

AQ7-IMX6

Reliability Prediction Report (MTBF)

Summary	Failure Rate: 3866.663406 ppm MTBF: 258,621 Hours
---------	--

Issue date	Approval	Test Engineer
2014/03/31	Tom Lin	Louie Lee

Reliability Prediction (MTBF)

I . Model Name: AQ7-IMX6

II . Prediction Date: March. 31, 2014

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

IV . Predicted by: Louie Lee

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 to 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 to specify that the failure rate is to be calculated based the selected Calculation models. The Failure rate multiplier is 1000000000.
- MTBF : MTBF is always specified in hours.

VIII. Prediction Result:

AQ7-IMX6 (9697IMX604-D):

- Failure Rate: 3866.663406 ppm

- MTBF: 258,621 Hours

**AAEON Reliability Prediction
Summary**

File Name: AQ7-IMX6.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
AQ7-IMX6	9697IMX604-D		1	3866.663406	258,621

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050501234	Resistor	R73		2.547039	1	282340674.079668
1050505124	Resistor	R128		2.547039	1	282340674.079668
1050505164	Resistor	R164		2.547039	1	282340674.079668
1050510034	Resistor	R125,R134,R328, R339,R340,R341, R342,R519,R520, R521,R523		2.547039	11	32049696.385471
1050510214	Resistor	R904		2.547039	1	282340674.079668
1050511034	Resistor	R136		2.547039	1	282340674.079668
1050516014	Resistor	R40		2.547039	1	282340674.079668
1050520004	Resistor	R46		2.547039	1	282340674.079668
1050520034	Resistor	R522		2.547039	1	282340674.079668
1050521524	Resistor	R138		2.547039	1	282340674.079668
1050522034	Resistor	R150,R643		2.547039	2	154078778.388085
1050524004	Resistor	R22,R275,R276,R62, R66		2.547039	5	67008142.102588
1050524924	Resistor	R126,R129,R137		2.547039	3	107020754.986850
1050531624	Resistor	R140		2.547039	1	282340674.079668
1050533214	Resistor	R162		2.547039	1	282340674.079668
1050536514	Resistor	R131		2.547039	1	282340674.079668
1050551004	Resistor	R310		2.547039	1	282340674.079668
1050560414	Resistor	R12,R8		2.547039	2	154078778.388085
1050568124	Resistor	R149		2.547039	1	282340674.079668
1059700001	Resistor	R59		2.547039	1	282340674.079668
105A501013	Resistor	R112,R147		2.547039	2	154078778.388085
105A501039	Resistor	R130,R139,R151, R152,R218,R219, R220,R221,R222, R226,R235		2.547039	11	32049696.385471
105A503309	Resistor	R428,R429		2.547039	2	154078778.388085
105A510223	Resistor	R548		2.547039	1	282340674.079668
105A519109	Resistor	R35		2.547039	1	282340674.079668
105A523233	Resistor	R645		2.547039	1	282340674.079668
105A525533	Resistor	R969,R970		2.547039	2	154078778.388085
105A532429	Resistor	R547		2.547039	1	282340674.079668
105A547513	Resistor	R903		2.547039	1	282340674.079668
105A549919	Resistor	R78		2.547039	1	282340674.079668

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A700003	Resistor	R148,R165,R250, R307,R308,R31,R34, R36,R37,R42,R43, R44,R47,R48,R50, R52,R53,R54,R56, R57,R60,R70,R79, R80		2.547039	24	15190138.820515
105A700009	Resistor	R11,R115,R117,R119, R121,R122,R124, R132,R133,R15,R154, R155,R157,R158,R16, R160,R161,R169, R170,R18,R19,R20, R21,R217,R224,R227, R229,R23,R230,R233, R236,R237,R238, R239,R24,R240,R241, R242,R243,R246, R247,R248,R249, R260,R261,R265, R266,R268,R269,R27, R		2.547039	101	3746731.837411
105A700139	Resistor	R168,R171,R330, R655,R657,R659		2.547039	6	56573956.677649

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A701039	Resistor	R103,R113,R114, R116,R118,R123, R153,R167,R17, R172, R234,R251,R252, R253,R254,R255, R256,R257,R258, R259,R313,R329, R332,R334,R343, R345,R348,R351, R353,R361,R363,R5, R6,R61,R63,R72,R81, R82,R83,R84,R85, R86,R87		2.547039	43	8634227.613564
105A701059	Resistor	R971,R972		2.547039	2	154078778.388085
105A701069	Resistor	R10		2.547039	1	282340674.079668
105A702229	Resistor	R100,R102,R145, R146		2.547039	4	82309758.689546
105A702253	Resistor	R74,R75,R9		2.547039	3	107020754.986850
105A704709	Resistor	R106		2.547039	1	282340674.079668

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A704729	Resistor	R104,R105,R109, R110,R142,R174, R183,R185,R186, R187,R188,R189, R190,R191,R192, R193,R194,R195, R196,R197,R198, R199,R200,R201, R202,R203,R204, R205,R206,R207, R208,R209,R210, R211,R212,R213, R214,R215,R216, R223,R273,R274, R590,R591,R76,R77		2.547039	46	8085699.252497
105A704739	Resistor	R271,R317		2.547039	2	154078778.388085
105A708229	Resistor	R163		2.547039	1	282340674.079668
105A715009	Resistor	R98		2.547039	1	282340674.079668
105A720009	Resistor	R13,R14		2.547039	2	154078778.388085
105A733009	Resistor	R120		2.547039	1	282340674.079668
1121415090	Capacitor	C65		1.128806	1	704977644.692287

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1121501691	Capacitor	C174,C175,C183, C184,C187,C188, C190,C193,C194, C195,C196,C198, C200,C204,C205, C206,C208,C209, C214,C216,C218, C220,C222,C227, C228,C229,C231, C233,C236,C237, C238,C240,C246, C249,C253,C259, C262,C263,C288,C89, C9		1.128806	41	20795506.904934
1122701680	Capacitor	C250		1.128806	1	704977644.692287
1124410190	Capacitor	C75,C79,C83,C87, C91,C95		1.128806	6	133979725.056342
1124418090	Capacitor	C1,C178,C179,C180, C182,C2,C3,C4		1.128806	8	101746760.035398
1124427090	Capacitor	C244,C318		1.128806	2	375289731.076049
1129701791	Capacitor	C154,C167,C255, C264,C319,C320		1.128806	6	133979725.056342
1129710391	Capacitor	C258,C73,C81,C85, C93,C97		1.128806	6	133979725.056342
1149647052	Capacitor	TC1,TC2,TC3,TC6		4.744484	4	45505862.704531
1189610153	Capacitor	C349,TC7,TC8		4.744484	3	59399119.141203
1189622154	Capacitor	C352		4.744484	1	159663026.715137
1189633151	Capacitor	TC10		4.744484	1	159663026.715137
11C1533890	Capacitor	C251		1.128806	1	704977644.692287
11E1547090	Capacitor	C77		1.128806	1	704977644.692287

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E2510060	Capacitor	C266,C267,C268		1.128806	3	257514172.353070
11E2522060	Capacitor	C223,C230		1.128806	2	375289731.076049
11E4433090	Capacitor	C59,C60		1.128806	2	375289731.076049
11E9501090	Capacitor	C176,C177,C256,C657,C658		1.128806	5	159367490.199266
11E9501091	Capacitor	C203,C265,C315		1.128806	3	257514172.353070
11E9522790	Capacitor	C14,C15,C16,C17,C18,C201,C202,C210,C211,C212,C25,C26,C27,C28,C29,C30,C31,C313,C32,C33,C34,C35,C36,C360,C361,C362,C363,C364,C365,C366,C367,C37,C45,C46,C47,C48,C49,C50,C51,C52,C53,C54,C55,C67,C71,C72,C74,C80,C84,C86,C92,C96		1.128806	52	16465757.036261
11E9547680	Capacitor	C181,C192,C197,C199,C243,C76		1.128806	6	133979725.056342

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9610080	Capacitor	C100,C101,C119, C146,C147,C185, C186,C189,C191, C213,C215,C217, C219,C221,C224, C225,C239,C241, C245,C247,C248, C254,C260,C323, C328,C348,C350,C70, C707,C708		1.128806	30	28241202.507613
11E9622050	Capacitor	C23,C56		1.128806	2	375289731.076049
11E9622080	Capacitor	C110,C118,C122, C130,C135,C150, C160,C161,C165, C226,C234,C235,C24, C316,C321,C324, C325,C326,C44,C57, C58,C98,C99		1.128806	23	36609385.175833
11E9647690	Capacitor	C155,C257,C68,C69, C78,C82,C90,C94		1.128806	8	101746760.035398
11EA510390	Capacitor	C152		1.128806	1	704977644.692287

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11EA922491	Capacitor	C102,C103,C104, C105,C106,C107, C108,C109,C111, C112,C113,C114, C115,C116,C117, C120,C121,C123, C124,C125,C126, C127,C128,C129, C131,C132,C133, C134,C136,C137, C138,C139,C140, C141,C142,C143, C144,C145,C148, C149,C151,C153, C156,C157,C158, C159,C162,C163,		1.128806	66	13022034.735679
121110226H	Inductor	L2		4.944252	1	154760964.143460
121110226H	Inductor	L3	32.7	8.650744	1	88452177.064861
1211110073	Inductor	L6		4.944252	1	154760964.143460
1211122072	Inductor	L12,L13,L4		4.944252	3	57363284.375370
1212306030	Inductor	FB29		4.944252	1	154760964.143460
121231206B	Inductor	FB7,FB8		4.944252	2	83201062.149749
12123C0003	Inductor	FB1,FB2,FB3		4.944252	3	57363284.375370
1214309008	Inductor	CH13		4.944252	1	154760964.143460
1231324054	Miscellaneous	Y1,Y3		19.200000	2	8854051.752197
123132505D	Miscellaneous	Y4		19.200000	1	23844262.770939
1231332722	Miscellaneous	Y2		19.200000	1	23844262.770939
1231332727	Miscellaneous	Y6		19.200000	1	23844262.770939
1300414849	Semiconductor	D8,D9		7.793411	2	50578095.223398
1301005440	Semiconductor	D5		7.793411	1	92807310.010983
1301005442	Semiconductor	D4		7.793411	1	92807310.010983
1301005444	Semiconductor	D1,D10,D11, D7		7.793411	4	26989084.126235
1304101340	Optical Device	D6		79.003355	1	6497172.749112
1305050040	Semiconductor	D3		7.793411	1	92807310.010983

File Name: AQ7-IMX6.rfp
Assembly: 9697IMX604-D
Ref Des:
Description:

Failure Rate: 3866.663406
MTBF (hrs): 258,621
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1305080040	Semiconductor	D17		7.793411	1	92807310.010983
1315030110	Semiconductor	Q1,Q2		22.463360	2	17315095.066101
1315230511	Semiconductor	Q42		22.463360	1	31642600.748419
1315482110	Semiconductor	U23		22.463360	1	31642600.748419
1315482410	Semiconductor	U24		22.463360	1	31642600.748419
1315667910	Semiconductor	U29		22.463360	1	31642600.748419
1315700217	Semiconductor	Q20,Q21,Q22,Q28, Q29,Q30,Q31,Q32, Q40		22.463360	9	4366472.106532
1430012830	Integrated Circuit	U14,U27		43.803003	2	6834791.244197
1430063320	Integrated Circuit	U21,U28		43.803003	2	6834791.244197
1430304210	Integrated Circuit	U20		43.803003	1	11739202.588727
14401008A0	Integrated Circuit	U12		11.063278	1	58231413.220643
1440IMX6Q1	Integrated Circuit	U1	26.6	64.013196	1	8032911.419761
14682G1641	Integrated Circuit	U2,U4		11.063278	2	32567094.099626
14682G1641	Integrated Circuit	U5	25.1	30.838907	1	20890179.013108
14682G1641	Integrated Circuit	U3	23.8	29.357519	1	21944302.964484
1489AQIMX0	Integrated Circuit	U41		21.706765	1	23689035.791249
1490V1T340	Integrated Circuit	U13,U17		43.803003	2	6834791.244197
1490Z90210	Integrated Circuit	U11		43.803003	1	11739202.588727
14S2202600	Integrated Circuit	U40		43.803003	1	11739202.588727
14S3010700	Integrated Circuit	U57		43.803003	1	11739202.588727
14S3063400	Integrated Circuit	U18		43.803003	1	11739202.588727
14S3063400	Integrated Circuit	U19	29.7	296.990963	1	1731407.325508
14S3111600	Integrated Circuit	U22		43.803003	1	11739202.588727
14S4251402	Integrated Circuit	U10		43.803003	1	11739202.588727
14S5A12503	Integrated Circuit	U25		26.018600	1	25551442.237972
14S6203205	Integrated Circuit	U15		11.063278	1	58231413.220643
14S9133902	Integrated Circuit	U59		43.803003	1	11739202.588727
1540510380	Resistor	RP1,RP2,RP3,RP4, RP5,RP6,RP7,RP8		9.971436	8	9424088.116087
1600000403	Connection	SW1		16.184835	1	35685591.360212
1600001605	Connection	SW2		16.184835	1	35685591.360212
1654924300	Connection	CN2		16.184835	1	35685591.360212
1655902122	Connection	BAT1		16.184835	1	35685591.360212
1655905032	Connection	CN19		16.184835	1	35685591.360212
1655907130	Connection	CN3		16.184835	1	35685591.360212
175011901M	Miscellaneous	BAT1B		306.000000	1	1681683.006787