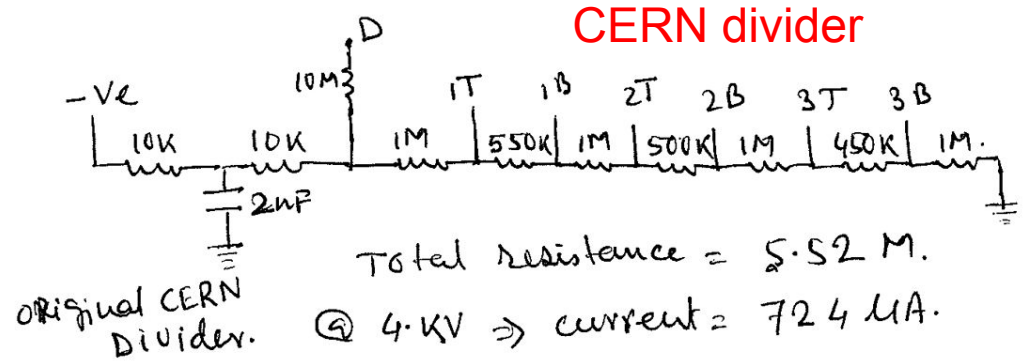


Test Lab update

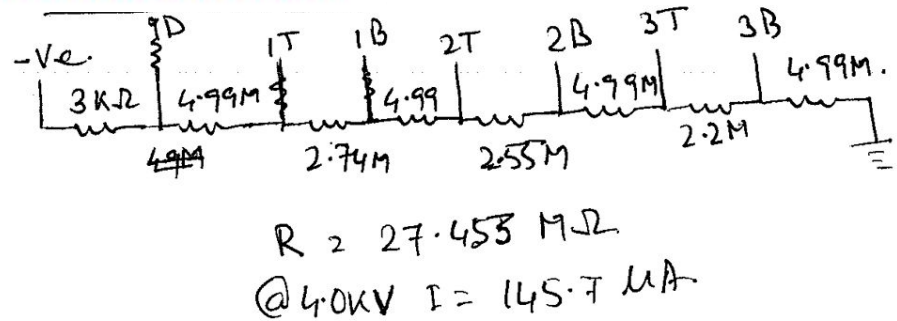
Chandan Ghosh

April 19, 2019

Voltage divider



Existing divider



Resistor's rating

Existing Divider

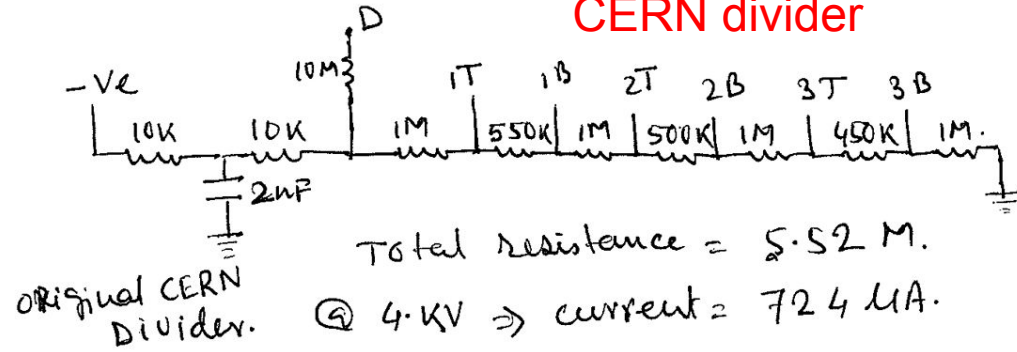
Tag/resistance	4.99 MO	2.74 MO	2.55 MO	2.2 MO
Power rating (Data sheet)	0.1W (1M)	0.06W ($\frac{1}{4}$ W)	0.05W ($\frac{1}{4}$ W)	0.05W ($\frac{1}{4}$ W)
Voltage rating (Data sheet)	727 (500)	399 (200)	372 (200)	320 (500)

Voltage divider

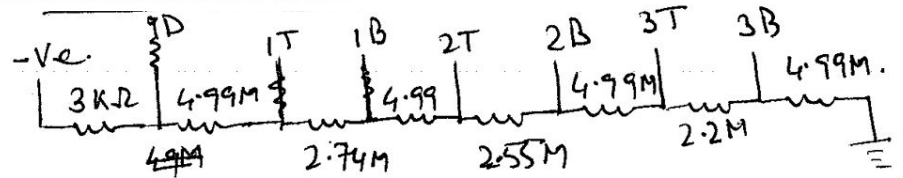


Non-inductive resistors

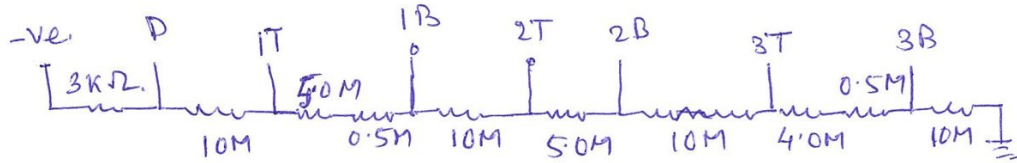
CERN divider



Existing divider



$R = 27.453 \text{ M}\Omega$
 @ 4.0kV $I = 145.7 \mu\text{A}$



$R = 55.003 \text{ M}\Omega$
 $I @ 4 \text{ kV} = 72.7 \mu\text{A}$ Proposed divider

Comparison

Divider	Drift (V)	Across 1st foil(V)	Across 2nd foil(V)	Across 3rd foil(V)
CERN	3985	399	362	326
Dustin	4000	399	372	320
Proposed	4000	400	364	327

Resistor's rating

Existing	Tag/resistance	4.99 MO	2.74 MO	2.55 MO	2.2 MO
	Power rating (Data sheet)	0.1W (1M)	0.06W (¼ W)	0.05W (¼ W)	0.05W (¼ W)
	Voltage rating (Data sheet)	727 (500)	399 (200)	372 (200)	320 (500)
Proposed	Tag/resistance	10 MO	(5.0 +0.5) MO	5.0 MO	(4.0+0.5) MO
	Power rating (Data sheet)	0.05W (1W)	(0.03+0.003)W (1 W)	0.03W (1 W)	(0.02+0.003)W (1.5 W)
	Voltage rating (Data sheet)	727 V (5 kV)	400 V (5 kV+10 kV)	364 V (5 kV)	327 V (5kV +10 kV)

I'll test the circuit in bread-board and 10x10 SBU GEM first

GEM Efficiency @ 4.0 kV

Run	Projection	GEM-2	GEM-5	GEM-3	GEM-0	3D Fitted
1	x	1645	1683	689	1583	1701
	y	1682	1689	1648	1662	
Eff.		96.7	98.9	40.5	93.1	
2	x	1167	1198	514	1135	1210
	y	1199	1203	1173	1175	
Eff.		96.4	99.0	42.5	93.8	
3	x	1177	1183	528	1134	1207
	y	1192	1190	1180	1152	
Eff.		97.5	98.0	43.7	94.0	
Avg. Eff.		96.9	98.6	42.2	93.6	

GEM Efficiency @ 3.9 kV

Run	Projection	GEM-2	GEM-5	GEM-3	GEM-0	3D Fitted
1	x	604	611	253	573	616
	y	612	611	605	597	
Eff.		98.0	99.2	41.1	93.0	
2	x	1986	1993	744	1902	2016
	y	1996	1988	1978	1961	
Eff.		98.5	98.8	36.9	94.3	
Avg. Eff.		98.2	99	39	93.6	