



Number: CTSO-C105

Date of approval: Jun 4, 2019

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.

### Optional Display Equipment For Weather And Ground Mapping Radar

#### Indicators

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

This China Civil Aviation Technical Standard Order (CTSO) is for manufacturers applying for optional display equipment for weather and ground mapping radar indicators CTSO authorization (CTSOA). This CTSO prescribes the minimum performance standards (MPS) that optional display equipment for weather and ground mapping radar indicators 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**

Optional display equipment for weather and ground mapping radar indicators 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, RTCA/DO-174, Minimum Operational Performance Standards for Optional Equipment which Displays Non-Radar Derived Data on Weather and Ground Mapping Indicators, dated March 1981.

**a. Environmental Qualification.**

Demonstrate the required performance under the test conditions specified in RTCA/DO-160E or above version, using standard environmental conditions and test procedures appropriate for airborne equipment.

**Note: The use of RTCA/DO-160D (with Changes 1 and 2 only, incorporated) or earlier versions is generally not considered appropriate and will require substantiation via the deviation process as discussed in paragraph 3.d of this CTSO.**

**b. Software Qualification.**

If the article includes software, develop the software according to RTCA/DO-178B, Software Considerations in Airborne Systems and Equipment Certification, dated December 1, 1992.

**Note: The certification liaison process objectives will be considered satisfied after CAAC reviews of the applicable life cycle**

**data.**

c. Electronic Hardware Qualification.

If the article includes complex custom airborne electronic hardware, develop the component according to RTCA/DO-254, dated April 19, 2000, Design Assurance Guidance for Airborne Electronic Hardware. For custom airborne electronic hardware determined to be simple, RTCA/DO-254, paragraph 1.6 applies.

d. Deviations.

For using alternative or equivalent means of compliance to the criteria in this CTSO, the applicant must show that the equipment maintains an equivalent level of safety. Apply for a deviation under the provision of 21.368 (a) in CCAR-21-R4.

**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. Also, mark the following permanently and legibly, with at least the manufacturer's name, subassembly part number, and the CTSO number:

(1) Each component that is easily removable (without hand tools);  
and,

(2) Each subassembly of the article that manufacturer determined may be interchangeable.

c. Permanently legible marking of the main components shall be in accordance with the environmental class of the RTCA/ DO-160E or above for environmental identification.

d. If the article includes software and/or airborne electronic hardware, then the article part numbering scheme must identify the software and airborne electronic hardware configuration. The part numbering scheme can use separate, unique part numbers for software, hardware, and airborne electronic hardware.

## **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-21R4 and one copy each of the following technical data:

- a. Operating instructions.
- b. Equipment limitations.
- c. Installation procedures and limitations.
- d. Schematic, Wiring and other necessary documents of the installation procedures.

- e. Material and process specifications list.
- f. List of the major components (by part number) that make up the equipment system complying with the standards prescribed in this CTSO.
- g. Manufacturer's CTSO qualification test report.
- h. Nameplate drawing with the information required by paragraph 4 of this CTSO.

## **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 specifications 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 5.a and 5.f of this CTSO, and 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).