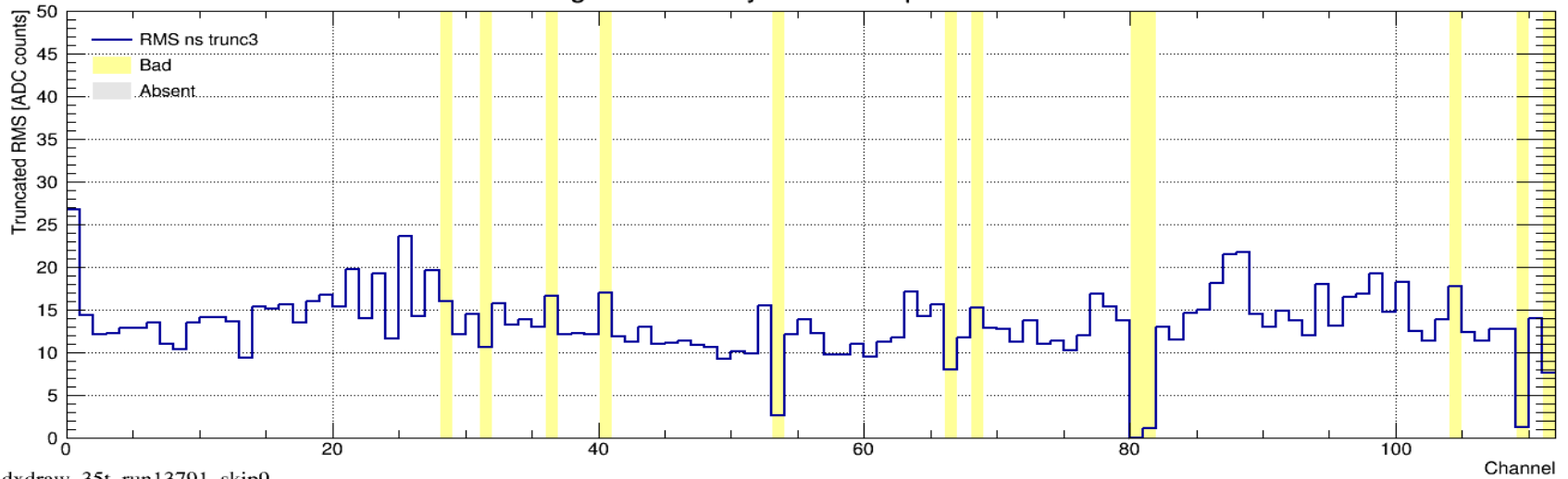
Raw signals for apa1z1 event 10 stuck range 4



# APA 1z2

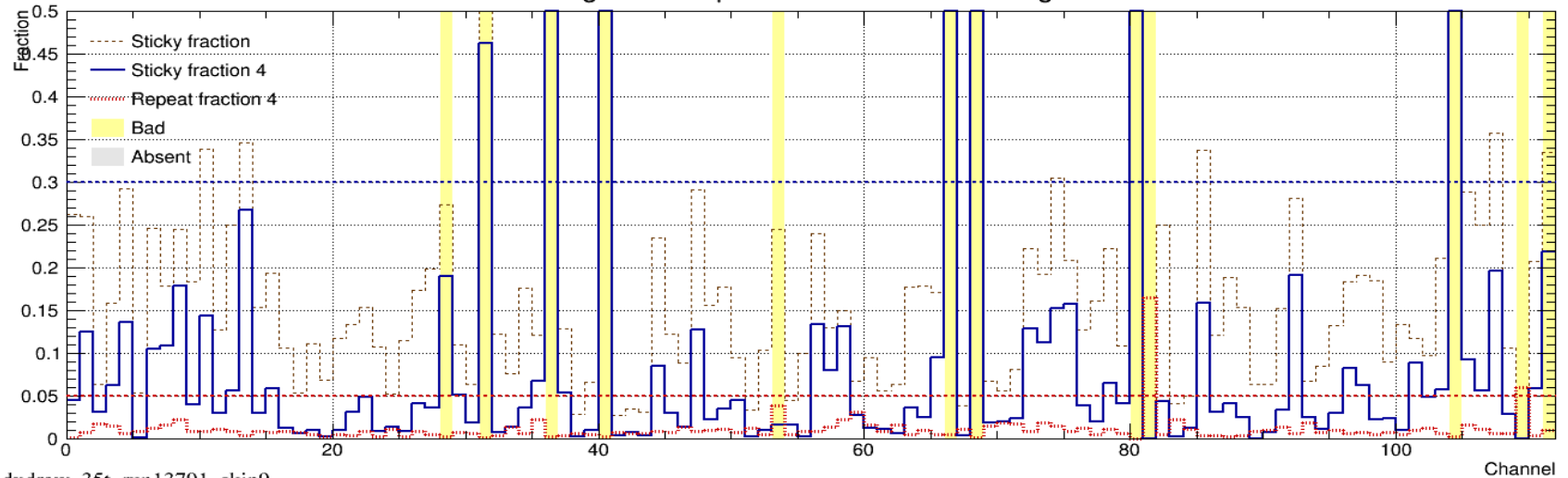
# APA 1z2 run 13791 (first)

Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run13791\_skip9

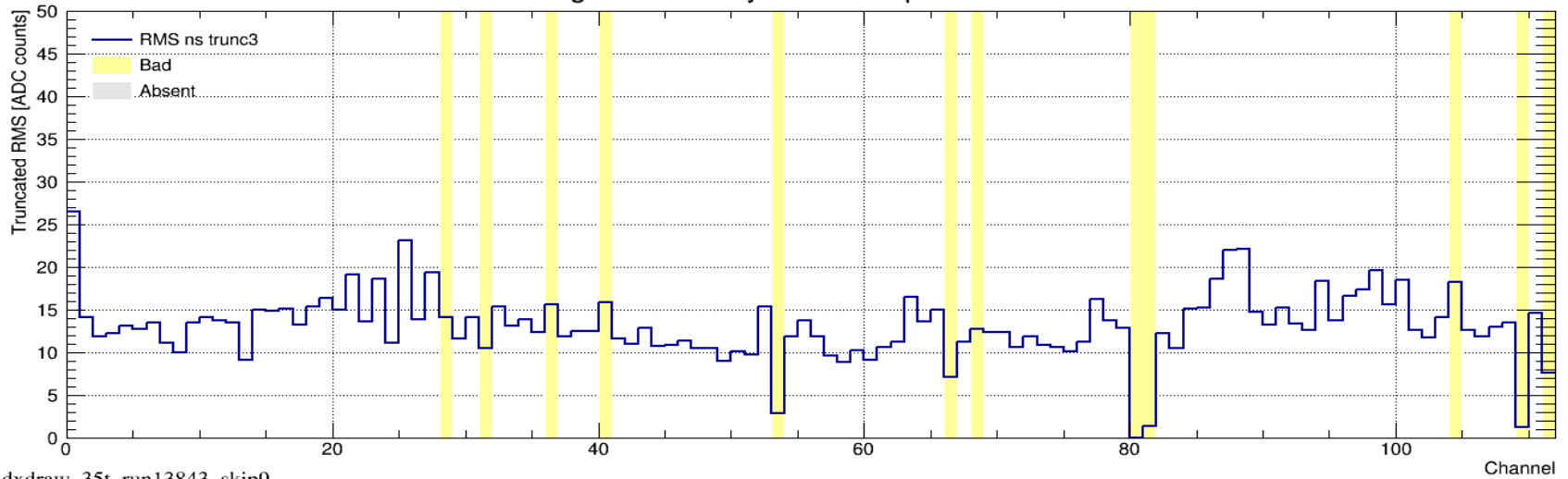
Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

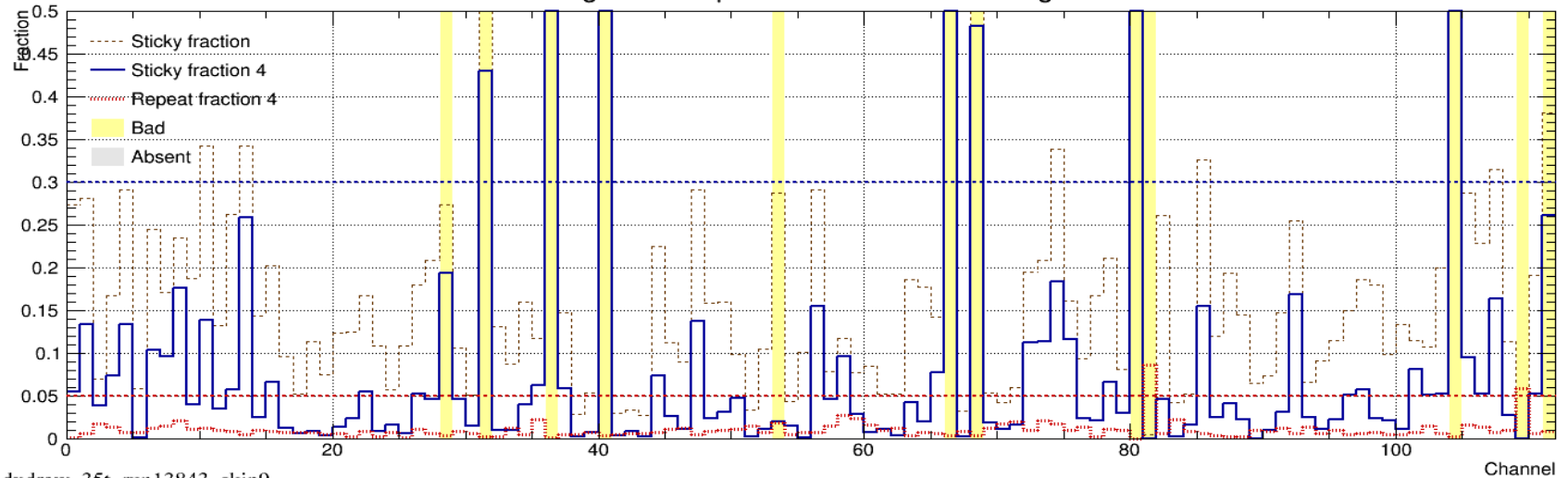
# APA 1z2 run 13843

Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run13843\_skip9

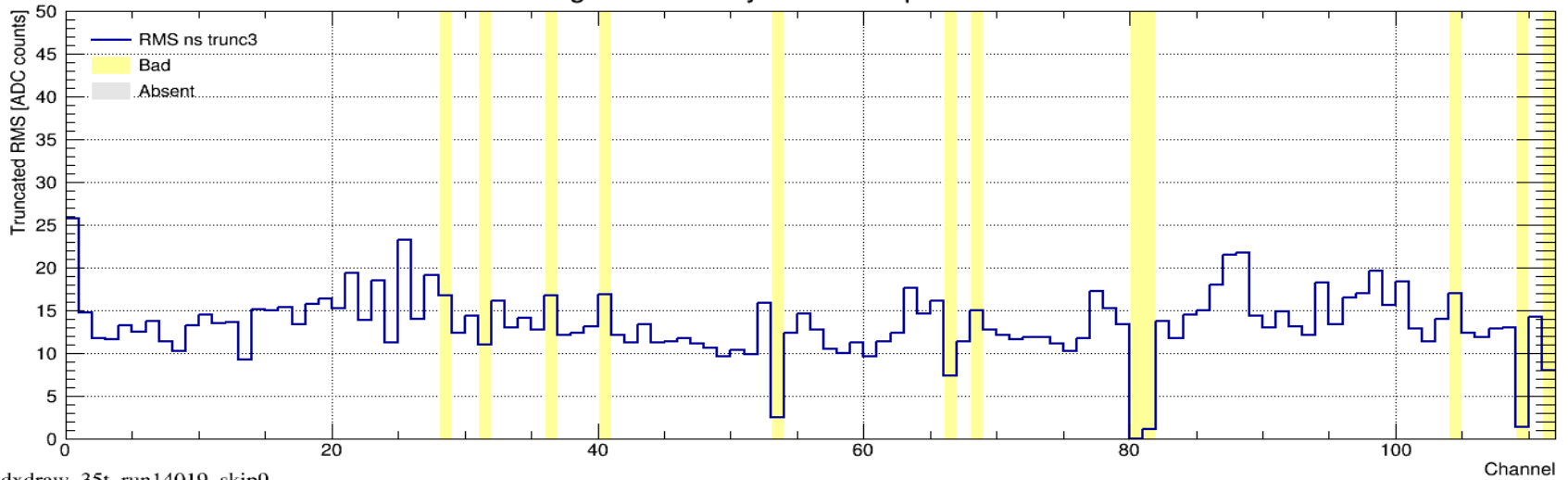
Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

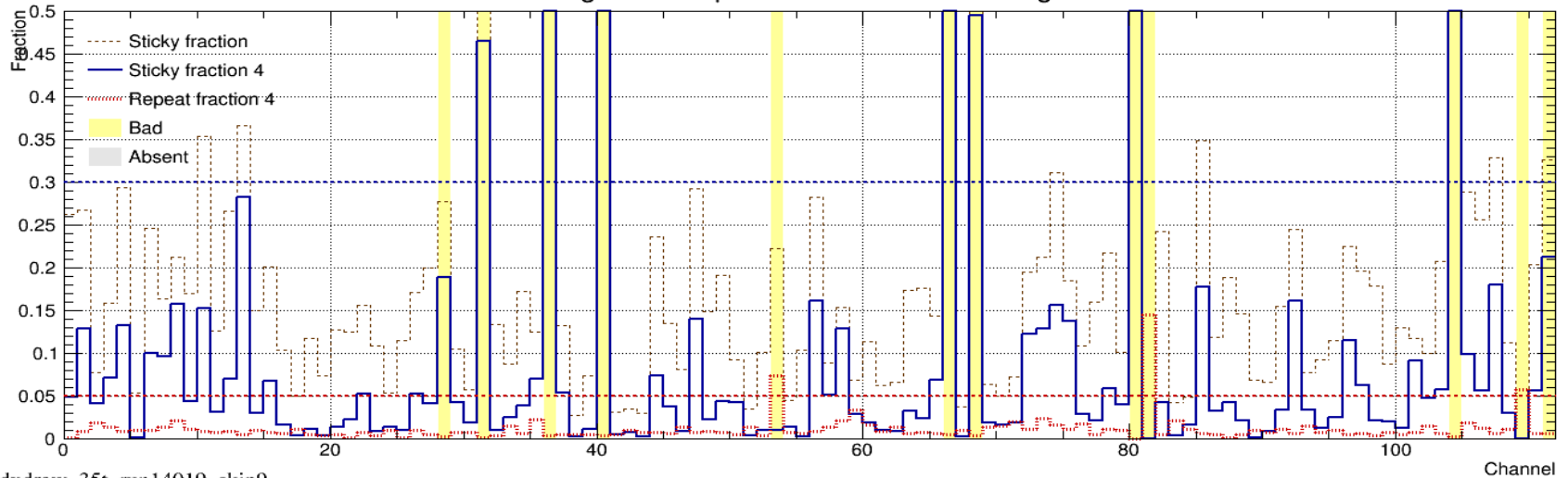
# APA 1z2 run 14019

Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run14019\_skip9

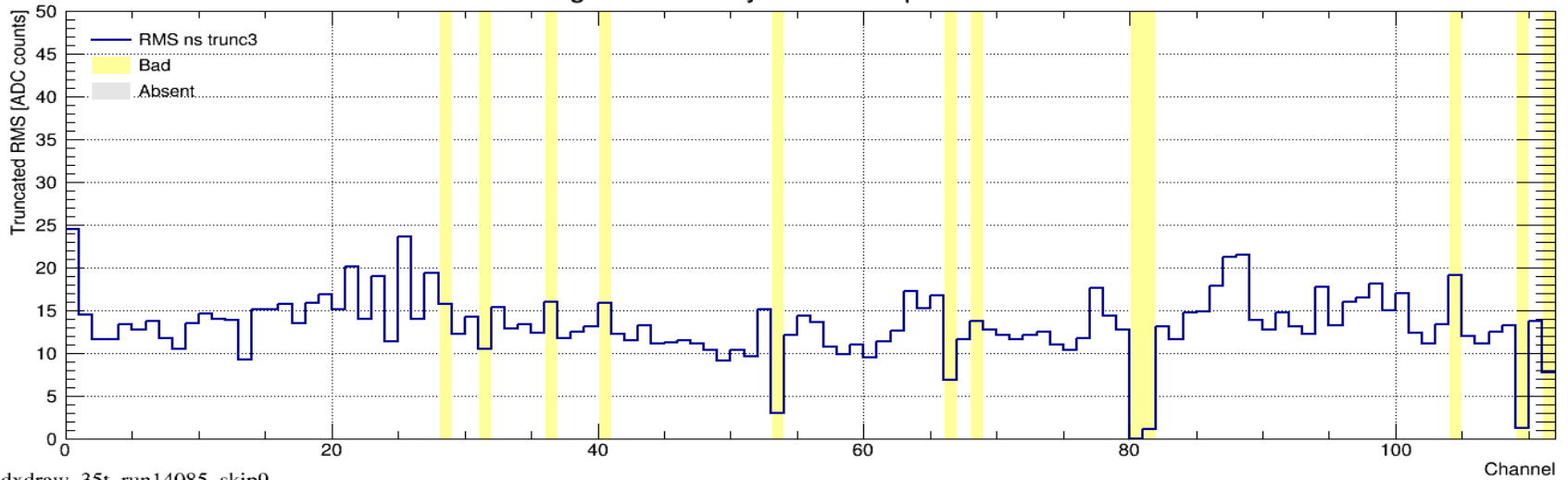
Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

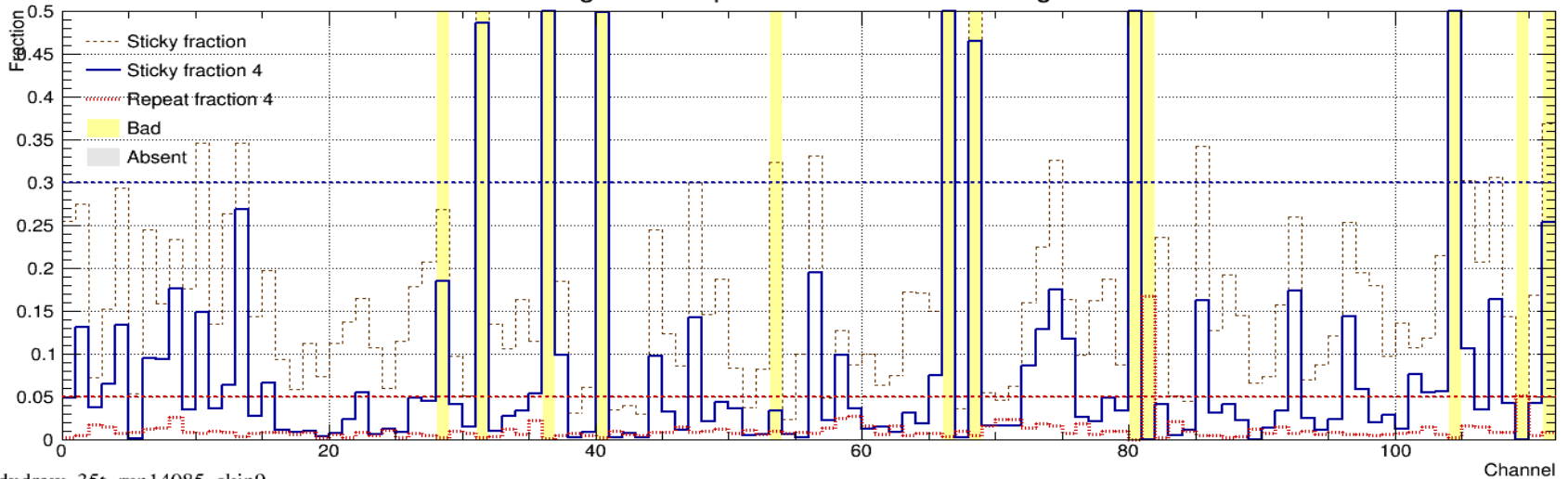
# APA 1z2 run 14085

## Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run14085\_skip9

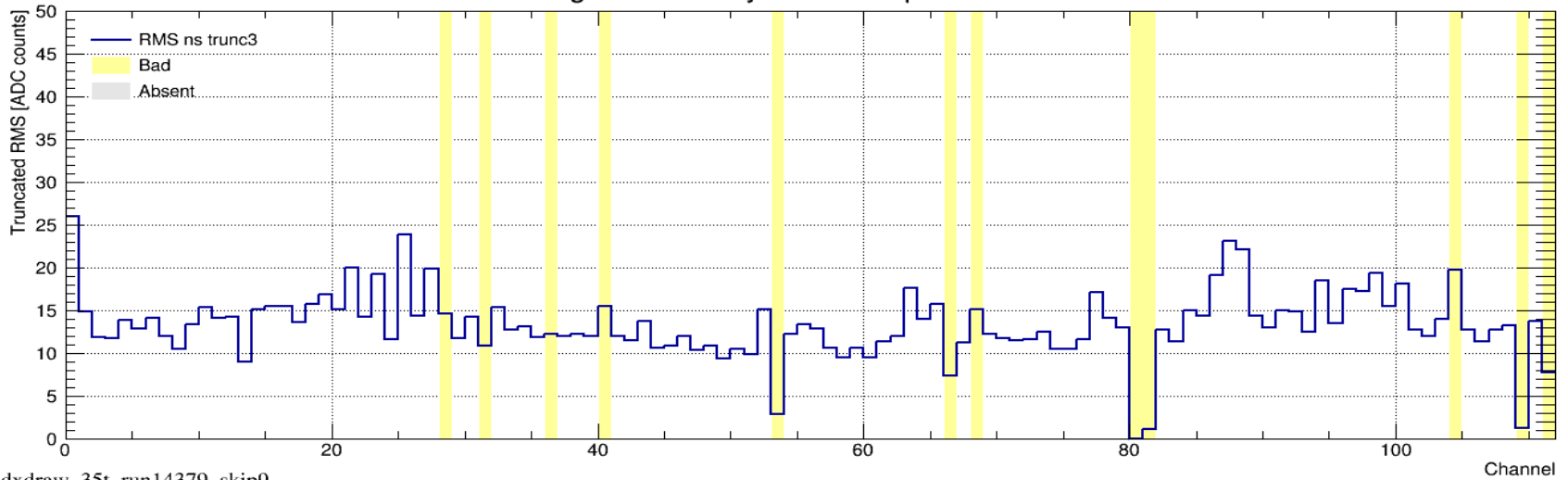
## Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

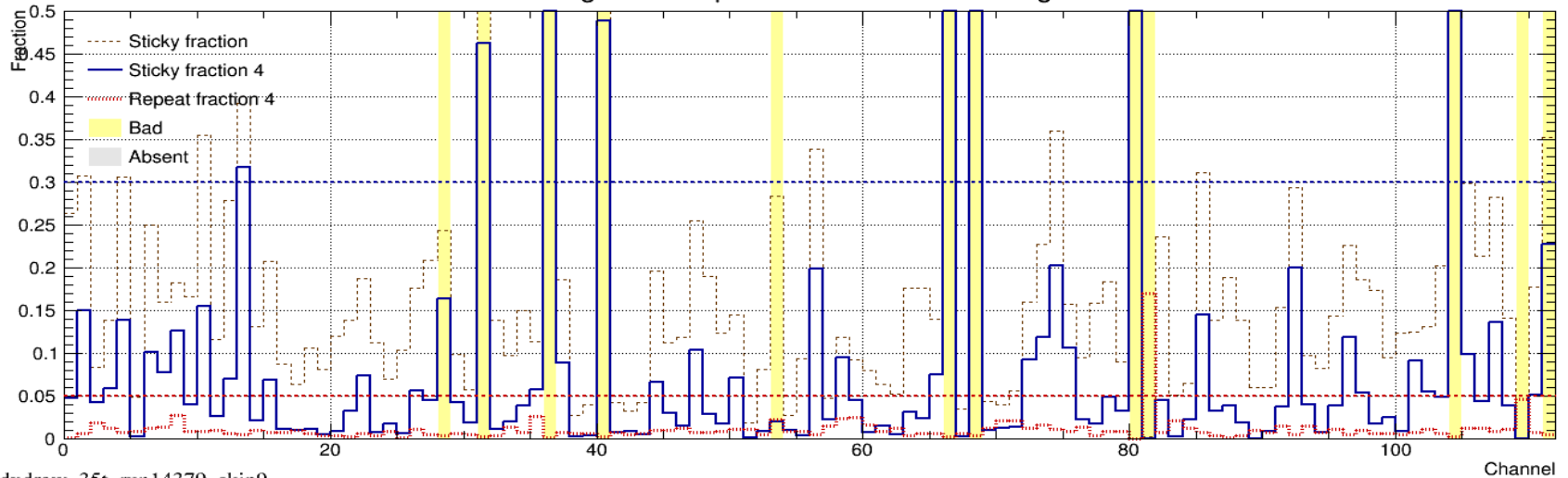
# APA 1z2 run 14379

## Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run14379\_skip9

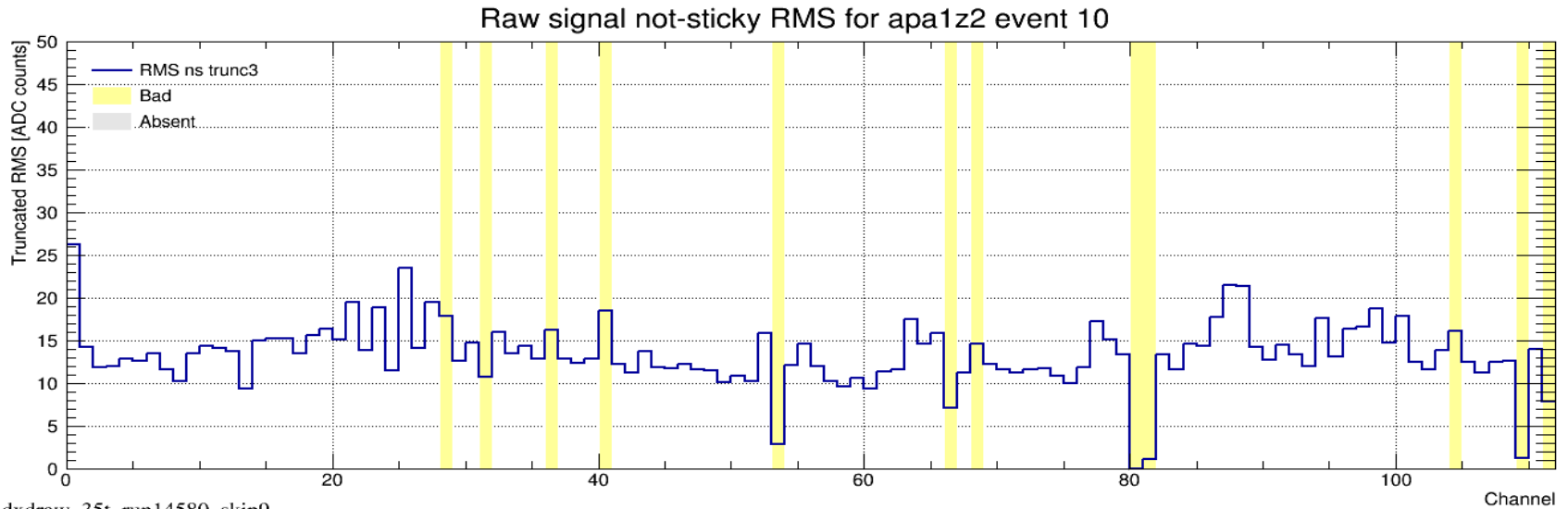
## Raw signals for apa1z2 event 10 stuck range 4



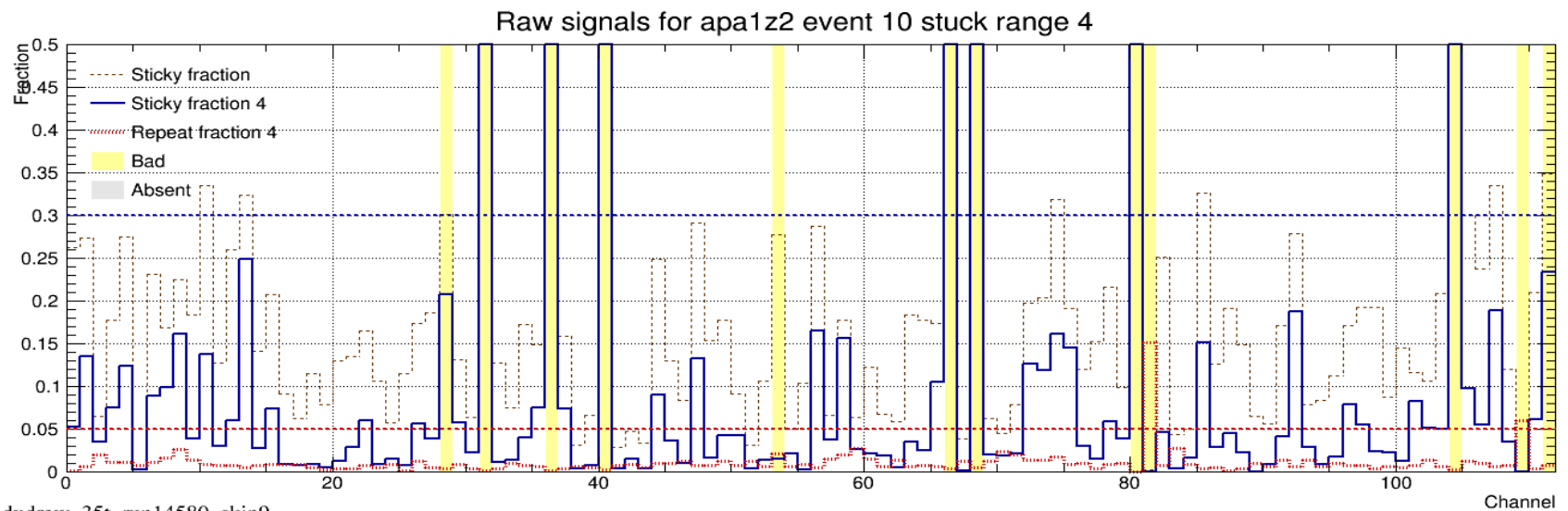
dxdraw\_35t\_run14379\_skip9



# APA 1z2 run 14580 (last before power failure)



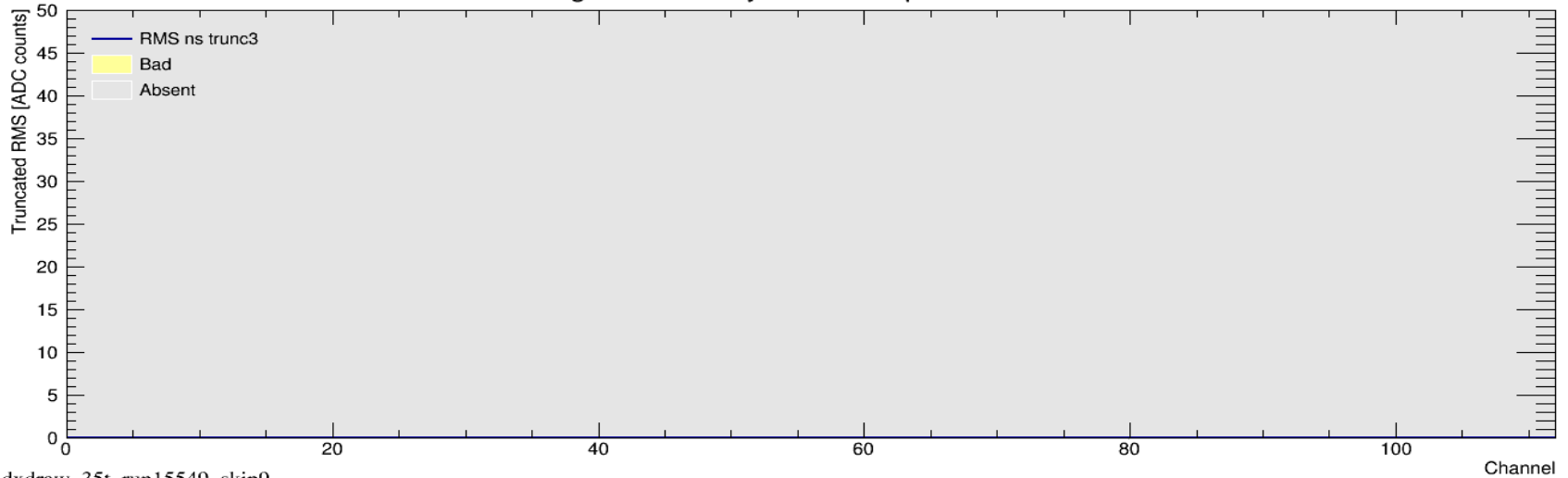
dxdraw\_35t\_run14580\_skip9



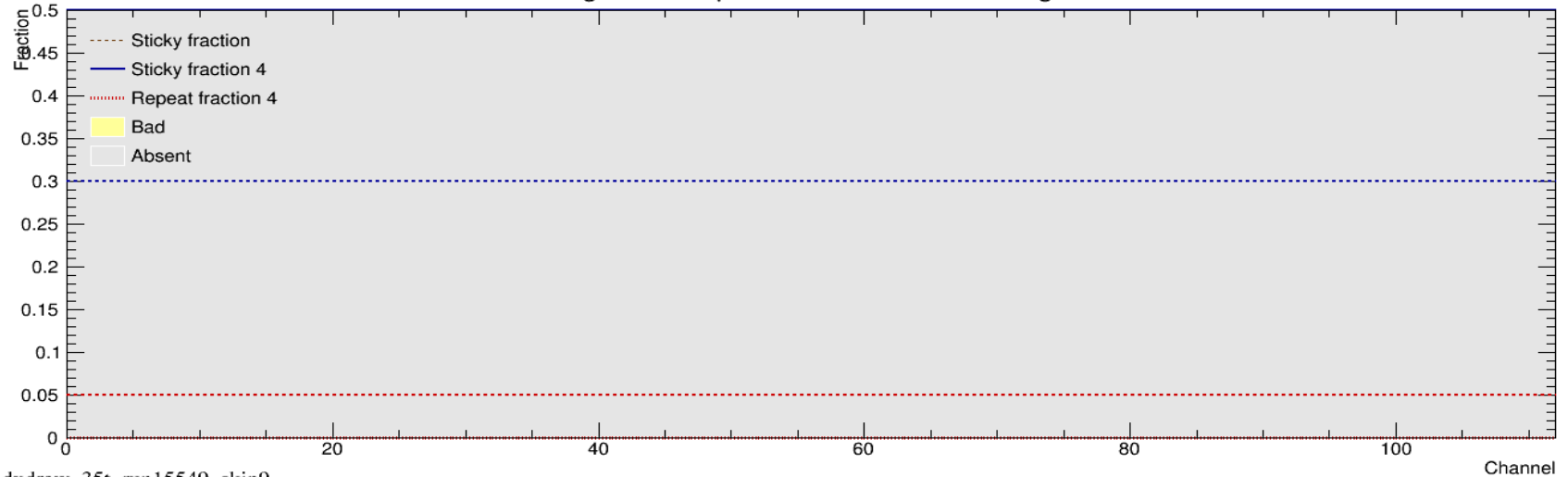
dxdraw\_35t\_run14580\_skip9

# APA 1z2 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa1z2 event 10

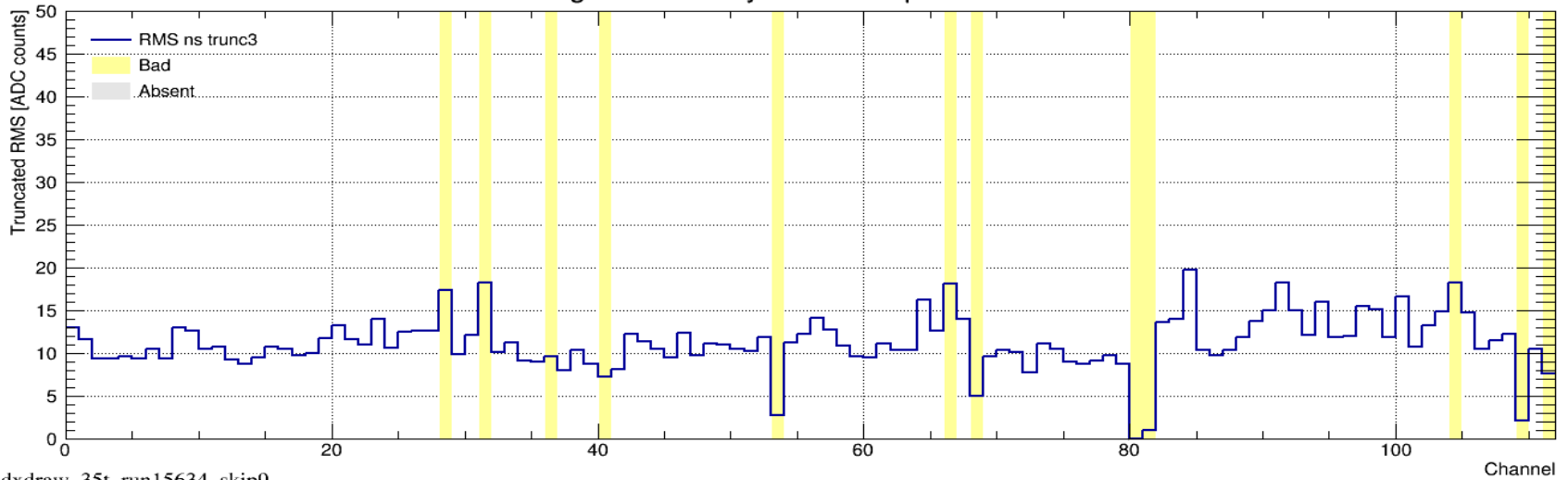


Raw signals for apa1z2 event 10 stuck range 4



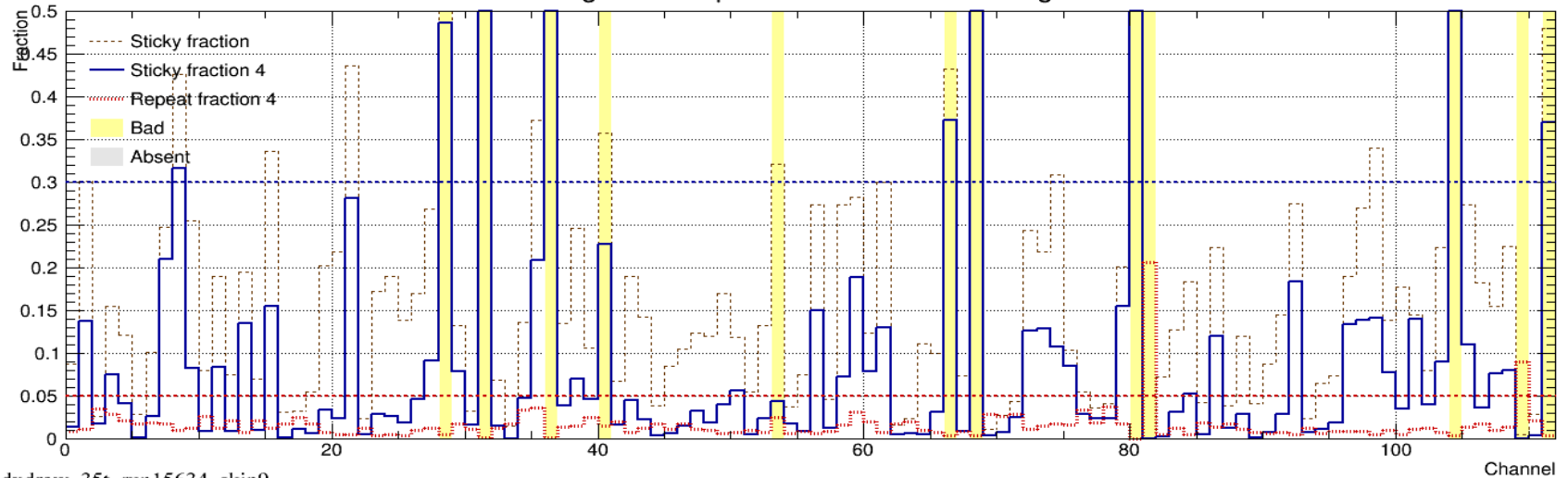
# APA 1z2 run 15634

## Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run15634\_skip9

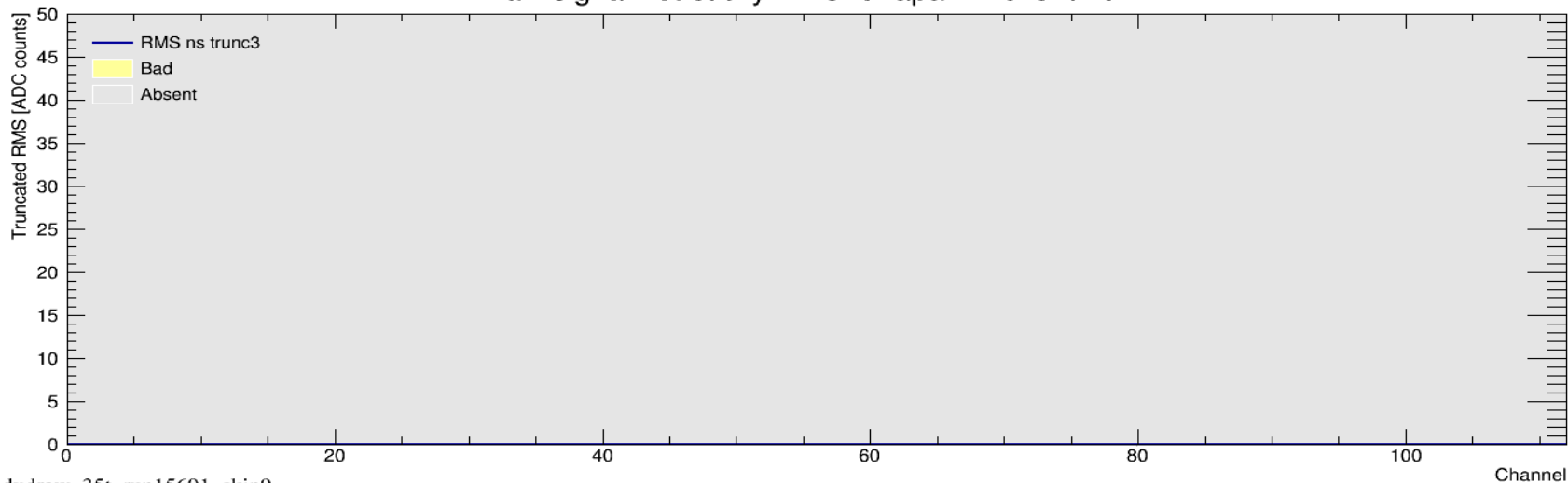
## Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

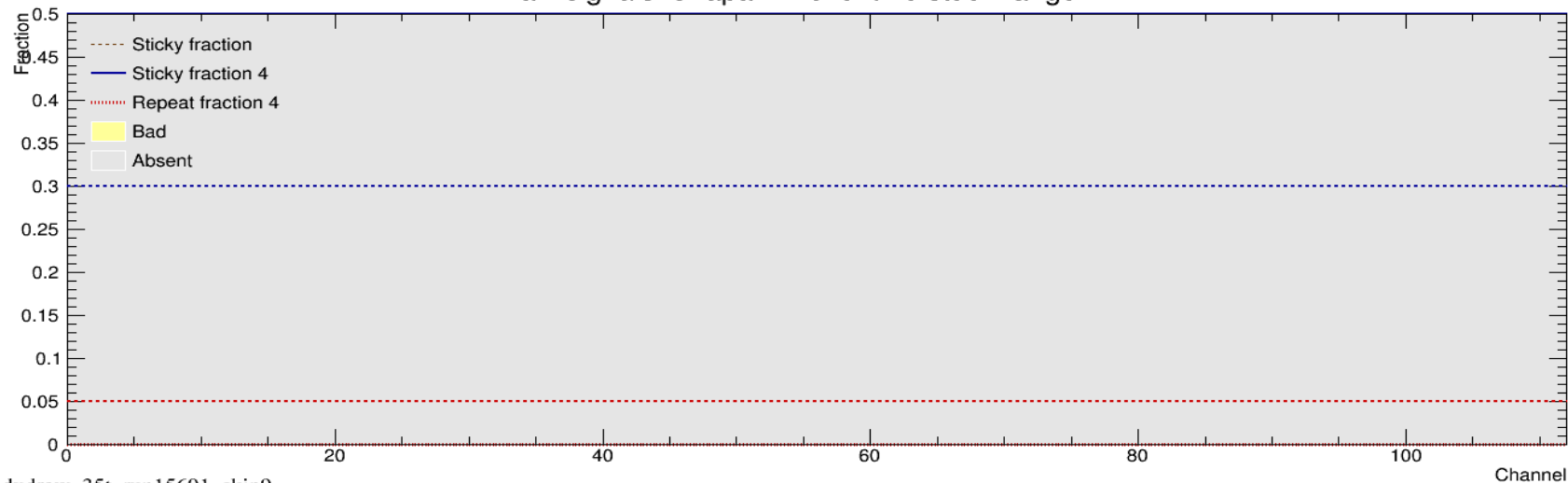
# APA 1z2 run 15691

Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run15691\_skip9

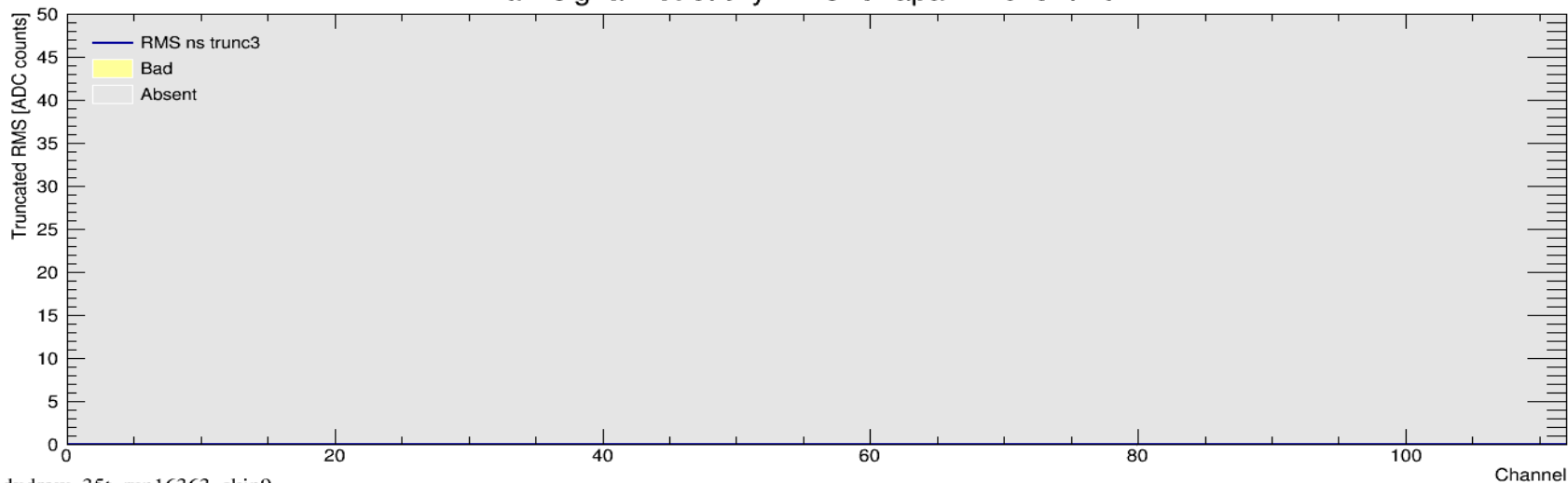
Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

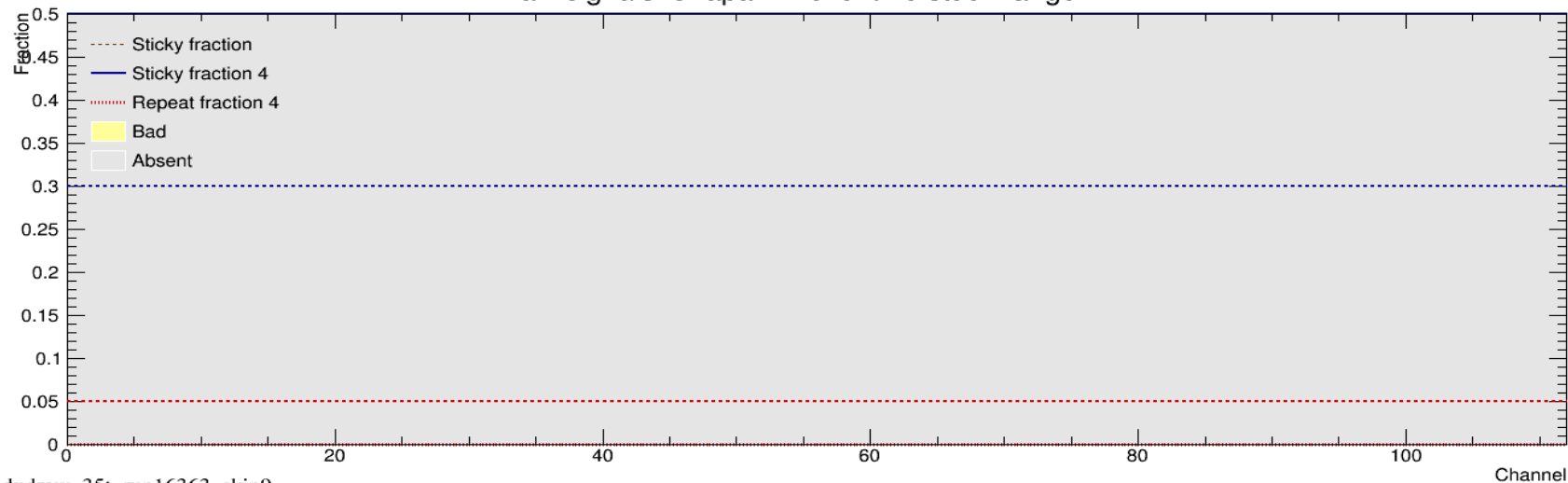
# APA 1z2 run 16363

## Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run16363\_skip9

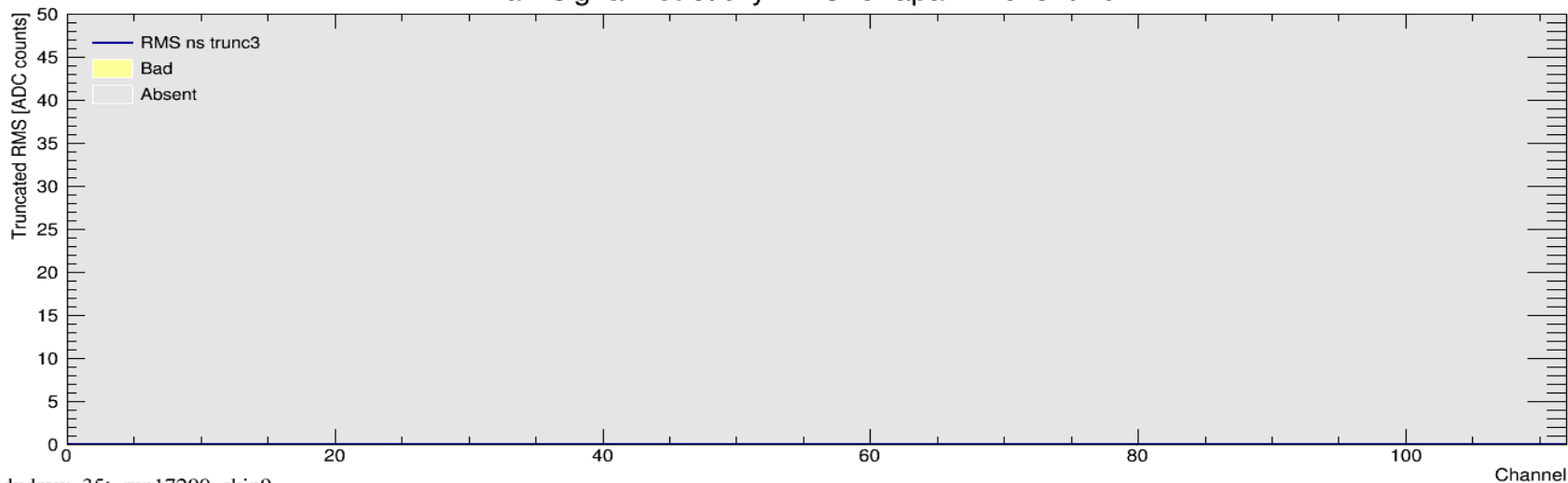
## Raw signals for apa1z2 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

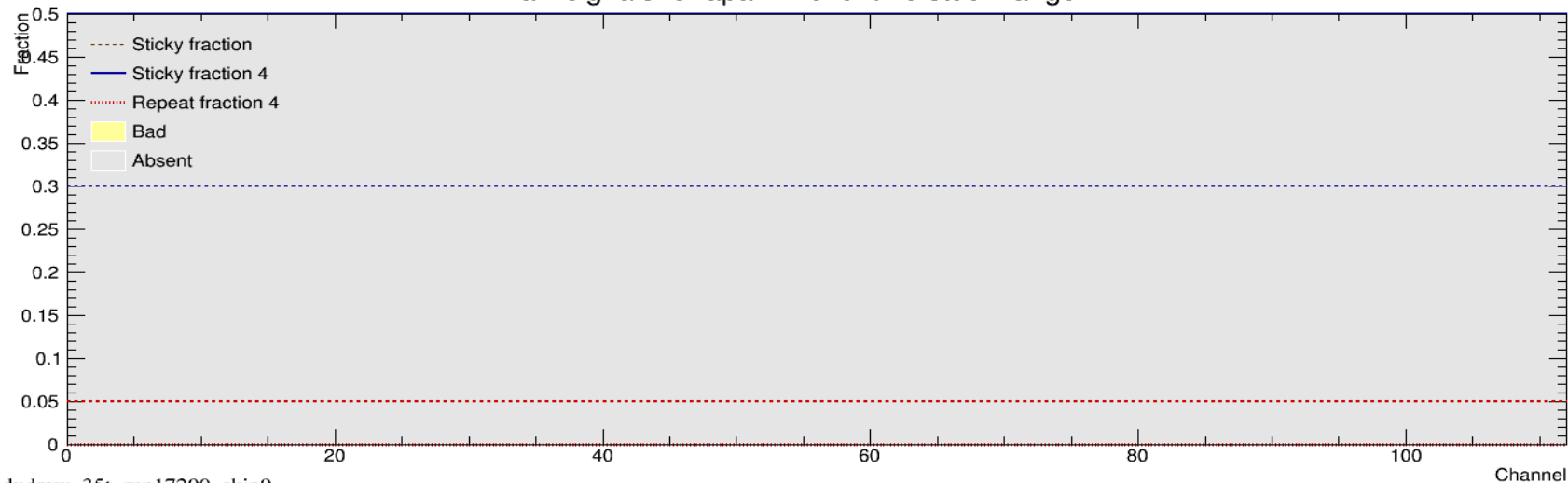
# APA 1z2 run 17200

## Raw signal not-sticky RMS for apa1z2 event 10



dxdraw\_35t\_run17200\_skip9

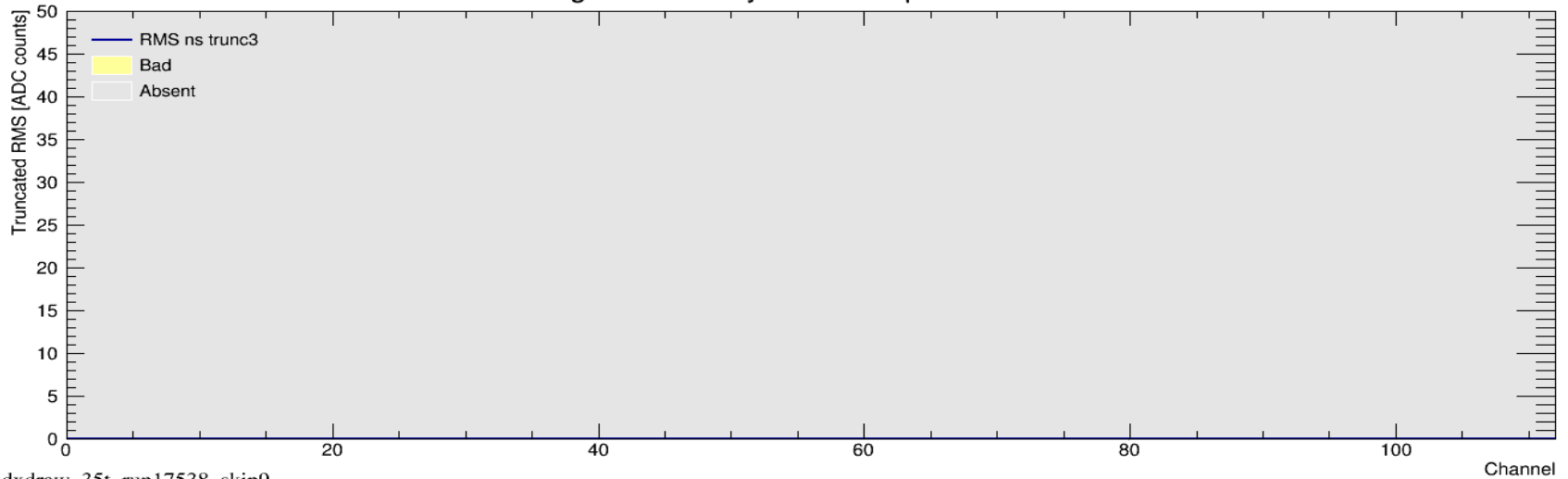
## Raw signals for apa1z2 event 10 stuck range 4



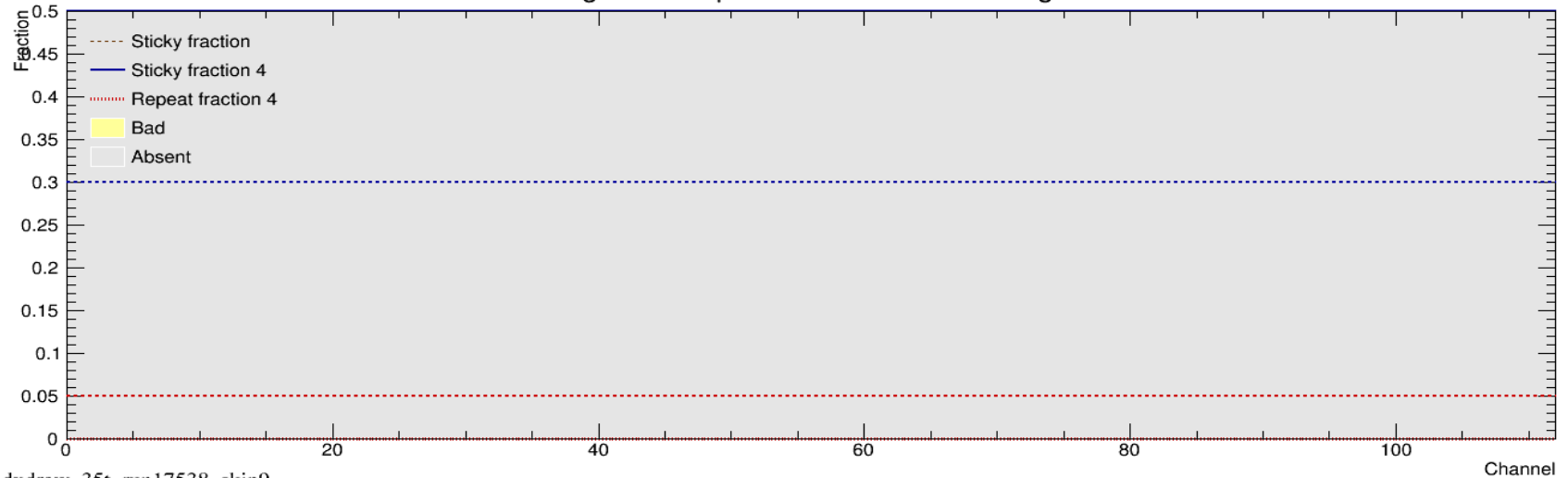
dxdraw\_35t\_run17200\_skip9

# APA 1z2 run 17538 (last)

Raw signal not-sticky RMS for apa1z2 event 10



Raw signals for apa1z2 event 10 stuck range 4

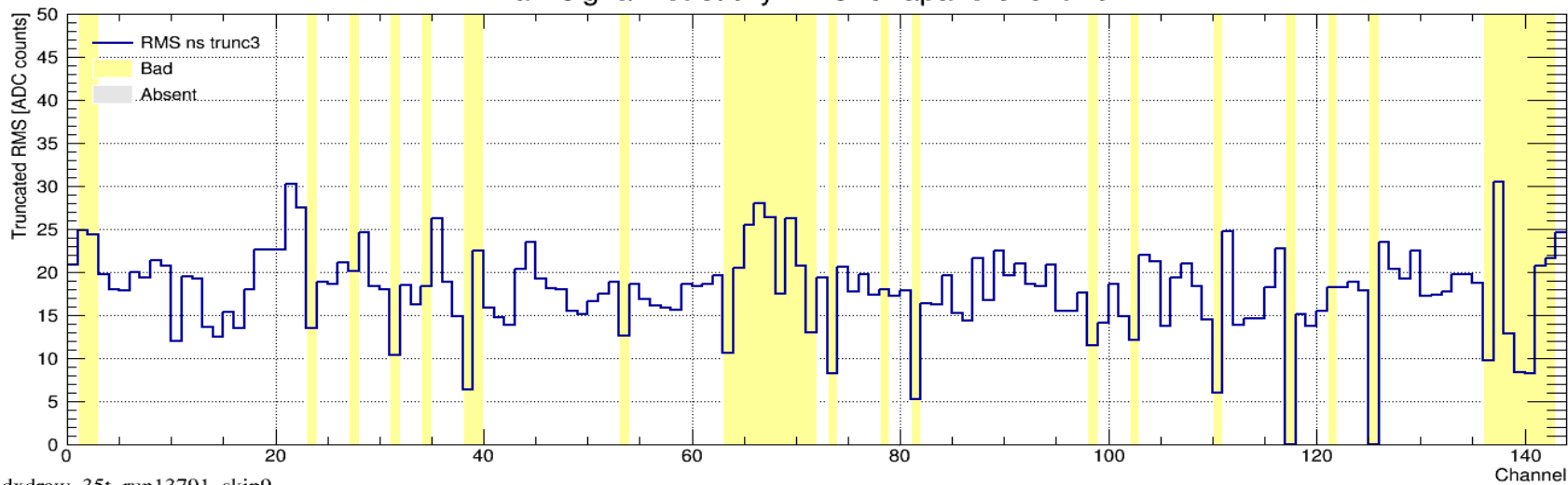


# APA 2u



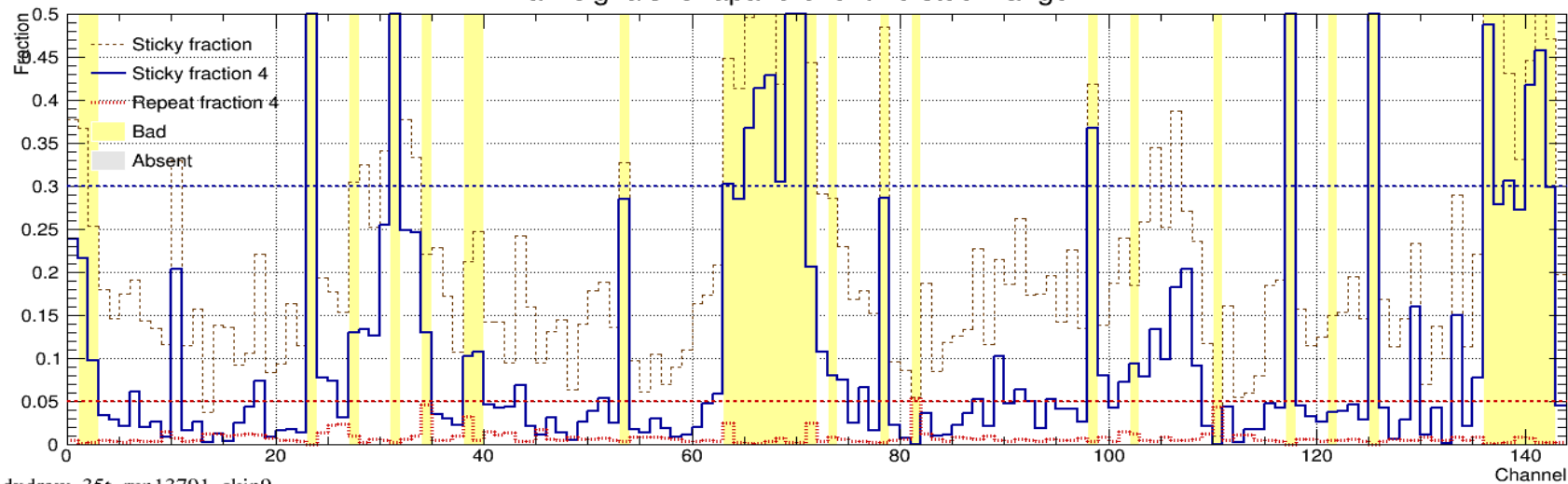
# APA 2u run 13791 (first)

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run13791\_skip9

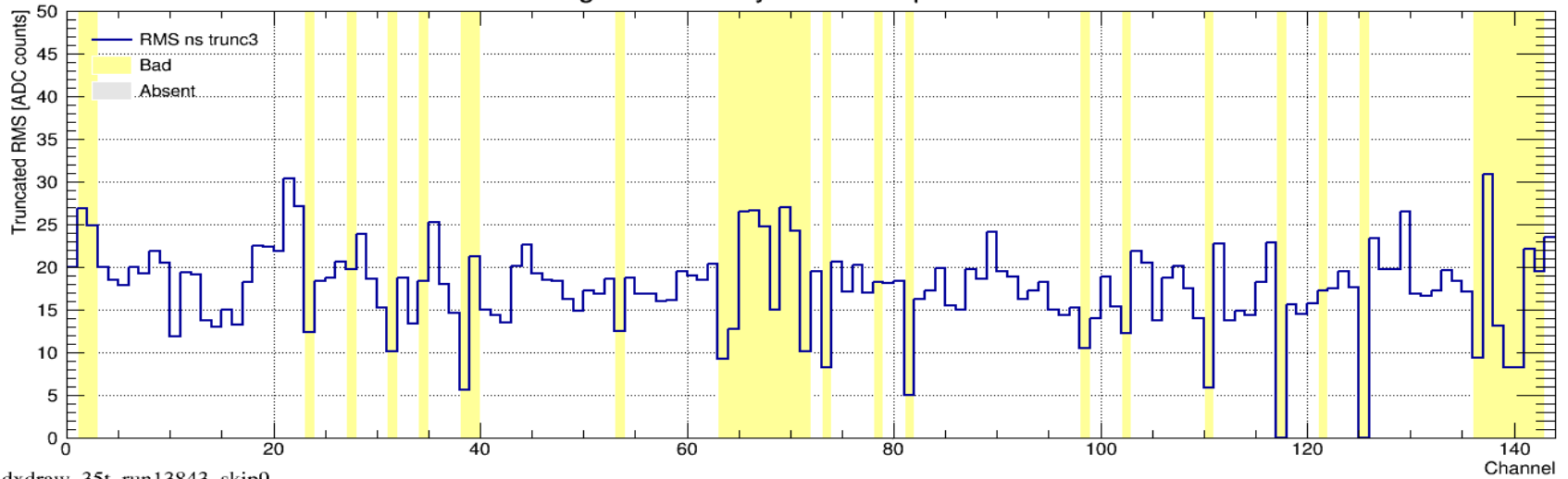
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

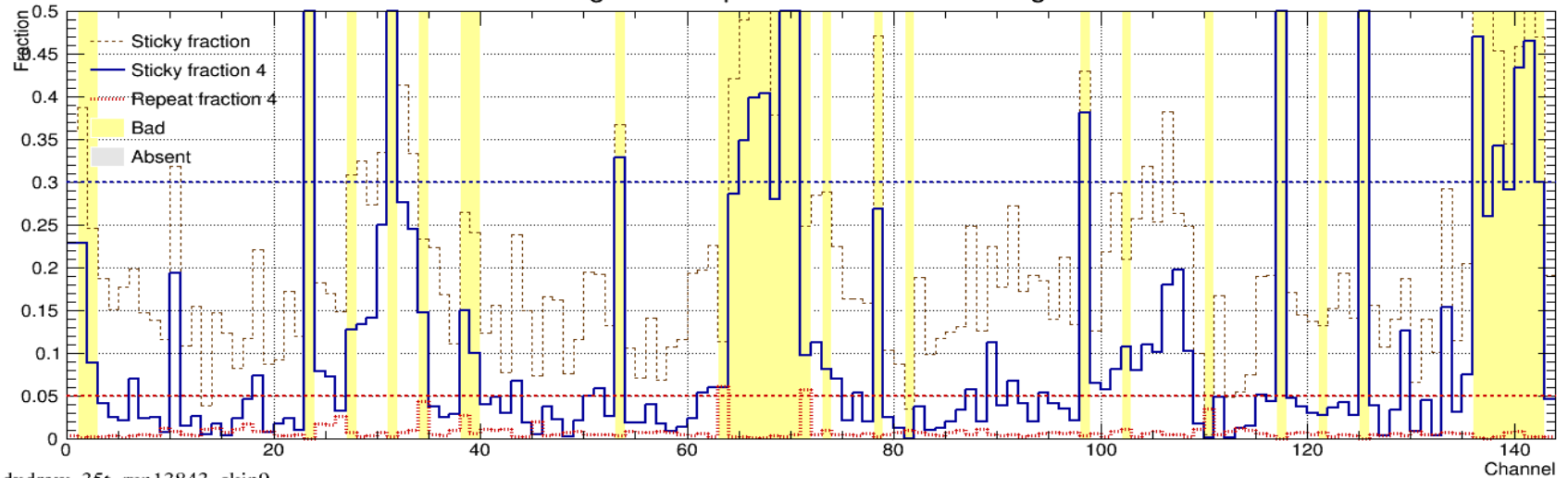
# APA 2u run 13843

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run13843\_skip9

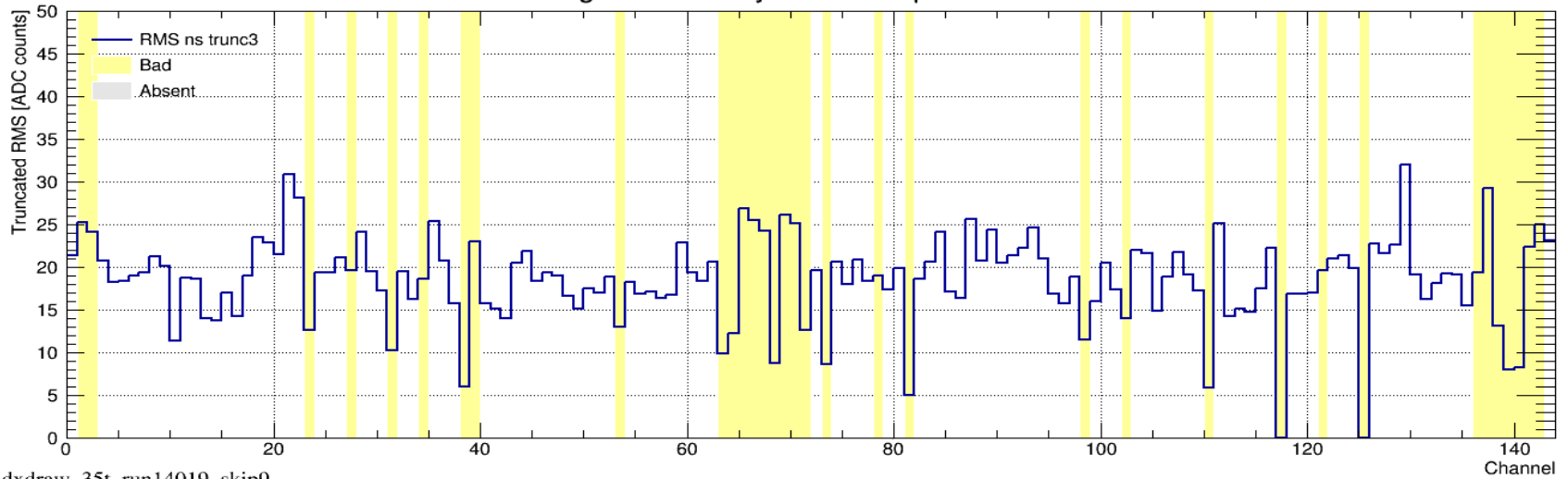
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

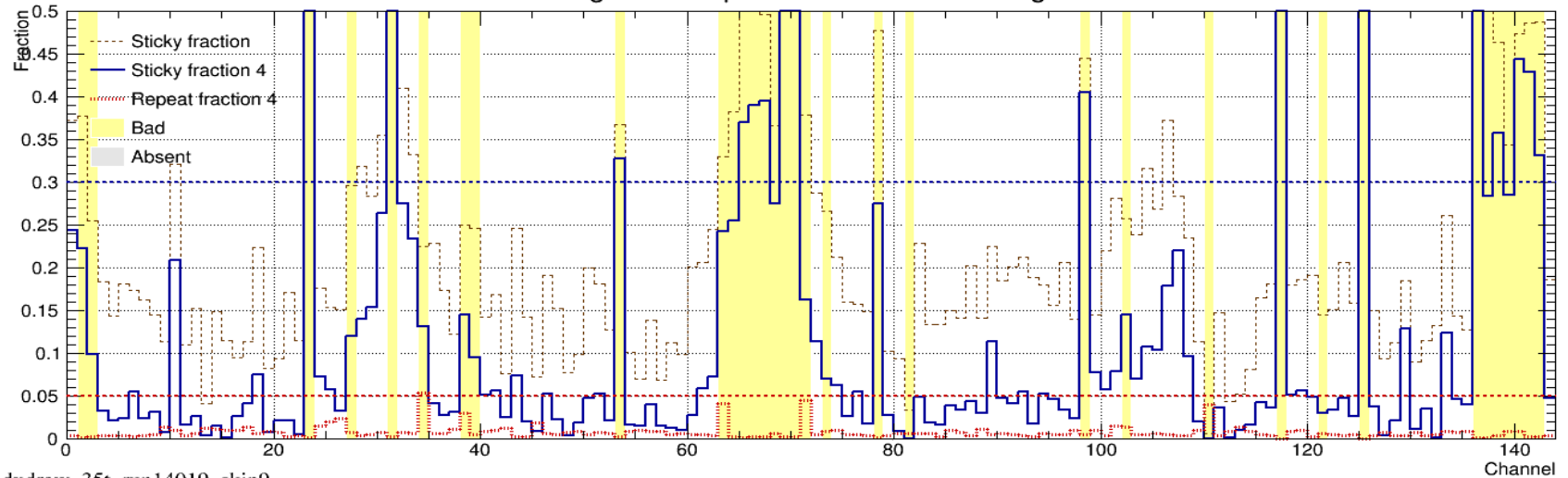
# APA 2u run 14019

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run14019\_skip9

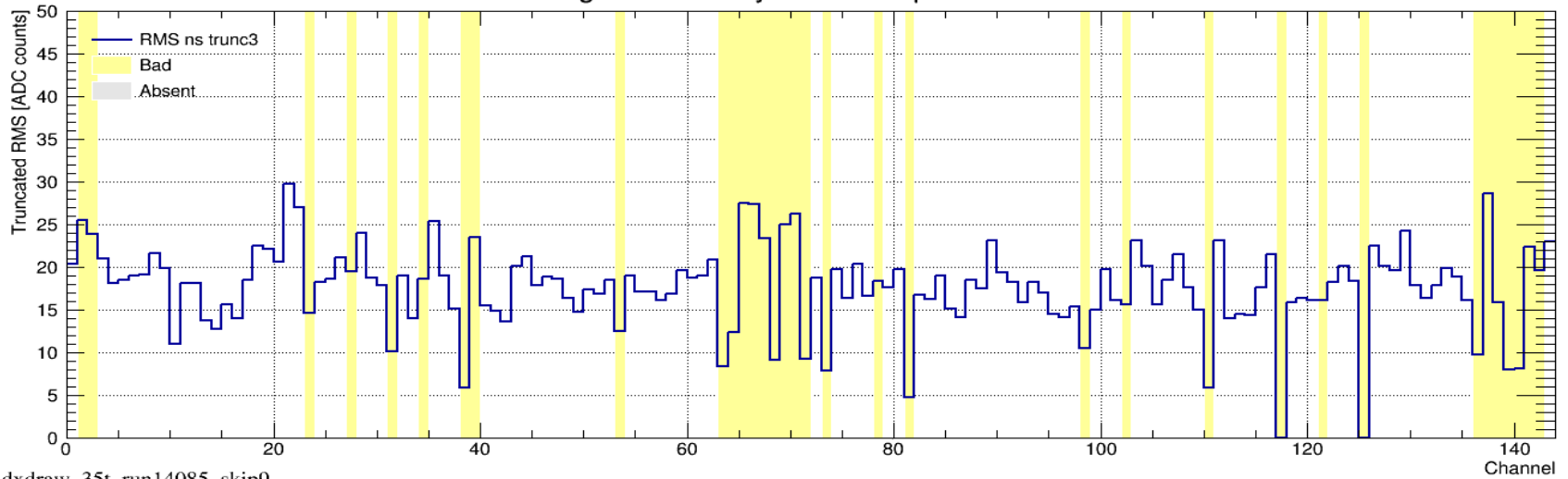
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

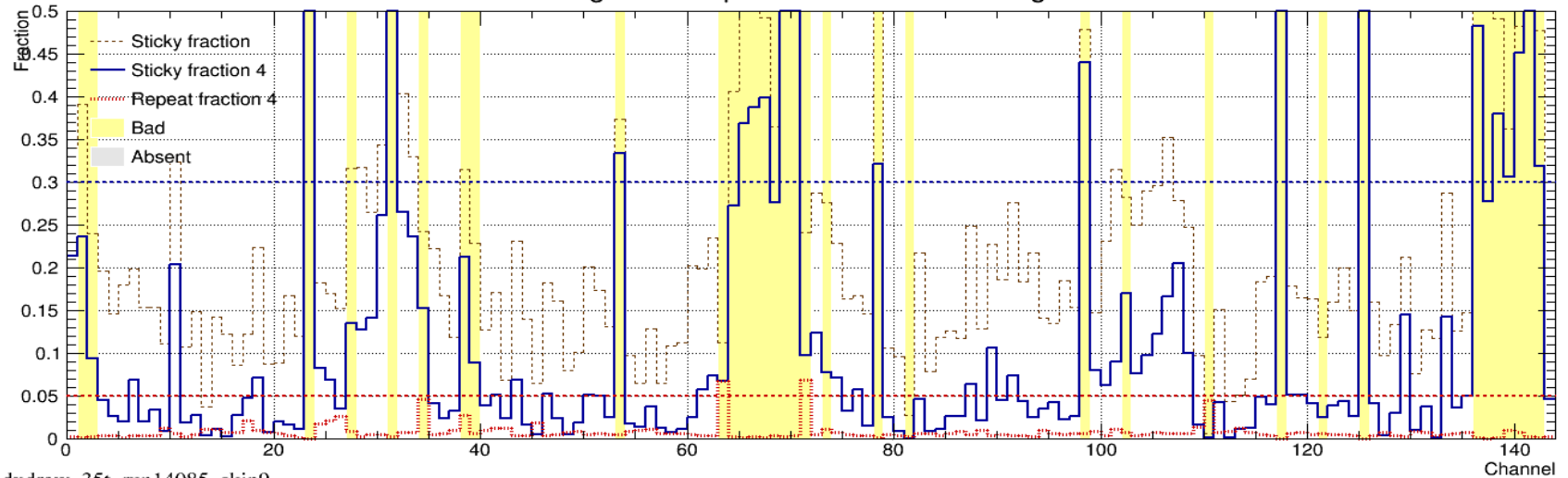
# APA 2u run 14085

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run14085\_skip9

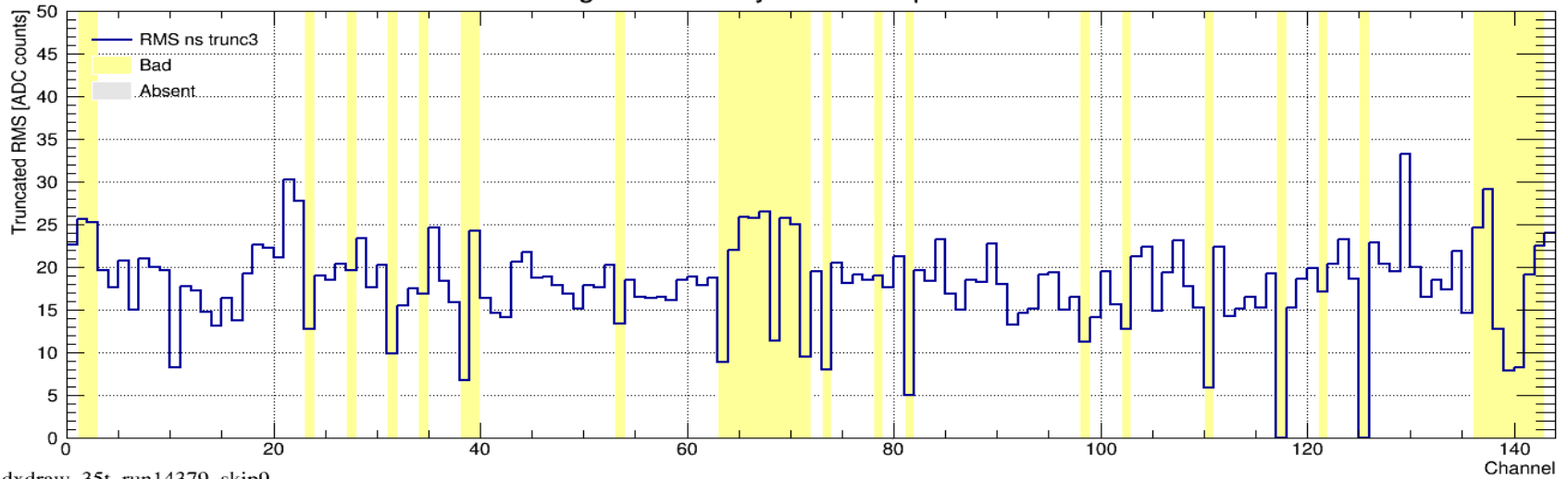
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

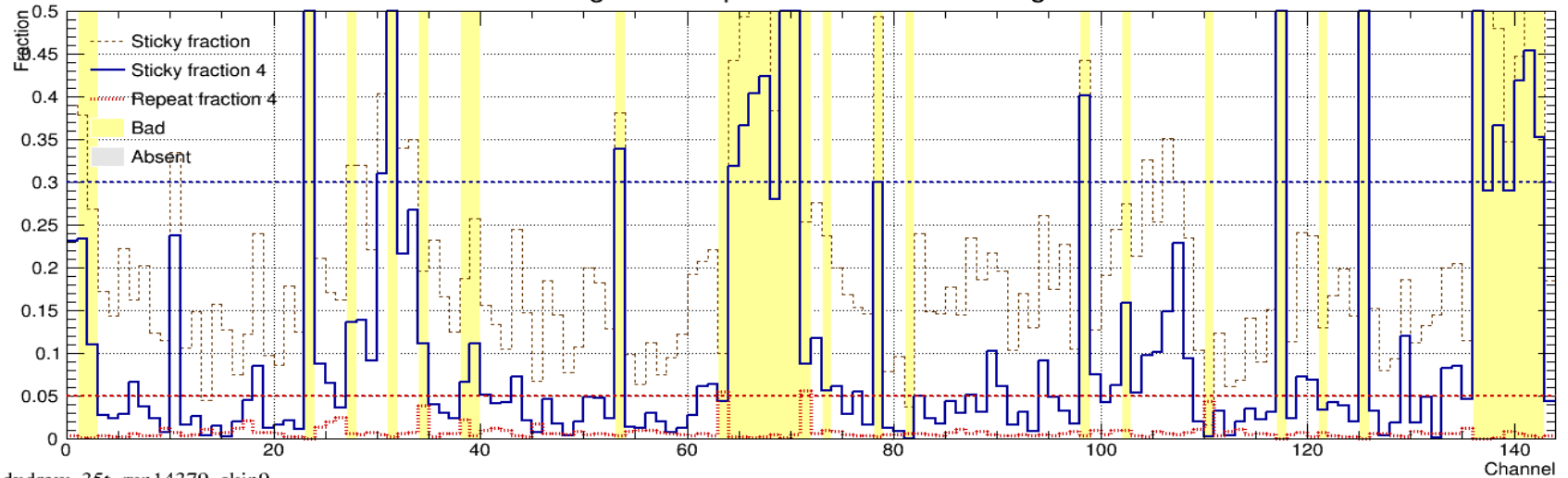
# APA 2u run 14379

Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run14379\_skip9

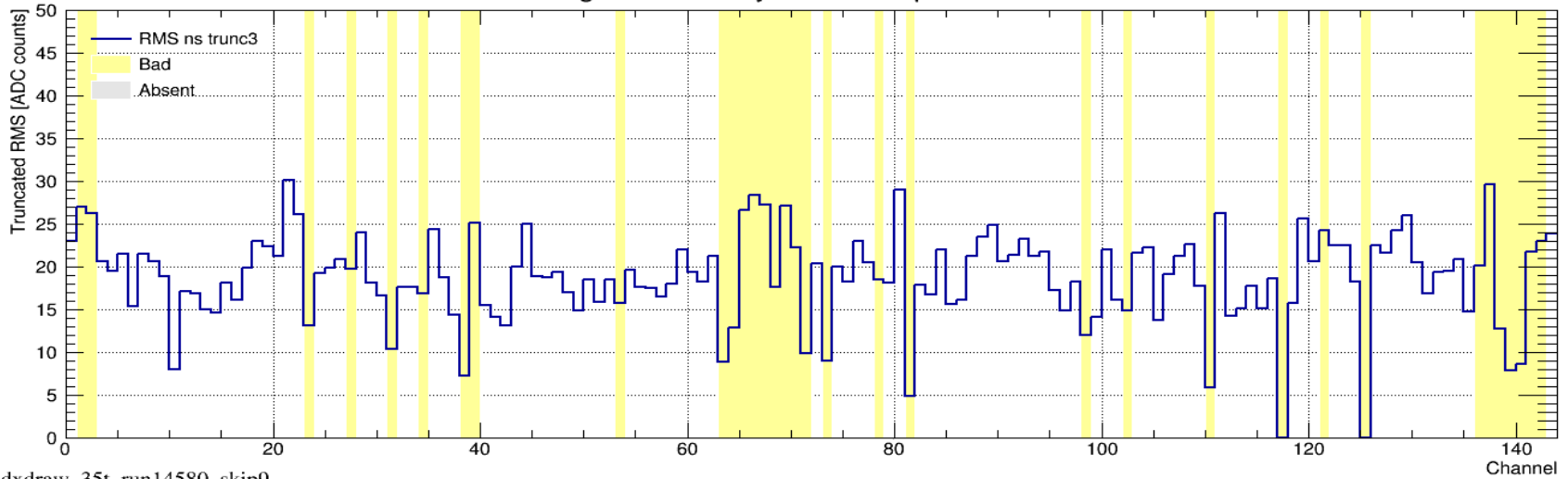
Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

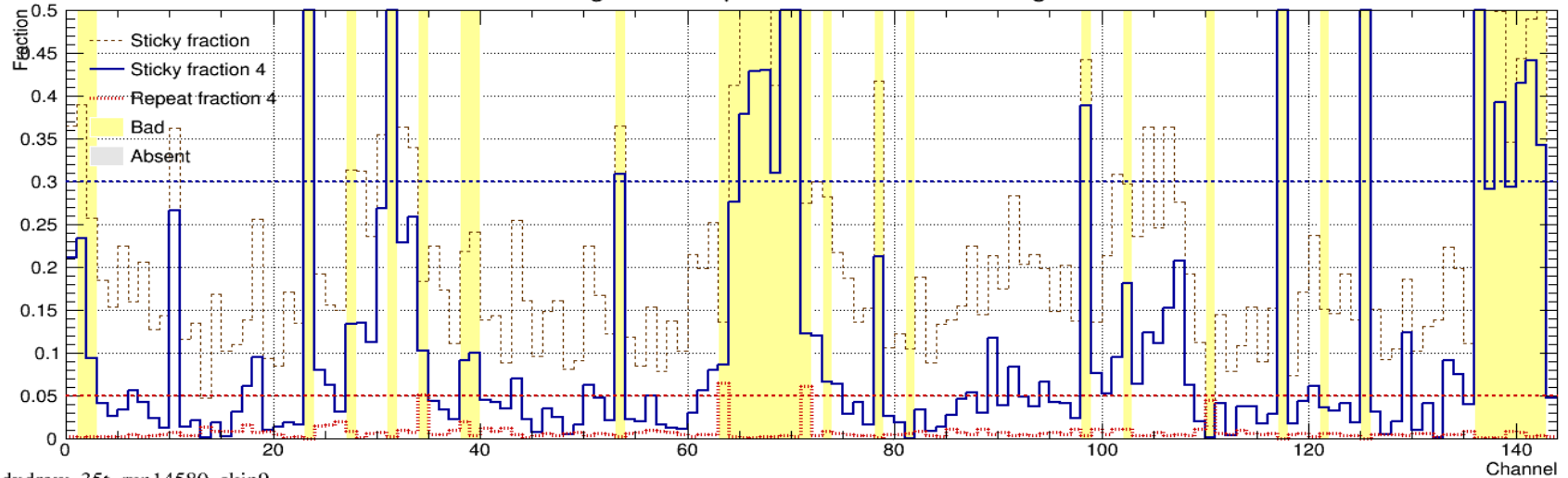
# APA 2u run 14580 (last before power failure)

Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run14580\_skip9

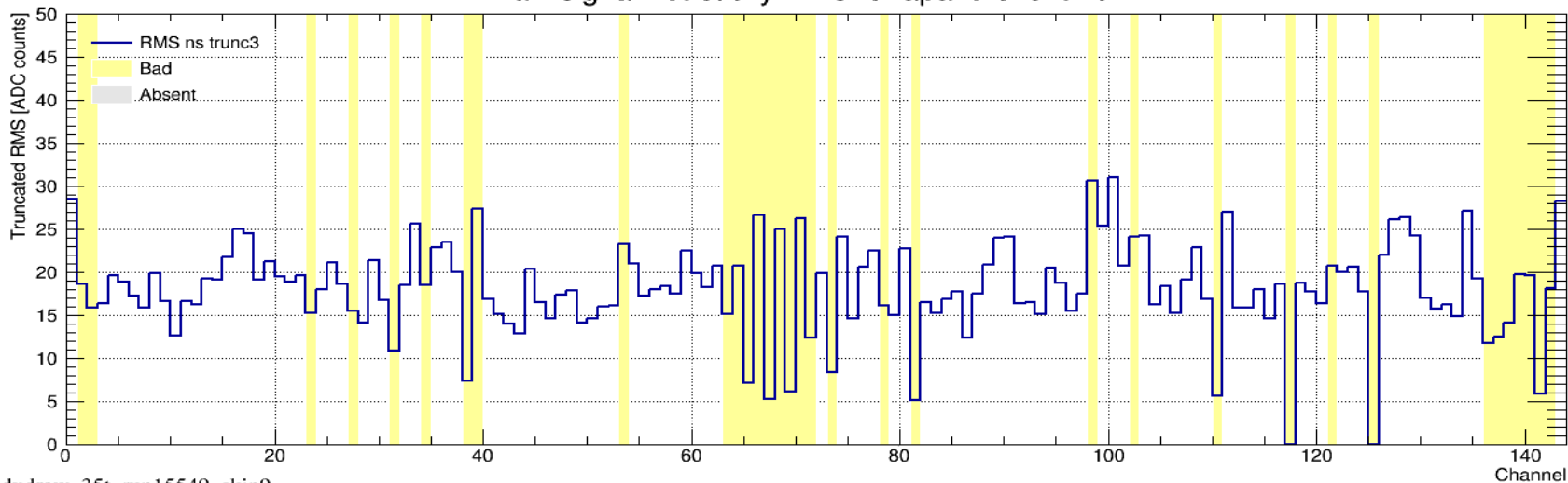
Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

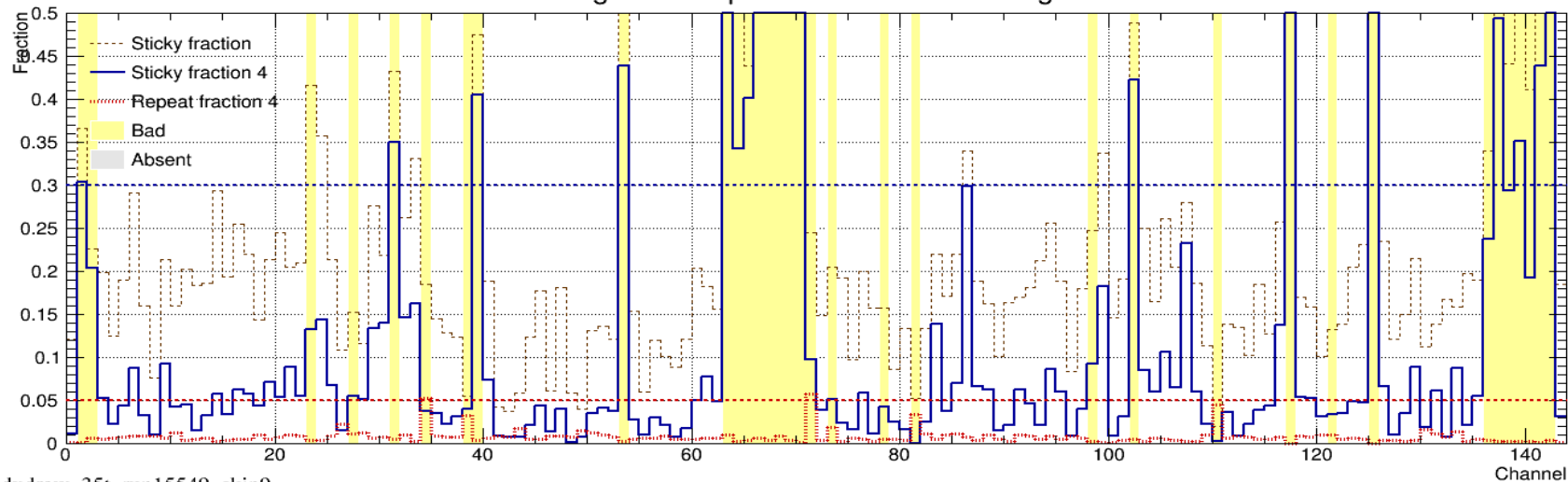
# APA 2u run 15549 (first after power failure)

Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run15549\_skip9

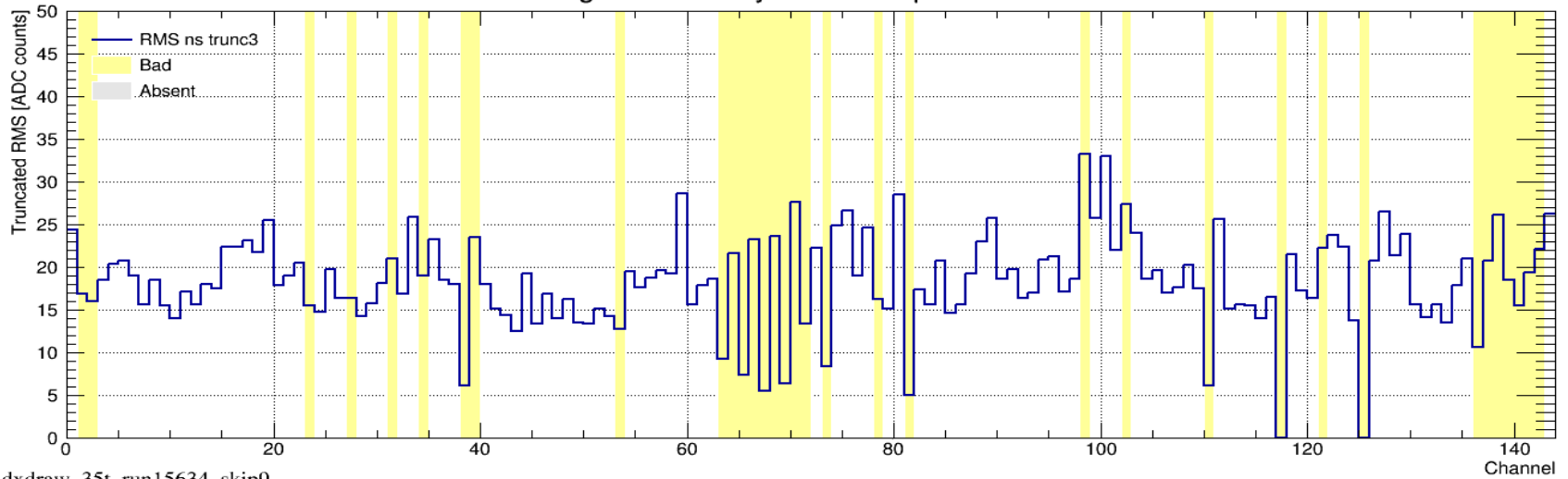
Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

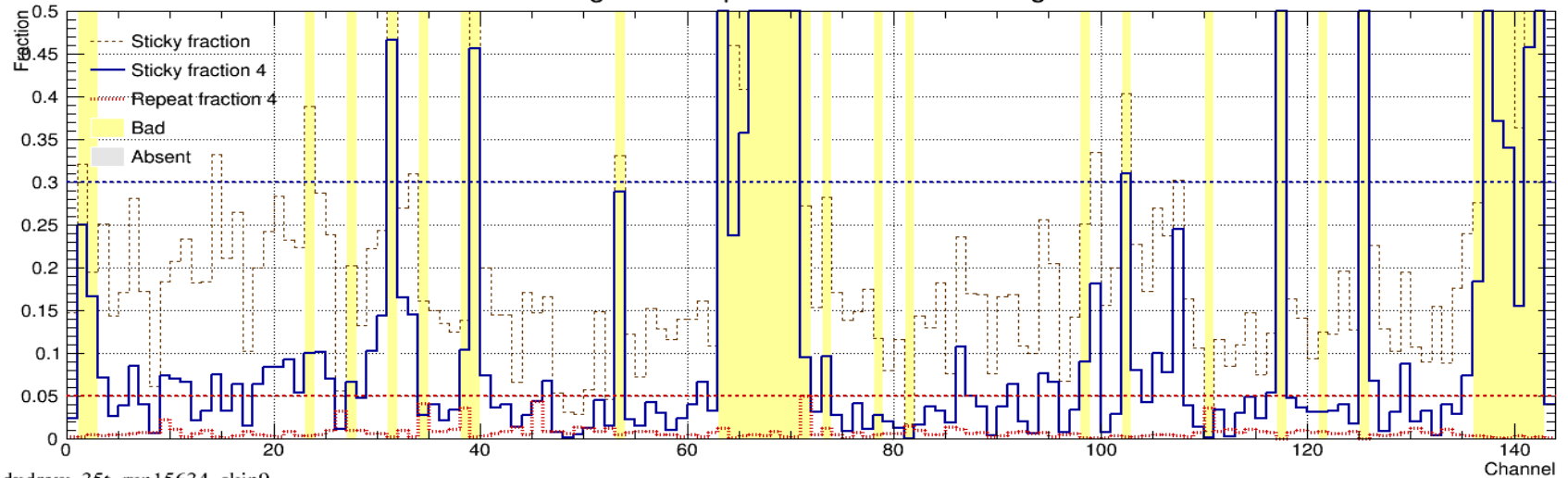
# APA 2u run 15634

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run15634\_skip9

## Raw signals for apa2u event 10 stuck range 4

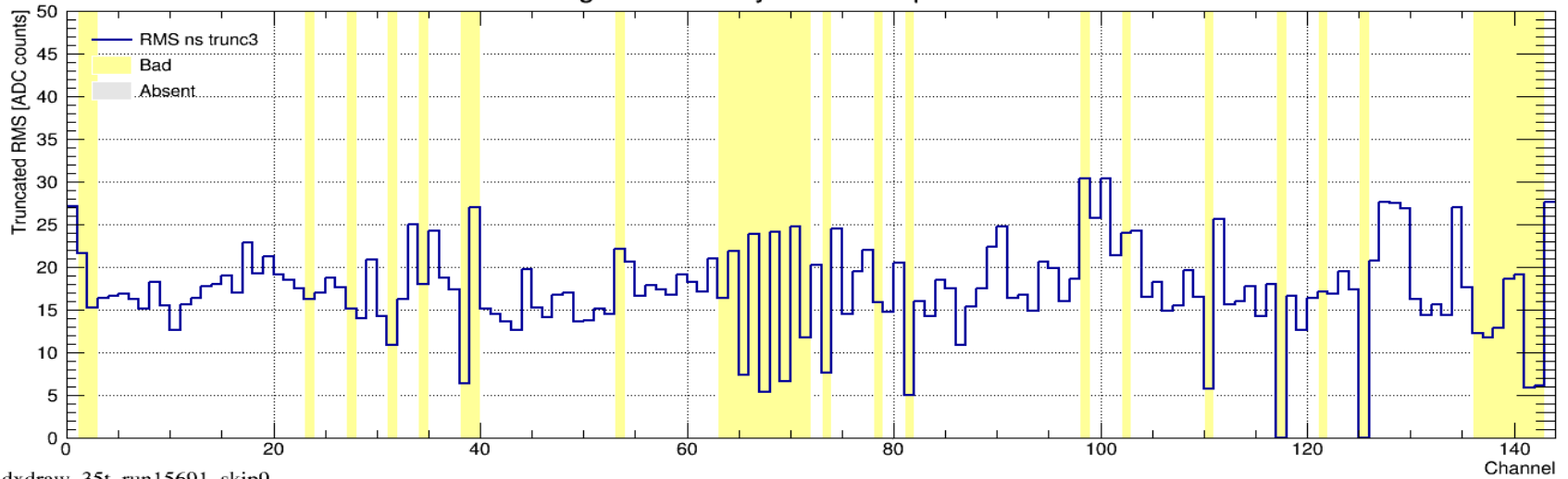


dxdraw\_35t\_run15634\_skip9



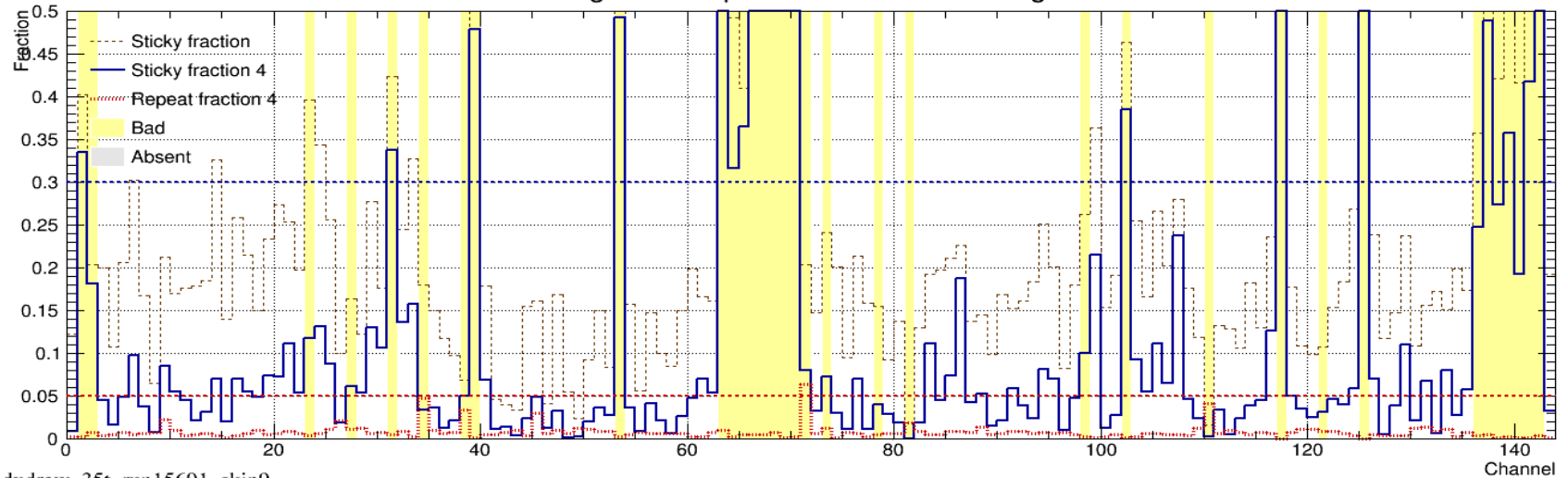
# APA 2u run 15691

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run15691\_skip9

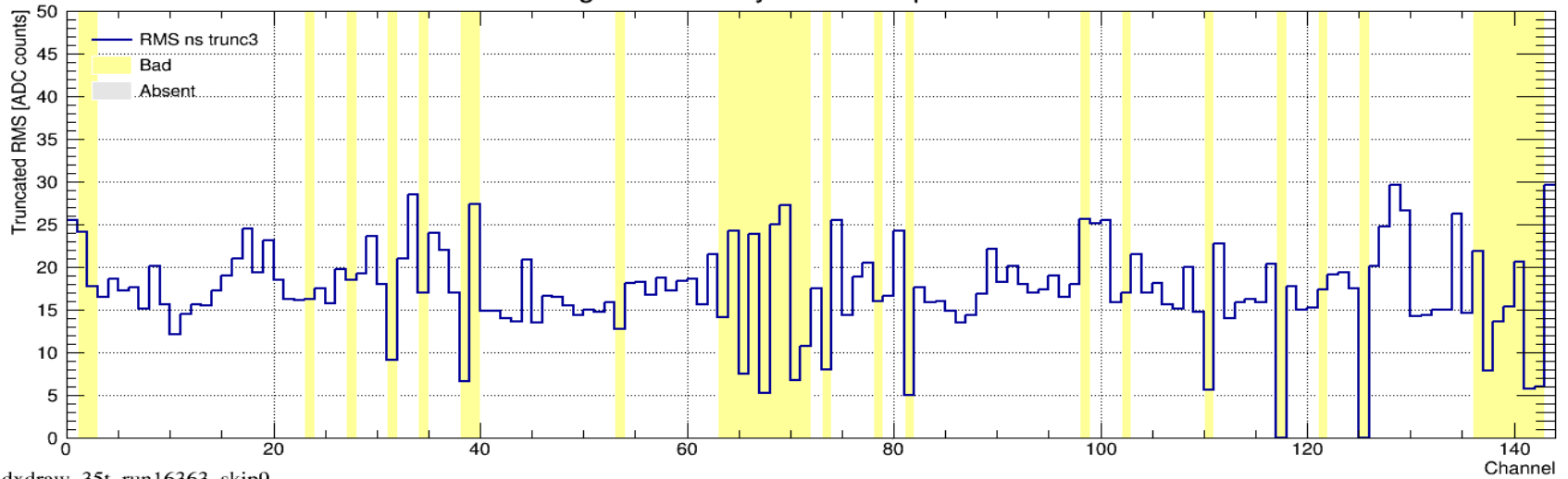
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

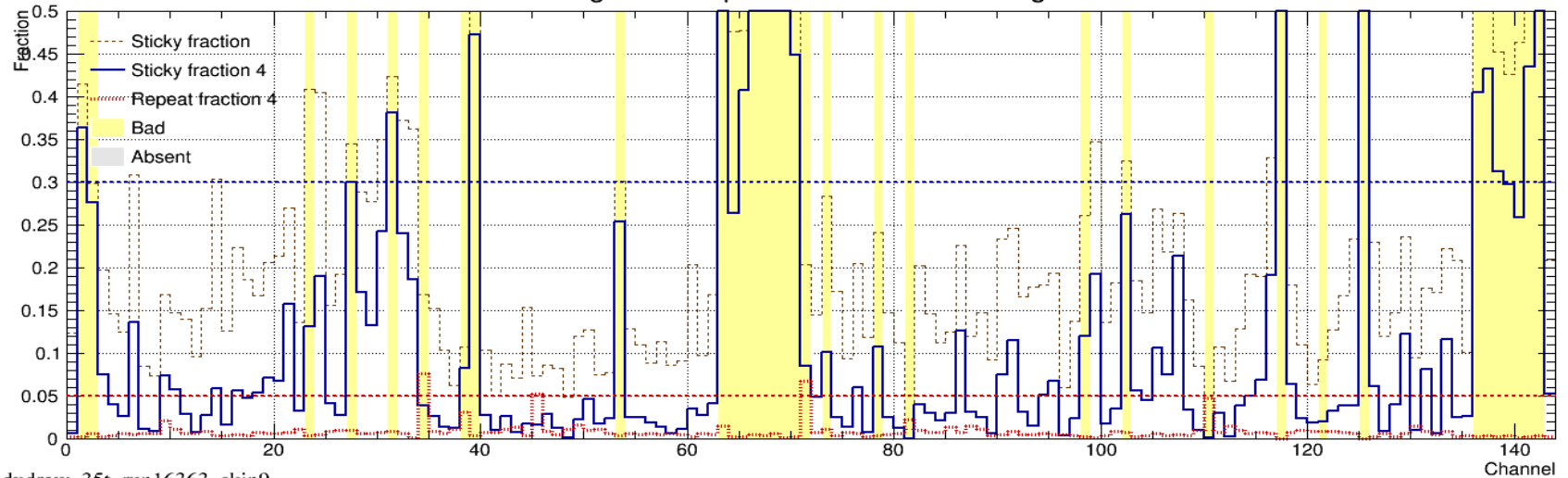
# APA 2u run 16363

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run16363\_skip9

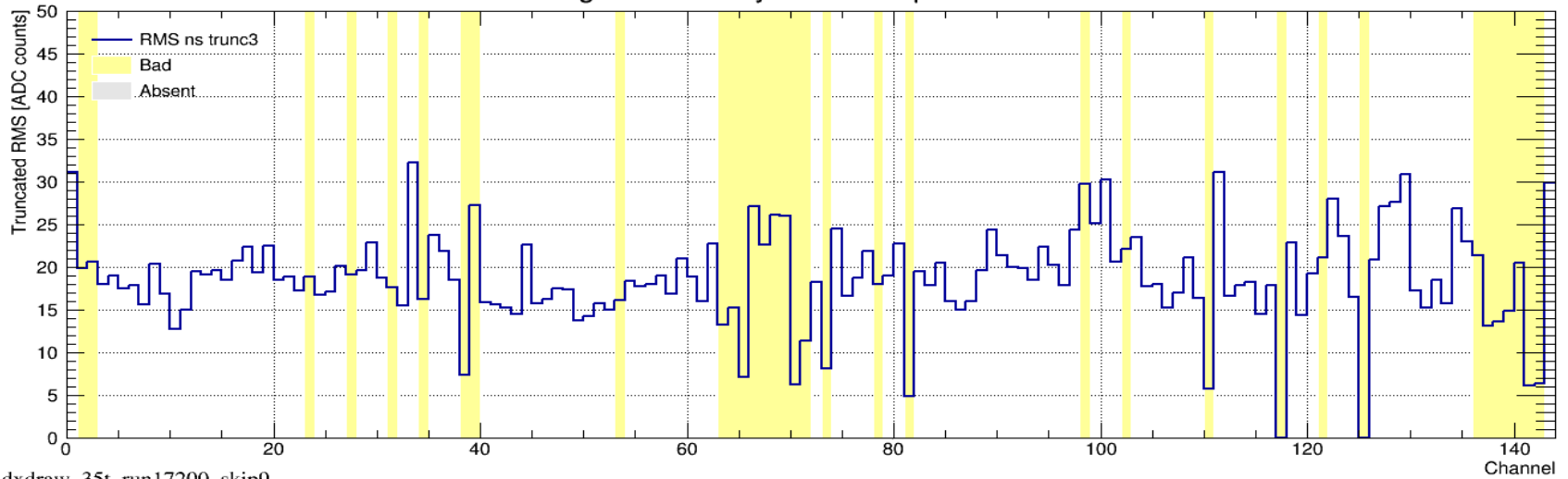
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

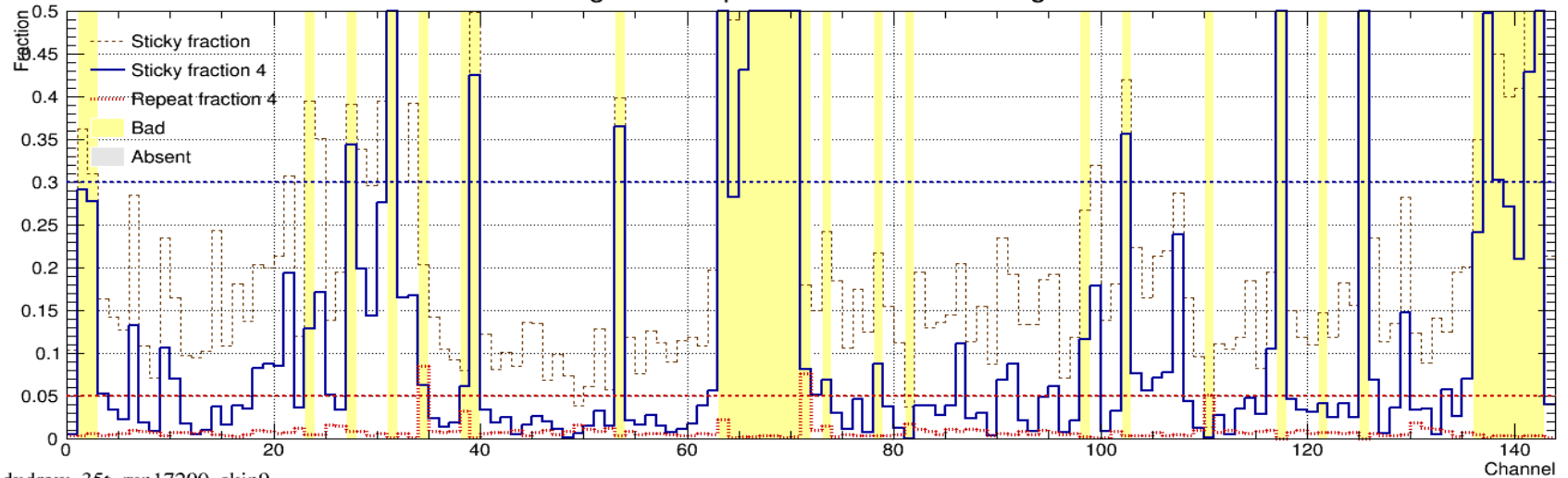
# APA 2u run 17200

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run17200\_skip9

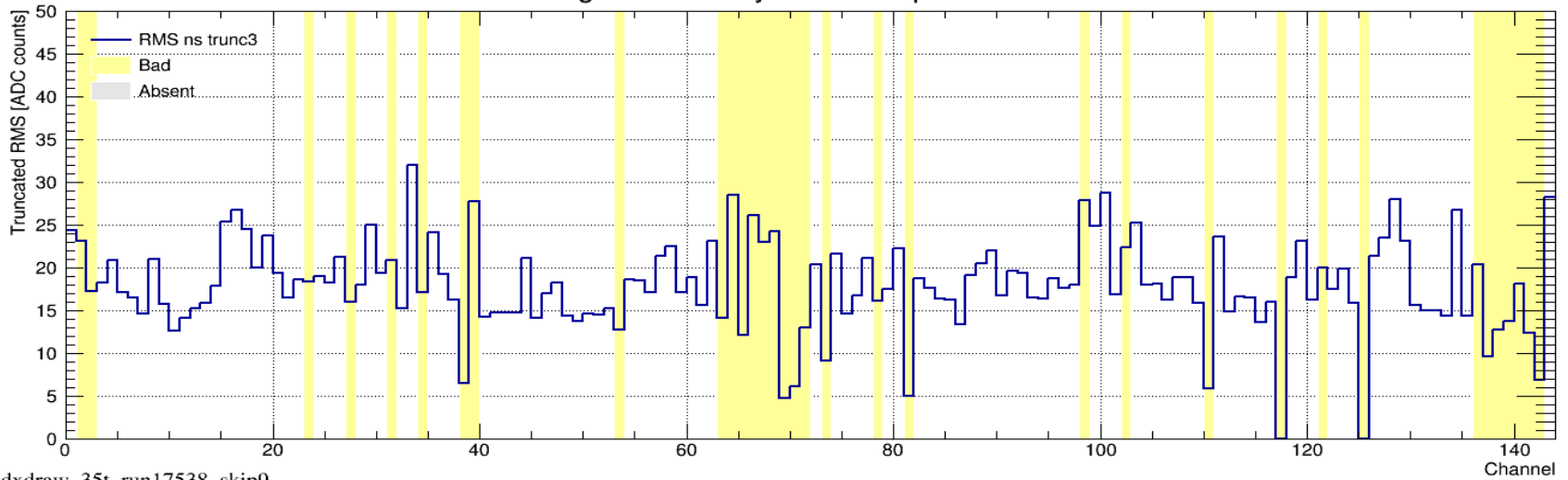
## Raw signals for apa2u event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

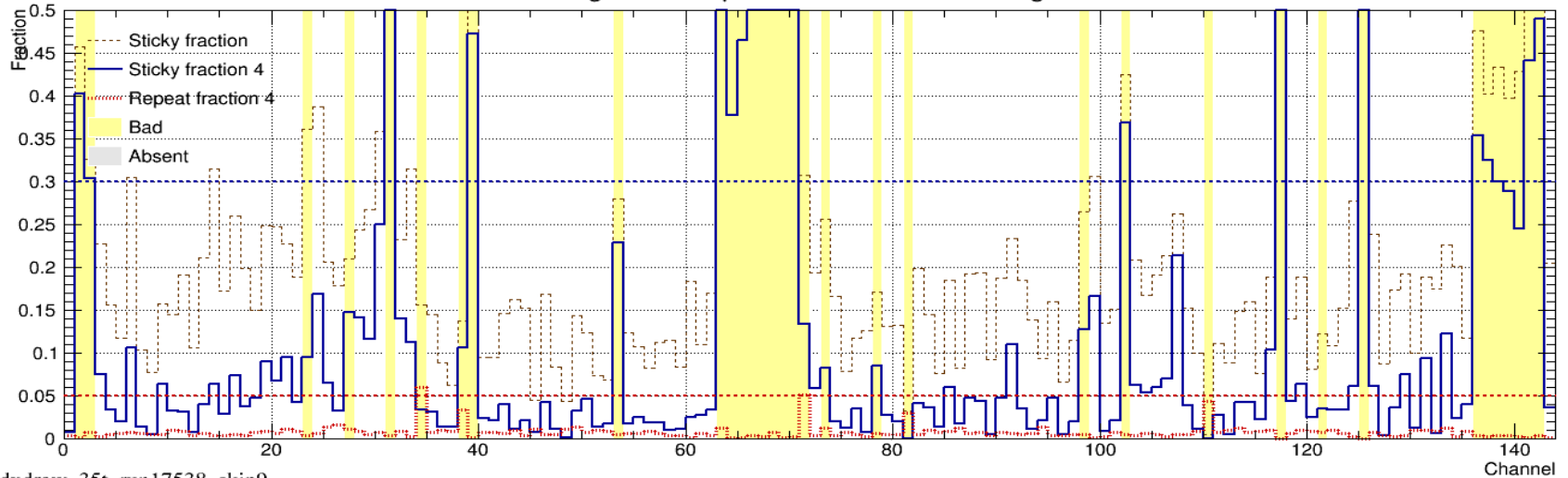
# APA 2u run 17538 (last)

## Raw signal not-sticky RMS for apa2u event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa2u event 10 stuck range 4

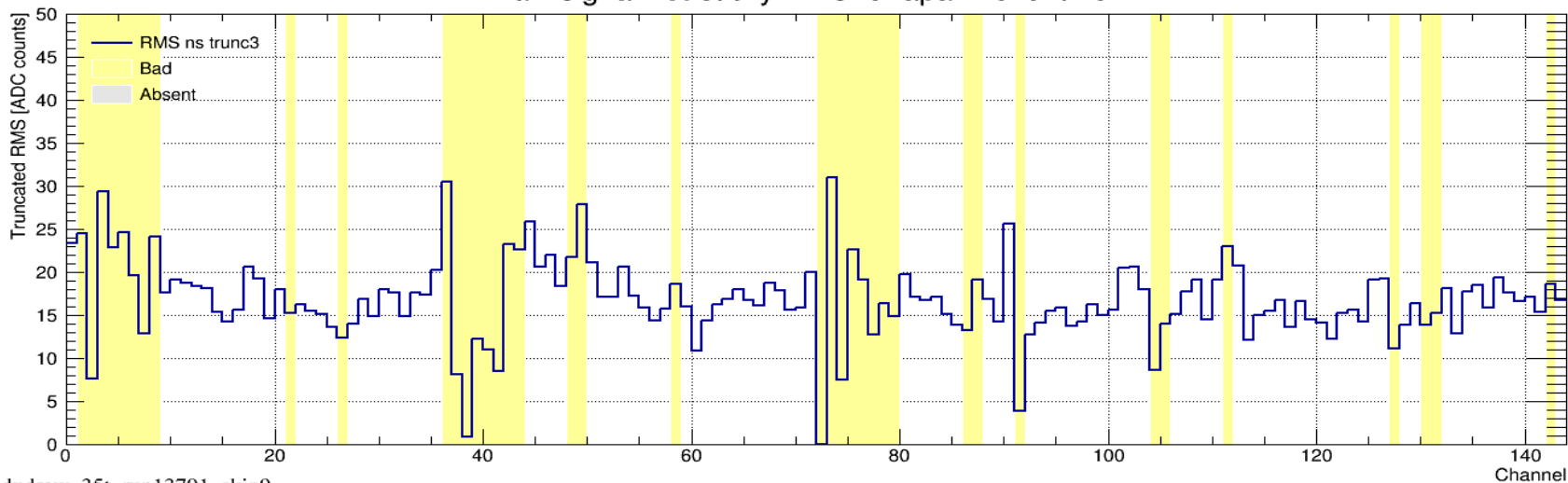


dxdraw\_35t\_run17538\_skip9

# APA 2v

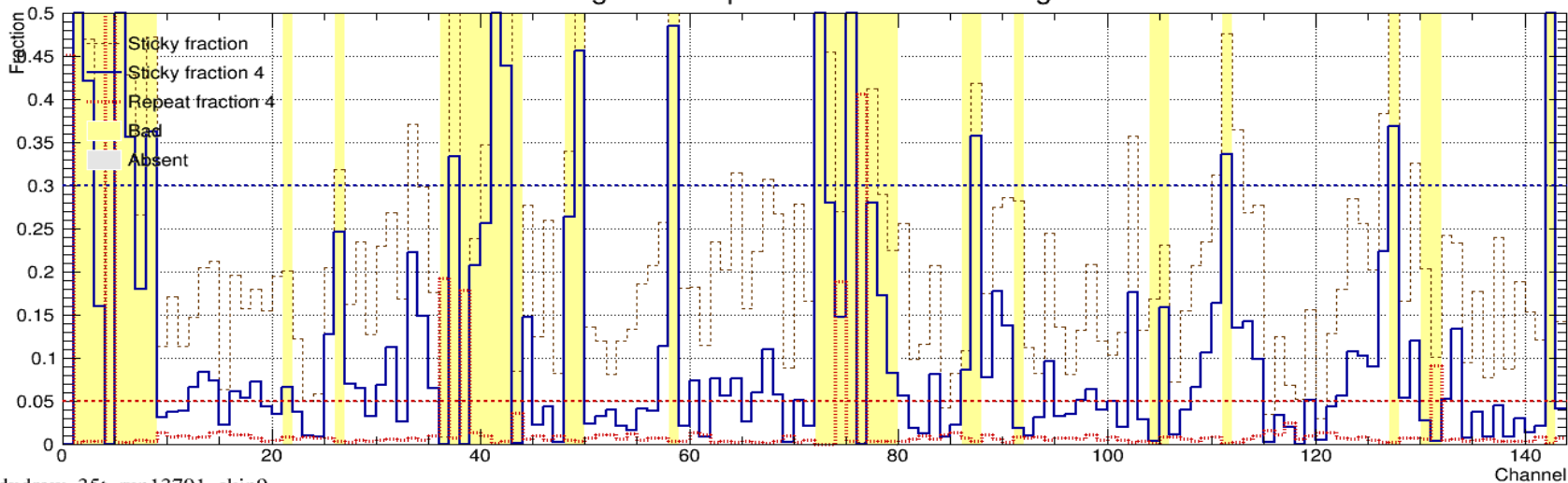
# APA 2v run 13791 (first)

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run13791\_skip9

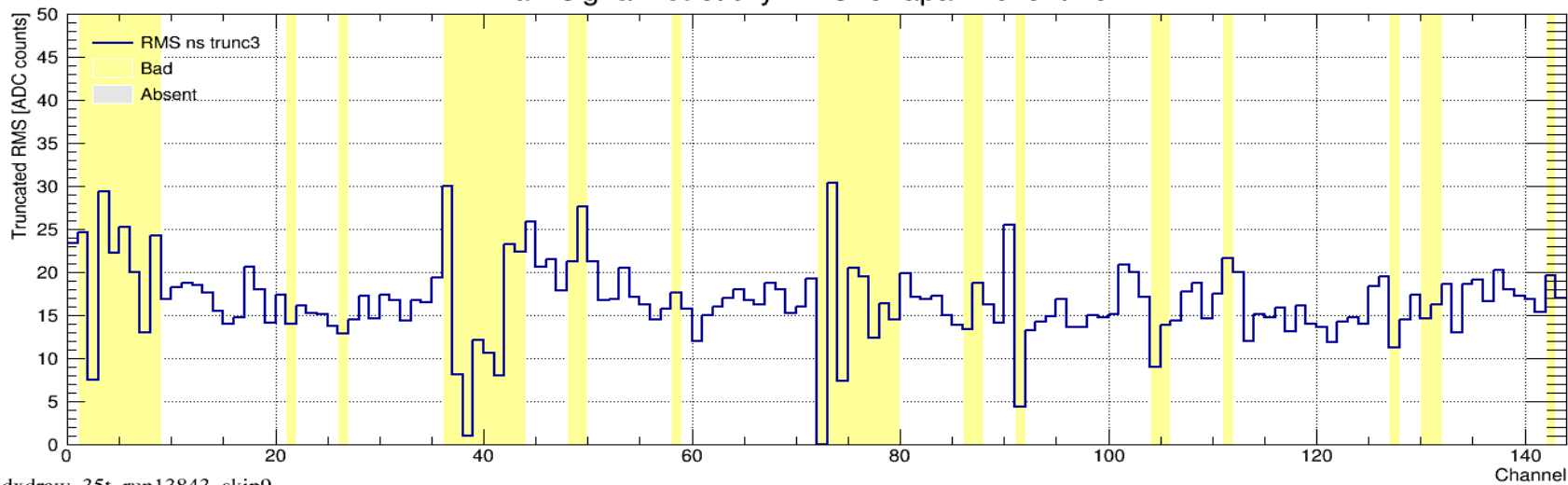
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

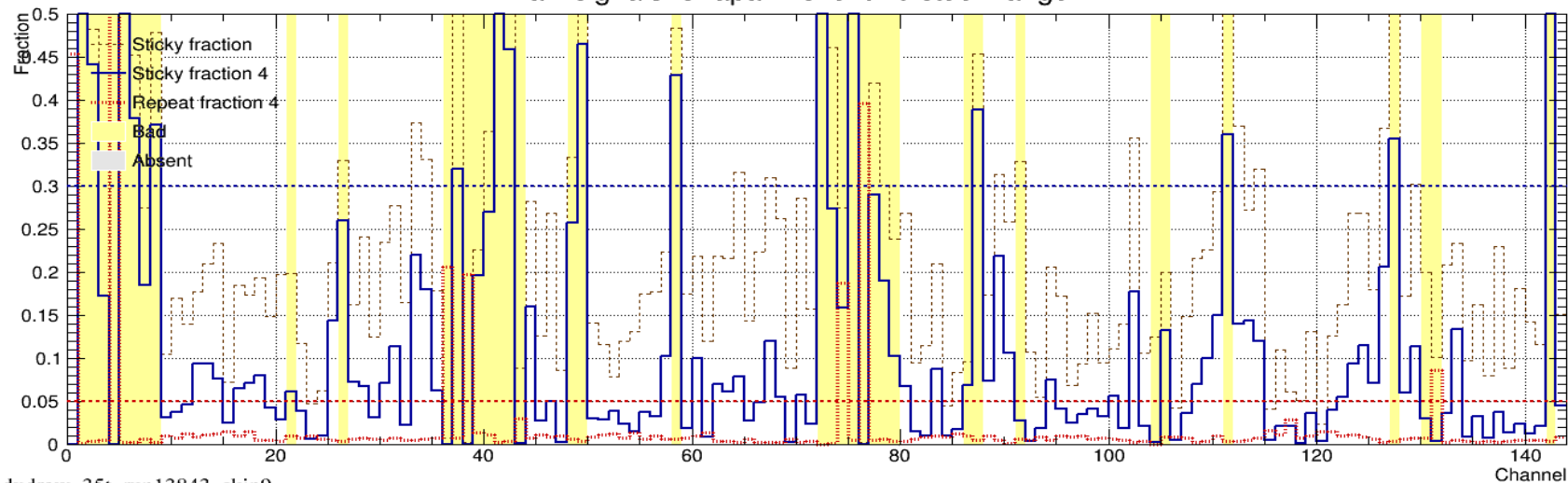
# APA 2v run 13843

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run13843\_skip9

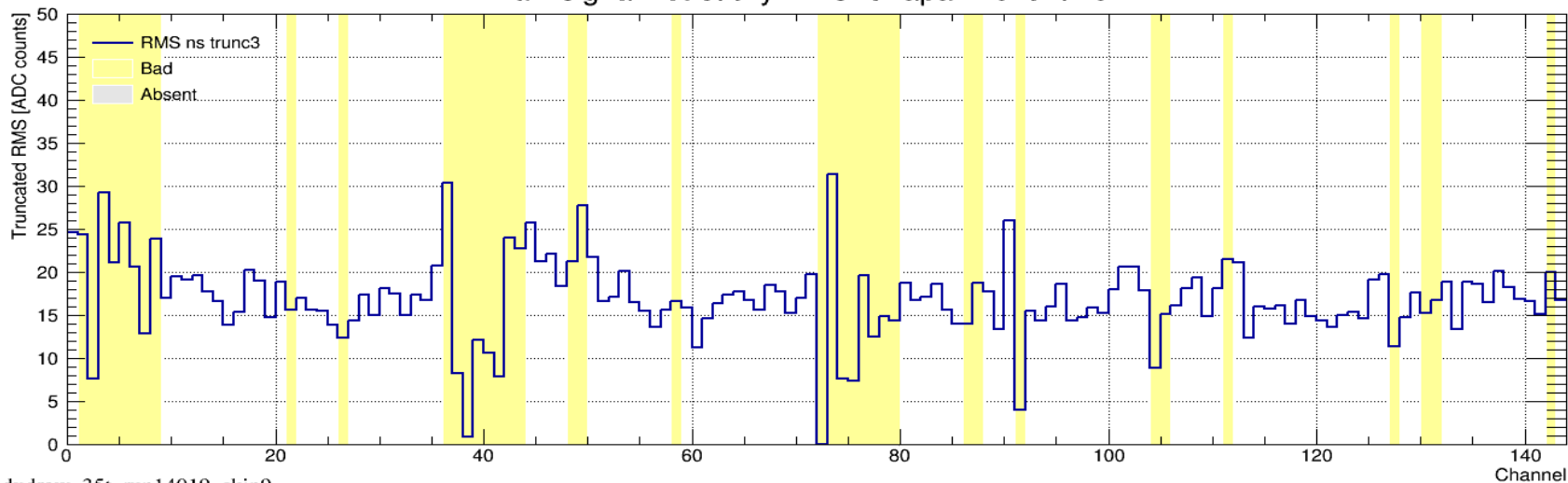
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

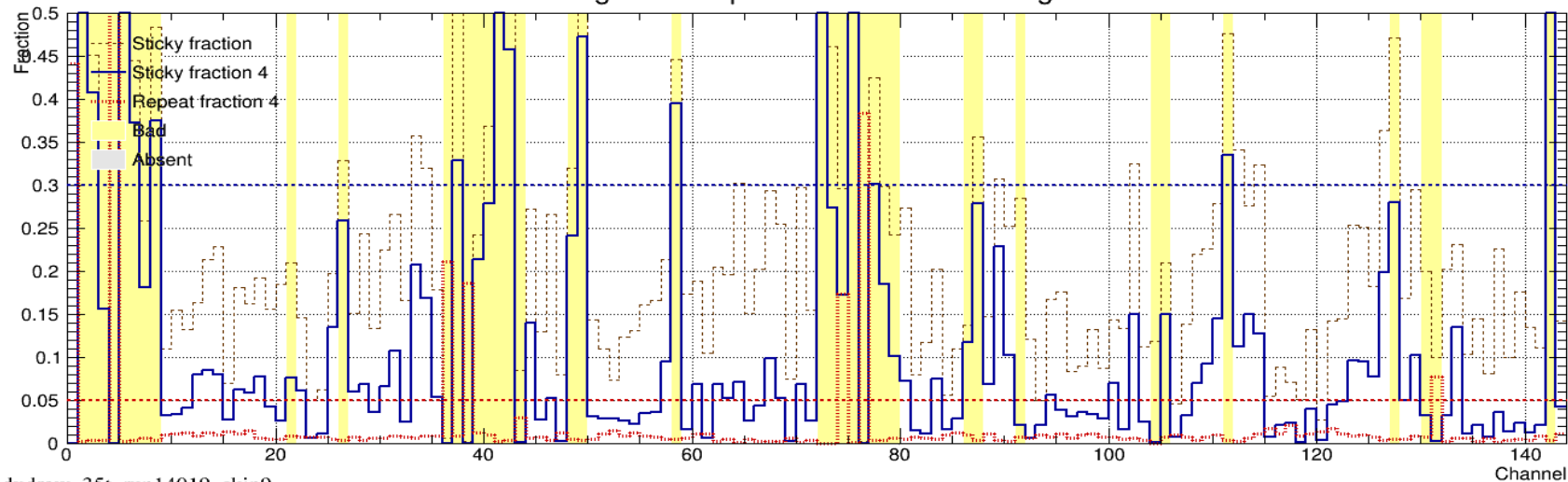
# APA 2v run 14019

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run14019\_skip9

## Raw signals for apa2v event 10 stuck range 4

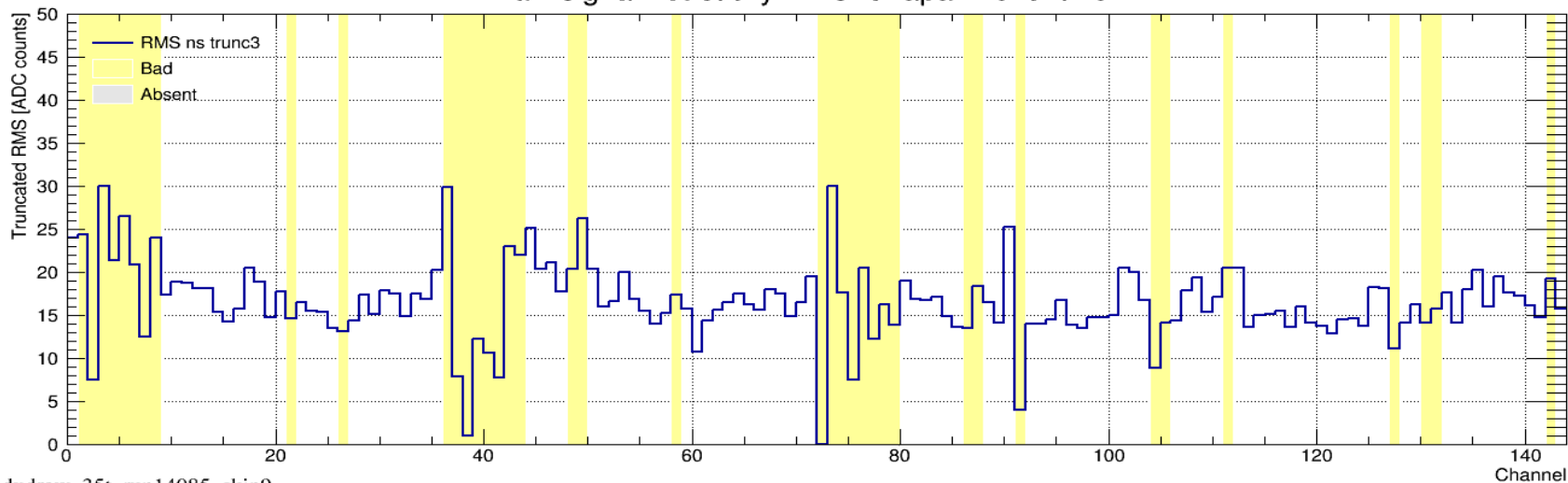


dxdraw\_35t\_run14019\_skip9



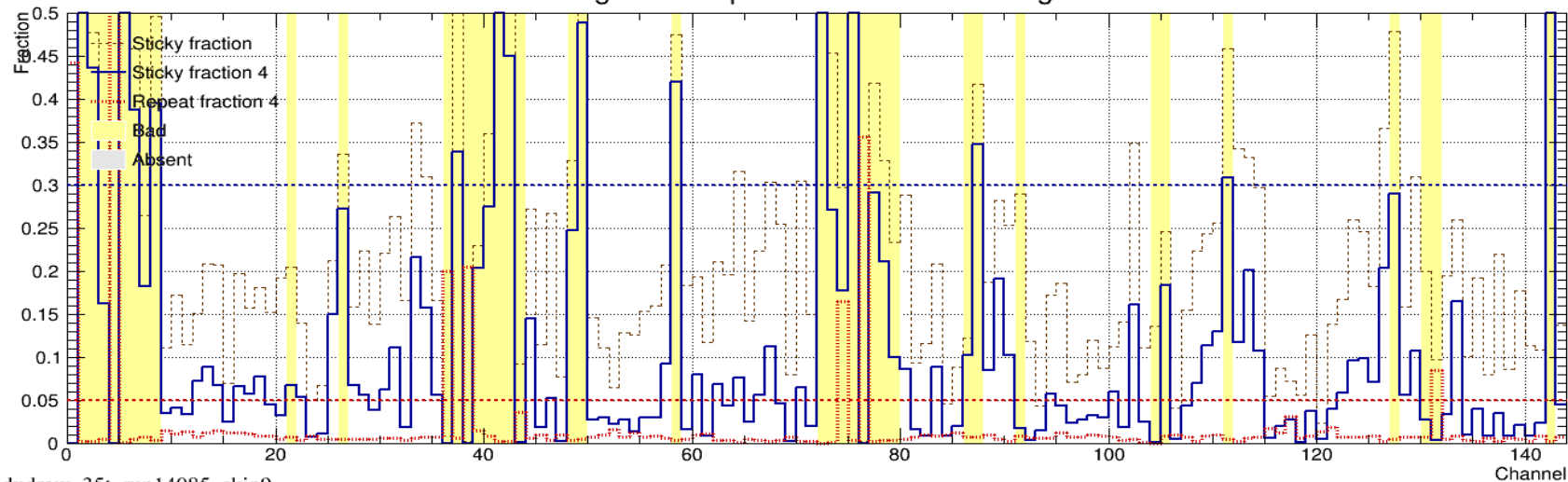
# APA 2v run 14085

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run14085\_skip9

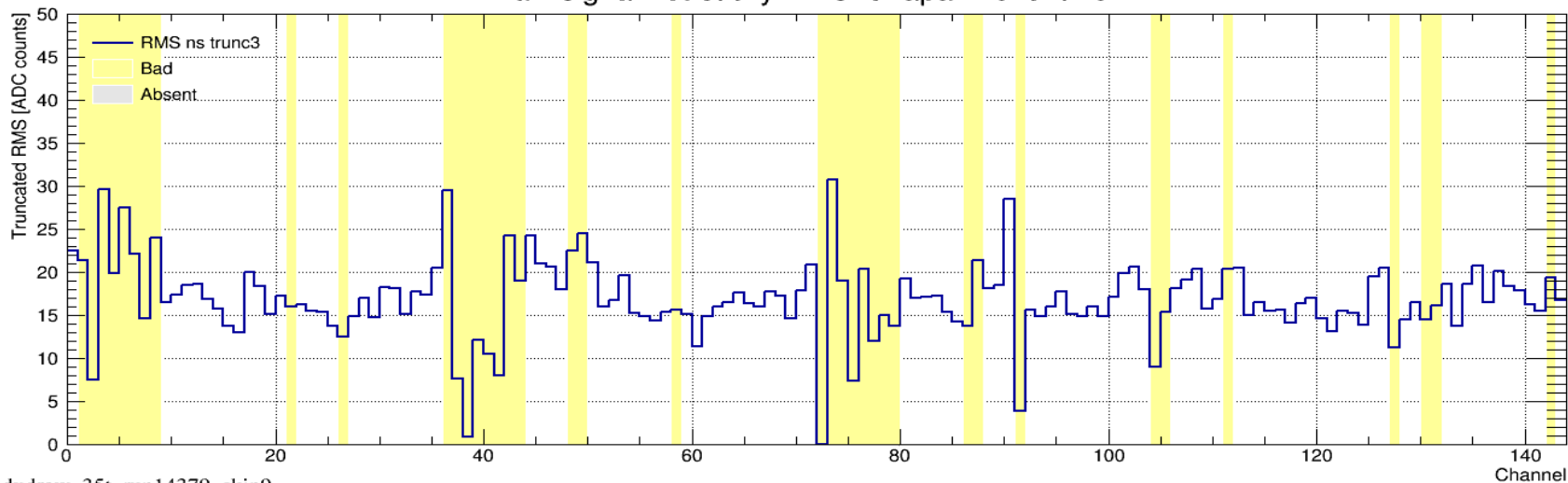
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

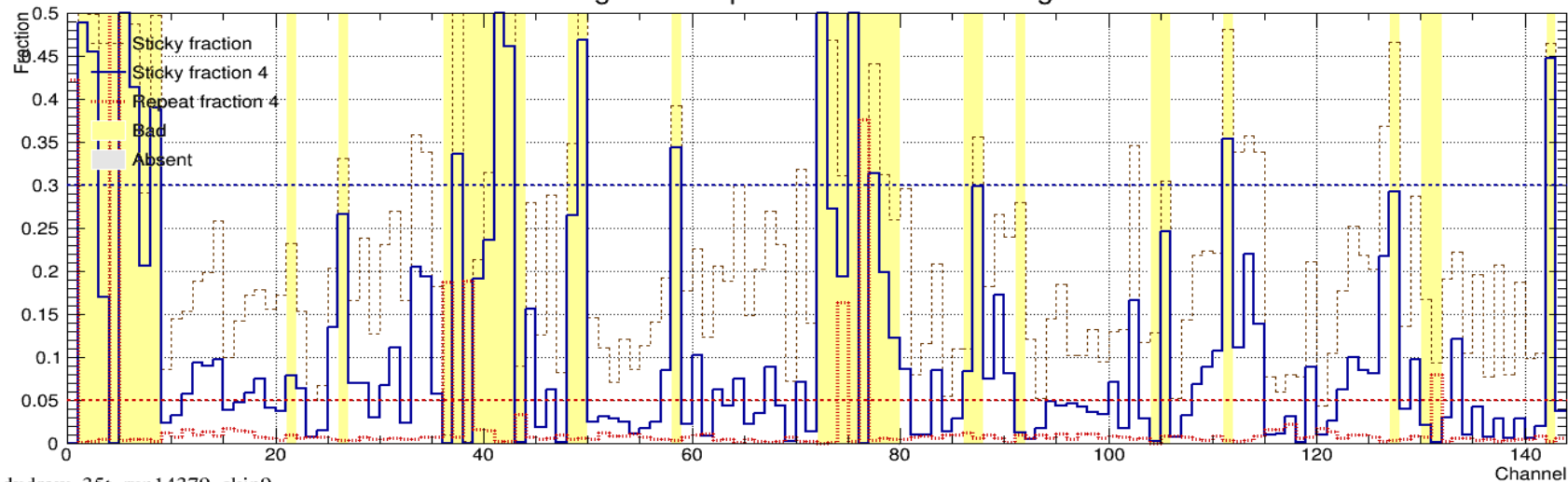
# APA 2v run 14379

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run14379\_skip9

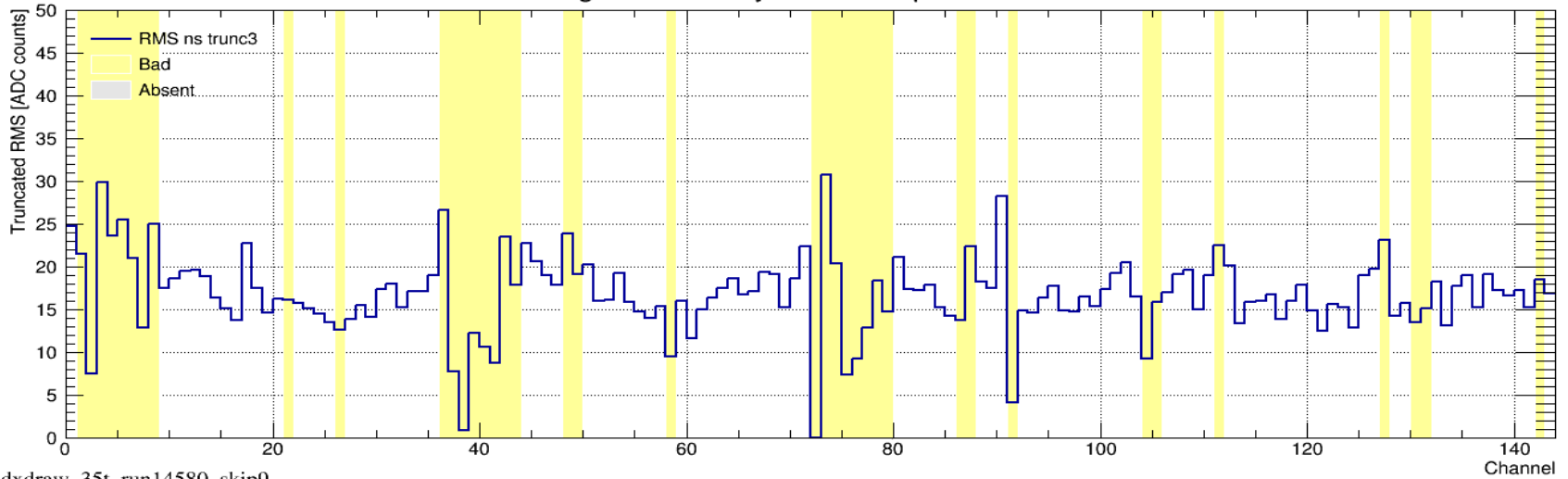
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

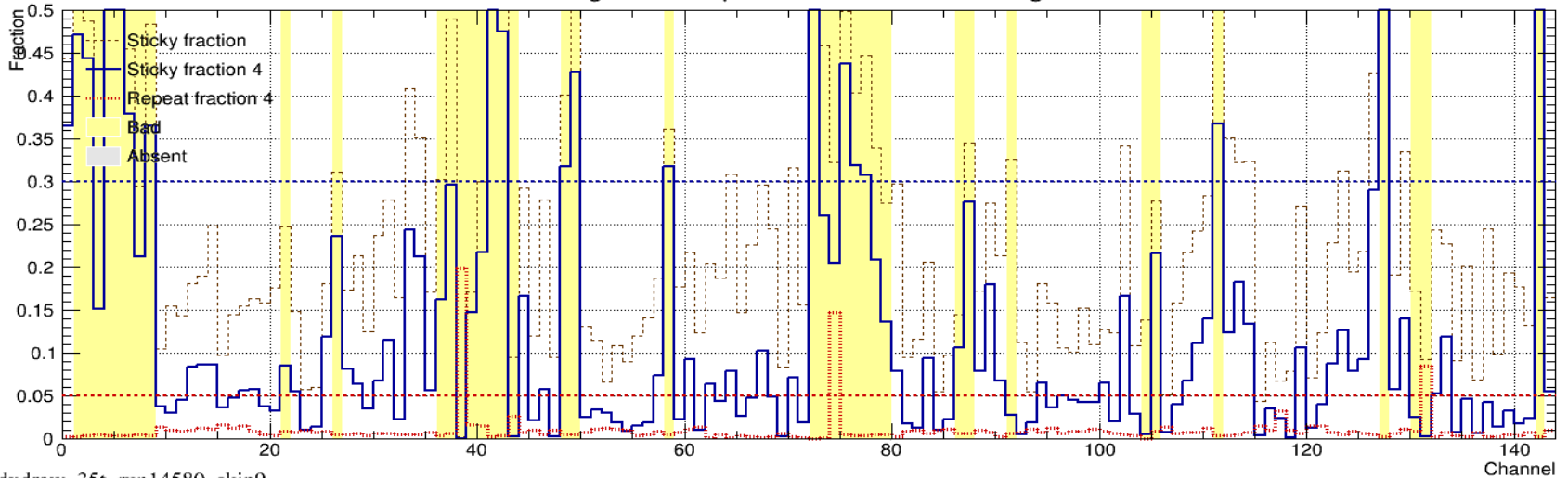
# APA 2v run 14580 (last before power failure)

Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run14580\_skip9

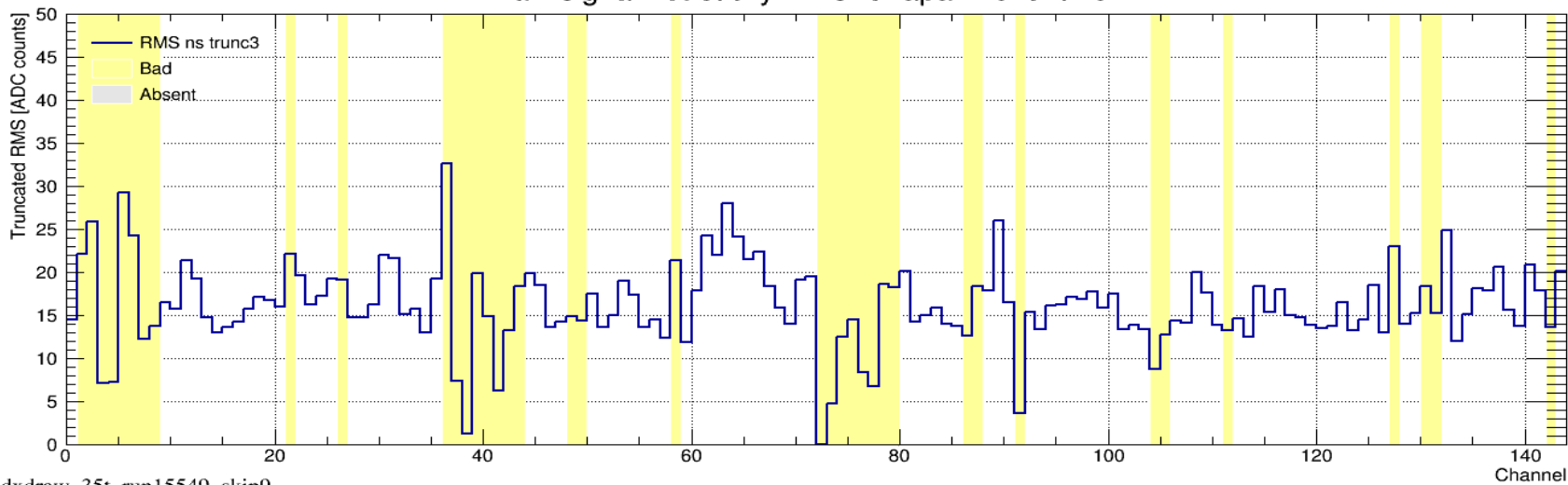
Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

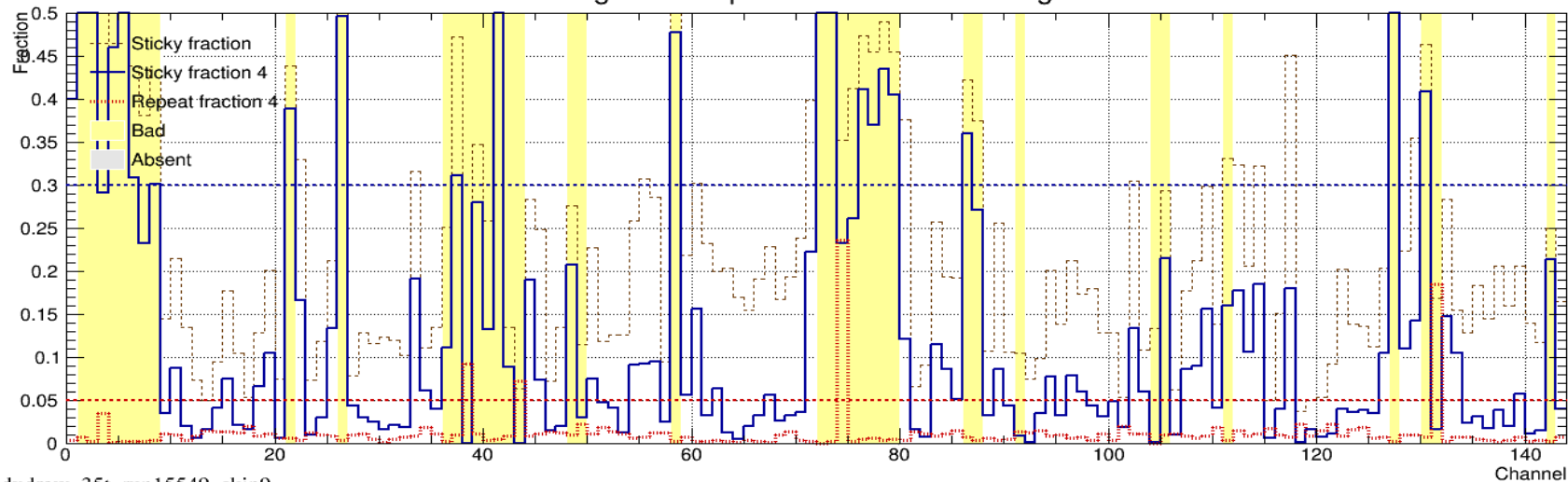
# APA 2v run 15549 (first after power failure)

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run15549\_skip9

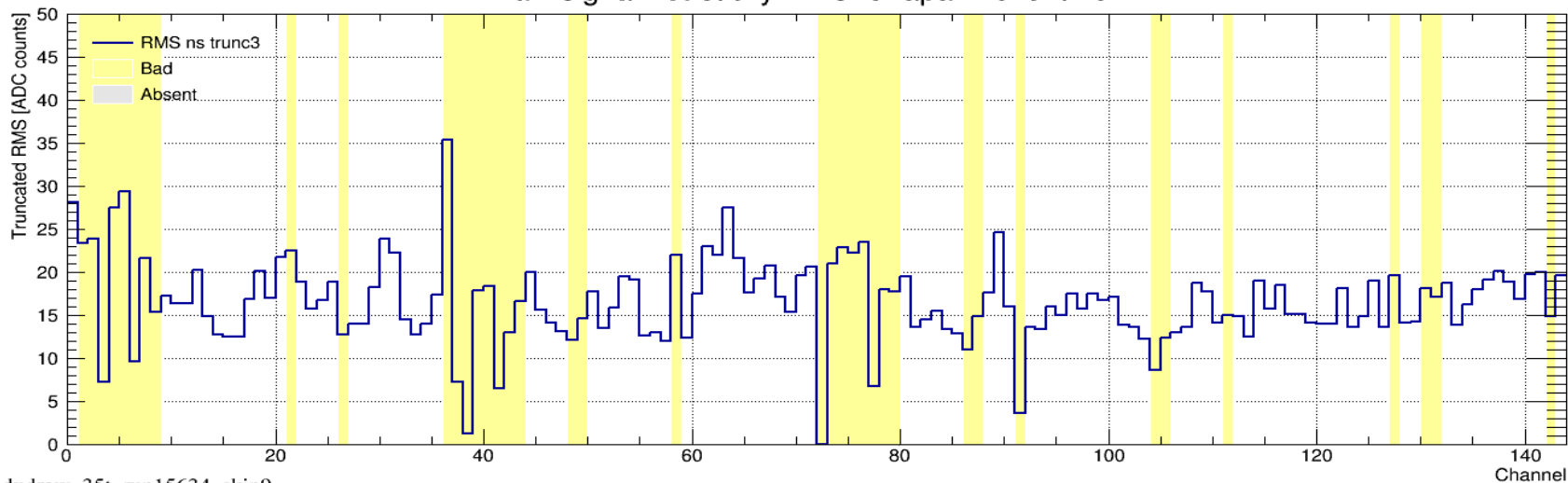
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

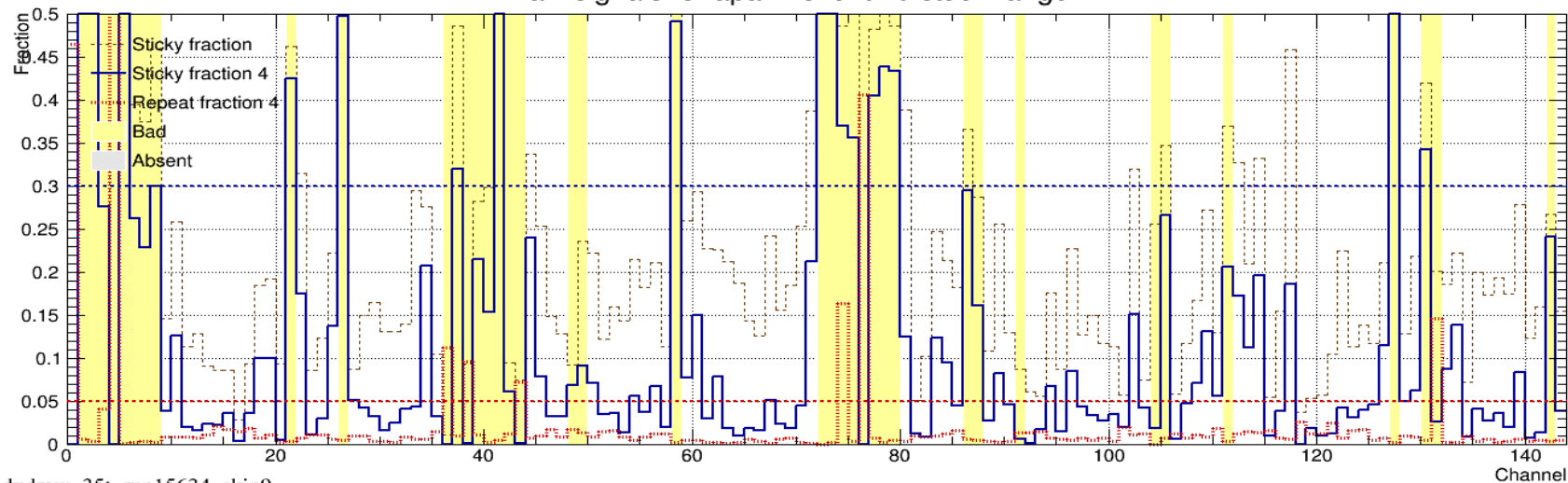
# APA 2v run 15634

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run15634\_skip9

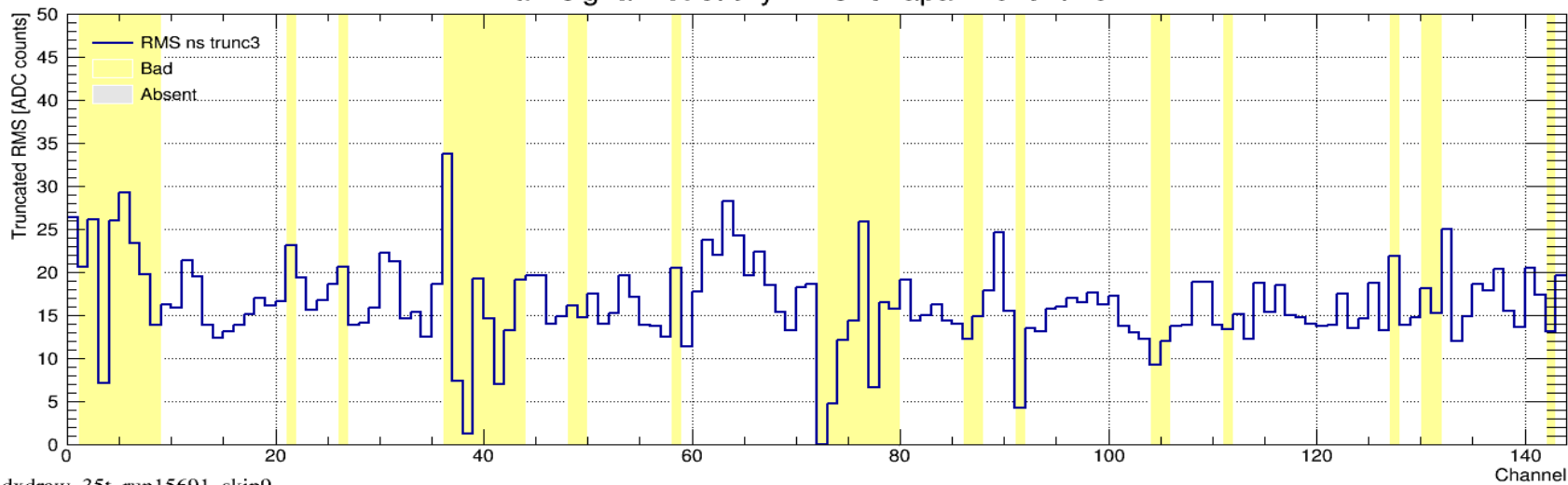
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

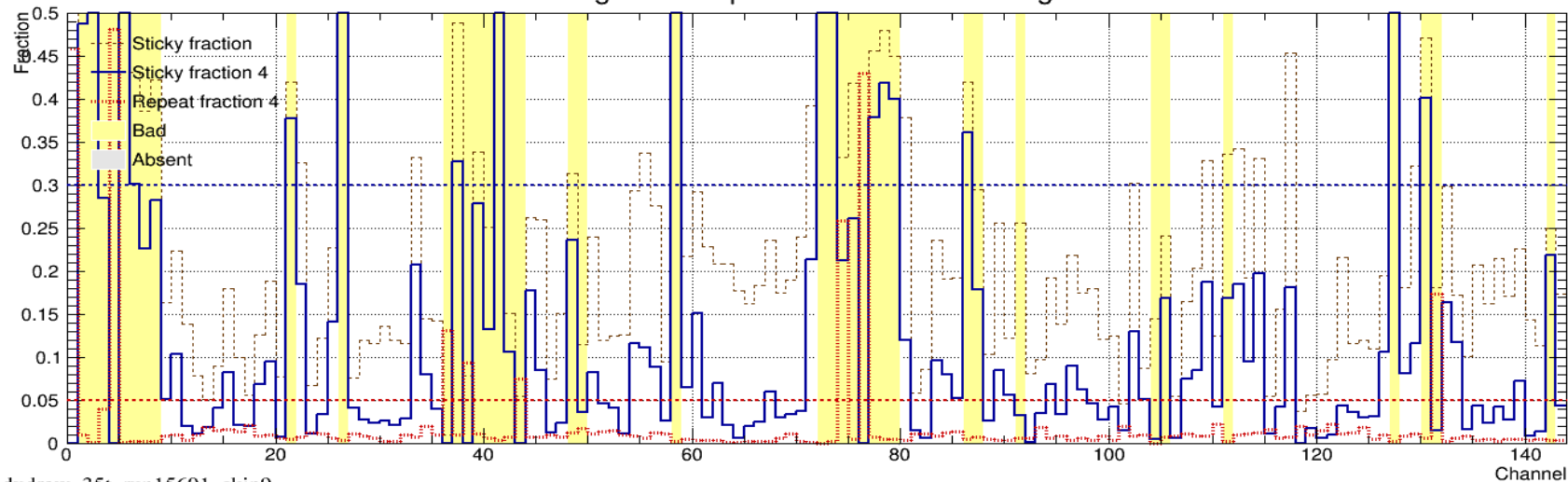
# APA 2v run 15691

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run15691\_skip9

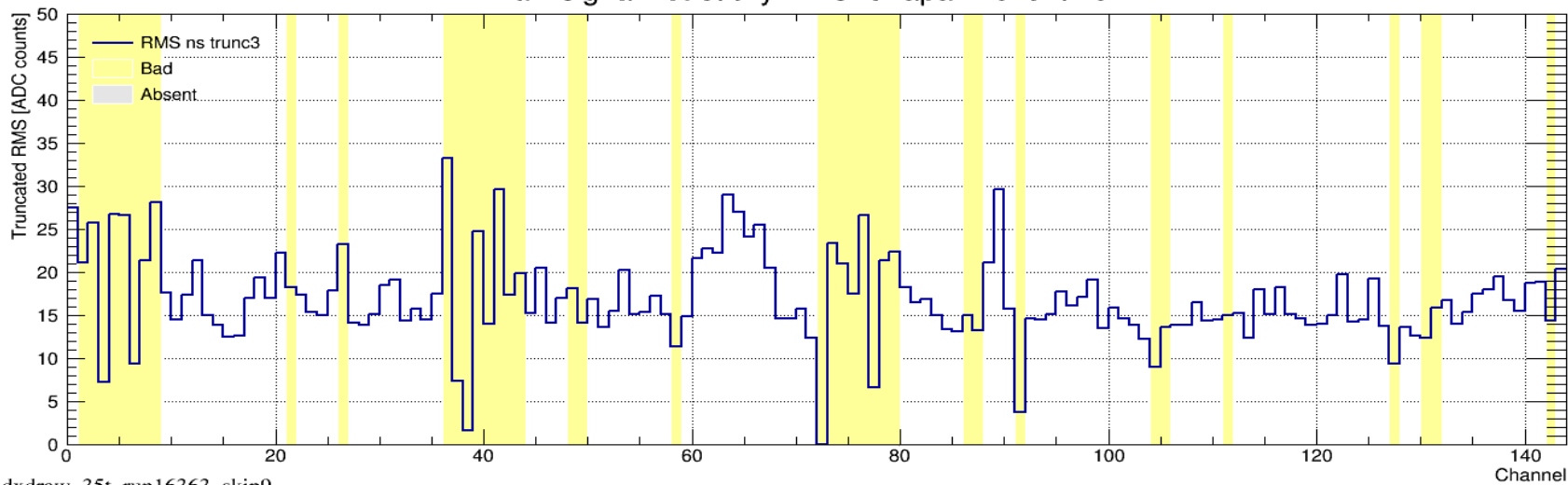
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

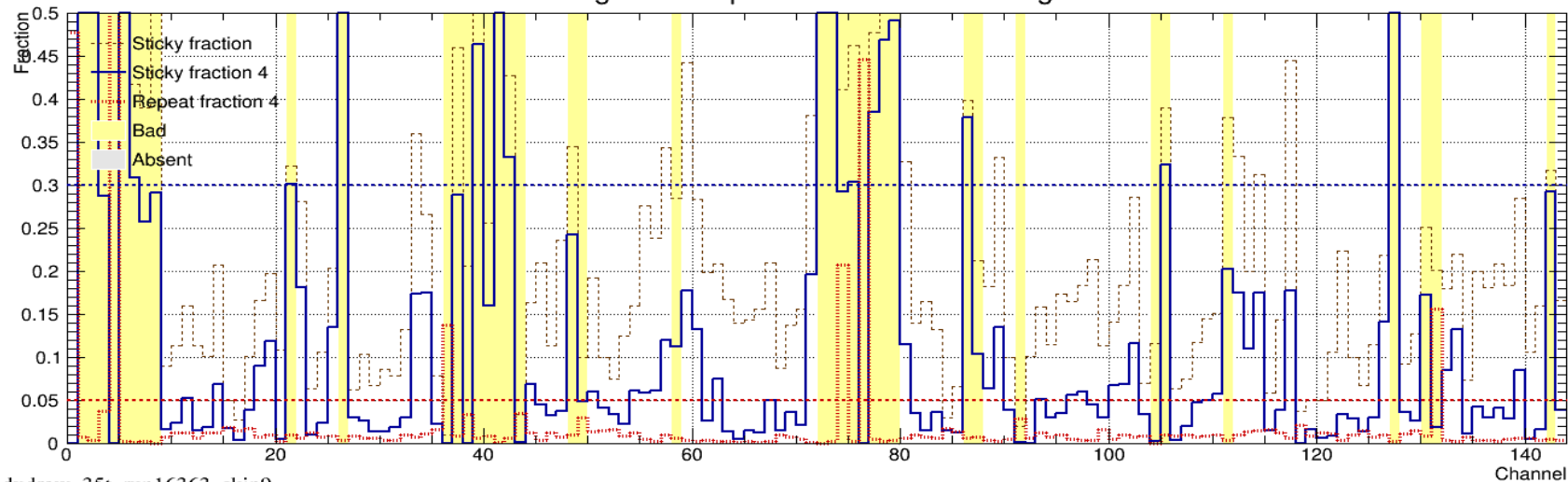
# APA 2v run 16363

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run16363\_skip9

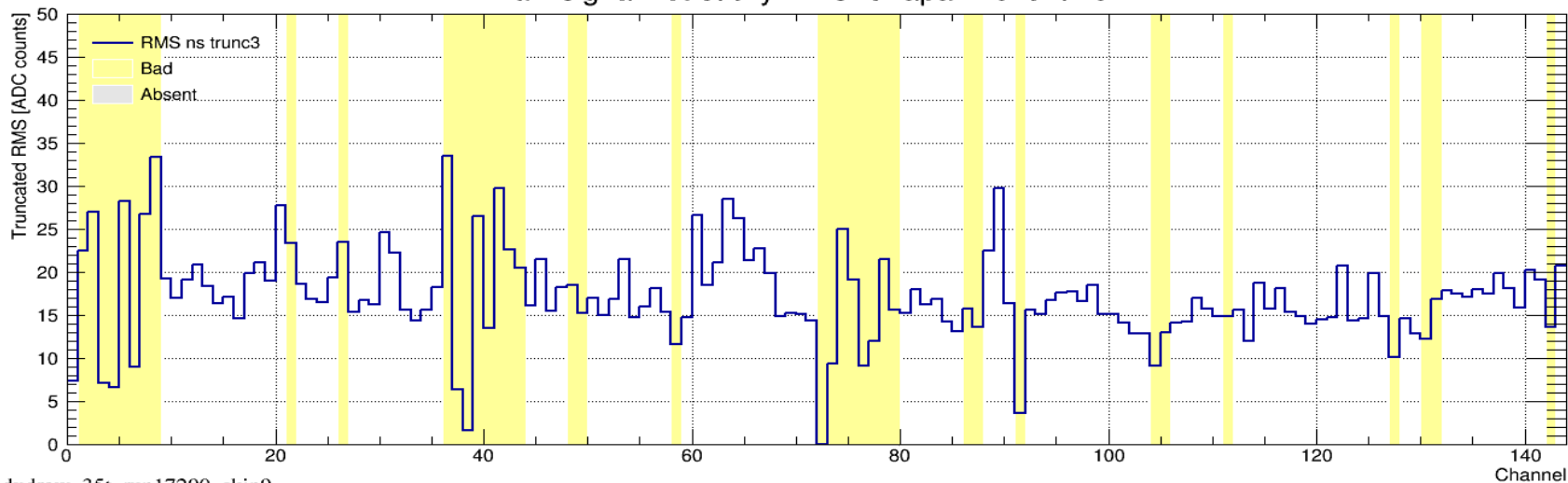
## Raw signals for apa2v event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

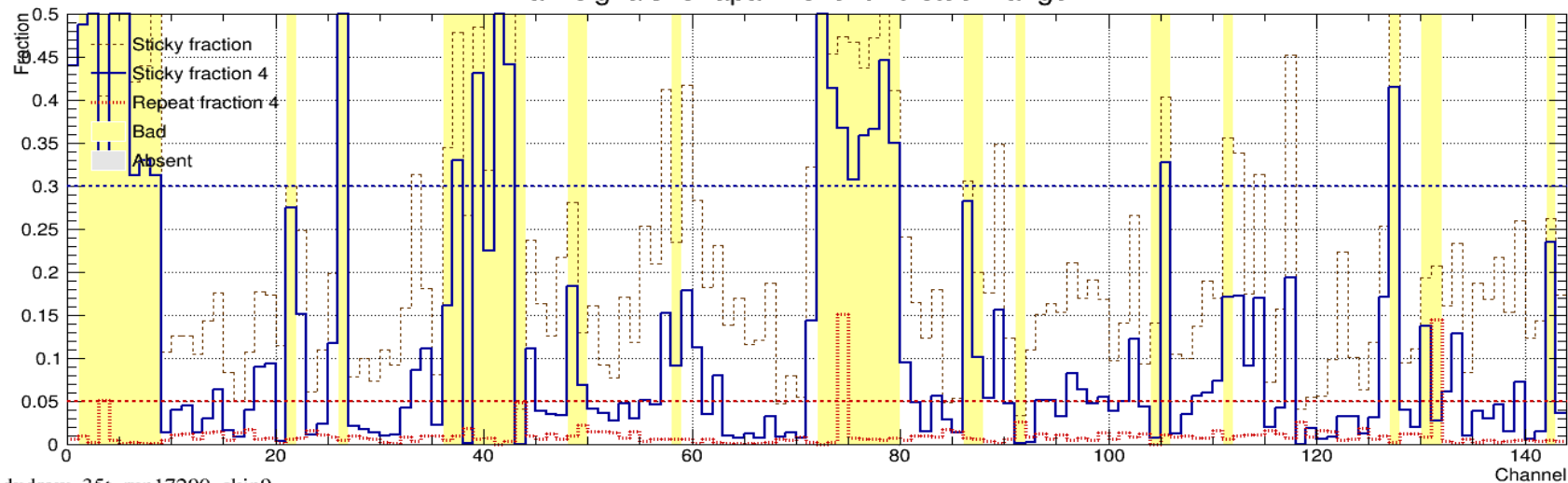
# APA 2v run 17200

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run17200\_skip9

## Raw signals for apa2v event 10 stuck range 4

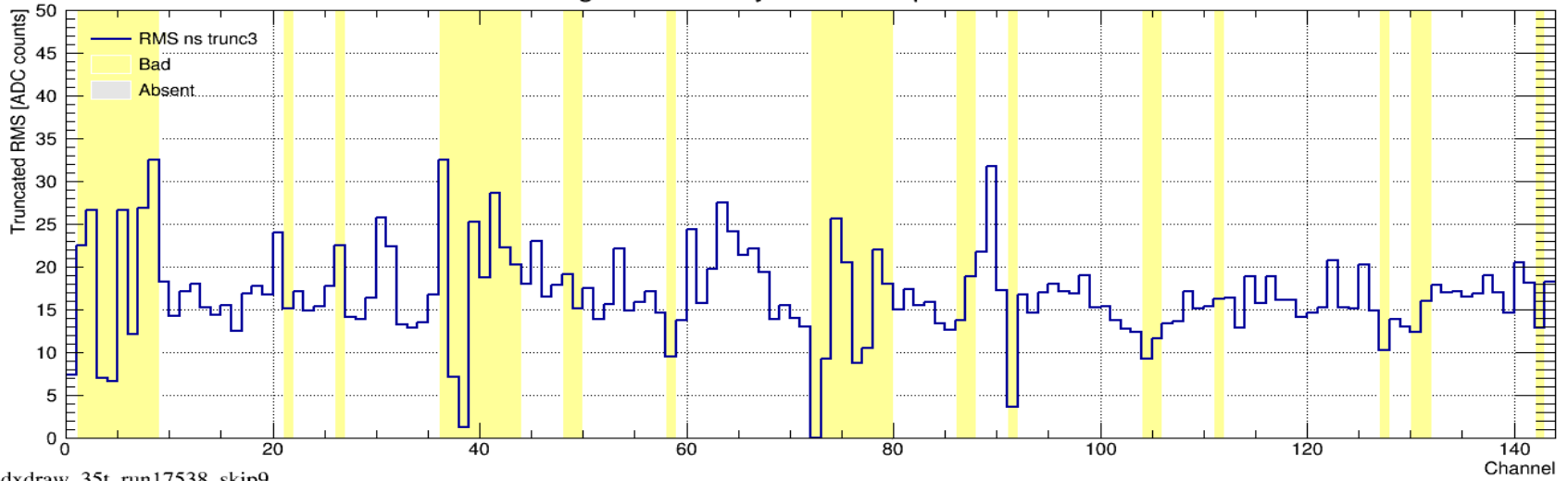


dxdraw\_35t\_run17200\_skip9



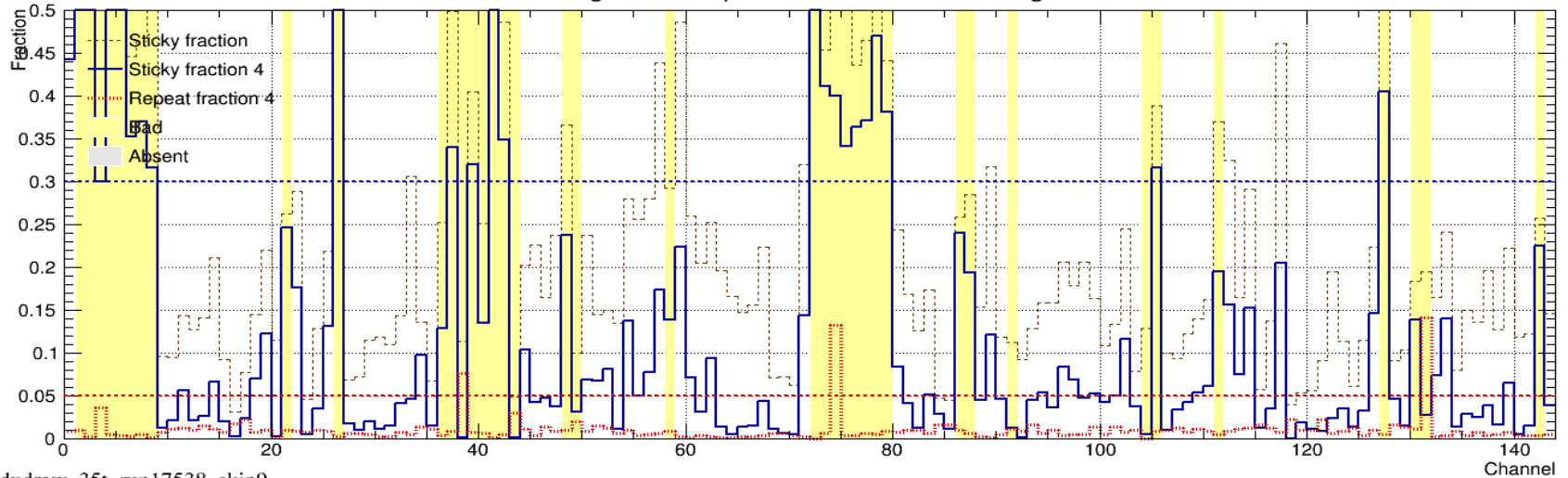
# APA 2v run 17538 (last)

## Raw signal not-sticky RMS for apa2v event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa2v event 10 stuck range 4

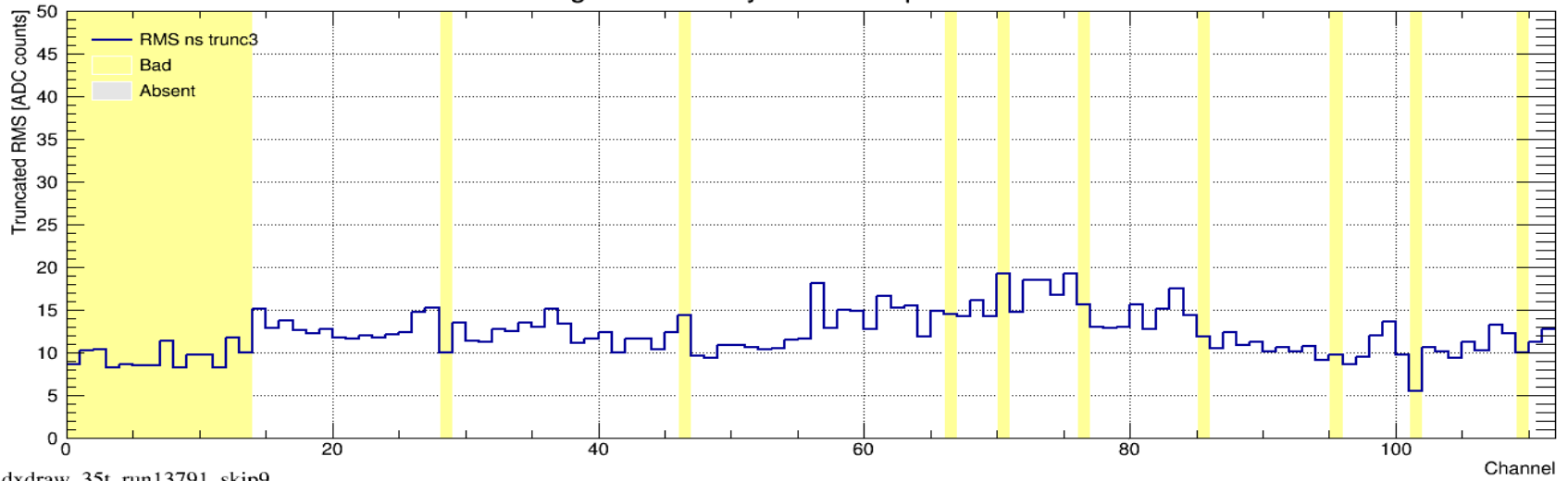


dxdraw\_35t\_run17538\_skip9

# APA 2z1

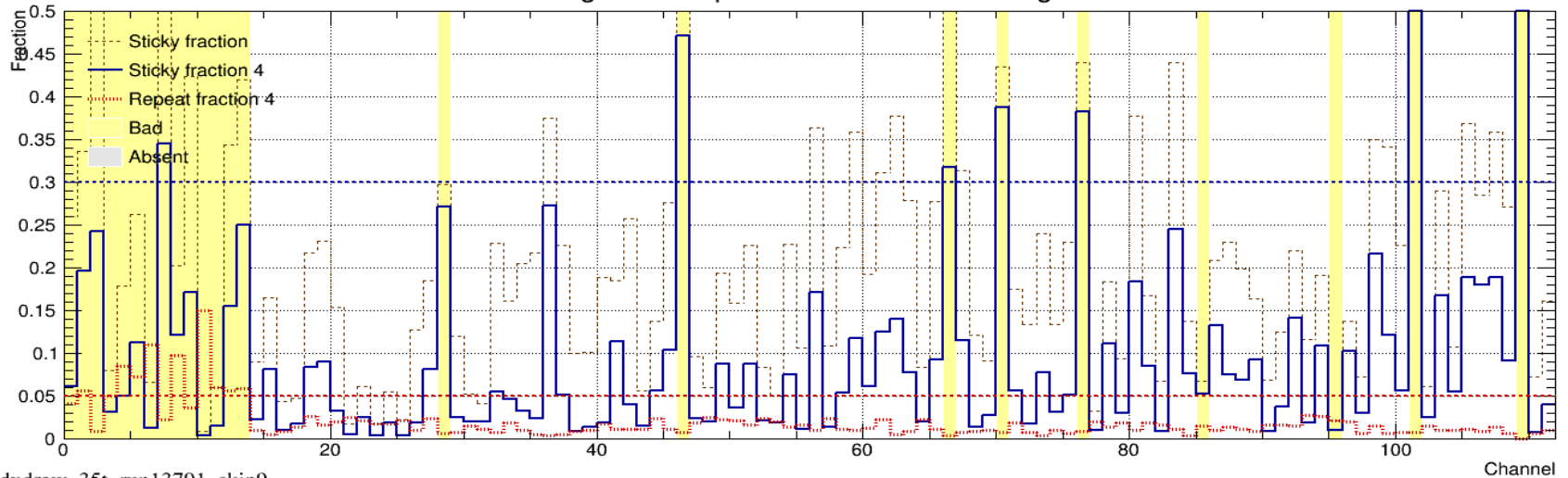
# APA 2z1 run 13791 (first)

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run13791\_skip9

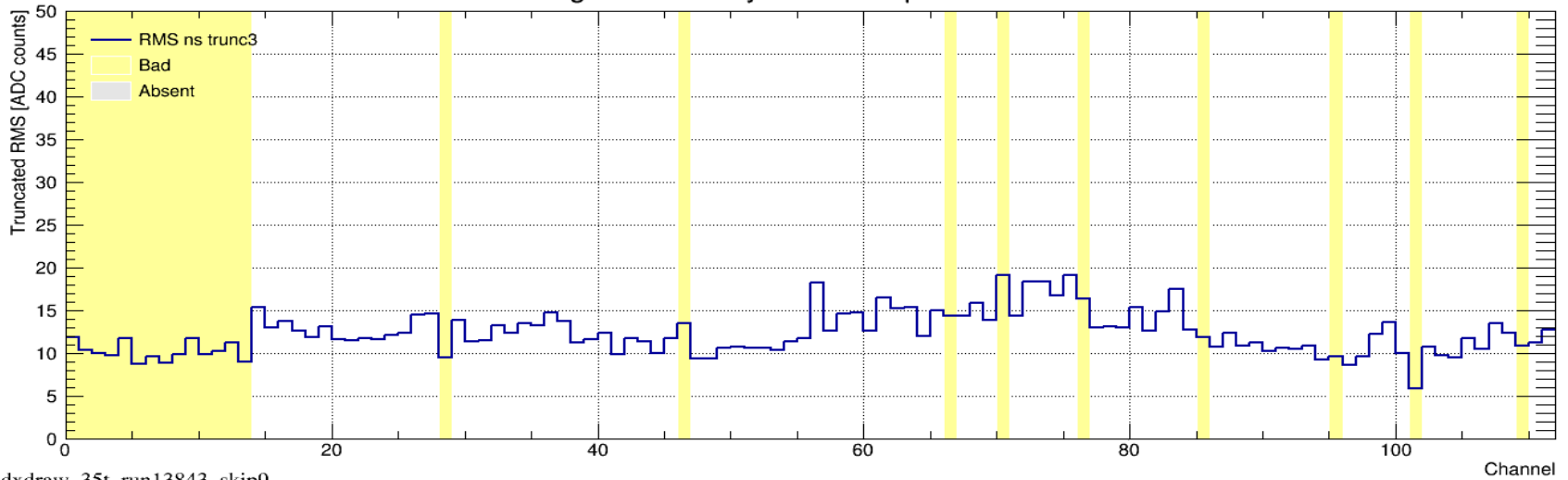
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

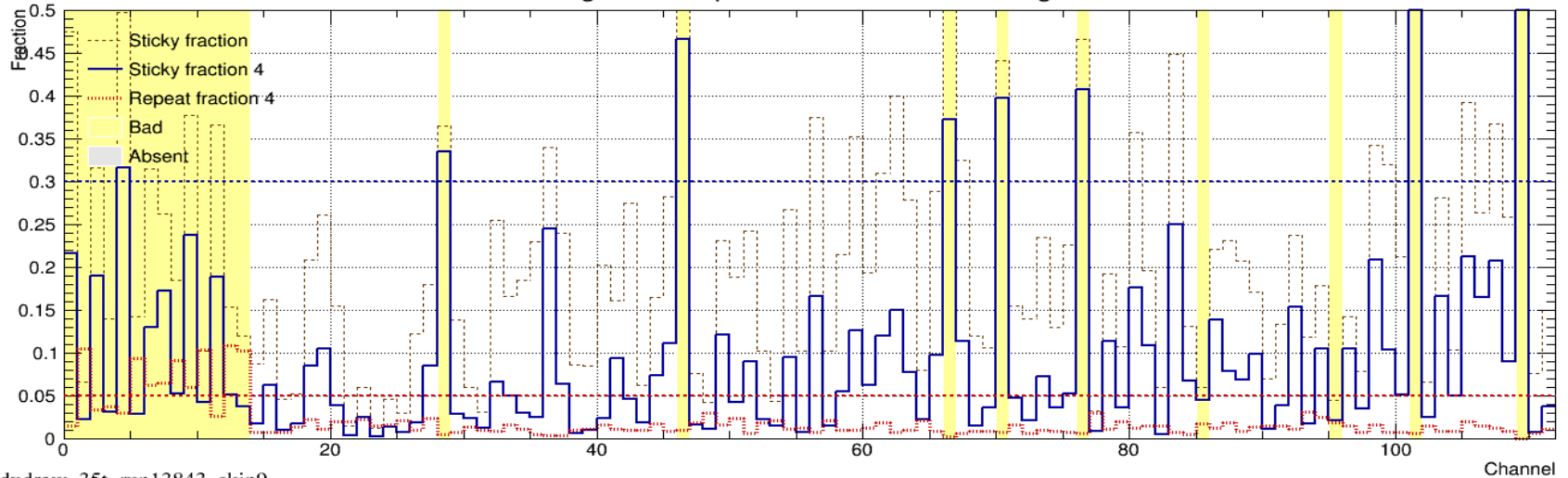
# APA 2z1 run 13843

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run13843\_skip9

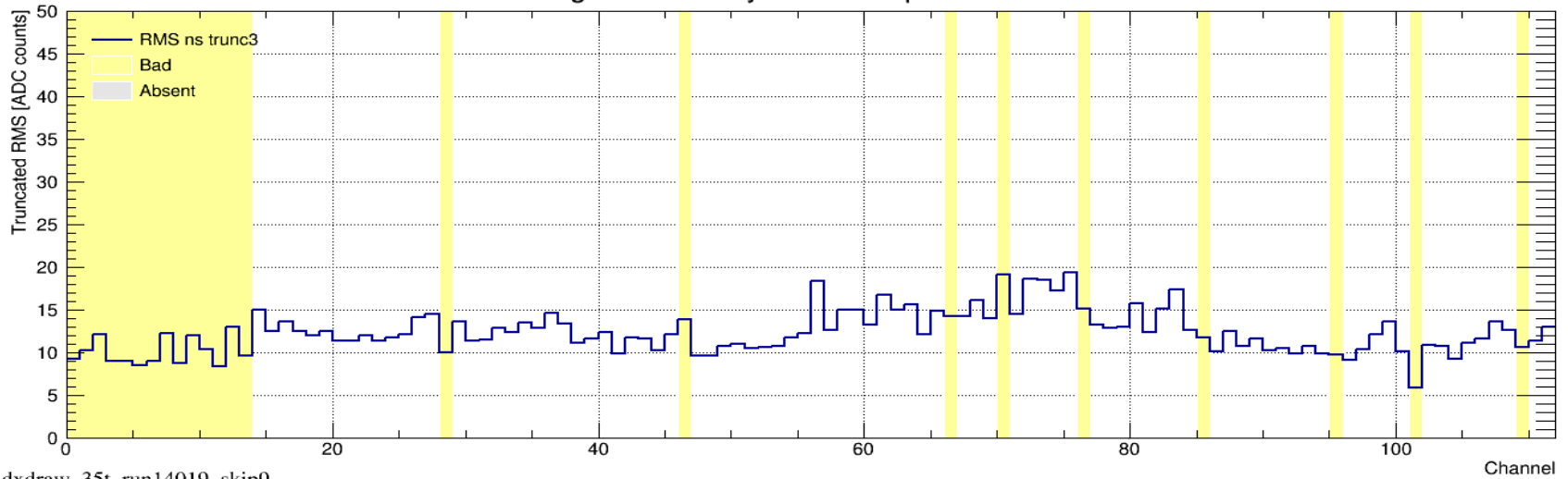
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

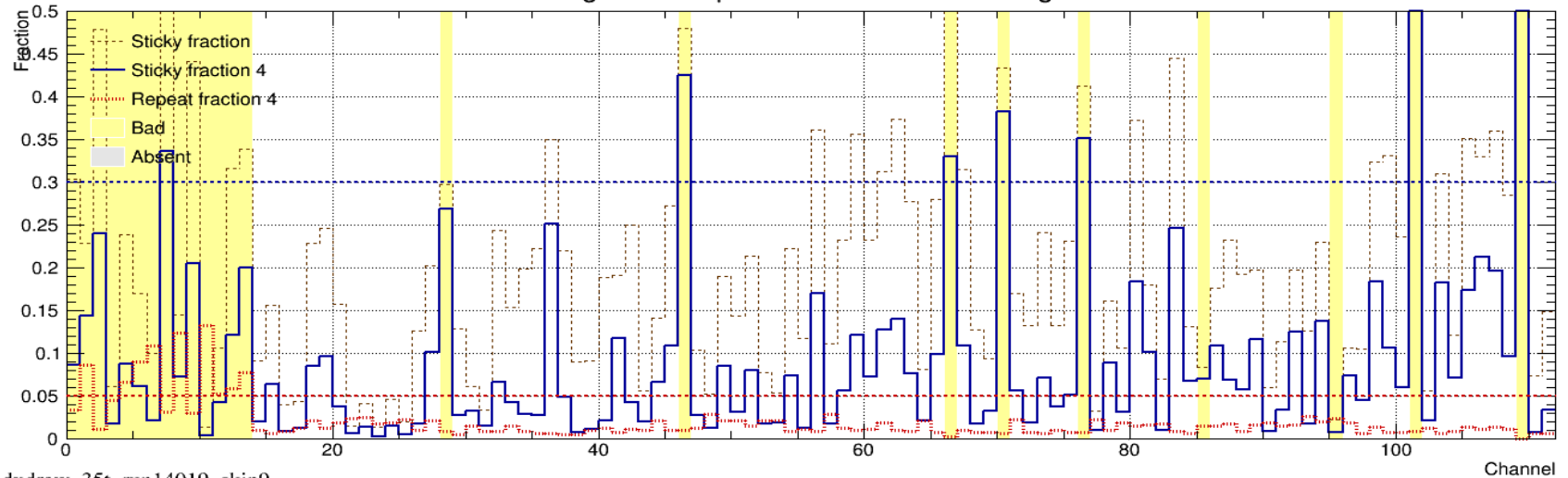
# APA 2z1 run 14019

## Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run14019\_skip9

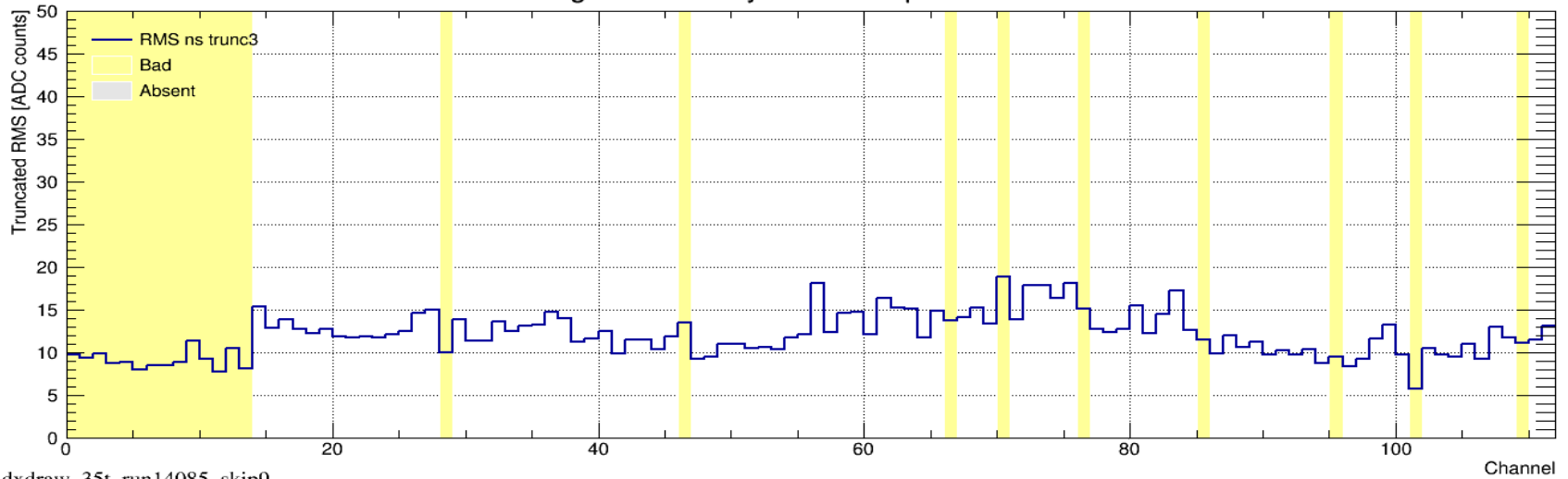
## Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

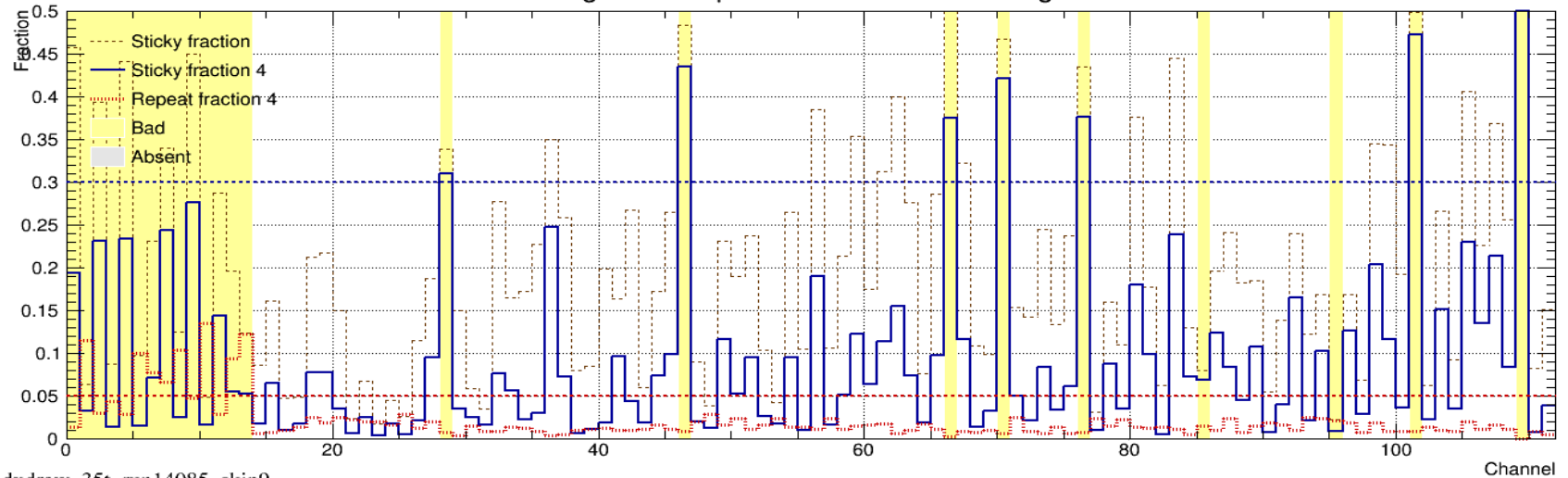
# APA 2z1 run 14085

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run14085\_skip9

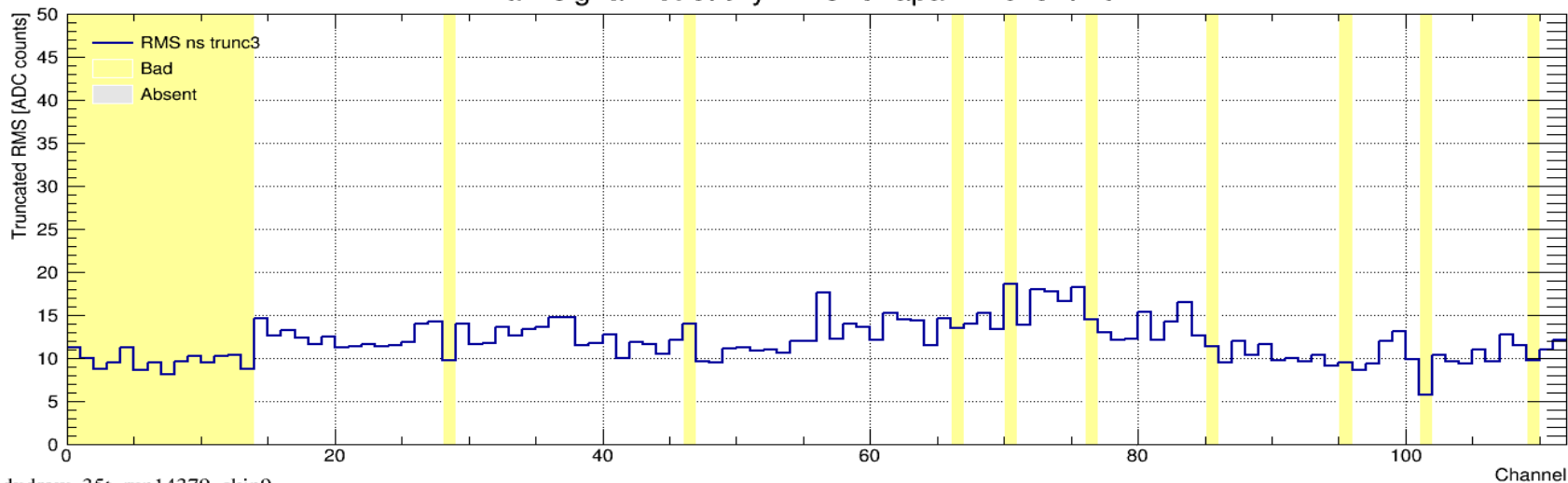
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

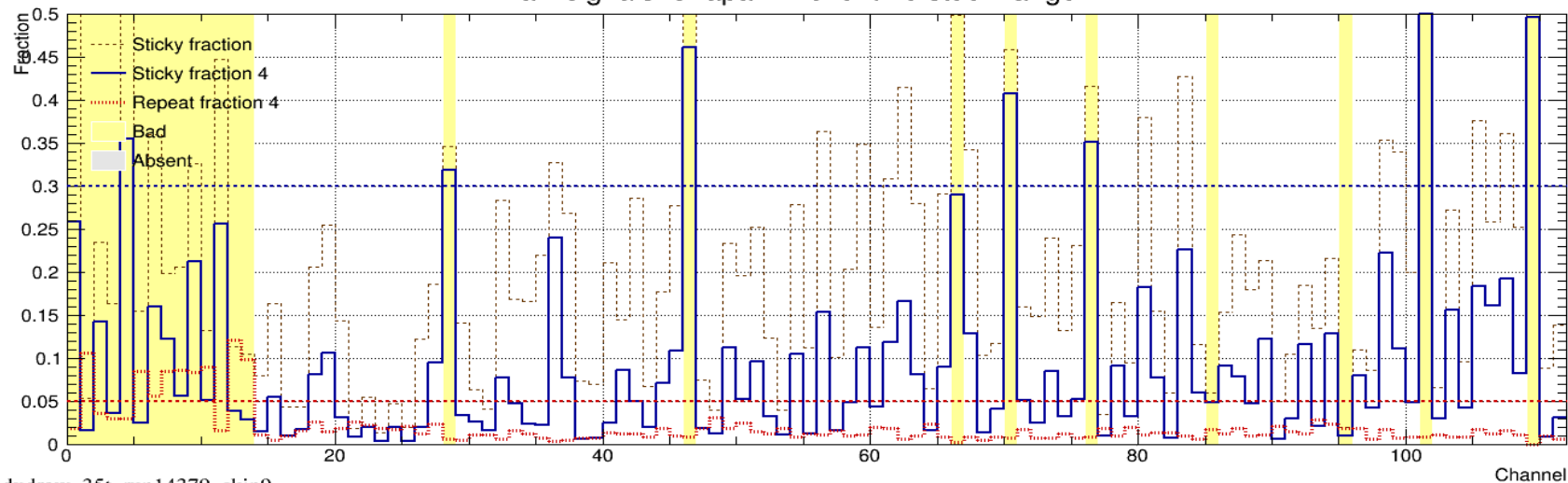
# APA 2z1 run 14379

## Raw signal not-sticky RMS for apa2z1 event 10



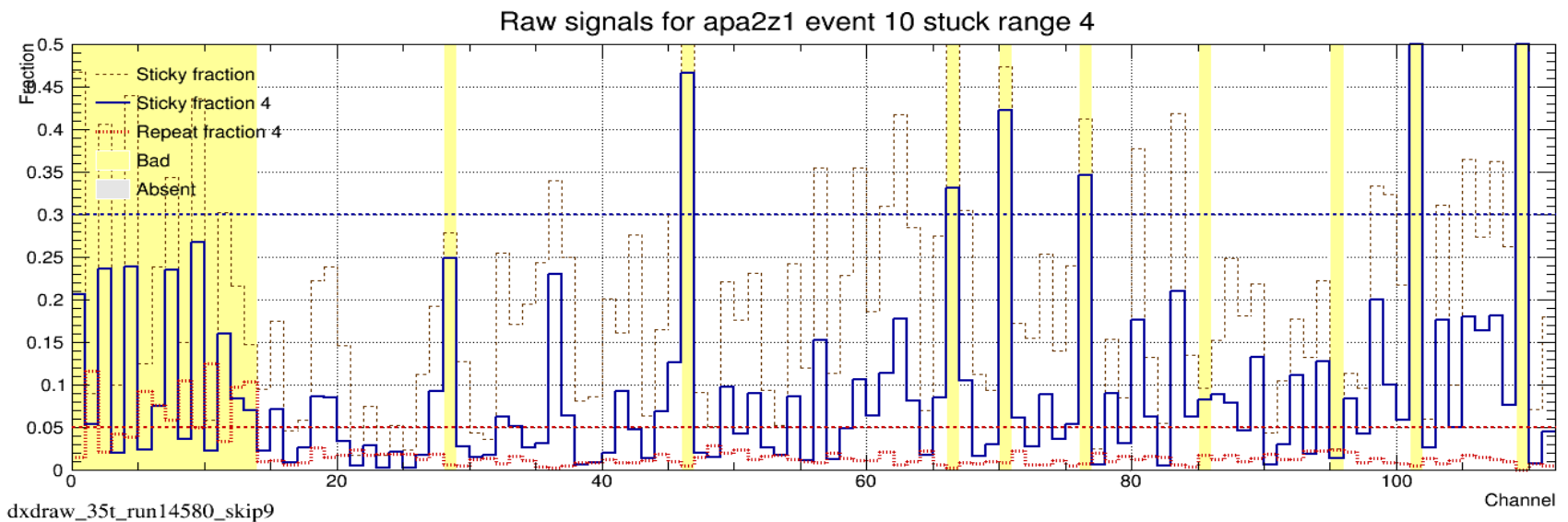
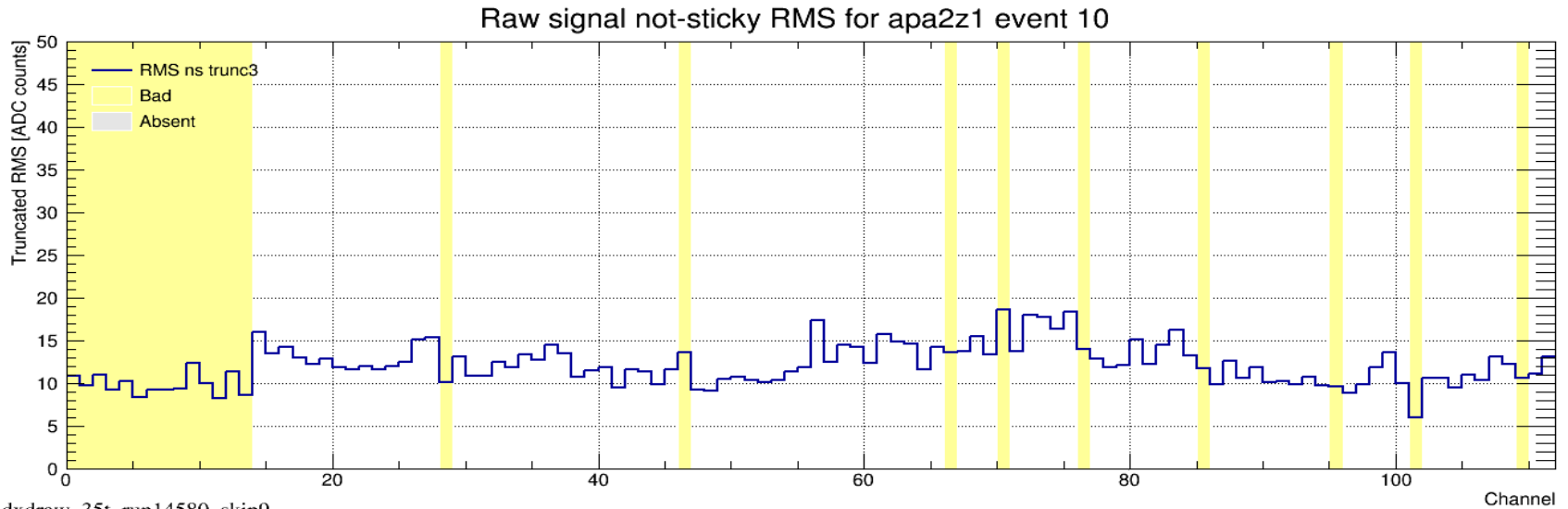
dxdraw\_35t\_run14379\_skip9

## Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

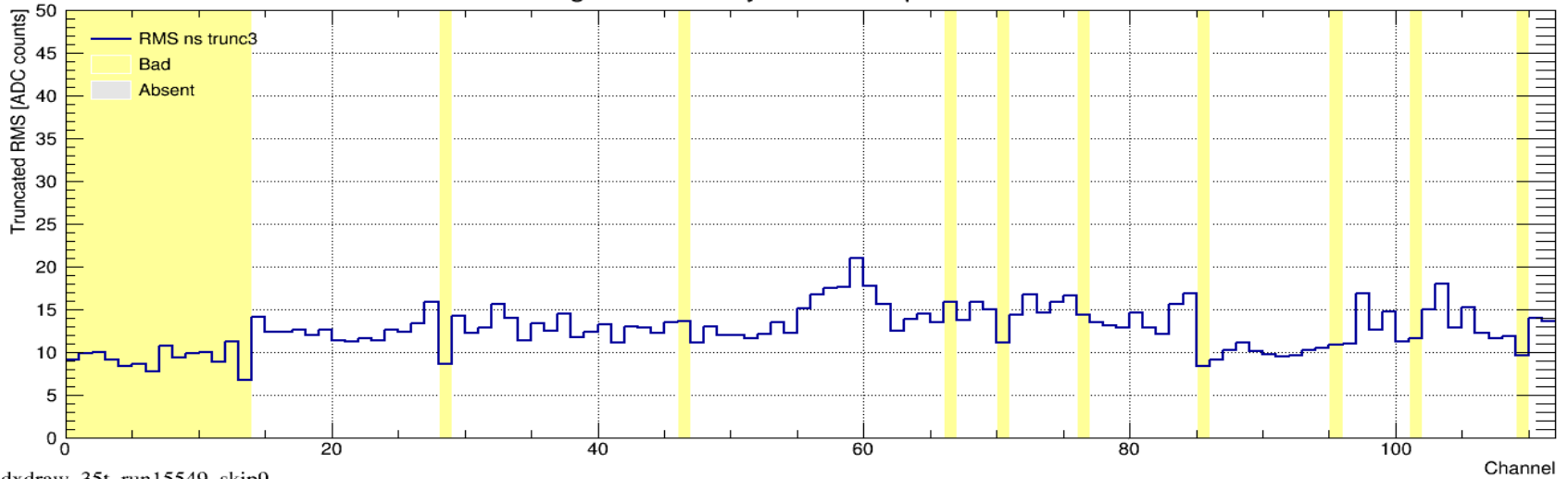
# APA 2z1 run 14580 (last before power failure)





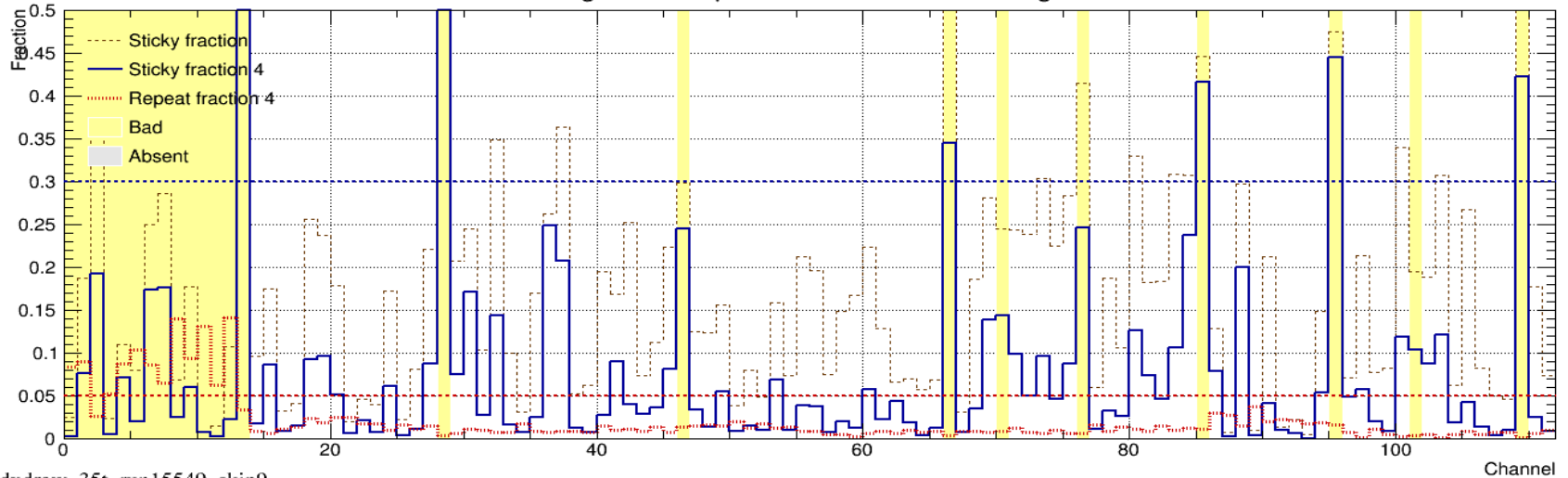
# APA 2z1 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run15549\_skip9

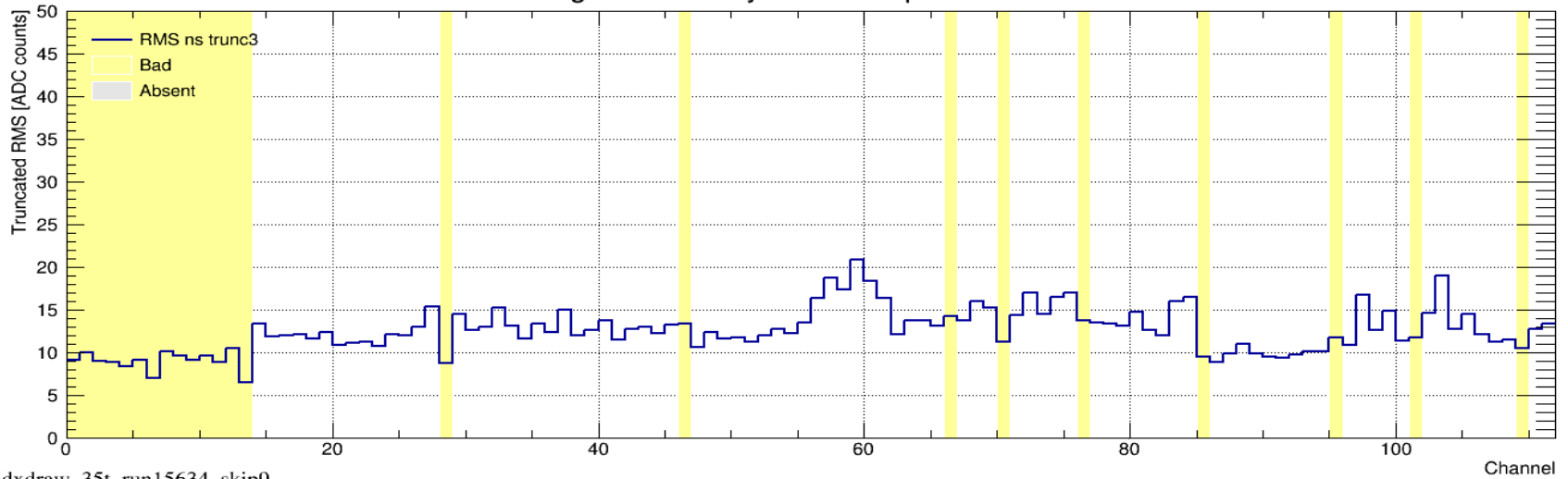
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

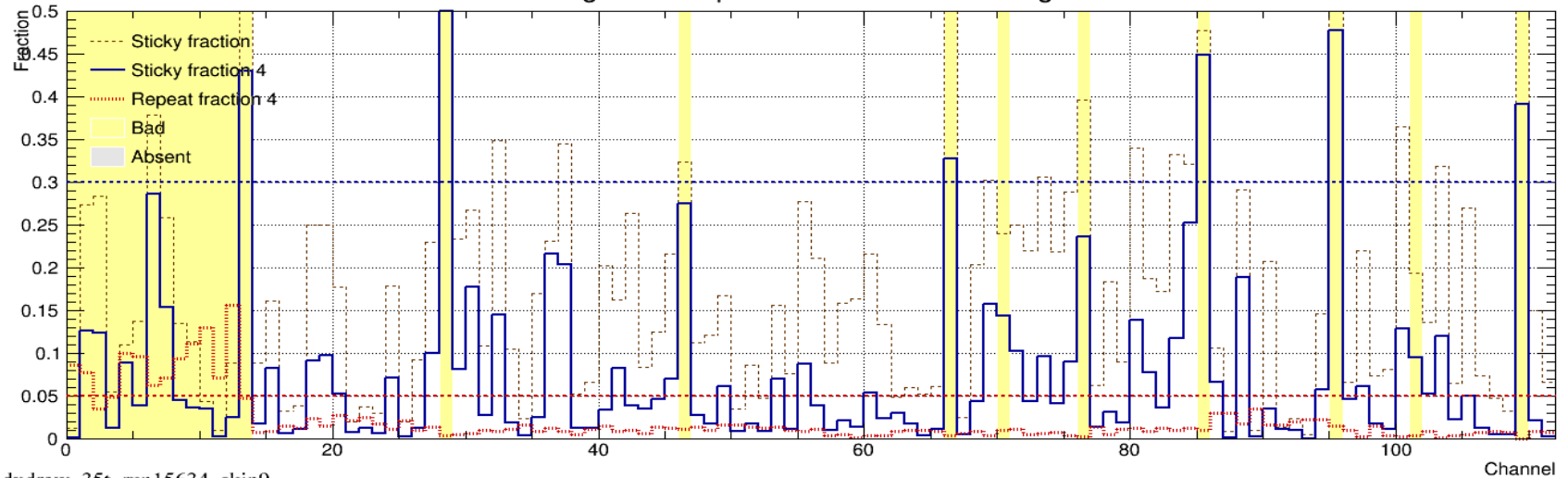
# APA 2z1 run 15634

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run15634\_skip9

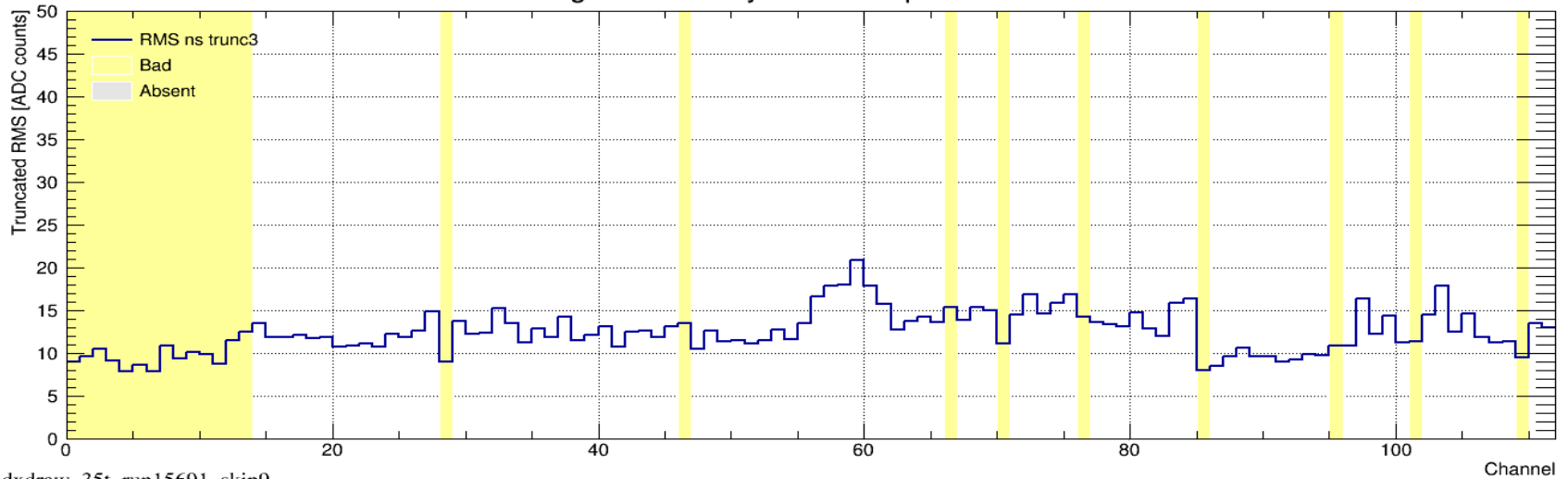
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

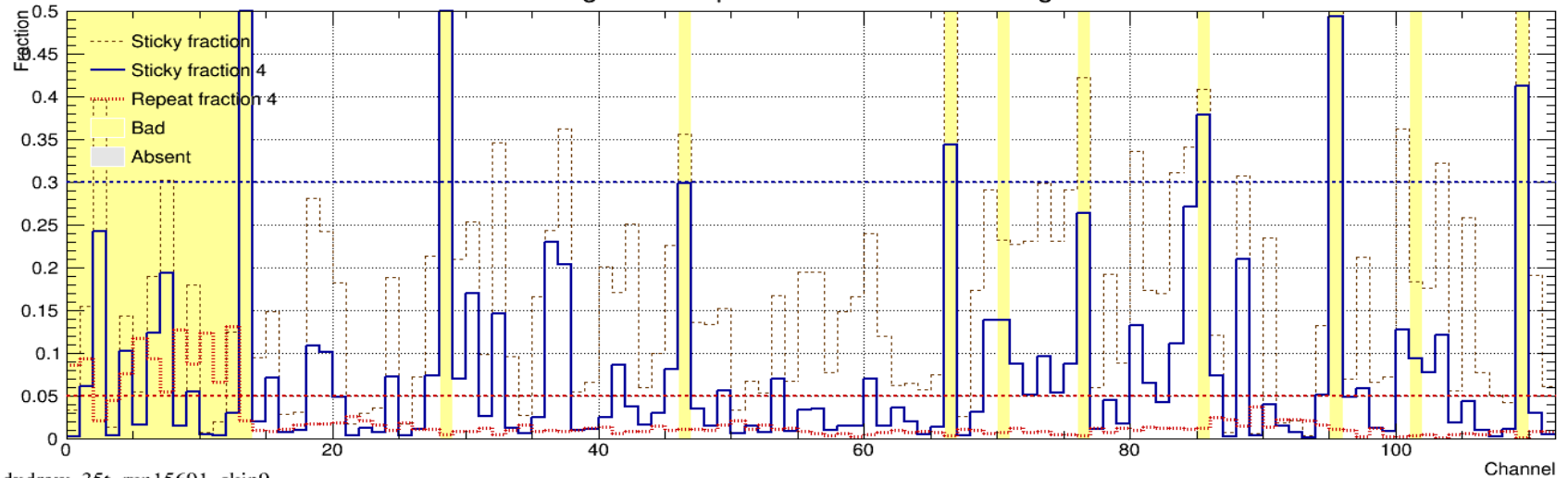
# APA 2z1 run 15691

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run15691\_skip9

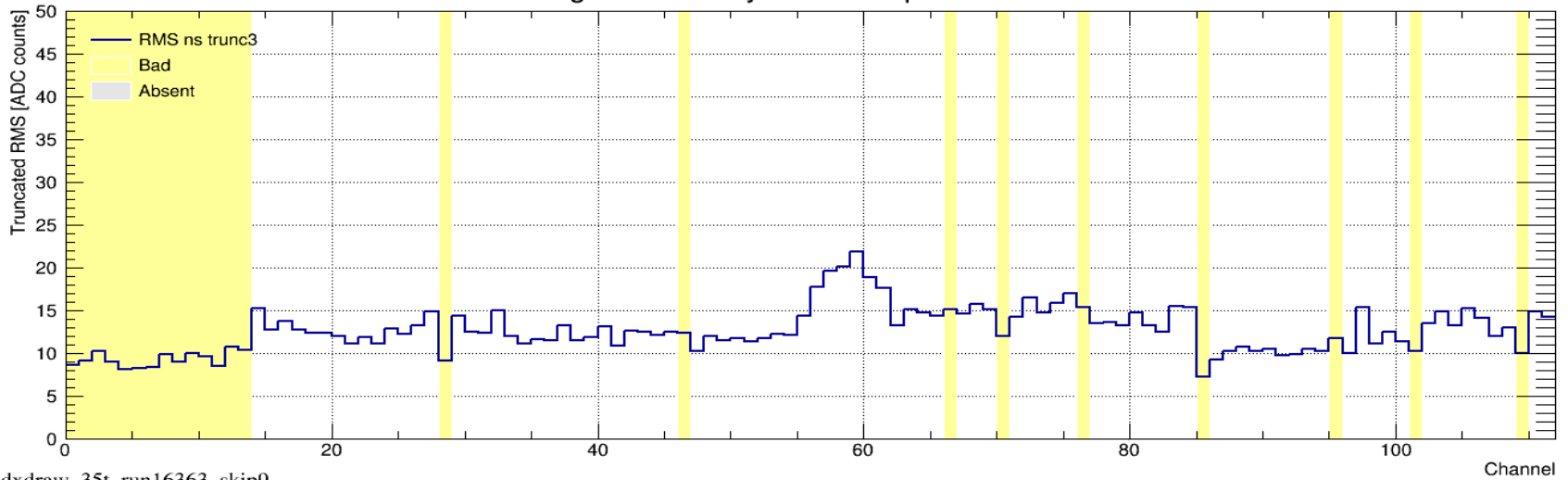
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

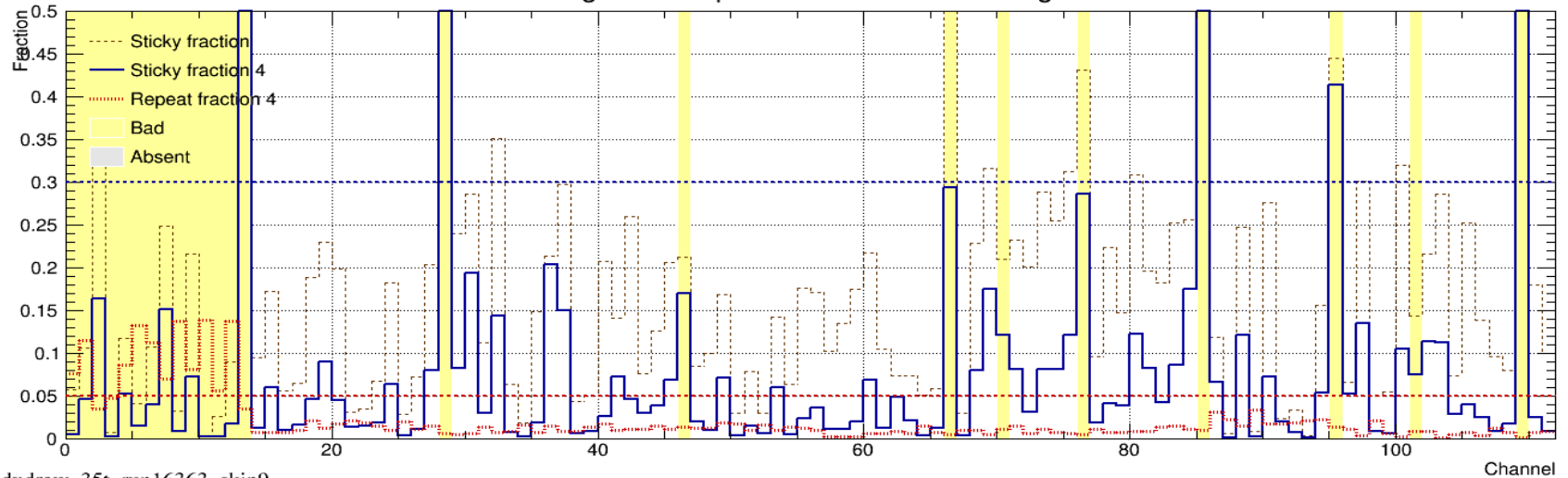
# APA 2z1 run 16363

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run16363\_skip9

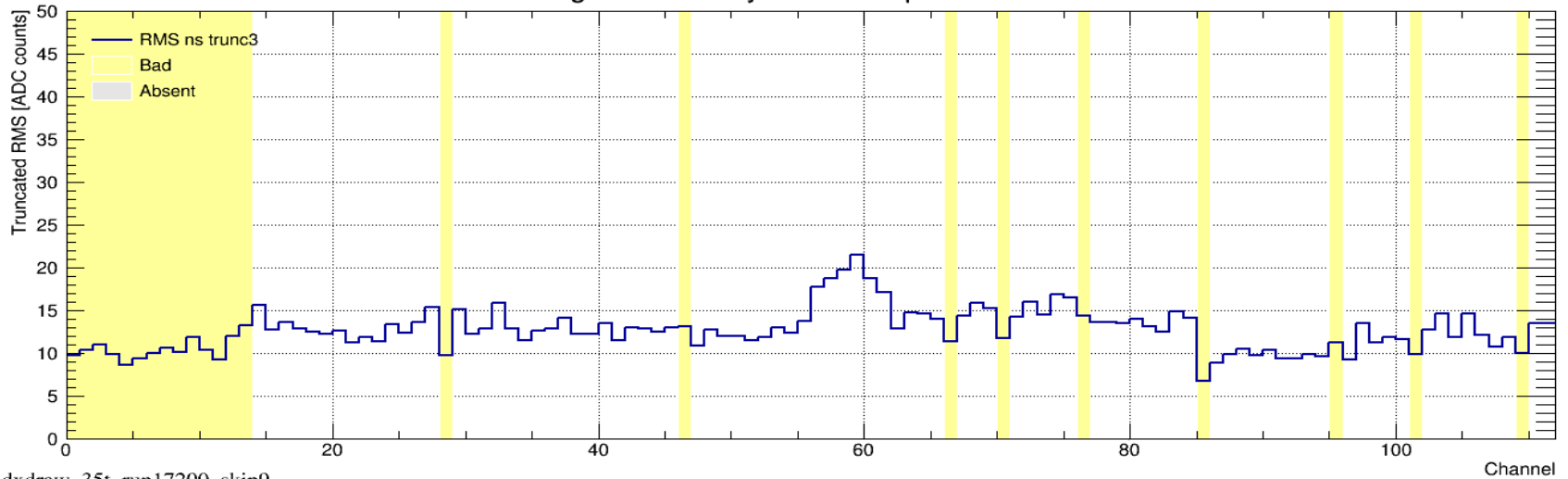
Raw signals for apa2z1 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

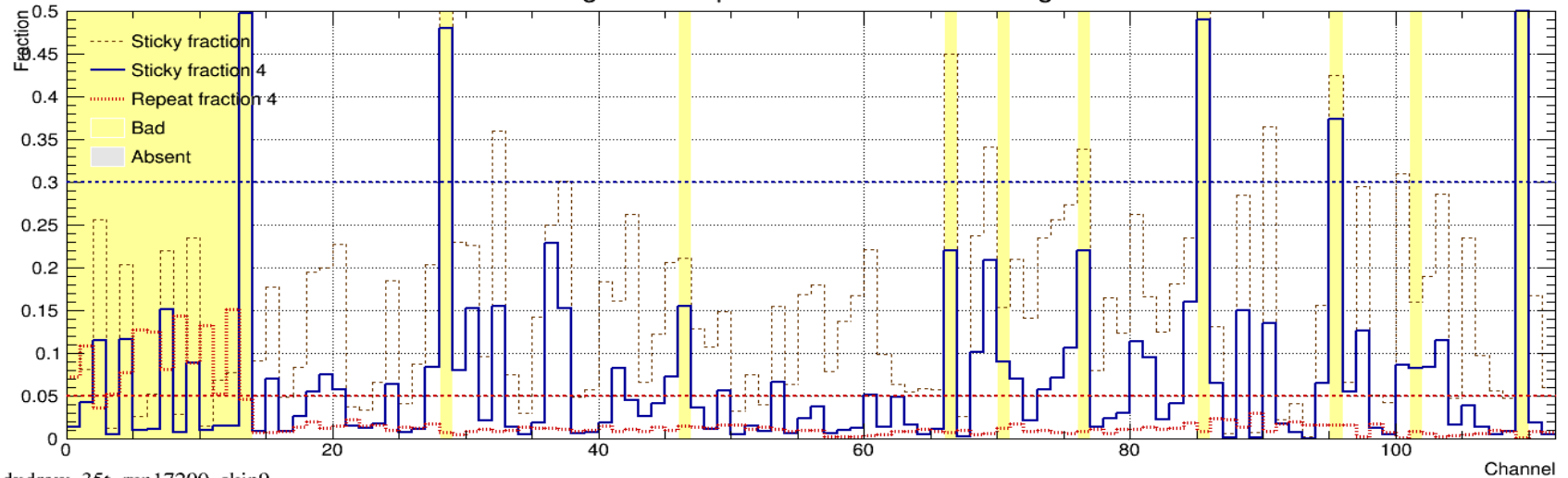
# APA 2z1 run 17200

Raw signal not-sticky RMS for apa2z1 event 10



dxdraw\_35t\_run17200\_skip9

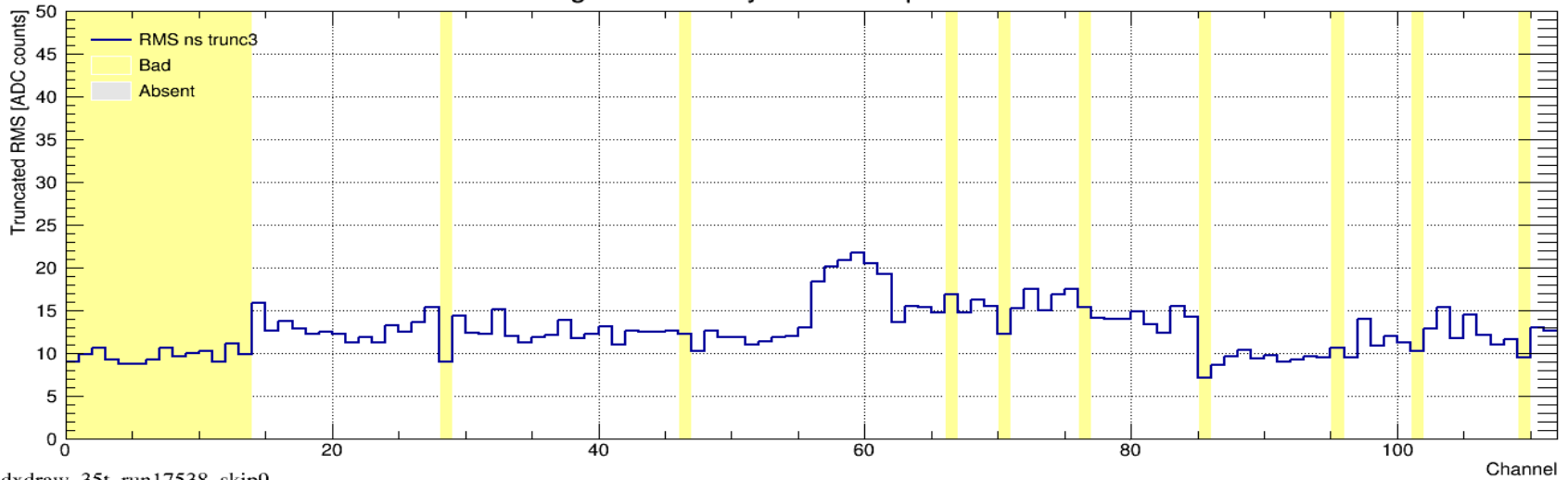
Raw signals for apa2z1 event 10 stuck range 4



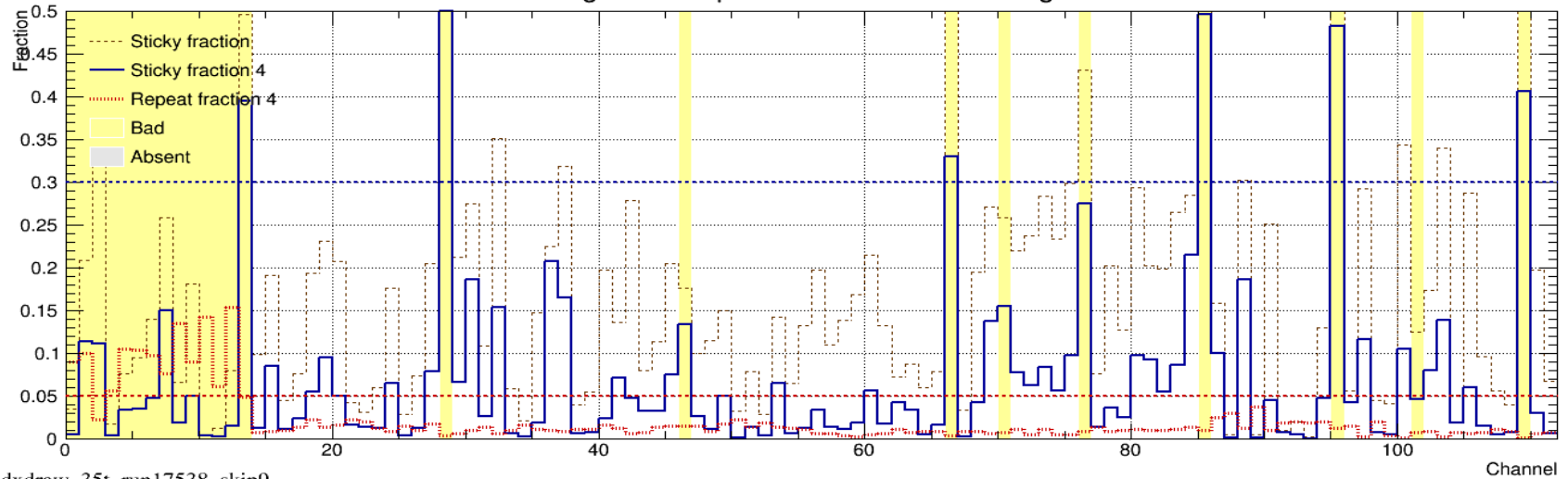
dxdraw\_35t\_run17200\_skip9

# APA 2z1 run 17538 (last)

Raw signal not-sticky RMS for apa2z1 event 10



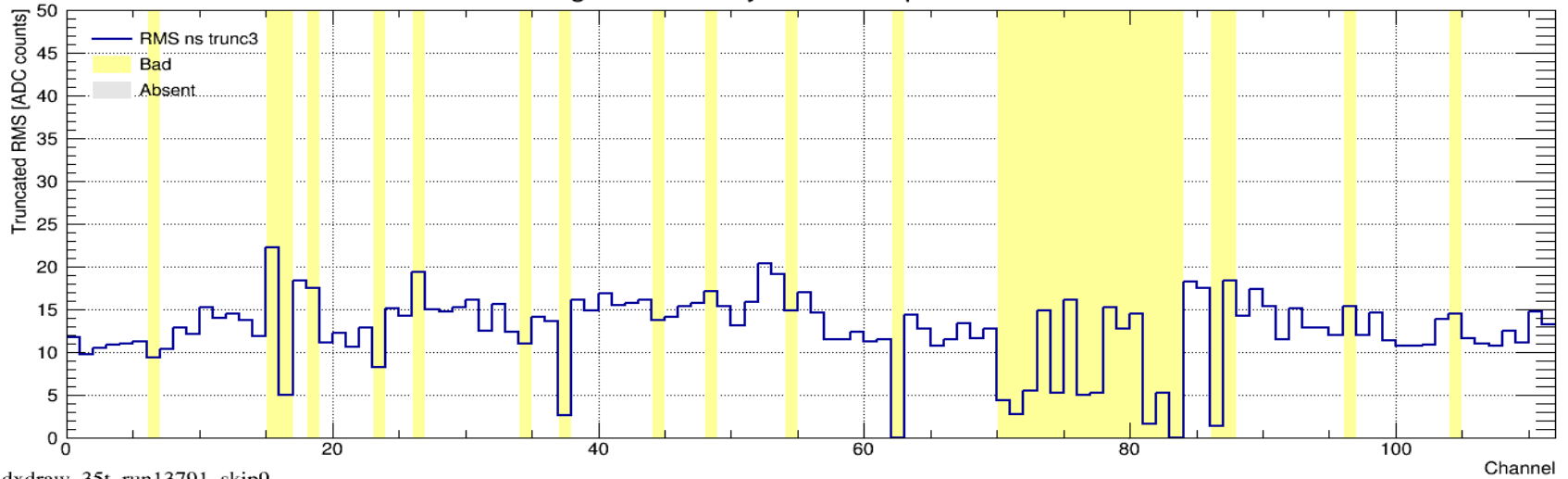
Raw signals for apa2z1 event 10 stuck range 4



# APA 2z2

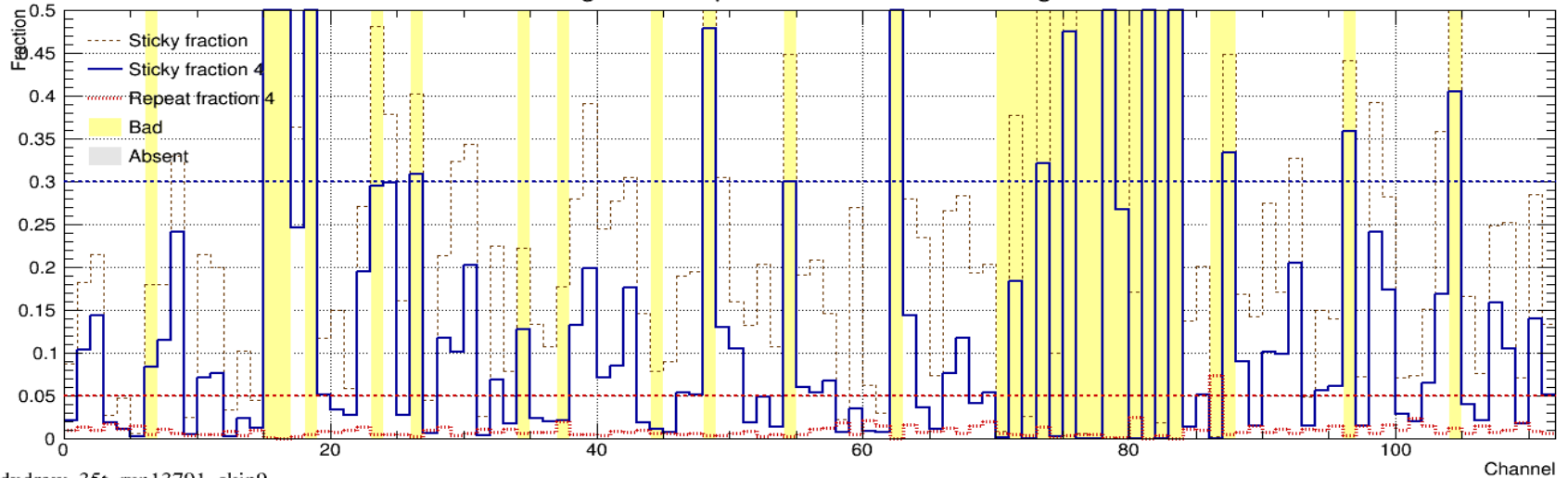
# APA 2z2 run 13791 (first)

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run13791\_skip9

Raw signals for apa2z2 event 10 stuck range 4

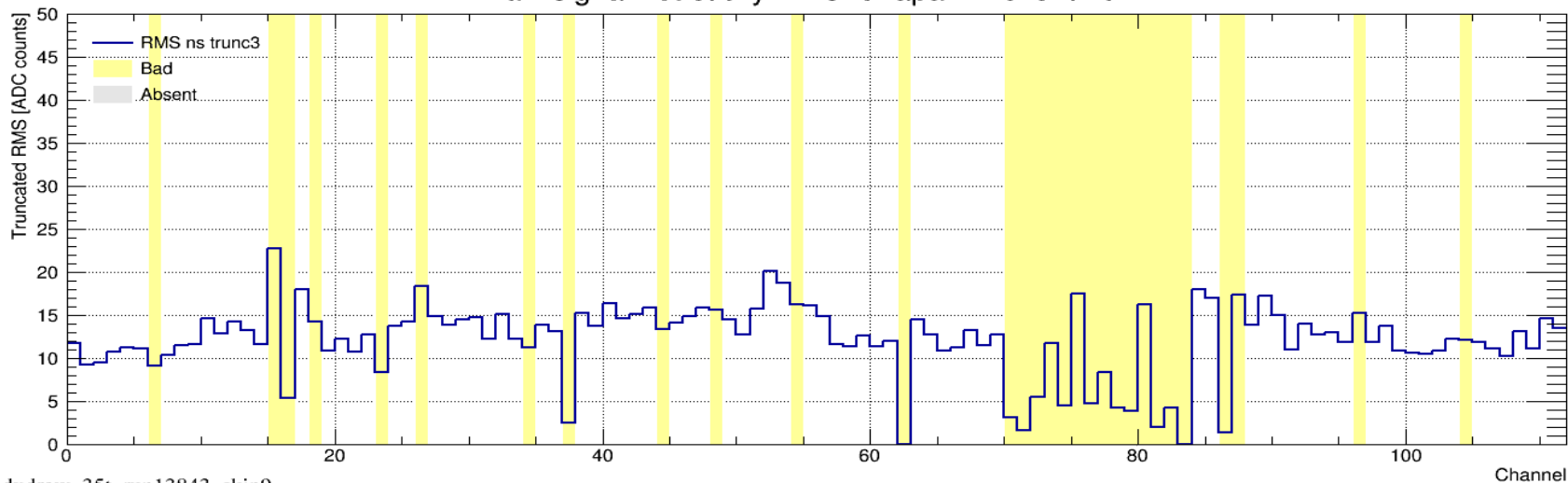


dxdraw\_35t\_run13791\_skip9



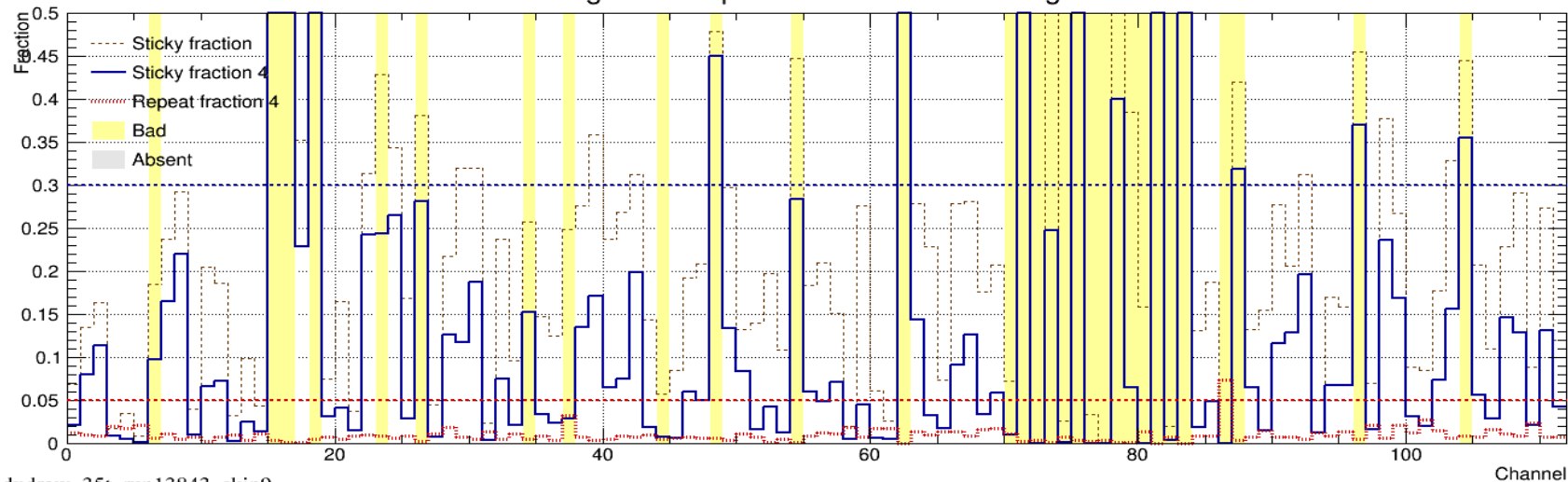
# APA 2z2 run 13843

## Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run13843\_skip9

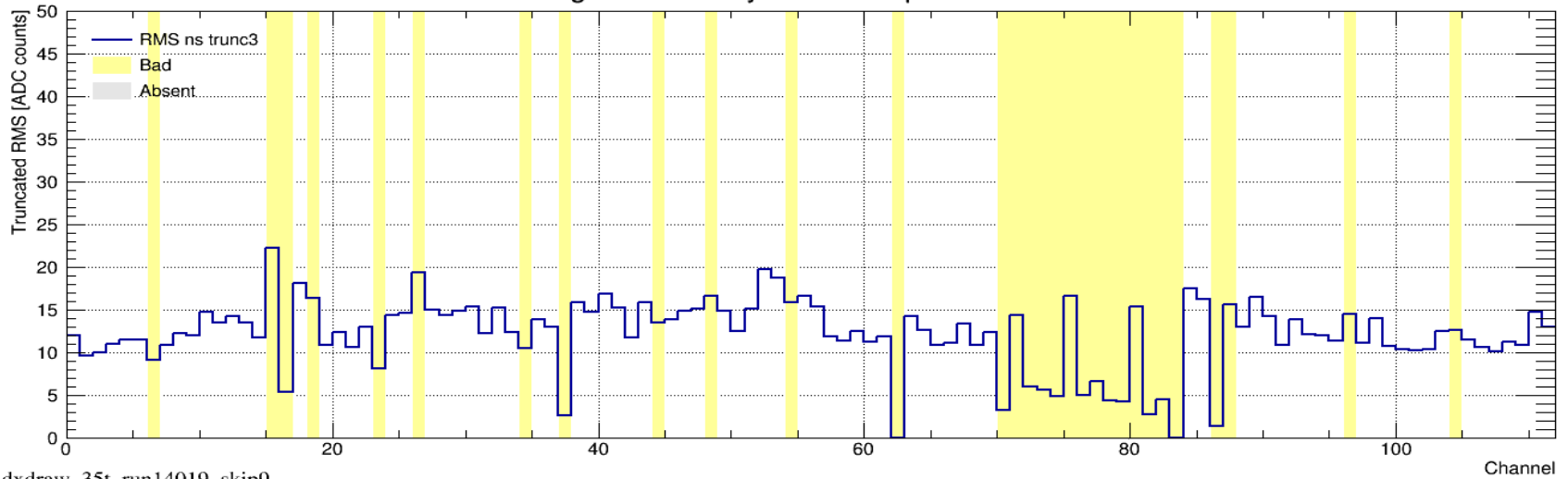
## Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

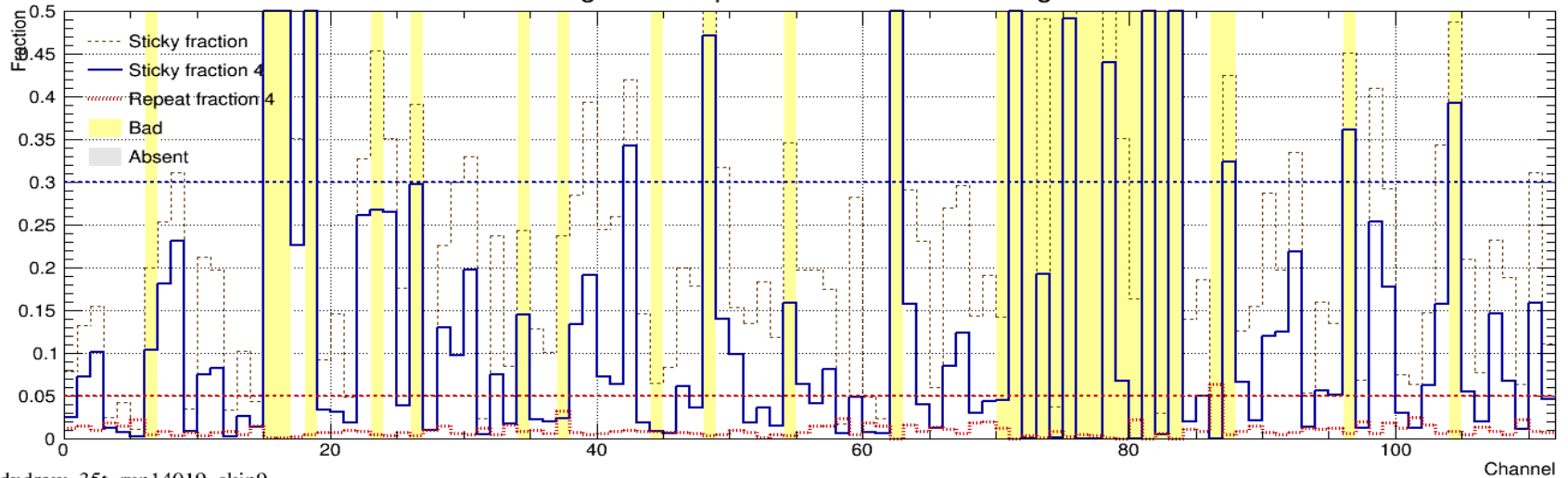
# APA 2z2 run 14019

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run14019\_skip9

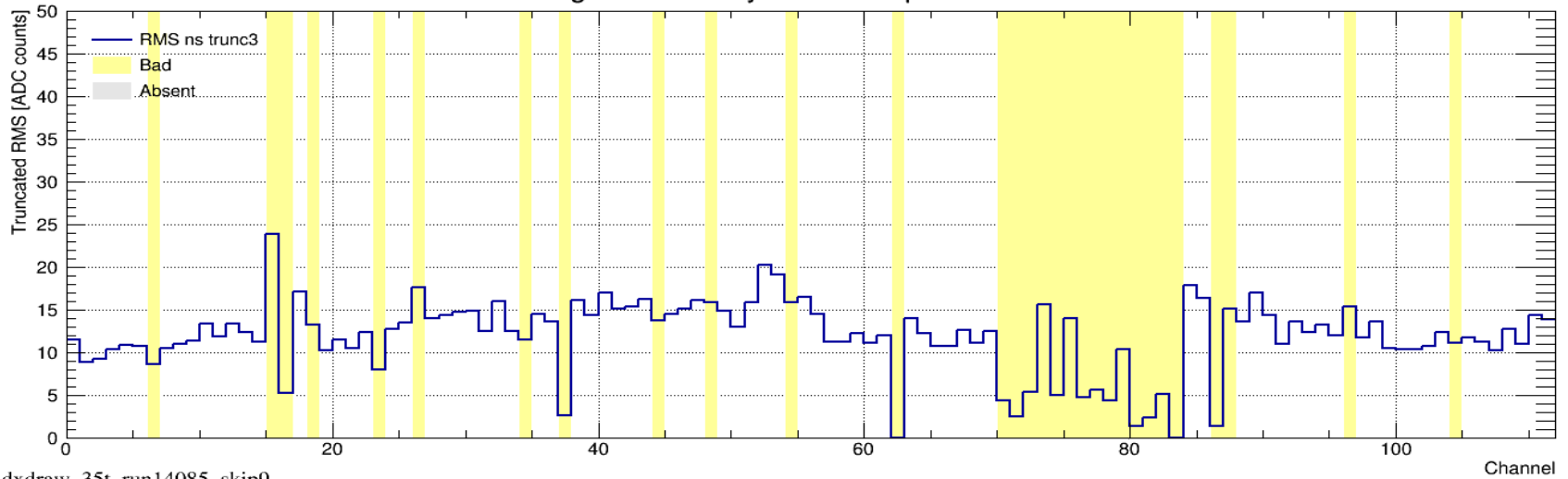
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

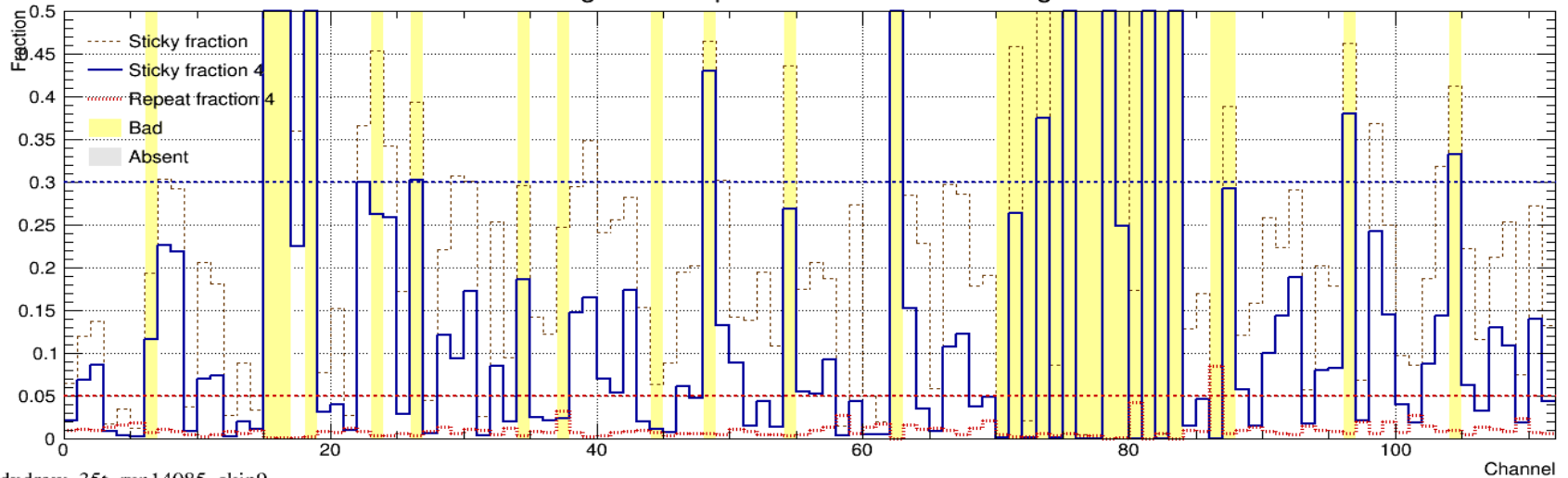
# APA 2z2 run 14085

## Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run14085\_skip9

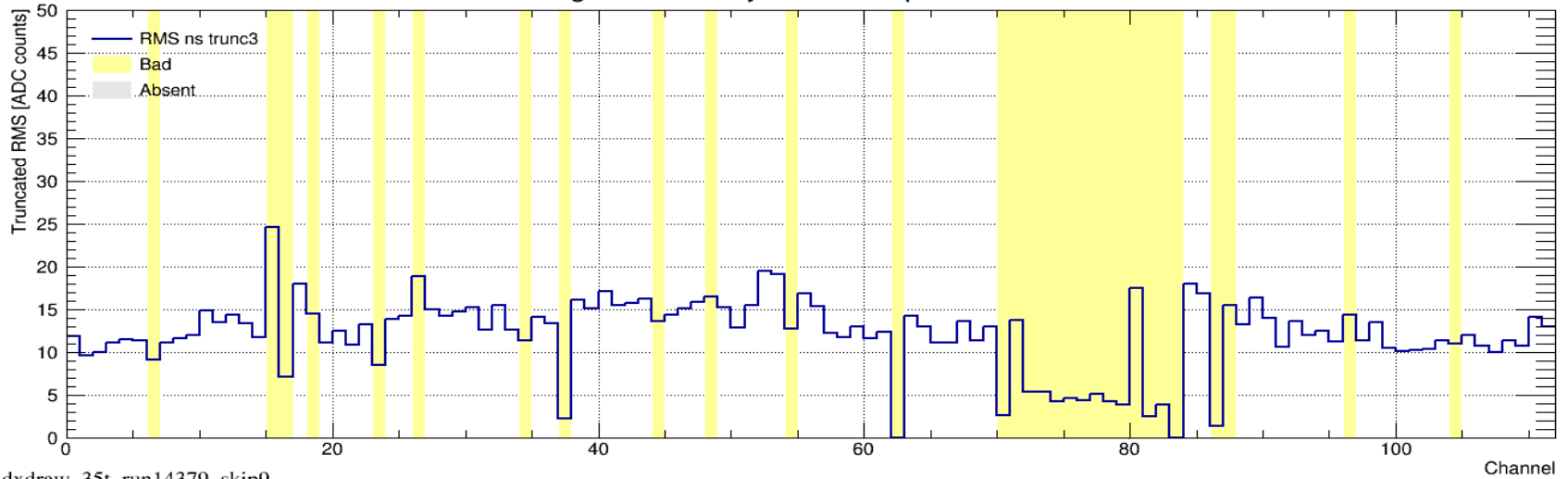
## Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

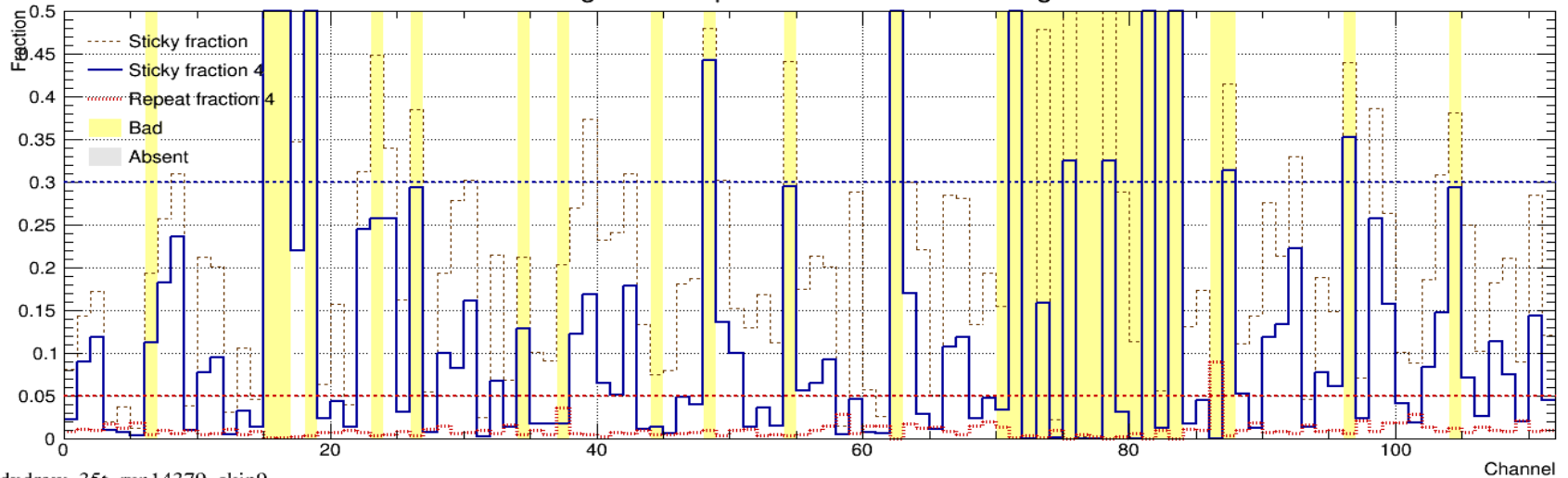
# APA 2z2 run 14379

## Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run14379\_skip9

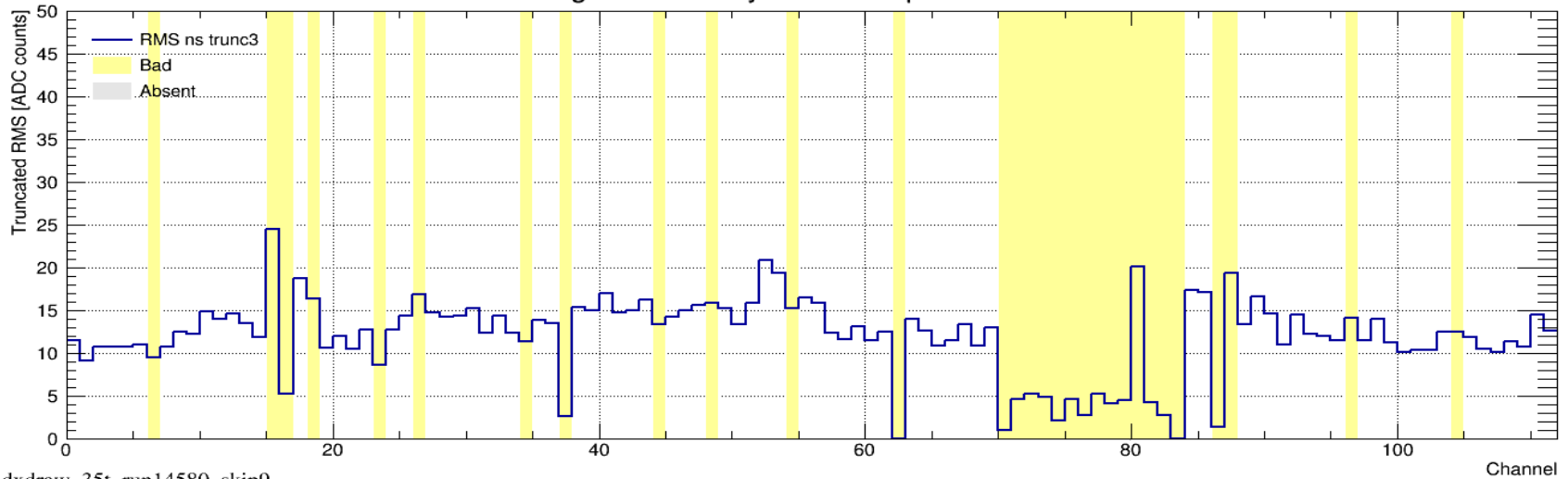
## Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

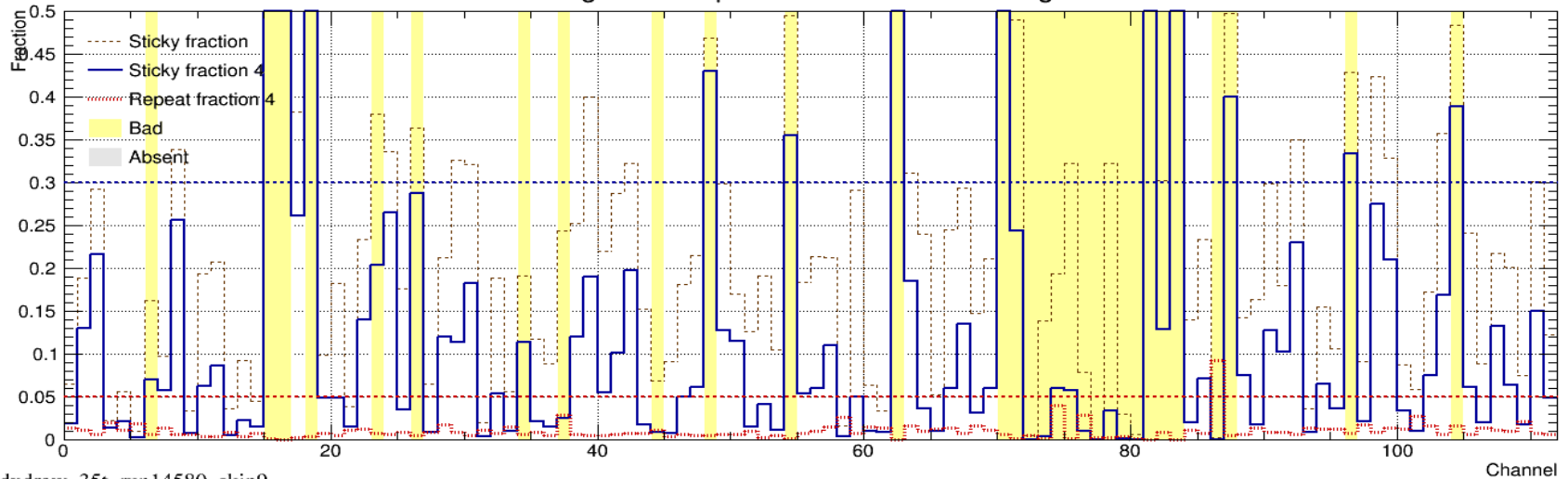
# APA 2z2 run 14580 (last before power failure)

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run14580\_skip9

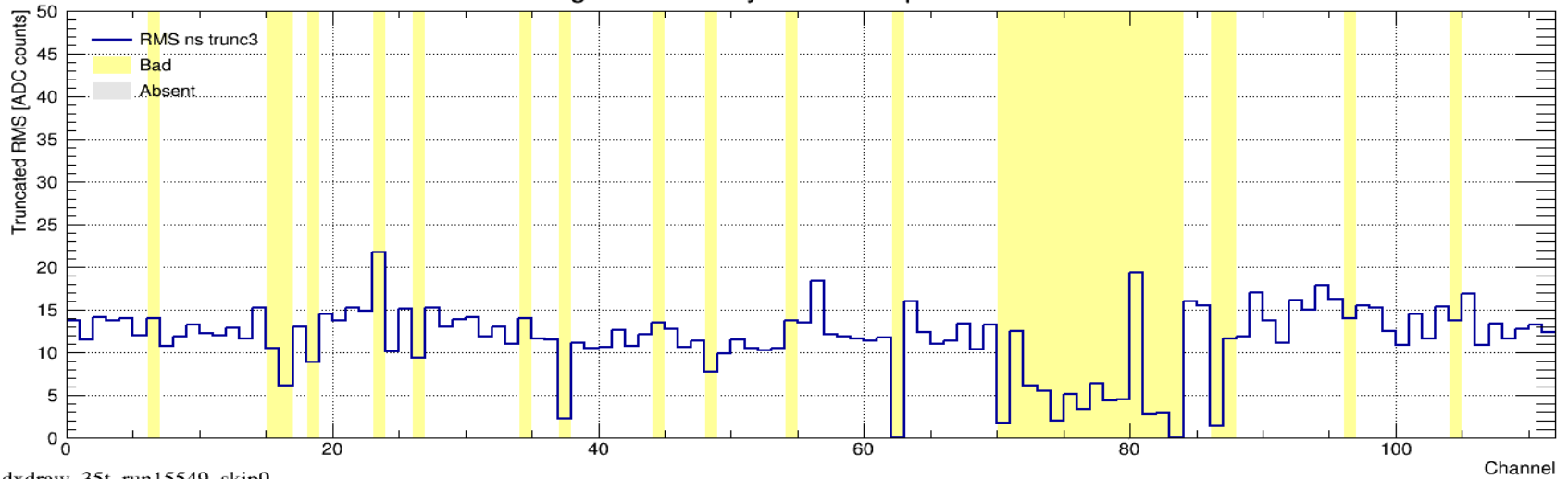
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

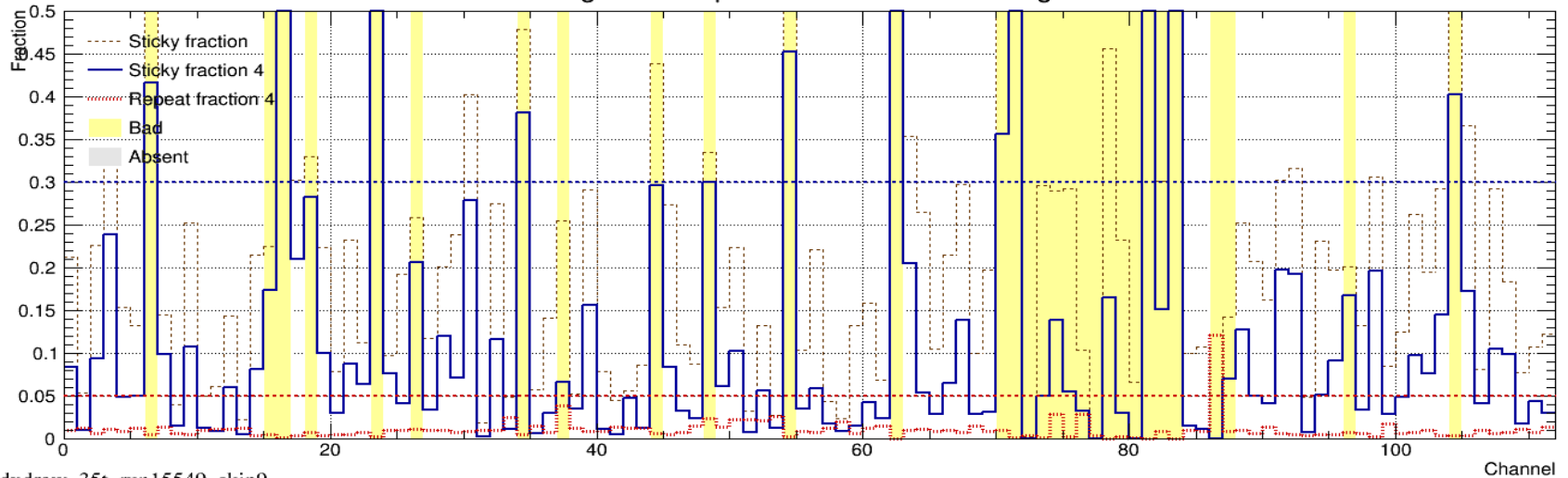
# APA 2z2 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run15549\_skip9

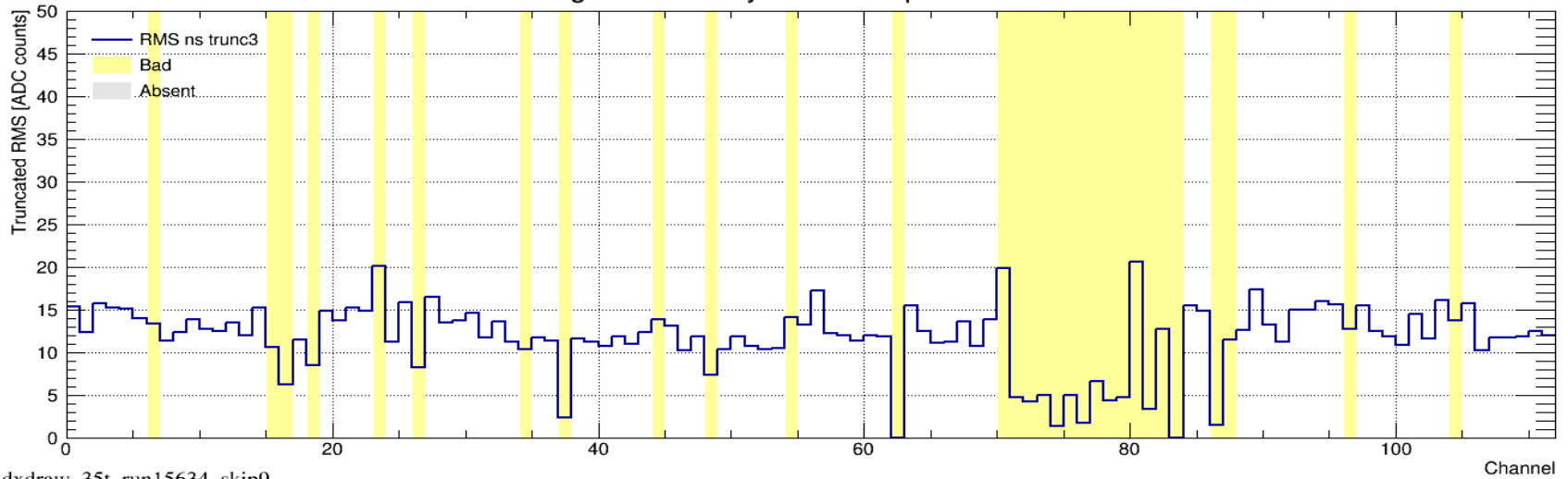
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

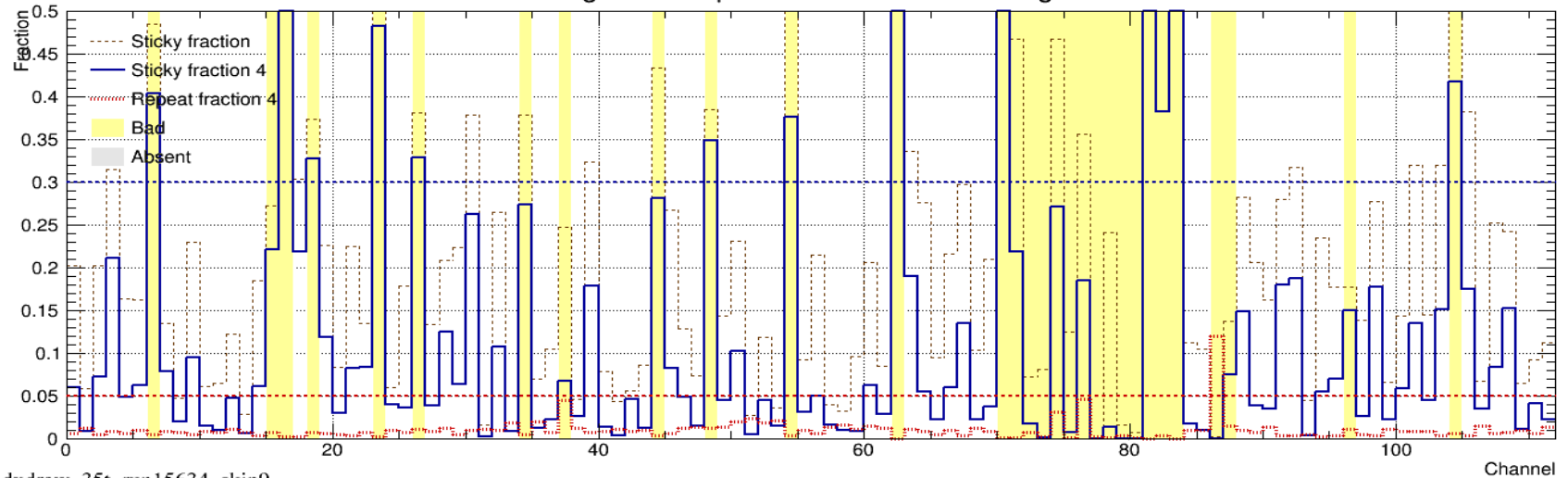
# APA 2z2 run 15634

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run15634\_skip9

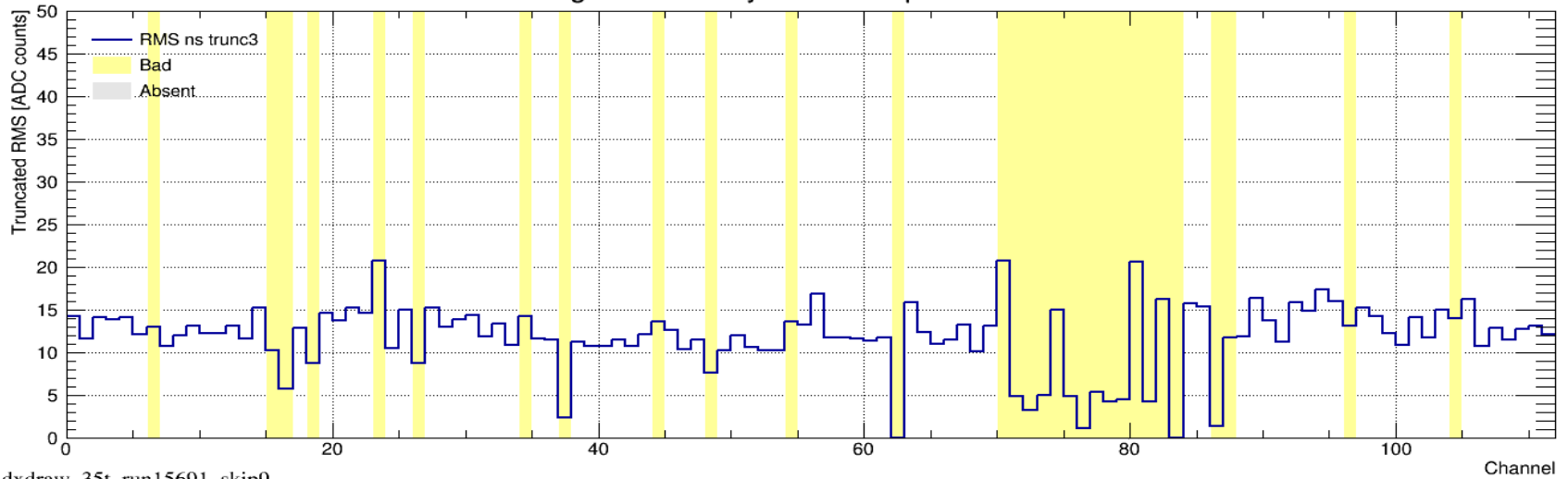
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

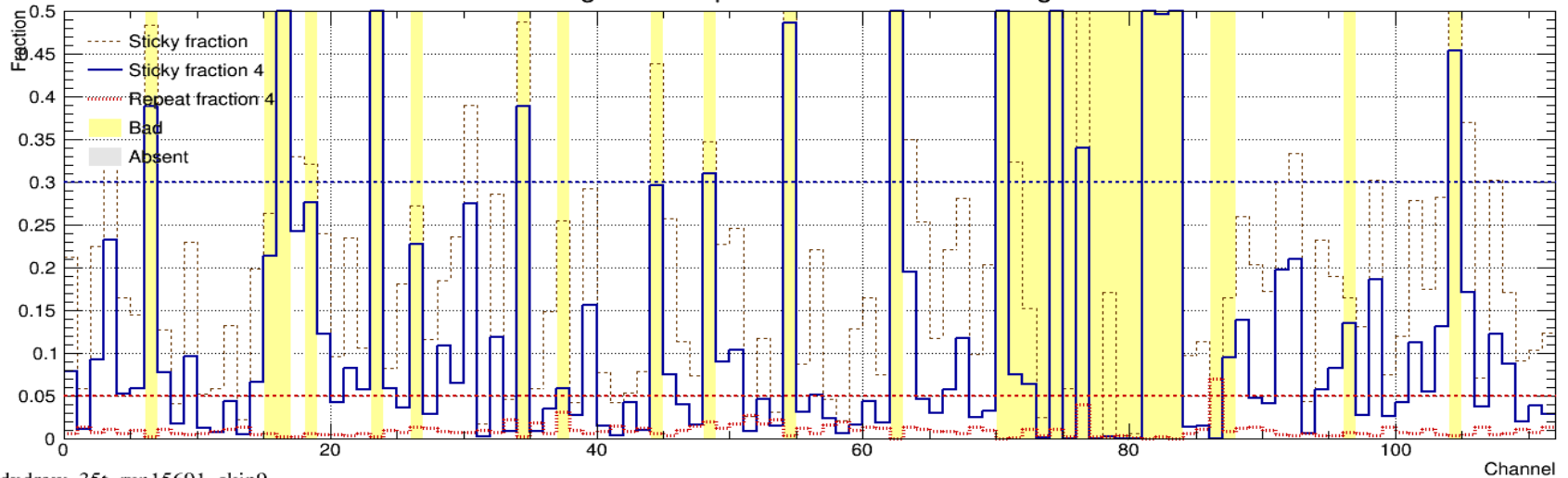
# APA 2z2 run 15691

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run15691\_skip9

Raw signals for apa2z2 event 10 stuck range 4

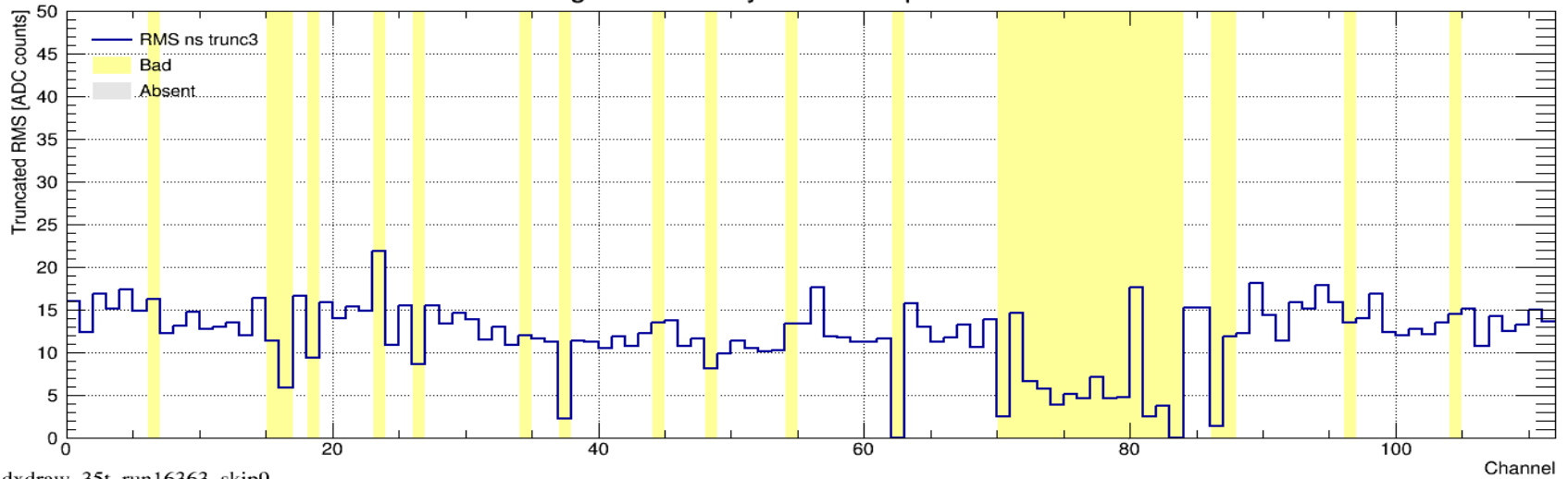


dxdraw\_35t\_run15691\_skip9



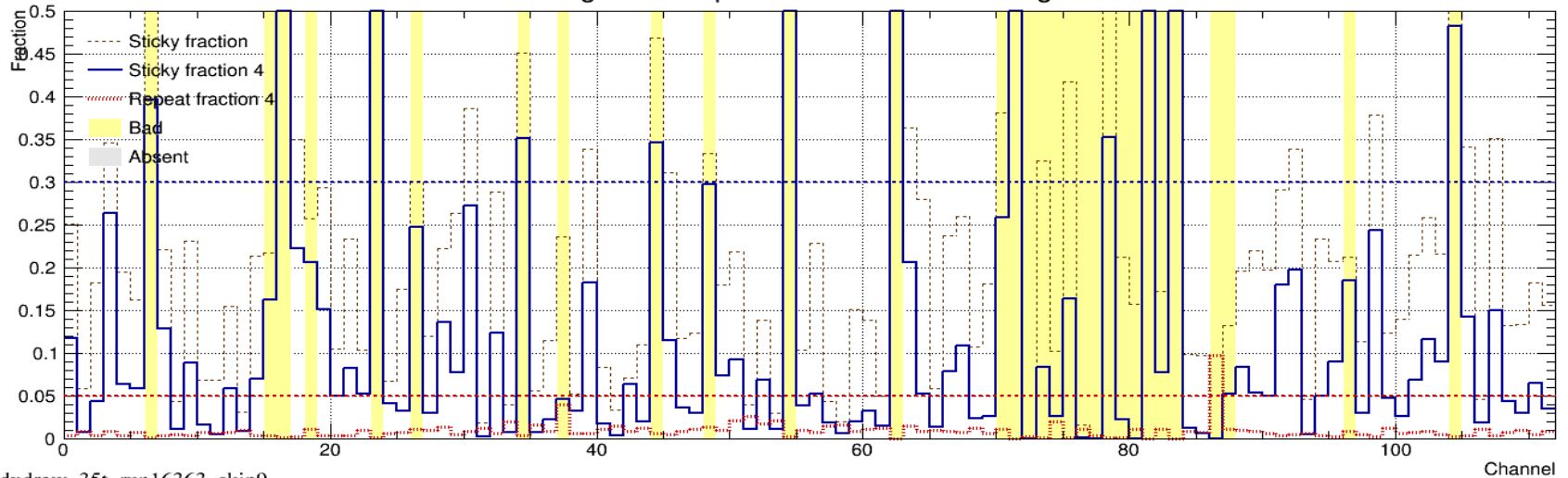
# APA 2z2 run 16363

## Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run16363\_skip9

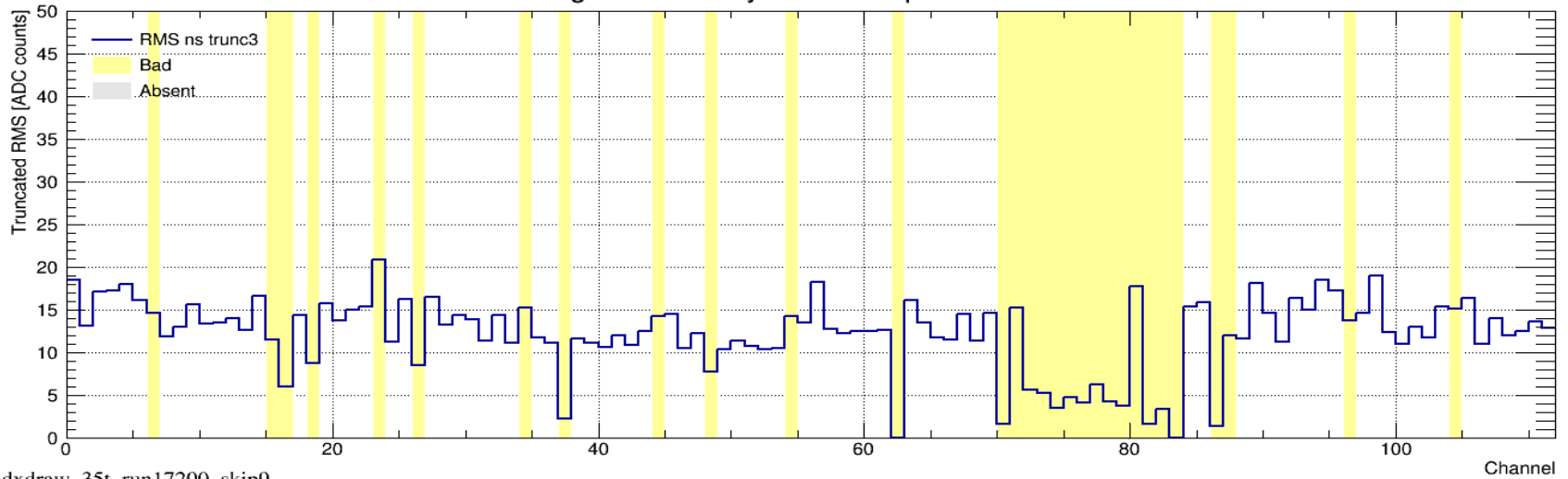
## Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

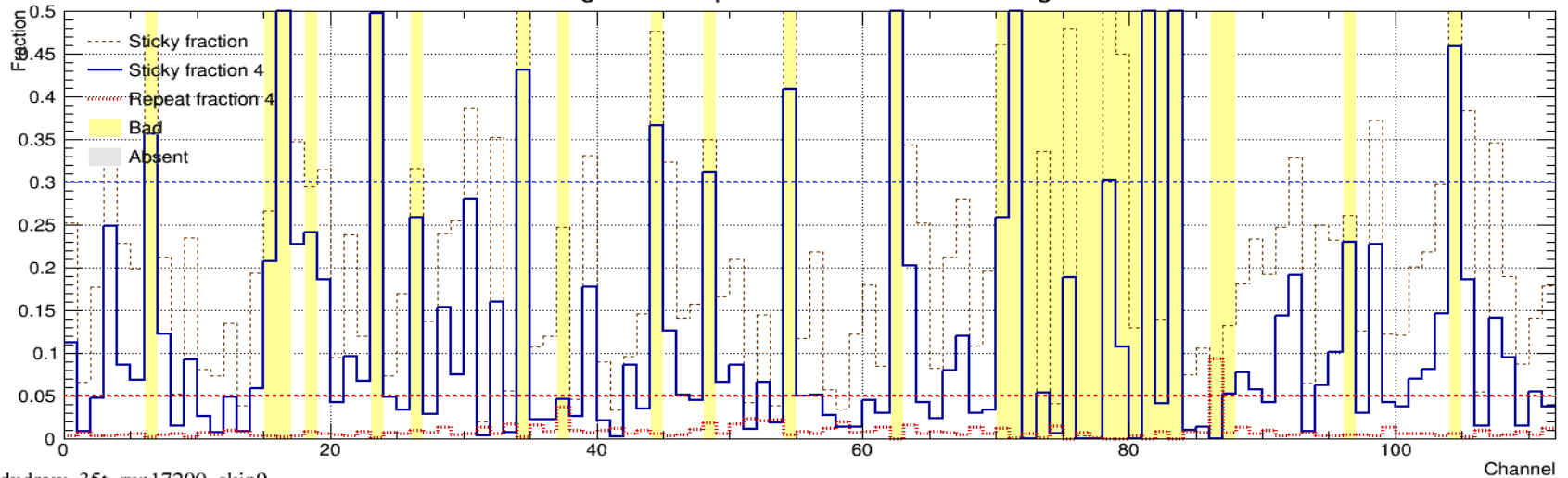
# APA 2z2 run 17200

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run17200\_skip9

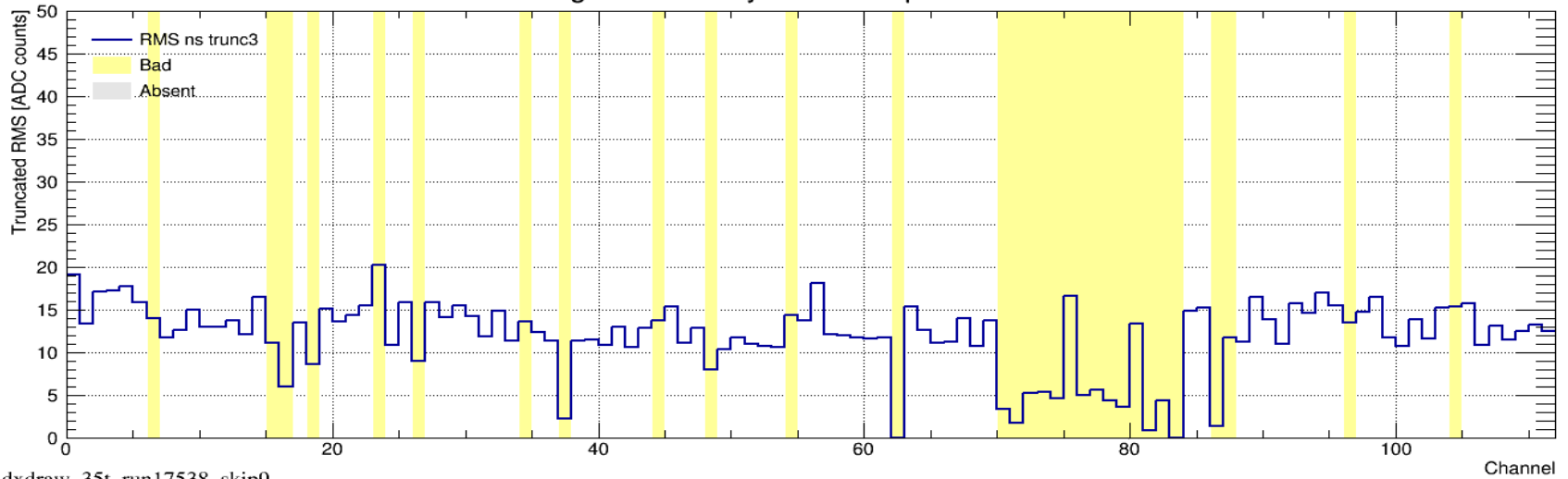
Raw signals for apa2z2 event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

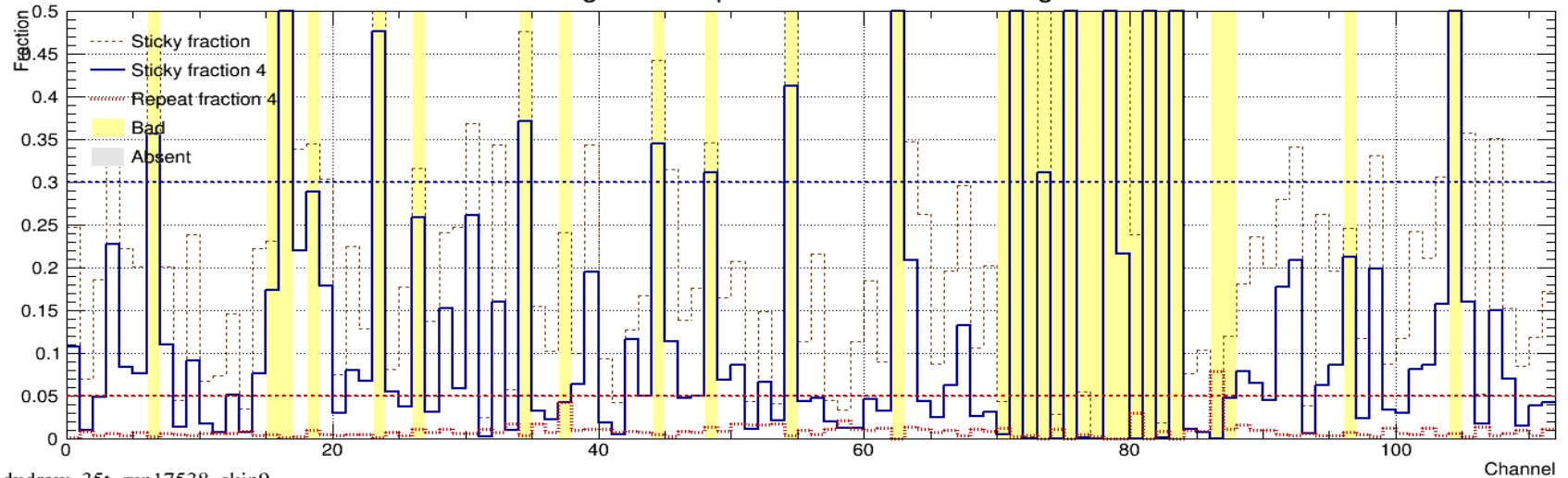
# APA 2z2 run 17538 (last)

Raw signal not-sticky RMS for apa2z2 event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa2z2 event 10 stuck range 4

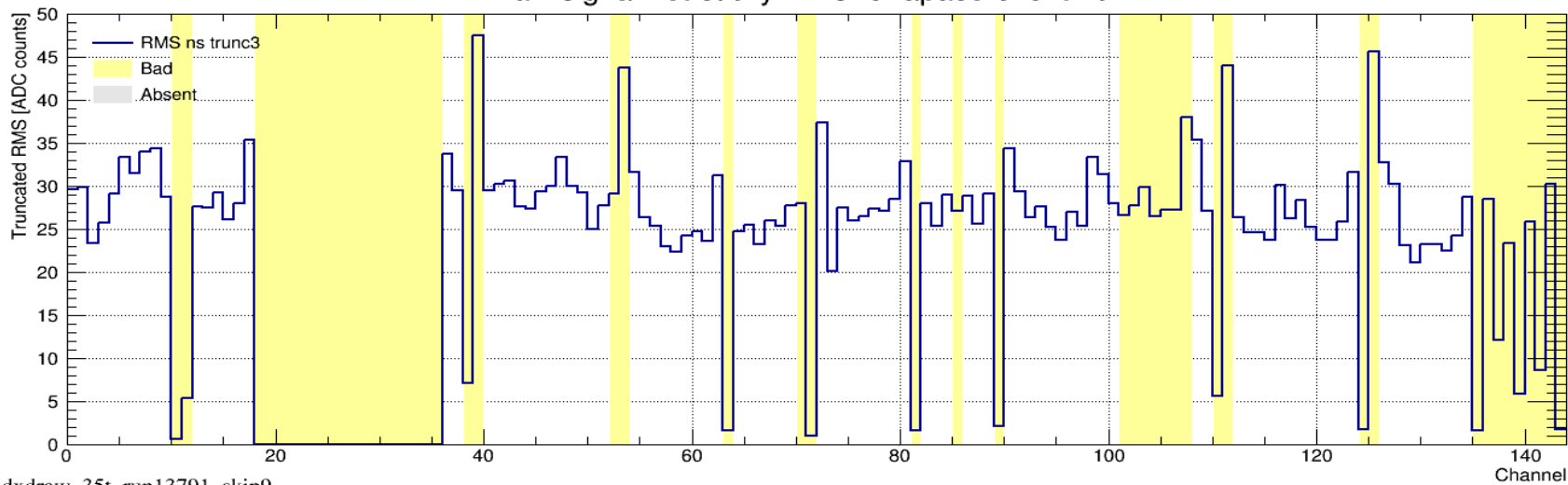


dxdraw\_35t\_run17538\_skip9

# APA 3u

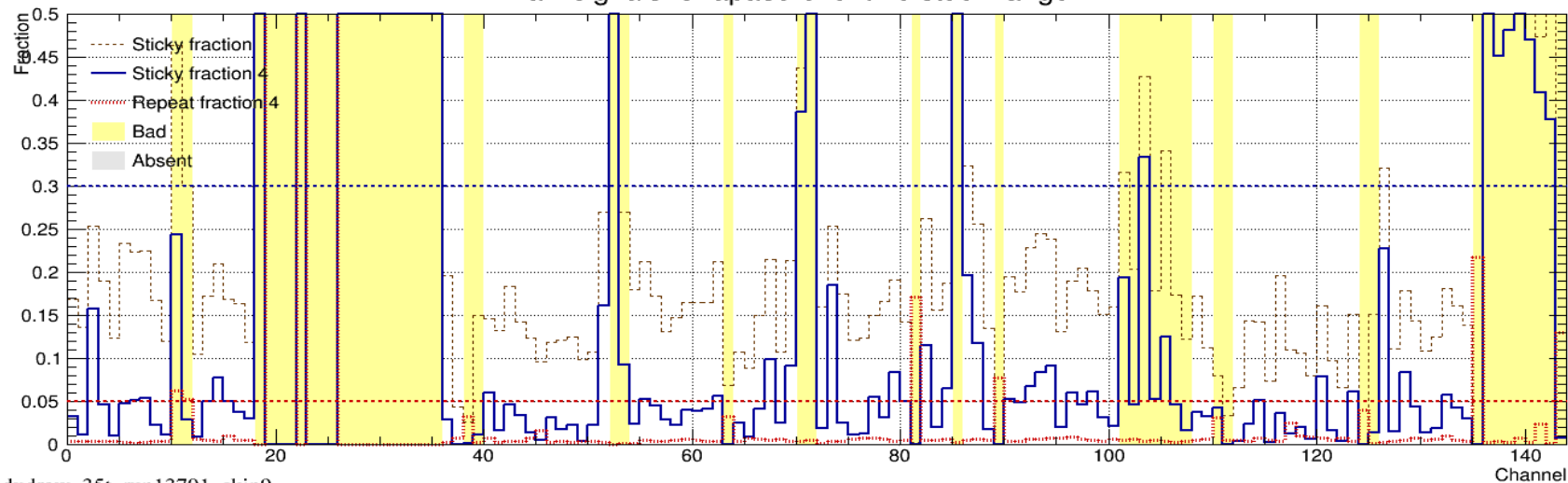
# APA 3u run 13791 (first)

Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run13791\_skip9

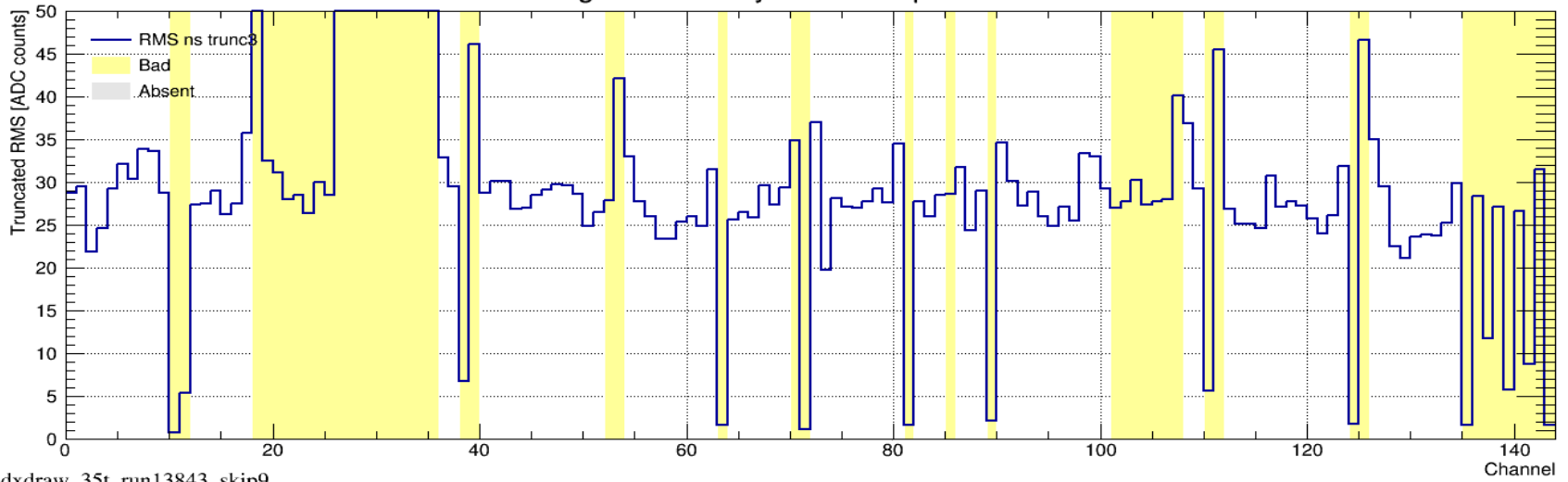
Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

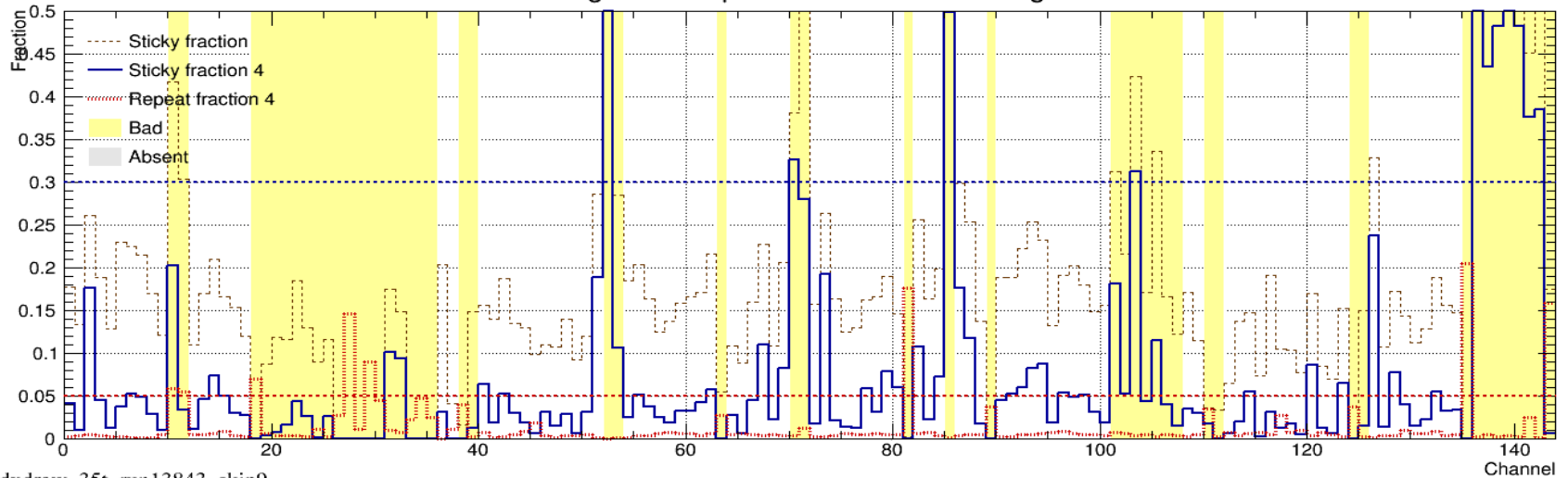
# APA 3u run 13843

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run13843\_skip9

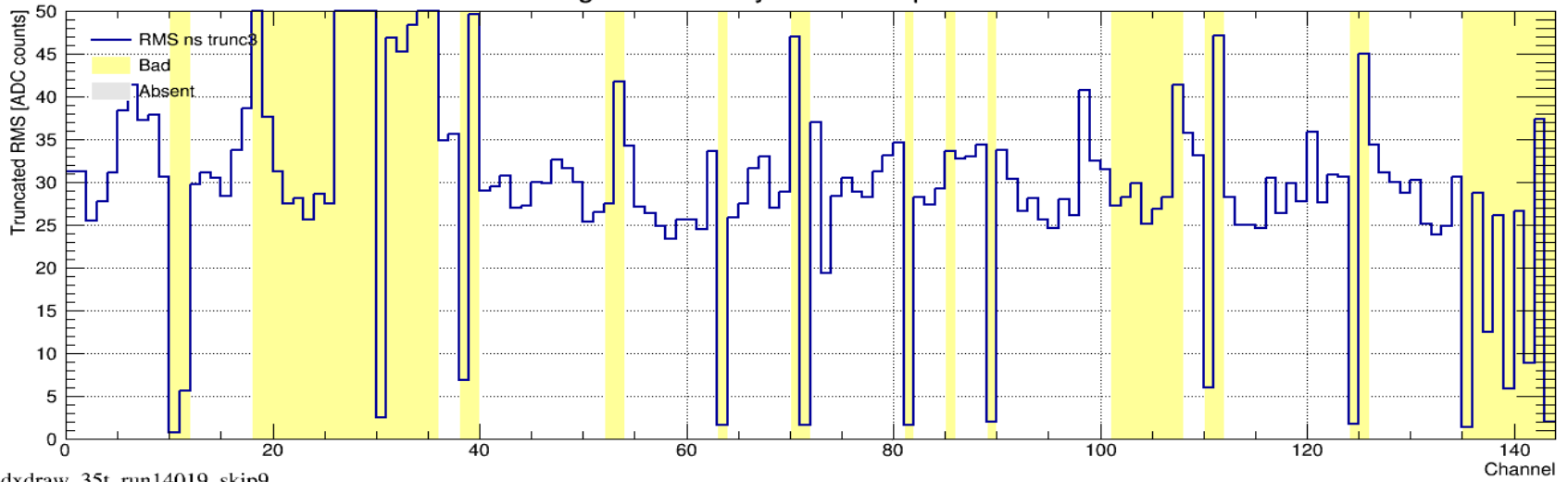
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

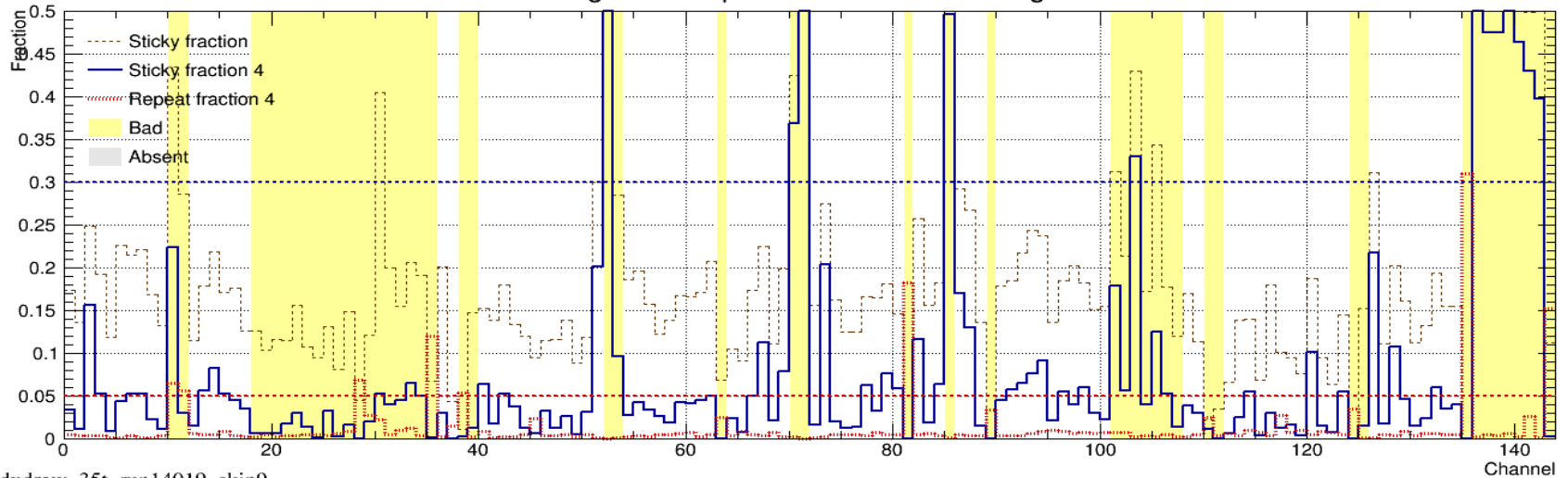
# APA 3u run 14019

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run14019\_skip9

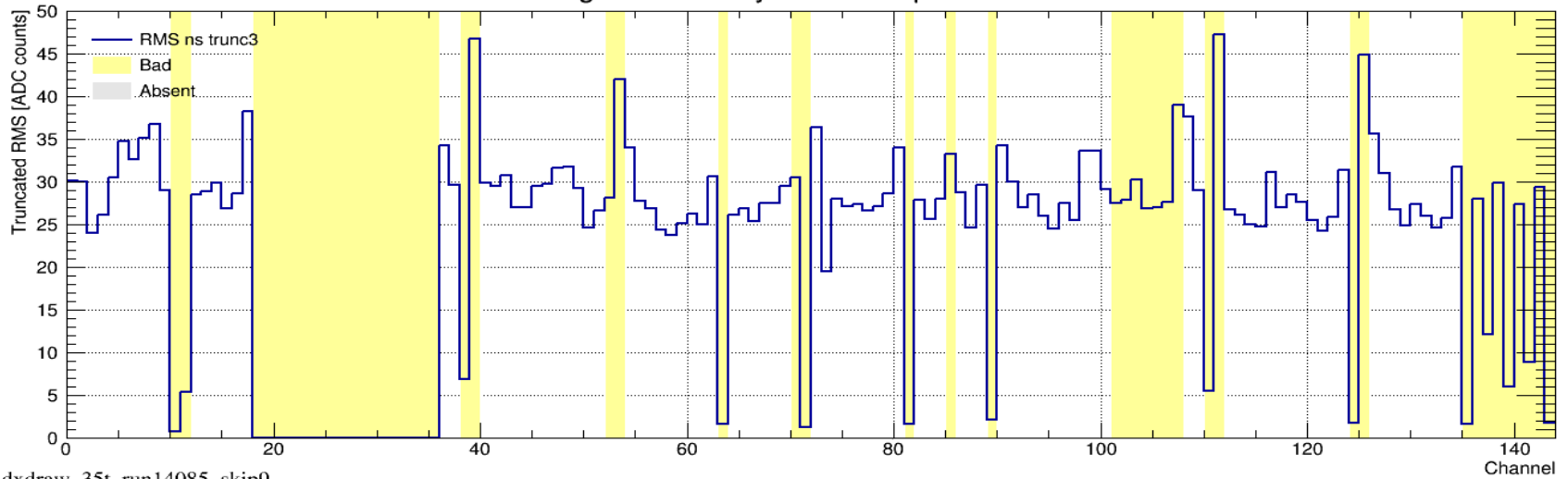
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

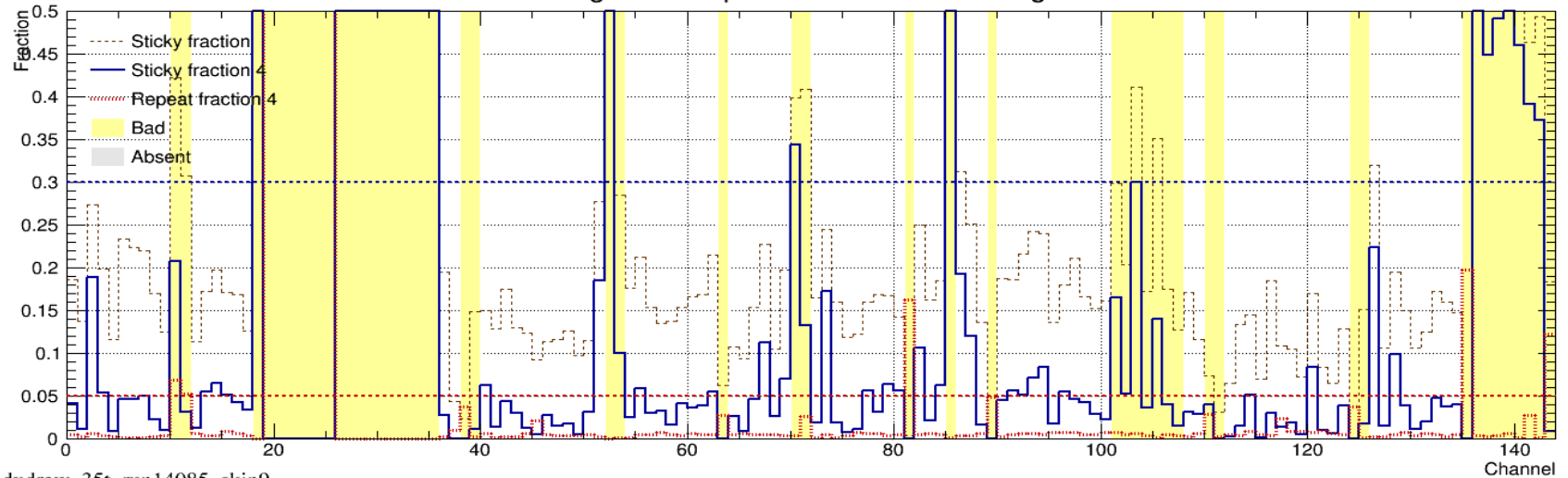
# APA 3u run 14085

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run14085\_skip9

## Raw signals for apa3u event 10 stuck range 4

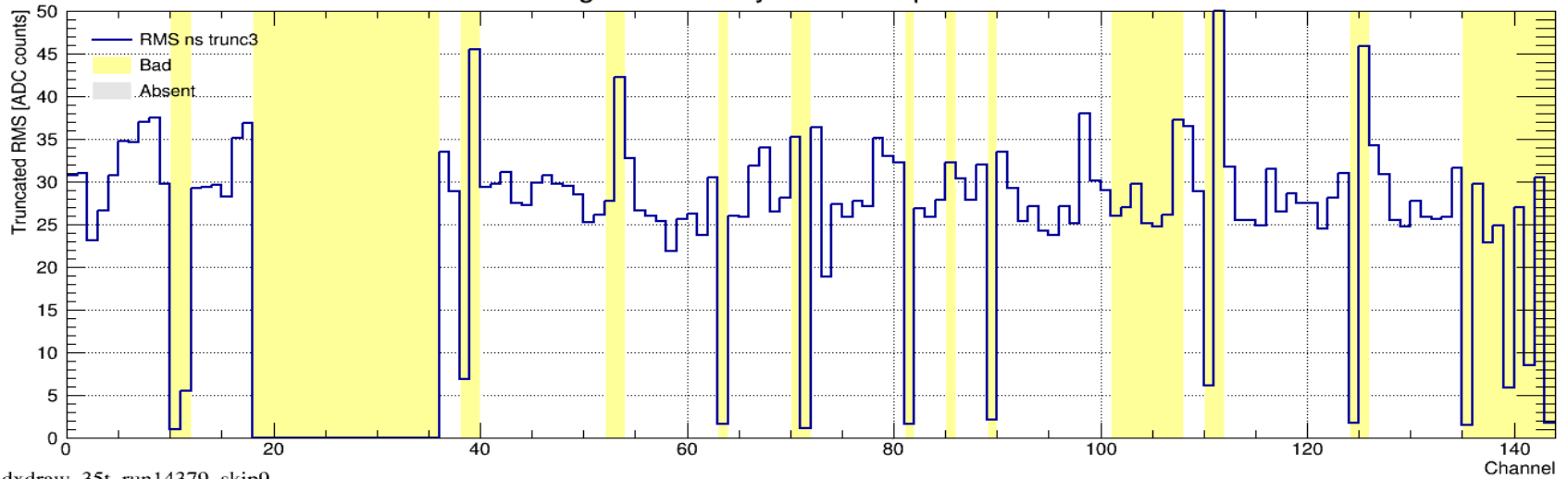


dxdraw\_35t\_run14085\_skip9



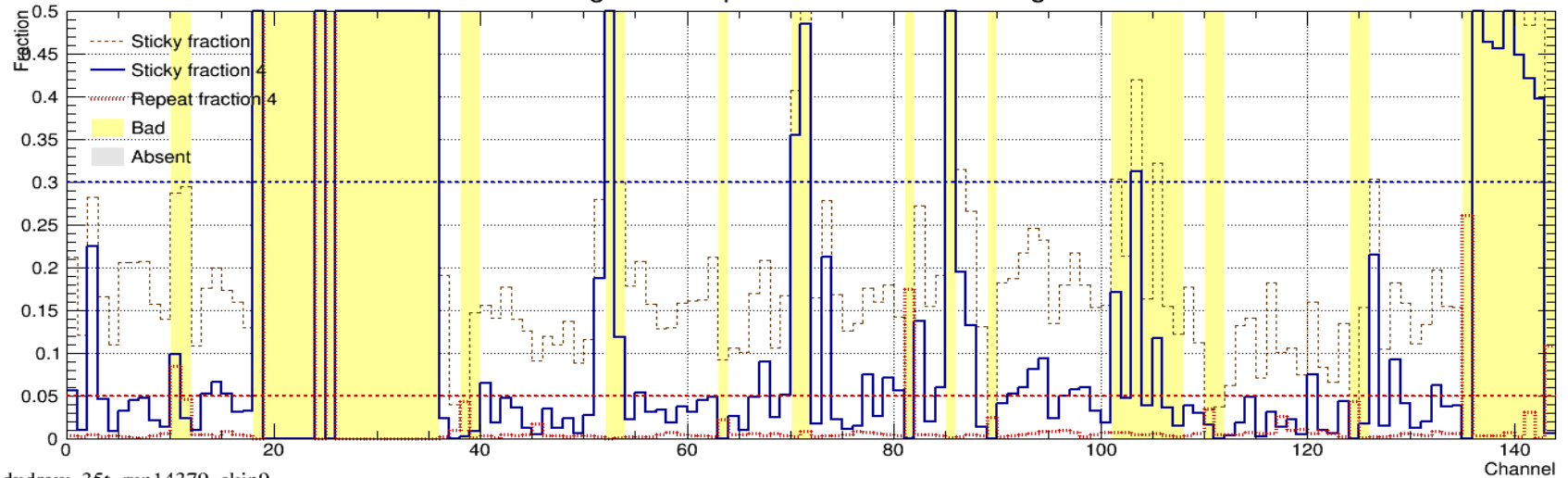
# APA 3u run 14379

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run14379\_skip9

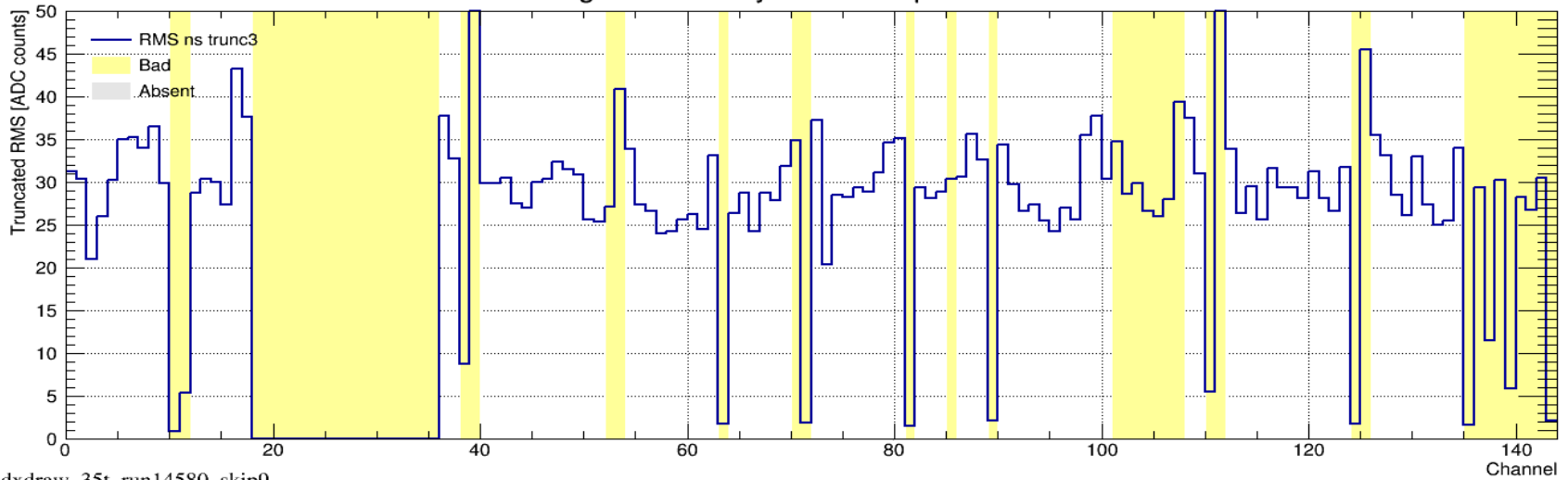
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

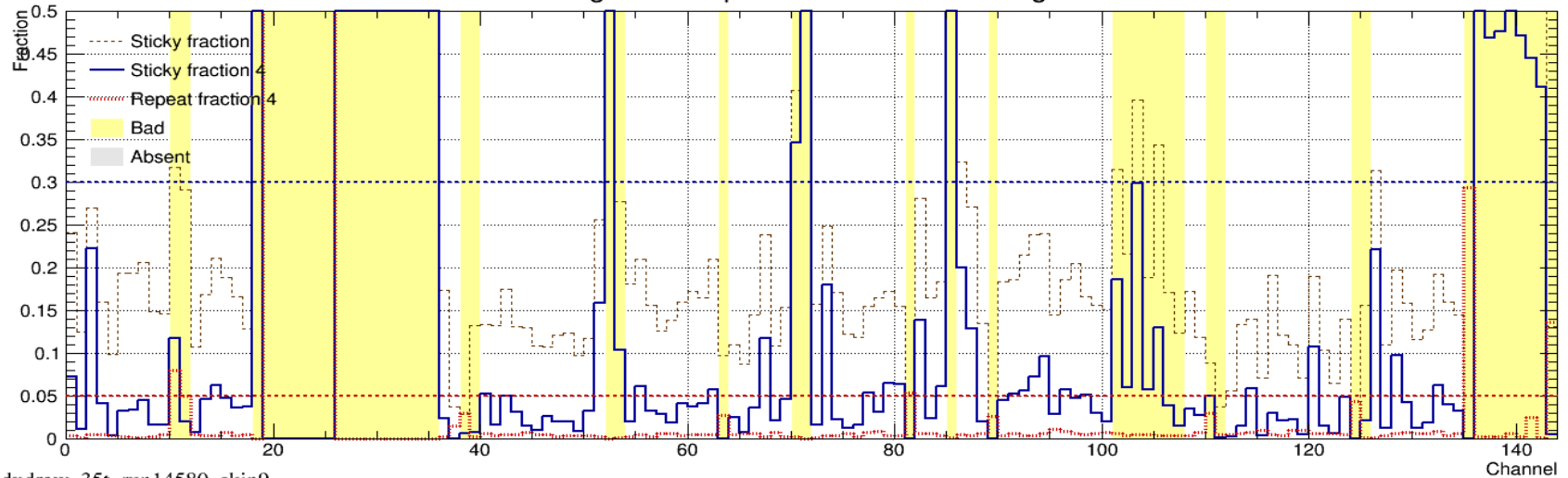
# APA 3u run 14580 (last before power failure)

Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run14580\_skip9

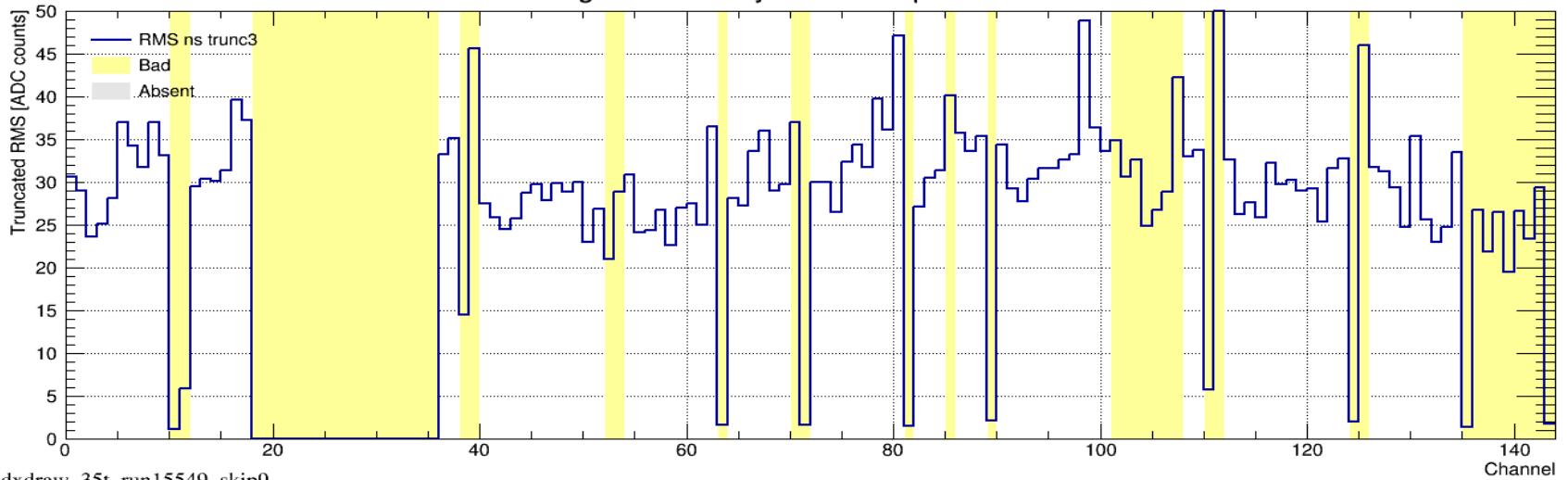
Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

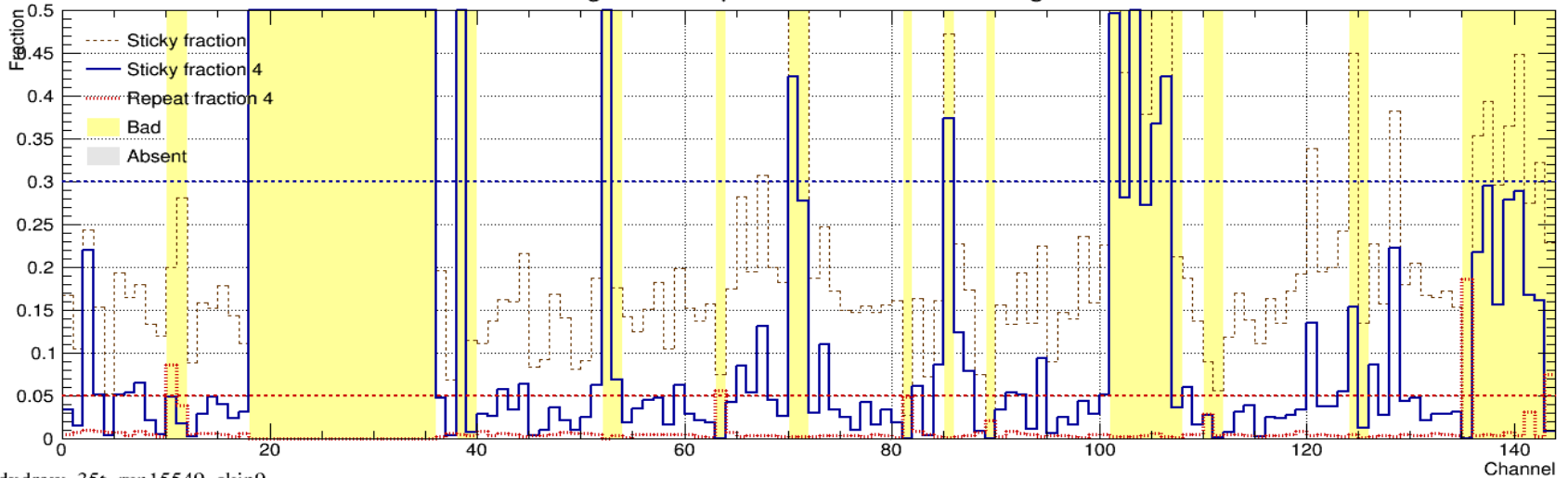
# APA 3u run 15549 (first after power failure)

Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run15549\_skip9

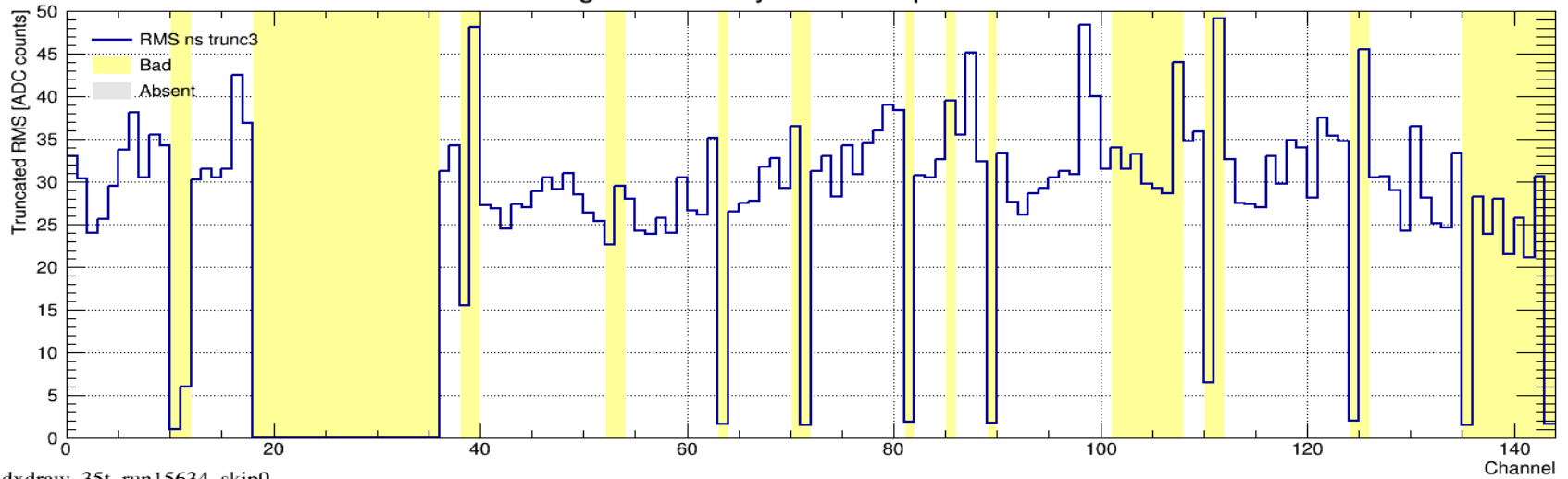
Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

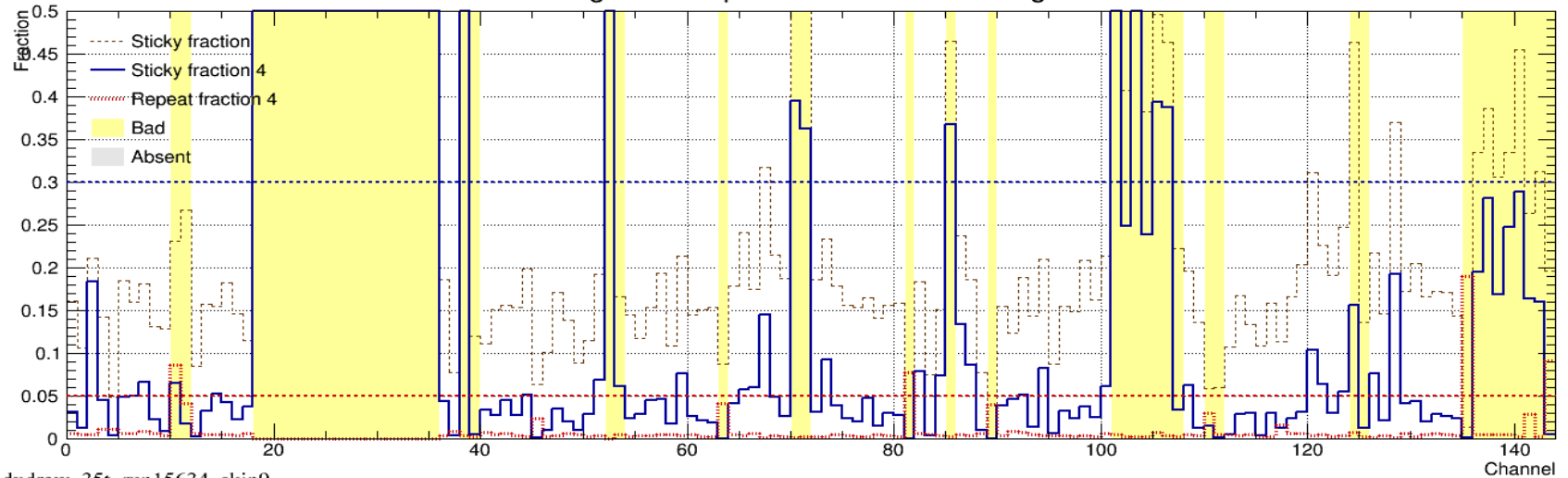
# APA 3u run 15634

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run15634\_skip9

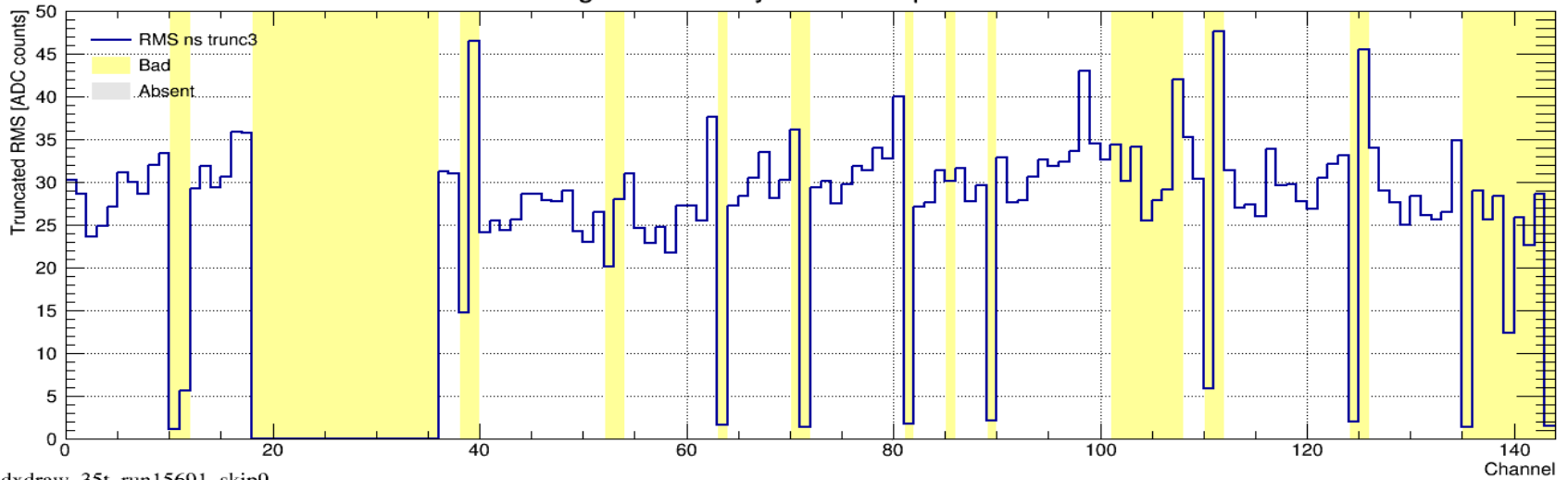
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

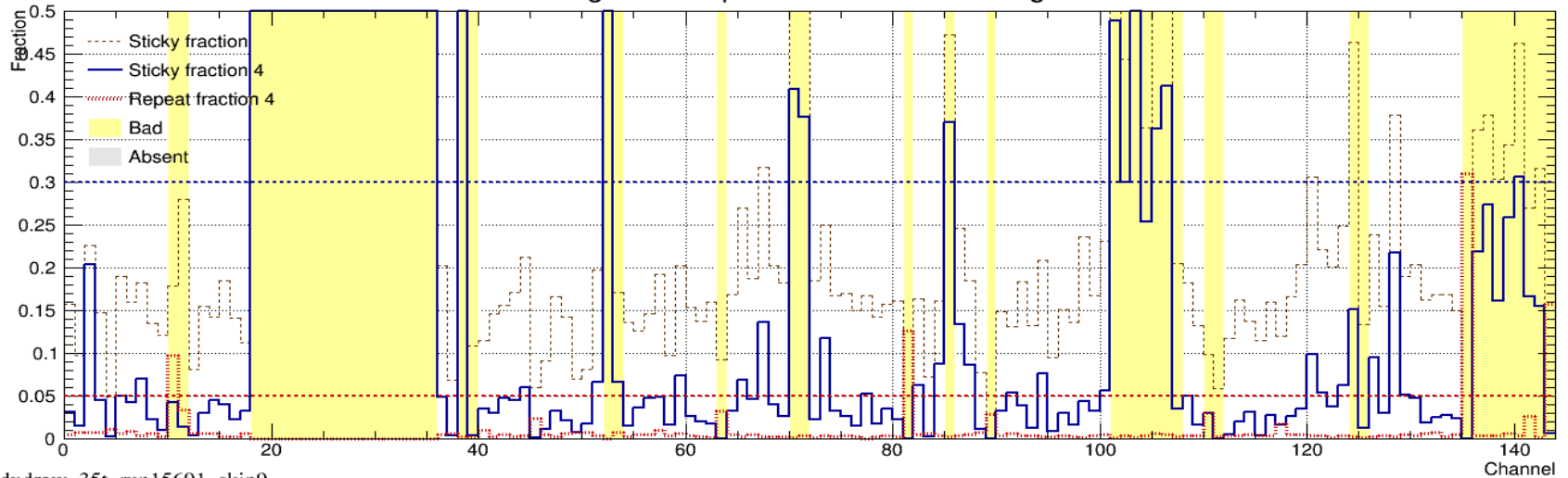
# APA 3u run 15691

Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run15691\_skip9

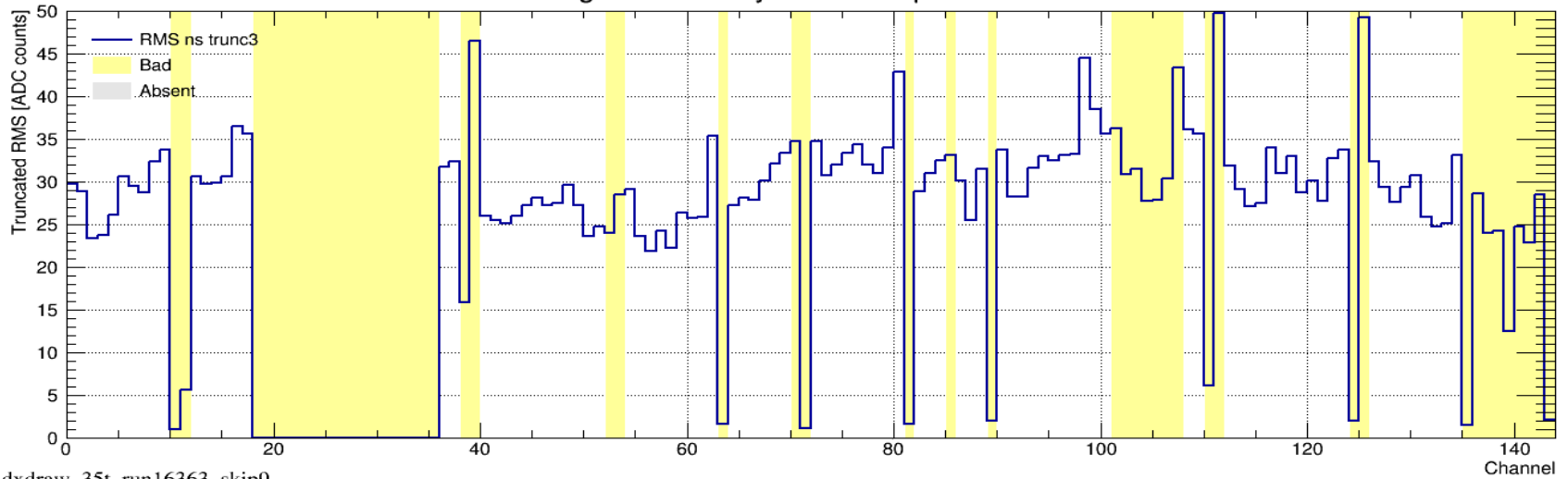
Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

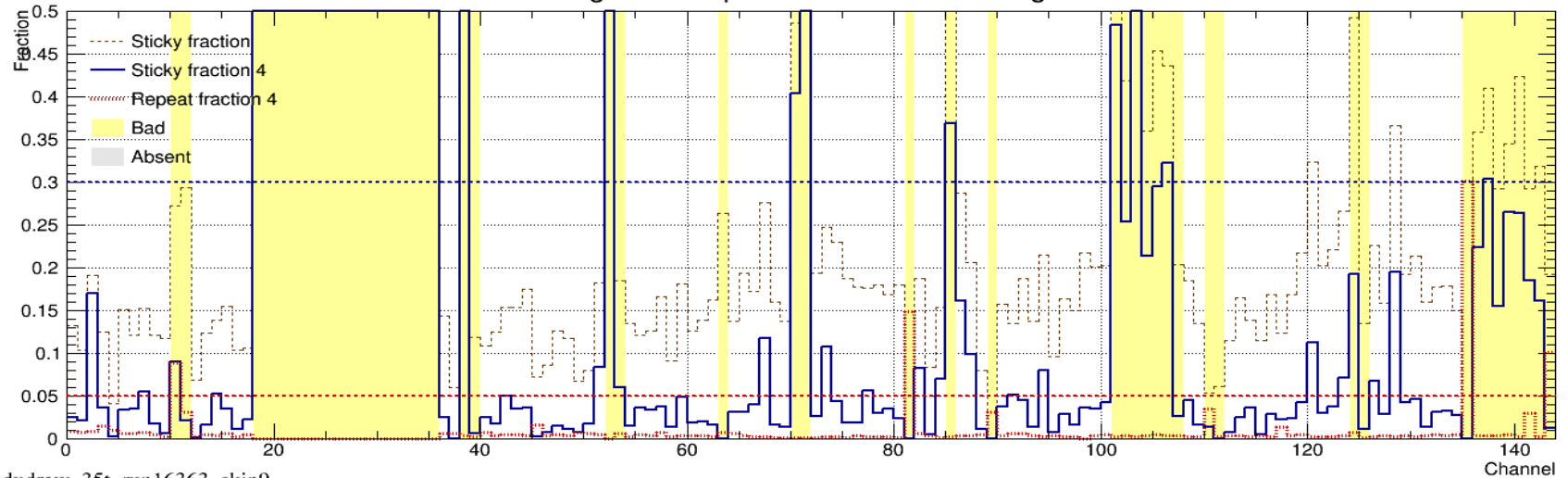
# APA 3u run 16363

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run16363\_skip9

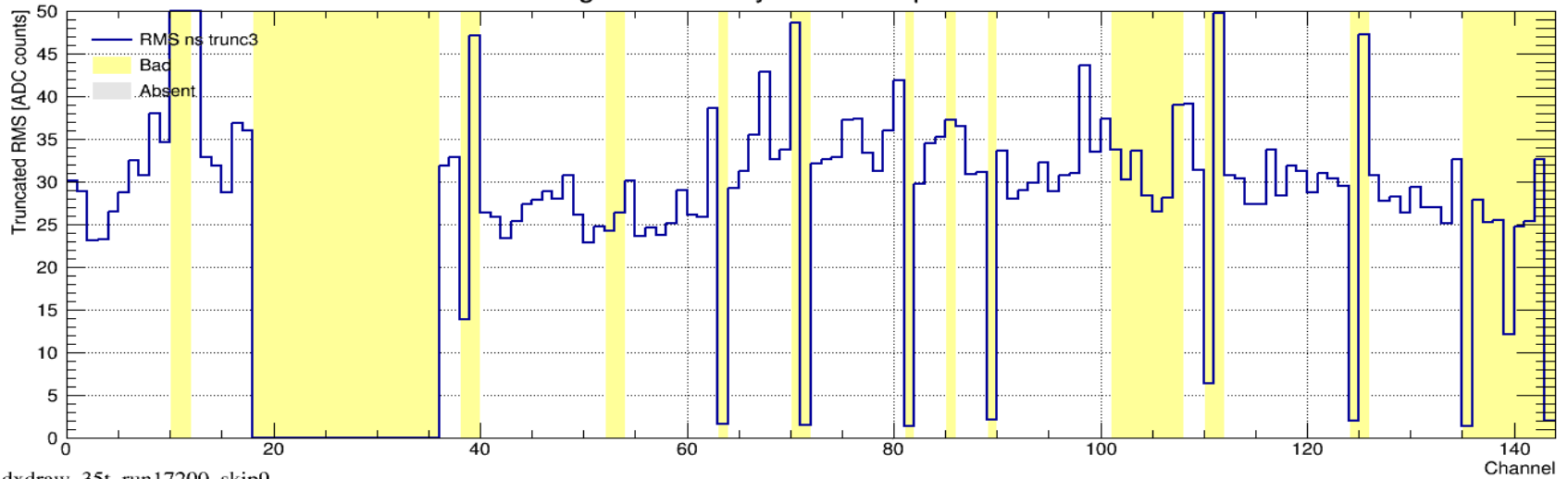
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

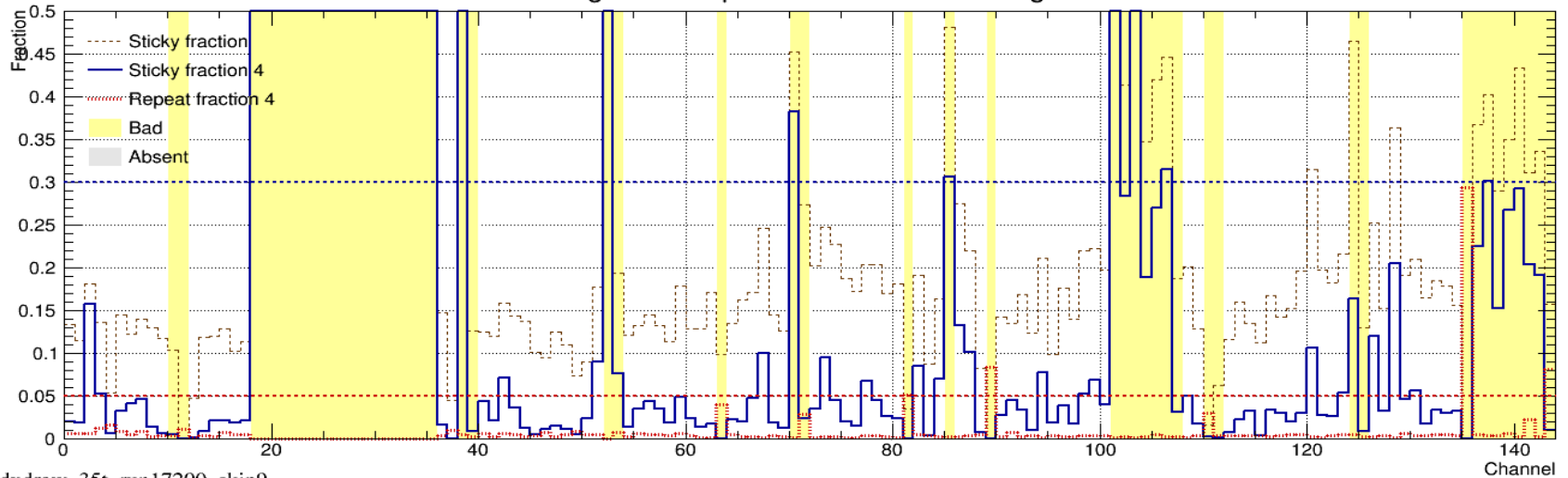
# APA 3u run 17200

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run17200\_skip9

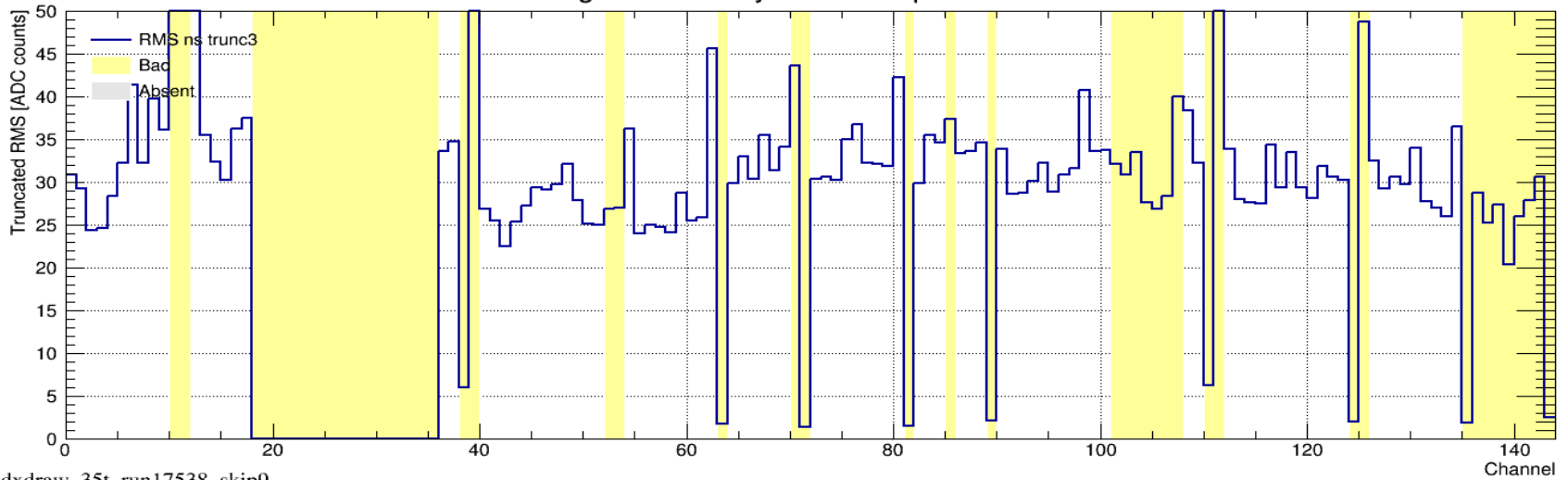
## Raw signals for apa3u event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

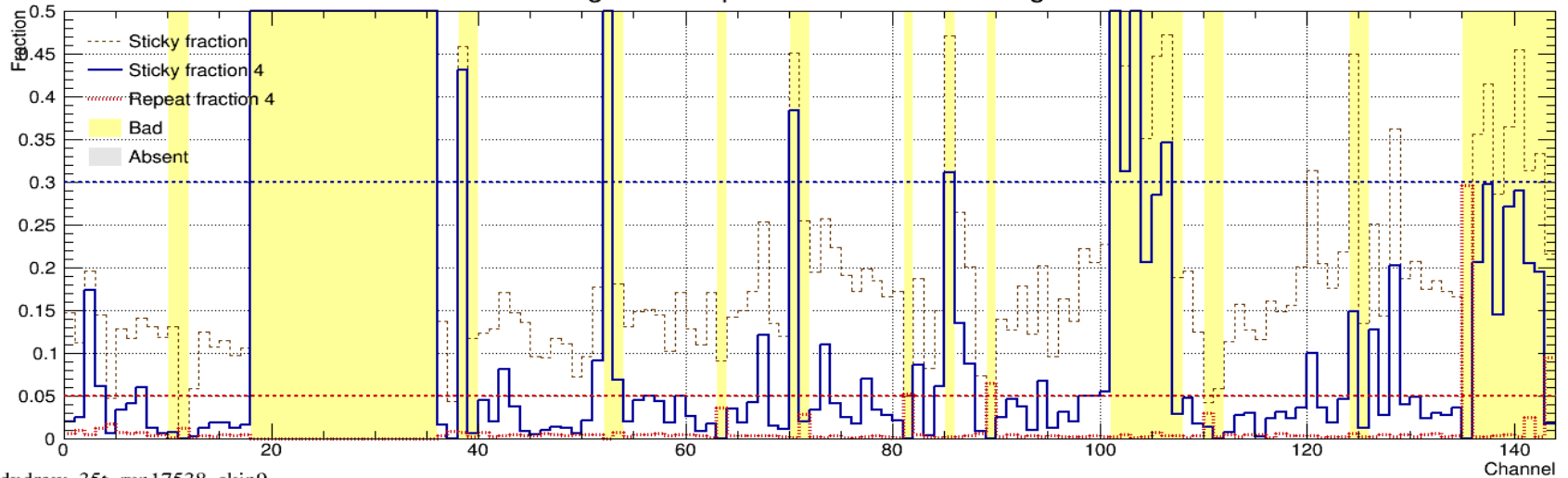
# APA 3u run 17538 (last)

## Raw signal not-sticky RMS for apa3u event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa3u event 10 stuck range 4



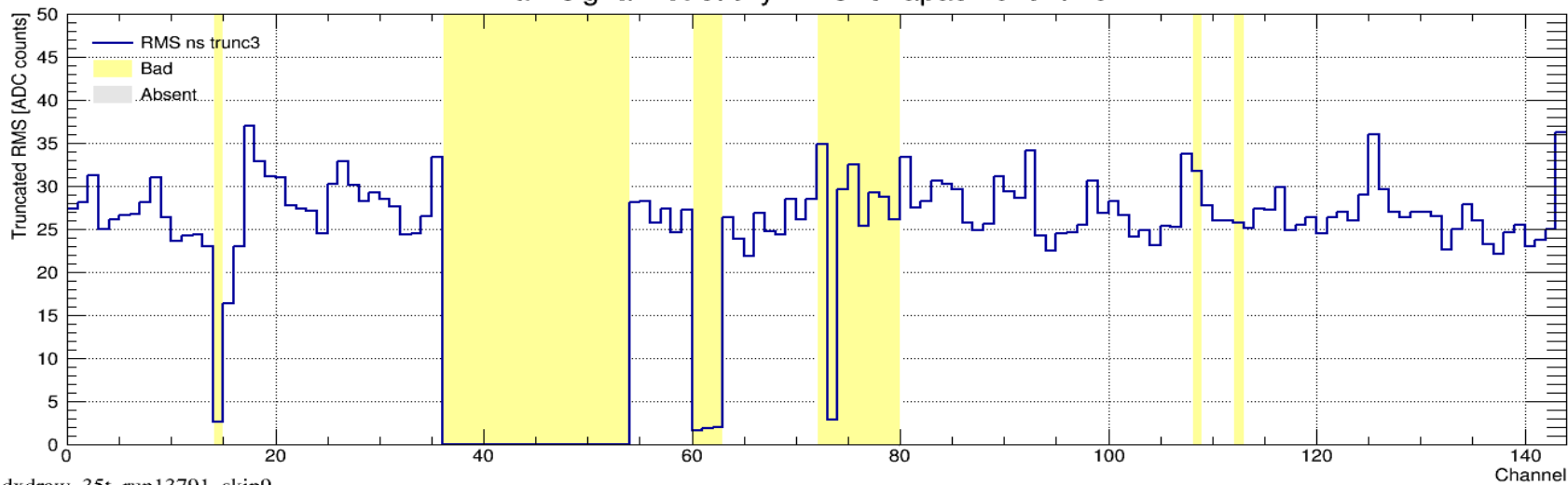
dxdraw\_35t\_run17538\_skip9



# APA 3v

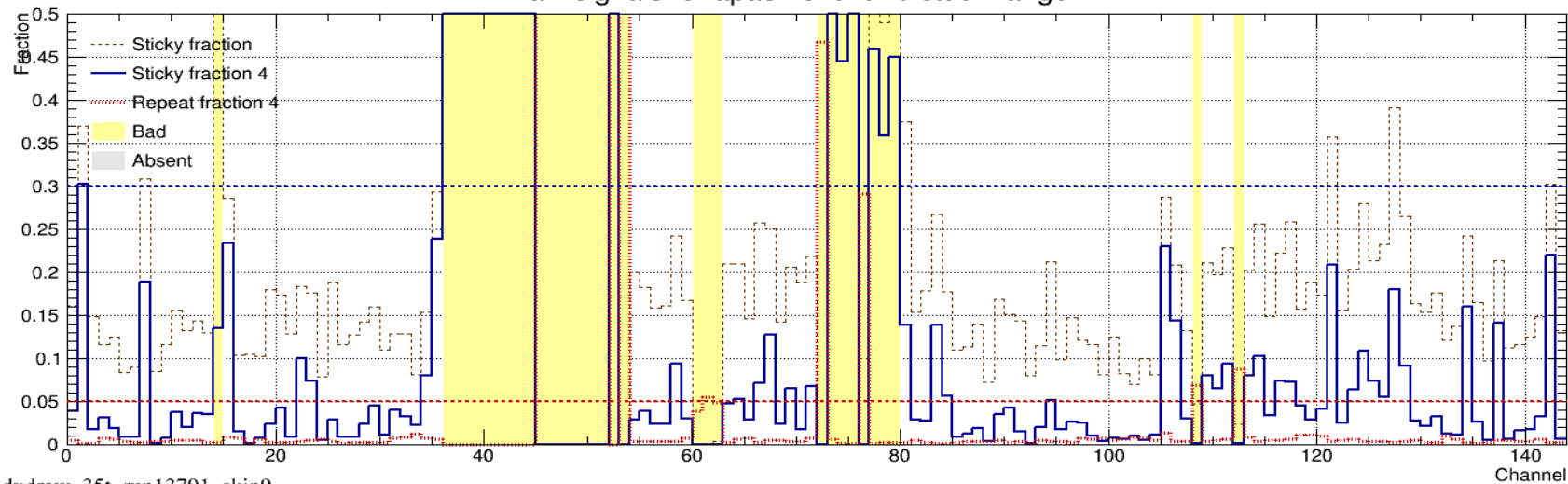
# APA 3v run 13791 (first)

Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run13791\_skip9

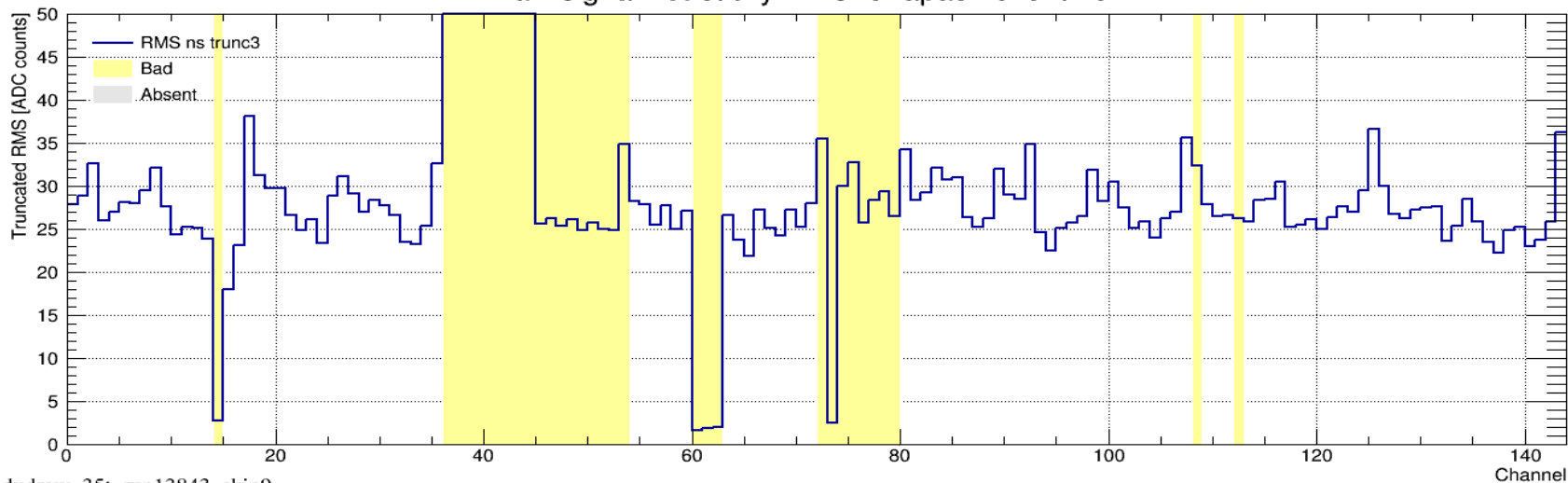
Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

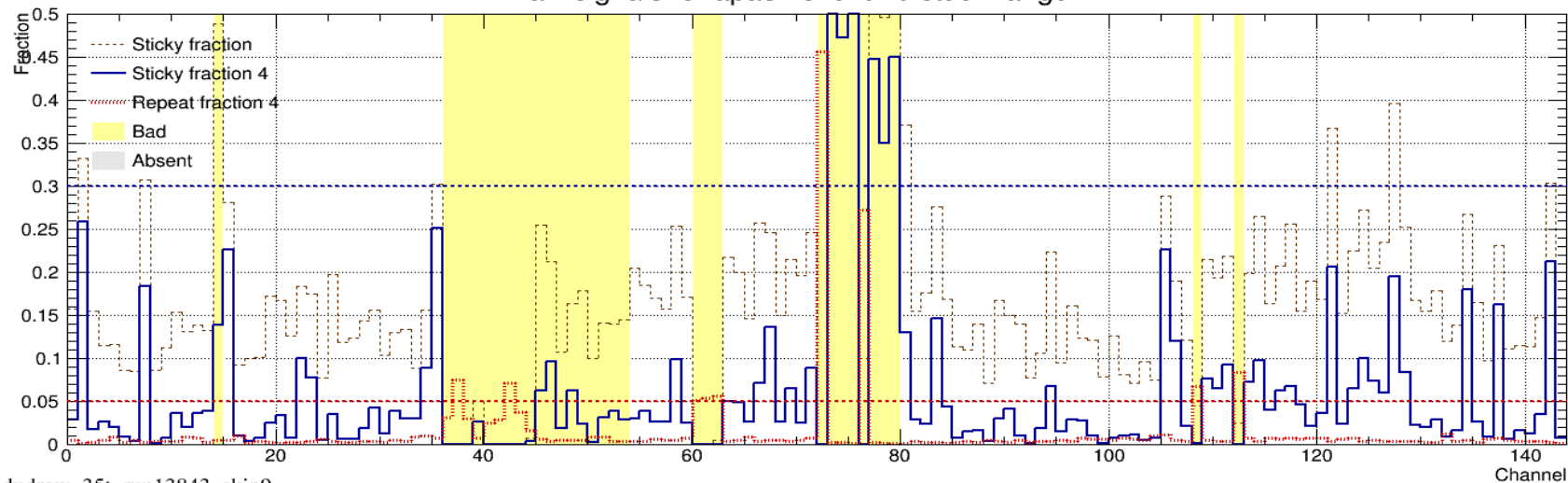
# APA 3v run 13843

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run13843\_skip9

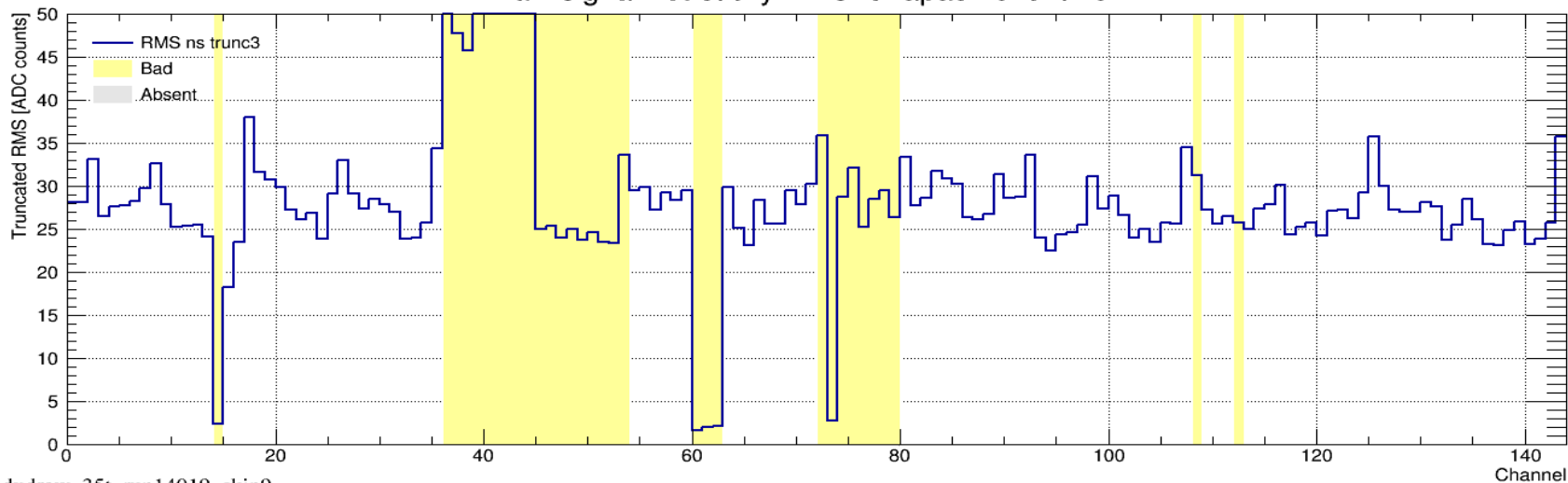
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

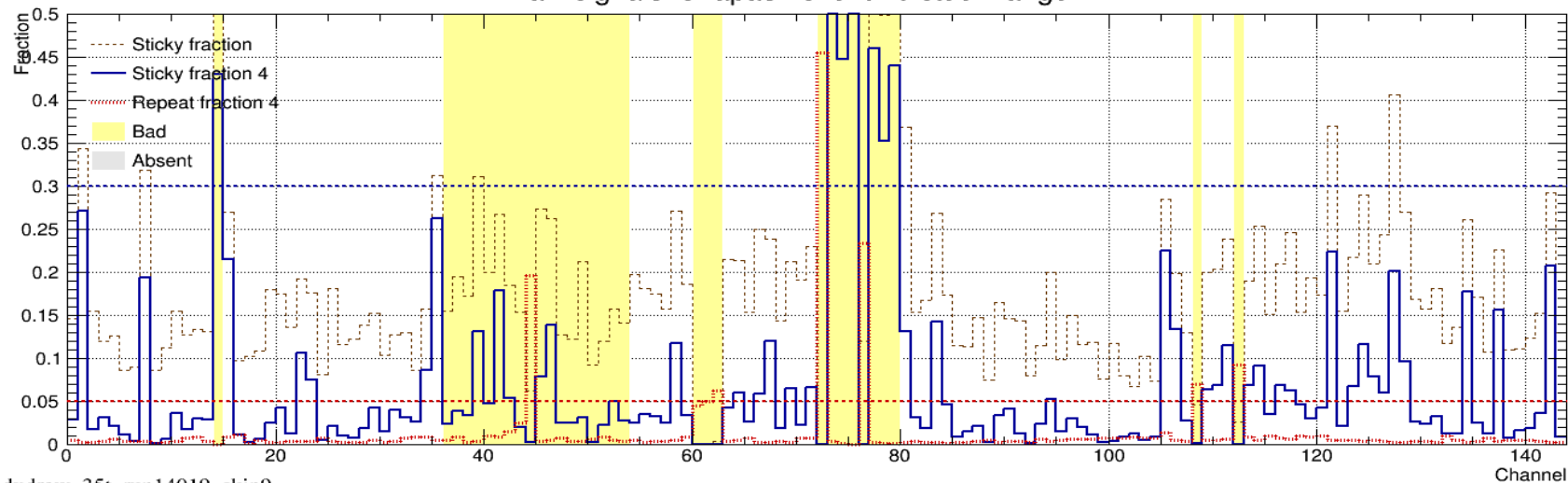
# APA 3v run 14019

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run14019\_skip9

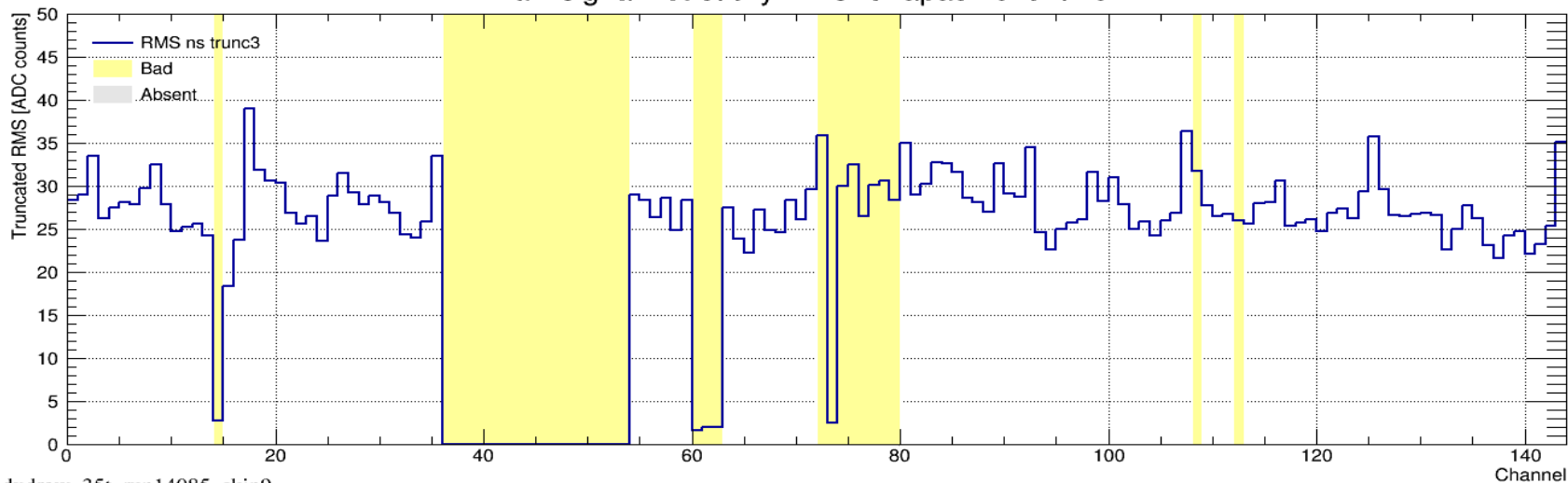
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

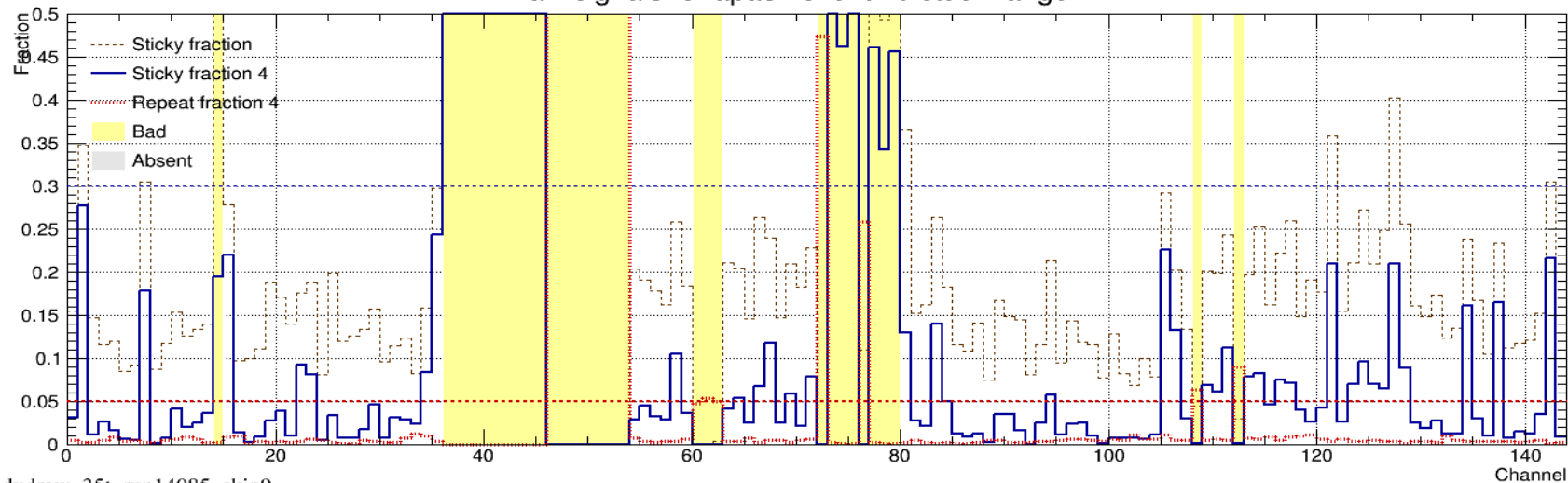
# APA 3v run 14085

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run14085\_skip9

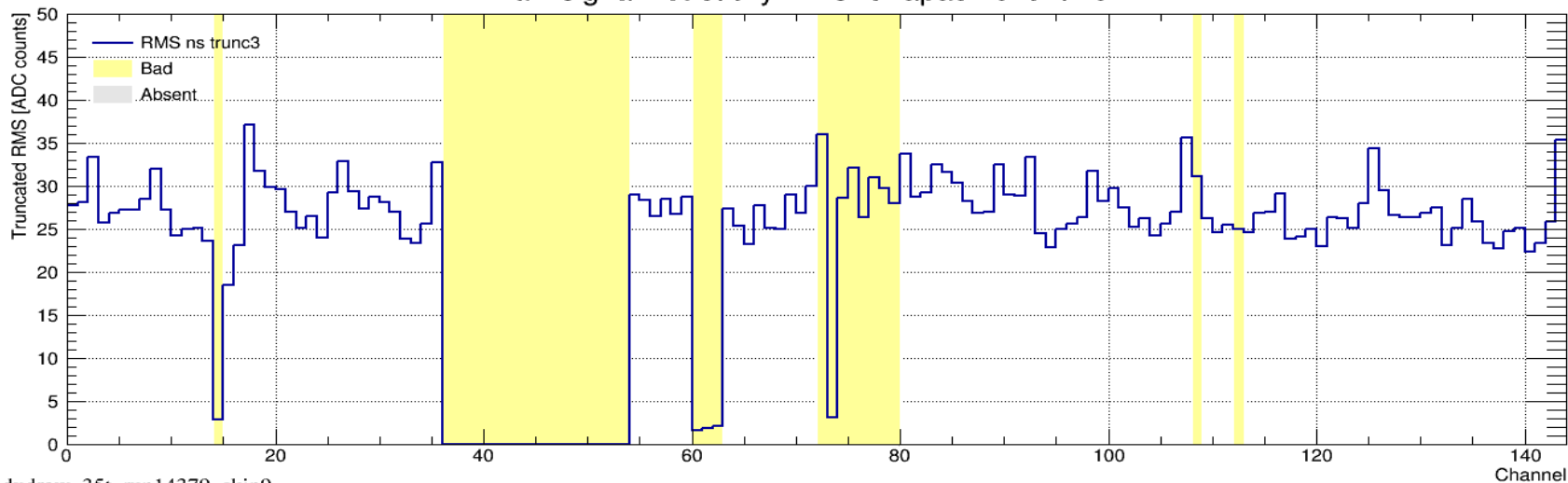
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

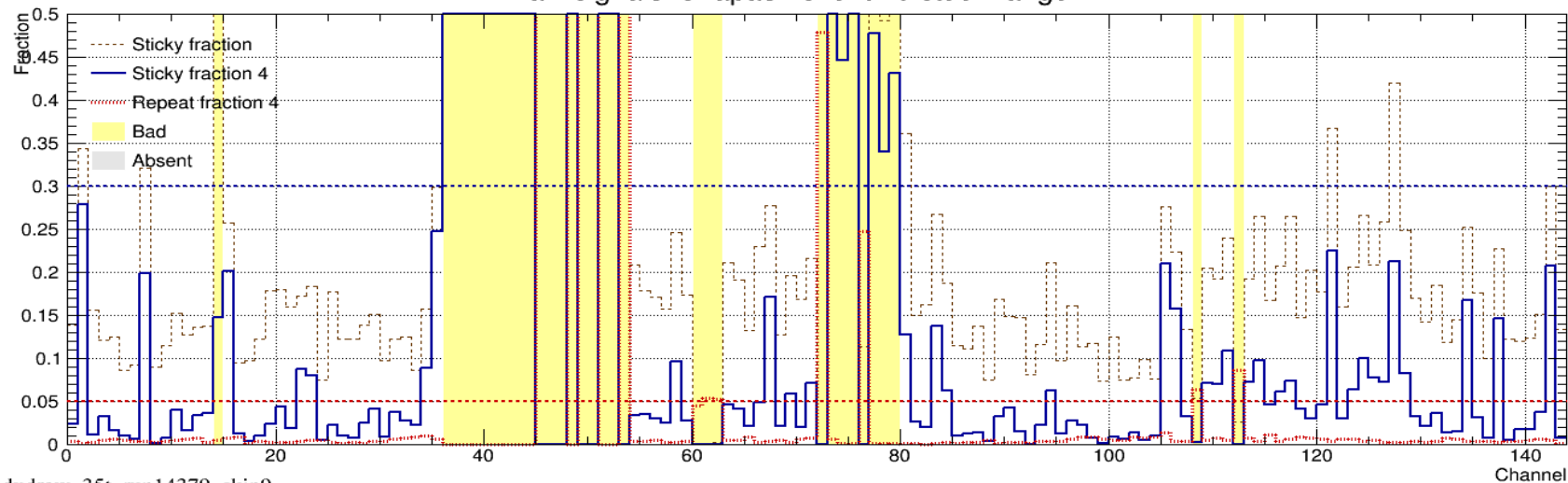
# APA 3v run 14379

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run14379\_skip9

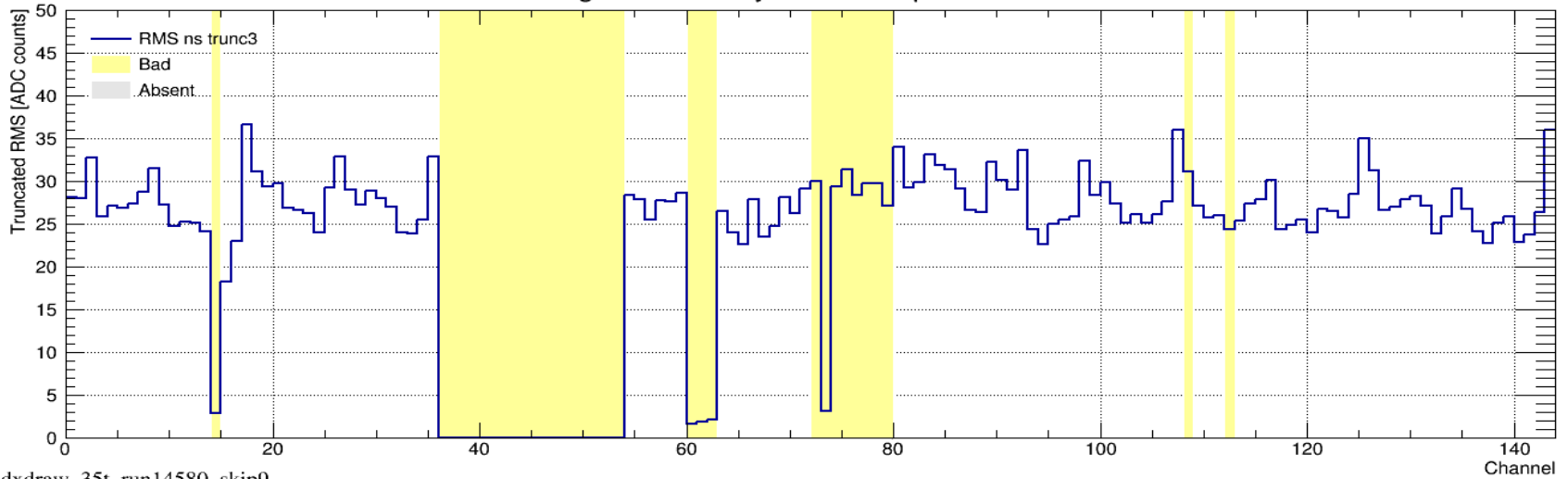
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

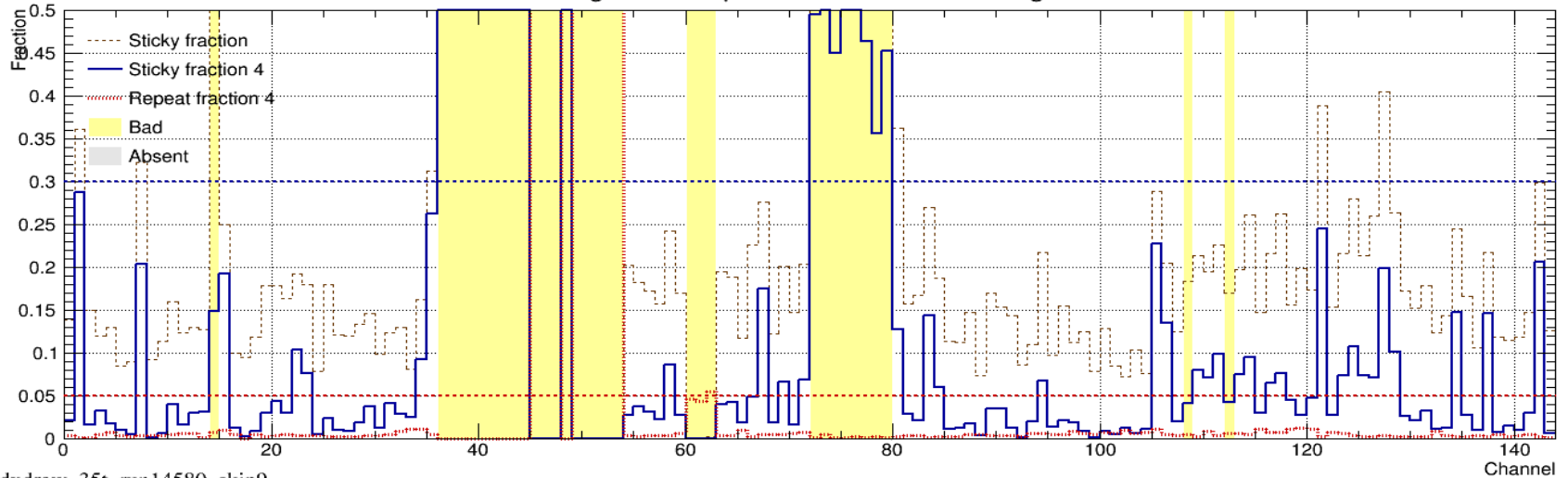
# APA 3v run 14580 (last before power failure)

Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run14580\_skip9

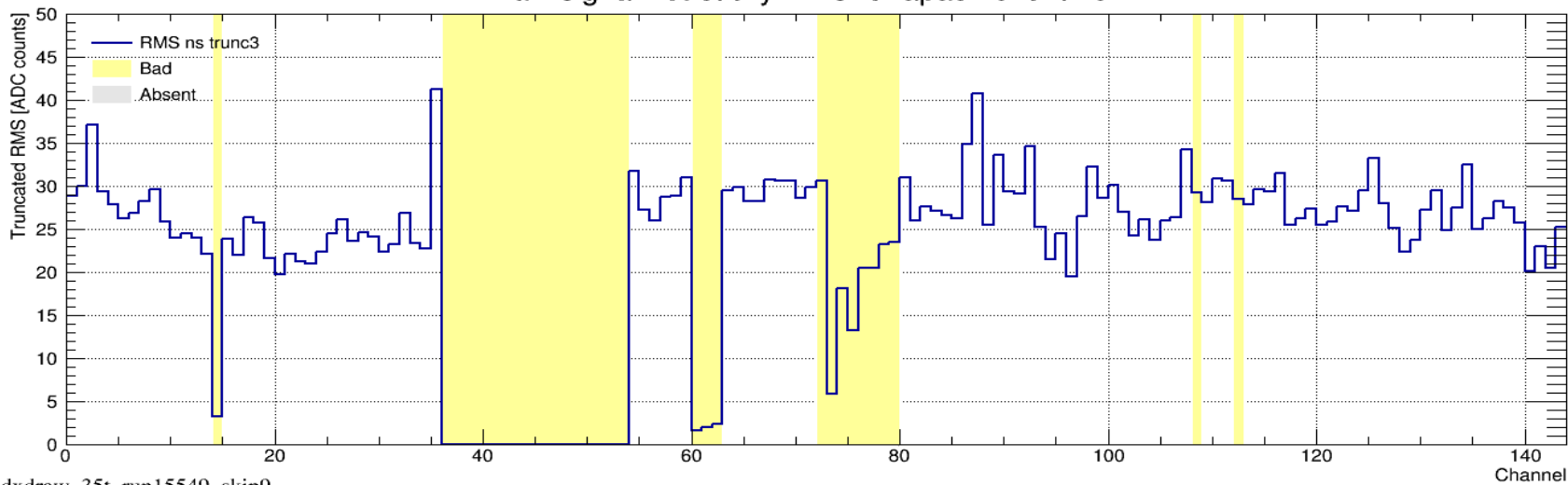
Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

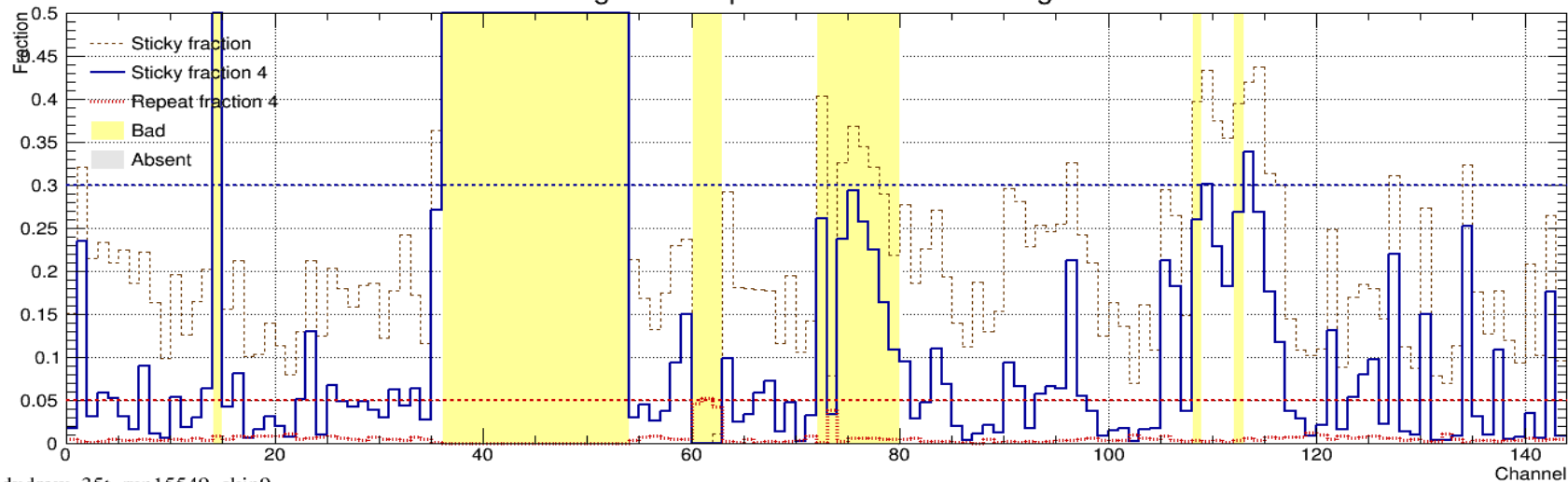
# APA 3v run 15549 (first after power failure)

Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run15549\_skip9

Raw signals for apa3v event 10 stuck range 4

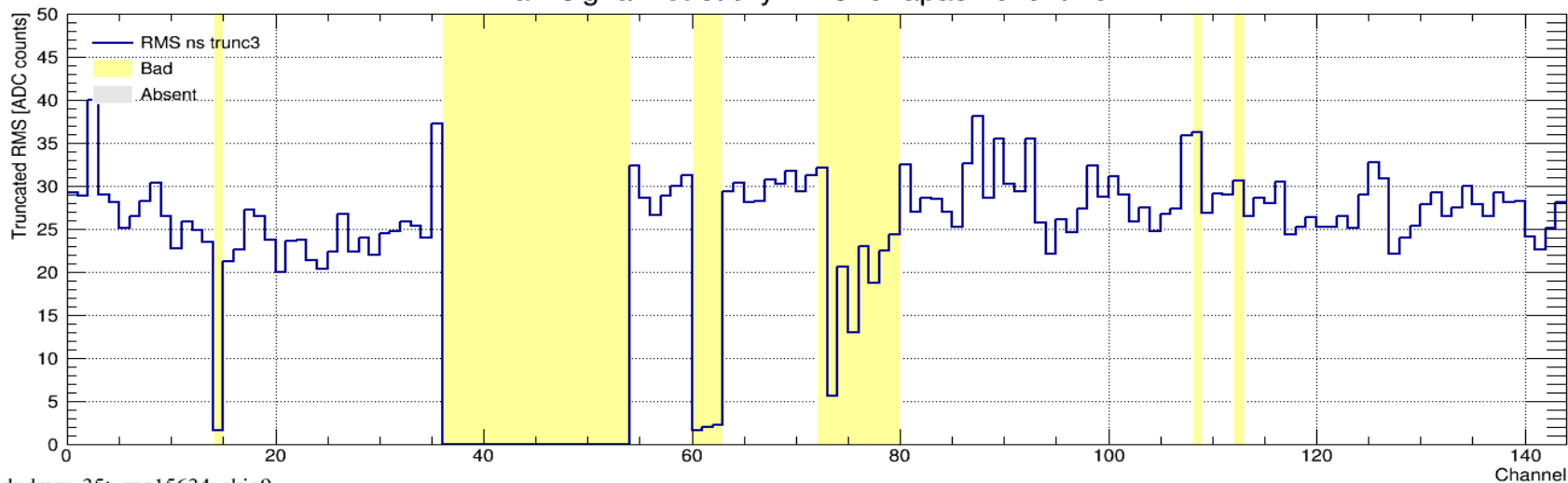


dxdraw\_35t\_run15549\_skip9



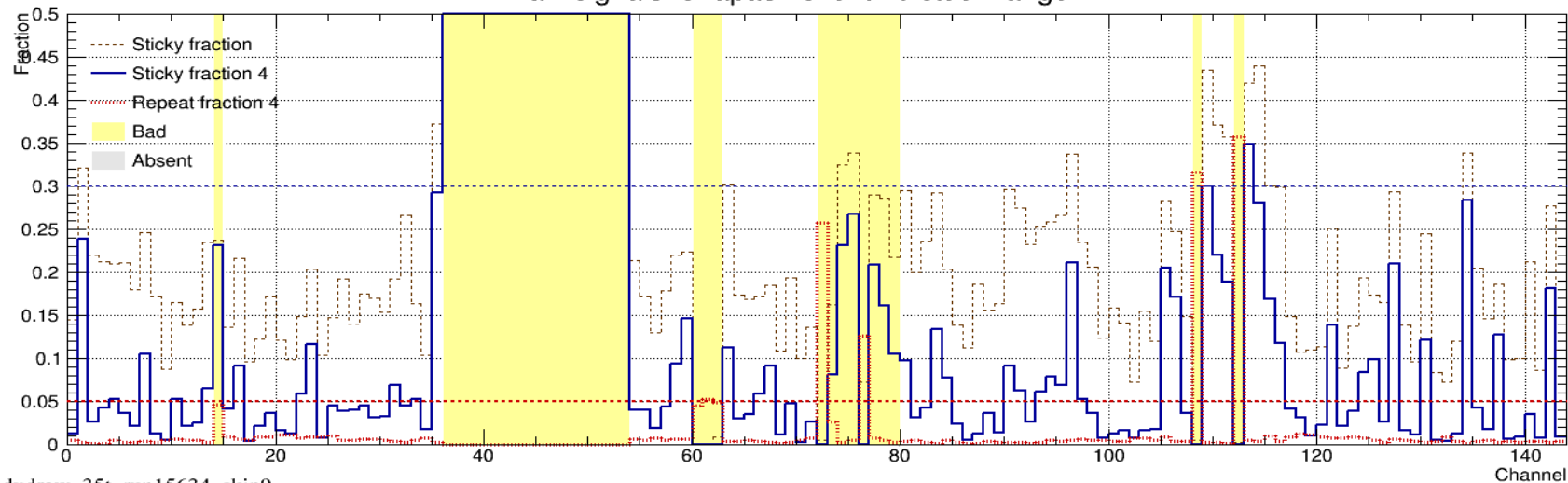
# APA 3v run 15634

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run15634\_skip9

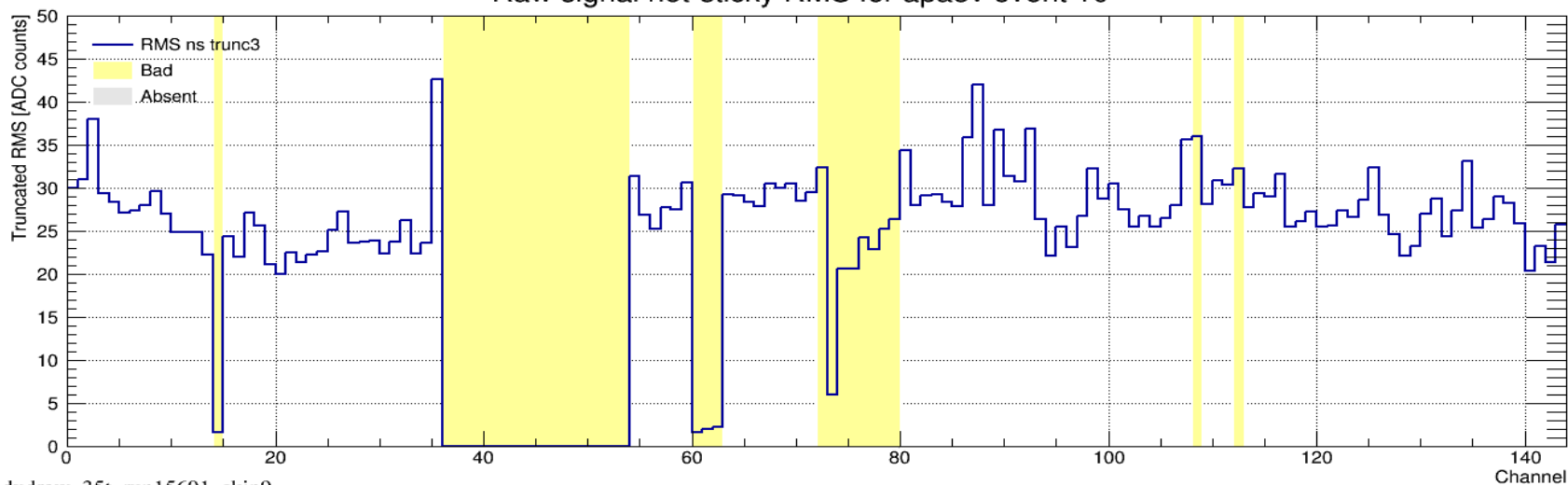
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

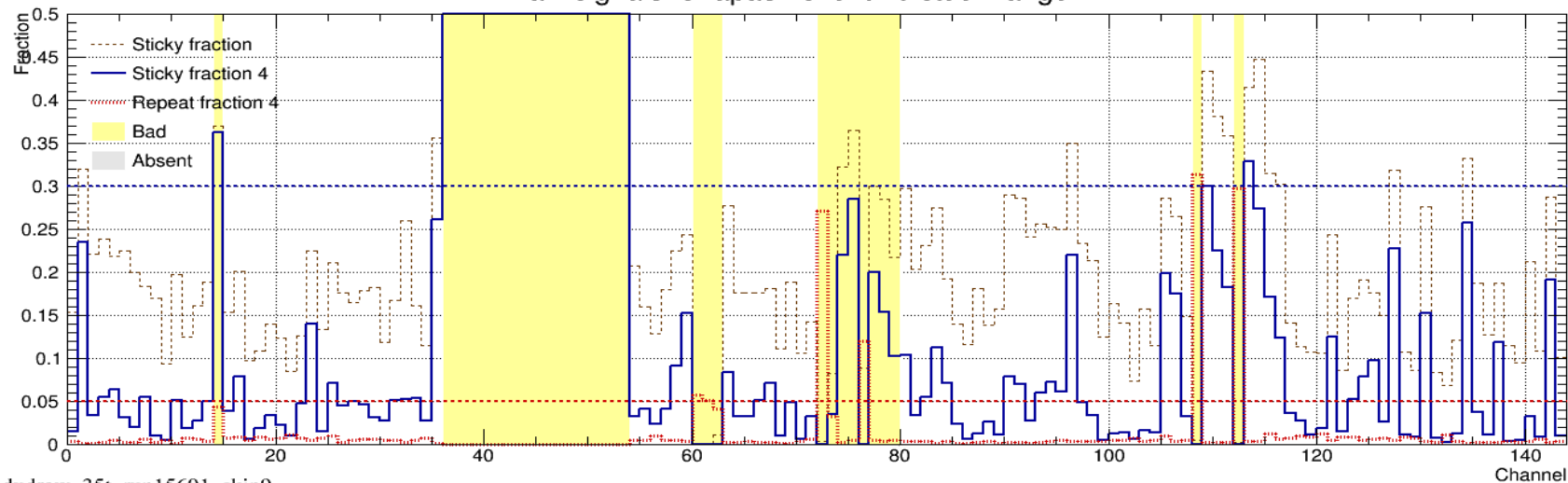
# APA 3v run 15691

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run15691\_skip9

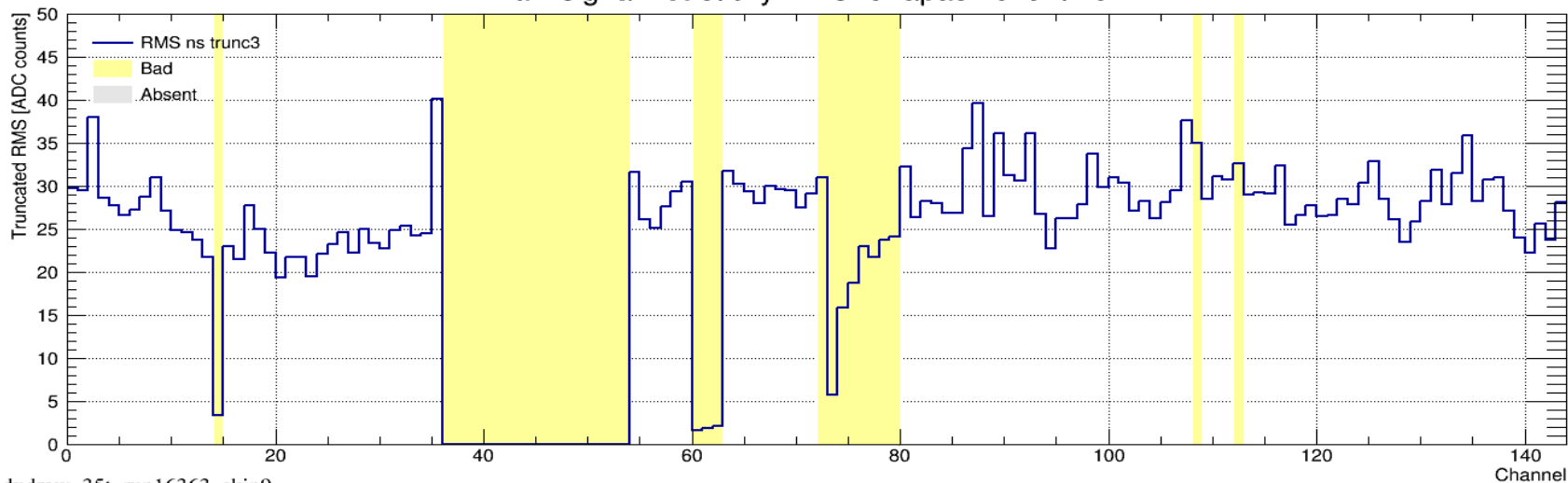
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

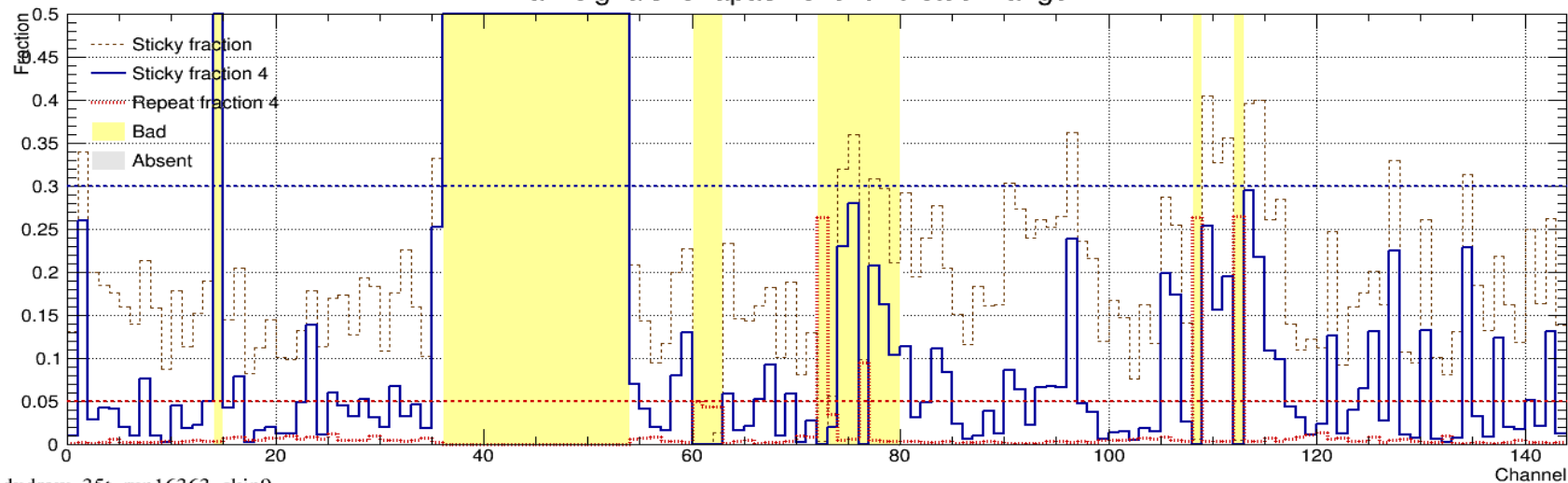
# APA 3v run 16363

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run16363\_skip9

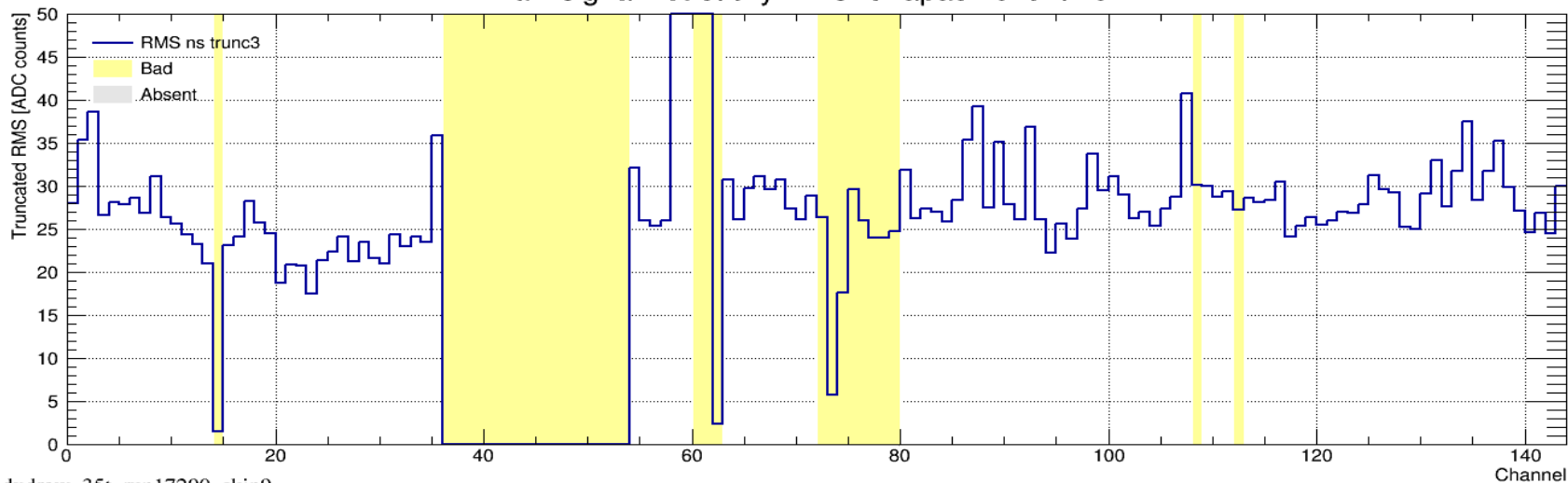
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

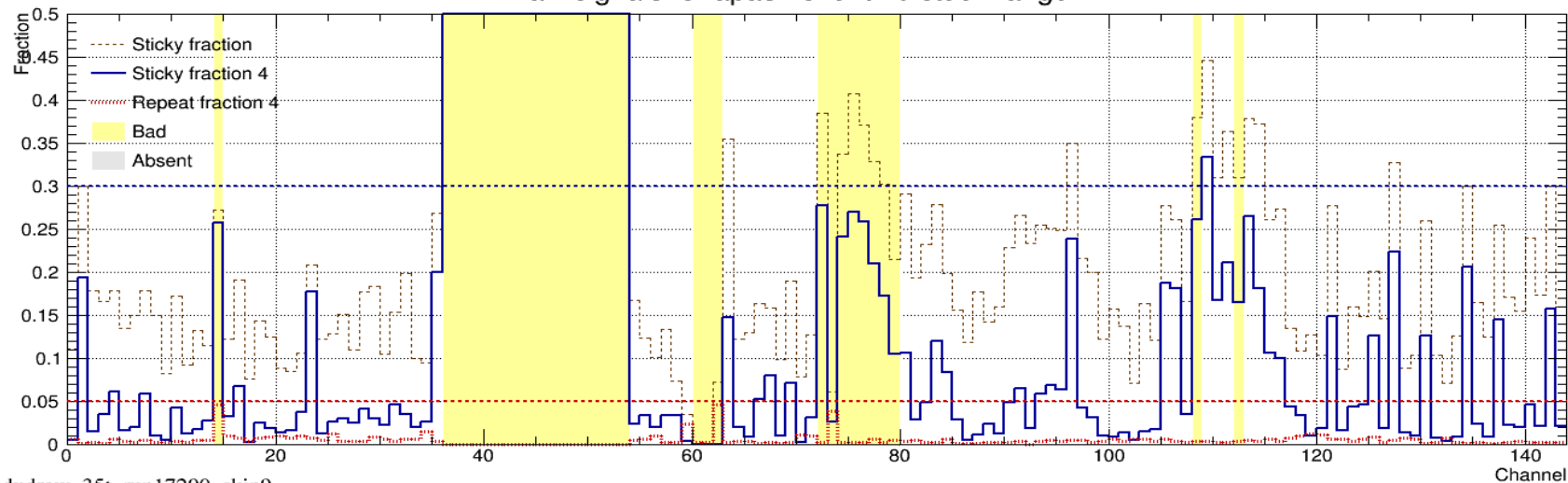
# APA 3v run 17200

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run17200\_skip9

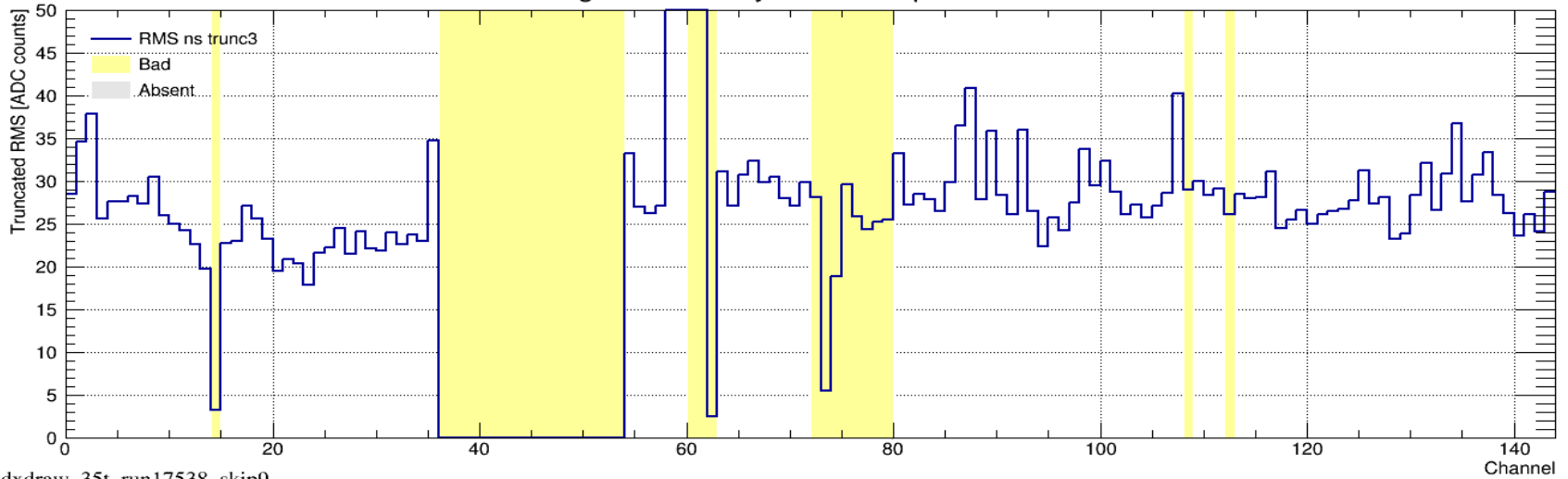
## Raw signals for apa3v event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

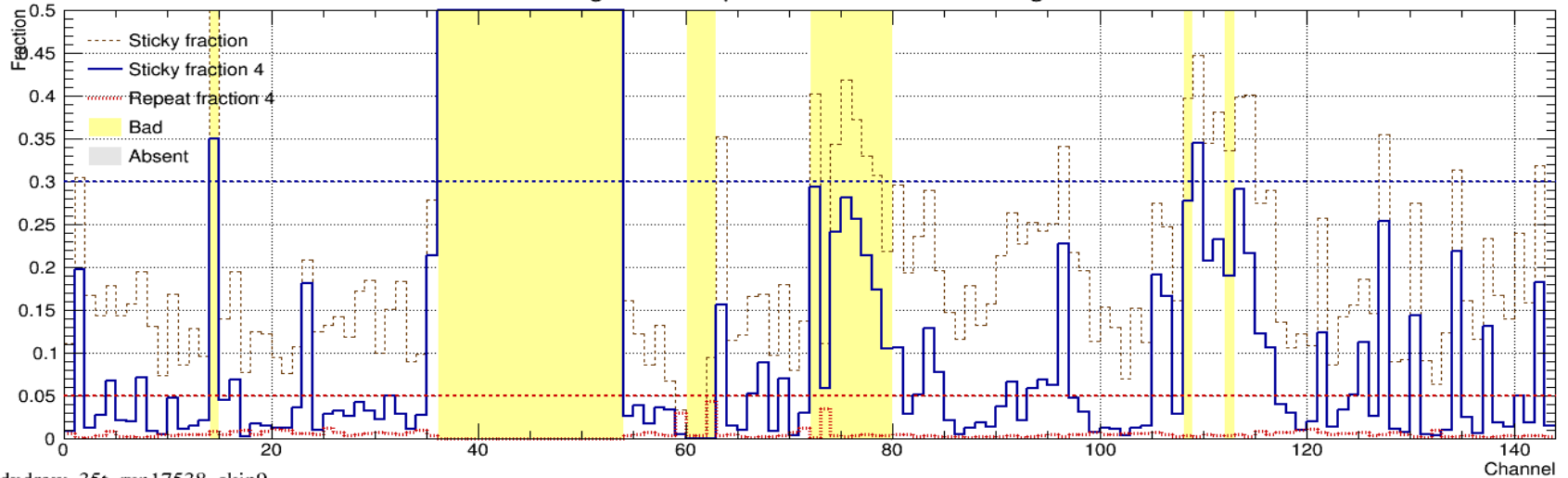
# APA 3v run 17538 (last)

## Raw signal not-sticky RMS for apa3v event 10



dxdraw\_35t\_run17538\_skip9

## Raw signals for apa3v event 10 stuck range 4

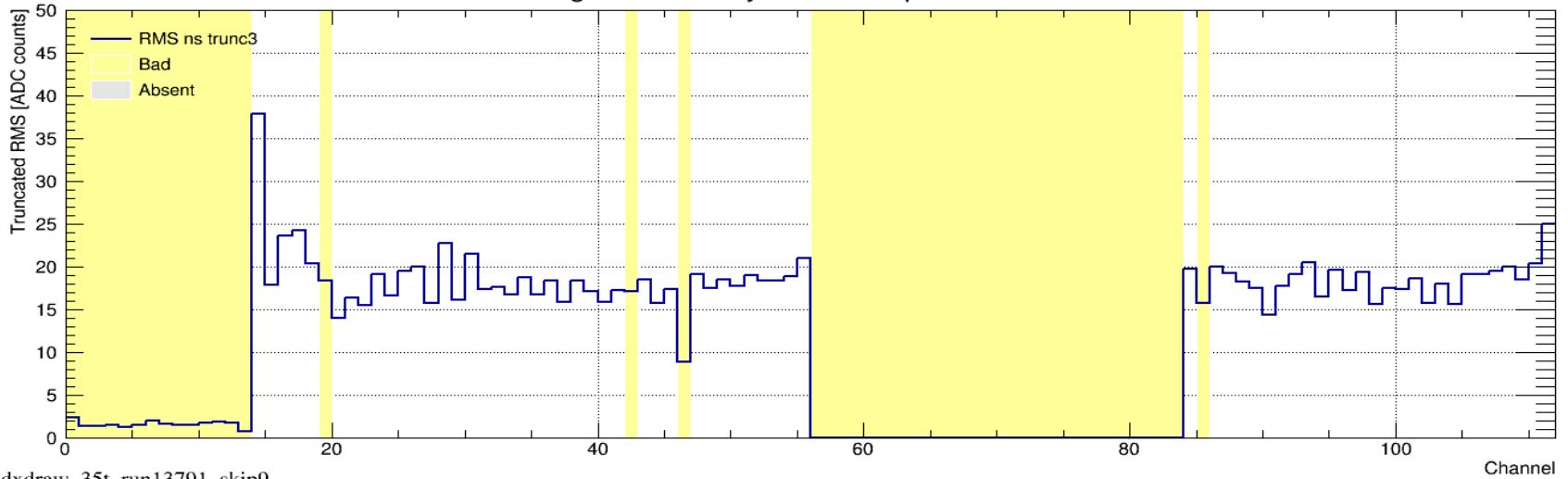


dxdraw\_35t\_run17538\_skip9

# APA 3z1

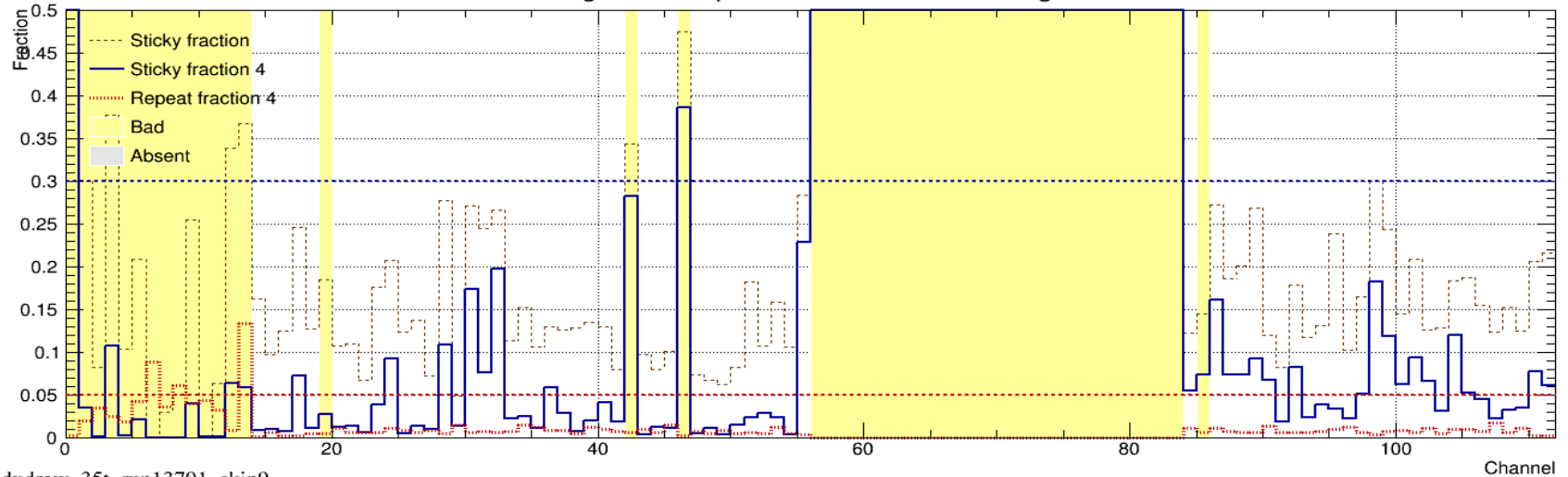
# APA 3z1 run 13791 (first)

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run13791\_skip9

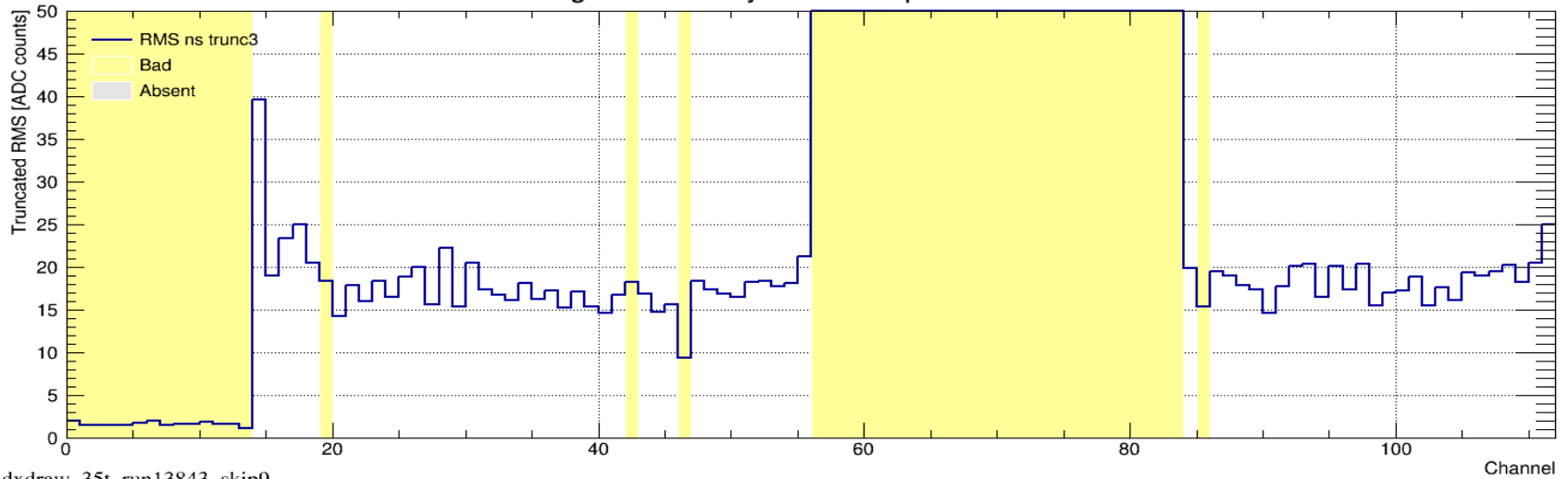
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

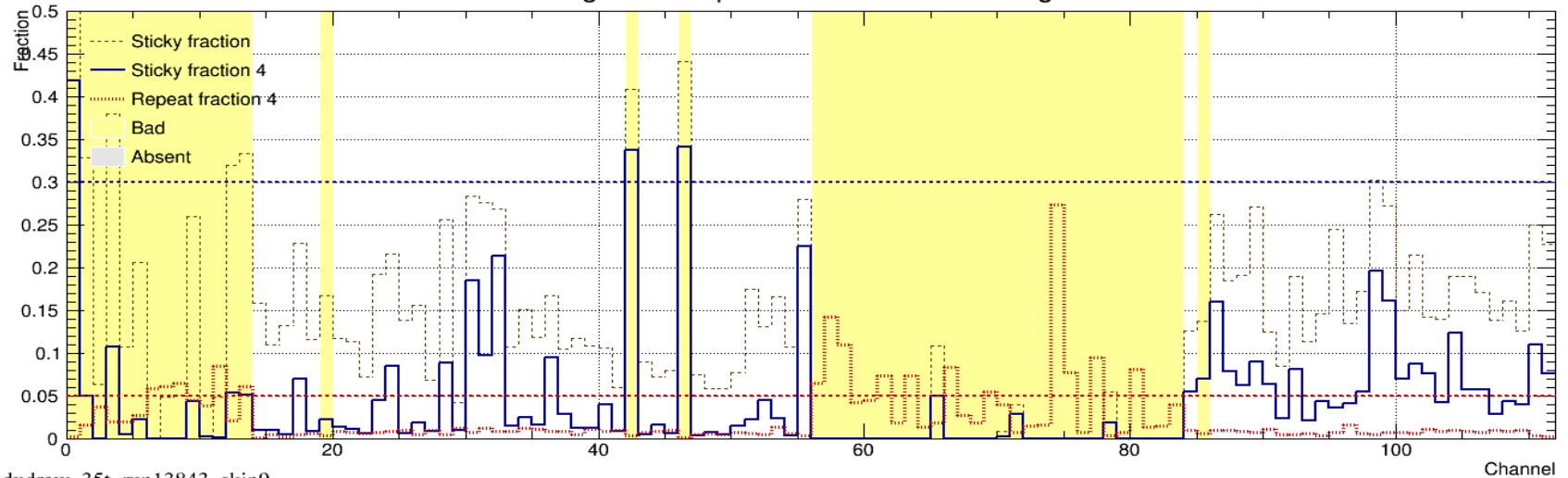
# APA 3z1 run 13843

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run13843\_skip9

Raw signals for apa3z1 event 10 stuck range 4

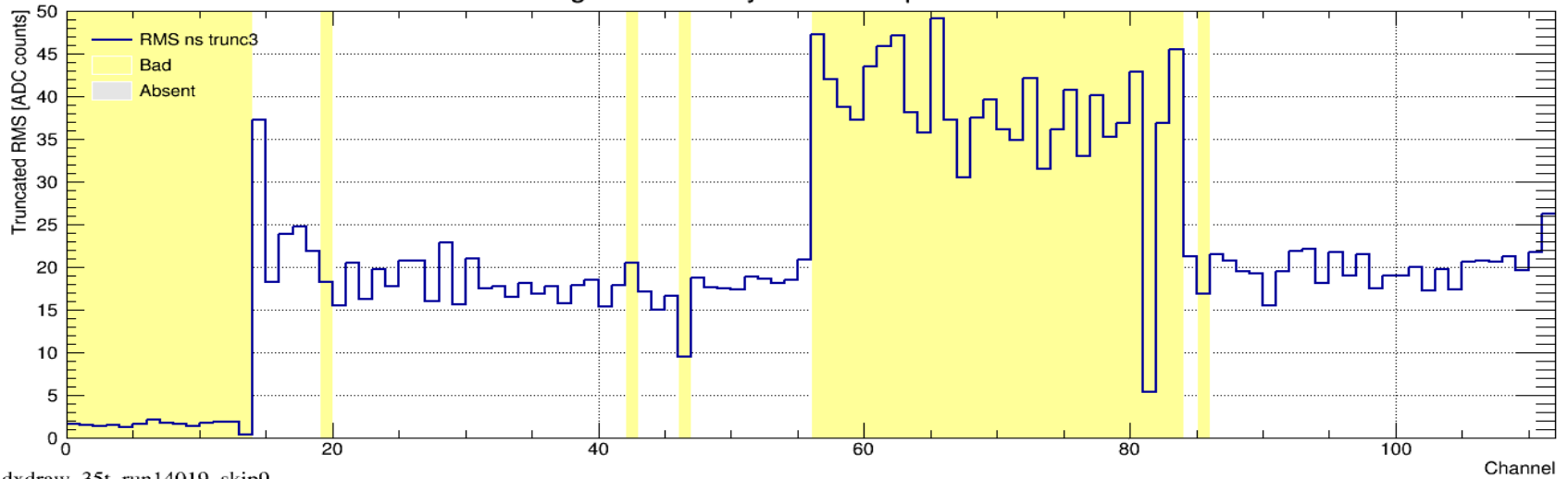


dxdraw\_35t\_run13843\_skip9



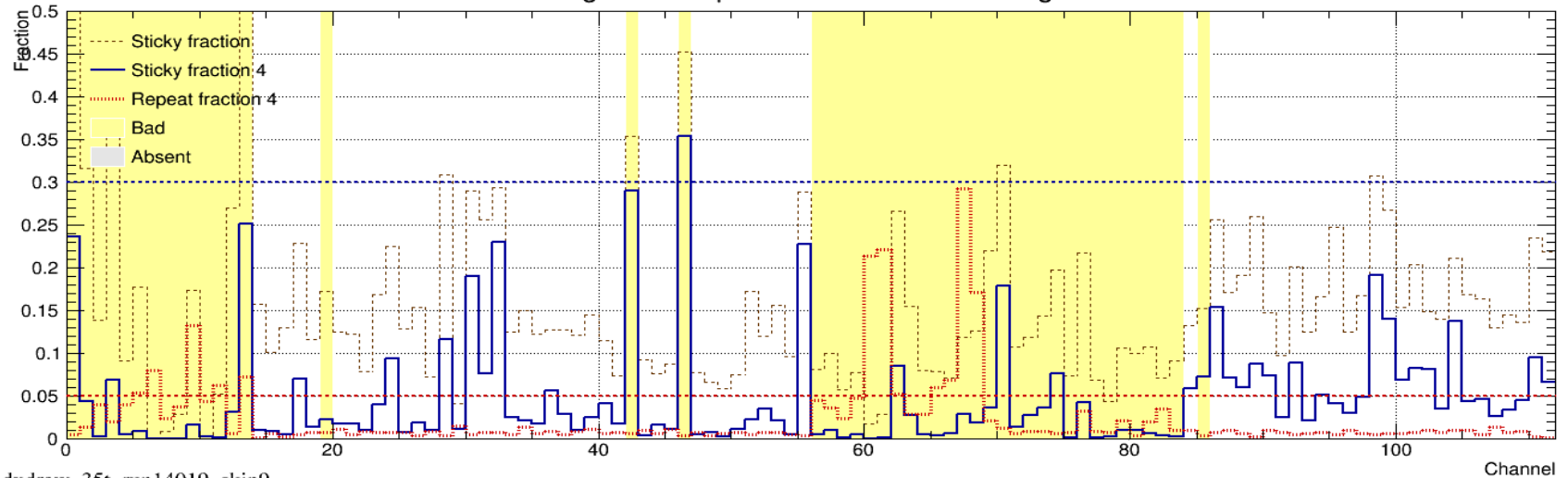
# APA 3z1 run 14019

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run14019\_skip9

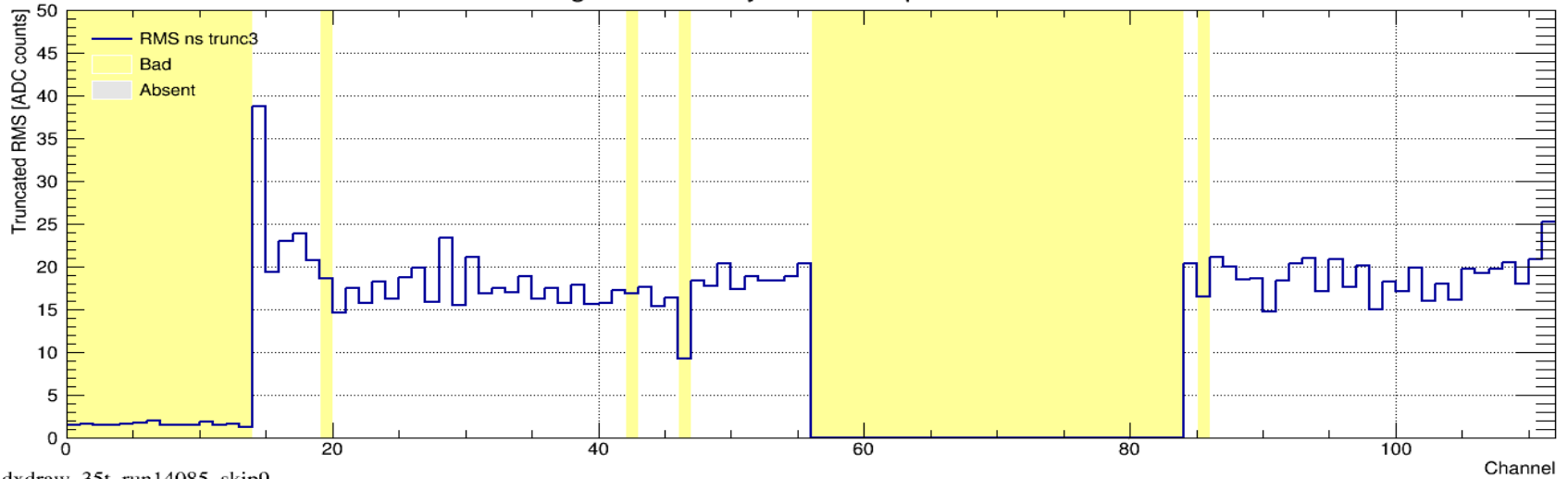
Raw signals for apa3z1 event 10 stuck range 4



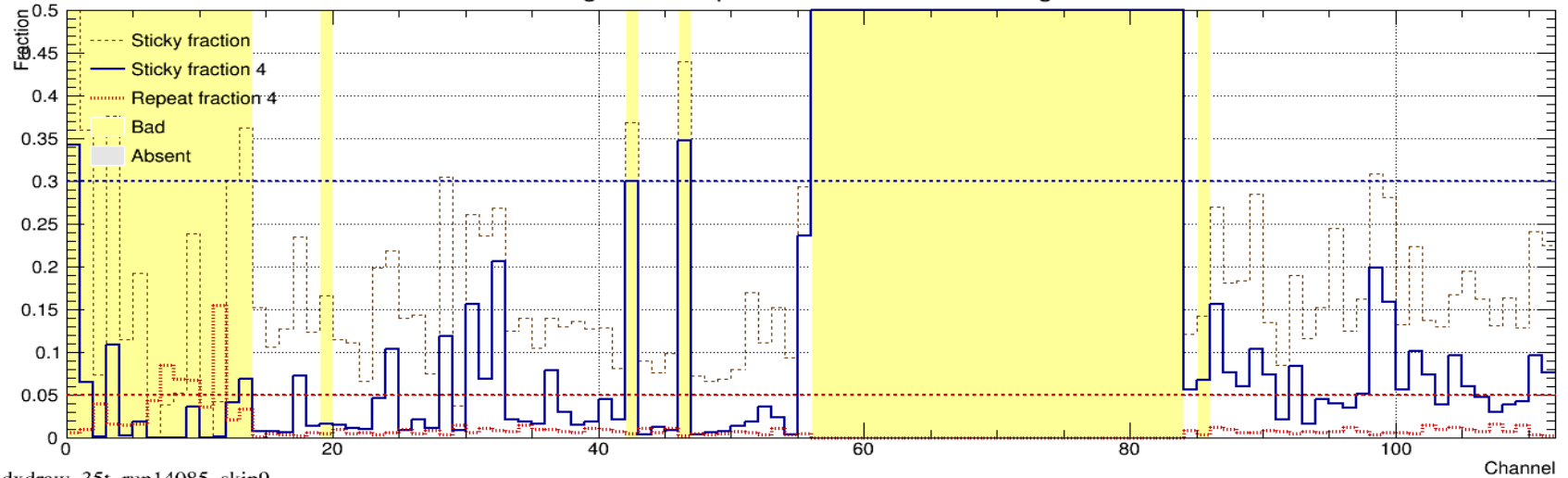
dxdraw\_35t\_run14019\_skip9

# APA 3z1 run 14085

Raw signal not-sticky RMS for apa3z1 event 10

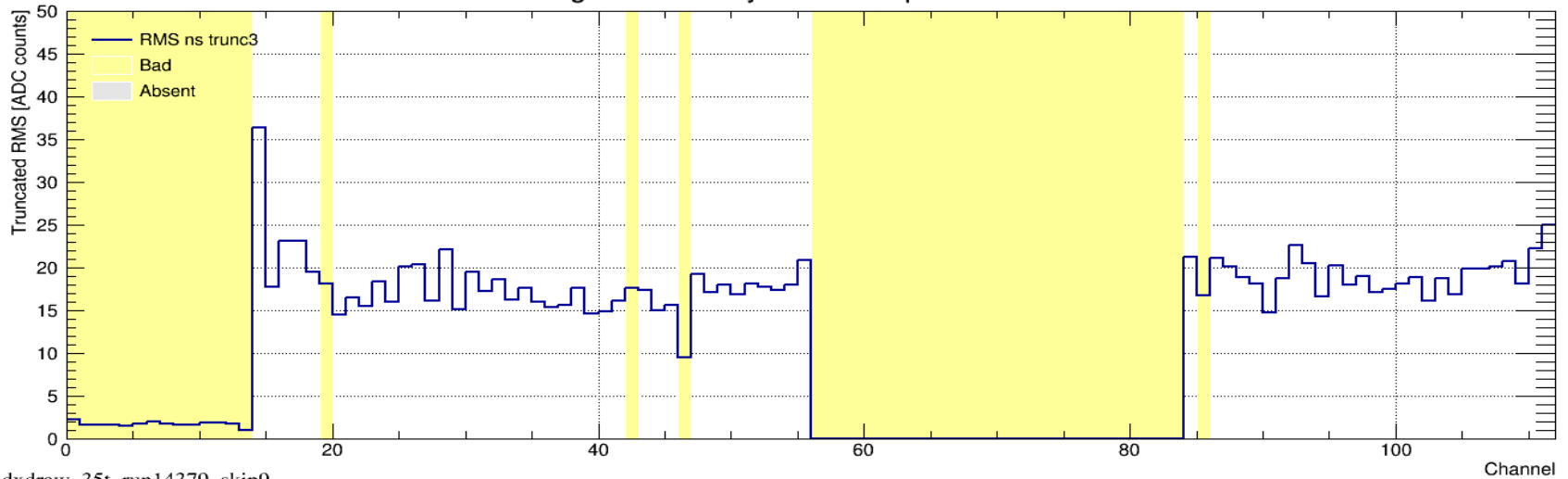


Raw signals for apa3z1 event 10 stuck range 4



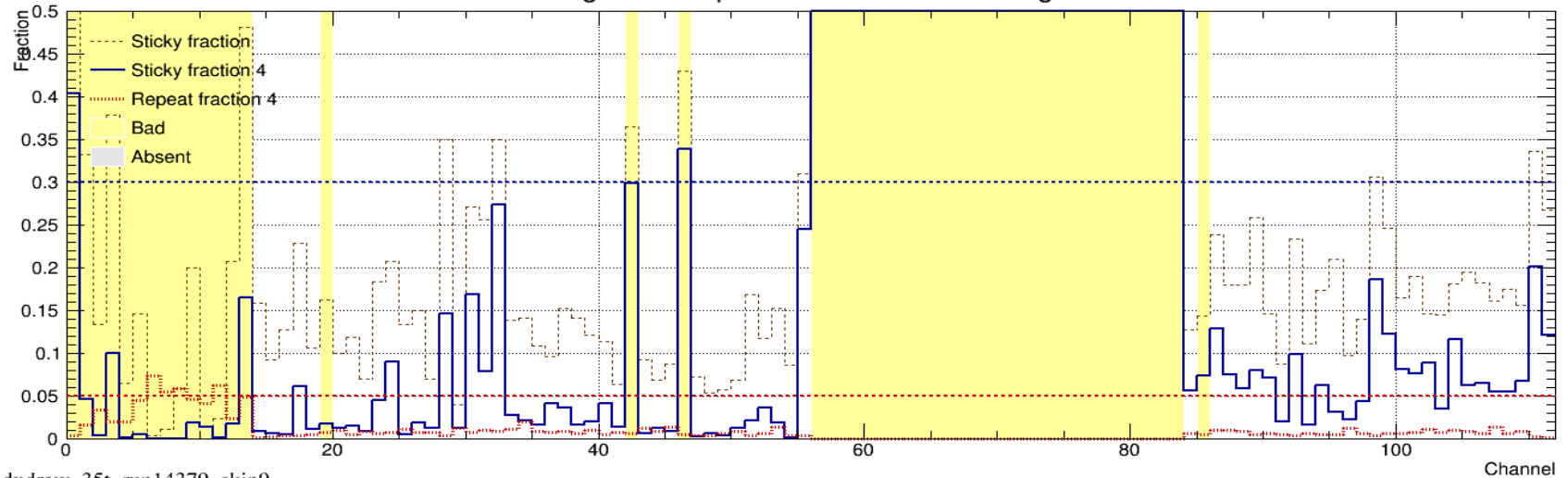
# APA 3z1 run 14379

## Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run14379\_skip9

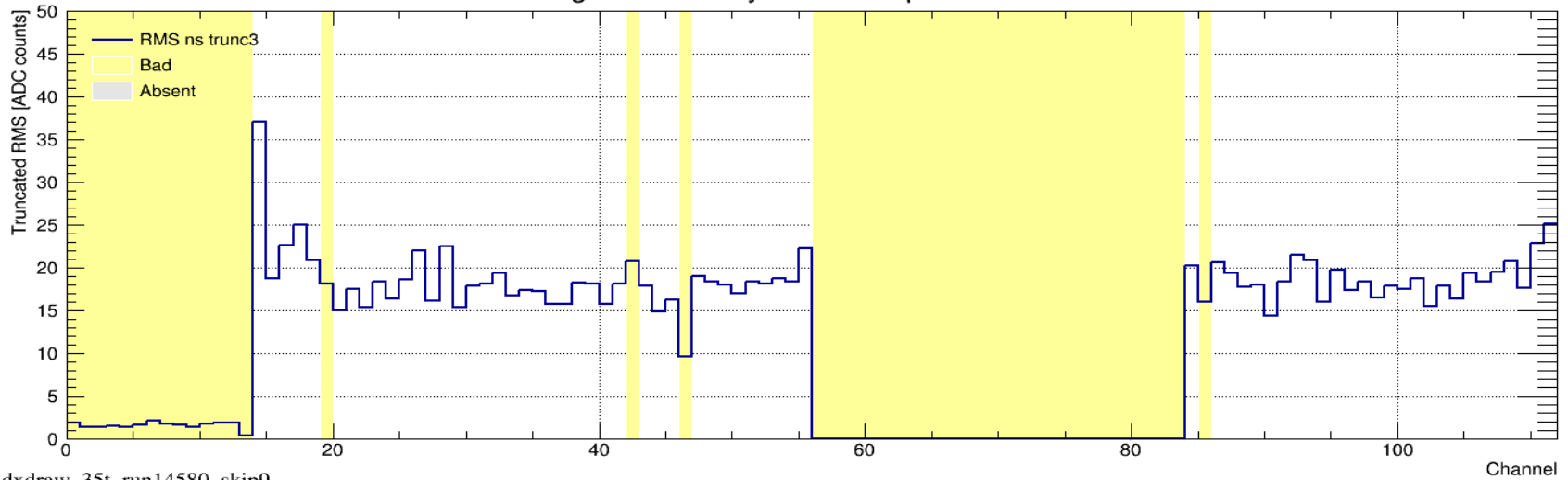
## Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run14379\_skip9

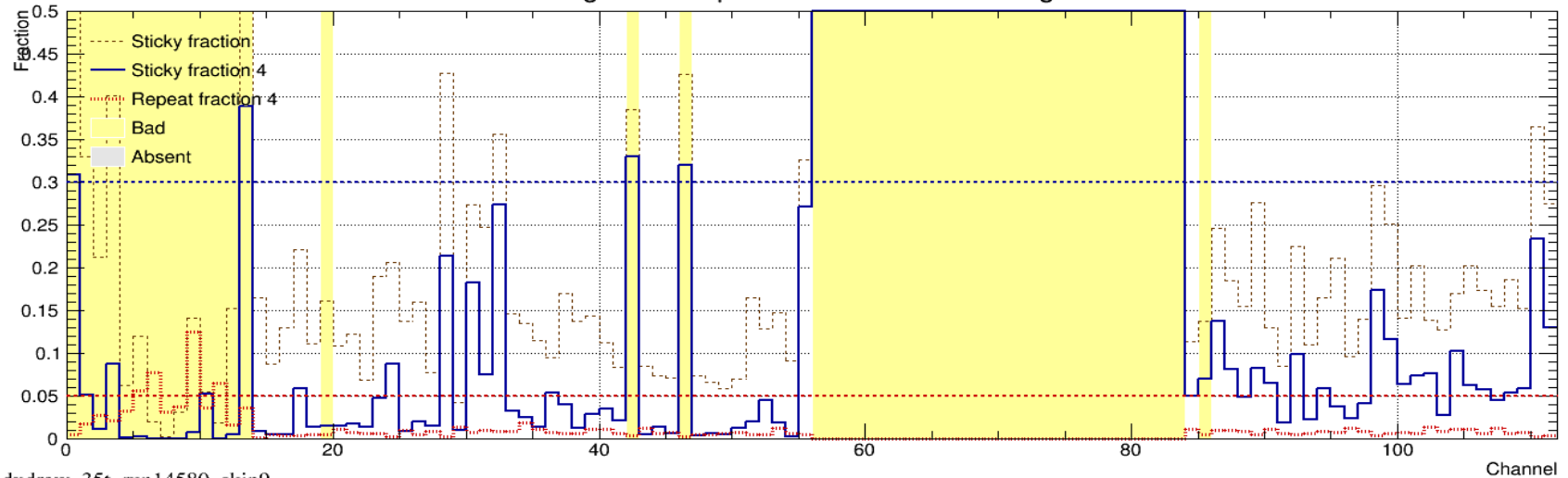
# APA 3z1 run 14580 (last before power failure)

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run14580\_skip9

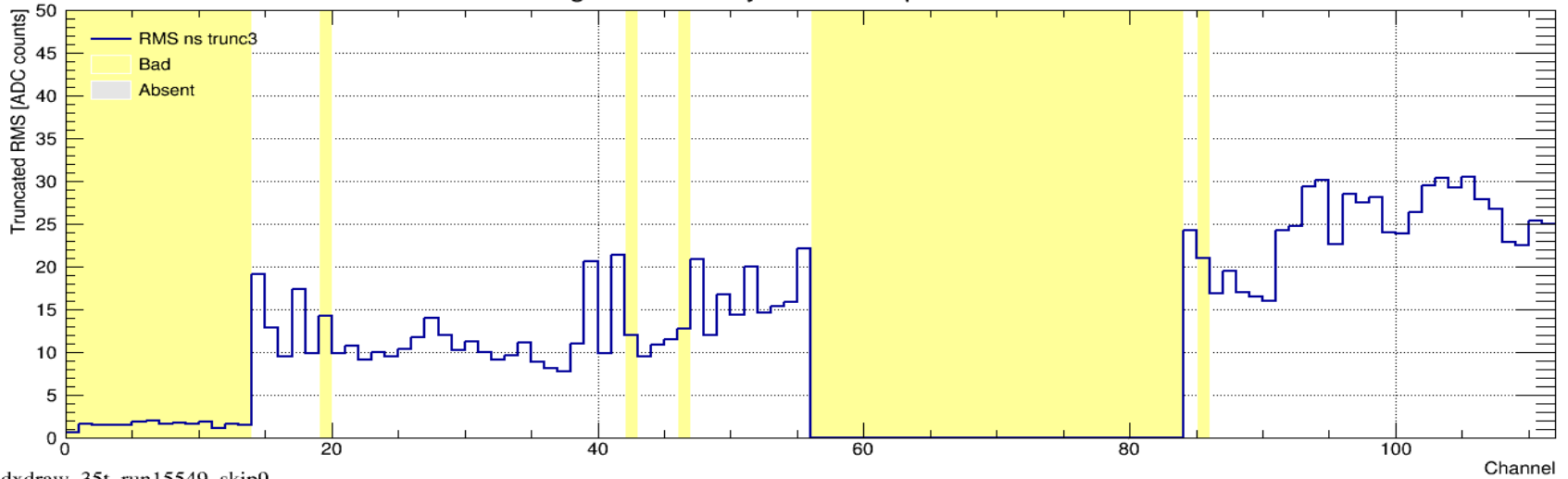
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run14580\_skip9

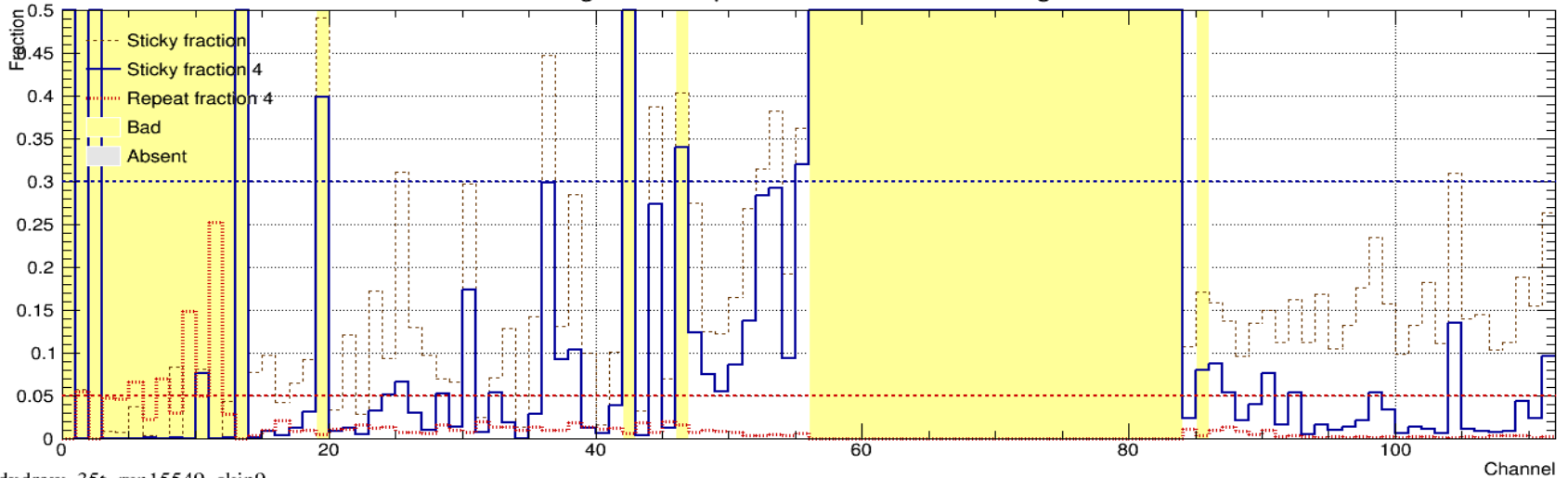
# APA 3z1 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run15549\_skip9

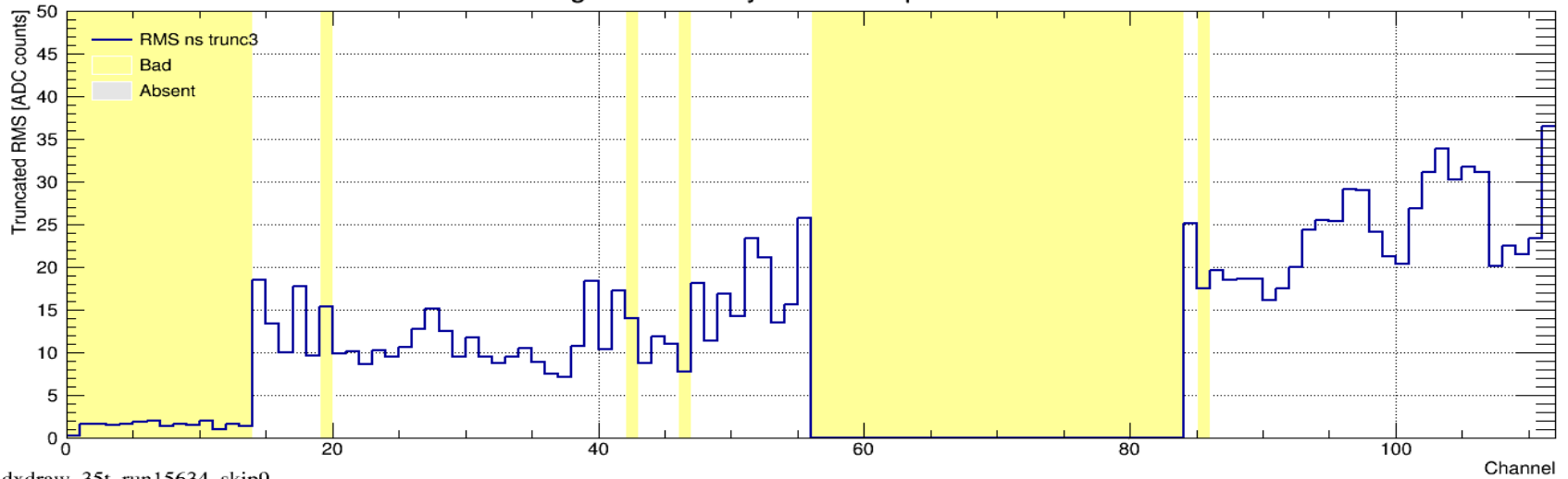
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run15549\_skip9

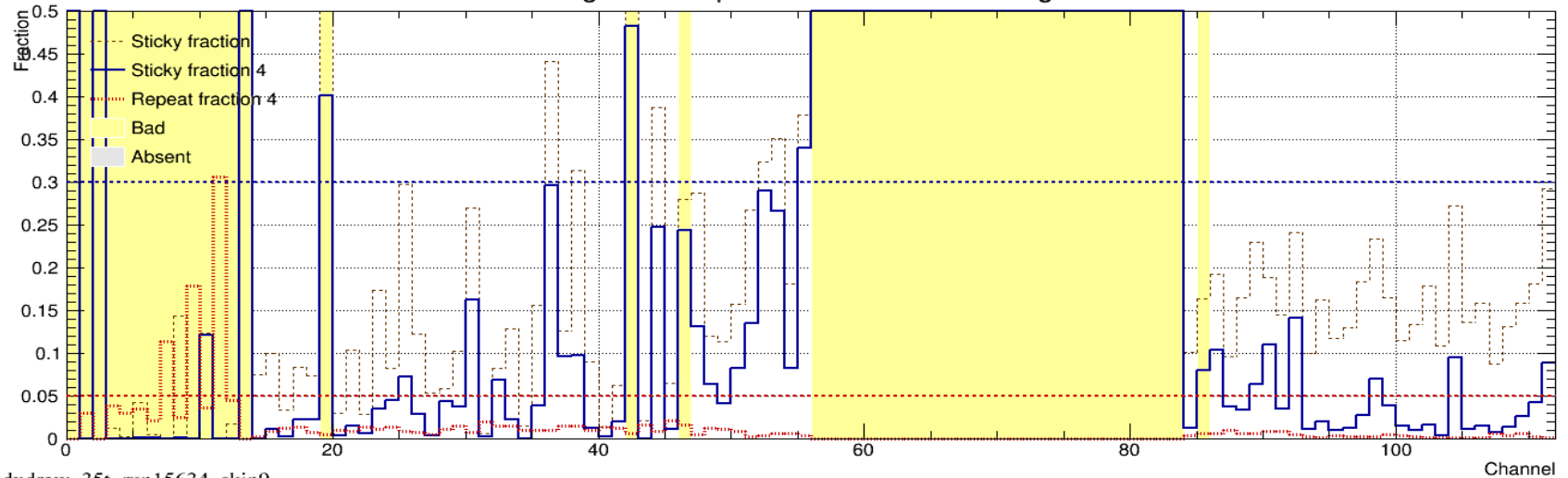
# APA 3z1 run 15634

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run15634\_skip9

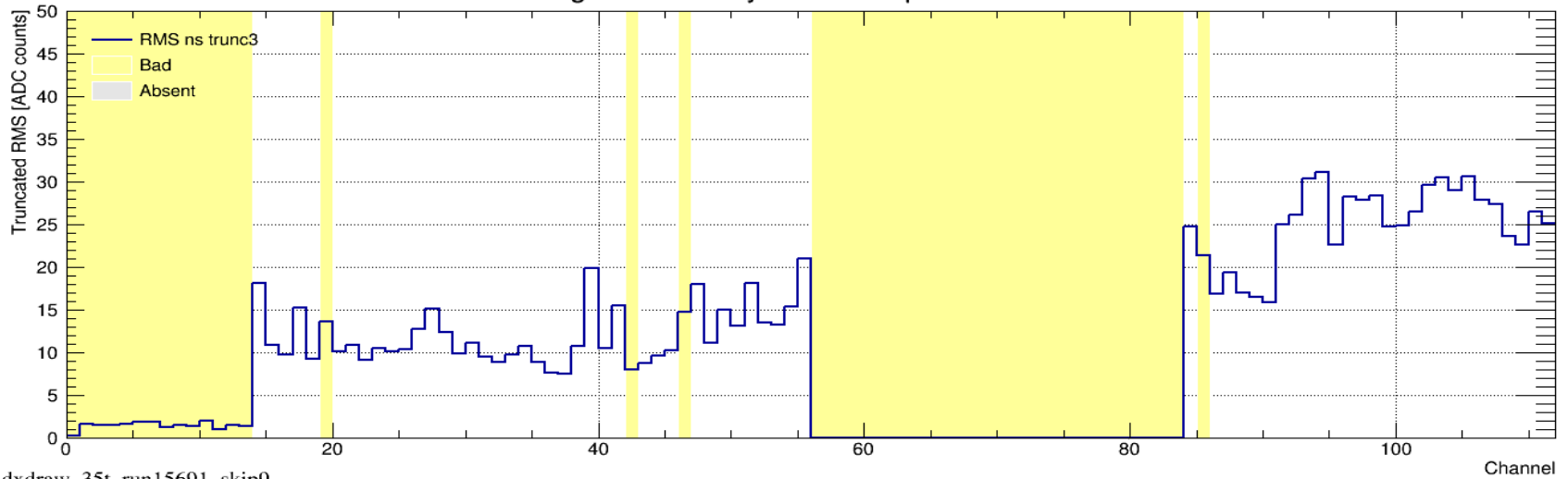
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

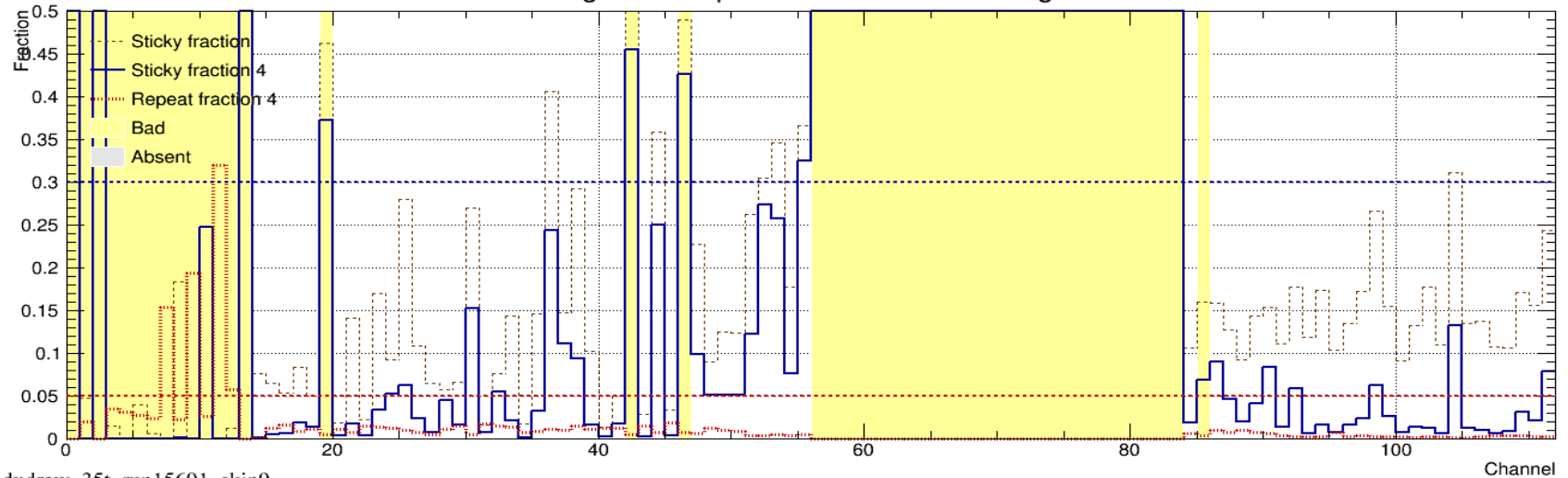
# APA 3z1 run 15691

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run15691\_skip9

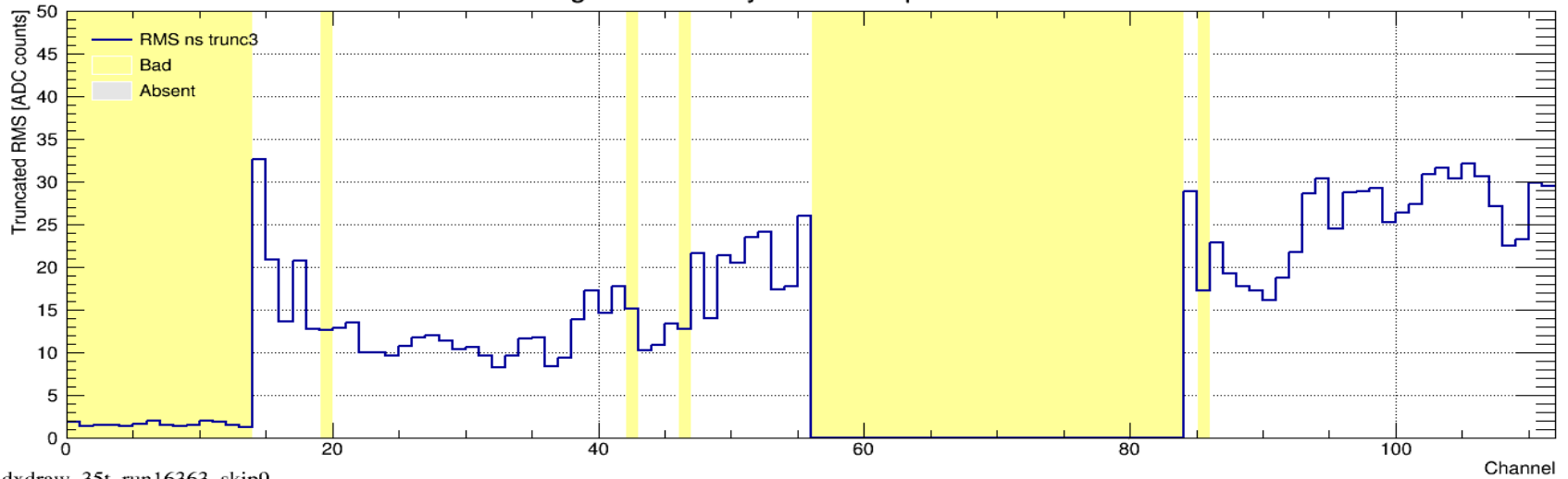
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

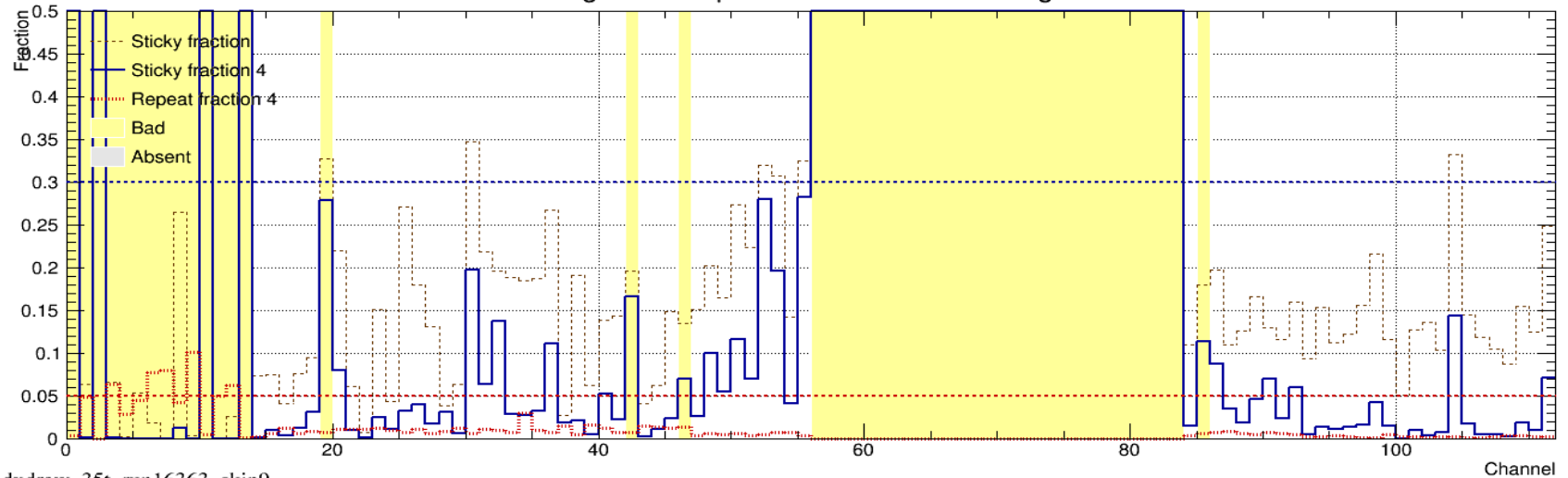
# APA 3z1 run 16363

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run16363\_skip9

Raw signals for apa3z1 event 10 stuck range 4

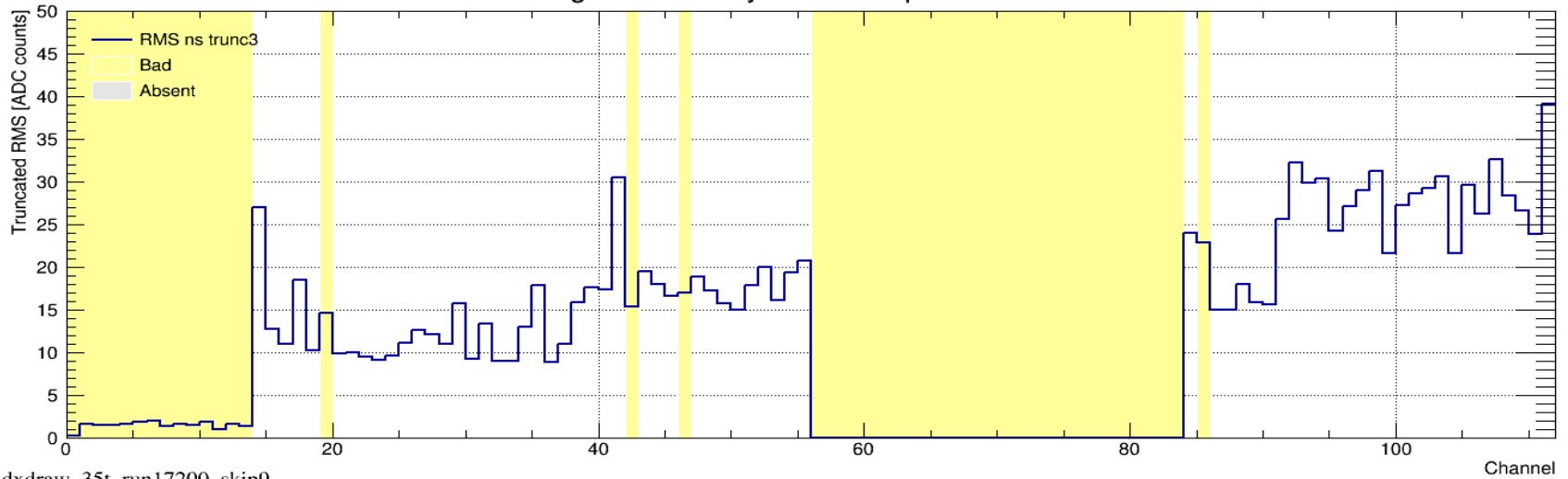


dxdraw\_35t\_run16363\_skip9



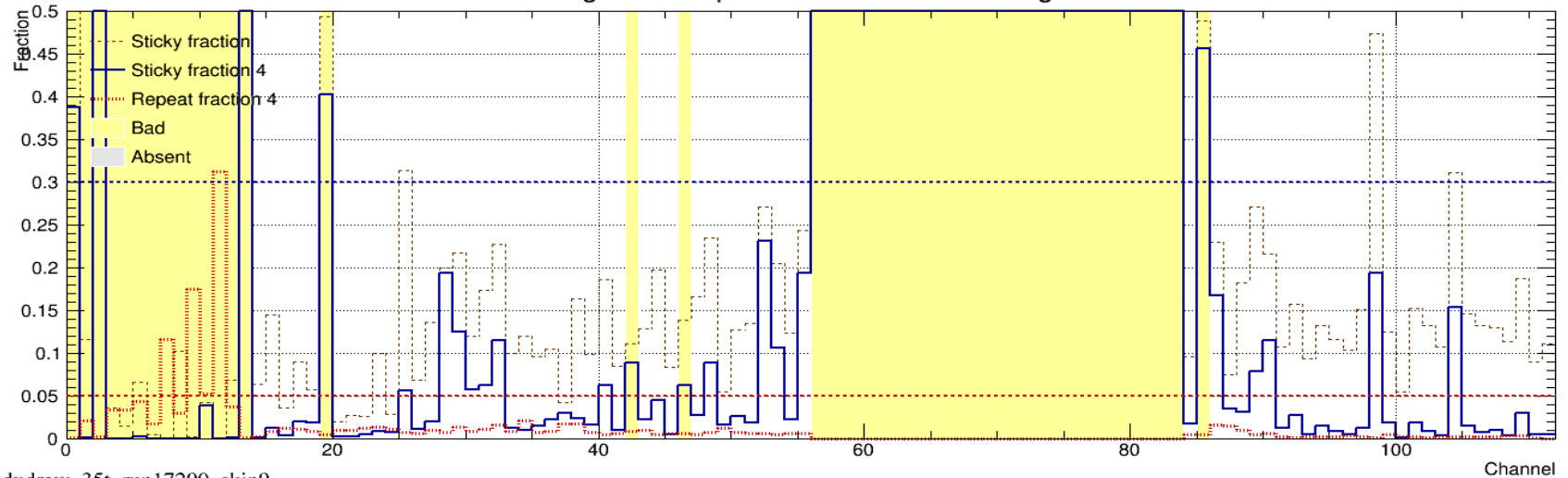
# APA 3z1 run 17200

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run17200\_skip9

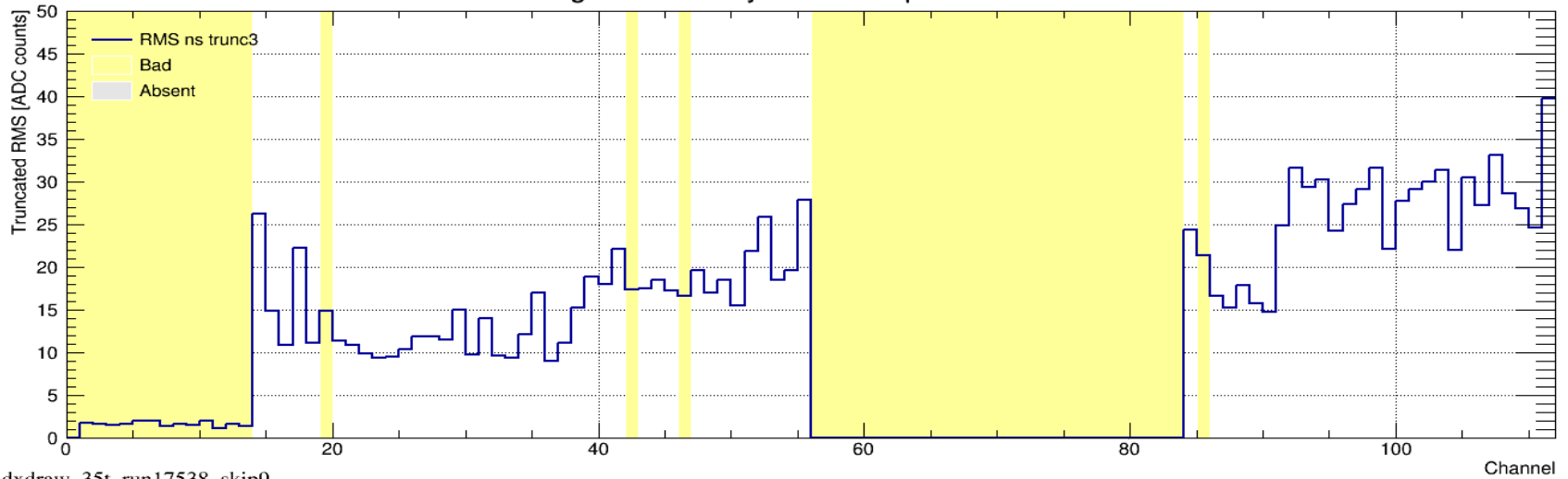
Raw signals for apa3z1 event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

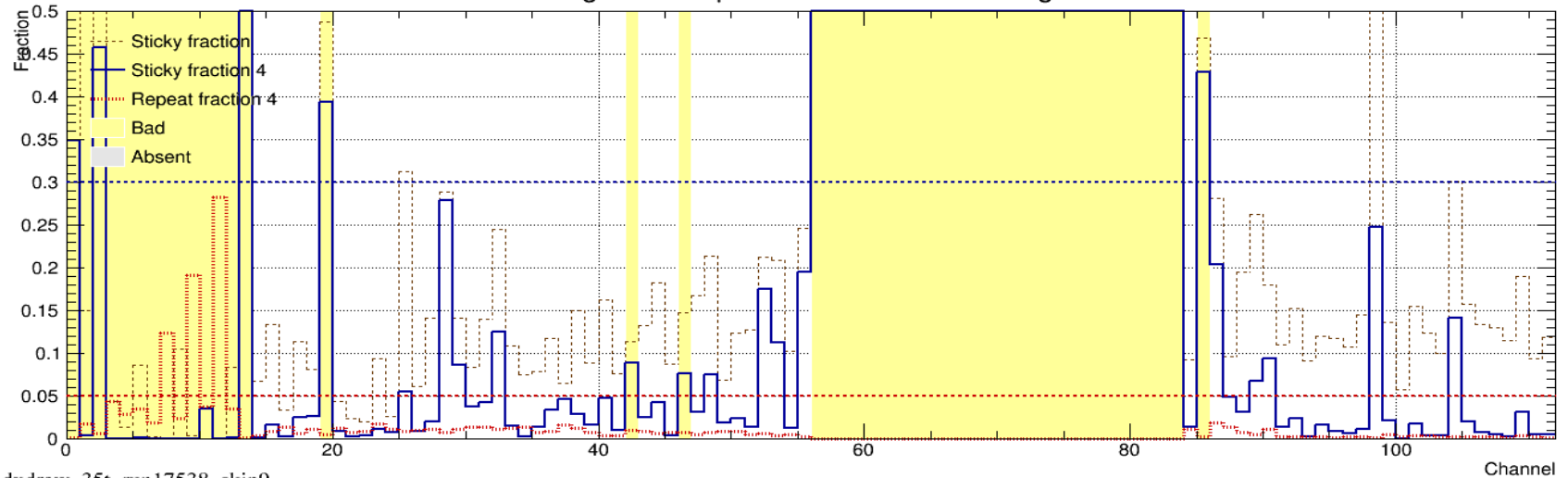
# APA 3z1 run 17538 (last)

Raw signal not-sticky RMS for apa3z1 event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa3z1 event 10 stuck range 4

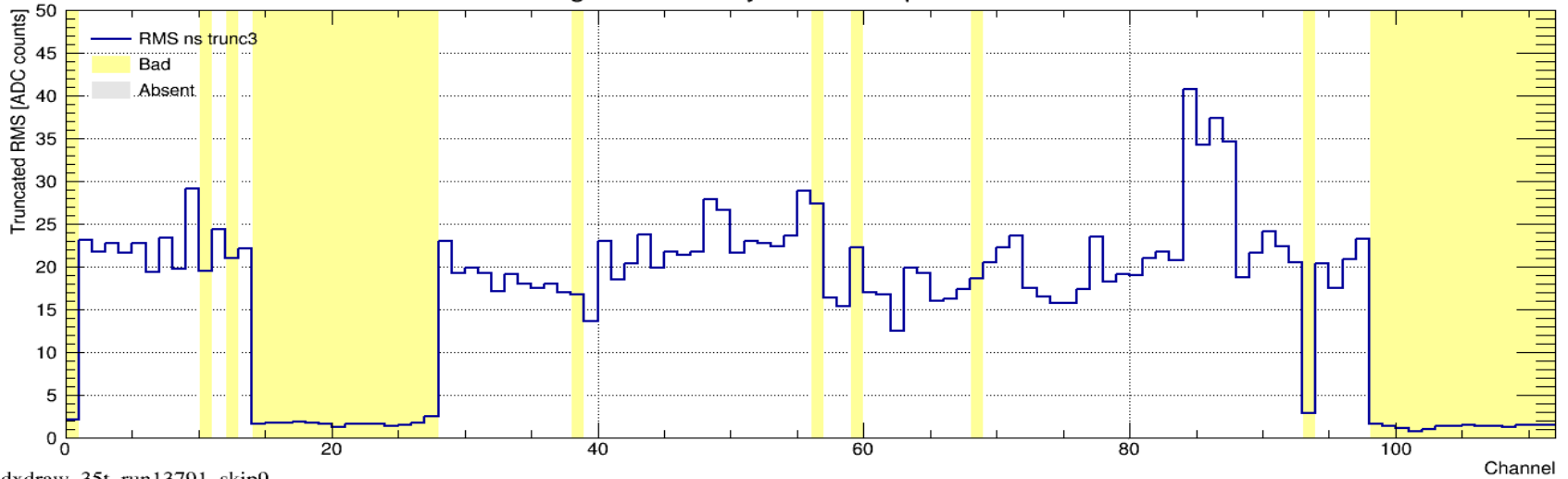


dxdraw\_35t\_run17538\_skip9

# APA 3z2

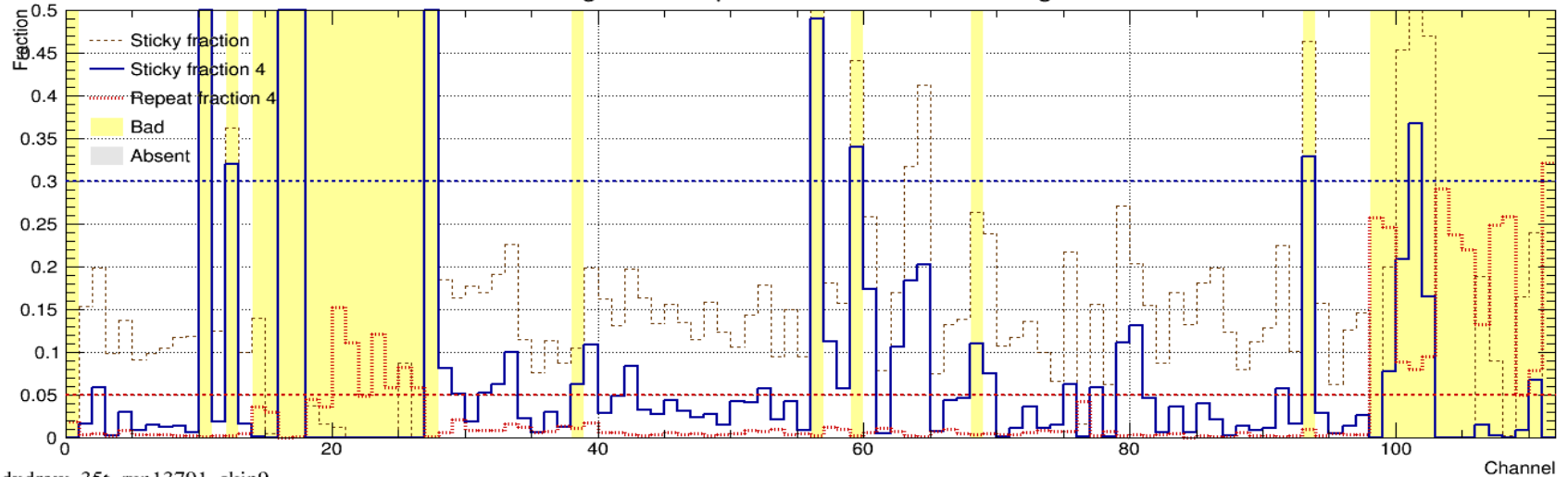
# APA 3z2 run 13791 (first)

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run13791\_skip9

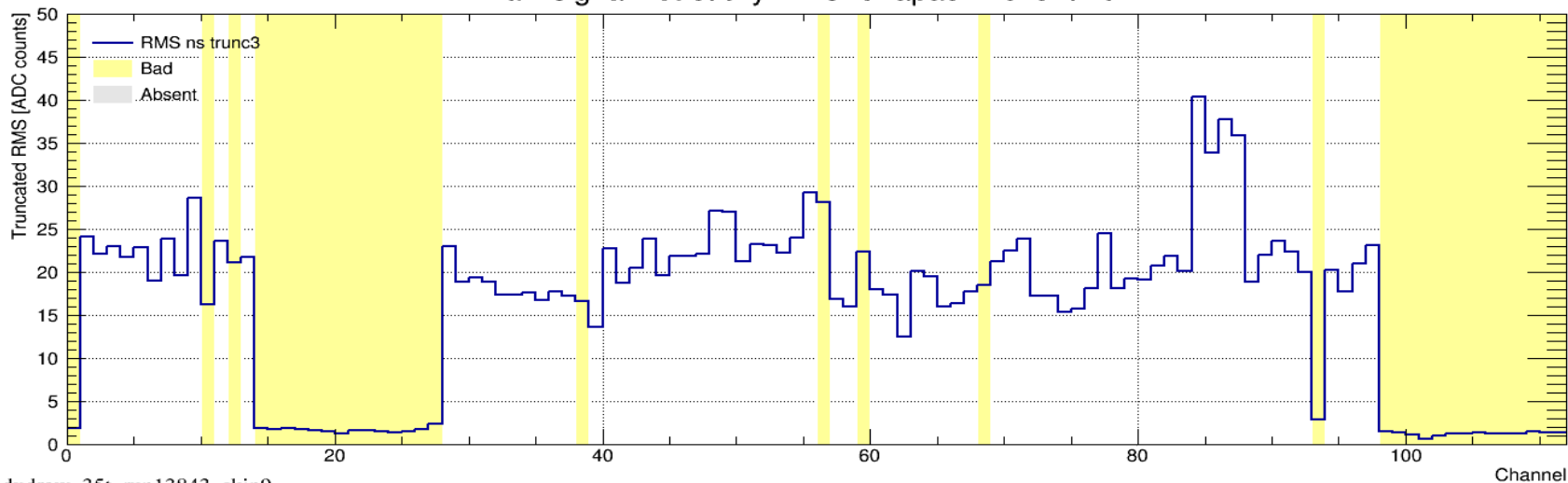
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run13791\_skip9

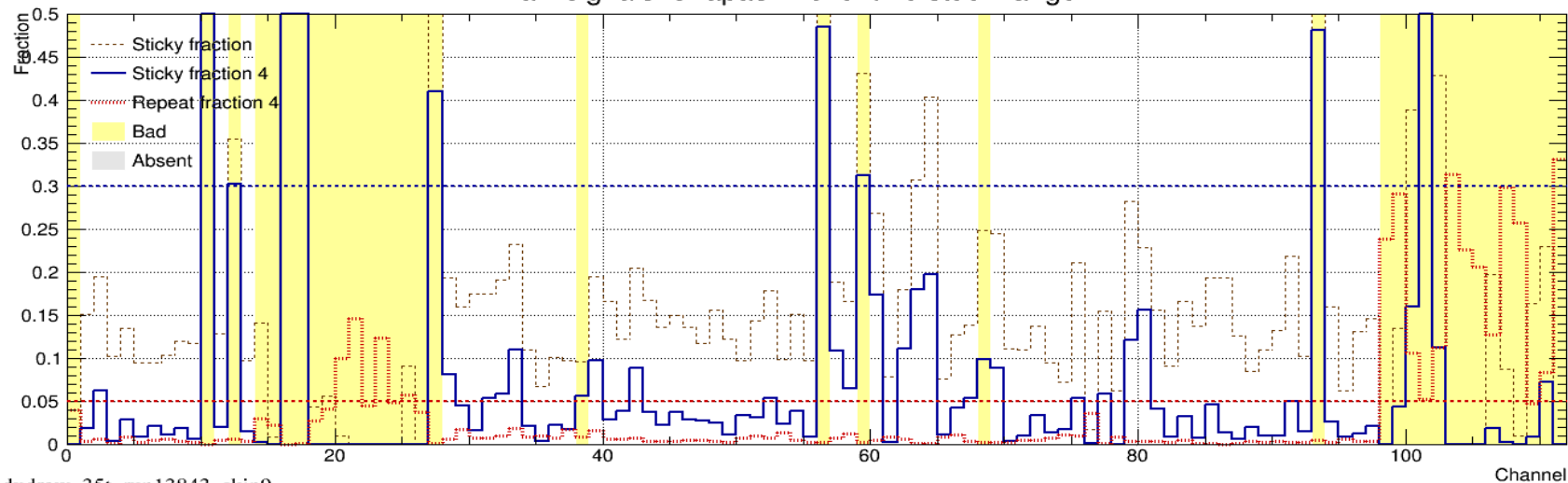
# APA 3z2 run 13843

## Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run13843\_skip9

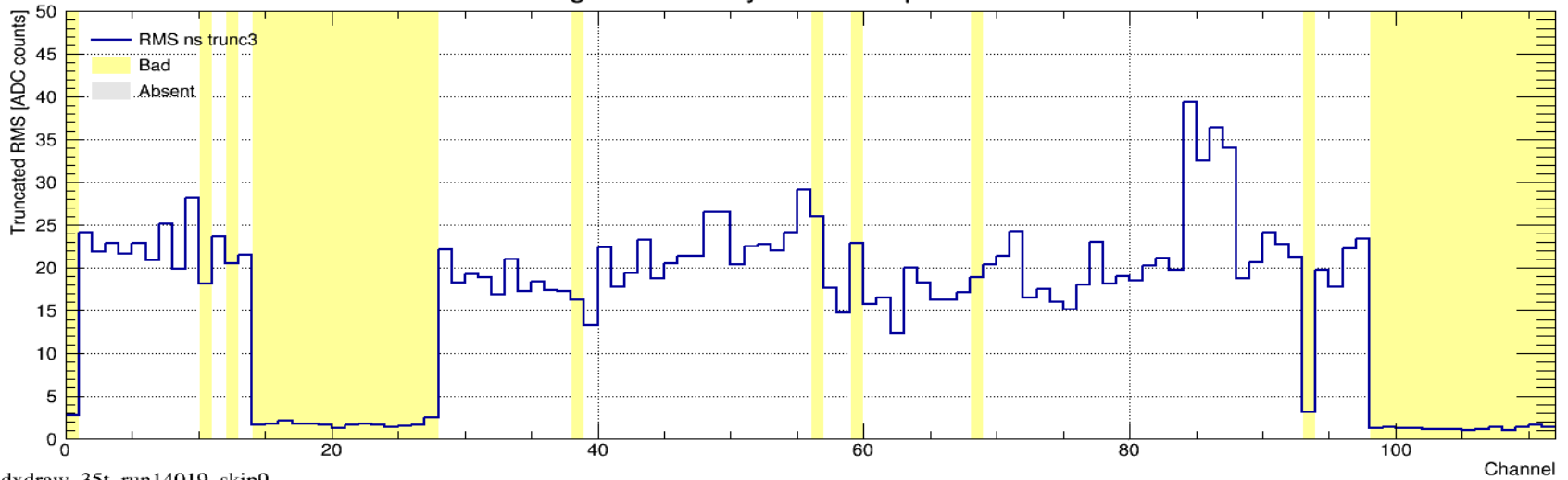
## Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run13843\_skip9

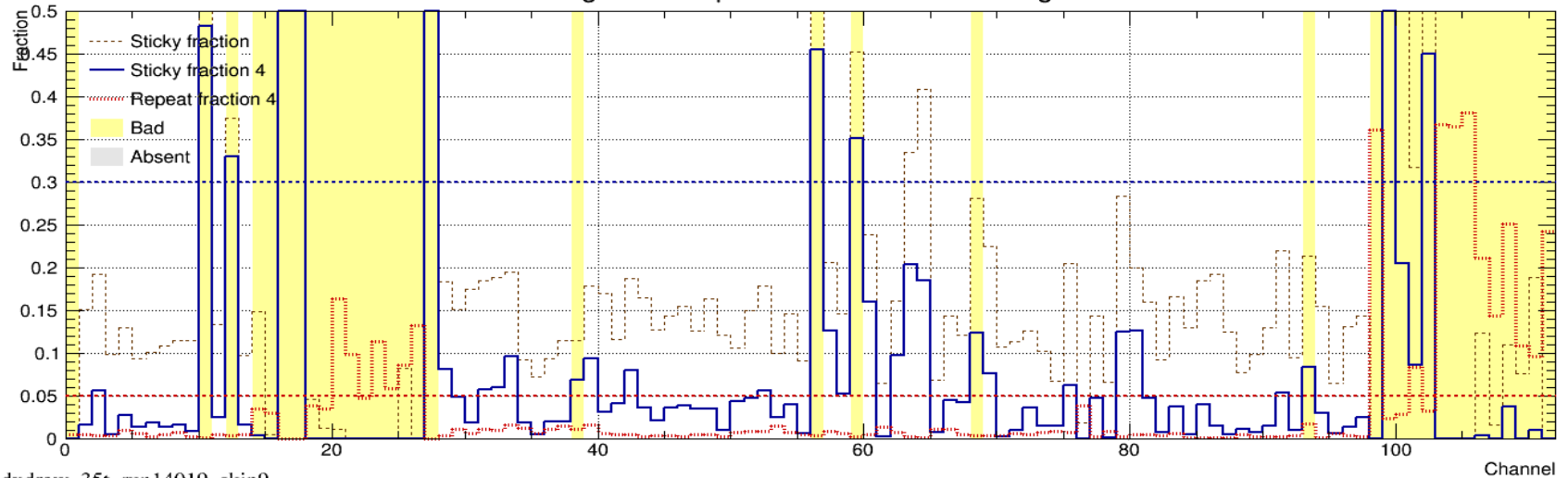
# APA 3z2 run 14019

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run14019\_skip9

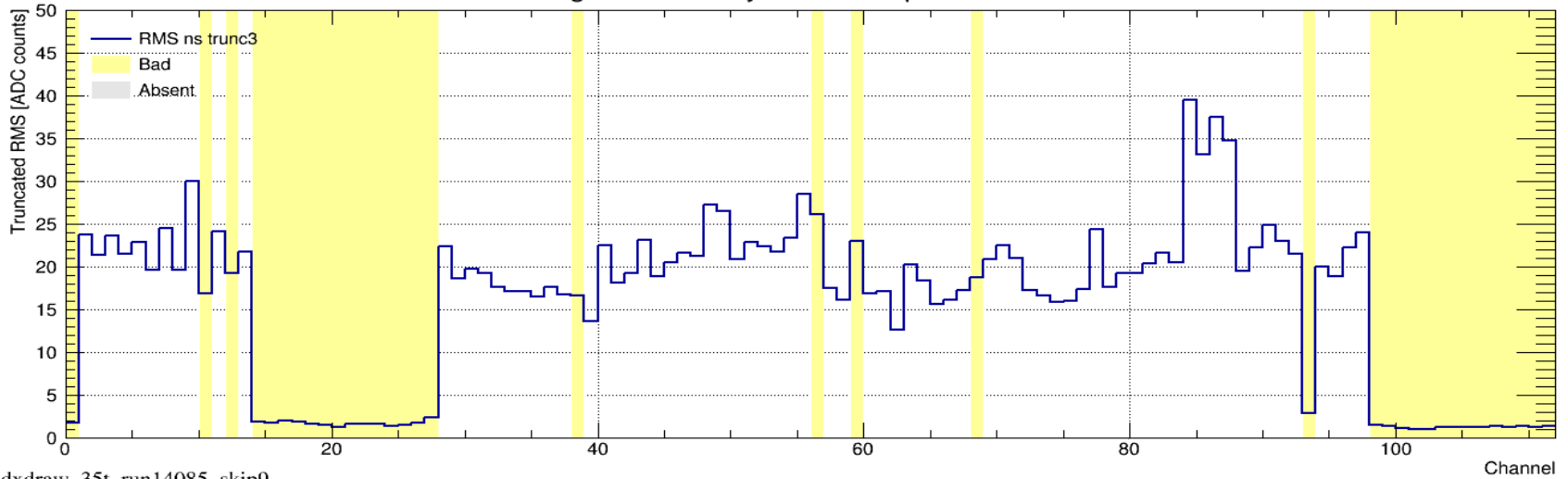
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run14019\_skip9

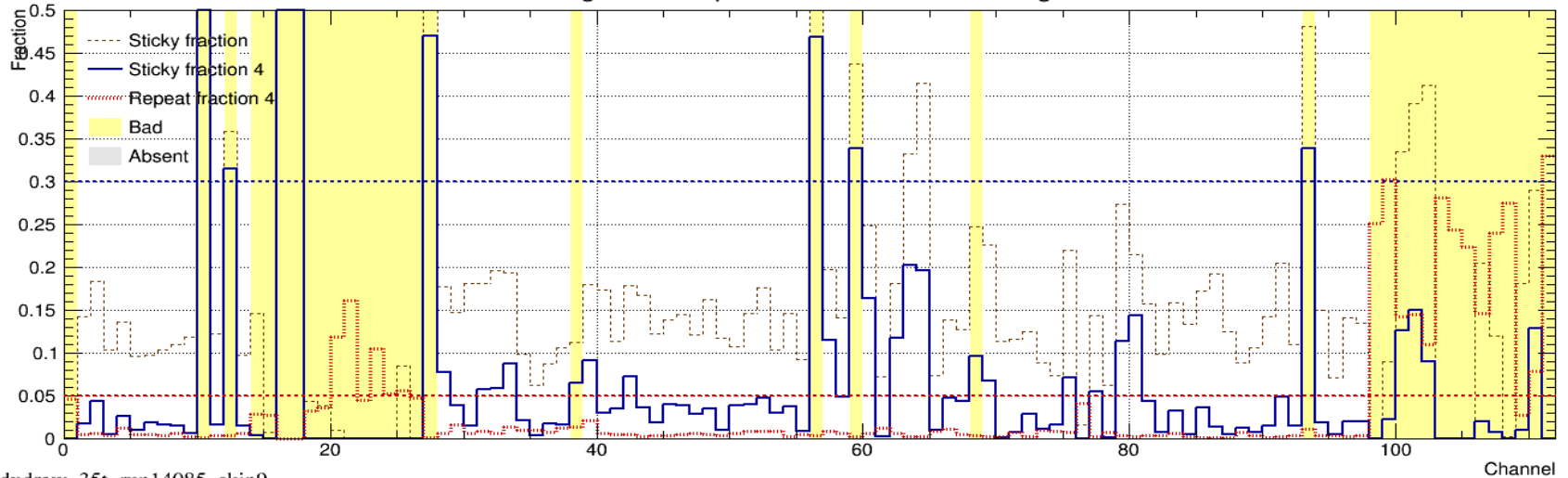
# APA 3z2 run 14085

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run14085\_skip9

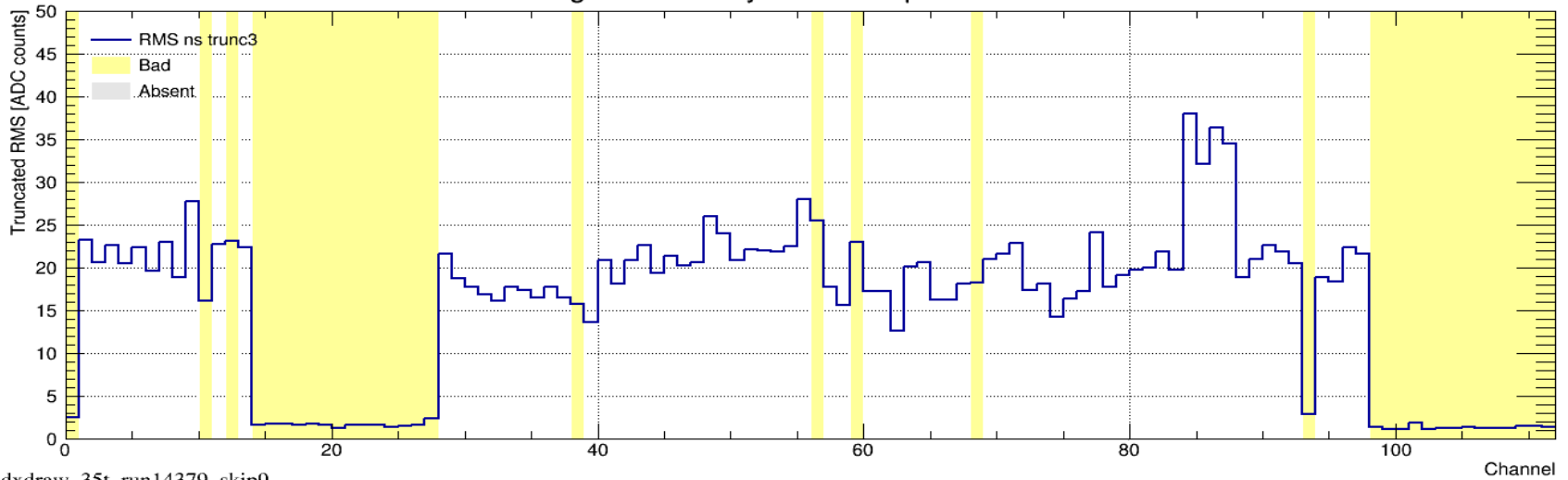
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run14085\_skip9

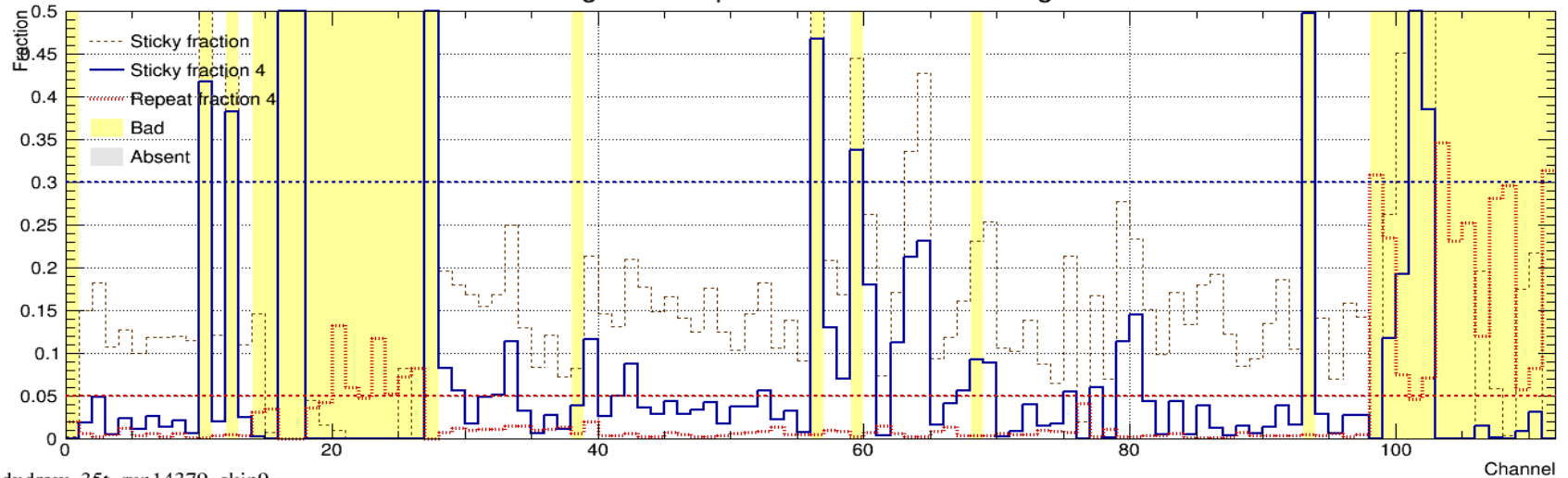
# APA 3z2 run 14379

## Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run14379\_skip9

## Raw signals for apa3z2 event 10 stuck range 4

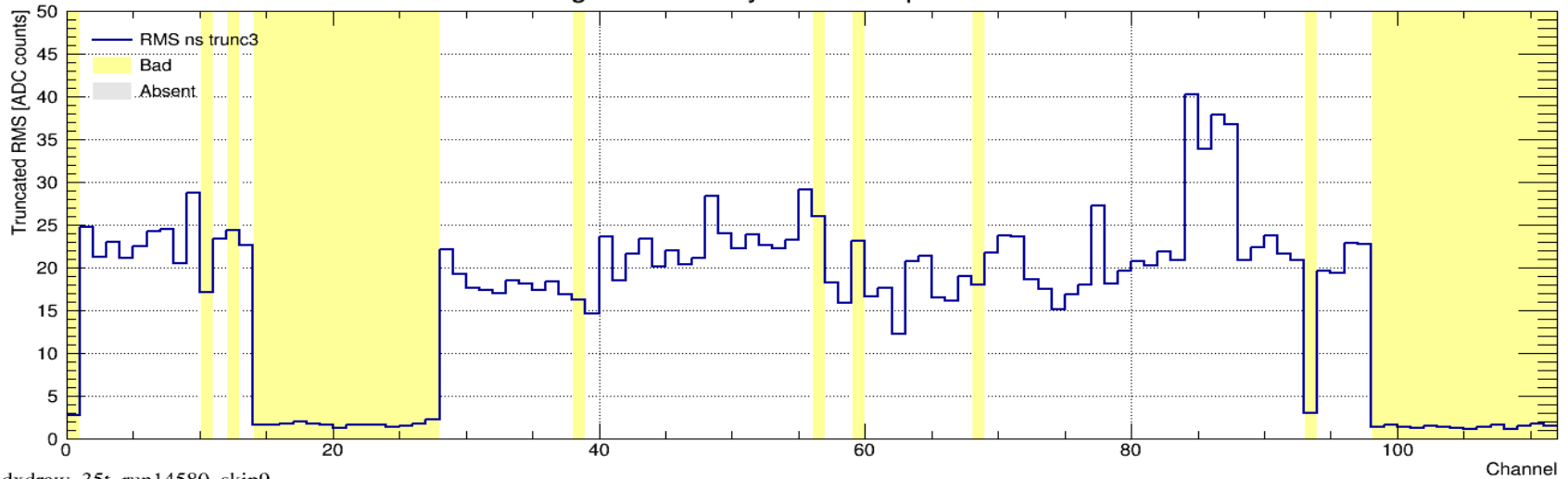


dxdraw\_35t\_run14379\_skip9



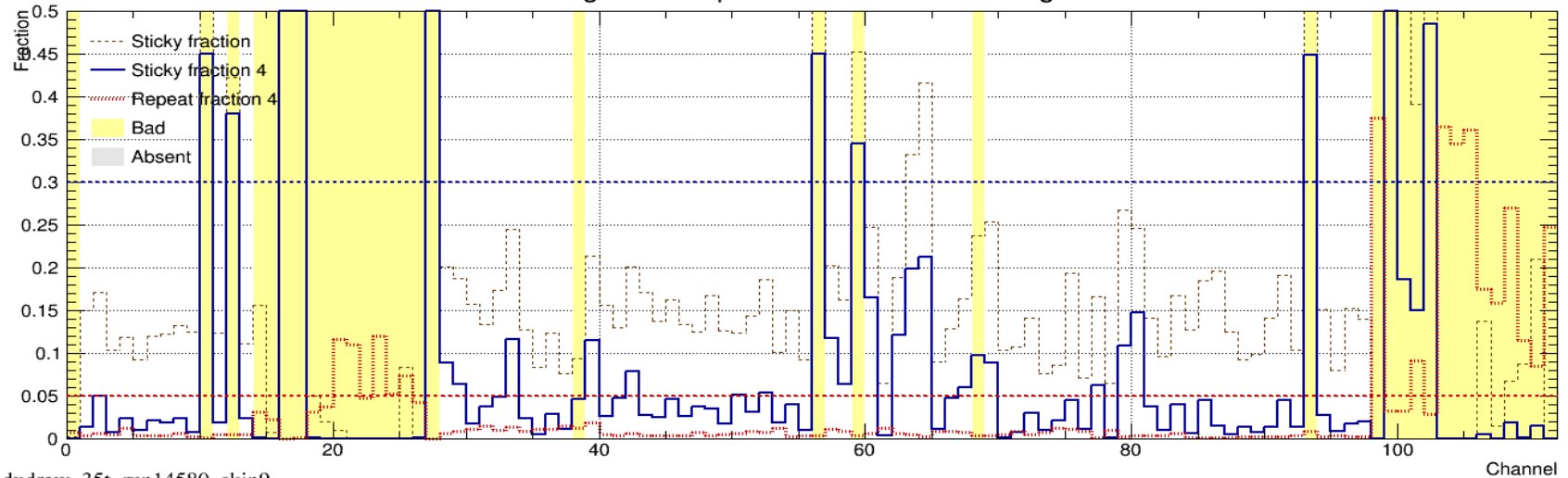
# APA 3z2 run 14580 (last before power failure)

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run14580\_skip9

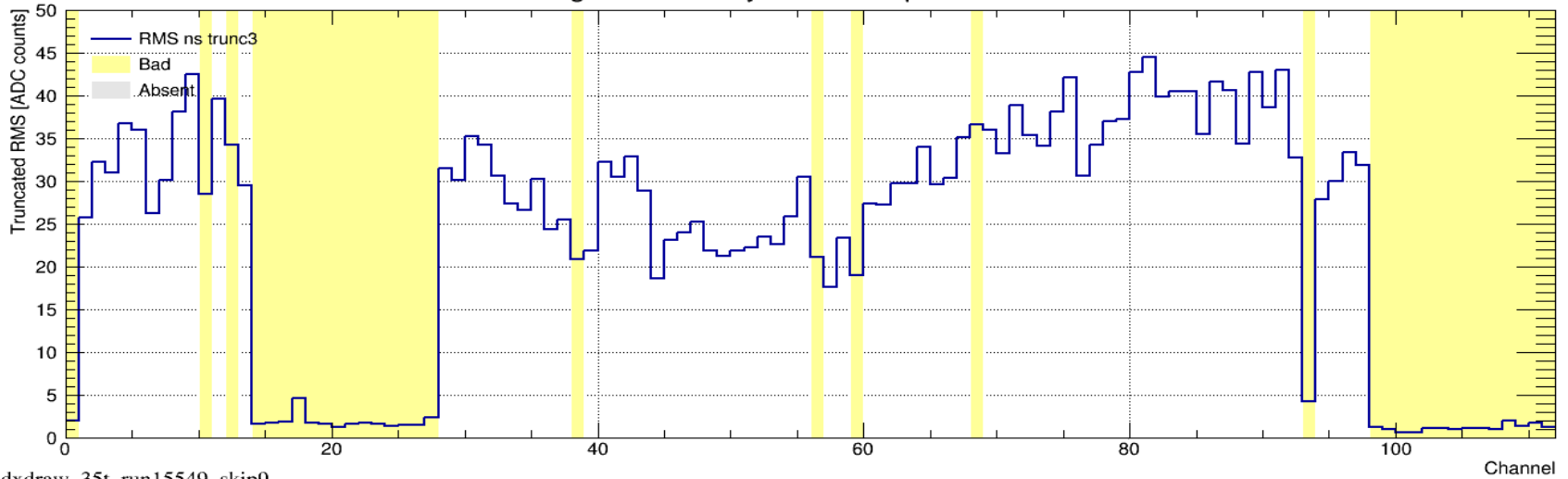
Raw signals for apa3z2 event 10 stuck range 4



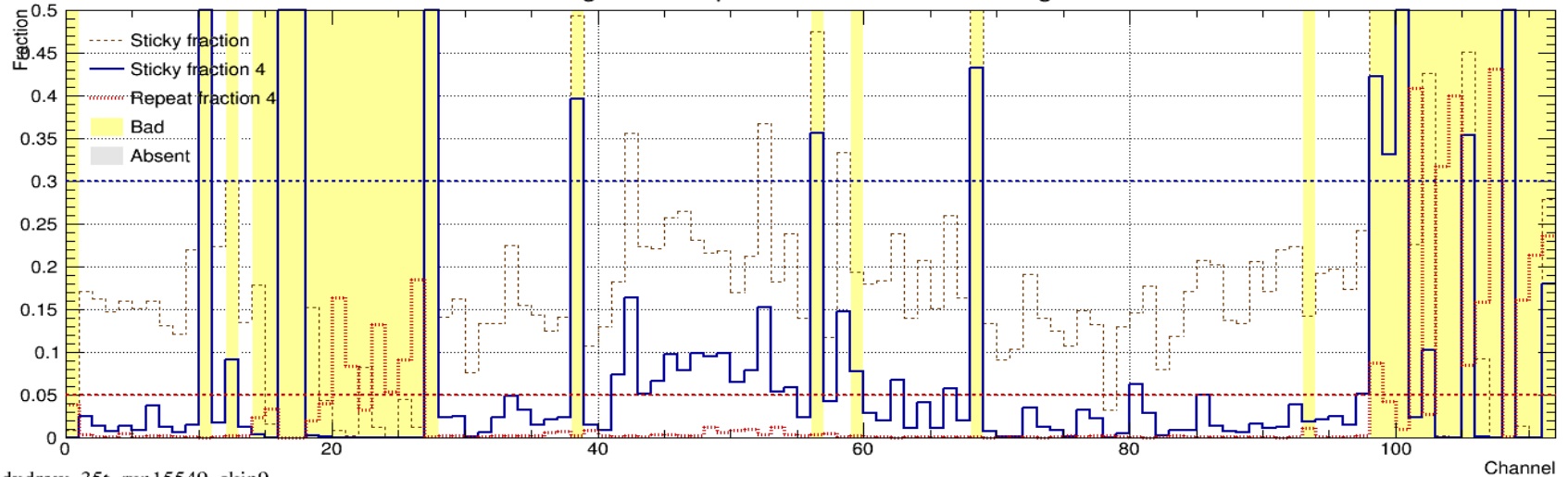
dxdraw\_35t\_run14580\_skip9

# APA 3z2 run 15549 (first after power failure)

Raw signal not-sticky RMS for apa3z2 event 10

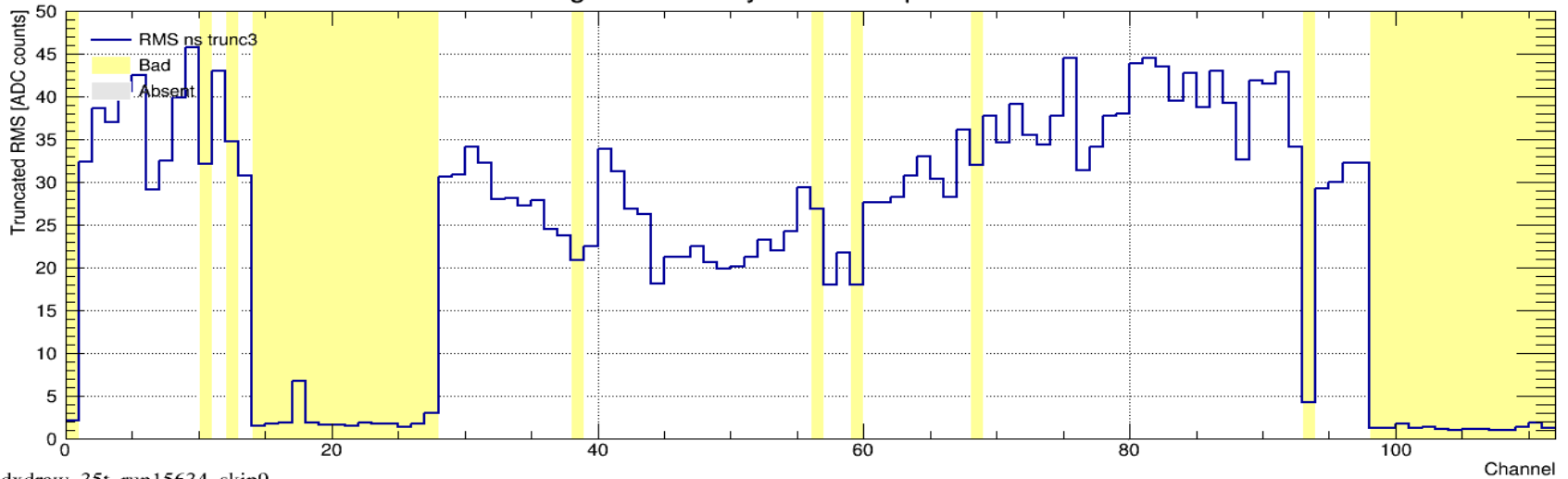


Raw signals for apa3z2 event 10 stuck range 4



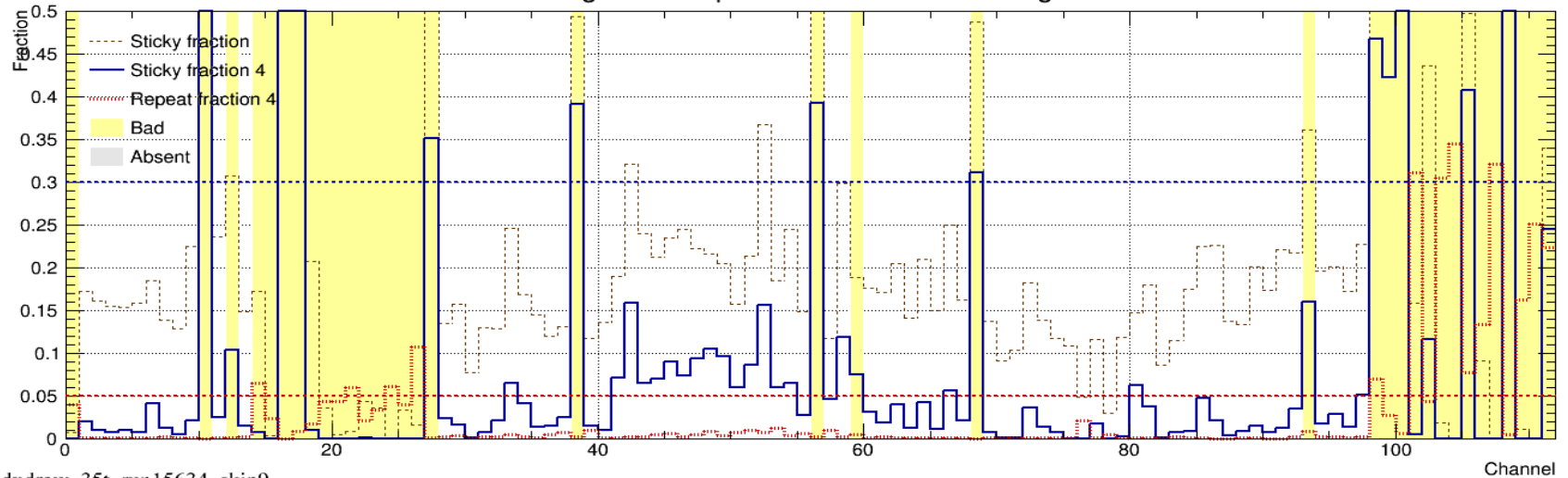
# APA 3z2 run 15634

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run15634\_skip9

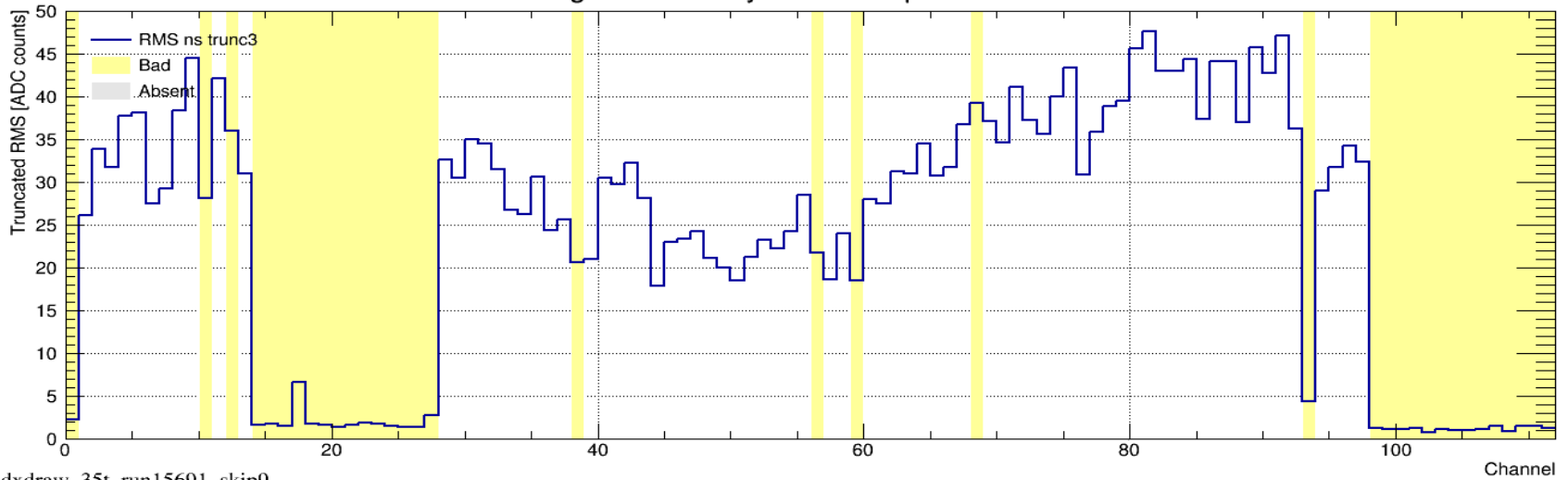
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run15634\_skip9

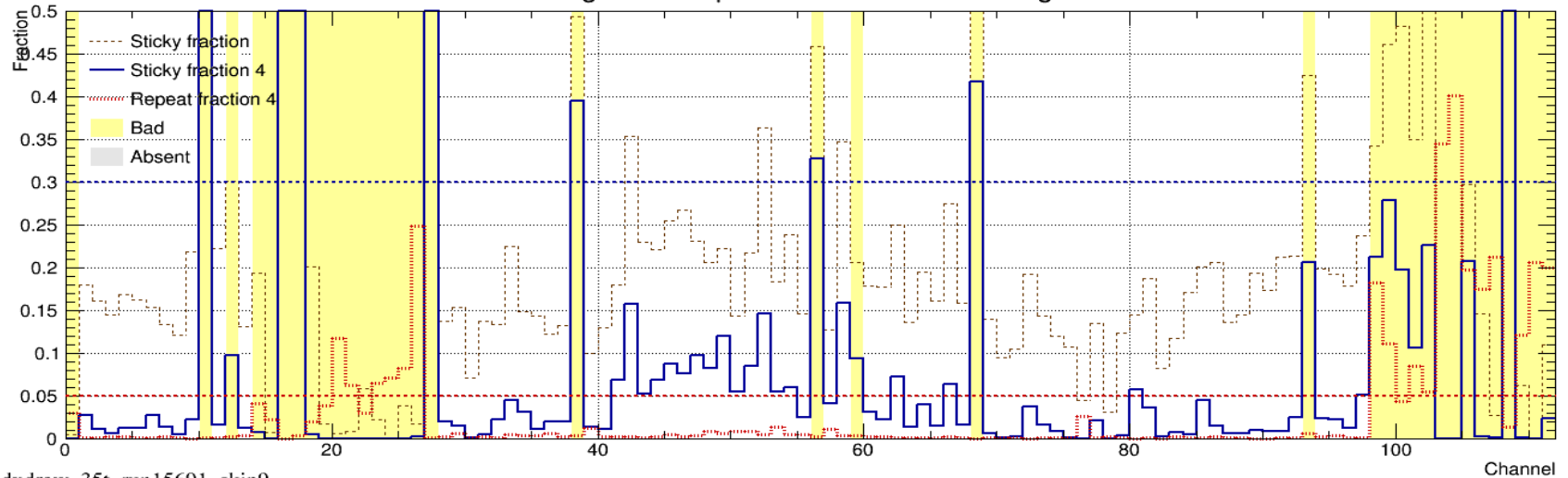
# APA 3z2 run 15691

## Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run15691\_skip9

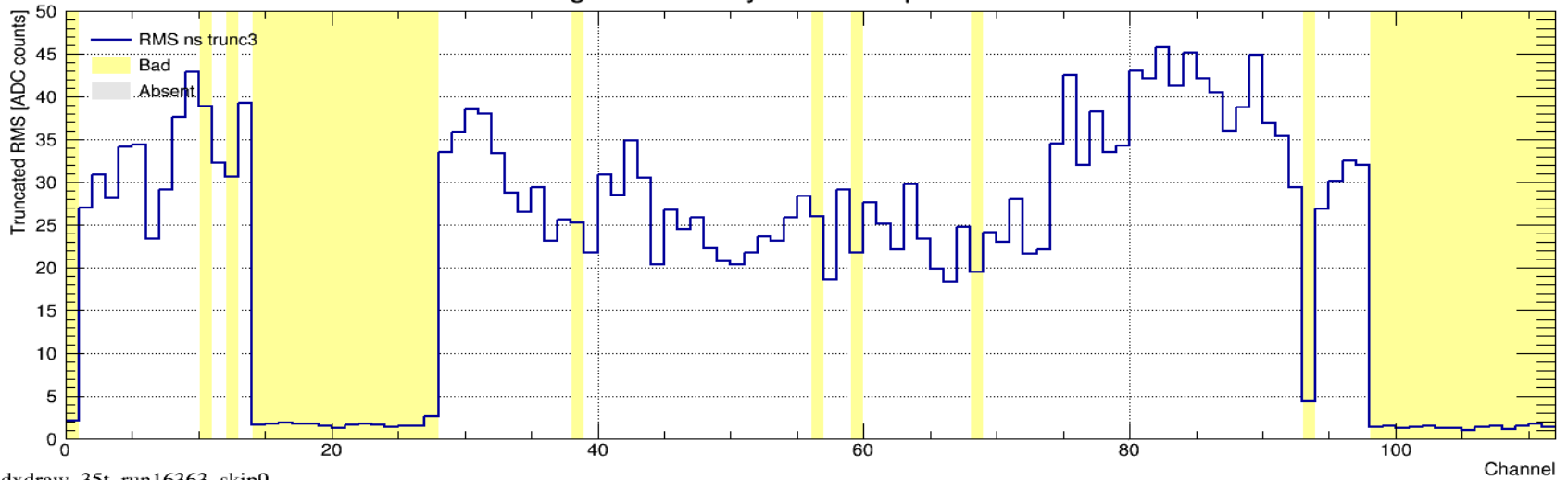
## Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run15691\_skip9

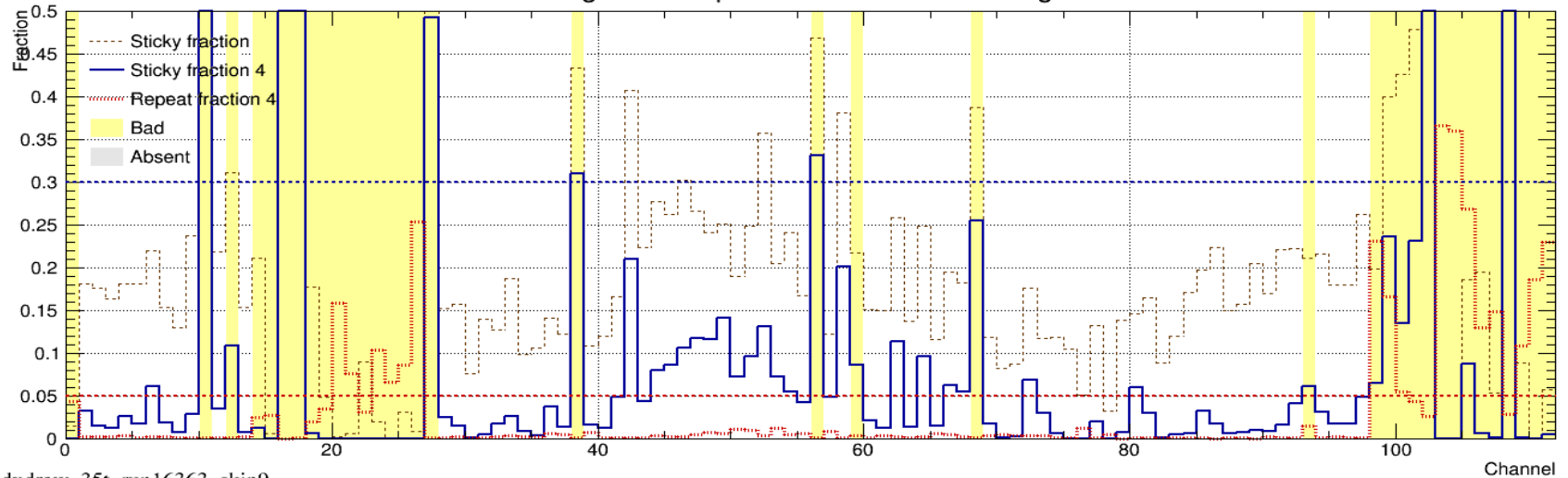
# APA 3z2 run 16363

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run16363\_skip9

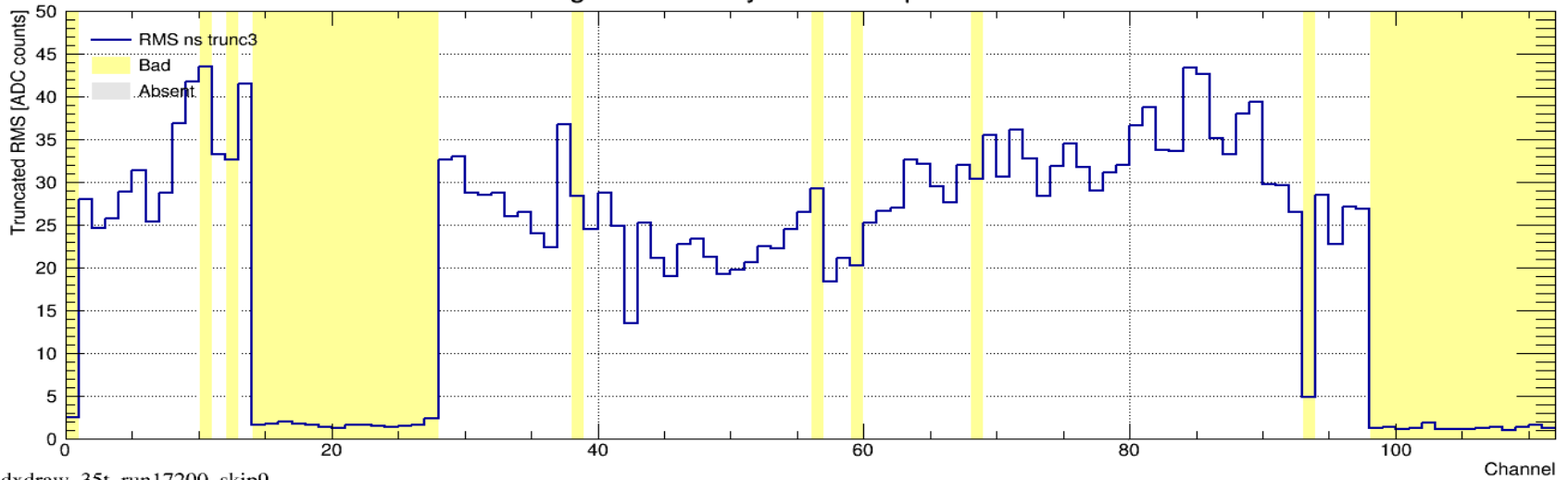
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run16363\_skip9

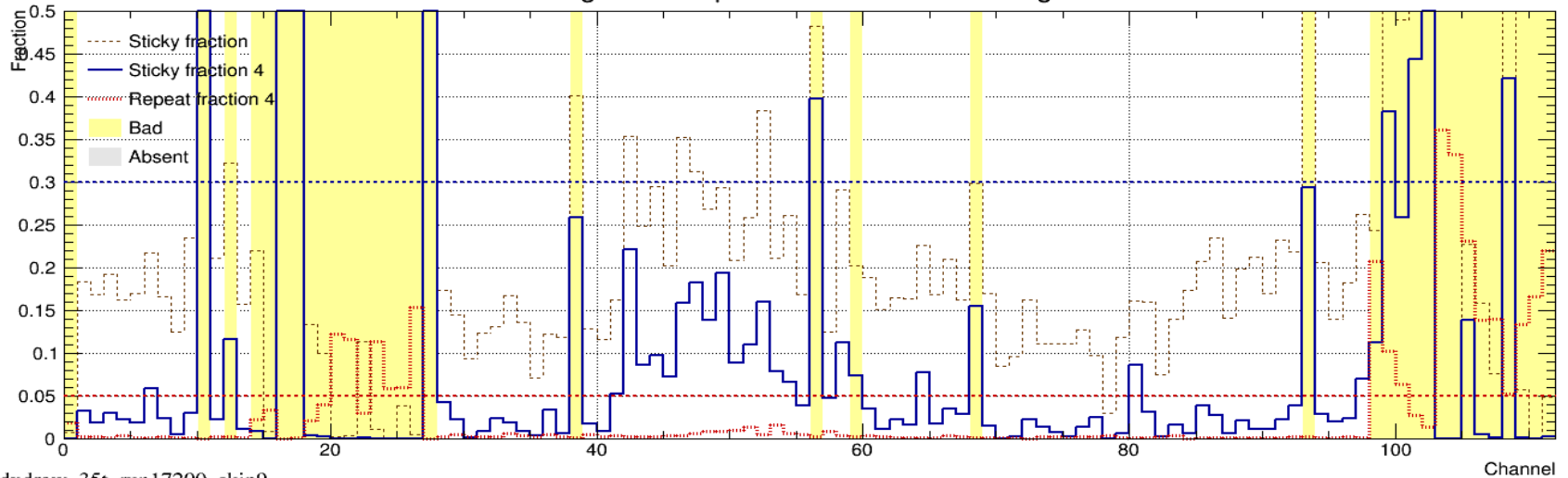
# APA 3z2 run 17200

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run17200\_skip9

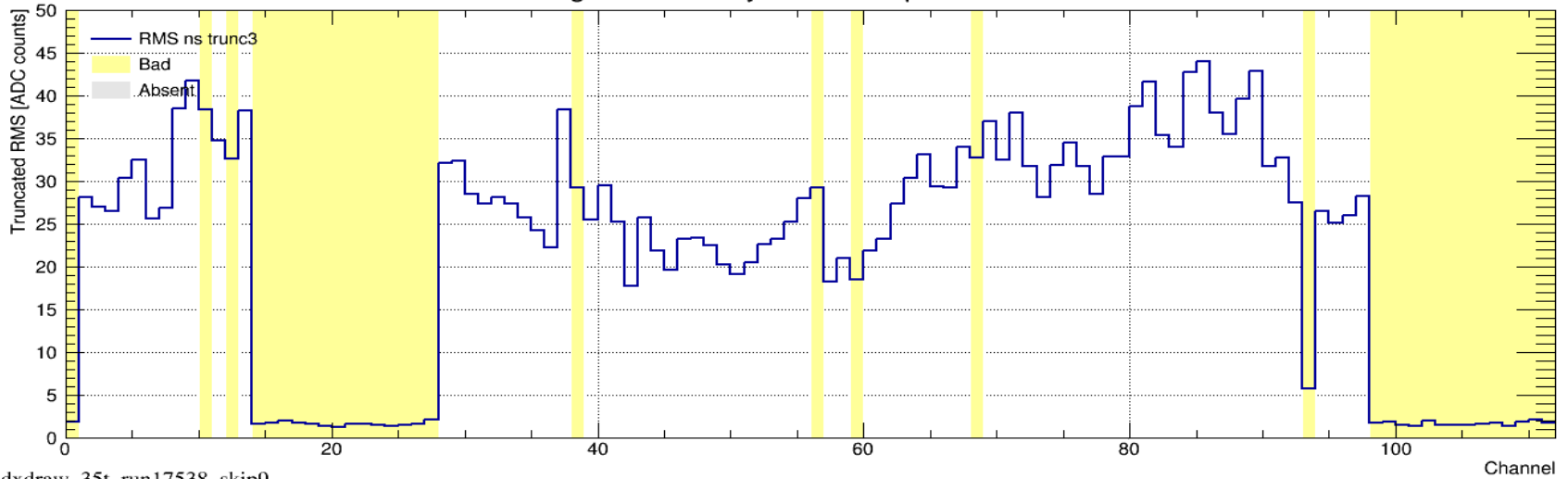
Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run17200\_skip9

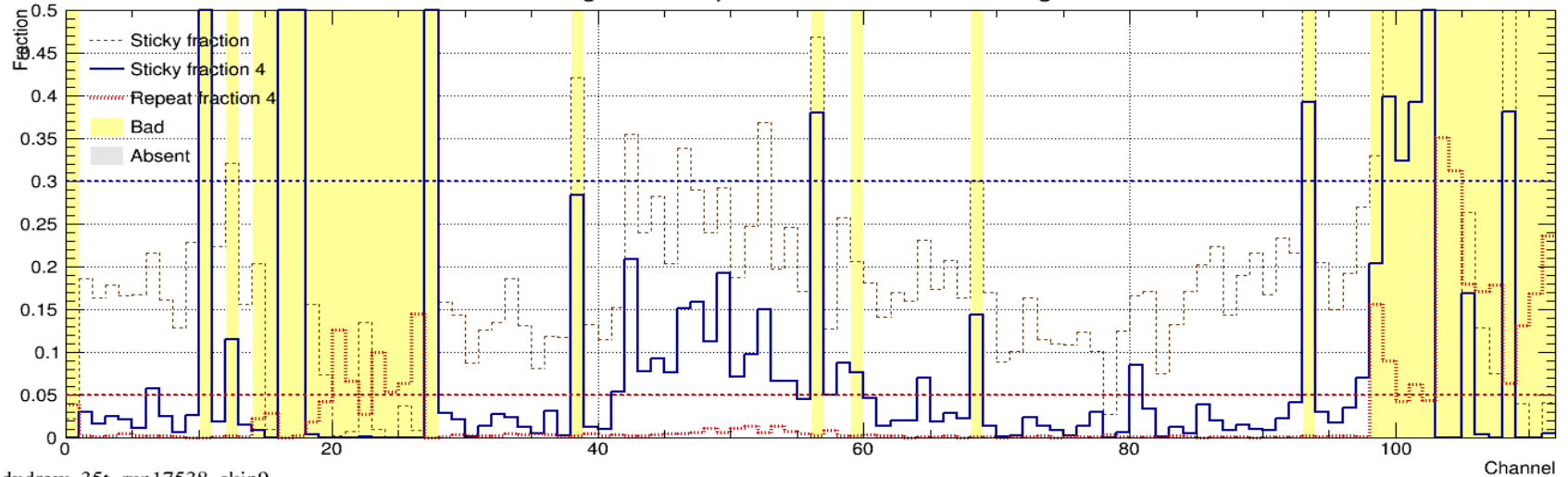
# APA 3z2 run 17538 (last)

Raw signal not-sticky RMS for apa3z2 event 10



dxdraw\_35t\_run17538\_skip9

Raw signals for apa3z2 event 10 stuck range 4



dxdraw\_35t\_run17538\_skip9

# Appendix 2

Following slides have the mean distributions

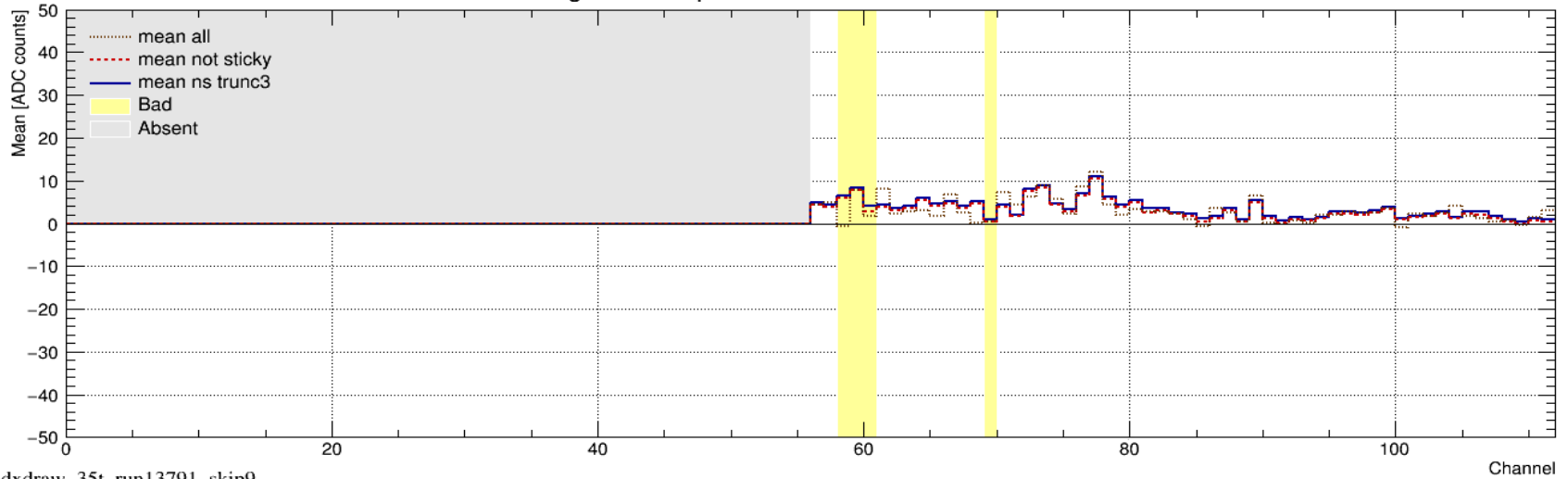
- For all channels
- For 12 reference runs



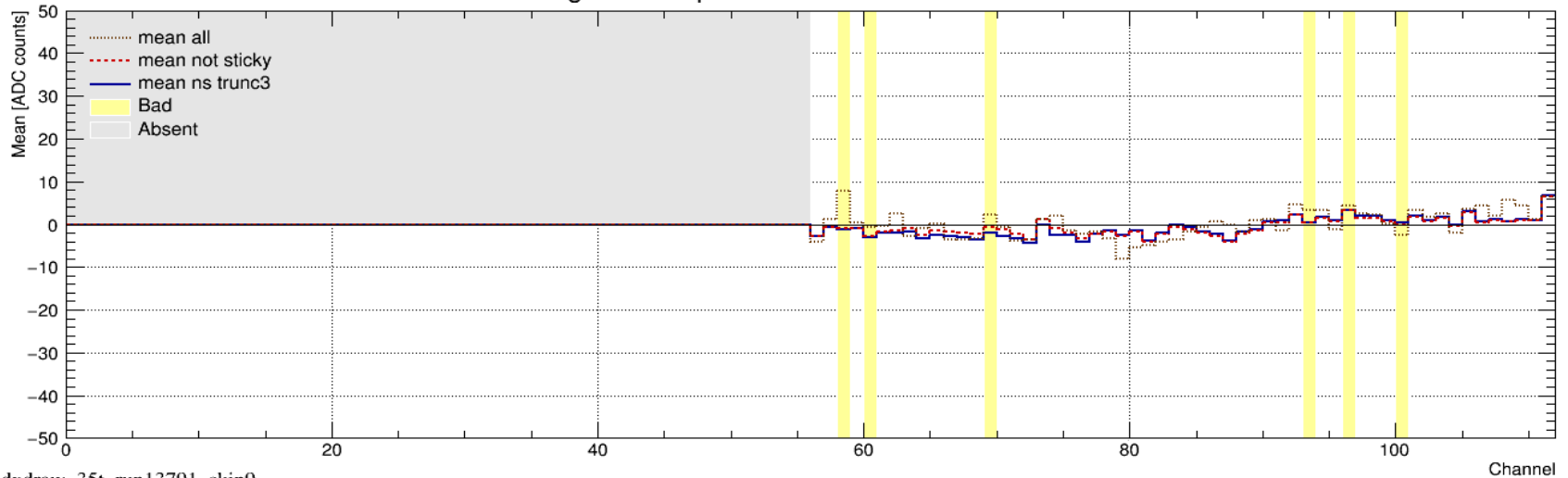
# APAs 0z1 and 0z2

# APAs 0z1, 0z2 run 13791 (first)

Raw signals for apa0z1 event 10 mean ADC count

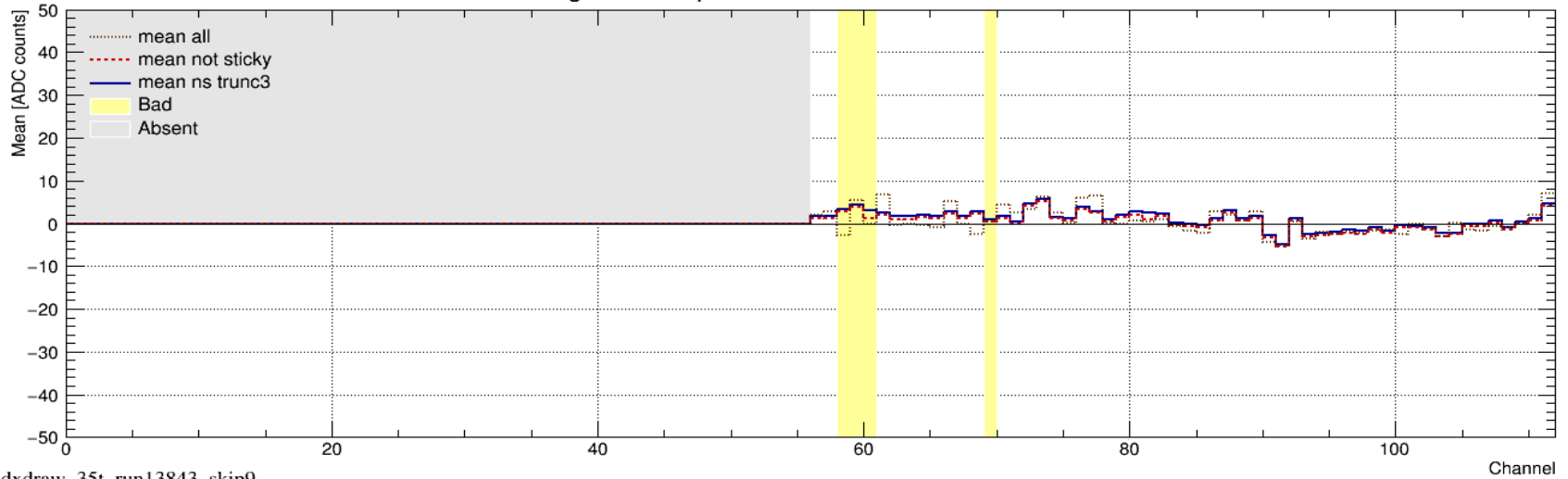


Raw signals for apa0z2 event 10 mean ADC count

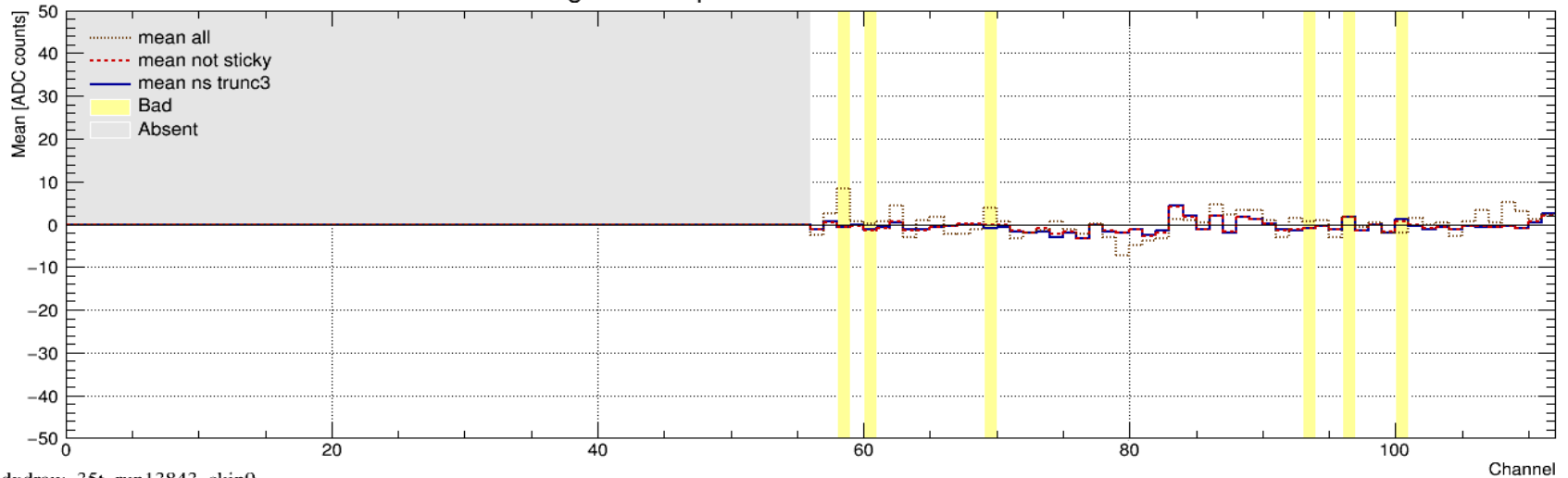


# APAs 0z1, 0z2 run 13843

Raw signals for apa0z1 event 10 mean ADC count

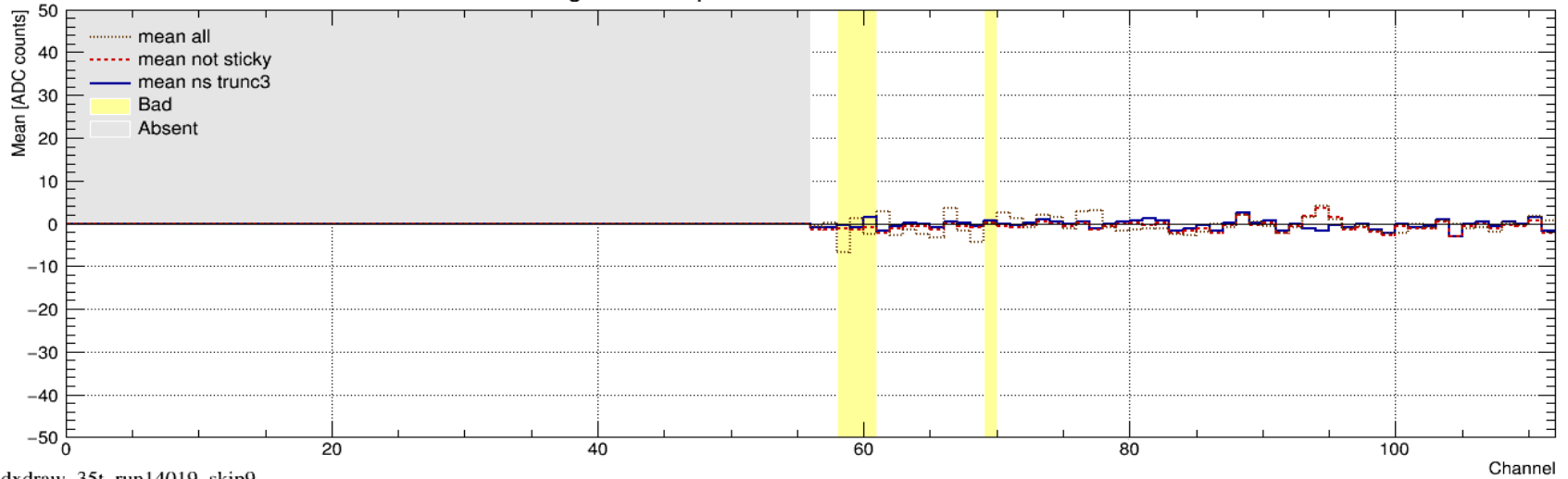


Raw signals for apa0z2 event 10 mean ADC count

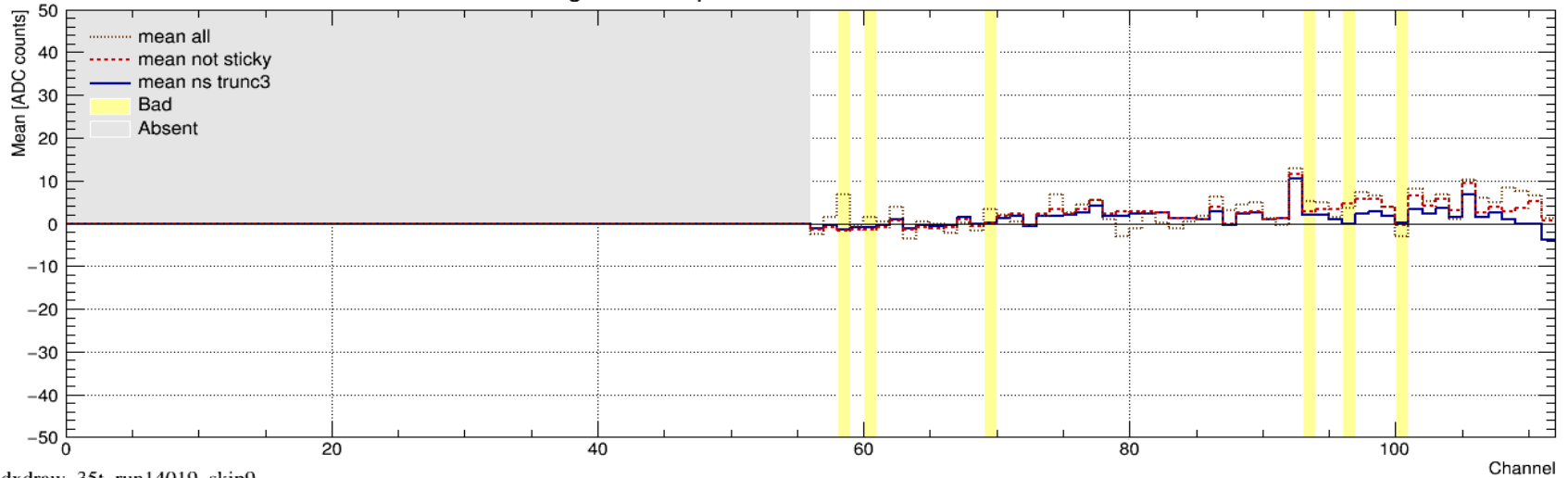


# APAs 0z1, 0z2 run 14019

Raw signals for apa0z1 event 10 mean ADC count

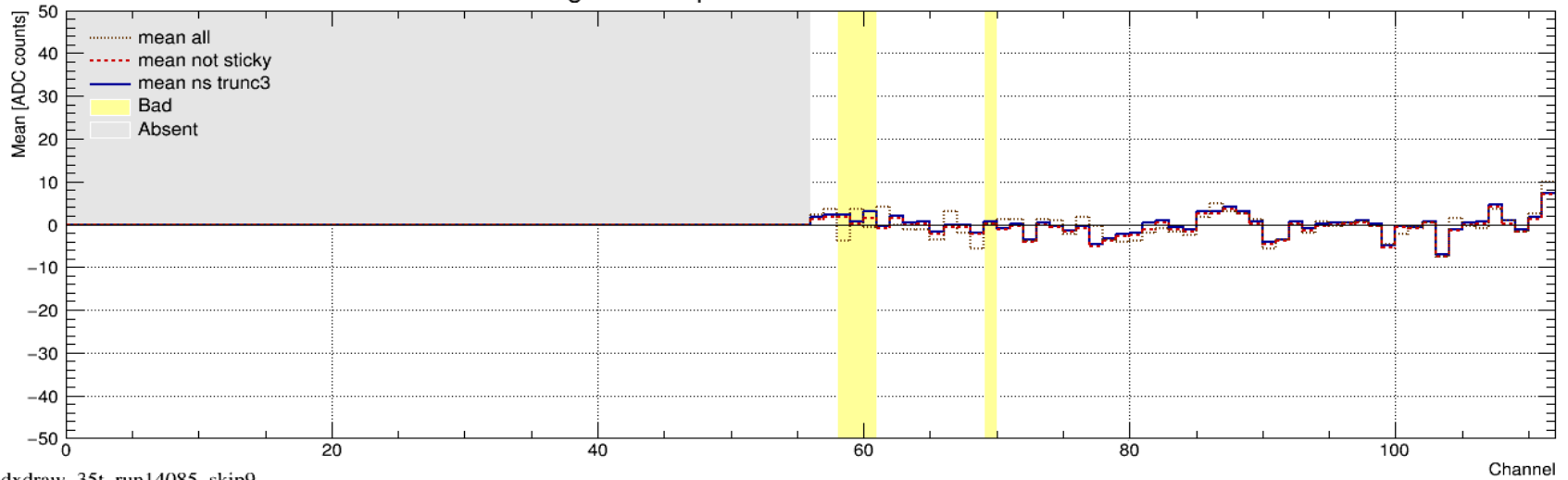


Raw signals for apa0z2 event 10 mean ADC count

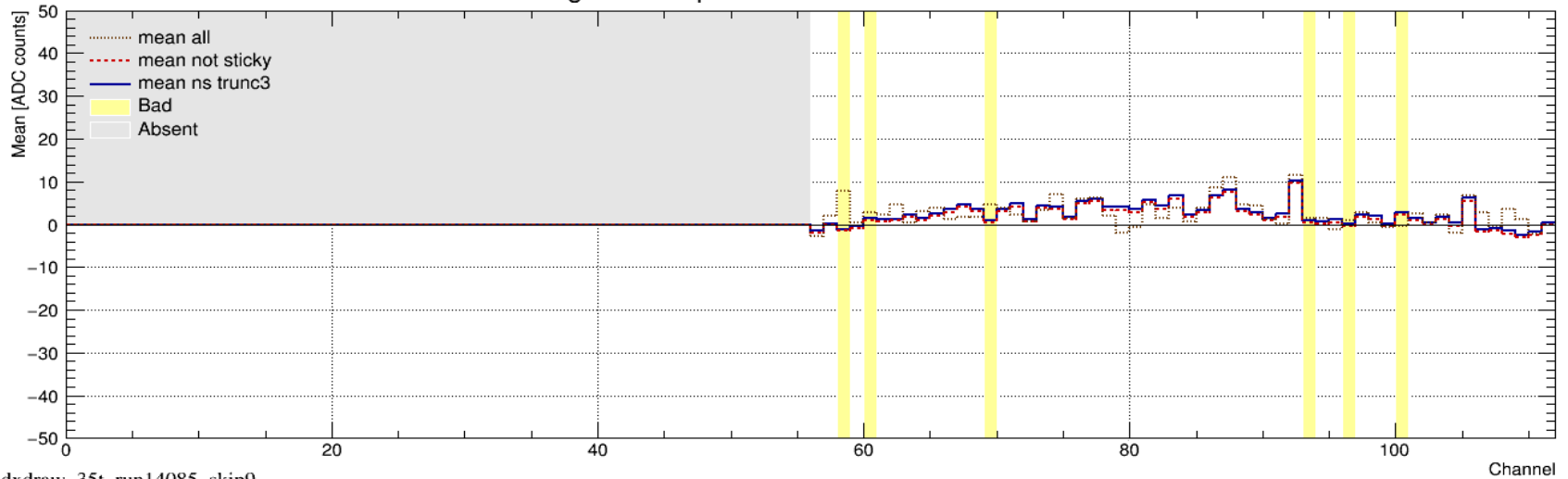


# APAs 0z1, 0z2 run 14085

Raw signals for apa0z1 event 10 mean ADC count

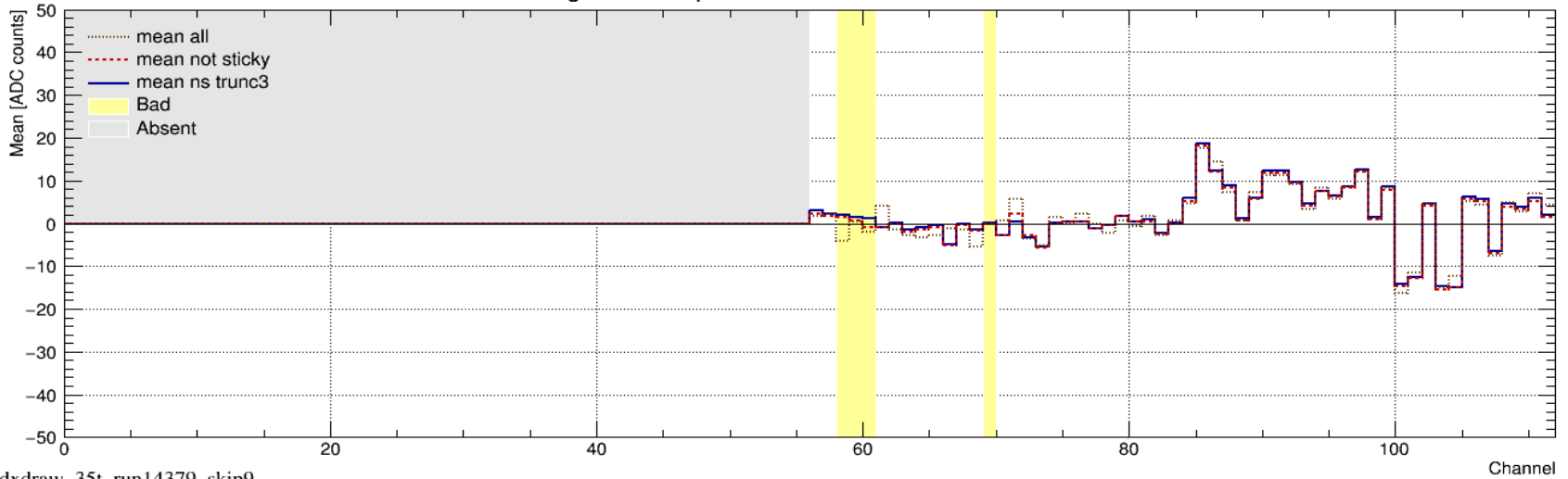


Raw signals for apa0z2 event 10 mean ADC count

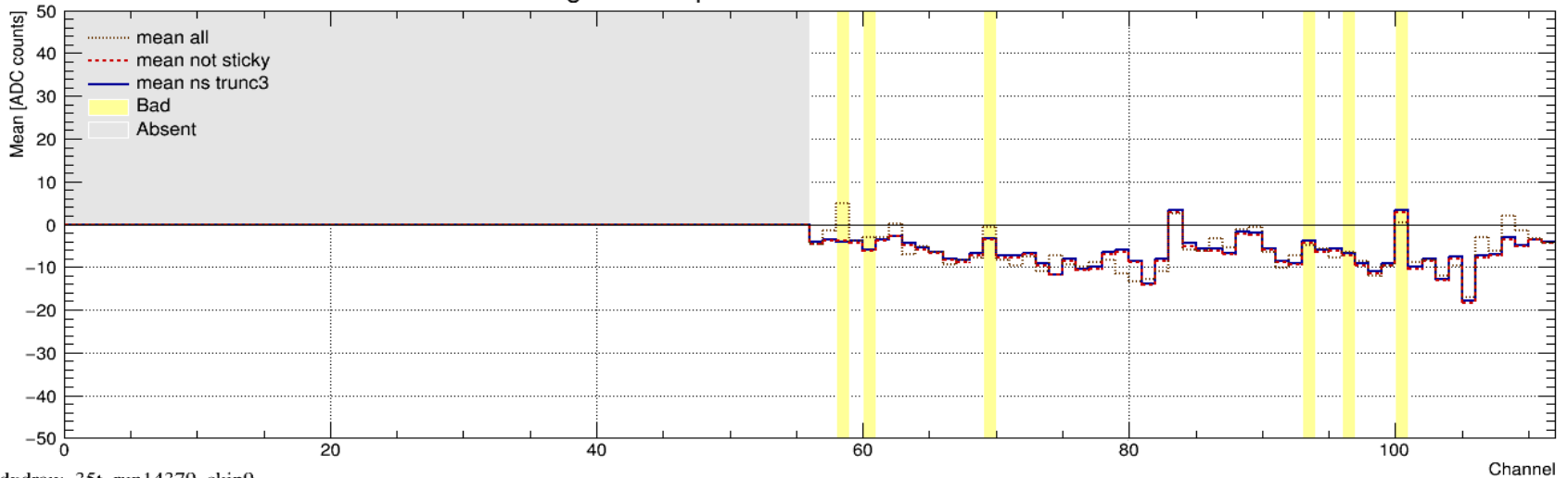


# APAs 0z1, 0z2 run 14379

Raw signals for apa0z1 event 10 mean ADC count

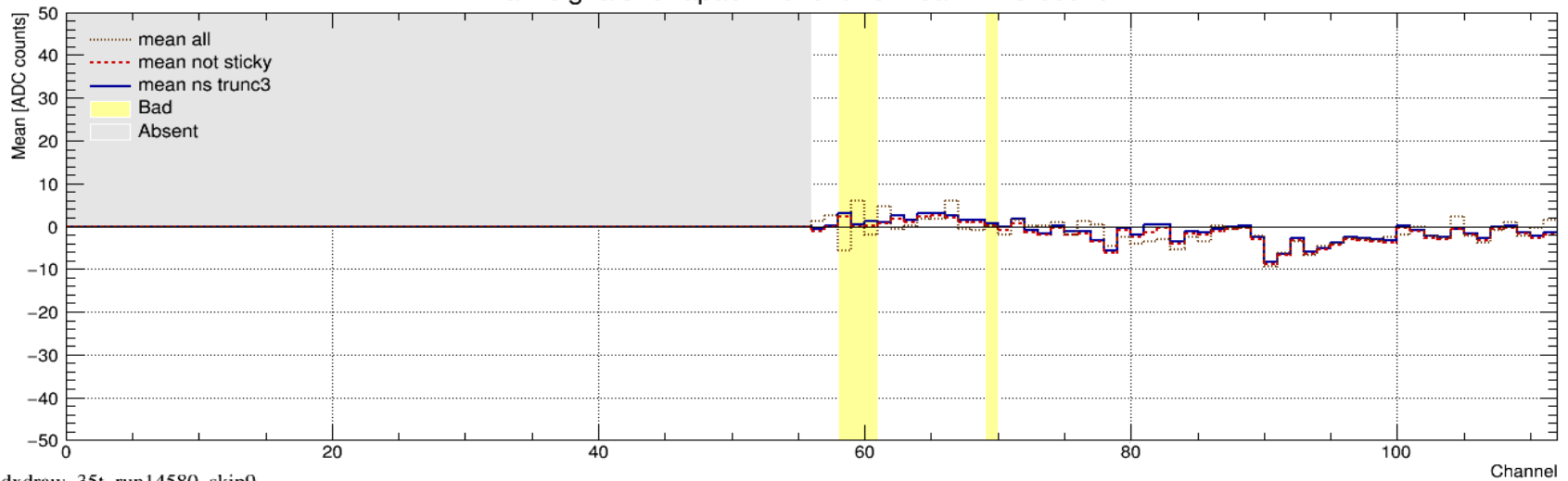


Raw signals for apa0z2 event 10 mean ADC count



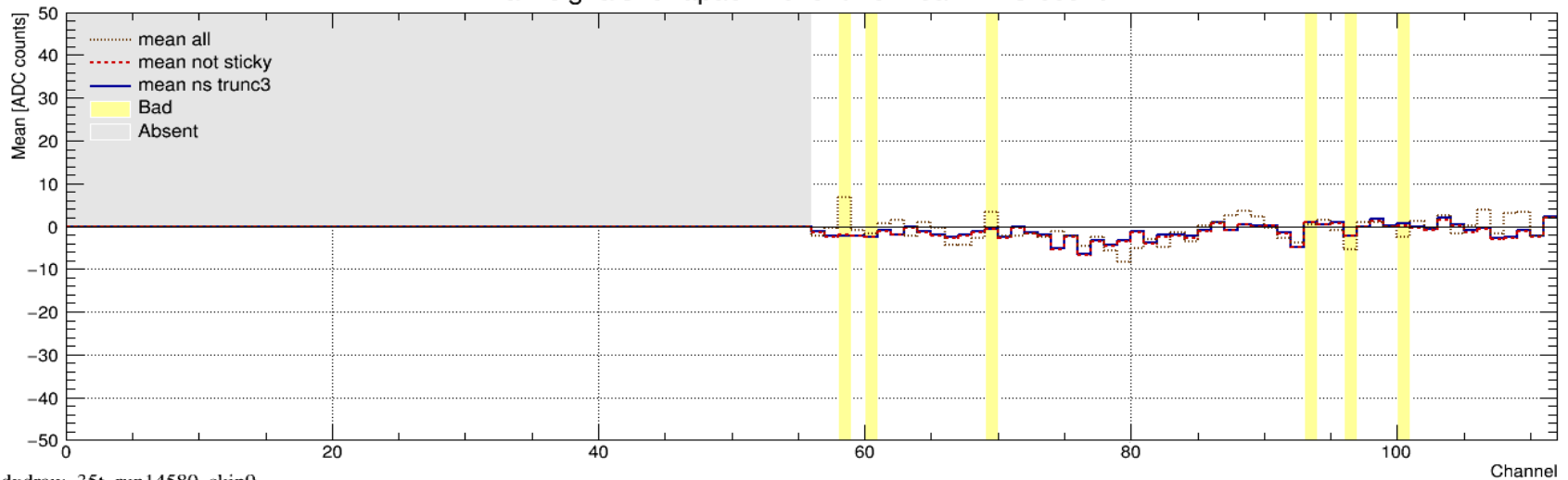
# APAs 0z1, 0z2 run 14580 (last before PF)

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

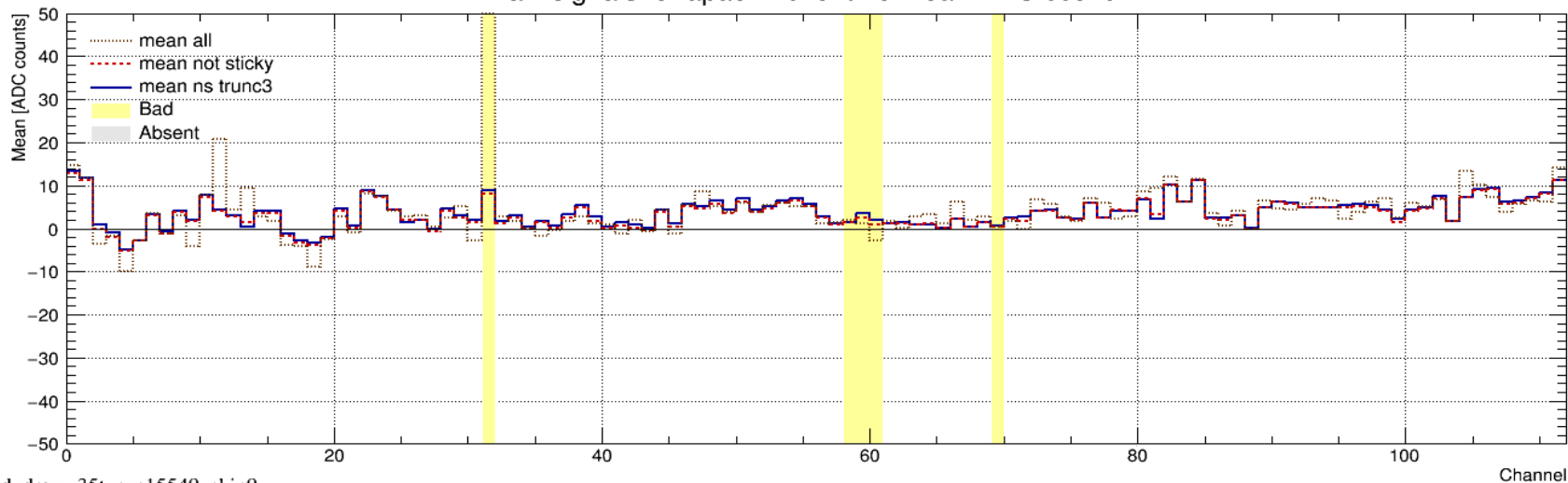
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

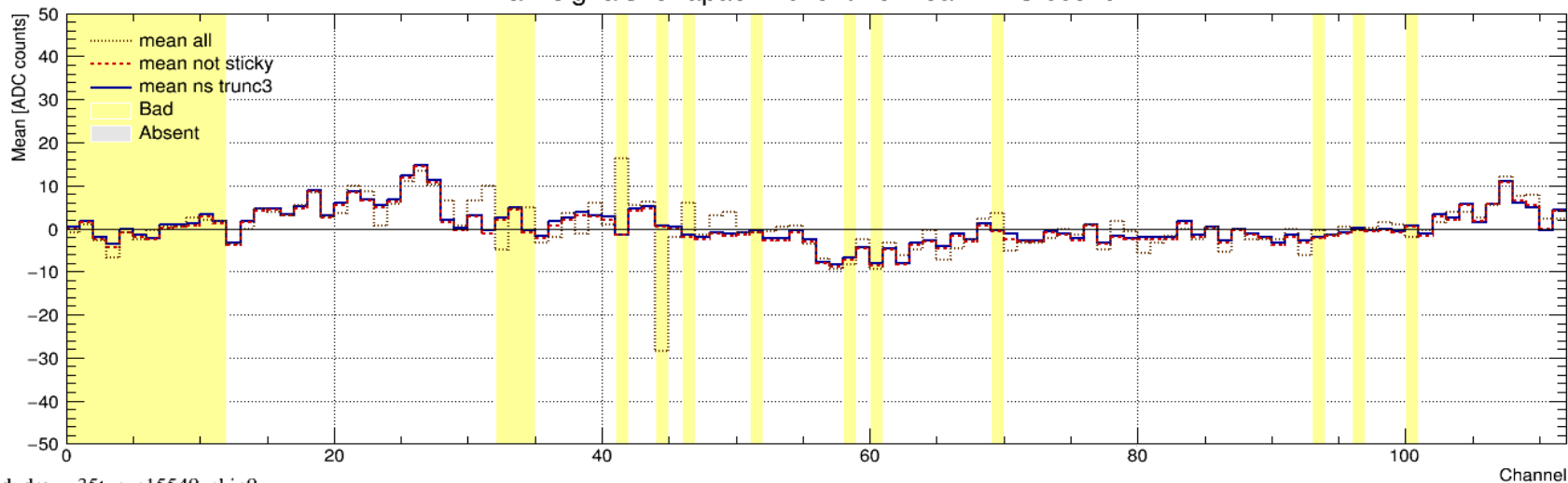
# APAs 0z1, 0z2 run 15549 (first after PF)

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

Raw signals for apa0z2 event 10 mean ADC count

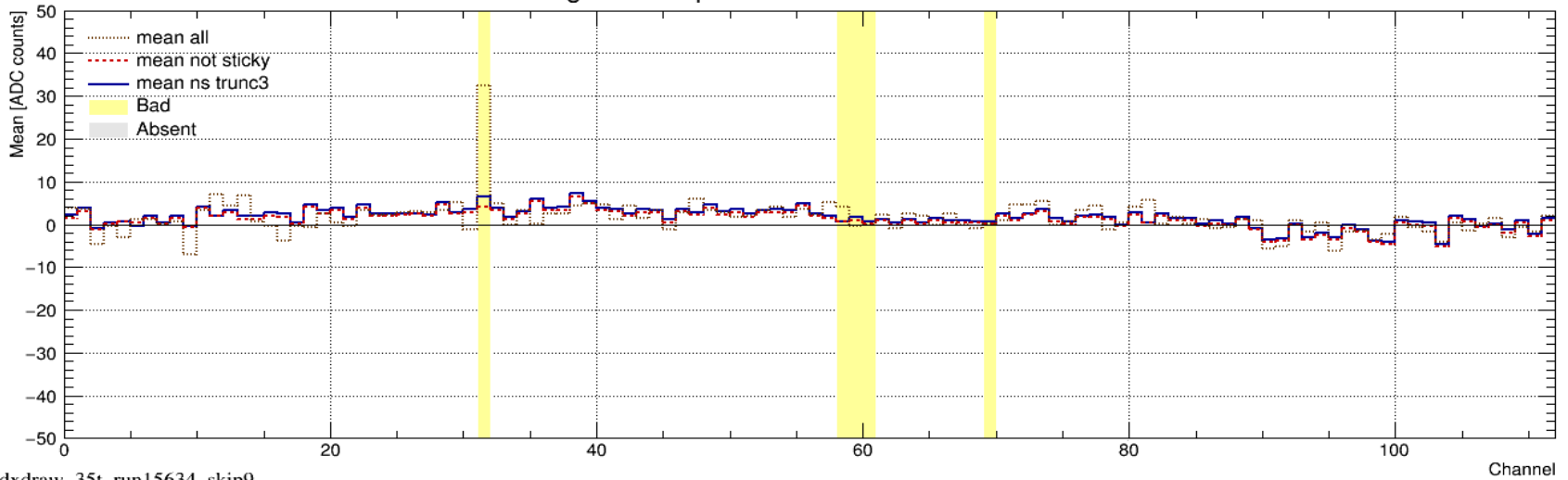


dxdraw\_35t\_run15549\_skip9



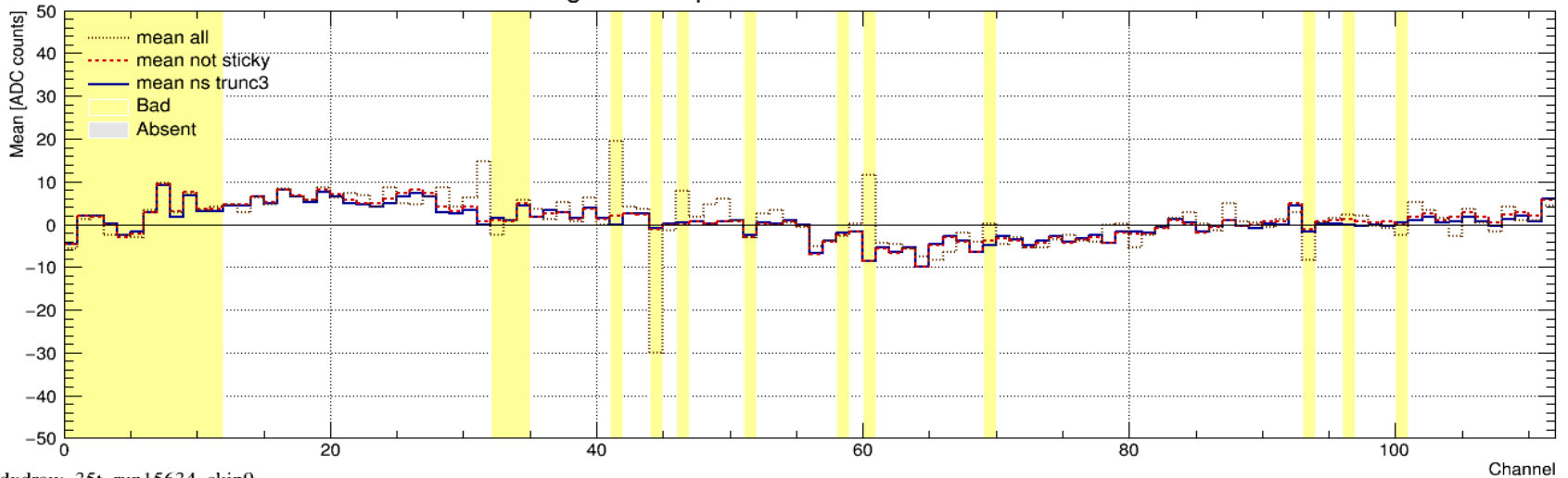
# APAs 0z1, 0z2 run 15634

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

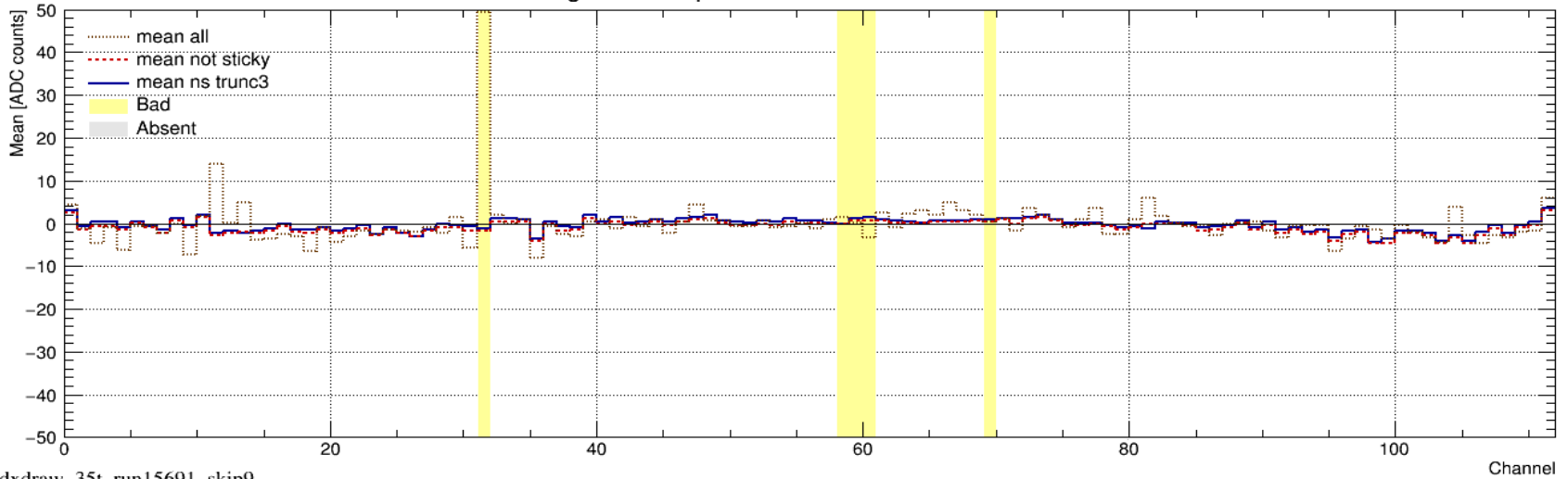
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

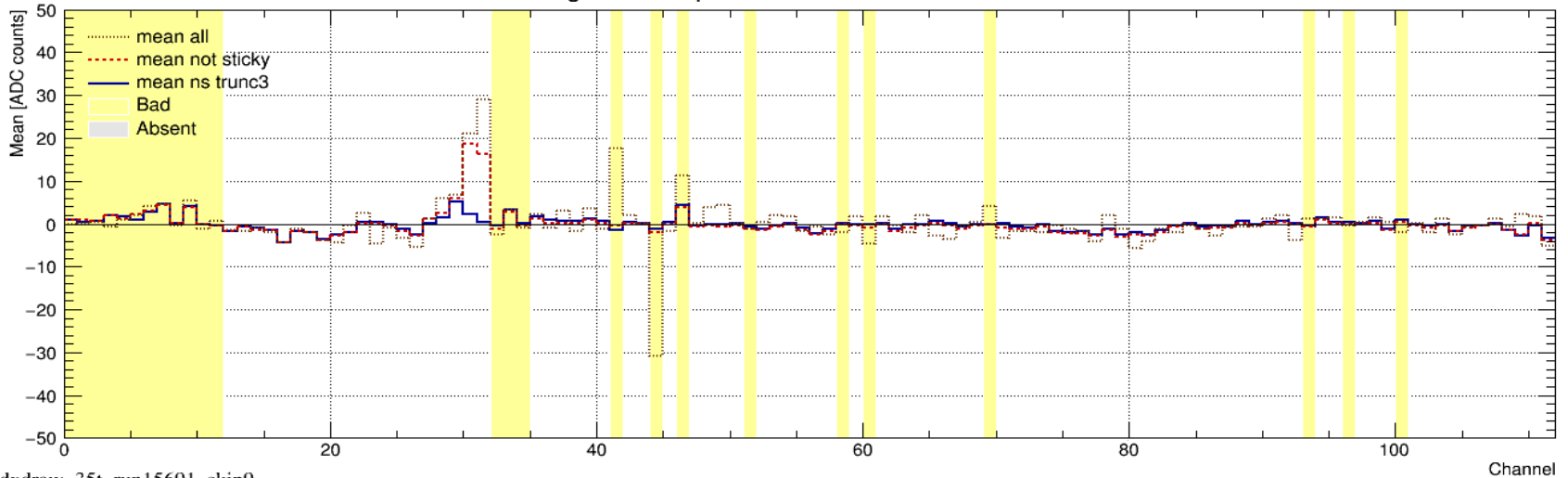
# APAs 0z1, 0z2 run 15691

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

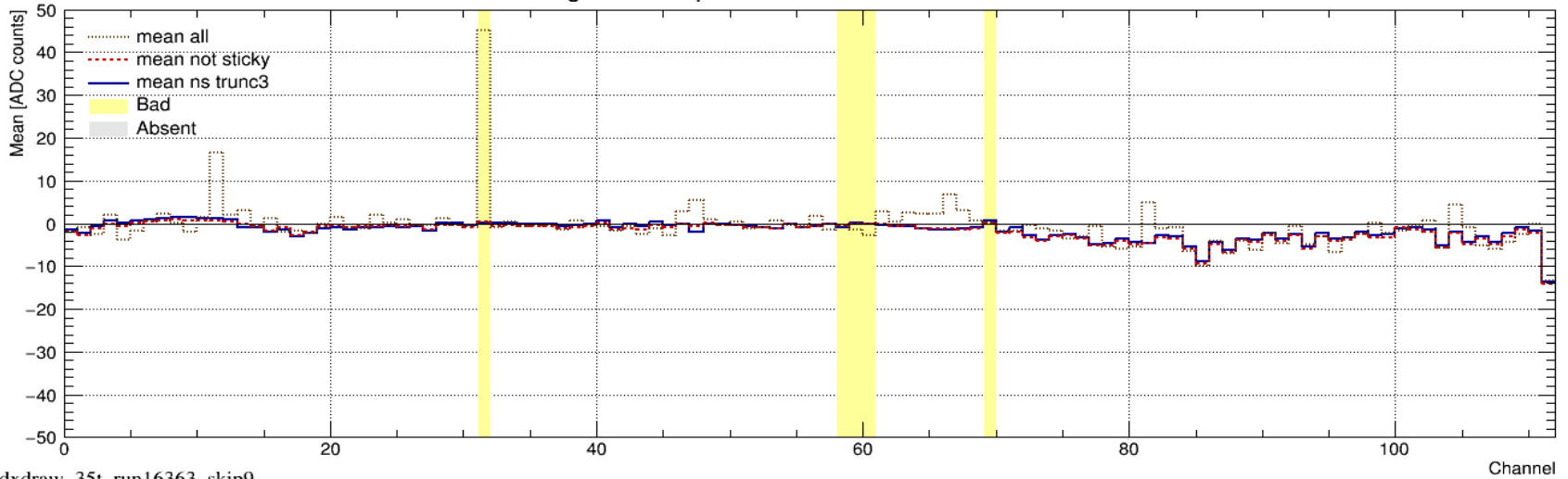
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

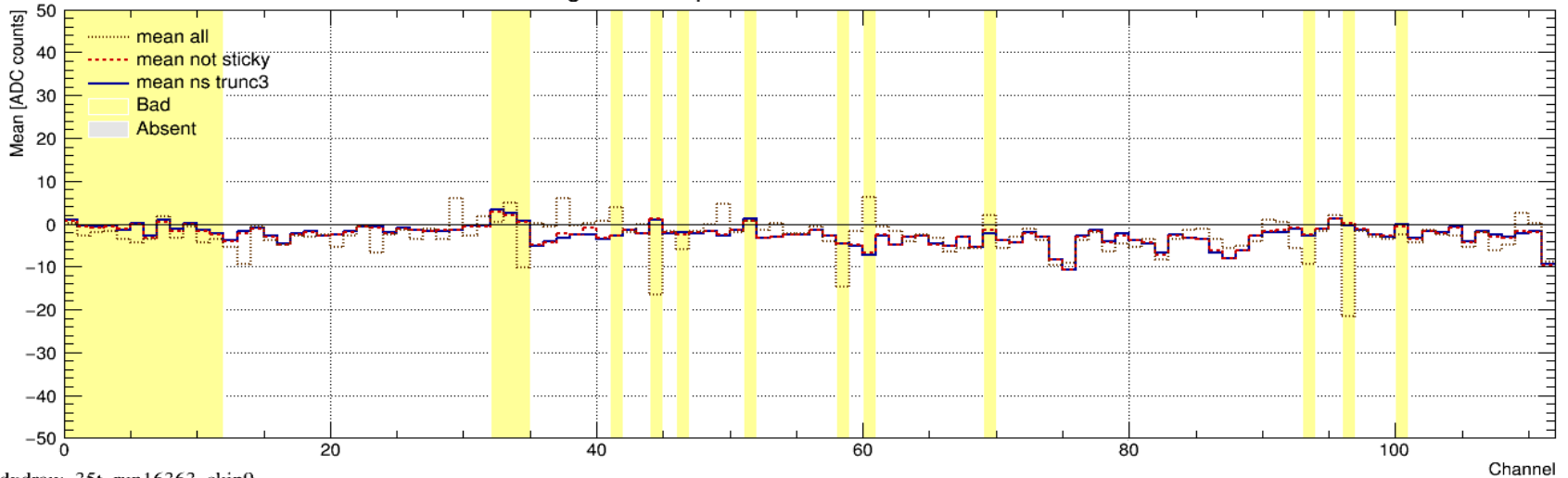
# APAs 0z1, 0z2 run 16363

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

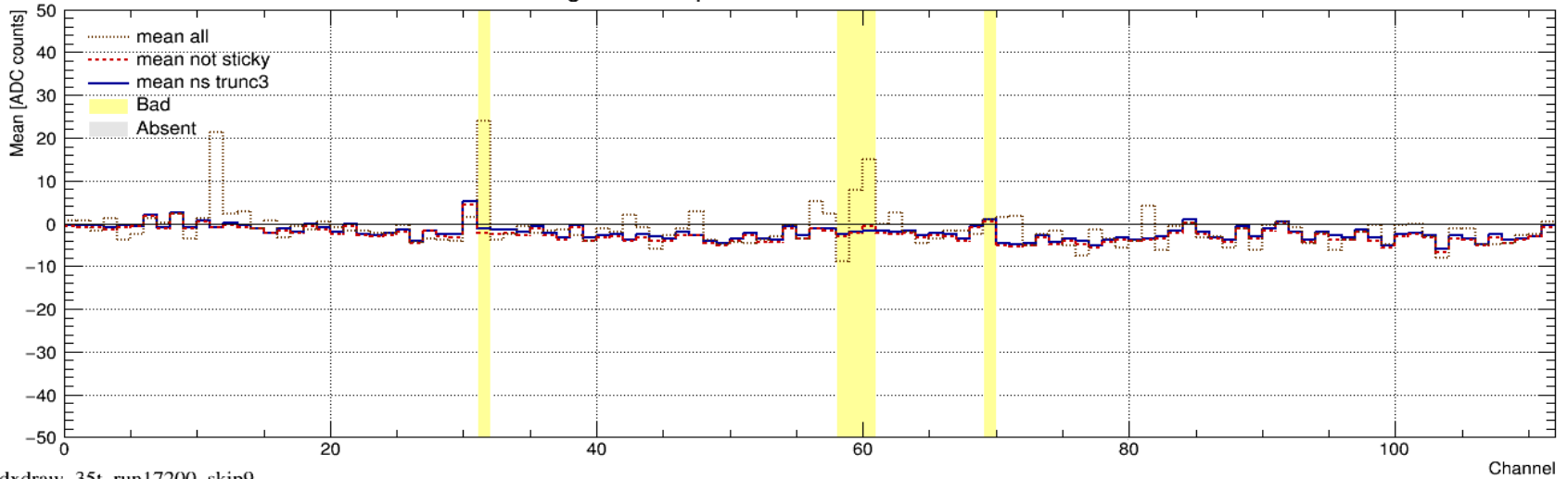
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

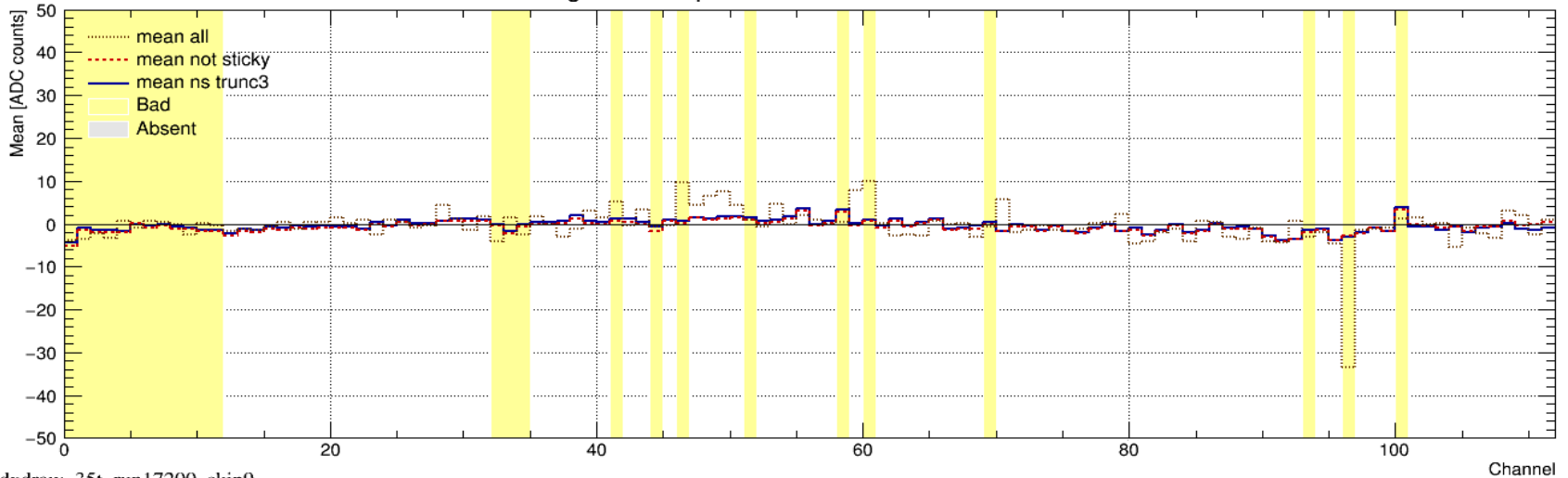
# APAs 0z1, 0z2 run 17200

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

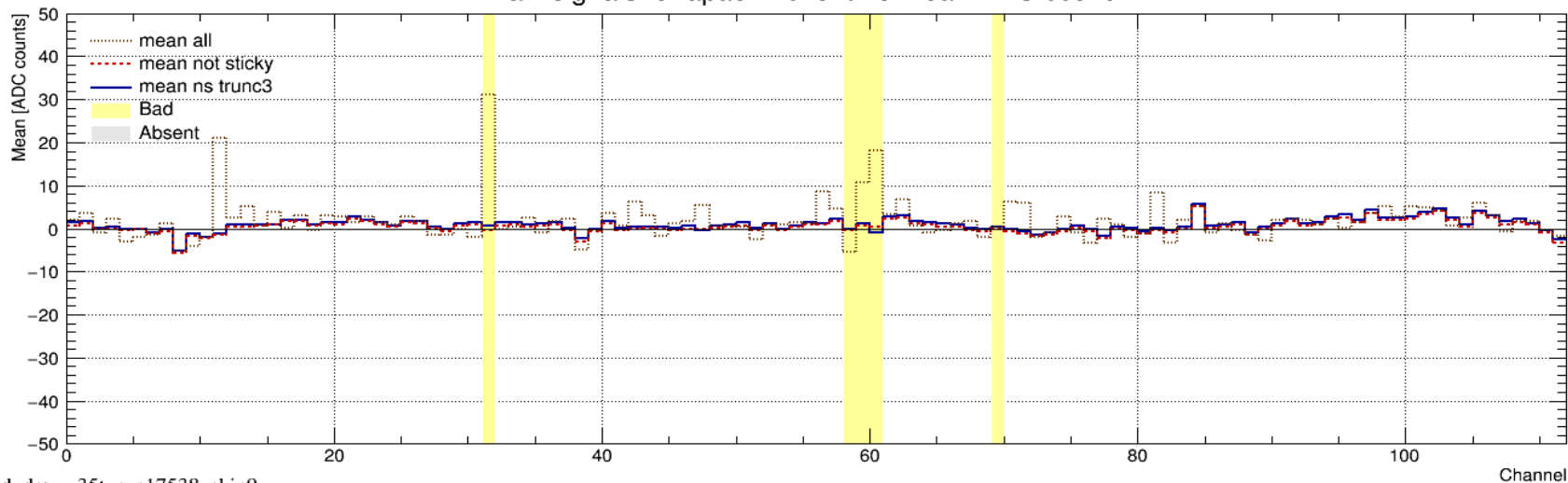
Raw signals for apa0z2 event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

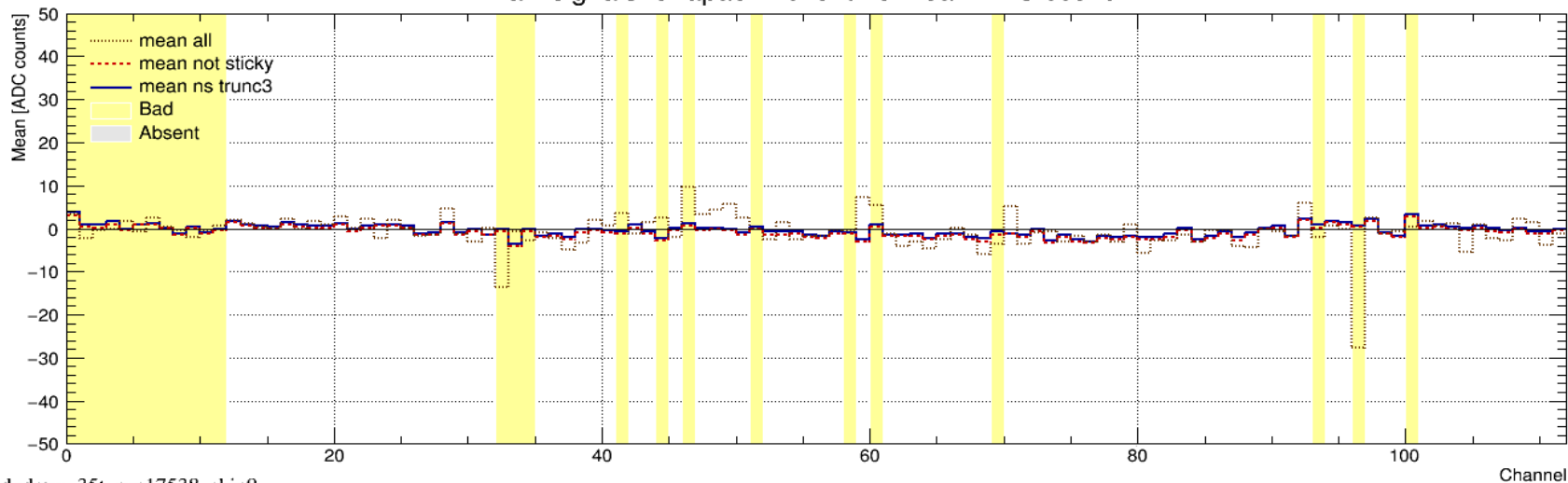
# APAs 0z1, 0z2 run 17538 (last)

Raw signals for apa0z1 event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa0z2 event 10 mean ADC count

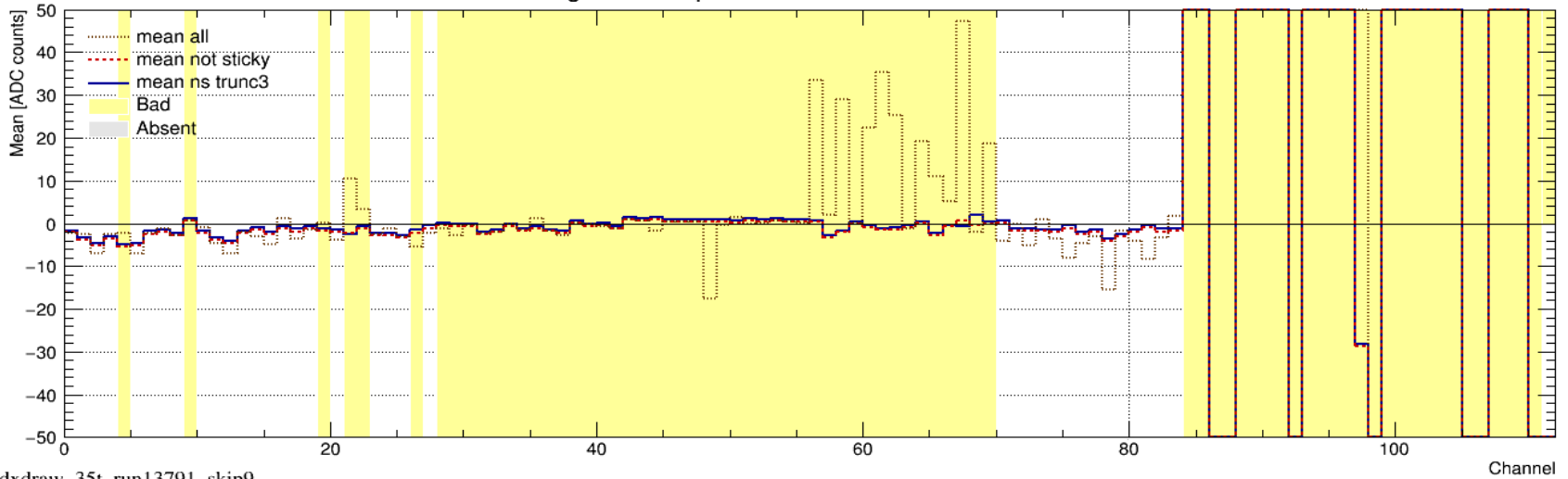


dxdraw\_35t\_run17538\_skip9

# APAs 1z1 and 1z2

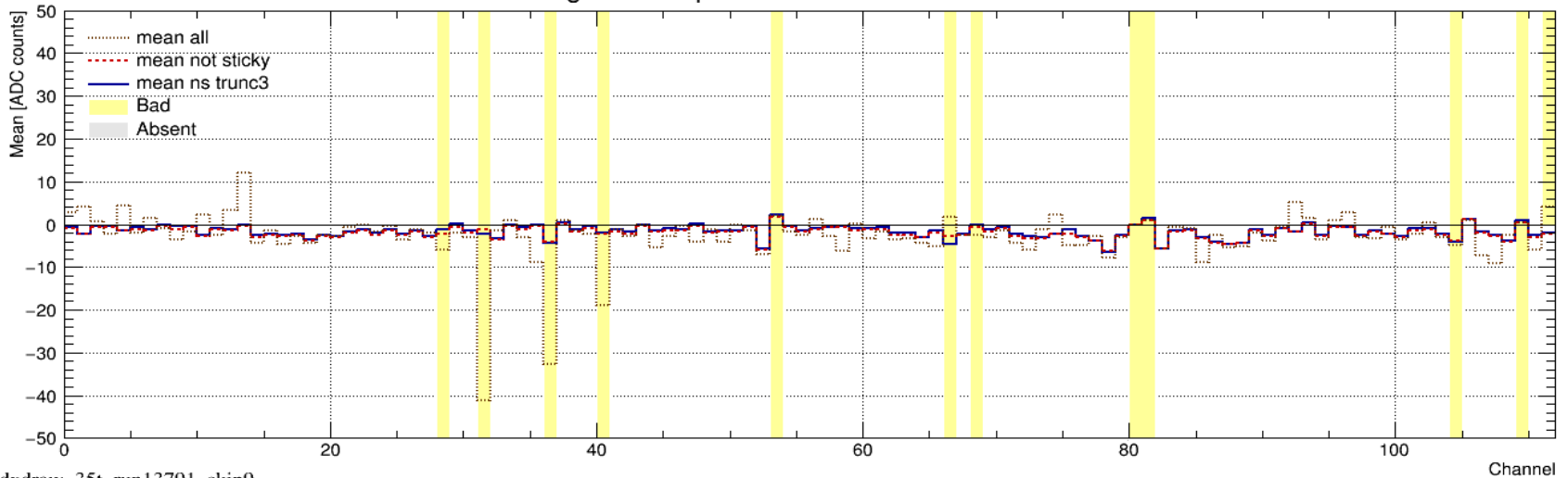
# APAs 1z1, 1z2 run 13791 (first)

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

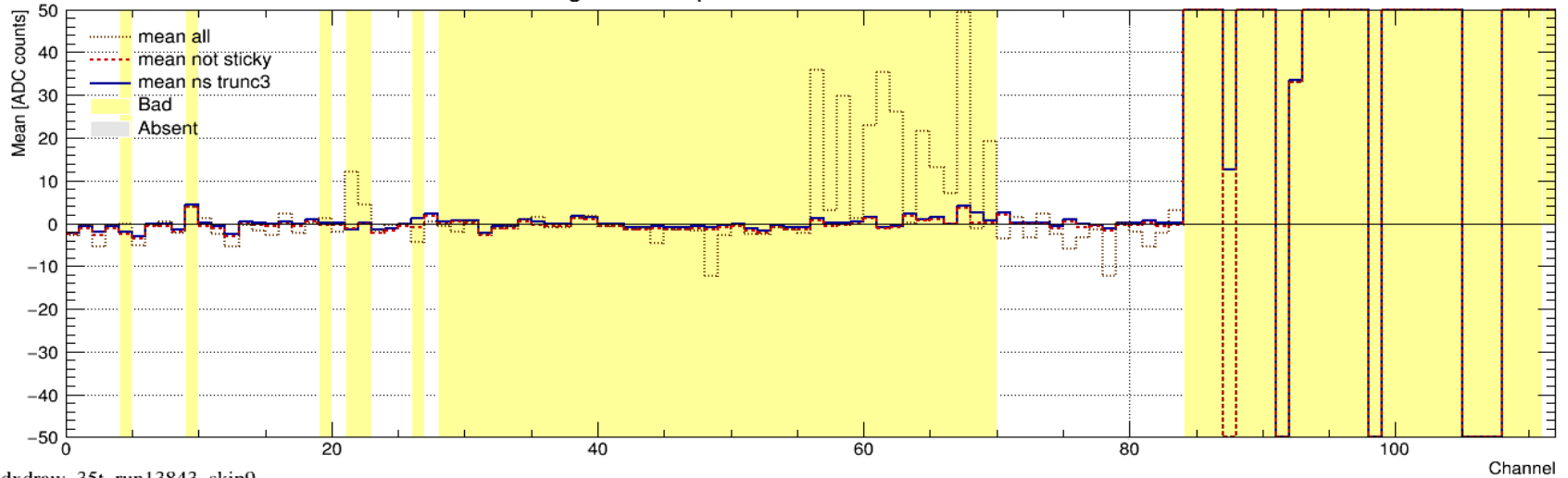
Raw signals for apa1z2 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

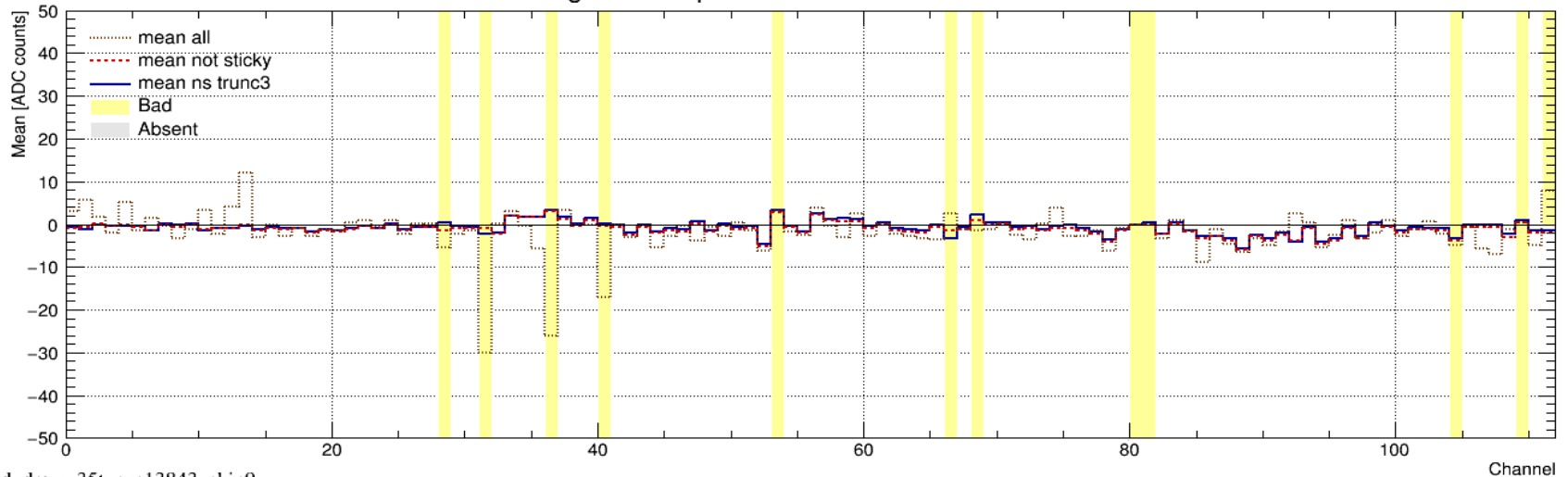
# APAs 1z1, 1z2 run 13843

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

Raw signals for apa1z2 event 10 mean ADC count

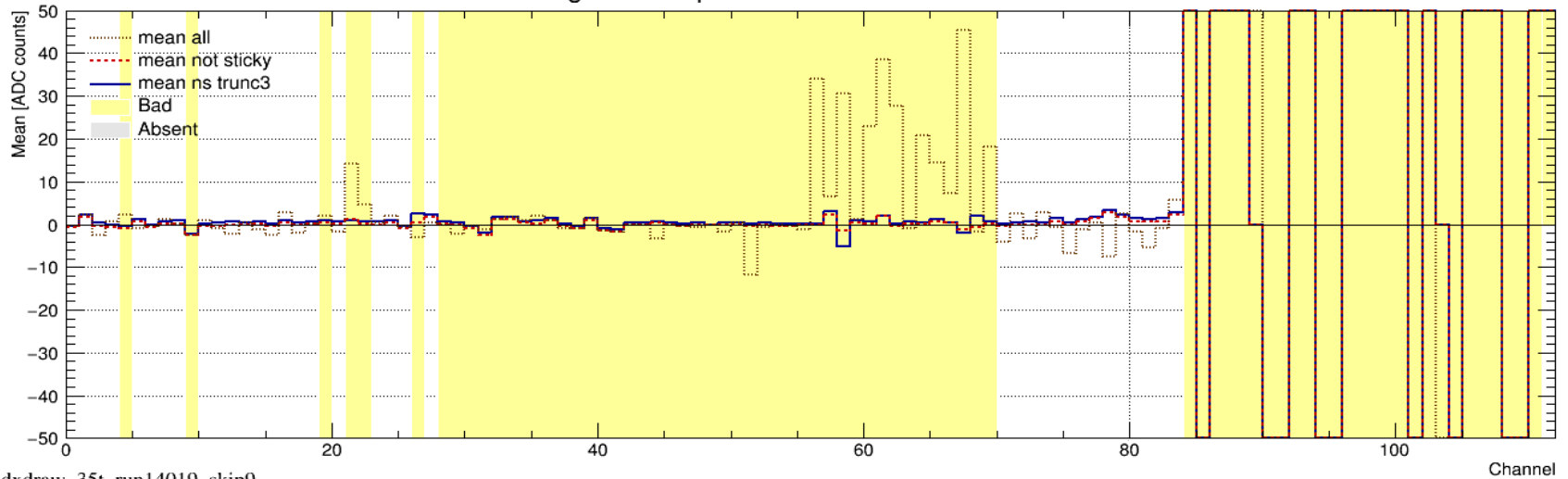


dxdraw\_35t\_run13843\_skip9



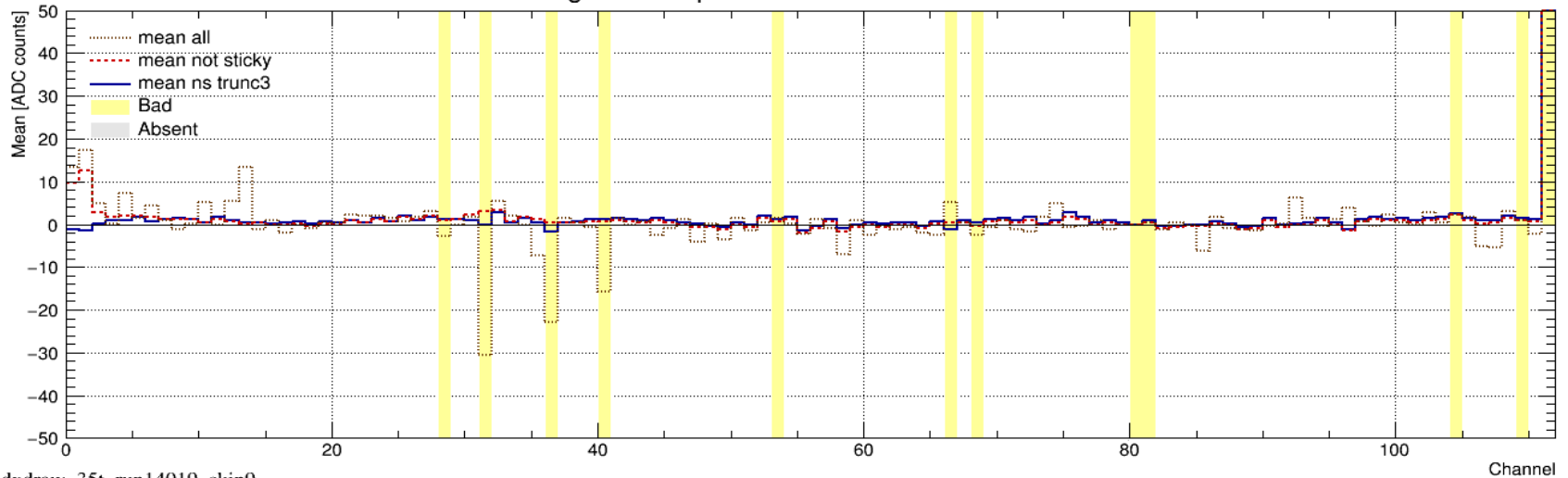
# APAs 1z1, 1z2 run 14019

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

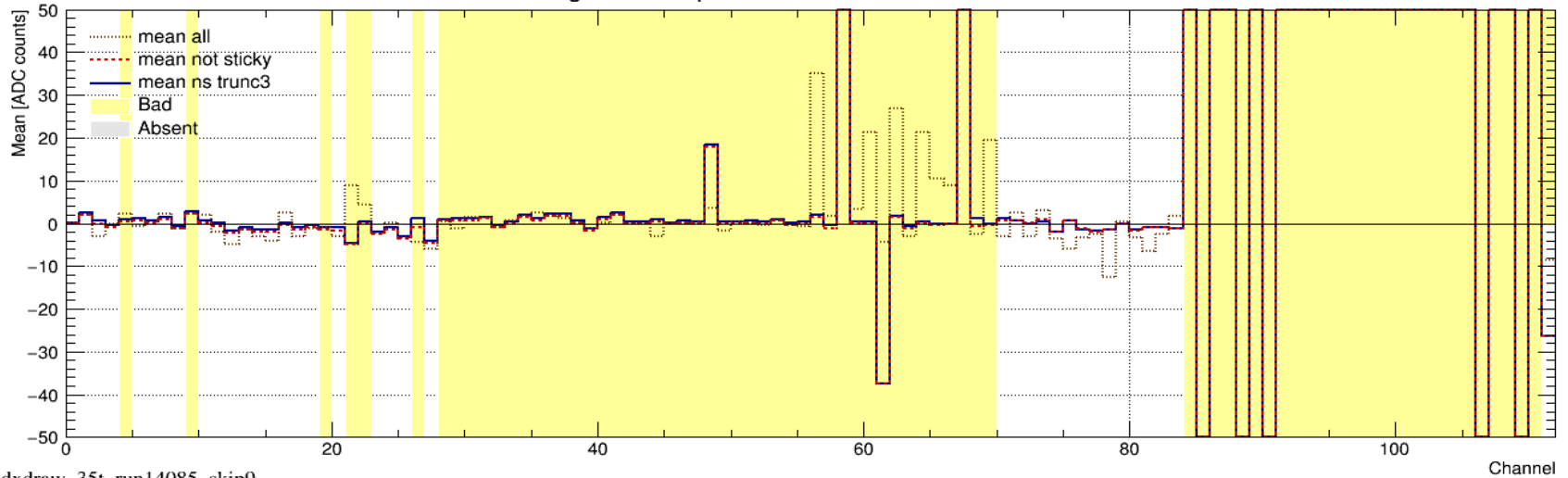
Raw signals for apa1z2 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

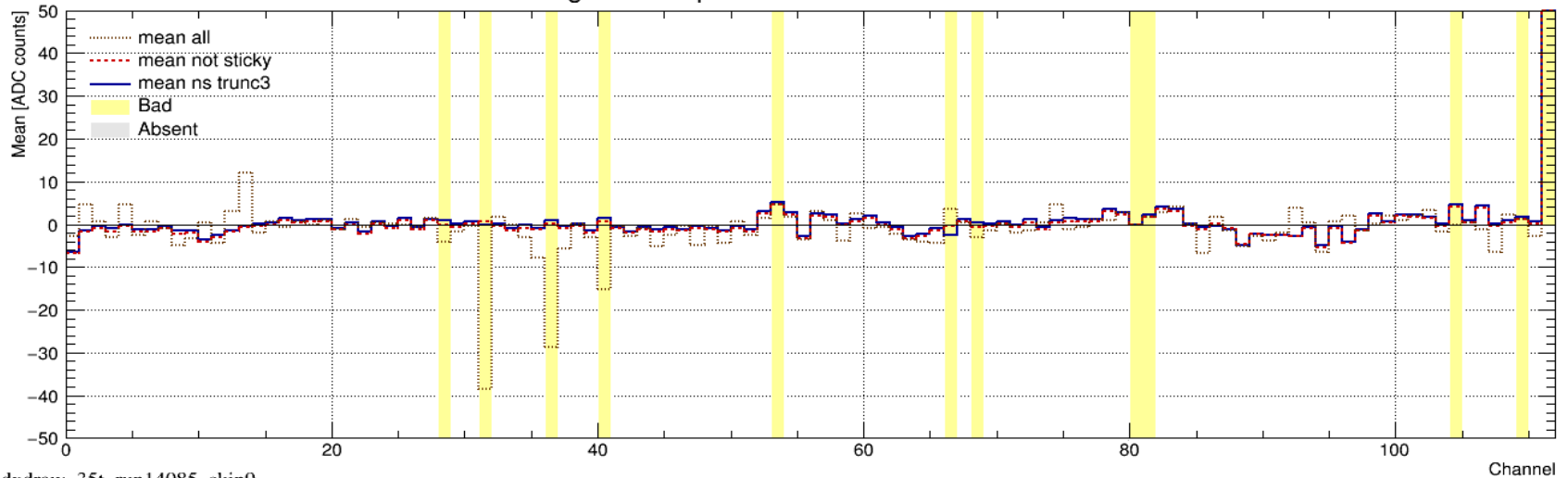
# APAs 1z1, 1z2 run 14085

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

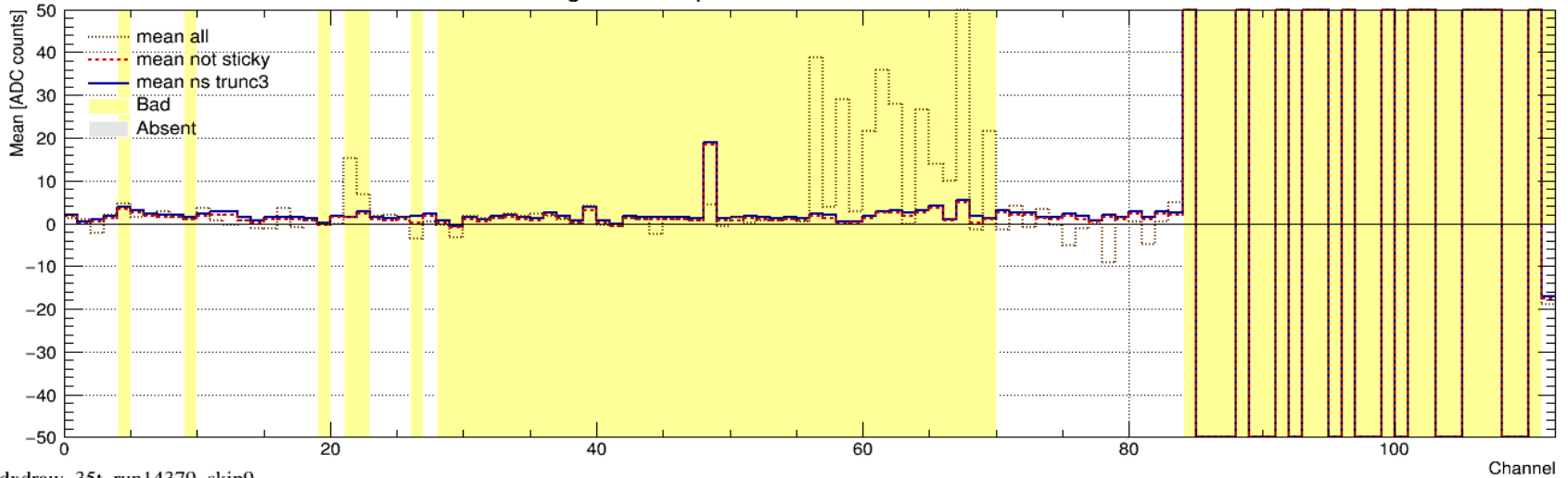
Raw signals for apa1z2 event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

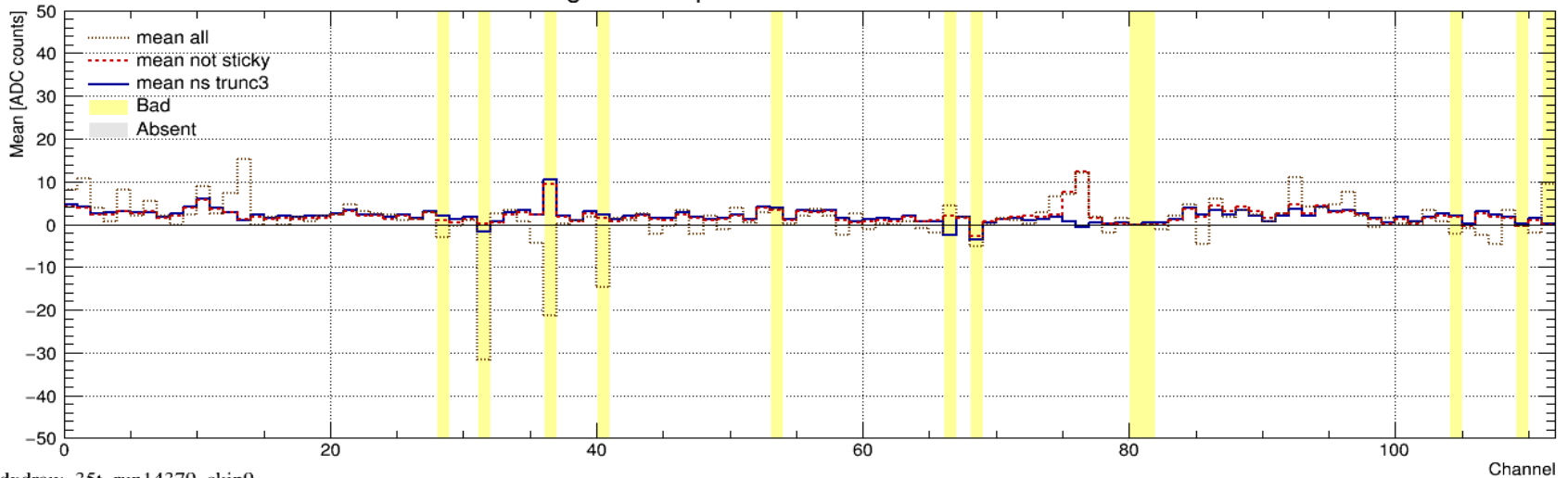
# APAs 1z1, 1z2 run 14379

Raw signals for apa1z1 event 10 mean ADC count



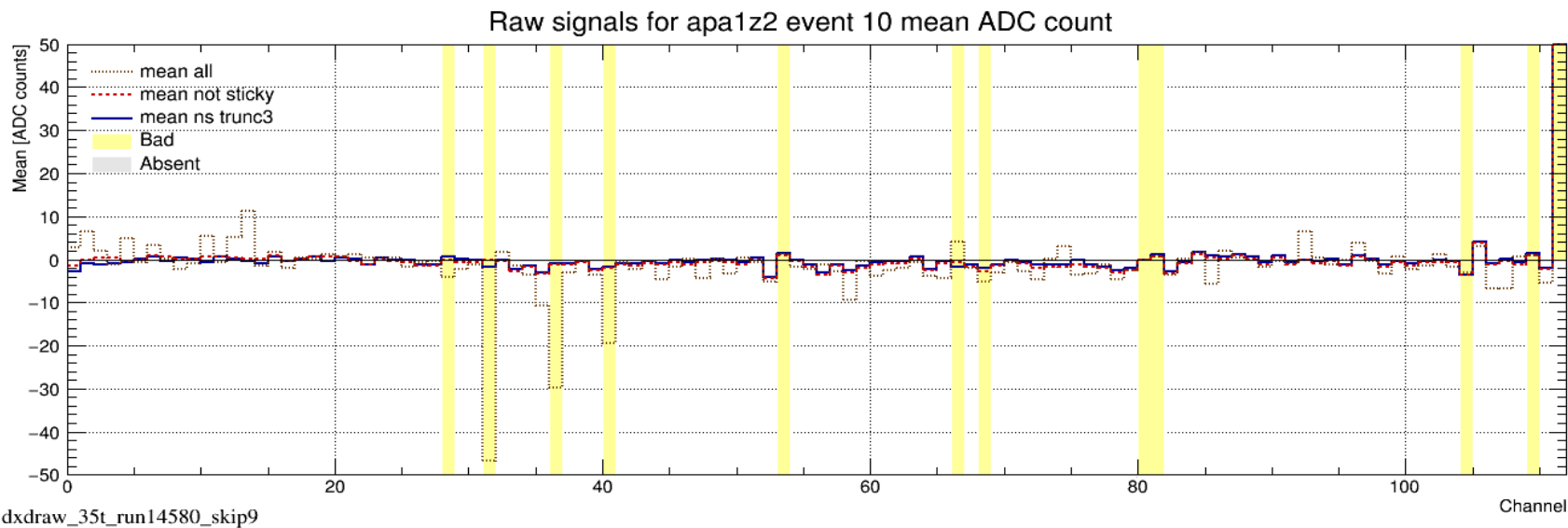
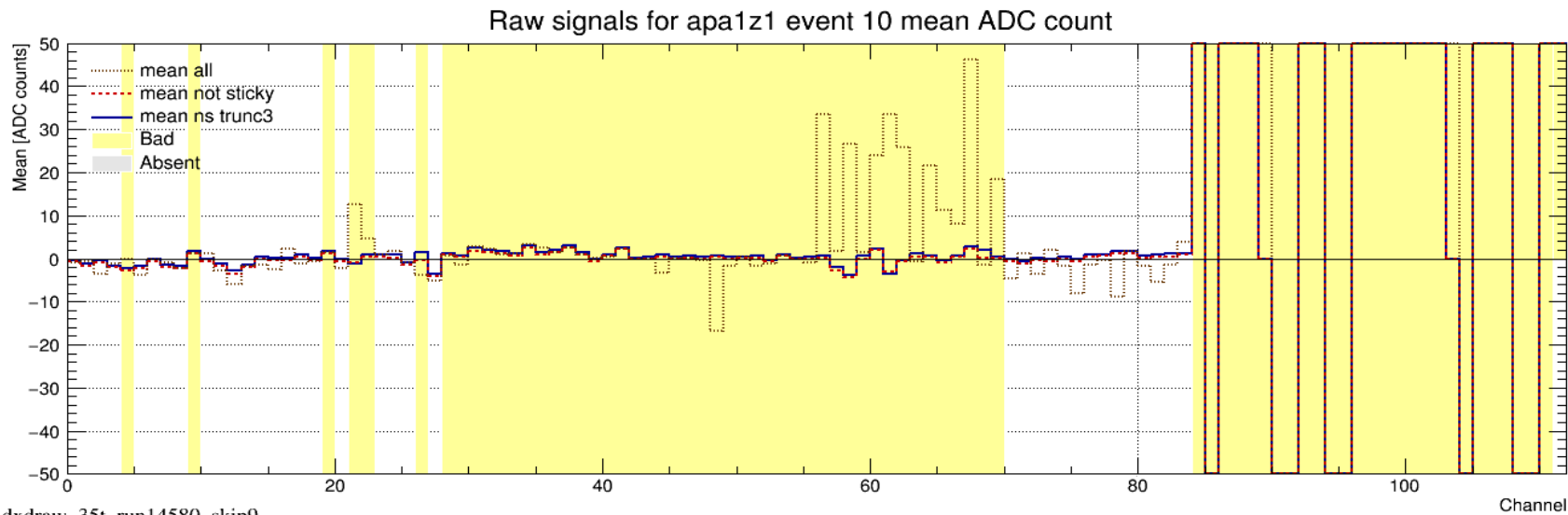
dxdraw\_35t\_run14379\_skip9

Raw signals for apa1z2 event 10 mean ADC count



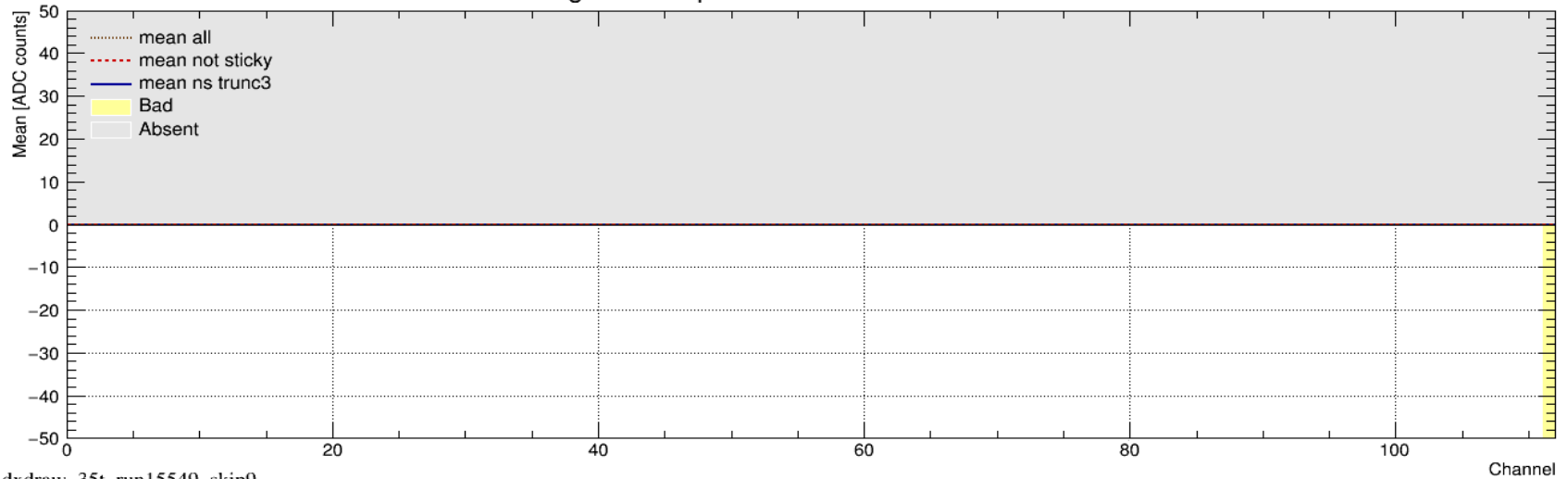
dxdraw\_35t\_run14379\_skip9

# APAs 1z1, 1z2 run 14580 (last before PF)

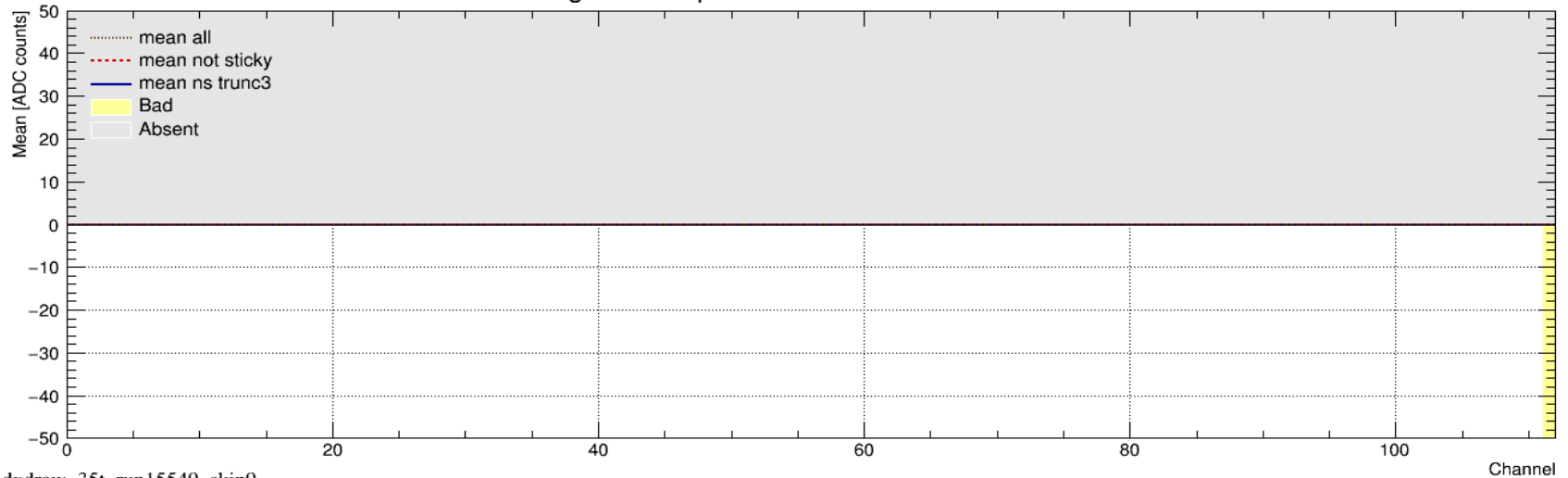


# APAs 1z1, 1z2 run 15549 (first after PF)

Raw signals for apa1z1 event 10 mean ADC count

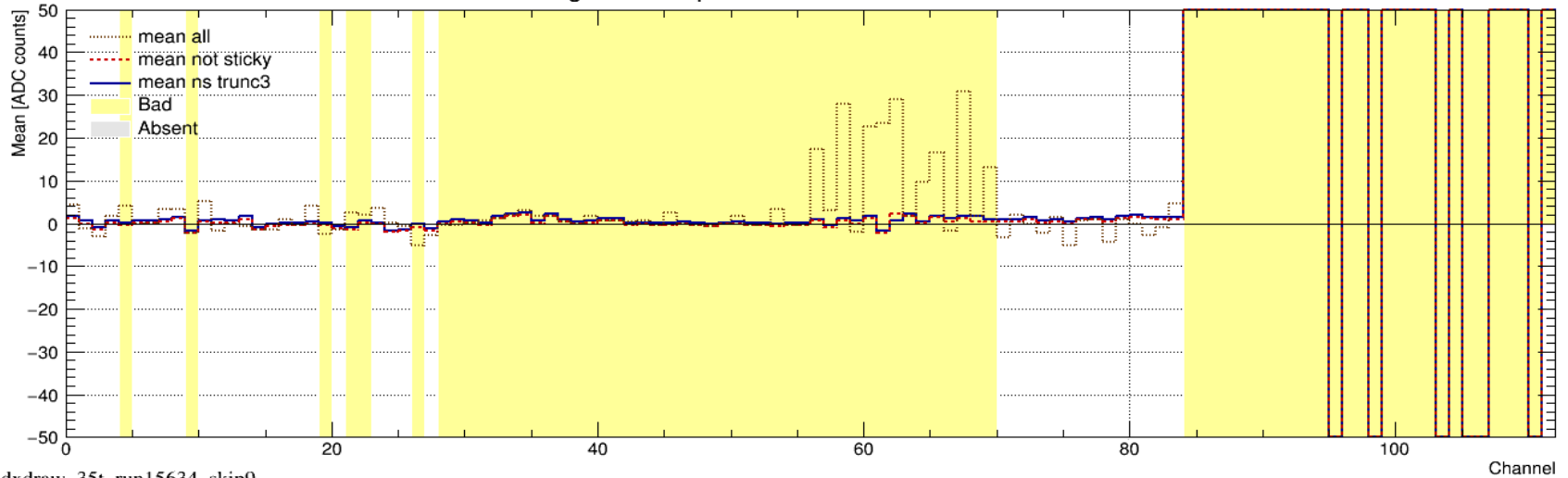


Raw signals for apa1z2 event 10 mean ADC count



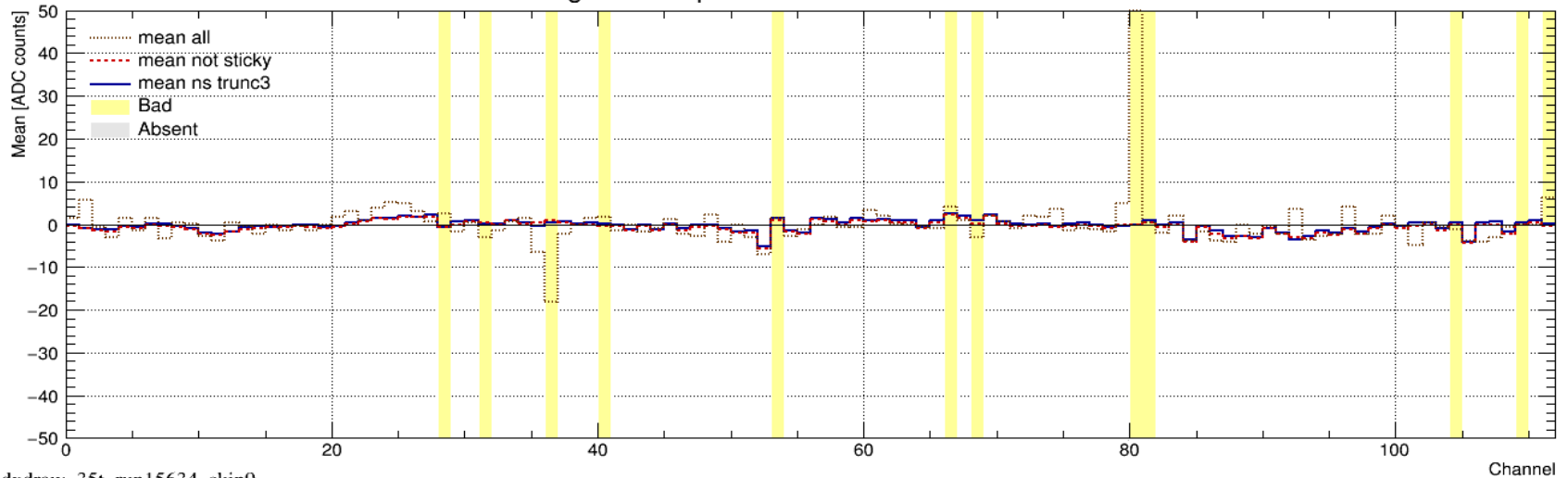
# APAs 1z1, 1z2 run 15634

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

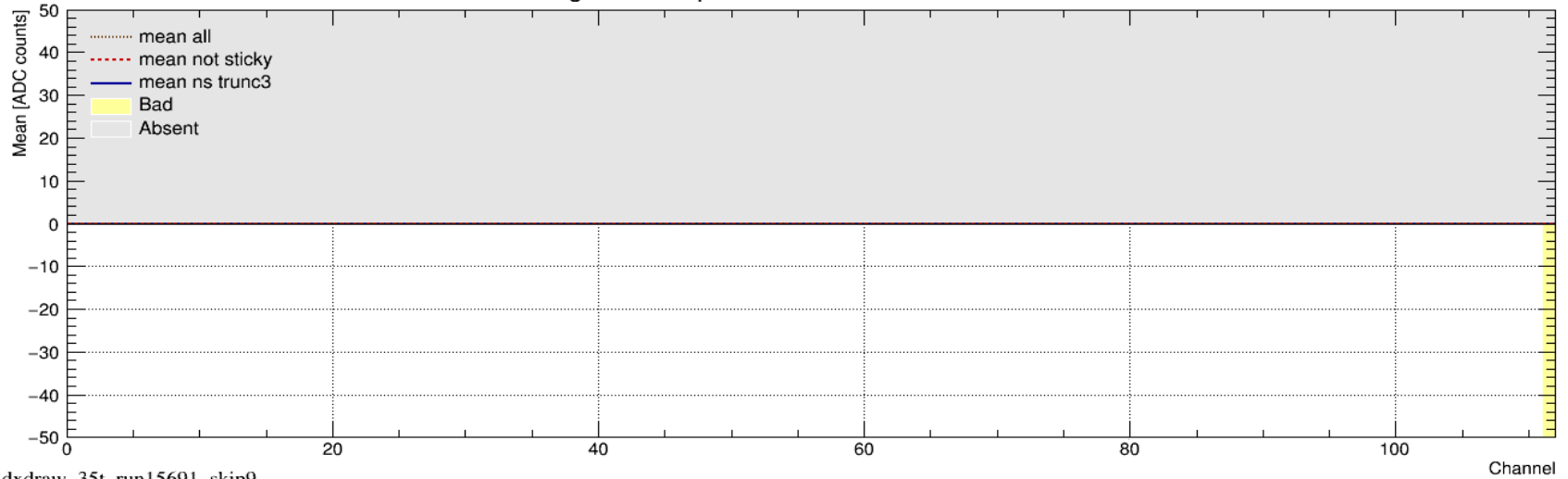
Raw signals for apa1z2 event 10 mean ADC count



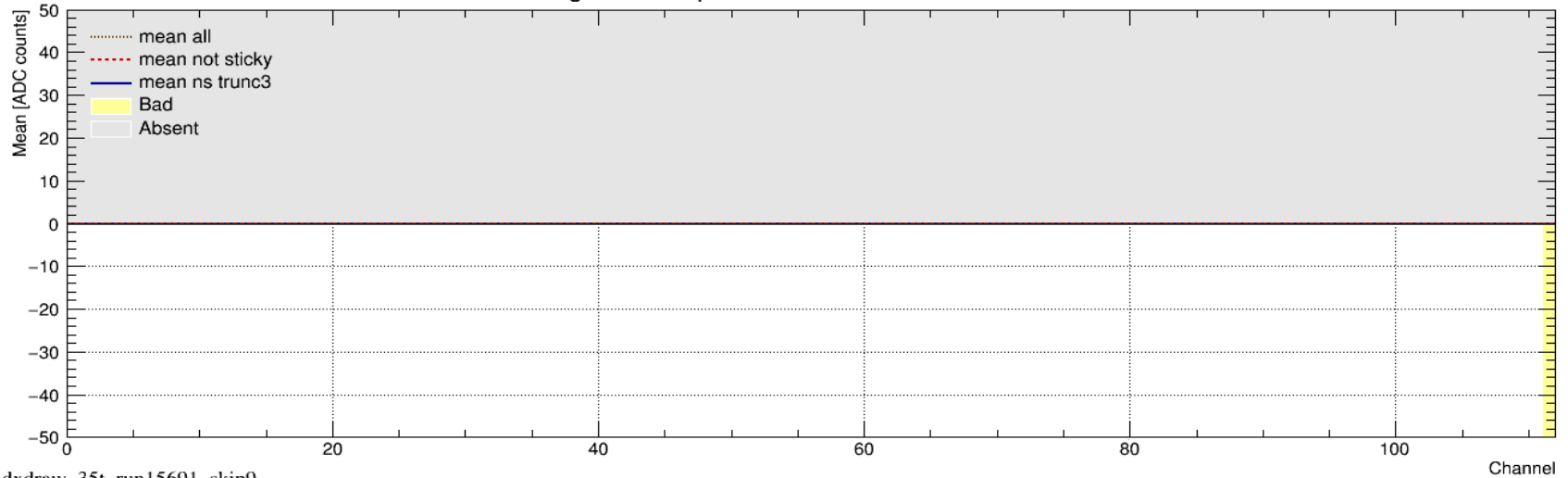
dxdraw\_35t\_run15634\_skip9

# APAs 1z1, 1z2 run 15691

Raw signals for apa1z1 event 10 mean ADC count

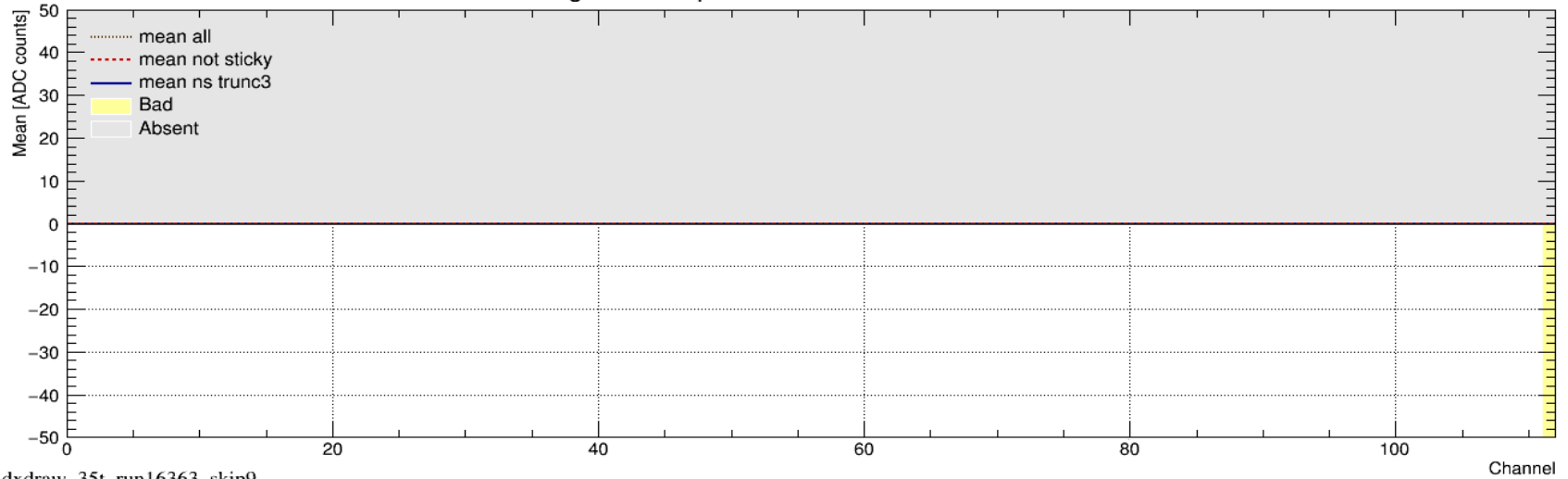


Raw signals for apa1z2 event 10 mean ADC count

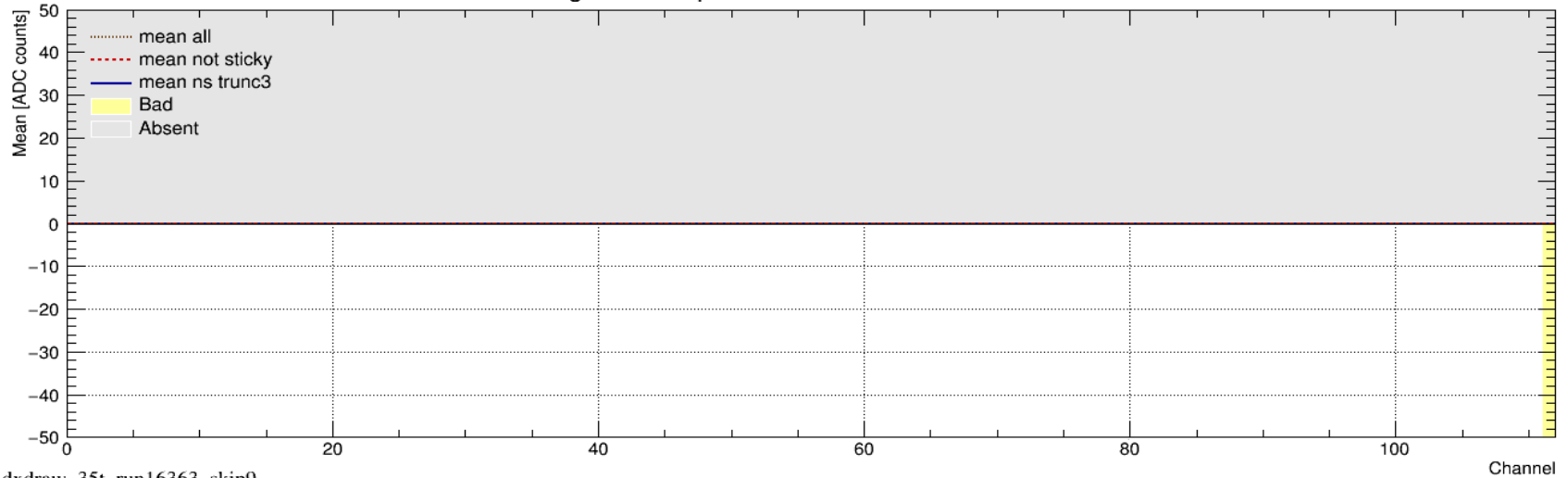


# APAs 1z1, 1z2 run 16363

Raw signals for apa1z1 event 10 mean ADC count



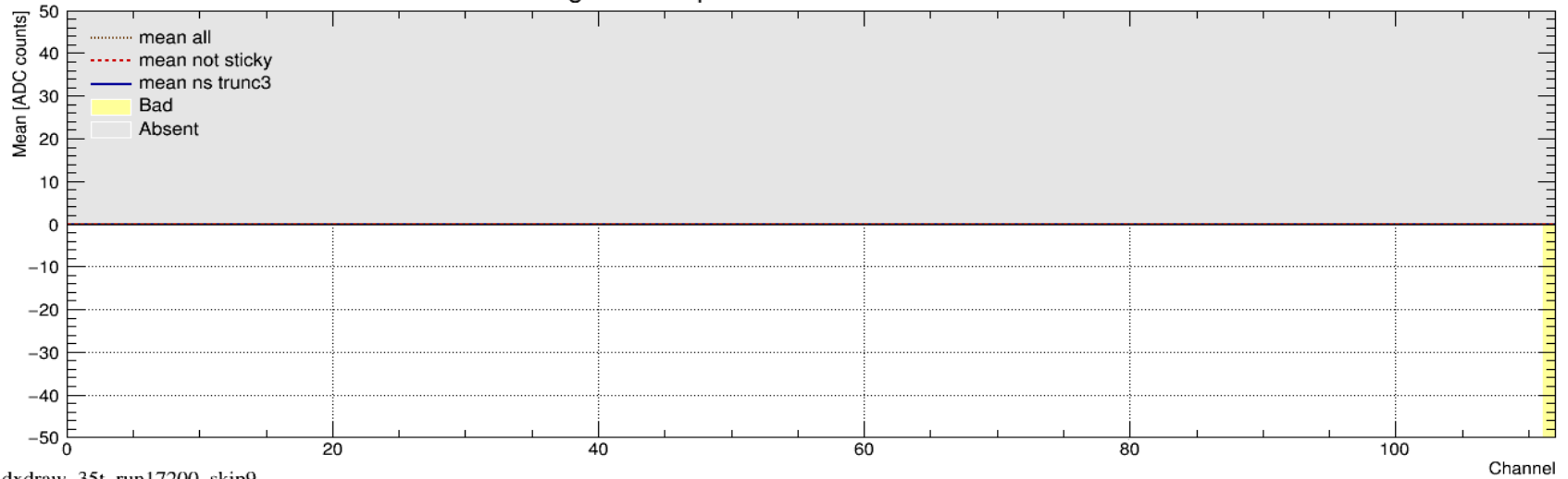
Raw signals for apa1z2 event 10 mean ADC count



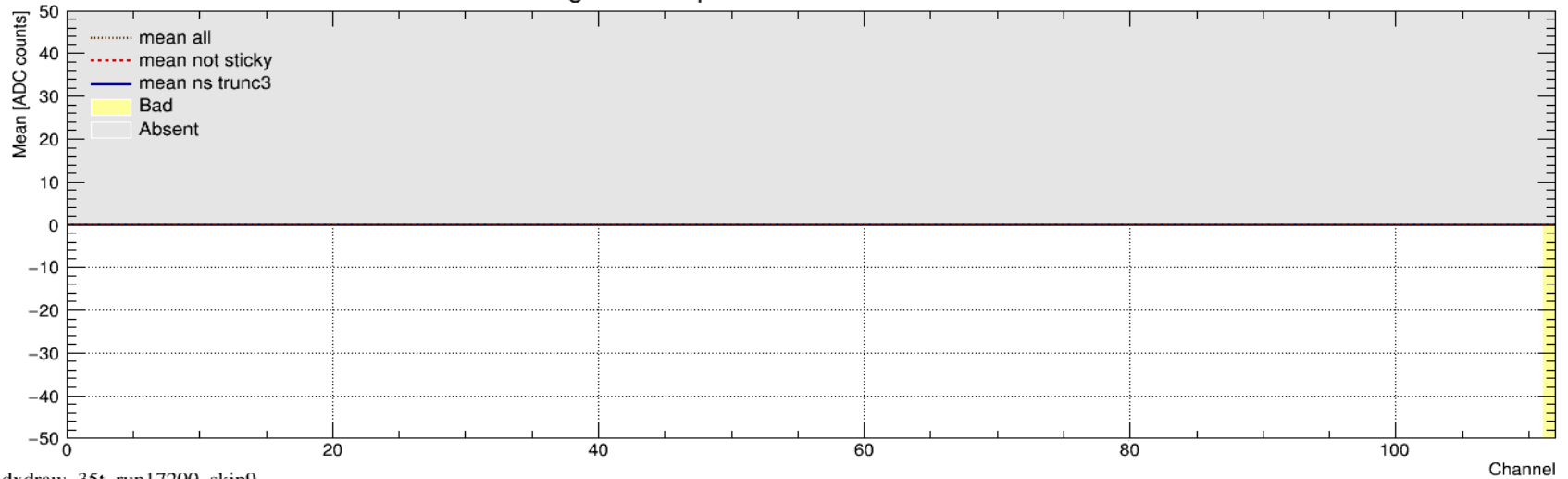


# APAs 1z1, 1z2 run 17200

Raw signals for apa1z1 event 10 mean ADC count

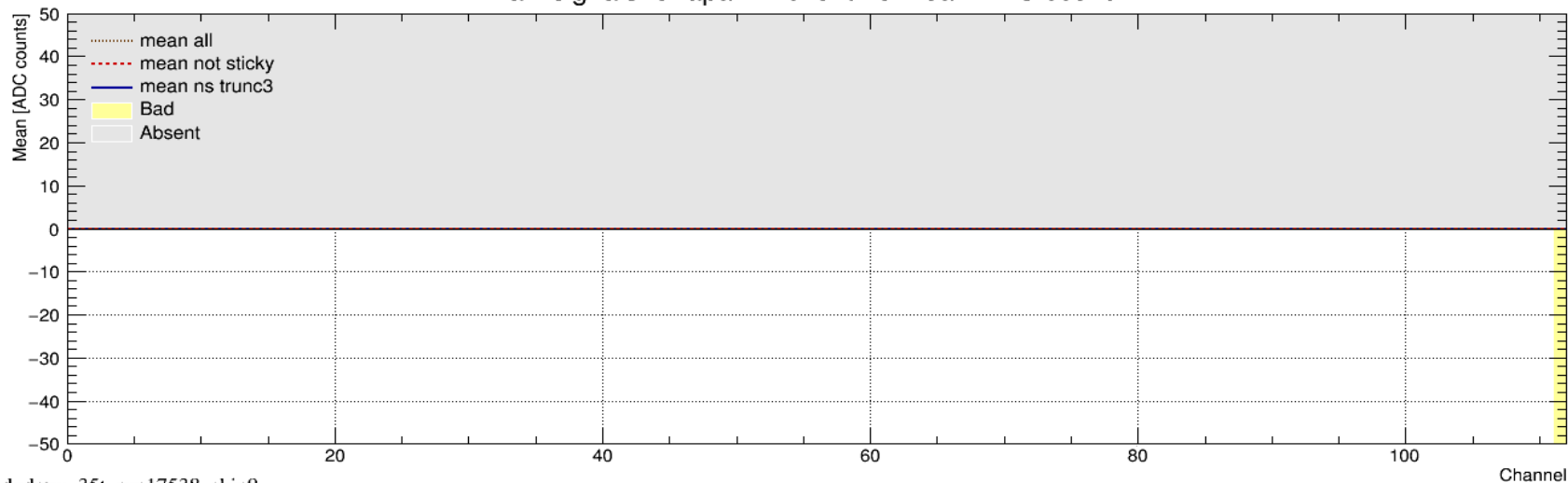


Raw signals for apa1z2 event 10 mean ADC count



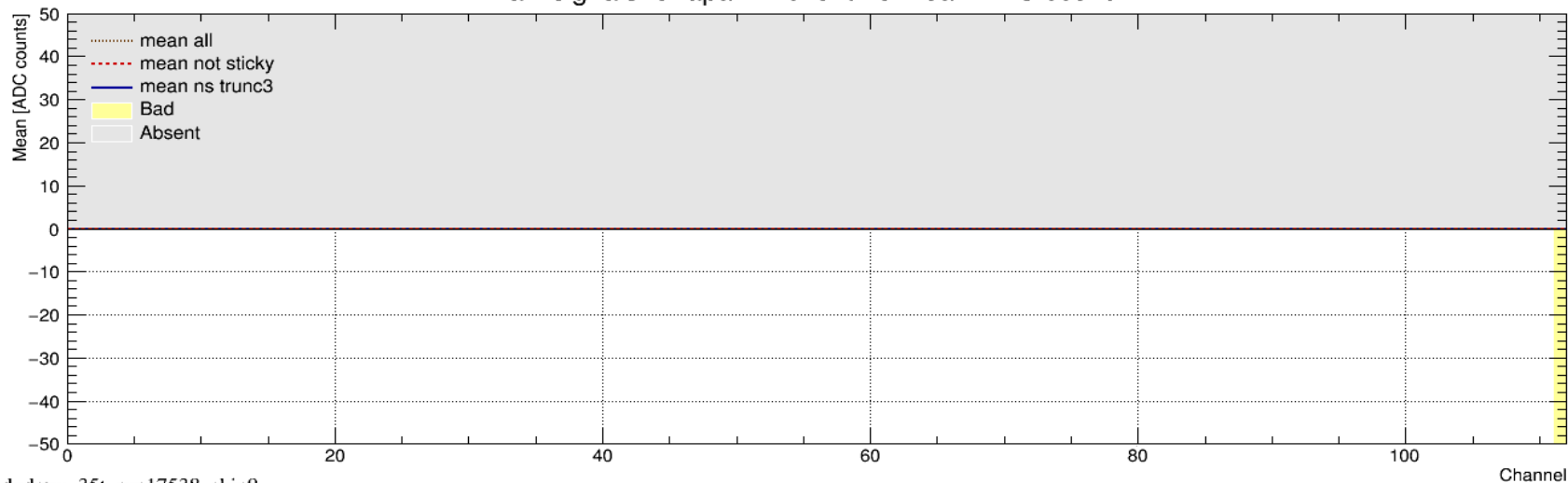
# APAs 1z1, 1z2 run 17538 (last)

Raw signals for apa1z1 event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa1z2 event 10 mean ADC count

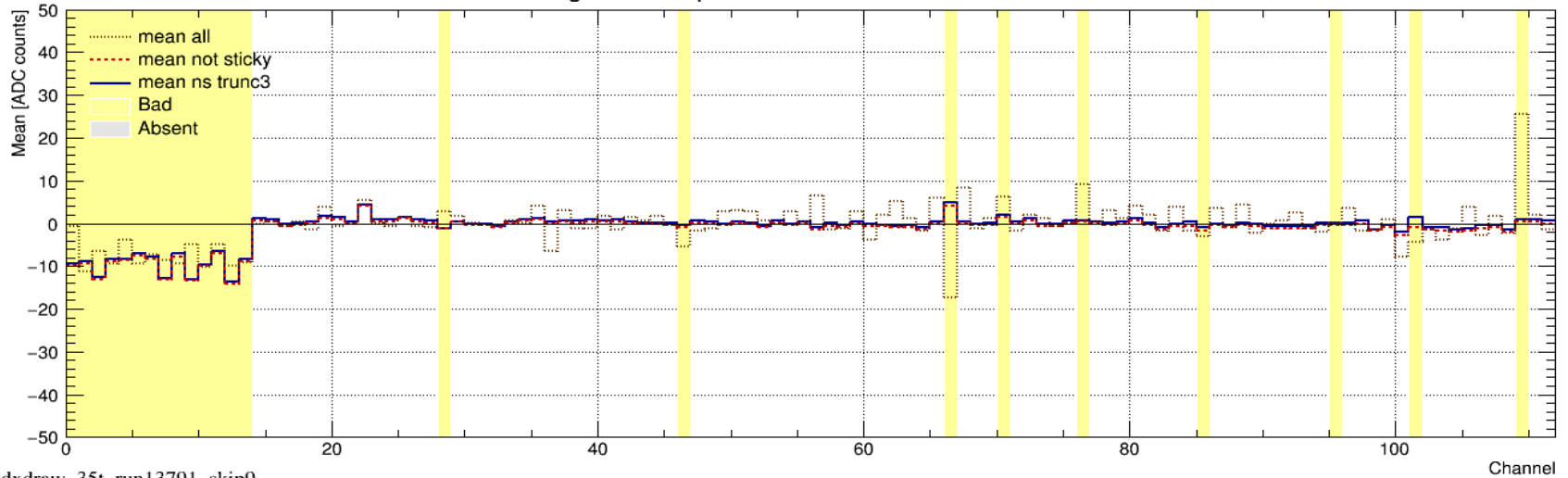


dxdraw\_35t\_run17538\_skip9

# APAs 2z1 and 2z2

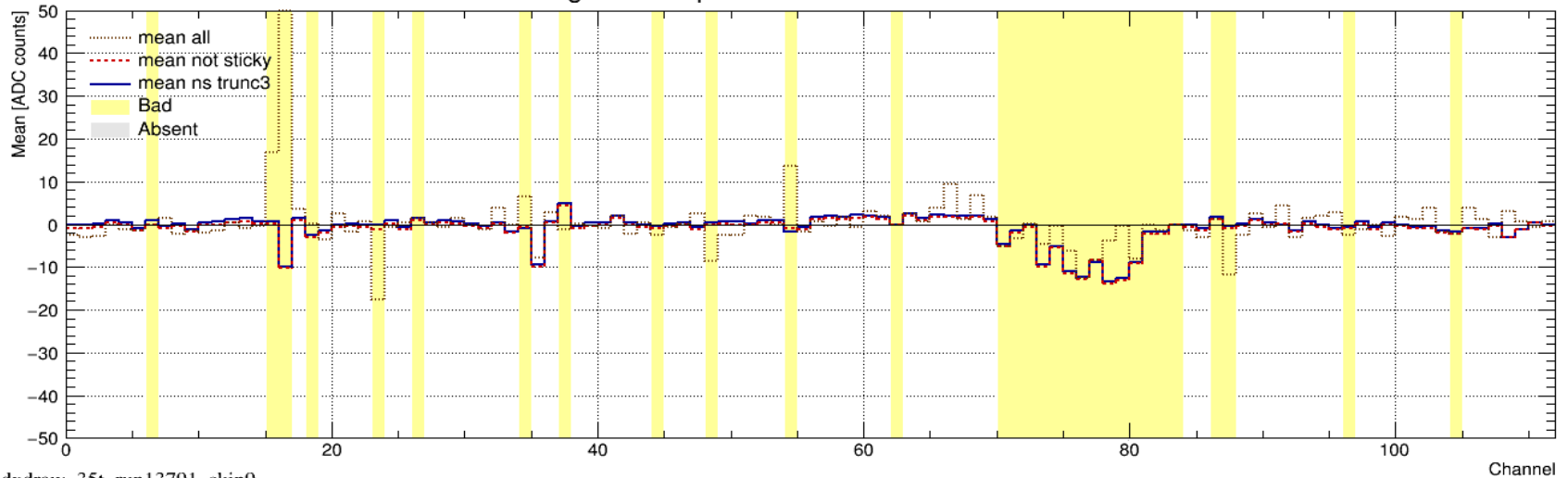
# APAs 2z1, 2z2 run 13791 (first)

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

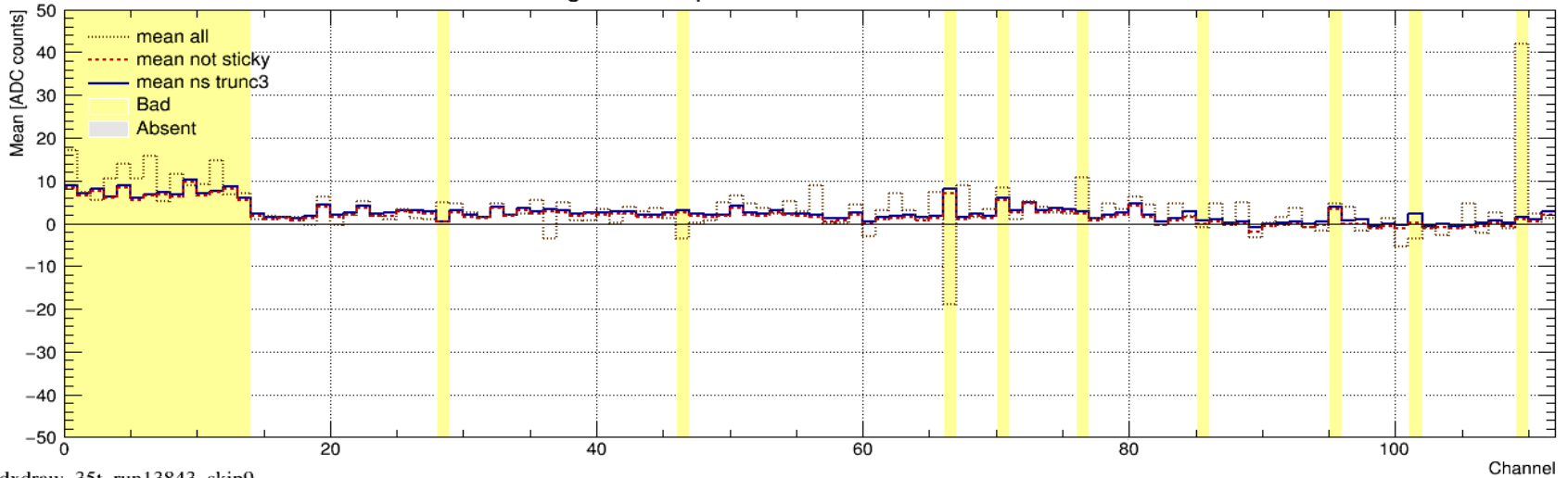
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

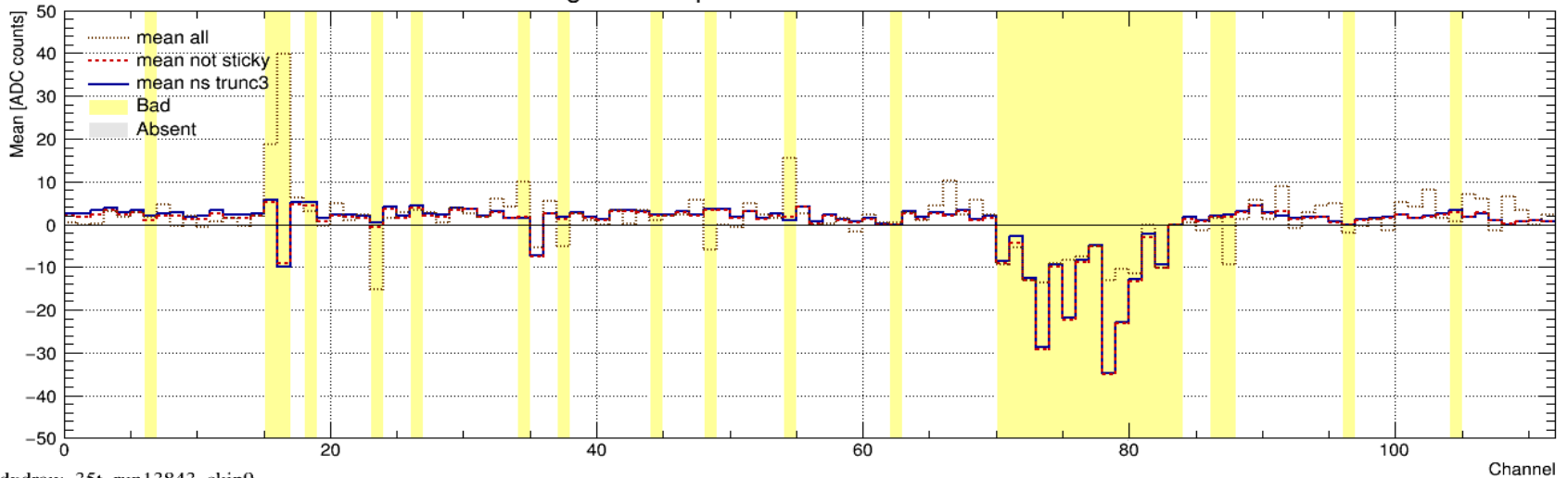
# APAs 2z1, 2z2 run 13843

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

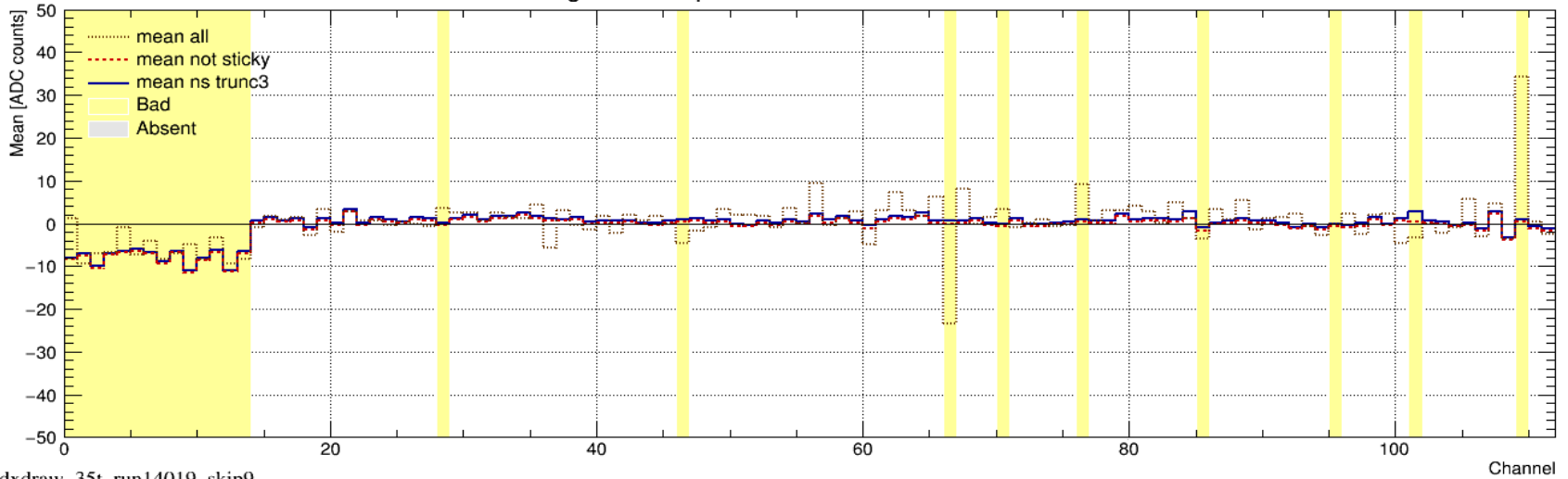
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

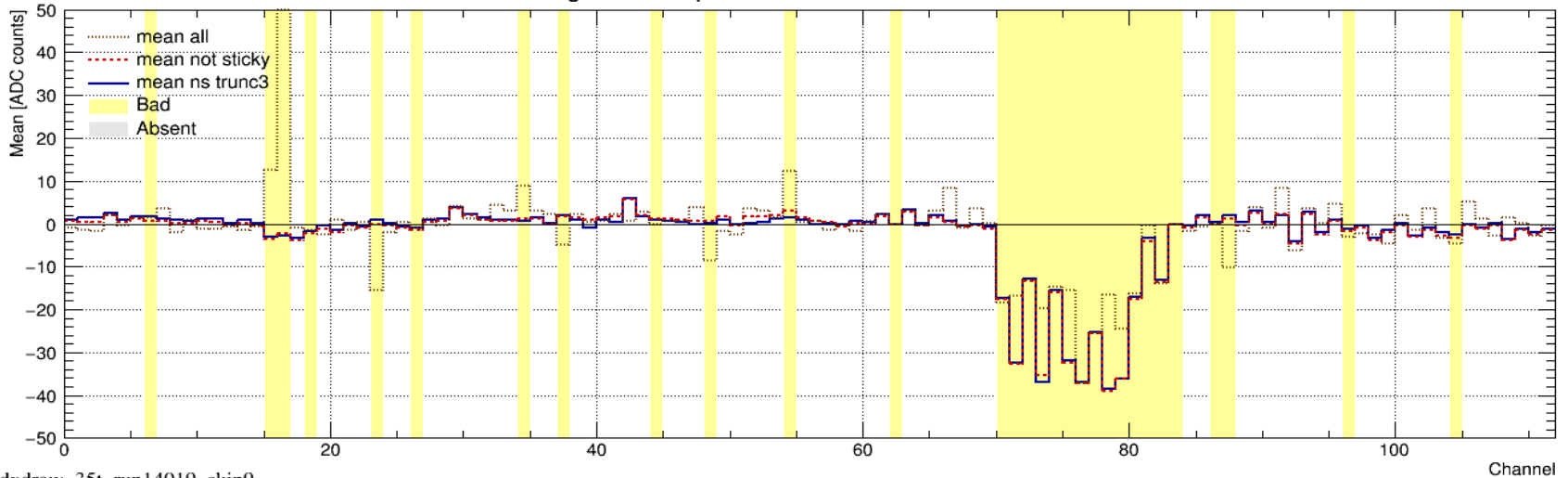
# APAs 2z1, 2z2 run 14019

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

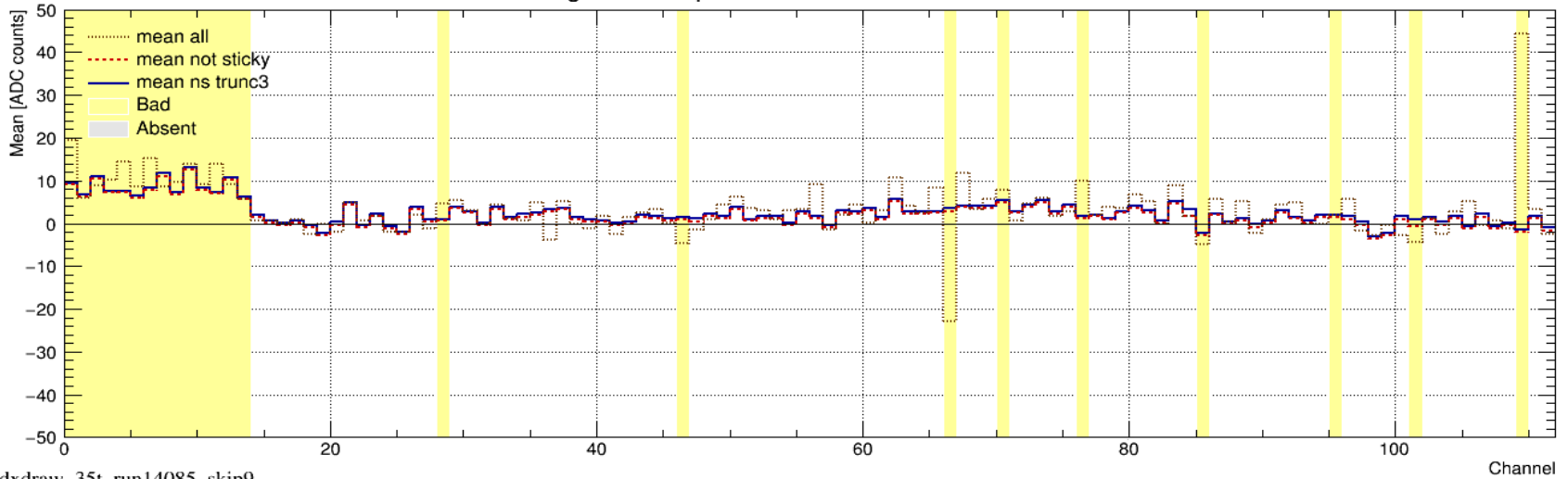
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

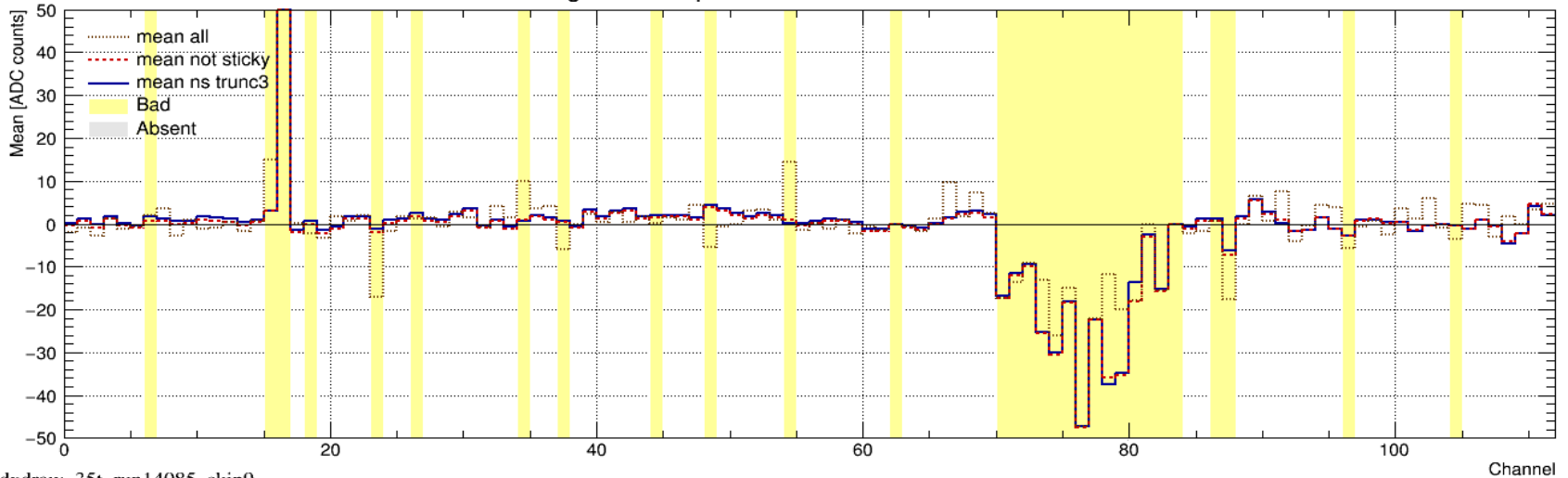
# APAs 2z1, 2z2 run 14085

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

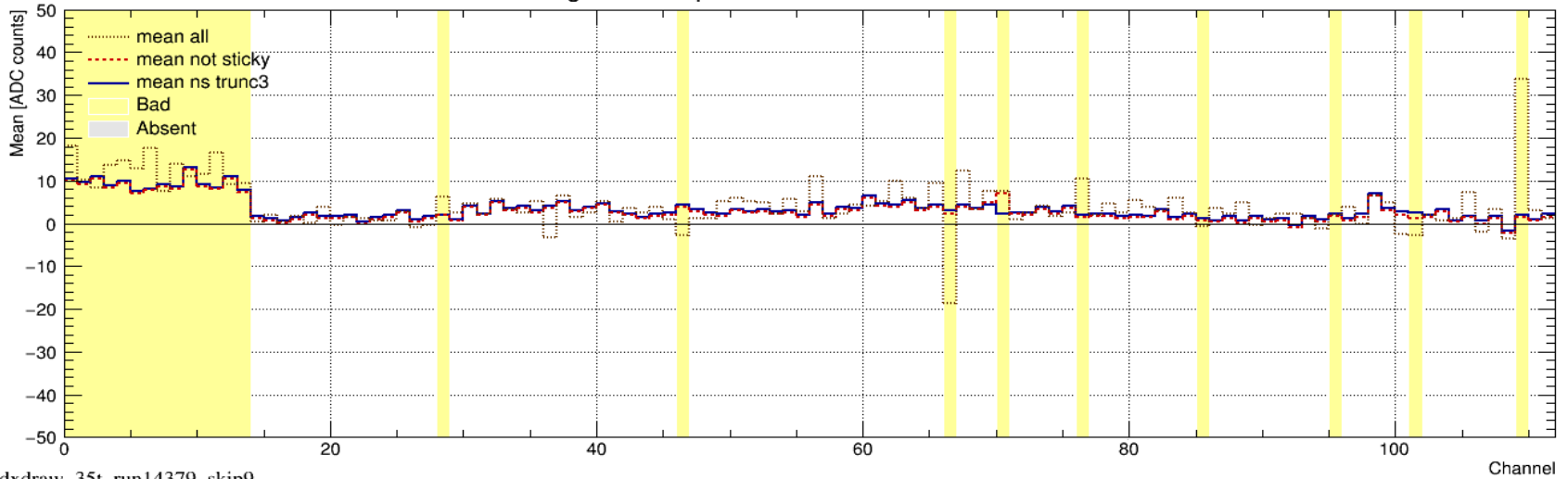
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

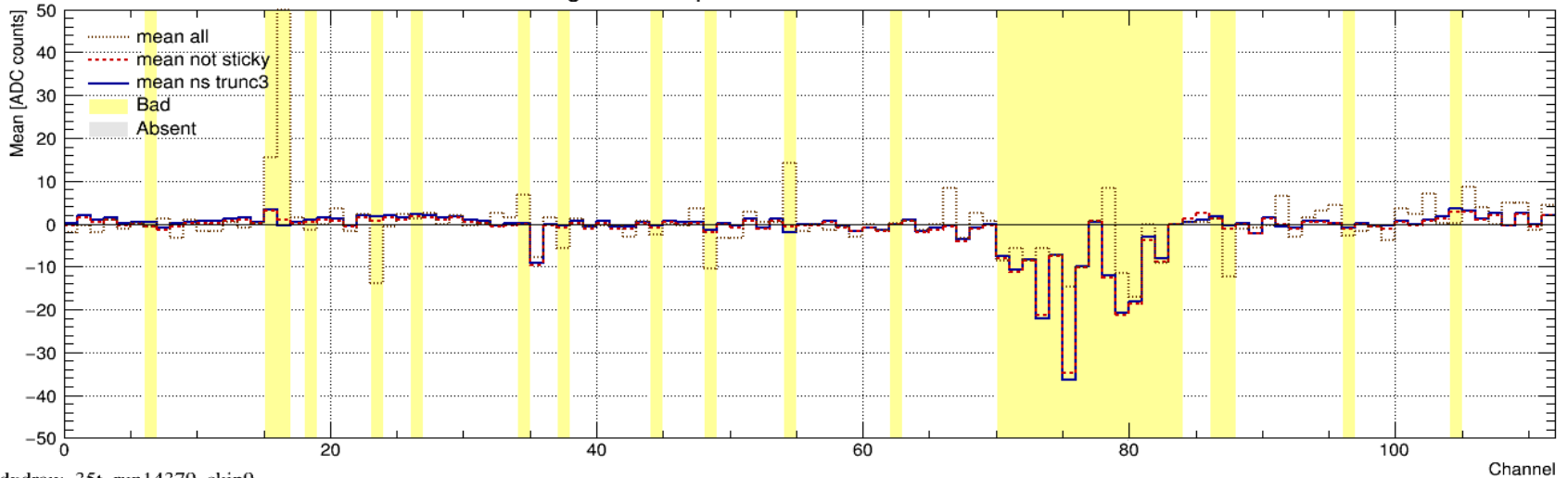
# APAs 2z1, 2z2 run 14379

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

Raw signals for apa2z2 event 10 mean ADC count

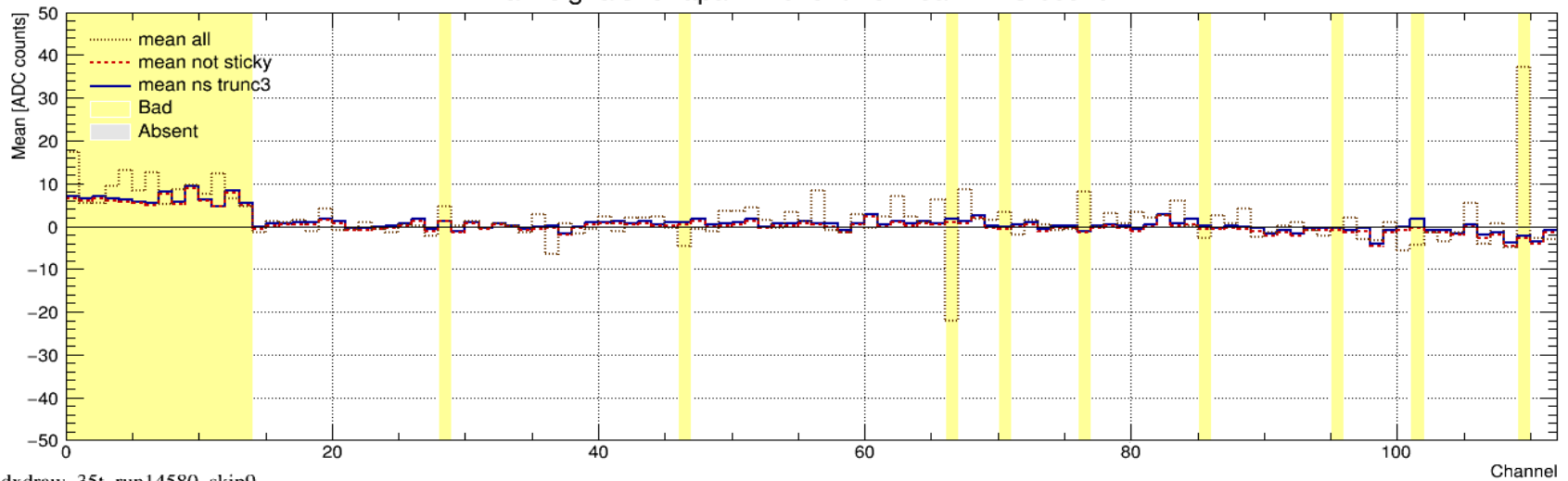


dxdraw\_35t\_run14379\_skip9



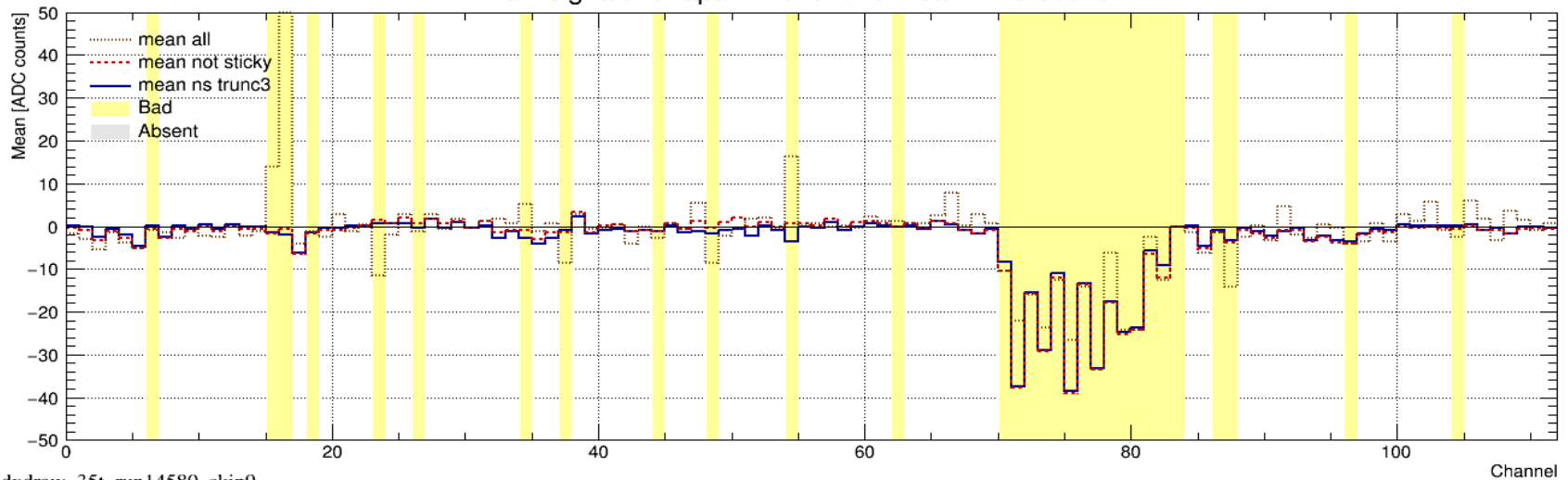
# APAs 2z1, 2z2 run 14580 (last before PF)

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

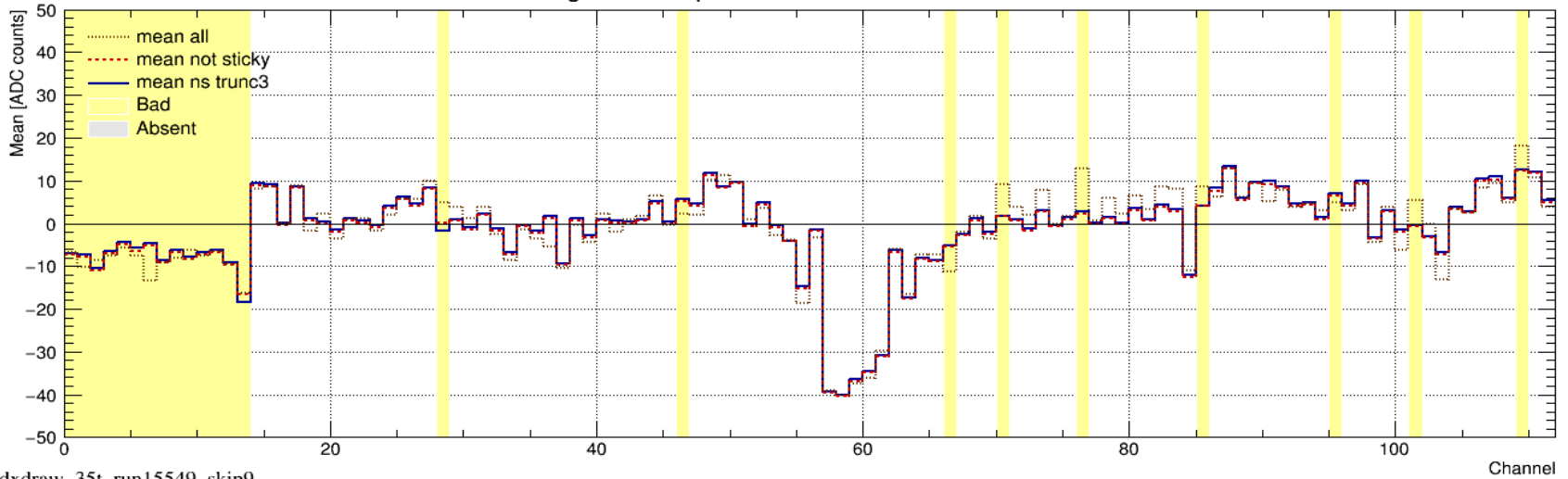
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

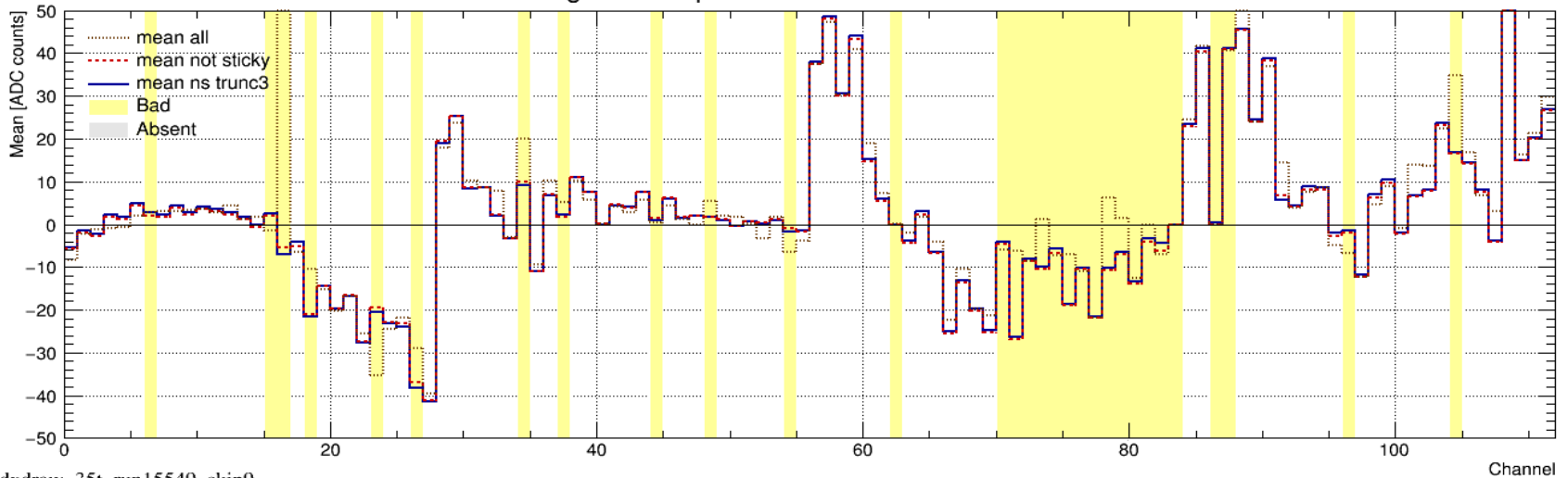
# APAs 2z1, 2z2 run 15549 (first after PF)

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

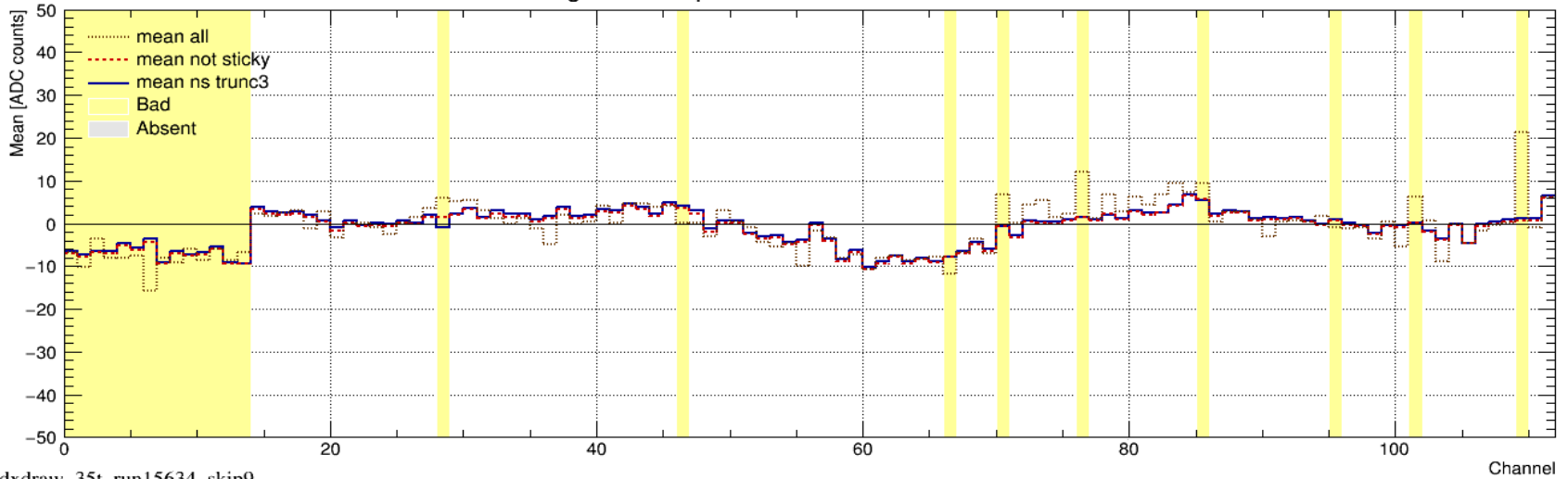
Raw signals for apa2z2 event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

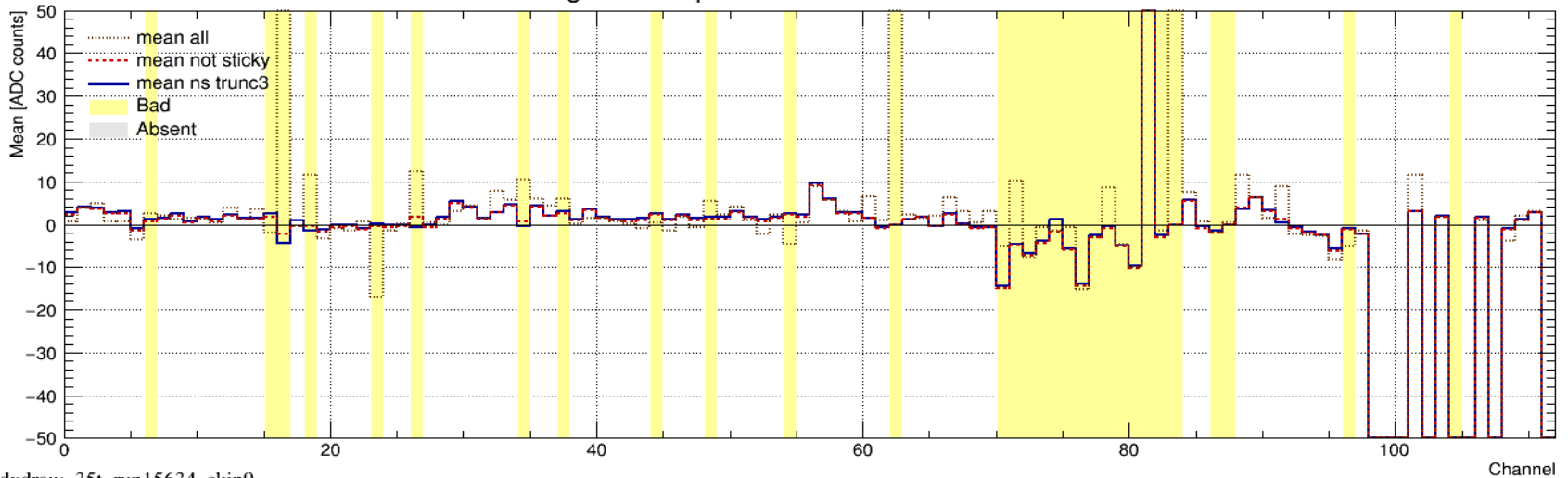
# APAs 2z1, 2z2 run 15634

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

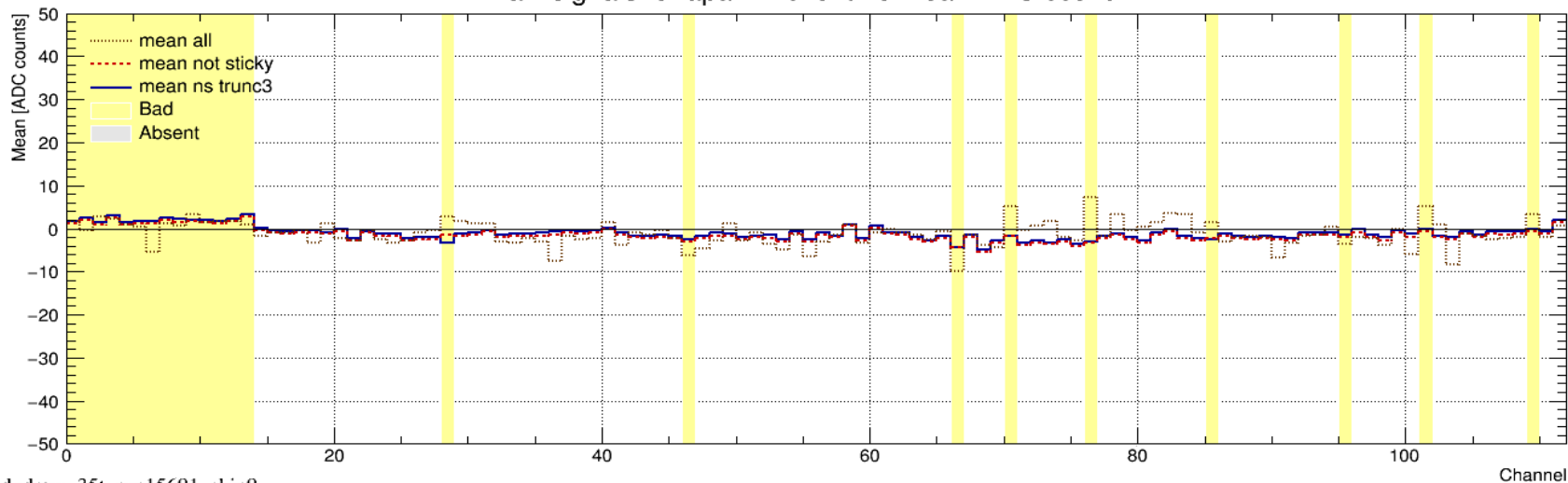
Raw signals for apa2z2 event 10 mean ADC count



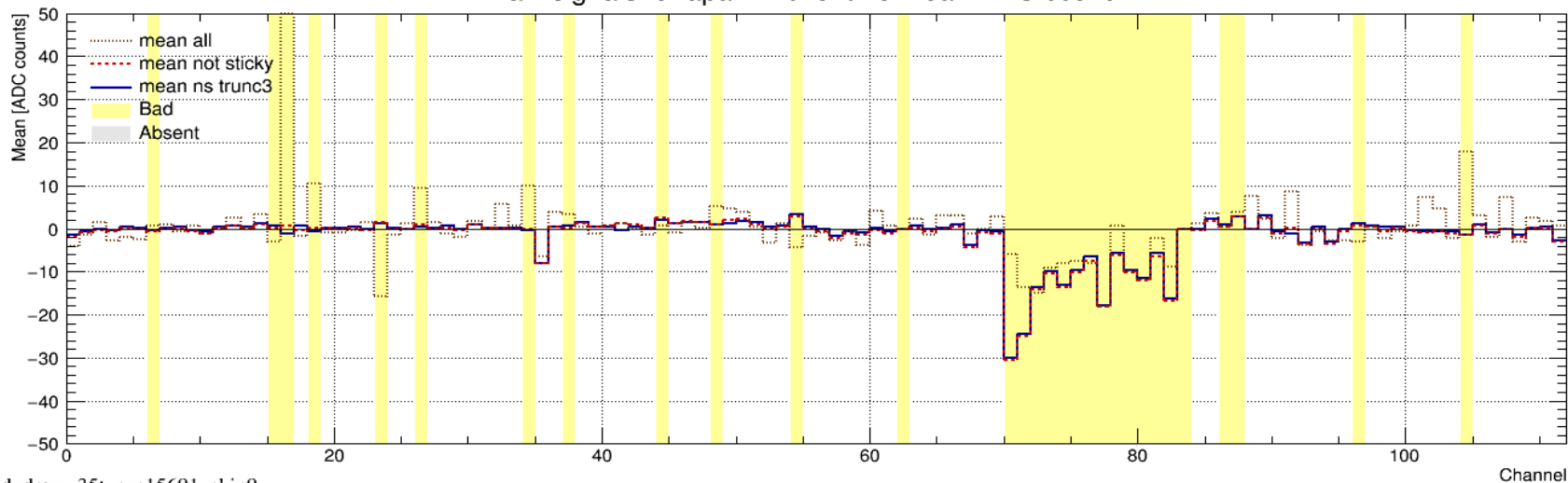
dxdraw\_35t\_run15634\_skip9

# APAs 2z1, 2z2 run 15691

Raw signals for apa2z1 event 10 mean ADC count

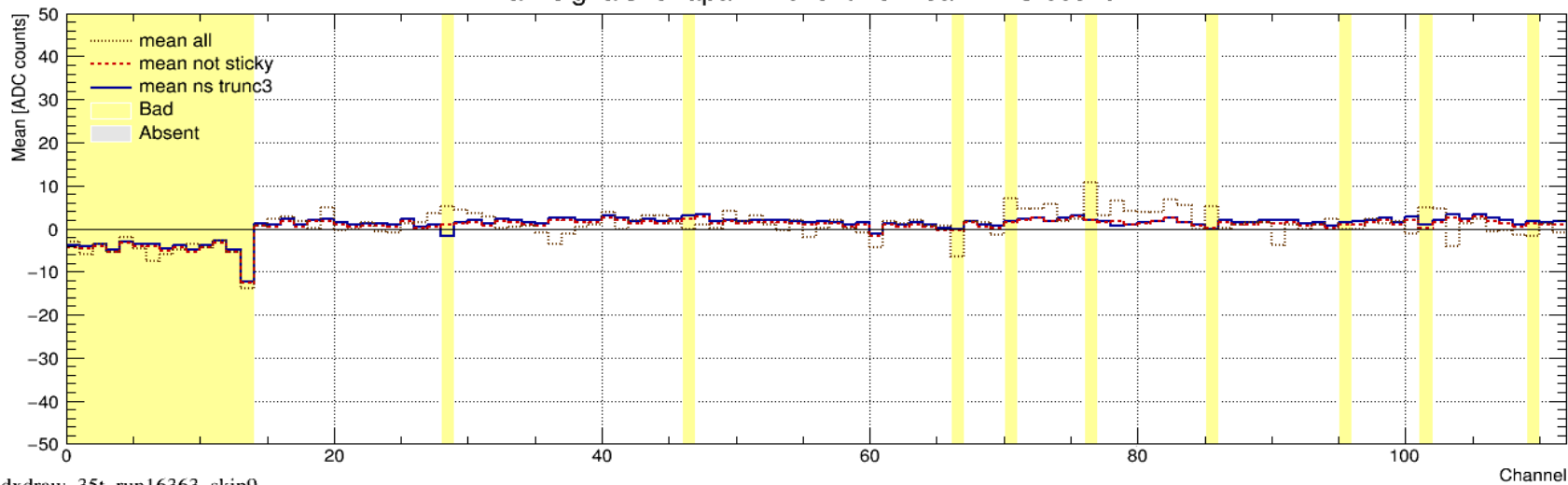


Raw signals for apa2z2 event 10 mean ADC count



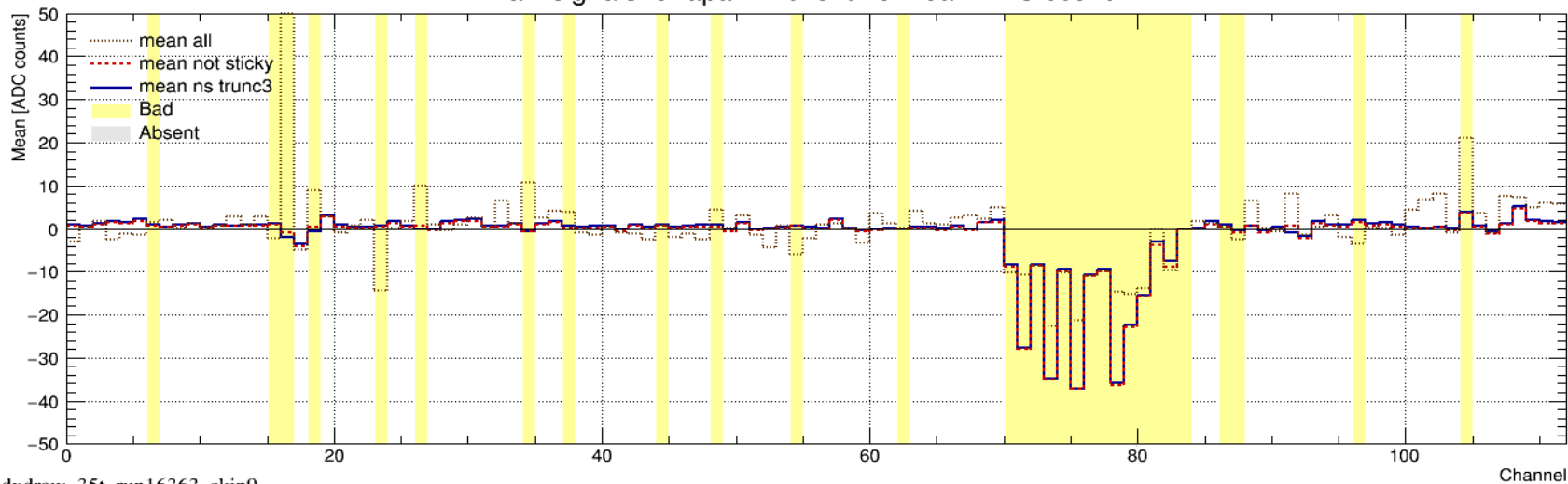
# APAs 2z1, 2z2 run 16363

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

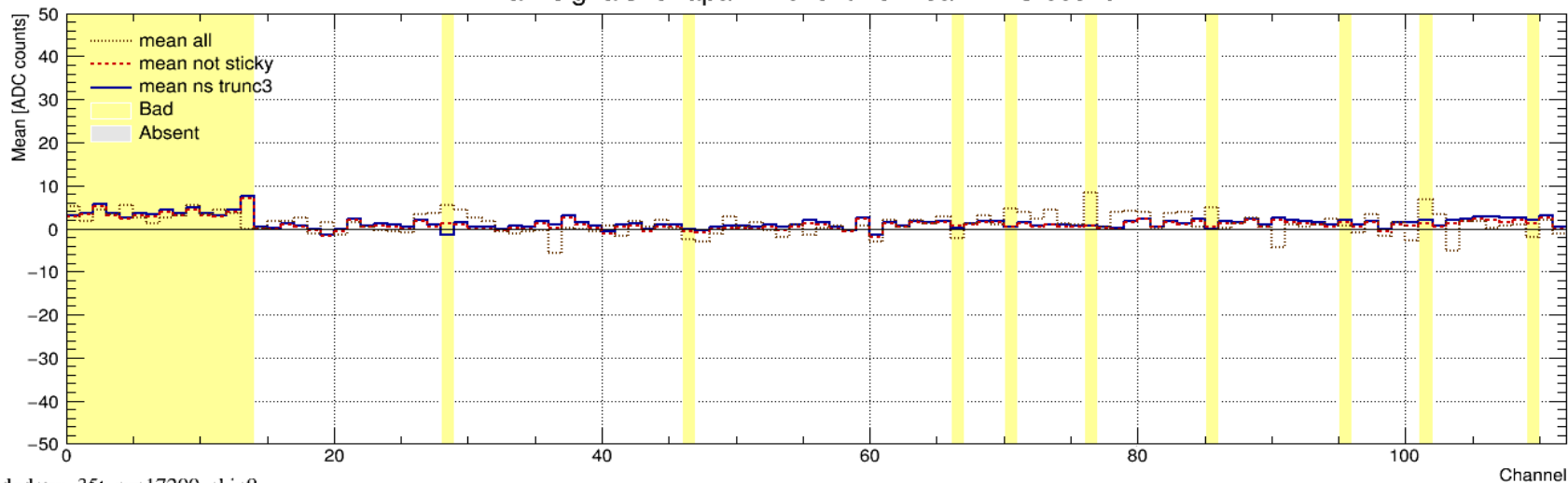
Raw signals for apa2z2 event 10 mean ADC count



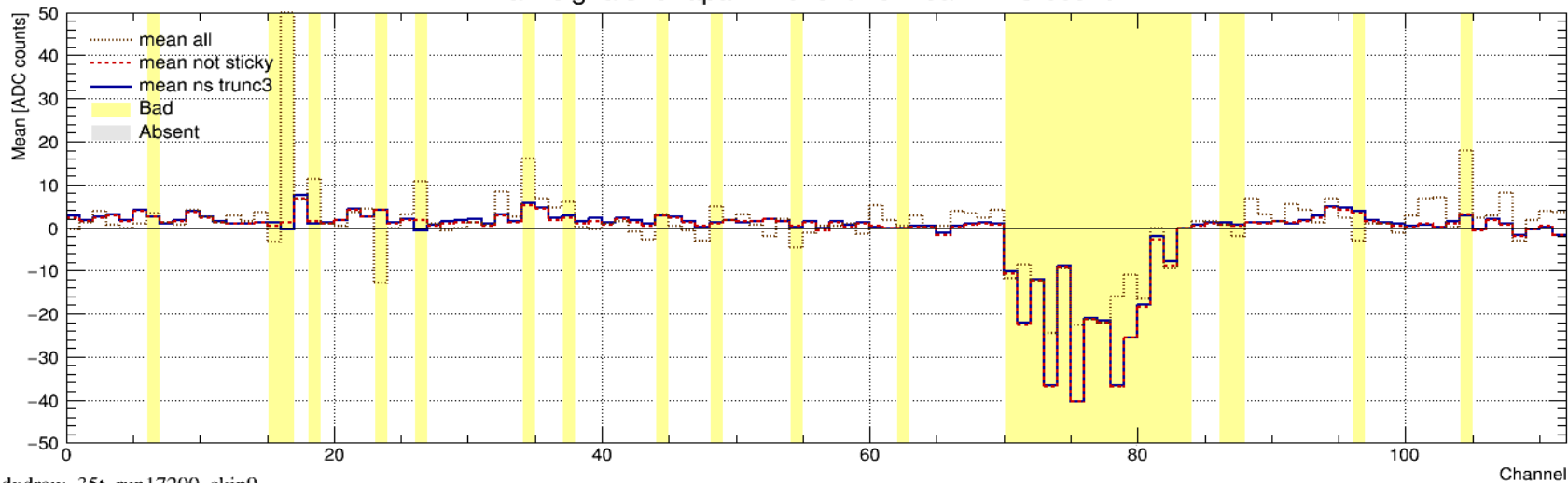
dxdraw\_35t\_run16363\_skip9

# APAs 2z1, 2z2 run 17200

Raw signals for apa2z1 event 10 mean ADC count

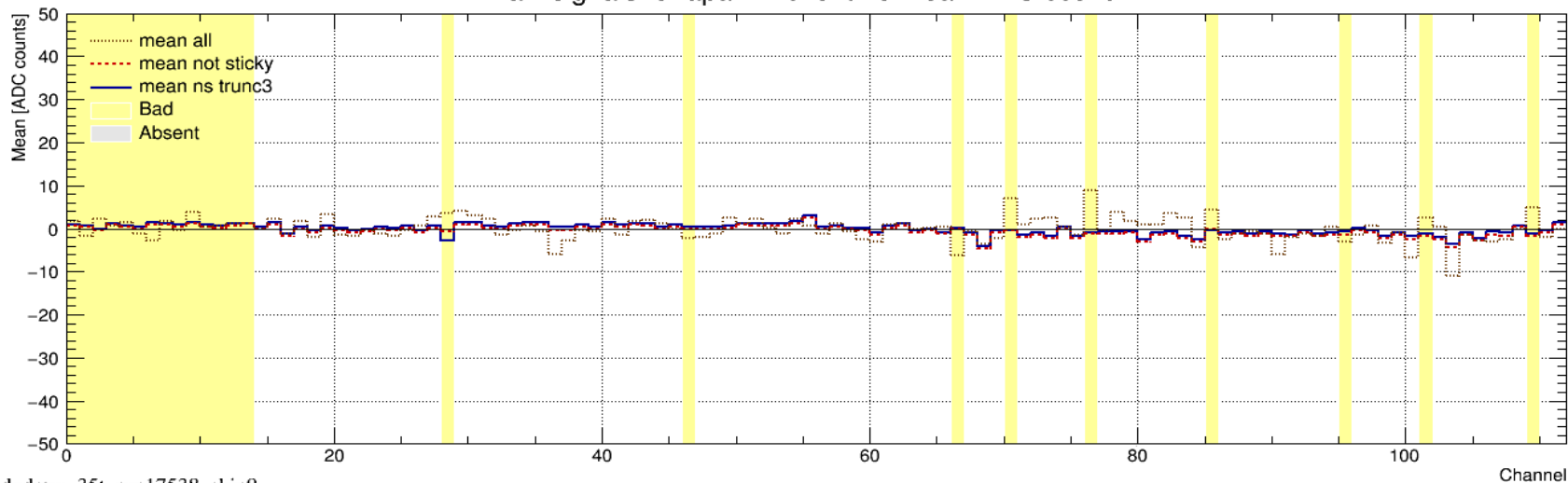


Raw signals for apa2z2 event 10 mean ADC count



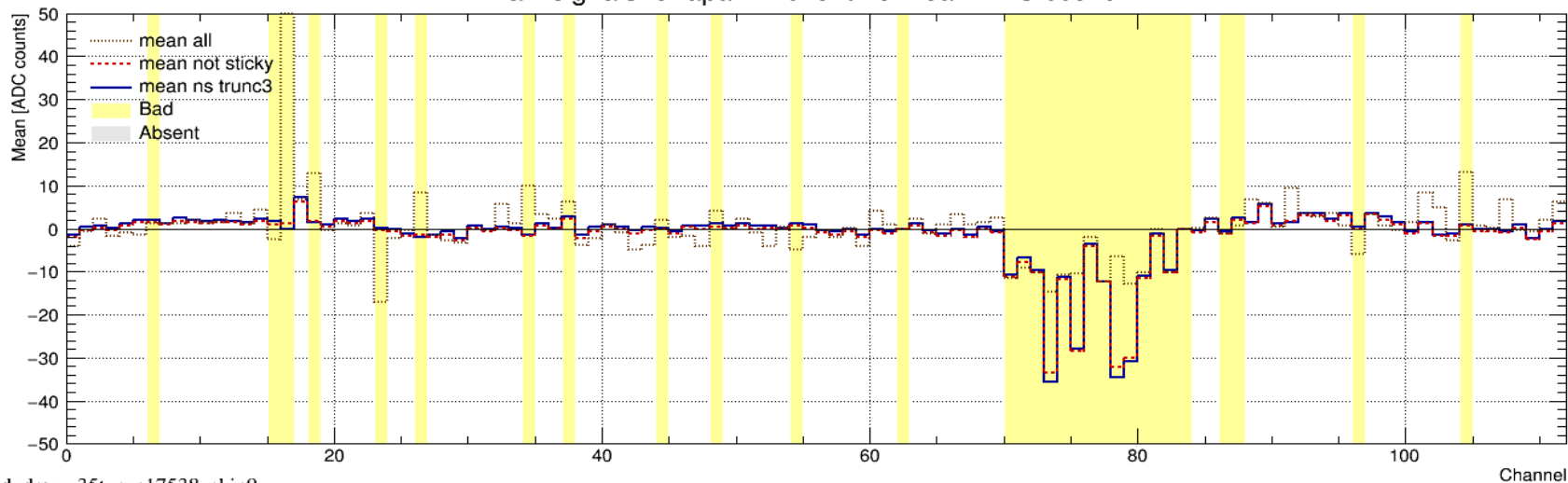
# APAs 2z1, 2z2 run 17538 (last)

Raw signals for apa2z1 event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa2z2 event 10 mean ADC count



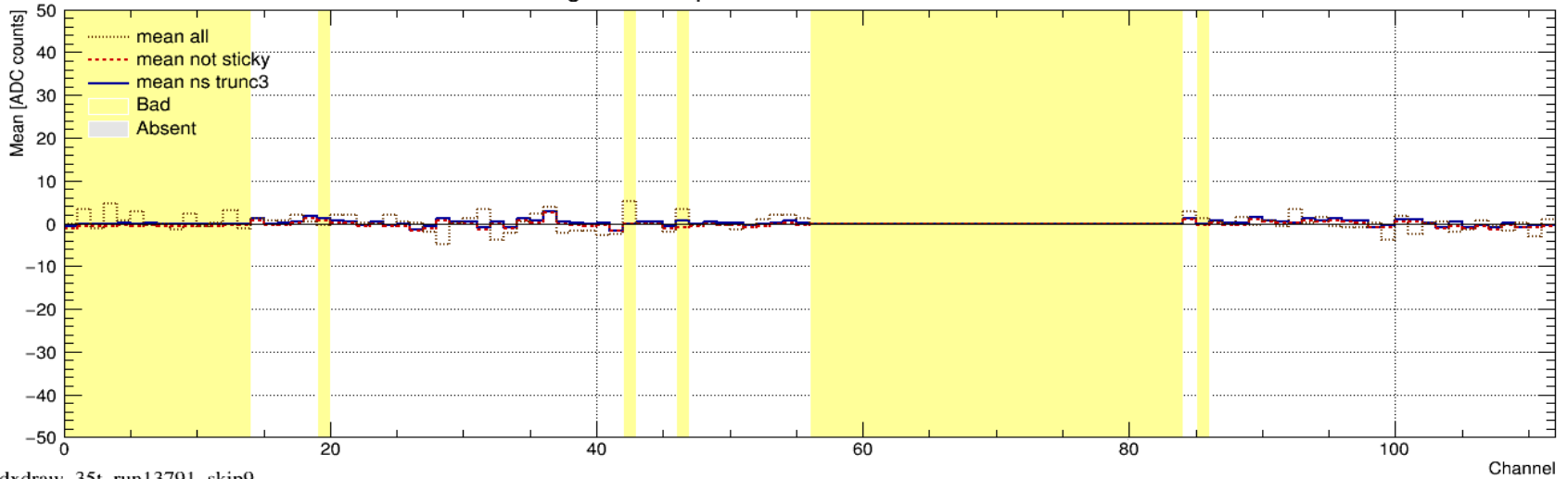
dxdraw\_35t\_run17538\_skip9

# APAs 3z1 and 3z2



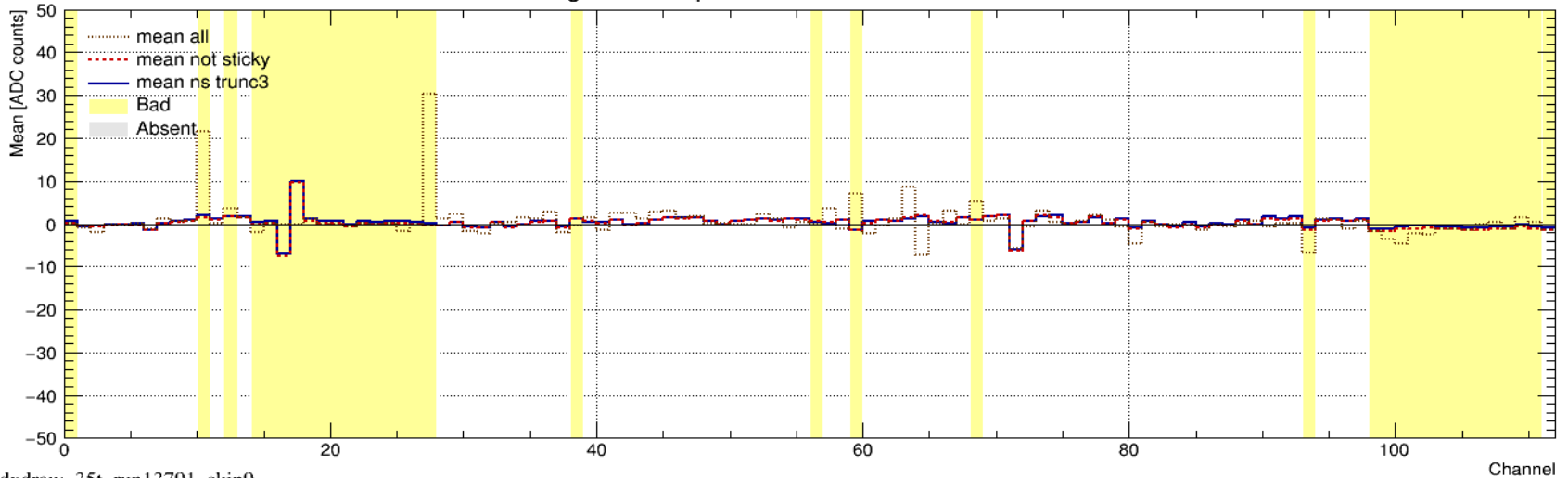
# APAs 3z1, 3z2 run 13791 (first)

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

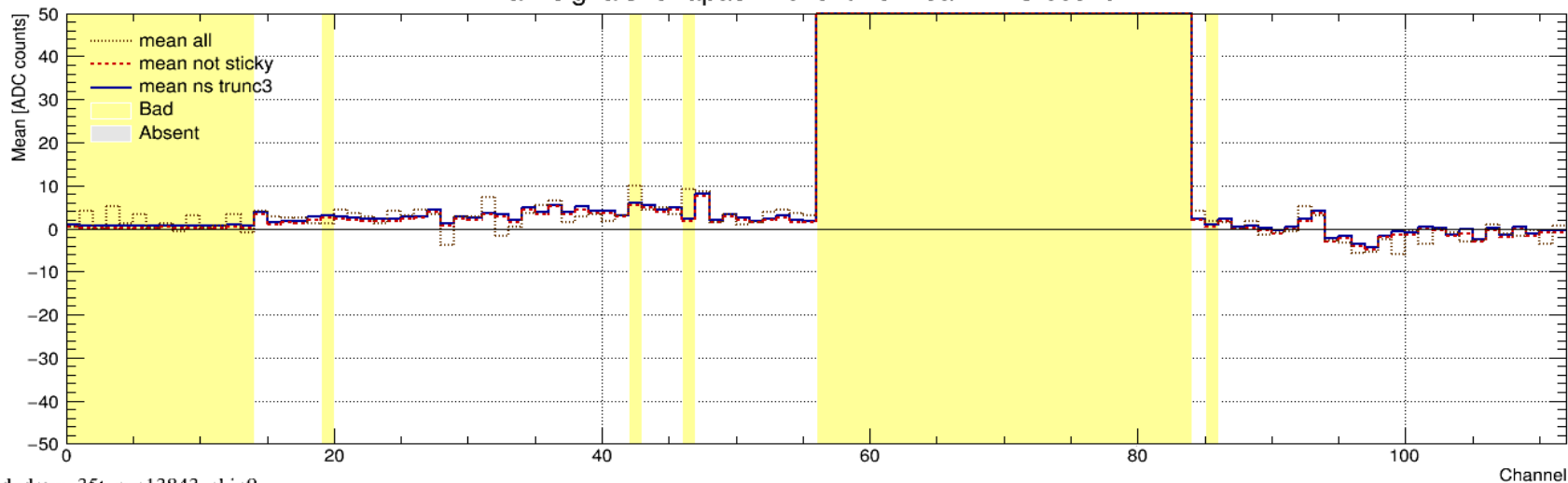
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

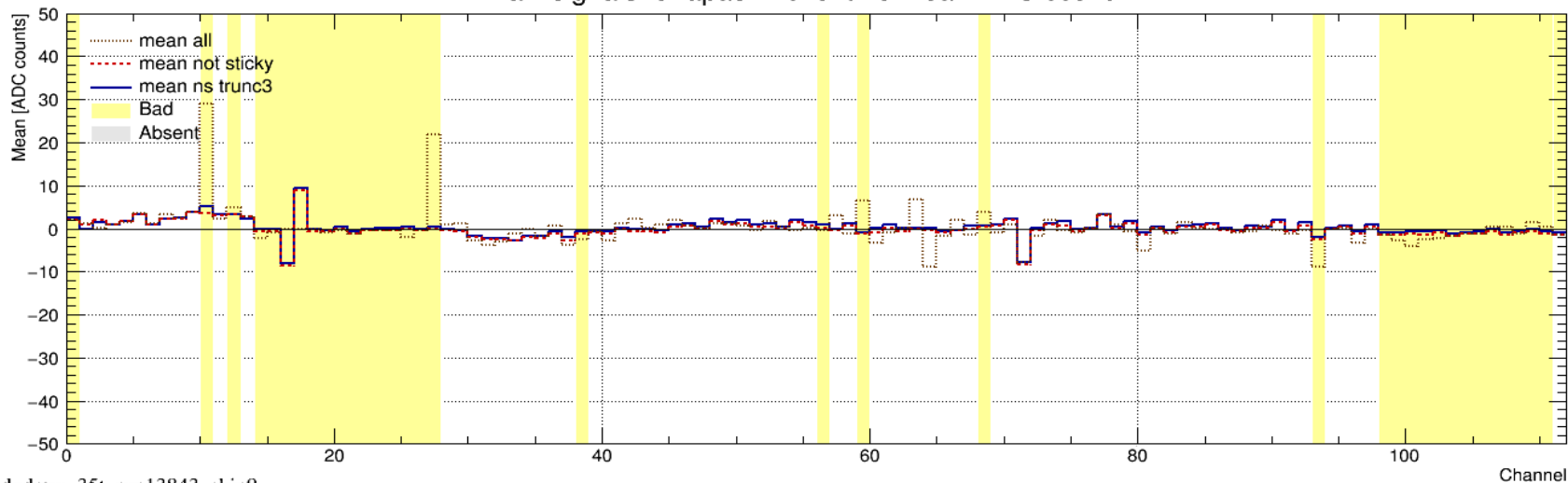
# APAs 3z1, 3z2 run 13843

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

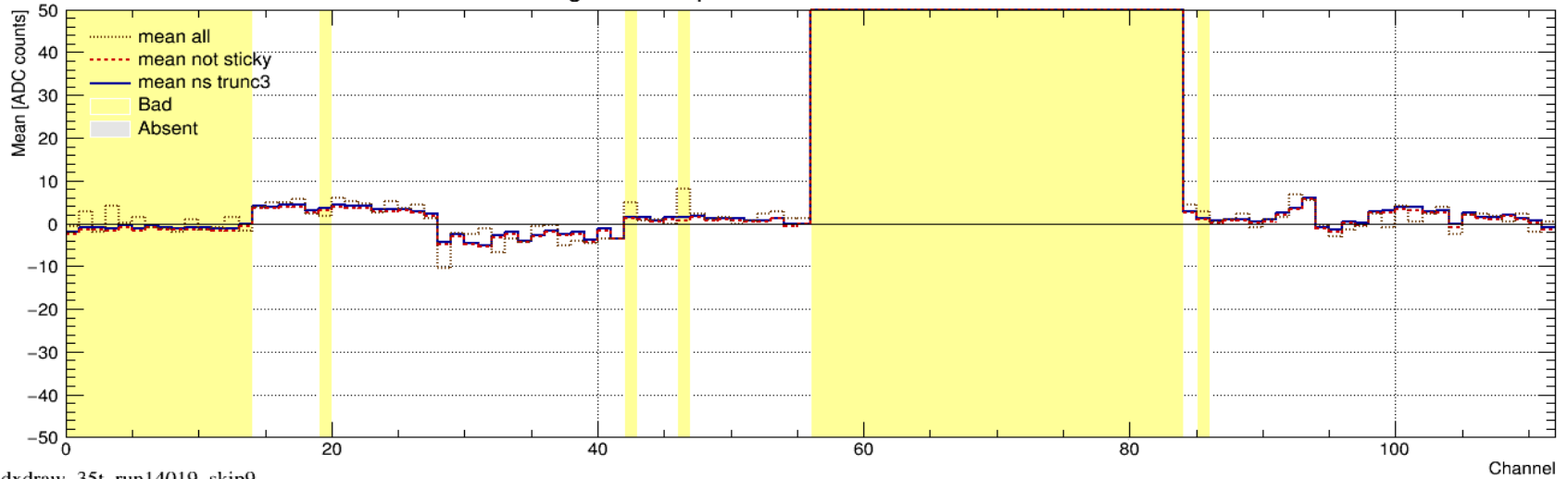
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

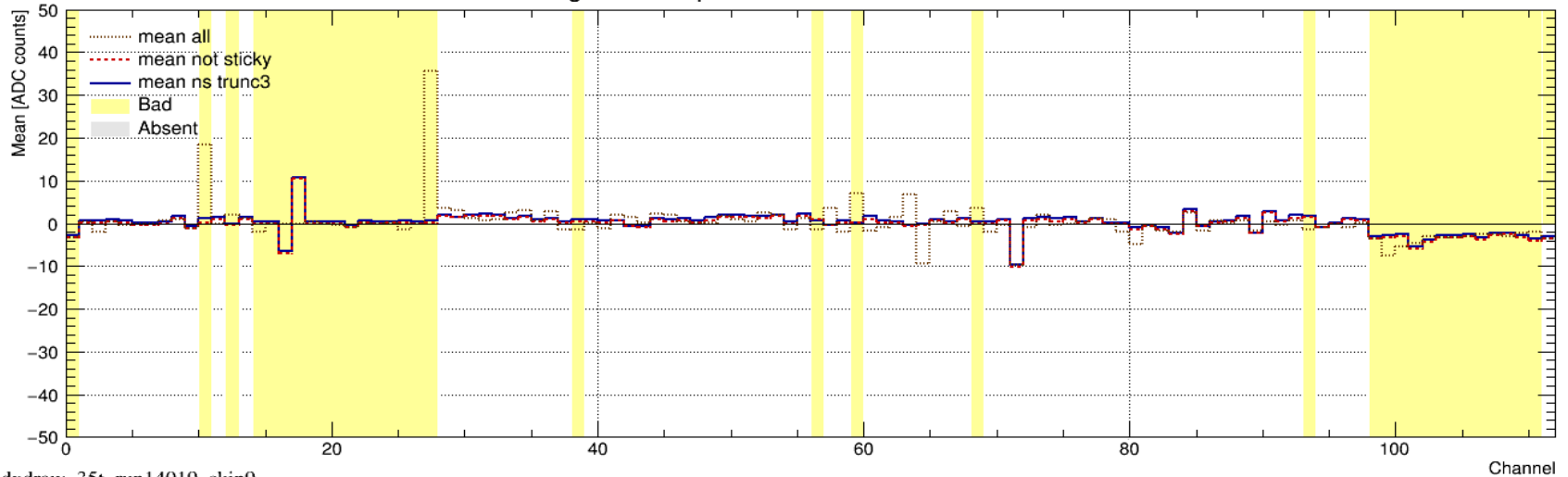
# APAs 3z1, 3z2 run 14019

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

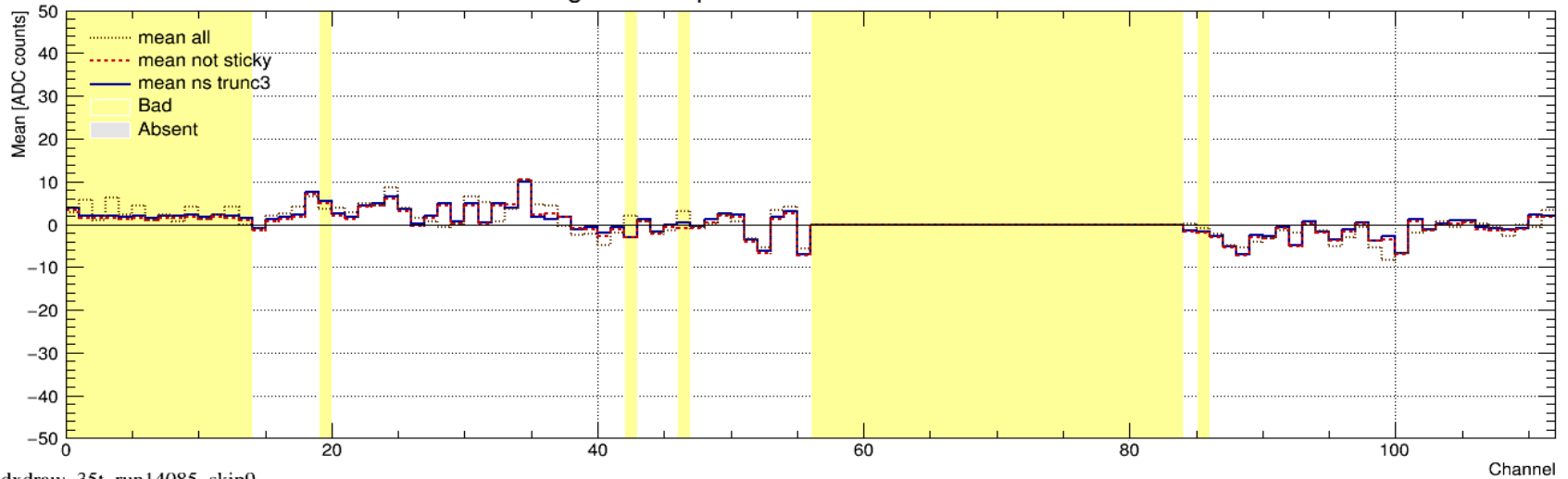
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

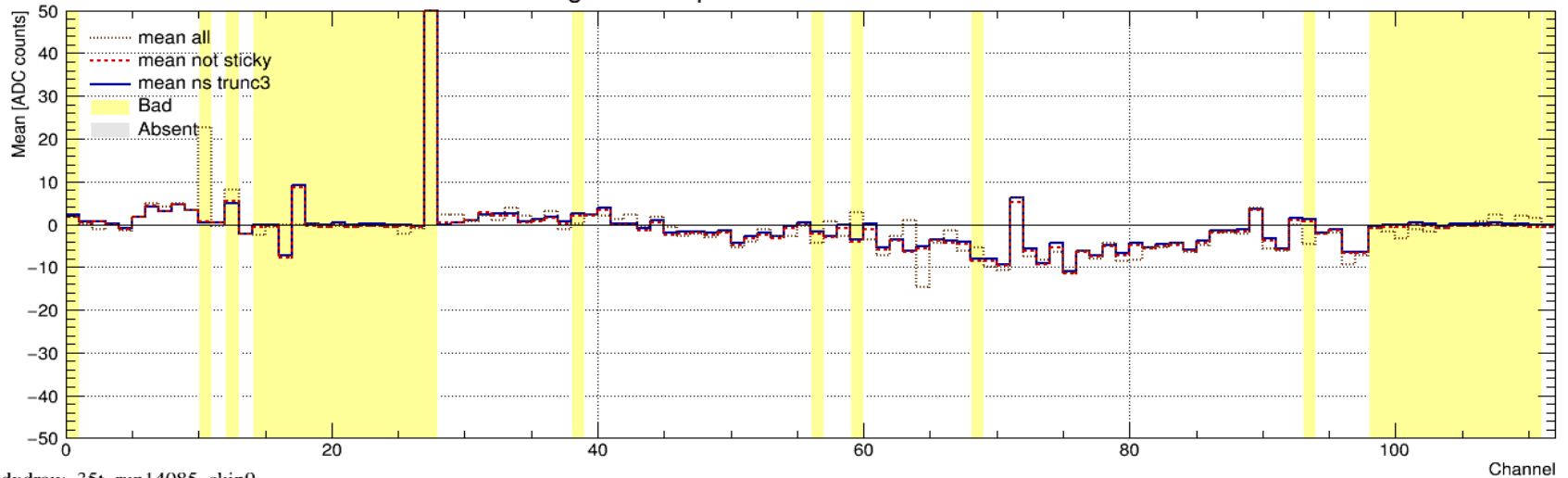
# APAs 3z1, 3z2 run 14085

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

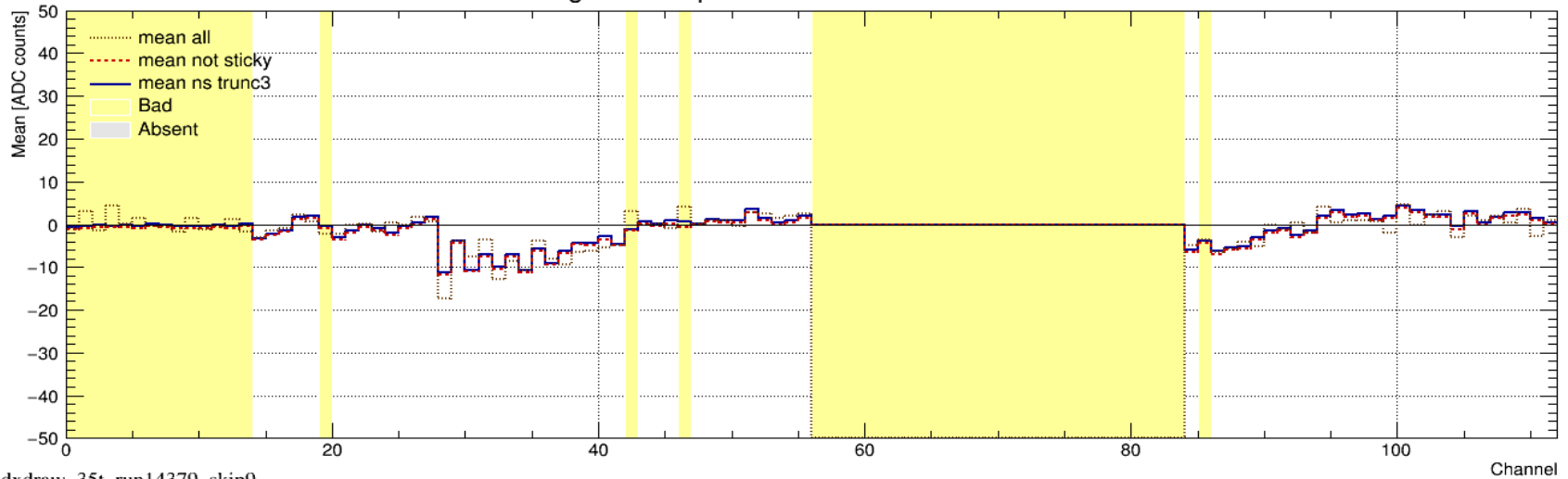
Raw signals for apa3z2 event 10 mean ADC count



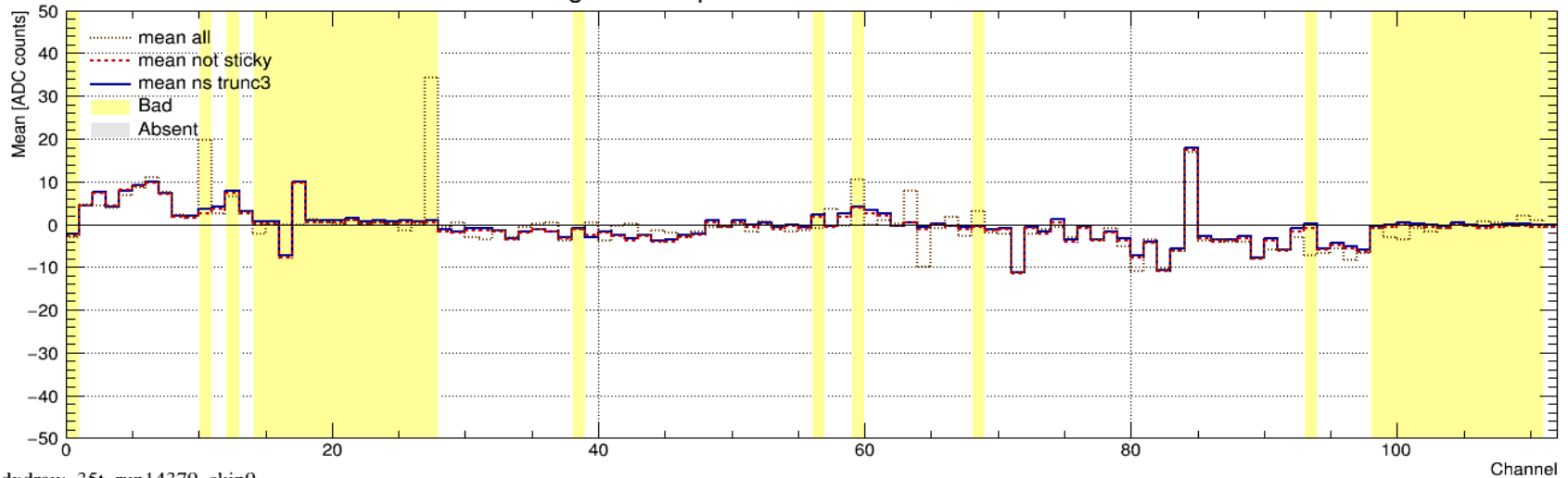
dxdraw\_35t\_run14085\_skip9

# APAs 3z1, 3z2 run 14379

Raw signals for apa3z1 event 10 mean ADC count

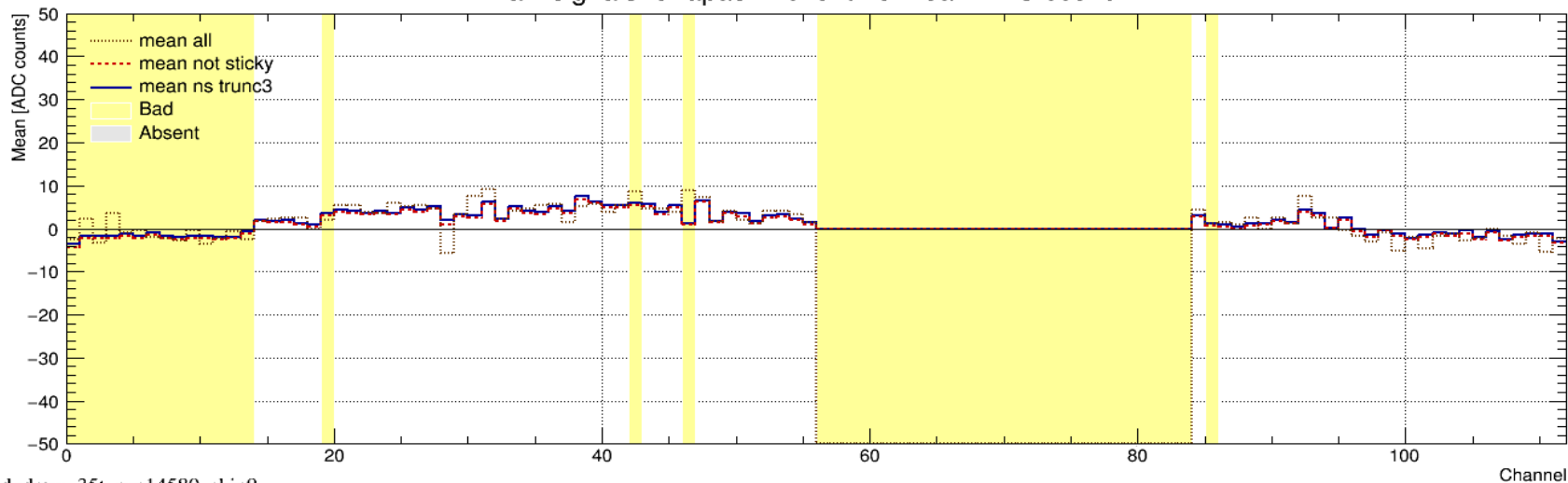


Raw signals for apa3z2 event 10 mean ADC count



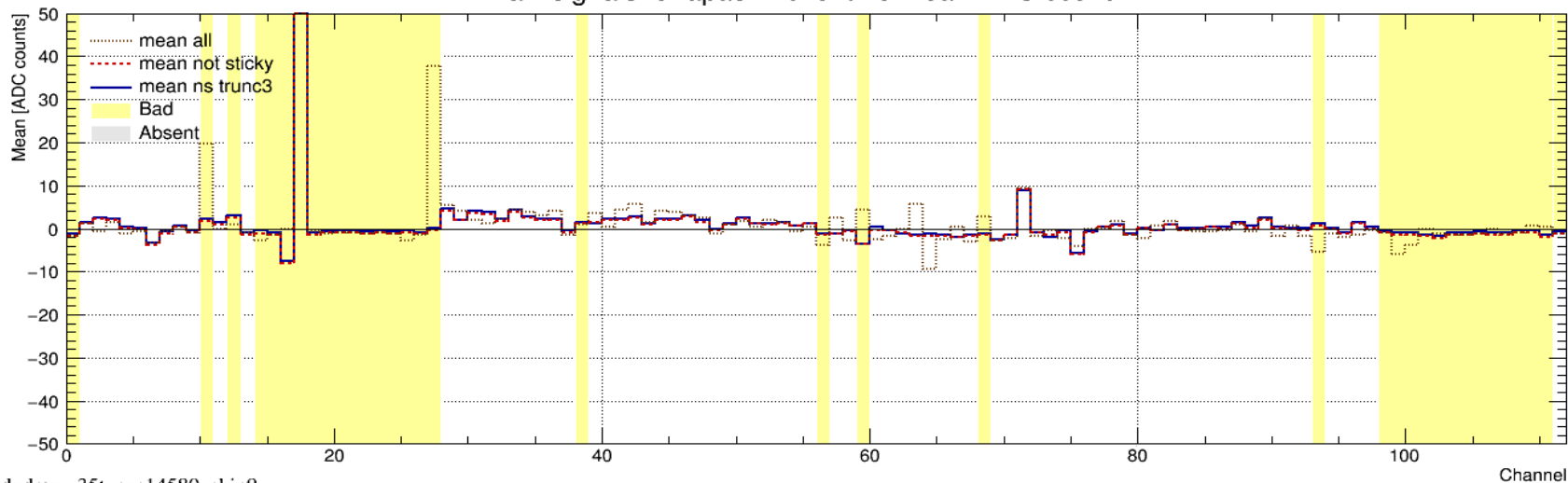
# APAs 3z1, 3z2 run 14580 (last before PF)

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

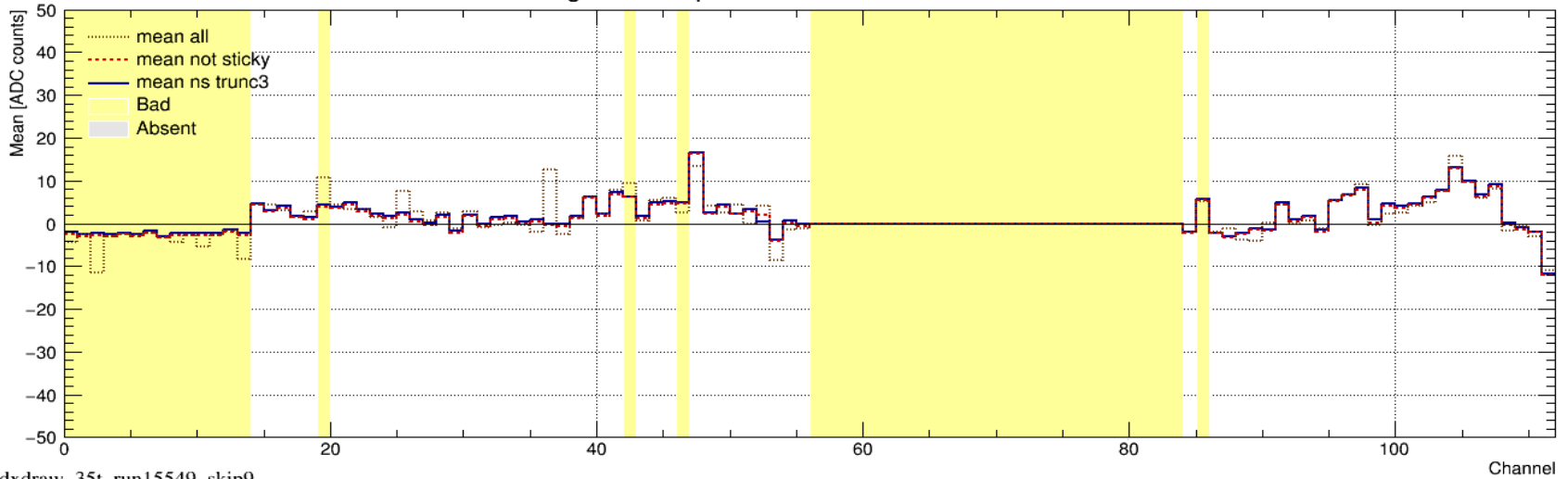
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

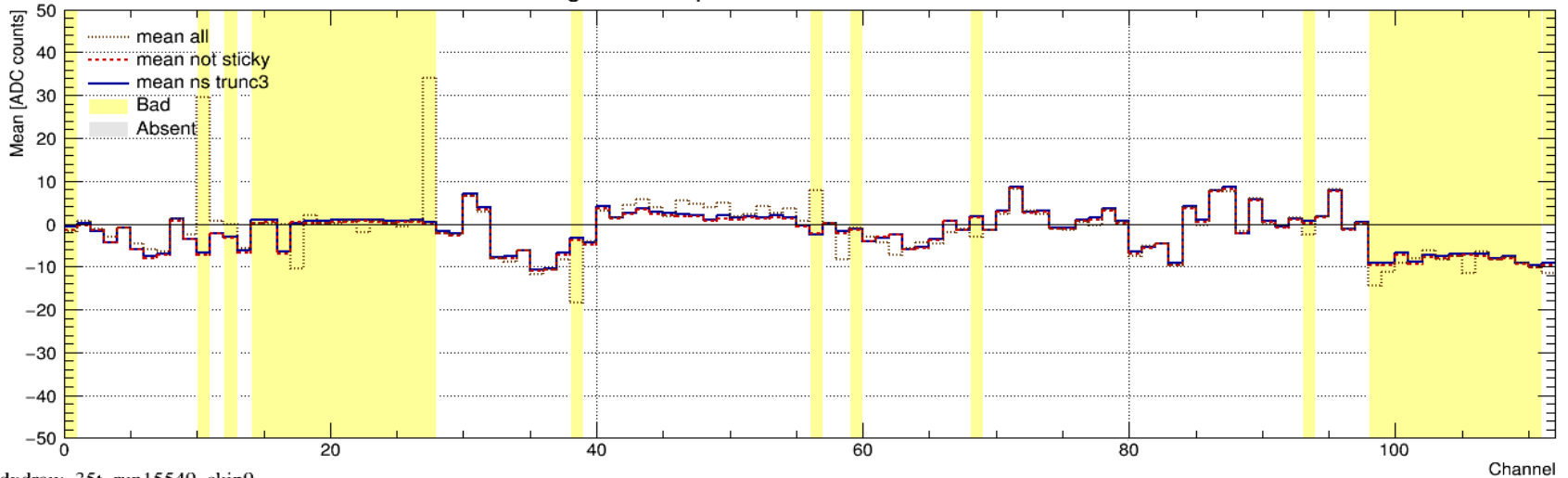
# APAs 3z1, 3z2 run 15549 (first after PF)

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

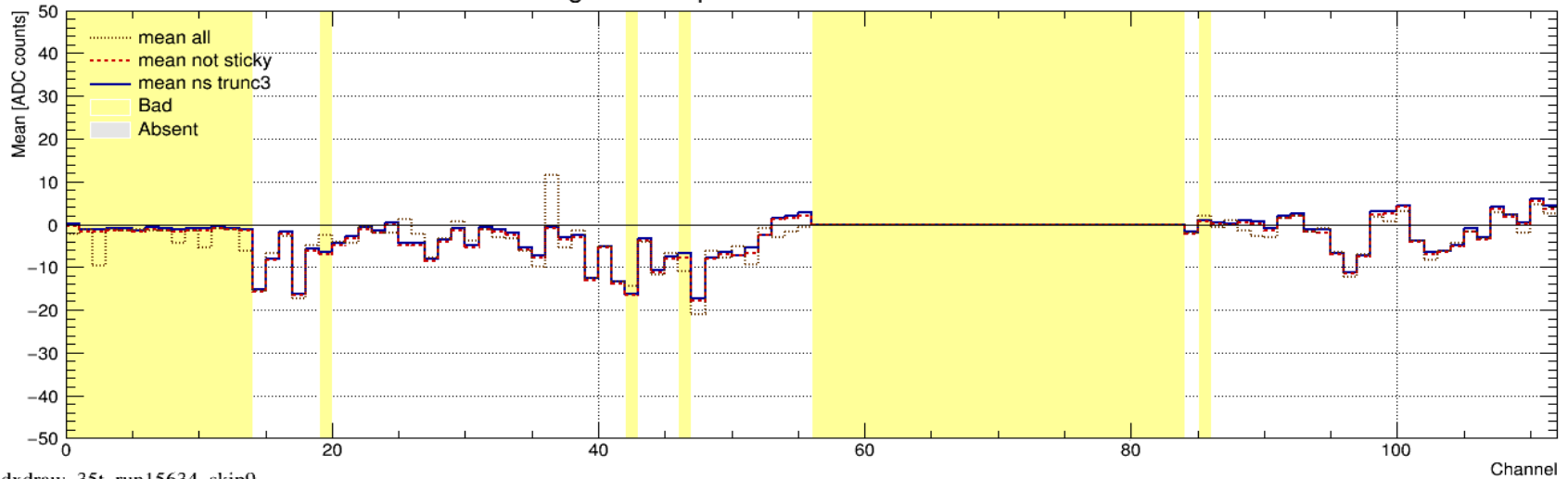
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

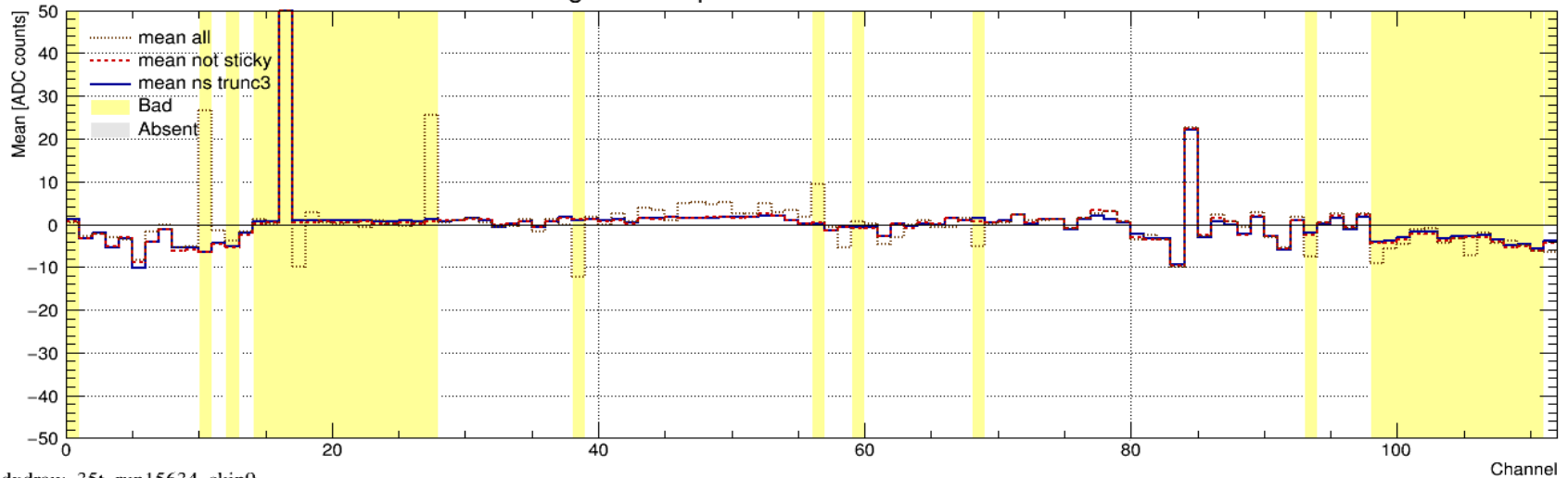
# APAs 3z1, 3z2 run 15634

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

Raw signals for apa3z2 event 10 mean ADC count

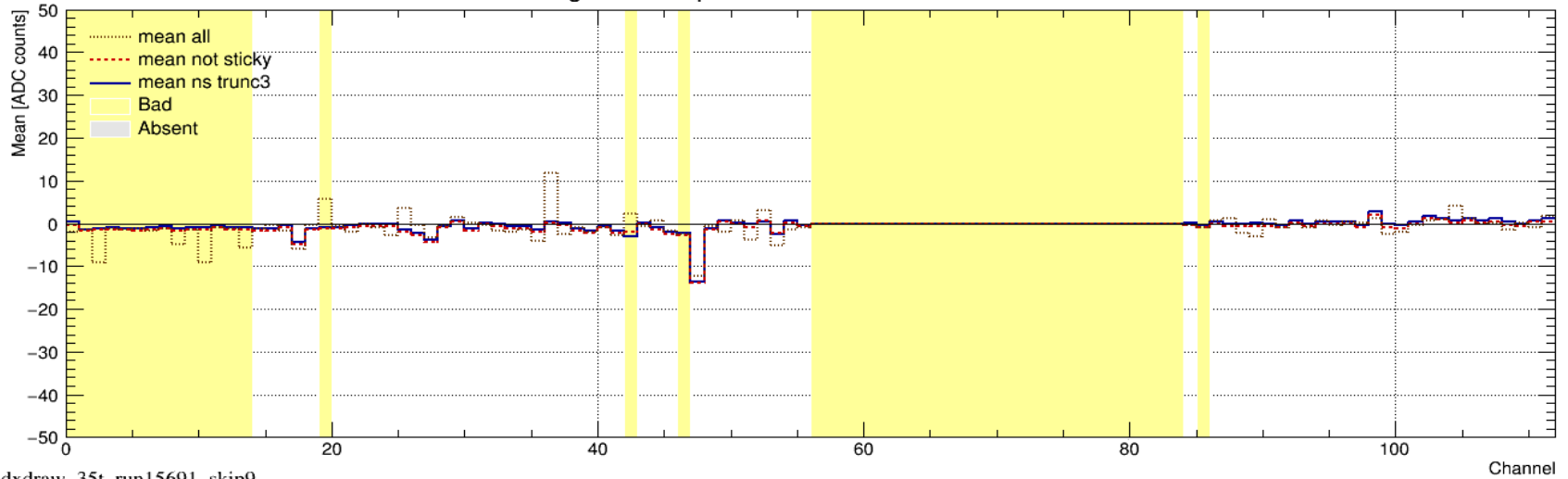


dxdraw\_35t\_run15634\_skip9



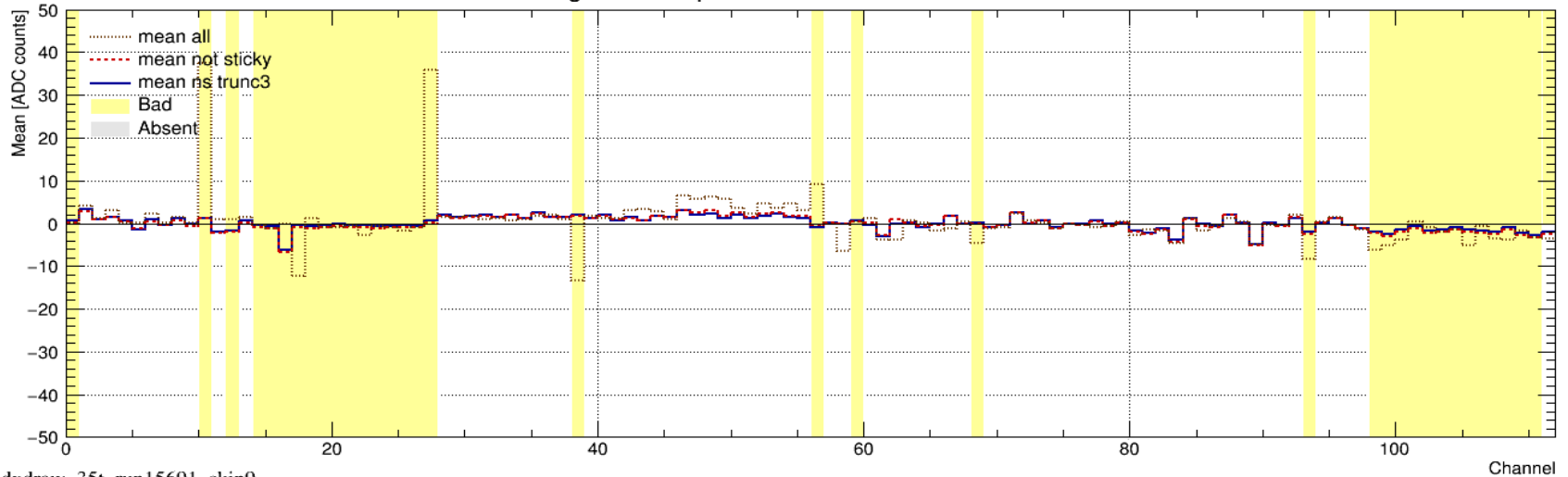
# APAs 3z1, 3z2 run 15691

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

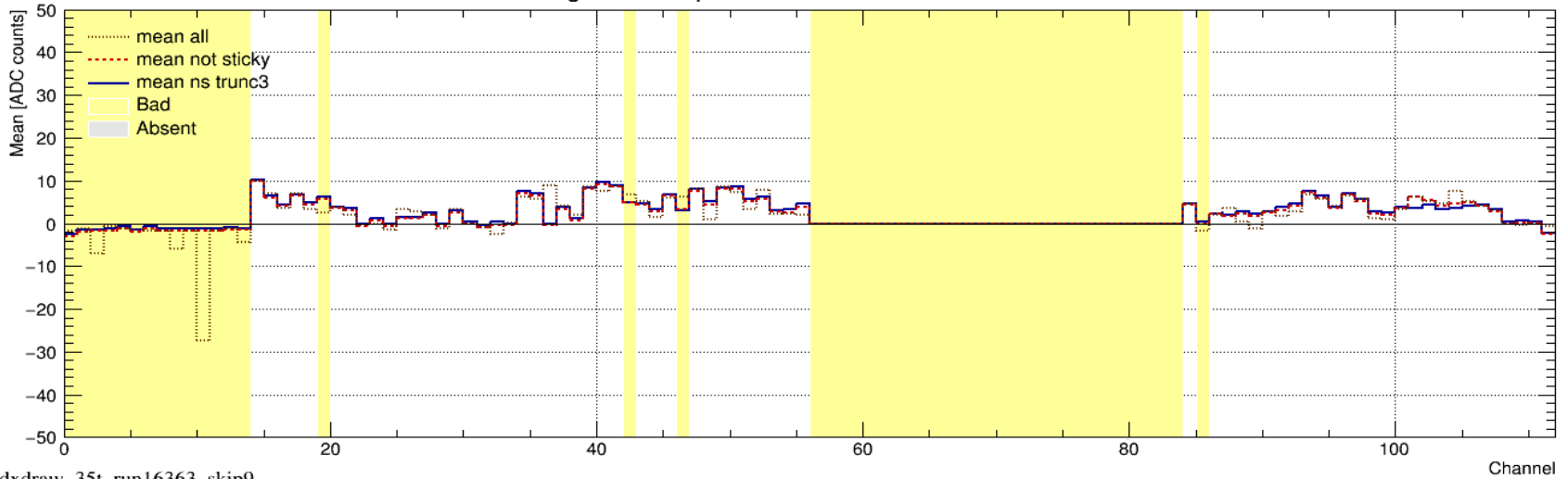
Raw signals for apa3z2 event 10 mean ADC count



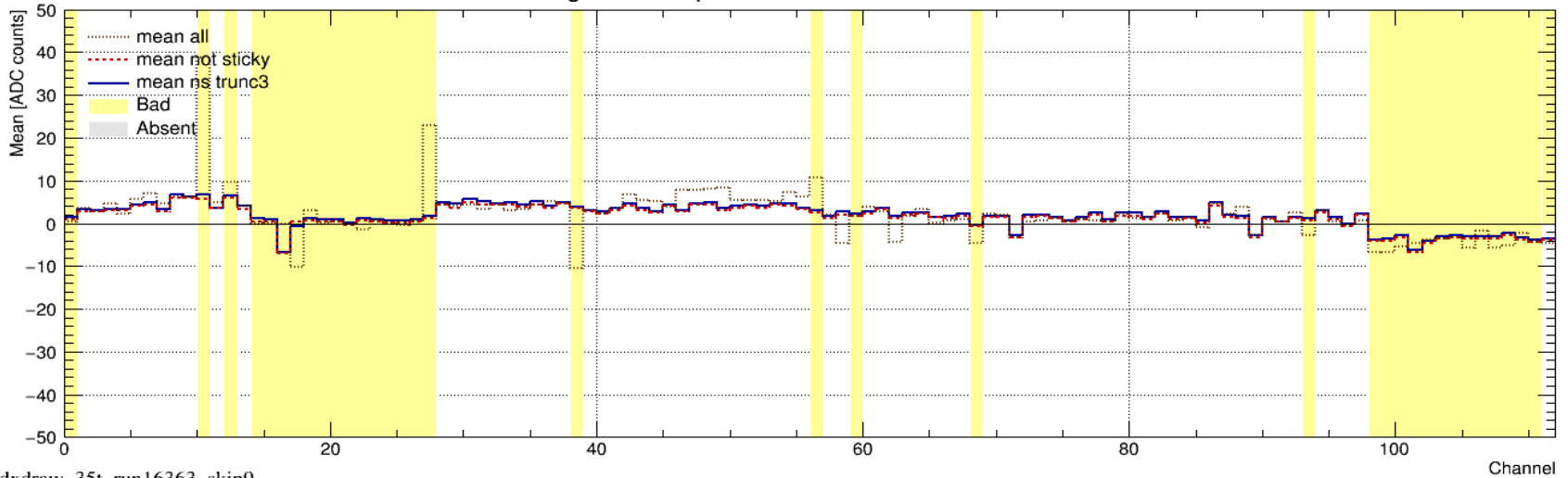
dxdraw\_35t\_run15691\_skip9

# APAs 3z1, 3z2 run 16363

Raw signals for apa3z1 event 10 mean ADC count

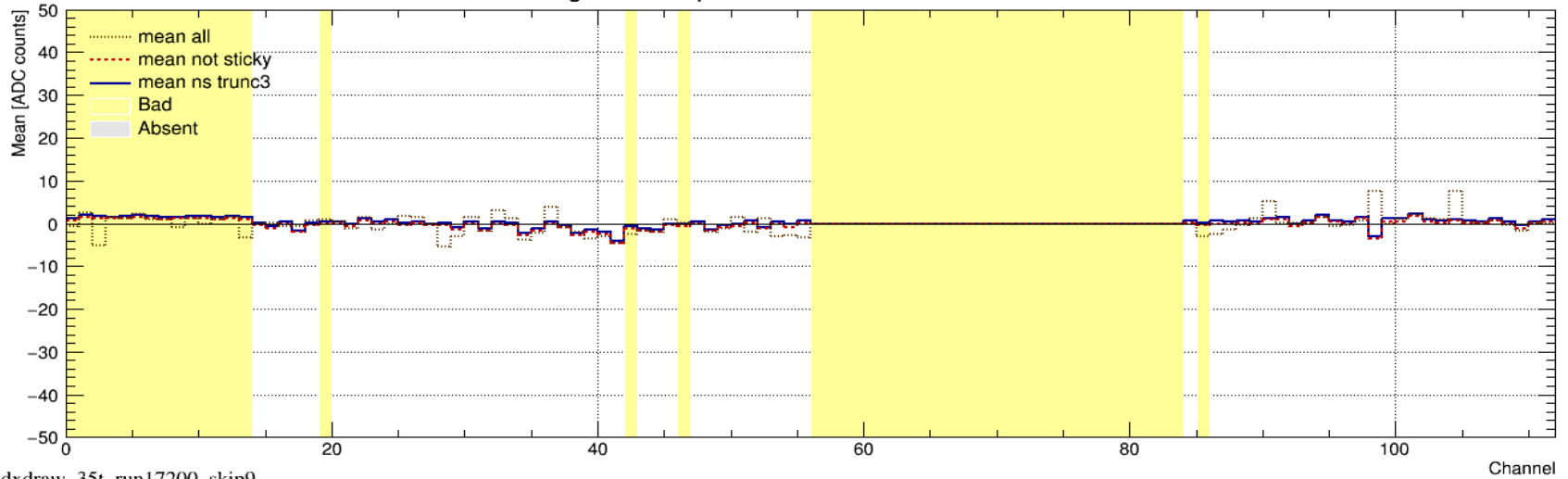


Raw signals for apa3z2 event 10 mean ADC count



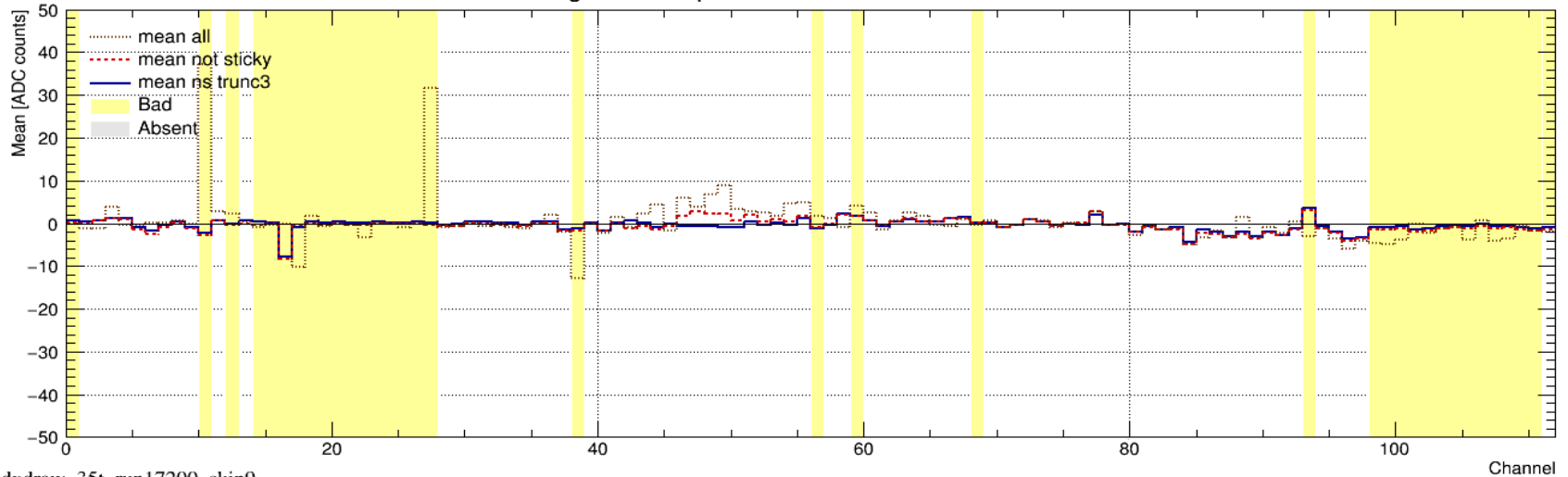
# APAs 3z1, 3z2 run 17200

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

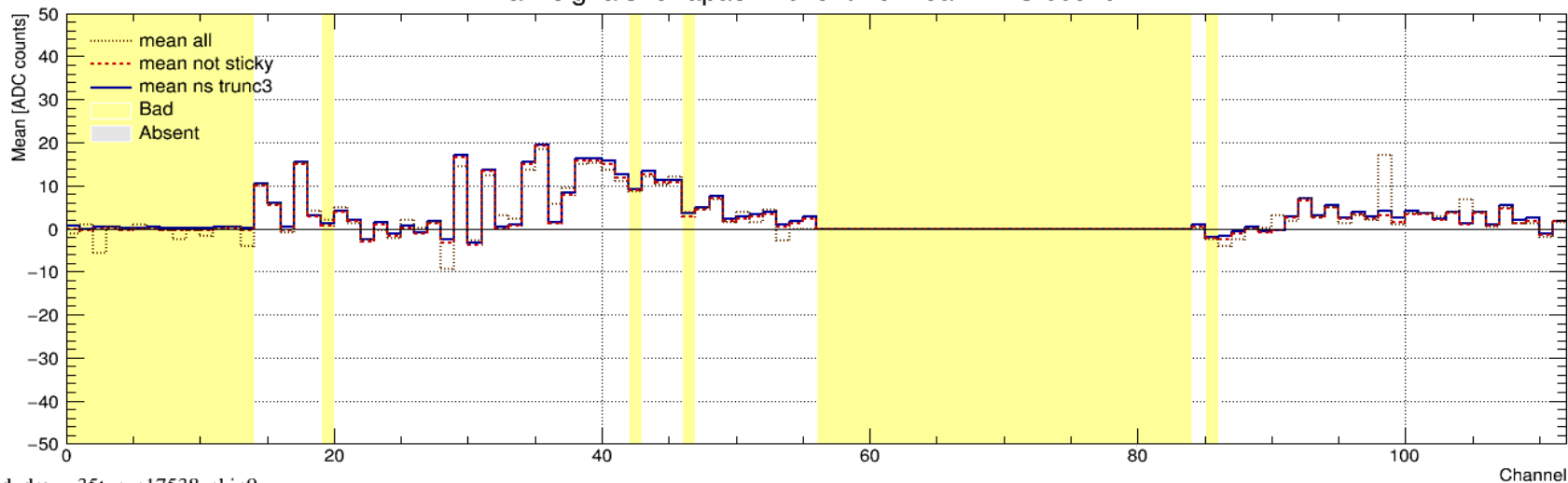
Raw signals for apa3z2 event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

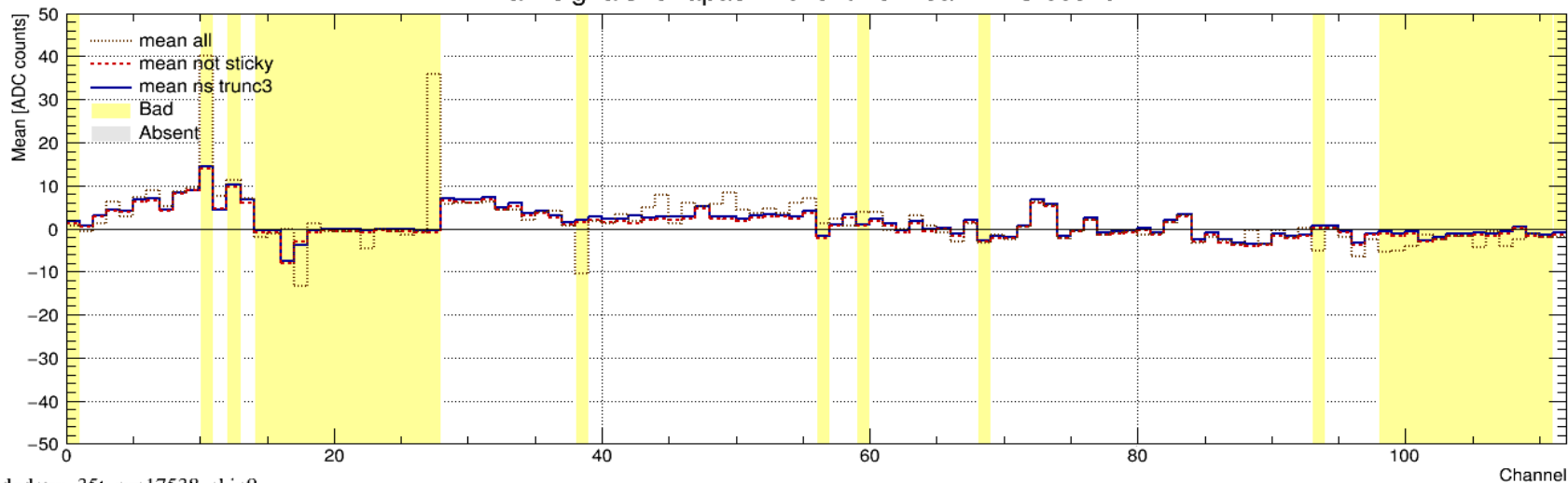
# APAs 3z1, 3z2 run 17538 (last)

Raw signals for apa3z1 event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa3z2 event 10 mean ADC count

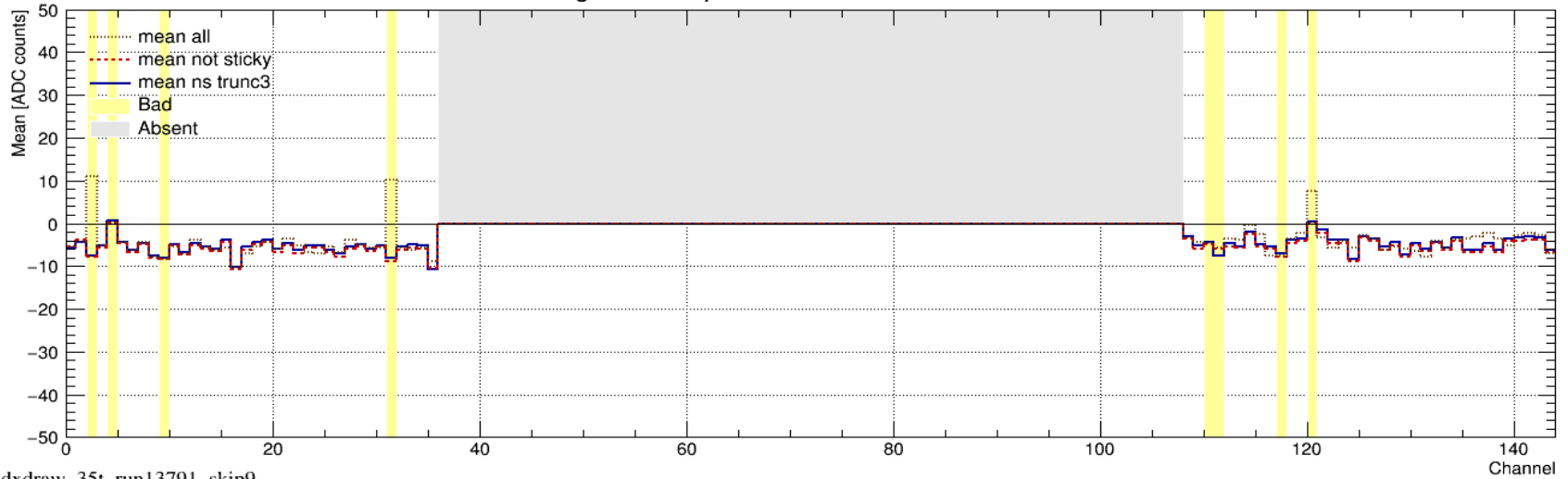


dxdraw\_35t\_run17538\_skip9

# APAs 0u and 0v

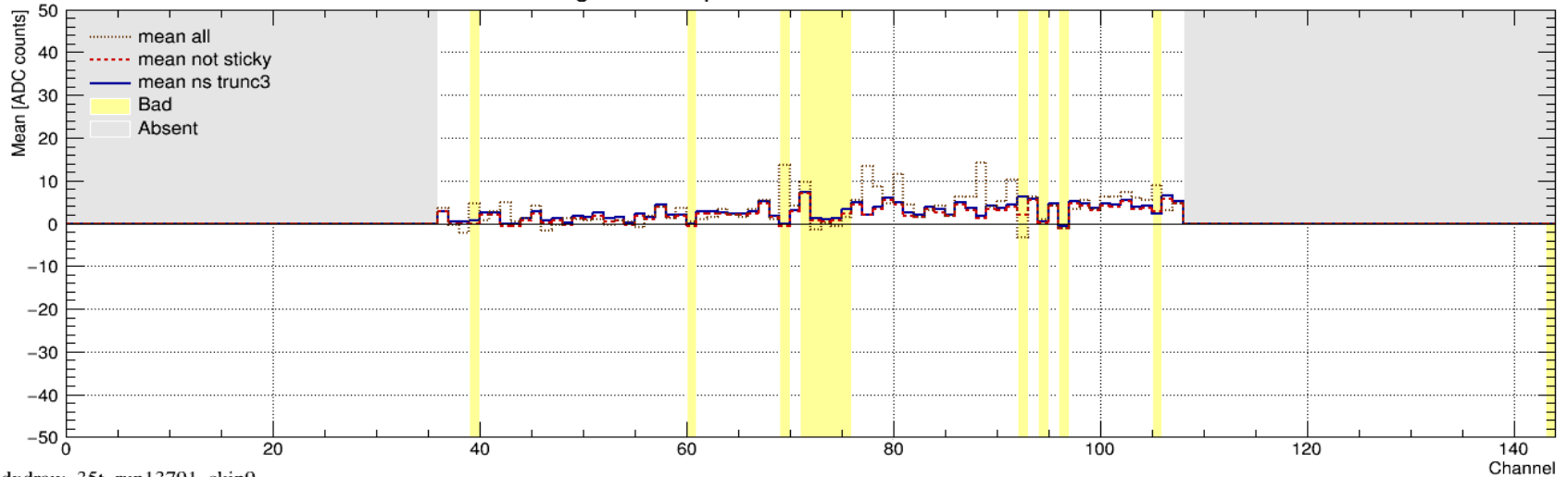
# APAs 0u, 0v run 13791 (first)

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

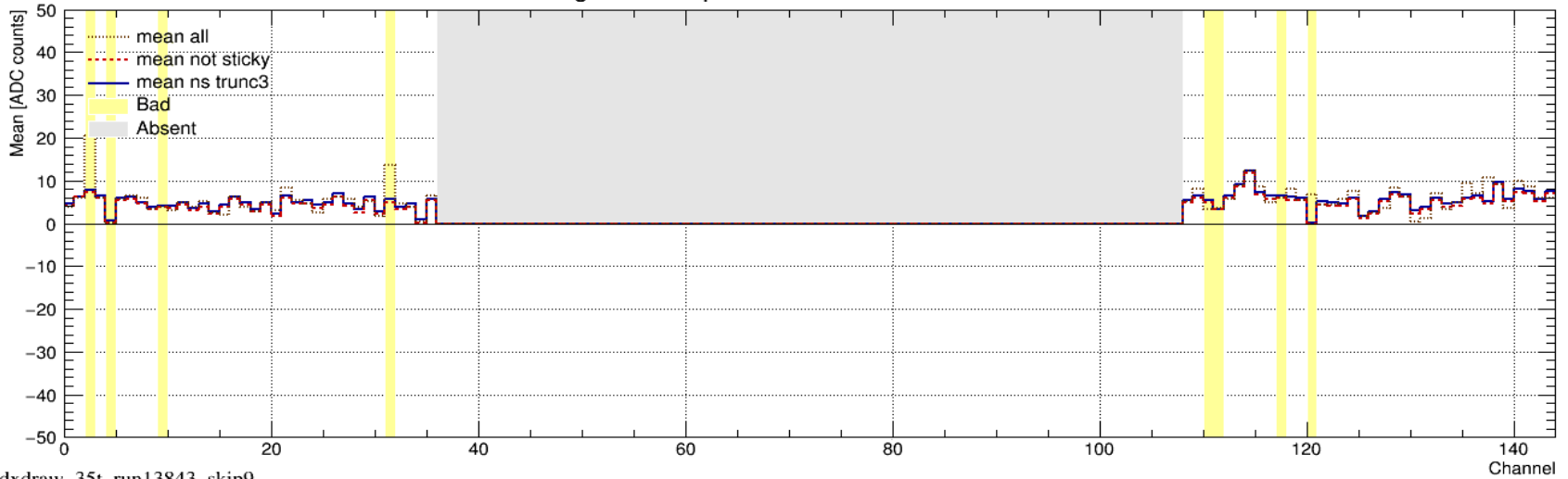
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

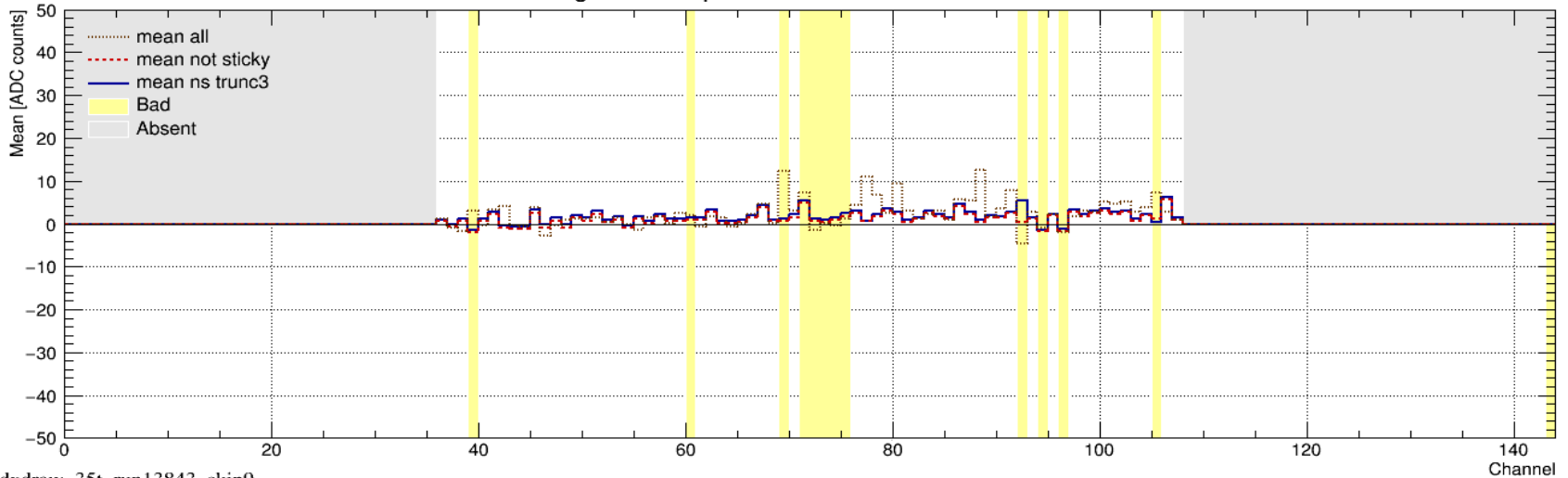
# APAs 0u, 0v run 13843

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

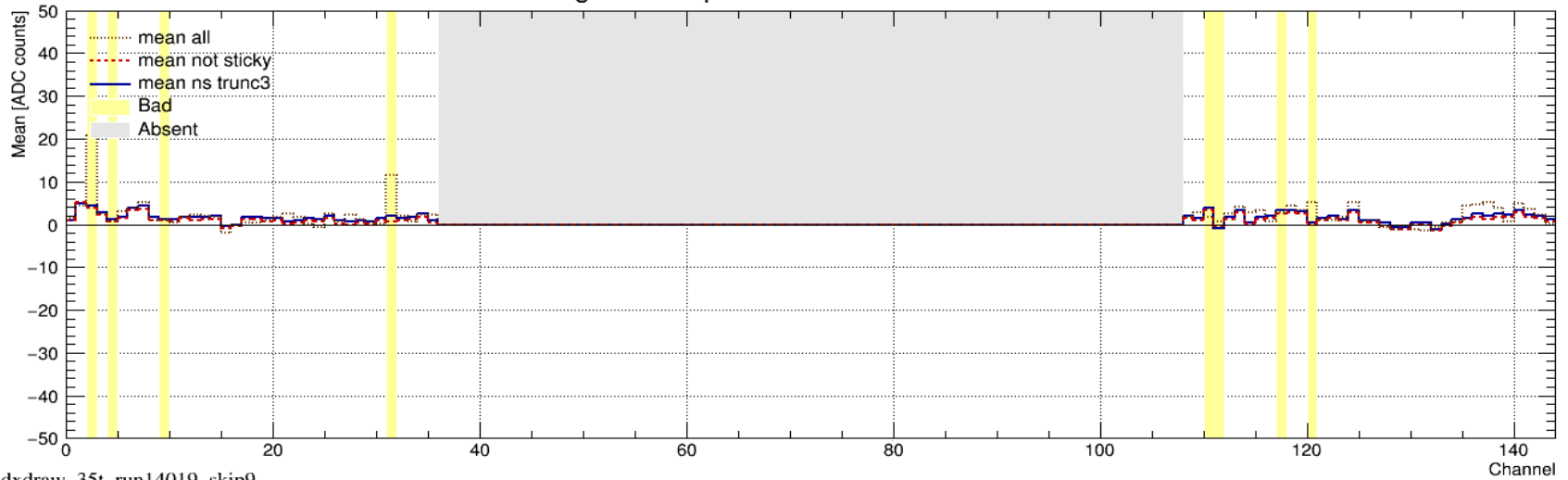
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

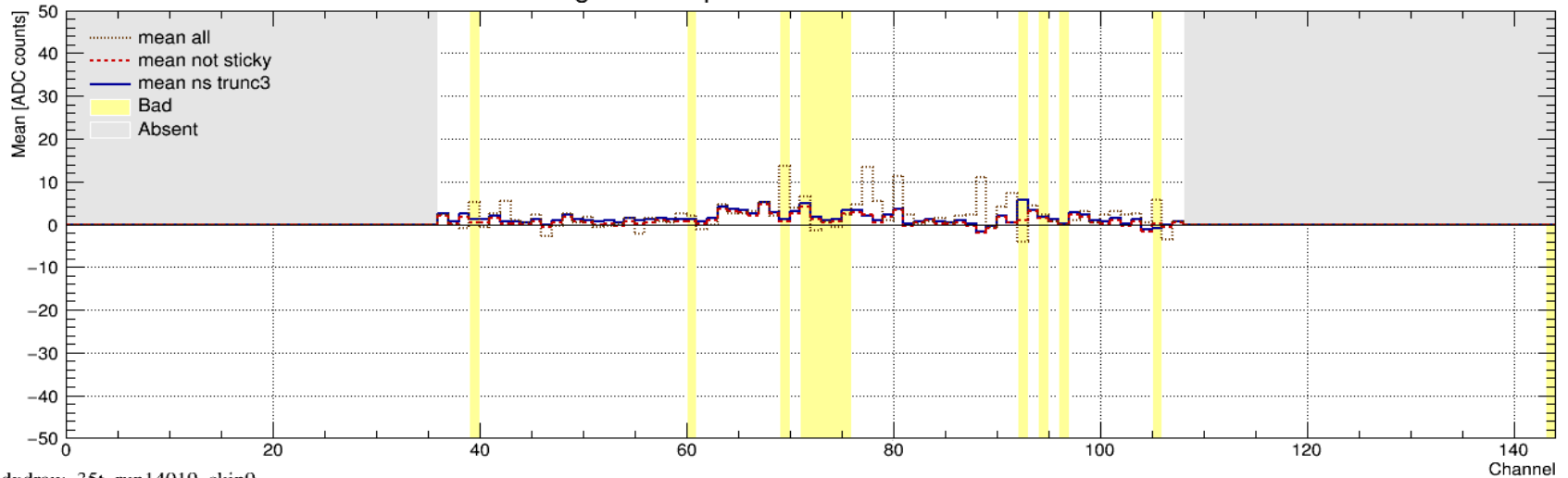
# APAs 0u, 0v run 14019

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

Raw signals for apa0v event 10 mean ADC count

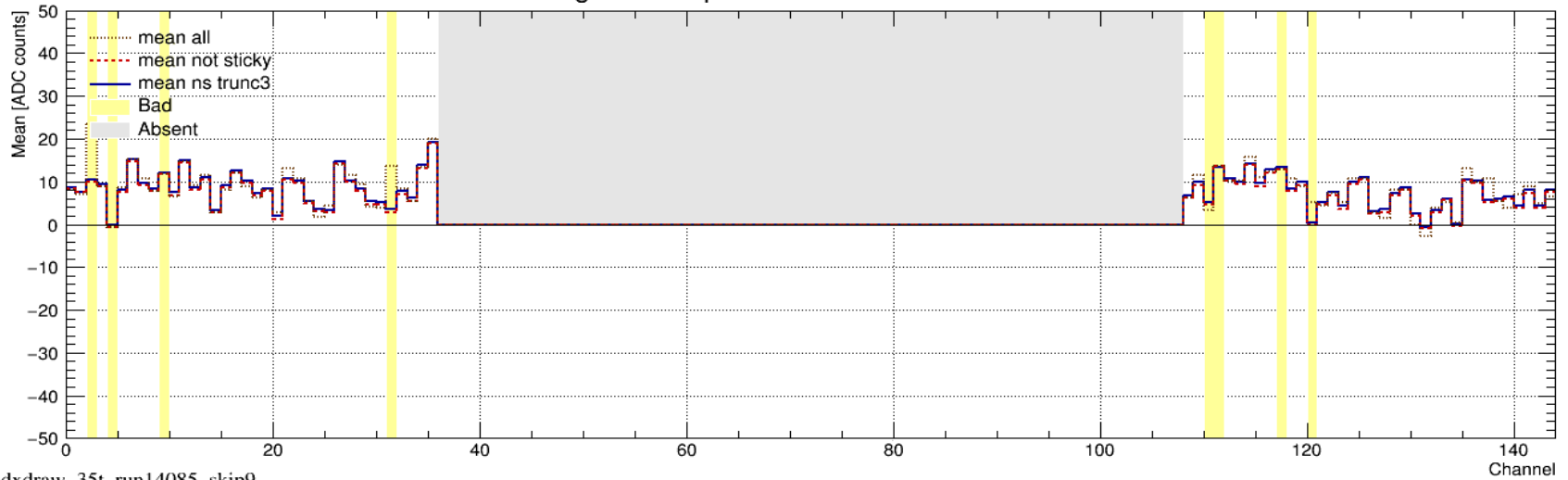


dxdraw\_35t\_run14019\_skip9



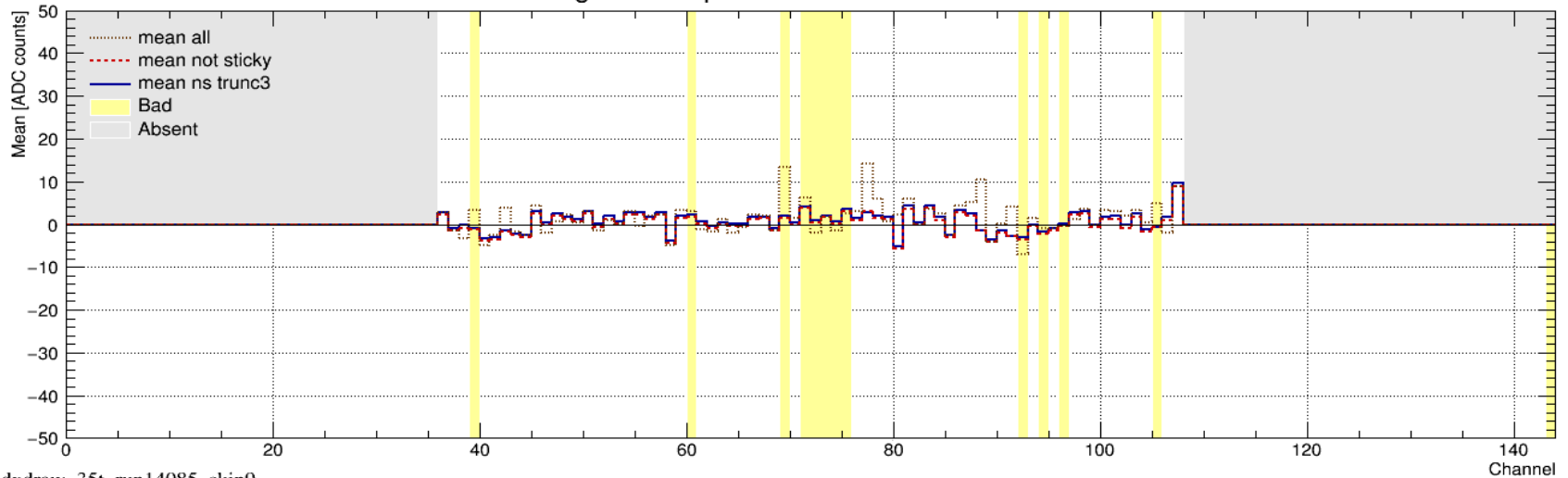
# APAs 0u, 0v run 14085

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

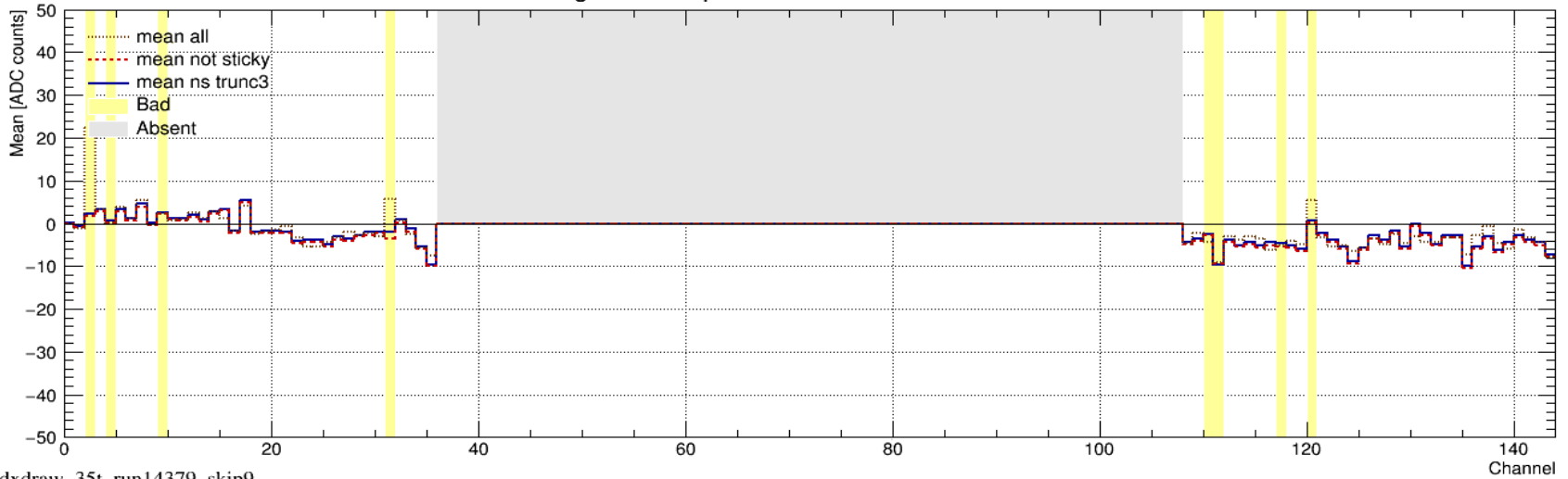
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

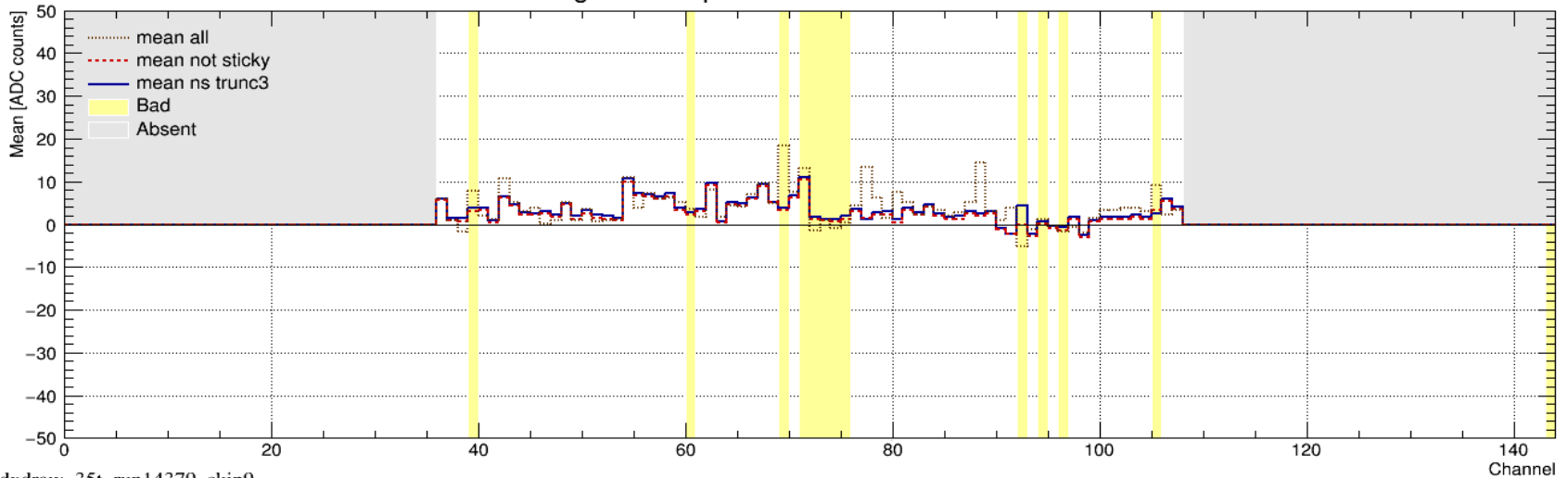
# APAs 0u, 0v run 14379

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

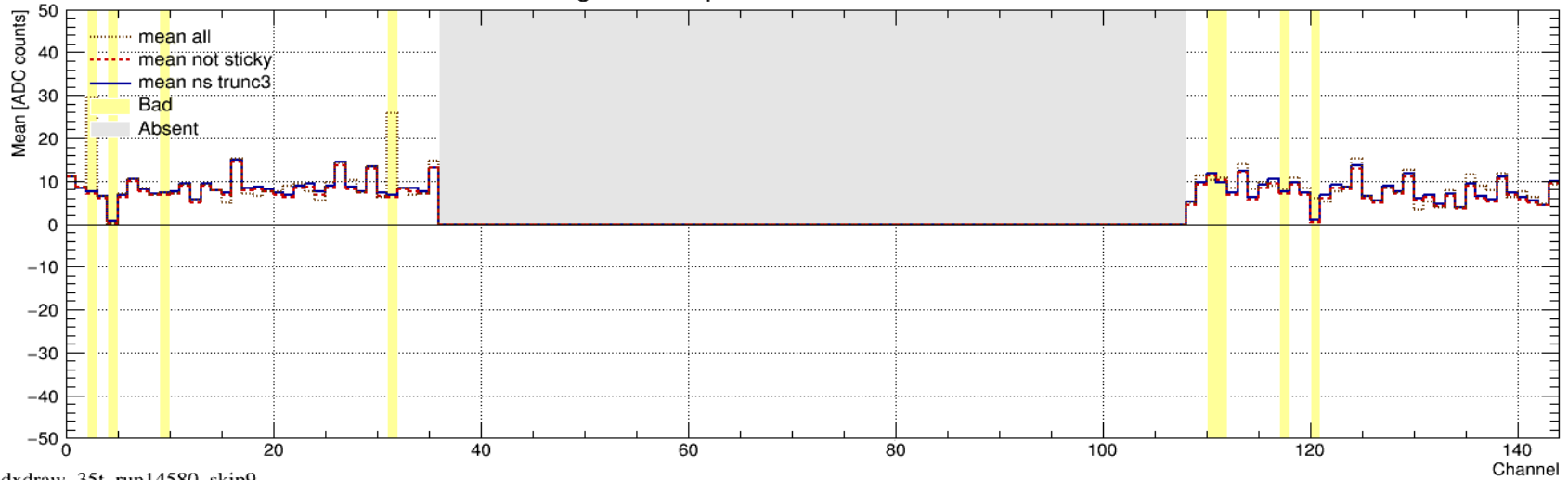
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

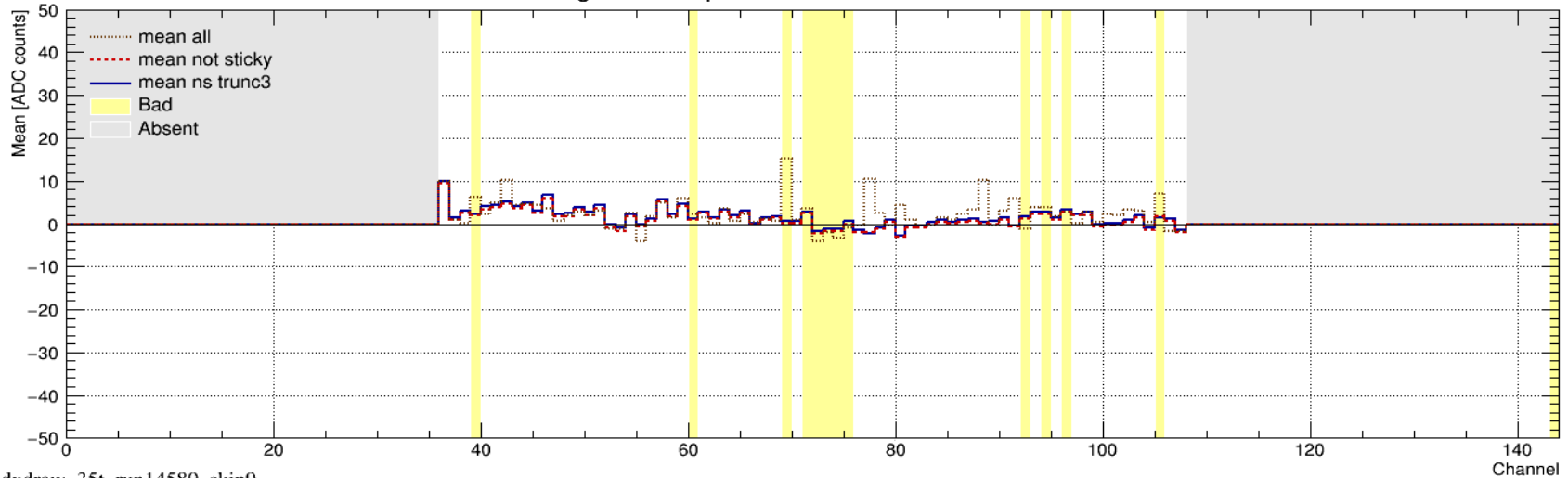
# APAs 0u, 0v run 14580 (last before PF)

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

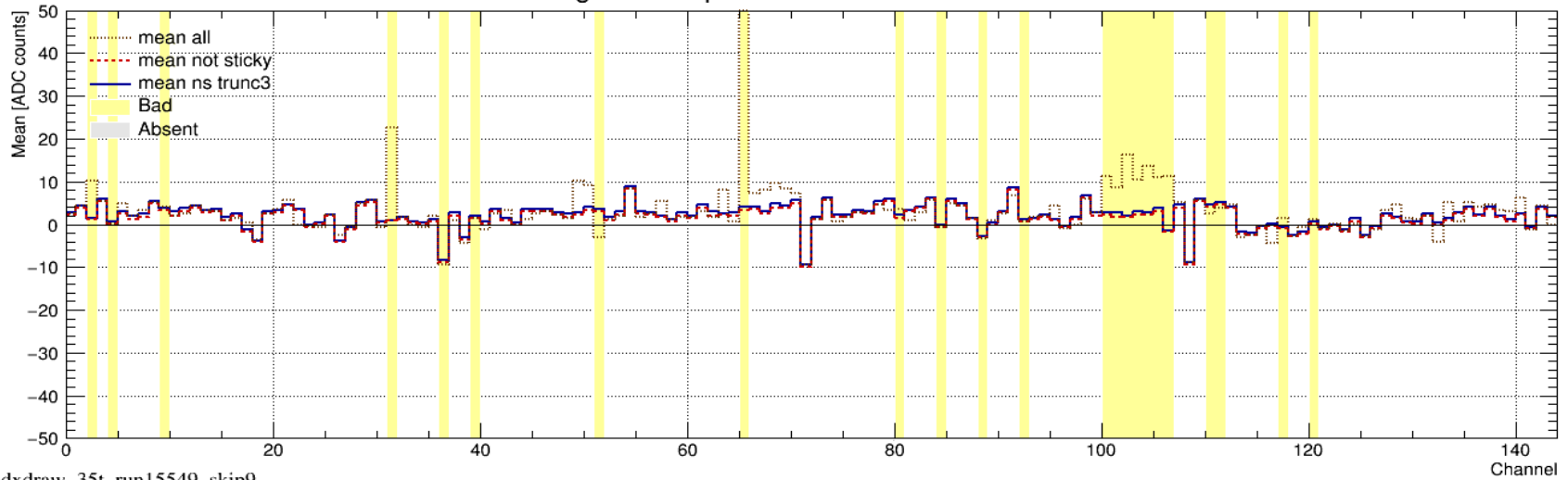
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

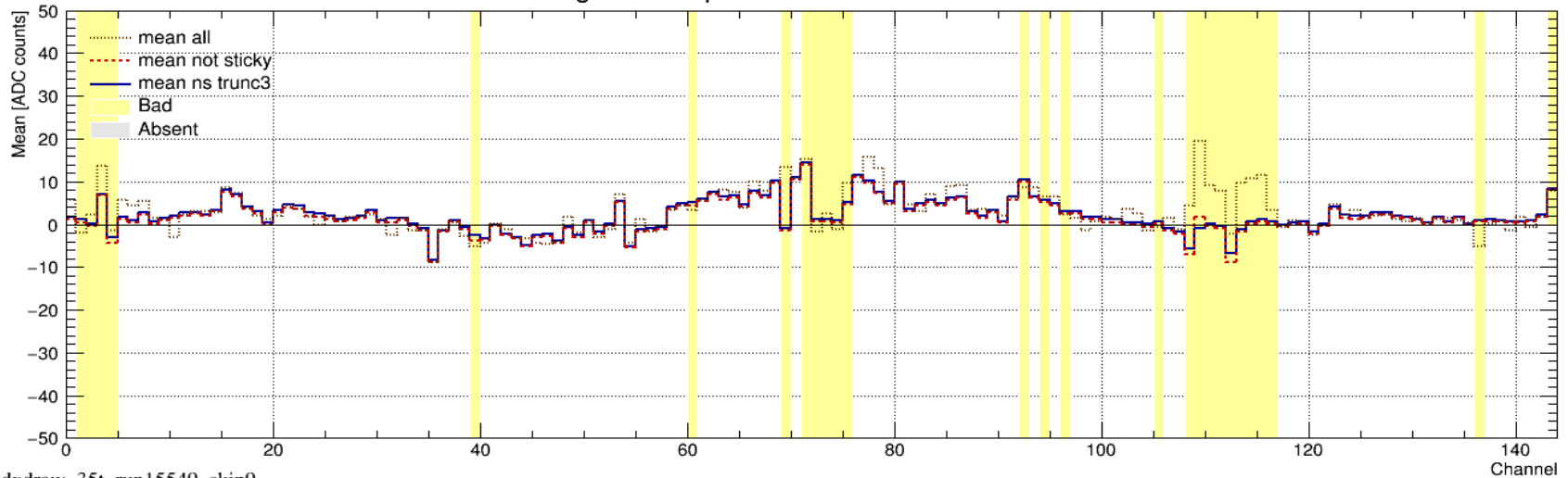
# APAs 0u, 0v run 15549 (first after PF)

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

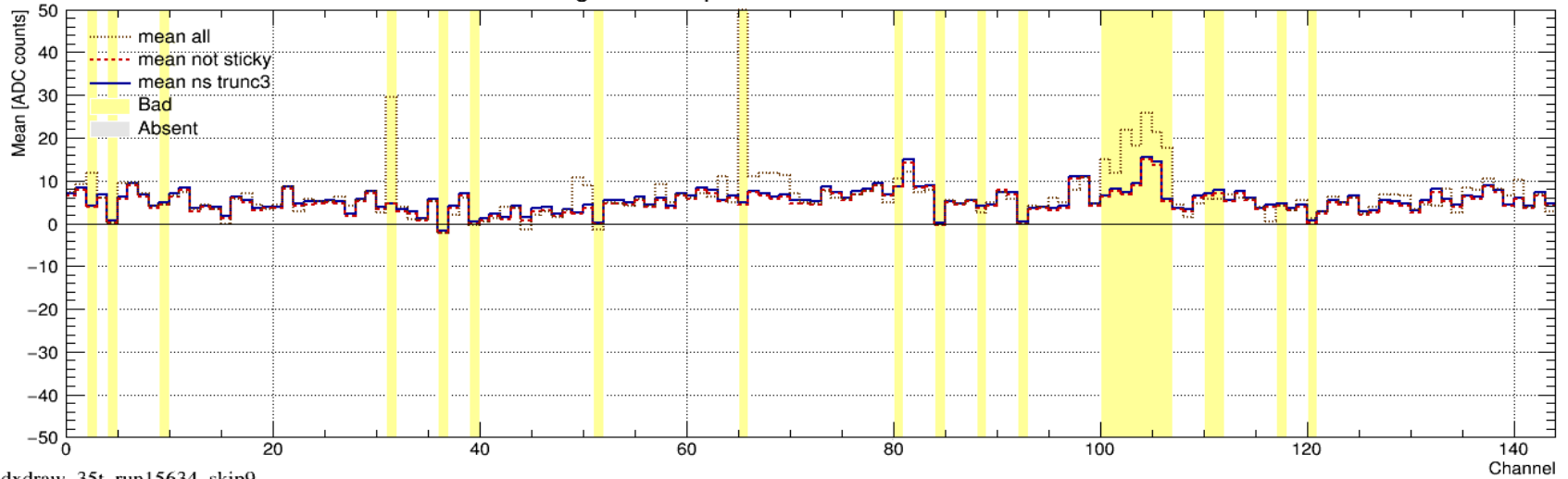
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

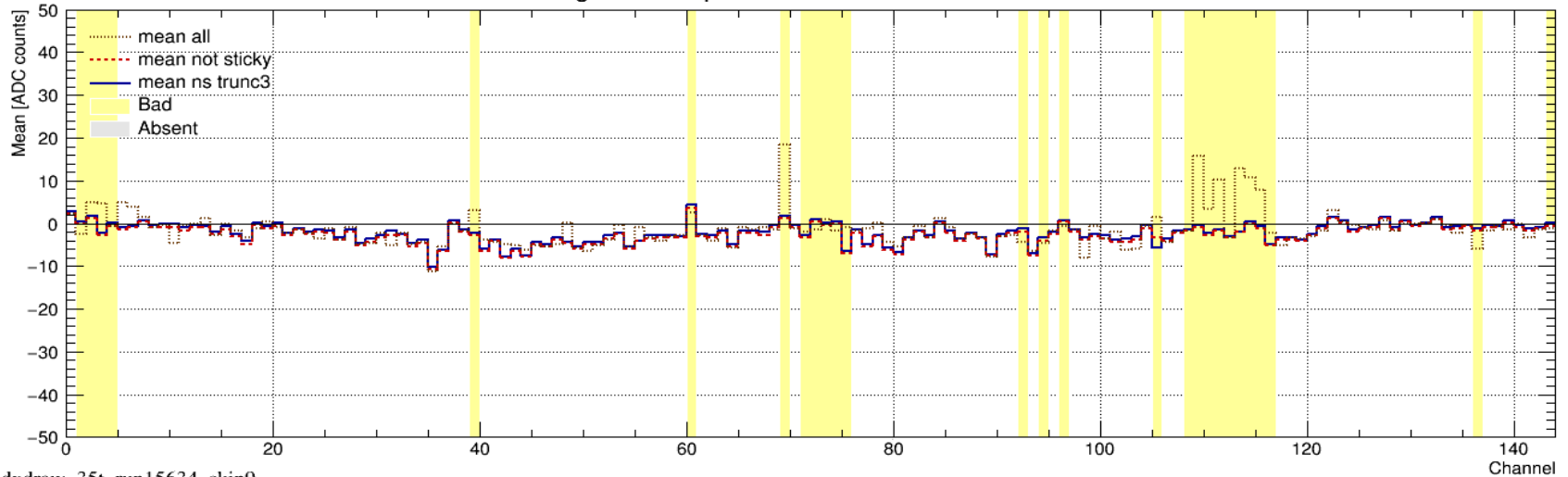
# APAs 0u, 0v run 15634

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

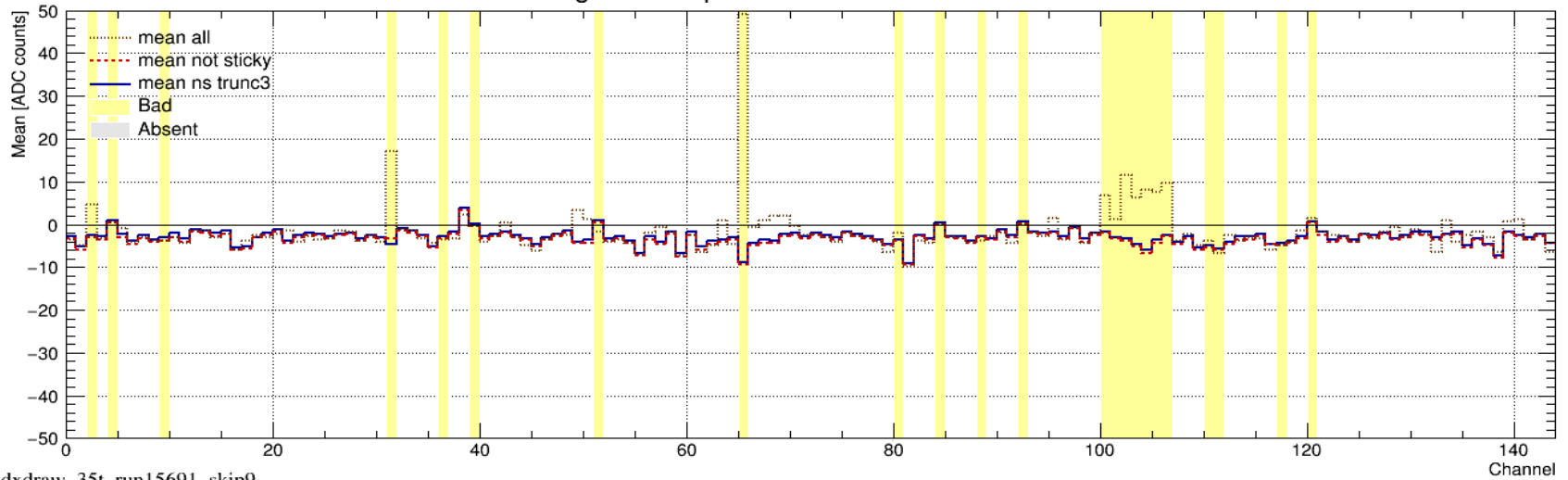
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

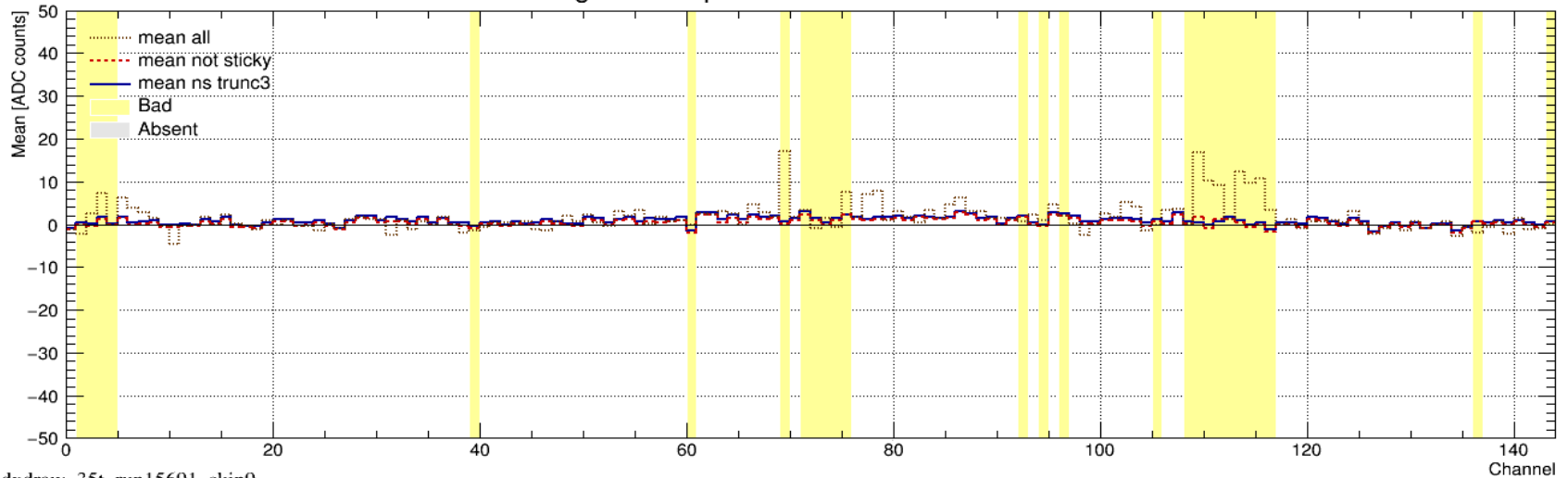
# APAs 0u, 0v run 15691

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

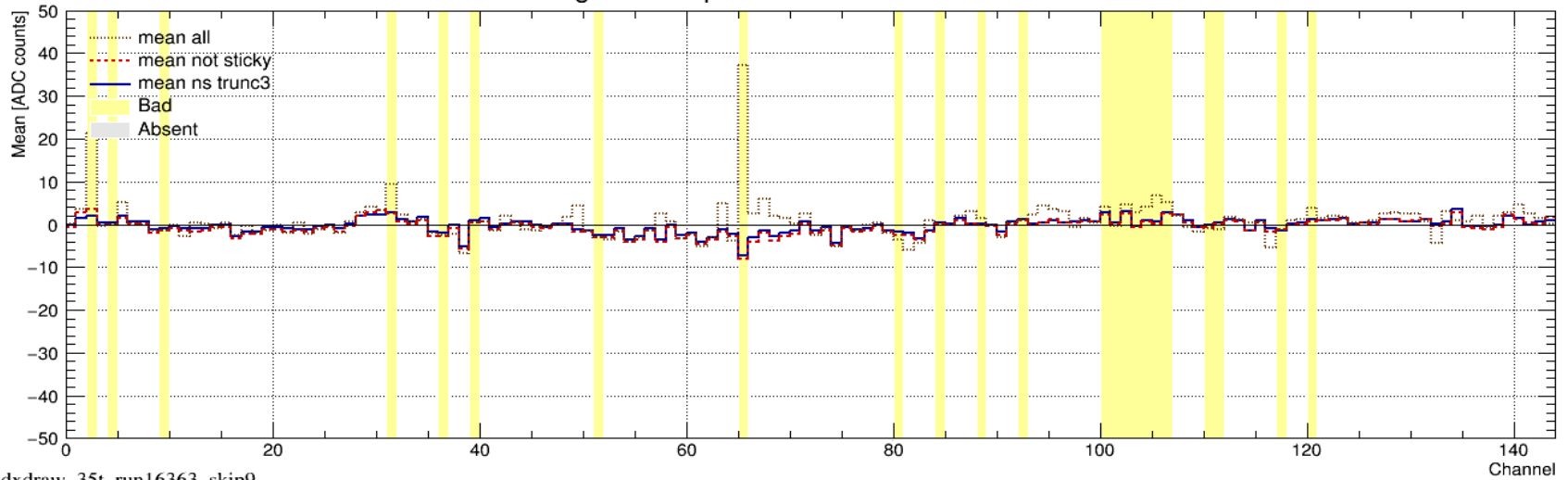
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

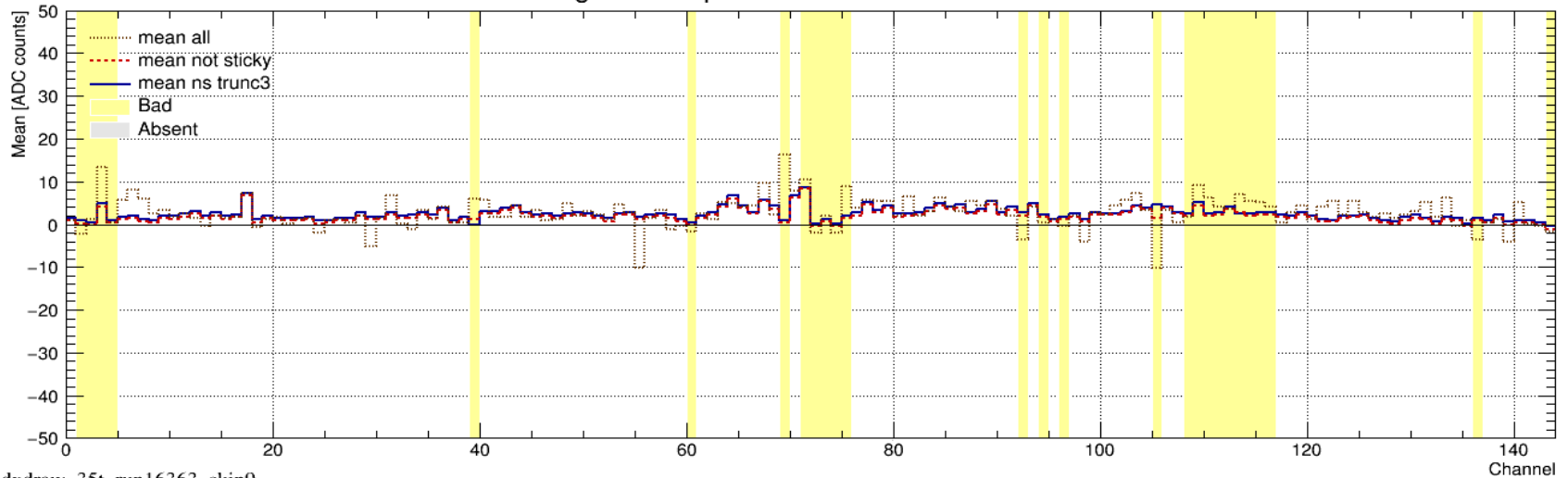
# APAs 0u, 0v run 16363

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

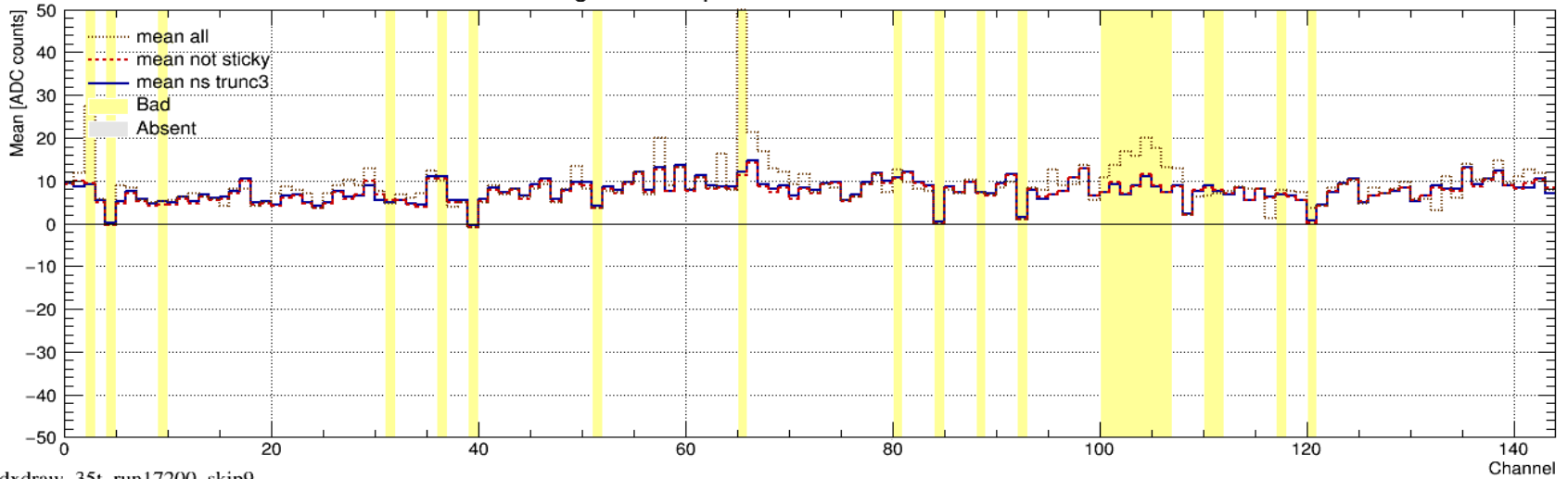
Raw signals for apa0v event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

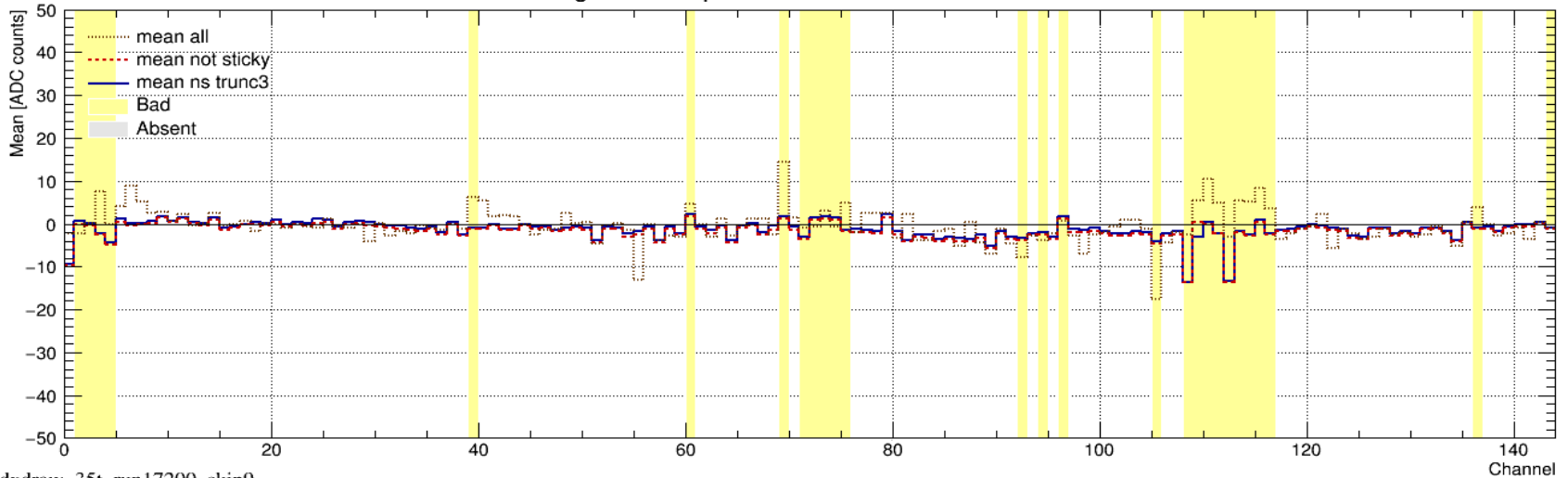
# APAs 0u, 0v run 17200

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

Raw signals for apa0v event 10 mean ADC count

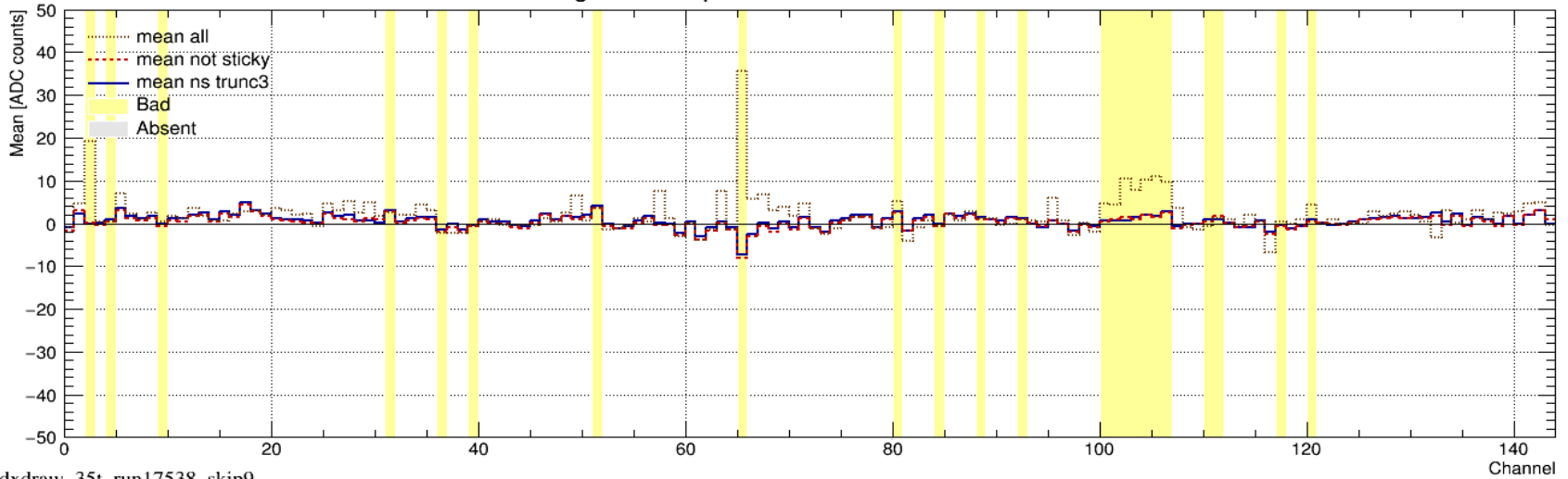


dxdraw\_35t\_run17200\_skip9



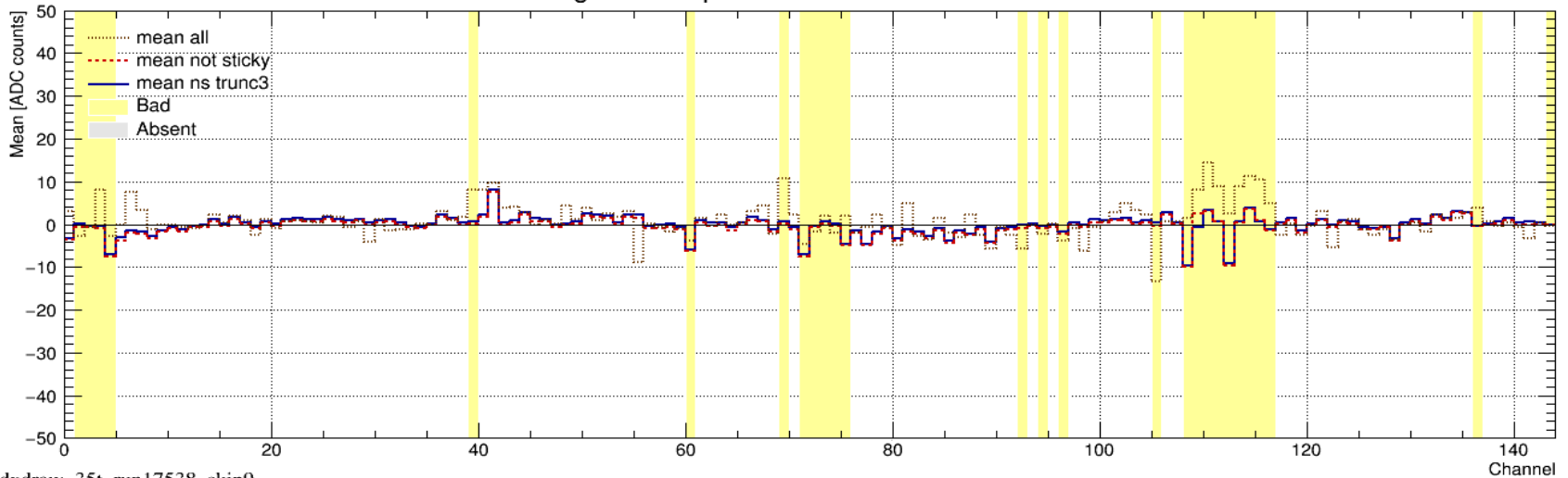
# APAs 0u, 0v run 17538 (last)

Raw signals for apa0u event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa0v event 10 mean ADC count

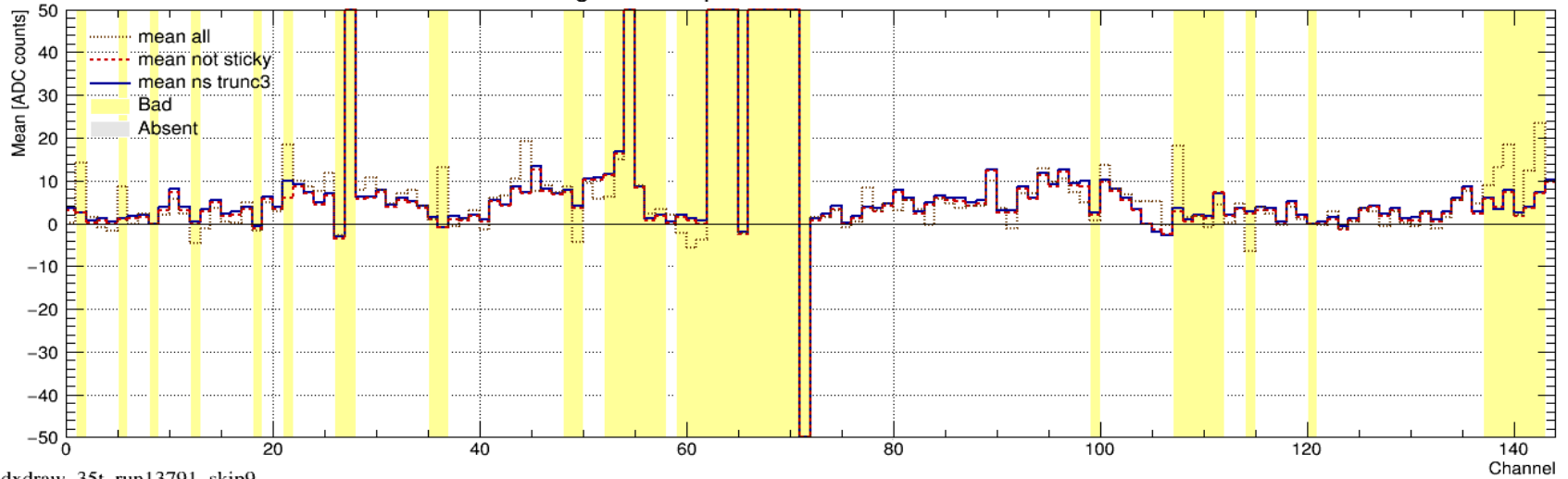


dxdraw\_35t\_run17538\_skip9

# APAs 1u and 1v

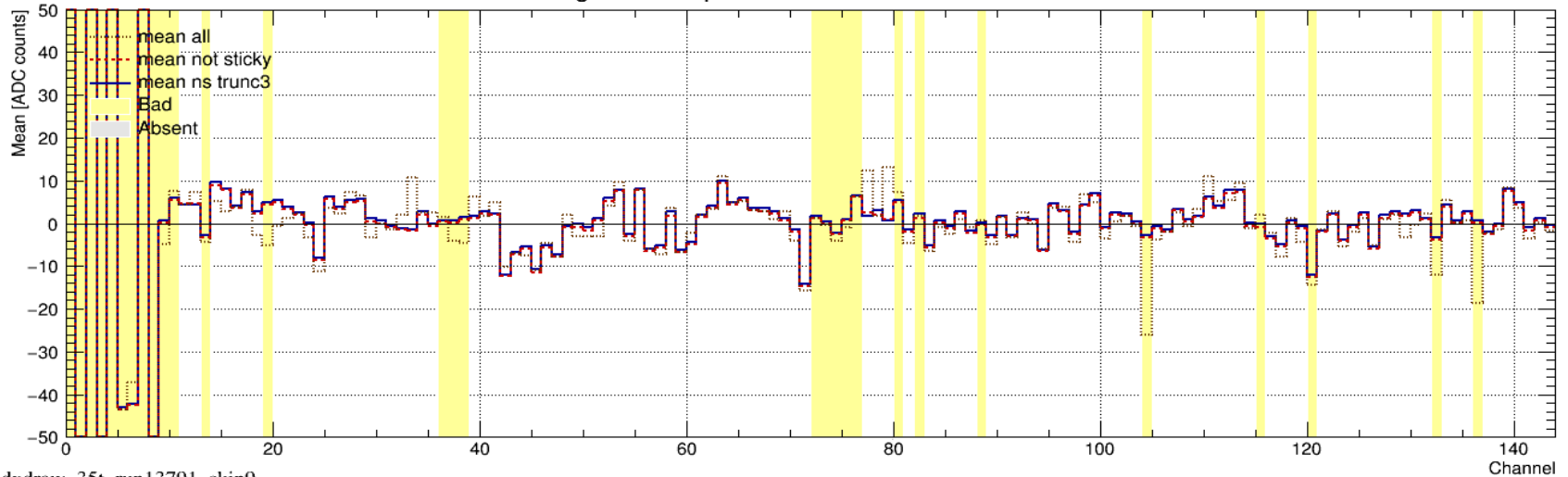
# APAs 1u, 1v run 13791 (first)

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

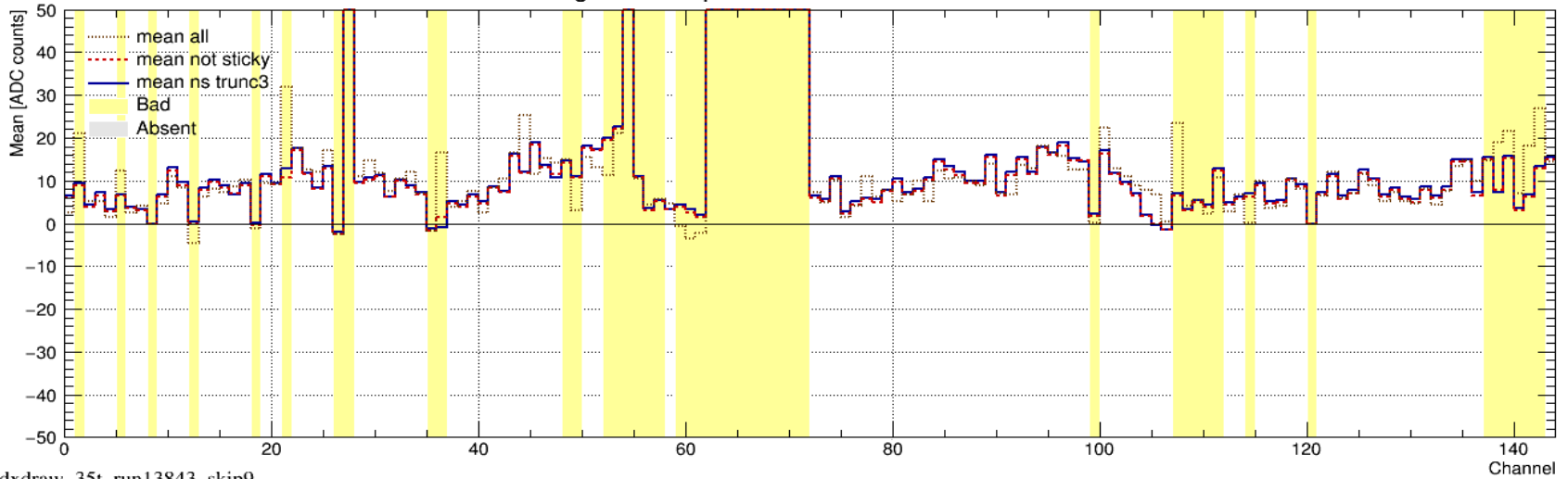
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

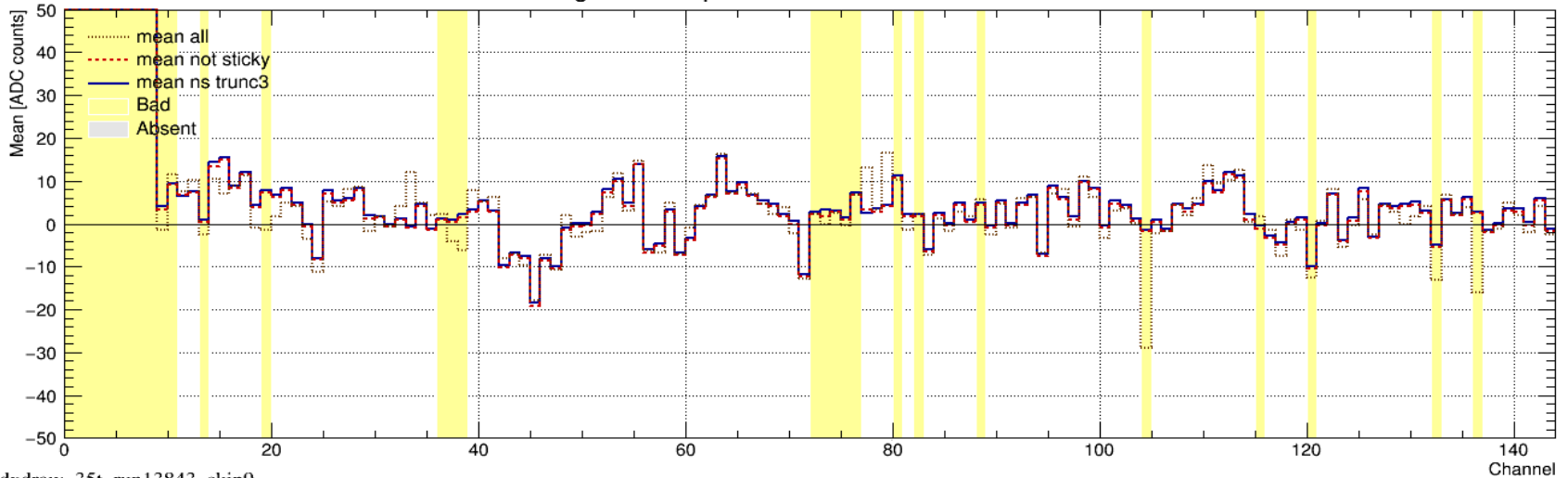
# APAs 1u, 1v run 13843

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

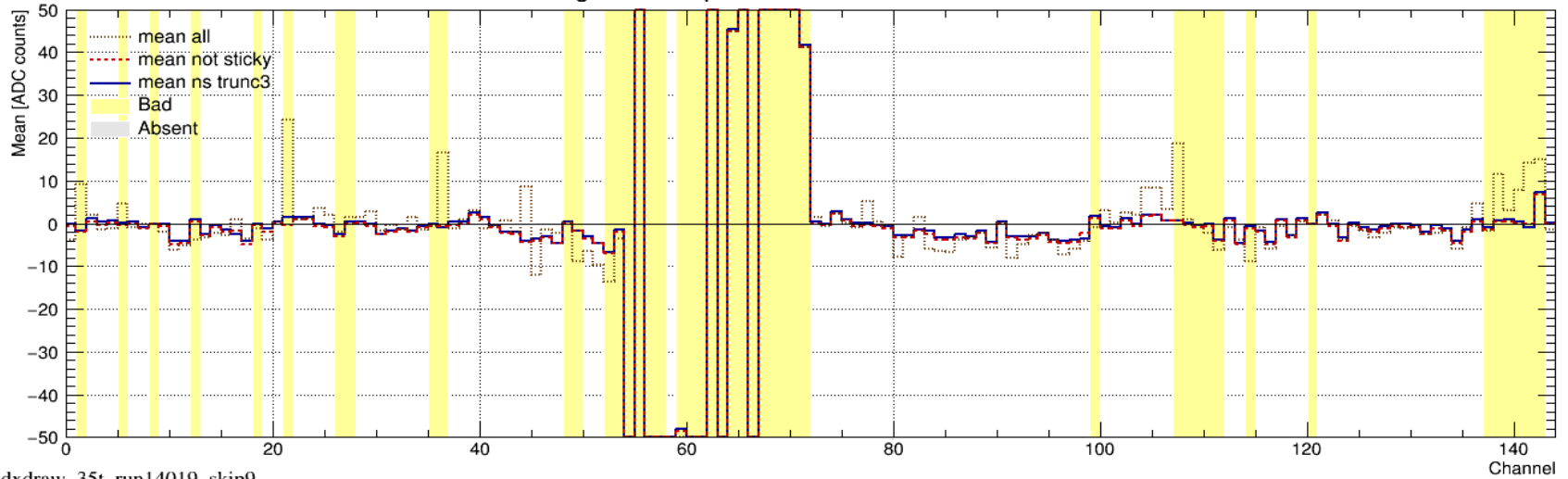
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

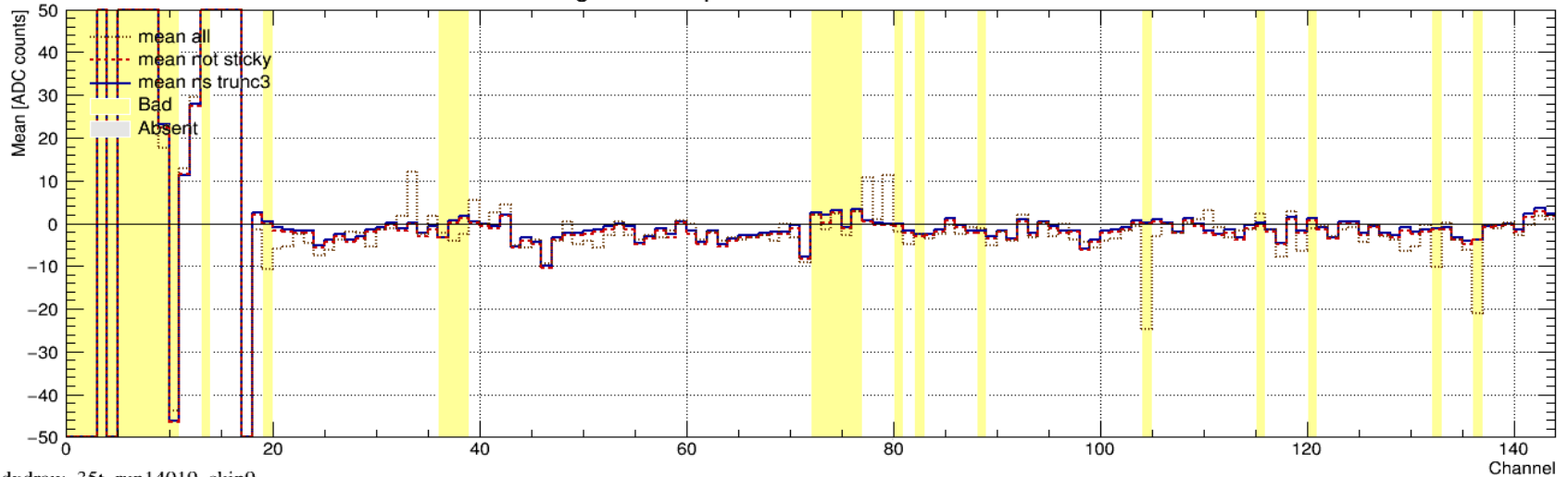
# APAs 1u, 1v run 14019

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

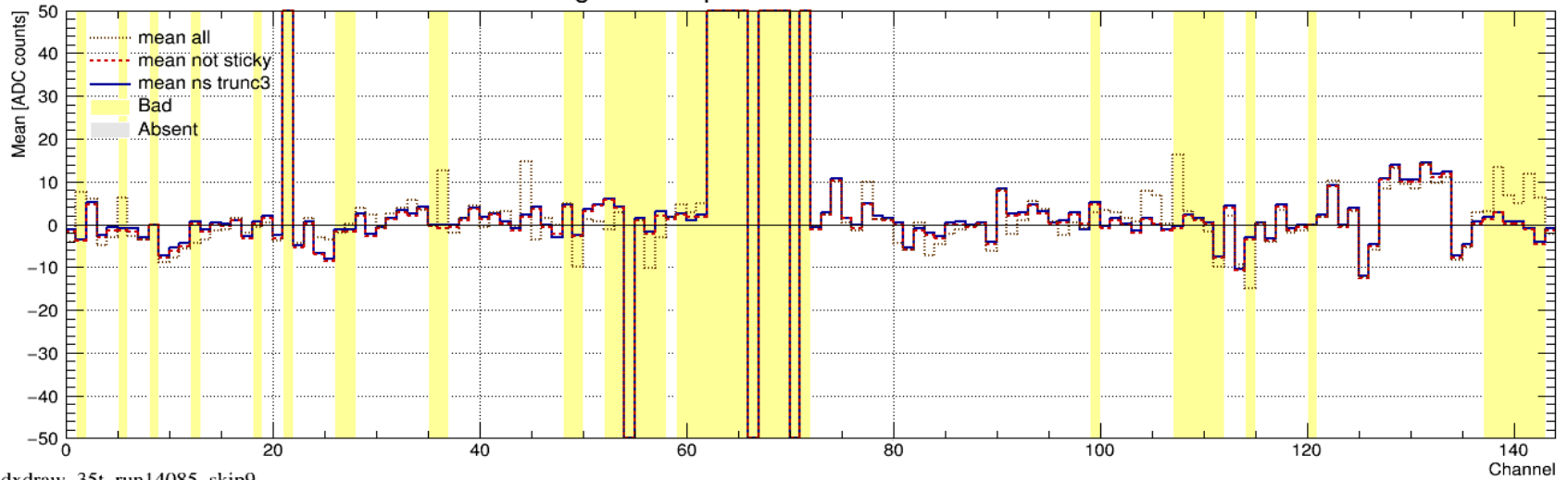
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

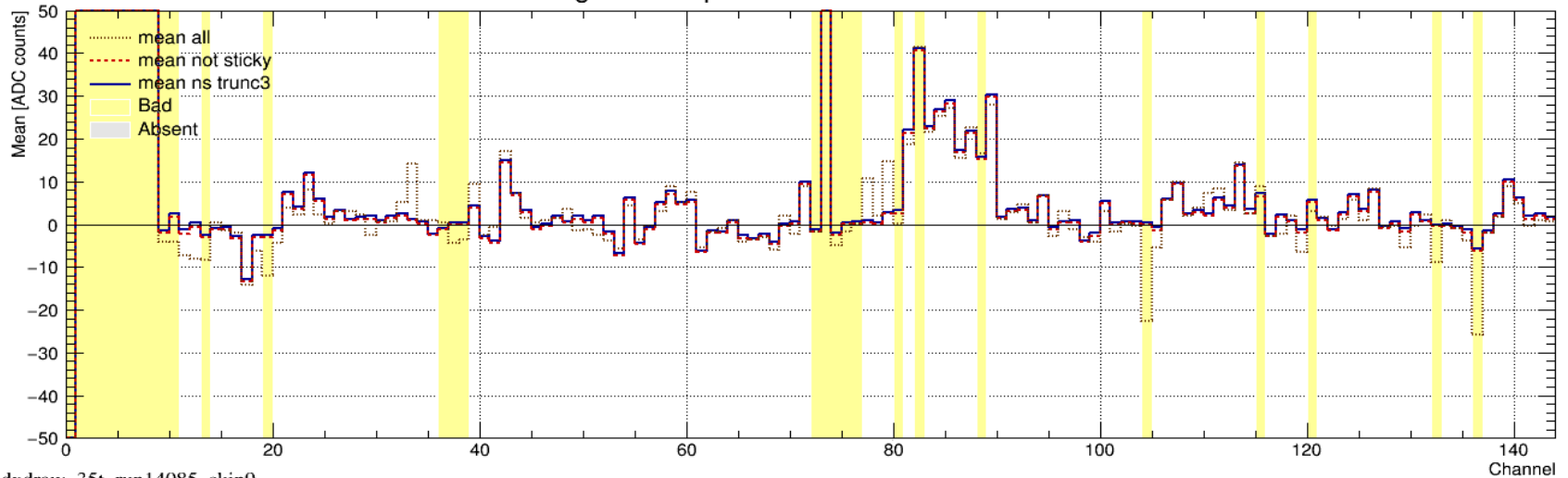
# APAs 1u, 1v run 14085

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

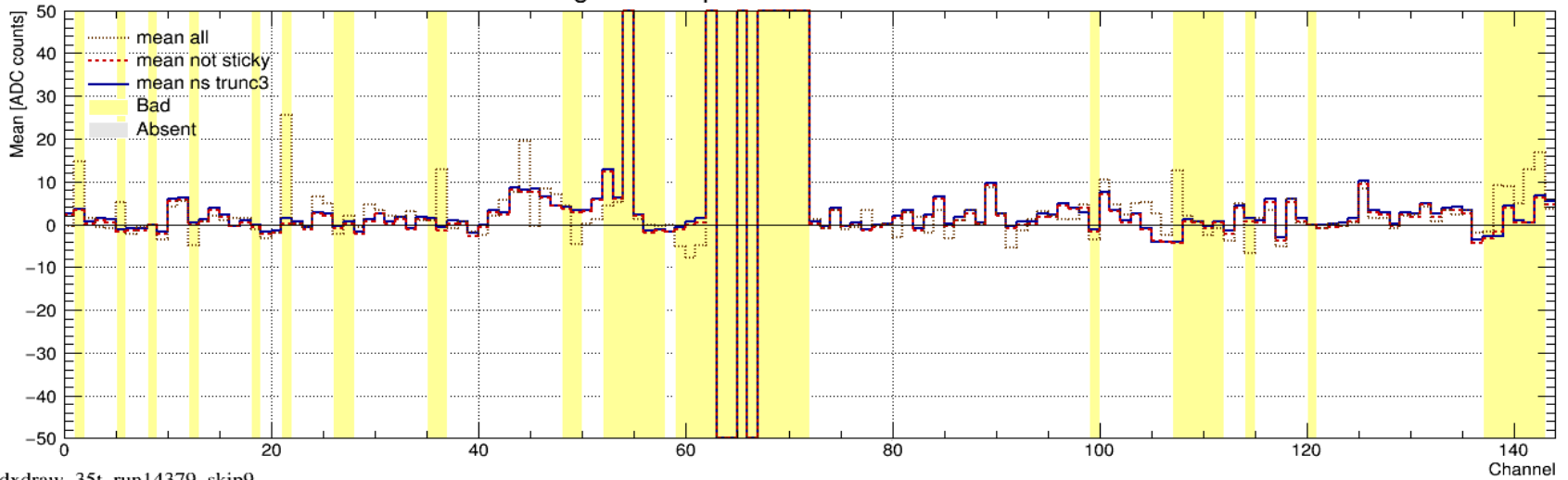
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

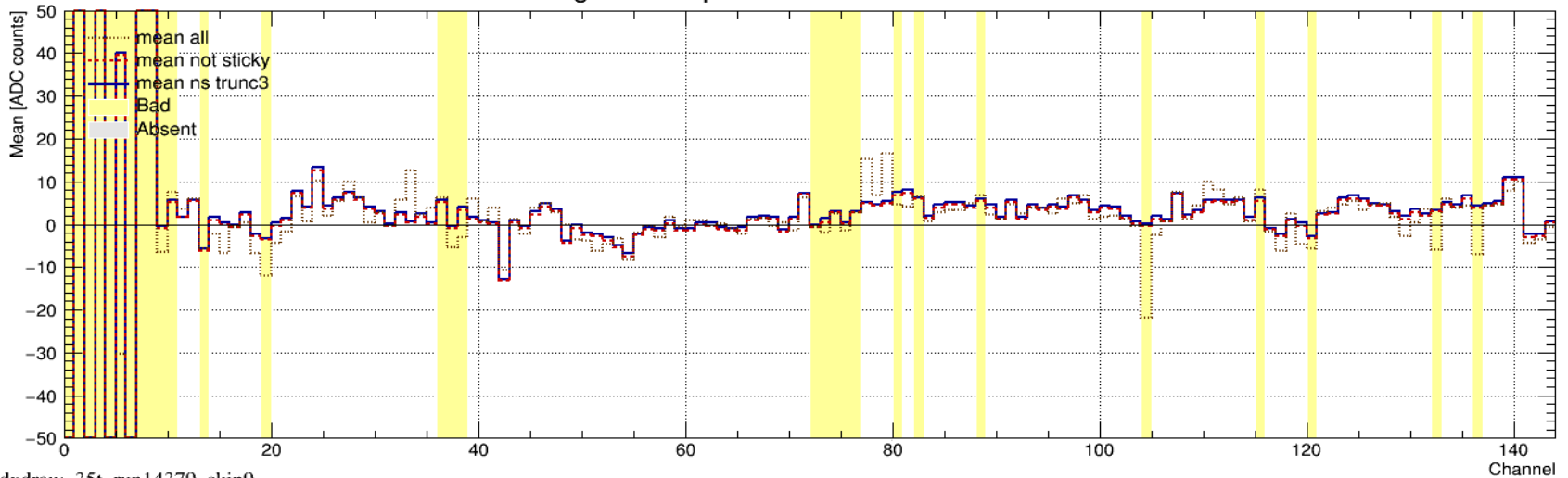
# APAs 1u, 1v run 14379

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

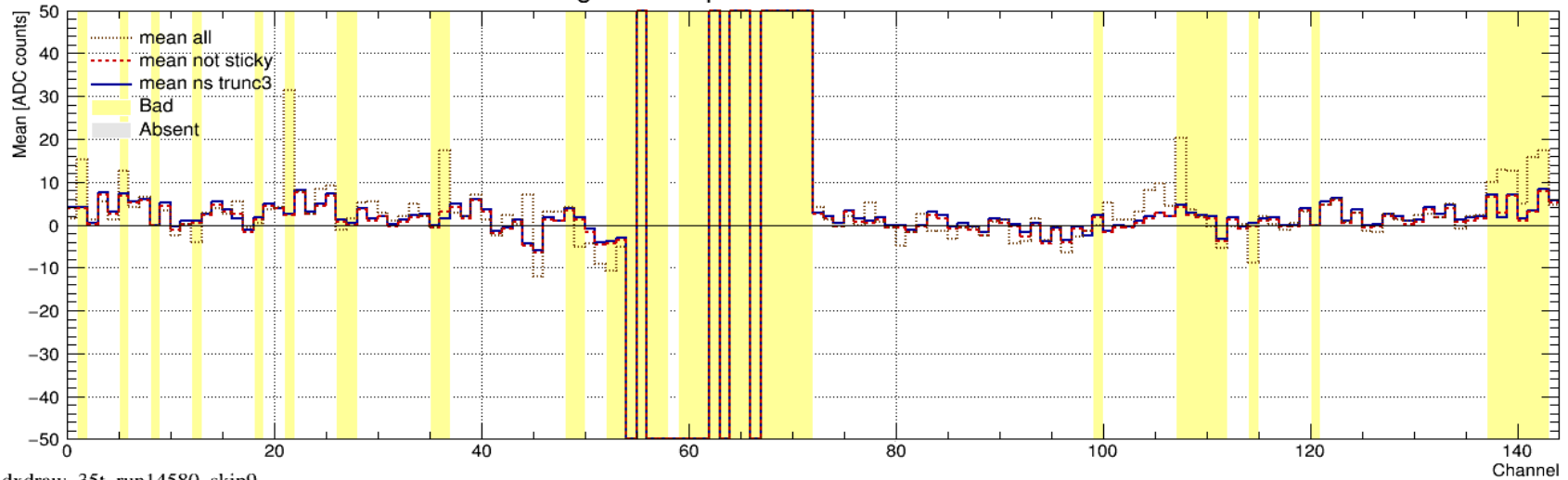
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

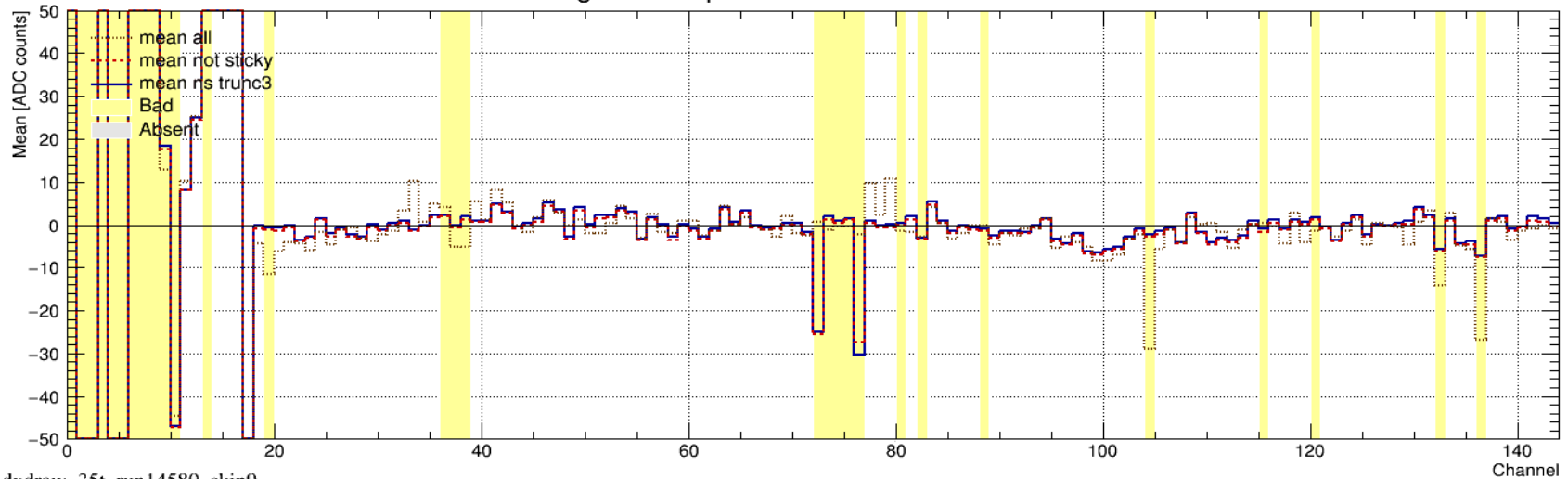
# APAs 1u, 1v run 14580 (last before PF)

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

Raw signals for apa1v event 10 mean ADC count

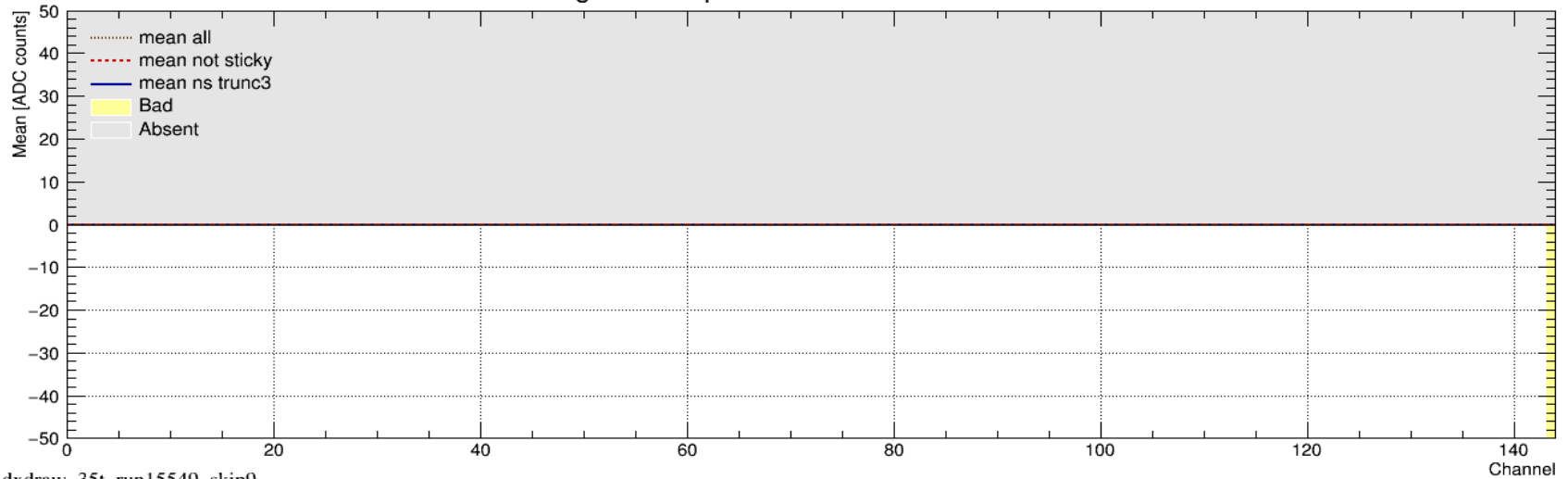


dxdraw\_35t\_run14580\_skip9



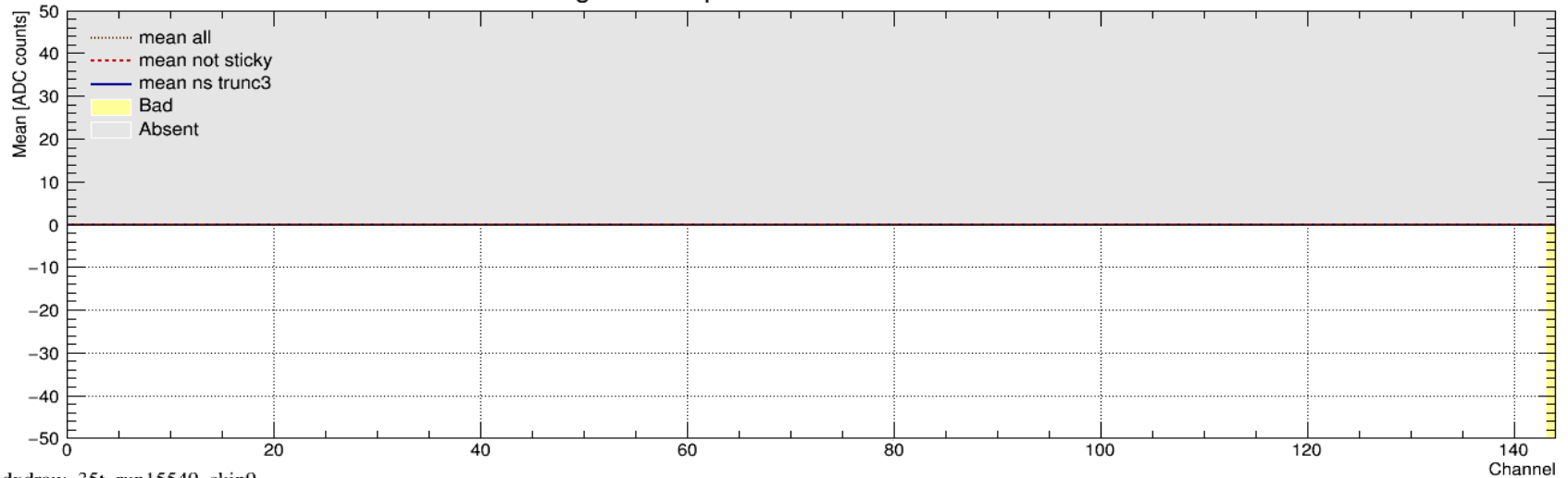
# APAs 1u, 1v run 15549 (first after PF)

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

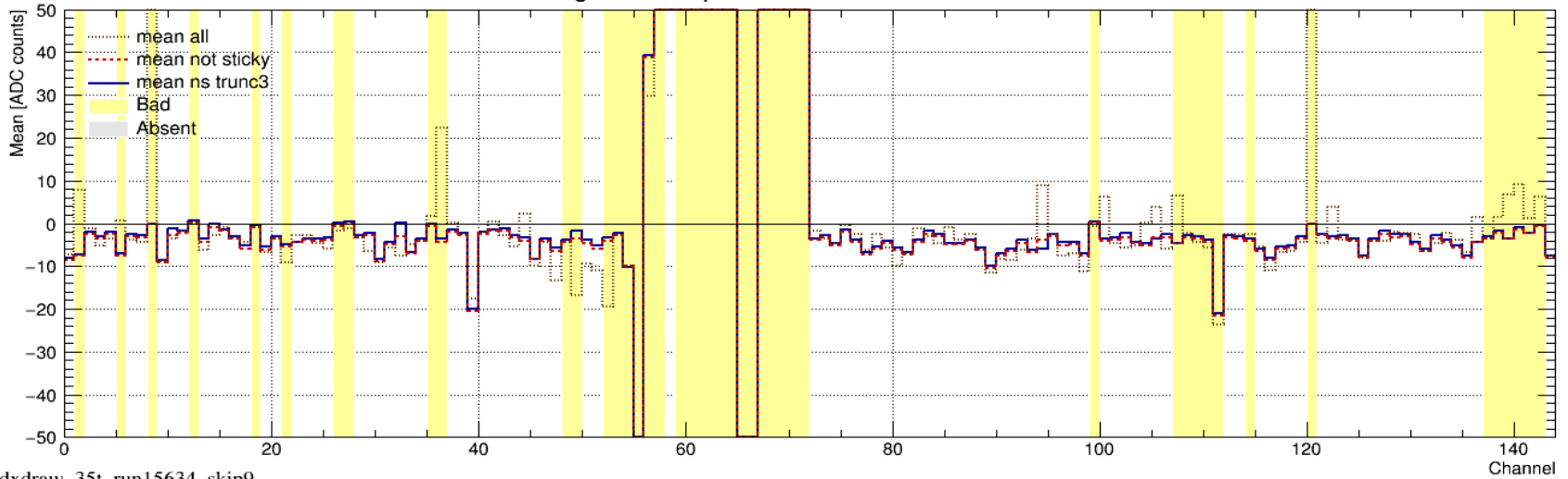
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

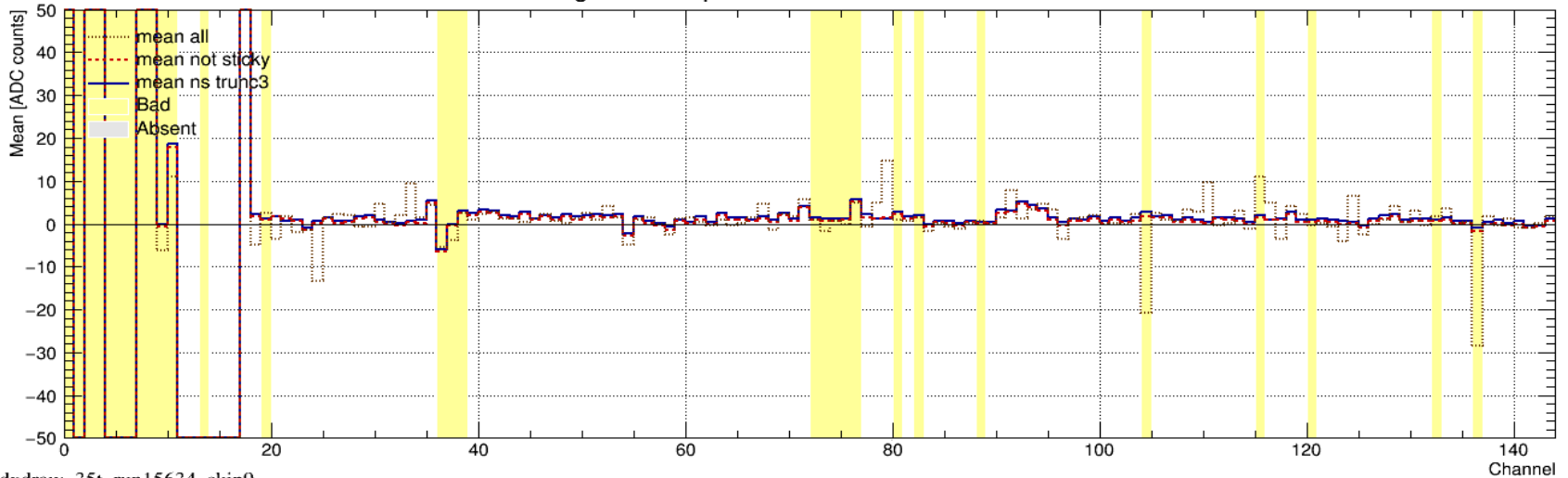
# APAs 1u, 1v run 15634

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

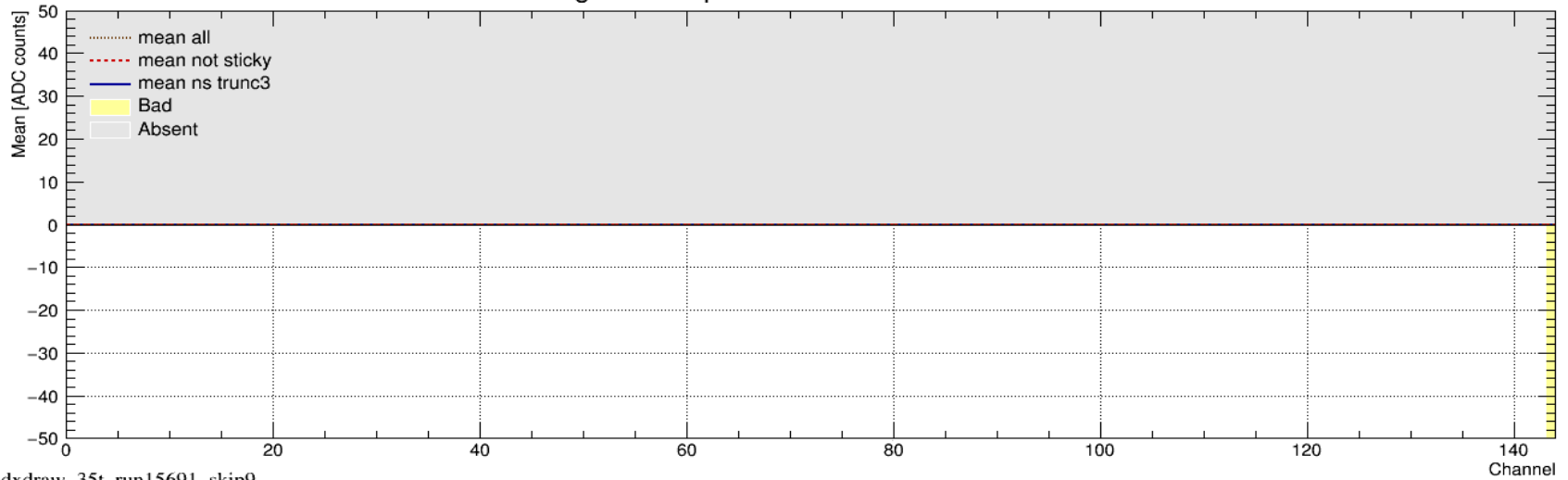
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

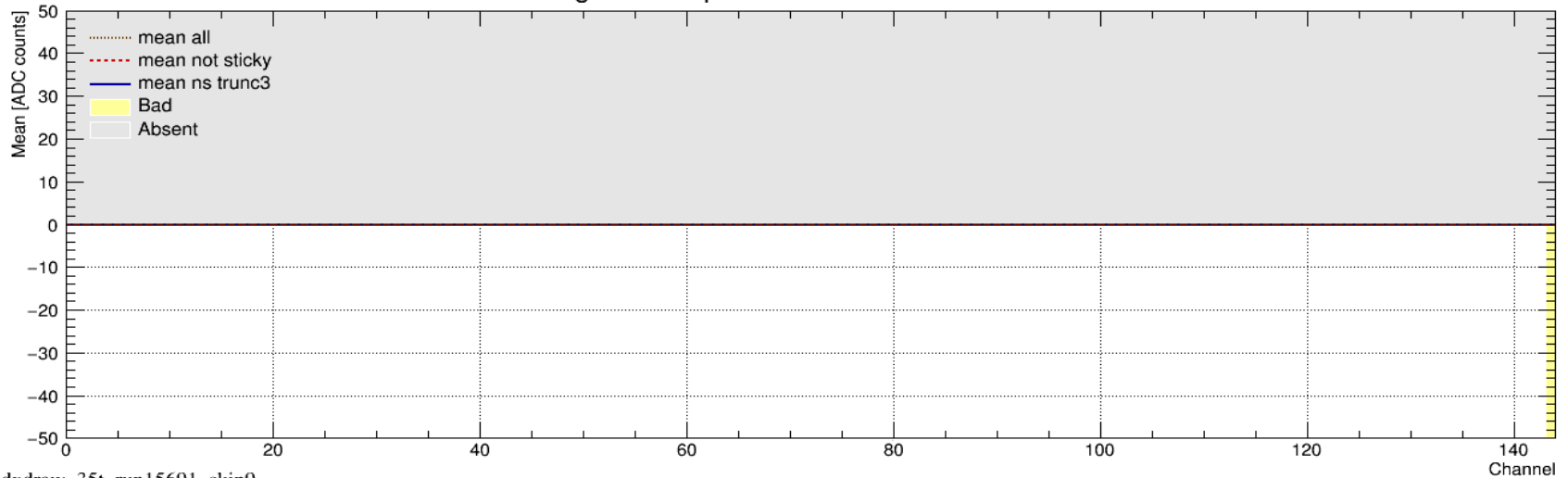
# APAs 1u, 1v run 15691

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

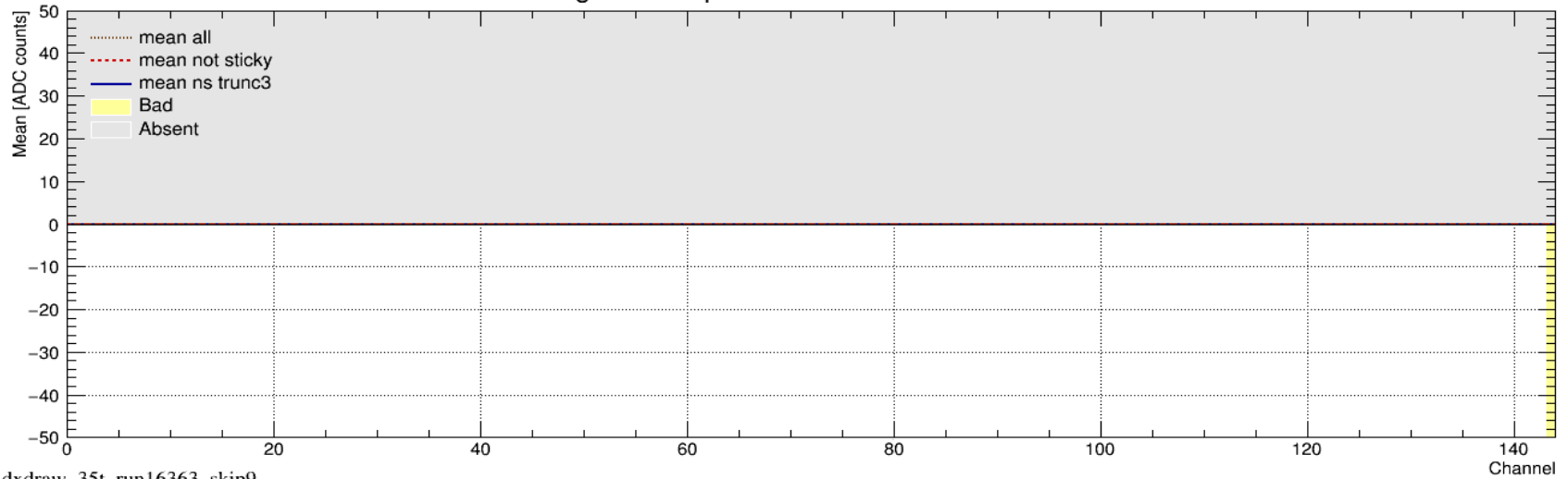
Raw signals for apa1v event 10 mean ADC count



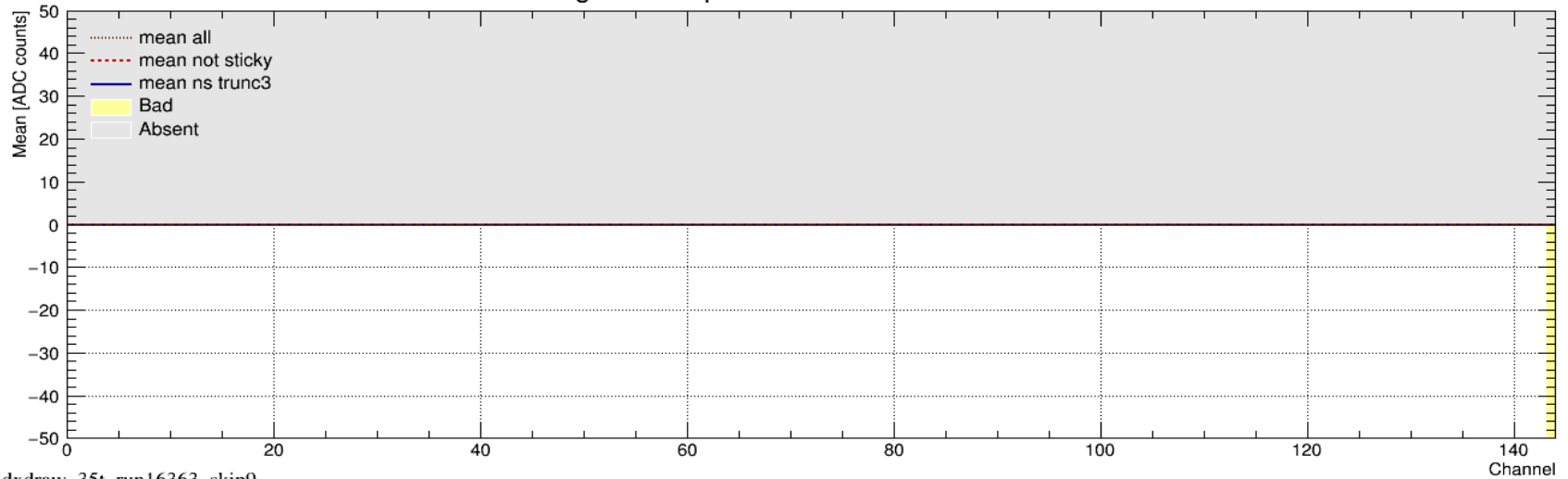
dxdraw\_35t\_run15691\_skip9

# APAs 1u, 1v run 16363

Raw signals for apa1u event 10 mean ADC count

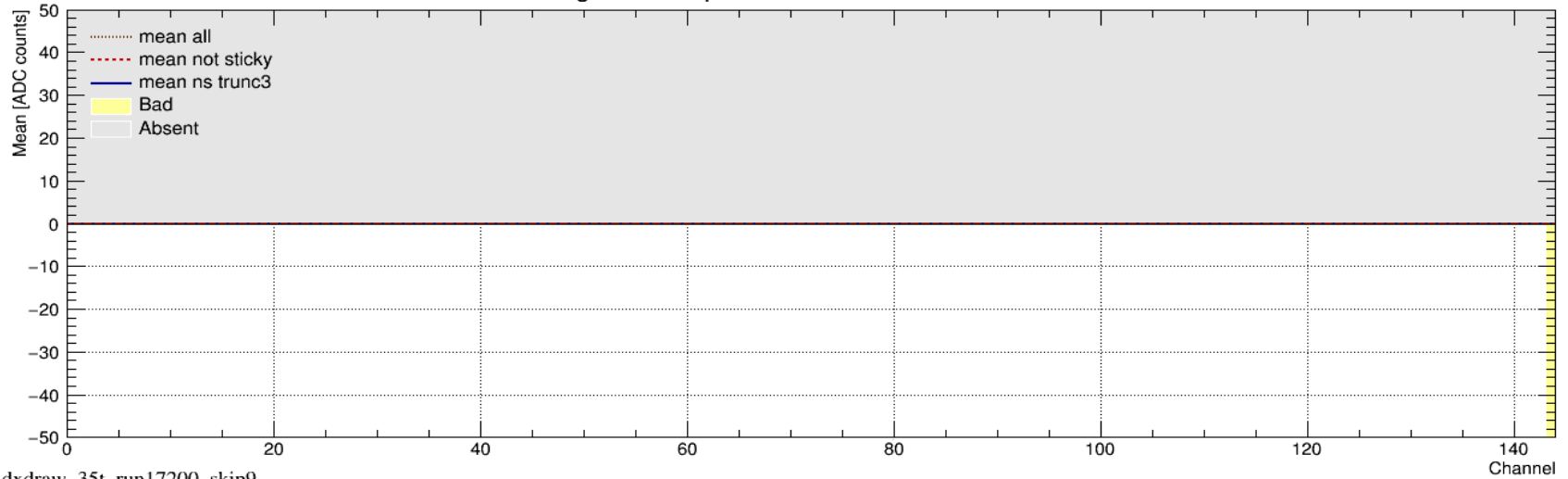


Raw signals for apa1v event 10 mean ADC count



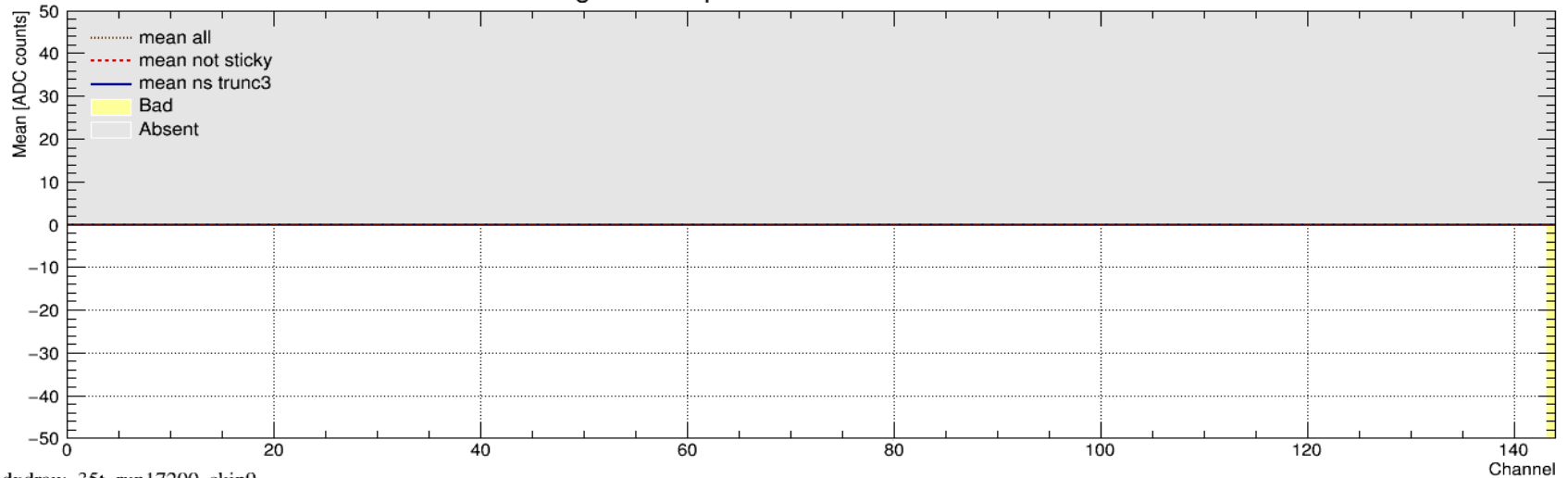
# APAs 1u, 1v run 17200

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

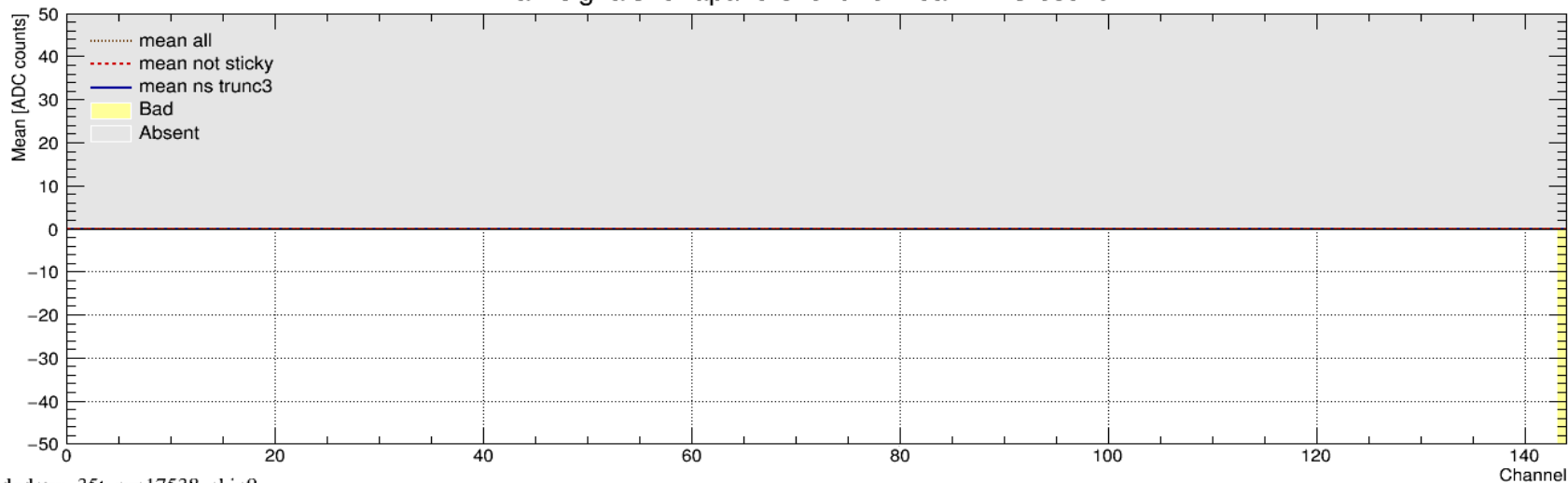
Raw signals for apa1v event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

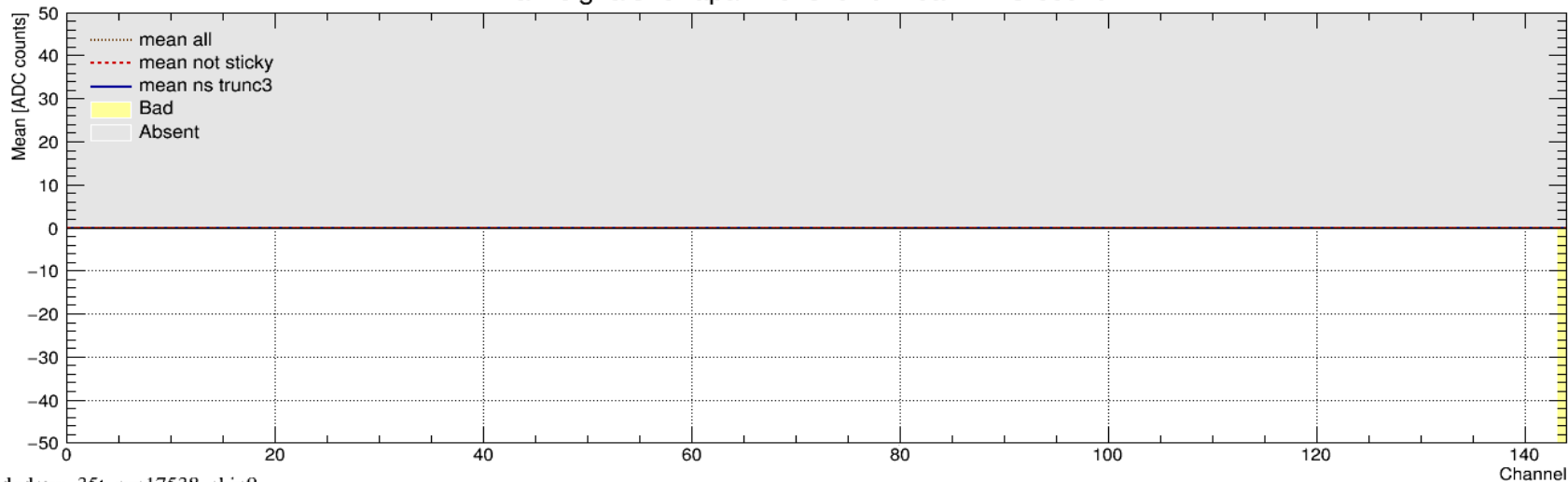
# APAs 1u, 1v run 17538 (last)

Raw signals for apa1u event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa1v event 10 mean ADC count

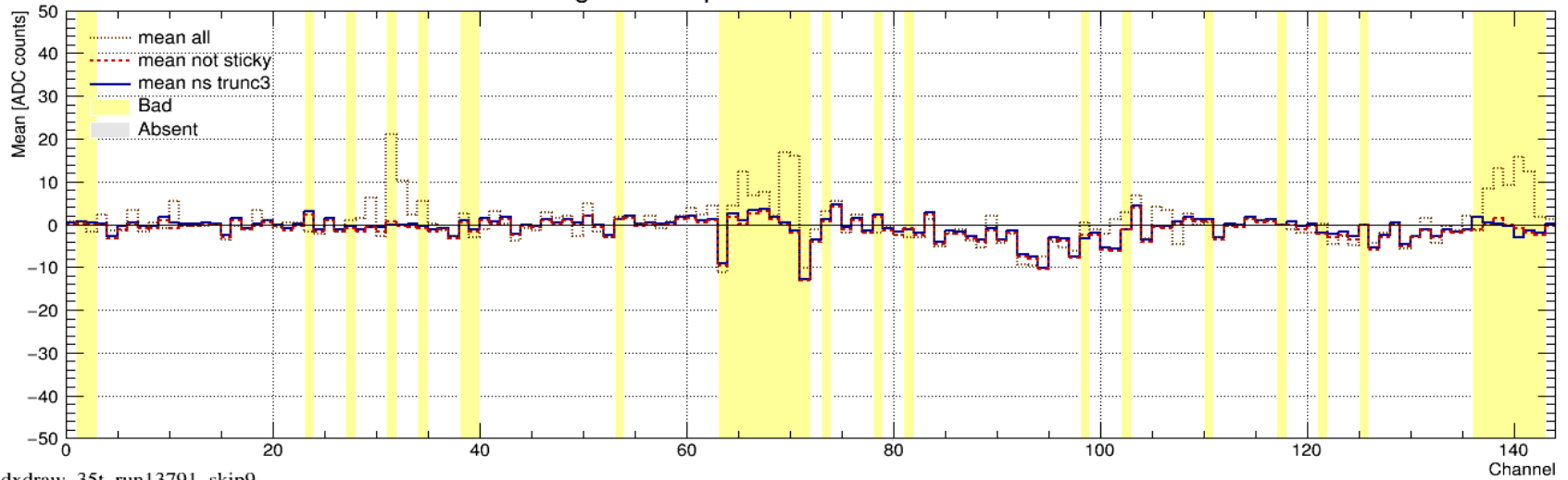


dxdraw\_35t\_run17538\_skip9

# APAs 2u and 2v

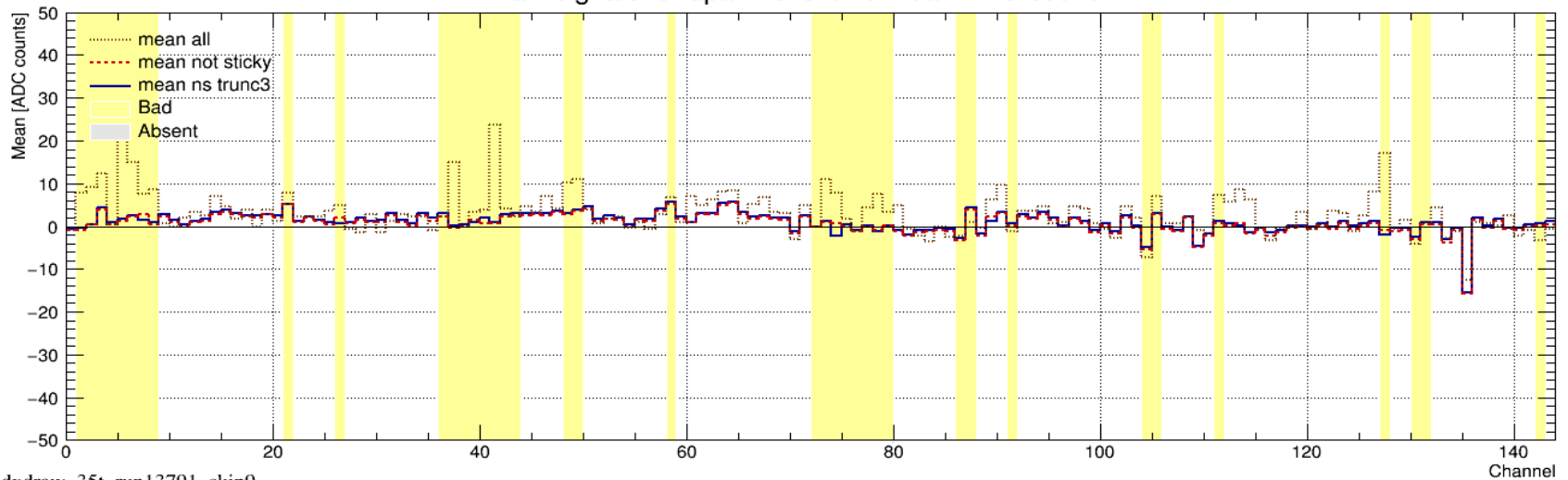
# APAs 2u, 2v run 13791 (first)

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

Raw signals for apa2v event 10 mean ADC count

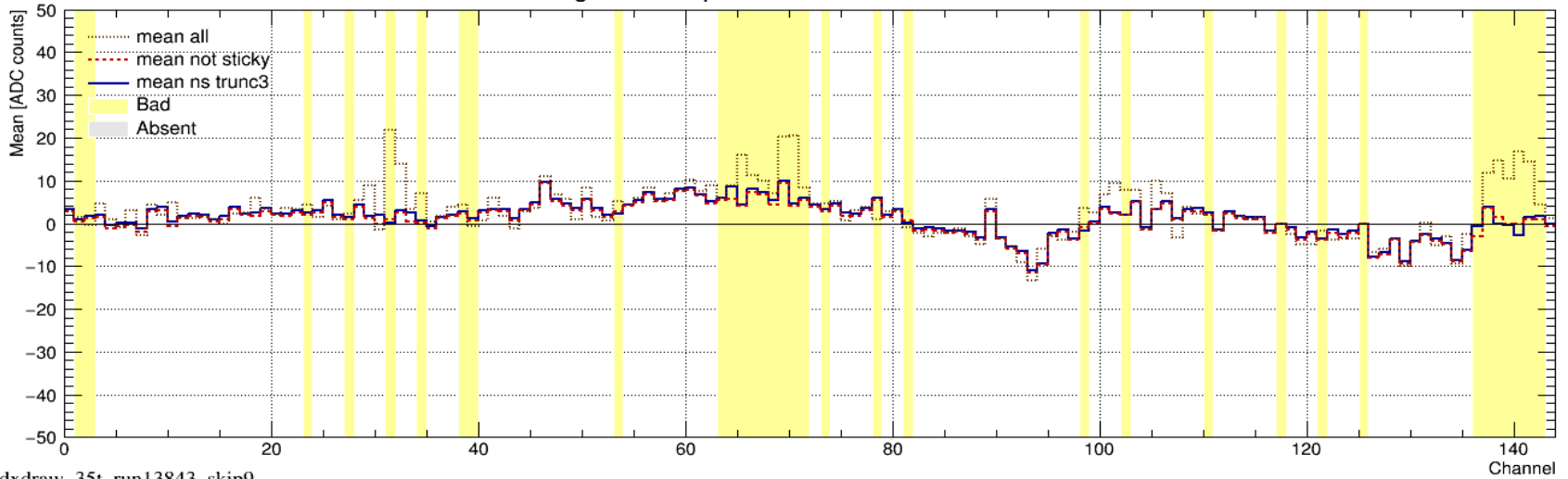


dxdraw\_35t\_run13791\_skip9



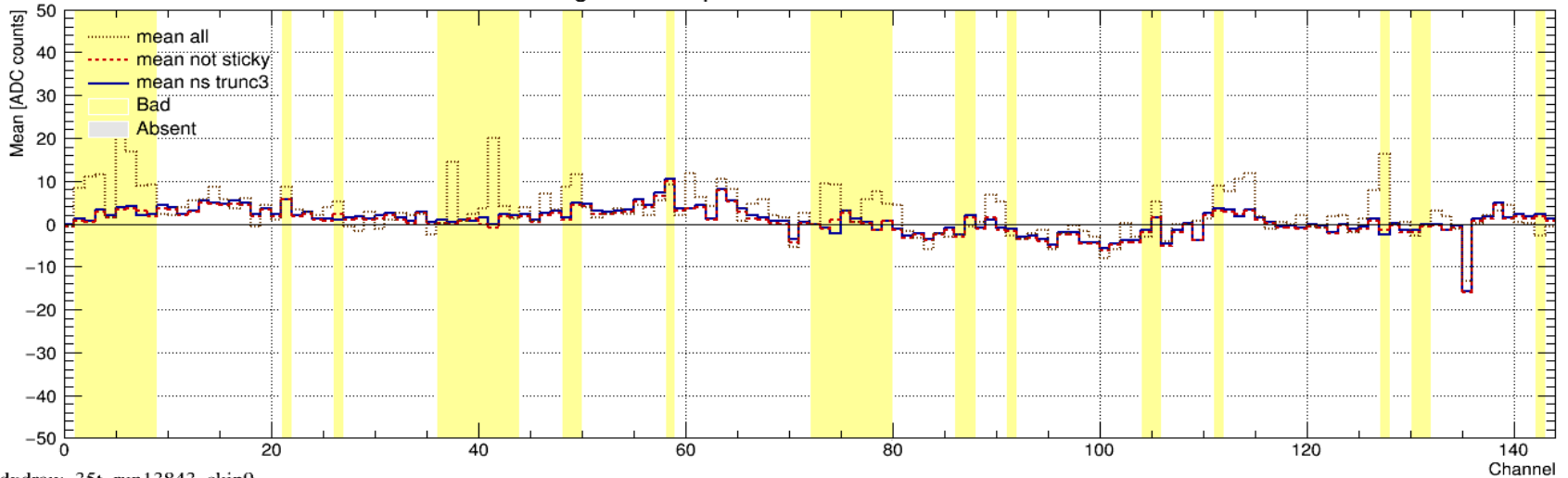
# APAs 2u, 2v run 13843

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

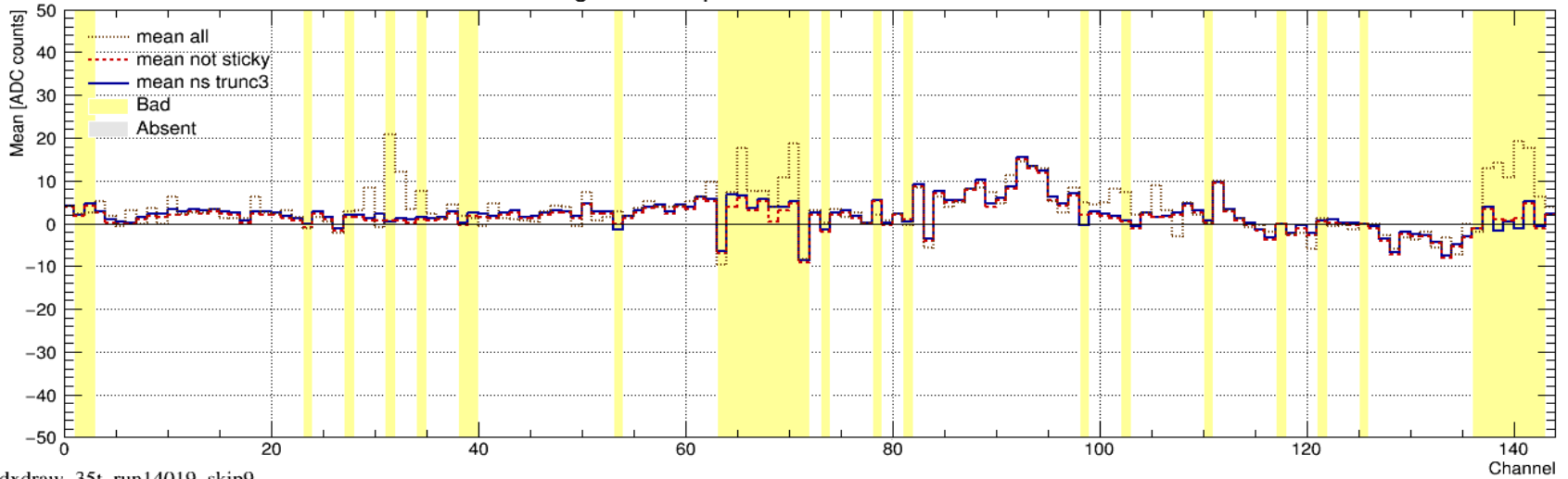
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

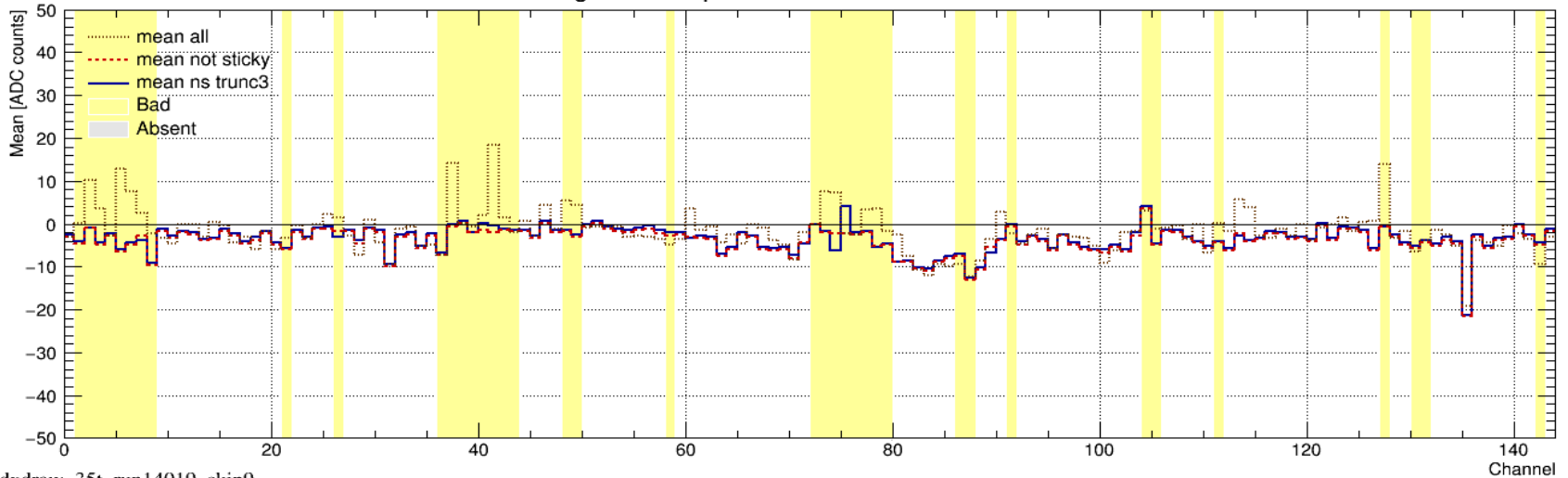
# APAs 2u, 2v run 14019

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

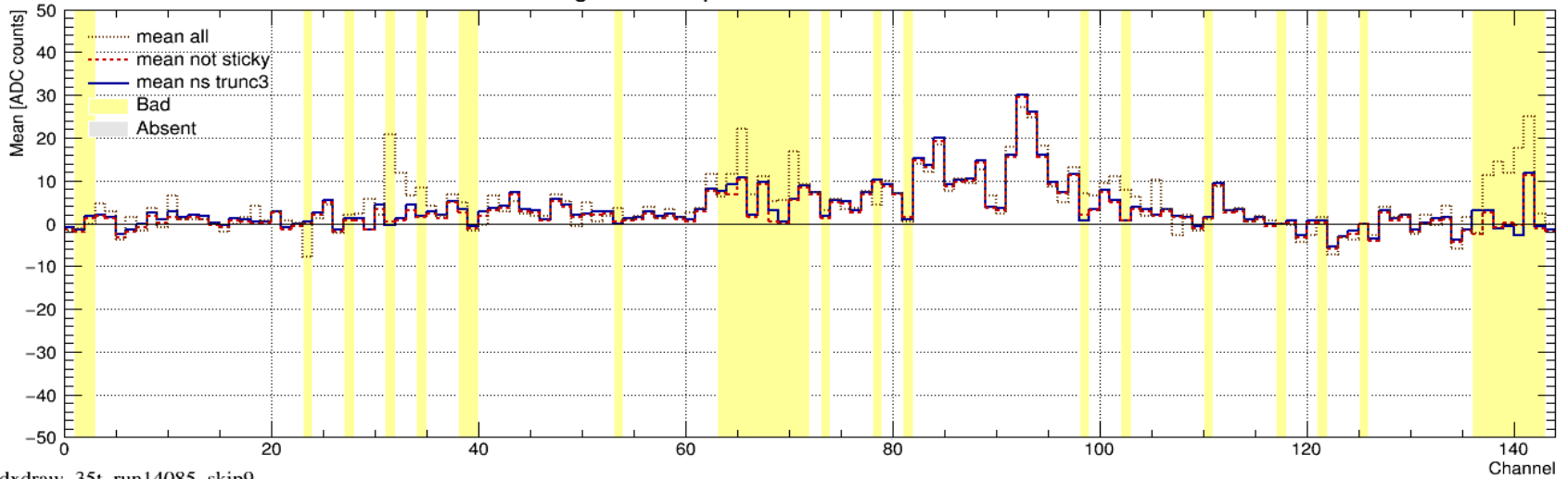
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

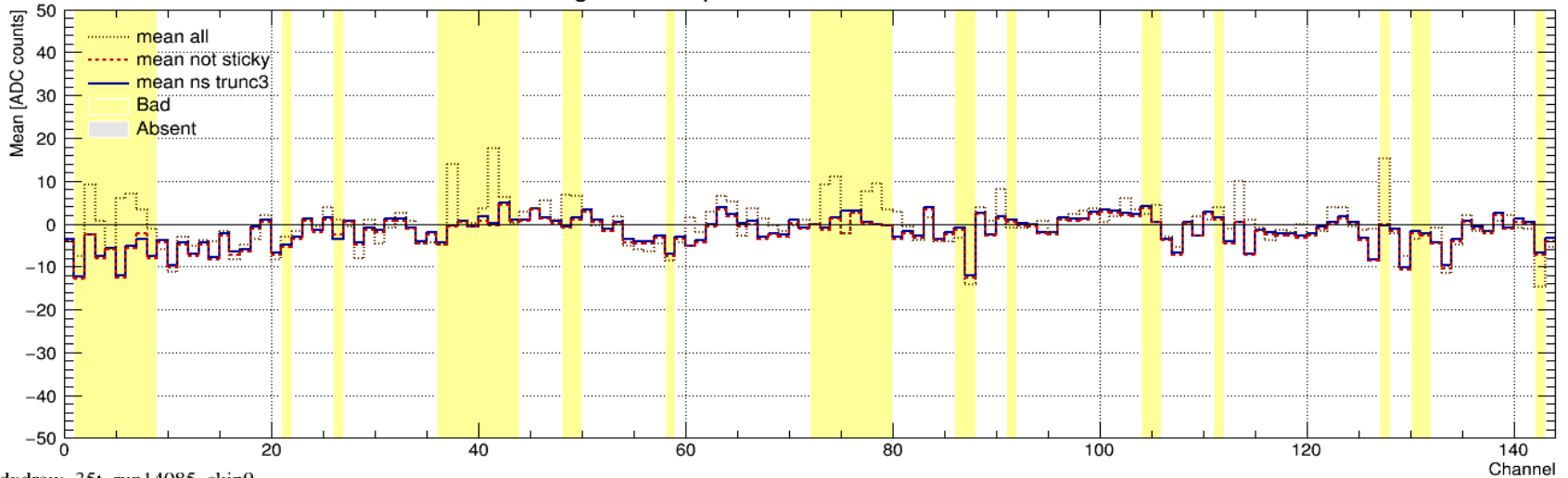
# APAs 2u, 2v run 14085

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

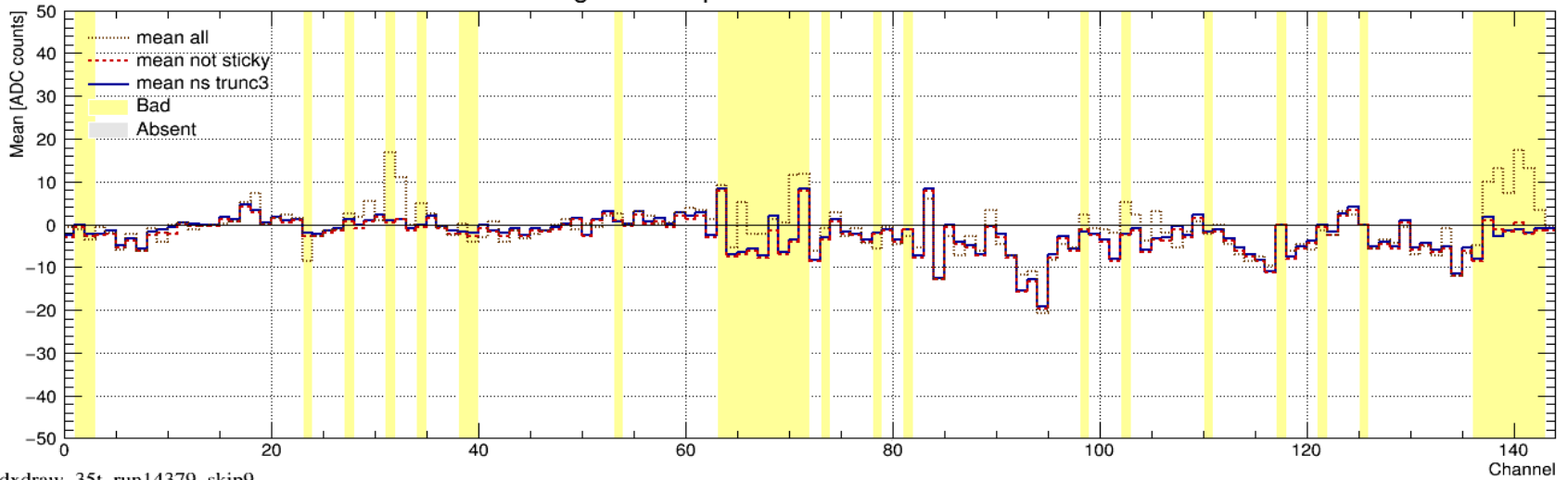
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

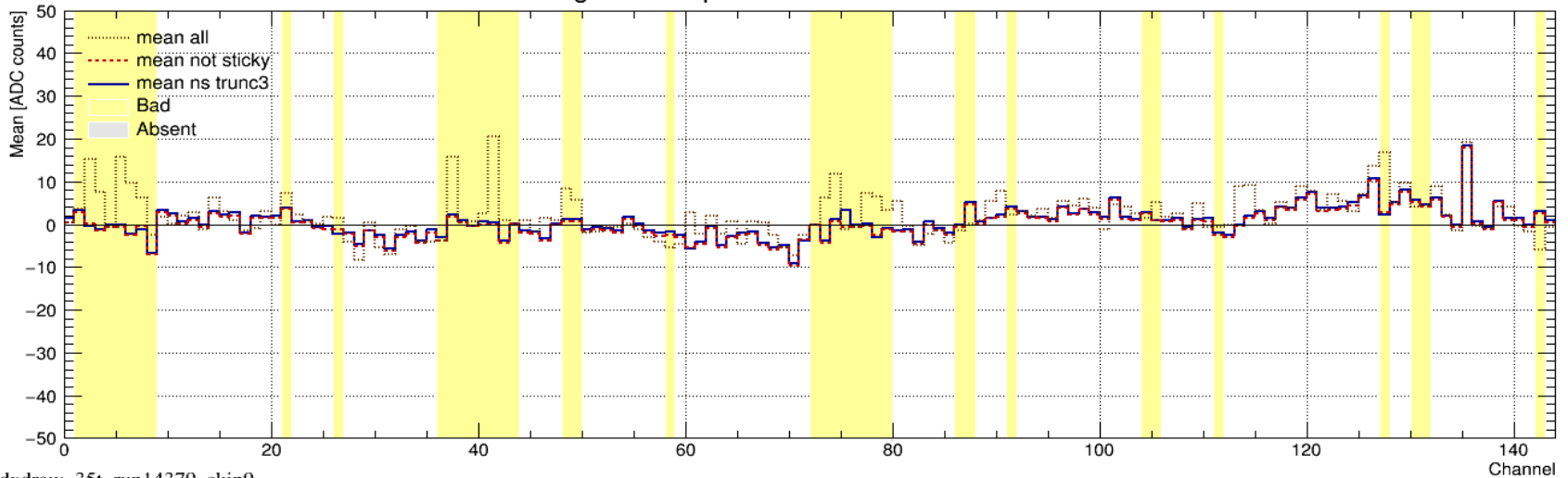
# APAs 2u, 2v run 14379

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

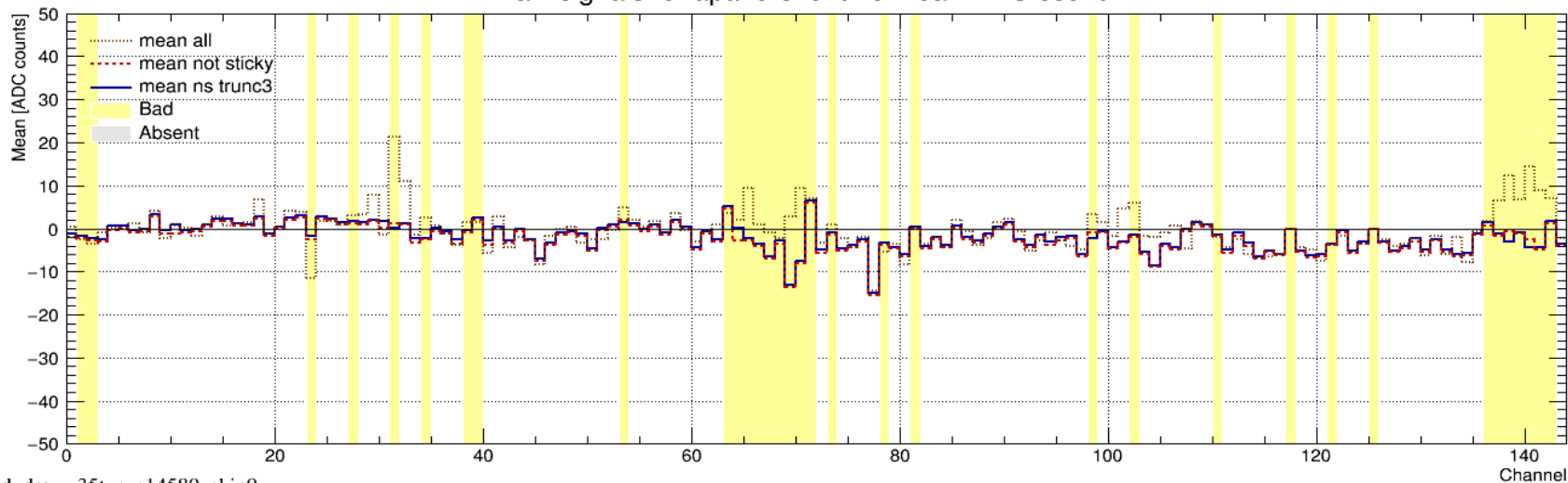
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

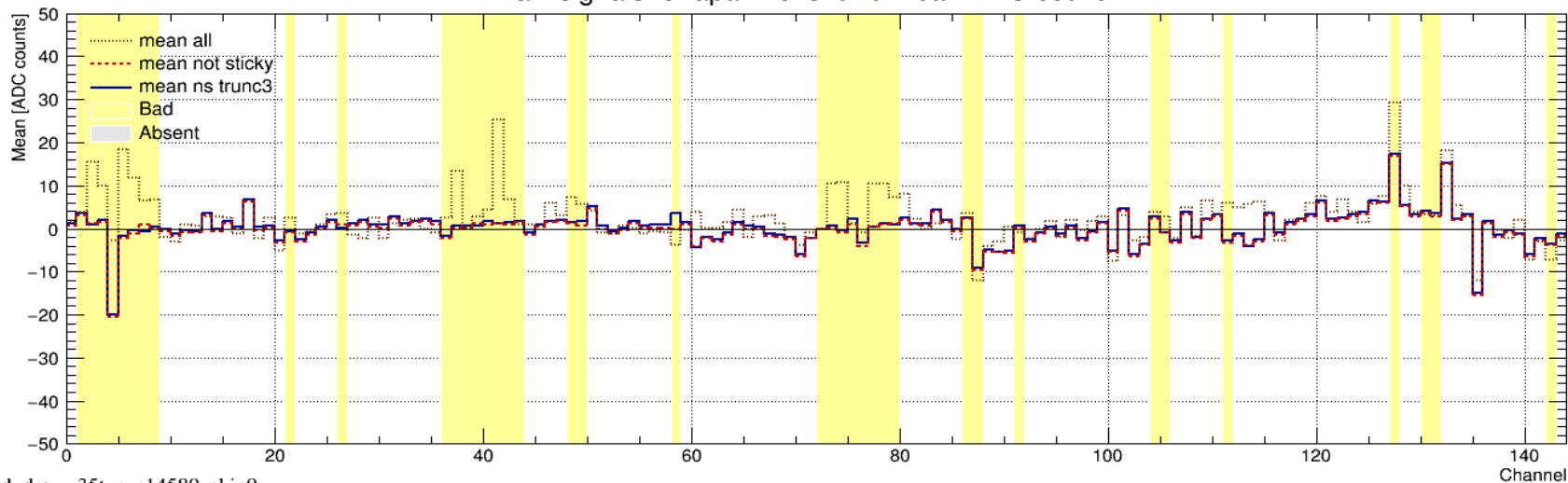
# APAs 2u, 2v run 14580 (last before PF)

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

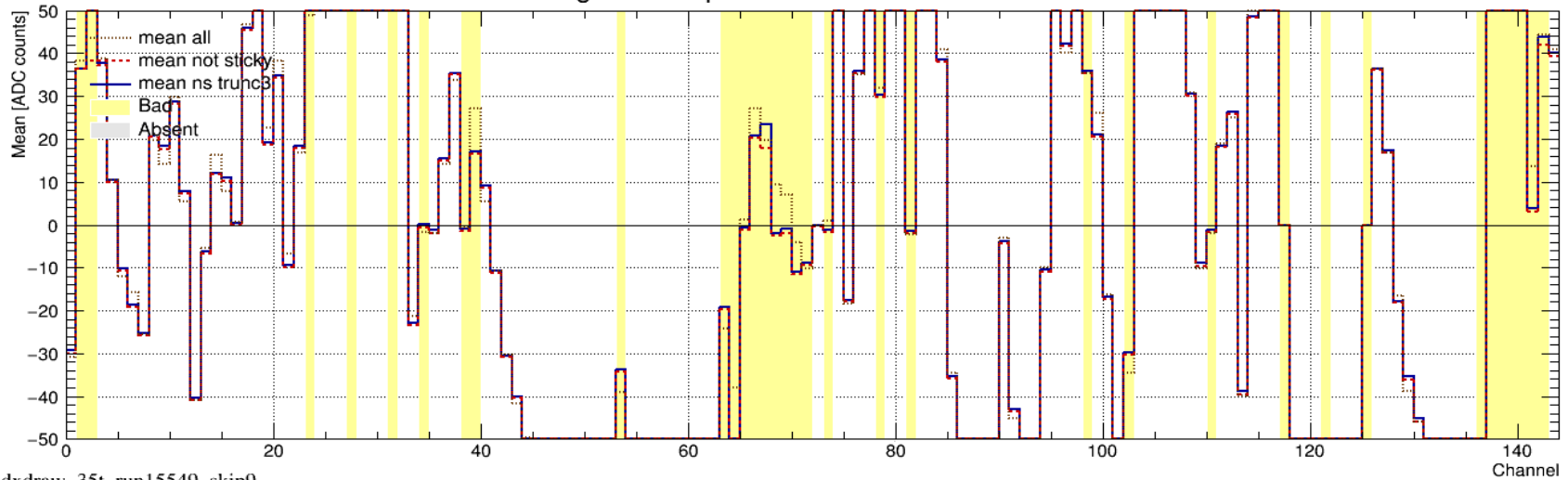
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

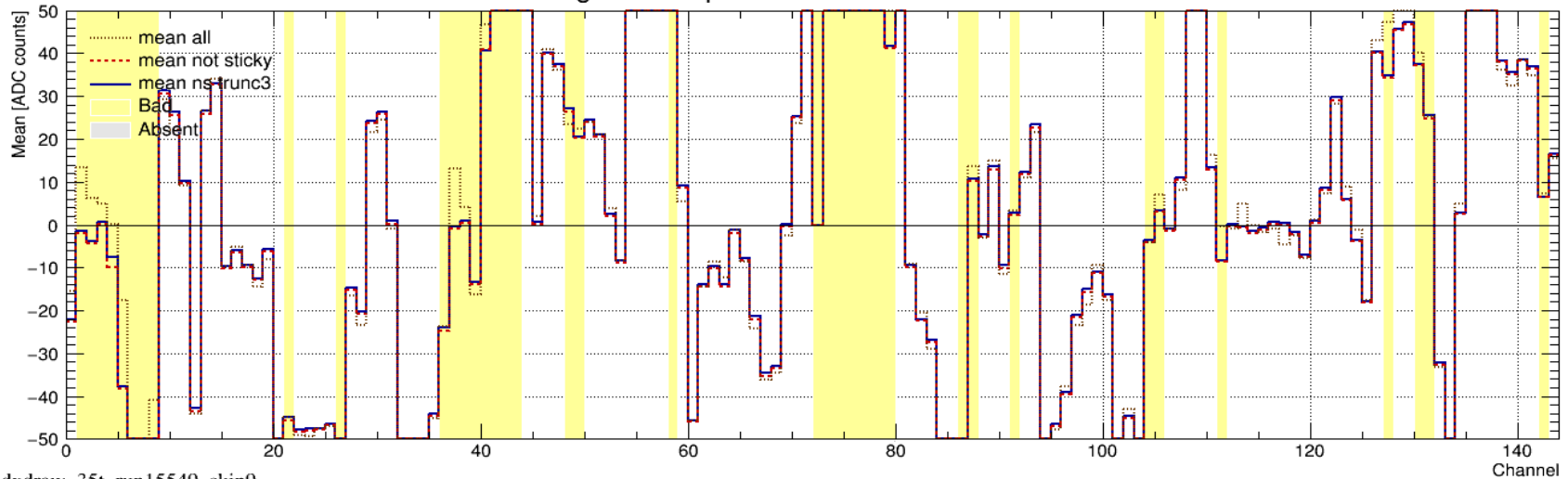
# APAs 2u, 2v run 15549 (first after PF)

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

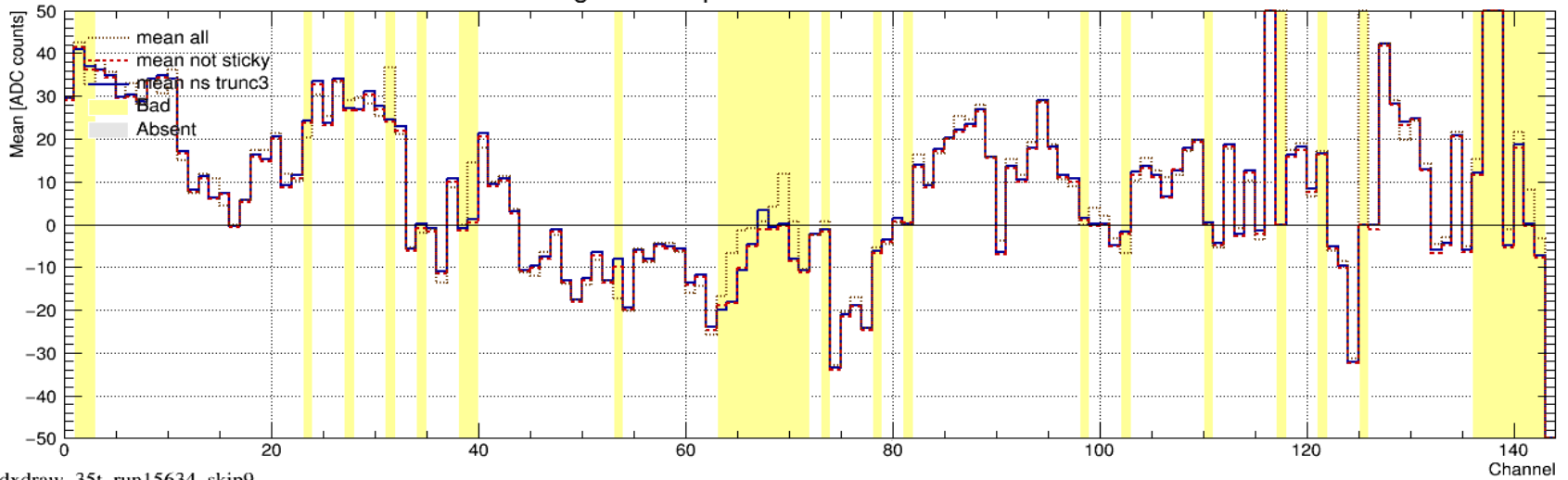
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

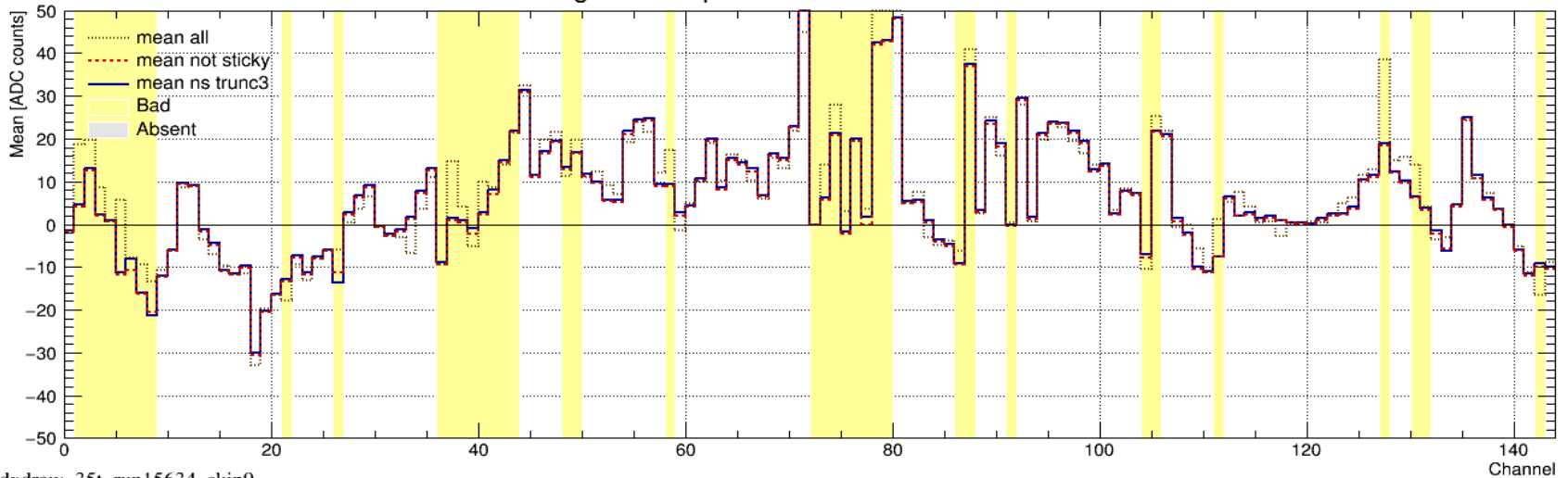
# APAs 2u, 2v run 15634

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

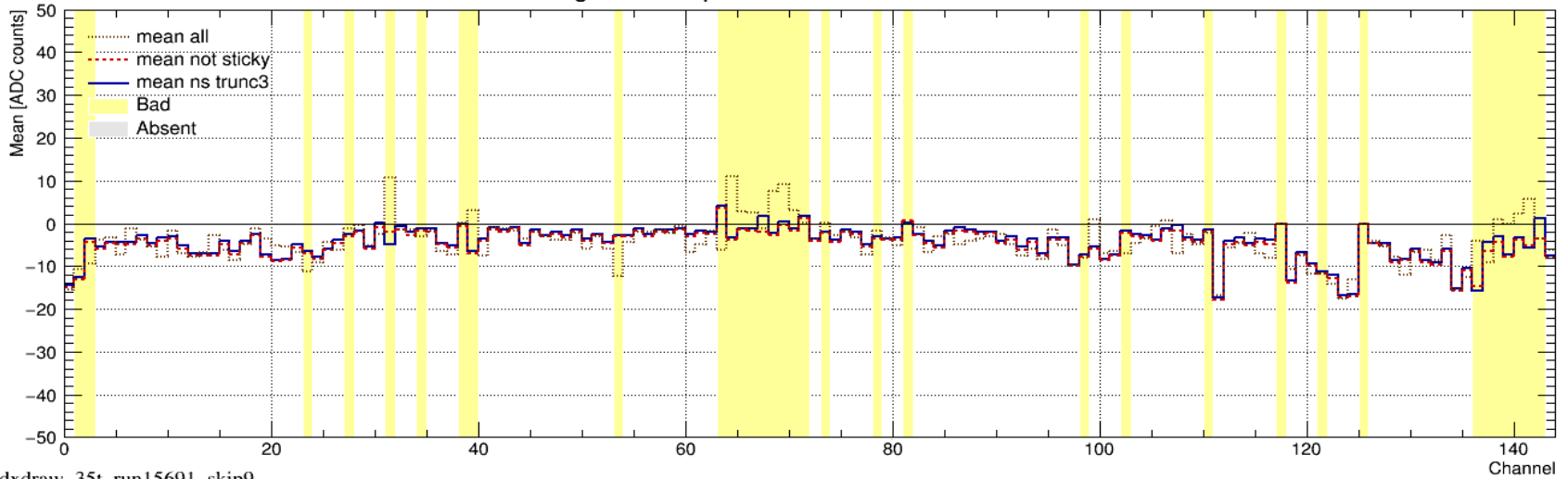
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

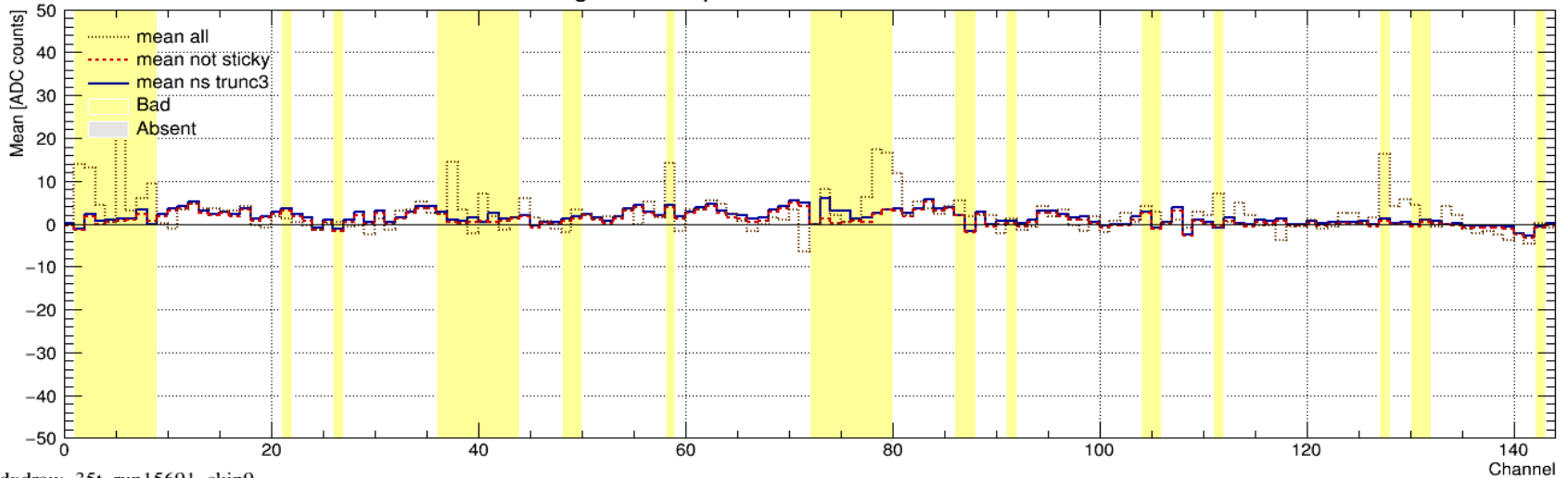
# APAs 2u, 2v run 15691

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

Raw signals for apa2v event 10 mean ADC count

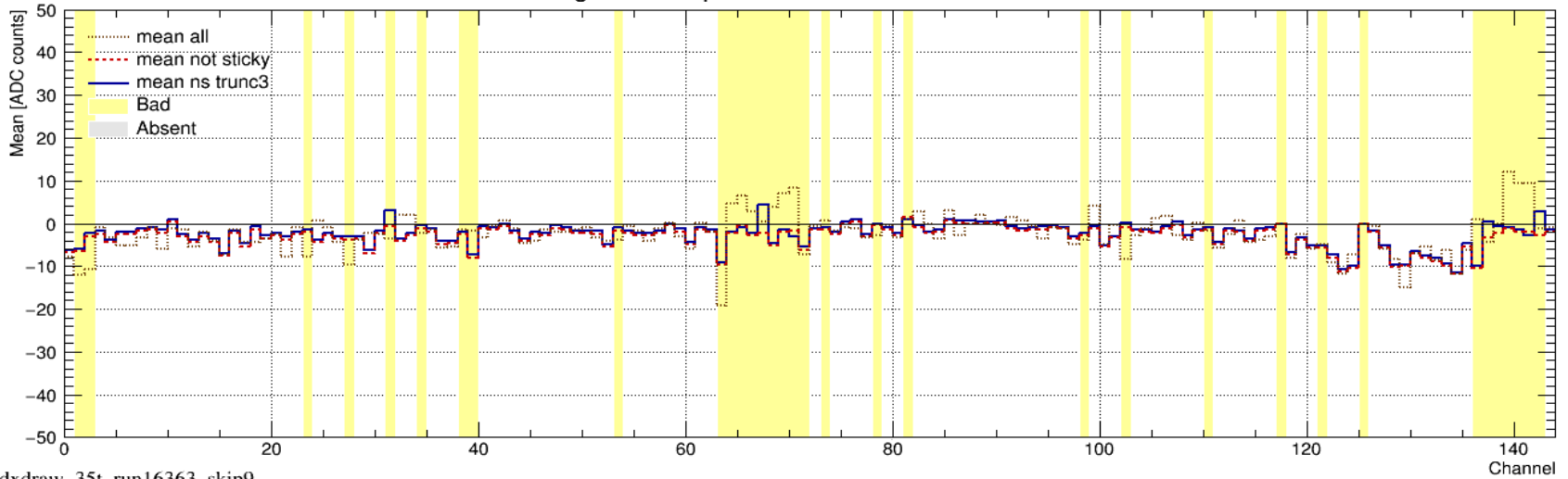


dxdraw\_35t\_run15691\_skip9



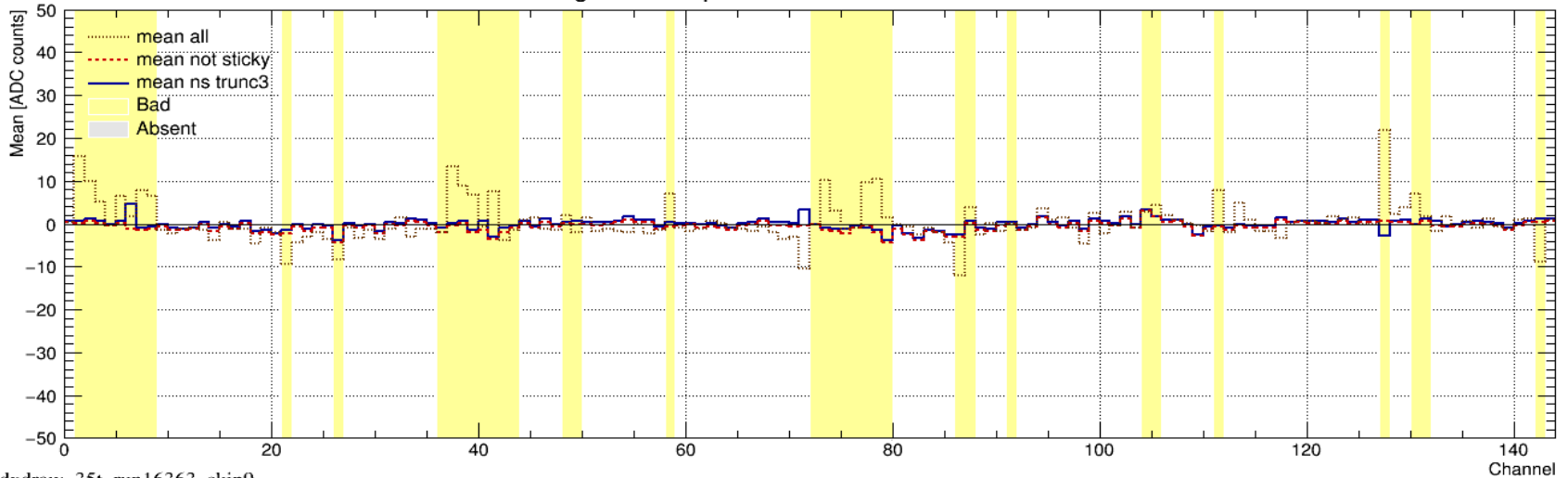
# APAs 2u, 2v run 16363

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

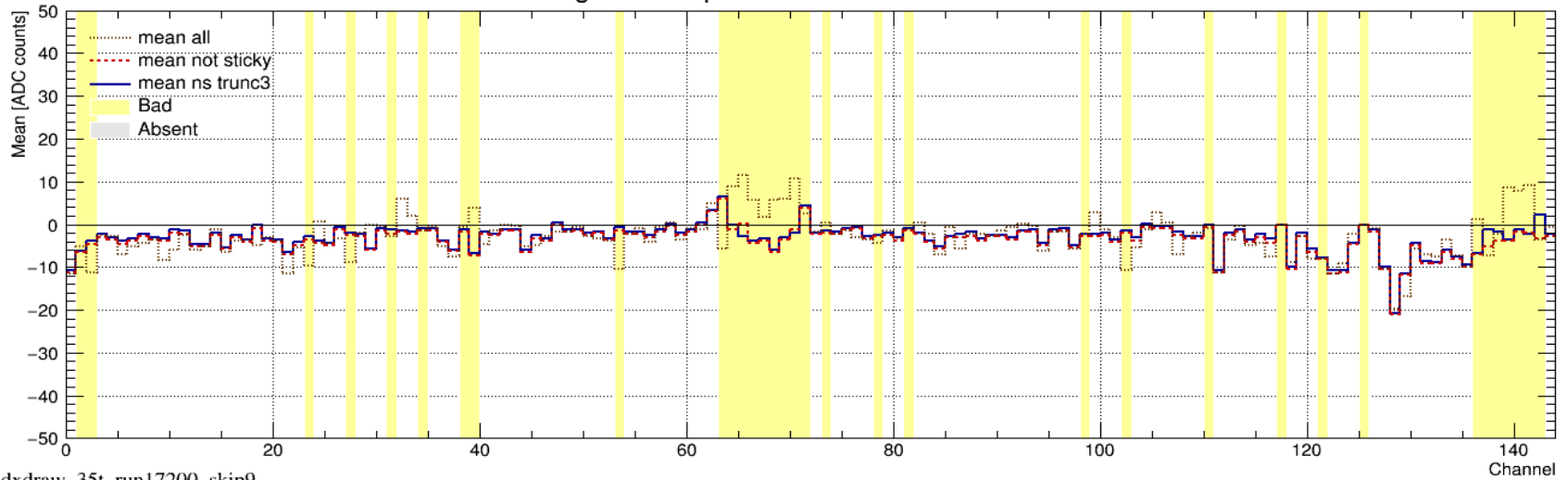
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

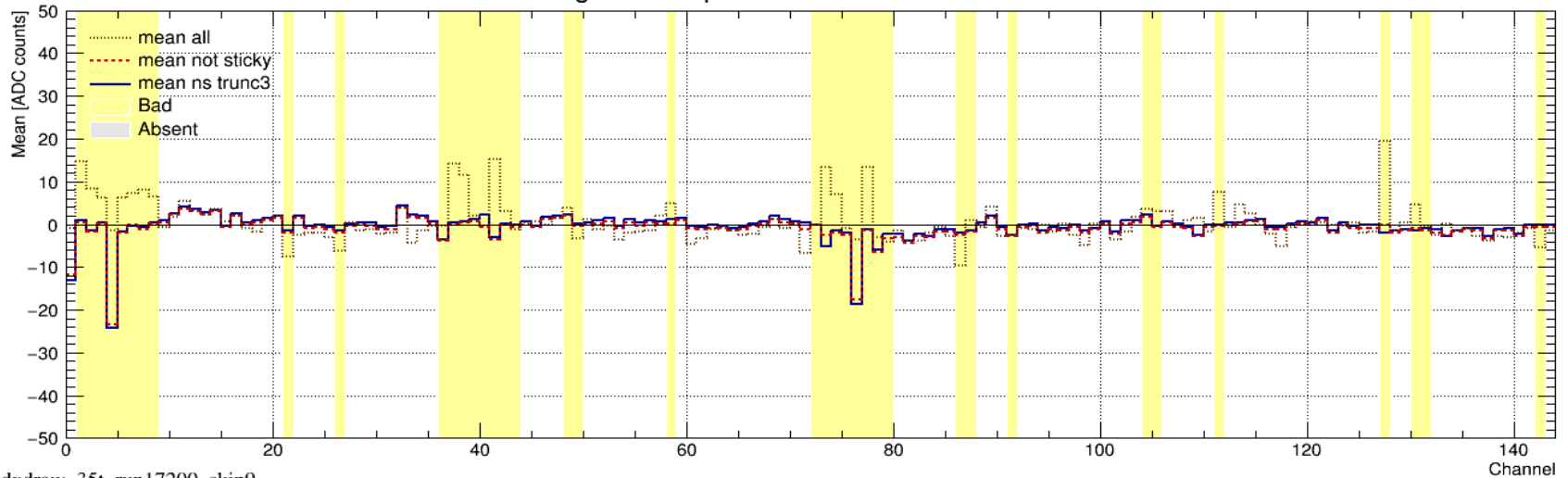
# APAs 2u, 2v run 17200

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

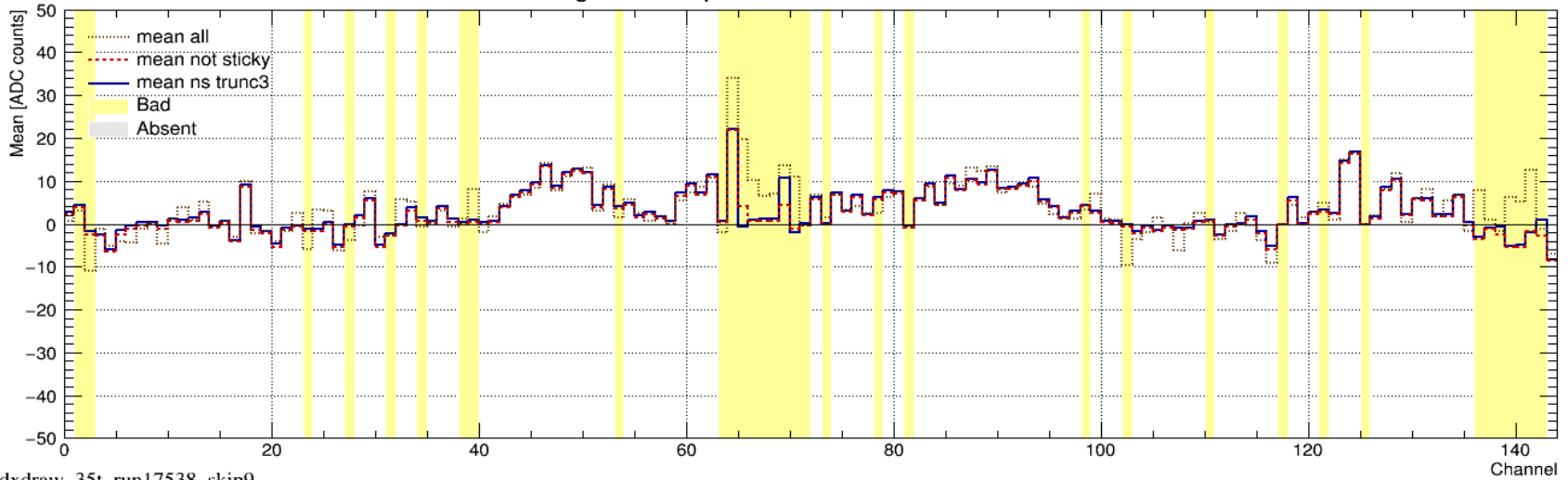
Raw signals for apa2v event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

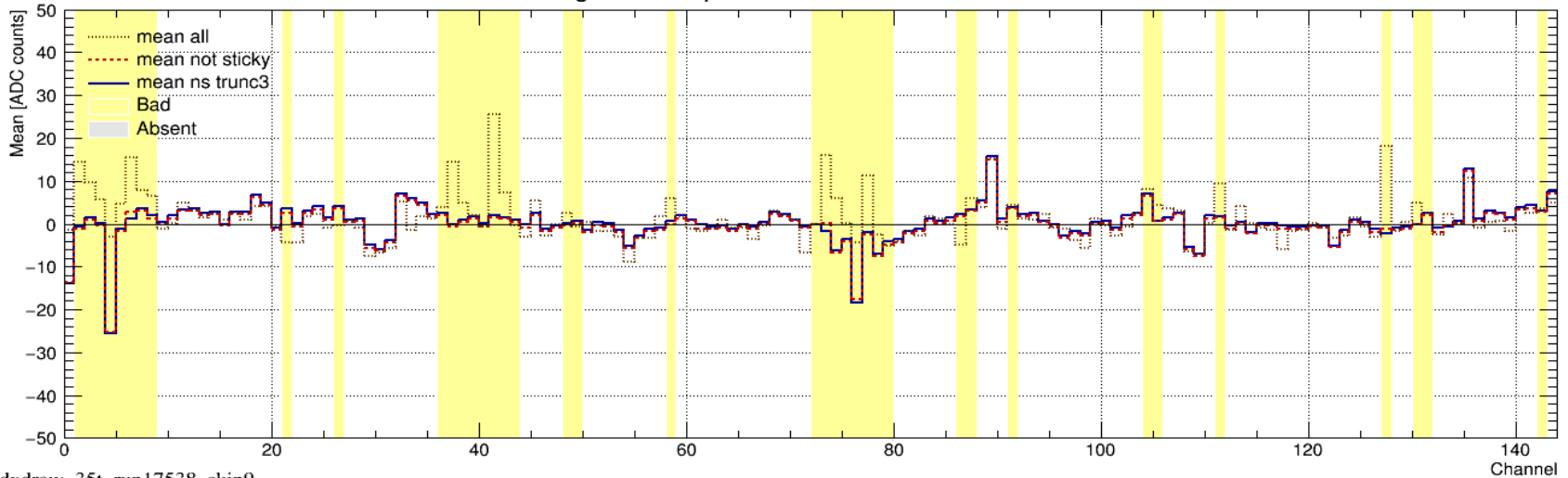
# APAs 2u, 2v run 17538 (last)

Raw signals for apa2u event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa2v event 10 mean ADC count

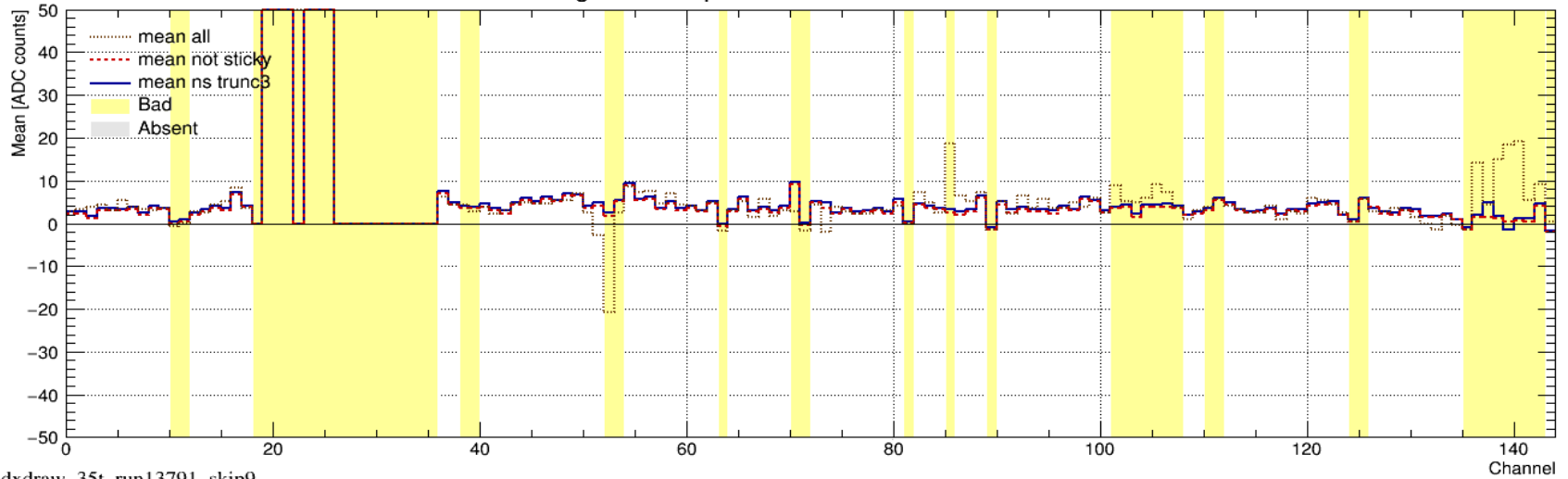


dxdraw\_35t\_run17538\_skip9

# APAs 3u and 3v

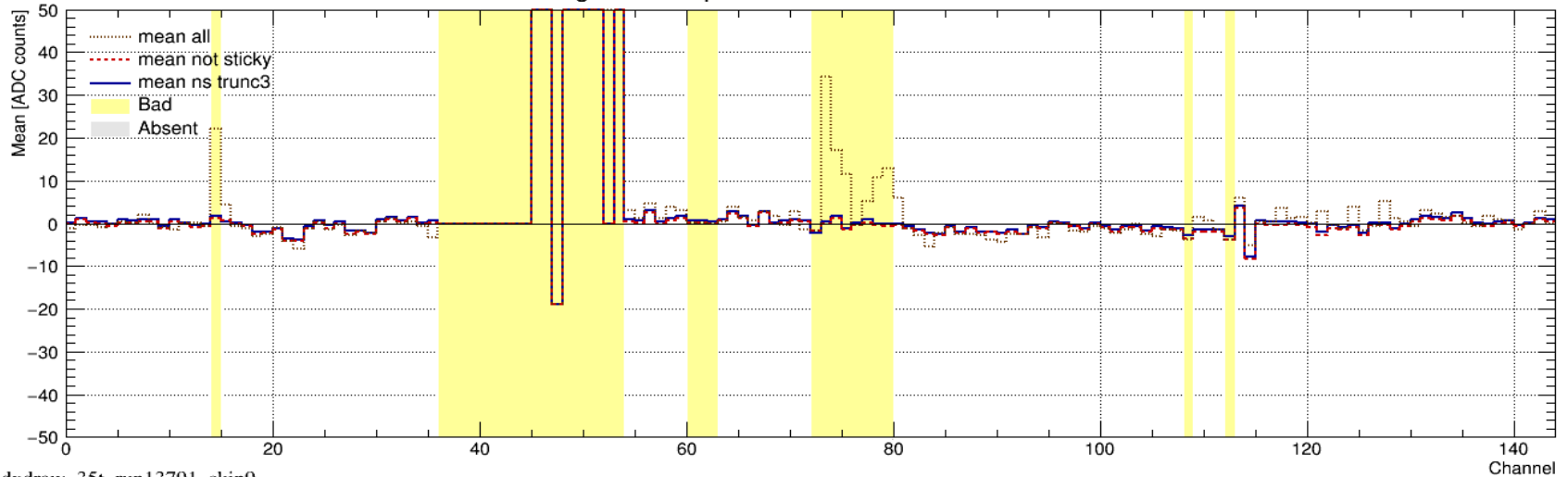
# APAs 3u, 3v run 13791 (first)

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

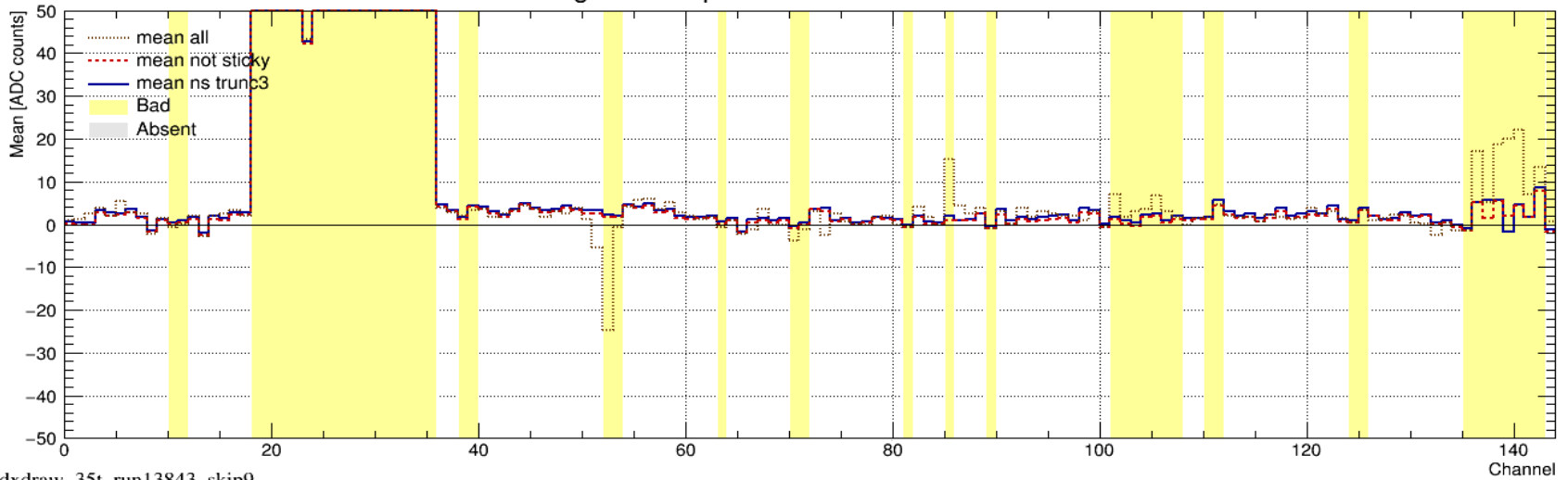
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run13791\_skip9

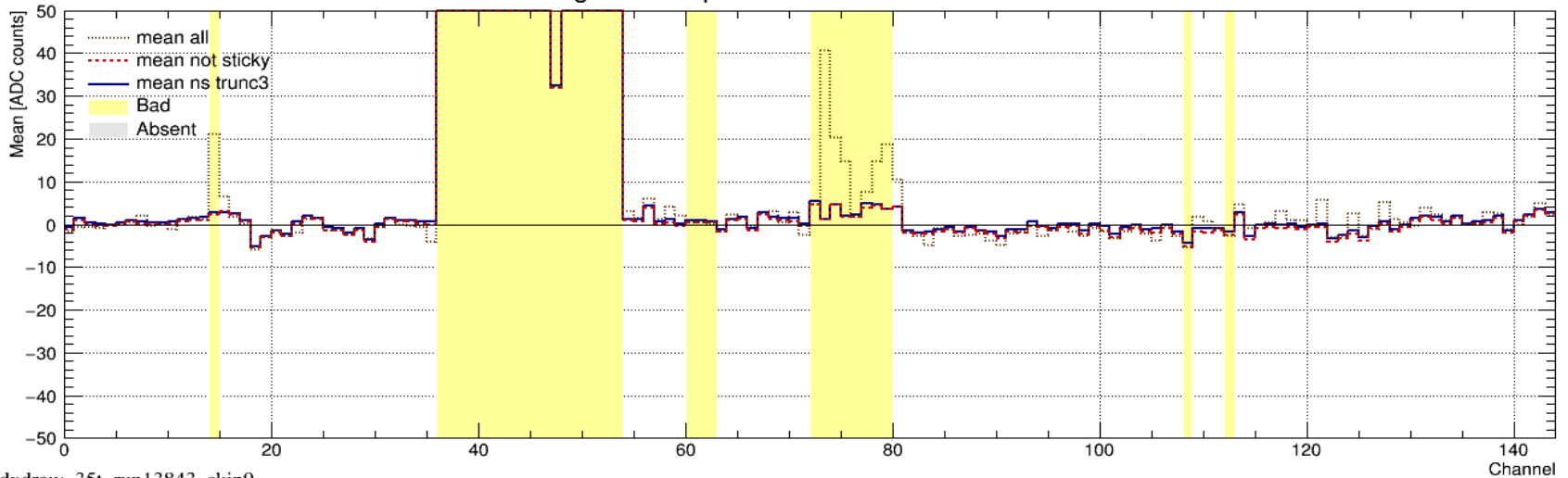
# APAs 3u, 3v run 13843

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

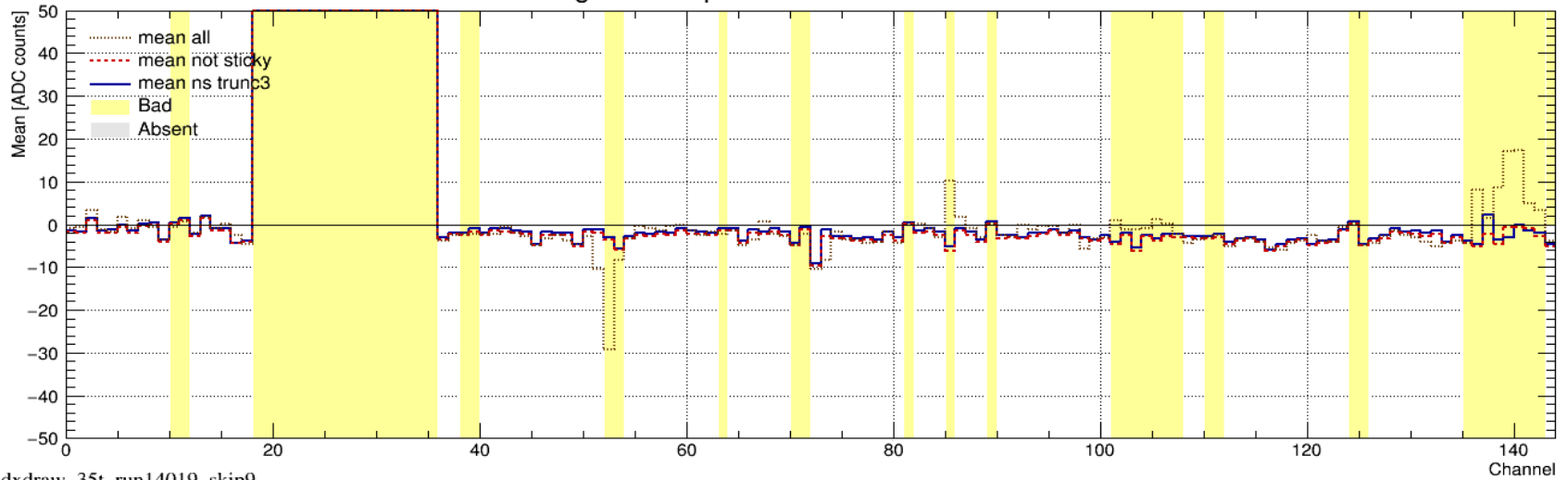
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run13843\_skip9

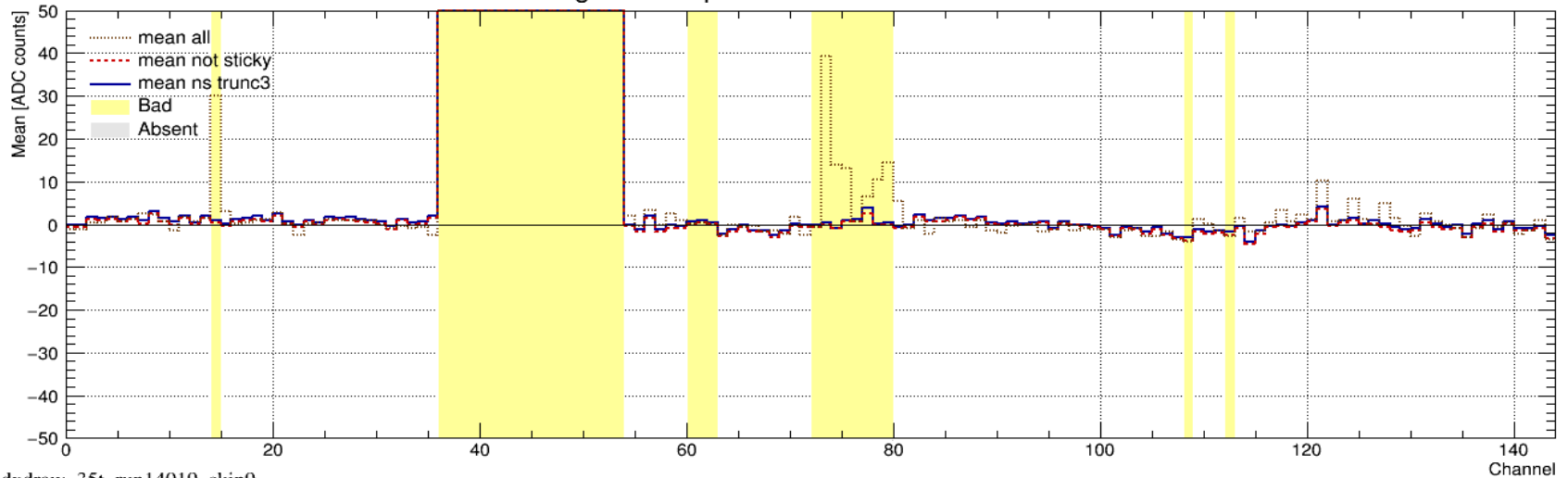
# APAs 3u, 3v run 14019

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

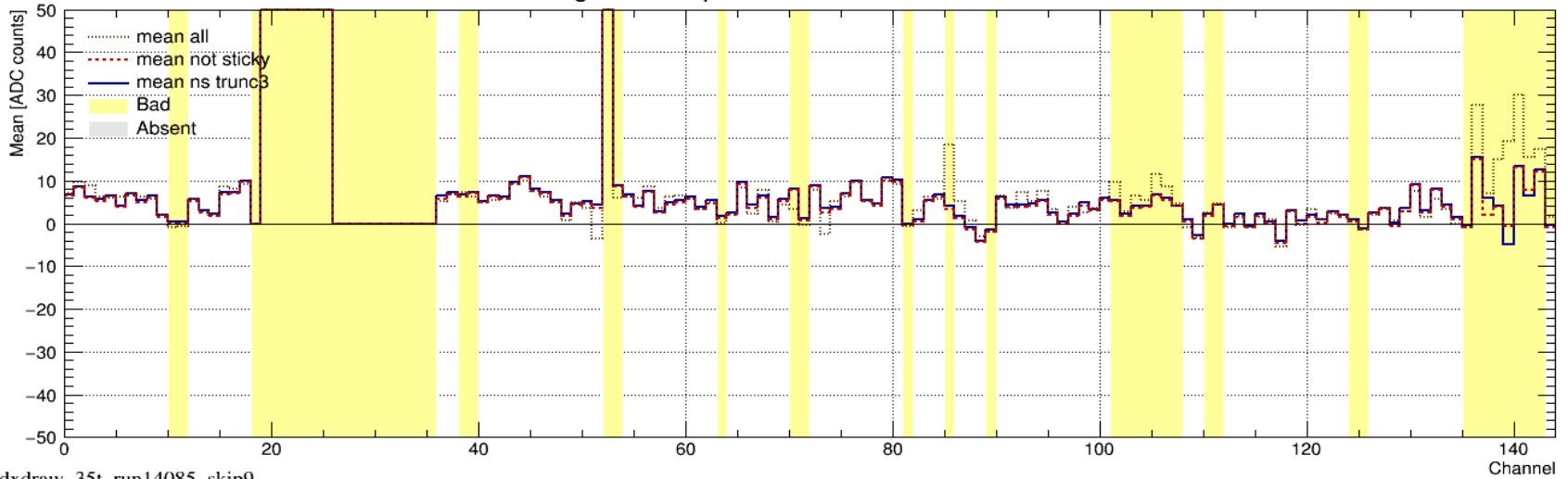
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run14019\_skip9

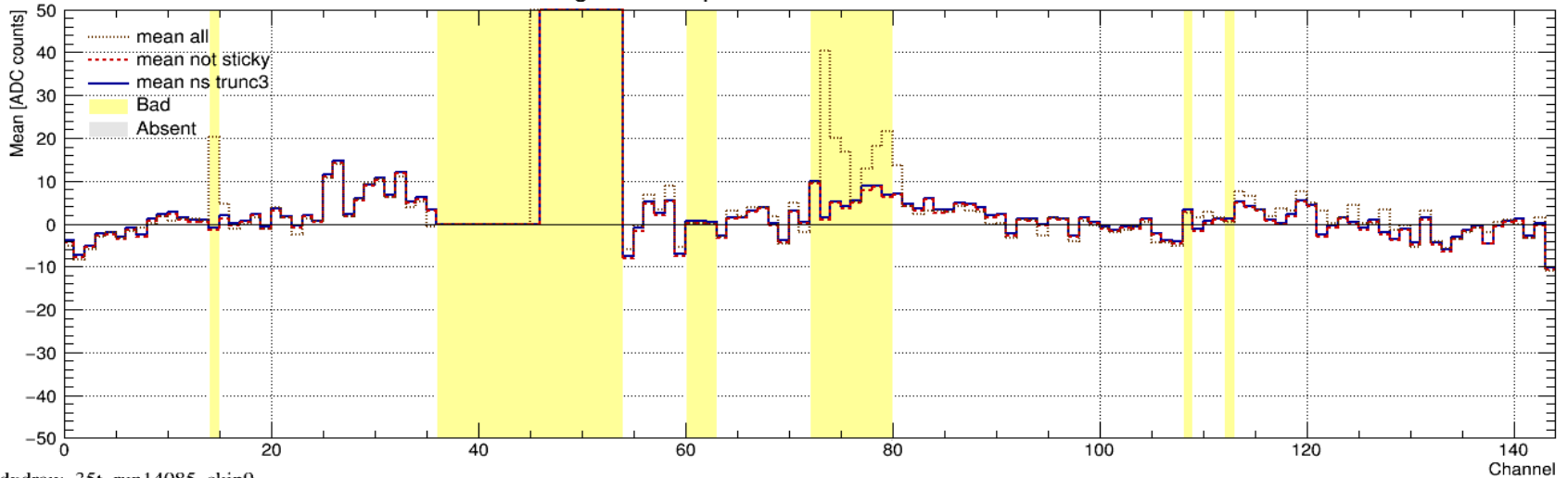
# APAs 3u, 3v run 14085

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run14085\_skip9

Raw signals for apa3v event 10 mean ADC count

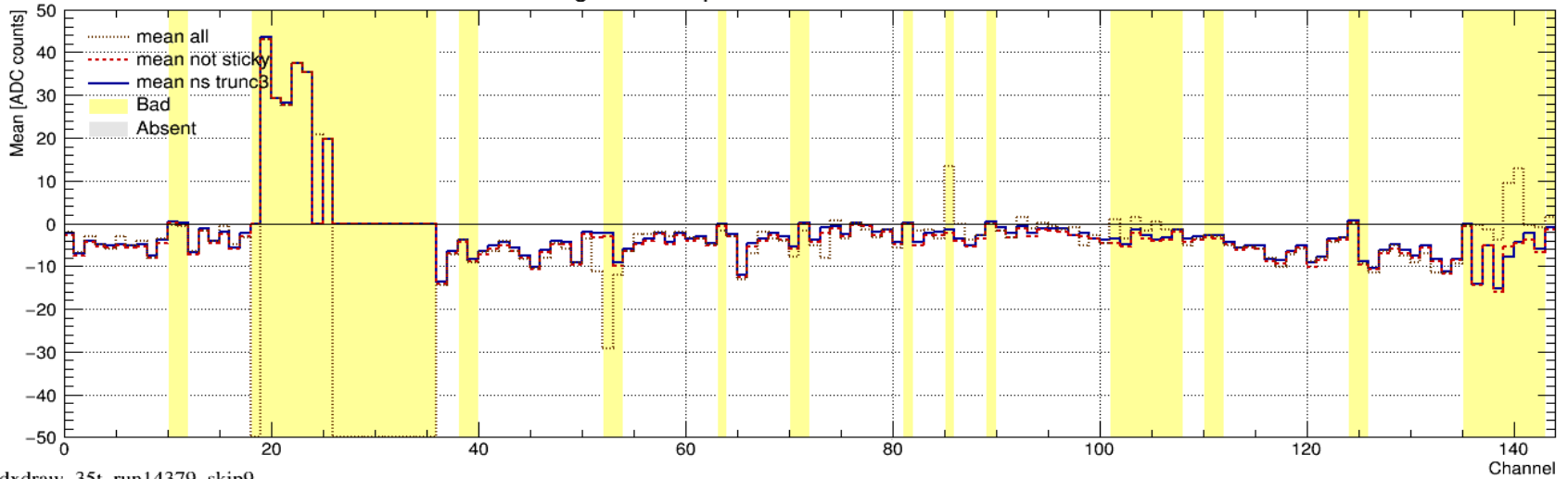


dxdraw\_35t\_run14085\_skip9



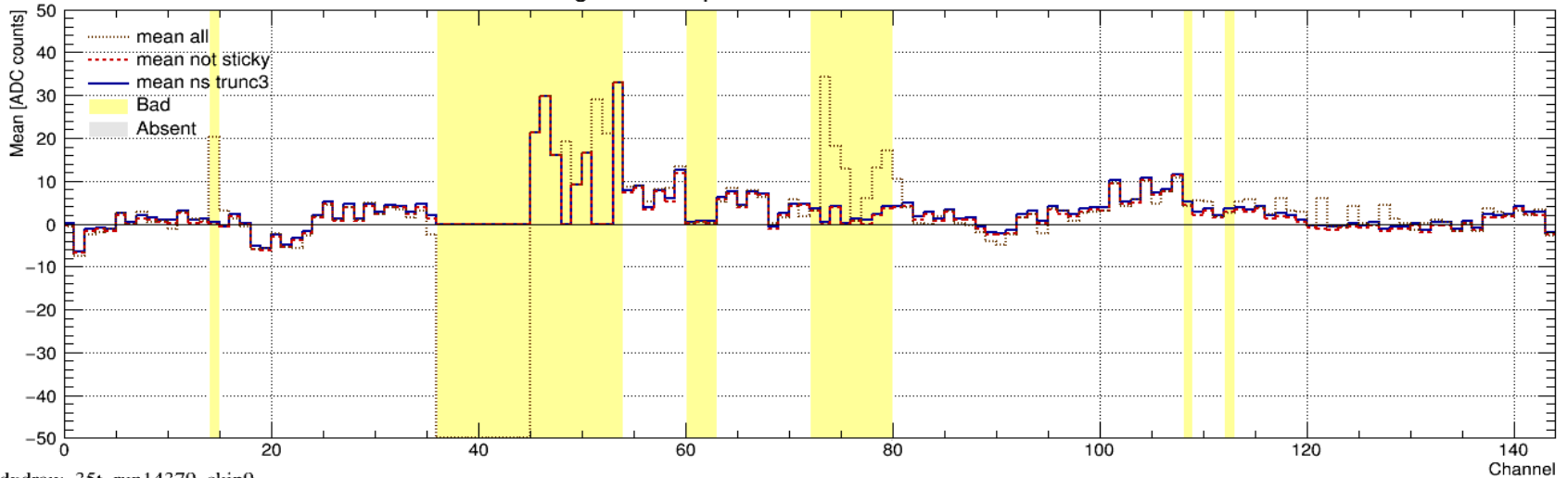
# APAs 3u, 3v run 14379

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

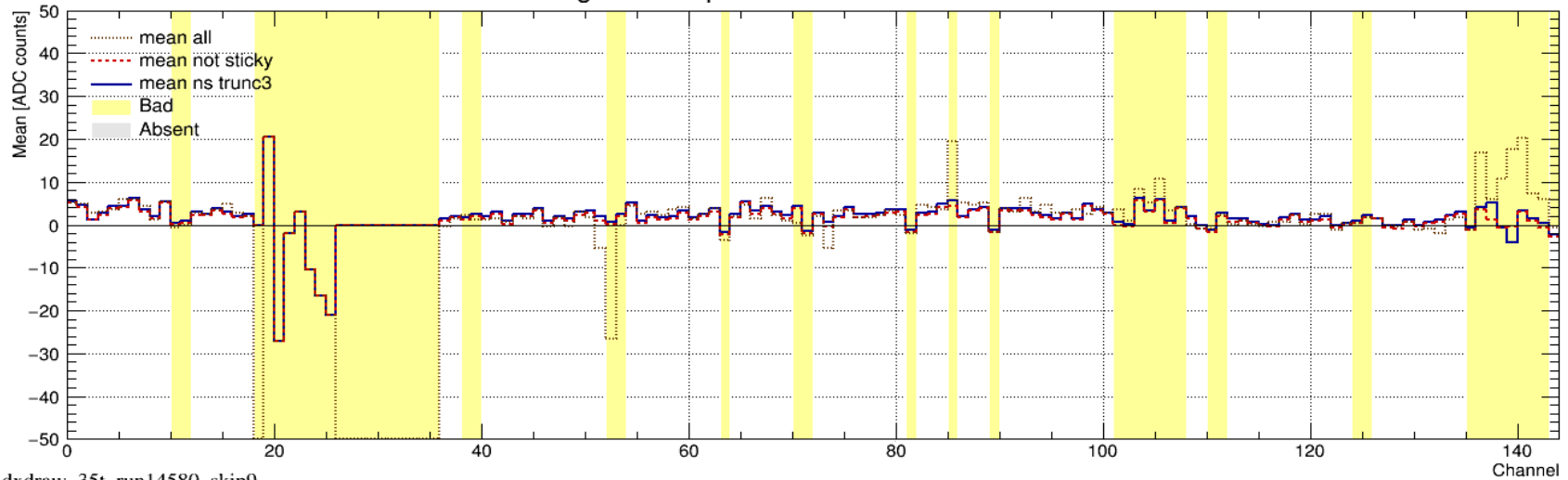
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run14379\_skip9

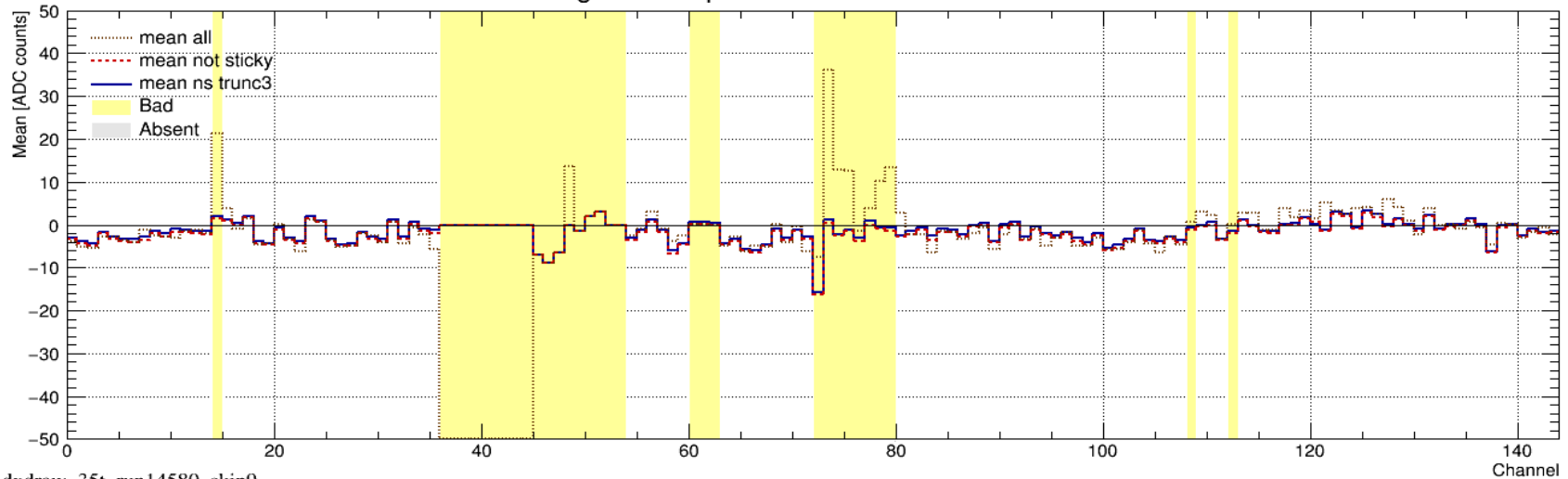
# APAs 3u, 3v run 14580 (last before PF)

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

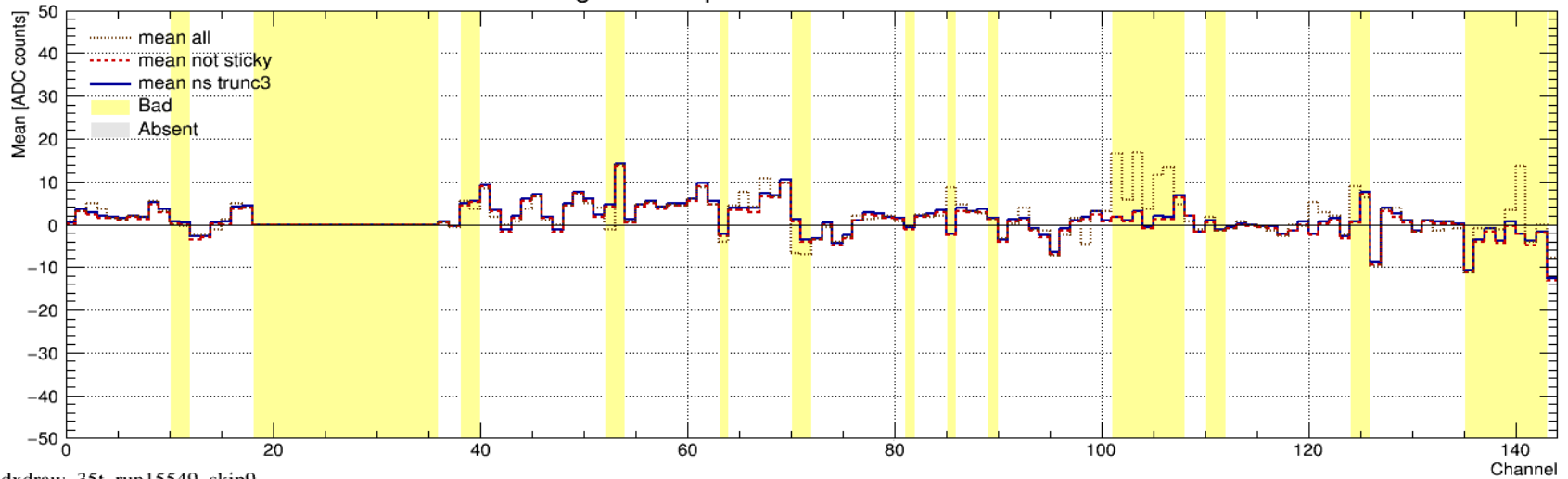
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run14580\_skip9

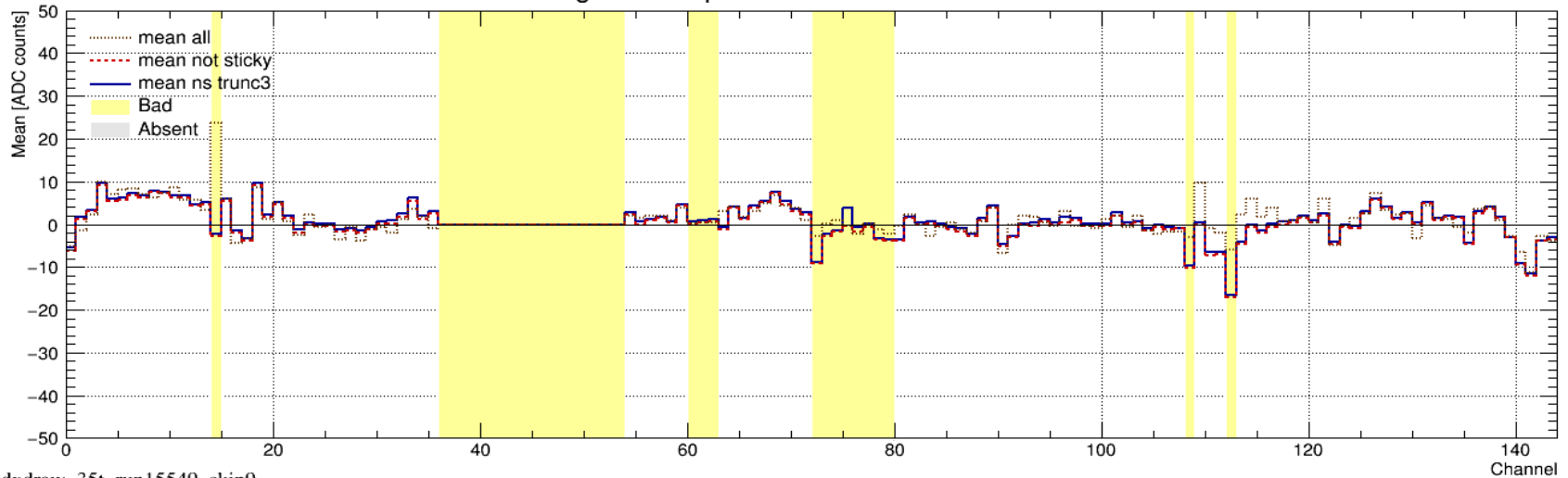
# APAs 3u, 3v run 15549 (first after PF)

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

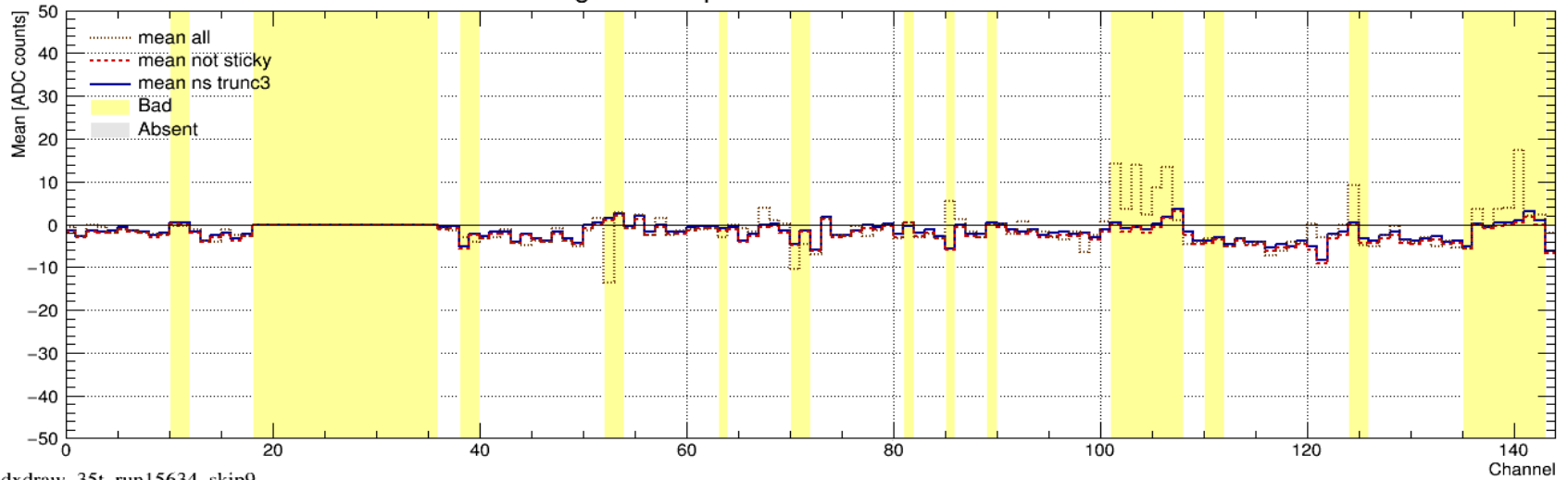
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run15549\_skip9

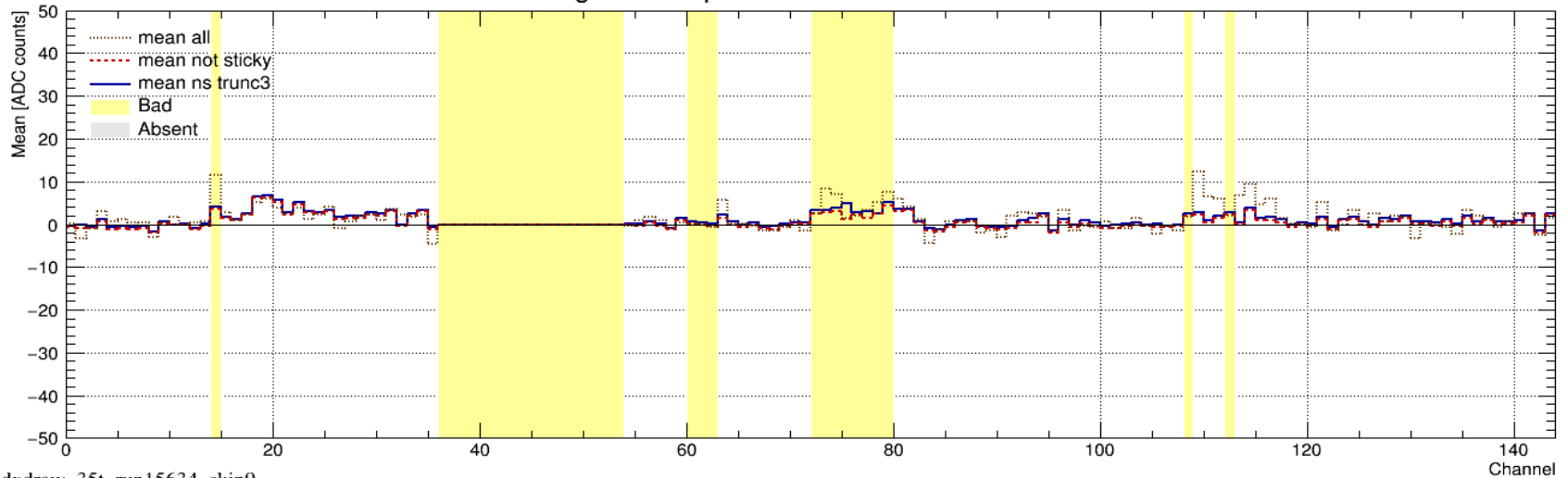
# APAs 3u, 3v run 15634

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

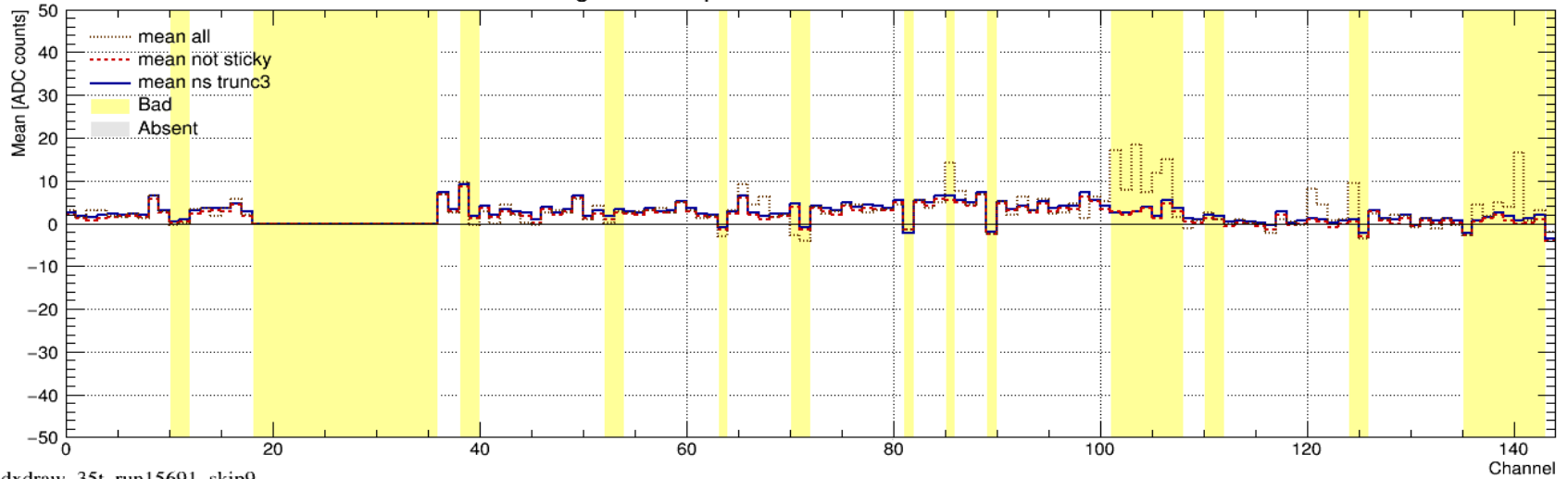
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run15634\_skip9

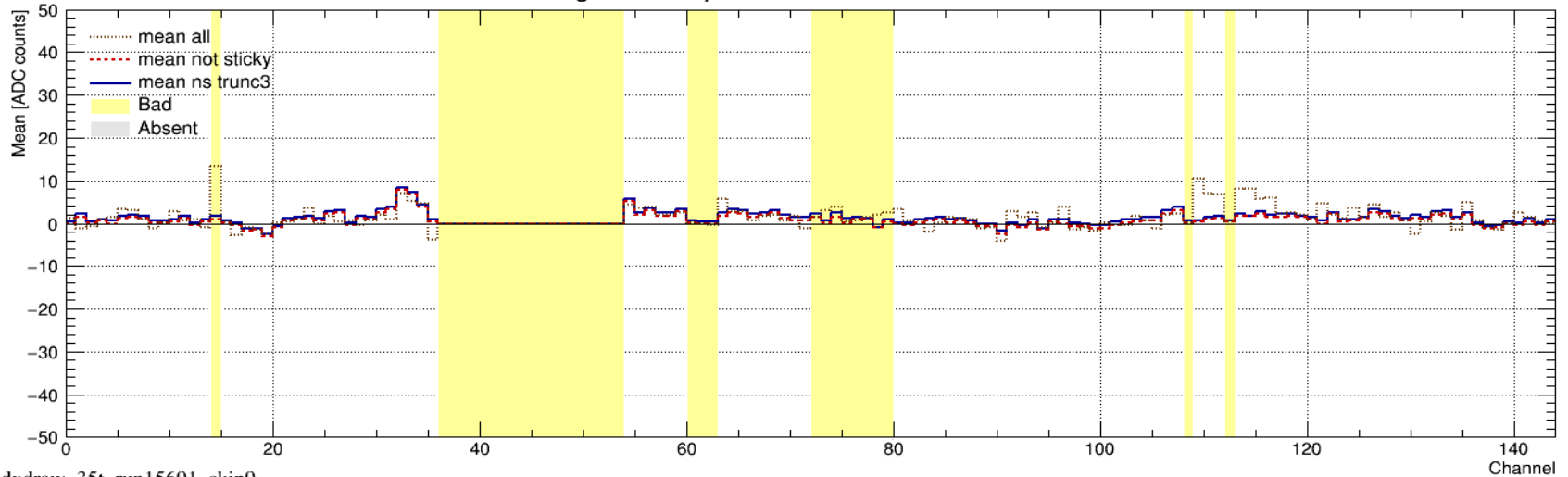
# APAs 3u, 3v run 15691

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

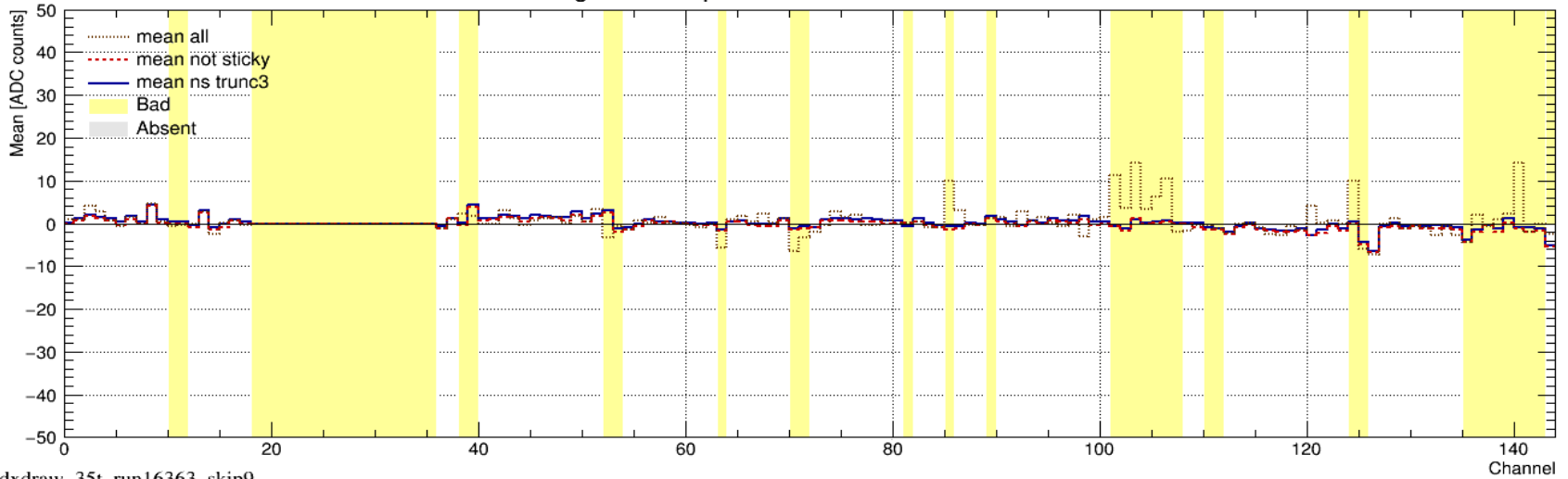
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run15691\_skip9

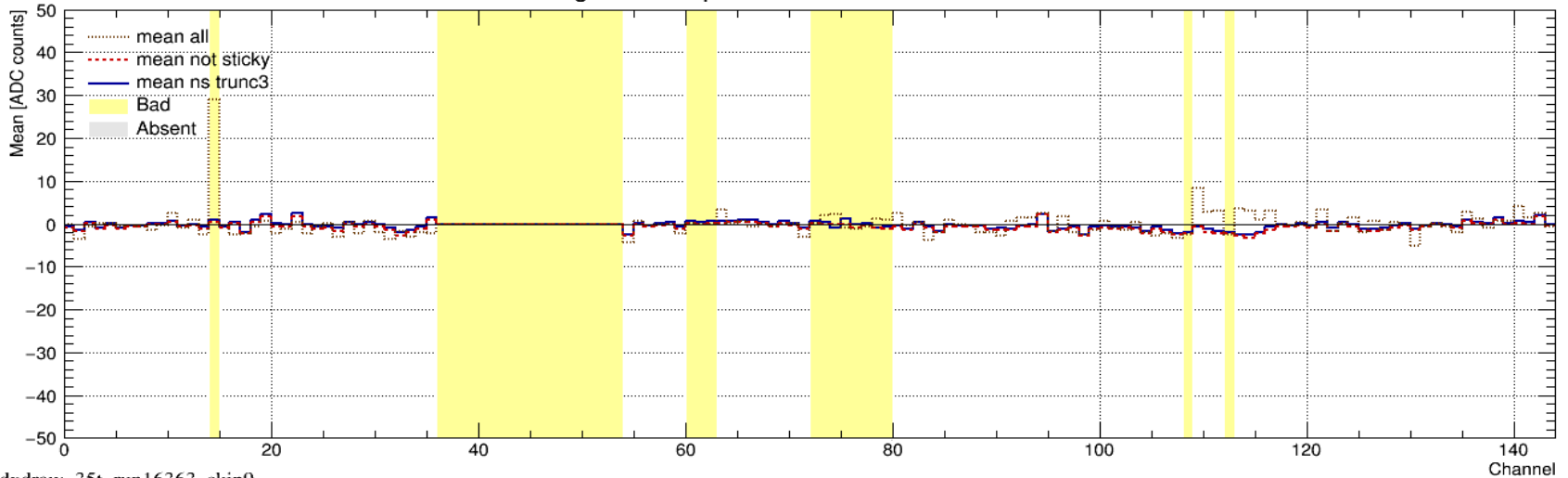
# APAs 3u, 3v run 16363

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

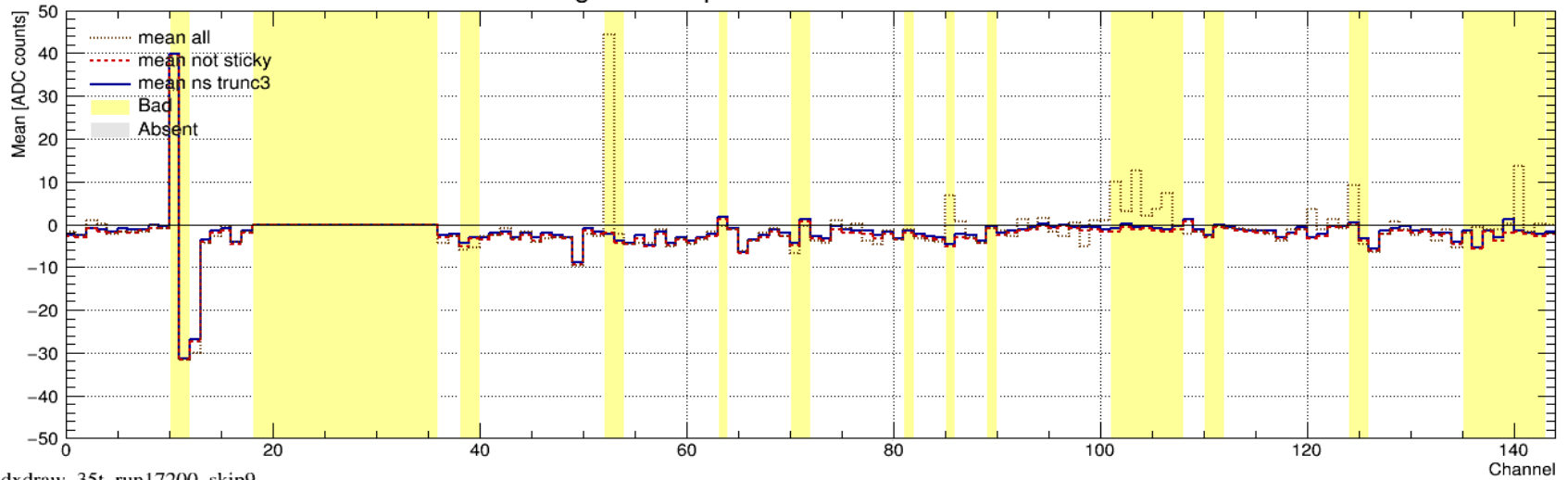
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run16363\_skip9

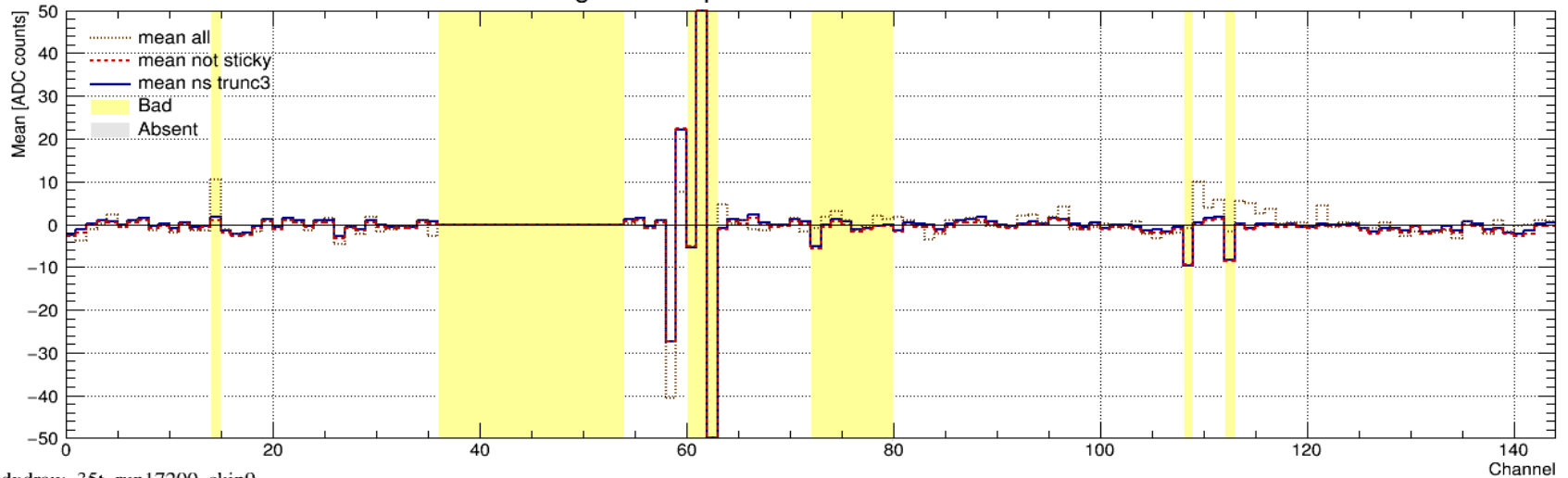
# APAs 3u, 3v run 17200

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

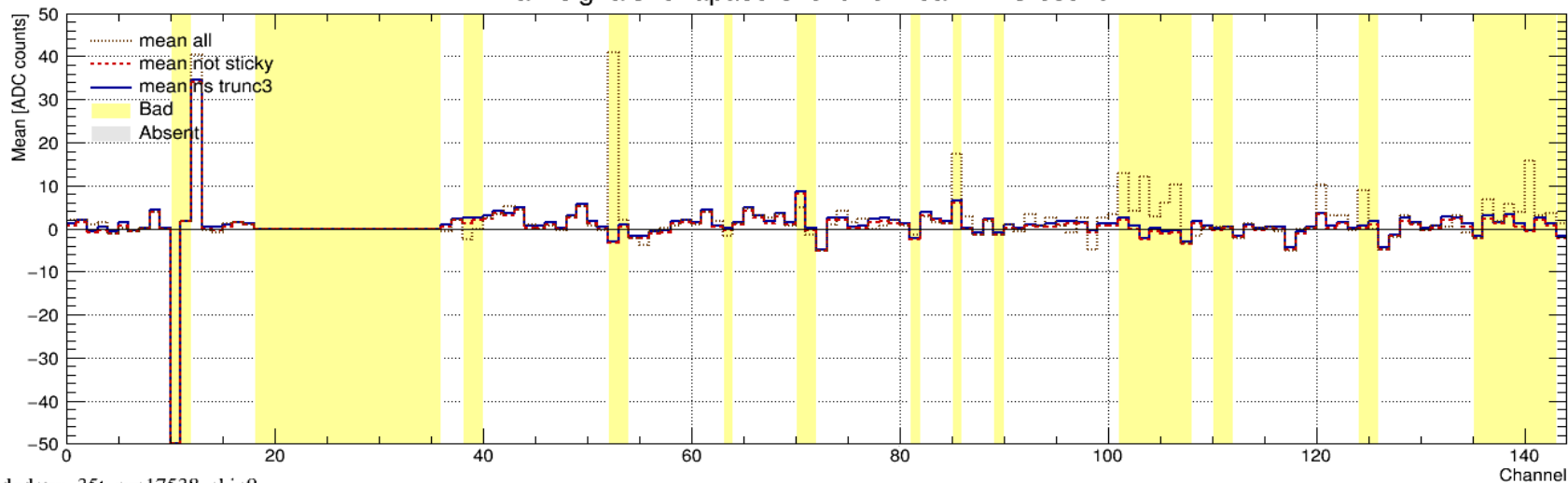
Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run17200\_skip9

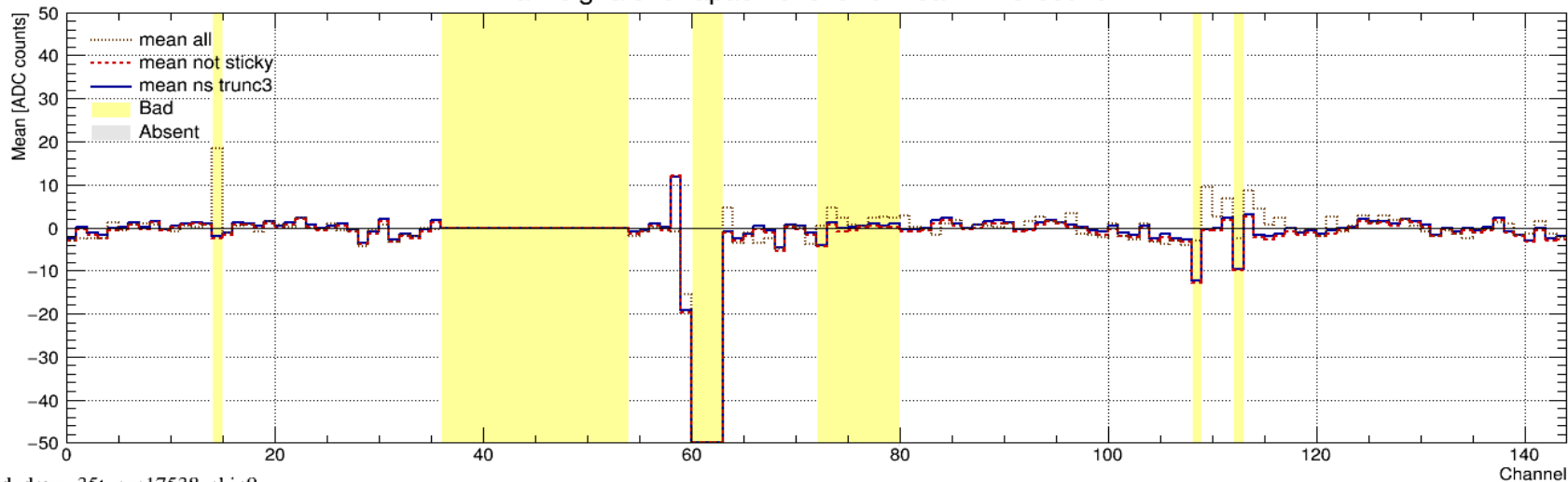
# APAs 3u, 3v run 17538 (last)

Raw signals for apa3u event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9

Raw signals for apa3v event 10 mean ADC count



dxdraw\_35t\_run17538\_skip9



That's all folks...