

# TB-24-May CAEN statistics

*D. Sosnov for the StrawTrackerRD group*

February 3, 2025

## Merging

Since CAEN stopped taking data at the first events of spill, from Timepix & CAEN merging we can obtain about 1K events per spill.

## Current data

Particle momentum	Particle type	Date	Sci4 events	Sci4 & BeamSci	Sci4 & BeamSci & Timepix	Sci4 & BeamSci & Timepix, %	Sci4 & BeamSci & Timepix & Cherenkov	Sci4 & BeamSci & Timepix & Cherenkov, %
+0.3	Hadrons	15.05.2024	729k	499k	29.8k	5.97	28.3k	94.94
+0.5	Hadrons	14.05.2024	963.8k	812.5k	56.3k	6.93	50.8k	90.30
+2.0	Hadrons	13.05.2024-15.05.2024	89.1k	87.5k	25.6k	29.25	11.8k	46.37
-2.0	Electrons	13.05.2024	325.7k	310.1k	69.9k	22.55	67.1k	96.02
+5.0	Hadrons	14.05.2024-15.05.2024	223k	220.7k	153.8k	69.72	4.6k	3.00
-5.0	Electrons	14.05.2024-15.05.2024	427.5k	388.7k	150.7k	38.77	112.6k	74.70

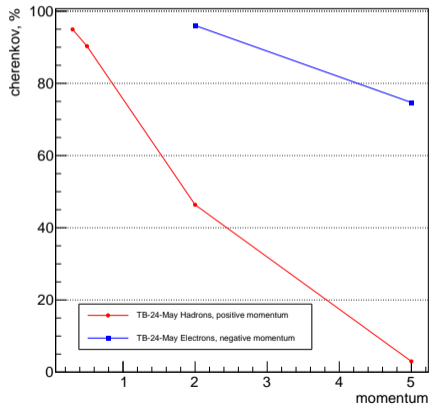
Particle momentum	Particle type	Date	Sci4 & BeamSci & Straw0	Sci4 & BeamSci & Straw0, %	Sci4 & BeamSci & Straw0 & Timepix	Sci4 & BeamSci & Straw0 & Timepix, %	Sci4 & BeamSci & Straw0 & Timepix & Cherenkov	Sci4 & BeamSci & Straw0 & Timepix & NOT Cherenkov
+0.3	Hadrons	15.05.2024	47.7k	9.57	11.7k	24.59	11.1k	616
+0.5	Hadrons	14.05.2024	89k	10.96	22.3k	25.15	20.2k	2.1k
+2.0	Hadrons	13.05.2024-15.05.2024	20.2k	23.09	11k	54.74	5.1k	5.9k
-2.0	Electrons	13.05.2024	60.2k	19.43	29k	48.25	27.9k	1.1k
+5.0	Hadrons	14.05.2024-15.05.2024	118.5k	53.71	94.8k	79.98	2.8k	91.9k
-5.0	Electrons	14.05.2024-15.05.2024	113.4k	29.18	75.4k	66.49	57.2k	18.2k

Particle momentum	Particle type	Date	Sci4 & BeamSci & Straw1	Sci4 & BeamSci & Straw1, %	Sci4 & BeamSci & Straw1 & Timepix	Sci4 & BeamSci & Straw1 & Timepix, %	Sci4 & BeamSci & Straw1 & Timepix & Cherenkov	Sci4 & BeamSci & Straw1 & Timepix & NOT Cherenkov
+0.3	Hadrons	15.05.2024	43.7k	8.78	9.4k	21.65	9k	467
+0.5	Hadrons	14.05.2024	86.1k	10.60	18.3k	21.29	16.5k	1.7k
+2.0	Hadrons	13.05.2024-15.05.2024	20.3k	23.22	9.3k	45.90	4.5k	4.7k
-2.0	Electrons	13.05.2024	53.4k	17.22	24.1k	45.12	23.1k	933
+5.0	Hadrons	14.05.2024-15.05.2024	86k	39.00	69.2k	80.50	2.2k	67k
-5.0	Electrons	14.05.2024-15.05.2024	77.4k	19.93	55.4k	71.61	42.1k	13.3k

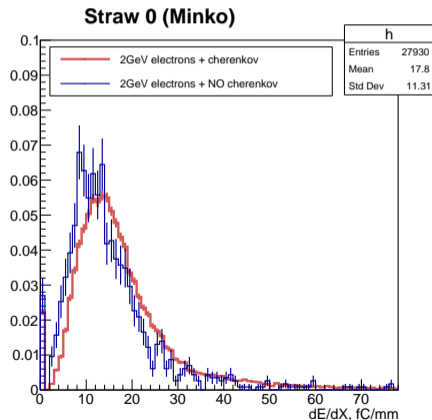
- In the table, straw0 – Minko amplifier, straw1 – APIC.
- For the most data (all except 2GeV hadrons) we have non-discriminated Cherenkov signal.
- For the 2GeV hadrons analog Cherenkov at ~ 47% data.
- It seems, we have enough statistics for the dE/dX calculations.

## Cherenkov activation percentage per event

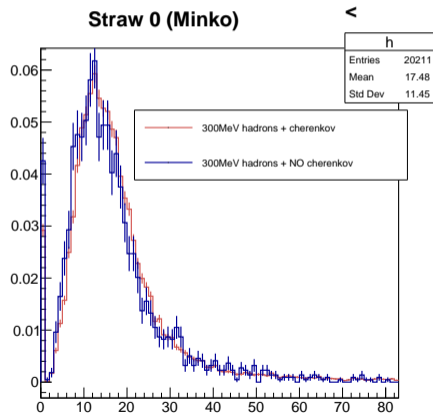


## JUST TO CHECK THAT 1K EVENTS MAY BE ENOUGH

2GeV electrons (stat w/o cherenkov – 1K events)



300MeV hadrons (stat w/o cherenkov – 600 events)



Backup slides

# Statistics per particle type

Particle momentum	Particle type	Date	Sci4 events	Sci4 & BeamSci	Sci4 & BeamSci & Timepix	Sci4 & BeamSci & Timepix, %	Sci4 & BeamSci & Timepix & Cherenkov	Sci4 & BeamSci & Timepix & Cherenkov, %
+0.3 GeV	Hadrons	15.05.2024	729k	499k	29.8k	5.97	28.3k	94.94
			Sci4 & BeamSci & Straw0	Sci4 & BeamSci & Straw0, %	Sci4 & BeamSci & Straw0 & Timepix	Sci4 & BeamSci & Straw0 & Timepix, %	Sci4 & BeamSci & Straw0 & Timepix & Cherenkov	Sci4 & BeamSci & Straw0 & Timepix & NOT Cherenkov
			47.7k	9.57	11.7k	24.59	11.1k	616
			Sci4 & BeamSci & Straw1	Sci4 & BeamSci & Straw1, %	Sci4 & BeamSci & Straw1 & Timepix	Sci4 & BeamSci & Straw1 & Timepix, %	Sci4 & BeamSci & Straw1 & Timepix & Cherenkov	Sci4 & BeamSci & Straw1 & Timepix & NOT Cherenkov
			43.7k	8.78	9.4k	21.65	9k	467
Particle momentum	Particle type	Date	Sci4 events	Sci4 & BeamSci	Sci4 & BeamSci & Timepix	Sci4 & BeamSci & Timepix, %	Sci4 & BeamSci & Timepix & Cherenkov	Sci4 & BeamSci & Timepix & Cherenkov, %
+0.5 GeV	Hadrons	14.05.2024	963.8k	812.5k	56.3k	6.93	50.8k	90.30
			Sci4 & BeamSci & Straw0	Sci4 & BeamSci & Straw0, %	Sci4 & BeamSci & Straw0 & Timepix	Sci4 & BeamSci & Straw0 & Timepix, %	Sci4 & BeamSci & Straw0 & Timepix & Cherenkov	Sci4 & BeamSci & Straw0 & Timepix & NOT Cherenkov
			89k	10.96	22.3k	25.15	20.2k	2.1k
			Sci4 & BeamSci & Straw1	Sci4 & BeamSci & Straw1, %	Sci4 & BeamSci & Straw1 & Timepix	Sci4 & BeamSci & Straw1 & Timepix, %	Sci4 & BeamSci & Straw1 & Timepix & Cherenkov	Sci4 & BeamSci & Straw1 & Timepix & NOT Cherenkov
			86.1k	10.60	18.3k	21.29	16.5k	1.7k

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+2.0 GeV	Hadrons	13.05.2024-15.05.2024	89.1k	87.5k	25.6k	29.25	11.8k	46.37
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			20.2k	23.09	11k	54.74	5.1k	5.9k
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20.3k	23.22	9.3k	45.90	4.5k	4.7k			
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			60.2k	19.43	29k	48.25	27.9k	1.1k
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+5.0 GeV	Hadrons	14.05.2024-15.05.2024	223k	220.7k	153.8k	69.72	4.6k	3.00
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			118.5k	53.71	94.8k	79.98	2.8k	91.9k
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86k	39.00	69.2k	80.50	2.2k	67k			

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-5.0 GeV	Electrons	14.05.2024-15.05.2024	427.5k	388.7k	150.7k	38.77	112.6k	74.70
			Sci4 & BeamSci & Straw0	Sci4 & BeamSci & Straw0, %	Sci4 & BeamSci & Straw0 & Timepix	Sci4 & BeamSci & Straw0 & Timepix, %	Sci4 & BeamSci & Straw0 & Timepix & Cherenkov	Sci4 & BeamSci & Straw0 & Timepix & NOT Cherenkov
			113.4k	29.18	75.4k	66.49	57.2k	18.2k
			Sci4 & BeamSci & Straw1	Sci4 & BeamSci & Straw1, %	Sci4 & BeamSci & Straw1 & Timepix	Sci4 & BeamSci & Straw1 & Timepix, %	Sci4 & BeamSci & Straw1 & Timepix & Cherenkov	Sci4 & BeamSci & Straw1 & Timepix & NOT Cherenkov
77.4k	19.93	55.4k	71.61	42.1k	13.3k			