

HSB-800I Reliability Prediction Report (MTBF)

Report NO : 08I070004

4-17-2008

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . **Model Name:** HSB-800I

II . **Prediction Date:** Apr. 17, 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: 24.2 degree 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:**

- HSB-800I
 - Failure Rate: 11.239025 ppm
 - MTBF: 88,976 Hours

AAEON Reliability Prediction Report

Part Number 9697800I02-DIP
Reference Des
Date 04. 17, 2008
Environment GF, GU - Ground Fixed, Uncontrolled
Temp. (°C) 24.20



Description Top-level assembly
File Name HSB-800I.RPJ
Time 11:43 上午
Failure Rate 11.239025
MTBF 88,976

Assembly Name	Part Number	Model	Method	Environment	Duty Cycle	Qty	Failure Rate	MTBF
HSB-800I	9697800I02-DIP	Bellcore	Method I Case 3	GF, GU - Ground Fixed,	100.00	1.00	11.239025	88,976

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Description Top-level assembly
File Name HSB-800I.RPJ
Time 11:43 上午
Failure Rate 11.239025
MTBF 88,976

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A700003	Resistor	FB11,FB12,FB2-FB7,R107,R108,R-16,R163,R175,R177,R180-R182,R-184,R185,R189,R195,R199-R202,-R218,R222,R229,R231,R233,R257	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
105A700003	Resistor	R268,R270,R275-R277,R280,R313-R364,R367,R371,R423,R438,R439-R44,R447,R448,R450,R451,R459,-R461,R465,R466,R471,R472	Bellcore Issue 6	Level I		0.002232	24.00	.4767	0.053576	447960261.61
105A700003	Resistor	R474,R480,R488,R493,R514,R524-R527,R530,R534,R537,R540	Bellcore Issue 6	Level I		0.002232	11.00	.2185	0.024556	447960261.61
105A701003	Resistor	R121,R239,R269,R427	Bellcore Issue 6	Level I		0.002232	4.00	.0794	0.008929	447960261.61
105A702203	Resistor	R186-R188,R190-R193,R203,R205-R207,R209-R213,R221,R311,R315-R318,R453,R462,R5,R502,R520,R-531,R532	Bellcore Issue 6	Level I		0.002232	28.00	.5561	0.062506	447960261.61
105A702223	Resistor	R372,R394	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A703303	Resistor	R173,R19,R258,R310,R312,R444,-R449,R470,R475,R490,R498	Bellcore Issue 6	Level I		0.002232	11.00	.2185	0.024556	447960261.61
105A703323	Resistor	R130,R428	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A704723	Resistor	R11,R147,R149,R15,R151,R153,R-158,R165,R167,R21,R22,R224,R22-6,R242-R245,R253,R261,R263,R2-79,R304,R308,R319,R320,R325	Bellcore Issue 6	Level I		0.002232	26.00	.5164	0.058041	447960261.61
105A704723	Resistor	R332,R333,R344,R349,R37,R419,-R430-R432,R483,R484,R486,R487-R489,R507,R522,R79,R8	Bellcore Issue 6	Level I		0.002232	18.00	.3575	0.040182	447960261.61
105A708223	Resistor	R25,R288,R29,R290,R291,R293,R-294,R297,R299,R32,R353,R369	Bellcore Issue 6	Level I		0.002232	12.00	.2383	0.026788	447960261.61
105A710003	Resistor	R455,R511	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A700133	Resistor	R13,R136,R176,R18,R216,R23,R2-40,R247,R251,R273,R274,R284-R-287,R289,R298,R309,R359,R413,R-429,R433,R463,R473,R491,R503	Bellcore Issue 6	Level I		0.002232	26.00	.5164	0.058041	447960261.61
105A700133	Resistor	R508,R510,R513,R517,R529	Bellcore Issue 6	Level I		0.002232	5.00	.0993	0.011162	447960261.61
105A733003	Resistor	R1,R10,R2,R215,R230,R4,R6,R7	Bellcore Issue 6	Level I		0.002232	8.00	.1589	0.017859	447960261.61
105A701033	Resistor	R103,R104,R145,R156,R157,R170-R183,R194,R206,R219,R220,R241-R314,R326,R358,R365,R375-R377-R41,R414,R416-R418,R424	Bellcore Issue 6	Level I		0.002232	25.00	.4966	0.055809	447960261.61

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Time 11:43 上午
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MTBF 88,976

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
105A701033	Resistor	R425,R437,R445,R460,R464,R499-R506,R94-R99	Bellcore Issue 6	Level I		0.002232	13.00	.2582	0.029020	447960261.61
105A701533	Resistor	R528	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
105A702733	Resistor	R412,R421	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A747003	Resistor	R324,R422	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
1059700001	Resistor	FB10,FB33,FB34,FB8	Bellcore Issue 6	Level I		0.002232	4.00	.0794	0.008929	447960261.61
105A500133	Resistor	R134,R238,R3,R34,R362,R38,R46	Bellcore Issue 6	Level I		0.002232	7.00	.1390	0.015626	447960261.61
105A502223	Resistor	R161,R169,R322,R392,R479,R482	Bellcore Issue 6	Level I		0.002232	6.00	.1192	0.013394	447960261.61
105A503033	Resistor	R42	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
105A504763	Resistor	R225	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
105A505103	Resistor	R327-R331,R334-R343,R346,R347-R397,R400-R410	Bellcore Issue 6	Level I		0.002232	29.00	.5760	0.064738	447960261.61
105A505623	Resistor	R519,R536	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A507503	Resistor	R476,R478,R481	Bellcore Issue 6	Level I		0.002232	3.00	.0596	0.006697	447960261.61
105A515003	Resistor	R232,R497	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
105A548713	Resistor	R398	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
105A549963	Resistor	R248,R255,R259,R266,R272,R281-R282,R303	Bellcore Issue 6	Level I		0.002232	8.00	.1589	0.017859	447960261.61
105A705133	Resistor	R17,R235,R265	Bellcore Issue 6	Level I		0.002232	3.00	.0596	0.006697	447960261.61
105A710033	Resistor	R110,R126,R155,R178,R395,R396-R411,R436,R446,R501,R504,R85	Bellcore Issue 6	Level I		0.002232	12.00	.2383	0.026788	447960261.61
1212306030	Inductor	FB1,FB18,FB21,FB22,FB24,FB25,-FB28,FB31,FB32,FB36,FB37,FB41,-FB42,FB44-FB51,FB9	Bellcore Issue 6	Level I		0.002232	22.00	.4370	0.049111	447960261.61
1212306032	Inductor	FB13-FB17,FB19,FB20,FB26,FB27-FB29,FB30,FB35,FB38-FB40	Bellcore Issue 6	Level I		0.002232	15.00	.2979	0.033485	447960261.61
1231332721	Miscellaneous	Y1	Bellcore Issue 6	Level I		0.150000	1.00	1.3346	0.150000	6666666.67
1122701680	Capacitor	BC1,BC10,BC100-BC124,BC126-BC201,BC13,BC2,BC203-BC209,BC-21,BC210-BC213,BC22-BC25,BC27-BC35,BC3,BC37-BC53	Bellcore Issue 6	Level I		0.004465	148.00	5.8793	0.660773	223980130.80
1122701680	Capacitor	BC56-BC70,BC6,BC7,BC70,BC72--BC99	Bellcore Issue 6	Level I		0.004465	45.00	1.7876	0.200911	223980130.80
1122722780	Capacitor	C53	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
1124422080	Capacitor	C176,C178,C181,C20,C21	Bellcore Issue 6	Level I		0.004465	5.00	.1986	0.022323	223980130.80
1124410080	Capacitor	C1,C194,C200	Bellcore Issue 6	Level I		0.004465	3.00	.1192	0.013394	223980130.80

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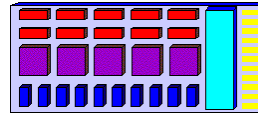


Description Top-level assembly
File Name HSB-800I.RPJ
Time 11:43 上午
Failure Rate 11.239025
MTBF 88,976

Part Number	Category	Location	Calculation Model	Quality	Tem. Rise	Failure Rate, Unit	Quantity	Failure Rate, %	Failure Rate	MTBF, Unit
1122501780	Capacitor	C106,C112,C156,C16,C166,C168,-C182,C184,C189,C192,C193,C2,C-202,C203,C206,C207,C223,C225,C-94,C96	Bellcore Issue 6	Level I		0.004465	20.00	.7945	0.089294	223980130.80
105A510053	Resistor	R129,R20	Bellcore Issue 6	Level I		0.013394	2.00	.2383	0.026788	74660043.60
105A547003	Resistor	R373	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
1540710084	Resistor	RP11-RP16,RP19-RP22,RP24-RP2-6,RP28,RP29,RP32	Bellcore Issue 6	Level I		0.006021	16.00	.8572	0.096337	166083755.80
1540733085	Resistor	RP23,RP27,RP30,RP31,RP33-RP4-3,RP45	Bellcore Issue 6	Level I		0.006021	16.00	.8572	0.096337	166083755.80
1300414843	Semiconductor	D1	Bellcore Issue 6	Level I		0.023337	1.00	.2076	0.023337	42850897.67
105A700103	Resistor	R217,R223,R494	Bellcore Issue 6	Level I		0.002232	3.00	.0596	0.006697	447960261.61
105A568123	Resistor	R354	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
1189610182	Capacitor	C125,C140,C15,C8	Bellcore Issue 6	Level I		0.004465	4.00	.1589	0.017859	223980130.80
105A712003	Resistor	R321,R323	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
1174518180	Capacitor	CP1-CP8	Bellcore Issue 6	Level I		0.005437	8.00	.3870	0.043497	183922840.01
105A506823	Resistor	R35,R39	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
1540722085	Resistor	RP17,RP18,RP44	Bellcore Issue 6	Level I		0.006021	3.00	.1607	0.018063	166083755.80
105A700009	Resistor	R109,R113-R116,R123,R135,R160-R162,R168,R172,R174	Bellcore Issue 6	Level I		0.002232	12.00	.2383	0.026788	447960261.61
105A703309	Resistor	R105,R111,R117,R140,R141,R53,-R57,R59,R62,R67,R77,R81,R82,R-84,R86-R88,R92	Bellcore Issue 6	Level I		0.002232	18.00	.3575	0.040182	447960261.61
105A701009	Resistor	R100,R102,R49,R50,R52,R55,R58-R61,R63,R66,R68,R69,R74,R78,R-80,R89	Bellcore Issue 6	Level I		0.002232	16.00	.3178	0.035717	447960261.61
1129701690	Capacitor	BC11,BC12,BC14-BC20,BC26,BC4-BC5,BC71,BC8,BC9	Bellcore Issue 6	Level I		0.004465	15.00	.5959	0.066970	223980130.80
1124433680	Capacitor	C48,C54	Bellcore Issue 6	Level I		0.004465	2.00	.0794	0.008929	223980130.80
1301053040	Semiconductor	D12,D13	Bellcore Issue 6	Level I		0.023337	2.00	.4153	0.046673	42850897.67
105A702263	Resistor	R196,R301,R302,R440,R456,R458	Bellcore Issue 6	Level I		0.002232	6.00	.1192	0.013394	447960261.61
1315970110	Semiconductor	U21,U31	Bellcore Issue 6	Level I		0.077789	2.00	1.3843	0.155578	12855269.30
121230805D	Inductor	FB43	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
106B501031	Resistor	RT1,RT2	Bellcore Issue 6	Level I		0.010912	2.00	.1942	0.021825	91639788.14
14S2303700	Integrated Circuit	U28	Bellcore Issue 6	Level I	12.10	0.131654	1.00	1.1714	0.131654	7595643.99

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14S2202600	Integrated Circuit	U40	Bellcore Issue 6	Level I	8.40	0.102092	1.00	.9084	0.102092	9795047.58
14S2202600	Integrated Circuit	U37	Bellcore Issue 6	Level I		0.055983	1.00	.4981	0.055983	17862712.49
1129710060	Capacitor	TC1	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
15407822A0	Resistor	RP56,RP64,RP94	Bellcore Issue 6	Level I		0.006021	3.00	.1607	0.018063	166083755.80
1301000340	Semiconductor	D3,D8	Bellcore Issue 6	Level I		0.023337	2.00	.4153	0.046673	42850897.67
1311119710	Semiconductor	Q4	Bellcore Issue 6	Level I		0.023337	1.00	.2076	0.023337	42850897.67
14S5801402	Integrated Circuit	U32	Bellcore Issue 6	Level I	10.50	0.068263	1.00	.6074	0.068263	14649283.25
1189633181	Capacitor	C221,C85	Bellcore Issue 6	Level I		0.004465	2.00	.0794	0.008929	223980130.80
1304001340	Semiconductor	D2	Bellcore Issue 6	Level I		0.004532	1.00	.0403	0.004532	220670511.53
105A505109	Resistor	R101,R112,R125,R127,R131,R137,- R139,R142,R143,R45,R47,R51,R5- 4,R56,R60,R65,R73,R75,R76	Bellcore Issue 6	Level I		0.002232	20.00	.3972	0.044647	447960261.61
1653925216	Connection	CFD1	Bellcore Issue 6	Level I		0.027281	1.00	.2427	0.027281	36655915.26
1315992601	Semiconductor	U30	Bellcore Issue 6	Level I	10.80	0.210244	1.00	1.8707	0.210244	4756378.69
1121701080	Capacitor	BC54,C126,C127,C13,C130,C131,- C133,C135-C139,C14,C141,C143,- C144,C146,C155,C157,C161,C165- C167,C169,C187,C188	Bellcore Issue 6	Level I		0.004465	25.00	.9931	0.111617	223980130.80
1121701080	Capacitor	C190,C191,C195,C197,C204,C205- C208,C224,C226,C24,C26,C29,C3- C34,C4-C7,C73,C79,C80,C95	Bellcore Issue 6	Level I		0.004465	22.00	.8739	0.098223	223980130.80
14S3156500	Integrated Circuit	U9	Bellcore Issue 6	Level I	13.00	0.139927	1.00	1.2450	0.139927	7146589.18
1124568280	Capacitor	C89	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
1129722060	Capacitor	C172,C218,C59,C87,C98	Bellcore Issue 6	Level I		0.004465	5.00	.1986	0.022323	223980130.80
14S4810001	Integrated Circuit	U49	Bellcore Issue 6	Level I	9.90	0.066037	1.00	.5876	0.066037	15143008.10
1189615187	Capacitor	C175	Bellcore Issue 6	Level I	12.30	0.005634	1.00	.0501	0.005634	177481491.27
1189615187	Capacitor	C177	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
1189615187	Capacitor	C31	Bellcore Issue 6	Level I	10.00	0.005402	1.00	.0481	0.005402	185112039.67
1211103366	Inductor	L4	Bellcore Issue 6	Level I		0.084829	1.00	.7548	0.084829	11788427.94
1129610051	Capacitor	C11,C113,C114,C116,C12,C128,C- 129,C132,C142,C147,C154,C158,C- 159,C173,C183,C185,C186,C196,C- 198,C209,C217,C22	Bellcore Issue 6	Level I		0.004465	22.00	.8739	0.098223	223980130.80
1129610051	Capacitor	C220,C227,C23,C231,C234-C238,- C30,C60,C61,C77,C91,C97	Bellcore Issue 6	Level I		0.004465	15.00	.5959	0.066970	223980130.80

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1121722090	Capacitor	C115	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
14S2200900	Integrated Circuit	U47	Bellcore Issue 6	Level I		0.055983	1.00	.4981	0.055983	17862712.49
175910000A	Miscellaneous	BZ1	Bellcore Issue 6	Level I		0.150000	1.00	1.3346	0.150000	6666666.67
14S5812502	Integrated Circuit	U38	Bellcore Issue 6	Level I		0.037486	1.00	.3335	0.037486	26676778.99
14S2533100	Integrated Circuit	U11	Bellcore Issue 6	Level I	21.80	0.249350	1.00	2.2186	0.249350	4010425.02
1050502204	Resistor	R118-R120,R122,R124,R70-R72,R-90,R91	Bellcore Issue 6	Level I		0.002232	10.00	.1986	0.022323	447960261.61
14S4081110	Integrated Circuit	U7	Bellcore Issue 6	Level I		0.055983	1.00	.4981	0.055983	17862712.49
11C2510190	Capacitor	TC2	Bellcore Issue 6	Level I		0.004465	1.00	.0397	0.004465	223980130.80
11E9610190	Capacitor	C10,C148,C153,C179,C18,C199,C9	Bellcore Issue 6	Level I		0.004465	7.00	.2781	0.031253	223980130.80
105A507533	Resistor	R132,R457	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
1315993311	Semiconductor	U29	Bellcore Issue 6	Level I	10.20	0.103435	1.00	.9203	0.103435	9667865.38
1315446310	Integrated Circuit	U48	Bellcore Issue 6	Level I	7.90	0.098597	1.00	.8773	0.098597	10142300.06
1315446310	Integrated Circuit	U22	Bellcore Issue 6	Level I	9.20	0.107919	1.00	.9602	0.107919	9266188.60
14S5A03200	Integrated Circuit	U44	Bellcore Issue 6	Level I		0.055983	1.00	.4981	0.055983	17862712.49
105A501623	Resistor	R435	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
14S4888801	Integrated Circuit	U27	Bellcore Issue 6	Level I	11.20	0.070943	1.00	.6312	0.070943	14095878.36
105A514713	Resistor	R399,R434	Bellcore Issue 6	Level I		0.002232	2.00	.0397	0.004465	447960261.61
14S3149103	Integrated Circuit	U19	Bellcore Issue 6	Level I	17.50	0.099558	1.00	.8858	0.099558	10044359.81
14S2272700	Integrated Circuit	U42	Bellcore Issue 6	Level I	12.90	0.138985	1.00	1.2366	0.138985	7195019.05
14S2272700	Integrated Circuit	U45	Bellcore Issue 6	Level I	13.90	0.148667	1.00	1.3228	0.148667	6726453.78
1302001040	Semiconductor	D7	Bellcore Issue 6	Level I		0.026788	1.00	.2383	0.026788	37330021.80
1211104769	Inductor	L1	Bellcore Issue 6	Level I	11.20	0.002761	1.00	.0246	0.002761	362153266.87
1211104769	Inductor	L2	Bellcore Issue 6	Level I	12.90	0.002848	1.00	.0253	0.002848	351122421.45
121110010T	Inductor	L3	Bellcore Issue 6	Level I		0.002232	1.00	.0199	0.002232	447960261.61
14S4758300	Integrated Circuit	U52	Bellcore Issue 6	Level I	11.40	0.071725	1.00	.6382	0.071725	13942087.52
14S4758300	Integrated Circuit	U53	Bellcore Issue 6	Level I		0.037486	1.00	.3335	0.037486	26676778.99
123131435B	Miscellaneous	Y4	Bellcore Issue 6	Level I		0.150000	1.00	1.3346	0.150000	6666666.67
14S4121601	Integrated Circuit	U41	Bellcore Issue 6	Level I	9.80	0.065672	1.00	.5843	0.065672	15227088.64
14S3020300	Integrated Circuit	U46	Bellcore Issue 6	Level I	18.50	0.201539	1.00	1.7932	0.201539	4961829.46
1315313800	Semiconductor	U18	Bellcore Issue 6	Level I	11.50	0.107116	1.00	.9531	0.107116	9335681.58

