

Table 1: NRL Irradiation Facility Neutron Fluxes and Neutron & Gamma Dose Rates

Facility	Total Neutron Flux (n/cm ² /s)	Percent Thermal (%)	Thermal Neutron Flux (n/cm ² /s) (E _n <0.5 eV)	epi-Cd Neutron Flux (n/cm ² /s) (E _n >0.5 eV)	1.0 MeV Eq Neutron Flux (n/cm ² /s)	Neutron Dose Rate in Si (rad-Si/hr)	Gamma Dose Rate in Si (rad-Si/hr)
					F _{D,1.0 MeV,Si} = 95 MeV•mb F _{D,1.0 MeV,GaAs} = 70 MeV•mb (Ref: ASTM E722-14)		
CIF	2.3x10 ^{13*}	59	1.4x10 ^{13*}	1.0x10 ^{13*}	4.7x10 ¹² (Si) [†] 5.1x10 ¹² (GaAs) [†]	1.4x10 ⁶	8.7x10 ^{7‡}
AIF	9.4x10 ^{12§}	48	4.5x10 ^{12§}	4.9x10 ^{12§}	2.6x10 ¹² (Si) [†] 2.7x10 ¹² (GaAs) [†]	7.6x10 ⁵	3.8x10 ^{7‡}
PIF	5.3x10 ^{12**}	57	3.1x10 ^{12**}	2.3x10 ^{12**}	1.2x10 ¹² (Si) [†] 1.3x10 ¹² (GaAs) [†]	3.7x10 ⁵	2.5x10 ^{7‡}
Rabbit	3.2x10 ^{12††}	65	2.1x10 ^{12††}	1.1x10 ^{12††}	5.3x10 ¹¹ (Si) [†] 5.9x10 ¹¹ (GaAs) [†]	1.6x10 ⁵	
7" Moveable Dry Tube	1.5x10 ^{12‡‡}	73	1.1x10 ^{12‡‡}	4.1x10 ^{11‡‡}	2.0x10 ¹¹ (Si) [†] 2.3x10 ¹¹ (GaAs) [†]	6.5x10 ⁴	7.6x10 ^{6‡}
10" Moveable Dry Tube (Flux Box Evacuated)	6.1x10 ^{11§§}	70	4.3x10 ^{11§§}	1.8x10 ^{11§§}	1.0x10 ¹¹ (Si) [†] 1.1x10 ¹¹ (GaAs) [†]	3.1x10 ⁴	2.5x10 ^{6‡}
Beam Port #1 Sample Holder Position	4.2x10 ^{12***}	54	2.3x10 ^{12***}	1.9x10 ^{12***}	1.0x10 ¹² (Si) [†] 1.1x10 ¹² (GaAs) [†]	3.1x10 ⁵	
Beam Port #2 External Beam Line Facility			4.4x10 ^{6†††}				
Thermal Column G7, core end, stringer open			2.5x10 ^{11‡‡‡}				

Note: All values are for 450 kW operation, except for the 10" tube which is limited to 250 kW

* NRL memo 2013-09, "CIF Neutron Spectrum Measurement"

† NRL memo 2013-12 Rev. 02, "1.0 MeV Equivalent Flux Calculations in Si and GaAs"

‡ NRL memo 2016-17 Rev. 01, "Gamma Dose Rates of Reactor Facilities"

§ NRL memo 2013-10, "AIF Neutron Spectrum Measurement"

** NRL memo 2013-11, "PIF Neutron Spectrum Measurement"

†† NRL memo 2013-05, "Rabbit Neutron Spectrum Measurement"

‡‡ NRL memo 2014-01, "Seven-Inch Tube Neutron Spectrum Measurement"

§§ NRL memo 2015-06 Rev. 02, "Ten-Inch Dry Tube Neutron Spectrum Measurement"

*** NRL memo 2015-07, "BP1 Sample Holder Neutron Spectrum Measurement"

††† NRL memo 2015-05, "BP2 Facility Flux Measurements"

‡‡‡ NRL memo 2015-08, "TC Thermal Flux Measurements"