

NIM-S13E

Reliability Prediction Report (MTBF)

| | |
|---------|--|
| Summary | Failure Rate: 1625.986652 MTBF: 615.011 Hours |
|---------|--|

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

Reliability Prediction (MTBF)

I . Model Name: NIM-S13E

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-S13E (9697S13E00-D):

- Failure Rate: 1625.986652

- MTBF: 615,011 Hours

**Reliability Prediction
Summary**

File Name: NIM-S13E.rfp
System: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Assembly Name | Part Number | Ref Des | Quantity | Failure Rate | MTBF |
|---------------|--------------|---------|----------|--------------|---------|
| NIM-S13E | 9697S13E00-D | | 1 | 1625.986652 | 615,011 |

File Name: NIM-S13E.rfp
Assembly: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Unit Failure Rate | Quantity | Total Failure Rate |
|-------------|----------|--|-------------------|----------|--------------------|
| 1050510034 | Resistor | R14,R187 | 2.547039 | 2 | 6.490186 |
| 1050520034 | Resistor | R141,R185,R189 | 2.547039 | 3 | 9.343982 |
| 1050530034 | Resistor | R192 | 2.547039 | 1 | 3.541821 |
| 1050549934 | Resistor | R142,R143 | 2.547039 | 2 | 6.490186 |
| 105A500139 | Resistor | R125,R128,R131,R136,R139,R182 | 2.547039 | 6 | 17.675978 |
| 105A501039 | Resistor | R148,R149,R152,R153,R155,R157,R165,R167,R170,R172,R173,R176,R183 | 2.547039 | 13 | 36.573004 |
| 105A501529 | Resistor | R112 | 2.547039 | 1 | 3.541821 |
| 105A501539 | Resistor | R194 | 2.547039 | 1 | 3.541821 |
| 105A510009 | Resistor | R63,R64,R66,R68 | 2.547039 | 4 | 12.149228 |
| 105A523713 | Resistor | R105 | 2.547039 | 1 | 3.541821 |
| 105A530113 | Resistor | R106 | 2.547039 | 1 | 3.541821 |
| 105A544229 | Resistor | R144 | 2.547039 | 1 | 3.541821 |

File Name: NIM-S13E.rfp
Assembly: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Unit Failure Rate | Quantity | Total Failure Rate |
|-------------|----------|---|-------------------|----------|--------------------|
| 105A700009 | Resistor | R1,R10,R108,R120,R121,R122,R123,R145,R146,R147,R160,R162,R164,R166,R178,R180,R188,R191,R193,R195,R2,R25,R26,R27,R28,R29,R3,R30 R32,R33,R35,R36,R38,R39,R4,R41,R42 R5,R51,R52,R53,R55 R6,R7,R8,R9,R97 | 2.547039 | 47 | 126.292575 |
| 105A700139 | Resistor | R16,R17,R18 | 2.547039 | 3 | 9.343982 |
| 105A701039 | Resistor | R15,R31,R34,R37,R40,R43,R44,R47,R48,R49,R50,R54,R56,R57,R58,R59 | 2.547039 | 16 | 44.592810 |
| 105A703309 | Resistor | R24 | 2.547039 | 1 | 3.541821 |
| 105A703329 | Resistor | R101,R103,R104,R114,R116,R119,R61,R62,R65,R67,R69,R70,R71,R72,R85,R86,R87,R88,R90,R92,R94,R95,R96,R99 | 2.547039 | 24 | 65.832183 |

File Name: NIM-S13E.rfp
Assembly: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Unit Failure Rate | Quantity | Total Failure Rate |
|-------------|-----------|---|-------------------|----------|--------------------|
| 105A705609 | Resistor | R158,R159,R161,R163,R174,R177,R179,R181 | 2.547039 | 8 | 23.134533 |
| 105A708229 | Resistor | R73,R74,R75,R76,R77,R78,R79,R80,R81,R82,R83,R84 | 2.547039 | 12 | 33.890167 |
| 105A710039 | Resistor | R186 | 2.547039 | 1 | 3.541821 |
| 105A733009 | Resistor | R126,R127,R130,R132,R134,R135,R138,R140 | 2.547039 | 8 | 23.134533 |
| 111161019C | Capacitor | C109 | 1.128806 | 1 | 1.418485 |
| 1124427090 | Capacitor | C15,C17 | 1.128806 | 2 | 2.664608 |
| 1129522790 | Capacitor | C102,C103,C106,C107 | 1.128806 | 4 | 5.079407 |
| 1129601080 | Capacitor | C21,C27,C33,C39,C42,C48,C53,C60,C65 | 1.128806 | 9 | 11.005528 |
| 1129710090 | Capacitor | C16 | 1.128806 | 1 | 1.418485 |
| 1129710390 | Capacitor | C23,C24,C29,C30,C31,C32,C35,C36,C37,C44,C45,C46,C55,C56,C57,C58,C67,C68 | 1.128806 | 18 | 21.515320 |
| 11C2510480 | Capacitor | C1,C3 | 1.128806 | 2 | 2.664608 |
| 11C4501790 | Capacitor | C22,C28,C34,C38,C43,C47,C54,C59,C66 | 1.128806 | 9 | 11.005528 |

File Name: NIM-S13E.rfp
Assembly: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Unit Failure Rate | Quantity | Total Failure Rate |
|-------------|---------------|---|-------------------|----------|--------------------|
| 11C9510490 | Capacitor | C10,C100, C101,C10 4, C105,C10 8,C11,C12 C13,C14,C 7,C8,C9 | 1.128806 | 13 | 15.691573 |
| 11E2501690 | Capacitor | C112,C11 6,C118, C124,C69, C73,C74, C75,C78,C 79,C80, C83,C84,C 85,C88, C89,C91,C 92,C95, C99 | 1.128806 | 20 | 23.837670 |
| 11E9547650 | Capacitor | C72,C77,C 82,C87 | 1.128806 | 4 | 5.079407 |
| 11E9610080 | Capacitor | C110,C11 1,C117, C119,C20, C26,C40, C49,C52,C 61,C64, C70,C71,C 76,C81, C86,C90,C 93,C94 | 1.128806 | 19 | 22.676921 |
| 11E9622050 | Capacitor | C97,C98 | 1.128806 | 2 | 2.664608 |
| 11E9622060 | Capacitor | C114,C11 5,C121, C122,C12 3 | 1.128806 | 5 | 6.274805 |
| 11EA647010 | Capacitor | C19,C25,C 41,C50, C51,C62,C 63 | 1.128806 | 7 | 8.647986 |
| 1211115076 | Inductor | L1,L2,L3 | 4.944252 | 3 | 17.432754 |
| 1212306030 | Inductor | FB1,FB10, FB11,FB2, FB3,FB4,F B5,FB6, FB7,FB8,F B9 | 4.944252 | 11 | 59.269082 |
| 123132505D | Miscellaneous | Y1 | 19.200000 | 1 | 41.938810 |

File Name: NIM-S13E.rfp
Assembly: 9697S13E00-D
Ref Des:
Description:

Failure Rate: 1625.986652
MTBF (hrs): 615,011
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Unit Failure Rate | Quantity | Total Failure Rate |
|-------------|--------------------|--|-------------------|----------|--------------------|
| 1315070020 | Semiconductor | Q10,Q11, Q12,Q13, Q14,Q15, Q18,Q19, Q20,Q21, Q22,Q23, Q24,Q6,Q 7,Q9 | 22.463360 | 16 | 394.664315 |
| 1315230111 | Semiconductor | Q1,Q2,Q3, Q4 | 22.463360 | 4 | 107.867794 |
| 1315230511 | Semiconductor | Q16,Q17, Q5,Q8 | 22.463360 | 4 | 107.867794 |
| 1315970211 | Integrated Circuit | U6 | 43.803003 | 1 | 85.184662 |
| 1430021430 | Integrated Circuit | U5,U7,U8 | 43.803003 | 3 | 203.118269 |
| 1440038080 | Integrated Circuit | U2 | 43.803003 | 1 | 85.184662 |
| 1440580EB0 | Integrated Circuit | U3 | 43.803003 | 1 | 85.184662 |
| 14S6325600 | Integrated Circuit | U4 | 43.803003 | 1 | 85.184662 |
| 1654008420 | Connection | CN2 | 16.184835 | 1 | 28.022514 |