

Standard Reliability Prediction Report

Page 1
Prepared by G. Woo

Part Number LCM386-2053120000
Reference Des
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *



Description MG+
File Name LCM386RM.RPJ
Time 124 PM
Failure Rate 31,784.90 (FITs)
MTBF (HRS) 31,462
Ballistic Method Parts count
Quality Level 1

Assembly Name	Part Number	Ref Des	Qty	Failure Rate	MTBF
LCM386	LCM386-2053120-0006		1.00	31,784.899901	31,462
Power Supply ,RIM302,GPS	24-42043-02,PRD-02428-001,TU30-D140-381	* Duty Cycle = 100%	1.00	13,859.254522	72,102
Main Board CPU	24-42040-01	* Duty Cycle = 100%	1.00	13,177.223190	75,889
RAT PCB	7AE4-90001	* Duty Cycle = 100%	1.00	1,449.600000	689,845
RATComponent		* Duty Cycle = 100%	1.00	3,284.357780	303,549
KeyFOB PCB	7A02-30002	* Duty Cycle = 0.1%	2.00	0.261000	3,831,417.567
KeyFOB Component		* Duty Cycle = 0.1%	2.00	4.203410	237,902.093

Standard Reliability Prediction Report

Part Number 24-42043-02,PRD-02420-001,T-
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated



Description Power Supply,RIM302,GPS
File Name LCM003PRD.rtf
Time 1:24 PM
Failure Rate 13,600.20 (FITS)
MTBF (Hrs) 72,102
Belcore Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
24-42043-02	Other		0.000000	1.00	0.000000
50-11512-330	Capacitor		16.932089	2.00	33.864178
50-11512-221	Capacitor		16.932089	1.00	16.932089
50-11512-102	Capacitor		16.932089	7.00	118.524624
50-11517-109	Capacitor		16.932089	5.00	84.660445
50-11517-104	Capacitor		16.932089	12.00	203.185070
50-11809-104	Capacitor		16.932089	4.00	67.728357
50-11500-028	Capacitor		16.932089	5.00	84.660445
50-11522-157D010	Capacitor		74.912905	8.00	599.303238
50-11500-103	Capacitor		16.932089	14.00	237.049249
50-14801-150	Semiconductor		134.843228	5.00	674.216141
50-14801-120	Semiconductor		134.843228	2.00	269.686456
50-14800-198	Semiconductor		9.878190	3.00	29.634570
50-14800-089	Semiconductor		82.518485	3.00	247.555395
50-14800-031	Semiconductor		82.518485	1.00	82.518485
50-14800-221	Semiconductor		41.259233	1.00	41.259233
50-12100-858	Connection		4.414046	1.00	4.414046
50-12100-852	Connection		4.414046	1.00	4.414046
50-11800-162	Inductor		7.491290	1.00	7.491290
50-11800-181	Inductor		59.930324	1.00	59.930324
50-14790-012	Semiconductor	varistor	149.825809	1.00	149.825809
50-14800-222	Semiconductor		550.123100	1.00	550.123100
50-14800-148	Semiconductor		550.123100	1.00	550.123100
50-13130-852	Integrated Circuit		255.207459	4.00	1,020.829837
50-14800-088	Semiconductor		104.082834	1.00	104.082834
50-04800-036	Semiconductor		55.012310	1.00	55.012310
50-04800-055	Semiconductor		55.012310	8.00	440.098480
50-04800-159	Semiconductor		550.123100	1.00	550.123100
50-14713-R006	Resistor		7.491290	1.00	7.491290
50-14713-R020	Resistor		7.491290	2.00	14.982581
50-14706-000	Resistor		7.491290	2.00	14.982581
50-14705-472	Resistor		7.491290	2.00	14.982581
50-14703-000	Resistor		7.491290	1.00	7.491290
50-14704-1000	Resistor		7.491290	1.00	7.491290
50-14701-100	Resistor		7.491290	4.00	29.965152
50-14701-473	Resistor		7.491290	1.00	7.491290
50-14701-104	Resistor		7.491290	17.00	127.351938
50-14701-105	Resistor		7.491290	3.00	22.473871
50-14702-1471	Resistor		7.491290	2.00	14.982581
50-14702-2001	Resistor		7.491290	3.00	22.473871
50-14702-1052	Resistor		7.491290	8.00	59.930324
50-14702-1542	Resistor		7.491290	2.00	14.982581
50-14702-5902	Resistor		7.491290	2.00	14.982581
50-14702-2430	Resistor		7.491290	1.00	7.491290
50-14702-2650	Resistor		7.491290	1.00	7.491290

Standard Reliability Prediction Report

Page # 3
Prepared by G. Wan

Part Number 24-42043-02, PRD-02428-001, T-
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description Power Supply, RM302, GPS
File Name LOM302RM.RPJ
Time 1:24 PM
Failure Rate 13,869.28 (FITs)
MTBF (Hrs) 72,102
Belcon Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
50-13130-707	Integrated Circuit		255.207459	1.00	255.207459
50-13130-853	Integrated Circuit		255.207459	1.00	255.207459
50-13130-293	Integrated Circuit		255.207459	1.00	255.207459
50-13130-851	Integrated Circuit		255.207459	1.00	255.207459
OE2-SAC	Other	RA7& KeyFOB	0.000000	1.00	0.000000
PRD-02428-001	Other	RM302 DC=5%	4,035.120060	1.00	4,035.120060
TU30-C140-351	Other	GPS DC=100%	1,052.640000	1.00	1,052.640000
25-42811-01	Other	cable assy pwr	64.200000	1.00	64.200000
25-42815-01	Other		147.600000	1.00	147.600000
25-42826-01	Other		147.600000	1.00	147.600000
31-43406-02	Other		0.000000	1.00	0.000000
21-42834-01	Other		0.000000	1.00	0.000000
12-42819-01	Other		0.000000	1.00	0.000000
25-42809-01	Other	cable assy pwr	64.200000	1.00	64.200000
25-42821-01	Other		147.600000	2.00	295.200000
25-42824-01	Other		119.400000	1.00	119.400000
25-42813-01	Other		119.400000	1.00	119.400000
25-42823-01	Other		119.400000	1.00	119.400000
31-43406-01	Other		0.000000	1.00	0.000000
37-43784-02	Other		0.000000	1.00	0.000000

Standard Reliability Prediction Report

Page # 4
Prepared by G. Woo

Part Number 24-42040-01
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description Main Board CPU
File Name LCM038RIM.RPJ
Time 1:24 PM
Failure Rate 13,177.22 (FITs)
MTBF (HRS) 75,000
BallScore Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
31-43403-01	Other		0.000000	.00	0.000000
12-42828-01	Other		0.000000	.00	0.000000
12-42818-01	Other		0.000000	.00	0.000000
34-43404-02	Other		0.000000	.00	0.000000
21-42893-01	Other		0.000000	.00	0.000000
12-42818-01	Other		0.000000	.00	0.000000
24-42040-01	Other		0.000000	.00	0.000000
50-11503-104	Capacitor		18.000000	1.00	18.000000
50-11500-168	Capacitor	C5,C40,C73	3.284487	83.00	272.812482
50-11500-158	Capacitor	C38	113.832021	3.00	341.496064
50-11507-224	Capacitor		81.739113	1.00	81.739113
50-11503-103	Capacitor		18.932089	3.00	50.796268
50-11500-103	Capacitor		18.932089	1.00	18.932089
50-11500-122	Capacitor		18.932089	3.00	50.796268
50-11501-100	Capacitor		18.932089	4.00	67.728357
50-11501-120	Capacitor		18.932089	3.00	50.796268
50-11500-028	Capacitor		18.932089	2.00	33.864178
50-04800-074	Semiconductor		18.932089	1.00	18.932089
50-04700-129	Semiconductor		82.818485	1.00	82.818485
50-14800-188	Semiconductor	D28	22.838458	11.00	252.201036
50-14800-144	Semiconductor		9.678190	18.00	183.885611
50-04800-078	Semiconductor		41.259233	4.00	165.036930
50-12100-045	Connection	conn	10.807887	2.00	21.215336
50-12100-040	Connection		4.414048	1.00	4.414048
50-12100-047	Connection		4.414048	1.00	4.414048
50-12100-051	Connection		4.414048	1.00	4.414048
50-12117-022	Other		4.414048	2.00	8.828092
50-04800-055	Semiconductor		289.200000	1.00	289.200000
50-04800-066	Semiconductor		16.831181	8.00	125.449452
50-04800-188	Semiconductor	Q8	55.012310	2.00	110.024620
50-04800-158	Semiconductor	Q16	82.846947	5.00	414.234734
50-14771-472	Resistor		82.846954	1.00	82.846954
50-14771-103	Resistor		7.491290	2.00	14.982581
50-14771-104	Resistor		23.482203	6.00	211.159831
50-14771-473	Resistor		29.327754	6.00	176.896526
50-14771-102	Resistor		23.462203	3.00	70.386610
50-14703-331	Resistor		23.462203	1.00	23.462203
50-14703-000	Resistor		7.491290	24.00	179.790971
50-14703-103	Resistor		7.491290	33.00	247.212886
50-14703-105	Resistor		4.013811	31.00	124.428130
50-14703-104	Resistor		7.491290	21.00	157.317089
50-14708-510	Resistor		4.013811	37.00	148.510983
50-14703-102	Resistor		7.491290	1.00	7.491290
50-14703-470	Resistor		7.491290	6.00	44.947743
50-14703-274	Resistor		7.491290	5.00	37.456452
			7.491290	1.00	7.491290

Standard Reliability Prediction Report

Part Number 24-42040-01
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description Main Board CPU
File Name LCM036RIM.RPJ
Time 1:24 PM
Failure Rate 13,177.22 (FITs)
MTBF (Hrs) 75,889
Belicons Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
50-14703-472	Resistor		7.491290	3.00	22.473871
50-14703-334	Resistor		7.491290	1.00	7.491290
50-14705-158	Resistor		44.847743	1.00	44.847743
50-14704-2211	Resistor		7.491290	1.00	7.491290
50-18100-090	switching Device		110.351145	2.00	220.702289
50-13137-273	Integrated Circuit		157.402808	2.00	314.805616
50-03130-359	Integrated Circuit		255.207459	2.00	510.414918
50-03130-388	Integrated Circuit		12.245838	3.00	36.737815
50-03130-458	Integrated Circuit		157.402808	1.00	157.402808
50-13130-833	Integrated Circuit		157.402808	4.00	629.611232
50-13130-880	Integrated Circuit		157.402808	2.00	314.805618
50-13130-834	Integrated Circuit		157.402808	3.00	472.208424
50-03130-254	Integrated Circuit		157.402808	3.00	472.208424
50-13130-270	Integrated Circuit		255.207459	1.00	255.207459
50-13130-881	Integrated Circuit		982.248534	1.00	982.248534
50-14800-068	Semiconductor		104.062834	1.00	104.062834
50-13130-229	Integrated Circuit		450.800519	1.00	450.800519
50-13130-030	Integrated Circuit		157.402808	1.00	157.402808
03-43778-01	Other		0.000000	1.00	0.000000
50-13130-840	Integrated Circuit		543.488039	1.00	543.488039
50-13130-887	Integrated Circuit		255.207459	1.00	255.207459
50-13130-837	Integrated Circuit		157.402808	1.00	157.402808
50-13130-840	Integrated Circuit		157.402808	1.00	157.402808
50-13138-244	Integrated Circuit		157.402808	1.00	157.402808
50-03130-220	Integrated Circuit		157.402808	1.00	157.402808
50-13130-839	Integrated Circuit		157.402808	4.00	629.611232
50-13130-370	Integrated Circuit		157.402808	1.00	157.402808
50-03130-419	Integrated Circuit		157.402808	1.00	157.402808
50-13130-846	Integrated Circuit		255.207459	1.00	255.207459
50-13130-836	Integrated Circuit		255.207459	1.00	255.207459
50-12300-013	Miscellaneous		450.000000	1.00	450.000000
50-12300-010	Miscellaneous		450.000000	1.00	450.000000
50-02100-570	Connection		70.824783	2.00	141.649566
50-06000-008	Other		35.700000	10	357.000000

Standard Reliability Prediction Report

Part Number 7AE4-00001
 Reference Des * Duty Cycle= 100%
 Date December 28, 2000
 Environment GM - Ground Mobile
 Temperature 30.00 Celsius
 Part Electrical Stress 50 %
 Duty Cycle 100% *except as indicated



Description SAIC PCB
 File Name LCME20RIM.RPJ
 Time 1:24 PM
 Failure Rate 1,447.60 (FITs)
 MTBF (Hrs) 689,845
 Bellcore Method Parts count
 Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
7A02-20002	Other	Button saw	1,447.200000	1.00	1,447.200000
7F41-09101	Other	PCB	2.400000	1.00	2.400000

Standard Reliability Prediction Report

Page 8
Prepared by G. Woo

Part Number
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description
File Name LCM830RM.RPJ
Time 1:24 PM
Failure Rate 3,294.36 (FITS)
MTBF (Hrs) 303,549
Ballcore Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
RESET I.C.	Integrated Circuit	U1	255.207459	1.00	255.207459
CAPACITANCE	Capacitor	C2	74.912905	1.00	74.912905
ELECTROLYTIC	Capacitor	C8	74.912905	1.00	74.912905
CAPACITANCE	Capacitor	C13	74.912905	1.00	74.912905
ELECTROLYTIC	Capacitor	L3	74.912905	1.00	74.912905
CAPACITANCE	Inductor	L1	7.491290	1.00	7.491290
ELECTROLYTIC	Inductor	L2	7.491290	1.00	7.491290
INDUCTANCE	Other	X1	0.000000	3.00	0.000000
INDUCTANCE	Other	PCB	3.000000	1.00	3.000000
SHOCK SENSOR	Other	JP1	4.400000	1.00	4.400000
PCB BOARDS	Other	ANT	8.800000	1.00	8.800000
SOCKET	Semiconductor	D1	82.518485	1.00	82.518485
IC SOCKET	Semiconductor	D2	82.518485	1.00	82.518485
SWITCH DIODE	Semiconductor	Q3	82.518485	1.00	82.518485
SWITCH DIODE	Semiconductor	Q2	82.518485	1.00	82.518485
TRANSISTOR	Semiconductor	Q1	82.518485	1.00	82.518485
TRANSISTOR	Integrated Circuit	U5	157.402808	1.00	157.402808
LOGIC I.C.	Integrated Circuit	U3	264.491208	1.00	264.491208
LOGIC I.C.	Integrated Circuit	U4	255.207459	1.00	255.207459
I.C.	Integrated Circuit	U2	255.207459	1.00	255.207459
I.C.	Resistor	R5,R4	7.491290	2.00	14.982581
CHIP RESISTOR	Resistor	R6	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R9	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R12	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R10,R13	7.491290	2.00	14.982581
CHIP RESISTOR	Resistor	R15,R16	7.491290	2.00	14.982581
CHIP RESISTOR	Resistor	R1,R8	7.491290	2.00	14.982581
CHIP RESISTOR	Resistor	R20	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R19	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R17	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R18	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R11	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R5	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R21	7.491290	1.00	7.491290
CHIP RESISTOR	Resistor	R2,R7	7.491290	2.00	14.982581
CAPACITOR	Capacitor	R14	44.947743	1.00	44.947743
ELECTROLYTIC	Capacitor	C15,C16	74.912905	2.00	149.825809
CAPACITOR	Capacitor	C10	74.912905	1.00	74.912905
ELECTROLYTIC	Capacitor				

Standard Reliability Prediction Report

Page # 8
Prepared by G. Woo

Part Number
Reference Des * Duty Cycle = 100%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description SAIC Component
File Name LCM3080M.RPJ
Time 1:24 PM
Failure Rate 3,284.36 (FITs)
MTBF (HRS) 303,549
Salience Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
CAPACITOR ELECTROLYTIC	Capacitor	C12	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C14	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C11	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C1,00	74.912905	2.00	149.825809
CAPACITOR ELECTROLYTIC	Capacitor	C8	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C18	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C17,C20	14.982551	2.00	29.965102
CAPACITOR ELECTROLYTIC	Capacitor	C19	74.912905	1.00	74.912905
CAPACITOR ELECTROLYTIC	Capacitor	C4,C5,C6,C7	74.912905	4.00	299.651616
CAPACITOR ELECTROLYTIC	Capacitor	C21	14.982551	1.00	14.982551

Standard Reliability Prediction Report

Part Number 7A02-30002
Reference Des * Duty Cycle= 0.1%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated



Description TX-22 PCB
File Name LCM800RIM.RPJ
Time 124 PM
Failure Rate 0.26 (FITS)
MTBF (Hrs) 3,831,417.567
Belicone Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
1N24-03002	Other	Battery	0.056250	2.00	0.112500
4E02-200A1	Other	Top cover	0.000000	1.00	0.000000
4F02-200A1	Other	Bottom cover	0.000000	1.00	0.000000
5H02-20001	Other	Rubber button	0.000000	1.00	0.000000
7F40-21101	Other	PCB Assembly	0.018000	1.00	0.018000

Standard Reliability Prediction Report

Part Number
Reference Des *Duty Cycle = 0.1%
Date December 28, 2000
Environment GM - Ground Mobile
Temperature 30.00 Celsius
Part Electrical Stress 50 %
Duty Cycle 100% *except as indicated

Description TX-22 Component
File Name LCM83SRM.RPJ
Time 1:24 PM
Failure Rate 4.20 (FITs)
MTBF (Hrs) 237,302,093
Ballroom Method Parts count
Quality Level 1

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
PCB Board	Other		0.000000	1.00	0.000000
BATTERY HOLDER	Other	BT1	0.000000	1.00	0.000000
Fixity for battery	Other		0.000000	1.00	0.000000
DIODE	Semiconductor	D1	0.082518	1.00	0.082518
TRANSISTOR	Semiconductor	Q1	0.082518	1.00	0.082518
SMD LOGIC I.C	Integrated Circuit	U1	0.264481	1.00	0.264481
CHIP RESISTOR	Resistor	L2	0.007491	1.00	0.007491
CHIP RESISTOR	Resistor	R1,R3	0.007491	1.00	0.007491
CHIP RESISTOR	Resistor	R2	0.007491	1.00	0.007491
CAPACITOR CERAMIC	Capacitor	C2	0.016932	1.00	0.016932
CAPACITOR CERAMIC	Capacitor	C3	0.016932	1.00	0.016932
CAPACITOR CERAMIC	Capacitor	C4	0.016932	1.00	0.016932
CAPACITOR CERAMIC	Capacitor	C1	0.016932	1.00	0.016932
CAPACITOR CERAMIC	Capacitor	C6	0.016932	1.00	0.016932
CHIP INDUCTANCE	Inductor	L3	0.007491	1.00	0.007491
SWITCH	Switching Device	SW1	0.110351	1.00	0.110351
PUSH-BUTTON					
SAW	Other	X1	1.447200	1.00	1.447200