

# RTCA-DO-160G Training

## Environmental Testing of Airborne Equipment

### TRAINING PROGRAM DESCRIPTION

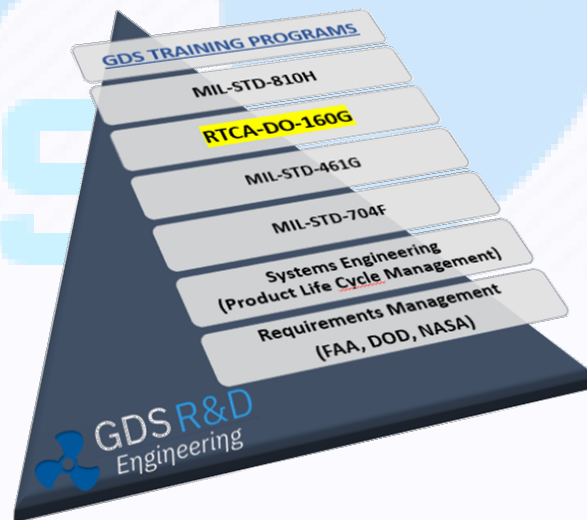
Two and a half days of  
focused **Online or On-Site Training**  
on **RTCA-DO-160G**

by

**Dr. Ismail Cicek**

**Global Dynamic Systems, Inc.**

**(GDS)**



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## Foreword

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

The instructors share their experience and knowledge gained by working long years designing products and performing tests with test standards 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 following 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. The following link describes Dr. Cicek's experiences on the topic in more detail:

<https://www.globaldynamicsystems.com/dr-i-cicek/>



## Purpose

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

The attendees completing this training are expected to know 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 using change recommendations or accepting the anomalies with risk assessment.

## 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 and 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):

<http://www.GlobalDynamicSystems.com>.

## Instructors

Training is provided by [Dr Ismail Cicek](#), with over 20 years of experience in the environmental qualification testing of products by, such as MIL-STD-810H and RTCA-DO-160G. An Avionics Chief Engineer, a Certified Verification Engineer (FAA/EASA) with over 18 years of experience presents the EMI/EMC sections. Training is also assisted by our personnel, who are experienced in designing and environmental testing of military and aerospace equipment.

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, and MIL-STD-461 training courses to more than five hundred students and over one hundred organizations worldwide since 2009. Read more details about the instructors at <https://www.GlobalDynamicSystems.com>.

## Training Schedule and Execution Type

- Online training using ZOOM.
- Led by two live instructors experienced in the field by 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 - a fun way of learning with prizes.

**Attendees will receive a Training Certificate.**

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

[Our training calendar](#) includes all open training classes, including RTCA-DO-160, MIL-STD-810, and MIL-STD-461.

## Training Contents (Detailed)

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

- 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

## Training Material

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

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 the RTCA, Inc. website at <https://www.rtca.org/standards/publications/>.



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Global Dynamic Systems is an official member of RTCA Organization.



## Our References

We have provided training courses to over 120 organizations and more than 800 persons worldwide.

