

# RICO-3288

## Reliability Prediction Report

### (MTBF)

Summary	Failure Rate: 2723.001144 MTBF: 367,242 Hours
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Issue date	QE Manager	Test Engineer
2017/8/18	KJ Wang	Anderson Lin

# Reliability Prediction (MTBF)

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**I . Model Name:** RICO-3288

**II . Prediction Date:** Aug. 18, 2017

**III . Prediction Site:** AAEON Q.E. Dept.

**IV . Predicted by:** Anderson Lin

**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 in 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 in specify that the failure rate is to be calculated based the selected Calculation models. The multiplier is 1,000,000,000.
- MTBF : MTBF is always specified in hours.

**VIII. Prediction Result:**

RICO-3288 (9697328807-D):

- Failure Rate: 2723.001144
- MTBF: 367,242 Hours

**AAEON Reliability Prediction  
Summary**

**File Name:** RICO-3288.rfp  
**Duty Cycle:** 100  
**Calculation Model:** Telcordia Issue 2  
**Method:** Method I Case 3

**Failure Rate:** 2723.001144  
**MTBF (hrs):** 367,242  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
RICO-3288	System		1	2723.001144	367,242

**File Name:** RICO-3288.rfp  
**Assembly:** System  
**Ref Des:**  
**Description:**

**Failure Rate:** 2723.001144  
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**Temperature:** 30  
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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501054.0000 00000000000	Resistor	R1,R123		2.547039	2	154078778.388085
1050501234.0000 00000000000	Resistor	R120		2.547039	1	282340674.079668
1050502204.0000 00000000000	Resistor	R113,R115,R 117, R162,R163,R 186, R187,R193,R 204, R206,R207,R 21,R236, R602,R603		2.547039	15	23852782.943395
1050502224.0000 00000000000	Resistor	R601		2.547039	1	282340674.079668
1050502234.0000 00000000000	Resistor	R92		2.547039	1	282340674.079668
1050504334.0000 00000000000	Resistor	R72		2.547039	1	282340674.079668
1050504724.0000 00000000000	Resistor	R127,R132,R 158, R202,R210,R 211, R212,R214,R 215, R216,R217,R 218, R222,R223,R 224, R225,R226,R 229, R420,R421,R 591, R592,R595,R 596, R621,R622,R 629, R630		2.547039	28	13089488.559853
1050504734.0000 00000000000	Resistor	R436		2.547039	1	282340674.079668
1050510034.0000 00000000000	Resistor	R119,R136,R 137, R138,R139,R 166, R167,R176,R 177, R278,R291,R 292,R40, R401,R410,R 413, R439,R564,R 640		2.547039	19	19019185.781770

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1050510534.0000 00000000000	Resistor	R377		2.547039	1	282340674.079668
1050514034.0000 00000000000	Resistor	R374		2.547039	1	282340674.079668
1050515834.0000 00000000000	Resistor	R368		2.547039	1	282340674.079668
1050518034.0000 00000000000	Resistor	R435		2.547039	1	282340674.079668
1050520004.0000 00000000000	Resistor	R22,R23,R24		2.547039	3	107020754.986850
1050520034.0000 00000000000	Resistor	R290,R620		2.547039	2	154078778.388085
1050522034.0000 00000000000	Resistor	R441		2.547039	1	282340674.079668
1050524004.0000 00000000000	Resistor	R36,R37,R5, R551, R552,R6		2.547039	6	56573956.677649
1050530124.0000 00000000000	Resistor	R370		2.547039	1	282340674.079668
1050533004.0000 00000000000	Resistor	R239,R240		2.547039	2	154078778.388085
1050533034.0000 00000000000	Resistor	R375		2.547039	1	282340674.079668
1050540214.0000 00000000000	Resistor	R28,R32,R35		2.547039	3	107020754.986850
1050551004.0000 00000000000	Resistor	R4,R445		2.547039	2	154078778.388085
1050551034.0000 00000000000	Resistor	R373		2.547039	1	282340674.079668
1050708234.0000 00000000000	Resistor	R443		2.547039	1	282340674.079668
1051701052.0000 00000000000	Resistor	R238		2.547039	1	282340674.079668

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1121501690.0000 00000000000	Resistor	C103,C104,C 105, C114,C118,C 119, C120,C122,C 123, C124,C133,C 141, C145,C147,C 151, C162,C163,C 168,C17, C174,C175,C 176,C18, C182,C183,C 186, C189,C190,C 192,C2, C207,C217,C 220, C221,C222,C 231, C233,C235,C 244, C246,C25,C2 52,C254, C256,C257,C 258,C26, C263,C264,C 2		2.547039	144	2643445.579884
1124405090.0000 00000000000	Resistor	C355,C356		2.547039	2	154078778.388085
1124410190.0000 00000000000	Resistor	C206,C208,C 211, C212,C223,C 226, C238,C239,C 245, C444		2.547039	10	35079934.879747
1124418090.0000 00000000000	Resistor	C210,C214		2.547039	2	154078778.388085
1124427090.0000 00000000000	Resistor	C443,C446,C 452, C453		2.547039	4	82309758.689546
1124433090.0000 00000000000	Resistor	C332		2.547039	1	282340674.079668
1124522290.0000 00000000000	Resistor	C422,C426,C 431		2.547039	3	107020754.986850
1129522790.0000 00000000000	Resistor	C537		2.547039	1	282340674.079668
1129610080.0000 00000000000	Resistor	C1,C113,C15 ,C22, C23,C35,C40 ,C457, C463		2.547039	9	38754445.632391

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1129622690.0000 00000000000	Resistor	C442		2.547039	1	282340674.079668
1129710390.0000 00000000000	Resistor	C106,C19,C2 7,C333, C37,C39,C4, C42,C44, C469,C47,C4 70,C471, C472,C50,C5 7,C80, C87,C94		2.547039	19	19019185.781770
1129722091.0000 00000000000	Resistor	C159,C160,C 438		2.547039	3	107020754.986850
1129747090.0000 00000000000	Resistor	C150		2.547039	1	282340674.079668
1211110078.0000 00000000000	Resistor	L3,L4		2.547039	2	154078778.388085
1211122079.0000 00000000000	Resistor	L19,L20		2.547039	2	154078778.388085
1214109000.0000 00000000000	Resistor	L10,L13,L14, L16		2.547039	4	82309758.689546
1214109007.0000 00000000000	Resistor	L25,L26,L27, L28		2.547039	4	82309758.689546
1231324054.0000 00000000000	Resistor	Y1,Y4		2.547039	2	154078778.388085
1231332726.0000 00000000000	Resistor	Y2		2.547039	1	282340674.079668
1301003100.0000 00000000000	Resistor	D46		2.547039	1	282340674.079668
1301010400.0000 00000000000	Resistor	D70		2.547039	1	282340674.079668
1301013040.0000 00000000000	Resistor	D11		2.547039	1	282340674.079668
1301793040.0000 00000000000	Resistor	D20,D3		2.547039	2	154078778.388085
1304101340.0000 00000000000	Resistor	LED1		2.547039	1	282340674.079668
1315070020.0000 00000000000	Resistor	Q13,Q3,Q48, Q59,Q6, Q61,Q63,Q6 4		2.547039	8	43225424.698300
1315230511.0000 00000000000	Resistor	Q1,Q12,Q5,Q 62		2.547039	4	82309758.689546
1430035210.0000 00000000000	Resistor	U103		2.547039	1	282340674.079668
1430621300.0000 00000000000	Resistor	U82,U83		2.547039	2	154078778.388085
1430686102.0000 00000000000	Resistor	U72,U73		2.547039	2	154078778.388085



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1440082110.0000 00000000000	Resistor	U20		2.547039	1	282340674.079668
1469000008.0000 00000000000	Resistor	U5		2.547039	1	282340674.079668
1652814205.0000 00000000000	Resistor	CN8		2.547039	1	282340674.079668
1653003101.0000 00000000000	Resistor	JP1,JP2		2.547039	2	154078778.388085
1654030006.0000 00000000000	Resistor	CN4		2.547039	1	282340674.079668
1654401932.0000 00000000000	Resistor	CN38		2.547039	1	282340674.079668
1654409103.0000 00000000000	Resistor	CN12		2.547039	1	282340674.079668
1654800533.0000 00000000000	Resistor	CN21		2.547039	1	282340674.079668
1654808201.0000 00000000000	Resistor	CN9		2.547039	1	282340674.079668
1655302020.0000 00000000000	Resistor	CN25		2.547039	1	282340674.079668
1655305025.0000 00000000000	Resistor	CN34		2.547039	1	282340674.079668
1655909035.0000 00000000000	Resistor	CN11		2.547039	1	282340674.079668
1752026001.0000 00000000000	Resistor	FS1		2.547039	1	282340674.079668
1756900005.0000 00000000000	Resistor	U81,U86,U88 ,U89, U90,U91		2.547039	6	56573956.677649
1907328804.0000 00000000000	Resistor	PCB		2.547039	1	282340674.079668
	Resistor	R11,R12,R13 ,R14, R213,R221,R 289, R294,R563,R 615, R633		2.547039	11	32049696.385471
	Resistor	R33		2.547039	1	282340674.079668
	Resistor	R642		2.547039	1	282340674.079668

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
	Resistor	R100,R101,R106, R111,R114,R116, R121,R15,R16,R17, R178,R18,R293,R379, R404,R434,R437,R44, R45,R452,R456,R458, R46,R47,R48,R49, R50,R51,R52,R560, R58,R598,R599,R600, R604,R605,R606,R61, R616,R617,R62,R63, R634,R635,R636, R637,R643,R73,R80, R81		2.547039	50	7454870.155519
	Resistor	R418,R419,R424, R438,R440		2.547039	5	67008142.102588
	Resistor	R252,R295,R64		2.547039	3	107020754.986850
	Resistor	R381,R627		2.547039	2	154078778.388085
	Resistor	R150,R151,R152, R153,R154,R155,R2, R280,R281,R282, R283,R284,R285, R286,R54,R565,R566, R567,R568,R632,R89, R90,R91,R93,R94, R95		2.547039	26	14061076.827148
	Resistor	R156,R41,R43,R67, R68,R69		2.547039	6	56573956.677649
	Resistor	R553,R556,R557, R558,R559		2.547039	5	67008142.102588

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	Resistor	R31		2.547039	1	282340674.079668
	Resistor	R205		2.547039	1	282340674.079668
	Resistor	R624		2.547039	1	282340674.079668
	Resistor	R623		2.547039	1	282340674.079668
	Resistor	R628		2.547039	1	282340674.079668
	Resistor	R380		2.547039	1	282340674.079668
	Resistor	R102,R148,R165, R169,R170,R171, R180,R181,R20, R208,R209,R288,R34, R391,R411,R423,R547, R548,R554,R59,R613, R65,R74,R79,R88		2.547039	25	14603612.751152
	Resistor	R149,R619,R85		2.547039	3	107020754.986850
	Resistor	R442		2.547039	1	282340674.079668
	Resistor	R402		2.547039	1	282340674.079668
	Capacitor	C306		1.128806	1	704977644.692287
	Capacitor	C451,C495		1.128806	2	375289731.076049
	Capacitor	C508,C509,C510, C511		1.128806	4	196873384.410843
	Capacitor	C312		1.128806	1	704977644.692287
	Capacitor	C219,C347,C348, C475		1.128806	4	196873384.410843
	Capacitor	C492		1.128806	1	704977644.692287
	Capacitor	C439,C535		1.128806	2	375289731.076049
	Capacitor	C240,C241,C243, C275,C296,C297, C310,C334,C418, C424,C427,C440, C527		1.128806	13	63728475.410842
	Capacitor	C295,C336,C417, C423		1.128806	4	196873384.410843
	Capacitor	C335		1.128806	1	704977644.692287
	Capacitor	C30,C31		1.128806	2	375289731.076049
	Capacitor	C102,C16,C213, C215,C24,C473,C90		1.128806	7	115633865.771428

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	Capacitor	C146,C148,C149, C152,C153,C349, C350,C476		1.128806	8	101746760.035398
	Capacitor	C419,C425		1.128806	2	375289731.076049
	Capacitor	C10,C101,C11,C12, C13,C134,C135,C136, C14,C140,C154,C157, C158,C161,C20,C21, C287,C288,C8,C89, C9		1.128806	21	40003791.624280
	Capacitor	C125,C126,C128, C129,C130,C131, C132,C137,C164, C166,C193,C195, C196,C286,C474, C490,C63,C74		1.128806	18	46478509.590073
	Capacitor	C142,C143,C144, C155,C156		1.128806	5	159367490.199266
	Capacitor	C445,C447,C448, C449		1.128806	4	196873384.410843
	Capacitor	C167,C200,C294, C298,C357		1.128806	5	159367490.199266
	Inductor	L6		4.944252	1	154760964.143460
	Inductor	L1,L2,L5		4.944252	3	57363284.375370
	Inductor	FB14		4.944252	1	154760964.143460
	Inductor	FB4		4.944252	1	154760964.143460
	Miscellaneous	Y6		19.200000	1	23844262.770939
	Semiconductor	D10		7.793411	1	92807310.010983
	Semiconductor	D25,D26,D27,D28, D29		7.793411	5	21965031.404253
	Semiconductor	Q2		22.463360	1	31642600.748419
	Integrated Circuit	U15		43.803003	1	11739202.588727
	Integrated Circuit	D24,U74,U75,U76		43.803003	4	3879156.910661
	Integrated Circuit	U11		43.803003	1	11739202.588727
	Integrated Circuit	U87		43.803003	1	11739202.588727

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	Integrated Circuit	U1		43.803003	1	11739202.588727
	Integrated Circuit	U17		43.803003	1	11739202.588727
	Integrated Circuit	U100,U101,U102,U99		43.803003	4	3879156.910661
	Integrated Circuit	U68,U70,U71		43.803003	3	4923240.069161
	Integrated Circuit	U85		43.803003	1	11739202.588727
	Integrated Circuit	U16		43.803003	1	11739202.588727
	Integrated Circuit	U44,U45		43.803003	2	6834791.244197
	Integrated Circuit	U66		43.803003	1	11739202.588727
	Connection	JP7,JP8		16.184835	2	20390152.380746
	Connection	P1(JP12-3), P2(JP21-2), P4(JP71-2)		16.184835	3	14515880.849373