Federal Aviation Administration, DOT

\[ I_e = \frac{\int_{t_1}^{t_2} I(t) \, dt}{0.2 + (t_2 - t_1)} \]

where:
\( I_e \) = effective intensity (candles).
\( I(t) \) = instantaneous intensity as a function of time.
\( t_2 - t_1 \) = flash time interval (seconds).

Normally, the maximum value of effective intensity is obtained when \( t_2 \) and \( t_1 \) are chosen so that the effective intensity is equal to the instantaneous intensity at \( t_2 \) and \( t_1 \).

(f) Minimum effective intensities for anticollision lights. Each anticollision light effective intensity must equal or exceed the applicable values in the following table.

<table>
<thead>
<tr>
<th>Angle above or below the horizontal plane</th>
<th>Effective intensity (candles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° to 5°</td>
<td>400</td>
</tr>
<tr>
<td>5° to 10°</td>
<td>240</td>
</tr>
<tr>
<td>10° to 20°</td>
<td>80</td>
</tr>
<tr>
<td>20° to 30°</td>
<td>40</td>
</tr>
<tr>
<td>30° to 75°</td>
<td>20</td>
</tr>
</tbody>
</table>

§ 23.1414 Pneumatic de-icer boot system.

If certification with ice protection provisions is desired and a pneumatic de-icer boot system is installed—
(a) The system must meet the requirements specified in §23.1419.
(b) The system and its components must be designed to perform their intended function under any normal system operating temperature or pressure, and
(c) Means to indicate to the flight crew that the pneumatic de-icer boot system is receiving adequate pressure and is functioning normally must be provided.

§ 23.1414 Ice protection.

If certification with ice protection provisions is desired, compliance with the requirements of this section and other applicable sections of this part must be shown:
(a) An analysis must be performed to establish, on the basis of the airplane’s operational needs, the adequacy of the ice protection system for the various components of the airplane. In addition, tests of the ice protection system must be conducted to demonstrate that the airplane is capable of operating safely in continuous maximum and intermittent maximum icing conditions, as described in appendix C of part 25 of this chapter. As used in this section, “Capable of operating safely” means that airplane performance, controllability, maneuverability, and stability must not be less than that required in part 23, subpart B.
§ 23.1431
(b) Except as provided by paragraph (c) of this section, in addition to the analysis and physical evaluation prescribed in paragraph (a) of this section, the effectiveness of the ice protection system and its components must be shown by flight tests of the airplane or its components in measured natural atmospheric icing conditions and by one or more of the following tests, as found necessary to determine the adequacy of the ice protection system—

1. Laboratory dry air or simulated icing tests, or a combination of both, of the components or models of the components.

2. Flight dry air tests of the ice protection system as a whole, or its individual components.

3. Flight test of the airplane or its components in measured simulated icing conditions.

(c) If certification with ice protection has been accomplished on prior type certificated airplanes whose designs include components that are thermodynamically and aerodynamically equivalent to those used on a new airplane design, certification of these equivalent components may be accomplished by reference to previously accomplished tests, required in §23.1419 (a) and (b), provided that the applicant accounts for any differences in installation of these components.

(d) A means must be identified or provided for determining the formation of ice on the critical parts of the airplane. Adequate lighting must be provided for the use of this means during night operation. Also, when monitoring of the external surfaces of the airplane by the flight crew is required for operation of the ice protection equipment, external lighting must be provided that is adequate to enable the monitoring to be done at night. Any illumination that is used must be of a type that will not cause glare or reflection that would handicap crewmembers in the performance of their duties. The Airplane Flight Manual or other approved manual material must describe the means of determining ice formation and must contain information for the safe operation of the airplane in icing conditions.

§ 23.1435
(a) Design. Each hydraulic system must be designed as follows:

MISCELLANEOUS EQUIPMENT
§ 23.1431 Electronic equipment.
(a) In showing compliance with §23.1309(a), (b), and (c) with respect to radio and electronic equipment and their installations, critical environmental conditions must be considered.

(b) Radio and electronic equipment, controls, and wiring must be installed so that operation of any unit or system of units will not adversely affect the simultaneous operation of any other radio or electronic unit, or system of units, required by this chapter.

(c) For those airplanes required to have more than one flightcrew member, or whose operation will require more than one flightcrew member, the cockpit must be evaluated to determine if the flightcrew members, when seated at their duty station, can converse without difficulty under the actual cockpit noise conditions when the airplane is being operated. If the airplane design includes provision for the use of communication headsets, the evaluation must also consider conditions where headsets are being used. If the evaluation shows conditions under which it will be difficult to converse, an intercommunication system must be provided.

(d) If installed communication equipment includes transmitter “off-on” switching, that switching means must be designed to return from the “transmit” to the “off” position when it is released and ensure that the transmitter will return to the off (non transmitting) state.

(e) If provisions for the use of communication headsets are provided, it must be demonstrated that the flightcrew members will receive all aural warnings under the actual cockpit noise conditions when the airplane is being operated when any headset is being used.

§ 23.1435 Hydraulic systems.
(a) Design. Each hydraulic system must be designed as follows: