

ETX-701

Reliability Prediction Report (MTBF)

Report NO : 08E070025

8-26-2008

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** ETX-701

II . **Prediction Date:** Aug. 26, 2008

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: 24.9 degree 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:

- ETX-701
 - Failure Rate: 7.824645 ppm
 - MTBF: 127,801 Hours

AAEON Reliability Prediction Report

Part Number 9697701005-DIP
Reference Des
Date 08. 26, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 24.90

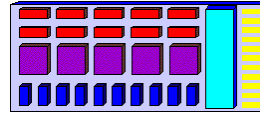


Description Top-level assembly
File Name ETX-701A.RPJ
Time 3:29 下午
Failure Rate 7.824645
MTBF 127,801

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
ETX-701	9697701005-DIP	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	7.824645	127,801

AAEON Reliability Prediction Report

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Date 08. 26, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
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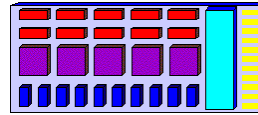


Description Top-level assembly
File Name ETX-701A.RPJ
Time 3:29 下午
Failure Rate 7.824645
MTBF 127,801

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
14S6200800	Integrated Circuit	U19	Bellcore Issue 6	Level I		0.187412	1.00	2.3952	0.187412	5335835.44
105A512113	Resistor	R107,R28	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
105A700003	Resistor	C239,C240,CFB11-FB13,FB16,FB17,R18,R187,R238,R240,R250,R251,-R266,R267,R27,R270,R273,R285,-R303,R314,R396,R41-R43,R437	Bellcore Issue 6	Level I		0.002263	26.00	.7520	0.058845	441839332.19
105A701053	Resistor	R400	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A703303	Resistor	R16,R225,R44,R47	Bellcore Issue 6	Level I		0.002263	4.00	.1157	0.009053	441839332.19
105A704723	Resistor	R11,R19,R21,R23,R26,R286-R288	Bellcore Issue 6	Level I		0.002263	8.00	.2314	0.018106	441839332.19
105A701033	Resistor	R103	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A747003	Resistor	R254	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A756003	Resistor	R239	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
1059700001	Resistor	R379	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A710053	Resistor	R121,R175	Bellcore Issue 6	Level I		0.013580	2.00	.3471	0.027159	73639888.70
105A505103	Resistor	R214-R217	Bellcore Issue 6	Level I		0.002263	4.00	.1157	0.009053	441839332.19
105A505623	Resistor	R218,R222	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
105A554903	Resistor	R313	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A561903	Resistor	R315	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A704763	Resistor	R148	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A705123	Resistor	R211	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A710033	Resistor	R308,R309	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
1212306030	Inductor	FB10,FB14,FB15,FB18,FB19,FB24,-FB6-FB9	Bellcore Issue 6	Level I		0.002263	10.00	.2892	0.022633	441839332.19
1231332721	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.9170	0.150000	6666666.67
1122701680	Capacitor	C10-C15,C158,C16-C19,C21-C28,-C256,C282,C285,C286,C289,C293,-C31,C316,C317,C33	Bellcore Issue 6	Level I		0.004527	29.00	1.6776	0.131269	220919666.10
1124415080	Capacitor	C29,C30	Bellcore Issue 6	Level I		0.004527	2.00	.1157	0.009053	220919666.10
1124522080	Capacitor	C366	Bellcore Issue 6	Level I		0.004527	1.00	.0578	0.004527	220919666.10
1124427080	Capacitor	C280,C281	Bellcore Issue 6	Level I		0.004527	2.00	.1157	0.009053	220919666.10
1301005440	Semiconductor	D10,D16	Bellcore Issue 6	Level I		0.023812	2.00	.6087	0.047625	41994887.40
1301005441	Semiconductor	D4,D8,D9	Bellcore Issue 6	Level I		0.023812	3.00	.9130	0.071437	41994887.40
1302001240	Semiconductor	D3,D7	Bellcore Issue 6	Level I		0.027159	2.00	.6942	0.054318	36819944.35

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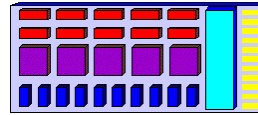


Description Top-level assembly
File Name ETX-701A.RPJ
Time 3:29 下午
Failure Rate 7.824645
MTBF 127,801

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1314111711	Integrated Circuit	U27	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
1651203291	Connection	U19	Bellcore Issue 6	Level I		0.018112	1.00	.2315	0.018112	55211615.10
1653002201	Connection	JP1	Bellcore Issue 6	Level I		0.002264	1.00	.0289	0.002264	441692920.82
14S6334610	Integrated Circuit	U24	Bellcore Issue 6	Level I		0.030375	1.00	.3882	0.030375	32921887.38
1301005442	Semiconductor	D1,D12,D15	Bellcore Issue 6	Level I		0.023812	3.00	.9130	0.071437	41994887.40
1212306035	Inductor	FB1,FB2,FB21-FB23,FB3-FB5,L1,R-213	Bellcore Issue 6	Level I		0.002263	10.00	.2892	0.022633	441839332.19
14S5A01400	Integrated Circuit	U14	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
105A733033	Resistor	R120	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A503423	Resistor	R137	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
1540710382	Resistor	RN39,RN46,RN49,RN51,RN52,RN-54,RN56-RN68,RN70-RN79	Bellcore Issue 6	Level I		0.002263	29.00	.8388	0.065635	441839332.19
1540747285	Resistor	RN1	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
1540733085	Resistor	RN10-RN14,RN17,RN18,RN2,RN20-,RN22-RN24,RN26,RN28,RN30,RN-32-RN38,RN9	Bellcore Issue 6	Level I		0.002263	23.00	.6653	0.052055	441839332.19
105A700103	Resistor	R279,R86,R90,R92	Bellcore Issue 6	Level I		0.002263	4.00	.1157	0.009053	441839332.19
105A506823	Resistor	R221,R229	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
1540722085	Resistor	RN25,RN27,RN29,RN3,RN31,RN4-,RN42-RN45,RN47,RN48,RN5,RN5-0,RN6-RN8	Bellcore Issue 6	Level I		0.006217	17.00	1.3508	0.105697	160836724.71
1540700081	Resistor	RP1,RP10,RP2,RP4,RP6,RP8	Bellcore Issue 6	Level I		0.006217	6.00	.4768	0.037305	160836724.71
105A700139	Resistor	R114,R115,R193,R237,R310,R333-,R365,R373,R383,R387,R388,R66,-R70,R73,R76,R81,R88	Bellcore Issue 6	Level I		0.002263	17.00	.4917	0.038476	441839332.19
105A704729	Resistor	R133,R158,R170,R172,R173,R177-,R182,R191,R231,R233-R235,R304-,R306,R319,R320,R325-R328,R36,-R380,R381,R420	Bellcore Issue 6	Level I		0.002263	25.00	.7231	0.056582	441839332.19
105A700009	Resistor	R102,R108,R110,R146,R147,R174-,R180,R181,R248,R253,R255,R276-,R283,R290,R291,R293,R295-R297-,R30,R300-R302,R312,R32,R321	Bellcore Issue 6	Level I		0.002263	26.00	.7520	0.058845	441839332.19
105A700009	Resistor	R355-R358,R362,R399,R404,R50,-R67,R85,R87,R89,R91,R93-R95	Bellcore Issue 6	Level I		0.002263	16.00	.4628	0.036212	441839332.19
105A703309	Resistor	R189,R190,R232,R338-R353,R382-,R385,R393-R395,R55,R56,R96,R97	Bellcore Issue 6	Level I		0.002263	28.00	.8099	0.063371	441839332.19

AAEON Reliability Prediction Report

Part Number 9697701005-DIP
Reference Des
Date 08. 26, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 24.90



Description Top-level assembly
File Name ETX-701A.RPJ
Time 3:29 下午
Failure Rate 7.824645
MTBF 127,801

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A704739	Resistor	R515-R518	Bellcore Issue 6	Level I		0.002263	4.00	.1157	0.009053	441839332.19
1129701690	Capacitor	C140,C149,C151,C164-C174,C213-C214,C222,C224,C227,C236,C252-C258-C261,C279,C287,C288,C291-C292,C294-C299,C310-C312	Bellcore Issue 6	Level I		0.004527	39.00	2.2561	0.176535	220919666.10
1129701690	Capacitor	C314,C321,C322,C324-C327,C331-C336-C338,C340-C343,C346,C349-C350,C354,C357,C360-C365,C369-C37,C376-C380,C387,C39	Bellcore Issue 6	Level I		0.004527	35.00	2.0247	0.158429	220919666.10
1129701690	Capacitor	C390,C391,C395,C397,C41-C43,C48,C50-C53,C68,C69,C75	Bellcore Issue 6	Level I		0.004527	15.00	.8677	0.067898	220919666.10
1129710090	Capacitor	C262,C263	Bellcore Issue 6	Level I		0.004527	2.00	.1157	0.009053	220919666.10
1129722091	Capacitor	C253-C255	Bellcore Issue 6	Level I		0.004527	3.00	.1735	0.013580	220919666.10
1129710390	Capacitor	C100-C102,C191,C198-C201,C206-C208,C241-C244,C3,C4,C7,C8,C84-C87,C99	Bellcore Issue 6	Level I		0.004527	24.00	1.3884	0.108637	220919666.10
1129701790	Capacitor	C1,C110-C113,C120,C121,C125-C128,C135,C136,C146,C147,C152,C177-C184,C2,C202-C205,C209-C212,C290,C301-C304,C306-C309	Bellcore Issue 6	Level I		0.004527	42.00	2.4297	0.190114	220919666.10
1129701790	Capacitor	C401,C5,C54,C55,C6,C60,C61,C65-C66,C80-C83,C95-C98	Bellcore Issue 6	Level I		0.004527	17.00	.9834	0.076951	220919666.10
1129715090	Capacitor	C138,C139	Bellcore Issue 6	Level I		0.004527	2.00	.1157	0.009053	220919666.10
105A551113	Resistor	R14	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
1301053040	Semiconductor	D13,D14	Bellcore Issue 6	Level I		0.023812	2.00	.6087	0.047625	41994887.40
121230805D	Inductor	FB20	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
1129710050	Capacitor	C107-C109,C122-C124,C141,C144-C145,C150,C162,C163,C176,C185-C186,C192,C193,C225,C228,C231-C235,C251,C257,C278,C283	Bellcore Issue 6	Level I		0.004527	25.00	1.4462	0.113163	220919666.10
1129710050	Capacitor	C284,C300,C305,C313,C318,C32-C320,C330,C339,C34,C344,C348-C356,C358,C36,C367,C368,C374-C375,C38,C388,C394,C40,C56	Bellcore Issue 6	Level I		0.004527	24.00	1.3884	0.108637	220919666.10
1129710050	Capacitor	C62,C67,C74,C77,C79,C92-C94,C-E2,CE3	Bellcore Issue 6	Level I		0.004527	10.00	.5785	0.045265	220919666.10
14S5A12503	Integrated Circuit	U2-U4	Bellcore Issue 6	Level I		0.039065	3.00	1.4978	0.117196	25598118.39
106B501031	Resistor	R252	Bellcore Issue 6	Level I		0.011320	1.00	.1447	0.011320	88338584.16

AAEON Reliability Prediction Report

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Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 24.90



Description Top-level assembly
File Name ETX-701A.RPJ
Time 3:29 下午
Failure Rate 7.824645
MTBF 127,801

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
14S4813905	Integrated Circuit	U23	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1311119710	Semiconductor	Q2	Bellcore Issue 6	Level I		0.023812	1.00	.3043	0.023812	41994887.40
14S5801402	Integrated Circuit	U36	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
14S4820900	Integrated Circuit	U16	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1122539980	Capacitor	C319,C347,C352	Bellcore Issue 6	Level I		0.004527	3.00	.1735	0.013580	220919666.10
105A710039	Resistor	R38,R384,R386	Bellcore Issue 6	Level I		0.002263	3.00	.0868	0.006790	441839332.19
105A701539	Resistor	R212	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A705629	Resistor	R111,R376	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
105A702209	Resistor	R104,R138,R139,R142,R143,R149- -R153,R155,R156,R195-R208,R31,- R33-R35,R389,R58-R63	Bellcore Issue 6	Level I		0.002263	37.00	1.0702	0.083741	441839332.19
1124405090	Capacitor	C229,C70-C73	Bellcore Issue 6	Level I		0.004527	5.00	.2892	0.022633	220919666.10
105A501039	Resistor	R109,R112,R123-R130,R140,R144- R157,R160,R161,R192,R210,R219- R220,R223,R224,R226,R227,R243- R244,R247,R272,R278,R289	Bellcore Issue 6	Level I		0.002263	29.00	.8388	0.065635	441839332.19
105A501039	Resistor	R329-R331,R364,R366-R368,R374- R375,R377,R378,R392,R57,R64,R- 69,R84	Bellcore Issue 6	Level I		0.002263	16.00	.4628	0.036212	441839332.19
1121701080	Capacitor	C148,C223,C226,C245,C246,C249- C250,C402,C76	Bellcore Issue 6	Level I		0.004527	9.00	.5206	0.040739	220919666.10
1124410190	Capacitor	C103-C106,C114-C119,C129-C134- C153,C187-C190,C194-C197,C315- C345,C351,C88-C91	Bellcore Issue 6	Level I		0.004527	32.00	1.8512	0.144849	220919666.10
105A501139	Resistor	R246,R281	Bellcore Issue 6	Level I		0.002263	2.00	.0578	0.004527	441839332.19
105A705139	Resistor	R228	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
105A703329	Resistor	R282,R311,R316,R317,R318	Bellcore Issue 6	Level I		0.002263	5.00	.1446	0.011316	441839332.19
14S9820800	Integrated Circuit	U39	Bellcore Issue 6	Level I	20.00	0.117651	1.00	1.5036	0.117651	8499691.60
14S9820800	Integrated Circuit	U18	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1124522190	Capacitor	C323,C353,C355,C57-C59	Bellcore Issue 6	Level I		0.004527	6.00	.3471	0.027159	220919666.10
14S2200900	Integrated Circuit	U13	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
16515A0993	Connection	J1	Bellcore Issue 6	Level I		0.113201	1.00	1.4467	0.113201	8833858.42
14S4081110	Integrated Circuit	U7	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
1653150221	Connection	J2-J5	Bellcore Issue 6	Level I		0.056600	4.00	2.8934	0.226402	17667716.83
105A510513	Resistor	R15	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19

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1315993311	Semiconductor	Q7	Bellcore Issue 6	Level I		0.158749	1.00	2.0288	0.158749	6299233.11
14S5A03200	Integrated Circuit	U35	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1314916710	Integrated Circuit	U41	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
14S4888801	Integrated Circuit	U25	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1189622190	Capacitor	C175,C78	Bellcore Issue 6	Level I		0.004527	2.00	.1157	0.009053	220919666.10
14S4362704	Integrated Circuit	U20	Bellcore Issue 6	Level I	17.90	0.105480	1.00	1.3481	0.105480	9480431.30
14S3149103	Integrated Circuit	U22	Bellcore Issue 6	Level I	22.50	0.133735	1.00	1.7091	0.133735	7477485.11
14S4758300	Integrated Circuit	U6	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
123131435B	Miscellaneous	Y4	Bellcore Issue 6	Level I		0.150000	1.00	1.9170	0.150000	6666666.67
1231325058	Miscellaneous	X1,Y5	Bellcore Issue 6	Level I		0.150000	2.00	3.8340	0.300000	6666666.67
1231324555	Miscellaneous	Y3	Bellcore Issue 6	Level I		0.150000	1.00	1.9170	0.150000	6666666.67
105A551119	Resistor	R242,R268,R274	Bellcore Issue 6	Level I		0.002263	3.00	.0868	0.006790	441839332.19
1315700214	Semiconductor	Q1,Q10-Q14,Q9	Bellcore Issue 6	Level I		0.079375	7.00	7.1009	0.555623	12598466.22
14S3020300	Integrated Circuit	U21	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1315731310	Semiconductor	Q6	Bellcore Issue 6	Level I		0.079375	1.00	1.0144	0.079375	12598466.22
1315731310	Semiconductor	Q5	Bellcore Issue 6	Level I	19.20	0.133342	1.00	1.7041	0.133342	7499489.22
1315731310	Semiconductor	Q3	Bellcore Issue 6	Level I	21.90	0.142718	1.00	1.8240	0.142718	7006810.08
1189647180	Capacitor	TC1	Bellcore Issue 6	Level I		0.004527	1.00	.0578	0.004527	220919666.10
14S4195710	Integrated Circuit	U33	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1189633192	Capacitor	TC3-TC5	Bellcore Issue 6	Level I		0.004527	3.00	.1735	0.013580	220919666.10
121110156A	Inductor	L2	Bellcore Issue 6	Level I	17.90	0.119760	1.00	1.5306	0.119760	8350018.95
121110156A	Inductor	L5	Bellcore Issue 6	Level I		0.086004	1.00	1.0991	0.086004	11627350.85
121110156A	Inductor	L4	Bellcore Issue 6	Level I	17.80	0.119551	1.00	1.5279	0.119551	8364606.21
105A501413	Resistor	R363	Bellcore Issue 6	Level I		0.002263	1.00	.0289	0.002263	441839332.19
11C1522480	Capacitor	C393	Bellcore Issue 6	Level I		0.004527	1.00	.0578	0.004527	220919666.10
14S4553600	Integrated Circuit	U15	Bellcore Issue 6	Level I		0.039065	1.00	.4993	0.039065	25598118.39
1050502224	Resistor	R131,R132,R135,R136,R249,R275-R277,R284	Bellcore Issue 6	Level I		0.002263	8.00	.2314	0.018106	441839332.19
14S2362400	Integrated Circuit	U30	Bellcore Issue 6	Level I		0.058933	1.00	.7532	0.058933	16968377.18
14S2362400	Integrated Circuit	U29	Bellcore Issue 6	Level I	19.20	0.220706	1.00	2.8207	0.220706	4530906.08
14S2362400	Integrated Circuit	U26	Bellcore Issue 6	Level I	21.10	0.249350	1.00	3.1867	0.249350	4010425.02

