RTCA-DO-160G Training

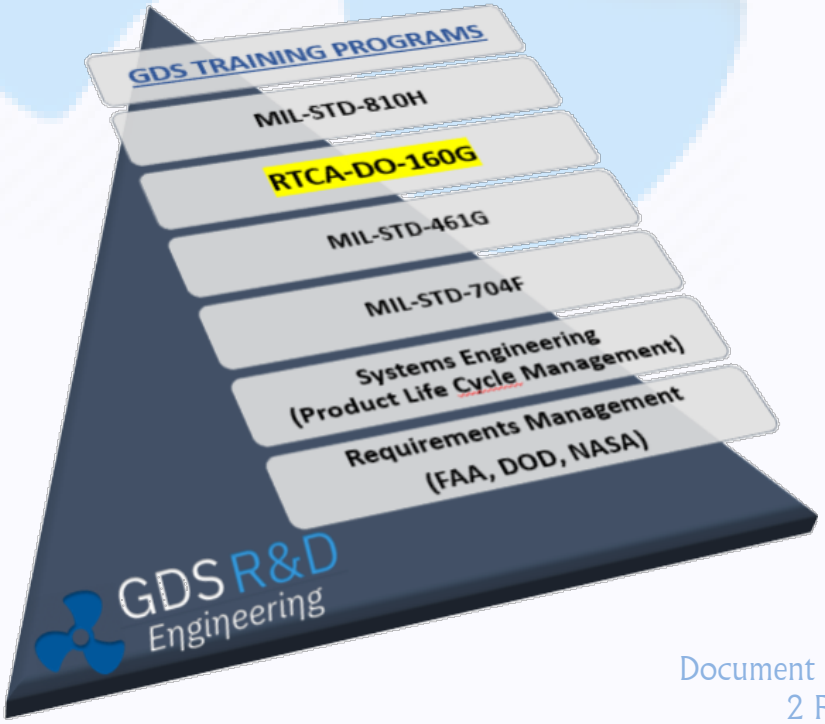
Environmental Testing of Airborne Equipment

TRAINING PROGRAM DESCRIPTION

Two and a half days of
focused **International** and **Online** Training
on **RTCA-DO-160G**

by

GDS Enginε^2ring R&D, Inc.



Document Revision Date:
2 February 2022

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Foreword

This training is an important step for testing and certifying your airborne equipment and products in accordance with the FAA/EASA test requirements. The training focuses on the test sections described in the standard document:

"RTCA-DO-160G Environmental Conditions and Test Procedures for Airborne Equipment
© 2010, RTCA, Inc."

GDS Engineering R&D, Inc. is an official member of RTCA Organization.
RTCA Organization is involved with the aviation industry and government professionals who are building consensus today on the electronic and telecommunication issues of tomorrow's aviation. That consensus forms the recommendations for policy, procedural and equipment standards that will affect the way we all do business in the worldwide aviation community.

The Instructors share their experience and knowledge gained by working long years in the field with designing products and performing tests in accordance with such as RTCA-DO-160, MIL-STD-810, and MIL-STD-461. The slides are supported by many graphics and test videos for the efficiency and clarity of the information and each session is planned in accordance with the sections in RTCA-DO-160G. Dr. Ismail Cicek is the lead instructor of this training and several experienced test personnel and design engineers help complete the training sessions.

Purpose

The purpose is to have a good understanding of equipment testing in accordance with RTCA-DO-160G document.

The attendees completing this training are expected to have knowledge for the following:

- Understand RTCA-DO-160 test sections and procedures
- Be able to write a list of susceptibilities
- Understand the test process goals and activities
- Develop test plans
- Plan and schedule tests
- Execute tests
- Understand test results
- Create test reports
- Be able to resolve issues in the test results by means of change recommendations, or accepting the anomalies with risk assessment.

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Training Scope

The training sessions cover the following topics with annotated slides, test photos, videos, and additional reference material from standards, specifications, and FAA/EASA guides and documents:

- Systems Engineering Process Overview and Test & Evaluation (T&E): Important Concepts, such as Product Development and V&V Processes, Test Requirements, Requirements Management, Environmental Profile, and Mission Profile.
- Part 21 and FAA/EASA Regulations
- Understanding the Purpose of the Tests
- Test Category Selections
- Test Requirement Reference
- Developing a List of Susceptibilities
- Test Equipment, Chambers, and other Devices
- Test Procedures and Other Technical Details of Running Tests
- Scheduling, Implementation of the Tests
- Review of Test Reports for all Test Sections
- Design Issues and Discussion of Test Failures, Recommendations
- Risk Management Process
- Additional or Alternative Standards and Test Recommendations

Read more details about this training content at the GDS Website:
http://www.GlobalDynamicSystems.com

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Instructors

Training is provided by Dr Ismail Cicek and an Avionics Chief Engineer who is also a Certified Verification Engineer (FAA/EASA). Training is also assisted by our personnel experienced in design and environmental testing. The second instructor with CVE certification has over 18 years of experience. He has worked as the avionics systems chief engineer in product development of avionics systems. He is also experienced in the product testing per environmental and EMI/EMC standards and FAA/EASA certification processes.

Dr. Ismail Cicek studied PhD in Mechanical Engineering Department at Texas Tech University in Texas, USA. He studied included random vibration. He has both industrial and academic experience for over 30 years. He gained engineering and leadership experience by working in the United States Department of Defense projects and programs as systems development engineer for 15 years. He led the development of various engineering systems for platforms including C-5, C-17, KC-10, KC-135, and C-130 E/H/J. Dr. Cicek's experience includes unmanned aerial vehicle development where he utilized the Geographical Information Systems (GIS) and Malfunction Data Recorder Analysis Recorder System (MADARS) development for military transport aircraft.

Dr Cicek worked as the lab chief engineer for five years at the US Air Force Aeromedical Test Lab at WPAFB, OH. He received many important awards at the positions he served, due to the excellent team-work and his detail oriented and energetic personality. These included Terra Health's Superior Client Award in 2009 and Engineering Excellence Award in 2010 as well as an appreciation letter from the US Air Force Aeronautical Systems Center (ASC), signed by the commander in charge.

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Dr Cicek also established a test lab, called Marine Equipment Test Center (METC) and located at Istanbul Technical University, Tuzla Campus, for testing of equipment per military and civilian standards, such as RTCA-DO-160. Providing engineering, consultancy, and training services to many companies and organizations, Dr. Cicek has gained a good insight into the tailoring of standard test methods in accordance with military standards, guides, and handbooks as well as Life Cycle Environmental Profile LCEP) developed for the equipment under test.

Dr. Cicek also completed various product and research projects, funded in the USA, EU, and Turkey. He is currently teaching at Istanbul Technical University Maritime Faculty, Tuzla/Istanbul. He is the founding manager of the METC in Tuzla Campus of ITU. Meanwhile, he provided engineering services, consultancies, and training to many organizations for product development, engineering research studies such as algorithm development, test requirements development, and test plans and executions.

Dr Cicek worked as the Principle Investigator and became a Subject Matter Expert (SME) at the US Air Force Aeromedical Test Lab (WPAFB/OH) for certifying the products to the US Air Force Platform Requirements. He also developed Joint Enroute Care Equipment Test Standard (JECETS) in close work with US Army Test Lab engineers and managers.

Read DAU Paper: "A New Process for the Acceleration Test and Evaluation of Aeromedical Equipment for U.S. Air Force Safe-To-Fly Certification". Click to display this report.

GDS Team has provided MIL-STD-810, RTCA-DO-160, MIL-STD-461 training courses to more than five hundred students and over one hundred organizations around the world since 2009. Read more details about the instructors at https://www.GlobalDynamicSystems.com.

Training Schedule and Execution Type

- Online training using ZOOM.
- Led by live two instructors experienced in the field by both testing and lecturing.
- Two and a half days of focused online training schedule is typically as follows
  - 1st Day: 09:00 – 17:00 (Lunch Break between 12:30 and 13:30)
  - 2nd Day: 09:00 – 17:00 (Lunch Break between 12:30 and 13:30)
  - 3rd Day: 09:00 – 13:00
  - Time zone: Central European Time (CET)
- Attendees will receive a Training Certificate.
- Training includes knowledge check quizzes, a competition type, fun way or learning with prizes.

Visit GDS Website to check the calendar of scheduled training classes and for registration information. Or, send an email to us with your registration request: info@GlobalDynamicSystems.com.

Or call us to further discuss about your training needs. Ph: +1 (937) 912-1220 (USA) | Ph: +90 (537) 210-4068 (Turkey)

Our training calendar includes all open training classes, including RTCA-DO-160, MIL-STD-810, and MIL-STD-461.

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Training Contents (Detail)

Training covers each test section of the RTCA-DO-160G and the following items are discussed in each of the individual training session:

- Purpose of the Test
- Potential Environmental Effects to Equipment Under Test (EUT) Fundamental Subjects (that may be of importance for understanding) Equipment Categories
- Test Equipment, Cabins, or Devices Test Environment
- Test Pass/Fail Criteria Test Procedures
- Evaluation of the Test Results
- Potential Failures and Design Recommendations Additional Discussions and Recommendations

RTCA-DO-160G Test Sections:

Environmental

- Section 4.0 Temperature and Altitude
- Section 5.0 Temperature Variation
- Section 6.0 Humidity
- Section 7.0 Operational Shocks and Crash Safety
- Section 8.0 Vibration
- Section 9.0 Explosion Proofness
- Section 10.0 Waterproofness
- Section 11.0 Fluids Susceptibility
- Section 12.0 Sand and Dust
- Section 13.0 Fungus Resistance
- Section 14.0 Salt Spray
- Section 24.0 Icing
- Section 26.0 Fire, Flammability

EMI/EMC

- Section 15.0 Magnetic Effect
- Section 16.0 Power Input
- Section 17.0 Voltage Spike
- Section 18.0 Audio Frequency Conducted Susceptibility – Power Inputs
- Section 19.0 Induced Signal Susceptibility
- Section 20.0 Radio Frequency Susceptibility (Radiated and Conducted)
- Section 21.0 Emission of Radio Frequency Energy
- Section 22.0 Lightning Induced Transient Susceptibility
- Section 23.0 Lightning Direct Effects
- Section 25.0 Electrostatic Discharge

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Training Material

The Instructors present the topics using the presentation slides with references to RTCA-DO- 160G sections and contents with the inclusion of information included from relevant regulations, standards, and specifications. The lecturers provide slides for sharing their own experience and knowledge gained by working long years in the field and performing tests in accordance with RTCA-DO-160, MIL-STD-810, and MIL-STD-461. The slides are supported by many graphics and test videos for the efficiency and clarity of the information.

The sides and other sharable course material will be shared with the registered students before the class using GOOGLE DRIVE.

- Registration includes all presentations and additional material shared before the class.

The RTCA-DO-160G standard must be purchased separately through RTCA, Inc. website at https://www.rtca.org/standards/publications/.

Organizational (Group) Training

- Upon request, a training can be customized to your organizational needs. In such cases, training could emphasize selected topics in more details with additional discussions and Qs & As.
- Considerable discounts will apply to organizational trainings.
- Please communicate with us to discuss further.

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Teknopark Istanbul

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Our References

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