

Probabilities Analysis

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Tree : Test_ups.fta
Time : Mon Apr 16 22:42:01 2018

Number of primary events = 35
Number of minimal cut sets = 195
Order of minimal cut sets = 35

Unit time span = 1.000000

Minimal cut set probabilities :

1	Auto_sw_sub1 UPS_sub1	1.203990E-010
2	CB_Bypass UPS_sub1	5.020650E-013
3	CB_TieBre_NN UPS_sub1	3.740303E-012
4	1_RH1istic 1_RH2istic UPS_sub1	5.379304E-019
5	1_RH1istic 2_RH2istic UPS_sub1	5.379304E-019
6	1_RH1istic 3_RH2istic UPS_sub1	5.379304E-019
7	1_RH1istic 4_RH2istic UPS_sub1	5.379304E-019
8	1_RH1istic 5_RH2istic UPS_sub1	5.379304E-019
9	1_RH1istic Auto_sw_RH2 UPS_sub1	1.731579E-017
10	1_RH1istic CB_QA_Fail_op UPS_sub1	1.034873E-017
11	1_RH1istic CB_QB_Fail_cl UPS_sub1	5.497760E-017
12	1_RH1istic RH2_IT_nap UPS_sub1	1.054769E-019
13	1_RH1istic RH2_IT_prudQ2 UPS_sub1	1.054769E-019
14	1_RH1istic RH2hlavnyvyp	5.379304E-019

	UPS_sub1	
15	1_RH1istic RH2pripojnica	2.432412E-018
	UPS_sub1	
16	1_RH2istic 2_RH1istic	5.379304E-019
	UPS_sub1	
17	1_RH2istic 3_RH1istic	5.379304E-019
	UPS_sub1	
18	1_RH2istic 4_RH1istic	5.379304E-019
	UPS_sub1	
19	1_RH2istic 5_RH1istic	5.379304E-019
	UPS_sub1	
20	1_RH2istic Auto_sw_RH1	2.102817E-016
	UPS_sub1	
21	1_RH2istic RH1_IT_nap	1.280904E-018
	UPS_sub1	
22	1_RH2istic RH1_IT_prudQ1	1.280904E-018
	UPS_sub1	
23	1_RH2istic RH1hlavnyvyp	5.379304E-019
	UPS_sub1	
24	1_RH2istic RH1pripojnica	2.953904E-017
	UPS_sub1	
25	2_RH1istic 2_RH2istic	5.379304E-019
	UPS_sub1	
26	2_RH1istic 3_RH2istic	5.379304E-019
	UPS_sub1	
27	2_RH1istic 4_RH2istic	5.379304E-019
	UPS_sub1	
28	2_RH1istic 5_RH2istic	5.379304E-019
	UPS_sub1	
29	2_RH1istic Auto_sw_RH2	1.731579E-017
	UPS_sub1	
30	2_RH1istic CB_QA_Fail_op	1.034873E-017
	UPS_sub1	
31	2_RH1istic CB_QB_Fail_cl	5.497760E-017
	UPS_sub1	
32	2_RH1istic RH2_IT_nap	1.054769E-019
	UPS_sub1	
33	2_RH1istic RH2_IT_prudQ2	1.054769E-019

	UPS_sub1	
34	2_RH1istic RH2hlavnyvyp	5.379304E-019
	UPS_sub1	
35	2_RH1istic RH2pripojnica	2.432412E-018
	UPS_sub1	
36	2_RH2istic 3_RH1istic	5.379304E-019
	UPS_sub1	
37	2_RH2istic 4_RH1istic	5.379304E-019
	UPS_sub1	
38	2_RH2istic 5_RH1istic	5.379304E-019
	UPS_sub1	
39	2_RH2istic Auto_sw_RH1	2.102817E-016
	UPS_sub1	
40	2_RH2istic RH1_IT_nap	1.280904E-018
	UPS_sub1	
41	2_RH2istic RH1_IT_prudQ1	1.280904E-018
	UPS_sub1	
42	2_RH2istic RH1hlavnyvyp	5.379304E-019
	UPS_sub1	
43	2_RH2istic RH1pripojnica	2.953904E-017
	UPS_sub1	
44	3_RH1istic 3_RH2istic	5.379304E-019
	UPS_sub1	
45	3_RH1istic 4_RH2istic	5.379304E-019
	UPS_sub1	
46	3_RH1istic 5_RH2istic	5.379304E-019
	UPS_sub1	
47	3_RH1istic Auto_sw_RH2	1.731579E-017
	UPS_sub1	
48	3_RH1istic CB_QA_Fail_op	1.034873E-017
	UPS_sub1	
49	3_RH1istic CB_QB_Fail_cl	5.497760E-017
	UPS_sub1	
50	3_RH1istic RH2_IT_nap	1.054769E-019
	UPS_sub1	
51	3_RH1istic RH2_IT_prudQ2	1.054769E-019
	UPS_sub1	
52	3_RH1istic RH2hlavnyvyp	5.379304E-019

	UPS_sub1	
53	3_RH1istic RH2pripojnica	2.432412E-018
	UPS_sub1	
54	3_RH2istic 4_RH1istic	5.379304E-019
	UPS_sub1	
55	3_RH2istic 5_RH1istic	5.379304E-019
	UPS_sub1	
56	3_RH2istic Auto_sw_RH1	2.102817E-016
	UPS_sub1	
57	3_RH2istic RH1_IT_nap	1.280904E-018
	UPS_sub1	
58	3_RH2istic RH1_IT_prudQ1	1.280904E-018
	UPS_sub1	
59	3_RH2istic RH1hlavnyvyp	5.379304E-019
	UPS_sub1	
60	3_RH2istic RH1pripojnica	2.953904E-017
	UPS_sub1	
61	4_RH1istic 4_RH2istic	5.379304E-019
	UPS_sub1	
62	4_RH1istic 5_RH2istic	5.379304E-019
	UPS_sub1	
63	4_RH1istic Auto_sw_RH2	1.731579E-017
	UPS_sub1	
64	4_RH1istic CB_QA_Fail_op	1.034873E-017
	UPS_sub1	
65	4_RH1istic CB_QB_Fail_cl	5.497760E-017
	UPS_sub1	
66	4_RH1istic RH2_IT_nap	1.054769E-019
	UPS_sub1	
67	4_RH1istic RH2_IT_prudQ2	1.054769E-019
	UPS_sub1	
68	4_RH1istic RH2hlavnyvyp	5.379304E-019
	UPS_sub1	
69	4_RH1istic RH2pripojnica	2.432412E-018
	UPS_sub1	
70	4_RH2istic 5_RH1istic	5.379304E-019
	UPS_sub1	
71	4_RH2istic Auto_sw_RH1	2.102817E-016

	UPS_sub1	
72	4_RH2istic RH1_IT_nap	1.280904E-018
	UPS_sub1	
73	4_RH2istic RH1_IT_prudQ1	1.280904E-018
	UPS_sub1	
74	4_RH2istic RH1hlavnyvyp	5.379304E-019
	UPS_sub1	
75	4_RH2istic RH1pripojnica	2.953904E-017
	UPS_sub1	
76	5_RH1istic 5_RH2istic	5.379304E-019
	UPS_sub1	
77	5_RH1istic Auto_sw_RH2	1.731579E-017
	UPS_sub1	
78	5_RH1istic CB_QA_Fail_op	1.034873E-017
	UPS_sub1	
79	5_RH1istic CB_QB_Fail_cl	5.497760E-017
	UPS_sub1	
80	5_RH1istic RH2_IT_nap	1.054769E-019
	UPS_sub1	
81	5_RH1istic RH2_IT_prudQ2	1.054769E-019
	UPS_sub1	
82	5_RH1istic RH2hlavnyvyp	5.379304E-019
	UPS_sub1	
83	5_RH1istic RH2pripojnica	2.432412E-018
	UPS_sub1	
84	5_RH2istic Auto_sw_RH1	2.102817E-016
	UPS_sub1	
85	5_RH2istic RH1_IT_nap	1.280904E-018
	UPS_sub1	
86	5_RH2istic RH1_IT_prudQ1	1.280904E-018
	UPS_sub1	
87	5_RH2istic RH1hlavnyvyp	5.379304E-019
	UPS_sub1	
88	5_RH2istic RH1pripojnica	2.953904E-017
	UPS_sub1	
89	Auto_sw_RH1 Auto_sw_RH2	6.768893E-015
	UPS_sub1	
90	Auto_sw_RH1 CB_QA_Fail_op	4.045407E-015

	UPS_sub1	
91	Auto_sw_RH1 CB_QB_Fail_cl UPS_sub1	2.149122E-014
92	Auto_sw_RH1 RH2_IT_nap UPS_sub1	4.123185E-017
93	Auto_sw_RH1 RH2_IT_prudQ2 UPS_sub1	4.123185E-017
94	Auto_sw_RH1 RH2hlavnyvyp UPS_sub1	2.102817E-016
95	Auto_sw_RH1 RH2pripojnica UPS_sub1	9.508512E-016
96	Auto_sw_RH2 RH1_IT_nap UPS_sub1	4.123185E-017
97	Auto_sw_RH2 RH1_IT_prudQ1 UPS_sub1	4.123185E-017
98	Auto_sw_RH2 RH1hlavnyvyp UPS_sub1	1.731579E-017
99	Auto_sw_RH2 RH1pripojnica UPS_sub1	9.508512E-016
100	CB_QA_Fail_op RH1_IT_nap UPS_sub1	2.464208E-017
101	CB_QA_Fail_op RH1_IT_prudQ1 UPS_sub1	2.464208E-017
102	CB_QA_Fail_op RH1hlavnyvyp UPS_sub1	1.034873E-017
103	CB_QA_Fail_op RH1pripojnica UPS_sub1	5.682732E-016
104	CB_QB_Fail_cl RH1_IT_nap UPS_sub1	1.309110E-016
105	CB_QB_Fail_cl RH1_IT_prudQ1 UPS_sub1	1.309110E-016
106	CB_QB_Fail_cl RH1hlavnyvyp UPS_sub1	5.497760E-017
107	CB_QB_Fail_cl RH1pripojnica UPS_sub1	3.018951E-015
108	RH1_IT_nap RH2_IT_nap UPS_sub1	2.511585E-019
109	RH1_IT_nap RH2_IT_prudQ2	2.511585E-019

	UPS_sub1	
110	RH1_IT_nap RH2hlavnyvyp UPS_sub1	1.280904E-018
111	RH1_IT_nap RH2pripojnica UPS_sub1	5.791989E-018
112	RH1_IT_prudQ1 RH2_IT_nap UPS_sub1	2.511585E-019
113	RH1_IT_prudQ1 RH2_IT_prudQ2 UPS_sub1	2.511585E-019
114	RH1_IT_prudQ1 RH2hlavnyvyp UPS_sub1	1.280904E-018
115	RH1_IT_prudQ1 RH2pripojnica UPS_sub1	5.791989E-018
116	RH1hlavnyvyp RH2_IT_nap UPS_sub1	1.054769E-019
117	RH1hlavnyvyp RH2_IT_prudQ2 UPS_sub1	1.054769E-019
118	RH1hlavnyvyp RH2hlavnyvyp UPS_sub1	5.379304E-019
119	RH1hlavnyvyp RH2pripojnica UPS_sub1	2.432412E-018
120	RH1pripojnica RH2_IT_nap UPS_sub1	5.791989E-018
121	RH1pripojnica RH2_IT_prudQ2 UPS_sub1	5.791989E-018
122	RH1pripojnica RH2hlavnyvyp UPS_sub1	2.953904E-017
123	RH1pripojnica RH2pripojnica UPS_sub1	1.335696E-016
124	1_RH1istic CB_Q2_Fail_cl RH1_NN UPS_sub1	6.153010E-022
125	1_RH1istic CB_Q2_Fail_cl RH_QT_Fail_cl UPS_sub1	9.813502E-021
126	1_RH1istic NoEnergyToQB RH2_CB_Diesel UPS_sub1	6.823887E-023
127	1_RH1istic NoEnergyToQB RH2_diesel UPS_sub1	5.058339E-019
128	1_RH2istic NoEnergyToQA	8.286880E-022

	RH1_CB_Diesel UPS_sub1	
129	1_RH2istic NoEnergyToQA	6.142811E-018
	RH1_diesel UPS_sub1	
130	2_RH1istic CB_Q2_Fail_cl	6.153010E-022
	RH1_NN UPS_sub1	
131	2_RH1istic CB_Q2_Fail_cl	9.813502E-021
	RH_QT_Fail_cl UPS_sub1	
132	2_RH1istic NoEnergyToQB	6.823887E-023
	RH2_CB_Diesel UPS_sub1	
133	2_RH1istic NoEnergyToQB	5.058339E-019
	RH2_diesel UPS_sub1	
134	2_RH2istic NoEnergyToQA	8.286880E-022
	RH1_CB_Diesel UPS_sub1	
135	2_RH2istic NoEnergyToQA	6.142811E-018
	RH1_diesel UPS_sub1	
136	3_RH1istic CB_Q2_Fail_cl	6.153010E-022
	RH1_NN UPS_sub1	
137	3_RH1istic CB_Q2_Fail_cl	9.813502E-021
	RH_QT_Fail_cl UPS_sub1	
138	3_RH1istic NoEnergyToQB	6.823887E-023
	RH2_CB_Diesel UPS_sub1	
139	3_RH1istic NoEnergyToQB	5.058339E-019
	RH2_diesel UPS_sub1	
140	3_RH2istic NoEnergyToQA	8.286880E-022
	RH1_CB_Diesel UPS_sub1	
141	3_RH2istic NoEnergyToQA	6.142811E-018
	RH1_diesel UPS_sub1	
142	4_RH1istic CB_Q2_Fail_cl	6.153010E-022
	RH1_NN UPS_sub1	
143	4_RH1istic CB_Q2_Fail_cl	9.813502E-021
	RH_QT_Fail_cl UPS_sub1	
144	4_RH1istic NoEnergyToQB	6.823887E-023
	RH2_CB_Diesel UPS_sub1	
145	4_RH1istic NoEnergyToQB	5.058339E-019
	RH2_diesel UPS_sub1	
146	4_RH2istic NoEnergyToQA	8.286880E-022
	RH1_CB_Diesel UPS_sub1	
147	4_RH2istic NoEnergyToQA	6.142811E-018

	RH1_diesel UPS_sub1	
148	5_RH1istic CB_Q2_Fail_cl RH1_NN UPS_sub1	6.153010E-022
149	5_RH1istic CB_Q2_Fail_cl RH_QT_Fail_cl UPS_sub1	9.813502E-021
150	5_RH1istic NoEnergyToQB RH2_CB_Diesel UPS_sub1	6.823887E-023
151	5_RH1istic NoEnergyToQB RH2_diesel UPS_sub1	5.058339E-019
152	5_RH2istic NoEnergyToQA RH1_CB_Diesel UPS_sub1	8.286880E-022
153	5_RH2istic NoEnergyToQA RH1_diesel UPS_sub1	6.142811E-018
154	Auto_sw_RH1 CB_Q2_Fail_cl RH1_NN UPS_sub1	2.405265E-019
155	Auto_sw_RH1 CB_Q2_Fail_cl RH_QT_Fail_cl UPS_sub1	3.836184E-018
156	Auto_sw_RH1 NoEnergyToQB RH2_CB_Diesel UPS_sub1	2.667517E-020
157	Auto_sw_RH1 NoEnergyToQB RH2_diesel UPS_sub1	1.977349E-016
158	Auto_sw_RH2 NoEnergyToQA RH1_CB_Diesel UPS_sub1	2.667517E-020
159	Auto_sw_RH2 NoEnergyToQA RH1_diesel UPS_sub1	1.977349E-016
160	CB_Q2_Fail_cl RH1_IT_nap RH1_NN UPS_sub1	1.465137E-021
161	CB_Q2_Fail_cl RH1_IT_nap RH_QT_Fail_cl UPS_sub1	2.336762E-020
162	CB_Q2_Fail_cl RH1_IT_prudQ1 RH1_NN UPS_sub1	1.465137E-021
163	CB_Q2_Fail_cl RH1_IT_prudQ1 RH_QT_Fail_cl UPS_sub1	2.336762E-020
164	CB_Q2_Fail_cl RH1_NN RH1hlavnyvyp UPS_sub1	6.153011E-022
165	CB_Q2_Fail_cl RH1_NN RH1pripojnica UPS_sub1	3.378765E-020
166	CB_Q2_Fail_cl RH1hlavnyvyp	9.813502E-021

	RH_QT_Fail_cl	UPS_sub1	
167	CB_Q2_Fail_cl	RH1pripojnica	5.388828E-019
	RH_QT_Fail_cl	UPS_sub1	
168	CB_QA_Fail_op	NoEnergyToQA	1.594233E-020
	RH1_CB_Diesel	UPS_sub1	
169	CB_QA_Fail_op	NoEnergyToQA	1.181756E-016
	RH1_diesel	UPS_sub1	
170	CB_QB_Fail_cl	NoEnergyToQA	8.469363E-020
	RH1_CB_Diesel	UPS_sub1	
171	CB_QB_Fail_cl	NoEnergyToQA	6.278080E-016
	RH1_diesel	UPS_sub1	
172	NoEnergyToQA	RH1_CB_Diesel	1.624884E-022
	RH2_IT_nap	UPS_sub1	
173	NoEnergyToQA	RH1_CB_Diesel	1.624884E-022
	RH2_IT_prudQ2	UPS_sub1	
174	NoEnergyToQA	RH1_CB_Diesel	8.286880E-022
	RH2hlavnyvyp	UPS_sub1	
175	NoEnergyToQA	RH1_CB_Diesel	3.747160E-021
	RH2pripojnica	UPS_sub1	
176	NoEnergyToQA	RH1_diesel	1.204477E-018
	RH2_IT_nap	UPS_sub1	
177	NoEnergyToQA	RH1_diesel	1.204477E-018
	RH2_IT_prudQ2	UPS_sub1	
178	NoEnergyToQA	RH1_diesel	6.142811E-018
	RH2hlavnyvyp	UPS_sub1	
179	NoEnergyToQA	RH1_diesel	2.777654E-017
	RH2pripojnica	UPS_sub1	
180	NoEnergyToQB	RH1_IT_nap	1.624884E-022
	RH2_CB_Diesel	UPS_sub1	
181	NoEnergyToQB	RH1_IT_nap	1.204477E-018
	RH2_diesel	UPS_sub1	
182	NoEnergyToQB	RH1_IT_prudQ1	1.624884E-022
	RH2_CB_Diesel	UPS_sub1	
183	NoEnergyToQB	RH1_IT_prudQ1	1.204477E-018
	RH2_diesel	UPS_sub1	
184	NoEnergyToQB	RH1hlavnyvyp	6.823887E-023
	RH2_CB_Diesel	UPS_sub1	
185	NoEnergyToQB	RH1hlavnyvyp	5.058339E-019

	RH2_diesel UPS_sub1	
186	NoEnergyToQB RH1pripojnica	3.747160E-021
	RH2_CB_Diesel UPS_sub1	
187	NoEnergyToQB RH1pripojnica	2.777655E-017
	RH2_diesel UPS_sub1	
188	CB_Q2_Fail_cl NoEnergyToQA	9.478784E-025
	RH1_CB_Diesel RH1_NN UPS_sub1	
189	CB_Q2_Fail_cl NoEnergyToQA	1.511781E-023
	RH1_CB_Diesel RH_QT_Fail_cl	
	UPS_sub1	
190	CB_Q2_Fail_cl NoEnergyToQA	7.026333E-021
	RH1_NN RH1_diesel UPS_sub1	
191	CB_Q2_Fail_cl NoEnergyToQA	1.120637E-019
	RH1_diesel RH_QT_Fail_cl	
	UPS_sub1	
192	NoEnergyToQA NoEnergyToQB	1.051228E-025
	RH1_CB_Diesel RH2_CB_Diesel	
	UPS_sub1	
193	NoEnergyToQA NoEnergyToQB	7.792430E-022
	RH1_CB_Diesel RH2_diesel	
	UPS_sub1	
194	NoEnergyToQA NoEnergyToQB	7.792430E-022
	RH1_diesel RH2_CB_Diesel	
	UPS_sub1	
195	NoEnergyToQA NoEnergyToQB	5.776290E-018
	RH1_diesel RH2_diesel	
	UPS_sub1	

Probability of top level event (minimal cut sets up to order 35 used) :

1 term	+1.246829E-010	= 1.246829E-010	(upper bound)
2 terms	-2.456233E-016	= 1.246827E-010	(lower bound)
3 terms	+5.182303E-022	= 1.246827E-010	(upper bound)
4 terms	-3.309123E-023	= 1.246827E-010	(lower bound)

Primary Event Analysis:

Event	Failure contrib.	Importance
1_RH1istic	8.902938E-017	0.00%
1_RH2istic	2.517538E-016	0.00%
2_RH1istic	8.902938E-017	0.00%
2_RH2istic	2.517538E-016	0.00%
3_RH1istic	8.902938E-017	0.00%
3_RH2istic	2.517538E-016	0.00%
4_RH1istic	8.902938E-017	0.00%
4_RH2istic	2.517538E-016	0.00%
5_RH1istic	8.902938E-017	0.00%
5_RH2istic	2.517538E-016	0.00%
Auto_sw_RH1	3.480236E-014	0.03%
Auto_sw_RH2	8.103863E-015	0.01%
Auto_sw_sub1	1.203990E-010	96.56%
CB_Bypass	5.020650E-013	0.40%
CB_Q2_Fail_cl	4.880725E-018	0.00%
CB_QA_Fail_op	4.843248E-015	0.00%
CB_QB_Fail_cl	2.572975E-014	0.02%
CB_TieBre_NN	3.740303E-012	3.00%
NoEnergyToQA	1.016794E-015	0.00%
NoEnergyToQB	2.367644E-016	0.00%
RH1_CB_Diesel	1.371508E-019	0.00%
RH1_IT_nap	2.119942E-016	0.00%
RH1_IT_prudQ1	2.119942E-016	0.00%
RH1_NN	2.879636E-019	0.00%
RH1_diesel	1.016657E-015	0.00%
RH1hlavnyvyp	8.902938E-017	0.00%
RH1pripojnica	4.888817E-015	0.00%
RH2_CB_Diesel	3.193609E-020	0.00%
RH2_IT_nap	4.936365E-017	0.00%
RH2_IT_prudQ2	4.936365E-017	0.00%
RH2_diesel	2.367324E-016	0.00%
RH2hlavnyvyp	2.517538E-016	0.00%
RH2pripojnica	1.138379E-015	0.00%
RH_QT_Fail_cl	4.592762E-018	0.00%

UPS_sub1

1.246829E-010

100.00%