FONT Meeting

Friday 5th January 2018

Gain optimization

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Gain optimization

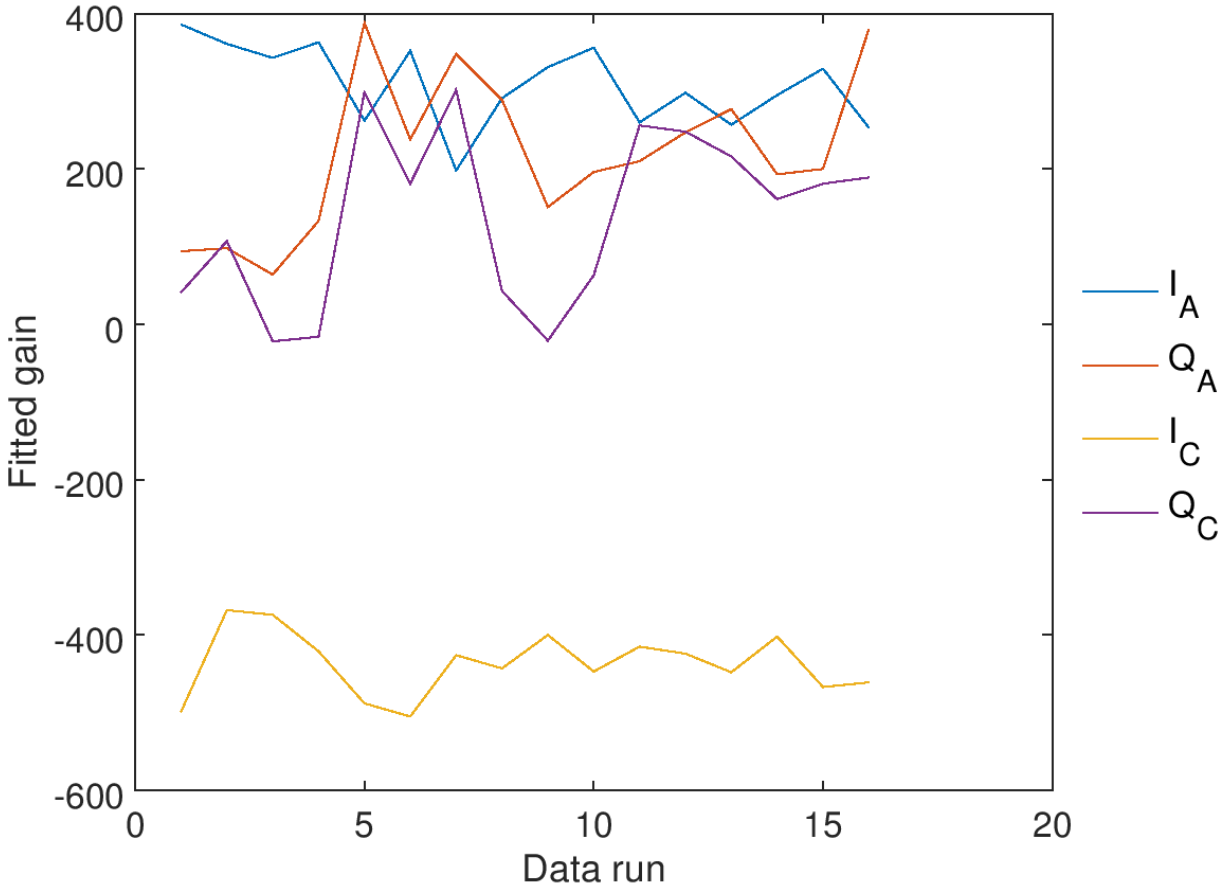
- Kick calculated by algorithm

$$v = G_{I_A} I_A + G_{Q_A} Q_A + G_{I_C} I_C + G_{Q_C} Q_C$$

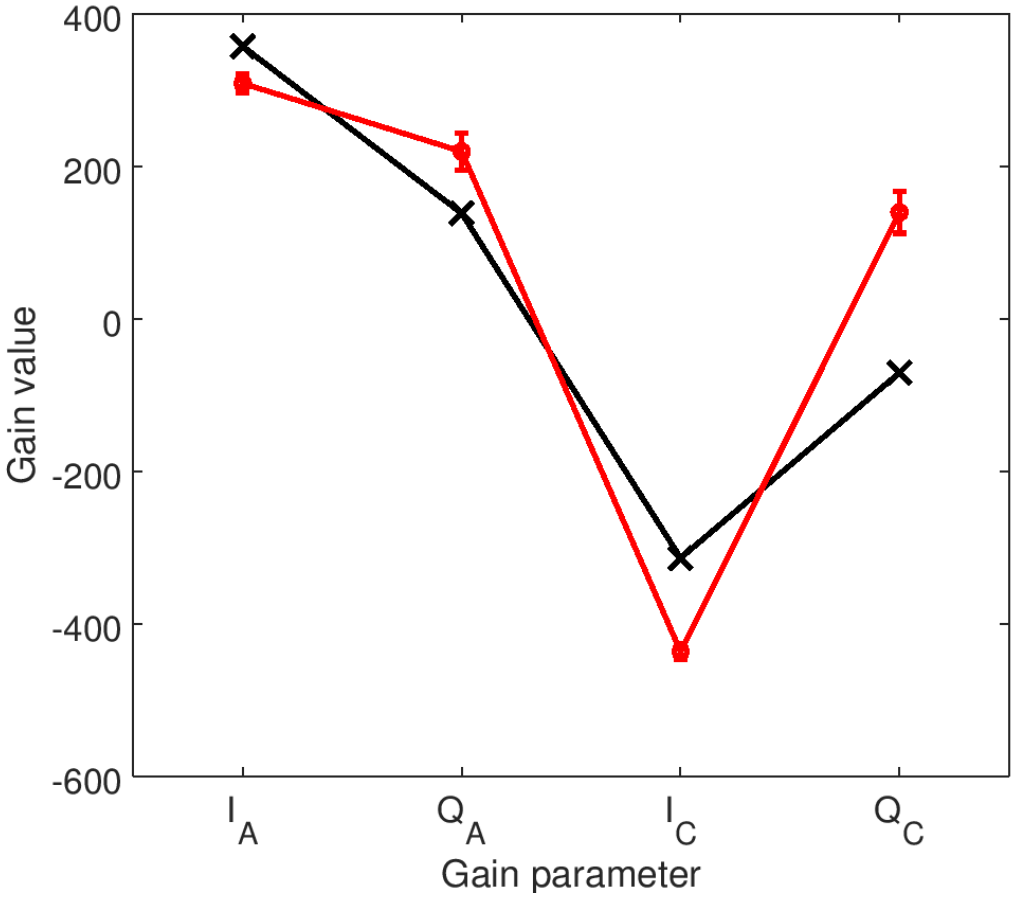
  Where I_A etc are based on waveform data (single-sample or integrated) and G_{I_A} etc are calculated from the BPM and kicker calibrations

- What happens if a set of gain values are fitted from the actual data?
  - Minimize $y' = y + vH$

Fitted gain



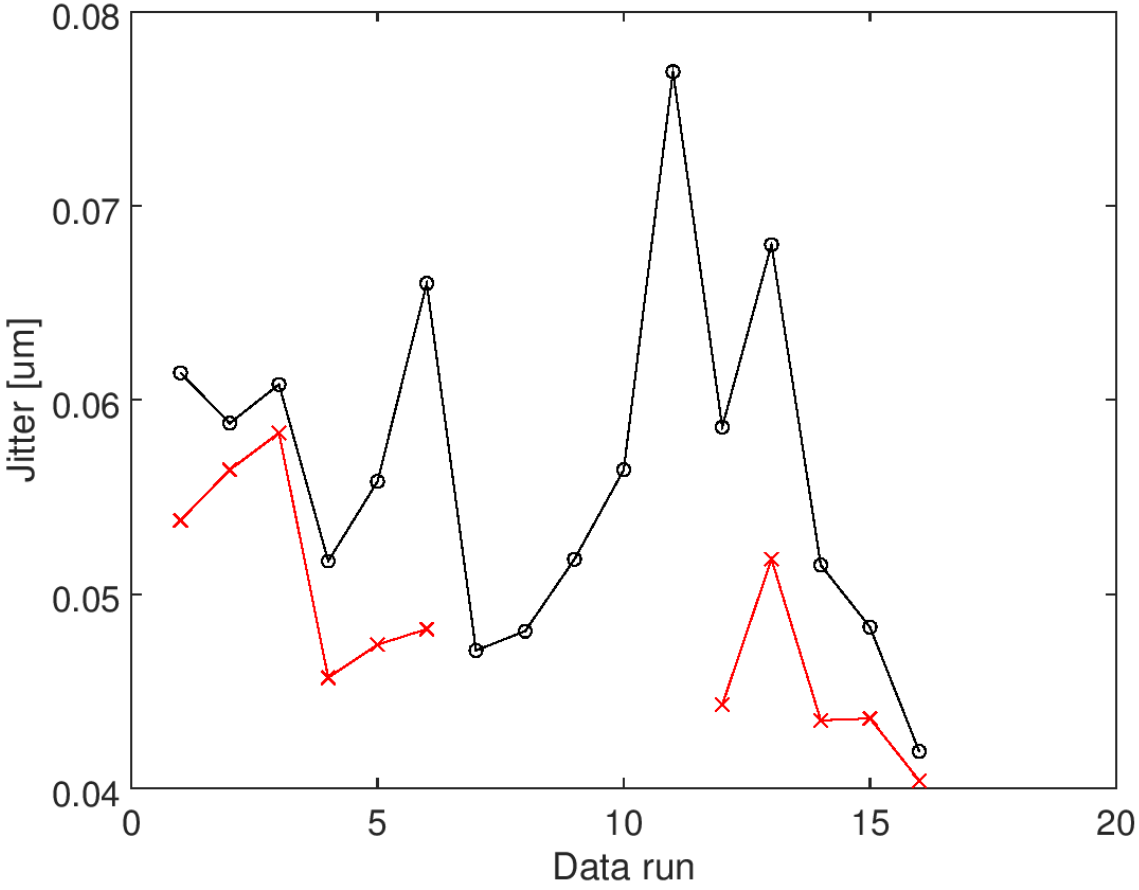
Mean gain



Black = gain calculated from calibrations

Red = gain derived by fitting to data (average)

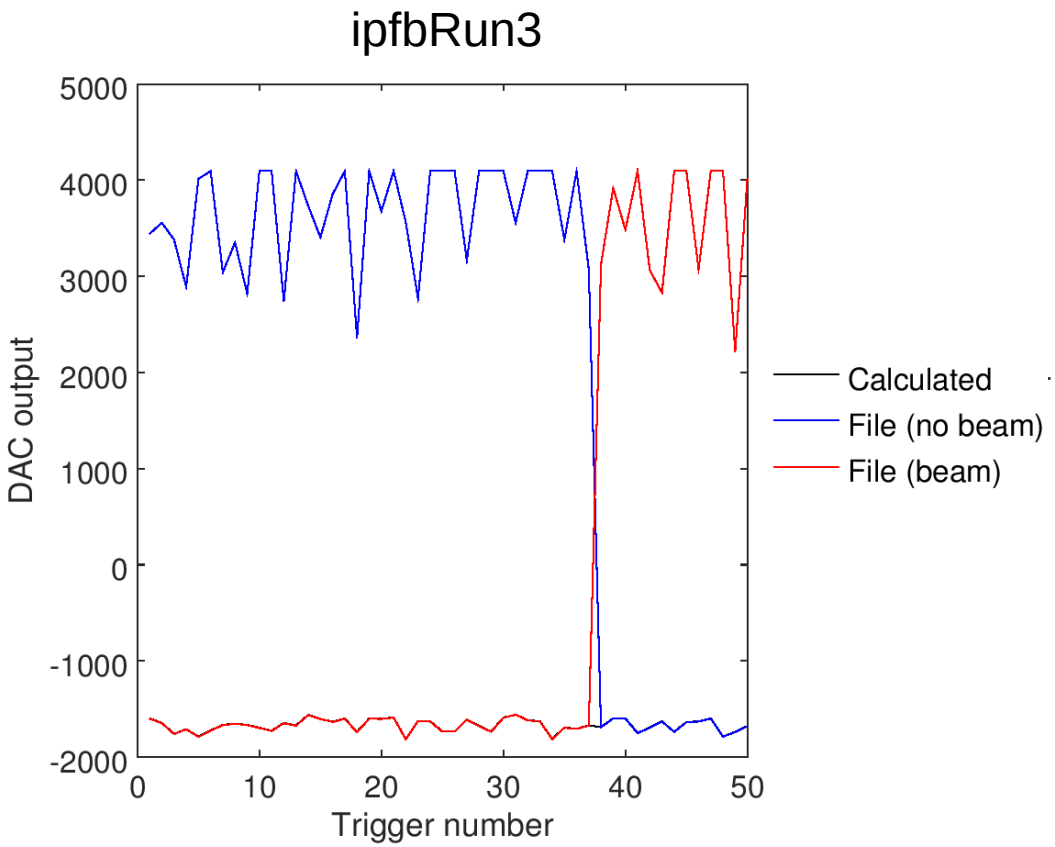
Performance using mean gain

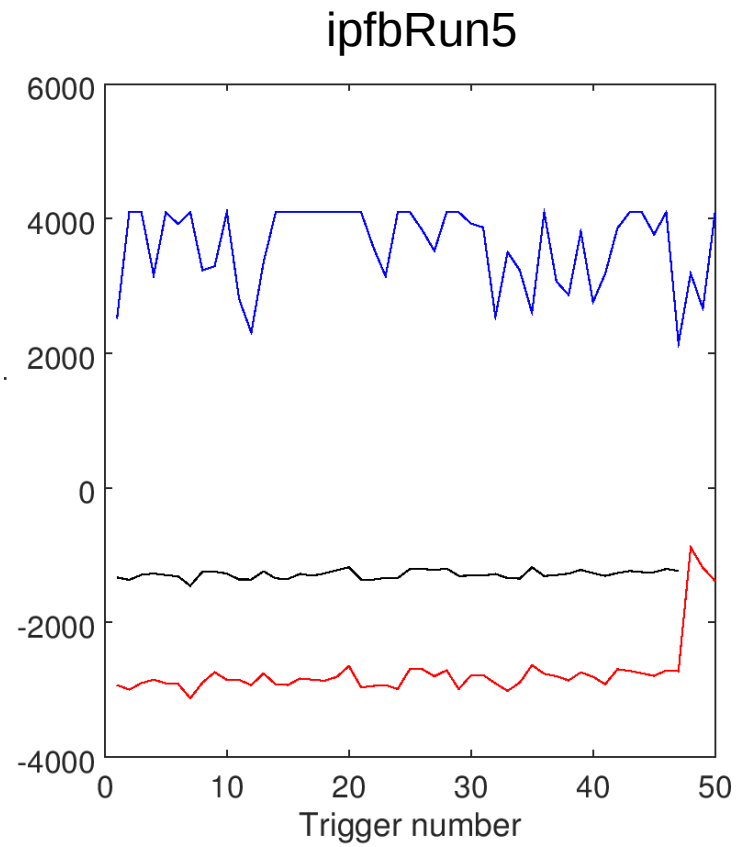


Black = actual measured jitter

Red = jitter calculated using average fitted gain

DAC issues


ipfbRun3
DAC output
Trigger number
Calculated
File (no beam)
File (beam)
5000
4000
3000
2000
1000
0
-1000
-2000
0
10
20
30
40
50


ipfbRun5
Trigger number
6000
4000
2000
0
-2000
-4000
0
10
20
30
40
50