

Frequently Asked Questions - 9115 Questions & Answers

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9115 FAQs:

1) What is the scope of 9115?

The scope of the 9115 standard is to clarify and supplement the 9100 standard requirements specifically for deliverable software. The standard contains quality management system requirements for organizations that design, develop, and/or produce deliverable software and services for the aviation, space, and defense industry. This includes, as required, support software that is used in the development and maintenance of deliverable software and services. The deliverable software may be stand-alone, embedded, cloud services, mobile applications and or executable loaded into a target computer.

This deliverable software may be created from Hardware Description Language (HDL) or other high order language or model utilized as the design source of electronic hardware [e.g., Application Specific Integrated Circuit (ASIC) or Programmable Logic Device (PLD)].

2) Can you be certified to 9115?

As of today, entities are not uniquely certified to 9115. The organization that produces software or hardware products that include software should be certified to 9100. In order to comply with 9100, organizations attempting to be certified should reference 9115 when planning, developing and during the deployment of their QMS to ensure they adequately address those detailed requirements associated with the software activity. The general auditor community is becoming much more skilled at auditing design, development and deployment of software activities and should also use 9115 as a guide during a certification audit.

3) What is the relationship between 9115 and IEEE12207

9115 should be seen as a complimentary standard to IEEE Std 12207. The IEEE 12207 international standard establishes a common framework for software life cycle process, while 9115 defines the detailed software quality requirements the organizations QMS needs to ensure software produced by the organization for the ASD community meets what are typically higher level expectations.

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4) What is the relationship between 9115 to DO-178?

9115 should also be seen as a complimentary standard to DO-178. The DO-178 framework provides software specific considerations for airborne systems and associated equipment certification. This document is very aviation specific and United States FAA controlled and is not a quality management system only. On the other hand, while 9115 provides some of the complementary elements of DO-178 it provides a framework that is Internationally harmonized for software quality purposes and is much less restrictive than DO-178 and as a result is more suitable for general purpose Aviation, Space and Defense (ASD) sub-tier companies that provide singular or specialized products such as motor controllers, voltage converters, communication systems and information display devices that do not require specific qualification as a system.

5) What is the relationship between 9115 to AS9006?

The 9115:2010 document was the internationally harmonized standard that superseded AS9006, "Deliverable Aerospace Software Supplement for AS9100A, Quality Management Systems – Aerospace – Requirements for Software" which was published in March 2003.

The key point to note is that the AS9006 standard was published as an Americas ONLY sector specific document in 2003 and although received well by the working ASD community it was in demand outside of the Americas. The structural problem was it had a standalone framework not directly tied to the ISO/QMS requirements. Thus a project was started by the SAE to blend the two and create an international version of the QMS to support software.

The 2010 initial release of 9115 was the first time an international supplement to 9100 was provided to specifically clarify the corresponding requirements as they related to deliverable software. The current version of 9115 continues the international harmonization with the added structural change over to the ISO9001:2015 framework.

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6) What is the relationship between 9115 to ARP9005?

ARP9005 is an Aerospace Recommended Practice (ARP) for the handling and management of non-deliverable software, it is not a standard and the document was developed in 2005 as a compliment to AS9006 around the same time to manage what we look at today as support software. The ARP has been stabilized for now as an Americas only document although an update is being evaluated for potential International use. Both 9100 and 9115 now address support software more than in the past, yet the introduction of additive manufacturing (3D Printing) has grown interest in the desire for an update to 9005.

7) Is 9115 only for Aerospace?

9115 is not only for Aerospace applications. 9115 has been specifically developed and internationally harmonized for the general purpose use of the Aviation, Space and Defense (ASD) communities. Thus it can be used to ensure quality for systems on military combat and transport ships, remotely operated vehicles as well as communications and navigation systems and associated sensor systems. The application spectrum is very broad and should find favor with all customers trying to manage the software cost and quality for complex systems.

8) Does 9115 address criticality of software?

9115 does not specifically define or specify criticality groups for software. What it does do is recommend points in the software quality processes at which times having defined criticality levels for the software product may help with the management of the software activity. For example when managing software changes, having defined levels may help set the expectation for the amount of documentation needed. Another area that criticality levels comes into play is when determining the depth and level of regression testing needed for software changes.

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9) What is the relationship of 9115 to 9110 and 9120?

Standard documents 9110 and 9120 define a subset framework of QMS requirements for unique Aviation, Space and Defense (ASD) support organization types. They specifically are maintenance and overhaul (9110) companies and material and product distribution (9120) organizations that support the ASD community. These companies do not design or produce products thus the standards are void of design, development requirements. 9115 and the software community it supports are closely coupled to design, modification of capability and the hardware or framework that is supported. Organizations that do software product change would be expected to have the appropriate parts of 9100 QMS framework to execute the software maintenance related activity.

10) What are examples of information assurance (IA) requirements in the standard which the organization/QMS for software should consider?

The standard does not have a specific section for information assurance requirements. Instead IA/Cyber requirements for software are addressed in various sections of the standard and are included when a process area or element should include checks on how information and software is created to protect vulnerability as well as managed, protected and verified for integrity. The standard begins to introduce into software quality a culture of deeper thinking that provides guidance for technical, security software life cycle protections, supply chain protection and internal audit focus around information assurance. This includes the thinking about notification, response, and recovery of cyber incidents.

In general, 9115 raises the floor for the complete supply base with respect to IA.

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