MIL-STD-810H Training

Environmental Testing of Military Equipment

TRAINING PROGRAM DESCRIPTION

Two and a half days of
focused **International** and **Online Training**
on **MIL-STD-810H** with Emphasis on "Tailoring"

by

GDS Enginε^2ring R&D, Inc.

Document Revision Date:
2 February 2022

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

Foreword

Training on MIL-STD-810H Environmental Testing
with Tailoring Examples

This training is an important step for testing and certifying your military equipment and products in accordance with MIL-STD-810H, platform test requirements, and other applicable standards and specifications. The training focuses on the test sections described in the standard document:

MIL-STD-810H
US Department of Defense Test Method Standard
Environmental Engineering Considerations and
Laboratory Tests

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-160G, MIL-STD-810H, and MIL-STD-461G. 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 test methods described in MIL-STD-810H. Dr. Ismail Cicek is the lead instructor of this training and several experienced test personnel and design engineers help complete the training sessions efficiently.

Purpose

The purpose is to have a good understanding of equipment testing in accordance with MIL-STD-810H document.

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

- Understand MIL-STD-810H test methods and procedures
- Understand how to apply tailoring in view of Life Cycle Environmental and Mission Profiles
- 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.

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

Training Scope

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

- Systems Engineering Process Overview and Test & Evaluation (T&E): Important Concepts, such as Product Development and V&V Processes, Test Requirements, Requirements Management, Concepts of Operations (CONOPS) Environmental Profile (LCEP), and Mission Profile/Requirements.
- Tailoring Process
- MIL-STD-810H Part I, II, and III
- Understanding the Purpose of the Test Methods
- Test Methods and Procedure Selection based on Equipment Type
- Developing List of Susceptibilities
- Test Equipment, Chambers, and other Devices
- Test Procedures and Other Technical Details of Running Tests with Tailoring
- Scheduling, Implementation of the Tests
- Review of Test Reports
- Design Issues, Discussion of Test Failures, Test Interruptions, and Recommendations
- Risk Management Process for Resolving Anomalies
- Additional or Alternative Standards (Military and Industrial) and Test Recommendations

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

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

Instructors

Training is mainly provided by Ismail Cicek, assisted by several GDS personnel experienced in environmental testing and management.

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.

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

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.

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

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 Types and Test Requirements
- 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
- Also includes some tests, which are not included in the MIL-STD-810H yet it may be a requirement.

MIL STD-810H Test Methods

500.6 Low Pressure (Altitude)
501.7 High Temperature
502.7 Low Temperature
503.7 Temperature Shock
504.3 Contamination by Fluids
505.7 Solar Radiation (Sunshine)
506.6 Rain (IP for Water)
507.6 Humidity
508.8 Fungus
509.7 Salt Fog
510.7 Sand and Dust (IP for Sand/Dust)
511.7 Explosive Atmosphere
512.6 Immersion (IP for Water)
513.8 Acceleration
514.8 Vibration
515.8 Acoustic Noise
516.8 Shock
517.3 Pyroshock
518.2 Acidic Atmosphere
519.8 Gunfire Shock
520.5 Combined Environments
521.4 Icing/Freezing Rain
522.2 Ballistic Shock
523.4 Vibro-Acoustic/Temperature
524.1 Freeze / Thaw
525.2 Time Waveform Replication
526.2 Rail Impact
527.2 Multi-Exciter
528.1 Mechanical Vibrations of Shipboard Equipment (Type I – Environmental and Type II – Internally Excited

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

Tailoring is Emphasized

Platform and equipment test examples are provided in each test method presentations and discussions, including:

- Military aircraft platforms (fixed and rotary wing), ground vehicles, and navy ships
- Avionics, electrical and mechanical systems, and structural project applications
- Test tailoring examples to include the selection of tests, parameter levels, and durations
    - Concepts of Operations (CONOPS) document and test curve establishment.
    - Tailoring and Life Cycle Environmental Profile (LCEP)
    - Mission Profile

For tailoring, read more at https://www.globaldynamicsystems.com/posts/mil-std-810h-training-tailoring-is-essential-explained/.

Training Material

The Instructors present the topics using the presentation slides with references to MIL-STD-810H methods and procedures 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 MIL-STD-810H, RTCA-DO-160G, and MIL-STD-461G. 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.

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.

GDS Engineering R&D, Inc. is an official member of RTCA Organization.

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com

Our References

We have provided training courses to more than 100 companies and organizations and over 500 individual trainees so far.

GDS Engineering R&D, Inc | GDS Mühendislik ARGE San. Tic. Ltd. Şti
TEKNOPARK ISTANBUL. Sanayi Mah. Teknopark Bul. 1/2C: 2008. 34906 Pendik – Istanbul
Tel: TURKEY +90 (537) 210-4068 | USA: +1 (937) 912-1220
E-mail : info@GlobalDynamicSystems.com; **Web:** www.GlobalDynamicSystems.com