

**Table A-1 Software Planning Process**

Objective		Applicability by SW Level				Output	LDRA Support
Description	Ref.	A	B	C	D	Description	
1 The activities of the software lifecycle processes are defined.	4.1.a	○	○	○	○	Plan for Software Aspects of Certification (PSAC) Software Development Plan (SDP) Software Verification Plan (SVP) SCM Plan SQA Plan	LDRA Compliance Management System (LCMS)
2 The software life cycle(s), including the inter-relationships between the processes, their sequencing, feedback mechanisms, and transition criteria, is defined.	4.1.b	○	○	○		PSAC SDP SVP SCM Plan SQA Plan	LCMS
3 Software life cycle environment is selected and defined.	4.1.c	○	○	○		PSAC SDP SVP SCM Plan SQA Plan	LCMS
4 Additional considerations are addressed.	4.1.d	○	○	○		PSAC SDP SVP SCM Plan SQA Plan	LCMS
5 Software development standards are defined.	4.1.e	○	○	○		SW Requirements Standards SW Design Standards SW Code Standards	LCMS
6 Software plans comply with this document	4.1.f	○	○	○		Software Verification Results	LCMS
7 Development and revision of software plans are coordinated.	4.1.g	○	○	○		Software Verification Results	LCMS

**Legend**

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**Table A-2 Software Development Process**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	High-level requirements are developed.	5.1.1.a	○	○	○	○	Software Requirements Data Trace Data	LCMS & TBmanager
2	Derived high-level requirements are defined and provided to the system processes, including the system safety assessment process.	5.1.1.b	○	○	○	○	Software Requirements Data	LCMS & TBmanager
3	Software architecture is developed.	5.2.1.a	○	○	○	○	Design Description	LCMS & TBvision
4	Low-level requirements are developed.	5.2.1.a	○	○	○		Design Description Trace Data	LCMS & TBmanager
5	Derived low-level requirements are defined and provided to the system processes, including the system safety assessment process.	5.2.1b	○	○	○		Design Description	LCMS & TBmanager
6	Source Code is developed.	5.3.1.a	○	○	○		Source Code Trace Data	TBrun & TBvision
7	Executable Object Code and Parameter Data Item Files, if any, are produced and loaded in the target computer.	5.4.1.a	○	○	○	○	Executable Object Code Parameter Data File item	TBrun (TBOBJECTBOX)

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**Table A-3 Verification of Outputs of Software Requirements Process**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	High-level requirements comply with system requirements.	6.3.1.a	●	●	○	○	Software Verification Results	LCMS & TBmanager
2	High-level requirements are accurate and consistent.	6.3.1.b	●	●	○	○	Software Verification Results	LCMS & TBmanager
3	High-level requirements are compatible with target computer.	6.3.1.c	○	○			Software Verification Results	LCMS & TBmanager
4	High-level requirements are verifiable.	6.3.1.d	○	○	○		Software Verification Results	LCMS, TBmanager & TBvision
5	High-level requirements conform to standards.	6.3.1.e	○	○	○		Software Verification Results	LCMS, TBmanager & TBvision
6	High-level requirements are traceable to system requirements.	6.3.1.f	○	○	○	○	Software Verification Results	LCMS, TBmanager & TBvision
7	Algorithms are accurate.	6.3.1.g	●	●	○		Software Verification Results	TBmanager, TBvision & TBrun

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**Table A-4 Verification of Outputs of Software Design Process**

Objective			Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	Low-level requirements comply with high-level requirements.	6.3.2.a	●	●	○		Software Verification Results	LCMS & TBmanager
2	Low-level requirements are accurate and consistent.	6.3.2.b	●	●	○		Software Verification Results	LCMS & TBmanager
3	Low-level requirements are compatible with target computer.	6.3.2.c	○	○			Software Verification Results	LCMS, TBmanager & TBrn
4	Low-level requirements are verifiable.	6.3.2.d	○	○			Software Verification Results	LCMS & TBmanager
5	Low-level requirements conform to standards.	6.3.2.e	○	○	○		Software Verification Results	LCMS & TBmanager
6	Low-level requirements are traceable to high-level requirements.	6.3.2.f	○	○	○		Software Verification Results	TBmanager
7	Algorithms are accurate.	6.3.2.g	●	●	○		Software Verification Results	TBvision & TBrn
8	Software architecture is compatible with high-level requirements.	6.3.3.a	●	○	○		Software Verification Results	TBvision & TBmanager
9	Software architecture is consistent.	6.3.3.b	●	○	○		Software Verification Results	TBvision
10	Software architecture is compatible with target computer.	6.3.3.c	○	○			Software Verification Results	TBrn
11	Software architecture is verifiable.	6.3.3.d	○	○			Software Verification Results	TBvision
12	Software architecture conforms to standards.	6.3.3.e	○	○	○		Software Verification Results	LCMS & TBvision
13	Software partitioning integrity is confirmed.	6.3.3.f	●	○	○	○	Software Verification Results	TBvision

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**Table A-5 Verification of Software Coding Integration Processes**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	Source Code complies with low-level requirements.	6.3.4.a	●	●	○		Software Verification Results	TBmanager & TBrn
2	Source Code complies with Software architecture.	6.3.4.b	●	○	○		Software Verification Results	TBvision
3	Source Code is verifiable.	6.3.4.c	○	○			Software Verification Results	TBvision
4	Source Code conforms to standards.	6.3.4.d	○	○	○		Software Verification Results	TBvision
5	Source Code is traceable to low-level requirements.	6.3.4.e	○	○	○		Software Verification Results	TBmanager
6	Source Code is accurate and consistent.	6.3.4.f	●	○	○		Software Verification Results	TBvision
7	Output of software integration process is complete and correct.	6.3.5.a	○	○	○		Software Verification Results	LCMS
8	Parameter Data Item File is correct and complete.	6.6a	●	●	○	○	Software Verification Cases and Procedures Software Verification Results	LCMS
9	Verification of Parameter Data Item File is achieved.	6.6b	●	●	○		Software Verification Results	LCMS

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**Table A-6 Testing of Outputs of Integration Processes**

Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description
1	Executable Object Code complies with high-level requirements.	6.4.a	○	○	○	○	Software Verification Cases and Procedures Software Verification Results Trace Data TBmanager & TBrn (TBOBJECTBOX)
2	Executable Object Code is robust with high-level requirements.	6.4.b	○	○	○	○	Software Verification Cases and Procedures Software Verification Results Trace Data TBmanager & TBrn (TBOBJECTBOX)
3	Executable Object Code complies with low-level requirements.	6.4.c	●	●	○		Software Verification Cases and Procedures Software Verification Results Trace Data TBmanager & TBrn (TBOBJECTBOX)
4	Executable Object Code is robust with low-level requirements.	6.4.d	●	○	○		Software Verification Cases and Procedures Software Verification Results Trace Data TBmanager, TBrn (TBOBJECTBOX) & TBEXTREME
5	Executable Object Code is compatible with the target computer.	6.4.e	○	○	○	○	Software Verification Cases and Procedures Software Verification Results TBmanager & TBrn (TBOBJECTBOX)

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**Table A-7 Verification of Verification Process Results**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	Test procedures are correct.	6.4.5.b	●	○	○		Software Verification Results	LCMS
2	Test results are correct and discrepancies explained.	6.4.5.c	●	○	○		Software Verification Results	TBmanager
3	Test coverage of high-level requirements is achieved.	6.4.4.a	●	○	○	○	Software Verification Results	TBmanager & TBsafe
4	Test coverage of low-level requirements is achieved.	6.4.4.b	●	○	○		Software Verification Results	TBmanager & TBsafe
5	Test coverage of software structure (modified condition/decision) is achieved.	6.4.4.c	●				Software Verification Results	TBmanager & TBsafe
6	Test coverage of software structure (decision coverage) is achieved.	6.4.4.c	●	●			Software Verification Results	TBmanager & TBsafe
7	Test coverage of software structure (statement coverage) is achieved.	6.4.4.c	●	●	○		Software Verification Results	TBvision
8	Test coverage of software structure (data coupling and control coupling) is achieved.	6.4.4.d	●	●	○		Software Verification Results	TBmanager, TBsafe, Dynamic Data Object Analysis & TBvision
9	Verification of additional code, that cannot be traced to Source Code, is achieved.	6.4.4.c	●				Software Verification Results	TBmanager & TBOBJECTBOX
OO 10	Verify local type consistency	OO.6.8.1	●	●	○		Software Verification Results	TBmanager & TBrun
MB 10	Simulation cases are correct.	MB.6.8.3.2.a	●	○	○	○	Software Verification Results	TBmanager & TBrun
MB 11	Simulation procedures are correct.	MB.6.8.3.2.b	●	○	○	○	Software Verification Results	TBmanager & TBrun
MB 12	Simulation results are correct and discrepancies explained.	MB.6.8.3.2.c	●	○	○		Software Verification Results	TBmanager & TBrun

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**Table A-8 Software Configuration Management Process**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	Configuration items are identified.	7.1.a	○	○	○	○	SCM Records	LCMS
2	Baselines and traceability are established.	7.1.b	○	○	○	○	Software Configuration Index SCM Records	LCMS & TBmanager
3	Problem reporting, change control, change review, and configuration status accounting are established.	7.1.c 7.1.d 7.1.e 7.1.f	○	○	○	○	Problem Reports SCM Records	LCMS
4	Archive, retrieval, and release are established.	7.1.g	○	○	○	○	SCM Records	LCMS
5	Software load control is established.	7.1.h	○	○	○	○	SCM Records	N/A
6	Software life cycle environment control is established.	7.1.i	○	○	○	○	Software Life Cycle Environment Configuration Index SCM Records	LCMS

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**Table A-9 Software Quality Assurance Process**

Objective		Applicability by SW Level				Output	LDRA Support
Description	Ref.	A	B	C	D	Description	
1 Assurance is obtained that software plans and standards are developed and reviewed for compliance with this document and for consistency.	8.1.a	●	●	●		Software Quality Assurance (SQA) Records	LCMS
2 Assurance is obtained that software life cycle processes comply with approved software plans.	8.1.b	●	●	●	●	SQA Records	LCMS
3 Assurance is obtained that software life cycle processes comply with approved software standards.	8.1.b	●	●	●		SQA Records	LCMS
4 Assurance is obtained that transition criteria for the software life cycle processes are satisfied.	8.1.c	●	●	●		SQA Records	LCMS
5 Assurance is obtained that software conformity review is conducted.	8.1.d	●	●	●	●	SQA Records	LCMS

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**Table A-10 Certification Liaison Process**

	Objective		Applicability by SW Level				Output	LDRA Support
	Description	Ref.	A	B	C	D	Description	
1	Communication and understanding between the applicant and the certification authority is established.	9.a	○	○	○	○	PSAC	LCMS
2	The means of compliance is proposed and agreement with the Plan for Software Aspect of Certification is obtained.	9.b	○	○	○	○	PSAC	LCMS
3	Compliance substantiation is provided.	9.c	○	○	○	○	Software Accomplishment Summary Software Configuration Index	LCMS & TBmanager

**Note:** The Plan for Software Aspects of Certification and the Software Configuration Index are outputs to other processes. They are included in this table to show completion of the Certification Liaison Process objectives.

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