

Computing Facility for risk and reliability analysis

1 Computing Facility for risk analysis

Following computing facilities are available for performing the risk analysis:

- I. ISOGRAPH'S Fault Tree++: Systems reliability analysis tool containing integrated fault tree, event tree and Markov analysis features for Probabilistic Safety Assessment (PSA).
- II. ISOGRAPH'S HAZOP+: The tool is used for Hazard and Operability Study (or HAZOP Study), which is a standard hazard analysis technique used in the preliminary safety assessment of new systems or modifications to existing ones.
- III. RISK SPECTRUM PSA (Probabilistic Safety Analysis): Risk Spectrum PSA provides an intuitive user interface for modeling everything from the basic fault tree with AND and OR-gates to advanced fault tree and event tree integration of sequences in linked event trees with boundary conditions and CCF events.

2 Computing Facility for reliability analysis

Following computing facilities are available for performing the reliability analysis:

- I. LDRA TOOL SUITE: It facilitates static / dynamic analysis of C/C++ programs for digital system reliability and is thus helpful in building quality into the software development life cycle.
- II. ReliaSoft's ALTA: It facilitates reliability analysis from testing data by providing an intuitive way to utilize complex and powerful mathematical models for quantitative accelerated life testing data analysis.
- III. ALD RAM Commander Tool: It facilitates automation of the calculation process for reliability prediction of electronic boards and equipment.

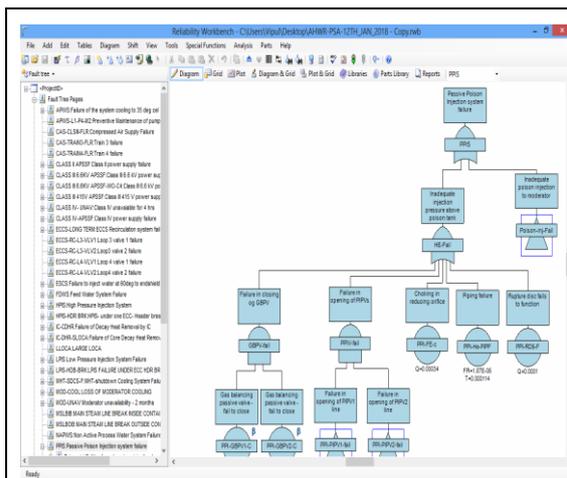


Figure 1: A typical Fault Tree using IsoGraph

The screenshot shows the ALD RAM Commander software interface with a reliability prediction table. The table lists various components and their reliability metrics.

Part Desc	ID	Name	Qty	Dps. FR (10 ⁻⁶ /h)	Status
TUTORIAL	1	Communication System	1	107.3165	++
Component	1	COMM001	1	100.4090	++
U100	1	U100	1	12.2265	++
Man Switch	2	SW1000	2	0.7448	++
U11	1	U11004	1	0.2442	++
U12	2	U12009	2	0.2679	++
U13	3	U13011	3	0.0862	++
U14	4	U14009	4	0.0825	++
U15	5	U15010	5	0.0367	++
R11-10	6	R11-10	6	0.0065	++
R11-12	7	R11-12	7	0.0385	++
R10004	8	R10004	8	0.0049	++
CC1	9	CC1	9	0.0619	++
CC2	10	CC2	10	0.0619	++
CC3	11	CC3	11	0.0555	++
CC4	12	CC4	12	0.0607	++
CC5	13	CC5	13	0.0414	++
LD4	14	LD4	14	0.0144	++
LD5	15	LD5	15	0.0072	++
SW1-2	16	SW1-2	2	3.1381	++
...	17	...	1	0.0000	...
...	18	...	10	80.9235	++
...	19	...	1	0.0000	...
...	20	...	1	0.0000	...
...	21	...	1	0.0000	...
...	22	...	1	0.0000	...
...	23	...	1	0.0000	...
...	24	...	1	0.0000	...
...	25	...	1	0.0000	...
...	26	...	1	0.0000	...
...	27	...	1	0.0000	...
...	28	...	1	0.0000	...
...	29	...	1	0.0000	...
...	30	...	1	0.0000	...
...	31	...	1	0.0000	...
...	32	...	1	0.0000	...
...	33	...	1	0.0000	...
...	34	...	1	0.0000	...
...	35	...	1	0.0000	...
...	36	...	1	0.0000	...
...	37	...	1	0.0000	...
...	38	...	1	0.0000	...
...	39	...	1	0.0000	...
...	40	...	1	0.0000	...
...	41	...	1	0.0000	...
...	42	...	1	0.0000	...
...	43	...	1	0.0000	...
...	44	...	1	0.0000	...
...	45	...	1	0.0000	...
...	46	...	1	0.0000	...
...	47	...	1	0.0000	...
...	48	...	1	0.0000	...
...	49	...	1	0.0000	...
...	50	...	1	0.0000	...
...	51	...	1	0.0000	...
...	52	...	1	0.0000	...
...	53	...	1	0.0000	...
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...	56	...	1	0.0000	...
...	57	...	1	0.0000	...
...	58	...	1	0.0000	...
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...	65	...	1	0.0000	...
...	66	...	1	0.0000	...
...	67	...	1	0.0000	...
...	68	...	1	0.0000	...
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...	74	...	1	0.0000	...
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...	77	...	1	0.0000	...
...	78	...	1	0.0000	...
...	79	...	1	0.0000	...
...	80	...	1	0.0000	...
...	81	...	1	0.0000	...
...	82	...	1	0.0000	...
...	83	...	1	0.0000	...
...	84	...	1	0.0000	...
...	85	...	1	0.0000	...
...	86	...	1	0.0000	...
...	87	...	1	0.0000	...
...	88	...	1	0.0000	...
...	89	...	1	0.0000	...
...	90	...	1	0.0000	...
...	91	...	1	0.0000	...
...	92	...	1	0.0000	...
...	93	...	1	0.0000	...
...	94	...	1	0.0000	...
...	95	...	1	0.0000	...
...	96	...	1	0.0000	...
...	97	...	1	0.0000	...
...	98	...	1	0.0000	...
...	99	...	1	0.0000	...
...	100	...	1	0.0000	...

Figure 2: Reliability prediction in ALD RAM Commander