Review of detector progress across all Diffraction suite instruments

A report is given to the STAP, updated version of the report for the SAC detector review

DREAM

Modules for mantle detector and end-cap detector

- in serial production
- delivery in 2023
- start of commissioning in 2023 using cosmic neutrons

  & plans to use neutron source at the instrument

Modules for high resolution backscattering and nm-SANS

- prototype in production

MAGIC

Detector A (large, thermal)

- in design review, awaiting serial production
- delivery Q4 2023
- start of commissioning in 2024 using cosmic neutrons
  & plans to use neutron source at the instrument

Detector B (small, cold)

- manufacturing, FAT complete
- ready for delivery

HEIMDAL

Modules for detector (similar to MAGIC detector A)

- CTV passed
- awaiting procurement

Readout electronics, firmware

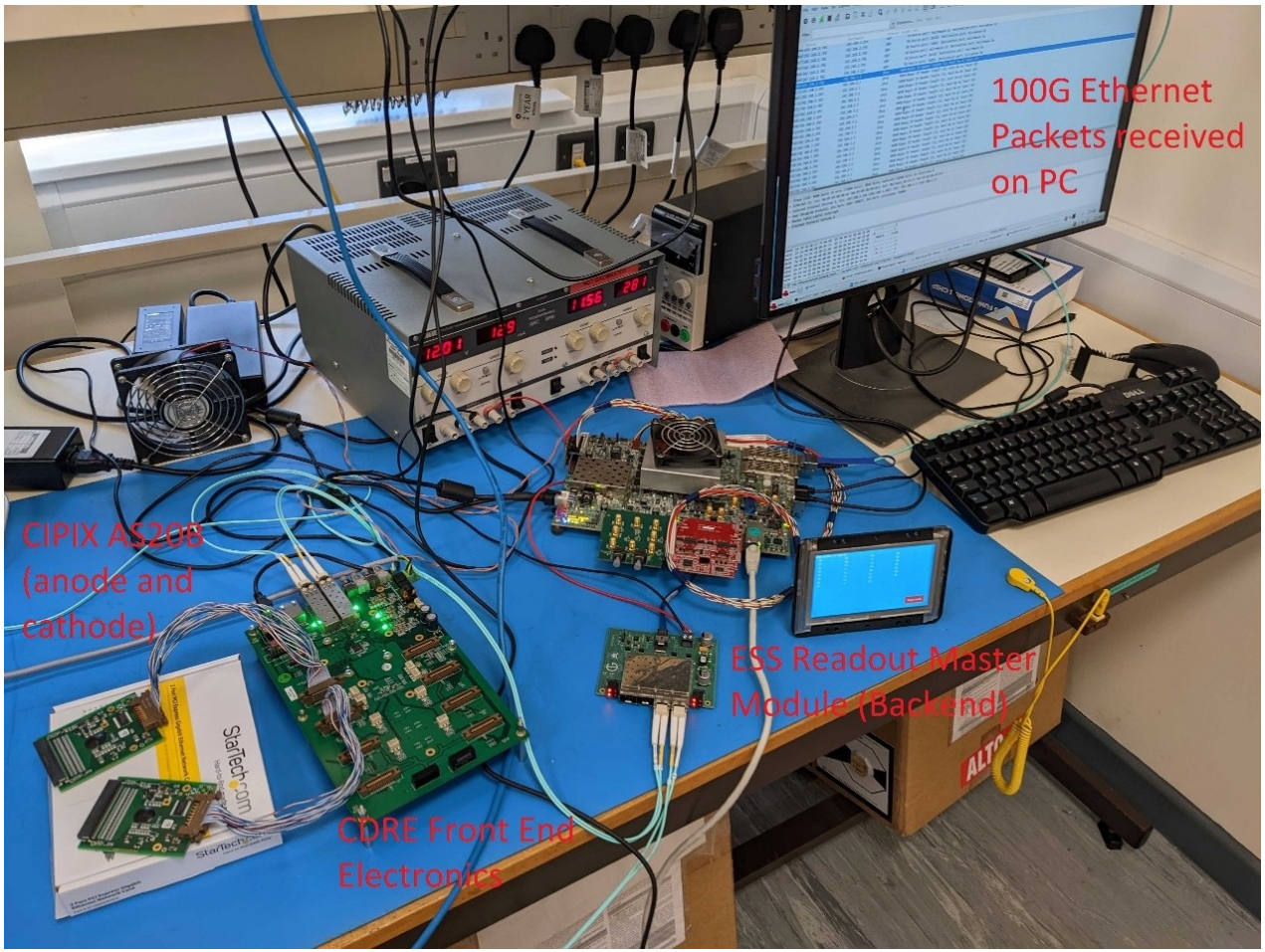
for all diffraction instrument detectors

and ionisation beam monitors

– delivered by detector company CDT

– functional, operational readout chain through DMSC

Readout electronics, firmware



Report from 23.09.2022

CDT Martin Klein
STFC Joe Hindmarsh

Recap performance

Efficiency	>0.5 at 1Å	
Resolution	$< \theta_i$	DREAM ~7-10 mm x 10-11 mm
		MAGIC (HEIMDAL) 1mm x ~10mm at 5^{O} inclination
Count rate capability	70kHz/anode	Bragg > MHz
Background	<1mHz/voxel	~0.2-0.3mHz/voxel, ~2/3 cosmic neutrons