

NIM-S13C

Reliability Prediction Report (MTBF)

Summary	Failure Rate: 2316.071074 MTBF: 431.766 Hours
---------	--

Issue date	QE Manager	Test Engineer
2017-04-14	KJ Wang	Max Chang

Reliability Prediction (MTBF)

I . Model Name: NIM-S13C

II . Prediction Date: April, 14, 2017

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

IV . Predicted by: Max Chang

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-S13C (9697S13C00-D):

- Failure Rate: 2316.071047

- MTBF: 431,766 Hours

**Reliability Prediction
Summary**

File Name: NIM-S13C.rfp
System: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
NIM-S13C	9697S13C00-D		1	2316.071074	431,766

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1050501054.0000000 00000000	Resistor	R458	2.547039	1	3.541821
1050504724.0000000 00000000	Resistor	R431	2.547039	1	3.541821
1050504764.0000000 00000000	Resistor	R456	2.547039	1	3.541821
1050507524.0000000 00000000	Resistor	R97	2.547039	1	3.541821
1050510034.0000000 00000000	Resistor	R242,R45 5	2.547039	2	6.490186
1050516004.0000000 00000000	Resistor	R374,R37 5,R376, R377,R37 8,R379, R382,R38 3,R384, R385,R38 8,R389, R392,R39 3,R400, R401	2.547039	16	44.592810
1050549904.0000000 00000000	Resistor	R457	2.547039	1	3.541821
1050549934.0000000 00000000	Resistor	R1116	2.547039	1	3.541821
1050700002.0000000 00000000	Resistor	R130,R27	2.547039	2	6.490186
	Resistor	R76	2.547039	1	3.541821
	Resistor	R29,R38	2.547039	2	6.490186
	Resistor	R240	2.547039	1	3.541821
	Resistor	R1120	2.547039	1	3.541821
	Resistor	R25,R26,R 41,R42	2.547039	4	12.149228
	Resistor	R71	2.547039	1	3.541821
	Resistor	R1121	2.547039	1	3.541821
	Resistor	R325,R33 0	2.547039	2	6.490186
	Resistor	R169,R17 0	2.547039	2	6.490186
	Resistor	R81,R92	2.547039	2	6.490186
	Resistor	R99	2.547039	1	3.541821
	Resistor	R253	2.547039	1	3.541821
	Resistor	R233,R23 4,R266, R267	2.547039	4	12.149228
	Resistor	R104,R10 9,R512,R5 4	2.547039	4	12.149228

**Reliability Prediction
Summary**

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
	Resistor	R10,R101, R102,R11, R1125,R1 15,R119, R12,R123, R124,R12 5, R126,R12 7,R128, R129,R13 3,R134, R135,R13 6,R137, R138,R13 9,R140,R1 5, R151,R15 3,R16,R16 5, R167,R17, R171,R18, R184,R19, R191,R20, R22,R23,R 24,R254, R260,R26 5,R281, R292,R29 6,R299, R303,R30 4,R305, R306,R3	2.547039	69	183.720427
	Resistor	R14,R141	2.547039	2	6.490186
	Resistor	R57,R65	2.547039	2	6.490186

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
	Resistor	R194,R202,R256,R257,R261,R262,R270,R28,R288,R290,R294,R295,R301,R307,R308,R309,R310,R314,R315,R32,R323,R352,R353,R354,R357,R36,R360,R362,R37,R50,R55,R62	2.547039	32	86.936089
	Resistor	R83	2.547039	1	3.541821
	Resistor	R205,R210,R224,R350	2.547039	4	12.149228
	Resistor	R186,R218,R223,R355	2.547039	4	12.149228
	Capacitor	C1,C2	1.128806	2	2.664608
1124427090.0000000000000000	Capacitor	C33,C34,C37,C38	1.128806	4	5.079407
1129601080.0000000000000000	Capacitor	C138,C139,C140,C150,C151,C153,C167,C171,C185,C186,C200,C216,C217,C219,C233,C234,C236,C239,C327	1.128806	19	22.676921
1129710090.0000000000000000	Capacitor	C35,C36	1.128806	2	2.664608

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1129710390.0000000 00000000	Capacitor	C143,C14 4,C145, C146,C14 9,C154, C155,C15 7,C159, C160,C16 6,C173, C174,C17 7,C179, C181,C18 2,C183, C189,C19 2,C194, C195,C19 8,C199, C202,C20 4,C205, C214,C22 0,C222, C224,C22 5,C227, C228,C23 0,C231	1.128806	36	42.329563
1189633151.0000000 00000000	Capacitor	C142,C23 2	1.128806	2	2.664608
1189656196.0000000 00000000	Capacitor	C334	1.128806	1	1.418485
	Capacitor	C125,C12 6	1.128806	2	2.664608
	Capacitor	C873	1.128806	1	1.418485
	Capacitor	C147,C14 8,C152, C156,C15 8,C161, C165,C17 0,C175, C180,C19 0,C193, C201,C21 5,C221, C223,C22 6,C229	1.128806	18	21.515320
	Capacitor	C329	1.128806	1	1.418485
	Capacitor	C130,C4	1.128806	2	2.664608

**Reliability Prediction
Summary**

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
	Capacitor	C10,C104, C109,C11, C12,C127, C128,C12 9, C13,C135, C136,C15, C16,C17,C 18,C19, C20,C21,C 22,C23, C25,C257, C258,C30, C317,C32 0,C322, C326,C32 8,C340, C341,C40, C5,C6,C7, C8,C87,C8 8,C9,C99	1.128806	40	46.936341
	Capacitor	C107,C25 4,C255, C318,C31 9,C321, C332,C33 3,C335, C337,C34 2,C81,C86 , C91,C92	1.128806	15	18.024625
	Capacitor	C108,c31	1.128806	2	2.664608
	Capacitor	C241,C24 2,C243, C244,C24 5,C246, C247,C24 8	1.128806	8	9.828323
	Capacitor	C911	1.128806	1	1.418485
	Capacitor	C28	1.128806	1	1.418485
	Capacitor	C27	1.128806	1	1.418485
	Capacitor	C162,C16 3,C168, C172,C17 6,C178, C187,C19 1,C203, C206,C20 7,C218, C235,C23 8,C24,C3, C32,C39	1.128806	18	21.515320

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
	Capacitor	C325,C330	1.128806	2	2.664608
	Capacitor	C137,C141,C164,C169,C184,C188,C208,C209,C210,C211,C212,C213,C237,C240	1.128806	14	16.858773
1211110062.0000000 00000000	Inductor	L2	4.944252	1	6.461578
	Inductor	L3	4.944252	1	6.461578
	Inductor	L1	4.944252	1	6.461578
1212306030.0000000 00000000	Inductor	FB21,FB22,FB23,FB24,FB25,FB26,FB27,FB28,FB29,FB30,FB31,FB32,FB34,FB35	4.944252	14	74.727516
1212308054.0000000 00000000	Inductor	FB10,FB11,FB12,FB17,FB18,FB42,FB43,FB9	4.944252	8	43.717664
	Inductor	FB2,FB33,FB45,FB46	4.944252	4	22.772366
	Inductor	FB1,FB19,FB20	4.944252	3	17.432754
1304200043.0000000 00000000	Miscellaneous Optical Device	Y1,Y2 LED10,LED11,LED14,LED15,LED17,LED18,LED5,LED6	19.200000 79.003355	2 8	112.942642 841.861418
1315060301.0000000 00000000	Semiconductor	Q1,Q5	22.463360	2	57.753076
1315070020.0000000 00000000	Semiconductor	Q15	22.463360	1	31.602965
1315200312.0000000 00000000	Semiconductor	Q13,Q14,Q3,Q4	22.463360	4	107.867794

**Reliability Prediction
Summary**

File Name: NIM-S13C.rfp
Assembly: 9697S13C00-D
Ref Des:
Description:

Failure Rate: 2316.071074
MTBF (hrs): 431,766
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1430006710.0000000 00000000	Integrated Circuit	U100	43.803003	1	85.184662
1440038080.0000000 00000000	Integrated Circuit	U6	43.803003	1	85.184662
	Integrated Circuit	U3	43.803003	1	85.184662
	Integrated Circuit	U4,U5	43.803003	2	146.310248
	Integrated Circuit	U2	43.803003	1	85.184662
	Integrated Circuit	U8,U9	43.803003	2	146.310248
1654902037.0000000 00000000	Connection	CN6,CN7, CN8,CN9	16.184835	4	88.145664