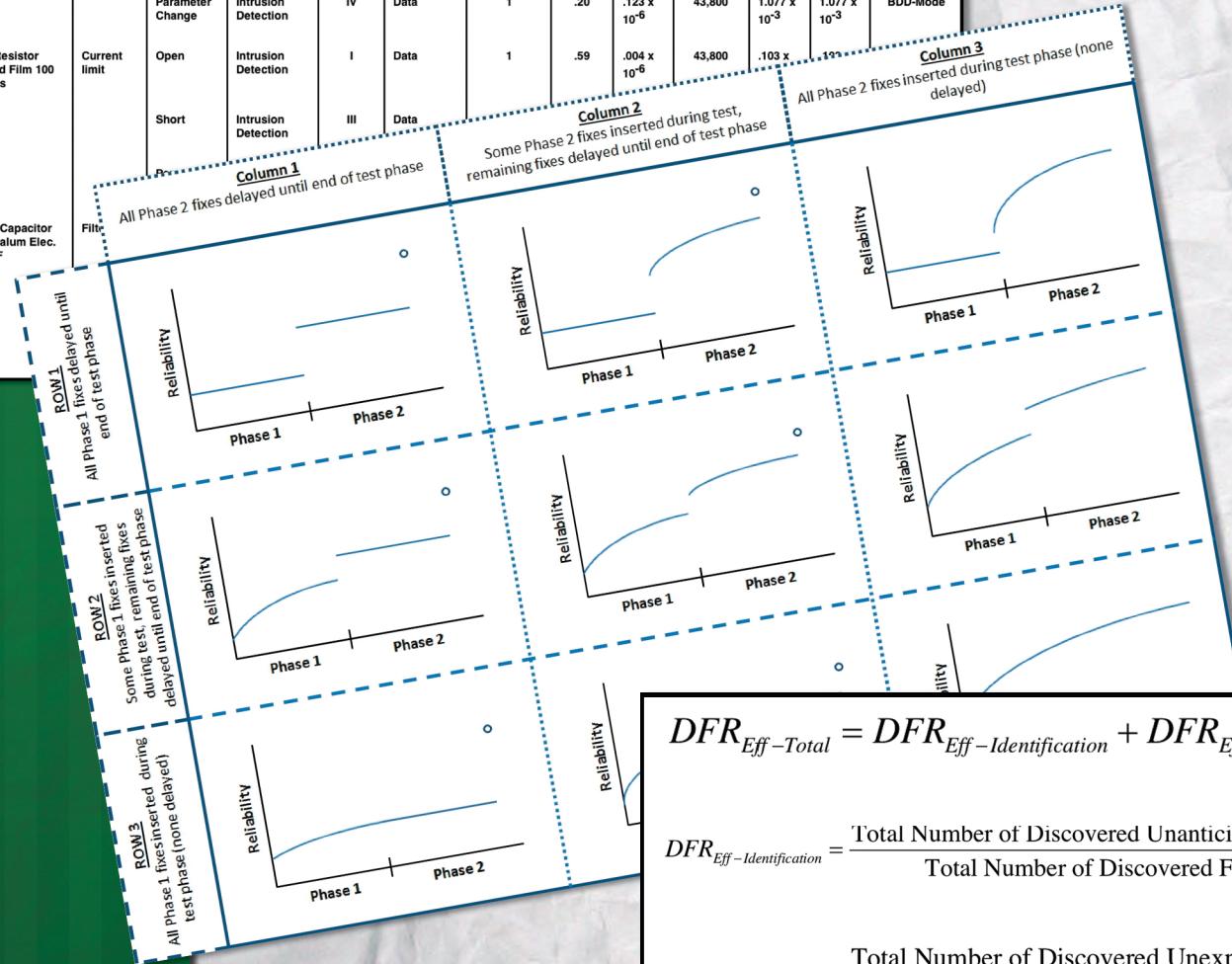


1. I.D. Number	2. Item/Functional Identification (Nomenclature)	3. Function	4. Failure Modes and Causes	5. Mission Phase/ Operational Mode	6. Severity Class	7. Failure Probability Failure Rate Data Source	8. Failure Effect Probability ( $\beta$ )	9. Failure Mode Ratio ( $\alpha$ )	10. Failure Rate ( $\lambda_p$ )	11. Operating Time (t)	12. Failure Mode CRIT # $C_m = \sum C_r$	13. Item CRIT # $C_r = \sum (C_m)$	14. Current Failure Mode Classification
001	CR3 Rectifier Diode	Half-Wave Rectifier	Short	Intrusion Detection	I	Data	1	.51	.123 x 10 <sup>-6</sup>	43,800	2.747 x 10 <sup>-3</sup>	4.309 x 10 <sup>-3</sup>	BC-Mode
002			Open	Intrusion Detection	I	Data	1	.29	.123 x 10 <sup>-6</sup>	43,800	1.562 x 10 <sup>-3</sup>		BC-Mode
003			Parameter Change	Intrusion Detection	IV	Data	1	.20	.123 x 10 <sup>-6</sup>	43,800	1.077 x 10 <sup>-3</sup>	1.077 x 10 <sup>-3</sup>	BDD-Mode
004	R1 Resistor Fixed Film 100 ohms	Current limit	Open	Intrusion Detection	I	Data	1	.59	.004 x 10 <sup>-6</sup>	43,800	.103 x		
006			Short	Intrusion Detection	III	Data							
005													Column 2
007	C11 Capacitor Tantalum Elec. 47 $\mu$ F	Filter											All Phase 2 fixes inserted during test phase (none delayed)
008													
009													



$$DFR_{Eff-Total} = DFR_{Eff-Identification} + DFR_{Eff-Mitigation}$$

$$DFR_{Eff-Identification} = \frac{\text{Total Number of Discovered Unanticipated FMs}}{\text{Total Number of Discovered FMs}}$$

$$DFR_{Eff-Mitigation} = \frac{\text{Total Number of Discovered Unexpected FMs}}{\text{Total Number of Discovered FMs}}$$

# Achieving System Reliability Growth Through Robust Design and Test



**Ordering No.: RELGROW**

# **Achieving System Reliability Growth Through Robust Design and Test**

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This publication was developed by Quanterion Solutions Incorporated as part of the Core operation of the Reliability Information Analysis Center (RIAC).

The RIAC was the DoD Information Analysis Center (IAC) Center of Excellence for the reliability, maintainability, quality, supportability and interoperability (RMQSI) technical disciplines from 2005-2014. To broaden the former Center's User Community, Quanterion offers this publication to facilitate the design & development of more robust products and systems.



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ISBN-10: 1-933904-36-4      ([PDF Download](#))

ISBN-13: 978-1-933904-36-8      ([PDF Download](#))

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