

FWS-8500

Reliability Prediction Report (MTBF)

Summary	Failure Rate: 13848.291850 ppm MTBF: 72,211 Hours
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Issue date	QE Manager	Test Engineer
2016-02-16	KJ Wang	Aslen Hsieh

Reliability Prediction (MTBF)

I . Model Name: FWS-8500

II . Prediction Date: Feb. 16, 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:

FWS-8500

(M/B: 9697850014-D, 9697R36X04-D, 9697T29402-D, 9697T29603-D, 9697T39101-D):

- Failure Rate: 13848.291850 ppm

- MTBF: 72,211 Hours

**AAEON Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 13848.291850
MTBF (hrs): 72,211
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
FWS-8500	9697850014-D		1	13848.291850	72,211
FWS-8500	9697850014-D		1	12681.164936	78,857
PER-R36X	9697R36X04-D		1	183.017104	5,463,970
PER-T294	9697T29402-D		1	522.416677	1,914,181
PER-T296	9697T29603-D		1	595.573526	1,679,054
PER-T391	9697T39101-D		1	54.149085	18,467,533

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501004	Resistor	R1131,R1133 ,R1178, R1181,R127, R129, R331,R377,R 387, R392,R415,R 429, R435,R436,R 534, R571,R572,R 791, R950		2.547039	19	19019185.781770
1050501054	Resistor	R919		2.547039	1	282340674.079668
1050501334	Resistor	R100,R123,R 125, R220,R255,R 42,R45, R47,R9,R969 ,R98, R980		2.547039	12	29507083.749401
1050502004	Resistor	R1043,R1044 ,R1049, R1050,R1193 ,R1198, R386,R414		2.547039	8	43225424.698300
1050502204	Resistor	R1312,R1314 ,R1315, R1318,R731, R737		2.547039	6	56573956.677649
1050502224	Resistor	R103,R106,R 1321, R1326,R1332 ,R1345, R158,R21,R2 4,R728, R783,R839,R 844, R849,R872,R 886, R897,R941 R579,R580		2.547039	18	20032117.836120
1050502724	Resistor	R579,R580		2.547039	2	154078778.388085

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1050503324	Resistor	R1278,R1353 ,R139, R156,R157,R 201, R202,R203,R 204, R205,R208,R 209, R210,R211,R 212,R5, R569,R68,R6 95,R71, R721,R8,R80 4		2.547039	23	15826261.230290
1050504724	Resistor	R1017,R1018 ,R1059, R1275,R1279 ,R1290, R1323,R1362 ,R1363, R1495,R18,R 225, R358,R411,R 418, R535,R544,R 553, R585,R587,R 596, R604,R617,R 65,R660, R689,R701,R 712, R718,R730,R 734, R740,R759,R 770, R773,R784,R 79,R792, R795,R802,R 803, R851,R857,R 86,R866, R901,R909,		2.547039	48	7757394.358017
1050505164	Resistor	R1087,R1093		2.547039	2	154078778.388085
1050506224	Resistor	R105,R108,R 160,R20, R23		2.547039	5	67008142.102588
1050507524	Resistor	R114,R116,R 13,R131, R133,R262,R 776, R787		2.547039	8	43225424.698300

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1050508224	Resistor	R1276,R218, R234, R235,R236,R 237, R238,R239,R 241, R243,R245,R 247, R249,R253,R 260, R261,R266,R 267, R293,R294,R 297, R300,R304,R 305, R307,R308,R 314, R315,R317,R 318, R322,R325,R 328, R329,R330,R 332, R338,R340,R 341, R342,R345,R 346, R350,R354,R 359, R360,R361,R 362		2.547039	55	6793153.636065
1050510034	Resistor	R1009,R1010 ,R1021, R1022,R1023 ,R1028, R1031,R1032 ,R1060, R1289,R1294 ,R1301, R1302,R1330 ,R1354, R137,R313,R 433, R526,R602,R 615, R616,R626,R 669, R904,R962		2.547039	26	14061076.827148
1050510524	Resistor	R636,R675,R 762		2.547039	3	107020754.986850

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1050512414	Resistor	R199,R200,R206, R207,R277,R278,R63, R95		2.547039	8	43225424.698300
1050512724	Resistor	R645,R693		2.547039	2	154078778.388085
1050513034	Resistor	R1417		2.547039	1	282340674.079668
1050513334	Resistor	R1298		2.547039	1	282340674.079668
1050515034	Resistor	R1401,R1402 ,R1403, R1404,R659		2.547039	5	67008142.102588
1050520004	Resistor	R421,R439,R445, R548,R549		2.547039	5	67008142.102588
1050520034	Resistor	R735,R818,R825, R903		2.547039	4	82309758.689546
1050521514	Resistor	R147,R148		2.547039	2	154078778.388085
1050522004	Resistor	R1089,R1095		2.547039	2	154078778.388085
1050524004	Resistor	R1097,R1098 ,R1102, R1111,R1127 ,R1130, R1132,R1134 ,R1135, R1137,R1138 ,R1148, R1179,R1182 ,R384, R395,R404,R406		2.547039	18	20032117.836120
1050526134	Resistor	R1329		2.547039	1	282340674.079668
1050527414	Resistor	R152,R153		2.547039	2	154078778.388085
1050528714	Resistor	R1005		2.547039	1	282340674.079668
1050528734	Resistor	R1412		2.547039	1	282340674.079668
1050530004	Resistor	R576,R577		2.547039	2	154078778.388085
1050535764	Resistor	R1184,R1187 ,R1194, R1197		2.547039	4	82309758.689546
1050540224	Resistor	R481,R633,R672		2.547039	3	107020754.986850
1050541214	Resistor	R1008		2.547039	1	282340674.079668

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1050543264	Resistor	R1304,R1307, R1334, R1340,R652, R663, R668,R681,R 692, R700,R711,R 716, R725,R733,R 739, R745,R769,R 779, R798,R812,R 822, R832		2.547039	22	16518584.576317
1050547004	Resistor	R632,R644,R 859		2.547039	3	107020754.986850
1050549934	Resistor	R720,R809,R 842, R885		2.547039	4	82309758.689546
1050549964	Resistor	R1064,R1065 ,R1066, R1067,R1068 ,R1069, R1078,R1079 ,R1080, R1081,R1082 ,R1083, R1099,R1103 ,R1120, R1152,R1156 ,R1166, R1167,R1168 ,R1169, R1172,R1173 ,R1185, R1186,R482, R550, R565,R566		2.547039	29	12652760.276502
1050552314	Resistor	R16,R17,R18 9,R190, R191,R192,R 274, R275		2.547039	8	43225424.698300
1050556269	Resistor	R219,R28		2.547039	2	154078778.388085
1050569814	Resistor	R1055		2.547039	1	282340674.079668
1050580614	Resistor	R629,R829		2.547039	2	154078778.388085
1050586614	Resistor	R1035,R195, R991, R993		2.547039	4	82309758.689546
1050591034	Resistor	R1418		2.547039	1	282340674.079668

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1050702704	Resistor	R1425,R1426 ,R747, R748,R751,R 752, R753,R754,R 757, R758,R760,R 774, R816,R827,R 846, R853,R876,R 881, R890,R891,R 894, R895		2.547039	22	16518584.576317
1050703334	Resistor	R948,R955		2.547039	2	154078778.388085
1053510009	Resistor	R634		2.547039	1	282340674.079668
1054700289	Resistor	R620		2.547039	1	282340674.079668
1059700001	Resistor	R1413,R555, R702		2.547039	3	107020754.986850
105A500103	Resistor	R726		2.547039	1	282340674.079668
105A500139	Resistor	R1007,R1052 ,R1054, R1201,R1202 ,R1203, R1204,R1205 ,R1270, R1282,R1284 ,R1286, R1288,R1350 ,R1352, R1368,R1389 ,R1390, R1391,R1392 ,R19, R215,R216,R 221, R244,R251,R 34,R344, R35,R351,R3 73,R374, R375,R376,R 379, R398,R399,R 40,R400, R403,R408,R 409, R417,R432,R 519,R		2.547039	84	4489333.067020

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105A501039	Resistor	R1014,R1039 ,R1041, R1107,R1108 ,R1124, R1128,R1147 ,R115, R1157,R1158 ,R1281, R1309,R1316 ,R1324, R1327,R1333 ,R1344, R1356,R1357 ,R1358, R1359,R1360 ,R1361, R1364,R1365 ,R1366, R1367,R1369 ,R1370, R1372,R1380 ,R1381, R1382,R1384 ,R1385, R1387,R1397 ,R1398, R140,R140		2.547039	116	3270148.361528
105A501043	Resistor	R1408		2.547039	1	282340674.079668
105A501323	Resistor	R625		2.547039	1	282340674.079668
105A501529	Resistor	R581		2.547039	1	282340674.079668
105A501533	Resistor	R1297		2.547039	1	282340674.079668
105A501539	Resistor	R138,R4,R67 ,R7,R70		2.547039	5	67008142.102588
105A502039	Resistor	R1037,R1271 ,R1273, R1416,R196, R428, R431,R990,R 992		2.547039	9	38754445.632391
105A503039	Resistor	R764		2.547039	1	282340674.079668
105A503309	Resistor	R1347,R525, R599, R826,R845,R 852, R869		2.547039	7	48991237.965885
105A505109	Resistor	R1338,R396, R397, R607,R608,R 611, R719,R921,R 922, R923,R925		2.547039	11	32049696.385471

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105A505629	Resistor	R197,R198,R276,R3		2.547039	4	82309758.689546
105A507509	Resistor	R1,R1001,R1004,R109,R1090,R110,R1113,R1145,R1151,R240,R420,R438,R444,R603		2.547039	14	25477245.255648
105A510009	Resistor	R104,R107,R1070,R1075,R1084,R1085,R1086,R1091,R1105,R1106,R1371,R1414,R159,R22,R226,R25,R283,R284,R285,R286,R37,R443,R523,R547,R551,R554,R557,R567,R573,R928		2.547039	30	12244464.256771
105A510223	Resistor	R1013,R1040,R1042,R310		2.547039	4	82309758.689546
105A511323	Resistor	R1296		2.547039	1	282340674.079668
105A515003	Resistor	R41,R46		2.547039	2	154078778.388085
105A515009	Resistor	R1072,R1092,R1126,R1142,R1146,R227,R29,R337,R355,R562,R563,R81,R88		2.547039	13	27342571.921361
105A517813	Resistor	R1000,R1003,R388,R389,R390,R391,R484,R485,R976		2.547039	9	38754445.632391
105A522669	Resistor	R819		2.547039	1	282340674.079668
105A523723	Resistor	R568		2.547039	1	282340674.079668

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105A527469	Resistor	R651,R662,R667, R680,R691,R699, R710,R715,R724, R732,R738,R744, R767,R768,R777, R778,R797,R811, R821,R830,R831, R850		2.547039	22	16518584.576317
105A528713	Resistor	R1056,R970		2.547039	2	154078778.388085
105A530109	Resistor	R1183,R1188, R1195, R1196,R161, R162, R163,R164,R165, R166,R167,R168, R169,R170,R171, R172,R173,R174, R175,R176,R177, R178,R179,R180, R181,R182,R183, R184,R185,R186, R187,R188,R270, R271,R272,R273,R36, R62,R82,R94		2.547039	40	9263254.152485
105A541203	Resistor	R1306		2.547039	1	282340674.079668
105A545323	Resistor	R1280		2.547039	1	282340674.079668
105A547509	Resistor	R1144		2.547039	1	282340674.079668
105A549919	Resistor	R132,R134,R48,R49, R50,R55,R56,R57, R986,R988,R994, R995		2.547039	12	29507083.749401
105A549933	Resistor	R1410		2.547039	1	282340674.079668
105A554913	Resistor	R1006		2.547039	1	282340674.079668

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105A564963	Resistor	R1189,R1190 ,R1191, R1192		2.547039	4	82309758.689546
105A575009	Resistor	R1046,R1047 ,R1048, R1051,R385, R393, R394,R405		2.547039	8	43225424.698300
105A584503	Resistor	R974,R975,R 985		2.547039	3	107020754.986850
105A700003	Resistor	R1045,R1300 ,R1310, R1320,R1325 ,R213, R419,R631,R 648, R649,R694,R 697, R761,R806,R 996, R997		2.547039	16	22425139.809646
105A700009	Resistor	R101,R1015, R1020, R1025,R1027 ,R1029, R1033,R1071 ,R1088, R1094,R1119 ,R112, R113,R1162, R1163, R117,R1177, R118, R1199,R1200 ,R124, R126,R1277, R128, R1292,R1295 ,R1299, R130,R1303, R1308, R1311,R1319 ,R1328, R1331,R1336 ,R1337, R1342,R135, R1351, R1355,R1374 ,R1378,		2.547039	194	1970453.318504
105A701009	Resistor	R1291		2.547039	1	282340674.079668
105A701069	Resistor	R685,R696,R 713, R899		2.547039	4	82309758.689546

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105A702263	Resistor	R799,R833,R834, R835,R836,R902		2.547039	6	56573956.677649
105A702269	Resistor	R214,R258,R339, R407		2.547039	4	82309758.689546
105A702729	Resistor	R381,R382,R383		2.547039	3	107020754.986850
105A703909	Resistor	R690,R698,R709, R714		2.547039	4	82309758.689546
105A704763	Resistor	R1415		2.547039	1	282340674.079668
105A705129	Resistor	R119,R120,R121, R122,R193,R194,R30, R31,R32,R33		2.547039	10	35079934.879747
105A708209	Resistor	R1305,R1313,R1317		2.547039	3	107020754.986850
105A710003	Resistor	R1057,R1058,R1061, R279,R280,R971		2.547039	6	56573956.677649
105A710009	Resistor	R856		2.547039	1	282340674.079668
105A733009	Resistor	R823		2.547039	1	282340674.079668
106B500144	Resistor	RT1,RT10,RT12,RT7, RT8,RT9		7.724580	6	15554248.259646
106B504734	Resistor	RT11,RT2,RT3,RT4, RT5,RT6		7.724580	6	15554248.259646
106BA01033	Resistor	R1062,R1063,R1406		7.724580	3	27814800.254496
1121415090	Capacitor	C1287		1.128806	1	704977644.692287
1121622780	Capacitor	C1310		1.128806	1	704977644.692287
1124410190	Capacitor	C98,C99		1.128806	2	375289731.076049
1124410191	Capacitor	C14,C207,C215,C51, C55,C71,C87,C88		1.128806	8	101746760.035398
1124418090	Capacitor	C685,C686		1.128806	2	375289731.076049
1124456090	Capacitor	C106,C107,C16,C217		1.128806	4	196873384.410843
1124510280	Capacitor	C338,C900,C933, C934		1.128806	4	196873384.410843
1124533191	Capacitor	C1267		1.128806	1	704977644.692287

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1124533280	Capacitor	C15,C216,C3 ,C4,C47, C48,C74,C75 ,C90, C96,C97		1.128806	11	74892583.279796
1124533282	Capacitor	C102,C491,C 886, C889,C923		1.128806	5	159367490.199266
1124547190	Capacitor	C1298,C1299 ,C1300, C1301,C1302 ,C1303, C1304,C1305 ,C695, C696,C697,C 698, C699,C700,C 701, C702		1.128806	16	52112480.802928
1129610080	Capacitor	C1068,C1108 ,C1139, C1207,C124, C126, C1291,C1293 ,C161, C162,C163,C 164, C165,C166,C 290, C291,C292,C 293, C294,C295,C 302, C303,C304,C 305, C308,C311,C 312, C315,C318,C 319, C320,C321,C 343, C344,C345,C 350, C351,C352,C 455, C457,C467,C 468, C469,C470,C 472, C479,C481		1.128806	49	17456231.890224

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1129622690	Capacitor	C1160,C1170 ,C1171, C1172,C1175 ,C1176, C1177,C1178 ,C1185, C1186,C1187 ,C1198		1.128806	12	68856937.301178
1129710390	Capacitor	C1158,C496		1.128806	2	375289731.076049
1129722091	Capacitor	C573,C576		1.128806	2	375289731.076049
1174518180	Capacitor	CP1,CP2,CP3 ,CP4		1.128806	4	196873384.410843
1181627197	Capacitor	C10,C11,C12 ,C13, C423,C555,C 566,C8, C873,C874,C 9		4.744484	11	17521838.469916
1189610153	Capacitor	C1065,C1066 ,C1272, C571,C595,C 634, C691		4.744484	7	26949727.707925
1189615154	Capacitor	C104,C492,C 909, C919,C921		4.744484	5	36944177.000623
1189633151	Capacitor	C377,C895,C 927, C928		4.744484	4	45505862.704531
1189647187	Capacitor	C569,C591,C 879, C880,C881,C 910, C911,C912,C 974, C975,C976,C 977, C978,C979,C 980, C981,C982,C 983, C984,C991, C992,C993,C 994, C995,C996		4.744484	25	7938242.821958
1189647187	Capacitor	C985	14.2	6.135425	1	123466367.936178
1189656198	Capacitor	C426,C580,C 581, C660,C868		4.744484	5	36944177.000623

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1189682198	Capacitor	C230,C231,C232, C233,C234,C235, C236,C237,C238, C239,C240,C241, C242,C243		4.744484	14	13902256.772671
11A2422190	Capacitor	C1318		1.128806	1	704977644.692287
11A4410194	Capacitor	C520		1.128806	1	704977644.692287
11C1522430	Capacitor	C878,C907,C943, C944,C945,C946, C947,C948,C949, C952,C953,C954, C955,C956,C957, C958,C987,C988		1.128806	18	46478509.590073
11C2410390	Capacitor	C23,C24,C26,C27, C28,C29,C35,C36, C37,C41,C42,C43		1.128806	12	68856937.301178
11C4501790	Capacitor	C147,C205,C206, C213,C22,C428,C476, C49,C499,C50,C53, C54,C57,C583,C584, C585,C586,C587, C588,C589,C590		1.128806	21	40003791.624280
11C4522290	Capacitor	C622		1.128806	1	704977644.692287

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E1510050	Capacitor	C1063,C1064 ,C1109, C1111,C1119 ,C1121, C1122,C1138 ,C1142, C1156,C1183 ,C1189, C1250,C1252 ,C1265, C127,C1271, C128, C1280,C1281 ,C1282, C129,C130,C 1314, C1319,C132, C1320, C133,C134,C 135, C137,C138,C 139, C140,C142,C 143, C144,C145,C 148, C149,C176,C 177, C178,C179		1.128806	107	8084060.439187
11E1522680	Capacitor	C556		1.128806	1	704977644.692287
11E1547650	Capacitor	C103,C46,C9 59,C960, C961,C962,C 963, C964,C965,C 966, C967,C968,C 969, C970,C971,C 972, C989,C990		1.128806	18	46478509.590073
11E2501030	Capacitor	C1135		1.128806	1	704977644.692287

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E2501690	Capacitor	C1,C100,C101,C1051,C1052,C1053,C1054,C1055,C1056,C1057,C1058,C1059,C1060,C1061,C1062,C1069,C1070,C1071,C1072,C1073,C1074,C1075,C1076,C1077,C1078,C1079,C1080,C1081,C1082,C1083,C1084,C1085,C1086,C1087,C1088,C1089,C1090,C1091,C1092,C1093,C1094,C		1.128806	322	2713428.333241
11E2510060	Capacitor	C32,C38,C81,C83		1.128806	4	196873384.410843
11E4433090	Capacitor	C570,C593		1.128806	2	375289731.076049

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9501091	Capacitor	C1067,C108, C1101, C1102,C1133 ,C1145, C1146,C1148 ,C1149, C1150,C1153 ,C1159, C1161,C1162 ,C1165, C1168,C1169 ,C1173, C1174,C1179 ,C1184, C1188,C1190 ,C1191, C1192,C1193 ,C1194, C1197,C1199 ,C1200, C1202,C1209 ,C1210, C1211,C1213 ,C1214, C1215,C1218 ,C1219, C1220,C12		1.128806	90	9590606.735476

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9522490	Capacitor	C431,C432,C445, C447,C459,C462, C475,C477,C485, C490,C495,C497, C502,C505,C512, C518,C562,C565, C574,C577,C592, C594,C601,C605, C621,C625,C630, C633,C647,C655, C659,C661,C704, C705,C706,C707, C708,C709,C710, C711,C712,C713, C714,C715,C716, C717,C718,C719,		1.128806	160	5429554.958534
11E9522790	Capacitor	C111,C112,C113, C114,C115,C118, C119,C120,C121, C122		1.128806	10	82101057.548118
11E9547680	Capacitor	C404,C915,C916, C925		1.128806	4	196873384.410843
11E9547790	Capacitor	C109,C110,C116, C117,C218,C219,C31, C59		1.128806	8	101746760.035398

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9622052	Capacitor	C1000,C1001 ,C1002, C1003,C1004 ,C1005, C1006,C1007 ,C1008, C1009,C1010 ,C1011, C1012,C1013 ,C1014, C1015,C1016 ,C1017, C1018,C1019 ,C1020, C1021,C1022 ,C1023, C1024,C1025 ,C1026, C1027,C1028 ,C1029, C1030,C1031 ,C1032, C1033,C1034 ,C1035, C1036,C1037 ,C1038, C1039,C1		1.128806	160	5429554.958534
11E9622060	Capacitor	C328,C329,C 898, C899,C929,C 930, C939,C940		1.128806	8	101746760.035398

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9622080	Capacitor	C169,C170,C171, C172,C173,C174, C197,C198,C199, C201,C202,C203, C264,C265,C266, C267,C268,C269, C270,C271,C272, C273,C274,C275, C276,C277,C278, C279,C280,C281, C282,C283,C284, C285,C286,C287, C288,C289,C296, C297,C298,C299, C300,C301,C306, C307,C309,C310,		1.128806	96	8998527.621104
11E9647690	Capacitor	C2,C211,C214,C44, C45,C66,C68,C69, C86,C89		1.128806	10	82101057.548118
121110156P	Inductor	L25		4.944252	1	154760964.143460
1211101571	Inductor	L18	14	6.371667	1	120090569.267934
1211101571	Inductor	L13	13.8	6.349624	1	120507468.605162
1211101571	Inductor	L1,L10,L11,L12, L14,L15,L16,L17,L19,L2,L20,L21, L3,L4,L6,L7,L8,L9		4.944252	18	10499568.783631
121110226N	Inductor	L37,L38,L40		4.944252	3	57363284.375370
121110476Q	Inductor	L27		4.944252	1	154760964.143460
1211110077	Inductor	L26		4.944252	1	154760964.143460
121111507B	Inductor	L29,L30		4.944252	2	83201062.149749
121112207P	Inductor	L28,L31		4.944252	2	83201062.149749

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
121113307U	Inductor	L36	10	5.940000	1	128817703.652561
121113307U	Inductor	L22,L34,L35, L5		4.944252	4	43912872.424775
1212306030	Inductor	FB10,FB27		4.944252	2	83201062.149749
1212306031	Inductor	FB11,FB12,F B13, FB15,FB16		4.944252	5	35631881.582999
12123A0009	Inductor	FB1,FB14,FB 17,FB19, FB2,FB20,FB 21,FB22, FB23,FB24,F B25, FB28,FB3,FB 5,FB6, FB7,FB8		4.944252	17	11096095.548648
12123C0007	Inductor	FB29		4.944252	1	154760964.143460
12123C0010	Inductor	FB18		4.944252	1	154760964.143460
123132505D	Miscellaneous	Y1		19.200000	1	23844262.770939
1231332726	Miscellaneous	Y2		19.200000	1	23844262.770939
1301005444	Semiconductor	D8		7.793411	1	92807310.010983
1301005450	Semiconductor	D4		7.793411	1	92807310.010983
1301053040	Semiconductor	D5,D6,D7		7.793411	3	35106858.962001
1301400642	Semiconductor	D3		7.793411	1	92807310.010983
1310222211	Semiconductor	Q50,Q67		22.463360	2	17315095.066101
1310390413	Semiconductor	Q11,Q12,Q1 9,Q24, Q25,Q26,Q2 7,Q3,Q30, Q31,Q32,Q3 5,Q4,Q41, Q42,Q47,Q5, Q52,Q53, Q56,Q6,Q63, Q64,Q65, Q66,Q7,Q8		22.463360	27	1533030.992154
1311390612	Semiconductor	Q34		22.463360	1	31642600.748419
1315013810	Semiconductor	Q28,Q29,Q4 4,Q45, Q51		22.463360	5	7551839.591592
1315070020	Semiconductor	Q1,Q10,Q13, Q14,Q2, Q20,Q21,Q2 2,Q23, Q36,Q48,Q4 9,Q54, Q55,Q59,Q6 1,Q68,Q9		22.463360	18	2263829.704727
1315190100	Semiconductor	U88		22.463360	1	31642600.748419
1315230111	Semiconductor	Q60		22.463360	1	31642600.748419
1315667910	Semiconductor	Q43,Q57		22.463360	2	17315095.066101

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1315703011	Semiconductor	Q40,Q46		22.463360	2	17315095.066101
1315S4C500	Semiconductor	Q37		22.463360	1	31642600.748419
1315S4C550	Semiconductor	Q38,Q39		22.463360	2	17315095.066101
1420096170	Integrated Circuit	U33,U34,U98,U99		43.803003	4	3879156.910661
1430012830	Integrated Circuit	U69,U70		43.803003	2	6834791.244197
1430021430	Integrated Circuit	U73,U77,U78,U83		43.803003	4	3879156.910661
1430035530	Integrated Circuit	U24	17.2	138.575872	1	3710691.630626
1430035530	Integrated Circuit	U16	17.6	142.128518	1	3617939.143630
1430035530	Integrated Circuit	U12,U13,U14,U15,U17,U18,U19,U20,U21,U23,U25,U26,U28,U29,U3,U7		43.803003	16	1158014.242339
1430035641	Integrated Circuit	U27,U4,U8		43.803003	3	4923240.069161
1430035641	Integrated Circuit	U9	14.6	117.369212	1	4381151.761675
1430035661	Integrated Circuit	U5		43.803003	1	11739202.588727
1430035661	Integrated Circuit	U6	15.4	123.559051	1	4161672.696723
1430087620	Integrated Circuit	U115		43.803003	1	11739202.588727
1430512000	Integrated Circuit	U30,U94,U96,U97		43.803003	4	3879156.910661
143SQ420D0	Integrated Circuit	U74	35.5	415.000462	1	1239064.473147
143XL12310	Integrated Circuit	U79		43.803003	1	11739202.588727
1440003680	Integrated Circuit	U108		43.803003	1	11739202.588727
1442014PW0	Integrated Circuit	U100,U101,U38,U56		43.803003	4	3879156.910661
144DH89250	Integrated Circuit	U22	16.7	134.247722	1	3830324.421265
1469128350	Integrated Circuit	U81		11.063278	1	58231413.220643
1482640HC1	Integrated Circuit	U66		26.018600	1	25551442.237972
14S2432600	Integrated Circuit	U10,U39,U92,U93,U95		43.803003	5	3214211.402100
14S2951700	Integrated Circuit	U35,U36		43.803003	2	6834791.244197
14S3121700	Integrated Circuit	U107		43.803003	1	11739202.588727
14S4081102	Integrated Circuit	U109,U112,U63,U68		43.803003	4	3879156.910661
14S4331101	Integrated Circuit	U89		43.803003	1	11739202.588727
14S4872800	Integrated Circuit	U113		43.803003	1	11739202.588727
14S4963502	Integrated Circuit	U118		43.803003	1	11739202.588727
14S5126500	Integrated Circuit	U40,U41,U45,U46,U55		43.803003	5	3214211.402100
14S5912300	Integrated Circuit	U62		26.018600	1	25551442.237972
14S5974741	Integrated Circuit	U32,U49		26.018600	2	14194252.866846
14S5A00702	Integrated Circuit	U43,U44,U76		26.018600	3	9949526.289768
14S5A00704	Integrated Circuit	U57		26.018600	1	25551442.237972

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
14S5A00821	Integrated Circuit	U31,U37,U51,U65		26.018600	4	7696979.559193
14S5A01400	Integrated Circuit	U2		26.018600	1	25551442.237972
14S5A01402	Integrated Circuit	U103,U104,U52		26.018600	3	9949526.289768
14S5A03200	Integrated Circuit	U90,U91		26.018600	2	14194252.866846
14S5A12506	Integrated Circuit	U50,U53,U54		26.018600	3	9949526.289768
14S9080901	Integrated Circuit	U71		43.803003	1	11739202.588727
1540710280	Resistor	RP8,RP9		9.971436	2	30043399.401299
1540722085	Resistor	RP3,RP4,RP5,RP6, RP7		9.971436	5	14126297.426094
1651528810	Connection	DIMM10,DIMM12, DIMM14,DIMM16, DIMM2,DIMM4,DIMM6, DIMM8		16.184835	8	6160226.269180
1651528811	Connection	DIMM1,DIMM11, DIMM13,DIMM15, DIMM3,DIMM5,DIMM7, DIMM9		16.184835	8	6160226.269180
1651620111	Connection	U1,U11		16.184835	2	20390152.380746
1653002100	Connection	CN11,CN5		16.184835	2	20390152.380746
1653003100	Connection	COMS1		16.184835	1	35685591.360212
1653003101	Connection	JP1,JP2		16.184835	2	20390152.380746
165300410A	Connection	CN25		16.184835	1	35685591.360212
1653004200	Connection	FP1,FP2		16.184835	2	20390152.380746
165300420L	Connection	CN12		16.184835	1	35685591.360212
1653005202	Connection	DIO1		16.184835	1	35685591.360212
1653210203	Connection	CN15		16.184835	1	35685591.360212
1653212100	Connection	LPC1		16.184835	1	35685591.360212
1653300101	Connection	COMS1(1-2)		16.184835	1	35685591.360212
1653300102	Connection	JP2(1-2)		16.184835	1	35685591.360212
1653300107	Connection	JP1(1-2)		16.184835	1	35685591.360212
1653916121	Connection	CN7		16.184835	1	35685591.360212
165392521H	Connection	CN3		16.184835	1	35685591.360212
1654218203	Connection	CN17		16.184835	1	35685591.360212
1654226303	Connection	MPCIE1		16.184835	1	35685591.360212
1654282204	Connection	PCIE1,PCIE2, PCIE3, PCIE4,PCIE5		16.184835	5	9343344.843761
165490700G	Connection	SATA1,SATA2		16.184835	2	20390152.380746
1655004011	Connection	CN1,CN2		16.184835	2	20390152.380746

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697850014-D
Ref Des:
Description:

Failure Rate: 12681.164936
MTBF (hrs): 78,857
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1655004018	Connection	CPU0_FAN1, CPU1_FAN1, PCH_FAN1, SYS_FAN1,S YS_FAN3, SYS_FAN5,S YS_FAN7, SYS_FAN9		16.184835	8	6160226.269180
1655408023	Connection	ATX_CPU1,A TX_CPU2		16.184835	2	20390152.380746
1655424022	Connection	ATX1		16.184835	1	35685591.360212
175011901H	Miscellaneous	BAT1		306.000000	1	1681683.006787
1750220326	Connection	BAT1		16.184835	1	35685591.360212
1812850290	Resistor	R623		69.019322	1	7485159.269379

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697R36X04-D
Ref Des:
Description:

Failure Rate: 183.017104
MTBF (hrs): 5,463,970
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501004	Resistor	R1		2.547039	1	282340674.079668
1654249205	Connection	PCIE1,PCIE2, PCIE3, PCIE4,PCIE5, PCIE6, PCIE7,PCIE8		16.184835	8	6160226.269180
1655404020	Connection	ATX1		16.184835	1	35685591.360212

File Name: FWS-8500.rfp
Assembly: 9697T29402-D
Ref Des:
Description:

Failure Rate: 522.416677
MTBF (hrs): 1,914,181
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501004	Resistor	R1,R13,R19, R25,R7		2.547039	5	67008142.102588
1053500179	Resistor	R10,R16,R22 ,R28,R4		2.547039	5	67008142.102588
105A506233	Resistor	R11,R17,R2, R23,R29		2.547039	5	67008142.102588
105A510003	Resistor	R12,R14,R18 ,R20, R24,R26,R30 ,R5,R6, R8		2.547039	10	35079934.879747
105A701039	Resistor	R15,R21,R27 ,R3,R9		2.547039	5	67008142.102588
1111610196	Capacitor	C10,C18		1.128806	2	375289731.076049
1129522790	Capacitor	C12,C16,C2, C20,C8		1.128806	5	159367490.199266
1161627100	Capacitor	C14,C4,C6		1.128806	3	257514172.353070
11C4510380	Capacitor	C13,C17,C3, C5,C9		1.128806	5	159367490.199266
11C9510490	Capacitor	C1,C11,C15, C19,C7		1.128806	5	159367490.199266
13050012A0	Semiconductor	D1,D2,D3,D4 ,D5		7.793411	5	21965031.404253
1315441012	Semiconductor	Q1,Q2,Q3,Q4 ,Q5		22.463360	5	7551839.591592
14S2421000	Integrated Circuit	U1,U2,U3,U4 ,U5		26.018600	5	6292206.574138
1653004214	Connection	FAN_SB1,FA N_SB2, FAN_SB3,FA N_SB4, FAN_SB5		16.184835	5	9343344.843761
1653210203	Connection	FAN_MB1		16.184835	1	35685591.360212
1907T29401				0.000000	1	0.000000
9697T29402-S				0.000000	1	0.000000

File Name: FWS-8500.rfp
Assembly: 9697T29603-D
Ref Des:
Description:

Failure Rate: 595.573526
MTBF (hrs): 1,679,054
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050503324	Resistor	L1R1,L1R10, L1R2, L1R27,L1R30 ,L1R4, L1R5,L1R6		2.547039	8	43225424.698300
1050503334	Resistor	L1R11,L1R20		2.547039	2	154078778.388085
1050516004	Resistor	L1R37,L1R38		2.547039	2	154078778.388085
105A501539	Resistor	R4		2.547039	1	282340674.079668
105A547529	Resistor	R1		2.547039	1	282340674.079668
105A549919	Resistor	L1R31		2.547039	1	282340674.079668
105A700009	Resistor	L1R39		2.547039	1	282340674.079668
105A70000A	Resistor	L1R19,L1R22 ,L1R32, L1R7		2.547039	4	82309758.689546
105A701039	Resistor	L1R12,L1R13 ,L1R21, L1R23,L1R24 ,L1R25, L1R26,L1R28 ,L1R29, L1R8		2.547039	10	35079934.879747
105A703309	Resistor	L1R14,L1R15 ,L1R17, L1R9		2.547039	4	82309758.689546
105A703329	Resistor	L1R3		2.547039	1	282340674.079668
105A708209	Resistor	L1R33,L1R34 ,L1R35, L1R36		2.547039	4	82309758.689546
105A710039	Resistor	R2,R3		2.547039	2	154078778.388085
105A733009	Resistor	R5,R6		2.547039	2	154078778.388085
1121501690	Capacitor	L1C1		1.128806	1	704977644.692287
1121501691	Capacitor	C5		1.128806	1	704977644.692287
1124427090	Capacitor	L1C13,L1C14		1.128806	2	375289731.076049
1129610080	Capacitor	L1C21,L1C22 ,L1C23, L1C24,L1C3, LAC2		1.128806	6	133979725.056342
1189656198	Capacitor	C7		4.744484	1	159663026.715137
11C1539840	Capacitor	L1C9		1.128806	1	704977644.692287
11C9510490	Capacitor	L1C10,L1C11 ,L1C12, L1C15,L1C16 ,L1C17, L1C18,L1C19 ,L1C20, L1C26,L1C27 ,L1C28, L1C29,L1C30 ,L1C4, L1C5,L1C6,L 1C7, L1C8		1.128806	19	44097696.883526
11E2501690	Capacitor	C8		1.128806	1	704977644.692287
11E4433090	Capacitor	C6		1.128806	1	704977644.692287

File Name: FWS-8500.rfp
Assembly: 9697T29603-D
Ref Des:
Description:

Failure Rate: 595.573526
MTBF (hrs): 1,679,054
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9501091	Capacitor	C4		1.128806	1	704977644.692287
11E9622060	Capacitor	C3		1.128806	1	704977644.692287
11EA647010	Capacitor	LAC1		1.128806	1	704977644.692287
11EB610050	Capacitor	C1		1.128806	1	704977644.692287
12123A0009	Inductor	FB1		4.944252	1	154760964.143460
1214309000	Inductor	L1,L2		4.944252	2	83201062.149749
123132505M	Inductor	L1Y1		4.944252	1	154760964.143460
1304L51460	Semiconductor	LED1		7.793411	1	92807310.010983
1305100541	Integrated Circuit	U3,U4,U5,U6		43.803003	4	3879156.910661
1440210AT0	Integrated Circuit	L1U2		43.803003	1	11739202.588727
14S3902500	Integrated Circuit	U1		43.803003	1	11739202.588727
1601110201	Connection	SW1		16.184835	1	35685591.360212
1652522202	Connection	CN2		16.184835	1	35685591.360212
165300520Z	Connection	CN1		16.184835	1	35685591.360212

**Reliability Prediction
Summary**

File Name: FWS-8500.rfp
Assembly: 9697T39101-D
Ref Des:
Description:

Failure Rate: 54.149085
MTBF (hrs): 18,467,533
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A700009	Resistor	R1,R2		2.547039	2	154078778.388085
1652808208	Connection	CN2		16.184835	1	35685591.360212
165300520Z	Connection	CN1		16.184835	1	35685591.360212