

CMS and LHC report

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FNAL

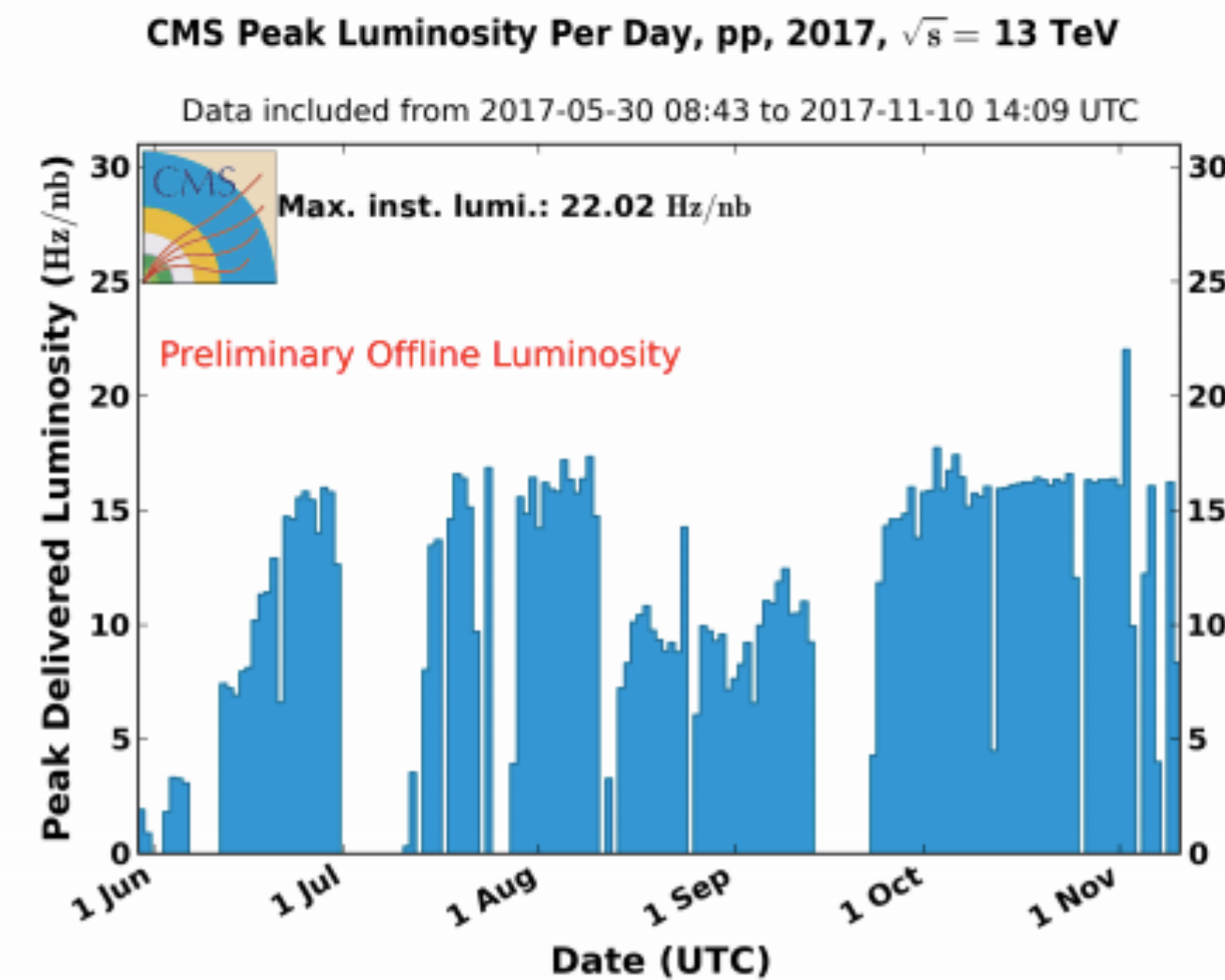
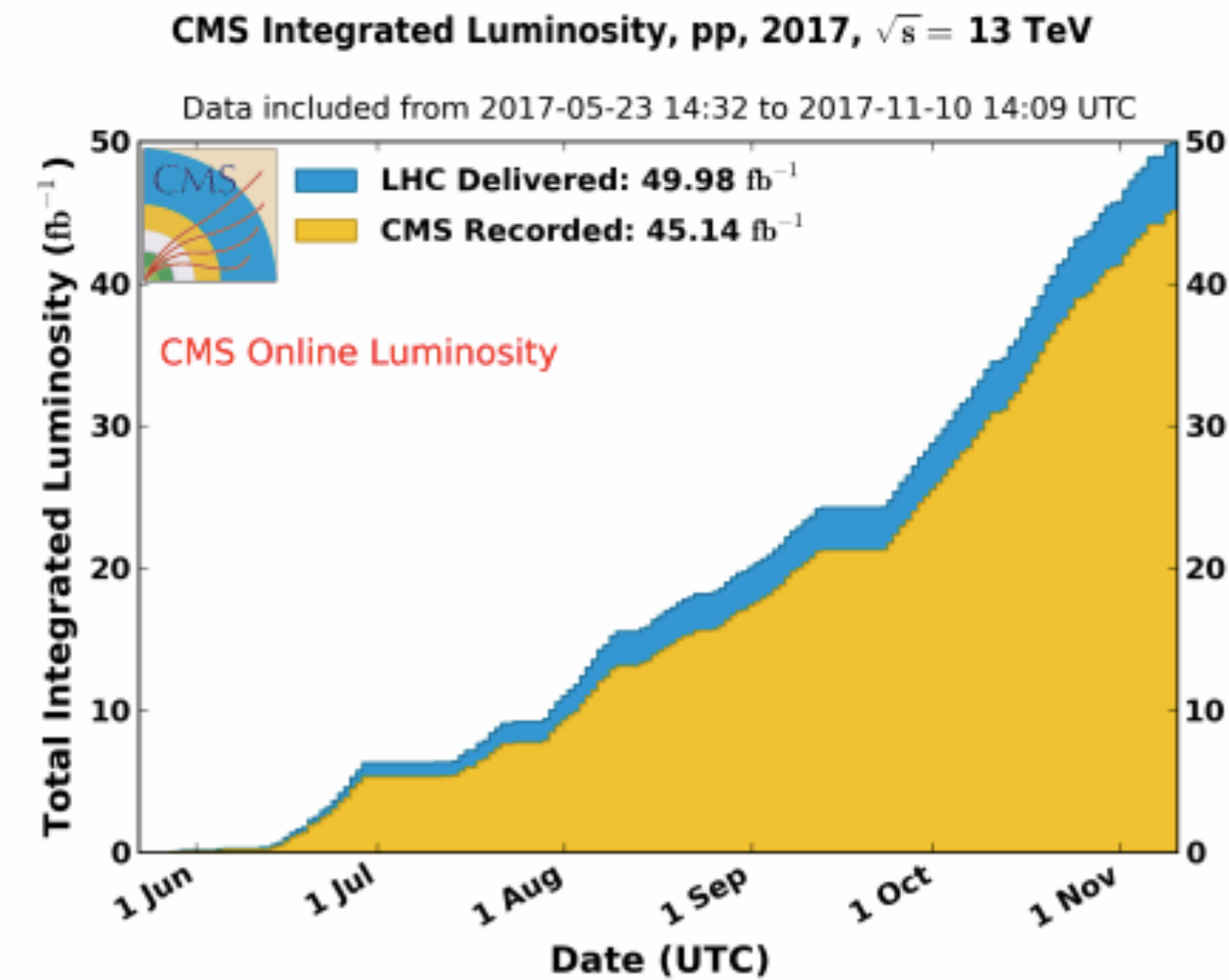
Dec 4, 2017

LHC Schedule and Plan

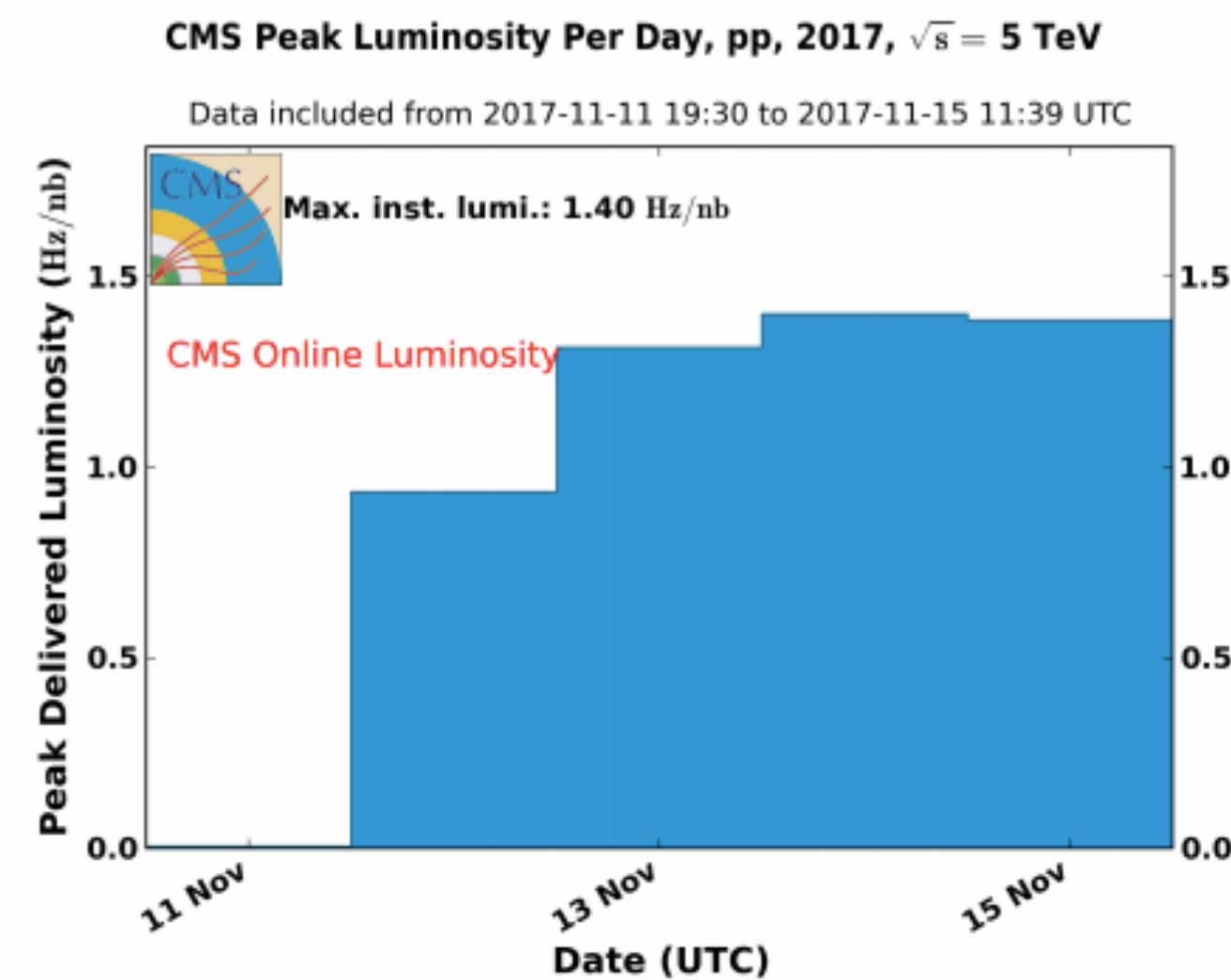
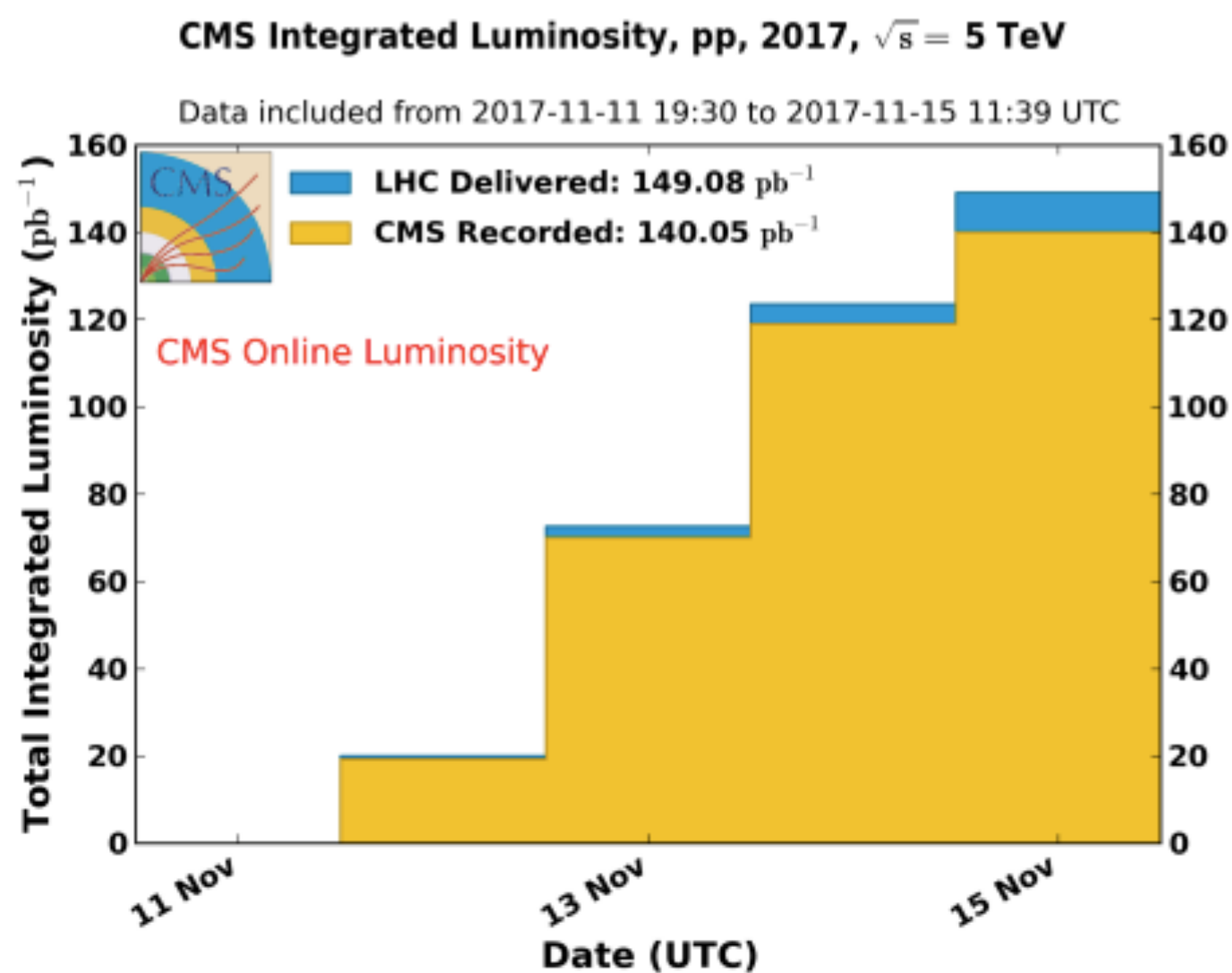
	Oct			Nov				Dec					
Wk	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo	2	9	16	23	30	6	13	20	27	4	11	18	Xmas 25
Tu							5 TeV p-p Reference run & Low Energy High Beta run						
We													
Th		Xe ion run							MD 4		Technical stop (YETS)		
Fr													
Sa													
Su													

- End of high intensity pp-running at 13 TeV
 - **~50 1/fb delivered**
- Special runs until the end of the year
 - 5 TeV pp run ended Nov 21
- High beta* run cancelled, low pile-up run instead

Data Delivered and Recording Efficiency

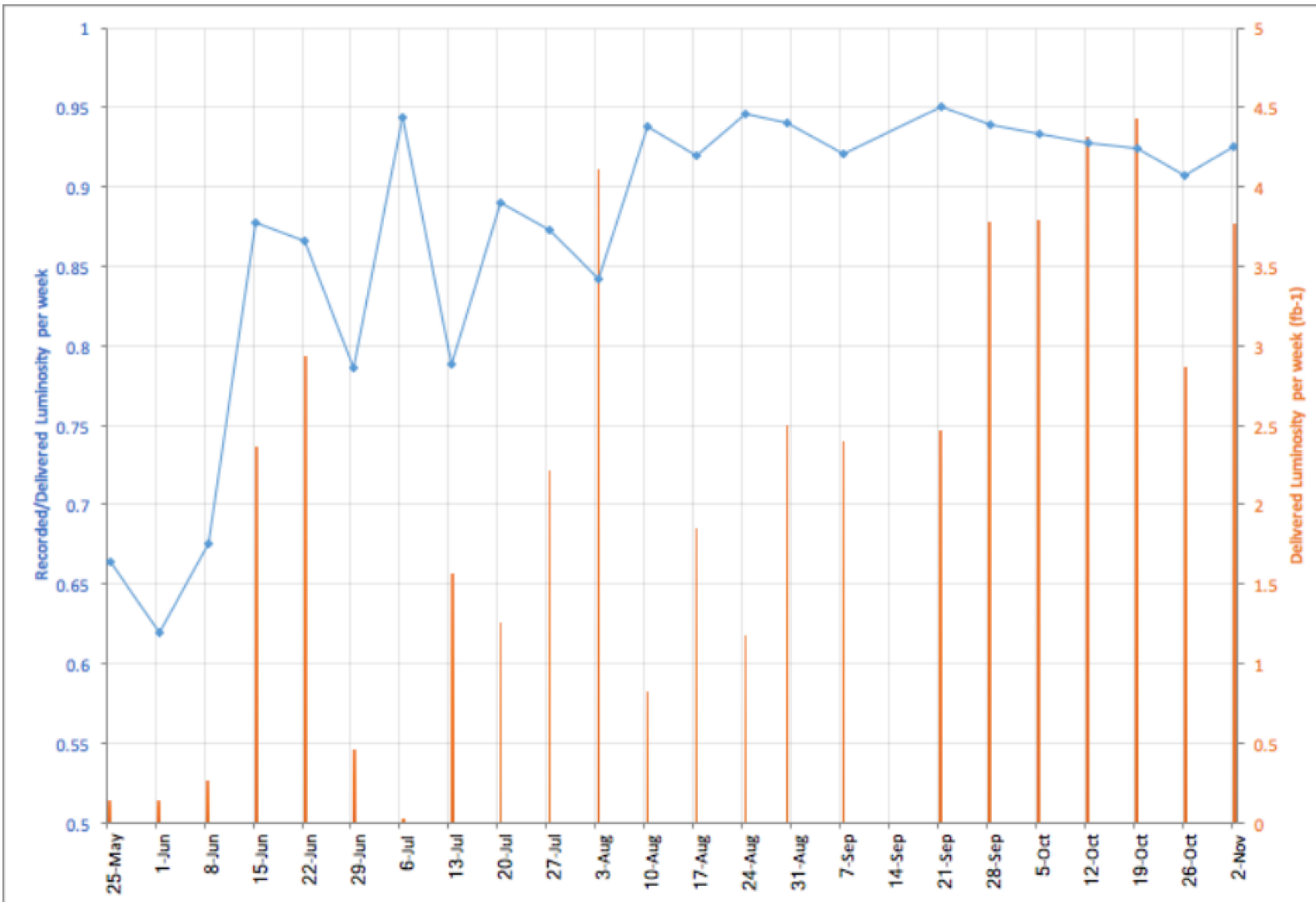


- The recording efficiency at 13 TeV in 2017 is 90.3% vs 92.5% for 2016
- lower efficiency reflects in a loss of 1.1 1/fb in luminosity



- Pixel commissioning responsible for half of the difference in efficiency

Data Delivered and Recording Efficiency



- Efficiency at ~93% since August

Data Certification

- 45.1/fb recorded
- 40.9/fb processed by data certification
- 38.7/fb in good run file (eff=94.6%)

Plan for YETS 2017/2018

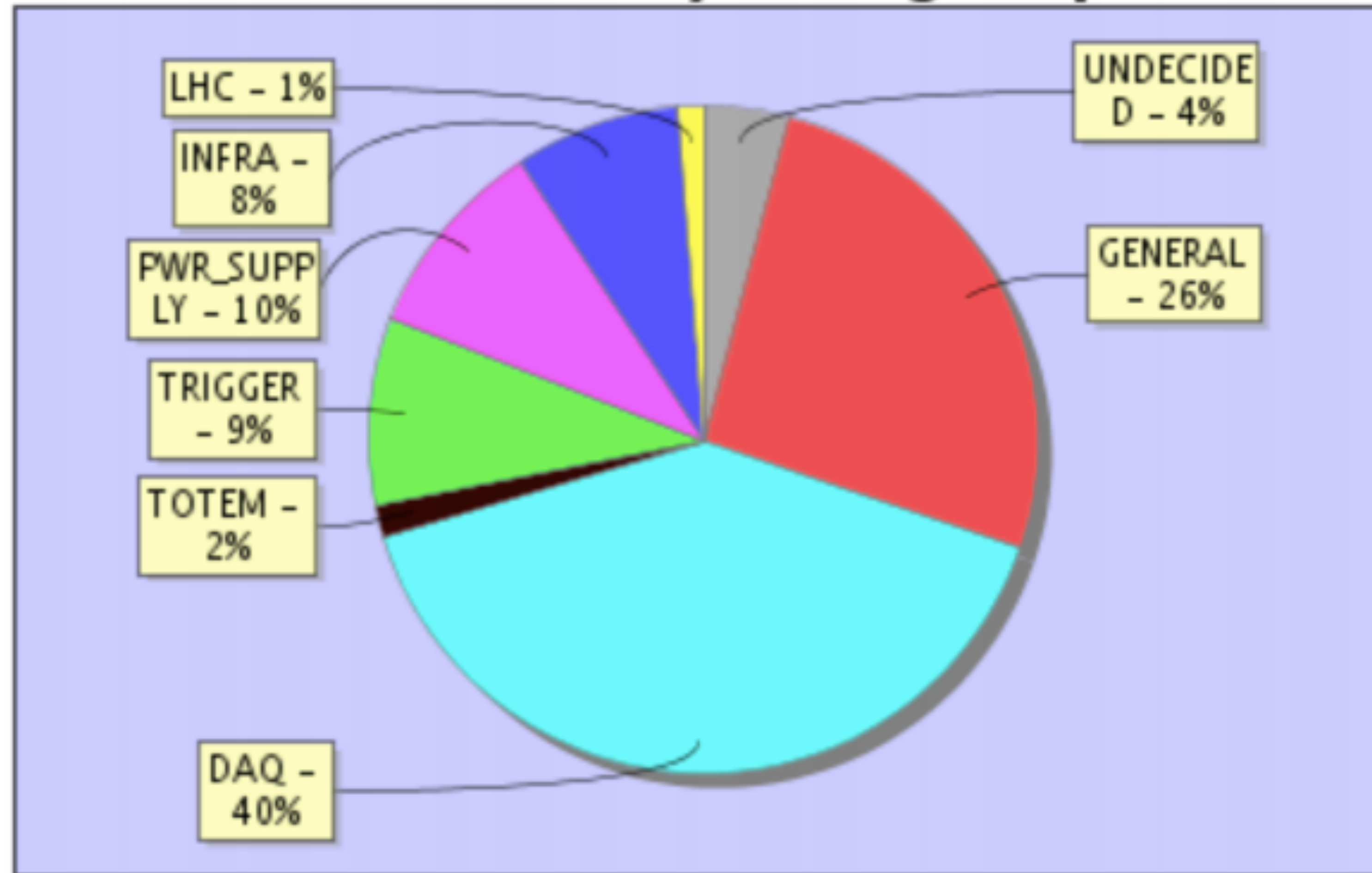
- Priority Is the work on the pixel detector
 - CMS opening start (+ z end first): 06 Dec
 - FPIX +z extraction: 22 Dec
 - FPIX -z extraction : 18-19 Jan
 - Barrel extraction : 20 Jan
 - Refit of pixel elements: 24 Jan – 07 Feb•
 - Barrel re-insertion: 12 Feb
 - CMS closing start: 27 Feb
 - Open Sector vac valves : 26 Mar
- Objectives
 - access to failed DC-DC units so as to rapidly progress with diagnosis of fault
 - 2) change all fuses
 - 3) replace all failed DC-DC units by working spares

Backup

- Following a test of the 900 GeV / high β^* setup on 8/11 an order of magnitude higher beam background observed than acceptable for physics
 - Tested scraping with different collimation settings, but all settings tried were 'bad'
- Various ideas to improve the background, but decided (in discussion with CERN management) that there was not enough time (also for thinking) to try these for a physics run this year
- Instead schedule a further test of the setup today (1 shift) in order to see feasibility of such a run in 2018 (or later) if approved
 - Would like to learn how long such a physics run would need in order to help planning for 2018
 - We may learn that the beam background is too hard to control and therefore we could re-evaluate the beam energy for this run

Despite not being ready for physics in this year a lot of progress has been made on the setup of this run: optics with good acceptance for physics, injection directly into physics optics, emittance growth under control etc...

Lumi Lost by cat. groups



● UNDECIDED - 104.83 ● GENERAL - 669.55 ● DAQ - 1026.31
● TOTEM - 39.70 ● TRIGGER - 231.98 ● PWR_SUPPLY - 251.50
● INFRA - 206.92 ● LHC - 30.40

Tracker Status

DCDC Converter Problem



- Recent detailed summary in the CMS MB talk of Andrea on Monday.
 - We did the thermal cycle test yesterday. Some findings here but all details will be discussed in the pixel operations meetings.
 - We power-cycled 'all bad DCDCs' plus some 'selected healthy ones' plus 'Disk1 and Disk3 of FPIX' at -13C, -3C, +15, -3C, -13C, -23C.
 - We had a planned interlock at +15C, where we cycle everything! Since this was planned, most of the detector was off before.
- Executive summary:
 - we recovered 1 BPIX (+1?? where currents are OK but no hits)
 - we lost 1 BPIX
 - we recovered 1 FPIX
 - we lost 8 FPIX (2 at +15C step and 6 at -3C after the +15C step).
 - 5 digital + 3 analog all on FPIX – the side with the +11.4V setting (not sure if this tell us something)
 - But details tell a more interesting story, e.g. FPIX Bpl D3 ROG1 bottom ana-1:
 - A recovered one – bad at -13C – good at power-cycling at -13C – bad at configure at -13C – good at power cycling at -3C – still good now!
 - Another two analog FPIX converters recovered at -23C but failed at configure – to be followed