

PFM-532I

Reliability Prediction Report (MTBF)

Report NO : 05E070022

11-07-2005

Issue Date

Wenyuan Yang

Manager

Liping Hsieh

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** PFM-532I

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: 21.50 degrees C
- Standard: Telcordia (Bellcore) Standard

VII. **Term and Definition:**

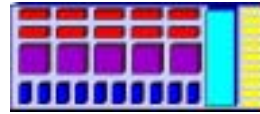
- Unit : An assembly of device.
- Duty Cycle : Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.
- Quantity : The quantity of the selected item.
- Failure Rate : Used to specify that the failure 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: 10.484019 ppm
- MTBF: 95,383 Hours

AAEON Reliability Prediction Report

Part Number 9697532100
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 21.50

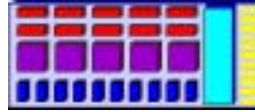


Description Top-level assembly
File Name PFM-532I.RPJ
Time 1:32 下午
Failure Rate 10.484019
MTBF 95,383

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
PFM-532I	9697532100	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	10.484019	95,383

AAEON Reliability Prediction Report

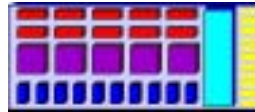
Part Number 9697532100
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 21.50



Description Top-level assembly
File Name PFM-5321.RPJ
Time 1:32 下午
Failure Rate 10.484019
MTBF 95,383

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1655004110	Connection	CN11	Bellcore Issue 6	Level I		0.001891	1.00	.0180	0.001891	528715533.11
14S6202007	Integrated Circuit	U6	Bellcore Issue 6	Level I	15.00	0.068784	1.00	.6561	0.068784	14538329.40
1653005101	Connection	JP5*2	Bellcore Issue 6	Level I		0.002364	2.00	.0451	0.004728	422972426.49
1655902030	Connection	BAT1	Bellcore Issue 6	Level I		0.000946	1.00	.0090	0.000946	1057431066.22
1653213220	Connection	CN5	Bellcore Issue 6	Level I		0.012294	1.00	.1173	0.012294	81340851.25
1653132220	Connection	CN7	Bellcore Issue 6	Level I		0.030262	1.00	.2886	0.030262	33044720.82
1653003110	Connection	CN10	Bellcore Issue 6	Level I		0.001419	1.00	.0135	0.001419	704954044.15
1653004302	Connection	JP1,JP2	Bellcore Issue 6	Level I		0.005674	2.00	.1082	0.011348	176238511.04
175011901C	Miscellaneous	BAT1	Bellcore Issue 6	Level I		0.900000	1.00	8.5845	0.900000	1111111.11
1759100008	Miscellaneous	BU1	Bellcore Issue 6	Level I		0.150000	1.00	1.4307	0.150000	6666666.67
1653120225	Connection	CN7	Bellcore Issue 6	Level I		0.018914	1.00	.1804	0.018914	52871553.31
1653006100	Connection	CN8	Bellcore Issue 6	Level I		0.002837	1.00	.0271	0.002837	352477022.07
1653003201	Connection	CN13,JP7	Bellcore Issue 6	Level I		0.002837	2.00	.0541	0.005674	352477022.07
1653003101	Connection	JP4,JP6	Bellcore Issue 6	Level I		0.001419	2.00	.0271	0.002837	704954044.15
1651032220	Connection	U7	Bellcore Issue 6	Level I		0.015131	1.00	.1443	0.015131	66089441.64
14S4071203	Integrated Circuit	U5	Bellcore Issue 6	Level I	17.00	0.083959	1.00	.8008	0.083959	11910536.23
121230603E	Inductor	FB10,FB11,FB13,FB9	Bellcore Issue 6	Level I		0.002116	4.00	.0807	0.008463	472663955.92
1174522180	Capacitor	NC1	Bellcore Issue 6	Level I		0.005341	1.00	.0509	0.005341	187243462.29
14S3006000	Semiconductor	U12	Bellcore Issue 6	Level I		0.143799	1.00	1.3716	0.143799	6954142.36
1653205201	Connection	CN4	Bellcore Issue 6	Level I		0.004728	1.00	.0451	0.004728	211486213.24
1654040000	Connection	CN9	Bellcore Issue 6	Level I		0.018914	1.00	.1804	0.018914	52871553.31
11E9501090	Capacitor	C175	Bellcore Issue 6	Level I	20.70	0.006237	1.00	.0595	0.006237	160323208.26
11E9501090	Capacitor	C1,C126,C151,C153,C162,C176,C-178-C181,C184,C186,C25,C26,C3,-C33	Bellcore Issue 6	Level I		0.004231	16.00	.6458	0.067701	236331977.96
11E9501090	Capacitor	C42,C45,C53,C54,C74,C78,C84,C-87	Bellcore Issue 6	Level I		0.004231	8.00	.3229	0.033851	236331977.96
1129710050	Capacitor	C182	Bellcore Issue 6	Level I	21.00	0.006270	1.00	.0598	0.006270	159483795.54
1129710050	Capacitor	C110,C144,C171,C177,C18,C34,C-43,C56,C59,C6,C60,C64,C73	Bellcore Issue 6	Level I		0.004231	13.00	.5247	0.055007	236331977.96
1124522880	Capacitor	C44	Bellcore Issue 6	Level I		0.004231	1.00	.0404	0.004231	236331977.96
1129710090	Capacitor	C167,C168,C72,C75	Bellcore Issue 6	Level I		0.004231	4.00	.1614	0.016925	236331977.96
11E9610190	Capacitor	C114,C172	Bellcore Issue 6	Level I		0.004231	2.00	.0807	0.008463	236331977.96

AAEON Reliability Prediction Report



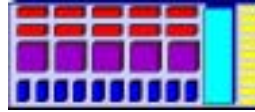
Part Number 9697532100
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 21.50

Description Top-level assembly
File Name PFM-532I.RPJ
Time 1:32 下午
Failure Rate 10.484019
MTBF 95,383

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1301005442	Semiconductor	D1,D8	Bellcore Issue 6	Level I		0.423134	2.00	8.0720	0.846267	2363319.78
1300414841	Semiconductor	D3	Bellcore Issue 6	Level I		0.021570	1.00	.2057	0.021570	46360949.09
1212306030	Inductor	F27,FB2,FB20,FB3	Bellcore Issue 6	Level I		0.002116	4.00	.0807	0.008463	472663955.92
14S5815300	Integrated Circuit	U15,U17,U20	Bellcore Issue 6	Level I		0.031060	3.00	.8888	0.093181	32195403.44
1315993311	Semiconductor	U19	Bellcore Issue 6	Level I		0.143799	1.00	1.3716	0.143799	6954142.36
14S5800000	Integrated Circuit	U22	Bellcore Issue 6	Level I		0.030706	1.00	.2929	0.030706	32566677.97
14S4810000	Integrated Circuit	U26	Bellcore Issue 6	Level I	20.60	0.101677	1.00	.9698	0.101677	9835056.93
14S4021310	Integrated Circuit	U29,U30	Bellcore Issue 6	Level I		0.045816	2.00	.8740	0.091632	21826424.25
14S4070610	Integrated Circuit	U33	Bellcore Issue 6	Level I		0.059339	1.00	.5660	0.059339	16852436.15
14S2303700	Integrated Circuit	U13	Bellcore Issue 6	Level I		0.067346	1.00	.6424	0.067346	14848741.48
1310390411	Semiconductor	Q2,Q4	Bellcore Issue 6	Level I		0.014311	2.00	.2730	0.028622	69876026.14
1540710084	Resistor	RP2,RP4	Bellcore Issue 6	Level I		0.010624	2.00	.2027	0.021249	94122651.27
15407822A0	Resistor	RP10,RP11,RP6,RP7	Bellcore Issue 6	Level I		0.010624	4.00	.4054	0.042498	94122651.27
1540747282	Resistor	RP16	Bellcore Issue 6	Level I		0.010624	1.00	.1013	0.010624	94122651.27
1540710380	Resistor	RP19-RP23	Bellcore Issue 6	Level I		0.010624	5.00	.5067	0.053122	94122651.27
105A500139	Resistor	R113,R116,R117,R123,R198,R2,R-201,R36,R53,R67	Bellcore Issue 6	Level I		0.010624	10.00	1.0134	0.106244	94122651.27
105A505629	Resistor	R12,R158	Bellcore Issue 6	Level I		0.010624	2.00	.2027	0.021249	94122651.27
105A708229	Resistor	R155,R180,R34,R9	Bellcore Issue 6	Level I		0.010624	4.00	.4054	0.042498	94122651.27
105A702209	Resistor	R100,R101,R103,R105,R106,R157-,R185,R187,R189,R194,R196,R199-,R203,R210	Bellcore Issue 6	Level I		0.010624	14.00	1.4188	0.148742	94122651.27
105S702209	Resistor	R51,R75-R78,R96,R97	Bellcore Issue 6	Level I		0.010624	7.00	.7094	0.074371	94122651.27
105A503309	Resistor	R177,R179,R182,R184,R186,R188-,R190,R195,R197,R200,R204,R211-,R81	Bellcore Issue 6	Level I		0.010624	13.00	1.3174	0.138118	94122651.27
105A700133	Resistor	R87,R90	Bellcore Issue 6	Level I		0.010624	2.00	.2027	0.021249	94122651.27
105A515009	Resistor	R107	Bellcore Issue 6	Level I		0.010624	1.00	.1013	0.010624	94122651.27
105A514703	Resistor	R145	Bellcore Issue 6	Level I		0.010624	1.00	.1013	0.010624	94122651.27
105A507509	Resistor	R153,R156,R170,R175,R191,R202-,R218	Bellcore Issue 6	Level I		0.010624	7.00	.7094	0.074371	94122651.27
105A512103	Resistor	R229,R230	Bellcore Issue 6	Level I		0.010624	2.00	.2027	0.021249	94122651.27
1189633181	Capacitor	TC2,TC3	Bellcore Issue 6	Level I		0.004231	2.00	.0807	0.008463	236331977.96
14S4000102	Integrated Circuit	U2	Bellcore Issue 6	Level I	11.00	0.101384	1.00	.9670	0.101384	9863443.15

AAEON Reliability Prediction Report

Part Number 9697532100
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 21.50

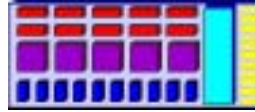


Description Top-level assembly
File Name PFM-5321.RPJ
Time 1:32 下午
Failure Rate 10.484019
MTBF 95,383

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1315970110	Integrated Circuit	U9	Bellcore Issue 6	Level I		0.045816	1.00	.4370	0.045816	21826424.25
1231314350	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.4307	0.150000	6666666.67
1231325050	Miscellaneous	Y2	Bellcore Issue 6	Level I		0.150000	1.00	1.4307	0.150000	6666666.67
1231332721	Miscellaneous	Y3	Bellcore Issue 6	Level I		0.150000	1.00	1.4307	0.150000	6666666.67
1311119710	Semiconductor	Q1	Bellcore Issue 6	Level I		0.021570	1.00	.2057	0.021570	46360949.09
1540782282	Resistor	RP1,RP3	Bellcore Issue 6	Level I		0.010624	2.00	.2027	0.021249	94122651.27
1540782280	Resistor	RP12,RP13,RP8	Bellcore Issue 6	Level I		0.010624	3.00	.3040	0.031873	94122651.27
1540733082	Resistor	RP28-RP30,RP5	Bellcore Issue 6	Level I		0.010624	4.00	.4054	0.042498	94122651.27
15407562A0	Resistor	RP9	Bellcore Issue 6	Level I		0.010624	1.00	.1013	0.010624	94122651.27
1540722085	Resistor	RP14,RP15,RP17,RP18,RP24-RP27	Bellcore Issue 6	Level I		0.010624	8.00	.8107	0.084995	94122651.27
1315992601	Semiconductor	U14	Bellcore Issue 6	Level I	13.90	0.212516	1.00	2.0270	0.212516	4705532.70
14S5801402	Integrated Circuit	U16	Bellcore Issue 6	Level I		0.030768	1.00	.2935	0.030768	32501607.74
14S5812501	Integrated Circuit	U18	Bellcore Issue 6	Level I		0.030706	1.00	.2929	0.030706	32566677.97
14S5813800	Integrated Circuit	U21	Bellcore Issue 6	Level I	19.40	0.092896	1.00	.8861	0.092896	10764764.49
14S6334610	Integrated Circuit	U24	Bellcore Issue 6	Level I		0.017752	1.00	.1693	0.017752	56331234.76
14S4397701	Integrated Circuit	U25	Bellcore Issue 6	Level I	22.50	0.112292	1.00	1.0711	0.112292	8905354.44
14S5A01400	Integrated Circuit	U28	Bellcore Issue 6	Level I		0.055462	1.00	.5290	0.055462	18030396.38
14S3115000	Integrated Circuit	U31	Bellcore Issue 6	Level I	33.60	0.595072	1.00	5.6760	0.595072	1680468.84
14S3128420	Resistor	U32	Bellcore Issue 6	Level I		0.009457	1.00	.0902	0.009457	105743106.62
14S4048500	Integrated Circuit	U34,U35	Bellcore Issue 6	Level I		0.059339	2.00	1.1320	0.118677	16852436.15
105A704729	Resistor	R1,R111,R115,R118,R120,R122,R-124,R127,R128,R130,R131,R135,R-139,R14	Bellcore Issue 6	Level I		0.002116	14.00	.2825	0.029619	472663955.92
105A704729	Resistor	R140,R147,R15,R16,R160-R162,R-164-R168,R17,R18,R20,R205-R209,R21,R219	Bellcore Issue 6	Level I		0.002116	22.00	.4440	0.046545	472663955.92
105A704729	Resistor	R22,R220,R221,R228,R23,R25,R26-R28-R33,R3,R38,R39,R4,R40-R42-R45-R47	Bellcore Issue 6	Level I		0.002116	23.00	.4641	0.048660	472663955.92
105A704729	Resistor	R5,R6,R60-R62,R70,R71,R73,R91,-R93,R95,R99	Bellcore Issue 6	Level I		0.002116	12.00	.2422	0.025388	472663955.92
105A730009	Resistor	R56-R58,R8	Bellcore Issue 6	Level I		0.002116	4.00	.0807	0.008463	472663955.92
105A501039	Resistor	R10,R104,R146,R224-R226,R35,R-37,R68,R7	Bellcore Issue 6	Level I		0.002116	10.00	.2018	0.021157	472663955.92

AAEON Reliability Prediction Report

Part Number 9697532100
Reference Des
Date 11. 7, 2005
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 21.50



Description Top-level assembly
File Name PFM-5321.RPJ
Time 1:32 下午
Failure Rate 10.484019
MTBF 95,383

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A700003	Resistor	FB1,FB18,FB19,FB21,FB23,FB24,- FB28,FB8,R13,R159,R55,R63,R65	Bellcore Issue 6	Level I		0.002116	13.00	.2623	0.027504	472663955.92
105A700009	Resistor	R121,R141,R142,R144,R148,R149- R151,R169,R212,R43,R44,R48,R4- 9,R54,R66	Bellcore Issue 6	Level I		0.002116	16.00	.3229	0.033851	472663955.92
105A700009	Resistor	R69,R82,R84-R86,R89	Bellcore Issue 6	Level I		0.002116	6.00	.1211	0.012694	472663955.92
105A733009	Resistor	R109,R110,R50,R79,R94	Bellcore Issue 6	Level I		0.002116	5.00	.1009	0.010578	472663955.92
105A702229	Resistor	R52	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A701009	Resistor	R114,R119,R134,R136-R138,R143- R171,R172,R176,R178,R181,R183- R213-R216	Bellcore Issue 6	Level I		0.002116	17.00	.3431	0.035966	472663955.92
105A701009	Resistor	R222,R59	Bellcore Issue 6	Level I		0.002116	2.00	.0404	0.004231	472663955.92
105A575003	Resistor	R64	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A708209	Resistor	R102,R72,R74,R98	Bellcore Issue 6	Level I		0.002116	4.00	.0807	0.008463	472663955.92
105A547003	Resistor	R80	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A501003	Resistor	R83	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A516513	Resistor	R88	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A501033	Resistor	R92	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
1059702261	Resistor	R108,R112	Bellcore Issue 6	Level I		0.002116	2.00	.0404	0.004231	472663955.92
105A502033	Resistor	R152,R154	Bellcore Issue 6	Level I		0.002116	2.00	.0404	0.004231	472663955.92
105A549969	Resistor	R193	Bellcore Issue 6	Level I		0.002116	1.00	.0202	0.002116	472663955.92
105A510053	Resistor	R223	Bellcore Issue 6	Level I		0.012694	1.00	.1211	0.012694	78777325.99
1189615190	Capacitor	TC1	Bellcore Issue 6	Level I		0.004231	1.00	.0404	0.004231	236331977.96
14S3000201	Inductor	TF1	Bellcore Issue 6	Level I		0.126940	1.00	1.2108	0.126940	7877732.60
14S6822000	Integrated Circuit	U3	Bellcore Issue 6	Level I	15.80	0.208680	1.00	1.9905	0.208680	4792034.35
14S6822000	Integrated Circuit	U1,U23,U27	Bellcore Issue 6	Level I		0.084623	3.00	2.4215	0.253868	11817185.18
14S4911216	Integrated Circuit	U4	Bellcore Issue 6	Level I	28.10	0.312974	1.00	2.9852	0.312974	3195151.78
1651203291	Connection	U6	Bellcore Issue 6	Level I		0.015131	1.00	.1443	0.015131	66089441.64
14S5824501	Integrated Circuit	U10,U11	Bellcore Issue 6	Level I		0.031116	2.00	.5936	0.062232	32137667.24
1653210201	Connection	CN2	Bellcore Issue 6	Level I		0.009457	1.00	.0902	0.009457	105743106.62
1653213207	Connection	CN3	Bellcore Issue 6	Level I		0.012294	1.00	.1173	0.012294	81340851.25
1653008202	Connection	CN6	Bellcore Issue 6	Level I		0.007566	1.00	.0722	0.007566	132178883.28
1653222208	Connection	CN12	Bellcore Issue 6	Level I		0.020805	1.00	.1984	0.020805	48065048.46

