



AAEON Technology INC.
ISO-9001/ISO-14001 Certified
Industrial Automation PCs

PCM-4894

Reliability Prediction Report

(MTBF)

Release Date: Feb. 09, 2000

Issue Stamp

QA Manager

QE Manager

Test Engineer

Reliability Prediction (MTBF)

I . Model Name: PCM-4894

II . Description: 486 Little Board with LCD, Ethernet, 4 COMs, & 4 Digital I/O Channels

III. Prediction Date: Feb. 09, 2000

IV. Prediction Site: AAEON QE Dept.

V. Predicted by : Chasel Wang

VI. Equipment: Relx Ver.7.0 Visual Reliability Software

VII. Simulation Environment:

- **Temperature: 25 degrees C**
- **Standard: Telcordia (Bellcore) Standard**

VIII. Prediction Result:

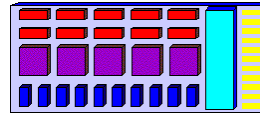
- **Failure Rate: 14.560088 ppm**
- **MTBF: 68,681. hours**

IX. 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.

AAEON Reliability Prediction Report

Part Number 9697489405-6
Reference Des
Date 02. 9, 2000
Environment GF, GU - Ground Fixed, Uncontrolled
Temperature 25.00

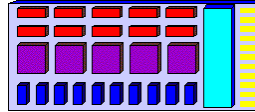


Description Top-level assembly
File Name 4894a22.rpj
Time 3:27 PM
Failure Rate 14.560088
MTBF 68,681

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
PCM-4894	9697489405-6	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	14.560088	68,681

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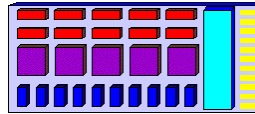


Description Top-level assembly
File Name 4894a22.rpj
Time 3:27 PM
Failure Rate 14.560088
MTBF 68,681

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1231120050	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.0302	0.150000	6666666.67
1231143180	Miscellaneous	Y3	Bellcore Issue 6	Level I		0.150000	1.00	1.0302	0.150000	6666666.67
1304100200	Semiconductor	D1	Bellcore Issue 6	Level I		0.004877	1.00	.0335	0.004877	205063180.81
14D1605200	Semiconductor	U42	Bellcore Issue 6	Level I	14.00	0.058452	1.00	.4015	0.058452	17107985.70
14D3000110	Integrated Circuit	U1	Bellcore Issue 6	Level I		0.031683	1.00	.2176	0.031683	31562338.41
14D3303100	Integrated Circuit	U26	Bellcore Issue 6	Level I	40.00	0.783406	1.00	5.3805	0.783406	1276477.32
14D4488600	Integrated Circuit	U29	Bellcore Issue 6	Level I	17.00	0.192530	1.00	1.3223	0.192530	5193998.23
14S6201010	Integrated Circuit	U21	Bellcore Issue 6	Level I	14.00	0.392470	1.00	2.6955	0.392470	2547967.49
1651003222	Connection	U20	Bellcore Issue 6	Level I		0.018207	1.00	.1250	0.018207	54923766.92
1651572000	Connection	SIMM1-2	Bellcore Issue 6	Level I		0.040966	2.00	.5627	0.081932	24410563.08
1653002100	Connection	CN18	Bellcore Issue 6	Level I		0.001138	1.00	.0078	0.001138	878780270.71
1653003101	Connection	JP3-5	Bellcore Issue 6	Level I		0.001707	3.00	.0352	0.005121	585853513.81
1653004100	Connection	CN14	Bellcore Issue 6	Level I		0.002276	1.00	.0156	0.002276	439390135.35
1653005200	Connection	CN10,CN13,CN8/CN9	Bellcore Issue 6	Level I		0.005690	3.00	.1172	0.017069	175756054.14
1653005201	Connection	JP2	Bellcore Issue 6	Level I		0.005690	1.00	.0391	0.005690	175756054.14
1653006100	Connection	CN12	Bellcore Issue 6	Level I		0.003414	1.00	.0234	0.003414	292926756.90
1653006201	Connection	JP1	Bellcore Issue 6	Level I		0.006828	1.00	.0469	0.006828	146463378.45
1653120225	Connection	SL2	Bellcore Issue 6	Level I		0.022759	1.00	.1563	0.022759	43939013.54
1653132220	Connection	SL1	Bellcore Issue 6	Level I		0.036414	1.00	.2501	0.036414	27461883.46
1653205200	Connection	CN1	Bellcore Issue 6	Level I		0.005690	1.00	.0391	0.005690	175756054.14
1653208200	Connection	CN16	Bellcore Issue 6	Level I		0.009104	1.00	.0625	0.009104	109847533.84
1653213201	Connection	CN3	Bellcore Issue 6	Level I		0.014793	1.00	.1016	0.014793	67598482.36
1653217202	Connection	CN5	Bellcore Issue 6	Level I		0.019345	1.00	.1329	0.019345	51692957.10
1653220203	Connection	CN2	Bellcore Issue 6	Level I		0.022759	1.00	.1563	0.022759	43939013.54
1653222200	Connection	CN4,CN15	Bellcore Issue 6	Level I		0.025035	2.00	.3439	0.050069	39944557.76
1654294200	Connection	SL3	Bellcore Issue 6	Level I		0.106966	1.00	.7347	0.106966	9348726.28
1655004011	Connection	CN17	Bellcore Issue 6	Level I		0.002276	1.00	.0156	0.002276	439390135.35
1655204030	Connection	CN6	Bellcore Issue 6	Level I		0.002276	1.00	.0156	0.002276	439390135.35
1657254008	Connection	CN7	Bellcore Issue 6	Level I		0.004552	1.00	.0313	0.004552	219695067.68
1759400002	Miscellaneous	BZ1	Bellcore Issue 6	Level I		0.150000	1.00	1.0302	0.150000	6666666.67
101A500239	Resistor	R139	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03

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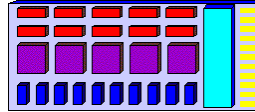


Description Top-level assembly
File Name 4894a22.rpj
Time 3:27 PM
Failure Rate 14.560088
MTBF 68,681

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
101A700009	Resistor	R8,R13,R49,R114,R117,R119	Bellcore Issue 6	Level I		0.002268	6.00	.0934	0.013606	440974090.03
101A701009	Resistor	R39-40,R60-61	Bellcore Issue 6	Level I		0.002268	4.00	.0623	0.009071	440974090.03
101A702209	Resistor	R16-19,R21,R23-26,R28-29,R68,R-77-79,R108-110	Bellcore Issue 6	Level I		0.002268	18.00	.2803	0.040819	440974090.03
101A703309	Resistor	R69,R83-85,R88,R90-91,R112-113-,R125-128,R130-133,R135-136,R1-41	Bellcore Issue 6	Level I		0.002268	20.00	.3115	0.045354	440974090.03
101A704729	Resistor	R4,R63,R72,R107,R118,R121-122	Bellcore Issue 6	Level I		0.002268	7.00	.1090	0.015874	440974090.03
101A707509	Resistor	R142-143,R145	Bellcore Issue 6	Level I		0.002268	3.00	.0467	0.006803	440974090.03
101A710009	Resistor	R33	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
101A710019	Resistor	R43,R62,R81,R86,R89,R59,R124,-R52-56	Bellcore Issue 6	Level I		0.002268	12.00	.1869	0.027212	440974090.03
101A710029	Resistor	R10,R20,R22,R27,R41-42,R46-47,-R67,R82,R87,R44,R100,R137,R14-6-148	Bellcore Issue 6	Level I		0.002268	17.00	.2648	0.038551	440974090.03
101A715009	Resistor	R6	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
101A722009	Resistor	R51	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
101A733009	Resistor	R5,R9,R11,R31-32,R34-36,R76,R9-8-99,R106,R111	Bellcore Issue 6	Level I		0.002268	13.00	.2025	0.029480	440974090.03
101A756009	Resistor	R48	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
105A511513	Resistor	R138	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
105A521033	Resistor	R93	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
105A702723	Resistor	R94	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
105A751033	Resistor	R92	Bellcore Issue 6	Level I		0.002268	1.00	.0156	0.002268	440974090.03
1121747660	Capacitor	C74-81,C89-92,C106-107,C109-110	Bellcore Issue 6	Level I		0.002539	16.00	.2790	0.040624	393852661.82
1122701680	Capacitor	C3-8,C18,C20-21,C29-32,C37-41,-C43-44,C46,C82-83,C93-105,C108-,C111-117,C123-134,C143-151,C1-53-176,C180-189,C192-194	Bellcore Issue 6	Level I		0.001598	102.00	1.1192	0.162951	625953979.55
1122722780	Capacitor	C122	Bellcore Issue 6	Level I		0.001598	1.00	.0110	0.001598	625953979.55
1124510080	Capacitor	C9-10,C12-13,C16-17,C19,C22-25-,C33-36,C136,C138-142	Bellcore Issue 6	Level I		0.001060	21.00	.1529	0.022265	943198589.05
1124510280	Capacitor	C11,C15,C28	Bellcore Issue 6	Level I		0.001060	3.00	.0218	0.003181	943198589.05
1124518180	Capacitor	C47-73,C84-88,C118-121	Bellcore Issue 6	Level I		0.001060	36.00	.2621	0.038168	943198589.05
1124520080	Capacitor	C26-27,C42,C45	Bellcore Issue 6	Level I		0.001060	4.00	.0291	0.004241	943198589.05

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Failure Rate 14.560088
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1124527080	Capacitor	C177-179	Bellcore Issue 6	Level I		0.001060	3.00	.0218	0.003181	943198589.05
1124547080	Capacitor	C190-191	Bellcore Issue 6	Level I		0.001060	2.00	.0146	0.002120	943198589.05
1124547180	Capacitor	C152	Bellcore Issue 6	Level I		0.001060	1.00	.0073	0.001060	943198589.05
1124547280	Capacitor	C14	Bellcore Issue 6	Level I		0.001060	1.00	.0073	0.001060	943198589.05
1141601090	Capacitor	TC15	Bellcore Issue 6	Level I		0.002357	1.00	.0162	0.002357	424256814.77
1141610050	Capacitor	TC1-14,TC16,TC18-22,TC26-27,T-C29-32	Bellcore Issue 6	Level I		0.002357	26.00	.4209	0.061284	424256814.77
1149610180	Capacitor	TC23-25,TC28	Bellcore Issue 6	Level I		0.002502	4.00	.0687	0.010006	399749835.57
1212308050	Inductor	L1-16	Bellcore Issue 6	Level I		0.002268	16.00	.2492	0.036283	440974090.03
1300414800	Semiconductor	D2,D5-6	Bellcore Issue 6	Level I		0.023881	3.00	.4921	0.071643	41874327.58
1305099140	Semiconductor	D7-9	Bellcore Issue 6	Level I		0.023881	3.00	.4921	0.071643	41874327.58
1310390410	Semiconductor	Q2	Bellcore Issue 6	Level I		0.023881	1.00	.1640	0.023881	41874327.58
1428474008	Integrated Circuit	U17	Bellcore Issue 6	Level I	13.00	0.114774	1.00	.7883	0.114774	8712810.69
14S3128400	Integrated Circuit	U2-3	Bellcore Issue 6	Level I	7.00	0.097911	2.00	1.3449	0.195822	10213356.27
14S4021300	Semiconductor	U4-6,U15	Bellcore Issue 6	Level I	7.00	0.121117	4.00	3.3274	0.484469	8256457.13
14S4048500	Integrated Circuit	U8-9	Bellcore Issue 6	Level I	8.00	0.104969	2.00	1.4419	0.209938	9526603.44
14S4148700	Integrated Circuit	U13	Bellcore Issue 6	Level I	13.00	0.081727	1.00	.5613	0.081727	12235812.22
14S4148910	Integrated Circuit	U19	Bellcore Issue 6	Level I	27.00	0.168422	1.00	1.1567	0.168422	5937462.05
14S4387701	Integrated Circuit	U10	Bellcore Issue 6	Level I		0.039296	1.00	.2699	0.039296	25448028.36
14S4397700	Integrated Circuit	U14	Bellcore Issue 6	Level I	6.00	0.055527	1.00	.3814	0.055527	18009235.63
14S4486500	Integrated Circuit	U27	Bellcore Issue 6	Level I	46.00	0.408979	1.00	2.8089	0.408979	2445112.04
14S4526100	Integrated Circuit	U23	Bellcore Issue 6	Level I	21.00	0.249350	1.00	1.7126	0.249350	4010425.02
14S4555001	Integrated Circuit	U31	Bellcore Issue 6	Level I	32.00	0.214831	1.00	1.4755	0.214831	4654831.28
14S4654200	Integrated Circuit	U36	Bellcore Issue 6	Level I	11.00	0.073313	1.00	.5035	0.073313	13640096.66
14S4802910	Integrated Circuit	U7	Bellcore Issue 6	Level I	8.00	0.062123	1.00	.4267	0.062123	16097220.79
14S5000600	Integrated Circuit	U22,U34	Bellcore Issue 6	Level I	13.00	0.115258	2.00	1.5832	0.230515	8676209.89
14S5203200	Integrated Circuit	U35	Bellcore Issue 6	Level I	13.00	0.114774	1.00	.7883	0.114774	8712810.69
14S5500400	Integrated Circuit	U12,U37	Bellcore Issue 6	Level I	12.00	0.110504	2.00	1.5179	0.221009	9049413.67
14S5513800	Integrated Circuit	U11	Bellcore Issue 6	Level I	11.00	0.108050	1.00	.7421	0.108050	9255003.73
14S6025610	Integrated Circuit	U28,U30,U32,U40-41	Bellcore Issue 6	Level I	38.00	1.374415	5.00	47.1980	6.872074	727582.37
14S6125802	Integrated Circuit	U24-25,U38-39	Bellcore Issue 6	Level I	20.00	0.230549	4.00	6.3337	0.922195	4337479.33

