U.S. Department of Transportation
Federal Aviation Administration

Policy Statement

Subject: Installation of Mounting Devices and Wiring Integration for Attachment of Portable Displays and Electronic Devices in Normal, Utility, and Acrobatic Category Airplanes.

Date:

Initiated By: ACE-100

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Summary

The purpose of this memorandum is to clarify Federal Aviation Administration (FAA) policy for the installation of mounting devices for the attachment of portable electronic devices (PEDs) in normal, utility, and acrobatic category airplanes. The proliferation of portable, uncertified electronic displays has led to confusion regarding their proper attachment requirements. These devices may include, but are not limited to, portable GPS units and portable electronic displays.

Definition of Key Terms

In the text below the terms "must," "should," and "recommend" have a specific meaning that is explained in Attachment 1.

Applicability

This policy statement provides small aircraft owners, operators, and pilots operating Normal, Utility, and Acrobatic Category airplanes under Title 14 of The Code of Federal Regulations (14 CFR) part 91 (not operating under part 91, subpart F or K), with information on the attachment of portable, uncertified cockpit displays attached to an airplane's installed mounting device. These compact, portable, highly functional display units have not been determined to be suitable for operational credit or as a primary source of required flight and navigation instruments by the FAA. It does not apply to any airplane operator seeking to use an attached PED to replace required flight or navigation instruments.

Current Regulatory and Advisory Material

AC 23.1311-1B, Installation of Electronic Displays in Part 23 Airplanes
AC 91.21-1B, Use of Portable Electronic Devices Aboard Aircraft
AC 91-78, Use of Class 1 and Class 2 Electronic Flight Bag (EFB)
AC 120-76A, Guidelines for the Certification, Airworthiness, and Operational Approval of Electronic Flight Bag Computing Devices
AC 43.13-1B, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair
AC 43.13-2B, Acceptable Methods, Techniques, and Practices - Aircraft Alterations
AC 20-173, Installation of Electronic Flight Bag Components
ASTM F2639, Standard Practice for Design, Alternation, and Certification of Airplane Electrical Wiring Systems

Relevant Past Practice

Operators have long recognized the benefits of PEDs for supplemental information. Examples of PED functions include flight planning, electronic approach charts, weight & balance calculation, automatic logbook, electronic checklists, electronic manuals, weather & aeronautical data, terrain awareness, positional information, backup navigation, airport taxiway diagrams, and electronic aeronautical charts. PEDs can also host many other functions, including: moving map graphics (showing aircraft position) with terrain and obstacle alerting and traffic information service (to assist in the identification & proximity of other aircraft). Additional examples of functions they can host are emergency flight instruments, including; ground speed, turn rate indicator, altitude, vertical speed, and a horizontal situation indicator with a course deviation scale and a vertical navigation bar. When using a PED for these supplemental functions, the pilot is not relieved from the requirement to follow regulations, operational requirements, and/or procedures and limitations found in the Airplane Flight Manual or other applicable requirements.

Policy

PED navigation and instrumentation displays:

PEDs attached to installed mounts are not approved for use as a source of any required flight or navigation instruments or for primary reference in the performance of any approved operation. They cannot replace or displace any equipment required by the applicable design or regulatory requirements unless such modification is specifically approved under TC or STC.

Installation of mounting devices:

Portable devices may be attached to the airplane by an installed mounting device, and may connect to airplane power and interface with various installed systems during normal operation and use. Section 23.1309, in part, requires such connectivity to not adversely impact the operation of required equipment or adversely impact flight safety.

The mounting device installation, including the PED system power and data connectivity may be considered a minor alteration. The intended function and operating limitations must be considered in the installation of the mounting device and PED. For an installation to be considered a minor alteration:

- The PED must not replace any system or equipment required by regulations.
- The information accessible via the PED must not be confused with primary flight information, nor may it contradict that information.
- The mounting device installation and attached PED must be placarded appropriately for its intended function and limitations. (Example "Not approved For Primary Navigation.")
- The layout of required equipment must not be affected by installation of the mounting device or by attachment of the PED to that mount, or by connection of any wiring provisions to the mount or the PED.
- The installed mounting device (or other securing mechanism) that attaches or allows mounting of the PED system must not be positioned in a way that obstructs visual or physical access to aircraft controls, displays, flight crew ingress or egress, or external vision.
- It is recommended that the mount design allow the user easy access to the PED controls and a clear view of the PED display while in use.
- The mount in small airplanes may be installed in the Primary Maximum Field of View (as defined in AC 23.1311-1B) but should not be installed in the Primary Field of View and should not be the primary point of focus.
- If the installed mount or wiring provisions include cabling to mate with airplane systems, the cable should be installed in accordance with the requirements of AC 43.13-1B.
- It is recommended that temporary cabling not hang loosely or in a way that compromises task performance and safety. Flight crewmembers should be able to secure easily the temporary cables out of the way during aircraft operations (e.g., cable tether straps).
- The installed mount and any required electrical wiring must be composed of acceptable materials.
- If the attached PED can be connected, either wired or wirelessly, to other airplane systems, it must not transmit any data to installed equipment unless the connection is specifically approved under TC or STC. Attached PEDs may receive data from installed equipment.
- Attached PED failures must not adversely affect other installed airplane systems or adversely impact flight safety.

The installed mounting device should retain the portable unit in all flight regimes where the PED will be attached and meet the requirements prescribed in § 23.561(b)(3) for items of mass. The mounting device installation should conform to existing guidance in AC 43.13-2B or ASTM F2639.

If the criteria for a minor alteration cannot be met, or the change is being included with another major alteration or type design change, Aircraft Certification Service engineering evaluation could be necessary. Aircraft Certification Service evaluation and design approval will be limited to the approval of the applicable mounting device to include design, acceptable material characteristics, mounting strength, crashworthiness, data connectivity, power connection, and installation location.

Additional Considerations

Section 91.21 regulates the use of PEDs while it is operated under IFR.

This guidance should not be interpreted to prevent the installation of battery powered communication and surveillance equipment in airplanes not originally certificated with an electrical system.

Effect of Policy

The general policy stated in this document does not constitute a new regulation or create what the courts refer to as a "binding norm." The FAA Aircraft Certification Offices should implement this policy when applicable to the specific project. Whenever an applicant's proposed method of compliance is outside this established policy, it must be coordinated with the policy issuing office, e.g., through the issue paper process or equivalent. Similarly, if the implementing office becomes aware of reasons that an applicant's proposal, that meets this policy, should not be approved, the office must coordinate its response with the policy issuing office. Similarly, if an applicant's proposal meets this policy, but the implementing office becomes aware of reasons that the proposal should not be approved, the office must coordinate its response with the policy issuing office.

Applicants should expect that the certificating officials would consider this information when making findings of compliance relevant to new certificate actions. Also, as with all advisory material, this policy statement identifies one means, but not the only means, of compliance.

Earl Lawrence
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Attachment

Terms

Table A-1 defines the use of key terms in this policy statement. The table describes the intended functional impact.

Table A-1 Definition of Key Terms

	Regulatory Requirements	**Acceptable Methods of Compliance (MOC)**	**Recommendations**
Language	Must	Should	Recommend
Meaning	Refers to a regulatory requirement that is mandatory for design approval	Refers to instructions for a particular MOC	Refers to a recommended practice that is optional
Functional Impact	No Design Approval if not met	Alternative MOC has to be approved by issue paper.	None, because it is optional