

COM-945 Rev. A2.0 Reliability Prediction Report (MTBF)

Report NO : 08E070032

10-16-2008

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** COM-945 Rev. A2.0

II . **Prediction Date:** Oct. 16, 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: 25 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:

- COM-945 Rev. A2.0
 - Failure Rate: 9.097072 ppm
 - MTBF: 109,925 Hours

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00



Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
COM-945-A20	9697945010-DIP	Belcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	9.097072	109,925

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00



Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1050597623	Resistor	R480	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1059501031	Resistor	RT2	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A700003	Resistor	R202,R203,R697,R444,R468,R698-R8119,R821,R824,R831-R834	Bellcore Issue 6	Level I		0.002268	13.00	.3241	0.029480	440974090.03
105A701003	Resistor	R439,R440,R443,R66,R68,R812,R-815,R816,R817,R823	Bellcore Issue 6	Level I		0.002268	10.00	.2493	0.022677	440974090.03
105A701053	Resistor	R842,R96	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
105A707503	Resistor	R2	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1059700001	Resistor	L21,L25,R447,R67,R692,R736	Bellcore Issue 6	Level I		0.002268	6.00	.1496	0.013606	440974090.03
10597747031	Resistor	RT1	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
105A500133	Resistor	R435,R474,R799	Bellcore Issue 6	Level I		0.002268	3.00	.0748	0.006803	440974090.03
105A501039	Resistor	R458,R482,R774,R818,R839,R841-R843	Bellcore Issue 6	Level I		0.002268	7.00	.1745	0.015874	440974090.03
105A501633	Resistor	R829	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A511503	Resistor	R676	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A518703	Resistor	R677	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A575033	Resistor	R811	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A702033	Resistor	R92	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A702233	Resistor	R189	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A705103	Resistor	R10	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1212308054	Inductor	L22,L6	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
1231332721	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.6489	0.150000	6666666.67
1122722780	Capacitor	C412,C416	Bellcore Issue 6	Level I		0.004535	2.00	.0997	0.009071	220487045.01
1124518180	Capacitor	C427	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
1124522280	Capacitor	C1	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
1124533080	Capacitor	C282,C283,C640	Bellcore Issue 6	Level I		0.004535	3.00	.1496	0.013606	220487045.01
1129610080	Capacitor	C644-C646,C668-C671	Bellcore Issue 6	Level I		0.004535	7.00	.3490	0.031748	220487045.01
1300001440	Semiconductor	D25-D27	Bellcore Issue 6	Level I		0.023881	3.00	.7875	0.071643	41874327.58
1211100102	Inductor	L14,L8	Bellcore Issue 6	Level I		0.086173	2.00	1.8945	0.172346	11604581.32
1301005442	Semiconductor	D3,D30,D31,D34,D4	Bellcore Issue 6	Level I		0.023881	6.00	1.5751	0.143286	41874327.58
1212306033	Inductor	L1,L10-L12,L2-L4,L9	Bellcore Issue 6	Level I		0.002268	8.00	.1994	0.018142	440974090.03
14S5A00700	Integrated Circuit	U5	Bellcore Issue 6	Level I		0.037889	1.00	.4165	0.037889	26392869.26

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00

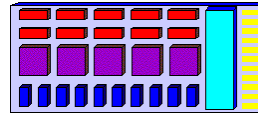


Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A701039	Resistor	R100,R165,R172,R174,R176,R177-R179,R180,R184,R208,R209,R300	Bellcore Issue 6	Level I		0.002268	12.00	.2991	0.027212	440974090.03
105A701039	Resistor	R413,R414,R55,R57,R59-R62,R141-R143,R154,R155,R161,R167,R168,R177-R179,R191,R192,R800-R802,R813,R827-R828	Bellcore Issue 6	Level I		0.002268	23.00	.5733	0.052157	440974090.03
105A710009	Resistor	R169-R171,R182,R20,R21,R24,R25-R31,R45	Bellcore Issue 6	Level I		0.002268	10.00	.2493	0.022677	440974090.03
105A703309	Resistor	R249-R252,R256,R258,R260,R261-R264,R266,R267,R270,R272,R274	Bellcore Issue 6	Level I		0.002268	14.00	.3490	0.031748	440974090.03
105A703309	Resistor	R275,R278,R281,R282,R285,R288-R290,R403,R756,R759,R783,R786-R787	Bellcore Issue 6	Level I		0.002268	13.00	.3241	0.029480	440974090.03
105A720009	Resistor	R27,R778,R809,R810	Bellcore Issue 6	Level I		0.002268	4.00	.0997	0.009071	440974090.03
105A702229	Resistor	R293-R295,R63,R64,R83,R195,R196,R751,R793,R796,R814	Bellcore Issue 6	Level I		0.002268	12.00	.2991	0.027212	440974090.03
1129710390	Capacitor	C332,C340,C352,C354,C334-C336-C338,C635,C665	Bellcore Issue 6	Level I		0.004535	10.00	.4986	0.045354	220487045.01
1129701790	Capacitor	C109,C38,C411,C426,C430,C431,-C664,C682,C683	Bellcore Issue 6	Level I		0.004535	9.00	.4487	0.040819	220487045.01
1121733380	Capacitor	C420	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
1121733780	Capacitor	C422	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
1122701680	Capacitor	C405,C409,C410,C442-C444,C448-C449,C637,C675,C677	Bellcore Issue 6	Level I		0.004535	11.00	.5484	0.049890	220487045.01
1301053040	Semiconductor	D28,D29,D32	Bellcore Issue 6	Level I		0.023881	3.00	.7875	0.071643	41874327.58
1304101340	Semiconductor	LED1	Bellcore Issue 6	Level I		0.004877	1.00	.0536	0.004877	205063180.81
1305099140	Semiconductor	D23,D24	Bellcore Issue 6	Level I		0.079603	2.00	1.7501	0.159207	12562298.27
1310390410	Semiconductor	Q41,Q48,Q49	Bellcore Issue 6	Level I		0.023881	3.00	.7875	0.071643	41874327.58
1311390610	Semiconductor	Q33	Bellcore Issue 6	Level I		0.023881	1.00	.2625	0.023881	41874327.58
1314108412	Integrated Circuit	Q40	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
14S2041500	Integrated Circuit	U18	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
14S2041800	Integrated Circuit	U42	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
14S2048600	Integrated Circuit	U8	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
14S5812300	Integrated Circuit	U44	Bellcore Issue 6	Level I		0.039296	1.00	.4320	0.039296	25448028.36
14S5A00821	Integrated Circuit	U45,U46,U48,U49	Bellcore Issue 6	Level I		0.039296	4.00	1.7278	0.157183	25448028.36
14S9811500	Integrated Circuit	U43	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00



Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1129610051	Capacitor	C105,C116,C123,C133,C136,C156-,C159,C186,C39,C78,C80,C89,C90-,C95,C99	Bellcore Issue 6	Level I		0.004535	15.00	.7478	0.068031	220487045.01
1315731310	Semiconductor	Q53	Bellcore Issue 6	Level I		0.079603	2.00	1.7501	0.159207	12562298.27
105A580663	Resistor	R52,R58	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
11E9647680	Capacitor	C128,C130,C255,C102,C103,C201-,C415	Bellcore Issue 6	Level I		0.004535	7.00	.3490	0.031748	220487045.01
16515A0997	Connection	DIMM1	Bellcore Issue 6	Level I		0.113794	1.00	1.2509	0.113794	8787802.71
121230805X	Inductor	L15,L16	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
121230805Z	Inductor	L13	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
14S1826100	Integrated Circuit	Q15	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
1142522080	Capacitor	TC3,TC6-TC8	Bellcore Issue 6	Level I		0.005466	4.00	.2403	0.021862	182961702.19
1121501690	Capacitor	C100,C107,C108,C110,C112,C114-,C117,C124,C132,C134,C135,C144-,C147,C152,C101,C106,C127,C129-,C141,C143,C146,C197	Bellcore Issue 6	Level I		0.004535	22.00	1.0968	0.099779	220487045.01
1121501690	Capacitor	C154,C157,C167-C178,C184,C185-,C187,C188,C190-C196,C20,C200-,C202-C214,C21,C198,C2,C222,C2-24,C227,C234,C236,C237	Bellcore Issue 6	Level I		0.004535	49.00	2.4429	0.222235	220487045.01
1121501690	Capacitor	C216,C22,C220,C228,C229,C27-C-29,C40,C41,C96,C98,C239,C240,C-242,C243,C245-C258,C260,C262--C264,C266,C267,C269-C271	Bellcore Issue 6	Level I		0.004535	38.00	1.8945	0.172346	220487045.01
1121501690	Capacitor	C273,C274,C278,C281,C287,C290-,C329,C330,C331,C333,C337,C339-,C347,C349,C351,C353,C363,C385-,C396,C406,C42,C43,C436	Bellcore Issue 6	Level I		0.004535	23.00	1.1467	0.104315	220487045.01
1121501690	Capacitor	C437,C44,C45,C452,C46,C47-C51-,C517,C52,C520,C53-C60,C608,C6-1,C62,C628,C629,C63,C64,C641,C-647-C649,C65,C650-C652	Bellcore Issue 6	Level I		0.004535	36.00	1.7948	0.163275	220487045.01
1121501690	Capacitor	C655,C66,C660,C662,C667,C67,C-678,C679,C68,C689,C69,C690,C70-C74	Bellcore Issue 6	Level I		0.004535	17.00	.8475	0.077102	220487045.01
1129522790	Capacitor	C121,C122,C151,C413,C417,C425-,C76,C79,C83	Bellcore Issue 6	Level I		0.004535	9.00	.4487	0.040819	220487045.01
123131435B	Miscellaneous	Y2	Bellcore Issue 6	Level I		0.150000	1.00	1.6489	0.150000	6666666.67
1231325058	Miscellaneous	Y3	Bellcore Issue 6	Level I		0.150000	1.00	1.6489	0.150000	6666666.67

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00



Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
118961018A	Capacitor	C399,TC1,TC2,TC5	Bellcore Issue 6	Level I		0.004535	4.00	.1994	0.018142	220487045.01
16540M0000	Connection	CN2,CN3	Bellcore Issue 6	Level I		0.125173	2.00	2.7520	0.250347	7988911.55
1651611994	Connection	U1	Bellcore Issue 6	Level I		0.001138	1.00	.0125	0.001138	878780270.71
1651900860	Connection	U38	Bellcore Issue 6	Level I		0.001138	1.00	.0125	0.001138	878780270.71
165300420L	Connection	CN1	Bellcore Issue 6	Level I		0.001138	1.00	.0125	0.001138	878780270.71
1655902122	Connection	BAT1	Bellcore Issue 6	Level I		0.001138	1.00	.0125	0.001138	878780270.71
105A536513	Resistor	R457,R481	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
1315446310	Semiconductor	Q34,Q36	Bellcore Issue 6	Level I		0.079603	2.00	1.7501	0.159207	12562298.27
1315662810	Semiconductor	Q51,Q54,Q56,Q58	Bellcore Issue 6	Level I		0.079603	4.00	3.5002	0.318413	12562298.27
1315662210	Semiconductor	Q50,Q52,Q55,Q57	Bellcore Issue 6	Level I		0.159207	4.00	7.0003	0.636826	6281149.14
1189615161	Capacitor	C400,TC4	Bellcore Issue 6	Level I		0.004535	2.00	.0997	0.009071	220487045.01
1189633160	Capacitor	C104,C145,C183,C19,C30-C37,C75- C85-C87,C259,C261,C265,C518,C- 522	Bellcore Issue 6	Level I		0.004535	21.00	1.0470	0.095244	220487045.01
11A4422180	Capacitor	C423	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
11B1722680	Capacitor	C118,C223,C225,C233,C235,C238- C241,C244,C633,C643	Bellcore Issue 6	Level I		0.004535	10.00	.4986	0.045354	220487045.01
11B2710060	Capacitor	C438,C447,C609,C658,C674,C676	Bellcore Issue 6	Level I		0.004535	6.00	.2991	0.027212	220487045.01
11B2722650	Capacitor	C439,C440,C441,C445,C446	Bellcore Issue 6	Level I		0.004535	5.00	.2493	0.022677	220487045.01
11C2539290	Capacitor	C620-C627	Bellcore Issue 6	Level I		0.004535	8.00	.3988	0.036283	220487045.01
11C4501380	Capacitor	C419,C424	Bellcore Issue 6	Level I		0.004535	2.00	.0997	0.009071	220487045.01
11E2601050	Capacitor	C632	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
11E9501091	Capacitor	C180,C189,C215,C217-C219,C221- C395,C398,C407,C450,C521,C636- C638,C639,C657,C663,C666,C672- C673,C680,C681,C687,C82	Bellcore Issue 6	Level I		0.004535	24.00	1.1965	0.108850	220487045.01
14S3422600	Integrated Circuit	U10	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
14S3626201	Integrated Circuit	U24	Bellcore Issue 6	Level I		0.039296	1.00	.4320	0.039296	25448028.36
1129622050	Capacitor	C10-C14,C148,C15,C155,C16-C18- C23-C26,C3-C9,C618	Bellcore Issue 6	Level I		0.004535	23.00	1.1467	0.104315	220487045.01
1121647480	Capacitor	C119,C120,C142,C150,C77,C81,C- 84,C88,C91-C94,C653,C654	Bellcore Issue 6	Level I		0.004535	14.00	.6980	0.063496	220487045.01
105A540213	Resistor	R462,R840	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
105A514733	Resistor	R450	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03

AAEON Reliability Prediction Report

Part Number 9697945010-DIP
Reference Des
Date 10. 16, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 25.00



Description Top-level assembly
File Name COM-945-A20_25DC.RPJ
Time 11:04 上午
Failure Rate 9.097072
MTBF 109,925

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A526113	Resistor	R479	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1600000203	Connection	S1	Bellcore Issue 6	Level I		0.001138	1.00	.0125	0.001138	878780270.71
14S4294502	Integrated Circuit	U3	Bellcore Issue 6	Level I		0.039296	1.00	.4320	0.039296	25448028.36
14S428010D	Integrated Circuit	U4	Bellcore Issue 6	Level I		0.039296	1.00	.4320	0.039296	25448028.36
14S9103200	Integrated Circuit	U2	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
1300581940	Semiconductor	D1,D11,D12,D2	Bellcore Issue 6	Level I		0.023881	4.00	1.0501	0.095524	41874327.58
1124515880	Capacitor	C408	Bellcore Issue 6	Level I		0.004535	1.00	.0499	0.004535	220487045.01
1122522890	Capacitor	C111,C113,C125,C126,C153,C158-C97	Bellcore Issue 6	Level I		0.004535	7.00	.3490	0.031748	220487045.01
14S2591200	Integrated Circuit	Q21	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
105A542233	Resistor	R770	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1050519114	Resistor	R218,R441	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
1211108870	Inductor	L24,L26	Bellcore Issue 6	Level I		0.086173	2.00	1.8945	0.172346	11604581.32
121110156A	Inductor	L32	Bellcore Issue 6	Level I		0.103971	1.00	1.1429	0.103971	9618075.46
121110336L	Inductor	L33	Bellcore Issue 6	Level I		0.086173	1.00	.9473	0.086173	11604581.32
1050512164	Resistor	R287	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1050522104	Resistor	R23,R30	Bellcore Issue 6	Level I		0.002268	2.00	.0499	0.004535	440974090.03
1050525504	Resistor	R49	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1050533034	Resistor	R102	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1050549904	Resistor	R471	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A512103	Resistor	R775	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A501413	Resistor	R797	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
105A517423	Resistor	R769	Bellcore Issue 6	Level I		0.002268	1.00	.0249	0.002268	440974090.03
1315441012	Semiconductor	Q38,Q39	Bellcore Issue 6	Level I		0.079603	2.00	1.7501	0.159207	12562298.27
105A703329	Resistor	R708,R712,R713,R723,R728	Bellcore Issue 6	Level I		0.002268	5.00	.1246	0.011339	440974090.03
105A704709	Resistor	R731,R733,R734	Bellcore Issue 6	Level I		0.002268	3.00	.0748	0.006803	440974090.03
14S6308001	Integrated Circuit	U37	Bellcore Issue 6	Level I		0.047855	1.00	.5260	0.047855	20896551.49
14S5A00601	Integrated Circuit	U41	Bellcore Issue 6	Level I		0.039296	1.00	.4320	0.039296	25448028.36
1311006910	Semiconductor	Q11,Q12	Bellcore Issue 6	Level I		0.023881	2.00	.5250	0.047762	41874327.58
131411171C	Integrated Circuit	U35	Bellcore Issue 6	Level I		0.059366	1.00	.6526	0.059366	16844654.92
1189622850	Capacitor	C115,C131,C138-C140,C199	Bellcore Issue 6	Level I		0.004535	6.00	.2991	0.027212	220487045.01

