The Radiation Background without the Forward Shielding.

A set of simulations have been made by Mike Shupe using the GCALOR program with the purpose of estimating the background in the muon spectrometer during 450 GeV running without the forward shielding. The basic assumptions were a luminosity of 10^{34} cm⁻²s⁻¹ and that one LHC year consists of 10^7 s. Simulations were made both at 7 TeV and 450 GeV. The conclusion is that ATLAS can run up to a luminosity of almost 10^{32} cm⁻²s⁻¹ at 450 GeV and still have background rates below those estimated with the shielding for 10^{34} cm⁻²s⁻¹ at 7 TeV. The results are given in the table below and in the following set of figures. A detailed description of the program and the assumptions used in the calculation can be found in the ATLAS note ATL-GEN-2005-001.

Big Wheel: $z = 14 m$, $r = 2 m$					
	With JF (7 TeV)	No JF (7 TeV)	Ratio	No JF 450 GeV	Ratio
All neutrons (kHz/cm ²)	8	1500	190	350	45
Neutrons $> 100 \text{ keV} (\text{kHz/cm}^2)$	1.5	500	340	160	110
Photons (kHz/cm ²)	20	3500	180	600	30
Hadrons > 20 MeV (/cm ² /year)	$2x10^{9}$	$4x10^{11}$	200	1×10^{11}	50
Barrel: z =9	m, r = 9	m			
Barrel: z =9	m , r = 9 With JF (7 TeV)	m No JF (7 TeV)	Ratio	No JF (450 GeV	Ratio
Barrel: z =9 All neutrons (kHz/cm ²)	m , r = 9 With JF (7 TeV) 7	m No JF (7 TeV) 80	Ratio 10	No JF (450 GeV 10	Ratio () 1.5
Barrel: z =9 All neutrons (kHz/cm ²) Neutrons > 100 keV (kHz/cm ²)	m , r = 9 With JF (7 TeV) 7 1.3	m No JF (7 TeV) 80 10	Ratio 10 8	No JF (450 GeV 10 3.0	Ratio () 1.5 2.3
Barrel: z =9 All neutrons (kHz/cm ²) Neutrons > 100 keV (kHz/cm ²) Photons (kHz/cm ²)	m , r = 9 With JF (7 TeV) 7 1.3 2.0	m No JF (7 TeV) 80 10 100	Ratio 10 8 50	No JF (450 GeV 10 3.0 20	Ratio 1.5 2.3 10



ATLAS Startup (28528) - Hadron Flux > 20 MeV/cm**2/Yr



ATLAS Startup (28528) - Photon Flux, KHz/cm**2



ATLAS Startup (28528) - Neutron Flux, KHz/cm**2



ATLAS Startup (28528) - Neutrons > 100 keV, KHz/cm**2



ATLAS Startup (28528) - Hadron Flux > 20 MeV/cm**2/Yr



ATLAS Startup (28528) - Photon Flux, KHz/cm**2



ATLAS Startup (28528) - Neutron Flux, KHz/cm**2



ATLAS Startup (28528) - Neutrons > 100 keV, KHz/cm**2