

ETX-625

Reliability Prediction Report (MTBF)

Report NO : 05E070007

03-21-2005

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . Model Name: ETX-625 (ETX Board.UV ICP 400.SDM.LAN.Audio.2COM.USB.Rev.A0.3)

II . Prediction Date: Mar. 21, 2005

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

IV . Predicted by : Jessica Chou

V . Equipment: Relex Ver.7.3 Visual Reliability Software

VI. Simulation Environment:

- Temperature: 20.4 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 multiplier is 1,000,000.
- MTBF : MTBF is always specified in hours.

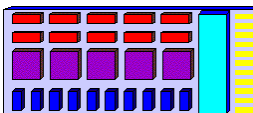
VIII. Prediction Result:

- Failure Rate: 6.258723 ppm
- MTBF: 159,777 Hours

IX. Prediction Table

Standard Reliability Prediction Report

Part Number 9697625004
Reference Des
Date 三月 21, 2005
Environment GF, GU - Ground Fixed,
Temperature 20.40

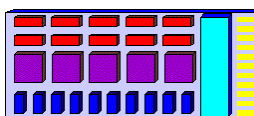


Description Top-level assembly
File Name 9697625004.RPJ
Time 2:08 下午
Failure Rate 6.258723
MTBF 159,777

| Assembly Name | Part Number | Ref Des | Qty | Failure Rate | MTBF |
|---------------|-------------|---------|------|--------------|---------|
| ETX-625 | 9697625004 | | 1.00 | 6.258723 | 159,777 |

Standard Reliability Prediction Report

Part Number 9697625004
Reference Des
Date 三月 21, 2005
Environment GF, GU - Ground Fixed,
Temperature 20.40

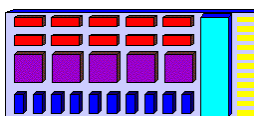


Description Top-level assembly
File Name 9697625004.RPJ
Time 2:08 下午
Failure Rate 6.258723
MTBF 159,777

| Part Number | Category | Ref Des | Failure Rate, Unit | Quantity | Failure Rate |
|-------------|--------------------|---|--------------------|----------|--------------|
| 1653003101 | Connection | JP1 | 0.001337 | 1.00 | 0.001337 |
| 1124522880 | Capacitor | C4 | 0.001028 | 1.00 | 0.001028 |
| 1189922180 | Capacitor | C15-C18 | 0.004139 | 4.00 | 0.016555 |
| 1189615190 | Capacitor | C187,C33,C34 | 0.004501 | 3.00 | 0.013504 |
| 1121722780 | Capacitor | C61-C84 | 0.002463 | 24.00 | 0.059105 |
| 1189647080 | Capacitor | C134 | 0.004501 | 1.00 | 0.004501 |
| 1129722060 | Capacitor | C205 | 0.002640 | 1.00 | 0.002640 |
| 1651203291 | Connection | U27 | 0.043794 | 1.00 | 0.043794 |
| 1540700081 | Resistor | RP24-RP35 | 0.005045 | 12.00 | 0.060535 |
| 1059702261 | Resistor | R14,R17,R23,R24 | 0.002069 | 4.00 | 0.008277 |
| 1211102263 | Inductor | L1 | 0.003587 | 1.00 | 0.003587 |
| 11E9610190 | Capacitor | C218,C219 | 0.035411 | 2.00 | 0.070822 |
| 1212306030 | Inductor | FB1-FB9,FB10-F-B31 | 0.002069 | 31.00 | 0.064149 |
| 1211103366 | Inductor | L2 | 0.147002 | 1.00 | 0.147002 |
| 1212306032 | Inductor | L4-L9 | 0.002069 | 6.00 | 0.012416 |
| 1174547080 | Capacitor | NC1-NC2 | 0.001028 | 2.00 | 0.002057 |
| 1314108515 | Integrated Circuit | Q3 | 0.042179 | 1.00 | 0.042179 |
| 1311119710 | Semiconductor | Q7 | 0.020880 | 1.00 | 0.020880 |
| 1540733180 | Resistor | RP2,RP3 | 0.005045 | 2.00 | 0.010089 |
| 15407222A0 | Resistor | RP5,RP6 | 0.006306 | 2.00 | 0.012612 |
| 1540747282 | Resistor | RP9-RP11 | 0.005045 | 3.00 | 0.015134 |
| 14S4810000 | Integrated Circuit | U21 | 0.029858 | 1.00 | 0.029858 |
| 105A700139 | Resistor | R116,R139,R148- ,R190,R217,R218- ,R74,R82,R89,R90 | 0.002069 | 10.00 | 0.020693 |
| 105A507503 | Resistor | R10 | 0.002069 | 1.00 | 0.002069 |
| 105A701039 | Resistor | R107-R115,R12,- R124,R140,R142- ,R144,R174,R177- ,R21,R44,R45,R4- 7-R49,R56 | 0.002069 | 23.00 | 0.047594 |
| 105A701039 | Resistor | R57,R83,R96 | 0.002069 | 3.00 | 0.006208 |
| 105A701009 | Resistor | R15,R152 | 0.002069 | 2.00 | 0.004139 |
| 1124527180 | Capacitor | C252,C255,C260 | 0.001028 | 3.00 | 0.003085 |
| 1301005441 | Semiconductor | D2-D4,Q4 | 0.020880 | 4.00 | 0.083521 |
| 1211104760 | Inductor | L3 | 0.078634 | 1.00 | 0.078634 |
| 1314043210 | Integrated Circuit | Q2 | 0.042179 | 1.00 | 0.042179 |
| 1310390411 | Semiconductor | Q5,Q6,Q9 | 0.020880 | 3.00 | 0.062641 |
| 1540710380 | Resistor | RP1,RP7,RP8 | 0.005045 | 3.00 | 0.015134 |
| 15407472A0 | Resistor | RP36-RP44 | 0.006306 | 9.00 | 0.056752 |
| 105A704729 | Resistor | R1,R103,R104,R- 120,R137,R180-R- 183,R188,R189,R- 193,R197,R2,R22- 8-R231 | 0.002069 | 18.00 | 0.037248 |
| 105A704729 | Resistor | R91-R93,R95,R98 | 0.002069 | 5.00 | 0.010347 |
| 105A733009 | Resistor | R191,R192,R194- ,R4,R5,R71 | 0.002069 | 6.00 | 0.012416 |
| 1654020000 | Connection | CN2 | 0.008914 | 1.00 | 0.008914 |

Standard Reliability Prediction Report

Part Number 9697625004
Reference Des
Date 三月 21, 2005
Environment GF, GU - Ground Fixed,
Temperature 20.40

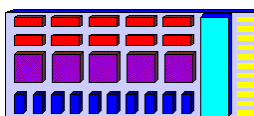


Description Top-level assembly
File Name 9697625004.RPJ
Time 2:08 下午
Failure Rate 6.258723
MTBF 159,777

| Part Number | Category | Ref Des | Failure Rate, Unit | Quantity | Failure Rate |
|-------------|---------------|---|--------------------|----------|--------------|
| 1129701690 | Capacitor | C1,C10,C11,C112- ,C119,C12,C120-- C125,C130,C145- -C151,C156,C157- ,C159 | 0.002463 | 23.00 | 0.056642 |
| 1129701690 | Capacitor | C161,C162,C164- ,C166,C168,C170- ,C171,C173,C174- ,C180-C182,C184- ,C185 | 0.002463 | 14.00 | 0.034478 |
| 1129701690 | Capacitor | C186,C189,C191- ,C193,C195,C198- ,C199,C201-C204- ,C206-C215,C21,- C223 | 0.002463 | 23.00 | 0.056642 |
| 1129701690 | Capacitor | C231,C245,C250- ,C251,C264-C268- ,C27,C273-C276,- C278,C279,C28,- C281,C282 | 0.002463 | 19.00 | 0.046791 |
| 1129701690 | Capacitor | C29,C35,C39,C40- -C48,C51,C52,C5- 6-C60 | 0.002463 | 19.00 | 0.046791 |
| 1124547190 | Capacitor | C3 | 0.001028 | 1.00 | 0.001028 |
| 1124568280 | Capacitor | C5 | 0.001028 | 1.00 | 0.001028 |
| 1129610051 | Capacitor | C105-C108,C111- ,C115,C118,C13,- C131,C135,C139- ,C177,C179,C183- ,C19,C20 | 0.002640 | 16.00 | 0.042248 |
| 1129610051 | Capacitor | C200,C22,C220,- C222,C23,C230,- C242-C244,C246- ,C249,C26,C269-- C272,C277 | 0.002640 | 17.00 | 0.044888 |
| 1129610051 | Capacitor | C31,C38,C6-C8,C- 85-C94,C9 | 0.002640 | 16.00 | 0.042248 |
| 1129747650 | Capacitor | C24,C30,C32,C54 | 0.002640 | 4.00 | 0.010562 |
| 1189633081 | Capacitor | C53 | 0.003052 | 1.00 | 0.003052 |
| 1129710390 | Capacitor | C109,C113,C116- ,C128,C129,C132- ,C227,C228,C232- ,C234 | 0.001028 | 10.00 | 0.010284 |
| 1129710090 | Capacitor | C137,C138,C175- ,C176,C262 | 0.001028 | 5.00 | 0.005142 |
| 1129701790 | Capacitor | C140-C144,C152- -C155 | 0.001550 | 9.00 | 0.013946 |
| 1124427090 | Capacitor | C216,C217,C257- ,C258 | 0.001028 | 4.00 | 0.004113 |
| 1129722091 | Capacitor | C233,C237,C238- ,C248,C254,C259 | 0.001028 | 6.00 | 0.006170 |
| 1124433180 | Capacitor | C253,C256,C261 | 0.001028 | 3.00 | 0.003085 |
| 1301005442 | Semiconductor | D1 | 0.020880 | 1.00 | 0.020880 |
| 1301005440 | Semiconductor | D5,Q1 | 0.020880 | 2.00 | 0.041761 |
| 105A511103 | Resistor | R77 | 0.002069 | 1.00 | 0.002069 |

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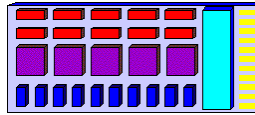


Description Top-level assembly
File Name 9697625004.RPJ
Time 2:08 下午
Failure Rate 6.258723
MTBF 159,777

| Part Number | Category | Ref Des | Failure Rate, Unit | Quantity | Failure Rate |
|-------------|--------------------|---|--------------------|----------|--------------|
| 105A702729 | Resistor | R100,R102,R99 | 0.002069 | 3.00 | 0.006208 |
| 105A700133 | Resistor | R118 | 0.002069 | 1.00 | 0.002069 |
| 105A706803 | Resistor | R121 | 0.002069 | 1.00 | 0.002069 |
| 105A501039 | Resistor | R126-R128 | 0.002069 | 3.00 | 0.006208 |
| 105A701533 | Resistor | R147 | 0.002069 | 1.00 | 0.002069 |
| 105A710039 | Resistor | R154-R157 | 0.002069 | 4.00 | 0.008277 |
| 105A503300 | Resistor | R162,R163 | 0.002069 | 2.00 | 0.004139 |
| 105A501823 | Resistor | R166,R167 | 0.002069 | 2.00 | 0.004139 |
| 105A700003 | Resistor | R195,R205,R206 | 0.002069 | 3.00 | 0.006208 |
| 14S4070610 | Integrated Circuit | U1 | 0.042179 | 1.00 | 0.042179 |
| 1314111711 | Integrated Circuit | U4 | 0.042179 | 1.00 | 0.042179 |
| 1315488010 | Semiconductor | U6,U7 | 0.069601 | 2.00 | 0.139202 |
| 1314880510 | Integrated Circuit | U8 | 0.042179 | 1.00 | 0.042179 |
| 14S3115000 | Integrated Circuit | U10 | 0.042179 | 1.00 | 0.042179 |
| 1540701380 | Resistor | RP12,RP4 | 0.005045 | 2.00 | 0.010089 |
| 1540733085 | Resistor | RP13-RP23 | 0.005045 | 11.00 | 0.055491 |
| 14S5500401 | Integrated Circuit | U20 | 0.154255 | 1.00 | 0.154255 |
| 105A700009 | Resistor | R129,R130,R133- -R135,R150,R153- ,R168,R171,R179- ,R184-R187,R198- ,R20 | 0.002069 | 16.00 | 0.033109 |
| 105A700009 | Resistor | R201-R204,R212- ,R219,R223,R225- ,R233,R236,R237- ,R239,R241,R43,- R84 | 0.002069 | 15.00 | 0.031040 |
| 105A702209 | Resistor | R105,R106,R123- ,R27-R42,R50,R5- 1,R54,R55,R97 | 0.002069 | 24.00 | 0.049664 |
| 150A507509 | Resistor | R59,R79,R85 | 0.002069 | 3.00 | 0.006208 |
| 1050556269 | Resistor | R63,R73,R76 | 0.002069 | 3.00 | 0.006208 |
| 14S6334610 | Integrated Circuit | U22 | 0.021740 | 1.00 | 0.021740 |
| 105A514703 | Resistor | R81 | 0.002069 | 1.00 | 0.002069 |
| 105A704723 | Resistor | R117 | 0.002069 | 1.00 | 0.002069 |
| 105A501633 | Resistor | R125 | 0.002069 | 1.00 | 0.002069 |
| 105A503309 | Resistor | R138,R158,R159 | 0.002069 | 3.00 | 0.006208 |
| 105A505629 | Resistor | R149,R151,R213- -R216 | 0.002069 | 6.00 | 0.012416 |
| 105A548713 | Resistor | R165 | 0.002069 | 1.00 | 0.002069 |
| 105A702229 | Resistor | R178 | 0.002069 | 1.00 | 0.002069 |
| 14S5A00702 | Integrated Circuit | U2,U3 | 0.042179 | 2.00 | 0.084359 |
| 14S2652000 | Integrated Circuit | U5 | 0.425590 | 1.00 | 0.425590 |
| 14S2303700 | Integrated Circuit | U9 | 0.398085 | 1.00 | 0.398085 |
| 1654040000 | Connection | CN1 | 0.017829 | 1.00 | 0.017829 |
| 1121701080 | Capacitor | C100-C104,C110- ,C114,C117,C126- ,C127,C133,C136- ,C14,C158,C160,- C163 | 0.002463 | 16.00 | 0.039403 |

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 Temperature 20.40



Description Top-level assembly
 File Name 9697625004.RPJ
 Time 2:08 下午
 Failure Rate 6.258723
 MTBF 159,777

| Part Number | Category | Ref Des | Failure Rate, Unit | Quantity | Failure Rate |
|-------------|--------------------|---|--------------------|----------|--------------|
| 1121701080 | Capacitor | C165,C167,C169- ,C172,C178,C188- ,C190,C192,C194- ,C2,C224-C226,C- 235,C236 | 0.002463 | 16.00 | 0.039403 |
| 1121701080 | Capacitor | C239-C241,C25,- C36,C37,C95-C99 | 0.002463 | 11.00 | 0.027090 |
| 1653150221 | Connection | U29A,U29B,U29C- ,U29D | 0.044572 | 4.00 | 0.178288 |
| 1231324551 | Miscellaneous | Y4 | 0.150000 | 1.00 | 0.150000 |
| 1315992601 | Semiconductor | U11 | 0.139202 | 1.00 | 0.139202 |
| 1121747780 | Capacitor | C247 | 0.002463 | 1.00 | 0.002463 |
| 14S3831600 | Integrated Circuit | U12 | 0.169256 | 1.00 | 0.169256 |
| 14S5A01430 | Integrated Circuit | U13 | 0.161877 | 1.00 | 0.161877 |
| 14S4040001 | Integrated Circuit | U14 | 0.144284 | 1.00 | 0.144284 |
| 14S4860600 | Integrated Circuit | U15 | 0.146479 | 1.00 | 0.146479 |
| 14S4268601 | Integrated Circuit | U16 | 0.129708 | 1.00 | 0.129708 |
| 14S5824500 | Integrated Circuit | U18 | 0.097594 | 1.00 | 0.097594 |
| 14S5824500 | Integrated Circuit | U17 | 0.106131 | 1.00 | 0.106131 |
| 14S5A00820 | Integrated Circuit | U23 | 0.042179 | 1.00 | 0.042179 |
| 14S3065500 | Integrated Circuit | U24 | 0.297691 | 1.00 | 0.297691 |
| 14S4162100 | Integrated Circuit | U25 | 0.029858 | 1.00 | 0.029858 |
| 14S5A01400 | Integrated Circuit | U26 | 0.042179 | 1.00 | 0.042179 |
| 14S824A302 | Integrated Circuit | U28 | 0.029858 | 1.00 | 0.029858 |
| 1231332721 | Miscellaneous | Y2 | 0.150000 | 1.00 | 0.150000 |
| 1231325050 | Miscellaneous | Y3 | 0.150000 | 1.00 | 0.150000 |
| 1231314350 | Miscellaneous | Y1,Y5 | 0.150000 | 2.00 | 0.300000 |
| 105A701823 | Resistor | R6 | 0.002069 | 1.00 | 0.002069 |
| 105A519103 | Resistor | R7 | 0.002069 | 1.00 | 0.002069 |
| 105A549969 | Resistor | R18,R9 | 0.002069 | 2.00 | 0.004139 |
| 105A704739 | Resistor | R11 | 0.002069 | 1.00 | 0.002069 |
| 105A701523 | Resistor | R13,R16 | 0.002069 | 2.00 | 0.004139 |
| 105A505103 | Resistor | R207-R210 | 0.002069 | 4.00 | 0.008277 |
| 105A516513 | Resistor | R19 | 0.002069 | 1.00 | 0.002069 |
| 105A500133 | Resistor | R22 | 0.002069 | 1.00 | 0.002069 |
| 105A512103 | Resistor | R25,R26 | 0.002069 | 2.00 | 0.004139 |
| 105A730009 | Resistor | R58,R66 | 0.002069 | 2.00 | 0.004139 |
| 105A515009 | Resistor | R60,R61,R64,R65- ,R68,R69,R75,R7- 8,R80,R86 | 0.002069 | 10.00 | 0.020693 |
| 105A549903 | Resistor | R62 | 0.002069 | 1.00 | 0.002069 |
| 105A703909 | Resistor | R67,R70 | 0.002069 | 2.00 | 0.004139 |
| 105A501403 | Resistor | R72 | 0.002069 | 1.00 | 0.002069 |
| 1315993311 | Semiconductor | Q8 | 0.139202 | 1.00 | 0.139202 |
| 1651572992 | Connection | DIMM1 | 0.064184 | 1.00 | 0.064184 |
| 105A500139 | Resistor | R8 | 0.002069 | 1.00 | 0.002069 |
| 106B501031 | Resistor | RT1,RT2 | 0.008914 | 2.00 | 0.017829 |
| 1540715381 | Resistor | RP45,RP46 | 0.005045 | 2.00 | 0.010089 |
| 14S6202008 | Integrated Circuit | U27 | 0.088827 | 1.00 | 0.088827 |