



# Federal Aviation Administration

---

---

## Memorandum

Date: November 20, 2015

To: Manager, Boeing Aviation Safety Oversight Office, ANM-100B

From: Manager, Transport Airplane Directorate, ANM-100

Prepared by: George Panger, ANM-150S

Subject: INFORMATION: Lighted "No Smoking" Signs in Lieu of Placards on Boeing Model 787-8/-9/-10 (Project Nos. TC6918SE-T, PS06-0496, PS06-0497, PS13-0546 and PS14-1031)

ELOS Memo#: TC6918SE-T-CS-12

Regulatory Ref: §§ 25.791(a), 21.21(b)(1)

---

---

The purpose of this memorandum is to inform the certificate management aircraft certification office of an evaluation made by the Transport Airplane Directorate (TAD) on the establishment of an equivalent level of safety (ELOS) finding for the Boeing Model 787-8 airplanes.

This memo was subsequently revised to extend this ELOS to the Boeing Model 787-9 and 787-10 airplanes.

### Background

Subsequent to enactment of Public Law 101-164 on November 21, 1989, which prohibited smoking on most scheduled flight segments in the United States, certain equipment and operational requirements associated with smoking on airplanes were re-examined as possibly inappropriate and unnecessarily burdensome.

Title 14, Code of Federal Regulations (14 CFR) 25.791 and 25.853(c), at Amendment 25-32, were incorporated by reference in the type certification basis of the Model 737 and 757 series aircraft. Section 25.853(c) required that if smoking were not allowed (ashtrays not installed), then "No Smoking" placards were required. Conversely, if smoking were allowed, then these placards would not be required. Section 25.791 required that when passenger information signs were installed to comply with the operating rules of the chapter, at least one sign (using either letters or symbols) notifying when smoking is prohibited must, when illuminated, be legible to each person seated in the passenger cabin under all probable

conditions of cabin illumination and that these signs must be so constructed that the crew can turn them on and off.

Section 121.317(a), at that time, required affected operators to have lighted “No Smoking” signs installed that were capable of being turned on and off by the crew. However, § 121.317(c) did not require that these lighted signs be illuminated if “No Smoking” placards were also installed. If these signs were elected to be illuminated on airplanes which also had placards, the signs were to remain illuminated for the duration of the flight segment. Model 737 and 757 series aircraft not operated in accordance with part 121, or where they were not subject to the above noted Public Law, were not required to have lighted signs installed.

For the Model 737 and 757 series aircraft, Boeing proposed a method of compliance that would essentially delete the then-required placards and crew-controllable lighted signs, in favor of what could be termed lighted placards. The FAA determined that implementation of this method of compliance would result in a superior configuration to that provided by a placards-without-lighted-signs-illuminated configuration, and would avoid the potential for mixed messages inherent in non-part 121 airplanes as discussed above. As a result, the FAA granted Boeing an equivalent level of safety finding in 1992 to § 25.853(c) Amendment 25-32 which allowed lighted “No Smoking” signs to be used in lieu of “No Smoking” placards. Acceptability of this finding was predicated upon it being accomplished without adversely impacting essential bus loads, isolation requirements, etc. The provisions of that equivalent level of safety finding were extended to the Model 767 series aircraft in 1995, by which time the “No Smoking” placard requirements had been moved entirely to § 25.791(a) at Amendment 25-72.

Subsequently, Boeing requested that the same equivalent level of safety finding be extended to other Boeing model aircraft and included a request for a separate compliance method for the 747-400/-400D and the 777-200/-300 because the lighting on those aircraft is software controlled and the passenger information sign system cannot be independently controlled. Those requests resulted in the release of an equivalent level of safety finding issue paper in 1997 which extended the previous finding to Boeing Model 727, 747, and 777 series aircraft and granted a new equivalent level of safety finding for all aircraft dependent on software control.

At this time, Boeing has requested that the same equivalent level of safety findings be granted to the Model 787 series aircraft so that lighted “No Smoking” signs can be used in lieu of “No Smoking” placards required by § 25.791(a) at Amendment 25-72.

### **Applicable regulation(s)**

§§ 21.21(b)(1), 25.791(a)

### **Regulation(s) requiring an ELOS**

§ 25.791(a)

**Description of compensating design features or alternative standards which allow the granting of the ELOS (including design changes, limitations or equipment need for equivalency)**

The FAA has determined that the Model 787 series “No Smoking” placards required by § 25.791, Amendment 25-72 may be replaced with lighted “No Smoking” signs provided that Boeing offers as a compensating feature that the signs are continuously illuminated for the occupants without the flight or cabin crew having to turn the signs on. On aircraft with independent passenger information sign systems, this will be accomplished by hardwiring the system such that the signs are on whenever the airplane is powered. On aircraft without independent passenger information sign systems, this will be accomplished by using the Advanced Cabin Entertainment and Service System (ACCESS) database, or equivalent, to provide configuration control sufficient to simulate a hardwired sign.

This finding is not applicable to aircraft operational regulations (i.e., §§ 121.317(a), 125.217(a)) which require that these signs be constructed so that crew can turn them on or off. Applicants who operate in 14 CFR parts 121 and 125 service and elect to have the signs continuously illuminated through the means noted above, need to obtain approval to operate in this particular configuration from their Certificate Management Organization or applicable Flight Standards District Office.

**Explanation of how design features or alternative standards provide an equivalent level of safety to the level of safety intended by the regulation**

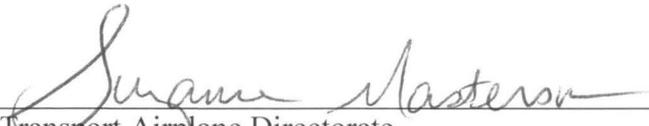
Section 25.791(a) requires that if smoking is to be prohibited, there must be at least one placard so stating that is legible to each person seated in the cabin. The intent of these placards is to continuously remind the occupants that smoking is prohibited. A continuously illuminated “No Smoking” sign that is legible to each person seated in the cabin would also inform the occupants of the smoking prohibition. Acceptability of this equivalent level of safety is predicated upon the continuous illumination being accomplished without adversely impacting essential bus loads, isolation requirements, etc.

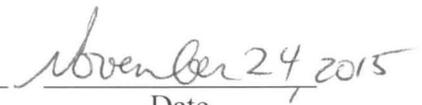
**FAA approval and documentation of the ELOS**

The FAA has approved the aforementioned equivalent level of safety finding in Issue Paper CS-12 or Administrative Collector Issue Paper G-6. This memorandum provides standardized documentation of the ELOS that is non-proprietary and can be made available to the public. The TAD has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieval of this ELOS. This ELOS Memorandum number should be listed in the type certificate data sheet under the Certification Basis section. An example of an appropriate statement is provided below.

Equivalent safety findings have been made for the following regulation:

§ 25.791(a) Lighted "No Smoking" Signs in Lieu of Placards (documented in TAD ELOS Memo TC6918SE-T-CS-12)

  
Transport Airplane Directorate  
Aircraft Certification Service

  
Date

ELOS Originated by Seattle ACO:	George L. Panger	ANM-150S
------------------------------------	------------------	----------