

# ONYX-153 Reliability Prediction Report (MTBF)

Report NO : 05P070006

**07-25-2005**

Issue Date

**Wenyuan Yang**

Manager

**Jessica Chou**

Test Engineer

## Reliability Prediction (MTBF)

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### I . Model Name:

- ONYX-153HTT-A1 (Medical Station.P-M 1.6GHz.15" 400 nits TFT.1P.AC.R-TS.Card Reader.1 Mini PCI)

### II . Prediction Date: Jul. 25, 2005

### 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 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:

- 974153000 (ASS'Y Kit.for ONYX-153-HTT-A1)
  - Not include LCD, Touch Screen., ATX power, DVD-ROM, Inverter, Memory card
  - 1-1. Failure Rate: 19.266180 ppm
  - 1-2. MTBF: 51,904 Hours
- LA150XP030 (15" LCD) - Lamp Life Time : Min. 50,000 hrs
- 1757318000 (ATX Power)

3-1.MTBF : 100,000 hrs

4. TS95409000 (15" Touch screen)

4-1. Point Activation Life : 1 Million activations on a single point with a 5/8" diameter silicone finger with a 350g load at 2Hz.

4-2. Character Activation Life : >100,000 characters written within a 20mm\*20mm area on the touch screen.

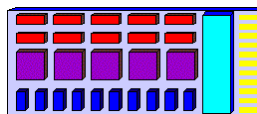
4-3. Surface Finish Properties : Minimum 4H hardness. Refer to Touch Screen Surface Finishes Data Sheet 1005 for more details.

5. 978A666601 (DVD ROM)

5-1. MTBF : 60,000 POH or more (the frequency of use should be 10% at normal temperature and humidity).

### AAEON Reliability Prediction Report

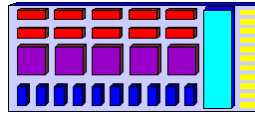
**Part Number** 9741153000  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 25.00



**Description** Top-level assembly  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 19.266180  
**MTBF** 51,904

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
ONYX-153HTT-A1	9741153000	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	19.266180	51,904
9697820018		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	17.025093	58,737
9697Y01004		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	2.057567	486,011
969B901A30		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	0.051207	19,528,450
9697110900		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	0.104685	9,552,473
9697YC0300		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	0.006819	146,638,951
9697Y01100		Bellcore	Method I Case 3	GF, GU - Ground Fixed,		1.00	0.020808	48,059,090

**AAEON Reliability Prediction Report**

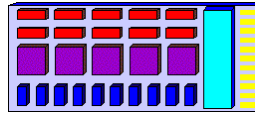


**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 21.30

**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 17.025093  
**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1655417020	Connection	CN6	Bellcore Issue 6	Level I		0.009356	1.00	.0550	0.009356	106881489.02
1653006100	Connection	CN17	Bellcore Issue 6	Level I		0.070171	1.00	.4122	0.070171	14250865.20
1181633110	Capacitor	EC3	Bellcore Issue 6	Level I		0.002190	1.00	.0129	0.002190	456575024.51
1653003100	Connection	JP2,JP4	Bellcore Issue 6	Level I		0.035086	2.00	.4122	0.070171	28501730.41
1654260201	Connection	PCI1	Bellcore Issue 6	Level I		1.403424	1.00	8.2433	1.403424	712543.26
1750220323	Connection	BAT1	Bellcore Issue 6	Level I		0.000936	1.00	.0055	0.000936	1068814890.23
1653209200	Connection	CN1	Bellcore Issue 6	Level I		0.008421	1.00	.0495	0.008421	118757210.03
1653005200	Connection	CN3	Bellcore Issue 6	Level I		0.004678	1.00	.0275	0.004678	213762978.05
14S6200400	Integrated Circuit	U20	Bellcore Issue 6	Level I	9.50	0.270005	1.00	1.5859	0.270005	3703630.10
1750119011	Miscellaneous	BAT1	Bellcore Issue 6	Level I		0.900000	1.00	5.2863	0.900000	1111111.11
1653208200	Connection	CN2	Bellcore Issue 6	Level I		0.007485	1.00	.0440	0.007485	133601861.28
1655003000	Connection	CN16,CN4	Bellcore Issue 6	Level I		0.001403	2.00	.0165	0.002807	712543260.15
1653210203	Connection	CN5	Bellcore Issue 6	Level I		0.233904	1.00	1.3739	0.233904	4275259.56
1655305020	Connection	CN8	Bellcore Issue 6	Level I		0.058476	1.00	.3435	0.058476	17101038.24
1654907000	Connection	SATA1,SATA2	Bellcore Issue 6	Level I		0.081866	2.00	.9617	0.163733	12215027.32
1651592490	Connection	DIMM1	Bellcore Issue 6	Level I		0.086077	1.00	.5056	0.086077	11617553.15
1653220208	Connection	IDE1	Bellcore Issue 6	Level I		0.018712	1.00	.1099	0.018712	53440744.51
1652508204	Connection	LAN1	Bellcore Issue 6	Level I		0.003742	1.00	.0220	0.003742	267203722.56
1213160008	Inductor	BP2-BP9	Bellcore Issue 6	Level I		0.002107	8.00	.0990	0.016858	474565755.81
1653925216	Connection	CFD1	Bellcore Issue 6	Level I		0.023390	1.00	.1374	0.023390	42752595.61
1653207201	Connection	CN12,CN9	Bellcore Issue 6	Level I		0.006549	2.00	.0769	0.013099	152687841.46
1653210201	Connection	CN11	Bellcore Issue 6	Level I		0.233904	1.00	1.3739	0.233904	4275259.56
165300420B	Connection	CN19	Bellcore Issue 6	Level I		0.003742	1.00	.0220	0.003742	267203722.56
1174510180	Capacitor	CP1,CP10-CP13,CP2-CP4,CP6-CP9	Bellcore Issue 6	Level I		0.001035	12.00	.0729	0.012415	966564670.88
1129701690	Capacitor	C100,C102,C105-C109,C11,C110,-C112,C114-C118,C120-C126,C133-C137	Bellcore Issue 6	Level I		0.002478	27.00	.3929	0.066896	403609667.00
1129701690	Capacitor	C148-C152,C15,C154,C158-C160,-C162-C166,C172-C175,C179-C184-C19	Bellcore Issue 6	Level I		0.002478	26.00	.3784	0.064419	403609667.00
1129701690	Capacitor	C188,C189,C192-C203,C2,C212-C219,C224,C233-C236,C239,C24,C-241	Bellcore Issue 6	Level I		0.002478	31.00	.4511	0.076807	403609667.00

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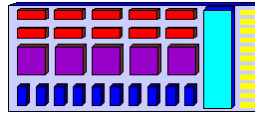


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**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1129701690	Capacitor	C245,C246,C25,C251,C255,C259,-C26,C264-C265,C269,C27,C28,C2-81,C29	Bellcore Issue 6	Level I		0.002478	14.00	.2037	0.034687	403609667.00
1129701690	Capacitor	C298-C299,C3,C30,C300,C302-C304,C306-C308,C310,C317-C319,C-322	Bellcore Issue 6	Level I		0.002478	16.00	.2328	0.039642	403609667.00
1129701690	Capacitor	C324,C325,C328,C330,C332-C334,C336,C337,C34,C346,C349,C35,C-350	Bellcore Issue 6	Level I		0.002478	14.00	.2037	0.034687	403609667.00
1129701690	Capacitor	C353,C36,C367,C371-C378,C380--C384,C389-C395,C4,C401,C406,C-407	Bellcore Issue 6	Level I		0.002478	27.00	.3929	0.066896	403609667.00
1129701690	Capacitor	C408,C409,C41,C413,C414,C417,-C42,C421-C426,C431-C434,C436,-C439	Bellcore Issue 6	Level I		0.002478	19.00	.2765	0.047075	403609667.00
1129701690	Capacitor	C443,C445,C456,C458,C46,C460,-C463-C466,C468,C469,C47,C470--C472	Bellcore Issue 6	Level I		0.002478	16.00	.2328	0.039642	403609667.00
1129701690	Capacitor	C474-C476,C48,C480-C484,C486--C488,C49,C492-C493,C497,C498,-C50	Bellcore Issue 6	Level I		0.002478	18.00	.2620	0.044598	403609667.00
1129701690	Capacitor	C500-C504,C506-C509,C513,C515,-C518-C524,C52,C528,C529,C53,C-530,C531	Bellcore Issue 6	Level I		0.002478	24.00	.3493	0.059463	403609667.00
1129701690	Capacitor	C54,C547-C549,C55,C550,C551,C-553-C556,C558,C559,C56,C560,C-563,C564	Bellcore Issue 6	Level I		0.002478	17.00	.2474	0.042120	403609667.00
1129701690	Capacitor	C565-C571,C57,C573-C584,C588--C590,C59,C592,C595,C596,C599,-C61-C64	Bellcore Issue 6	Level I		0.002478	32.00	.4657	0.079285	403609667.00
1129701690	Capacitor	C68-CC72,C7,C75-C78,C8,C80,C8-2,C88,C9,C90-C96,C98,C99	Bellcore Issue 6	Level I		0.002478	24.00	.3493	0.059463	403609667.00
1129747650	Capacitor	C113,C23,C279,C280,C316,C32,C-356,C44,C6	Bellcore Issue 6	Level I		0.002656	9.00	.1404	0.023908	376436061.28
1129701790	Capacitor	C156,C176,C20,C242,C254,C271,-C274,C329,C331,C363,C415,C442,-C444	Bellcore Issue 6	Level I		0.001559	13.00	.1190	0.020266	641460885.60
1129701790	Capacitor	C447,C459,C478,C494,C495,C517,-C525,C526,C562,C81	Bellcore Issue 6	Level I		0.001559	10.00	.0916	0.015589	641460885.60
1124533190	Capacitor	C177,C186,C278,C341,C343,C397,-C40,C438,C473,C538,C540	Bellcore Issue 6	Level I		0.001035	11.00	.0668	0.011381	966564670.88
14S4700900	Integrated Circuit	U5	Bellcore Issue 6	Level I	7.80	0.084713	1.00	.4976	0.084713	11804506.99

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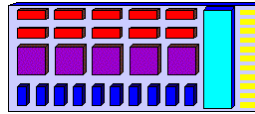


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14S4148500	Integrated Circuit	U8	Bellcore Issue 6	Level I		0.045134	1.00	.2651	0.045134	22156093.79
14S3260100	Integrated Circuit	U12	Bellcore Issue 6	Level I	13.70	0.120485	1.00	.7077	0.120485	8299772.79
1651203291	Connection	U17	Bellcore Issue 6	Level I		0.014970	1.00	.0879	0.014970	66800930.64
105A568123	Resistor	R550,R553	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A522663	Resistor	R601	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1189922180	Capacitor	TC10,TC12,TC17,TC2,TC21-TC26	Bellcore Issue 6	Level I		0.235922	9.00	12.4716	2.123300	4238684.69
14S3019300	Inductor	TF1	Bellcore Issue 6	Level I		0.126431	1.00	.7426	0.126431	7909429.26
14S4255101	Integrated Circuit	U2	Bellcore Issue 6	Level I	13.20	0.067514	1.00	.3966	0.067514	14811830.28
1310390412	Semiconductor	Q24,Q25	Bellcore Issue 6	Level I		0.021443	2.00	.2519	0.042886	46634793.15
14S3156500	Integrated Circuit	Q47	Bellcore Issue 6	Level I	13.80	0.121313	1.00	.7126	0.121313	8243147.27
14S3156500	Integrated Circuit	Q43	Bellcore Issue 6	Level I	16.50	0.145700	1.00	.8558	0.145700	6863412.72
1540756081	Resistor	RP1,RP11,RP13,RP15,RP17,RP19- RP21,RP23,RP24,RP28,RP3,RP31- RP32	Bellcore Issue 6	Level I		0.005263	13.00	.4018	0.068415	190017357.43
1540756081	Resistor	RP36,RP37,RP5,RP6,RP9	Bellcore Issue 6	Level I		0.005263	5.00	.1546	0.026313	190017357.43
106B501031	Resistor	RT1-RT3	Bellcore Issue 6	Level I		0.009356	3.00	.1649	0.028068	106881489.02
105A700139	Resistor	R103,R106,R126,R130,R169,R180- R183,R208,R237,R256,R3,R302,R- 313,R342	Bellcore Issue 6	Level I		0.002107	16.00	.1980	0.033715	474565755.81
105A700139	Resistor	R349,R351,R425,R43,R438,R44,R- 445-R447,R487,R500,R508-R510,- R520,R535	Bellcore Issue 6	Level I		0.002107	16.00	.1980	0.033715	474565755.81
105A700139	Resistor	R561,R576,R579,R585,R586,R603	Bellcore Issue 6	Level I		0.002107	6.00	.0743	0.012643	474565755.81
105A702229	Resistor	R101,R102,R11,R299,R350,R369,- R406,R410,R413-R416,R423,R428- R437	Bellcore Issue 6	Level I		0.002107	15.00	.1857	0.031608	474565755.81
105A702229	Resistor	R444,R476,R8	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A710039	Resistor	R150,R16,R17,R199,R364,R366,R- 403-R405,R411,R412,R418,R424,- R431,R452	Bellcore Issue 6	Level I		0.002107	15.00	.1857	0.031608	474565755.81
105A710039	Resistor	R480	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A510009	Resistor	R120,R22,R242,R243,R250,R27,R- 273,R274,R296,R297,R395,R459,R- 461,R484	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81
105A527463	Resistor	R100,R123,R206,R268,R28	Bellcore Issue 6	Level I		0.002107	5.00	.0619	0.010536	474565755.81

### AAEON Reliability Prediction Report



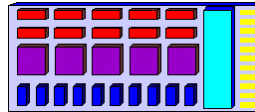
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**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1059700001	Resistor	R147,R195,R205,R212,R329,R35,-R360,R368,R478,R526,R541,R599	Bellcore Issue 6	Level I		0.002107	12.00	.1485	0.025286	474565755.81
105A701009	Resistor	R111-R113,R118,R135,R157-R160-,R186,R203,R204,R220-R224,R283-R284	Bellcore Issue 6	Level I		0.002107	19.00	.2352	0.040037	474565755.81
105A701009	Resistor	R326,R327,R50,R51,R62,R63,R74-R75,R76,R96-R99	Bellcore Issue 6	Level I		0.002107	13.00	.1609	0.027393	474565755.81
105A507509	Resistor	R357,R381,R388,R389,R392,R442-R443,R475,R68	Bellcore Issue 6	Level I		0.002107	9.00	.1114	0.018965	474565755.81
105A501039	Resistor	R225,R234,R276,R278,R318,R320-,R323,R335-R337,R340,R345,R466-R467	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81
105A501039	Resistor	R488,R560,R79	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
1315030110	Semiconductor	Q34,Q36,Q41,Q6,Q7	Bellcore Issue 6	Level I		0.071477	5.00	2.0992	0.357387	13990437.94
105A708229	Resistor	R128,R230,R275,R307,R308,R421-R516-R519,R530,R547,R555	Bellcore Issue 6	Level I		0.002107	13.00	.1609	0.027393	474565755.81
105A578703	Resistor	R136,R227,R232,R260	Bellcore Issue 6	Level I		0.002107	4.00	.0495	0.008429	474565755.81
105A701053	Resistor	R148,R529	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
1129710390	Capacitor	C146,C147,C153,C171,C205,C207-,C357,C359,C535,C536	Bellcore Issue 6	Level I		0.001035	10.00	.0608	0.010346	966564670.88
1121722650	Capacitor	C244,C247,C284,C285	Bellcore Issue 6	Level I		0.002478	4.00	.0582	0.009911	403609667.00
1121733780	Capacitor	C314,C315	Bellcore Issue 6	Level I		0.002478	2.00	.0291	0.004955	403609667.00
1124568280	Capacitor	C419	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1124515850	Capacitor	C600	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1301053040	Semiconductor	D11,D12,D3,D5-D9	Bellcore Issue 6	Level I		0.021443	8.00	1.0076	0.171546	46634793.15
1119622180	Capacitor	EC1,EC2	Bellcore Issue 6	Level I		0.037166	2.00	.4366	0.074332	26906415.83
1212306030	Inductor	FB22,FB23,FB33,FB34,FB37,FB38,-FB47,FB5	Bellcore Issue 6	Level I		0.002107	8.00	.0990	0.016858	474565755.81
1212308054	Inductor	FB41,FB42,FB43,FB45,FB6	Bellcore Issue 6	Level I		0.002107	5.00	.0619	0.010536	474565755.81
121230603H	Inductor	FB10,FB11,FB39,FB44,FB46,FB48-FB50,FB7,FB8,FB9	Bellcore Issue 6	Level I		0.002107	11.00	.1361	0.023179	474565755.81
1212306035	Inductor	FB13-FB20,FB26-FB32,FB36,FB40	Bellcore Issue 6	Level I		0.002107	17.00	.2104	0.035822	474565755.81
121230603F	Inductor	FB24,FB25,FB35	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
1653217209	Connection	FDD1	Bellcore Issue 6	Level I		0.014970	1.00	.0879	0.014970	66800930.64
1129610260	Capacitor	HC1	Bellcore Issue 6	Level I		0.000695	1.00	.0041	0.000695	1438632430.29
1304101340	Semiconductor	LED1	Bellcore Issue 6	Level I		0.003462	1.00	.0203	0.003462	288852769.00



**AAEON Reliability Prediction Report**

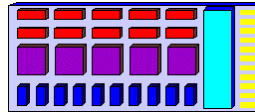


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**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1304001340	Semiconductor	LED2-LED5	Bellcore Issue 6	Level I		0.003462	4.00	.0813	0.013848	288852769.00
1211100160	Inductor	L1,L2	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
1211103362	Inductor	L3,L6,L9	Bellcore Issue 6	Level I		0.080073	3.00	1.4110	0.240220	12488572.52
1211103360	Inductor	L4,L5	Bellcore Issue 6	Level I		0.080073	2.00	.9406	0.160146	12488572.52
1211100860	Inductor	L7,L8	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
1211106870	Inductor	L10	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1211100102	Inductor	L11	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1654262300	Connection	MPC11	Bellcore Issue 6	Level I		0.058008	1.00	.3407	0.058008	17238949.84
1315030210	Semiconductor	Q1	Bellcore Issue 6	Level I		0.000000	1.00	.0000	0.000000	.00
105A519623	Resistor	R291	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A523233	Resistor	R107,R317	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A502833	Resistor	R430,R435	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A513703	Resistor	R439	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A560403	Resistor	R454,R482	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A702423	Resistor	R472	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
14S5A00600	Integrated Circuit	U20	Bellcore Issue 6	Level I		0.031528	1.00	.1852	0.031528	31717877.11
14S1488000	Integrated Circuit	U25	Bellcore Issue 6	Level I		0.045134	1.00	.2651	0.045134	22156093.79
14S3033800	Integrated Circuit	U27	Bellcore Issue 6	Level I		0.045134	1.00	.2651	0.045134	22156093.79
14S4871201	Integrated Circuit	U30	Bellcore Issue 6	Level I	8.20	0.050995	1.00	.2995	0.050995	19609953.02
1231332721	Miscellaneous	Y2	Bellcore Issue 6	Level I		0.150000	1.00	.8811	0.150000	6666666.67
105A705139	Resistor	R151,R194,R200,R236,R515,R577- R578,R580,R581,R602	Bellcore Issue 6	Level I		0.002107	10.00	.1238	0.021072	474565755.81
105A507523	Resistor	R168	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A503033	Resistor	R193,R319,R568	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A554963	Resistor	R207,R267,R537,R539,R540,R564	Bellcore Issue 6	Level I		0.002107	6.00	.0743	0.012643	474565755.81
105A519103	Resistor	R229	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A500233	Resistor	R272,R462,R489	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A556223	Resistor	R279,R316	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A512033	Resistor	R280,R551	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A544223	Resistor	R289	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A536523	Resistor	R290	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81

**AAEON Reliability Prediction Report**

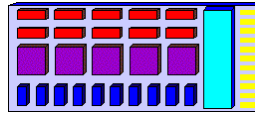


**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 21.30

**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 17.025093  
**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A532423	Resistor	R295	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A554903	Resistor	R354	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A540263	Resistor	R358,R359,R427	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A502033	Resistor	R434,R453,R490	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A501523	Resistor	R440	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A514003	Resistor	R441	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A501133	Resistor	R464	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A516513	Resistor	R501	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
14S4261600	Integrated Circuit	U21	Bellcore Issue 6	Level I	11.00	0.099982	1.00	.5873	0.099982	10001809.82
14S6334610	Integrated Circuit	U24	Bellcore Issue 6	Level I		0.023263	1.00	.1366	0.023263	42987046.83
14S3065001	Integrated Circuit	U26	Bellcore Issue 6	Level I	10.20	0.094546	1.00	.5553	0.094546	10576893.65
14S5A00700	Integrated Circuit	U28	Bellcore Issue 6	Level I		0.031528	1.00	.1852	0.031528	31717877.11
14S4070610	Integrated Circuit	U29	Bellcore Issue 6	Level I		0.045134	1.00	.2651	0.045134	22156093.79
14S4048501	Integrated Circuit	U31,U34	Bellcore Issue 6	Level I		0.045134	2.00	.5302	0.090269	22156093.79
1231314350	Miscellaneous	Y3	Bellcore Issue 6	Level I		0.150000	1.00	.8811	0.150000	6666666.67
1231325050	Miscellaneous	Y4	Bellcore Issue 6	Level I		0.150000	1.00	.8811	0.150000	6666666.67
105A571533	Resistor	R164	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A503309	Resistor	R170-R177,R238-R241,R244,R245-R247-R249,R252-255,R262-R264	Bellcore Issue 6	Level I		0.002107	24.00	.2970	0.050573	474565755.81
105A543263	Resistor	R179	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A548763	Resistor	R196	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A533203	Resistor	R226,R228,R233,R235	Bellcore Issue 6	Level I		0.002107	4.00	.0495	0.008429	474565755.81
105A561903	Resistor	R231,R372	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A547503	Resistor	R246	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A506823	Resistor	R277,R321	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A517423	Resistor	R552	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A578763	Resistor	R563	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1054600289	Resistor	SR1,SR2	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
1189615187	Capacitor	TC11,TC13,TC15,TC19,TC27,TC28-TC4,TC5,TC7-TC9	Bellcore Issue 6	Level I		0.004584	11.00	.2962	0.050420	218165282.83
1181633080	Capacitor	TC31	Bellcore Issue 6	Level I		0.002190	1.00	.0129	0.002190	456575024.51
1315970110	Semiconductor	U1,U14,U22,U9	Bellcore Issue 6	Level I		0.142955	4.00	3.3587	0.571819	6995218.97

**AAEON Reliability Prediction Report**

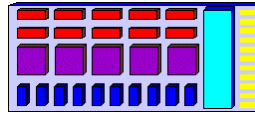


**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 21.30

**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 17.025093  
**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
14S3020100	Integrated Circuit	U3	Bellcore Issue 6	Level I		0.045134	1.00	.2651	0.045134	22156093.79
1315700211	Semiconductor	Q10-Q15,Q17-Q21,Q2,Q27,Q32,Q-35,Q42,Q45,Q46,Q48,Q50	Bellcore Issue 6	Level I		0.071477	20.00	8.3967	1.429548	13990437.94
1315776010	Semiconductor	Q58	Bellcore Issue 6	Level I	10.20	0.095572	1.00	.5614	0.095572	10463358.57
1315776010	Semiconductor	Q54	Bellcore Issue 6	Level I	10.20	0.095572	1.00	.5614	0.095572	10463358.57
1315776010	Semiconductor	Q56	Bellcore Issue 6	Level I	9.10	0.092711	1.00	.5446	0.092711	10786201.97
1315776010	Semiconductor	Q52	Bellcore Issue 6	Level I	9.60	0.094003	1.00	.5521	0.094003	10637948.18
1315776010	Semiconductor	Q4,Q5	Bellcore Issue 6	Level I		0.071477	2.00	.8397	0.142955	13990437.94
1315992601	Semiconductor	Q40,Q8,Q9	Bellcore Issue 6	Level I		0.071477	3.00	1.2595	0.214432	13990437.94
1315441012	Semiconductor	Q22,Q23,Q26	Bellcore Issue 6	Level I		0.071477	3.00	1.2595	0.214432	13990437.94
1315035200	Semiconductor	Q39,Q44,Q51,Q28,Q37,Q38	Bellcore Issue 6	Level I		0.000000	6.00	.0000	0.000000	.00
1315993310	Semiconductor	Q31	Bellcore Issue 6	Level I		0.142955	1.00	.8397	0.142955	6995218.97
1315668011	Semiconductor	Q59	Bellcore Issue 6	Level I	10.60	0.096628	1.00	.5676	0.096628	10348934.91
1315668011	Semiconductor	Q55	Bellcore Issue 6	Level I	10.10	0.095309	1.00	.5598	0.095309	10492209.13
1315668011	Semiconductor	Q57	Bellcore Issue 6	Level I	11.80	0.099852	1.00	.5865	0.099852	10014843.81
1315668011	Semiconductor	Q53	Bellcore Issue 6	Level I	11.80	0.099852	1.00	.5865	0.099852	10014843.81
1315668011	Semiconductor	Q49	Bellcore Issue 6	Level I		0.071477	1.00	.4198	0.071477	13990437.94
1540710084	Resistor	RP10,RP12,RP14,RP16,RP18,RP2- RP20,RP22,RP25,RP26,RP29,RP- 30,RP33	Bellcore Issue 6	Level I		0.005263	13.00	.4018	0.068415	190017357.43
1540710084	Resistor	RP34,RP38,RP4,RP51,RP53-RP55- RP7,RP8	Bellcore Issue 6	Level I		0.005263	9.00	.2782	0.047364	190017357.43
1540782282	Resistor	RP72,RP35,RP39-RP50,RP52	Bellcore Issue 6	Level I		0.005263	15.00	.4637	0.078940	190017357.43
105A704729	Resistor	R14,R19,R2,R259,R303,R305,R309- R312,R333,R338,R343,R384,R385- R393	Bellcore Issue 6	Level I		0.002107	16.00	.1980	0.033715	474565755.81
105A704729	Resistor	R42,R47,R514,R528,R543,R549,R- 566,R567,R591,R595,R606,R608,R- 615,R617	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81
105A703309	Resistor	R13,R215,R26,R344,R383,R386,R- 387,R4,R429,R450,R451,R584,R58- 7,R59	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81
105A703309	Resistor	R592,R605,R607	Bellcore Issue 6	Level I		0.002107	3.00	.0371	0.006322	474565755.81
105A733009	Resistor	R105,R298,R300,R341,R361,R394- R470,R471,R473,R5,R511,R521,R- 558,R6	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81

**AAEON Reliability Prediction Report**

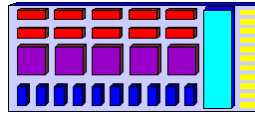


**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 21.30

**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 17.025093  
**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A733009	Resistor	R7,R84-R89,R9	Bellcore Issue 6	Level I		0.002107	8.00	.0990	0.016858	474565755.81
105A700009	Resistor	R10,R165,R166,R197,R251,R258,- R288,R30,R31,R367,R38,R40,R422- R448	Bellcore Issue 6	Level I		0.002107	14.00	.1733	0.029501	474565755.81
105A700009	Resistor	R465,R479,R491,R496,R524,R548- R554,R557,R589,R600,R609,R610- R69	Bellcore Issue 6	Level I		0.002107	15.00	.1857	0.031608	474565755.81
105A700009	Resistor	R80,R90	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A560463	Resistor	R20,R21,R377,R378	Bellcore Issue 6	Level I		0.002107	4.00	.0495	0.008429	474565755.81
105A524303	Resistor	R23	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
105A549969	Resistor	R119,R178,R25,R536,R375,R460,- R485,R512,R513,R570-R575	Bellcore Issue 6	Level I		0.002107	15.00	.1857	0.031608	474565755.81
1059700101	Resistor	R124,R125,R140,R141,R285,R29,- R294,R346-348,R409,R436,R498,- R499,R52	Bellcore Issue 6	Level I		0.002107	15.00	.1857	0.031608	474565755.81
1059700101	Resistor	R53-R55,R562,R611-R614,R618,R- 64,R65	Bellcore Issue 6	Level I		0.002107	11.00	.1361	0.023179	474565755.81
105A710033	Resistor	R402,R46	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A705609	Resistor	R402,R46,R108-110,R114-R117,R- 132-R134,R138,R139,R153-R156,- R184,R185	Bellcore Issue 6	Level I		0.002107	18.00	.2228	0.037929	474565755.81
105A705609	Resistor	R201,R202,R216-R219,R265,R266- R281,R282,R324,R325,R48,R49,R- 536,R545	Bellcore Issue 6	Level I		0.002107	16.00	.1980	0.033715	474565755.81
105A705609	Resistor	R559,R60,R61,R70-R73,R92-R95	Bellcore Issue 6	Level I		0.002107	11.00	.1361	0.023179	474565755.81
105A701039	Resistor	R198,R209,R210,R293,R315,R334- R391,R426,R432,R481,R503,R507- R522	Bellcore Issue 6	Level I		0.002107	13.00	.1609	0.027393	474565755.81
105A701039	Resistor	R546,R56,R58,R582,R583,R604,R- 81	Bellcore Issue 6	Level I		0.002107	7.00	.0866	0.014750	474565755.81
105A515009	Resistor	R121,R455,R483,R525,R538,R77	Bellcore Issue 6	Level I		0.002107	6.00	.0743	0.012643	474565755.81
105A530103	Resistor	R122,R78	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A701003	Resistor	R146,R192,R211,R502,R91	Bellcore Issue 6	Level I		0.002107	5.00	.0619	0.010536	474565755.81
105A500133	Resistor	R104,R271,R419,R420	Bellcore Issue 6	Level I		0.002107	4.00	.0495	0.008429	474565755.81
105A710053	Resistor	R127,R531,R544	Bellcore Issue 6	Level I		0.012643	3.00	.2228	0.037929	79094292.64
105A524963	Resistor	R129,R565	Bellcore Issue 6	Level I		0.002107	2.00	.0248	0.004214	474565755.81
105A547523	Resistor	R144	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81

**AAEON Reliability Prediction Report**



**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 21.30

**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 17.025093  
**MTBF** 58,737

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A518223	Resistor	R145	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1129610050	Capacitor	C138-C143,C220,C221,C225-C232-,C499,C505,C527,C532	Bellcore Issue 6	Level I		0.005885	20.00	.6913	0.117700	169923467.80
1124547280	Capacitor	C208	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1121610060	Capacitor	C248,C598	Bellcore Issue 6	Level I		0.002478	2.00	.0291	0.004955	403609667.00
1124410190	Capacitor	C288-C297,C342,C345,C358,C364-C366,C368-C370,C398,C405,C534-,C537	Bellcore Issue 6	Level I		0.001035	23.00	.1398	0.023796	966564670.88
1124410190	Capacitor	C572	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1124522881	Capacitor	C404	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1122747880	Capacitor	C441	Bellcore Issue 6	Level I		0.001559	1.00	.0092	0.001559	641460885.60
1124405080	Capacitor	C511,C512	Bellcore Issue 6	Level I		0.001035	2.00	.0122	0.002069	966564670.88
1301005440	Semiconductor	D1,D10,D17,D2,D29,D4	Bellcore Issue 6	Level I		0.021443	6.00	.7557	0.128659	46634793.15
1301005441	Semiconductor	D13,D16,D18,D19	Bellcore Issue 6	Level I		0.021443	4.00	.5038	0.085773	46634793.15
1301005442	Semiconductor	D14,D15,D24	Bellcore Issue 6	Level I		0.021443	3.00	.3779	0.064330	46634793.15
1212306032	Inductor	FB1,FB12,FB2-FB4	Bellcore Issue 6	Level I		0.002107	5.00	.0619	0.010536	474565755.81
1213112008	Inductor	BP1	Bellcore Issue 6	Level I		0.002107	1.00	.0124	0.002107	474565755.81
1759100006	Miscellaneous	BUZZ1	Bellcore Issue 6	Level I		0.150000	1.00	.8811	0.150000	6666666.67
1214309000	Inductor	CH1-CH4	Bellcore Issue 6	Level I		0.002107	4.00	.0495	0.008429	474565755.81
1653003202	Connection	JP3	Bellcore Issue 6	Level I		0.002807	1.00	.0165	0.002807	356271630.08
1653003202	Connection	CN7,JP5-JP8	Bellcore Issue 6	Level I		0.002807	5.00	.0824	0.014034	356271630.08
1653204200	Connection	CN10	Bellcore Issue 6	Level I		0.093562	1.00	.5496	0.093562	10688148.90
1653205201	Connection	CN14,CN18	Bellcore Issue 6	Level I		0.116952	2.00	1.3739	0.233904	8550519.12
1653213207	Connection	CN15	Bellcore Issue 6	Level I		0.304075	1.00	1.7860	0.304075	3288661.20
165322020B	Connection	CN20	Bellcore Issue 6	Level I		0.018712	1.00	.1099	0.018712	53440744.51
1174510080	Capacitor	CP5	Bellcore Issue 6	Level I		0.001035	1.00	.0061	0.001035	966564670.88
1124427090	Capacitor	C1,C103,C104,C14,C21,C22,C256-C258,C260,C340,C344,C347,C399-,C400	Bellcore Issue 6	Level I		0.001035	15.00	.0912	0.015519	966564670.88
1129710090	Capacitor	C127,C128,C13,C130,C210,C238,-C240,C277,C461,C485,C5	Bellcore Issue 6	Level I		0.001035	11.00	.0668	0.011381	966564670.88
1124433680	Capacitor	C16-C18,C261-C263	Bellcore Issue 6	Level I		0.001035	6.00	.0365	0.006208	966564670.88

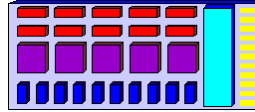






**AAEON Reliability Prediction Report**

**Part Number**  
**Reference Des**  
**Date** 07. 22, 2005  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temperature** 25.00



**Description**  
**File Name** ONYX-153HTT-A1.RPJ  
**Time** 3:20 下午  
**Failure Rate** 2.057567  
**MTBF** 486,011

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1111610190	Capacitor	C1,C14,C20,C23,C24,C27,C5,C59,-C73	Bellcore Issue 6	Level I		0.027242	9.00	11.9159	0.245178	36707972.85
1122701680	Capacitor	C10-C12,C15-C19,C21,C22,C25,C-28-C30,C3,C32,C36,C37,C4,C40-C-42,C44,C45	Bellcore Issue 6	Level I		0.001598	24.00	1.8634	0.038341	625953979.55
1122701680	Capacitor	C49,C51,C53,C55,C56,C58,C6,C60-C63,C66-C69,C74-C76,C8,CB1,C-B2	Bellcore Issue 6	Level I		0.001598	21.00	1.6305	0.033549	625953979.55
1139710060	Capacitor	C2,C9,CT1-CT3	Bellcore Issue 6	Level I		0.002722	5.00	.6615	0.013612	367335960.60
105A700003	Resistor	L1,L10-L20,L2,L23-L30,L3-L9,R31,-R32,R39,R43,R49-R52,R56,R58,R-60,R62,R76	Bellcore Issue 6	Level I		0.002268	41.00	4.5187	0.092976	440974090.03
105A700003	Resistor	R78,R79,R80	Bellcore Issue 6	Level I		0.002268	3.00	.3306	0.006803	440974090.03
1121647780	Capacitor	C13	Bellcore Issue 6	Level I		0.002539	1.00	.1234	0.002539	393852661.82
1212308056	Inductor	L22	Bellcore Issue 6	Level I		0.002268	1.00	.1102	0.002268	440974090.03
105A510033	Resistor	R4,R65,R66	Bellcore Issue 6	Level I		0.002268	3.00	.3306	0.006803	440974090.03
105A701523	Resistor	R36	Bellcore Issue 6	Level I		0.002268	1.00	.1102	0.002268	440974090.03
105A747033	Resistor	R41	Bellcore Issue 6	Level I		0.002268	1.00	.1102	0.002268	440974090.03
105A751003	Resistor	R59	Bellcore Issue 6	Level I		0.002268	1.00	.1102	0.002268	440974090.03
14S3522800	Integrated Circuit	U1,U2	Bellcore Issue 6	Level I		0.059366	2.00	5.7705	0.118732	16844654.92
14S4138100	Integrated Circuit	U3	Bellcore Issue 6	Level I		0.059366	1.00	2.8853	0.059366	16844654.92
14S6334610	Integrated Circuit	U4,U7	Bellcore Issue 6	Level I		0.030598	2.00	2.9742	0.061196	32681842.61
14S4050100	Integrated Circuit	U5	Bellcore Issue 6	Level I		0.039296	1.00	1.9098	0.039296	25448028.36
1314111715	Integrated Circuit	U6	Bellcore Issue 6	Level I		0.059366	1.00	2.8853	0.059366	16844654.92
14S2152600	Integrated Circuit	U10,U8	Bellcore Issue 6	Level I		0.059366	2.00	5.7705	0.118732	16844654.92
14S5705300	Integrated Circuit	U9	Bellcore Issue 6	Level I		0.039296	1.00	1.9098	0.039296	25448028.36
14S4085000	Integrated Circuit	U11	Bellcore Issue 6	Level I		0.039296	1.00	1.9098	0.039296	25448028.36
14S2513200	Integrated Circuit	U12	Bellcore Issue 6	Level I		0.059366	1.00	2.8853	0.059366	16844654.92
1214309000	Inductor	CH1-CH4	Bellcore Issue 6	Level I		0.002268	4.00	.4409	0.009071	440974090.03
1129722680	Capacitor	C33,C39,C50,C52	Bellcore Issue 6	Level I		0.006031	4.00	1.1724	0.024123	165815676.81
1124518180	Capacitor	C72	Bellcore Issue 6	Level I		0.001060	1.00	.0515	0.001060	943198589.05
1174518180	Capacitor	RC5-RC8	Bellcore Issue 6	Level I		0.001060	4.00	.2061	0.004241	943198589.05
1121710090	Capacitor	C77	Bellcore Issue 6	Level I		0.002539	1.00	.1234	0.002539	393852661.82
1129701080	Capacitor	C43,C47,C54,C57,CM1	Bellcore Issue 6	Level I		0.002722	5.00	.6615	0.013612	367335960.60











