



Number: CTSO-C102

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Approved by: Xu Chaoqun

## China Civil Aviation Technical Standard Order

This China Civil Aviation Technical Standard Order (CTSO) is issued according to Part 37 of the China Civil Aviation Regulations (CCAR-37). Each CTSO is a criterion which the concerned aeronautical materials, parts or appliances used on civil aircraft must comply with when it is presented for airworthiness certification.

### Airborne Radar Approach and Beacon Systems for Helicopters

#### **1. Purpose.**

This China Civil Aviation Technical Standard Order (CTSO) is for manufacturers applying for Airborne Radar Approach and Beacon Systems for Helicopters CTSO authorization (CTSOA). This CTSO prescribes the minimum performance standards(MPS) that Airborne Radar Approach and Beacon Systems for Helicopters must first meet for approval and identification with the applicable CTSO marking.

#### **2. Applicability.**

This CTSO affects new application submitted after its effective date. Major design changes to article approved under this CTSO will require a new authorization in accordance with section 21.353 of CCAR-21R4.

#### **3. Requirements**

New models of airborne radar approach systems for helicopters that are to be so identified and that are manufactured on or after the date of

this CTSO must meet the standards set forth in Section Two, Radio Technical Commission for Aeronautics (RTCA) Document No. DO-172, “Minimum Operational Performance Standards for Airborne Radar Approach and Beacon Systems for Helicopters,” dated November 1980, and Change 1, dated March 25, 1983.

a. Addition.

(1) If the equipment design implementation includes a digital computer, the computer software package must be validated and verified in a manner acceptable to the Administrator. An acceptable means of compliance for validation and verification of the computer software package is contained in RTCA/DO-178B, “Software Considerations in Airborne Systems and Equipment Certification ” , dated December 1, 1992.

b. Exceptions.

The provisions of paragraph 3.0, Beacon Requirements, of Section Three of RTCA Document No.DO-172 pertain to ground-based equipment and, therefore, are excluded from this TSO.

c. Environmental Standards.

Demonstrate the required performance under the test conditions specified in RTCA/DO-160E, titled Environmental Conditions and Test Procedures for Airborne Equipment, using standard environmental conditions and test procedures appropriate for airborne equipment.

Applicant may use a different standard environmental condition and test procedure than RTCA/DO-160E, provided the standard is appropriate for Airborne Radar Approach and Beacon Systems for Helicopters.

#### **4. Marking.**

a. Mark at least one major component permanently and legibly with all the information in 21.423(b) of CCAR-21-R4. The marking must include the serial number.

b. The environmental categories in which it has been qualified to operate in accordance with RTCA document DO-160E.

c. Each separate component of equipment that is manufactured under this CTSO (antenna, receiver, transmitter, etc.) must be permanently and legibly marked with at least the name of the manufacturer and the CTSO number.

d. The part number is to include hardware and software identification or a separate part number may be utilized for hardware and software. Either approach must include a means for showing modification status.

#### **5. Application Data Requirements.**

The applicant must furnish the responsible certification personnel with the related data to support design and production approval. The application data include a statement of conformance as specified in

section 21.353(a)(1) in CCAR-21-R4 and one copy each of the following technical data:

- a. Operating instructions.
- b. Equipment limitations.
- c. Installation procedures and limitations.
- d. Schematic drawings as applicable to the installation procedures.
- e. Wiring diagrams as applicable to the installation procedures.
- f. Specifications.
- g. List of the major components (by part number) that make up the equipment system complying with the standards prescribed in this CTSO.
- h. Manufacturer's TSO qualification test report.
- i. Nameplate drawing.

## **6. Manufacturer Data Requirements.**

Besides the data given directly to the authorities, have the following technical data available for review by the authorities:

- a. A drawing list, enumerating all of the drawings and processes that are necessary to define the article design.
- b. The functional test specification to be used to test each production article to ensure compliance with this CTSO.
- c. Equipment calibration procedures.
- d. Corrective maintenance procedures (within 12 months after CTSO

authorization).

e. Schematic drawings.

f. Wiring diagrams.

## **7. Furnished Data Requirements.**

If furnishing one or more articles manufactured under this CTSO to one entity (such as an operator or repair station), provide one copy or technical data and information specified in paragraphs(c)(1)(i) through (vii) of this CTSO. Add any data needed for the proper installation, certification, use, or for continued compliance with the CTSO.

## **8. Availability of Referenced Documents.**

Order RTCA documents from:

Radio Technical Commission for Aeronautics, Inc.

1150 18th Street NW, Suite 910, Washington D.C. 20036

You may also order them online from the RTCA Internet website at:

[www.rtca.org](http://www.rtca.org).