

ECB-901A

Reliability Prediction Report (MTBF)

Report NO : 05E070013

05-25-2005

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** ECB-901A (ETX Carrier Board.LAN.Audio.4COM.USB.PCI.ISA.AT.ATX.Rev.A1.0)

II . **Prediction Date:** May. 25, 2005

III . **Prediction Site:** AAEON Q.E. Dept.

IV . **Predicted by :** Jessica Chou

V . **Equipment:** Relex Ver.7.3 Visual Reliability Software

VI. Simulation Environment:

- Temperature: 28.2 degrees C
- Standard: Telcordia (Bellcore) Standard

VII. Term and Definition:

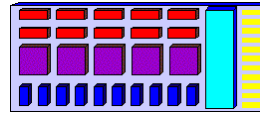
- Unit : An assembly of device.
- Duty Cycle : Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.
- Quantity : The quantity of the selected item.
- Failure Rate : Used to specify that the failure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

VIII. Prediction Result:

- Failure Rate: 7.133778 ppm
- MTBF: 140,178 Hours

AAEON Reliability Prediction Report

Part Number 9697901A04
Reference Des
Date 05. 25, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 28.20

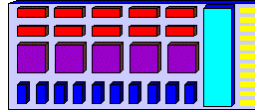


Description Top-level assembly
File Name 9697901A04.RPJ
Time 11:36 上午
Failure Rate 7.133778
MTBF 140,178

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
ECB-901A	9697901A04	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	7.133778	140,178

AAEON Reliability Prediction Report

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Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 28.20

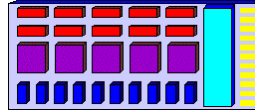


Description Top-level assembly
File Name 9697901A04.RPJ
Time 11:36 上午
Failure Rate 7.133778
MTBF 140,178

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1653002100	Connection	JP15,JP2,JP24	Bellcore Issue 6	Level I		0.001343	3.00	.0565	0.004028	744787019.86
1653003100	Connection	JP10,JP3,JP5-JP7,JP9	Bellcore Issue 6	Level I		0.002014	6.00	.1694	0.012084	496524679.91
1654549502	Connection	CN14	Bellcore Issue 6	Level I		0.001343	1.00	.0188	0.001343	744787019.86
1654249202	Connection	CN1	Bellcore Issue 6	Level I		0.065791	1.00	.9222	0.065791	15199735.10
1654249202	Connection	CN2-CN3	Bellcore Issue 6	Level I		0.065791	2.00	1.8445	0.131581	15199735.10
1654260201	Connection	PCI1-PCI4	Bellcore Issue 6	Level I		0.080560	4.00	4.5171	0.322240	12413117.00
1654612304	Connection	CN12	Bellcore Issue 6	Level I		0.004028	1.00	.0565	0.004028	248262339.95
1655112012	Connection	CN21	Bellcore Issue 6	Level I		0.008056	1.00	.1129	0.008056	124131169.98
1750119011	Miscellaneous	BT1	Bellcore Issue 6	Level I		0.900000	1.00	12.6160	0.900000	1111111.11
1759100002	Miscellaneous	BZ1	Bellcore Issue 6	Level I		0.150000	1.00	2.1027	0.150000	6666666.67
1750220320	Connection	BT1	Bellcore Issue 6	Level I		0.001343	1.00	.0188	0.001343	744787019.86
1652522200	Connection	CN26	Bellcore Issue 6	Level I		0.014769	1.00	.2070	0.014769	67707910.90
1652915200	Connection	CN18	Bellcore Issue 6	Level I		0.010070	1.00	.1412	0.010070	99304935.98
1653003200	Connection	JP1	Bellcore Issue 6	Level I		0.004028	1.00	.0565	0.004028	248262339.95
1653004101	Connection	JP8	Bellcore Issue 6	Level I		0.002685	1.00	.0376	0.002685	372393509.93
1653004201	Connection	CN11	Bellcore Issue 6	Level I		0.005371	1.00	.0753	0.005371	186196754.97
1653004302	Connection	JP11	Bellcore Issue 6	Level I		0.008056	1.00	.1129	0.008056	124131169.98
1653005200	Connection	JP4	Bellcore Issue 6	Level I		0.006713	1.00	.0941	0.006713	148957403.97
1653005201	Connection	CN27	Bellcore Issue 6	Level I		0.006713	1.00	.0941	0.006713	148957403.97
1653006100	Connection	CN9	Bellcore Issue 6	Level I		0.004028	1.00	.0565	0.004028	248262339.95
1653010202	Connection	CN10	Bellcore Issue 6	Level I		0.013427	1.00	.1882	0.013427	74478701.99
1653013200	Connection	CN4	Bellcore Issue 6	Level I		0.017455	1.00	.2447	0.017455	57291309.22
1653205200	Connection	CN24,CN5,CN6	Bellcore Issue 6	Level I		0.006713	3.00	.2823	0.020140	148957403.97
1653217202	Connection	CN8	Bellcore Issue 6	Level I		0.022825	1.00	.3200	0.022825	43811001.17
1655003000	Connection	CN22	Bellcore Issue 6	Level I		0.002014	1.00	.0282	0.002014	496524679.91
1653003101	Connection	JP16-JP18,JP23	Bellcore Issue 6	Level I		0.002014	4.00	.1129	0.008056	496524679.91
1651032220	Connection	U3	Bellcore Issue 6	Level I		0.021483	1.00	.3011	0.021483	46549188.74
1655420020	Connection	CN20	Bellcore Issue 6	Level I		0.013427	1.00	.1882	0.013427	74478701.99
1119622193	Capacitor	C104,C95	Bellcore Issue 6	Level I		0.053335	2.00	1.4953	0.106671	18749317.06
1304000061	Semiconductor	U23,U24	Bellcore Issue 6	Level I		0.006514	2.00	.1826	0.013028	153515892.36
1233124052	Miscellaneous	OS1	Bellcore Issue 6	Level I		0.360000	1.00	5.0464	0.360000	2777777.78

AAEON Reliability Prediction Report

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Date 05. 25, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
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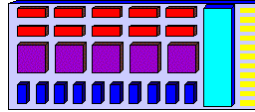


Description Top-level assembly
File Name 9697901A04.RPJ
Time 11:36 上午
Failure Rate 7.133778
MTBF 140,178

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1129722060	Capacitor	C10,C111,C112,C115,C13-C17,C1-79,C19-C21,C46,C9	Bellcore Issue 6	Level I		0.002779	15.00	.5844	0.041688	359817615.45
121230603G	Inductor	FB1	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
1212306031	Inductor	FB10-FB12,FB2-FB5,FB7-FB9,L1,L-10-12,L14,L3-L6,L8,L9	Bellcore Issue 6	Level I		0.002413	21.00	.7103	0.050670	414447952.19
1300001240	Semiconductor	D5	Bellcore Issue 6	Level I		0.026156	1.00	.3666	0.026156	38232380.23
1300414842	Semiconductor	D1,D12,D2	Bellcore Issue 6	Level I		0.026156	3.00	1.0999	0.078468	38232380.23
1301005441	Semiconductor	Q2-Q4	Bellcore Issue 6	Level I		0.026156	3.00	1.0999	0.078468	38232380.23
1301005443	Semiconductor	D3	Bellcore Issue 6	Level I		0.026156	1.00	.3666	0.026156	38232380.23
1304101340	Semiconductor	D11	Bellcore Issue 6	Level I		0.006514	1.00	.0913	0.006514	153515892.36
1305099140	Semiconductor	D6-D8	Bellcore Issue 6	Level I		0.087186	3.00	3.6665	0.261558	11469714.07
1310222210	Semiconductor	Q1,Q19	Bellcore Issue 6	Level I		0.026156	2.00	.7333	0.052312	38232380.23
1310390411	Semiconductor	Q10,Q9	Bellcore Issue 6	Level I		0.026156	2.00	.7333	0.052312	38232380.23
1311390610	Semiconductor	Q7	Bellcore Issue 6	Level I		0.026156	1.00	.3666	0.026156	38232380.23
1314111711	Integrated Circuit	Q15	Bellcore Issue 6	Level I		0.074839	1.00	1.0491	0.074839	13362097.61
1314111712	Integrated Circuit	Q5	Bellcore Issue 6	Level I		0.074839	1.00	1.0491	0.074839	13362097.61
1314838410	Integrated Circuit	Q6	Bellcore Issue 6	Level I	4.80	0.104969	1.00	1.4714	0.104969	9526603.44
1315700212	Semiconductor	Q11-Q14,Q16-Q18,Q8	Bellcore Issue 6	Level I		0.087186	8.00	9.7773	0.697489	11469714.07
14S1488000	Integrated Circuit	U14	Bellcore Issue 6	Level I		0.074839	1.00	1.0491	0.074839	13362097.61
14S4021310	Integrated Circuit	U12,U5	Bellcore Issue 6	Level I		0.074839	2.00	2.0981	0.149677	13362097.61
14S4021310	Integrated Circuit	U6	Bellcore Issue 6	Level I	3.80	0.097911	1.00	1.3725	0.097911	10213356.27
14S4021310	Integrated Circuit	U17	Bellcore Issue 6	Level I	5.30	0.108668	1.00	1.5233	0.108668	9202310.09
105A700133	Resistor	R106,R108,R135,R138,R165,R186-R57,R61,R70,R8,R88	Bellcore Issue 6	Level I		0.002413	11.00	.3721	0.026541	414447952.19
105A507503	Resistor	R101-R103,R89,R90,R91	Bellcore Issue 6	Level I		0.002413	6.00	.2029	0.014477	414447952.19
105A511503	Resistor	R131	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
105A518703	Resistor	R130	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
105A530003	Resistor	R129	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
105A701003	Resistor	R84	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
105A701033	Resistor	R148,R180-R183,R190,R191,R193-R53,R54,R92-R95	Bellcore Issue 6	Level I		0.002413	14.00	.4735	0.033780	414447952.19
105A701533	Resistor	R104,R105,R110,R113,R118,R122	Bellcore Issue 6	Level I		0.002413	6.00	.2029	0.014477	414447952.19
105A702223	Resistor	R119,R78,R79	Bellcore Issue 6	Level I		0.002413	3.00	.1015	0.007239	414447952.19

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Time 11:36 上午
Failure Rate 7.133778
MTBF 140,178

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A703303	Resistor	R11-R13,R136,R14,R189,R21-R23-,R26,R36,R38,R39,R41,R42,R46,R-47,R48	Bellcore Issue 6	Level I		0.002413	18.00	.6088	0.043431	414447952.19
105A704723	Resistor	R127,R128,R133,R134,R139-R143-,R145,R151,R17-R20,R27-R33,R40-,R45,R49	Bellcore Issue 6	Level I		0.002413	25.00	.8456	0.060321	414447952.19
105A704723	Resistor	R50,R52,R65,R76,R77,R82	Bellcore Issue 6	Level I		0.002413	6.00	.2029	0.014477	414447952.19
105A704733	Resistor	R107,R109,R115,R125,R144,R146-,R149,R150,R152	Bellcore Issue 6	Level I		0.002413	9.00	.3044	0.021716	414447952.19
105A705133	Resistor	R137	Bellcore Issue 6	Level I		0.002413	1.00	.0338	0.002413	414447952.19
105A705623	Resistor	R55,R56	Bellcore Issue 6	Level I		0.002413	2.00	.0676	0.004826	414447952.19
105A710033	Resistor	R96,R97	Bellcore Issue 6	Level I		0.002413	2.00	.0676	0.004826	414447952.19
105A747003	Resistor	R37,R43,R44	Bellcore Issue 6	Level I		0.002413	3.00	.1015	0.007239	414447952.19
105A747033	Resistor	R153,R154,R166,R167	Bellcore Issue 6	Level I		0.002413	4.00	.1353	0.009651	414447952.19
105A756033	Resistor	R155,R156,R170,R171	Bellcore Issue 6	Level I		0.002413	4.00	.1353	0.009651	414447952.19
1121610060	Capacitor	C113,C114,C116,C117	Bellcore Issue 6	Level I		0.002592	4.00	.1453	0.010368	385791593.56
1121701080	Capacitor	C118,C123-C126,C22-C25,C42-C4-5,C47-C49,C68-C71,C87,C90,C98	Bellcore Issue 6			0.001860	23.00	.5997	0.042779	537650955.48
1121733780	Capacitor	C102,C94	Bellcore Issue 6	Level I		0.002592	2.00	.0727	0.005184	385791593.56
1124401880	Capacitor	C137,C140,C144,C147	Bellcore Issue 6	Level I		0.001082	4.00	.0607	0.004330	923893937.98
1124501780	Capacitor	C108,C119,C120,C181,C53	Bellcore Issue 6	Level I		0.001082	5.00	.0759	0.005412	923893937.98
1124510080	Capacitor	C121	Bellcore Issue 6	Level I		0.001082	1.00	.0152	0.001082	923893937.98
1124510180	Capacitor	C106,C141,C142,C162-C176,C50,-C55,C58,C62,C65-C67	Bellcore Issue 6	Level I		0.001082	26.00	.3945	0.028142	923893937.98
14S4397704	Integrated Circuit	U7	Bellcore Issue 6	Level I	5.90	0.066037	1.00	.9257	0.066037	15143004.90
1653925216	Connection	CN7	Bellcore Issue 6	Level I		0.033567	1.00	.4705	0.033567	29791480.79
1121547661	Capacitor	C101,C97	Bellcore Issue 6	Level I		0.002592	2.00	.0727	0.005184	385791593.56
1315995310	Semiconductor	U15	Bellcore Issue 6	Level I		0.174372	1.00	2.4443	0.174372	5734857.03
121230805L	Inductor	FB6,L16,L17,L2,L20,L21	Bellcore Issue 6	Level I		0.002413	6.00	.2029	0.014477	414447952.19
1129610260	Capacitor	C151,C152	Bellcore Issue 6	Level I		0.000727	2.00	.0204	0.001454	1375121418.54
1059700001	Resistor	R1,R2,R4	Bellcore Issue 6	Level I		0.002413	3.00	.1015	0.007239	414447952.19
1654030000	Connection	CN13	Bellcore Issue 6	Level I		0.020140	1.00	.2823	0.020140	49652467.99
14S3128420	Integrated Circuit	U13	Bellcore Issue 6	Level I	3.60	0.096552	1.00	1.3534	0.096552	10357103.80
14S3128420	Integrated Circuit	U2	Bellcore Issue 6	Level I	3.40	0.095210	1.00	1.3346	0.095210	10503068.68

