

RTC-700M

Reliability Prediction Report

(MTBF)

Summary	Failure Rate: 10501. 552224 ppm MTBF: 95,224 Hours
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Issue date	QE Manager	Test Engineer
2016/7/14	KJ Wang	Anderson Lin

Reliability Prediction (MTBF)

I . Model Name: RTC-700M

II . Prediction Date: July. 14, 2015

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

IV . Predicted by: Anderson Lin

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 in 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 in specify that the failure rate is to be calculated based the selected Calculation models. The multiplier is 1,000,000,000.
- MTBF : MTBF is always specified in hours.

VIII. Prediction Result:

RTC-700M (9697700M05-D):

- Failure Rate: 10501.552224 ppm

- MTBF: 95,224 Hours

**AAEON Reliability Prediction
Summary**

File Name: RTC-700M.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 1
Method: Method I Case 3

Failure Rate: 10501.552224
MTBF (hrs): 95,224
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
RTC-700M	System		1	10501.552224	95,224

File Name: RTC-700M.rfp
Assembly: System
Ref Des:
Description:

Failure Rate: 10501.552224
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Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1121668080.0000 00000000000	Capacitor	CH1,CH10,C H11,CH3, CH4,CH5,CH 6,CH8		1.881343	8	66441889.597922
1124405090.0000 00000000000	Capacitor	CN1,LIGHT1		1.881343	2	265767558.391688
1124412090.0000 00000000000	Capacitor	C2,C203,C20 8,C238, C26,C82		1.881343	6	88589186.130563
1124418080.0000 00000000000	Capacitor	C280,C298,C 299,C3, C301,C304,C 306, C307,C4		1.881343	9	59059457.420375
1124433690.0000 00000000000	Capacitor	C121,C122,C 123, C124,C125,C 126, C127,C128,C 129, C130,C142,C 143, C200,C201,C 213, C222,C236,C 240, C286,C46,C6 ,C90		1.881343	22	24160687.126517

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1124522290.0000 00000000000	Capacitor	C105,C106,C108, C109,C110,C111, C112,C113,C114, C115,C116,C118,C12, C120,C13,C140,C149, C15,C151,C152,C153, C155,C156,C157, C159,C161,C162, C163,C172,C173, C175,C178,C181, C182,C183,C184, C185,C186,C192,C20, C204,C205,C207, C209,C21,C210,C212, C214,C216,C		1.881343	235	2261851.560780
1129522790.0000 00000000000	Capacitor	C103,C29,C47,C58, C9		1.881343	5	106307023.356675
1129710090.0000 00000000000	Capacitor	C14,C27		1.881343	2	265767558.391688
1129710390.0000 00000000000	Capacitor	C146,C17,C19,C220, C267,C32,C34,C487, C530,C98		1.881343	10	53153511.678338
1129715090.0000 00000000000	Capacitor	C18,C33		1.881343	2	265767558.391688
1129722091.0000 00000000000	Capacitor	C234,C243,C246, C250,C31,C43,C44, C45,C49,C64		1.881343	10	53153511.678338

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1189610151.0000 00000000000	Capacitor	C176,C202,C232, C237,C239,C256,C35, C463,C464,C512, C527,C59,C62		1.881343	13	40887316.675644
1211100119.0000 00000000000	Capacitor	C251,C252,C253, C315,C51		1.881343	5	106307023.356675
1211104781.0000 00000000000	Capacitor	C497,C498,C53,C72		1.881343	4	132883779.195844
1211108263.0000 00000000000	Capacitor	C57		1.881343	1	531535116.783376
1211110074.0000 00000000000	Capacitor	C104,C266,C85		1.881343	3	177178372.261125
1211122079.0000 00000000000	Capacitor	C102,C160,C179, C224,C325,C439, C447,C450,C531		1.881343	9	59059457.420375
1214309008.0000 00000000000	Capacitor	C137,C165,C226, C255,C260,C262, C317,C337,C386, C400,C437,C440, C443,C462,C466, C467,C471		1.881343	17	31266771.575493
1231271240.0000 00000000000	Capacitor	C150,C164,C257, C258,C484,C485		1.881343	6	88589186.130563
1231324054.0000 00000000000	Capacitor	C197,C198		1.881343	2	265767558.391688
1231332722.0000 00000000000	Capacitor	C215		1.881343	1	531535116.783376
1233038453.0000 00000000000	Capacitor	C229,C233		1.881343	2	265767558.391688
1301005444.0000 00000000000	Capacitor	C326,C446		1.881343	2	265767558.391688
1301013040.0000 00000000000	Capacitor	C486		1.881343	1	531535116.783376
1301400541.0000 00000000000	Capacitor	C506,C507,C508, C509		1.881343	4	132883779.195844

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1301793040.0000 00000000000	Capacitor	C534,C535,C 536, C537		1.881343	4	132883779.195844
1304101440.0000 00000000000	Semiconductor	D1,D15,D16, D19,D20, D3,D31		9.168718	7	15580928.285051
1305401200.0000 00000000000	Semiconductor	D14,D2,D21, D23,D25, D26,D27,D32 ,D34, D35		9.168718	10	10906649.799535
1315013810.0000 00000000000	Semiconductor	D18		9.168718	1	109066497.995355
1315030270.0000 00000000000	Semiconductor	D24		9.168718	1	109066497.995355
1315230511.0000 00000000000	Semiconductor	D28,D38		9.168718	2	54533248.997677
1315633110.0000 00000000000	Semiconductor	D29		9.168718	1	109066497.995355
1315720010.0000 00000000000	Semiconductor	D36,D37		9.168718	2	54533248.997677
1410017020.0000 00000000000	Inductor	FB1,FB17,FB 18,FB19, FB2,FB20,FB 21,FB22, FB23,FB3		0.832366	10	120139514.799046
1430060410.0000 00000000000	Inductor	FB10,FB11,F B12, FB14,FB15,F B16, FB24,FB25,F B27, FB28,FB29,F B31, FB32,FB33,F B34, FB35,FB36,F B37, FB38,FB39,F B4,FB40, FB41,FB5,FB 6,FB7, FB8,FB9		0.832366	28	42906969.571088
1440887720.0000 00000000000	Inductor	L1,L13,L14,L 15,L16		0.832366	5	240279029.598093
1443587640.0000 00000000000	Inductor	L18,L2,L6		0.832366	3	400465049.330154
1540775082.0000 00000000000	Inductor	L3,L5		0.832366	2	600697573.995232
1651508010.0000 00000000000	Inductor	L10,L11,L12, L7,L8, L9		0.832366	6	200232524.665077
1652503108.0000 00000000000	Inductor	L17,L24		0.832366	2	600697573.995232

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1652505211.0000 00000000000	Inductor	L21,L22		0.832366	2	600697573.995232
1652908900.0000 00000000000	Inductor	L23		0.832366	1	1201395147.99046 3
1654401930.0000 00000000000	Semiconductor	Q1,Q10,Q11, Q27,Q28, Q36,Q42		9.168718	7	15580928.285051
1654800935.0000 00000000000	Semiconductor	Q12,Q13,Q1 4,Q3,Q30, Q31,Q32,Q3 3,Q37, Q38,Q39,Q4, Q40,Q41, Q43,Q44,Q4 6,Q47, Q48,Q49,Q5, Q50,Q52, Q6,Q7,Q8,Q9		9.168718	27	4039499.925754
1654805302.0000 00000000000	Semiconductor	Q16,Q17,Q1 9,Q20, Q21,Q22,Q2 3,Q24		9.168718	8	13633312.249419
1654900834.0000 00000000000	Semiconductor	Q18,Q35		9.168718	2	54533248.997677
1654901240.0000 00000000000	Semiconductor	Q25,Q26		9.168718	2	54533248.997677
1654902433.0000 00000000000	Semiconductor	Q34		9.168718	1	109066497.995355
1654902440.0000 00000000000	Resistor	RP1		0.832366	1	1201395147.99046 3
1654903600.0000 00000000000	Resistor	R1		0.832366	1	1201395147.99046 3
1654910201.0000 00000000000	Resistor	R2,R525,R52 6,R6		0.832366	4	300348786.997616
1654910304.0000 00000000000	Resistor	R4		0.832366	1	1201395147.99046 3

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1654939300.0000 00000000000	Resistor	C48,R101,R102,R104, R105,R106,R108,R11, R111,R113,R117, R119,R12,R120,R122, R126,R128,R129,R13, R137,R139,R14,R144, R15,R155,R156,R158, R159,R16,R160,R161, R162,R169,R170, R173,R178,R179, R180,R182,R185, R186,R195,R197, R205,R209,R21,R22, R220,R222,R23,R2		0.832366	149	8063054.684500

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1655802020.0000 00000000000	Resistor	R103,R107,R115, R116,R127,R136, R203,R206,R207, R214,R218,R223, R231,R266,R268, R274,R278,R316, R329,R335,R346, R348,R351,R353, R355,R357,R359, R361,R371,R38, R394, R397,R43,R44, R440, R45,R450,R458, R46, R47,R473,R507, R515, R54,R64,R71, R9,R96, R98		0.832366	49	24518268.326336
1655802131.0000 00000000000	Resistor	R112,R17,R267, R34		0.832366	4	300348786.997616

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1655905130.0000 00000000000	Resistor	R109,R118,R131, R147,R148,R19,R20, R228,R235,R243, R251,R253,R288, R289,R290,R300, R301,R302,R303, R304,R310,R313, R315,R317,R318, R319,R320,R321, R324,R325,R327, R328,R334,R386, R389,R39,R399,R40, R404,R41,R417,R423, R430,R431,R441, R442,R443,R446, R449,		0.832366	71	16921058.422401
1655908123.0000 00000000000	Resistor	R27		0.832366	1	1201395147.99046 3
1655910130.0000 00000000000	Resistor	R35		0.832366	1	1201395147.99046 3
	Resistor	R110,R224,R246, R297,R37,R474		0.832366	6	200232524.665077
	Resistor	R124,R422,R57,R58		0.832366	4	300348786.997616
	Resistor	R60		0.832366	1	1201395147.99046 3
	Resistor	R100,R172,R174, R331,R66,R68,R69, R70		0.832366	8	150174393.498808
	Resistor	R476,R94,R97		0.832366	3	400465049.330154
	Resistor	R95		0.832366	1	1201395147.99046 3
	Resistor	R114		0.832366	1	1201395147.99046 3

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
	Resistor	R121,R527		0.832366	2	600697573.995232
	Resistor	R125,R424		0.832366	2	600697573.995232
	Resistor	R132,R157,R193, R240,R241,R242, R347,R349,R350, R352,R354,R356, R387,R451,R453, R454,R466,R479, R480		0.832366	19	63231323.578445
	Resistor	R140,R141		0.832366	2	600697573.995232
	Resistor	R145,R395,R406		0.832366	3	400465049.330154
	Resistor	R151,R421		0.832366	2	600697573.995232
	Resistor	R152,R425		0.832366	2	600697573.995232
	Resistor	R153,R437		0.832366	2	600697573.995232
	Resistor	R154,R436		0.832366	2	600697573.995232
	Resistor	R215,R305		0.832366	2	600697573.995232
	Resistor	R216,R238,R275, R277		0.832366	4	300348786.997616
	Resistor	R229,R230,R452, R457,R482		0.832366	5	240279029.598093
	Resistor	R245,R296,R477		0.832366	3	400465049.330154
	Resistor	R252,R291,R292, R293,R332		0.832366	5	240279029.598093
	Resistor	R265,R272,R326, R398,R435		0.832366	5	240279029.598093
	Resistor	R307,R336		0.832366	2	600697573.995232
	Resistor	R323		0.832366	1	1201395147.990463
	Resistor	R360,R469,R519, R521		0.832366	4	300348786.997616
	Resistor	R362		0.832366	1	1201395147.990463
	Resistor	R396,R405		0.832366	2	600697573.995232
	Resistor	R410		0.832366	1	1201395147.990463
	Resistor	R412		0.832366	1	1201395147.990463
	Resistor	R414,R415		0.832366	2	600697573.995232

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	Resistor	R418		0.832366	1	1201395147.990463
	Resistor	R419		0.832366	1	1201395147.990463
	Resistor	R465		0.832366	1	1201395147.990463
	Resistor	R471,R472		0.832366	2	600697573.995232
	Resistor	R475,R481		0.832366	2	600697573.995232
	Resistor	R484,R485,R486, R487		0.832366	4	300348786.997616
	Resistor	R520,R522		0.832366	2	600697573.995232
	Resistor	R540		0.832366	1	1201395147.990463
	Resistor	SIM1		0.832366	1	1201395147.990463
	Resistor	SPK1		0.832366	1	1201395147.990463
	Capacitor	TF1		1.881343	1	531535116.783376
	Capacitor	TOUCH1		1.881343	1	531535116.783376
	Capacitor	TOUCH2		1.881343	1	531535116.783376
	Integrated Circuit	U1		85.069153	1	11755142.304947
	Integrated Circuit	U16,U2,U4		85.069153	3	3918380.768316
	Integrated Circuit	U14,U17,U28,U3,U33,U37,U49,U50,U54		85.069153	9	1306126.922772
	Integrated Circuit	U11,U12,U51,U6		85.069153	4	2938785.576237
	Integrated Circuit	U7		85.069153	1	11755142.304947
	Integrated Circuit	U8		85.069153	1	11755142.304947
	Integrated Circuit	U9		85.069153	1	11755142.304947
	Integrated Circuit	U10	30	587.017954	1	1703525.408833
	Integrated Circuit	U13	31	622.327069	1	1606872.092688
	Integrated Circuit	U15,U59		85.069153	2	5877571.152473
	Integrated Circuit	U18		85.069153	1	11755142.304947
	Integrated Circuit	U19,U34	30	587.017954	2	851762.704417
	Integrated Circuit	U20		85.069153	1	11755142.304947
	Integrated Circuit	U24		85.069153	1	11755142.304947
	Integrated Circuit	U25	40	1036.736321	1	964565.415384
	Integrated Circuit	U26	30	587.017954	1	1703525.408833
	Integrated Circuit	U29,U38		85.069153	2	5877571.152473
	Integrated Circuit	U35		85.069153	1	11755142.304947
	Integrated Circuit	U36		85.069153	1	11755142.304947
	Integrated Circuit	U39,U40		85.069153	2	5877571.152473
	Integrated Circuit	U41		85.069153	1	11755142.304947
	Integrated Circuit	U42		85.069153	1	11755142.304947
	Integrated Circuit	U44	32	659.529996	1	1516231.264184

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	Integrated Circuit	U45	31	622.327069	1	1606872.092688
	Integrated Circuit	U46		85.069153	1	11755142.304947
	Integrated Circuit	U53		85.069153	1	11755142.304947
	Integrated Circuit	U55		85.069153	1	11755142.304947
	Integrated Circuit	U56		85.069153	1	11755142.304947
	Integrated Circuit	U60		85.069153	1	11755142.304947
	Inductor	Y1		0.832366	1	1201395147.990463
	Inductor	Y2		0.832366	1	1201395147.990463
	Inductor	Y3		0.832366	1	1201395147.990463
	Inductor	Y4		0.832366	1	1201395147.990463
	Inductor	Y5		0.832366	1	1201395147.990463
	Inductor	Y6,Y7		0.832366	2	600697573.995232
	Inductor	Y8		0.832366	1	1201395147.990463
	Inductor	FB42,FB43,F B44, FB46,FB47,F B48, FB49,FB50		0.832366	8	150174393.498808
	Capacitor	C100,C101,C 11,C148, C16,C211,C2 41,C316, C329,C472,C 481, C489,C5,C54 ,C70, C95		1.881343	16	33220944.798961
	Capacitor	C1,C117,C13 3,C261, C293,C294,C 308, C309,C310,C 311, C313,C321,C 358, C366,C469,C 482, C483,C505		1.881343	18	29529728.710188

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	Capacitor	C10,C170,C22,C254,C263,C275,C276,C277,C278,C279,C281,C282,C283,C284,C285,C287,C288,C289,C290,C291,C295,C296,C300,C302,C303,C351,C353,C36,C360,C369,C370,C384,C404,C407,C42,C465,C478,C516,C532,C66,C67,C75,C77		1.881343	43	12361281.785660
	Capacitor	C144,C154,C312,C314,C318,C332,C334,C335,C336,C341,C342,C361,C414,C415,C419,C427,C438,C441,C444,C50,C63,C88,C92,C93		1.881343	24	22147296.532641
	Capacitor	C206,C331,C333,C339,C343,C354,C373,C397,C435		1.881343	9	59059457.420375