



ALD has been chosen by THALES Alenia Space to provide, train and implement a RATED tool (Reliability Analysis tool for Electronic Design)

CASE STUDY

ALD for Thales Alenia Space

ALD's Reliability and Safety tools have been closely examined by Thales Alenia Space team, and were determined to best fit their needs in the implementation of a RATED tool (Reliability Analysis tool for Electronic Design).

ALD's RAM Commander tool complies with the European Cooperation for Space Standardization (ECSS), designed to increase the efficiency of the European space industry and to strengthen its international competitiveness:

- Q-40-12A Space Product Assurance – Fault Tree Analysis
- Q-30-02A Space Product Assurance – Failure modes, effects and criticality analysis (FMECA)
- Q-30-08A Space Product Assurance – Component Reliability Data
- Q-30-11A Space Product Assurance – Derating

RAM Commander Reliability and Safety Software:

The screenshots illustrate the RAM Commander software interface. The top-left window shows a 'Sample Fault Tree for project TUTORIAL' with components like 'Main Switch', 'PS Power Supplies', and 'Receivers'. The top-right window displays a 'Current Analysis' table with columns for ID, Name, Qty, Opr. FR, and Status. The bottom-left window shows a table of 'Derating value definition' with columns for #, Description, IDN, NHE, Beta, and EE. The bottom-right window is a 'Derating value definition' dialog box with a graph showing a linear derating curve for AVSR over temperature (T).

Ref. Des.	ID	Name	Qty	Opr. FR [10 ⁻⁶]	Status
TUTORIAL	1	Communication System	1	187.0769	++
COMMUNIC	1	COMM001	1	100.2550	++
Main Switch	1	SW988	2	8.7416	++
Receiver	2	RC004	10	82.8215	++
C3-2	1	CR	2	0.1579	++
C3-5	2	CL	3	7.6595	++
UR1	3	R2	1	0.0103	++
UR2	4	R2	1	0.0093	++
U1	5	74HC04	1	0.0414	++
U4	6	74AS11025	1	0.0087	++
U2	7	28LS32	1	0.0564	++
U5	8	74LS123	1	0.0370	++
U3	9	28001	1	0.2703	++
LD1	10	HLMP-2400	1	3.426E-003	++
TRSMTR	3	TR987-001	1	0.3419	++
PS	4	Power Supply	1	8.2500	Uz
Control	2	Control Unit	1	75.4954	++
Monitor	1	M0N001	1	8.0000	++
CRT	1	CRT001	1	7.0000	Us
Cont. Card	1	1.0000	1	1.0000	Us
Keyboard	3	KB003	1	17.0000	Us
SystemBlock	3	MB655	1	50.4954	++
HardDrive	1	HDD002	1	11.4844	++
CD-ROM	2	CD98A81	1	14.4300	++

#	Description	IDN	NHE	Beta	EE
1	Error in Data processing	1.2	Wrong System Control	1.000	Communication Drivability Maintenance Degradation
2	No additional software loading	1.2	No effect	1.000	Performance Degradation
3	No system initialization	1.2	No version changing	0.500	Maintenance Degradation
4	No new drivers data	1.2	No initial system testing	0.500	Maintenance Degradation
5	No data processing	1.2	Communication System Control Loss	1.000	Communication Loss

Thales Alenia Space, a joint venture between Thales and Finmeccanica, is a European leader in satellite systems and a major player in orbital infrastructures, in both civil and defense sectors

