

# ONYX-195HTT Reliability Prediction Report (MTBF)

Report NO : 08P070024

**12-05-2008**

Issue Date

**Wenyuan Yang**

Manager

**Jessica Chou**

Test Engineer

## Reliability Prediction (MTBF)

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I . **Model Name:** TF-ONYX-195HTT-A1

II . **Prediction Date:** Dec. 5<sup>th</sup>, 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: 25.5 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:

- TF-ONYX-195HTT-A1 (Don't includes Touch Screen, LCD, Inverter, Power supply, and system FAN):  
Failure Rate: 22.423372 ppm  
MTBF: 44,596 Hours
- Below components MTBF value were provided by the suppliers:
  - Touch Screen ((TF)TOUCH SCREEN.19".8 Wire.Resistive.AMT.9548)  
Touch panel is hit 10 millions times with a silicone rubber of R8 finger, hitting rate is by 250g at 2 times per second.

- LCD((TF)TFT LCD.19".AUO.M190EN04.1.400 nits)  
MTBF: 100,000 hours
  
- Inverter ((TF)System FAN.12VDC.70\*70\*15mm.for ONYX-175/195.)  
MTBF: 929,375.8033 hours
  
- Power supply ((TF)SPS.100 ~240V.180W.ATX.全漢.9PA1802909)  
MTBF: 100,000 hours
  
- System FAN ((TF)System FAN.12VDC.70\*70\*15mm.for ONYX-175/195.)  
MTBF: 606,120 hours

### AAEON Reliability Prediction Report

**Part Number** System  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50

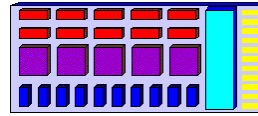


**Description** Top-level assembly  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 22.423372  
**MTBF** 44,596

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
ONYX-195HTT-A1	System	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	22.423372	44,596
ASSY.YC03 USB Board	9697YC0300	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	0.027986	35,731,802
ASSY.RISER Board.PER-R08P	9697R08P00	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	0.293942	3,402,029
ASSY.SDVO to LVDS Board	9697T07904	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	1.248094	801,221
ASSY.Y011 OSD Board	9697Y01102	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	0.015184	65,858,089
ASSY.8 in 1 Card Reader.T066	9697T06600	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	0.489872	2,041,349
ASSY.I/O Board.T070	9697T07008	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	10.767310	92,874
ASSY.COM-945.Rev.A1-.0	9697945006	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	9.379477	106,616
CD-ROM Transfer Board.T023	9697T02300	Telcordia	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	0.075553	13,235,813

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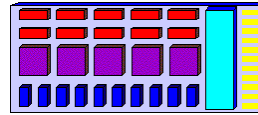
**Description** Top-level assembly  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 22.423372  
**MTBF** 44,596

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
14S6200404	Integrated Circuit		Telcordia Issue 1	Level I		0.125953	1.00	100.0000	0.125953	7939460.63



### AAEON Reliability Prediction Report

**Part Number** 9697R08P00  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 0.293942  
**MTBF** 3,402,029

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1124701680	Capacitor	C1,C10,C11,C12,C14,C15,C2,C3,C-4,C5,C6, C9	Telcordia Issue 1	Level I		0.004580	12.00	18.6975	0.054960	218340923.84
105A504723	Resistor	R2,R4,R6,R7	Telcordia Issue 1	Level I		0.002290	4.00	3.1163	0.009160	436681847.68
1129610051	Capacitor	C13,C7,C8	Telcordia Issue 1	Level I		0.004580	3.00	4.6744	0.013740	218340923.84
111961029D	Capacitor	EC3	Telcordia Issue 1	Level I		0.073001	1.00	24.8351	0.073001	13698482.46
111961029H	Capacitor	EC1	Telcordia Issue 1	Level I		0.073001	1.00	24.8351	0.073001	13698482.46
1654260203	Connection	PCI1	Telcordia Issue 1	Level I		0.070081	1.00	23.8417	0.070081	14269252.57

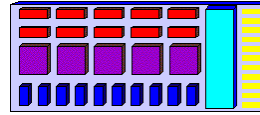






### AAEON Reliability Prediction Report

**Part Number** 9697T06600  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



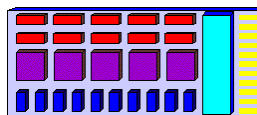
**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 0.489872  
**MTBF** 2,041,349

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
165392521C	Connection	CON1	Telcordia Issue 1	Level I		0.001168	1.00	.2384	0.001168	856155154.00
1653910110	Connection	CON2	Telcordia Issue 1	Level I		0.005840	1.00	1.1922	0.005840	171231030.80
1314880511	Integrated Circuit	U2	Telcordia Issue 1	Level I		0.061574	1.00	12.5694	0.061574	16240641.01
1653946110	Connection	CON4	Telcordia Issue 1	Level I		0.026864	1.00	5.4839	0.026864	37224137.13
1653909110	Connection	CON3	Telcordia Issue 1	Level I		0.029200	1.00	5.9608	0.029200	34246206.16
14S4819000	Integrated Circuit	U1	Telcordia Issue 1	Level I		0.026962	1.00	5.5039	0.026962	37088905.56
1121501680	Capacitor	C1,C11,C12,C16,C18, C2,C20,C21,C23,C3, C4,C6,C7,C8,C9	Telcordia Issue 1	Level I		0.005483	15.00	16.7905	0.082252	182366143.54
1129747650	Capacitor	C10,C5	Telcordia Issue 1	Level I		0.005483	2.00	2.2387	0.010967	182366143.54
1124420080	Capacitor	C14,C15	Telcordia Issue 1	Level I		0.004580	2.00	1.8699	0.009160	218340923.84
11C1501080	Capacitor	C17	Telcordia Issue 1	Level I		0.004580	1.00	.9349	0.004580	218340923.84
1129710060	Capacitor	C19,C22	Telcordia Issue 1	Level I		0.004580	2.00	1.8699	0.009160	218340923.84
1124601660	Capacitor	C24,C25,C26	Telcordia Issue 1	Level I		0.004580	3.00	2.8048	0.013740	218340923.84
1214309000	Inductor	CM1	Telcordia Issue 1	Level I		0.002290	1.00	.4675	0.002290	436681847.68
121231206B	Inductor	L1,L2	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
105A747003	Resistor	R1,R3	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
105A700133	Resistor	R2	Telcordia Issue 1	Level I		0.002290	1.00	.4675	0.002290	436681847.68
105A768003	Resistor	R4	Telcordia Issue 1	Level I		0.002290	1.00	.4675	0.002290	436681847.68
105A704733	Resistor	R14,R5	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
105A524033	Resistor	R6	Telcordia Issue 1	Level I		0.002290	1.00	.4675	0.002290	436681847.68
105A701053	Resistor	R13,R7	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
105A700003	Resistor	R10,R11,R9	Telcordia Issue 1	Level I		0.002290	3.00	1.4024	0.006870	436681847.68
105A701033	Resistor	R15,R17	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
105A702223	Resistor	R16	Telcordia Issue 1	Level I		0.002290	1.00	.4675	0.002290	436681847.68
105A710033	Resistor	R12,R18	Telcordia Issue 1	Level I		0.002290	2.00	.9349	0.004580	436681847.68
1315035610	Semiconductor	U3	Telcordia Issue 1	Level I		0.000000	1.00	.0000	0.000000	.00
1122501780	Capacitor	C13	Telcordia Issue 1	Level I		0.004580	1.00	.9349	0.004580	218340923.84
1655005121	Connection	USB1	Telcordia Issue 1	Level I		0.002920	1.00	.5961	0.002920	342462061.60
1304451400	Semiconductor	D1	Telcordia Issue 1	Level I		0.005104	1.00	1.0420	0.005104	195913336.05
12311120A1	Miscellaneous	Y1	Telcordia Issue 1	Level I		0.150000	1.00	30.6202	0.150000	6666666.67



### AAEON Reliability Prediction Report

**Part Number** 9697T07008  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 10.767310  
**MTBF** 92,874

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A549963	Resistor	R176,R177,R245, R246,R247,R248, R249,R250,R251, R252,R347,R348, R349,R350,R351, R352,R353,R354,R48, R50,R67,R68,R73, R74	Telcordia Issue 1	Level I		0.002290	24.00	.5104	0.054960	436681847.68
105A700003	Resistor	FB1,FB11,FB12,FB13, FB14,FB16,FB18,FB2, FB20,FB21,FB22, FB23,FB24,FB25,FB3, FB4,FB45,FB46,FB47, FB48,FB49,FB5,FB50, FB51,FB52,FB53, FB54,FB55,FB56, FB57,FB59,FB6,FB60, FB7,FB8,FB9,R114, R126,R135,R15,R16, R168,R180,R182, R190,R210,R224,	Telcordia Issue 1	Level I		0.002290	88.00	1.8716	0.201520	436681847.68
14S4910400	Integrated Circuit	U7	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S4121601	Integrated Circuit	U25	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S1013200	Integrated Circuit	U6	Telcordia Issue 1	Level I	27.70	0.390867	1.00	3.6301	0.390867	2558415.05
1315970110	Semiconductor	U11,U2,U32,U33,U38	Telcordia Issue 1	Level I		0.161507	5.00	7.4999	0.807535	6191684.27
14S5A01400	Integrated Circuit	U31	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
14S4871203	Integrated Circuit	U16	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S4911216	Integrated Circuit	U20	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
14S4650601	Integrated Circuit	U17	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
105A506823	Resistor	R142,R153	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A501033	Resistor	R139,R144,R149, R157,R215,R72,R80	Telcordia Issue 1	Level I		0.002290	7.00	.1489	0.016030	436681847.68
105A549913	Resistor	R23,R390	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A708223	Resistor	R236,R259,R261, R379	Telcordia Issue 1	Level I		0.002290	4.00	.0851	0.009160	436681847.68
105A710053	Resistor	R106	Telcordia Issue 1	Level I		0.013740	1.00	.1276	0.013740	72780307.95
105A547503	Resistor	R64	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A504703	Resistor	R382,R384,R386	Telcordia Issue 1	Level I		0.002290	3.00	.0638	0.006870	436681847.68
105A751003	Resistor	R83	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A702233	Resistor	R22,R280,R281,R282, R283,R284,R309, R343,R63	Telcordia Issue 1	Level I		0.002290	9.00	.1914	0.020610	436681847.68

### AAEON Reliability Prediction Report

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**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



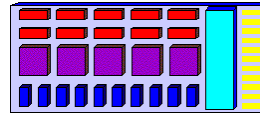
**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 10.767310  
**MTBF** 92,874

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A510003	Resistor	R119,R228,R41,R8	Telcordia Issue 1	Level I		0.002290	4.00	.0851	0.009160	436681847.68
105A715003	Resistor	R275,R296	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A756033	Resistor	R263,R264,R3,R96	Telcordia Issue 1	Level I		0.002290	4.00	.0851	0.009160	436681847.68
105A747033	Resistor	R2,R262,R266,R97	Telcordia Issue 1	Level I		0.002290	4.00	.0851	0.009160	436681847.68
105A515003	Resistor	R276,R277,R289, R321,R322,R325	Telcordia Issue 1	Level I		0.002290	6.00	.1276	0.013740	436681847.68
105A710033	Resistor	R19,R244,R27,R342, R54,R55,R69,R84	Telcordia Issue 1	Level I		0.002290	8.00	.1701	0.018320	436681847.68
105A701053	Resistor	R115,R85	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A705133	Resistor	R131	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A703303	Resistor	R10,R111,R117,R128, R148,R152,R220, R239,R265,R61	Telcordia Issue 1	Level I		0.002290	10.00	.2127	0.022900	436681847.68
105A704723	Resistor	R1,R130,R133,R184, R195,R200,R21,R212, R222,R229,R231, R234,R237,R241, R260,R278,R279,R28, R345,R42,R71,R9	Telcordia Issue 1	Level I		0.002290	22.00	.4679	0.050380	436681847.68
105A702203	Resistor	R189,R191,R192, R197	Telcordia Issue 1	Level I		0.002290	4.00	.0851	0.009160	436681847.68
14S3522800	Integrated Circuit	U3,U4	Telcordia Issue 1	Level I		0.061574	2.00	1.1437	0.123148	16240641.01
1122501780	Capacitor	C108	Telcordia Issue 1	Level I		0.004580	1.00	.0425	0.004580	218340923.84
14S5A00700	Integrated Circuit	U22	Telcordia Issue 1	Level I		0.025997	1.00	.2414	0.025997	38465951.92
105A568003	Resistor	R94	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A747003	Resistor	R17	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
1752340000	Miscellaneous	F1	Telcordia Issue 1	Level I		0.003000	1.00	.0279	0.003000	333333333.33
105A702223	Resistor	R20	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
1540700080	Resistor	RN1	Telcordia Issue 1	Level I		0.012780	1.00	.1187	0.012780	78245074.93
1121733380	Capacitor	C107	Telcordia Issue 1	Level I		0.004580	1.00	.0425	0.004580	218340923.84
14S3128421	Integrated Circuit	U39	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
105A701533	Resistor	R11,R12,R4,R5,R90, R91,R92,R93	Telcordia Issue 1	Level I		0.002290	8.00	.1701	0.018320	436681847.68
1124510280	Capacitor	C1,C259,C267,C268, C271,C81	Telcordia Issue 1	Level I		0.005483	6.00	.3056	0.032901	182366143.54
1124547080	Capacitor	C287,C291,C298, C330,C331,C332, C333,C334,C335, C336	Telcordia Issue 1	Level I		0.004580	10.00	.4254	0.045800	218340923.84
1124405080	Capacitor	C109,C113	Telcordia Issue 1	Level I		0.005483	2.00	.1019	0.010967	182366143.54



### AAEON Reliability Prediction Report

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**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



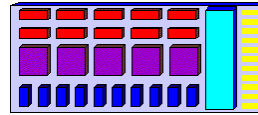
**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 10.767310  
**MTBF** 92,874

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1212306032	Inductor	FB26,FB27,FB28, FB29,FB30,FB31, FB32,FB33,FB36, FB37,FB38,FB39, FB40,FB41,FB42, FB43	Telcordia Issue 1	Level I		0.002290	16.00	.3403	0.036640	436681847.68
1301005440	Semiconductor	D11,D3,D6,D7	Telcordia Issue 1	Level I		0.024226	4.00	.9000	0.096904	41277895.16
1301005442	Semiconductor	D26,D9	Telcordia Issue 1	Level I		0.024226	2.00	.4500	0.048452	41277895.16
1304101340	Semiconductor	D25	Telcordia Issue 1	Level I		0.005104	1.00	.0474	0.005104	195913336.05
1174610380	Capacitor	CP1	Telcordia Issue 1	Level I		0.005483	1.00	.0509	0.005483	182366143.54
14S2488500	Integrated Circuit	U37	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
14S4850000	Integrated Circuit	U10	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S4070610	Integrated Circuit	U23	Telcordia Issue 1	Level I		0.061574	1.00	.5719	0.061574	16240641.01
1301005441	Semiconductor	D13,D14,D15,D16, D17,D18,D19,D20, D21,D22,D27,D28, D29,D8	Telcordia Issue 1	Level I		0.027480	14.00	3.5730	0.384719	36390153.97
14S4050100	Integrated Circuit	U13	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
105A503323	Resistor	R103,R374,R377, R380,R381,R392, R400	Telcordia Issue 1	Level I		0.002290	7.00	.1489	0.016030	436681847.68
14S5A00401	Integrated Circuit	U1	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
1301002240	Semiconductor	D23,D24	Telcordia Issue 1	Level I		0.024226	2.00	.4500	0.048452	41277895.16
1124547180	Capacitor	C326,C327,C328, C329	Telcordia Issue 1	Level I		0.005483	4.00	.2037	0.021934	182366143.54
1124701780	Capacitor	C10,C33,C45	Telcordia Issue 1	Level I		0.004580	3.00	.1276	0.013740	218340923.84
1654226300	Connection	CN21	Telcordia Issue 1	Level I		0.030368	1.00	.2820	0.030368	32929044.38
1654926900	Connection	CN21	Telcordia Issue 1	Level I		0.030368	1.00	.2820	0.030368	32929044.38
1121610180	Capacitor	C317,C318,C319, C320,C321,C322	Telcordia Issue 1	Level I		0.004580	6.00	.2552	0.027480	218340923.84
1124547280	Capacitor	C19,C20,C21,C22, C23,C24,C25,C26	Telcordia Issue 1	Level I		0.005483	8.00	.4074	0.043868	182366143.54
1059710003	Resistor	R77	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A502200	Resistor	R193	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A511503	Resistor	R198	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
105A700133	Resistor	R170,R171,R172, R173,R181,R183, R216,R223,R226, R258,R344,R37,R62, R75,R98	Telcordia Issue 1	Level I		0.002290	15.00	.3190	0.034350	436681847.68



**AAEON Reliability Prediction Report**

**Part Number** 9697T07008  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 10.767310  
**MTBF** 92,874

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A701003	Resistor	R318,R319	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A701033	Resistor	R100,R102,R104, R105,R110,R113, R116,R123,R124, R125,R185,R186, R202,R214,R217, R232,R233,R238,R24, R268,R272,R273, R274,R307,R308, R310,R324,R326, R327,R328,R38,R39, R40,R401,R402,R406, R408,R410,R44,R45, R52,R58,R7,R70, R163,R240	Telcordia Issue 1	Level I		0.002290	46.00	.9783	0.105340	436681847.68
105A702263	Resistor	R163,R240	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
1181647080	Capacitor	EC15,EC16,EC17,EC2, EC4,EC5,EC7,EC8	Telcordia Issue 1	Level I		0.004580	8.00	.3403	0.036640	218340923.84
14S4048501	Integrated Circuit	U27,U29	Telcordia Issue 1	Level I		0.061574	2.00	1.1437	0.123148	16240641.01
1174618180	Capacitor	CP2,CP3,CP4,CP5, CP6,CP7,CP8,CP9	Telcordia Issue 1	Level I		0.005483	8.00	.4074	0.043868	182366143.54
11A4427080	Capacitor	C9	Telcordia Issue 1	Level I		0.004580	1.00	.0425	0.004580	218340923.84
1059700201	Resistor	R396,R397	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
105A500233	Resistor	R403,R407,R409, R411,R414,R415	Telcordia Issue 1	Level I		0.002290	6.00	.1276	0.013740	436681847.68
105A722003	Resistor	R404,R412,R413	Telcordia Issue 1	Level I		0.002290	3.00	.0638	0.006870	436681847.68
105A705623	Resistor	R405	Telcordia Issue 1	Level I		0.002290	1.00	.0213	0.002290	436681847.68
14S6308001	Integrated Circuit	U41	Telcordia Issue 1	Level I		0.037217	1.00	.3456	0.037217	26869507.28
14S5A00601	Integrated Circuit	U42	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S4825730	Integrated Circuit	U44	Telcordia Issue 1	Level I		0.026962	1.00	.2504	0.026962	37088905.56
14S5207402	Integrated Circuit	U43	Telcordia Issue 1	Level I		0.026148	1.00	.2428	0.026148	38244211.20
1124422080	Capacitor	C415,C416	Telcordia Issue 1	Level I		0.005483	2.00	.1019	0.010967	182366143.54
1129647650	Capacitor	C420,C421,C424, C429,C433,C434, C437	Telcordia Issue 1	Level I		0.004580	7.00	.2978	0.032060	218340923.84
121230805L	Inductor	L28,L29	Telcordia Issue 1	Level I		0.002290	2.00	.0425	0.004580	436681847.68
1301400640	Semiconductor	D35,D36	Telcordia Issue 1	Level I		0.024226	2.00	.4500	0.048452	41277895.16
1311290710	Semiconductor	Q2,Q4	Telcordia Issue 1	Level I		0.024226	2.00	.4500	0.048452	41277895.16



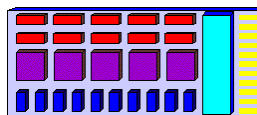






### AAEON Reliability Prediction Report

**Part Number** 9697945006  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50

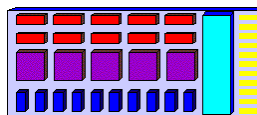


**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 9.379477  
**MTBF** 106,616

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	Telcordia Issue 1	Level I		0.004580	15.00	.7324	0.068700	218340923.84
1129522790	Capacitor	C121,C122,C151, C413,C417,C425,C76, C79,C83	Telcordia Issue 1	Level I		0.004580	9.00	.4395	0.041220	218340923.84
1121647480	Capacitor	C119,C120,C142, C150,C77,C81,C84, C88,C91,C92,C93, C94	Telcordia Issue 1	Level I		0.004580	12.00	.5860	0.054960	218340923.84
1121701080	Capacitor	C189,C215,C217, C218,C219,C221, C292,C395,C398, C407,C450,C499, C501,C510,C512, C556,C82	Telcordia Issue 1	Level I		0.004580	17.00	.8301	0.077860	218340923.84
1129647650	Capacitor	C102,C103,C201, C415	Telcordia Issue 1	Level I		0.004580	4.00	.1953	0.018320	218340923.84
1129722680	Capacitor	C118,C223,C225, C233,C235,C238, C241,C244	Telcordia Issue 1	Level I		0.004580	8.00	.3906	0.036640	218340923.84
11E9647680	Capacitor	C128,C130,C255	Telcordia Issue 1	Level I		0.004580	3.00	.1465	0.013740	218340923.84
1129710050	Capacitor	C149,C268,C272, C285,C288,C289, C327,C328,C348, C350,C361,C435, C451,C491,C492, C496,C508,C607	Telcordia Issue 1	Level I		0.005483	18.00	1.0523	0.098703	182366143.54
123131435B	Miscellaneous	Y2	Telcordia Issue 1	Level I		0.150000	1.00	1.5992	0.150000	6666666.67
1124533190	Capacitor	C230	Telcordia Issue 1	Level I		0.005483	1.00	.0585	0.005483	182366143.54
1124533080	Capacitor	C282,C283	Telcordia Issue 1	Level I		0.004580	2.00	.0977	0.009160	218340923.84
1129710390	Capacitor	C332,C340,C352, C354	Telcordia Issue 1	Level I		0.004580	4.00	.1953	0.018320	218340923.84
118961018A	Capacitor	C399	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1121710090	Capacitor	C402,C403,C409, C414,C609	Telcordia Issue 1	Level I		0.004580	5.00	.2441	0.022900	218340923.84
1121701790	Capacitor	C411,C426,C430, C431	Telcordia Issue 1	Level I		0.004580	4.00	.1953	0.018320	218340923.84
1122722780	Capacitor	C412,C416	Telcordia Issue 1	Level I		0.004580	2.00	.0977	0.009160	218340923.84
1124547180	Capacitor	C419	Telcordia Issue 1	Level I		0.005483	1.00	.0585	0.005483	182366143.54
1121733380	Capacitor	C420,C421	Telcordia Issue 1	Level I		0.004580	2.00	.0977	0.009160	218340923.84
1124539180	Capacitor	C423	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1122747080	Capacitor	C424	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84

### AAEON Reliability Prediction Report

**Part Number** 9697945006  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 9.379477  
**MTBF** 106,616

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1124518180	Capacitor	C427	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1121610060	Capacitor	C438,C447	Telcordia Issue 1	Level I		0.004580	2.00	.0977	0.009160	218340923.84
1121722650	Capacitor	C439,C440,C441, C445,C446	Telcordia Issue 1	Level I		0.005483	5.00	.2923	0.027417	182366143.54
1124501750	Capacitor	C504	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1124427090	Capacitor	C610,C611	Telcordia Issue 1	Level I		0.004580	2.00	.0977	0.009160	218340923.84
1121501680	Capacitor	C612	Telcordia Issue 1	Level I		0.005483	1.00	.0585	0.005483	182366143.54
16515A0997	Connection	DIMM1	Telcordia Issue 1	Level I		0.116801	1.00	1.2453	0.116801	8561551.54
1301053040	Semiconductor	D16,D17,D18,D19, D24,D5	Telcordia Issue 1	Level I		0.024226	6.00	1.5497	0.145356	41277895.16
1301005440	Semiconductor	D3,D4,D6	Telcordia Issue 1	Level I		0.024226	3.00	.7749	0.072678	41277895.16
1300581940	Semiconductor	D1,D11,D12,D2	Telcordia Issue 1	Level I		0.080753	4.00	3.4438	0.323014	12383368.55
1301005442	Semiconductor	D20,D21,D22,D23	Telcordia Issue 1	Level I		0.024226	4.00	1.0332	0.096904	41277895.16
1212306033	Inductor	L1,L10,L11,L12,L2, L3,L4,L9	Telcordia Issue 1	Level I		0.002290	8.00	.1953	0.018320	436681847.68
1211101005	Inductor	L5,L7	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
1212308054	Inductor	L22,L6	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
1211100102	Inductor	L14,L8	Telcordia Issue 1	Level I		0.087020	2.00	1.8555	0.174040	11491627.57
121230805Z	Inductor	L13	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
121230805X	Inductor	L15,L16	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
121110156A	Inductor	L17,L31,L32	Telcordia Issue 1	Level I		0.087020	3.00	2.7833	0.261060	11491627.57
1231325058	Miscellaneous	Y3	Telcordia Issue 1	Level I		0.150000	1.00	1.5992	0.150000	6666666.67
1315700212	Semiconductor	Q1,Q13,Q15,Q2,Q28, Q29,Q3,Q33,Q36,Q37, Q4,Q7,Q8	Telcordia Issue 1	Level I		0.080753	13.00	11.1925	1.049795	12383368.55
1315441014	Semiconductor	Q10,Q34,Q35,Q9	Telcordia Issue 1	Level I		0.080753	4.00	3.4438	0.323014	12383368.55
14S2591200	Integrated Circuit	Q21	Telcordia Issue 1	Level I		0.061574	1.00	.6565	0.061574	16240641.01
1315230111	Semiconductor	Q32	Telcordia Issue 1	Level I		0.000000	1.00	.0000	0.000000	.00
105A705609	Resistor	R1,R13,R14,R17,R18, R221,R222,R223, R224,R225,R226, R227,R228,R229, R230,R231,R232, R233,R234,R235, R236,R237,R238, R239,R240,R241, R242,R243,R244, R245,R246,R95,R98	Telcordia Issue 1	Level I		0.002290	33.00	.8057	0.075570	436681847.68

**AAEON Reliability Prediction Report**

**Part Number** 9697945006  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 9.379477  
**MTBF** 106,616

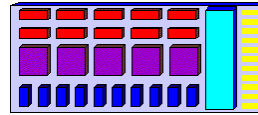
Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A707503	Resistor	R2	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A700009	Resistor	R126,R166,R175, R178,R183,R185, R186,R187,R210,R3, R33,R339,R392,R395, R399,R400,R401, R406,R407,R408, R409,R415,R433, R444,R445,R453, R454,R455,R456, R459,R461,R465, R466,R467,R468, R469,R470,R473, R487,R488,R490,	Telcordia Issue 1	Level I		0.002290	73.00	1.7823	0.167170	436681847.68
105A700139	Resistor	R188,R199,R299, R303,R304,R34,R35, R36,R394,R396,R398, R4,R405,R417,R521	Telcordia Issue 1	Level I		0.002290	15.00	.3662	0.034350	436681847.68
105A554963	Resistor	R12,R22,R29,R5,R8	Telcordia Issue 1	Level I		0.002290	5.00	.1221	0.011450	436681847.68
105A527463	Resistor	R6,R9	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A705103	Resistor	R10	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A700239	Resistor	R11	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A710009	Resistor	R169,R170,R171, R182,R20,R21,R24, R25,R31,R388,R45	Telcordia Issue 1	Level I		0.002290	11.00	.2686	0.025190	436681847.68
1050522104	Resistor	R23,R30	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A524963	Resistor	R101,R108,R26,R28, R32,R99	Telcordia Issue 1	Level I		0.002290	6.00	.1465	0.013740	436681847.68
105A720009	Resistor	R27	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A715009	Resistor	R38,R39,R40,R43, R44,R46	Telcordia Issue 1	Level I		0.002290	6.00	.1465	0.013740	436681847.68
105A549919	Resistor	R42,R714	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A703909	Resistor	R214,R217,R219, R220,R331,R332,R47, R48	Telcordia Issue 1	Level I		0.002290	8.00	.1953	0.018320	436681847.68
1050525504	Resistor	R49	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A704729	Resistor	R104,R105,R190, R197,R198,R389, R496,R518,R525, R666,R750,R751, R752,R753	Telcordia Issue 1	Level I		0.002290	14.00	.3418	0.032060	436681847.68
105A580663	Resistor	R52,R58	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68





### AAEON Reliability Prediction Report

**Part Number** 9697945006  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 9.379477  
**MTBF** 106,616

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A703309	Resistor	R120,R129,R249, R250,R251,R252, R256,R258,R260, R261,R264,R266, R267,R270,R272, R274,R275,R278, R281,R282,R285, R288,R290,R387, R403	Telcordia Issue 1	Level I		0.002290	25.00	.6104	0.057250	436681847.68
105A522669	Resistor	R145	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A702233	Resistor	R189	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
1059710003	Resistor	R200,R201	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A700003	Resistor	R202,R203,R672, R675,R697	Telcordia Issue 1	Level I		0.002290	5.00	.1221	0.011450	436681847.68
105A501123	Resistor	R205,R206,R434	Telcordia Issue 1	Level I		0.002290	3.00	.0732	0.006870	436681847.68
105A549969	Resistor	R247,R248,R253, R254,R255,R257, R259,R262,R263, R265,R268,R269, R271,R273,R276, R277,R279,R280	Telcordia Issue 1	Level I		0.002290	18.00	.4395	0.041220	436681847.68
1050512164	Resistor	R287	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A547509	Resistor	R291	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A503423	Resistor	R337	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A500133	Resistor	R435,R543,R545	Telcordia Issue 1	Level I		0.002290	3.00	.0732	0.006870	436681847.68
105A747009	Resistor	R436	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
1050519114	Resistor	R218,R441	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A702263	Resistor	R448,R464	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A700103	Resistor	R204,R449,R451, R483,R669,R670	Telcordia Issue 1	Level I		0.002290	6.00	.1465	0.013740	436681847.68
105A514733	Resistor	R450	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A536513	Resistor	R457,R481	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
1050549904	Resistor	R471	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A518213	Resistor	R474	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A501413	Resistor	R475	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A561923	Resistor	R480	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A505623	Resistor	R486	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68



### AAEON Reliability Prediction Report

**Part Number** 9697945006  
**Reference Des**  
**Date** 12. 5, 2008  
**Environment** GF, GU - Ground Fixed, Uncontrolled  
**Temp. (°C)** 25.50



**Description**  
**File Name** ONYX-195HTT-A1.RPJ  
**Time** 4:26 下午  
**Failure Rate** 9.379477  
**MTBF** 106,616

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1059700101	Resistor	R552,R563	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A701053	Resistor	R553	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A571533	Resistor	R559	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A516523	Resistor	R562	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A507523	Resistor	R561,R674	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A503033	Resistor	R560	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A701533	Resistor	R564,R565	Telcordia Issue 1	Level I		0.002290	2.00	.0488	0.004580	436681847.68
105A710033	Resistor	R656	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A702423	Resistor	R673	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A511503	Resistor	R676	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A518703	Resistor	R677	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
105A527413	Resistor	R338	Telcordia Issue 1	Level I		0.002290	1.00	.0244	0.002290	436681847.68
14S9103200	Integrated Circuit	U2	Telcordia Issue 1	Level I		0.061574	1.00	.6565	0.061574	16240641.01
14S4294501	Integrated Circuit	U3	Telcordia Issue 1	Level I	28.70	0.125017	1.00	1.3329	0.125017	7998893.11
14S428010D	Integrated Circuit	U4	Telcordia Issue 1	Level I	23.70	0.097598	1.00	1.0406	0.097598	10246078.67
14S5A00700	Integrated Circuit	U5	Telcordia Issue 1	Level I		0.025997	1.00	.2772	0.025997	38465951.92
14S1826100	Integrated Circuit	U6	Telcordia Issue 1	Level I		0.061574	1.00	.6565	0.061574	16240641.01
14S2705700	Integrated Circuit	U8	Telcordia Issue 1	Level I		0.061574	1.00	.6565	0.061574	16240641.01
14S3422600	Integrated Circuit	U10	Telcordia Issue 1	Level I	35.30	0.615116	1.00	6.5581	0.615116	1625708.33
14S4148500	Integrated Circuit	U18	Telcordia Issue 1	Level I	35.40	0.618712	1.00	6.5964	0.618712	1616259.77
14S4081110	Integrated Circuit	U21,U25	Telcordia Issue 1	Level I		0.061574	2.00	1.3130	0.123148	16240641.01
14S3626200	Integrated Circuit	U24	Telcordia Issue 1	Level I	34.10	0.161983	1.00	1.7270	0.161983	6173495.98
14S2533100	Integrated Circuit	U32	Telcordia Issue 1	Level I		0.061574	1.00	.6565	0.061574	16240641.01
1315313800	Semiconductor	U33	Telcordia Issue 1	Level I		0.080753	1.00	.8610	0.080753	12383368.55
14S2712000	Semiconductor	U34	Telcordia Issue 1	Level I		0.048452	1.00	.5166	0.048452	20638947.58
1231332721	Miscellaneous	Y1	Telcordia Issue 1	Level I		0.150000	1.00	1.5992	0.150000	6666666.67
1122522890	Capacitor	C111,C113,C125, C126,C153,C158,C97	Telcordia Issue 1	Level I		0.004580	7.00	.3418	0.032060	218340923.84
1124515880	Capacitor	C408	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1121533480	Capacitor	C422	Telcordia Issue 1	Level I		0.004580	1.00	.0488	0.004580	218340923.84
1315441012	Semiconductor	Q30,Q31	Telcordia Issue 1	Level I		0.080753	2.00	1.7219	0.161507	12383368.55



