

ATLAS simulated Non Ionizing Energy Loss (NIEL) and related Radiation Tolerance Criteria (RTC_niel)

Nov. 2001 Baseline

SYSTEM AND COMPONENT	
System/Board/Component	Barrel HV System - NIEL
Comments	.

COORDINATES				
	Zmin	Zmax	Rmin	Rmax
Limits of the macro-domain (cm)	0	1250	1190	1200
For each column, is the above limit the ABSOLUTE limit of the macro-domain, i.e. no board cross these limits (Y/N)?	y	y	Y	Y
Limits of the Domain of Interest (cm)	0	1250	1190	1200

GENERAL INFORMATION AND SAFETY FACTORS			
The purpose of the test is to qualify production batch(es) with respect to NIEL.			
The production will be made with components from unknown commercial lots.			
Safety Factors resulting from the above information:			
SF _{sim}	SF _{ldr}	SF _{lot}	
5	1	4	

10 WORST LOCATIONS IN THE MACRO-DOMAIN AND RELATED SRL _n iel AND RTC _n iel (1) FOR THE COMPONENT					
Zmin cm	Zmax cm	Rmin cm	Rmax cm	SRL _n iel 1MeV eq. n/cm ² / 10 y.	<u>RTC_niel</u> 1MeV eq. n/cm ² / 10 y.
780	790	1190	1200	6.49E+10	<u>1.30E+12</u>
1210	1220	1190	1200	6.32E+10	1.26E+12
770	780	1190	1200	6.29E+10	1.26E+12
790	800	1190	1200	6.27E+10	1.25E+12
1220	1230	1190	1200	6.06E+10	1.21E+12
1100	1110	1190	1200	6.02E+10	1.20E+12
1230	1240	1190	1200	6.00E+10	1.20E+12
1160	1170	1190	1200	5.99E+10	1.20E+12
1170	1180	1190	1200	5.99E+10	1.20E+12
990	1000	1190	1200	5.98E+10	1.20E+12

(1) The RTC_niel to be used for the test is given in the above table (Underlined)