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ISO-14000 Certified
ISO-17025 Certified
ADVANTECH CO., LTD.

QA Test Report

ADAM-4572-CE

(Reliability Prediction)

Report No :13R113A0

Report Date : April , 11 , 2013

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Approval

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Reliability Prediction

I. Date: 2013/04/11

II. Model Name: ADAM-4572-CE

III. Revision: N/A

IV. Description: 1-port Modbus Gateway

**V. Equipment: Windchill Quality Solutions Calculation Method:
Telcordia Issue 3 ; Method I Case 3.**

VI: Prediction Result 1: GB, GC - Ground Benign, Controlled

.Environment :GB

.Temperature : 30°C

.Quality :Level II

.Stress : 50%

.Failure Rate: 151.305834 FITs.

.MTBF : 6,609,130 hours.

Reliability Prediction

VII. Prediction Result 2: GF, GU - Ground Fixed, Uncontrolled

.Environment :GF
.Temperature :30°C
.Quality :Level II
.Stress :50%
.Failure Rate: 290.468384 FITs.
.MTBF : 3,442,715 hours.

VIII. Index:
A. Failure Rate & Assembly MTBF
B. Part Failure List

File Name: ADAM-4572-CE.rfp
Assembly: System
Ref Des:
Description:

Failure Rate: 151.305834
MTBF (hrs): 6,609,130
Temperature: 30
Environment: GB, GC - Ground Benign, Controlled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1652610200	Connection		0.116482	1	0.223079
1000012158-01	Resistor		0.117311	2	0.395249
1100000184	Capacitor		0.094067	1	0.106122
1100000189	Capacitor		0.094067	1	0.106122
1100000254	Capacitor		0.094067	1	0.106122
1100000361	Capacitor		0.094067	2	0.205183
1100004004	Capacitor		0.094067	3	0.303082
1100006640	Capacitor		3.329462	1	5.448288
1125601060	Capacitor		0.094067	1	0.106122
1129510390	Capacitor		0.094067	1	0.106122
1129610591-01	Capacitor		3.329462	1	5.448288
1211001357	Inductor		0.199768	1	0.277125
1211003968	Inductor		0.199768	1	0.277125
1212000056-01	Inductor		0.091560	1	0.113437
1212301000	Inductor		0.091560	4	0.408910
1212302010	Inductor		0.091560	1	0.113437
1212302012-01	Inductor		0.091560	3	0.312220
1230000012	Miscellaneous		1.961798	1	4.285181
1231000013	Miscellaneous		1.961798	1	4.285181
1233000053	Miscellaneous		1.582835	1	2.806181
1252001717	Inductor		8.157183	1	15.832641
1290000036	Miscellaneous		0.400000	4	2.102204
1290001893-01	Miscellaneous		0.800000	1	1.309109
1300000493	Semiconductor		0.749129	1	1.460830
1300400140	Semiconductor		0.749129	1	1.460830
1300582041-01	Semiconductor		0.749129	1	1.460830
1301581940	Semiconductor		0.749129	1	1.460830
1305001000	Semiconductor		0.982214	4	5.791481
1305003300	Semiconductor		4.245065	1	8.249331
1304400210-11	Optical Device		0.106187	3	0.495651
1310222210	Semiconductor		1.352386	1	2.397329
131411171B	Semiconductor		0.900000	1	1.755034
1400000763	Integrated Circuit		11.013551	1	18.615299
1400000193	Integrated Circuit		0.619510	1	1.204775
1400000331	Integrated Circuit		1.474905	1	2.489255
1410000051	Integrated Circuit		1.440000	1	1.440000
1410000054	Integrated Circuit		1.440000	2	2.880000
1410000165	Integrated Circuit		1.440000	1	1.440000
1410000857	Integrated Circuit		0.288766	1	0.561569
1410006059	Integrated Circuit		0.694748	1	1.351091
1410012637	Integrated Circuit		9.515904	1	15.045729
1410020710	Integrated Circuit		22.162876	1	43.100631
1410023025-01	Integrated Circuit		0.619510	2	2.069280
1410023026-01	Integrated Circuit		0.676697	2	2.260296
1410023123-01	Integrated Circuit		1.792489	1	2.730660
1410023574-01	Integrated Circuit		1.946885	1	2.869421

File Name: ADAM-4572-CE.rfp
Assembly: System
Ref Des:
Description:

Failure Rate: 151.305834
MTBF (hrs): 6,609,130
Temperature: 30
Environment: GB, GC - Ground Benign, Controlled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
14S4070620	Integrated Circuit		1.627594	1	2.359600
14S5A00800	Integrated Circuit		1.556970	3	6.508283
1652508212	Connection		0.116482	1	0.223079
1652601200	Connection		0.116482	1	0.223079
1652610100	Connection		0.116482	1	0.223079
1653002101-02	Connection		0.036784	1	0.053110
105A700009-05	Resistor		0.117311	9	1.391813
1121510490-01	Capacitor		0.094067	65	6.211558
110000214-02	Capacitor		0.920000	1	0.920000
1124420080-03	Capacitor		0.094067	2	0.205183
1124410090-01	Capacitor		0.920000	2	1.840000
1100001370-02	Capacitor		0.094067	1	0.106122
1124547180-01	Capacitor		0.094067	1	0.106122
1100000084-01	Capacitor		0.094067	2	0.205183
1124510390-01	Capacitor		0.920000	2	1.840000
1100004184-01	Capacitor		0.094067	2	0.205183
1100000332-01	Capacitor		0.094067	1	0.106122
1124410190-01	Capacitor		0.094067	1	0.106122
1124422090-01	Capacitor		0.920000	2	1.840000
1541700208-03	Resistor		0.104276	2	0.356851
105A705603-03	Resistor		0.066589	1	0.088615
105A710049-03	Resistor		0.066589	2	0.164100
105A704709-03	Resistor		0.066589	2	0.164100
105A747019-03	Resistor		0.066589	12	0.872975
105A710029-03	Resistor		0.066589	27	1.908766
105A710009-03	Resistor		0.066589	6	0.452604
105A707509-03	Resistor		0.066589	4	0.309817
105A549969-01	Resistor		0.066589	4	0.309817
1000002533-02	Resistor		0.117311	1	0.230442
105A524923-02	Resistor		0.066589	1	0.088615
105A551113-01	Resistor		0.066589	1	0.088615
105A530113-02	Resistor		0.066589	1	0.088615
105A510033-03	Resistor		0.066589	2	0.164100
105A710024-03	Resistor		0.066589	1	0.088615
105A535733-02	Resistor		0.066589	1	0.088615
1000002152-02	Resistor		0.066589	1	0.088615
105A710039-01	Resistor		0.066589	1	0.088615
105A722019-03	Resistor		0.066589	1	0.088615
105A747009-03	Resistor		0.066589	1	0.088615
105A568013-03	Resistor		0.066589	1	0.088615
105A515013-03	Resistor		0.066589	1	0.088615

File Name: ADAM-4572-CE.rfp
Assembly: System
Ref Des:
Description:

Failure Rate: 290.468384
MTBF (hrs): 3,442,715
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1652610200	Connection		0.232964	1	0.446158
1000012158-01	Resistor		0.234622	2	0.790499
1100000184	Capacitor		0.188134	1	0.212245
1100000189	Capacitor		0.188134	1	0.212245
1100000254	Capacitor		0.188134	1	0.212245
1100000361	Capacitor		0.188134	2	0.410366
1100004004	Capacitor		0.188134	3	0.606163
1100006640	Capacitor		6.658925	1	10.896576
1125601060	Capacitor		0.188134	1	0.212245
1129510390	Capacitor		0.188134	1	0.212245
1129610591-01	Capacitor		6.658925	1	10.896576
1211001357	Inductor		0.399535	1	0.554250
1211003968	Inductor		0.399535	1	0.554250
1212000056-01	Inductor		0.183120	1	0.226875
1212301000	Inductor		0.183120	4	0.817819
1212302010	Inductor		0.183120	1	0.226875
1212302012-01	Inductor		0.183120	3	0.624441
1230000012	Miscellaneous		3.923596	1	8.570362
1231000013	Miscellaneous		3.923596	1	8.570362
1233000053	Miscellaneous		3.165671	1	5.612361
1252001717	Inductor		16.314366	1	31.665283
1290000036	Miscellaneous		0.800000	4	4.204407
1290001893-01	Miscellaneous		1.600000	1	2.618219
1300000493	Semiconductor		1.498258	1	2.921659
1300400140	Semiconductor		1.498258	1	2.921659
1300582041-01	Semiconductor		1.498258	1	2.921659
1301581940	Semiconductor		1.498258	1	2.921659
1305001000	Semiconductor		1.964428	4	11.582962
1305003300	Semiconductor		8.490129	1	16.498662
1304400210-11	Optical Device		0.212375	3	0.991301
1310222210	Semiconductor		2.704772	1	4.794657
131411171B	Semiconductor		1.800000	1	3.510067
1400000763	Integrated Circuit		22.027102	1	37.230598
1400000193	Integrated Circuit		1.239020	1	2.409550
1400000331	Integrated Circuit		2.949810	1	4.978511
1410000051	Integrated Circuit		1.440000	1	1.440000
1410000054	Integrated Circuit		1.440000	2	2.880000
1410000165	Integrated Circuit		1.440000	1	1.440000
1410000857	Integrated Circuit		0.577531	1	1.123138
1410006059	Integrated Circuit		1.389495	1	2.702181
1410012637	Integrated Circuit		19.031807	1	30.091458
1410020710	Integrated Circuit		44.325752	1	86.201263
1410023025-01	Integrated Circuit		1.239020	2	4.138560
1410023026-01	Integrated Circuit		1.353395	2	4.520592
1410023123-01	Integrated Circuit		3.584978	1	5.461319
1410023574-01	Integrated Circuit		3.893770	1	5.738842

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Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
14S4070620	Integrated Circuit		3.255189	1	4.719200
14S5A00800	Integrated Circuit		3.113941	3	13.016567
1652508212	Connection		0.232964	1	0.446158
1652601200	Connection		0.232964	1	0.446158
1652610100	Connection		0.232964	1	0.446158
1653002101-02	Connection		0.073567	1	0.106221
105A700009-05	Resistor		0.234622	9	2.783626
1121510490-01	Capacitor		0.188134	65	12.423115
110000214-02	Capacitor		0.920000	1	0.920000
1124420080-03	Capacitor		0.188134	2	0.410366
1124410090-01	Capacitor		0.920000	2	1.840000
1100001370-02	Capacitor		0.188134	1	0.212245
1124547180-01	Capacitor		0.188134	1	0.212245
1100000084-01	Capacitor		0.188134	2	0.410366
1124510390-01	Capacitor		0.920000	2	1.840000
1100004184-01	Capacitor		0.188134	2	0.410366
1100000332-01	Capacitor		0.188134	1	0.212245
1124410190-01	Capacitor		0.188134	1	0.212245
1124422090-01	Capacitor		0.920000	2	1.840000
1541700208-03	Resistor		0.208553	2	0.713702
105A705603-03	Resistor		0.133178	1	0.177230
105A710049-03	Resistor		0.133178	2	0.328200
105A704709-03	Resistor		0.133178	2	0.328200
105A747019-03	Resistor		0.133178	12	1.745951
105A710029-03	Resistor		0.133178	27	3.817533
105A710009-03	Resistor		0.133178	6	0.905208
105A707509-03	Resistor		0.133178	4	0.619635
105A549969-01	Resistor		0.133178	4	0.619635
1000002533-02	Resistor		0.234622	1	0.460884
105A524923-02	Resistor		0.133178	1	0.177230
105A551113-01	Resistor		0.133178	1	0.177230
105A530113-02	Resistor		0.133178	1	0.177230
105A510033-03	Resistor		0.133178	2	0.328200
105A710024-03	Resistor		0.133178	1	0.177230
105A535733-02	Resistor		0.133178	1	0.177230
1000002152-02	Resistor		0.133178	1	0.177230
105A710039-01	Resistor		0.133178	1	0.177230
105A722019-03	Resistor		0.133178	1	0.177230
105A747009-03	Resistor		0.133178	1	0.177230
105A568013-03	Resistor		0.133178	1	0.177230
105A515013-03	Resistor		0.133178	1	0.177230