

AQ7-BT

Reliability Prediction Report (MTBF)

Summary	Failure Rate:6079.304323 ppm MTBF: 164,493 Hours
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Issue date	Approval	Test Engineer
2015/04/21	KJ Wang	Jack Huang

Reliability Prediction (MTBF)

I . Model Name: AQ7-BT

II . Prediction Date: Apr. 21, 2015

III . Prediction Site: AAEON Q.E. Dept.

IV . Predicted by: Jack Huang

V . Equipment: Windchill Quality Solutions 10.1

VI. Simulation Environment:

- Temperature: 30 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 Failure rate multiplier is 1000000000.
- MTBF : MTBF is always specified in hours.

VIII. Prediction Result:

AQ7-BT (9697Q7BT06-D):

- Failure Rate: 6079.304323 ppm

- MTBF: 164.493 Hours

**AAEON Reliability Prediction
Summary**

File Name: AQ7-BT.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 6079.304323
MTBF (hrs): 164,493
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
AQ7-BT	9697Q7BT06-D		1	6079.304323	164,493

File Name: AQ7-BT.rfp
Assembly: 9697Q7BT06-D
Ref Des:
Description:

Failure Rate: 6079.304323
MTBF (hrs): 164,493
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501054	Resistor	R493		2.547039	1	282340674.079668
1050501234	Resistor	R492		2.547039	1	282340674.079668
1050501634	Resistor	R327,R541		2.547039	2	154078778.388085
1050502004	Resistor	R316,R88		2.547039	2	154078778.388085
1050502204	Resistor	R31,R33,R35,R38		2.547039	4	82309758.689546
1050502724	Resistor	R338		2.547039	1	282340674.079668
1050503604	Resistor	R177		2.547039	1	282340674.079668
1050504324	Resistor	R321		2.547039	1	282340674.079668
1050504724	Resistor	R1,R2		2.547039	2	154078778.388085
1050508224	Resistor	R330,R336		2.547039	2	154078778.388085
1050510034	Resistor	R210,R222,R235,R536,R681,R7,R744, R8		2.547039	8	43225424.698300
1050512414	Resistor	R118,R135		2.547039	2	154078778.388085
1050516204	Resistor	R6		2.547039	1	282340674.079668
1050516964	Resistor	R315,R90		2.547039	2	154078778.388085
1050520034	Resistor	R139,R747,R748		2.547039	3	107020754.986850
1050523264	Resistor	R4		2.547039	1	282340674.079668
1050524004	Resistor	R175,R176,R208, R211		2.547039	4	82309758.689546
1050529464	Resistor	R5		2.547039	1	282340674.079668
1050530164	Resistor	R202,R203		2.547039	2	154078778.388085
1050540204	Resistor	R12,R26,R29		2.547039	3	107020754.986850
1050540214	Resistor	R53		2.547039	1	282340674.079668
1050542204	Resistor	R320		2.547039	1	282340674.079668
1050545364	Resistor	R126,R134		2.547039	2	154078778.388085
1050547004	Resistor	R302,R398		2.547039	2	154078778.388085
1050547564	Resistor	R54		2.547039	1	282340674.079668
1050549934	Resistor	R743		2.547039	1	282340674.079668
1050554904	Resistor	R301		2.547039	1	282340674.079668
1050560424	Resistor	R156		2.547039	1	282340674.079668
1050568124	Resistor	R157		2.547039	1	282340674.079668
1050573264	Resistor	R310,R312,R314,R83		2.547039	4	82309758.689546
1059700101	Resistor	R672		2.547039	1	282340674.079668
105A500139	Resistor	R131,R132,R133,R319,R772,R773		2.547039	6	56573956.677649
105A500173	Resistor	R146,R243		2.547039	2	154078778.388085
105A501013	Resistor	R761		2.547039	1	282340674.079668

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105A501039	Resistor	R300,R374,R375, R726,R727,R729, R736,R737,R741		2.547039	9	38754445.632391
105A501139	Resistor	R326		2.547039	1	282340674.079668
105A502403	Resistor	R763,R764		2.547039	2	154078778.388085
105A503309	Resistor	R197		2.547039	1	282340674.079668
105A505109	Resistor	R66,R67,R68, R69, R70		2.547039	5	67008142.102588
105A510009	Resistor	R306,R308,R325, R328,R339,R376, R377,R385,R386, R387,R410		2.547039	11	32049696.385471
105A515009	Resistor	R24		2.547039	1	282340674.079668
105A518003	Resistor	R762		2.547039	1	282340674.079668
105A549919	Resistor	R263		2.547039	1	282340674.079668
105A549969	Resistor	R101,R143,R41, R42, R43		2.547039	5	67008142.102588
105A551123	Resistor	R540		2.547039	1	282340674.079668
105A561909	Resistor	R299,R318		2.547039	2	154078778.388085
105A700003	Resistor	R304,R305,R322, R323,R324		2.547039	5	67008142.102588
105A700009	Resistor	R145,R154,R227, R229,R231,R247, R262,R289,R303, R309,R317,R392, R397,R399,R44,R45, R47,R481,R498,R538, R546,R61,R63,R64, R65,R677,R680,R693, R694,R697,R719,R72, R720,R728,R739, R740,R746,R759, R774,R99		2.547039	40	9263254.152485

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105A70000A	Resistor	R684,R742,R755, R765,R766		2.547039	5	67008142.102588
105A700109	Resistor	R296,R297,R298		2.547039	3	107020754.986850
105A700139	Resistor	R111,R246,R275		2.547039	3	107020754.986850
105A701039	Resistor	R10,R100,R102,R104, R105,R106,R107, R108,R224,R230, R232,R233,R238, R260,R27,R28,R329, R332,R333,R334, R335,R337,R347, R348,R352,R353, R357,R360,R361, R363,R371,R417, R443,R444,R46,R478, R480,R484,R508, R511,R512,R678, R696,R73,R730,R756, R758,R770,R771,R		2.547039	53	7043131.173162
105A701059	Resistor	R380,R381,R389, R391,R52,R539,R757		2.547039	7	48991237.965885
105A701069	Resistor	R77		2.547039	1	282340674.079668
105A702039	Resistor	R110,R116,R78		2.547039	3	107020754.986850

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105A702229	Resistor	R120,R121,R124,R20,R21,R217,R218,R22,R23,R341,R343,R37,R442,R653,R655,R712,R714,R716,R717,R718,R76,R767,R768		2.547039	23	15826261.230290
105A703309	Resistor	R138,R141		2.547039	2	154078778.388085
105A703329	Resistor	R253,R254,R256,R721,R722		2.547039	5	67008142.102588
105A704729	Resistor	R196,R198,R244,R311,R313,R331,R395,R396,R74,R85		2.547039	10	35079934.879747
105A708229	Resistor	R128,R129,R51		2.547039	3	107020754.986850
105A710039	Resistor	R393,R428,R485,R486,R487,R489		2.547039	6	56573956.677649
105A720009	Resistor	R71		2.547039	1	282340674.079668
105A733009	Resistor	R438,R439		2.547039	2	154078778.388085
105B501039	Resistor	R685,R686,R687,R688,R689,R690,R691,R692		2.547039	8	43225424.698300
105B703309	Resistor	R195,R199,R200		2.547039	3	107020754.986850
106B501034	Resistor	RT2,RT3		2.547039	2	154078778.388085
106BA01033	Resistor	RT1		2.547039	1	282340674.079668

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1121501690	Capacitor	C116,C117,C118, C119,C120,C121, C122,C123,C125, C126,C128,C129, C130,C131,C132, C133,C134,C135, C136,C137,C138, C139,C140,C141, C142,C143,C144, C145,C147,C148, C151,C154,C156, C312,C314,C320, C322,C323,C324, C325,C326,C327, C333,C335,C370, C371,C375,C450,		1.128806	55	15582058.408778
1121501691	Capacitor	C112,C245,C247, C250,C253,C254, C266,C268,C272, C273		1.128806	10	82101057.548118
1124418090	Capacitor	C16,C17,C329,C332		1.128806	4	196873384.410843
1124427090	Capacitor	C10,C13		1.128806	2	375289731.076049
1124427091	Capacitor	C210,C211		1.128806	2	375289731.076049
1124547290	Capacitor	C234,C236,C237		1.128806	3	257514172.353070
1129610080	Capacitor	C385		1.128806	1	704977644.692287
1129622690	Capacitor	C114,C115,C33,C34, C474,C475		1.128806	6	133979725.056342
1129701790	Capacitor	C108,C109,C110, C111,C124,C127,C75, C98		1.128806	8	101746760.035398

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1129701791	Capacitor	C179,C52,C80		1.128806	3	257514172.353070
1129710390	Capacitor	C308		1.128806	1	704977644.692287
1129715090	Capacitor	C472,C473		1.128806	2	375289731.076049
1189622154	Capacitor	TC1,TC2,TC3,TC4		4.744484	4	45505862.704531
11A4447080	Capacitor	C492		1.128806	1	704977644.692287
11C1539840	Capacitor	C209		1.128806	1	704977644.692287
11C2610030	Capacitor	C386,C434,C435, C437		1.128806	4	196873384.410843
11C9510490	Capacitor	C1,C11,C12,C14,C15,C164,C165,C167,C178,C18,C180,C181,C182,C183,C184,C185,C188,C189,C190,C191,C193,C194,C196,C199,C2,C202,C203,C204,C205,C22,C224,C23,C26,C297,C298,C3,C30,C300,C301,C302,C303,C304,C305,C31,C310,C313,C319,C4,C428,C429,C430, C431		1.128806	63	13632557.733278
11C9522060	Capacitor	C337		1.128806	1	704977644.692287
11E2501690	Capacitor	C460,C463		1.128806	2	375289731.076049
11E2610030	Capacitor	C426,C427		1.128806	2	375289731.076049
11E4433690	Capacitor	C113		1.128806	1	704977644.692287
11E9501090	Capacitor	C309,C311		1.128806	2	375289731.076049

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11E9501091	Capacitor	C100,C101,C102, C187,C19,C20,C21, C27,C293,C330,C334, C338,C341,C342,C50, C51,C53,C54,C55, C56,C57,C58,C59, C60,C61,C62,C63, C64,C65,C66,C67, C69,C70,C71,C72, C73,C74,C76,C77, C78,C79,C83,C84, C85,C87,C88,C89, C90,C91,C95,C96, C97,C99		1.128806	53	16160213.088941
11E9510490	Capacitor	C445,C48,C49,C496, C497		1.128806	5	159367490.199266
11E9610080	Capacitor	C328,C331,C438		1.128806	3	257514172.353070
11E9622052	Capacitor	C240,C284,C288		1.128806	3	257514172.353070
11E9622080	Capacitor	C24,C25,C28,C29, C44,C45,C49,C92, C93,C94		1.128806	10	82101057.548118
11E9647690	Capacitor	C38,C39		1.128806	2	375289731.076049
11EA501050	Capacitor	C36,C37,C443		1.128806	3	257514172.353070

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11EA610040	Capacitor	C103,C104,C177, C186,C192,C197, C200,C201,C225, C228,C276,C277, C279,C280,C281, C283,C287,C289, C291,C294,C32,C41, C42,C439,C440,C487, C488,C494,C495,C82		1.128806	30	28241202.507613
11EA647010	Capacitor	C226,C229,C231, C233,C235,C248, C249,C255,C256, C267,C269,C274, C275,C493		1.128806	14	59316298.011235
11EB522640	Capacitor	C476,C477,C483, C484,C485,C489,C490		1.128806	7	115633865.771428
11EB610050	Capacitor	C239,C241,C242, C243,C257,C259, C260,C261,C262, C263,C458		1.128806	11	74892583.279796
1211103377	Inductor	L4,L7		4.944252	2	83201062.149749
1211106869	Inductor	L3		4.944252	1	154760964.143460
1211110078	Inductor	L5,L6		4.944252	2	83201062.149749
121113307A	Inductor	L1	43.7	10.197164	1	75038235.394139
121113307M	Inductor	L2		4.944252	1	154760964.143460
121114707H	Inductor	L8		4.944252	1	154760964.143460
1212306030	Inductor	FB1,FB2,FB5,FB6,FB7,FB8		4.944252	6	30055900.223009
12310025A3	Miscellaneous	Y1,Y3,Y7		19.200000	3	5742504.738137
1231324055	Miscellaneous	Y6		19.200000	1	23844262.770939
1231332726	Miscellaneous	Y2		19.200000	1	23844262.770939
1301005440	Semiconductor	D8		7.793411	1	92807310.010983
1301005444	Semiconductor	D1,D2,D3		7.793411	3	35106858.962001

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1301400642	Semiconductor	D7		7.793411	1	92807310.010983
1304001340	Optical Device	LED2		79.003355	1	6497172.749112
1304101340	Optical Device	LED1		79.003355	1	6497172.749112
1310390413	Semiconductor	Q73,Q74		22.463360	2	17315095.066101
1315036640	Semiconductor	Q15	39.8	59.729851	1	11900232.686167
1315443512	Semiconductor	Q10		22.463360	1	31642600.748419
1315492510	Semiconductor	Q55		22.463360	1	31642600.748419
1315700216	Semiconductor	Q12,Q72		22.463360	2	17315095.066101
1315036640	Semiconductor	Q17	47.2	69.906189	1	10167899.930761
1315720010	Semiconductor	Q14,Q16		22.463360	2	17315095.066101
1315EM6K10	Semiconductor	Q1,Q2,Q20,Q22,Q3,Q30,Q44,Q64,Q69,Q70		22.463360	10	3960370.776745
1430021430	Integrated Circuit	U70		43.803003	1	11739202.588727
1430091100	Integrated Circuit	U9		43.803003	1	11739202.588727
1430959602	Integrated Circuit	U23	52.3	1028.398230	1	500012.849584
143ADP1970	Integrated Circuit	U72		43.803003	1	11739202.588727
1440211AT0	Integrated Circuit	U22		43.803003	1	11739202.588727
1440E38450	Integrated Circuit	U1	34.2	84.499065	1	6085420.327341
146716GD01	Integrated Circuit	U12		11.063278	1	58231413.220643
1468014680	Integrated Circuit	U63,U64,U65,U66	35.3	44.786229	4	4388133.581884
1490001080	Integrated Circuit	U68		43.803003	1	11739202.588727
149TB01040	Integrated Circuit	U17,U2,U3		43.803003	3	4923240.069161
149TS01040	Integrated Circuit	U71		43.803003	1	11739202.588727
14E0085281	Integrated Circuit	U28		43.803003	1	11739202.588727
14S3010700	Integrated Circuit	U5		43.803003	1	11739202.588727
14S4251402	Integrated Circuit	U39		43.803003	1	11739202.588727
14S5A00821	Integrated Circuit	U34		26.018600	1	25551442.237972
14S5A30601	Integrated Circuit	U4		26.018600	1	25551442.237972
14S6206403	Integrated Circuit	U73		43.803003	1	11739202.588727
14S6216060	Integrated Circuit	U40		43.803003	1	11739202.588727
14S9346000	Integrated Circuit	U19	38.7	496.712968	1	1035230.329143
1540510380	Resistor	RP10,RP11,RP8		9.971436	3	21639329.074793
1540700081	Resistor	RP12,RP13		9.971436	2	30043399.401299
1540736081	Resistor	RP1,RP2,RP3,RP4,RP5,RP6		9.971436	6	12090001.526571
1600000403	Connection	SW1		16.184835	1	35685591.360212
1655902122	Connection	BAT1A		16.184835	1	35685591.360212
175011901M	Miscellaneous	BAT1B		306.000000	1	1681683.006787