



# Kaon LT Status Update

April 6th, 2023

Richard Trotta

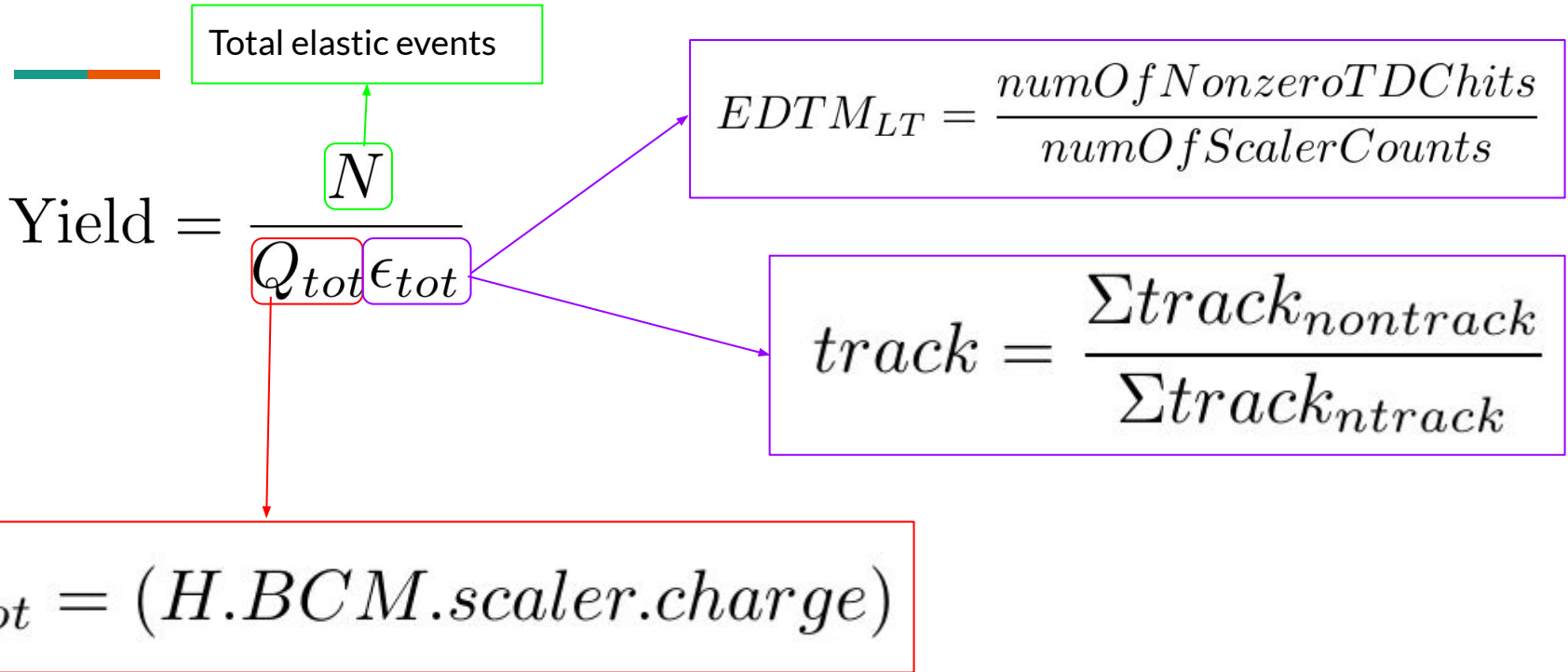
# Scaler Yield Calculation

$$N_{scaler} = \Sigma(trigscaler) - EDTM_{scaler}$$

$$Y_{scaler} = \frac{N_{scaler}}{Q_{tot}}$$

$$Q_{tot} = (H.BCM.scaler.charge)$$

# Yield Calculation



# Lumi Cuts



- tdcTimeRaw cuts on pTrigs and EDTM
- Evttype cuts (HMS Evttype==2, SHMS Evttype==1)
- $\text{abs}(\text{current}-\text{setcurrent}) < 2.5$

## SHMS (pion)

- $P_{\text{hgcer\_npeSum}} > 1.5$
- $P_{\text{aero\_npeSum}} > 1.5$
- $P_{\text{cal\_etottracknorm}} < 0.3$

## SHMS (electron)

- $P_{\text{hgcer\_npeSum}} > 0.5$
- $P_{\text{aero\_npeSum}} > 2.0$
- $P_{\text{cal\_etotnorm}} > 0.8$

## HMS (electron)

- $H_{\text{cer\_npeSum}} > 6.0$
- $H_{\text{cal\_etottracknorm}} > 0.6$

# Track Lumi Cuts



- tdcTimeRaw cuts on pTrigs and EDTM
- Evttype cuts (HMS Evttype==2, SHMS Evttype==1)
- $\text{abs}(\text{current}-\text{setcurrent}) < 2.5$
- $(P)H_{\text{goodscinhits}} == 1$
- $\text{abs}(P_{\text{gtr\_beta}}-1) > 0.3$

## SHMS (pion)

- $P_{\text{hgcer\_npeSum}} > 1.5$
- $P_{\text{aero\_npeSum}} > 1.5$
- $P_{\text{cal\_etottracknorm}} < 0.3$

## SHMS (electron)

- $P_{\text{hgcer\_npeSum}} > 0.5$
- $P_{\text{aero\_npeSum}} > 2.0$
- $P_{\text{cal\_etotnorm}} > 0.8$

## HMS (electron)

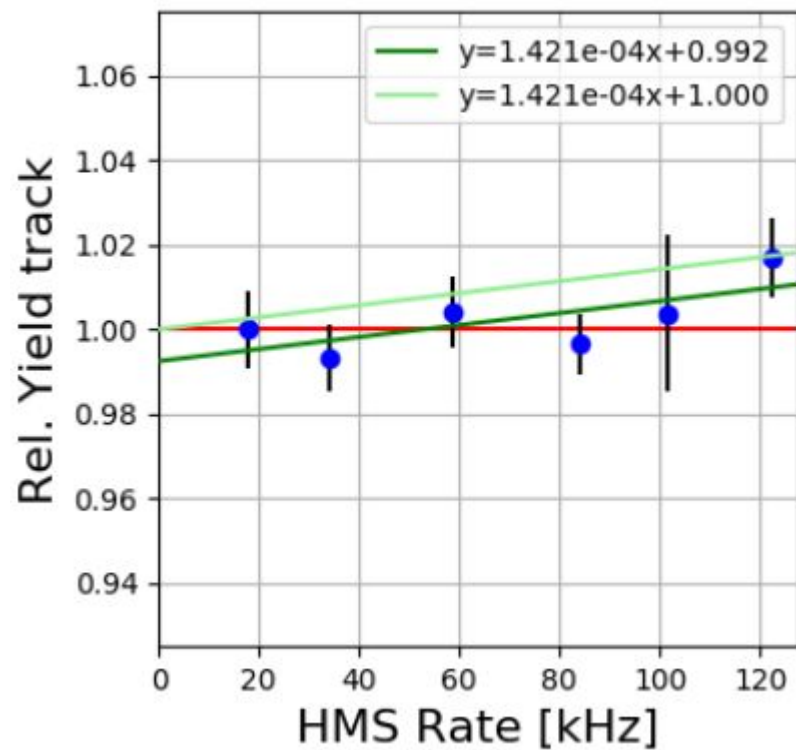
- $H_{\text{cer\_npeSum}} > 6.0$
- $H_{\text{cal\_etottracknorm}} > 0.6$

## 10.6 Lumi Run #1

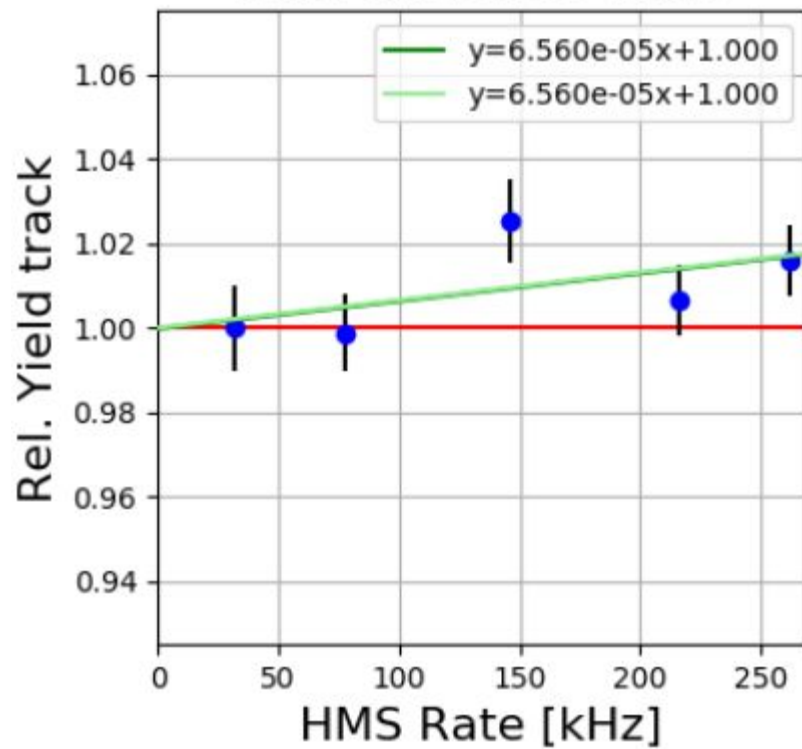
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- $P_{SHMS} = +6.842$ ,  $\Theta_{SHMS} = 6.495$
- $P_{HMS} = -3.266$ ,  $\Theta_{HMS} = 12.530$

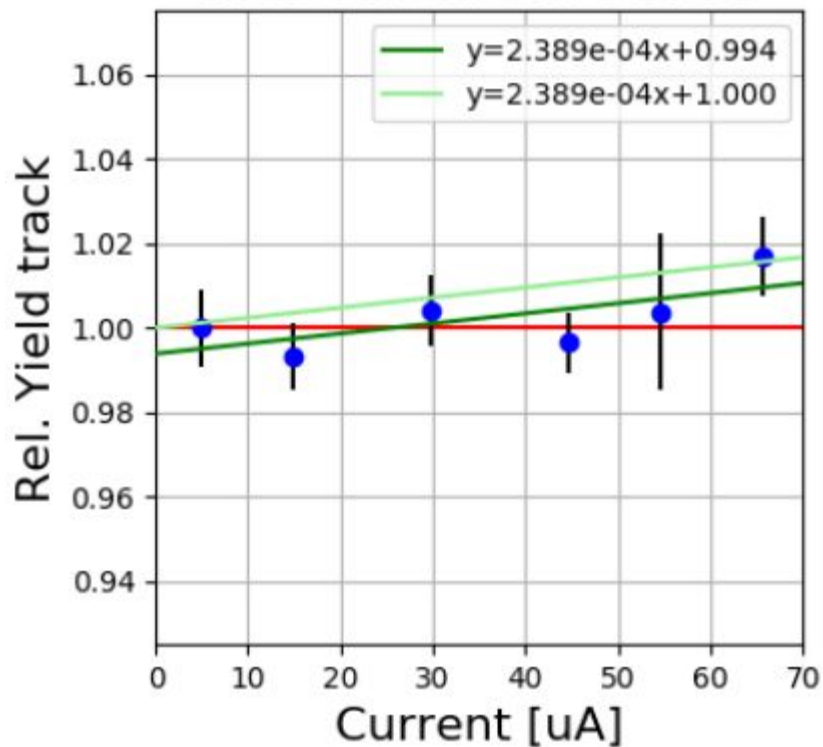
### HMS Carbon 5154-5298



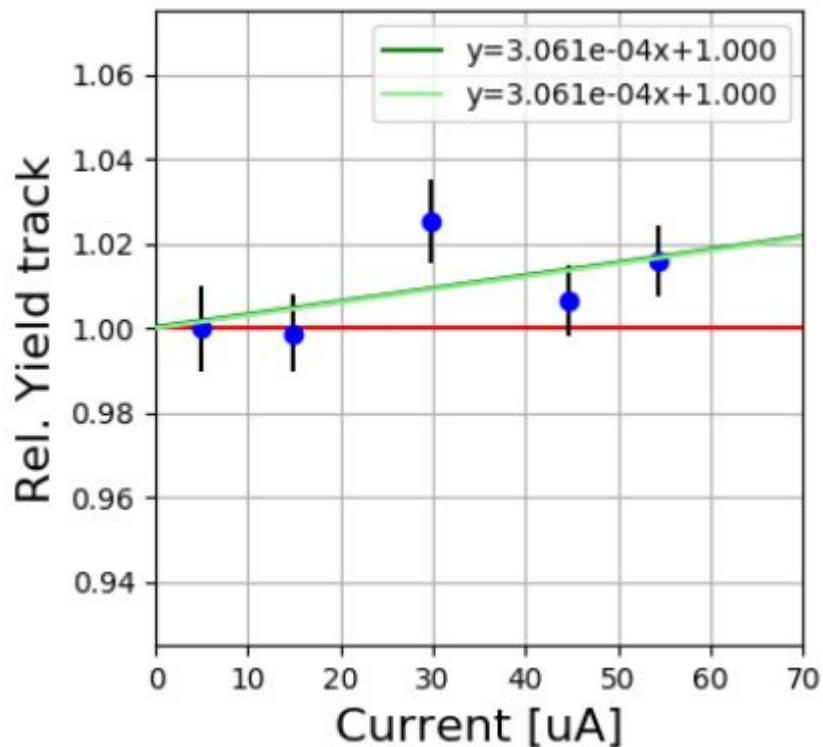
### HMS LH2 5150-5166



### HMS Carbon 5154-5298



### HMS LH2 5150-5166



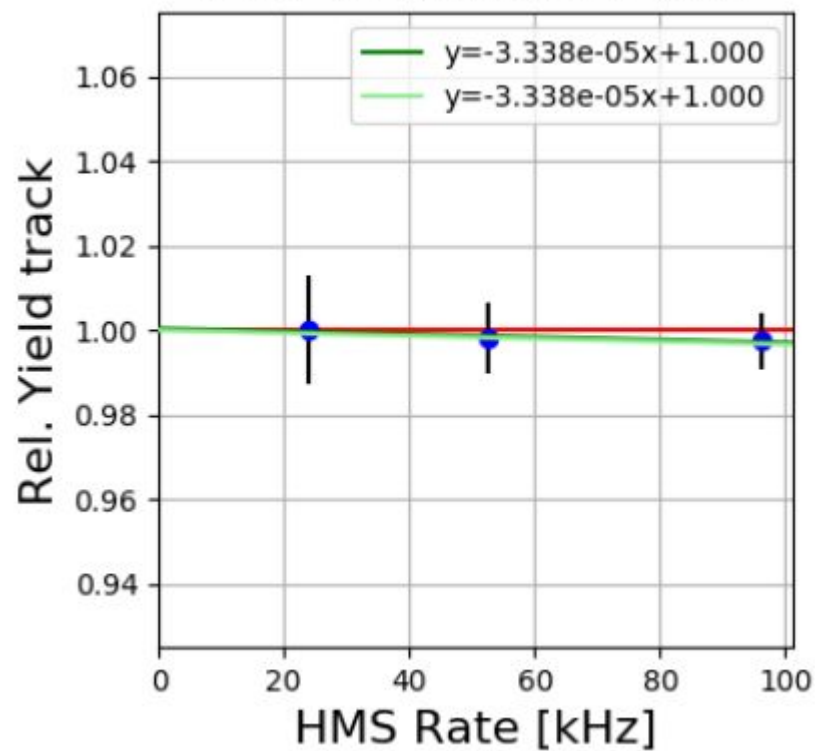


## 10.6 Lumi Run #2

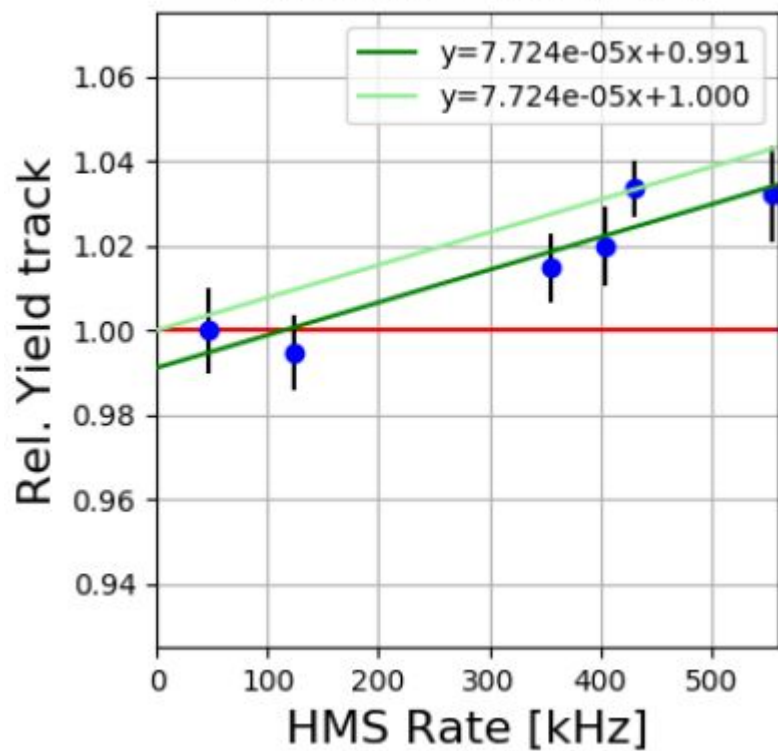


- $P_{SHMS} = +6.053$ ,  $\Theta_{SHMS} = 6.495$
- $P_{HMS} = -4.204$ ,  $\Theta_{SHMS} = 14.930$

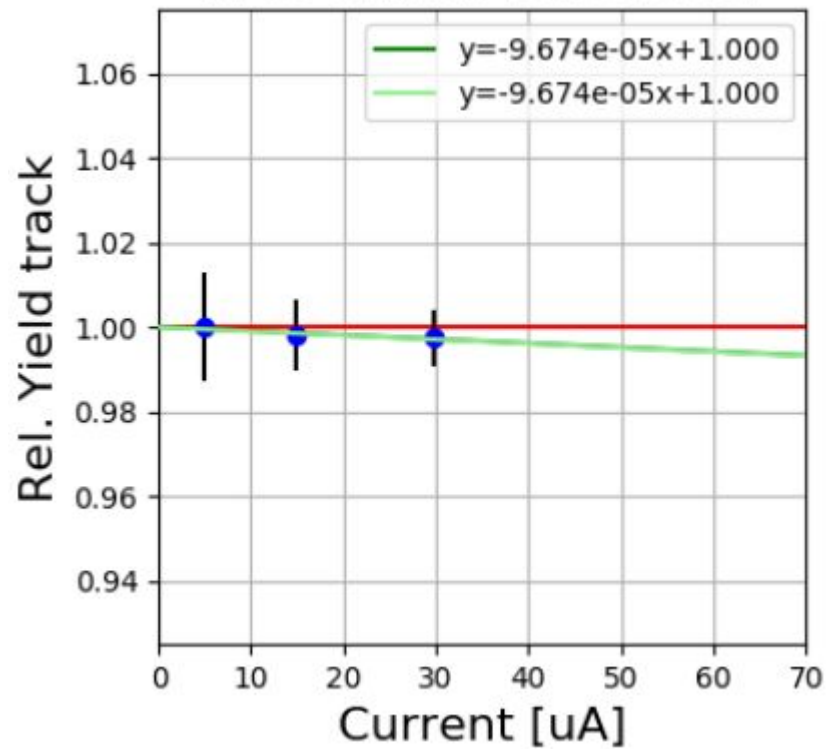
### HMS Carbon 5178-5181



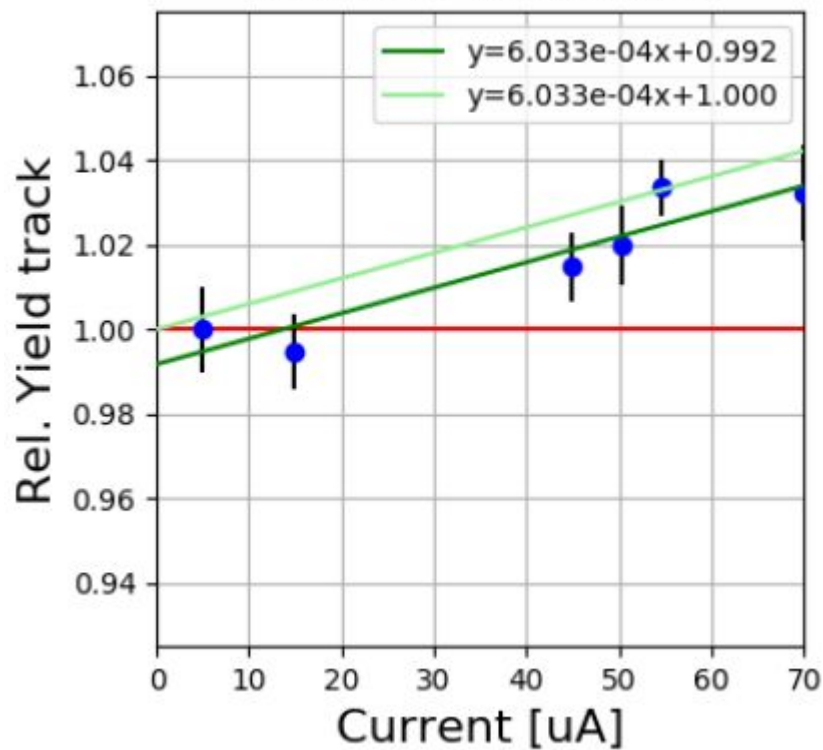
### HMS LH2 5167-5303



### HMS Carbon 5178-5181



### HMS LH2 5167-5303

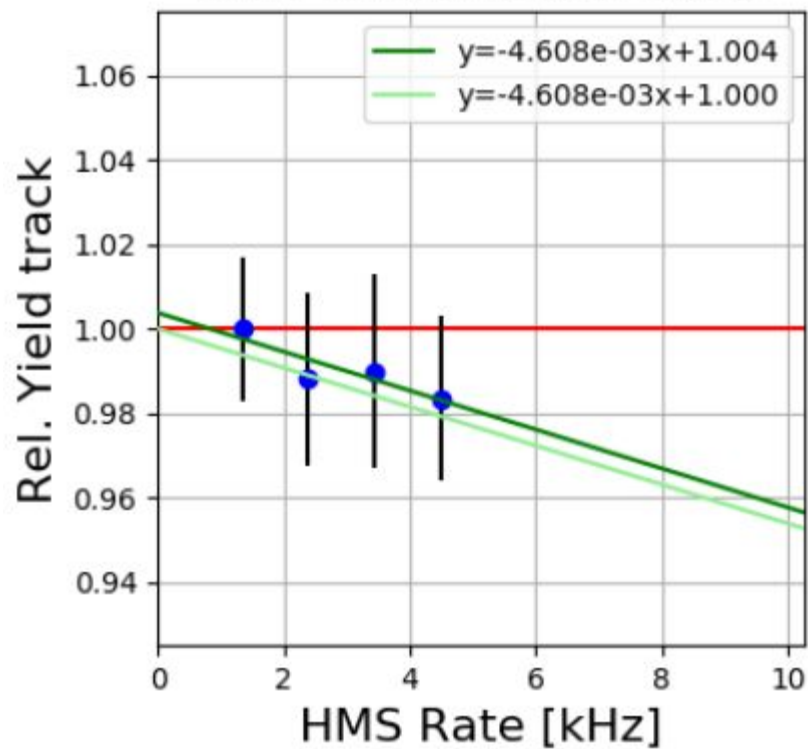


## 10.6 Lumi Run #3

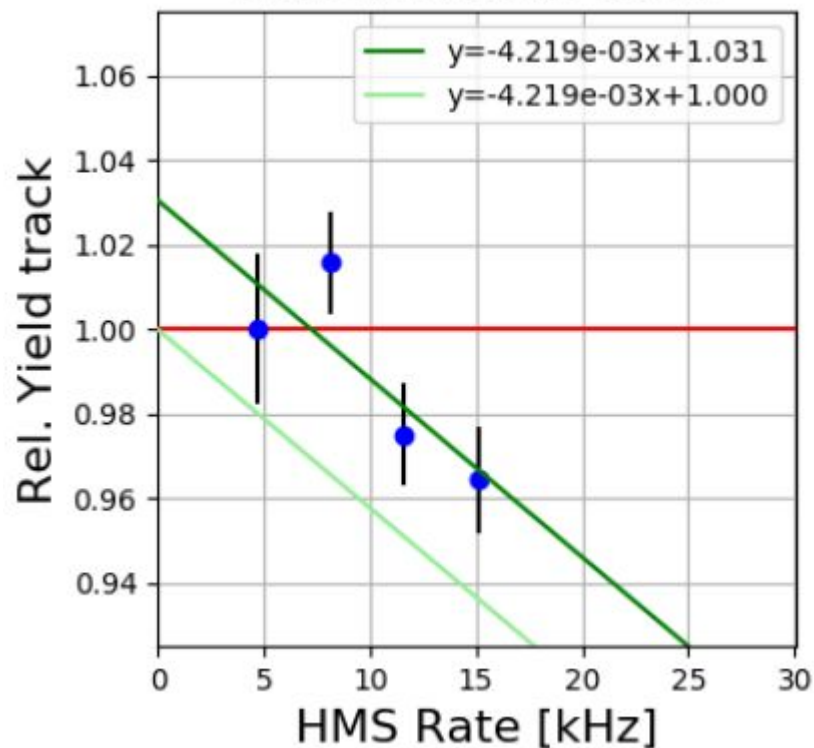


- $P_{SHMS} = -6.269$ ,  $\Theta_{SHMS} = 13.500$
- $P_{HMS} = -3.09$ ,  $\Theta_{SHMS} = 35.010$

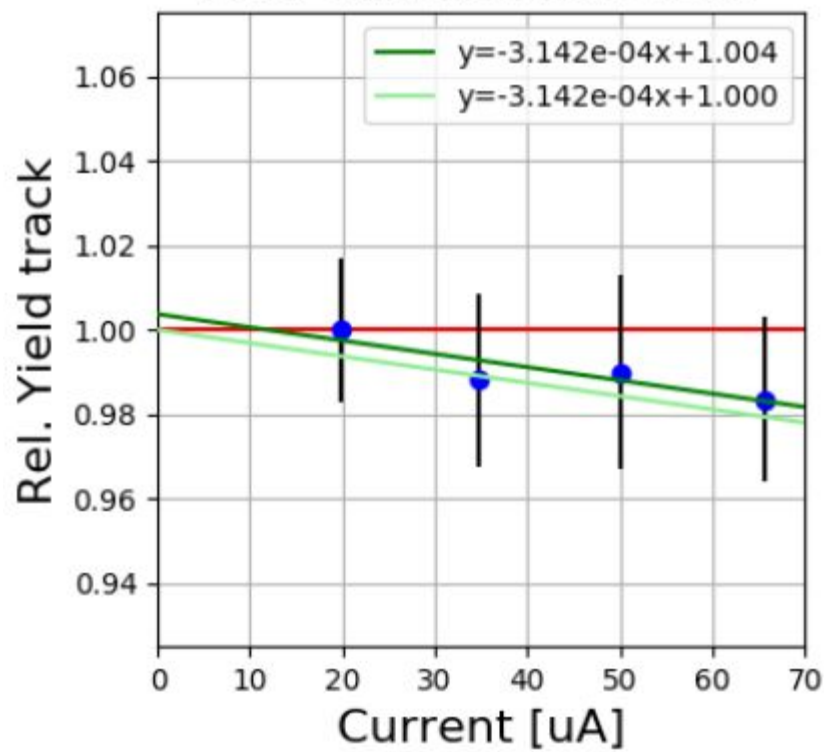
### HMS Carbon 5351-5358



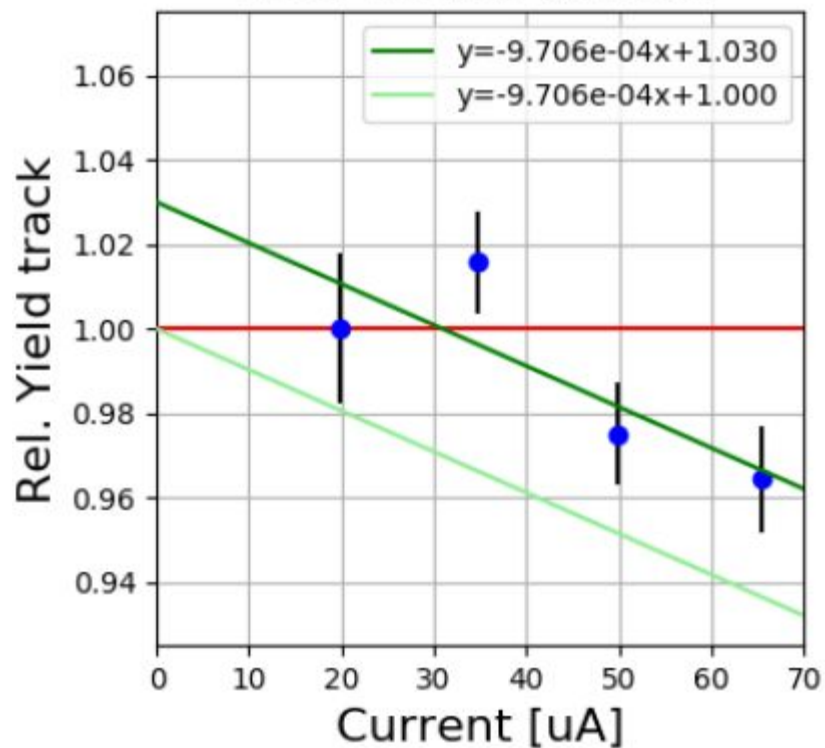
### HMS LH2 5342-5350



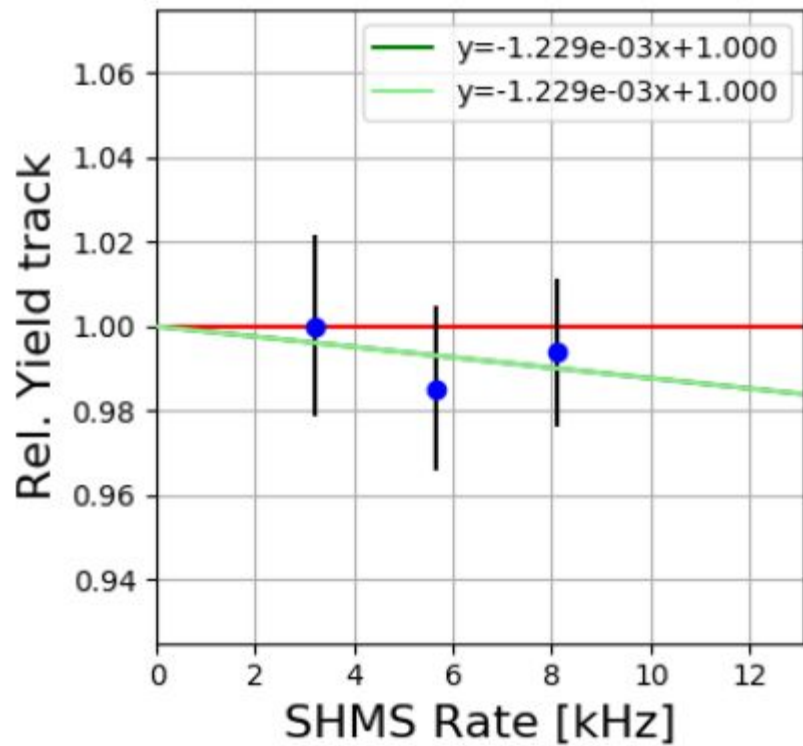
HMS Carbon 5351-5358



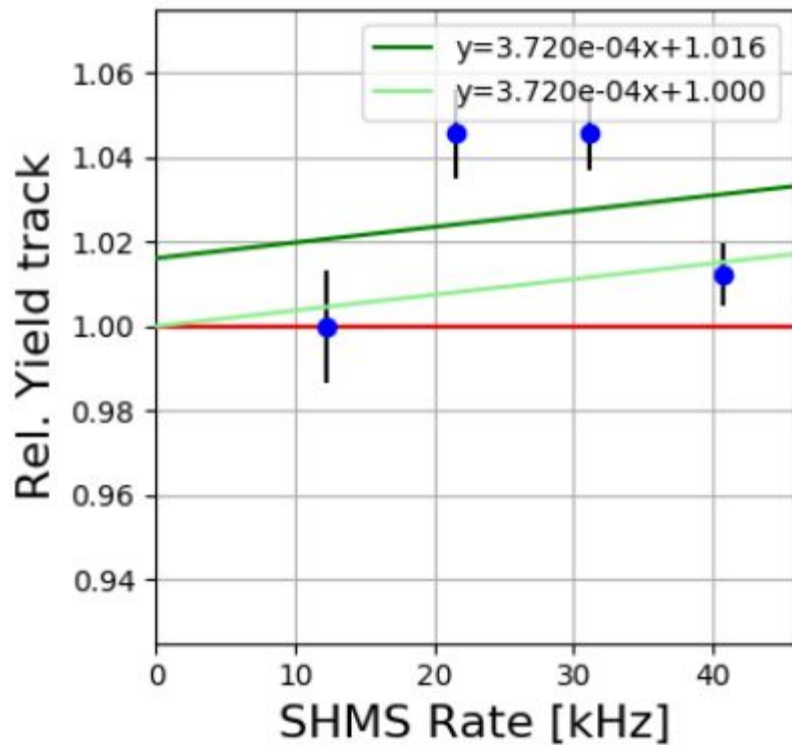
HMS LH2 5342-5350



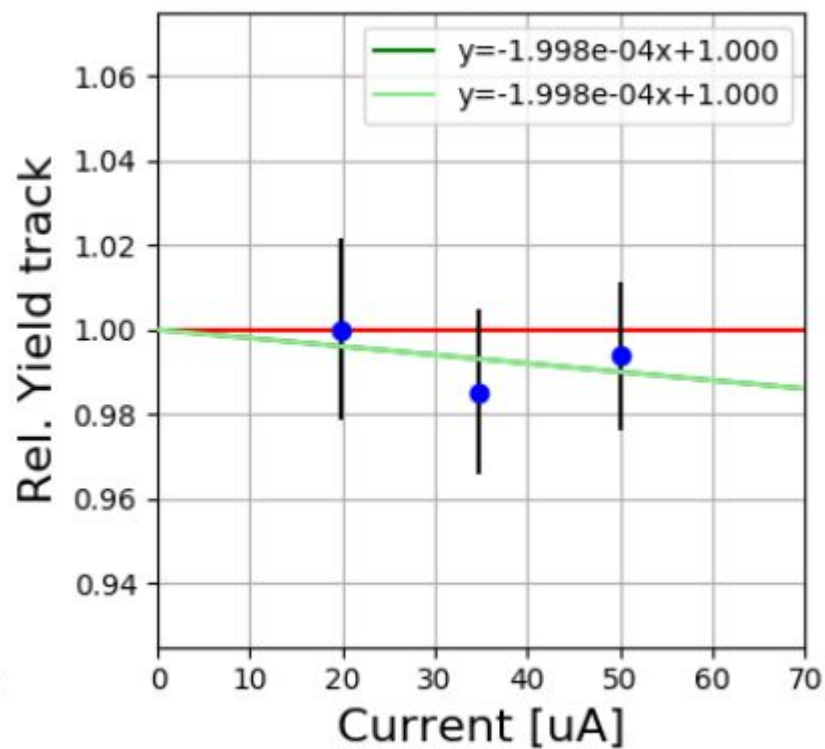
SHMS Carbon 5351-5358



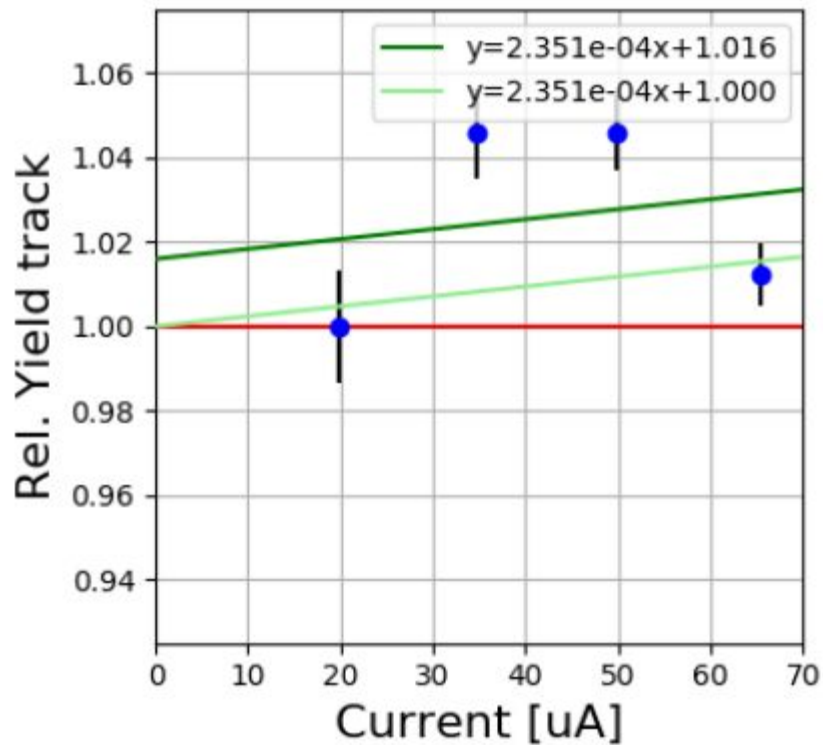
SHMS LH2 5342-5350



SHMS Carbon 5351-5358



SHMS LH2 5342-5350



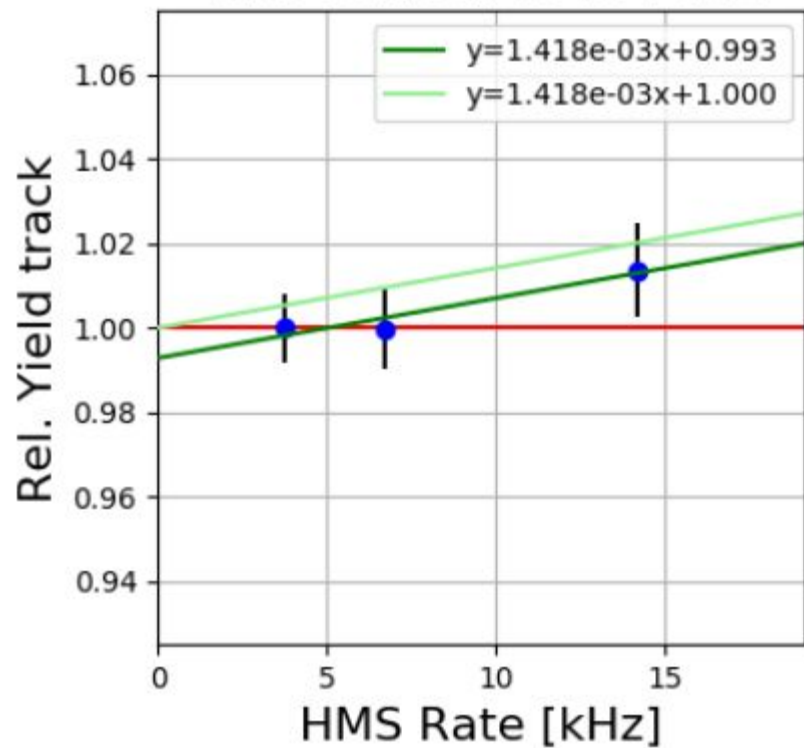


## 8.2 Lumi Run #1

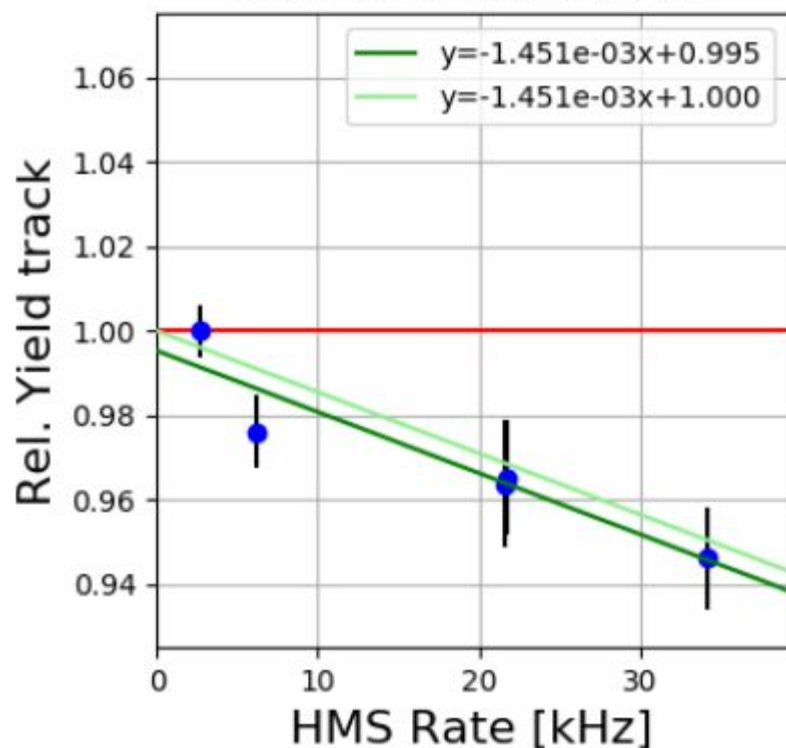


- $P_{SHMS} = -5.745$ ,  $\Theta_{SHMS} = 3.510$
- $P_{HMS} = -5.745$ ,  $\Theta_{SHMS} = 12.970$

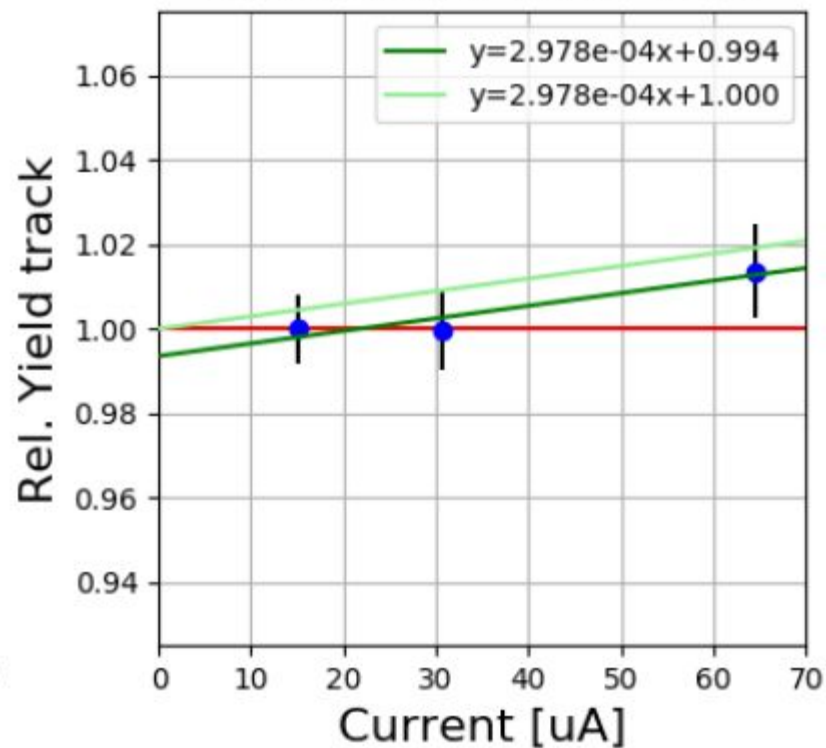
### HMS Carbon 7948-7951



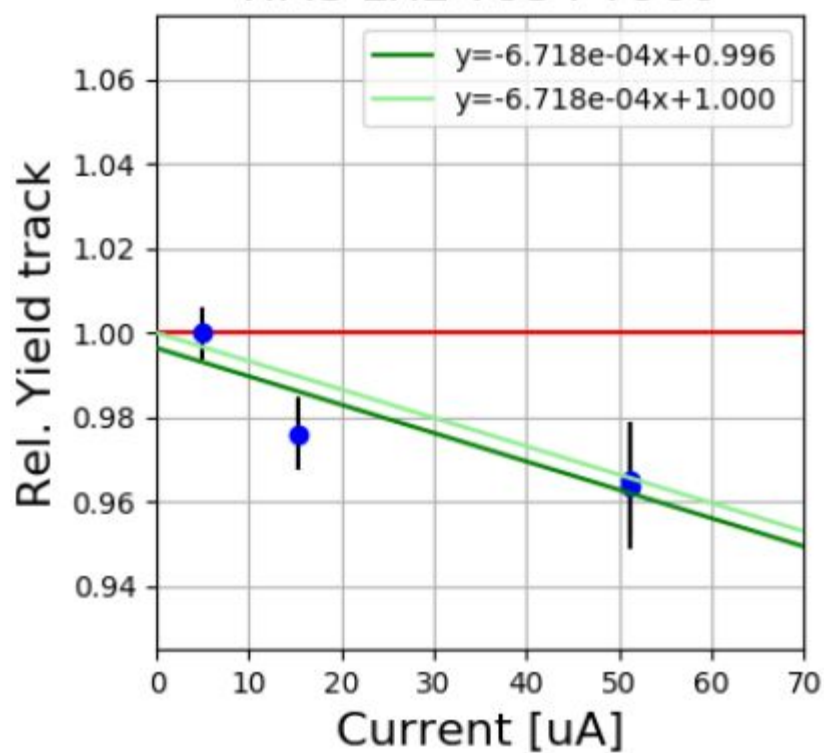
### HMS LH2 7954-7960



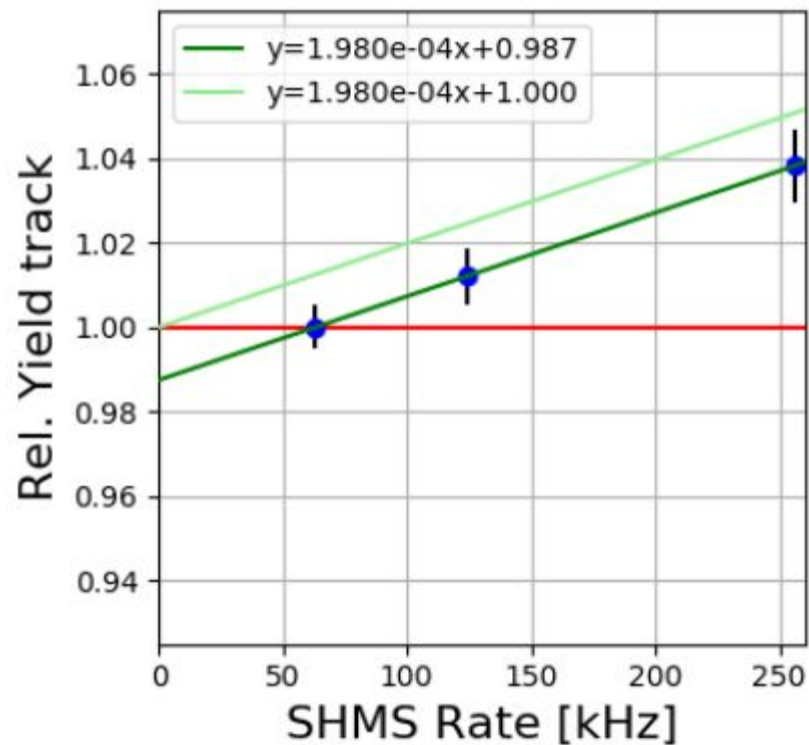
HMS Carbon 7948-7951



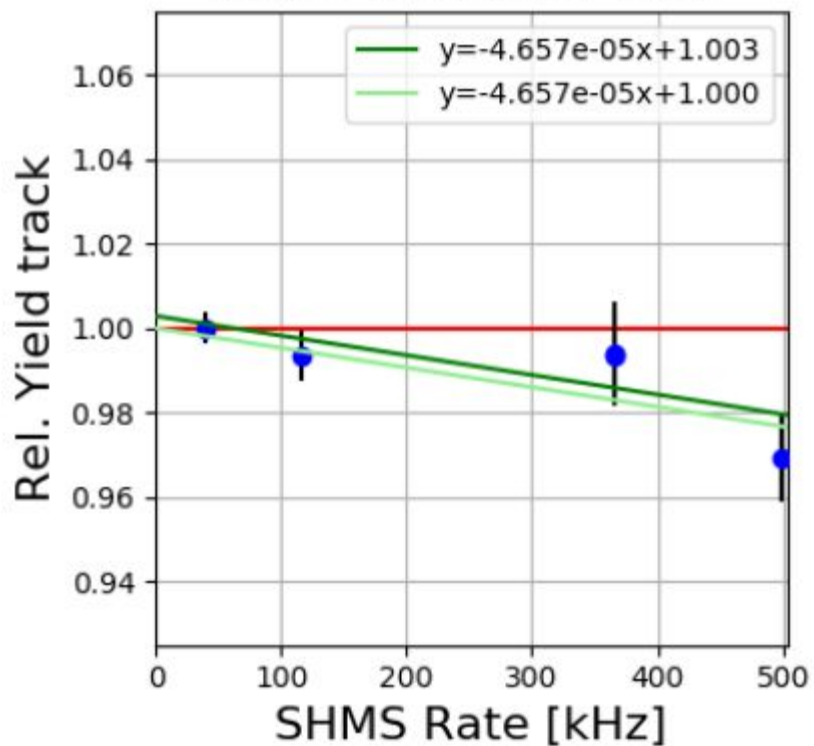
HMS LH2 7954-7960



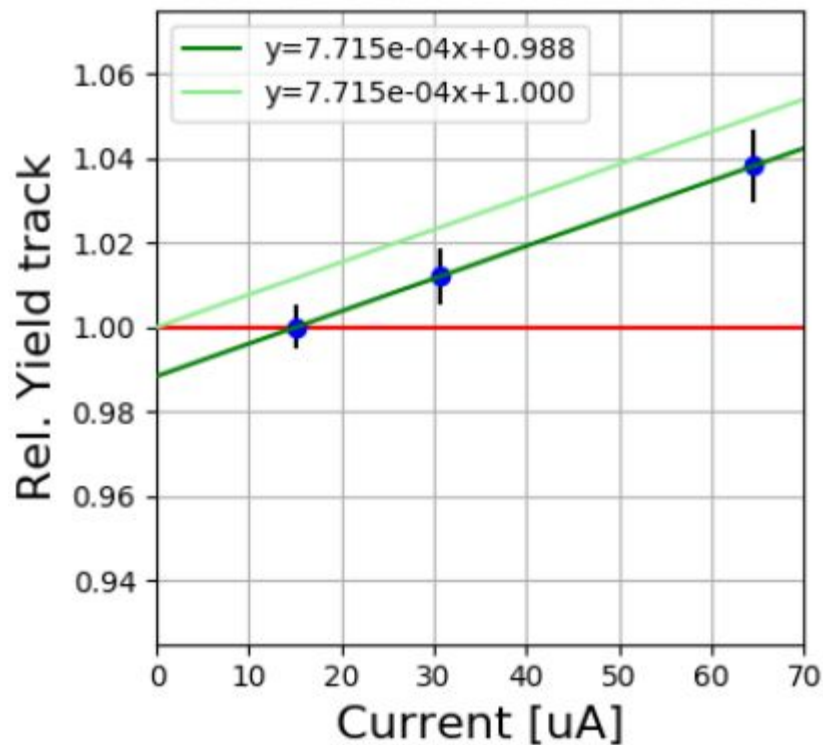
SHMS Carbon 7948-7951



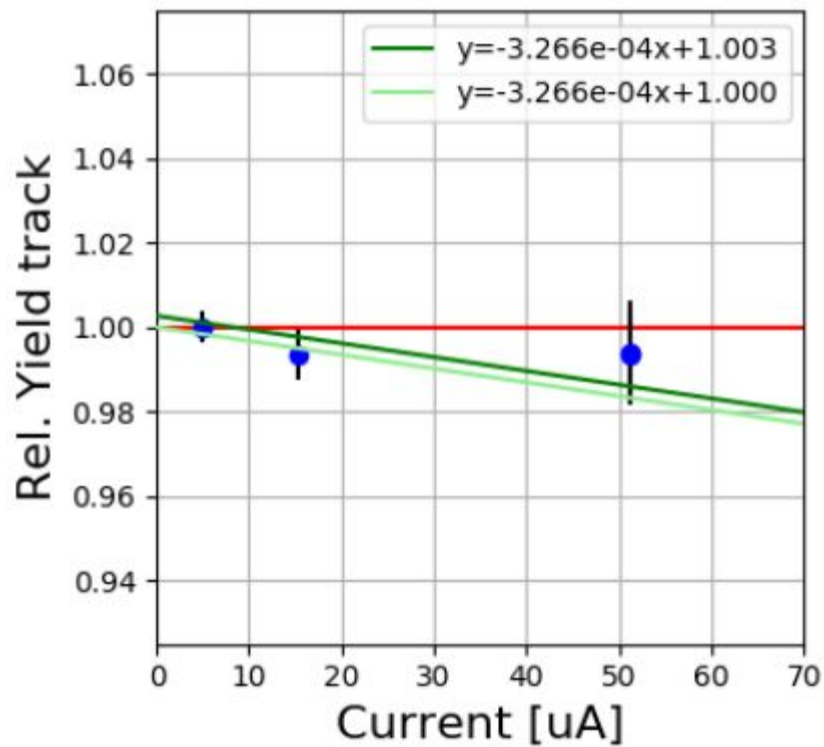
SHMS LH2 7954-7960



SHMS Carbon 7948-7951



SHMS LH2 7954-7960



**extra**

