and a single LRCS may be authorized by the Administrator and approved in the certificate holder’s operations specifications for operations and routes in certain geographic areas. The following are among the operational factors the Administrator may consider in granting an authorization:

1. The ability of the flightcrew to navigate the airplane along the route within the degree of accuracy required for ATC,
2. The length of the route being flown, and
3. The duration of the very high frequency communications gap.

§ 121.353 Emergency equipment for operations over uninhabited terrain areas: Flag, supplemental, and certain domestic operations.

Unless the airplane has the following equipment, no person may conduct a flag or supplemental operation or a domestic operation within the States of Alaska or Hawaii over an uninhabited area or any other area that (in its operations specifications) the Administrator specifies required equipment for search and rescue in case of an emergency:

(a) Suitable pyrotechnic signaling devices.
(b) An approved survival type emergency locator transmitter. Batteries used in this transmitter must be replaced (or recharged, if the battery is rechargeable) when the transmitter has been in use for more than 1 cumulative hour or when 50 percent of their useful life (or for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval. The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.
(c) Enough survival kits, appropriately equipped for the route to be flown for the number of occupants of the airplane.

§ 121.354 Terrain awareness and warning system.

(a) Airplanes manufactured after March 29, 2002. No person may operate a turbine-powered airplane unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard Order (TSO)–C151. The airplane must also include an approved terrain situational awareness display.

(b) Airplanes manufactured on or before March 29, 2002. No person may operate a turbine-powered airplane after March 29, 2005, unless that airplane is equipped with an approved terrain awareness and warning system that meets the requirements for Class A equipment in Technical Standard Order (TSO)–C151. The airplane must also include an approved terrain situational awareness display.

(c) Airplane Flight Manual. The Airplane Flight Manual shall contain appropriate procedures for—
1. The use of the terrain awareness and warning system; and
2. Proper flight crew reaction in response to the terrain awareness and warning system audio and visual warnings.

§ 121.355 Equipment for operations on which specialized means of navigation are used.

(a) No certificate holder may conduct an operation—
1. Using Doppler Radar or an Inertial Navigation System outside the 48 contiguous States and the District of Columbia, unless such systems have been approved in accordance with appendix G to this part; or
§ 121.356 Collision avoidance system.

Effective January 1, 2005, any airplane you operate under this part must be equipped and operated according to the following table:

<table>
<thead>
<tr>
<th>COLLISION AVOIDANCE SYSTEMS</th>
<th>If you operate any—</th>
<th>Then you must operate that airplane with—</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Turbine-powered airplane of more than 33,000 pounds maximum certificated take-off weight.</td>
<td>(1) An appropriate class of Mode S transponder that meets Technical Standard Order (TSO) C–112, or a later version, and one of the following approved units:</td>
<td>(1) TCAS I that meets TSO C–118, or a later version, or</td>
</tr>
<tr>
<td></td>
<td>(i) TCAS II that meets TSO C–119b (version 7.0), or takeoff weight a later version.</td>
<td>(2) A collision avoidance system equivalent to maximum TSO C–118, or a later version, or</td>
</tr>
<tr>
<td></td>
<td>(ii) TCAS II that meets TSO C–119a (version 6.04A Enhanced) that was installed in that airplane before May 1, 2003. If that TCAS II version 6.04A Enhanced no longer can be repaired to TSO C–119a standards, it must be replaced with a TCAS II that meets TSO C–119b (version 7.0), or a later version.</td>
<td>(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section.</td>
</tr>
<tr>
<td>(b) Passenger or combination cargo/passenger (combi) airplane that has a passenger seat configuration of 10–30 seats.</td>
<td>(1) TCAS I that meets TSO C–118, or a later version, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) A collision avoidance system equivalent to has a TSO C–118, or a later version, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) A collision avoidance system and Mode S transponder that meet paragraph (a)(1) of this section.</td>
<td></td>
</tr>
</tbody>
</table>

§ 121.357 Airborne weather radar equipment requirements.

(a) No person may operate any transport category airplane (except C–46 type airplanes) or a nontransport category airplane certificated after December 31, 1964, unless approved airborne weather radar equipment has been installed in the airplane.

(b) [Reserved]

(c) Each person operating an airplane required to have approved airborne weather radar equipment installed shall, when using it under this part, operate it in accordance with the following:

(1) Dispatch. No person may dispatch an airplane (or begin the flight of an airplane in the case of a certificate holder, that does not use a dispatch system) under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment is in satisfactory operating condition.

(2) If the airborne weather radar becomes inoperative en route, the airplane must be operated in accordance with the approved instructions and procedures specified in the operations manual for such an event.

(d) This section does not apply to airplanes used solely within the State of Hawaii or within the State of Alaska and that part of Canada west of longitude 130 degrees W, between latitude 70 degrees N, and latitude 53 degrees N, or during any training, test, or ferry flight.