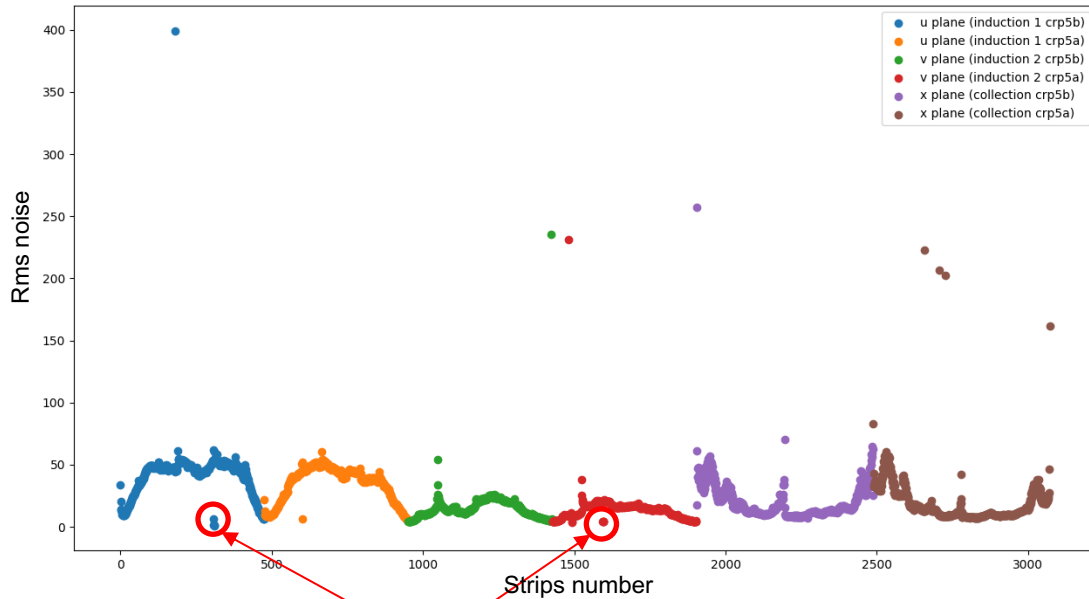


# CRP5 dead channels summary

Soamasina Herilala Razafinime  
March 14, 2023

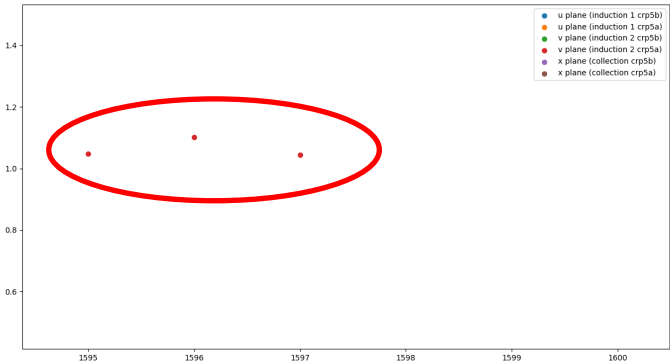
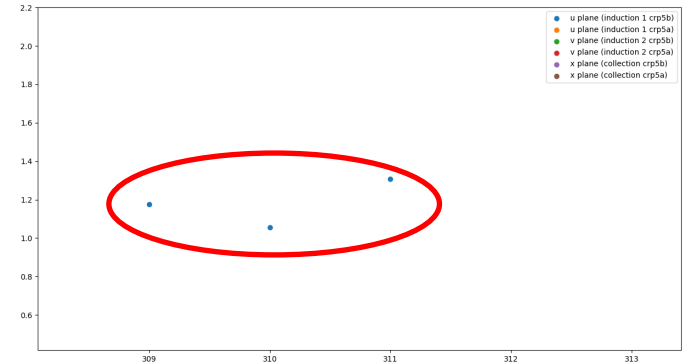
# Test of all the FEMBs in 185 after cold box

## Rms noise vs Strips number



6 dead channels

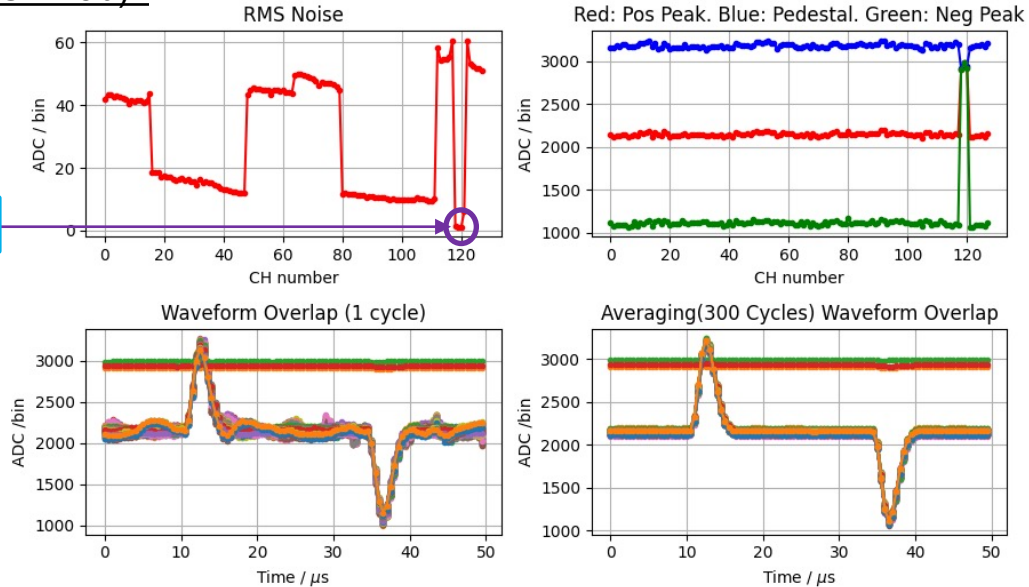
## Rms noise vs Strips number Zoom in



# Test of all the FEMBs in 185 after cold box

## FEMB 20 (FEMB 51 CRP5b) :

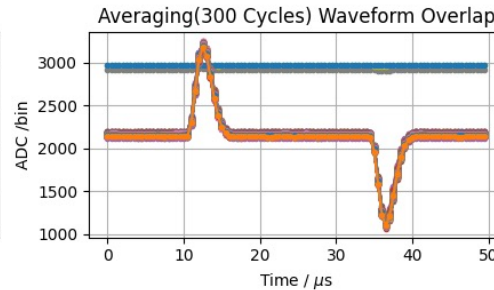
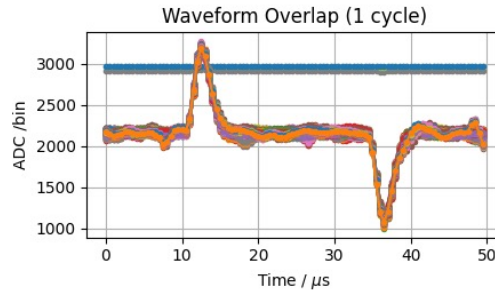
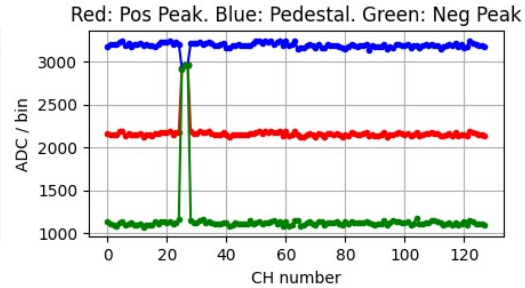
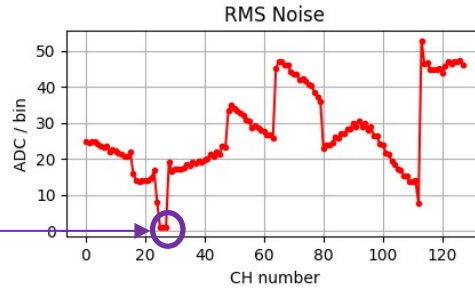
3 dead channels



# Test of all the FEMBs in 185 after cold box

## FEMB 5 (FEMB 105 CRP5a) :

3 dead channels



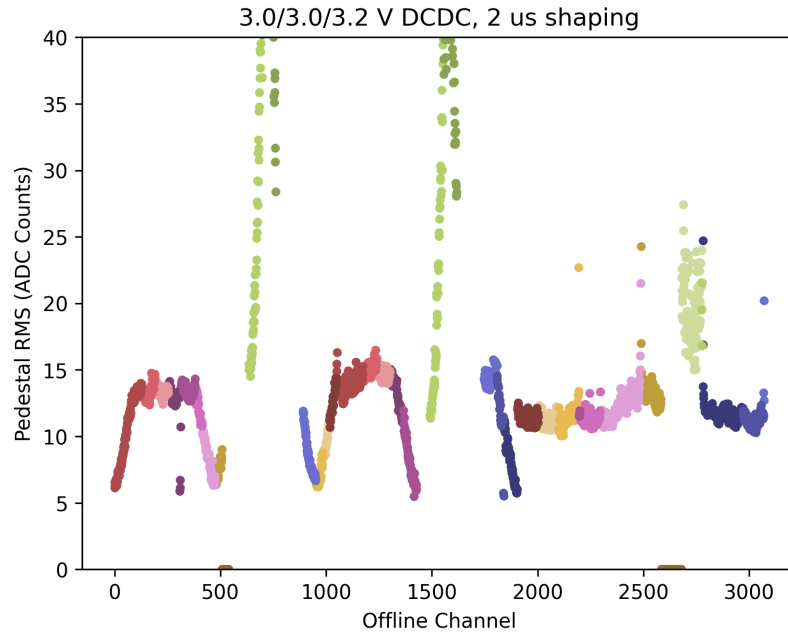
# Channels with problems CRP5

## Feb 18 : 1st low noise channel

Run19843\_0082 (0.1 Hz monitor of warmup)

No rms noise < 5 for FEMB 20

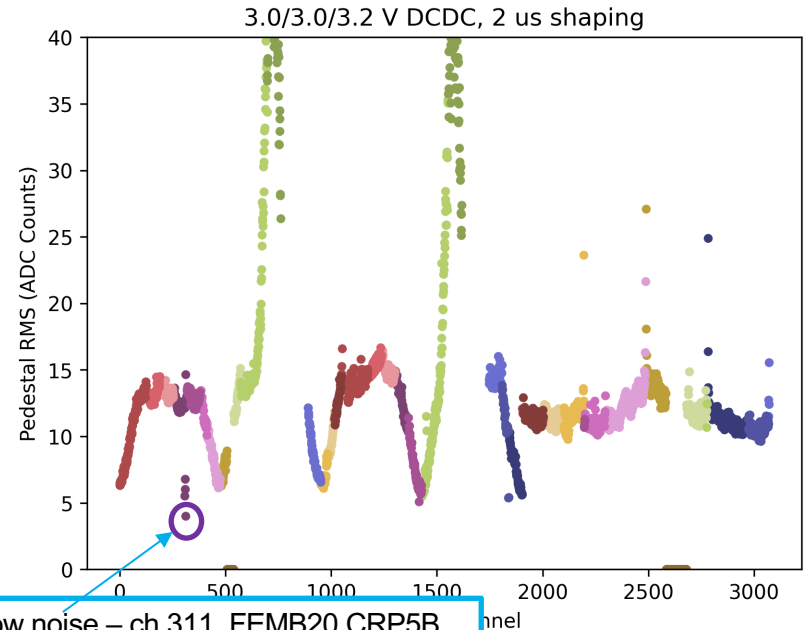
Feb 18 11:27



Run19843\_0083 (0.1 Hz monitor of warmup)

Had rms noise < 5 for FEMB 20

Feb 18 11:42



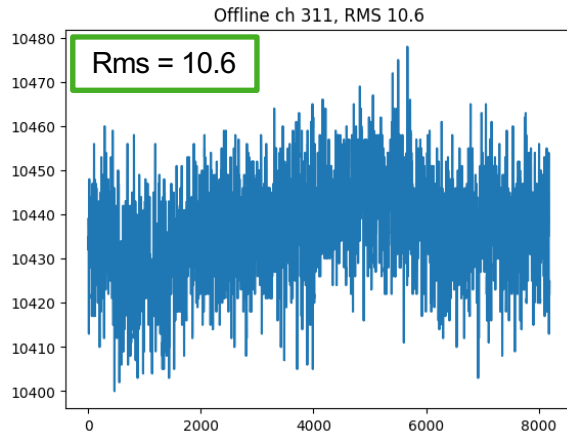
First low noise – ch 311, FEMB20 CRP5B

# Channels with problems CRP5

## Feb 18 : run 19843 (0.1 Hz monitor of warm up)

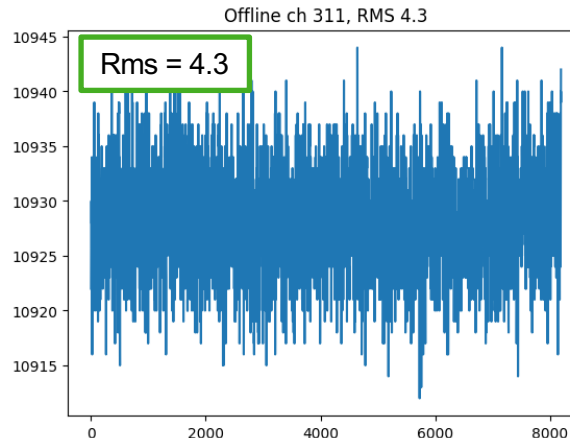
Run19843\_0082  
Rms > 5  
Feb 18 11:27

### Channel 311 - FEMB 20



Run19843\_0083  
Rms < 5  
Feb 18 11:42

### Channel 311 - FEMB 20



### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20

Waveform baseline > 9000 indicates problem with the channel.

# Channels with problems CRP5

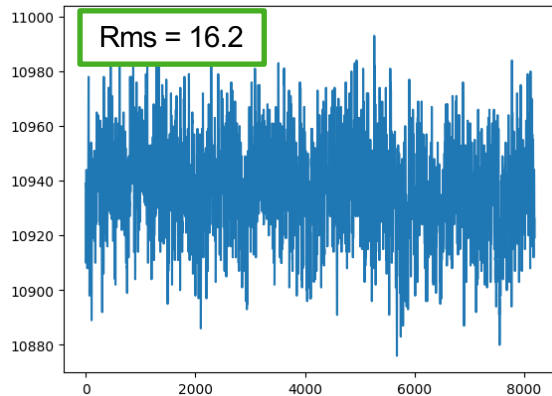
## Feb 20 : run 19843 (0.1 Hz monitor of warm up)

Run19843\_0245  
Rms > 5  
Feb 20 05:22

Run19843\_0246  
Rms < 5  
Feb 20 05:28

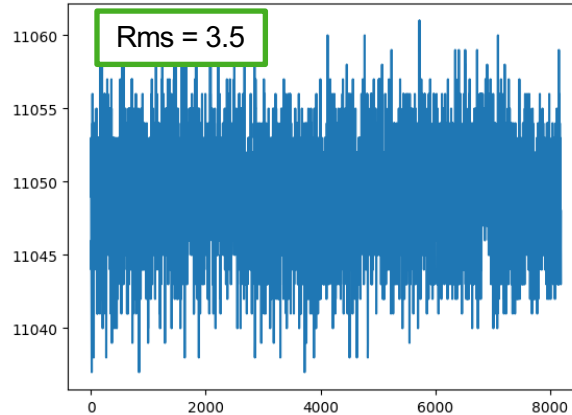
### Channel 1736 – FEMB 5

Offline ch 1736, RMS 16.2



### Channel 1736 – FEMB 5

Offline ch 1736, RMS 3.5



### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5

Waveform baseline > 9000 indicates problem with the channel.

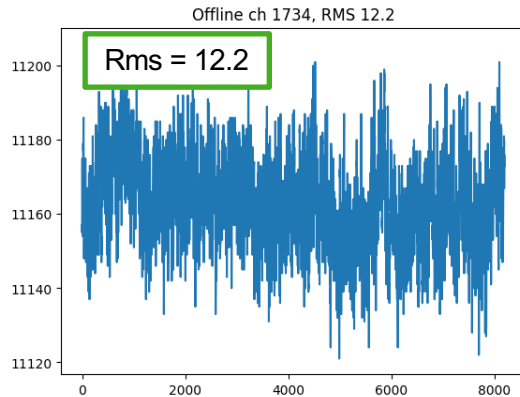
# Channels with problems CRP5

## Feb 20 : run 19843 (0.1 Hz monitor of warm up)

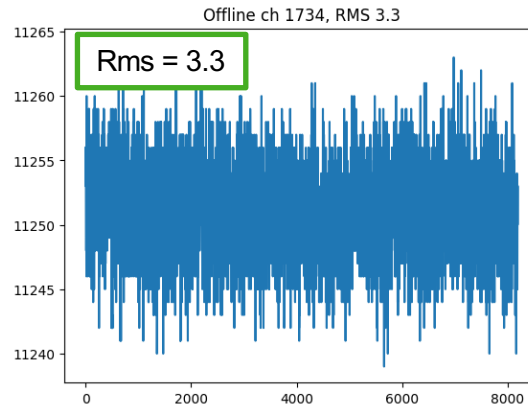
Run19843\_0249  
Rms > 5  
Feb 20 06:30

Run19843\_0250  
Rms < 5  
Feb 20 06:38

### Channel 1734 – FEMB 5



### Channel 1734 – FEMB 5



### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5
- Feb 20 : Channel 1734 – FEMB 5

Waveform baseline > 9000 indicates problem with the channel.



# Channels with problems CRP5

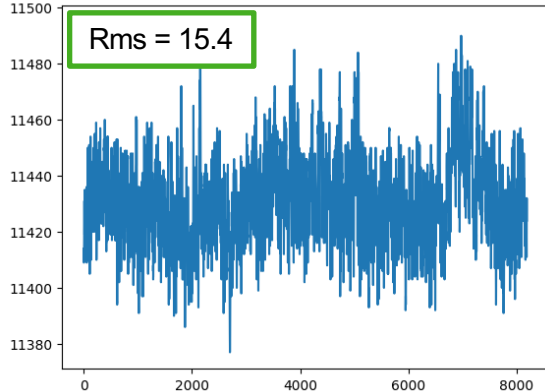
## Feb 20 : run 19843 (0.1 Hz monitor of warm up)

Run19843\_0245  
Rms > 5  
Feb 20 08:02

Run19843\_0256  
Rms < 5  
Feb 20 08:10

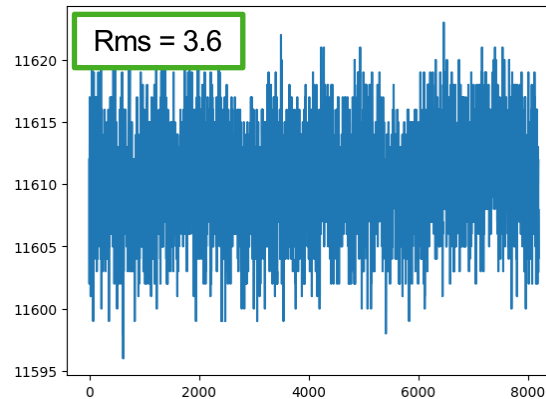
### Channel 310 - FEMB 20

Offline ch 310, RMS 15.4



### Channel 310 - FEMB 20

Offline ch 310, RMS 3.6



### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5
- Feb 20 : Channel 1734 – FEMB 5
- Feb 20 : Channel 310 – FEMB 20

Waveform baseline > 9000 indicates problem with the channel.

# Channels with problems CRP5

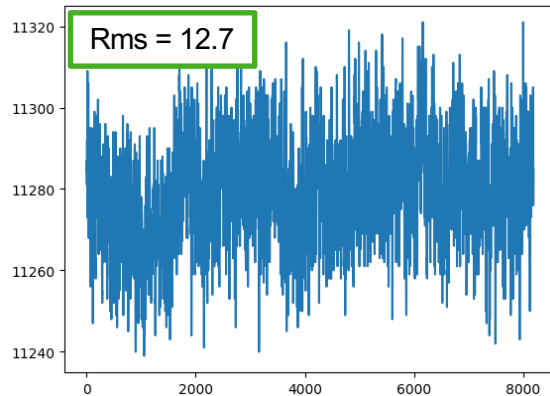
## Feb 20 : run 19853 (0.1 Hz monitor of warm up)

Run19843\_0000  
Rms > 5  
Feb 20 09:50

Run19853\_0001  
Rms < 5  
Feb 20 09:58

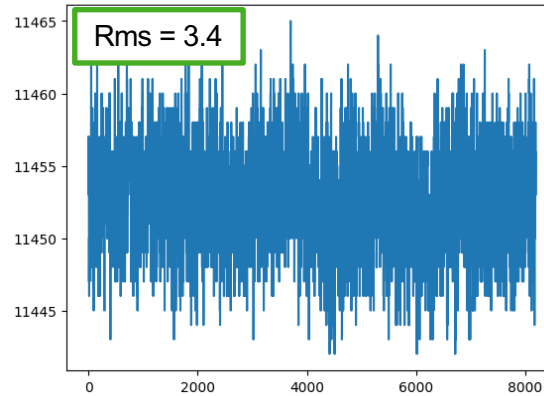
### Channel 309 - FEMB 20

Offline ch 309, RMS 12.7



### Channel 309 - FEMB 20

Offline ch 309, RMS 3.4



### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5
- Feb 20 : Channel 1734 – FEMB 5
- Feb 20 : Channel 310 – FEMB 20
- Feb 20 : Channel 309 – FEMB 20

Waveform baseline > 9000 indicates problem with the channel.

# Channels with problems CRP5

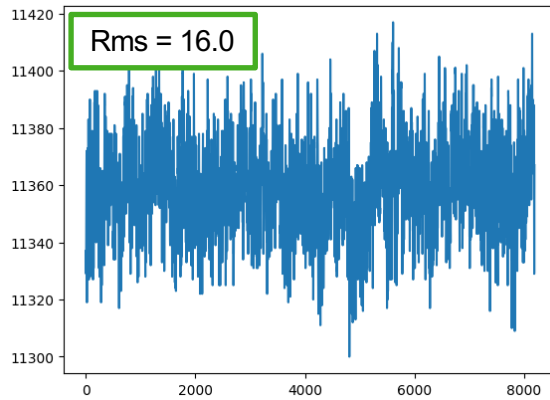
## Feb 20 : run 19853 (0.1 Hz monitor of warm up)

Run19843\_0001  
Rms > 5  
Feb 20 09:58

Run19853\_0002  
Rms < 5  
Feb 20 10:14

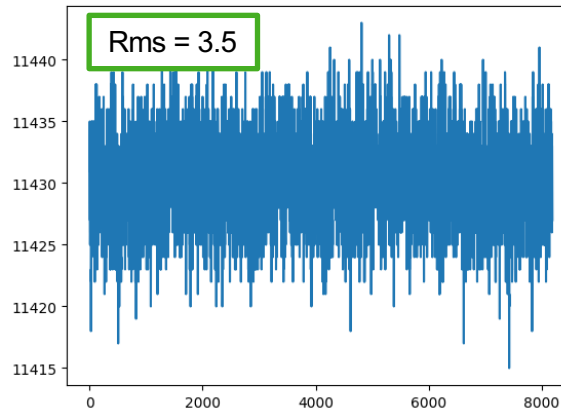
### Channel 1735 – FEMB 5

Offline ch 1735, RMS 16.0



### Channel 1735 – FEMB 5

Offline ch 1735, RMS 3.5



### List of dead channels :

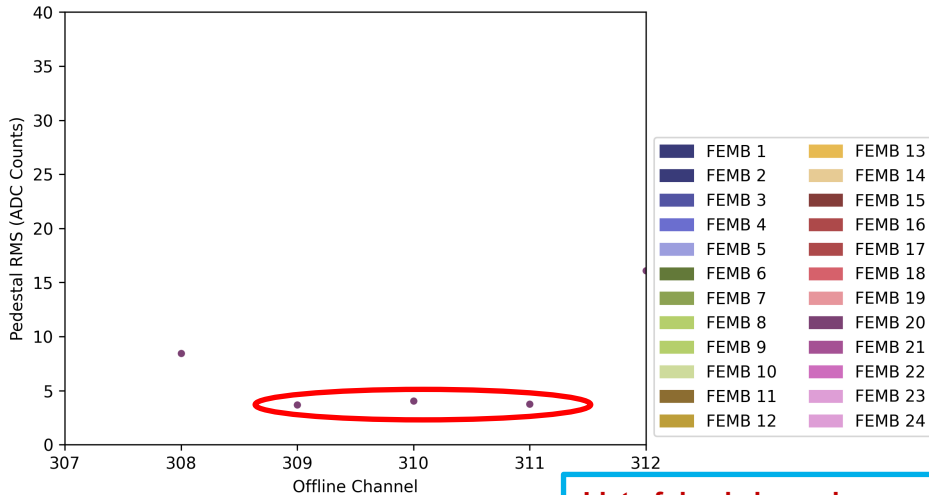
- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5
- Feb 20 : Channel 1734 – FEMB 5
- Feb 20 : Channel 310 – FEMB 20
- Feb 20 : Channel 309 – FEMB 20
- Feb 20 : Channel 1735 – FEMB 5

Waveform baseline > 9000 indicates problem with the channel.

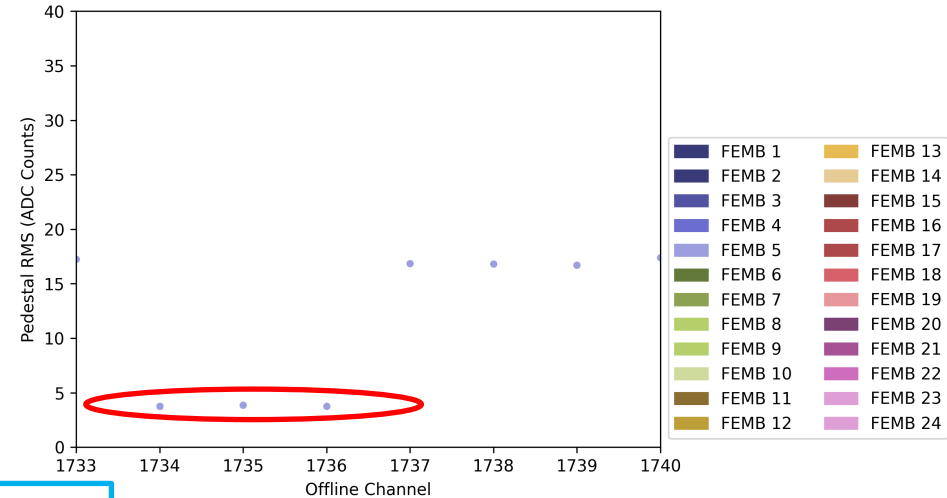
# Zoom in all the dead channels :

## Run 19853 (0.1 Hz monitor of warm up)

### 3 dead channels on FEMB 20



### 3 dead channels on FEMB 5



#### List of dead channels :

- Feb 18 : Channel 311 – FEMB 20
- Feb 20 : Channel 1736 – FEMB 5
- Feb 20 : Channel 1734 – FEMB 5
- Feb 20 : Channel 310 – FEMB 20
- Feb 20 : Channel 309 – FEMB 20
- Feb 20 : Channel 1735 – FEMB 5

# ASIC corresponding to the dead channels

Dead channels for FEMB 20 : 309, 310, 311

- 309 : ASIC 7 ----- Channel 8
- 310 : ASIC 7 ----- Channel 7
- 311 : ASIC 7 ----- Channel 6

Dead channels for FEMB 5 : 1734, 1735, 1736

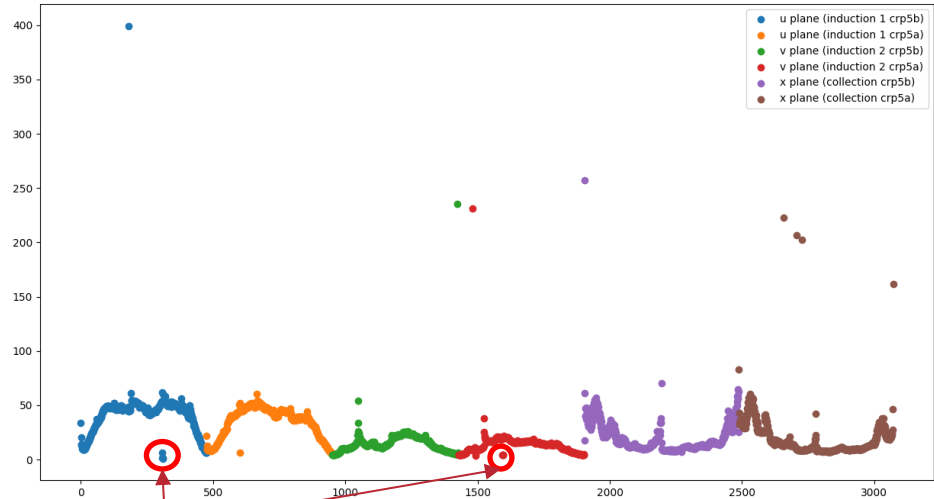
- 1734 : ASIC 1 ----- Channel 11
- 1735 : ASIC 1 ----- Channel 10
- 1736 : ASIC 1 ----- Channel 9

# After installation two new FEMBs

## After cold box

After replacing the two FEMB 20 and FEMB 5, few low noise channels still appeared after testing the FEMBs.

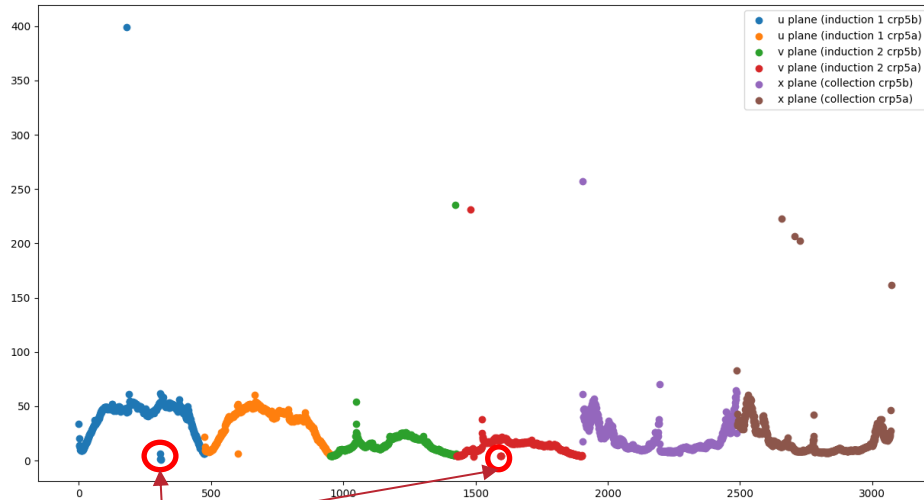
Chris and Serhan have changed the edge cards around FEMB 20 and FEMB 5 to solve the open channels



Low noise channels for FEMB 20 and FEMB 5

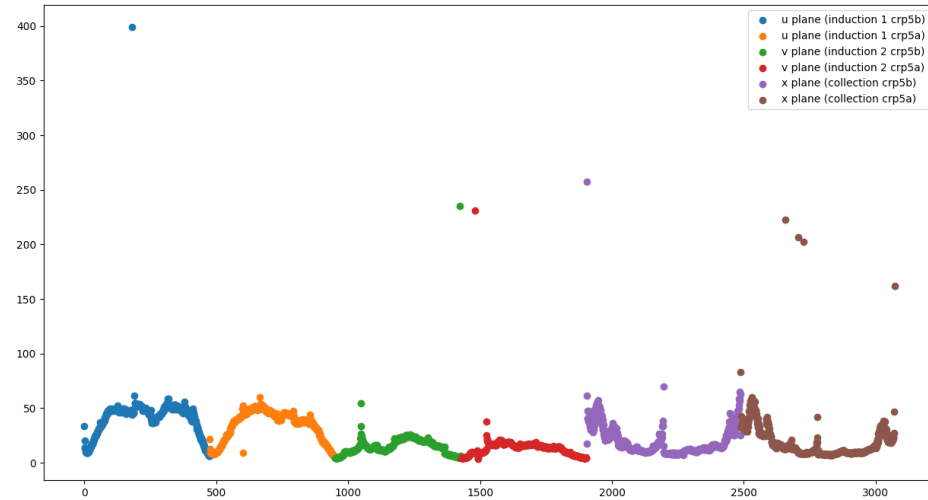
# New edge cards

Before new edge card



Low noise channels for FEMB 20 and FEMB 5

After new edge card



No more open channels

# Summary

## List of dead channels :

- Feb 18, 11 : 42 am : Channel 311 – FEMB 20
- Feb 20, 05 : 28 am : Channel 1736 – FEMB 5
- Feb 20, 06 : 38 am : Channel 1734 – FEMB 5
- Feb 20, 08 : 10 am : Channel 310 – FEMB 20
- Feb 20, 09 : 58 am : Channel 309 – FEMB 20
- Feb 20, 10 : 14 am : Channel 1735 – FEMB 5

## ASIC :

- Dead channels for FEMB 20 : 309, 310, 311 ----- ASIC 7
- Dead channels for FEMB 5 : 1734, 1735, 1736 ----- ASIC 1
  
- 2 new FEMBs and 2 new edge cards are installed for CRP5 but we still figure out the cause of the dead channels.



# Feb 16 10:30 : Run19490\_000001 (LRWindow)

Channel 311 for FEMB 20 start failing

Offline ch 311, RMS 17.0

