FEDERAL AVIATION AGENCY
FLIGHT STANDARDS SERVICE
Washington 25, D. C.

March 8, 1962

REGULATIONS OF THE ADMINISTRATOR DRAFT RELEASE NO. 62-10

SUBJECT: Revision to Technical Standard Orders C37a "VHF Radio Communications Transmitting Equipment" and C38a "VHF Radio Communications Receiving Equipment"

The Flight Standards Service of the Federal Aviation Agency has under consideration amendments to Part 514 of the Regulations of the Administrator to revise Technical Standard Orders C37a "VHF Radio Communications Transmitting Equipment" and C38a "CHF Radio Communications Receiving Equipment." The reasons therefor are set forth in the explanatory statement of the attached proposal which is being published in the Federal Register as a notice of proposed rule making.

The Flight Standards Service desires that all persons who will be affected by the requirements of this proposal be fully informed as to its effect upon them and is therefore circulating copies in order to afford interested persons ample opportunity to submit comments as they may desire.

Because of the large number of comments which we anticipate receiving in response to this draft release, we will be unable to acknowledge receipt of each reply. However, you may be assured that all comment will be given careful consideration.

It should be noted that comments should be submitted, preferably in duplicate, to the Docket Section of the Federal Aviation Agency, and in order to insure consideration must be received on or before April 30, 1962.

ACTING Director
Flight Standards Service

FEDERAL AVIATION AGENCY

FLIGHT STANDARDS SERVICE

(14 CFR 514)

[Regulatory Docket No. 1103; Draft Release No. 62–10]

NOTICE OF PROPOSED RULE MAKING

Technical Standard Orders for Aircraft Materials Parts, Processes and Appliances

Pursuant to the authority delegated to me by the Administrator (14 CFR Part 405) notice is hereby given that the Federal Aviation Agency has under consideration a proposal to revise Sections 514.62 and 514.63 of Part 514 of the Regulations of the Administrator (14 CFR Part 514) by adding new technical standard orders. These Technical Standard Orders establish minimum performance standards for VHF radio communication transmitting and receiving equipment to be used on civil aircraft of the United States engaged in air carrier operations.

The amendments are proposed to bring the technical standard orders into accord with the revised frequency deployment plans now being implemented by the Federal Aviation Agency; as well as to incorporate new environmental test procedures which were developed to be more compatible with existing and anticipated aircraft environmental conditions in which the equipment will be operated.

Interested persons may participate in the making of the proposed rule by submitting such written data, views or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, Room C–226, 1711 New York Avenue, N.W., Washington 25, D.C. All communications received on or before April 30, 1962, will be considered by the Administrator before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received. All comments submitted will be available in the Docket Section for examination by interested persons when the prescribed date for return of comments has expired.

This amendment is proposed under the authority of Sections 313(a) and 601 of the Federal Aviation Act of 1958 (72 Stat. 752, 775; 49 U.S.C. 1354(a), 1421).

In consideration of the foregoing it is proposed to amend Part 514 as follows:

By revising Sections 514.62 and 514.63 to read as follows:

1. § 514.62 *VHF radio communications transmitting equipment operating within the radio-frequency range of 118–136 megacyces—TSO–C37b.*

(a) *Applicability.*

(1) *Minimum performance standards.* Minimum performance standards are hereby established for airborne VHF radio communications transmitting equipment operating within the radio-frequency range of 118–136 megacycles which is to be used on civil aircraft of the United States engaged in air carrier operations. New models of airborne VHF radio communications transmitting equipment manufactured for use on air carrier aircraft on or after (the effective date of this section)* shall meet the standards as set forth in Radio Technical Commission for Aeronautics Papers 134–61/DO–110[1] dated July 13, 1961, and 120 61/DO–108[1] dated July 13, 1961, with the exceptions to these standards listed in subparagraph (2) of this paragraph.

(2) *Exceptions.*

(i) Only VHF transmitters which are designed for selection of frequency channels on discrete frequencies spaced 50 kc. apart or closer are eligible under this section.

(ii) Radio Technical Commission for Aeronautics Paper 120–61/DO–108 outlines various test procedures with categories which define the environmental extremes over which the equipment is designed to operate. Only equipment which meets the operating requirements of the following categories as specified in RTCA Paper 120–61/DO–108 is eligible under this section:

(*a*) Temperature-Altitude Test—Categories A, B, C, or D;

(*b*) Humidity Test—Categories A or B;

(*c*) Vibration Test—Categories A, B, C, D, E, or F;

(*d*) Conducted Audio-Frequency Susceptibility Test—Categories A or B;

[1] Copies of these papers may be obtained from the RTCA Secretariat, Room 1072, T–5 Building, 16th and Constitution Avenue, N.W., Washington 25, D.C. Paper 134–61/DO–110, 40 cents per copy; Paper 120–61/DO–108, 75 cents per copy.

*The effective date will be 90 days after publication of the adopted rule.

(e) Radio-Frequency Susceptibility Test—Category A, and

(f) Emission of Spurious Radio-Frequency Energy Test—Category A.

(b) *Marking.*

(1) In addition to the markings specified in § 514.3 the equipment shall be marked to indicate the environmental extremes over which it has been designed to operate. There are seven environmental test procedures outlined in RTCA Paper 120-61 DO-108 which have categories established. These shall be identified on the nameplate by the words "environmental categories" or, as abbreviated, "Env. Cat." followed by seven letters which identify the categories designated in RTCA Paper 120-61 DO-108. Reading from left to right, the category designations shall appear on the nameplate in the following order, so that they may be readily identified:

(i) Temperature-Altitude Test Category;

(ii) Humidity Test Category;

(iii) Vibration Test Category;

(iv) Conducted Audio-Frequency Susceptibility Test Category;

(v) Radio-Frequency Susceptibility Test Category;

(vi) Emission of Spurious Radio-Frequency Energy Test Category, and

(vii) Explosion Test.

Equipment which meets the explosion test requirement shall be identified by the letter "E". Equipment which does not meet the explosion test requirement shall be identified by the letter "X".

(2) Each major component of equipment (antenna, power supply, etc.) shall be identified with at least the manufacturer's name, TSO number, and the environmental categories over which the equipment is designed to operate.

NOTE.—A typical nameplate identification would be as follows: Env. Cat. DABAAAX.

(c) *Data requirements.*

(1) The manufacturer shall maintain a current file of complete design data.

(2) The manufacturer shall maintain a current file of complete data describing the inspection and test procedures applicable to his product. (See paragraph (d) of this section.)

(3) Six copies each, except where noted, of the following shall be furnished to the Chief, Engineering and Manufacturing Division, Flight Standards Service, Federal Aviation Agency, Washington 25, D.C.:

(i) Manufacturer's operating instructions and equipment limitations.

(ii) Installation procedures with applicable schematic drawings, wiring diagrams, and specifications. Indicate any limitations, restrictions, or other conditions pertinent to installation.

(iii) One copy of the manufacturer's test report.

(d) *Quality control.* Airborne VHF radio communications transmitting equipment shall be produced under a quality control system, established by the manufacturer, which will assure that each equipment is in conformity with the requirements of this section and is in a condition for safe operation. This system shall be described in the data required under paragraph (c)(2) of this section. A representative of the Administrator shall be permitted to make such inspections and tests at the manufacturer's facility as may be necessary to determine compliance with the requirements of this section.

(e) *Previously approved equipment.* Airborne VHF radio communications transmitting equipment approved prior to the effective date of this section may continue to be manufactured under the provisions of its original approval.

2. § 514.63 *VHF radio communications receiving equipment operating within the radio-frequency range of 118–136 megacycles—TSO–C38b.*

(a) *Applicability.*

(1) *Minimum performance standards.* Minimum performance standards are hereby established for VHF radio communications receiving equipment operating within the radio-frequency range of 118–136 megacycles which is to be used on civil aircraft of the United States engaged in air carrier operations. New models of airborne VHF radio communications receiving equipment manufactured for use on air carrier aircraft on or after (the effective date of this section)* shall meet the standards as set forth in Radio Technical Commission for Aeronautics Papers 130–61/DO–109[3] dated July 13, 1961, and 120–61/DO–108[3] dated July 13, 1961, with the exceptions to these standards listed in subparagraph (2) of this paragraph.

(2) *Exceptions.*

(i) Radio Technical Commission for Aeronautics Paper 130–61/DO–109, Paragraph 2.8, Selectivity, outlines selectivity requirements for receivers designed for selection of frequency channels in discrete increments of 50 kc. or 100 kc. Only VHF transmitters which are designed for selection of frequency channels on discrete frequencies spaced 50 kc. apart or closer are eligible under this section.

(ii) Radio Technical Commission for Aeronautics Paper 120–61/DO–108 outlines various test procedures with categories which define the environmental extremes over which the equipment is designed to operate. Only equipment which meets the operating requirements of the following categories as specified in RTCA

[3] Copies of these papers may be obtained from the RTCA Secretariat, Room 1072, T–5 Building, 16th and Constitution Avenue, N.W., Washington 25, D.C. Paper 130–61/DO–109, 45 cents per copy; Paper 120–61/DO–108, 75 cents per copy.

*The effective date will be 90 days after publication of the adopted rule.

Paper 120–61/DO–108 is eligible under this section:

(a) Temperature-Altitude Test—Categories A, B, C, or D;

(b) Humidity Test—Categories A or B;

(c) Vibration Test—Categories A, B, C, D, E, or F;

(d) Conducted Audio-Frequency Susceptibility Test—Categories A or B;

(e) Radio-Frequency Susceptibility Test—Category A, and

(f) Emission of Spurious Radio-Frequency Energy Test—Category A.

(b) *Marking.*

(1) In addition to the markings specified in § 514.3, the equipment shall be marked to indicate the environmental extremes over which it has been designed to operate. Thre are seven environmental test procedures outlined in RTCA Paper 120–61/DO–108 which have categories established. These shall be identified on the nameplate by the words "environmental categories" or, as abbreviated, "Env. Cat." followed by seven letters which identify the categories designated in RTCA Paper 120–61/DO–108. Reading from left to right the category designations shall appear on the nameplate in the following order, so that they may be readily identified:

(i) Temperature-Altitude Test Category;

(ii) Humidity Test Category;

(iii) Vibration Test Category;

(iv) Conducted Audio-Frequency Susceptibility Test Category;

(v) Radio-Frequency Susceptibility Test Category;

(vi) Emission of Spurious Radio-Frequency Energy Test Category, and

(vii) Explosion Test.

Equipment which meets the explosion test requirement shall be identified by the letter "E". Equipment which does not meet the explosion test requirement shall be identified by the letter "X".

(2) Each major component of equipment (antenna, power supply, etc.) shall be identified with at least the manufacturer's name, TSO number, and the environmental categories over which the equipment is designed to operate.

NOTE.—A typical nameplate identification would be as follows: Env. Cat. DABAAAX.

(c) *Data requirements.*

(1) The manufacturer shall maintain a current file of complete design data.

(2) The manufacturer shall maintain a current file of complete data describing the inspection and test procedures applicable to his product. (See paragraph (d) of this section.)

(3) Six copies each, except where noted, of the following shall be furnished to the Chief, Engineering and Manufacturing Division, Flight Standards Service, Federal Aviation Agency, Washington 25, D. C.:

(i) Manufacturer's operating instructions and equipment limitations.

(ii) Installation procedures with applicable schematic drawings, wiring diagrams, and specifications. Indicate any limitations, restrictions, or other conditions pertinent to installation.

(iii) One copy of the manufacturer's test report.

(d) *Quality control.* Airborne VHF radio communications receiving equipment shall be produced under a quality control system established by the manufacturer, which will assure that each equipment is in conformity with the requirements of this section and is in a condition for safe operation. This system shall be described in the data required under paragraph (c)(2) of this section. A representative of the Administrator shall be permitted to make such inspections and tests at the manufacturer's facility as may be necessary to determine compliance with the requirements of this section.

(e) *Previously approved equipment.* Airborne VHF radio communications receiving equipment approved prior to the effective date of this section may continue to be manufactured under the provisions of its original approval.

Acting Director
Flight Standards Service

Issued in Washington, D.C., on March 8, 1962.

P 0284