

FWB-800M

Reliability Prediction Report

(MTBF)

Report NO : 05P070012

11-07-2005

Issue Date

Wenyuan Yang

Manager

Liping Hsieh

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** FWB-880M

II . **Prediction Date:** Nov.07, 2005

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

IV . **Predicted by:** Liping Hsieh

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

VI. Simulation Environment:

- Temperature: 25 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.

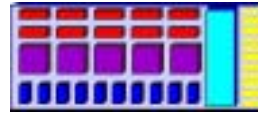
VIII. Prediction Result:

Failure Rate: 18.123482 ppm

MTBF: 55,177 Hours

AAEON Reliability Prediction Report

Part Number 9697880M04
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

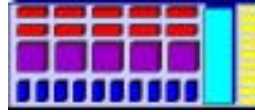


Description Top-level assembly
File Name FWB-880M.RPJ
Time 2:21 下午
Failure Rate 18.123482
MTBF 55,177

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
FWB-880M	9697880M04	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	18.123482	55,177

AAEON Reliability Prediction Report

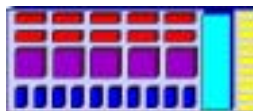
Part Number 9697880M04
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00



Description Top-level assembly
File Name FWB-880M.RPJ
Time 2:21 下午
Failure Rate 18.123482
MTBF 55,177

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1119647191	Capacitor	C119~C122, C160, C168, C180, C38~C41, C71~C74, C79~C86	Bellcore Issue 6	Level I		0.071121	23.00	9.0258	1.635790	14060484.33
111961029D	Capacitor	C42	Bellcore Issue 6	Level I	2.20	0.079719	1.00	.4399	0.079719	12544117.00
1653004200	Connection	FP1,FP2	Bellcore Issue 6	Level I		0.004552	2.00	.0502	0.009104	219695067.68
1654907003	Connection	SATA1,SATA2	Bellcore Issue 6	Level I		0.099570	2.00	1.0988	0.199140	10043203.09
1653006101	Connection	IR1	Bellcore Issue 6	Level I		0.003414	1.00	.0188	0.003414	292926756.90
1654425302	Connection	LPT1	Bellcore Issue 6	Level I		0.014224	1.00	.0785	0.014224	70302421.66
12141101161	Inductor	L7	Bellcore Issue 6	Level I	7.30	0.099085	1.00	.5467	0.099085	10092320.45
1654515308	Connection	VGA1	Bellcore Issue 6	Level I		0.008535	1.00	.0471	0.008535	117170702.76
1655424020	Connection	ATX1	Bellcore Issue 6	Level I		0.013655	1.00	.0753	0.013655	73231689.23
1111610292	Capacitor	C17	Bellcore Issue 6	Level I	6.90	0.101168	1.00	.5582	0.101168	9884567.07
1111610292	Capacitor	C18, C26, C37, C70, C90	Bellcore Issue 6	Level I		0.071121	5.00	1.9621	0.355607	14060484.33
1111647191	Capacitor	C36	Bellcore Issue 6	Level I		0.071121	1.00	.3924	0.071121	14060484.33
105A700233	Resistor	R311, R314, R346	Bellcore Issue 6	Level I		0.002268	3.00	.0375	0.006803	440974090.03
105A701623	Resistor	R321	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A517413	Resistor	R348	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A580663	Resistor	R362,R363	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A739033	Resistor	R409	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
14S3128420	Resistor	U1	Bellcore Issue 6	Level I		0.011379	1.00	.0628	0.011379	87878027.07
14S4021310	Integrated Circuit	U3,U31	Bellcore Issue 6	Level I		0.059366	2.00	.6551	0.118732	16844654.92
14S5A01400	Integrated Circuit	U32,U6	Bellcore Issue 6	Level I		0.037889	2.00	.4181	0.075778	26392869.26
14S4048501	Integrated Circuit	U10, U30, U34, U9	Bellcore Issue 6	Level I		0.059366	4.00	1.3103	0.237464	16844654.92
14S4655600	Integrated Circuit	U15	Bellcore Issue 6	Level I		0.059366	3.00	.9827	0.178098	16844654.92
121110010F	Inductor	L11,L12,L9	Bellcore Issue 6	Level I		0.086173	1.00	.4755	0.086173	11604581.32
1212308054	Inductor	L20, PB13, PB14, PB15, PB2, PB3, PB4, PB6, PB7	Bellcore Issue 6	Level I		0.002268	9.00	.1126	0.020409	440974090.03
1124501780	Capacitor	N1~N6, N9, N10, N13~N42	Bellcore Issue 6	Level I		0.004535	38.00	.9510	0.172346	220487045.01
121231206E	Inductor	PB8	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
1310390411	Semiconductor	Q1, Q18, Q23, Q7	Bellcore Issue 6	Level I		0.023881	4.00	.5271	0.095524	41874327.58
1315041410	Semiconductor	Q5	Bellcore Issue 6	Level I	16.30	0.124116	1.00	.6848	0.124116	8056966.74
1315041410	Semiconductor	Q4	Bellcore Issue 6	Level I	14.40	0.118135	1.00	.6518	0.118135	8464866.13
1315041410	Semiconductor	Q12, Q13, Q14, Q3, Q5, Q6, Q8, Q9	Bellcore Issue 6	Level I		0.079603	7.00	3.0746	0.557223	12562298.27

AAEON Reliability Prediction Report

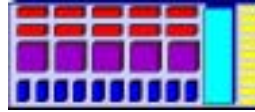


Part Number 9697880M04
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

Description Top-level assembly
File Name FWB-880M.RPJ
Time 2:21 下午
Failure Rate 18.123482
MTBF 55,177

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1540733180	Resistor	RN1	Bellcore Issue 6	Level I		0.012492	1.00	.0689	0.012492	80051386.00
1540743080	Resistor	RN14, RN3, RN8, RN9	Bellcore Issue 6	Level I		0.012492	4.00	.2757	0.049968	80051386.00
105A733003	Resistor	R1, R2, R287, R298, R316, R345, R8	Bellcore Issue 6	Level I		0.002268	7.00	.0876	0.015874	440974090.03
105A704723	Resistor	R10, R149, R151, R19, R20, R22~R25, R253, R254, R274, R275, R277~R279, R281, R282, R309, R318, R319, R323, R366, R367, R450, R6	Bellcore Issue 6	Level I		0.002268	26.00	.3253	0.058960	440974090.03
105A705603	Resistor	R224	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A522663	Resistor	R228	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A704303	Resistor	R398, R399, R402, R403, R412, R413, R426, R427, R74, R75, R76, R77, R81, R84	Bellcore Issue 6	Level I		0.002268	14.00	.1752	0.031748	440974090.03
105A547503	Resistor	R91	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A747003	Resistor	R113, R114, R115, R322	Bellcore Issue 6	Level I		0.002268	4.00	.0501	0.009071	440974090.03
105A530103	Resistor	R322, R138	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A554903	Resistor	R9	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A560460	Resistor	R11, R143, R145, R15, R163, R164, R168, R169, R17, R170, R198, R200, R21	Bellcore Issue 6	Level I		0.002268	13.00	.1627	0.029480	440974090.03
105A747033	Resistor	R12, R229, R231, R26	Bellcore Issue 6	Level I		0.002268	4.00	.0501	0.009071	440974090.03
105A701033	Resistor	R152, R154, R156, R157, R16, R18, R261, R262, R263, R264, R266, R267, R288, R295, R296, R308, R325, R339, R344	Bellcore Issue 6	Level I		0.002268	19.00	.2377	0.043086	440974090.03
105A701033	Resistor	R152, R154, R156, R157, R16, R18, R261, R262, R263, R264, R266, R267, R288, R295, R296, R308, R325, R339, R344	Bellcore Issue 6	Level I		0.002268	19.00	.2377	0.043086	440974090.03
105A510003	Resistor	R130, R135, R28, R34, R449	Bellcore Issue 6	Level I		0.002268	5.00	.0626	0.011339	440974090.03
105A702263	Resistor	R159, R187, R188, R236, R239, R29, R31, R35, R353, R36, R42, R46, R56, R57, R60	Bellcore Issue 6	Level I		0.002268	15.00	.1877	0.034016	440974090.03
105A704763	Resistor	R189, R237, R240, R30, R32, R58	Bellcore Issue 6	Level I		0.002268	6.00	.0751	0.013606	440974090.03
105A715033	Resistor	R33	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A703323	Resistor	R161, R347, R37, R40, R59	Bellcore Issue 6	Level I		0.002268	5.00	.0626	0.011339	440974090.03

AAEON Reliability Prediction Report



Part Number 9697880M04
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

Description Top-level assembly
File Name FWB-880M.RPJ
Time 2:21 下午
Failure Rate 18.123482
MTBF 55,177

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1122701680	Capacitor	M1~M7, M9, M10, M12~M36, M43, M44~M46, M52, M54~M57, M60, M61, M66~M70, M73~M75, M77~M79, M83, M86, M89~M93, M95~M98, M102~M107, M115, M116, M122, M124, M126, M127, M128, M133, M134, M135, M138~M269,	Bellcore Issue 6	Level I		0.004535	214.00	5.3554	0.970579	220487045.01
1121501680	Capacitor	M8, M11, M37~M42, M47~M51, M53, M58, M59, M62~M65, M71, M72, M76, M80~M82, M84, M85, M87, M88, M94, M99~M101, M108~M114, M117~M121, M125, M131, M144,	Bellcore Issue 6	Level I		0.004535	49.00	1.2262	0.222235	220487045.01
1212306060	Inductor	PB1, PB11, PB12, PB5	Bellcore Issue 6	Level I		0.002268	4.00	.0501	0.009071	440974090.03
1752311000	Miscellaneous	P1,P2	Bellcore Issue 6	Level I		0.030000	2.00	.3311	0.060000	33333333.33
1315041210	Semiconductor	Q15	Bellcore Issue 6	Level I	5.00	0.183374	1.00	1.0118	0.183374	5453324.90
1315041210	Semiconductor	Q10, Q16, Q17, Q20, Q21, Q22, Q24, Q26, Q28, Q30	Bellcore Issue 6	Level I		0.079603	10.00	4.3923	0.796033	12562298.27
1314111713	Semiconductor	Q11	Bellcore Issue 6	Level I		0.159207	1.00	.8785	0.159207	6281149.14
1540701380	Resistor	RN2	Bellcore Issue 6	Level I		0.012492	1.00	.0689	0.012492	80051386.00
106B701032	Resistor	RT1	Bellcore Issue 6	Level I		0.011379	1.00	.0628	0.011379	87878027.07
105A507503	Resistor	R3,R4,R5	Bellcore Issue 6	Level I		0.002268	3.00	.0375	0.006803	440974090.03
105A561903	Resistor	R7	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A505173	Resistor	R139, R225, R226	Bellcore Issue 6	Level I		0.002268	3.00	.0375	0.006803	440974090.03
105A525503	Resistor	R140	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A516963	Resistor	R142	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A516403	Resistor	R146,R195	Bellcore Issue 6	Level I		0.002268	2.00	.0250	0.004535	440974090.03
105A521003	Resistor	R147,R195	Bellcore Issue 6	Level I		0.002268	2.00	.0250	0.004535	440974090.03
105A500133	Resistor	R158, R160, R233, R247, R297, R317, R396, R397, R414, R415, R417	Bellcore Issue 6	Level I		0.002268	11.00	.1376	0.024945	440974090.03
105A513003	Resistor	R183	Bellcore Issue 6	Level I		0.002268	1.00	.0125	0.002268	440974090.03
105A768003	Resistor	R184, R185, R186, R204, R206, R207	Bellcore Issue 6	Level I		0.002268	6.00	.0751	0.013606	440974090.03
105A524963	Resistor	R223, R248, R360	Bellcore Issue 6	Level I		0.002268	3.00	.0375	0.006803	440974090.03

AAEON Reliability Prediction Report



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Temperature 25.00

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Time 2:21 下午
Failure Rate 18.123482
MTBF 55,177

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1129747650	Capacitor	CA12~A14, CA3, CA31, CA32, CA34, CA35, CA37, CA45~A51, CA6, CA7	Bellcore Issue 6	Level I		0.004535	18.00	.4505	0.081637	220487045.01
1121747660	Capacitor	CA10, CA11	Bellcore Issue 6	Level I		0.004535	2.00	.0501	0.009071	220487045.01
1651612990	Connection	CPU1	Bellcore Issue 6	Level I	9.90	0.727503	1.00	4.0141	0.727503	1374564.54
1174518180	Capacitor	CP1, CP2, CP3, CP4	Bellcore Issue 6	Level I		0.004535	4.00	.1001	0.018142	220487045.01
1124522080	Capacitor	C1, C11, C12, C13, C14, C2, C3, C4, C6, C7, C9	Bellcore Issue 6	Level I		0.004535	11.00	.2753	0.049890	220487045.01
1124510280	Capacitor	C126, C16, C176, C205, C206, C21, C33, C35, C43, C75, C76, C77, C8	Bellcore Issue 6	Level I		0.004535	13.00	.3253	0.058960	220487045.01
1124547080	Capacitor	C10, C15, C19, C197, C199, C20	Bellcore Issue 6	Level I		0.004535	6.00	.1502	0.027212	220487045.01
1124556280	Capacitor	C25	Bellcore Issue 6	Level I		0.004535	1.00	.0250	0.004535	220487045.01
1129722060	Capacitor	C104~107, C110~112, C114~116, C198, C91~99	Bellcore Issue 6	Level I		0.004535	20.00	.5005	0.090708	220487045.01
1189647080	Capacitor	C109	Bellcore Issue 6	Level I		0.004535	1.00	.0250	0.004535	220487045.01
1121722650	Capacitor	C109	Bellcore Issue 6	Level I		0.004535	1.00	.0250	0.004535	220487045.01
1121722650	Capacitor	C125, C127, C128, C132, C133, C138	Bellcore Issue 6	Level I		0.004535	6.00	.1502	0.027212	220487045.01
1124547180	Capacitor	C195	Bellcore Issue 6	Level I		0.004535	1.00	.0250	0.004535	220487045.01
1301005440	Semiconductor	DD1, DD2, DD3, DD5, DD6	Bellcore Issue 6	Level I		0.023881	5.00	.6588	0.119405	41874327.58
1300283540	Semiconductor	DD4	Bellcore Issue 6	Level I		0.023881	1.00	.1318	0.023881	41874327.58
14S4294500	Integrated Circuit	U18	Bellcore Issue 6	Level I	9.50	0.067514	1.00	.3725	0.067514	14811830.28
14S6334605	Integrated Circuit	U23	Bellcore Issue 6	Level I		0.022683	1.00	.1252	0.022683	44086680.49
14S4650601	Integrated Circuit	U24	Bellcore Issue 6	Level I		0.059366	1.00	.3276	0.059366	16844654.92
1651203291	Connection	U36	Bellcore Issue 6	Level I		0.018207	1.00	.1005	0.018207	54923766.92
14S4653701	Integrated Circuit	U38	Bellcore Issue 6	Level I		0.070411	1.00	.3885	0.070411	14202225.56
1121701080	Capacitor	C100, C101, C108, C113, C129~131, C134, C135, C139, C152~157, C159, C161~166, C169, ~175, C179, C194, C202, C204, C207~C220, C32, C34, C44, C5	Bellcore Issue 6	Level I		0.004535	52.00	1.3013	0.235842	220487045.01
1124418080	Capacitor	C177, C178, C23, C24	Bellcore Issue 6	Level I		0.004535	4.00	.1001	0.018142	220487045.01
1124510080	Capacitor	C45~C50, C52~C59, C66~C69	Bellcore Issue 6	Level I		0.004535	18.00	.4505	0.081637	220487045.01
1124522180	Capacitor	C117, C136	Bellcore Issue 6	Level I		0.004535	2.00	.0501	0.009071	220487045.01

