



AAEON Technology INC.
ISO-9001/ISO-14001 Certified
Industrial Automation PCs

GENE-4310

Reliability Prediction Report

(MTBF)

Release Date: JUL.2, 2000

Issue Stamp

QA Manager

QE Manager

Test Engineer

Reliability Prediction (MTBF)

I . Model Name: GENE-4310

II . Description: SubCompact Board with LCD, LVDS, Ethernet, & Audio

III. Prediction Date: JUL. 2, 2000

IV. Prediction Site: AAEON QE Dept.

V . Predicted by : Milo Wang

VI. Equipment: Relx Ver.7.0 Visual Reliability Software

VII. Simulation Environment:

- **Temperature: 25 degrees C**
- **Standard: Telcordia (Bellcore) Standard**

VIII. Prediction Result:

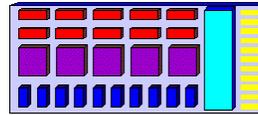
- **Failure Rate: 10.049148 ppm**
- **MTBF: 99,511. Hours**

IX. Term and Definition:

- **Unit** An assembly of device.
- **Duty Cycle** Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.
- **Quantity** The quantity of the selected item.
- **Failure Rate** Used to specify that the failure rate is to be calculated based the selected Calculation models. The multiplier is 1,000,000.
- **MTBF** MTBF is always specified in hours.

AAEON Reliability Prediction Report

Part Number 9697431000
Reference Des
Date 07. 3, 2000
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

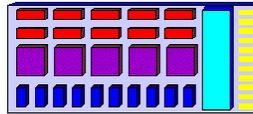


Description Top-level assembly
File Name Gene-4310A1.RPJ
Time 11:24 AM
Failure Rate 10.049148
MTBF 99,511

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
Gene-4310	9697431000	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	10.049148	99,511

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Date 07. 3, 2000
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

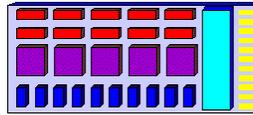


Description Top-level assembly
File Name Gene-4310A1.RPJ
Time 11:24 AM
Failure Rate 10.049148
MTBF 99,511

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1121501680	Capacitor	BC1-28,BC31-82,BC87-89,BC91-1-20,C106,C3,M1	Bellcore Issue 6	Level I		0.002539	115.00	2.9056	0.291987	393852661.82
1124501780	Capacitor	C4,CP1-4,CP7-9,CP13-19	Bellcore Issue 6	Level I		0.001060	15.00	.1583	0.015903	943198589.05
1141610050	Capacitor	CT1,CT6-12,CT15-16,CT21-25,CT-27-29,CT31-43,CT48,CT112	Bellcore Issue 6	Level I		0.002357	32.00	.7506	0.075426	424256814.77
1149622050	Capacitor	CT2-3	Bellcore Issue 6	Level I		0.004535	1.00	.0451	0.004535	220487045.01
1149610180	Capacitor	CT4-5,CT44-47	Bellcore Issue 6	Level I		0.004535	6.00	.2708	0.027212	220487045.01
1149622180	Capacitor	CT13-14,CT22	Bellcore Issue 6	Level I		0.004535	3.00	.1354	0.013606	220487045.01
1124420080	Capacitor	C5-6	Bellcore Issue 6	Level I		0.001060	2.00	.0211	0.002120	943198589.05
1124510180	Capacitor	C98-101,C123,C7,C89	Bellcore Issue 6	Level I		0.001060	7.00	.0739	0.007422	943198589.05
1124468080	Capacitor	C8	Bellcore Issue 6	Level I		0.001060	1.00	.0106	0.001060	943198589.05
1129701080	Capacitor	C10-12,C21-24,C33,C60,C63,C69,-C72,C76-78,C85,C9	Bellcore Issue 6	Level I		0.005466	17.00	.9246	0.092916	182961702.19
1124522180	Capacitor	C113-121,C124,C13-20,C25-32,C3-8-41	Bellcore Issue 6	Level I		0.001060	30.00	.3165	0.031807	943198589.05
1124447080	Capacitor	C133-134,C136,C34-37	Bellcore Issue 6	Level I		0.001060	7.00	.0739	0.007422	943198589.05
1124518180	Capacitor	C42-49,C51-59	Bellcore Issue 6	Level I		0.001060	17.00	.1794	0.018024	943198589.05
1124527180	Capacitor	C138,C61-62	Bellcore Issue 6	Level I		0.001060	3.00	.0317	0.003181	943198589.05
1122747880	Capacitor	C64	Bellcore Issue 6	Level I		0.001598	1.00	.0159	0.001598	625953979.55
1124415080	Capacitor	C66	Bellcore Issue 6	Level I		0.001060	1.00	.0106	0.001060	943198589.05
1124547180	Capacitor	C70,C73,C75,C84,C86,C90	Bellcore Issue 6	Level I		0.001060	6.00	.0633	0.006361	943198589.05
1124510280	Capacitor	C131-132,C71,C74,C79-81	Bellcore Issue 6	Level I		0.001060	7.00	.0739	0.007422	943198589.05
1121733780	Capacitor	C122,C82,C87	Bellcore Issue 6	Level I		0.001060	3.00	.0317	0.003181	943198589.05
1124522280	Capacitor	C83,C88	Bellcore Issue 6	Level I		0.001060	2.00	.0211	0.002120	943198589.05
1124433080	Capacitor	C92-97	Bellcore Issue 6	Level I		0.001060	6.00	.0633	0.006361	943198589.05
1124422080	Capacitor	C102-103	Bellcore Issue 6	Level I		0.001060	2.00	.0211	0.002120	943198589.05
1124412080	Capacitor	C104	Bellcore Issue 6	Level I		0.001060	1.00	.0106	0.001060	943198589.05
1129610260	Capacitor	C105	Bellcore Issue 6	Level I		0.000712	1.00	.0071	0.000712	1403854412.74
1124515281	Capacitor	C107,C109	Bellcore Issue 6	Level I		0.001060	2.00	.0211	0.002120	943198589.05
1124515180	Capacitor	C108,C137	Bellcore Issue 6	Level I		0.001060	2.00	.0211	0.002120	943198589.05
1121722660	Capacitor	C125	Bellcore Issue 6	Level I		0.002539	1.00	.0253	0.002539	393852661.82
1300001240	Semiconductor	D1	Bellcore Issue 6	Level I		0.008403	1.00	.0836	0.008403	119010035.80
1300414840	Semiconductor	D2,D6	Bellcore Issue 6	Level I		0.023881	2.00	.4753	0.047762	41874327.58

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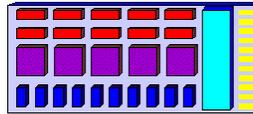


Description Top-level assembly
File Name Gene-4310A1.RPJ
Time 11:24 AM
Failure Rate 10.049148
MTBF 99,511

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A701033	Resistor	R104,R11,R112,R116,R123,R132,-R14,R146-147,R155,R160-161,R163-165,R182,R259,R276,R32,R34,-R48,R56,R6-8,R67,R77,R79,R95	Bellcore Issue 6	Level I		0.002268	30.00	.6770	0.068031	440974090.03
105A701003	Resistor	R12-13,R15-23,R128,R136,R138,R80-83	Bellcore Issue 6	Level I		0.002268	18.00	.4062	0.040819	440974090.03
105A700003	Resistor	R125,R139,R167,R191,R193,R216-R26,R272,R28,R280,R38,R49	Bellcore Issue 6	Level I		0.002268	12.00	.2708	0.027212	440974090.03
105A556003	Resistor	R33	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A704723	Resistor	R109-110,R114-115,R174,R180,R201-205,R267-270,R35,R47,R54-55-R72-74,R89,R94,R96-97	Bellcore Issue 6	Level I		0.002268	26.00	.5867	0.058960	440974090.03
105A733003	Resistor	R183-184,R257-258,R37	Bellcore Issue 6	Level I		0.002268	5.00	.1128	0.011339	440974090.03
105A733003	Resistor	R39	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A701533	Resistor	R40,R84-87	Bellcore Issue 6	Level I		0.002268	5.00	.1128	0.011339	440974090.03
105A710053	Resistor	R50	Bellcore Issue 6	Level I		0.013606	1.00	.1354	0.013606	73495681.67
105A702223	Resistor	R113,R156-157,R51-52	Bellcore Issue 6	Level I		0.002268	5.00	.1128	0.011339	440974090.03
105A710003	Resistor	R117,R119-121,R137,R53	Bellcore Issue 6	Level I		0.002268	6.00	.1354	0.013606	440974090.03
105A500133	Resistor	R100,R102-103,R105,R122,R149--150,R162,R260,R59,R71,R88,R93-R98	Bellcore Issue 6	Level I		0.002268	14.00	.3159	0.031748	440974090.03
105A747003	Resistor	R60	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A708203	Resistor	R61,R63,R65,R75-76	Bellcore Issue 6	Level I		0.002268	5.00	.1128	0.011339	440974090.03
105A704703	Resistor	R263,R64,R66,R69-70	Bellcore Issue 6	Level I		0.002268	5.00	.1128	0.011339	440974090.03
105A7100033	Resistor	R141,R178-179,R181,R90-91	Bellcore Issue 6	Level I		0.002268	6.00	.1354	0.013606	440974090.03
105A704733	Resistor	R101,R106-108,R118,R262,R264,-R99	Bellcore Issue 6	Level I		0.002268	8.00	.1805	0.018142	440974090.03
105A702233	Resistor	R111,R198	Bellcore Issue 6	Level I		0.002268	2.00	.0451	0.004535	440974090.03
105A501033	Resistor	R124,R126,R129,R133	Bellcore Issue 6	Level I		0.002268	4.00	.0903	0.009071	440974090.03
105A502833	Resistor	R127,R194	Bellcore Issue 6	Level I		0.002268	2.00	.0451	0.004535	440974090.03
105A521033	Resistor	R130	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A590923	Resistor	R131	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A560423	Resistor	R134-135	Bellcore Issue 6	Level I		0.002268	2.00	.0451	0.004535	440974090.03
105A507503	Resistor	R152-154,R278-279,R282	Bellcore Issue 6	Level I		0.002268	6.00	.1354	0.013606	440974090.03
105A702723	Resistor	R168,R170,R177	Bellcore Issue 6	Level I		0.002268	3.00	.0677	0.006803	440974090.03

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Temperature 25.00



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Time 11:24 AM
Failure Rate 10.049148
MTBF 99,511

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A706233	Resistor	R173	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A554903	Resistor	R175	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A561903	Resistor	R176	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A510003	Resistor	R185-186	Bellcore Issue 6	Level I		0.002268	2.00	.0451	0.004535	440974090.03
105A707503	Resistor	R187-190	Bellcore Issue 6	Level I		0.002268	4.00	.0903	0.009071	440974090.03
105A705103	Resistor	R195	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A528723	Resistor	R196	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A511503	Resistor	R197	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A518703	Resistor	R200	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A700233	Resistor	R261	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A706823	Resistor	R265	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
105A736003	Resistor	R281	Bellcore Issue 6	Level I		0.002268	1.00	.0226	0.002268	440974090.03
14S3000300	Integrated Circuit	TF1	Bellcore Issue 6	Level I	17.00	0.192530	1.00	1.9159	0.192530	5193998.23
14S4023310	Integrated Circuit	U1	Bellcore Issue 6	Level I	41.00	0.326959	1.00	3.2536	0.326959	3058486.96
14S4553010	Integrated Circuit	U2	Bellcore Issue 6	Level I	20.00	0.118260	1.00	1.1768	0.118260	8455912.86
14S4397701	Integrated Circuit	U3	Bellcore Issue 6	Level I	23.00	0.137870	1.00	1.3720	0.137870	7253191.45
14S4021300	Integrated Circuit	U4,U5	Bellcore Issue 6	Level I	12.00	0.138049	1.00	1.3737	0.138049	7243806.82
14S5501400	Integrated Circuit	U6	Bellcore Issue 6	Level I	1.00	0.068251	1.00	.6792	0.068251	14651747.93
14S4048500	Integrated Circuit	U7-8	Bellcore Issue 6	Level I	18.00	0.205515	2.00	4.0902	0.411029	4865835.10
14S2252600	Integrated Circuit	U9	Bellcore Issue 6	Level I	25.00	0.320878	1.00	3.1931	0.320878	3116453.93
14S3181900	Integrated Circuit	U10	Bellcore Issue 6	Level I	44.00	0.980882	1.00	9.7608	0.980882	1019490.86
14S1488000	Integrated Circuit	U11	Bellcore Issue 6	Level I	25.00	0.320878	1.00	3.1931	0.320878	3116453.93
14S5803200	Integrated Circuit	U12	Bellcore Issue 6	Level I	17.00	0.097328	1.00	.9685	0.097328	10274533.36
14S7378100	Integrated Circuit	U13	Bellcore Issue 6	Level I	27.00	0.363156	1.00	3.6138	0.363156	2753638.40
14S5812500	Integrated Circuit	U14	Bellcore Issue 6	Level I	16.00	0.130021	1.00	1.2939	0.130021	7691058.21
14S4070600	Integrated Circuit	U15	Bellcore Issue 6	Level I	18.00	0.205515	1.00	2.0451	0.205515	4865835.10
1651203291	Connection	U21	Bellcore Issue 6	Level I		0.018207	1.00	.1812	0.018207	54923766.92
14S4255901	Integrated Circuit	U22A	Bellcore Issue 6	Level I	20.00	0.118260	1.00	1.1768	0.118260	8455912.86
14S6334602	Integrated Circuit	U23	Bellcore Issue 6	Level I	18.00	0.105925	1.00	1.0541	0.105925	9440647.94
14S2143000	Integrated Circuit	U24	Bellcore Issue 6	Level I	17.00	0.192530	1.00	1.9159	0.192530	5193998.23
14S3149100	Integrated Circuit	U25	Bellcore Issue 6	Level I	20.00	0.233882	1.00	2.3274	0.233882	4275661.99

