WL Academy
A Washington Laboratories, Ltd. Company

This Course is from a multi-part series. Below is a description of the complete series. Each of the following parts/sessions can be purchased separately at http://wll.coggno.com/shop:

Part 1: MIL-STD-461G, General Requirements
MIL-STD-461G incorporated many changes into the general requirements from changes in calibrations and configuring the test item to adding test equipment allowed. This class of the MIL-STD-461 subject series provides an overview with the new details and rationale for the changes. A necessary introduction that supports all the individual test methods of the subject classes.

Part 2: MIL-STD-461G, CE101, CE102
Conducted emission measurements are well defined but a thorough review of this class provides the basics on controlling data collection and presenting the measurements. Conducted emission measurements are applicable to all services and installations and the method supports variation in instrumentation that includes test parameter adjustments presented in this class.

Part 3: MIL-STD-461G, CE106, RE103
Antenna port emissions apply to many devices in this age of wireless technology used by a large variety of devices. This class discusses not only the measurements but provides guidance on managing the test configuration to prevent damage or saturation by transmitting signals. These tests call for conducted (CE106) testing with radiated (RE103) as the alternative where conducted measurements are hindered. If wireless is part of your product, this class is critical to preparing and executing the applicable tests.

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Part 4: MIL-STD-461G, RE101, RE102
Radiated emissions are applicable to all services and installations as the fundamental means of identifying interference producers. A few changes in revision "G" are identified along with the instruction on performing these tests and analyzing the data for potential measurement errors. These tests are frequently accomplished early to find risk areas that are solved early by the notion of "what goes out may come in" so potential susceptibility issues are often mitigated.

Part 5: MIL-STD-461G, CS101
CS101 – the first class of the susceptibility group introducing the concept of managing two test control levels while monitoring the test article performance. Keeping up with all the parameters and test item monitoring tasks the focus of the test engineer so this discussion helps with how to take care of the total test. This test appears very straight-forward but is frequently laden with test errors – an essential class for understanding the susceptibility testing.

Part 6: MIL-STD-461G, CS114, CS115, CS116
CS114 is likely the most error prone test because the complexity of two test control levels mixes with RF parameters that are greatly affected by parasitic elements of the configuration. CS115 and CS116 are similar in the approach but with transients being the culprit so this is integrated into the class. The test method details are presented with information on what is happening within the configuration that must be understood to be properly managed for test integrity.

Part 7: MIL-STD-461G, CS117, CS118
These tests were introduced in revision "G" to deal with induced lightning and electrostatic discharge events. These tests have many details associated with test parameters and calibration of the test levels and waveform control.

Part 8: MIL-STD-461G, RS101, RS103
Radiated susceptibility tests that represent the testing with the largest time in the overall test program. RS103 is applicable to all services and installations so understanding is essential. Many test items include wireless technology, understanding how to manage vulnerability from radiated interference with intentional reception is a crucial part of this class.

Part 9: MIL-STD-461G, CS103, CS104, CS105, CS109, RS105
This class provides an overview of the other test methods of MIL-STD-461. The group of tests have specific applicability and as such are infrequently specified – but when specified the test personnel need to understand the concepts to support preparation of the detailed test procedure. This class provides for that concept introduction.

Part 10: MIL-STD-461G, Documentation/DIDs From test planning to reporting and analysis of information for system level integration, the documentation review guides to meeting the data item description details. Throughout the test and evaluation program, well prepared documents provide guidance and critical details for acceptance of the results. Questions should be answered before being asked is a goal that is seldom achieved. Discussion on this portion of the test program is geard to support that goal.

Webinar Description

Military and Aerospace Systems must comply with Electromagnetic Compatibility (EMC) requirements. MIL-STD-461 is applied to Department of Defense (DoD) procurements for equipment and subsystems.

MIL-STD-461 test and evaluation methods will be presented, including system requirements, general requirements, test article configurations, and documentation. This course offers critical information for military compliance professionals, testing industry professionals, and developers involved with electronics systems development.

This multi-part series of 1-hour webinars presented at regular intervals throughout the calendar year provides detailed focus on performing the testing, reducing and understanding the data and managing test problems.

This course delivers the **what**, **why** and **how** in MIL-STD 461 compliance. Understanding the evaluation process will enlighten designers of complex Military equipment, help improve their designs and increase compliance with the testing regimens.

Webinar Objectives

In addition to describing test methodology and limits, we will discuss planning and reporting. Documentation of the evaluation process is critical. Also presented will be the concept of tailoring of requirements to meet program needs and rationale necessary for preparing acceptable tailoring.

Webinar attendees will receive a recording of the presentation and the presentation slides for reference long after the event.

Who Should Attend

- Product and program managers that need to understand the EMC compliance requirements;
- Compliance engineers responsible for technical EMC details supporting the product design;
- Laboratory managers and test personnel responsible for developing the test programs;
- Auditors and witnesses to gain insight on how tests are tailored for necessary variance from the standard.

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The Presenter

Steven G. Ferguson is Executive V.P. at Washington Laboratories, Ltd (WLL) and has been working in EMC, Safety, MIL-STD, Nuclear, Energy and related compliance engineering and test for over 35 years at test laboratories and manufacturers. His work includes designing products, developing procedures, performing tests and advising developers on routes and techniques for attaining product compliance. He has been directly involved with EMC design and compliance evaluation for many systems including several power plants (facilities and equipment qualification), hospitals, presidential aircraft, the Space Shuttle and Hubble Space Telescope. He presents various courses on EMI/EMC compliance including EMC for Nuclear Power Facilities, Architectural Shielding and a hands-on course MIL-STD-461 testing at the WLL facility in Maryland and on-site for multiple government and industrial clients. His work also includes EMC, Environmental and Safety evaluations for commercial, military and medical devices and training of hundreds of personnel on test and evaluation techniques. He has authored several papers on equipment qualification and evaluation techniques with presentations at many conferences. He is a member of the TR-102323 Working Group and supported preparation of Revision 4.

About WL Academy

the Electronics Industry's learning resource.

From EMC to Product Safety, from Radio Frequency to Compliance and Environmental Design, we can help manufacturers get the compliance training your design and testing engineers and technicians need.

The WL Academy specializes in comprehensive webinars, seminars and workshops that combine practical real-world engineering insights and solutions for today's engineering challenges. Taught by experienced engineers, WL Academy Seminars feature two to five day courses in compliance design, engineering, testing and measurement subjects. WL Academy's free workshops provide snapshot training days for current design and testing challenges. We also feature ancillary courses from nationally recognized partners in the electronics testing industry. Let us help your company ease your journey to product compliance.

WL Academy Engineering Courses

The WL Academy has a slate of national training courses geared to meeting the demands of today's progressive electronics designs and the needs of the professional engineers who must bring them to market on time and on budget. From the complex military systems to the state of the art ITE, from crucial medical and ever-changing wireless, from unique RF to telecommunications equipment our training suite of courses will help these industry engineers gain the practical training they need in an easy to learn environment. WL Academy instructors are engineers themselves in challenging, fast-paced manufacturing and service industries - *they get it.*

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