PRELIMINARY RELIABILITY PREDICTION REPORT for the ClearFog Base Rev-1.1

Doc.:RC 100-519-469, Rev. V00

Prepared by RAM CRAFT Ltd.

for Solid Run

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1. GENERAL

1.1. Scope

This document presents the reliability prediction of the module CLEARFOG BASE REV-1.1(hereafter CLEARFOG BASE Module).

The reliability prediction was performed according to TELCORDIA SR-332, Issue 3, Reliability Prediction Procedure for Electronic Equipment [Ref. 1], using dedicated software – RAM Commander™, Version 8.5.

1.2. Abbreviations and Acronyms

EM	-	Engineering Model
FIT	-	Failures/10^9 hours
FR	-	Failure Rate
NHA	-	Next Higher Assy
G_L	-	Ground, Fixed, Uncontrolled (limited)
HT	-	High Temperature
MTBF	-	Mean Time Between Failures
λ	-	Failure rate in FIT

2. APPLICABLE DOCUMENTS

[Ref. 1]	TELCORDIA SR332, Issue 3	Reliability Prediction Procedure for Electronic Equipment
[Ref. 2]	RiAC-CPE	Reliability Toolkit: Commercial Practices Edition

3. RELIABILITY PREDICTION TECHNIQUE

3.1. Reliability Prediction Method and Data Sources

The reliability prediction was performed in accordance with:

- Telcordia SR-332 [Ref. 1] Reliability Prediction Procedure for Electronic Equipment. This method of prediction was chosen due to the following advantages:
- Manufacturer data

3.2. Environment & Temperature

The reliability prediction of the CLEARFOG BASE Module was performed according to the Telcordia SR-332 [Ref. 1] for following environment and temperatures:

- Environmental condition: GL (Ground, Fixed, Uncontrolled (limited))
- Ambient temperature: 30°C
- Temperature rise of 20°C was assumed for all components at ClearFog Base Rev-1.1 except U1 that is 25°C and 10°C all components at Clear Fog Base.

3.3. General Assumptions

The following are the general assumptions for the reliability prediction:

- Components failure rate is constant during equipment life period.
- The failures of different components are considered statistically independent.
- The assembly reliability model is a series one - failure of any component causes an assembly failure.
- Software failures are not applicable to the CLEARFOG BASE Module

3.4. Calculations Methods

3.4.1. MTBF Calculation

The formula for module/card MTBF calculation is:

$$\text{MTBF} = \frac{1}{\sum_{i=1}^{n} \lambda(i)}$$

where:

$\lambda(i)$ = Failure rate of i^{th} item

n = Number of items

3.5. Component's Quality Levels

The assumed quality level for electronic components is Quality Level I according to the definitions of SR-332 [Ref. 1].

3.6. Component electrical stresses

The following electrical stress were applied for reliability prediction:

- For transistors power and voltage stress was defined as 50% of rated value in accordance with related component specification.
- For resistor Film Chip the PSR=50%
- For resistor Power Chip the PSR=50%
- For Ceramic Chip capacitor the VSR=50%
- For Aluminium capacitor the VSR=50%

4. SUMMARY OF RESULTS AND RECOMMENDATIONS

4.1. Module Level Reliability Prediction Results

The following are the results of the reliability prediction for the CLEARFOG BASE Module at 30°C Ambient temperature and G_L Environmental condition.

λ = 5,786.32 FIT

MTBF = 172,822 hours

4.2. Cards Level Reliability Prediction Results

Table 1 summarizes the reliability prediction results for CLEARFOG BASE Module main modules and electronic cards.

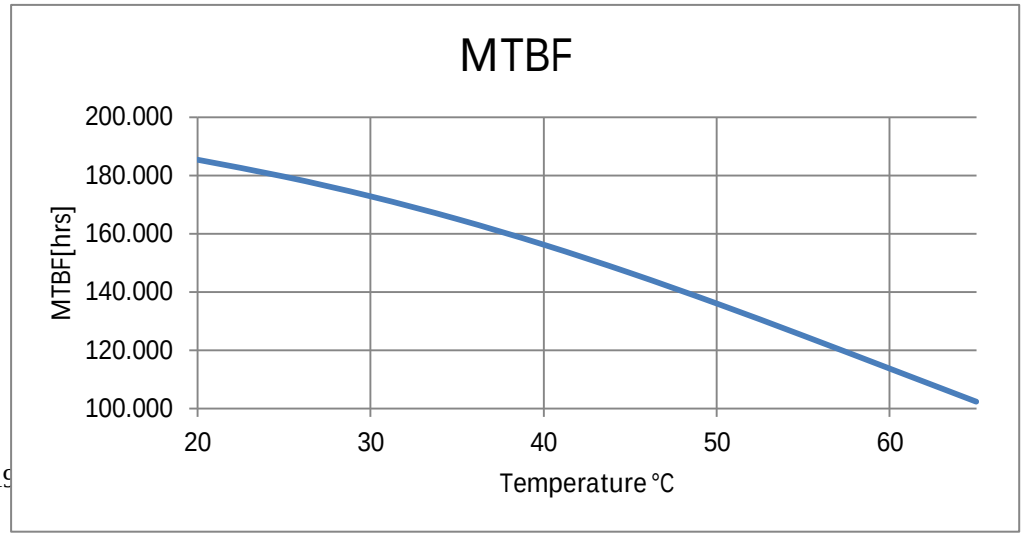
Table 1: - CLEARFOG BASE Module Main Modules Reliability

ID	PN	Qty	F.R. FIT	MTBF[hrs]
1.1	Armada 38x USOM	1	2,913.13	343,273
1.2	ClearFOG Base R101	1	2,873.19	348,045

T(°C)	MTBF
20	185,388
25	179,600
30	172,822
35	165,020
40	156,218
45	146,498
50	136,015
55	124,979
60	113,648
65	102,299

Figure 1 represents CLEARFOG BASE Module MTBF vs. Ambient Temperature behavior.

T(°C)	MTBF
20	185,388
25	179,600
30	172,822
35	165,020
40	156,218
45	146,498



50	136,015
55	124,979
60	113,648
65	102,299

Figure 1: - CLEARFOG BASE Module MTBF vs. Ambient Temperature

5. APPENDICES CONTENTS

5.1. Appendix A – Product Tree

This Appendix provides presentation of the subsystem hierarchical structure, starting from the system level down to Card/Module level.

5.2. Appendix B - Assembly Composite Report

This Appendix describes in detail the results of the reliability prediction at operating state. It provides also the contribution of each component failure rate to the next higher level.

5.3. Appendix C – Pareto Analysis

This appendix provides the list of components sorted by their contribution to total failure rate.

APPENDIX A - PRODUCT TREE

Project name: CLEARFOG BASE

ClearFog Base Rev-1.1
- 1 Armada_38X_USOM
- 2 ClearFOG Base R101

APPENDIX B - ASSEMBLY COMPOSITE REPORT

Project name: CLEARFOG BASE
Operating conditions: Environment: GL, Temperature: 30.00 °C
Current mode: Operating
FR Units: FIT
Default prediction Method: Telcordia Issue 3

Assembly Ref.Des.: ClearFog Base, ID: 1, Description: .
Environment: GL, Temperature: 30.00 °C,F.R.(FIT): 5786.32 , MTBF(hours): 172821.51

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.1	Armada 38x USOM	Armada 38x USOM	1	2913.13	2913.13	2913.13	50.35
1.2	ClearFOG Base R101	ClearFOG Base R101	1	2873.19	2873.19	2873.19	49.65

Assembly Ref.Des.: Armada 38x USOM, ID: 1.1, Description: .
Environment: GL, Temperature: 50.00 °C,F.R.(FIT): 2913.13 , MTBF(hours): 343273.38

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.1.1	CL05B473MQQNNNE	C7006	1	0.4766	0.4766	0.4766	0.02
1.1.2	SDB0420MT2R2	L7001,L7002	2	12.83	12.83	25.66	0.88
1.1.3	GRM155R60J224KE01D	C8014	1	0.4766	0.4766	0.4766	0.02
1.1.4	RC0402FR-071K6L	R9049	1	0.4276	0.4276	0.4276	0.01
1.1.5	RC0402JR-070RL	DPR7000,R7012,DPR9018,DPR9020,R4002,R9019,R8011,R7	8	0.4276	0.4276	3.42	0.12
1.1.6	RC0402JR-07510RL	R8007,R8008	2	0.4276	0.4276	0.8552	0.03
1.1.7	RC0402FR-0797K6L	R7011	1	0.4276	0.4276	0.4276	0.01
1.1.8	RC0402FR-0749R9L	R5005,R5006,R5007,R5008	4	0.4276	0.4276	1.71	0.06
1.1.9	BLM18KG601SN1D	FB4001	1	0.5345	0.5345	0.5345	0.02
1.1.10	RC0402JR-07100KL	R9017,R9048	2	0.4276	0.4276	0.8552	0.03
1.1.11	RC0402FR-07240RL	R6004,R6005,R6039	3	0.4276	0.4276	1.28	0.04
1.1.12	RC0402FR-0731K6L	R7003	1	0.4276	0.4276	0.4276	0.01
1.1.13	RC0402FR-0710RL	R7000,R7008	2	0.4276	0.4276	0.8552	0.03
1.1.14	RC0402FR-0711KL	R7014	1	0.4276	0.4276	0.4276	0.01
1.1.15	GRM155R60J225ME87D	C4023	1	0.4766	0.4766	0.4766	0.02
1.1.16	RC0402FR-0710KL	R7007,R9032,R9033,R8000,R9025,R9031	6	0.4276	0.4276	2.57	0.09
1.1.17	W25Q32BVZPIG	U9001	1	10.14	10.14	10.14	0.35
1.1.18	K4B4G1646D-BYK0T00	U6000,U6001,U6002	3	11.55	11.55	34.66	1.19
1.1.19	CL05B104KP5NNNC	C4008,C4026,C4029,C4032,C4033,C4034,C4035,C4036,C4	39	0.4766	0.4766	18.59	0.64
1.1.20	S3225A025000-F10CCCA	Y5001,Y8000	2	14.40	14.40	28.80	0.99
1.1.21	SDB0630MT1R0	L7000	1	12.83	12.83	12.83	0.44
1.1.22	GRM31CR60J476ME19L	C4022	1	0.4766	0.4766	0.4766	0.02
1.1.2	BLM15AX601SN1D	FB4000,FB4004	4	0.5345	0.5345	2.14	0.07

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
3							
1.1.24	DH40C-80DP-0.4V(51)	J11001	1	17.09	17.09	17.09	0.59
1.1.25	CAY10-101J2LF	RN2001	1	8.47	8.47	8.47	0.29
1.1.26	RC0402FR-0753K6L	R7013	1	0.4276	0.4276	0.4276	0.01
1.1.27	RC0402JR-0722RL	R8002,R9038,R9039,R9040,R9041,R9042,R9036	7	0.4276	0.4276	2.99	0.10
1.1.28	CL05A105KP5NNNC	C4000,C4001,C4003,C4006,C4007,C4013,C4042,C4044,C4	18	0.4766	0.4766	8.58	0.29
1.1.29	RC0402FR-07301RL	DPR7001	1	0.4276	0.4276	0.4276	0.01
1.1.30	RT3215-32.768-9-TR	Y5000	1	14.40	14.40	14.40	0.49
1.1.31	RC0402FR-074K99L	R8004	1	0.4276	0.4276	0.4276	0.01
1.1.32	RC0402FR-07931RL	R2000,R2001,R2002,R2003,R2004,R2005	6	0.4276	0.4276	2.57	0.09
1.1.33	CL05B102KP5NNNC	C10063	1	0.4766	0.4766	0.4766	0.02
1.1.34	LLL185R70J224MA16F	C4054,C4055,C4057,C4058,C4059,C4060,C4061,C10022,C	27	0.4766	0.4766	12.87	0.44
1.1.35	CL10A226MQ8NRNE	C7003,C7004,C7008,C7009,C7011,C7012,C7013,C7018	8	0.4766	0.4766	3.81	0.13
1.1.36	0603B475K160NU	C7005,C10061,C8022,C8030	4	0.4766	0.4766	1.91	0.07
1.1.37	CL10A106KQ8NNNC	C4024,C10008,C10056,C10057,C10058,C10059,C10060	7	0.4766	0.4766	3.34	0.11
1.1.38	RC0402FR-076K04L	R5003	1	0.4276	0.4276	0.4276	0.01
1.1.39	RC0402JR-074K7L	R7006,R8012	2	0.4276	0.4276	0.8552	0.03
1.1.40	NCP51200	U10007	1	45.35	45.35	45.35	1.56
1.1.41	88PG877-A3-NFB1C000	U7000	1	53.48	53.48	53.48	1.84
1.1.42	88PG8227	U7001	1	53.48	53.48	53.48	1.84
1.1.43	88F6820-Z1-BRT2C000	U1	1	237.40	237.40	237.40	8.15
1.1.44	88E1512-A0-NNP2C000	U8000	1	2250.00	2250.00	2250.00	77.24
1.1.45	YC124-FR-0749R9L	RN6000,RN6001,RN6002,RN6003,RN6004,RN6005,RN6006	7	2.42	2.42	16.94	0.58
1.1.46	DH40C-100DP-0.4V(51)	J11002	1	21.36	21.36	21.36	0.73
1.1.47	741C083472JP	RN3001	1	2.42	2.42	2.42	0.08
1.1.48	CAY10-000J2LF	RN3002,RN3004,RN6008,RN3006,RN3008,RN6007	6	0.5379	0.5379	3.23	0.11
1.1.49	GRM1555C1H220JA01D	C5002,C5003,C8001,C8002	4	0.4766	0.4766	1.91	0.07

Assembly Ref.Des.: ClearFOG Base R101, ID: 1.2, Description: .
Environment: GL, Temperature: 40.00 °C,F.R.(FIT): 2873.19 , MTBF(hours): 348045.56

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.2.1	10103594-0001LF	CON5	1	0.675	0.675	0.675	0.02
1.2.2	IT-1102H	SW3	1	34.65	34.65	34.65	1.21
1.2.3	CB3708AV100	U14	1	1.08	1.08	1.08	0.04
1.2.4	RC0402FR-07330RL	R49	1	0.36	0.36	0.36	0.01
1.2.5	RC0402FR-07100RL	R67	1	0.36	0.36	0.36	0.01
1.2.6	RC0402JR-072K2L	R30	1	0.36	0.36	0.36	0.01
1.2.7	GRM155R60J224KE01D	C87	1	0.45	0.45	0.45	0.02
1.2.8	GRM155R71H561KA01D	C29,C34	2	0.45	0.45	0.9	0.03
1.2.9	CGJ2B2X7R1C332K050BA	C37,C38	2	0.45	0.45	0.9	0.03
1.2.10	0402X104K250SNT	C42,C43,C55,C56,C66,C67,C68,C69,C240,C241,C90,C91,	14	0.45	0.45	6.30	0.22
1.2.11	U77-A1618-2001	CON6	1	1.08	1.08	1.08	0.04
1.2.12	PCA9655EMTTXG	U19	1	12.46	12.46	12.46	0.43
1.2.13	AS0BC21-S30BM-7H	U10	1	10.13	10.13	10.13	0.35
1.2.14	DMR-05(A) (P)	SW1	1	24.66	24.66	24.66	0.86
1.2.15	DI00210	LED3	1	1.13	1.13	1.13	0.04
1.2.16	SCR1620VE01S	BT2	1	112.50	112.50	112.50	3.92
1.2.17	TS9011ACX	U5	1	13.47	13.47	13.47	0.47
1.2.18	RC0805JR-070RL	R9,R11	2	0.36	0.36	0.72	0.03
1.2.19	ZM90-15000-0BR1	U3	1	1.35	1.35	1.35	0.05
1.2.20	SDB0650M4R7	L3	1	10.80	10.80	10.80	0.38
1.2.21	BAT54C-G3-08	D1	1	1.49	2.97	2.97	0.10
1.2.22	B563S2-8806-M002	CON7	1	4.68	4.68	4.68	0.16
1.2.23	RC0402FR-0775RL	R50,R51,R52,R53,R54,R55,R56,R57	8	0.36	0.36	2.88	0.10
1.2.24	RN00002	RN3	1	0.72	0.72	0.72	0.03
1.2.25	1210N102J202NT	C116,C125	2	0.45	0.45	0.9	0.03
1.2.26	DTSM-3	U17,U18	2	24.66	24.66	49.32	1.72
1.2.27	SDB0650M6R8	L4	1	10.80	10.80	10.80	0.38
1.2.28	USAR-2F09-AB63T1H	CON2	1	0.675	0.675	0.675	0.02
1.2.29	IC01002	T2	1	20.70	20.70	20.70	0.72
1.2.30	NCP380HSN10AAT1G	U4	1	13.47	13.47	13.47	0.47
1.2.31	IC00023	U23	1	15.48	15.48	15.48	0.54
1.2.32	CB05YTYH900	FB1,FB2,FB3,FB4	4	0.45	0.45	1.80	0.06
1.2.33	RC0402FR-07100KL	R15,R18,R143,R149	4	0.36	0.36	1.44	0.05
1.2.34	BLM18PG121SN1D	FB5,FB6	2	0.495	0.495	0.99	0.03
1.2.35	CA30013	C74,C75	2	0.45	0.45	0.9	0.03
1.2.36	AAA-PCI-098-P01	CON3	1	7.02	7.02	7.02	0.24
1.2.37	RC0402FR-0715KL	R19,R21	2	0.36	0.36	0.72	0.03
1.2.38	RC0402JR-070RL	R40,R41,R42,R142	4	0.36	0.36	1.44	0.05
1.2.39	DF40C-80DS-0.4V(51)	J1,J2	2	10.80	10.80	21.60	0.75
1.2.40	CO00568	J14	1	1.08	1.08	1.08	0.04
1.2.41	SIM7100-6-1-15-00-A	CON4,CON67	2	0.81	0.81	1.62	0.06
1.2.42	CL05A105KP5NNNC	C40,C44,C53,C71,C85,C86,C88,C89,C101,C103,C123,C13	12	0.45	0.45	5.40	0.19
1.2.43	CH31012V200-NH	J16,J17	2	0.135	0.135	0.27	0.01
1.2.44	CL32B226KBJNNWE	C20,C21,C27,C28,C32,C33	6	0.45	0.45	2.70	0.09
1.2.45	RC0402FR-0750KL	R14,R17	2	0.36	0.36	0.72	0.03
1.2.46	CL05B104KP5NNNC	C7,C9,C17,C24,C25,C26,C131,C133,C39,C51,C60,C61,C6	30	0.45	0.45	13.50	0.47
1.2.47	RC0402FR-07115KL	R12	1	0.36	0.36	0.36	0.01
1.2.48	RC0402FR-0722RL	R1,R2,R3	3	0.36	0.36	1.08	0.04
1.2.49	74LVC1G125GW	U21,U22	2	9.20	9.20	18.40	0.64
1.2.50	RC0402FR-07110KL	R8,R10,R13,R148	4	0.36	0.36	1.44	0.05
1.2.51	GRM1555C1H220JA01D	C238	1	0.45	0.45	0.45	0.02

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.2.52	GRM155R71H471KA01D	C22,C23	2	0.45	0.45	0.9	0.03
1.2.53	U77-A1618-2001	CON66	1	1.08	1.08	1.08	0.04
1.2.54	GRM31CR60J476ME19L	C45,C46	2	0.45	0.45	0.9	0.03
1.2.55	RC0402FR-0725K5L	R20	1	0.36	0.36	0.36	0.01
1.2.56	KLDHCX-0202-A-LT	CON1	1	19.80	19.80	19.80	0.69
1.2.57	RC0402FR-074K99L	R46	1	0.36	0.36	0.36	0.01
1.2.58	FT230XQ-R	U11	1	31.88	31.88	31.88	1.11
1.2.59	RC0402JR-07470RL	R151,R152,R153,R154	4	0.36	0.36	1.44	0.05
1.2.60	RC0402JR-07510RL	R43,R44	2	0.36	0.36	0.72	0.03
1.2.61	SDB0420MT2R2	L5,L6	2	10.80	10.80	21.60	0.75
1.2.62	RC0402FR-0710KL	R16,R22,R29,R145,R147,R156,R157,R158,R159	9	0.36	0.36	3.24	0.11
1.2.63	0805USB-421MLC	T1	1	20.70	20.70	20.70	0.72
1.2.64	88E1512-A0-NNP2C000	U13	1	2250.00	2250.00	2250.00	78.31
1.2.65	RT2875B	U1,U2	2	13.47	13.47	26.93	0.94
1.2.66	MCP3021A4T-E/OT	U16	1	28.12	28.12	28.12	0.98
1.2.67	NLX2G16AMX1TCG	U12	1	9.20	9.20	9.20	0.32
1.2.68	RC0402FR-074K7L	R4,R5,R6,R69,R155,R27,R45,R80,R144	9	0.36	0.36	3.24	0.11
1.2.69	RC0402FR-07220RL	R48,R65	2	0.36	0.36	0.72	0.03
1.2.70	BLM15AX601SN1D	FB8,FB9	2	0.45	0.45	0.9	0.03
1.2.71	PBY160808T-601Y-N	FB10,FB11	2	0.45	0.45	0.9	0.03
1.2.72	CL10B104KC8NNNC	C112,C113,C114,C115,C117,C119,C120,C122	8	0.45	0.45	3.60	0.13
1.2.73	CL10A106KQ8NNNC	C52,C57,C58,C62,C78,C79,C83	7	0.45	0.45	3.15	0.11
1.2.74	GRM21BR60J226ME39L	C30,C31,C35,C36	4	0.45	0.45	1.80	0.06
1.2.75	0603B475K160NU	C65,C70,C94,C104	4	0.45	0.45	1.80	0.06

Assembly Ref.Des.: CON7, ID: 1.2.22, Description: RJ45 2x1, With LEDs, WO magnetics.
Environment: GL, Temperature: 40.00 °C,F.R.(FIT): 4.68 , MTBF(hours): 213675202.46

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.2.22.1	LED	LED	2	1.13	1.13	2.25	48.08
1.2.22.2	RJ45	RJ45	2	1.21	1.21	2.43	51.92

APPENDIX C – PARETO ANALYSIS

Project name: CLEARFOG BASE
Operating conditions: Environment: GL, Temperature: 30.00 °C
Current mode: Operating
FR Units: FIT
Default prediction Method: Telcordia Issue 3

Start from: ClearFog Base Rev-1.1

PN	Qty	Total Failure rate	Item Failure rate contribution	Cumulative contribution
88E1512-A0-NNP2C000	2	4500.000	77.770%	77.770%
88F6820-Z1-BRT2C000	1	237.401	4.103%	81.872%
SCR1620VE01S	1	112.500	1.944%	83.817%
88PG8227	1	53.476	0.924%	84.741%
88PG877-A3-NFB1C000	1	53.476	0.924%	85.665%
DTSM-3	2	49.320	0.852%	86.517%
SDB0420MT2R2	4	47.257	0.817%	87.334%
NCP51200	1	45.348	0.784%	88.118%
K4B4G1646D-BYK0T00	3	34.659	0.599%	88.717%
IT-1102H	1	34.650	0.599%	89.316%
CL05B104KP5NNNC	69	32.086	0.555%	89.870%
FT230XQ-R	1	31.877	0.551%	90.421%
S3225A025000-F10CCCA	2	28.800	0.498%	90.919%
MCP3021A4T-E/OT	1	28.125	0.486%	91.405%
RT2875B	2	26.930	0.465%	91.870%
DMR-05(A) (P)	1	24.660	0.426%	92.296%
DF40C-80DS-0.4V(51)	2	21.600	0.373%	92.670%
DH40C-100DP-0.4V(51)	1	21.363	0.369%	93.039%
0805USB-421MLC	1	20.700	0.358%	93.397%
IC01002	1	20.700	0.358%	93.754%
KLDHCX-0202-A-LT	1	19.800	0.342%	94.097%
74LVC1G125GW	2	18.404	0.318%	94.415%
DH40C-80DP-0.4V(51)	1	17.091	0.295%	94.710%
YC124-FR-0749R9L	7	16.945	0.293%	95.003%
IC00023	1	15.480	0.268%	95.270%
RT3215-32.768-9-TR	1	14.400	0.249%	95.519%
CL05A105KP5NNNC	30	13.978	0.242%	95.761%
NCP380HSN10AAT1G	1	13.465	0.233%	95.994%
TS9011ACX	1	13.465	0.233%	96.226%
LLL185R70J224MA16F	27	12.867	0.222%	96.449%
SDB0630MT1R0	1	12.828	0.222%	96.670%
PCA9655EMTTXG	1	12.460	0.215%	96.886%
SDB0650M4R7	1	10.800	0.187%	97.072%
SDB0650M6R8	1	10.800	0.187%	97.259%
W25Q32BVZPIG	1	10.135	0.175%	97.434%
AS0BC21-S30BM-7H	1	10.125	0.175%	97.609%
NLX2G16AMX1TCG	1	9.202	0.159%	97.768%
CAY10-101J2LF	1	8.472	0.146%	97.915%
AAA-PCI-098-P01	1	7.020	0.121%	98.036%
CL10A106KQ8NNNC	14	6.486	0.112%	98.148%
0402X104K250SNT	14	6.300	0.109%	98.257%
RC0402FR-0710KL	15	5.806	0.100%	98.357%
RC0402JR-070RL	12	4.861	0.084%	98.441%
CL10A226MQ8NRNE	8	3.813	0.066%	98.507%
0603B475K160NU	8	3.706	0.064%	98.571%
CL10B104KC8NNNC	8	3.600	0.062%	98.633%
RC0402FR-074K7L	9	3.240	0.056%	98.689%

PN	Qty	Total Failure rate	Item Failure rate contribution	Cumulative contribution
CAY10-000J2LF	6	3.228	0.056%	98.745%
BLM15AX601SN1D	6	3.038	0.053%	98.798%
RC0402JR-0722RL	7	2.993	0.052%	98.849%
BAT54C-G3-08	1	2.970	0.051%	98.901%
RC0402FR-0775RL	8	2.880	0.050%	98.950%
CL32B226KBJNNWE	6	2.700	0.047%	98.997%
RC0402FR-07931RL	6	2.566	0.044%	99.041%
RJ45	2	2.430	0.042%	99.083%
741C083472JP	1	2.421	0.042%	99.125%
GRM1555C1H220JA01D	5	2.356	0.041%	99.166%
LED	2	2.250	0.039%	99.205%
U77-A1618-2001	2	2.160	0.037%	99.242%
CB05YTYH900	4	1.800	0.031%	99.273%
GRM21BR60J226ME39L	4	1.800	0.031%	99.304%
RC0402FR-0749R9L	4	1.710	0.030%	99.334%
SIM7100-6-1-15-00-A	2	1.620	0.028%	99.362%
RC0402JR-07510RL	4	1.575	0.027%	99.389%
RC0402FR-07100KL	4	1.440	0.025%	99.414%
RC0402FR-07110KL	4	1.440	0.025%	99.439%
RC0402JR-07470RL	4	1.440	0.025%	99.464%
GRM31CR60J476ME19L	3	1.377	0.024%	99.488%
ZM90-15000-0BR1	1	1.350	0.023%	99.511%
RC0402FR-07240RL	3	1.283	0.022%	99.533%
DI00210	1	1.125	0.019%	99.553%
CB3708AV100	1	1.080	0.019%	99.571%
CO00568	1	1.080	0.019%	99.590%
RC0402FR-0722RL	3	1.080	0.019%	99.609%
BLM18PG121SN1D	2	0.990	0.017%	99.626%
GRM155R60J224KE01D	2	0.927	0.016%	99.642%
1210N102J202NT	2	0.900	0.016%	99.657%
CA30013	2	0.900	0.016%	99.673%
CGJ2B2X7R1C332K050BA	2	0.900	0.016%	99.688%
GRM155R71H471KA01D	2	0.900	0.016%	99.704%
GRM155R71H561KA01D	2	0.900	0.016%	99.719%
PBY160808T-601Y-N	2	0.900	0.016%	99.735%
RC0402FR-0710RL	2	0.855	0.015%	99.750%
RC0402JR-07100KL	2	0.855	0.015%	99.765%
RC0402JR-074K7L	2	0.855	0.015%	99.779%
RC0402FR-074K99L	2	0.788	0.014%	99.793%
RC0402FR-0715KL	2	0.720	0.012%	99.805%
RC0402FR-07220RL	2	0.720	0.012%	99.818%
RC0402FR-0750KL	2	0.720	0.012%	99.830%
RC0805JR-070RL	2	0.720	0.012%	99.843%
RN00002	1	0.720	0.012%	99.855%
10103594-0001LF	1	0.675	0.012%	99.867%
USAR-2F09-AB63T1H	1	0.675	0.012%	99.879%
BLM18KG601SN1D	1	0.535	0.009%	99.888%
CL05B102KP5NNNC	1	0.477	0.008%	99.896%
CL05B473MQQNNNE	1	0.477	0.008%	99.904%
GRM155R60J225ME87D	1	0.477	0.008%	99.912%
RC0402FR-0711KL	1	0.428	0.007%	99.920%
RC0402FR-071K6L	1	0.428	0.007%	99.927%
RC0402FR-07301RL	1	0.428	0.007%	99.935%
RC0402FR-0731K6L	1	0.428	0.007%	99.942%
RC0402FR-0753K6L	1	0.428	0.007%	99.949%

PN	Qty	Total Failure rate	Item Failure rate contribution	Cumulative contribution
RC0402FR-076K04L	1	0.428	0.007%	99.957%
RC0402FR-0797K6L	1	0.428	0.007%	99.964%
RC0402FR-07100RL	1	0.360	0.006%	99.970%
RC0402FR-07115KL	1	0.360	0.006%	99.977%
RC0402FR-0725K5L	1	0.360	0.006%	99.983%
RC0402FR-07330RL	1	0.360	0.006%	99.989%
RC0402JR-072K2L	1	0.360	0.006%	99.995%
CH31012V200-NH	2	0.270	0.005%	100.000%