



Technical Standard Order

**Subject: TSO-C104, MICROWAVE LANDING SYSTEM (MLS)
AIRBORNE RECEIVING EQUIPMENT**

a. Applicability.

(1) Minimum Performance Standard. This Technical Standard Order (TSO) prescribes the minimum performance standards that the time reference scanning beam MLS receiving equipment must meet in order to be identified with the applicable TSO marking. This TSO has been prepared in accordance with the procedural rules set forth in Subpart O of the Federal Aviation Regulations (FAR) Part 21. Models of MLS receiving equipment that are to be so identified and that are manufactured on or after the date of this TSO must meet the standards set forth in Radio Technical Commission for Aeronautics (RTCA) Document No. DO-177, "Minimum Operational Performance Standards for Microwave Landing System (MLS) Airborne Receiving Equipment," Section Two (2), dated July 1981, and Change 1 to DO-177, dated March 16, 1982.

(2) If the equipment design implementation includes a digital computer, an acceptable means of compliance for validation and verification of the computer software package is contained in RTCA/DO-178, "Software Considerations in Airborne Systems and Equipment Certification," November 18, 1981.

b. Marking.

(1) In addition to the marking specified in FAR § 21.607 (d), the following information shall be legibly and permanently marked on the equipment:

(i) The environmental categories in which it has been qualified to operate in accordance with RTCA document DO-160A.

(ii) The TSO output class marking is as follows:

<u>Class</u>	<u>Output as defined in Table 2-1, DO-177</u>
A	Electrical A

<u>Class</u>	<u>Output as defined in Table 2-1, DO-177</u>
B	Electrical B
C	Visual
D	Basic Electrical
D(V)	Basic Electrical intended for visual indicator user only.

(2) Each separate component of equipment (antenna, receiver, controller, etc.) must be permanently and legibly marked with at least the name of the manufacturer, the TSO number, digital computer software version, TSO output class, and the environmental categories over which it has been tested.

c. Data Requirements. In accordance with FAR § 21.605, the manufacturer must furnish the Chief, Aircraft Certification Office (ACO), Federal Aviation Administration, in the region in which the manufacturer is located, one copy of each of the following technical data:

- (1) Operating instructions.
- (2) Equipment limitations.
- (3) Installation procedures and limitations.
- (4) Schematic drawings.
- (5) Wiring diagrams.
- (6) Specifications.
- (7) Equipment calibration and maintenance procedures, which may be submitted within 6 months after production begins or within 6 months after TSO authorization is granted, whichever occurs first.
- (8) List of the components (by part number) that make up the equipment system complying with standards prescribed in this TSO.
- (9) A drawing list, enumerating all the drawings and processes that are necessary to define the article design.
- (10) Manufacturer's TSO qualification test report.
- (11) Copy of the functional test specification to be used to test each production article to ensure compliance with this TSO.
- (12) Copy of nameplate drawing.

d. Data to be furnished with manufactured units. One copy of the data and information specified in paragraphs (c)(1) through (8) of this section must go to each person receiving, for use, one or more articles manufactured under this TSO.

e. Availability of Reference Documents.

(1) Copies of RTCA Document No. DO-177 and Change 1, DO-178 and DO-160A may be purchased from the Radio Technical Commission for Aeronautics Secretariat, 1717 H Street, N.W., Washington, D.C. 20006.

(2) Federal Aviation Regulations Part 21, Subpart O, and Advisory Circular 20-110, "Index of Aviation Technical Standard Orders;" may be reviewed at FAA Headquarters in the Office of Airworthiness, Aircraft Engineering Division (AWS-100), and at all regional ACO's.

/S/ M. C. BEARD
Director of Airworthiness