

IER-919

Reliability Prediction Report (MTBF)

| | |
|---------|---|
| Summary | Failure Rate: 11.507242 ppm MTBF: 86,902 Hours |
|---------|---|

Issue date

Approval

Test Engineer

2013/12/12

Tom Lin

Aslen Hsieh

Reliability Prediction (MTBF)

I . Model Name: IER-919

II . Prediction Date: Dec. 12, 2013

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:

EMB-QM77 (9697QM772A-D):

- Failure Rate: 11.507242 ppm

- MTBF: 86,902 Hours

**AAEON Reliability Prediction
Summary**

File Name: IER-919.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Assembly Name | Part Number | Ref Des | Quantity | Failure Rate | MTBF |
|---------------|--------------|---------|----------|--------------|--------|
| IER-919 | 9697QM772A-D | | 1 | 11.507242 | 86,902 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|---------------|---|----------|-------------------|----------|------------------|
| 1315013810 | Semiconductor | Q30 | | 0.021546 | 1 | 34687835.899694 |
| 105A527403 | Resistor | R285 | | 0.002547 | 1 | 282340674.079668 |
| 1121501690 | Capacitor | BC1,BC10,BC100, BC101,BC102,BC103, BC104,BC105,BC106, BC107,BC11,BC110, BC111,BC112,BC113, BC114,BC117,BC118, BC12,BC121,BC122, BC123,BC124,BC125, BC126,BC127,BC128, BC129,BC13,BC130, BC131,BC132,BC133, BC134,BC135,BC136, BC137,BC138,BC1 | | 0.004744 | 222 | 930051.886997 |
| 1653204208 | Connection | CN1 | | 0.002943 | 1 | 208530436.378557 |
| 165320820F | Connection | CN2 | | 0.007651 | 1 | 68586789.852027 |
| 165300420L | Connection | CN4 | | 0.002943 | 1 | 208530436.378557 |
| 1654030003 | Connection | CN5 | | 0.011035 | 1 | 55608116.367615 |
| 1653924110 | Connection | CN14 | | 0.000736 | 1 | 834121745.514229 |
| 11C4501790 | Capacitor | C1,C112,C185,C2, C206,C21,C22,C238, C239,C24,C240,C241, C25,C27,C28,C3,C30, C303,C304,C31,C37, C4,C44,C5,C6,C8,C9 | | 0.004744 | 27 | 7366472.653583 |
| 11E1522680 | Capacitor | C184,C228,C369,C7 | | 0.004744 | 4 | 45505862.704531 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|-----------|---|----------|-------------------|----------|------------------|
| 1124418190 | Capacitor | C10,C11,C12 ,C14, C15,C16,C18 ,C19, C195,C196,C 197, C198,C199,C 202, C382,C383 | | 0.004744 | 16 | 12224933.708359 |
| 11E9501091 | Capacitor | C115,C116,C 118, C131,C138,C 140, C147,C155,C 158, C159,C162,C 169,C17, C175,C186,C 194, C201,C204,C 219, C220,C221,C 222, C227,C229,C 230, C231,C246,C 248, C249,C250,C 251, C252,C253,C 254, C265,C266,C 267, C268,C269,C 270, | | 0.004744 | 84 | 2427017.034983 |
| 1124533280 | Capacitor | C20,C34 | | 0.004744 | 2 | 86049450.747498 |
| 11C1533890 | Capacitor | C23 | | 0.004744 | 1 | 159663026.715137 |
| 1189933180 | Capacitor | C26 | | 0.004744 | 1 | 159663026.715137 |
| 1189633162 | Capacitor | C215,C224,C 233,C32 | | 0.004744 | 4 | 45505862.704531 |
| 1121747890 | Capacitor | C33 | | 0.004744 | 1 | 159663026.715137 |

**Reliability Prediction
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Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|-----------|--|----------|-------------------|----------|------------------|
| 11E9622050 | Capacitor | C101,C126,C127, C128,C129,C130, C232,C255,C256, C257,C258,C259, C260,C261,C262, C263,C277,C282, C283,C286,C287, C289,C290,C295, C297,C299,C301, C302,C305,C306, C307,C308,C309, C310,C311,C312, C313,C314,C333, C40 | | 0.004744 | 62 | 3270655.386084 |
| 1121415090 | Capacitor | C40 | | 0.004744 | 1 | 159663026.715137 |
| 11E9522790 | Capacitor | C102,C103,C105, C107,C110,C111, C113,C114,C117, C121,C123,C133, C134,C135,C136, C141,C142,C145, C146,C149,C150, C151,C153,C166, C329,C43,C45,C52, C54,C56,C57,C58, C60,C64,C75,C76, C78,C82,C87,C89, C93,C95 | | 0.004744 | 42 | 4789078.258225 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
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Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|-----------|---|----------|-------------------|----------|------------------|
| 11E9547680 | Capacitor | C211,C213,C357, C358,C384,C385,C59 | | 0.004744 | 7 | 26949727.707925 |
| 1124418090 | Capacitor | C106,C108,C79,C85 | | 0.004744 | 4 | 45505862.704531 |
| 1124468090 | Capacitor | C100 | | 0.004744 | 1 | 159663026.715137 |
| 11C4515190 | Capacitor | C104,C143 | | 0.004744 | 2 | 86049450.747498 |
| 1129710390 | Capacitor | C119,C120,C152, C164,C193,C244, C319,C348,C352, C353,C355,C356, C360 | | 0.004744 | 13 | 14928509.131803 |
| 11C2522650 | Capacitor | C124,C125 | | 0.004744 | 2 | 86049450.747498 |
| 1129747091 | Capacitor | C132,C160,C322 | | 0.004744 | 3 | 59399119.141203 |
| 1122522890 | Capacitor | C144,C235,C344 | | 0.004744 | 3 | 59399119.141203 |
| 11C2568880 | Capacitor | C154 | | 0.004744 | 1 | 159663026.715137 |
| 11E2647650 | Capacitor | C234 | | 0.004744 | 1 | 159663026.715137 |
| 1124518280 | Capacitor | C161,C349,C362 | | 0.004744 | 3 | 59399119.141203 |
| 11C1501080 | Capacitor | C165,C364,C365, C368 | | 0.004744 | 4 | 45505862.704531 |
| 1124433090 | Capacitor | C167,C171,C375, C376 | | 0.004744 | 4 | 45505862.704531 |
| 1124427091 | Capacitor | C168,C170,C180, C181 | | 0.004744 | 4 | 45505862.704531 |
| 1129710090 | Capacitor | C172,C173,C174, C182,C183,C188, C190,C192,C373, C374 | | 0.004744 | 10 | 19193879.126421 |
| 11E9722090 | Capacitor | C187,C189,C191, C371 | | 0.004744 | 4 | 45505862.704531 |
| 1124522190 | Capacitor | C200,C203,C205, C207 | | 0.004744 | 4 | 45505862.704531 |
| 1124410191 | Capacitor | C208,C209,C210, C212,C379,C380 | | 0.004744 | 6 | 31179134.677521 |
| 11E9522680 | Capacitor | C214,C216,C217, C223,C225,C226, C236 | | 0.004744 | 7 | 26949727.707925 |
| 1124433190 | Capacitor | C218,C328 | | 0.004744 | 2 | 86049450.747498 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
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MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|---------------|--|----------|-------------------|----------|------------------|
| 1124547190 | Capacitor | C327,C337 | | 0.004744 | 2 | 86049450.747498 |
| 1124582880 | Capacitor | C330,C350,C363 | | 0.004744 | 3 | 59399119.141203 |
| 11C1522480 | Capacitor | C332,C345,C361 | | 0.004744 | 3 | 59399119.141203 |
| 1121647480 | Capacitor | C339 | | 0.004744 | 1 | 159663026.715137 |
| 11C4568190 | Capacitor | C343 | | 0.004744 | 1 | 159663026.715137 |
| 16515A0982 | Connection | DIMM1,DIMM2 | | 0.000736 | 2 | 471158206.888755 |
| 1305040241 | Semiconductor | D1,D10,D2,D22,D23,D24,D3,D30,D31,D32,D33,D34,D35,D36,D37,D38,D39,D4,D40,D41,D42,D43,D44,D45,D47,D48,D49,D5,D50,D51,D52,D53,D54,D55,D56,D57,D58,D59,D6,D60,D61,D62,D7,D8,D9 | | 0.007793 | 45 | 2702592.969964 |
| 1301005442 | Semiconductor | D11,D12,D13 | | 0.007793 | 3 | 35106858.962001 |
| 1301005440 | Semiconductor | D17,D20,D21,D25,D26,D27,D46,D63, Q86 | | 0.022463 | 9 | 4366472.106532 |
| 1301003440 | Semiconductor | D28,D29 | | 0.007793 | 2 | 50578095.223398 |
| 1212306030 | Resistor | FB1,FB17,FB18,FB19,FB20,FB23,FB24, FB31 | | 0.007725 | 8 | 12128636.998302 |
| 1212308054 | Resistor | FB16,FB2,FB29,FB3,FB30,FB32,FB34,FB4,FB5,FB6,FB8,FB9 | | 0.007725 | 12 | 8483354.506991 |
| 12123C0005 | Resistor | FB10,FB11,FB12,FB13,FB14,FB15 | | 0.007725 | 6 | 15554248.259646 |

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| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|--------------------|--|----------|-------------------|----------|------------------|
| 121230603Z | Inductor | FB21,FB22,F B25, FB26,FB27,F B28 | | 0.004944 | 6 | 30055900.223009 |
| 1752300000 | Miscellaneous | FS4,FS5 | | 0.002400 | 2 | 143944727.196625 |
| 1752011000 | Miscellaneous | FS10 | | 0.002400 | 1 | 254626042.602335 |
| 1304101340 | Optical Device | LED1,LED2 | | 0.002268 | 2 | 180855107.463341 |
| 1214309006 | Inductor | L1,L2,L24,L2 5,L26, L27,L28,L29, L30, L31,L32,L33, L34, L35,L36,L4,L 5,L6 | | 0.004944 | 18 | 10499568.783631 |
| 1211105673 | Inductor | L3 | | 0.011487 | 1 | 61727091.701436 |
| 1211000180 | Inductor | L7 | | 0.004944 | 1 | 154760964.143460 |
| 1211103671 | Inductor | L13,L17,L18, L9 | | 0.011487 | 4 | 18103783.143786 |
| 1211103671 | Inductor | L19 | 22.2 | 0.017000 | 1 | 41707075.616783 |
| 1211106872 | Inductor | L10,L16 | | 0.004944 | 2 | 83201062.149749 |
| 1211100114 | Inductor | L11,L12,L15, L38, L39 | | 0.004944 | 5 | 35631881.582999 |
| 1211103370 | Inductor | L20,L22 | | 0.004944 | 2 | 83201062.149749 |
| 121110476P | Inductor | L23,L40 | | 0.001648 | 2 | 249603186.449247 |
| 1211100160 | Inductor | L37 | | 0.004944 | 1 | 154760964.143460 |
| 1315700216 | Semiconductor | Q1,Q10,Q12, Q13,Q15, Q16,Q17,Q1 8,Q19,Q2, Q34,Q4,Q53, Q54,Q55, Q56,Q57,Q5 8,Q59, Q60,Q61,Q6 2,Q63, Q68,Q69,Q7 0,Q71, Q72,Q76,Q8, Q81,Q9, Q90 | | 0.021546 | 33 | 1330611.943760 |
| 1310390410 | Semiconductor | Q32,Q6,Q77, Q83 | | 0.022463 | 4 | 9270607.712006 |
| 1315R30310 | Integrated Circuit | Q11,Q21,Q2 4,Q28, Q40,Q44,Q4 5,Q46, Q47,Q73,Q7 4,Q78, Q79,Q80 | | 0.043803 | 14 | 1306102.438990 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
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Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|--------------------|---|----------|-------------------|----------|------------------|
| 1315050311 | Integrated Circuit | Q14,Q22,Q25,Q29,Q39,Q41,Q49,Q50,Q51,Q52 | | 0.043803 | 10 | 1762784.467435 |
| 1315050311 | Integrated Circuit | Q48 | 20.5 | 0.170440 | 1 | 3016967.667625 |
| 1315230511 | Semiconductor | Q31 | | 0.021546 | 1 | 34687835.899694 |
| 1315230111 | Semiconductor | Q33 | | 0.000000 | 1 | 0.000000 |
| 1311390610 | Semiconductor | Q64,Q65,Q66,Q67,Q84 | | 0.022463 | 5 | 7551839.591592 |
| 14S3524700 | Integrated Circuit | Q75 | | 0.043803 | 1 | 11739202.588727 |
| 1540710280 | Resistor | RP1,RP2,RP3 | | 0.004067 | 3 | 53426608.388751 |
| 1540733082 | Resistor | RP4 | | 0.004067 | 1 | 127692875.484669 |
| 1540722280 | Resistor | RP5 | | 0.004067 | 1 | 127692875.484669 |
| 106B701032 | Resistor | RT1,RT2,RT5,RT7 | | 0.007725 | 4 | 21923287.146155 |
| 106B701031 | Resistor | RT3 | | 0.007725 | 1 | 66247589.526685 |
| 106B747030 | Resistor | RT4,RT6 | | 0.007725 | 2 | 38596617.434771 |
| 105A702229 | Resistor | R1,R110,R123,R124,R125,R128,R142,R144,R151,R158,R16,R162,R27,R270,R302,R516,R526,R558,R559,R574,R577,R63,R705,R710,R723,R730,R795,R796,R797,R798,R799,R800,R801,R802,R803,R804,R805,R909,R910 | | 0.002547 | 39 | 9493970.778443 |
| 105A705129 | Resistor | R134,R3,R30,R616,R642 | | 0.002547 | 5 | 67008142.102588 |
| 1050506224 | Resistor | R43,R9 | | 0.002547 | 2 | 154078778.388085 |

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| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|---|----------|-------------------|----------|------------------|
| 105A701033 | Resistor | R10,R377,R38,R419,R429,R430,R624,R625,R626,R638,R639,R640,R74,R893,R923 | | 0.002547 | 15 | 23852782.943395 |
| 105A701539 | Resistor | R107,R11,R47 | | 0.002547 | 3 | 107020754.986850 |
| 105A701533 | Resistor | R12,R420,R421,R44, R82 | | 0.002547 | 5 | 67008142.102588 |
| 105A703329 | Resistor | R15,R51 | | 0.002547 | 2 | 154078778.388085 |
| 105A700009 | Resistor | R100,R101,R102,R126,R133,R139,R152,R155,R167,R168,R172,R173,R179,R18,R184,R192,R202,R209,R249,R272,R273,R288,R298,R299,R300,R303,R304,R305,R306,R307,R308,R309,R319,R327,R33,R333,R334,R335,R346,R357,R362, | | 0.002547 | 129 | 2945750.678104 |

**Reliability Prediction
Summary**

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| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|--|----------|-------------------|----------|-----------------|
| 105A701039 | Resistor | R111,R112,R113, R114,R164,R165,R19, R21,R210,R23,R234, R24,R376,R382,R414, R416,R417,R438, R454,R466,R515, R535,R593,R621, R637,R649,R654, R665,R672,R794, R853,R854,R855, R862,R874,R879, R951 | | 0.002547 | 37 | 9991988.939157 |
| 105A510009 | Resistor | R22,R312,R316,R36, R584,R662,R76,R8 | | 0.002547 | 8 | 43225424.698300 |
| 105A500139 | Resistor | R145,R175,R181, R188,R198,R211, R227,R25,R26,R292, R293,R360,R403, R405,R450,R456,R48, R50,R53,R54,R545, R55,R556,R56,R57, R59,R601,R603,R619, R631,R647,R65,R67, R689,R709,R780, R816,R83,R85,R86, R861,R890,R95 | | 0.002547 | 43 | 8634227.613564 |

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|-------------|----------|---|----------|-------------------|----------|------------------|
| 105A704729 | Resistor | R278,R279,R28,R356,R358,R482,R484,R512,R543,R544,R555,R600,R820,R89,R898 | | 0.002547 | 15 | 23852782.943395 |
| 1050510034 | Resistor | R169,R215,R217,R219,R289,R31,R32,R359,R415,R52,R663,R683,R809,R810 | | 0.002547 | 14 | 25477245.255648 |
| 1050520004 | Resistor | R161,R61,R956 | | 0.002547 | 3 | 107020754.986850 |
| 1059700001 | Resistor | R64,R873,R881 | | 0.002547 | 3 | 107020754.986850 |
| 105A720009 | Resistor | R68 | | 0.002547 | 1 | 282340674.079668 |
| 105A513009 | Resistor | R321,R69,R828 | | 0.002547 | 3 | 107020754.986850 |
| 105A710039 | Resistor | R106,R115,R131,R150,R291,R365,R374,R378,R389,R552,R561,R566,R567,R75,R957 | | 0.002547 | 15 | 23852782.943395 |
| 105A501139 | Resistor | R280,R329 | | 0.002547 | 2 | 154078778.388085 |
| 1050501234 | Resistor | R364,R366 | | 0.002547 | 2 | 154078778.388085 |
| 105A514009 | Resistor | R84 | | 0.002547 | 1 | 282340674.079668 |
| 105A549919 | Resistor | R91 | | 0.002547 | 1 | 282340674.079668 |

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|-------------|----------|---|----------|-------------------|----------|------------------|
| 105A501039 | Resistor | R103,R118,R129, R130,R140,R147, R148,R154,R156, R177,R185,R199, R201,R203,R226, R236,R243,R247, R254,R256,R353, R424,R434,R447, R461,R536,R581, R586,R608,R609, R664,R668,R670, R675,R686,R687, R690,R699,R703, | | 0.002547 | 62 | 6043178.840887 |
| 1050507530 | Resistor | R160,R166,R93 | | 0.002547 | 3 | 107020754.986850 |
| 1050584514 | Resistor | R98,R99 | | 0.002547 | 2 | 154078778.388085 |

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| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|---|----------|-------------------|----------|------------------|
| 105A700003 | Resistor | R108,R109,R132, R163,R200,R213, R259,R283,R294, R297,R322,R352, R370,R390,R392, R422,R423,R432, R433,R448,R470, R471,R472,R474, R476,R477,R480, R655,R656,R658, R706,R717,R735, R819,R865,R868, R871,R875,R878, | | 0.002547 | 46 | 8085699.252497 |
| 1050520034 | Resistor | R116,R684 | | 0.002547 | 2 | 154078778.388085 |
| 1050505164 | Resistor | R135 | | 0.002547 | 1 | 282340674.079668 |
| 1050502204 | Resistor | R138,R251,R252, R253,R529,R530, R531,R532,R775, R781,R807 | | 0.002547 | 11 | 32049696.385471 |
| 105A575009 | Resistor | R146,R182 | | 0.002547 | 2 | 154078778.388085 |
| 105A701009 | Resistor | R149,R241,R264, R281,R282,R311, R315,R330,R331, R342,R343,R344, R397,R752,R755 | | 0.002547 | 15 | 23852782.943395 |

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| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|--|----------|-------------------|----------|------------------|
| 105A708229 | Resistor | R153,R187,R194, R557,R595,R661, R693,R727,R763, R764,R765,R767, R783 | | 0.002547 | 13 | 27342571.921361 |
| 1050504734 | Resistor | R157,R469,R704 | | 0.002547 | 3 | 107020754.986850 |
| 105A539003 | Resistor | R170,R540 | | 0.002547 | 2 | 154078778.388085 |
| 105A525563 | Resistor | R183 | | 0.002547 | 1 | 282340674.079668 |
| 1050533034 | Resistor | R191,R197 | | 0.002547 | 2 | 154078778.388085 |
| 1050524904 | Resistor | R193,R205 | | 0.002547 | 2 | 154078778.388085 |
| 105A549969 | Resistor | R195 | | 0.002547 | 1 | 282340674.079668 |
| 105A701069 | Resistor | R204 | | 0.005993 | 1 | 119309497.564747 |
| 105A502039 | Resistor | R214,R218,R244, R368,R860 | | 0.002547 | 5 | 67008142.102588 |
| 105A701053 | Resistor | R216,R262 | | 0.002547 | 2 | 154078778.388085 |
| 105A522663 | Resistor | R220 | | 0.002547 | 1 | 282340674.079668 |
| 105A511823 | Resistor | R221 | | 0.002547 | 1 | 282340674.079668 |
| 105A505109 | Resistor | R222,R225,R230, R235,R770 | | 0.002547 | 5 | 67008142.102588 |
| 105A503309 | Resistor | R224,R483,R751, R753,R754 | | 0.002547 | 5 | 67008142.102588 |
| 105A501539 | Resistor | R229,R239,R856 | | 0.002547 | 3 | 107020754.986850 |
| 105A501529 | Resistor | R231 | | 0.002547 | 1 | 282340674.079668 |
| 105A701059 | Resistor | R233 | | 0.002547 | 1 | 282340674.079668 |
| 1050540224 | Resistor | R238,R246 | | 0.002547 | 2 | 154078778.388085 |
| 1050505633 | Resistor | R240 | | 0.002547 | 1 | 282340674.079668 |
| 105A503039 | Resistor | R242,R857,R859 | | 0.002547 | 3 | 107020754.986850 |
| 1050533214 | Resistor | R245 | | 0.002547 | 1 | 282340674.079668 |
| 105A535713 | Resistor | R425,R426 | | 0.002547 | 2 | 154078778.388085 |
| 105A526733 | Resistor | R258,R837 | | 0.002547 | 2 | 154078778.388085 |
| 105A507509 | Resistor | R263,R320 | | 0.002547 | 2 | 154078778.388085 |
| 105A590963 | Resistor | R265 | | 0.002547 | 1 | 282340674.079668 |
| 1050519114 | Resistor | R266,R339 | | 0.002547 | 2 | 154078778.388085 |
| 105A515009 | Resistor | R267,R268,R269, R491,R493,R495 | | 0.002547 | 6 | 56573956.677649 |
| 1050704304 | Resistor | R271,R831 | | 0.002547 | 2 | 154078778.388085 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|--|----------|-------------------|----------|------------------|
| 1050536514 | Resistor | R274,R347,R348, R349,R774 | | 0.002547 | 5 | 67008142.102588 |
| 105A700239 | Resistor | R275,R325,R738 | | 0.002547 | 3 | 107020754.986850 |
| 105A526114 | Resistor | R277,R338 | | 0.002547 | 2 | 154078778.388085 |
| 1059701001 | Resistor | R296 | | 0.002547 | 1 | 282340674.079668 |
| 105A700109 | Resistor | R313 | | 0.002547 | 1 | 282340674.079668 |
| 1050527424 | Resistor | R314,R336 | | 0.002547 | 2 | 154078778.388085 |
| 1050505604 | Resistor | R318,R823 | | 0.002547 | 2 | 154078778.388085 |
| 1050557604 | Resistor | R324 | | 0.002547 | 1 | 282340674.079668 |
| 105A501033 | Resistor | R351,R354 | | 0.002547 | 2 | 154078778.388085 |
| 105A566519 | Resistor | R367,R864 | | 0.002547 | 2 | 154078778.388085 |
| 105A522123 | Resistor | R383 | | 0.002547 | 1 | 282340674.079668 |
| 105A566513 | Resistor | R385,R386 | | 0.002547 | 2 | 154078778.388085 |
| 105A503333 | Resistor | R387,R427 | | 0.002547 | 2 | 154078778.388085 |
| 105A544213 | Resistor | R388 | | 0.002547 | 1 | 282340674.079668 |
| 105A701003 | Resistor | R394,R410 | | 0.002547 | 2 | 154078778.388085 |
| 105A702263 | Resistor | R398,R399,R643, R711,R713,R867, R872,R876,R877, R880 | | 0.002547 | 10 | 35079934.879747 |
| 1050505124 | Resistor | R407 | | 0.002547 | 1 | 282340674.079668 |
| 1059702261 | Resistor | R408,R719,R769, R870,R882 | | 0.002547 | 5 | 67008142.102588 |
| 105A502833 | Resistor | R409 | | 0.002547 | 1 | 282340674.079668 |
| 1050510534 | Resistor | R411 | | 0.002547 | 1 | 282340674.079668 |
| 105A505629 | Resistor | R412 | | 0.002547 | 1 | 282340674.079668 |
| 105A518223 | Resistor | R413 | | 0.002547 | 1 | 282340674.079668 |
| 105A571513 | Resistor | R418 | | 0.002547 | 1 | 282340674.079668 |
| 105A500133 | Resistor | R428,R634,R826, R894 | | 0.002547 | 4 | 82309758.689546 |
| 1050504724 | Resistor | R441,R445 | | 0.002547 | 2 | 154078778.388085 |
| 105A524913 | Resistor | R457 | | 0.002547 | 1 | 282340674.079668 |
| 105A534813 | Resistor | R462 | | 0.002547 | 1 | 282340674.079668 |
| 105A715003 | Resistor | R473,R478 | | 0.002547 | 2 | 154078778.388085 |
| 105A707509 | Resistor | R490,R492,R494 | | 0.002547 | 3 | 107020754.986850 |
| 105A733003 | Resistor | R514,R527,R594, R599 | | 0.002547 | 4 | 82309758.689546 |
| 105A705139 | Resistor | R541,R542 | | 0.002547 | 2 | 154078778.388085 |
| 105A707503 | Resistor | R548,R550,R569, R571,R572,R575 | | 0.002547 | 6 | 56573956.677649 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|----------|----------------------|----------|-------------------|----------|------------------|
| 105A502033 | Resistor | R553,R917 | | 0.002547 | 2 | 154078778.388085 |
| 105A702233 | Resistor | R568,R570 | | 0.002547 | 2 | 154078778.388085 |
| 105A730009 | Resistor | R578,R579,R596, R597 | | 0.002547 | 4 | 82309758.689546 |
| 105A747009 | Resistor | R580,R590,R591, R592 | | 0.002547 | 4 | 82309758.689546 |
| 1054700289 | Resistor | R620 | | 0.002547 | 1 | 282340674.079668 |
| 105A506823 | Resistor | R627 | | 0.002547 | 1 | 282340674.079668 |
| 105A503033 | Resistor | R628 | | 0.002547 | 1 | 282340674.079668 |
| 105A747033 | Resistor | R646 | | 0.002547 | 1 | 282340674.079668 |
| 1050548714 | Resistor | R652 | | 0.002547 | 1 | 282340674.079668 |
| 105A704334 | Resistor | R688 | | 0.002547 | 1 | 282340674.079668 |
| 1051501582 | Resistor | R724 | | 0.002547 | 1 | 282340674.079668 |
| 105A549963 | Resistor | R725 | | 0.002547 | 1 | 282340674.079668 |
| 105A537463 | Resistor | R732 | | 0.002547 | 1 | 282340674.079668 |
| 1052500171 | Resistor | R737,R744 | | 0.002547 | 2 | 154078778.388085 |
| 105A523713 | Resistor | R758 | | 0.002547 | 1 | 282340674.079668 |
| 105A516933 | Resistor | R785 | | 0.002547 | 1 | 282340674.079668 |
| 105A549903 | Resistor | R793 | | 0.002547 | 1 | 282340674.079668 |
| 105A539203 | Resistor | R822 | | 0.002547 | 1 | 282340674.079668 |
| 105A706209 | Resistor | R827 | | 0.002547 | 1 | 282340674.079668 |
| 1050538314 | Resistor | R829,R843 | | 0.002547 | 2 | 154078778.388085 |
| 105A588703 | Resistor | R836 | | 0.002547 | 1 | 282340674.079668 |
| 1050557614 | Resistor | R848 | | 0.002547 | 1 | 282340674.079668 |
| 105A575003 | Resistor | R869 | | 0.002547 | 1 | 282340674.079668 |
| 105A501533 | Resistor | R889 | | 0.002547 | 1 | 282340674.079668 |
| 105A503423 | Resistor | R912,R913 | | 0.002547 | 2 | 154078778.388085 |
| 105A505123 | Resistor | R924 | | 0.002547 | 1 | 282340674.079668 |
| 1050702734 | Resistor | R935 | | 0.002547 | 1 | 282340674.079668 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|--------------------|---|----------|-------------------|----------|------------------|
| 1129610051 | Capacitor | TC1,TC17,TC18,TC19,TC2,TC20,TC21,TC22,TC23,TC24,TC26,TC27,TC28,TC29,TC3,TC30,TC31,TC32,TC33,TC34,TC35,TC36,TC37,TC38,TC39,TC4,TC40,TC45,TC46,TC47,TC48,TC5,TC50,TC51,TC52,TC54,TC56,TC57,TC58,TC59,TC60,TC61,TC62,TC63, | | 0.004744 | 75 | 2713079.711042 |
| 1121610060 | Capacitor | TC10,TC11,TC12,TC13,TC14,TC15,TC16,TC41,TC42,TC43,TC44,TC49,TC6,TC75,TC89,TC9,TC90,TC91,TC92 | | 0.004744 | 19 | 10356060.860936 |
| 1059701031 | Resistor | TC53 | | 0.002547 | 1 | 282340674.079668 |
| 14S4021301 | Integrated Circuit | U1,U40 | | 0.043803 | 2 | 6834791.244197 |
| 14S5A00802 | Integrated Circuit | U2,U26,U27,U3 | | 0.015500 | 4 | 12823226.418247 |
| 14S5A00704 | Integrated Circuit | U28,U4,U7 | | 0.015500 | 3 | 16560495.824196 |
| 14S4872800 | Semiconductor | U6 | | 0.050428 | 1 | 13465119.488925 |
| 14S3121800 | Integrated Circuit | U8 | | 0.043803 | 1 | 11739202.588727 |
| 14S5A00702 | Integrated Circuit | U12,U21,U9 | | 0.043803 | 3 | 4923240.069161 |
| 14S3587000 | Integrated Circuit | U10,U33 | | 0.043803 | 2 | 6834791.244197 |
| 14S3111600 | Integrated Circuit | U11 | | 0.010676 | 1 | 45040192.416407 |
| 14S5A00821 | Integrated Circuit | U13,U25,U30,U56 | | 0.015500 | 4 | 12823226.418247 |
| 14S9620800 | Integrated Circuit | U14,U37 | | 0.015500 | 2 | 23591504.930418 |
| 1651609883 | Connection | U15 | | 0.000736 | 1 | 834121745.514229 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|----------------|--------------------|---------------------------------|----------|-------------------|----------|------------------|
| 14S4QM7700 | Integrated Circuit | U16 | 15.3 | 0.101220 | 1 | 5612211.504140 |
| 14S3917900 | Integrated Circuit | U19 | | 0.043803 | 1 | 11739202.588727 |
| 1314895510 | Integrated Circuit | U20 | 18.5 | 0.150424 | 1 | 3418421.888807 |
| 14S9108500 | Integrated Circuit | U22,U31 | | 0.043803 | 2 | 6834791.244197 |
| 14S2083600 | Integrated Circuit | U24 | | 0.015500 | 1 | 42351263.907438 |
| 14S5A73200 | Integrated Circuit | U32 | | 0.015500 | 1 | 42351263.907438 |
| 14S9301200 | Integrated Circuit | U34 | | 0.043803 | 1 | 11739202.588727 |
| 14S4622800 | Integrated Circuit | U36 | | 0.043803 | 1 | 11739202.588727 |
| 02043-000901MI | Integrated Circuit | U38 | | 0.015500 | 1 | 42351263.907438 |
| 14S4257900 | Integrated Circuit | U39 | | 0.015500 | 1 | 42351263.907438 |
| 14S2200900 | Integrated Circuit | U41 | | 0.043803 | 1 | 11739202.588727 |
| 14S9144200 | Integrated Circuit | U42 | 17.3 | 0.039307 | 1 | 16700229.142560 |
| 14S3052400 | Integrated Circuit | U45,U50,U51 ,U52, U53,U54 | | 0.043803 | 6 | 2750969.191556 |
| 14S3066200 | Integrated Circuit | U46 | 13.5 | 0.109315 | 1 | 4703953.872580 |
| 14S5A01400 | Integrated Circuit | U47 | | 0.043803 | 1 | 11739202.588727 |
| 14S5812502 | Integrated Circuit | U48 | | 0.015500 | 1 | 42351263.907438 |
| 14S4963501 | Integrated Circuit | U55 | | 0.043803 | 1 | 11739202.588727 |
| 14S4195710 | Integrated Circuit | U57 | | 0.043803 | 1 | 11739202.588727 |
| 14S5912300 | Integrated Circuit | U58 | | 0.015500 | 1 | 42351263.907438 |
| 14S6334610 | Integrated Circuit | U59 | | 0.016901 | 1 | 30425773.002708 |
| 14S3102000 | Integrated Circuit | U60 | | 0.043803 | 1 | 11739202.588727 |
| 14S5A12506 | Integrated Circuit | U62 | | 0.015500 | 1 | 42351263.907438 |
| 14S4048501 | Integrated Circuit | U64 | | 0.043803 | 1 | 11739202.588727 |
| 14S4048501 | Integrated Circuit | U63 | 18.2 | 0.147612 | 1 | 3483550.940586 |
| 1231332721 | Miscellaneous | Y1 | | 0.019200 | 1 | 23844262.770939 |
| 123132505D | Miscellaneous | Y2,Y3,Y4 | | 0.019200 | 3 | 5742504.738137 |
| 105A703953 | Resistor | R380 | | 0.005993 | 1 | 119309497.564747 |
| 14S6201280 | Integrated Circuit | U5 | | 0.015500 | 1 | 42351263.907438 |
| 105270000A | Resistor | R372 | | 0.002547 | 1 | 282340674.079668 |
| 1654920305 | Connection | CN10 | | 0.000736 | 1 | 834121745.514229 |
| 1050513334 | Resistor | R78 | | 0.002547 | 1 | 282340674.079668 |
| 105A506829 | Resistor | R77 | | 0.002547 | 1 | 282340674.079668 |
| 1050512734 | Resistor | R73 | | 0.002547 | 1 | 282340674.079668 |
| 1050539214 | Resistor | R948,R950 | | 0.002547 | 2 | 154078778.388085 |
| 105A539213 | Resistor | R257 | | 0.002547 | 1 | 282340674.079668 |
| 105A503323 | Resistor | R839 | | 0.002547 | 1 | 282340674.079668 |
| 1654226307 | Connection | CN13 | | 0.000736 | 1 | 834121745.514229 |
| 1653005202 | Connection | DIO1,USB1,U SB2, USB3 | | 0.000736 | 4 | 259308702.336596 |
| 1653004202 | Connection | CN17 | | 0.003826 | 1 | 137173579.704054 |
| 105A501223 | Resistor | R921,R926 | | 0.002547 | 2 | 154078778.388085 |
| 1300581740 | Semiconductor | D67,D70 | | 0.007793 | 2 | 50578095.223398 |
| 131411171G | Integrated Circuit | Q89 | | 0.043803 | 1 | 11739202.588727 |
| 1050512104 | Resistor | R955 | | 0.002547 | 1 | 282340674.079668 |
| 105A597603 | Resistor | R814 | | 0.002547 | 1 | 282340674.079668 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|----------------|--------------------|---|----------|-------------------|----------|------------------|
| 1752002700 | Miscellaneous | FS1,FS11,FS2,FS3,FS6,FS7,FS8,FS9 | | 0.002400 | 8 | 42678902.518922 |
| 1315200312 | Semiconductor | Q20,Q23,Q26,Q27,Q35,Q36,Q38,Q5,Q7 | | 0.000000 | 9 | 0.000000 |
| 165300520V | Connection | CN3 | | 0.000736 | 1 | 834121745.514229 |
| 1301053040 | Semiconductor | D14,D15,D16 | | 0.022463 | 3 | 12043329.789539 |
| 1314780510 | Integrated Circuit | U61 | | 0.043803 | 1 | 11739202.588727 |
| 165320520W | Connection | COM1 | | 0.000736 | 1 | 834121745.514229 |
| 1655404020 | Connection | ATX1 | | 0.001913 | 1 | 274347159.408108 |
| 11031-0001FOMI | Semiconductor | EC25,EC26,EC27,EC28,EC4,EC9 | | 0.022463 | 6 | 6378891.324740 |
| 1750220323 | Connection | BAT1 | | 0.000736 | 1 | 834121745.514229 |
| 175910000B | Miscellaneous | BZ1 | | 0.078000 | 1 | 6623341.226317 |
| 1653003101 | Connection | CMOS1,JP1,JP2,JP4 | | 0.001435 | 4 | 120116499.258146 |
| 1653300108 | Connection | CMOS1(1-2),CN17(1),CN17(3),CN17(5-6),CN17(7-8),JP2(1-2) | | 0.000736 | 6 | 180887991.072810 |
| 1655305020 | Connection | CN6 | | 0.002391 | 1 | 219477727.526487 |
| 1654910305 | Connection | CN9 | | 0.000736 | 1 | 834121745.514229 |
| 1181610191 | Capacitor | EC29,EC3 | | 0.004744 | 2 | 86049450.747498 |
| 1653003201 | Connection | JP3,JP5 | | 0.000736 | 2 | 471158206.888755 |
| 1653300102 | Connection | JP1(1-2),JP4(2-3) | | 0.000736 | 2 | 471158206.888755 |
| 1653300107 | Connection | JP3(1-2),JP3(4-6),JP5(3-4) | | 0.000736 | 3 | 333237822.773153 |
| 1654612307 | Connection | KM1 | | 0.000736 | 1 | 834121745.514229 |
| 1653207204 | Connection | LPC1 | | 0.005150 | 1 | 119160249.359176 |
| 1655004011 | Connection | PWR1,PWR2 | | 0.019128 | 2 | 15926237.361192 |
| 12G15705007X | Connection | SATA1,SATA2,SATA3,SATA4 | | 0.016185 | 4 | 11344857.509064 |
| 1111610199 | Capacitor | EC14,EC23,EC32,EC33 | | 0.002685 | 4 | 30931168.413288 |
| 165320820G | Connection | CN8 | | 0.000736 | 1 | 834121745.514229 |
| 1652532205 | Connection | USB_LAN1,USB_LAN2 | | 0.000736 | 2 | 471158206.888755 |
| 1654282209 | Connection | PCIE1 | | 0.000736 | 1 | 834121745.514229 |
| 1654439502 | Connection | CN11 | | 0.000736 | 1 | 834121745.514229 |

File Name: IER-919.rfp
Assembly: 9697QM772A-D
Ref Des:
Description: Top-level assembly

Failure Rate: 11.507242
MTBF (hrs): 86,902
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

| Part Number | Category | Ref Des | Tem.Rise | Unit Failure Rate | Quantity | MTBF,Unit |
|-------------|--------------------|--|----------|-------------------|----------|-----------------|
| 1652517209 | Connection | AUDIO1 | | 0.019128 | 1 | 27434715.940811 |
| 1189656196 | Capacitor | EC1,EC2,EC20,EC22,EC30,EC31 | | 0.004744 | 6 | 31179134.677521 |
| 1169656191 | Connection | EC10,EC11,EC12,EC13,EC15,EC16,EC17,EC18,EC19,EC21,EC5,EC6,EC7, EC8 | | 0.000000 | 14 | 0.000000 |
| 1442350M00 | Integrated Circuit | CPU | 18.5 | 0.046933 | 1 | 10956309.667696 |