

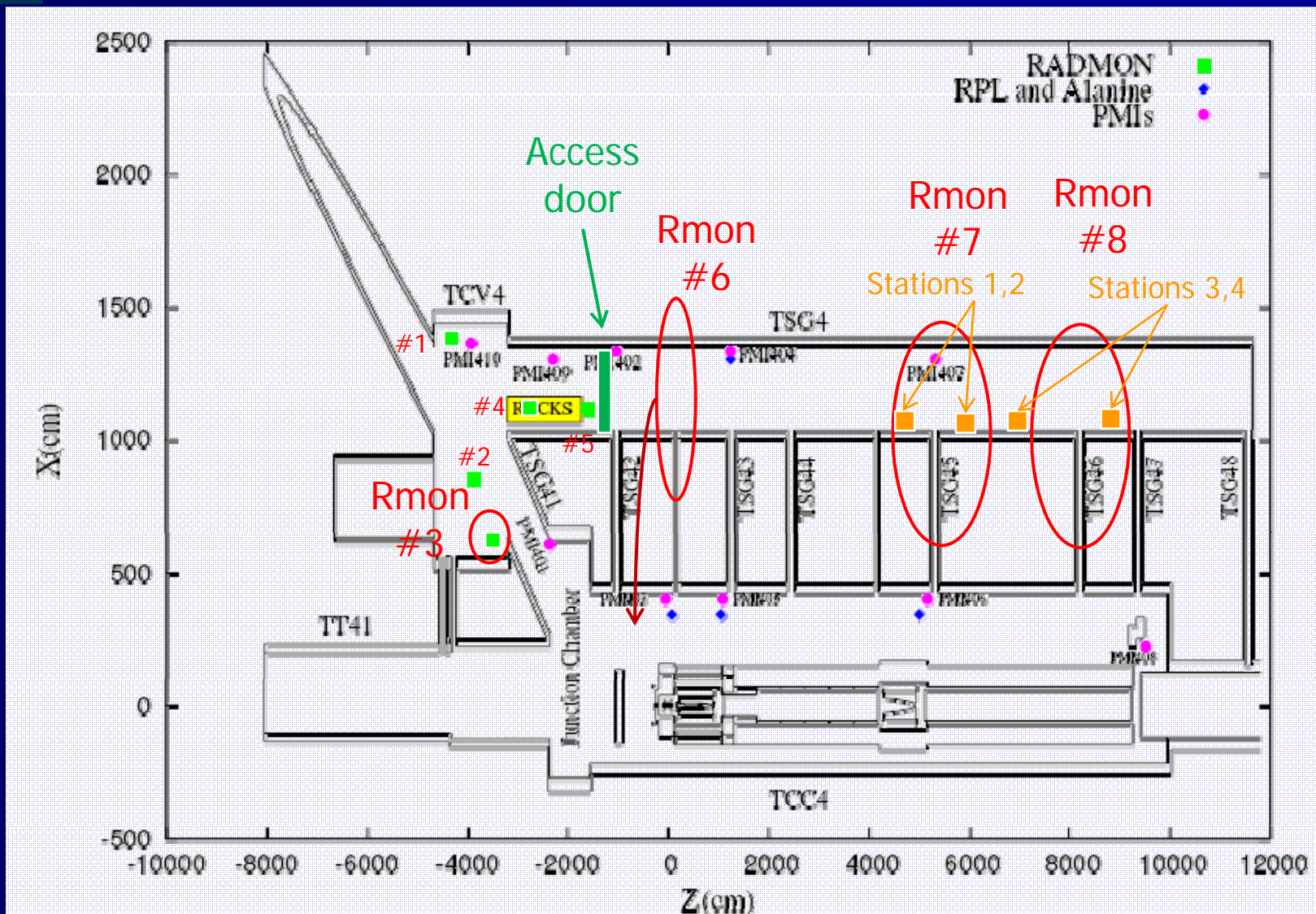


Expected radiation levels during the electronics tests in CNGS side gallery

Daniel Kramer

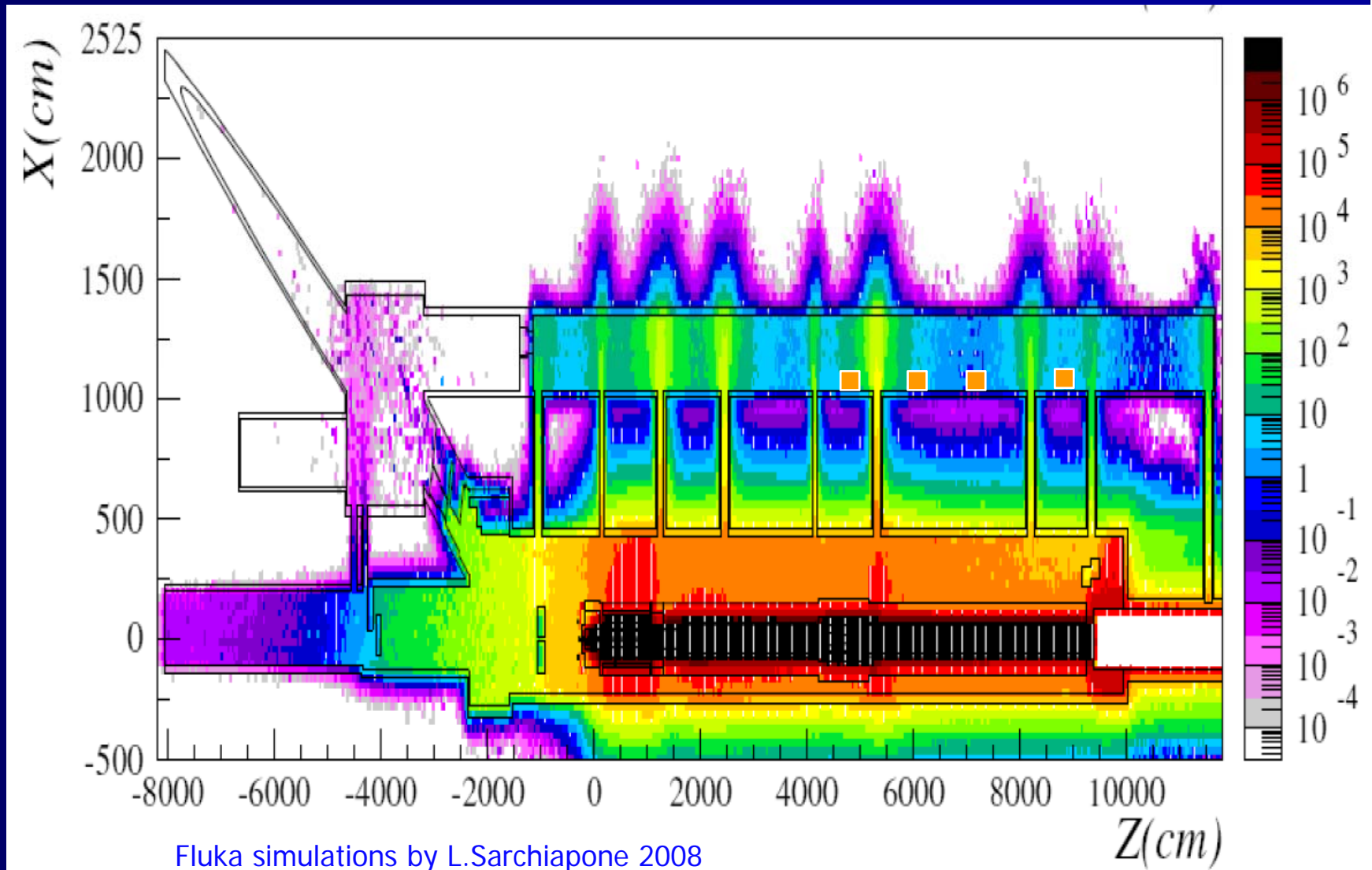


Positioning of RadMons in the test area (naming conventions)





Dose map for 1yr of nominal operation [4.5e19 pot] 1.78e19 pot in 2008

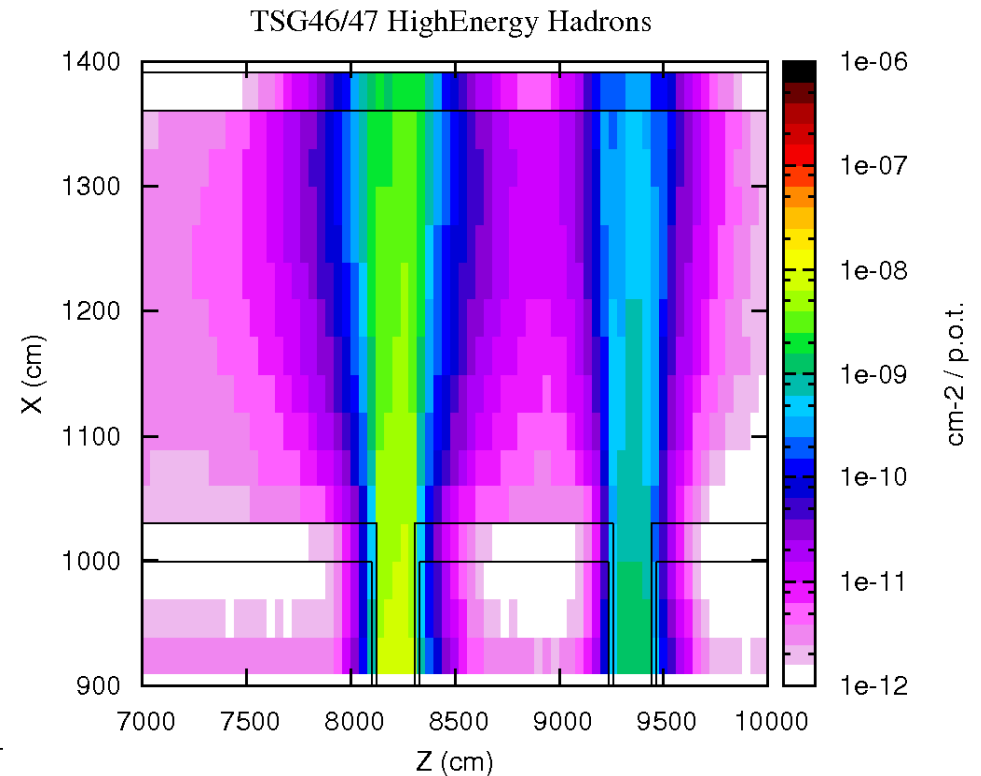
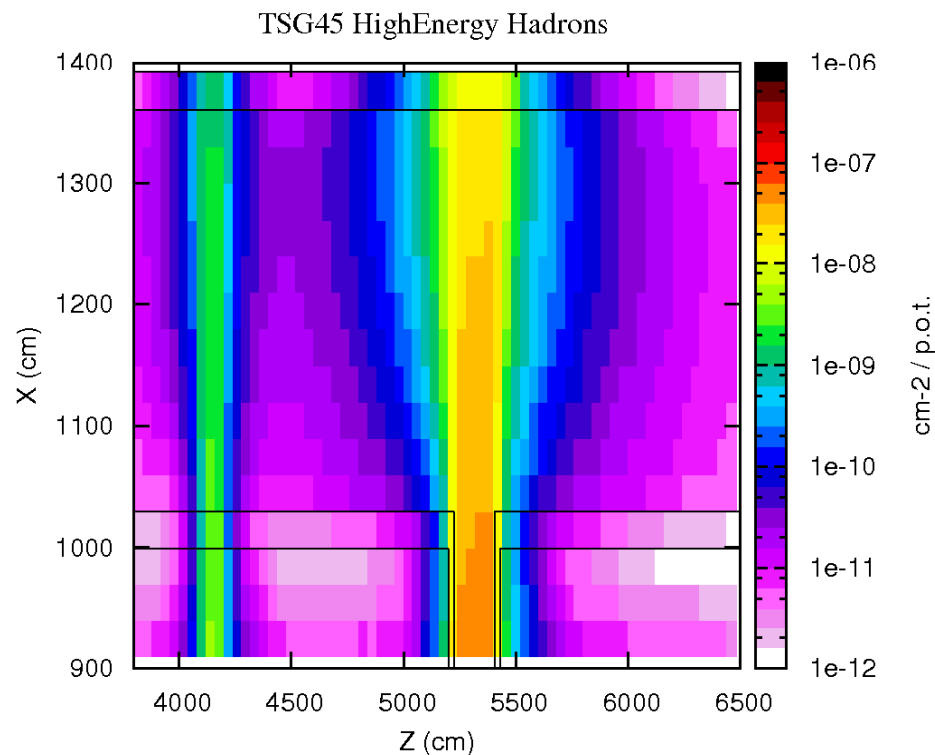


Fluka simulations by L.Sarchiapone 2008



Simulated high energy hadron fluence maps for TSG45 and TSG46

- Unit: $\text{cm}^{-2}/\text{pot}$
- For practical units, multiply by number of pot for the given period
- Important gradients !



- Simplified geometry (empty ducts)
- ~ Factor 10 between TSG46 and TSG45
- To be scaled by i.e. $1e18\text{pot}/\text{week}$

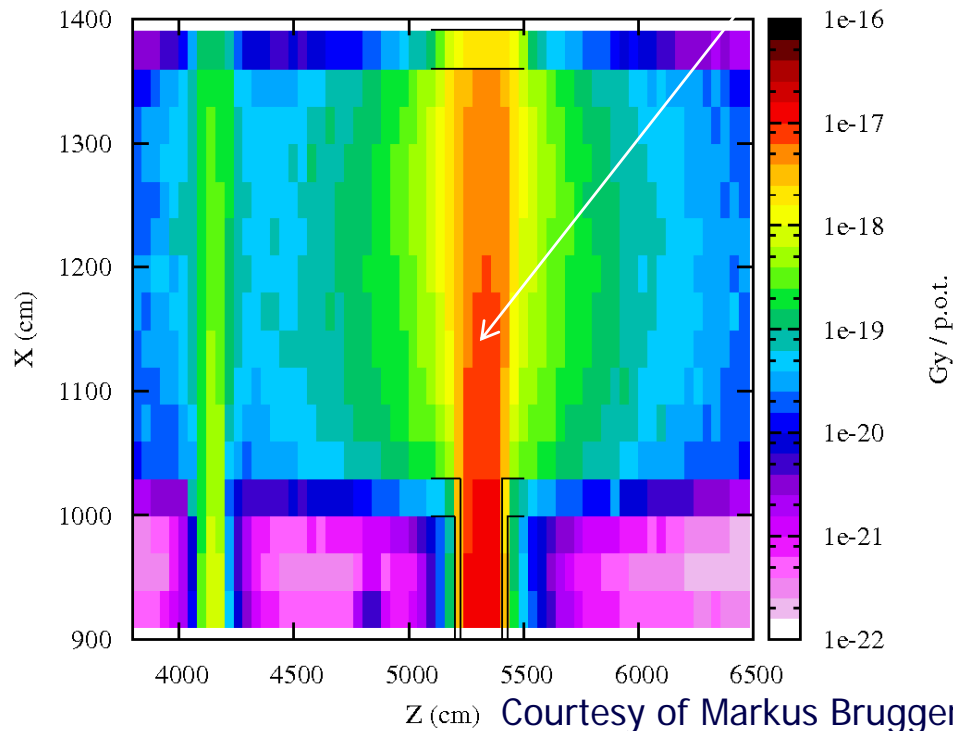


Simulated dose maps for TSG45 and TSG46

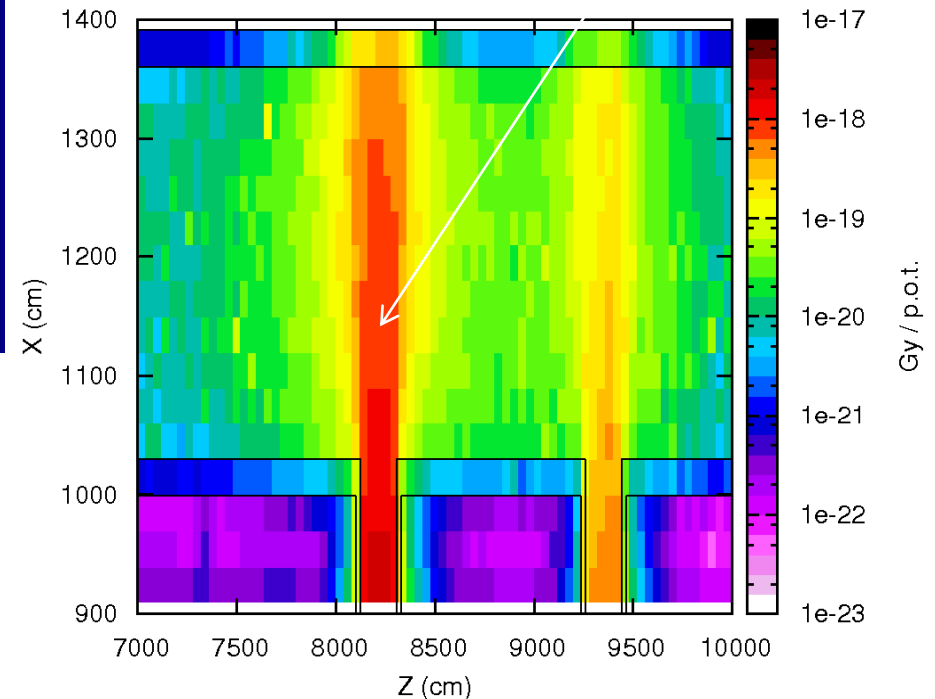
~1Gy/week

- Unit: Gy/pot
- For practical units, multiply by number of pot for the given period
- Important gradients ! ~10Gy/week

TSG45 20MeV



TSG46/47 Dose

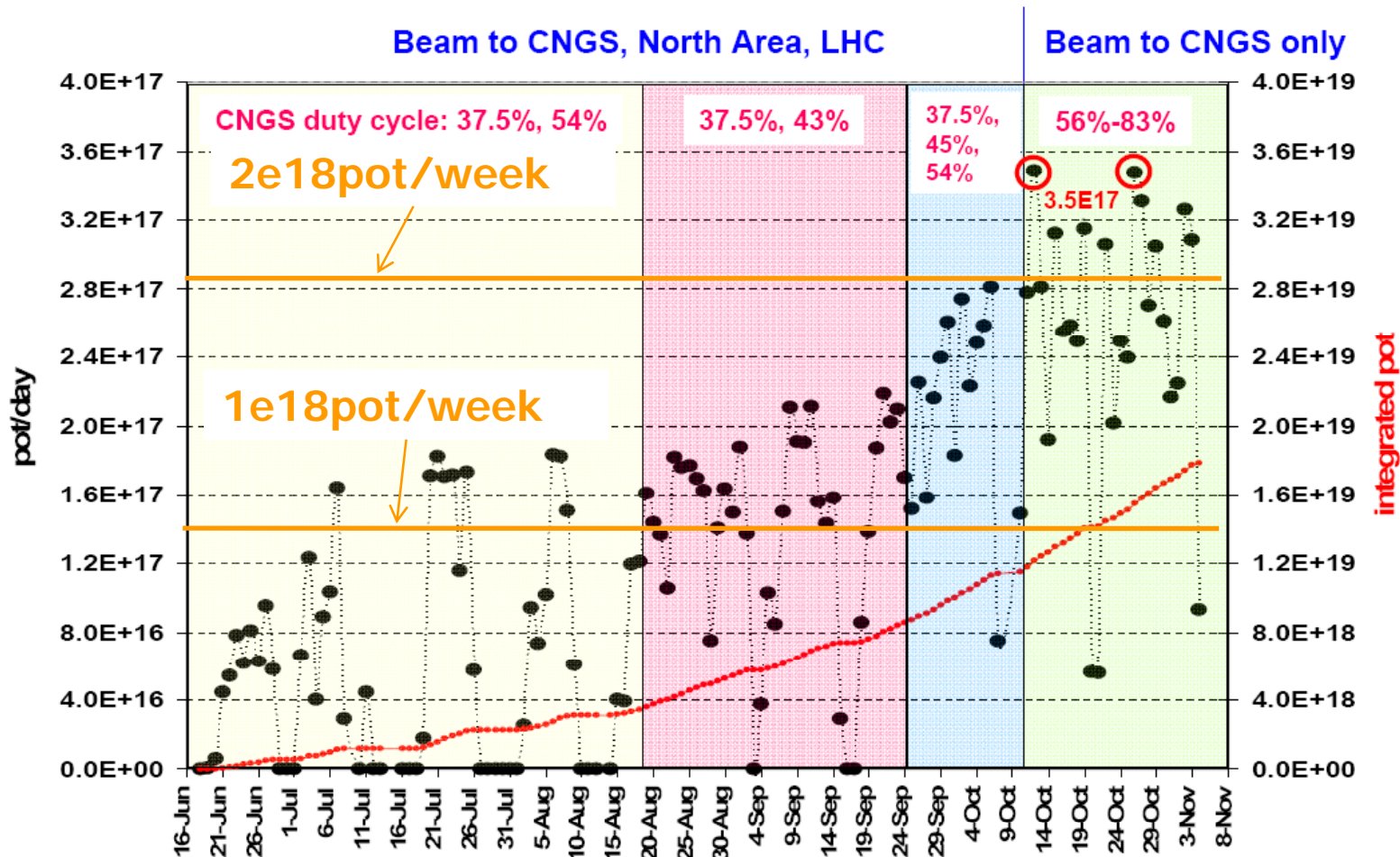


- Simplified geometry (empty ducts)
- ~ Factor 10 between TSG46 and TSG45
- To be scaled by i.e. 1e18pot/week



Realistic target intensity estimation 1 to 2×10^{18} p+ on target/week

Protons on Target per Day



E. Gschwendtner, AB/ATB

AB Seminar, 20 Nov. 2008



Combined measurement results for the 5 RadMon positions normalized to 10^{18} protons on target

		VALUES NORMALIZED TO <u>wpot = 1E18 pot</u>		
rad mon	POSITION	DOSE [Gy/wpot]	1MeV eq n ⁰ [/cm ² /wpot]	HADRONS>20MeV [/cm ² /wpot]
3LM06S	wall	0.85	1.4E+10	1.2E+10
3LM07S	wall (TSG45)	6.4	8.7E+10	5.6E+10
3LM07S	floor (TSG45)	26.2	2.7E+11	1.9E+11
3LM08S	wall (TSG46)	1.3	1.6E+10	9.1E+09
3LM08S	floor (TSG46)	2.4	2.4E+10	1.8E+10

Comparison with the values integrated during 1 year of Nominal LHC operation – alongside arc dipole

- Dose : 10 Gy
- Hadrons>20MeV : $4 \cdot 10^{10} \text{ cm}^{-2}$
- 1MeV eq. Neutrons : $3 \cdot 10^{11} \text{ cm}^{-2}$



TSG45 – 2008 tests





TSG46 – 2008 tests

