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# Detector Efficiency

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- Looked at HMS Cherenkov and calorimeter efficiency.
- Used a clean sample of electrons.
- Selected HeePCoin settings of HMS momenta lower than 4.2MeV.
  
- HeePCoin Settings:

Beam Energy (GeV)	Setting (HeePCoin)	Run Numbers
9.177	HMS_p = -3.738, HMS_theta = 31.645, SHMS_p = 6.265, SHMS_theta = 18.125	11847 - 11878
5.986	HMS_p = -3.271, HMS_theta = 29.170, SHMS_p = 3.493, SHMS_theta = 27.495	13058 - 13061
7.937	HMS_p = -3.280, HMS_theta = 33.645, SHMS_p = 5.512, SHMS_theta = 19.265	14590 - 14599
6.395	HMS_p = -3.014, HMS_theta = 33.350, SHMS_p = 4.220, SHMS_theta = 23.115	16513 - 16517

- General Cuts:

### HMS Cuts (Electrons)

$$-8 < H\_gtr\_dp < 8$$

$$-0.08 < H\_gtr\_th < 0.08$$

$$-0.045 < H\_gtr\_ph < 0.045$$

$$H.hod.goodstarttime = 1$$

$$H.dc.InsideDipoleExit = 1$$

- Cuts for HMS Cherenkov Efficiency:

### HMS Cuts (Electrons)

$$H.cer.npeSum > 1.5$$

$$H.cal.etottracknorm > 0.85$$

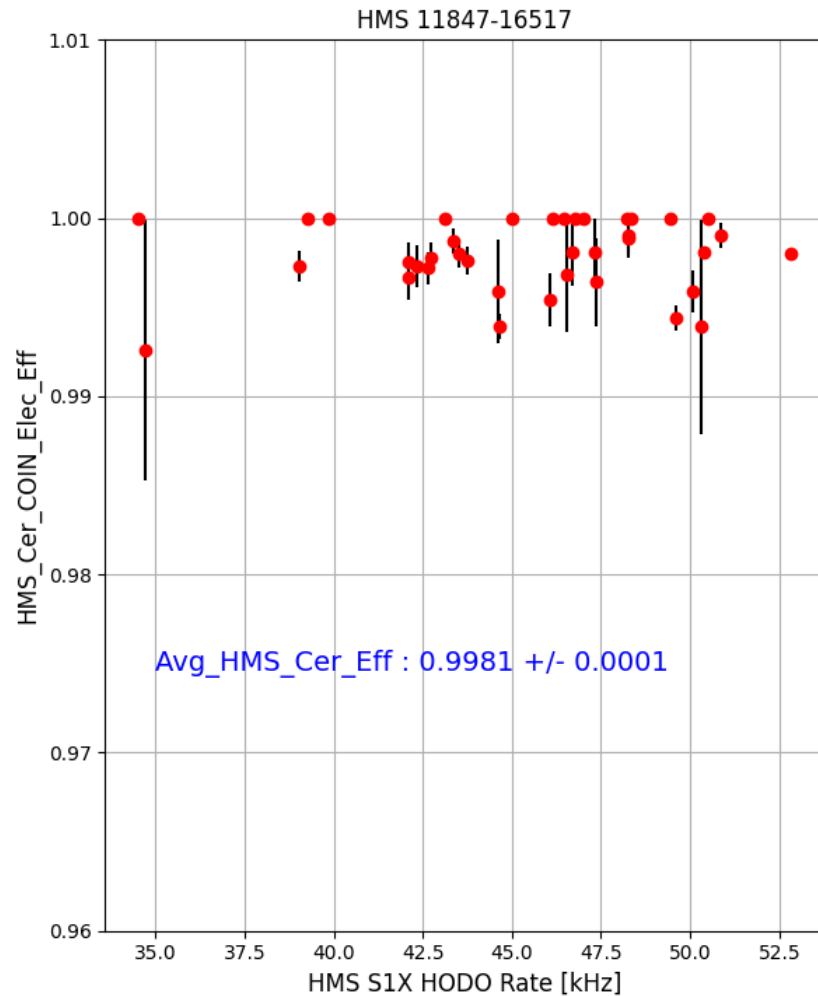
- Cuts for HMS Calorimeter Efficiency:

### HMS Cuts (Electrons)

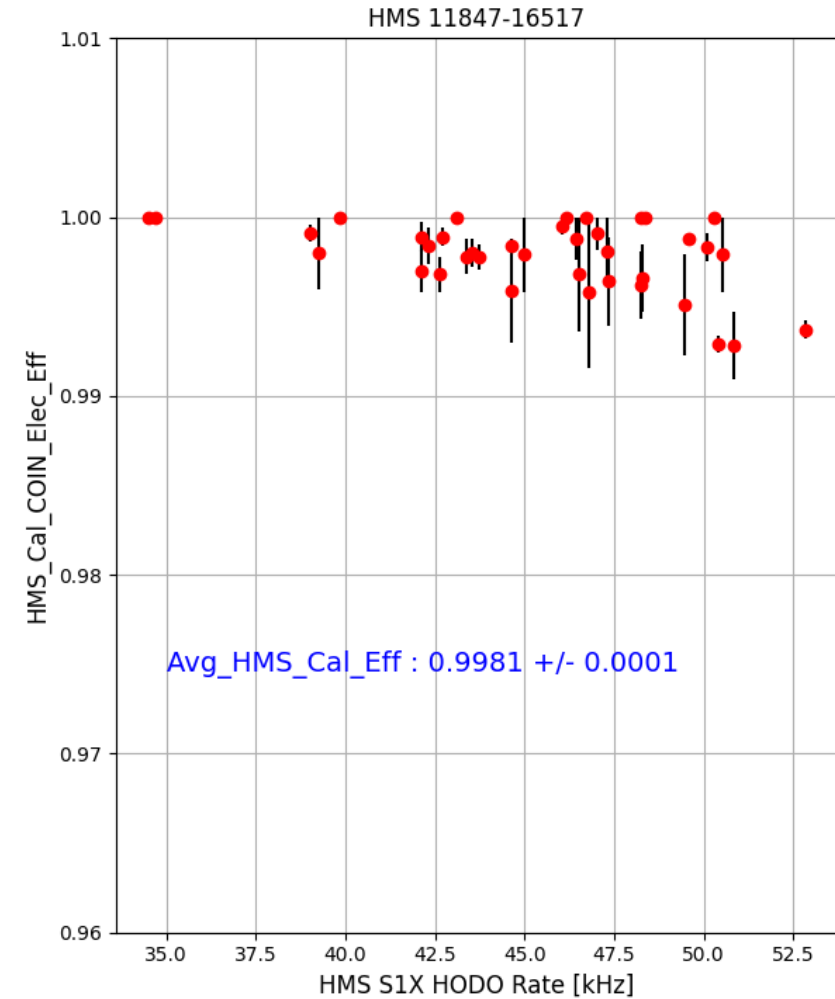
$$H.cer.npeSum > 5.0$$

$$H.cal.etottracknorm > 0.7$$

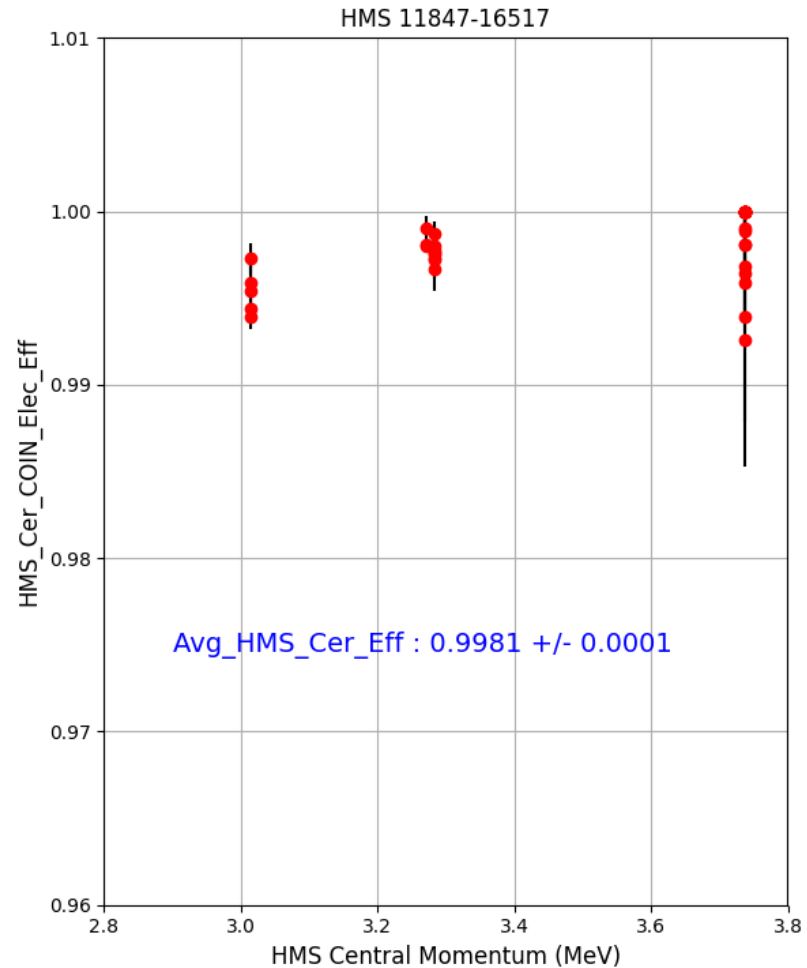
### HMS Cerenkov Detector Efficiency



### HMS Calorimeter Detector Efficiency



### HMS Cerenkov Detector Efficiency



### HMS Calorimeter Detector Efficiency

