

MAINTAINABILITY MEAN TIME TO REPAIR (MTTR)
AND
AVAILABILITY PREDICTION REPORT

FOR THE

SAM POWER SUPPLY SYSTEM

Prepared by

Sample Company
111 Foothill Blvd. Suite E-156
La Canada Flintridge, California 91011

July 2002

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	INTRODUCTION AND SUMMARY	4
1.1	Scope	4
1.2	Objectives	4
2.0	REFERENCED DOCUMENTS	5
2.1	Military Documents	5
2.2	Commercial/Bellcore Documents	5
2.3	Sample Company Documents	5
3.0	MAINTAINABILITY DESIGN AND EVALUATION	6
3.1	Design Techniques	6
3.2	Maintainability Analysis Requirements and Methodology	6
3.3	Maintenance Levels	6
4.0	MAINTAINABILITY PREDICTION	7
4.1	Maintenance Concept	7
4.2	Model Assumptions	7
4.3	Model Input Data Sources	8
4.4	MTTR Prediction Mathematical Models And Calculations	8
4.5	Maintainability Prediction Results	10
5.0	AVAILABILITY PREDICTION	11

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
<u>Figure</u>		
1	MTTR and Mmaxct Calculation for the Normal Distribution of Repair Times	9
<u>Appendix</u>		
A	Maintainability Analysis Worksheets for MTTR and Mmaxct Calculations (Normal Distribution)	12

1.0 INTRODUCTION AND SUMMARY

This document presents the Sample Company Maintainability Mean Time To Repair (MTTR) and Availability Prediction Report performed on the SAM Power Supply System. It was analyzed for Availability (A_i), Mean Time To Repair (MTTR) and Maximum Corrective Maintenance Time (M_{maxct}) in accordance with Procedure V, Method A, of MIL-HDBK-472, Notice 1, "Maintainability Prediction"; and MIL-STD-470B, "Maintainability Program for Systems and Equipment", paragraph 203.2 of Task 203, "Maintainability Predictions".

The results of the analyses indicate that the SAM Power Supply System predicted MTTR for the Normal repair times distribution is 24.00 minutes (0.40 Hours), the maximum corrective maintenance times (M_{maxct}) at the 95th percentile is 28.63 minutes (0.48 hours) and the Inherent Availability (A_i) was found to be 1.00000. This statement is fully supported by the maintainability mathematical models and calculations presented in Sections 4.0, "Maintainability Prediction" and 5.0, "Availability Prediction"; Figure 1, "MTTR and M_{maxct} Calculation for Normal Distribution of Repair Times" and Appendix A, "Maintainability Analysis Worksheets For MTTR and M_{maxct} Calculations (Normal Distribution)".

This example is not a complete report. The remaining text, mathematical models and detailed appendix data tables will be provided upon the purchase of this report. Continue to scroll down to view example appendix data tables.

APPENDIX A

Maintainability Analysis Worksheets For MTTR and Mmaxct Calculations (Normal Distribution)

Table 1, Maintainability Analysis Worksheet

SAM Power Supply System Assemblies												
Qty. (n)	Assembly Name Parts List / Schematic No.	Failure Rate λ ~PPM Hours	Average Corrective Maintenance Task Times--Minutes							Repair Time:Mct ~Mins.	Repair Time:Mct ~Hours	n x λ x Mct ~Hours
			Locali- zation	Isola- tion	Dissas- sembly	Inter- change	Reas- sembly	Align- ment	Check- out			
1	Converter 30684941	0.19370	4.00	4.00	3.00	3.00	3.00	4.00	4.00	25.00	0.42	0.08135
1	Inverter A 30684942	0.29830	4.00	4.00	2.50	2.00	2.50	4.00	4.00	23.00	0.38	0.11335
1	Inverter B 30684943	0.34300	4.00	4.00	2.00	2.00	2.00	4.00	4.00	22.00	0.37	0.12691
1	Encoder 30684944	0.13750	4.00	4.00	4.00	4.00	4.00	4.00	4.00	28.00	0.47	0.06463
1	Splitter 30684945	0.13550	4.00	4.00	3.00	3.00	3.00	4.00	4.00	25.00	0.42	0.05691
Page Totals:		1.10800								123.00	2.06	0.44315
Grand Totals:		1.10800								123.00	2.06	0.44315

λ ~PPM Hours = Failure Rate in Parts Per Million Hours.
Mct = Corrective Maintenance Task Time for the LRU.
LRU = Line Replacable Unit (Circuit Board, Module, etc.)