Designation: F3425 – 20

Standard Guide for Aircraft Electronics Installation Technician Certification[1]

This standard is issued under the fixed designation F3425; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 The purpose of this guide is to address the fundamental subject knowledge activities and functions for avionics professionals to be titled Aircraft Electronics Installation Technicians (AEIT).

1.2 This guide is the basis for the Aircraft Electronics Installation Technician (AEIT) certification, an endorsement to the Aircraft Electronics Technician (AET) certification. Candidates must be a certified AET to take the certification exam associated with this guide.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

F2490 Guide for Aircraft Electrical Load and Power Source Capacity Analysis

F3060 Terminology for Aircraft

F3245 Guide for Aircraft Electronics Technician Personnel Certification

2.2 *Federal Aviation Administration (FAA) Standards:*[3]

AC43.13-1B Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair

AC43.13-2B Acceptable Methods, Techniques, and Practices – Aircraft Alterations

FAA Federal Aviation Regulations for Aviation Maintenance Technicians

FAA-H-8083-30 Aviation Maintenance Technician Handbook – General

FAA-H-8083-30 Aviation Maintenance Technician Handbook – Airframe Volume 1

FAA-H-8083-30 Aviation Maintenance Technician Handbook – Airframe Volume 2

3. Terminology

3.1 Reference F3060 Standard Terminology for Aircraft.

3.2 Reference F3245 Standard Guide for Aircraft Electronics Technician Personnel Certification, Section 6 Core Competencies—Common Maintenance Practices, Fundamentals of On-Equipment Maintenance and Aircraft Fundamentals.

3.3 Reference Table 1 for knowledge level definitions relating to the education requirements for aircraft electronics installation professionals.

4. Significance and Use

4.1 The guide is intended to be used to assess competencies of qualified individuals who wish to become certified as an aircraft electronics installation technician through a program such as the National Center for Aerospace and Transportation Technologies (NCATT).

4.2 The guide is intended to be used in concert with a certification provider's structure and materials for management, exam delivery, and candidate preparation.

5. Test Knowledge Requirements

5.1 The following subject knowledge areas shall be assessed by levels (referenced in Table 1) of competency in the exam items.

5.2 *Risk Management*—Level 2 AET can determine and apply the following:

5.2.1 Safety, and

5.2.2 Reference AET standard for safety.

5.3 *Pre-Installation/Integration/Planning*—Level 1 AET understands and can explain the following:

5.3.1 Review installation quote.

[1] This guide is under the jurisdiction of ASTM Committee F46 on Aerospace Personnel and is the direct responsibility of Subcommittee F46.02 on Avionics and Information Technology Endorsements.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from Federal Aviation Administration (FAA), 800 Independence Ave., SW, Washington, DC 20591, http://www.faa.gov.

TABLE 1 Knowledge Level Definitions

Definition: Knowledge Levels	
Level 1	A familiarization with the principal elements of the subject Objectives: • The applicant should be familiar with the basic elements of the subject. • The applicant should be able to give a simple description of the whole subject, using common words and examples. • The applicant should be able to locate methods, procedures, instructions, and reference material. • The applicant should be able to use typical terms.
Level 2	A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge in a practical manner. Objectives: • The applicant should be able to understand the theoretical fundamentals of the subject. • The applicant should be able to find and interpret maintenance data and information. • The applicant should be able to give a general description of the subject using, as appropriate, typical examples. • The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject. • The applicant should be able to read and understand sketches, drawings, and schematics describing the subject. • The applicant should be able to apply their knowledge in a practical manner using detailed procedures.
Level 3	A detailed knowledge of the theoretical and practical aspects of the subject. To know, understand, and apply facts, principles, theories, and concepts. A capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner. Objectives: • The applicant should know the theory of the subject and inter-relationships with other subjects. • The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples. • The applicant should understand and be able to use mathematical formulae related to the subject. • The applicant should be able to read, understand, and prepare sketches, simple drawings, and schematics describing the subject. • The applicant should be able to apply their knowledge in a practical manner using manufacturer's instructions or other acceptable data. • The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate. • The applicant should be able to perform all skill operations to a return-to-service standard using appropriate data, tools, and equipment. • The applicant should be able to perform inspections in accordance with acceptable or approved data.

5.3.2 *Statement of work/scope of work*
5.3.2.1 Project timeline, and
5.3.2.2 Customer requirements.
5.3.3 *Aircraft survey*
5.3.3.1 Equipment and aircraft structures to be altered,
5.3.3.2 Mechanical installation considerations, and
5.3.3.3 Electrical installation considerations.
5.3.4 *Aircraft records review*
5.3.4.1 Aircraft maintenance records:
(1) Electrical load analysis,
(2) Weight and balance, and
(3) Instructions for Continued Airworthiness (ICA).
5.3.4.2 Pilot operating handbook:
(1) Flight Manual Supplements (FMS), and
(2) Equipment list.
5.3.4.3 Supplemental Type Certificate (STC)/Approved Model List (AML) compatibility.
5.3.4.4 Aircraft registration and airworthiness certificate.
5.3.5 *Equipment availability*
5.3.5.1 Sourcing equipment and installation supplies:
(1) Traceability, and
(2) Airworthiness.
5.3.6 *Equipment compatibility*
5.3.6.1 Interconnection,
5.3.6.2 Physical limitations, and
5.3.6.3 Performance standards (TSO, PMA, ASTM, RTCA).
5.3.7 *Coordination of installation activities*
5.3.7.1 Assignment of appropriate personnel for install tasks based on capabilities,
5.3.7.2 Tools and test equipment available and calibrated,
5.3.7.3 Concurrent maintenance, and
5.3.7.4 Hangar space requirements and limitations.
5.3.8 *Supporting engineering paperwork*
5.3.8.1 DER drawings, and
5.3.8.2 Installation wiring diagrams.
5.3.9 *Method of compliance*
5.3.9.1 Alteration evaluation process:
(1) Alteration types (major/minor),
(2) Alteration guidelines and considerations,
(3) Alteration terminology, and
(4) Alteration process.
5.3.9.2 Alteration approval.

5.4 *Pre-Installation Inspection and Documentation—LEVEL 2:*
5.4.1 *New Equipment Acceptance*—AET understands and can explain the following:
5.4.1.1 Receiving inspection,
5.4.1.2 Physical condition, and
5.4.1.3 Inventory of equipment and accessories for installation.
5.4.2 *Aircraft Acceptance*—AET understands and can explain the following:
5.4.2.1 Inspection of physical condition, and
5.4.2.2 Inventory equipment:
(1) Installed/portable equipment, and
(2) Owner/pilot's personal property.
5.4.3 *Functional/Operational Checks*—AET understands and can demonstrate the following: