Designation: F3362 – 18

Standard Guide for Onboard Communication & Safety Systems Personnel Certification[1]

This standard is issued under the fixed designation F3362; 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 basic fundamental subject knowledge activities and functions for avionics professionals to be titled Onboard Communication & Safety Systems (OCSS) Technicians.

1.2 *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.*

1.3 *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]

F3060 Terminology for Aircraft

F3245 Guide for Aircraft Electronics Technician Personal Certification

2.2 *FAA Standards:*[3]

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

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

FAA 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 *Definitions*—See Terminology F3060.

3.2 See Table 1 for knowledge level definitions relating to the education requirements for Onboard Communication & Safety Systems (OCSS) 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 Onboard Communication & Safety Systems (OCSS) 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:*

5.2.1 *Safety – LEVEL 1*—See ASTM F3245 Guide for Aircraft Electronics Technician Personal Certification, Section 6, Core Competencies – Common Maintenance Practices, Fundamentals of On-Equipment Maintenance and Aircraft Fundamentals.

5.2.2 *Operational Considerations – LEVEL 1:*

5.2.2.1 Audio Decibel Level,

5.2.2.2 Radio Communication Etiquette, and

5.2.2.3 406 Megahertz Emergency Locator Transmitter (ELT) Inadvertent Alerts.

5.2.3 *Shipping/Handling Considerations – LEVEL 1:*

5.2.3.1 Lithium Batteries,

5.2.3.2 Battery Disposal, and

5.2.3.3 International Air Transport Association (IATA) Requirements.

5.2.4 *Federal Communication Commission (FCC) Testing Requirements – LEVEL 1.*

[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 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 interrelationships 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 *Audio Distribution Systems:*

5.3.1 *General – LEVEL 1:*

5.3.1.1 *Purpose*—Allows flight crewmembers to communicate between flight stations and to address passengers.

5.3.1.2 *Function/Use*—Provide control methods for audio inputs and outputs from multiple systems including amplification and impedance matching.

5.3.1.3 *Common Test Equipment:*

(1) Audio Generator,

(2) Time Domain Reflectometer (TDR), and

(3) Tone Generator/Sound Meter.

5.3.2 *System Components – LEVEL 1:*

5.3.2.1 Control Panel, and

5.3.2.2 Microphones.

5.3.3 *Integration – LEVEL 2:*

5.3.3.1 Analog Audio Panel,

5.3.3.2 Digital Audio Panel,

5.3.3.3 *Inputs:*

(1) Switched/Unswitched,

(2) Muted/Unmuted,

(3) Communication Systems,

(4) Navigation Systems,

(5) Microphones,

(6) Passenger Entertainment Systems,

(7) Bluetooth/Wireless Devices, and

(8) Auxiliary Alerting Signals:

(a) Prioritization of Auxiliary Alerts,

(b) Stall Warning/Angle of Attack (AOA),

(c) Terrain Alerting & Warning System (TAWS)/Enhanced Ground Proximity & Warning System (EGPWS),

(d) Traffic Alerting & Collision Avoidance System (TCAS), and

(e) Miscellaneous Callouts/Warnings:

(1) Airframe Warning Systems,

(2) Autopilot Disconnect,

(3) Trim Runaway Warning, and

(4) Gear Warning.

5.3.3.4 *Outputs:*

(1) Headsets,

(2) Speakers,

(3) Passenger Address System,

(4) Passenger Stations,

(5) Bluetooth/Wireless Devices,

(6) Communication Systems:

(a) High Frequency (HF) Communication Systems,

(b) Very High Frequency (VHF) Communication Systems,

(c) Ultra High Frequency (UHF) Communication Systems, and

(d) Satellite Communication Systems (SatCom).

(7) Cockpit Voice Recorder (CVR).

5.3.3.5 Impedance Matching, and

5.3.3.6 Interference/Noise Prevention:

(1) Wire Shielding, and

(2) Grounding.

5.3.4 *System Testing – LEVEL 2:*

5.3.4.1 *General System Testing:*

(1) Grounding and Ground Loops,

(2) Shielding,

(3) Continuity Checks,

(4) Self-Tests, and

(5) On-screen Diagnostics.

5.3.4.2 Input/Output Audio Switching,

5.3.4.3 Press-to-Talk (PTT) Operation,

5.3.4.4 General System Testing:

(1) Audio Muting,

(2) Audio Quality/Level,

(3) Sidetone,

(4) Microphones,

(5) Headphones, and

(6) Speakers.

5.3.4.5 Emergency Mode/Fail-Safe Mode,