

NIM-C13A

Reliability Prediction Report (MTBF)

Summary	Failure Rate: 3399.588735 ppm MTBF: 294,153 Hours
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Issue date	QE Manager	Test Engineer
2016-03-01	KJ Wang	Aslen Hsieh

Reliability Prediction (MTBF)

I . Model Name: NIM-C13A

II . Prediction Date: Mar. 01, 2016

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

IV . Predicted by: Aslen Hsieh

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:

NIM-C13A (M/B: 9697C13A07-D):

- Failure Rate: 3399.588735 ppm

- MTBF: 294,153 Hours

**AAEON Reliability Prediction
Summary**

File Name: NIM-C13A.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 3399.588735
MTBF (hrs): 294,153
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
NIM-C13A	9697C13A07-D		1	3399.588735	294,153

File Name: NIM-C13A.rfp
Assembly: 9697C13A07-D
Ref Des:
Description:

Failure Rate: 3399.588735
MTBF (hrs): 294,153
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Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050510034	Resistor	R345,R346,R440		2.547039	3	107020754.986850
1050516004	Resistor	R101,R102,R104, R107,R109,R129, R130,R133,R134, R136,R138,R139, R142,R250,R251, R253,R254,R257, R258,R261,R262, R280,R283,R284, R285,R288,R289, R294,R295,R350, R351,R96,R97,R99		2.547039	34	10846303.620910
105A500139	Resistor	R159,R237,R337		2.547039	3	107020754.986850
105A501039	Resistor	R152,R153,R155, R156,R157,R158, R160,R229,R231, R232,R234,R235, R304,R305,R332, R341,R342		2.547039	17	21160422.299251
105A501529	Resistor	R221,R67		2.547039	2	154078778.388085
105A501539	Resistor	R347		2.547039	1	282340674.079668
105A503309	Resistor	R467,R469,R470, R471		2.547039	4	82309758.689546
105A523713	Resistor	R214,R60		2.547039	2	154078778.388085
105A530113	Resistor	R215,R61		2.547039	2	154078778.388085
105A547509	Resistor	R466		2.547039	1	282340674.079668
105A549969	Resistor	R468,R472,R473, R474		2.547039	4	82309758.689546
105A700003	Resistor	R476,R477,R478, R479		2.547039	4	82309758.689546

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105A700009	Resistor	R110,R111,R113, R114,R115,R116, R117,R118,R119, R120,R121,R122, R123,R124,R125, R126,R143,R144, R145,R146,R147, R148,R149,R150, R151,R154,R199, R217,R230,R233, R236,R238,R239, R240,R241,R242, R243,R244,R245, R246,R247,R264, R265,R266,R267, R268,R269,R270,		2.547039	104	3640565.083780
105A700139	Resistor	R447,R448,R451		2.547039	3	107020754.986850
105A700239	Resistor	R343,R344		2.547039	2	154078778.388085

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105A701039	Resistor	R178,R180,R181, R182,R183,R184, R185,R186,R187, R190,R191,R192, R193,R194,R195, R196,R24,R26,R27, R28,R29,R30,R31, R32,R33,R339,R356, R357,R358,R359,R36, R360,R361,R362, R363,R364,R365, R366,R367,R368, R369,R37,R370,R371, R38,R39,R40,R42, R43,R441,R454,R4		2.547039	58	6449958.733144
105A703309	Resistor	R177,R23		2.547039	2	154078778.388085
105A703329	Resistor	R200,R201,R205, R206,R208,R209, R211,R212,R213, R223,R224,R228,R46, R47,R51,R52,R54, R55,R57,R58,R59, R69,R70,R74		2.547039	24	15190138.820515
1111610199	Capacitor	C580,C581		1.128806	2	375289731.076049
1121610060	Capacitor	C224,C225,C229, C230		1.128806	4	196873384.410843
1124427090	Capacitor	C147,C149,C39,C41		1.128806	4	196873384.410843
1129522790	Capacitor	C111,C112,C217, C220		1.128806	4	196873384.410843

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1129601080	Capacitor	C153,C159,C165, C171,C174,C180, C185,C192,C197,C45, C51,C57,C63,C66, C72,C77,C84,C89		1.128806	18	46478509.590073
1129610260	Capacitor	C125,C131,C136, C145,C221,C23,C28, C35		1.128806	8	101746760.035398
1129710090	Capacitor	C148,C40		1.128806	2	375289731.076049
1129710390	Capacitor	C155,C156,C161, C162,C163,C164, C167,C168,C169, C176,C177,C178, C187,C188,C189, C190,C199,C200,C47, C48,C53,C54,C55, C56,C59,C60,C61, C68,C69,C70,C79, C80,C81,C82,C91, C92		1.128806	36	23624151.295955
1189656193	Capacitor	C578,C579		1.128806	2	375289731.076049
11C2510480	Capacitor	C226,C228,C576, C577		1.128806	4	196873384.410843
11C4501790	Capacitor	C154,C160,C166, C170,C175,C179, C186,C191,C198, C227,C232,C234, C237,C46,C52,C58, C62,C67,C71,C78, C83,C90		1.128806	22	38230892.707156
11C9510050	Capacitor	C582,C583		1.128806	2	375289731.076049

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11C9510490	Capacitor	C10,C100,C101,C102,C103,C104,C105,C106,C107,C108,C109,C11,C110,C113,C114,C115,C116,C117,C118,C119,C12,C120,C121,C122,C123,C124,C126,C128,C129,C13,C130,C132,C134,C135,C137,C138,C139,C14,C141,C142,C143,C144,C15,C16,C17,C19,C201,C202,C203,C204,		1.128806	94	9187567.535390
11E1547650	Capacitor	C223,C238,C241		1.128806	3	257514172.353070
11E9501091	Capacitor	C127,C133,C140,C146,C20,C26,C32,C37		1.128806	8	101746760.035398
11E9610080	Capacitor	C152,C158,C172,C181,C184,C193,C196,C44,C50,C64,C73,C76,C85,C88		1.128806	14	59316298.011235
11EA647010	Capacitor	C151,C157,C173,C182,C183,C194,C195,C43,C49,C65,C74,C75,C86,C87		1.128806	14	59316298.011235
121110336L	Inductor	L33,L34		4.944252	2	83201062.149749

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1212306030	Inductor	FB1,FB10,FB11,FB12,FB13,FB14,FB16,FB17,FB2,FB3,FB4,FB5,FB6,FB7,FB8,FB9		4.944252	16	11765215.454728
12123C001A	Inductor	FB18,FB19,FB20		4.944252	3	57363284.375370
123132505D	Miscellaneous	Y1		19.200000	1	23844262.770939
123132505D	Miscellaneous	Y2		19.200000	1	23844262.770939
1301005442	Semiconductor	D1		7.793411	1	92807310.010983
1304100250	Semiconductor	LED1		7.793411	1	92807310.010983
1315070020	Semiconductor	Q23,Q25,Q26,Q27,Q28,Q29,Q31,Q32,Q33,Q34,Q35,Q37		22.463360	12	3332353.664911
1315230211	Semiconductor	Q24,Q30,Q36,Q38		22.463360	4	9270607.712006
1315230511	Semiconductor	Q2,Q3,Q4,Q5		22.463360	4	9270607.712006
1315733410	Semiconductor	Q21		22.463360	1	31642600.748419
1315733410	Semiconductor	Q22	27.6	45.380649	1	15663044.481589
1315970211	Semiconductor	U4,U5		22.463360	2	17315095.066101
1440038080	Integrated Circuit	U7		43.803003	1	11739202.588727
1440580EB0	Integrated Circuit	U11	42.3	57.123230	1	11277903.661805
1440580EB0	Integrated Circuit	U12	35.7	45.425566	1	14182108.116196
14S3003700	Integrated Circuit	TF1,TF2,TF3,TF4,TF5,TF6,TF7,TF8		43.803003	8	2144463.783749
14S4622700	Integrated Circuit	U13	20.3	168.335819	1	3054681.603882
14S4910400	Integrated Circuit	U16	27.4	259.244485	1	1983503.446836
14S6325600	Integrated Circuit	U14		11.063278	1	58231413.220643
14S6325600	Integrated Circuit	U15	27.1	33.240067	1	19381136.596603
1540775082	Resistor	RP1,RP2,RP3,RP4,RP5,RP6,RP7,RP8		9.971436	8	9424088.116087
1652896200	Connection	CN17		16.184835	1	35685591.360212

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1751300006	Relay	RELAY1,REL AY10, RELAY11,REL AY12, RELAY13,REL AY14, RELAY15,REL AY16, RELAY2,REL AY3, RELAY4,REL AY5, RELAY6,REL AY7, RELAY8,REL AY9		19.477355	16	2689762.931351